# State Building Construction Code

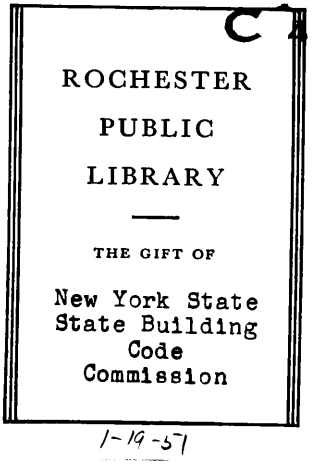
applicable to

## One- and Two-Family Dwellings

November 1, 1951


State of New York

Thomas E. Dewey, Governor




# STATE BUILDING CONSTRUCTION CODE
## applicable to One- and Two-Family Dwellings

**STATE OF NEW YORK**
**Thomas E. Dewey, Governor**

**STATE BUILDING CODE COMMISSION**

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**STATE BUILDING CODE COMMISSION**
**1740 Broadway**
**New York 19, New York**

## FOREWORD

Building codes originate with the duty of the government to protect people in matters of safety, health, and welfare. Building codes are enacted as a guide for those who build, and as a protection for all of us who use buildings so that all may know those essentials in buildings which are considered minimum precautionary features, and which are made by the force of law mandatory in order to give to every one of us some measure of safety, health, and welfare.

Most existing codes are old. In the days when they were written, it was thought necessary to specify in great detail types of materials, their dimensions, and methods of construction. Such codes are therefore called **specification** codes. Because their specification requirements had to be rigid, these old codes either froze construction methods and materials or they became unwieldy instruments as pressure forced revision after revision of their original regulations, resulting in increasingly numerous and complicated amendments.

While most codes have not changed, the art and science of building have made much progress during the last twenty-five years. If a new type of code could be found which would recognize this progress and allow for future progress, such a code would be likely to be much better, much more usable and useful, than the old specification type. For some years in the minds of a few at first, and then of a growing number of persons dedicated to the preparation of building codes, an entirely different concept of a code was born, one which would no longer specify materials and their dimensions, but would instead define performance requirements, and **make adequate performance the test of acceptability.** This new performance code would thus provide those who build and those who use buildings with a flexible, modern instrument, one which would not freeze obsolescent construction methods, but would on the contrary remain up to date, since it would not only permit but also encourage acceptance of new methods and new materials as soon as these had proved that they too gave adequate performance.

The State of New York has now prepared such a **performance** code ——one which will encourage the free exercise of ingenuity in design——this, the first chapter of the State Building Construction Code, applicable to one- and two-family dwellings. Other chapters

**1-1**

applicable to other types of buildings will follow. These, too, will be performance codes, based on performance requirements.

The State Building Construction Code applicable to one- and two-family dwellings, is arranged, for the convenience of its users, in the following five parts, with logical sequence:

1. General Provisions
2. Space Requirements
3. Structural Requirements
4. Fire-Safety Requirements
5. Equipment Requirements

It is now offered for use to all of the municipalities of the State.

As mandated by the Legislature, the administration and enforcement of the regulations of this Code are entirely the responsibility of the municipalities of the State. Article 18 of the Executive Law——the State Building Code Law——makes the procedure for both acceptance and withdrawal by municipalities quite simple. It is hoped that a great many municipalities will wish to accept this Code. In so doing, they will contribute their valuable share toward the sound goal of statewide uniform performance standards, and through such uniformity make ultimately better construction available and lower construction costs attainable to the people of the State of New York.

Performance implies ability to measure. That ability to measure must be based on research and tests. Today, in the vast and complex fields of building materials and construction, research and tests have neither been sufficiently systematized nor sufficiently complete. This Code, therefore, outlines test procedures in order to establish a basis on which new materials and new methods of construction may become acceptable.

In addition to this Code, the State Building Code Commission has prepared as a help during that period of transition from specification code to performance code, a Code Manual, illustrating the usual materials and methods of construction which comply with the code performance requirements. Each page of the Manual carries the reminder: "Constructions illustrated or described herein are acceptable

under the State Building Construction Code, but shall not be interpreted to exclude other constructions which meet the requirements of the Code." From time to time as progress or invention may require, the Commission will issue, on the basis of investigation or test data, additional pages of the Manual illustrating new materials and new methods of construction.

The Code Manual can be obtained from the State Building Code Commission. While the Code is the law, the Manual is not.

As further mandated by the Legislature, this Code is concerned solely with building construction proper. It has nothing whatsoever to do with zoning. In the past, some building codes have contained zoning provisions, and zoning ordinances have contained building regulations. The two are basically different and should be handled separately. This Code clearly recognizes that building is one thing and zoning another. It deals only with building construction.

The State Building Code Commission is charged with the duty of rendering continuous service in all matters of building construction as affected by building codes. In order to prepare a workable performance code, it is undertaking the kind of research which most municipalities cannot afford to do and yet need to have done. In order to help the municipalities which accept this Code, the Commission will establish one or more Boards of Review. Through its Newsletter, through the dissemination of research data screened by its technical staff, and through the decisions of its Boards of Review, the State Building Code Commission will become the active and effective service agency of the State in matters of building codes. It will render practical assistance to all the municipalities of our State, to all building officials, architects, engineers, builders, building products manufacturers, and to every one of us who works and lives in buildings.

Thus the people of the State of New York will be assured of those measures of safety, health, and welfare which they are entitled to find in all of their buildings.

# TABLE OF CONTENTS

## Part 1
## General Provisions



## Part 2
## Space Requirements



## Part 3
## Structural Requirements

# TABLE OF CONTENTS

## Part 4
## Fire-Safety Requirements



## Part 5
## Equipment Requirements



## Tables

# Part 1
# General Provisions

## A 101 TITLE

These regulations, promulgated pursuant to Article 18 of the Executive Law of the State of New York, shall be known as the State Building Construction Code applicable to one- and two-family dwellings. They are hereinafter referred to as **this Code.**

## A 102 PURPOSE

The purpose of this Code is to provide basic and uniform regulations in terms of performance objectives, establishing reasonable safeguards for the safety, health, and welfare of the occupants and users of buildings and structures, and making adequate performance the test of acceptability.

## A 103 EFFECTIVE DATE

This Code shall take effect on November 1, 1951.

## A 104 PARTIAL INVALIDITY

If any term, part, provision, section, subdivision or paragraph of this Code shall be held unconstitutional, invalid or ineffective in whole or in part, such determination shall not be deemed to invalidate the remaining terms, parts, provisions, sections, subdivisions and paragraphs thereof.

## A 105 SCOPE

### A 105-1 New Buildings

This Code shall apply to one- and two-family dwellings, including row houses, which do not exceed 3 stories and 35 feet in height, to their accessory structures, and to parts thereof, which are hereafter erected.

### A 105-2 Existing Buildings

**A 105-2.1 General**

This Code shall also apply to buildings described in paragraphs designated a, b, and c of this section A 105-2.1 as if they were hereafter erected.

a——An existing building to be occcupied as a one- or two-family dwelling, which building was not previously so occupied.

b——A dwelling which is moved into or moved within governmental limits subject to this Code.

c——An existing dwelling which is altered or repaired, when the cost of such alterations or repairs within any twelve-month period exceeds 50 per cent of the cost of replacement of the dwelling at the beginning of that twelve-month period.

**A 105-2.2 Roof Covering**

Whenever more than 25 per cent of the roof covering of a dwelling is replaced in any twelve-month period, all roof covering on such building shall be in conformity with applicable regulations of this Code.

**A 105-2.3 Addition or Alteration**

Any addition or alteration, regardless of cost, made to a dwelling, shall be made in conformity with applicable regulations of this Code.

**A 105-2.4 Existing Uses Continued**

Except as otherwise herein provided, nothing in this Code shall require removal, alteration, or abandonment of, nor prevent continued use or occupancy of, an existing building, unless such building consitutes a hazard to safety, health, or adjacent property.

## A 105-3 Mixed Occupancy

A building which contains a use or occupancy other than residential as described in the definition of **dwelling** shall be deemed to be a building of mixed occupancy, not subject to regulations of this Code.

## A 105-4 Maintenance

All buildings or structures subject to this Code shall be maintained in a safe and sanitary condition in conformity with the provisions of this Code.

## A 105-5 Zoning

No provision of this Code shall be construed to repeal, modify, or constitute an alternative to any lawful zoning regulation.

## A 106 QUALITY OF MATERIALS

All materials, assemblies, construction, and equipment shall conform to the regulations of this Code, and shall conform to generally accepted standards with respect to strength, durability, fire resistance, and other qualities recognized under those standards. All test specimens and

constructions shall be truly representative of the material, workmanship, and details to be used in actual practice.

## A 107 ABBREVIATIONS AND DEFINITIONS

### A 107-1 General

a——Abbreviations, terms, phrases, words, and their derivatives used in this Code shall have the meanings given in this section.

b——Words used in the singular include the plural, and the plural the singular. Words used in the masculine gender include the feminine and neuter genders.

### A 107-2 Abbreviations

**Btu.** British thermal unit
**C.** Centigrade
**F.** Fahrenheit
**gpm.** Gallons per minute
**psf.** Pounds per square foot
**psi.** Pounds per square inch

### A 107-3 Definitions

**above-grade building volume.** See **building volume, above-grade.**

**accessory structure.** A building, the use of which is incidental to that of the main building, and which is located on the same premises.

**addition.** Extension or increase in floor area or height of a building.

**alley.** Narrow supplementary thoroughfare for the public use of vehicles and pedestrians, affording access to abutting property.

**alteration.** Any change, rearrangement, or addition other than repairs, any modification in construction or equipment.

**approved.** Approved by the enforcement officer under the regulations of this Code, or approved by an authority designated by law or this Code.

**attic.** Space between top of uppermost floor construction and underside of roof construction. An attic accessible by fixed or movable stair shall be deemed to be a story, unless maintained unfinished and without human occupancy.

**backflow.** Flow of water or of other liquid from any source other than the intended source into pipes distribu-

ting a supply of potable water. Back-siphonage is one type of backflow.

**basement.** The portion of the building that is partly underground which has more than one half its height measured from finished floor to finished ceiling above the average finished grade of the ground adjoining the building.

**bathroom.** Enclosed space containing one or more bathtubs or showers, or both, and which may also contain water closets, lavatories, or fixtures serving similar purposes.

**breezeway.** One-story covered passageway, open at the sides, connecting an accessory structure to a building, or connecting parts of a building.

**building.** A combination of any materials, whether portable or fixed, having a roof, to form a structure affording shelter for persons, animals, or property. The word **building** shall be construed, when used herein, as though followed by the words **or part or parts thereof** unless the context clearly requires a different meaning.

**building line.** Line established by law, ordinance, or regulation, beyond which no part of a building, other than parts expressly permitted, shall extend.

**building volume, above-grade.** Volume in cubic feet of a building, measured from the average adjoining grade level to the average roof level, and from outside to outside of exterior walls, but not including open porches, breezeways, or terraces.

**cellar.** Lowermost portion of the building partly or totally underground having half or more than half of its height, measured from finished floor to finished ceiling, below the average finished grade of the adjoining ground.

**chimney.** A shaft, primarily vertical, that is constructed of noncombustible materials, enclosing one or more flues.

**column.** Vertical supporting element whose height is more than three times its least side or diameter.

**combustible material.** Material which will ignite and support combustion when heated at any temperature up to 1382° F. (750° C.).

**concrete.** Mixture of natural, or portland, or similar cement but excluding gypsum, with water and suitable fine and coarse aggregate.

**construction——classification.** Construction of a building or structure in conformity with any one or any combination of the following five types:

**——Type 1, fire-resistive construction.** That type of con-

struction in which the structural elements are of noncombustible materials, assembled or fire protected to withstand the fire severity resulting from a complete burnout of the contents and finish involved in the intended occupancy, and in which all floor construction shall have fire-resistance ratings of 2 hours or more.

——**Type 2, noncombustible construction.** That type of construction in which the structural elements are of noncombustible materials which may or may not be fire protected, and in which all floor construction may have fire-resistance ratings of less than 2 hours.

——**Type 3, heavy timber construction.** That type of construction in which the exterior walls are of masonry, the interior structural members of heavy timbers having flat surfaces with no sharp projections or concealed spaces, and floors and roofs of heavy plank, laminated, or equivalent noncombustible construction, with the further provision that noncombustible structural members having fire-resistance ratings of not less than ¾ hour may be substituted for heavy timber members.

——**Type 4, ordinary construction.** That type of construction in which the exterior walls are of masonry or other noncombustible assemblies, and the interior structural members are wholly or partly of wood.

——**Type 5, wood frame construction.** That type of construction in which the structural members, including the exterior walls, which may be faced with noncombustible materials, are wholly or partly of wood.

**cross connection.** Physical connection between two otherwise separate piping systems through which a supply of potable water could be contaminated or polluted.

**draft stop.** Barrier to air movement.

**dwelling.** Building containing not more than two dwelling units occupied exclusively for residential uses. Residential uses shall include a private garage and customary home occupations conducted in the dwelling by the occupants, such as the practice of a profession.

——**one-family dwelling.** Building arranged for one dwelling unit.

——**two-family dwelling.** Building arranged for two dwelling units.

**dwelling unit.** One or more rooms with living, cooking, sanitary and sleeping facilities therein, arranged for one family with whom may reside not more than 5 lodgers or boarders.

**elevator.** Hoisting and lowering mechanism equipped

with a car or platform which moves in guides for the transportation of persons in a primarily vertical direction.

**enforcement officer.** Officer or employee lawfully empowered to enforce the regulations of this Code.

**fire limits.** Boundary line establishing an area in which there exists, or is likely to exist, a fire hazard requiring special fire protection.

**fire partition.** Fire-resistive construction subdividing a building in order to restrict the spread of fire.

**fire-resistance rating.** Time in hours or parts thereof that a material or construction will withstand fire exposure, as determined in a fire test made in conformity with generally accepted standards, or as determined by extension or interpretation of information derived therefrom.

**fire separation.** A construction of specific fire resistance separating parts of a building.

**firestopping.** Effective barriers against the spread of flames or hot gases within or between concealed spaces.

**fire wall.** Interior wall which completely subdivides a building into limited areas in all stories, or which separates two or more buildings to restrict the spread of fire, and, except in buildings of fire-resistive construction, is supported on a foundation and extends continuously through all stories to and above the roof.

**fixture branch.** Water supply pipe connecting one fixture, or two fixtures installed back to back, with water supply distributing pipe.

**floor area.** The horizontally projected floor area within surrounding walls of a building, or portion thereof.

**flue.** Enclosed passageway, primarily vertical, suitable for removal to outer air of gaseous products of combustion.

**garage, private.** Storage space within a building for not more than 4 automobiles, including not more than 1 commercial vehicle, and without fixed facilities for repairing or refueling them.

**gasvent.** Conduit or pipe, primarily vertical, suitable for the removal to the outer air of the products of combustion from gas-fired appliances only.

**generally accepted standard.** A specification, code, rule, guide or procedure in the field of construction widely recognized and accepted as authoritative, which is in harmony with this Code.

**glass area.** Gross area of glass within a sash, door, or opening; glass area may include small subdividing muntins and division bars.

**grade, finished.** Natural surface of the ground, or surface of ground after completion of any change in contour.

**grade level.** Mean elevation of the curb level when established and opposite the main walls of building located on or within 5 feet of the street line, or mean elevation of the finished grade abutting the building when curb level has not been established or when the main walls are more than 5 feet from the street line.

**habitable space.** Space occupied by one or more persons for living, sleeping, eating, or cooking, excluding kitchenettes, bathrooms, toilet rooms, laundries, pantries, storage spaces, foyers, hallways, utility rooms, heater rooms, boiler rooms, and basement or cellar recreation rooms.

**height, building.** Vertical distance measured from the grade level to the highest level of the roof surface of flat roofs, to the deck line of mansard roofs, or to the mean height between eaves and ridge for gable, gambrel, or hip roofs.

**interior finish.** Finished surface of material directly applied on the interior side of walls or ceilings including that which is integral with or attached to the wall or ceiling, for acoustical correction, surface insulation, or decorative treatment and similar purposes, including but not limited to wainscoting and paneling, but not including surface finishes of paper or of materials having no greater fire hazard than paper, which are not more than 1/28th inch thick. Interior finish does not include interior trim, finished flooring, doors and windows, or door and window frames.

**interior trim.** Material of narrow width, generally not exceeding 12 inches in width, around openings or on wall or ceiling, including casings, stools, aprons, baseboards, chair rails, picture molds, cornice moldings, and moldings applied for decoration.

**kitchen.** Space, 60 square feet or more in floor area, used for cooking or preparation of food, and deemed a habitable space.

**kitchenette.** Space, less than 60 square feet in floor area, used for cooking or preparation of food, and deemed not a habitable space.

**legal open spaces.** Open spaces on the same premises, such as yards or courts, streets, alleys or other open spaces permanently dedicated to public use, spaces acceptable under applicable ordinances or regulations as sources of natural light and natural ventilation.

**load, dead.** Weight of all permanent construction, including walls, framing, floors, roofs, partitions, stairways, and fixed building-service equipment.

**load, design.** Total load which a structure is designed to sustain.

**load, imposed.** All loads, exclusive of dead load, that a structure is designed to sustain.

**load, live.** Load imposed solely by the occupancy.

**load, racking.** Load, applied in the plane of an assembly in such manner as to lengthen one diagonal and shorten the other.

**lot line.** Line dividing one premises from another, or from a street or other public space.

**masonry.** Construction of units of such materials as clay, shale, concrete, glass, gypsum, or stone, set in mortar or in mortar and grout; including plain concrete, but excluding reinforced concrete.

**municipality.** Any city, town, or village.

**occupancy.** Use of a building, structure, or premises.

**opening protective.** Assembly of materials and accessories with a specified fire-resistance rating, including any incidental frames, mullions, muntins, anchors, and hardware, which when installed in an opening in a wall, partition, floor, or roof prevents or retards passage of flame, heat, fumes, and smoke through that opening.

**owner.** Owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee, or other person, firm, or corporation, in control of a building.

**parapet.** Portion of a wall entirely above the roof line.

**party wall.** See **wall, party.**

**plumbing system.** Pipes, fixtures, and other apparatus for supplying water for consumption, or for conveyance of wastes and drainage.

**potable water.** Water duly approved as satisfactory and safe for drinking.

**premises.** A lot, plot, or parcel of land including the buildings or structures thereon.

**property line.** Line constituting the boundaries of premises.

**public sewer.** Sewer operated by a public authority, or public utility, and available for public use.

**public water supply.** Water supply furnished by a public

authority, or public utility, and available for public use.

**repair.** Replacement or renewal, excluding additions, of any part of a building, structure, device, or equipment, with like or similar materials or parts, for the purpose of maintenance of such building, structure, device, or equipment.

**required.** Required by this Code.

**residual deflection.** Deflection resulting from an imposed load, remaining after removal of the load.

**residual deformation.** Lengthening or shortening resulting from an imposed axial load, remaining after removal of the load.

**residual pressure.** Pressure of water within a water supply pipe when water is being supplied to fixtures connected thereto.

**roof covering.** Covering applied to roof surface to resist weather and fire.

**row house.** An attached one- or two-family dwelling in a row or group of such dwellings.

**self-closing.** As applied to an opening protective means normally closed and equipped with an approved device to insure closing after having been opened.

**sewage.** Any liquid waste containing animal, vegetable, or mineral matter in suspension or solution.

**shall.** As used in this Code, is mandatory.

**standard.** See **generally accepted standard.**

**story.** Portion of a building which is between one floor level and the next higher floor level, or portion of a building which is between a floor level and the underside of the ceiling or roof surface directly above. If the ceiling over a basement or cellar is more than 4 feet above grade level, such basement or cellar shall be deemed a story.

**street.** Thoroughfare dedicated and accepted by the municipality for public use.

**street line.** Line dividing a lot, plot, or parcel from a street.

**structural damage.** Loosening, twisting, warping, cracking, or breaking of any piece, or of any fastening or joint, in a structural assembly, without loss of sustaining capacity of the assembly. Small cracks in reinforced concrete, perpendicular to the reinforcing bars, shall not be deemed to be structural damage. Deformation of sheet material when a structural assembly is under imposed load, which in-

creases as the load increases but which disappears when the load is removed, shall not be deemed to be structural damage.

**structural failure.** Rupture; loss of sustaining capacity, marked increase in strain without increase in stress; deformation increasing more rapidly than the increase in imposed load.

**structure.** Combination of any materials, whether fixed or portable, forming a construction, including buildings. The word **structure** shall be construed as though followed by the words **or part or parts thereof.**

**toilet room.** Enclosed space, containing one or more water closets, which may also contain one or more lavatories, urinals, and other plumbing fixtures.

**trap seal.** Depth of water in a trap measured upward vertically from the top of the dip of the trap to the mean water surface.

**trap seal, residual static.** Depth of trap seal remaining after a trap has been subjected to pressure disturbance.

**ultimate strength.** Greatest stress or load which can be imposed upon a material or structural member without causing structural failure.

**ventilation.** Supply and removal of air to and from any space by natural or mechanical means.

**ventilation, mechanical.** Ventilation by power-driven devices.

**ventilation, natural.** Ventilation by opening to outer air through windows, skylights, doors, louvers, or stacks with or without wind-driven devices.

**wall, combustible exterior.** Wall constructed wholly or in part of combustible materials.

**wall, fire.** See **fire wall.**

**wall, foundation.** Ground-supported bearing wall, partly or wholly below grade, which supports a wall, column, or other part of a building or structure.

**wall, noncombustible exterior.** Exterior wall constructed of noncombustible materials.

**wall, party.** Wall used or adapted for joint service between two buildings or structures.

**yield strength.** Stress at which a material exhibits a specified limiting permanent set. Permanent set shall be deemed to mean residual deformation.

# Part 2
# Space Requirements

## A 201 HABITABLE SPACE

### A 201-1 General Requirements

Each habitable space shall be so located in respect to grade level, and so lighted and ventilated as to provide healthful environment.

### A 201-2 Light

Habitable space shall be provided with natural light through one or more windows or skylights, or transparent or translucent panels, or any combination thereof, above the adjoining finished grade level. Windows or their equivalent shall face directly on legal open spaces or above a roof level. For each habitable space the total lighting area shall provide an amount of natural light equivalent to that transmitted through clear glass equal in area to 10 per cent of the floor area of the habitable space.

### A 201-3 Ventilation

Habitable space shall be provided with ventilation in accordance with either of the following:

a——Openable parts of windows or skylights, or louvers, transoms, or other openable exterior wall or roof surfaces above the adjoining finished grade level, facing legal open spaces and providing total clear ventilation area equal to not less than 5 per cent of the total floor area of each habitable space; or

b——Mechanical ventilation providing at least two air changes per hour either of outdoor air, or a mixture of outdoor and recirculated air, in such proportion that a minimum of one air change per hour shall be outdoor air.

### A 201-4 Location in Respect to Grade Level

Floor level of habitable space shall be not more than 4 feet below the average adjoining finished grade. No habitable space shall be located in cellars. Play or recreation rooms may be located below grade.

## A 202 KITCHENS AND KITCHENETTES

### A 202-1 General Requirements

Kitchens and kitchenettes shall have adequate light and ventilation for the maintenance of sanitary conditions, the

safe and sanitary preparation and service of food, the safe use and proper operation of appliances and equipment therein, and for removal of accumulated heat, moisture, and odors.

### A 202-2 Light

a——Kitchens shall be provided with natural light as set forth in section A 201-2.

b——Kitchenettes shall be provided with natural or artificial light or both, of sufficient intensity and so distributed as to permit the safe use of the space, appliances, and equipment therein.

### A 202-3 Ventilation

a——Kitchens shall be ventilated as set forth in section A 201-3 or by other means which shall exhaust not less than 100 cubic feet of air per minute and replace such exhausted air by an equal amount of outdoor air or its equivalent. When performance of ventilating equipment is affected by atmospheric conditions and the room air temperature, the equipment shall deliver a minimum of 100 cubic feet of air per minute at least 90 per cent of the time.

b——Kitchenettes shall be ventilated by openable areas of not less than 3 square feet facing legal open spaces, or by other means as set forth in section A 202-3a.

## A 203 BATHROOMS AND TOILET ROOMS

### A 203-1 General Requirements

Bathrooms and toilet rooms shall have provisions for privacy. Lighting shall be adequate for maintenance of sanitary conditions, and ventilation sufficient to remove odors and excessive vapor.

### A 203-2 Light

Light shall be either natural or artificial or both, so distributed and of sufficient intensity to permit the maintenance of sanitary conditions of the room and of the plumbing fixtures.

### A 203-3 Ventilation

Ventilation shall be provided either by openable areas, the total of which shall be not less than 1½ square feet, facing legal open spaces, or by other means, such as mechanical ventilation or ducts with gravity circulation,

exhausting at least 20 cubic feet of air per minute, and replacing the same by an equal amount of outdoor air or its equivalent.

## A 204 ATTICS, CRAWL SPACES, FLAT ROOFS

Ventilation shall be provided in unheated attics, spaces below flat roofs, and crawl spaces. Location and net areas of ventilation openings shall be such as to prevent deterioration of the structural members from condensation.

## A 205 EXITS AND STAIRS

### A 205-1 General Requirements

a——Exits and stairs shall not serve in common more than two dwelling units.

b——Stairs, both interior and exterior, shall be arranged and constructed to provide safe ascent and descent. A fixed stair shall be provided where travel is required between two floors, each of which contains a habitable space or a recreation room, and between the first floor and basement and cellar. Disappearing or folding stairs may be used between two floors above grade where one of them only contains a habitable space or a recreation room.

### A 205-2 Treads

a——Minimum widths of treads shall be:

9 inches, plus nosing at least 1 inch wide, or

10 inches, where without nosing,

except that treads of folding or disappearing stairs intended for occasional use only shall have a minimum width of 6 inches.

b——Winder treads at converging ends of winders, exclusive of minimum 1-inch nosings, shall be not less than 4 inches wide unless the winders are guarded at the converging ends by continuous handrails which prevent walking where the tread widths are less than 6 inches. If the winder treads are without a minimum 1-inch nosing, the tread widths in these locations shall be not less than 5 inches and 7 inches, respectively.

c——Winder tread widths at distance of 18 inches from the converging ends shall be not less than the tread widths as set forth in section A 205-2a.

d——All treads shall be level and uniform in width, with no variation exceeding 1/8 inch in any one run of stairs.

## A 205-3 Risers

a——Maximum heights of risers shall be:
stairs having treads with nosing, 8¼ inches;
stairs having treads without nosing, 7¾ inches;
except that the maximum height of risers of folding or disappearing stairs, exterior stairs to basements or cellars, and of other stairs intended for occasional use only, shall be 9 inches.

b——There shall be no variation exceeding ¼ inch in the height of risers in any one run of stairs.

## A 205-4 Width

Widths of stairs connecting habitable spaces shall be not less than 2 feet 8 inches clear between handrails or between handrails and opposite wall surface; except that stairs from a second story to a third story occupied by not more than 5 persons, and stairs to a basement and a cellar, shall not be less than 2 feet 4 inches clear between handrails or between handrail and opposite wall surface.

## A 205-5 Headroom

The minimum clear headroom over any portion of any fixed stair tread shall be not less than 6 feet 6 inches measured vertically from the surface of the tread.

## A 205-6 Handrails and Railings

a——Stairs or steps of more than 3 risers shall have a handrail or railing parallel to the stair slope on at least one side. Where one or both sides of such stairs or steps are open, railings shall be provided on the open sides.

b——Window openings on stairs or landings, and well openings, shall be guarded by railings or other equivalent protection.

c——Handrails and railings shall be not less than 30 inches nor more than 36 inches in height above the floor or tread level. On stair runs, the height shall be measured directly above the riser face.

d——Clearance between handrail and supporting wall shall be not less than 1½ inches.

## A 205-7 Light

Treads of stairs shall be lighted by either natural or artificial light of sufficient intensity to allow safe ascent or descent.

## A 206 EMERGENCY ESCAPE

### A 206-1 General Requirements

In addition to the primary exit from dwellings, there shall be provided a secondary exit or, in lieu thereof, one or more escape openings for emergency use.

### A 206-2 Escape Openings

a——At least one escape opening or secondary exit shall be provided at each floor containing a habitable space or recreation room.

b——Escape openings shall include doors, openable parts of windows, or openable panels, located so as to provide ready access to legal open spaces.

c——Escape openings shall have minimum dimensions of 24 by 30 inches, with bottom of openings no higher than 3 feet above finished floor in all above-grade stories, and no higher than 4 feet 6 inches where required in basement and cellar.

## PRIVATE GARAGE

For regulations governing private garages see section A 407.

# Part 3
# Structural Requirements

## A 301 GENERAL REQUIREMENTS

a——Buildings and parts thereof shall be capable of sustaining safely their own weight and the loads to which they are subject.

b——Buildings shall be constructed and integrated so that loads are transmitted to the soil without unsafe deformation or movement of the building or of any structural part.

c——Wherever structural material or assemblies may, if unprotected, deteriorate and become structurally unsound under the proposed condition of use, approved protection shall be provided. Causes of such deterioration shall include, among others, action of freezing and thawing, dampness, wetting and drying, termites and rodents.

d——Parts of buildings built in soil which is water bearing at any season of the year shall be constructed so that ground water will not flow into habitable spaces, basements, and cellars.

## A 302 SOIL BEARING VALUE

### A 302-1 Determination

The allowable bearing value of the soil upon which a building rests shall be the presumptive bearing value in accordance with generally accepted standards, or shall be the value determined by either:

a——Field loading tests made in accordance with generally accepted standards, or

b——Laboratory determination made by a person skilled and competent to make such determination and based on subsurface explorations, such as borings or test pits.

### A 302-2 Performance Criteria

a——Under field loading test, the total settlement caused by the proposed load on the soil, measured after a period during which no settlement has occurred for 24 hours, shall not exceed ¾ inch; nor shall a 50 per cent increase in the proposed load cause an additional settlement, measured after a period during which no settlement has occurred for 24 hours, exceeding 60 per cent of the total settlement under the proposed load.

b——The loads imposed on the soil by separate parts of a foundation shall not cause unsafe movement or deformation through differential settlement.

## A 303 ANALYSIS AND TEST PROCEDURES

### A 303-1 General

The capacity of an assembly to sustain dead and imposed loads without exceeding the allowable stresses shall be determined by any one of the procedures herein described under paragraphs designated a, b, and c, of this section A 303-1, or by an approved combination of them.

a——**Design analysis** according to generally accepted engineering practice to establish that stresses in component structural material will not exceed safe working stresses defined in generally accepted standards, or in the absence of such standards, exceed safe working stresses interpreted and established from test results with due consideration given to the reliability, durability, and uniformity of the material and its behavior under stress. In no case shall the safe working stress exceed two thirds of the yield strength nor one half of the ultimate strength of the material. When safe working stresses are assigned to a material, the structural characteristics and reasonable uniformity of the material, as utilized, shall be assured by conformity to generally accepted standards.

b——**Tests** made in accordance with generally accepted standards of assemblies truly representative of the construction to be used in order to establish that such assemblies conform to the performance criteria set forth in section A 305.

c——**Comparison** with an approved assembly of known characteristics and behavior under load, which assembly is directly comparable, in all essential characteristics, to the assembly under consideration.

### A 303-2 Load Test

Load tests or other suitable tests, if required by the enforcement officer and if made in conformity with generally accepted standards, shall be evidence of the acceptability of the construction.

## A 304 DESIGN LOADS

A building and all parts thereof shall be of sufficient strength to support the loads and the movements caused by such loads to which they may be subjected, without exceeding the safe working stresses prescribed by this Code or in generally accepted standards. Such loads shall include the dead load and the following imposed loads where applicable: live, snow, wind, soil pressure, hydrostatic-head, and impact loads.

## A 304-1 Live Loads

### A 304-1.1 General

a——Loads set forth in section A 304-1.2 do not include unusual concentrations, such as storage units, floor-to-ceiling bookshelves, and commercial vehicle wheel loads in garages. Where such loads occur, suitable approved provisions shall be made for their support.

b——Structural members and flooring, if any, spanning the floor structural members shall be designed to support the uniformly distributed live loads or the concentrated loads, whichever produce the greater stress.

c——Uniformly distributed loads may be reduced 20 per cent when structural members support 150 square feet or more of floor or roof area.

### A 304-1.2 Uniformly Distributed and Concentrated Live Loads

Uniformly distributed and concentrated live loads shall be the greatest load produced by the intended use and occupancy, but in no case less than the minimum live load in accordance with the following table.

TABLE A 304-1.2.——UNIFORMLY DISTRIBUTED AND CONCENTRATED LIVE LOADS

| Location | Uniformly distributed loads in pounds per square foot | Concentrated live loads[1] in pounds |
|---|---|---|
| First floor[2] | 40 | 250 |
| Other floors | 30 | 250 |
| Attics: | | |
| Accessible by fixed, folding or disappearing stair, in areas where the ceiling height is 3 feet or more | 30 | 250 |
| Accessible by fixed, folding or disappearing stair, in areas where the ceiling height is less than 3 feet | 20 | 150 |
| Accessible by scuttle or other means, other than a stair, and of such height that household goods may be stored therein | 20 | 150 |
| Roofs and eaves used as promenades | 30 | 250 |
| Other roofs and eaves | [3] | 200 |
| Stair treads | 75 | 250 |
| Garages for passenger cars | 75 | 2000 |

[1] Applied on area 1 inch in diameter at point of maximum deflection in all locations except garages where load is applied on area 9 inches in diameter.
[2] First floor of a one-family dwelling, and first and second floors of a two-family dwelling.
[3] For minimum imposed load see section A 304-9c.

## A 304-2 Snow Loads

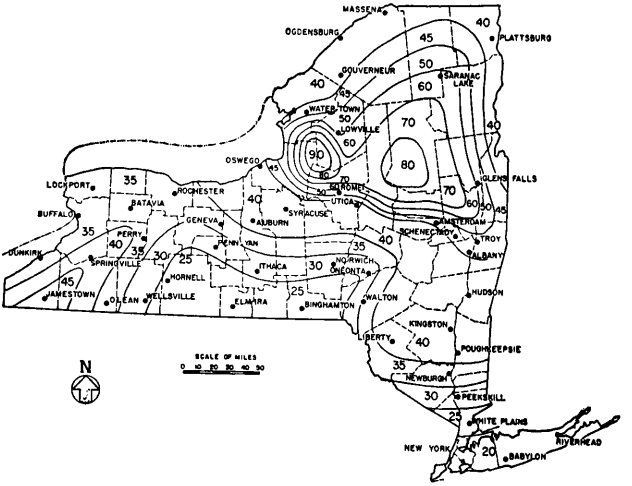
The snow load shall be in accordance with the following table and the snow map on this page.

TABLE A 304-2.——SNOW LOADS
In pounds per square foot normal to roof surface

| Zone numbers on snow map | Roof slope from horizontal[1] | | | | | |
|---|---|---|---|---|---|---|
| | 0° | 20° | 30° | 40° | 50° | 60° or more |
| 20 | 20 | 18 | 11 | 6 | 2 | 0 |
| 25 | 25 | 22 | 14 | 7 | 3 | 0 |
| 30 | 30 | 27 | 17 | 9 | 3 | 0 |
| 35 | 35 | 31 | 20 | 10 | 4 | 0 |
| 40 | 40 | 35 | 23 | 12 | 4 | 0 |
| 45 | 45 | 40 | 25 | 13 | 5 | 0 |
| 50 | 50 | 44 | 28 | 15 | 5 | 0 |
| 60 | 60 | 53 | 34 | 18 | 6 | 0 |
| 70 | 70 | 62 | 39 | 21 | 7 | 0 |
| 80 | 80 | 71 | 45 | 24 | 8 | 0 |
| 90 | 90 | 80 | 51 | 26 | 9 | 0 |

[1] For slopes between those tabulated, compute loads by straight-line interpolation.

## SNOW MAP OF NEW YORK STATE




Numbers Indicate Zones Within Lines

## A 304-3 Wind Loads

Minimum wind loads shall be in accordance with the following tables, designated A 304-3a and A 304-3b, applied **normal** to the surface, and based on an average 5-minute gust velocity of 77.8 miles per hour at a height of 30 feet above grade level.

TABLE A 304-3a.——WIND LOADS: WALLS, EAVES AND CORNICES
In pounds per square foot

| Height of interval above grade level in feet | Walls and chimneys[1] | Eaves and cornices. [Load acting upward] |
|---|---|---|
| 25 or over | 18 | 36 |
| 15 to 25 | 15 | 30 |
| 0 to 15 | 12 | 24 |

[1] Exterior walls shall be capable of withstanding wind load acting on both the interior and exterior surfaces.

TABLE A 304-3b.——WIND LOADS: ROOFS
In pounds per square foot

| Mean elevation of roof above grade level in feet | Direction of load[1] | Slope from horizontal[2] | | | |
|---|---|---|---|---|---|
| | | 0° to 20° | 20° to 30° | 30° to 60° | Over 60° |
| 20 and over | Inward | 5 | 5 | 5 to 14 | 14 |
| | Outward | 17 | 17 to 14 | 14 | 14 |
| Up to 20 | Inward | 5 | 5 | 5 to 11 | 11 |
| | Outward | 14 | 14 to 11 | 11 | 11 |

[1] Inward and outward loads are to be considered as acting non-simultaneously.
[2] Loads on intermediate slopes between 20° and 30° acting outward and between 30° and 60° acting inward, shall be computed by straight-line interpolation.

## A 304-4 Soil Pressure and Hydrostatic-Head Loads

Parts of structures below ground shall be designed to withstand the following loads, if applicable, and such loads shall be in addition to other imposed loads:

a——Lateral load, from adjacent soil.

b——Lateral load, from hydrostatic head.

c——Lateral load, from surcharge of fixed or moving heads.

d——Uplift from hydrostatic head.

## A 304-5 Horizontal Impact Loads

a——All railings including handrails, both exterior and interior, shall be capable of sustaining safely a horizontal lateral impact at the top of the railing equivalent to a uniformly distributed horizontal load of 50 pounds per linear foot.

b——Nonbearing partitions shall be capable of sustaining without structural damage or displacement at top and bottom, their own weight and an impact load applied as directed in section A 305-4.

### A 304-6 Overturning Force and Moment

a——The overturning force shall be the wind load. The wind load shall be the load set forth in table designated A 304-3a, and shall be applied only to the windward vertical surface above the horizontal plane under consideration, and to the rise of roof. The resisting force shall be the dead load of the structure above the horizontal plane under consideration.

b——The moments of stability and overturning shall be computed about the leeward edge of the horizontal plane under consideration.

c——The moment of stability of the structure above the horizontal plane under consideration shall be not less than 1½ times the overturning moment due to wind.

### A 304-7 Sliding Force

The sliding force due to wind load, equal to the overturning force as determined by section A 304-6a, shall be resisted by the dead load of the structure above the horizontal plane under consideration, anchors, and where applicable, soil friction, providing a total resisting force equal to not less than 1½ times the sliding force. Anchors used to resist overturning may also provide resistance to sliding.

### A 304-8 Uplift Force

Uplift force due to wind or hydrostatic head shall be resisted by dead load, acting directly or through anchors or fastenings, equal to not less than 1¼ times the uplift force.

### A 304-9 Combined Loads

a——The stress due to wind may be ignored if it is less than one third of the stress due to dead load plus imposed load excluding wind load.

b——If the stress due to wind exceeds one third of the stress due to dead load plus imposed load excluding wind load, the safe working stress may be increased by one third.

c——On roofs and eaves, the minimum imposed load shall be 20 psf perpendicular to the roof surface, where snow plus wind loads total less than 20 psf.

d——On roofs and eaves subject to live load, live load and snow load shall be considered as acting non-simultaneously.

e——On surfaces that are not vertical, snow or live load, and the inward wind load, shall be considered as acting simultaneously in such combination as imposes the greater load.

### A 304-10 Loads Imposed During Construction

All flooring, structural members, walls, bracing, scaffolding, sidewalk bridges, hoists and temporary support of any kind incidental to the erection, alteration, or repair of any building shall be of such strength as to suffer no structural damage when subject to the temporary loads imposed during construction.

## A 305 PERFORMANCE CRITERIA UNDER TEST

Buildings subject to this Code shall, when submitted to the tests set forth in this section, meet the performance criteria prescribed for each test. Failure to meet the test criteria shall be evidence of noncompliance with this Code.

### A 305-1 Under Imposed Load

When the assembly reacts by bending under the imposed load, exclusive of impact load, the deflection shall not exceed 1/360th of the span when the underside is to be plastered, and 1/240th of the span in other cases.

### A 305-2 Under 1½ Times Imposed Load

a——Under 1½ times the imposed load, exclusive of impact load, the assembly shall sustain the load without structural damage. In testing floor assemblies and assemblies in compression, the 1½-times load shall be applied twice.

b——For floor assemblies, the residual deflection from first application of the load shall not exceed 25 per cent of the maximum deflection under load. After the second application of the 1½-times load, the total residual deflection shall be not more than 1.1 times the residual deflection resulting from the first application of the load.

c——For assemblies in compression, the residual deformation after the second application of the 1½-times load shall not be more than 1.001 times the residual deformation resulting from the first application of the load.

### A 305-3 Under 2 Times Imposed Load

Under 2 times the imposed load, exclusive of impact load, the assembly shall sustain load without structural failure.

### A 305-4 Impact Loads

Under an impact load of 60 pounds falling 4 feet on an area 10 inches in diameter applied to the center of the assembly, the assembly shall sustain no structural damage.

### A 305-5 Racking Loads

Where exterior walls and other partitions react by racking, the racking deformation under and while sustaining the imposed load shall not exceed 1/400th of the height of the wall. Under 1½ times the load inducing racking there shall be no structural damage, and under 2 times the load inducing racking the assembly shall sustain the load without structural failure.

### A 305-6 Transmitted Loads

Fastenings and connections shall be capable of transmitting, without failure, twice the loads borne by them.

## A 306 SAFETY DURING CONSTRUCTION

During construction reasonable provisions shall be made to protect persons from injury and to permit access to, and use of, utilities including, among others, fire hydrants, fire-alarm boxes, police call boxes, street lights, and manholes.

# Part 4
# Fire-Safety Requirements

## A 401 PREVENTION OF EXTERIOR FIRE SPREAD

### A 401-1 General Requirements

Buildings shall be located and constructed so that the distance between buildings and the fire resistance of exterior walls and of roof coverings are commensurate with the extent and degree of the fire hazard involved in order to retard the rapid spread of fire.

### A 401-2 Fire Limits

Fire limits established by municipalities shall for the purposes of this Code be classified as follows:

a——**Fire limits A** comprising the areas containing highly congested business, commercial and, or industrial occupancies wherein the fire hazard is severe.

b——**Fire limits B** comprising the areas containing residential, business and, or commercial occupancies or in which such uses are developing, wherein the fire hazard incident to congestion and use is moderate.

**A 401-2.1 Outside Fire Limits**
All those areas not included in fire limits A and B are designated herein as outside fire limits.

**A 401-2.2 Municipalities Having No Fire Limits**
Buildings and structures located in municipalities which do not designate any particular area or areas within their boundaries as a fire limit shall be constructed in accordance with the requirements of section A 401 applicable to buildings located outside fire limits.

**A 401-2.3 Municipalities Having Fire Limits**
Buildings and structures located in municipalities which designate one or more areas within their boundaries as fire limits, shall be constructed in accordance with the requirements of section A 401 applicable to buildings located in fire limits.

### A 401-3 Distance Separations

**A 401-3.1 General Requirements**
a——Distance separation shall be the clear distance between buildings or between the proposed building and the line on which a building may lawfully be built on adjacent property in order to retard the spread of fire. Distance separation shall be measured from the outside face of exterior walls.

b——Distance separations shall apply only to buildings having an above-grade building volume of 1000 cubic feet or more. Where zoning ordinances, or health ordinances or regulations require greater distance separations, such greater distance requirements shall govern.

c——Those walls or portions thereof located outside of the required distance separation shall be exempt from any requirements imposed by distance separations.

### A 401-3.2 When Required

Distance separations shall be required when the exterior walls of buildings are of:

a——Noncombustible construction having a fire-resistance rating of less than ¾ hour.

b——Combustible construction without noncombustible exterior facing providing at least ¾-hour fire protection, except when located outside fire limits, and of combustible construction without noncombustible facing and with an over-all fire-resistance rating of less than ¾ hour. (See section A 401-3.4.)

### A 401-3.3 Minimum Distance Separations

a——Distance separations in table A 401-3.3 are the minima required.

b——Mimimum distance separations in table A 401-3.3 applicable to combustible exterior walls shall apply where the exterior walls of either the proposed building or an existing building are of combustible construction, except that in any case the distance required shall be for the building having the greater above-grade building volume.

TABLE A 401-3.3.——MINIMUM DISTANCE SEPARATION
In feet

| Above-grade building volume in cubic feet | In fire limits A | | In fire limits B | | Outside fire limits | |
|---|---|---|---|---|---|---|
| | Noncombustible exterior walls | Combustible exterior walls (See section A 401-3.4) | Noncombustible exterior walls | Combustible exterior walls (See section A 401-3.4) | Noncombustible exterior walls | Combustible exterior walls |
| 1000 to 4000 | 3 | 5 | 0 | 3 | 0 | 3 |
| 4001 to 8000 | 5 | 10 | 3 | 5 | 3 | 5 |
| 8001 or more | 10 | Not permitted | 8 | 10 | 5 | 5 |

### A 401-3.4 Construction Limitations

a——Within fire limits A and B, all exterior walls of wood frame construction shall be faced with noncombustible materials providing at least ¾-hour fire protection.

b——Within fire limits A, dwellings of wood frame construction shall not exceed one story in height nor an above-grade building volume of 8000 cubic feet.

c——Within fire limits B, dwellings of wood frame construction shall not exceed two stories in height.

### A 401-3.5 Alternate Protective Construction

In lieu of the fire-resistive construction required for walls or parts thereof in conformity with distance separations, such walls or parts thereof within distance separations may be shielded by protective walls having the required fire-resistive construction.

## A 401-4 Openings in Exterior Walls

a——Exterior walls within a distance separation of less than 3 feet shall either be without openings, or openings in such walls shall be equipped with opening protectives having minimum fire-resistance rating of 20 minutes.

b——Exterior walls extending across a common lot line or a common line between two adjoining dwellings, and having openings within 1½ feet of such lines, shall have such openings equipped with opening protectives having minimum fire-resistance rating of 20 minutes unless such openings are shielded by protective walls in conformity with section A 401-3.5.

c——Opening protectives shall not be required where the floor area in two or more buildings on the same premises totals no more than the maximum floor area set forth in section A 402-2.1.

## A 401-5 Miscellaneous Requirements Within Fire Limits

a——Within fire limits, open porches, enclosed porches containing 50 per cent or more of glass area, and balconies of wood frame construction, extending outward not more than 10 feet from the building face and upward not more than 3 feet above the second story level, may be attached to a dwelling or row house provided the distance from similar constructions attached to adjacent buildings is 3 feet or more.

b——Within fire limits, exterior eaves, and main exterior cornices or trim, may be of wood except when the distance between buildings is less than 3 feet.

## A 401-6 Eaves, Cornices, and Trim

a——Eaves and main exterior cornices may project beyond the building face not more than one third of the required distance separations, but this regulation shall not be deemed to authorize any projection beyond the lot line.

b——Building trim may project beyond the building face not more than one sixth of the required distance separation, but this regulation shall not be deemed to authorize any projection beyond the lot line.

## A 401-7 Roof Coverings

All roof coverings shall be capable of resisting fire commensurate with the severity of exposure and shall be installed in conformity with generally accepted standards, and shall be securely fastened and weathertight.

### A 401-7.1 Classification

Roof coverings shall be classified in accordance with generally accepted standards, as follows:

a——Class 1 roof coverings shall be effective against severe fire exposure and, under such exposure, shall not be readily flammable, shall not carry or communicate fire, shall afford a fairly high degree of heat insulation to the roof deck, shall not slip from position, shall possess no flying-brand hazard, and shall not require frequent repairs in order to maintain fire-resistive properties.

b——Class 2 roof coverings shall be effective against moderate fire exposure and under such exposure shall be similar to class 1 roof coverings except to afford a moderate degree of heat insulation to the roof deck and require only infrequent repair in order to maintain fire-resistive properties.

c——Class 3 roof coverings shall be effective against light fire exposure and under such exposure shall be similar to class 2 roof coverings except to afford at least a slight degree of heat insulation to the roof deck and require only occasional repairs in order to maintain fire-resistive properties.

d——Class 4 roof coverings shall be at least moderately effective against light fire exposure, but do not include such coverings as wood shingles or those lightweight felt roll roofings which are readily ignitable and likely to give off flying brands.

### A 401-7.2 Limitation of Use

a——Within fire limits, roof coverings shall be classes 1, 2, or 3, except that where the distance separation is more

than 5 feet and the above-grade building volume does not exceed 8000 cubic feet, class 4 roof coverings may be used.

b——Outside fire limits, roof coverings shall be classes 1, 2, 3, or 4, except that lightweight roll roofing or wood shingles are permitted only on buildings with an above-grade building volume of not more than 8000 cubic feet and a distance separation of not less than 5 feet, and on buildings with an above-grade building volume of more than 8000 cubic feet and a distance separation of not less than 10 feet.

## A 402 PREVENTION OF INTERIOR FIRE SPREAD

### A 402-1 General Requirements

Dwellings shall be constructed, arranged, and of such floor area so as to confine and restrict the spread of fire.

### A 402-2 Division by Fire Partitions

#### A 402-2.1 Maximum Areas

The maximum floor areas in dwellings or a group of attached dwellings, within exterior walls, or within exterior walls and a fire partition, or within fire partitions, shall not exceed the following:

TABLE A 402-2.1.——MAXIMUM FLOOR AREA PER STORY[1]
In square feet

| Construction classification | Fire-resistance of structural elements | One-story buildings | Two-story buildings | Three-story buildings |
|---|---|---|---|---|
| Type 1[2] | 1½ hr or more | 14,000 | 12,000 | 10,000 |
| Type 2 | ¾ hr or more | 12,000 | 10,000 | 8,000 |
| | Less than ¾ hr | 9,000 | 7,000 | 5,000 |
| Type 3 | ¾ hr or more | 10,000 | 8,500 | 7,500 |
| Type 4 | ¾ hr or more | 10,000 | 8,500 | 7,500 |
| | Less than ¾ hr | 7,500 | 6,500 | 5,500 |
| Type 5 | ¾ hr or more | 6,000 | 5,000 | 4,500 |
| | Less than ¾ hr | 4,000 | 3,500 | 3,000 |

[1] The area of any one story may be increased to that permitted for a one-story building provided the total area of the building does not exceed the total area permitted.
[2] Areas of type 1 fire-resistive construction may be unlimited when structural elements have a fire-resistance rating of 3 hours or more.

#### A 402-2.2 Construction

a——Fire partitions shall be designed and constructed in conformity with the structural requirements of part 3 of this Code, maintain stability and stay in place to prevent

the passage of fire from one side of the partition to the other.

b——Fire partitions shall be constructed of noncombustible materials and shall extend to the outer facing of all walls having lower fire resistance than the fire partition, except that such partition shall not be required to extend through the outer facing of the exterior wall.

c——In dwellings of other than type 1 fire-resistive construction, the fire partitions shall be continuous from the foundation to the roof level, except that fire partitions may be offset provided the offset floor construction and the wall support shall be constructed of noncombustible materials with a fire-resistance rating of not less than that required for the fire partition.

d——Fire partitions shall extend not less than 6 inches through the roof, except when such partitions are built smoketight to the underside of the roof construction and the roof is of noncombustible construction or firestopped and protected by noncombustible material for a distance of 18 inches on each side of the fire partition.

### A 402-2.3 Required Fire Resistance

a——Fire partitions in dwellings of type 1 fire-resistive construction shall have a minimum fire-resistance rating of 1½ hours.

b——Fire partitions in all dwellings other than type 1 fire-resistive construction shall have the following minimum fire-resistance ratings:

TABLE A 402-2.3.——FIRE-RESISTANCE RATINGS[1]
In hours

| Height of dwelling in stories | Basement | First story | Second story | Third story |
|---|---|---|---|---|
| One story | — | 1 | — | — |
| One story and basement | 2 | 1½ | — | — |
| Two story | — | 2 | 1½ | — |
| Two story and basement | 3 | 2 | 1½ | — |
| Three story | — | 3 | 2 | 1½ |
| Three story and basement | 3 | 2 | 1½ | 1½ |

[1] The fire-resistance ratings shall apply to that part of the fire partition from the underside of the floor construction to the underside of the floor or ceiling construction directly above.

## A 402-3 Division by Party Walls

### A 402-3.1 General Requirements

When dwellings are joined at a common lot line, and are not separated by a fire partition, such dwellings shall be separated by party walls in conformity with the requirements set forth in this section.

### A 402-3.2 Construction

a——Party walls shall be designed and constructed in conformity with the structural requirements of part 3 of this Code; shall form a continuous fire and smoke barrier between adjoining buildings from foundation to or through the roof as set forth in section A 402-2.2d; and shall not in the event of removal or collapse of supported construction on one side endanger the support of construction on the opposite side.

b——Within fire limits, party walls shall be of noncombustible construction.

c——Outside fire limits, party walls shall be of noncombustible construction below the level of the first floor construction.

### A 402-3.3 Fire Resistance

The fire-resistance ratings of party walls shall be ¾ hour or more for those portions above the bottom of the first floor construction, and 1½ hours or more below that level.

## A 402-4 Division by Fire Separation

### A 402-4.1 General Requirements

a——Fire separations shall be provided and so arranged between each two dwelling units to prevent the spread of fire into adjoining dwelling units.

b——Stairways and passageways serving in common two dwelling units and leading to an exit shall be enclosed by fire separations. Stairways and passageways leading to an exit and passing through or adjoining another dwelling unit shall be separated therefrom by a fire separation.

### A 402-4.2 Construction

a——Fire separations and their supporting constructions shall be designed and constructed in conformity with the structural requirements of part 3 of this Code and shall form a continuous fire and smoke barrier.

b——Fire separations required between each two dwelling units shall be in conformity with the requirements set set forth in section A 402-4.2a, and shall be continuous from foundation to the underside of the roof construction.

### A 402-4.3 Fire Resistance

Fire separations shall have fire-resistance rating of ¾ hour or more for those portions above the bottom of the first floor construction, and, below that level, shall be of non-combustible construction having a fire-resistance rating of 1½ hours or more.

### A 402-5 Openings in Fire Partitions, Party Walls and Fire Separations

a——Openings shall not be permitted in party walls.

b——Openings in fire partitions and fire separations having a fire-resistance rating of 1½ hours or more, shall be equipped with self-closing opening protectives having a fire-resistance rating of 1½ hours or more.

c——Openings in fire separations having a fire-resistance rating of ¾ hour, shall be equipped with self-closing opening protectives having a fire-resistance rating of 20 minutes or more.

## A 403 PREVENTION OF FIRE SPREAD WITHIN DWELLING UNIT

### A 403-1 General Requirements

Concealed spaces within wall, partition, floor, stair, attic, or cornice constructions, and around chimney, pipe and duct openings in such constructions through which flames or hot gases may spread within a dwelling, or from one dwelling to another, shall be firestopped to prevent the rapid spread of fire.

### A 403-2 Location of Firestopping

a——Concealed vertical spaces shall be firestopped at each floor level and at the ceiling of the uppermost floor, and so as not to communicate with concealed horizontal spaces. Concealed horizontal spaces shall not extend more than 20 feet.

b——Spaces concealed by combustible surface finishes shall be firestopped at intervals not exceeding 8 feet horizontally and vertically.

c——Concealed spaces in cornices shall be firestopped at intervals not exceeding 20 feet, and at the ends of fire partitions, party walls, or fire separations.

d——Attics and roof spaces shall be firestopped so that no undivided area exceeds 3000 square feet.

e——Concealed space between stair stringers shall be firestopped at least once near the middle of each run.

### A 403-3 Material for Firestopping

Wood blocking, wood construction, or noncombustible material which can be firmly fixed in position to prevent the passage of flames and hot gases for a period of time equal to or greater than that provided by wood of 2-inch nominal thickness, is acceptable for firestopping, except that noncombustible firestopping materials shall be used in noncombustible constructions.

### A 403-4 Attic Fire Shutters

Ventilating shutters in interior walls and ceilings through which air is discharged into or supplied from attic spaces, shall close automatically in case of fire in order to prevent the spread of fire to the attic.

## A 404 INTERIOR FINISHES

### A 404-1 General Requirements

Interior finish materials, in burning, shall not give off gases which are harmful or toxic in small concentrations, nor shall they exceed the flame-spread ratings set forth in section A 404-2.

### A 404-2 Limitation of Use

a——Interior finish materials in hallways, stairways, or exitways that are required to have ¾-hour fire separations, shall have a flame-spread rating not exceeding 90 as determined by the tunnel type test set forth in paragraph designated d of this section.

b——Interior finish materials in all spaces other than as provided for in section A 404-2a, shall have a flame-spread rating not exceeding 250 as determined by the tunnel type test set forth in paragraph designated d of this section.

c——Interior finish materials which can be shown by other test methods to have flame-spread ratings equivalent to those set forth in paragraphs designated a and b of this section shall be acceptable.

d——Tunnel type test: Flame-spread ratings shall be given as a comparative value on a scale for which the zero and 100 points are separately and arbitrarily established by subjecting cement-asbestos board and select grade A red oak, lining the top of the inside of a tunnel type test furnace, to flame and draft at the inlet and so regulated that flame will spread on the surface of the red oak test material to reach the outlet end of the 25-foot long tunnel furnace after 6 minutes of exposure to the igniting flame.

## A 405 FIREPLACES

### A 405-1 General Requirements

Fireplaces and similar constructions intended for burning fuel in open fires shall be designed and constructed of noncombustible materials, shall be stable and structurally safe, shall be connected to flues in conformity with the requirements set forth in section A 503-3, and under conditions of use shall not ignite attached or adjacent combustible material.

### A 405-2 Hearths and Linings

Hearths and linings or other parts of fireplaces exposed directly to flame shall be of materials that will not melt, disintegrate, spall, or shatter at temperatures up to 2000° F.

### A 405-3 Mantels and Trim

Wood mantels and trim on fireplaces shall be attached so that they cannot be heated to temperatures in excess of 175° F. or ignited by sparks or embers from the fire.

### A 405-4 Adjacent Combustible Building Members

Fireplaces shall be constructed and insulated so that, when they are in use, adjacent or nearby combustible material shall not be heated to temperatures in excess of 175° F. or be exposed to sparks or embers from the fire.

### A 405-5 Chimneys

Fireplaces shall be connected to chimneys or flues in conformity with the requirements of this Code.

## A 406 FIRE PROTECTION FROM HEAT PRODUCING EQUIPMENT

### A 406-1 General Requirements

a——Heat producing equipment shall be mounted on noncombustible floor constructions, or on protected combustible floor constructions, shall be installed with sufficient clearance from adjacent wood and other combustible constructions to prevent their ignition, and the ceiling shall be protected for a distance of 3 feet on all sides of the heat producing equipment by a noncombustible material providing 10 minutes or more of fire protection, except when such ceiling is constructed of noncombustible material and has a fire-resistance rating of ¾ hour or more.

b——Where heat producing equipment is installed on the first floor or above and is located in an enclosed space, such space shall have enclosure walls, floors, and ceilings with an over-all fire-resistance rating of ¾ hour or more and a noncombustible interior finish providing 10 minutes or more of fire protection to the combustible members. Such space shall not have exposed openings to other parts of the dwelling interior except a door opening equipped with a self-closing door having a fire-resistance rating of 20 minutes or more. Such enclosed space shall have ventilation to the outside of the dwelling either through openings in the exterior walls or through flues or vents leading directly to the outside.

c——Heat producing equipment shall not be installed in attics except when of an approved type installed to conform with the requirements of this section.

## A 407 PRIVATE GARAGES

### A 407-1 General Requirements

a——Private garages which are attached to or form part of dwellings shall be separated from adjoining or adjacent parts of dwellings by distance, or by fire-protective materials and constructions, to retard the spread of fire from within a garage to the dwelling.

b——Floors of private garages shall be placed or arranged so that heavier-than-air flammable vapors cannot spread to fixed sources of ignition. Such floors shall be of materials that will not absorb flammable liquids nor be ignited.

c——Construction of private garages and arrangement of fixed installations shall be such that toxic gases originating within garages shall not spread to the dwellings, nor shall air for heating, ventilation and such uses be circulated through garages to dwellings.

### A 407-2 Separation Requirements

a——An open breezeway 5 feet or more in length shall be acceptable as distance separation, providing a draft stop is placed between the roof and ceiling in the garage end of the breezeway. A draft stop may be of 2-inch nominal thickness of wood or one faced with noncombustible material on the garage side.

b——When the open breezeway is less than 5 feet in length the distance separation shall not be acceptable and separation by fire-protective materials and constructions shall be required. Such constructions shall be

smoketight and of noncombustible finish materials on the garage side of walls, partitions, floors and ceilings extending over an area of 5 feet from or in common with the dwelling, provided such finish will prevent the ignition of combustible members of such protected parts for 10 minutes or more. Parts of garage walls, floors and ceilings that are in common with dwelling walls, floors or ceilings, shall have a combined fire-resistance rating of 30 minutes or more.

### A 407-3 Passageway to Dwellings

a——Passage between an attached or built-in garage and a dwelling shall be through a door-opening equipped with a self-closing door having a fire-resistance rating of not less than 20 minutes. Such door shall not open directly into a room used for sleeping purposes.

b——The top of the sill of a door-opening between a garage and dwelling shall be at least 8 inches above the level of the garage floor.

### A 407-4 Permissible Equipment

Any permanent heating or other appliance with an open flame, for use within a garage, shall be of an approved type and installed not less than 6 feet above the floor level.

# Part 5
# Equipment Requirements

## A 501 PLUMBING

### A 501-1 General Requirements

a——Every dwelling shall have access to a source of potable water, and shall have approved facilities on the premises for the sanitary disposal of sewage.

b——Every row house shall be equipped with a plumbing system to supply potable water and remove sanitary wastes.

c——Every plumbing system shall be designed and installed in conformity with the requirements set forth in section A 501 in order to: supply water in a manner free from health and physical hazards, convey sewage to a public sewer, or where a public sewer is not available, to an approved private sewage disposal system in a manner free from health hazards, and without creating a nuisance, and perform its required functions without need for frequent major replacements.

### A 501-2 Public Water Supply or Public Sewer: When Deemed Available

Public water supply, or a public sewer, shall be deemed available to a dwelling located within 100 feet of a suitable public water supply, or a suitable public sewer, respectively, to which connections may lawfully be made.

### A 501-3 Minimum Facilities

a——In every row house, and wherever public water supply is available to a one- or two-family dwelling, there shall be provided in each dwelling unit and connected to a plumbing system at least:

One kitchen sink,
One water closet,
One bathtub or shower, and
One lavatory

b——Wherever public water supply is not available, there shall be provided on the premises, for each dwelling unit, means for sanitary disposal of sewage without health hazard or nuisance, and in conformity with generally accepted standards.

## A 501-4 Fixtures

Plumbing fixtures and other receptacles for receiving wastes shall be of smooth, nonabsorbent material, resistant to detrimental action of conveyed wastes, and free from concealed fouling surfaces.

## A 501-5 Water Supply System

### A 501-5.1 Water Source

Every water supply system shall be connected to a public water supply wherever such is available, where not available, then to an approved private supply.

### A 501-5.2 Adequate Quantity

a——Every water supply system shall supply water in adequate quantity for household needs and, where a plumbing system is installed, for operation and cleansing of the plumbing fixtures, and for removal and conveyance of sewage.

b——Capacity of the water supply system shall be sufficient for operation during periods of peak use as determined by the maximum probable simultaneous use of fixtures.

### A 501-5.3 Minimum Rate of Flow

Every water supply system shall be designed and installed to provide during periods of peak use the following minimum rates of flow at fixture supply outlets:

| | |
|---|---|
| Kitchen sinks, laundry trays | 5 gpm |
| Water closets, tank operated | 3 gpm |
| Water closets, valve operated | 25 gpm |
| Lavatories | 3 gpm |
| Bathtubs, showers | 6 gpm |

### A 501-5.4 Minimum Residual Pressures

Every water supply system shall be designed and installed to provide during periods of peak use, at the point of outlet discharge, the following minimum residual pressures:

| | |
|---|---|
| Water closet flush valves | 15 psi |
| Faucets, or water closet flush tanks | 8 psi |

### A 501-5.5 Material and Installation

Every water supply system shall be of approved materials and designed and installed so as to be safe, operative, and watertight under the maximum expected pressure.

### A 501-5.6 Pollution

Every water supply system shall be free of potential pollution from all sources, including cross connections, backflow, and solution or suspension of deleterious matter.

**A 501-5.7 Hot Water Safety Precautions**

Every hot water supply system shall be provided with means to safely relieve hazardous pressures and temperatures so as to prevent scalding, explosions, and collapse of tanks.

## A 501-6 Sewage Drainage System

**A 501-6.1 General Requirements**

A sewage drainage system shall be provided wherever sewage is conveyed and removed by water. The sewage drainage system shall include all soil and waste piping, and vent piping forming part thereof.

**A 501-6.2 Where Public Sewer is Available**

Where a public sewer is available, every sewage drainage system shall be connected thereto.

**A 501-6.3 Where Public Sewer is Not Available**

Where public sewer is not available, means shall be provided to receive and dispose of sewage without health hazard or nuisance in conformity with generally accepted standards.

**A 501-6.4 Capacity**

Capacity of every sewage drainage system shall be sufficient for proper operation during periods of peak use as determined by the maximum probable simultaneous use of fixtures. During such periods of peak use the sewage drainage system shall operate without abnormal retardation of flow and without development of pressure against water seals in excess of the requirements set forth in section A 501-6.6.

**A 501-6.5 Piping and Pipe Slope**

a——Every sewage drainage system shall be of approved materials and designed and installed so as to be watertight and operative, and so that stoppage due to fouling, corrosion, frost, or deposit of solids, will not occur under normal conditions of use.

b——Sewage drainage piping shall have slope to provide velocities adequate to prevent deposit of solids, and fouling.

**A 501-6.6 Pressure Differential**

Sewage drainage piping shall be designed and installed so as to prevent excessive pressure differences within the piping during periods of peak use. Pressure differential to which any water seal is subjected shall be not more than 1 inch of water. Provision shall be made to prevent or relieve a pressure differential of more than 1 inch of

water which may develop and tend to cause loss of water seal.

**A 501-6.7 Water Seals**

Sewage drainage piping shall be separated from fixtures connected thereto by water seals normally maintained at a minimum depth of 2 inches. The maximum depth of water seals and the formation of the water seal shall be such as will not result in fouling, or in odors from fluids or solids in the seals. Under conditions of peak use tending to cause loss of seal through surge, self-siphonage, aspiration or back pressure, the minimum depth of residual static trap seal shall be sufficient to resist the normal disturbance caused by the discharge of other fixtures on the system, and in any instance shall not be less than ⅛ inch. Water seals shall be located as close to the fixtures as possible. No trap seal shall be used where seal depends upon the action of movable parts.

**A 501-6.8 Materials**

Every private sewage disposal system shall be of such materials and designed and installed so as to remain operative under normal conditions of use with a minimum of maintenance other than occasional clearance of stoppage and removal of sludge.

## A 502 GAS PIPING

### A 502-1 General Requirements

Every gas piping system shall be designed and installed in conformity with generally accepted standards, and so as to be free from health and physical hazards under normal conditions of use.

### A 502-2 Adequate Supply

Every gas piping system shall be designed and installed so as to provide a supply of gas sufficient to meet the maximum expected demand of the installed gas-burning appliances connected thereto.

### A 502-3 Materials

Every gas piping system shall be of approved materials resistant to the corrosive effects of gases conveyed by them, and designed and installed so as to remain with a minimum of maintenance, gastight, safe, frost-free, and operative under normal conditions of use.

### A 502-4 Shut-Off Valve

Every gas piping system shall have a valve in an accessible location for shutting off all gas to the system.

## A 503 HEATING

### A 503-1 General Requirements

a——Dwellings intended for occupancy between the first day of November and the first day of May of the following year shall be provided with heating facilities capable of maintaining in all habitable spaces, and bathrooms and toilet rooms, an indoor temperature, at a 5-foot level above the floor, of not less than 65° F. whenever the outdoor temperature is 50° or less. The capability of the heating facilities to maintain such indoor temperature shall be based on the outside design temperature for the locality. The outside design temperature shall be the average of the minimum annual outside temperatures.

b——Heating facilities shall be designed and installed in conformity with generally accepted standards so as to be free from any fire, health, and physical hazards under conditions of normal use.

c——Heating facilities, in order to meet the requirements set forth in section A 503, shall not be forced to operate beyond the safe capacity for which they have been designed.

### A 503-2 Heat Producing Equipment

#### A 503-2.1 General Requirements

Heat producing equipment shall be designed, constructed and installed so as to meet the requirements set forth in section A 503-1.

#### A 503-2.2 Clearance

Where heat producing equipment is installed on, or adjacent to, combustible materials, the location, construction, control, or insulation of the equipment, or the protection of the combustible materials, severally or in combination, shall be such that the temperature on the surface of the combustible materials at no time shall exceed 175° F. above the initial temperature.

#### A 503-2.3 Air for Combustion

An adequate supply of air for combustion shall be available to direct-fired heat producing equipment. Air for combustion shall be supplied from outdoors, or from indoor spaces which are supplied directly or indirectly with

outdoor air. When an adequate supply of air is not assured at all times, permanent openings shall be installed to provide a clear ventilating area equal to not less than the cross-sectional area of the smoke pipe where it enters the flue.

**A 503-2.4 Removal of Products of Combustion**

Heat producing equipment shall be connected to a suitable chimney or flue or, in the case of gas-fired equipment, to a suitable gasvent, when the discharge of products of combustion into the space where the equipment is installed would be a health or physical hazard.

**A 503-2.5 Safety Devices**

a——Heat producing equipment and auxiliary equipment capable of developing hazardous pressures or temperatures shall be provided with means to relieve safely such pressures and temperatures whenever they exceed the normal operating conditions.

b——Controls of mechanical equipment used in connection with heating facilities shall be provided as follows: when failure or interruption of flame or ignition occurs, the fuel supply shall be cut off; when a predetermined temperature or pressure is exceeded, the delivery of additional heat to the boiler shall be prevented or reduced to a safe minimum rate of combustion; when the water level in a steam boiler drops below a predetermined level, the fuel supply shall be cut off.

**A 503-2.6 Fuel Storage**

All fuels required and stored on the premises for the operation of heat producing equipment and appliances shall be stored in accordance with generally accepted standards.

## A-503-3 Chimneys, Flues, and Gasvents

**A 503-3.1 General Requirements**

a——Chimneys, flues, and gasvents shall be located, designed, and constructed to convey, effectively and without nuisance, products of combustion to the outer air, and shall not be potential sources of ignition to adjacent combustible materials, nor be health hazards.

b——Chimneys, flues, and gasvents shall have adequate foundations and supports and shall be designed and constructed so as to be stable, structurally safe, durable and tight.

**A 503-3.2 Draft**

Chimneys, flues, and gasvents shall be located, designed, and constructed to provide sufficient draft to develop the rated output of the equipment served.

**A 503-3.3 Fire Safety**

Chimneys, flues, and gasvents shall be located, designed and constructed so as not to increase, under conditions of use, the temperature on any combustible materials adjacent thereto or in contact therewith beyond 175° F. above the initial temperature.

**A 503-3.4 Outlets**

Flue and gasvent outlets shall be located so as not to be lower than the level of the top of any window or other exterior opening which is within 15 feet measured horizontally from the outlet, nor shall such outlets be located less than 2 feet above the level of any unprotected combustible part of any building or construction when such part is within 10 feet of the outlet, except as otherwise set forth in generally accepted standards.

## A 504 ELECTRICAL WIRING AND EQUIPMENT

### A 504-1 General Requirements

Electrical wiring and equipment shall be designed and installed so as not to be a potential source of ignition of combustible material or a potential source of electrical hazard.

### A 504-2 Installation

Installation of electrical wiring and equipment in conformity with generally accepted standards shall be deemed to comply with this Code.

## A 505 ELEVATORS

### A 505-1 General Requirements

Elevators and the appurtenances necessary for operation shall be designed and installed so as to be free from physical and fire hazards.

### A 505-2 Installation

Installation of elevators and their appurtenances in conformity with generally accepted standards shall be deemed to comply with this Code.

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