

THE BUILDING ORDINANCE
of the
CITY OF PROVIDENCE

Providence, Rhode Island

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PREFACE

The Providence City Council on November 21, 1941 approved the following Resolution No. 309:

RESOLUTION OF THE CITY COUNCIL

No. 309

Approved November 12, 1941

Resolved,

That His Honor The Mayor is hereby authorized and directed to appoint a committee to be known as the "Building Code Revision Committee" of the City of Providence. Said Building Code Revision Committee shall consist of eleven members to be appointed by His Honor the Mayor, as follows:-

One member representing the local
Chapter American Society of Civil
Engineers,

One member representing the local
Chapter of the American Institute
of Architects,

One member representing the local
Chapter Associated General Contractors
of America,

One member representing the Factory
Mutual Insurance Companies,

One member representing the Building
Insurance Underwriters,

One member representing the Providence
Real Estate Exchange,

One Councilman representing the
City Council,

A member of the Building Ordinance
Board of Review,

The Chief of the Providence Fire
Department,

One member representing the Science
Department of Providence College,

One member representing the Engineering
Division of Brown University.

Said members shall serve during the pleasure of His
Honor the Mayor, and in the event of a vacancy for any cause, the
same shall be filled by His Honor the Mayor. The members shall serve
until the first Monday in January, 1943, unless their work is sooner
completed by the adoption of a revised building code by the City
Council of the City of Providence.

The member of the Building Ordinance Board of Review
shall act as Chairman of said Building Code Revision Committee, and
the Inspector of Buildings shall act as Secretary of said Committee,
and shall prepare a new code under the direction of said Committee.

The Building Code Revision Committee shall proceed to
select the material for compilation and recommendation from the
following technical organizations that have approved regulations or
standards as follows:-

- (a) The U. S. Bureau of Standards
- (b) American Concrete Institute
- (c) American Institute of Steel Construction
- (d) The American Society for Testing Materials
- (e) The American Society of Heating and Venti-
lating Engineers
- (f) The American Standards Association
- (g) The American Welding Society
- (h) The Heating, Piping and Air Conditioning
Contractors' National Association
- (i) The National Board of Fire Underwriters
- (j) The National Fire Prevention Bureau
- (k) Underwriters Laboratories
- (l) Department of Commerce
- (m) The Uniform Building Code by the New
England Building Officials Conference

- (n) The Uniform Building Code by the Pacific Coast Building Officials Conference adopted by 258 cities ranging from small cities to cities of 450,000 population
- (o) Codes recently adopted by cities of 150,000 to 500,000 population.

Upon the completion of its labors, said Committee shall present to the City Council a proposed building code with its recommendations.

A true copy,
Attest:

(Signed) W. Earl Dodd
W. Earl Dodd,
City Clerk.

In accordance with the terms of the above Resolution, His Honor the Mayor, Dennis J. Roberts, appointed, with the approval of the City Council, the following members to serve on the Committee:

Chairman

Henry V. Collins - representing
the General Contractors of the
City of Providence.

Vice-Chairman

Prof. Leighton T. Bohl, repre-
senting the Engineering Division of
Brown University.

Secretary

Alexander Addeo - Inspector of
Buildings, City of Providence

Other Members

Clarence K. Appleby - representing the
Stock Fire Insurance Companies.

Robert L. Bowen - representing the
R. I. Chapter, American Society of
Civil Engineers.

Alton C. Chick - representing the
Factory Mutual Insurance Companies.

Thomas H. Coe - representing the
R. I. Chapter Associated General
Contractors of America.

Thomas H. Cotter - Chief of the
Providence Fire Department.

Albert Harkness - representing the
R. I. Chapter, American Institute of
Architects.

Charles J. Mason - representing the
Providence Real Estate Board.

John W. Moakler, Jr. - representing
the Providence City Council.

Rev. William A. Sullivan, O. P. -
representing the Science Department
of Providence College.

Anthony Viola, Jr. - representing the
Contractors engaged in the construction
of homes.

Reverend William A. Sullivan, O. P. found it necessary to resign
on February 8, 1943 because of an appointment in another state, and
on October 21, 1943 the City Council appointed John W. Moakler, Jr. as
its representative.

All other members of the committee served continuously from the
date of their original appointment until the completion of the
preparation of the Building Code in 1950.

As a basis for developing this new Code, the Committee used the
Basic Building Code prepared by the Building Officials Conference of
America.

It was the purpose of the Committee to write a code which would
be functional in its operation, and establish minimum safety require-
ments as determined by inherent structural, fire and sanitary hazards.

The Committee wishes to express its appreciation of the assistance
it has received from many individuals and organizations (local and
national) in furnishing material and personal services in the preparation
of the Code.

Particularly, the Committee wishes to thank Professor Paul N.
Kistler of Brown University who gave a great amount of time working
with subcommittees on different parts of the Code.

Henry V. Collins, Chairman
Providence Building Code
Revision Committee.

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ARTICLE 8 - MATERIALS AND GENERAL CONSTRUCTION REQUIREMENTS

PART B

STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

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ARTICLE 11 - HEATING EQUIPMENT AND APPLIANCES

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Chapter 1079
No 645 Approved December 21, 1956
Be It Ordained by the City of Providence:

ARTICLE 1 - ADMINISTRATION AND ENFORCEMENT

SEC. 100.0 - SCOPE.

SEC. 100.1 - TITLE. This ordinance shall be known as the Building Ordinance of the City of Providence. It shall control all matters concerning the construction, alteration, addition, repair, removal, demolition, use, location, occupancy, and maintenance of all buildings and other structures and their service equipment as herein defined and shall apply to existing, new or proposed buildings and other structures in the City of Providence, except as such matters are otherwise provided for in the Charter of the City of Providence, or by other ordinances or statutes, or by rules and ordinances authorized for promulgation under the provisions of this Code.

SEC. 100.2 - APPLICATION OF REFERENCES. Unless otherwise specifically provided in this Code, all references to article or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such article, section or provision of this Code.

SEC. 100.3 - CODE REMEDIAL. This Code shall be construed to secure its expressed intent and insure public safety, health and welfare insofar as they are affected by building and other structural construction, adequate egress facilities, sanitary equipment, light and ventilation and fire safety, and in general to secure safety to life and property from all hazard incident to the design, erection, repair, removal, demolition or use of and occupancy of buildings or other structures or premises.

SEC. 101.0 - MATTER COVERED

The provisions of this Code shall apply to all buildings and other structures and their appurtenant construction including vaults, area and street projections and accessory additions, and shall apply with equal force to all buildings and other structures.

SEC. 101.1 - MATTERS NOT PROVIDED FOR. Any requirement essential for structural, fire or sanitary safety of an existing or proposed building or other structure, or essential for the safety of the occupants thereof and which is not specifically covered by this Code, except as otherwise provided by other ordinances now or hereafter enacted shall be determined by the Director.

✓ SEC. 102.0 - CONTINUATION OF UNLAWFUL USE.

The continuation of occupancy or use of a building or other structure or a part thereof contrary to the provisions of this Code shall be deemed a violation and subject to the penalties prescribed in Section 122.0.

SEC. 103.0 - INSTALLATION OF SERVICE EQUIPMENT.

When the installation, extension, alteration or repair of an elevator, moving stairway, mechanical equipment, refrigeration, air conditioning or ventilation apparatus, plumbing, gas piping, electric wiring, heating system or any other equipment is specifically controlled by the provisions of this Code or the approved rules, it shall be unlawful to use such equipment until a certificate of approval has been issued therefor by the Director.

SEC. 104.0 - MAINTENANCE

All buildings and other structures and all parts thereof, both existing and new, shall be maintained in a safe and sanitary condition. All service equipment, devices and safeguards which are required by this Code in a building or other structure or which were required by a previous statute or ordinance in a building or other structure when erected, altered or repaired, shall be maintained in good working order.

SEC. 104.1 - OWNER'S RESPONSIBILITY. The owner or his designated agent shall be responsible for the safe and sanitary maintenance of the building or other structure and its service equipment at all times.

✓ SEC. 105.0 - CHANGE IN EXISTING USE.

✓ SEC. 105.1 - CONTINUATION OF EXISTING USE. The legal use and occupancy of any building or other structure existing on the date of enactment of this Code or for which it had been heretofore approved may be continued without change, except as may be specifically covered in this Code or as may be deemed necessary by the Director for the general safety of the public.

SEC. 105.2 - CHANGE IN USE. It shall be unlawful to make any change in the use of any building or other structure which would subject it to any special provisions of this Code without approval of the Director and his certification that such building or other structure meets the intent of the provisions of law governing buildings or structures for the proposed new use and occupancy and that such change does not result in any hazard to the general safety and public welfare.

SEC. 106.0 - EXISTING BUILDINGS OR OTHER STRUCTURES

Any existing building or other structure shall be made to conform to the full requirements of this Code for new buildings or other structures when alterations or repairs are made as provided in Section 106.1 and Section 106.2 following:

SEC. 106.1 - ALTERATIONS EXCEEDING FIFTY PER CENT. If alterations or repairs are made within any period of twelve (12) months, costing in excess of fifty (50) per cent of the physical value of the building or other structure at the time application for permit is made.

SEC. 106.2 - DAMAGES EXCEEDING FIFTY PER CENT. If a building or other structure is damaged by fire or any other cause to an extent in excess of fifty (50) per cent of the physical value of the building before the damage was incurred;

SEC. 106.3 - ALTERATIONS OR REPAIRS UNDER FIFTY PER CENT. If the cost of alterations or repairs described herein is less than fifty (50) per cent of the physical value of the building or other structure, the Director shall determine to what degree the portion so altered or repaired shall be made to conform to the requirements of new buildings or other structures at the time application for permit is made.

SEC. 106.4 - INCREASE IN SIZE. If a building is increased in floor area or number of stories, the entire building shall be made to conform with the requirements of this Code in respect to means of egress, fire safety, light and ventilation;

SEC. 106.5 - PART CHANGE IN USE. If a portion of a building is changed to a new use or occupancy group and that portion is separated from the remainder of the building with the required fire division walls, floors and other enclosures as provided in Section 903.1, then the construction involved in the change shall be made to conform with the requirements for new use, and the existing portion shall be made to comply with the exit requirements of this Code.

SEC. 106.6 - PHYSICAL VALUE. In applying the provisions of this Section (106.0), the physical value of the building shall be determined by the Director.

SEC. 107.0 - DEPARTMENT OF BUILDING INSPECTION

There is hereby established in the City of Providence a department to be called the Department of Building Inspection, which shall be under the supervision and control of a Director.

The Department of Building Inspection shall be comprised of a Division of Structures and Zoning, a Division of Plumbing, Drainage and Gas Piping, a Division of Electrical Installations, and a Division of Air Pollution, Mechanical Equipment and Installations which will include heating, steam power, ventilation, air conditioning and refrigeration.

SEC. 107.1 - PRINCIPAL PERSONNEL OF THE DEPARTMENT OF BUILDING INSPECTION The principal personnel of the Department of Building Inspection shall consist of a Director, a Chief Inspector of Electrical Installations and Public Service Engineer, a Chief Inspector of Structures and Zoning, a Chief Inspector of Plumbing, Drainage and Gas Piping, and a Chief Inspector of Air Pollution, Mechanical Equipment and Installations.

SEC. 107.2 - ADDITIONAL PERSONNEL OF THE DEPARTMENT OF BUILDING INSPECTION. There shall be employed in the Department of Building Inspection a secretary to the Director and such engineers, assistants, inspectors, investigators, clerks, stenographers and other personnel as may be necessary for the proper performance of the duties of the Department of Building Inspection and as shall be provided by Ordinance.

SEC. 107.3 - APPOINTMENT OF PERSONNEL.

.31 - The Director. As soon as may be subsequent to the passage of this Ordinance, and thereafter on the first Monday of January, 1957, or as soon thereafter as may be and biennially thereafter, the Mayor shall appoint, subject to the approval of the City Council, a Director who shall hold office until his successor shall have been appointed and qualified.

.32 - Deputy Director and Chief Inspectors. The Chief Inspectors shall be appointed by the Director, subject to the approval of the Mayor. The Director, with the approval of the Mayor, as soon as may be after his appointment, shall designate one of the Chief Inspectors as the Deputy Director.

.33 - Other Personnel. Such Chief Inspectors shall, subject to the approval of the Director and subject to any applicable ordinances, have the power to appoint and remove the employees in their respective divisions.

SEC. 107.4 - QUALIFICATIONS OF PERSONNEL.

.41 - Director. The Director shall be a Registered Professional Engineer, or a Registered Architect, or a general building contractor or general superintendent of building construction. Said Director shall have at least twelve (12) years experience in his profession, including five (5) years in responsible charge of important building work.

During the absence or incapacity of the Director, the Chief Inspector, who has been designated as Deputy Director, shall perform the duties and exercise the powers of the Director.

.42 - Chief Inspector of Electrical Installations and Public Service Engineer. The Chief Inspector of Electrical Installations and Public Service Engineer shall be a Registered Professional (Electrical) Engineer. He shall have the ability to design electrical installations, to examine plans, and check designs of any electrical engineering projects, in order to determine whether such plans and designs are in conformity with the provisions of this Code, other ordinances and good engineering practice, to prepare specifications, estimates and reports, to supervise the construction, installation, inspection, operation and maintenance of electrical equipment and appliances in buildings and other structures. He shall have at least five (5) years practical experience in the electrical field.

.43 - Chief Inspector Of Structures And Zoning. The Chief Inspector of Structures And Zoning shall be a Registered Professional (Civil) Engineer or a Registered Architect with at least five (5) years of experience in the field of building construction. He shall have the ability to design buildings and other structures, to examine plans and check designs of new buildings and other structures in order to determine whether such plans and designs are in conformity with the provisions of this Code, other ordinances and good engineering practice, to prepare specifications, estimates, and reports, to supervise construction, alteration, repair, demolition, maintenance and inspection of buildings and other structures and to perform related work as required.

.44 - Chief Inspector Of Air Pollution, Mechanical Equipment And Installations. The Chief Inspector of Air Pollution, Mechanical Equipment And Installations shall have at least five (5) years service in the division of air pollution. He shall have a general knowledge of air pollution, heating, steam power, ventilation, air conditioning and refrigeration. He shall have the ability to examine plans and check designs of mechanical installations in the above fields mentioned, in order to determine whether such plans and designs are in conformity with the provisions of this Code, other ordinances and good engineering practice, to prepare specifications, estimates and reports, to supervise the construction, installation, inspection, operation and maintenance of mechanical equipment and appliances in buildings and other structures and to perform related work as required.

.45 - Chief Inspector Of Plumbing, Drainage And Gas Piping. The Chief Inspector of Plumbing, Drainage and Gas Piping shall be a Registered Professional (Sanitary) Engineer with at least five (5) years of practical experience or a certified licensed Master Plumber with at least five (5) years practical experience in plumbing and drainage work, or sanitary engineering and shall have the ability to examine plans and check designs of any plumbing and drain laying projects, in order to determine whether such plans and designs are in conformity with the provisions of this Code, other ordinances and good practice as applied to plumbing and drainage work, to prepare reports, to supervise the installations, inspection, operation and maintenance of plumbing and drainage systems in buildings and other structures and to perform related work as required.

.46 - Assistants. No person shall be appointed as technical assistant or inspector unless he has had at least eight (8) years practical experience in the technical work which he is appointed to supervise.

.47 - Registered Engineers And Architects. Registered Engineers and Registered Architects as required herein shall be registered in the State of Rhode Island.

SEC. 107.5 - RESTRICTIONS ON EMPLOYEES. No official or employee connected with the Department of Building Inspection, except one whose only connection is a member of the Building Code Revision Board or the Board of Review, established under the provisions of Sections 127.0 and 128.0 shall be engaged in or directly or indirectly connected with the furnishing of labor, materials or appliances for the construction, alteration or maintenance of a building or other structure, or the preparation of plans or of specifications therefor, unless he is the owner of the building or other structure; nor shall such officer or employee engage in any work which conflicts with his official duties or with the interest of the department.

SEC. 107.6 - RELIEF FROM PERSONAL RESPONSIBILITY. The Director, officer or employee charged with the enforcement of this Code, while acting for the City, shall not thereby render himself liable personally, and he is hereby relieved from all personal liability for any damage that may accrue to persons or property as the result of any act required or permitted in the discharge of his official duties. Any suit instituted against any officer or employee because of an act performed by him in the lawful discharge of his duties and under the provisions of this Code shall be defended by the City Solicitor until the formal termination of the proceedings. In no case shall the Director or any of his subordinates be liable for costs in any action, suit or proceeding that may be instituted in pursuance of the provisions of this Code; and the Director, any officer or employee of the Department of Building Inspection, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of his official duties in connection therewith.

SEC. 107.7 - OFFICIAL RECORDS. An official record shall be kept of all of the business and activities of the Department specified in the provisions of this Code and all such records shall be open to public inspection at all appropriate times.

SEC. 108.0 - DUTIES AND POWERS OF THE DIRECTOR, THE DEPUTY DIRECTOR AND THE CHIEF INSPECTORS

The Director shall enforce all the provisions of this Code and act on any question relative to the mode or manner of construction and materials to be used in the erection, alteration, repair, removal, demolition, installation of service equipment, and the location, use, occupancy, and maintenance of all buildings and structures, except as may otherwise be specifically provided by statute or ordinance, and as herein provided.

The Deputy Director shall exercise such authority as shall be delegated to him by the Director. During the absence or incapacity of the Director he shall perform the duties and exercise the powers of the Director.

Each Chief Inspector shall be the responsible head of his respective division, and shall exercise such authority as shall be delegated to him by the Director.

Upon the appointment and qualification of the Director, the Deputy Director, the Chief Inspectors and the members of the Board of Review herein provided for, the term of office of the Inspector of Buildings, the Public Service Engineer, the Sanitary Engineer of Plumbing and Drainage, the Chief Air Pollution Regulation Engineer and of the members of the present Building Ordinance Board of Review shall cease and determine and all powers, duties and functions heretofore vested in such officers shall be possessed, held and exercised by the Director of the Department of Building Inspections, the Deputy Director, the Chief Inspector of Structures and Zoning, the Inspector of Plumbing, Drainage and Gas Piping, the Chief Inspector of Air Pollution, Mechanical Equipment and Installations and the members of the Board Of Review, respectively, unless otherwise inconsistent with the provisions of this Code.

SEC. 108.1 - APPLICATIONS AND PERMITS. He shall receive applications and issue permits for the erection and alteration of buildings and other structures, and examine the premises for which such permits have been issued and enforce compliance with the Code provisions.

SEC. 108.2 - BUILDING NOTICES AND ORDERS. He shall issue all necessary notices or orders to remove illegal or unsafe conditions, to require the necessary safeguards during construction, to require adequate exit facilities in existing buildings and other structures, and to insure compliance with all the Code requirements for the safety, health and general welfare of the public.

SEC. 108.3 - INSPECTIONS. He shall make, or cause to be made, all the required inspections, and all the reports of such inspections shall be in writing; or he may engage such experts as he may deem necessary upon unusual technical issues that may arise, subject to the approval of the Mayor.

SEC. 108.4 - NEW RULES. He shall promulgate rules under the procedure provided in Section 109.0.

SEC. 108.5 - DEPARTMENT RECORDS. He shall keep official records of applications received, permits and certificates issued, reports of inspections, notices and orders issued, and all papers in connection with building operations. Plans shall be retained for at least two (2) years after the completion of the building or other structure.

SEC. 108.6 - ANNUAL REPORT. At least annually, as required by ordinance, he shall submit to the City Council a written report of the activities of his Department.

SEC. 109.0 - RULES AND REGULATIONS

SEC. 109.1 - RULE MAKING AUTHORITY. The Director, with the approval of the Building Code Revision Board, shall have power as may be necessary to adopt rules and regulations to interpret and implement the provisions of this Code and to secure the intent thereof, but no such rules shall have the effect of waiving any provisions of this Code.

SEC. 109.2 - TESTS AND INVESTIGATIONS. The Director and/or the Building Code Revision Board shall make, or cause to be made, the necessary investigations, or they may accept duly authenticated reports from recognized authoritative sources in respect to the use of any new materials or modes of construction; and the costs of all tests or other investigations required under these provisions shall be paid by the applicant.

SEC. 109.3 - EFFECTIVE DATE OF RULES. The Director, with the advice and approval of the Building Code Revision Board, may from time to time alter, amend, or rescind, such rules and regulations and promulgate such amended or additional rules and regulations as deemed advisable. Such rules and regulations as may be prepared, revised, amended, or rescinded as provided for in Section 127.0, shall be made effective thirty (30) days after their publication in a newspaper of general circulation in the City.

SEC. 110.0 - INSPECTION.

SEC. 110.1 - PRELIMINARY INSPECTION. Before issuing a permit, the Director shall examine or cause to be examined all plans for buildings or other structures and sites for which an application has been filed for permit to construct, enlarge, alter, repair, remove, demolish or change the use thereof, and shall conduct or cause to be conducted such inspections from time to time during and upon completion of the work for which he has issued a permit, and he shall maintain a record of all such examinations and inspections and all violations of this Code.

SEC. 110.2 - PLANT INSPECTION. When required by the provisions of this Code or by the approved rules, materials or assemblies shall bear a report of inspection at the point of manufacture or fabrication.

SEC. 110.3 - INSPECTION REPORTS. All inspection reports shall be in writing and shall be certified by the inspector.

SEC. 110.4 - FINAL INSPECTION. Upon completion of the building or structure, and before issuance of the certificate of use or occupancy herein required, a final inspection shall be made and all violations of the approved plans and permit shall be noted and caused to be corrected.

SEC. 111.0 - RIGHT OF ENTRY.

In the discharge of his duties, the Director or his authorized representative shall have the authority to enter at any reasonable hour, any building, structure or premises in the City of Providence to enforce the provisions of this Code.

SEC. 111.1 - OFFICIAL BADGE. He may adopt a badge of office for himself and assistants which shall be displayed for the purpose of identification.

SEC. 111.2 - CITY COOPERATION. The assistance and cooperation of the Police and Fire Department, the Health Department and other City Departments shall be afforded to him as required in the performance of his duties.

SEC. 112.0 - APPLICATION FOR PERMIT.

SEC. 112.1 - WHEN PERMIT IS REQUIRED. It shall be unlawful to construct, enlarge, alter, remove or demolish, or change the occupancy from one Use Group to another requiring greater strength, additional fire protection, exit or sanitary provisions; or to change to a prohibited use; or to install or alter any equipment for which provision is made or the installation of which is regulated by this Code; without first filing an application with the Director in writing and obtaining the required permit therefor.

SEC. 112.2 - FORM OF APPLICATION. The application for a permit shall be submitted in such form as the Director may prescribe and shall be accompanied by the required fee.

SEC. 112.3 - BY WHOM APPLICATION IS MADE. Application for a permit shall be made by the owner or lessee of the building or other structure or agent of either. If the application is made by a person other than the owner in fee, it shall be accompanied by an affidavit by the owner, or his authorized agent, that the proposed work is authorized by the owner in fee and that the applicant is authorized to make such application. The full names and addresses of the owner, lessee, applicant and of the responsible officers, if the owner or lessee is a corporate body, shall be stated in the application.

SEC. 112.4 - DESCRIPTION OF WORK. The application for the permit shall contain a general description of the proposed work, its location, the use and occupancy of all parts of the building or other structure and of all portions of the site or lot not covered by the building or other structure and such additional information as may be required by the Director.

SEC. 112.5 - PLANS AND SPECIFICATIONS. The application for the permit shall be accompanied by two (2) or more copies of specifications and plans drawn to scale, with sufficient clarity and detail dimensions showing the nature and character of the work to be performed. When quality of materials is essential for conformity with this Code, specific information shall be given to establish such quality, and in no case shall the Code be cited or the term "legal" or its equivalent be used as a substitute for specific information. The Director may waive the requirement for filing plans when the work involved is of a minor nature. Where the cost of construction or alteration exceeds Ten Thousand (\$10,000.00) dollars plans shall be drawn by a registered architect or engineer.

SEC. 112.6 - PLOT DIAGRAM. There shall also be filed with the application for a permit a plot plan showing to scale the size and location of all the new construction and all existing buildings and other structures on the site, distances from lot lines and the established street grades, and it shall be drawn in accordance with an accurate boundary-line survey. In the case of demolition, the plot plan shall show all construction to be demolished and the location and size of all existing buildings and structures that are to remain on the site or plot and also the location and size of buildings and structures on adjoining lots within fifty (50) feet of the building or structure to be demolished. The Director may waive the above requirements when the work involved is of a minor nature.

SEC. 112.7 - ENGINEERING DETAILS. The Director may require adequate details of structural, mechanical and electrical work including computations, stress diagrams and other essential technical data to be filed with the application. All engineering plans and computations shall bear the signature of the registered engineer or architect responsible for the design.

SEC. 112.8 - AMENDMENTS TO APPLICATION. Subject to the limitations of Section 113.9, amendments to a plan, application or other records accompanying the same may be filed at any time before completion of the work for which the permit is issued, and such amendments shall be deemed part of the work for which the permit is issued, and such amendments shall be deemed part of the original application and shall be filed therewith.

SEC. 113.0 - PERMITS.

SEC. 113.1 - ACTION ON APPLICATION. The Director shall examine or cause to be examined all applications for permits and amendments thereto within a reasonable time after filing. If the application or the plans do not conform with all pertinent laws, he shall reject

such application in writing with the reasons therefor. If he is satisfied that the work proposed conforms with the requirements of this Code and all laws and ordinances applicable thereto, he shall issue a permit therefor as soon as practicable.

SEC. 113.2 - PERMIT EXPIRED BY LIMITATION. Any permit issued shall expire by limitation at the end of six (6) months unless the work authorized thereunder shall be commenced within said period and prosecuted with reasonable diligence from the time such work is commenced.

.21 - Suspension Of Permit. Any permit issued shall become invalid if, after the authorized work is started, it is suspended or abandoned for a period of one (1) year, except for reasons beyond the control of the owner. After any permit has become invalid, a new permit must be obtained before work may be resumed.

SEC. 113.3 - PRE-CODE APPROVALS. Nothing in this Code shall require changes in the plans, construction or designated use of a building or other structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which shall have been actually started within ninety (90) days after the effective date of this ordinance, and the entire building or other structure shall be completed as authorized within two (2) years after the date of approval of the application.

SEC. 113.4 - SIGNATURE TO PERMITS. The Director shall affix his signature to every permit, or he may authorize subordinates to affix such signature thereto.

SEC. 113.5 - APPROVED PLANS. The Director shall stamp or endorse in writing two (2) sets of approved plans, "approved", and one set of such approved plans shall be retained by him and the other set shall be kept at the site, open to inspection by the Director or his authorized representative at all reasonable times.

SEC. 113.6 - REVOCATION OF PERMITS. The Director may revoke a permit or approval issued under the provisions of this Code in the case of any false statement or misrepresentation of fact in the application or on the plans on which the permit or approval was based, when such revocation is essential to the public welfare.

SEC. 113.7 - APPROVAL IN PART. The Director may issue a permit for the construction of foundations of any part of a building or other structure before the entire plans and specifications for the whole building or other structure have been submitted, provided adequate information and detailed statements have been filed complying with all the pertinent requirements of this Code.

SEC. 113.8 - POSTING OF PERMIT. The permit, or a true copy thereof, shall be posted on the site of operations open to public inspection during the entire time of prosecution of the work and until the completion of the same.

SEC. 113.9 - NOTICE OF START. At least twenty-four (24) hours notice of start of work under a permit for a building or other structure shall be given to the Director.

SEC. 114.0 - CONDITIONS OF THE PERMIT.

SEC. 114.1 - PAYMENT OF FEES. No permit shall be issued until the fees prescribed in Section 118.0 have been paid and until such bonds and certificates of insurance, as are required by Section 119.0 have been filed.

SEC. 114.2 - COMPLIANCE WITH CODE. The permit shall be a license to proceed with the work as set forth in the application as approved.

SEC. 114.3 - COMPLIANCE WITH PERMIT. All work shall conform to the approved application and plans for which the permit has been issued and any approved amendments thereto.

SEC. 114.4 - COMPLIANCE WITH PLOT PLANS. All new work shall be located strictly in accordance with the approved plot plans.

SEC. 114.5 - CHANGE IN PLOT PLANS. No lot or plot shall be changed, increased or diminished in area from that shown on the official plot plan unless a revised diagram showing such changes accompanied by the necessary affidavit of owner or applicant shall have been filed and approved.

SEC. 115.0 - DEMOLITION OF BUILDINGS
OR OTHER STRUCTURES.

SEC. 115.1 - PAYMENT OF TAXES. No permit shall be granted for the demolition of a building or other structure until the owner of the land shall have submitted to the Director satisfactory evidence that all taxes and assessments against the property involved have been paid.

SEC. 115.2 - SERVICE CONNECTIONS. Before a permit is issued, all water, electric, sewer and other service connections shall be plugged and sealed, and statements to that effect shall be secured from the utility companies and from the City agencies having jurisdiction and shall be filed with the Director.

SEC. 115.3 - BUILDINGS TO BE RAT ERADICATED PRIOR TO DEMOLITION. No buildings or structures shall hereafter be razed or demolished unless, and until, provisions are made for the rat eradication of said buildings or structures.

SEC. 116.0 - REMOVAL OF BUILDINGS OR OTHER STRUCTURES.

SEC. 116.1 - NOTICE TO ADJOINING OWNERS. No permit shall be granted for the removal of a building or other structure unless written notice has been given to the owners of adjoining lots and to the owners of wired or other facilities, the temporary removal of which may be necessitated by the proposed work.

SEC. 116.2 - LOT REGULATION. Whenever a building or other structure is demolished or removed, the premises shall be maintained free from all unsafe or hazardous conditions by the proper regulation of the lot, restoration of established grades and the erection of the necessary retaining walls and fences in accordance with the provisions of Article 13.

SEC. 117.0 - MOVING, RAISING OR SHORING BUILDINGS.

SEC. 117.1 - APPLICATION AND PERMIT. It shall be unlawful to move a building from one location to another or to raise a building, without first filing an application with the Director in writing and obtaining the required permit therefor subject to the following conditions:

.11 - Description And Inspection Of Building. The application for the permit shall comply with all the applicable requirements of Sections 112.0, 113.0 and 114.0 and shall clearly state the length, width and height of the building including the materials of exterior walls and roofs, and if moved, the place from and to which and the route by which it is to be carried, and the time required for moving said building. The Director shall thereupon have said building examined and if it be found not liable to endanger adjoining property, or to endanger or unduly incommode the public, shall, whenever the building is to be removed on or across a public street or highway, issue a permit for its removal subject to the prior written approval of the Traffic Engineer, the Director of Public Works and the Chief of the Fire Department.

.12 - Agreement. No building shall be moved from one location to another and no permit shall be issued for its removal until the owner or owners of such building shall sign an agreement to make said building conform to the requirements of this Code for a new building in the new location.

.13 - Public Utilities, Wires And Poles, Etc. Relative to such removal no electric light, trolley, telephone or telegraph wires or poles shall be removed, moved or disturbed without the written consent of the utility involved, and no tree or shrub standing in any part of a public street or highway, whether accepted or not shall be cut or disturbed, except by written consent of the City Forester.

.14 - Work Not To Stop. When a building is moved on or across a public street or highway, the work and labor of doing the same shall continue twenty-four (24) hours each day, including Sunday, without interruption, while the said building is in and upon said street or highway, unless the person moving said building is specially exempted from so doing by the Director.

.15 - Watchman And Lights. Whenever and so long as a building or part of a building shall remain in or upon a public street or highway, the person moving the same, shall at night keep a red light or lights burning at each end of the building, and a watchman shall be kept on duty.

.16 - License. No person shall remove or raise a building upon any premises or into or through a street or highway without being licensed for such business.

.17 - Terms Of License And Bond. A license for not exceeding three (3) years from the date thereof may be issued by the Director to a competent person filing in his office an application to move, raise or shore buildings, accompanied by a bond to the City in the sum of Ten Thousand (\$10,000.00) dollars, with a duly authorized bonding company as surety, and conditioned to comply with all legal requirements and restrictions relative to the moving, raising or shoring of buildings, and to pay any damages suffered by the City or any person or persons by reason of any negligence of the licensee, his servants or agents in or about the moving, raising or shoring of buildings, and to indemnify and save harmless the City from all loss and damage by reason of the moving, raising or shoring buildings, and from any liability of the City therefor relative to maintaining its public highways in condition safe and convenient for pedestrians and for all types of vehicles. Said license may be revoked at any time by the Director for any violation of the requirements prescribed in this Code or any of the conditions of said bond.

.18 - Building Not Moved Across Any Street. When a building is not to be moved upon or across any street or highway, or any work done thereon, the Director may issue such permit without the approval of the Director of Public Works.

.19 - Shoring. Every person desiring to shore up a building may be required by the Director to comply with all the pertinent requirements of moving and raising a building as provided herein.

SEC. 118.0 - FEES.

The Director shall not issue any permit to erect, enlarge, alter, maintain, repair, remove or demolish any building or other structure including the installation of plumbing, electrical, mechanical or any other equipment or work which comes within the purview of this Code, until a fee for issuing said permit shall have been paid to the Director or other designated city official. An amendment to a permit necessitating an additional fee because of an increase in the amount of work involving an increased cost shall not be approved until the additional fee has been paid. Fees for annual inspections and the fees for "Use Or Occupancy Certificates" shall be as prescribed herein.

SEC. 118.1 - SPECIAL FEES. The payment of a fee for the issuance of a permit, or of an amendment to a permit shall not relieve the applicant or holder thereof from the payment of any special fee or fees, or from the payment of fees for periodic inspections, "Use Or Occupancy Certificates", or fees for other privileges or requirements that may be prescribed by law or ordinance.

SEC. 118.2 - SCHEDULES FOR THE DETERMINATION OF FEES. The Director with the advice and approval of the Building Code Revision Board, shall establish by approved rules schedules of costs of buildings or other structures, or work in connection therewith, for use in determining the fees to be paid at the time of issuance of permits.

.21 - Use Of Schedules Not Feasible. When it is not feasible to determine the fee in advance, or when a method of determining the cost on which the fee is to be based is not available, the Director may, without prejudice, upon the payment of an estimated fee, issue a permit. Upon the completion of the work, and prior to the issuance of the required "Use Or Occupancy Certificate", the holder of a permit issued upon the payment of an estimated fee may have the amount of the fee revised and adjusted on furnishing the Director, upon an approved form, a statement of the actual cost of the work.

SEC. 118.3 - SCHEDULE OF PERMIT FEES. The schedule of fees as contained hereunder shall apply to the erection, alteration, maintenance, repair of any building or other structure including the installation of plumbing, electrical, heating, ventilation, air conditioning, refrigeration or any other mechanical equipment that comes within the purview of this Code, except as may be otherwise specified.

SCHEDULE OF PERMIT FEES

<u>VALUATION</u>		<u>FEE LIMITS</u>		<u>RATE OF INCREASE</u>		
<u>More Than</u>	<u>To And Including</u>					
\$ 0.00	\$ 100.00		\$ 0.00	\$1.00 per hundred		
100.00	200.00	\$1.00 to	2.00	"	"	"
200.00	300.00	2.00 "	3.00	"	"	"
300.00	400.00	3.00 "	4.00	"	"	"
400.00	500.00	4.00 "	5.00	"	"	"
500.00	600.00	5.00 "	6.00	"	"	"
600.00	700.00	6.00 "	7.00	"	"	"
700.00	800.00	7.00 "	8.00	"	"	"
800.00	900.00	8.00 "	9.00	"	"	"
900.00	1,000.00	9.00 "	10.00	"	"	"
1,000.00	5,000.00	10.00 "	30.00	\$5.00 per thousand		
5,000.00	25,000.00	30.00 "	110.00	4.00	"	"
25,000.00	50,000.00	110.00 "	185.00	3.00	"	"
50,000.00	100,000.00	185.00 "	285.00	2.00	"	"
100,000.00	500,000.00	285.00 "	685.00	1.00	"	"
500,000.00	NO LIMIT	685.00 "	UP	.50	"	"

When the volume of a building or other structure is used in the determination of fees for permits such volume shall be computed as set forth in the approved rules.

.31 - Alterations. The determination of fees for alterations shall comply with the procedure prescribed in Sections 118.2, 118.21 and 118.3.

.32 - Permit Fees For The Installation Of Tanks For Bulk Storage Of Petroleum Products. The fees for the installation of tanks for the bulk storage of petroleum products are the same as prescribed in the "Schedule Of Permit Fees", (Section 118.3).

.33 - Permit Fees For Gasoline Stations. The fees for the erection of gasoline station buildings shall be in accordance with the "Schedule Of Permit Fees", (Section 118.3), and in addition there shall be a fee of Ten (\$10.00) dollars for each pump and a fee of Five (\$5.00) dollars for each tank for petroleum products.

.34 - Permit Fees For The Erection Of Fire Escapes. The fees for the erection of fire escapes shall be twice the amounts specified in the "Schedule Of Permit Fees", (Section 118.3).

.35 - Permit Fees For Signs And Outdoor Display Structures. The fees for the erection of signs shall be as prescribed in Section 1403.0 and as follows:

Ground Signs	\$10.00	plus	2¢	per sq.	ft.	in excess of	50 sq.	ft.
Roof Signs	20.00	"	"	"	"	"	"	"
Wall Signs	3.00	"	10¢	"	"	"	25	"
Projecting Signs	3.00	"	"	"	"	"	"	"
(Projecting Signs								
(Over Sidewalks	10.00	"	"	"	"	"	"	"

.36 - Permit Fees For Marquees. The fee for the erection of a marquee shall be in accordance with the "Schedule Of Permit Fees", (Section 118.3). The minimum fee shall be Ten dollars (\$10.00).

.37 - Permit Fees For Cleaning The Exterior Of Buildings. The fee for the cleaning of buildings by sand blasting or by steam and acid, or any other process, shall be Ten dollars (\$10.00).

.38 - Permit Fees For Obstructing Highways During Construction.
The fee for obstructing highways during the construction of buildings or other structures shall be based upon the area of the highway obstructed and shall be at the rate of One cent (\$0.01) per square foot of such area for each week or fraction thereof that the highway is obstructed. The minimum fee, however, shall be Five dollars (\$5.00).

.39 - Permit Fees For Tar Kettles. The fee of obstructing a highway with a tar kettle shall be Two dollars (\$2.00) for each week or fraction thereof that the kettle remains in the highway. The minimum fee, however, shall be Five dollars (\$5.00).

SEC. 118.4 - PERMIT FEES FOR MOVING BUILDINGS OR OTHER STRUCTURES.
The fees for the moving of buildings or other structures shall be as follows:

If relocated so as not to involve the use of public highways in the process of moving \$10.00

If not more than two and one-half (2 1/2) stories in height but involving the use of public highways \$25.00

If more than two and one-half (2 1/2) stories in height and involving the use of public highways \$50.00

SEC. 118.5 - PERMIT FEES FOR DEMOLITION. The fees for the demolition of buildings or other structures shall be in accordance with the following Table for the same:

Table on the next page

SCHEDULEOFPERMIT FEES FOR DEMOLITION OF BUILDINGS OR OTHER STRUCTURES

<u>VOLUME IN CU. FT.</u>		<u>FEE</u>
<u>More Than</u>	<u>To And Including</u>	
0	5,000	None
5,000	25,000	\$ 5.00
25,000	100,000	20.00
100,000	500,000	40.00
500,000	1,000,000	75.00
1,000,000	NO LIMIT	100.00

SEC. 118.6 - THE FEES FOR USE OR OCCUPANCY CERTIFICATES. Fees for "Use Or Occupancy Certificates", exclusive of buildings in Use Group L3 (one and two family dwellings), shall be as follows:

For new buildings or other structures	\$ 2.00
For existing buildings or other structures	2.00
For buildings or other structures when there is a change of use or occupancy in whole or in part	5.00

The issuance of certificates under this Section are contingent upon the Director being supplied the information and details required by Section 120.0.

SEC. 118.7 - FEES FOR ANNUAL INSPECTIONS. The fees for annual inspections and the furnishing of "Annual Certificates Of Inspection" shall be as follows:

Commercial Recreation Buildings	\$10.00
Assembly Halls	10.00
Hotels	
50 or less rentable rooms	10.00
51 to 200 rentable rooms	15.00
201 or more rentable rooms	20.00
Theatres	
400 or less seats	\$10.00
Over 400 seats	20.00
Restaurants	
Accommodations for 50 to 100 persons	5.00
Accommodations for over 100 persons	10.00

Night Club	
Accommodations for 50 to 100 persons	5.00
Accommodations for over 100 persons	10.00
Elevators	5.00
Fire Escapes Per Story	2.00
Fuel Burning Equipment	5.00
Gasoline Stations	3.00
Parking Lots	3.00
Signs	3.00
Bulk Storage Of Petroleum Products	

Total Capacity Of Tanks In Gallons

<u>More Than</u>	<u>To And Including</u>	<u>Fees</u>
5,000	20,000	\$ 2.00
20,000	200,000	5.00
200,000	300,000	7.00
300,000	500,000	10.00
500,000	NO LIMIT	15.00

Electrical "Limited Premises Permit" (Adjustment as per Section 1505.21)	5.00
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The fees for annual inspections as specified above, are based upon a minimum requirement of one inspection per year.

SEC. 118.9 - OPERATOR'S LICENSE FEE. The fees for "Operator's License" shall be as follows:

Stationary Engine Operator	5.00
Operators Of Refrigeration Machinery	5.00
Boiler Operators And Firemen	5.00
Renewal fees per annum for the operators as specified above	2.00

SEC. 118.9 - ACCOUNTING. The Director shall keep an accurate account of all fees collected by him and shall deposit all such fees with the City Collector.

SEC. 119.0 - INDEMNITY BONDS.

SEC. 119.1 - SIGN BONDS. No permit shall be issued for the erection of a sign until compliance has been made with the requirements of Article 14 as to bonds and certificates of insurance.

SEC. 119.2 - BONDS FOR MOVING AND RAISING BUILDINGS. No permit shall be issued for moving or raising buildings until compliance has been made with the requirements of Section 117.0 as to bonds.

SEC. 120.0 - CERTIFICATE OF USE OR OCCUPANCY.

SEC. 120.1 - NEW BUILDINGS AND OTHER STRUCTURES. No building or other structure hereafter erected shall be used or occupied in whole or in part until the certificate of use or occupancy shall have been issued by the Director.

SEC. 120.2 - BUILDINGS OR OTHER STRUCTURES ALTERED. No building hereafter enlarged, extended or altered as to change from one use group to another, in whole or in part, and no building or other structure hereafter altered for which a certificate of use and occupancy has not been heretofore issued, shall be occupied or used until the certificate has been issued by the Director, certifying that the work has been completed in accordance with the provisions of the approved permit, except that any use or occupancy, which was not discontinued during the work of alteration, shall be discontinued within thirty (30) days after the completion of the alteration unless the required certificate is secured from the Director.

SEC. 120.3 - EXISTING BUILDINGS OR OTHER STRUCTURES. Nothing in this Code shall require the removal, alteration or abandonment of, or prevent the continued use and occupancy of a lawfully existing building or other structure, unless in the opinion of the Director, such use is deemed to endanger public safety.

Upon written request from the owner of an existing building or other structure and the furnishing of the necessary information and particulars, the Director shall issue a certificate of use or occupancy, provided, there are no violations of law, or orders of the Director pending, and it is established that the alleged use of the building has heretofore existed.

SEC. 120.4 - CHANGES IN USE OR OCCUPANCY. After a change of use or occupancy has been made in a building or other structure, the reestablishment of a prior use that would not have been legal in a new building or other structure of the same type of construction is prohibited unless all the applicable provisions of this Code are complied with. A change from one prohibited use to another prohibited use shall be deemed a violation of this Code.

SEC. 120.5 - CONTENTS OF CERTIFICATE. When a building or other structure is entitled thereto, the Director, following the receipt of a written application and the necessary information and particulars, shall issue a certificate of use or occupancy. This certificate shall certify compliance with the provisions of this Code and the purposes for which the building or other structure may be used in its several parts. The certificate of use or occupancy shall specify: the Use Group, in accordance with the provisions of Article 2; the fire load as defined in Articles 2 and 9 and in Table 16; the maximum live load on all floors as prescribed in Article 7; the occupancy load in the building or other structure and all parts thereof as determined by Article 2 and Article 6; and any special stipulations and conditions of the permit.

SEC. 121.0 - POSTING BUILDINGS AND OTHER STRUCTURES.

SEC. 121.1 - POSTED USE AND OCCUPANCY. Every building or other structure and part thereof designed for high hazard, storage, mercantile, industrial or business use (Use Groups A, B, C, D and E) as defined in Article 2, shall be posted on all floors by the owner with a suitably designed placard supplied by the Director, which shall be securely fastened to the structure in a readily visible place, stating the use group, fire load, the live load and the occupancy load.

SEC. 121.2 - POSTED OCCUPANCY LOAD. Every building or other structure and every part thereof designed for use or used as a place of assembly of seventy-five (75) or more persons in any room, group of rooms, or space, or designed for use or used as an institutional building for harboring people for penal, correctional, educational, medical or other care or treatment (Use Groups F and H as defined in Article 2) shall be posted with an approved placard designating the maximum occupancy load.

SEC. 121.3 - REPLACEMENT OF POSTED SIGNS. All posting signs shall be furnished by the owner and shall be of permanent design, shall not be removed or defaced; and if lost, removed or defaced, they shall be immediately replaced.

SEC. 121.4 - PERIODIC INSPECTION. The Director may periodically inspect all existing buildings and structures except one (1) and two (2) and three (3) family dwellings, for compliance with the requirements of Sections 121.1 and 121.2, or he may accept the certificate of a licensed architect or engineer, on forms to be supplied by the Director, certifying as to the accuracy of the facts posted and the posting thereof.

SEC. 122.0 - VIOLATIONS.

SEC. 122.1 - NOTICE OF VIOLATION. The Director shall serve an order or a notice of violation on the person responsible for the erection, construction, alteration, extension, repair, use or occupancy of a building or structure in violation of the provisions of this Code, or in violation of a detail statement or a plan approved thereunder, or in violation of a permit or certificate issued under the provisions of this Code; and such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

SEC. 122.2 - PROSECUTION OF VIOLATION. If the notice of violation or order is not complied with promptly, the Director shall institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation or to require the removal or termination of the unlawful use of the building or other structure in violation of the provisions of this Code, the permit or of the orders or directions made pursuant thereto.

SEC. 122.3 - VIOLATION PENALTIES. Any person who shall violate a provision of this Code or shall fail to comply with any of the requirements hereof, or who shall erect, construct, alter or repair a building or other structure in violation of an approved plan or directive of the Director, or of a permit or certificate issued under the provisions of this Code, shall be guilty of a misdemeanor and punishable by a fine of not more than Two Hundred (\$200.00) dollars or by imprisonment not exceeding Thirty (30) days or both such fine and imprisonment. Each day that a violation exists shall be deemed a separate offense.

SEC. 122.4 - LEGAL ACTION NOT PRECLUDED. The imposition of the penalties herein prescribed shall not preclude the Director from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises or to stop an illegal act, conduct, business or use of a building or other structure in or about any premises in violation of the provisions hereof or of any rule or regulation adopted pursuant thereto.

SEC. 123.0 - STOP WORK ORDER.

SEC. 123.1 - NOTICE TO OWNER. Upon notice from the Director that work on any building or other structure is being prosecuted contrary to the provisions of this Code or in an unsafe or dangerous manner, such work shall be immediately stopped, except in conformity with the stop work order. The notice shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work, and shall state the conditions under which work may be resumed.

SEC. 123.2 - UNLAWFUL CONTINUANCE. Any person who shall continue any work in or about a building or other structure after having been served with a stop order, except such work as he is directed to perform to remove a violation or unsafe condition, shall be liable to the penalty set forth in Section 122.3.

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SEC. 124.0 - UNSAFE BUILDINGS OR OTHER STRUCTURES.

SEC. 124.1 - RIGHT OF CONDEMNATION. All buildings or other structures that are or hereafter shall become unsafe, unsanitary, or deficient in exit facilities, or which constitute a fire hazard, or are otherwise dangerous to human life, or which by reason of illegal or improper use, occupancy or maintenance shall be deemed unsafe shall be made safe, sanitary or secure, or shall be taken down and removed as the Director may deem necessary and as provided in this Section (Section 124.0). A vacant building unguarded or open at door or window, shall be deemed a fire hazard and unsafe within the meaning of this Code.

SEC. 124.2 - EXAMINATION AND RECORD OF DAMAGED BUILDING OR OTHER STRUCTURE. The Director shall examine every building or other structure reported as dangerous, unsafe structurally or constituting a fire hazard, and he shall cause a report to be filed in a docket of unsafe buildings, other structures and premises, stating the use of the buildings, other structures, or premises, the condition thereof, the nature and estimated amount of damages, if any, caused by collapse or failure, and, in the case of fire, the probable origin thereof.

SEC. 124.3 - NOTICE OF UNSAFE BUILDING OR OTHER STRUCTURE. If an unsafe condition is found in a building or other structure, the Director shall serve on the owner, agent or person in control of the building or structure a written notice describing the building or other structure deemed unsafe and specifying the required repairs or improvements to be made to render the building or other structure safe and secure, or requiring the unsafe building or other structure

or portion thereof to be demolished and removed within a stipulated time. Such notice shall require the person thus notified to immediately declare to the Director his acceptance or rejection of the terms of the order.

SEC. 124.4 - RESTORATION OF UNSAFE BUILDING OR OTHER STRUCTURE. A building or other structure condemned by the Director may be restored to safe condition, except that if the damage or deterioration is in excess of fifty (50) per cent of its physical value, exclusive of foundations, such building shall be made to conform in all respects with the requirements for materials and methods of construction of buildings or other structures hereafter erected.

SEC. 124.5 - POSTING "UNSAFE-BUILDING" NOTICE. If the person addressed with an unsafe-building notice cannot be found within the City after diligent search, such notice shall be sent by registered mail to the last known address of such person, and a copy of the unsafe-building notice shall be posted in a conspicuous place on the premises, and such procedure shall be deemed the equivalent of personal notice.

SEC. 124.6 - DISREGARD OF "UNSAFE-BUILDING" NOTICE. Upon refusal, failure or neglect of the person served with an unsafe-building notice to comply with the requirements of the order to abate the unsafe condition, the Director shall institute appropriate action.

SEC. 125.0 - EMERGENCY MEASURES.

SEC. 125.1 - VACATING BUILDINGS. When, in the opinion of the Director, there is actual and immediate danger of failure or collapse of a building or other structure or any part thereof, so as to endanger life, or when any building or other structure or part thereof has fallen and life is endangered by its occupation, the Director is hereby authorized and empowered to order and require the inmates and occupants to vacate the same forthwith. He shall cause to be posted at each entrance the following notice:

"THIS STRUCTURE IS UNSAFE AND ITS USE OR OCCUPANCY IS PROHIBITED BY THE DIRECTOR OF THE DEPARTMENT OF BUILDING INSPECTION",

and it shall be unlawful for any person to enter such building or

other structure, without permission of the Director, except for the purpose of inspection, making the required repairs, removing effects, or of demolishing the same.

SEC. 125.2 - TEMPORARY SAFEGUARDS. When, in the opinion of the Director, there is actual and immediate danger of collapse or failure of a building or other structure or any part thereof so as to endanger life, he shall cause the necessary work to be done to render such building or other structure or part thereof temporarily safe, whether or not the legal procedure herein prescribed has been instituted.

SEC. 125.3 - CLOSING STREETS. When necessary for the public safety, the Director may temporarily close sidewalks, streets, buildings and other structures and places adjacent to unsafe buildings and other structures and prohibit the same from being used and he shall notify the Chief of Police, Chief of the Fire Department, Traffic Engineer and the Director of Public Works.

SEC. 125.4 - EMERGENCY REPAIRS. For the purposes of this section the Director shall employ the necessary labor and materials to perform the required work as expeditiously as possible.

SEC. 125.5 - COSTS OF EMERGENCY REPAIRS. Costs incurred in the performance of emergency work shall be paid out of any appropriation made for said purposes in the budget of the Department of Building Inspection. The Director shall institute appropriate action against the owner of the premises where the unsafe building or other structures is or was located for the recovery of such costs.

SEC. 126.0 - APPEALS FROM ORDERS IN REGARDS TO UNSAFE BUILDINGS

SEC. 126.1 - APPLICATION FOR REVIEW. The owner of a building or other structure or his duly authorized representative who has been served with an order pertaining to an unsafe building or other structure and a notice to make such building or other structure safe, secure or habitable or to take down and remove such building or other structure, shall have the right, except in cases of emergency, shall demand a hearing before the Board Of Review if he deems such order to be unnecessary, improper or unreasonable and such demand shall be in writing with a statement of the reasons therefor.

SEC. 126.2 - PROCEDURE. The powers and duties of the Board of Review under this section shall be:

.21 - To inspect the building or other structure and to confirm, modify or revoke the order of the Director as may seem just and proper in the interest of public safety and welfare;

.22 - To determine the suitable cost of reconstruction, restoration or rehabilitation in the repair of an unsafe building or other structure in case of a disagreement or dispute in relation thereto.

SEC. 126.3 - FINDINGS.

.31 - The Board of Review shall determine its findings and submit a report in writing affirming, modifying, or revoking the order of the Director in whole or in part and shall determine the remedial steps to be taken to render the building or other structure safe.

.32 - The findings and determination agreed upon by a majority of the board shall be deemed conclusive, and certified copies of the report shall be filed with the Director and with the owner or his representative, and shall be binding upon the Director and all parties in interest.

SEC. 127.0 - BUILDING CODE REVISION BOARD.

There is hereby created a Building Code Revision Board whose composition, powers and duties are as prescribed herein.

SEC. 127.1 - MEMBERSHIP OF BOARD. The Building Code Revision Board shall consist of thirteen (13) members, ten (10) of whom shall be appointed by the Mayor, subject to the approval of the City Council. As soon as may be after passage of this Ordinance, two (2) members shall be appointed for five (5) years; two (2) for four (4) years; two (2) for three (3) years; two (2) for two (2) years; and two (2) for one (1) year and thereafter, each new member to serve for five (5) years, and until his successor has been appointed and qualified. The Mayor shall appoint a member to said Board to fill an unexpired term if a vacancy occurs.

In addition to the above ten (10) members, the Director and the Chief of the Fire Department and the Chairman of the City Council Committee on Ordinances shall be ex officio members of this Board.

SEC. 127.11 - Requisites Of Board Membership. The composition of the Board shall be as follows and appointed as herein specified:

1. A Registered Architect.
2. A Registered Professional Engineer.
3. A General Building Contractor.
4. A General Electrical Engineer.
5. A Small Building Contractor.
6. An Engineer Representative of the Insurance Industry.
7. A Licensed Mechanical Engineer (Heat and Power).
8. A Representative of the Real Estate Profession.
9. A Licensed Master Plumber.
10. A Representative of the Public.
11. The Chairman of the City Council Committee on Ordinances.

SEC. 127.12 - Powers and Duties Of The Board. The Building Code Revision Board, shall have power as may be necessary in the interest of public safety, health and general welfare, to approve rules and regulations proposed by the Director for the purpose of implementing the provisions of this Code and to secure the intent and beneficial effects thereof. Such rules and regulations may include in whole or in part the acceptance of the specifications and standards listed in Appendix A - "Recognized Authorities", Appendix B - "Accepted Engineering Practice" and Appendix C - "Accredited Material Standards".

.13 - Absence Of Members. During a prolonged absence of a member for any reason, the Mayor may designate a qualified substitute.

.14 - Chairman and Vice Chairman. The Board shall select one (1) of its members to serve as Chairman, and one (1) to serve as Vice Chairman, and the Director shall designate, as secretary, a clerk from his Department, who shall keep detailed records of all proceedings of the Board.

.15 - Meetings. The Board shall meet at least twice a year or at periodic times as warranted by the volume of work, upon the call of the Chairman or at the request of the Director.

.16 - Public Hearings. The Board shall not adopt new regulations unless a public hearing is called at which all persons interested in or affected by such regulations shall be given an opportunity to be heard.

.17 - Notice Of Public Hearings. Notice of Public Hearings shall be posted in the office of the Building Inspection Department in a conspicuous place and shall also appear at least twice in a daily newspaper of general circulation in the City of Providence, stating the time and place of the public hearing, the first notice to be at least fourteen (14) days prior to the date of such hearing.

.18 - Adjourned Meeting. When eight (8) qualified members are not present at a public hearing, the Director may request a postponement of the hearing.

SEC. 127.2 - DECISIONS OF THE BUILDING CODE REVISION BOARD.

.21 - Action Of Board. The Board shall adopt new rules or regulations by a concurring vote of eight (8) members.

.22 - Resolution Of The Board. Every action of the Board shall be by resolution and certified copies shall be furnished to the Director, and to all persons requesting a certified copy from the Director. The Director shall take action in accordance with the decision of the Board and in accordance with Section 109.3.

SEC. 128.0 - BOARD OF REVIEW

SEC. 128.1 - APPLICATION FOR APPEAL. Appeals to the Board of Review may be taken by any person aggrieved or by any officer, department, board or bureau of the municipality affected by any decision of the administrative officer. Such appeal shall be taken within a reasonable time as provided by the rules of the Board by filing with the officer from whom the appeal is taken, and with the Board Of Review a notice of appeal specifying the grounds thereof. The officer from whom the appeal is taken shall forthwith transmit to the Board all the papers constituting the record upon which the action appealed from was taken.

The Board of Review shall have the following powers:

- (a) To hear and decide appeals where it is alleged that there is error in any order, requirement, decision or determination made by an administrative officer in the enforcement of the provisions of this Code.
- (b) To vary or modify the application of any of the provisions of this Code, in such a manner that the spirit of the Code shall be observed and public safety secured, and substantial justice done where there are practical difficulties in the way of carrying out the strict letter of such Code.
- (c) In exercising the above mentioned powers the Board may in conformity with the provisions of this act reverse or affirm wholly or partly or may modify the order, requirement, decision or determination appealed from any may make such order, requirement, decision or determination as aught to be made, and to that end shall have all the powers of the officer from whom the appeal was taken.

SEC. 128.2 - COMPOSITION OF BOARD OF REVIEW

.21 - Membership Of Board. The Board of Review shall consist of five (5) members appointed by the Mayor of the City of Providence, subject to the approval of the City Council and as soon as may be after passage of this act. One member shall be appointed for five (5) years; one for four (4) years; one for three (3) years; one for two (2) years and one to serve one (1) year, and each new member to serve for five (5) years and until his successor has been appointed and qualified. The Mayor shall appoint a member to said Board to fill an unexpired term if a vacancy occurs.

.22 - Qualification of Board Members. Each member shall be a resident of the City of Providence and the membership shall consist of a licensed professional civil engineer with building experience, a licensed architect, a licensed professional mechanical engineer, a licensed professional electrical engineer or a qualified representative of the electrical contractors or a qualified representative of the electrical tradesmen, and a qualified builder, each of whom shall have had at least ten (10) years experience in their respective occupations and for at least five (5) years shall have had responsible charge of work.

.23 - Absence Of Members. During absence of a member by reason of disability or disqualification, the Mayor shall designate a qualified substitute.

.24 - Chairman and Vice Chairman. The Chairman shall, subject to the approval of the Mayor, appoint a secretary to said board, who shall keep a detailed record of all proceedings in the Board of Review.

.25 - Exemption Of Members. No member of the Board shall pass on any question in which he is engaged as contractor or material dealer or in the preparation of plans or specifications or in which he has any personal interest.

SEC. 128.3 - COMPENSATION OF BOARD OF APPEALS. The compensation of the Chairman shall be Fifteen Hundred (\$1,500.00) dollars per annum and the compensation of each of the other members of said board shall be One Thousand (\$1,000.00) dollars per annum.

SEC. 128.4 - APPEALS PROCEDURE.

.41 - Notice Of Meetings. The Board shall meet at least once a month and at other times upon the call of the Chairman. Notice of the meetings to hear an appeal shall be given the appellant, the Director and the members of the Board, and all parties deemed to be interested by the Board at least ten (10) days before the holding of the meeting except as herein otherwise provided. Notice of said meetings shall also be posted in the office of the City Sergeant.

.42 - Public Hearing. All hearings shall be public, and the applicant, his representative, the Director and any other person whose interests may be affected by the matter on appeal, shall be given an opportunity to be heard. The Chairman, or in his absence, the Vice Chairman may administer oaths and compel the attendance of witnesses.

.43 - Adjourned Meeting. When five (5) qualified members are not present to consider a specific appeal, either the appellant, the Director or their representatives may request a postponement of the hearing.

.44 - Stay Of Proceedings. An appeal shall stay all proceedings in furtherance of the action appealed from, unless the officer from whom the appeal is taken certifies to the Board of Review after the notice of appeal shall have been filed with him, that by reason of facts stated in the certificate a stay would in his opinion cause imminent peril to life or property. In such case, proceedings shall not be stayed, otherwise than by order of the Board Of Review or by a court of competent jurisdiction, on application therefore and upon notice to the officer from whom the appeal is taken, and for due cause shown.

SEC. 128.5 - DECISIONS OF BOARD OF REVIEW.

.51 - Action Of Board. The concurring vote of three (3) members of the Board shall be necessary to reverse any order, requirement, decision or determination of any administrative officer, and the concurring vote of four (4) members of the Board shall be required to vary or modify the application of any of the provisions of the Code.

.52 - Resolutions Of Board.- Every action of the board shall be by resolution and certified copies shall be furnished to the appellant and the Director;

.53 - Enforcement Of Decision. The Director shall take immediate action in accordance with the decision of the Board, unless restrained by action of a court of proper jurisdiction.

SEC. 128.6 - COURT REVIEW. Any person or persons jointly or severally aggrieved by any decision of the Board Of Review, or any officer, department, board or bureau of the municipality, may present to the supreme court a petition duly verified setting forth that such decision is illegal in whole or in part and specifying the grounds of illegality. Such petition shall be presented to the court within thirty (30) days after the filing of the decision in the office of the Board. Upon the presentation of such petition, the court may allow a writ of certiorari directed to the Board Of Review to review such decision of the Board Of Review and shall prescribe therein the time within which a return thereto must be made, which shall be not less than ten (10) days and may be extended by the court. The allowance of the writ shall not stay proceedings upon the decision appealed from, but the court may on application, upon notice to the Board and on due cause shown, grant a restraining order. The Board Of Review shall not be required to return the original papers acted upon by it, but it shall be sufficient to return certified or sworn copies thereof or of such portions thereof as may be called for by such writ. The return shall concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and shall be verified.

If upon the hearing it shall appear to the court that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a master to take such evidence as it may direct and report the same to the court with his findings of fact and conclusions of law, which shall constitute a part of the proceedings upon which the determination of the court shall be made. The court may reverse or affirm wholly or partly or may modify the decision brought up for review.

SEC. 129.0 - SPECIAL TECHNICAL SERVICES.

SEC. 129.1 - UNUSUAL DESIGN OR CONSTRUCTION. When applications for unusual designs or magnitude of construction are filed, the Director may, with the consent of the Mayor, retain a properly qualified certified engineer or certified architect to examine such application for a specific building or other structural operation with respect to structural safety and to statutory requirements. Such employed engineer or architect, if so required by the Director, shall inspect the construction in the field to secure compliance with the approved plans and permit, and upon completion of the work he shall file with the Director a certified report to the effect that the building or other structure has been erected in accordance with accepted engineering practice and in conformity with all the provisions of the Code governing construction for the designated use group classification of the building or other structure in respect to use and to fire, floor and occupancy loads.

SEC. 130.0 - VALIDITY.

SEC. 130.1 - PARTIAL VALIDITY. No section or provision of this Code shall be invalidated because of the invalidity of any other section or provision.

SEC. 130.2 - SEGREGATION OF INVALID PROVISIONS. Any invalid part of this Code shall be segregated from the remainder of the Code by the court holding such part invalid, and the remainder shall remain effective.

SEC. 130.3 - DECISIONS INVOLVING EXISTING BUILDINGS. The invalidity of any provision in any section of this Code as applied to existing buildings or other structures shall not be held to affect the validity of such section in its application to buildings and other structures hereafter erected.

ARTICLE 2 - DEFINITIONS AND BUILDING CLASSIFICATIONS

SEC. 200.0 - SCOPE

The provisions of this article shall control the classification of all buildings as to use group and type of construction and the definition of all terms relating thereto in this Code.

SEC. 200.1 - APPLICATION OF TERMS. The terms herein defined shall be used to interpret all the applicable provisions of this Code. Definitions of technical terms relating to specific structural and egress requirements and to the installation of mechanical, electrical and service equipment are included in the respective articles.

SEC. 200.2 - APPLICATION OF OTHER LAWS. Nothing herein contained shall be deemed to nullify any provisions of the zoning law or any ordinance pertaining to the location, use or type of construction of buildings, except as may be specifically exempted in the provisions of this Code. Whenever a conflict exists between the provisions of this Code and the provisions of any other code, the one requiring the higher standard shall prevail.

SEC. 201.0 - GENERAL DEFINITIONS

In the interpretation of this Code, all words other than the terms herein specifically defined shall have the meanings implied by their context in the code or their ordinarily accepted meanings as used in the construction industry; words used in the present tense shall include the future; words in the masculine gender include the feminine and the neuter; the singular number includes the plural and the plural number includes the singular.

Accepted Engineering Practice. (See Appendix B)

Accessory Structure. A building the use of which is incidental to that of the main building and located on the same lot.

Accessory Use. A use incidental to the principal use of a building as defined or limited by the provisions of the zoning laws.

Accredited Authoritative Agencies. (See Appendix A)

Addition. Applied to a building or structure means an extension or increase in floor area, depth, or height.

Air-Conditioning. (See Section 1801.0)

Airplane Hangar. (See Section 401.0)

Alley. A public space or thoroughfare dedicated for public use, which is less than twenty-one (21) feet in width.

Alteration. Applied to a building or structure means a change or rearrangement of structural parts or exist facilities, or change in the use or occupancy from one use group to another of different requirements under the provisions of this Code, or the moving from one location or position to another, or an enlargement by an addition.

Apartment. One or more rooms comprising a family unit or serving as the home or residence of an individual or a family household.

Approved. Approved by the Director under the provisions of this Code.

Approved Material, Equipment And Methods. Approved by the Director and in accordance with Section 109.0.

Approved Rules. The legally adopted rules of the Director in accordance with Section 109.0.

Appurtenant Structure. A device or structure attached to the exterior or erected on the roof of a building designed to support service equipment or used in connection therewith, or for advertising or display purposes, or similar uses.

Architectural Terra Cotta. (See Section 801.0)

Area. (Form Of Construction) An uncovered subsurface space adjacent to a building, enclosed by substantial walls.

Area. (Floor Surface Measurement) The horizontally projected floor area inside of and between exterior enclosure walls or between exterior walls and fire-walls.

Area. (Building) The maximum exterior horizontally projected area of the building at grade, including all enclosed extensions.

Ashlar Facing. (See Section 801.0)

Ashlar Masonry. (See Section 801.0)

Attic. The space between the ceiling beams of the top habitable story and the roof rafters, in which the ceiling area at a height of seven and one-third ($7 \frac{1}{3}$) feet above the attic floor beams does not exceed one-third ($\frac{1}{3}$) the area of the floor next below. A habitable attic is an attic having a stairway as a means of access.

Automatic. Applied to a fire door or other opening protective means normally held in an open position and automatically closed by a releasing device that is actuated by a predetermined temperature or rate of rise in temperature.

Automatic Fire Alarm. (See Section 1201.0)

Automatic Collapsible Revolving Door. (See Section 601.0)

Automatic Source. (See Section 1201.0)

Automatic Sprinkler Head. (See Section 1201.0)

Automatic Sprinkler System. (See Section 1201.0)

Auxiliary Source System. (See Section 1201.0)

Basement. A story of the building having at least one-half (1/2) its height, measured from finished floor to finished ceiling, above the average grade of the ground adjoining the building.

Bay. (Part Of A Structure) The space between two (2) adjacent piers or between two (2) adjacent lines of columns.

Bay Window. A window extension projected beyond the wall line of the building and extending down to the foundations.

Billboard. (See Section 1401.0)

Branch. (See Section 1701.0)

Brick. (See Section 801.0)

Brine. (See Section 1801.0)

Building. (See Structure) An enclosed structure or edifice built, erected and framed of component structural parts designed for the housing, shelter, enclosure and support of persons, animals or property of any kind; and when provided with a fire separation or a fire-wall, each portion of such structure so separated, shall be deemed a separate building.

Building Drain. (See Section 1701.0)

Building Sewer. (See Section 1701.0)

Building Site. The area occupied by a building or structure, including the yards and courts required for light and ventilation, and such areas as are prescribed for access to the street.

Building Trap. (See Section 1701.0)

Bulkhead. A structure above the roof of the building or main structure enclosing a stairway, tank, elevator machinery, ventilating apparatus, or other service equipment, or such part of any shaft that extends above the main roof.

Buttress. (See Section 801.0)

Cellar. A portion of the building with more than half its height measured from floor to ceiling below the average grade of the ground adjoining the building grade and shall not be considered a story.

Certificate Of Use And Occupancy. (C.U.O.) The certificate issued by the Director permitting the occupation of a building in accordance with the approved plans and specifications which certifies compliance with the provisions of law for the use and occupancy of the building in its several parts, together with any special stipulations or conditions of the building permit.

Change Of Use. A change of use in a building to a new use which imposes other special provisions of law governing building construction or exits.

Chimney. (See Section 1001.0)

Closed Sign. (See Section 1401.0)

Combustible Material. (See Section 901.0)

Compressor. (See Section 1801.0)

Concrete Masonry Units. (See Section 801.0)

Condenser. (See Section 1801.0)

Conductor. (See Section 1701.0)

Construction Code. The codified rules and mandatory specifications of the approved rules adopted as herein prescribed.

Construction Equipment. (See Section 1301.0)

Construction Operation. (See Section 1301.0)

Court. (See Section 501.0)

Curb Level. (Street Grade) The elevation of the street grade as fixed by the City Engineer.

(Building Or Wall Height) The elevation of the street grade opposite the center of the wall nearest to and facing the street line.

(Excavations) The elevation of the street grade nearest to the point of excavation.

Deformed Steel Construction. (See Section 701.0)

Director. The officer, charged by law with the administration and enforcement of the building regulations or the duly authorized representative of such official.

Direct System. (See Section 1801.0)

Display Sign. (See Section 1401.0)

Drainage System. (See Section 1701.0)

Duct. (See Section 1001.0)

Dumbwaiter. (See Section 1601.0)

Dwelling. (One-Family) A building arranged for the use of one (1) family unit.

(Two-Family) A building arranged for the use of two (2) family units.

(Multiple Dwelling - Apartment House) A building arranged for the use of more than two (2) family units.

(Dormitory) A building containing a room or rooms arranged for sleeping quarters with accommodations for six (6) or more persons and having toilet and bathroom facilities which are shared.

(Boarding House - Lodging House - Tourist Home) A building arranged or used for sheltering or feeding for pay of more than five (5) and not more than fifteen (15) persons.

(Hotel) A building arranged or used for the shelter and accommodation for pay of more than fifteen (15) persons.

Elevator. (See Section 1601.0)

Evaporator. (See Section 1801.0)

Exitways. (See Section 601.0)

Family Unit. A one-family dwelling or that part of a multiple dwelling arranged for the use of one or more persons living and cooking together as a single housekeeping unit, with cooking, living, sanitary and sleeping facilities meeting the requirements of this Code.

Fire Area. The floor area enclosed and bounded by fire walls or exterior walls of a building to restrict the spread of fire.

Fire Damper. (See Section 1801.0)

Fire Districts. The territories defined and limited by the provisions of this Code for the restriction of types of construction.

Fire Division. (Fire Separation - See Section 901.0)

Fire Drill. (See Section 1201.0)

Fire Hazard. (See Section 901.0)

Fire Load. (See Section 901.0)

Fire Partition. (See Section 901.0)

Fireproof Construction. (See Section 215.0)

Fire-Resistive Partition. (See Section 901.0)

Fire-Resistance Rating. (See Section 901.0)

Fire-Retardent Construction. (See Section 901.0)

Fire Separation. (See Section 901.0)

Fire Tower. (Smokeproof Tower - See Section 601.0)

Fire Wall. (See Section 901.0)

Flame-Resistive Material. (See Section 901.0)

Flammable. (See Section 401.0)

Flammable Film. (See Section 401.0)

Floor Area. The floor space enclosed by exterior walls, fire-walls, or fire-partitions or by any combination of these structural elements.

Floor Fill. (See Section 801.0)

Floor Filling. (See Section 801.0)

Floor Finish. (See Section 801.0)

Floor Furnace. (See Section 1101.0)

Flue. (See Section 1001.0)

Foundation. The supporting portion of a structure below the first floor construction, or grade, including the footings.

Foyer. (See Section 401.0)

Frame Construction. The type of building construction in which exterior and party walls are wholly or partly built of wood or other combustible materials.

Fuel Oil. (See Section 401.0)

Garage. (See Section 401.0)

Gasoline Service Station. (See Section 416.0)

Generator. (See Section 1801.0)

Grade. The sidewalk elevation at the center of the building wall fronting on such sidewalk when located within five (5) feet of the street lot line, or the average finished ground elevation along such wall when located more than five (5) feet from the street lot line.

Ground Sign. (See Section 1401.0)

Habitable Room. (See Section 501.0)

Hazard. (Low, Moderate, High - See Section 901.0)

Heating Appliance. (See Section 1101.0)

Height. (Building) The vertical distance from the grade to the top of the highest roof beams of a flat roof, or to the mean level of the highest gable or slope of a hip roof. When a building faces on more than one street, the height shall be measured from the average of the grades at the center of each street front.

(Court) The vertical distance from the lowest level of the court to the mean height of the top of the enclosing walls.

(Story) The vertical distance from top to top of two (2) successive tiers of beams or finished floor surfaces; and for the

topmost story, from the top of the floor finish to the top of the ceiling joists, or where there is no ceiling, to the top of the roof rafters.

(Wall) The vertical distance from the foundation wall or other immediate support of such wall, to the top of the wall.

Hereafter. After the time that this Code becomes effective.

Heretofore. Before the time that this Code becomes effective.

High Hazard Use. (See Section 901.0)

Hoistway Enclosure. (See Section 1601.0)

Hood. (See Section 1001.0)

Horizontal Exit. (See Section 601.0)

Horizontal Fire Line. (See Section 1201.0)

Incombustible Construction. The type of building construction in which all structural members including walls, floors, roofs and supports are constructed of steel or other incombustible materials, and the exterior of the building is enclosed with incombustible materials; and in which the protection, if any, is less than required to meet time-temperature performance requirements for fireproof buildings.

Incombustible Material. (See Section 901.0)

Indirect System. (See Section 1801.0)

Inflammable. (See Section 401.0)

Interior Lot Line. Any lot line other than one adjoining a street or public space.

Kerosene. (See Section 401.0)

Leader. (See Section 1701.0)

Light Gage Steel Construction. (See Section 701.0)

Limit Control. (See Section 1801.0)

Load. (See Section 701.0)

Lobby. (See Section 401.0)

Lot. A portion or parcel of land considered as a unit which is devoted to a certain use or is occupied by a building or a group of buildings that are united by a common interest or use, including the customary accessories and open spaces belonging to the same.

a. Interior Lot. One which faces on one street or with opposite sides on two (2) streets.

b. Corner Lot. One with two (2) adjacent sides abutting upon streets or other public spaces not less than twenty-one (21) feet in width.

Lot Line. The line dividing one lot from another or from a street or public space.

Low Hazard Use. (Hazard - See Section 901.0)

Main. (See Section 1701.0)

Manual Fire Alarm System. (See Section 1201.0)

Marquee Sign. (See Section 1401.0)

Masonry. (See Section 801.0)

Material Platform Hoist. (See Section 1301.0)

Moderate Hazard Use. (Hazard - See Section 901.0)

Mortar. (See Section 801.0)

Motor Vehicle Repair Shop. (See Section 401.0)

Moving Stairway. (See Section 1601.0)

Nominal Dimension. (See Section 801.0)

Non-Automatic Sprinkler System. (See Section 1201.0)

Occupancy Load. The number of persons normally occupying the building or part thereof, or for which it is designed within the capacity of the exit facilities or structural safety.

Occupiable Room. (See Section 501.0)

Occupied. The term shall be construed to include intended, arranged or designed to be occupied.

One Source System. (See Section 1201.0)

Open Sign. (See Section 1401.0)

Ordinary Materials. (See Section 701.0)

Oriel Window. A window extension projected beyond and suspended from the wall of the building or cantilevered therefrom.

Owner. The term shall be construed to include the owner, his heirs, successors or assigns, the owner of record, or any person having vested interest in the property in question.

Panel. (Part Of A Structure) The section of a floor or wall between the supporting frame of two (2) adjacent rows of columns and girders or column bands of floor construction.

Party Wall. A wall used or adapted for joint service between two (2) buildings or structures.

Passageway. (See Section 601.0)

Penthouse. An enclosed structure above the roof of a building, other than a bulkhead, extending not more than twelve (12) feet above the roof, and occupying not over thirty (30) per cent of the roof area.

Person. The term shall be construed to include individual, copartner or corporation.

Petroleum Products. (See Section 401.0)

Place Of Assembly. A room or space accommodating seventy-five (75) or more persons for religious, recreational, educational, political, social or amusement purposes or for the consumption of food and drink, including all connected rooms or spaces with a common means of entrance and exit.

Plenum Chamber. (See Section 1801.0)

Plumbing. (See Section 1701.0)

Plumbing Fixture. (See Section 1701.0)

Plumbing System. (See Section 1701.0)

Pole Sign. (See Section 1401.0)

Posted Use And Occupancy. The posted classification of a building in respect to use, fire load, floor load and occupancy load.

Posted Sign. The tablet, card, or plate which defines the use, occupancy, fire and floor loads of each story, floor or parts thereof for which the building or part thereof has been approved.

Prefabricated Building. (See Section 1901.0)

Prefabricated Sub-Assembly. (See Section 1901.0)

Prefabricated Unit. (See Section 1901.0)

Prefabricated Unit Service Equipment. (See Section 1901.0)

Pressure Limiting Device. (See Section 1801.0)

Pressure Relief Device. (See Section 1801.0)

Pressure Vessel. (See Section 1801.0)

Primary Member. (See Section 701.0)

Professional Engineer Or Architect. A person technically and legally qualified under the laws of the State of Rhode Island and Providence Plantations to practice the profession of engineering or architecture.

Projecting Sign. (See Section 1401.0)

Protected Construction. That in which all structural members are constructed, chemically treated, covered or protected so that the individual unit or the combined assemblage of all such units has the required fire-resistance rating specified for its particular use or application, and shall include protected-frame, protected-ordinary and protected-incombustible construction.

Protected Exterior. Exterior enclosure walls which are veneered and insulated or otherwise constructed of materials, which in themselves or an assembly of materials, are classified as incombustible, to develop the specified fire-resistance to exterior exposure; and which are supported on adequate foundations or supports of the required fire-resistance.

Pyroxylin Plastic. (See Section 401.0)

Rated Load. (See Section 1601.0)

Rated Speed. (See Section 1601.0)

Refrigerant. (See Section 1801.0)

Repair And Repairs. The replacement of existing work with the same kind of materials for the purpose of its maintenance or improvement, but not including additional work that would affect the structural safety, or affect required exit facilities, or a vital element of an elevator, plumbing, gas piping, wiring, ventilating or heating installation, or any work that would be in violation of a provision of this Code or any other law governing building construction.

Required. Shall be construed to mean required by provisions of this Code or the approved rules adopted thereunder.

Riser. (See Section 1701.0)

Roof Sign. (See Section 1401.0)

Rubble Masonry. (See Section 801.0)

Runway. (See Section 1301.0)

Scaffold. (See Section 1301.0)

Secondary Member. (See Section 701.0)

Self-closing. Applied to a fire door or other opening protective means normally closed and equipped with an approved device to insure closing after having been opened for use.

Service Equipment. The mechanical, electrical or elevator equipment, including piping, wiring, fixtures and other accessories, which provide sanitation, lighting, heating, ventilation and transportation facilities essential for the habitable occupancy of the building or structure for its designated use and occupancy.

Sewer. (See Section 1701.0)

Shall. The term when used in this Code shall be construed as mandatory.

Shaft. (See Section 901.0)

Signs Over Sidewalk. (See Section 1401.0)

Slow-Burning Material. (See Section 901.0)

Smoke Detector. (See Section 1801.0)

Smokepipe. (See Section 1001.0)

Smokeproof Tower. (Fire Tower - See Section 601.0)

Smokestack. (See Section 1001.0)

Soilpipe. (See Section 1701.0)

Space Heater. (See Section 1101.0)

Special Hoisting And Conveying Equipment. (See Section 1601.0)

Sprinklered. Equipped with an approved automatic sprinkler system with one or more sources of water supply as specifically required by the provisions of this Code.

Sprinkler System. (See Section 1201.0)

Stack. (See Section 1701.0)

Stairway. (See Section 601.0)

Standard Fire Test. (See Section 901.0)

Standpipe. (See Section 1201.0)

Steel Joist. (See Section 701.0)

Stop Valve. (See Section 1801.0)

Story. That part of a building comprised between a floor and a floor or roof next above, including a basement and a habitable attic, but not a cellar.

Street. A highway or thoroughfare dedicated or devoted to public use by legal mapping, by the user or by any other lawful procedure, which is twenty-one (21) feet or more in width and includes avenue, boulevard, concourse and similar public ways, which afford the principal means of access to abutting property.

Street Lot Line. A lot line dividing a lot from a street or other public space.

Structure. (Or Part Thereof) A combination of materials forming a construction that is safe and stable for useful occupancy or other purpose including among others, buildings, stadia, gospel and circus tents, reviewing stands, platforms, stagings, observation towers, radio towers, water tanks, trestles, piers, wharves, open sheds, coal bins, shelters, fences, display signs, etc.

Structural Clay Tile. (See Section 801.0)

Temporary Sign. (See Section 1401.0)

Ton Of Refrigeration. (See Section 1801.0)

Trap. (See Section 1701.0)

Trap Seal. (See Section 1701.0)

Two Source Systems. (See Section 1201.0)

Unit Heater. (See Section 1101.0)

Use. The character of usage or purpose for which the building is designed or used.

Used. Shall be construed to include the meaning "intended to be used".

Vent. (See Section 1001.0)

Vent Duct. (See "Duct" Section 1801.0)

Vent Pipe. (See Section 1701.0)

Volatile Inflammable. (See Section 401.0)

Wall. (Bearing) A wall used to support any load in addition to its own weight. (Also see Section 801.0)

(Non-bearing) A wall used to support no loads other than its own weight.

(Division) A wall used to divide a building or structure into separate parts for fire protection, different uses, for restricted occupancy, or other purposes specified in this Code.

(Curtain) An exterior non-bearing wall constructed between columns or piers, but not supported at each story.

(Skeleton Panel) A curtain wall supported at each story on a skeleton frame.

(Spandrel) That portion of a skeleton wall above the head of a window or door.

(Apron) That portion of a skeleton wall below the sill of a window.

(Parapet) The extension of a wall above the roof level.

(Party) A wall used or adapted for joint service between two (2) buildings or structures.

(Retaining) A wall designed to resist lateral pressure.

Wall Heater. (See Section 1101.0)

Wall Sign. (See Section 1401.0)

Water Curtain. (See Section 1201.0)

Window Cleaning. (See Section 1323.0)

Writing. The term shall be construed to include handwriting, type-writing, printing, photo-offset or any other form of reproduction in legible symbols or characters.

Yard. (See Section 501.0)

SEC. 202.0 - USE GROUPS

All buildings and structures shall be classified with respect to use in one of the following use groups: Group A - High Hazard; Group B - Storage; Group C - Mercantile; Group D - Industrial; Group E - Business; Group F - Assembly; Group H - Institutional; Group L - Residential; and Group M - Miscellaneous.

SEC. 202.1 - FIRE LOAD. All buildings and structures shall be graded in accordance with the degree of fire hazard as defined by the fire load in terms of hours and fractions of an hour and as specified in TABLE 17.

SEC. 202.2 - NEW USES. The Director shall establish by approved rules the degree of hazard involved in any use not specifically provided for in this Code.

SEC. 203.0 - USE GROUP A - HIGH HAZARD BUILDINGS

All buildings and structures shall be classified in the high hazard use group which are used for the storage, manufacture or processing of highly combustible, flammable or explosive products or materials which are likely to burn with extreme rapidity or from which poisonous fumes or explosions are to be anticipated in the event of fire; storage or manufacturing involving highly corrosive, toxic or noxious alkalies, acids or other liquids or chemicals involving flame, fume or explosion hazard; manufacture of hazardous fume or explosive, poisonous, irritant or corrosive gases; and the storage or processing of any highly flammable materials involving explosive mixtures of dust or which result in the division of matter into fine particles subject to spontaneous combustion.

SEC. 203.1 - LIST OF HIGH HAZARD USES. The processes, materials and manufacture listed in Table 1 are indicative of and shall be included among high hazard uses.

TABLE 1

USE GROUP A1 - HIGH HAZARD USES

Acetylene gas and gases under pressure of fifteen (15) pounds or more and in quantities of greater than twenty-five hundred (2500) cubic feet; including hydrogen, illuminating, natural ammonia, chlorine, phosgene, sulphur dioxide, carbon dioxide, methyl oxide and all gases subject to explosion, fume or to toxic hazard.

Airplane hangars - public.
 Artificial leather manufacture.
 Ammunition, explosives and fireworks manufacture.
 Bulk storage of flammable liquids having flash points below 190°F
 in quantity exceeding 21,000 gallons.
 Cereal, feed, flour and grist mills.
 Chemical manufacturing plants using materials involving flame, fume
 or explosion hazards.
 Grain elevators.
 Hydrogenation processes.
 Industries employing solids or substances which ignite or produce
 inflammable gases on contact with water.
 Match manufacture or storage in quantity.
 Nitro-cellulose manufacturing, and nitro-cellulose raw or finished
 product storage in quantity in excess of 5,000 pounds.
 Paint and varnish manufacture.
 Petroleum manufacture.
 Shoddy Mills.
 Smoke Houses.
 Sugar and starch pulverizing plants.
 Tanneries with enameling or japanning.

USE GROUP A2 - HIGH HAZARD USES

High hazard uses not listed in Use Group A1 such as:
 Artificial flowers manufacturing.
 Cotton dressmaking.
 Dry cleaning establishments.
 Feather renovating.
 Lumber yards.
 Metal enameling and japanning.
 Mill work and wood working.
 Motor vehicle repair shops.
 Nitro-cellulose film exchanges and laboratories.
 Paint mixing and spraying.
 Processing of paper or cardboard in loose form.
 Rag sorting and storage.
 Refrigerating systems using high hazard refrigerants as defined in
 Article 18.
 Straw goods manufacture.
 Tar, pitch or resin processing.
 Waste paper storage or baling.

SEC. 204.0 - USE GROUP B - STORAGE BUILDINGS

All buildings and structures shall be classified in the storage
 use group which are used primarily for the storage of goods, wares
 and merchandise, (not including those that involve highly combustible,

inflammable or explosive products or materials of the high hazard use group) and in which less than five (5) persons are employed in the labor of manufacturing or processing; including among others warehouses, storehouses and freight depots.

SEC. 204.1 - LIST OF MODERATE HAZARD USES. Buildings used for the storage of moderate hazard contents which are likely to burn with moderate rapidity but from which neither poisonous gases, fumes nor explosions are to be anticipated in the event of fire, including among others the materials listed in Table 2 shall be classified in the Group B1 storage use group.

TABLE 2

USE GROUP B1 - STORAGE USES - MODERATE HAZARD

Bags - cloth, burlap and paper.
 Bamboo and rattan.
 Baskets.
 Belting - canvas and leather.
 Books and paper in rolls or packs.
 Boots and shoes.
 Buttons, including cloth-covered, pearl or bone.
 Cardboard and cardboard boxes.
 Clothing.
 Cordage.
 Food products.
 Furniture.
 Furs.
 Glue, mucilage, paste and size.
 Horn and combs, other than celluloid or nitro-cellulose products.
 Leather - including enameled or japanned materials.
 Linoleum.
 Livestock shelters.
 Packing houses.
 Public airplane hangar.
 Public garage.
 Silk.
 Soap.
 Sugar.
 Tobacco products.
 Wax products.

SEC. 204.2 - LIST OF LOW HAZARD USES. Buildings used for the storage of incombustible materials, and of low hazard wares that do not ordinarily burn rapidly; including among others the materials listed in Table 3 shall be classified in the Group B2 storage use group.

TABLE 3USE GROUP B2 - STORAGE USES - LOW HAZARD

Asbestos
Chalk and crayons
Glass

Ivory
Metals
Porcelain and pottery

Talc and soapstones

SEC. 205.0 - USE GROUP C - MERCANTILE BUILDINGS

All buildings and structures shall be classified in the mercantile use group which are used for the display or sale of goods, wares and merchandise and in which people congregate, but involving only storage of stocks and goods that are incidental to display and merchandizing, including among others, retail stores, shops, sales rooms and markets but excluding all high hazard contents in quantity except when separately enclosed in construction of the specified fire-resistance required by the provisions of Articles 4 and 9.

SEC. 206.0 - USE GROUP D - INDUSTRIAL BUILDINGS

All buildings and structures shall be classified in the industrial use group which are used primarily for manufacturing or in which five (5) or more persons, at any one time, are engaged in performing work or labor in fabricating, assembling or processing of products or materials, including among others, factories, assembling plants, industrial laboratories and all other industrial and manufacturing uses except those involving highly combustible, inflammable or explosive products and materials of the high hazard use group (Use Group A).

SEC. 206.1 - LIST OF INDUSTRIAL USES. The processes and manufactures listed in Table 4 shall be indicative of and include the uses permitted in use group D buildings.

TABLE 4USE GROUP D - INDUSTRIAL USES

Breweries.
 Brush, broom and comb manufacture other than celluloid.
 Chemical plants other than high hazard uses.
 Dry cleaning establishments storing less than one (1) gallon of flammable liquids with a flash point under one hundred (100) degrees F in approved containers or less than sixty (60) gallons of flammable liquids with a flash point between one hundred (100) and one hundred ninety (190) degrees F in a closed machine, or using other than volatile flammable liquids in cleaning and dyeing operations.
 Electric light and power plants.
 Electrolytic reducing works.
 Food processing plants.
 Glass plants.
 Glue, mucilage and paste manufacture.
 Ice plants.
 Leather and tanneries, excluding enameling or japanning.
 Metal working plants.
 Mineral working plants.
 Printing plants.
 Rubber products manufacturing.
 Sugar refineries.
 Tenant factories, including high hazard uses.
 Textile mills.
 Tobacco products manufacturing.
 Water pumping plants.
 Woodworking.

SEC. 207.0 - USE GROUP E - BUSINESS BUILDINGS

All buildings and structures shall be classified in the business use group which are used for the transaction of business and uses that do not involve the storage of stocks of goods, wares, or merchandise in large quantities, except such as are incidental for display purposes; including among others, offices, banks, civic administration activities, professional services, testing and research laboratories, radio stations, telephone exchanges, and similar establishments.

SEC. 208.0 - USE GROUP F - ASSEMBLY BUILDINGS

All buildings and structures shall be classified in the assembly use group which are used or designed primarily for public assembly of persons or where the potential life hazard due to panic from fire, smoke or other emergency is severe.

SEC. 208.1 - USE GROUP F1 - THEATRES.

.11 Use Group F-1A structures shall include all theatres and other buildings used primarily for theatrical or operatic performances and exhibitions, arranged with a raised stage, proscenium curtain, fixed or portable scenery or scenery loft, lights, motion picture booth, mechanical appliances or other theatrical accessories and equipment with fixed seats.

.12 Use Group F-1B structures shall include all buildings other than group F-1A used for motion picture performances.

SEC. 208.2 - USE GROUP F2 structures shall include all buildings and places of public assembly, without theatrical stage accessories, in which seventy-five (75) or more persons assemble in one room or space designed for restaurants, dance halls, night clubs and similar purposes including all rooms, lobbies and other spaces connected thereto with a common means of entrance and exit.

SEC. 208.3 - USE GROUP F3 structures shall include all buildings with or without an auditorium in which persons assemble for amusement, entertainment or recreation, and incidental motion picture, dramatic, theatrical or educational presentations, lectures, or other similar purposes, without theatrical stage other than a raised platform; and principally used for unseated assemblages, including art galleries, museums, lecture halls, libraries and recreation centers; and buildings designed for all other assemblies including railroad, bus and passenger terminals and similar uses.

SEC. 208.4 - USE GROUP F4 structures shall include all buildings used as churches, schools, colleges and for similar educational uses.

SEC. 208.5 - SPECIAL USES grandstands, bleachers, coliseums, stadia, and similar structures shall comply with the provisions of this Code for special uses and occupancies (See Article 4).

SEC. 209.0 - USE GROUP H - INSTITUTIONAL BUILDINGS

All buildings and structures shall be classified in the institutional use group which are used for harboring people for penal, correctional medical or other care or treatment.

SEC. 209.1 - USE GROUP H1 shall include all buildings designed for the detention of people under restraint including among others, jails, prisons, reformatories, insane asylums and similar uses.

SEC. 209.2 - USE GROUP H2 shall include all buildings used for housing people suffering from physical limitations because of health or age, including among others, day nurseries, hospitals, sanitariums, clinics, infirmaries, orphanages, homes for aged and infirm; and buildings designed for the carrying on of public or civic services and activities of emergency character, including among others fire houses, police stations and similar uses.

SEC. 210.0 - USE GROUP L - RESIDENCE BUILDINGS

All buildings and structures shall be classified in the residence use group, in which families or households live or in which sleeping accommodations are provided with or without dining facilities, excluding those that are classified as institutional buildings.

SEC. 210.1 - USE GROUP L1 structures shall include all buildings arranged for the shelter and sleeping accommodation of more than fifteen (15) persons, including hotels, lodging houses, boarding houses and dormitories.

SEC. 210.2 - USE GROUP L2 structures shall include all multiple family buildings and all dormitories, boarding and lodging houses arranged for sheltering or feeding less than fifteen (15) persons.

SEC. 210.3 - USE GROUP L3 structures shall include all buildings arranged for the use of one (1) or two (2) family dwelling units including not more than five (5) lodgers or boarders per family.

SEC. 211.0 - USE GROUP M - MISCELLANEOUS USES

Structures and buildings of a temporary character and miscellaneous structures not classified in any specific use group shall be constructed equipped and maintained to meet the requirements of this Code commensurate with the fire and life hazard incidental to their use. Miscellaneous uses shall include all accessory buildings and structures used as private garages, sheds, fences and similar uses.

SEC. 212.0 - DOUBTFUL USE CLASSIFICATION

When a building or structure is proposed for a use not specifically provided for in this Code or the classification of which is doubtful, its designation shall be classified by the Director; and such building shall be included in the use group which it most nearly resembles in respect to the existing or proposed life and fire hazard.

SEC. 213.0 - MIXED USE AND OCCUPANCY

SEC. 213.1 - TWO OR MORE USES. In case a building is occupied for two (2) or more uses not included in one group, the provisions of this Code applying to each use shall apply to such parts of the building as come within that group; and if there are conflicting provisions, the requirements securing the greater public safety shall apply.

SEC. 213.2 - INCIDENTAL USE. Where the higher hazard is supplemental to the main use of the building and the area devoted to such use is constructed and segregated by fire-resistive construction as required in Article 4, the building shall be classified according to the main use.

SEC. 213.3 - FIRE SEPARATION. When such mixed uses are completely separated horizontally and vertically from adjoining occupancies by fire separations of the highest fire-resistance rating prescribed in Table 17, Article 9, for the separated uses, each part of the building shall be separately classified as to use.

SEC. 214.0 - CONSTRUCTION CLASSIFICATION

All buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one or a combination of the four (4) construction types herein defined:

- Type 1 - Fireproof Buildings
- Type 2 - Incombustible Buildings
- Type 3 - Exterior Masonry Wall Buildings
- Type 4 - Frame Buildings

SEC. 214.1 - FALSE DESIGNATION. No building shall be designated a given type of construction unless it conforms to the minimum requirements for that type and it shall be unlawful to post, use, or designate a building as of a given type of construction unless it complies with this Code.

SEC. 214.2 - MINIMUM REQUIREMENTS. When a superior type of construction is used than the minimum herein required for any specified use, height and area of the building, nothing in this Code shall be construed to require full compliance with the specifications for the higher type, but the designated construction classification of the building shall be that of the lesser requirement.

SEC. 214.3 - PROTECTION OF ELEMENTS. The walls, partitions and structural elements of all buildings shall be constructed or protected to develop the fire-resistance ratings specified in Table 5 for the designated type of construction.

SEC. 215.0 - FIREPROOF BUILDINGS

All fireproof buildings shall be constructed with enclosure walls of masonry, reinforced concrete or other approved fire-resistive construction; with all interior walls, partitions and structural elements constructed and protected with incombustible materials to afford the specified fire-resistance, except as may be modified by the provisions of Article 9 for unprotected roof trusses, finish and trim.

SEC. 215.1 - TYPE 1A structures shall include all fireproof buildings in which the walls, partitions and structural members or assemblies have the following minimum fire-resistance ratings:

4 Hours for all exterior walls on lot lines or less than five (5) feet therefrom or from other buildings and for interior bearing walls, fire walls and party walls;

4 Hours for exterior bearing walls five (5) feet or more from lot lines or from other buildings;

Exterior nonbearing walls as per Table 5;

2 Hours for enclosures of exitways, public hallways, stairways and other shafts except in one (1) and two (2) family dwellings;

3/4 Hours for other permanent partitions;

4 Hours for columns, girders and trusses as per Table 5;

3 Hours for floor construction including columns, girders, trusses and beams;

2 Hours for roof construction other than roof trusses;

Roof trusses and framing as per Table 5 (See Section 918.0).

SEC. 215.2 - TYPE 1B structures shall include all fireproof buildings in which the walls, partitions and structural members or assemblies have the following minimum fire-resistance ratings;

3 Hours for exterior walls on lot lines or less than five (5) feet therefrom or from other buildings and for interior bearing walls, fire walls and party walls;

3 Hours for all exterior bearing walls five (5) feet or more from lot lines or from other buildings;

Exterior nonbearing walls as per Table 5;

2 Hours for enclosures of exitways, public hallways, stairways and other shafts except in one and two family dwellings;

3/4 Hours for other permanent partitions;

3 Hours for columns, girders and trusses supporting bearing walls as per Table 5;

2 Hours for floor and roof construction, including columns, girders and trusses other than roof trusses; and

Roof trusses and framing as per Table 5 (See Section 918.0).

SEC. 216.0 - TYPE 2 - INCOMBUSTIBLE BUILDINGS

All incombustible buildings shall be constructed entirely of steel, concrete or other approved incombustible materials, with the exterior walls meeting the fire-resistive requirements herein specified, and as modified by the fire district limitations of Article 3 of this Code.

SEC. 216.1 - TYPE 2A structures shall include all incombustible buildings in which the walls, partitions, and structural members or assemblies have the following minimum fire-resistance ratings:

3 Hours for exterior walls on lot lines or less than five (5) feet therefrom or from any other building, fire walls and party walls;

2 Hours for exterior bearing walls more than five (5) feet from lot lines or from any other building, and for interior bearing walls;

Exterior nonbearing walls as per Table 5;

1 Hour for exterior nonbearing walls located thirty (30) feet or more from lot lines, or with an exposure of thirty (30) feet or more from adjacent buildings;

2 Hours for enclosures of exitways, stairways and other shafts except in one (1) and two (2) family dwellings;

1 Hour for partitions enclosing public hallways and corridors not part of exitways;

3/4 Hours for other permanent partitions;

2 Hours for columns, girders and trusses other than roof trusses as per Table 5;

1 1/2 Hours for floor and roof construction, including columns, girders and trusses other than roof trusses; and

Roof trusses and framing as per Table 5 (See Section 918.0).

SEC. 216.2 - TYPE 2B structures shall include all incombustible buildings in which the walls, partitions and structural members are unprotected or in which the structural members are so insulated or constructed of incombustible assemblies to afford less than three-quarter (3/4) hour fire-resistance; except that fire partitions enclosing exitways and shafts in other than one (1) and two (2) family dwellings shall be constructed to afford two (2) hours fire-resistance; partitions enclosing public hallways and corridors not parts of exitways shall be constructed to afford one (1) hour fire-resistance; fire walls and party walls shall be constructed to afford three (3) hour fire-resistance.

SEC. 217.0 - TYPE 3 - EXTERIOR MASONRY WALL

Exterior masonry wall buildings shall be constructed with exterior, fire and party walls of approved masonry or reinforced concrete proportioned for the required strength and stability for the use and occupancy as specified in Articles 7 and 8, in which the roofs, floors and interior framing are wholly or partly of wood or of unprotected steel or other approved combustible construction; and in which the fire and party walls are ground supported; except that girders and their supports carrying walls of masonry shall be protected to afford the same degree of fire-resistance as the walls supported thereon.

SEC. 217.1 - TYPE 3A structures shall include all exterior masonry wall buildings in which the interior structural members consist of heavy timbers with flat surfaces, with all sharp projections and concealed or inaccessible spaces eliminated; with heavy plank floor and roof construction; in which the walls, supporting girders, structural members, fire division walls and interior partitions have the fire-resistance ratings designated in Table 5; and the interior timber framing has the following minimum dimensions or consists of protected metal, reinforced concrete or other approved construction of the specified fire-resistance;

3 Hours for exterior walls on lot lines or less than five (5) feet therefrom or from other buildings, fire walls and party walls;

3 Hours for exterior bearing walls five (5) feet or more from lot lines or from other buildings;

Exterior nonbearing walls as per Table 5;

2 Hours for interior bearing walls and bearing partitions;

2 Hours for enclosures of exitways and other shafts;

1 Hour for partitions enclosing public hallways and corridors not part of exitways;

3/4 Hours for other permanent partitions;

2 Hours for columns, girders and trusses unless members are of steel, as per Table 5;

3/4 Hours for floor and roof construction;

Columns not less than eight (8) inches nominal dimension with rounded or chamfered corners;

Beams And Girders not less than six (6) inches nominal width and ten (10) inches nominal depth with wall plates, hangers or self-releasing boxes of approved type and approved column connections of three-quarter (3/4) hour fire-resistance rating;

Roof Framing Members not less than four (4) inches by six (6) inches nominal dimensions;

Interior Framing protected metal, or reinforced concrete or other construction of three-quarter (3/4) hour fire-resistance rating;

Flooring splined or tongued-and-grooved plank not less than three (3) inch nominal dimension in thickness, or four (4) inch laminated plank on edge;

Roof Decking two and one-half (2 1/2) inch nominal matched or splined plank or three (3) inch laminated construction or of material providing equivalent fire-resistance and structural properties.

SEC. 217.2 - TYPE 3B structures shall include all exterior masonry wall buildings in which the interior structural elements are wholly or partly of wood or of other approved combustible materials or of metal protected and insulated to afford the fire-resistance ratings herein specified:

3 Hours for exterior walls on lot lines or less than five (5) feet therefrom or from other buildings, fire walls and party walls;

3 Hours for exterior bearing walls five (5) feet or more from lot lines or from other buildings;

Exterior nonbearing walls as per Table 5;

1 Hour for interior bearing walls and bearing partitions;

2 Hours for enclosures of exitways and other shafts except in one (1) and two (2) family dwellings;

1 Hour for partitions enclosing public hallways and corridors not part of exitways;

0 Hours for other permanent interior partitions;

2 Hours for columns, girders and trusses except roof trusses when supporting more than one floor as per Table 5;

Roof trusses and framing as per Table 5.

Interior Framing wood members and floor joists not less than two (2) inch nominal thickness with one (1) inch under flooring and one (1) inch finish flooring.

Girders and their supports carrying walls of masonry protected to afford the same degree of fire-resistance as the walls supported thereon.

SEC. 217.3 - TYPE 3B - SPECIAL PROTECTION. Buildings of Type 3B construction with the structural elements protected as set forth in Section 217.1 for Type 3A structures, shall be considered to have a fire-resistance rating equivalent to Type 3A (Heavy Timber) construction

SEC. 218.0 - TYPE 4 - FRAME CONSTRUCTION

Type 4 structures shall include all frame buildings constructed with exterior walls, bearing walls, partitions, floor and roof construction, wholly or partly of wood stud and joist assemblies with a minimum nominal dimension of two (2) inches, or of other approved combustible materials; with fire-stopping at all vertical and horizontal draft openings as provided in Section 890.0.

SEC. 218.1 - TYPE 4 structures shall include all frame buildings in which exterior walls, interior partitions, floors and roofs are not insulated or protected with collateral materials to provide a designated fire-resistance.

SEC. 219.0 - EMERGENCY CONSTRUCTION

When deemed necessary for the public welfare, the Director may issue a temporary permit for emergency construction under special rules and regulations adopted in accordance with the procedure established in Section 109.0; or as approved by the board of appeals after reversal of the decision of the Director.

SEC. 219.1 - SPECIAL APPROVAL. All emergency construction shall be adequate in respect to structural strength, fire safety, egress facilities, light and ventilation and sanitary requirements to insure the public health, safety and general welfare.

SEC. 219.2 - TERMINATION OF APPROVAL. The Director is hereby authorized to terminate such special approval and to order the demolition of such building or structure at the expiration of the emergency period, or not more than one year thereafter at his discretion, or in accordance with the decision of the board of appeals.

TABLE 5.
FIRE RESISTANCE RATINGS OF STRUCTURAL ELEMENTS IN HOURS

STRUCTURAL ELEMENT			TYPE OF CONSTRUCTION								
			TYPE 1.		TYPE 2.		TYPE 3.		TYPE 4.		
			FIRE-PROOF		INCOMBUSTIBLE		MASONRY EXTERIOR		WOOD FRAME		
					PROTECTED	NOT PROTECTED	HEAVY TIMBER	JOIST NOT PROTECTED <small>NOTE 1</small>	NOT PROTECTED	PROTECTED	
1.	EXTERIOR WALLS - EXTERIOR EXPOSURE NOTE c.		1A	1B	2A	2B	3A	3B	4		
	EXTERIOR WALLS ON LOT LINES OR LESS THAN 5 FEET THEREFROM OR FROM OTHER BUILDINGS.		4	3	3	N P	3	3	N P		
	EXTERIOR BEARING WALLS 5 FEET OR MORE FROM LOT LINES OR FROM OTHER BUILDINGS.		4	3	2	0	3	3	0		
	EXTERIOR NON-BEARING WALLS 5 FEET OR MORE AND LESS THAN 15 FEET FROM SAME.		3	2	1½	0	2	2	0		
	EXTERIOR NON-BEARING WALLS 15 FEET OR MORE AND LESS THAN 30 FEET FROM SAME.		2	1½	1	0	2	2	0		
	EXTERIOR NON-BEARING WALLS 30 FEET OR MORE FROM SAME.		1½	1	1	0	2	2	0		
2.	INTERIOR BEARING WALLS AND BEARING PARTITIONS. <div>SEE TABLE 17</div>		4 3 2 0 2 1 0 NOT LESS THAN THE EQUIVALENT FIRE-RATING OF THE USE GROUP								
3.	FIRE WALLS AND PARTY WALLS. NOTE C.		4	3	3	3	3	3	3		
4.	FIRE DIVISION WALLS, FIRE PARTITIONS, VERTICAL SEPARATIONS AND FLOORS SEPARATING OCCUPANCIES. <div>NOTE c.</div>		THE OCCUPANCY REQUIRING THE GREATER FIRE RESISTANCE SHALL GOVERN. <div>SEE TABLE 17.</div>								
5.	ENCLOSURES OF EXITWAYS AND SHAFTS, INCLUDING FLOORS OF PASSAGEWAYS NOTE d.		2	2	2	2	2	2	1		
6.	PARTITIONS ENCLOSING PUBLIC HALLWAYS AND CORRIDORS NOT PART OF EXITWAYS.		2	2	1	1	1	1	1		
7.	PERMANENT PARTITIONS OTHER THAN THOSE SPECIFIED IN 4, 5, 6.		¾	¾	¾	0	¾	0	0		
8.	COLUMNS GIRDERS AND TRUSSES, OTHER THAN ROOF TRUSSES.	SUPPORTING ONE FLOOR	3	2	1½	0	1	1	0		
		SUPPORTING MORE THAN ONE FLOOR	4	3	2	0	2	2	0		
9.	STRUCTURAL MEMBERS SUPPORTING WALLS.		SAME FIRE RESISTANCE AS WALL SUPPORTED.								
10.	FLOOR CONSTRUCTION		3	2	1½	0	¾	0	0		
11.	ROOF CONSTRUCTION		2	2	1½	0	¾	0	0		
12.	ROOF TRUSSES AND FRAMING	HEIGHT TO LOWER CHORD	LESS THAN 20'		2	2	1½	0	¾	0	0
		20' OR MORE		1	0	0	0	0	0	0	

N.P. = NOT PERMITTED EXCEPT AS ALLOWED IN ARTICLE 3.

NOTES:

- (a) THE FIRE SEPARATIONS OR FIRE EXPOSURES IN FEET AS HEREIN REQUIRED APPLY TO THE DISTANCES MEASURED FROM ANY OTHER BUILDING OR FROM ANY INTERIOR LOT LINE OR FROM THE OPPOSITE SIDE OF A STREET OR PUBLIC SPACE.
- (b) IN FIRE DISTRICT NO. 1, EXTERIORS OF TYPE 2B CONSTRUCTION SHALL BE PROTECTED (SEE SEC. 302.4.)
- (c) FOR PARTY WALLS OF TYPE 4 CONSTRUCTION (SEE SEC. 909.3, 909.4)
- (d) EXITWAY ENCLOSURES IN ONE AND TWO FAMILY DWELLINGS, NOT OVER TWO AND ONE HALF STORIES IN HEIGHT, MAY BE OF LESS THAN ONE HOUR FIRE RESISTANCE.
- (e) THE FIRE RESISTANCE RATING OF EXTERIOR WALLS, FIRE DIVISION WALLS, AND OCCUPANCY SEPARATIONS, AGAINST INTERIOR FIRE EXPOSURE, SHALL NOT BE LESS THAN THAT REQUIRED FOR THE OCCUPANCIES INVOLVED. (SEE TABLE 17.)
- (f) BUILDINGS OF TYPE 3B CONSTRUCTION WITH THE STRUCTURAL ELEMENTS PROTECTED SO AS TO AFFORD THE FIRE RESISTANCES REQUIRED FOR 3A (HEAVY TIMBER) CONSTRUCTION, SHALL BE CONSIDERED TO HAVE A FIRE RESISTANCE RATING EQUIVALENT TO THAT OF 3A CONSTRUCTION. (SEE SEC. 217.3, TYPE 3B, SPECIAL CONSTRUCTION.)
- (g) FOR SPECIAL HIGH HAZARD USES INVOLVING A HIGHER DEGREE OF FIRE SEVERITY AND HIGHER CONCENTRATION OF COMBUSTIBLE CONTENTS, THE FIRE RESISTANCE FOR STRUCTURAL ELEMENTS SHALL BE INCREASED ACCORDINGLY. (SEE ARTICLE 4.)

ARTICLE 3 - GENERAL BUILDING LIMITATIONS

SEC. 300.0 - SCOPE.

The provisions of this article shall control the division of the municipality of the City of Providence into fire districts and the limitations of height and area of all buildings hereafter erected, and extensions to existing buildings hereafter altered or enlarged, as affected by the fire and life hazard incident to type of construction use group, density of building development, exterior exposure and accessibility of buildings and structures to fire fighting facilities and equipment.

SEC. 300.1 - ZONING RESTRICTIONS. When the provisions herein specified for structural, fire and sanitary safety are more restrictive than the zoning law of the City of Providence, this Code shall control the erection or alteration of buildings in respect to location, use, permissible area and height.

SEC. 301.0 - FIRE DISTRICT SUBDIVISIONS.

For the purposes of control of use and construction of buildings, there are hereby established two fire districts designated "Fire District No. 1" and "Fire District No. 2".

SEC. 301.1 - FIRE DISTRICT NO. 1 shall comprise the area housing congested business, commercial, manufacturing and industrial uses or in which such uses are developing and the limits of such areas are described as bounded by all that part of the city enclosed within the following projecting line, and lines drawn lengthwise through the centers of the following highways, bridge and railroad property, or parts thereof, and enclosed on certain sides by the following harbor lines or parts thereof, according to the nearest course between any two of the same in the order hereinafter stated.

Beginning at the harbor on the westerly side of the Providence river at a point where the city line intersects the harbor line, thence along the city line westerly to Montgomery Avenue, Montgomery Avenue to Michigan Avenue, Michigan Avenue to New York Avenue, easterly along New York Avenue to its terminus, thence northerly along a line crossing the easterly termini of Carolina Avenue, Georgia Avenue, Toronto Avenue and Chapman Street, Chapman Street to Allens Avenue, Allens Avenue to Georgia Avenue, Georgia Avenue to Eddy Street, Eddy Street to Byfield Street, thence easterly along the projected line of Byfield Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company (Harbor Junction Branch), thence northwesterly along said centerline to the intersection of Thurbers Avenue with the projected line of Poe Street,

thence along the projected line of Poe Street and along Poe Street to Public Street, Public Street to Eddy Street, Eddy Street to Willard Avenue, Willard Avenue to Plain Street, Plain Street to Elm Street, Elm Street to Bassett Street, Bassett Street to Claverick Street, Claverick Street to Friendship Street, Friendship Street to Beacon Avenue, Beacon Avenue to Pine Street, Pine Street to Lockwood Street, Lockwood Street to Hayward Street, Hayward Street to Linden Street, Linden Street to Broad Street, Broad Street to Major Street, Major Street to Central Street, Central Street to the projected line of A Street, thence along the projected line of A Street and along A Street to Lester Street, Lester Street to Knight Street, Knight Street to Cranston Street, Cranston Street to Dodge Street, Dodge Street to Westminster Street, Westminster Street to Courtland Street, Courtland Street to Carpenter Street, Carpenter Street to Dean Street, Dean Street to Broadway, Broadway to Bradford Street, Bradford Street to Cedar Street, Cedar Street to Dean Street, Dean Street to West Exchange Street, West Exchange Street to Atwells Avenue, Atwells Avenue to Harris Avenue, Harris Avenue to Delaine Street, along the projected line of Delaine Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company, thence southerly along the centerline of the right-of-way of the New York, New Haven and Hartford Railroad Company to the projected line of Earl Street, thence along Earl Street to Elmwood Avenue, Elmwood Avenue to Thackeray Street, Thackeray Street to Melrose Street, Melrose Street to Sackett Street, Sackett Street to Hamilton Street, thence southerly along the projected line of Hamilton Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company (Harbor Junction Branch), thence southerly to the city line and northerly along the centerline of the main line of the New York, New Haven and Hartford Railroad Company property to Roger Williams Avenue, Roger Williams Avenue to Narragansett Avenue, to Reservoir Avenue, across Reservoir Avenue to Downing Street, Downing Street to Adelaide Avenue, Adelaide Avenue to Mashapaug Pond, thence northerly along the easterly boundry of Mashapaug Pond to the projected line of Carter Street, thence to the centerline of the property of the New York, New Haven and Hartford Railroad Company, thence northerly along the centerline of the property of the New York, New Haven and Hartford Railroad Company to Union Avenue, thence along Union Avenue to the westerly boundry of the property of the New York, New Haven and Hartford Railroad Company, thence northerly along said boundry to Sterling Avenue, Sterling Avenue to the projected line of Huldah Street, the projected line of Huldah Street and Huldah Street to Magnolia Street, Magnolia Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company (Pascoag Branch), thence along said centerline to the projected line of Eastwood Avenue, thence westerly along Eastwood Avenue to Heath Street, Heath Street to Hartford Avenue, Hartford Avenue to Privet Street, Privet Street to City View Parkway, City View Parkway to Dolphin Street, thence northwesterly along the

projected line of Dolphin Street to the point of intersection with the projected line of Bosworth Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company (Pascoag Branch), thence along said centerline to the projected line of Salmon Street, thence along the projected line of Salmon Street and along Salmon Street to King Street, King Street to Sheridan Street, Sheridan Street to Aleppo Street, Aleppo Street to Bosworth Street, Bosworth Street to Manton Avenue, Manton Avenue to Delaine Street, Delaine Street to the Woonasquatucket River, the Woonasquatucket River to the projected line of Cutler Street, thence along the projected line of Cutler Street to Barstow Street, Barstow Street to Valley Street, Valley Street to Harold Street to Prescott Street, Prescott Street to Wolcott Street, Wolcott Street to Valley Street, Valley Street to West Park Street, West Park Street to Holden Street, Holden Street to Woodland Street, Woodland Street to Park Street, Park Street to Hayes Street, Hayes Street to Francis Street, Francis Street to Gaspee Street, Gaspee Street across Smith Street to the centerline of the property of the New York, New Haven and Hartford Railroad Company, thence along said centerline to Orms Street to Douglas Avenue, Douglas Avenue to North Davis Street to Chalkstone Avenue, Chalkstone Avenue to Delhi Street, Delhi Street to Dan Street, Dan Street to Bush Street to Oregon Street, Oregon Street to Fillmore Street, Fillmore Street to Admiral Street, Admiral Street to Charles Street, Charles Street to Lombardi Street, Lombardi Street to Commodore Street, Commodore Street to Silver Spring Street, Silver Spring Street to Smithfield Avenue, Smithfield Avenue to the city line, thence easterly along the city line to the Moshassuck River, thence southerly along the Moshassuck River to Smithfield Avenue, Smithfield Avenue to Branch Avenue, Branch Avenue to West River Street, West River Street to Burke Street, Burke Street to Erin Street, Erin Street to Elk Street, Elk Street to West River Street, West River Street to Cross Street, Cross Street to Charles Street, Charles Street to Nichols Street to Livingston Street to Printery Street, Printery Street to Dryden Lane, Dryden Lane to Branch Avenue, Branch Avenue to North Main Street, North Main Street to Cemetery Street, Cemetery Street to Nashua Street, Nashua Street to White Street, White Street to Collyer Street, Collyer Street to the city line, thence easterly along the city line across North Main Street to Hillside Avenue, thence easterly along Hillside Avenue for a distance of one-hundred (100) feet, thence southerly along a line parallel with and one-hundred (100) feet easterly from the easterly side of North Main Street and Captain J. Carleton Davis Boulevard to Burr's Lane, Burr's Lane to Benefit Street, Benefit Street to Tockwotton Street, Tockwotton Street to George M. Cohan Boulevard, George M. Cohan Boulevard to the westerly harbor line of the Seekonk River, thence along the westerly harbor line of the Seekonk River and the continuation of the same to the Providence River at Fox Point, thence along the easterly harbor line of the Providence River to its northerly terminus at the Crawford Street Bridge, thence along the Crawford Street Bridge to the westerly harbor line of the Providence River, thence along the westerly harbor line of the Providence River to said place of beginning.

SEC. 301.2 - FIRE DISTRICT NO. 2 shall comprise all areas not included in Fire District No. 1.

SEC. 302.0 - GENERAL FIRE DISTRICT PROVISIONS.

SEC. 302.1 - CHANGES IN DISTRICTS. Any changes in the boundaries of fire districts or changes of designation of any area from one fire district to another fire district shall be established by the promulgation of a new ordinance.

SEC. 302.2 - OVERLAPPING DISTRICTS. A building or structure located in more than one fire district shall be deemed to be in that one of the two districts which contains the major part of the building area; and in the event of equal distribution in the districts, the limitations of the more restricted district shall apply.

SEC. 302.3 - HIGH HAZARD USES. All buildings of high hazard use such as those listed in High Hazard Use Group A1 in Table 1, Section 203.0 shall be prohibited from location in Fire District No. 1. Buildings of high hazard use such as those listed in High Hazard Use Group A2 in Table 1, Section 203.0 shall be permitted only by a special permit and in accordance with the applicable requirements set forth in Article 4 and Article 9.

SEC. 302.4 - INCOMBUSTIBLE CONSTRUCTION. Except as modified by the provisions of Sections 303.0 and 304.0 for accessory and special structures, all buildings of unprotected incombustible construction (Type 2B) located within Fire District No. 1 shall be constructed as herein provided and such buildings shall not be permitted for high hazard uses;

.41 - Such buildings and structures shall not be permitted on interior lot lines or within five (5) feet thereof. When located from five (5) feet to ten (10) feet from interior lot lines, such buildings shall be enclosed with protected exteriors of one and one-half (1 1/2) hours fire-resistance; and may be built with unprotected exteriors, when located over ten (10) feet from interior lot lines or other buildings on the same lot.

SEC. 302.5 - FRAME CONSTRUCTION. No building of frame construction (Type 4) shall be permitted within Fire District No. 1 nor shall such building or structure be moved from without to within or from one lot to another within Fire District No. 1 except as provided in Sections 303.0 and 304.0 for accessory structures; and no building, of otherwise lawful construction, shall be extended in height or area within Fire District No. 1 if of frame construction.

SEC. 302.6 - ROOF COVERINGS. All roof coverings shall be constructed of incombustible materials conforming to the requirements of Class 1, Class 2 or Class 3 roofings complying with the provisions of Section 933.0.

SEC. 302.7 - TEMPORARY STRUCTURES. Temporary structures including, among others, reviewing stands, sheds and canopies for construction work shall be erected only by a special permit, issued by the Director, and shall be completely removed upon expiration of the specified time limit.

SEC. 303.0 - RESTRICTIONS OF FIRE DISTRICT NO. 1.

All buildings and structures hereafter erected within the boundaries of Fire District No. 1 shall be of fireproof (Type 1), incombustible (Type 2) or exterior masonry wall (Type 3) construction as defined in Article 2 and Table 5; and shall be constructed within the height and area limitations of Table 6; except as herein provided.

SEC. 303.1 - BUILDERS' SHANTIES, REVIEWING STANDS. Temporary builders' shanties erected in connection with approved building operations, platforms, reviewing stands and other similar miscellaneous structures may be erected of frame construction (Type 4) for a limited period of time as approved by the Director.

SEC. 303.2 - BINS, TANKS AND TOWERS. Coal and material bins, water towers, tank structures and trestles may be erected of heavy timber construction with dimensions not less than required for Type 3A construction, not over thirty-five (35) feet in height, when located thirty (30) feet or more from the lot line.

SEC. 303.3 - PRIVATE GARAGES AND AIRPLANE HANGARS. Private garages and airplane hangars, when accessory to a dwelling on the same lot, one story but not exceeding fifteen (15) feet in height or twelve hundred and fifty (1250) square feet in area, outbuildings not over eight (8) feet in height or one hundred (100) square feet in area, must be erected of (Type 1), (Type 2A), (Type 3A) or (Type 3B) construction, when located less than five (5) feet from the lot line or other buildings on the same lot; and may be erected of (Type 2B) construction when located more than five (5) feet from the lot line or other buildings on the same lot. Such buildings of (Type 2B) construction may be erected one story but not exceeding fifteen (15) feet in height or seven hundred fifty (750) square feet in area, when located more than five (5) feet from the lot line.

SEC. 303.4 - GREENHOUSES. Greenhouses and similar accessory structures not exceeding fifteen (15) feet in height or five hundred (500) square feet in area may be erected of protected frame construction

(Type 4) when accessory to a dwelling on the same lot and located not less than ten (10) feet from the lot line; and of incombustible construction (Type 2B) when not exceeding fifteen (15) feet in height or two thousand five hundred (2,500) square feet in area, and located not less than ten (10) feet from the lot line.

SEC. 303.5 - GASOLINE SERVICE STATIONS. Gasoline service stations, parking lot offices and structures of similar business uses, not including high hazard uses, may be erected of unprotected noncombustible construction (Type 2B), one story but not exceeding twenty (20) feet in height and twelve hundred and fifty (1250) square feet in area if located not less than ten (10) feet from the lot line.

SEC. 304.0 - RESTRICTIONS OF FIRE DISTRICT NO. 2.

All buildings and structures hereafter erected within the boundaries of Fire District No. 2, except as herein specifically prohibited, or for which special approval is required in connection with high hazard uses and occupancies in Article 4, shall be permitted within the height and area limitations of Table 6, except that all the variations permitted in Fire District No. 1 shall apply to permissible construction in Fire District No. 2 with the following additional exceptions:

SEC. 304.1- ALTERATIONS.

.11 Limitations. Nothing in these provisions shall be deemed to prohibit alterations within the limitations of Section 106.0, provided no unlawful change of occupancy is involved.

.12 Minor Changes. Changes, alterations or repairs to the interior of a building and to the front, facing a public street, may be permitted, provided such changes in the opinion of the Director do not increase the size or the fire hazard of the building or endanger the public safety, and are not specifically prohibited by this Code.

.13 Existing Projections. No change or enlargement shall be made to an existing part of a building now projecting beyond the street line or building line, where such is established by law, except in conformity with the provisions of Sections 309.0 and 310.0.

SEC. 304.2 - INCREASE IN HEIGHT AND AREA. It shall be unlawful to increase the height or area of an existing building or structure unless it is of a type of construction permitted for new buildings of the increased height and area and use group within the fire district in which it is located.

SEC. 304.3 - ROOF COVERINGS. Roof coverings shall conform to the fire-resistive requirements for Class 1, 2 or 3 roofings complying with the provisions of Sections 906.5 and 933.0.

SEC. 304.4 - VERANDAS. Verandas, balconies and similar appurtenant structures on dwellings, not exceeding ten (10) feet in width nor projecting more than two (2) feet above the second story floor beams may be erected of frame construction (Type 4), provided they do not extend nearer than five (5) feet to the lot line, and when connected to an adjoining building of similar construction, are separated therefrom by walls of two (2) hour fire-resistance.

SEC. 304.5 - STORM ENCLOSURES. Storm enclosures not more than twelve (12) feet in height nor more than three (3) feet wider than the entrance doors they serve may be of frame construction (Type 4), when provided with approved noncombustible roofing.

SEC. 304.6 - SHEDS. Sheds of frame construction (Type 4) may be erected not over fifteen (15) feet in height and five hundred (500) square feet in area, open on the long sides.

SEC. 304.7 - PRIVATE GARAGES AND AIRPLANE HANGARS. Private garages and airplane hangars, when accessory to a dwelling on the same lot, one story but not exceeding fifteen (15) feet in height and seven hundred and fifty (750) square feet in area may be erected of Type 4 construction, when located more than five (5) feet from interior lot lines provided, however, that such buildings may be located within five (5) feet and not less than three (3) feet from the interior lot lines, if the side or sides within such distances shall have the spaces between the studding completely filled in flush with brick or mortar or equally noncombustible material.

SEC. 304.8 - ATTACHED GARAGES. (See Section 414.0)

SEC. 305.0 - GENERAL AREA AND HEIGHT LIMITATIONS.

The areas and heights of all buildings and structures between exterior walls or between exterior walls and fire walls shall be governed by the type of construction and the use group classification as defined in Article 2, and shall not exceed the limits fixed in Table 6, except as these may be modified by other provisions of this Code.

SEC. 305.1 - AVERAGE ONE STORY AREA LIMIT. The area limitations specified in Table 6 shall apply to all one-story buildings fronting on a public street, or an open space not less than thirty (30) feet in width, accessible to a public street.

SEC. 305.2 - AVERAGE HEIGHT LIMIT. The height in feet and number of stories specified in Table 6 shall apply to all buildings and to all separate parts of a building enclosed within lawful fire walls complying with the provisions of Article 9.

SEC. 305.3 - AREA OF MULTISTORY BUILDINGS. In multistory buildings, the area of each floor shall not exceed the tabular value given in Table 6, reduced by five (5) per cent for each story above the first in accordance with the following formula, where N equals the number of stories:

Area Of Each Floor Of A Building =

Tabular Value - Tabular Value x (N-1) x 5%

SEC. 305.4 - EQUIVALENT HEIGHT IN FEET AND STORIES. Unless otherwise specified, the equivalent height of a building or structure in feet shall be assumed to correspond to the number of stories indicated in Table 7.

TABLE 7

EQUIVALENT HEIGHT IN FEET AND STORIES

1 story	20 feet	12 stories.....	148 f
2 stories.....	30 "	13 "	160
3 "	40 "	15 "	184
4 "	52 "	17 "	208
5 "	64 "	19 "	232
6 "	76 "	20 "	244
7 "	88 "	30 "	364
9 "	112 "	40 "	484

SEC. 306.0 - AREA EXCEPTIONS

The provisions of this section shall modify the area limits of Table 6 as herein specified.

SEC. 306.1 - STREET FRONTAGE INCREASE. When a building or structure of high hazard, storage, mercantile, industrial or business use groups has more than twenty-five (25) per cent of the building perimeter fronting on a street or other accessible unoccupied public space, not less than thirty (30) feet in width, leading to a street, the tabular areas may be increased as follows:

.11 - High Hazard Uses. One (1) per cent for each one (1) per cent of such excess frontage.

.12 - Storage, Mercantile, Industrial Or Business Uses. Two (2) per cent for each one (1) per cent of such excess frontage.

.13 - One-Story Buildings. In one-story buildings of Use Groups B, C, D and E, with no cellar or floor below grade, where more than one story is permitted according to Table 6, the tabular areas may be increased fifty (50) per cent.

SEC. 306.2 - SPRINKLER INCREASE. When a building or structure of storage, mercantile, industrial or business use groups is equipped with an approved automatic sprinkler system, unless such sprinkler system is required by the provisions of Article 4 or Article 12 for structures of special use and occupancy, the tabular areas may be increased one hundred (100) per cent.

SEC. 307.0 - UNLIMITED AREAS.

SEC. 307.1 - ONE-STORY BUILDINGS. The areas of all one-story buildings of Types 1A, 1B and 2A of business, industrial and storage uses, except high hazard uses, shall not be limited outside Fire District No. 1, provided that the exit facilities comply with the provisions of Article 6, the fire protection and fire extinguishing equipment comply with the provisions of Article 12 and the building is isolated as provided in Section 307.2.

SEC. 307.2 - WIDTH OF SEPARATION. The minimum width of separation on all sides of one-story buildings of unlimited area shall be determined by the type of construction as herein specified:

Fireproof Construction.....	{Types 1A & 1B) 40 Ft.
Incombustible, Protected.....	{Type 2A..... 40 Ft.

SEC. 308.0 - HEIGHT EXCEPTIONS.

SEC. 308.1 - ROOF STRUCTURES. In applying the provisions of this Code governing height limits, the following appurtenant structures shall not be included in the height of the building: roof tanks and their supports; ventilating, air-conditioning and similar service equipment, bulkheads, chimneys, and parapet walls not exceeding four (4) feet in height, unless the aggregate of such structures including penthouses, exceeds one-third ($1/3$) of the area of the roof of the building upon which they are erected.

SEC. 308.2 - AUTOMATIC SPRINKLERS. Except in buildings where automatic sprinkler equipment is a requirement of Article 4 or Article 12 for special uses or occupancies, all structures of fireproof (Type 1), incombustible (Type 2), and exterior masonry wall construction (Type 3), designed for business, industrial or storage uses may be erected one-story higher than specified in Table 6, when equipped with an approved automatic sprinkler system.

SEC. 309.0 - STREET ENCROACHMENTS

Except as herein provided, no part of any building hereafter erected or additions to an existing building heretofore erected, shall project beyond the lot lines or beyond the building line, when such line is established by this Code, zoning law or any other law or statute controlling building construction.

SEC. 309.1 - BELOW GRADE. No part of a building hereafter erected below grade, necessary for structural support of the building, shall project beyond the lot lines except that the footings of street walls or their supports located at least eight (8) feet below grade, may project not more than twelve (12) inches beyond the street lot line.

SEC. 309.2 - ABOVE GRADE. All projections hereafter permitted beyond the street line or the building line above grade shall be so constructed as to be readily removable without endangering the safety of the building.

SEC. 309.3 - STREET LINES AND GRADES.

.31 - Buildings Within Ten (10) Feet Of A Street. No building or other permanent structure or any part thereof, shall be erected or altered in such a manner as to be located within ten (10) feet of a street or highway in said city, whether said street or highway is duly received by said city or otherwise dedicated to public use, until a written request is filed in the office of the City Engineer for street lines and grades at such location, six (6) days prior to the actual commencement of construction operations.

.32 - City Engineer. The City Engineer, within five (5) days after receiving such request, shall proceed to mark out and define the street line at such location, if such line can be accurately determined. He shall also, within the said time, mark the street grade at such location, if such grade has been duly established or defined, and shall make such return of said marking of line and grade to the Director as shall be necessary for the Director's information.

SEC. 309.4 - PROJECTIONS NECESSARY FOR SAFETY. In any specific application, the Director may designate by approved rules, such architectural features and accessories which are deemed desirable or necessary for the health or safety of the public, and the extent to which they may project beyond the street lot line or the building line, where such is established by statute, subject to all provisions and restrictions that may be otherwise prescribed by law, ordinance or rule of the authorities having jurisdiction over streets or public spaces.

TABLE 6.

GENERAL HEIGHT AND AREA LIMITATIONS

BUILDINGS FACING ON ONE STREET OR PUBLIC SPACE NOT LESS THAN 30FT. WIDE.
AREAS IN SQ.FT. FOR ONE STORY BUILDINGS. HEIGHTS FOR BUILDINGS IN STORIES AND IN FEET.

USE GROUP		TYPE OF CONSTRUCTION						
		TYPE 1		TYPE 2		TYPE 3		TYPE 4
		FIREPROOF		INCOMBUSTIBLE		EXTERIOR MASONRY		FRAME
				PROTECTED	NOT PROTECTED	MILL HEAVY TIMBER	JOIST NOT PROTECTED	NOT PROTECTED
		1A	1B	2A	2B	3A	3B	4
A.	HIGH HAZARD - STORAGE MANUFACTURE, PROCESSING	4ST. 52' 12,000	3ST. 40' 9,000	3ST. 40' 7,000	1ST. 20' 3,500	2ST. 30' 4,000	1ST. 20' 3,000	N.P.
B.	STORAGE - MODERATE	7ST. 88' 24,500	5ST. 64' 19,000	5ST. 64' 12,000	1ST. 20' 5,000	3ST. 40' 9,000	2ST. 30' 5,000	1ST. 20' 3,000
B2	STORAGE - LOW HAZARD	N.L.	8ST. 100' 33,000	6ST. 76' 21,000	1ST. 20' 9,000	4ST. 52' 15,000	3ST. 40' 9,000	1ST. 20' 4,000
C	MERCANTILE	10ST. 124' 28,000	8ST. 100' 22,000	5ST. 64' 16,000	1ST. 20' 9,000	3ST. 40' 12,000	2ST. 30' 9,000	1ST. 20' 4,000
D	INDUSTRIAL	N.L.	10ST. 124' 22,000	6ST. 76' 16,000	2ST. 30' 9,000	3ST. 40' 12,000	2ST. 30' 9,000	1ST. 20' 4,000
E	BUSINESS	N.L.	10ST. 124' 33,000	6ST. 76' 21,000	2ST. 30' 9,000	3ST. 40' 15,000	2ST. 30' 9,000	1ST. 30' 4,000
F1A	ASSEMBLY - THEATRES WITH STAGE AND SCENERY	N.L.	T. * 75' 11,000	N.P.	N.P.	N.P.	N.P.	N.P.
F1B	ASSEMBLY - THEATRES WITHOUT STAGE AND SCENERY	N.L.	T. 50' 16,500	1ST. 20' 10,500	N.P.	N.P.	N.P.	N.P.
F2	ASSEMBLY - NIGHT CLUBS RESTAURANTS	N.L.	4ST. 52' 11,000	3ST. 40' 7,000	1ST. 20' 2,000	2ST. 30' 5,000	1ST. 20' 3,000	1ST. 20' 1,000
F3	ASSEMBLY - RECREATION, LECTURE HALLS, TERMINALS	N.L.	6ST. 76' 16,500	4ST. 52' 10,500	1ST. 20' 3,000	3ST. 40' 7,500	2ST. 30' 4,500	1ST. 20' 2,000
F4A	ASSEMBLY - CHURCHES	N.L.	6ST. 76' 16,500	4ST. 52' 10,500	N.P.	2ST. 30' 7,500	1ST. 20' 4,500	N.P.
F4B	ASSEMBLY - SCHOOLS.	N.L.	6ST. 76' 20,000	4ST. 52' 10,500	N.P.	2ST. 30' 7,500	1ST. 20' 4,500	N.P.
H1	INSTITUTIONAL - RESTRAINED	10ST. 124' 17,500	6ST. 76' 14,000	4ST. 52' 9,000	1ST. 20' 2,500	2ST. 30' 6,000	1ST. 20' 4,000	N.P.
H2	INSTITUTIONAL - INCAPACITATED	10ST. 124' 14,000	6ST. 76' 11,000	3ST. 40' 7,000	N.P.	1ST. 20' 5,000	N.P.	N.P.

L1	RESIDENTIAL - HOTELS	N.L.	10ST. 124 22,000	151. 00 14,000	251. 30 4,000	351. 40 10,000	351. 40 6,000	151. 20 3,000
L2	RESIDENTIAL - MULTI-FAMILY	N.L.	10ST. 124 22,000	75T. 88' 14,000	35T. 40' 4,000	35T. 40' 10,000	35T. 40' 6,000	2½ST. 35' 3,000
L3	RESIDENTIAL - ONE AND TWO-FAMILY	N.L.	----- 22,000	----- 14,000	35T. 40' 4,000	35T. 40' 10,000	35T. 40' 6,000	2½ST. 35' 3,000
M	MISCELLANEOUS AND TEMPORARY STRUCTURES	SEE SEC'S. 211.0, 302.0, 303.0, 304.0, 414.0, 421.0 TO 424.0 INCLUSIVE.						

ST = STORIES NL = NOT LIMITED IN HEIGHT OR AREA. NP=NOT PERMITTED. *T=THEATRE PORTION
NOTES.

- (a.) GENERAL HEIGHT AND AREA LIMITATIONS. IN GENERAL THE HEIGHTS AND AREAS OF ONE STORY AND MULTI-STORY BUILDINGS SHALL BE IN ACCORDANCE WITH TABLE 6 AND SECTION 305.0.
- (b.) FRONTAGE INCREASE. FOR BUILDINGS OF USE GROUPS A, B, C, D AND E WITH FRONTAGE OF MORE THAN TWENTY-FIVE (25) PERCENT OF THE BUILDING PERIMETER ON ONE OR MORE STREETS, OR OTHER ACCESSIBLE UNENCLOSED SPACE NOT LESS THAN THIRTY (30) FEET IN WIDTH, THE TABULAR AREA MAY BE INCREASED ONE (1) PERCENT FOR EACH ONE PERCENT OF SUCH EXCESS FRONTAGE FOR USE GROUP A AND TWO (2) PERCENT FOR EACH ONE (1) PERCENT OF SUCH EXCESS FRONTAGE FOR USE GROUPS B, C, D, AND E. (SEE SEC. 306.1)
- (c.) SPRINKLER INCREASE. FOR BUILDINGS OF USE GROUPS B 2, C, D AND E, THE AREAS OF TABLE 6 MAY BE INCREASED ONE HUNDRED (100) PERCENT WHEN THE BUILDINGS ARE EQUIPPED WITH APPROVED AUTOMATIC SPRINKLER SYSTEMS NOT OTHERWISE SPECIFICALLY REQUIRED BY THIS CODE. (SEE SEC. 306.2)
FOR BUILDINGS OF USE GROUP B 1, THE AREAS OF TABLE 6 MAY BE INCREASED FIFTY (50) PERCENT WHEN THE BUILDINGS ARE EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEMS NOT OTHERWISE SPECIFICALLY REQUIRED BY THIS CODE. (SEE SEC. 306.1)
- (d.) MAXIMUM TOTAL AREAS. THE MAXIMUM FLOOR AREA AS PERMITTED BY "b" AND "c" SHALL NOT EXCEED ONE AND THREE QUARTERS (1-¾) TIMES THE VALUES OF TABLE 6 FOR BUILDINGS OF USE GROUP A AND SHALL NOT EXCEED TWO AND ONE-HALF (2-½) TIMES THE VALUES OF TABLE 6 FOR BUILDINGS OF USE GROUPS B, C, D, AND E. (SEE SEC. 306.0.)
- (e.) UNLIMITED AREAS. THE AREAS OF ALL ONE STORY BUILDINGS OF TYPES 1A, 1B, AND 2A OF BUSINESS, INDUSTRIAL AND STORAGE USES, EXCEPT HIGH HAZARD USES, NOT EXCEEDING THIRTY-FIVE (35) FEET IN HEIGHT AND LOCATED OUTSIDE THE FIRST FIRE DISTRICT, SHALL NOT BE LIMITED; PROVIDED THAT THE EXIT FACILITIES COMPLY WITH ARTICLE 6, THE FIRE PROTECTION AND THE FIRE EXTINGUISHING EQUIPMENT COMPLY WITH ARTICLE 12 AND THE "WIDTH OF SEPARATIONS" IS AS REQUIRED BY SEC. 307.2. (SEE SEC. 307.0.)
- (f.) ONE STORY BUILDINGS. IN ONE STORY BUILDINGS OF USE GROUPS B, C, D AND E, WITH NO CELLAR OR FLOOR BELOW GRADE, WHERE MORE THAN ONE STORY IS PERMITTED ACCORDING TO TABLE 6, THE TABULAR AREAS MAY BE INCREASED FIFTY (50) PERCENT.
- (g.) INCREASE IN HEIGHT FOR AUTOMATIC SPRINKLERS. BUILDINGS OF USE GROUPS B 1, B 2, D AND E OF TYPES 1A, 1B, 2A, 2B, 3A, AND 3B CONSTRUCTION MAY BE INCREASED ONE (1) STORY IN HEIGHT WHEN EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEMS NOT OTHERWISE SPECIFICALLY REQUIRED BY THIS CODE. (SEE SEC. 308.2)
- (h.) BUILDINGS OVER FOUR STORIES HIGH. ALL BUILDINGS OF TYPE 2A CONSTRUCTION OVER FOUR STORIES IN HEIGHT - (SEE SEC. 907.0)
- (i.) PRIVATE GARAGES, AIRPLANE HANGARS AND OTHER ACCESSORY BUILDINGS. PRIVATE GARAGES, AIRPLANE HANGARS AND OTHER ACCESSORY BUILDINGS SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 211.0, 302.0, 303.0, 304.0, 414.0 AND SECTIONS 421.0 TO 424.0 INCLUSIVE.
- (j.) STADIA AND GRANDSTANDS. STADIA AND GRANDSTANDS SHALL COMPLY WITH THE REQUIREMENTS OF SEC. 421.0.
- (k.) CHURCH AUDITORIUMS. CHURCH AUDITORIUMS OF TYPES 3A AND 3B CONSTRUCTION MAY BE ERECTED TO A HEIGHT OF FORTY-FIVE (45) FEET.
- (l.) HIGH HAZARD AND ASSEMBLY REQUIREMENTS. IN ADDITION TO THE GENERAL REQUIREMENTS OF TABLES 5 AND 6, THE SPECIAL REQUIREMENTS OF ARTICLE 4 SHALL CONTROL ALL BUILDINGS AND STRUCTURES OF HIGH HAZARD USE AND ALL PLACES OF ASSEMBLY.
- (m.) SPECIAL FIRE-RESISTIVE REQUIREMENTS. SEE SEC. 907.0

SEC. 309.5 - PERMITS REVOCABLE. Any permit granted, or permission expressed or implied in the provisions of this Code, to construct a building so as to project beyond the street lot line or building line shall be revocable at will.

SEC. 309.6 - EXISTING ENCROACHMENTS. Parts of existing buildings and structures which already project beyond the street line or building line may be maintained as constructed, until their removal is directed by the proper municipal authorities.

SEC. 310.0 - PERMISSIBLE STREET PROJECTIONS.

Subject to such provisions as may be otherwise prescribed by law or ordinance, or by rule of the municipal authorities having jurisdiction over streets, highways and public spaces, the following projections shall be permitted beyond the street lot line or the property line, as the case may be.

SEC. 310.1 - MAIN CORNICES or roof eaves located at least twelve (12) feet above the curb level shall not project more than two (2) feet.

SEC. 310.2 - BELT COURSES, lintels, sills, architraves, pediments and similar architectural decorations shall not project over the street line, when less than ten (10) feet above the curb level, and not more than ten (10) inches, when ten (10) feet or more above the curb level.

SEC. 310.3 - ORIEL WINDOWS, the lowest portion of which is at least ten (10) feet above the curb level, shall not project more than two (2) feet.

SEC. 310.4 - BALCONIES, located at least ten (10) feet above the curb level, shall not project more than two (2) feet, except that when the balcony is required in connection with a fire escape or exterior stairway as a means of egress, the projection may be increased not to exceed four (4) feet.

SEC. 310.5 - AWNINGS.

.51 - Movable Awnings. The lowest part of a movable awning shall be at least eight (8) feet above the sidewalk level, and no movable awning shall project closer to the face of the curb than eighteen (18) inches.

.52 - Awning Covers. Awning covers or boxes shall be located at least nine (9) feet above the sidewalk level and shall not project more than eighteen (18) inches.

SEC. 310.6 - MARQUEES.

.61 - Permission Of City Council. No marquee, canopy or shelter, projecting over a sidewalk, shall be erected on any building without the permission of the City Council of the City of Providence.

.62 - Application For Permit. An application to erect a marquee, canopy or shelter, projecting over a sidewalk, shall be made to the City Council, and such application shall be accompanied by plans and specification of such marquee, canopy or shelter, showing the size and location, and specifying the materials of construction.

.63 - Reference To Director. The City Council shall refer the plans and specification to the Director, who shall report thereon to the said City Council, as to the proposed construction and as to the advisability of permitting the erection of such marquee, canopy or shelter.

.64 - Materials And Method Of Construction. In case the permit is granted, the marquee, canopy or shelter, shall be constructed of incombustible materials. Unless supported by approved cantilever framing, the structure shall be supported by rods, chains or other supports projecting over the sidewalk but in no case shall any part extend above the first story of the building. Every part of such marquee, canopy or shelter, shall be at least nine (9) feet above the sidewalk level and no part of such structure or sign permitted to be attached thereto, shall extend to nearer than two (2) feet from the face of the curb.

.65 - Director's Approval And Supervision. Every such marquee, canopy or shelter, for which a permit is granted, shall be constructed in accordance with the requirements of the applicable sections of this Article, Article 7 and Article 8, and the work shall be done under the supervision of the Director.

.66 - Revoking Of Permit. The City Council at any time in its discretion, may revoke any such permit and order such marquee, canopy or shelter, to be removed by the owner or owners of the building to which such structure is attached, and in case of failure to remove the same within three (3) days after such notice is given in the manner provided in this Code, the Director shall cause the same to be forthwith removed at the expense of the owner or owners.

SEC. 310.7 - VAULTS BELOW THE SIDEWALK. Vaults below the sidewalk level shall not extend closer than three (3) feet to the curb line and shall be subject to the requirements of the Director of Public Works, the applicable requirements of this Code and the approval of the Director.

SEC. 311.0 - PERMISSIBLE YARD AND COURT ENCROACHMENTS

No part of any building or structure shall extend into side courts, inner courts or yards required for light and ventilation of habitable and occupiable spaces by the provisions of Article 5, by the zoning law or other laws controlling building construction, except as hereinafter provided; but in no case shall the encroachment exceed twenty (20) per cent of the legal area of yard or court required for light and ventilation purposes.

SEC. 311.1 - ROOF EAVES shall not project more than two (2) feet beyond the face of the wall.

SEC. 311.2 - STEPS AND ARCHITECTURAL FEATURES. Rain leaders, window sills, belt courses and similar architectural features and chimneys shall not project more than eighteen (18) inches beyond the face of the wall. Steps shall not project more than three (3) feet beyond the face of the wall.

SEC. 311.3 - EXTERIOR STAIRWAYS AND FIRE ESCAPES. Outside stairways, fire tower balconies, fire escapes or other required means of egress shall not project more than four (4) feet beyond the face of the wall.

SEC. 312.0 - SPECIAL BUILDINGS AND OCCUPANCIES REQUIRING CITY COUNCIL PERMISSION

SEC. 312.1 - STABLES. No building or part thereof shall be used as a stable, and no building shall be erected, altered or enlarged to be used as a stable, unless the location thereof shall have been approved (first) by the City Council.

.11 - Application, Plot Plan And Approval. All applications to build or use a building as a stable shall be accompanied by plot plans, properly drawn as prescribed in Article 1, and the Director shall immediately send such applications and plans to the Councilmen of the ward in which the stable is to be located. In case the City Council shall approve such location, the work of construction and alteration shall be started immediately or if an existing building is to be used as a stable it shall be occupied within sixty (60) days of such approval.

.12 - Construction. All buildings or parts thereof to be erected, altered or enlarged for use as a stable, shall be constructed in accordance with the applicable requirements set forth in this Code.

.13 - Manure And Refuse. Every person, owning, leasing or occupying any stall, stable, shed, barn or apartment, wherein any horse or any neat cattle shall be kept, shall maintain a covered bin, vault, or cellar, satisfactory to the Superintendent Of Health, in which shall be placed all manure or refuse from such horse or cattle; and no person shall, between eight o'clock before noon and seven o'clock after noon, remove or suffer to be removed any such manure or refuse from any of said premises except with the permission of the Superintendent Of Health previously obtained in writing.

.14 - Public Laws. All permits for stables granted under Section 39, Chapter 472 of the Public Laws passed at the January Session, A. D. 1909 shall be subject to the following conditions:

(a) That the building to be used as a stable shall be located and constructed in accordance with the provisions of the permit to build as granted;

(b) That the owner or occupant of the stable shall not at any time violate any law, ordinance or rule applicable to stables or barns in the City of Providence, now or hereafter in force, relative to the care and maintenance of said stable.

(c) All permits for private stables of the first class granted under said section shall be subject to the following additional conditions: That no private stable, of the first class, shall be used for keeping therein more horses or cattle of any kind than six (6) in all at one time;

(d) In granting permits for private stables of the second class under said section, the City Council shall, in each instance fix the maximum number of horses or cattle that may be kept therein, and all permits for private stables of the second class shall be subject to the following condition: That no private stable, of the second class, shall be used for keeping therein more horses or cattle of any kind, at any one time, than the number fixed by the City Council.

SEC. 312.2 - BUILDINGS AND STRUCTURES FOR THE STORAGE OR SALE OF PETROLEUM AND PETROLEUM PRODUCTS INCLUDING THE BULK STORAGE OF PETROLEUM AND PETROLEUM PRODUCTS.

.21 - Tanks And Pumps. No storage tanks or pumps used for the storage or sale of petroleum and petroleum products in connection with bulk storage oil plants, gasoline or motor vehicle filling stations shall be installed without first obtaining the permission of the City Council of the City of Providence and except in accordance with the provisions of Chapter 2284 of the Public Laws of 1949.

.22 - Applications. All applications for the storage and sale of petroleum and petroleum products, including the bulk storage thereof, shall be accompanied by plans, plot plans and specifications in accordance with Articles 1 and 4 and the applicable requirements in this Code.

.23 - Permits. The Director shall not issue a permit for the installation of storage tanks or pumps for petroleum and petroleum products, in any quantity, until he receives a certified copy of the City Council Resolution approving such installations.

.24 - Expiration Of Permits. All permits granted for the erection, alteration, or enlarging of any structure or part thereof to be used for the sale or storage of petroleum, kerosene, gasoline, coal oil, or their products, compounds, or components shall expire by limitation at the end of six (6) months unless work thereunder shall be commenced within said period and shall be prosecuted with reasonable diligence from the time such work is commenced.

.25 - Construction Of Tanks And Pumps. Storage tanks and pumps shall be constructed and installed in a manner satisfactory to the Director and to the Chief of the Fire Department and in accordance with the requirements of this Article, Article 2, Article 4 and Article 9.

.26 - Construction Of Buildings And Other Structures. All buildings and other structures, located on the same plot with the storage of petroleum or petroleum products, including Motor Vehicle Filling Stations (Gasoline Service Stations), shall be constructed in accordance with all the applicable requirements of this Code and especially in accordance with the requirements of Article 4.

ARTICLE 4 - SPECIAL USE AND OCCUPANCY REQUIREMENTSSEC. 400.0 - SCOPE.

In addition to the general requirements of this Code governing the location, construction and equipment of all buildings and structures and the fire-resistive, height and area limitations of Tables 5 and 6, the provisions of this article shall control all buildings and structures designed for high hazard uses and occupancies which involve extreme fire, smoke, explosion or toxic gas hazards and to all places of assembly in which people congregate and which are susceptible to panic. Except as herein specifically provided, the applicable standards listed in Appendix B shall be deemed to comply with the requirements of this article.

SEC. 400.1 - USES INVOLVING EXPLOSION HAZARDS. The provisions shall apply to all uses involving the storage, manufacture, handling or filling of flammable and volatile solids, liquids or gases which generate combustible and explosive air-vapor mixtures and toxic gases including nitro-cellulose film; pyroxylin plastics; grain and other combustible dusts and pulverized fuels; combustible alcohol; ether, gasoline and other petroleum products; flammable dusts and residues resulting from fabrication, grinding and buffing operations, and all other explosion hazard risks.

SEC. 400.2 - FIRE-RESISTIVE CONSTRUCTION. When required to provide for a higher degree of fire severity than herein specified for any special hazardous uses, the Director may exceed the requirements of Table 5 governing the fire-resistance ratings of types of construction and protection of structural elements.

SEC. 400.3 - EXIT FACILITIES. The exit facilities of buildings for hazardous uses and occupancies shall conform to the requirements of Article 6, except as may be modified by more restrictive provisions of this article for specific uses.

SEC. 400.4 - HEATING AND VENTING. The requirements herein prescribed for the installation of heating and venting appliances and equipment for high hazard uses and occupancies shall be construed as supplemental to the provisions of Articles 5, 10, 11, and 18.

SEC. 400.5 - LIGHTING AND ELECTRICAL WIRING. Wherever flash fires and explosion hazards are possible, all artificial lighting shall conform to the requirements of ARTICLE 15.

SEC. 400.6 - BOILER AND HAZARDOUS EQUIPMENT ROOMS. Boilers and other equipment or devices, including breechings which involve flame or spark producing apparatus shall not be exposed to fire or explosive hazard gases, vapors or volatile flammable liquids. Such rooms shall be segregated by construction of not less than three (3) hour fire-resistance except as may be required for specific uses, without openings in the enclosure walls; or such equipment shall be located in accessory structures segregated from the main building.

SEC. 400.7 - FIRE FIGHTING AND EXTINGUISHING EQUIPMENT. All buildings designed for specific hazardous uses shall be protected with approved automatic sprinkler systems or such other fire extinguishing and auxiliary equipment as herein provided and in accordance with the requirements of Article 12.

SEC. 400.8 - SEGREGATION OF HAZARDOUS SPACES. All rooms and spaces used for the storage of volatile and flammable materials shall be separately enclosed and segregated with fire-resistive construction as herein required for specific uses and occupancies.

SEC. 400.9 - RESTRICTED LOCATIONS. Except as otherwise specifically provided in Section 302.3, no high hazard uses shall be located in Fire District No. 1 nor in a building of unprotected frame (Type 4) construction, nor in any case within two hundred (200) feet of the nearest wall of a building classified in a public assembly or institutional use group.

SEC. 401.0 - DEFINITIONS.

AIRPLANE HANGAR. (Private). A hangar for the storage of not more than four (4) single motor planes and in which no volatile or inflammable oil is handled, stored or kept other than that contained in the fuel storage tank of the plane.

(Public). A building for the storage, care or repair of private or commercial airplanes not included in the term "Private Airplane Hangar."

EXIT COURT. An exterior unoccupied space which is open to the sky for its entire area, located on the same lot with the theatre or assembly building which it serves to provide a clear, unobstructed exit to the street or other public space.

FLAMMABLE. (Volatile Flammable). A liquid mixture or compound which will generate a flammable vapor at a temperature below one hundred and twenty-five (125) degrees Fahrenheit when tested in a Tagliabue open cup tester.

FLAMMABLE FILM. Motion picture film, or sound recording film that has a nitro-cellulose base, whether in the form of unexposed film, positive, negative, scrap, or used film.

FOYER. Except when used as an integral part of an exitway, the completely enclosed space surrounding or in the rear of the auditorium of a theatre or other place of assembly which is completely shut off from the auditorium and is used as an assembly or waiting space for the occupants.

FUEL OIL. A liquid mixture or compound derived from petroleum which does not emit flammable vapor below a temperature of one hundred and twenty-five (125) degrees Fahrenheit.

GARAGE. (Private). A garage for not more than four (4) passenger motor vehicles, with no provision for repairing or servicing such vehicles.

(Public). A building for the storage of motor vehicles not included in the term "Private Garage."

KEROSENE. An oil or liquid product of petroleum which does not emit a flammable vapor below a temperature of one hundred (100) degrees Fahrenheit when tested in a Tagliabue open cup tester.

LOBBY. The enclosed vestibule between the principal entrance to the building and the door to the main floor of the auditorium or assembly room of a theatre or place of assembly or to the main floor corridor of a business building.

MOTOR VEHICLE REPAIR SHOP. A building, structure or enclosure in which the general business of repairing motor vehicles is conducted, including a garage repair shop in which motor vehicles are repaired.

MOTOR VEHICLE SERVICE STATION. (Gasoline Service Station). A building or enclosure in which the business of storing and selling volatile, inflammable oils for motor vehicles is conducted, but in which no motor vehicles are stored.

PETROLEUM PRODUCTS. The term "Petroleum Products" shall include all oils derived from crude petroleum or shale oils by process of distillation. For the purpose of this Code, petroleum products shall also include flammable liquids derived from coal by distillation and known as by-products of coke oven plants.

PYROXYLIN PLASTIC. Any nitro-cellulose product, or compound soluble in a volatile, inflammable liquid, including such substances as celluloid, pyroxylin, fiberloid and other cellulose nitrates (other than nitro-cellulose film) which are susceptible to explosion from rapid ignition of the gases emitted therefrom.

SEC. 402.0 - EXPLOSION HAZARDS.

Every structure, room or space occupied for uses involving explosion hazards shall be equipped and vented with explosion relief systems and devices arranged for automatic release under predetermined increase in pressure for the specific use as provided in this article or in accordance with the approved rules adopted thereunder.

SEC. 402.1 - VENTING DEVICES. Venting devices to relieve the pressure built up by explosive air-vapor mixtures shall consist of windows, skylights, vent flues or releasing roof or wall panels which discharge directly to the open air or to a public space or to an unoccupied space on the same lot not less than twenty (20) feet in width. Such releasing devices shall be so located that the discharge end shall be not less than ten (10) feet vertically and twenty (20) feet horizontally from window openings or exterior exit stairs or balconies in the same or adjoining buildings or structures. The exhaust shall always be in the direction of least exposure and never into the interior of the building.

SEC. 402.2 - AREA OF VENTS. The aggregate clear vent relief area shall be based on the type of construction of the building and shall be not less than herein prescribed:

Heavy Structural Frames of Reinforced Concrete.....	1	sq.ft. for 80 cu.ft.vol.
Light Structural Frames and Ordinary Construction..	1	" " " 65 " " "
Light Wood Frame Construction.....	1	" " " 50 " " "

Open windows, pivoted sash or wall panels arranged to open under internal pressure shall have a combined area of not less than ten (10) per cent of the enclosing wall area, with not less than fifty (50) per cent of the opening arranged for automatic release.

SEC. 402.3 - CONSTRUCTION. All explosion relief devices shall be of an approved type, constructed of light-weight, incombustible and corrosion-resistive materials; and the discharge end shall be protected with approved screens of not more than three-quarter (3/4) inch mesh.

SEC. 403.0 - VOLATILE FLAMMABLES.

SEC. 403.1 - PROCESS AND STORAGE.

.11 - Inside Storage. Unless otherwise approved by the Director, inside storage in process rooms shall be limited to one day's supply in approved sealed containers of not more than five (5) gallons capacity or in approved steel barrels or drums of not more than fifty-five (55) gallons capacity.

.12 - Handling. Discharge or filling operations shall be by pump through an approved system of securely attached and continuous piping or hose lines. In processes requiring the use of open vats or mixing tanks, an approved mechanical ventilating system shall be provided to remove the vapors or to produce a vapor mixture of not more than one (1) per cent concentration.

.13 - Construction Of Enclosures. Process rooms shall be enclosed in walls, floors and ceilings of not less than three (3) hours fire-resistive construction with incombustible door sills not less than six (6) inches high and all openings protected with one and one-half (1 1/2) hour opening protectives vented as required in Section 402.0. Floors shall be waterproofed and drained to comply with Section 885.0.

.14 - Fire Protection. First aid fire appliances and automatic sprinklers or other extinguishing equipment shall be provided in accordance with Article 12 and the approved rules. Provision shall be made to prevent leaking flammable vapors from being exposed to open flames, fire or sparks.

SEC. 403.2 - MAIN STORAGE. Main storage systems of volatile flammable liquids shall be constructed and installed in accordance with the approved rules. Such systems may be outside underground, outside aboveground, inside underground, or an outside storage house.

.21 - Outside Underground System. Outside tanks shall be buried underground with the top of the tanks not less than two (2) feet below grade or with a reinforced concrete or other approved structural cover not less than six (6) inches thick under a twelve (12) inch earth cover. The maximum capacity of such tanks shall be limited by their location in respect to adjacent buildings as provided in Table 8.

TABLE 8.

CAPACITY OF OUTSIDE UNDERGROUND TANKS

FOR VOLATILE FLAMMABLE LIQUIDS

<u>LOCATION</u> <u>Fire Exposure in Feet</u>	<u>QUANTITY OF STORAGE</u> <u>Gallons</u>
50 or more	Unlimited
40	50,000
30	20,000
25	15,000
20	5,000
10	2,000

.22 - Outside Aboveground System. Aboveground tanks shall be located only outside Fire District No. 1 except as provided for in Sections 203.1 and 302.3 and the capacity, location, construction and exposures shall be subject to special approvals of the Director and the Chief of the Fire Department.

.23 - Inside Underground Systems. Inside underground tanks shall be located not less than two (2) feet below the level of the lowest cellar or basement floor of the building in which located or any other building within a radius of ten (10) feet of the tank. In no case shall such tanks be located under the sidewalk or beyond the building line. It shall be unlawful to cover any tanks from sight until after inspection, test and written approval of the Director. The maximum limit of individual tank capacity shall not be more than five thousand (5,000) gallons when the tank is located less than ten (10) feet away from any foundation or other load bearing walls. The entire system shall be subject to special approval of the Director and the Chief of the Fire Department.

.24 - Outside Storage House. All outside storage houses shall be constructed of fireproof (Type 1A) construction. No opening shall be permitted in the enclosure walls within ten (10) feet of adjoining property lines or with a fire exposure of less than ten (10) feet to any other building or structure.

SEC. 404.0 - INSPECTION OF HAZARDOUS USES AND PLACES OF ASSEMBLY

SEC. 404.1 - OPERATION AND MAINTENANCE. All buildings and structures involving the use and handling of flammable materials, liquids and gases and other hazardous uses shall be inspected at intervals of not more than three (3) months by the Fire Department

to check the operation, equipment, housekeeping and general fire safety conditions and to determine proper fire fighting procedure in the event of fire. Such inspection shall be made to insure compliance with the provisions of this Code, exclusive of all structural requirements, in respect to protection against fire and panic; first aid and fire extinguishing devices; standpipe; hydrant and sprinkler systems; fire alarm signaling, supervisory and central station alarm systems; conduct of fire drills and fire brigades; and all special fire extinguishing equipment in accordance with the rules and regulations of the Fire Department.

SEC. 404.2-- HOUSEKEEPING. Periodic inspections of existing uses and occupancies shall be made in accordance with the approved rules to insure maintenance of good housekeeping conditions including the daily removal of waste and rubbish; safe arrangement and storage of merchandise and other contents; proper segregation of hazardous processes; handling of volatile flammables; avoidance of dangerous congestion and maintenance of required exitways clear of obstructions; and the safe operation of all places of public assembly while open to the public in which hazardous machines and combustible scenery and equipment are in use.

SEC. 404.3 - COORDINATION OF INSPECTIONS. The building, fire and health officials and all other administrative agencies of the municipality in whom the authority is delegated to inspect all buildings and structures in respect to the maintenance of safe and sanitary conditions of use and occupancy shall immediately notify the proper official of any violation of the provisions of this Code or of the fire prevention or health rules and regulations.

SEC. 405.0 - SPECIAL PERMITS AND CERTIFICATES OF FITNESS.

SEC. 405.1 - SPECIAL PERMITS. No hazardous or dangerous industry, trade, occupation or use which involves the transportation, storage or handling of explosive, flammable, combustible or other substance involving fire or life hazards shall be conducted without a permit from the Director and the Chief of the Fire Department, prescribing the conditions and requirements which are deemed necessary to secure the public safety.

SEC. 405.2 - CERTIFICATES OF FITNESS. Before any equipment involving fire or life hazard is placed in operation, the supervisor and operator shall secure a certificate of fitness from the proper administrative official certifying to the qualifications of the person to whom such certificate is issued. A certificate of fitness shall be required for the operation of boilers as specified in Section 1105.0, the operation and care of standpipe, fire pump and other fire protection equipment as specified in Section 1205.0. Such certificates may be terminated for cause at any time, and shall be renewed at intervals of not more than one (1) year.

SEC. 406.0 - EXISTING BUILDINGS.

SEC. 406.1 - SPECIAL PERMIT FOR EXISTING USES. Any existing hazardous use which was heretofore authorized by a permit issued under the provisions of law or the regulations of the fire department may be continued by special permit provided the continuance of such use or occupancy does not endanger the public safety.

SEC. 406.2 - EXISTING USE PROHIBITED. No existing building of frame (Type 4) construction or of non-fireproof (Type 3) construction which is more than two (2) stories in height shall be continued in use for the manufacture of pyroxylin plastics or similar materials of high hazard and explosive characteristics.

SEC. 406.3 - PLACES OF ASSEMBLY.

.31 - Change of Use. No existing building or structure or part thereof shall be altered or converted into a place of assembly unless it complies with all provisions of this Code applicable to places of public assembly hereafter erected.

.32 - Existing Use Altered. When an existing building or structure heretofore used as a place of public assembly is altered such alterations shall be subject to the approval of the Director and shall comply as nearly as is practicable with the provisions of this Code with special reference to the arrangement and construction of seats, aisles, passageways, stage and appurtenant rooms, fire fighting and extinguishing equipment and the adequacy of exits.

.33 - Increase in Occupancy Load. Whenever the occupancy load of an existing place of public assembly is increased beyond the approved capacity of its exitways, such building or part thereof shall be made to comply with the requirements for a new building hereafter erected for such public assembly use.

SEC. 407.0 - LIQUEFIED PETROLEUM GASES.

The provisions of this section shall apply to the design, construction, location, installation and operation of propane, butane and other petroleum gases, normally stored under pressure in the liquid state. Refineries, tank farms and utility gas plants shall be subject to special approvals in accordance with the approved rules.

SEC. 407.1 - CLASSIFICATION OF SYSTEMS. Systems for the storage and use of liquefied petroleum gases shall be classified as; cylinder or bottled gas; aboveground tank systems other than bottled gas; and underground tank systems.

SEC. 407.2 - BOTTLED GAS. No container of cylinder or bottled gas for commercial use shall exceed twelve hundred (1200) gallons equivalent water capacity; and such container shall be tested and approved by a recognized testing authority and shall be identified in accordance with the National Fire Protection Association recommendations. The cylinders shall be installed aboveground with valves, flexible connections, piping and safety devices in accordance with the approved rules.

SEC. 407.3 - ABOVEGROUND TANK SYSTEMS OTHER THAN BOTTLED GAS. All aboveground tank systems other than cylinder or bottled gas shall be located with respect to lot lines and adjacent buildings on the same lot as specified in Table 9. The tanks shall be constructed and tested in accordance with the regulations of ARTICLE 11 for unfired pressure vessels and the installation, valves, accessories, piping, vaporizers and safety devices shall be in accordance with the approved rules. When required by topographical conditions, each container shall be enclosed in dykes as directed by the Director. No bulk storage shall be permitted within Fire District No. 1.

TABLE 9
LOCATION AND CAPACITY OF OUTSIDE LIQUEFIED GAS CONTAINERS

MINIMUM DISTANCES			
WATER CAPACITY PER CONTAINER	CONTAINERS		BET ABOVE GROUND CON- TAINERS
	UNDER GROUND	ABOVE GROUND	
LESS THAN 125 GAL.	10 FEET	NONE	NONE
125 TO 500 GAL.	10 FEET	10 FEET	3 FT.
501 TO 1200 GAL.	25 FEET	25 FEET	3 FT.
OVER 1200 GAL.	50 FEET	50 FEET	5 FT.

SEC. 407.4 - UNDERGROUND TANK SYSTEMS. Underground tank systems shall comply with the requirements of Table 9 and shall be buried at least two (2) feet below grade. When required, such tanks shall be anchored or weighted to prevent floating. All containers shall be given an approved protective coating of hot dip galvanizing, red lead and asphalt, or other approved corrosion resistive protection.

SEC. 407.5 - LABELING. All inlet and outlet connections except safety relief valves, level and pressure gages shall be labeled to designate whether they communicate with vapor or liquid space and the tanks shall be marked with a securely attached label and nameplate identifying the system, working pressure, vapor pressure of the contents and permissible liquid level in accordance with the approved rules.

SEC. 407.6 - INSTRUCTIONS. Complete installation, operation and maintenance instructions shall be supplied for the personnel

responsible for the use of the system.

SEC. 407.7 - ELECTRIC WIRING. All electric installations in vaporizer and pump houses, cylinder filling rooms and similar locations shall comply with Article 15 and the approved rules for hazardous locations.

SEC. 408.0 - PYROXYLIN PLASTICS

The provisions of this section shall apply to all buildings, structures and parts thereof used in the storage, handling or fabrication of pyroxylin plastic whether in raw material, process, finished product or scrap.

SEC. 408.1 - EXCEPTIONS. The provisions of this section shall not apply to the manufacture, use or storage of nitro-cellulose film or to the incidental storage of articles manufactured from pyroxylin plastics such as buttons, buckles, handles, toilet articles and toys offered for sale in mercantile buildings. (See Section 205.0.)

SEC. 408.2 - RESTRICTIONS. No permit for the storage or manufacture of pyroxylin plastics, except as specified in Section 408.1, shall be issued for a building or structure hereafter erected, altered or used which is occupied or located:

.21 Within fifty (50) feet of the nearest wall of a school, theatre or other place of public assembly;

.22 As a residential building, use groups L1, L2, or L3;

.23 Where paints, varnishes or lacquers are manufactured, stored or kept for sale; or where matches, resin, turpentine, oils, hemp, cotton, or any explosive are stored or kept for sale;

.24 Where drygoods, garments or other materials of a highly flammable nature are manufactured in any portion of the building above that used for nitro-cellulose products;

.25 In quantities exceeding one hundred (100) pounds in any tenant factory building (use group D) in which more than five (5) people are employed or likely to congregate at any one time.

SEC. 408.3 - INSIDE STORAGE. All pyroxylin raw material and products intended for use in further manufacture shall be stored as herein provided;

.31 Cabinets. Quantities of more than twenty-five (25) pounds and not more than two hundred fifty (250) pounds shall be stored in approved cabinets constructed of incombustible materials but in no case shall the total quantity of storage be more than five hundred (500) pounds in any one workroom or space enclosed in floors, walls and ceilings of not less than two (2) hour fire-resistance.

.32 Vaults. Quantities of more than five hundred (500) pounds and not more than five thousand (5000) pounds shall be stored in vaults enclosed in floors, walls and ceilings of not less than four (4) hour fire-resistance. The interior storage volume of the vault shall be not more than fifteen hundred (1500) cubic feet and the vault shall be constructed vapor and gastight in accordance with the approved rules, with two (2) hour vapor-tight fire door on each side of the door opening. The vault shall be drained and provided with scuppers.

.33 Tote Boxes and Scrap Containers. During manufacture, pyroxylin materials and products not stored in finished stockrooms, cabinets or vaults shall be kept in approved tote boxes. Scrap and other refuse material shall be collected in approved incombustible containers in quantities not greater than two hundred and fifty (250) pounds and removed at frequent intervals as directed by the Chief of the Fire Department.

.34 Ventilation. Each separate compartment in storage vaults shall be vented directly to the outer air through flues complying with the requirements of Article 10 for low temperature chimneys, or exterior metal smokestacks, or as otherwise provided in the approved rules. The vent shall discharge not less than four (4) feet above the roof of the building or on a street, court or other open space not less than fifty (50) feet distant from any other opening in adjoining walls which are not in the same plane, nor nearer than twenty-five (25) feet vertically or horizontally to an exterior exit stairway or fire escape.

SEC. 408.4 - ISOLATED STORAGE BUILDINGS. Pyroxylin products in quantities greater than permitted for interior storage shall be housed in isolated storage buildings. Such buildings shall be used for no purpose other than packing, receiving, shipping and storage of pyroxylin plastics unless otherwise approved by the Director.

.41 Capacity. The maximum storage in any fire area enclosed in construction of four (4) hour fire-resistance shall not be greater than one hundred thousand (100,000) pounds. The total storage capacity of the building and its separation from lot lines and other buildings on the same lot shall be limited as provided in Table 10. When equipped with an approved automatic sprinkler system complying with the provisions of Article 12, the exposure distance may be decreased fifty (50) per cent. Such systems shall be equipped with not less than one automatic sprinkler head for each thirty-two (32) square feet of protected area.

TABLE 10EXPOSURE DISTANCE FOR PYROXYLIN STORAGE BUILDINGS

<u>MAXIMUM QUANTITY STORED</u>	<u>DISTANCE FROM LOT LINE OR OTHER BLDGS.</u>
<u>Pounds</u>	<u>Feet</u>
1,000	40
2,000	50
3,000	60
4,000	70
5,000	80
10,000	100
20,000	125
30,000	150
40,000	160
50,000	180
75,000	200
100,000	225
150,000	250
300,000	300

SEC. 408.5 - FIRE PROTECTION.

.51 Heating Equipment. All radiators, heating coils, piping and heating apparatus shall be protected with approved incombustible mesh to maintain a clearance of six (6) inches of all pyroxylin products from such equipment. All piping and risers within six (6) feet of the floor shall be insulated with approved covering.

.52 - Lighting Control. All lighting shall comply with the provisions of ARTICLE 15.

.53 Standpipes. First aid standpipes shall be provided for each five thousand (5000) square feet of floor area equipped with one and one-half (1 1/2) inch hose complying with Article 12.

.54 Automatic Sprinklers. All manufacturing and storage spaces and vaults shall be protected with an approved automatic sprinkler system complying with Article 12 supplemented by fire pails in accordance with the approved rules.

.55 Special Protection. Special chemical extinguishers and other first aid fire appliances shall be provided around motors and other electrical equipment in accordance with the approved rules.

SEC. 409.0 - USE AND STORAGE OF FLAMMABLE FILM.

SEC. 409.1 - PERMIT REQUIRED. No permit for the handling, use, storage or recovery of flammable film shall be issued for any building occupied or located

as specified in Section 408.2; except that these restrictions shall not apply to the screening and projection rooms of theatres and other places of amusement or instruction. It shall be unlawful to store, stock or use any nitro-cellulose or other flammable film without the approval of the Chief of the Fire Department.

SEC. 409.2 - STORAGE. Other than motion picture projection and rewind rooms, or as herein specifically required, all rooms in which flammable film is stored or handled shall be enclosed in not less than two (2) hour fire-resistive construction complying with the provisions of Article 9. All film, except when in process or use, shall be kept in approved closed containers.

.21 - Cabinets. Flammable film in amounts of twenty-five (25) to one thousand (1,000) pounds shall be stored in approved incombustible cabinets constructed and vented in accordance with the approved rules. No one cabinet shall contain more than three hundred seventy-five (375) pounds. All cabinets with a capacity of more than fifty (50) pounds shall be equipped with not less than one (1) automatic sprinkler head.

.22 - Vaults. Flammable film in amounts greater than five-hundred (500) pounds shall be kept in vaults constructed as provided in Sections 408.32 and 408.4; except that the interior storage volume shall not exceed seven hundred fifty (750) cubic feet.

.23 - Rooms. Unexposed film may be stored in the original approved shipping cases complying with the rules of the National Fire Protection Association and the Chief of the Fire Department in rooms equipped with an approved one source sprinkler system complying with the provisions of Article 12.

.24 - Ventilation. Storage rooms shall be ventilated as specified in Section 408.34 with the vents arranged to open automatically in the event of fire in accordance with the approved rules.

.25 - Lighting. Artificial illumination shall comply with the requirements of ARTICLE 15.

.26 - Heating. All heating equipment and installations shall conform to the requirements of Section 408.51. The heating of film vaults shall be automatically controlled to a temperature of not more than seventy (70) degrees Fahrenheit.

.27 - Fire Protection. Approved automatic sprinkler systems shall be provided in all buildings and structures and parts thereof in which flammable film is stored or handled in amounts of more than fifty

(50) pounds and as specifically required in this section and in the approved rules, except in projection booths and rewind rooms conforming to the requirements of Sections 409.3 and 409.4. First aid fire extinguishing and auxiliary fire fighting equipment shall be provided in accordance with Article 12 and the approved rules adopted thereunder.

SEC. 409.3 - PROJECTION ROOMS. Every room for the use and operation of motion picture projectors hereafter installed as an integral part of a building shall be enclosed in walls, floor and ceiling of incombustible materials as herein provided and in accordance with the applicable standards listed in Appendix B.

.31 - Construction Of Projection Rooms. The size of the room shall be adequate to accommodate the apparatus and equipment and permit manual operation, but in no case less than eight (8) feet wide, ten (10) feet long and eight (8) feet in height for one projector and sixty (60) square feet for each additional machine. The enclosure shall be constructed smoke and vapor tight of materials of not less than two (2) hours fire-resistance. Observation and projector openings shall in no case exceed twelve (12) inches in any dimension and shall be equipped with approved automatic metal shutters capable of manual operation from the outside.

.32 - Exits From Projection Rooms. At least two (2) exits shall be provided, equipped with self-closing fire doors, opening outwardly, not less than two and one-half (2 1/2) feet by six (6) feet in size, unless otherwise approved by the Director.

.33 - Ventilation of Projection Rooms. Ventilation shall be provided by an approved mechanical system of ventilation, exhausting either directly to the outdoors or through an incombustible flue, which shall be used for no other purpose. The exhaust capacity shall be not less than fifteen (15) cubic feet nor more than fifty (50) cubic feet per minute for each arc lamp, plus two-hundred (200) cubic feet per minute for the volume of the room. The ventilation system may be extended to serve rewind rooms associated therewith, but shall not be connected in any way with ventilating or air-conditioning systems serving other portions of the building. All ventilation flues shall be constructed and installed to comply with Article 18. All fresh air intakes other than direct supply from open air shall be protected with fire shutters arranged to operate automatically with the port shutters.

.34 - Lighting Control. Provision shall be made for control of the auditorium lighting and the emergency lighting systems of theatres and places of Public Assembly in accordance with the approved rules.

.35 - Electrical Equipment. Separate compartments, of similar construction to the projection booth, shall be provided for storage batteries and motor generators, respectively. Ventilation shall be

provided for such compartments. The motor compartment shall be ventilated independently from any other system. The duct from such compartments leading to outdoors shall be constructed of approved acid resisting incombustible material.

.36 - Film Capacity. The film storage capacity of each projection or rewind room shall be not more than one hundred twenty-five (125) pounds.

SEC. 409.4 - REWIND AND AUXILIARY ROOMS. Rewinding of film shall be done in the booth in accordance with the approved rules or in a special rewind room not less than eighty (80) square feet in area constructed as provided in this section for the projection room. Special auxiliary rooms may be provided for film storage of not more than one hundred twenty-five (125) pounds capacity; but the total storage capacity of projection, rewind and auxiliary rooms shall be not more than two hundred and fifty (250) pounds.

SEC. 409.5 - TRIAL EXHIBITION ROOMS. Trial exhibition rooms shall provide a seating capacity of not more than one hundred (100) persons, with not less than two (2) approved exits complying with Article 6. Such rooms shall be enclosed in fire-resistive partitions of not less than two (2) hours fire-resistance with self-closing fire doors at the openings. All seats shall be permanently fixed in position and the arrangement shall comply with the requirements of Section 418.3.

SEC. 409.6 - TEMPORARY MOTION PICTURE INSTALLATIONS. Permits for portable and temporary booth construction for incidental amusement and educational purposes shall be secured from the Chief of the Fire Department in accordance with the approved rules.

SEC. 409.7 - MOTION PICTURE RADIO AND TELEVISION STUDIOS.

.71 - Construction. All buildings designed or used as motion picture studios shall be protected with an approved automatic sprinkler system or the equivalent complying with the provisions of Article 12 except that the Director may exempt rooms designed for housing electrical equipment from this requirement when constructed of fireproof (Type 1A or 1B) construction.

.72 - Special Rooms. Rooms and spaces used as carpenter and repair shops, dressing rooms, costume and property stage rooms shall be enclosed in floors, walls and ceilings of not less than two (2) hour fire-resistive construction.

.73 - Trim and Finish. All permanently attached acoustic, insulating and light reflecting materials and other finish on walls and ceilings shall comply with the requirements of Article 9 for flame-resistive materials. All temporary fabric and materials suspended from ceilings or against walls and partitions or included in stage sets or used in photographing scenes shall be of slow burning materials meeting the requirements of Article 9.

.74 Film Storage. All film shall be stored as required in Sec. 409.2 and no surplus film shall be kept on the studio stage except loaded magazines in the cameras and sound recording apparatus. All extra loaded magazines shall be stored in a separate magazine room enclosed in two (2) hour fire-resistive construction.

SEC. 409.8 - FILM LABORATORIES. No film laboratories shall be located in other than fireproof (type 1A) buildings or structures equipped throughout with an approved automatic sprinkler system and complying with the approved rules.

SEC. 409.9 - FILM EXCHANGES. All film exchanges and depots shall be housed in buildings and structures of fireproof (type 1A) construction equipped throughout with an approved automatic sprinkler system. All flammable film other than that in process of receipt, delivery or distribution shall be stored in vaults complying with the requirements of Section 409.22.

SEC. 410.0 - USE AND STORAGE OF COMBUSTIBLE FIBERS.

The provisions of this section shall apply to all buildings and structures involving the storage or use of finely divided combustible vegetable or animal fibers, thin sheets or flakes of materials with a flash fire hazard, including among others cotton, excelsior, hemp, sisal, jute, kapok and paper and cloth in the form of scraps and clippings in excess of one thousand (1,000) pounds.

SEC. 410.1 - CONSTRUCTION OF STORAGE ROOMS. No single storage room or space shall be more than five thousand (5,000) square feet in area or more than fifty thousand (50,000) cubic feet in volume. Rooms or spaces which are less than five thousand (5,000) cubic feet in volume shall be enclosed with floors and partitions of two (2) hours fire-resistance; and if more than five thousand (5,000) cubic feet in volume, with construction of three (3) hours fire-resistance, and all openings shall be protected as required in Article 9.

SEC. 410.2 - FLOOR LOADS. The floors of all buildings designed for the storage of combustible fibers shall not be loaded in excess of one-half (1/2) the safe load capacity of the floor, nor shall such materials be piled to exceed two-thirds (2/3) of the clear story height.

SEC. 410.3 - FIRE PROTECTION. Fire extinguishing equipment shall be provided complying with the requirements of Article 12 and in accordance with the approved rules and the applicable standards listed in Appendix B.

SEC. 411.0 - COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE.

The provisions of this section shall apply to all buildings in which materials producing flammable dusts and particles which are readily ignitable and subject to explosion hazards are stored or handled; including among others grain bleachers and elevators, malt houses, flour, food or starch mills, wood flour manufacturing, and

manufacture and storage of pulverized fuel and similar uses.

SEC. 411.1 - CONSTRUCTION.

.11 Buildings. All such buildings and structures, unless herein otherwise specifically provided, shall be of fireproof (type 1) or incombustible construction (type 2A) within the height and area limits of high hazard uses (use group A) of Table 6.

.12 Grinding Rooms. Every room or space for grinding or other operations producing flammable dust shall be enclosed with floors and walls of not less than two (2) hour fire-resistance when the area is not more than three thousand (3,000) square feet and of not less than four (4) hour fire-resistance when the area is greater than three thousand (3,000) square feet.

.13 Conveyors. All conveyors, chutes, piping and similar equipment passing through the enclosures of such rooms or spaces shall be constructed dirt and vapor tight of approved incombustible materials of no less than three (3) hours fire-resistance.

SEC. 411.2 - EXPLOSION RELIEF. Means for explosion relief shall be provided as specified in Section 402.0, or such spaces shall be equipped with the equivalent mechanical ventilation complying with Article 18 of this Code.

SEC. 411.3 - GRAIN ELEVATORS. Grain elevators, malt houses and buildings for similar uses shall not be located within thirty (30) feet of interior lot lines or structures on the same lot.

SEC. 411.4 - COAL POCKETS. Coal pockets located less than thirty (30) feet from interior lot lines or structures on the same lot shall be constructed of not less than protected incombustible (type 2A) construction; and when more than thirty (30) feet from interior lot lines, of heavy timber construction provided such structures are not more than thirty-five (35) feet in height.

SEC. 412.0 - PAINT SPRAYING AND SPRAY BOOTHS.

The provisions of this section shall apply to the construction, installation and use of buildings and structures or parts thereof for the spraying of flammable paints, varnishes and lacquers or other flammable materials, mixtures or compounds used for painting, varnishing, staining or similar purposes. All such construction and equipment shall comply with the approved rules and the applicable standards listed in Appendix B.

SEC. 412.1 - LOCATION OF SPRAYING PROCESS. All such processes shall be conducted in a spraying space, spray booths, spray room or isolated in a detached building or as otherwise approved by the Director in accordance with the approved rules.

SEC. 412.2 - CONSTRUCTION.

.21 - Spray Spaces. Where not required to be isolated by fire-resistive partitions, the spray space shall be ventilated with an approved exhaust system to prevent the accumulation of mist or vapors. Incombustible spray curtains shall be provided to restrict the spread of fire in accordance with the approved rules.

.22 - Spray Booths. All spray booths shall be constructed of approved incombustible materials and shall be equipped with approved mechanical ventilating systems.

.23 - Spray Rooms. All spray rooms shall be enclosed in partitions constructed of approved incombustible materials of not less than one (1) hour fire-resistance. Floors shall be waterproofed and drained in an approved manner. Floor drains to the building drainage system or public sewer shall be prohibited.

.24 - Storage Rooms. Spraying materials in quantities of not more than twenty (20) gallons may be stored in approved cabinets ventilated top and bottom; when more than twenty (20) gallons and not more than one hundred (100) gallons, they may be stored in approved double walled incombustible cabinets vented directly to the outer air; and all spraying materials in quantities of more than one hundred (100) gallons shall be stored in an enclosure of not less than two (2) hour fire-resistance or in a separate exterior storage building but in no case shall such storage be in quantities of more than two hundred (200) gallons. In buildings in which pyroxylin products are manufactured, stored or kept, the amount of storage shall be not more than twenty-five (25) gallons.

SEC. 412.3 - VENTILATION-SPRAYING PROCESSES. The ventilation system shall comply with the provisions of Section 402.0 and shall be adequate to exhaust all vapors, fumes and residues of spraying material directly to the outer air. Fresh air shall be admitted to the spraying spaces in an amount equal to the capacity of the fan or fans in such manner as to avoid short circuiting the path of air in the working space and to provide air movement with a velocity of not less than one hundred (100) feet per minute in the breathing zone of the operator. All ducts and vents shall be constructed and installed to comply with Section 1019.0, Section 1116.0, Section 1117.0 and Section 1819.0. Mechanical exhaust equipment, unless equipped with approved explosion proof motors with non-ferrous blade fans, shall be located outside of spray spaces.

SEC. 412.4 - ELECTRIC EQUIPMENT. Artificial lighting and electric equipment shall comply with the requirements of ARTICLE 15.

SEC. 412.5 - FIRE PROTECTION. Automatic sprinkler protection shall be provided in all spray, dip and immersing spaces and storage rooms and shall be installed in accordance with the approved rules. Where buildings containing spray areas are not equipped with an approved automatic sprinkler system, the sprinkler heads in booths and other spray areas and storage rooms may be supplied from the building water supply when approved by the Director.

SEC. 413.0 - DRY-CLEANING AND DRY-DYEING ESTABLISHMENTS.

In the requirements which follow, wherever reference is made to "dry-cleaning", it shall be construed as applying to both dry-cleaning and dry-dyeing operations:

Before any dry-cleaning plant is established or an existing plant is remodeled or altered, complete drawings shall be filed showing to scale the relative location of the dry-cleaning area, the boiler-room, finishing department, solvent storage tanks, pumps, washers, drying tumblers, extractors, filter traps, stills, piping and all other equipment involving the use of flammable liquid solvents. All dry-cleaning by immersion and agitation shall be carried on in closed machines installed and operated in accordance with the approved rules and the applicable standards listed in Appendix B.

SEC. 413.1 - CLASSIFICATION. For the purpose of this Code, all dry-cleaning and dry-dyeing establishments shall be classified as herein specified.

.11 High Hazard. All such establishments shall be classified as "high hazard" which employ flammable solvents having a flash point below one hundred (100) degrees Fahrenheit (closed cup test) in quantities of more than one (1) gallon or more than sixty (60) gallons of flammable solvents with a flash point between one hundred (100) and one hundred ninety (190) degrees Fahrenheit (closed cup test).

All such establishments employing more than one (1) gallon of solvents having a flash point below one hundred (100) degrees Fahrenheit shall be prohibited.

.12 Moderate Hazard. All such establishments employing less than one (1) gallon of volatile flammables with a flash point of less than one hundred (100) degrees Fahrenheit or less than sixty (60) gallons of solvent with a flash point between one hundred (100) and one hundred ninety (190) degrees Fahrenheit (closed cup), shall be classified as moderate hazard.

.13 Low Hazard. All such establishments using non-flammable solvents or solvents of other than volatile flammable liquids or solvents with a flash point more than one hundred ninety (190) degrees Fahrenheit in cleaning and dyeing operations, shall be classified as low hazard.

SEC. 413.2 - CONSTRUCTION OF DRY-CLEANING PLANTS.

.21 High Hazard. High hazard dry-cleaning plants as herein defined shall be located in buildings or structures of fireproof (types 1A) construction, not more than one (1) story in height with solid floors and roofs and without openings other than required for exit and ventilation purposes. The room in which such operations are conducted shall be enclosed in not less than two (2) hour fire-resistive incombustible construction with not less than two (2) exits

from each dry-cleaning or dry-dyeing room, with one of the exits leading directly to the outside of the building. No such building shall be used for any other purpose.

.22 Moderate Hazard. Moderate hazard dry-cleaning plants as herein defined may be located in buildings or structures of any type of construction other than frame (type 4) buildings subject to the fire district limitations of Article 3 and the height and area limitations for use group A of Table 6. The room in which such operations are conducted shall be enclosed in not less than two (2) hour fire-resistive incombustible construction with not less than two (2) exits from each dry-cleaning or dry-dyeing room, with one of the exits leading directly to the outside of the building.

.23 Low Hazard. Low hazard dry-cleaning plants shall not be restricted as to type of building within the height and area limitations for use group F of Table 6; except that such uses shall not be located in basements nor in a building used for public assembly use group G, institutional use group H or residential use group L.

.24 Roof Construction of Dry-Cleaning Plants. The roof over high hazard dry-cleaning plants shall be flat without attic or concealed spaces and shall be provided with a pivot-type skylight or other approved vent complying with Section 402.0, arranged to release outwardly under explosion pressures.

.25 Floor Construction of Dry-Cleaning Plants. The floor finish in high hazard dry-cleaning plants shall be constructed of water-resistant, incombustible materials with non-sparking surface elevated above the adjoining grade and with door sills not less than eight (8) inches in height. There shall be no openings, vaults or pits below the floor.

.26 Exterior Walls of Dry-Cleaning Plants. Exterior walls of high hazard dry-cleaning plants having an exposure of less than thirty (30) feet shall be of solid masonry without openings, but in no case shall more than two (2) sides of the building be enclosed in blank walls. Opening protectives of exterior doors and windows shall be not less than three-quarters (3/4) hour fire-resistive construction, and the windows shall be pressure-releasing to comply with Section 402.0.

.27 Basements of Dry-Cleaning Plants. The basements or cellars of all buildings in which dry-cleaning operations are conducted, except high hazard plants shall be completely separated from the superstructure with unpierced floor construction of not less than two (2) hours fire-resistance. The access to such basements shall be from the exterior only. No dry-cleaning operations shall be conducted in basement areas. Basements or cellars in high hazard plants are not permitted..

SEC. 413.3 - BOILER ROOM SEPARATION. Boiler rooms and heating equipment for high or moderate hazard dry-cleaning plants shall be se-

parated from drying rooms, dry-cleaning and dry-dyeing rooms with unpierced walls of not less than four (4) hours fire-resistance; or such boiler rooms shall be located in a separate building.

SEC. 413.4 - VENTILATION. All rooms and spaces in high or moderate hazard dry-cleaning plants shall be provided with a mechanical system of ventilation capable of twenty (20) changes of air per hour. Satisfactory mechanical ventilation shall be provided in low hazard plants by means of fans, pipes and ducts to ventilate drying tumblers, drying cabinets and similar equipment and working areas, directly to the outer air.

SEC. 413.5 - SOLVENT STORAGE. All volatile flammable solvents with a flash point under one hundred (100) degrees Fahrenheit shall be stored underground in accordance with the provisions of Section 403.2. Interior aboveground storage shall be permitted for solvents with a flash point above one hundred (100) degrees Fahrenheit (closed cup test) provided the aggregate quantity of such solvent in use in the system and in storage is not more than five hundred fifty (550) gallons and the capacity of any individual tank is not more than two hundred seventy-five (275) gallons.

SEC. 413.6 - ELECTRIC WIRING AND EQUIPMENT. All electric wiring and equipment shall conform to the requirements of ARTICLE 15 and the applicable requirements of the STATE OF RHODE ISLAND INDUSTRIAL CODE NO. 9 pertaining to Dry Cleaning and Dry Dyeing Establishments.

SEC. 413.7 - FIRE PROTECTION. Every dry-cleaning room, dry-dyeing room and drying room shall be protected with a fire extinguishing system consisting of approved automatic sprinklers, or a manually controlled steam-blanket, or a carbon dioxide flooding system or other fire extinguishing equipment in accordance with the approved rules.

SEC. 414.0 - PRIVATE GARAGES AND AIRPLANE HANGARS.

Private garages and airplane hangars when accessory to a dwelling shall comply with the requirements of this section.

SEC. 414.1 - CONSTRUCTION. Fire District No. 2. Outside the first fire district, such buildings may be erected of frame construction (Type 4) not exceeding one (1) story or fifteen (15) feet in height and seven hundred fifty (750) square feet in area when located more than five (5) feet from interior lot lines, provided however, that such buildings may be located within five (5) feet and not less than three (3) feet from the interior lot lines, if the space between the studding on the side or sides nearest to said interior lot lines is completely filled in flush with brick or mortar of equally incombustible material.

SEC. 414.2 - FIRE SEPARATION. Private garages located beneath a single or multifamily dwelling or attached thereto shall have a fire separation of not less than one and one-half (1 1/2) hours fire-resistance. The walls, partitions, floors and ceilings of such se-

paration shall be continuous and unpierced by openings; except that in one and two family dwellings a door opening equipped with an approved self-closing fire door and having its sill raised not less than eight (8) inches above the garage floor shall be permitted.

SEC. 414.3 - EGRESS. Where living quarters are located above a private garage, required egress from the living quarters shall not pass through the garage.

SEC. 415.0 - PUBLIC GARAGES AND AIRPLANE HANGARS.

SEC. 415.1 - CONSTRUCTION. All public garages and public airplane hangars hereafter erected shall conform to the height and area limitations of Table 6 for storage buildings, moderate hazard (group B-1) except as herein specifically provided.

.11 Special Height Limitations. Public garage buildings of incombustible construction (type 2A) shall be limited to two (2) stories in height; incombustible construction (type 2B) and ordinary construction (type 3B) to one (1) story in height.

.12 Proximity to Lot Lines. Public airplane hangars which are located within fifty (50) feet of interior lot lines or with less than fifty (50) feet exposure to other buildings shall be of fire-proof construction (types 1A or 1B).

.13 Basements. The first floor construction of public garages and public hangars with basements or cellars shall provide not less than two (2) hour fire-resistance and shall be water and vapor proof. The access to such basements or cellars shall be from the outside only.

.14 Mixed Occupancy. No public garage or airplane hangar shall be located within or attached to a building occupied for any other use, unless separated from such other use by walls or floors of not less than three (3) hours fire-resistance. Such fire separation shall be continuous and unpierced by openings; except that door openings equipped with self-closing fire doors leading to salesrooms or offices that are operated in connection with such garages or hangars shall be permitted.

.15 Roof Storage of Motor Vehicles and Airplanes. No storage garage shall be located on the roof of a building of other than fireproof construction, (type 1A); and such structure shall be provided with a parapet wall four (4) feet in height and a continuous wheel guard twelve (12) inches in height, located three (3) feet from the parapet. The use of roofs for airplane storage and landing shall be subject to the approval of the Civil Aeronautics Authority.

.16 Floor Construction and Drainage. Floors of public garages and airplane hangars shall be graded to drain through oil separators or traps to avoid accumulation of explosive vapors in building drains or sewers as provided in Article 17. The floor finish shall be of

concrete or other approved nonabsorbent, incombustible material.

SEC. 415.2 - VENTILATION. All public garages and airplane hangars shall be provided with mechanical ventilation adequate to prevent the accumulation of explosive vapors in accordance with the approved rules.

.21 - Below Grade. Basement and cellar garages shall be equipped with mechanical ventilation adequate to provide six (6) air changes per hour which shall be operated at all times during occupancy of the building.

.22 - Above Grade. Every room or space above grade shall be provided with openings to the outer air, with area of opening not less than two (2) per cent of the floor area; or shall be equipped with the equivalent mechanical ventilation.

.23 - Pits. No pits shall be installed in floors below the first; and pits in first and upper stories shall be ventilated to provide four (4) air changes per hour.

SEC. 415.3 - SPECIAL HAZARDS. Any process conducted in conjunction with public garages or hangars involving volatile flammable solvents shall be segregated or located in a detached building or structure; except that the storage and handling of gasoline and other flammable volatiles shall comply with the provisions of Section 403.0. The quantity of flammable liquids stored or handled in public hangars other than in underground storage and in the tanks of the planes shall not be more than five (5) gallons in approved safety cans.

SEC. 416.0 - MOTOR VEHICLES SERVICE STATIONS
(GASOLINE SERVICE STATIONS).

SEC. 416.1 - CONSTRUCTION. Subject to the fire district limitations of Section 303.0 and Section 304.0, all buildings and structures used for the storage and sale of motor fuel oils shall be of fireproof (Type 1), incombustible (Type 2) or masonry enclosed (Type 3) construction and shall be not more than one (1) story in height. Such buildings shall be subject to the height and area limitations for moderate hazard storage uses (Use Group B-1) except as may be herein specifically required.

.11 - Exterior Walls. Exterior walls when located five (5) feet or less from interior lot lines or with a fire exposure of five (5) feet or less shall be constructed of not less than two (2) hour fire-resistance and shall have no openings therein. When such walls are located more than five (5) and less than ten (10) feet from interior lot lines or other buildings, they shall be constructed of not less than one and one-half (1 1/2) hour fire-resistance and when located more than ten (10) feet from the lot lines, they may be of (Type 2B) construction.

.12 - Boiler Rooms For Service Stations. All heat generating plants shall be located in separate buildings or shall be separately enclosed within the structure with solid, water and vapor tight masonry. All rooms housing boilers, stoves or other heating apparatus shall be cut off from all other parts of the building with two (2) hour fire-resistive construction, and no openings through the fire separation other than those necessary for access and for heating pipes or ducts equipped with approved automatic opening protectives that will provide the same fire protection as the pierced enclosed walls.

.13 - Opening Protectives. All permissible openings in walls with a fire exposure of less than twenty (20) feet shall be protected with fire windows and fire doors complying with the requirements of Article 9.

.14 - Basements Or Cellars. Motor vehicle service stations shall have no cellars or basements; and when pits are provided they shall be vented as required in Section 415.2.

SEC. 416.2 - GASOLINE STORAGE. All flammable, volatile liquid storage tanks shall be installed below ground and vented as specified in Section 402.0. Not more than five (5) gallons of gasoline may be stored or used above ground except in approved safety cans.

SEC. 416.3 - LOCATION OF PUMPS. No gasoline pumps or other mechanical equipment shall be installed so as to permit servicing of motor vehicles standing on a public street or highway. The canopies and supports over pumps and service equipment shall be constructed entirely of approved incombustible materials.

SEC. 417.0 - MOTOR VEHICLE REPAIR SHOPS

All buildings and structures designed and used for repairing and servicing motor vehicles, motor boats, airplanes or other motor driven means of transportation shall be subject to the limitations of Tables 5 and 6 for high hazard uses (Use Group A). Such buildings shall be used solely for that purpose or in connection with a public garage or public hangar when segregated therefrom by the required fire separation defined in Table 17.

SEC. 417.1 - HANDLING OF FLAMMABLE VOLATILES

.11 - All flammable volatiles shall be stored as provided in Section 404.0 and no motor vehicle containing volatile, flammable oil shall be received into a motor vehicle repair shop unless the building is of one and one-half (1 1/2) hours protected (Type 2A) or better construction.

.12 - All volatile, flammable oils removed from the fuel tanks of motor vehicles shall be emptied directly into approved safety cans or an approved storage system.

SEC. 417.2 - VENTILATION. All rooms and spaces used for motor vehicle repair shop purposes shall be provided with an approved system of mechanical ventilation meeting the requirements of Section 415.2 and Article 18.

SEC. 417.3 - FIRE PREVENTION. All open gas flames, torches, welding apparatus, battery chargers or other equipment creating an open flame or spark shall be located in a separate enclosure of not less than two (2) hour fire-resistance in which no flammable liquids or highly combustible materials are used or stored.

SEC. 418.0 - PLACES OF PUBLIC ASSEMBLY

Insofar as applicable the provisions of this section shall apply to all places of public assembly and all parts of buildings and structures classified in the assembly use groups (use groups F1, F2, F3, and F4).

SEC. 418.1 - RESTRICTIONS.

.11 High Hazard Uses. No place of public assembly shall be permitted in a building classified in the high hazard use group (use group A).

.12 Superimposed Theatres. No addition or extension shall be erected over the stage section of a theatre, nor shall a second theatre be erected above another.

.13 Frame Construction. No theatre shall be permitted in a building of frame construction (type 4).

.14 Location. All buildings used for assembly purposes shall front on at least one (1) street in which the main entrance and exit shall be located with a capacity of not less than one-third (1/3) of the total required width of building exits.

.15 - Interior Trim and Finish. No combustible material shall be used to cover the walls or ceilings. All trim and finish in exitways shall be noncombustible complying with the provisions of Section 926.0. All mouldings and decorations around the proscenium openings shall be constructed entirely of noncombustible material. Except in theatre buildings (Use Group F1), temporary wall coverings of slow-burning materials may be used six (6) feet or more above the level of the auditorium floor when applied solidly to noncombustible wall or ceiling surfaces.

SEC. 418.2 - EXIT REQUIREMENTS OF PLACES OF PUBLIC ASSEMBLY.

.21 Types. The required exits from every tier or floor shall

consist of grade exits, interior or exterior stairways or horizontal exits which provide direct access to a street, an exit court, or unobstructed passageway, hallway or lobby leading to a street or open public space. The number, location and construction of all exitways shall comply with the requirements of Article 6, and the applicable standards listed in Appendix B, except as herein specifically provided.

.22 Number of Stairways in Auditoriums. Each tier above the main floor of a theatre or other auditorium shall be provided with at least two (2) interior enclosed stairways which shall be located on opposite sides of the structure; except that enclosures shall not be required for stairs serving the first balcony only. Such stairways shall discharge to a lobby on the main floor. Exit stairways serving galleries above the balcony shall lead directly to the street as provided in Section 418.21.

.23 Emergency Exits From Main Floor of Auditoriums. In addition to the main floor entrance and exit, emergency exits shall be provided on both sides of the auditorium which lead directly to a street, or through a passageway to the street independent of other exits, or to an exit court as herein defined.

.24 Emergency Exits From Balconies and Galleries. Emergency exits shall be provided from both sides of each balcony and gallery with direct egress to the street, or to an independent passageway or to an exit court. There shall be no communication from any portion of the building to the emergency exit stairways except from the tier for which the stairway is exclusively intended.

.25 Exit Courts. All exit courts shall be not less than six (6) feet wide for the first six hundred (600) persons to be accommodated or fraction thereof, and shall be increased one (1) foot in width for each additional two hundred and fifty (250) persons. Such courts shall extend sufficiently in length to include the side and rear emergency exits from the auditorium.

.26 Hardware. All required exits shall be equipped with self-releasing panic-proof latches or bolts of an approved type complying with Section 614.0.

.27 Width of Exit Doors. The maximum width of single exit doors shall be forty-two (42) inches and the minimum width of double doorways shall be sixty (60) inches.

.28 - Exit Lights. All exit doors shall be marked with electrically illuminated signs which shall be kept lighted at all times during occupancy of the building. Installations shall comply with the requirements of ARTICLE 15.

SEC. 418.3 - SEATING IN PLACES OF PUBLIC ASSEMBLY

.31 - Fixed Seats. In all places of assembly except churches, stadiums and reviewing stands, individual seats shall be provided

not less than twenty-one (21) inches in width with separating arms, arranged in rows not less than thirty-three (33) inches apart back to back, measured horizontally.

.32 Number of Seats. Aisles shall be provided so that not more than six (6) seats intervene between any seat and an aisle.

.33 Box Seats. In boxes or loges with level floors, the seats need not be fastened when not more than twelve (12) in number.

SEC. 418.4 - AISLES.

.41 - Longitudinal Aisles. The width of longitudinal aisles at right angles to rows of seats and with seats on both sides of the aisle shall be not less than forty-two (42) inches, increasing one-quarter ($1/4$) inch for every foot of length of aisle. The width of longitudinal aisles with banks of seats on one side only shall be not less than thirty-six (36) inches, increasing one-quarter ($1/4$) inch for each foot of length.

.42 - Cross-Aisles. The width of cross-aisles, shall be not less than the widest aisle which they connect or the width of exit which they serve, but no cross-aisle shall be less than forty-eight (48) inches wide, or when bordering on means of entrance shall be not less than sixty (60) inches wide.

.43 - Gradient. Aisles shall not exceed a gradient of fifteen (15) inches in eight (8) feet.

.44 - Balcony Steps. Steps may be provided in balconies and galleries only, and such steps shall extend the full width of the aisle with treads and risers complying with ARTICLE 6. The steps shall be illuminated with floor lights and such lights shall be installed in conformity with the requirements of ARTICLE 15.

✓ .45 - Railings. Approved metal or other noncombustible railings shall be provided on balconies and galleries as herein prescribed:

At the fascia of boxes, balconies and galleries not less than thirty (30) inches in height; and not less than thirty-six (36) inches in height at the foot of steps;

Along cross-aisles not less than twenty-six (26) inches in height;

Where seatings are arranged in successive tiers, and the height of rise between platforms exceeds eighteen (18) inches, not less than thirty (30) inches in height along the entire row of seats at the edge of the platform.

✓ SEC. 418.5 - FOYERS.

.51 - Capacity. In every place of public assembly for theatrical

use, a foyer or lobby shall be provided with a net floor area exclusive of stairs or landings of not less than one and one-half (1 1/2) square feet for each occupant having access thereto. The use of foyers and lobbies and other available spaces for harboring occupants until seats become available shall not encroach upon the clear floor area herein prescribed or upon the required clear width of front exits.

.52 Egress. When the foyer is not directly connected to the public street through the main lobby, an unobstructed corridor or passage shall be provided which leads to and equals in minimum width the required width of main entrances and exits.

.53 Gradient. The rear foyer shall be at the same level as the back of the auditorium and the exits leading therefrom shall not have a steeper gradient than one (1) foot in ten (10).

.54 Construction. The partitions separating the foyer from the auditorium and all other adjoining rooms and spaces shall be constructed of not less than two (2) hour fire-resistance.

.55 Waiting Spaces. Waiting spaces for harboring occupants shall be located only on the first or auditorium floor and shall be separated from required exitways by approved railings not less than forty-two (42) inches in height. Separate exits in addition to the required theatre exits, shall be provided from the waiting space based on an occupancy of one (1) person for each three (3) square feet of waiting space area.

SEC. 418.6 - STAGE CONSTRUCTION.

.61 - Stage Enclosure Walls. Every stage hereafter erected or altered for theatrical performances which is equipped with portable or fixed scenery, lights and mechanical appliances, shall be enclosed on all sides, except where openings are herein permitted, with solid walls of four (4) hour fire-resistance, extending continuously from foundation to at least thirty (30) inches above the roof. There shall be no window opening in such walls within five (5) feet of an interior lot line; and all window openings shall be protected with three-quarter (3/4) hour fire windows.

.62 Floor Construction. All that portion of the stage, except that used for the working of scenery, traps, and other mechanical apparatus for the presentation of a scene, and the roof over the stage shall be not less than three (3) hour fire-resistive construction. All openings through the stage floor shall be equipped with tight-fitting, solid wood trap doors not less than three (3) inches in thickness.

.63 Rigging Loft. The rigging loft, fly galleries and pin rails shall be constructed of approved incombustible materials.

.64 - Footlights And Stage Electrical Equipment. Footlights and border-lights shall be installed in troughs constructed of non-combustible materials. All electrical equipment shall conform with the requirements of ARTICLE 15.

.65 - Exterior Doors. All door openings to the outer air shall be protected with approved self-closing fire doors. All such exterior openings which are located on the stage for exit or loading and unloading purposes shall be constructed with vestibules to prevent air draughts into the auditorium.

.66 Proscenium Wall. There shall be no other openings in the wall separating the stage from the auditorium, except one (1) proscenium opening; two (2) doorways at the stage level, one (1) on each side thereof; and, where necessary, one (1) doorway to the musicians' pit from the space below the stage floor. Such doorways shall not exceed twenty-one (21) square feet in area and shall be protected with an automatic fire door on one side. The combined door assembly shall have a fire-resistive rating of three (3) hours.

.67 Proscenium Curtain. The proscenium opening shall be protected with a curtain so designed and constructed that it will withstand a one-half (1/2) hour fire test without the passage of flame, at a temperature of not less than seventeen hundred (1700) degrees Fahrenheit and an air pressure of not less than ten (10) pounds per square foot normal to its surface in accordance with the provisions of Section 902.0 and 904.0. Such curtain shall be equipped with an automatic heat activated device to descend instantly and safely and to completely close the proscenium opening under a rise of temperature at a rate of fifteen (15) to twenty (20) degrees Fahrenheit per minute; and shall be smoke tight. Such curtain shall also be equipped with auxiliary operating devices to permit prompt and immediate manual closing of the opening.

.68 Scenery. All combustible materials used in sets and scenery shall be rendered flame-resistive in accordance with the provisions of Section 905.0 and Section 929.0.

.69 - Stage Ventilation. Metal or other approved non-combustible ventilators, equipped with movable shutters or sash shall be provided above the stage, constructed to open automatically and instantly by approved heat-activated devices with an aggregate clear area of opening of not less than one-eighth (1/8) of the area of the stage. Supplemental means shall be provided for manual operation of the ventilator. Electrical flue damper control release shall be provided and shall be installed in accordance with the requirements of ARTICLE 15.

SEC. 418.7 - DRESSING AND APPURTENANT ROOMS.

.71 Construction. Dressing rooms, scene docks, property rooms,

workshops and storerooms and all compartments appurtenant to the stage shall be of fireproof construction and shall be separated from the stage and all other parts of the building by walls of not less than three (3) hours fire-resistance. No such rooms shall be placed immediately over or under the operating stage area.

.72 - Opening Protectives. No openings other than the necessary doorway at stage level shall connect such rooms with the stage and such openings shall be protected with one and one-half (1 1/2) hour self-closing fire doors.

.73 - Interior Trim. All shelving and closets in dressing rooms, property rooms or storage rooms shall be constructed of incombustible materials complying with the provisions of Article 9.

.74 - Dressing Room and Stage Exits. Each tier of dressing rooms shall be provided with at least two (2) means of egress, one of which shall lead directly to an exit corridor, exit court or street. Exit stairways from dressing and storage rooms may be unenclosed in the stage area behind the proscenium wall. At least one approved exit shall be provided from each side of the stage and from each side of the space under the stage, and from each fly gallery and from the gridiron to a street, exit court or passageway to a street. An iron ladder shall be provided from the gridiron to a scuttle in the stage roof.

SEC. 418.8 - LIGHTING.

.81 - Exitways. During occupancy all exitways in places of assembly shall be lighted to comply with the requirements of Section 625.0.

.82 - Auditoriums. Aisles in auditoriums shall be provided with general illumination of not less than one-tenth (1/10) foot candles at the front row of seats and not less than two-tenths (2/10) foot candles at the last row of seats and the illumination shall be maintained throughout the showing of motion pictures or other projections.

.83 - Other Places of Public Assembly. All areas and portions of buildings used as places of public assembly other than theatres shall be lighted by electric light to provide a general illumination of not less than one (1) foot candle.

.84 - Control. The lighting of exitways, aisles and auditoriums shall be controlled from a location inaccessible to unauthorized persons. Supplementary control shall be provided as specified in the approved rules.

.85 - Emergency Lighting. In all buildings and structures used for public assembly purposes, all public exitways shall be lighted by means of electricity so arranged and controlled that the interruption of service on any other circuit inside the building or structure will not result in interruption of the required lighting. See approved rules under Article 15.

.86 - Lighting. All lighting installations shall conform to the requirements of ARTICLE 15.

SEC. 418.9 - FIRE PROTECTION AND FIRE FIGHTING EQUIPMENT. Every theatre classified in the F-1 use group shall be equipped with fire extinguishing equipment complying with the requirements of Article 12 as herein specified.

.91 Sprinkler System. Approved automatic sprinkler systems complying with the provisions of Section 1213.0 and Section 1214.0 shall be provided to protect all parts of the building except the auditorium, foyers and lobbies or in the immediate vicinity of automatic equipment or over dynamos and electric equipment. Such protection shall be provided over the stage, under the gridiron, under all fly galleries, in dressing rooms and over the proscenium opening on the stage side; under the stage, in all basements, cellars, workrooms, storerooms and property rooms; and in toilet rooms, lounge rooms and smoking rooms.

.92 Standpipes. Standpipe fire lines not less than four (4) inches in diameter complying with the provisions of Section 1207.0 and Section 1208.0 shall be provided with outlets and hose attachments, one on each side of the auditorium in each tier; one in each mezzanine; one in each tier of dressing rooms; and protecting each property room, storeroom and workroom.

.93 First Aid Standpipes. First aid standpipes complying with the provisions of Section 1210.0 shall be provided on each side of the stage. Such standpipes shall be not less than two and one-half (2 1/2) inches in diameter.

.94 Hose Outlets. A sufficient quantity of hose shall be provided equipped with regulation fire department couplings, nozzle and hose spanner, to reach all areas as specified in Article 12.

.95 First Aid Hand Equipment. Approved portable fire extinguishers shall be provided and shall be located; two (2) on each tier or floor of the stage; one (1) in the motion picture projection room; one in each dressing room; and one (1) in each work, utility and storage room. Fire axes and fire hooks shall also be provided as directed by the Chief of the Fire Department; and all fire extinguishers and fire tools shall be securely mounted on walls in plain view and readily accessible.

SEC. 419.0 - OTHER PLACES OF PUBLIC ASSEMBLY.

Other places of public assembly including auditoriums, armories, bowling alleys, broadcasting studios, chapels, churches, community houses, dance halls, gymnasiums, lecture halls, museums, nightclubs, rinks, roof gardens and similar uses shall comply with the general exit requirements of Article 6 and the applicable requirements of Section 418.2, Section 418.3, Section 418.4 and Section 418.5. Such places which are equipped with a stage, movable scenery, scenery loft and dressing rooms shall comply with all the requirements herein specified.

SEC. 419.1 - AISLES AND FIXED SEATS. All rows of seats shall be individually fixed or fixed in rigid units between longitudinal aisles complying with Section 418.4 except as provided for chapels and churches in Section 612.3. Where permitted, continuous fixed benches shall comply with the provisions of Section 421.4.

SEC. 419.2 - AISLES WITHOUT FIXED SEATS. Tables and chairs in all rooms and spaces for public assembly shall be so arranged as to provide convenient access by unobstructed aisles not less than thirty-six (36) inches wide which lead to required exitways complying with Article 6.

SEC. 419.3 - KITCHEN AND SERVICE PANTRIES. Where kitchen and service pantries are provided, they shall be separately enclosed in partitions, floors and ceilings of not less than two (2) hour fire-resistance and no required exitway shall pass through such areas.

SEC. 419.4 - BOWLING ALLEYS. All flammable, volatile liquids shall be stored and handled as required in Section 404.0 and the finishing rooms shall be separately enclosed in two (2) hour fire-resistive construction with floor finish of concrete or other incombustible, non-absorbent material. Such rooms shall not be located in the basement or cellar unless the building is of fireproof or protected incombustible construction.

SEC. 419.5 - SKATING RINKS. No skating rinks shall be located on a floor more than two (2) feet above or below grade.

SEC. 420.0 - AMUSEMENT PARKS.

SEC. 420.1 - CONSTRUCTION. All buildings and enclosed structures shall be constructed to conform to the requirements of this Code governing the particular use and occupancy involved and in compliance with the fire district limitations of Article 3 except as may be herein specifically required.

.11 - Amusement Devices. The maximum height of any amusement device in which passengers are transported shall not exceed; in fireproof construction one hundred (100) feet, in unprotected steel eighty (80) feet and in frame construction forty (40) feet.

.12 - Amusement Park Buildings. All amusement park buildings over one (1) story in height and one (1) story buildings over fifteen hundred (1500) square feet in area shall have walls, floors, roofs, and supports constructed of one (1) hour fire-resistive construction or better.

.13 - Proximity to Lot Lines. All structures located within twenty (20) feet on lot lines or within twenty (20) feet of other structures on the same lot shall be of protected incombustible (Type 2A) or better construction.

SEC. 420.2 - WALKWAYS AND RAMPS. Walkways and ramps shall be erected with a slope not greater than one (1) in ten (10) when approved non-slip surfaces are provided.

SEC. 420.3 - ELEVATING AND CONVEYING EQUIPMENT. All devices and equipments for transporting persons shall comply with the requirements of Article 16.

SEC. 420.4 - TESTS. All amusement devices used by the public which embrace hazardous features shall be installed and operated as directed by the Director and shall not be placed in service until acceptance tests have been made and the installation has been approved by him.

SEC. 420.5 - FIRE PROTECTION. In addition to the fire extinguishing and fire fighting equipment required by the use and occupancy of each building and structure under the provisions of this Code, every amusement and exhibition park when required by the Director or Chief of the Fire Department shall be provided with a system of fire hydrants and fire lines with the required water supply in accordance with the provisions of Article 12 and the approved rules adopted thereunder.

SEC. 421.0 - STADIUMS AND GRANDSTANDS.

All outdoor stadiums and grandstands shall be constructed as herein required and in accordance with the approved rules and the applicable standards listed in Appendix B.

SEC. 421.1 - OCCUPANCY LOAD OF GRANDSTANDS. When the occupancy load is more than three-thousand (3,000) persons, or the seating is more than two (2) tiers or twenty-five (25) feet in height, the structure shall be of protected incombustible construction (Type 2A) or better. When the occupancy load is three-thousand (3,000) or less, or the structure is not more than two (2) tiers or twenty-five (25) feet in height, the construction may be unprotected incombustible (Type 2B) or heavy mill (Type 3A). When located more than twenty (20) feet from the lot line, or from any adjacent structure, the fire-resistive protection of structural beams, girders, trusses and columns may be omitted in all grandstands.

SEC. 421.2 - COMBUSTIBLE CONSTRUCTION. Temporary stadiums and grandstands of combustible construction and such permanent structures shall not exceed twenty-five (25) feet above the grade and the A-frames, stringers, and sleepers shall be rigidly secured and anchored with through bolts, ring connectors or other approved connectors to resist all stresses. The occupancy load of each structure shall not be more than one thousand (1,000) persons.

SEC. 421.3 - MEANS OF EGRESS FROM GRANDSTANDS.

.31 - Street Frontage. Every stadium or grandstand shall have one (1) or more frontages on streets or public highways not less than thirty

(30) feet wide or on open spaces not less than thirty (30) feet wide leading to a street or public space as herein required:

<u>OCCUPANCY LOAD</u>	<u>STREET FRONTAGE</u>
1,000 or less	1 street
5,000 " "	2 streets
10,000 " "	3 streets
Over 10,000	4 streets

.32 Location of Exits. The distance between exits in the grandstand shall not exceed one hundred (100) feet; except where the length of a cross aisle does not exceed fifty (50) feet, one exit only shall be required.

.33 Exit Gates. Every stairway, ramp or vomitory shall lead directly to an exterior exit or to a horizontal exit passageway leading to a field or other open space, or exit gateway to the street. The number of exit gateways shall be as follows:

<u>OCCUPANCY LOAD</u>	<u>NUMBER OF EXITS</u>
1,000	2
3,000	3
Each additional 2,000	1 additional

SEC. 421.4 - SEATING AND AISLES.

.41 - Aisles. Aisles shall be not less than forty-two (42) inches in width with provisions for not more than thirty (30) persons per row between aisles.

.42 Rails. Every ramp, stairway, deck and tier level shall have an approved protective railing or guard not less than three (3) feet high.

.43 Seats. The minimum width of fixed seats with arms shall be twenty (20) inches; and without divisions between seats, a minimum width of eighteen (18) inches shall be provided for each person. No portable chairs or seats shall be permitted except in boxes or loges in which one chair may be installed for each five (5) square feet of floor area, and not more than a total of fourteen (14) seats in a box.

SEC. 421.5 - CEILING CLEARANCE. The clear height below ceilings shall be not less than eight (8) feet.

SEC. 421.6 - SIGNS. Illuminated exit and directional signs shall be provided complying with Section 624.0.

SEC. 421.7 - PARKING SPACES. Parking spaces when located less than twenty (20) feet from grandstand structures, shall be provided with a fire separation of not less than two (2) hours fire-resistance.

SEC. 422.0 - DRIVE-IN MOTION PICTURE SHOWS

SEC. 422.1 - ARRANGEMENT OF LANES. Entrance and exit lanes shall provide separate means of entrance and egress not less than twelve (12) feet in width, with not less than forty (40) feet intervals between access lanes. The parking space for each car shall be not less than nine (9) feet by twenty-two (22) feet and arranged to provide continuous lanes of travel.

SEC. 422.2 - PROJECTION BOOTH. The projection booth shall comply with Section 409.3 and shall be supported on a structure of type 2B or better construction. No motor vehicles shall be permitted to park within twenty (20) feet of the booth or room.

SEC. 422.3 - TOILET FACILITIES. Separate toilet facilities shall be provided for each sex as required in Article 17 for places of public assembly.

SEC. 422.4 - FIRE PROTECTION. Sufficient, approved, portable fire extinguishers shall be provided in a readily accessible location, plainly and visibly identified by signs. The fire extinguishers shall be mounted and located so as to be available to every motor vehicle at distances of not more than one hundred fifty (150) feet.

SEC. 423.0 - TENTS AND TEMPORARY STRUCTURES.

SEC. 423.1 - LOCATION AND PERMITS. Outside of Fire District No. 1 temporary tents may be erected for a period not exceeding fourteen (14) days for religious, educational or recreational purposes. A special permit shall be secured from the Director before and after each such installation.

SEC. 423.2 - TENT CONSTRUCTION.

.21 Tent Canvas. The tent tarpaulin and all decorative materials shall be treated to render the materials slow burning for the period for which the permit is granted in accordance with the provisions of Article 9 and the applicable standards listed in Appendix G.

.22 Pole Supports. Tent poles shall be stayed with wire ropes; fibre rope shall be used only for mooring to stakes. Tent hoists shall be of incombustible materials.

SEC. 423.3 - FIRE EXPOSURE. No tent shall be erected nearer than fifty (50) feet to interior lot lines or to any other building on the lot.

SEC. 423.4 - EXITS. Not less than twenty-two (22) inches exit width shall be provided for each five hundred (500) square feet of public space enclosed, with a minimum width of exitway of forty-four (44) inches.

SEC. 423.5 - AISLES AND PASSAGEWAYS. Aisles and passageways shall conform to the requirements of Section 421.0. All exitways shall be maintained free and unobstructed at all times during occupancy of the tent.

SEC. 423.6 - COMBUSTIBLE MATERIALS. No hay, straw, shavings or similar combustible materials shall be allowed within the tent structure other than that necessary for the daily feeding and care of animals and sawdust and shavings (when kept damp) for use in performances. No combustible materials shall be permitted under stands or seats at any time.

SEC. 423.7 - FIRE PREVENTION.

.71 - Combustible Trash. The area within and adjacent to tents shall be maintained clear of all grass and underbrush creating a fire hazard within a radius of fifty (50) feet; and all combustible trash shall be removed from the enclosure before and after each performance.

.72 Exposed Flames. No gasoline, gas, charcoal or other heating or cooking device or other exposed flame not connected with the performance or exhibit shall be allowed inside or within twenty (20) feet of the tent enclosure.

.73 Spot Lighting. Spot or effect lighting shall be by electricity only; and all combustible construction within six (6) feet of such equipment shall be protected with asbestos not less than one-quarter (1/4) inch thick or other approved insulation.

SEC. 423.8 - FIRE PROTECTION. Portable fire extinguishing equipment and fire fighting tools shall be provided complying with Article 12 as directed by the Chief of the Fire Department.

SEC. 424.0 - PARKING LOTS.

SEC. 424.1 - CURB CUTS. Parking lots shall be arranged to afford ready means of entrance and exit as sidewalk level; and special permits shall be secured for curb cuts from the proper authority.

SEC. 424.2 - LANES AND PARKING SPACES. Access lanes shall be provided for each row of cars not less than twelve (12) feet in width; and the parking space shall be not less than eight (8) feet by twenty (20) feet for each motor vehicle.

SEC. 424.3 - PARKING LOT OFFICES. The construction of parking lot offices shall comply with the fire district limitations of Section 303.0 and Section 304.0.

SEC. 424.4 - GUARDS, GUARD RAILS AND BARRICADES.

.41 Where Required. All parking lots abutting upon and adjacent

to a body of water such as a water-way, harbor, river, lake, pond or the like, or to an embankment wherein the grade changes so abruptly as to cause a dangerous condition to exist, shall erect and maintain barriers of such type and construction as shall be determined by the Director.

.42 - Annual Inspection. All such barriers shall be inspected at least once annually. The Director shall order such repairs, alterations or replacements as may be deemed necessary.

SEC. 425.0 - RADIO TOWERS AND ANTENNAE.

Subject to the structural provisions of Article 7 and the requirements of Article 9 governing the fire-resistance of buildings for the support of roof structures, all radio towers and antennae shall be designed and constructed as herein provided.

SEC. 425.1 - LOCATION AND ACCESS. The towers shall be so located and equipped with step bolts and ladders as to be readily accessible for inspection purposes. No guy wires or other accessories shall cross or encroach upon any street or other public space, or over any electric power lines, or encroach upon any other privately owned property without written consent of the owner.

SEC. 425.2 - CONSTRUCTION. All radio towers shall be constructed of steel or other approved corrosion-resistive incombustible materials. Steel members shall be not less than three-sixteenth ($3/16$) inches thick if galvanized nor less than seven-thirty seconds ($7/32$) inches thick if painted to comply with Section 830.6. Antennae shall be constructed in accordance with the approved rules.

SEC. 425.3 - LOADS. The structure shall be securely braced and anchored to resist a wind load of not less than thirty (30) pounds per square foot on the net area of both sides of latticed construction and on the projected area of the antennae plus the wind on ice covered sections, in accordance with the approved rules.

.31 - Dead Load. Antennae and towers shall be designed for the dead load plus ice load.

.32 - Uplift. Adequate foundations and anchorage shall be provided to resist two (2) times the calculated wind uplift.

SEC. 425.4 - ELECTRICAL REQUIREMENTS. Radio towers and antennae shall comply with the requirements of Article 15 and the approved rules, with a copper conductor of not less than No. 8 U. S. gage or its equivalent.

ARTICLE 5 - LIGHT AND VENTILATIONSEC. 500.0 - SCOPE.

The provisions of this article shall govern the means of light and ventilation required in all habitable and occupiable rooms. Every building and structure hereafter erected and every building, room or space which is changed in use shall be constructed, arranged and equipped to conform to the requirements of this article and the applicable standards listed in Appendix B.

SEC. 500.1 - CONFLICTING LAWS. Nothing in this article shall be construed to nullify the provisions of any other ordinance regulating yards, courts, or other spaces, or of any approved rule; but the provisions specifying the greater requirements shall control the construction.

SEC. 500.2 - BUILDINGS ON SAME LOT. If more than one building is hereafter placed on a lot, or if a building is placed on the same lot with existing buildings, the several buildings may be treated as a single structure for the purposes of this article, provided equivalent uncovered lot area or other adequate sources of light and ventilation are furnished for all habitable and occupiable spaces and rooms.

SEC. 500.3 - OTHER STANDARDS. Compliance with the applicable provisions of the standards listed in Appendix B shall be deemed to meet the requirements of this article, unless otherwise specifically provided here.

SEC. 501.0 - DEFINITIONS.

Court. An open, unoccupied space bounded on two (2) or more sides by the exterior walls of a building or by exterior walls and lot lines.

Inner Court. A court enclosed on all sides by exterior walls of a building or by exterior walls and lot lines on which walls are allowable.

Outer Court. A court enclosed on not more than three (3) sides by exterior walls of a building or by exterior walls and lot lines on which walls are allowable, with one (1) side or end open to a street, driveway, alley, or yard.

Habitable Room. A room or enclosed floor space in a family unit arranged for living, eating or sleeping purposes; including kitchens (but not bath or toilet rooms, laundries, pantries, foyers or communicating corridors), having a minimum width of seven (7) feet between enclosing walls or partitions and a minimum clear height of seven and one-half (7 1/2) feet, with means of light and ventilation meeting the requirements of this Code.

Occupiable Room. A room or enclosed space designed for human occupancy in which a number of persons congregate for amusement, educational, or similar purposes or in which persons are engaged at labor and which is equipped with exit, light and ventilation facilities meeting the requirements of this Code.

Yard. An open unoccupied space extending along the length of a street, rear, or side lot line.

SEC. 502.0 - PLANS AND SPECIFICATIONS.

Plans for all buildings and structures, other than one and two family and multifamily buildings, which are designed for human occupancy, shall designate the number of persons to be accommodated in the various rooms and spaces, and when means of artificial lighting and ventilation are required, the application shall include sufficient details and description of the mechanical system to be installed as herein required or as specified in Article 18.

SEC. 503.0 - STANDARDS OF NATURAL LIGHT.

In the application of the provisions of this article, the standard of natural light for all habitable and occupiable rooms, unless otherwise specifically required by the provisions of Article 4 for special uses and occupancies, shall comply with the requirements of the approved rules.

SEC. 504.0 - STANDARDS OF NATURAL VENTILATION.

In the application of the provisions of this article, the standard of natural ventilation for all habitable and occupiable rooms shall be based on a volume of four hundred (400) cubic feet of air per occupant, with adequate ventilating skylights, monitors, louvres, windows, transoms or other alternate ventilating devices, located in the exterior walls or on the roof of the building.

SEC. 505.0 - ARTIFICIAL LIGHT AND VENTILATION.

SEC. 505.1 - WHEN REQUIRED. When natural light and ventilation are inadequate to insure the health and safety of human occupants, or when rooms, which by use or occupancy, involve the presence of dust, fumes, gases, vapors or other noxious or deleterious impurities that create a fire or health hazard; or when required by the provisions of Article 4 for special uses, the building shall be equipped with artificial light and mechanical means of ventilation as herein prescribed or by the approved rules adopted thereunder.

SEC. 505.2 - OPERATION OF VENTILATION SYSTEMS. Where mechanical ventilation is accepted as an alternate for natural ventilation or is required under the conditions herein prescribed, the system, equipment and distributing ducts shall be installed in accordance with the provisions of Article 10 and 18; and such systems shall be kept in operation at all times during normal occupancy of the building or space so equipped.

SEC. 506.0 - EXISTING BUILDINGS.

SEC. 506.1 - UNSAFE CONDITIONS. In all existing rooms or spaces in which the provisions for light and ventilation do not meet the requirements of this article and which, in the opinion of the Director, are dangerous to the health and safety of the occupants, he shall order the repairs or installations required to render the building or structure livable for the posted use and occupancy.

SEC. 506.2 - ALTERATIONS. No building shall hereafter be altered or rearranged so as to reduce either the size of a room, the fresh air supply, or the amount of available natural light to less than that required for buildings hereafter erected; or to create an additional room, unless made to conform to the requirements of Section 507.0. Unless greater provision of artificial light and ventilation is deemed necessary by the Director to insure healthful living conditions, he may permit new rooms to be of the same height as existing rooms in the same story.

SEC. 506.3 - UNCOVERED YARD AND COURT AREA. No building shall be hereafter enlarged, nor shall the lot on which it is located be diminished, so as to decrease the required courts or yards to less than that prescribed in this article for the natural lighting and ventilation of new buildings.

SEC. 507.0 - NATURAL LIGHTING AND VENTILATION OF ROOMS.

SEC. 507.1 - WINDOWS AND SKYLIGHTS. All habitable and occupiable rooms or spaces shall contain windows, skylights, monitors, glazed doors, transoms, glass block panels or other light transmitting media opening to the sky or on a public street, yard or court, complying with the provisions of this article, so arranged to provide as uniform distribution of light and air as practicable of the intensity and quantity herein prescribed.

SEC. 507.2 - WINDOW SIZE. All windows for required light and ventilation shall have an area not less than one-tenth ($1/10$) of the floor area served, and shall have not less than one-half ($1/2$) of the required glass area available for unobstructed ventilation.

SEC. 507.3 - OPENINGS ON YARDS AND COURTS. In order to be credited as a source of natural light and ventilation under the provisions of this article, a window or any other approved device shall open directly on a public street, alley or other open public space, or on a yard or court located on the same lot or plot, complying with the requirements of Sections 516.0, 517.0 and 518.0.

SEC. 507.4 - ALTERNATE DEVICES. In place of the means for natural light and ventilation herein prescribed, alternate arrangement of windows, louvres, or other methods and devices that will provide the equivalent performance requirements shall be permitted when complying with the approved rules.

SEC. 507.5 - ALTERNATE VENTILATION. In all spaces when the volume of net space per person is less than four hundred (400) cubic feet and the required window ventilation is not provided, means of mechanical ventilation shall be installed to comply with Section 505.0 and Article 18.

SEC. 508.0 - LIGHTING AND VENTING OF SPECIAL SPACES.

SEC. 508.1 - ALCOVE ROOMS. When alcove rooms open without obstruction into adjoining rooms, the required window openings to the outer air shall be based on the combined floor area of room and alcove. When the opening between alcove and adjoining room is less than eighty (80) per cent of the area of the separating wall, the alcove shall be considered a separate room and provision shall be made for its direct light and ventilation.

SEC. 508.2 - ATTIC SPACES. All attic spaces and spaces between roofs and top floor ceilings shall be ventilated by not less than two (2) opposite louvres or vents with a total clear area of opening not less than one-third ($1/3$) of one per cent of the horizontally projected roof area.

SEC. 508.3 - CRAWL SPACES. In buildings and structures constructed without cellars, in which the first floor construction does not bear directly on the ground, a space shall be provided under the first floor not less than eighteen (18) inches in height; and such spaces shall be vented with screened openings having a clear area of not less than one-third ($1/3$) of one per cent of the enclosed building area, or shall be provided with other means of ventilation approved by the Director.

SEC. 509.0 - BASEMENTS AND CELLARS.

Except as may be otherwise specified for habitable or occupiable rooms or specifically provided in Article 4 for special uses, the glass window area in basements and cellars shall be not less than one-fiftieth ($1/50$) of the floor area served, and provisions shall be made for the fresh air supply prescribed for specific uses in Section 515.0.

SEC. 510.0 - BUSINESS AND WORK ROOMS.

Offices, stores, mercantile and salesrooms, restaurants, markets, bakeries, hotel and restaurant kitchens, factories, workshops, machinery and boiler rooms shall be provided with the required windows

specified in Section 507.0 for habitable and occupiable rooms, opening directly on a street or required yard or court; or such rooms shall be equipped with an approved system of mechanical ventilation complying with Section 505.0 and Article 18.

SEC. 511.0 - ASSEMBLY ROOMS.

In addition to the specific requirements of Article 4 for special uses, the required windows or other approved devices for natural ventilation shall be distributed as equally as practicable on at least two (2) sides of the room; and artificial lighting shall comply with the requirements of this article and Article 15.

SEC. 512.0 - ROOMS OF INSTITUTIONAL BUILDINGS.

In buildings of institutional use group, every habitable and occupiable room shall be provided with light and ventilation as herein provided, except that in buildings used for the enforced detention of people (Use Group H-1) indirect openings to the street or court may be permitted through intermediate corridors or by other approved means.

SEC. 513.0 - BATH AND TOILET ROOMS.

Every bath and toilet room shall be lighted and ventilated by one of the methods prescribed in this section.

SEC. 513.1 - EXTERIOR WINDOWS. By windows opening to the outer air as provided in Section 507.0 but in no case less than three (3) square feet in area;

SEC. 513.2 - VENT SHAFT WINDOWS. By windows opening on a vent shaft with a cross-sectional area of one (1) square foot for every foot in height, but not less than nine (9) square feet in area, open to the outer air at top or constructed with equivalent side louvre openings;

SEC. 513.3 - VENTS AND DUCTS. By individual vents or ducts constructed of approved incombustible materials complying with Section 1019.0, with a cross-sectional area of one-half (1/2) square foot, and one-third (1/3) additional square foot for each additional water closet or urinal above two (2) in number. Such ducts shall be of adequate height and so located as to insure an adequate minimum supply of fresh air in accordance with the approved rules.

SEC. 513.4 - SKYLIGHTS. By a skylight of approved incombustible construction not less than three (3) square feet in area, with ventilating openings.

SEC. 513.5 - MECHANICAL VENTILATION SYSTEM. By any system of mechanical or gravity ventilation capable of exhausting forty (40) cubic feet of air per minute per water closet or urinal in public bathrooms, and not less than twenty-five (25) cubic feet of air per minute in private bathrooms, but in no case shall the fresh air supply be less than specified in Section 515.0.

SEC. 514.0 - STAIRWAYS AND EXITWAYS.

SEC. 514.1 - RESIDENTIAL AND INSTITUTIONAL BUILDINGS.

.11 - Windows. In all residential buildings, (Use Group L2) and in institutional buildings for the care or treatment of people (Use Group H2), required interior stairways shall be provided with windows to the outer air, having a glass area of not less than ten (10) square feet opening on a required street, alley, yard or court, or with the equivalent artificial lighting for each story through which the stairway passes; and such additional artificial lighting as to provide the equivalent illumination as specified in Section 625.0 and Article 15, at all times that the building is occupied.

.12 - Skylights. When the building does not exceed four (4) stories in height, a ventilating skylight of the required area may be used in lieu of windows.

.13 - Hallways. Hallways shall have at least one window opening directly on a street or on a required yard or court in each story, located so that light penetrates the full length of the hallway, with additional windows for each change of direction of the hallway; or the equivalent artificial lighting shall be provided. Every recess or return with a depth or length which exceeds twice the width of the hall, and every corridor separately shut off by a door, shall be treated as a separate hall in applying the provisions of this section.

SEC. 514.2 - BUSINESS AND ASSEMBLY BUILDINGS. All stairway enclosures shall conform to the requirements of Articles 6 and 9 for construction and shall be provided with artificial illumination to meet the requirements of this article and Article 15.

SEC. 514.3 - INTENSITY OF ILLUMINATION. In all required exitways, and wherever natural lighting is not available, artificial lighting shall be provided and all such artificial illumination shall comply with the requirements of ARTICLE 15.

SEC. 515.0 - REQUIRED FRESH AIR SUPPLY

Mechanical or gravity systems of ventilation shall provide the minimum fresh air supply in cubic feet per minute per square foot of floor area of rooms and spaces as herein prescribed.

SEC. 515.1 - WORKROOMS.

.11 - Workrooms with occupants engaged at sedentary work shall be provided with not less than one (1) cubic foot of fresh air.

.12 - Workrooms in which arduous work is performed shall be provided with not less than one and one-half (1 1/2) cubic feet of fresh air.

.13 - The ventilation requirements specified in Section 515.11 and Section 515.12 may be reduced fifty (50) per cent when the net space per occupant exceeds one thousand (1,000) cubic feet.

SEC. 515.2 - AUDITORIUMS. Auditoriums, department stores, lecture rooms, libraries, theatres, school and classrooms, gymnasiums, restaurants and dining halls shall be provided with not less than one and one-half (1 1/2) cubic feet of fresh air.

SEC. 515.3 - ART GALLERIES. Art galleries, offices, museums, railroad stations, convention halls, asylums, orphanages, jails and prisons shall be provided with not less than one-half (1/2) cubic foot of fresh air.

SEC. 515.4 - HOSPITAL WARDS. Hospital wards and dormitories of institutional buildings shall be provided with not less than one (1) cubic foot of fresh air.

SEC. 515.5 - OPERATING ROOMS. Operating rooms of institutional buildings, lockers and rest rooms, laboratories, toilet and bathrooms shall be provided with not less than two (2) cubic feet of fresh air.

SEC. 515.6 - CHEMICAL LABORATORIES. Chemical laboratories shall be provided with not less than two (2) cubic feet of fresh air.

SEC. 515.7 - DANCE HALLS. Dance halls and interior cooking spaces shall be provided with not less than three (3) cubic feet of fresh air.

SEC. 515.8 - KITCHENS. Kitchens which supply food for institutions, restaurants, hotel dining rooms, and cafeterias shall be provided with not less than four (4) cubic feet of fresh air.

SEC. 515.9 - EXITWAYS. Exitways in multifamily residential (Use Group L2) and in institutional (Use Group H) buildings shall be provided with not less than one and one-half (1 1/2) cubic feet of fresh air.

SEC. 516.0 - VENTILATION OF ELEVATOR HOISTWAYS AND OTHER SHAFTS.

All enclosed vertical shafts extending through more than one (1) story of a building or structure shall be vented at the top or sides to the outer air with thermostatically controlled skylights, or windows constructed as herein provided or as specified in Article 9, or with other adequate means of ventilation in accordance with the approved rules.

SEC. 516.1 - EXTENDING TO ROOF. Every shaft enclosure extending to the roof shall be provided with a metal skylight constructed to comply with Section 932.2 and thermostatically controlled to open with a rise in temperature in accordance with the approved rules; or with windows of equivalent area or with other approved automatic means of removing hot air and gases.

SEC. 516.2 - THERMOSTATIC CONTROL. The automatic operation of fire shutters and vent relief devices shall be controlled by fusible links designed to operate at a fixed temperature of not more than one hundred sixty (160) degrees F., or by electric or pneumatic operation, under a rapid rise in temperature at a rate of fifteen (15) to twenty (20) degrees F. per minute or in accordance with the approved rules.

SEC. 516.3 - NOT EXTENDING TO ROOF. Shaft enclosures not extending to the roof shall be provided with gas and smoke relief vents or adequate mechanical means of ventilation in conformity with the provisions of Article 18 and the approved rules.

SEC. 516.4 - ELEVATOR MACHINE ROOMS. The machine room platform of elevator shafts, when of solid construction, shall be pierced with one or more vent openings as provided in Section 1616.9.

SEC. 517.0 - INDUSTRIAL BUILDINGS WITH UNPIERCED ENCLOSED WALLS.

SEC. 517.1 - AIR-CONDITIONING. When light and ventilation yards, courts or other required open spaces are not provided as herein specified, buildings may be erected for industrial and commercial uses within the height and area limitations of Article 3 and Table 6, when such buildings and structures are equipped with approved artificial lighting, ventilating and air-conditioning systems furnishing the equivalent light and ventilation. The installation of all such systems shall comply with the provisions of Article 18 and the approved rules adopted thereunder.

SEC. 517.2 - FIRE PROTECTION. Buildings and structures without exterior window openings in all stories, which are provided with approved mechanical ventilating and air-conditioning systems, shall be equipped with the fire protection and fire extinguishing media herein prescribed and complying with the requirements of Article 12.

.21 - Standpipe Fire Lines shall be located so as to be readily accessible to the private fire brigade and the municipal fire department.

.22 - Fire Access Panels of the required size and location shall be installed in the enclosure walls as specified in Section 863.0.

.23 - Interior Fire Alarm signal systems, trained fire brigades and organized fire drills shall be provided and maintained.

.24 - Automatic Sprinkler systems with supervisory service and fire department connection shall be installed.

.25 - Vent Relief. The building or structure shall be fire-vented as prescribed in Section 521.0.

SEC. 518.0 - COURTS.

All required courts serving rooms for light and ventilation purposes shall comply with the requirements of this section.

SEC. 518.1 - WIDTH OF COURT.

.11 - Every such court shall have a minimum width of three (3) inches for each foot of height or fraction thereof but not less than five (5) feet for outer courts and twice these values for inner courts.

.12 - In the case of irregular or gore-shaped courts, the required minimum width of court may be deemed to be the average width, provided that no such court shall be less than five (5) feet at any point.

SEC. 518.2 - AREA OF COURT. The cross-sectional area of a required court shall be not less than one and one-half (1 1/2) times the square of its width; nor shall the length of any court be more than twice its width.

SEC. 518.3 - ACCESS TO COURT. A door or other means of access shall be provided at the bottom of every court that is not otherwise conveniently accessible for purposes of cleaning.

SEC. 518.4 - AIR INTAKES TO COURT.

.41 - Every court, serving one or more habitable rooms, that does not open for its full height on one or more sides to a street or legal yard shall be connected at or near the bottom with a street or yard by a horizontal intake or passage of fire-resistive construction. Such intake or passage shall have a cross-sectional area of not less than twenty-one (21) square feet, and shall remain fully open at both ends and unobstructed for its full size and length, except that grilles of incombustible construction complying with the approved rules may be permitted at the ends of the intake.

.42 - The walls, floors and ceilings of such intakes or passages shall have a fire-resistance rating of not less than two (2) hours in buildings of Types 1, 2 or 3 construction and not less than one (1) hour fire-resistance in Type 4 construction.

SEC. 518.5 - COURT WALLS. When in the opinion of the Director, windows facing on courts do not receive adequate direct light by reason of peculiar arrangement or orientation, he may require the walls to be constructed of white or light colored masonry, or to be painted and maintained a light color to furnish additional reflected light.

SEC. 518.6 - COURT DRAINAGE. The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with Section 1722.0; and when required by the Director shall be paved with concrete or other approved non-absorbent material.

SEC. 519.0 - YARDS.

SEC. 519.1 - RESIDENCE AND INSTITUTIONAL BUILDINGS. At the rear of every building hereafter erected to be occupied as a one and two family or multiple family dwelling (Use Group L), or institutional building (Use Group H), there shall be maintained a yard of the dimensions herein prescribed. When such yard serves as a required court its dimensions shall be those required for a court in this article.

SEC. 519.2 - DEPTH OF YARDS. The depth of a required yard between the extreme rear of the building and the rear lot line shall not be less than fifteen (15) feet at any point for a height of building thirty-five (35) feet, and shall increase four (4) inches in depth for each foot of height above this limit; except that for a corner lot the minimum depth shall be not less than ten (10) feet. When the lot is less than sixty-five (65) feet in depth, the required yard may be diminished in depth six (6) inches for each foot less than sixty-five (65) feet.

SEC. 519.3 - OTHER USE GROUPS. In buildings of other use groups, rear yards shall be provided to serve all habitable and occupiable rooms requiring height and ventilation from such source. The lowest level of such yards shall begin at the sill level of the second story windows, with a depth of not less than ten (10) feet for a height of thirty-five (35) feet and shall increase three (3) inches for each foot of height above that level.

SEC. 520.0 - OBSTRUCTION OF COURTS AND YARDS.

SEC. 520.1 - PERMISSIBLE PROJECTIONS. Every required court and yard shall remain unobstructed for its required area and full height, except for the projections permitted in Section 311.0. In the case of residence and institutional buildings this shall not prohibit clothes poles, arbors, garden trellises and other such accessories in the open spaces at the ground level.

SEC. 520.2 - MOTOR VEHICLE PARKING. When approved by the Director, court and yard areas may be used for automobile parking spaces or private garages not exceeding one (1) story in height when accessory to and only for the use of the occupants of a residence building

SEC. 521.0 - FIRE EMERGENCY VENTILATING SYSTEM.

SEC. 521.1 - WHERE REQUIRED. The public exit halls and corridors of all buildings and structures for institutional use (Use Groups H1 and H2), and all hotels and apartment houses (Use Group L1 and

L2), which exceed three (3) stories or forty (40) feet in height, with more than twenty-five (25) sleeping rooms, or occupied by more than fifty (50) persons above the first floor, or which exceed ten thousand (10,000) square feet in area, and all fully enclosed industrial buildings without provision of exterior window openings for ventilation purposes, shall be constructed with vertical fire vent stacks and lateral fire vent ducts as herein provided or with windows to the outer air or with other equivalent approved means of dissipating smoke, heated air and toxic gases directly to the outer air.

SEC. 521.2 - FIRE VENT DUCTS. When the public hallways, corridors and exitways are not ventilated by windows opening directly to the outer air as required in Section 514.0, there shall be provided in each story, a system of collecting fire ducts of aggregate size sufficient to remove the smoke, hot air and obnoxious fumes or gases in event of fire, but not less than one (1) square foot in area located in the public hallways and corridors, with screened openings complying with the approved rules, constructed as provided for hot air ducts in Article 10.

SEC. 521.3 - THERMOSTATIC OPERATION. When not connected to a vent stack, the inlet openings shall be controlled by automatic heat operated devices in accordance with the approved rules.

SEC. 521.4 - FIRE VENT STACKS. When the fire ducts do not discharge directly to the outer air in each story, one or more fire vent stacks of adequate capacity shall be installed to accommodate the discharge from the fire duct system in any one floor or enclosed fire area, but in no case shall any individual stack be less than four (4) square feet in area, and all stacks shall terminate in an approved cowl or ventilator above the roof.

SEC. 521.5 - LOCATION OF STACKS. The vent stack shall be located in as central a position as practicable with respect to the floor area vented thereby, preferably in the vicinity of vertical shafts, and shall extend continuously to the roof.

SEC. 521.6 - VENT CONTROL OF STACKS. The vent control shall consist of approved incombustible dampers, shutters or glazed metal sash designed to open outwardly, located not less than twenty (20) feet from window openings or exit doors in adjoining walls, and shall be equipped with a thermostatic unit arranged to open at a predetermined rate of temperature rise in accordance with the approved rules. Auxiliary mechanical means for manual operation of all vent controls shall be provided in an accessible location designated by the Director.

SEC. 521.7 - STACK CONSTRUCTION. The stack enclosure shall be so constructed as to be vapor and smoke tight, with walls of not less than two (2) hours fire-resistance, with no openings other than the fire duct inlets and the top automatic ventilator outlet.

SEC. 521.2 - MECHANICAL EXHAUST SYSTEMS. When mechanical exhaust is required to operate the emergency ventilating system either in horizontal ducts or vertical vent stacks, the installation shall be thermostatically controlled and installed in accordance with the provisions of Article 18 and the approved rules adopted thereunder.

ARTICLE 6 - MEANS OF EGRESS

SEC. 600.0 - SCOPE.

The provisions of this article shall control the design, construction and arrangement of exit facilities to insure safe means of egress from all buildings or structures now existing or hereafter erected, and from all buildings or structures hereafter altered or added to in which the occupancy load, manner of use or inherent fire hazard is changed.

SEC. 600.1 - MODIFICATION OF EXIT REQUIREMENTS. When strict compliance with the provisions of this article is impracticable, the Director may approve alternate means of egress which will accomplish the same purpose, by the procedures established in Article 1 for modification or for the adoption of approved rules.

SEC. 600.2 - MINIMUM REQUIREMENTS. It shall be unlawful to alter any building or structure in any manner that will reduce the means of egress below the requirements of this Code for new buildings.

SEC. 601.0 - DEFINITIONS.

Exitways. A facility or an association of facilities in such sequence as to furnish a continuous path of egress from a floor level to a street or to an open space with approved access to a street. Exitway facilities are such as are listed in Section 609.0. Corridors and ordinary room doorways, except in special cases, are not considered as parts of exitways, their function being to provide means of reaching exitways. Requirements covering the widths of corridors and all doorways have been included to insure a necessary relationship between their widths and the widths of the exitways. Corridors occurring in exitways are considered as passageways and shall conform to the requirements for passageways.

Horizontal Exit. An exitway consisting of a protected opening or openings through or around a firewall or fire partition, connecting two (2) approved adjacent floor areas of the required size, with exit facilities to provide an area of refuge and egress to the street or to an open space with approved egress to the street.

Passageway. A hallway, corridor, foyer, lobby or tunnel occurring in and forming part of an exitway and enclosed with fire-resistance construction as required in this Code.

Revolving Door - Automatic Collapsible. A door designed, supported and constructed so that it will not require more than fifty (50) pounds pressure applied on the wings to release and fold them back in the direction of egress providing an opening of approved width on each side of the door pivot.

Smokeproof Tower (Fire Tower). A stairway enclosed with walls of a required fire-resistance rating, with access thereto from a floor or floors of a building or structure, either through outside balconies or through ventilated fireproof vestibules, and with egress therefrom to a street or open space with ample approved access to a street or through a passageway to a street.

Stairway. One or more flights of stairs with connecting landings and platforms providing a continuous and uninterrupted passage from one floor level to another in a building or structure.

Stairway - Moving. (See Section 1601.0).

Street. Street, when used as a place to which an exitway leads shall be interpreted as a street or open space with approved access to a street.

SEC. 602.0 - PLANS AND SPECIFICATIONS

SEC. 602.1 - ARRANGEMENT OF EXITWAYS. The plans shall show the location, size and character of all exits and exitways, together with arrangement and size of all doors, aisles and corridors serving as means of reaching the exitways, in sufficient detail to establish compliance with this Code.

SEC. 602.2 - NUMBER OF OCCUPANTS. In buildings or structures other than buildings of residence Use Groups L2 and L3, the plans shall designate the maximum number of persons to be accommodated on each floor and in all rooms and spaces as may be required by the Director. When not otherwise specified, the number of persons to be accommodated by the exit facilities shall be determined by the occupancy loads as prescribed in Section 608.0 and the posted occupancy loads shall be limited to those numbers.

SEC. 603.0 - USE AND OCCUPANCY REQUIREMENTS

SEC. 603.1 - NEW BUILDINGS. Every building or structure and part thereof hereafter erected shall have the prescribed number and approved type of exitways defined in this Article as ample to provide safe and continuous means of egress to a street.

SEC. 603.2 - MIXED USE GROUPS. In case a building or structure is occupied for two or more uses not included in one Use Group, its occupancy shall be considered as provided for in Section 213.0 and exit facilities shall be provided accordingly. A minor occupancy, not involving any material increase in hazard to the remainder of the building or structure, may be classed as part of a major occupancy when so approved by the Director. When places of assembly such as ballrooms, dance halls, banquet halls, dining rooms, restaurants, night clubs and similar rooms or spaces occur in connection with other occupancies the exit facilities shall be adequate for the combined occupancy.

SEC. 603.3 - MULTIPLE TENANTS. When more than one tenant occupies any one floor of a building, each tenant shall be provided with direct means of reaching the exitways without passing through the premises of any other tenants.

SEC. 604.0 - UNLIMITED ONE-STORY BUILDINGS OR STRUCTURES.

SEC. 604.1 - NUMBER OF EXITWAYS. In one-story business, industrial and storage buildings of unlimited area, when permitted under the provisions of Article 3, a sufficient number of exitways shall be provided so that the length of travel to an exitway shall not exceed the distance provided for in Section 604.2.

SEC. 604.2 - LENGTH OF TRAVEL. The unobstructed length of travel to an exitway in a building as provided for in Section 604.1 may, with the approval of the Director, exceed the travel distances specified in Table 11, but in no case shall the length of travel exceed one hundred and fifty (150) feet.

SEC. 605.0 - AIR-CONDITIONED BUILDINGS.

SEC. 605.1 - LOCATION OF STAIRWAY. In all buildings that are without exterior window openings in all stories as prescribed in Section 517.0, the stairways of exitways shall be located so as to be accessible to the fire department, either through the fire access panels specified in Section 863.1 or otherwise in at least alternate stories of the building.

SEC. 605.2 - EXHAUST DUCTS. No exhaust ducts or vents of air-conditioning systems shall discharge into stairway or elevator enclosures nor shall exitways or corridors in hotels and institutional buildings be used as the return exhaust from air-conditioned spaces through louvres or other devices in the doors or partitions enclosing such air-conditioned spaces.

See Note I - Fire And Life Hazard Of Existing Buildings - Page 511

SEC. 606.0 - EXISTING BUILDINGS

SEC. 606.1 - OWNER RESPONSIBILITY. The owner or lessee of every existing building shall be responsible for the safety of all persons in or occupying such premises with respect to the adequacy of the means of egress therefrom.

SEC. 606.2 - UNSAFE-EXIT ORDERS.

.21 - In any existing building not now provided with exit facilities as herein prescribed for new buildings or in which the exitways are deemed inadequate for safety, such additional provisions as the Director may permit or order, shall be made.

.22 - Within seven (7) days after the service of such an order, the owner or lessee may file a written appeal therefrom, and the Director shall refer the matter to a board of Review as provided in Section 126.0.

SEC. 606.3 - EXISTING USE NOT CHANGED. When there is no change in use group or occupancy load, the minimum requirements herein specified shall be complied with.

.31 - New Exitways. If new or altered exit facilities are installed or constructed they shall comply with all the requirements of this Article for new buildings.

.32 - Existing Exitways. In all buildings other than one family dwellings, not more than two and one-half (2 1/2) stories high, existing exitways where found inadequate or dangerous to occupants shall be made safe and where deemed necessary shall be enclosed with fire-resistive construction and self-closing fire doors as may be approved or ordered by the Director.

.33 - Fire Escapes. In buildings not over five (5) stories or sixty-four (64) feet in height, fire escapes complying with the requirements of Section 623.0 may be accepted as a secondary means of egress when deemed adequate by the Director and when approved access to the street is provided from the termination of the fire escapes.

SEC. 606.4 - EXISTING USE CHANGED. In every building in which there is a change from one use group to another with special requirements or when there is an increase in occupancy load, the exit facilities serving the new use and occupancy shall be made to comply with all the provisions of this article for buildings hereafter erected.

SEC. 607.0 - MAINTENANCE OF EXITWAYS.

SEC. 607.1 - OBSTRUCTIONS. It shall be unlawful to obstruct, or reduce in any manner the clear width of any doorway, hallway, corridor, passageway or any other exitway required by the provisions of this Article.

SEC. 607.2 - EXTERIOR EXITWAYS. Exterior stairways and fire escapes and other exterior exit facilities shall be kept clear of all flower boxes, pots and other obstructions, and no display sign or other obstruction shall be so attached to the building as to interfere with the free operation and use of such means of egress.

SEC. 608.0 - OCCUPANCY LOAD.

SEC. 608.1 - DESIGN OCCUPANCY LOAD. In determining exit facilities, the number of persons to be provided for on any floor area shall be the actual normal occupancy for which the floor area is designed, but in no case less than the number which can be accommodated on (a) the floor area within the perimeter of the building, not including elevator, stair or other shaft enclosures, or on (b) the actual net available floor area, both at the rate of floor area per person established in Table 11.

Table 11 - following page.

TABLE 11(A) Based On The Area Within The Perimeter Of The Building

<u>Use Group</u>	<u>Square Feet Per Person</u>
Mercantile Buildings - 1st floor	30
Mercantile Buildings - Sales Basement.	30
Mercantile Buildings - Other Floors.	60
Business & Industrial Buildings.	100
Hotels, not including Lobbies, Ballrooms, Dance Halls, Dining Rooms, Restaurants or Auditoriums.	125
Lodging Houses, Multi-Family Dwellings	125
Institutional Buildings.	150
Storage Buildings.	300

(B) Based On Net Available Floor Areas

<u>Use Group</u>	<u>Square Feet Per Person</u>
Auditoriums, Seating Areas Including Aisles.	6
Ballrooms, Dance Halls, Banquet Halls, Dining Rooms, Restaurants.	12
Hotel Lobbies.	15
Lodges & Non Resident Clubs.	15
Miscellaneous Places of Assembly No Seating.	15
Court Rooms.	15
Schools	
Auditoriums.	6
Lecture Rooms.	6
Cafeterias	12
Gymnasiums Not Used As Auditoriums	15
Classrooms	20
Museums, Libraries, Laboratories	30
Vocational & Administration Rooms.	100
Bowling Alleys	
Per Each Alley	5
Other Areas.	10

SEC. 608.2 - MEZZANINE FLOORS. The occupancy load of a mezzanine floor discharging through a floor below shall be added to the main floor occupancy and the exitways shall be designed for the total occupancy load.

SEC. 608.3 - ROOFS. Roof areas occupied as roof gardens, assembly, storage or other purposes shall be provided with exit facilities to accommodate the occupancy load, but in no case shall there be less than two (2) means of egress for assembly use.

SEC. 608.4 - SPECIAL USES. For use groups not specified, the Director shall establish, as provided for in Article 1, the occupancy load to be provided for in the design or use.

SEC. 608.5 - CONFLICTS. Where there are special requirements for specific occupancies and uses in Article 4 of this Code, which differ from any general requirements herein prescribed, such special provisions shall take precedence.

SEC. 609.0 - TYPES AND LOCATIONS OF EXITWAYS.

All approved exit facilities, including doorways, passageways, lobbies and foyers into and through which exitways discharge and which constitute passageways and are parts and portions of exitways, interior stairways, exterior stairways, smokeproof towers, ramps, horizontal exits, bridges, balconies, elevators, fire escapes and tunnels used singly or in association to provide continuous uninterrupted egress from a floor or floors to a street shall be considered as exitways, and they, and their required enclosures and their required opening protectives, shall be constructed and arranged as required in this Article, Article 4, Article 9, Table 5, and in Article 16 in regard to elevators and moving stairways. Corridors and room doorways providing means of reaching exitways shall be subjected to like requirements.

SEC. 609.1 - REMOTE LOCATION. Whenever more than one (1) exit is required from any room, space or floor of a building or structure, the exits shall be remotely located from each other.

SEC. 609.2 - LENGTH OF TRAVEL. Except as may be otherwise provided for in this Article or as modified by the provisions of Section 611.0 "Number of Exitways", or by the provisions of Article 4, which take precedence over the provisions of this Article, the maximum length of normal travel from any point on a floor area to the point of access to an exitway, shall not exceed that given in Table 12, except that in a building of other than high hazard occupancy where the floor area is divided into corridors and small rooms as in a hotel or office building, the distance may be measured from the corridor room entrance to the point of access to the exitway.

Table 12 - following page.

TABLE 12
LENGTH OF TRAVEL
TO
POINT OF ACCESS TO EXITWAYS

	<u>Type Of Construction</u>						
	<u>1A</u>	<u>1B</u>	<u>2A</u>	<u>3A</u>	<u>2B</u>	<u>3B</u>	<u>4</u>
A - High Hazard		75		75		50	
B - Storage		100		75		50	
C - Mercantile		100		75		50	
D - Industrial		100		75		50	
E - Business		125		100		75	
F - Assembly		100		75		50	
H - Institutional		100		75		50	
L - Residential		75		75		50	

SEC. 609.3 - FLOORS BELOW GRADE. In all buildings, the permissible length of travel to a stairway on any floor below grade shall not exceed the distance in Table 12, nor seventy-five (75) feet.

SEC. 609.4 - FIRST FLOOR ASSEMBLY OCCUPANCIES. The travel distance for a first floor assembly occupancy may be increased fifty (50) per cent over the distance given in Table 12, provided that the exitways consist simply of doorways opening directly to a street or to an open space at grade or to ramps leading to grade with a pitch of not over 1 in 10 and provided that this section is not in conflict with the provisions of Article 4. There shall be no intervening stairways, corridors, aisles, or passageways and no divisions of the area except minor divisions along the walls.

SEC. 610.0 - CAPACITY OF EXITS.

SEC. 610.1 - UNITS OF EXIT WIDTH. The unit of exit width for all types of exit facilities specified in Section 609.0 shall be twenty-two (22) inches with a credit of one-half (1/2) unit for twelve (12) inches in width in excess of one or more twenty-two (22) inch units of exit width, and the number of persons accommodated shall be as specified in Table 13.

SEC. 610.2 - DESIGN ALLOWANCE FOR USE GROUPS. The number of persons for whom means of reaching exitways and for whom exitways shall be provided, shall be not less than the number to be served nor less than the number computed in accordance with Table 11 of Section 608.0. The width of the facilities used singly or in association as exitways and the widths of facilities providing means of reaching exitways shall be in accordance with the provisions of this Article, except as may be required by Article 4, the provisions of which take precedence over the provisions of this Article.

.21 - Corridors And Room Doorways. Corridors and room doorways, except in special cases, are not parts of exitways, but are means of reaching exitways. A corridor occurring in an exitway is considered a passageway. However, room doorways and corridors shall be of the widths provided for in this Article.

SEC. 610.3 - NUMBER OF PERSONS PER UNIT OF EXIT WIDTH.

Width. Except as may be otherwise provided for, the number of persons per unit of exit width to be used in the computations for the widths of exit facilities shall not be less than established in Table 13. Exceptions to Column B of the Table are established in Section 610.5 - "Stairways As Places Of Refuge"; Section 611.2 - "Grade Floor Exitways"; Section 613.0 - "Grade Passageways and Lobbies," and Section 623.4 - "Main Exit Passageway."

TABLE 13

Capacity Per Unit Of Exit Width

	<u>Number Of Persons</u>	
	<u>A</u>	<u>B</u>
	<u>Stairs</u>	<u>Passageways</u>
	<u>Also Doorways</u>	<u>Doorways</u>
	<u>Passageways</u>	<u>Corridors</u>
	<u>Following Stairs</u>	<u>Not Following Stairs</u>
High Hazard	20	30
Storage, Moderate or Low Hazard	60	100
Mercantile	60	100
Industrial	60	100
Business	60	100
Assembly	60	100
Institutional, Generally Bed-		
ridden	20	40
Institutional, Not Bedridden	30	60
Residential	30	60

SEC. 610.4 - EXIT WIDTH OF STAIRS NOT GENERALLY CUMULATIVE. The aggregate capacity of exitways serving each floor of a building or fire division thereof shall not be less than required to serve the occupancy. It is not intended to require the width of stairways to be cumulative as the path of egress passes through more than one (1) story toward safety. However, when an exitway from a first or ground floor joins with an exitway from another floor, the width of the exitway to the street shall be cumulative. When two (2) or more stairways or approved substitutes therefor discharge through a ground floor passageway, the width of exitway to the street may be as provided for in Section 613.2, and Section 622.3.

SEC. 610.5 - STAIRWAYS AS PLACES OF REFUGE. In institutional buildings of Use Groups H1 and H2 and residential buildings of Use Groups L1 and L2, the number of persons allowed per unit of exit width of stairways is such that the stairways may be considered as places of refuge. With the approval of the Director, the stairways may discharge into or through lobbies of sufficient size and so protected as to also serve as places of refuge. Egress from such lobbies to the street may be at the rate of sixty (60) persons per unit of exit width if further stairways are involved and at the rate of one hundred (100) persons per unit of exit widths if only doorways are involved, provided the lobby is not located more than one (1) story above grade.

SEC. 610.6 - DECREASE IN WIDTH OF EXITWAY. Except as may be otherwise provided in Section 610.5 and in Section 613.2 there shall be no decrease in the width of an exitway as the path of egress leads to the street.

SEC. 610.7 - CUMULATIVE EXITWAYS. In theatres all joining exitways shall be cumulative. In buildings devoted to places of assembly such as auditoriums and exhibition halls, the stairways, except those serving the upper story, shall be of sufficient width to accommodate the number of persons assigned to them from any two (2) stories.

SEC. 610.8 - HORIZONTAL EXITWAY ALLOWANCE. When an approved horizontal exit complying with the provisions of Section 616.0 is provided the capacity of the doorway in the fire wall shall be that of "Doorways Not Followed by Stairs" of Table 13.

SEC. 610.9 - AREA OF REFUGE ALLOWANCE. The capacity of required areas of refuge enclosed within fire partitions or fire walls shall be computed on the available net floor allowance of three (3) square feet for each person to be accommodated therein, not including areas of stairs, elevators and other shafts and courts. (See Section 616.0).

SEC. 611.0 - NUMBER OF EXITWAYS.

The following general requirements apply to buildings or structures of all Use Groups. More restrictive requirements of Article 4 for special uses or occupancies shall take precedence over these general provisions.

SEC. 611.1 - MINIMUM NUMBER. There shall not be less than two (2) approved exitways serving every floor area above or below the first or grade floor, at least one of which shall be an interior enclosed stairway, except in one family dwellings not over two and one-half (2 1/2) stories high, and except as modified in Section 611.3. At least one exitway required from floors below grade shall be directly to the street.

SEC. 611.2 - GRADE FLOOR EXITWAYS. From the first or grade floor, exitways to the street shall provide the exit width required by Column B of Table 13, except as may be otherwise provided for in this Article. When a ground floor occupancy of other than Use Group F exceeds one hundred (100) persons and when a Use Group F occupancy exceeds seventy-five (75) persons, it shall have at least two (2) exitways. The provisions for egress from the first or ground floor shall be in addition to the provisions for egress from the floors above or below such floors.

SEC. 611.3 - BUILDINGS WITH ONE EXITWAY. Only one (1) exitway, and that by way of an approved enclosed stairway, shall be required for egress from the upper floors of the use and type specified in Section 611.31 and Section 611.32.

.31 - Residence Buildings. One (1) approved exitway in multi-family residence buildings (Use Group L2), for not more than four (4) families per floor or not over three (3) stories in height, or not over thirty-five hundred (3500) square feet in area of Fireproof Construction, Types 1A or 1B, but the distance of travel to the exitway shall not exceed fifty (50) feet in such cases. There shall be no communication between any floor below the first and the floors above.

.32 - Business Buildings. One (1) approved exitway in business buildings (Use Group E) not over three (3) stories in height or six thousand (6,000) square feet in area of fireproof construction of Types 1A or 1B, but the distance of travel to the exitways shall not exceed seventy-five (75) feet in such cases. There shall be no communication between the first floor occupancy and the floors above. There shall be no communication between the floor below the first and the floors above the first.

SEC. 612.0 - CORRIDORS AND AISLES

SEC. 612.1 - ACCESS CORRIDORS AND AISLES. Direct means of access to exitways shall be provided by doors, corridors and aisles, conveniently accessible to all occupants, and they shall be maintained free of obstructions.

SEC. 612.2 - DEAD ENDS. Dead ends in corridors where persons might be trapped in case of fire shall be avoided as far as practicable. In all stories requiring more than one (1) exitway, at least two (2) exitways shall be available to all occupants and the distance of travel to at least one (1) exitway shall not exceed the distance allowed in Table 12. In buildings of other than Types 1A, 1B and 2A construction with sleeping accommodations above the first floor, the distance any person must travel in a corridor before reaching a point from which such person may travel in two basically different directions to an exitway, shall not exceed twenty (20) feet.

SEC. 612.3 - WIDTHS OF CORRIDORS AND AISLES. The unit of exit width and the occupancy allowance for corridors and aisles leading to exitways, unless otherwise required for special uses and occupancies in Article 4, shall be as required for "Corridors" in "Column B" of Table 13 of Section 610.3 with a minimum total clear width of forty-four (44) inches in buildings of the storage, business and industrial Use Groups; sixty (60) inches in buildings of the mercantile and assembly Use Groups; Sixty (60) inches in buildings of the institutional Use Group without bedridden patients and ninety (90) inches with bedridden patients; and seventy-two (72) inches in schools of the assembly Use Group. In churches and chapels of the assembly Use Group, side aisles adjacent to walls, may be one-half ($1/2$) the width required for main aisles, but not less than twenty-four (24) inches. In all cases the required width of aisles and corridors shall be the width clear of all obstructions and clear of all doors at any point in their swing.

SEC. 612.4 - PUBLIC CORRIDOR PARTITIONS. The enclosure walls of public corridors in buildings of fireproof Type 1 construction, incombustible Type 2A construction and masonry Types 3A and 3B construction shall be of two (2) hour fire-resistive construction and in all other types of construction shall not be less than one (1) hour fire-resistance.

SEC. 612.5 - CORRIDOR OPENING PROTECTIVES. All doorways from rooms to public corridors, which corridors provide means of travel to exitways, shall be of the construction and of the fire-resistance required by this section, by Article 9 and by approved rules. Transoms over doors from rooms to public corridors are prohibited.

SEC. 612.6 - CONSTRUCTION OF DOORS. The construction of all doors of Section 612.5 shall be in accordance with the requirements of Article 9 and the use of glass in such doors shall be limited as provided by that Article. (See Section 618.64 and 618.65 for wood "Stairway Doors.")

SEC. 613.0 - GRADE PASSAGEWAYS.

SEC. 613.1 - ENCLOSURES. Every fire tower and every interior or exterior stairway which does not adjoin a street or an open space shall be directly connected to the street or to an open space with ample access to a street by an enclosed passageway as prescribed herein and in Article 9.

SEC. 613.2 - WIDTH. When two (2) or more stairways discharge through a grade passageway (enclosed corridor, foyer, or lobby) the required width thereof, clear of all obstruction and clear of the swing of all doors, shall not be less than three-quarters ($3/4$) the aggregate width of all stairways discharging through it from upper or lower floors, plus the full aggregate width of all

doorways opening into it from the first floor, with a minimum clear width of forty-four (44) inches and a minimum height of eight (8) feet. The reduction to three-quarters (3/4) is prohibited in theatre passageways.

SEC. 613.3 - MAXIMUM STAIRWAY LIMITATION. Not more than two (2) required stairways shall discharge through the same passageway, except that in school and factory buildings and other use groups in which the occupants are regularly trained in supervised fire drills for rapid dismissal, a common passageway may be arranged to accommodate not to exceed four (4) stairways. In no buildings or structure shall more than fifty (50) per cent of the required exitways, both as to the required number and width, discharge through the same passageway when more than one (1) exitway is required.

SEC. 613.4 - CONSTRUCTION. The enclosure walls and partitions surrounding corridors, passageways and lobbies connecting required means of egress to the street in buildings of fireproof (Type 1) construction shall be of two (2) hour fire-resistive construction with openings protected as required in this Article, Article 2 and Article 9. In all other types of construction such enclosure walls and partitions shall be of one (1) hour fire-resistive construction.

.41 - Door Openings. Door openings, except as may be otherwise permitted by the Director, shall not exceed forty-four (44) inches in width. The doors shall be self-closing and of at least one and one-half (1 1/2) hour fire-resistance. Glass in doors to such lobbies, foyers and enclosed corridors, if approved by the Director, shall be wired glass and shall not exceed seven hundred and twenty (720) square inches per door.

.42 - Show Windows. Show windows facing on such lobbies, foyers, and enclosed corridors, shall be protected with approved automatic sprinkler systems or enclosed with two (2) hour fire-resistive construction.

.43 - Trim And Finish. All architectural trim and finish in such lobbies and passageways shall be of incombustible material.

SEC. 613.5 - OTHER TYPES OF CONSTRUCTION. In types of construction, other than those provided for in Section 613.4, enclosing walls, door openings, floor construction and show window protection shall not be less than one (1) hour fire-resistance.

SEC. 613.6 - OFFICE SPACE. Office facilities in residential and institutional buildings necessary for the control and supervision of the occupancies, may be located in a space through which an exitway passes, provided that such office facilities do not constitute a fire hazard, do not reduce or obstruct the required width of the exitway and provided that the office space and the exitway shall be enclosed and protected as is required for exitways. Should the

Director, in the interest of public safety, deem it desirable or necessary, he may require such office space in such buildings to be located in a room opening off the path of the exitway and cut off from such lobby, foyer, or enclosed corridor by partitions and fire doors as may be approved by the Director.

SEC. 614.0 - DOORWAYS IN THE PATH OF EGRESS

The number, width and swing of all doors in exitways and in the path of egress travel to exitways shall comply with the requirements of this Section.

SEC. 614.1 - AREAS.

.11 - Ground Floor Areas. Every ground floor area with an occupancy of seventy-five (75) or more persons or of an area of thirty-five hundred (3500) or more square feet shall have at least two (2) remote doorways opening to the street.

.12 - Other Floor Areas. Every floor area above the ground floor shall have at least two (2) doorways to exitways, except where only one (1) exitway is especially permitted in Section 611.3.

SEC. 614.2 - ALL ROOMS. Where floor areas are divided into rooms, every room of fifteen hundred (1500) or more square feet in area shall have at least two (2) doorways providing egress.

.21 - Hospital And Infirmary Rooms. Every room occupied by twenty-five (25) or more bedridden persons shall have at least two (2) doorways providing egress.

.22 - Hazardous Occupancies. Every room or space having contents which can burn with extreme rapidity or from which toxic fumes or explosions may result in case of fire, shall have at least two (2) doorways providing egress, one of which shall open directly to the outside air.

.23 - Mixed Occupancies. Auditoriums, gymnasiums, motion picture halls, chapels, dining rooms, restaurants, cafeterias, ballrooms, dance halls and other assembly occupancies, when their location is of approved incidental use in an occupancy and when such assemblies are of seventy-five (75) or more persons or of fifteen hundred (1500) or more square feet in area, shall have at least two (2) remote doorways providing egress. The use of corridors and exitways in common with other occupancies, if approved, shall be consistent with the intent of the requirements of this Code in regard to safety of egress.

SEC. 614.3 - MINIMUM WIDTH OF EGRESS DOORS. Except as provided in Section 615.0 - "Revolving Doors," or as may be duly promulgated and adopted, the minimum width of single doors in the path of egress shall be thirty-six (36) inches, and the maximum width shall be

forty-four (44) inches, except that doors from hospital rooms and infirmary wards shall be not less than forty-four (44) inches.

.31 - Subdivided Doorways. When a doorway is subdivided into two (2) or more separate openings, the minimum width of each door shall not be less than twenty-eight (28) inches and the egress capacity of the openings shall be computed separately in determining the aggregate capacity of the doorway.

SEC. 614.4 - MINIMUM NUMBER OF DOORWAYS. The minimum number of doorways providing egress from any floor area, space or room shall not be less than heretofore required in this Section 614.0, nor less than the number necessary to comply with the limitations as to the distance of travel to the exitways, nor less than as follows:

<u>NUMBER OF PERSONS SERVED</u>	<u>MINIMUM NUMBER OF DOORWAYS</u>
75-499	2
500-899	3
900-1799	4
1800 and over	5 or more

SEC. 614.5 - LOCATION OF DOORWAYS. Doorways providing egress from any floor area, space or room shall be remotely located from each other and shall be of sufficient number and so located that the distance of travel to exitways shall not exceed the limitations of Sections 609.0, 610.0 or Table 12.

SEC. 614.6 - MINIMUM AGGREGATE WIDTH. The minimum aggregate width of doors providing egress from any floor area, space or room shall not be less than heretofore required by Section 614.0 nor less than required by Section 610.0 by Table 13 or by adopted rules.

SEC. 614.7 - HANG AND SWING OF DOORS. All swinging doors shall be so hung that the clear width of the openings, with the doors as fully opened as permitted by their location, shall not be more than three (3) inches less than the width of the doors in the case of single doors nor more than five (5) inches less than the width of the doors in the case of double doors.

.71 - Swing Of Exitway Doors. Doors of exitways shall swing in the direction of egress travel.

.72 - Room Doors. Doors from rooms occupied by fifty (50) or more persons and all doors from classrooms shall swing with egress travel.

.73 - Ground Floor Occupancy Doors. Doors from ground floor occupancies to the street (by themselves constituting exitways), when they serve fifty (50) or more persons shall swing with egress travel and shall not project beyond the street lot line at any point in their swing.

.74 - Doors Swinging Into Corridors Or Passageways. Doors swinging into corridors and passageways, when swinging with corridor or passageway egress travel and when fully opened are swung back against a wall, shall not be considered as reducing the effective width of the corridors or passageways. Otherwise, doors to corridors or passageways, where at any point in their swing act against egress travel, shall be considered as reducing the effective width of the corridors or exitways by their projection into the corridors or exitways at any point in their swing.

.75 - Sliding Doors. Doors sliding across the path of egress are not permitted except as they may be required in connection with horizontal exits in fire division walls.

.76 - Revolving Doors. Revolving doors when allowed shall comply with the requirements of Section 615.0.

SEC. 614.8 - SOLID WOOD DOORS.

.81 - Interior Wood Doors. Solid slab-type wood doors may be used from rooms to corridors and in exitways as permitted for wood doors at stairways in Section 618.65.

.82 - Exterior Doors. Exterior egress doors shall be as required by Article 4 and Article 9.

.83 - Fire Doors In Fire Partitions. Except as permitted or required in Section 614.8, Section 612.5, and Section 618.65, all interior and exterior doors in the path of egress in fire partitions enclosing corridors, passageways, lobbies, areas of refuge and stairways shall be fire doors of the fire-resistance and construction required by Article 9.

.84 - Fire Doors In Fire Walls. Fire doors in fire walls shall comply with Section 910.3.

.85 - Fire Doors In Horizontal Exits. Fire doors in horizontal exits shall comply with Sections 616.0, 910.4 and 920.1.

.86 - Wired Glass. The use of wired glass in egress enclosures and in egress opening protectives is restricted in accordance with Article 9.

SEC. 614.9 - HARDWARE FOR EXITWAY DOORS.

.91 - Operation. The hardware of doors of exitways shall be of the fire-resistance required for the doors and shall be such that the doors may be readily opened from the inside without the use of keys, except that this requirement shall not apply to the doors of Use Group H1 of institutional buildings.

.92 - Doors Included. Exitway doors include the following:

(a) - Doors opening directly to the street from a first or ground floor occupancy. Such doors by themselves constitute an exitway.

(b) - Doors from a first or ground floor occupancy to a passageway which in association with the passageway constitute an exitway.

(c) - Doors opening into, from or occurring in a stairway which constitutes part of an exitway.

(d) - Doors opening into, in or from a passageway which is part of an association comprising an exitway, lobbies and foyers of hotels, office buildings, assembly buildings, institutional buildings and like lobbies and foyers, through which the path of egress travel passes.

(e) - Doors of horizontal exits which shall be readily opened from either side.

(f) - Doors into and from smokeproof towers.

(g) - Doors to fire escapes.

(h) - Doors in fire walls of boiler rooms, where an effective cut-off from the rest of the building is required.

(i) - Doors in or opening into or from such exitways as may be substituted for the preceding types of exitways.

.93 - Legal Detention. In buildings or parts of buildings of the institutional use group (Use Group HI), where persons are held under legal detention, doors providing means of access to exitways and doors of exitways that are not readily opened from the inside without the use of keys, shall be provided with means of rapid release by remote control of locks or by other means approved by the Director, and the reliability of such means or methods shall be assured by such maintenance and inspection as may be approved by the Director.

.94 - Pairs Of Doors. Pairs of doors, providing required means of reaching exitways or occurring in exitways, shall not be installed with a center post or mullion and neither door shall be fastened with draw bolts or other fastenings except such bolts or fastenings as are operated by panic hardware.

.95 - Panic Hardware For Places Of Assembly. From rooms, areas or buildings in the assembly use group (Use Group F), other than churches, and from all places of assembly in any use group, doors shall open readily from the inside without the use of keys and if the doors are latched or fastened in any way or serve an occupancy of one hundred and fifty (150) or more persons they shall be equipped with

panic hardware which will release the doors when pressure not to exceed twenty (20) pounds is applied to the releasing device in the direction of exit travel. This requirement shall apply to all such latched or fastened doors occurring in exitways or in the means of reaching exitways.

.96 - School Doors Opening To The Outside. All school doors opening to the outside, regardless of the number of occupants, shall be equipped with panic releases.

.97 - Doors Usually Kept Closed To Street. Required doors opening directly to the street or to an open space with approved access to a street, which are usually kept closed and which provide required egress from places of assembly of one hundred and fifty (150) or more persons, or from the first or grade stories, or from sales areas below grade of mercantile buildings (Use Group C) shall be equipped with latches of self-releasing type such as panic bolts or similar devices.

.98 - Exception To The Foregoing. Doors in exterior walls at grade, opening directly to the street (excluding any doors which open to an open space with ample approved access to the street), are not required to be hung with hardware of a fire-resistance exceeding three-quarters (3/4) of an hour, with the provisions that the installation of revolving doors is to be as provided for in Section 615.0.

.99 - Corridor Doors. All doors opening on public hallways or public corridors shall be equipped with self-closing devices of the fire-resistance required for the doors unless other types of hardware are herein specified. The hardware in any case shall have at least three-quarter (3/4) hour fire-resistance.

SEC. 615.0 - REVOLVING DOORS.

SEC. 615.1 - LIMITATION OF USE.

.11 - Where Permitted. Except in places of assembly with an occupancy load of more than one hundred and twenty-five (125) persons, approved collapsible revolving doors, when constructed and installed as herein prescribed, may be permitted from the first floor to the street, but shall not be considered as providing any of the required exit width.

.12 - Prohibited Construction. Braces or other devices that will prevent normal operation of the automatic releasing mechanism shall be prohibited.

.13 - Supplemental Exits. No revolving door shall be permitted in any occupancy unless provision is made for a swinging door immediately adjacent to the revolving door.

SEC. 615.2 - WIDTH OF PASSAGE.

.21 - Minimum Diameter. The minimum diameter of approved revolving doors shall be six and one-half (6 1/2) feet.

SEC. 615.3 - SPEED CONTROL. All approved automatic collapsible revolving doors shall be equipped with an approved speed control governor adjustable to safe traffic speed as required by the approved rules but not more than fifteen (15) nor less than ten (10) revolutions per minute.

SEC. 615.4 - CONSTRUCTION. All approved automatic collapsible revolving doors shall be constructed as herein provided and in accordance with the approved rules.

.41 - Operating Mechanism. The collapsing mechanism shall be constructed of stainless steel or other approved noncorrodible materials.

.42 - Floor Covering. Approved mat or other floor covering, complying with the provisions of Article 9, not less than one-half (1/2) inch thick may be installed within the enclosure when permanently secured to the floor so as to finish flush with the adjacent floor.

.43 - Glazing. The doors shall be glazed with glass not less than one-quarter (1/4) inch thick.

SEC. 615.5 - INSPECTION AND MAINTENANCE. The owner shall be responsible for the care, operation and maintenance of all revolving door installations after such doors are placed in operation. He shall have periodical inspections made by a responsible and qualified person or firm at intervals of not more than three (3) months and shall maintain all parts thereof in proper working order.

SEC. 616.0 - HORIZONTAL EXITS

Horizontal exits as herein defined shall be accepted as an approved means of egress when complying with the requirements of this Article. The connection between the areas of refuge as herein specified may be effected by protected openings in a fire wall, a vestibule, an open air balcony or a bridge.

SEC. 616.1 - OPENING PROTECTIVES. One side of the opening in fire walls or fire separations shall be protected with a self-closing fire door of one and one-half (1 1/2) hour fire-resistance swinging in the direction of egress travel, and on the opposite side with an approved automatic fire door; except that in school buildings where supervised fire drills are conducted a double acting fire door may be approved for the pair of doors herein specified.

SEC. 616.2 - SIZE OF DOORS. Size of openings in fire walls shall comply with the provisions of Section 910.0, but in no case shall the width of a single opening be greater than eighty-four (84) inches nor shall the area exceed sixty-five (65) square feet.

SEC. 616.3 - AREA OF REFUGE. (See Section 610.9).

SEC. 616.4 - EGRESS FROM AREA OF REFUGE.

.41 - Stairway Exit. There shall be at least one interior enclosed stairway or one (1) fire tower on each side of a horizontal exit, and any fire area not having a stairway accessible thereto shall be considered as part of an adjoining area which has such a stairway.

.42 - Horizontal Exits In Institutional Buildings. Every floor area which is designed or intended for occupancy by bedridden patients and which exceeds three thousand (3,000) square feet in area shall have at least one (1) exitway consisting of a ramp, a horizontal exit, or a doorway leading to a street or open space with approved access to a street, and in no case involving any steps, nor shall the length of travel exceed the requirements of Section 609.2.

SEC. 617.0 - RAMPS.

Ramps with gradients of not more than one (1) in ten (10) may be substituted for and shall comply with all the applicable requirements of required stairways as to enclosure, capacity and limiting dimensions; and except in existing buildings and where specified in Article 4 for special uses and occupancies the slope may be one (1) in eight (8). For all slopes exceeding one (1) in ten (10) and wherever the use is such as to involve danger of slipping, the ramp shall be surfaced with approved non-slip materials.

SEC. 618.0 - INTERIOR STAIRWAYS.

SEC. 618.1 - CAPACITY OF STAIRS. The capacity of stairs in exitways shall not be less than required by Section 610.0 nor less than required by this Section 618.0 and by Table 13 in Section 610.3.

SEC. 618.2 - MINIMUM WIDTHS.

.21 - Standard Widths. Except as otherwise required or allowed by this section, the width of stairs shall not be less than forty-four (44) inches but in no case less than required by Section 610.0. There shall be no reduction in the width of stairs in exitways in the direction of egress travel.

.22 - Use Group H2 - Institutional Buildings. Stairs in hospitals and infirmary portions of institutional buildings of this group housing bedridden patients shall be at least forty-eight (48) inches wide and where there are changes in direction, as on landings, ample space shall be provided to permit the making of turns in the transportation of patients on beds, cots, litters or mattresses.

.23 - Use Group L2 (Multiple Family Dwellings) And Use Group L3 (One And Two Family Dwellings). Stairs in multiple family dwellings serving not more than fifteen (15) persons on any floor, and all dormitories, boarding and lodging houses arranged for sheltering or feeding not more than fifteen (15) persons on any floor, and in one and two family dwelling units, shall be at least thirty-six (36) inches wide.

.24 - Use Groups C, D And E - Mercantile, Industrial And Business Buildings. Stairs in buildings of these three (3) groups shall not be less than forty-two (42) inches wide.

.25 - Boiler Rooms. Boiler rooms below grade, in which high pressure boilers are located, or in which apparatus using or producing gas or vapors are located, shall be provided with at least two (2) approved means of egress.

.26 - Mezzanines. Stairs serving mezzanines of not more than three hundred (300) square feet in area shall be not less than twenty-four (24) inches wide.

.27 - Projection Booths. Projection booth stairs, serving an occupancy of not over five (5) persons, shall not be less than twenty-four (24) inches wide.

.28 - Unoccupied Roofs. Required stairs to unoccupied roofs shall be not less than twenty-four (24) inches wide.

.29 - Minimum Headroom. Except in Use Groups L2 and L3, residence buildings, the minimum headroom in an exitway shall be eight (8) feet. In connection with stairs, the measurement shall be taken vertically from the top of the tread on the line of the face of the riser.

SEC. 618.3 - LANDINGS AND PLATFORMS.

.31 - Widths. The least dimensions of landings and platforms shall be at least equal to the required width of the stairs.

.32 - Vertical Rise. In assembly buildings (Use Group F) and institutional buildings (Use Group H), the distance between landings and intermediate platforms in stairways, shall not exceed twelve (12) risers.

SEC. 618.4 - TREADS AND RISERS.

.41 - Minimum Dimensions. In residence buildings of Use Groups L2 and L3, risers shall not exceed eight (8) inches, and treads, exclusive of the projection of the nosing beyond the face of the riser shall not be less than nine (9) inches. In institutional buildings, Use Group H, and assembly buildings, Use Group F, risers shall not exceed seven and one-half (7 1/2) inches, and treads, exclusive of projection of the nosing beyond the face of the riser, shall not be less than ten and one-half (10 1/2) inches. In other Use Groups, the height of the riser shall not exceed eight (8) inches and the width of the tread, exclusive of the projection of the nosing, shall not be less than ten (10) inches.

.42 - Winders. In required stairways in all Use Groups except in Use Groups L3, one and two family dwellings, winders shall not be permitted. In ornamental stairways not required as a means of exit winders may be permitted.

.43 - Computation Of Rise And Tread. Treads and risers shall be so proportioned that the sum of the height of two (2) risers plus the width of one (1) tread shall not be less than twenty-four (24) inches nor more than twenty-six (26) inches.

SEC. 618.5 - HANDRAILS. Stairs shall have enclosing walls or well secured balustrades or guards on both sides. When stairs are less than forty-four (44) inches in width, they shall have handrails on at least one (1) side; when forty-four (44) or more inches in width, the stairs shall have handrails on both sides. When the width of the stairs is eighty-eight (88) inches or more, there shall be at least one (1) intermediate handrail continuous between landings, provided that when more than one (1) intermediate handrail is required, the lateral spacing shall not exceed sixty-six (66) inches. Newell posts of intermediate handrails at floor levels shall be at least four (4) feet high. The height of the handrail shall not be less than thirty (30) inches nor more than thirty-three (33) inches above the treads on the line of the face of the riser.

SEC. 618.6 - STAIRWAY DOORS.

.61 - Width. The width of doors to stairways, at the point of access to and forming part of an association of facilities forming an exitway, shall not be less than computed in accordance with

Section 610.0, nor less than provided for in Table 13 and in Section 614.0, nor less than thirty-six (36) inches. The computed width of the door may be less than the computed width of the stairs since a unit of exit width of a door provides exit width for a larger number of persons than does a unit of exit width of stairs.

.62 - Direction Of Swing. Doors to a stairway shall swing with exit travel. At no point in their swing shall they reduce the required width of a landing or platform more than twenty-five (25) per cent and when fully open shall not reduce the required width of the landing or platform to any extent. A door opened flat against a wall shall not be considered as reducing a required exit width.

.63 - Fire-Resistance Of Stairway Doors. All interior door openings, and their hardware to, from, and in stairways, shall be of the fire-resistance required herein.

.64 - One, Two And Three Family Dwellings And Two Story Duplex Dwellings. The use of wood or other combustible doors in one, two and three family dwellings, and two story duplex dwellings where two (2) stairways are provided.

.65 - Stairway Doors In Type 4 Construction. In buildings of frame (Type 4) construction, of other than Use Groups H or F, stairway doors may be of approved solid wood slab construction, one and three-quarter (1 3/4) inches thick, equipped with self-closing hardware.

.66 - Grade Exit Doors. Grade exit doors may be glazed with plate glass not less than one-quarter (1/4) inch thick and constructed as provided in Article 9.

.67 - Revolving Doors. Revolving doors shall be as required in Section 615.0.

.68 - Other Stairway Doors. Except as otherwise required, all stairway doors shall be self-closing fire doors and the fire door assembly, including the hardware, shall have the following fire resistance:

1 1/2 hours in partitions and walls of a required fire-resistance of two (2) hours.

1 hour in partitions and walls of a required fire-resistance of less than two (2) hours.

SEC. 618.7 - SUPPLEMENTAL STAIRWAYS. Monumental or ornamental stairways, extending from the grade floor, may be installed in buildings other than those of the industrial, assembly and institutional Use Groups provided that they do not constitute any part of a required

means of egress or of a required exitway and provided they do not connect more than two (2) stories. These stairs are exempted from stairway enclosures, provided the areas in which they are located are effectively cut off on all sides and above and below by partitions or walls and floor construction having a fire-resistance at least equal to that of required stairway enclosures. Partitions or walls need not be located immediately adjacent to the stairs, and when so located, the space or spaces between the stairs and the partitions or walls shall not be used for any other purpose than a means of communication to and from the stairs. Openings in the partitions or walls shall be protected as required for enclosure corridors, lobbies and foyers under Section 613.0.

SEC. 618.2 - STAIR CONSTRUCTION. Unless otherwise provided, all required stairs and permissible monumental or ornamental stairs, shall be built entirely of incombustible material, with all underfoot surfaces of nonslip incombustible materials, except that wood handrails complying with the requirements of Section 618.5 shall be permitted.

.81 - Strength. All stairs, platforms, landings and floors of exitways, shall be of adequate strength to safely support a live load of at least one hundred (100) pounds per square foot in addition to the dead load.

.82 - Enclosures. Unless otherwise specifically provided in this code, all required interior stairways shall be enclosed in partitions of the fire-resistance herein specified, except in one (1), two (2) and three (3) family dwellings a two (2) story four (4) family duplex where two (2) stairways are provided not exceeding three (3) stories in height:

Types 1A, 1B, 2A and 3B	2 hours
Type 4	1 hour

.83 - Combustible Construction. Except buildings of Type 1 and Type 2 construction, the stairs in all types other than for assembly or institutional use, of not over three (3) stories, or forty (40) feet in height, or of an area not exceeding three thousand (3,000) square feet, of Type 3 or Type 4 construction, may be constructed of wood or other approved combustible material of adequate strength.

.84 - Enclosure For Combustible Construction. The enclosure and the underside of stairs of combustible construction shall be protected with fire-resistive partitions and ceilings as herein required, fire stopped as provided in Section 888.0 - "Fire Prevention And Fire Stopping" of Article 8, and the space below the stairs shall be solidly enclosed with fire-resistive partitions except in one (1) and two (2) family dwellings.

SEC. 619.0 - ACCESS TO ROOF.

SEC. 619.1 - ACCESS TO ROOF BY STAIRWAY. In buildings more than two (2) stories in height with roofs having a slope of less than one (1) in four (4), at least one stairway shall extend to the roof and when the roof is used as a roof garden or for other habitable purposes, sufficient additional stairways shall be extended to provide the necessary exit facilities required for such use and occupancy.

SEC. 619.2 - BULKHEADS. Stairways extending through roofs shall be enclosed in bulkheads complying with the fire-resistance requirements of Section 932.3.

SEC. 619.3 - BY SCUTTLE. All other type of buildings exceeding twenty (20) feet in height, except pitched roofs with a pitch exceeding twenty (20) degrees shall be provided with access scuttles of incombustible construction.

SEC. 620.0 - SMOKEPROOF TOWERS.

SEC. 620.1 - WHERE REQUIRED. In every mercantile building (Use Group C), in every industrial building or structure (Use Group D), in every assembly building (Use Group F) other than theatres (Use Group F1), over five (5) stories or sixty-four (64) feet in height, at least one (1) required exitway shall be a smokeproof tower.

SEC. 620.2 - ACCESS. Access to the stairway of the smokeproof tower at each story shall be through a vestibule, balcony or landing, with an unobstructed width of not less than the stairway width, but not less than forty-four (44) inches in any case, open to a street, alley, yard or court with four (4) foot high guard railing across the open side. Outside vestibules or balcony floors shall be level with, or installed below the building floor to avoid the possibility of door obstruction by snow or ice, but with no step into the stair enclosure.

SEC. 620.3 - COURT SIZE. The yard or court shall have a minimum area of two hundred (200) square feet and a minimum dimension of ten (10) feet and the exterior vestibule opening shall have a minimum area of eighteen (18) square feet and a minimum width of thirty-six (36) inches.

SEC. 620.4 - OPENING PROTECTIVES.

.41 - Windows. All window openings facing on the yard or court within thirty (30) feet of the access balcony or vestibule shall be protected with three-quarter (3/4) hour opening protectives.

.42 - Doors. Doors from buildings to vestibules, or balconies and to the stairways, shall not be less than forty (40) inches wide, capable of being opened from both sides, without a key, complying with the requirements of exit doors for stairways, except that the fire-resistance rating shall not be less than one and one-half (1 1/2) hours.

SEC. 620.5 - TERMINAL EXIT PASSAGEWAY. The fire tower shall terminate at grade level and shall provide egress to the street independently of all other means of egress. The passageway shall comply with requirements of Section 612.0, except that there shall be no openings in the passageway other than the fire tower and street exit doorways. The walls shall be of four (4) hour fire-resistance construction and the floor and roof shall be of three (3) hour fire-resistance construction.

SEC. 620.6 - CONSTRUCTION. The enclosures of fire towers shall be of walls with a four (4) hour fire-resistance rating without openings other than the exit doorways, with solid platforms, landings and balconies of not less than three (3) hour fire-resistance rating, complying with all the applicable construction details specified for interior stairways.

SEC. 621.0 - MOVING STAIRWAYS

SEC. 621.1 - WHEN ACCEPTABLE. Moving stairways are not acceptable for required stairways, but such stairways of the horizontal non-slip type may be accepted as stairways of convenience in buildings of all Use Groups except those of the assembly and institutional use groups and occupancies when constructed and approved in accordance with Article 6 and Section 1622.0.

SEC. 622.0 - ELEVATORS AS EXITS

Passenger elevator installations, complying with the requirements of Article 16 of this Code, may be accepted as approved means of egress as herein provided.

SEC. 622.1 - AUXILIARY EXIT. As a required auxiliary exit, when used in connection with horizontal exits as provided in Section 616.52.

SEC. 622.2 - LIMITING NUMBER. Not more than two (2) elevators shall be counted for exit purpose and they shall be separately enclosed from the stairway enclosure.

SEC. 622.3 - MAIN EXIT PASSAGEWAY. The width of the ground floor passageway into which stairways and elevators discharge shall not be less than three-quarters ($3/4$) of the combined required width for stairways and elevators, but in no case shall the width of the passageway be less than five (5) feet when accommodating the discharge from five (5) or less elevators; and not less than one-half ($1/2$) foot additional for each additional elevator. If ground floor occupancies discharge through the passageway, full exit width shall be provided for their accommodation.

SEC. 623.0 - FIRE ESCAPES.

SEC. 623.1 - WHERE PERMITTED. Except in one and two family residence buildings, fire escapes shall not in general be accepted as a required means of egress and only by special permission or special order of the Director in existing buildings or structures not exceeding five (5) stories or sixty-four (64) feet in height, when constructed in accordance with the approved rules, and when more adequate facilities cannot be provided.

SEC. 623.2 - LOCATION. When located on the front of a building and projecting beyond the building line, the lowest platform shall not be less than ten (10) nor more than fourteen (14) feet above grade, and the fire escape shall be equipped with a counter-balanced stairway to the street and a fixed ladder to the roof. In alleyways and thoroughfares less than thirty (30) feet wide, the clearance under the lowest balcony shall not be less than fourteen (14) feet.

SEC. 623.3 - CONSTRUCTION. Fire escapes shall be designed to support a live load of one hundred (100) pounds per square foot and shall be constructed of metal or other approved incombustible material.

.31 - Dimensions. Stairs shall be at least twenty-two (22) inches wide, with risers of not more than eight and one-half (8 1/2) inches and treads of not less than nine (9) inches, and there shall be platforms at the foot of stairs not less than thirty-six (36) inches wide by thirty-six (36) inches long, located not more than eight (8) inches below the access window or door.

.32 - Opening Protectives. Doors and windows along the fire escape shall be protected with three-quarter (3/4) hour opening protectives in other than residence buildings of Use Groups L2 and L3.

SEC. 624.0 - EXIT SIGNS AND LIGHTS.

SEC. 624.1 - SIZE AND LOCATION. All approved means of egress shall be indicated with approved metal signs reading "EXIT" in red letters at least six (6) inches high on a white background illuminated by an electric light of not less than twenty-five (25) watts, visible from the exit approach, and when necessary, supplemented by directional signs indicating the direction and way of egress in access corridors.

SEC. 624.2 - POWER SOURCE. All exit signs shall generally be located over doors in the path of egress, and shall be illuminated from an independently controlled electric circuit or other source of power at all times when the building is occupied.

SEC. 625.0 - EXITWAY LIGHTING.

SEC. 625.1 - ARTIFICIAL LIGHTING. All exitways, stairways and passageways appurtenant thereto, shall be equipped with artificial lighting

facilities to provide the intensity of illumination herein prescribed continuously during the time that conditions of occupancy of the building or structure require the exitways to be available.

SEC. 625.2 - INTENSITY OF ILLUMINATION. The intensity of floor lighting in all exitways shall not be less than three (3) foot candles.

SEC. 625.3 - EMERGENCY OR AUXILIARY SOURCES OF CURRENT SUPPLY. The lighting of exitways and corridors providing means of access to the exitways including minimum lighting requirements for places of public assembly shall be from an emergency or auxiliary source of current supply to assure continued illumination in case of emergency, in accordance with the requirements of Section 1507.2 and the approved rules.

ARTICLE 7 - STRUCTURAL AND FOUNDATION LOADS AND STRESSES

SEC. 700.0 - SCOPE.

The provisions of this article shall control the structural design of all buildings and structures and their foundations hereafter erected, to insure adequate strength of all parts thereof for the safe support of all dead, live and special loads to which they may be subjected in addition to their own dead load, without exceeding the allowable working stresses prescribed in this Code or in accepted engineering practice.

SEC. 701.0 - DEFINITIONS.

DEFORMED STEEL CONSTRUCTION. That type of construction used in a floor system consisting of integrated units of sheet or strip steel plates which are shaped into parallel steel ribs or beams with a continuous connecting flange deck, generally attached to and supported on the primary or secondary members of a structural steel or reinforced concrete frame.

LIGHT-GAGE STEEL CONSTRUCTION. That type of construction in which the structural frame consists of studs, floor joists, arch ribs, rafters, steel decks and other structural elements which are composed and fabricated of cold-formed, light-gage steel or strip steel members less than three-sixteenths ($3/16$) inches thick.

LOAD (Dead). The weight in pounds of all permanent construction including walls, floors, roofs, partitions, stairways and of fixed service equipment.

LOAD (Live). The load in pounds superimposed by the use and occupancy of the building, not including the wind load or dead load.

LOAD (Lateral Soil). The lateral pressure in pounds due to the weight of the adjacent soil, including any pressure due to superimposed loads and due allowance for hydrostatic pressure.

LOAD (Wind). The lateral pressure on the building or structure in pounds per square foot due to a wind blowing in any direction.

LOAD (Impact). The additional load resulting from the operation of machinery, elevators, craneways, vehicles, and similar forces and kinetic loads.

ORDINARY MATERIALS. Materials meeting the requirements of this Code for minimum strength, durability and fire-resistance.

PRIMARY MEMBER. Any member in the structural framework of a building or structure used as a column; grillage beam; or to support masonry walls and partitions; including trusses, isolated lintels spanning an opening of eight (8) feet or more; and any member required to brace a column, a truss, or to support two hundred (200) or more square feet of floor or roof area.

SECONDARY MEMBER. Any member of a structural frame other than a primary member; including filling in beams of floor systems which individually support less than two hundred (200) square feet of floor or roof area.

STEEL JOIST. Any secondary steel member of a building or structure including light gage, cold formed steel members and other than solid web rolled steel sections, channels, and plate girders.

SEC. 702.0 - DESIGN SAFE LOAD.

SEC. 702.1 - STRUCTURAL ANALYSIS. The safe load for any structural member or system of construction shall be determined by accepted engineering analysis in accordance with Appendix B except as provided in Section 703.0 and Section 805.0 for tests of assemblies not capable of design.

SEC. 702.2 - CHECK TESTS. When there is any doubt as to the design capacity of any structural unit or assembly, the Director may require that check tests be made of the assembled unit and its connections or he may accept certified reports of such tests from approved testing authorities conducted in accordance with the approved rules.

SEC. 703.0 - TEST SAFE LOAD.

SEC. 703.1 - WHEN PERMITTED. When not capable of design by accepted engineering analysis, any system of construction or individual structural unit and its connections shall be subjected to the tests prescribed in Article 8 of this Code or in the approved rules or in the test standards listed in Appendix D and Appendix E, or to such other tests acceptable to the Director that simulate the actual loads and conditions of application that occur in normal use; or he may accept certified reports of such tests conducted by an approved and recognized testing laboratory, providing such tests meet the requirements of this Code and the approved rules.

SEC. 703.2 - TEST LOAD. When approved by test, every structural assembly shall comply with the requirements prescribed in Section 805.0.

SEC. 704.0 - DESIGN LIVE LOAD.

SEC. 704.1 - REQUIRED LIVE LOAD. The live loads to be assumed in the design of buildings and structures shall be the greatest load produced

by the intended use and occupancy, but in no case less than the minimum uniformly distributed unit loads required in Section 707.0 for specific uses and all similar uses which create corresponding loadings.

SEC. 704.2 - LOADS NOT SPECIFIED. The Director shall determine the required live load for any use not specifically provided for in Table 14.

SEC. 705.0 - DESIGN DEAD LOADS.

SEC. 705.1 - CONSTRUCTION MATERIALS. In estimating the dead load for the purposes of structural design, the actual weights of materials shall be used, but in no case less than the unit dead loads prescribed in Appendix J.

SEC. 705.2 - SERVICE EQUIPMENT. The weight of all service equipment including plumbing stacks and risers, radiators, heaters, electrical feeders and ventilating and air-conditioning equipment shall be included in the dead load supported by the structural frame.

SEC. 705.3 - PARTITION LOADS. In all buildings and other structures designed for mercantile, industrial or business uses, in which subdividing partitions may be subsequently erected, rearranged or relocated, provision shall be made to support the actual weight of such partitions where they occur or for an equivalent load of not less than twenty (20) pounds per square foot of floor area in addition to the specified uniformly distributed live load.

SEC. 706.0 - EXISTING BUILDINGS.

In the reconstruction, repair, extension or alteration of existing buildings heretofore approved, the working stresses used in design shall comply with the provisions of this section.

SEC. 706.1 - BUILDING EXTENDED. When an existing building is enlarged or altered, all existing structural parts affected by the addition or alteration shall be strengthened where necessary and all new structural parts shall be designed to meet the requirements for buildings hereafter erected.

SEC. 706.2 - BUILDING REPAIRED. When an alteration or repair is made to the structural portion of an existing building, and the uncovered structural portions are found to be unsound, such parts shall be made to conform to the requirements for buildings hereafter erected.

SEC. 706.3 - EXISTING LIVE LOADS. When an existing building heretofore approved is altered or repaired within the limitations prescribed in Section 106.3 and Section 106.4, the structure may be proportioned for the approved loads and stresses applicable at the time of erection, provided the public safety is not endangered thereby.

SEC. 706.4 - POSTED LIVE LOAD. Any existing building heretofore approved, in which there is no change in use or occupancy to a new use group classification requiring greater floor loads, may be posted for the originally approved live loads provided the building is structurally safe and sound in all its parts and adequate for its existing use, and the public safety is not endangered thereby.

SEC. 707.0 - UNIT LIVE LOADS

The plans for all buildings and structures intended for other than residential uses shall specify the live loads for which each floor or part thereof has been designed.

SEC. 707.1 - UNIFORM LOAD. The minimum uniformly distributed design live load in pounds per square foot shall be assumed for the uses specified in Table 14 and for all concentrated loads wherever they occur as provided in Section 708.0.

SEC. 707.2 - HEAVY TRUCK LOADS. The floor loads for garages, designed to house trucks or buses exceeding twenty thousand (20,000) pounds gross weight, shall be determined by the approved rules.

TABLE 14

MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS PER SQUARE FOOT

Alleys, Yards and Terraces (Vehicular).....	250
Alleys, Yards and Terraces (Pedestrian).....	100
Assembly Rooms with fixed seats.....	60
Assembly Rooms with removable seats.....	100
Bowling Alleys, Pool Rooms and similar recreational areas.....	75
Classrooms with fixed seats.....	60
Classrooms with removable seats.....	100
Corridors and Entrance Hallways in other than Residence Buildings..	100
Corridors in Hotels and Apartments.....	60
Corridors in One and Two Family Dwellings.....	40
Corridors serving public rooms in hotels.....	100
Courtrooms.....	100
Dance Halls and Gymnasiums.....	100
Driveways.....	250
Dwelling Rooms, Guest Rooms in Hotels, Private Rooms in Hospitals..	40
Dwelling Uninhabitable Attics.....	20
Elevator Machine Rooms.....	100
Garages and Stables (Passenger Cars not exceeding 6,000 lbs. wt.)..	75
Garages(Buses and Trucks not exceeding 20,000 lbs. wt.).....	175
Grandstands.....	100
Libraries and Reading Rooms.....	60
Library Stack Rooms(But not less than the actual wt of loaded shelves)....	150
Loft Buildings and Light Manufacturing.....	120
Office Rooms.....	60
Office Lobbies.....	100
Public Dining Rooms and Restaurants.....	100
Sidewalks.....	250
Stage Floors in Theatres.....	150
Storage Loads (Light).....	120
Storage Loads (Heavy).....	250
Stairs, Fire Escapes and Exitways.....	100
Stores, Shops and Banking Rooms (retail).....	100
Stores and shops (wholesale).....	120

SEC. 708.0 - CONCENTRATED LOADS.

Floors of buildings in the use groups specified in Table 15 shall be designed to support the uniformly distributed live loads prescribed in Section 707.0 or the following concentrated loads in pounds, whichever produces the greater stresses. Unless otherwise specified, the indicated concentration shall be assumed to occupy an area of two and one-half (2 1/2) feet square, and shall be so located as to produce the maximum stress conditions in the structural members.

TABLE 15CONCENTRATED LOADS

Office Floors.	2000
Garages for pleasure cars.	2000
Garages for trucks . . Not less than the actual rear wheel load when fully loaded.	
Sidewalks.	8000
Stairs treads (Applied 3 feet on centers transversely).	3000
Light floor plate construction	2000
Scuttles and Sky-light ribs.	2000
Elevator Machine Room grating (Applied on area of four sq. inches) .	3000

SEC. 709.0 - IMPACT LOADS.

The live loads specified in Table 14 shall be assumed to include adequate allowance for ordinary impact conditions. For special uses and loads involving unusual vibration and impact forces, provision shall be made in the structural design as specified in accordance with the approved rules.

SEC. 709.1 - ELEVATORS. All moving elevator loads shall be increased one hundred (100) per cent for impact and the structural supports shall be designed within the limits of deflection and as prescribed by the approved rules.

SEC. 709.2 - MACHINERY. Unless otherwise specifically required in the approved rules all heavy machinery and other moving loads shall be increased twenty-five (25) per cent for impact.

SEC. 709.3 - CRANEWAYS. All craneways shall be designed to resist a transverse force equal to twenty-five (25) per cent of the lifted load plus the weight of the trolley applied one-half (1/2) at the top of each runway rail; and a longitudinal force equal to twelve and one-half (12 1/2) per cent of the actual wheel loads applied at at the top of each rail.

SEC. 710.0 - SPECIAL LOADS

Provisions shall be made for all special loads herein prescribed or in accordance with the approved rules.

SEC. 710.1 - BELOW GRADE. All retaining walls and other walls below grade shall be designed to resist the lateral soil pressure with due allowance for hydrostatic pressure.

SEC. 710.2 - HYDROSTATIC UPLIFT. All foundation slabs and other footings subjected to water pressure shall be designed to resist a uniformly distributed uplift equal to the full hydrostatic pressure.

SEC. 710.3 - RAILINGS. Railings around stairwells and other floor openings shall be designed to resist a lateral force of forty (40) pounds per linear foot; and railings at the front of balconies and similar locations, a lateral force of fifty (50) pounds per linear foot; applied horizontally at the top of the railings.

SEC. 710.4 - CONSTRUCTION LOADS AND ERECTION STRESSES. Provisions shall be made for temporary construction and wind loads which may occur during the erection of the building; and all structural members and connections shall be designed and handled so as to prevent over-stressing during erection.

SEC. 711.0 - ROOF LOADS

The structural supports of roofs shall be designed to resist snow and wind loads in addition to the dead load; and for the appropriate loads specified in Table 14 or in accordance with the approved rules, when designed for special use.

SEC. 711.1 - MINIMUM ROOF LOAD. All roofs shall be designed for a live load, including snow, of not less than thirty (30) pounds per square foot of horizontal projections.

SEC. 711.2 - ROOFS OF UNUSUAL SHAPE. When the effect of the shape of a roof structure as determined by actual test indicates greater snow retention value than specified in this article, the roof load shall be modified in accordance with the approved rules.

SEC. 711.3 - OVERHANGING EAVES. Overhanging eaves, cornices and other roof projections shall be designed for a minimum uniformly distributed live load of seventy-five (75) pounds per square foot.

SEC. 711.4 - INCIDENTAL ASSEMBLY. Roofs of multifamily residence buildings (Use Group L2) and hotels (Use Group L1) used for promenade or incidental assembly purposes shall be designed for a minimum live load of sixty (60) pounds per square foot; and one hundred (100) pounds per square foot when designed for roof garden uses.

SEC. 712.0 - WIND LOAD.

The structural frame of all buildings, signs, tanks and other exposed structures or parts of structures shall be designed to resist the horizontal pressures due to wind in any direction, both inwardly, and outwardly, allowing for suction on the leeward side, as provided in Sections 712.0 to 716.0 inclusive or in accordance with the approved rules.

SEC. 712.1 - WIND ONLY. For structural members subjected to wind loads only, the allowable working stress may be increased thirty-three and one-third ($33 \frac{1}{3}$) per cent over that specified for dead and live loads alone.

SEC. 712.2 - VERTICAL SURFACES. The wind pressures on vertical surfaces shall be assumed to have the values herein prescribed.

.21 - Height Not More Than 50 Feet. All buildings or parts thereof that are fifty (50) feet or less in height may generally be disregarded in respect to wind load, unless the height exceeds four (4) times the minimum width; and except further as herein specified for roof anchorage to walls and walls to foundations and the design of overhanging eaves, cornices and other projections.

.22 - Height Not More Than 100 Feet. On all buildings or parts thereof between fifty (50) and one hundred (100) feet in height, a pressure of twenty (20) pounds per square foot shall be assumed on the upper fifty (50) per cent of the height.

.23 - Height Over 100 Feet. On all buildings or parts thereof over one hundred (100) feet in height the wind force shall be assumed to increase twenty-five thousandths (0.025) pounds per square foot for each foot above the one hundred (100) foot level.

.24 - Distribution Of Wind Force. The wind force shall be distributed between opposite walls, two-thirds ($\frac{2}{3}$) as a normal pressure on the windward side and one-third ($\frac{1}{3}$) as a normal outward suction of the leeward side.

.25 - Allowance For Windows. In normally closed buildings provided with one-third ($\frac{1}{3}$) or more wall openings, internal wind forces of ten (10) pounds per square foot shall be assumed to occur simultaneously with the above external forces both in pressure and suction.

SEC. 713.0 - WIND LOAD ON ROOFS

SEC. 713.1 - PITCHED ROOFS. The external wind forces on plane pitched roofs with a slope greater than thirty (30) degrees shall be assumed to be not less than ten (10) pounds per square foot pressure, normal to the windward side and suction of not less than ten (10) pounds per square foot normal to the leeward side.

SEC. 713.2 - CURVED ROOFS. The external wind forces of curved roofs with a radius of curvature not less than one-half ($1/2$) nor more than three-quarters ($3/4$) of the span of the roof shall be assumed as a pressure of not less than ten (10) pounds per square foot normal to the surface on the windward side and not less than ten (10) pounds per square foot suction on the leeward side.

SEC. 713.3 - INTEGRAL CURVED WALLS AND ROOF. When the curve of the roof starts from ground level, a pressure of not less than twenty (20) times the ratio of rise to span shall be assumed on the windward side and a suction of not less than ten (10) pounds per square foot on the leeward side.

SEC. 713.4 - TEST DETERMINATION. For irregular or unusual shaped roofs, the effect of the shape may be determined by wind tunnel or equivalent test in accordance with the approved rules and the wind forces herein prescribed may be modified accordingly. In determining the effect of shape, the assumed wind velocity shall be the maximum average for a five (5) minute period shown on the map of the U. S. Weather Bureau during the past fifteen (15) years.

SEC. 713.5 - ANCHORAGE. Roof framing shall be anchored to wall framing and walls to foundations so as to resist wind uplift and to resist sliding in excess of seventy-five (75) per cent of the resistance due to dead load.

SEC. 713.6 - UPLIFT ON EAVES. Overhanging eaves, cornices and other roof projections shall be designed and constructed to withstand an upward pressure of forty (40) pounds per square foot.

SEC. 714.0 - WIND LOADS ON SIGNS, TANK TOWERS AND CHIMNEYS

SEC. 714.1 - GROUND SIGNS. The wind pressure on ground signs shall be assumed at twenty (20) pounds per square foot of net projected area of the structure normal to the direction of the wind.

SEC. 714.2 - ROOF SIGNS. The wind pressure on roof signs, tank towers, stacks, chimneys and other exposed roof structures with plane surfaces shall be assumed at thirty (30) pounds per square foot, applied to the net projected area of the structure normal to the direction of the wind except as specified in Section 714.3.

SEC. 714.3 - EFFECT OF SHAPE. The wind pressure on circular tanks, stacks or other circular structures shall be assumed effective on

two-thirds ($2/3$) of the projected area; and for hexagonal or octagonal structures on seven-eighths ($7/8$) of the projected area.

SEC. 715.0 - UNUSUAL WIND EXPOSURE

For buildings and structures located in unusually exposed positions subjected to higher wind loads than herein specified, the design wind load shall be determined in accordance with the approved rules.

SEC. 716.0 - OVERTURNING AND SLIDING

The overturning moment due to the wind load on all structures shall not exceed seventy-five (75) per cent of the moment of stability resulting from dead load on the columns, walls, and partitions, unless the building or structure is anchored to resist the excess overturning moment and the excess horizontal shear over sliding friction.

SEC. 717.0 - LIVE LOAD REDUCTION

In all multistory buildings and structures designed for other than warehouse and storage uses, the design live loads may be reduced on columns, walls, piers, foundations, trusses and girders as herein provided.

SEC. 717.1 - GIRDERS AND TRUSSES. When the tributary floor area is more than one hundred (100) square feet, a reduction of five (5) per cent; when more than two hundred (200) square feet, a reduction of ten (10) per cent; and when more than three hundred (300) square feet, a reduction of twenty (20) per cent of the gross design live load shall be permitted; except that no reduction shall be made for floor areas occupied as places of public assembly.

SEC. 717.2 - COLUMNS, PIERS, WALLS AND FOUNDATIONS. The following percentages of the assumed live loads shall be used in designing columns, walls, piers, and foundations:

On the roof area.....	100 per cent;
On the top floor area.....	85 per cent;
On the next lower floor area.....	80 per cent;

and five (5) per cent additional decrease on each successive lower floor to a maximum live load reduction of fifty (50) per cent. The full dead load plus the reduced live load as herein prescribed shall be used in the design of trusses and girders which support columns and in the design of foundations.

SEC. 718.0 - BEARING VALUE OF SOILS

All applications for permits for the construction of new buildings or structures, and for the alteration of a permanent structure which

requires changes in foundation loads and distribution, shall be accompanied by a statement describing the soil at the bottom of the footings, including sufficient records and data to establish its character, nature and load bearing capacity. Such records shall be certified by a qualified registered professional engineer or a qualified registered architect.

SEC. 718.1 - SATISFACTORY FOUNDATION MATERIALS. Satisfactory bearing materials for footings shall include ledge rock on its natural bed or sand, gravel or dry clay, or a combination of such materials, provided they do not overlie an appreciable amount of peat, organic silt, moist clay, or other objectionable material.

SEC. 718.2 - PRESUMPTIVE BEARING VALUES. Except when determined by field load tests or as otherwise provided herein, the maximum allowable pressure on supporting soils at or near the surface under footings shall not exceed the values specified in Table 16. Presumptive bearing values shall apply to all materials of similar physical characteristics and disposition. These values shall be adjusted for deep footings and for piles as herein provided or in the approved rules adopted thereunder.

SEC. 718.3 - LIGHT WEIGHT STRUCTURES. Mud, organic silt, or unprepared fill shall be assumed to be without any presumptive bearing capacity unless approved by test, except where the bearing capacity is deemed adequate by the Director for the support of light frame structures.

TABLE 16
PRESUMPTIVE BEARING VALUES OF FOUNDATION MATERIALS

<u>Class</u>	<u>Material</u>	<u>Tons Per Sq. Ft.</u>
1	Massive crystalline bed rock including granite, diorite, gneiss, trap rock, hard limestone and dolomite..	100
2	Foliated rock including bedded limestone, schist and slate in sound condition.....	40
3	Sedimentary rock including hard shales, sandstones, soft limestone, and thoroughly cemented conglomerates.....	15
4	Soft or broken bed rock (excluding shale).....	10
5	Compacted, partially cemented gravels, sand and hardpan overlying rock.....	10
6	Gravel and compact sand-gravel mixtures.....	6
7	Loose gravel, hard dry clay, compact coarse sand, and soft shales.....	4
8	Loose, coarse sand and sand-gravel mixtures and compact fine sand.....	3

<u>Class</u>	<u>Material</u>	<u>Tons Per Sq. Ft.</u>
9	Loose fine sand.....	2
10	Soft broken shale.....	1.5

FOUNDATIONS

SEC. 719.0 - BORINGS AND TESTS.

SEC. 719.1 - WHEN REQUIRED. In the absence of satisfactory data from immediately adjacent areas, the owner or applicant shall make borings, test pits, or make tests at such locations and to sufficient depths of such bearing materials as may be ordered by the Director. For all buildings other than one and two family dwellings and whenever it is proposed to use float, mat or any type of deep foundation, there shall be at least one boring to rock or to a depth of not less than fifty (50) feet below the load bearing strata for every twenty-five hundred (2500) square feet of built area as the Director may order.

SEC. 719.2 - SOIL SAMPLES. Samples of the strata penetrated in such borings or test pits, representing the natural disposition and conditions at the site, shall be available for the examination of the Director. Wash or bucket samples shall not be accepted.

SEC. 719.3 - VARYING SOIL VALUES. When test borings indicate non-uniformity of bearing materials, a sufficient number of additional borings shall be made to establish areas of variable bearing capacities.

SEC. 719.4 - COST OF TESTS. When the safe sustaining power of the soil is in doubt, or superior bearing value than herein specified is claimed, the Director shall order that the necessary borings or tests be made by and at the expense of the applicant and under the supervision of the Director to determine the safe value. When foundation caissons are driven to penetrate into sound rock, the allowable bearing values prescribed in Table 16 may be increased as prescribed in Section 734.4 and the approved rules.

SEC. 720.0 - SOIL TEST PROCEDURE.

SEC. 720.1 - TEST METHOD. The test procedure and testing apparatus shall be approved by the Director before they are used; and a complete record of the tests together with a record of the soil profile shall be filed by the engineer or architect, who shall maintain continuous inspection by a fully qualified representative on the site during all boring and test operations.

SEC. 720.2 - LOADED AREA. For footings, the soil shall be loaded at one or more places and at the required level or levels. The loaded

area shall be at least four (4) square feet for all bearing materials; except that when the footing rests on wet clay or other soft materials, the test load shall be applied to an area of not less than ten (10) square feet.

SEC. 720.3 - RECORDED SETTLEMENTS. Loads shall be applied in continuous increments of not more than one-quarter ($1/4$) of the proposed safe load. When the proposed load has been reached, it shall remain undisturbed and readings shall be recorded to determine the rate of settlement until the settlement in eight (8) hours is less than one-hundredth (0.01) inch. A fifty (50) per cent excess load shall then be applied and allowed to remain in place until the rate of settlement is less than one-hundredth (0.01) inch in twenty-four (24) hours.

SEC. 720.4 - ACCURACY OF LOADING. Test loads applied by mechanical devices shall be automatically controlled so as to insure not more than five (5) per cent variation in applied load.

SEC. 720.5 - APPROVED LOAD. The load settlement shall be represented diagrammatically, and no test shall be deemed satisfactory if the settlement exceeds one-hundredth (0.01) inch per ton of gross load applied.

SEC. 721.0 - ALLOWABLE FOUNDATION LOADS

The maximum allowable loads under all types of foundations shall be limited by accepted engineering practice and as provided herein and in the approved rules.

SEC. 721.1 - ROCK FOUNDATIONS. Where subsurface explorations at the site of project indicate variations or doubtful characteristics in the structures of the rock upon which it is proposed to construct foundations, a sufficient number of holes shall be drilled to a depth of not less than ten (10) feet below the level of the footings to provide assurance of the quality of the foundation bed and its bearing capacity.

SEC. 721.2 - INCREASED ROCK CAPACITY. The presumptive bearing capacity of Class 1 or Class 2 rock may be increased to equal the unit compression on any type of foundation, when the surface is leveled or benched; provided, such increased safe capacity is determined by approved load tests on an area of not less than one (1) square foot in accordance with the provisions of Section 720.0 or by other approved test.

SEC. 722.0 - DEPTH OF FOOTINGS

Except when erected upon solid rock or hard pan or when otherwise protected from frost, the foundation walls, piers and other permanent supports of all buildings and structures shall be provided with footings of adequate size located not less than four (4) feet below finished grade, which shall be designed to properly distribute the load; or such structures shall be supported on piles or ranging timbers when solid earth or rock is not available. No footings shall be founded on frozen soils.

SEC. 722.1 - ISOLATED FOOTINGS. Footings on granular soil of Classes 5 to 10 inclusive in Table 16 shall be located that the line drawn between the lower edges of adjoining footings shall not have a steeper slope than thirty (30) degrees, unless the material supporting the higher footing is braced or retained or otherwise laterally supported in an approved manner. The means of lateral support shall comply with the approved rules.

SEC. 723.0 - FOOTING DESIGN

SEC. 723.1 - DESIGN LOADS. The full dead load including the weight of foundations, footings, and overlying fill and the reduced live loads as specified in Section 717.0 shall be used in designing footings.

SEC. 723.2 - PRESSURE DUE TO LATERAL LOADS.

.21 - Not More Than One-Third Increase. If the increased pressure on any footing due to wind, or other lateral loads does not exceed one-third ($1/3$) of the combined dead and live load pressures, such loads may be neglected.

.22 - More Than One-Third Increase. When the increase is more than one-third ($1/3$), such loads shall be considered in the design with a one-third ($1/3$) increase in allowable soil pressures under the combined load.

SEC. 723.3 - VIBRATORY LOADS. Where machinery or other vibrations may be transmitted through the foundations, the footings shall be isolated in accordance with approved rules to prevent detrimental disturbances of the soil.

SEC. 723.4 - VARYING UNIT PRESSURES. Footings shall be so designed that the unit soil pressure shall be as uniform as possible under all parts of the building or structure. When necessary for stability in the structure due to varying soil conditions as determined in Section 719.3 and in accordance with the approved rules, variations may be permitted in the unit load under different footings.

SEC. 724.0 - STEEL GRILLAGE

All steel grillage beams shall be separated with approved steel spacers and shall be entirely encased in at least three (3) inches of concrete and the spaces between beams shall be completely filled with concrete or cement grout. When used on yielding soils, steel grillages shall rest on an approved concrete bed not less than six (6) inches thick.

SEC. 725.0 - PLAIN CONCRETE FOOTINGS

SEC. 725.1 - CONCRETE STRENGTH. Concrete in foundations shall be so proportioned as to develop an ultimate compressive strength of not less

than two thousand five hundred (2,500) pounds per square inch at twenty-eight (28) days.

SEC. 725.2 - DEPOSITION. All concrete footings shall be poured in dry excavation unless otherwise approved by the Director. When poured under or in the presence of water, the concrete shall be deposited by approved means which insure minimum segregation of the mix and negligible turbulence of the water.

SEC. 725.3 - DIMENSIONS. In plain concrete footings, the edge thickness shall be not less than eight (8) inches for footings on soil, and not less than twelve (12) inches above the tops of piles in footings on piles.

SEC. 725.4 - PROTECTION. Concrete footings shall be protected from freezing during deposition and for a period of at least five (5) days thereafter and in no case shall water be allowed to flow through the deposited concrete.

SEC. 726.0 - MASONRY UNIT FOOTINGS

SEC. 726.1 - DIMENSIONS. Masonry unit footings shall be laid in cement mortar or cement lime mortar, and the depth shall be not less than twice the total projection beyond the wall, pier or column; and the width shall be not less than eight (8) inches wider than the wall supported thereon.

SEC. 726.2 - OFFSETS. The maximum offset of each course in brick foundation walls stepped up from the footings shall be one and one-half (1 1/2) inch.

SEC. 727.0 - REINFORCED CONCRETE FOOTINGS

SEC. 727.1 - DESIGN. Reinforced concrete footings shall comply with the applicable standards for the design of reinforced concrete listed in Appendix B and in accordance with the approved rules.

SEC. 727.2 - DIMENSIONS.

.21 - Edge Thickness. The net thickness at the edge shall be not less than five (5) inches above the reinforcement if on soil, and not less than twelve (12) inches if on piles.

.22 - Pile Caps. The minimum distance from the edge of the cap to the nearest pile surface shall be three (3) inches and there shall be at least two (2) inches of concrete between the top of the pile and the steel reinforcement of the cap. The pile caps shall extend not less than four (4) inches below the pile cutoff.

SEC. 727.3 - PROTECTION. When the concrete is deposited directly against the ground, the reinforcement shall have a minimum covering of three (3) inches. At all other surfaces of the concrete exposed to the ground, the reinforcement shall have a minimum covering of two (2) inches.

SEC. 728.0 - RAFT FOUNDATIONS.

Raft, mat or float foundations shall be used only when the applied loads of the building or structure are so arranged as to result in practically uniformly balanced loading and the soil immediately below the mat is of uniform bearing capacity. The characteristics of the soil under the mat or raft shall be considered in the analysis of loading on mats and other continuous footings and due allowance shall be made for possible concentrated soil pressures under heavily loaded columns.

SEC. 729.0 - PILE FOUNDATIONS.

SEC. 729.1 - SITE INVESTIGATION. The site shall be investigated for all conditions which might promote deterioration of pile foundations, and approved protective measures shall be taken to prevent corrosion or other destructive action from water, acids or other deleterious conditions at the site.

SEC. 729.2 - SPACING. Unless driven to rock, the minimum center-to-center spacing of piles shall not be less than twice the top diameter of a round pile, nor less than twice the diagonal dimension of a rectangular pile, but in no case less than thirty (30) inches, and as provided herein for each specific type of pile. When driven to rock, the minimum center-to-center spacing of all piles which can be checked for plumbness shall be not less than the greatest diameter of a round pile, nor less than the diagonal dimension of a rectangular pile, plus one (1) foot.

SEC. 729.3 - WALL PILES. All piles in wall foundations shall be staggered about the center line of the wall at a minimum distance of one-half (1/2) the top diameter therefrom; except that in wood frame construction piles may be driven in a single row.

SEC. 729.4 - ISOLATED PIER PILES. Not less than three (3) piles shall be furnished under columns or piers or other isolated loads, when supported on piles, unless lateral bracing is provided to insure stability.

SEC. 729.5 - INSPECTION. A competent and qualified inspector satisfactory to the Director shall be on the work at all times while pile foundations are being cast, driven or fabricated and while test piles are being loaded. The inspector shall make and submit to the Director complete records of the installations and tests.

SEC. 729.6 - CORROSION PROTECTION.

.61 - Corrosion Allowance. The effective thickness of the metal casing of all steel pipe piles, combination piles, or foundation piers encased with a steel shell, in which load carrying capacity is allowed for the steel section, shall be assumed one-sixteenth (1/16) inch less than the actual thickness.

.62 - Concrete Jackets. When steel pipe, structural steel or other steel piles are driven through artificial fill containing sulfur or

other corrosive chemicals which are likely to cause deterioration of the steel, the piles shall be jacketed to the depth of such fill with at least four (4) inches of concrete poured in place or as otherwise approved by the Director.

SEC. 729.7 - DRIVING PROTECTION. When necessitated by the severity of driving, both the butt and the point of the pile shall be protected from injury.

SEC. 730.0 - TIMBER PILES.

SEC. 730.1 - SPECIES. Piles shall be of southern yellow pine, Douglas fir, Norway pine, red oak, white oak or other species approved for such use by the Director. All timber piles shall be driven in one piece except as provided in Section 736.0 for composite piles.

SEC. 730.2 - TIMBER SPECIFICATIONS. Round timber piles shall conform to the applicable standards and squared piles to the specifications for structural timber grades listed in Appendix C. All piles shall be cut above the ground swell, and shall have a reasonably uniform taper. The center of the pile at any section shall not deviate more than one (1) per cent of the length of the pile from the straight line connecting the center of the butt with center of the point. Piles shall be of sound timber, free from knots which exceed one-quarter (1/4) the pile diameter, wind shakes and reversed or short bends exceeding one-quarter (1/4) the diameter in six (6) feet. The use of piles with spiral grain exceeding one (1) complete turn in forty (40) feet shall be prohibited.

SEC. 730.3 - MINIMUM DIMENSIONS. The diameter of wood piles at the point shall be not less than six (6) inches; and at three (3) feet from the butt shall be not less than ten (10) inches for piles not exceeding twenty-five (25) feet in length, and not less than twelve (12) inches at three (3) feet from the butt for piles more than twenty-five (25) feet in length. The use of squared piles less than eight (8) by eight (8) inches shall be prohibited. Round piles measuring eight (8) inches in diameter at cutoff may be used for piles less than ten (10) feet in length and loads not exceeding ten (10) tons.

SEC. 730.4 - CUTOFF. The tops of all timber piles shall be sawed off in a plane perpendicular to the imposed load and if not treated by an approved preservative process, the cutoff shall be below mean low water level or lowest ground water level.

SEC. 730.5 - TREATED PILES. Creosoted wood piles of southern yellow pine, Douglas fir, red oak or Norway pine shall be cut off below the ground surface but may extend above the ground water level. They shall be creosoted under pressure in accordance with the standards

listed in Appendix C to a final net retention of not less than twelve (12) pounds of creosote per cubic foot of wood, or treated by other approved process in accordance with the approved rules. The tops of such piles at cutoff shall be given three coats of hot creosote, followed by a coat of roofing compound, as provided in the approved rules, and the cutoff shall be encased not less than four (4) inches in the concrete footing of the foundation.

SEC. 731.0 - PRECAST CONCRETE PILES.

SEC. 731.1 - CONCRETE STRENGTH. No precast concrete pile shall be driven before the concrete has attained a compressive strength of three thousand (3,000) pounds per square inch based on tests of cylinders cast from the same batches and cured under the same conditions as the concrete pile.

SEC. 731.2 - DESIGN. The piles shall be designed and reinforced in accordance with the applicable reinforced concrete regulations cited in Appendix B and the approved rules. After casting, such piles shall be handled, driven and loaded to avoid all over-stressing or damage. If for any reason the pile is damaged, its use shall be condemned or the allowable load may be reduced in accordance with accepted engineering analysis. The lateral reinforcement at both ends of the pile shall be spaced sufficiently close to resist impact stresses due to driving and in no case more than three (3) inches on centers. When driven to rock, all precast concrete piles shall be reinforced with an approved metal shoe.

SEC. 731.3 - DIMENSIONS. The diameter or least lateral dimension of precast concrete piles shall be ten (10) inches at the point and shall average not less than twelve (12) inches throughout the length for piles up to twenty (20) feet in length and fourteen (14) inches for piles of greater length.

SEC. 731.4 - PROTECTION. A minimum covering of one and one-half (1 1/2) inches of concrete shall be provided over all reinforcement, except that for piles to be subjected to the action of sea water, waves or other severe exposure, a three (3) inch protective covering shall be furnished in the zone of such exposure.

SEC. 732.0 - CAST-IN-PLACE CONCRETE PILES.

SEC. 732.1 - CONCRETE STRENGTH. All concrete shall develop a compressive strength of not less than twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days. The concrete shall be deposited in a continuous operation so as to insure a full sized pile without voids or segregation. All concrete shall be placed in the dry; or after exhausting all soil and other foreign matter, the bottom of the pile may be sealed by depositing concrete by tremie or other approved method.

SEC. 732.2 - DESIGN. Except for dowels, all reinforcement shall be

designed and installed as an assembled unit and no reinforcement shall be placed within one (1) inch of a protective metal casing. If no permanent casing is used, the protective coating of concrete shall be not less than one and one-half (1 1/2) inches thick. When subjected to severe exposure, the protection shall be not less than three (3) inches thick.

SEC. 732.3 - DIMENSIONS. The diameter of the pile shall be not less than fourteen (14) inches at the top nor less than eight (8) inches at the bottom with an average diameter of not less than eleven (11) inches; and when of constant cross section, the outside diameter shall be not less than twelve (12) inches.

SEC. 732.4 - INSTALLATION. Piles shall be driven in such manner and sequence as to prevent distortion or damage of piles already in place; and in accordance with the approved rules.

SEC. 732.5 - INSPECTION. Previous to the placing of concrete, full facilities shall be provided for inspecting the shell and the unfilled space of each pile; and the pile shall be fabricated and installed so as to insure the exclusion of all foreign matter.

SEC. 733.0 - STEEL PIPE PILES.

SEC. 733.1 - CONCRETE STRENGTH. Concrete shall have a minimum compressive strength of twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days age. No concrete shall be deposited until the pipe shall have been cleaned free of all soil or loose rock chips and satisfactory proof furnished of the condition of the rock. The concrete shall be deposited either in the dry or by means of tremie or by other approved process.

SEC. 733.2 - STEEL PIPE. All steel pipe shall conform to the applicable standards listed in Appendix C for welded and seamless steel pipe. The ends of each section shall be cut perpendicular to the axis, and bearing surfaces shall be true cut by flame cutting or other methods in accordance with the approved rules.

SEC. 733.3 - DESIGN. When reinforcement is required, it shall be installed as an assembled unit or may consist of one (1) or more rolled structural shapes complying with the applicable standards listed in Appendix B. A minimum clearance of one (1) inch shall be maintained between the reinforcement and the shell.

SEC. 733.4 - DIMENSIONS. The minimum inside diameter of pipe for pipe piles shall be ten (10) inches and minimum wall thickness one-quarter (1/4) inches; and allowance shall be made for corrosion as specified in Section 729.7.

SEC. 733.5 - SPLICES. All splices shall develop the full compressive strength and at least eighty (80) per cent of the bending strength of the steel section and shall be designed to insure the alignment of

the shells and the uniform transmission of load from one pipe length to another. The minimum length of pipe, other than the top section, shall be forty (40) feet.

SEC. 733.6 - INSTALLATION. Concrete filled pipe piles may be driven open-ended or closed-ended as provided in the approved rules.

SEC. 733.7 - SPACING AND LIMITATIONS. The center-to-center spacing of pipe piles driven to bed rock shall be not less than two (2) diameters nor less than twenty-four (24) inches in any case; and when driven to refusal on hardpan or other materials not less than thirty-six (36) inches.

SEC. 734.C - DRILLED CAISSONS

SEC. 734.1 - CONSTRUCTION. Drilled caissons shall consist of a shaft section of concrete filled pipe or other approved steel form extending to bed rock; and provided with an uncased socket drilled into the bed rock which is filled with concrete thoroughly bonded to the rock wall. The caisson may be provided with a structural steel core or other suitable reinforcement, installed so as to deliver its load to the rock through the socket filling. When such steel core is provided, it shall be bedded in cement grout at the base of the rock socket before initial set of the grout.

SEC. 734.2 - STEEL SHELL. The steel shell shall be seamless or welded steel pipe with a minimum yield point of thirty-three thousand (33,000) pounds per square inch fitted with an approved cutting shoe and structural cap, or with other approved means of transmitting the superstructure load. Sections of the pipe shall be spliced together with milled surfaces to develop the full compressive and bending strength of the steel section. None but the top section of pipe shall be less than forty (40) feet in length. The minimum diameter shall be twenty-four (24) inches and minimum shell thickness five-sixteenth (5/16) inch. Allowance shall be made for corrosion as specified in Section 729.6.

SEC. 734.3 - CONCRETE FILL. The concrete fill shall have a compressive strength of not less than thirty-five hundred (3500) pounds per square inch at twenty-eight (28) days deposited with a slump of not more than six (6) inches. The concrete shall be deposited with an approved bottom dump bucket or tremie to eliminate segregation and shall be vibrated to eliminate cavities.

SEC. 734.4 - ROCK SOCKET. The socket shall be drilled in sound rock, and shall be thoroughly cleaned of all foreign matter and loose rock. After examination and approval of the rock surface, the concrete fill shall be deposited in the dry or by an approved method under a water seal. The depth of socket shall be adequate to develop the full load bearing capacity of the pile on the effective area of distribution within the limitations of Table 16.

SEC. 734.5 - REINFORCING CORE. Structural steel cores used for reinforcement shall not exceed in area twenty-five (25) per cent of the gross caisson section. The minimum clearance between structural core and caisson shall be two (2) inches. When such cores are installed in more than one section, they shall be spliced together and welded to develop the full compressive and bond strength of the section. In all cases not less than two (2) inches in covering shall be provided around any reinforcement.

SEC. 734.6 - DRIVING PRECAUTIONS. All drilled caissons shall be driven not more than one (1) per cent of the length out of plumb.

SEC. 734.7 - SPACING. The minimum center-to-center spacing between caissons when no steel core is used shall be twice the diameter of the shell, and when reinforced, such spacing shall not be less than two and one-half ($2\frac{1}{2}$) times the diameter.

SEC. 735.0 - STRUCTURAL STEEL PILES.

SEC. 735.1 - STEEL. The steel in structural steel pile sections shall have a minimum thickness of metal of three eighths ($\frac{3}{8}$) inches and a minimum nominal outside dimension of eight (8) inches. Structural caps shall be rigidly attached to the pile section and shall be designed to transfer the full load into the piles.

SEC. 735.2 - SPLICES. Rolled steel sections shall not be spliced in less than forty (40) feet lengths except for the top section. When splices are used, contact surfaces shall be milled and the splice shall develop the full bending and compressive strength of the section.

SEC. 735.3 - SPACING. The minimum center-to-center spacing shall be not less than twice the maximum dimension of the pile and not less than twenty-four (24) inches for bearing on rock nor less than thirty-six (36) inches when installed on other approved foundation materials.

SEC. 735.4 - PROTECTION. Structural steel piles driven through rust inducing or other materials which would have deleterious effect on the pile section shall be protected as specified in Section 729.6.

SEC. 736.0 - COMPOSITE PILES.

SEC. 736.1 - DESIGN. Composite piles consisting of two (2) or more approved pile types shall be designed in accordance with the approved rules.

SEC. 736.2 - LIMITATION OF LOAD. The maximum allowable load shall be limited by the capacity of the weakest section incorporated in the pile.

SEC. 736.3 - SPLICES. Splices between concrete sections and steel or wood sections shall be designed to prevent separation of the sections both before and after the concrete portion has set, and to insure the alignment and transmission of the total pile load. When

such piles are designed to resist net tension, the splice shall be designed for the full tension load.

SEC. 737.0 - SPECIAL PILES.

The use of types of piles not specifically covered by the provisions of this Code shall be governed by the approved rules. Sufficient test data, design and construction information shall be filed for the approval of any new type of pile including soil consolidation systems by vibro-flotation, wick-drainage, electric or chemical methods. Before approving new types or methods for actual use, the Director shall require complete test demonstrations on the site to determine the adequacy of the design and the suitability of the method of installation.

SEC. 738.0 - ALLOWABLE PILE LOADS.

The allowable load on piles shall be determined by the applicable formulas complying with accepted engineering practice as defined by the accepted standards listed in Appendix B, or by test approved by the Director, subject to the provisions and limitations herein prescribed and the approved rules adopted thereunder.

SEC. 738.1 - SHORT COLUMN LOAD. Except when extending above permanent ground level or when driven in surrounding material which furnishes negligible lateral support as defined in Section 739.0, all piles used to support a building, or structure, or part thereof shall be designed as short columns.

SEC. 738.2 - DRIVING FORMULA LOAD. The allowable load on any friction pile when determined by the application of any approved formula shall not exceed thirty (30) tons. The formula load shall be determined for gravity drop or power actuated hammers and the hammer energy used shall be the maximum consistent with the size and strength of the driven piles. The use of a follower shall be permitted only with the approval of the Director.

SEC. 738.3 - APPROVED TEST LOAD. A sufficient number of control test piles in each area shall be tested by maintaining constant load under increasing settlements in accordance with the procedure herein prescribed for soil tests in Section 720.0. The resulting allowable load shall in no case exceed two-thirds ($2/3$) of that test load which produces not more than one-hundredth (0.01) inch permanent settlement per ton of gross test load. In subsequent driving of the balance of foundation piles, all piles shall be deemed to have a supporting capacity equal to the control pile, when the penetration of such piles is equal to or less than that of the control pile through a comparable driving distance; except as provided in Section 738.6.

SEC. 738.4 - LIMITING PRESSURE. The vertical pressure at the foot of a rock-bearing or other end-bearing pile shall not exceed the presumptive bearing value of the foundation material specified in Table

15 unless otherwise determined by pile loading tests.

SEC. 738.5 - JETTING. Piles may be jetted through foundation materials listed as Classes 6 to 9 inclusive in Table 16; and only when approved by the Director in other classes of materials. Immediately after completion of jetting, the piles shall be driven to the required load resistance as determined by the application of an approved pile driving formula.

SEC. 738.6 - GROUP PILE LOAD.

.61 Reduction Factor. When the total load capacity of a cluster of piles is determined by test of an individual pile unit, a reduction factor shall be applied to the approved individual pile capacity in accordance with the approved rules.

.62 - Limiting Load. In no case shall the total allowable loads on any cluster or group of piles exceed the bearing capacities specified in Table 16 or as determined by test under the provisions of Section 720.0, on the gross loaded area of the underlying soil stratum, assuming a uniform load spread within an angle of sixty (60) degrees with the horizontal from the area occupied by the pile group plus a margin of one (1) foot surrounding the periphery of the clusters.

.63 - Load Test. In determining the load capacity by load tests of all groups, when driven in materials of Classes 8 to 10 inclusive in Table 16, the immediately surrounding pile groups shall be driven in place before the test load is applied to any one group.

SEC. 739.0 - LATERAL SUPPORT.

SEC. 739.1 - SURROUNDING MATERIALS. Any soil other than water or fluid soil shall be deemed to afford sufficient lateral support to permit the design of any type of foundation as a short column. When piles are driven through soil which will not be permanently in place subsequent to the completion of the foundation, the resistance offered by such material shall not be considered to contribute to the lateral supporting capacity.

SEC. 739.2 - FIXED ENDS. When not assumed laterally supported by the surrounding soils and when fixed by lateral supports at the upper end only, the unsupported length of pile or other isolated foundation shall be assumed as three-quarters ($3/4$) the actual length; and when supported at the bottom by drilling or other rigid attachment into the bed rock in addition to top lateral support, the unsupported length shall be assumed as one-half ($1/2$) the actual length.

SEC. 740.0 - FOUNDATION PIERS.

SEC. 740.1 - UNREINFORCED. When the unsupported height of foundation piers exceeds six (6) times the least dimension, the allowable working stress on piers of unit masonry or plain concrete shall be reduced in accordance with the approved rules.

SEC. 740.2 - REINFORCED. When constructed of reinforced concrete, foundation piers may be reinforced with spiral or vertical reinforcement in accordance with the applicable standards listed in Appendix B; except that when adequate lateral support is furnished by the surrounding materials as defined in Section 739.0 the requirements for long columns shall be waived.

SEC. 740.3 - DIMENSIONS. The minimum dimension of isolated piers used as foundations shall be two (2) feet, and the height shall in no case exceed twelve (12) times the least horizontal dimension unless constructed of reinforced concrete or structural steel, or when entirely encased in a steel shell at least one-quarter (1/4) inch thick. Greater heights may be approved by the Director when surrounding foundation materials furnish adequate lateral support.

SEC. 740.4 - BELLED BOTTOMS. When foundation piers are belled, the edge thickness of the bell shall be not less than twelve (12) inches and the sides of the bell shall slope at an angle of not less than sixty (60) degrees to the horizontal.

SEC. 740.5 - DEWATERING. When piers are carried to depths below water level, the piers shall be constructed by a method which will insure accurate preparation and inspection of the bottom and the deposition or construction of sound concrete or other masonry in the dry.

SEC. 740.6 - STEEL SHELLS. When concrete piers are entirely encased with a circular steel shell, the area of the shell steel may be considered as reinforcing steel based on an effective thickness one-sixteenth (1/16) inches less than the actual thickness; provided that all horizontal joints in the shell are spliced to develop the full strength, and the shell is protected against corrosion in corrosive soils as specified in Section 729.6.

SEC. 740.7 - PROTECTION OF REINFORCEMENT. When a reinforced pier is not encased in a steel shell, a minimum of three-quarters (3/4) of one (1) per cent of vertical reinforcement uniformly spaced around the perimeter shall be provided and shall be protected with a minimum cover of three (3) inches of concrete. The allowance per spiral reinforcement shall be limited to a maximum of one (1) per cent of the volume of the concrete section.

ARTICLE 8 - MATERIALS AND GENERAL CONSTRUCTION REQUIREMENTS.PART A - MATERIALS AND TESTS.SEC. 800.0 - SCOPE.

The provisions of this article shall govern the quality, workmanship and requirements for all materials and methods, and the minimum specifications for enclosure walls and wall thickness hereafter used in the construction of buildings and structures. All materials and methods of construction shall conform to the approved rules and standards for materials and tests of recognized authoritative agencies and the requirements of accepted engineering practice as herein listed:

- Appendix A - Accredited Authoritative Agencies
- Appendix B - Accepted Engineering Practice
- Appendix C - Material Standards
- Appendix D - Structural Unit Test Standards
- Appendix E - Structural Assembly Test Standards
- Appendix F - Durability Test Standards
- Appendix G - Fire Test Standards
- Appendix H - Time Temperature Control Standards
- Appendix I - Fire Protection Standards

SEC. 800.1 - USED MATERIALS. The use of all secondhand materials which meet the minimum requirements of this Code for new materials shall be permitted.

SEC. 900.2 - NEW MATERIALS. All new building material, equipment, appliances, systems or methods of construction not provided for in this Code, and any material of questioned suitability proposed for use in the construction of a building or structure, shall be subjected to the tests prescribed in this article and in the approved rules to determine its character, quality and limitations of use.

SEC. 800.3 - ALTERNATE TEST PROCEDURE. In the absence of approved rules or other accepted standards, the Director shall make or cause to be made the necessary tests and investigations, or he may accept duly authenticated reports from recognized testing authorities in respect to the quality and manner of use of new materials. The cost of all tests and other investigations required under the provisions of this Code shall be borne by the applicant.

SEC. 801.0 - DEFINITIONS.

ARCHITECTURAL TERRA COTTA. Plain or ornamental hard burned plastic clays, with glazed or unglazed ceramin finish.

Ashlar Facing. Facing of solid rectangular units of burned clay or shale, natural or cast stone, with dressed, squared beds and mortar joints.

Ashlar Masonry. Masonry composed of bonded rectangular units, with sawed, dressed or squared beds and mortar joints.

Brick. Small rectangular units, formed of inorganic materials in a rectangular prism with nominal dimensions usually of eight (8) inches by four (4) inches by two and three-quarter ($2 \frac{3}{4}$) inches and hardened, which have a net cross sectional area not less than seventy-five (75) per cent of the gross cross sectional area in every plane.

Buttress. A projecting part of a masonry wall built integrally therewith to furnish lateral stability.

Concrete Masonry Unit. A building unit or block made of concrete which is larger in size than a brick.

Solid Concrete Masonry Unit. A unit which has a net cross sectional area of not less than seventy-five (75) per cent of the gross horizontal cross sectional area.

Hollow Concrete Masonry Unit. A unit which has a net cross sectional area of less than seventy-five (75) per cent of the gross horizontal cross sectional area.

Floor Fill. The fill between the structural floor arch or slab and the finished flooring.

Floor Filling. The type of short span floor construction in fire-proof buildings installed between structural steel framing to serve as a combination structural floor slab and fireproof protection of the framing.

Floor Finish. The finish placed on top of the floor arch, slab or other structural floor element.

Masonry. Monolithic concrete or built up construction or combination of approved building units or materials of clay, shale, concrete, glass, gypsum, stone or other approved units bonded together with mortar.

Mortar. A plastic mixture of cementitious materials, fine aggregates and water used to bond masonry or other structural units.

Nominal Dimension. A dimension that may vary from actual masonry dimensions in accordance with common practice and recognized standards. (All dimensions specified in this Code are nominal dimensions.)

Rubble Masonry. Masonry composed of roughly shaped stones.

Coarsed Rubble. Well bonded roughly shaped stones laid approximately on level beds.

Random Rubble. Well bonded roughly shaped stones laid without regularity of courses but fitted together to form well defined joints.

Rough or Ordinary Rubble. Well bonded unsquared or field stone units laid without regularity of courses.

Structural Clay Tile. A hollow masonry unit composed of fired clay, shale, fire clay or mixtures thereof with interior parallel cells or cores.

Wall. A built-up structural unit ordinarily vertical, designed to enclose or sub-divide a building or structure.

a. Cavity Wall. A wall built of masonry units or plain concrete, or a combination thereof so arranged as to provide a continuous air space or cavity within the wall, with the facing and backing tied together with metal or other incombustible ties.

b. Composite Wall. A wall built of a combination of two (2) or more masonry units of different materials, one forming the back-up and the other, the facing elements.

c. Faced Wall. A wall in which the masonry facing and backing are bonded together so as to insure common action under load.

d. Hollow Wall. A wall built of solid units bonded together to leave interior hollow spaces.

e. Veneered Wall. A wall having a facing or veneering of masonry or other approved weather resisting incombustible materials which is securely attached to the backing, but not so bonded as to exert common action under load.

SEC. 802.0 - BASIC CLASSIFICATION OF CONSTRUCTION MATERIALS.

All materials and methods used in the design and construction of buildings and structures shall conform to the approved rules. The design and construction shall be based on the assumptions, limitations and methods of stress determinations of nationally recognized design procedure.

SEC. 802.1 - ORDINARY MATERIAL PROCEDURE. The use of materials, when not specifically mentioned herein, shall be limited to the average unit working stresses specified in Appendix K.

SEC. 803.0 - TESTS.

SEC. 803.1 - TEST SPECIMENS. The selection and construction of all test specimens and the details of test procedure herein required shall conform to the approved rules. All test specimens and constructions shall be truly representative of the materials, workmanship and details to be normally applied in practice. When structural or fire-resistive properties of the material are dependent upon adequate curing, the age of the specimen shall not be more than twenty-eight (28) days, unless otherwise approved by the Director.

SEC. 803.2 - MAINTENANCE TEST. In addition to the durability and endurance tests enumerated in Section 804.3, periodic tests of any material shall be made when required by the Director to assure the maintenance of the standards of the approved materials.

SEC. 803.3 - WORKMANSHIP TEST. Whenever there is reasonable doubt as to the stability or structural safety of a completed building or structure or part thereof for the intended use, the Director may require a load test of the building unit or portion of the structure in question. Such structure shall be subjected to a superimposed load equal to two (2) times the design live load. The test load shall be left in place for a period of twenty-four (24) hours. If during the test, or upon removal of the test load, the structure shows evidences of failure, the Director shall order such reinforcement or modifications deemed necessary to insure adequacy of the structure for the rated capacity; or in lieu thereof, he may specify a reduced safe live load to which the structure shall be limited. The structure shall be considered to have successfully met the test requirements, if the total deflection does not exceed the theoretical deflection computed by accepted engineering formulae. When the total deflection is greater than such theoretical value, the structure shall be considered safe for the design load, if it recovers seventy-five (75) per cent of the maximum deflection within twenty-four (24) hours after removal of the test loads.

SEC. 804.0 - TEST PROCEDURES.

SEC. 804.1 - STRUCTURAL UNIT TESTS. All structural units shall be tested in accordance with the approved rules or, in the absence of rules governing any specific material, in accordance with the standards listed in Appendix D.

SEC. 804.2 - STRUCTURAL ASSEMBLY TESTS. To determine the safe uniformly distributed load capacity, when not capable of design by accepted engineering analysis, or to check the adequacy of the structural design of an assembly when there is reasonable doubt as to its strength or stability, every system of construction, sub-assembly or assembled unit and its connections shall be subjected to strength

tests prescribed in this Code or in the approved rules, or to such other tests acceptable to the Director that simulate the loads and conditions of application that the completed structure will be subjected to in normal use. Structural load determinations shall include transverse floor and roof, wall compression and racking, concentrated load, plaster bond, puncture penetration and soil tests.

SEC. 804.3 - DURABILITY AND ENDURANCE TESTS. Whenever required by the Director or specified herein or in the approved rules, the material or construction shall be subjected to sustained and repetitive loading to determine its resistance to fatigue, and to tests for durability and weather resistance.

SEC. 804.4 - SERVICE TESTS OF EQUIPMENT AND DEVICES. Tests of service equipment and accessories, as prescribed in this Code and in the approved rules, shall include proscenium curtain and stage ventilation, Section 418.0; flues and chimneys, Section 1003.0; boilers, Section 1103.0; sprinkler and standpipe equipment, Section 1203.0; electric installations, Section 1503.0; elevator interlocks and safety devices, and moving stairways, 1603.0; plumbing, Section 1703.0; refrigerating equipment, Section 1803.0 and all other service tests required by the approved rules.

SEC. 804.5 - FIRE TESTS. In the determination of flash points, combustibility, flame-resistance and fire-resistance of construction materials and methods, trim, finish and decorative materials, all tests shall be conducted in conformity to Section 904.0 and Section 905.0.

SEC. 804.6 - PREFABRICATED CONSTRUCTION TESTS.

.61 - Strength Tests. Prefabricated assemblies or sub-assemblies not capable of design by accepted engineering analysis, shall be subjected to the tests required for at-site construction. The floor panels and other prefabricated units shall be assembled to form an integrated test specimen constructed as in practice, of not less than three (3) units in width with two (2) longitudinal joints; and when designed on the assumption of a simple span, such units shall be tested with flat and supports.

SEC. 805.0 - CONDITIONS OF ACCEPTANCE.

In evaluating the physical properties of materials and methods of construction, the structural requirements shall be based on the criteria established by the provisions of this Code and the approved rules.

SEC. 805.1 - FLOOR, WALL AND ROOF TRANSVERSE TESTS.

.11 - Test Load. The test assembly shall sustain without failure, superimposed loads equal to two and one-half ($2\frac{1}{2}$) times the design live load.

.12 - Safe Deflection. Under design live load, the deflection shall not be greater than one-three hundred sixtieth ($1/360$) of the span for plastered construction and one-two hundred fortieth ($1/240$) of the span for unplastered construction.

.13 - Residual Deflection. If the deflection is greater than the computed theoretical deflection after twenty-four (24) hours under the total static test load, upon removal of the load the construction shall recover not less than three-quarter ($3/4$) of the total test load deflection.

SEC. 805.2 - WALL AND PARTITION COMPRESSION TESTS.

.21 - Test Load. The assembly, both with and without window framing, shall sustain without failure, superimposed loads equal to two and one-half ($2\frac{1}{2}$) times the vertical design live loads.

.22 - Recovery. After twenty-four (24) hours under the static test load, and after removal of the superimposed load, the specimen shall recover not less than one-half ($1/2$) of all vertical and horizontal distortion and strain.

SEC. 805.3 - WALL RACKING TESTS.

.31 - Test Load. The assembly shall sustain the design live load without excessive distortion and not less than two and one-half ($2\frac{1}{2}$) times the design live load without failure.

.32 - Recovery. After twenty-four (24) hours under the total static load, upon removal of the load, the construction shall recover not less than one-half ($1/2$) of the total deflection.

.33 - Comparative Tests. When not available from existing authoritative test data, the Director may require comparative tests of standard traditional forms of construction assemblies of similar dimensions and sizes, to assist in determining the adequacy of the new construction.

SEC. 805.4 - CONCENTRATED LOAD TESTS. When not capable of design, all floor constructions in the use classification groups specified in Table 14 shall be subjected to the concentrated loads therein prescribed when such loading exceeds in stress effect the uniformly distributed load specified for such uses in Table 14.

SEC. 805.5 - PUNCTURE PENETRATION TESTS. All light weight constructions with floor and roof decks of light gage metal or other thin materials shall withstand the application of a two-hundred (200) pound concentrated load applied on an area of one (1) square inch at any point or points of the construction designated by the Director.

.51 Deflection. Under the concentration, the maximum deflection shall not exceed one-sixtieth ($1/60$) of the span between ribs or formed beams, but in no case more than one-eighth ($1/8$) of an inch.

.52 - Residual Deformation. The residual indentation shall not exceed one-thirty-second ($1/32$) of an inch.

SEC. 806.0 - APPROVALS.

SEC. 806.1 - WRITTEN APPROVAL. Any material, appliance, equipment, system or method of construction meeting the requirements of this Code shall be approved by the Director in writing within a reasonable time after satisfactory completion of all required tests and submission of required test reports.

SEC. 806.2 - APPROVAL RECORD. Whenever any material, appliance or method of construction shall have been approved by the Director, a record of such approval, including all the conditions and limitations of its permitted use, shall be kept on file in his office and shall be open to public inspection during business hours.

SEC. 806.3 - IDENTIFICATION OF PRODUCT. All approved materials shall be identified by the approved label and the grade-mark, trade-mark or other manufacturer's identification for which official recognition is desired. A drawing of the identification marks shall be filed with the Director and kept in the official records.

SEC. 806.4 - PRE-CODE APPROVED MATERIALS. The use of any material already fabricated or of any construction already erected, which conforms to statutes or approvals heretofore in effect, shall be permitted to continue, if not detrimental to life, health or safety of the public.

SEC. 807.0 - MASONRY CONSTRUCTION UNITS.

SEC. 807.1 - IDENTIFICATION. All masonry units where practicable shall bear the identification mark of the manufacturer consisting of a cast impression, embossing, painting or other method approved by the Director; and certified copies of such identification shall be kept on file by the Director.

SEC. 807.2 - SECONDHAND UNITS. Secondhand masonry units may be reused subject to the approval of the Director as to quality and condition; and before reuse shall be cleaned free from old mortar. The unit shall be good, whole, sound material, free from cracks and other defects that would interfere with its proper laying or use.

SEC. 808.0 - BRICK UNITS

All clay, shale or sand lime brick shall be selected of the appropriate grade herein defined. When intended for use in contact with the ground and subject to water, frost and freezing action, brick shall be of Grade SW (A.S.T.M.) with a compressive strength of not less than three-thousand (3,000) pounds per square inch; when subject to frost without danger of water saturation, they shall be of Grade MW (A.S.T.M.) with a compressive strength of not less than twenty-five hundred (2500) pounds per square inch; and when not subject to severe weathering or when used as a back-up in exterior walls or for interior construction, they shall be of Grade W (A.S.T.M.) with a compressive strength of not less than fifteen hundred (1500) pounds per square inch.

SEC. 809.0 - STRUCTURAL CLAY TILE UNITS.

SEC. 809.1 - LOAD BEARING WALL TILE. Load bearing wall tile shall be of Grade 1 for general masonry use exposed to weathering with a compressive strength on the gross area of not less than fourteen hundred (1400) pounds per square inch when tested with cells vertical, and not less than seven hundred (700) pounds per square inch when tested with cells horizontal; and Grade 2 for use with an approved weather protective veneer, or when not exposed to frost or water action, with a compressive strength on the gross area of one thousand (1,000) pounds per square inch when tested with cells vertical, and not less than seven hundred (700) pounds per square inch when tested with cells horizontal.

SEC. 809.2 - FIREPROOFING TILE. Structural clay tile for use in nonbearing partitions, in fireproofing of structural members, and in wall furring shall not be required to meet compressive strength specifications, but exterior shells shall be not less than five-eighths (5/8) inches, and interior webs not less than one-half (1/2) inches in thickness.

SEC. 809.3 - FLOOR TILE. Structural clay floor tile shall be Grade 1 with a compressive strength on the net area of not less than thirty-two hundred (3200) pounds per square inch when tested for use in end construction arches and not less than sixteen hundred (1600) pounds per square inch when tested for side construction; and Grade 2 with a compressive strength on the net area of not less than two thousand (2,000) pounds per square inch for end construction and not less than twelve hundred (1200) pounds per square inch for side construction.

SEC. 810.0 - GLAZED MASONRY UNITS.

SEC. 810.1 - COMPRESSIVE STRENGTH. All glazed masonry units shall have the following compressive strengths on the gross area when tested as laid in the wall: with cells vertical, not less than three thousand (3,000) pounds per square inch; and with cells horizontal, not less than two thousand (2,000) pounds per square inch.

SEC. 810.2 - ABSORPTION. The absorption of glazed masonry units when immersed in water for twenty-four (24) hours shall not be more than five (5) per cent.

SEC. 811.0 - CONCRETE UNITS.

SEC. 811.1 - QUALITY. Cast concrete units shall be fabricated in solid or hollow units from portland cement and approved aggregates consisting of sand, gravel, crushed stone, cinders, blast furnace slag, burned clay, shale or other approved materials. Such units shall be of sound, compact structure, uniform in shape and free from cracks, warpage or other defects that would impair their servcibility or strength when laid in the wall.

SEC. 811.2 - HOLLOW LOAD BEARING UNITS. Approved hollow load bearing concrete units shall have a compressive strength on the gross area not less than one thousand (1,000) pounds per square inch.

SEC. 811.3 - HOLLOW NON LOAD BEARING UNITS. Approved hollow non load bearing concrete units shall have a compressive strength on the gross area not less than eight hundred (800) pounds per square inch.

SEC. 811.4 - SOLID LOAD BEARING UNITS. Approved solid load bearing concrete masonry units shall have a compressive strength of not less than eighteen hundred (1800) pounds per square inch when unprotected against the weather or subject to frost and water action; and not less than twelve hundred (1200) pounds per square inch for protected exterior use or for general interior use.

SEC. 811.5 - CONCRETE BRICK. Approved concrete brick shall be of Grade A with a compressive strength of not less than twenty-five hundred (2500) pounds per square inch in the presence of moisture; and Grade B with a compressive strength of not less than twelve hundred fifty (1250) pounds per square inch when used as a back-up in exterior walls or for general interior construction.

SEC. 811.6 - CONCRETE FIREPROOFING UNITS. Approved concrete block or tile used in partitions, fireproofing or furring, when not exposed to the weather, shall have a compressive strength of not less than three hundred (300) pounds per square inch of gross area tested as laid in practice. Such units shall be clearly marked to distinguish them from load bearing units. When exposed to the weather, the compressive strength shall be not less than eight hundred (800) pounds per square inch of gross area.

SEC. 811.7 - CONCRETE FLOOR TILE.

.71 - Structural Fillers. Structural concrete filler block or tile when included in strength calculations in ribbed floor construction shall have webs and shells not less than one (1) inch thick and shall develop an average compressive strength on the net area at least equal to that of the rib concrete. Such filler block shall meet the fire-resistive requirements of Article 9 and Table 5 for the specific use.

.72 - Removable Fillers. Removable forms or fillers shall be of adequate strength to insure integrity of the unit and safety in handling as approved by the Director.

SEC. 812.0 - GYPSUM UNITS.

SEC. 812.1 - COMPRESSIVE STRENGTH. Approved gypsum block or tile shall be manufactured from approved calcined gypsum with not more than twelve and one-half (12 1/2) per cent of combustible aggregate by weight, and shall develop a compressive strength of not less than seventy-five (75) pounds per square inch on the gross area.

SEC. 812.2 - LIMITATIONS OF USE. No gypsum tile or block shall be used in bearing walls, exterior walls, or in any location exposed to continuous dampness.

SEC. 813.0 - STRUCTURAL GLASS BLOCK UNITS.

SEC. 813.1 - LIMITATIONS OF USE. Solid or hollow approved structural glass blocks shall not be used in fire walls, party walls or fire division walls, or for load bearing construction. Such blocks shall be laid in mortar, or in approved metal frames as specified in Section 865.0.

SEC. 813.2 - MORTAR SURFACES. All mortar bearing surfaces of the block shall be precoated or prepared to insure adhesion between the mortar and glass.

SEC. 814.0 - ARCHITECTURAL TERRA COTTA.

SEC. 814.1 - PHYSICAL PROPERTIES. All approved architectural terra cotta units shall be formed with a strong, homogeneous body of hard burned, weather resisting clay which gives off a sharp metallic ring when struck, and shall meet the strength and durability requirements of the approved rules.

SEC. 814.2 - ANCHORAGE. All units shall be formed so as to engage securely with the structural frame or masonry wall.

SEC. 815.0 - NATURAL STONE.

Natural stone for masonry shall be sound and free from loose or

friable inclusions; and shall comply with the strength, durability and impact resistance specified in the approved rules for the intended use.

SEC. 816.0 - CAST STONE.

All approved cast stone shall be fabricated of portland cement and aggregates as herein specified or other approved materials of equivalent strength and durability for the intended use and shall be reinforced where necessary in accordance with the requirements of Section 847.0.

SEC. 817.0 - MORTAR MATERIALS.

SEC. 817.1 - PORTLAND CEMENT. Approved portland cement shall have the following compressive strength at twenty-eight (28) days when tested in two (2) inch by two (2) inch cubes of standard 1:3 mortar; for use in general concrete and masonry mortar, not less than three thousand (3,000) pounds per square inch; for use where moderate sulphate resistance is required, not less than three thousand pounds (3,000) per square inch; for high early strength not less than twenty-five hundred (2500) pounds per square inch at three (3) days; for use where low heat of hydration is specified, not less than two thousand (2,000) pounds per square inch; and where high sulphate resistance is required, not less than twenty-two hundred (2200) pounds per square inch. The corresponding tensile strengths of 1:3 standard mortar shall be respectively: Not less than three hundred fifty (350), three hundred twenty-five (325), two hundred seventy-five (275), and three hundred (300), pounds per square inch.

SEC. 817.2 - NATURAL CEMENT. Approved natural cement shall have a tensile strength when tested in 1:3 standard mortar of not less than seventy-five (75) pounds per square inch at seven (7) days and one hundred fifty (150) pounds per square inch at twenty-eight (28) days of age.

SEC. 817.3 - MASONRY CEMENT. Approved masonry cement using a 1:3 standard mortar shall have a compressive strength of not less than four hundred (400) pounds per square inch at seven (7) days and seven hundred fifty (750) pounds per square inch at twenty-eight (28) days of age.

SEC. 817.4 - QUICKLIME AND HYDRATED LIME. The compressive strength of lime for structural purposes, when tested in two (2) inch by two (2) inch cubes of 1:3 standard mortar shall be not less than one hundred seventy-five (175) pounds per square inch at seven (7) days of age.

SEC. 818.0 - MORTAR PROPORTIONS.

Mortar for masonry construction shall be mixed to a consistent workability in the specified proportions measured by volume with

clean fresh water free from acids, alkalis, oils or organic materials; and with approved aggregates composed of hard, strong, durable mineral particles well graded from fine to coarse, free from injurious amounts of acids, alkalis, oils, saline, organic and other deleterious substances in accordance with the approved rules. The volume of aggregate in mortar shall be at least twice the volume of cementitious materials.

SEC. 818.1 - STRENGTH CLASSIFICATIONS. The strength classification of a special mortar or special mix shall be determined by compressive strength tests with the materials and in the proportions representative of those to be used in actual practice. The allowable unit working stresses in the masonry shall not be more than one-sixth ($1/6$) of the average ultimate compressive strength of the test samples.

SEC. 818.2 - CEMENT MORTAR shall be composed of approved cement and of approved aggregate, to which may be added hydrated lime or lime putty not to exceed by volume twenty-five (25) per cent of the cement content. The average compressive strength of two (2) inch cubes shall not be less than twenty-five hundred (2500) pounds per square inch at an age of twenty-eight (28) days.

SEC. 818.3 - LIME MORTAR shall be composed of one (1) part of approved lime putty or hydrated lime, and a maximum of three (3) parts of approved aggregate. Cement may replace equal volumes of lime in lime mortar, provided the cement gaging is uniformly distributed by approved methods of mixing. The compressive strength of two (2) inch cubes shall not be less than one thousand (1,000) pounds per square inch at an age of twenty-eight (28) days.

SEC. 818.4 - CEMENT LIME MORTAR shall be composed of one (1) part of approved cement, to not more than one (1) part of approved lime putty or hydrated lime, and a maximum of six (6) parts of approved aggregate. The compressive strength of two (2) inch cubes shall not be less than fifteen hundred (1500) pounds per square inch at an age of twenty-eight (28) days.

SEC. 818.5 - SPECIAL MORTARS. The Director may approve other special masonry mortars which comply with the approved rules. When special masonry mortars are used in place of portland cement mortars they shall develop a tensile strength of not less than three hundred fifty (350) pounds per square inch at twenty-eight (28) days; and when used in place of cement lime mortar, a tensile strength of not less than one hundred fifty (150) pounds per square inch at twenty-eight (28) days of age.

SEC. 819.0 - CONCRETE AGGREGATES.

SEC. 819.1 - AGGREGATE QUALITY. Concrete aggregate conforming to the approved rules shall be accepted for use in ordinary material procedure; or when shown by test or service to produce the required

strength, durability, weather resistance, fire-resistance, and wearing qualities for use with higher stresses shall be accepted. All aggregates shall meet the standard specifications for organic impurities, soundness, and mortar strength, and when applied for use where high resistance to wear is essential in pavements and heavy duty floors, shall not lose more than twenty-five (25) per cent of their weight in the abrasion test.

SEC. 819.2 - FIRE-RESISTANCE. Coarse aggregates shall be classified in respect to fire-resistance, and the thickness of protective covering for the specific grade of concrete in fire-resistive construction shall comply with the performance requirements of Article 9 and Table 5.

Grade 1. Grade 1 shall mean concrete in which the aggregate consists of approved blast furnace slag, cinders, limestone, trap rock and materials of similar fire-resistive characteristics;

Grade 2. Grade 2 shall mean concrete in which the aggregate consist of granite, quartzite, siliceous gravel, sandstone, gneiss and other materials of similar fire-resistive characteristics.

SEC. 819.3 - SIZE OF AGGREGATES. Fine aggregates shall meet all the requirements of the approved rules and shall be well graded from fine to coarse. Coarse aggregates shall not exceed one-fifth ($1/5$) of the narrowest dimension between sides of the form or three-fourths ($3/4$) of the minimum clear spacing between reinforcing bars.

SEC. 819.4 - LIGHTWEIGHT AGGREGATES. Pumice, lava, tufa, processed slag, coke, burnt clay and similar aggregates shall meet all the requirements of the approved rules and shall be classified in the respective fire-resistive grade as determined by test. The minimum strength of mortar made with approved lightweight aggregates shall not be less than seventy (70) per cent of that of standard sand mortar.

SEC. 820.0 - READY-MIX CONCRETE.

SEC. 820.1 - CONTROL. Ready-mixed concrete shall conform to this Code and the approved rules.

SEC. 820.2 - TRANSPORTATION. Ready-mixed concrete shall be transported in approved conveyances which insure delivery of the concrete at the site in a plastic, workable and unhardened state. The maximum amount of concrete hauled in an agitator shall not exceed the approved rating of the conveyance; and the period of delivery shall not exceed the time in which loss of plasticity may occur and generally not more than one and one-half ($1\frac{1}{2}$) hours.

SEC. 821.0 - STRUCTURAL WOOD GLUES.

SEC. 821.1 - QUALITY OF GLUE. Glues used in structural assemblies

of built-up or laminated lumber sections shall develop the full strength of the wood, shall not produce decomposition or deleterious chemical reaction of the wood structure and shall not attract vermin.

SEC. 821.2 - MANUFACTURERS REQUIREMENTS. Structural glues shall be handled, mixed and applied as prescribed by the manufacturer and the glueing shall be done only by an approved fabricator in accordance with the approved rules.

SEC. 821.3 - TYPES OF GLUE. Structural glues shall be classified as:

Group 1 Glues for general interior use or for exterior use protected against the weather and shall include casein glue with mold resistant preservative, urea resin glue, phenol or phenol resorcinol resin glue and any other glue meeting the requirements of the approved rules for such use.

Group 2 Glues for use under full exposure to the weather or for interior use when subjected to high humidity and shall include resorcinol resin, phenol resin, melamine resin glues and any other glue meeting the requirements of the approved rules for such use.

SEC. 822.0 - INTERIOR LATHING AND PLASTERING.

All interior lathing and plastering shall conform to the provisions of Section 824.0, Section 825.0 and Section 826.0 and the approved rules, except as may be otherwise provided by statute.

SEC. 822.1 - LATH. All lath shall be nailed, tied, laced or otherwise effectively secured.

SEC. 822.2 - ACCESSORIES. All metal accessories including corner beads, base screeds, picture moulds and metal casing shall be fabricated from not less than No.22g zinc coated or other approved corrosion resistive sheets; and shall be provided with prefabricated or expanded deformations or otherwise formed to insure complete embedment and keying of the plaster.

SEC. 823.0 - EXTERIOR LATHING AND STUCCO.

All exterior lathing and plastering and stucco work shall be installed as herein provided and in accordance with the approved rules.

SEC. 823.1 - REINFORCEMENT. All stucco work shall be reinforced with approved metal reinforcement except when applied directly to a masonry or concrete base. No permanent wood or metal screeds, grounds or corner beads shall be used.

.11 - Weight. Flat expanded or self furring lath shall weigh not less than three and four-tenths (3.4) pounds per square yard. Wire fabric shall weigh not less than one and eight-tenths (1.8) pounds per square yard.

.12 Mesh. Mesh or wire fabric shall not be less than three-quarter ($3/4$) inches in the small dimension nor more than three (3) inches in the large dimension and the total area of opening shall not be more than four (4) square inches.

.13 Corrosion Resistance. Lath and fabric shall be cut from zinc coated steel sheets, or shall be coated with zinc or rust inhibitive paint; and, if expanded, shall be painted after cutting; or the lath shall be manufactured from approved rust resisting alloys.

.14 Masonry Base. When installed on a masonry base which is protected with bituminous surfacing, stucco shall be reinforced with approved metal lath or fabric as herein specified.

SEC. 823.2 - SHEATHING. Except in back plastered construction, the wood or steel studs shall be covered with approved sheathing.

SEC. 823.3 - BACK PLASTERED CONSTRUCTION. In back plastered construction, when spacing of studs exceeds sixteen (16) inches, approved horizontal incombustible cross furring at not more than sixteen (16) inch centers shall be first applied.

SEC. 823.4 - APPLICATION ON MASONRY BASE. When applied directly to masonry or monolithic concrete, the surfaces shall be roughened, hacked or bush hammered to provide bond and a preparatory dash coat of portland cement grout shall be applied.

SEC. 823.5 - INSTALLATION. All stucco work shall consist of approved mixtures of portland cement, masonry cement or lime portland cement stuccos and shall be applied in accordance with the approved rules. The mix for the finish coat shall develop not less than two thousand (2,000) pounds per square inch compressive strength at twenty-eight (28) days of age. At all times during application and for a period of not less than forty-eight (48) hours after application of each coat, provision shall be made to keep stucco work above fifty (50) degrees Fahrenheit.

SEC. 824.0 - METAL FURRING AND STUDDING.

SEC. 824.1 - SIZE. Furring and studding shall consist of approved hot or cold formed metal shapes or other approved incombustible materials. When of metal, such furring shall have a minimum depth of three-quarter ($3/4$) inches for partition heights to twelve (12) feet, and one (1) inch for heights to eighteen (18) feet. Ceiling furring shall be installed with a maximum span of five (5) feet and special provision shall be made to sustain the load of heavy, ornamental ceiling and cove work.

SEC. 824.2 - INSTALLATION. Furring and studs shall be securely fastened at top and bottom of partitions and shall be braced at intermediate points where necessary. Ceiling furring and runner bars

shall be attached or suspended from the structural floor or roof supports with corrosion resistive hangers in accordance with the approved rules.

SEC. 824.3 - SUSPENDED CEILINGS. The hangers, runners and cross-furring of suspended ceilings shall be designed to support the weight of the contributory area of the ceiling construction and all other special loads supported thereby such as vent ducts and air-conditioning equipment. When such ceilings form an integral part of a fire-resistive floor construction, they shall comply with Section 914.0 and 915.0.

SEC. 825.0 - PLASTERING MATERIALS.

All sand, quicklime and hydrated lime, hair binders, gypsum, keene and portland cements and other materials used in plastering shall be stored, protected and applied in accordance with the approved rules.

SEC. 825.1 - MASONRY CEMENTS. Approved portland cements used in plastering may have admixtures of approved plasticity agents added in the manufacturing process or when mixing the plaster at the site in the proportions specified by the approved rules. All premixed masonry cements with slag or other pozzolanic bases shall conform to the approved rules and shall be identified with the approved label.

SEC. 825.2 - GYPSUM PLASTER. All approved gypsum plasters shall be received at the site in the manufacturers' original packages with the approved label and shall be mixed and applied in accordance with his specifications. Such prepared plaster materials shall meet the following minimum tensile strength specifications:

Ready - sanded scratch plaster.....	125	lbs.	sq.	in.
Ready - sanded brown plaster.....	75	"	"	"
Gypsum neat plaster.....	125	"	"	"
Gypsum wood - fibered plaster.....	125	"	"	"
Calcined Gypsum finishing coat.....	200	"	"	"

SEC. 825.3 - INSTALLATION.

.31 - Inspection. The Director shall be notified not less than twenty-four (24) hours in advance of all plastering work, and no plaster shall be applied until after the lathing or other plaster base has been inspected and approved by him.

.32 - Weather Protection. When plastering work is in progress, the building or structure shall be temporarily enclosed to protect the plaster; and in freezing weather the enclosure shall be heated.

SEC. 825.4 - MASONRY BASE. Unpainted masonry surfaces which are to be plastered shall be thoroughly broomed off before plaster is applied. Stone concrete surfaces shall be washed and prepared by scoring or keying, and all loose particles and dust shall be removed.

Where gypsum plaster is to be used, an approved bond coat shall be first applied to the concrete base.

SEC. 826.0 - PLASTER BASES.

SEC. 826.1 - FIBER BOARDS. Approved fiber boards shall comply with Section 827.0 and the surface of fiber boards used as a plaster base shall be of a rough, fibrous texture to insure mechanical and suction bond. Such boards shall develop the ultimate bond, tensile and transverse tests specified in the approved rules.

SEC. 826.2 - GYPSUM LATH. Except when greater thickness is required for fire-resistance under the provisions of Article 9, or as herein required, gypsum boards used for plastering shall be not less than five-sixteenth ($5/16$) inch thick. When used for wall or sheathing boards, they shall comply with Section 858.2.

SEC. 826.3 - PERFORATED GYPSUM LATH. When pierced with openings to secure adequate mechanical key, gypsum lath shall be not less than three-eighths ($3/8$) inch thick. The openings shall be equivalent to three-quarter ($3/4$) inch diameter holes for each sixteen (16) square inches of lath surface; or the lath shall be perforated as determined by full size tests for load, strength and fire-resistance ratings.

SEC. 826.4 - METAL CLOTH. The dimensions and size of expanded, ribbed and sheet metal lath shall comply with the approved rules. Such lath shall provide a key sufficient to retain the plaster but shall weigh not less than two and one-half ($2\ 1/2$) pounds per square yard. Such lath shall be fabricated from zinc coated copper alloy, or other approved corrosion resistive metals; and shall be pierced to provide a mechanical key to retain the plaster by slitting, punching, expansion or other perforation with or without partial expansion, and shall be coated after cutting with rust inhibitive paint.

SEC. 826.5 - WIRE LATH. All types of wire lath shall comply with the approved rules. Such lath shall be fabricated from woven or welded galvanized wire, varying from No. 16g with a maximum mesh opening of two (2) inches to No. 20g with a maximum mesh opening of one-half ($1/2$) inch.

SEC. 826.6 - PAPER BACKED LATH. Expanded metal or wire fabric lath backed with integral approved paper shall be fabricated from not lighter than No. 24g metal with maximum opening of one and one-eighth ($1\ 1/8$) inches by two and one-half ($2\ 1/2$) inches or No. 16g wire with not more than two (2) by two (2) inch mesh.

SEC. 826.7 - COMBUSTIBLE LATH. No wood or other combustible lath shall be applied to wood studs or other combustible base more than one (1) story in advance of scratch coat plastering. Wood lath shall be erected horizontally on walls and partitions and ceiling lath shall run in one direction only; but in neither case shall it extend

through cross partitions from room to room. Wood lath shall be not less than one (1) inch wide nor less than five-sixteenth (5/16) inch thick and shall comply with all the requirements of the approved rules.

SEC. 827.0 - FIBER BOARDS.

Insulating boards manufactured from wood or other vegetable fibers used as wall boards or plaster bases shall be vermin proof, resistant to rot producing fungi and water repellent in accordance with the approved rules. When required under the provisions of Article 9 of this Code, the boards shall be protected or treated to develop the required fire-resistance or flame resistance.

SEC. 827.1 - MANUFACTURE. Multi-ply boards shall be bonded under pressure with approved moisture resistant cements or glues so as to be homogeneous in structure, free from cracks or other harmful defects which will impair the strength, fire or sanitary safety.

SEC. 827.2 - JOINTING. To insure tight fitting assemblies, edges shall be manufactured square or shiplapped, beveled, tongue and grooved or U-jointed; and shall be installed in accordance with the approved rules.

SEC. 827.3 - USES.

.31 - Plaster Base. When used as a plaster base, fiber boards shall be permitted in fire-resistive construction complying with the test provisions of Article 9.

.32 - Roof Insulation. When used as roof insulation, fiber boards shall be protected with an approved type of fire-resistive roof covering.

.33 - Wall Insulation. Unless treated to be incombustible in fire wall and fire division construction, the boards shall be cemented directly to the face of the masonry or other incombustible base, and shall be protected with a minimum of two (2) inches of approved masonry veneer directly anchored to the base without intervening air spaces.

.34 - Sheathing. Fiberboard when used for wall sheathing in wood frame construction shall be not less than seven sixteenth (7/16) inch thick and conform to the specifications given for Class E board in Commercial Standard CS 42-49 of the United States Department of Commerce.

SEC. 828.0 - PLYWOOD

SEC. 828.1 - QUALITY. All plywood shall be identified as to veneer grade and glue type by the manufacturers' identification marks, and the working stresses shall conform to accepted engineering practice in accordance with the approved rules.

SEC. 828.2 - TYPES. Plywood for interior use shall be of the moisture resistant or exterior type; plywood for unprotected exterior use and for the weather resistant covering of exterior walls shall be of the exterior waterproof type.

SEC. 828.3 - SHEATHING SPANS AND THICKNESS

.31 Horizontal. Maximum spans of horizontal load bearing plywood sheathing and roof decking shall be limited by the allowable stresses and deflection for the design live load, but shall not be less than the following thickness when laid parallel to the span.

5/16 inch thickness	16 inch span
3/8 " " 	20 " "
1/2 " " 	24 " "
5/8 " " 	30 " "

.32 Vertical. Maximum stud spacing for vertical sheathing and for use in stress-skin panel or other prefabricated constructions shall be determined by accepted engineering analysis or by the tests prescribed for prefabricated assemblies in Section 804.6.

ARTICLE 8 - MATERIALS AND GENERAL CONSTRUCTION REQUIREMENTSPART BSTEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTIONSEC. 830.0 - STEEL CONSTRUCTION

Steel construction used in all buildings and structures shall be fabricated from materials of uniform quality, free from defects that would vitiate the strength or stability of the structure. Workmanship, design, fabrication, transportation and erection shall conform to accepted engineering practice and in accordance with the approved rules.

SEC. 830.1 - PLANS. Design plans drawn to an appropriate scale shall show the sizes, sections and relative locations of all structural members, with floor levels, column centers and all offsets fully dimensioned; and the design loads shall be clearly indicated for all parts of the building or structure.

SEC. 830.2 - DESIGN. Due provision shall be made in the design for temporary stresses occurring during erection and for the influence of special loads producing impact or vibrations as provided in Section 710.4. Stresses caused by eccentric loading shall be fully provided for; and all eccentric details shall be shown on the design and shop drawings.

SEC. 830.3 - SHOP DRAWINGS. Complete shop drawings shall be prepared in conformity with best modern practice in advance of the actual fabrication. Such drawings shall clearly distinguish between shop rivets, field rivets, bolts and welds in all connections and details.

SEC. 830.4 - MINIMUM THICKNESS OF METAL. The minimum thickness of metal except in linings and fillers and in the webs of rolled beams and channels shall be as prescribed herein.

.41 - Primary Interior Members. Primary members for interior construction fully accessible for repainting shall be not less than twenty-hundredths (0.20) inches thick.

.42 - Primary Exterior Members. Primary members for exterior construction or located in the exterior walls of a building, except lintels spanning openings of less than eight (8) feet, shall be not less than twenty-three hundredths (0.23) inches thick when protected against corrosion with an approved waterproofing or mastic, or when solidly encased with a minimum of two (2) inches of approved concrete or otherwise protected in accordance with the approved rules; and when not protected against corrosion as herein required, shall be not less than thirty-hundredths (0.30) inches thick.

.43 - Permanently Sealed Members. All members for interior and exterior construction, which are permanently sealed against moisture or air changes shall be not less than three-sixteenths ($3/16$) inch thick.

.44 - Interior Secondary Members. Secondary members, except as provided in Sections 831.0, 832.0 and 833.0 for light gage and steel joist constructions, shall be not less than fifteen-hundredths (0.15) inch in thickness.

.45 - Special Construction. Secondary steel members in floor and roof construction, the strength of which cannot be determined by accepted engineering analysis and methods of design, may be fabricated of materials of less thickness than herein prescribed when approved by the Director after being tested and in accordance with the approved rules. All steel construction not meeting the requirements of Section 830.4 shall be construed and limited as light gage steel construction.

SEC. 830.5 - WELDING. All welded construction shall be designed and supervised by engineers experienced and skilled in welded construction and the welded work shall be performed by qualified and approved operators in accordance with the approved rules.

SEC. 830.6 - PAINTING.

.61 - Shop Coat. After inspection and approval, all steel work except work which is to be welded or encased in approved concrete or fabricated of noncorroding alloy steel, shall be thoroughly cleaned and given one coat of approved metal protection well worked into the joints and other open spaces and applied only to dry surfaces.

.62 - Inaccessible Parts. Parts inaccessible after assembly, shall be given two (2) coats of shop paint of different colors.

.63 - Welded Contact Surfaces. No surfaces which are to be riveted or welded shall be painted. Parts which are to be shop welded shall receive the shop coat after shop welding is finished. Parts which are to be field welded shall be protected with linseed oil or other approved protection before shipment.

.64 - Field Coat. After erection all steel work, except when encased in approved concrete or fabricated of noncorroding alloy steel, shall be given a field coat of approved metal protection of distinguishing color. Welded parts after erection shall be given two (2) coats of approved standard protection. All field welds and field rivets and bolts, and all serious abrasions to the shop coat shall be spot painted before the final field coat is applied.

SEC. 831.0 - LIGHT GAGE STEEL CONSTRUCTION

SEC. 831.1 - DESIGN. The design of all light gage steel members

and assembled wall and floor panels, used alone or in combination with other structural steel members or incombustible materials, shall be based on the allowable unit stresses and maximum deflections specified herein and in the approved rules.

.11 - Deflections. Under the design working load, the deflection shall not be greater than specified in Section 805.0.

SEC. 831.2 - MATERIALS. All flat rolled carbon steel less than three-sixteenth ($3/16$) inch thick for cold or hot formed members shall be classified as Grade A with a minimum yield point of twenty-five thousand (25,000) pounds per square inch, Grade B with a minimum yield point of thirty thousand (30,000) pounds per square inch, and Grade C with a minimum yield point of thirty-three thousand (33,000) pounds per square inch. All other steel used in combination with such construction shall comply with the standard specifications for steel structural members for riveted and bolted connections and for arc and gas welding listed in Appendix B for building construction. Noncorrodible metals and alloy steels used in light gage steel construction shall comply with the requirements of Section 837.0 and Section 838.0.

SEC. 831.3 - ROOF DECKING. In steel roof decking formed of metal of not less than No. 22g, with longitudinal ribs spaced not over six (6) inches on center, the effective width of the top flange shall be limited to the following ratio of the spacing between ribs:

No. 18g.....	3/4 flange width
No. 20g.....	5/8 flange width
No. 22g.....	1/2 flange width

Such decking shall not be used on spans exceeding ten (10) feet unless approved by test and shall be designed as of simple span, unless the deck units extend continuously over three (3) or more spans and are rigidly welded to each support.

SEC. 831.4 - MINIMUM THICKNESS OF METAL. The minimum permissible thickness of steel for light gage members shall be based on the use of the member as herein prescribed:

Siding and Sheathing.....	No. 26g
Ribbed Steel Roof Construction.....	No. 22g
Flooring Forms.....	No. 20g
Steel Floors.....	No. 18g
Studs, Joints, Purlins, Structural Ribs	
Horizontal Girts And Furring Members.....	No. 18g

SEC. 831.5 - TESTS. When not capable of design by accepted engineering analysis, the Director shall require tests of the individual or assembled structural units and their connections as prescribed in Sections 804.0 and 805.0. At least three (3) specimens truly representative of the construction to be used in practice shall be subjected

to the prescribed test and the mean of the results shall determine the safe working value; provided that any individual test varying more than fifteen (15) per cent from the mean value shall cause rejection of the series, and a new series shall be tested when practicable.

SEC. 831.6 - PROTECTION.

.61 - Shop Coat. All individual structural members and assembled panels of light gage steel shall be protected against corrosion with an approved rust inhibitive shop coat of zinc chromate or asphalt, or by galvanizing, or with other approved rust resisting paint or enamel, or such members shall be manufactured of approved alloy steel or other corrosion resistive metal approved by the Director.

.62 - Field Coat. After erection, except when encased in concrete made of noncorrosive aggregates, or when fabricated of approved corrosion resistive metals, all steel shall be given an additional coat of approved metal protection.

.63 - Siding. Exposed siding or sheathing shall be fabricated of approved corrosion resistive metals and shall be protected at the ground level as required by the approved rules, but in no case for a height less than twelve (12) inches.

SEC. 832.0 - FORMED STEEL CONSTRUCTION

Formed steel floor construction erected between primary supporting beams or girders of the structural frame or between primary beams and bearing walls shall conform to the applicable provisions of Section 831.0 for light gage steel construction and the requirements of this section.

SEC. 832.1 - DESIGN. Secondary floor systems when designed to transmit the horizontal shears due to wind or other lateral forces shall be rigidly welded to the structural beam supports or shall be securely anchored to the concrete frame so as to resist all primary and secondary stresses.

SEC. 832.2 - FIRE-RESISTIVE FLOORS. When designed for use in fire-resistive construction formed steel floors shall be protected with a top deck of approved concrete or other approved fill and with a suspended ceiling of the required fire-resistance meeting the requirements of Section 914.0. The top concrete or other approved deck when installed to insure combined action of the assembly, may be included in calculations for strength of the composite member.

SEC. 832.3 - WATERPROOFED SPANDRELS. In skeleton frame construction, the formed steel shall be supported on, and anchored or welded to the spandrel beams, and shall be waterproofed and protected from the weather to prevent corrosion of the floor plate as approved by the Director.

SEC. 832.4 - HEIGHT LIMITATIONS. When used as the secondary floor system in structural concrete or steel frames, designed and constructed to resist all vertical and horizontal moments and shears resulting from lateral forces, formed steel floor systems may be used in all buildings within the height and area limitations of Table 6 or as limited by the requirements of the zoning law.

SEC. 833.0 - STEEL JOIST CONSTRUCTION

Steel joists may be used as secondary members in floor and roof construction, other than around stairwells, shafts and other floor openings, in accordance with the approved rules.

SEC. 833.1 - DESIGN.

.11 Webs. Web members shall be adequate to safely resist the maximum shear which may result from concentrated loads within the structural capacity of the joists; and shall be attached directly to chord members by rivets, or by fusion or resistance welds; except that in expanded joists, a portion of the web metal may be left intact to form a connection to the flange.

.12 Bridging. The bridging shall be capable of transferring directly a concentration of not less than five hundred (500) pounds from any joist to the two (2) adjoining joists at each line of bridging; and each joist when erected and bridged shall be capable of sustaining a concentrated load of eight hundred (800) pounds at any panel point.

.13 Partitions. The joists shall be designed to support the dead load of partitions wherever they occur in addition to all other imposed dead and live loads.

.14 Secondary Stresses. Connections of the various members shall be designed with the minimum possible eccentricity and all secondary stresses shall be included with primary stresses in the design.

SEC. 833.2 - MATERIALS. Hot rolled steel shall conform to the applicable standards for steel for bridges and buildings and strip or sheet steel to the standards for flat rolled carbon steel.

SEC. 833.3 - MAXIMUM LOADS AND SPANS. In buildings for storage, mercantile, industrial and business uses which are subject to heavy concentrations, or which involve moving loads, the use of steel joists for floors shall be limited to live loads not exceeding one hundred twenty (120) pounds per square foot. The top slab and the lateral support of the joists shall be designed of sufficient strength and rigidity to meet the requirements of Article 7. The maximum span shall not exceed twenty-four (24) times the depth of the joist; and the maximum spacing shall be governed by the safe span of the top deck or flooring over the joist, but in no case shall

the spacing exceed twenty-four (24) inches for floors and thirty (30) inches for roofs; except that steel joists may be used to support wood or sheet metal roof decks with a maximum spacing of seven (7) feet.

SEC. 833.4 - MINIMUM THICKNESS OF METAL. The minimum thickness of strip steel joists shall be No. 18 gage, and of joists fabricated of rolled steel sections shall be twelve-hundredths (0.12) inch.

SEC. 833.5 - ANCHORAGE. All joists shall be anchored to supports so as to prevent dislodgement during erection, and such contact elements shall be bolted or welded; except that in residence buildings with a maximum height of four (4) stories, the joists may be anchored to steel supports with not less than three-sixteenth ($3/16$) inch round bars fastened over the flange of the support.

SEC. 833.6 - PROTECTION. Painting of steel joists shall be in accordance with the requirements of Section 831.6 for light gage steel construction; or the joists shall be dipped in an approved hot asphalt, or shall be protected by dipping or spraying with two (2) coats of approved cold asphalt at the place of manufacture.

SEC. 833.7 - HEIGHT LIMITATIONS. When the structural frame is designed to resist all horizontal and vertical moments and shears due to lateral forces, and the secondary system consists of steel joists welded to the supporting beams and girders of the frame, steel joist construction may be used in all buildings within the height limits of Table 6 provided the fire-resistance rating of the floor construction is not less than two (2) hours.

SEC. 834.0 - REINFORCING STEEL

Metal reinforcement for reinforced concrete, reinforced gypsum concrete, and reinforced brickwork shall comply with the requirements of this section and the approved rules.

SEC. 834.1 - DESIGN.

.11 - Allowable Stresses. The working stresses specified in Appendix K, and the approved rules, shall not be exceeded.

.12 - High Yield Steels. When the yield point of reinforcing bar steel is fifty thousand (50,000) pounds per square inch or more the Director shall approve tension stresses in bending and compression stresses in vertical column reinforcement of not more than forty (40) per cent of the minimum yield point; but such stresses shall not be more than thirty thousand (30,000) pounds per square inch.

.13 - Compression Reinforcement In Flexure. The unit allowable compression stress in reinforcing bar steel shall not be more than twice the ratio of the modulus of elasticity of the steel to that

of the concrete times the compressive stress in the concrete, but shall not exceed the allowable tensile stress herein established in the reinforcement.

SEC. 834.2 - IDENTIFICATION.

.21 - Marking. All reinforcing bars shall be rolled with raised symbols or letters impressed on the metal, identifying the manufacturing mill and the grade of material.

.22 - Tagging. All bundles or rolls of cold drawn steel wire reinforcement and of one-quarter (1/4) inch rounds shall be securely tagged to identify the manufacturer and the grade of steel.

SEC. 834.3 - COLUMN REINFORCEMENT.

.31 - Structural Steel Sections. The allowable unit stress on structural steel column sections shall not be more than sixteen thousand (16,000) pounds per square inch.

.32 - Cast Iron Sections. All cast iron used as reinforcement in combination with concrete shall be of pit cast water pipe grade complying with the approved rules and the allowable unit stress shall not be more than ten thousand (10,000) pounds per square inch.

.33 - Steel Pipe Sections. The allowable unit stress on steel pipe used in concrete filled pipe columns shall not be more than forty-five (45) per cent of the yield point of the steel but such stress shall not be more than twenty-thousand (20,000) pounds per square inch.

SEC. 834.4 - TESTS. When unidentified reinforcement is approved for use, not less than three (3) tension and three (3) bending tests shall be made on representative specimens of the reinforcement from each shipment and grade of reinforcing steel proposed for use in the work.

SEC. 835.0 - CAST STEEL

SEC. 835.1 - MATERIALS. Carbon steel castings for building construction shall be cast from open hearth steel conforming to the requirements of the approved rules. All castings shall be free from injurious blow holes or other defects which impair the structural strength.

SEC. 835.2 - WELDING CAST STEEL. Cast steel designed for use in welding shall be of weldable grade complying with the approved rules.

SEC. 836.0 - CAST IRON

SEC. 836.1 - MATERIALS. Cast iron for building construction shall be a good foundry mixture providing clean, tough, gray iron, conforming to the approved rules for medium gray iron castings, and shall be free

from serious blowholes, cinder spots and cold shuts.

SEC. 836.2 - LIMITATIONS OF USE. Cast iron columns shall not be used where subject to eccentric loads which produce a net tension in the section, nor in any part of a structural frame which is required to resist stress due to wind.

SEC. 836.3 - MULTISTORY COLUMNS. Cores of superimposed columns shall be of the same dimensions above and below a splice. Where a column of smaller diameter is superimposed over one of larger diameter, the larger column shall be tapered down to the smaller diameter over a length of not less than six (6) inches.

SEC. 836.4 - THICKNESS OF METAL. The minimum thickness of cast iron shall be not less than herein specified:

.41 - Columns. In columns, the metal shall be not less than one-twelfth ($1/12$) the smallest dimension of the cross section and in no case less than three-quarter ($3/4$) inch;

.42 - Brackets And Bases. In bases and flanges, the metal shall be not less than one (1) inch thick reinforced with fillets and brackets;

.43 - Lintels. In lintels, the metal shall be not less than three-quarter ($3/4$) inch thick and shall be limited to use on spans of not more than six (6) feet.

SEC. 836.5 - INSPECTION. No cast iron column shall be erected in place before it has been inspected and approved by the Director. The use of any cast iron column in which blow holes or imperfections reduce the effective area of the cross section more than ten (10) per cent shall be prohibited. Where required by the Director, three-eighth ($3/8$) inch round inspection holes shall be drilled in the section to expose the thickness of metal for inspection purposes.

SEC. 837.0 - SPECIAL STEELS

SEC. 837.1 - DESIGN. Silicon, nickel and other corrosion resistive alloy and high strength steels used in the design and construction of buildings and structures shall conform to the approved rules. The maximum allowable unit working stress in tension for special steels shall not exceed five-eighths ($5/8$) of the yield point strength; and all other stresses shall be proportioned to the corresponding working stresses in structural steel design.

SEC. 837.2 - IDENTIFICATION. All special steel shall be marked with an embossed symbol or other impression to clearly distinguish it from all other classes of steel.

SEC. 837.3 - WORKMANSHIP AND FABRICATION. Shop practices and fabrication methods shall conform to the requirements of the approved

rules. Silicon steel over seven-eighths ($7/8$) of an inch in thickness and nickel steel over one-half ($1/2$) inch in thickness shall be drilled; steel of less thicknesses may be sub-punched and reamed. Sheared edges on all main materials and on main gusset plates shall be planed to a depth of at least one-eighth ($1/8$) of an inch.

SEC. 838.0 - LIGHT WEIGHT METAL ALLOYS

Aluminum, magnesium, and other light weight metals and alloys may be used in the design and construction of buildings or structures only after special approval of the Director, in accordance with the approved rules.

SEC. 838.1 - ALUMINUM ALLOYS.

.11 Structural Properties. For the purpose of structural design, the weight of aluminum alloys shall be assumed to be one hundred seventy-four (174) pounds per cubic foot and the modulus of elasticity, ten million (10,000,000) pounds per square inch.

.12 Workmanship And Fabrication. Quality and accuracy of workmanship shall comply with standard specifications for structural steel construction and the manufacturer's recommendations for cutting, punching, drilling, riveting and welding. Allowance shall be made for the annealing effect of heat treatment and flame cutting shall be prohibited.

.13 Protection. Contact metal surfaces shall be painted before assembly with an approved primer and all other surfaces shall be given two (2) shop coats of an approved protective. After erection, a field coat of approved aluminum paint or other approved protective coating shall be applied to the completed structure.

SEC. 838.2 - MAGNESIUM ALLOYS.

.21 Structural Properties. For the purposes of structural design, the weight of magnesium alloys shall be assumed to be one hundred twelve (112) pounds per cubic foot and the modulus of elasticity, six million five hundred thousand (6,500,000) pounds per square inch.

.22 Workmanship And Fabrication. All materials more than one-quarter ($1/4$) inch in thickness shall be sawed. Thinner sheets may be machined with special approved shears. All riveting shall be done with aluminum alloy rivets in drilled or punched holes. Welding shall be done according to manufacturer's recommendations, and special precautions shall be taken against buckling and warping of thin sheets and seam welds. Machining temperatures in excess of twelve hundred (1200) degrees Fahrenheit shall be avoided. Special precautions shall be taken at all times during manufacture and fabrication to keep finely divided forms of magnesium away from open flames and hot sparks.

.23 - Protection. All magnesium alloy structural members shall be protected by painting or chemical surface treatments of dischromate or other approved coating.

SEC. 839.0 - MASONRY WALL CONSTRUCTION

SEC. 839.1 - DESIGN. All masonry construction shall comply with the provisions of this article governing quality of materials and manner of construction; and shall be of adequate strength and proportions to support all superimposed loads within working stresses prescribed in this Code and the approved rules.

SEC. 839.2 - TYPES OF MORTAR. All masonry mortars shall be of adequate strength, weather resistance and durability for the proposed use and loads to be supported as provided in Sections 817.0 and 818.0 and herein specified.

.21 - In footings, foundation walls, cavity walls, parapet walls and in masonry linings of existing walls, only cement mortar or the approved equivalent shall be used;

.22 - In solid masonry walls above grade exceeding thirty-five (35) feet in height, in curtain and panel walls, cement, cement lime mortar or the approved equivalent shall be used;

.23 - In bearing walls less than thirty-five (35) feet in height lime mortar may be used provided it is adequate in strength for the loads to be supported;

.24 - Glass block masonry shall be laid in lime cement mortar or its approved equivalent;

.25 - Partition blocks of structural clay tile or gypsum may be laid in cement, cement lime, or gypsum mortars or other approved equivalents.

SEC. 839.3 - PREPARATION FOR ADEQUATE BOND. All masonry units other than gypsum units showing appreciable absorption shall be thoroughly wet before laying in the wall.

SEC. 839.4 - PRECAUTIONS AGAINST FREEZING. All masonry shall be protected against freezing for not less than forty-eight (48) hours after installation; and shall not be constructed below twenty-eight (28) degrees Fahrenheit on rising temperatures or below thirty-six (36) degrees Fahrenheit on falling temperatures, without temporary heated enclosures or without heating materials or other approved precautions necessary to prevent freezing. No frozen materials shall be used nor shall frozen masonry be built upon.

SEC. 839.5 - INCORPORATION OF COMBUSTIBLES. No lumber or other combustible material except nailing blocks and ornamental timber to an extent permitted by the chasing restrictions of Section 843.0 and the provisions of Section 900.2 shall be incorporated in masonry walls.

SEC. 840.0 - BONDING OF WALLS

SEC. 840.1 - SOLID WALLS. In solid masonry walls, the facing and backing shall be bonded together with at least one (1) full length header course in each seven (7) courses, or not less than one (1) full length header shall be provided in each one and one-half (1 1/2) square feet of wall surfaces. The courses of face-brick and backing-brick shall be brought to a level at least once in seven (7) courses of height of backing and the header bricks from opposite faces shall break joints at the inner ends in alternate courses.

SEC. 840.2 - COMPOSITE WALLS. Combinations of hollow and solid masonry units forming a composite wall shall be constructed with not less than four (4) inches of solid masonry on the exterior face exposed to the weather; and shall be bonded as required in Section 867.0 for unit masonry facing. The headers shall extend not less than four (4) inches into the backing; and all joints between the units and the space between facing and backing shall be solidly filled with mortar.

SEC. 840.3 - HOLLOW UNIT WALLS. In walls of hollow masonry units, stretcher courses shall be bonded at vertical intervals of not more than thirty-five (35) inches by lapping at least four (4) inches, or with units at least fifty (50) per cent greater in thickness than the unit below at vertical intervals of at least eighteen (18) inches. All units shall break joints with the units next below, and the masonry bond shall be equivalent to one (1) bonding course to each three (3) stretcher courses.

SEC. 840.4 - HOLLOW WALLS. In hollow walls of solid masonry units, facing and backing shall be bonded together with headers or equivalent masonry bonding units with not less than one (1) header unit for each one and one-half (1 1/2) square feet of wall surface to insure that both parts of the wall will exert common action under the load.

SEC. 840.5 - CAVITY WALLS. In cavity walls, facing and backing shall be tied together with noncorrodible metal or other approved bonding ties of corrosion resistive materials embedded in the horizontal joints, which provide not less than one (1) tie for each one and one-half (1 1/2) square feet of wall surface, and similar perimeter ties shall be provided around all wall openings at not more than two (2) feet centers.

SEC. 840.6 - BUTTRESSES AND PIERS. All buttresses shall be bonded into the wall by a masonry bond. The piers and buttresses shall have sufficient strength and stability with sufficient bonding or anchorage between the walls and the supports to resist wind pressure and suction.

SEC. 840.7 - INTERSECTING WALLS. The intersection of two (2) walls shall be bonded by at least fifty (50) per cent of the units when the two (2) walls are laid together; and when carried up separately the intersection shall be toothed with eight (8) inch maximum offsets

and shall be provided with approved metal anchors at intervals of not more than four (4) feet.

SEC. 840.8 - ERECTION PRECAUTIONS. Where hollow walls decrease in thickness, a course of solid masonry or a continuous bearing plate shall be interposed between the thicker and thinner sections. No wall shall be built up more than twenty-five (25) feet in advance of other walls of the same building or structure unless supported independently at each floor; and all walls shall be temporarily braced during erection.

SEC. 841.0 - LATERAL BRACING OF BEARING WALLS

All masonry walls shall be laterally supported by horizontal bracing of floor and roof framing and vertical bracing of columns, buttresses or cross walls at vertical and horizontal intervals as herein specified; and provision shall be made in the structure to transfer wind pressures and other lateral forces to the foundations.

SEC. 841.1 - SOLID MASONRY WALLS. The interval between horizontal bracing shall not be more than twenty (20) times the wall thickness.

SEC. 841.2 - HOLLOW WALLS AND WALLS OF HOLLOW UNITS. The interval between horizontal bracing shall not be more than eighteen (18) times the wall thickness.

SEC. 841.3 - CAVITY WALLS. The interval between horizontal bracing shall not be more than fourteen (14) times the wall thickness.

SEC. 841.4 - VERTICAL BRACING. The maximum length of bearing walls between cross walls, piers, buttresses or other vertical bracing shall be fifty (50) feet, unless the wall thickness specified in Section 873.0 is increased.

SEC. 841.5 - ANCHORAGE OF BEAMS AND GIRDERS. All wood beams, joists and rafters resting on masonry walls shall be anchored with metal or other approved incombustible anchors at maximum intervals of four (4) feet. Masonry exterior walls parallel to joists or beams shall be anchored at maximum intervals of six (6) feet so as to engage not less than three (3) joists or beams. All girders resting on masonry walls shall be similarly anchored.

SEC. 842.0 - LATERAL BRACING OF NONBEARING WALLS

In masonry walls used for a nonbearing enclosure, or a partition for fire separation purposes, the intervals between horizontal and vertical bracing may be increased fifty (50) per cent above the limits specified in Section 841.0.

SEC. 843.0 - CHASES AND RECESSES IN BEARING WALLS

SEC. 843.1 - WHERE PERMITTED. Chases and recesses shall be prohibited in any wall less than twelve (12) inches thick or in the required

area of piers and buttresses; except that eight (8) inch walls where permitted in residence buildings and the apron under window openings may be chased not more than four (4) inches in depth.

SEC. 843.2 - MAXIMUM SIZE. The maximum permitted depth of a chase in any wall shall not be more than one-third ($1/3$) the wall thickness, and the maximum horizontal width of a vertical chase or the maximum horizontal projection of a diagonal chase shall not exceed four (4) feet; except that the width of the apron below window sills in all walls may equal the width of the window. The aggregate area of recesses and chases in any wall shall not be more than one-fourth ($1/4$) of the area of the face of the wall in any one story.

SEC. 843.3 - FIRE-RESISTIVE LIMITATIONS. It shall be unlawful to have chases or recesses which reduce the thickness of material below the minimum specified in Article 9 for fire walls, fire partitions or required fire-protective covering of structural members.

SEC. 843.4 - LINTELS. When the width of a chase in a bearing wall exceeds twelve (12) inches, lintels shall be provided to support the masonry above the chase.

SEC. 843.5 - MINIMUM JAMB DIMENSIONS. At jambs of openings, all chases shall be built to leave a thickness of not less than eight (8) inches of masonry.

SEC. 843.6 - HOLLOW WALLS. When chases and recesses are permitted in hollow walls and walls constructed of hollow blocks or tile, they shall be built-in with the wall; and it shall be unlawful to cut chases in such wall construction after erection.

SEC. 843.7 - ALCOVES. Recesses for alcoves, dumb-waiters and similar purposes shall have not less than eight (8) inches of material at the back.

SEC. 843.8 - STAIRWAYS AND ELEVATORS. The upper and foundation walls behind stairways shall not be reduced to less than twelve (12) inches unless reinforced by piers, columns, or girders of steel, reinforced concrete or masonry securely anchored to the wall on each side of such recesses.

SEC. 843.9 - CONTINUOUS CHASES. Horizontal chases for the bearing of reinforced concrete slabs may be continuous, provided anchors are installed to resist the bending and uplift in the wall due to flexure of the slab.

SEC. 844.0 - CORBELLING AND PROJECTING MASONRY

SEC. 844.1 - LIMITATIONS. No wall less than twelve (12) inches thick shall be corbelled except to support fire stopping around floor framing; and the maximum total horizontal projection of corbels shall not be more than one-third ($1/3$) the thickness of the wall, nor shall

the projection of the individual masonry unit exceed one-third ($1/3$) the height of the unit.

SEC. 844.2 - HOLLOW WALLS. Corbelling of hollow masonry or masonry built of hollow units shall be supported on at least one full course of solid masonry.

SEC. 844.3 - MOULDED CORNICES. Unless structural support and anchorage is provided to resist the overturning moment, the center of gravity of all projecting masonry or moulded cornices shall lie within the middle third of the supporting wall. Terra cotta and metal cornices shall be provided with a structural frame of approved incombustible material anchored in an approved manner.

SEC. 845.0 - BEARING ON HOLLOW UNIT WALLS

SEC. 845.1 - BEARING AREA. Beam, girder and other concentrated loads shall be provided with a bearing of solid masonry at least four (4) inches in thickness or with a bearing plate of adequate design and dimensions to distribute the load safely on the wall or pier.

SEC. 845.2 - CLOSURE TILE. All open cells in tiles or blocks at wall ends and at openings shall be filled solidly with concrete for a width of not less than twelve (12) inches, or reversed closure tile shall be used.

SEC. 846.0 - PLAIN CONCRETE

SEC. 846.1 - COMPRESSIVE STRENGTH. Cast-in-place concrete masonry which is reinforced for shrinkage or temperature changes only shall be subject to the requirements for average materials specified in Section 722.42 with the following compressive strengths:

Class A - 1750 - lbs. sq. in.

Class B - 2000 - lbs. sq. in.

Class C - 2500 - lbs. sq. in.

SEC. 846.2 - DESIGN STRESS. Plain concrete masonry shall conform to the applicable requirements of Section 846.0 of this article for reinforced concrete, but in no case shall the allowable working stress in compression exceed twenty-five (25) per cent of the compressive strength and the extreme fiber stress in tension due to bending shall not exceed three (3) per cent of the compressive strength.

SEC. 847.0 - REINFORCED CONCRETE.

SEC. 847.1 - DESIGN. The design of reinforced concrete construction shall be based on the generally accepted theory of flexure and elasticity of materials as applied to reinforced concrete and as specified in Section 847.0.

SEC. 847.2 - MATERIALS. All reinforced concrete for use in buildings

and structures shall be proportioned of portland cement, approved aggregates and water meeting the test requirements of this Code, and shall be of such consistency and composition that it can be worked readily into the forms and around the reinforcement without segregation or voids. When made of high early strength cement, the seven (7) day strength shall equal the minimum allowable strength specified for twenty-eight (28) day normal concrete.

SEC. 847.3 - DESIGN LOADING. All buildings and structures shall develop adequate strength for the minimum allowable uniform live load specified in Table 13. If the live load is variable but does not exceed three-quarters ($3/4$) of the dead load, or if the use of the building is such that all panels will be loaded simultaneously, the design shall be based on full live loads in all panels. In all other cases, maximum positive moments near mid-span shall be assumed to exist, under full live load on the panel in question and on alternate panels, and maximum negative moments shall be assumed to exist under full live load on the adjacent panels only.

SEC. 847.4 - ONE-WAY SLABS. In one-way slabs designed in accordance with accepted engineering practice of not more than twelve (12) foot span, the allowable tension in the reinforcement may be increased to fifty (50) per cent of the minimum yield point of the particular kind and grade of reinforcement used when the main reinforcement is three-eighths ($3/8$) inch or less in diameter; but in no case shall the allowable stress exceed thirty-thousand (30,000) pounds per square inch.

SEC. 847.5 - AGGREGATES.

.51 - Stone Concrete. All aggregates shall meet the requirements as to grade and quality of Section 819.0.

.52 - Cinder Concrete. Cinders shall not be used as coarse aggregate in reinforced concrete structural members except as provided in Section 850.0.

SEC. 847.6 - READY-MIX MATERIAL PROCEDURE. When ready-mix is used, either the cement content in bags per yard of concrete together with the maximum allowable water content, or the compressive strength and maximum permissible slump, shall be specified.

SEC. 847.7 - NEW SYSTEMS. Any system of construction which is not covered by or which conflicts with the requirements of this Code, may be approved by the Director on the basis of satisfactory experience records and tests as prescribed by Sections 804.0 and 805.0, Sections 904.0 and 906.0 and by the approved rules.

SEC. 848.0 - AVERAGE CONCRETE

SEC. 848.1 - WORKING STRESSES. In the design and construction of a reinforced concrete building or structure, the allowable working

stresses specified in Appendix K for Class A, B or C concrete shall not be exceeded and the design shall conform to accepted engineering practice.

SEC. 848.2 - CONCRETE STRENGTHS. The concrete shall develop the following compressive strengths in twenty-eight (28) days:

Class A - 2,000 lbs. sq. in.
Class B - 2,500 lbs. sq. in.
Class C - 3,000 lbs. sq. in.

SEC. 848.3 - FIELD TESTS. The Director may require reasonable tests of the concrete during installation to check the materials, methods of installation and quality of the concrete; but not less than three (3) specimens shall be made for each test, nor less than one (1) test for each two hundred fifty (250) cubic yards of concrete or part thereof.

SEC. 849.0 - STRUCTURAL CINDER CONCRETE.

SEC. 849.1 - AGGREGATES. Approved cinder aggregates where permitted for use in structural and fireproofing concretes shall consist of clean, well burned cinders, containing a maximum of thirty-five (35) per cent of unburned carbon and not more than one and one-half (1 1/2) per cent of sulphur nor more than a total of five (5) per cent of volatile material.

SEC. 849.2 - CONCRETE PROPORTIONS. Structural cinder concrete shall be mixed in such proportions so as to develop a compressive strength of not less than eight hundred (800) pounds per square inch at twenty-eight (28) days age.

SEC. 850.0 - SHORT SPAN FLOOR FILLING.

For spans not exceeding twelve (12) feet between steel flanges, the safe supporting capacity of concrete floor and roof slabs built as fireproof floor filling between steel beams shall be determined by the provisions of Section 847.4 or in accordance with the approved rules for stone or cinder concrete or other approved fire-resistive floor filling.

SEC. 851.0 - CONCRETE FILLED PIPE COLUMNS.

Concrete filled pipe columns shall be manufactured from standard, extra strong, or double extra strong steel pipe and tubing, filled with concrete so placed and manipulated as to secure maximum density and to insure complete filling of the pipe without voids.

SEC. 851.1 - DESIGN. The safe supporting capacity of concrete filled pipe columns shall be computed in accordance with the approved rules or as determined by test.

SEC. 851.2 - CONNECTIONS. All caps, baseplates and connections shall

be of approved types and shall be positively attached to the shell and anchored to the concrete core. Welding of brackets without mechanical anchorage shall be prohibited. When the pipe is slotted to accommodate webs of brackets or other connections, the integrity of the shell shall be restored by welding to insure hooping action of the composite section.

SEC. 851.3 - REINFORCEMENT. To increase the safe load supporting capacity of concrete filled pipe columns, the steel reinforcement shall be in the form of rods, structural shapes or pipe embedded in the concrete core with sufficient clearance to insure the composite action of the section, but shall not be placed nearer than one (1) inch from the exterior steel shell. All structural shapes used as reinforcement shall be milled to insure uniform bearing on cap and base plates.

SEC. 851.4 - FIRE-RESISTIVE PROTECTION. For fire-resistance ratings in excess of forty-five (45) minutes, the column shall be protected with the approved coverings meeting the requirements of Article 9 or the approved rules. When an outer steel shell is used to enclose the fireproofing covering, it shall not be included in the calculations for strength of the column section.

SEC. 851.5 - APPROVALS. All details of column connections and their splices shall be shop fabricated by approved methods and shall be approved only after tests in accordance with the approved rules.

SEC. 852.0 - WEATHER PROTECTION OF CONCRETE WORK

SEC. 852.1 - FREEZING TEMPERATURE. Where subject to freezing or continued low temperature, all concrete work shall be protected to maintain a temperature at the surface not lower than fifty (50) degrees Fahrenheit for a period of at least seven (7) days where normal portland cement is used and for three (3) days where high early strength concrete is used.

SEC. 852.2 - QUICK DRYING. The surface of freshly deposited concrete shall be protected against loss of moisture by continuous wetting or by other approved protective curing methods.

SEC. 852.3 - PNEUMATIC CONCRETE. Mortar or concrete deposited pneumatically shall be applied only with the approval of the Director. Reinforcement for pneumatic mortar shall be adequate to meet structural requirements.

SEC. 853.0 - MINIMUM CONCRETE DIMENSIONS

The minimum thicknesses of structural elements of reinforced concrete unless otherwise approved by fire and strength tests shall not be less than herein prescribed. Any floor finish not placed monolithically with floor slabs, shall not be included in the structural depth. In heavy storage buildings and buildings for industrial uses generally, when the finish is placed monolithically with the

floor slab, an additional depth of one-half (1/2) inch shall be added to the depth required by the design formulae.

SEC. 853.1 - RIBBED FLOOR SLABS. Concrete slabs over approved floor fillers shall not be less than one and one-half (1 1/2) inches thick with ribs or beams spaced twenty-four (24) inches O.C.; concrete slabs without approved floor fillers shall be not less than two (2) inches thick with ribs or beams spaced twenty-four (24) inches O.C. When approved structural floor fillers of the required strength are included in the calculations for structural strength of two-way slabs, the top slab may be omitted, provided the construction is protected to meet the fire-resistive requirements.

SEC. 853.2 - SOLID SLABS. Solid one-way or two-way floor slabs shall not be less than four (4) inches thick and solid one-way or two-way roof slabs, three (3) inches thick.

SEC. 853.3 - FLAT SLABS. Flat slabs shall not be less than six (6) inches thick.

SEC. 853.4 - JOISTS AND RIBS. Joists and ribs shall not be less than four (4) inches wide and the depth shall not be more than three (3) times the thickness.

SEC. 853.5 - POSTS. Noncontinuous posts shall have a minimum dimension of six (6) inches.

SEC. 853.6 - COLUMNS. Principal columns shall have a minimum dimension of ten (10) inches and a minimum gross area of one hundred twenty (120) square inches.

SEC. 853.7 - CONCRETE FILLED PIPE. Pipe columns shall have a minimum diameter of four (4) inches except in frame structures not exceeding two (2) stories in height.

SEC. 853.8 - BEARING WALLS. Bearing enclosure and partition walls shall have a minimum thickness of six (6) inches.

SEC. 853.9 - SKELETON WALL PANELS. Nonbearing enclosure panel walls shall have a minimum thickness of four (4) inches.

SEC. 854.0 - REINFORCED GYPSUM CONCRETE.

Reinforced gypsum concrete for use in buildings and structures shall consist of a mixture of calcined gypsum and water, with or without wood chips, shaving or fiber aggregate. The wood aggregates and gypsum shall be premixed at the mill, requiring only the addition of water at the job or site. The design and construction shall comply with the requirements of the approved rules and as herein specified.

SEC. 854.1 - MATERIALS.

- .11 Aggregates. Precast gypsum concrete shall contain not more

than three (3) per cent and cast-in-place concrete not more than twelve and one-half (12 1/2) per cent of approved aggregates.

.12 - Minimum Strength. Reinforced gypsum mixtures shall develop the minimum compressive strength herein specified when tested in accordance with the approved rules.

lbs. sq. in.

Class 1 - Neat.....	1800
Class 2 - Containing 3% by weight of wood aggregate.....	1000
Class 3 - Containing 12.5% by weight of wood aggregates.....	500

SEC. 854.2 - MATERIAL DESIGN.

.21 - Stresses. The allowable working stresses shall not exceed those specified in Appendix K; and the design shall conform to accepted engineering practice based on the assumptions and principles established for reinforced concrete insofar as they are applicable.

.22 - Tests. At least three (3) cylinder tests shall be made for each one-hundred (100) yards or part thereof of gypsum concrete fabricated.

SEC. 854.3 - LIMITATIONS OF USE. Gypsum concrete shall not be used where exposed directly to the weather or where subject to frequent or continuous wetting. To prevent saturation or freezing, continual protection from the weather and moisture shall be furnished during shipment and storage of prefabricated units, and after erection or pouring at the site.

SEC. 855.0 - REINFORCED BRICKWORK

Subject to the approval of the Director after fire and load tests, any system of brick masonry reinforced with steel in grouted mortar joints for use in the design and construction of buildings and structures shall conform to the requirements of this section and the approved rules.

SEC. 855.1 - DESIGN. The formulae and assumptions used in the design of reinforced concrete shall apply to reinforced brick masonry insofar as they are applicable; and the allowable working stresses shall not exceed the values herein specified.

Compression, extreme fiber.....	lbs. sq. in.	0.33	ult. compress	stgth
Direct compression on piers & in bearing	" " "	0.20	"	"
Shear (without web reinforcement).....	" " "	0.02	"	"
Shear (Reinforced to resist entire shear)	" " "	0.04	"	"
Bond (Vertical)				
Plain Bars.....	" " "	0.03	"	"
Deformed Bars.....	" " "	0.04	"	"
Bond (Horizontal)				
Plain Bars.....	" " "	0.04	"	"
Deformed Bars.....	" " "	0.05	"	"
Ratio.....	as determined by tests			

SEC. 855.2 - MORTAR. All mortar when tested in two (2) inch cubes shall develop a compressive strength of sixteen hundred (1600) pounds per square inch at seven (7) days and twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days of age.

SEC. 855.3 - JOINTS. The thickness of all joints containing reinforcement shall be at least one-half ($1/2$) inch greater than the size of the reinforcement embedded therein, except that one-quarter ($1/4$) inch bars may be used in one-half ($1/2$) inch joints.

SEC. 855.4 - REINFORCEMENT.

.41 - Minimum Per Cent. The minimum area of reinforcement in each direction shall be not less than one-tenth ($1/10$) per cent of the cross-sectional area of the wall.

.42 - Minimum Size. The minimum size of vertical reinforcement shall be three-eighths ($3/8$) inch.

SEC. 855.5 - ECCENTRIC LOAD. When masonry is designed under the limitations applicable to unreinforced masonry, less reinforcement than herein specified may be used to resist tensile stresses resulting from eccentricity of lateral loads.

SEC. 856.0 - LUMBER AND TIMBER CONSTRUCTION

All lumber and timber used structurally in buildings and structures shall conform to the standards listed in Appendix B for design of timber and fastenings; and to the material standards for grade and quality and to the simplified practice recommendations for lumber sizes listed in Appendix C.

SEC. 856.1 - DESIGN. The net sizes of all structural lumber and timber shall be sufficient to sustain safely their imposed loads. The allowable working stresses as specified in the approved rules shall not be exceeded.

SEC. 856.2 - COMMERCIAL GRADES. All material used in load bearing members shall be of sound quality, free from rot, large or loose knots, shakes, diagonal or spiral grain that vitiate the structural requirements for the proposed use, and shall be at least of the following commercial grades: studs and posts No. 2 common dimension; planks, beams, girders, joists, rafters and timber members No. 1 common dimension; and timber or lumber, five (5) inches or more in thickness, shall be of the structural grade corresponding to the stresses used in the design and as specified in the approved rules for the identified species and grades.

SEC. 856.3 - SEASONING. In the design of all lumber and timber structures, consideration shall be given to dimensional changes

caused by seasoning before moisture equilibrium occurs, and to provide both for the movement of the structure as a whole and all differential movements of individual elements. Allowance shall be made for dimensional changes in all individual members due to the effect of cross-grain which may occur when timber is fabricated or erected in a green condition.

SEC. 856.4 - MINIMUM DIMENSIONS.

.41 Nominal Sizes. All lumber sizes herein specified are nominal sizes, and when nominal sizes of wood members are shown or specified on plans, design computations shall be based on net actual sizes of the material.

.42 Structural Joists. Except as provided in Article 19 for composite or built up prefabricated units, or when approved by the Director after satisfactory tests, no wood floor beam, roof beam, joist, rafter or framing timber shall be less than two (2) inches in thickness, except that within Fire District 1, all structural beams and joists shall be not less than three (3) inches thick, unless protected to afford three-quarter (3/4) hour fire-resistance.

.43 Structural Posts. All isolated structural posts shall have a dimension of not less than four (4) inches.

SEC. 856.5 - FABRICATION.

.51 Cutting. It shall be unlawful to notch, cut or pierce wood beams, joists or rafters in excess of the limitations herein specified unless proved safe by structural analysis. Cuts or bore holes in girders, beams or joists shall not be deeper than one-fifth (1/5) the beam depth, nor more than two (2) inches in diameter respectively and shall not be located nearer to the end than three (3) times the beam depth, unless the beam is suitably reinforced to transmit all the calculated stresses.

.52 Cambering. Trusses and long span girders shall be designed with sufficient camber to counteract deflections due to seasoning, drying and loading.

SEC. 856.6 - CONNECTIONS. All connections shall be fabricated with approved timber connectors, bolts, lag screws, spikes, nails or glue in accordance with the approved rules. Bolted connections shall be snugged up tightly without crushing wood fibers under the washers.

SEC. 856.7 - TRIMMER AND HEADER BEAMS. When determined necessary by stress analysis, trimmer and header beams shall be hung in approved metal or other approved incombustible stirrups or hangers, or on wood clips or ribbon strips. Beams framing from opposite sides shall lap at least six (6) inches and be bolted or spiked together; and when framing end to end, they shall be secured together by metal ties, straps or dogs.

SEC. 856.8 - BEARING AND ANCHORAGE ON GIRDERS. All framing into girders shall be anchored or tied to secure continuity. The ends of all wood beams resting on girders shall bear not less than four (4) inches or shall be supported in approved metal stirrups, hangars or on wood clips or ribbon strips. Beams framing from opposite sides shall lap at least six (6) inches and be bolted or spiked together; and when framing end to end, they shall be secured together by metal ties, straps or dogs.

SEC. 856.9 - MAINTENANCE. All connections in the joints of timber trusses and structural frames shall be inspected periodically and bolts and other connectors shall be maintained tight.

SEC. 857.0 - HEAVY TIMBER CONSTRUCTION

SEC. 857.1 - MATERIAL. All timbers used in heavy timber construction shall be stress grade timbers identified as to grade and strength by authoritative manufacturing, testing or inspection agencies or bureaus in accordance with the approved rules.

SEC. 857.2 - STRUCTURAL FRAME. Structural steel or reinforced concrete members may be substituted for timber in any part of the structural frame, protected to develop the required fire-resistance specified in Table 5, but not less than three-quarter (3/4) hours fire-resistance. Structural members supporting walls shall be protected to afford the same fire-resistance as the wall supported.

SEC. 857.3 - COLUMNS.

.31 - Multistory Construction. Columns shall be erected directly over one another in successive stories.

.32 - Caps And Bases. Loads shall be transmitted directly from column to column, with approved metal or reinforced concrete bases and caps or other approved incombustible column connections and splices, and similar bases shall be provided on masonry supports.

SEC. 857.4 - FLOOR FRAMING. Floor framing shall consist of splined or tongue and grooved planks, or edge construction laminated planks, supported on beams or beam and girder framing. At floor levels, one-half (1/2) inch clearance shall be provided around the interior of all masonry walls to avoid contact with the floor construction and to provide for expansion of the lumber.

SEC. 857.5 - BEAMS AND GIRDERS.

.51 - Wall Supports. When beams and girders rest on walls, they shall be supported on approved wall plates, self-releasing boxes or approved hangars.

.52 - Girder Supports. Intermediate beams shall rest on tops of the girders or shall be supported on approved, closely fitted steel or iron hangars.

.53 - Column Connections. Girders and beams framing into columns shall be supported on approved post caps of metal or reinforced concrete or on through bolted corbel blocks or on side bolsters.

SEC. 857.6 - MINIMUM DIMENSIONS. All structural members shall have the minimum dimensions specified in Section 217.1 for Type 3A construction.

SEC. 858.0 - FRAME CONSTRUCTION

Exterior walls and interior bearing partitions shall be designed and constructed to develop the equivalent strength and rigidity of wood stud construction. The framework of wood stud construction shall conform to either balloon, braced, or platform frame types; consisting of sills, posts, girts and ribbon strips, braced at all angles, or sheathed with wood laid diagonally, and all joints shall be secured by nailing in accordance with the approved rules.

SEC. 858.1 - WOOD STUD FRAME.

.11 - Bearing Walls. Posts and studs in bearing walls and partitions shall be designed as columns and when two (2) by four (4) inch studs are used they shall be spaced not more than sixteen (16) inches on centers, and covered with approved sheathing conforming to Section 859.2. When constructed as an integrated assembly or approved by test in accordance with Section 804.2 and Section 850.2, the spacing of studs shall not be limited.

.12 - Bracing. Corner posts shall be the equivalent of not less than three pieces of two (2) by four (4) inch studs, braced by not less than one piece of one (1) by four (4) inch continuous diagonal braces cut into the studs, or by other approved bracing; except that bracing may be omitted when diagonal wood sheathing or plywood panels are used or other sheathing as specified in Section 858.2 is applied vertically in panels of not less than four (4) feet by eight (8) feet in area with approved nailing, is used. Sills shall be of one piece of at least four (4) by six (6) inch stock. Ledger or ribbon boards used to support joists shall be not less than one (1) by four (4) inches in size, cut into and securely nailed to each stud. Openings more than four (4) feet wide in bearing partitions shall be trussed or framed with beams and columns of ample size to support the superimposed loads.

.13 - Mortise And Tenon Framing. Where mortise and tenon framing is used, the vertical members of the frame shall be not less than four (4) by six (6) inches in size and shall be designed as columns.

SEC. 858.2 - WALL SHEATHING. All frame buildings shall be sheathed on the exterior face with one (1) inch wood sheathing, except when back plastered stucco construction is used, or any other material of equal strength and durability, approved after test by the Director and installed in accordance with the approved rules.

SEC. 858.3 - STRESS SKIN PANELS

.31 - Integrated Assemblies. Approved panels or other integrated assemblies fabricated of dimension lumber with wood stress coverings glued thereto shall be permitted for use in walls, floors, roofs, ceilings, partitions and all similar applications when designed in accordance with accepted engineering practice and the approved rules.

.32 - Splices. Splices and connections between panels shall

be weather tight and of sufficient strength to resist two and one-half (2 1/2) times the design live load to which they will be subjected in nominal use.

.33 Tests. All approved assemblies shall meet the test requirements of Sections 804.0, 805.0 and 806.0.

SEC. 858.4 - ROOF DECK SHEATHING. Sheathing shall consist of not less than one (1) inch boards nailed to each supporting rafter, or approved plywood complying with Section 828.0 or other approved roof sheathing material.

SEC. 858.5 - MOLDED PLYWOOD UNITS. Structural units of plywood or other approved plastics, formed and molded into prefabricated load-bearing members shall conform to the approved rules and shall be identified by the approved label. The design shall be based on accepted engineering analysis confirmed by the tests prescribed in Sections 805.0 and 806.0.

SEC. 858.6 - EXTERIOR WEATHER BOARDING. Exterior wall coverings shall be of an approved weather resisting material of the following minimum thicknesses installed in accordance with the approved rules:

Wood siding.	5/8	inches
Protected combustible siding	1/2	"
Wood shingles.	3/8	"
Exterior plywood	5/16	"
Asbestos shingles.	5/32	"
Asbestos cement boards	1/4	"
Masonry or masonry veneer.	4	"
Vitrious tile.	2	"
Stucco or exterior plaster	3/4	"
Formed metal siding.	26g	"

SEC. 858.7 - AT GRADE PROTECTION.

.71 - Combustible Framing. All wood framework, whether structural or non-load bearing shall be supported on approved foundation walls at least eight (8) inches above the finished grade. All wood sills and plates unless protected with approved pressure treated preservatives shall be isolated from masonry or concrete with water-proof felt or corrosion-resistive metal.

.72 Metal Siding. Exposed metal siding or sheathing shall be protected from corrosion at the ground level by supporting the foundation channel at sufficient height above grade on the concrete apron or other approved water resisting foundation.

SEC. 858.8 - FLASHING. All flashings shall be of corrosion resistive materials and shall be provided at all intersections and other locations as may be necessary to permanently protect the buildings from leakage.

SEC. 858.9 - CONDENSATION AND WEATHER RESISTANCE. To secure weather tightness in framed walls and other unoccupied spaces, the exterior wall shall be faced with approved weather resistive covering as provided in this article; and shall be ventilated or shall be provided with interior non-corrodible vapor type barriers complying with the approved rules; or other means shall be used to avoid condensation and leakage of moisture.

SEC. 859.0 - GLUED, LAMINATED AND BUILT-UP LUMBER CONSTRUCTION

Buildings and structures may be designed and erected of glued, laminated structural members of standard commercial or special stress grade lumber, or of composite members of plywood and dimension lumber.

SEC. 859.1 - GLUED LAMINATED MEMBERS. Fabricated units of laminated dimension lumber consisting of joists, planks or boards in which all integrated units are assembled with primarily parallel grain shall be designed and constructed in accordance with Section 859.0 and recognized Engineering Standards.

SEC. 859.2 - GLUED LUMBER MEMBERS. Built-up beam and column sections consisting of one or more webs with glued lumber flanges and stiffeners shall be designed in accordance with accepted engineering analysis.

SEC. 859.3 - GLUING SURFACES. In glued lumber constructions, the surfaces shall be worked to a smooth, flat surface without sanding and free from wax, grease or oil to insure a complete glue bond over the entire contact.

SEC. 859.4 - FIRE-RESISTANCE. When required to meet fire-resistance performance for specific applications and uses, wood structural units and assemblies shall be protected with metal or other incombustible coverings, or shall be treated by approved pressure processes to develop the fire-resistance ratings of Table 5 and the requirements of Article 9 for flame resistive and slow burning materials.

SEC. 860.0 - VENTILATION

SEC. 860.1 - WALL POCKETS. Wood girders framing into masonry walls shall have not less than one-quarter (1/4) inch air space on both sides and ends for ventilation purposes, unless protected with preservative treatments in accordance with the approved rules.

SEC. 860.2 - CELLAR COLUMNS. No wood posts shall be used in damp locations in basements or below grade level, except when decay resistant materials or approved pressure treated materials are used, or when adequate ventilation is provided to prevent decay.

SEC. 860.3 - ATTIC AND CRAWL SPACES. Attics and access crawl spaces under first floor and under porch floor wood construction, shall be vented with protected openings as provided in Section 507.0.

ARTICLE 8 - MATERIALS AND GENERAL CONSTRUCTION REQUIREMENTSPART CBUILDING ENCLOSURES, WALLS AND WALL THICKNESSSEC. 861.0 - ENCLOSURE WALLS

All buildings, except miscellaneous structures designed for special uses, for which there are special provisions, shall be enclosed on all sides with independent or party walls of frame, masonry or other approved construction. Such walls shall be constructed to afford the fire-resistance specified in Table 5 and as required in this Code for the location, use and type of construction.

SEC. 861.1 - PROJECTIONS. Enclosure walls shall be constructed entirely within property lines, except for authorized projections beyond the street lot line in accordance with the provisions of Article 3.

SEC. 861.2 - WALL POCKETS. In exterior walls of all buildings and structures, wall pockets or crevices in which moisture may accumulate shall be eliminated or protected with adequate caps or drips, or other approved means shall be provided to prevent structural damage from corrosion, deterioration or freezing.

SEC. 861.3 - EXCEPTIONS. The provisions of this article shall not be deemed to prohibit the omission of exterior walls for all or part of a story when required by the use and occupancy of the building; except that when so omitted, the unenclosed part shall be separated from the rest of the story and from the upper and lower stories of the building by wall and floor construction of the specified fire-resistance rating for the type of construction; and provided further that the piers, columns and other structural supports within the unenclosed part shall have the fire-resistance rating for the type of construction; and provided further that the piers, columns and other structural supports within the unenclosed part shall have the fire-resistance required for exterior walls in Table 5.

SEC. 862.0 - PROTECTION OF WALL OPENINGS

SEC. 862.1 - FIRE-PROTECTED OPENINGS. Openings in exterior walls when required to be fire-resistive shall be protected with fixed or other approved opening protectives in accordance with the provisions of Article 9.

SEC. 862.2 - AREA OF OPENINGS. All openings facing on a street, yard, court, or public space which are required for light and ventilation shall comply with the provisions of Article 5.

SEC. 862.3 - WALL LINTELS. Openings in all masonry walls shall be spanned by plain or reinforced arches or lintels of approved incombustible material with at least four (4) inch bearing on the wall at each end. Lintels of unreinforced material, natural or artificial stone shall not be used unless approved by the Director or when supplemented by steel or other approved incombustible lintels or masonry arches.

SEC. 862.4 - WALL ARCHES. When masonry arches are used to span an opening, provision shall be made to resist the lateral thrust on the wall.

SEC. 863.0 - FIRE ACCESS PANELS

SEC. 863.1 - WHEN REQUIRED. Completely enclosed buildings, without exterior openings in the enclosure walls, or without ready access for the purpose of fighting fire, shall be provided with access panels in the first to sixth stories. Such access panels shall be not less than forty-two (42) by seventy-two (72) inches in size, nor shall they be spaced more than one hundred (100) feet apart in each story, and shall have a sill height of not more than thirty-six (36) inches. Access panels shall be readily opened from the outside, or shall be glazed with plain, flat glass, but when required to be fire-resistive, they shall be equipped with approved opening protectives which can be readily opened from both the outside and the inside complying with Article 9.

SEC. 863.2 - LOCATION. Wherever practicable, at least one access panel in alternate stories shall open on an enclosed stairway or in close proximity thereto as provided in Section 605.0; and such panels shall be clearly designated in letters not less than six (6) inches high.

SEC. 864.0 - EXISTING WALLS

SEC. 864.1 - NOT RAISED IN HEIGHT. Walls heretofore approved, the thickness and construction of which does not conform to the requirements of this Code, may be used in buildings or structures hereafter remodelled, provided the wall is in good condition, the proposed stresses are within the requirements for new buildings, and the height of the wall is not increased other than for the purpose of establishing height uniformity, but not to exceed one (1) story or twelve (12) feet in height.

SEC. 864.2 - RAISED IN HEIGHT. Existing walls, which are to be increased in height, and the thickness of which is less than prescribed in this article for buildings hereafter erected, shall be

reinforced with a lining of solid masonry not less than eight (8) inches thick, so that the combined thickness shall be at least four (4) inches more than that required for a new wall of the same total height.

SEC. 864.3 - MAXIMUM HEIGHT INCREASE. Any wall that requires a lining shall be inspected and approved by the Director. Such walls shall not be increased to a height greater than seventy-five (75) feet, nor shall the height of the lining exceed forty (40) feet.

SEC. 864.4 - SUPPORT OF LINING. The wall lining shall be supported on adequate foundations and shall be anchored to the existing masonry to insure combined action of the reconstructed wall as a unit.

SEC. 865.0 - STRUCTURAL GLASS BLOCK WALL

SEC. 865.1 - SIZES OF PANELS. The maximum dimensions of wall panels or continuous bands of structural glass blocks shall be twenty-five (25) feet in length or twenty (20) feet in height and the area of such panel or continuous band shall not exceed one hundred forty-four (144) square feet. Intermediate structural supports with expansion joints shall be provided to support the dead load of the wall and all other superimposed loads.

SEC. 865.2 - CONSTRUCTION.

.21 - Materials. Glass blocks shall be laid up in lime-cement mortar with approved galvanized or other noncorrosive metal wall ties in the horizontal mortar joints. The sills of glass block panels shall be coated with approved asphaltic emulsion, or other elastic water-proofing material previous to laying the first mortar course.

.22 - Wind Pressure. The panels shall be held in place in the wall opening to resist both the internal and external pressures due to wind loads specified in Section 712.0.

.23 - Expansion Joints. Expansion joints shall be provided at top, bottom and sides of panels and at intermediate joints where directed by the approved rules. Such joints shall be filled with resilient strips of waterproof material and caulked to a depth of one-half (1/2) inch with nonhardening caulking compounds.

SEC. 865.3 - FIRE-RESISTANCE RATING. Nothing herein contained shall be construed to prohibit the use of glass blocks in an opening protective assembly, partition or wall when required to afford a specific fire-resistance, provided approval of the Director is secured after satisfactory time temperature performance under the prescribed test procedure of Article 9.

SEC. 865.4 - ACCESS PANELS. Access panels shall be provided in glass block wall for fire department use in accordance with the provisions of Section 863.0.

SEC. 866.0 - WALL FACINGS AND VENEERS

SEC. 866.1 - BACKING SURFACES FOR VENEERS. Veneers shall be attached only to substantial, rigid, surfaces which are plumb, straight and a true plane, and no combustible backing surfaces shall be used except in frame construction. The backing shall provide sufficient rigidity, stability and weather resistance, and the veneer shall be installed and anchored as herein required for each specified kind of material.

SEC. 867.0 - UNIT MASONRY FACING

Facings of brick or other approved solid structural masonry units shall be bonded to the backing with headers or stretchers, at least four (4) inches thicker than facing. The bonding units shall comprise at least one-seventh ($1/7$) of the area of the wall.

SEC. 868.0 - ASHLAR FACING

SEC. 868.1 - BOND. Facings of dressed, natural or cast stone shall be bonded to the backing with at least one-seventh ($1/7$) of the superficial area extending not less than four (4) inches into the backing to form bond stones. The bond stones shall be uniformly distributed throughout the wall. In plain coursed ashlar, at least every fourth course shall be a bond course.

SEC. 868.2 - METAL ANCHORS. Except when alternate courses are full bond course, every stone not a bond stone shall be securely anchored to the backing with an approved corrosion-resistive metal anchor. When the stone is more than two (2) feet in length and three (3) square feet in area, at least two (2) anchors shall be provided; and stones of greater size shall have at least one anchor to each four (4) square feet of superficial area.

SEC. 869.0 - STRUCTURAL GLASS VENEER

SEC. 869.1 - DIMENSIONS. The minimum thickness of glass veneer

shall be eleven thirty-second ($11/32$) inch and the area of individual panels shall not exceed eight (8) square feet, with a maximum length of four (4) feet. The edge of each unit shall be ground square; and all exposed external corners and angles shall be rounded to a radius of not more than three sixteenth ($3/16$) inch.

SEC. 869.2 - CONSTRUCTION.

.21 - Backing Surface. The glass veneer shall be set in mastic cement on a backing coat, the strength and stability of which is equivalent to a one (1) inch thick cement mortar coat, applied to wire lath attached to furring spaced not more than twelve (12) inches on center.

.22 - Support Of Veneer. The base course of units shall be supported on a corrosion-resistive metal angle anchored to the backing and caulked with a waterproof compound at grade or on a suitable foundation.

SEC. 869.3 - REINFORCEMENT. Metal reinforcing of cold formed corrosion-resistive angles of not less than No. 16g or other approved reinforcement shall be provided in all horizontal joints anchored into the masonry wall with expansion or toggle bolts.

SEC. 869.4 - EXPANSION JOINTS. Expansion joints shall be provided at ends and intermediate sections as required by the approved rules, and all joints shall be caulked with an approved waterproofing compound. Where necessary for water tightness exposed edges shall be flashed with noncorrodible metal or other approved incombustible material.

SEC. 869.5 - OTHER LOADS. No signs, awning brackets or other loads shall be hung directly from glass veneers, but shall be supported on framing anchored to or otherwise supported by the masonry wall, and free from contact with the glass.

SEC. 870.0 - THIN STONE AND TILE VENEERS

SEC. 870.1 - SIZE OF UNITS. Where subject to frost and freezing temperatures, tile and terra cotta units shall be frostproofed and shall be not more than one hundred forty-four (144) square inches in area; and where not subject to frost action, the size of the tile may be increased not more than fifty (50) per cent in area.

SEC. 870.2 - CONSTRUCTION. Veneers less than one (1) inch thick of stone, ceramic or porcelain tiles or terra cotta shall be set in a waterproofed cement mortar coat, mounted on a mortar base at least one (1) inch thick. Where subject to freezing temperatures, the base shall be reinforced and anchored to the masonry in accordance with the approved rules.

SEC. 870.3 - JOINTING. All joints shall be grouted and pointed with an approved waterproof cement joint compound.

SEC. 871.0 - METAL VENEERS

SEC. 871.1 - MATERIALS. Veneers of metal shall be fabricated from approved corrosion-resistive materials, or shall be covered front and back with approved porcelain enamel, or with other approved treatment to render the metal resistant to corrosion.

SEC. 871.2 - CONSTRUCTION. The metal veneer shall be securely attached to the masonry or supported on approved metal framing protected by painting, galvanizing or other approved method.

SEC. 871.3 - WATERPROOFING. All joints and edges exposed to the weather shall be caulked with approved durable waterproofing material or the penetration of moisture shall be prevented by other approved means.

SEC. 872.0 - PLASTIC VENEERS

Veneers of weather-resisting, incombustible plastics shall be erected and anchored on a foundation coat, waterproofed or otherwise protected from moisture absorption with a sealing coat of mastic or other approved waterproof coating in accordance with the approved rules.

SEC. 873.0 - THICKNESS OF SOLID MASONRY WALLS

When the clear span between bearing walls, or between wall and an interior support, is not more than twenty-five (25) feet the thickness of masonry bearing walls shall be not less than herein specified, but in any case the walls shall be of adequate thickness to keep the combined stress due to all loading within the limits prescribed for the allowable working stresses in this Code.

SEC. 873.1 - NOT OVER THIRTY-FIVE FEET IN HEIGHT.

.11 - For Buildings Of Use Groups A,B,C,D,E and F. For buildings of use groups A,B,C,D,E and F not exceeding thirty-five (35) feet in height, the minimum thickness of masonry bearing walls shall be eight (8) inches for the uppermost twelve (12) feet of height and twelve (12) inches for the lower stories.

.12 - For Residence Buildings. For residence buildings of use groups H and L not exceeding thirty-five (35) feet in height, the minimum thickness of bearing walls shall be eight (8) inches throughout.

SEC. 873.2 - OVER THIRTY-FIVE FEET IN HEIGHT. For buildings and structures in all use groups which are more than thirty-five (35) feet in height, the minimum thickness shall be twelve (12) inches

for the uppermost fifty (50) feet of height. For walls over fifty (50) feet in height, the supporting walls shall be increased an additional four (4) inches for each successive thirty-five (35) feet or fraction thereof.

SEC. 873.3 - STIFFENED WALLS. When stiffened by cross-walls, piers or buttresses, not less than twenty-four (24) inches deep at horizontal intervals of not more than twenty (20) feet, for buildings and structures in all use groups, the minimum thickness shall be twelve (12) inches for the uppermost seventy-five (75) feet, increasing four (4) inches additional for each successive seventy (70) feet or portion thereof.

SEC. 873.4 - SOLID STONE WALLS. The thickness of stone ashlar or solid stone walls shall not be less than that required by this section except that rubble stone walls shall be four (4) inches thicker than required for dressed ashlar the same respective heights, but in no case less than sixteen (16) inches thick.

SEC. 873.5 - NONBEARING WALLS. The thickness herein prescribed for bearing walls may be decreased four (4) inches in nonbearing walls; but shall not be less than a minimum of eight (8) inches except where six (6) inch walls are specifically permitted in this article.

SEC. 873.6 - INTERIOR MASONRY BEARING PARTITIONS. Interior masonry bearing partitions shall be of sufficient thickness to support all superimposed loads without exceeding the working stresses specified for the materials of construction in Article 8; but in no case shall the unsupported height exceed twenty-five (25) times the thickness of the partition unless reinforced with piers, buttresses or by other approved means.

SEC. 873.7 - NONBEARING PARTITIONS. Interior nonbearing partitions shall be constructed solidly between floor and ceiling construction and anchored thereto above and below; but the maximum unsupported height shall not exceed thirty-six (36) times the thickness, unless reinforced to provide sufficient stability.

SEC. 873.8 - BULKHEADS AND PENTHOUSES. Above the roof level masonry walls of penthouses and bulkheads, not over twelve (12) feet in height, shall be not less than eight (8) inches in thickness provided the allowable working stresses specified in this Code are not exceeded. Such walls may be considered as neither increasing the height nor requiring increased thickness of the understructure walls.

SEC. 874.0 - THICKNESS OF PLAIN CONCRETE BEARING WALLS

SEC. 874.1 - MINIMUM THICKNESS. The minimum thickness of plain concrete walls may be two (2) inches less than that required by Section 873.0 for solid masonry walls; but in no case shall such walls be less than eight (8) inches thick.

SEC. 874.2 - REINFORCEMENT. Reinforcement that may be required above or around openings shall comply with the provisions for reinforced concrete in Section 847.0.

SEC. 875.0 - THICKNESS OF HOLLOW UNIT MASONRY WALLS.

SEC. 875.1 - MINIMUM THICKNESS. The thickness shall be not less than that required in Section 873.0 for solid masonry walls.

SEC. 875.2 - MAXIMUM HEIGHT. Walls of structural clay tile or hollow concrete masonry units shall not exceed thirty-five (35) feet in height above the foundations or supports of such walls or portions of walls.

SEC. 875.3 - TRANSITION IN THICKNESS. When walls of hollow masonry are decreased in thickness, the top course units of the thicker wall shall be filled solidly with approved concrete or covered with solid masonry slabs not less than one (1) inch thick.

SEC. 876.0 - THICKNESS OF HOLLOW BEARING WALLS.

SEC. 876.1 - MINIMUM THICKNESS. The minimum thickness shall be not less than that required in Section 873.0 for solid masonry walls; except that ten (10) inch walls shall be permitted to a height of twenty-five feet.

SEC. 876.2 - MAXIMUM HEIGHT. Hollow walls of solid masonry units shall not exceed thirty-five (35) feet in height.

SEC. 877.0 - THICKNESS OF CAVITY BEARING WALLS.

SEC. 877.1 - MINIMUM THICKNESS. The facing and backing of cavity walls shall each be not less than four (4) inches thick and the cavity shall be not less than two (2) inches nor more than three (3) inches.

SEC. 877.2 - MAXIMUM HEIGHT. Cavity bearing walls shall be limited to the same heights as hollow bearing walls in Section 876.0.

SEC. 877.3 - CONSTRUCTION. Approved flashing around openings and means of draining the cavity shall be provided to prevent water from accumulating in the cavity, and dampness from passing through the backing; and precautions shall be taken during construction to keep the cavity clear of mortar droppings.

SEC. 878.0 - INCREASE IN THICKNESS OF BEARING WALLS.

SEC. 878.1 - INCREASED SPAN. When the span between bearing walls or between a bearing wall and line of intermediate supports is greater than twenty-six (26) feet, the thicknesses specified for bearing walls shall be increased four (4) inches for each twelve (12) feet of span or fraction thereof in excess of twenty-five (25), unless

the walls are stiffened or reinforced by masonry buttresses, structural columns or other approved reinforcement.

SEC. 878.2 - EXCESSIVE WALL OPENINGS. When approved mortars other than portland cement are used, and the area of openings exceeds thirty-five (35) per cent, the thickness of bearing walls shall be increased four (4) inches for each fifteen (15) per cent or fraction thereof of increased opening area above thirty-five (35) per cent.

SEC. 879.0 - THICKNESS OF CURTAIN WALLS

SEC. 879.1 - SOLID WALLS. Solid masonry curtain walls as defined in this Code shall be not less than eight (8) inches thick for the uppermost twelve (12) feet of height and shall be increased an additional four (4) inches in thickness for each successive lower fifty (50) feet in height or fraction thereof.

SEC. 879.2 - HOLLOW WALLS. Curtain walls of hollow units or hollow wall construction of solid units shall be not less than ten (10) inches thick for the uppermost twelve (12) feet in height, and shall be increased an additional four (4) inches in thickness for each successive thirty-five (35) feet increase in height or fraction thereof.

SEC. 879.3 - INCREASED THICKNESS. When the horizontal distance between lateral supports is greater than twenty-five (25) feet, the thickness of curtain walls shall be increased four (4) inches for each ten (10) feet in height or fraction thereof of such excess.

SEC. 879.4 - ANCHORAGE. All curtain walls shall be anchored to the structural framework with approved metal anchors at each story and at intervals of not more than twenty-five (25) feet horizontally. For each additional ten (10) feet or fraction thereof between lateral supports, the thickness of curtain walls specified in this section shall be increased four (4) inches.

SEC. 880.0 - THICKNESS OF PANEL WALLS

SEC. 880.1 - SOLID WALLS. Panel, apron or spandrel walls as defined in this Code supported at vertical intervals not exceeding twelve (12) feet in height, shall not be limited in thickness, provided they meet the fire-resistive requirements of Article 9, and Table 5, and are constructed of approved durable weather-resisting materials of adequate strength to resist the wind loads specified in Sections 712.0 and 712.2 and comply with the approved rules.

SEC. 880.2 - HOLLOW WALLS. Unless constructed to comply with the requirements of Section 876.0 or Section 877.0, hollow walls shall be tested and approved in the combined unit as constructed in normal practice to develop the required fire-resistance rating for fire exposure on both faces.

SEC. 880.3 - WEATHER RESISTANCE. When the construction as tested and approved for fire-resistance does not possess the required water and weather resistance, it shall be covered with approved corrosion resistive metal facings or other approved weather resisting veneers.

SEC. 880.4 - ANCHORAGE. All panel walls shall be bonded, anchored or otherwise secured to the structural frame to insure adequate lateral support, and in accordance with the approved rules.

SEC. 881.0 - THICKNESS OF PARAPET WALLS

Parapet walls, where required, shall extend not less than two (2) feet above the roof, except in one and two family residence buildings and detached structures with overhanging roofs, or in places where such walls are capped with cornices or gutters, and except as required for fire walls in Section 909.0 and as herein provided.

SEC. 881.1 - MINIMUM THICKNESS AND HEIGHT. Parapet walls shall be of the same thickness as the wall below; except that in no case shall the required thickness exceed twelve (12) inches, nor shall the height exceed four (4) times the thickness unless laterally supported by incombustible framing or buttresses.

SEC. 881.2 - PARTY WALLS BETWEEN FLAT ROOFS. Parapet walls erected between two (2) structures with flat roofs not more than two (2) stories in height, may be reduced to not less than twelve (12) inches above the roof.

SEC. 881.3 - PARTY WALLS WITH PITCHED ROOFS. Party walls in buildings and structures in residence use groups, the roofs of which slope at an angle of thirty (30) degrees or more from the horizontal, may stop at the level of the tops of the roof boards, provided no combustible material passes through the wall, and the junction of roof and walls is completely fire stopped.

SEC. 881.4 - COPING. The tops of all parapet walls exposed to the weather shall be coped with approved incombustible and weather-resisting materials.

SEC. 882.0 - FOUNDATION WALLS.

SEC. 882.1 - DESIGN. Foundation walls shall extend at least four (4) feet below the ground level and shall be designed to support safely all vertical and lateral loads as provided in Article 7. Unless properly reinforced, they shall be designed to eliminate all tensile stresses in the masonry.

SEC. 882.2 - MINIMUM THICKNESS. Except as herein provided, the thickness of foundation walls shall be not less than twelve (12) inches, but in no case of less thickness than the walls supported thereon.

.21 **Reinforced Concrete.** When reinforced to resist all stresses,

concrete walls shall be not less than eight (8) inches thick.

.22 - Solid Masonry And Mass Concrete. When not more than five (5) feet deep, masonry walls shall be not less than ten (10) inches thick.

.23 - Hollow Units And Hollow Walls. Hollow masonry walls shall be not less than twelve (12) inches thick.

.24 - Rubble Stone. Walls of rubble stone shall be not less than sixteen (16) inches thick.

SEC. 882.3 - INCREASED THICKNESS WITH DEPTH. When any foundation wall, other than a wall that serves as a retaining wall, extends more than twelve (12) feet below the top of the first floor beams, the thickness of the wall shall be increased four (4) inches for each additional twelve (12) feet or fraction thereof.

SEC. 882.4 - LATERAL STABILITY. Foundation walls of buildings and structures which serve as retaining walls shall conform to the applicable requirements of Section 883.0.

SEC. 883.0 - RETAINING WALLS

Walls built to retain or support the lateral pressure of earth or water shall be designed and constructed of approved masonry or reinforced concrete within the allowable stresses prescribed by this Code.

SEC. 883.1 - DESIGN. Retaining walls shall be designed in accordance with accepted engineering practice to resist the pressure of the retained material including both dead and live load surcharges to which they may be subjected, and to insure stability against overturning, sliding, foundation pressure and water uplift.

SEC. 883.2 - HYDROSTATIC PRESSURE. Unless drainage is provided, water pressure shall be assumed with hydrostatic head equal to the height of the wall.

SEC. 883.3 - COPING. All masonry retaining walls other than concrete shall be protected with an approved coping.

SEC. 884.0 - ISOLATED PIERS

SEC. 884.1 - SOLID MASONRY. Isolated piers of solid masonry shall be laid in cement mortar or cement lime mortar and the maximum unsupported height shall be ten (10) times the least dimension. No openings or chases shall be permitted within the required load bearing area of the pier.

SEC. 884.2 - HOLLOW MASONRY. Isolated piers of hollow masonry shall be prohibited when the unsupported height exceeds four (4) times the

least dimension. The cellular spaces of structural clay tile or hollow masonry units when used in piers of greater height shall be filled solidly with concrete.

SEC. 885.0 - WATERPROOFING

The exterior structural part of all buildings herein specified shall be waterproofed in accordance with the approved rules.

SEC. 885.1 - STEEL FRAME. Exterior steel columns and girders embedded in masonry of the required fire-resistance specified in Table 5 shall be protected from moisture by approved waterproofing material, parging of cement mortar, or by a minimum of eight (8) inches of weather-tight masonry.

SEC. 885.2 - CHASES. The backs and sides of all chases in exterior walls with less than twelve (12) inches of masonry to the exterior surface shall be insulated and waterproofed.

SEC. 886.0 - RATPROOFING

All buildings and structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work; or in which foodstuff or food is stored, prepared, processed, served or sold shall be constructed in such a manner as to be rat and verminproof in accordance with the provisions of this section and the approved rules adopted thereunder.

SEC. 886.1 - APRON.

.11 - Grade Protection. All exterior walls at and near grade shall be constructed of chemically or otherwise treated materials, or assembled of component materials to render the construction rat or verminproof. When not provided with a masonry foundation wall, a continuous masonry or concrete apron, not less than four (4) inches in thickness, or other incombustible, water-resisting material of equal strength, shall be installed around the entire perimeter of the building.

.12 - Height Of Apron. The apron shall extend not less than twelve (12) inches above, nor less than twenty-four (24) inches below grade level; and if serving as a foundation bearing wall, to sufficiently greater depth to assure protection from frost action as required in Section 722.0.

SEC. 886.2 - GRADE FLOORS. Where continuous concrete grade floor slabs are provided, the exterior walls and protection shall effectively seal the open spaces between slab and walls, and all openings in the slab shall be protected as herein required.

SEC. 886.3 - OPENINGS.

.31 - Wall Openings. All openings in the apron required for ventilation or other purposes shall be guarded with corrosion-resistant rodent proof shield of No. 22g perforated sheets, or No. 16g expanded metal or wire mesh screens, with not more than one-half (1/2) inch mesh openings in accordance with the approved rules.

.32 - Slab Openings. Access openings in the grade floor slab shall be closed with concrete, masonry, metal or other corrosion-resistant incombustible covers of adequate strength to support the floor loads.

.33 - Pipes And Conduits. All pipe, conduit, cable and similar openings at grade shall have snug fitting collars to eliminate all open spaces.

SEC. 887.0 - TERMITE PROTECTION

The precautions herein specified shall be observed to protect all lumber and timber structural elements from termite attack.

SEC. 887.1 - REMOVAL OF DEBRIS. No loose wood, form material or debris shall be buried or left under floors, or porches, or around foundation walls.

SEC. 887.2 - SOIL DRAINAGE. Approved means of soil drainage shall be provided around the walls of the building or structure.

SEC. 887.3 - LUMBER CONSTRUCTION. All untreated wood shall be supported on concrete or other masonry walls or piers laid in cement mortar. All wood in contact with the ground shall be impregnated with pressure treatments of approved preservative in accordance with the approved rules.

SEC. 887.4 - VENTILATION. All basements and spaces under buildings and porches shall be ventilated as required in Section 508.0.

SEC. 888.0 - FIRE PREVENTION AND FIRE-STOPPING

To prevent the free passage of flame in event of fire through concealed spaces or passages in all types of construction, provision shall be made to trim all combustible framing away from sources of heat and to fire-stop all vertical and horizontal draft openings as specified herein and in accordance with Section 924.0.

SEC. 888.1 - BEAM SEPARATION IN ORDINARY CONSTRUCTION (TYPE 3B). All combustible floors, roofs and other structural members framing into masonry walls shall be cut to a bevel of three (3) inches in the

depth and shall project not more than four (4) inches into the wall and the distance between embedded ends of adjacent beams or joists entering into the wall from opposite sides shall be not less than four (4) inches.

SEC. 888.2 - GIRDER SEPARATION IN HEAVY TIMBER CONSTRUCTION (TYPE 3A). Wood girders shall have at least eight (8) inches of masonry between their ends and the outside face of walls and at least eight (8) inches of masonry between adjacent beams entering the wall from opposite sides.

SEC. 888.3 - FLUES AND CHIMNEYS. Combustible framing shall be trimmed away from all flues, chimneys and fireplaces as provided in Section 1005.7.

SEC. 888.4 - FIREPLACES. Hearths of incombustible construction and combustible fire-boards, mantels and other trim shall be installed as specified in Section 1013.0 at fireplaces.

SEC. 888.5 - CONCEALED ROOF SPACES. Concealed roof spaces shall be subdivided into areas of not more than two thousand (2,000) square feet by tight partitions or by approved incombustible fire-stops.

SEC. 888.6 - EXTERIOR CORNICES. Exterior cornices where permitted of combustible construction or erected with combustible frames shall be fire-stopped at maximum intervals of twenty (20) feet. If non-continuous, they shall have closed ends, with at least four (4) inches separation between adjoining sections.

SEC. 888.7 - WALL FURRING. In masonry wall construction (Types 3A and 3B) and in frame construction (Type 4) where walls are furred, the space between the inside of the furring and the face of the wall for the full depth of the combustible floor or roof joists shall be fire-stopped with approved incombustible materials. Masonry or other approved incombustible materials used as furring on bearing walls or partitions shall not be considered to have structural value and shall be excluded in the determination of thickness as required in this article.

SEC. 888.8 - COMBUSTIBLE TRIM AND FINISH. The space behind combustible trim and finish and in all other hollow spaces where permitted in fire-resistive construction shall be fire-stopped as provided in Section 926.0.

SEC. 888.9 - FIRESTOPPING. Firestopping meeting the requirements of Section 924.0 of Article 9 shall be provided in stud walls and partitions for the full depth of all floor framing and between the ceiling of the top story and roof space; in all furred spaces at maximum intervals of seven (7) feet; at the top and bottom and at least once in the middle of each run of stairs; in concealed wall pockets for sliding doors; openings for pipes, belts, shafting, chutes and conveyors passing through combustible floors or partitions shall be closed off by close fitting incombustible caps or metal shutters or other approved incombustible means as provided in Section 1818.0; and in all other locations that would permit the free travel of flame.

ARTICLE 9 - FIRE-RESISTIVE CONSTRUCTION AND REQUIREMENTS

SEC. 900.0 - SCOPE

The provisions of this article shall govern the use and design of all materials and methods of construction in respect to required protection against fire exposure as determined by the potential fire hazard of the use and occupancy of the building or structure and the location and function of all integral structural, and other fire-protective elements of the building; and the installation of safeguards against the spread of fire.

SEC. 900.1 - PERFORMANCE STANDARDS. The requirements of this article shall constitute the minimum functional performance standards for fire-protection purposes; and shall not be deemed to decrease or waive any strength provisions or in any other manner decrease the requirements of this Code in respect to safe load capacity.

SEC. 900.2 - USE OF COMBUSTIBLES. All materials and forms of construction that develop the fire-resistance required by this Code shall be acceptable for fireproofing and construction purposes; except that no combustible component materials shall enter into the construction of structural units or structural assemblies with a required fire-resistance rating of more than one and one-half (1 1/2) hours and except further as provided herein for the construction of opening protectives.

.21 - Combustible Aggregates. Combustible aggregates may be incorporated in concrete mixtures approved for fire-resistive construction as provided in Section 812.0 and Section 854.0 for gypsum concrete and in any other approved material or admixture that meets the fire-resistive test requirements of this Code and except further that wood nailing strips may be embedded in concrete and masonry construction as provided in this article.

.22 - Filler Units. When not included in strength calculations, filler units that include component combustible materials may be used in all fire-resistive floor construction provided the assembly meets the required fire test procedures.

SEC. 900.3 - REINFORCED CONCRETE. All reinforced concrete construction which meets the requirements of Section 819.0 for concrete aggregates and the provisions of this article for time-temperature performance shall be accepted as fire-resistive construction, and shall be classified in accordance with the degree of fire-resistance required in Article 2 and in Tables 5 and 6.

SEC. 901.0 - DEFINITIONS

Combustible Material. Any material which supports a sustained flame for more than five (5) minutes after exposure for twenty (20) minutes to and the removal of, the approved test flame of the Federal Test Standard SS-A-118 - November 20, 1939.

Fire Hazard. The potential degree of fire severity existing in the use and occupancy of a building and defined in terms of the corresponding equivalent time-temperature performance of the standard fire test.

Fire Load. The posted fire hazard classification of a building or structure in hours or fractions of an hour as established for its use group and occupancy in this Code.

Fire Partition. A wall or partition which subdivides a story of a building to provide an area of refuge, including public hallways, stairway and corridor enclosures.

Fireproofed Wood. Wood rendered incombustible by impregnation with approved fire-resistive treatments.

Fire-Resistive Partition. A partition other than a fire partition required to subdivide the floor area of a fire-resistive building for the purpose of restricting the spread of fire.

Fire-Resistance Rating. The degree of fire-resistance of the fabricated unit or assembly of units of construction, determined by the standard fire test expressed in hours or fractions of an hour.

Fire-Retardent Construction. Fabricated units or assemblies of units of construction which have a fire-resistance rating of not less than one-third (1/3) hours.

Fire-Separation. The vertical or horizontal means of separation of one part of a building from another by fire walls or fireproof floor construction to form a continuous barrier between adjoining or superimposed floor areas.

Fire Wall. A wall which completely subdivides a building into limited fire areas in all stories, or which separates two (2) or more buildings, to restrict the spread of fire; and which is supported on a foundation and extends continuously through all stories to and above the roof except in buildings of fireproof construction (Types 1A and 1B).

Flame-Resistive Material. Any material which supports a sustained flame for not more than two (2) minutes after exposure for twenty (20) minutes to and removal of, the approved test flame of the Federal Test Standard SS-A-118 - November 20, 1939.

*See N.B.S. Bull. BMS 92

Hazard (Low). All uses which involve the storage, sale, manufacture and processing of materials which do not ordinarily burn rapidly or with excessive smoke and from which neither excessive smoke, poisonous fumes, nor explosions are to be anticipated in the event of fire.

(Moderate). All uses which involve the storage, sale, manufacture or processing of materials which are likely to burn with moderate rapidity and with a considerable volume of smoke, but from which neither poisonous fumes nor explosions are to be anticipated in the event of fire.

(High). All uses which involve the storage, sale, manufacture or processing of highly combustible, volatile flammable or explosive products which are likely to burn with extreme rapidity, or from which poisonous fumes, gases or explosions are to be anticipated in the event of fire.

Incombustible Material (Alternate Test). Any material which will neither ignite nor actively support combustion in a surrounding temperature of twelve hundred (1200) degrees Fahrenheit, six hundred fifty (650) degrees C., during an exposure of five (5) minutes in a closed crucible furnace.

Incombustible Material. Any material which will not support flame after exposure for forty (40) minutes to and removal of the approved test flame of the Federal Test Standard SS-A-118 - November 20, 1939.

Slow-Burning Material. Any material which supports a sustained flame for more than two (2) but not more than five (5) minutes after exposure for twenty (20) minutes to and removal of the approved test flame of the Federal Test Standard SS-A-118 - November 20, 1939.

Standard Fire Test. The standard controlled furnace test formulated under the procedure of the A.S.A. and designated ASA Standard A-2, 1942.

Shaft (Covered). An interior enclosed space extending through one or more stories of a building, connecting a series of two (2) or more openings in successive floors, or floors and roof.

(Open). An exterior, enclosed space extending through one or more stories of a building, enclosed with walls of the required weather and fire-resistance of exterior walls, and open to the sky at the top.

SEC. 902.0 - TIME-TEMPERATURE PERFORMANCE

All structural fire protection requirements of this Code shall be based on fire-resistance ratings as determined by performance under the standard fire test prescribed in Section 904.0 and in accordance with the approved rules.

SEC. 902.1 - TIME-TEMPERATURE CURVE. The standard time-temperature curve of the controlled fire shall be defined by the fixed points specified in Appendix H; except that the area under the curve of the average thermocouple readings may vary ten (10) per cent from the area under the standard curve for fire tests of three-quarter (3/4) hours duration or less, seven and one-half (7 1/2) per cent for tests between one (1) and two (2) hours duration and not more than five (5) per cent for tests exceeding two (2) hours duration.

SEC. 902.2 - HOSE-STREAM TEST. The hose-stream test shall be required for all assemblies and constructions approved for a fire-resistance rating of three-quarter (3/4) hours or more.

SEC. 903.0 - FIRE HAZARD CLASSIFICATION

The degree of fire hazard of buildings and structures for each specific use group as defined in Table 17 shall determine the requirements for fire walls, fire separation of building areas and the segregation of mixed uses as prescribed in Section 213.0.

SEC. 903.1 - UNCLASSIFIED USES. The Director shall determine the fire hazard classification of a building or structure designed for a use not specifically provided for in Table 17 in accordance with the fire characteristics and fire hazard potential of the use group which it most nearly resembles; or its designation shall be fixed by the approved rules.

TABLE 17

FIRE HAZARD CLASSIFICATION

<u>USE GROUP</u>		<u>EQUIVALENT FIRE LOAD</u>
<u>CLASS</u>		<u>HOURS</u>
A	High Hazard.....	4
B-1	Storage-Moderate Hazard.....	3
B-2	Storage-Low Hazard.....	2
C	Mercantile.....	3
D	Industrial.....	3
E	Business.....	2
F-1	Assembly-Theaters.....	3
F-2	Assembly-Restaurants, Night Clubs, Recreation Centers	3
F-3	Assembly-Lecture Halls, Terminals.....	2
F-4	Assembly-Churches, Schools.....	2
H-1	Institutional-Restrained Occupants.....	3
H-2	Institutional-Incapacitated Occupants.....	2
L-1	Residential-Hotels.....	2
L-2	Residential-Multifamily Dwellings.....	2
L-3	Residential 1 & 2 Family Dwellings.....	1

SEC. 904.0 - FIRE-RESISTIVE TESTS.

Each test specimen shall be constructed in accordance with normal field practice and shall be truly representative of the design, materials and workmanship which is required to determine its classification.

SEC. 904.1 - BUILDING CONSTRUCTION AND MATERIALS. Built-up masonry units and composite assemblies of structural materials including walls, partitions, columns, girders, beams and slabs and assemblies of slabs and beams or other combinations of units for use in floor and roof construction shall meet the requirements of the standard fire test procedure.

SEC. 904.2 - CEILING CONSTRUCTION. The test ceiling specimen shall include all the structural members and details to be used in normal construction; and the conduct of the test shall conform to the standard procedure for the fire test of building construction and materials herein specified and in accordance with the approved rules

SEC. 904.3 - COLUMN, BEAM AND GIRDER PROTECTION. To evaluate column, beam and girder protection for structural units when the fireproofing is not a structural part of the element, in lieu of full size tests of loaded specimens, the structural sections encased in the material proposed for use as insulation and fire-protection may be subject to the standard test procedure without load.

.31 - Dimensions. For column tests, the specimen shall have a minimum dimension proposed for use and a length of not less than seven and one-third ($7 \frac{1}{3}$) feet; and for beams and girders, a length of not less than twelve (12) feet with the minimum depth proposed for use on the span.

.32 - End Restraint. If the construction contemplates the use of air spaces between the structural section and the protection, the test specimen shall be arranged to prevent longitudinal temperature expansion of the insulation in excess of that of the structural member; and all air spaces shall be completely fire-stopped at both ends of the specimen; unless provision is made in normal construction for unrestricted expansion.

SEC. 904.4 - OPENING PROTECTIVES.

.41 - Doors, Shutters And Windows. Tests of the fire-resistive qualities of opening protective assemblies including doors, shutters and windows shall be made upon complete full size samples of the device, including hanging and operating hardware, and frames, bucks and their anchorage, conducted in accordance with the standard time-temperature procedure prescribed in Section 902.1 of this article and in accordance with the approved rules.

.42 - Size Limitations. The fire-resistance rating derived from the test shall be applied to all assemblies smaller in dimensions and area and to larger sizes not exceeding the area of the test specimen by more than twenty-five (25) per cent.

.43 - Hose Stream. Opening protective assemblies tested to establish a fire-resistance rating of three-quarter (3/4) hours or more shall be subject to the hose stream test.

.44 - Mounting. Swinging doors and shutters shall be mounted so as to swing into the test furnace with the clearances normally used in practice; sliding and rolling doors and curtains, unless of the flush mounted type, shall be mounted on the fire side of the test opening and shall fit well against wall surfaces or girders, and all retaining methods shall permit free and easy movement of the door in and from any position. The method of anchoring door frames shall represent normal practice.

SEC. 904.5 - ROOFING.

.51 - Size Of Specimen. Tests of the fire-resistance of roofing materials shall be made on a test sample consisting of the complete assembly of roof deck and roof covering constructed and applied as in practice on combustible roof construction, with an area of not less than twelve (12) square feet, and no dimension less than three (3) feet.

.52 - Test Procedure. The tests shall be conducted as prescribed in the approved rules to determine ability to resist ignition, duration of flaming, susceptibility to fire spread and degree of insulation against transmitted temperature.

SEC. 905.0 - FLAME-RESISTIVE TESTS

The incombustible, flame-resistive and slow-burning properties of materials and assemblies of component materials, where required to restrict the spread of flame under the provisions of this article, shall be determined by the tests herein prescribed.

SEC. 905.1 - TRIM AND FINISH MATERIALS. All incombustible materials specified for use as interior trim and finish under the provisions of Sections 926.0 to 930.0 inclusive shall meet the requirements of Section 906.0 and the approved rules.

SEC. 905.2 - DECORATIVE MATERIALS. All materials specified under the provisions of Section 930.0 for artistic enhancement or use as decorations, draperies, curtains, scenery, and hangings shall be tested for combustibility, flame-propagation, smoke production, toxic gas generation and permanence of treatment in accordance with the approved rules.

SEC. 905.3 - FIRE-RETARDENT CONSTRUCTION. All materials specified under the provisions of this Article and Section 1315.0 for use in light structural members, temporary scaffolding and shoring other than incombustible materials shall be tested as an assembly under the standard fire test procedure defined in Section 904.1 and shall meet the requirements for fire-retardent construction as herein defined.

SEC. 905.4 - FIREPROOFED WOOD.

.41 - Tests. All fireproofed wood where permitted for trim, finish or light structural members under the provisions of this Article and Section 1315.3 shall meet the requirements for incombustible or slow-burning materials as may be specified.

.42 - Test Samples. Test samples shall be selected at the point of delivery from each five thousand (5,000) board feet or fraction thereof so as to be representative of the range in rate of growth, density of the wood and quality of fireproofing treatment.

SEC. 905.5 - TENTS AND TARPAULINS. Where required under the provisions of Section 423.2, canvas for tents, and for tarpaulins used in temporary heated enclosures, shall be subjected to the tests for fire, water and weather resistance of cotton duck prescribed in the test specifications listed in Appendix G.

SEC. 905.6 - CHECK TESTS. When any doubt exists as to the fire-retardent quality or permanence of treatment, all flame-resistive slow-burning and fire-retardent materials shall be subjected to the check tests herein provided.

.61 - Scaffold Materials. Materials for light structural members or temporary scaffolding and shoring shall be tested in accordance with the procedure for determining fire-retardent properties of wood listed in Appendix G.

.62 - Decorative Materials. Materials for finish, trim and decorative materials shall be tested in accordance with the check test procedure for trim and decorations listed in Appendix G.

.63 - Field Test Of Decorative Materials. The Director may subject decorative materials, where required to be flame-resistive, to a field test consisting of the application of an open test flame of not less than four hundred (400) degrees Fahrenheit for a period of one (1) minute.

.64 - Field Test Of Tent Canvas. Dry specimens of the canvas shall be subjected to an open flame applied to the lower end of test sections, six (6) inches wide and twelve (12) inches long, held in a vertical position for twelve (12) seconds in accordance with the approved rules.

.65 Replacement. All material failing to meet the check tests for decorative materials shall be retreated or shall be replaced by an approved installation when in the opinion of the Director such replacement is necessary for public safety.

SEC. 906.0 - CONDITIONS OF ACCEPTANCE.

In evaluating the fire-resistive and flame-resistive properties of materials and methods of construction, the conditions of acceptance shall be based on the criteria established herein and by the approved rules.

SEC. 906.1 - STRUCTURAL MEMBERS. All the requirements of the applicable standards for structural walls, columns, girders, beams, floor and roof slabs listed in Appendix G shall be met in respect to structural strength, integrity during the fire and water application, transmission of heat and ability to support twice the design live load after the fire and water test.

SEC. 906.2 - CEILING CONSTRUCTION.

.21 Combustible Structural Members. When designed for use under combustible floor or roof supports with combustible decking, the transmission of heat shall not exceed a temperature rise which would ignite the decking.

.22 Incombustible Structural Members. When designed for use under structural steel members, the transmission of heat shall not exceed a temperature rise in excess of one thousand (1,000) degrees Fahrenheit on the lower surface of the steel supporting the ceiling. When incombustible, structural materials other than steel are used, the transmitted heat shall not exceed the critical temperature of the material composing the structural supports in accordance with the approved rules.

SEC. 906.3 - COLUMN AND GIRDER INSULATION. The average transmission of heat through the protection, determined by the required number of thermocouples distributed on the web and extreme flanges of the specimen, shall not exceed a temperature increase of one thousand (1,000) degrees Fahrenheit on the surface of structural steel section. When structural materials other than steel are used, the transmitted heat shall not exceed the critical temperature of the material composing the structural section under test in accordance with the approved rules; and the insulation shall function within the temperature range of its use without breaking, spalling or buckling so as to seriously expose the structural member to fire.

SEC. 906.4 - OPENING PROTECTIVES.

.41 Structural Integrity. The assembly shall not develop any through openings in the specimen itself or openings markedly in excess of the initial clearances at the outside or meeting edges; except that small portions of glass dislodged by hose stream shall not be considered sufficient weakness to nullify the acceptance and approval of doors or windows when constructed as provided in the approved rules, provided the dislodged portions do not exceed fifteen (15) per cent of the total glass area. The door frames and anchorage shall remain structurally intact without excessive distortion that would prevent operation of the door.

.42 Smoke And Flame Barrier. Tests of door assemblies shall be considered unsuccessful unless the assembly prevents the passage of smoke or flames in considerable volume and remains securely in the opening during the fire exposure and following the hose stream test.

.43 Transmitted Temperature. Tests of protective door assemblies required for use in exitways shall be considered unsuccessful when the average rise in temperature measured in accordance with the approved rules exceeds six hundred fifty (650) degrees Fahrenheit in one-half (1/2) hour, not including temperature readings on glass panels installed in accordance with Section 922.0.

SEC. 906.5 - ROOFINGS. Roofing materials shall be classified in accordance with the severity of exposure to exterior fire and ability to resist the spread of fire to surrounding buildings and structures as herein provided and in accordance with the approved rules.

.51 Class 1 Roofings shall be effective against severe fire exposure and are prescribed for use on fireproof (Type 1) and incombustible (Type 2) buildings and structures together with Class 2 roofings.

.52 Class 2 Roofings shall be effective against moderate fire exposure and are prescribed as the minimum for use on fireproof (Type 1) and incombustible (Type 2) buildings and structures.

.53 Class 3 Roofings shall be effective against light fire exposure and are prescribed as the minimum for use on masonry enclosed (Type 3) and to frame (Type 4) buildings and structures together with Class 1 and Class 2 roofings.

SEC. 906.6 - INTERIOR FINISH, TRIM AND DECORATIONS.

.61 Smoke And Gas. Flame-resistive and slow-burning materials where required for interior finish, trim, acoustical correction, decorative and similar uses shall not generate smoke or gases more toxic than that given off by untreated wood or paper burning under comparable conditions and as defined in the approved rules.

.62 - Flame Spread. For flame-resistive materials no flaming shall persist more than two (2) minutes after the test flame is discontinued; and for slow-burning materials, not more than five (5) minutes.

.63 - Check Test. Decorative materials when subjected to the field check test prescribed in Section 905.63 shall neither flash nor support combustion, nor continue to glow for more than ten (10) seconds after removal of the test flame.

.64 - Limitation Of Approval. All approvals of flame-resistive organic materials shall be limited to one (1) year.

.65 - Affidavit. The owner or his authorized agent shall file an affidavit with the Director certifying that the process and materials used comply with the approved rules and stating the date of treatment and the warranted period of effectiveness of the process.

SEC. 906.7 - SCAFFOLDING AND SHORING.

.71 - Scaffolding And Shoring. Fire-retardent construction where required for use in small structural members and temporary scaffolding and shoring when tested under the standard fire test for structural assemblies shall develop a fire-resistance rating of not less than one-third (1/3) of an hour.

.72 - Flame Spread. In check tests on slow-burning materials all flaming shall cease within five (5) minutes after the test flame is discontinued.

SEC. 906.8 - FIREPROOFED WOOD. The criteria for approval of the shipment of fireproofed wood represented by the test sample shall be based on flame persistence and weight loss of the material after all flaming and glowing has ceased and shall not exceed the limiting percentages prescribed for the intended use of the material:

Loss In Weight

Incombustible for use as Interior Trim And Finish..... 25% maximum.
Fire-retardent for use in Temporary Scaffolding & Shoring 35% maximum.

Flame Persistence

Incombustible for use as Interior Trim And Finish.... No flame; No glow
Fire-retardent for use in Temporary Scaffolding & Shoring
Flame not more than 60 seconds.
Glow not more than 60 seconds.

SEC. 906.9 - TENTS AND TARPAULINS. After removal of the check test flame, the material shall not support a sustained flame for more than two (2) seconds and the average length of char shall not exceed two and one-half (2 1/2) inches.

SEC. 907.0 - SPECIAL FIRE-RESISTIVE REQUIREMENTS

The special fire-resistive requirements herein specified shall apply to buildings and structures of the following use groups and types of construction.

SEC. 907.1 - PUBLIC GARAGES. All buildings and structures altered or converted to be used as garages, motor vehicle repair shops or gasoline service stations shall comply with the requirements as set forth in Article 4, Section 415.0, Section 416.0 and Section 417.0.

SEC. 907.2 - MERCANTILE BUILDINGS. Every packing or shipping room located on or below a floor occupied for mercantile uses shall be separated therefrom by three (3) hour fire-resistive construction.

SEC. 907.3 - TRUCK LOADING AND SHIPPING USES. Truck loading and shipping areas shall be permitted within any business building provided such areas are enclosed in two (2) hour fire-resistive construction and direct access is provided therefrom to the street through a passageway not less than twelve (12) feet in width.

SEC. 907.4 - RESIDENCE BUILDINGS.

.41 - Ordinary Construction. Residential buildings (Use Group L2) of ordinary construction (Type 3B) may be increased to four (4) stories or fifty-two (52) feet in height when the first floor above the basement or cellar is constructed of two (2) hour fire-resistive construction, the floor area is subdivided by two (2) hour fire walls into fire areas of not more than three thousand (3,000) square feet, and the stairways, corridors and exitways are enclosed in two (2) hour fire-resistive construction.

.42 - Retail Business Use. Subject to the restrictions of the zoning laws, the first floor of buildings of unprotected incombustible (Type 2B) may be occupied for retail store use, provided that the area per floor shall not exceed three thousand (3,000) square feet and the ceilings and enclosure walls are protected to afford one (1) hour fire-resistance and the exitways from the residence floors are separately enclosed within two (2) hour fire-resistive construction and in accordance with Article 6.

SEC. 907.5 - GRADE FLOOR PROTECTION.

.51 - Non-Fireproof Construction. In all buildings other than one and two family dwellings (Use Group L3) and other than fire-proof construction (Types 1A and 1B), with habitable or occupiable stories or basements below grade, the ceilings, partitions and supports below the grade floor shall be protected with incombustible materials or assemblies of such materials having a fire-resistance rating of not less than one (1) hour but in no case less than the required fire-resistance of the use group and type of construction specified by Tables 5 and 6.

.52 - Incombustible Construction (Type 2A). In all buildings of one and one-half (1 1/2) hour protected incombustible construction (Type 2A), exceeding four (4) stories or fifty-two (52) feet in height, the floor above the basement or cellar shall be constructed with a fire-resistance of not less than two (2) hours.

.53 - One And Two Family Dwellings (Use Group L3). One and two family dwellings (Use Group L3), not exceeding two (2) stories and attic and thirty-five (35) feet in height shall be exempt from the requirements of this section except that the ceiling immediately above and for at least two (2) feet beyond all sides of any furnace, or other heating equipment shall be protected as required in Section 1111.0.

SEC. 908.0 - FIRE-RESISTIVE REQUIREMENTS FOR ENCLOSURE WALLS

SEC. 908.1 - APPROVED SOLID MASONRY. Walls of approved masonry of the minimum thickness and construction prescribed in Section 873.0 for solid bearing walls shall be deemed to afford the fire-resistance required for walls in Table 5.

SEC. 908.2 - HOLLOW TILE MASONRY. Bearing walls of hollow clay tile shall have not less than three (3) cells in the thickness of the walls, for ratings of one and one-half (1 1/2) hours or more.

SEC. 908.3 - MASONRY PIERS. In buildings of fireproof (Types 1A and 1B) construction, stone masonry shall not be used for interior piers, columns, arches or vaultings that support loads in addition to their dead weight except in church and monumental buildings; but this shall not prohibit the use of stone facings on load-bearing piers installed in accordance with the provisions of Section 868.0.

SEC. 909.0 - FIRE WALLS AND PARTY WALLS

Fire walls shall be constructed of solid or hollow masonry units or of mass or reinforced concrete or any other incombustible materials or form of construction of the required strength, and fire-resistance rating specified in Table 5 for types of construction, but not less than the fire hazard of the use groups as defined by the equivalent fire load in Table 17; and the construction shall comply with all the structural provisions for bearing or non-bearing walls of this Code.

SEC. 909.1 - SOLID BRICK. In other than frame buildings, when constructed of solid brick masonry, the wall thickness shall conform to the requirements of Section 873.0; except that in all buildings more than twenty-five (25) feet in height used for moderate fire hazard storage (Use Group B1) and all high hazard uses (Use Group A), no part of the wall shall be less than twelve (12) inches thick.

SEC. 909.2 - REINFORCED CONCRETE. When constructed of reinforced concrete, the wall thickness shall be not less than six (6) inches for the uppermost twenty-five (25) feet or portion thereof and shall increase two (2) inches for each additional twenty-five (25) feet or portion thereof measured down from the top of the wall; except that in buildings more than twenty-five (25) feet in height used for storage of moderate fire hazard (Use Group B1) and high hazard uses (Use Group A), no part of the wall shall be less than eight (8) inches thick.

SEC. 909.3 - FRAME RESIDENCES. In one and two family dwellings (Use Group L3), of frame construction (Type 4) party walls shall be of two (2) hours fire-resistive construction and shall extend through intersecting walls of frame construction to the outside of all combustible sheathing.

SEC. 909.4 - OTHER FRAME BUILDINGS. In frame buildings, other than one and two family dwellings, all party and fire walls shall be constructed with not less than two (2) hours fire-resistance, but in no case less than the equivalent fire hazard of the use group as specified in Table 17.

SEC. 909.5 - CUTTING FIRE WALLS. No fire wall, eight (8) inches or less in thickness, shall be cut for chases or socketed for insertion of structural members subsequent to erection.

SEC. 909.6 - UNIT MASONRY CONSTRUCTION. All unit-masonry fire walls shall be constructed with solidly filled joints of cement or cement-lime mortar complying with the provisions of Sections 817.0 and 818.0.

SEC. 909.7 - HOLLOW FIRE WALLS. When combustible members frame into hollow fire walls or fire walls of hollow units, all hollow spaces shall be solidly filled for the full thickness of the wall and for a distance of not less than four (4) inches above, below and between the structural members, with incombustible materials approved for fire-stopping in Section 924.0.

SEC. 909.8 - COMBUSTIBLE INSULATION. The Director may permit the application of cork or fiber board or other combustible insulation if laid up without intervening air spaces and cemented or attached directly to the face of the fire wall and protected on the exposed surface as provided in Section 827.0.

SEC. 909.9 - CONSTRUCTION DETAILS.

.91 - Continuity. In all buildings and structures of other than fireproof constructions (Types 1A and 1B), fire walls and party walls shall be continuous from foundation to three (3) feet above the roof surface; except that in residence buildings (Use Groups L1, L2 and L3), fire walls may be stopped six (6) inches above the top of the roof sheathing, provided that the junction of wall and roof framing

is thoroughly firestopped and no combustible materials extend through the wall. Walls extending through the roof shall be coped as provided in Section 861.3 and separate flashing shall be provided on each side.

.92 - Offset Walls. If fire walls are offset at intermediate floor levels, the offset floor construction and the intermediate wall supports shall be constructed of incombustible materials with a fire-resistance rating not less than that required for the fire wall.

SEC. 910.0 - FIRE WALL OPENINGS

Required openings in fire walls shall not exceed the limits in size and area herein prescribed and the opening protectives shall conform to the provisions of Section 920.0.

SEC. 910.1 - SIZE. No one opening through a fire wall shall exceed sixty-five (65) square feet in area, and the aggregate width of all openings at any floor level shall not exceed twelve (12) per cent of the length of the wall.

SEC. 910.2 - FIRST STORY EXCEPTIONS. Openings designed for the passage of trucks in the first story of a building may be constructed not to exceed two hundred forty (240) square feet in area with a minimum distance of three (3) feet between adjoining openings, provided the floors above and below are of fireproof construction (Types 1A and 1B) and the entire area is protected with an automatic sprinkler system complying with Article 12.

SEC. 910.3 - OPENING PROTECTIVES. Every opening in a fire wall shall be protected on both sides with an approved automatic protective assembly having a combined three (3) hour fire-resistance rating except when approved as a horizontal exit.

SEC. 910.4 - HORIZONTAL EXIT. Door openings in a fire wall serving as a horizontal means of egress shall be not more than forty-eight (48) square feet in area and one of the required automatic fire doors at such opening shall be replaced by a self-closing fire door of not less than one and one-half (1 1/2) hour fire-resistance rating.

SEC. 911.0 - FIRE PARTITIONS

SEC. 911.1 - CONSTRUCTION. Fire partitions required for the enclosure of exitways and areas of refuge shall be constructed of approved masonry, reinforced concrete or other approved materials having the minimum fire-resistance prescribed by Table 5; except that partitions constructed of combustible materials insulated to provide the required

fire-resistance may be accepted for use in exitways of buildings of Type 4 construction as required by Table 5 and the provisions of Section 618.8.

SEC. 911.2 - BEARING PARTITIONS. When fire partitions are used as bearing walls, they shall conform to all the structural provisions for height and thickness of Article 8.

SEC. 911.3 - CONTINUITY. When fire partitions around vertical walls are not continuous from floor to floor, the offset in the floor construction shall be of solid construction with a fire-resistance rating not less than that of the partition construction, nor less than that of the fire hazard defined in Table 17 for the specific use group.

SEC. 911.4 - OPENINGS.

.41 - Size. No openings shall be permitted in fire partitions except exitway doors, and the aggregate permissible width of such doorways shall not exceed twenty-five (25) per cent of the length of the wall, nor shall the maximum area of any one opening exceed forty-eight (48) square feet.

.42 - Protectives. All opening protectives shall comply with the provisions of Sections 920.0 and 921.0 of this article for construction except as provided in Section 618.8 for buildings not exceeding three (3) stories in height and for one and two family dwellings.

SEC. 911.5 - COMBUSTIBLE STAIR ENCLOSURES.

.51 - Construction. Stair enclosures constructed of combustible assemblies protected with component materials to afford the required fire-resistance ratings shall be continuous through combustible floor construction and shall provide an unbroken fire-resistive barrier in combination with protected floors, ceilings and fire doors, separating the exitways from the unprotected areas of the building and firestopped in accordance with the provisions of Section 924.0.

SEC. 912.0 - FIRE-RESISTIVE PARTITIONS

SEC. 912.1 - CONSTRUCTION. All permanent partitions designated as fire-resistive for subdividing purposes other than providing required areas of refuge shall be constructed of incombustible materials when designed for use in buildings and structures of fireproof or incombustible constructions (Types 1 and 2).

SEC. 912.2 - SUPPORTS. All fire-resistive partitions shall extend from the top of the fire-resistive floor below to the fire-resistive ceiling above, and shall be securely attached thereto. They shall be supported on fireproofed steel or reinforced concrete construction

except that the supporting beams and girders of fire-resistive partitions constructed of combustible materials shall be protected with component materials or assemblies to afford the required fire-resistance of the partition supported; and hollow vertical spaces shall be firestopped at every floor level as required in Section 888.0 and Section 924.0.

SEC. 912.3 - HEIGHT OF NON-BEARING PARTITIONS. All non-bearing masonry, tile or block partitions and all other non-bearing partitions, unless reinforced or tested to demonstrate adequate strength and rigidity shall be limited in height between lateral supports to thirty-six (36) times the thickness of the finished construction.

SEC. 912.4 - OPENINGS. Door openings shall not exceed forty-eight (48) square feet in area and where required to be fireproof, the protection shall comply with the provisions of Section 920.0.

SEC. 913.0 - SHAFTS AND ENCLOSURES

The provisions of this section shall apply to all shaft enclosures used for light and ventilation and other purposes; except stairway enclosures provided for in Section 618.0, flue enclosures provided for in Section 1005.0, incinerator chutes provided for in Sections 1017.0 and 1018.0, duct shafts provided for in Section 1020.0, pipe shafts provided for in Section 1118.0 and elevator and dumbwaiter hoistways provided for in Section 1613.0.

SEC. 913.1 - OPEN SHAFT ENCLOSURES. The enclosing wall of shafts that are open to the outer air at the top shall be constructed of the materials specified in Article 8 for exterior walls of buildings and structures of the required fire-resistance specified in Table 5.

SEC. 913.2 - COVERED SHAFT ENCLOSURES. The enclosing walls and the tops of interior covered shafts shall be constructed of approved masonry, reinforced concrete or other approved construction with a fire-resistance rating of not less than two (2) hours.

SEC. 913.3 - EXCEPTIONS. In residence buildings for not more than two (2) families, of other than fireproof or incombustible construction, shafts shall be supported and constructed of materials or assemblies having a fire-resistance rating of not less than one (1) hour, and shall extend not less than three (3) feet above the roof with a ventilating skylight of incombustible construction as specified in Section 932.0.

SEC. 913.4 - TOP ENCLOSURE.

.41 - Not Extending To Roof. A shaft that does not extend into the top story of the building shall be enclosed with top construction of the same strength and fire-resistance as the floors of the construction type in which it occurs, but in no case less than that of the

fire-resistance rating of the shaft enclosure.

.42 - Extending To Roof. All shafts that extend into the top story or to the roof of the building or structure shall extend through the roof and shall be covered at the top with a skylight of at least three-fourths ($3/4$) of the area of the shaftway, constructed in accordance with the requirements of Section 932.2, ventilated as required in Section 516.0.

.43 - Alternate Shaft Ventilation. The skylight herein required may be replaced by a window of equivalent area in the side of the shaft, provided the sill of such window is not less than two (2) feet above the roof and is equipped with an automatic vent opening, does not face an interior lot line or within ten (10) feet thereof, and is not located within twenty (20) feet of an opening in adjacent walls.

SEC. 913.5 - BOTTOM ENCLOSURE. All shafts that do not extend to the bottom of the building or structure shall be enclosed at the lowest level with construction of the same strength and fire-resistance as the lowest floor through which it passes, but in no case with a fire-resistance rating less than that of the shaft enclosure.

SEC. 913.6 - EXISTING SHAFTWAYS. In all existing shaftways of buildings of assembly (Use Groups F1, F2, F3 and F4) institutional (Use Groups H1 and H2), and residence classifications (Use Groups L1 and L2) which are not already enclosed as herein required, the Director shall order such construction as he may deem necessary to insure the safety of the occupants.

SEC. 913.7 - SHAFT OPENINGS. No openings other than necessary for the purpose of the shaftway shall be constructed in shaft enclosures; and all openings shall be protected with approved fire doors, curtains, shutters or fixed metal sash with wire glass complying with the provisions of Section 920.0 and Section 921.0.

SEC. 914.0 - FLOORS AND ROOFS

SEC. 914.1 - FIRE-RESISTIVE CEILINGS. When a fire-resistive ceiling is an essential part of a floor or roof assembly to establish a specified fire-resistance rating, all lighting, air-conditioning and other fixtures and ducts shall be so installed as not to decrease the fire-resistance of the floor construction.

SEC. 914.2 - HOLLOW FLOOR AND ROOF CONSTRUCTION. Floor and roof constructions in which the individual members are not separately encased in fire-resistive materials or assemblies of component materials, shall be firestopped in areas of five hundred (500) square feet or less

with incombustible materials in accordance with Section 924.0. When open-web joists are used as secondary floor members, solid-web joists of the same depth shall be approved for use as firestops; and the girders shall be protected as required in Section 915.1.

SEC. 915.0 - BEAMS AND GIRDERS

All beams and girders shall be protected with incombustible materials or assemblies of component materials to afford the fire protection specified in Table 5.

SEC. 915.1 - SUSPENDED CEILING PROTECTION. When the beams and girders supporting floor or roof construction are not individually fireproofed, secondary beams may be protected by a suspended ceiling of the required fire-resistance rating.

SEC. 915.2 - WALL SUPPORTS. Beams and girders which support masonry walls shall be protected to afford the same fire-resistance as the wall construction supported thereby.

SEC. 916.0 - WALL LINTELS

SEC. 916.1 - FIRE PROTECTION. Unless supported or suspended from structural wall girders protected with insulating materials of the required fire-resistance or when the opening is spanned by a masonry arch of the required strength, all lintels over openings in masonry walls more than eight (8) feet in length shall be fireproofed as required for wall girders of the specified type of construction.

SEC. 916.2 - STONE LINTELS. Except when otherwise approved by the Director, the use of stone lintels on spans exceeding four (4) feet shall be prohibited unless supplemented by fireproofed structural members or masonry arches of the required strength to support the superimposed wall load.

SEC. 917.0 - COLUMNS

All approved metal columns and reinforcement in concrete columns shall be protected with incombustible materials or assemblies of component materials to afford the fire-resistance specified in Table 5.

SEC. 917.1 - EXTERIOR COLUMNS. Columns located in exterior walls or along the outer lines of a building or structure shall be protected against corrosion by cement parging, waterproofing, or other approved methods complying with Section 885.0. The interior faces of such column shall be protected and insulated with the coverings of the required fire-resistance rating specified for interior columns of the building.

SEC. 917.2 - LUGS AND BRACKETS. The extreme outer edge of brackets, wind bracing angles, gussets and other connection details may extend to within one (1) inch of the outer face of the fire-protective covering.

SEC. 917.3 - EMBEDDED PIPING. Heating pipes and vent ducts and similar service equipment shall be installed outside of the protective covering on columns; except that plumbing pipes, wires, conduits and cables that occupy not more than one-quarter ($1/4$) of the fireproofed surface of any rectangular column face or more than ten (10) per cent of the perimeter of a round column may be embedded in the required fireproof protection.

SEC. 917.4 - MECHANICAL PROTECTION. Where the fire-resistive covering on columns is exposed to injury from moving vehicles or handling of merchandise, the fireproofing shall be jacketed for a height of not less than five (5) feet from the finished flooring with an approved metal or other incombustible covering.

SEC. 917.5 - ANCHORS, BANDS AND TIES.

.51 Concrete Reinforcement. Concrete fire-protection shall be reinforced and anchored by wire mesh, metal caging, metal clips or spirally wound wire of approved types. Wire fabric shall be not less than No. 12 U.S. gage, four (4) by four (4) inch mesh or its equivalent; spirally wound wire shall be not less than No. 10 U.S. gage spaced not over four (4) inches on center.

.52 Gypsum Concrete Reinforcement. Poured-in-place gypsum fire-protection shall be reinforced and anchored by wire fabric of not less than No. 16 U.S. gage, two (2) by two (2) inch mesh or No. 14 U.S. gage, four (4) by four (4) inch mesh.

.53 Masonry Unit Ties. Block and tile units shall be securely anchored or bonded by wall ties, metal mesh or metal U-clips in the horizontal joints, or outside tie wires not less than No. 16 U.S. gage with at least one (1) tie around every block course; or shall consist of specially designed units furnishing positive anchorage to the structural member and to other units.

.54 Exposed Ties. When outside tie wires are used, they shall be protected by not less than one-half ($1/2$) inch of cement mortar, or gypsum plaster or the equivalent fire-resistive covering.

SEC. 917.6 - REINFORCED CONCRETE.

.61 Required Thickness. The thickness of protection required outside of reinforcing steel shall be proportioned by test to meet the fire-resistive requirement of Table 5, based on the classification of concrete for fire-resistive purposes in Section 819.0.

.62 - Minimum Column Protection. In no case shall the exterior protection on concrete columns be less than one and one-half (1 1/2) inch in thickness.

SEC. 918.0 - TRUSSES

SEC. 918.1 - INDIVIDUAL ENCASEMENT. Where required by Table 5, in fireproof and fire-protected buildings and structures, or to support masonry walls, the individual members of trusses shall be entirely encased in materials or assemblies having the specified fire-resistance rating; except that the protective covering may be omitted from individual members of roof trusses, including the roof beams and purlins, when a continuous ceiling of the specified fire-resistance rating for the type of construction is provided below the lower chord of the truss, and the space above the ceiling is completely enclosed and firestopped. The enclosed truss shall be provided with an access doorway with maximum dimensions of three (3) by three (3) feet, equipped with an opening protective of the same fire-resistance rating as the required truss protection.

SEC. 918.2 - EXCEPTIONS.

.21 - One-Story Buildings. In all one-story buildings and structures, except high hazard occupancies (Use Group A) and assembly occupancies (Use Group F1 and F2) the required protective covering may be omitted from the members of the roof truss, and from the roof beams and purlins.

.22 - Structural Framework Of Roof Less Than Twenty Feet Above Floor. In multistory buildings of types of construction in which fire protected coverings of the structural framework are required by Table 5 and under the provisions of this Code, the fire protection of individual members of the roof truss may be omitted when the clear height of the lower chord of the truss is more than twenty (20) feet above the floor, gallery or balcony immediately below, provided a one (1) hour continuous suspended ceiling is installed and the space above the ceiling is fire-stopped.

.23 - Structural Framework Of Roof More Than Twenty Feet Above Floor. When every part of the structural framework is twenty (20) feet or more above the floor immediately below, all fire-protection of the structural members may be omitted, including roof beams and purlins.

.24 - Roof Slabs And Arches. Where the fire protection is omitted from roof trusses and purlins as herein provided in fireproof (Type 1) and incombustible (Type 2) constructions, the horizontal or sloping roofs immediately above such trusses shall be constructed of incombustible materials of the required strength.

SEC. 919.0 - EXTERIOR OPENING PROTECTIVES

The exterior openings of all buildings and structures more than three (3) stories or forty (40) feet in height, except churches (Use Group F4), residence buildings (Use Groups L2 and L3) and buildings of (Type 4) frame construction, shall have approved fire windows, shutters, curtains, doors or other approved opening protectives as specified in this Code and in the provisions of Article 4 for special uses and occupancies.

SEC. 919.1 - HORIZONTAL EXPOSURE. Opening protectives shall be provided in every opening facing a street less than thirty (30) feet in width, or within thirty (30) feet horizontally in a direct line not in the same plane of any frame structure or any opening in another structure.

SEC. 919.2 - VERTICAL EXPOSURE. Opening protectives shall be provided in every opening which is less than fifty (50) feet vertically above the roof of an adjoining structure within a distance of thirty (30) feet of the wall in which the opening is located, unless such roof construction affords a fire-resistance of not less than one and one-half (1 1/2) hours.

SEC. 919.3 - CLOSING DEVICES. Unless otherwise specifically provided in this article, all approved window protectives shall be of the automatic or fixed sash type; and all approved fire doors shall be self-closing.

SEC. 919.4 - EXCEPTIONS.

.41 - First Story. The required opening protectives may be omitted in first story openings facing on a street or other public space not less than thirty (30) feet wide, when not extending more than twenty-five (25) feet above grade.

.42 - Non-Automatic Protectives. Protective assemblies in exterior openings, unless self-closing or provided with approved automatic closing devices operative from either side, shall be closed at the end of business hours and at all times except when required for light and ventilation under the provisions of Article 5 of this Code.

SEC. 920.0 - FIRE DOORS

SEC. 920.1 - FIRE-RESISTANCE RATING. Approved fire door assemblies shall be constructed of any material or assembly of component materials to afford the degree of fire-resistance including hanging and operating hardware as determined by the tests specified in Section 904.4 and as specified in this Code and the rules adopted thereunder for the use and location for which they are intended but not less than the following fire-resistance ratings:

- 3 hour fire doors.....for use in fire walls or assemblies of three (3) hour or more fire-resistance rating;
- 1½ hour fire doors.....for use in fire partitions or assemblies of two (2) hour fire-resistance rating; except where otherwise specifically permitted;
- 1 hour fire doors.....for use in fire-resistive partitions and in assemblies of less than two (2) hour fire-resistance rating.

SEC. 920.2 - MULTIPLE DOORS.

.21 - Fire Walls. Two (2) doors of one and one-half (1 1/2) hour resistance each, installed on opposite sides of the same opening, shall be deemed equivalent in fire-resistance to one (1) three (3) hour fire door; provided that both doors shall be arranged to operate simultaneously and shall be equipped with an automatic self-closing device.

.22 - Fire Partitions. Two (2) doors of three-quarter (3/4) hour resistance each installed on opposite sides of the same opening or when installed at the entrance and exit to a vestibule shall be deemed equivalent in fire-resistance to one and one-half (1 1/2) hour fire door; provided that both doors shall be arranged to operate simultaneously and shall be equipped with an automatic self-closing device.

SEC. 920.3 - CONSTRUCTION OF FIRE DOORS.

.31 - Equipment. All approved fire doors shall be constructed of the flush or panel type, equipped with hardware and with wire glass panels as permitted in Section 922.0 or in the approved rules adopted thereunder; and the bucks or frames shall be equipped with the approved means of anchorage.

.32 - Alternate Closing Devices. Except as may be otherwise provided for openings in fire walls, fire partitions and fire-resistive partitions Section 909.0, 910.0, 911.0 and 912.0, all fire doors shall be self-closing and shall be closed during occupancy of the building or structure.

SEC. 921.0 - FIRE WINDOWS AND SHUTTERS

Approved assemblies of fire windows and fire shutters including frames and hardware shall meet the test requirements of Section 904.4 of this article, and the duration of the fire test shall be not less than three-quarter (3/4) hours.

SEC. 921.1 - CONSTRUCTION.

.11 - Materials. Frames and sash shall be constructed of solid or hollow metal section, metal covered wood or any other type of

incombustible construction meeting the three-quarter (3/4) hour fire test requirements.

.12 Window Mullions. All metal mullions which exceed twelve (12) feet in height shall be protected with insulating materials to afford the same fire-resistance as required for the wall construction in which the protective is located.

SEC. 921.2 - SWINGING FIRE SHUTTERS. When fire shutters of the swinging type are used in exterior openings, at least one (1) row in every three (3) vertical rows shall be arranged to be readily opened from the outside and shall be identified by distinguishing marks or letters not less than six (6) inches high.

SEC. 921.3 - ROLLING FIRE SHUTTERS. When fire shutters of the rolling type are used, they shall be of approved counter-balanced construction that can be readily opened from the outside.

SEC. 922.0 - WIRED GLASS.

The use and construction of wired glass in approved opening protective assemblies shall be limited in area and location as provided herein and in the approved rules adopted hereunder.

SEC. 922.1 - FIRE WALL PROTECTIVES. Wired glass in fire doors located in fire walls shall be prohibited.

SEC. 922.2 - FIRE PARTITION PROTECTIVES. Wired glass vision panels located in fire partitions shall be prohibited.

SEC. 922.3 - FIRE-RESISTIVE PARTITION PROTECTIVES. Wired glass panels in three-quarter (3/4) hour fire doors shall not exceed a total exposed area of seven hundred twenty (720) square inches constructed in accordance with the approved rules.

SEC. 922.4 - EXITWAY PROTECTIVES. Fire doors in elevator enclosures may be equipped with vision panels as prescribed by the Director unless specifically required to be solid in such locations where unusually hazardous conditions prevail. (See Section 1619.0).

SEC. 923.0 - FIRE-RESISTIVE REQUIREMENTS FOR PLASTER.

SEC. 923.1 - THICKNESS. The required thickness of plaster protection for fire-resistive purposes shall be determined by the applicable fire tests prescribed in Section 904.0 of this article for the specified use and type of construction and in accordance with the provisions of Section 822.0 for interior plastering and Section 823.0 for exterior plastering and the approved rules adopted thereunder.

.11 - How Measured. The thickness in all cases shall be measured from the face of the plaster base when applied directly to masonry walls or from the face of the lath when applied to wood, gypsum fiber board or metal lath.

SEC. 923.2 - PLASTER EQUIVALENTS. For fire-resistive purposes, one-half (1/2) inch of unsanded gypsum plaster shall be deemed equivalent to three-quarter (3/4) inch of sanded gypsum or Portland cement plaster.

SEC. 923.3 - INCOMBUSTIBLE FURRING. In fireproof (Type 1) and incombustible (Type 2) constructions, plaster shall be applied directly on masonry or on an approved plastering base with incombustible furring.

SEC. 923.4 - PLASTER ALTERNATES FOR CONCRETE. In reinforced concrete construction, gypsum or Portland cement plaster applied on metal lath in contact with the concrete, may be substituted for one-half (1/2) inch of the required poured concrete protection.

SEC. 923.5 - PARTY AND FIRE WALLS. Where gypsum or Portland cement plaster is used to develop the required fire-resistance of fire walls and party walls, it shall be not less than one-half (1/2) inch thick.

SEC. 924.0 - FIRESTOPPING

Firestopping shall be designed and constructed to close all concealed draft openings and to form effectual fire barriers against the spread of fire between stories of every building and in all open spaces therein; including the locations specified in Section 1118.0 for pipe duct and flue openings, in Section 1818.0 for fire dampers and curtains, and in Section 912.0 for hollow partition construction, Section 914.0 for hollow floor constructions and in Section 918.0 for the space between roofs and fire-resistive ceiling construction.

SEC. 924.1 - FIRESTOPPING MATERIALS. All firestopping shall be constructed of incombustible materials consisting of asbestos, brick, terra cotta, concrete, fiber glass, gypsum, mineral wool, rock wool, steel, iron, metal lath and cement or gypsum plaster, formed-steel of not less than No. 20 U.S. gage, or other approved incombustible materials, securely fastened in place; except that firestops of two (2) thicknesses of one (1) inch lumber with broken lap joints, or of two (2) inch lumber installed with tight joints shall be permitted in open spaces of wood framing.

SEC. 924.2 - VERTICAL SEPARATION OF WINDOWS.

.21 - Where Required. In all buildings and structures designed for storage, mercantile, industrial and business uses (Use Groups A, B, C, D and E), exceeding three (3) stories or forty (40) feet

in height, openings in exterior walls which are required to have a fire-resistance rating of more than one (1) hour, located vertically above one another shall be separated by apron or spandrel walls not less than three (3) feet in height extending between the top of any opening and the bottom of the opening next above.

.22 - Fire-Resistance Rating. The apron or spandrel walls shall be constructed with the same fire-resistance required for the exterior wall in which located as specified in Table 5.

SEC. 924.3 - INSPECTION OF FIRESTOPPING. No firestopping shall be concealed or covered until inspected and approved by the Director.

SEC. 925.0 - TRIM AND FINISH

For the purpose of controlling the fire hazard of materials attached or applied to the structural walls, floors and ceilings of the buildings and structures, other than the component structural elements comprising the building frame defined by the classification of structures in Article 2 and the specified fire-resistance ratings of Table 5, all accessory materials including interior trim, interior finish, insulating and decorating materials and exterior trim shall be classified as combustible, incombustible, slow-burning and flame-resistive as defined in this Code.

SEC. 925.1 - INTERIOR TRIM. Interior trim shall be construed to include floor sleepers, flooring, interior doors, bucks, trim and casings, nailing blocks and grounds, window sash and frames, free-standing mouldings, chair rails, baseboards, wainscoting, paneling and all other interior non-load bearing trimming elements.

SEC. 925.2 - INTERIOR FINISH. Interior finish shall be construed to include all wall and ceiling finishes directly applied thereto, for acoustical correction, surface insulation, and similar usages but not including surface finishes of paper or of materials having no greater fire hazard than paper, which are not more than one-twentieth (1/20) inch in thickness when applied in one layer only.

SEC. 925.3 - DECORATIVE MATERIALS. Decorative materials shall be construed to include all decorative draperies, hangings and similar furnishings not included in the construction of the building or structure but generally attached to or suspended from the interior walls, partitions and ceilings for such purposes.

SEC. 925.4 - EXTERIOR TRIM. Exterior trim shall be construed to include exterior window frames, sash and trim, cornices, gutters, balconies, storm enclosures and all ornamental and decorative elements accessory to the structural building frame.

SEC. 925.5 - INORGANIC MATERIALS. For the purposes of this Code, fiber glass, asbestos and similar approved inorganic materials which do not contribute to the spread of flames nor generate smoke nor toxic fumes shall be deemed to be incombustible and not subject to any restrictions for trim, finish or decorative purposes, whether required herein or for special uses and occupancies in Article 4. Paint or other finish coatings applied to such bases shall be subject to the requirements of this article governing flame spread and toxic gas generation.

SEC. 926.0 - TRIM AND FINISH IN EXITWAYS.

All materials used for interior trim and finish in required exitways in all buildings, except one and two family dwellings less than three (3) stories or thirty-five (35) feet in height shall comply with the provisions of this section.

SEC. 926.1 - PUBLIC CORRIDORS. In the public corridors of hotels and apartment buildings (Use Groups L1 and L2) and institutional buildings (Use Groups H1 and H2), two (2) stories or more in height or having sleeping accommodations for more than fifteen (15) persons, and in all buildings of other use groups exceeding three (3) stories and forty (40) feet in height, only approved flame-resistive or incombustible materials shall be used which do not give off smoke or fumes in more than negligible quantities; nor shall any finish be applied to walls and ceilings involving volatile, flammable substances or oils which produce toxic fumes or excessive smoke when exposed to fire or flame.

SEC. 926.2 - REQUIRED STAIRWAYS. Except for handrails, required exit stairways shall be constructed entirely of incombustible materials in accordance with Section 618.0.

SEC. 926.3 - GRADE LOBBIES. First floor or grade lobbies serving as exitways from interior stairways shall comply with all the provisions of Section 613.0 of Article 6 and the trim and finish shall be of approved incombustible materials.

SEC. 926.4 - ELEVATOR CARS. Passenger elevator cars shall be constructed of incombustible materials as required in Section 1621.0.

SEC. 927.0 - INTERIOR TRIM RESTRICTIONS IN BUILDINGS

UNDER 124 FEET IN HEIGHT.

In all buildings and structures not more than ten (10) stories or one hundred twenty-four (124) feet in height, of fireproof constructio

(Types 1A and 1B) and incombustible construction (Types 2A and 2B), except in stair enclosures and required exitways as provided in Section 926.0, the use of combustible trim shall be permitted as herein provided; and except as specified in Section 418.15 for theatres and similar places of public assembly (Use Groups F1 and F2).

SEC. 927.1 - SLEEPERS, BUCKS AND GROUNDS. Floor sleepers, bucks, nailing blocks and grounds may be constructed of combustible materials, provided the space between the fire-resistive floor construction and the flooring is solidly filled with incombustible materials; and in floor construction with a fire-resistance rating of not more than one and one-half (1 1/2) hours, combustible sleepers may be used without such filling when firestopped in areas under the flooring not exceeding one hundred (100) square feet nor more than twenty-five (25) feet in any one direction, provided no such open spaces shall extend under or through permanent partitions or walls.

SEC. 927.2 - FLOORING ON SLEEPERS. Wood finish flooring may be attached directly to the embedded or firestopped wood sleepers.

SEC. 927.3 - FLOORING ON FIRE-RESISTIVE ARCHES. One (1) inch of wood finish flooring, and wearing surfaces of other approved materials including one-half (1/2) inch or less in thickness of cork, rubber composition, linoleum, asphalt and composition tile and other materials cemented directly to the top surface of approved fire-resistive construction or cemented directly to a subfloor of wood backed up solidly with incombustible materials, shall be permitted.

SEC. 927.4 - INTERIOR TRIM, DOORS AND WINDOW SASH. Where fireproof opening protectives are not required under the provisions of this Code, interior doors and sash with their frames, trim and casings and other interior trim of wood or other combustible materials of equal fire safety shall be permitted when applied directly to or backed up solidly with fire-resistive construction meeting the requirements of this article.

SEC. 928.0 - INTERIOR TRIM RESTRICTIONS IN BUILDINGS OVER 124 FEET IN HEIGHT

In all buildings and structures exceeding ten (10) stories or one hundred twenty-four (124) feet in height, all interior trim shall be incombustible, except as herein provided.

SEC. 928.1 - TRIM EXCEPTIONS. Approved combustible materials may be used for face veneers with an aggregate thickness of not more than one-twentieth (1/20) inch when glued to approved incombustible cores or backings; and for general trim in spaces not exceeding twelve hundred fifty (1250) square feet in area when such spaces are enclosed in approved fire-resistive partitions, or walls.

SEC. 928.2 - WOOD VENEERS. Untreated wood veneers not more than one-twentieth (1/20) inch thick may be used without restriction as to location when mounted directly on incombustible cores or fire-resistive construction.

SEC. 928.3 - WAINSCOTING AND PANELING. Wainscoting and paneling of wood and similar materials of equal combustible characteristics applied to nailing strips not over one (1) inch in thickness and so constructed as not to create concealed spaces may be permitted provided that in rooms or areas in excess of five thousand (5,000) square feet all such material shall be treated to be incombustible or slow-burning.

SEC. 928.4 - BACKING OF TRIM. Except as herein provided, all interior trim of combustible materials where permitted, shall be applied directly to an approved incombustible base or shall be backed up solidly with approved incombustible materials.

SEC. 929.0 - INTERIOR FINISH RESTRICTIONS

The requirements of this section shall apply to all materials used for interior finish on ceilings and walls in other than stairway enclosures and required exitways and in other than one and two family dwellings.

SEC. 929.1 - ASSEMBLY AND INSTITUTIONAL OCCUPANCIES. In public assembly buildings (Use Groups F1 and F2) and institutional buildings (Use Groups H1 and H2) exceeding one (1) story in height in which eating, entertainment or sleeping accommodations are provided for seventy-five (75) or more persons, all interior finish shall be of incombustible materials.

SEC. 929.2 - OTHER USE GROUPS.

.21 - Fireproof And Incombustible Buildings. In all buildings and structures of fireproof and incombustible (Types 1 and 2) construction in use groups other than specified in Section 929.1, the interior finish may consist of slow-burning materials when mounted directly on and securely attached to fire-resistive or incombustible bases, or when backed up solidly with incombustible materials; except that approved combustible materials used for acoustical treatment, surface insulation and similar purposes may be applied as required in Section 928.3 for wood wainscoting.

.22 - Non-Fireproof Buildings. In all buildings and structures of masonry enclosed (Type 3) construction and frame (Type 4) construction, the interior trim shall be unrestricted except as provided in Section 926.0 for exitways.

SEC. 929.3 - OVER 148 FEET IN HEIGHT. In all buildings over one hundred forty-eight (148) feet in height, all finish shall be of incombustible materials.

SEC. 930.0 - DECORATIVE MATERIAL RESTRICTIONS

In places of assembly occupied by seventy-five (75) or more persons, draperies, hangings and other decorative materials which exceed in amount ten (10) per cent of the surface area of walls or ceiling from which they are suspended shall be flame-resistive. When the amount of decorative material is ten (10) per cent or less of the area of walls or ceilings to which they are attached, the material shall be slow-burning.

SEC. 931.0 - EXTERIOR TRIM RESTRICTIONS

In all buildings and structures exceeding twelve (12) stories or one hundred forty-eight (148) feet in height, the exterior window sash, doors and frames shall be constructed of metal or other approved incombustible materials.

SEC. 931.1 - GUTTERS AND LEADERS. All gutters and leaders hereafter placed on buildings and structures other than frame structures (Type 4) and one and two family dwellings, private garages and other accessory buildings, shall be constructed of incombustible materials.

SEC. 931.2 - CORNICES AND HALF-TIMBERING.

.21 - Where Required Incombustible. All cornices, including those on show windows on the exterior of any building or structure, except buildings of frame construction (Type 4), shall be constructed of metal-covered wood or other approved incombustible materials and shall be secured to the wall with metal or other approved incombustible anchors and brackets; except that outside the First Fire District, such cornices may be of frame construction if the building does not exceed three (3) stories or thirty-five (35) feet in height.

.22 - Firestopping Of Combustible Cornices. Continuous exterior cornices of combustible materials shall be firestopped as required in Section 888.0.

.23 - Combustible Half-Timbering. Exterior half-timbering and other decorative treatment may be constructed of wood or other equivalent combustible materials when erected on the face of masonry enclosure walls in buildings of masonry enclosed construction (Type 3) that do not exceed four (4) stories or fifty-two (52) feet in height, provided such trim is backed up solidly with approved incombustible materials.

SEC. 931.3 - BALCONIES AND BAY WINDOWS. All balconies, bay and oriel windows attached to or supported by walls of other than frame construction shall be of incombustible construction framed with brackets of steel, concrete or other approved incombustible material, unless specifically exempted in Section 303.0 and Section 304.0.

SEC. 931.4 - EXISTING COMBUSTIBLES. Any existing cornice or other decorative elements constructed of wood or other combustible material may be repaired with the same material if in the opinion of the Director the public safety is not thereby endangered.

SEC. 932.0 - ROOF STRUCTURES.

All construction other than aerial supports less than twelve (12) feet high, water tanks and cooling towers as hereinafter provided and flag poles erected above the roof of any part of any building or structure located in FIRE DISTRICT NO. 1, or of any building or structure more than thirty-five (35) feet in FIRE DISTRICT NO. 2, shall be constructed of incombustible materials.

SEC. 932.1 - SCUTTLES.

.11 Size. Unless provided with some other means of access to the roof, every building and structure more than twenty (20) feet in height, except dwellings with peak roofs and all other buildings having roofs with a pitch greater than twenty (20) degrees, shall have an access trap door not less than two (2) by three (3) feet in area, securely attached or anchored to the roof framing, with ladder leading thereto from the top story.

.12 Construction. The trap door or scuttle shall be of fire-resistive construction in fireproof (Types 1A and 1B), and incombustible buildings (Types 2A and 2B); and of approved incombustible materials, or of wood, covered on top and edges with sheet metal in masonry enclosed (Type 3) and frame structures (Type 4).

SEC. 932.2 - SKYLIGHTS.

.21 Sash And Frames. Skylights which are inclined more than thirty (30) degrees from the vertical hereafter constructed on all buildings and structures except frame structures (Type 4) and all skylights on fireproof and incombustible buildings (Types 1 and 2) shall have the sash and frames thereof constructed of metal or other approved incombustible materials. In foundries or buildings where acid fumes deleterious to metal are incidental to the use of the building, the use of wood or other approved noncorrosive materials shall be permitted in accordance with the approved rules.

.22 - Plain Glass. Skylights placed over shaftways shall be glazed with plain glass not more than three-sixteenth ($3/16$) inch thick; and the top of the shaft shall be vented as required in Section 516.0.

.23 - Wired Glass. Skylights in all locations other than over shafts shall be glazed with wired glass conforming to Section 922.0. No single pane of wired glass shall exceed seven hundred twenty (720) square inches in area or more than forty-eight (48) inches.

.24 - Screens. Plain glass skylights shall be protected by substantial corrosion-resistive metal or other approved incombustible screens having a mesh not less than three-quarter ($3/4$) by three-quarter ($3/4$) inches nor larger than one (1) by one (1) inches, constructed of not lighter than No. 12 B and S gage wires. The screens shall be erected at a distance of not less than four (4) nor more than ten (10) inches above all glazed portions of the skylight and shall project on all sides for a distance of not less than the height of the screen above the glass. A similar screen shall be placed below the skylight to afford protection to the occupants of the building. The provisions for wired glass or screen protection shall not apply to the construction of greenhouses.

SEC. 932.3 - BULKHEADS.

.31 - Incombustible Materials. Unless constructed of masonry or reinforced concrete complying with the provisions of Section 873.8, all bulkheads erected on buildings and structures of fireproof and incombustible construction (Types 1 and 2) shall be enclosed in walls of incombustible materials and protected with weather resisting roof and wall coverings complying with Section 933.0.

.32 - Combustible Materials. Bulkheads erected on the roof of masonry enclosed buildings (Type 3) and protected frame (Type 4) may be constructed of combustible materials protected to afford a one hour fire-resistance rating, covered on the outside with approved materials.

SEC. 932.4 - PENTHOUSES.

.41 - Additional Story. Penthouses occupying thirty (30) per cent or more of the roof area or exceeding four hundred (400) square feet shall be considered a story of the building and the enclosure shall conform to the requirements for exterior walls of the building type complying with Table 5 and Article 8.

.42 - Doors, Frames And Sash. Doors, frames, windows and sash, except where otherwise specifically required to be fire-resistive under the provisions of Section 919.0, shall be constructed the same as other similar elements in the building or structure.

SEC. 932.5 - MANSARDS AND SLOPING ROOFS.

.51 - Sloping Roofs. Every mansard or other sloping roof having a pitch of more than sixty (60) degrees to the horizontal hereafter erected on any building or structure over thirty-five (35) feet in height shall be constructed of incombustible materials as prescribed in Table 5 for exterior walls.

SEC. 932.6 - DORMER WINDOWS. All dormer windows hereafter erected shall be of the same type of construction as the roof and sidewalls of the building on which they are located, unless otherwise approved by the Director. They shall be protected with approved roof coverings of the same type and fire-resistance as the roofing of the building.

SEC. 932.7 - WATER TANKS.

.71 - Supports. Water tanks having a capacity of more than five hundred (500) gallons placed in or on a building for the storage of potable water supplies and for use in the building services, including air conditioning and fire prevention purposes, shall be supported on masonry, reinforced concrete, steel or other approved incombustible framing; provided that when such supports are located within the building, they shall be fire protected as required for fireproof construction (Type 1A).

.72 - Emergency Discharge. A pipe or outlet fitted with a quick opening valve, shall be located in or near the bottom of the tank to enable the contents to be discharged to a suitable drain.

.73 - Location. No tank shall be located over or near a stairway or elevator shaft unless a solid roof or floor deck of the necessary strength is constructed underneath the tank.

.74 - Tank Cover. All unenclosed roof tanks exposed to the weather shall have metal covered wood or other approved incombustible covers sloping toward the outer edges at an angle of thirty (30) degrees or more to the horizontal.

.75 - Hoop And Strap Protection. When metal hoops are used in the construction of wood tanks, they shall be protected with approved corrosion-resistive coatings or shall be manufactured from approved corrosion-resistive alloys.

SEC. 932.8 - COOLING TOWERS.

.81 - Located In Fire District No. 1. In Fire District No. 1 cooling towers erected on the roofs of buildings shall be constructed of incombustible materials except that drip bars may be of wood not less than one (1) inch in nominal thickness.

.82 - Located In Fire District No. 2. In Fire District No. 2 cooling towers may be constructed of wood or other approved combustible materials, except that when located on buildings exceeding thirty-five (35) feet in height, the drip bars only may be fabricated of combustible materials.

SEC. 932.9 - MISCELLANEOUS ROOF STRUCTURES. All radio and other towers, spires, dormers or cupolas shall be erected of the type of construction and fire-resistance rating required for the building to which they are attached as specified in Tables 5 and 6; except that when the height of such appurtenant structures exceeds eighty-five (85) feet above grade or when the area at any horizontal section of the tower, spire, dormer or cupola exceeds two hundred (200) square feet, the structure and its supports shall be of fireproof construction (Type 1) or incombustible construction (Type 2).

.91 - Snow Guards. Roofs shall be equipped with approved snow guards when the Director considers such protection necessary.

SEC. 933.0 - ROOFING

All approved roofing materials shall meet the applicable standards cited in Appendix C for quality and character and the test specifications of Section 904.5 and the approved rules adopted thereunder to determine resistance to weather, ignition from burning brands and flame spread and to furnish protection from transmitted temperatures.

SEC. 933.1 - EXISTING ROOFS. The repair of existing roofs shall comply with the provisions of Section 106.0 but in no case shall more than twenty-five (25) per cent of the roof covering of any building be replaced in a period of twelve (12) months unless the entire roofing is made to conform to the requirements of this Code for new roofing.

SEC. 933.2 - ROOF COVERINGS. All roof coverings shall be of asbestos, brick, concrete, metal, slate, tile, prepared asphalt, asbestos felt or laminated felt roofing finished with asphalt, slag, gravel or similar incombustible, moisture-resistant materials; or approved combinations of materials, complying with the requirements of Class 1, 2 or 3 roofing.

SEC. 933.3 - ROOF DECKING AND SHEATHING.

.31 - Combustible Decking. Unless attached directly to incombustible framework, all roof coverings shall be applied to a closely fitted deck.

.32 - Fire And Party Wall Restrictions. No wood planking, sheathing, or other combustible decking when used in roof construction shall extend through or over any party wall or fire wall or across any lot line.

SEC. 933.4 - ROOF INSULATION. The use of cork, fiber board and other combustible roof insulation shall be permitted provided it is covered with approved roof coverings directly applied thereto.

ARTICLE 10 - CHIMNEYS, FLUES AND VENTS

SEC. 1000.0 - SCOPE

The provisions of this Article and the approved rules adopted thereunder shall control the design and construction of all chimneys, flues and vents hereafter erected or altered in all buildings and structures.

SEC. 1000.1 - OTHER STANDARDS. Unless otherwise specifically provided herein or in the approved rules, conformity with the applicable standards for chimney construction listed in Appendix B shall be deemed to comply with the provisions of this Code.

SEC. 1000.2 - MINOR REPAIRS. Minor repairs for the purposes of maintenance and upkeep which do not increase the capacity of heating apparatus or appliances or which do not involve structural changes in the permanent chimneys and flues of a building may be made without a permit.

SEC. 1001.0 - DEFINITIONS

CHIMNEY. A masonry or reinforced concrete structure which is primarily vertical and encloses one or more flues for the removal of the products of combustion.

DUCT. A tube, pipe, conduit or continuous enclosed passageway used for the conveying of air or gases or the removal of inflammable vapors. (See Section 1801.0).

FLUE. An enclosed passageway in a chimney which is primarily vertical used for the removal of the products of combustion.

Hood. A canopy or similar device which is placed over a heating apparatus and is connected to a flue or vent for the removal of heat, fumes or gases.

SMOKEPIPE. A pipe or breeching which is primarily horizontal and which connects a heating appliance to a flue or chimney.

SMOKESTACK. A vertical metal flue to which one or more smokepipes are connected.

VENT. A pipe for the removal of the products of combustion from a gasfired appliance.

SEC. 1002.0 - PLANS AND SPECIFICATIONS

The structural and architectural plans and specifications shall describe in sufficient detail the location, size and construction of

all chimneys, smokestacks, smokepipes, fireplaces, flues, vents and ducts and their connections to boilers, heating and gas appliances. The thickness and character of all insulation materials, clearances from walls, partitions, floors and ceilings and proximity of heating devices and equipment to wall openings and exitways shall be clearly shown and described.

SEC. 1003.0 - TESTS

The Director may require a test or tests of all chimneys, ducts, flues and vents to insure gas, smoke and flame tightness in accordance with the approved rules.

SEC. 1004.0 - CHIMNEY CLASSIFICATIONS

SEC. 1004.1 - LOW TEMPERATURE. A chimney in which the products of combustion at the point of entrance to the chimney have a temperature of six hundred (600) degrees F or less during normal operation shall be classified as low temperature.

SEC. 1004.2 - MEDIUM TEMPERATURE. A chimney in which the products of combustion at the point of entrance to the chimney have a temperature between six hundred (600) and twelve hundred (1200) degrees F during normal operation shall be classified as medium temperature.

SEC. 1004.3 - HIGH TEMPERATURE. A chimney in which the products of combustion at the point of entrance to the chimney have a temperature in excess of twelve hundred (1200) degrees F during normal operation shall be classified as high temperature.

SEC. 1005.0 - CHIMNEY CONSTRUCTION

Chimneys shall be constructed of masonry, reinforced concrete or other approved incombustible materials; and may be erected as free standing or as constituting an integral structural part of a wall, or may be enclosed within a structure without constituting a component part thereof. In every case a chimney shall be wholly supported on fireproof construction and shall not be designed to support any direct load other than its own weight.

SEC. 1005.1 - LOW TEMPERATURE CHIMNEYS.

.11 - Solid Masonry. When constructed of solid masonry, the walls shall be not less than eight (8) inches thick, except in one and two family dwellings as herein provided.

.12 - Reinforced Concrete. When constructed of reinforced concrete the walls shall be not less than six (6) inches thick, except in one and two family dwellings as herein provided.

.13 - Dwellings. In one and two family dwellings, the walls of a chimney may be of solid masonry or reinforced concrete not less than four (4) inches thick.

.14 - Lining. Low temperature chimneys shall be lined with an approved flue lining that conforms to the requirements of Section 1008.0 of this article and the approved rules adopted thereunder.

SEC. 1005.2 - MEDIUM TEMPERATURE CHIMNEYS.

.21 - Solid Masonry. When constructed of solid masonry, the walls shall be not less than eight (8) inches thick and shall be lined as herein provided.

.22 - Reinforced Concrete. When constructed of reinforced concrete the walls shall be not less than six (6) inches thick and shall be lined as herein provided.

.23 - Lining. Medium temperature chimneys shall be lined with not less than four and one-half (4 1/2) inches of fire brick laid up in fire clay mortar from at least two (2) feet below to not less than twenty-five (25) feet above the smokepipe entrance to the chimney.

SEC. 1005.3 - HIGH TEMPERATURE CHIMNEYS. All high temperature chimneys shall be built with double masonry or double reinforced concrete walls, each of the same thickness required for medium temperature chimneys, with an intervening air space of not less than two (2) inches; or of a single wall with an interior metal stack and intervening air space. The entire inside face of the interior wall of double wall construction shall be of fire brick at least four and one-half (4 1/2) inches thick laid in fire clay or approved high temperature cement mortar; and the interior metal stack shall be lined as specified in Section 1014.5.

SEC. 1005.4 - CHIMNEY HEIGHT. All chimneys shall extend at least three (3) feet above the adjacent roof, and at least two (2) feet above any roof ridge within ten (10) feet thereof or as may be ordered by the Director.

SEC. 1005.5 - CHIMNEY CAPS. All chimneys shall be capped with approved incombustible weatherproof materials in accordance with the approved rules.

SEC. 1005.6 - CORBELING. The corbeling of chimneys shall conform to the requirements of Section 844.0. No chimney shall be corbeled from hollow or cavity wall construction, nor from a wall built of hollow masonry units.

SEC. 1005.7 - CLEARANCES. Combustible framing shall be trimmed away from all flues and chimneys, and no combustible material shall be placed within two (2) inches of any chimney, nor within six (6) inches of any inlet opening to such chimney. (See Section 888.3).

SEC. 1005.8 - SIZE. No change in the size or shape of a chimney shall be made within six (6) inches of the roof framing through which it passes.

SEC. 1005.9 - ALTERNATE CHIMNEY CONSTRUCTION. Low and medium temperature chimneys may be constructed of double steel shells of approved corrosion-resistive metals or alloys with an intermediate air space, or of metal or cement-asbestos pipe insulated with approved incombustible materials, or other approved corrosion-resistive materials in accordance with the approved rules. Such chimneys shall be designed and protected so as to prevent a temperature rise of more than one hundred and seventy-five (175) degrees F. on the exterior surface.

SEC. 1006.0 - EXISTING BUILDINGS

SEC. 1006.1 - RAISING EXISTING CHIMNEYS. Whenever a building is hereafter erected, enlarged or increased in height so that a wall along an interior lot line, or within three (3) feet thereof, extends above the top of an existing chimney, flue or vent of an adjoining existing building, the owner of the building so erected, enlarged or increased in height shall carry up at his own expense with the consent of the adjoining property owner, either independently, or on his own building, all chimneys, flues and vents of such adjoining buildings which are within ten (10) feet of any portion of the wall extending above such adjoining chimney, flue or vent.

SEC. 1006.2 - SIZE OF EXTENDED FLUES. The construction of an extended flue shall conform to the requirements of this article for new flues, but in no case shall the internal area of such extension be less than that of the existing flue.

SEC. 1006.3 - NOTICE TO ADJOINING OWNER. It shall be the duty of the owner of the building which is erected, enlarged or increased in height to notify in writing and to secure the consent of the owner of the existing chimneys and flues affected, at least ten (10) days before starting such work. The extension shall be carried up simultaneously with the new walls.

SEC. 1007.0 - FLUE CONSTRUCTION

All heating appliances, except electric and gas fired appliances specifically exempted by the provisions of Section 1010.2, shall be connected by smokepipes or breeching to flues which conform to the provisions of this article.

SEC. 1007.1 - EXISTING FLUES. No existing flue, other than one which does not endanger the fire safety of a building or structure and which is acceptable to the Director, shall be used unless it conforms to all of the requirements of this article for new flues.

SEC. 1007.2 - CLEANOUTS AND MAINTENANCE. Whenever a new flue is completed or an existing flue is altered, it shall be cleaned inside and out and left smooth. Cleanouts or other approved devices shall be provided at the base of all chimneys and flues to enable the flues to be maintained clean.

SEC. 1008.0 - LOW-TEMPERATURE FLUE LINING

SEC. 1008.1 - FLUE LINING MATERIALS. Flue linings shall be made of fire clay or other approved refractory materials in accordance with the approved rules, capable of withstanding the action of flue gases and of resisting the temperatures to which they are subjected, but not less than two thousand (2,000) degrees F. without softening or cracking. The thickness of the shell of flue linings shall be not less than five-eighths (5/8) of an inch.

SEC. 1008.2 - FLUE LINING CONSTRUCTION. Flue linings shall be built in advance of the chimney. Not more than three (3) flues shall be enclosed in a single chimney unless separated by at least four (4) inches of masonry or reinforced concrete bonded into the chimney walls; and when not so separated, the bed joints of the flue linings shall be staggered at least seven (7) inches. Flue linings shall start from a point not less than eight (8) inches below the intake, or in the case of a fireplace at the level of the throat thereof. The lining shall be constructed as nearly vertical as possible for the entire height of the chimney, and shall extend not less than four (4) inches above the top.

SEC. 1009.0 - FLUES FOR OIL AND SOLID FUELS

SEC. 1009.1 - DESIGN. The cross sectional area of a flue for an oil or solid fuel fired appliance shall be designed and proportioned for the conditions of temperature within and without the flue, the thickness of walls, the weather exposure, shape and materials of construction, and all other determining factors in accordance with the approved rules.

SEC. 1009.2 - SIZE OF FLUES. In any case, the cross sectional area of such a flue shall not be less than herein specified; seventy (70) square inches for a warm air, hot water and low pressure steam boiler; fifty (50) square inches for a fireplace, but not less than one-twelfth (1/12) of the fireplace opening; forty (40) square inches for a stove, range or room heater; and twenty-eight (28) square inches for a small space stove or heater.

SEC. 1009.3 - VENTS PROHIBITED. Vents as herein defined shall not be used for solid or liquid fuel fired appliances.

SEC. 1010.0 - FLUES AND VENTS FOR GAS FUELS

SEC. 1010.1 - FLUES REQUIRED. All gas-fired equipment including boilers, furnaces, incinerators and all appliances which can be readily converted to the use of solid or liquid fuels and all other gas-fired appliances, except approved devices which produce flue gas temperatures not exceeding six hundred (600) degrees F. under normal operation at the outlet of the draft diverter when burning gas at the manufacturer's input rating, shall be provided with chimneys, metal smokestacks or effective flues as specified in this article.

SEC. 1010.2 - EXCEPTION. Connections by flue or vent shall not be required for electric, gas and industrial appliances of such size or character that the absence of such connection does not constitute a hazard to the fire safety of the building or its occupants.

SEC. 1010.3 - VENTS REQUIRED. All approved gas appliances in which the temperature of the flue gases exceeds six hundred (600) degrees F. under normal operation, shall be vented to the outer air with approved vents of combustible corrosion-resistive material of adequate strength and heat insulating value as provided in Section 1011.0 of this article and in accordance with the approved rules.

.31 Domestic appliances with input rating in excess of fifty thousand (50,000) B.T.U. per hour, except domestic gas ranges, shall be equipped with vents.

.32 Automatically controlled appliances with input rating in excess of five thousand (5,000) B.T.U. per hour, except single faucet-type automatic instantaneous water heaters and domestic gas ranges which are equipped with an automatic device to prevent unburned gas at the main burner or burners, shall be equipped with vents.

.33 Automatically controlled appliances with input rating less than five thousand (5,000) B.T.U. per hour, unless equipped with an automatic device to prevent the escape of unburned gas at the main burner or burners, shall be equipped with vents.

.34 Each of several appliances, not including domestic gas ranges, installed in the same room, with an aggregate input rating as great as thirty (30) B.T.U. per hour per cubic foot of room content

shall be equipped with vents, which may be connected to a common vent of approved size.

.35 Space heaters in sleeping quarters shall be equipped with vents and shall be equipped with an automatic device to prevent the escape of unburned gas at the main burner or burners.

.36 All house-heating steam or hot water boilers and warm-air furnaces including floor furnaces shall be equipped with vents and shall be equipped with an automatic device to prevent the escape of unburned gas at the main burner or burners.

SEC. 1010.4 - PROHIBITED USE. Water heaters shall not be installed in bathrooms, bedrooms or habitable rooms that are normally kept closed.

SEC. 1010.5 - SIZE OF VENTS. The cross sectional area of a flue or vent for a gas-fired appliance shall be at least one (1) square inch per seventy-five hundred (7500) hourly B.T.U. input, and the diameter shall not be less than three (3) inches in any case.

SEC. 1011.0 - VENTS FROM GAS APPLIANCES.

All vents from gas burning appliances required under the provisions of Section 1010.0 of this article shall be constructed as herein provided and in accordance with the approved rules.

SEC. 1011.1 - DRAFT DIVERter. Every flue connected appliance, except an incinerator shall be equipped with an effective draft diverter installed in accordance with the approved rules, unless the integral construction of the equipment serves the same purpose.

SEC. 1011.2 - CLEARANCES. All vents shall be installed with a clearance from combustible construction, whether plastered or unplastered, of not less than one (1) inch, provided that for a vent of a floor furnace, a water heater or a space heater, such clearance shall not be less than three (3) inches.

SEC. 1011.3 - METAL VENTS. The thickness of metal shall be not less than specified in Table 17 of Section 1019.0.

SEC. 1011.4 - VENT CONNECTION. A vent from a gas appliance shall not be inter-connected with any other vent pipe except in accordance with the approved rules.

SEC. 1011.5 - PROHIBITED USE. No gas appliance vent shall pass through an attic, concealed space, combustible floor, roof, wall or partition unless approved by the Director.

SEC. 1012.0 - SMOKEPIPES AND CONNECTIONS.

The smokepipe or breeching from every heating appliance, except for vents from gas appliances which are otherwise specifically

exempted from this requirement, shall connect with a smoke flue conforming to the provisions of Section 1007.0 and the approved rules adopted thereunder.

SEC. 1012.1 - LENGTH OF SMOKEPIPE. All smokepipes shall be as short and as straight as possible consistent with their use and the required draft conditions.

SEC. 1012.2 - SMOKEPIPE FOR SOLID OR LIQUID FUEL. A smokepipe for a furnace, boiler or apparatus which burns solid or liquid fuel shall be constructed of approved black or galvanized iron, or of masonry or other approved incombustible materials and shall fit tightly into the chimney.

SEC. 1012.3 - CHIMNEY CONNECTION OF SMOKEPIPE. A smokepipe shall enter the side of chimneys through a fire clay or metal thimble or flue ring of masonry, but shall not project beyond the inside face of the flue. A flue shall not have smokepipe connections in more than one (1) story of a building.

SEC. 1012.4 - SMOKEPIPE CLEARANCES.

.41 Unless a smokepipe is covered on the exterior with at least one (1) inch of approved insulating, incombustible material, the clearances herein specified shall be maintained from all combustible material or construction:

Pipes up to 12 inches in diameter not less than 12 inches.

Pipes from 12 inches to 36 inches in diameter not less than 20 inches.

Pipes larger than 36 inches in diameter not less than 36 inches.

The specified clearances may be reduced one-half (1/2) when an approved metal or other approved incombustible enclosing shell is installed so as to provide a continuous one (1) inch ventilating air space around the smokepipe or when the smokepipe is covered on the exterior with one (1) inch thickness of approved insulating material.

.42 A smokepipe shall not pass through an exterior wall built of combustible materials. When a smokepipe passes through an exterior wall built of incombustible materials, an approved thimble shall be provided.

SEC. 1012.5 - SMOKEPIPE CLEARANCE EXCEPTIONS.

.51 The smokepipe of a medium or high heat appliance shall not pass through any wall or partition of combustible construction.

.52 No smokepipe shall pass through a floor, ceiling, interior wall or partition.

SEC. 1012.6 - NUMBER OF SMOKEPIPES. When multiple boilers or furnaces are used to serve the same system, two (2) or more smokepipes may be joined to a single flue connection provided that the smokepipes and flues are of sufficient aggregate size, to serve simultaneously all the appliances thus connected.

SEC. 1012.7 - CONNECTIONS TO INCINERATOR FLUE. The smokepipe of a heating appliance shall not be connected to the flue of an incinerator.

SEC. 1012.8 - THICKNESS OF METAL. The minimum thickness of metal for smokepipe shall comply with the requirements of Section 1019.0 of this article.

SEC. 1013.0 - FIREPLACES

SEC. 1013.1 - CONSTRUCTION. The back and jambs of a fireplace shall be of solid masonry or reinforced concrete not less than eight (8) inches thick, with a lining of fire brick or other approved incombustible material at least two (2) inches thick; except that such lining may be omitted when the solid masonry or reinforced concrete is at least twelve (12) inches thick.

SEC. 1013.2 - HEARTH. Every fireplace shall be provided with a hearth which extends not less than twenty (20) inches in front of and not less than eight (8) inches on each side of the fireplace opening. The hearth shall be constructed of incombustible materials resting upon self-supporting trimmer arches of brick, stone, tile or concrete or other equally strong and fire-resistive construction. All combustible forms or centering shall be removed after completion of the supporting construction.

SEC. 1013.3 - FIREPLACE DAMPER. Every fireplace shall be equipped with an approved damper.

SEC. 1013.4 - FIREPLACE CLEARANCES.

.41 All header and trimmer beams of combustible floor construction shall be located at least four (4) inches from the face of chimneys and backs of fireplaces and the spaces shall be firestopped with approved incombustible materials.

.42 Wood or other combustible material shall not be installed on or about a fireplace less than six (6) inches from the fireplace opening; and combustible materials, located within the twelve (12) inch boundary of the opening, shall not project more than three (3) inches from the face of the masonry.

SEC. 1013.5 - FIREPLACE HEATERS. Unless approved by the Director, no heater, either temporary or permanent, shall be placed in a fireplace unless it conforms to the requirements of this section for such device and is provided with a flue.

SEC. 1014.0 - SMOKESTACKS.SEC. 1014.1 - CONSTRUCTION.

.11 Exterior. Exterior smokestacks shall be of adequate thickness to resist all wind stresses specified in Article 7, but shall not be less than one-eighth ($1/8$) inch thick of riveted or welded construction, securely anchored and supported in an approved manner.

.12 Interior. Interior smokestacks shall be constructed of metal not less than No. 16 U.S. gage for stacks with an area of one hundred fifty-four (154) square inches; No. 14 gage with an area from one hundred fifty-five (155) to two hundred (200) square inches; No. 12 U.S. gage with an area from two hundred-one (201) to two hundred fifty-four (254) square inches; and No. 10 gage with an area of two hundred fifty-five (255) square inches or more.

SEC. 1014.2 - SMOKESTACK CLEANOUT OPENINGS. A cleanout shall be provided at the base of every such stack.

SEC. 1014.3 - SMOKESTACK FOUNDATIONS. A smokestack erected on the exterior of a building or structure shall be supported on an independent, substantial, masonry or reinforced concrete foundation. Interior smokestacks may be supported on fireproof (Type 1A) construction at intermediate levels.

SEC. 1014.4 - SMOKESTACK PROTECTION. All metal work of smokestacks shall be galvanized or painted with an approved paint, or constructed of approved corrosion-resistive alloys.

SEC. 1014.5 - SMOKESTACK LINING. All high temperature smokestacks as defined in Section 1004.0 of this article, shall be lined with four and one-half ($4\frac{1}{2}$) inches of fire brick laid in fire clay mortar.

SEC. 1014.6 - HEIGHT OF SMOKESTACK. All metal smokestacks shall extend to a height of not less than ten (10) feet above any roof within twenty-five (25) feet horizontally thereof.

SEC. 1014.7 - EXTERIOR SMOKESTACKS.

.71 Clearances. Every exterior smokestack or part thereof erected on the exterior of a building, shall have a clearance from the wall of not less than twenty-four (24) inches if the wall is of frame or combustible construction, and of not less than four (4) inches if the wall is of incombustible construction; except that when the stack is insulated in compliance with the approved rules, the specified clearances may be reduced by one-third ($1/3$).

.72 Location. No such stack shall be located less than twenty-four (24) inches in any direction from a wall opening, exitway or fire escape.

SEC. 1014.8 - INTERIOR SMOKESTACKS.

.81 - Protection. Every interior metal stack, or part thereof, erected within a multistory building shall be enclosed in all stories, above that in which the appliance served thereby is located, with walls of three (3) hours fire-resistance and the enclosure walls shall be carried through the roof for a distance of not less than three (3) feet.

SEC. 1015.0 - CUPOLA CHIMNEYS

SEC. 1015.1 - HEIGHT OF CUPOLAS. A chimney for a cupola furnace, blast furnace or similar high heat device shall extend at least twenty-five (25) feet above any roof within a radius of fifty (50) feet thereof, and shall be covered on the top with heavy wire netting or other spark arrestor as provided in Section 1018.2 of this article.

SEC. 1015.2 - CUPOLA CLEARANCES. Woodwork or other combustible material shall not be erected nor placed within three (3) feet of any such high temperature chimney.

SEC. 1016.0 - NON-FUEL FIRED INCINERATOR CHIMNEYS

Chimneys for non-fuel fired incinerators shall be constructed as herein specified.

SEC. 1016.1 - NINE SQUARE FEET GRATE AREA. When the grate area of the combustion chamber is not more than nine (9) square feet, and the height of the building is not more than three (3) stories, the flue shall be enclosed with not less than four (4) inches of clay or shale brick masonry which is lined with approved fire clay flue lining complying with Section 1008.0.

SEC. 1016.2 - OVER NINE SQUARE FEET GRATE AREA. When the grate area of the combustion chamber is more than nine (9) square feet, or when such grate is less than nine (9) square feet but is installed in a building over three (3) stories in height, the flue shall be enclosed with at least four (4) inches of clay or shale brick masonry and lined with not less than four and one-half (4 1/2) inches of fire brick for at least forty (40) feet above the roof of the combustion chamber; and beyond the forty (40) foot level shall be enclosed with at least eight (8) inches of clay or shale brick masonry.

SEC. 1017.0 - FUEL-FIRED INCINERATOR CHIMNEYS

SEC. 1017.1 - TWO SQUARE FEET OF GRATE AREA. When the grate area of a fuel-fired incinerator is of not more than two (2) square feet in area and the height of the building is not more than three (3) stories, the flue shall be enclosed with not less than four (4) inches of clay or shale brick masonry which is lined with approved fire clay flue lining complying with Section 1008.0.

SEC. 1017.2 - MORE THAN TWO SQUARE FEET OF GRATE AREA. When the grate area of a fuel-fired incinerator is over two (2) square feet, chimneys shall be constructed of at least four (4) inches of clay or shale brick masonry which is lined with not less than four and one-half (4 1/2) inches of firebrick for at least forty (40) feet above the roof of the combustion chamber; and beyond the forty (40) foot level shall be enclosed with not less than eight (8) inches of clay or shale brick masonry.

SEC. 1018.0 - MISCELLANEOUS INCINERATOR FLUES.

SEC. 1018.1 - FLUE ENCLOSURES. All incinerator structures designed or intended for the disposal or reduction of commercial wastes or cuttings or refuse resulting from commercial processes shall be provided with a flue approved by the Director, but in no case shall such flue have walls less than twelve (12) inches thick of which the inner four and one-half (4 1/2) inches shall be firebrick for the full height of the chimney.

SEC. 1018.2 - SPARK ARRESTORS. A chimney, stack or flue, including incinerator stacks, which emits sparks that create a fire hazard, shall be provided with a spark arrester of approved incombustible construction in which the maximum size of mesh shall not exceed three-quarter (3/4) inches. The net area of spark arrestors shall be not less than one and one-half (1 1/2) times the flue area.

SEC. 1018.3 - RUBBISH CHUTE. No incinerator flue shall be used as a rubbish chute.

SEC. 1019.0 - CONSTRUCTION OF METAL DUCTS AND VENTS.

All vents, ducts and duct systems required under the provisions of Articles 10 and 11 for heating systems and equipment, and under the provisions of Articles 5 and 18 for ventilating and air conditioning systems, shall be constructed and installed in accordance with the requirements of this Code and the approved rules adopted thereunder.

SEC. 1019.1 - MATERIAL. Ducts and vents shall be constructed of galvanized steel, cement-asbestos or other approved incombustible, corrosion-resistive materials of adequate strength and durability and the seams shall be securely fastened and made substantially air and gas tight.

SEC. 1019.2 - THICKNESS OF METAL. The weight and thickness of material, type of joints, connections, bracing and other structural features shall conform to the approved rules; but shall be at least equivalent to the minimum thickness of galvanized steel prescribed in Table 18.

TABLE 18METAL DUCT AND VENT CONSTRUCTION

<u>RECTANGULAR DUCTS</u>	<u>CIRCULAR DUCTS</u>	<u>THICKNESS</u>
12 inches or less	18 inches or less	No. 26g
13 inches to 30 inches.	19 " to 30 inches.	No. 24g
31 " to 48 "	31 " to 48 "	No. 22g
49 " to 60 "	49 " to 60 "	No. 18g
61 " and more	61 " and more	No. 18g

SEC. 1019.3 - HOT AIR DUCTS.

.31 Construction. A metal duct for the conveyance of hot air, which is enclosed in a combustible partition, or in a concealed ceiling space shall be of double construction with a continuous intervening air space of not less than one (1) inch; or the duct shall be covered on the exterior with approved incombustible insulating materials not less than one-fourth (1/4) of an inch thick, of air-cell asbestos or its equivalent, or as otherwise specified in the approved rules. An approved asbestos cement duct which is not less than one-quarter (1/4) inch thick, shall be insulated by an air space of not less than one-eighth (1/8) inch.

.32 Duct Lining. The lining of hot air ducts shall be of incombustible materials.

SEC. 1019.4 - COLD AIR DUCTS. The construction of cold air ducts shall comply with all the provisions governing warm air supply ducts except in respect to the requirements for heat insulation and clearance from combustible construction.

SEC. 1019.5 - FIRESTOPPING AND CLEARANCES. Whenever the passage of ducts in walls, floors or partitions requires the removal of fire-stopping, the surrounding spaces shall be completely filled with approved incombustible materials.

.51 Metal Ducts. The clearance of a metal duct from combustible materials for a distance of six (6) feet from the furnace shall be the same as that required for furnaces in Sections 1109.0 to 1110.0 inclusive. A duct which enters a floor, wall or partition of combustible construction within six (6) feet from the furnace shall be enclosed with approved fire-resistive assemblies as required in Section 1020.0; and shall enter such floor, wall or shaft at an angle of ninety (90) degrees.

.52 - Asbestos Cement Ducts. A duct of asbestos cement or similar incombustible material shall have not less than one-eighth (1/8) inch clearance from combustible materials or construction.

SEC. 1019.6 - THIMBLES. Where a duct passes through a combustible wall or partition, the required clearance shall be protected by a metal thimble which is filled with approved incombustible insulating materials, or it shall be closed at both ends with metal collars.

SEC. 1020.0 - DUCT AND PIPE SHAFTS

In all buildings, other than one and two family dwellings, vertical ducts or pipes arranged in groups which extend through two (2) or more stories and which occupy an area of more than one (1) square foot, shall be enclosed in accordance with the requirements of Section 913.0 for shaft enclosures.

ARTICLE 11 - HEATING EQUIPMENT AND APPLIANCES

PART A

MOUNTINGS, CLEARANCES AND CONNECTIONS

SEC. 1100.0 - SCOPE.

The provisions of this article shall control the design, construction, inspection and maintenance of all heating, blower and exhaust system in all buildings and structures in respect to structural strength, fire safety and operation.

SEC. 1100.1 - OTHER STANDARDS. In the absence of approved rules, all such systems constructed and maintained in accordance with the applicable standards listed in Appendix B shall be deemed to conform with the provisions of this Code.

SEC. 1100.2 - COOPERATING AGENCIES. Nothing herein contained shall be deemed to nullify the provisions of other laws of the municipality or state governing the operation and maintenance of heating appliances and equipment, and the acceptance of the certificates and labels of inspection by authoritative national inspection agencies.

SEC. 1101.0 - DEFINITIONS.

BOILER HORSE POWER. A boiler horse power, as used herein, shall mean ten (10) square feet of boiler heating surface.

FLOOR FURNACE. A self contained furnace suspended from the floor of the space which is being heated, with means of observing the flame and lighting the furnace from such space.

LOW PRESSURE BOILER. A steel or cast iron heating boiler in which the maximum allowable working pressure is limited to fifteen (15) pounds gage per square inch for steam and thirty (30) pounds per square inch for hot water for heating.

HEATING APPLIANCE. Any device designed or constructed for the generation of heat from solid, liquid or gaseous fuel or electricity.

HIGH PRESSURE BOILER. A heating boiler not classified as a "low pressure boiler."

SPACE HEATER. An above-the-floor device, without external heating pipes or ducts, for direct heating of the space in and adjacent to that in which the device is located.

UNFIRED PRESSURE VESSEL. A closed metal vessel which contains water, steam or air under pressure of fifty (50) pounds or more per square inch gage and which is supplied from an external source.

UNIT HEATER. An appliance which consists of an integral combination of heating element and fan within a common enclosure; and which is located within or adjacent to the space to be heated.

WALL HEATER. A self contained heater which is supported from or recessed in the wall of the room or space to be heated.

SEC. 1102.0 - PLANS AND SPECIFICATIONS

Plans and specifications for the installation, repair, alteration, extension or removal of any heating appliance, or of a heating, blower, or exhaust system, shall be submitted to the Director and a permit shall be secured therefor prior to the commencement of any installation.

SEC. 1102.1 - MATTER COVERED. The plans and specifications shall show in sufficient detail all pertinent features and clearances of the appliance and stack, including size and type of apparatus, construction of the stack or chimney, stack connections, kind and rate of fuel consumption, method of operation, method of admitting air for combustion and the method of preventing the emission of solids and gases in such a manner as to be detrimental to health.

SEC. 1102.2 - PERMIT. Upon approval of the plans, a permit shall be secured from the Director before any work is started on the installation, and the permit or a copy thereof shall be posted at the site at all times during the course of construction.

SEC. 1102.3 - EXEMPTIONS. No permit shall be required for the installation, alteration, repair, extension or removal of a heating boiler or furnace in a one or two family dwelling (Use Group L3).

.31 Emergency Repairs. An emergency repair may be made prior to the application for, and the issuance of, a required installation permit in the event an emergency arises and serious consequences would result if the repair were to be deferred. When such repair is made in an emergency, application for the installation permit therefor shall be filed in duplicate by the person or his agent in the office of the Director on the first business day following the starting of such work.

SEC. 1103.0 - TESTS AND INSPECTIONS.

SEC. 1103.1 - PERIODIC INSPECTIONS. All boilers and unfired pressure vessels subject to the provisions of this article and the approved rules adopted thereunder shall be inspected at least once annually by the Director or his authorized agent.

SEC. 1103.2 - CERTIFICATE OF INSPECTION. No boiler or unfired pressure vessel subject to the provisions of this Code shall be placed in operation until a certificate of inspection has been issued.

SEC. 1103.3 - TESTS. Whenever a dispute arises as to the safety of operation or smokeless combustion of a heating device, the Director may require tests to be made at the owner's expense to determine the structural safety or the cleanliness of combustion. When a boiler or unfired pressure vessel is found unsuitable, the Director shall order such device withdrawn from service until the necessary changes have been made,

SEC. 1103.4 - BOILER RECORD. The Director shall maintain a file of all such boilers and pressure vessels, with a record of all inspections together with the recommendations and action thereon.

SEC. 1104.0 - HEATING APPLIANCE CLASSIFICATIONS.

SEC. 1104.1 - LOW HEAT APPLIANCES. A steam boiler or other appliance which operates at fifty (50) pounds per square inch or less gage pressure; or a steam boiler of not over ten (10) boiler horsepower, regardless of operating pressure; or any equipment not larger than one hundred (100) cubic feet in size, in which the products of combustion at the point of entrance to the flue have a temperature of six hundred (600) degrees F. or less under normal operating conditions.

SEC. 1104.2 - MEDIUM HEAT APPLIANCES. A steam boiler or other appliance which operates at over fifty (50) pounds per square inch gage pressure; a steam boiler of over ten (10) boiler horsepower, but not larger than one hundred (100) cubic feet in size, in which the products of combustion at the point of entrance to the flue have a temperature of between six hundred (600) degrees and twelve hundred (1200) degrees F. under normal operating conditions, shall be classified as a medium heat appliance.

SEC. 1104.3 - HIGH HEAT APPLIANCES. Any appliance which operates at higher temperatures or has a cubical content in excess of that specified in Section 1104.2, shall be classified as a high heat appliance.

SEC. 1105.C - MAINTENANCE AND OPERATION

SEC. 1105.1 - LICENSE (CERTIFICATE OF FITNESS). It shall be unlawful for any person to operate a steam boiler of more than thirty (30) horsepower and with the controls set to operate at a steam pressure of more than fifteen (15) pounds per square inch gage, without first obtaining a license from the Director in accordance with the following provisions:

SEC. 1105.2 - STATIONARY ENGINE OPERATOR AND BOILER OPERATOR. To be eligible to receive a license as a stationary engine operator and/or a boiler operator, the applicant must be at least twenty-one (21) years old. He must be of good character and reputation and the license shall be granted according to his competence, and shall be classified as follows:

.21 - Stationary Engine Operator. To be eligible for examination for a license to have charge of and operate any steam plant, steam engine, steam boiler, diesel plant and/or refrigerating machinery, a person must have been employed as a boiler operator for five (5) years, or assistant to a duly licensed operator for at least three (3) years preceding the date of application, or he must have graduated as a mechanical engineer from a recognized engineering school and must have been employed one (1) year in connection with the operation of a steam or diesel plant after receiving a permit (no fee) from the Director.

.22 - Boiler Operator. This classification includes firemen and water tenders. Any person to whom this license is issued is allowed to have charge of and operate any boiler or boilers not over one hundred (100) Boiler H.P. To be eligible for examination for this license a person must have obtained a permit (issued free by the Director) and worked for six (6) months as an apprentice or helper under the direct supervision of a duly licensed stationary engine operator or boiler operator.

SEC. 1105.3 - APPLICATIONS. Applications for licenses shall be on forms prescribed and furnished by the Director. Applications must be properly notarized.

SEC. 1105.4 - EXAMINATIONS. Examinations may be written, oral or practical as determined by the Director. The purpose is to determine the qualifications and ability of the applicant. If the candidate fails to pass the examination he may apply for re-examination at the expiration of six (6) months and may be re-examined once without payment of an additional fee. Additional subsequent examinations may be granted upon payment of the regular fee of Five (\$5.00) dollars. Fees must accompany application and are not returnable.

SEC. 1105.5 - AUTHORITY TO ISSUE LICENSES. The Director is hereby authorized and empowered to examine and license engineers and boiler operators other than hoisting engineers, under such suitable rules and regulations as he shall make. He shall cause all rules and regulations so made by him to be issued in printed form. He shall employ a chief examiner to carry out the provisions of this Code under the supervision of the Chief Inspector of Air Pollution, Mechanical Equipment and Installations. Such examiner shall be a practical steam engineer of not less than five (5) years' experience.

.51 - Application For License. Each person who desires to act as a stationary engine or boiler operator in the City of Providence, shall make application to said Director upon a form to be furnished by said Director and shall pass an examination in the construction and operation of steam boilers, steam pumps, diesel engines, refrigerating equipment, boiler accessories and appliances and in the subject of hydraulics. The examination shall be conducted under rules and regulations to be provided and issued by the Director and he may administer oaths or affirmations to anyone whenever the same is made necessary by rules and regulations adopted.

.52 - Issuance Of License. If, upon examination, the applicant for a stationary engine or boiler operator's license is found proficient in such subjects as may be required by the Director, a license shall be granted him to be in direct charge of and operate such equipment for one (1) year from the date on which such license is issued.

.53 - Revocation Of Licenses. Upon written charges and after notice and hearing, the Director may revoke or suspend the license of a person guilty of fraud in obtaining such license, or who for any reason has become unfit to discharge the duties of a stationary engine or boiler operator, subject to a right of appeal as set forth in Section 128.0.

.54 - Renewals Upon Application. Upon application, the person to whom a license is issued, under this ordinance, shall be entitled to a renewal thereof annually, unless the Director for a cause named in the preceding section and upon notice and hearing shall refuse such renewal. Such refusal shall be subject to a right of appeals as set forth in Section 128.0.

.55 - Fees. Each applicant for an examination for a license as a stationary engine or boiler operator shall pay to the Director at the time of application a fee of Five (\$5.00) dollars, and for each renewal of such license a fee of Two (\$2.00) dollars.

.56 - Posting Of License. Each stationary engine or boiler operator shall exhibit his license under glass in a conspicuous place in his engine or boiler room, and for each neglect or refusal to comply with the provisions of this section shall be fined not to exceed Ten (\$10.00) dollars.

SEC. 1105.6 - EXEMPTIONS. The provisions set forth herein shall not apply to railroad locomotive boilers and engines when used as such, nor to hoisting engines or to the owners or users thereof, or boilers that are used for the purpose of temporary heat on any building during construction, alteration or repairs.

SEC. 1105.7 - LICENSES ISSUED PRIOR TO THE EFFECTIVE DATE OF THIS CODE. Any person who holds a license which is in effect on the passage of this Code, and any person who is employed as a stationary engine operator or fireman or boilerman prior to the passage of this ordinance, shall be granted a license as provided herein, without examination, upon application, and the payment of the regular examination fee, if such application is made within six (6) months after the passage of this ordinance.

SEC. 1106.0 - EXISTING BUILDINGS

SEC. 1106.1 - UNSAFE BOILER ORDERS. All existing heating appliances and equipment shall be maintained and operated in accordance with the requirements of this article and the approved rules adopted thereunder. Any such equipment, which does not comply with the requirements, and the operation of which is deemed unsafe to the occupants, shall be altered, as ordered by the Director, to secure adequate structural, fire and health safety.

SEC. 1106.2 - MINOR REPAIRS. Minor repairs which do not increase the capacity of heating apparatus or appliances, or which do not involve any substantial alteration in the method of operation may be made without a permit.

SEC. 1107.0 - FOUNDATION MOUNTINGS

Unless specifically exempted by the Director floor-mounted heat appliances shall be mounted in accordance with the approved rules.

SEC. 1108.0 - TOP AND SIDE CLEARANCE

SEC. 1108.1 - LOW HEAT APPLIANCES. A low heat appliance shall be so installed as to provide a clearance from combustible material, of not less than three (3) feet at the top, sides and rear; and of not less than seven (7) feet at the front.

SEC. 1108.2 - MEDIUM HEAT APPLIANCES. A medium heat appliance shall be so installed as to provide a clearance from combustible material of not less than five (5) feet at the sides and rear; of not less than four (4) feet at the top; and of not less than ten (10) feet at the front or where hot products are removed.

SEC. 1108.3 - HIGH HEAT APPLIANCES. A high heat appliance shall be so installed as to provide a clearance from combustible material of not less than ten (10) feet at the sides and rear; of not less than fifteen (15) feet at the top; and of not less than thirty (30) feet at the front or side where hot products are removed.

SEC. 1109.0 - TOP AND SIDE CLEARANCE EXCEPTIONS

SEC. 1109.1 - CLEARANCE VARIATIONS. The Director may approve the installation of heat appliances with lesser clearances than specified in Section 1108.0 within the limitations herein provided; and such variations shall be cited in the conditions of approval together with the reasons therefor.

SEC. 1109.2 - FIRE PROTECTION. The clearances from combustible materials for all types of heating appliances, systems, pipes, flues and vents which contain hot gases may be decreased from those required elsewhere in this article when the exposed materials are protected to afford the fire-resistance herein provided, or the equivalent protection is secured by an approved arrangement of plates and baffles:

<u>FIRE RESISTANCE</u>	<u>FINAL CLEARANCE</u> <u>FRACTION OF SPECIFIED CLEARANCE</u>
1/2 hours.....	three-quarters
3/4 hours.....	two-thirds
1 1/2 hours.....	one-half
2 hours or more.....	one-quarter

SEC. 1109.3 - APPLIANCE INSULATION OR ENCLOSURES. When appliances of low or medium heat capacity are insulated on the exterior in an approved manner, the clearances from combustible materials or construction may be reduced to three-quarters (3/4) of the clearances herein specified.

SEC. 1109.4 - CEILING PROTECTION. The ceiling over fuel-oil equipment shall be constructed of three-quarter (3/4) hour fire-resistance for at least four (4) feet on all sides of the appliance.

SEC. 1110.0 - DOMESTIC HEATING AND COOKING APPLIANCES

The provisions of this section shall apply to all floor mounted heating and cooking appliances of the domestic type using solid or liquid fuels, including cooking stoves and ranges, laundry stoves and water heaters of types designed for mounting on the floor; and all similar appliances so classified by the approved rules. Space heaters, gas-steam and gas hot-water radiators shall be installed in accordance with the approved rules.

SEC. 1110.1 - MOUNTING. The mounting of such appliances shall comply with the requirements as herein provided.

.11 - Four Inch Floor Clearance. When such an appliance is set on legs that provide an open, ventilated space of not less than four (4) inches under the base, a wood or other approved combustible floor shall be protected by not less than No. 24 U.S. gage metal or other approved incombustible material.

.12 - Floor Clearance Less Than Four Inches. When base clearance is less than four (4) inches the floor under the appliance shall be protected as prescribed in the approved rules, and covered with not less than No. 24 U.S. gage sheet metal or other approved incombustible construction.

SEC. 1110.2 - SIDE AND TOP CLEARANCES. Floor mounted heating and cooking appliances shall have side clearances as prescribed in the approved rules. In no case shall a cooking range have a vertical clearance over the cooking tip to any unplastered combustible material of less than thirty-six (36) inches.

SEC. 1110.3 - LIQUID FUEL. An appliance which burns liquid-fuel and is equipped with an attached fuel tank shall be installed as provided for in Sections 1151.0 to 1155.7.

SEC. 1111.0 - BOILER ROOMS

SEC. 1111.1 - ENCLOSURES. Except when otherwise approved by the Director, all medium and high heat boilers other than industrial furnaces and necessary equipment installed in a building shall be located in a separate room or compartment completely enclosed by floors, walls and ceiling of the required fire-resistance, but in no case shall the enclosure of boiler rooms have less than two (2) hour fire-resistance, nor shall such enclosure be located under required exitways.

SEC. 1111.2 - HIGH HAZARD USES. When required by the provisions of Article 4 all boiler rooms connected with high hazard use groups and special occupancies, including among others, uses involving explosion hazards, dry cleaning plants, storage (public) garages, shall be separately enclosed, with entrance from the outside of the building only, or shall be located in segregated accessory structures, with walls, floors, and roofs of four (4) hour fire-resistive construction.

SEC. 1111.3 - BOILER ROOM EXITS. Primary and emergency exits from all boiler rooms shall be provided to comply with Article 6.

SEC. 1111.4 - AIR SUPPLY FOR COMBUSTION. All rooms and spaces in which boilers, furnaces and other than electric-fired heating appliances are located shall be provided with sufficient fresh air supply to insure proper combustion. The direct connection of air inlets to ash pits or combustion chambers of boilers or furnaces shall be prohibited.

SEC. 1111.5 - BOILER ROOM VENTILATION. A room which contains a medium or high heat appliance shall be provided with gravity or mechanical ventilation that complies with Articles 5 and 18 to prevent the accumulation of hot air over or near the appliance.

SEC. 1111.6 - SMOKE ALARMS IN BOILER ROOMS. All boiler rooms containing steam boilers of thirty (30) horsepower or more or with the controls set to operate at a steam pressure of more than fifteen (15) pounds per square inch gage, must exhaust their products of combustion through the beam of a photoelectric audio alarm. One photoelectric smoke alarm can serve a bank of such boilers. Boilers burning oil lighter than No. 5 are exempt from this section regardless of horsepower or pressure rating.

SEC. 1112.0 - ASH PITS AND BINS.

SEC. 1112.1 - CONSTRUCTION.

.11 - Enclosures. Ash pits and bins shall be constructed of masonry or concrete with walls not less than six (6) inches thick, or of steel or other approved incombustible materials or combinations thereof in accordance with the approved rules and as herein provided.

SEC. 1112.2 - FLOOR AND ROOF. The floor and roof of such pits and bins shall be of approved two (2) hour fire-resistive construction; and rooms which contain uncovered ash pits shall have the ceiling constructed of two (2) hour fire-resistive assemblies.

SEC. 1112.3 - OPENING PROTECTIVES. All openings to ash storage bins shall be protected by tightly-fitting, approved sheet metal doors with metal frames and bucks securely anchored to the walls and roof.

SEC. 1113.0 - HEATING FURNACES AND BOILERS.

The installation of all gravity and mechanical and warm air furnaces, floor mounted direct-fired unit heaters; hot water boilers and low pressure steam boilers, shall conform to the requirements of this section.

SEC. 1113.1 - MOUNTING. Heating furnaces and boilers shall be mounted to meet the clearance requirements of Sections 1107.0 to 1109.0 inclusive for low heat appliances; except that a heating boiler of the water base type which has a water chamber extending under the whole ash pit and fire box, or under the entire firing chamber when there is not an ash pit, shall be exempt from these provisions when approved by the Director.

SEC. 1113.2 - LOW PRESSURE STEAM BOILERS. A low pressure steam boiler shall be equipped with an approved safety valve, water column, try cocks, gage glass and pressure gage; and the boiler feed, drain and all other connections shall be installed in accordance with the approved rules. If the steam boiler is automatically fired, an approved low water cutoff shall be installed.

SEC. 1113.3 - LOW PRESSURE HOT WATER BOILERS. A low pressure hot water boiler shall be equipped with approved water valve, altitude gage and thermometer; and the boiler feed, drain and all other connections shall be installed in accordance with the approved rules.

SEC. 1113.4 - WARM AIR FURNACES. A warm air furnace shall be encased in a double metal shield with intervening air space.

SEC. 1113.5 - FLOOR FURNACES. Floor furnaces and their installation shall be approved by the Director but where permitted the outlet temperature shall not exceed 200° F.

SEC. 1113.6 - UNIT HEATERS.

.61 - Clearances. Steam and hot water unit heaters, indirect fired, shall be so installed as to provide clearances from combustible material of not less than one (1) inch to all heated portions thereof, including the steam and hot water supply piping.

.62 - Supports. All coiling type, direct-fired unit heaters shall be substantially supported by metal hangers, brackets or other approved incombustible supports with the clearances specified for low-heat appliances in this article.

.63 - Wall Heaters. A wall heater shall not be located in a wall of combustible construction.

SEC. 1114.0 - WARM AIR HEATING SYSTEMS.

SEC. 1114.1 - CLASSIFICATION. Warm air heating systems shall be classified as herein provided.

.11 - Low Temperature Systems shall include all systems which use low pressure steam or hot water for heating the air and those systems which have automatically fired warm air furnaces equipped with fans to circulate the air. The operation shall be controlled by automatic limit temperature controls that cannot be set higher than two hundred (200) degrees F.

.12 - High Temperature Systems shall include all gravity warm air, handfired systems, and automatically controlled systems in which the temperature limit controls can be set above two hundred (200) degrees F.; and any other system that does not conform to the requirements for low temperature systems.

SEC. 1114.2 - FURNACE CONTROLS OF LOW TEMPERATURE SYSTEMS.

.21 - Automatic Shutoff. The furnaces of an automatically fired, low temperature system which is equipped with an air circulating fan shall be provided with an approved automatic control of the fuel supply whenever the temperature of the air in the furnace bonnet or at the main supply duct exceeds two hundred (200) degrees F.

.22 - Overrun Control. When the furnace is stoker-fired, it shall be equipped with an automatic overrun control to start the fan when the air in the furnace bonnet or at the main supply duct reaches a temperature of two hundred (200) degrees F. after the stoker and fan have shut down in normal operation.

SEC. 1114.3 - FURNACE CONTROLS OF HIGH TEMPERATURE SYSTEMS. A high temperature system which has an automatic fuel supply shall have the same controls as a low temperature system, except that the temperature setting may exceed two hundred degrees (200) with a maximum of two hundred fifty (250) degrees F.

SEC. 1114.4 - REGISTERS.

.41 - Combustible Construction. When a register is located in a floor or wall of combustible construction, the register box shall be covered with twelve (12) pound asbestos paper, and a clear space of not less than five sixteenth (5/16) inches shall be left between the sides of the box and any combustible material.

.42 - Overhead Furnace Register. When a register is installed in the floor over the furnace, the register box shall be of double construction, with an intervening air space of not less than four (4) inches, except when the warm air duct is surrounded by a cold air passage.

.43 - Nonautomatic System. A system which is not automatically fired and which is not equipped with an approved temperature limit control shall be provided with dampers and shutters which are not capable of shutting off more than eighty (80) per cent of the total duct area; or in lieu thereof one register or grille shall be installed without a closeable shutter, and the duct leading thereto shall be installed without a damper.

SEC. 1115.0 - CENTRAL RECIRCULATING SYSTEMS.

SEC. 1115.1 - AIR SUPPLY. A central fan heating system of the recirculating type for use in structures with large open areas, shall provide a positive air recirculation of at least one (1) cubic foot per minute per square foot of floor area when the average ceiling height is fifteen (15) feet or less; and with greater heights the air circulation shall be increased proportionally; but in no case shall less than five (5) per cent of the air moved by the fan be taken directly from outside the building.

Air which has been contaminated or otherwise polluted by odors, gases, dust or other substances which may be dangerous to health or safety or which may be a nuisance, or air which has been rendered deficient in oxygen, shall not be recirculated. Such air shall be conducted through flues or ducts, and be discharged above the roof of the structure or shall be discharged at other points as approved by the Director.

SEC. 1115.2 - AIR DUCT. The air duct which provides the fresh air supply shall be installed without dampers and shall be fully open at all times.

SEC. 1115.3 - UNIT HEATERS. When located not less than eight (8) feet above the floor of the building, direct fired unit heaters shall be exempt from the requirements of this section. Direct fired unit heaters shall be prohibited in rooms or buildings where the air may be contaminated by flammable gases, liquids or dust.

SEC. 1116.0 - FLAMMABLE VAPOR SYSTEMS

SEC. 1116.1 - EXHAUST OUTLET. A duct designed to remove flammable vapors from a room of a building or structure under the requirements of Section 402.0 shall lead directly to the outside air.

SEC. 1116.2 - LOCATION OF DUCTS. Such a duct shall not be incorporated in a wall except to pass directly through it.

SEC. 1116.3 - CLEARANCE OF DUCTS. A flammable vapor outlet shall not be located within ten (10) feet of any combustible materials or construction.

SEC. 1116.4 - POWER SOURCE. The power for a fan located within the room from which flammable vapors are being removed shall, unless otherwise approved by the Director, be transmitted from an outside source by means of a shaft in a bushed hole; if the fan is driven by an electric motor, the electrical installation shall comply with the requirements of ARTICLE 15.

SEC. 1117.0 - HOT AND COLD AIR DUCTS.

SEC. 1117.1 - WARM AIR DUCTS. Warm air supply ducts for both low and high temperature systems shall be constructed entirely of incombustible material equivalent in structural strength to that of the weights specified in Table 18 of Section 1019.0 of this Code.

SEC. 1117.2 - COLD AIR DUCTS. Cold air ducts shall comply with all the provisions governing warm air supply ducts except in respect to the requirements for heat insulation and clearance from combustible construction.

SEC. 1117.3 - DAMPERS AND FILTERS. The construction and installation of all ducts shall comply with the provisions of Section 1819.0 of Article 18 of this Code in respect to fire doors, dampers, fresh air inlets, outlets and air filters.

SEC. 1118.0 - STEAM AND HOT WATER PIPES.

SEC. 1118.1 - CLEARANCES. Unless otherwise specifically provided in Article 4 of this Code for special uses and occupancies, all steam and hot water pipes shall have minimum clearances of one (1) inch from all combustible material; and when such pipes pass through combustible floors or partitions, the openings shall be protected by metal or other approved incombustible sleeves; and vertical risers arranged in groups extending through two or more stories shall be enclosed in a shaft of fire-resistive construction as specified in Section 1020.0.

SEC. 1118.2 - FIRE STOPPING. Where such pipes pass through floors and partitions of fire-resistive construction, the open sleeve space shall be filled with incombustible materials.

SEC. 1118.3 - INSULATION. All coverings or insulation used on steam and hot water pipes shall be approved incombustible materials; and where such pipes pass through stock shelving or are in close proximity to other combustible materials, the insulation shall be not less than one (1) inch thick.

SEC. 1118.4 - TEMPERATURE CHANGES. All heating pipes shall be installed to provide safety for all expansion and contraction due to temperature changes.

SEC. 1119.0 - RESTAURANT COOKING APPLIANCES.

All ranges, ovens, broilers and other miscellaneous low heat appliances of the types designed for floor mounting in hotel and restaurant kitchens shall comply with the provisions of this Code for low heat appliances except as herein provided.

SEC. 1119.1 - CLEARANCES. The clearances shall be the same as for low heat appliances, except that when a wall of combustible construction adjacent to the cooking top of an appliance is not shielded by a high shelf or other integral part of the appliance, a wall protector of approved incombustible materials shall be provided to extend not less than two (2) feet above the surface of the cooking top.

SEC. 1119.2 - VENTILATING HOODS. Unless enclosed and vented in an approved manner, a range, candy kettle, cruller furnace, appliance for the frying of bakery and confectionery products and any similar apparatus generating hot and noxious smoke and gases shall be provided with a ventilating hood and ducts of incombustible materials to remove such smoke, gases and vapors direct to the outer air.

.21 - Height. The hood shall be installed not more than seven (7) feet above the floor and shall completely cover the appliance served, with clearance to combustible material not less than eighteen (18) inches.

.22 - Connection. A hood or duct from a cooking range or similar appliance shall not connect in any manner with any other ventilating system.

.23 - Construction. Hoods and their ducts shall be constructed of approved incombustible materials with tight joints and shall connect to an independent smoke flue or metal smokestack complying with the provisions of Article 10.

SEC. 1119.3 - VENTS. The vent of a floor-mounted, gas-burning, restaurant type cooking appliance installed under a hood may discharge into the space under the hood.

SEC. 1119.4 - FILTERS AND SCREENS. The exhaust duct shall be equipped with filters or screens to prevent grease from accumulating in the duct or in the flue to which it is connected.

SEC. 1120.0 - INDUSTRIAL FURNACES AND POWER BOILERS.

Industrial furnaces and power boilers shall be mounted in accordance with the requirements and clearances prescribed for high heat appliances in Sections 1107.0 to 1109.0 inclusive.

SEC. 1120.1 - LOCATION.

.11 - Combustible Construction. A boiler and its accessories shall not be located so as to produce a temperature in excess of one hundred seventy-five (175) degrees F. on any adjoining combustible materials or construction.

.12 - Structural Frame. The furnace setting shall not be located in direct contact with structural steel or reinforced concrete framing of the building, but shall be separated therefrom for ventilation purposes by a clearance of not less than four (4) inches.

SEC. 1120.2 - FOUNDATIONS OF FURNACES. Foundations for high heat boilers and appliances shall be isolated and insulated from floor slabs and all foundations and footings of the building.

SEC. 1120.3 - AIR SUPPLY FOR COMBUSTION. Sufficient air for combustion shall be supplied to all low or high pressure boilers through direct openings, as approved by the Director, from the outside of the building into the boiler room.

SEC. 1121.0 - DRYING ROOMS

A drying room or dry kiln installed within a building shall be constructed entirely of approved incombustible materials or assemblies of such materials with the required fire-resistance rating based on the fire hazard of the contents and the process as determined by the approved rules, or as required in Article 4, special uses and occupancies.

SEC. 1121.1 - PIPING CLEARANCE. All overhead heating pipes shall have a clearance of not less than two (2) inches from combustible contents of the dryer.

SEC. 1121.2 - INSULATION. When the operating temperature of the dryer is one hundred seventy-five (175) degrees or higher, metal enclosures shall be insulated from adjacent combustible materials by not less than twelve (12) inches of air space, or other approved insulation.

SEC. 1121.3 - FIRE PROTECTION. Drying rooms designed for high hazard materials and processes, including dry cleaning and other special uses provided for in Article 4, shall be protected by approved automatic sprinkler or fog systems, manually controlled steam smothering systems, or other approved fire extinguishing equipment, conforming to the provisions of Article 12 and the approved rules.

SEC. 1122.0 - REFUSE INCINERATORS

SEC. 1122.1 - INTEGRAL CONSTRUCTION. When constructed as an integral part of a building, incinerators for the reduction of garbage, refuse or other waste materials shall be installed in accordance with the provisions of Sections 1125.0 and 1127.0.

SEC. 1122.2 - AUXILIARY EQUIPMENT. Incinerators that do not form an integral part of the building construction shall comply with the provisions of Section 1120.0 and the approved rules adopted thereunder for low or medium heat industrial furnaces.

SEC. 1123.0 - NON-FUEL FIRED INCINERATORS

SEC. 1123.1 - ENCLOSURE WALLS. The enclosing walls of the combustion chamber of a non-fuel fired incinerator shall be constructed of approved masonry not less than four (4) inches thick when there is a horizontal grate area of not more than nine (9) square feet, and not less than eight (8) inches thick when the grate area exceeds nine (9) square feet.

SEC. 1123.2 - WALL LINING. All walls eight (8) inches or more in thickness shall be lined with fire brick not less than four and one-half (4 1/2) inches thick, with an intervening air space.

SEC. 1123.3 - FLUE CONSTRUCTION. The flue shall be constructed in accordance with the provisions of Section 1016.0.

SEC. 1124.0 - FUEL-FIRED INCINERATORS

All fuel-fired incinerators shall conform to the requirements of this section.

SEC. 1124.1 - COMBUSTION CHAMBER.

.11 - Nine Square Feet Grate Area. The combustion chamber for incinerators with a capacity of less than two hundred fifty (250) pounds refuse per hour or grate area of not more than nine (9) square feet shall be constructed of eight (8) inches of approved masonry which is lined with an additional four and one-half (4 1/2) inches of fire brick laid in fire clay mortar, except that gas fired units, approved by the American Gas Association and the Director, having a grate area not exceeding three (3) square feet may be installed.

.12 - Over Nine Square Feet Grate Area. When the capacity exceeds two hundred fifty (250) pounds of refuse per hour or the grate area exceeds more than nine (9) square feet, the combustion chamber shall be constructed of eight (8) inches of approved masonry which is lined with nine (9) inches of fire brick laid in fire clay mortar.

.13 - Steel Enclosure. The exterior four (4) inches of masonry on the unfired side may be replaced by a steel casing not less than three-sixteenth (3/16) inch thick.

SEC. 1124.2 - STRUCTURAL REINFORCEMENT. The combustion chamber walls shall be strongly braced and stayed with structural steel shapes, or reinforced concrete or other approved incombustible framing.

SEC. 1124.3 - LOCATION. Combustion chambers and waste material bins or containers shall be located in a room or compartment devoted to no other purpose, or they may be located in the same room with the boiler and heating plant. The room shall be separated from the rest of the building by floors, walls and ceilings of not less than three (3) hour fire-resistive construction with approved two (2) hour fire doors in all openings thereto complying with Article 9.

SEC. 1124.4 - FLUE CONNECTIONS.

.41 - Thickness Of Metal. Flue connections and breechings shall be constructed of at least No. 16 U. S. gage sheet metal when less than twelve (12) inches and No. 12 U. S. gage metal when more than twelve (12) inches in diameter or largest dimension.

.42 - Lining. When the breeching is less than twelve (12) inches, it shall be lined in an approved manner. When the breeching is between twelve (12) and eighteen (18) inches inside diameter, it shall be lined with not less than two and one-half (2 1/2) inches of fire brick; and when it is over eighteen (18) inches inside diameter, it shall be lined with not less than four and one-half (4 1/2) inches of fire brick.

.43 - Combined Breechings. When an incinerator breeching combines with a flue connection from another appliance, such connection shall also be lined as required for a direct incinerator flue connection.

SEC. 1124.5 - CLEARANCE OF FLUE CONNECTIONS. A flue connection or breeching shall have a clearance on all sides from combustible materials or construction of not less than thirty-six (36) inches.

SEC. 1125.0 - REFUSE CHUTES.

SEC. 1125.1 - CHUTE DISCHARGE. A refuse chute shall not feed directly into an incinerator, but shall discharge into an enclosed room or bin separated from the incinerator room by ceiling and walls of not less than three (3) hour fire-resistive construction, unless otherwise approved by the Director.

SEC. 1125.2 - CHUTE ENCLOSURES. Refuse chutes shall be enclosed with walls of masonry of not less than three (3) hour fire-resistive rating which shall be erected on substantial foundations.

SEC. 1125.3 - CHUTE HEIGHT. A refuse chute shall extend not less than four (4) feet above the roof and shall be covered with an approved ventilating skylight or with an approved ventilator which complies with Section 932.0.

SEC. 1125.4 - SERVICE COMPARTMENTS. Service openings for chutes shall be located in separate rooms or compartments enclosed in walls, partitions, floors and ceilings which have a fire-resistance rating of not less than two (2) hours and in which the openings are equipped with fire doors or other approved protectives of not less than one-hour fire-resistance rating.

SEC. 1125.5 - OPENING PROTECTIVES. All openings between refuse rooms, chutes and incinerator rooms shall be protected with two-hour fire doors, equipped with self-closing hardware.

SEC. 1126.0 - BLOWER AND EXHAUST SYSTEMS

SEC. 1126.1 - DUCTS FOR BLOWER SYSTEMS. The ducts for blower and exhaust systems which handle dust, stock and vapors from industrial and material processes shall conform to all the requirements of Sections 1019.0, 1116.0, 1117.0 and 1819.0 for ducts from high heat appliances.

SEC. 1126.2 - CHUTES. No room, hallway, attic or other part of a building or structure and no hollow or other concealed space shall be used as an integral part of a blower or exhaust system handling combustible materials or vapors, unless designed and constructed as required for approved ducts for inflammable vapor systems in Section 1116.0 and in accordance with all other provisions of this article and the approved rules.

SEC. 1126.3 - LOCATION OF FAN. The fan for blowing inflammable materials or vapors shall comply with the approved rules and shall be located and installed so as to be readily accessible. The location of such a fan in a fire wall or fire partition shall be prohibited.

SEC. 1126.4 - ELECTRIC GROUND. All metal parts of the apparatus used for blower and exhaust systems and all shafting in connection therewith shall be electrically grounded as required in Section 1511.0.

SEC. 1127.0 - DUST, STOCK AND REFUSE CONVEYING SYSTEMS

SEC. 1127.1 - POWER TRANSMISSION. Power for fans located in rooms from which flammable dust is being removed shall be transmitted by means of a shaft which passes through a bushed hole, or by a belt, chain or similar driving mechanism which is encased in an incombustible, dust-tight enclosure, both within and without the room, of not less than two (2) hour fire resistive construction.

SEC. 1127.2 - COLLECTORS AND SEPARATORS. Cyclone collectors and separators for flammable materials and their supports shall be constructed of noncombustible material and shall be located on the exterior of the building or structure. In no case shall a collector or separator be located nearer than ten (10) feet to combustible construction or to an unprotected wall, unless the collector is provided with a metal vent pipe which extends above the highest part of any roof within thirty (30) feet thereof.

SEC. 1127.3 - DISCHARGE PIPES. Discharge pipes for inflammable materials shall conform to all the requirements for ducts including clearances required for high heat appliances in Sections 1019.0, 1116.0, 1117.0 and 1819.0. A delivery pipe from a cyclone collector shall not convey refuse directly into the fire box of a boiler, furnace, dutch oven, refuse burner, incinerator or other appliance which utilizes induced or forced draft.

SEC. 1127.4 - VENTS FOR CONVEYOR SYSTEMS. An exhaust system shall be vented to the outside of the building either directly by means of a flue, or indirectly by way of the separator, bin or vault into which it discharges.

SEC. 1127.5 - SPARK PROTECTION. The outlet of an open air vent shall be protected with an approved metal or other incombustible screen or by other equally efficient means, in accordance with the provisions of Section 1018.0, to prevent the entry of sparks.

SEC. 1128.0 - EXPLOSION RELIEF VENTS

A safety or explosion relief vent shall be provided on all systems which convey combustible refuse or stock of an explosive nature, in accordance with the requirements of Section 402.0.

SEC. 1128.1 - SCREENS. When a screen is used in a safety relief vent, it shall be so attached as to permit ready release under emergency pressure.

SEC. 1128.2 - HOODS. The relief vent shall be provided with an approved incombustible cowl or hood, or with an approved relief valve or cover to prevent the escape of hazardous materials, gases or liquids.

SEC. 1129.0 - REFUSE VAULTS

SEC. 1129.1 - REFUSE VAULT ENCLOSURES. A vault for receiving combustible refuse from an exhaust system shall be constructed of three (3) hour fire-resistive assemblies.

SEC. 1129.2 - OPENINGS TO BOILER ROOMS. An opening between a vault and a boiler room shall exceed nine (9) square feet in area and shall be located at least eight (8) feet from the firing door of the boiler, and the bottom of the opening shall be not less than six (6) inches above the boiler room floor. All openings shall be equipped with approved automatic fire doors of at least one and one-half (1 1/2) hour fire-resistance rating.

SEC. 1129.3 - LOCATION. When located in a building, a refuse vault shall extend above the roof or shall be properly vented to the outside air in accordance with the provisions of this Code.

SEC. 1129.4 - FIRE PROTECTION. A vault for combustible refuse which exceeds three hundred sixty (360) cubic feet in capacity shall be protected by an automatic sprinkler or other approved automatic fire extinguishing system that conforms to Article 12.

ARTICLE 11 - HEATING EQUIPMENT AND APPLIANCES

PART B

OIL BURNING EQUIPMENTS AND OIL STORAGE IN CONNECTION THEREWITH AND
AIR POLLUTION

SEC. 1132.0 - OIL BURNING EQUIPMENTS AND OIL STORAGE
IN CONNECTION THEREWITH

Sections 1132.0 to 1150.4 govern the installation and operation of oil burning equipments and the storage and handling of oil fuels in connection therewith, except portable burners not requiring connection to a flue, such as oil stoves, oil heaters and oil lamps equipped with a wick or a mechanical device, the movement of which is essential to flame adjustment, or to such portable apparatus as blow torches, soldering pots, etc.

SEC. 1132.1 - OIL BURNERS AND OIL BURNING EQUIPMENT DEFINED. "Oil burners" shall mean any device designed to burn fuel oil having a flash point of one hundred fifteen (115) degrees Fahrenheit or higher, as determined by the Tag Closed Tester in accordance with the method of test adopted by the American Society for Testing Materials (A.S.T.M. Designation D56-36), and having a fuel tank or container with a capacity of more than ten (10) gallons connected thereto. "Oil burning equipment" shall include oil burners and all tanks, piping, pumps, control devices, and accessories connected to the burners.

SEC. 1133.0 - APPROVAL OF OIL BURNING EQUIPMENT

It shall be unlawful for any person, firm or corporation to install any oil burning equipment unless a certificate of approval has been issued by the Director for such equipment.

SEC. 1133.1 - ISSUANCE OF CERTIFICATES OF APPROVAL. Applications for certificates of approval shall be made in writing in such form and detail as the Director shall prescribe.

No certificate of approval shall be issued for any kind of oil burner which has not been approved by the Director.

SEC. 1133.2 - INSTALLATIONS MUST BE REPORTED. Every person, firm or corporation installing oil burning equipment shall report in writing to the Director not later than the tenth (10th) day of each month the location of each installation made in the previous month, together with the name of the burner and the number and size of storage tanks.

SEC. 1134.0 - FUEL OIL

The grade of fuel oil used with any burner shall be one which tests and experience have shown to be suitable for use with that burner. The oil shall have a flash point not less than one hundred fifteen (115) degrees Fahrenheit, determined as specified in Section 1132.0 and shall be free from acid, grit, and fibrous or other foreign matter likely to clog or injure the burners or valves.

SEC. 1135.0 - GRAVITY FEED TO BURNERS

Gravity feed shall be used only with burners arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner with which it is used.

SEC. 1135.1 - CAPACITY AND CONNECTION. Gravity supply tanks shall not exceed two hundred seventy-five (275) gallons individual capacity. Where more than one gravity supply tank is used, such tanks shall be connected to the feed pipe leading to the burner through a manually operated, approved three-way valve installed in such a manner that only one tank can discharge its contents at a time.

SEC. 1135.2 - ANTI-FLOODING AND CONSTANT LEVEL VALVES. Where oil is supplied to the burner by gravity and a constant level valve is not incorporated in the burner assembly or in an auxiliary tank used in connection with an automatic pump, an approved constant level valve shall be installed in the oil feed line at the gravity tank or as close thereto as practicable. The vent opening of such constant level valve shall be connected by piping or tubing to the outside of the building unless the constant level valve is provided with an anti-flooding device. Vent pipes or tubing of constant level valves shall not be connected to tanks or tank vents.

SEC. 1136.0 - PRESSURE TANKS

SEC. 1136.1 - PRESSURE TANK FEED shall be used only with burners arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner with which it is used.

SEC. 1136.2 - CAPACITY, MAXIMUM PRESSURE AND EQUIPMENT. Pressure tanks shall not exceed a capacity of sixty (60) gallons, and shall not be operated at pressures exceeding fifty (50) pounds per square inch. They shall be equipped with a reliable pressure gauge, and with an automatic relief valve piped to discharge outside of building.

SEC. 1137.0 - UNDERGROUND TANKS INSTALLATION

SEC. 1137.1 - UNDERGROUND TANKS COVERING. Underground tanks shall be so buried as to have a cover of earth not less than two (2) feet thick, or shall be covered with not less than one (1) foot of earth on top of which shall be placed a slab of reinforced concrete not less than four (4) inches thick. The slab shall be set on a firm, well tamped earth foundation and shall extend at least one (1) foot beyond the tank in all directions. Where tanks are buried underneath buildings such a concrete slab shall be provided in every instance.

SEC. 1137.2 - UNDERGROUND TANKS FOUNDATIONS. Underground tanks shall be set on a firm foundation and surrounded with soft earth or sand well tamped in place. Where necessary to prevent floating they shall be securely anchored or weighted.

SEC. 1138.0 - INSTALLATION OF TANKS INSIDE BUILDINGS

SEC. 1138.1 - INSIDE TANKS LOCATION. Oil supply containers larger than three (3) gallons capacity shall not be located in buildings above the cellar or basement.

Unenclosed inside storage tanks and auxiliary tanks shall not be located within six (6) feet, horizontally, of any fire or flame nor shall they be located within a distance of eight (8) feet from any stairway unless such stairway has a one (1) hour fire resistance enclosure.

SEC. 1138.2 - SUPPORTS. Inside storage and auxiliary tanks shall be securely supported by substantial incombustible supports to prevent settling, sliding or lifting.

SEC. 1138.3 - CAPACITY AND ENCLOSURE. Oil supply tanks located inside buildings shall not exceed two hundred seventy-five (275) gallons individual capacity or five hundred fifty (550) gallons aggregate capacity (in one building) unless installed in an enclosure or casing constructed as hereinafter prescribed.

.31 - Masonry Enclosures. The walls of the enclosure shall be constructed of reinforced concrete at least six (6) inches thick or of brick at least eight (8) inches thick, and shall be bonded to the

floor. The space between the tank and the enclosure shall be completely filled with sand or well tamped earth. Where the floor or other construction immediately above the tank is of fire-resistive construction capable of safely sustaining a load of one hundred fifty (150) pounds per square foot, the walls of the enclosure shall be carried to a height not less than one (1) foot above the tank and the space filled with sand or well tamped earth to the top; otherwise the enclosure shall have a top of reinforced concrete at least five (5) inches thick or of equivalent construction.

.32 - Reinforced Concrete Enclosures. Instead of an enclosure as above described the tank may be encased in reinforced concrete not less than six (6) inches in thickness, applied directly to the tank so as to completely eliminate any air space.

.33 - Enclosure Of Additional 275 Gallon Tank In Three Family Houses. In a three family house where an additional two hundred seventy-five (275) gallon tank is needed, the walls and ceiling enclosing the additional tank shall be constructed of materials having a one-hour fire-resistance rating.

SEC. 1138.4 - REINFORCED CONCRETE TANKS. Tanks of reinforced concrete construction as provided in Section 1139.5 may be installed without additional concrete enclosure.

SEC. 1138.5 - CAPACITY IN TYPE 1 AND TYPE 2A BUILDINGS. In buildings of Type 1 or Type 2A the nominal gross capacity of tanks shall not exceed fifteen thousand (15,000) gallons.

SEC. 1139.0 - CONSTRUCTION OF TANKS

SEC. 1139.1 - UNDERGROUND TANKS MINIMUM THICKNESS. Underground tanks and tanks inside buildings shall be constructed of steel or wrought iron of a minimum gauge (U. S. Standard) in accordance with the following Table, except that for tanks of one hundred eighty-one (181) to two hundred seventy-five (275) gallons capacity, installed in buildings, and without masonry enclosures the minimum gauge shall be No. 14. Steel or wrought iron thinner than No. 7 gauge used in the construction of underground and enclosed tanks shall be galvanized.

TABLE 19

MINIMUM THICKNESS OF UNDERGROUND TANKS

<u>Capacity</u>		<u>Gallons</u>	<u>Minimum Thickness</u>	<u>Weight</u> <u>Lbs. per. sq. ft.</u>
7	to	285	14 gauge	3.125
286	to	560	12 gauge	4.375
561	to	1,100	10 gauge	5.625
1,101	to	4,000	7 gauge	7.50
4,001	to	12,000	1/4 inch (nominal)	10.00
12,001	to	20,000	5/16 inch	" 12.50
20,001	to	30,000	3/8 inch	" 15.00

If adequate internal bracing is provided, tanks of twelve thousand and one (12,001) to thirty thousand (30,000) gallons capacity may be built of one-quarter (1/4) inch plate. For tanks larger than eleven hundred (1100) gallons capacity, a tolerance of ten (10) per cent in capacity is permitted.

SEC. 1139.2 - TANKS, JOINTS, OPENINGS AND CONNECTIONS. Joints shall be riveted and caulked, brazed, welded or made tight by some equally satisfactory process. Tanks shall be tight and sufficiently strong to bear without injury the most severe stresses to which they may be normally subjected. Shells of tanks shall be properly reinforced where connections are made. All connections to underground tanks and tanks inside buildings shall be made through the top of tank above the liquid level, except that tanks of not over two hundred seventy-five (275) gallons capacity may have one bottom connection for gravity feed and one opening for an approved key stem gate valve to facilitate cleaning or for a scavenging line to be run to the outside and capped oil tight when not in use.

SEC. 1139.3 - PRESSURE TANKS. Pressure tanks shall be designed for at least six (6) times the maximum working pressure.

SEC. 1139.4 - ANTI-CORROSION PROTECTION. Prior to installation, underground and enclosed tanks shall be protected against corrosion on the outside in a manner satisfactory to the Director, but in every case at least equivalent to two preliminary coatings of red lead followed by a heavy coating of hot asphalt.

SEC. 1139.5 - CONCRETE TANKS FOR HEAVY FUEL OIL. For fuel oil heavier than thirty-five (35) degrees A.P.I. tanks may be made of concrete, in accordance with the approved rules.

SEC. 1140.0 - TANK VENTS

SEC. 1140.1 - TYPE AND SIZE OF VENTS. Storage tanks shall be equipped with an open vent or an approved automatically operated vent, arranged to discharge to the open air. Vent openings and vent pipes shall be of ample size to prevent abnormal pressure in the tank during filling but not smaller than one and one quarter (1 $\frac{1}{4}$) inch pipe size.

SEC. 1140.2 - DRAINAGE. Vent pipes shall be arranged to drain to the tank. The lower end of the vent pipe shall not extend through the top into the tank for a distance of more than one (1) inch.

SEC. 1140.3 - OUTSIDE OPENING. Vent pipes shall terminate outside of buildings at a point not less than two (2) feet measured vertically or horizontally from any window or other building opening. Outer ends of vent pipes shall be provided with a weatherproof hood. Vent pipes

of tanks containing heaters shall be extended to such a height that oil vapors discharging from the vent will be readily diffused without danger of ignition.

SEC. 1140.4 - NO CROSS-CONNECTIONS. Vent pipes shall not be cross-connected with fill pipes or return lines from burners.

SEC. 1141.0 - TANK FILL AND OVERFLOW PIPES

SEC. 1141.1 - FILL PIPES OUTSIDE OF BUILDINGS. Underground tanks and storage tanks inside buildings shall be filled only through fill pipes terminating outside of buildings at a point at least three (3) feet from any building opening at the same or lower level. Fill terminals shall be tightly closed, when not in use, by a metal cover designed to prevent tampering.

SEC. 1141.2 - FILLING AUXILIARY TANKS. Auxiliary tanks shall be filled by pumping from storage tanks.

SEC. 1141.3 - AUXILIARY TANK OVERFLOW. Auxiliary tanks other than vacuum tanks shall be equipped with an overflow pipe, draining to the storage tank, at least one size larger than the supply pipe. Overflow pipes of auxiliary gravity tanks shall have no valves or obstructions. Overflow pipes of auxiliary pressure tanks shall be provided with interconnected valves or other means for automatically venting the tank during filling.

SEC. 1142.0 - OIL GAUGING

Oil tanks shall be equipped with an approved audible or visual signal device for determining the oil level. Test wells shall not be installed inside buildings and where permitted for outside services shall be closed tight when not in use by a metal cover designed to prevent tampering. Gauging devices which have liquid level indicators or signals shall be installed so that oil or vapor will not be discharged into the building from the fuel supply system, and the visual signal device shall be fully protected against mechanical damage.

SEC. 1143.0 - OIL PUMPS

Oil pumps shall be of approved type, secure against leaks, and shall be rigidly fastened in place.

SEC. 1143.1 - AUTOMATIC PUMPS. Automatic pumps not an integral part of the burner shall be arranged to stop automatically in case of breakage of the supply line to the burner.

SEC. 1143.2 - DUPLICATE PUMPS. In isolated locations, where fire protection equipment is dependent upon a heating plant fired by an oil burner, oil pumps supplying the burner shall be installed in duplicate.

SEC. 1144.0 - PIPING.

All piping shall be standard full weight wrought iron, steel or brass pipe with standard fittings or approved brass or copper tubing with approved fittings, except that approved flexible metal hose may be used for reducing the effects of jarring and vibration or where rigid connections are impracticable.

SEC. 1144.1 - MINIMUM PIPE SIZES. Pipe used in the installation of domestic type burners shall not be smaller than one-quarter ($1/4$) inch iron pipe size; pipe used in the installation of industrial type burners shall not be smaller than one-half ($1/2$) inch iron pipe size. Copper or brass tubing shall not be smaller (internal diameter) in size than the equivalent of the iron pipe sizes mentioned above, with wall thickness not less than forty-nine thousandths (0.049) inch. Flexible metal hose shall be installed strictly in accordance with the limitations of its approval.

SEC. 1144.2 - PROTECTION. Piping shall be rigidly secured in place and protected from injury in a workmanlike manner, and where necessary, shall be protected against corrosion. Where practicable, oil piping shall be buried underground or in a concrete floor or placed in a metal-covered pipe trench.

SEC. 1144.3 - JOINTS AND CONNECTIONS. Pipe joints and connections shall be made tight in a workmanlike manner. Unions and tubing fittings shall be of approved type. Unions requiring gaskets or packing, and right and left hand couplings shall not be used in oil lines.

SEC. 1144.4 - VIBRATION AND EXPANSION. Proper allowance shall be made for expansion, contraction, jarring and vibration. Pipe lines, other than tubing, connected to underground tanks, except fill lines and test wells, shall be provided with double swing joints arranged to permit the tank to settle without impairing the efficiency of the pipe connections.

SEC. 1144.5 - PIPES THROUGH WALLS BELOW GRADE. Openings for pipes through outside walls below the ground level shall be made oil tight by securely packing with flexible material.

SEC. 1144.6 - STRAINERS. Oil supply lines to burners shall be provided with approved strainers.

SEC. 1145.0 - VALVES.

SEC. 1145.1 - VALVES REQUIRED. Readily accessible shut-off valves of approved type such as a fusible type, self-closing valve, designed to shut-off the oil supply, shall be installed in oil supply lines near each burner and close to gravity and pressure supply tanks. Shut-off valves of approved type shall be installed on each side of oil strainers which are not a part of the oil burner unit and on the discharge and suction side of oil pumps which pump directly to the burner, but which are not a part of the burner unit.

SEC. 1145.2 - PRESSURE RELIEF VALVE. Where a shut-off valve is installed in the discharge line of an oil pump, an approved pressure relief valve shall be connected into the discharge line between the pump and the shut-off valve and arranged to return surplus oil to the storage tank or to by-pass it around the pump.

SEC. 1145.3 - TYPE OF VALVE. Control valves shall be provided with stuffing box of liberal size, containing a removable cupped gland designed to compress the packing against the valve stem and arranged so as to facilitate removal. Valves shall be designed to close against the supply, and to prevent withdrawal of stem by continued operation of the handwheel. Packing affected by the oil or by heat shall not be used.

SEC. 1146.0 - PREHEATING OF OIL.

Preheating of oil where necessary, shall be done by steam, hot water or approved electric heaters. Heaters shall be substantially constructed with all joints made oil tight. Thermometers shall be installed at suitable locations to indicate the temperature of the heated oil. Heaters shall be by-passed or provided with suitable means to prevent abnormal pressure.

SEC. 1147.0 - TESTS OF TANKS AND PIPING

After installation and before being covered, tanks and piping shall be tested in accordance with the approved rules.

SEC. 1148.0 - OIL BURNER CONTROLS.

SEC. 1148.1 - MANUAL SHUT-OFF. Oil burning equipment shall be provided with some means for manually stopping the flow of oil to the burner, from a conveniently located point at a safe distance from the burner, With electrically driven equipment this may be accomplished by a switch in the motor supply circuit, placed near the entrance to the room where the burner is located. A quick-closing valve in the oil supply line may also be used.

SEC. 1148.2 - AUTOMATIC SAFETY DEVICES. Automatically operated oil burners used in connection with hot water, steam or warm air heating systems shall be equipped with approved automatic devices to shut down the burner in the event of undue pressure in a steam boiler or overheating within a hot water boiler or warm air furnace.

In systems where steam or air is used for atomizing the oil the equipment shall be so arranged that in case of interruption of the atomizing supply, the oil supply will be immediately shut off.

Electric motor-driven industrial oil burners with integral oil pumps, and electric motor-driven pump sets for use with industrial burners not equipped with integral pumps, shall be supplied with an approved motor controller incorporating no-voltage protection to be wired into the power supply to the motor.

SEC. 1149.0 - ELECTRIC WIRING AND EQUIPMENT

Electric wiring and equipment in connection with oil burning equipments shall be installed in accordance with the RULES AND REGULATIONS for the INSTALLATION OF ELECTRICAL WIRING AND EQUIPMENT in the CITY OF PROVIDENCE.

SEC. 1150.0 - INSTALLATION OF THE BURNER.

Oil burners shall be securely installed in a workmanlike manner, in accordance with the instructions of the manufacturer, by qualified mechanics experienced in making such installations.

SEC. 1150.1 - CONVERSION BURNERS. Where oil burners are installed in furnaces originally designed for solid fuel, the ash door of the furnace shall be removed or bottom ventilation otherwise provided to prevent the accumulation of vapors in the ash pit, unless the burner is of a type which mechanically purges the ash pit.

SEC. 1150.2 - DRAFT AND DAMPERS. Boilers and furnaces in which oil burners are installed shall be connected to flues having sufficient draft at all times to assure safe operation of the burner. A suitable draft regulating device shall be installed, where necessary, to prevent excessive draft. Manually operated dampers shall be such that they cannot close off more than eighty (80) per cent of the internal cross-sectional area of the smoke pipe. Automatically operated dampers shall be of approved type, designed to maintain a safe damper opening at all times, and arranged to prevent starting of the burner unless the damper is opened at least twenty (20) per cent of the internal cross-sectional area of the smoke pipe.

SEC. 1150.3 - VENTILATION. Rooms in which oil burners are located shall be provided with adequate ventilation to assure continuous complete combustion of the oil.

SEC. 1150.4 - POSTING INSTRUCTIONS. Complete instructions for the care and operation of the oil burning equipment shall be conspicuously posted near the oil burner, and maintained in readable condition.

.41 - Piping Diagram. Contractors installing industrial oil burning systems shall furnish diagrams showing the main oil lines and controlling valves, one of which shall be posted near the oil burning equipment, and another at some point which will be accessible in case of fire at the burners.

SEC. 1151.0 - STOVE OR RANGE OIL BURNERS AND OIL STORAGE
IN CONNECTION THEREWITH

Sections 1151.0 to 1155.7 govern the installation and operation of stove or range oil burning equipments and the storage and handling of oil fuels in connection therewith, except portable burners not requiring connection to a flue, such as oil stoves, oil heaters and oil lamps equipped with a wick or a mechanical device, the movement of which is essential to flame adjustment, or such portable apparatus as blow torches, soldering pots, etc.

SEC. 1151.1 - STOVE OR RANGE OIL BURNERS AND OIL BURNING EQUIPMENT DEFINED. Stove or range oil burners shall mean oil burners designed to burn kerosene, range oil or similar distillate fuel having a flash point of one hundred fifteen (115) degrees Fahrenheit or higher, as determined by the Tag Closed Tester in accordance with the method of test adopted by the American Society For Testing Materials (A.S.T.M. Designation D56-36), and intended for installation in stoves, ranges

or similar devices. Stove or range oil burning equipment shall include the burners and all tanks, piping, pumps, control devices, and accessories connected to the burners.

SEC. 1152.0 - APPROVAL OF STOVE OR RANGE OIL BURNING EQUIPMENT

It shall be unlawful for any person, firm or corporation to install any stove or range oil burning equipment, unless a certificate of approval has been issued by the Director.

SEC. 1152.1 - ISSUANCE OF CERTIFICATES OF APPROVAL. Application for certificates of approval shall be made in writing to the Director, in such form and detail as the Director may prescribe.

No certificate of approval shall be issued for any kind of stove or range oil burner which has not been approved by the Director.

SEC. 1152.2 - INSTALLATIONS MUST BE REPORTED. Every person, firm or corporation installing stove or range oil burning equipment shall report in writing to the Director, not later than the tenth (10th) day of each month, the location of each installation made in the previous month, together with the name of the burner and the number and size of the storage tank.

SEC. 1153.0 - FUEL OIL

The grade of fuel oil used with any stove or range burner shall be one which tests and experience have shown to be suitable for use with that burner. The oil shall have a flash point not less than one hundred fifteen (115) degrees Fahrenheit, determined as specified in Section 1151.1, and shall be free from acid, grit, and fibrous or other foreign matter likely to clog or injure the burners or valves.

SEC. 1153.1 - TEST SAMPLES. The Director is hereby empowered to take at least two (2) specimens, not to exceed in measure one (1) pint each of the range oil offered for sale by any dealer, from the dealer's storage tanks or trucks as samples for the purpose of analysis. He shall take said samples in the presence of the dealer or his agent, and shall seal and label the same in the presence of such dealer or agent, said label to state over the signature of the Director, the date and the name of the dealer, and shall then and there deliver one of said samples to such dealer or agent.

SEC. 1153.2 - DELIVERY. Delivery of range oil by the dealer or his agent to the storage tank in the cellar or basement of any building, shall be made with the utmost care to prevent spillage of oil. The method of delivering oil to the storage tank and the type of apparatus or container used for this purpose must meet with the approval of the Director.

SEC. 1154.0 - INSTALLATION OF STOVE OR RANGE OIL BURNERS

Stove and range oil burners including their supply tanks and connecting piping shall be installed in accordance with the limitations of their approval and the provisions of this Code.

SEC. 1154.1 - VENTILATION. Suitable means for preventing dangerous accumulations of oil vapors in the bottom of the combustion or ash chambers of stoves and ranges shall be provided.

SEC. 1154.2 - SEALING. Cracks and crevices between the combustion chamber and the oven or other parts of the stove or range shall be carefully sealed with fire clay.

SEC. 1154.3 - RIGIDITY AND DAMPERS. Burners shall be rigidly secured in place. The range or stove in which a burner is installed shall connect with the chimney by means of a stove-pipe, equipped with a damper of an approved hinged type and designed to relieve pressure by opening automatically in the event of any puff, backfire or explosion of gases in the fire-box or the damper may be of standard type closing, in no position, more than eighty (80) per cent of the internal area of the smokepipe.

SEC. 1154.4 - POSTING INSTRUCTIONS. A card giving complete instructions in regard to the care and operation of the burner shall be posted near the burner.

SEC. 1155.0 - STOVE OR RANGE OIL BURNER SUPPLY AND STORAGE TANKS AND CONNECTIONS

Tanks supplying stove or range oil burners directly by gravity shall not exceed a capacity of three (3) gallons except where such container is approved by the Director.

Such tanks shall be of the indestructible type and shall not be located less than two (2) feet from the device in which the burner is installed or shall be protected with suitable insulation or with baffle plates to assure that during normal operation the temperature of the oil in the tank will not exceed twenty (20) degrees Fahrenheit above the room temperature. They shall be securely attached to non-combustible supports rigidly fastened to the floor or wall.

Such tanks may be provided with indestructible means for determining the oil level, provided the gauging device will not involve the possibility of leakage of oil.

SEC. 1155.1 - PIPING SIZES AND PROTECTION. Piping between burners, supply tanks and storage tanks shall be standard steel, wrought iron or brass pipe not smaller than one quarter (1/4) inch in size, or brass, copper or other approved tubing not less than five sixteenths (5/16) inch outside diameter and not less than forty nine thousandths (0.049) inch wall thickness. Joints and connections shall be tightly made with substantial fittings.

Piping shall be protected against mechanical injury and shall be installed with proper allowance for expansion, contraction and vibration.

SEC. 1155.2 - SHUT-OFF VALVE. A shut-off valve shall be installed in the discharge line from gravity supply tanks.

SEC. 1155.3 - RESERVE STORAGE TANKS LOCATION. Oil storage tanks larger than three (3) gallons in capacity shall not be kept in buildings above the cellar or basement. Where there is no cellar or basement, the location shall be approved by the Director. Oil shall be drawn from such tanks by approved devices only.

.31 - Prohibited Location. No tank for the storage of range oil, unless otherwise authorized by the Director and subject to the conditions and restrictions which he may impose, shall be located within seven (7) feet of a boiler, furnace or other heating device, or within ten (10) feet of any unenclosed fire, uncovered smokepipe or open flame.

.32 - Maximum Capacity. Storage of fuel for range oil burners shall be limited to a single tank not exceeding fifty-five (55) gallons capacity for each owner of a range oil burner or burners, provided, however, that a single storage tank not exceeding one hundred fifty (150) gallons capacity may be permitted by the Director in writing, for each said owner.

SEC. 1155.4 - PUMPING DEVICE. No pumping system or other device for the conveyance of oil from the storage tank in the cellar or basement to the supply chamber of the burner is permitted, unless such system or device and its installation has been approved in writing by the Director.

SEC. 1155.5 - TANK CONSTRUCTION. Storage tanks for range oil of fifty-five (55) gallons capacity or less shall be constructed of galvanized steel of not less than No. 16 gauge in thickness. No storage tank in excess of fifty-five (55) gallons capacity shall be installed without the approval of the Director.

SEC. 1155.6 - SUPPORTS AND APPURTENANCES. Storage tanks of fifty-five (55) gallons or less may be set up on supports on end or lengthwise on the cellar or basement floor. The tank shall rest upon supports of incombustible material and shall be equipped with a faucet or valve of approved type. A metal drip-pan with an upturned lip not less than one (1) inch high shall be kept at all times under the faucet or valve.

SEC. 1155.7 - DRIP PROTECTION. A ten (10) quart pail or its equivalent, filled with sand, shall be kept at all times adjacent to the storage tank, the sand to be used to absorb spillage of oil. Sand saturated with oil shall be immediately removed from the premises.

SEC. 1156.0 - AIR POLLUTION

SEC. 1157.0 - DEFINITIONS

The following definitions will apply to Section 1156.0 to Section 1161.2.

Dust: Gas-borne particles larger than 1 micron in mean diameter.

Dust Separating Equipment: Any device for separating dust from the gas medium in which it is carried.

Fuel-Burning Equipment: Any furnace, incinerator, refuse-burning equipment, boiler, apparatus, device, mechanism, stack or structure used in the process of burning fuel or combustible material.

Fumes: Gases or vapors that are of such character as to create an uncleanly, destructive, offensive or unhealthful condition.

Internal Combustion Engine: An engine in which combustion of a gaseous liquid or pulverized solid fuel takes place within one or more cylinders.

Open Fire: Any fire wherein the products of combustion are emitted into the open air and are not directed thereto through a stack or chimney.

Person: Any individual, partnership, association, syndicate, company, firm trust, corporation, government, department, bureau, agency, or any other entity recognized by law as the subject of rights and duties.

MULTI FAMILY DWELLING NOT MORE THAN FOUR FAMILIES - A building arranged, intended or designed to be occupied by not more than Four (4) families living independently of each other and doing cooking upon the premises.

Ringelmann Chart: The Ringelmann Chart with the instructions for use thereon, entitled "Ringelmann's Scale for Grading the Density of Smoke" as issued by the U. S. Bureau of Mines and bearing notation in lower righthand corner "Edition of 1955".

"Any copy of the Ringelmann chart issued by the U. S. Bureau of Mines and bearing the notation "Edition of 1955" in the lower right hand corner, may be used by the Chief of the Mech. Div. in determining whether or not there is a violation under this ordinance.

Smoke: Small gas-borne particles consisting essentially of carbonaceous material in sufficient number to be observable.

Soot: Agglomerated particles consisting essentially of carbonaceous material.

Stack or Chimney: Fine, conduit or opening arranged for emitting gases into the open air.

Volatile: The gaseous constituents of solid fuels as determined by the Standard A. S. T. M. Procedure amended or revised to date.

Section 1158.0 - SCOPE

1158.1 Inspections

The investigation of complaints and the making of inspections and observations of air pollution conditions.

1158.2 Permits

The issuance of permits, certificates and notices; the keeping of applications, plans, permits, certificates, violations, complaints, and other records on file for Division purposes only.

1158.3 Examination Of Plans For Buildings

The examination of the plans for all new buildings and for the alteration of all existing buildings in order to assure that they are in accordance with the rules and regulations established by this code.

1158.4 Examination of Fuel - Burning Equipment

The examination for approval of the application and plans for the construction, installation or alteration of any fuel burning equipment pertaining thereto.

.41 Installation Permits and Operating Permits

No person shall construct, install or alter any fuel-burning equipment or any equipment pertaining thereto for use within the City of Providence, excepting internal combustion engines in the propulsion or operation of automobiles, trucks or buses, until an application including suitable plans and specifications of the fuel-burning equipment and structures or buildings used in connection therewith has been filed in duplicate by the person or his agent in the office of, and has been approved by, the Chief Of the Mechanical Division and an Installation permit issued by him for such construction, installation or alteration.

The above mentioned plans and specifications shall show the form and dimensions of the fuel-burning equipment, more particularly the proposed boiler, furnace, fuel burner, stack and ducts, together with the description and dimensions of the building or part thereof in which such fuel-burning equipment is to be located, including the means provided for admitting the air for combustion. The character of the fuel to be used, the maximum quantity of such fuel to be burned per hour, the operating requirements, and the use to be made of such fuel burning equipment shall be stated.

Provided, however, that the maintenance or minor alterations which do not change the capacity of such fuel burning equipment and which do not involve any change in the method of combustion or adversely effect the emission of smoke, dust or fumes therefrom, may be made without an installation permit; and further provided that an emergency repair may be made prior to the application for, and the issuance of, a required installation permit in the event an emergency arises and serious consequences would result if the repairs were to be deferred. When such repair is made in emergency, application for the installation permit thereof shall be filed in duplicate by the person or his agent in the office of the Chief Of The Mechanical Division on the First business day following the starting of such work.

Any application shall be approved or rejected within ten (10) days after it is filed in the office of the Chief of the Mechanical Division. Upon the approval of the application and upon the payment of the prescribed fees, the Chief Air Pollution Regulation Engineer shall issue a permit for the construction, installation or alteration of such fuel burning equipment.

Without the approval of the Chief of the Mechanical Division no construction, installation or alteration shall be made which is not in accordance with the plans, specifications and other pertinent information upon which the installation permit was issued.

Each day of work of such construction, installation, or alteration in violation of this section shall constitute a separate offense.

If construction, installation or alteration is not started within one year of the date of the installation permit, the permit shall become void and all fees shall be forfeited.

No person shall use or cause to be used any new or altered fuel burning equipment or any equipment pertaining thereto for which an Installation permit was required or was issued until an Operating permit has been issued by the Chief Of the Mechanical Division provided that where emergency repairs have been made without an installation permit, pursuant to Paragraph 3, of this section, such equipment may be operated without securing an operating permit, if serious consequences would result if the operation was deferred. The application for an installation permit following such emergency repair and operation shall be accompanied by an application for an operating permit.

Each day of operation previous to obtaining an operating permit shall constitute a separate offense.

The issuance by the Chief of the Mech. Div. of any installation permit or operating permit shall not be held to exempt the person to whom the permit has been issued or who is in possession of the same, from prosecution for the emission of smoke, dust and fumes prohibited by this Ordinance.

1158.5 Examination Of Other Equipment. The inspection for approval of the installation of all equipment pertaining to air pollution.

1158.6 Annual Inspections. The annual inspection of all equipment pertaining to air pollution under the jurisdiction of this Code.

.61 - Annual Inspection - An annual inspection of all fuel-burning equipment under the jurisdiction of this Ordinance excepting internal combustion engines, used in the propulsion or operation of automobiles, trucks or buses and equipment used in any residence for heating or cooking, fuel-burning equipment of comparable size or capacity, whether or not a previous operating permit or certificate of operation allowing use of plans has been issued by the Chief of the Mechanical Division, shall be made to see that such equipment and plant can be operated within the provisions of the Ordinance. Upon notice that the equipment has been found to comply with the provisions of the Ordinance, and after payment of the prescribed fee, the Chief of the Mechanical Division shall issue a Certificate of Operation which shall be posted in a conspicuous place within the plant.

If at the time of the annual inspection, or of any inspection subsequent to the issuance of the Certificate of Operation, it is found that the equipment is in such condition that it cannot be operated within the provisions of the Ordinance, the Chief of the Mechanical Division shall give notice in writing to the person owning, operating or in charge of such equipment of the defects found and order to correct, repair, or replace, the defective equipment. Failure to

comply with this order within 30 days from its date shall be a violation of this section and the Chief of the Mechanical Division is hereby authorized to seal the equipment. No person shall violate the seal on any equipment that has been sealed at the direction of the Chief of the Mechanical Division unless authorized by him in writing to do so.

Each day of failure to comply after the 30 days shall constitute a separate offense.

1158.7 Sealing Equipment The Director is hereby authorized to seal the equipment in operation upon which an operating permit has not been obtained as required in this Code.

Violation of the installation permit shall be sufficient cause for the Chief of the Mechanical Division to stop all work and he is hereby authorized to seal the installation, and further work shall not proceed until the Chief of the Mechanical Division is assured that the violation in question will be corrected and that the work will proceed in accordance with the installation permit.

No person shall violate the seal on any fuel burning equipment that has been sealed at the direction of the Chief of the Mechanical Division unless authorized by him in writing to do so.

Sec. 1159.0 Emission Prohibited And Standards of Measurements

Sec. 1159.1 Smoke Density Prohibited Except For Vehicles And Railroad Locomotives

No person shall cause, suffer or allow to be discharged from any fuel-burning equipment, internal combustion engine, premises or open fire excepting railroad locomotives or vehicles, smoke the shade or density of which is equal to No. 2 of the Ringelmann Chart for a period aggregating 8 minutes or more in any 30 minutes, or smoke the shade or density of which is greater than No. 2 of the Ringelmann Chart except for a period or periods aggregating 3 minutes in any 15 minutes when building a new fire, cleaning a fire, or when breakdown of equipment occurs such as to make it evident that the emission was not reasonably preventable.

The burden of proof set forth of establishing the exceptions to the violation as herein above set forth shall be upon the person so claiming said exceptions.

Sec. 1159.2 Smoke Density Prohibited For Vehicles And Railroad Locomotives

No person shall cause, suffer or allow to be discharged from any railroad locomotive or vehicle, smoke the shade or density of which is equal to No. 2 of the Ringelmann Chart for a period aggregating 8 minutes or more in any 30 minutes, or smoke the shade or density of which is greater than No. 2 of the Ringelmann Chart except for a period

or periods aggregating 30 seconds in any 2½ minutes, when building a new fire, cleaning a fire, or when breakdown of equipment occurs such as to make it evident that the emission was not reasonably preventable.

The burden of proof set forth of establishing the exceptions to the violation as herein above set forth shall be upon the person so claiming said exceptions.

Sec. 1159.3 Ringelmann Smoke Chart

For the purpose of grading the shade or density of smoke, the Ringelmann Chart as defined in Section 1157.0 of this Code, a copy of which is attached and made a part of this Ordinance, shall be standard.

Sec. 1159.4 Dust Prohibited

No person shall cause, suffer or allow to be discharged from any fuel burning equipment or premises or to pass any convenient measuring point in the stack, dust in the gases to exceed 0.85 per 1000 lb. of gases, adjusted to 12 per cent CO₂ content for products of combustion.

SEC. 1159.5 - Dust Standard

The amount of solids in the gases shall be determined according to the Test Code for Dust Separating apparatus of the American Society of Mechanical Engineers, revised and amended to date, which is hereby made a part of this Ordinance by reference.

.51 A person shall not discharge in any one hour from any source (other than one in which fuel, air and steam are the sole agents introduced into the process) dust or fumes in total quantities in excess of an amount based on an interpolative table which begins with an allowable Maximum Weight of Discharge of 0.24 pounds per hour for a Process weight of 50 pounds per hour and ends with an allowable Maximum weight of discharge of 40 pounds per hour for a Process Weight of 60,000 pounds per hours.

.52 "Process Weight" is the total weight of all materials introduced into any specific process which process may cause any discharge into the atmosphere. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustible air will not. The "Process Weight per hour" will be derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is idle.

.53 Smoke of such a nature as to obscure an observer's view to a degree equal or greater than does smoke described in Section 8 of the Air Pollution Ordinance shall be considered a violation of the said Ordinance.

Dust and Fumes Regulation Table - Air Pollution Control Division, City of Providence

<u>Process Wt/hr lbs)</u>	<u>Maximum Weight Disch/hr (lbs)</u>	<u>Process Wt/hr (lbs)</u>	<u>Maximum Weight Disch/hr (lbs)</u>	<u>Process Wt/hr (lbs)</u>	<u>Maximum Disch/hr (lbs)</u>
50	.24	1900	4.03	4700	6.45
100	.46	2000	4.14	4800	6.52
150	.66	2100	4.24	4900	6.60
200	.85	2200	4.34	5000	6.67
250	1.03	2300	4.44	5500	7.03
300	1.20	2400	4.55	6000	7.37
350	1.35	2500	4.64	6500	7.71
400	1.50	2600	4.74	7000	8.05
450	1.63	2700	4.84	7500	8.39
500	1.77	2800	4.92	8000	8.71
550	1.89	2900	5.02	8500	9.03
600	2.01	3000	5.10	9000	9.36
650	2.12	3100	5.18	9500	9.67
700	2.24	3200	5.27	10000	10.00
750	2.34	3300	5.36	11000	10.63
800	2.43	3400	5.44	12000	11.28
850	2.53	3500	5.52	13000	11.89
900	2.62	3600	5.61	14000	12.50
950	2.72	3700	5.69	15000	13.13
1000	2.80	3800	5.77	16000	13.74
1100	2.97	3900	5.85	17000	14.36
1200	3.12	4000	5.93	18000	14.97
1300	3.26	4100	6.01	19000	15.58
1400	3.40	4200	6.08	20000	16.19
1500	3.54	4300	6.15	30000	22.22
1600	3.66	4400	6.22	40000	28.30
1700	3.79	4500	6.30	50000	34.30
1800	3.91	4600	6.37	60000	40.00
				or	
				more	

.54 No person shall discharge into the atmosphere in any state or combination thereof, Sulphur Compounds (calculated SO₂) exceeding 0.4 per cent by volume in concentration at the point of discharge.

SEC. 1159.6 - Fumes

"No person shall cause, suffer or allow to be discharged from any fuel-burning equipment, internal combustion engine, railroad locomotive, vehicle, premises, open fire, or stack, cinders, dust gas, steam or noisome odors that are a detriment to the property of others, or that are a nuisance to any person not being therein or thereupon engaged."

SEC. 1159.7 - Open Fires

No open fires of any type shall be permitted at any time in the City of Providence. This includes domestic back yard trash fires including leaf burning.

Barbecue pits shall be used only for the cooking of food and not as incinerators. Charcoal shall be the only fuel permitted in barbecue pits.

SEC. 1159.8 - Pulverized Coal Burning

The products of combustion from all pulverized coal burning furnaces shall be exhausted through approved mechanical and electrostatic precipitators, utilized in series.

SEC. 1159.9 - Dust From Storage Piles And Open Property

All storage piles such as for coal, sand and cinders, whose surface can be disturbed and carried by wind and all open property such as parking lots, whose surface can be disturbed and carried by wind shall be coated with an encrusting liquid of such quality and consistency as to render the surface wind-resistant.

.91 Trucks Carrying Loose Materials

"No truck carrying material such as coal, coke, dirt, sand, ashes, cinders, gravel, crushed stone or loam, shall be loaded so that any portion of the load is at an elevation higher than the lowest vertical side of the truck body including the tail board."

The present civil ordinance governing the covering of dusty trucks loads with canvas, would still be applied.

.921 No person operating an establishment, other than a residence as defined by the Providence Air Pollution Ordinance, shall use or operate an incinerator without first obtaining an operating permit from the Chief of the Mech. Div.

.922 An Incinerator is defined as a device designed and/or used for the disposal of waste material by combustion.

.923 An application for an operating permit for an incinerator shall contain complete plans and specifications of said incinerator along with necessary information as to quantity, nature and moisture content of material to be burned.

.924 The Chief of the Mech. Div. is authorized to issue an operating permit therefore if such incinerator complies with the ordinances of the City of Providence.

.925 No fuel burning plant designed for the production of heat and/or power shall be used at any time as an incinerator.

.926 No person operating an establishment, other than a residence, as defined by the Air Pollution Ordinance, shall allow, permit or suffer an open fire on his premises for the disposal of combustibles.

.927 All incinerators must exhaust their products of combustion through a water scrubber, the design of which must be approved by the Chief of the Mechanical Division.

.93 Handfiring of Soft Coal

(.931) It shall be unlawful to import, sell, offer for sale, expose for sale, exchange, deliver or transport for use or consumption in a hand fired installation in the City of Providence, any solid fuel other than coke or anthracite coal. Anthracite coal shall be defined by the ASTM Standards of 1938. This ruling does not apply to indoor fire places.

(.932) Any coal having a dry basis volatile content greater than that of anthracite coal may be imported, sold, offered for sale, exposed for sale, exchanged, delivered or transported, used or consumed in the City of Providence only in approved mechanical fuel burning equipment.

(.933) Any solid fuel containing volatile matter greater than that of anthracite coal on a dry basis shall, within the discretion of the Air Pollution Engineer, be acceptable under the terms of these rules and regulations of the Air Pollution Ordinance provided that it meets the same standard in regard to smoke production as that of anthracite coal, and subject to the following conditions in order to ascertain whether or not such standards are met: (1) Complete plans and specifications of such process must be submitted to the Chief of the Mech. Div., and from time to time any additional information he may reasonably require regarding the product. (2) An adequate supply of the finished product must be made available to the Chief of the Mech. Div. to conduct whatever tests he deems necessary to establish its value as a smokeless solid fuel. (3) Any person, firm or corporation whose product is submitted to such tests must pay in advance all expenses necessary to the attendant tests.

SEC. 1160.0 - Sealing Equipment: Violations

"After any person owning, operating or in charge or control of any premises has been previously notified of three or more violations

of this section upon such premises, within any consecutive 12 month period, in respect to the emission of smoke, dust, cinders, gas, steam or noisome odors, the persons owning, operating or in charge or control of these premises shall be notified to show cause before the Chief of the Mech. Div. on a day certain, not less than 10 days from the date of notice, why the equipment causing such violations should not be sealed. The notice herein provided for shall be given by certified mail directed to the last known address of the person to be notified, or if the person or his whereabouts is unknown, then by posting a notice on or near the premises at which the violations shall have occurred. Said notice shall set forth the condition complained of and the section of the within ordinance allegedly being violated. The person thus notified may appear for said hearing personally or by attorney. Upon this hearing, if the Chief of the Mech. Div. finds that adequate corrective means and methods have not been employed to correct the cause of such condition, then it shall be his duty to seal the equipment until such time as an installation permit and operating permit, as provided under this Ordinance have been applied for and issued for the equipment."

SEC. 1161.0 - Fuel and Equipment Dealers

SEC. 1161.1 - Fuel Dealers

No person shall sell or deliver any solid fuel in the City of Providence unless each delivery is accompanied by a certificate or bill of sale left with the buyer, on which is plainly written, printed, or stamped the name of the person making the sale or delivery, the designation of the fuel as high or low volatile.

SEC. 1161.2 - Equipment Dealers

All persons engaged in the business of retailing fuel-burning equipment shall report in writing to the Chief of the Mech. Div. the sale or lease of every such piece of equipment to be installed or used within the City of Providence within 10 days after the date of the sale or lease, together with a statement of the address of the building or buildings in which the equipment is to be installed and used.

Any person violating any of the provisions of this section, or making any false statement or report in connection with the sale or lease of any fuel-burning equipment mentioned in this section, shall be subjected to fine and penalties as provided in this Ordinance.

ARTICLE 12 - FIRE EXTINGUISHING EQUIPMENT AND FIRE PROTECTION

SEC. 1200.0 - SCOPE

The provisions of this article shall control the installation of fire alarm and fire extinguishing equipment in all buildings and structures when specified or required by this Code and the approved rules adopted thereunder. All electrical equipment and the details of wiring for fire extinguishing installations shall comply with the provisions of ARTICLE 15.

SEC. 1200.1 - APPROVED DEVICES. The Director may accept the label, or listing in the publications of tests of inspected fire protection equipment and materials of accredited authoritative agencies when installed in accordance with the limitations of the approval of such agencies and the approved rules, and such devices and equipment shall be deemed to comply with the requirements of this article for the purposes specified.

SEC. 1200.2 - AUXILIARY EQUIPMENT. Where required by this article, or for special uses and occupancies involving high fire and life hazard as set forth in Article 4, readily available auxiliary, first-aid fire extinguishing equipment, including hand hose, water barrels, buckets, hand fire extinguishers, chemical engines, axes, hooks, ladders and other appliances and tools for controlling and fighting incipient fires shall be installed as herein required and in accordance with the approved rules.

SEC. 1201.0 - DEFINITIONS

AUTOMATIC FIRE ALARM SYSTEM. An interior system composed of automatic fire detectors and signaling devices in a building, operated on an electric circuit, so arranged that the operation of any one of the fire detectors will ring all signals throughout the building or at one or more approved locations. Signals may be non-coded with annunciator to indicate the location of the operated circuit, or coded.

AUTOMATIC SOURCE. Water supplied through a gravity or pressure tank or automatically operated firepumps or from a direct connection to a city water main.

AUTOMATIC SPRINKLER HEAD. A device, connected to a system of piping, that opens automatically at a predetermined fixed temperature or rate of rise in temperature and disperses a stream or spray of water or other extinguishing media.

AUTOMATIC SPRINKLER SYSTEM. A system of piping connected to one or more approved water supplies, and equipped with distributing sprinkler heads, arranged and located to discharge and diffuse automatically an effective stream or spray of water over the interior of a building area.

AUXILIARY SOURCE. Water supplied through a fire pump or fire department siamese connection.

FIRE DRILL. The organized procedure conducted with or without a private fire brigade for vacating the occupants of a building and for operating the first-aid fire appliances and equipment for the extinguishing of fire and safeguarding of life.

HORIZONTAL FIRE LINE. A fire line installed around the interior walls and columns of a building, pier or wharf, with hose outlets located so that every part of the floor area is within the reach of at least one fire stream.

MANUAL FIRE ALARM SYSTEM. An interior system composed of sending stations and signalling devices in a building, operated on a closed circuit electric current, so arranged that the operation of any one station will ring all signals throughout the building or at one or more approved locations. Signals may be either non-coded, or coded to indicate the floor or part of the structure in which the signal originated.

NON-AUTOMATIC SPRINKLER SYSTEM. A sprinkler system designed for use by the fire department in which all pipes and sprinkler heads are maintained dry and which is equipped with a siamese fire department connection, and an automatic fire alarm system with connection to fire department headquarters or to the central office of a supervisory service fire alarm company.

ONE-SOURCE SPRINKLER SYSTEM. An automatic sprinkler system which is supplied from one of the approved automatic sources of water supply.

PARTIAL SPRINKLER SYSTEM. An automatic sprinkler system consisting of a limited number of automatic sprinkler heads serviced from an approved water supply.

SPRINKLER SYSTEM. (Chemical). A system of automatic sprinklers controlled by thermostatic operating devices for the diffusion of approved fire extinguishing chemicals.

SPRINKLER SYSTEM. (Dry Pipe). A system in which all pipes and sprinkler heads are filled with air and the water supply is controlled by an approved automatic dry-pipe valve, actuated by the release of air or by thermostatic electric control in the event of fire.

SPRINKLER SYSTEM. (Thermostatic). An automatic sprinkler system

operated through an auxiliary thermostatic device which functions at a predetermined rate of temperature rise or at a fixed temperature.

SPRINKLER SYSTEM. (Wet Pipe). A system of automatic sprinklers in which all pipes and sprinkler heads are normally filled with water under pressure from an approved source.

STANDPIPE. A fire line installed exclusively for the fighting of fire, extending from the lowest to the topmost story of a building or structure with hose outlets at every floor.

STANDPIPE. (Dry). A standpipe fire line without permanent or automatic water supply, equipped with a siamese connection for use of the fire department.

STANDPIPE. (First-Aid). An auxiliary vertical or horizontal fire line designed primarily for emergency use by the occupants of the building or private fire brigade before the arrival of the municipal fire department.

STANDPIPE. (Wet). A standpipe fire line having a primary water supply constantly at every hose outlet, or made available by opening the hose outlet or by automatic functioning of a control station.

TWO SOURCE SYSTEM. An automatic sprinkler system which is supplied from a combination of any two of the approved automatic sources of water supply, or by direct connections to the municipal water supply on two (2) streets in which the water mains are under separate control.

WATER CURTAIN. A system of approved open sprinkler heads installed on the exterior of a building at eaves, cornices, window openings, and on mansard or peak roofs, with water supply under manual control.

SEC. 1202.0 - PLANS AND SPECIFICATIONS

Before any standpipe or sprinkler equipment is installed or existing equipment which involves ten (10) or more sprinkler heads in any one fire area or on any one floor is remodeled, or before the installation or extension of any interior fire alarm signal system, a preliminary set of paper plans and cross-sections, drawn to a scale of not less than one-eighth (1/8) inch to the foot shall be filed with the Director with specifications in sufficient detail, showing essential features of the construction, heights of stories, location, size and arrangement of all piping and accessories for each proposed standpipe fire line and sprinkler installation, and the layout and wiring of the fire alarm signal system.

SEC. 1202.1 - STANDPIPE FIRE LINES. Plans for the standpipe installation shall show the size and location of risers; size and location of cross connections and valves; size and location of siamese connections; tanks

and pumps; hose stations and length of hose, stairways, stair sections and all subdividing partitions and walls.

SEC. 1202.2 - SPRINKLER SYSTEMS. Plans for the sprinkler installation shall show the location and capacity of water supply; connecting piping; feed mains and risers; all gate, check, alarm and dry pipe valves, number and location of all heads; location and number of all actuating devices and standpipe fire lines, if any. Sprinkler plans shall indicate essential features of the construction, such as floor and roof framing which have a bearing on the location and spacing of sprinklers.

SEC. 1202.3 - INTERIOR FIRE ALARMS. Plans for the interior fire alarm signal system shall show location and number of all sending stations and signals with specifications of the type, construction and operation of the system.

SEC. 1202.4 - APPROVED PLANS. After acceptance of the preliminary plans, three (3) final sets of corrected prints of good quality shall be filed for final approval of every installation of standpipe fire line, sprinkler and fire alarm signal systems.

SEC. 1203.0 - ACCEPTANCE TESTS

Before final approval and acceptance of fire extinguishing equipment in all buildings, piers, wharves and other structures, the installation shall be subjected to the tests prescribed herein or in the approved rules. It shall be unlawful to cover up or permanently conceal piping, wiring and accessory devices in any portion of a newly constructed system until it has been tested and approved, except for the thickness of construction of beams, floors, partitions and walls through which piping and wiring pass.

SEC. 1203.1 - STANDPIPE FIRE LINES. Upon completion of a standpipe installation and at least every five (5) years thereafter, every standpipe fire line shall be tested for static pressure and flow including the top and bottom outlets, in the presence of the Director and the Chief of the Fire Department.

.11 Pressure Test. The test shall demonstrate that the system will sustain a hydrostatic pressure of not less than one hundred (100) pounds per square inch at the topmost hose outlet, and not less than three hundred (300) pounds per square inch at the fire department connection, or at the lowest pump supply connection to the risers. When such a test is applied, the control valve on any connection to a public water main should be tightly closed.

.12 - Periodic Check Tests. The periodic tests shall demonstrate the suitability of the system for fire department use in accordance with the test procedure and performance requirements of the approved rules.

.13 - Temporary Construction Standpipes. The risers, cross connections and branch lines of temporary standpipes required under the provisions of Article 13 in structures under erection shall be maintained water-tight when work is not being done on the system.

SEC. 1203.2 - SPRINKLER SYSTEMS.

.21 - Automatic Wet-Pipe And Dry-Pipe Systems. Automatic wet-pipe and dry-pipe systems, exclusive of water supply tanks, shall be subjected to a hydrostatic pressure test for one (1) hour duration of at least one hundred fifty (150) pounds per square inch in every part of the installation, but not less than fifty (50) pounds per square inch in excess of the normal pressure carried in the system, and to a flow test from the top of every sprinkler riser. When such a test is applied, the control valve on any connection to a public water main should be tightly closed.

.22 - Automatic Dry-Pipe Systems. In addition to the tests specified in Section 1203.21, automatic dry-pipe systems shall be tested to forty (40) pounds per square inch air pressure for twenty-four (24) hours duration with a maximum permissible pressure loss of two (2) pounds per square inch.

.23 - Non-Automatic Systems. Non-automatic systems shall be subjected to the same test requirements as set forth in Section 1203.21.

.24 - Pressure Tanks. Pressure tanks shall be tested to a pressure of one and one-half (1 1/2) times the working pressure.

SEC. 1203.3 - INTERIOR FIRE ALARMS. Upon completion of an interior fire alarm signal system, the installation shall be subjected to a test to demonstrate its efficiency of operation as prescribed by the approved rules. All connections and wiring, with signal devices disconnected, shall develop an insulation resistance of at least ten (10) megohms.

SEC. 1204.0 - INSPECTIONS AND PERIODIC TESTS.

SEC. 1204.1 - INSPECTIONS. Inspections and field tests of fire extinguishing equipment shall be made by the owner, his authorized and approved representative, or insurance organization and the fire department of the City of Providence as herein required to insure the maintenance of all service equipment in operating condition and to familiarize the fire-fighting force with existing conditions in all buildings and structures.

SEC. 1204.2 - RECORDS. All fire fighting and fire extinguishing service equipment and appliances, including valves, hose, tools and accessories shall be maintained readily available and in good working condition at all times for immediate use of the occupants of the building and the fire department. Records of required inspections and tests shall be available for examination by or filed with the Director and the Chief of the Fire Department as he or they may direct.

SEC. 1204.3 - TEST EXPENSE. All tests herein required shall be conducted at the owner's risk and expense and at least forty-eight (48) hours notice shall be given to the municipal official having jurisdiction before any test is made.

SEC. 1204.4 - STANDPIPES.

.41 - Fire Pump Tests. Fire pumps shall be operated at least once in ninety (90) days to a hydrostatic pressure of not less than fifty (50) pounds per square inch at the topmost hose outlet. Records of these tests shall be maintained by the certified operator and shall be submitted to the Director and the Chief of the Fire Department when requested for their inspection and approval.

.42 - Flow Tests. In buildings and structures exceeding eighty-five (85) feet in height, flow tests shall be made at intervals of not more than two (2) years with at least fifty (50) pounds pressure at the topmost hose outlet, with one hose stream flowing.

SEC. 1204.5 - AUTOMATIC SPRINKLER SYSTEMS.

.51 - Periodic Check. All buildings and structures shall be inspected to observe whether all rooms and spaces are equipped with required sprinklers and that all sprinklers are unobstructed by storage of the contents or by the erection of partitions or other structural features which prevent free operation of the system.

.52 - Fire Pump Test. Fire pumps shall be tested as required for standpipe installations in Section 1204.41.

.53 - Test Pipe. The test pipe at the top of the system shall be operated at each inspection to determine that there is free flow of water at good pressure.

.54 - Drains. The drains at the base of all risers shall be opened and observed for volume of water flow.

.55 - Fire Department Connection. The fire department connection shall be tested from the siamese to the check valve. When the water supply is from a city main or yard hydrant system, a two and one-half (2 1/2) inch valved and threaded hose outlet shall be provided for the purpose of draining the system.

.56 - Supervisory Service. When testing systems which are connected through a central supervisory station or through the fire department, proper notification shall be given to the proper officials before the tests are made.

SEC. 1204.6 - OPEN SPRINKLER SYSTEMS. All exterior open sprinkler equipment shall be tested at least once each year.

SEC. 1204.7 - INTERIOR FIRE ALARM SYSTEMS.

.71 - Monthly Tests. All interior fire alarm signal systems and sending stations shall be tested monthly by the person in charge to insure normal operating conditions. The use of the system for fire drill purposes under the provisions of Section 1220.0 of this article shall be accepted as a test of those parts of the system actually

used in the drill procedure. All sending devices shall be reset or rewound when required after each use.

.72 - Test Records A complete written record of the monthly tests shall be kept by the person in charge and shall be filed with the Director and Water supply Board as may be required by them. The monthly test may be held currently with the required practice fire drill.

SEC. 1205.0 - MAINTENANCE AND CERTIFICATE OF FITNESS

The owner of every building and structure shall be responsible for the care and maintenance of all fire extinguishing equipment and devices to insure the safety and welfare of the occupants. When installations of automatic extinguishing equipment or of a fire alarm signal system are interrupted for repairs or other reasons, the owner shall immediately advise the Director and Chief of the Fire Department and shall diligently prosecute the restoration of the protection.

SEC. 1205.1 - CERTIFICATE OF FITNESS.

.11 - For Standpipes. In all buildings exceeding seventy-five (75) feet in height, the person designated to be in charge of the standpipe fire line or other fire extinguishing equipment shall secure a certificate of fitness from the Chief of the Fire Department.

.12 - For Fire Pump. In all buildings in which a manually operated fire pump is required, day and night service shall be maintained to provide twenty-four (24) hour operation, and each operator shall secure the required certificate of fitness.

.13 - For Theatre Buildings With Fire Pumps. In theatre buildings equipped with fire pumps a certified operator shall be on duty during every performance.

.14 - For Amusement Parks And Industrial Buildings. At least one (1) certified operator shall be on duty whenever deemed necessary by the Director.

.15 - For Automatic Sprinkler Systems. In all buildings equipped with automatic sprinkler installations, other than residential buildings (Use Group L2 and L3), the owner shall designate a properly qualified representative to inspect the system at frequent intervals to insure its maintenance in accordance with the provisions of this Code and the approved rules.

SEC. 1205.2 - MAINTENANCE OF STANDPIPES.

.21 - Tank Supplies. All supply tanks shall be kept properly filled and pressure tanks maintained at the required air pressure and water level.

.22 - Valves. Valves at hose stations shall be examined for tightness and valves at automatic sources of supply shall be kept open.

.23 - Hose. Fire hose shall be maintained in good condition and properly arranged on the hose racks. When required, the gaskets shall be replaced in couplings of hose valves and nozzles.

SEC. 1205.3 - MAINTENANCE OF SPRINKLERS.

.31 - Control Valves. The control valve shall be kept open and the sprinkler system shall be maintained in service at all times. After alterations, repairs, or emergencies, special inspections shall be made to insure that control valves are properly serviced in the open position and the system is in operating condition.

.32 - Corrosion. Piping and heads shall be protected from corrosion and loading and free from mechanical injury.

.33 - Supervisory Service. Where central station service or fire department connection is maintained, immediate notification shall be given before operating any valve or disturbing the system in any manner.

.34 - Dry-Pipe Systems. All water supplies and the air pressure in dry-pipe systems and pressure tanks shall be maintained in accordance with the requirements of the system.

.35 - Fire Pumps. Fire pumps shall be operated weekly until water is discharged freely from the relief valve or other convenient outlet.

.36 - Spare Heads. A sprinkler wrench and not less than six (6) extra sprinkler heads shall be available on the premises in a readily accessible and plainly identified place to replace fused or damaged equipment.

SEC. 1205.4 - MAINTENANCE OF FIRE ALARMS.

.41 - Vacated Premises. Interior fire alarm signal systems shall be maintained in operating condition at all times, except when the building is vacated for periods of more than one (1) week.

.42 - Notice Of Defective Systems. When the system becomes inoperative, the owner or his designated representative in charge of the system shall notify all occupants and shall take immediate steps to restore the system to working condition. While out of order, all fire alarm stations shall be clearly tagged to indicate the system is not working.

.43 - Notice To Fire Officials. If the operating current of any system is disconnected for emergency reasons, the responsible person in charge shall notify the Director and Chief of the Fire Department in advance of such disconnection, stating the reasons thereof.

.44 - Spare Parts. When break-glass type fire alarm boxes are employed, a supply of extra glasses shall be maintained on the premises for each station of the system.

SEC. 1206.0 - EXISTING BUILDINGS AND EQUIPMENT

SEC. 1206.1 - EXISTING STANDPIPES. Standpipe fire lines heretofore approved shall not be required to be altered to conform to the provisions of this article except when the building is extended in height or in area, or the occupancy is changed to a use requiring superior protection.

SEC. 1206.2 - EXISTING SPRINKLER SYSTEMS. Automatic sprinkler systems and devices heretofore approved shall not be required to conform to the provisions of this article except when the fire hazard due to construction and use of the building is increased or when substantial additions are made to the building.

.21 - Voluntary Protection. Existing sprinkler systems which have been installed voluntarily and which are not required by the Code need not conform to the provisions of this article except that the Fire Department connection shall be maintained in accordance with the approved rules.

.22 - Communicating Buildings. When a completely sprinklered building communicates with another not so equipped, the communicating openings shall be provided with an opening protective on both sides of the wall having a combined fire-resistance rating of not less than three (3) hours complying with Article 9.

.23 - Water Supply. The service supply of existing systems shall be of sufficient size to operate the largest number of sprinklers likely to open in one (1) fire area except that the Director may accept such system in buildings of low fire hazard when the supply is adequate to furnish at least ten (10) sprinkler heads.

SEC. 1206.3 - EXISTING FIRE ALARMS. Fire alarm signal systems heretofore installed in buildings and structures in accordance with the rules then in force, shall be accepted as long as they are maintained in good working order and are satisfactory to the Director.

SEC. 1207.0 - WET STANDPIPE FIRE LINES

Except as herein required, all buildings and structures hereafter erected, designed for other than residential use, (Use Groups L2 and L3) and all buildings heretofore erected which are not already equipped with a four (4) inch or larger standpipe, shall be provided with equipment complying with the provisions of this article.

SEC. 1207.1 - SIZE.

.11 - Buildings Over One Story. All buildings more than one (1) story or twenty (20) feet in height and ten thousand (10,000) square feet in area shall be equipped with not less than four (4) inch standpipes.

.12 - Buildings Over Four Stories. All buildings more than four (4) stories or fifty (50) feet and not more than seventy-five (75) feet in height shall be equipped with not less than four (4) inch standpipes.

.13 - Buildings Over Six Stories. All buildings more than six (6) stories or seventy-five (75) feet and not more than two hundred and fifty (250) feet in height shall be equipped with not less than six (6) inch standpipes.

.14 - Buildings Over 250 Feet High. All buildings more than two hundred and fifty (250) feet in height shall be equipped with not less than eight (8) inch standpipes.

SEC. 1207.2 - EXCEPTIONS. Unless otherwise specifically required by this Code or other statute, the following buildings shall be exempt from the provisions of this section.

.21 - Equipped With Sprinklers. Buildings of fireproof construction (Types 1A or 1B), not exceeding four (4) stories or fifty (50) feet in height when not of a high hazardous use (Use Group A) and when equipped with an approved automatic sprinkler system, shall be exempt from the standpipe requirement.

.22 - One Story Buildings. Buildings not more than one (1) story in height and not more than fifteen thousand (15,000) square feet in area when not of a high hazard use (Use Group A) shall be exempt from the standpipe requirement when approved by the Director.

SEC. 1207.3 - NUMBER OF RISERS.

.31 - Based On Floor Area. The number of standpipe risers shall be such that all parts of every floor area can be reached within thirty (30) feet by a nozzle attached to one hundred (100) feet of hose connected to the riser outlet.

.32 - Based On Street Fronts. There shall be at least one (1) riser for each street front on which the building or structure faces; except that a corner building need not be considered as facing on more than one (1) street when the floor area is completely protected as required in this section.

.33 - Low Water Pressure. When the pressure at the hose outlet is less than fifteen (15) pounds per square inch, not more than ten (10) feet shall be allowed for the throw of the hose stream.

SEC. 1207.4 - LOCATION OF STANDPIPES.

.41 - Accessibility. Standpipes shall be so located that they are protected against mechanical and fire damage, with outlets within stairway enclosures; but when stairway enclosures are not available, the standpipes shall be located so as to be accessible to an interior or exterior stairway, to a smokeproof tower, or in a public corridor.

.42 Main Stairway. In all cases, one riser shall be located in the main stairway or smokeproof tower.

SEC. 1207.5 - STANDPIPE PROTECTION. Standpipe fire lines shall be protected from freezing as specified in the approved rules.

SEC. 1207.6 - STANDPIPE CONSTRUCTION. Standpipe fire lines shall be installed progressively with the erection of the building as required in Section 1319.8 and shall be constructed in accordance with the approved rules.

.61 Height. Standpipe fire lines shall extend from the lowest to the topmost story of the building or part of building which they serve.

.62 - Inter-Connections. When more than one standpipe is required in a building they shall be so cross-connected at their base by pipes of size equal to that of the largest riser as to permit the same water source to supply all risers.

.63 Hose Connections. Subject to the provisions of Section 1210.0 standpipes shall be equipped in every story with two and one-half (2 1/2) inch hose connections and valves located not more than five (5) feet above the floor level.

.64 Approved Fittings and Stop Valves. Only approved fittings, connections, and valves shall be used in the construction; and stop valves shall be provided to permit any one standpipe riser to be cutoff without interrupting service to other risers from any source of supply.

SEC. 1207.7 - HOSE.

.71 Size. Except as provided in Section 1207.74 and Section 1210.0 standpipes located inside of buildings and structures shall have approved hose attached to each outlet of at least two and one-half (2 1/2) inch diameter, equipped with couplings conforming to the municipal fire department's standard and of sufficient length to reach all parts of the floor area but not more than one hundred (100) feet in length.

.72 Nozzle. Each line of hose shall be provided with washers at both ends and shall be fitted with a smooth-bore play pipe or nozzle at least twelve (12) inches long with a one (1) inch discharge outlet.

.73 Racks. The hose shall be installed on approved hose racks or in approved hose cabinets of incombustible construction.

.74 Exception. In residence buildings and structures (use groups L1 and L2), institutional buildings (use group H2) and in business buildings designed for office use, when approved by the Director, one and one-half (1 1/2) inch hose may be permitted when installed with a reducer coupling from the two and one-half (2 1/2)

inch standpipe outlet.

SEC. 1207.8 - FIRE DEPARTMENT CONNECTION.

.81 - Location. Every standpipe fire line shall be equipped with an approved siamese fire department inlet connection constructed of non-corrodible metal, location on a street front of the building not less than eighteen (18) inches nor more than thirty-six (36) inches above the grade line.

.82 - Projection. When located two (2) feet or more above grade the fire department connection shall not project beyond the street lot line.

.83 - Standpipe Feeder. The pipe connecting the siamese to the standpipe shall be at least four (4) inches in diameter, but not less than the size of the cross-connection.

.84 - Hose Threads. All hose threads in the fire department connection shall be uniform with that used by the Providence Fire Department.

.85 - Identification. The fire department connection shall be suitably marked with raised letters not less than one (1) inch high reading - "TO STANDPIPE", or otherwise identified for dry standpipes, automatic or open sprinkler systems as provided in Section 1209.3, Section 1213.7 and Section 1216.3.

SEC. 1208.0 - STANDPIPE WATER SUPPLIES.

The source of water supply to standpipes shall be adequate to maintain a flow of two hundred (200) gallons per minute with not less than fifteen (15) nor more than fifty (50) pounds per square inch pressure at the topmost outlet of the building or structure and shall conform to the minimum requirements of this section.

SEC. 1208.1 - PUBLIC WATER SUPPLY. When supplied by a street main, the flow shall be not less than five hundred (500) gallons per minute from a hydrant within two hundred (200) feet of the building under the minimum pressures herein specified.

SEC. 1208.2 - GRAVITY TANKS. When supplied by a gravity tank, the tank shall be so located that the bottom shall be not less than twenty-five (25) feet above the topmost outlet. The tank shall be covered and shall have a capacity of not less than five thousand (5,000) gallons; and if jointly used for house supply and sprinkler systems it shall be arranged to provide a reserve supply of not less than five thousand (5,000) gallons at all times for the standpipe fire lines.

SEC. 1208.3 - PRESSURE TANK. When supplied by a pressure tank, the tank shall be located in the top story or on the roof of the building or structure and shall have a gross capacity of not less than six thousand (6,000) gallons.

SEC. 1208.4 - FIRE PUMP. When supplied by an automatic fire pump, the combined pump capacity shall be not less than five hundred (500) gallons per minute for a four (4) inch standpipe; seven hundred and fifty (750) gallons per minute for a six (6) inch standpipe or for two (2) four (4) inch standpipes; and not less than one thousand (1,000) gallons per minute for an eight (8) inch standpipe, or for two (2) six (6) inch standpipes. When pumps are not supplied from the street main, the source shall furnish sufficient water for full operation of the standpipe for not less than one (1) hour.

SEC. 1209.0 - DRY STANDPIPE FIRE LINES.

When in the opinion of the Director, the fire hazard involved in the use of the building and type of construction does not warrant a constant, automatic water supply to insure general safety, he may accept a dry standpipe fire line in buildings not more than seventy-five (75) feet in height. One riser shall be provided for each ten thousand (10,000) square feet or fraction thereof of fire area.

SEC. 1209.1 - SIZE AND CAPACITY. Dry standpipes shall have a minimum diameter of four (4) inches and shall be capable of delivering two hundred and fifty (250) gallons of water per minute simultaneously from each of any three (3) outlets under the operation of one (1) fire engine or pumper. except that in existing installations, the Director may accept a smaller size when deemed adequate in his opinion.

SEC. 1209.2 - FIRE DEPARTMENT CONNECTION. Siamese fire department connections shall be provided as herein specified; two-way connection on four (4) inch fire lines; three-way connection on five (5) inch fire lines; and four-way connection on six (6) inch or larger fire lines.

SEC. 1209.3 - IDENTIFICATION. Fire department connections shall be suitably marked with raised letters at least one (1) inch in height reading "TO DRY STANDPIPE."

SEC. 1210.0 - FIRST-AID STANDPIPE FIRE LINES.

First-aid standpipe fire lines for use of the occupants of a building or of the trained fire brigade shall comply with the provisions of this section. Such systems may be combined with the main standpipe fire lines by direct connection to the standpipe riser.

SEC. 1210.1 - SIZE. The minimum size of first-aid standpipe fire lines shall be two and one-half (2 1/2) inches.

SEC. 1210.2 - NUMBER OF RISERS. The number and location of risers shall be such that all parts of every floor area requiring protection can be reached within twenty (20) feet by a nozzle attached to not more than seventy-five (75) feet of hose connected to the standpipe outlet.

SEC. 1210.3 - HOSE. The size of hose shall be not less than one and one-half (1 1/2) inches equipped with a one-half (1/2) inch nozzle and shall be mounted on a rack.

SEC. 1210.4 - WATER SUPPLY. The water supply for first-aid protection shall be sufficient to service two (2) hose streams for a period of thirty (30) minutes with a flow of seventy (70) gallons per minute at the topmost outlet at a minimum pressure of fifteen (15) pounds per square inch.

SEC. 1210.5 - WHERE REQUIRED.

.51 - High Hazard Uses. First-aid standpipes shall be provided in storage buildings of moderate fire hazard (Use Group B) and in mercantile (Use Group C), industrial (Use Group D), and business buildings (Use Group E), in which flammable materials, products or other hazardous conditions are present and which are more than thirty (30) feet or two (2) stories in height, and with more than three thousand (3,000) square feet of undivided floor area; except that such buildings shall be exempt from this provision when equipped with an approved automatic sprinkler system with central station supervisory service.

.52 - Institutional Uses. First-aid standpipes shall be provided in hospitals, asylums, places of detention and other institutional buildings (Use Groups H1 and H2) and hotels, boarding houses and dormitories (Use Group L1) with sleeping accommodations for more than twenty-five (25) persons and which are more than thirty (30) feet or two (2) stories in height.

.53 - Assembly Uses. First-aid standpipes shall be provided in theatres, night clubs, and restaurants (Use Groups F1 and F2) and in assembly halls, lecture halls and recreation centers (Use Group F3) as required in Article 4 of this Code with an occupancy load of more than three hundred (300).

SEC. 1211.0 - HORIZONTAL FIRE LINES.

In one-story buildings of moderate or high fire hazard more than seven thousand five hundred (7,500) square feet in area and on wharves and piers as provided in Section 1212.0 which are not equipped with an approved automatic sprinkler system, there shall be provided a horizontal fire line complying with the provisions of this section.

SEC. 1211.1 - CONSTRUCTION.

.11 - Size. The horizontal fire line shall be constructed of at least two and one-half (2 1/2) inch pipe supported on the interior walls of the building or attached to interior columns or girders of incombustible construction.

.12 - Water Supply. Water supply shall comply with the requirements set forth in Section 1210.4.

.13 - Hose. Approved hose valves, hose and nozzle shall be provided at intervals not exceeding one hundred twenty-five (125) feet. The hose shall not be less than one and one-half (1 1/2) inches in diameter.

.14 - Fire Department Connection. On buildings which are not more than ten thousand (10,000) square feet in area, no siamese fire department connection shall be required.

SEC. 1212.0 - PIER AND WHARF PROTECTION.

SEC. 1212.1 - FIRE AREA. All piers and wharves shall be subdivided into areas not exceeding fifty thousand (50,000) square feet by fire walls complying with the provisions of Article 9. The fire walls shall be located at horizontal intervals not exceeding three hundred (300) feet and shall extend below the low water level when the substructure is of combustible construction.

SEC. 1212.2 - FIRE PROTECTION. When not protected with an approved automatic sprinkler system, both substructure and superstructure shall be equipped with an approved fire line complying with the provisions of this article.

SEC. 1213.0 - AUTOMATIC SPRINKLER SYSTEMS.

The requirements of this section shall apply to all sprinkler equipment specified by the provisions of this Code. All such systems shall be designed, constructed and maintained in accordance with the approved rules and the applicable standards listed in Appendix B and Appendix I.

SEC. 1213.1 - WHERE REQUIRED. Approved automatic sprinkler systems shall be provided in all buildings herein specified or as required for special use and occupancies in Article 4.

.11 - Part Protection. In approved system shall be provided in all portions of residential (Use Groups L1 and L2, institutional (Use Groups H1 and H2) and assembly buildings (Use Groups F1, F2, F3 and F4) occupied for storage or workshop purposes which involve combustible or flammable materials.

.12 - Basement Garages. An approved system shall be provided in basement or sub-basement public garages.

.13 - Public Garages. An approved system shall be provided in garages which are more than fifteen hundred (1500) square feet in area and of other than fireproof or protected incombustible construction

(Types 1A, 1B or 2A) and in all garages located in buildings of which the upper stories are designed for other uses, when such garages have a storage capacity of twenty (20) or more automobiles and in all buildings of Types 1A, 1B and 2A used as garages when the area is in excess of ten thousand (10,000) square feet.

.14 - Bus Or Truck Garages. An approved system shall be provided in all bus or truck garages which are more than twenty-five (25) feet or two (2) stories in height, or which are designed as passenger terminals for four (4) or more busses, or for the storage or loading of four (4) or more trucks.

.15 - Assembly Uses. An approved system shall be provided in such parts of all theatres and assembly halls (Use Groups F1 and F3), as designated in Article 4.

.16 - Mercantile Buildings. An approved system shall be provided in all mercantile buildings (Use Group C) which are more than twenty thousand (20,000) square feet in grade floor area.

.17 - Combustible Contents. An approved automatic sprinkler system shall be provided in all buildings and structures used for the manufacture, sale or storage of highly combustible materials or products (Use Groups A, B, C, and D), more than three (3) stories or forty (40) feet in height when of fireproof (Type 1) or incombustible (Type 2A) construction and more than ten thousand (10,000) square feet in area; when of exterior masonry wall and interior combustible (Type 3) construction and more than seventy-five hundred (7500) square feet in area; and all frame (Type 4) construction more than twenty-five hundred (2500) square feet in area; and in every useable or occupiable cellar or other story with ceiling located less than four and one-half (4 1/2) feet above grade and more than three thousand (3,000) square feet in area.

.18 - Unpierced Enclosures. In all completely enclosed buildings designed for industrial, mercantile or storage occupancy which are provided with artificial means of light and ventilation as specified in Section 516.0, an approved automatic sprinkler system protected with central station supervisory service shall be required; except in refrigerating plants and buildings or parts thereof used for cold storage of meats and other food products.

SEC. 1213.2 - RISERS.

.21 - Number. There shall be at least one (1) riser of adequate size in each fire area to supply all the heads therein contained in one (1) story.

.22 - Mechanical Protection. Risers shall be protected from mechanical injury.

.23 - Prohibited Connections. No auxiliary connection for domestic use shall be made to a sprinkler system.

SEC. 1213.3 - DEVICES. Only approved sprinkler heads, fittings, connections and valves shall be used in an automatic sprinkler system. The devices and materials listed in publications of inspected fire protection equipment, authoritative insurance and testing agencies as listed in Appendix B and Appendix C shall be deemed to comply with the requirements of this article.

SEC. 1213.4 - LEAKAGE. Sprinkler systems shall be designed to withstand a water pressure of not less than one hundred and fifty (150) pounds per square inch for two (2) hours without leakage and shall be provided with approved readily accessible devices to control all primary sources of water supply.

SEC. 1213.5 - PROTECTION FROM FREEZING. All discharge, heating or filling pipes where exposed to the weather shall be protected from freezing in accordance with the approved rules; and the water in all sprinkler tanks subject to freezing shall be provided with internal heating equipment.

SEC. 1213.6 - PROTECTION FROM CORROSION. Wherever necessary, sprinkler pipes and hangers shall be protected against corrosion from moisture and the heads shall be covered with an approved coating for protection against corrosive fumes when required by the Director.

SEC. 1213.7 - FIRE DEPARTMENT CONNECTION. Every sprinkler system shall be equipped with one (1) or more approved fire department connections as required by Section 1207.8 of this article and in accordance with the approved rules. The size, threads and accessories shall be uniform with the equipment of the Providence Fire Department. Each such connection shall be suitably marked with raised letters "FIRE DEPARTMENT CONNECTION - AUTOMATIC SPRINKLERS"; or when only stories below grade are equipped, "FIRE DEPARTMENT CONNECTION - BASEMENT SPRINKLERS" or "CELLAR SPRINKLERS" as the case may be.

SEC. 1214.0 - SPRINKLER WATER SUPPLIES

Automatic sprinkler systems shall have at least one approved automatic source of water supply meeting the requirements of this section.

SEC. 1214.1 - GRAVITY TANK. Gravity tanks shall be capable of adequately supplying twenty-five (25) per cent of the number of sprinkler heads in the largest protected fire area for a period of twenty (20) minutes but in no case shall the capacity of any one (1) tank be less than five thousand (5,000) gallons.

SEC. 1214.2 - PRESSURE TANK. Pressure tanks shall be capable of adequately supplying twelve and one-half (12 1/2) per cent of the number of sprinkler heads in the largest protected fire area for a period of twenty (20) minutes, but in no case shall the capacity be less than three thousand (3,000) gallons of water for a wet-pipe system,

nor less than five thousand (5,000) gallons for a dry-pipe system, nor shall any single tank have a capacity of more than six thousand (6,000) gallons of water. The tank shall be maintained two-thirds ($2/3$) full of water under a pressure of seventy-five (75) pounds per square inch at all times.

SEC. 1214.3 - PUBLIC WATER SUPPLY . Direct connection to public water supplies shall be capable of supplying at least five hundred (500) gallons per minute at not less than fifteen (15) pounds per square inch flowing pressure at the topmost sprinkler heads unless occupancy conditions require an increase in the minimum flow and the pressure specified herein.

SEC. 1214.4 - FIRE PUMP. Automatic pumps shall be of an approved type with a supply capacity of at least five hundred (500) gallons per minute. The pumps shall be adequate to supply fifty (50) per cent of the sprinkler heads in the average protected fire area, and shall be located in a room enclosed with two (2) hour fire-resistive construction.

SEC. 1214.5 - COMBINED SUPPLY. When the sprinklers and standpipes are supplied from one (1) tank, it shall comply with the provisions of Section 1208.2 and the standpipe supply shall be drawn from the top portion of the tank.

SEC. 1214.6 - PARTIAL SPRINKLER SYSTEMS. Where approved by the Director, partial systems serviced from the building water supplies may be used in isolated hazardous locations and to protect unenclosed exitways in existing buildings as provided in Section 606.0.

SEC. 1214.7 - SPRINKLER HEAD DISCHARGE. In determining the required water supplies, standard one-half ($1/2$) inch sprinkler heads shall be assumed to have an average discharge of twenty (20) gallons per minute and the discharge of larger heads shall be computed proportionately to the area of their orifices.

SEC. 1215.0 - DRY-PIPE AUTOMATIC SPRINKLER SYSTEMS.

When a building or structure requiring an automatic sprinkler system under the provisions of this Code is subject to temperatures below freezing, an automatic dry-pipe system or other approved thermostatically controlled open or closed sprinkler system shall be installed in accordance with the approved rules.

SEC. 1215.1 - THERMOSTATIC CONTROL. In other than standard dry-pipe systems, the thermostatic control shall be arranged to admit water to the system and simultaneously give an alarm before operation of the sprinkler head.

SEC. 1215.2 - AUXILIARY MANUAL CONTROL. All such thermostatically controlled systems shall be provided with auxiliary manual controls.

SEC. 1216.0 - NON-AUTOMATIC SPRINKLER SYSTEMS.

When approved by the Director, a dry sprinkler system with automatic sprinklers and fire department connection may be accepted in buildings and structures, which involve low fire and life hazard in which adequate heat is not provided, in place of an automatic sprinkler system. Such systems shall be provided with an approved automatic heat-actuated alarm system with an outside alarm gong, or connection to the fire department, or to the central station of an approved supervisory service.

SEC. 1216.1 - RISERS. Each riser shall be provided with a control valve as required for automatic sprinkler systems.

SEC. 1216.2 - SPECIAL FLOODING INSTALLATIONS. In buildings equipped with automatic sprinkler systems, the enclosures housing special hazardous processes or used for the storage of flammable or highly combustible materials may be protected with an open pipe sprinkler installation equipped with deluge heads with such control as may be required by the Director.

SEC. 1216.3 - FIRE DEPARTMENT CONNECTION. At least one (1) siamese connection shall be provided on each street front with an exposure of two hundred fifty (250) feet or less in length, and one (1) additional connection for each additional two hundred fifty (250) feet or part thereof.

SEC. 1217.0 - SPECIAL FIRE PROTECTION.

SEC. 1217.1 - ELEVATOR SERVICE. In every building exceeding one hundred (100) feet in height, at least one elevator shall be available at all times for fire department use as provided in Section 1608.3.

SEC. 1217.2 - FIRE ALARM SYSTEMS. All buildings where required by the provisions of Sections 1219.0 and 1220.0, shall be protected with an approved automatic fire alarm system, or by approved watchman supervisory and manual fire alarm services in accordance with the approved rules.

SEC. 1217.3 - CENTRAL STATION ALARM SYSTEMS. When required under the provisions of this Code in buildings designed for special hazard uses, film studios, pyroxylin manufacturing (Use Group A), in large public assembly buildings (Use Group F) with an occupancy load of more than three hundred (300) persons and in hospitals and similar institutional buildings (Use Group H2) requiring automatic fire extinguishing equipment under the provisions of this Code, protective signalling equipment shall be provided with connections to a central local station, to an approved proprietary station, or direct fire department connection in accordance with approved rules and as provided in Section 1219.0.

SEC. 1217.4 - WATER CURTAINS.

.41 - Combustible Materials. In all buildings and structures designed for high hazard (Use Group A), storage (Use Group B), mercantile (Use Group C), and industrial (Use Group D), uses involving the storage, sale or processing of flammable materials or products, the interior wall openings located on or within five (5) feet of interior lot lines shall be protected with an approved water curtain.

SEC. 1217.5 - UNENCLOSED EXITWAYS. In existing multifamily and other residence buildings, existing exitways not now enclosed as provided in Article 6 may be protected with water curtains or partial sprinkler systems in accordance with the approved rules.

SEC. 1217.6 - YARD SYSTEMS. All shipyards, oil storage plants, lumber yards, amusement or exhibition parks and other occupancies and uses involving high fire and life hazards, when required by the provisions of Article 4 of this Code or when deemed necessary by the Director shall be provided with an installation of properly placed fire hydrants, connected by a system of pipes to an adequate water supply, equipped with sufficient hose housed in accordance with the approved rules and with an adequately equipped and trained private fire brigade.

SEC. 1217.7 - CHEMICAL AND SPECIAL EXTINGUISHING SYSTEMS. All buildings and structures and parts thereof designed for uses subject to fires of extreme severity and explosion hazards as provided in Article 4 shall be protected with approved extinguishing systems installed and maintained in accordance with the approved rules.

SEC. 1218.0 - MANUAL FIRE EXTINGUISHING EQUIPMENT.

All hand-operated auxiliary fire extinguishing equipment shall be of an approved type suitable to the occupational use of the building and shall be installed in corridors or other locations, visible and readily accessible to the occupants of the building in accordance with the approved rules.

SEC. 1218.1 - WHERE REQUIRED.

.11 - Assembly Buildings. Theatres and assembly halls (Use Groups F1 and F2) shall be provided with at least two (2) approved extinguishers in the stage area behind the proscenium wall where movable scenery is installed; not less than one (1) extinguisher on stages or platforms without scenery or stage equipment; one (1) in each tier of dressing rooms, and one (1) in every motion picture booth.

.12 - Assembly Buildings. Schools and lecture halls (Use Groups F3 and F4) shall be provided with one (1) extinguisher, and at least one (1) fire extinguisher shall be provided on each floor at the stairway landing and in the corridor at each elevator or a bank of elevators.

.13 Residence Buildings. In hotels, dormitories and lodging houses (use group L1) not equipped with standpipes, at least one (1) fire extinguisher shall be provided on each floor at the stairway landing and in the corridor at each elevator or bank of elevators.

.14 Construction Operations. All building operations during construction shall be protected as provided in Article 13 but not less than one (1) extinguisher shall be provided in each run of combustible scaffolding forty (40) feet or more in height.

SEC. 1218.2 - CABINETS. When auxiliary, emergency equipment is enclosed in cabinets, they shall be of an approved type of incombustible construction equipped with readily openable keyless doors or with readily broken glass access panels.

SEC. 1218.3 - PARTIAL SPRINKLER SYSTEM. In isolated hazardous locations, incidental to the general use of the building, the Director may accept a partial sprinkler system serviced from the building water supplies as a substitute for portable fire extinguishers.

SEC. 1219.0 - INTERIOR FIRE ALARM SIGNAL SYSTEMS.

Interior fire alarm signal systems shall be installed in all buildings herein designated of the type and operation specified in the approved rules adopted hereunder.

SEC. 1219.1 - WHERE REQUIRED.

.11 Residence Buildings. All hotels, lodging houses, dormitories and bath houses (use group L1) having more than fifteen (15) sleeping rooms above the first floor with an occupancy load of fifty (50) or more in new buildings and twenty-five (25) or more in existing buildings shall be equipped with an approved fire alarm system.

.12 Institutional Buildings. All hospitals, asylums and similar institutional buildings (use group H2) accommodating more than fifteen (15) patients above the first floor shall be equipped with an approved fire alarm system.

.13 Nursery Building. All nurseries accommodating more than thirty (30) children above the first floor shall be equipped with an approved fire alarm system.

.14 Assembly Buildings. All school buildings (use group F4) with provisions for more than fifty (50) children above the first floor shall be equipped with an approved fire alarm system.

.15 Mercantile Buildings. All mercantile buildings (use group C) exceeding two (2) stories in height not equipped with an approved automatic sprinkler system, in which more than twenty-five (25) persons are employed above the first or ground floor shall be equipped with an approved fire alarm system.

.16 Industrial Buildings. All factory buildings (use group D) exceeding two (2) stories in height not equipped with an approved automatic sprinkler system, in which more than twenty-five (25) persons are employed above the first or ground floor shall be equipped with an approved fire alarm system.

.17 Business Buildings. All office buildings more than six (6) stories or seventy-five (75) feet in height with an occupancy load of more than one hundred (100) persons above the first floor which are not equipped with an automatic sprinkler system shall be equipped with an approved fire alarm system.

.18 High Hazard Use. All motion picture studios and film laboratories and similar high hazard uses (use group A), employing more than five (5) persons shall be equipped with an approved fire alarm system.

.19 Unpierced Industrial Buildings. All fully enclosed industrial buildings as specified in Section 516.0 more than one (1) story in height without exterior wall openings shall be equipped with an approved fire alarm system.

SEC. 1219.2 - TYPE OF SYSTEM.

.21 Non-Coded. Non-coded systems shall be required in residence, institutional, mercantile and business buildings and in all factory buildings not exceeding five (5) stories in height, nor more than two thousand (2,000) square feet in area with an occupancy load of not more than fifty (50) persons above the first story.

.22 Coded. Coded systems shall be required in all other buildings specified in this section, installed in accordance with the approved rules.

SEC. 1219.3 - CONSTRUCTION.

.31 Number Per Story. At least one sending station shall be located in each story in an accessible position in a natural path of escape or exitway.

.32 Length of Travel. All stations shall be located so that no point of any floor of the building is more than one hundred and fifty (150) feet distant from a station.

SEC. 1220.0 - FIRE DRILL AND FIRE BRIGADES.

Where required by law or the approved rules for the orderly vacating of all buildings equipped with interior fire alarm signal systems, the owner or tenant shall conduct systematic supervised fire drills and shall organize a private fire brigade for the operation of all first-aid and emergency fire extinguishing equipment and appliances which shall be under the supervision of the Chief of the Fire Department.

SEC. 1220.1 - WHEN REQUIRED. Fire drills shall be conducted simultaneously throughout the building at least once every thirty (30) days at varied hours of the day.

SEC. 1220.2 - SUPERVISORY ORGANIZATIONS. All professional organizations engaged in the practice of establishing, conducting and supervising fire drills shall be registered with the Chief of the Fire Department.

SEC. 1220.3 - DRILL RECORDS. It shall be the duty of the owner or his authorized representative in charge of the drill to make a complete report and written record of the procedure in accordance with the instructions of the Chief of the Fire Department.

SEC. 1220.4 - DUTIES OF FIRE BRIGADE. All drills shall be conducted in accordance with the approved rules hereunder promulgated; and the fire brigade shall be instructed in the operation of all auxiliary fire fighting apparatus to insure minimum interference with the use of exitways while occupants are discharging from the building.

ARTICLE 13 - PRECAUTIONS DURING BUILDING OPERATIONS

SEC. 1300.0 - SCOPE.

The provisions of this article shall apply to all construction operations in connection with the erection, alteration, repair, removal or demolition of buildings and structures, and shall also include the rules and regulations pertaining to window cleaning. The approved rules or in the absence of such rules, the provisions of the applicable standards listed in Appendix B shall control the execution of the detail requirements of this article.

SEC. 1300.1 - OTHER LAWS. Nothing herein contained shall be construed to nullify any rules, regulations or statutes governing the protection of the public or workmen from health hazards involved in injurious manufacturing, mining or other industrial processes which generate toxic gases, dust or other elements dangerous to the respiratory system, eyesight or health.

SEC. 1300.2 - COMBUSTIBLE AND EXPLOSIVE HAZARDS. The provisions of this Code which apply to the storage, use or transportation of explosives, highly flammable and combustible substances, gases and chemicals shall be construed as supplemental to the requirements of the Federal Laws, the regulations of the Interstate Commerce Commission and the rules of the fire department.

SEC. 1301.0 - DEFINITIONS.

BRASS (or other approved durable corrosion-resistive metal of equal strength or toughness) shall mean metal that will have an ultimate tensile strength of not less than fifty thousand (50,000) pounds per square inch and elongation not less than fifteen (15) per cent in two (2) inches.

CONSTRUCTION EQUIPMENT. Includes all types of construction machinery, tools, derricks, hoists, scaffolds, platforms, runways, ladders and all material handling equipment, safeguards and protective devices used in construction operations.

CONSTRUCTION OPERATION. The erection, alteration, repair, renovation or demolition of any building or structure; and the excavation, filling, grading and regulation of lots in connection therewith.

DOUBLE-HEAD ANCHOR. Two anchor heads in the window frame on each side of the window. Each pair of anchor heads shall be used simultaneously and not singly.

MATERIAL PLATFORM HOIST. A power or manually operated suspended platform conveyance operating in guide rails for the exclusive raising or lowering of materials, which is operated and controlled from a point outside the conveyance.

RUNWAY. Any aisle or walkway constructed or maintained as a temporary passageway.

SCAFFOLD. Any elevated platform which is used for supporting workmen, material or both.

WINDOW CLEANING. The operation of washing, wiping or other methods of cleaning windows.

SEC. 1302.0 - PLANS, SPECIFICATIONS AND SPECIAL PERMITS.

SEC. 1302.1 - TEMPORARY CONSTRUCTION. Before any construction operation is started and whenever required by this Code and the approved rules adopted thereunder, plans and specifications shall be filed with the Director showing the design and construction of all sidewalk sheds, truck runways, trestles, foot bridges, guard fences and other similar devices required in the operation; and the approval of the Director shall be secured before the commencement of any work.

SEC. 1302.2 - SPECIAL PERMITS. All special licenses and permits for the storage of materials on sidewalks and highways, for the use of water or other public facilities and for the storage and handling of explosives shall be secured from the municipal authorities having jurisdiction.

SEC. 1302.3 - TEMPORARY ENCROACHMENTS. Subject to the approval of the Director and the consent of adjoining property owners, sidewalk sheds, underpinning and other temporary protective guards and devices may project beyond interior and street lot lines as may be required to insure safe protection of the work.

SEC. 1303.0 - TESTS.

SEC. 1303.1 - LOADING. It shall be unlawful to load any structure, temporary support, scaffolding, sidewalk bridge or sidewalk shed or any other device or construction equipment during the construction or demolition of any building or structure in excess of its safe working capacity as provided in Article 7 for allowable loads and working stresses.

SEC. 1303.2 - UNSAFE EQUIPMENT. Whenever any doubt arises as to the structural quality and strength of scaffolding plank or other construction equipment, the Director shall require the material in question to be replaced; or he may accept a strength test to two and one-half (2 1/2) times the superimposed live load to which the material or structural member is to be subjected. The member shall sustain the test load without failure within the limits of deflection specified in Section 805.0.

SEC. 1304.0 - INSPECTION.

The Director shall inspect the site of all proposed building operations as required by the provisions of Section 110.0 and shall notify the owner of any unsafe conditions that may exist or of any failure to comply with the provisions of this article.

SEC. 1304.1 - FAILURE TO COMPLY WITH ORDERS. Unless the owner so notified proceeds to comply with the orders of the Director within twenty-four (24) hours, the Director shall have full power to correct the unsafe conditions as provided in Section 122.0 and Section 123.0. All expenses incurred in the correction of such unsafe conditions shall become a lien on the property.

SEC. 1304.2 - CONSTRUCTION EQUIPMENT. The Director shall immediately inspect any scaffold or other device or construction equipment when any complaint is made, or when the strength or the adequacy thereof is in doubt. He shall prohibit the use of such material or equipment until it is tested as required in Section 1303.2 or all danger is removed.

SEC. 1305.0 - MAINTENANCE.

All construction equipment and safeguards shall be constructed, installed and maintained in a substantial manner and shall be so operated as to insure protection to the workmen engaged thereon and to the general public. It shall be unlawful to remove or render inoperative any structural, fire protective or sanitary safeguard or device except when necessary for the actual installation and prosecution of the work.

SEC. 1306.0 - EXISTING BUILDINGS.

SEC. 1306.1 - PROTECTION. All existing and adjoining public and private property shall be protected from damage incidental to building operations.

SEC. 1306.2 - CHIMNEY, SOIL AND VENT STACKS. Whenever a new building or structure is erected to greater or less heights than an adjoining building, the construction and extension of new or existing chimneys shall conform to the provisions of Section 1006.0 and of soil and vent stacks and the location of window openings shall conform to the provisions of Section 1706.0; or in lieu of extending such stacks or chimneys, the owner of the new wall or structure shall provide adequate mechanical means to insure the necessary draft.

SEC. 1306.3 - PARTY WALLS.

.31 - Maintenance. In case an existing party wall is intended to be used by the person who causes an excavation to be made, and such party wall is in good condition and sufficient for the use of both the existing and proposed building, such person shall preserve the party wall from injury and support it by proper foundations at his own expense, so that it shall be and shall remain as safe and useful as it was before the excavation was commenced. During the demolition, the party wall shall be maintained weatherproof and structurally safe by adequate bracing until such time as the permanent structural supports shall have been provided.

.32 - Beam Holes. When a structure involving a party wall is being demolished, the owner of the demolished structure shall at his own expense bend over all wall anchors at the beam ends of the standing wall and shall brick-up all open beam holes and otherwise maintain the safety and usefulness of the wall.

.33 - Party Wall Exitways. No party wall balcony or horizontal fire exit shall be destroyed unless and until the owner of the building or structure from which the means of egress is to be removed or nullified shall have erected or legally obligated himself to provide an approved substitute means of egress as approved by the Director.

SEC. 1306.4 - ADJOINING ROOFS. When a new building or demolition of an existing building is carried on at a greater height than adjoining buildings, the roof, roof outlets and roof structures of adjoining buildings shall be protected by adequate safeguards against damage.

SEC. 1307.0 - PROTECTION OF PUBLIC AND WORKMEN

Whenever a building or structure is erected, altered, repaired, removed or demolished, suitable protection for the general public and workmen employed thereon shall be provided. The operation shall be conducted in a safe manner in accordance with accepted construction practice.

SEC. 1307.1 - FENCES. Every building operation located five (5) feet or less from the street lot line shall be enclosed with a fence not less than eight (8) feet high to prevent entry of unauthorized persons. When located more than five (5) feet from the street lot line, a fence shall be erected when required by the Director. All fences shall be of adequate strength to resist the wind pressures specified in Section 712.0.

SEC. 1307.2 - SIDEWALK BRIDGE. Whenever the ground is excavated below the sidewalk level, a sidewalk bridge shall be constructed at least four (4) feet wide, or a protected walkway of equal width shall be erected in the street when approved by the Director and the Traffic Engineer of the City.

SEC. 1307.3 - SIDEWALK SHED.

.31 - Within Ten Feet Of Lot Line. When any building or part thereof which is located within ten (10) feet of the street lot line is to be erected or raised to exceed forty (40) feet in height, or whenever a building more than forty (40) feet in height is to be demolished, a sidewalk shed shall be erected and maintained for the full length of the building on all street fronts for the entire time that work is performed on the exterior of the building.

.32 - Within Twenty Feet Of Lot Line. When the building being demolished or erected is located within twenty (20) feet of the street lot line and is more than forty (40) feet in height, exterior flare fans or catch platforms shall be erected at vertical intervals of not more than ten (10) stories.

.33 - Walkway. An adequately lighted walkway at least four (4) feet wide and eight (8) feet high in the clear shall be maintained for pedestrians. Where ramps are required, they shall conform to the provisions of this article and Section 617.0.

SEC. 1307.4 - THRUST-OUT PLATFORMS. The Director may approve thrust-out platforms or other substitute protections in lieu of sidewalk sheds when deemed adequate to insure the public safety. No such platforms shall be used for the storage of materials.

SEC. 1307.5 - WATCHMAN. Whenever a building is being demolished, erected or altered an employee shall be designated to warn the general public when intermittent hazardous operations are conducted across the sidewalk or walkway.

SEC. 1308.0 - EXCAVATIONS

SEC. 1308.1 - TEMPORARY SUPPORTS. Until permanent support has been provided, all excavations shall be safeguarded and protected by the person causing the excavation to be made, to avoid danger to life or limb. Where necessary, such excavations shall be retained by

temporary retaining walls, sheet-piling and bracing or other approved method to prevent the adjoining earth from caving.

.11 - Examination Of Adjoining Property. Before any excavation or demolition is undertaken, license to enter upon adjoining property for the purpose of physical examination shall be afforded by the owner and tenants of such adjoining property to the person undertaking such excavation or demolition, prior to the commencement and at reasonable periods during the progress of the work.

.12 - Notice To Director. If the person who causes an excavation to be made or an existing structure to be demolished has reason to believe that an adjoining structure is unsafe, he shall forthwith report in writing to the Director. The Director shall inspect such premises, and if the structure is found unsafe, he shall order it repaired as provided in Sections 110.0 and 124.0.

.13 - Responsibility Of Adjoining Owner. The person making or causing an excavation to be made shall, before starting the work give at least one week's notice in writing to the owner of each neighboring building or structure the safety of which may be affected. Having received consent to enter a building, structure or premises, he shall make the necessary provisions to protect it structurally and to insure it against damage by the elements, which may ensue from such entry. If license to enter is not afforded, then the adjoining owner shall have the entire responsibility of providing both temporary and permanent support of his premises at his own expense; and for that purpose, he shall be afforded the license when necessary to enter the property where the excavation is to be made.

.14 - Excavations For Other Than Construction Purposes. Excavations made for the purpose of removing soil, earth, sand, gravel, rock or other material shall be performed in such a manner as will prevent injury to neighboring properties or to the street which adjoins the lot where such materials are excavated, and to safeguard the general public health and welfare.

SEC. 1308.2 - PERMANENT SUPPORT.

.21 - Excavations. Whenever an excavation is made below the established curb, the person who causes such excavation to be made, if afforded the necessary license to enter the adjoining premises, shall preserve and protect from injury at all times and at his own expense such adjoining structure or premises which may be affected by the excavation. He shall underpin where necessary and support the adjoining building or structure by proper foundation. If the necessary license is not afforded, it shall then be the duty of the owner of the adjoining premises to make his building or structure safe by installing proper underpinning, or foundations or otherwise; and such owner, if it be necessary for the prosecution of his work, shall be granted the necessary license to enter the premises where the excavation or demolition is contemplated.

SEC. 1309.0 - REGULATION OF LOTS.

When a building has been demolished and no building operation has been projected or approved, the vacant lot shall be filled, graded and maintained in conformity with the established street grades at curb level. The lot shall be maintained free from the accumulation of rubbish and all other unsafe or hazardous conditions which endanger the life or health of the public; and to prevent accumulation of water or damage to any foundations on the premises or the adjoining property.

SEC. 1309.1 - UTILITY CONNECTIONS. All service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the municipal authority having jurisdiction

SEC. 1309.2 - FENCE ENCLOSURES. When vacant lots are not graded to conform to the requirements of this section, a permanent fence enclosure shall be built and maintained to prevent accessibility to the premises in accordance with the approved rules.

SEC. 1310.0 - RETAINING WALLS AND PARTITION FENCES.

The person causing an excavation to be made shall erect when necessary a retaining wall at his own expense and on his own land. Such wall shall be built to a height sufficient to retain the adjoining earth, shall be properly coped as required in Section 883.0 and shall be provided with a guard rail or fence not less than four (4) feet in height.

SEC. 1311.0 - STORAGE OF MATERIALS

All materials and equipment required in construction operations shall be stored and placed so as to reduce danger to the public, to the workmen and to adjoining property.

SEC. 1311.1 - DESIGN CAPACITY. Materials or equipment stored within the building, or on sidewalks, sheds or scaffolds shall be placed so as not to overload any part of the construction beyond its design capacity, nor interfere with the safe prosecution of the work.

SEC. 1311.2 - SPECIAL LOADING. Materials stored on sidewalk sheds and scaffolds shall not exceed one day supply unless the construction is designed for special loading. All materials shall be piled in an orderly manner and height, so that individual pieces may be removed without endangering the stability of the pile.

SEC. 1311.3 - PEDESTRIAN WALKWAYS. No materials or equipment shall be stored on the street without a permit issued by the Director with the approval of the Traffic Engineer and the Director of Public Works. When so stored they shall not unduly interfere with vehicular traffic, of the orderly travel of pedestrians of the highways and streets. The piles shall be arranged to maintain a safe walkway not less than four (4) feet wide, unobstructed for its full length, and adequately lighted at night and at all necessary times for the use of the public.

SEC. 1311.4 - OBSTRUCTIONS. Material and equipment shall not be placed or stored so as to obstruct the access to any fire hydrant, standpipe, fire or police alarm box, utility box, catch basin, or manhole; nor shall they be located within twenty (20) feet of a street intersection, or so placed as to obstruct normal observation of traffic control lights, or to hinder the use of street car loading platforms. Said materials and equipment shall be adequately lighted at night and at all necessary times for the protection of the public.

SEC. 1312.0 - REMOVAL OF WASTE MATERIAL.

No material shall be dropped by gravity or thrown outside the exterior walls of a building during demolition or erection. Wood or metal chutes shall be provided for this purpose and any material which in its removal will cause an excessive amount of dust shall be wet down to prevent the creation of a nuisance.

SEC. 1313.0 - PROTECTION OF ADJOINING PROPERTY

Adjoining property shall be properly protected from any damage, incidental to the building operation, when the owner of the adjoining property permits free access to the building at all reasonable times to provide the necessary safeguards in accordance with Section 1308.0.

SEC. 1314.0 - PROTECTION OF FLOOR AND WALL OPENING.

SEC. 1314.1 - INCOMBUSTIBLE FLOOR CONSTRUCTION. All floors of buildings of fireproof construction (Type 1) and incombustible construction (Type 2) shall be filled as the building progresses.

SEC. 1314.2 - COMBUSTIBLE FLOOR CONSTRUCTION. In wood joist floor construction (Types 3 and 4), when double flooring is used, the underfloor shall be laid on each story as the building progresses; and when double floors are not used, the floors shall be planked over two (2) stories below the level where work is being done.

SEC. 1314.3 - STEEL STRUCTURAL FRAMES. In steel construction the entire tier of iron or steel beams upon which the structural work is progressing shall be planked over, with the exception of necessary hoistways and permanent openings; and in no case shall the steel work progress more than two (2) floors ahead of the flooring.

SEC. 1314.4 - GUARD RAILS. All floor and wall openings shall be protected with substantial guard rails, toe boards or by other means in accordance with the approved rules.

SEC. 1315.0 - SCAFFOLDS

SEC. 1315.1 - LOAD CAPACITY. All scaffolds shall be designed and erected to support two and one-half (2 1/2) times the superimposed live load to be placed thereon within the working stresses specified in this Code.

SEC. 1315.2 - ERECTION. Built-up, swinging, and suspended scaffolds shall only be erected by competent workmen.

SEC. 1315.3 - FIRE RETARDENT CONSTRUCTION.

.31 - All Buildings. All scaffolding used in the erection or alteration of buildings of all use groups exceeding sixty (60) feet or five (5) stories in height shall be constructed of non-combustible or fire retardent materials complying with the provisions of Section 905.0 and Section 906.0.

.32 - Institutional Buildings. All scaffolding used in construction operations involving the repair or partial demolition of institutional buildings (Use Groups H1 and H2) shall be constructed of incombustible or fire retardent materials complying with the provisions of Section 905.0 and Section 906.0.

SEC. 1316.0 - HOISTS

SEC. 1316.1 - FIRE RETARDENT CONSTRUCTION. All material hoists, shall be constructed and erected in a manner satisfactory to the Director, and when erected on the outside of a building over eighty-five (85) feet or seven (7) stories in height, they shall be fully enclosed and constructed of incombustible or fire retardent construction complying with the provisions of Section 905.0 and Section 906.0, with the exception of the loading platform.

SEC. 1316.2 - PASSENGERS PROHIBITED. Under no circumstances shall persons be permitted to ride a material hoist, and temporary elevators shall be installed when necessary to transport workmen as provided in Section 1608.0.

SEC. 1316.3 - GUARDING OF CABLES. All hoisting cables and signal cords shall be guarded wherever they pass through working spaces to prevent injury to persons.

SEC. 1317.0 - STAIRWAYS AND LADDERS

SEC. 1317.1 - TEMPORARY STAIRWAYS. When a building has been constructed to a greater height than fifty-two (52) feet or four (4) stories, or when an existing building which exceeds fifty-two (52) feet in height is altered, at least one (1) temporary lighted stairway shall be provided unless one (1) or more of the permanent stairways are erected as the construction progresses.

SEC. 1317.2 - LADDERS. Temporary ladders complying with the approved rules when permitted for access to floors before stairways are installed, or which are designed for other working purposes, shall extend at least forty-two (42) inches above the floor level which they serve.

SEC. 1318.0 - LIGHTING

All stairways and parts of buildings under demolition, erection or repair shall be adequately lighted while persons are engaged at work to comply with the provisions of Section 625.0 and Section 1502.1.

SEC. 1319.0 - FIRE HAZARDS

The provisions of this Code and all other applicable ordinances, and of the fire prevention rules and regulations of the Director and fire department shall be strictly observed to safeguard against the fire hazards attendant upon building operations.

SEC. 1319.1 - TEMPORARY HEATING. Whenever salamanders or other heating devices are used for temporary heating, all regulations as to maximum temperature, distance from combustible materials, spark arrestors, removal of noxious gases, and other requirements of this Code and the approved rules adopted thereunder shall be fully observed. When the source of heat consists of salamanders or other open-flame devices, temporary canvas enclosures shall comply with Section 905.5.

SEC. 1319.2 - STEAM BOILERS. All temporary or permanent steam boilers shall be operated only by licensed operating engineers in accordance with the provisions of Section 1105.0. When located within a building or within ten (10) feet thereof, all boilers shall be enclosed with approved incombustible construction.

SEC. 1319.3 - STORAGE OF FLAMMABLES. Storage of gasoline for hoists, oils, paints and other highly flammable materials shall be permitted only in amounts approved by the Director and as specified in the approved rules and when stored in approved safety containers. The storage of larger quantities may be approved when stored in separate compartments of enclosures of approved incombustible construction.

SEC. 1319.4 - FLAME CUTTING AND WELDING. The use of oxyacetylene torches for cutting or welding shall only be permitted in accordance with the applicable standards for air and gas welding in building construction listed in Appendix B and the approved rules.

SEC. 1319.5 - FIRE EXTINGUISHING EQUIPMENT. Required fire extinguishers, water buckets, auxiliary fire fighting tools or other portable extinguishing equipment shall be installed and maintained on all floors of a construction operation in an accessible location as required in Section 1218.14.

SEC. 1319.6 - STANDPIPE. Where standpipes are provided as a permanent part of the building, they shall be installed and made ready for instant use of the fire department as the structure progresses in accordance with the provisions of Section 1207.6. Free access from the street to such standpipes shall be maintained at all times; and materials shall not be stored within five (5) feet of any fire hydrant or in the roadway between such hydrant and the centerline of the street.

SEC. 1319.7 - HOUSEKEEPING. Rubbish and trash shall not be allowed to accumulate on the site and shall be removed as fast as conditions warrant; combustible rubbish shall be removed daily, and shall not be disposed of by burning on the premises or in the immediate vicinity, and the entire premises and area adjoining and around the

operation shall be kept free of accumulations of trash, rubbish, nuts, bolts, small tools and other equipment, and in a safe and sanitary condition.

SEC. 1320.0 - HEALTH HAZARDS

Every construction or maintenance operation which results in the diffusion of dust, stone or other particles, toxic gases or other harmful substances in quantities hazardous to health shall be safeguarded by means of local ventilations or other protective devices to insure the safety of the public as required by the state law, ordinances, regulations of health officials and the approved rules.

SEC. 1320.1 - REMOVAL OF DUST. Dust, sand blasts or other harmful agents when employed in building operations shall be disposed of at or near the point of origin to prevent their diffusion over adjoining premises or streets.

SEC. 1320.2 - PROTECTIVE EQUIPMENT. Facilities shall be provided for housing the necessary vision and respiratory equipment and protective equipment required in welding operations in approved closed containers in accordance with the approved rules and the pertinent regulations of the health and other municipal agencies.

SEC. 1321.0 - WELDING SAFETY PRECAUTIONS

SEC. 1321.1 - FLAMMABLE MATERIALS. No flammable or explosive materials shall be stored in the vicinity of welding or cutting operations. Proper precautions shall be taken to avoid risk of fire or explosion as provided in the approved rules.

SEC. 1322.0 - SANITATION.

In the course of demolition, erection or repair of buildings adequate toilet and drinking water facilities shall be provided which shall be constructed and installed in accordance with the provisions of Article 17.

SEC. 1323.0 - WINDOW CLEANING.

These provisions apply to all window cleaning operations performed wholly or partially on the outside of all buildings, more than one (1) story high, or in which the sills of windows are located more than ten (10) feet above grade or adjoining flat roof.

SEC. 1323.1 - EXCEPTIONS. The provisions herein contained shall not apply to one and two family dwellings, Use Group L3, or to a window opening to a fire escape balcony, or other balcony not less than two (2) feet wide nor more than twelve (12) inches below the window sill.

SEC. 1323.2 - APPROVALS AND RESPONSIBILITY.

SEC. 1323.21 - The owner, or his authorized agent, shall be responsible for observance of these rules.

SEC. 1323.22 - All window cleaning safety devices shall be approved by the Director in accordance with approved rules.

.23 - Existing safety devices and methods of cleaning windows other than those specified herein may be approved on application to the Director.

.24 - The use of lag screws is prohibited in new or replacement installations.

.25 - Window cleaners shall use safety devices provided for their protection.

.26 - Window cleaners shall not pass from window to window on the outside, except where a railing is installed.

SEC. 1323.3 - WHEN APPROVED SAFETY DEVICES SHALL BE USED.

.31 - Window Sills Ten Or More Feet Above Grade. In buildings having windows with sills ten (10) or more feet above the grade and so constructed that it is necessary for a person to clean the windows from the outside, approved safety devices for the protection of the window cleaner shall be provided.

.32 - Window Sills Less Than Six Inches From Window Frame. In buildings where the window sill extends less than six (6) inches out from the window frame, an approved portable auxiliary sill or other approved device shall be provided. Portable sills shall not be less than ten (10) inches wide or less than thirty (30) inches long. Portable sills or other devices must be so designed and made that they are safely held in place and can be readily put in position and removed.

SEC. 1323.4 - ALTERATIONS. Where windows are so constructed and it is usual and practical to clean them from the inside, employers shall not allow any alterations, changes or obstructions which will make it necessary to clean said windows from the outside unless safety devices are provided.

SEC. 1323.5 - SWINGING SCAFFOLDS. When swinging scaffolds are used in connection with window cleaning operations they shall conform to the following specifications:

.51 - Widths, Railings And Toeboards. Every scaffold swung from an overhead support which is ten (10) feet or more above the ground or floor shall be not less than twenty-seven (27) inches in width and provided with railings and toeboards on open sides. The railings shall be not less than forty-two (42) inches above the scaffold platform, with an intermediate rail. Toeboards shall be not less than one by six (1 x 6) inches.

.52 - Posts. Posts shall not be more than eight (8) feet apart; they shall be permanent and substantial, smooth, and free from protruding nails, bolts and splinters.

.53 - Pipe Guard Rails. If made of pipe, guard rails shall be one and one-quarter (1 1/4) inches inside diameter, or larger.

.54 - Metal Guard Rails. If made of metal shapes or bars, guard rail sections shall be equal in strength to that of one and one-half by one and one-half by three sixteenths (1 1/2 x 1 1/2 x 3/16) inches angle iron.

.55 - Wood Guard Rails. If made of wood, guard rail posts shall be two by four (2 x 4) inches, or larger. The upper rail shall be two by four (2 x 4) inches or two (2) one by four (1 x 4) inch strips, one at top and one at the side of posts.

.56 - Hangers. Hangers shall be of steel in one piece and so shaped that the scaffold platform shall rest on the hangers. Manila or cotton rope of the best grade at least three-quarters of an (3/4) inch in diameter shall be used for supports and shall be properly spliced into six (6) inch ball-bearing or bushed pulley blocks. Steel cables and pulley blocks of equivalent strength may be used.

.57 - Sway. Means shall be provided to prevent scaffolds from swaying. A life line shall be provided for each man working on such scaffolds.

.58 - Construction. All scaffolds and their supports shall be properly constructed and of ample strength to support safely the maximum number of men plus the weight of the material to be placed on them.

SEC. 1323.6 - BOATSWAIN'S CHAIR. When a boatswain's chair is used for window cleaning operations, the seat shall be suspended from its four corners and there shall be a rope or strap guard across the front and rear, eighteen (18) inches above the seat, or a body belt attached to the lower tackle hook, or other fixed support shall be used. A rope tackle with not less than a single and a double sheave block with five-eighths of an (5/8) inch rope or cable of equivalent strength shall be used for raising and lowering the chair. A man shall be stationed beneath to operate the tackle unless the fall line has an approved automatic locking device.

.61 - Safety Harness. An approved type of safety harness may be used in lieu of a boatswain's chair.

.62 - Inspection. Scaffolds and boatswains' chairs shall be inspected not more than thirty (30) days prior to use. No employee shall be assigned to work on scaffolds or boatswain's chair who is not competent to handle such equipment.

SEC. 1323.7 - PORTABLE LADDERS AND SECTIONAL LADDERS.

.71 - Approved Safety Feet. When portable ladders are used they shall be fitted with approved safety feet or other suitable means to reduce the hazard of slipping.

.72 - Man At Foot Of Ladder. Where ladders are more than eighteen (18) feet in length, a man shall be stationed at the foot of the ladder to hold it in place at all times while the window cleaner is on the ladder.

.73 - Sectional Ladders. When sectional ladders are used in connection with window cleaning operations, they shall be made from straight grain clear lumber of spruce, Oregon pine, Norway pine, or other approved material of equal strength.

.74 - Rungs Of Sectional Ladders. The minimum diameter of wooden rungs between rails shall be one and one-eighth (1 1/8) inches in diameter. Rungs that have worn down to three-quarters of an (3/4) inch thickness at any point shall be replaced with new rungs. All rungs shall fit snugly in holes not less than seven-eighths of an (7/8) inch in diameter, bored through the side rails. All rungs shall be spaced twelve (12) inches center to center.

.75 - Locking Slots On Sectional Ladders. Dimensions of the locking slots at the end of the ladders shall be fifteen-sixteenths of an (15/16) inch wide and two (2) inches long. Locking slots on each section of ladder rails shall have one side reinforced with metal plates of not less than No. 18 U.S. gauge; these plates shall be securely fastened in place.

.76 - Ladder Sections. Intermediate ladder sections shall be six feet, four (6-4) inches long overall.

.77 - Top Section. Top ladder sections shall not exceed nine (9) feet in length and shall be not less than four (4) inches wide across rails at the top.

.78 - Taper Of Side Rails. Where ladder sections join together the combined taper of the side rails shall be one (1) inch to the foot.

.79 - Dimensions. Dimensions shown in the following table shall govern:

TABLE 20

DIMENSIONS OF LADDER SECTIONS

Ladder Sections	Side Rails Not less than	Length Over-all of sections	Dimension across bottom end of rails (Outside)	Dimension across top end of rails (Outside)	Locking Slots at sec- tion end	Minimum diameter of rungs between rails	Minimum diameter of rungs through rails	Center to center rung spacing
Top section	1-1/8"x2-3/4"	Not over 9'	14-3/4"	Not less than 4"	15/16"x2"	1-1/8"	7/8"	12"
First below top.....	1-1/8"x2-3/4"	6'-4"	17-3/4"	10-3/4"	15/16"x2"	1-1/8"	7/8"	12"
Second below top....	1-1/8"x2-3/4"	6'-4"	20-1/2"	13-7/8"	15/16"x2"	1-3/16"	7/8"	12"
Third below top.....	1-1/8"x3"	6'-4"	23-3/8"	16-7/8"	15/16"x2"	1-1/4"	7/8"	12"
Fourth below top....	1-1/4"x3"	6'-4"	26-3/4"	19-3/4"	15/16"x2"	1-3/8"	7/8"	12"
Bottom section of six- section ladder.....	1-5/16"x3-1/4"	Not over 6'-4"	Not less than 29-1/2"	22-3/4"	15/16"x2"	Over 1-3/8"	7/8"	12"

SEC. 1323.8 - MATERIAL FOR BELTS, BELT TERMINALS AND ANCHORS. When windows are cleaned from a sill, an approved safety belt of oak tanned leather, canvas, or other equally strong durable material shall be provided, maintained and used. The ends of the belt shall be fitted with approved heavy forged metal safety terminals of brass, monel metal, or copper-nickel alloy equivalent to monel metal, or other approved durable corrosion resistive metal of equal strength and toughness. All anchors, fittings, rivets, thimbles, back support chains, and other metal parts shall be of the same strength and material as the terminals.

.81 - Design Of Belts. The belt shall be so designed and constructed that it will be impossible for the safety terminals to pass through their fastenings on the body belt of the window cleaner should one terminal become loosened from its window anchor.

(a) Ropes or straps secured to eyes or rings shall be provided with metal thimbles to prevent wear and, if rope is used, it shall be not smaller than one-half ($1/2$) inch Yacht Manila or its equivalent.

(b) The waste band, ropes of the belt and all interconnecting parts shall be separately, and as an assembled unit, subjected to test, and shall show sufficient strength to hold a suspended load of one thousand (1,000) pounds.

.82 - Belt Terminals. Safety belt terminals shall be of forged brass, or other approved durable corrosion-resistive metal of ample section and securely fastened to the belt. The belt and each terminal and their fastenings shall be of sufficient strength to hold a suspended load of one thousand (1,000) pounds.

(a) The belt terminals shall have slots not less than four (4) inches long; the slots shall be one-half ($1/2$) inch wide (tolerance plus or minus $1/32$ "). That portion of the slot which passes over the anchor head shall be seven-sixteenths of an ($7/16$) inch deep by one (1) inch wide, and shall have an approved catch to prevent the automatic or accidental release of the terminal.

(b) Right angle sections of forgings shall have one-eighth of an ($1/8$) inch radius fillets in all inside corners, and where the anchor head comes in contact with the belt terminal while in use, the terminal forging shall be not less than one-quarter of an ($1/4$) inch thick.

.83 - Anchor. Anchors shall be of the twin or double-head type designed for attachment to window frames or mullions and shall be made of heavy forged metal or brass, monel metal, or copper-nickel alloy equivalent to monel metal, or other approved durable corrosion-resistive metal of equal strength and toughness.

(a) Double-head (four-bolt system) belt anchors shall be seven-sixteenths of an ($7/16$) inch in diameter and the head shall be three-quarters of an ($3/4$) inch across the flat and not less than nine-thirty-seconds of an ($9/32$) inch thick.

(b) Drop forgings shall have one-eighth of an ($1/8$) inch radius fillets at all places where diameters or other dimensions change. Wall flanges shall be not less than one and one-quarter ($1\ 1/4$) inches in diameter.

(c) The space between the anchor head and the flange or window frame shall be not less than one-half of an ($1/2$) inch or more than seven-eighths of an ($7/8$) inch.

(d) Double anchor heads shall be spaced not less than two (2) inches or more than three (3) inch centers.

(e) The back face of anchors for installation in wood window frames or mullions shall be provided with at least two (2) sharp lugs to prevent turning of the anchor after installation.

.84 - Height Of Belt Fastenings (Anchors). The anchors on the building to which the belt shall be fastened, shall be installed in the side frames of the window and/or in the mullions at a point not less than forty-two (42) inches or more than fifty-one (51) inches above the window sill.

.85 - Method Of Fastening Anchors. Bolts, anchors and other approved fittings shall be securely fastened to the window frame or mullion, as follows:

(a) In wood construction, bolts not less than three-eighths ($3/8$) inch diameter, made of the same material as the anchor shall pass through the entire window frame or mullion and shall be securely fastened by a nut and washer. The ends of such bolts shall be upset to prevent loosening and/or removal of the nuts.

(b) In hollow metal frame construction, the bolt or bolts on combination anchor fittings shall be at least three-eighths ($3/8$) inch in diameter, of the same material as the anchor, and shall pass through a wrought iron or steel plate not less than five-sixteenths ($5/16$) inch thick by six (6) inches long. This plate shall be in the form of a Z or some other equivalent, one portion of which will reach around behind the exposed face of the frame and shall be bolted or riveted by at least two (2) one-quarter ($1/4$) inch bolts, screws, or rivets of the same material as the anchor, to a part of the frame protected by masonry and concrete.

(c) As an alternate, each anchor fitting may be attached to frame and reinforcing plate by means of at least two (2) five-sixteenths ($5/16$) inch screws of the same material and strength as the anchor, threaded and screwed into plate to a depth of at least five-sixteenths of an ($5/16$) inch.

(d) Anchor fittings having a single threaded section and merely screwed into reinforcing plates, shall not be acceptable.

(e) In solid metal frame construction, anchor fittings shall be attached by three-eighths ($3/8$) inch bolts of the same material as the anchor. Such bolts shall pass through the frame and shall be securely held in place by nuts and washers on the inside.

Where the nature of the solid metal frame construction is such that this method cannot be followed, it will be permissible to drill and tap the metal frame to a depth of at least three-eighths ($3/8$) inch and install the anchor with at least two (2) five-sixteenths ($5/16$) inch screws made of the same material as the anchor. Each screw shall be provided with a corrosion-resistive back-washer.

(f) All screws used in the installation of anchors on metal frame construction shall have the threads terminate far enough from the screw head to prevent weakening due to undercutting.

.86 - Extra Width Windows. In buildings with windows where the distance between anchors is greater than six (6) feet, there shall be installed special approved anchors at each side of the window frame; these anchors shall be set forty-two (42) inches above the window sills.

(a) The owner shall provide for each such window when it is being cleaned a brass cable or chain that can readily be attached to the anchors to be used as a back support for the window cleaner. In addition there shall be installed above these anchors, standard belt anchors to which the window cleaner shall attach one end of his belt.

(b) Where masonry openings for mullion windows are more than five (5) feet and six (6) inches wide, at least one anchor fitting shall be installed in each mullion.

.87 - Casement Windows. Casement windows which cannot be wholly cleaned while standing at the inside shall have anchor fittings installed in the same manner as specified for other windows.

SEC. 1324.0 - DISPUTES

All disputes arising under the enforcement of the provisions of this article shall be submitted to a Board of Review under the procedure specified by the provisions of Section 128.0.

SEC. 1324.1 - NOTICE TO OWNERS. The Director, when requested by any person aggrieved or otherwise, shall serve a written notice on any owner, tenant and their agents who fail to conform to the requirements of this article and the approved rules. If such person, whose duty it is to protect his own or adjoining property under these provisions, fails to proceed to fully comply with such notice within three (3) days of the receipt thereof, or within a reasonable time thereafter as determined by the Director, the Director may cause the necessary work to be done when the health, safety and general welfare of the public are involved. The cost of such work shall become a lien against the property of the offending owner.

ARTICLE 14 - OUTDOOR SIGNS AND OUTDOOR DISPLAY STRUCTURESSEC. 1400.0 - SCOPE

The provisions of this article and the approved rules adopted thereunder shall govern the location, construction, alteration, repair and maintenance of all outdoor signs and outdoor display structures, together with their appurtenances and auxiliary devices. All electrical wiring and equipment shall be installed in accordance with the requirements of ARTICLE 15.

Outdoor Advertising (Outdoor Display Structures). The terms Outdoor Advertising and Outdoor Display Structures as used in this Article shall apply only to all such advertising now or hereafter displayed in the City of Providence so as to attract the attention of persons on any public highway, or while in the vehicle of any common carrier, or in any station of such carrier, or while in any public building, public park, public grounds or other public places, whether such advertising be by means of printing, writing, picture or a combination thereof, and whatever may be the means of display except that it shall not include advertising located upon private property relating exclusively to the sale or rental thereof, or advertising in or upon the vehicle of any common carrier, or advertising in a station of any common carrier.

SEC. 1400.1 - APPROVED RULES. In the absence of approved rules governing details of construction, the provisions of the applicable A. S. A. Standards listed in Appendix B shall be deemed to conform to the requirements of this Code unless otherwise specified in this Article.

SEC. 1401.0 - DEFINITIONS

Approved Combustible Plastics. Those combustible plastic materials which, when tested in accordance with the American Society For Testing Materials Standard Method For Test For Flammability of Plastics over 0.050 inch in Thickness (D 635-44), burn no faster than 2.5 inches per minute in sheets of 0.060 inch thickness.

Billboard (Posted Panel). A board, panel or tablet used for the display of printed or painted posters, or other advertising matter.

Closed Sign. A display sign in which the entire area is solid or tightly enclosed or covered.

Display Sign. A completely fabricated structure arranged, intended, designed or used as an advertisement, amusement or direction; or an advertising device of any kind, constructed, attached or erected as an appurtenance to a building or erected independently thereof as an integral structure.

Ground Sign. A display sign supported by uprights or braces in or upon the ground surface.

Marquee Sign. A display sign attached to or hung from a marquee, canopy or other covered structure projecting from and supported by the building and extending beyond the building wall, building line or street lot line.

Open Sign. A display sign in which at least fifty (50) per cent of the enclosed area is uncovered, or open to the transmission of wind.

Pole Sign. Any sign supported on a post or pole.

Posted Panel. (See Billboard).

Projecting Sign. A display sign which is attached directly to the building wall and which extends more than twelve (12) inches from the face of the wall.

Roof Sign. A display sign which is erected, constructed and maintained above the roof of the building.

Sign Over Sidewalk. A projecting sign over a sidewalk or public traveled way, the distance of projection to be measured from and normal to the street line to that part of the sign or supports which is nearest the vertical plane of the curb line.

Temporary Sign. A display sign, banner or other advertising device constructed of cloth, canvas, fabric or other light temporary material, with or without a structural frame, intended for a limited period of display; including among these, decorative displays for holidays or public demonstrations.

Wall Sign. A display sign which is painted on or attached directly to the building wall and which extends not more than twelve (12) inches from the face of the wall.

SEC. 1402.0 - PLANS SPECIFICATIONS AND PERMITS

SEC. 1402.1 - PERMITS REQUIRED. No ground sign, roof sign, wall sign, projecting sign, or sign over sidewalk shall be erected by any person, firm or corporation, except as prescribed in this ARTICLE and Section 119.1 until a permit shall have been issued by the Director, nor until the required fee shall have been paid, nor until compliance has been made with all requirements of this Article and such rules as may be adopted under the provisions of Section 109.0 relating thereto.

SEC. 1402.2 - OWNER'S CONSENT. Before any permit is granted for the erection of a sign or outdoor display structure, plans and specifications shall be filed with the Director showing the dimensions, materials and required details of construction including loads, stresses and anchorage. The application shall be accompanied by the written consent of the owner or lessee of the premises upon which the sign is to be erected, and a written agreement from said owner binding him, to remove the sign involved in the permit upon notice from the Director that the sign is dangerous or that it has ceased to serve the purpose for which it was erected.

SEC. 1402.3 - NEW SIGNS. No new sign shall hereafter be erected, constructed, altered or maintained except as herein provided and until after a permit has been issued by the Director in accordance with Section 119.0 and the required bond shall have been filed in accordance with Section 1408.0.

SEC. 1402.4 - ALTERATIONS. No sign shall be altered, enlarged or relocated except in conformity with the provisions of this article for new signs, nor until a proper permit has been secured. The changing of movable parts of an approved sign that is designed for such changes, or the repainting or reposting of display matter shall not be deemed an alteration provided the conditions of the original approval and the requirements of this article are not violated.

SEC. 1403.0 - EXCEPTIONS

No permit shall be required for the signs or outdoor display structures covered by the provisions of this section. Such exceptions, however, shall not be construed to relieve the owner of the sign from responsibility for its erection and maintenance in a safe manner.

SEC. 1403.1 - WALL SIGNS. The wall signs herein listed shall not require a permit:

.11 - Painted Signs. Signs painted on the surface of masonry, concrete, frame or other approved walls;

.12 - Government Building Signs. Signs erected on a municipal, state or government building which announce the name, nature of the occupancy and information as to use of, or admission to, the premises;

.13 - Other Wall Signs. Any wall sign erected on a building or structure, which is not more than three (3) square feet in area;

.14 - Fence Signs. Signs painted on the surface of enclosure or division, or on picket or other ornamental fences.

SEC. 1403.2 - GROUND SIGNS. The ground signs herein listed shall not require a permit:

.21 - Sale Or Rent. Signs erected to announce the sale or rent of the property so designated provided such signs are not over thirty (30) square feet in area;

.22 - Transit Directions. The erection or maintenance of a sign designating the location of a transit line, a railroad station or other public carrier when not more than three (3) square feet in area;

.23 - Street and Traffic Signs. Signs erected by the municipality for street direction.

.24 - Other Ground Signs. Any ground sign that is not more than fifteen (15) square feet in area provided that it shall be located not less than six (6) feet from the street lines or property lines.

SEC. 1403.3 - TEMPORARY SIGNS. The temporary signs herein listed shall not require a permit:

.31 - Construction Signs. Construction signs, engineers' and architects' signs and other similar signs which may be authorized by the Director in connection with construction operations.

.32 - Special Displays. Special decorative displays used for holidays, public demonstrations or promotion of civic welfare or charitable purposes, when authorized by the municipal authorities, on which there is no commercial advertising, provided the City of Providence is held harmless for any damage resulting therefrom as provided in Section 1408.0.

SEC. 1404.0 - UNSAFE AND UNLAWFUL SIGNS.

SEC. 1404.1 - NOTICE OF UNSAFE SIGNS. When in the opinion of the Director, any sign becomes insecure, in danger of falling, or otherwise unsafe, or if any sign shall be unlawfully installed, erected or maintained in violation of any of the provisions of this Code, the owner thereof or the person or firm maintaining same, shall upon written notice of the Director, forthwith in the case of immediate danger and in any case within ten (10) days, make such sign conform to the provisions of this article or shall remove it. If within ten (10) days the order is not complied with, the Director may remove such sign at the expense of the owner or lessee thereof.

SEC. 1404.2 - UNLAWFUL SIGNS.

The following signs shall be deemed unlawful:

.21 - Ingress And Egress Obstructions. Any sign erected so as to obstruct free required ingress to or egress from a door, window, fire escape or other means of ingress or egress.

.22 - Projecting Signs. A projecting display sign erected at other than right angles to the wall of a building or structure outside of the building line which extends above the roof cornice or parapet wall, or above the roof level when there is no cornice or parapet wall, and which obstructs access to the roof. Such signs shall be reconstructed or removed as herein required.

.23 - Other Obstructing Signs. Any sign obstructing reasonable access by firemen by means of ladders from a public traveled way to any part of a building or to or about any part of the roof of a building as prescribed in Section 1409.3.

.24 - Obstruction To Ventilation. Any sign obstructing ventilation as prescribed in Section 1409.4.

.25 - Alley Signs. No sign shall be permitted to project beyond alley lot lines.

.26 - Signs In General. Any sign located, constructed, installed, erected or maintained in violation of any of the provisions of this Article.

SEC. 1405.0 - MAINTENANCE AND INSPECTION.

The Director may order the removal of any sign that is not maintained in accordance with the provisions of this article.

SEC. 1405.1 - MAINTENANCE. All signs for which a permit is required, together with all their supports, braces, guys and anchors shall be kept in repair in accordance with the provisions of this article and Article 1; and when such supports, braces, guys and anchors are not galvanized or constructed of approved corrosion-resistive incombustible materials shall be painted at least every two (2) years or at more frequent intervals when deemed necessary by the Director.

SEC. 1405.2 - HOUSEKEEPING. It shall be the duty and responsibility of the owner or lessee of every sign to maintain the premises surrounding such sign in a clean, sanitary and healthful condition.

SEC. 1405.3 - INSPECTION. Every sign for which a permit has been issued, or is required for a new sign, shall be inspected at least once every two (2) years. Such inspection or the lack of such

inspection shall not act to relieve any other party from his, hers or its responsibility for the maintenance of the sign in regard to the safety, health and general welfare of the public.

SEC. 1406.0 - EXISTING SIGNS.

SEC. 1406.1 - RESTRICTIONS.

.11 - Removing Or Reconstructing. No sign heretofore approved and erected shall be repaired, altered or moved and any sign, or any substantial part thereof which is blown down, destroyed or removed shall not be reerected, constructed, rebuilt or relocated unless it is made to comply with all applicable requirements of this article.

.12 - Repair Of Unsafe Signs. This section shall not be construed to prevent the repair or restoration to a safe condition of any part of an existing sign when damaged, as approved or ordered by the Director.

SEC. 1406.2 - MOVING OF SIGNS. Any sign that is moved to another location either on the same or to other premises shall be considered as a new sign and a permit shall be secured for any work performed in connection therewith.

SEC. 1406.3 - HERETOFORE APPROVED. A new permit shall be issued for existing signs which were heretofore erected and maintained in conformity with the legal requirements in effect at the time of erection, provided the existing structures do not endanger the public health or safety.

SEC. 1407.0 - REGISTRATION AND IDENTIFICATION.

SEC. 1407.1 - REGISTRATION. Every new or existing ground sign and roof sign shall be registered with the Director by the person maintaining the same.

SEC. 1407.2 - IDENTIFICATION. Every new or existing sign for which a permit is required by this article and which sign has been, or is hereafter erected, constructed or maintained shall be plainly marked with the name of the person, firm or corporation, owning, erecting, maintaining or operating such sign.

SEC. 1408.0 - BONDS AND LIABILITY INSURANCE

SEC. 1408.1 - FILING OF SIGN ERECTOR'S BOND. No person shall erect, install, remove or rehang any sign for which a permit is required under the provisions of this Code until a bond with surety or sureties, to be approved by the City Solicitor, shall have been filed in an amount of not less than ten thousand (\$10,000.00) dollars as herein required and as specified in Section 119.0. Provided, however, no such bond shall be required if the person erecting, installing, removing or rehangng said sign is also the owner of the building or property to which the sign is to be attached or built upon and required to furnish liability insurance under the provisions of Section 1408.3 or if said person shall furnish to the Director satisfactory evidence of the existence of public liability insurance, insuring the City of Providence in the manner and to the extent required under Section 1408.3.

SEC. 1408.2 - CONDITIONS OF SIGN ERECTOR'S BOND. Such bond shall be conditioned on the construction, erection and maintenance of the sign in accordance with the provisions of this Code and shall protect and save the City of Providence or against the licensee, or owner of, or persons erecting or maintaining such signs or outdoor display structures harmless from any and all claims and demands for damages, liabilities, losses or judgments that may be recovered against the City or against the licensee, or owner of, or persons erecting or maintaining such signs or outdoor display structures by reason of the failure of any sign or part thereof until said sign is accepted by the owner and approved by the Director. Such bond shall remain in full force and effect for the term of one year.

SEC. 1408.3 - OWNER'S LIABILITY INSURANCE. Every permit issued for the erection of a sign or outdoor display structure shall be granted upon the condition that the owner of the building or property to which the sign or outdoor display structure is to be attached or built upon shall furnish to the Director and maintain satisfactory evidence of the existance of a bond or public liability insurance sufficient to satisfy any claims for damages that may be recovered by reason of the failure of such sign or outdoor display structure or any part thereof, either against the City of Providence or against the licensee or owner of, or person erecting or maintaining such signs or outdoor display structures. The minimum limits of such bond or liability insurance are to be Ten Thousand (\$10,000.00) dollars per person with a limit of Fifty Thousand (\$50,000.00) dollars in any one accident and Five Thousand (\$5,000.00) dollars for property damage. All bonds shall be approved by the City Solicitor for property damage. All public liability policies shall be issued by companies authorized to do business in the State of Rhode Island.

SEC. 1409.0 - GENERAL REQUIREMENTS FOR ALL SIGNS

All signs shall be designed and constructed in conformity with the provisions for materials, loads and stresses of Articles 7 and 8 and in accordance with rules adopted thereunder and all other requirements of this article.

SEC. 1409.1 - WIND. In the design, the effect of special local wind pressures shall be thoroughly considered; but in no case shall the wind load be assumed less than thirty (30) pounds per square foot of net exposed area for roof signs and twenty (20) pounds per square foot for ground signs.

SEC. 1409.2 - ILLUMINATION. The illumination of signs shall be restricted and permitted as prescribed in Section 1417.0.

SEC. 1409.3 - OBSTRUCTIONS TO EXITWAYS. No sign shall be erected, constructed or maintained so as to obstruct any fire escape, required exitway, window or door opening used as a means of egress or to prevent free passage from one part of a roof to another part thereof or access thereto as required by the provisions of Article 6 or by the Providence Fire Department.

SEC. 1409.4 - OBSTRUCTION TO VENTILATION. No sign shall be attached in any form, shape or manner so as to interfere with any opening required for ventilation in Article 5, except that such signs may be erected in front of and may cover the transom of windows when not in violation of the provisions of this Code.

SEC. 1409.5 - USE OF COMBUSTIBLES. Wood, approved combustible plastics or other approved combustible material may be used in connection with signs for which permits are required only as provided for in the sections dealing with the different types of signs and subject to fire district restrictions, or as may be permitted in rules adopted in accordance with Section 109.0.

SEC. 1409.6 - MARKING OR PRINTING ON AWNINGS. Nothing in this article shall be construed to prohibit any marking or printing upon any awning constructed and maintained according to law.

SEC. 1410.0 - GROUND SIGNS.

SEC. 1410.1 - MATERIALS IN FIRE DISTRICT NO. 1. All ground signs in the Fire District No. 1 shall be constructed of incombustible material except that when approved by the Director wood or other combustible trim may be used for mouldings, copings, nailing blocks, battens and other purely ornamental features and also when so approved the intervening space between the ground and the sign may be filled with combustible open lattice work or platform trim.

SEC. 1410.2 - MATERIALS OUTSIDE FIRE DISTRICT NO. 1. Outside Fire District No. 1 the sign may be constructed of wood or other combustible material with a facing of metal or other approved incombustible material and with the remainder of the material as provided for in Fire District No. 1.

SEC. 1410.3 - OBSTRUCTIONS TO TRAFFIC. No ground sign shall be erected so as to obstruct free access to or egress from any building; nor shall such sign be erected to unduly obstruct the view of traffic on intersecting streets or highways.

SEC. 1410.4 - SETBACK. All ground signs shall be set back of the street lot line an average distance equal to at least one-half ($\frac{1}{2}$) the height but in no case nearer than the established building line; and shall be erected not closer than five (5) feet to any other building or structure.

SEC. 1410.5 - CLEARANCE. Every ground sign shall be elevated on supports so that every point of the lowest edge thereof shall be at least two (2) feet above the ground. There shall be at least two (2) feet between the ends of any two signs and with the approval of the Director, this space may be filled in with lattice work or light wooden construction.

SEC. 1410.6 - HEIGHT OF GROUND SIGNS. No ground sign including open lettering above the solid part shall be more than twenty-one (21) feet high, nor including its supports more than twenty-seven (27) feet high above the ground, except that where the grade of the ground is not level, higher supports may be used; but in no event shall the highest end or other highest point thereof be more than twenty-seven (27) feet over-all above the grade level of the adjacent street or public way.

SEC. 1410.7 - OWNER'S NAME AND PLACE OF BUSINESS. A ground sign may have a further extension immediately attached to the top of the sign to be used only for placing thereon the owner's name and place of business, such structure or extension to be not more than six (6) feet in length nor more than six (6) inches in height. Such increase in height shall not be included in any of the other heights provided for in this Article, but shall be in addition thereto.

SEC. 1410.8 - LENGTH OF GROUND SIGNS. No ground sign shall be more than fifty-five (55) feet in length.

SEC. 1411.0 - ROOF SIGNS.

SEC. 1411.1 - MATERIALS. All signs located upon or over the roof of any building or buildings in Fire District No. 1 shall be built throughout of incombustible material. Outside Fire District No. 1 such signs shall be built throughout of incombustible material, except that with the approval of the Director, combustible material may be used for mouldings, copings, nailing blocks, battens and other purely ornamental features.

SEC. 1411.2 - ELECTRIC GROUNDING. Provision shall be made for

electric ground of all metallic parts of roof signs, and where combustible material is permitted, all wiring shall be kept free and insulated therefrom. The ground connection shall have an electrical resistance not in excess of three (3) ohms.

SEC. 1411.3 - CONSTRUCTION SUPPORTING ROOF SIGNS. No roof sign shall be located upon or over the roof of any wood frame building. When located upon or over a building of not wholly incombustible structural construction, the bearing plates of such sign shall rest directly upon masonry or other incombustible walls or upon incombustible beams or girders, which beams or girders are in turn supported by masonry or other incombustible walls or columns, as may be approved by the Director.

SEC. 1411.4 - LOCATION AS TO THE FACE OF THE BUILDING. Every sign erected upon or over a roof shall be set back at least seven (7) feet from the face of the building, the seven (7) feet to be measured at right angles to the center of the sign, and with the ends of the sign not less than four (4) feet from the face of the building. Every roof sign shall be so constructed, located and anchored that if it should fall for any reason, such sign would not be likely to fall upon any street, lane or other public traveled way.

SEC. 1411.5 - CLEARANCE ON ROOF. Every sign located on or above a roof shall be so constructed and located as to leave a clear space of at least six (6) feet between the roof level and the lowest part of the sign. The clearance between the ends of any two signs shall not be less than two (2) feet.

SEC. 1411.6 - CLEARANCE EXCEPTION FOR ONE-STORY BUILDING. For a sign on the roof of a one-story building, not over fifteen (15) feet in height, the requirement for a clear space six (6) feet in height between the roof level and the lowest part of the sign may be modified or waived at the discretion of the Director.

SEC. 1411.7 - HEIGHT OF ROOF SIGNS. No sign shall be constructed or erected to a height of more than fifteen (15) feet, nor as elevated on supports more than twenty-one (21) feet above the roof, but an additional six (6) feet or less in height may be added for open lettering, measured from the part of the roof where the sign is located. No roof sign having a tight, closed or solid surface shall be at any point more than twenty-one (21) feet above the roof level, except that such sign may carry out designs and figures of light open metal construction extending not over six (6) feet above the top; said six (6) feet being in addition to the basic height as heretofore restricted.

SEC. 1411.8 - OWNER'S NAME AND PLACE OF BUSINESS. A roof sign may have a further extension immediately attached to the top of the sign to be used only for placing thereon the owner's name and place of business, such structure or extension to be not more than six (6) feet in length nor more than six (6) inches in height. Such increase in height shall not be included in any of the other height limitations provided for in this Article, but shall be in addition thereto.

SEC. 1411.9 - LENGTH OF ROOF SIGNS. No roof signs shall be more than fifty-five (55) feet in length.

SEC. 1412.0 - WALL SIGNS.

SEC. 1412.1 - MATERIALS. All wall signs in Fire District No. 1 and those outside Fire District No. 1 which have an area exceeding forty (40) square feet, shall be constructed of metal or other approved incombustible materials, except that with the approval of the Director, combustible material may be used for mouldings, copings, nailing blocks, battens and other purely ornamental features.

SEC. 1412.2 - ILLUMINATION. Electric light reflectors may project seven and one-half (7 1/2) feet beyond the face of the wall provided such reflectors are at least twelve (12) feet above the sidewalk level, but in no case shall such reflectors project beyond a vertical plane two (2) feet inside the curb. The wiring and devices shall be as provided for in Section 1417.0 and in Article 15.

SEC. 1412.3 - EXTENSION. Wall signs shall not be arranged to extend above the top of the wall, cornice or parapet or beyond the ends of the wall of the building to which they are attached, nor shall they extend more than twelve (12) inches from the face of the building. A sign projecting more than twelve (12) inches is a "Projecting Sign" and is subject to the requirements for such signs.

SEC. 1413.0 - PROJECTING SIGNS OVER SIDEWALKS.

SEC. 1413.1 - SIGNS PROJECTING MORE THAN TWELVE INCHES OVER SIDEWALKS. The distance of projection is to be measured from and normal to the street line to that part of the sign or supports which is nearest the vertical plane of the curb line.

SEC. 1413.2 - LIMIT OF PROJECTION. No such sign shall extend to project beyond the street line more than seventy-five (75) per centum of the width of the sidewalk immediately beneath, provided, however, that in no event shall any such sign project beyond such

street line more than six (6) feet, except that in the case of a sign erected upon any shelter, canopy or marquee, constructed and maintained according to law, over any sidewalk, such sign may extend the width of such shelter, canopy or marquee. No sign or part thereof shall be erected closer than two (2) feet to the curb line and no sign shall project over the sidewalk beyond the limits as set forth in the Zoning Ordinance.

SEC. 1413.3 - CLEARANCE ABOVE SIDEWALK. The lower edge of such a sign shall not be less than ten (10) feet above every part of the sidewalk immediately beneath.

SEC. 1413.4 - CONSTRUCTION IN FIRE DISTRICT NO. 1. All such signs located in Fire District No. 1 shall be constructed of noncombustible materials except that signs of approved combustible plastics may be permitted if constructed in accordance with the approved rules.

SEC. 1413.5 - CONSTRUCTION OUTSIDE FIRE DISTRICT NO. 1. All such signs over twenty (20) square feet in area located outside Fire District No. 1 shall be constructed of approved noncombustible material, except that wood or other approved combustible material may be used for mouldings, copings, nailing blocks, and battens and other purely ornamental features when approved by the Director. All illuminated signs shall be entirely of noncombustible material, except approved combustible plastics may be permitted if constructed in accordance with the approved rules.

SEC. 1414.0 - PROJECTING SIGNS NOT OVER SIDEWALKS.

SEC. 1414.1 - MATERIALS, ETC. Projecting signs not over sidewalks shall be constructed of such materials and in such manner as may be approved by the Director.

SEC. 1415.0 - MARQUEE SIGNS

SEC. 1415.1 - MATERIALS. Marquee signs shall be constructed entirely of approved noncombustible materials, except approved combustible plastics may be permitted if constructed in accordance with the approved rules.

SEC. 1415.2 - HEIGHT. Such signs shall not exceed seven (7) feet in height nor shall they project below the fascia of the marquee.

SEC. 1415.3 - LENGTH. Marquee signs may extend the full length but in no case shall they project beyond the ends of the marquee.

SEC. 1416.0 - MISCELLANEOUS AND TEMPORARY SIGNS.

SEC. 1416.1 - POLE SIGNS. Pole signs shall be constructed entirely

of incombustible materials and shall conform to the requirements for ground or roof signs as the case may be. Such signs may extend beyond the street lot line if they conform with the provisions of Section 1413.0 for projecting signs over sidewalks.

SEC. 1416.2 - BANNER AND CLOTH SIGNS. Temporary signs and banners attached to or suspended from a building, constructed of cloth or other combustible materials, shall be strongly constructed and shall be securely attached to their supports. They shall be removed as soon as torn or damaged and in no case later than fourteen (14) days after erection.

SEC. 1416.3 - MAXIMUM SIZE. Such temporary sign of combustible construction shall not be more than four (4) feet in one of its dimensions nor more than one hundred (100) square feet in area.

SEC. 1416.4 - SPECIAL PERMITS. All other temporary banners suspended from buildings or hung on poles, which extend across streets or other public spaces shall be subject to the approval of the Director of Public Works.

SEC. 1417.0 - ILLUMINATED SIGNS.

SEC. 1417.1 - CERTIFICATES. All electrically illuminated signs shall be certified as to electric wiring and devices by the Director, and all wiring and accessory electrical equipment shall conform to the requirements of Article 15 and the approved rules adopted thereunder. No sign shall be illuminated by other than electrical means and in no case shall any open spark or flame be used.

SEC. 1417.2 - LIMITATIONS. Permits shall be issued for the erection or maintenance of illuminated signs within the limitations set forth in this article for the location and type of sign or outdoor display.

SEC. 1417.3 - RELETTERING SIGNS. The requirements of this section shall not apply to the relettering of illuminated signs, except where such relettering requires a change of wiring or piping of the sign.

SEC. 1417.4 - CONSENT OF OWNER OF ADJOINING PREMISES. No permit shall be granted for the erection of an illuminated projecting sign on a building or structure which adjoins a residence building (Use Group L2 or L3), unless the applicant for the permit shall have filed with the Director the written consent of the owner of such adjoining residence building to the erection of the proposed sign.

ARTICLE 15 - ELECTRIC WIRING AND EQUIPMENTSEC. 1500.0 - SCOPE

The provisions of this article shall control the design and installation of all new electric wiring for light, heat and power in buildings and structures; and all alterations or extensions to existing wiring systems therein to insure structural, fire and health safety. All such installations shall conform to the provisions of this article and the Rules And Regulations For The Installation Of Electrical Wiring And Apparatus In The City Of Providence, approved by the Providence Building Code Revision Committee and the Electrical Advisory Committee.

The rules and regulations for the installation of electric wiring and apparatus shall be the National Electric Code, Edition of 1951, with the modifications and additions approved by the Providence Building Code Revision Committee and the Electrical Advisory Committee.

SEC. 1500.1 - APPROVED MATERIALS AND EQUIPMENT. Materials, fittings, appliances and devices listed in publications of inspected electrical equipment shall be used only when approved by the Director, and shall be installed in accordance with the approved rules.

SEC. 1500.2 - EXCEPTIONS.

.21 - Public Service Agencies. The provisions of this article shall not be applied to installations in mines, ships, railway cars, automotive equipment, or the installations or equipment employed by a railway, electric or communication utility in the exercise of its function as a utility, and located outdoors or in buildings used exclusively for that purpose.

SEC. 1501.0 - DEFINITIONS.

Approved Materials, Equipment And Methods. Approved by the Director.

Service Equipment. (See Approved Rules).

SEC. 1502.0 - PLANS AND SPECIFICATIONS.

Plans, specifications and schedules in sufficient detail shall be filed with the Director showing the location and capacity of all lighting facilities, electrically operated equipment and light, heat and power circuits required for all service equipment of the building or structure.

SEC. 1502.1 - ITEMS COVERED. All electrically-controlled devices, signal, communicating and lighting systems and their wiring whenever required under the provisions of this Code shall be shown on the plans and elevations of the building or structure with respect to:

.11 Emergency lighting system in places of assembly, Section 625.3; and emergency control of auditorium lighting Section 418.8.

.12 Stairway and exitway illumination equivalent to three (3) foot candles, Section 514.3 and Section 625.2; exit lighting circuits, Section 625.0; and elevator car illumination Section 1621.3.

.13 Fire alarm signal systems, fire department communication and supervisory service, Sections 1215.0, 1216.0, 1217.2, 1217.3 and 1219.0.

.14 Temporary construction lighting requirements equivalent to three (3) foot candles, Section 1318.0.

.15 Illumination of display signs, Sections 1411.1, 1411.2 and 1417.0.

.16 Wiring, power control and electric operation of elevators and circuit wiring, Sections 1610.0 and 1629.0; and of moving stairways, Section 1622.0.

.17 Electrical equipment and control of refrigerating and ventilating machinery, Section 1812.0 and 1814.0.

.18 Loop wiring for prefabricated construction, Sections 1902.4 and 1918.0.

SEC. 1503.0 - INSPECTION AND TESTS

SEC. 1503.1 - DURING INSTALLATION. The Director shall, during the installation of an electric wiring system and electrical service equipment, except as provided in Section 1505.0, make inspections to assure compliance with the provisions of this article and the approved rules adopted thereunder.

SEC. 1503.2 - CONCEALING WORK. No work in connection with an electric wiring system shall be covered or concealed until it has been inspected and permission to do so has been given by the Director.

SEC. 1503.3 - FINAL INSPECTION AND TEST. On completion of the work, the Director shall inspect the work and cause tests to be made of the operation of the entire system in accordance with the approved rules.

SEC. 1504.0 - TEMPORARY USE

The Director may in his discretion give temporary permission for a reasonable time to supply and use current in part of an electrical installation before such installation has been fully completed and the final certificate of approval has been issued; provided that the part covered by the temporary certificate complies with all the requirements specified for temporary lighting, heat or power in the provisions of Article 13 of this Code and the approved rules adopted thereunder.

SEC. 1505.0 - PERMITS AND CERTIFICATE OF INSPECTION

It shall be unlawful to use or permit the use of, or to supply current for electric wiring for heat, light or power in a building or structure, unless the required certificate of inspection and permit has been issued by the Director. No wiring system or electrical equipment shall be installed within or on any building or structure or premises, nor shall any alteration or addition be made in any such existing installations without first securing approval and a permit from the Director except as provided in Section 1505.1.

SEC. 1505.1 - EXEMPTIONS. No permit will be required for the execution and use of the classes of work specified herein:

.11 - Upkeep Maintenance. Minor repair work including the replacement of lamps, fuses or the connection of approved portable electrical equipment to approved permanently installed receptacles.

.12 - Temporary Testing Systems. The installation of any temporary system involved in the testing or servicing of electrical equipment or apparatus.

SEC. 1505.2 - LIMITED PREMISES PERMIT. Limited premises permits may be issued to any person, firm or corporation, regularly employing one or more electricians for installation and maintenance of electrical apparatus, wiring, conduits, fittings or furnishings on premises owned or occupied by the applicant. The application must be made to the Director by some responsible officer of such firm or corporation, and shall contain a description of the premises within which work is to be done under this permit. Each limited premises permit shall expire on December 31 of the year in which it was issued.

.21 - Periodic Inspections. At regular intervals the electrical inspector shall visit all premises where work may be done under the "Limited Premises Permit" and shall inspect all electrical equipment installed under such permit since the date of his last previous inspection, and shall issue approval for such work as is found to be in conformity with this ordinance, after the required fee has been paid. This fee is in addition to the fee of Five (\$5.00) dollars paid at the time when the "Limited Premises Permit" was issued.

.22 - ANNUAL RECORDS. The person to whom an annual permit is issued shall keep a detailed record of all changes and alterations to an approved electrical installation made under an annual permit and such records shall be accessible to the Director at all times or shall be filed with him as he may designate.

SEC. 1506.0 - EXISTING INSTALLATIONS.

No wiring system of electrical equipment shall be installed within or on any building, structure or premises, nor shall any alteration or addition be made in any such existing installations without first securing the approval and a permit from the Director except as provided in Section 1505.0.

SEC. 1506.1 - DEFECTIVE WIRING. If upon reinspection an electric wiring system is found defective and unsafe, the Director may revoke any and all certificates and permits in effect; and the uses of such system shall be discontinued until it has been made to conform to this article and the approved rules adopted thereunder and after a new permit has been issued by the Director.

SEC. 1507.0 - SERVICE CONDUCTORS.

SEC. 1507.1 - EMERGENCY OR AUXILIARY SOURCES OF CURRENT SUPPLY.

Emergency or auxiliary sources of current supply shall be such that, in the event of an emergency within a building or a group of buildings concerned, emergency lighting or power shall be available by one of the following classes of service:

Class 1. One service and a generator set, driven by some form of prime mover, fully automatic, and of sufficient capacity.

Class 1-a. One service and a storage battery or generator set, driven by some form of prime mover, fully automatic, and of sufficient capacity.

Class 2. Services as widely separated, electrically and physically as the available facilities allow.

Class 3. Connections on supply side of the main service if sufficiently separated from main service to prevent simultaneous interruption of supply through an occurrence within the building or group of buildings served, when required by the Director because of occupancy conditions.

Class 4. One service and a compact battery unit, fully automatic and permanently connected of sufficient capacity, and approved by the Director.

SEC. 1507.2 - EMERGENCY LIGHTING SYSTEMS. All buildings where emergency or auxiliary sources of current supply are required to assure continued illumination, the emergency lighting system shall comply with the provisions of TABLE 21.

Where more than one class of emergency or auxiliary source of current supply is specified, the type of equipment, method, and type of installation shall require the approval of the Director before being installed.

TABLE 21
EMERGENCY LIGHTING SYSTEMS

USE GROUP		EMERGENCY LIGHTING SYSTEM
A	High Hazard - Storage Manufacture, Processing	None - Unless conditions of occupancy and density of population make Emergency Exit Lighting necessary
B	Storage - Moderate	None - Unless conditions of occupancy and density of population make Emergency Exit Lighting necessary
B2	Storage - Low Hazard	None - Unless conditions of occupancy and density of population make Emergency Exit Lighting necessary
C	Mercantile	Sales area over 5000 sq. ft. per - Classes 1-a, 2 or 4 floor
D	Industrial	None - Unless conditions of occupancy and density of population make Emergency Exit Lighting necessary
E	Business	None - Unless conditions of occupancy and density of population make Emergency Exit Lighting necessary
F1A	Assembly - Theatres With Stage And Scenery	Classes 1 or 1-a
F1B	Assembly - Theatres Without Stage And Scenery	Classes 1 or 1-a
F2	Assembly - Night Clubs, Restaurants	75 to 200 persons - Classes 2 or 4 Over 200 persons - Classes 1 or 1-a
F3	Assembly - Recreation, Lecture Halls, Terminals	75 to 200 persons - Classes 2 or 4 Over 200 persons - Classes 1 or 1-a
F4A	Assembly - Churches	Classes 2, 3 or 4
F4B	Assembly - Schools	Classes 1 or 1-a
H1	Institutional - Restrained	Classes 1-a, 2 or 4
H2	Institutional - Incapacitated	Hospitals - Classes 1 or 1-a Homes for aged, etc. - Classes 1-a, 2 or 4 over 10 persons
L1	Residential - Hotels	Classes 1 or 1-a

ARTICLE 16 - ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT
INSTALLATION AND MAINTENANCE
SEC. 1600.0 - SCOPE

Except as may be otherwise provided by statute, the provisions of this article shall control the design, construction, installation, maintenance, operation, relocation or alteration of all elevators, dumbwaiters, escalators and conveyors for moving persons, materials and merchandise, in all buildings and structures. All such equipment shall be constructed, operated and maintained in compliance with accepted engineering practice and the applicable standards in APPENDIX B, unless otherwise specifically provided for in this article. Special hoisting and elevating equipment and amusement devices shall be subject to special approval by the Director. All electrical wiring and equipment shall conform to the requirements of ARTICLE 15.

The provisions of this article shall not apply to movable hoisting and lowering equipment operated in one floor.

SEC. 1600.1 - OTHER STANDARDS. In the absence of rules and regulations governing any specific device or method of installation, the provisions of the applicable standards listed in APPENDIX B and Part II of the State Of Rhode Island Industrial Code No. 4 With All Revisions And Amendments Effective July 23, 1949 shall be deemed to comply with the requirements of this Code unless otherwise specifically provided in this Article.

SEC. 1600.2 - MAJOR ELEVATOR ALTERATIONS. The changes herein specified in equipment of power elevators shall be classified as major alterations and all parts of the installation affected by the change shall conform to the requirements for new installations:

.21 - Change In Load and Speed. Any increase in the rated load, rated speed, or the dead weight of the car or counterweight.

.22 - Change In Travel. Any increase or decrease in height of travel.

.23 - Change In Operation And Equipment. Any change in type of operation or control; size, material, construction or number of hoisting or counterweight ropes; size or type of guide rails; type of car safety device or governor.

.24 - Change In Use Any change in classification from freight to passenger, or the use of a freight elevator to transport employees.

.25 - Change In Power Supply. Any change in power supply.

.26 - Change In Interlocks, Equalizers And Leveling Devices. Any addition of hoistway door interlocks; combination of electric contacts and mechanical locks; shaft or car door or gate opening devices; rope equalizers or car-leveling or truck-loading devices.

.27 - Change In Hoistway Enclosures. Any change in hoistway enclosures or the replacement of shaft doors.

.28 - Machinery And Controller Replacements. The replacement of an existing elevator machine by a new machine; an existing controller by a new controller; or an existing machine brake by a new brake.

SEC. 1600.3 - OTHER ELEVATOR ALTERATIONS. All other alterations to elevators, dumbwaiters, escalators and conveyors shall conform to the requirements specified in this article or as specifically required in the approved rules. Such part of any such alteration not heretofore listed which directly involves safety of operation unless specifically exempted shall be made to comply in full with the requirements for new installations.

SEC. 1600.4 - RELOCATING EXISTING ELEVATOR INSTALLATIONS. The relocation of an existing installation of elevators, dumbwaiters, escalators and conveyors shall be deemed to be and shall conform to the requirements for a new installation.

SEC. 1601.0 - DEFINITIONS

Automatic Operation. Automatic operation is operation wherein the starting of the elevator car is effected in response to the momentary operation of the operating devices at the landings, or of the operating devices in the car identified with the landings, or in response to automatic starting mechanism and wherein the car is stopped automatically at the landings.

Dumbwaiter. A hoisting and lowering mechanism equipped with a car of not more than nine (9) square feet in area and four (4) feet in height, which moves in guides in a substantially vertical direction and which has a carrying capacity of not more than five hundred (500) pounds, for the exclusive use of transporting freight through one or more stories of a building or structure.

Elevator. A hoisting and lowering mechanism equipped with a car or platform which moves in guides for the transportation of persons or freight in a substantially vertical direction through successive floors or levels of a building or structure.

a. Passenger Elevator. An elevator for the transport of persons through successive floors of the building or structure.

b. Freight Elevator. An elevator for transporting freight and only such persons as are necessary for its safe operation and for handling of the freight transported by it through successive floors of the building or structure.

c. Hand Elevator. A freight elevator that is driven by hand.

d. Hydraulic Elevator. A power elevator in which the motion of the car is obtained through the application of energy from liquid under pressure.

e. Power Elevator. An elevator in which the motion of the car is obtained through the application of energy other than by hand or gravity.

f. Sidewalk Elevator. A freight elevator whose top hatch opening is located in a sidewalk or other area exterior to the building or property line and which has no entrance or opening into the building at its upper terminal landing.

Hoistway Enclosure. The enclosure of a shaft, hatchway, well-hole or other openings in successive floors or levels of the building in which an elevator, dumbwaiter, escalator or other hoist or lift operates.

Inspector's Access Switch. An inspector's access switch is a switch located at a landing, whose function is to make inoperative the hoistway door interlock or electric contact at that landing, and the car door or gate contact, in order to permit access by authorized persons to the top of the car or to the pit.

Moving Stairway. A power-operated inclined, continuous stairway or runway used for raising or lowering people from one story or level of a building or structure to another.

Rated Load. The load which the elevator is designed to lift at a specified speed.

Rated Speed. The speed at which the elevator is designed to operate in the ascending direction with a specified load.

Special Hoisting And Conveying Equipment. Manually or power-operated hoisting, lowering or conveying mechanisms, other than elevators or dumbwaiters for the transport of persons or freight in a vertical, inclined or horizontal direction on one floor or in successive floors.

a. Amusement Device. A manually or power-operated device used to convey persons in any direction solely for pleasure or amusement.

b. Auto Lift. A mechanized device for raising automobiles above the ground or grade level but not through successive floors of the building or structure.

c. Conveyors. A system of machinery and manual or mechanized

devices consisting of belts, chains, rollers, buckets, aprons, slides and chutes and other miscellaneous equipment for hoisting, lowering and transporting materials and merchandise in packages or in bulk in any direction in a building or structure.

d. Material Lift. A power-operated raising or lowering device for transporting freight vertically, operating entirely within one (1) story of the building or structure.

SEC. 1602.0 - PLANS, SPECIFICATIONS AND PERMITS.

The architect, engineer, contractor or elevator manufacturer responsible for the installation, relocation or alteration of any elevator, dumbwaiter, moving stairway, lift, conveyor or hoisting equipment shall file an application for a permit with the Director, accompanied by governing specifications and accurately-scaled and fully-dimensioned plans showing the location of the installation in relation to the plans and elevation of the building; the location of the machinery room and equipment to be installed, relocated or altered; and all structural supporting members thereof, including foundations; and shall specify all materials to be employed and all loads to be supported or conveyed. Such plans and specifications shall be sufficiently complete in all details of construction and design in accordance with the approved rules.

SEC. 1602.1 - PERMITS. No power or hand elevator, dumbwaiter, moving stairway or other lift device subject to these provisions shall be constructed, installed, relocated or altered, and no hoistway enclosure shall be built, or major alteration performed, unless a permit has been received from the Director before the work is commenced. A copy of the permit shall be kept at the construction site at all times while the work is in progress.

SEC. 1602.2 - IDENTIFICATION OF ELEVATORS. When more than one (1) elevator is installed in any building, each elevator shall be designated by a number, painted, stenciled or otherwise registered on the crosshead of the elevator car and on the frame of the motor or machine in figures not less than four (4) inches high. After elevator cars are once so designated, their numbers shall not be changed except by permission of the Director, and all correspondence in relation to permits, inspections and other matters pertaining thereto shall refer to said number.

SEC. 1603.0 - TESTS AND INSPECTIONS

All elevators, dumbwaiters, moving stairways, hoists, conveyors and other lifting and lowering devices, mechanisms and equipment shall be subjected to acceptance, maintenance and periodic tests and inspections in accordance with the provisions of this article and the approved rules adopted thereunder. The tests and inspections shall be of such nature as to determine whether the entire elevator installation is designed, constructed and operated in compliance with this Code and shall include all parts of the elevator equipment and machinery, the hoistway enclosure and access doors therein, the machine rooms, the overhead machinery spaces and the pits.

SEC. 1603.1 - ACCEPTANCE TESTS. Acceptance tests and inspections shall be required on all new installations and major alterations as herein prescribed. All such tests and inspections shall be made in the presence of the Director, or his authorized representative, by the person or firm by whom the equipment is installed.

.11 - Power Elevators. All passenger and freight elevators hereafter installed, relocated, or to which major alterations have been made shall be subject to the acceptance tests and inspections as required in Sections 1603.0, 1603.4 and 1603.8.

.12 - Dumbwaiters And Hand Elevators. All power dumbwaiters and hand elevators and dumbwaiters hereafter installed or relocated shall be subject only to acceptance tests and inspections to determine compliance with the provisions of Section 1603.5 and 1603.6.

.13 - Moving Stairways. All moving stairways hereafter installed or relocated shall be subject to acceptance tests and inspections as required in Section 1603.7.

.14 - Miscellaneous Hoist And Conveyor Equipment. Miscellaneous hoist and conveyor equipment hereafter installed or relocated shall be subject to acceptance tests and inspections as required in Section 1603.9.

SEC. 1603.2 - MAINTENANCE AND PERIODIC TESTS AND REPORTS. All maintenance tests shall be made by a qualified elevator manufacturer or maintenance company acceptable to and in the presence of the Director. The periodic tests and inspections herein required may be made by a qualified and approved manufacturer, maintenance company or an accredited casualty insurance company or at his option by the Director. The approved agency making such tests and inspections shall submit a detailed report on approved forms to the Director not more than thirty (30) days after the completion of the inspection or tests.

SEC. 1603.3 - TEST INTERVALS OF POWER ELEVATORS.

.31 - Periodic Tests. Periodic tests and inspections shall hereafter be made at intervals of not more than three (3) months for passenger elevators, not more than six (6) months for freight elevators and not more than twelve (12) months for moving stairways.

.32 - Maintenance Tests. Maintenance tests of power elevators shall hereafter be made within two (2) years of the effective date of this Code and at intervals of not more than five (5) years thereafter; except that the car safety and governor of elevators operated by drum-type machines shall be tested at intervals of not more than two and one-half (2 1/2) years; and the plunger shoes, by-passes, piston rods, pressure and discharge tanks of hydraulic elevators shall be tested and inspected at intervals of not more than three (3) years.

The Director may at his discretion extend the period within which maintenance tests are required, but no such extension shall exceed a period of one (1) year nor the maximum intervals specified in Section 1603.31 for periodic tests.

SEC. 1603.4 - POWER ELEVATOR TESTS. The tests and inspections of the following equipment for power elevators and whenever such equipment is required or provided shall be made in accordance with the approved rules: brakes, terminal stopping devices, buffers, hoistway door interlocks and combination mechanical locks with electric contacts; car door and car gate electric contacts; car safeties and governors; rated load and speed; concentrated load capacity; car-leveling and truck loading devices; operating devices; signals; miscellaneous electric safety contacts and switches; hoisting counterweight and governor wire ropes; and tapes, chains, wire ropes or equivalent devices used to drive selectors, floor controllers and other auxiliary equipment.

SEC. 1603.5 - POWER DUMBWAITER TESTS. Power dumbwaiters hereafter installed shall be subjected to the tests and inspections provided in Section 1603.4 insofar as the equipment therein specified is required or furnished.

SEC. 1603.6 - HAND ELEVATOR AND DUMBWAITER TESTS. The equipment of all hand elevators and dumbwaiters hereafter installed shall be subject to the applicable inspections and tests specified in Section 1603.4

SEC. 1603.7 - MOVING STAIRWAY TESTS. The equipment and machinery of all moving stairways shall be inspected and tested to insure that the entire installation is designed, installed and operated in compliance with this Code and shall include the following devices: overspeed; accidental reversal of travel; broken chain; stop buttons and safety brake.

SEC. 1603.8 - HYDRAULIC ELEVATOR TESTS. In addition to the applicable acceptance and maintenance inspection and tests for power elevators specified in Section 1603.32 and Section 1603.4, the pressure tanks of every hydraulic elevator shall be subjected to a hydrostatic test pressure fifty (50) per cent in excess of the maximum working pressure.

SEC. 1603.9 - MISCELLANEOUS HOIST AND CONVEYOR TESTS. All man, auto and material lifts, conveyor systems and amusement devices shall be subjected to tests to insure the load capacity and safety of operation in accordance with the approved rules. The tests shall cover all operating protectives and safety devices, structural adequacy of the supports and anchorage to floors, walls, ceilings and foundations.

.91 Periodic Tests. Periodic tests and inspection of such equipment shall be made by the Director at such intervals as necessary to insure safety of operation and in accordance with the approved rules.

.92 Miscellaneous Hoisting Equipment. All other hoisting equipment governed by this article hereafter installed in buildings and structures shall be subjected to such inspection and maintenance tests to determine that the entire installation is designed, constructed and operated to insure public safety in compliance with this Code and the approved rules adopted thereunder.

SEC. 1604.0 - CERTIFICATE OF COMPLIANCE

The operation of all equipment governed by the provisions of this article hereafter installed, relocated or subjected to a major alteration shall be unlawful until such equipment has been inspected and tested as herein required, and a final or limited certificate of compliance has been issued therefor by

the Director. The requirements of this article shall not be deemed to prohibit the operation of such equipment during its installation by the person making the installation and for test purposes in connection therewith.

SEC. 1604.1 - FINAL CERTIFICATE OF COMPLIANCE. The Director shall issue a final certificate of compliance for each unit of equipment which has satisfactorily met all the inspections and tests required by this article. Such final certificate shall bear the signature of the person who made the inspections and tests and shall designate the rated load and speed, the date of the acceptance test and inspection, the dates of maintenance tests where required, the name of the tester, the name of the employer of the tester, and date for each periodic test thereafter required and the name of the inspector who made or witnessed such test and inspection.

SEC. 1604.2 - LIMITED CERTIFICATE OF COMPLIANCE. The Director may within his discretion issue a limited certificate of compliance for any equipment covered by this article, which is hereafter being installed, relocated or subjected to a major alteration, to permit its limited use by the person performing the work during such installation, relocation or major alteration. Such certificates shall be signed by the Director and shall bear the dates of issue, renewal and expiration.

.21 - Tests Required. A limited certificate shall not be issued for an elevator until such elevator has been tested under rated load to determine the safety of the equipment to the satisfaction of the Director. Such certificate shall not be granted until the car safety, counterweight safety when required, and the terminal stopping devices have been tested, and permanent or temporary guards or enclosures have been placed on the car, around the hoistway and at the landing entrances thereto. No limited certificate shall be issued for any other equipment until it has been inspected and has successfully met the tests deemed necessary by the Director to insure its safe operation for the limited service specified.

.22 - Special Conditions. Automatic and continuous pressure operated elevators shall not be placed in temporary operation from the landing push button unless the door locking device and interlocks required by this Code are installed and operative. When the car can only be operated from the inside, landing entrance guards shall be provided with locks that can be released from the hoistway side only.

.23 - Time Limitation. Limited certificates of operation shall be issued for a period of not more than thirty (30) days, but may be renewed within the discretion of the Director for

additional periods of not more than thirty (30) days.

SEC. 1604.3 - POSTING CERTIFICATES OF COMPLIANCE. The owner or lessee shall post the last issued certificate of compliance, in a conspicuous place inside all elevator cars and on or immediately adjacent to the installation of all other equipment including moving stairways, dumbwaiters and man lifts.

SEC. 1605.0 - MAINTENANCE AND ACCIDENTS.

SEC. 1605.1 - OWNER'S RESPONSIBILITY. After a certificate of compliance has been received from the Director, the owner or his duly appointed agents shall be responsible for the care, operation and maintenance of the equipment governed by this article. He shall make or cause to be made by an authorized and approved representative the periodic tests and inspections herein prescribed, except such periodic inspections as are made by the Director.

SEC. 1605.2 - CONTRACTOR'S RESPONSIBILITY. The person or firm responsible for the installation, or his authorized and licensed agent shall make all acceptance tests and shall be responsible for the operation of equipment hereafter installed under the provisions of this article prior to the issuance of a certificate of compliance.

SEC. 1605.3 - MAINTENANCE ITEMS. All operating and electrical parts and accessory equipments of elevators and other lifting and conveying devices shall be maintained in safe operating condition.

.31 - Lubrication. Cables, guides and all moving parts of the equipment shall be kept properly lubricated.

.32 - Wire Ropes. The wire ropes on drum machines shall be resocketed at the car and counterweight ends not less than once every year in use.

.33 - Elevator Car. No material other than permanent parts of the elevator equipment shall be permitted on the top or cover of an elevator car.

.34 - Electric Fuses. No wire or current-carrying device shall be substituted for approved fuses or circuit-breakers in an elevator electric circuit.

SEC. 1605.4 - HOUSEKEEPING. Elevator hoistways and pits shall be kept clean; no rubbish shall be allowed to accumulate therein; nor shall any part of the hoistway including hatch covers be used for storage of materials or equipment.

SEC. 1605.5 - UNSAFE CONDITIONS. Upon notice from the Director, any necessary repairs to elevators, escalators, dumbwaiters, conveyors or other special hoisting equipment shall be made without delay by the owner or lessee. If defects are found that would make continued use dangerous, it shall be unlawful to use any such elevator or other hoisting or conveying device covered by the provisions of this Article until its safety is certified by the Director.

SEC. 1605.6 - ACCIDENTS. The owner or lessee or person in charge of any elevator or other equipment governed by this article shall immediately notify the Director of every accident to any person and of any damage to apparatus on or about, or in connection with elevators or other lifting devices and shall afford the Director every facility for investigating such accidents or damage.

SEC. 1605.7 - REPORTS AND CONDEMNATION. The Director shall make an investigation immediately after notice of accident and shall file a full and complete report of such investigation. When the accident involves any part of the operating mechanism or of the machinery or equipment or any device governed by this article, it shall be unlawful to again place such device in operation until it has been made safe. If he deems it necessary for public safety, the Director may order the discontinuance of the device until a new certificate has been issued by him to permit its use.

SEC. 1605.8 - REMOVAL OF DAMAGED PARTS. It shall be unlawful to remove any part of the damaged construction or operating mechanism of elevators or other lifting or hoisting equipment from the premises until permission to do so has been granted by the Director.

SEC. 1606.0 - EXISTING INSTALLATIONS.

SEC. 1606.1 - HERETOFORE APPROVED INSTALLATIONS. Elevators, dumbwaiters, moving stairways, hoists and other equipment heretofore legally installed may be continued in use without reconstruction to comply with the requirements of this article, provided the public safety is not endangered thereby. Such existing installations shall be subjected to inspections and tests as required by Section 1603.0 and shall be maintained in a safe operating condition. The Director shall issue a certificate of compliance for such existing equipment as required by Section 1604.0.

SEC. 1606.2 - PERIODIC TESTS. Equipment heretofore installed shall be subjected to periodic tests beginning not more than

one (1) year after the effective date of this Code unless this period is extended by the Director; but in no case shall an extension of more than one (1) year be granted.

SEC. 1606.3 - DUMBWAITERS AND HAND ELEVATORS. Tests and inspections shall be required for existing power dumbwaiter installations or hand elevators and dumbwaiters, as may be set forth in the approved rules, except as provided in Section 1605.5.

SEC. 1606.4 - MINOR REPAIRS. Ordinary repairs and replacement of parts may be made with materials and methods of installation of equivalent design and construction that will insure adequate strength and safe operation.

SEC. 1606.5 - CERTIFICATES OF COMPLIANCE FOR EXISTING EQUIPMENT.

.51 New Certificates. Unless tested, inspected and granted a final or limited certificate of compliance by the Director, the operation of any existing equipment heretofore installed, relocated or subject to a major alteration shall be prohibited after the effective date of the maintenance or periodic tests and inspection.

.52 Limited Certificates. A limited certificate of compliance shall be issued by the Director for any existing elevator which has not been subject to maintenance tests within the limits of time specified in this article provided the initial periodic test and inspection of the equipment indicate that the installation complies substantially with the requirements of this Code and is in a safe operating condition.

SEC. 1607.0 - CAPACITY AND LOADING.

SEC. 1607.1 - PASSENGER ELEVATORS. The rated load of passenger elevators shall be based on the net inside area of the car and shall be not less than specified by the approved rules.

SEC. 1607.2 - FREIGHT ELEVATORS. Freight elevators shall be designed for transporting general freight, motor vehicles or industrial trucks or other types of loading in accordance with the approved rules.

SEC. 1607.3 - PASSENGERS ON FREIGHT ELEVATORS. Freight elevators shall not be used to carry persons other than the operator and necessary freight handlers, except that when specifically approved by the Director in accordance with the approved rules, such elevators may be permitted to transport company employees.

SEC. 1607.4 - CONCENTRATED LOADS. Passenger and freight elevators may be used for carrying concentrated loads greater than the rated load only when approved by the Director.

SEC. 1607.5 - FREIGHT CAR SIGNS. All freight elevator cars shall be posted with signs in accordance with the approved rules.

SEC. 1608.0 - POWER ELEVATOR OPERATION.

SEC. 1608.1 - DESIGNATED OPERATOR. Every power elevator, except automatic and existing continuous pressure types and sidewalk elevators, shall be in charge of a competent designated operator.

SEC. 1608.2 - TEMPORARY AND LIMITED USE. Temporary or limited operation of an elevator may be permitted for passenger or freight service during construction operations in accordance with the provisions of Section 1316.2 and Section 1604.2 after the issuance of a temporary certificate of compliance for each class of service by the Director. The temporary certificate of compliance shall be posted in accordance with Section 1604.3. The elevator shall be operated only by a designated operator.

SEC. 1608.3 - FIRE DEPARTMENT USE. In every structure over one hundred (100) feet in height a person competent to operate the elevator shall be available at all times to assist the fire department in obtaining access to any floor of the structure with elevator service, except where an automatic or continuous-pressure operation elevator is provided as specified in Section 1217.1

SEC. 1609.0 - ELEVATOR SPEED LIMITS.

The car speed limits herein specified shall be the maximum permitted for all elevator installations unless otherwise approved by the Director.

SEC. 1609.1 - NON-COUNTERWEIGHTED DRUM ELEVATORS. The speed of all non-counterweighted drum elevators shall be not more than one-hundred (100) feet per minute.

SEC. 1609.2 - SIDEWALK ELEVATORS. The speed of power sidewalk elevators shall be not more than fifty (50) feet per minute.

SEC. 1609.3 - CONTINUOUS PRESSURE OPERATED ELEVATORS. The speed of continuous-pressure operated elevators shall be not more than one hundred and fifty (150) feet per minute.

SEC. 1609.4 - HYDRAULIC ELEVATORS. The speed of hydraulic elevators shall be not more than one hundred (100) feet per minute.

SEC. 1610.0 - CONTROL AND OPERATING EQUIPMENT.

SEC. 1610.1 - ELECTRIC SYSTEMS. No electric elevator control system shall be used which depends on the completion of maintenance of an electric circuit for the interruption of power and the application of electro-mechanical brakes at the terminals, or for the operation of car or counterweight safeties, or for closing of a contactor by an emergency stop switch; except that these prohibitions shall not apply to dynamic-breaking or to speed control devices.

SEC. 1610.2 - OPERATING DEVICES.

.21 - Car Switches. The handle of car switch-operating devices shall be so arranged as to return to the "stop" position and lock there automatically when the hand of the operator is removed. If more than one (1) operating device is used in a car, such devices shall be so interlocked that only one can be used at a time.

.22 - Continuous Pressure Operation. When continuous pressure operation is used for passenger elevators, the installation shall comply with all of the requirements for automatic operation and shall be provided with all safety devices required by the approved rules.

.23 - Prohibited Devices. No power elevator or power dumb-waiter shall be operated by a direct hand-operated rope, cable or rod or by a wheel or lever mechanism.

SEC. 1610.3 - EMERGENCY STOP SWITCH. An approved emergency stop switch of the manually open-and-closed type to cut off the source of power shall be provided in the car adjacent to the operating device of all electrically controlled elevators. Such switch shall be suitably identified by inscription and distinctive color.

SEC. 1610.4 - DISCONNECT SWITCH. An approved manually operated multipole disconnecting switch shall be installed in the main power line of all electric elevator machines or motor generator sets in accordance with the approved rules.

SEC. 1610.5 - CONTROLLER SWITCH. The use of metal to metal contacts on controller switches shall be in accordance with the approved rules.

SEC. 1610.6 - SLACK CABLE DEVICE. All drum-type machines shall be provided with slack-cable switches, fully enclosed and so constructed that they will not automatically reset when the slack in the cable is removed.

SEC. 1610.7 - FIRE ALARM CIRCUIT BREAKER. The use of a circuit breaker operated automatically by a fire alarm system, to cut off the power or interrupt the operating circuit of a power elevator shall be prohibited.

SEC. 1610.8 - AUTOMATIC OPERATION CIRCUIT BREAKER. The stopping of an automatic-operating elevator at the terminals shall not depend upon the operation of a spring in tension nor the completion of another electric circuit. If springs are used, they shall be in compression.

SEC. 1610.9 - GROUNDING. The frames of elevator machines and controllers and the frames or enclosures of all electric appliances in or on the elevator car or in the hoistway shall be effectively grounded in accordance with the provisions of Section 1513.3 and the approved rules.

SEC. 1611.0 - WIRE ROPES.

SEC. 1611.1 - MATERIAL. All power elevators shall be provided with uncovered car and counterweight wire ropes of iron or steel, except that marlin-covered ropes or other approved protective coverings shall be permitted when subject to excessive corrosion or other hazardous conditions; and except further that hoisting chains may be used for power sidewalk elevators.

SEC. 1611.2 - LABELING. The crosshead and the cable fastening of each power elevator shall be tagged with a metal plate stating the material, number, diameter in inches and ultimate strength in pounds of the ropes, and the date of the latest installation.

SEC. 1611.3 - NUMBER AND SIZE OF ROPES. The number and size of ropes shall be in accordance with the approved rules.

SEC. 1611.4 - ROPE EQUALIZERS. Rope equalizers, when used, and their fastenings shall be of an approved type in accordance with the approved rules.

SEC. 1611.5 - ATTACHMENT AND SPLICING OF ROPES.

.51 Car and Counterweight Ends. The car and counterweight ends of wire rope shall be fastened by individual babbitted tapered sockets or other approved method.

.52 Drum Ends. The winding drum ends of wire ropes shall be secured by clamps on the inside of the drum.

.53 Spare Turns. All wire ropes operating on a winding drum shall have not less than one (1) turn of the drum when the car has reached the extreme limit of its overtravel.

.54 Splicing. No car or counterweight rope shall be lengthened or repaired by splicing.

SEC. 1612.0 - RAILS, BUFFERS AND COUNTERWEIGHTS.

SEC. 1612.1 - GUIDE RAILS.

.11 Power Elevators and Dumbwaiters. Car and counterweight guide rails of power elevators and power dumbwaiters shall be made of steel or other approved incombustible materials for all speeds and travels; except that where the use of steel rails presents explosion or other accident hazards, the Director may approve the use of wood guide rails.

.12 Hand Elevators and Dumbwaiters. Car and counterweight guide rails of hand elevators and hand dumbwaiters may be of wood in accordance with the approved rules.

SEC. 1612.2 - GUIDE RAIL SUPPORTS. Guide rails shall be securely fastened with iron or steel brackets or their equivalent in strength, design and spacing in accordance with the approved rules.

SEC. 1612.3 - CAR AND COUNTERWEIGHT BUFFERS. Buffers of approved types shall be installed and located symmetrically under the cars of all power elevators as herein prescribed:

.31 Solid Type. Solid buffers or their equivalent may be used with elevators which have a maximum rated speed of fifty (50) feet per minute.

.32 Spring Type. Spring buffers or their equivalent may be used with elevators which have a maximum rated speed of two hundred (200) feet per minute.

.33 Oil Type. Oil buffers or their equivalent shall be used with elevators having a rated speed of more than two hundred (200) feet per minute.

SEC. 1612.4 - COUNTERWEIGHT GUIDES. All counterweights shall run in approved guides and, when installed in sections, shall be fastened in an approved manner.

SEC. 1613.0 - HOISTWAY ENCLOSURES.

SEC. 1613.1 - CONSTRUCTION OF HOISTWAY ENCLOSURES.

.11 Elevator Enclosures. All elevator, dumbwaiter and other hoistway enclosures other than special dumbwaiter lift enclosures shall be constructed to afford at least two (2) hour fire-resistance with one and one-half (1 1/2) hour approved opening protectives except as provided in Section 1619.1. (See Table 5 and Article 9).

.12 Special Dumbwaiter Lift Enclosures. The enclosures of dumbwaiter lifts not more than three (3) square feet in area, with a load capacity of not more than twenty-five (25) pounds and all dumbwaiters serving not more than two (2) adjacent levels shall be enclosed with approved one (1) hour incombustible construction.

.13 Strength. All enclosures shall be of sufficient strength to support the hoistway doors and gates with their operating mechanism, interlocks and electric wiring and to maintain the installation in true alignment.

SEC. 1613.2 - LIMITING NUMBER. When not accepted as a required exitway, not more than four (4) elevators shall be installed in any one (1) hoistway enclosure; and when approved as a required auxiliary means of exit, not more than two (2) elevators shall be contained in the same hoistway enclosure as provided in Section 622.0.

SEC. 1613.3 - PROJECTIONS INTO HOISTWAYS. Projections other than interlocks, indicators, door operating and signal devices, extending inward from the surface of the hoistway enclosure which are adjacent to a car opening shall be guarded with metal or other approved incombustible plates in accordance with the approved rules.

SEC. 1613.4 - RECESSES. Recesses in the interior surface of the hoistway enclosure which are adjacent to a car opening, other

than window and landing openings, shall be finished flush with the general interior surface of the hoistway with approved incombustible materials.

SEC. 1613.5 - CLEARANCES OF POWER ELEVATORS.

.51 Car Clearance. The hoistway of a power elevator shall have a minimum clearance of three-fourths ($3/4$) inch between the sides of the car and the enclosure, and one (1) inch between the car and its counterweights; and if two (2) or more cars are located in the same hoistway enclosure, the clearance between cars shall be not less than two (2) inches.

.52 Loading Side Clearance. The maximum clearance between the hoistway enclosure and the loading side of the car platform shall not exceed five (5) inches except where vertical pass-type, bi-parting counter-balanced doors are installed wholly within the hoistway, in which case the permissible clearance shall be not more than seven (7) inches.

.53 Threshold Clearance. The minimum clearance between the car platform and the adjacent landing threshold or its equivalent shall be one-half ($1/2$) inch for elevators using sidepost construction, and three-fourths ($3/4$) inch for elevators using corner post construction; but in no case shall such clearance be more than one and one-half ($1\ 1/2$) inches.

SEC. 1613.6 - TOP AND BOTTOM THOROUGHFARES.

.61 Top Thoroughfare. No thoroughfare shall be permitted across the top of any hoistway whether inside or outside of a building except across the approved hatch cover at the top landing of a sidewalk elevator or when the top of an interior hoistway is enclosed with approved fire-resistive floor construction.

.62 Bottom Thoroughfare of Elevators. There shall be no thoroughfare or occupiable space under the hoistway of any dumb-waiters unless the bottom of the hoistway is of sufficient strength to withstand the impact of the car and the counterweight when either falls freely from the top of its travel, or an instantaneous-type car and counterweight safety of the governor-operated or broken-rope type is provided and spring buffers capable of absorbing the impact of the car and its rated load and of the counterweight at one hundred and forty (140) per cent of rated speed are installed under the car and its counterweight.

SEC. 1613.7 - EMERGENCY EXITS. All blind elevator hoistways shall

have emergency hoistway doors at every third floor or level, but not more than thirty-six (36) feet apart vertically, to give access to the elevator car in the blind portion of the hoistway.

SEC. 1613.8 - TOP VENTS. When hoistways extend to the roof of a building or structure, hoistway enclosures shall be provided with means of thermostatic, automatic ventilation complying with Section 516.0 and Section 913.42; and when not extending to the roof, the hoistway enclosure shall have a gas and smoke relief opening complying with the approved rules and the provisions of Section 1616.9.

SEC. 1613.9 - ELEVATOR EXITWAY RESTRICTIONS. Elevators shall not be installed in a common enclosure with a stairway, and the path of travel on any exit stairway shall not pass directly in front of any elevator hoistway doors.

SEC. 1614.0 - PITS AND TOP CLEARANCE.

SEC. 1614.1 - DEPTH OF PIT. A pit shall be provided at the bottom of every power elevator; and the depth of such pit shall be based on the rated speed of the elevator in accordance with the approved rules.

SEC. 1614.2 - TOP CLEARANCES. Top clearances and overtravel of power elevator cars and counterweights shall be in accordance with the approved rules.

SEC. 1615.0 - MACHINES AND MACHINERY.

All elevator operating machinery shall be of approved types for use in elevator installations and shall be installed in accordance with the provisions of this article and the approved rules adopted thereunder.

SEC. 1615.1 - NEW INSTALLATIONS. All new electric elevators shall be of the counterweighted traction type except that non-counterweighted drum-type machines may be used for freight elevators with a rise of not more than forty (40) feet, at a rated speed of not over one hundred (100) feet per minute and rated load not more than three thousand (3,000) pounds.

SEC. 1615.2 - DRUMS AND SHEAVES. Drums and leading sheaves of power elevators shall be of cast iron or steel with finished grooves. The ratio of diameter of drum or sheave to diameter of hoisting or counterweight wire ropes shall be not less than forty (40), except for sidewalk elevators.

SEC. 1615.3 - MOTOR CONNECTIONS. No belt or chain-driven machine shall be used to drive any power elevator, but the motor shall be direct connected to the hoisting machine; and no friction gearing or clutch mechanism shall be used for connecting the drum or sheaves to the main driving gear.

SEC. 1615.4 - MACHINE BRAKES. Electric power elevator machines shall be equipped with electrically-released brakes applied automatically through springs when the circuit to the brake coil is interrupted by any cause.

SEC. 1615.5 - BRAKE OPERATIONS. Brakes shall not be released until power has been applied to the motor, except when the rated load will not accelerate the car speed above one hundred fifty (150) per cent of rated speed within the limits of travel. The brake magnet shall be so connected that no single ground, short circuit, or motor field discharge shall prevent the setting of the brake in the intended manner either during normal operation or on emergency stops of the car.

SEC. 1615.6 - HYDRAULIC MACHINES. All hydraulic elevators shall be of the hydro-electric plunger type or plunger type with full electric control and operation; and the elevator travel shall be limited in accordance with the approved rules.

SEC. 1616.0 - MACHINE ROOMS AND BULKHEADS.

SEC. 1616.1 - ENCLOSURE OF MACHINE ROOMS. All elevator machinery shall be enclosed in a separate room or bulkhead separated from the rest of the building or structure with walls of not less than two (2) hour fire-resistance except for necessary openings into the hoistway and as herein provided.

SEC. 1616.2 - DOORS AND HARDWARE.

.21 Access. Safe and convenient access shall be provided to the bulkhead and machinery spaces; and the bulkhead shall not be used as a public thoroughfare.

.22 Hardware. Access doors shall be fitted with spring locks which permit the doors to be locked at all times, but readily opened from the inside without keys. The doors shall comply with the requirements of Section 920.0.

SEC. 1616.3 - MACHINE ROOM FLOORS. A flooring or grating of approved incombustible materials shall be provided immediately below all overhead sheaves or at the level of the top of the

beams supporting overhead machinery, and designed to sustain a uniform load of one hundred (100) pounds per square foot or a concentrated load due to the heaviest single concentrated assembly that will be placed upon it, whichever is the greater. Such flooring or grating may be omitted when:

.31 The overhead sheaves and equipment are not located directly over the elevator car and access is available thereto from the top of the car; or

.32 The secondary and deflector sheaves of traction elevators are provided with means for lubrication above the machine room floor.

SEC. 1616.4 - AREA OF FLOOR. The grating or flooring shall cover the entire area of the hoistway when the cross-sectional area of the shaft is fifty (50) square feet or less. In larger shafts, the platform shall extend not less than two (2) feet beyond the general contour of the sheaves or machines and to the entrance of the enclosure at or above the level of the platform.

SEC. 1616.5 - GUARD RAILS. If the platform does not entirely cover the hoistway, the exposed sides of the platform shall be protected by an approved railing and toe board of incombustible materials in accordance with the approved rules.

SEC. 1616.6 - MACHINE SUPPORTS. All beams which support overhead sheaves and machinery shall be designed of steel, reinforced concrete or other approved incombustible materials for the loads and stresses specified in Section 709.0, Section 830.0 and Section 847.0 and within the limits of deflection prescribed by the approved rules.

SEC. 1616.7 - SUSPENDED LOADS. No elevator or other hoistway machinery shall be fastened underneath the supporting beams at the top of the hoistway by means of bolts in tension except the secondary and deflecting sheaves of traction elevators. The machinery and sheaves shall be so supported and securely held as to effectually prevent the loosening or displacement of any part during operation of the elevator.

SEC. 1616.8 - LIGHT AND VENTILATION. Permanent provision shall be made for adequate ventilation and artificial lighting of the machine room as provided in Article 5 and the approved rules adopted thereunder.

SEC. 1616.9 - VENT OPENINGS. When the platform of the machine room is of continuous, solid construction, one (1) or more vent openings shall be provided in accordance with the approved rules but in no case with a gross area of less than two (2) square feet for each elevator.

SEC. 1617.0 - CAR AND COUNTERWEIGHT SAFETIES.

All car and counterweight safety and terminal stopping devices shall be of an approved type and shall be installed in accordance with the approved rules.

SEC. 1617.1 - CAR SAFETY. All power elevators suspended by wire ropes shall be provided with mechanically applied car safety devices attached to the car frame, one of which shall be located beneath the car enclosures. Such safety devices shall be capable of stopping and sustaining the car with full rated load. The application of the car safety device shall not throw the car platform out of level in excess of one-half (1/2) inch per foot in any direction; nor shall any decrease in the tension of the governor rope or motion of the car in the descending direction release the car safety

.11 Instantaneous Type. Instantaneous type safety devices may be used for cars with rated speeds not more than one hundred (100) feet per minute and for counterweights with speeds not more than two hundred (200) feet per minute. Such safety devices shall be so designed that they will apply without appreciable delay on the breaking of the hoist wire ropes; and their action shall be independent of the speed action of the governor.

.12 Sliding Type. Sliding type safety devices shall be used for car and counterweight when the speed is greater than the limits specified for instantaneous types.

.13 Broken-Rope Type. Broken-rope type safety devices shall only be used in accordance with the approved rules.

.14 Prohibited Types. Car safety devices which depend on the completion or maintenance of an electric circuit for operation shall be prohibited. No car safety device shall be permitted for the purpose of stopping an ascending car.

SEC. 1617.2 - IDENTIFICATION OF SAFETY DEVICES. Each car and counterweight safety device shall be identified by a suitable manufacturer's inscription giving the limits of weight and speed for which it is designed.

SEC. 1617.3 - COUNTERWEIGHT SAFETY DEVICES. A counterweight safety device is not required except to meet the requirements of Section 1613.62. When a counterweight safety device is provided, it shall meet the requirements of Section 1617.1.

SEC. 1617.4 - PROHIBITED USES OF SAFETY DEVICES. The gripping surfaces of car or counterweight safety device shall not be used to guide the car or counterweight.

SEC. 1617.5 - SPEED GOVERNOR. Car and counterweight safety devices shall be operated by speed governors unless otherwise provided in the approved rules; and the counterweight safety device may be operated by the same governor and governor rope that is used to operate the car safety device.

SEC. 1618.0 - TERMINAL STOPPING DEVICES.

SEC. 1618.1 - NORMAL TERMINAL DEVICE. Power elevators shall be provided with upper and lower approved normal terminal stopping devices, arranged to automatically stop the car from any speed, attained in normal operation within the top and bottom runby, independently of the operation of the operating device, the final terminal stopping device or the buffers; except when pre-compressed oil buffers are permitted and used.

SEC. 1618.2 - FINAL TERMINAL DEVICE. Electrically controlled elevators shall be provided with upper and lower approved final terminal stopping devices arranged to automatically stop the car and its counterweight from rated speed within the top and bottom overtravel with the buffers operative, but independently of the operation of either the normal terminal stopping device or the car operating device.

SEC. 1618.3 - TERMINAL DEVICE OPERATION. Final-limit switches shall be set to operate with the car as close to the terminal landing as practical without interfering with the normal operation of the elevator; and the final terminal stopping devices shall act to prevent movements of the car in both directions of travel.

SEC. 1619.0 - ELEVATOR OPENING PROTECTIVES.

All elevator hoistway enclosure doors for passenger and freight elevators, dumbwaiters and other hoisting equipment enclosures shall be constructed and installed in accordance with the approved rules and in compliance with the provisions of Article 9.

SEC. 1619.1 - FIRE DOORS. Door openings of elevator hoistway enclosures shall be equipped with protective assemblies having a fire-resistive rating of at least one and one-half (1 1/2)

hours and in accordance with the requirements of Section 920.0.

SEC. 1619.2 - HARDWARE. All hardware on opening protectives shall be of an approved type, installed as tested; except that interlocks, mechanical elevator door locks and electric contacts and door operating mechanisms of approved types shall be exempt from the fire test requirements.

SEC. 1619.3 - WINDOW GUARDS. Windows in hoistway enclosure walls adjacent to the entrance side of the car of a power elevator shall be provided with approved sectional bars or grating flush with the surface of the hoistway. All windows located less than seven (7) floors above the grade level or less than three (3) floors above the roof of an adjacent building shall be protected in a similar manner. When the opening is not adjacent to the car entrance, the bars or guards may be located on the outside of windows.

SEC. 1619.4 - HATCH COVERS AND SCREENS. Sidewalk elevator hatch doors shall be of an approved type which close flush with the sidewalk. Power sidewalk elevator platform shall be equipped either with stanchions or an arched bow of sufficient strength to open the hatch cover. The hatch doors shall be designed to support a live load of not less than three hundred (300) pounds per square foot and shall be provided with an auxiliary screen located directly beneath the covers designed for a live load of one hundred (100) pounds per square foot. Such protective screens shall be arranged to prevent fastening in the open position.

SEC. 1620.0 - HOISTWAY DOOR INTERLOCKS.

SEC. 1620.1 - INTERLOCKS REQUIRED. Hoistway doors of power elevators shall be equipped with an approved door interlock system which prevents the operation of the elevator machine from moving the car away from a landing unless all the shaft doors are locked in the closed position.

SEC. 1620.2 - CAR-LEVELING DEVICE. Hoistway door interlocks may be designed to permit the operation of the car when the door is unlocked or open and the car is being moved by a car-leveling or truck-loading device.

SEC. 1620.3 - OPENING OF DOORS. All hoistway door interlocks shall prevent the opening of the enclosure doors from the landing side

unless the car is at rest within the landing zone, or is moving in the landing zone with its operating device in the "stop" position, except as provided in the approved rules.

SEC. 1621.0 - CAR CONSTRUCTION AND DATA PLATES.

SEC. 1621.1 - CAR ENCLOSURES.

.11 Passenger Elevators. Passenger elevator cars shall be enclosed solidly on all sides and top except for necessary entrance or exit openings, not more than two (2) in number, ventilation openings and the emergency exit opening. Such enclosures shall be constructed of incombustible materials.

.12 Freight Elevators. Freight elevator cars shall be solidly enclosed except for the entrance side to a height of at least six (6) feet with metal or other approved incombustible materials.

.13 Structural Strength. No part of a power elevator car enclosure shall deflect so as to reduce the actual running clearances below the amounts specified in Section 1613.5; nor to exceed a deflection of one (1) inch when subjected to a force of seventy-five (75) pounds applied horizontally to any point. The car enclosure shall be secured to the car floor and sling in such a manner that it cannot work loose or be displaced in ordinary service.

SEC. 1621.2 - CAR FRAMES. Car frames, outside platform frames and freight elevator floor stringers shall be constructed of metal or other approved incombustible materials and shall be protected top and bottom with approved grilles.

SEC. 1621.3 - ELEVATOR CAR ILLUMINATION. Elevator cars shall be lighted at all times when in use with a minimum illumination of three (3) foot candles.

SEC. 1621.4 - EMERGENCY EXITS. Every power passenger elevator shall be provided with an emergency exit, located in the top of the car. Where there is an elevator in an adjacent hoistway in the same enclosure, an emergency exit or exits shall also be located in the adjacent side to such adjoining car. Access panels shall be constructed of approved incombustible materials in accordance with the approved rules.

SEC. 1621.5 - CAR DOORS AND GATES. An approved car door or gate shall be provided at each entrance to power elevator cars in accordance with the approved rules. The door or gate when

closed shall guard the full opening and shall be provided with an approved electric contact to control the operation of the car. Automatic operation elevators shall be provided with solid car doors unless otherwise approved by the Director.

SEC. 1621.6 - NUMBER OF CAR COMPARTMENTS. Power elevator cars shall be constructed with not more than one (1) compartment.

SEC. 1621.7 - USE OF GLASS IN ELEVATOR CARS. No glass shall be used in elevator cars except to cover framed certificates; for the construction of lighting fixtures and appliances necessary for the operation of the car; for vision panels; and in accordance with the approved rules.

SEC. 1621.8 - CAR AND CAR FRAME DATA PLATES. An approved plate showing the rated load of the elevator shall be fastened in a conspicuous place in all passenger and freight elevator cars; and an inspection certificate signed by the Director shall be posted on passenger cars, stating the load capacity and the number of passengers permitted. Car frame data plates shall be permanently and securely fastened to all car crossheads in accordance with the approved rules.

SEC. 1622.0 - MOVING STAIRWAYS.

The construction of all moving stairways shall comply with the provisions of this section and the approved rules adopted thereunder.

SEC. 1622.1 - INCLINATION. The angle of inclination of moving stairways shall be not more than thirty (30) degrees to the horizontal unless otherwise approved by the Director.

SEC. 1622.2 - WIDTH. Moving stairways shall be not less than twenty-two (22) inches nor more than forty-eight (48) inches wide between balustrades measured at a level five (5) inches below the top of the handrail.

SEC. 1622.3 - BALUSTRADES AND HANDRAILS. Moving stairways shall be provided on each side of the steps with solid balustrades, smooth on the stairway side, equipped with a handrail moving at substantially the same speed and in the same direction as the travel of the stairway. The balustrade and moving handrails shall be of approved height and extend at the top and bottom

landings in accordance with the approved rules. Guards shall be provided where the handrails enter the balustrade to eliminate danger of accidental injury; and all moving parts of the moving stairway except handrails shall be enclosed on the exposed sides to prevent injury to passengers.

SEC. 1622.4 - STEPS. Step frames shall be constructed of incombustible materials with horizontal treads designed to afford a secure foothold. Step and comb plates shall be of dimensions and design with all running clearances in accordance with the approved rules; but in no case shall the depth of the treads be less than fifteen and three-quarters (15 3/4) inches.

SEC. 1622.5 - SPEED. The speed of a moving stairway measured along the line of inclination shall be not more than one hundred (100) feet per minute.

SEC. 1622.6 - CONSTRUCTION MATERIALS.

.61 - Enclosures. Moving stairways, when permitted, shall be enclosed in accordance with the requirements of Sections 618.0 and 621.0. Moving stairways piercing one floor only, shall comply with Section 1622.7.

.62 - Incombustible Materials. All parts of the moving stairway and equipment shall be constructed entirely of incombustible materials except electrical equipment, wiring, wheels, handrails and the use of one-twentieth (1/20) inch wood balustrade veneers backed up with incombustible materials. All wiring shall meet the requirements of Section 1630.0 and the provisions of Article 15.

SEC. 1622.7 - AUTOMATIC FIRE SHUTTER. Unenclosed moving stairways when approved by the Director and piercing one floor only, shall be equipped with an approved power-operated automatic shutter at the floor pierced thereby, constructed of incombustible materials with a fire-resistance rating of one and one-half (1 1/2) hours.

.71 - Construction. The shutter shall be so constructed as to close immediately upon the automatic detection of fire or smoke by an approved device and shall completely shut off the well opening in accordance with the approved rules. The shutter shall operate at a speed of not more than thirty (30) feet per minute and shall be equipped with a sensitive leading edge to arrest its progress when in contact with any obstacle and to continue its progress on release therefrom.

.72 Stopping Device. The shut-off shutter installation shall be interlocked with an approved stopping device which will automatically stop the operation of the stairway immediately on detection of fire or smoke on the floors served by the unit.

.73 Manual Control. An approved supplemental means of manual control shall be provided to operate the shutter and stop the stairway.

SEC. 1622.8 - OPERATING MECHANISM OF MOVING STAIRWAYS.

.81 Control Switch. The starting and reversing switch shall be of the key type, or shall be protected by an enclosed panel so as to be inaccessible to all unauthorized persons.

.82 Drive Machines. Every moving stairway shall be driven by a separate electric motor. The driving motor or machine may be connected to the main drive shaft by means of gears or chains. The use of the belt connections shall be prohibited.

SEC. 1622.9 - SAFETY DEVICES FOR MOVING STAIRWAYS.

.91 Emergency Stop. An emergency stop button or other approved switch, accessible to the public, shall be conspicuously located at the top and bottom landings of each unit; and it shall be impossible to start a moving stairway by means of these buttons or switches, after the operation has been stopped for any cause.

.92 Safety Brake. Every moving stairway shall be provided with an automatically applied brake of sufficient power to stop the fully loaded stairway in any emergency.

.93 Speed Governor. A speed governor shall be provided which will cause the interruption of power to the moving stairway in case the speed exceeds the normal running speed specified in Section 1622.5 by more than forty (40) per cent.

.94 Broken Chain Safety Device. A broken-chain safety device shall be provided to cause the interruption of power to the stairway under the following conditions:

When a drive chain connecting the driving machine or motor to the main drive sprocket unduly slackens or breaks;

When the steps or step chain binds on one side or both, or a tread chain breaks; or

When excessive sag occurs in either step chain when no automatic step chain tension device is provided.

.95 - Reversal Cut-Out. A means of automatically interrupting power shall be furnished in case of accidental reversal of travel.

SEC. 1623.0 - DUMBWAITERS.

The design and construction of dumbwaiters including machinery, guide rails, counterweights and their means of suspension shall conform to the provisions of this section and the approved rules adopted thereunder.

SEC. 1623.1 - DUMBWAITER DRIVE MACHINES.

.11 - Electric. Driving motors of electric dumbwaiters may be direct connected to the driving machines or by V-belts or chains. Machines shall not be belt driven from line shafting used to drive other machinery.

.12 - Hydraulic. Hydraulic dumbwaiters shall be of the hydro-electric plunger type or shall be provided with full electric control and operation.

SEC. 1623.2 - PROHIBITED OPERATION OF DUMBWAITERS. Hand rope operation shall be prohibited for power dumbwaiters.

SEC. 1623.3 - DUMBWAITER BRAKES. Electric dumbwaiters shall be equipped with brakes which are electrically released and applied by springs when the circuit of the brake coil is interrupted by any cause.

SEC. 1623.4 - DUMBWAITER SLACK-CABLE DEVICE. Power dumbwaiters operated by winding drum machines shall be provided with a slack-cable device or sprockets and chains in accordance with the approved rules.

SEC. 1623.5 - DUMBWAITER AUTOMATIC STOP. Power dumbwaiters shall be provided with means of automatically stopping the car at each terminal within the approved limits of overtravel.

SEC. 1623.6 - DUMBWAITER DOOR LOCKS AND CONTACTS. Landing doors for power dumbwaiters shall be equipped with mechanical locks and electric contacts to prevent the opening of any hoistway door except when the car is within the landing zone, and to prevent the operation of the dumbwaiter unless all landing doors are closed.

SEC. 1623.7 - DUMBWAITER CAR CONSTRUCTION. Dumbwaiter cars shall be constructed of such strength and stiffness as to prevent appreciable deformation if the load leans or falls against the sides of the car.

SEC. 1623.8 - DUMBWAITER CAR AND COUNTERWEIGHT SAFETY DEVICES. Car and counterweight safety devices may be located above or below the dumbwaiter car platform.

SEC. 1623.9 - MEANS OF DUMBWAITER SUSPENSION. Electric dumbwaiters with traction, sprocket or drum machines shall have cars and counterweights suspended by means of one or more iron or steel wire ropes or chains in accordance with the approved rules. Counterweights shall not be required for drum-type power dumbwaiters.

SEC. 1624.0 - HAND ELEVATORS.

All hand elevators shall comply with the requirements of this section and the approved rules adopted thereunder.

SEC. 1624.1 - LIMITATIONS OF HAND ELEVATORS. Hand elevators shall be designed for a minimum live load of fifty (50) pounds per square foot of platform area inside of the car enclosure, and shall be limited to a maximum rise of five (5) stories or sixty-four (64) feet.

SEC. 1624.2 - SAFETY DEVICES. All hand elevators with a rise of more than fifteen (15) feet shall be equipped with a safety device capable of stopping and sustaining the platform or car under rated load. Such safety device shall meet the requirements of Section 1617.0 except that no speed governor shall be required.

SEC. 1624.3 - BRAKES. All hand elevators shall be equipped with hand brakes that operate in either direction.

SEC. 1624.4 - GUIDE RAILS. Cars and counterweights shall run in approved guide rails as provided in Section 1612.0.

SEC. 1624.5 - HOISTWAY DOORS. Hoistway doors may be arranged to open from the platform landing side provided the door is clearly identified with the word "ELEVATOR" on the landing side and the hoistway landing openings are equipped with an approved auxiliary service automatic gate on the hoistway side.

SEC. 1625.0 - AUTOLIFTS.

All electric hydraulic and hydro-pneumatic autolifts shall comply with the requirements of this section and the applicable standards listed in Appendix B.

SEC. 1625.1 - CAR LOCKS. Every autolift shall be provided with suitable devices for locking the automobile onto the channel frame of the lift in such a way that the automobile cannot be moved while the lift is in a raised position.

SEC. 1625.2 - SAFETY DEVICES.

.21 - Limit Stop. Every autolift shall be equipped with an automatic overtravel device to stop the motor or drive machine before the lifting frame reaches the limit of safe travel.

.22 - Holding Brake. When the friction of the gear chain of the driving mechanism is insufficient to hold the load, the autolift shall be equipped with a brake or other approved locking device to automatically hold the platform at any level immediately on failure of the lifting power for any cause.

.23 - Stopping Brake. When the structural members of the lifting frame are so designed to interfere with open doors or other projections from the vehicle, the autolift shall be provided with a quick acting automatic brake to stop the ascent of the platform.

SEC. 1625.3 - CONTROLS.

.31 - Automatic Release. The direct control device shall be of a type that will automatically return to the neutral or off position upon release by the operator or for any other cause.

.32 - Location. All control devices for lowering the lift shall be accessible to the operator without exposing him to danger.

.33 - Speed Control. A speed control device shall be provided to control the descent of the platform when at a speed of more than twenty (20) feet per minute under rated load.

SEC. 1626.0 - MATERIALLIFTS

The construction, installation and operation of all power materiallifts shall comply with the provisions of this section and the approved rules adopted thereunder. The Director shall permit the continuance in use of existing installations which do not conform to the requirements of this Code provided the public safety is not endangered thereby.

SEC. 1626.1 - RATED LOAD AND SPEED. The design lifting capacity of material lifts shall be adequate to lift the rated loads within the limitations of working stresses prescribed in this Code but in no case less than fifty (50) pounds per square foot uniformly distributed over the gross platform area. A metal sign shall be securely attached to the lift or immediately adjacent thereto stating the approved rated capacity.

SEC. 1626.2 - PLATFORM CONSTRUCTION. The platform and its supports shall be of approved construction designed for the loads to be transmitted within the strength and deflection limitations specified for elevators in this article and Article 7. When one-half (1/2) the capacity load is applied at a static center concentration within twelve (12) inches of the loading edge, the lift platform shall not deflect more than one-half (1/2) inches at any edge point.

SEC. 1626.3 - PLATFORM PROTECTION.

.31 Unenclosed Platform. When the lift rise is not more than five (5) feet, an approved toe guard shall be provided underneath the platform on all unprotected sides to a depth of not less than eight (8) inches sloping at an angle of thirty (30) degrees to the vertical. For automatic or machine feed operation, or when the lift rise exceeds five (5) feet, an approved metal skirt shall be provided to the underside of the platform to protect the exposed vertical opening when the platform is at full rise.

.32 Platform Guards. When the rise exceeds five (5) feet, all sides of the platform not used for loading shall be protected with approved incombustible rails or mesh to a height of three and one-half (3 1/2) feet.

SEC. 1626.4 - LIFT ENCLOSURE. When not protected as required in Section 1626.3, the shaftway shall be continuously enclosed on all exposed sides with an approved incombustible enclosure.

SEC. 1626.5 - LANDING GATE. All lifts with a rise of more than five (5) feet, shall be protected with a landing gate at the upper landing equipped with an approved electric interlock.

SEC. 1626.6 - OVERLOAD SAFETY DEVICES. Approved automatic safety

devices shall be provided for electric or hydraulic operation to prevent overload in excess of twenty (20) per cent of the rated capacity.

SEC. 1626.7 - OPERATION OF MATERIALLIFTS.

.71 - Lift Control. An approved device shall be provided of either the continuous pressure or dead-man type that will stop the platform within a travel distance of not more than two (2) inches.

.72 - Stop Buttons. When the operation of the lift is interlocked with the operation of a machine or other mechanical conveyor device, an emergency set of up, down and stop buttons shall be provided, which shall be so located that the operator has full view of the lift and operating area at all times.

SEC. 1626.8 - MATERIALLIFT PRESSURE TANKS. Pressure tanks for hydraulic operation shall conform to the requirements of Section 1123.0 for unfired pressure vessels and shall be marked with a securely attached metal label to indicate the approved operating pressure. The maximum operating pressure of any hydraulic system shall not exceed three-hundred fifty (350) pounds per square inch.

SEC. 1626.9 - MATERIALLIFT LIGHTING. The lift and entire operating area shall be illuminated to provide a distributed intensity of not less than three (3) foot candles over the area of operating floor and platform.

SEC. 1627.0 - CONVEYORS

SEC. 1627.1 - ENCLOSURES. All package elevators, boosters or lifts connecting successive floors or levels shall be enclosed in fire-resistive construction in conformity with the requirements of Section 1613.0 for shaftway enclosures.

SEC. 1627.2 - OPENING PROTECTIVES

.21 - Plans And Specifications. Whenever conveyors or other material-handling devices are designed to pass through floors, ceilings, partitions or walls, the plans and specifications shall give the necessary details of the opening protectives in respect to location, structural strength and fire-resistance.

.22 - Fire Curtains. Openings in partitions and walls through which conveyors pass shall have automatic fire dampers or curtains

to prevent the spread of fire when, in the opinion of the Director, such protection is necessary due to the hazard of operation of the conveyors.

.23 - Fire Doors. All opening protectives shall meet the fire-resistance requirements of Article 9 for the location, type of construction and use of the building or structure.

SEC. 1627.3 - MACHINERY GUARDS. Adequate protection shall be provided around all moving parts of every conveying device in accordance with the approved rules.

SEC. 1627.4 - CHUTE ENCLOSURES. All slides and chutes shall be enclosed with fire-resistive construction or protected with approved automatic shutters of incombustible construction to insure a full fire stop in accordance with the approved rules.

SEC. 1627.5 - CONVEYOR SAFETY DEVICES. All power operated conveyors, belts and other moving material devices shall be equipped with automatic limit switches which will shut off the power in emergency and automatically stop all operation of the conveyors.

SEC. 1628.0 - ELEVATOR SIGNAL SYSTEMS.

SEC. 1628.1 - WHERE REQUIRED. Every power elevator, except automatic, continuous pressure and signal operation types, shall be provided with an audible and visual signal system which can be operated from any landing whenever the elevator is desired at that landing.

SEC. 1628.2 - AUTOMATIC OPERATION. All automatic and continuous pressure operation elevators shall be provided with an emergency signal operated from the car, or shall be equipped with a telephone connection to the supervising agent or control exchange.

SEC. 1628.3 - SIGNAL DEVICES. Emergency signal devices shall be constructed and installed in accordance with the approved rules.

SEC. 1629.0 - ELECTRIC WIRING.

All wiring for elevator installations shall comply with the requirements of this section and Article 15.

SEC. 1629.1 - CONDUCTORS. Electric conductors located in the hoistway shall be installed in rigid metal conduit or electric metallic tubing; except that approved flexible conduit may be used for the traveling cables connecting the car with the fixed hoistway wiring and between risers and limit switches, interlocks, push buttons and similar devices. Traveling cables shall have a flame resistant and moisture resistant outer covering.

SEC. 1629.2 - CIRCUITS. All electric conduit or cable, except such circuits used to furnish or control power, light, heat or signals for the elevator or its accessory equipment, shall be run continuous between outlets or terminals located entirely outside the hoistway.

SEC. 1629.3 - SUPPORTS. All pipes, conduits and armored cables shall be securely fastened to the hoistway framing, the hoistway enclosure, or to the elevator guide rails.

ARTICLE 17 - PLUMBING, DRAINAGE AND GAS PIPING

SEC. 1700.0 - SCOPE

The provisions of this article shall govern the design, installation, alteration, maintenance and inspection of all systems of plumbing, water supply, drainage and gas piping, with no intent as to the jurisdiction of work, in all buildings hereafter erected or altered and temporary sanitary facilities for construction operations, and in the maintenance and repair of existing buildings. All installations shall be made in conformity with the provisions of this article and the approved rules adopted thereunder.

SEC. 1700.1 - OTHER STANDARDS. Compliance with the applicable standards and accepted engineering practice requirements for plumbing and gas-piping systems listed in Appendix B shall be deemed to meet the requirements of this Code unless otherwise specifically provided in this article.

SEC. 1700.2 - MINOR REPAIRS. The repair of leaks in existing faucets, valves and other plumbing fixtures, shall be deemed a minor alteration for which no permit shall be required.

SEC. 1701.0 - DEFINITIONS

Branch. That part of a piping system which extends from the plumbing main to fixtures on two or less consecutive floors.

Conductor. Any vertical or horizontal line of storm water piping.

Drainage System. That part of a plumbing system which receives, conveys, and disposes of liquid, water-carried wastes or storm water.

Gas Piping. The installation, repair, replacement and relocation of pipes, fixtures and other apparatus for distributing gas for illumination or fuel purposes in any building or structure.

Building Drain. That part of the lowest piping of a building drainage system which receives the discharge from soil, waste and other drainage pipes, and conveys such discharge by gravity to the building sewer; and which piping ends at the outside of the front wall, or of the vault area wall or other extension of the building or structure.

Leader. Any vertical line of storm water piping.

Main. That part of a system of horizontal, vertical or continuous piping to which fixtures are connected either directly or through branch pipes.

Plumbing. The installation, repair, replacement and relocation of the pipes, fixtures and other apparatus for bringing in and distributing the water supply; for removing liquid and water-carried wastes; for removing rain water and other liquid drainage, including storm drains and storm sewers; and for preventing trap siphonage and back pressure in buildings and structures.

Plumbing Fixture. A receptacle or device intended to receive and discharge water or other liquid, or water-carried waste in a plumbing or a drainage system.

Plumbing System. The system of piping and fixtures in a building or structure including the water supply and distribution pipes; the sanitary fixtures and fixture traps; the soil, waste and vent pipes; the building drain and connections within the structure and the adjacent premises; except that such term shall not include the hot water distribution piping of a hot water heating system, or connection between various pieces of apparatus of a boiler plant, engine room machines, and air-conditioning and refrigeration systems; but such term shall include the primary water supply to any of the excepted systems or equipment and the main drains or wastes from such excepted systems or equipment.

Riser. A vertical pipe carrying water to any plumbing fixture or fixtures.

Sewer. That part of a plumbing and drainage system designed to collect and convey the discharge from one or more fixtures, the rainfall and any existing sub-surface or ground water.

(a) Building Sewer. That part of a building drainage system which extends from the building drain to a connection with a public sewer, or to a private sewer, or to an approved sewage disposal plant; and which is limited to the drainage of one building except as specifically permitted herein for accessory buildings.

(b) Private Sewer. An approved sewer which is constructed and operated by the owner.

(c) Public Sewer. A sewer which is constructed or operated by the municipality.

(d) Storm Sewer. A sewer which is designed or used to dispose of rain and sub-surface water and other clean water wastes.

Soil Pipe. Any pipe which conveys the discharge of water closets or the discharge of other sanitary fixtures receiving fecal matter.

Stack. Any verticle line of soil, waste, vent piping, storm water drain or conductor.

Trap. A fitting or device designed to prevent the passage of air or gas through a plumbing pipe or sanitary fixture, without materially affecting the flow of sewage or water waste.

Trap Seal. The vertical distance between the crown weir and the dip of the trap.

Vent Pipe. Any pipe provided to ventilate a building drainage system and to prevent trap siphonage and back pressure.

(a) Crown Vent. A vent in which the vent pipe is attached to the crown of the fixture trap.

(b) Loop Vent. A single continuous vent pipe for two (2) or more fixtures, extending from the horizontal soil pipe to the vent stack and connected thereto above the top of the highest fixture in the group, as a substitute for individual vent pipes to the main or branch vents.

SEC. 1702.0 - PLANS AND SPECIFICATIONS

SEC. 1702.1 - WHEN REQUIRED. Mechanical plans and specifications in sufficient detail of the fixture layout and spacing; showing size, material and location of all building sewers, building drains, storm sewers, storm drains, soil, waste and vent piping and water and gas supply piping for the installation of, alteration of, or addition to the plumbing, sewerage, drainage or gas piping system of any buildings, structures or premises shall be submitted to the Director for approval prior to the issuance of any permit.

SEC. 1702.2 - PLANS. Legible plans drawn to a scale of not less than one-eighth ($1/8$) inch to the foot of each floor and of a typical floor shall be filed in triplicate and shall fully show the complete plumbing system, all plumbing fixtures and all water supply and gas piping, together with building sections showing vertical and diagrammatic elevations of the soil, waste, vent and water supply lines with traps and valves, and the location and size of the public sewer or other disposal system.

.21 - Plumbing, Drainage Or Piping Work For The City of Providence. Before any specifications for the construction of, addition to or modification of any plumbing or drainage work in any building or structure belonging to the City of Providence are offered for bids, said plans and specifications shall be approved by the Director.

SEC. 1702.3 - EXCEPTIONS. The filing of plans and specifications shall not be required for minor repairs as defined in Section 1700.2 of this article or the installation or alteration of plumbing and drainage classifications herein specifically exempted; open sheds for storage purposes, and temporary sanitary installations required under the provisions of Section 1322.0 for construction operations; and except that temporary installations may be installed for exhibition purposes without tests or inspections when not designed for sanitary use nor directly connected to a sewerage system.

SEC. 1703.0 - TESTS.

SEC. 1703.1 - NOTICE TO DIRECTOR. It shall be the duty of the person, firm or corporation to whom a plumbing, drainage or gas piping permit has been issued to notify the Director when the installation is ready for tests.

SEC. 1703.2 - CONDUCT OF TESTS. All tests shall be made in accordance with the provisions of this article and the approved rules adopted thereunder. When approved or directed by the Director, partial inspections and tests shall be made progressively on the following installations as the specific part of the work is installed and before the work is covered up or sealed:

.21 - Sewers. The building sewer, storm sewer and all branches from the property line to the building drain or storm drain shall be inspected and tested when completed;

.22 - Drains. The building drain and storm drain including all the piping to a height of ten (10) feet above the highest point of the building drain, except the exposed connection to fixtures may be inspected and tested when completed;

.23 - Soil, Vent And Drainage Lines. The soil, waste, vent, inside conductor and drainage pipes and the water distribution system shall be inspected and tested when completed; and

.24 - Final Test. The final inspection and test shall be made when the entire system is completed.

.25 - Pressure Test. Gas piping systems shall be subjected to the pressure tests prescribed in Section 1728.2.

SEC. 1703.3 - WATER TEST. All openings in the sanitary drainage and venting and storm water drainage systems shall be tightly closed and the system shall be subject to the water test in accordance with the approved rules.

SEC. 1703.4 - AIR TEST. In lieu of the water test, the Director may at his discretion, accept an air test in accordance with the approved rules when unusual conditions make such a test desirable or necessary.

SEC. 1703.5 - SMOKE TEST. After all plumbing fixtures have been installed all traps shall be filled with water and roof openings of stacks temporarily sealed and smoke shall be introduced into the entire system under prescribed pressure in accordance with the approved rules.

SEC. 1703.6 - COST OF TEST. The cost of all plumbing tests shall be borne by the owner or his representative.

SEC. 1703.7 - WITNESSES. The owner or his authorized representative may be present when water tests are made of any part of a plumbing, drainage or water supply system, or whenever the presence is requested by the Director of the holder of the license or permit to perform the work.

SEC. 1703.8 - ALTERATION WORK. In the case of an extension or alteration to an existing plumbing system which involves the installation of new stacks, the complete series of tests herein prescribed shall be applied. In all other alterations to existing work, the system shall be subjected to such tests as the Director may prescribe.

SEC. 1703.9 - REPLACEMENT OF DEFECTIVE PLUMBING. All defective pipes, fittings and fixtures shall be removed and all defective work shall be made to comply in full with the requirements of this article, and all faulty or defective plumbing or drainage work shall be corrected and approved within forty-eight (48) hours after notice to the holder of the license to do so from the Director and in addition to other penalties prescribed, said Director may refuse to issue any permit for future work to the person in default, until such faulty or defective work has been corrected.

SEC. 1704.0 - INSPECTIONS.

All new installations, alterations or replacements of sewers, storm drains, drainage systems, plumbing systems, gas piping systems or appurtenances and appliances in connection therewith, shall be inspected or reinspected for compliance with this Code before a certificate of approval is issued to permit the use of such systems or equipment as required in Section 1705.0.

SEC. 1704.1 - WHEN REQUIRED. When alterations, repairs or extensions are made to building drains, building sewers, plumbing or gas piping systems the work shall be inspected by the Director before a permit for its use is granted, and all repairs, changes, or modifications of, and all alterations to, any plumbing or drainage work now in use, shall be made only in accordance with the approved rules.

SEC. 1704.2 - RIGHT OF ENTRY. The Director or his authorized representative shall be granted the right of entry to any building or premises at any reasonable hour to permit the inspection or reinspection of the plumbing, drainage and gas piping systems.

SEC. 1704.3 - COVERING-UP WORK. No drainage, plumbing or gas piping systems or part thereof shall be covered or concealed until it has been inspected, tested and approved.

SEC. 1704.4 - UNSAFE SYSTEMS. Whenever inspection or test of existing or new installations of plumbing, gas sewer, or drainage materials or fixtures reveals the installation to be defective, damaged, or hazardous to the health or safety; the work shall be corrected immediately after the issuance of a written notice of violation to the person to whom the permit was issued or to the owner or both.

SEC. 1705.0 - PERMITS AND CERTIFICATES OF APPROVAL.

SEC. 1705.1 - APPROVED PLANS. Before any work is commenced on plumbing, drainage and gas piping installations which require the submission of plans, a permit shall be secured from the Director and such permit with a stamped and approved copy of the plans shall be available at the construction site at all times.

SEC. 1705.2 - AMENDED PLANS. All plumbing, drainage and gas piping installations shall be installed in accordance with the plans as approved and any changes made during construction which are not in conformity to the approved plans shall be resubmitted for approval on amended plans.

SEC. 1705.3 - CERTIFICATE OF APPROVAL. After the prescribed tests and final inspection indicate the work complies in all respects with the provisions of this Code and the approved rules adopted thereunder, a certificate of approval and acceptance shall be issued by the Director.

SEC. 1705.4 - NOTICE OF COMMENCEMENT AND COMPLETION. The Director shall be notified of the commencement of any plumbing or gas piping work, and when such work is completed or ready for inspection. All such notices shall be confirmed in writing and shall be part of the official record of the application and permit, and the application for final inspection of plumbing or drainage work shall be filed in the office of the Director by the plumber or drain layer within forty-eight (48) hours after the work is completed.

SEC. 1705.5 - VIOLATIONS. If work is installed contrary to the approved plans in any essential details, the owner, general contractor, supervising engineer or architect and the master plumber shall all and severally be deemed to be in violation of this Code and subject to the penalties provided in Section 122.0 until amended plans are filed and approved.

SEC. 1706.0 - EXISTING BUILDINGS AND INSTALLATIONS.

SEC. 1706.1 - COMPLIANCE WITH CODE. When alterations are made in an existing building or structure requiring the addition of any two (2) or more plumbing fixtures, or one (1) or more water-flush closets, or when a new bathroom is installed, or a building is remodeled for an extension in size or change in use, in which plumbing, drainage or gas piping work is involved, the new work shall be made to conform to all the applicable sanitary requirements of this Code subject to the limitations of Section 1706.12.

All repairs, changes or modifications of and all additions to any plumbing or drainage work now in use, shall be made only in such manner as shall comply with this Code and the approved rules.

SEC. 1706.2 - UNSAFE INSTALLATIONS. Any existing installation of plumbing, drainage or gas piping systems deemed unsafe and dangerous to the public health or safety in whole or in part, shall be made to comply with the provisions of this article or the approved rules.

SEC. 1706.3 - EXISTING DRAINAGE NUISANCES. Any surface or roof drainage which creates a structural or health hazard, or any other nuisance to the owners or occupants of adjacent premises, or to the public by reason of discharge into, onto or across any adjacent building, premises or public thoroughfare shall be abated by the owners of the improperly drained area; and the Director shall require the drainage to be disposed of in accordance with the provisions of this article.

SEC. 1706.4 - EXISTING SOIL AND VENT STACKS.

.41 When a new building is erected higher than an existing adjoining building, no windows or other wall openings shall be located nearer than fifteen (15) feet to an existing soil or vent stack on the lower building unless the owner of the new building makes the necessary provisions to conform to the requirements of this article and the provisions of Section 1306.0 at his own expense.

.42 When the existing adjoining building is of greater height than the new building, the owner of the structure of greater height may with the consent of the owner of the new structure extend all new soil, waste or vent stacks which are located within twenty (20) feet of the common lot line to a level above the higher existing roof.

.43 Approved fixed window assemblies of the required fire-resistive construction which comply with the provisions of Article 9 when permitted in lot line walls shall not be deemed wall openings within the meaning of this section.

SEC. 1706.5 - VENT STACKS. On all new work, and all old work where practical, all vent pipes that are to be installed to vent toilets on the separate floors below shall be run thirty (30) inches above the floors of existing toilets, or the additional toilets that could be installed. Said vent pipes shall be connected to the main vent pipe or extended through the roof fifteen (15) feet away from all windows.

SEC. 1707.0 - MASTER PLUMBER'S LICENSE.

SEC. 1707.1 - LICENSE REQUIRED. No person, firm, or corporation shall install or supervise the installation of plumbing, gas piping or drainage work unless one responsible member of such organization holds a license as a master plumber granted by the State Board of Plumbing Examiners as provided for in Chapter 1661 of the Public Laws of the State of Rhode Island, as amended, known as the Rhode Island Plumbing License Law and in accordance with the provisions of said act.

No person, not duly licensed as a plumber or drain-layer under the laws and ordinances pertaining to the City of Providence, shall advertise or represent in any form or manner that he is a plumber or a drain-layer in said city.

SEC. 1707.2 - AFFIDAVIT AND CERTIFICATION. It shall be unlawful to commence any plumbing, gas piping or drainage work except as provided in Section 1700.2 until a licensed plumber has signed the specifications and filed an affidavit containing the address of said plumber and certifying that he is duly authorized to proceed with the work, and has secured a permit therefor from the Director.

SEC. 1707.3 - APPLICATION BY PROXY. It shall be unlawful for any licensed and registered plumber to sign the plumbing specifications or to act as agent for any other plumber who has not been granted a license as an employing or master plumber.

SEC. 1707.4 - CANCELLATION OF LICENSE. The Director may recommend the cancellation of a certificate or registration of such licensed plumber upon violation of the provisions of Section 1707.3.

SEC. 1708.0 - SEWER AND WATER SUPPLY DATA

SEC. 1708.1 - PUBLIC SEWER. Plans for new plumbing systems or alterations to existing plumbing systems shall be accompanied by a diagram showing the relative elevation of the lowest fixture and the top of the public sewer referred to the established datum of Providence, when such public sewer is available. The plans shall show the size, number and location of all new sewer connections and the minimum water pressure in the main in front of the building or structure.

SEC. 1708.2 - WATER MAIN. When the installation of a water distribution system or the replacement or alteration of a water supply system is contemplated, the plans shall show the location and size of all the water lines and branches involved, and the fixtures or other devices to be supplied.

SEC. 1708.3 - IDENTICAL STRUCTURES. The same set of plumbing, water supply or gas piping plans and specifications can be used for two (2) or more buildings or structures, when the buildings are exactly similar and are located on adjoining lots, and are under the same ownership; provided the applications for permission to construct or alter are filed simultaneously.

SEC. 1709.0 - SOIL AND WASTE PIPES

SEC. 1709.1 - MAIN SOIL STACK. Every building and structure shall have at least one four (4) inch main soil or waste stack extending from the building drain to and through the roof as directly as possible and as provided in Section 1706.4 for existing soil and vent stacks. When installed in the exterior walls of the building, or located in any place subject to freezing temperatures, adequate protection shall be provided from frost as specified in the approved rules.

SEC. 1709.2 - ROOF EXTENSION. All roof extensions of soil and waste stacks shall project full size at least two (2) feet above the roof; except that when the roof is used for other purposes than weather protection such extension shall be not less than seven (7) feet above the roof; and when the roof terminal of any stack is located within six (6) feet of any door scuttle or air shaft, it shall extend not less than three (3) feet above such opening. In no case shall a waste or vent stack terminate under a cornice or other overhang of a building.

SEC. 1709.3 - SIZE OF STACK. The size of soil and waste branches shall be determined by the individual fixtures and the total number of fixture units drained thereby in accordance with the approved rules. The size of the main stack shall be determined by the maximum number of fixture units and the total length as established by the approved rules; but in no case shall the size of the main stack be less than four (4) inches, and the waste pipe be less than one and one-half (1 1/2) inches in diameter unless otherwise approved and not less than two (2) inch size through the roof.

SEC. 1709.4 - PROHIBITED USE. No vent pipe or vent pipe stack shall be used as a soil waste or drainage pipe except as provided in the approved rules.

SEC. 1709.5 - CONSTRUCTION OF SOIL AND WASTE LINES. All soil pipes and waste pipes and their branches shall be of cast iron, galvanized iron, galvanized steel, lead or brass, except in manufacturing establishments where acids are used, in which case only approved materials shall be used. Wood spouts or sheet metal pipes shall not be used for carrying sewage. All soil pipes and all waste pipes not connected with soil pipes shall be extended full bore and two (2) feet above the roof, without return bend, and all pipes shall be properly flashed with approved roof flashings.

All brass pipe used for soil main waste and vent pipes, shall be annealed, seamless drawn brass pipe of standard iron pipe size and thread, all brass fittings shall be approved recessed drainage fittings, no slip joints shall be used on sewer side of water seal of the trap.

SEC. 1710.0 - SEWERS AND SEWER CONNECTIONS

SEC. 1710.1 - GRAVITY FLOW. The discharge from all plumbing fixtures, roof drains, seepage lines and all other drains on the premises shall flow by gravity through properly installed piping to a public sewer, private sewer or other approved disposal terminal as herein provided and in accordance with the approved rules, and the inclination of all drains, soil, and waste pipes, and unless otherwise approved shall be not less than one-half (1/2) inch in two (2) feet.

SEC. 1710.2 - SUMPS. All parts of a plumbing or drainage system which cannot be drained by gravity lines with a minimum pitch meeting the requirements of the approved rules shall discharge into a tightly covered and vented sump or receiving tank from which the discharge shall be pumped into the parts of the system which flow by gravity. This requirement shall not prohibit installation of plumbing and drainage devices required by Section 1717.3 to overcome back-water hazards. When ejectors or similar appliances are installed on drainage systems, there shall be a fresh air inlet pipe installed, which is the same size as the waste pipe to the sump, but not less than four (4) inch size for toilet work. The location and construction shall be approved. There shall be a check valve installed on the horizontal drainage side of the ejector at a 45 degree angle before entering the main drain or sewer.

SEC. 1710.3 - INDEPENDENT SYSTEM. The plumbing and drainage system of each new building and of all new plumbing work installed in an existing

building shall be separate from and independent of that of any other building except as herein provided, and every building and structure shall have an independent connection with a public or private sewer when available. When front and rear buildings are located on the same interior lot, and no separate private sewer is available or can be constructed for either the front or rear building, as the case may be, through an adjoining court, yard, or driveway, the building drain from the one building may be extended to the other building. When required, the drain connections to a building shall be trapped with a running trap of the same size and material as the drain, and such trap shall be provided with a cleanout for convenience in cleaning. No connection shall be made with such drain on the street side of said trap except as approved. In such case there shall be a fresh air pipe on the house side of and close to said trap, of a diameter of not less than four (4) inches leading to the outer air in an approved manner and place.

SEC. 1711.0 - SEPTIC TANKS AND CESSPOOLS.

SEC. 1711.1 - WHERE PERMITTED. Septic tanks, cesspools, disposal fields and other private sewage disposal systems constructed and installed in accordance with the approved rules shall be permitted only after special approval has been issued therefor, and when no public sewer is available, or no right of way can be secured by easement through adjoining property to a public sewer.

SEC. 1711.2 - DISCONTINUANCE. The use of septic tanks shall be discontinued when facilities for public sewerage lines are made available either on abutting property, or by grant of right of way, or by easement.

SEC. 1711.3 - INSPECTION AND APPROVAL. Septic tanks and disposal beds shall be installed under the supervision of a master plumber and shall be subject to inspection and approved by the Director or by an accredited authorized agent. When approved, every cesspool shall be built of stone, brick or other approved material, and provided with an iron cover, which can readily be removed, so that the contents may be inspected. No cesspool shall be built within ten (10) feet of a building, and no connection of plumbing or drainage shall be made with any cesspool unless the location and construction of said cesspool has been approved and a drain permit filed to connect to same.

SEC. 1711.4 - LOCATION. No private sewage disposal system shall be constructed within seventy-five (75) feet of a well for potable water supplies or of any human habitation other than the building or structure served thereby, without approval of the Director and the Superintendent of Health.

SEC. 1712.0 - CLEANOUTS

SEC. 1712.1 - SOIL AND WASTE LINES. Every horizontal soil or waste line which changes its direction ninety (90) degrees in a horizontal plane and every such line changing from a vertical to a horizontal direction shall be equipped with a cleanout at the point of change of direction; except that any fixture branch, soil or waste line less than eight (8) feet long shall be exempted from this requirement. There shall be cleanouts provided in the house drain, one made with

a full Y branch of not less than four (4) inches in size, just inside the foundation wall where the drain enters the building, and the others near the end of the house drain or at the base of each soil or waste stack. The distance between cleanouts shall not exceed fifty (50) feet, and cleanouts shall be of heavy pattern iron pipe size, with brass screw cover. All cleanouts inside of building shall be made accessible above grade of cellar floor.

SEC. 1712.2 - DRAINAGE PIPING. All horizontal drainage piping installed within the floor construction of any building or beneath the basement floor shall be equipped with approved accessible cleanout facilities installed at maximum intervals of fifty (50) feet. When tile pipe is used beneath the basement floor for acid lines, the inside of every drain pipe, after it is laid, shall be left smooth and perfectly clean throughout its entire length, and to insure the same a scraper of suitable material, of the shape of the pipe and slightly less in diameter, shall be drawn through each length of pipe after the same is laid. All openings not used shall be properly sealed. No drain or any part thereof shall be laid within five (5) feet of a cold air box of a furnace or other heater, and no cold air box shall be constructed or placed within five (5) feet of any drain, unless such construction and location is first approved.

SEC. 1712.3 - STACK RISERS. All vertical stacks shall have cleanouts at the foot of the riser, which shall be accessible at all times. All cleanouts shall be of the same size as the stack.

SEC. 1713.0 - SEPARATORS AND INTERCEPTORS

SEC. 1713.1 - HARMFUL WASTES. All wastes, other than those from residential kitchen sinks, which carry materials that may congeal, coagulate or accumulate in drains or sewers, or retard the flow and create stoppages, or which retard the normal sewage disposal process, or create explosive, inflammable or otherwise hazardous or unhealthful mixtures of gases or liquids shall be discharged through an approved interceptor or other acceptable separating device to segregate and retain the harmful or deleterious materials from the normal wastes as herein provided or as specified in Section 1723.0 for special wastes.

SEC. 1713.2 - CLEANING AND MAINTENANCE. All separators shall be periodically cleaned of the intercepted materials at necessary intervals as provided in the approved rules to prevent the discharge of harmful contents into the plumbing, drainage or sewerage systems; and a record of such cleanouts shall be made available to the administrative official having jurisdiction.

SEC. 1713.3 - GREASE SEPARATORS. Grease interceptors of approved types shall be provided in all institutional or commercial establishments in which grease, fats or oils are waste products from food-cookery or material-processing, or in which grease, fats or oils are discharged in connection with utensil, vat, dish or floor cleansing processes.

SEC. 1713.4 - OIL SEPARATORS. Interceptors of approved type shall be provided to segregate and retain all oil and flammable liquids in all commercial, storage or repair garages, gasoline service stations with grease racks, grease pits or wash racks, auto laundries and all factories which produce oily or flammable wastes as a result of manufacturing, storage, maintenance, repair or testing processes, shall be connected with suitable water tight catch basins, the bottoms of which shall be not less than two and one-half (2 1/2) feet below the outlet pipe, with a dip pipe of not less than eighteen (18) inches. The size, form and construction shall be as approved.

SEC. 1713.5 - GREASE INTERCEPTORS. The discharge from a garbage grinder shall have a grease interceptor when installed in commercial establishments, and a grease interceptor shall be installed for the discharge from garbage washing equipment before entering the normal soil or waste line.

SEC. 1713.6 - BLOW-OFF CONDENSERS. No steam exhaust, blow-off, drip or other waste from high pressure boilers or other high pressure vessels shall be connected to the plumbing or drainage system of a building or structure without first passing through a blow-off cooling tank or catch basin, and said catch basin shall be located outside of the building. Cooling tank, or catch basin, shall be equipped (on the blow-off to same) with an approved automatic cold water mixing valve without remote control. The temperature of the water entering the plumbing or drainage system shall not be above 130 degrees F.

SEC. 1714.0 - GENERAL CONSTRUCTION OF PLUMBING SYSTEMS

SEC. 1714.1 - QUALITY OF MATERIALS. The materials used in all drainage, plumbing and gas piping systems shall be free from manufacturing defects and damage incurred in shipping, handling or installation; and shall conform to the approved rules as to kind, quality and methods of fabrication. The applicable provisions of the standards cited in Appendix "C" shall be deemed to comply with the requirements of this article.

SEC. 1714.2 - NEW MATERIALS. The intent of the provisions of this article is to permit the use of all approved materials for piping, connections, devices, fixtures and methods of fabrication and installation complying with the approved rules. All new materials and methods not specifically provided herein for use in plumbing, drainage and gas piping systems shall be tested and approved for strength, durability, sanitary imperviousness, gas and fluid tightness in accordance with the approved rules.

SEC. 1714.3 - GENERAL PIPING. Each length of pipe and the fittings, traps, fixtures, and other devices used in a plumbing drainage or gas piping system shall be stamped or indelibly marked with the weight, quality of material and the manufacturer's name or trade mark.

.31 - Horizontal Piping. All horizontal piping in plumbing and drainage systems shall be run in practical alignment at a uniform grade of not less than one-quarter ($1/4$) inch per foot, and for conductor or clean water drains may be run at one-eighth ($1/8$) inch per foot, and without pockets or pits.

.32 - Changes In Direction. All changes in direction of soil, waste and drainage piping shall be made by the appropriate use of forty-five (45) degree wyes, half-wyes, long sweep quarter bends; or other appropriate connection unless otherwise specifically provided in this section and the approved rules adopted thereunder.

.33 - Change From Horizontal To Vertical. In soil and waste lines where the change in direction of flow is from either the horizontal to the vertical or from the vertical to the horizontal and for making offsets between the ceiling and the next floor above, short quarter bends of not less than two (2) inches diameter, may be used.

.34 - Vertical Stacks. In vertical waste stacks not less than four (4) inches in diameter intended for floor outlet fixtures only, a single sanitary tee-wye, or a double sanitary tee-wye, or a sanitary cross may be used; and when the stack is not less than four (4) inches in diameter intended for wall outlet fixtures only, with a fixture rating of not less than thirty (30) as specified in TABLE 26 tapped or caulked double sanitary tee-wyes, and sanitary tee-wye, may be used.

.35 - Crosses And Quarter Bends. In vent pipe systems, tees, crosses and quarter bends may be used.

.36 - Prohibited Fittings. No double hub, double tee, sanitary tee or short radius ninety (90) degree ells shall be used in horizontal runs; and the use of inverted hubs, saddle hubs, bands, drilling, welding or tapping of soil or waste pipe for the entrance of wastes shall be prohibited.

.37 - Lavatories. Lavatories may be connected either to horizontal or vertical waste piping by means of sanitary tee-wyes.

SEC. 1714.4 - HANGERS AND SUPPORTS. All pipe and fixture hangers shall be fabricated of metal or other approved incombustible material of heavy pattern, and shall be securely attached to the building construction in accordance with the approved rules.

.41 - Horizontal Lines. All suspended runs of horizontal piping shall be securely supported at intervals of not more than five (5) feet for cast iron soil pipe, eight (8) feet for copper tubing, and ten (10) feet for steel, wrought iron and copper and brass piping of iron pipe size.

.42 - Vertical Lines. Vertical piping shall be substantially supported at the base and at vertical intervals of not more than twenty (20) feet; and if more than forty (40) feet in height, such risers shall have intermediate floor supports at alternate floor levels. Soft copper tubing, three-quarter (3/4) inch or smaller in size shall be supported at each floor or tier level of the building or structure.

.43 - Ground Supported. Cast iron pipe or vitrified clay sewer pipe laid on unconsolidated soil shall be supported on a bed of reinforced concrete or upon concrete or masonry piers spaced not more than five (5) feet apart, or on construction of equivalent strength and durability, but vitrified clay pipe shall be supported its entire length.

SEC. 1714.5 - JOINTS AND CONNECTIONS. All joints and connections in plumbing, drainage and gas piping systems shall be made permanently gas and water tight under the required test pressures and shall be fabricated as specified in the approved rules. Cast-iron soil pipes, waste pipes, or vent pipes, before being put in place, shall be coated inside and outside with coal tar pitch, applied hot, except by special permission; wrought iron or steel soil pipes, waste pipes or vent pipes shall be galvanized and not less than standard iron pipe size. All joints on cast iron pipes shall be run with molten lead, caulked and made tight. All joints on wrought iron, steel soil or waste-pipes shall be made by screwing the same into special cast-iron fittings, having interior shoulders, forming flushed joints and made tight, connections of lead pipes with iron, steel, or brass pipes shall be made with brass ferrules or brass soldering nipples, all joints shall be approved wiped joints. All fittings for branches and changes in direction in soil waste or vent pipes shall be of approved type fittings.

.51 - Threaded Joints. Threaded joints in cast iron, malleable iron, brass or other approved piping shall be of American Standard pipe thread and where malleable iron or steel is used for water supply, waste and vent lines, it shall be galvanized.

.52 - Welded And Brazed Joints. Brazed joints shall be permitted in copper water pipes, in accordance with the approved rules.

.53 - Caulked Joints. Caulked joints in cast iron, clay, concrete or other piping shall be firmly packed with rubber, asbestos or other approved materials. All joints in cast iron service pipes shall be of the lead and gasket caulked type.

.54 - Slip Joints. Slip joints shall be permitted only above the trap seal on the inlet side of the trap.

.55 - Poured Joints. In vitrified clay pipes, all joints shall be approved poured joints.

.56 - Lead Pipe Joints. Joints in lead or lead to copper and brass piping shall be full-wiped joints; cup joints shall be permitted only when approved. Joints of lead to cast-iron or steel or wrought-iron pipe shall be fabricated with approved ferrules, soldering nipples or bushings. When lead pipe is used for waste pipe above ground, it shall be not lighter than the following weights per lineal foot; 1 1/2 inches, 3 pounds per foot; 2 inches, 4 pounds per foot; 3 inches, 5 pounds per foot; 4 inches, 8 pounds per foot; with proportional increase of weight for greater diameters. All soil waste-pipes and vent-pipes shall be entirely within the building unless otherwise approved.

SEC. 1714.6 - UNDERGROUND SOIL LINES. All underground soil piping shall be installed and constructed of materials with adequate strength, durability and corrosion-resistance for the service to be performed. No galvanized steel or wrought iron pipe shall be used in underground soil or waste lines; and when used aboveground, such pipe shall be installed not less than six (6) inches abovegrade.

SEC. 1715.0 - SANITARY FIXTURES.

Every building and structure designed for human occupancy and every construction operation shall be provided with a sufficient number of approved fixtures located and installed as required by the provisions of this article and in accordance with the approved rules, for the purpose of cleansing persons, apparel or utensils, providing potable water supplies and for the removal of human excreta and other wastes.

SEC. 1715.1 - NUMBER OF FIXTURES. The number of water-flushed toilet fixtures required for each sex shall be as specified in Tables 22 and 23; and the requirements shall be separately computed on the basis of the maximum number of persons of each sex having access at any time to such facilities on the premises for which they are furnished.

.11 - Construction Operations. Within the first week of construction, demolition or repair work, not less than one (1) water-flushed toilet fixture per twenty (20) workmen shall be provided within easy access of their place of work, which shall be maintained at all times in a clean and sanitary condition.

.12 - General Uses. The number of fixtures required in buildings and structures of all use groups, except assembly uses (Use Group F1, F2 and F3) and residential uses (Use Groups L1, L2 and L3) shall not be less than required by law, nor less than required by Table 22.

TABLE 22

SANITARY FIXTURES FOR ALL USE GROUPS
OTHER THAN RESIDENTIAL AND ASSEMBLY

<u>FEMALE</u>			<u>MALE</u>			
<u>Occupancy</u> <u>Load</u>	<u>Water</u> <u>Closets</u>	<u>Lavatories</u>	<u>Occupancy</u> <u>Load</u>	<u>Water</u> <u>Closets</u>	<u>Urinals</u>	<u>Lavatorie</u>
1 - 15	1	1	1 - 20	1	1	1
16 - 30	2	1	21 - 40	2	1	1
31 - 60	4	2	41 - 60	3	2	2
61 - 90	6	3	61 - 80	4	2	3
91 - 120	8	4	81 - 100	5	3	4

The same ratio shall continue for any greater number for males and females.

.13 - Other Uses. The number of fixtures required for buildings and structures of other use groups shall not be less than required by statute, nor less than specified in Table 23 as follows:

TABLE 23

SANITARY FIXTURES FOR OTHER USES

USE GROUPS A (HIGH HAZARD), B (STORAGE), C
(MERCANTILE), D (INDUSTRIAL), E (BUSINESS)

1 Water Closet	For each 20 Males	Each Floor
1 Water Closet	" " 15 Females	" "
1 Lavatory	" " 20 Persons	" "
1 Urinal	" " 25 Males	" "
1 Drinking Fountain	" " 75 Persons	" "
1 Shower (except C and E)	" " 15 Persons	" "

In foundries or places exposed to irritant materials,

1 Lavatory for each 5 Persons

USE GROUP F1 (THEATRES) AND F2 (ASSEMBLY HALLS)

Seating 300 or more persons

Separate water closet on stage for male and female

Separate drinking fountain on stage and auditorium, one on each floor for each 400 persons or fraction thereof.

Separate toilet rooms for each tier or level for male and female

1 Water Closet for each 150 Females

1 Water Closet " " 200 Males

1 Urnial " " 200 Males

1 Lavatory " " 200 Persons

USE GROUP F3 (COMFORT STATIONS)

1 Water Closet	for each	500 Males
1 Water Closet	" "	300 Females
1 Urinal	" "	300 Males
1 Lavatory	" every	5 Toilets

USE GROUP F3 (LIBRARIES, MUSEUMS AND ART GALLERIES)

1 Water Closet	for each	100 Females
1 Water Closet	" "	200 Males
1 Urinal	" "	200 Males
1 Lavatory	" "	100 Persons or fraction thereof

USE GROUP F4A (CHURCHES)

1 Water Closet	for each	150 Females
1 Water Closet	" "	200 Males
1 Lavatory	" "	300 Persons
1 Urinal	" "	150 Males

USE GROUP F4B (SCHOOLS)

1 Water Closet	for each	20 Males	Each Floor
1 Urinal	" "	25 Males	" "
1 Water Closet	" "	15 Females	" "
1 Lavatory	" "	20 Persons	" "
1 Drinking Fountain	" "	75 Persons	" "

USE GROUPS H2 (HOSPITALS)

1 Water Closet	for each	20 Females	Each Floor
1 Water Closet	" "	20 Males	" "
1 Lavatory	" "	20 Persons	" "
1 Bath or Shower	" "	15 Males or Females	
1 Urinal	" "	50 Males	
1 Drinking Fountain on each floor			

USE GROUP H2 (HOMES FOR THE AGED AND CONVALESCENTS AND ASYLUMS)

1 Water Closet	for each	20 Persons Male	" "
		or Female	
1 Lavatory	" "	10 Persons Male	" "
		or Female	
1 Urinal	" "	50 Males	" "
1 Bath or Shower	" "	15 Persons	" "
1 Drinking Fountain	" "	50 Persons	" "

Use Group H1 (INSTITUTIONAL RESTRAINED) Buildings shall have Sanitary Fixtures as set forth for Use Group H2 above.

USE GROUP L1 (HOTELS)

Each suite or room shall be provided with a separate water closet, lavatory, bath, or shower properly ventilated as set forth in this Code, and in addition to those facilities required in private rooms, there shall be:

1 Water Closet	for each	20 Females
1 Water Closet	" "	25 Males
1 Urinal	" "	50 Males
1 Lavatory	" "	25 Persons
1 Drinking Fountain on each floor		

USE GROUP L1 and L2 (DORMITORIES)

1 Water Closet	for each	20 Males	Each Floor
1 Water Closet	" "	8 Females	" "
1 Urinal	" "	25 Males	" "
1 Lavatory	" "	6 Persons	" "
1 Drinking Fountain	" "	50 Persons	" "
1 Bath Tub or Shower	" "	8 Males	" "
1 Bath Tub or Shower	" "	6 Females	" "

USE GROUP L2 (LODGING OR ROOMING HOUSES)

1 Water Closet	for each	15 Persons	Each Floor
1 Lavatory	" "	10 Persons	" "
1 Bath or Shower	" "	15 Persons	" "

.14 - Single And Multifamily Residences. In apartment and one and two family residence buildings (Use Groups L2 and L3), there shall be one toilet room and one kitchen sink located in a separate room for each family unit. The toilet room shall contain not less than one water closet, one lavatory and one tub or shower bath.

.15 - Drinking Fountains. Wherever large number of people congregate for amusement, instruction, mercantile or industrial uses, drinking fountains shall be provided in the ratio of at least one per one hundred (100) persons. In all construction operations, an adequate supply of pure drinking water with individual drinking cups or an approved type of drinking fountain shall be provided for workmen during hours of employment.

SEC. 1715.2 - MATERIALS OF FABRICATION AND INSTALLATION. Sanitary fixtures shall be made of approved impervious materials, finished with smooth surfaces which are readily cleanable, and which conform to the approved rules. All such fixtures shall be erected level and in alignment with adjacent walls, so arranged as to be readily accessible for cleaning purposes.

.21 - Human Wastes. Water-flush closets, urinals and other receptacles for the disposal of human excreta shall be made of vitreous earthenware, or cast iron with porcelain-enamelled interior surfaces or of other approved impervious and sanitary materials. Earthen or iron water closets, slop-sinks or similar fixtures having traps above the floor, using lead connections, must have a cast brass flange soldered to the lead, securely fastened to the floor or wall and bolted to the trap of such fixtures; where cast-iron or wrought-iron connections are used, the cast brass flange must be screwed or caulked to the floor or wall and bolted to the trap of such fixture. Bolts, nuts and washers used in all such construction must be of brass. The type, pattern and means of flushing in all water closets shall be as approved.

.22 - Kitchen Wastes. Kitchen sinks for dishwashing and culinary purposes shall be made of approved corrosion-resistive and non-absorbent materials and shall be installed so that the space underneath each fixture is readily accessible for inspection and cleaning.

SEC. 1715.3 - TOILET ROOMS. Water-closets and urinals shall be placed in rooms or compartments which are devoted exclusively to toilet facilities complying with the provisions of Section 1725.0. In buildings designed for all uses other than multifamily houses and dwellings (Use Groups L2 and L3), where more than one water-closet is required, separate toilet rooms shall be provided for each sex.

SEC. 1715.4 - AUXILIARY TOILETS. In one and two family dwellings (Use Group L3), the Director may permit the installation of an auxiliary toilet compartment in the basement enclosed in approved dwarf partitions.

SEC. 1715.5 - DRINKING FOUNTAINS. Drinking fountains where required shall be equipped with inclined jets elevated above the rim of the fixture with a sanitary guard over the jet or shall be of other approved types. No drinking fountain shall be installed in toilet rooms unless approved.

SEC. 1715.6 - FIXTURE CONNECTIONS. All approved plumbing fixtures and devices shall be connected and installed as provided in this article; and no such fixtures or devices shall be indirectly connected to the plumbing or drainage system if in the opinion of the Director a fixture so connected would be detrimental to the public health or the occupants of the building or structure.

SEC. 1716.0 - FIXTURE EQUIVALENTS

The unit ratings or fixture equivalents assigned in Table 24 which are based upon the capacity of water discharge shall be used to determine the size of traps, wastes and all connections.

SEC. 1716.1 - RATINGS BASED ON WASTE OUTLET. The equivalent unit rating of other fixtures not herein classified shall be established by the size of required waste connections specified in Table 25, but the minimum size of any waste pipe shall be not less than one and one-half (1 1/2) inches.

TABLE 24FIXTURE EQUIVALENTS

<u>Type Of Fixture</u>	<u>Fixture Units</u>		<u>Minimum Size Of Trap And Drain In Inches</u>
	<u>Private</u>	<u>Public</u>	
1 Lavatory	2	4	1 1/2
1 Bathtub	3	4	1 1/2
1 Shower	3	4	2
1 Water Closet	6	12	3-4
1 Bedpan Washer		10	3
1 Bedet	2	4	1 1/2
1 Sink and Tray Comb.	3	4	1 1/2
1 Dental Unit or Cuspidor	2	2	1 1/2
1 Dental Lavatory	3	3	1 1/2
1 Drinking Fountain	2	3	1 1/2
1 Dish Washer	2	4	1 1/2
1 Floor Drain	4	4	2
1 Kitchen Sink	3	4	1 1/2
1 Laundry Tray (1 or 2 comp.)	2	4	1 1/2
1 Shower Stall (per head)	2	4	2
1 Sink (Soda Fountain Single)		3	1 1/2
1 Sink (Flushing Rim)		10	3
1 Sink (Service, Trap Standard)		3	3
1 Sink (Service, P Trap)		3	2
1 Sink (Pot or Scullery)		4-5	1 1/2-2
1 Urinal (Pedestal, Siphon Jet)		10	3
1 Urinal (Wall Lip)		5	1 1/2
1 Urinal (Stall Wash-out)		5	2
1 Urinal (Trough, each 2 ft. section)		2	1 1/2
1 Wash Sink		2	1 1/2

(Circular or multiple, each set of faucets)

SEC. 1716.1 - RATINGS BASED ON WASTE OUTLET. The equivalent unit rating of other fixtures not herein classified shall be established by the size of required waste connections specified in Table 24, but the minimum size of any waste pipe shall be not less than one and one-half (1 1/2) inches.

TABLE 25FIXTURE RATINGS BASED ON WASTE OUTLET

<u>Fixture Drain Or Trap Size</u>	<u>Fixture Units</u>	
	<u>Private</u>	<u>Public</u>
1 1/2 inches	2	4
2 "	3	6
3 "	5	10
4 "	6	12

SEC. 1716.2 - DISCHARGE. All equipment that operates with continuous water discharge except as noted in the tables, shall be rated as one (1) fixture unit for one (1) to seven and one-half ($7\frac{1}{2}$); two (2) units for eight (8) to fifteen (15) and not less than six (6) units for a discharge of more than fifteen (15) gallons per minute.

SEC. 1716.3 - DETERMINATION OF SIZES OF SOIL AND WASTE PIPE. The maximum number of fixture units that may be connected to a given size of horizontal branch, building drain, vertical soil or waste stack, or building sewer shall comply with the requirements set forth in the Plumbing Code published by the American Society of Mechanical Engineers - A. S. A. A40.7-1949 and listed in Appendix B.

SEC. 1717.0 - SOIL AND FIXTURE TRAPS

All traps shall be of an approved type, constructed of one piece of approved material or full-bore approved traps which have unobstructed interior waterways and no moving parts. All traps shall be self-cleaning and shall be designed to hold a minimum water seal of two (2) inches, such traps shall have the same nominal inside diameter as the drain or waste pipes connecting thereto, and shall be provided with an approved cleanout as required in Section 1712.0. They shall be set level with respect to their seals; and shall be protected from frost and from loss of seal due to evaporation, flow momentum, capillary attraction, pressure, siphonage or to any other cause.

SEC. 1717.1 - FIXTURES TRAPS. Every plumbing fixture shall be separately trapped by an approved liquid-seal trap; except that two (2) single compartment laundry traps, a combination sink and laundry tray, or one (1) double compartment laundry tray or sink may be connected into a single trap, when approved. Every wash basin, bathtub, sink, urinal, water-closet, drinking fountain, fixture or appliance, before being installed, shall be approved; and after being approved and installed shall be provided with an adequate supply of water, and shall be separately trapped as close to the fixture as possible. All installed fixtures found defective or in an unsanitary condition shall be repaired, renovated, replaced or removed upon receipt of written notice therefor from the Director.

SEC. 1717.2 - DOUBLE TRAPS. No fixture, plumbing waste, soil line or storm drain, or any combination thereof, shall be double trapped; except that a building trap when used shall be exempt from this requirement.

SEC. 1717.3 - BACK-WATER TRAPS. All building sewers, drains and storm sewers shall be provided with approved back-water valves, traps and manually operated gate valves or other equivalent approved devices when subject to back-flow, flooding or other flow interference. Upon approval, the back-water valves shall be located on a branch in the drain or soil lines.

SEC. 1717.4 - BUILDING TRAPS. In localities subject to prolonged periods of freezing temperatures or where the public sewer or septic tank or other sewage disposal system requires safeguards against the

diffusion of sewer air into the building or structure in which plumbing fixtures or leaders are installed, such buildings or structures may be provided with a main building trap or other equivalent device when approved by the Director. Such building traps shall be located inside of the main building near the front wall of the structure and on the sewer side of all plumbing connections; and shall have a fresh air inlet pipe of not less than four(4) inches. Except that the discharge from a sewer-lift, oil separator, blow-off pipe or from rain water leaders may connect on the outside of the house trap when installed in accordance with the approved rules.

SEC. 1717.5 - STORM WATER TRAPS. All storm water drains shall be trapped before entering any combined sewer, building sewer or main building drain which is designed to carry sewage. When approved, traps shall be required for storm water drains entering storm sewer.

SEC. 1717.6 - DRUM TRAPS. When drum traps are used, they shall have a water seal of not more than seven (7) inches nor less than two (2) inches; and shall be so installed that the water seal will protect the trap screw from the corrosive action of sewer air.

SEC. 1717.7 - SELF-SEALING TRAPS. The use of siphon resisting, anti-siphon or other resealing devices shall be permitted only on short branch drains when approved after test in accordance with the approved rules and under the restricted applications specified in Section 1718.8, but self cleaning water-sealing approved cast traps of suitable character shall be used when separate air-pipe connections are provided of a size of pipe not less than the waste pipe, and all work where practicable, the self cleaning water-sealing approved cast traps shall be installed, and all such self cleaning water-sealing approved traps shall be of a size not less than one and one-half ($1\frac{1}{2}$) inches in diameter iron pipe size, and water seal of not less than two (2) inches. Each trap shall be separately vented when required, of a size of pipe not less than the waste pipe, and no vent shall be less than two (2) inches in size where it passes through the roof. One and one-half ($1\frac{1}{2}$) inch traps or larger, when used, shall be of the same weight per lineal foot as prescribed for lead waste pipe. Where separate air pipes are not provided, traps that will not unseal shall be used and all such traps shall be of approved type and if such approved traps do not comply with the standard as first approved, they may be rejected until such standard has been complied with.

SEC. 1717.8 - OVERFLOW CONNECTIONS. The overflow pipes from plumbing fixtures shall be connected to the inlet side of traps in all cases, and no drips or overflow pipes from the safes under water closets and other fixtures, or from tanks or cisterns, but shall be run to some place in open sight, and in no case shall any such pipe be connected directly with a drain, waste pipe, or soil pipe. No waste pipe from any refrigerator or any other receptacle in which provisions are stored, shall discharge into the soil of any cellar bottom, nor into the soil beneath any floor of any building, nor into any waste pipe, drain pipe, or soil pipe except through a broken connection in an approved manner.

SEC. 1718.0 - VENTILATION OF PLUMBING SYSTEMS

All fixture traps and building traps shall be vented to insure complete air circulation and to protect against siphonage and back pressure in accordance with the approved rules. In existing buildings no work shall be done without first obtaining an approval for such work.

SEC. 1718.1 - LOCATION OF VENTS. Except for approved water closet and similar fixtures, the vent opening from the soil or waste pipe shall be located above the dip of the trap and fixture. Crown vents shall be prohibited.

SEC. 1718.2 - SIZE AND LENGTH OF VENTS FOR SOIL AND WASTE STACKS. The required size of the vent shall be determined by the size of the soil or waste stack, the minimum size shall be not less than one and one-half ($1\frac{1}{2}$) inch vent pipe for a waste pipe. No vent pipe shall be less than two (2) inches in size where it passes through the roof, and in existing buildings where separate air pipe connections are not provided, approved traps which will not seal shall be used. On new buildings all branch lines of waste-pipe twenty (20) feet or more in length must be carried up through and two (2) feet above the roof, or into the main soil pipe above the highest plumbing fixture.

The size and length of vents for soil and waste stacks shall be in accordance with Table 26.

TABLE 26

SIZE OF SOIL OR WASTE STACK (Inches)	FIXTURE UNITS CON- NECTED	DIAMETER OF VENT [INCHES]							
		1 1/4	1 1/2	2	2 1/2	3	4	5	6
		MAXIMUM LENGTH OF VENT [FEET]							
		<i>20 percent of the total length may be installed in a horizontal position</i>							
1 1/4	2	50							
1 1/2	8	70	150						
2	12	30	75	310					
2	24	28	70	300					
2 1/2	42		35	140	450				
3	30		20	80	260	650			
3	60		18	75	240	600			
4	100			35	100	260	1,100		
4	250			30	95	240	1,000		
4	500			22	70	180	750		
5	550				28	70	320	1,000	
5	1,100				20	50	240	750	
6	950					20	95	240	1,000
6	1,900					18	70	180	750
8	1,800						30	80	350
8	3,600						25	60	250
10	2,800							30	80
10	5,600							25	60

SEC. 1718.3 - VENT STACKS. All vent stacks shall connect full size at their base to the main soil or waste pipe at or below the lowest fixture branch and shall extend undiminished in size at least two(2) feet above the roof, except that when the roof is used for purposes and uses other than as a weather covering, the vent stack shall extend to a height of not less than six(6) feet, or it may return to the main soil or waste vent at least three (3) feet above the highest fixture branch. When the main stacks are grouped into one pipe which extends through the roof, the gross area of the combined vent stack shall be not less than seventy-five (75) per cent of the aggregate areas of the connecting stacks unless otherwise provided under the approved rules, and the vent stacks of any sewer pipe, soil pipe or waste pipe shall not be constructed of brick, sheet metal or earthenware. Chimney flues shall not be used for such vents.

SEC. 1718.4 - BRANCH VENTS. Branch vent lines shall be kept above the top of all connecting fixtures in order to prevent the use of the vent pipe as a soil or waste pipe as provided in Section 1709.4; and such vent lines shall be so graded and free from drops or sags as to drip back to the soil or waste pipe by gravity.

SEC. 1718.5 - CHANGE IN VENT STACK DIRECTION. Every fixture whose branch connects to the vertical portion of a soil or waste stack below other fixtures which discharge into the stack at a higher level, or which is located within three (3) feet from a change in direction of the stack from vertical to horizontal, shall be separately vented, except as provided in the approved rules.

SEC. 1718.6 - LOOP VENTING. A battery of three (3) water closets attached to a single soil branch, may be vented by a continuous loop or circuit-vent. The vent connection of such loop to the branch shall be located between the two (2) fixtures most distant from the stack.

SEC. 1718.7 - GROUP VENTING. A complete bathroom unit with water-closet or a group of other fixtures located directly adjacent to each other, or when such fixtures are located back-to-back on opposite sides of a wall, may be provided with a common vent within the distances prescribed by this article.

SEC. 1718.8 - BRANCH WASTE VENT EXCEPTIONS. Vent connections to branch wastes to vent P traps, shall be made above the hydraulic gradient of the branch, except that when such installation would cause the vent to project into the room space and interfere with the normal use of the room or fixture, the requirement of the installation of anti-siphon trap may be waived providing the distance meets the requirements of the approved rules. When separate air-pipe connections are provided for back-airing traps, they shall be of a size not less than one and one-half ($1\frac{1}{2}$) inches; but air-pipes for water closet traps shall be of not less than two (2) inches bore for thirty (30) feet or less, and of not less than three (3) inches bore for more than thirty (30) feet. Air-pipes shall be run as direct as practicable and shall be carried through and two (2) feet above the roof. Two or more air-pipes may be connected together or may be connected to a soil line pipe, but such connections shall be above the upper fixtures of the building. Main vent lines and their connections shall be of such size as shall be first approved. The detail and construction of such vent lines and connections shall also be approved. The developed length of a branch drain permissible without venting shall be not more than eight (8) feet; except that when approved this distance between the vent and the trap may be increased to not more than twenty (20) feet measured along the center line of the waste, soil or drain pipe from the vertical inlet of the nonsiphon trap to the vent opening on a branch waste.

SEC. 1719.0 - WATER SUPPLY SYSTEMS

Every building in which people live, work or congregate shall be provided with a supply of clean and potable water in sufficient quantity to maintain all water supply and plumbing fixtures in a safe and sanitary manner; and such other water supplies as may be required for fire extinguishing, air-conditioning and other service equipment of the building or structure.

SEC. 1719.1 - PUBLIC WATER SUPPLY.

.11 - Required Capacity. Where the required capacity of potable water supplies is available from public water mains at the site, every building and structure shall be supplied from such mains to provide for all its service equipment, and every water closet or line of water closets on the same floor, that is supplied with water from a tank or system shall have a flushing pipe of not less than one and one-quarter (1 1/4) inches in diameter, but special permission may be given to supply water closets direct from the main, when such pipe and fixtures have been approved.

.12 - Water Pumps. When power pumps are required in the water supply system of a building or structure, they shall not pump directly from a city main or from the building supply, but shall be fed through an open surge tank with a vermin and rodent-proof solid cover, and controlled by a balanced ball-cock unless otherwise approved.

SEC. 1719.2 - PRIVATE WATER SUPPLY. When public water mains are not available, a private source of water supply may be used provided samples are submitted periodically to the Superintendent of Health for analysis and approval and the use of such source of supply has been approved by him and the Director. The water supply of any building for drinking purposes shall be distributed through a piping system entirely independent of any piping system conveying another water supply which is not approved for drinking purposes.

SEC. 1719.3 - SERVICE CONNECTIONS. The water service pipe shall be of sufficient size to permit a continuous and ample flow of water on all floors of the building or structure at all times. Such supply lines shall be graded in size to produce equal water distribution to all risers and branches in accordance with the requirements of the fixtures, and all other equipment and the flushing media employed. Licensed plumbers shall, before installing water mains, distributing pipes or connections, file a written description of the ordinary, designed or special uses for which the water is to be used or applied; whether for human consumption or otherwise, including a description of all fixtures, apparatus or appliances to be used and connected to the city water supply.

SEC. 1719.4 - FRICTION LOSSES. In calculating the sizes of supply lines, allowance shall be made for friction losses in piping, meters, valves, fittings, faucets and all accessory devices, according to the maximum required demand and the average pressures specified in this Code and the approved rules adopted thereunder.

SEC. 1719.5 - MAIN WATER SERVICE SHUT-OFF. Approved main shut-off valves shall be provided on the discharge side of the water service pipe controlling all outlets in the building in accordance with the rules of the Providence Water Supply Board.

SEC. 1719.6 - CROSS CONNECTED SUPPLIES.

.61 - Building Service Supply. It shall be unlawful to connect water piping supplied directly from city water mains to other approved sources with or to piping from underground storage tanks or other unapproved sources; and no cross connection shall be made between the potable water distribution system and any portion of waste or soil systems, or

.62 - Process Water. Water from unapproved sources for industrial processing or for fire protection shall be identified at each outlet with an approved sign stating that the water is unfit and that its use is prohibited for drinking purposes. Piping carrying potable waters shall be distinguished and identified from water piping from unapproved sources by distinctive painting and appropriate signs.

SEC. 1719.7 - DOMESTIC GRAVITY TANKS. Gravity tanks used for domestic water supply, or for combined domestic and standpipe, fire line or sprinkler supplies, shall be equipped with tight, vermin and rodent-proof covers and shall comply with the requirements of this section and Section 932.7.

.71 - Vents. Such tanks shall be vented and the vent pipe shall be covered with a metallic screen in accordance with the approved rules.

.72 - Overflow. Overflow pipes shall discharge on the roof or into an approved trapped plumbing fixture. Such overflow shall in no case be connected directly to any portion of the drainage or plumbing system.

.73 - Location. No storage tank for potable water shall be located directly below sewer or waste lines of the plumbing system.

.74 - Maintenance. Gravity supply tanks shall be cleaned as required by the Superintendent of Health.

SEC. 1719.8 - SUPPLY FOR MULTIPLE FIXTURES. In buildings with multiple plumbing fixtures, a residual pressure of not less than six (6) pounds per square inch at the highest fixture in the building measured on the pressure side of any wide-open faucet or supply shall be provided under conditions of simultaneous use of all such fixtures throughout the building. When the water supply is used from the municipal main and is inadequate to meet this requirement, one or more approved automatically controlled pressure or gravity tanks shall be installed of sufficient capacity to supply those parts of the installation which are too high to be fed from risers directly connected to the street water main.

SEC. 1719.9 - WATER SUPPLY PIPING.

.91 - Automatic Water Feed. When heating or power boilers or other pressure vessels are supplied from the house service piping such supply shall be provided with an approved back-flow preventer or shall be delivered through an approved automatic water-fed device or by means of a pump with check valve in the supply line.

.92 - Main Supply Lines. Shut-off valves shall be installed on pipes from pressure or gravity tanks located at or near the source.

.93 - Branch Supply Lines. A separate accessible stop cock or valve shall be provided at the foot of each branch riser line for each group of fixture outlets controlled by any one tenant or for any one floor in any business building (Use Groups A, B, C, D and E) and in multifamily residence buildings (Use Group L2).

.92 - Main Supply Lines. Shut-off valves shall be installed on pipes from pressure or gravity tanks located at or near the source.

.93 - Branch Supply Lines. A separate accessible stop cock or valve shall be provided at the foot of each branch riser line for each group of fixture outlets controlled by any one tenant or for any one floor in any business building (Use Group A, B, C, D and E) and in multifamily residence buildings (Use Group L2).

.94 - Water-Closet Supply. Each individual water-closet shall be provided with a separate shut-off valve.

SEC. 1720.0 - WATER HEATERS.

SEC. 1720.1 - WATER CIRCULATION. All equipment used for the purpose of heating or storing water for domestic use shall be designed and installed to permit free circulation of the water through the tank and heater during the heating process.

SEC. 1720.2 - PIPING FOR WATER HEATERS. All hot and cold water lines leading to and from their connection with the water heater and storage tanks shall be adequate in size to serve the normal hot water demands of the building and its occupants.

SEC. 1720.3 - AUTOMATIC HOT WATER SUPPLY. Automatic or remote control ignition equipment on domestic hot water heating devices using gas or liquid fuel shall be installed only in connection with a burner equipped with a safety pilot or other approved device arranged to automatically shut off the fuel supply to the main burners, if the pilot flame is extinguished, complying with the requirements of Article 11. All gas water heaters with an automatic remote-control pilot, or with means of lighting other than a manual method, shall be equipped with approved down draft diverters on the flue pipe from the heater which will prevent extinguishment of the pilot or heating flames.

SEC. 1720.4 - DIRECT-FIRED GAGE EQUIPMENT. Approved temperature relief and pressure gages shall be installed in all direct-fired cast-iron water heaters with cored sections, and in all heaters with a check valve located between the water meter and the heater or tank.

SEC. 1720.5 - PIPING FOR HEATING EQUIPMENT. The pipes and chimney sizes, apparatus, equipment and installation shall conform to all the applicable requirements of Articles 10 and 11.

SEC. 1720.6 - HOT WATER HEATER ROOM. No water heater using solid, gas, or liquid fuel shall be installed or maintained in any bath or toilet room or in any enclosed space with a volume of less than three hundred (300) cubic feet.

SEC. 1721.0 - SUBMERGED INLETS.

SEC. 1721.1 - SAFETY DEVICES. When submerged inlets are essential to the functioning of a plumbing fixture, apparatus, appliance or other device, approved means shall be provided to prevent back-siphonage or contamination of the water supply system, consisting of vacuum breakers, or other safeties meeting the requirements of the approved rules.

SEC. 1721.2 - AIR GAP. When not otherwise provided for, water supply inlets to all fixtures, devices, apparatus or appliances shall be located to establish an air gap at all times of not less than twice the diameter for circular openings and two and one-half (2 1/2) times the square root of the area for openings of other shape; but in no case shall such gap be less than one (1) inch.

SEC. 1721.3 - PROHIBITED CONNECTIONS. Direct water supply connections to sterilizers, aspirators, sump or well pumps, condensers, cooling units of refrigerating systems, chemical tanks, dishwashing and laundry machines and similar apparatus shall be permitted only when complying with the provisions of this section and the approved rules.

SEC. 1722.0 - DRAINAGE SYSTEMS.

SEC. 1722.1 - SEWER CONNECTIONS. The drainage system conveying the storm water from roofs, paved areas or courts, except that pertaining to private garages on the rear of lots, shall be connected to the building sewer, storm sewer, combined sewer or other disposal terminal meeting the requirements of this article and the approved rules adopted thereunder.

SEC. 1722.2 - SUB-SOIL DRAINS.

.21 - Materials. Underground and sub-soil drains shall be constructed of approved materials.

.22 - Connections. All sub-soil drains shall be connected to the plumbing or drainage system of the building within the lot lines.

.23 - Sump. If the sub-soil drains are located below the building sewer level, the discharge shall be collected in a sump or receiving tank and shall be automatically lifted and discharged into the drainage system.

.24 - Combined Drains. When necessary or desirable to connect sub-soil or French drainage into a combined drain designed to carry sanitary sewage, a trap with check valve, or an approved broken connection with an accessible cleanout, shall be installed.

SEC. 1722.3 - SEWAGE PROHIBITED. No sewage shall be discharged into a storm drain or storm drain system.

SEC. 1722.4 - FLOOR DRAINS. All floor drains leading to a storm drain shall be trapped as provided in Section 1717.6. The use of bell traps shall be prohibited.

SEC. 1722.5 - ROOF DRAINS. All roof areas shall be equipped with roof drains having approved strainers, except those draining to hanging gutters; and the joints and connections between roof drains and conductors shall be made in accordance with the approved rules.

SEC. 1722.6 - CONDUCTORS AND LEADERS. All rain conductors shall be suitably trapped as approved. Conductors which are carried up within the walls of a building and are connected directly or indirectly with a public sewer or a private drain or a cesspool, shall be of material and construction as required for soil pipe. Such conductors shall be provided with approved copper roof connections which shall be connected to the conductor lines by means of approved brass ferrules and full wiped or heavily soldered overcast joints. All other types of roof connections, shall first be approved before being installed on conductor lines, no slip or packed joints allowed on conductor lines inside buildings, and connection with any rain water conductor and the discharge of sewerage or waste water therein is prohibited except that such connection has been installed in an improved manner.

.61 - Conductor Cleanouts. When placed within the walls of any building or installed in an inner court or in a ventilating pipe shaft, all rain water conductors and roof leaders shall be equipped with accessible cleanouts at the base of each conductor line, and each conductor trap, shall have cleanouts brought to grade for cleanout purposes, and shall be constructed of approved materials and sizes in accordance with the approved rules.

.62 - Wheel Guards And Chases. Along driveways and alleyways without sidewalks, rain water leaders and conductors when not installed in wall chases shall be protected from mechanical injury by wheel guards; or such conductors shall reenter the building through the wall at least ten (10) feet above the established grade at a forty-five (45) degree inclination.

SEC. 1723.0 - SPECIAL AND INDIRECT WASTES

SEC. 1723.1 - FOOD STORAGE AND PROCESSING. In any establishment engaged in the storage, preparation, selling, serving, processing or otherwise handling of food, the waste piping from all refrigerators, ice boxes, service sinks, cooling or refrigerator coils, dipper washers, glass washers, steam tables, egg boilers, coffee urns or similar equipment shall discharge into a sink or other approved indirect-connected fixture complying with the provisions of Section 1713.0.

SEC. 1723.2 - CREAMERY AND MILK HOUSE WASTES. Waste pipes from milk vats, sterilizers, sinks or other receptacles used in creameries and milk houses, shall be of the same size, one and one-half (1 1/2) inch size minimum, and material as required for waste lines from sinks, and such wastes shall discharge into an approved separator or interceptor in accordance with the approved rules.

SEC. 1723.3 - SLAUGHTERHOUSE WASTES. All organic wastes from tanks, processing equipment and from floors of structures occupied as abattoirs, slaughterhouses and for similar uses shall be drained to an approved grease interceptor capable of removing all objectionable substances before the effluent therefrom is discharged into the sewer system.

SEC. 1723.4 - STABLE WASTES. All liquid wastes from barns, stables and stable yards and manure pits shall be intercepted before entering the sewer by an approved trapped catch-basin. The catch-basin shall be vented to the roof with a vent at least four (4) inches in diameter.

SEC. 1723.5 - HIGH TEMPERATURE WASTES. All exhausts and drips from steam engines, and all blow-off from steam boilers, or waste from any device shall first be connected to a catch-basin outside of the building, or a cooling tank, with an approved automatic cooling device connected to the cold water line, to reduce the temperature to less than 130 degrees F., before discharging into the drain or sewer. All such construction shall be approved, and in no case shall it be allowed to connect directly with any public or private sewer.

SEC. 1724.0 - ACID AND CHEMICAL WASTES

SEC. 1724.1 - CHEMICAL PIPING AND ACCESSORIES. Chemical waste pipes, stacks and vents and their connecting joints shall be constructed of approved corrosion-resistive materials which are unaffected by the discharge of such wastes. No corrosive liquids, spent acids, or other harmful chemicals likely to destroy or injure drain, sewer, soil or waste pipes, or which might create noxious or toxic fumes shall be discharged into the plumbing system without being diluted or neutralized by passing through an approved neutralizing device.

SEC. 1724.2 - ACID NEUTRALIZATION. Approved neutralizing devices shall be automatically supplied with a sufficient intake of water or other approved diluting medium to make the contents non-injurious before being discharged into the soil or sewerage system.

SEC. 1725.0 - SPECIAL REQUIREMENTS FOR BATH AND TOILET ROOMS

SEC. 1725.1 - BATH AND TOILET ROOM ENCLOSURES. All bath and toilet rooms shall be enclosed in walls or partitions for the full story height; or in lieu thereof shall be provided with an independent ceiling having a clear height of not less than seven (7) feet, four (4) inches; except as provided in Section 1715.4 for auxiliary toilets in one and two family dwellings.

SEC. 1725.2 - TOILET ROOM COMPARTMENT. In all buildings other than residence buildings (Use Group L) toilet installations shall afford individual privacy by means of partitions between water closets, provided with latched doors for each individual compartment as required by the approved rules, so arranged as to permit free circulation of air throughout the toilet compartment unless otherwise approved by the Director. The doorway shall be arranged to screen the inside of the toilet room insofar as practicable.

SEC. 1725.3 - TOILET ROOM VESTIBULES. In mercantile, industrial, business, assembly and institutional buildings, vestibules, ante-rooms, screens or other means shall be provided to insure privacy; and where toilet rooms are located adjacent to each other, they shall be separated by soundproof partitions extending to the ceiling; and entrances which are in direct view of each other shall be screened and separated by a minimum distance of twenty (20) feet.

SEC. 1725.4 - SHOWER COMPARTMENTS. Shower room compartments shall be of adequate size in accordance with the approved rules, and the floors and walls shall be constructed of approved non-absorbent, waterproof material to a height of six (6) feet above the floor.

SEC. 1725.5 - WATERPROOFING. Except in one, two and three family dwellings, bath and toilet rooms and other spaces occupied by plumbing fixtures shall have the walls and partitions constructed of sufficiently water-resistant and non-absorbent materials to permit ready and repeated cleansing; and the floors of such rooms shall be waterproofed with a waterproof curb extending not less than six (6) inches in height; or they shall be otherwise constructed to permit cleansing or flushing of the floor to maintain sanitary safety, and where floor drains are required in such rooms they shall be located and constructed as approved. In one and two family dwellings, the plumbing fixtures may be installed directly in the wood or other approved flooring.

SEC. 1725.6 - LIGHTING. Illumination shall be provided in all toilet rooms to afford a minimum of three (3) foot candles measured at a level thirty (30) inches above the floor.

SEC. 1725.7 - VENTILATION. Ventilation of toilet and bathrooms shall comply with the requirements of Article 5.

SEC. 1726.0 - SWIMMING POOLS.

SEC. 1726.1 - RECIRCULATING SWIMMING POOLS. In recirculating swimming pools, the pipe connections shall be arranged to permit drainage of water to the sewer as well as to the recirculating pumps. The drains shall be broken or other approved methods shall be provided to prevent back flow of sewage from reaching the pool.

SEC. 1726.2 - STERILIZING AND FILTRATION EQUIPMENT. Sterilizing and filtration equipment shall be adequate to keep the pool in a sanitary condition at all times and shall comply with the requirements of the Department of Public Health. Filters shall not be connected to the water supply of the building, either for pool supply or for filter washing.

SEC. 1726.3 - PUBLIC WATER SUPPLY FOR SWIMMING POOLS. Make-up water from a public water system shall be supplied by approved methods and direct cross-connection between the public water system and the swimming pool water shall be prohibited.

SEC. 1727.0 - MISCELLANEOUS INDUSTRIAL AND HAZARDOUS USES

In any and all uses or occupancies of buildings and structures not specifically covered in this Code which discharge objectionable wastes dangerous to the public health and safety in the opinion of the Director or Superintendent of Health shall be provided with approved traps, interceptors, separators and other devices in accordance with the approved rules, before said waste is entered into the public sewer system.

SEC. 1727.1 - OPEN GUTTER DISCHARGES. The discharge from open gutters of industrial plants shall pass through one or more fixed metal strainers or screens of approved materials to an interceptor complying with the provisions of Section 1713.0 before emptying into the sanitary plumbing system.

SEC. 1728.0 - GAS PIPING SYSTEMS

SEC. 1728.1 - INSPECTIONS. Inspections shall be made of all rough piping installations authorized by the approved plans and permit before it has been covered or concealed and before any fixture or appliance has been attached thereto.

SEC. 1728.2 - PRESSURE TESTS. After the complete installations of gas piping and before any fixtures or appliances have been attached, the system shall be subjected to an air pressure test in accordance with the approved rules. The tests shall be made in the presence of the Director, or his duly authorized representative, and all test apparatus shall be furnished and the costs shall be borne by the permit holder. All welded piping shall be tested to withstand an air pressure of not less than fifty (50) pounds per square inch for not less than ten (10) minutes.

SEC. 1728.3 - CERTIFICATE OF APPROVAL. No piping or connection to piping of any meter, gas fixture, gas heater or range shall be covered up until the certificate of approval of the Director has been issued as provided in Section 1705.0.

SEC. 1728.4 - MATERIALS FOR GAS PIPING. Gas supply and distribution pipes shall be made only of materials which conform to the provisions of this Code and the approved rules adopted thereunder. In the absence of such rules, compliance with the A.G.A. specifications listed in Appendix C shall be deemed to meet the requirements of this section.

SEC. 1728.5 - PIPING AND FITTINGS.

.51 - Pipe Gradients. All gas piping shall be run straight without sags or traps, shall be so pitched as to drain back to the riser, and from the riser to the meter or inlet; and all such equipment shall be installed and protected as provided in the approved rules.

.52 - Hangers And Supports. All gas piping shall be rigidly supported at intervals of not more than six (6) feet by incombustible straps, hooks or other approved supports.

.53 - Gas Piping In Masonry. When necessary to conceal piping in bricks, stone, concrete or other masonry walls, suitable recesses shall be provided and no gas piping shall be incorporated in the construction.

.54 - Flexible Piping. The use of lead pipe, hose, or other flexible pipe, tubing or fittings shall be prohibited; except that approved flexible tubing connectors shall be permitted for gas appliances which burn not more than ninety (90) cubic feet of gas per hour.

.55 - Gas Appliances. All gas ranges and heaters shall have a straightway stopcock or valve on each branch supply and the installation of gas brackets, fixtures and clearances shall be installed to minimize the fire hazard to surrounding construction and trim in accordance with the provisions of Articles 10 and 11 and the approved rules adopted thereunder.

SEC. 1728.6 - MAIN BUILDING SHUT-OFF. Each gas service connection which is brought into a structure shall be fitted with a straightway stopcock or shut-off valve, placed in an accessible position immediately inside of the wall through which such connection enters, except that such a stopcock or shut-off valve will not be required for low pressure gas service connection to one or two family residences in which the size of the service pipe is less than two (2) inches.

SEC. 1728.7 - UTILITY MAIN SHUT-OFF VALVE. An outside stopcock or shut-off valve shall be provided in the service connection from the main to any structure, except in a low pressure service connection to a one or two family residence in which the size of the service pipe is less than one and one-half (1 1/2) inches. This outside shut-off shall be located in an approved flush covered box at or near the curb line in the sidewalk or other acceptable open area. Such valve box shall be identified with the word "GAS", or other marking clearly identifying the valve box as a gas connection, cast or otherwise permanently inscribed on the cover.

.71 - When alterations or repairs are made to a building, structure, or gas piping system the requirements of this Section shall not apply to an existing gas connection unless the replacement of a section of the gas connection adjacent to the curb line is necessary for other reasons.

SEC. 1728.8 - METERS. Meters shall be located as near as practicable to the point of entrance of the service and preferably in the cellar or basement of the building or structure. The location shall be accessible, clean, dry, properly ventilated and free from steam or chemical fumes; and the meter shall be protected against extreme cold or heat.

SEC. 1728.9 - LIQUEFIED PETROLEUM GAS PIPING.

.91 - Materials. In addition to the requirements of Section 407.0, piping for liquefied petroleum gas shall be designed and installed of approved materials suitable for use on such systems.

.92 - Shut-Offs. A main shut-off valve shall be provided outside of the building on the supply side of the main connection; and auxiliary shut-offs on the supply side of every appliance connection.

.93 - Relief Valves. The terminals from relief valves shall discharge directly to the outer air at a point not less than five (5) feet distant from any window or other opening in the building or in adjoining structures.

ARTICLE 18 - REFRIGERATING, AIR-CONDITIONING AND
MECHANICAL VENTILATION

SEC. 1800.0 - SCOPE

The provisions of this article shall control the design and installation of refrigerating, air conditioning, ventilating, cooling and air exhaust systems hereafter installed; and all alterations or additions to existing systems in buildings and structures hereafter and heretofore erected, except refrigerating systems subject to inspection and regulation under Federal Law, or where specific exemption is made in this article or where any ventilating or exhaust installation is required in Section 517.0 and 518.0 for emergency ventilation, or in the approved rules. All electrical wiring and equipment shall conform to the requirements of ARTICLE 15.

SEC. 1800.1 - OTHER STANDARDS. All approved systems shall comply with the provisions of this article, the applicable requirements of Articles 5, 10 and 11 and the approved rules adopted hereunder. Compliance with the applicable standards listed in Appendix B shall be deemed to conform to the requirements of this article unless otherwise specifically provided.

SEC. 1800.2 - PERMITS. Permit shall be required for all new installations and for all alterations or additions to existing installations except that permits will not be required on the installation, alteration, or major replacement and use of refrigerating systems containing not more than ten (10) pounds of refrigerant in Residential Occupancies (Use Group L2 and L3) or for new self-contained unit systems containing not more than six (6) pounds of Group 1 refrigerant in Commercial Occupancies and not more than twenty (20) pounds of Group 1 refrigerant in Industrial Occupancies, provided that such unit systems comply with all other requirements of this Code.

SEC. 1801.0 - DEFINITIONS

AIR-CONDITIONING. The process by which the temperature, humidity, movement and quality of air in buildings and structures used for human occupancy are controlled and maintained to secure health and comfort.

BRINE. Liquid which has a flash point higher than one hundred fifty (150) degrees F. and which is used for the absorption and transmission of heat without changing its chemical character.

COMPRESSOR. A mechanical device used in a refrigerating system for the purpose of increasing the pressure of the refrigerant.

CONDENSER. A vessel or assembly of pipes or tubing in which the vaporized refrigerant is liquified by the removal of heat.

DIRECT SYSTEM. One in which the evaporator is in direct contact with the space to be refrigerated or is located in air-circulating passages which communicate directly with such spaces.

DUCT. A tube or conduit, or an enclosed space or corridor within a wall or structure used for conveying air.

EVAPORATOR. That part of a refrigerating or air-conditioning system in which the liquid refrigerant is vaporized.

FIRE DAMPER. An approved automatic or self-closing, incombustible barrier designed to prevent the passage of air, gases, smoke or fire through an opening, a duct or plenum chamber.

GENERATOR. A mechanism with a heating element which is used in a refrigerating system.

INDIRECT SYSTEM. A refrigerating system in which brine, water or other liquid is cooled by the refrigerant, and is then circulated to the space refrigerated or which is used to cool the current of air circulated to such space.

LIMIT CONTROL. A thermostatic device installed in the duct system to shut off the supply of heat at a predetermined temperature of the circulated air.

MECHANICAL VENTILATION. The process for introducing fresh air or to provide changes of air in a building or structure by mechanical means.

PLENUM CHAMBER. An air compartment or enclosed space to which one or more distributing air ducts are connected.

PRESSURE LIMITING DEVICE. A valve or rupture member designed to automatically stop the operation of the compressor at a predetermined pressure of the refrigerant.

PRESSURE RELIEF DEVICE. A valve or rupture member designed to automatically relieve excessive pressure of the refrigerant.

PRESSURE VESSEL. A receptacle of a refrigerating system which contains the refrigerant under pressure.

REFRIGERANT. The medium used to produce cooling or refrigeration.

REFRIGERATION. The process of removing heat, by mechanical means, from the air in an enclosed space of a building or structure.

RUPTURE MEMBER. A mechanical device that will rupture at a predetermined pressure, automatically controlling the compressor or maximum pressure of operation of the refrigerant.

SMOKE DETECTOR. An automatic device installed in the plenum chamber or in the main supply air duct of an air-conditioning system to shut off the blower and close a fire damper because of the presence of smoke.

STOP VALVE. The shut-off valve for controlling the flow of the refrigerant in a refrigerating or air-cooling system.

TON OF REFRIGERATION. The unit of capacity of refrigeration equivalent to the removal of heat at the rate of twelve thousand (12,000) BTU per hour.

UNIT SYSTEM. An integrated assembly of enclosed refrigerant parts which is assembled and tested as a complete refrigerating unit.

SEC. 1802.0 - PLANS, SPECIFICATIONS AND PERMITS.

SEC. 1802.1 - PLANS AND SPECIFICATIONS. An application shall be filed with the Director accompanied by specifications and diagrammatic mechanical drawings in sufficient detail, complying with the provisions of Article 1, before a permit shall be issued for an air-conditioning, refrigerating or ventilating system. The plans shall be drawn to a scale of not less than one-eighth (1/8) inches to the foot and shall show the location and arrangement of all equipment and distribution elements, including safety and pressure controlling devices.

SEC. 1802.2 - PERMITS. Permit shall be required for all new installations and for all alterations or additions to existing installations except that permits will not be required on the installation, alteration, or major replacement and use of refrigerating systems containing not more than ten (10) pounds of refrigerant in Residential Occupancies (Use Group L2 and L3) or for new self-contained unit systems containing not more than six (6) pounds of Group 1 refrigerant in Commercial Occupancies and not more than twenty (20) pounds of Group 1 refrigerant in Industrial Occupancies, provided that such unit systems comply with all other requirements of this Code.

.21 - Residential Buildings. One and two-family and multi-family dwellings (Use Groups L2 and L3) shall not be required to have permits unless the refrigerating systems contain more than ten (10) pounds of refrigerants or are actuated by motors or engines of one and one-half (1 1/2) horsepower or larger.

.22 - Unit Refrigerating Systems. In Business, Commercial, Industrial and Residential (Use Groups B, C, D, E, H, and L) no permit shall be required for the installation of new self-contained unit refrigerating systems which contain not more than six (6) pounds of Group 1 refrigerants.

SEC. 1802.3 - APPROVED REFRIGERANTS. It shall be unlawful to maintain or operate any refrigerating system without a permit and certificate of approval, and no refrigerant other than that specified in the approval or provided for in this article or in the approved rules adopted thereunder shall be employed in the system.

SEC. 1803.0 - TESTS

No air-conditioning, refrigerating or ventilating system requiring a permit, shall be operated or permitted to be operated until it has been tested and approved by the Director.

SEC. 1803.1 - TEST PRESSURES. Every part of a refrigerating or air-conditioning system containing the refrigerant shall be tested for tightness by the manufacturer at not less than the minimum test pressures specified herein or in the approved rules for the refrigerant used.

SEC. 1803.2 - FIELD TESTS. All refrigerating systems containing parts erected on the premises, other than factory assembled units of compressors, safety devices and their control mechanisms which are factory tested, shall be tested at not less than the minimum required test pressures and proved tight after final installation and before operation of the system.

SEC. 1803.3 - USE OF COMBUSTIBLE TEST GASES. No oxygen or combustible or highly flammable gases or combustible mixtures of gases shall be used in the field testing procedure of refrigerating equipment.

SEC. 1803.4 - TEST DECLARATION. A signed and dated record of the last approved test shall be posted in a conspicuous place in the machinery room on a suitably framed placard as may be required by the Director.

SEC. 1804.0 - INSPECTIONS AND CERTIFICATES

After notification of the completion of the installation, all refrigerating and air-conditioning systems shall be inspected by the Director. If the mechanism is found to be in conformity with the requirements of this Code and the approved application, a certificate to that effect shall be issued by the Director and shall be kept posted in the refrigeration machinery room at all times.

SEC. 1804.1 - PERIODIC INSPECTION. All such systems shall be inspected periodically and the dates of such inspection and approval shall be entered on the certificate of inspection.

SEC. 1804.2 - DEFECTS AND REPAIRS. Upon inspection of a refrigerating, air-conditioning or ventilating system, any defects or deficiencies in any part of the system which require repair to insure safe operation shall be immediately rectified before the system is placed in use.

SEC. 1805.0 - OPERATION AND MAINTENANCE

SEC. 1805.1 - REFRIGERATING SYSTEMS OPERATOR. It shall be unlawful for any person to operate or be in direct charge of refrigerating machinery of more than one hundred (100) tons capacity with Group 1 refrigerants, or fifteen (15) tons capacity with Group 2 or 3 refrigerants, without first obtaining a license from the Director in accordance with the provisions of Section 1105.0.

SEC. 1805.2 - HOUSEKEEPING. All air-conditioning and refrigerating systems shall be maintained in a clean and orderly condition, free from accumulations of oily dust, waste or other debris; and all piping and machinery shall be kept readily accessible at all times for inspection and repair. Plenum chambers, ducts, cooling and heating coils shall be kept clean, and unit filters shall be cleaned or renewed to insure adequate air flow in accordance with the approved rules.

SEC. 1805.3 - OPERATION INSTRUCTIONS. Every system containing more than twenty (20) pounds of refrigerant, shall be posted with an instruction card in a conspicuous location, as near as possible to the refrigerant-condensing unit, giving directions for the operation of the system, and all precautions to be observed in case of a leak or a breakdown.

SEC. 1805.4 - CONTROL VALVES AND SWITCHES. Systems containing more than one hundred (100) pounds of refrigerant shall be provided with metal signs and directions to designate the main shut-off valves, to each vessel, the emergency valve, the main steam and electrical control switch and the pressure limiting devices.

SEC. 1806.0 - EXISTING BUILDINGS AND INSTALLATIONS

SEC. 1806.1 - EXISTING APPROVALS. Existing refrigerating, air-conditioning and ventilating equipment heretofore legally installed may be continued in use, provided the public safety is not endangered thereby, and the system is maintained in a safe operating condition as required by the Director and in accordance with the approved rules.

SEC. 1806.2 - UNSAFE INSTALLATIONS. If, in the opinion of the Director the continued use of existing equipment is unsafe, the Director shall order such use to cease until all defects are remedied and a new certificate of approval has been issued.

SEC. 1807.0 - ACCIDENTS

SEC. 1807.1 - NOTICE TO THE DIRECTOR. The owner, lessee, or person in charge of refrigerating or air-conditioning systems which employ more than twenty (20) pounds of refrigerant shall immediately notify the Director of each and every accident to a person involving medical attention or damage to apparatus or property of One Hundred (\$100.00) dollars or more on or about or in connection with said installation; and he shall afford the Director or other authorized municipal agent every facility for investigating an accident.

SEC. 1807.2 - DAMAGED EQUIPMENT. The removal of any part of the damaged construction or operating mechanism from the premises is forbidden until permission has been granted by the Director.

SEC. 1807.3 - RESTORATION OF USE. When an accident involves the failure or destruction of any part of the system, operating mechanism, or of the structure housing the equipment, the re-use of the installation shall be unlawful until it has been made safe and a new certificate of approval has been secured for the installation.

SEC. 1808.0 - CLASSIFICATION OF REFRIGERANTS

It shall be unlawful to maintain or operate any system employing a refrigerant other than those specified herein or in the approved rules or after approval by the Director.

The refrigerants used in refrigerating and air-conditioning systems shall be classified according to the degree of toxicity and danger involved in their use as herein provided:

- Group 1 Low Hazard, including among others, carbon dioxide, freon and methylene chloride;
- Group 2 Moderate Hazard, including among others, ammonia, ethyl chloride, methyl chloride and sulphur dioxide; and
- Group 3 High Hazard, including among others, butane, ethane and propane.

SEC. 1809.0 - USE OF REFRIGERANTS

Only approved refrigerants shall be used in any installations as determined by the life hazard of the use and occupancy of the building or structure in accordance with the limitations prescribed herein and the approved rules adopted as set forth in Section 109.0.

SEC. 1809.1 - INDUSTRIAL, STORAGE AND HIGH HAZARD USES. Subject to the approved rules and the requirements specified in this Code, all types of approved refrigerants and refrigerating systems shall be permitted in buildings of high hazard (Use Group A), storage (Use Group B1 and B2) and industrial (Use Group D) uses and occupancies.

SEC. 1809.2 - MERCANTILE AND BUSINESS USES. In buildings designed for Mercantile (Use Group C and Group E) uses and occupancies, refrigerating and air-conditioning systems shall be limited to the following quantities of refrigerants:

Group 1 refrigerants shall be limited to indirect systems only when more than fifty (50) pounds of refrigerant are used;

Group 2 refrigerants shall be limited to indirect systems only when more than twenty (20) pounds of refrigerant are used;

Group 3 refrigerants shall be limited to use in unit systems which do not contain more than six (6) pounds of refrigerant.

.21 - When the refrigerant-containing parts of a system are located in one or more enclosed spaces, the cubical content of the smallest enclosed humanly occupied space other than the machinery room, shall be used to determine the permissible quantity of refrigerant in the system.

.22 - When the evaporator is located in an air duct system, cubical content of the smallest humanly occupied enclosed space served by the air duct system shall be used to determine the permissible quantity of refrigerant in the system; however, if the air flow to any enclosed space served by the air duct system cannot be shut off or reduced below one-quarter ($1/4$) of its maximum, the cubical contents of the entire space served by the air duct system may be used to determine the permissible quantity of refrigerant in the system.

Group 1 refrigerants in a direct system shall not exceed the maximum permissible quantity specified in Table 27. Group 2 refrigerants shall be limited to indirect systems when more than twenty (20) pounds of refrigerants are used. Group 3 refrigerants shall be limited to use in unit systems which do not contain more than six (6) pounds of refrigerants.

SEC. 1809.3 - PUBLIC ASSEMBLY BUILDINGS. In buildings designed for public assembly (Use Groups F1, F2, F3 and F4) uses and occupancies, refrigerating and air-conditioning systems shall be limited to the following quantities of refrigerants:

Group 1 refrigerants shall be limited for use in direct and indirect systems to the quantities specified in the approved rules.

Group 2 refrigerants shall be limited to indirect systems which do not contain more than one thousand (1,000) pounds of refrigerant, or more than thirty (30) tons capacity.

Group 3 refrigerants shall be prohibited.

SEC. 1809.4 - INSTITUTIONAL BUILDINGS. In buildings designed for Institutional (Use Groups H1 and H2) uses and occupancies, refrigerating and air-conditioning systems shall be limited to the following quantities of refrigerants:

Group 1 refrigerants when used in unit systems, shall be limited to not more than ten (10) pounds of refrigerant; except that in kitchens, laboratories and mortuaries, twenty (20) pounds unit systems may be installed. Indirect systems may be installed within the limitations of the approved rules.

Group 2 refrigerants when used in unit systems shall be limited to not more than six (6) pounds of refrigerant and when used in indirect systems shall be limited to not more than five hundred (500) pounds of refrigerants.

Group 3 refrigerants shall be prohibited.

SEC. 1809.5 - RESIDENTIAL USES. In buildings designed for residential (Use Groups L, L2 and L3) uses and occupancies, refrigerating and air-conditioning systems shall be limited to the following quantities of refrigerants:

Group 1 refrigerants shall be permitted in accordance with the approved rules.

Group 2 refrigerants shall be limited to use in unit systems which contain not more than six (6) pounds and to indirect systems in accordance with the approved rules.

Group 3 refrigerants shall be prohibited.

TABLE 27

<u>Maximum Permissible Quantities Of Group 1 Refrigerants For Direct Systems</u>		
<u>Refrigerants Name</u>	<u>Chemical Formula</u>	<u>Maximum Quantity In Pounds per 1000 cu. ft. of human occupied space.</u>
Carbon Dioxide	CO ₂	11
Dichlorodifluoromethane (Freon 12)	CCl ₂ F ₂	31
Dichloromethane (Methylene Chloride Carrene #1)	CH ₂ Cl ₂	6
Dichloromonofluoromethane (Freon 21)	CHCl ₂ F	13
Dichlorotetrafluoroethane (Freon 114)	C ₂ Cl ₂ F ₄	44
Monochlorodifluoromethane (Freon 22)	CHClF ₂	22
Trichloromonofluoromethane (Freon 11)	CCl ₃ F	35
Trichlorotrifluoroethane (Freon 113)	C ₂ Cl ₃ F ₃	24

SEC. 1809.6 - INDIRECT SYSTEM RESTRICTIONS. No brine shall be used that will generate flammable vapor at a temperature below one hundred fifty (150) degrees F.

SEC. 1810.0 - STORAGE OF REFRIGERANTS

Storage of refrigerants is prohibited except as approved by the Director.

SEC. 1811.0 - USE OF SYSTEMS

SEC. 1811.1 - UNIT SYSTEMS. All self-contained units designed for use in refrigerating or air-conditioning in the conditioned spaces or for use in a central system with air duct distribution and requiring no external construction other than water or electrical connections shall be of an approved type and their connections shall conform to the requirements of this article and Articles 15 and 17 for electric and plumbing connections and the approved rules adopted thereunder.

SEC. 1811.2 - SITE ASSEMBLED SYSTEMS. All built-up and site assembled systems containing more than fifty (50) pounds of a Group 1 refrigerant, shall be of the indirect type with all refrigerant containing parts, excepting parts mounted outside the building, installed in a machinery room having two-hour fire-resistive construction. All built-up and site assembled installations containing more than twenty (20) pounds of a Group 2 refrigerant, shall have all parts containing refrigerants, except parts mounted outside the building, enclosed in vapor-tight and fire-resistive machinery rooms or located in accessory structures not connected to the main building; and the construction and installation shall comply with the requirements of this article and the approved rules adopted thereunder.

SEC. 1812.0 - MACHINES AND MACHINE ROOMS

SEC. 1812.1 - EQUIPMENT. All refrigerating machinery, blowers, condensers, evaporators, heaters and compressors shall be of an approved type, constructed and installed with the required accessory safety devices in accordance with Section 1816.0 and the approved rules; and every system shall be designed, constructed and assembled to safely withstand the required minimum specified test pressures without leaks or failures.

SEC. 1812.2 - IDENTIFICATION PLATES. Every refrigerant-containing vessel more than five (5) cubic feet in volume, every refrigerant-condensing unit, and every refrigerant compressor shall have a nameplate securely attached and marked with the manufacturer's name, model designation, identification number, the refrigerant used and the test pressure.

SEC. 1812.3 - MACHINE ROOM ENCLOSURE. Machine rooms for all air-conditioning and refrigerating systems of twenty (20) pounds or more of Group 2 refrigerants shall be enclosed in two (2) hour fire-resistive construction.

SEC. 1812.4 - OPENING PROTECTIVES. The machinery room enclosure shall be provided with approved vapor tight, self-closing fire-resistive doors with a fire-resistance rating of one and one-half

(1 1/2) hours, and no openings shall be provided that will permit the escape of the refrigerant to other parts of the building. The exit door shall open directly to the outer air, or the machinery room shall be provided with a vestibule with self-closing fire doors at both entrance and exit.

SEC. 1812.5 - EMERGENCY VENTILATION. The machinery room shall be ventilated to the outer air, either by wall openings for natural ventilation or approved mechanical exhaust systems in accordance with Table 28. When the refrigerant is heavier than air, an exhaust system of ventilation shall be provided with the intake not more than six (6) inches above the floor or with adequate fixed louvres similarly located.

SEC. 1812.6 - POWER CONTROL. The power control for blowers or other required mechanical means of ventilation shall be located outside the machinery room in an accessible location.

SEC. 1812.7 - MACHINERY GUARDS. All moving machinery parts shall be protected with approved incombustible safety guards.

SEC. 1812.8 - ILLUMINATION. Every refrigerating machinery room shall be adequately lighted.

TABLE 28

MACHINE ROOM

WALL OPENINGS, AIR EXHAUST AND DUCT AREAS

<u>Wt. Of Refrigerant</u> <u>Lbs.</u>	<u>Natural Ventilation</u>		<u>Mechanical Ventilation</u>	
	<u>Area Of Opening</u> <u>Sq. Ft.</u>		<u>Cu. Ft. Discharge</u> <u>Per. Min.</u>	<u>Duct Area</u> <u>Sq. Ft.</u>
20	4		150	1/4
50	6		250	1/3
100	10		400	1/2
200	15		800	1
300	18		900	1
500	21		1300	1 1/4
700	26		1600	1 1/2
1000	31		2000	2
2500	40		3000	2 1/2
5000	62		5000	4 1/2
7000	74		7000	5 1/2
10000	90		9000	6 1/2
15000	110		12000	7 1/2
30000	145		18000	9
40000	155		20000	9 1/2

SEC. 1813.0 - CONSTRUCTION REQUIREMENTS

SEC. 1813.1 - APPROVED MATERIALS. Only approved materials, appliances, apparatus and devices shall be installed in any refrigerating, ventilating or air-conditioning system; and the system shall be constructed in accordance with the provisions of this article and the approved rules adopted thereunder.

SEC. 1813.2 - RESTRICTIONS AS TO LOCATION. No air-conditioning or refrigerating system shall be installed in or on any public stairway, hallway, lobby or other exitway of any building; except that a direct unit system containing not more than six (6) pounds of approved refrigerant may be installed in corridors provided free passage is not obstructed thereby and such installation is approved by the Director.

SEC. 1813.3 - PIPING AND VALVES. All piping, tubing and valves used in the construction and installation of a refrigerating or air-conditioning system shall be suitable for the refrigerant used therein, and no construction material shall be used that might deteriorate under the chemical action of either the refrigerant or lubricating oil, or combined action of both. Such equipment shall not be placed in public hallways, lobbies, stairways, elevator or dumbwaiter shafts, nor shall refrigerant pipes, gas pipes, or oil lines be installed in any duct work of such systems, except where approved in the plenum chamber.

SEC. 1813.4 - HANGERS AND SUPPORTS. All piping, tubing and other equipment containing refrigerant shall be fully supported in an approved manner by hangers or supports of metal or other approved incombustible material.

SEC. 1813.5 - SHUT-OFF VALVES. Approved shut-off valves shall be installed in all systems containing more than twenty (20) pounds of refrigerant. All such hand operated valves shall be readily accessible and, unless their purpose and use are immediately self-evident, shall be identified by legible inscriptions or securely attached tags.

SEC. 1813.6 - PIPE SHAFTS. Vertical refrigerating piping extending through two (2) or more stories shall be enclosed in three (3) hour fire-resistive shaft enclosures with vent relief above the roof; unless erected on the exterior of the building in other than interior courts or air shafts. No such piping shall penetrate the floor construction.

SEC. 1813.7 - INSPECTION OF PIPING. All insulated and uninsulated refrigerant piping other than piping located on the exterior of the building or structure, or when located in a flue vented to the outer air, shall be installed so as to be accessible for visual inspection and maintenance, except when required to be protected against mechanical injury or when located in the enclosed cabinet of an approved refrigerating unit.

SEC. 1813.8 - IDENTIFICATION OF PIPING. All exposed high pressure and low pressure piping in systems of more than ten (10) ton capacity shall be identified by signs, giving the location of the main shut-off valves and the type of refrigerant used.

SEC. 1814.0 - CONTROL SAFETY AND PROTECTIVE DEVICES

SEC. 1814.1 - BLOWER SHUT-OFF. All ventilating and air-conditioning systems using fans or blowers shall have an approved manually operated blower shut-off switch in an accessible location for quickly closing down the fan in case of fire. In recirculating systems of a building, the fan shall be arranged to shut down automatically if the air temperature reaches one hundred twenty-five (125) degrees F. in any part of the system.

SEC. 1814.2 - PRESSURE RELIEF VALVE.

.21 - When Required. All positive displacement compressors, condensers, receivers, absorbers, generators, shell-and-tube type coolers, accumulators, surge drums and apparatus of like character, when connected to a system containing more than twenty (20) pounds of Group 1 refrigerant or six (6) pounds of Group 2 and 3 refrigerants shall be protected from excess pressure by an approved relief valve or valves.

.22 - Discharge. The discharge from pressure relief valves shall be piped to discharge on the outside of the building in a safe manner; except that valves for the protection of compressors may discharge into the low pressure side of the system.

.23 - Rupture Member. A rupture member of the same capacity may be substituted for or used in series with a pressure relief valve, vented to the outside of the building.

.24 - Identification. Each pressure relief valve and rupture member shall be sealed and identified by a legible tag designating its operating pressure and the name of the manufacturer.

.25 - Special Brines. Brines of hazardous toxic or explosive characteristics, which require special handling precautions, such as ammonia and sulphur dioxide, shall be discharged in accordance with the approved rules.

SEC. 1814.3 - PRESSURE LIMITING DEVICE. All systems which operate above atmospheric pressure, and all water-cooled systems in which the compressor or generator is capable of producing a pressure in excess of the test pressure, shall be provided with a pressure limiting device to stop the action of the compressor at a pressure less than ninety (90) per cent of the relief-device setting, but in no case more than ninety (90) per cent of the test pressure.

SEC. 1814.4 - SMOKE DETECTOR. When in the opinion of the Director, the life hazard of any use and occupancy is exceptionally severe or when required for automatic operation of exhaust systems as specified in Section 522.0 and Section 1814.7, all mechanical ventilating and air-conditioning systems shall be provided with an approved smoke detector.

SEC. 1814.5 - EMERGENCY VALVE AND TANK. All refrigerating systems employing more than one hundred (100) pounds of Group 2 refrigerants shall be provided with an emergency tank complying with the provisions of Section 403.0 for the storage of volatile flammables. Such tanks shall be equipped with a quick-acting gate valve and automatically controlled valve approved by the Director readily accessible and identified as required by Section 1805.4 to purge the system of all refrigerant in the event of fire.

SEC. 1815.0 - HEATING EQUIPMENT

SEC. 1815.1 - STEAM PRESSURE. The steam pressure in heating coils of all air-conditioning systems shall be limited by an approved safety valve.

SEC. 1815.2 - INSTALLATION. The installation of all steam and hot water apparatus in air-conditioning systems shall comply with the requirements of Articles 10 and 11 and with the approved rules adopted thereunder for piping, flues and flue connections.

SEC. 1815.3 - DIRECT HEATERS. Direct heating units when used in air-conditioning systems shall be equipped with an approved temperature limit-control device.

SEC. 1816.0 - WATER CONNECTIONS

SEC. 1816.1 - CROSS CONNECTIONS. Discharge water lines from condensers shall be connected to prevent siphoning into potable water supply lines and no water for removing heat from a refrigerating system shall be discharged into any water supply intended for drinking or other domestic purposes. The installation of discharge water lines shall comply with the provisions of Section 1719.6.

SEC. 1816.2 - DISCHARGE LINES. Discharge lines from condensers and other equipment shall not be directly connected to the waste or sewer system but shall discharge over and above the rim of a trapped and vented plumbing fixture or other interceptor as provided in Section 1713.0, or into a separate storm water sewer.

SEC. 1817.0 - GAS MASKS AND HELMETS

SEC. 1817.1 - NUMBER REQUIRED. An approved gas mask or helmet shall be provided when the amount of refrigerant used is between one hundred (100) and one thousand (1,000) pounds; and at least two (2) such masks or helmets shall be provided when more than one thousand (1,000) pounds of refrigerant are employed.

SEC. 1817.2 - APPROVED TYPES. The helmets and masks shall be types approved by the U. S. Bureau Of Mines for the specific refrigerant and shall be stored in a suitable cabinet located immediately outside of the machinery room or as approved by the Director.

SEC. 1817.3 - MAINTENANCE. The cannisters or cartridges of masks or helmets shall be renewed immediately after having been used, or after the seal is once broken. Unused masks or helmets shall be recharged at least once every two (2) years. When masks or helmets are recharged, the last date of recharging shall be marked on the cannister or cartridge.

SEC. 1818.0 - FIRE DAMPERS AND OPENING PROTECTIVES

SEC. 1818.1 - FIRE AND FIRE DIVISION WALLS. An approved fire door or an approved automatic fire shutter complying with the provisions of Section 920.0 shall be provided at each side of a fire wall or fire division wall which is pierced by a duct of an air-conditioning or ventilating system. Such opening protective shall be installed so as to be readily accessible for inspection and repair.

SEC. 1818.2 - FIRE DAMPERS. When fire doors are not practical and where required in ducts, approved fire dampers shall be constructed of incombustible materials and installed in the locations herein prescribed and in accordance with the approved rules:

.21 At each connection of a lateral duct to the enclosure of a vertical duct;

.22 In each return air duct at the entrance to the plenum chamber and at each return opening to the plenum chamber;

.23 At the junction of return air and fresh air ducts before entering the plenum chamber.

.24 In the main return air duct at a point between its junction with the fresh air intake duct, and the plenum inlet nearest thereto.

.25 At the supply duct and at the entrance of each plenum chamber containing the evaporator of a direct refrigerating system with a capacity of more than fifty (50) pounds of refrigerant.

SEC. 1818.3 - EXTERIOR AIR INTAKES. Fresh air intakes with less than thirty (30) feet exposure distance to openings in adjoining walls or buildings shall be protected with approved automatic fire shutters, curtains or other approved opening protectives complying with Article 9.

SEC. 1819.0 - DUCTS, LININGS AND COVERINGS

SEC. 1819.1 - MATERIALS AND SUPPORTS. All ducts shall be constructed of approved, incombustible, corrosion-resistive materials in accordance with the requirements of this article and the provisions of Section 1019.0 and Section 1117.0 of this Code. Ducts may be of independent construction or may be incorporated in the walls or other parts of the structure, provided that the portion of the structure forming the duct enclosure meets the minimum requirements for strength and fire-resistance specified herein or in Article 9. They shall be made reasonably air-tight throughout, without openings other than those required for the proper operation and maintenance of the air-conditioning or ventilating system. Ducts and all parts of the duct system shall be substantially supported and securely fastened to the structural members of the building with supports of approved, durable, incombustible materials.

SEC. 1819.2 - CONSTRUCTION OF DUCTS. All duct material shall conform to Table 18 of Article 10, and the transverse joints, flexible joints, connections, bracing and other features of construction for the various sizes required shall conform to the approved rules.

SEC. 1819.3 - PLENUM CHAMBERS. Plenum chambers shall conform to all the minimum requirements for duct systems, and when such chambers are enclosed in walls or partitions, the enclosure shall be constructed in accordance with the requirements of Article 8 for enclosure walls, but in no case shall the fire-resistance rating be less than two (2) hours.

SEC. 1819.4 - SIZE OF DUCTS.

Duct sizes shall be based on the discharge capacity and size of the refrigerating system as specified in the approved rules and for emergency ventilation of machine rooms as specified in Table 28.

SEC. 1819.5 - LOCATION OF DUCTS. All ducts shall be installed so that they will not vitiate the strength of any structural member and so as not to be subject to mechanical damage or rupture.

.51 - Flammable Residues. Return ducts shall not originate in or pass through rooms containing flammable vapors, dust, or other flammable residues.

.52 - Clearances. Metal ducts shall be installed not nearer than two (2) inches to any combustible construction unless protected by at least one-quarter (1/4) inch of asbestos or other approved insulating materials.

.53 - Fire Stopping. The fire stopping of floors, partitions and walls shall not be destroyed where ducts pass through floors, ceilings, walls or partitions, nor shall the effectiveness of the fire protection as required in Section 917.0 around structural members be impaired.

SEC. 1819.6 - SUPPLY DUCTS. Supply ducts, other than vertical, shall conform to the requirements for return ducts, except when the entire air supply passes through either a water spray or approved filter as specified in Section 1821.0.

SEC. 1819.7 - RETURN DUCTS. Return ducts, other than vertical, shall be so constructed that the interior is accessible to facilitate the removal of possible accumulations of dust and other combustible and flammable matters.

SEC. 1819.8 - LININGS AND COVERINGS. Only approved incombustible materials shall be used for duct lining; nor shall combustible coverings be used on the outside of ducts. Insulating materials forming a component or auxiliary part of any duct system shall meet the test requirements of Article 9 for incombustible materials.

SEC. 1819.9 - CORRIDORS AS RETURN DUCTS. In all corridors, hallways or exitways as required in Section 605.0, an approved smoke detector or other device shall be provided to automatically and instantaneously stop the exhaust fan because of the presence of smoke. The louvres provided for the transmission of air to and from air-conditioned spaces to such corridors shall be equipped with manually operated closing devices which can be readily closed.

SEC. 1820.0 - INLET AND OUTLET OPENINGS

SEC. 1820.1 - EXTERIOR OPENINGS. Exterior fresh air intake openings when located on a street or alley lot line shall be installed not less than twelve (12) feet above grade; and all intakes shall be protected by approved corrosion-resistive screens.

SEC. 1820.2 - INTERIOR OPENINGS. Interior air inlet and outlet openings within buildings and structures shall be located not less than three (3) inches above floors, except that approved mushroom type inlets may be located under the seats in places of assembly equipped with fixed seats when the exhaust fan capacity is in excess of three thousand (3,000) cubic feet per minute.

SEC. 1820.3 - EXTERIOR EXHAUSTS. The exhaust openings shall be located on the exterior of structures with approved protecting guards, covers or other approved means of preventing the creation of a nuisance, and shall not circulate air downward in such manner as to strike pedestrians.

SEC. 1820.4 - FLAMMABLE RESIDUES. Ducts for exhaust ventilation and air-conditioning systems which discharge or contain flammable vapors, dust or other solid residues shall extend to the exterior of the structure in the most direct manner practicable and shall not pierce floors except when enclosed with construction of the required fire-resistance as defined by the fire load in Table 17; nor shall such ducts transporting flammable matters extend through fire walls, nor shall they be incorporated in the structure of the building. Such discharges shall be piped directly to the outside of the building; and the discharge outlet shall be located not less than twelve (12) feet above grade and not less than twenty (20) feet horizontally from a fire escape, exterior stairway or other required exitway.

SEC. 1821.0 - AIR FILTERS

SEC. 1821.1 - MATERIALS OF CONSTRUCTION. Air filters shall be of approved types, constructed of incombustible materials.

SEC. 1821.2 - ADHESIVE COATING. The flash point of liquid adhesive coatings used on air filters shall be not less than three hundred fifty (350) degrees F.

SEC. 1821.3 - OIL FILTERS. The use of oil filters that may be subject to flowing or dripping oil shall be prohibited.

SEC. 1822.0 - COOLING TOWERS

All cooling towers for refrigerating systems erected on the roofs of buildings shall be constructed to comply with the provisions of Section 932.8.

ARTICLE 19 - PREFABRICATED CONSTRUCTION**SEC. 1900.0 - SCOPE**

The provisions of this article shall govern the materials and methods of construction of all prefabricated buildings, sub-assemblies and units as herein defined.

SEC. 1900.1 - APPROVED MATERIALS AND METHODS. It is the intent to permit the use of all materials or methods of construction which meet the specified strength, durability, sanitary and fire-resistance requirements of this Code and the approved rules adopted thereunder, and the recognized standards of accepted engineering practice promulgated by accredited authoritative agencies.

SEC. 1900.2 - NEW MATERIALS. All new materials not specifically provided for shall be tested and approved in accordance with the provisions of Sections 803.0, 804.0, 805.0 and 806.0 for the strength, durability and fire-resistance or the Director may accept the reports of recognized testing authorities complying with the approved rules as provided for in Section 109.0.

SEC. 1900.3 - AT-SITE CONSTRUCTION. Nothing in these provisions shall be deemed to prohibit at-site construction and erection of buildings or structures when designed in compliance with the provisions of this Code and the minimum requirements prescribed in this article.

SEC. 1900.4 - CONFLICTING LAWS. Nothing herein contained shall be deemed to nullify any provisions of the zoning laws or any other law pertaining to building construction in respect to the location, use, height, area of buildings and types of construction, except as may be specifically exempted in these provisions; nor have the effect of increasing working stresses or reducing exit facilities and health provisions as established in this Code for all use groups.

SEC. 1901.0 - DEFINITIONS

Prefabricated Building. The assembled and erected building or structure, including the service equipment, of which the structural parts consist of prefabricated individual units or subassemblies in which the service equipment may be either prefabricated or at-site construction.

Prefabricated Sub-Assembly. A built-up combination of several structural elements designed and fabricated as an assembled section of wall, ceiling, floor or roof to be incorporated into the structure by field erection of two (2) or more such sub-assemblies.

Prefabricated Unit. A built-up section forming an individual structural element of the buildings, such as a beam, girder, plank, strut, column or truss, the integrated parts of which are prefabricated prior to incorporation into the structure, including the necessary means for erection and connection at the site to complete the structural frame.

Prefabricated Unit Service Equipment. A prefabricated assembly of mechanical units, fixtures and accessories comprising a complete service unit of mechanical equipment, including among others, bathroom and kitchen plumbing assemblies, unit heating and air-conditioning systems and loop wiring assemblies of electric circuits.

SEC. 1902.0 - PLANS AND SPECIFICATIONS.

Complete, legible dimensioned drawings to a scale of not less than one-eighth (1/8) inches per foot, and specifications covering every type of prefabricated construction complying with the administrative provisions of Section 112.0 shall be submitted to the Director describing all essential elements of the structure or assembly, identifying such materials as he may designate with the name of manufacturer, trade name, commercial grade, manufacturing process or chemical composition when necessary, and furnishing all required data of the physical properties of the component materials.

SEC. 1902.1 - MECHANICAL PLANS. Mechanical plans in sufficient detail for the installation of heating, cooking, electrical, ventilating, air-conditioning, sanitary and all other service equipment and piping shall be submitted to the Director with the application for general approval of the design; or if not included in the general application for approval, for each specific installation.

SEC. 1902.2 - PIPING AND ACCESSORIES. The design shall include provisions for all installations of piping and accessories for service equipment either in the shop or at the site.

SEC. 1902.3 - INTEGRAL ACCESSORIES. When unit service equipment is furnished with, and forms an integral part of the prefabricated sub-assembly, the construction shall be performed to accommodate

accessory conduits, piping, duct, outlet boxes and fittings; and no material essential to the structural strength shall thereafter be removed from structural elements during installation on the site.

SEC. 1902.4 - SERVICE EQUIPMENT REQUIREMENTS. All service equipment shall comply with the construction and installation requirements of Articles 10 and 11 for heating, Article 12 for fire extinguishing, Article 15 for electrical, Article 17 for plumbing, and Article 18 for ventilating and air-conditioning systems and equipment.

SEC. 1903.0 - TESTS OF PREFABRICATED ASSEMBLIES.

When not capable of design by accepted engineering analysis, all prefabricated assemblies or sub-assemblies constructed as in practice shall be subjected to the unit assembly tests prescribed in Sections 702.0, 703.0 and Section 804.6 and the approved rules adopted thereunder. All assembly tests shall meet the strength requirements of Section 805.0 within the limits of deflection therein provided.

SEC. 1904.0 - INSPECTION AND CERTIFICATE OF SUPERVISION.

SEC. 1904.1 - VERIFIED REPORT. Except where all assemblies and sub-assemblies, service equipment and accessories are readily accessible for inspection at the site, the licensed professional engineer or architect who supervised the design, fabrication and erection of the prefabricated construction or the authorized and qualified representative of the manufacturer, shall furnish a verified report of inspection to the Director upon completion of the work certifying that the building has been erected in accordance with the applicable provisions of this Code, and that the work has been constructed in conformity with the approved plans except as to specific legally authorized variations which are noted in the verified report.

SEC. 1904.2 - TEST AND INSPECTION RECORDS. All required test and inspection records shall be available to the Director at all times during the fabrication of the unit or sub-assembly and erection of the building; or such records as the Director may designate shall be filed with him.

SEC. 1905.0 - PREFABRICATED UNITS.

Approved prefabricated individual units for use in floor, roof, ceiling or wall construction of the required fire-resistance may be used in all at-site construction types and building use groups within the requirements governing height, area and fire-resistance established in Tables 5 and 6, when designed to meet all prescribed structural requirements of Articles 7 and 8, including connection and anchorage details.

SEC. 1906.0 - EXISTING SYSTEMS AND APPROVALS.

SEC. 1906.1 - EXISTING APPROVALS. Any material, appliance, form or system of construction heretofore legally approved may be used for the purposes and within the limitations for which it was approved, provided such use is not detrimental to the structural, fire and health safety of the public or is not specifically prohibited by the provisions of this Code.

SEC. 1906.2 - MATERIALS ALREADY FABRICATED. The use of any material already fabricated or of any construction already erected under a legally issued permit of the Director shall be permitted; but the continuation of any construction erected in violation of any law in force at the time of erection shall be prohibited.

SEC. 1907.0 - APPROVALS BASED ON DESIGN.

When capable of design by accepted engineering analysis, any prefabricated structural element or combination of elements shall be approved by the Director when the design is based on the working loads and working stresses as provided in Sections 702.0, 704.0, 705.0 and 802.0.

SEC. 1907.1 - ORDINARY MATERIALS. When the character of construction permits site inspection by the Director and all prefabricated assemblies and sub-assemblies are readily accessible for field inspection, the use of ordinary material with the average working stresses prescribed in Appendix K shall be permitted in prefabricated construction.

SEC. 1907.2 - INTRICATE DESIGN. When a system of construction involves unusually intricate design analysis, the Director may require the submitter to retain a competent expert to assist in his determination.

SEC. 1907.3 - CHECK TESTS. When there is doubt as to the adequacy of the construction and accessory details which are based on design, the Director may require check tests of assembled units as specified in Section 702.0 or he may accept certified reports of such tests from approved testing authorities.

SEC. 1908.0 - APPROVALS BASED ON TESTS.

When not capable of design by accepted engineering analysis, every system of prefabricated building, sub-assembly or unit and its connections shall be subjected to the tests described and conditions of approval prescribed by Sections 805.0 and 806.0; or to any other tests acceptable to the Director that simulate the actual loads and conditions of application that the completed structure will be required to resist in normal use; or certified reports of such tests conducted by an approved and recognized testing authority may be accepted by the Director, provided such tests meet the requirements of this Code and the approved rules adopted thereunder; and all costs of such investigations and tests shall be borne by the submitter.

SEC. 1908.1 - FIELD CONNECTIONS. All field splices and structural connections of floor, wall, ceiling and roof sub-assemblies shall be of sufficient strength to transfer two and one-half (2 1/2) times the design live loads without failure, and so constructed as to insure weather tightness in exterior wall and roof panels.

SEC. 1908.2 - WEATHER RESISTANCE. In the absence of reliable experience records, the Director may require accelerated tests on the prefabricated assemblies as prescribed by Section 804.0 and the approved rules adopted thereunder to determine durability, weather tightness and weather resistance or he may accept certified reports of approved and recognized testing authorities in respect thereto.

SEC. 1909.0 - MATERIALS, DIMENSIONS AND METHODS OF FABRICATION.

SEC. 1909.1 - ACCEPTED STANDARDS. The provisions of Articles 7 and 8 and the approved rules adopted thereunder shall control the selection of materials, design and fabrication of prefabricated structures.

SEC. 1909.2 - BELOW GRADE CONSTRUCTION. The prefabricated construction covered by these provisions shall not be permitted in

cellar or basement below grade unless specifically approved by the Director. All such sub-surface structures shall be constructed of approved masonry, or reinforced concrete complying with Article 8; or the sub-grade walls and floors shall be constructed of durable water-resisting materials of adequate strength to resist the loads prescribed in Article 7.

SEC. 1909.3 - EXTERIOR AND INTERIOR FINISH. When fire-resistance is specified, framed wall and partition assemblies shall be veneered or surfaced and constructed with approved materials to secure the specified fire-resistance rating required by the provisions of Article 2 for the construction type and use group of the building or structure within the limitations of Tables 5 and 6.

.31 - Plastering Materials. The materials for plastered or dry-wall construction shall comply with the requirements of Section 822.0 to 828.0 for interior and exterior and exterior plastering, plaster bases, furring and studding.

.32 - Veneers And Facing. All thin veneers and facing shall comply with the requirements of Sections 866.0 to 872.0 inclusive.

SEC. 1909.4 - EXTERIOR PROTECTION. All exposed steel shall be protected with a rust-inhibitive coating of zinc chromate, or by galvanizing with a zinc chromate priming or with asphalt or other approved rust-resisting paint, enamel or porcelain enamel, or shall be manufactured of approved corrosion-resistive metal.

SEC. 1909.5 - AT-GRADE SIDING. Exposed metal or other corrodible siding or sheathing shall be protected from corrosion at the ground level by supporting the foundation channel at sufficient height above grade on the concrete apron or other approved water-resistive foundation support as required by Section 886.0, but in no case less than twelve (12) inches above grade. In structures two (2) stories or over in height, the sheathing shall be weather-resisting incombustible or approved protected-combustible siding, within the construction limitations of Tables 5 and 6, and the provisions of Section 858.0.

SEC. 1909.6 - CONNECTIONS. All connections and accessories shall be proportioned to transmit the loads and stresses imposed in accordance with accepted engineering practice and as prescribed in Section 1908.1.

SEC. 1909.7 - ROOFING. All roof coverings shall be of approved types meeting the requirements of Section 933.0.

SEC. 1909.8 - CONDENSATION AND WEATHER RESISTANCE. To secure weather-tightness and eliminate condensation in framed walls and other unoccupied spaces or hollow cavities, all sheathing, siding, finish, flashing and insulation shall be designed to comply with the provisions of Section 858.0.

SEC. 1909.9 - WATERPROOFING, RATPROOFING AND TERMITE PROTECTION

All installations shall comply with the provisions of Section 885.0 for waterproofing, Section 886.0 for ratproofing and Section 887.0 for termite protection.

SEC. 1910.0 - LIGHT-GAGE STEEL-FRAME CONSTRUCTION

The fabrication of light-gage strip-steel integrated assemblies of ribs, purlins, studs, girts and wall coverings as defined in Section 701.0 shall comply with Section 831.0 and as herein provided.

SEC. 1910.1 - DESIGN AND WORKING STRESSES

.11 - Light-Gage Steel. The design of steel roof deck, floor plate and structural members which are cold-formed from strip or sheet steel less than three-sixteenths (3/16) inch thick shall conform to the requirements of A.I.S.I. specifications listed in Appendix B.

.12 - Structural Steel. Hot-rolled structural steel members shall conform to the requirements of Section 830.0 and the A.I.S.C. specifications listed in Appendix B.

.13 - Steel Joists. Steel joist members shall conform to the requirements of Section 833.0 and the S.J.I. specifications listed in Appendix B.

.14 - Welding And Flame-Cutting. All welding shall comply with the provisions of Sections 830.0, 1319.4 and 1312.0 and the A.W.S. specifications listed in Appendix B.

.15 - Average Materials. When ordinary material procedure is followed, the average stresses specified in Appendix K shall be used.

SEC. 1910.2 - QUALITY OF MATERIALS. All steel shall be of the quality herein prescribed.

.21 - Cold-Formed Members. Steel under three-sixteenths (3/16) inch in thickness for cold-formed or deformed members shall comply with the applicable A.S.T.M. specifications for light-gage carbon steel listed in Appendix C.

.22 - Hot-Rolled Members. Hot-rolled structural members shall comply with the applicable A.S.T.M. specifications for structural steel listed in Appendix C.

SEC. 1910.3 - THICKNESS OF MATERIALS. The minimum thickness of metal shall conform to Section 830.0 for fabricated hot-rolled steel members; Section 831.0 for cold-formed steel members; and Section 833.0 for steel joist members.

SEC. 1911.0 - LIGHT WOOD-FRAME CONSTRUCTION

The fabrication of light wood-frame structures shall comply with Sections 858.0 and 859.0 and the approved rules adopted thereunder.

SEC. 1911.1 - DESIGN AND WORKING STRESSES.

.11 - Lumber Sizes. Lumber sizes shall conform to the U.S.D.C. simplified practice recommendations listed in Appendix C.

.12 - Glued Members. Design of and allowable working stresses of glued members shall comply with Section 858.0 for stressed-skin panel coverings; Section 858.0 for molded plywood units; Section 859.0 for glued, laminated members; and Section 859.0 for built-up sections; and with the applicable design specifications listed in Appendix B and Appendix C for structural design or the average stresses listed in Appendix K.

SEC. 1911.2 - MATERIALS.

.21 - Plywood. Plywood shall comply with the provisions of Section 828.0 for interior and exterior use and for wall and roof sheathing; and with the commercial standards and test requirements for Douglas Fir, Western Hemlock and for Hardwood and Eastern Red Cedar listed in Appendix C.

.22 - Structural Glues. Glues used in a structural assembly of laminated and built-up lumber sections shall comply with the requirements of Section 821.0 for structural wood glues and the approved rules adopted thereunder.

SEC. 1912.0 - LIGHT REINFORCED CONCRETE-FRAME CONSTRUCTION

The fabrication of light reinforced concrete framed structures or units shall comply with Sections 846.0 to 853.0 inclusive and the approved rules adopted thereunder.

SEC. 1912.1 - DESIGN AND WORKING STRESSES. In the absence of approved rules, design and working stresses shall comply with the A.C.I. standards for precast concrete floor units and building regulations listed in Appendix B or the average stresses listed in Appendix K. The fire-resistive requirements and thickness of protection shall be determined for the class of concrete and character of aggregates prescribed in Section 819.0 for the specified fire-resistance required in Tables 5 and 6.

SEC. 1912.2 - MATERIAL TESTS.

.21 Number of Tests. When concrete is used, the procedure shall comply with Sections 847.0 and 848.0 and tests shall be made at the place of manufacture to determine the water-ratio and aggregate proportions required to maintain the design strength for every change in material and manufacturing conditions; and not less than three (3) compression specimens shall be tested at the age of shipment of the prefabricated unit for each one hundred (100) yards of concrete or part thereof.

.22 Required Strength. The test cylinders shall develop an average compressive strength at the age of shipment of the prefabricated unit equal to twice the compressive stress used in the design of the unit.

SEC. 1912.3 - SHOP REPORT. The inspection report shall cover the quality of concrete materials and the total amount of water used; the mixing and placing of concrete and the installation of reinforcements; together with a record of the temperatures and means of protection provided for the concrete while curing.

SEC. 1913.0 - LIGHT REINFORCED GYPSUM-FRAME CONSTRUCTION.

The fabrication of light reinforced gypsum frame structures or units shall comply with the requirements of Section 854.0 and the approved rules adopted thereunder.

SEC. 1913.1 - DESIGN AND WORKING STRESSES. Design and working stresses shall comply with the provisions of Articles 7 and 8 for materials and the applicable requirements of the A.S.A. standards listed in Appendix B.

SEC. 1913.2 - MATERIAL TESTS.

.21 Number of Tests. When controlled gypsum is used, the

required materials and tests shall comply with Section 854.0, but not less than three (3) compression specimens for each one hundred (100) yards of gypsum concrete, cured and stored under the same conditions as the building units, shall be tested at the age of shipment of prefabricated gypsum concrete structural units.

.22 Required Strength. The test specimens shall develop an average compressive strength equal to twice the stress used in the design.

SEC. 1913.3 - PROTECTION OF UNITS. Continual protection from the weather and from contact with water shall be furnished for the prefabricated units or sub-assemblies during shipment, storage and after erection in the structure.

SEC. 1913.4 - CONSTRUCTION DETAILS.

.41 Handling and Erection Stresses. All units shall be metal bound or otherwise reinforced for handling stresses, and precaution shall be observed to provide temporary anchorage to the structural frame during erection, and to prevent damage or destruction from the weather and wind uplift before final completion of the installation.

.42 Grade Construction. The ventilated space underneath first floor construction shall be not less than two (2) feet high, and the underside of the first floor construction shall be damp-proofed with asphalt, bituminous or other protective covering.

SEC. 1914.0 - FIRE PREVENTION AND FIRESTOPPING.

Provisions shall be made to comply with all requirements of Sections 888.0 and 924.0 for fire prevention and firestopping, and all the applicable provisions for fire-resistive construction to insure fire safety, and to prevent the communication of flame in the event of fire within structural elements or assemblies, and to adjoining buildings and structures.

SEC. 1915.0 - LIGHT AND VENTILATION.

Adequate means of light and ventilation shall be provided in accordance with the provisions of Article 5 and the following minimum requirements.

SEC. 1915.1 - WINDOW OPENINGS. Every habitable and occupiable room shall have window openings to the outdoors with an aggregate glass area of not less than one-tenth (1/10) the floor area and an openable area of not less than fifty (50) per cent of the required glass area; or other approved means of lighting and ventilation providing the equivalent distributed light and fresh air supply complying with the provisions of this Code.

SEC. 1915.2 - BATHROOM VENTILATION. In bathrooms and toilet rooms, a ventilating skylight of equivalent area or gravity ventilator with approved siphon-type hood, or the equivalent mechanical ventilation may be substituted for the required window openings specified in Section 513.0.

SEC. 1915.3 - ATTIC SPACES. The ventilation of attic spaces shall conform to the requirements of Section 508.0.

SEC. 1915.4 - CRAWL SPACES. Spaces, when provided under the first floor construction, shall be ventilated to comply with the provisions of Section 508.0.

SEC. 1916.0 - EGRESS FACILITIES.

The requirements of Article 6 of this Code shall control the number, size and construction of all means of egress as specified therein for the use and occupancy of the building. All details of construction shall conform to this Code, and the requirements of Table 5.

SEC. 1916.1 - INTERIOR FINISHES. In other than dwellings for one (1) and two (2) families not exceeding two and one-half (2½) stories or thirty-five (35) feet in height, combustible interior finishes shall not be used in stairways or other exitways, except that floor finishes of wood, linoleum, rubber, asphalt, tile or cork and similar materials, closely attached to the sub-floor, and wall paper finishes securely attached to plaster or to other incombustible bases shall not be prohibited; but all other provisions of Section 926.0 for trim and finish in exitways shall be complied with.

SEC. 1916.2 - FLAMMABLE PAINTS AND FINISHES. The use of highly volatile, flammable liquids, solvents or other materials in paints or other coverings for trim or finish in exitways shall be prohibited.

SEC. 1917.0 - PLUMBING, PIPING AND SANITARY EQUIPMENT.

All installations shall comply with the provisions of Article 17 governing plumbing, drainage and gas-piping systems and the approved rules adopted thereunder.

SEC. 1918.0 - ELECTRIC WIRING AND EQUIPMENT.

All electric conductors, equipment circuits and outlets for electric appliances shall be installed in accordance with the provisions of Article 15 and the approved rules adopted thereunder.

SEC. 1919.0 - HEATING AND AIR-CONDITIONING.

The applicable provisions of Articles 10 and 11 and the approved rules adopted thereunder shall control the construction and installation of chimneys, flues and heating appliances as therein provided for oil, gas and solid-fuel fired heating equipment and service-water heaters; and the provisions of Article 18 for air-conditioning installations.

SEC. 1919.1 - CONSTRUCTION OF AIR DUCTS. All air ducts shall be constructed of galvanized steel, cement-asbestos or other approved corrosion-resistive and incombustible materials complying with the provisions of Sections 1019.0, 1117.0 and 1819.0.

SEC. 1919.2 - STRENGTH OF DUCT MATERIALS. The strength and durability of the materials of construction for air-ducts shall be equivalent to galvanized steel ducts of the thickness specified in table 18.

SEC. 1920.0 - REPEALER CLAUSE

Chapter 524 of the Ordinances of the City of Providence entitled "An Ordinance restricting the construction, repair, maintenance and removal of buildings and other structures within the City of Providence" approved September 27, 1926 as amended, and all other ordinances or parts thereof inconsistent with this ordinance are hereby repealed.

SEC. 1921.0 - PROSECUTION OF EXISTING VIOLATIONS

This ordinance shall not affect violations of any ordinance, code or regulation of the City of Providence, existing prior to the effective date of this ordinance, and such violations shall be governed and shall continue to be punishable to the full extent of the law under the provisions of those ordinances, codes or regulations in effect at the time the violations were committed.

SEC. 1922.0 - SEVERABILITY

If any section, sub-section, paragraph or provision of this ordinance should be held invalid for any reason whatsoever, such invalidity shall not affect the remaining portions of this ordinance which shall remain in full force and effect and to this end the provisions of this ordinance are declared to be severable.

SEC. 1923.0 - VALIDITY OF EXISTING BUILDING PERMITS

Nothing in this ordinance shall require any change in the plans, construction or intended use of the building for which a building permit has heretofore been issued and the construction of which shall have been diligently prosecuted within six months of the date of such permit: PROVIDED, That where the exercise of any building permit validly issued has been restrained by legal process, said building permit shall be valid for a period of two months after such legal restraint is removed.

SEC. 1924.0 - EFFECTIVE DATE

This ordinance shall become effective on March 31, 1957.

**IN CITY
COUNCIL**

DEC 6 - 1956

FIRST READING
READ AND PASSED

Everett Whelan
CLERK

**IN CITY
COUNCIL**

DEC 20 1956

FINAL READING
READ AND PASSED

Angelo G. Giallo
PRESIDENT
Everett Whelan
CLERK

APPROVED

DEC 21 1956

Walter H. Reynolds
MAYOR

APPENDIX AACCREDITED AUTHORITATIVE AGENCIES

AMA	ACOUSTICAL MATERIALS ASSOCIATION 350 Fifth Avenue, New York 1, New York
AA	AMERICAN CONCRETE INSTITUTE 18263 W. McNichols Rd. Detroit 19, Michigan
ACPA	ASBESTOS CEMENT PRODUCTS ASSOCIATION 509 Madison Avenue, New York 22, New York
ACRMA	AIR CONDITIONING AND REFRIGERATION MACHINERY ASSOCIATION 717 Southern Building Washington 5, D. C.
AGA	AMERICAN GAS ASSOCIATION 420 Lexington Avenue, New York 17, New York
AIA	AMERICAN INSTITUTE OF ARCHITECTS 1735 New York Avenue, N.W., Washington 6, D. C.
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS 33 West 39th Street, New York 18, New York
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC. 101 Park Avenue, New York 17, New York
AISI	AMERICAN IRON AND STEEL ASSOCIATION 150 East Forty-Second Street New York 17, New York
APHA	AMERICAN PUBLIC HEALTH ASSOCIATION, INC. 1790 Broadway New York 19, New York
API	AMERICAN PETROLEUM INSTITUTE 1625 K Street, N.W., Washington, D. C. and 50 West 50 Street New York 20, N. Y.
ASA	AMERICAN STANDARDS ASSOCIATION, INC. 70 East 45th Street New York 17, New York

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
33 West 39th Street,
New York 18, New York

ASHACE AMERICAN SOCIETY HEATING AND AIR CONDITIONING ENGINEERS
62 Worth Street,
New York, New York

ASME AMERICAN SOCIETY MECHANICAL ENGINEERS
29 West 39th Street
New York 18, New York

ASRE AMERICAN SOCIETY REFRIGERATING ENGINEERS
234 Fifth Avenue
New York 1, New York

ASSE AMERICAN SOCIETY SANITARY ENGINEERING
City Hall,
Waterbury, Connecticut

ASTM AMERICAN SOCIETY FOR TESTING MATERIALS
1916 Race Street,
Philadelphia 3, Pennsylvania

ATI ASPHALT TILE INSTITUTE
101 Park Avenue,
New York 17, New York

AWMA ALUMINUM WINDOW MANUFACTURERS ASSOCIATION
75 West Street,
New York 6, New York

AWPA AMERICAN WOOD PRESERVERS ASSOCIATION
1427 Eye Street, N.W.,
Washington 5, D. C.

AWS AMERICAN WELDING SOCIETY
33 West 39th Street
New York 18, New York

BOCA BUILDING OFFICIALS CONFERENCE OF AMERICA, INC.
110 East 42nd Street, Room 709,
New York 17, New York

BPI BUILDING PRODUCTS INSTITUTE
Shoreham Building, Room 1032,
Washington 5, D. C.

CAA CIVIL AERONAUTICS ADMINISTRATION
Washington 25, D. C.

CABRA COPPER AND BRASS RESEARCH ASSOCIATION
420 Lexington Avenue,
New York 17, New York

CIPRA CAST IRON PIPE RESEARCH ASSOCIATION
122 South Michigan Avenue,
Chicago 3, Illinois

CRSI CONCRETE REINFORCING STEEL INSTITUTE
38 South Dearborn Street,
Chicago 3, Illinois

CS COMMERCIAL STANDARDS (U.S. DEPT. OF COMMERCE)
Superintendent Of Documents
Government Printing Office
Washington 25, D. C.

CSPA CLAY SEWER PIPE ASSOCIATION, INC.
5 East Long Street, Room 311
Columbus 15, Ohio

DEFA DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma Building,
Tacoma 2, Washington

FLAO FINISHING LIME ASSOCIATION OF OHIO
319 United Savings Building
240 Huron Street
Toledo 4, Ohio

FML FACTORY MUTUAL LABORATORIES (Associated Factory Mutual)
184 High Street (Fire Insurance Companies)
Boston 10, Massachusetts

FPL FOREST PRODUCTS LABORATORY
Madison 5, Wisconsin

FTI FACING TILE INSTITUTE
1756 K Street, N. W.,
Washington 6, D. C.

GA GYPSUM ASSOCIATION
20 North Wacker Drive,
Chicago, Illinois

GOAA GENERAL OUTDOOR ADVERTISING ASSOCIATION
451-453 Connecticut Boulevard
East Hartford 8, Conn.

HPI HARDWOOD PLYWOOD INSTITUTE
600 South Michigan Avenue,
Chicago 5, Illinois

IAEI INTERNATIONAL ASSOCIATION ELECTRICAL INSPECTORS
612 North Michigan Avenue
Chicago 11, Illinois

IBI INSULATION BOARD INSTITUTE
111 West Washington Street,
Chicago 2, Illinois

IBOC INTERNATIONAL BUILDING OFFICIALS CONFERENCE OF AMERICA
124 West 4th Street, 610 South Broadway
Los Angeles, California

IES ILLUMINATING ENGINEERING SOCIETY
1860 Broadway,
New York 23, New York

ILI INDIANA LIMESTONE INSTITUTE
P. O. Box 471
Bedford, Indiana

IPCEA INSULATED POWER CABLE ENGINEERS ASSOCIATION
283 Valley Road,
Montclair, New Jersey

JAN JOINT ARMY - NAVY SPECIFICATIONS
Bureau of Supplies and Accounts
Navy Department
Washington 25, D. C.

LIA LEAD INDUSTRIES ASSOCIATION
60 East 42nd Street,
New York 17, New York

LPGA LIQUEFIED PETROLEUM GAS ASSOCIATION
11 South LaSalle Street,
Chicago 3, Illinois

MCA MANUFACTURING CHEMISTS ASSOCIATION, INC.
1625 Eye Street, N.W.
Washington 6, D. C.

MCAA MECHANICAL CONTRACTORS ASSOCIATION OF AMERICA
30 Rockefeller Plaza, Suite 1843
New York 20, New York

MIA MARBLE INSTITUTE OF AMERICA, INC.
32 South Fifth Avenue,
Mount Vernon, New York

MLMA METAL LATH MANUFACTURERS ASSOCIATION
Engineers Building,
Cleveland 14, Ohio

MRDTI METAL ROOF DECK TECHNICAL INSTITUTE
1210 East Ferry Street,
Buffalo 11, New York

MSAI Mo SAI ASSOCIATES, INC.
P. O. Box 606
New Haven, Connecticut

NAHB NATIONAL ASSOCIATION OF HOME BUILDERS
 National Housing Center
 1625 L Street, N.W.
 Washington 6, D. C.

NBBI NATIONAL BOARD BOILER AND PRESSURE VESSEL INSPECTORS
 1155 N. High Street
 Columbus 15, Ohio

NBFU NATIONAL BOARD OF FIRE UNDERWRITERS
 85 John Street
 New York 38, New York

NBGQA NATIONAL BUILDING GRANITE QUARRIES ASSOCIATION, INC.
 114 East 40th Street,
 New York 16, New York

NBS NATIONAL BUREAU STANDARDS (Dept. of Commerce)
 Supt. of Documents
 Gov't. Printing Office
 Washington 25, D. C.

NCMA NATIONAL CONCRETE MASONRY ASSOCIATION
 38 South Dearborn Street,
 Chicago 3, Illinois

NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
 155 East 44th Street
 New York 17, New York

NEMI NATIONAL ELEVATOR MANUFACTURING INDUSTRY
 101 Park Avenue,
 New York 17, New York

NFPA NATIONAL FIRE PROTECTION ASSOCIATION
 60 Batterymarch Street,
 Boston 10, Massachusetts

NLA NATIONAL LIME ASSOCIATION
 925 - 15th Street, N.W.,
 Washington 5, D. C.

NLMA NATIONAL LUMBER MANUFACTURERS ASSOCIATION
 1319 - 18th Street, N.W.,
 Washington 6, D. C.

NMDA NATIONAL METALCLAD DOOR ASSOCIATION
 266 Bryant Street
 Buffalo 22, New York

NMWA NATIONAL MINERAL WOOL ASSOCIATION
 2906 Americas Building,
 Rockefeller Center,
 New York 20, New York

NPVLA NATIONAL PAINT, VARNISH AND LACQUER ASSOCIATION
1500 Rhode Island Avenue, N.W.,
Washington 5, D. C.

NRC NATIONAL RESEARCH COUNCIL
Division of Building Research,
Ottawa 2, Ontario, Canada

NS NAVY SPECIFICATIONS
Bureau of Supplies and Accounts
Navy Department
Washington 25, D. C.

NSPE NATIONAL SOCIETY PROFESSIONAL ENGINEERS
2029 K Street, N.W.
Washington 6, D. C.

NYCBSA NEW YORK CITY BOARD OF STANDARDS AND APPEALS
Municipal Building
Center and Chamber Streets,
New York 7, New York

NY&D CHIEF, BUREAU OF YARDS AND DOCKS (Code D-100)
Navy Department,
Washington 25, D. C.

NWAHACA NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION
640 Engineers Building
Cleveland 14, Ohio

PCA PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue
Chicago 10, Illinois

PCI THE PRODUCERS COUNCIL, INC.
2029 K Street, N.W.,
Washington, D. C.

PEI PORCELAIN ENAMEL INSTITUTE
1145 Nineteenth Street, N.W.,
Washington 5, D. C.

PHMI PREFABRICATED HOME MANUFACTURERS INSTITUTE
908 - 20th Street, N.W.,
Washington 5, D. C.

PI PERLITE INSTITUTE
10 East 40th Street
New York 16, New York

RCSB RED CEDAR SHINGLE BUREAU
5510 White Building
Seattle, Washington

RSBA RAIL STEEL BAR ASSOCIATION
38 South Dearborn Street,
Chicago 3, Illinois

SBCC SOUTHERN BUILDING CODE CONGRESS
1116 Brown-Marx Building,
Birmingham, Alabama

SBI STEEL BOILER INSTITUTE, INC.
Land Title Building, Room 1308
Philadelphia 10, Pennsylvania

SCPI STRUCTURAL CLAY PRODUCTS INSTITUTE
1756 K Street, N.W.,
Washington 6, D. C.

SJI STEEL JOIST INSTITUTE
Dupont Circle Building
1346 Connecticut Avenue, N.W.,
Washington 6, D. C.

SPR SIMPLIFIED PRACTICE RECOMMENDATIONS (U.S. Dept. Commerce)
Superintendent of Documents
Government Printing Office
Washington 25, D. C.

SWI STEEL WINDOW INSTITUTE
Cheltenham, Pennsylvania

TCA TILE COUNCIL OF AMERICA
10 East 40th Street
New York 16, New York

UBPVLS UNIFORM BOILER and PRESSURE VESSEL LAWS SOCIETY, INC.
95 Liberty Street
New York 6, New York

ULI UNDERWRITERS' LABORATORIES, INC.
207 East Ohio Street,
Chicago 11, Illinois

USDC UNITED STATES DEPARTMENT OF COMMERCE
Washington 25, D. C.

USFS UNITED STATES FOREST SERVICE
Madison 5, Wisconsin

VI VERMICULITE INSTITUTE
208 South LaSalle Street,
Chicago 4, Illinois

WPOA WESTERN PLUMBERS OFFICIAL ASSOCIATION
City Hall, Post Office Box 11
Los Angeles 53, California

WRI WIRE REINFORCEMENT INSTITUTE
National Press Building
Washington 4, D. C.

APPENDIX BACCEPTED ENGINEERING PRACTICE

High hazard materials handling and storage; fire protection de-
 vices; heating equipment rules; specifications and standards.. NBFU
 Inspection service; tests and reports; lists of building con-
 struction, fire protection, extinguishing devices and elec-
 trical equipment..... ULI
 National Fire Codes; Handbook of Fire Protection; standards and
 reports..... NFPA
 Test investigations; reports and lists of fire protection equip-
 ment; special hazards; electrical equipment; building construc-
 tion and mill fire prevention organizations..... FML

Administrative Requirements for Building Code.....ASA A 55.1-1948
 Air Conditioning, Air Cooling and Ventilating SystemsNBFU No.90A-1955
 and NBFU No.90B-1955
 Aircraft Hangars.....NBFU No. 409-1956 and
 Operational Hazards in Aircraft Hangars.....NBFU No. 410-1956
 Arc and Gas Welding in Building Construction.....AWS Hand Book-1956
 Automotive Lifts.....USDC CS 142-1951

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 or Conveying.....NBFU No. 91-1949
 Boca Basic Code 1955
 Boiler Code and Unfired Pressure Vessel.....ASME-1956
 Building Codes, Preparation and Revisions.....NBS BMS 116-1949
 Building Code Requirements for Light and Ventilation..ASA A 53.1-1946
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 Building Code Requirements for Minimum Design Loads...ASA A 58.1-1955
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 struction.....NBS BMS 107-1947
 Building Code Requirements for Gypsum Plastering.....ASA A 42.1-1955
 Building Code Requirements for Portland Cement.....ASA A 42.3-1946
 Building Code Requirements for Portland Cement
 Plastering.....ASA A 42.2-1946
 Building Code Requirements for Reinforced Concrete.....ACI 318- 1956
 and ASA A 89-1-1951
 Building Exits Code.....ASA A 9.1-1953

Care and Use of Ladders.....ASA A 14-1952
 Central Heating Gas Appliances.....ASA Z 21.13-1956
 City Gas Piping.....NBFU No. 54-1954
 Classification of Fuel Oils.....USDC CS 12-1948
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 and A 62.2-1945
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 Buildings.....AISC June-1952
 Design, Specifications for Aluminum Alloy...Alum. Co. Amer. Aug.-1946
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 Farmstead Wiring.....IES-1947
 Fiber Insulating Boards, Structural.....USDC CS 42-49
 and Fed. Spec. LLL-F-321b- 42
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 First Aid Fire Appliances.....NBFU No. 10-1947
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 structions.....NBS BMS 92-1942
 Fire Resistance Ratings (Walls, Partitions and Floors)..NBS TRBM-1946
 BOCA ABC-1950
 Flammable Liquids.....NBFU No. 30-1956
 and No. 64-1952
 Floor and Wall Openings, Railings and Toe Boards.....ASA A 12-1932

 Garages.....NBFU No. 88-1939
 Gas Fired Duct Furnaces.....ASA Z 21.34-1942
 Gas Space Heaters.....ASA Z 21.11-1945
 Gas Systems for Welding and Cutting.....NBFU No. 51-1956
 Grandstands, Tents and Outdoor Assembly.....ASA Z 20.2-1950
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Safety Code for Manlifts.....ASA A 90-1949
Safety Code for Elevators, Dumbwaiters and Escalators.ASA A 17.1-1955
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Safety Code for Building Construction.....ASA A 10.2-1944
Safety Code for Portable Wood Ladders.....ASA A 14.1-1952
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Signs and Outdoor Display Structures.....	ASA A 60.1-1949
Solid-Fuel Fired Air Furnaces.....	USDC CS 109-1947
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APPENDIX-C

C-1 MASONRY BEARING WALLS

FIRERESISTANCE RATINGS ORDINARY MATERIALS

NOTE: The thickness herein specified is the minimum permissible unless approved by time-temperature performance in the standard fire test. All assemblies shall be constructed to comply with Building Code in respect to details of construction and finish as. All special approvals based on specific fire tests will be listed after compliance with the acceptance and approvals of new materials as set forth in SEC. 109.0 has been fulfilled.

N.P. - Unplastered.

P.I.S. - Plastered one side (fire side)

P.2.S. - Plastered both sides (or stucco exterior)

Unless otherwise noted, thickness of plaster measured from face of base or back of lath.

TYPE OF WALLS	THICKNESSES IN INCHES						
	4 Hours	3 Hours	2 Hours	1½ Hours	¾ Hour	½ Hour	⅓ Hour
Solid Brick & Dressed Stone	8 N.P.	8 N.P.	8 N.P. *4 P.2.S.	-----	-----	-----	-----
Hollow Wall - Solid Unit	12 N.P. or 8 P.2.S.	8 P.I.S.	8 N.P.	-----	-----	-----	-----
Cavity Wall (2" Air Space)	14 N.P.	14 N.P. or 10 P.2.S.	10 P.I.S.	10 N.P.	-----	-----	-----
Hollow Brick Units Number of Units: 1 Unit in Wall Thickness 2 Units	12 P.I.S. 8 P.2.S.	12 N.P. or 8 P.2.S. 8 P.I.S.	8 P.I.S. 8 N.P.	8 P.I.S.	8 N.P.	-----	-----
Hollow Concrete Units Grade 1 1 Unit See Sec. 819.0 Bldg. Code 2 Units	10 P.2.S. *6 P.2.S.	10 N.P. or 8 P.I.S. *6 P.I.S.	8 N.P. *6 N.P.	-----	-----	-----	-----
Hollow Concrete Units Grade 2 See Sec. 819.0 Bldg. Code	12 N.P. or 8 P.2.S.	8 N.P.	-----	-----	-----	-----	-----
Structural Clay Tile Number of Units: in Wall 1 Unit Thickness 2 Units	12 P.I.S. 3 Cells	10 P.I.S. or 8 P.2.S. 2 Cells	8 P.I.S. 2 Cells	8 N.P. 2 Cells	-----	-----	-----
Combination Wall 8" Tile & 4" Br. Facing	12 P.I.S.	-----	-----	-----	-----	-----	-----
Rubble Stone Masonry	16 P.I.S.	-----	-----	-----	-----	-----	-----
Mass Concrete Grade 1	8 N.P.	8 N.P.	8 N.P.	8 N.P.	6 N.P.	6 N.P.	6 N.P.
Grade 2	12 N.P. or 8 P.2.S.	10 N.P. 8 P.I.S.	8 N.P.	-----	-----	-----	-----
Reinforced Concrete Grade 1	6 N.P. *4 N.P.	-----	-----	-----	-----	-----	-----
Grade 2	-----	6 P.2.S.	6 N.P.	-----	-----	-----	-----

* Non-bearing

APPENDIX C

G-2 NON-BEARING MASONRY PARTITIONS

TYPE OF PARTITION	THICKNESS IN INCHES						
	4 Hours	3 Hours	2 Hours	1 1/2 Hours	3/4 Hour	1/2 Hour	1/3 Hour
Structural Clay Tile 1. Cell in wall Thickness	-----	-----	-----	6 P.2.S.	6 N.P. or 3 P.2.S. or 4 P.1.S.	3 P.1.S.	3 N.P.
Structural Clay Tile 2. Cell in wall Thickness	8 P.2.S. (3 cells)	6 P.2.S. (30% Solid)	6 P.2.S.	4 P.2.S. or 6 P.1.S.	4 P.1.S. or 6 N.P.	4 N.P.	4 N.P.
Hollow Concrete Units Grade 1 See sec. 819.0 BLDG. CODE	6 P.2.S.	6 N.P.	6 N.P.	3 P.1.S. 4 N.P.	3 N.P.	3 N.P.	3 N.P.
Hollow Concrete Units Grade 2	-----	-----	6 P.2.S.	6 P.1.S.	4 P.2.S.	4 P.1.S.	4 N.P.
Solid Gypsum Blocks	5 N.P.	3 N.P.	3 N.P.	2 P.2.S. 2 1/2 N.P.	2 N.P.	-----	---
Hollow Gypsum Blocks	6 P.2.S.	4 P.2.S.	3 P.2.S.	3 P.1.S.	3 N.P.	---	---
Glass Blocks & Wired Glass	-----	-----	-----	-----	4 Hollow 1/4 Wired Gl.	---	---
Cinder Concrete Tile	6 P.2.S.	6 N.P.	4 P.2.S.	4 N.P.	3 N.P.	---	---
*Reinforced Concrete Grade 1	6 N.P.	4 N.P.	3 N.P.	2 N.P.	-----	---	---
Reinforced Concrete Grade 2	-----	6 P.2.S.	6 N.P. 4 P.2.S.	4 N.P. 2 P.2.S.	2 N.P.	-----	---

* SEE SECTION 819.0 BUILDING CODE

C-3 WOOD STUD WALLS AND PARTITIONS

APPENDIX-C

(CONTINUED)

NOTE: F.R. - Treated with approved fire resistive process

O.S. - One side

B.S. - Both sides

Thickness of plaster measured from face of board or back of lath.

Sanded gypsum plaster unless otherwise noted.

A VERMICULITE PLASTER - the ratio of gypsum to vermiculite shall not exceed 100 lbs. gyp. plaster to 3 1/2 cu. ft. Vermiculite. - Unless otherwise designated, assemblies are load-bearing.

Mineral wool fill includes ROCK WOOL bats weighing 1 lb. sq. ft.; blown in ROCK WOOL weighing 2 lbs. sq. ft.; GLASS WOOL weighing 0.6 lbs. sq. ft.

TYPE OF CONSTRUCTION	THICKNESS IN INCHES					1/6 Hour
	1 1/2 Hours	1 Hour	3/4" Hour	1/2 Hour	1/3 Hour	
2 X 4 studs - Gypsum Board	-----	3/8 Perforated B.S. P.2.S.	1/2 B.S. N.P. with * Min. Wool Fill	1/2 B.S. - N.P.	5/16 B.S. N.P.	5/16 O.S. N.P.
	-----	3/8 B.S. Plaster, Neat Gyp. or Vermiculite Two 1/2" B.S.	5/16 B.S. P.2.S.	-----	5/16 O.S. P.1.S.	-----
2 X 4 studs - Fiber Board	-----	-----	-----	-----	-----	1/2 B.S. N.P.
	-----	7/8 B.S. F.R. P.2.S.	1/2 B.S. P.2.S.	7/8 O.S. F.R. P.1.S.	1/2 O.S. P.1.S.	1/2 O.S. F.R. N.P.
2 X 4 studs - Metal Lath	P.2.S. Min. Wool Fill	P.2.S. 7/8 Plaster 3/4 Vermiculite	P.2.S. 3/4 Plaster 5/8 Vermiculite	P.2.S. with Lime Plaster or Portland Cement	-----	P.1.S.
	-----	-----	-----	3/4 T.G. Boards B.S. with Asbestos Paper Insul. or Min. Wool Fill	3/4 T.G. Boards B.S.	-----
2 X 4 studs Wood Lath	-----	P.2.S. Min. Wool Fill	P.2.S. Lime Plaster. Mineral Wool Fill	P.2.S.	P.2.S.	P.1.S.
2 X 4 studs Cement Asbestos Boards	-----	-----	3/16 B.S. on 5/16 Gypsum Board	3/16 B.S. Mineral Wool Fill	-----	3/16 B.S.
2 X 2 studs Plywood	-----	-----	3/4 B.S. with Mineral Wool Fill	3/4 B.S.	1/2 B.S.	1/4 B.S.
Solid Wood	-----	2 F.R.	1 3/4 F.R.	-----	2	1

* Rated as 1-Hr. when non load-bearing

C-4 STEEL FRAMED WALLS AND PARTITIONS

(Unless otherwise noted, all partitions are non load-bearing)

NOTE: Thickness of plaster measured from back of lath. *Both Load Bearing and Non Load - Bearing

TYPE OF CONSTRUCTION	THICKNESS IN INCHES						
	2 1/2 Hours	2 Hours	1 1/2 Hours	1 Hours	3/4 Hours	1/2 Hour	1/3 Hour
Solid-Steel Studs and Metal Lath	---	---	---	2 1/2 Port. Cem. Mortar 2 Vermiculite	2 Port. Cem. Mortar	2 Portland Cem. Mortar	
" " "	2 1/2 Neat Gypsum Solid	2-1 1/2 Sanded Gyp. 2 Neat Gypsum Solid	2 1/2 Sanded Gypsum Solid	2 Sanded Gypsum Solid	2 Sanded Gypsum Solid	---	---
Solid-Steel Studs and Gypsum Lath	---	---	---	2" 3/8 Gyp Lath P.2.S.	---	---	---
Hollow-Steel Studs and Metal Lath 2" Air Space	*1" P.2.S. Neat Gypsum	P.2.S. 1"-1 1/2" * Sand. Gyp.	1" P.2.S. * *3/4" P.2.S. Neat Gypsum P.2.S. 7/8" -	7/8" P.2.S. *1" P.2.S. Port. Cem. Mort. 7/8" P.2.S.	3/4" P.2.S. * 7/8" P.2.S. Port. Cem. Mort.	---	No. 18 g B.S. Filled 1 1/2 lb. VERMIC.
Steel Studs and Steel Sheathing	---	---	1: 1/2 Sand. Gyp.	---	---	No. 18 g B.S. Filled 2 lb. VERMIC	

C-5 TIMBER AND UNPROTECTED METAL COLUMNS

TYPE OF CONSTRUCTION	THICKNESS IN INCHES					
	2 Hours	1 1/4 Hours	1 Hour	3/4 Hour	1/2 Hour	1/4 Hour
Heavy Timber (Mill)	3/4" Gyp. plaster or 1" Port. Cem. Mort on metal lath with 3/4" Air Space	Reinforced concrete or prot. steel caps.	---	Unprotected caps	---	---
Concrete Filled Pipe (4000 lb. Concrete)	---	---	Interior Reinforcement.	6 5/8" H.W. or over	less than 6 5/8" H.W.	---
Unprotected Steel	---	---	---	---	---	Min. Dimen. 6"
Unprotected Cast Iron	---	---	---	Concrete Filled	Min. Th. Metal 3/4"	---

APPENDIX C

(Continued)

C-6 STRUCTURAL STEEL COLUMN PROTECTION

NOTE: Thickness of plaster measured from back of lath.

FOR VERMICULITE PLASTER PROPORTIONS—See TABLE C-3

TYPE OF PROTECTION	THICKNESS IN INCHES					
	4 Hours	3 Hours	2 Hours	1 1/2 Hours	3/4 Hour	1/2 Hour
*Poured Concrete						
	2	2	2	1 1/2	1	---
Grade 1						
Grade 2	4	3	3	2	1 1/2	---
Concrete F.P. Units	4 P.I.S.	4 P.I.S.	3 P.I.S.	2 P.I.S.	2 N.P.	1 1-2 N.P.
Clay tile F.P. Units	4 P.I.S.	3 P.I.S.	3 P.I.S.	2 P.I.S.	---	---
Gypsum tile F.P. Units	4 Hollow or 3 P.I.S. 2 Solid P.I.S.	3 Hollow 2 Solid P.I.S.	3 Hollow 2 Solid	---	---	---
Brick Units	4	4	4	2	---	---
Poured Gypsum	2 Reinf.	2 Reinf.	2 Reinf.	1 1/2 Reinf.	3/4	---
Gypsum plaster on Metal Lath	---	2-3/4" Layers 3/4" Air Space	2-3/4" Layers 3/4" Air Space	1 1/2" Double Reinf.	3/4" (1-Hr.)	---
Cement Plaster on Metal Lath	---	2 1" Layers 3/4" Air Space	3/4" Layers 3/4" Air Space	1 3/4" Double Reinf.	7/8" 1" (1-Hr.)	3/4"
Vermiculite Plaster on Metal Lath	1" and all spaces filled loose vermic.	1"	3/4"	5/8"	---	---

* See Section 819.0 - BUILDING CODE

APPENDIX C (CONTINUED)

**C-7 STEEL TRUSS AND GIRDER PROTECTION
FOR VERMICULITE PLASTER PROPORTIONS SEE TABLE C-3**

NOTE. Floor Beams and other secondary members protected in accordance with fire resistance of the floor construction - Thickness of plaster measured from back of lath.

TYPE OF PROTECTION	THICKNESS IN INCHES					
	4 Hours	3 Hours	2 Hours	1 1/2 Hours	3/4 Hours	1/2 Hour
Poured Concrete Grade 1	3	2	2	1 1/2	1	1/2
	2 1/2	2 1/2	2 1/2	2	1 1/2	1 1/2
Concrete F.P. Units	3	3	3	2	2	2
	2 P.I.S.	2 P.I.S.	2 P.I.S.	---	---	---
Clay Tile F.P. Units	4	3	3	2	2	2
	3 P.I.S.	2 P.I.S.	2 P.I.S.	---	---	---
Gypsum Tile F.P. Units	2 Solid P.I.S.	2 Solid P.I.S.	2 Solid	---	---	---
	3 Hollow P.I.S.	3 Hollow P.I.S.	3 Hollow	---	---	---
Brick Units	4	4	4	2	---	---
Poured Gypsum	2	2	1 1/2	1	---	---
Gypsum Plaster on Metal Lath	---	---	2-3/4" Layers 3/4" Air Space	1	3/4"	---
Cement Plaster on Metal Lath	---	---	2-7/8" Layers 3/4" Air Space	1	7/8"	3/4"
Vermiculite Plaster on Metal Lath	1 2 1/2" Air Space	7/8"	3/4"	5/8"	---	---

SEE SECTION B19.0 BUILDING CODE

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APPENDIX G
FIRE TEST STANDARDS

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	and ASA A 2.1 - 56
Ceiling Construction.....	ASTM E 119 - 53
Door Assemblies.....	ASTM E 152 - 55T
	and ASA A 2.2 - 56
Fire Retardant Properties of Textile Fabrics.....	ASTM D 626 - 55T
Fire Retardant Properties of Wood by Crib Test.....	ASTM E 160 - 50
Fireproofed Wood Tests.....	N.Y.C.B.S.A. - 48
Fire Retardant Properties of Wood by Fire-Tube Test..	ASTM E 69 - 50
Flammability Test for Plastics.....	ASTM D 568 - 43
Flash Point by Open Cup Test.....	ASTM D 92 - 52
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Trim and Finish (Acoustical Tile).....	Fed. Spec. SSA-118a - 49
Tunnel Test for Flame Spread.....	ULI Bul. No. 32-Sept. - 44
	With Amendment 2

APPENDIX HSTANDARD TIME TEMPERATURE TEST CONTROLS

Time Hours-Minutes	Temperature Degrees F.	Curve Area Above 68 Degrees F.	
		Degrees F. X Minutes	Degrees F. X Hours
0:00	68	00	0
0:05	1,000	2,330	39
0:10	1,300	7,740	129
0:15	1,309	14,150	236
0:20	1,462	20,970	350
0:25	1,510	28,050	468
0:30	1,550	35,360	589
0:35	1,584	42,860	714
0:40	1,613	50,510	842
0:45	1,638	58,300	971
0:50	1,661	66,200	1,103
0:55	1,681	74,220	1,237
1:00	1,700	82,330	1,372
1:05	1,718	90,540	1,509
1:10	1,735	98,830	1,647
1:15	1,750	107,200	1,787
1:20	1,765	115,650	1,928
1:25	1,779	124,180	2,070
1:30	1,792	132,760	2,213
1:35	1,804	141,420	2,357
1:40	1,815	150,120	2,502
1:45	1,826	158,890	2,648
1:50	1,835	167,700	2,795
1:55	1,843	176,550	2,942
2:00	1,850	185,440	3,091
2:10	1,862	203,330	3,389
2:20	1,875	221,330	3,689
2:30	1,888	239,470	3,991
2:40	1,900	257,720	4,295
2:50	1,912	276,110	4,602
3:00	1,925	294,610	4,910
3:10	1,938	313,250	5,221
3:20	1,950	332,000	5,533
3:30	1,962	350,890	5,848
3:40	1,975	369,890	6,165
3:50	1,988	389,030	6,484
4:00	2,000	408,280	6,805

APPENDIX IFIRE PROTECTION STANDARDS

Air Conditioning and Ventilating Systems.....	NBFU No. 90-	52
Approved Fire Protection and Fire Hazard Devices.....	FML Bulletins	
Carbon Dioxide Fire Extinguishing Systems.....	NBFU No. 12-	51
Centrifugal Fire Pumps.....	NBFU No. 20-	53
Central Station Signaling Systems.....	NBFU No. 71-	52
Construction and Protection of Airplane Hangars.....	NBFU No. 85-	50
Dust Explosions Prevention.....	NBFU No. 63-	49
Fire Department Hose Connections.....	NBFU No. 23-	39
Fire Doors and Methods of Installation.....	FML Bul. No. 82-	50
First-Aid Fire Appliances.....	NBFU No. 10-	53
Foam Extinguishing Systems.....	NBFU No. 11-	54
Gravity and Pressure Tanks.....	NBFU No. 22-	50
Hose Connections for Sprinkler and Standpipe Systems.....	NBFU No. 23-	39
Inspected Appliances, Equipment and Materials.....	ULI Supplements (Bi-Monthly)	
Municipal Fire Alarm Systems.....	NBFU No. 73-	54
Opening Protectives.....	NBFU No. 80-	39
Outside Protection.....	NBFU No. 24-	53
Private Fire Brigades.....	NBFU No. 27-	49
Proprietary Systems.....	NBFU No. 72-	54
Sprinkler Systems.....	NBFU No. 13-	53
Standpipe and Hose Systems.....	NBFU No. 14-	52
Sliding Hardware for Tin-Clad Doors.....	ULI No. 146-	53
Swinging Hardware for Tin-Clad Fire Doors.....	ULI No. 14C-	54
Tin-Clad Fire Doors and Shutters.....	ULI No. 10(A)-	56
Valves Controlling Water Supplies for Fire Protection.....	NBFU No. 26-	31
Water Spray Systems for Fire Protection.....	NBFU No. 15-	50

APPENDIX JUNIT DESIGN DEAD LOADSFOR STRUCTURAL DESIGN PURPOSES

WALLS AND PARTITIONS (Unplastered)		Pounds per Square Foot
12 inch	common brick.....	120
12 "	pressed brick.....	130
12 "	sand-lime brick.....	105
12 "	hollow concrete block-Stone Aggregate.....	74
	Lightweight.....	55
10 "	hollow concrete block-Stone Aggregate.....	62
	Lightweight.....	46
8 "	hollow concrete block-Stone Aggregate.....	50
	Lightweight.....	36
6 "	hollow concrete block-Stone Aggregate.....	42
	Lightweight.....	36
4 "	hollow concrete block-Stone Aggregate.....	27
	Lightweight.....	20
12 "	solid concrete block -Stone Aggregate.....	108
	Lightweight.....	72
10 "	solid concrete block -Stone Aggregate.....	84
	Lightweight.....	62
8 "	solid concrete block -Stone Aggregate.....	67
	Lightweight.....	48
6 "	solid concrete block -Stone Aggregate.....	50
	Lightweight.....	37
4 "	solid concrete block -Stone Aggregate.....	45
	Lightweight.....	34
12 "	combination brick and clay tile.....	80
8 "	" " " " " "	60
12 "	combination brick and concrete block.....	90
8 "	" " " " " "	72
12 inch	load-bearing clay tile.....	60
8 "	" " " " " "	40
6 "	" " " " " "	36
4 "	" " " " " "	24
10 "	non-load-bearing clay tile.....	40
8 "	" " " " " "	36
6 "	" " " " " "	30
4 "	" " " " " "	20

Pounds per Square Foot

3 inch non-load bearing clay tile.....	18
2 " " " " " " " ".....	11
8 " non-load-bearing hollow concrete block.....	40
6 " " " " " " " ".....	30
4 " " " " " " " ".....	20
T.C. 1½ inch split terra cotta furring.....	8
2 inch split terra cotta furring.....	10
3 " " " " " " " ".....	12
6 " hollow gypsum block.....	24
5 " " " " " " " ".....	18
4 " " " " " " " ".....	15
3 " " " " " " " ".....	10
4 " solid gypsum block.....	24
3 " " " " " " " ".....	18
2 " " " " " " " ".....	12
4 " glass block.....	18

Pounds per Cubic Foot

Cast stone solid.....	144
Granite ashlar.....	168
Limestone ashlar.....	168
Marble ashlar.....	168
Sandstone ashlar.....	156
Rubble stone masonry.....	156
Terra cotta architectural (filled).....	120
Terra cotta architectural (Unfilled).....	72
Concrete, stone (plain).....	144
Concrete, stone (reinforced).....	150
Concrete, cinder.....	108
Fill, cinder.....	60
Earth (dry).....	96
Earth (damp).....	108
Earth (wet).....	120
Cork.....	15
Timber, Ash.....	40
Timber, Douglas Fir.....	36
Timber, Cypress.....	30
Timber, Hemlock.....	30
Timber, Oak.....	48
Southern Pine, Short Leaf.....	36
Southern Pine, Long Leaf.....	48
Redwood.....	28
Spruce.....	30

PLASTER WORK Pounds per Square Foot

Gypsum (one side).....	5
Cement (one side).....	10
Gypsum on wood lath.....	8
Gypsum on metal lath.....	8
Gypsum on plaster board or fiber board.....	8
Cement on wood lath.....	10
Cement on metal lath.....	10

SUSPENDED CEILINGS Pounds per Square Foot

Cement on wood lath.....	12
Cement on metal lath.....	15
Gypsum on wood or metal lath.....	10

LATH AND PLASTER PARTITIONS Pounds per Square Foot

2 inch solid cement on metal lath.....	25
2 " solid gypsum on metal lath.....	18
2 " " " on gypsum lath.....	18
2 " metal studs gypsum & metal lath both sides.	18
3 " " " " " " " " " " " "	19
4 " " " " " " " " " " " "	20
6 " wood studs plaster and wood lath, both sides....	18
6 " " " " " metal lath, both sides....	18
6 " " " " " plaster boards, both sides....	18
6 " " " " unplastered gypsum board, both sides (dry wall).....	10

FLOOR AND ROOF CONSTRUCTION Pounds per Square Foot

Cinder fill per inch depth.....	5
Cinder concrete per inch depth.....	9
Stone concrete per inch depth.....	12
Floor finish tile per inch depth.....	12
Cement finish per inch depth.....	12
Gypsum slabs per inch depth.....	4
Precast concrete plank per inch depth (as determined by test)	
Hardwood Flooring per inch depth.....	4
Underflooring per inch depth.....	3
Linoleum.....	2
Asphalt tile.....	2

ROOFS AND ROOFING Pounds per Square Foot

Metal Skylights.....	10
3-ply roofing.....	4

Pounds per Square Foot

4-ply roofing.....	5
5 " "	6
Wood sheathing (1").....	3
Plywood sheathing (5/16").....	1
Corrugated iron roofing.....	3
Formed steel decking.....	3
Slate tile roofing.....	10
Cement tile.....	16
Spanish tile.....	20
Shingles, asbestos.....	6
Shingles, asphalt.....	6
Shingles, wood.....	6

APPENDIX KUNIT WORKING STRESSES FOR ORDINARY MATERIALS1 - AVERAGE MASONRY COMPRESSION STRESSES

	<u>Brick</u> <u>Less than 4500 lbs.</u> <u>Mortar</u> <u>(Lime)(Lime-Cem)(Cement)</u> <u>Lbs. Sq. Inch</u>			<u>Brick</u> <u>4500 lbs. & higher</u> <u>Mortar</u> <u>(Lime)(Lime-Cem)(Cement)</u> <u>Lbs. Sq. Inch</u>		
Brick in Solid Walls.....	100	150	250	150	250	400
Brick in Hollow Walls.....	50	100	125	50	150	200
Structural Clay Tile-cells vert.....				100	125	
Structural Clay Tile-cells hor.....				60	75	
Concrete Block - hollow.....				75	100	
Concrete Block - solid.....				100	150	

Natural Stone - Dressed Beds

	<u>Lime-Cem.</u>	<u>Cement</u>
Granite.....	600	800
Limestone.....	400	500
Marble.....	400	500
Bluestone.....	300	400
Sandstone.....	250	300
Natural - Uncut (all species).....	100	150

Mass Concrete

	<u>Lbs. Sq. Inch</u>
Class A - 1:7 Mix.....	400
Class B - 1:5 $\frac{1}{2}$ Mix.....	500
Class C - 1:4 $\frac{1}{2}$ Mix.....	625

2 - AVERAGE LUMBER AND TIMBER STRESSES

The average lumber and timber stresses herein specified apply to dry locations in which the moisture content of the surrounding atmosphere is not greater than sixteen (16) per cent for damp or wet locations. The compression tension and extreme fiber stresses shall be decreased twenty (20) per cent.

2A - COMPRESSION STRESSES

	<u>Par. to Grain</u> <u>Lbs.</u>	<u>Perp. to Grain</u> <u>Sq. In.</u>	<u>E(1000 lbs)</u>
Cypress.....	900	300	1200
Douglas Fir (Inland Empire).....	1200	325	1600
Douglas Fir (Coast Type).....	1300	325	1600
Douglas Fir Plywood.....	1500	400	1600
Hemlock Eastern.....	900	300	1100
Hemlock Western.....	1100	350	1400
Oak.....	1500	600	1500
Redwood.....	1000	300	1200
Southern Pine (Long Leaf).....	1600	450	1600
Southern Pine (Short Leaf).....	1100	400	1600
Spruce.....	900	300	1200

2B - FIBER STRESS IN BENDING

	<u>Lbs.</u>	<u>Sq.</u>	<u>Inch</u>
Cypress.....	1300		
Douglas Fir (Inland Empire).....	1100		
Douglas Fir (Coast Type).....	1500		
Douglas Fir (Plywood Built-up Section).....	1500		
Douglas Fir (Laminated Timber).....	1100		
Hemlock Eastern.....	1000		
Hemlock Western.....	1100		
Oak.....	1200		
Redwood.....	1100		
Southern Pine (Long Leaf).....	1600		
Southern Pine (Short Leaf).....	1100		
Spruce (Sitka or Eastern).....	1100		

2C - HORIZONTAL SHEAR

	<u>Lbs.</u>	<u>Sq.</u>	<u>Inch</u>
Cypress.....	120		
Douglas Fir (Inland Empire).....	100		
Douglas Fir (Coast Type).....	100		
Douglas Fir (Plywood Built-up Section).....	100(*)		
Douglas Fir (Laminated Timber).....	75		
Hemlock Eastern.....	60		
Hemlock Western.....	90		
Oak.....	120		
Redwood.....	75		
Southern Pine (Long Leaf).....	120		
Southern Pine (Short Leaf).....	120		
Spruce (Sitka or Eastern).....	75		

(*) 50 Shear in plane of plies

2D - POSTS AND TIMBER COLUMNS

	Ratio	<u>1/d</u>	10	15	20	25	30	40	50
			<u>Lbs. Sq. In.</u>						
Cypress.....	1200	1125	925	600	425	250	150		
Douglas Fir (Inland Empire).....	1250	1200	1050	750	550	300	200		
Douglas Fir (Coast Type).....	1325	1275	1125	775	575	325	225		
Douglas Fir (Plywood, Built-up Section).....	1325	1275	1125	775	575	325	225		
Douglas Fir (Laminated Timber).....	1325	1275	1125	775	575	325	225		
Hemlock.....	850	825	750	525	400	225	150		
Oak.....	1075	1050	950	725	550	300	200		
Redwood.....	1200	1125	975	600	450	250	150		
Southern Pine (Long Leaf).....	1325	1275	1125	775	575	325	225		
Southern Pine (Short Leaf).....	1200	1125	1050	775	575	325	200		
Spruce (Sitka or Eastern).....	900	875	800	575	425	250	150		

3 - AVERAGE REINFORCED CONCRETE STRESSES**3A - EXTREME FIBER STRESS**

	<u>Lbs.</u>	<u>Sq. Inch</u>	
<u>Class A</u>	<u>Class B</u>	<u>Class C</u>	
800	1000	1200	

3B - SHEAR

	<u>Lbs.</u>	<u>Sq. Inch</u>	
<u>Class A</u>	<u>Class B</u>	<u>Class C</u>	

Beams-no web reinforcement or special anchorage.
 Beams-no web reinforcement but special anchorage
 Beams-web reinforcement but no anchorage.....
 Beams-web reinforcement and anchorage.....
 Flat slabs at distance "d" from capital or drop.
 Footings without anchorage.....
 Footings with anchorage.....

40	50	60
60	75	90
120	150	180
240	300	360
60	75	90
40	50	60
60	75	90

3C - Bond

Beams, slabs, one-way footings Plain Bars.....	80	100	120
Beams, slabs, one-way footings Deformed Bars....	100	125	150

3D-TWO-WAY FOOTINGS

Plain bars - no anchorage.....	60	75	90
Plain bars - hooked.....	90	115	135
Deformed bars - no anchorage.....	75	95	115
Deformed bars - hooked.....	115	140	160

3E - BEARING

On full area.....	500	625	750
On one-third area or less.....	750	950	1125

3F - AXIAL COMPRESSION

Columns.....	500	625	750
Pedestals.....	500	625	750
Ratio "n".....	15	12	10

4 - AVERAGE REINFORCED GYPSUM CONCRETE STRESSES

When ordinary material procedure is used without special supervision as herein prescribed for controlled materials, gypsum concrete shall be classified as Class 1, Class 2 and Class 3 of the following respective proportions, measured dry by weight with sufficient water to make a plastic mix that will fill the forms; Class 1, 100 per cent neat calcined gypsum; Class 2, 97 per cent gypsum and 3 per cent wood chips, shavings or fibers; and Class 3, 87.5 per cent gypsum and 12.5 per cent wood chips, shavings or fiber.

	<u>Class 1</u>		<u>Lbs. Sq. Inch</u>		<u>Class 2</u>		<u>Class 3</u>	
	<u>At Site</u>	<u>Prefab.</u>	<u>At Site</u>	<u>Prefab.</u>	<u>At Site</u>	<u>Prefab.</u>	<u>At Site</u>	<u>Prefab.</u>
Compressive Fiber stress in Bending.....	350	450	200	250	100	125		
Shear with anchored reinforcement...	25	35	15	25	8	10		
Bond with anchored reinforcement...	25	35	15	25	8	10		
Axial Compression.....	250	350	150	200	80	100		
Direct Bearing.....	250	350	150	200	80	100		
Modulus of Elasticity....	1,000,000		600,000		150,000			

5 - AVERAGE STEEL REINFORCEMENT STRESSES

The stresses specified for steel reinforcement shall apply to all reinforced concrete and reinforced masonry. The design shall conform to the requirements of Section 834.0 for reinforcing steel, Sections 847.0 to 853.0 inclusive for reinforced concrete, Section 854.0 for reinforced gypsum concrete and Section 855.0 for reinforced brickwork.

5A - TENSION

Lbs. Sq. Inch

Structural Grade (Billet or Axel Steel).....	18000
Rolled structural shapes.....	18000
Intermediate Grade Billet Steel.....	20000
Rail and Axel Intermediate Grade (Straight or Machine bent)	20000
Web Reinforcement.....	18000
Cold-drawn Steel Wire.....	20000
Wire Mesh.....	20000

5B - COMPRESSION

Structural Steel Section (Maximum).....	16000
Steel Pipe in Concrete-Filled Columns (Maximum).....	16000
Cast Iron Core ".....	10000
Reinforcing Bars in Columns ".....	9000
Reinforcing Bars in Bending ".....	18000

6 - AVERAGE CAST IRON STRESSES

<u>TENSION</u>	3000
<u>EXTREME TENSION FIBER IN BENDING</u>	3000
<u>EXTREME COMPRESSION FIBER IN BENDING</u>	16000
<u>SHEAR</u>	3000
<u>COLUMN COMPRESSION</u>	9000 minus 40 $\frac{1}{r}$

Ratio $\frac{1}{r}$ not to exceed seventy (70)

7 - AVERAGE STRUCTURAL STEEL STRESSES7A - TENSION

	<u>Lbs.</u>	<u>Sq. Inch</u>
Rolled Steel (Net section).....	18000	
Rivets (Nominal area).....	18000	
Bolts and other threaded parts (Area root of thread).....	18000	
Butt Welds (throat section).....	18000	

7B - COMPRESSION

Direct Compression.....	18000	
Columns.....	18000	
	$1 + \frac{1^2}{18000r^2}$	

Ratio $\frac{1}{r}$ not to exceed (120 for main compression members)
(200 for bracing and secondary ")

Stiffeners.....	18000
Butt Welds (throat section).....	18000
Modulus of Elasticity.....	30,000,000

7C - BENDING

	<u>Lbs.</u>	<u>Sq. Inch</u>
Extreme fiber (rolled shapes) Tension.....	18000	
Extreme fiber (rolled shapes) Compression.....	18000	
Ratio $\frac{1}{b}$ not greater than 15.....	18000	
Ratio $\frac{1}{b}$ between 15 and 40.....	20000	
	$1 + \frac{1^2}{2000b^2}$	
Extreme fiber (rolled shapes encased in 1:5 $\frac{1}{2}$ concrete).....	20000	
Extreme fiber (pins).....	27000	

7D - SHEAR

Power Driven Rivets.....	13500
Hand Driven Rivets.....	10000
Turned Bolts (reamed holes).....	13000
Unfinished Bolts.....	10000
Webs of Beams and Girders (gross area).....	12000
Fillet Welds (throat section).....	11300
Butt Welds (throat section).....	11300

	<u>Lbs.</u>	<u>Sq. Inch</u>
<u>7E - BEARING</u>	<u>Dbl. Shear</u>	<u>Sing. Shear</u>
Rivets (Power Driven).....	30000	24000
Rivets (Hand Driven).....	20000	16000
Turned Bolts (Reamed Holes).....	30000	24000
Unfinished Bolts.....	26000	16000
Pins.....	30000	24000
Contact Area (Milled Stiffener).....	20000	
(Fitted Stiffener).....	18000	
Expansion Rollers - per linear inch.....	600	times the dia. of roller

8 - AVERAGE CAST STEEL STRESSES

8A - COMPRESSION AND BEARING Same as structural steel.

8B - ALL OTHER STRESSES 75 per cent of structural steel

9 - OPEN-WEB STEEL JOISTS

	<u>Lbs.</u>	<u>Sq. Inch</u>
<u>9A - COMPRESSION</u>	15000	
<u>9B - TENSION</u>	18000	

10 - AVERAGE LIGHT-GAGE STEEL STRESSES

In the design of cold-formed strip steel structural members, without selection of material or special supervision of construction, three (3) grades of low carbon steel shall be recognized with the following minimum yield points; grade A, 25000 pounds per square inch; grade b, 30000 pounds per square inch; grade C, 33000 pounds per square inch.

	<u>Lbs.</u>	<u>Sq. Inch</u>	
	<u>Grade A</u>	<u>Grade B</u>	<u>Grade C</u>
<u>TENSION</u>	12000	14000	16000
<u>BENDING, EXTREME FIBER</u>	12000	14000	16000
<u>MAXIMUM WEB SHEAR</u>	8000	9000	10000
<u>MODULUS OF ELASTICITY</u>	30,000,000		

APPENDIX L -- Recommended Nailing Schedule

Building Element	Nail Type	Number and Distribution
Stud to sole plate.....	Common-toe-nail	3-16d
Stud to cap plate.....	Common-end nail	2-16d
Double studs.....	Common-direct	10d 12" o.c. or 16d 30" o.c.
Corner studs.....	Common-direct	16d 30" o.c.
Sole plate to joist or blocking.....	Common	20d 16" o.c.
Double cap plate.....	Common-direct	16d 24" o.c.
Cap plate laps.....	Common-direct	3-16d
Ribbon strip-6" or less....	Common-direct	2-10d each bearing
Ribbon strip-over 6".....	Common-direct	3-10d each bearing
Roof rafter to plate.....	Common-toe-nail	3-16d
Roof rafter to ridge.....	Common-toe-nail	2-16d
Jack rafter to hip.....	Common-toe-nail	3-10d
Floor joists to studs..... (no ceiling joist)	Common-direct	5-10d or 3-16d
Floor joists to studs..... (with ceiling joists)	Common-direct	2-10d
Floor joists to sill or girder.....	Common-toe-nail	2-16d
Ledger strip.....	Common-direct	3-20d at each joist
Ceiling joists to plate....	Common-toe-nail	2-16d
Ceiling joists to alt. rafters.....	Common-direct	3-16d
Ceiling Joists (Laps over partition).....	Common-direct	3-16d
Collar beam.....	Common-direct	4-10d
Bridging to joists.....	Common-direct	2-8d each end
Diagonal brace (to stud & plate).....	Common-direct	2-8d each bearing
Tail beams to headers (when nailing permitted).....	Common-end	1-20d each 4 sq. ft. floor area
Header beams to trimmers (when nailing permitted).. Common-end		1-20d each 8 sq. ft. floor area
1" sub-flooring (6" or less)Common-direct		2-8d each joist
1" sub-flooring (8" or more)Common-direct		3-8d each joist
2" Sub-flooring.....Common-direct		2-20d each joist
1" Sheathing (8" or less).. Common-direct		2-8d each stud or rafter
1" Sheathing (over 8").....Common-direct		3-8d each stud or rafter
Plywood sheathing.....Common-direct		6d 5" o.c. exterior edges 3d 10" o.c. intermediate
Roof sheathing (6" or less)Common-direct		2-8d each rafter
Roof sheathing (over 6")...Common-direct		3-8d each rafter

Building Element	Nail Type	Number and Distribution
Fiber board sheathing.....	Common-direct	8d-3" o.c. exterior edges
Gypsum sheathing.....	Large head Corrosion resistive	8d-6" o.c. intermediate 7-No. 11g. x 1 3/4" per bearing under shingles 4-per bearing, all other cases
Shingles-wood.....	Corrosion resistive	2-No. 14 B&S each bearing
Weather boarding.....	Corrosion resistive	2-8d each bearing

Shingle nails shall penetrate not less than 3/4 inch into nailing strips, sheathing or supporting construction except as otherwise provided in Section 858.0.

NOTE I: FIRE AND LIFE HAZARD OF EXISTING BUILDINGS. Reduction of the fire and life hazard in existing sub-standard buildings not now equipped with safe exitways and required fire protective features demands urgent consideration. The full requirements which are applicable to buildings hereafter erected are generally impractical and economically prohibitive in existing structures. Probably the initial and most important item for attention is the provision of adequate fire barriers to restrict the spread of fire horizontally and vertically. Where one or more interior stairways are provided, such exitways should be enclosed with fire-resistive construction and opening protectives to assure a reasonably safe area of refuge, preferably provided with means for automatic or manual release of hot air and gases at the top of the enclosure.

In general a secondary means of egress and exit to the outside of the building, particularly where large numbers of people congregate or for whom sleeping accommodations are provided, is mandatory. The provision of a safe area of refuge and the number of required secondary means of egress depend on the physical arrangement and individual characteristics of each building. Exterior fire escapes will in some instances provide safety but only in buildings of limited height.

It is difficult to set up general rules to take care of all contingencies. The specific structural items and fire protective features that are practical in existing buildings include; enclosure of interior stairways and exitways; enclosure of elevator shafts independent of stairways; limitation of required travel distance through unprotected corridors; protection of exit lobbies and adjoining areas of high hazard use with automatic sprinklers; means of automatic transmission of alarm to fire department headquarters; and in large occupancies supervised watchmens' services and fire brigades or fire patrols trained in the use of emergency fire-fighting equipment.