NEW YORK STATE OF OPPORTUNITY. | Building Standards and Codes

# 2016 Code Update

## Based upon

## The 2015 International Codes

## and

## The 2016 Uniform Code Supplement and the 2015 Supplement to the NYS Energy Conservation Construction Code

**Important Notice:** The text in this document is based on proposed text for the 2016 Uniform Code Supplement, the 2015 Supplement to the Energy Conservation Construction Code , and the 2015 International Codes and may be subject to change before final adoption. This text is provided for educational purposes only and must not be used as an enforcement or design document.

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Code Sections - **BOLD** Type

New International Code Sections - Underlined

*New York Supplement –* italicized and Underlined

~~Deleted Sections~~ - Strikethrough

## NYS Uniform Code Supplement CHAPTER 1

**Amendments to Chapter 1 of the 2015 IRC, IBC, IPC, IMC, IFGC, IFC, IPMC and IEBC**
For the purposes of applying the 2015 IRC, IBC, IPC, IMC, IFGC, IFC, IPMC and IEBC in the State of New York, Chapter 1 of the 2015 IRC, IBC, IPC, IMC, IFGC, IFC, IPMC and IEBC shall each be deemed to be amended to read as follows:

# CHAPTER 1
# GENERAL REQUIREMENTS
# SECTION 101 TITLE, SCOPE AND PURPOSE

**101.1 Title.** These provisions shall be known as the New York State Uniform Fire Prevention and Building Code and will be referred to herein as the "Uniform Code".
The Uniform Code includes the first printing of the following code documents as published by the International Code Council: 2015 IRC, 2015 IBC, 2015 IPC, 2015 IMC, 2015 IFGC, 2015 IFC, 2015 IPMC, and 2015 IEBC. Each of these International Code Council documents is deemed to have been amended by the publication entitled 2016 Uniform Code Supplement published by the New York Department of State.
Each code document has a specific scope with regard to the minimum standards for building construction and fire prevention, as outlined in Section 101.2 Scope.

**101.2 Scope.** The provisions of the Uniform Code shall apply to all new and existing buildings, structures, systems and equipment as indicated in Sections 101.2.1 through 101.2.8, with the following exceptions:
**Exceptions:**
1. Structures, systems and equipment lawfully in existence at the time of adoption of the Uniform Code shall be permitted to have their use continued, provided that the use is in accordance with the original design and no hazard to life, health or property is created by such structure, system or equipment and except when provisions of the 2015 IRC, 2015 IBC, 2015 IPC, 2015 IMC, 2015 IFGC, 2015 IFC, 2015 IPMC, and 2015 IEBC specifically apply to existing buildings.
2. Additions, alterations, renovations or repairs to any structure, system or equipment shall conform to that required for a new construction without requiring the existing structure, system or equipment to comply with all of the requirements of the Uniform Code. Additions, alterations or repairs shall not cause an existing structure, system or equipment to become unsafe, unsanitary, hazardous or overloaded. Minor additions, alterations, renovations and repairs to existing structure, system or equipment shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing, is not hazardous, and is approved.
3. Construction trailers used as a temporary office for the purpose of monitoring construction at a construction site.
4. Structures such as radio and television transmission, communication and wind generation towers not attached to buildings.

**101.2.1 The Residential Code.** The provisions of the Residential Code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms, and plumbing, mechanical, and fuel gas systems and appliances servicing these structures.
**Exceptions:**
1. Live/work units located in townhouses and complying with the requirements of Section 419 of the Building Code shall be permitted to be constructed in accordance with the Residential Code for one- and two-family dwellings. Fire suppression required by Section 419.5 of the Building Code where constructed under the Residential Code for one- and two-family dwellings shall conform to the Section P2904 of the Residential Code.
2. Home occupations in dwelling units complying with the requirements of Appendix J shall be permitted.
3. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the Residential Code where equipped with a fire sprinkler system in accordance with Section P2904 of the Residential Code.

**101.2.1.1 Regulation by Other State of New York Departments or Agencies**. Where a building or premises under the custody, licensure, supervision or jurisdiction of a department or agency of the State of New York is regulated as a one- or two-family dwelling or multiple single-family dwelling (townhouse), in accordance with established laws or regulations of that department or agency, said buildings or premises, such as a community residence or hospice residence, and their accessory structures shall comply with Residential Code.

**101.2.1.2 Change of use or occupancy.** No change shall be made in the use or occupancy of any structure unless such structure is made to comply with the requirements of Appendix J.

**101.2.1.3 Additions, alterations or repairs.** Additions, alterations or repairs to any structure shall conform to the requirements of Appendix J without requiring the existing structure to comply with all of the requirements of the Residential Code, unless otherwise stated. Additions, alterations or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building

**101.2.1.4 Factory Manufactured Homes (Modular Homes**). Such homes shall be constructed and installed in accordance with the requirements of Residential Code and shall bear an Insignia of Approval issued in accordance with the 19 NYCRR Part 1209, Regulations and Fees for Factory Manufactured Homes.

**101.2.2 The Building Code.** The provisions of the Building Code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

**Exceptions:**

1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, and one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms shall comply with the provisions of the Residential Code.
2. Agricultural buildings, including barns, sheds, poultry houses and other buildings and equipment on the premises used directly and solely for agricultural purposes. “Agricultural building” shall mean a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products, excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**101.2.3 The Plumbing Code.** The provisions of the Plumbing Code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems. This code shall also regulate nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems.

**Exceptions:**

1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, and one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms are permitted to comply with the provisions of the Residential Code.
2. Plumbing systems in existing buildings that are undergoing repairs, alterations, or changes in occupancy or construction of additions shall be permitted to comply with provisions of the Existing Building Code.

**101.2.4 The Mechanical Code.** The provisions of the Mechanical Code shall regulate the design, installation, maintenance, alteration, and inspection of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This shall include ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

**Exceptions:**

1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, and one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms are permitted to comply with the provisions of the Residential Code.
2. Mechanical systems in existing buildings that are undergoing repairs, alterations, or changes in occupancy or construction of additions shall be permitted to comply with provisions of the Existing Building Code.

**101.2.5 The Fuel Gas Code.** The provisions of the Fuel Gas Code shall apply to the design, installation, maintenance, alteration and inspection of the fuel gas piping and equipment, fuel gas-fired appliances, and fuel gas-fired appliance venting systems that are permanently installed and specifically addressed in the Fuel Gas Code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances, the installation and operation of residential and commercial gas appliances and related accessories, and gaseous hydrogen systems.

**Exceptions:**

1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, and one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms are permitted to comply with the provisions of the Residential Code.
2. Fuel gas piping systems in existing buildings that are undergoing repairs, alterations, or changes in occupancy or construction of additions shall be permitted to comply with provisions of the Existing Building Code.

**101.2.5.1 Gaseous hydrogen systems.** Gaseous hydrogen systems shall be regulated by Chapter 7 of Fuel Gas Code.

**101.2.5.2 Piping systems.** These regulations cover piping systems for natural gas with an operating pressure of 125 pounds per square inch gauge (psig) (862 kPa gauge) or less, and for LP-gas with an operating pressure of 20 psig (140 kPa gauge) or less, except as provided in Section 402.6. Coverage shall extend from the point of delivery to the outlet of the appliance shutoff valves. Piping systems requirements shall include design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance.

**101.2.5.3 Gas appliances.** Requirements for gas appliances and related accessories shall include installation, combustion and ventilation air and venting and connections to piping systems.

**101.2.5.4 Systems and equipment outside the scope.** Fuel Gas Code shall not apply to the following:

1. Portable LP-gas appliances and equipment of all types that is not connected to a fixed fuel piping system.
2. Installation of farm appliances and equipment such as brooders, dehydrators, dryers and irrigation equipment
3. Raw material (feedstock) applications except for piping to special atmosphere generators.
4. Oxygen-fuel gas cutting and welding systems.
5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen.
6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms and natural gas processing plants.
7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by, or used in, chemical reactions.
8. LP-gas installations at utility gas plants.
9. Liquefied natural gas (LNG) installations.
10. Fuel gas piping in power and atomic energy plants.
11. Proprietary items of equipment, apparatus or instruments such as gas-generating sets, compressors and calorimeters.
12. LP-gas equipment for vaporization, gas mixing and gas manufacturing.
13. Temporary LP-gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.
14. Installation of LP-gas systems for railroad switch heating.
15. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.
16. Except as provided in Section 401.1.1, gas piping, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-gas.
17. Building design and construction, except as specified herein.
18. Piping systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 psig (69 kPa gauge).
19. Portable fuel cell appliances that are neither connected to a fixed piping system nor interconnected to a power grid.

**101.2.5.5 Other fuels.** The requirements for the design, installation, maintenance, alteration and inspection of mechanical systems operating with fuels other than fuel gas shall be regulated by the Mechanical Code.

**101.2.6 The Fire Code.** The provisions of the Fire Code shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression, automatic sprinkler and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

**101.2.6.1 Construction and design provisions**. The construction and design provisions of the Fire Code shall apply to:
1. Structures, facilities and conditions arising after the adoption of the Fire Code.
2. Existing structures, facilities and conditions not legally in existence at the time of adoption of the Fire Code.
3. Existing structures, facilities and conditions where identified in the Fire Code.
**Exceptions:**
1. Agricultural buildings, including barns, sheds, poultry houses and other buildings and equipment on the premises used directly and solely for agricultural purposes. “Agricultural building” shall mean a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products, excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**101.2.6.2 Administrative, operational and maintenance provisions.** The administrative, operational and maintenance provisions of the Fire Code shall apply to:
1. Conditions and operations arising after the adoption of the Fire Code.
2. Existing conditions and operations.

**101.2.6.3 Maintenance of required safeguards.** Where any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of the Fire Code, or otherwise installed, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with the Fire Code, the Property Maintenance Code and applicable referenced standards.

**101.2.6.4 Existing non-required safeguards.** Wherever any non-required device, equipment, system, condition, arrangement, level of protection, or any other feature is provided, such device, equipment, system, condition, arrangement, level of protection, or other feature shall, thereafter, be continuously maintained in accordance with the Fire Code and applicable referenced standards or shall be removed in its entirety.
**Exceptions:**
1. Non-required devices, equipment and systems are permitted to be removed in entirety;
2. Non-required devices, equipment and systems are permitted to be disabled, provided that all visible elements are removed;
3. Electrically charged devices, equipment and systems are permitted to be disabled, provided they are disconnected from power sources and all visible elements are labeled as not being energized; and
4. Non-required fire protection systems are permitted to be disabled, provided that sprinkler heads, exposed valves, fire department connections, initiating and notification devices and similar equipment are removed, and any remaining visible components are labeled as not being in service.

**101.2.6.4.1 Fire protection systems at motor fuel dispensing systems.** Existing non-required fire extinguishing systems at flammable motor fuel-dispensing systems shall be permitted to be removed in its entirety only after all existing elements of the motor fuel-dispensing systems have been upgraded to comply with all safety requirements in the current fire code.

**101.2.6.5 Testing and operation.** Equipment requiring periodic testing or operation to ensure maintenance shall be tested or operated as specified in the Fire Code.

**101.2.5.1 Test and inspection records.** Required test and inspection records shall be available at all times.

**101.2.5.2 Re-inspection and testing.** Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with the Fire Code.

**101.2.6.6 Rendering equipment inoperable.** Fire protection equipment or building systems and equipment that provide life safety functions shall not be rendered inoperative or inaccessible except as necessary during emergencies, maintenance, repairs, alterations, drills or prescribed testing
.

**101.2.6.7 Unsafe structures and equipment.** If during the inspection of a premises, building or structure, or any building system or equipment, in whole or in part, there exists a clear and imminent threat to human life, safety or health, the Authority Having Jurisdiction charged with the administration and enforcement of the Uniform Code shall exercise his/her powers in due and proper manner so as to extend to the public protection from the hazards of threat to human life, safety, or health.

**101.2.6.7.1 Unsafe structures**. An unsafe structure is one that is found to be dangerous to the life, health, property or safety of the public or to the occupants of the structure by not providing minimum safeguards to protect or warn occupants in the event of fire; or because such structure contains unsafe equipment or is so damaged, decayed, dilapidated, or structurally unsafe; or is of such faulty construction or unstable foundation that partial or complete collapse is possible. A vacant structure that is not secured against unauthorized entry as required by Section 311 of the Fire Code shall be deemed unsafe.

**101.2.6.7.2 Unsafe equipment.** Unsafe equipment includes any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment on the premises or within the structure that is in such disrepair or condition that the equipment is a hazard to life, health, property or safety of the public or occupants of the premises or structure.

**101.2.6.7.3 Structure unfit for human occupancy.** A structure is unfit for human occupancy whenever the structure is unsafe, unlawful, or because of the degree to which the structure is in disrepair or lacks maintenance or the location of the structure constitutes a hazard to the occupants of the structure or to the public.
**101.2.6.7.4 Unlawful structure**. An unlawful structure is one found in whole or in part to be occupied by more persons than are permitted under the Fire Code, or was erected, altered or occupied contrary to law.

**101.2.6.7.5 Closing of vacant structures**. If the structure is vacant and unfit for human habitation and occupancy, and is not in danger of structural collapse, a placard of condemnation shall be posted on the premises, and the structure shall be closed up so as not to be an unattractive nuisance.

**101.2.6.7.6 Prohibited occupancy**. No person shall occupy a placarded structure.

**101.2.6.7.6.1 Removal of placard**. The placard shall be removed whenever the defect or defects on which the condemnation and placarding action were based have been eliminated.

**101.2.6.7.7 Notice**. Whenever a structure or equipment has been condemned under the provisions of this section, a notice shall be posted in a conspicuous place in or about the structure affected by such notice. If the notice pertains to equipment, it shall also be placed on the condemned equipment.

**101.2.6.7.8 Imminent danger.** When there exists: (1) imminent danger of failure or collapse of a building or structure which endangers life; (2) a structure where the entire or part of the structure has fallen and life is endangered by the occupation of the structure; (3) actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials; or, (4) operation of defective or dangerous equipment, the occupants shall vacate the premises forthwith, there shall be posted at each entrance to such structure a notice reading as follows: "This Structure Is Unsafe and Its Occupancy Has Been Prohibited by the Code Enforcement Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

**101.2.6.7.9 Fire department notification.** The fire chief shall notify the code enforcement official of any fire or explosion involving any structural damage, fuel-burning appliance, chimney, flue or gas vent.

**101.2.7 The Property Maintenance Code.** The provisions of the Property Maintenance Code shall apply to all existing residential and nonresidential structures and all existing premises and constitute minimum requirements and standards for premises, structures, equipment and facilities for light, ventilation, space, heating, sanitation, protection from the elements, a reasonable level of safety from fire and other hazards, and for a reasonable level of sanitary maintenance; the responsibility of owners, an owner's authorized agent, operators and occupants; the occupancy of existing structures and premises, and for administration, enforcement and penalties.
**101.2.7.1 Application of other codes**. Repairs, additions or alterations to a structure, or changes of occupancy, shall be done in accordance with the procedures and provisions of the Building Code, Existing Building Code, Energy Conservation Code, Fire Code, Fuel Gas Code, Mechanical Code, Residential Code, Plumbing Code and NFPA 70.

**101.2.7.2 Maintenance of equipment and systems**. Equipment, systems, devices and safeguards required by the Property Maintenance Code, or a previous regulation or code under which the structure or premises was constructed, altered or repaired shall be maintained in good working order. The requirements of the Property Maintenance Code are not intended to provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures. Except as otherwise specified herein, the owner or the owner's designated agent shall be responsible for the maintenance of buildings, structures and premises.

**101.2.7.3 Existing non-required equipment and systems**. Whenever or wherever any non-required device, equipment, system, condition, arrangement, level of protection or any other feature is provided, such device, equipment, system, condition, arrangement, level of protection or other feature shall thereafter be continuously maintained in accordance with the Property Maintenance Code and applicable referenced standards.
**Exception:** Non-required devices, equipment and systems are permitted to be removed or disabled as provided herein**.**
1. Non-required devices, equipment and systems are permitted to be removed in entirety;
2. Non-required devices, equipment and systems are permitted to be disabled, provided that all visible elements are removed;
3. Electrically charged devices, equipment and systems are permitted to be disabled, provided that they are disconnected from power sources and all visible elements are labeled as not being energized; and
4. Non-required fire protection systems are permitted to be disabled, provided that sprinkler heads, exposed valves, fire department connections, initiating and notification devices and similar equipment are removed, and any remaining visible components are labeled as not being in service.

**101.2.7.4 Unsafe structures and equipment.** If during the inspection of a premises, building or structure, or any building system or equipment, in whole or in part, constitutes a clear and imminent threat to human life, safety or health, the Authority Having Jurisdiction charged with the administration and enforcement of the Uniform Code shall exercise his/her powers in due and proper manner so as to extend to the public protection from the hazards of threat to human life, safety, or health.

**101.2.7.4.1 Unsafe structures**. An unsafe structure is one that is found to be dangerous to the life, health, property or safety of the public or the occupants of the structure by not providing minimum safeguards to protect or warn occupants in the event of fire, or because such structure contains unsafe equipment or is so damaged, decayed, dilapidated, structurally unsafe, or of such faulty construction or unstable foundation, that partial or complete collapse is possible.

**101.2.7.4.2 Unsafe equipment.** Unsafe equipment includes any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment on the premises or within the structure which is in such disrepair or condition that such equipment is a hazard to life, health, property or safety of the public or occupants of the premises or structure
.
**101.2.7.4.3 Structure unfit for human occupancy**. A structure is unfit for human occupancy whenever such structure is unsafe, unlawful or, because of the degree to which the structure is in disrepair or lacks maintenance, is unsanitary, vermin or rat infested, contains filth and contamination, or lacks ventilation, illumination, sanitary or heating facilities or other essential equipment required by the Property Maintenance Code, or because the location of the structure constitutes a hazard to the occupants of the structure or to the public.

**101.2.7.4.4 Unlawful structure**. An unlawful structure is one found in whole or in part to be occupied by more persons than permitted under the Property Maintenance Code, or was erected, altered or occupied contrary to law.

**101.2.7.5 Vacant structures.** Vacant structures shall comply with the Property Maintenance Code and the Fire Code.

**101.2.7.6 Notice.** Whenever a structure or equipment has been condemned under the provisions of the Property Maintenance Code, a notice shall be posted in a conspicuous place in or about the structure affected by such notice. If the notice pertains to equipment, it shall also be placed on the condemned equipment.

**101.2.7.7 Prohibited occupancy**. No person shall occupy a placarded premises or shall operate placarded equipment.

**101.2.7.8 Placard removal**. The placard shall be removed whenever the defect or defects upon which the condemnation and placarding action were based have been eliminated.

**101.2.7.9 Imminent danger.** When there is: (1) imminent danger of failure or collapse of a building or structure which endangers life; (2) a structure in which any part of the structure has fallen and life is endangered by the occupation of the structure; or, (3) actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials, or operation of defective or dangerous equipment, the Authority Having Jurisdiction is authorized to order and require the occupants to vacate the premises forthwith. The Authority Having Jurisdiction shall require the posting at each entrance to such structure a notice reading as follows: "This Structure Is Unsafe and Its Occupancy Has Been Prohibited by the Code Enforcement Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or of demolishing the same.

**101.2.8 The Existing Building Code.** The provisions of the Existing Building Code shall apply to all matters governing the repairs, alterations, change of occupancy, additions and relocation of existing buildings. The intent of the Existing Building Code is to provide flexibility to permit the use of alternative approaches to achieve compliance with minimum requirements to safeguard the public health, safety and welfare insofar as they are affected by the repair, alteration, change of occupancy, additional and relocation of existing buildings.
**Exceptions:**
1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, their accessory structures not more than three stories above grade plane in height, and one-family dwellings converted to owner occupied bed and breakfast dwellings with five or fewer guest rooms shall comply with the provisions of the Residential Code.
2. Agricultural buildings, including barns, sheds, poultry houses and other buildings and equipment on the premises used directly and solely for agricultural purposes. “Agricultural building” shall mean a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products, excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**101.2.8.1 Compliance Methods.** The repair, alteration, change of occupancy, addition, or relocation of all existing buildings shall comply with one of the methods listed in Section 301 of the Existing Building Code. Projects that involve more than one classification of work must comply with the requirements of each appropriate chapter.
**Exception:** Alterations complying with laws in existence at the time the building or affected portion of the building was constructed shall be considered in compliance with the provisions of the Existing Building Code, unless the building has sustained substantial structural damage as defined in Section 606.2, or the building is undergoing more than a limited structural alteration as defined in Section 907.4.4. New structural members added as part of the repair or alteration shall comply with the Building Code. Repairs and alterations of existing buildings in flood hazard areas shall comply with Section 701.3

**101.2.8.2 Energy Conservation.** Energy conservation measures in existing buildings shall be in conformance with Chapter 5 CE or Chapter 5 RE of the Energy Conservation Code, as applicable
.
**101.2.8.3 Addition, alterations and repairs.** Additions, alterations or repairs to any structure shall conform to that required by the Existing Building Code without requiring the existing structure to comply with all the requirements of said code, unless otherwise stated. Additions, alterations or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building

**101.2.8.4 Carbon monoxide alarms and detectors in existing buildings.** Carbon monoxide alarms and detectors shall comply with the Fire Code.

**101.3 Purpose.** The Uniform Code is intended to provide minimum requirements to safeguard public safety, health and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment.

**101.4 Referenced codes.** The codes and referenced standards listed in Chapter 10 of this supplement and referenced elsewhere in the Uniform Code shall be considered part of the requirements of Uniform Code to the prescribed extent of each such reference.

## SECTION 102 APPLICABILITY

**102.1 General.** Where, in any specific case, different sections of the Uniform Code specify different materials, methods of construction or other requirements, the most restrictive shall be applicable. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable

**102.2 Other laws and regulations.** The State Uniform Fire Prevention and Building Code (the Uniform Code) is promulgated pursuant to Article 18 of the Executive Law. The provisions of the Uniform Code shall not be deemed to nullify any federal, state or local law, ordinance, administrative code, rule or regulation relating to any matter as to which the Uniform Code does not provide. However:
(1) Pursuant to Section 383(1) of the Executive Law, and except as otherwise provided in paragraphs a, b and c of Section 383 of the Executive Law, the provisions of the Uniform Code supersede any other provision of a general, special or local law, ordinance, administrative code, rule or regulation inconsistent or in conflict with the Uniform Code;
(2) Pursuant to Section 379(3) of the Executive Law, no city, town, village, county or other municipality shall have the power to supersede, void, repeal, or make less restrictive any provision of the Uniform Code; and
(3) The ability of any city, town, or village, or the County of Nassau, to enact or adopt, and to enforce, a local law or ordinance imposing higher or more restrictive standards for construction within the jurisdiction of such city, town, village, or county than are applicable generally to such city, town, village, or county in the Uniform Code is subject to the provisions and requirements of Section 379 of the Executive Law.
Nothing is this Section 102.2 shall be construed: (1) as affecting the authority of the State Labor Department to enforce a safety or health standard issued under provisions of Sections 27 and 27-a of the Labor Law; (2) to relieve a person from complying with a stricter standard issued pursuant to the Occupational Safety and Health Act of 1970, as amended; or, (3) as superseding, limiting, impairing or otherwise affecting any provision in Parts 1219 to 1228 of Title 19 of the New York Codes, Rules and Regulations, as now in effect and as hereafter amended from time to time.

**102.3 Change of use or occupancy.** No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group or occupancy or in a different group of occupancies, unless such structure is made to comply with the requirements of the Residential Code or Existing Building Code, as applicable.

**102.4 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of Uniform Code.
All references made to Sections 101 through 117, or subsections of Sections 101 through 117, in the 2015 IRC, 2015 IBC, 2015 IPC, 2015 IMC, 2015 IFGC, 2015 IFC, 2015 IPMC, and 2015 IEBC shall not apply. However, this shall not limit the administration and enforcement duties and powers of the building official allowed by Section 107.1.

**102.5 Referenced standards.** The standards referenced in the Uniform Code shall be considered part of the requirements of the same, to the prescribed extent of each such reference. Where differences occur between provisions of the Uniform Code and referenced standards, the provisions of the Uniform Code shall apply.

**102.6 Appendices.** The following appendices have been adopted and are made part of the Uniform Code:

**The Residential Code**
1. Appendix E – Manufactured Housing Used as Dwelling
2. Appendix H – Patio Covers
3. Appendix J – Existing Buildings and Structures

**The Building Code**
1. Appendix E – Supplemental Accessibility Requirements
2. Appendix F – Rodent Proofing
3. Appendix I – Patio Covers

**The Plumbing Code**
1. Appendix C – Structural Safety

**The Fire Code**
1. Appendix D – Fire Apparatus Access Roads

**The Existing Building Code**
1. Appendix A – Guidelines for the Seismic Retrofit of Existing Buildings
2. Resource A – Guidelines on Fire Ratings of Archaic Materials and Assemblies

**102.7 Partial invalidity.** In the event that any part or provision of the Uniform Code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

**102.8 Existing structures.** The legal occupancy of any structure existing on the date of adoption of Uniform Code or its amendments shall be permitted to continue without change, except as is specifically addressed by the provisions of the Uniform Code.

## SECTION 103 MATERIALS, EQUIPMENT AND METHODS OF CONSTRUCTION

**103.1 Approved materials and equipment.** Materials, equipment and devices approved by the code enforcement official for use shall be constructed and installed in accordance with such approval. Materials, equipment and devices tested by an approved testing laboratory shall be permitted to be constructed and installed in accordance with such approval.

**103.2 Used materials and equipment.** Material, equipment and devices shall not be reused unless they meet the requirements of Uniform Code for new materials.

**103.3 Alternate materials, design and methods of construction and equipment.** The Uniform Code is not intended to prevent the use of any material not specifically prescribed by Uniform Code or to prohibit any design or method of construction not specifically prescribed by Uniform Code, provided that any such alternative material, design or method of construction has been approved by the code enforcement official or the State Fire Prevention and Building Code Council. An alternative material, design or method of construction may be approved only when the code enforcement official or the State Fire Prevention and Building Code Council shall have determined, in writing, that such alternative material, design or method of construction (1) complies with the intent of the provisions of Uniform Code and (2) is at least equivalent of that prescribed in Uniform Code in quality, strength, effectiveness, fire resistance, durability and safety. Nothing in this Section 103.3 shall be construed as permitting any code enforcement official, or any town, village, city, county, or state agency charged with the administration and enforcement of the Uniform Code, to waive, vary, modify or otherwise alter any provision or requirement of Uniform Code. Provisions or requirements of the Uniform Code may be varied or modified only pursuant to procedures established by the Secretary of State pursuant to Section 381(1)(f) of the Executive Law.

**103.4 Safeguards during construction.** All construction work covered in Uniform Code, including any demolition, shall comply with the requirements of the Fire Code and Chapter 33 of the Building Code.

**103.5 Workmanship.** Repairs, maintenance work, alterations or installations which are caused directly or indirectly by the enforcement of the Uniform Code shall be executed and installed in accordance with Uniform Code and the manufacturer's installation instructions.

## SECTION 104 SERVICE UTILITIES

**104.1 Connection of service utilities.** Connections from a utility, source of energy, fuel or power to any building or system which is regulated by Uniform Code shall be made in accordance with the regulations of the public utility or other authority having jurisdiction.

**104.2 Temporary power**. Temporary power shall comply with the requirements of Chapter 27 of the Building Code.

## TEMPORARY STRUCTURES

**105.1 Conformance.** Temporary structures shall conform to Chapter 31 of the Building Code, and Chapter 31 of the Fire Code.

## SECTION 106 MODULAR BUILDINGS

**106.1 Modular buildings.** Such buildings shall be constructed and installed in accordance with the requirements of Uniform Code and shall bear the Insignia of Approval by the Secretary of State. Modular building shall mean a building wholly or in substantial part manufactured in a manufacturing facility, intended or designed for permanent installation or assembly on a building site, and whereby all portions may not be reasonably inspected at the installation site without disassembly or destruction thereof.
**Exception:** An Insignia of Approval shall not be required for the following buildings:
1. Modular buildings with structural components that cannot be inspected at the installation site but can be inspected in accordance with Section 1704 of the Building Code at the manufacturing facility in which it was built.
2. Buildings of Group S or U occupancy having an area not exceeding 400 square feet and not customarily used for human occupancy.

## SECTION 107 ADMINISTRATION AND ENFORCEMENT

**107.1 Administration and enforcement.** Administration and enforcement of the New York State Uniform Fire Prevention and Building Code shall be in accordance with the following as applicable:
1. Local law subject to the minimum requirements set forth in 19 NYCRR Part 1203, "Minimum Standards for Administration and Enforcement";
2. 19 NYCRR Part 1202, “Uniform Code: Administration and Enforcement in Certain Local Governments”; or,
3. 19 NYCRR Part 1204, "Administration and Enforcement by State Agencies".

**107.2 Modification.** No town, village, city or county, nor any state agency charged with the administration and enforcement of Uniform Code may waive, modify or otherwise alter any provision of unless approved by the State Fire Prevention and Building Code Council in accordance with Section 379 of Article 18 of the Executive Law.

**107.3 Application for variance or appeal.** Variance or appeal of any provision of Uniform Code shall be in accordance with the provisions of the 19 NYCRR Part 1205, "Variance Procedures."

## Chapter 2 - Residential Code

*For the purposes of applying the 2015 IRC in this State, the 2015 IRC shall be deemed to be amended in the manner specified in this Chapter.*

**SECTION R301 DESIGN CRITERIA**

**R301.1 Application.** Buildings and structures, and parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

**R301.1.1 Alternative provisions.** As an alternative to the requirements in Section R301.1, the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards, the design shall comply with the *International Building Code*.

1. AF&PA Wood Frame Construction Manual (WFCM).
2. AISI Standard for Cold-Formed Steel Framing - Prescriptive Method for One- and Two-Family Dwellings (AISI S230).
3. ICC Standard on the Design and Construction of Log Structures (ICC 400).

**SECTION R302 FIRE-RESISTANT CONSTRUCTION**

**R302.2 Townhouses.** Common walls separating *townhouses* shall be assigned a fire-resistance rating in accordance with Section R302.2, Item 1 or 2. The common wall shared by two *townhouses* shall be constructed without plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

1. Where a fire sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263.
2. Where a fire sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263.

**R302.2.1 Continuity.** The fire-resistance-rated wall or assembly separating *townhouses* shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed *accessory structures*.

**R302.2.2 Parapets for townhouses.** Parapets constructed in accordance with Section R302.2.3 shall be constructed for *townhouses* as an extension of exterior walls or common walls in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof surfaces.
2. Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than 30 inches (762 mm) above the lower roof, the parapet shall extend not less than 30 inches (762 mm) above the lower roof surface.

    **Exception:** A parapet is not required in the preceding two cases where the roof covering complies with a minimum Class C rating as tested in accordance with ASTM E 108 or UL 790 and the roof decking or sheathing is of noncombustible materials or *approved* fire-retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof are not within 4 feet (1219 mm) of the common walls.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than 30 inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher roof deck shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides.

**R302.2.3 Parapet construction.** Parapets shall have the same fire-resistance rating as that required for the supporting wall or walls. On any side adjacent to a roof surface, the parapet shall have noncombustible faces for the uppermost 18 inches (457 mm), to include counter flashing and coping materials. Where the roof slopes toward a parapet at slopes greater than 2 units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within a distance of 3 feet (914 mm), and the height shall be not less than 30 inches (762 mm).

**R302.2.4 Structural independence.** Each individual *townhouse* shall be structurally independent.

**Exceptions:**

1. Foundations supporting *exterior walls* or common walls.
2. Structural roof and wall sheathing from each unit fastened to the common wall framing.
3. Nonstructural wall and roof coverings.
4. Flashing at termination of roof covering over common wall.
5. *Townhouses* separated by a common wall as provided in Section R302.2, Item 1 or 2.

**R302.3 Two-family dwellings.** *Dwelling units* in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E 119 or UL 263. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the *exterior wall*, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

**Exceptions:**

1. A fire-resistance rating of 1/2 hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.
2. Wall assemblies need not extend through *attic* spaces where the ceiling is protected by not less than 5/8-inch (15.9 mm) Type X gypsum board, an *attic* draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the *dwellings* and the structural framing supporting the ceiling is protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent.

**R302.3.1 Supporting construction.** Where floor assemblies are required to be fire-resistance rated by Section R302.3, the supporting construction of such assemblies shall have an equal or greater fire-resistance rating.

**R302.4 Dwelling unit rated penetrations.** Penetrations of wall or floor-ceiling assemblies required to be fire-resistance rated in accordance with Section R302.2 or R302.3 shall be protected in accordance with this section.

**R302.4.1 Through penetrations.** Through penetrations of fire-resistance-rated wall or floor assemblies shall comply with Section R302.4.1.1 or R302.4.1.2.

**Exception:** Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space shall be protected as follows:

1. In concrete or masonry wall or floor assemblies, concrete, grout or mortar shall be permitted where installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided that both of the following are complied with:
   1.1. The nominal diameter of the penetrating item is not more than 6 inches (152 mm).
   1.2. The area of the opening through the wall does not exceed 144 square inches (92,900 $mm^2$)
2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.

**R302.4.1.1 Fire-resistance-rated assembly.** Penetrations shall be installed as tested in the *approved* fire-resistance- rated assembly.

**R302.4.1.2 Penetration firestop system.** Penetrations shall be protected by an *approved* penetration firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a positive pressure differential of not less than 0.01 inch of water (3 Pa) and shall have an F rating of not less than the required fire-resistance rating of the wall or floor-ceiling assembly penetrated.

**R302.4.2 Membrane penetrations.** Membrane penetrations shall comply with Section R302.4.1. Where walls are required to have a fire-resistance rating, recessed fixtures shall be installed so that the required fire-resistance rating will not be reduced.

**Exceptions:**

1. Membrane penetrations of not more than 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0103 m2) in area provided that the aggregate area of the openings through the membrane does not exceed 100 square inches in any 100 square feet (9.29 m2) of wall area. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm). Such boxes on opposite sides of the wall shall be separated by one of the following:
    - 1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual non-communicating stud cavities
    - 1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation.
    - 1.3. By solid fireblocking in accordance with Section R302.11.
    - 1.4. By protecting both boxes with *listed* putty pads.
    - 1.5. By other *listed* materials and methods
2. Membrane penetrations by *listed* electrical boxes of any materials provided that the boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the *listing*. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall shall be separated by one of the following:
    - 2.1. By the horizontal distance specified in the *listing* of the electrical boxes.
    - 2.2. By solid fireblocking in accordance with Section R302.11.
    - 2.3. By protecting both boxes with *listed* putty pads.
    - 2.4. By other *listed* materials and methods.
3. The annular space created by the penetration of a fire sprinkler provided that it is covered by a metal escutcheon plate.

**R302.5 Dwelling-garage opening and penetration protection.** Openings and penetrations through the walls or ceilings separating the *dwelling* from the garage shall be in accordance with Sections R302.5.1 through R302.5.3.

**R302.5.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35 mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.

**R302.5.2 Duct penetration.** Ducts in the garage and ducts penetrating the walls or ceilings separating the *dwelling* from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other *approved* material and shall not have openings into the garage.

**R302.5.3 Other penetrations.** Penetrations through the separation required in Section R302.6 shall be protected as required by Section R302.11, Item 4.

**R302.6 Dwelling-garage fire separation.** The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. Attachment of gypsum board shall comply with Table R702.3.5. The wall separation provisions of Table R302.6 shall not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall.

## SECTION R303 LIGHT, VENTILATION AND HEATING

**R303.1 Habitable rooms.** Habitable rooms shall have an aggregate glazing area of not less than 8 percent of the floor area of such rooms. Natural *ventilation* shall be through windows, skylights, doors, louvers or other *approved* openings to the outdoor air. Such openings shall be provided with ready access or shall otherwise be readily controllable by the building occupants. The openable area to the outdoors shall be not less than 4 percent of the floor area being ventilated.

**Exceptions:**

1. The glazed areas need not be openable where the opening is not required by Section R310 and a whole-house mechanical *ventilation* system is installed in accordance with Section M1507.

*This exception shall not be allowed for owner-occupied dwellings not supplied with electrical power in accordance with section E3401.2.1.*

2. The glazed areas need not be installed in rooms where Exception 1 is satisfied and artificial light is provided that is capable of producing an average illumination of 6 foot-candles (65 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

*This exception shall not be allowed for owner-occupied dwellings not supplied with electrical power in accordance with section E3401.2.1.*

3. Use of sunroom and patio covers, as defined in Section R202, shall be permitted for natural *ventilation* if in excess of 40 percent of the exterior sunroom walls are open, or are enclosed only by insect screening.

**R303.2 Adjoining rooms.** For the purpose of determining light and *ventilation* requirements, any room shall be considered to be a portion of an adjoining room where not less than one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room and not less than 25 square feet (2.3 m2).

**Exception:** Openings required for light or *ventilation* shall be permitted to open into a sunroom with thermal isolation or a patio cover, provided that there is an openable area between the adjoining room and the sunroom or patio cover of not less than one-tenth of the floor area of the interior room and not less than 20 square feet (2 m2). The minimum openable area to the outdoors shall be based upon the total floor area being ventilated.

**R303.3 Bathrooms.** Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet (0.3 m2), one half of which must be openable.

**Exception:** The glazed areas shall not be required where artificial light and a local exhaust system are provided. The minimum local exhaust rates shall be determined in accordance with Section M1507. Exhaust air from the space shall be exhausted directly to the outdoors.

*This exception shall not be allowed for owner-occupied dwellings not supplied with electrical power in accordance with section E3401.2.1.*

**R303.4 Mechanical ventilation.** Where the air infiltration rate of a *dwelling unit* is 5 air changes per hour or less where tested with a blower door at a pressure of 0.2 inch w.c (50 Pa) in accordance with Section N1102.4.1.2, the *dwelling unit* shall be provided with whole-house mechanical ventilation in accordance with Section M1507.3.

**R303.5 Opening location.** Outdoor intake and exhaust openings shall be located in accordance with Sections R303.5.1 and R303.5.2.

**R303.5.1 Intake openings.** Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks. For the purpose of this section, the exhaust from *dwelling* unit toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.

**Exceptions:**

1. The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.

**R303.5.2 Exhaust openings.** Exhaust air shall not be directed onto walkways.

**R303.6 Outside opening protection.** Air exhaust and intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles having an opening size of not less than 1/4 inch (6 mm) and a maximum opening size of 1/2 inch (13 mm), in any dimension. Openings shall be protected against local weather conditions. Outdoor air exhaust and intake openings shall meet the provisions for *exterior wall* opening protectives in accordance with this code.

**R303.7 Interior stairway illumination.** Interior stairways shall be provided with an artificial light source to illuminate the landings and treads. The light source shall be capable of illuminating treads and landings to levels of not less than 1 foot-candle (11 lux) as measured at the center of treads and landings. There shall be a wall switch at each floor level to control the light source where the stairway has six or more risers.

**Exceptions:**

1. A switch is not required where remote, central or automatic control of lighting is provided.
2. *Owner-occupied dwellings not supplied with electrical power in accordance with section E3401.2.1*

**R303.7.1 Light activation.** Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The illumination of exterior stairways shall be controlled from inside the *dwelling* unit.

**Exception:** Lights that are continuously illuminated or automatically controlled.

**R303.8 Exterior stairway illumination.** Exterior stairways shall be provided with an artificial light source located at the top landing of the stairway. Exterior stairways providing access to a *basement* from the outdoor *grade* level shall be provided with an artificial light source located at the bottom landing of the stairway.

***Exception:*** *Owner-occupied dwellings not supplied with electrical power in accordance with section E3401.2.1.*

**R303.8.1 Sunroom additions.** Required glazed openings shall be permitted to open into sunroom *additions* or patio covers that abut a street, *yard* or court if in excess of 40 percent of the exterior sunroom walls are open, or are enclosed only by insect screening, and the ceiling height of the sunroom is not less than 7 feet (2134 mm).

**R303.9 Required glazed openings.** Required glazed openings shall open directly onto a street or public alley, or a yard or court located on the same lot as the building.

**Exceptions:**

1. Required glazed openings that face into a roofed porch where the porch abuts a street, yard or court and the longer side of the porch is not less than 65 percent unobstructed and the ceiling height is not less than 7 feet (2134 mm).
2. Eave projections shall not be considered as obstructing the clear open space of a yard or court.
3. Required glazed openings that face into the area under a deck, balcony, bay or floor cantilever where a clear vertical space not less than 36 inches (914 mm) in height is provided.

**R303.9.1 Sunroom additions.** Required glazed openings shall be permitted to open into sunroom additions or patio covers that abut a street, yard or court if in excess of 40 percent of the exterior sunroom walls are opn, or are enclosed only by insect screening, and the ceiling height of the sunroom is not less than 7 feet (2134 mm)

***R303.10 Required heating.*** *Where the winter design temperature in Table R301.2(1) is below 60ºF (16ºC), every dwelling unit intended to be occupied between September 15 and May 15 shall be provided with heating facilities capable of maintaining a minimum room temperature of 68ºF (20ºC) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in habitable rooms at the design temperature. The installation of one or more portable space heaters shall not be used to achieve compliance with this section.*

***Exception:*** *Owner-occupied dwellings subject to the approval of the code enforcement official.*

**SECTION R306 Sanitation**

**R306.1 Toilet facilities.** Every dwelling unit shall be provided with a water closet, lavatory, and a bathtub or shower.

***Exception:*** *Owner-occupied dwellings subject to the approval of the code enforcement official.*

**R306.2 Kitchen.** Each dwelling unit shall be provided with a kitchen area and every kitchen area shall be provided with a sink.

***Exception:*** *Owner-occupied dwellings subject to the approval of the code enforcement official.*

**SECTION R311 MEANS OF EGRESS**

**R311.1 Means of egress.** Dwellings shall be provided with a means of egress as provided in this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the exterior of the dwelling at the required egress door without requiring travel through a garage. The required egress door shall open directly into a public way or to a yard or court that opens to a

public way.

**R311.2 Egress door.** Not less than one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, and shall provide a clear width of not less than 32 inches (813 mm) when measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum clear height of the door opening shall not be less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort.

**R311.3 Floors and landings at exterior doors.** There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed $^1/_4$ unit vertical in 12 units horizontal (2-percent).

**Exception:** Exterior balconies less than 60 square feet (5.6 $m^2$) and only accessible from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.

**R311.3.1 Floor elevations at the required egress doors.** Landings or finished floors at the required egress door shall not be more than $1^1/_2$ inches (38 mm) lower than the top of the threshold.

**Exception:** The landing or floor on the exterior side shall not be more than $7^3/_4$ inches (196 mm) below the top of the threshold provided the door does not swing over the landing or floor.

Where exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

**R311.3.2 Floor elevations for other exterior doors.** Doors other than the required egress door shall be provided with landings or floors not more than $7^3/_4$ inches (196 mm) below the top of the threshold.

**Exception:** A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

**R311.3.3 Storm and screen doors.** Storm and screen doors shall be permitted to swing over all exterior stairs and landings.

**R311.4 Vertical egress.** Egress from habitable levels including habitable attics and *basements* not provided with an egress door in accordance with Section R311.2 shall be by a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

**R311.5 Construction.**

**R311.5.1 Attachment.** Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal

**R311.6 Hallways.** The minimum width of a hallway shall be not less than 3 feet (914 mm).

**R311.7 Stairways.**

**R311.7.1 Width.** Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than $31^1/_2$ inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

**Exception:** The width of spiral stairways shall be in accordance with Section R311.7.10.1.

**R311.7.2 Headroom.** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.

**Exception:** Where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be allowed to project horizontally into the required headroom a maximum of 4 3/4 inches (121 mm).

**R311.7.3 Vertical rise.** A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings.

**R311.7.4 Walkline.** The walkline across winder treads shall be concentric to the curved direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. If winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.

**R311.7.5 Stair treads and risers.** Stair treads and risers shall meet the requirements of this section. For the purposes of this section all dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

~~**R311.7.5.1 Risers.** The riser height shall be not more than 8 1/4 inches (209 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically,to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.~~

~~**Exception:** The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less~~

***R311.7.5.1 Risers.*** *The riser height shall be not more than 8 ¼ inches (209 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.*

***Exceptions:***

*The opening between adjacent treads is not limited on spiral stairways.*

*The riser height of spiral stairways shall be in accordance with Section R311.7.10.1.*

~~**R311.7.5.2 Treads.** The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).~~

***R311.7.5.2 Treads.*** *The tread depth shall be not less than 9 inches (229 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).*

**R311.7.5.2.1 Winder treads.** Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm). Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth.

**Exception:** The tread depth at spiral stairways shall be in accordance with Section R 311.7.10.1.

**R311.7.5.3 Nosings.** The radius of curvature at the nosing shall be no greater than $^{9}/_{16}$ inch (14 mm). A nosing not less than $^{3}/_{4}$ inch (19 mm) but not more than $1^{1}/_{4}$ inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than $^{3}/_{8}$ inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosings shall not exceed $^{1}/_{2}$ inch (12.7 mm).

**Exception:** A nosing is not required where the tread depth is a minimum of 11 inches (279 mm).

**R311.7.5.4 Exterior wood/plastic composite stair treads.** Wood/plastic composite stair treads shall comply with the provisions of Section R507.3.

**R311.7.11 Alternating tread devices.** Alternating tread devices shall not be used as an element of a means of egress. Alternating tread devices shall be permitted provided that the required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches (508 mm).

**R311.7.11.1 Treads of alternating tread devices.** Alternating tread devices shall have a tread depth of not less than 5 inches (127 mm), a projected tread depth of not less than 81/2 inches (216 mm), a tread width of not less than 7 inches (178 mm) and a riser height of not more than 91/2 inches (241 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The riser height and tread depth provided shall result in an angle of ascent from the horizontal of between 50 and 70 degrees (0.87 and 1.22 rad). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

**R311.7.11.2 Handrails of alternating tread devices.** Handrails shall be provided on both sides of alternating tread devices and shall comply with Sections
R311.7.8.2 to R311.7.8.4. Handrail height shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

**R311.7.12 Ships ladders.** Ships ladders shall not be used as an element of a means of egress. Ships ladders shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches.

**R311.7.12.1 Treads of ships ladders**. Treads shall have a depth of not less than 5 inches (127 mm). The tread shall be projected such that the total of the tread depth plus the nosing projection is not less than 81/2 inches (216 mm). The riser height shall be not more than 91/2 inches (241 mm).

**R311.7.12.2 Handrails of ships ladders.** Handrails shall be provided on both sides of ships ladders and shall comply with Sections R311.7.8.2 to R311.7.8.4. Handrail height shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

**SECTION R312 GUARDS AND WINDOW FALL PROTECTION**

**R312.1 Guards.** *Guards* shall be provided in accordance with Sections R312.1.1 through R312.1.4.

**R312.1.1 Where required.** *Guards* shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a *guard*.

**R312.1.2 Height.** Required *guards* at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the leading edges of the treads.

**Exceptions:**

1. *Guards* on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.

2. Where the top of the *guard* serves as a handrail on the open sides of stairs, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the leading edges of the treads.

**R312.1.3 Opening limitations.** Required *guards* shall not have openings from the walking surface to the required *guard* height that allow passage of a sphere 4 inches (102 mm) in diameter.

**Exceptions:**

1. The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. *Guards* on the open side of stairs shall not have openings that allow passage of a sphere 43/8 inches (111 mm) in diameter.

**R312.1.4 Exterior plastic composite guards.** Plastic composite exterior *guards* shall comply with the requirements of Section R317.4.

**R312.2 Window fall protection.** Window fall protection shall be provided in accordance with Sections R312.2.1 and R312.2.2.

**R312.2.1 Window sills.** In dwelling units, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished *grade* or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable windows with openings that will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening where the opening is in its largest opened position.
2. Operable windows that are provided with window fall prevention devices that comply with ASTM F2090
3. Operable windows that are provided with window opening control devices that comply with Section R312.2.2.

**R312.2.2 Window opening control devices.** Window opening control devices shall comply with ASTM F 2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Section R310.2.1.

~~**SECTION R313 AUTOMATIC FIRE SPRINKLER SYSTEMS**~~

~~**R313.1 Townhouse automatic fire sprinkler systems.** An automatic residential fire sprinkler system shall be installed in *townhouses*.~~

~~**Exception:** An automatic residential fire sprinkler system shall not be required where *additions* or *alterations* are made to existing *townhouses* that do not have an automatic residential fire sprinkler system installed.~~

~~**R313.1.1 Design and installation.** Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

~~**R313.2 One- and two-family dwellings automatic fire systems.** An automatic residential fire sprinkler system shall be installed in one- and two-family *dwellings*.~~

~~**Exception:** An automatic residential fire sprinkler system shall not be required for *additions* or *alterations* to existing buildings that are not already provided with an automatic residential sprinkler system.~~

~~**R313.2.1 Design and installation.** Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

***R313 (Automatic fire sprinkler systems).***

***R313.1 Townhouse automatic fire sprinkler system.*** *Townhouses having a height of three stories above grade shall be equipped throughout with an automatic sprinkler system.*

***R313.1.1 Design and installation.*** *Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.*

***R313.2 One- and two-family dwellings automatic fire sprinkler system.*** *One- and two-family dwellings having a height of three stories above grade shall be equipped throughout with an automatic sprinkler system.*

***R313.1.2 Design and installation.*** *Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.*

**SECTION R314 SMOKE ALARMS**

**R314.1 General.** Smoke alarms shall comply with NFPA 72 and Section R314.

**R314.1.1 Listings.** Smoke alarms shall be *listed* in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be *listed* in accordance with UL 217 and UL 2034.

**R314.2 Where required.** Smoke alarms shall be provided in accordance with this section.

**R314.2.1 New construction.** Smoke alarms shall be provided in *dwelling units*.

~~**R314.2.2 Alterations, repairs and additions.** Where *alterations*, *repairs* or *additions* requiring a permit occur, or where one or more sleeping rooms are added or created in existing *dwellings*, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwellings*.~~

***R314.2.2 Smoke alarms in existing dwellings****. Existing dwellings undergoing repair, alteration, change of occupancy, addition or relocation shall be provided with smoke alarms as required by Appendix J.*

**Exceptions:**

1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, the *addition* or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

**R314.3 Location.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional *story* of the *dwelling*, including *basements* and *habitable attics* and not including crawl spaces and uninhabitable *attics*. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.

**R314.3.1 Installation near cooking appliances.** Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Section R314.3.

1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking *appliance*.
2. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking *appliance*.
3. Photoelectric smoke alarms shall not be installed less than 6 feet (1828 mm) horizontally from a permanently installed cooking *appliance*

**R314.4 Interconnection.** Where more than one smoke alarm is required to be installed within an individual dwelling unit in accordance with Section R314.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual *dwelling unit*. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

**Exception:** Interconnection of smoke alarms in existing areas shall not be required where *alterations* or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available that could provide access for interconnection without the removal of interior finishes.

**R314.5 Combination alarms.** Combination smoke and carbon monoxide alarms shall be permitted to be used in lieu of smoke alarms.

**R314.6 Power source.** Smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

**Exceptions:**

1. Smoke alarms shall be permitted to be battery operated where installed in buildings without commercial power.
2. Smoke alarms installed in accordance with Section R314.2.2 shall be permitted to be battery powered.

**R314.7 Fire alarm systems.** Fire alarm systems shall be permitted to be used in lieu of smoke alarms and shall comply with Sections R314.7.1 through R314.7.4.

**R314.7.1 General.** Fire alarm systems shall comply with the provisions of this code and the household fire warning *equipment* provisions of NFPA 72. Smoke detectors shall be *listed* in accordance with UL 268.
**R314.7.2 Location.** Smoke detectors shall be installed in the locations specified in Section R314.3.

**R314.7.3 Permanent fixture.** Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.

**R314.7.4 Combination detectors.** Combination smoke and carbon monoxide detectors shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.

**SECTION R315 CARBON MONOXIDE ALARMS**
**Section R315.1 of the 2015 IRC shall be amended to read as follows**
~~**R315.1 General.** Carbon monoxide alarms shall comply with Section R315.~~

***R315.1 General**. Carbon monoxide alarms shall be provided in accordance with section 915 of the 2015 IFC as amended in accordance with this supplement.*

**SECTION R322 FLOOD-RESISTANT CONSTRUCTION**
**R322.1 General.** Buildings and structures constructed in whole or in part in flood hazard areas, including A or V Zones and Coastal A Zones, as established in Table R301.2(1), and substantial improvement and restoration of substantial damage of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard area. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

**R322.1.1 Alternative provisions.** As an alternative to the requirements in Section R322, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.

**R322.1.2 Structural systems.** Structural systems of buildings and structures shall be designed, connected and anchored to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the design flood elevation.

**R322.1.3 Flood-resistant construction.** Buildings and structures erected in areas prone to flooding shall be constructed by methods and practices that minimize flood damage.

~~**R322.1.4 Establishing the design flood elevation.** The design flood elevation shall be used to define flood hazard areas. At a minimum, the design flood elevation shall be the higher of the following:~~

~~1. The base flood elevation at the depth of peak elevation of flooding, including wave height, that has a 1 percent (100-year flood) or greater chance of being equaled or exceeded in any given year; or~~

~~2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.~~

~~**R322.1.4.1 Determination of design flood elevations.** If design flood elevations are not specified, the *building official* is authorized to require the applicant to comply with either of the following:~~

~~1. Obtain and reasonably use data available from a federal, state or other source; or~~

~~2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered *design professional* who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.~~

~~**R322.1.4.2 Determination of impacts.** In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall demonstrate that the effect of the proposed buildings and structures on design flood elevations, including fill, when combined with other existing and anticipated flood hazard area encroachments, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.~~

***R322.1.4 Establishing the design flood elevation.*** *The design flood elevation shall be used to define flood hazard areas. At a minimum, the design flood elevation shall be the higher of the following:*

1. *The base flood elevation at the depth of peak elevation of flooding, including wave height, that has a 1 percent (100-year flood) or greater chance of being equaled or exceeded in any given year; or*
2. *The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.*

***R322.1.4.1 Determination of design flood elevations****. If design flood elevations are not specified, the code official is authorized to require the applicant to comply with either of the following:*

1. *Obtain and reasonably use data available from a federal, state or other source;*
2. *Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.*

*Where it is not possible to obtain a design flood elevation from a method established above, the design flood elevation shall be three feet above the highest adjacent grade. Highest adjacent grade is the highest natural ground elevation within the perimeter of the proposed building prior to construction.*

***R322.1.4.2 Freeboard.*** *A freeboard of two feet shall be added where the design flood elevation or other elevation requirements are specified.*

***Exception****: A freeboard shall not be required where it is not possible to obtain a design flood elevation from the FIRM or from any method established above and the design flood elevation is three feet above the highest adjacent grade.*

**R322.1.5 Lowest floor.** The lowest floor shall be the lowest floor of the lowest enclosed area, including *basement*, and excluding any unfinished flood-resistant enclosure that is useable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the building or structure in violation of this section.

**R322.1.6 Protection of mechanical, plumbing and electrical systems.** Electrical systems, *equipment* and components; heating, ventilating, air conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall be located at or above the elevation required in Section R322.2 or R322.3. If replaced as part of a substantial improvement, electrical systems, *equipment* and components; heating, ventilating, air conditioning and plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall meet the requirements of this section. Systems, fixtures, and *equipment* and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

> **Exception:** Locating electrical systems, *equipment* and components; heating, ventilating, air conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* is permitted below the elevation required in Section R322.2 or R322.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

**R322.1.7 Protection of water supply and sanitary sewage systems.** New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems in accordance with the plumbing provisions of this code. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into systems and discharges from systems into floodwaters in accordance with the plumbing provisions of this code and Chapter 3 of the *International Private Sewage Disposal Code.*

**R322.1.8 Flood-resistant materials.** Building materials and installation methods used for flooring and interior and exterior walls and wall coverings below the elevation required in Section R322.2 or R322.3 shall be flood damage-resistant materials that conform to the provisions of FEMA TB-2.

**R322.1.9 Manufactured homes.** The bottom of the frame of new and replacement *manufactured homes* on foundations that conform to the requirements of Section R322.2 or R322.3, as applicable, shall be elevated to or above the elevations specified in Section R322.2 (flood hazard areas including A Zones) or R322.3 in coastal high-hazard areas (V Zones and Coastal A Zones). The anchor and tie-down requirements of the applicable state or federal requirements shall apply. The foundation and anchorage of *manufactured homes* to be located in identified floodways shall be designed and constructed in accordance with ASCE 24.

**R322.1.10 As-built elevation documentation.** A registered *design professional* shall prepare and seal documentation of the elevations specified in Section R322.2 or R322.3.

**R322.2 Flood hazard areas (including A Zones).** Areas that have been determined to be prone to flooding and that are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 11/2 feet (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones and are subject to the requirements of Section R322.3. Buildings and structures constructed in whole or in part in flood hazard areas shall be designed and constructed in accordance with Sections R322.2.1 through R322.2.3.

**R322.2.1 Elevation requirements.**

1. Buildings and structures in flood hazard areas, including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including *basement*) elevated to a height of not less than the highest adjacent *grade* as the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (15 mm) if a depth number is not specified.
3. Basement floors that are below *grade* on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

**Exception:** Enclosed areas below the design flood elevation, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

**R322.2.2 Enclosed area below design flood elevation.** Enclosed areas, including crawl spaces, that are below the design flood elevation shall:

1. Be used solely for parking of vehicles, building access or storage.
2. Be provided with flood openings that meet the following criteria and are installed in accordance with Section R322.2.2.1:

2.1. The total net area of openings shall be not less than 1 square inch (645 mm2) for each square foot (0.093 m2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the *construction documents* shall include a statement by a registered *design professional* that the design of the openings will provide for equalization of hydrostatic flood forces on *exterior walls* by allowing for the automatic entry and exit of floodwaters as specified in Section 2.6.2.2 of ASCE 24.

2.2. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.

**R322.2.2.1 Installation of openings.** The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a building has more than one enclosed area below the design flood elevation, each area shall have openings on *exterior* walls.
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior grade immediately under each opening.
3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

**R322.2.3 Foundation design and construction.** Foundation walls for buildings and structures erected in flood hazard areas shall meet the requirements of Chapter 4.

**Exception:** Unless designed in accordance with Section R404:

1. The unsupported height of 6-inch (152 mm) plain masonry walls shall be not more than 3 feet (914 mm).
2. The unsupported height of 8-inch (203 mm) plain masonry walls shall be not more than 4 feet (1219 mm).
3. The unsupported height of 8-inch (203 mm) reinforced masonry walls shall be not more than 8 feet (2438 mm).

For the purpose of this exception, unsupported height is the distance from the finished *grade* of the under-floor space to the top of the wall.

**R322.2.4 Tanks.** Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood. Above-ground tanks shall be installed at or above the elevation required in Section R322.2.1 or shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood.

**R322.3 Coastal high-hazard areas (including V Zones and Coastal A Zones, where designated).** Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high-velocity wave action or wave-induced erosion shall be designated as coastal high-hazard areas. Flood hazard areas that have been designated as subject to wave heights between 11/2 feet (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones. Buildings and structures constructed in whole or in part in coastal high-hazard areas and coastal A Zones, where designated, shall be designed and constructed in accordance with Sections R322.3.1 through R322.3.7.

**R322.3.1 Location and site preparation.**

1. New buildings and buildings that are determined to be substantially improved pursuant to Section R105.3.1.1 shall be located landward of the reach of mean high tide.
2. For any alteration of sand dunes and mangrove stands, the *building official* shall require submission of an engineering analysis that demonstrates that the proposed *alteration* will not increase the potential for flood damage.

**R322.3.2 Elevation requirements.**

1. Buildings and structures erected within coastal high hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest portion of horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.
2. Basement floors that are below *grade* on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

**R322.3.3 Foundations.** Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.4. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with Section R322.3.6. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of buildings and structures and their foundations to prevent transfer of flood loads to the buildings and structures during conditions of flooding, scour or erosion from wave-velocity flow conditions, unless the buildings and structures and their foundations are designed to resist the additional flood load.

> **Exception:** In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

**R322.3.4 Walls below design flood elevation.** Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and
2. Are constructed with insect screening or open lattice; or
3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than 10 (479 Pa) and not more than 20 pounds per square foot (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of this code exceed 20 pounds per square foot (958 Pa), the *construction documents* shall include documentation prepared and sealed by a registered *design professional* that:

4.1. The walls and partitions below the design flood elevation have been designed to collapse from a water load less than that which would occur during the base flood.

4.2. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code.

5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in Section R322.2.2, Item 2.

6. In Coastal A Zones, walls shall be provided with flood openings that meet the criteria of Section R322.2.2.

**R322.3.5 Enclosed areas below design flood elevation.** Enclosed areas below the design flood elevation shall be used solely for parking of vehicles, building access or storage.

**R322.3.5.1 Protection of building envelope.** An exterior door that meets the requirements of Section R609 shall be installed at the top of stairs that provide access to the building and that are enclosed with walls designed to break away in accordance with Section R322.3.4.

**R322.3.6 Construction documents.** The *construction documents* shall include documentation that is prepared and sealed by a registered *design professional* that the design and methods of construction to be used meet the applicable criteria of this section.

**R322.3.7 Tanks.** Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood. Above-ground tanks shall be installed at or above the elevation required in Section R322.3.2. Where elevated on platforms, the platforms shall be cantilevered from or knee braced to the building or shall be supported on foundations that conform to the requirements of Section R322.3.

**SECTION R323 STORM SHELTERS**

**R323.1 General.** This section applies to storm shelters where constructed as separate detached buildings or where constructed as safe rooms within buildings for the purpose of providing refuge from storms that produce high winds, such as tornados and hurricanes. In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC/NSSA-500.

**SECTION 324 SOLAR ENERGY SYSTEMS**

**R324.1 General.** Solar energy systems shall comply with the provisions of this section.

**R324.2 Solar thermal systems.** Solar thermal systems shall be designed and installed in accordance with Chapter 23 and the *International Fire Code*.

**R324.3 Photovoltaic systems.** Photovoltaic systems shall be designed and installed in accordance with Sections R324.3.1 through R324.7.2.5 and NFPA 70. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

**R324.3.1 Equipment listings.** Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703.

**R324.4 Rooftop-mounted photovoltaic systems.** Rooftop mounted photovoltaic panel systems installed on or above the roof covering shall be designed and installed in accordance with Section R907.

**R324.4.1 Roof live load.** Roof structures that provide support for photovoltaic panel systems shall be designed for applicable roof live load. The design of roof structures need not include roof live load in the areas covered by photovoltaic panel systems. Portions of roof structures not covered by photovoltaic panels shall be designed for roof live load. Roof structures that provide support for photovoltaic panel systems shall be designed for live load, LR, for the load case where the photovoltaic panel system is not present.

**R324.5 Building-integrated photovoltaic systems.** Building- integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section R905.

**R324.5.1 Photovoltaic shingles.** Photovoltaic shingles shall comply with Section R905.16.

**R324.6 Ground-mounted photovoltaic systems.** Ground mounted photovoltaic systems shall be designed and installed in accordance with Section R301.

**R324.6.1 Fire separation distances.** Ground-mounted photovoltaic systems shall be subject to the *fire separation distance* requirements determined by the local *jurisdiction*

~~**R324.7 Access and pathways.** Roof access, pathways and spacing requirements shall be provided in accordance with Sections R324.7.1 through R324.7.2.5.~~

~~**Exceptions:**~~

~~1. Detached garages and accessory structures to one- and two-family dwellings and townhouses, such as parking shade structures, carports, solar trellises and similar structures.~~

~~2. Roof access, pathways and spacing requirements need not be provided where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed.~~

~~**R324.7.1 Roof access points.** Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.~~

~~**R324.7.2 Solar photovoltaic systems.** Solar photovoltaic systems shall comply with Sections R324.7.2.1 through R324.7.2.5.~~

~~**R324.7.2.1 Size of solar photovoltaic array.** Each photovoltaic array shall be limited to 150 feet by 150 feet (45 720 by 45 720 mm). Multiple arrays shall be separated by a clear access pathway not less than 3 feet (914 mm) in width.~~

~~**R324.7.2.2 Hip roof layouts.** Panels and modules installed on dwellings with hip roof layouts shall be located in a manner that provides a clear access pathway not less than 3 feet (914 mm) in width from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.~~

~~**Exception:** These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.3 Single ridge roofs.** Panels and modules installed on dwellings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels or modules are located.~~

~~**Exception:** This requirement shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.4 Roofs with hips and valleys.** Panels and modules installed on dwellings with roof hips or valleys shall not be located less than 18 inches (457 mm) from a hip or valley where panels or modules are to be placed on both sides of a hip or valley. Where panels are to be located on one side only of a hip or valley that is of equal length, the 18-inch (457 mm) clearance does not apply.~~

~~**Exception:** These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.~~

~~**R324.7.2.5 Allowance for smoke ventilation operations.** Panels and modules installed on dwellings shall not be located less than 3 feet (914 mm) below the roof ridge to allow for fire department smoke ventilation operations.~~

~~**Exception:** Where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed, clearance from the roof ridge is not required.~~

**SECTION R325 MEZZANINES**

**R325.1 General.** Mezzanines shall comply with Section R325.

**R325.2 Mezzanines.** The clear height above and below mezzanine floor construction shall be not less than 7 feet (2134 mm).

**R325.3 Area limitation.** The aggregate area of a mezzanine or mezzanines shall be not greater than one-third of the floor area of the room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located.

**R325.4 Means of egress.** The means of egress for mezzanines shall comply with the applicable provisions of Section R311.

**R325.5 Openness.** Mezzanines shall be open and unobstructed to the room in which they are located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

**Exceptions:**

1. Mezzanines or portions thereof are not required to be open to the room in which they are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the mezzanine area.
2. In buildings that are not more than two stories above *grade plane* and equipped throughout with an automatic sprinkler system in accordance with NFPA 13R or NFPA 13D, a mezzanine having two or more means of egress shall not be required to be open to the room in which the mezzanine is located.

~~**SECTION R326**~~

~~**SWIMMING POOLS, SPAS AND HOT TUBS**~~

~~**R326.1 General.** The design and construction of pools and spas shall comply with the *International Swimming Pool and Spa Code*.~~

***SECTION R326.1 GENERAL through R326.7.4 Prohibited alarms, same text as RCNYS 2010 Appendix G in a new location.***

***SECTION R326.8 STANDARDS***

***R326.8.1 General.*** *This section lists the standards that are referenced in various sections of this NYS Appendix G. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this appendix that reference the standard. The application of the reference standards shall be as specified in section R102.4*

| Standard number- | Title | Code Section where referenced |
|---|---|---|
| **ANSI** | **American National Standards Institute<br>11 West 42nd Street, New York, NY 10036** | |
| ANSI/APSP 7-06 | Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins | AG106.1 |
| ANSI/NSPI-3-99 | Standard for Permanently Installed Residential Spas | AG104.1 |
| ANSI/NSPI-4-99 | Standard for Above-ground/On-ground Residential Swimming Pools | AG103.2 |
| ANSI/NSPI-5-03 | Standard for Residential In-ground Swimming Pools | AG103.1 |
| ANSI/NSPI-6-99 | Standard for Residential Portable Spas | AG104.2 |
| ANSI/ASME A112.19.8M-1987 (R1996) | Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathing Appliances | AG106.2 |
| - - | - - | - |
| **APSP** | **Association of Pool and Spa Professionals<br>2111 Eisenhower Avenue, Suite 500, Alexandria, VA 22314-4695** | |
| ANSI/APSP 7-06 | Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins | AG106.1 |
| - - | - - | - |
| ASME | American Society of Mechanical Engineers<br>Three Park Avenue, New York, NY 10016-5990 | |
| ANSI/ASME A112.19.8M-1987 (R1996) | Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathing Appliances | AG106.2 |
| ASME A112.19.17 | Manufacturers Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub and Wading Pool | AG106.3 |
| - - | - - | - |
| **ASTM** | **ASTM International<br>100 Barr Harbor Drive, West Conshohocken, PA 19428** | |
| ASTM F 1346-91 (1996) | Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs | AG105.2, 105.3, 105.6, 107.1 |
| ASTM F2208-2008 | Standard Specification for Pool Alarms | AG107.1 |
| - - | - - | - |
| **NSPI** | **National Spa and Pool Institute<br>2111 Eisenhower Avenue, Alexandria, VA 22314** | |
| ANSI/NSPI-3-99 | Standard for Permanently Installed Residential Spas | AG104.1 |
| ANSI/NSPI-4-99 | Standard for Above-ground/On-ground Residential Swimming Pools | AG103.2 |
| ANSI/NSPI-5-03 | Standard for Residential In-ground Swimming Pools | AG103.1 |
| ANSI/NSPI-6-99 | Standard for Residential Portable Spas | AG104.2 |
| - - | - - | - |
| **UL** | **Underwriters Laboratories, Inc.<br>333 Pfingsten Road, Northbrook, Illinois 60062-2096** | |
| UL2017-2000 | Standard for General-purpose Signaling Devices and Systems with Revisions through June 2004 | AG105.3 |

**SECTION 404 Foundation and Retaining Walls**

**R404.2 Wood foundation walls.** Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.1(3).

**R404.2.1 Identification.** Load-bearing lumber shall be identified by the grade *mark* of a lumber grading or inspection agency which has been *approved* by an accreditation body that complies with DOC PS 20. In lieu of a grade *mark*, a certificate of inspection issued by a lumber grading or inspection agency meeting the requirements of this section shall be accepted. Wood structural panels shall conform to DOC PS 1 or DOC PS 2 and shall be identified by a grade *mark* or certificate of inspection issued by an *approved agency*.

> ***Exception:*** *Dimension lumber which is neither identified by a grade mark nor issued a certificate of inspection by a lumber grading or inspection agency may be used for load-bearing purposes under the following conditions when authorized by the authority having jurisdiction:*
> *1. The producing mill shall sell or provide the lumber directly to the ultimate consumer or the consumer's contract builder for use in an approved structure.*
> *2. The producing mill shall certify in writing to the consumer or contract builder on a form to be produced by the authority having jurisdiction that the quality and safe working stresses of such lumber are equal to or exceed No. 2 grade of the species in accordance with the conditions set forth in DOC PS 20. Such certification shall be filed as part of the building permit application.*

*(Same exception added at 502.1.1, 602.2.1, and 802.1.1)*

**SECTION 402 Materials**

**R402.3 Precast concrete.** Precast concrete foundations shall be designed in accordance with Section R404.5 and shall be installed in accordance with the provisions of this code and the manufacturer's instructions.

**R402.3.1 Precast concrete foundation materials.** Materials used to produce precast concrete foundations shall meet the following requirements.

1. All concrete used in the manufacture of precast concrete foundations shall have a minimum compressive strength of 5,000 psi (34 470 kPa) at 28 days. Concrete exposed to a freezing and thawing environment shall be air entrained with a minimum total air content of 5 percent.
2. Structural reinforcing steel shall meet the requirements of ASTM A 615, A 706 or A 996. The minimum yield strength of reinforcing steel shall be 40,000 psi (Grade 40) (276 MPa). Steel reinforcement for precast concrete foundation walls shall have a minimum concrete cover of 3/4 inch (19.1 mm).
3. Panel-to-panel connections shall be made with Grade II steel fasteners.
4. The use of nonstructural fibers shall conform to ASTM C 1116.
5. Grout used for bedding precast foundations placed upon concrete footings shall meet ASTM C 1107.

**SECTION 403 Footings**

**R403.1.3.2 Masonry stem walls with concrete footings.** In Seismic Design Categories D0, D1 and D2 where a masonry stem wall is supported on a concrete footing, a minimum of one No. 4 vertical bar shall be installed at not more than 4 feet (1219 mm) on center. The vertical bar shall have a standard hook and extend to the bottom of the footing and shall have support and cover as specified in Section R403.1.3.5.3 and extend a minimum of 14 inches (357 mm) into the stem wall. Standard hooks shall comply with Section R608.5.4.5. A minimum of one No. 4 horizontal bar shall be installed within 12 inches (305 mm) of the top of the wall and one No. 4 horizontal bar shall be located 3 to 4 inches (76 mm to 102 mm) from the bottom of the footing. Masonry stem walls shall be solid grouted.

**R403.1.3.3 Slabs-on-ground with turned-down footings.** In Seismic Design Categories D0, D1 and D2, slabs on ground cast monolithically with turned-down footings shall have a minimum of one No. 4 bar at the top and the bottom of the footing or one No. 5 bar or two No. 4 bars in the middle third of the footing depth. Where the slab is not cast monolithically with the footing, No. 3 or larger vertical dowels with standard hooks on each end shall be installed at not more than 4 feet (1219 mm) on center in accordance with Figure R403.1.3, Detail 2. Standard hooks shall comply with Section R608.5.4.5.

**R403.4 Footings for precast concrete foundations.** Footings for precast concrete foundations shall comply with Section R403.4.

**R403.4.1 Crushed stone footings.** Clean crushed stone shall be free from organic, clayey or silty soils. Crushed stone shall be angular in nature and meet ASTM C 33, with the maximum size stone not to exceed 1/2 inch (12.7 mm) and the minimum stone size not to be smaller than 1/16 inch (1.6 mm). Crushed stone footings for precast foundations shall be installed in accordance with Figure R403.4(1) and Table R403.4. Crushed stone footings shall be consolidated using a vibratory plate in a maximum of 8-inch (203 mm) lifts. Crushed stone footings shall be limited to Seismic Design Categories A, B and C.

**R403.4.2 Concrete footings.** Concrete footings shall be installed in accordance with Section R403.1 and Figure R403.4(2).

**SECTION R507 EXTERIOR DECKS**

**R507.1 Decks.** Wood-framed decks shall be in accordance with this section or Section R301 for materials and conditions not prescribed herein. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members connections to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.

**R507.2 Deck ledger connection to band joist.** Deck ledger connections to band joists shall be in accordance with this section, Tables R507.2 and R507.2.1, and Figures R507.2.1(1) and R507.2.1(2). For other grades, species, connection details and loading conditions, deck ledger connections shall be designed in accordance with Section R301.

**R507.2.1 Ledger details.** Deck ledgers installed in accordance with Section R507.2 shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, pressure-preservative-treated southern pine, incised pressure-preservative-treated Hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers installed in accordance with Section R507.2 shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer

**R507.2.2 Band joist details.** Band joists attached by a ledger in accordance with Section R507.2 shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir lumber or a minimum 1-inch by 91/2-inch (25 mm x 241 mm) dimensional, Douglas fir, laminated veneer lumber. Band joists attached by a ledger in accordance with Section R507.2 shall be fully supported by a wall or sill plate below.

**R507.2.3 Ledger to band joist fastener details.** Fasteners used in deck ledger connections in accordance with Table R507.2 shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.2.1 and Figures R507.2.1(1) and R507.2.1(2).

**R507.2.4 Deck lateral load connection.** The lateral load connection required by Section R507.1 shall be permitted to be in accordance with Figure R507.2.3(1) or R507.2.3(2). Where the lateral load connection is provided in accordance with Figure R507.2.3(1), hold-down tension devices shall be installed in not less than two locations per deck, within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds (6672 N). Where the lateral load connections are provided in accordance with Figure R507.2.3(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds (3336 N).

**R507.3 Plastic composite deck boards, stair treads, guards, or handrails.** Plastic composite exterior deck boards, stair treads, guards and handrails shall comply with the requirements of ASTM D 7032 and the requirements of Section 507.3.

**R507.3.1 Labeling.** Plastic composite deck boards and stair treads, or their packaging, shall bear a label that indicates compliance to ASTM D 7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D 7032. Plastic or composite handrails and guards, or their packaging, shall bear a label that indicates compliance to ASTM D 7032 and includes the maximum allowable span determined in accordance with ASTM D 7032.

**R507.3.2 Flame spread index.** Plastic composite deck boards, stair treads, guards, and handrails shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test.

**Exception:** Plastic composites determined to be noncombustible.

**R507.3.3 Decay resistance.** Plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be decay resistant in accordance with ASTM D 7032.

**R507.3.4 Termite resistance.** Where required by Section 318, plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be termite resistant in accordance with ASTM D 7032.

**507.3.5 Installation of plastic composites.** Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with this code and the manufacturer's instructions.

**R507.4 Decking.** Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.4. Wood decking shall be attached to each supporting member with not less than (2) 8d threaded nails or (2) No. 8 wood screws.

**R507.5 Deck joists.** Maximum allowable spans for wood deck joists, as shown in Figure R507.5, shall be in accordance with Table R507.5. Deck joists shall be permitted to cantilever not greater than one-fourth of the actual, adjacent joist span

**TABLE R507.5**
**DECK JOIST SPANS FOR COMMON LUMBER SPECIES (ft. - in.)**

| SPECIES[a] | SIZE | SPACING OF DECK JOISTS WITH NO CANTILEVER[b] (inches) | | | SPACING OF DECK JOISTS WITH CANTILEVERS[c] (inches) | | |
|---|---|---|---|---|---|---|---|
| | | 12 | 16 | 24 | 12 | 16 | 24 |
| Southern pine | 2 × 6 | 9-11 | 9-0 | 7-7 | 6-8 | 6-8 | 6-8 |
| | 2 × 8 | 13-1 | 11-10 | 9-8 | 10-1 | 10-1 | 9-8 |
| | 2 × 10 | 16-2 | 14-0 | 11-5 | 14-6 | 14-0 | 11-5 |
| | 2 × 12 | 18-0 | 16-6 | 13-6 | 18-0 | 16-6 | 13-6 |
| Douglas fir-larch[d], hem-fir[d] spruce-pine-fir[d] | 2 × 6 | 9-6 | 8-8 | 7-2 | 6-3 | 6-3 | 6-3 |
| | 2 × 8 | 12-6 | 11-1 | 9-1 | 9-5 | 9-5 | 9-1 |
| | 2 × 10 | 15-8 | 13-7 | 11-1 | 13-7 | 13-7 | 11-1 |
| | 2 × 12 | 18-0 | 15-9 | 12-10 | 18-0 | 15-9 | 12-10 |
| Redwood, western cedars, ponderosa pine[e], red pine[e] | 2 × 6 | 8-10 | 8-0 | 7-0 | 5-7 | 5-7 | 5-7 |
| | 2 × 8 | 11-8 | 10-7 | 8-8 | 8-6 | 8-6 | 8-6 |
| | 2 × 10 | 14-11 | 13-0 | 10-7 | 12-3 | 12-3 | 10-7 |
| | 2 × 12 | 17-5 | 15-1 | 12-4 | 16-5 | 15-1 | 12-4 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

a. No. 2 grade with wet service factor.
b. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360.
c. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound point load applied to end.
d. Includes incising factor.
e. Northern species with no incising factor
f. Cantilevered spans not exceeding the nominal depth of the joist are permitted.

**R507.5.1 Lateral restraint at supports.** Joist ends and bearing locations shall be provided with lateral restraint to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall equal not less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with not less than (3) 10d (3-inch x 0.128-inch) nails or (3) No. 10 x 3-inch (76 mm) long wood screws.

**R507.6 Deck Beams.** Maximum allowable spans for wood deck beams, as shown in Figure R507.6, shall be in accordance with Table R507.6. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the actual beam span. Splices of multi-span beams shall be located at interior post locations.

**R507.7 Deck joist and deck beam bearing.** The ends of each joist and beam shall have not less than 11/2 inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) on concrete or masonry for the entire width of the beam. Joist framing into the side of a ledger board or beam shall be supported by approved joist hangers. Joists bearing on a beam shall be connected to the beam to resist lateral displacement.

**R507.7.1 Deck post to deck beam.** Deck beams shall be attached to deck posts in accordance with Figure R507.7.1 or by other equivalent means capable to resist lateral displacement. Manufactured post-to-beam connectors shall be sized for the post and beam sizes. All bolts shall have washers under the head and nut.

**Exception:** Where deck beams bear directly on footings in accordance with Section R507.8.1.

**R507.8 Deck posts.** For single-level wood-framed decks with beams sized in accordance with Table R507.6, deck post size shall be in accordance with Table R507.8.

**R507.8.1 Deck post to deck footing.** Posts shall bear on footings in accordance with Section R403 and Figure R507.8.1. Posts shall be restrained to prevent lateral displacement at the bottom support. Such lateral restraint shall be provided by manufactured connectors installed in accordance with Section R507 and the manufacturers' instructions or a minimum post embedment of 12 inches (305 mm) in surrounding soils or concrete piers.

**SECTION 602 Wood Wall Framing**

**R602.7 Headers.** For header spans, see Tables R602.7(1), R602.7(2) and R602.7(3).

**R602.7.1 Single member headers.** Single headers shall be framed with a single flat 2-inch-nominal (51 mm) member or wall plate not less in width than the wall studs on the top and bottom of the header in accordance with Figures R602.7.1(1) and R602.7.1(2) and face nailed to the top and bottom of the header with 10d box nails (3 inches × 0.128 inches) spaced 12 inches on center.

**R602.7.2 Rim board headers.** Rim board header size, material and span shall be in accordance with Table R602.7(1). Rim board headers shall be constructed in accordance with Figure R602.7.2 and shall be supported at each end by full-height studs. The number of full-height studs at each end shall be not less than the number of studs displaced by half of the header span based on the maximum stud spacing in accordance with Table R602.3(5). Rim board headers supporting concentrated loads shall be designed in accordance with accepted engineering practice.

**R602.7.3 Wood structural panel box headers.** Wood structural panel box headers shall be constructed in accordance with Figure R602.7.3 and Table R602.7.3.

**R602.7.4 Nonbearing walls.** Load-bearing headers are not required in interior or exterior nonbearing walls. A single flat 2-inch by 4-inch (51 mm by 102 mm) member shall be permitted to be used as a header in interior or exterior nonbearing walls for openings up to 8 feet (2438 mm) in width if the vertical distance to the parallel nailing surface above is not more than 24 inches (610 mm). For such nonbearing headers, cripples or blocking are not required above the header.

**R602.10.3 Required length of bracing.** The required length of bracing along each *braced wall line* shall be determined as follows:

1. All buildings in Seismic Design Categories A and B shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
2. Detached buildings in Seismic Design Category C shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
3. Townhouses in Seismic Design Category C shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively.
4. All buildings in Seismic Design Categories D0, D1 and D2 shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively. Only *braced wall panel*s parallel to the *braced wall line* shall contribute toward the required length of bracing of that *braced wall line*. *Braced wall panel*s along an angled wall meeting the minimum length requirements of Tables R602.10.5 and R602.10.5.2 shall be permitted to contribute its projected length toward the minimum required length of bracing for the *braced wall line* as shown in Figure R602.10.1.4. Any *braced wall panel* on an angled wall at the end of a *braced wall line* shall contribute its projected length for only one of the *braced wall lines* at the projected corner.

   **Exception:** The length of wall bracing for dwellings in Seismic Design Categories D0, D1 and D2 with stone or masonry veneer installed in accordance with Section R703.8 and exceeding the first-story height shall be in accordance with Section R602.10.6.5.

**R602.10.4 Construction methods for braced wall panels.** Intermittent and continuously sheathed *braced wall panel*s shall be constructed in accordance with this section and the methods listed in Table R602.10.4.

**R602.10.4.1 Mixing methods.** Mixing of bracing methods shall be permitted as follows:

1. Mixing intermittent bracing and continuous sheathing methods from story to story shall be permitted.
2. Mixing intermittent bracing methods from *braced wall line* to *braced wall line* within a story shall be permitted. In regions within Seismic Design Categories A, B and C or where the ultimate design wind speed is less than or equal to 130 mph (58m/s), mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.
3. Mixing intermittent bracing methods along a *braced wall line* shall be permitted in Seismic Design Categories A and B, and detached dwellings in Seismic Design Category C, provided the length of required bracing in accordance with Table R602.10.3(1) or R602.10.3(3) is the highest value of all intermittent bracing methods used
4. Mixing of continuous sheathing methods CSWSP, CS-G and CS-PF along a *braced wall line* shall be permitted. Intermittent methods ABW, PFH and PFG shall be permitted to be used along a *braced wall line* with continuous sheathed methods.
5. In Seismic Design Categories A and B, and for detached one- and two-family dwellings in Seismic Design Category C, mixing of intermittent bracing methods along the interior portion of a *braced wall line* with continuous sheathing methods CS-WSP, CS-G and CS-PF along the exterior portion of the same braced wall line shall be permitted. The length of required bracing shall be the highest value of all intermittent bracing methods used in accordance with Table R602.10.3(1) or R602.10.3(3) as adjusted by Tables R602.10.3(2) and R602.10.3(4), respectively. The requirements of Section R602.10.7 shall apply to each end of the continuously sheathed portion of the braced wall line.

**R602.12 Simplified wall bracing.** Buildings meeting all of the conditions listed below shall be permitted to be braced in accordance with this section as an alternate to the requirements of Section R602.10. The entire building shall be braced in accordance with this section; the use of other bracing provisions of Section R602.10, except as specified herein, shall not be permitted.

1. There shall be not more than three stories above the top
   of a concrete or masonry foundation or basement wall. Permanent wood foundations shall not be permitted.
2. Floors shall not cantilever more than 24 inches (607 mm) beyond the foundation or bearing wall below.
3. Wall height shall not be greater than 10 feet (3048 mm).
4. The building shall have a roof eave-to-ridge height of 15 feet (4572 mm) or less.
5. Exterior walls shall have gypsum board with a minimum thickness of 1/2 inch (12.7 mm) installed on the interior side fastened in accordance with Table R702.3.5.

6. The structure shall be located where the ultimate design wind speed is less than or equal to 130 mph (58 m/s), and the exposure category is B or C.
7. The structure shall be located in Seismic Design Category A, B or C for detached one- and two-family Dwellings or Seismic Design Category A or B for townhouses.
8. Cripple walls shall not be permitted in three-story buildings.

**R602.12.1 Circumscribed rectangle.** The bracing required for each building shall be determined by circumscribing a rectangle around the entire building on each floor as shown in Figure R602.12.1. The rectangle shall surround all enclosed offsets and projections such as sunrooms and attached garages. Open structures, such as carports and decks, shall be permitted to be excluded. The rectangle shall not have a side greater than 60 feet (18 288 mm), and the ratio between the long side and short side shall be not greater than 3:1.

**R602.12.2 Sheathing materials.** The following sheathing materials installed on the exterior side of exterior walls shall be used to construct a bracing unit as defined in Section R602.12.3. Mixing materials is prohibited.

1. Wood structural panels with a minimum thickness of 3/8 inch (9.5 mm) fastened in accordance with Table R602.3(3).
2. Structural fiberboard sheathing with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R602.3(1).

**R602.12.3 Bracing unit.** A bracing unit shall be a fullheight sheathed segment of the exterior wall without openings or vertical or horizontal offsets and a minimum length as specified herein. Interior walls shall not contribute toward the amount of required bracing. Mixing of Items 1 and 2 is prohibited on the same story.

1. Where all framed portions of all exterior walls are sheathed in accordance with Section R602.12.2, including wall areas between bracing units, above and below openings and on gable end walls, the minimum length of a bracing unit shall be 3 feet (914 mm).
2. Where the exterior walls are braced with sheathing panels in accordance with Section R602.12.2 and areas between bracing units are covered with other materials, the minimum length of a bracing unit shall be 4 feet (1219 mm).

**SECTION 606 General Masonry Construction**

**R606.12 Seismic requirements.** The seismic requirements of this section shall apply to the design of masonry and the construction of masonry building elements located in Seismic Design Category $D_0$, $D_1$ or $D_2$. Townhouses in Seismic Design Category C shall comply with the requirements of Section R606.12.2. These requirements shall not apply to glass unit masonry conforming to Section R610, anchored masonry veneer conforming to Section R703.8 or adhered masonry veneer conforming to Section R703.12.

**R606.12.2 Seismic Design Category C.** Townhouses located in Seismic Design Category C shall comply with the requirements of this section.

**R606.12.2.1 Minimum length of wall without openings.** Table R606.12.2.1 shall be used to determine the minimum required solid wall length without openings at each masonry exterior wall. The provided percentage of solid wall length shall include only those wall segments that are 3 feet (914 mm) or longer. The maximum clear distance between wall segments included in determining the solid wall length shall not exceed 18 feet (5486 mm). Shear wall segments required to meet the minimum wall length shall be in accordance with Section R606.12.2.2.3.

**SECTION 610 Structural Insulated Panel Wall Construction**

**R610.1 General.** Structural insulated panel (SIP) walls shall be designed in accordance with the provisions of this section. Where the provisions of this section are used to design structural insulated panel walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

**R610.2 Applicability limits.** The provisions of this section shall control the construction of exterior structural insulated panel walls and interior load-bearing structural insulated panel walls for buildings not greater than 60 feet (18 288 mm) in length perpendicular to the joist or truss span, not greater than 40 feet (12 192 mm) in width parallel to the joist or truss span and not greater than two stories in height with each wall not greater than 10 feet (3048 mm) high. Exterior walls installed in accordance with the provisions of this section shall be considered as load-bearing walls. Structural insulated panel walls constructed in accordance with the provisions of this section shall be limited to sites where the ultimate design wind speed (*Vult*) is not greater than 155 miles per hour (69 m/s), Exposure B or 140 miles per hour (63 m/s) Exposure C, the ground snow load is not greater than 70 pounds per foot (3.35 kPa), and the seismic design category is A, B or C.

**R610.3 Materials.** SIPs shall comply with the following criteria:

**R610.3.1 Core.** The core material shall be composed of foam plastic insulation meeting one of the following requirements:

1. ASTM C 578 and have a minimum density of 0.90 pounds per cubic feet (14.4 kg/m3).
2. Polyurethane meeting the physical properties shown in Table R610.3.1.
3. An *approved* alternative.

All cores shall meet the requirements of Section R316.

**R610.3.2 Facing.** Facing materials for SIPs shall be wood structural panels conforming to DOC PS 1 or DOC PS 2, each having a minimum nominal thickness of 7/16 inch (11 mm) and shall meet the additional minimum properties specified in Table R610.3.2. Facing shall be identified by a grade mark or certificate of inspection issued by an *approved* agency.

**R610.3.3 Adhesive.** Adhesives used to structurally laminate the foam plastic insulation core material to the structural wood facers shall conform to ASTM D 2559 or *approved* alternative specifically intended for use as an adhesive used in the lamination of structural insulated panels. Each container of adhesive shall bear a *label* with the adhesive manufacturer's name, adhesive name and type and the name of the quality assurance agency.

**SECTION 802 Wood Roof Framing**

**R802.7.1 Sawn lumber.** Cuts, notches and holes in solid lumber joists, rafters, blocking and beams shall comply with the provisions of Section R502.8.1 except that cantilevered portions of rafters shall be permitted in accordance with Section R802.7.1.1.

**R802.7.1.1 Cantilevered portions of rafters.** Notches on cantilevered portions of rafters are permitted provided the dimension of the remaining portion of the rafter is not less than 31/2 inches (89 mm) and the length of the cantilever does not exceed 24 inches (610 mm) in accordance with Figure R802.7.1.1.

**R802.7.1.2 Ceiling joist taper cut.** Taper cuts at the ends of the ceiling joist shall not exceed one-fourth the depth of the member in accordance with Figure R802.7.1.2.

**R802.7.2 Engineered wood products.** Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated members, cross-laminated timber members or I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a registered design professional.

**SECTION 905 Requirements for Roof Coverings**

**R905.1.2 Ice barriers.** In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2(1), an ice barrier shall be installed for asphalt shingles, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles and wood shakes. The ice barrier shall consist of not fewer than two layers of underlayment cemented together, or a self-adhering polymer-modified bitumen sheet shall be used in place of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building. On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal, the ice barrier shall also be applied not less than 36 inches (914 mm) measured along the roof slope from the eave edge of the building.

**Exception:** Detached accessory structures not containing conditioned floor area.

**SECTION N1101 GENERAL**

**N1101.1 Scope.** This chapter regulates the energy efficiency for the design and construction of buildings regulated by this code.

***Exception:*** *The provisions of this chapter shall not be applicable to building systems which are demonstrated to derive energy solely from renewable energy sources.*

***SECTION M1416 PORTABLE KEROSENE HEATER***

***M1416.1 General.*** *Unvented portable kerosene-fired heaters tested and listed in accordance with UL 647 are approved by the Secretary of State for use in New York State if packaged for sale with all provisions required in New York State Real Property Law Article 7A Section 239-a(7). Unvented portable kerosene-fired heaters shall not be located in, or obtain combustion air from, any of the following rooms or spaces: sleeping rooms, bathrooms, toilet rooms, or storage closets. Portable kerosene heaters shall be prohibited in buildings of occupancy groups A, E, I, R-1, R-2, R-3 and R-4 (except for one- and two-family homes and townhouses). The use of unvented portable kerosene-fired heaters is further regulated by New York State Real Property Law Article 7A.*

# Chapter 3 - Building Code

**SECTION 202 Definitions**

**PRIVATE GARAGE.** A building or portion of a building in which motor vehicles used by the tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

**[BS] TREATED WOOD.** Wood products that are conditioned to enhance fire-retardant or preservative properties.

**Fire-retardant-treated wood.** Wood products that, when impregnated with chemicals by a pressure process or other means during manufacture, exhibit reduced surface-burning characteristics and resist propagation of fire.

**Preservative-treated wood.** Wood products that, conditioned with chemicals by a pressure process or other means, exhibit reduced susceptibility to damage by fungi, insects or marine borers.

**SECTION 304 BUSINESS GROUP B**
**304.1 Business Group B.** Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m2) in area.

**SECTION 306 FACTORY GROUP F**
**306.1 Factory Industrial Group F.** Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H hazardous or Group S storage occupancy.

**306.2 Moderate-hazard factory industrial, Group F-1.**
Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232 m2) in area.

**SECTION 308 INSTITUTIONAL GROUP I**

**308.3 Institutional Group I-1.** Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:

> **308.3.1 Condition 1.** This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.
>
> **308.3.2 Condition 2.** This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.

**308.4 Institutional Group I-2.** Institutional Group I-2 occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

**308.4.1 Occupancy conditions.** Buildings of Group I-2 shall be classified as one of the occupancy conditions specified in Section 308.4.1.1 or 308.4.1.2.

**308.4.1.1 Condition 1.** This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to nursing homes and foster care facilities.

**308.4.1.2 Condition 2.** This occupancy condition shall include facilities that provide nursing and medical care and could provide emergency care, surgery, obstetrics or inpatient stabilization units for psychiatric or detoxification, including but not limited to hospitals.

**SECTION 310 RESIDENTIAL GROUP R**

**310.1 Residential Group R.** Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*.

**310.5 Residential Group R-3.** Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

**310.5.2 Lodging houses.** Owner-occupied *lodging houses* with five or fewer *guest rooms* shall be permitted to be constructed in accordance with the *International Residential Code*.

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**SECTION 202 DEFINITIONS**

**GUEST ROOM.** A room used or intended to be used by one or more guests for living or sleeping purposes.

**LODGING HOUSE.** A one-family dwelling where one or more occupants are primarily permanent in nature and rent is paid for guest rooms.

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**310.6 Residential Group R-4.** Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2.

**310.6.1 Condition 1.** This occupancy condition shall include buildings in which all persons receiving custodial care, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

**310.6.2 Condition 2.** This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.

**SECTION 504 BUILDING HEIGHT AND NUMBER OF STORIES**

**504.1 General.** The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an *automatic sprinkler system* installed throughout the building.

**504.3 Height in feet.** The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

TABLE 504.3[a]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A, B, E, F, M, S, U | NS[b] | UL | 160 | 65 | 55 | 65 | 55 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 85 | 70 | 60 |

**504.4 Number of stories.** The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

TABLE 504.4[a, b]
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A-1 | NS | UL | 5 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| | S | UL | 6 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |

**SECTION 506 Building Area**

**506.2 Allowable area determination.** The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3.

**506.2.1 Single-occupancy, one-story buildings.** The allowable area of a single-occupancy building with no more than one story above grade plane shall be determined in accordance with Equation 5-1:

$Aa = At + (NS \times If)$ **(Equation 5-1)**

where:
*Aa* = Allowable area (square feet).
*At* = Tabular allowable area factor (NS, S1, or S13R value, as applicable) in accordance with Table 506.2.
*NS* = Tabular allowable area factor in accordance with Table 506.2 for nonsprinklered building (regardless of whether the building is sprinklered).
*If* = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

TABLE 506.2[a, b]
ALLOWABLE AREA FACTOR ($A_t$ = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A-1 | NS | UL | UL | 15,500 | 8,500 | 14,000 | 8,500 | 15,000 | 11,500 | 5,500 |
| | S1 | UL | UL | 62,000 | 34,000 | 56,000 | 34,000 | 60,000 | 46,000 | 22,000 |
| | SM | UL | UL | 46,500 | 25,500 | 42,000 | 25,500 | 45,000 | 34,500 | 16,500 |

**506.2.2 Mixed-occupancy, one-story buildings.** The allowable area of a mixed-occupancy building with no more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1 based on Equation 5-1 for each applicable occupancy.

$Aa = At + (NS \times If)$ **(Equation 5-1)**

**506.2.3 Single-occupancy, multistory buildings.** The allowable area of a single-occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2:

$Aa = [At + (NS \times If)] \times Sa$ **(Equation 5-2)**

*Sa* = Actual number of building stories above grade plane, not to exceed three. For buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2, use the actual number of building stories above grade plane, not to exceed four.

**506.2.4 Mixed-occupancy, multistory buildings.** Each story of a mixed-occupancy building with more than one story above grade plane shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories, determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed three.

$Aa = [At + (NS \times If)]$ **(Equation 5-3)**

## SECTION 509 INCIDENTAL USES

**509.1 General** Incidental uses located within single occupancy or mixed occupancy buildings shall comply with the provisions of this section. Incidental uses are ancillary functions associated with a given occupancy that generally pose a greater level of risk to that occupancy and are limited to those uses listed in Table 509.

TABLE 509
INCIDENTAL USES

| ROOM OR AREA | SEPARATION AND/OR PROTECTION |
|---|---|
| Furnace room where any piece of equipment is over 400,000 Btu per hour input | 1 hour or provide automatic sprinkler system |
| Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower | 1 hour or provide automatic sprinkler system |
| Refrigerant machinery room | 1 hour or provide automatic sprinkler system |
| Hydrogen fuel gas rooms, not classified as Group H | 1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies. |
| Incinerator rooms | 2 hours and provide automatic sprinkler system |
| Paint shops, not classified as Group H, located in occupancies other than Group F | 2 hours; or 1 hour and provide automatic sprinkler system |
| In Group E occupancies, laboratories and vocational shops not classified as Group H | 1 hour or provide automatic sprinkler system |
| In Group I-2 occupancies, laboratories not classified as Group H | 1 hour and provide automatic sprinkler system |
| In ambulatory care facilities, laboratories not classified as Group H | 1 hour or provide automatic sprinkler system |
| Laundry rooms over 100 square feet | 1 hour or provide automatic sprinkler system |
| In Group I-2, laundry rooms over 100 square feet | 1 hour |
| Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces | 1 hour |
| In Group I-2, physical plant maintenance shops | 1 hour |
| In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater | 1 hour |
| In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet | 1 hour or provide automatic sprinkler system |
| In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet | 1 hour |
| Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies | 1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies. |

For SI: 1 square foot = 0.0929 $m^2$, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 $m^3$.

## SECTION 705 EXTERIOR WALLS

**705.1 General.** *Exterior walls* shall comply with this section.

**705.8 Openings.** Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6.

**TABLE 705.8.**

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON
FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

| FIRE SEPARATION DISTANCE (feet) | DEGREE OF OPENING PROTECTION | ALLOWABLE AREA[a] |
|---|---|---|
| 0 to less than 3[b, c, k] | Unprotected, Nonsprinklered (UP, NS) | Not Permitted[k] |
| | Unprotected, Sprinklered (UP, S)[i] | Not Permitted[k] |
| | Protected (P) | Not Permitted[k] |
| 3 to less than 5[d, e] | Unprotected, Nonsprinklered (UP, NS) | Not Permitted |
| | Unprotected, Sprinklered (UP, S)[i] | 15% |
| | Protected (P) | 15% |
| 5 to less than 10[e, f, j] | Unprotected, Nonsprinklered (UP, NS) | 10%[h] |
| | Unprotected, Sprinklered (UP, S)[i] | 25% |
| | Protected (P) | 25% |

**SECTION 903 AUTOMATIC SPRINKLER SYSTEMS**

**[F] 903.1 General.** *Automatic sprinkler systems* shall comply with this section.

**[F] 903.2.1.6 Assembly occupancies on roofs.** Where an occupied roof has an assembly occupancy with an *occupant load* exceeding 100 for Group A-2 and 300 for other Group A occupancies, all floors between the occupied roof and the *level of exit discharge* shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

**Exception:** Open parking garages of Type I or Type II construction.

**903.2.1.7 Multiple fire areas.** An *automatic sprinkler system* shall be provided where multiple fire areas of Group A-1, A- 2, A-3 or A-4 occupancies share exit or exit access components and the combined *occupant load* of theses fire areas is 300 or more.

**[F] 903.2.3 Group E.** An *automatic sprinkler system* shall be provided for Group E occupancies as follows:

1. Throughout all Group E *fire areas* greater than 12,000 square feet (1115 m2) in area.
2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

**SECTION 907 FIRE ALARM AND DETECTION SYSTEMS**

**[F] 907.1 General.** This section covers the application, installation, performance and maintenance of fire alarm systems and their components.

**[F] 907.2.9.3 Group R-2 college and university buildings.**
An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies operated by a college or university for student or staff housing in all of the following locations:
1. Common spaces outside of *dwelling units* and *sleeping units*.
2. Laundry rooms, mechanical equipment rooms and storage rooms.
3. All interior corridors serving *sleeping units* or *dwelling units*.

**Exception:** An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *sleeping units* or *dwelling units* and where each *sleeping unit* or *dwelling unit* either has a *means of egress* door opening directly to an exterior *exit access* that leads directly to an *exit* or a *means of egress* door opening directly to an *exit*. Required smoke alarms in *dwelling units* and *sleeping units* in Group R-2 occupancies operated by a college or university for student or staff housing shall be interconnected with the fire alarm system in accordance with NFPA 72.

**[F] 907.2.11.3 Installation near cooking appliances.** Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Section 907.2.11.1 or 907.2.11.2:
1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking appliance. 2. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking appliance. 3. Photoelectric smoke alarms shall not be installed less than 6 feet (1829 mm) horizontally from a permanently installed cooking appliance.

**[F] 907.2.11.4 Installation near bathrooms.** Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section 907.2.11.1 or 907.2.11.2.

**SECTION 1005 MEANS OF EGRESS SIZING**

**1005.1 General.** All portions of the *means of egress* system shall be sized in accordance with this section.

**Exception:** *Aisles* and *aisle accessways* in rooms or spaces used for assembly purposes complying with Section 1029.

**1005.2 Minimum width based on component.** The minimum width, in inches (mm), of any *means of egress* components shall be not less than that specified for such component, elsewhere in this code.

**1005.3 Required capacity based on occupant load.** The required capacity, in inches (mm), of the *means of egress* for any room, area, space or story shall be not less than that determined in accordance with Sections 1005.3.1 and
1005.3.2.

**1005.3.1 Stairways.** The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story.

**Exceptions:**

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.

2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.

3. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

**SECTION 1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS**

**1006.1 General.** The number of *exits* or *exit access doorways* required within the *means of egress* system shall comply with the provisions of Section 1006.2 for spaces, including *mezzanines*, and Section 1006.3 for *stories*.

**SECTION 1007 EXIT AND EXIT ACCESS DOORWAY CONFIGURATION**

**1007.1 General.** *Exits*, *exit access doorways*, and *exit access stairways* and *ramps* serving spaces, including individual building *stories*, shall be separated in accordance with the provisions of this section.

**SECTION 1013 EXIT SIGNS**

**1013.2 Floor-level exit signs in Group R-1.** Where exit signs are required in Group R-1 occupancies by Section 1013.1, additional low-level exit signs shall be provided in all areas serving guest rooms in Group R-1 occupancies and shall comply with Section 1013.5.

**1013.5 Internally illuminated exit signs.** Electrically powered, *self-luminous* and *photoluminescent* exit signs shall be *listed* and *labeled* in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and Chapter 27. Exit signs shall be illuminated at all times.

**SECTION 1016 EXIT ACCESS**

**1016.2 Egress through intervening spaces.** Egress through intervening spaces shall comply with this section.

1. *Exit access* through an enclosed elevator lobby is permitted. Access to not less than one of the required *exits* shall be provided without travel through the enclosed elevator lobbies required by Section 3006. Where the path of exit access travel passes through an enclosed elevator lobby, the level of protection required for the enclosed elevator lobby is not required to be extended to the *exit* unless direct access to an *exit* is required by other sections of this code.

**SECTION 1019 EXIT ACCESS STAIRWAYS AND RAMPS**

**1019.1 General.** *Exit access stairways* and *ramps* serving as an *exit access* component in a *means of egress* system shall comply with the requirements of this section. The number of stories connected by *exit access stairways* and *ramps* shall include *basements*, but not *mezzanines*.

**SECTION 1023 INTERIOR EXIT STAIRWAYS AND RAMPS**

**1023.1 General.** *Interior exit stairways* and *ramps* serving as an *exit* component in a *means of egress* system shall comply with the requirements of this section.

**SECTION 1025 LUMINOUS EGRESS PATH MARKINGS**

**1025.1 General.** *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E, I, M, and R-1 occupancies in accordance with Sections 1025.1 through 1025.5.

**Exception:** Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve
as part of the exit path in accordance with Section 1028.1, Exception 1.

**1025.2 Markings within exit components.** Egress path markings shall be provided in *interior exit stairways*, *interior exit ramps* and *exit passageways*, in accordance with Sections 1025.2.1 through 1025.2.6.

**1025.2.1 Steps.** A solid and continuous stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Outlining stripes shall have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 2 inches (51 mm). The leading edge of the stripe shall be placed not more than 1/2 inch (12.7 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than 1/2 inch (12.7 mm) down the vertical face of the step.

**1025.2.2 Landings.** The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

**1025.2.3 Handrails.** *Handrails* and handrail extensions shall be marked with a solid and continuous stripe having a minimum width of 1 inch (25 mm). The stripe shall be placed on the top surface of the *handrail* for the entire length of the *handrail*, including extensions and newel post caps. Where *handrails* or handrail extensions bend or turn corners, the stripe shall not have a gap of more than 4 inches (102 mm).

**1025.2.4 Perimeter demarcation lines.** Stair landings and other floor areas within *interior exit stairways*, *interior exit ramps* and *exit passageways*, with the exception of the sides of steps, shall be provided with solid and continuous demarcation lines on the floor or on the walls or a combination of both. The stripes shall be 1 to 2 inches (25 mm to 51 mm) wide with interruptions not exceeding 4 inches (102 mm).

**1025.2.4.1 Floor-mounted demarcation lines.** Perimeter demarcation lines shall be placed within 4 inches (102 mm) of the wall and shall extend to within 2 inches (51 mm) of the markings on the leading edge of landings. The demarcation lines shall continue across the floor in front of all doors.

**1025.2.4.2 Wall-mounted demarcation lines.** Perimeter demarcation lines shall be placed on the wall with the bottom edge of the stripe not more than 4 inches (102 mm) above the finished floor. At the top or bottom of the *stairs*, demarcation lines shall drop vertically to the floor within 2 inches (51 mm) of the step or landing edge. Demarcation lines on walls shall transition vertically to the floor and then extend across the floor where a line on the floor is the only practical method of outlining the path. Where the wall line is broken by a door, demarcation lines on walls shall continue across the face of the door or transition to the floor and extend across the floor in front of such door.

**1025.2.4.3 Transition.** Where a wall-mounted demarcation line transitions to a floor-mounted demarcation line, or vice versa, the wall-mounted demarcation line shall drop vertically to the floor to meet a complimentary extension of the floor-mounted demarcation line, thus forming a continuous marking.

**1025.2.5 Obstacles.** Obstacles at or below 6 feet 6 inches (1981 mm) in height and projecting more than 4 inches (102 mm) into the egress path shall be outlined with markings not less than 1 inch (25 mm) in width comprised of a pattern of alternating equal bands, of luminous material and black, with the alternating bands not more than 2 inches (51 mm) thick and angled at 45 degrees (0.79 rad). Obstacles shall include, but are not limited to, standpipes, hose cabinets, wall projections and restricted height areas. However, such markings shall not conceal any required information or indicators including but not limited to instructions to occupants for the use of standpipes.

**1025.2.6 Doors within the exit path.** Doors through which occupants must pass in order to complete the exit path shall be provided with markings complying with Sections 1025.2.6.1 through 1025.2.6.3.

**SECTION 1027 EXTERIOR EXIT STAIRWAYS AND RAMPS**

**1027.1 Exterior exit stairways and ramps.** *Exterior exit stairways* and *ramps* serving as an element of a required *means of egress* shall comply with this section

**SECTION 1103 Scoping Requirements**

**1103.2.8 Areas in places of religious worship.** Raised or lowered areas, or portions of areas, in *places of religious worship* that are less than 300 square feet (30 m2) in area and located 7 inches (178 mm) or more above or below the finished floor and used primarily for the performance of religious ceremonies are not required to comply with this chapter.

**SECTION 1110 Recreational Facilities**

**1110.4.9 Recreational boating facilities.** Boat slips required to be *accessible* by Sections 1110.4.9.1 and 1110.4.9.2 and boarding piers at boat launch ramps required to be *accessible* by Section 1110.4.9.3 shall be on an *accessible route*.

**1110.4.10 Exercise machines and equipment.** At least one of each type of exercise machine and equipment shall be on an *accessible route*.

**1110.4.11 Fishing piers and platforms.** Fishing piers and platforms shall be *accessible* and be on an *accessible route*.

**1110.4.12 Miniature golf facilities.** Miniature golf facilities shall comply with Sections 1110.4.12.1 through 1110.4.12.3.

**1110.4.12.1 Minimum number.** At least 50 percent of holes on miniature golf courses shall be *accessible*.

**1110.4.13 Swimming pools, wading pools, hot tubs and spas.** Swimming pools, wading pools, hot tubs and spas shall be *accessible* and be on an *accessible route*.

**Exceptions:**
1. Catch pools or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an *accessible* means of entry, provided that a portion of the catch pool edge is on an *accessible route*.
2. Where spas or hot tubs are provided in a cluster, at least 5 percent, but not less than one spa or hot tub in each cluster, shall be *accessible* and be on an *accessible route*.
3. Swimming pools, wading pools, spas and hot tubs that are required to be *accessible* by Sections 1110.2.2 and 1110.2.3 are not required to provide *accessible* means of entry into the water.

**SECTION 1607 Live Loads**

**1607.12.5 Photovoltaic panel systems.** Roof structures that provide support for *photovoltaic panel systems* shall be designed in accordance with Sections 1607.12.5.1 through 1607.12.5.4, as applicable.

**1607.12.5.1 Roof live load.** Roof surfaces to be covered by solar photovoltaic panels or modules shall be designed for the roof live load, *Lr*, assuming that the photovoltaic panels or modules are not present. The roof photovoltaic live load in areas covered by solar photovoltaic panels or modules shall be in addition to the panel loading unless the area covered by each solar photovoltaic panel or module is inaccessible. Areas where the clear space between the panels and the rooftop is not more than 24 inches (610 mm) shall be considered inaccessible. Roof surfaces not covered by photovoltaic panels shall be designed for the roof live load.

**1607.12.5.2 Photovoltaic panels or modules.** The structure of a roof that supports solar photovoltaic panels or modules shall be designed to accommodate the full solar photovoltaic panels or modules and ballast dead load, including concentrated loads from support frames in combination with the loads from Section 1607.12.5.1 and other applicable loads. Where applicable, snow drift loads created by the photovoltaic panels or modules shall be included.

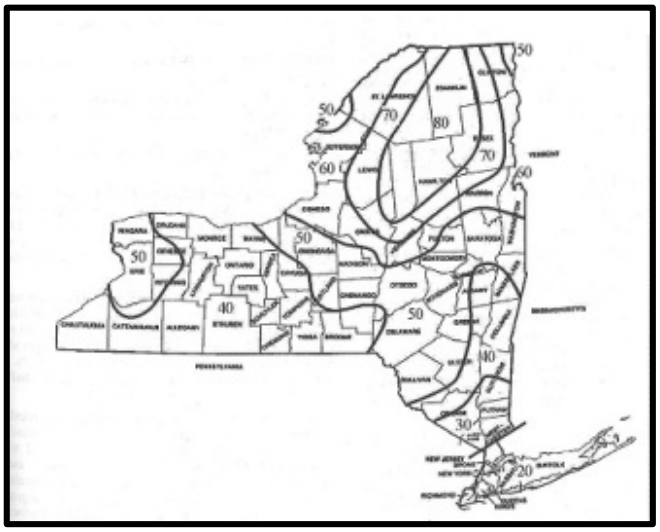
**1607.12.5.3 Photovoltaic panels or modules installed as an independent structure.** Solar photovoltaic panels or modules that are independent structures and do not have accessible/occupied space underneath are not required to accommodate a roof photovoltaic live load, provided the area under the structure is restricted to keep the public away. All other loads and combinations in accordance with Section 1605 shall be accommodated. Solar photovoltaic panels or modules that are designed to be the roof, span to structural supports and have accessible/occupied space underneath shall have the panels or modules and all supporting structures designed to support a roof photovoltaic live load, as defined in Section 1607.12.5.1 in combination with other applicable loads. Solar photovoltaic panels or modules in this application are not permitted to be classified as “not accessible” in accordance with Section 1607.12.5.1.

**1607.12.5.4 Ballasted photovoltaic panel systems.** Roof structures that provide support for ballasted *photovoltaic panel systems* shall be designed, or analyzed, in accordance with Section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding.

**SECTION 1608 SNOW LOADS**

***1608.2 Ground snow loads.*** *The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with ASCE 7 or Figure 1608.2. When using Figure 1608.2 for sites at elevations above 1,000 feet (304.8 m), the ground snow load shall be increased from the mapped value by 2 psf (0.096 kN/m$^2$) for every 100 feet (30.48 m) above 1,000 feet (304.8 m). Site specific case studies may be made in lieu of snow loads in Figure 1608.2 or ASCE 7. Ground snow load determination for site-specific case studies shall be approved and shall be based on an extreme value statistical analysis of data available in the vicinity of the site using a value with a 2-percent annual probability of being exceeded (50-year mean recurrence interval).*

*Figure 1608.2 of the 2015 IBC shall be replaced with a new Figure 1608.2 as follows:*




**SECTION 1609 WINDLOADS**

**Figure 1609.3(1)**
For Risk Category **II** Buildings or Structures

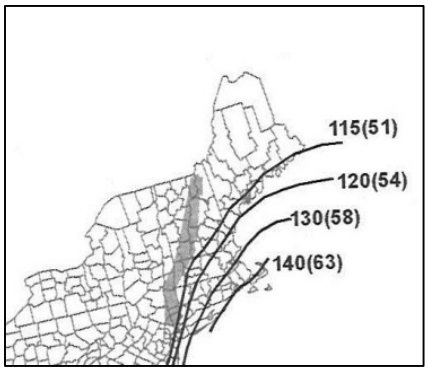
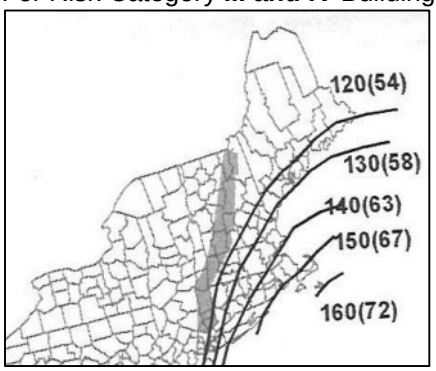



**Figure 1609.3(2)**
For Risk Category **III and IV** Buildings or Structures




**SECTION 1612 FLOOD LOADS**

***1612.3 Establishment of flood hazard areas.*** *To establish flood hazard areas, each community regulated under Title 19, Part 1203 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR) shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, special flood hazard areas as identified by the Federal Emergency Management Agency in the Flood Insurance Study for the community, as amended or revised with:*

*a. The accompanying Flood Insurance Rate Map (FIRM),*
*b. Flood Boundary and Floodway Map (FBFM), and*
*c. Related supporting data along with any revisions thereto.*

*The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.*

**1612.4 Design and construction.** The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and coastal A zones, shall be in accordance with Chapter 5 of ASCE 7 and ASCE 24.

***1612.4.1 Elevation Requirements.*** *The minimum first floor elevation shall be as specified in ASCE 24 or the base flood elevation plus 2 feet (610 mm), whichever is higher.*

**SECTION 1613 EARTHQUAKE LOADS**

**1613.3.1 Mapped acceleration parameters.** The parameters SS and S1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(8).

**Figure 1613.3.1 (1)**

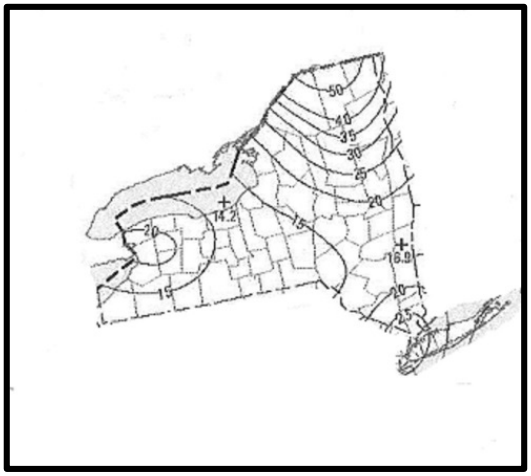
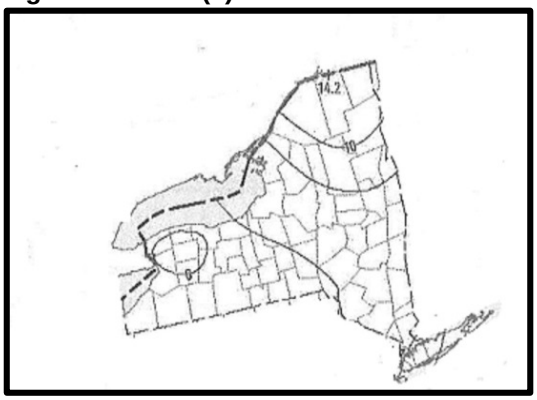



**Figure 1613.3.1 (2)**



**1613.6 Ballasted photovoltaic panel systems.** Ballasted, roof-mounted photovoltaic panel systems need not be rigidly attached to the roof or supporting structure. Ballasted nonpenetrating systems shall be designed and installed only on roofs with slopes not more than one unit vertical in 12 units horizontal. Ballasted nonpenetrating systems shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles. In structures assigned to Seismic Design Category C, D, E or F, ballasted nonpenetrating systems shall be designed to accommodate seismic displacement determined by nonlinear response-history analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for nonstructural components on roofs.

**SECTION 1705 SPECIAL INSPECTIONS AND TESTS**

**1705.2.3 Open-web steel joists and joist girders.** Special inspections of open-web steel joists and joist girders in buildings, structures and portions thereof shall be in accordance with Table 1705.2.3.

**SECTION 2210 COLD-FORMED STEEL**

**2210.1.1.3 Composite slabs on steel decks.** Composite slabs of concrete and steel deck shall be permitted to be designed and constructed in accordance with SDI-C.

**SECTION 2303 MINIMUM STANDARDS AND QUALITY**

*Section 2303.1.1 Sawn lumber*

*Exception: In lieu of compliance with Section 2303.1.1, lumber used for load-bearing purposes, which is neither identified by a grade mark nor issued a certificate of inspection by a lumber grading or inspection agency, may be used under the following conditions when authorized by the authority having jurisdiction:*

1. *The producing mill shall sell or provide the lumber directly to the ultimate consumer or the consumer's contract builder for use in an approved structure.*
2. *The producing mill shall certify in writing to the consumer or contract builder on a form to be produced by the authority having jurisdiction that the quality and safe working stresses of such lumber are equal to or exceed No. 2 grade of the species in accordance with the conditions set forth in DOC PS 20. Such certification shall be filed as part of the building permit application.*
3. *The use of such lumber shall be in accordance with Section 503 of the International Building Code , limited to:*
    a. *Buildings of residential Group R occupancy not exceeding three stories in height.*
    b. *Buildings of assembly Group A, business Group B, educational Group E, factory industrial Group F, high-hazard Group H, institutional Group I, mercantile Group M, storage Group S, and utility miscellaneous Group U occupancies not exceeding 10,000 square feet (929 $m^2$) of cumulative floor area or 35 feet (10 668 mm) in height.*

**2303.1.4 Structural glued cross-laminated timber.** Cross laminated timbers shall be manufactured and identified in accordance with ANSI/APA PRG 320.

**2303.1.13 Engineered wood rim board.** Engineered wood rim boards shall conform to ANSI/APA PRR 410 or shall be evaluated in accordance with ASTM D7672. Structural capacities shall be in accordance with ANSI/APA PRR 410 or established in accordance with ASTM D7672. Rim boards conforming to ANSI/APA PRR 410 shall be marked in accordance with that standard.

***2902.7 Buildings required to provide alternative potable water access.*** *Buildings five or more stories in height that supply potable water from a public water main with the assistance of pumps to dwelling or sleeping units in Groups I-1, I-2, R-1, R-2, and R-4 occupancies shall provide emergency water fixtures. These fixtures shall, in an emergency when such pumps are inoperable, supply potable water from the public water main to the building using only the available pressure in the public water main. Such fixtures shall comply with Sections 2902.7.1 through 2902.7.4.*

***Exception:*** *Buildings where the pumps used to supply the potable water are connected to an emergency or a standby power system that complies with the requirements of Chapter 27 of the IBC.*

***2902.7.1 Emergency water fixture.*** *Fixtures capable of supplying an emergency source of potable water in accordance with this Section shall consist of either a faucet or a fixture suitable for supplying drinking water for human ingestion conforming to Sections 424.1 and 424.1.1 of the IPC. Waste fittings shall comply with IPC Section 424.1.2. Fixtures shall discharge to either:*

*1. A sink conforming to Section 418 of the IPC; or*

*2. A floor drain conforming to Section 412 of the IPC.*

***2902.7.2 Number of emergency water fixtures required.*** *One such fixture shall be provided for each 100 occupants as determined by the occupant load of the building*

***2902.7.3 Access to Emergency Water Fixtures.*** *Fixtures capable of supplying an emergency source of potable water in accordance with this section shall comply with all of the following:*

*1. Fixtures shall be located indoors, in one or more common areas of the building, and shall not be located in a bathroom or toilet room.*
*2. At least 5 percent but not less than one emergency Water fixture shall be accessible and on an accessible route complying with Section 1104.3 of the IBC. Accessible sinks and fixtures shall comply with ICC A117.1.*
*3. Floor drains shall not be used in conjunction with accessible emergency water fixtures.*

***2902.7.4 Signage.*** *Fixtures capable of supplying an emergency source of potable water in accordance with this section shall be identified by a legible sign stating: "EMERGENCY DRINKING WATER." Signs shall be readily visible and located near such fixtures and on the door to any room or closet in which such a fixture is located.*

## SECTION 3109 SWIMMING POOLS

***3109.1 General.*** *Swimming pools shall comply with the requirements of this section and other applicable sections of this code. The requirements of this section and of the other applicable sections of this code shall be in addition to, and not in replacement of or substitution for, the requirements of other applicable federal, state and local laws and regulations, including, but not necessarily limited to,*

*1. The requirements of Subpart 6-1 (Swimming pools) of Title 10 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR), where applicable, and*
*2. The requirements of section 8003 (Federal swimming pool and spa drain cover standard) of Title 15 of the United States Code, where applicable.*

# Chapter 4 Plumbing Code

**SECTION 202 Definitions**

**P202 TOILET FACILITY.** A room or space that contains not less than one water closet and one lavatory.

**SECTION 303 Materials**

**P303.4 Third-party certification.** All plumbing products and materials shall be listed by a third-party certification agency as complying with the referenced standards. Products and materials shall be identified in accordance with Section 303.1.

**SECTION 312 Tests and Inspections**

**P312.9 Shower liner test.** Where shower floors and receptors are made water tight by application of materials required by Section 417.5.2, the completed liner installation shall be tested. The pipe from the shower drain shall be plugged water tight for the test. The floor and receptor area shall be filled with potable water to a depth of not less than 2 inches (51 mm) measured at the threshold. Where a threshold of at least 2 inches (51 mm) high does not exist, a temporary threshold shall be constructed to retain the test water in the lined floor or receptor area to a level not less than 2 inches (51 mm) deep measured at the threshold. The water shall be retained for a test period of not less than 15 minutes, and there shall not be evidence of leakage.

**SECTION 403 Minimum Plumbing Facilities**

**P403.1 Minimum number of fixtures.** Plumbing fixtures shall be provided in the minimum number as shown in Table 403.1, based on the actual use of the building or space. Uses not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the *International Building Code*.

**P Table 403.1 Footnote e.** For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

**P403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.
**Exceptions:**
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.

**P403.3 Required public toilet facilities.** Customers, patrons and visitors shall be provided with *public* toilet facilities in structures and tenant spaces intended for public utilization.The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all *occupancies*. Employee toilet facilities shall beeither separate or combined employee and *public* toilet facilities.
**Exception:** *Public* toilet facilities shall not be required in:
1. Open or enclosed parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m2).

**P403.4.1 Directional signage.** Directional signage indicating the route to the required *public* toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.

**P410.1 Approval.** Drinking fountains shall conform to ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1 and water coolers shall conform to AHRI 1010. Drinking fountains and *water coolers* shall conform to NSF 61, Section 9.Electrically operated, refrigerated drinking *water coolers* shall be listed and labeled in accordance with UL 399.

**P410.2 Small occupancies.** Drinking fountains shall not be required for an occupant load of 15 or fewer.

**P410.3 Provide high and low drinking fountains.** Where drinking fountains are required, not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

**SECTION 602 Water Required**

***NY Supplement 602.3.1 Private water supplies.*** *Private water supplies (private wells) shall be installed by a well driller registered with the New York State Department of Environmental Conservation and shall be in compliance with the provisions of Appendix 5-B (Standards for Water Wells) or 5-D (Special Requirements for Wells Serving Public Water Systems), as applicable, of the New York State Department of Health (10 NYCRR).*

***NY Supplement 602.3.3 Water quality.*** *Water from an individual water supply shall be approved as potable by the authority having jurisdiction prior to connection to the plumbing system, in accordance with the applicable New York State Department of Health Regulations.*

***NY Supplement 602.3.4 Disinfection of system.*** *Private wells are regulated by the Department of Health in accordance with Appendix 5-B, Standards for Water Wells of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR).*

**SECTION 601General**

**P601.5 Rehabilitation of piping systems.** Where pressure piping systems are rehabilitated using an epoxy lining system, such lining system shall comply with ASTM F 2831.

**SECTION 605 Materials, Joints and Connections**

**P605.2.1 Lead content of drinking water pipe and fittings.** Pipe, pipe fittings, joints, valves, faucets and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent or less.

***NY Supplement 605.3 Water service pipe.*** *Water service pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.3. Water service pipe or tubing, installed underground and outside of the structure, shall have a working pressure rating of not less than 160 psi (1100 kPa) at 73.4ºF (23ºC). Where the water pressure exceeds 160 psi (1100 kPa), piping material shall have a working pressure rating not less than the highest available pressure. Water service piping materials not third-party certified for water distribution shall terminate at or before the full open valve located at the entrance to the structure. Ductile iron water service piping shall be cement mortar lined in accordance with AWWA C104. Asbestos cement pipe shall be prohibited to convey potable water for any new or modified construction pursuant to Article 18 of the Executive Law, Standards for New York state uniform fire prevention and building code, § 378.7.*

***NY Supplement 605.4 Water distribution pipe.*** *Water distribution pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.4. Hot water distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180ºF (82ºC). Asbestos cement pipe shall be prohibited to convey potable water for any new or modified construction pursuant to Article 18 of the Executive Law, Standards for New York state uniform fire prevention and building code, § 378.7.*

**P TABLE 605.3, 605.4 WATER DISTRIBUTION PIPE**

**MATERIAL**

Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC)

**STANDARD**

ASTM F 2855

**P605.16 Chlorinated polyvinyl chloride/aluminum/chlorinated polyvinyl chloride (CPVC/AL/CPVC) pipe and tubing.**

Joints between CPVC/AL/CPVC plastic pipe or CPVC fittings shall comply with Sections 605.16.1 and 605.16.2.

**P605.16.1 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions

**P605.16.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture, and an approved primer shall be applied. Solvent cement, orange in color and conforming to ASTM F 493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D 2846 or ASTM F 493. Solvent cement joints shall be permitted above or below ground.
**Exception:** A primer is not required where all of the following conditions apply:
**1.** The solvent cement used is third-party certified as conforming to ASTM F 493.
**2.** The solvent cement used is yellow in color.
**3.** The solvent cement is used only for joining 1/2-inch (12.7 mm) through 2-inch-diameter (51 mm) CPVC/ AL/CPVC pipe and CPVC fittings.
**4.** The CPVC fittings are manufactured in accordance with ASTM D 2846.

**P605.25 PE-RT plastic.** Joints between polyethylene of raised temperature plastic tubing and fittings shall be in accordance with Section 605.25.1. Polyethylene of raised temperature tubing can only be connected by mechanical joining methods in accordance with Section 605.25.1.

**P605.25.1 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions. Fittings for polyethylene of raised temperature plastic tubing shall comply with the applicable standards listed in Table 605.5 and shall be installed in accordance with the manufacturer's instructions. Polyethylene of raised temperature plastic tubing shall be factory marked with the applicable standards for the fittings that the manufacturer of the tubing specifies for use with the tubing.

**SECTION 606 Installation of the Building Water Distribution System**

**P606.7 Labeling of water distribution pipes in bundles.** Where water distribution piping is bundled at installation, each pipe in the bundle shall be identified using stenciling or commercially available pipe labels. The identification shall the pipe contents and the direction of flow in the pipe. The interval of the identification markings on the pipe shall not exceed 25 feet (7620 mm). There shall be not less than one identification label on each pipe in each room, space or story.

**SECTION 607 Hot Water Supply System**

**P607.2.1 Circulation systems and heat trace systems for maintaining heated water temperature in distribution systems.** For Group R2, R3 and R4 occupancies that are three stories or less in height above grade plane, the installation of heated water circulation and temperature maintenance systems shall be in accordance with Section R403.5.1 of the *International Energy Conservation Code*. For other than Group R2, R3 and R4 occupancies that are three stories or less in height above grade plane, the installation of heated water circulation and heat trace systems shall be in accordance with Section C404.6 of the *International Energy Conservation Code*.

**P607.2.1.1 Pump controls for hot water storage systems.** The controls on pumps that circulate water between a water heater and a storage tank for heated water shall limit operation of the pump from heating cycle startup to not greater than 5 minutes after the end of the cycle.

**P607.3 Thermal expansion control.** Where a storage water heater is supplied with cold water that passes through a check valve, pressure reducing valve or backflow preventer, a thermal expansion tank shall be connected to the water heater cold water supply pipe at a point that is downstream of all check valves, pressure reducing valves and backflow preventers. Thermal expansion tanks shall be sized in accordance with the tank manufacturer's instructions and shall be sized such that the pressure in the water distribution system shall not exceed that required by Section 604.8.

**SECTION 608 Protection of Potable Water Supply**

***NY Supplement 608.1.1 Public water supply protection.*** *On-site containment per Subpart 5-1.31 of the New York State Department of Health Sanitary Code (10 NYCRR) may be required by the provider of public water, depending on the degree of hazard, to protect public water systems through the use of appropriate backflow prevention device installations.*

***NY Supplement 608.6.1 Private water supplies.*** *Cross connections between a private water supply and a potable public supply shall be prohibited, except where an appropriate cross-control connection device is installed in accordance with 10 NYCRR, the New York State Department of Health Sanitary Code, Subpart 5-1.31.*

**P608.8.1 Signage required.** Nonpotable water outlets, such as hose connections, open ended pipes and faucets, shall be identified with signage that reads as follows: "Nonpotable water is utilized for [application name]. CAUTION: NONPOTABLE WATER – DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and in colors in contrast to the background on which they are applied. In addition to the required wordage, the pictograph shown in Figure 608.8.1 shall appear on the required signage.

**SECTION 610 Disinfection of Potable Water System**

***NY Supplement 610.1 General.*** *New or repaired potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be in accordance with the applicable New York State Department of Health regulations*.

**SECTION 702 Materials**

**P702.5 Temperature rating.** Where the waste water temperature will be greater than 140°F (60°C), the sanitary drainage piping material shall be rated for the highest temperature of the waste water.

**SECTION 703 Building Sewer**

**P703.6 Combined sanitary and storm public sewer.** Where the public sewer is a combined system for both sanitary and storm water, the sanitary sewer shall be connected independently to the public sewer.

**SECTION 708 Cleanouts**

**P708.1.3 Building drain and building sewer junction.** The junction of the *building drain* and the *building sewer* shall be served by a cleanout that is located at the junction or within 10 feet (3048 mm) of the *developed length* of piping upstream of the junction. For the requirements of this section, the removal of the water closet shall not be required to provide cleanout access.

**P708.1.6 Cleanout plugs.** Cleanout plugs shall be of brass, plastic or other *approved* materials. Cleanout plugs for borosilicate glass piping systems shall be of borosilicate glass. Brass cleanout plugs shall conform to ASTM A 74 and shall be limited for use only on metallic piping systems. Plastic cleanout plugs shall conform to the referenced standards for plastic pipe fittings, as indicated in Table 702.4. Cleanout plugs shall have a raised square head, a countersunk square head or a countersunk slot head. Where a cleanout plug will have a trim cover screw installed into the plug, the plug shall be manufactured with a blind end threaded hole for such purpose.

**P708.1.10 Cleanout access.** Required cleanouts shall not be installed in concealed locations. For the purposes of this section, concealed locations include, but are not limited to, the inside of plenums, within walls, within floor/ceiling assemblies, below grade and in crawl spaces where the height from the crawl space floor to the nearest obstruction along the path from the crawl space opening to the clean-out location is less than 24 inches (610 mm). Cleanouts with openings at a finished wall shall have the face of the opening located within 11/2 inches (38 mm) of the finished wall surface. Cleanouts located below grade shall be extended to grade level so that the top of the cleanout plug is at or above grade. A cleanout installed in a floor or walkway that will not have a trim cover installed shall have a countersunk plug installed so the top surface of the plug is flush with the finished surface of thefloor or walkway.

**P708.1.10.1 Cleanout plug trim covers.** Trim covers and access doors for cleanout plugs shall be designed for such purposes and shall be *approved*. Trim cover fasteners that thread into cleanout plugs shall be corrosion resistant. Cleanout plugs shall not be covered with mortar, plaster or any other permanent material.

**P708.1.10.2 Floor cleanout assemblies.** Where it is necessary to protect a cleanout plug from the loads of vehicular traffic, cleanout assemblies in accordance with ASME A112.36.2M shall be installed.

**SECTION 716 Vacuum Drainage Systems**

**P716.2 System design.** Vacuum drainage systems shall be designed in accordance with the vacuum drainage system manufacturer's instructions. The system layout, including piping layout, tank assemblies, vacuum pump assembly and other components necessary for proper function of the system shall be in accordance with the manufacturer's instructions. Plans, specifications and other data for such systems shall be submitted to the code official for review and approval prior to installation.

**P716.3 Testing and demonstrations.** After completion of the entire system installation, the system shall be subjected to a vacuum test of 19 inches (483 mm) of mercury and shall be operated to function as required by the code official and the manufacturer of the vacuum drainage system. Recorded proof of all tests shall be submitted to the code official.

**SECTION 717 Replacement of Underground Sewers by Pipe Bursting Methods**

**P717.2 Applicability.** The replacement of *building sewer* piping by pipe-bursting methods shall be limited to gravity drainage piping of sizes 6 inches (152 mm) and smaller. The replacement piping shall be of the same nominal size as the existing piping.

**P717.3 Pre-installation inspection.** The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.

**SECTION 903 Vent Terminals**

***NY Supplement 903.1 Roof extension.*** *Open vent pipes that extend through a roof shall be terminated not less than 18 inches (458 mm) above the roof. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.*

**P903.2 Frost closure.** Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, vent extensions through a roof or wall shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made not less than 1 foot (305 mm) inside the thermal envelope of the building.

**Section 1002 Trap Requirements**

**P1002.4.1 Trap seal protection.** Trap seals of *emergency floor drain* traps and trap seals subject to evaporation shall be protected by one of the methods in Sections 1002.4.1.1 through 1002.4.1.4.

**P1002.4.1.1 Potable water-supplied trap seal primer valve.** A potable water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

**P1002.4.1.2 Reclaimed or gray water-supplied trap seal primer valve.** A reclaimed or gray water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The quality of reclaimed or gray water supplied to trap seal primer valves shall be in accordance with the requirements of the manufacturer of the trap seal primer valve. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal, on the inlet side of the trap.

**P1002.4.1.3 Waste water-supplied trap primer device.** A waste water-supplied trap primer device shall supply water to the trap. Waste water-supplied trap primer devices shall conform to ASSE 1044. The discharge pipe from the trap seal primer device shall connect to the trap above the trap seal on the inlet side of the trap.

**P1002.4.1.4 Barrier-type trap seal protection device.** A barrier- type trap seal protection device shall protect the floor drain trap seal from evaporation. Barrier-type floor drain trap seal protection devices shall conform to ASSE 1072. The devices shall be installed in accordance with the manufacturer's instructions.

**SECTION 1003 Interceptors and Separators**

**P1003.3.6 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems.** The required capacity of gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be determined by multiplying the peak drain flow into the interceptor in gallons per minute by a retention time of 30 minutes. Gravity grease interceptors shall be designed and tested in accordance with IAPMO/ANSI Z1001. Gravity grease interceptors with fats, oils, and greases disposal systems shall be designed and tested in accordance with ASME A112.14.6 and IAPMO/ANSI Z1001. Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in accordance with manufacturer's instructions. Where manufacturer's instructions are not provided, gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal systems shall be installed in compliance with ASME A112.14.6 and IAPMO/ANSI Z1001.

**P1003.3.7 Direct connection.** The discharge piping from a grease interceptor shall be directly connected to the sanitary drainage system.

**P1003.6 Clothes washer discharge interceptor.** Clothes washers shall discharge through an interceptor that is provided with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids 1/2 inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewage system.

**1003.9 Venting of interceptors and separators.** Interceptors and separators shall be designed so as not to become air bound. Interceptors and separators shall be vented in accordance with one of the methods in Chapter 9.

**SECTION 1105 Roof Drains**

**1105.2 Roof drain flow rate.** The published roof drain flow rate, based on the head of water above the roof drain, shall be used to size the storm drainage system in accordance with Section 1106. The flow rate used for sizing the storm drainage piping shall be based on the maximum anticipated ponding at the roof drain.

**SECTION 1106 Size of Conductors, Leaders, and Storm Drains**

**1106.2 Size of storm drain piping.** Vertical and horizontal *storm drain* piping shall be sized based on the flow rate through the roof drain. The flow rate in *storm drain* piping shall not exceed that specified in Table 1106.2.

**1106.3 Vertical leader sizing.** Vertical leaders shall be sized based on the flow rate from horizontal gutters or the maximum flow rate through roof drains. The flow rate through vertical leaders shall not exceed that specified in Table 1106.3. based on the flow rate from the roof surface. The flow rate in horizontal gutters shall not exceed that specified in Table 1106.6.

# Chapter 5 Mechanical Code

**SECTION 307 Condensate Disposal**

**M307.2.5 Drain line maintenance.** Condensate drain lines shall be configured to permit the clearing of blockages and performance of maintenance without requiring the drain line to be cut.

**M307.3 Condensate pumps.** Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating. Pumps shall be installed in accordance with the manufacturers' instructions.

**SECTION 403 Mechanical Ventilation**

**M403.3 Outdoor air and local exhaust airflow rates.** Group R-2, R-3 and R-4 occupancies three stories and less in height above grade plane shall be provided with outdoor air and local exhaust in accordance with Section 403.3.2. All other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

**M403.3.2.1 Outdoor air for dwelling units.** An outdoor air ventilation system consisting of a mechanical exhaust system, supply system or combination thereof shall be installed for each dwelling unit. Local exhaust or supply systems, including outdoor air ducts connected to the return side of an air handler, are permitted to serve as such a system. The outdoor air ventilation system shall be designed to provide the required rate of outdoor air continuously during the period that the building is occupied. The minimum continuous outdoor airflow rate shall be determined in accordance with Equation 4-9.

**SECTION 404 Enclosed Parking Garages**

**M404.1 Enclosed parking garages.** Where mechanical ventilation systems for enclosed parking garages operate intermittently, such operation shall be automatic by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers' recommendations.

**SECTION 504 Clothes Dryer Exhaust**

**M504.5 Dryer exhaust duct power ventilators.** Domestic dryer exhaust duct power ventilators shall be listed and labeled to UL 705 for use in dryer exhaust duct systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions.

**M504.8.4.3 Dryer exhaust duct power ventilator length.** The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer's installation instructions.

**SECTION 505 Domestic Kitchen Exhaust Equipment**

**M505.3 Common exhaust systems for domestic kitchens located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple domestic kitchen exhaust systems, the construction of the system shall be in accordance with all of the following:
**1.** The shaft in which the duct is installed shall be constructed and fire-resistance rated as required by the *International Building Code*.
**2.** Dampers shall be prohibited in the exhaust duct, except as specified in Section 505.1. Penetrations of the shaft and ductwork shall be protected in accordance with Section 607.5.5, Exception 2.
**3.** Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) and in accordance with SMACNA *Duct Construction Standards*.
**4.** The ductwork within the shaft shall be designed and installed without offsets.
**5.** The exhaust fan motor design shall be in accordance with Section 503.2.
**6.** The exhaust fan motor shall be located outside of the airstream.
**7.** The exhaust fan shall run continuously, and shall be connected to a standby power source.
**8.** Exhaust fan operation shall be monitored in an approved location and shall initiate an audible or visual signal when the fan is not in operation.

**9.** Where the exhaust rate for an individual kitchen exceeds 400 cfm (0.19 m3/s) makeup air shall be provided in accordance with Section 505.2.
**10.** A cleanout opening shall be located at the base of the shaft to provide access to the duct to allow for cleanout and inspection. The finished openings shall be not less than 12 inches by 12 inches (305 mm by 305 mm).
**11.** Screens shall not be installed at the termination.
**12.** The common multistory duct system shall serve only kitchen exhaust and shall be independent of other exhaust systems.

**SECTION 506 Commercial Kitchen Hood Ventilation Systems Ducts and Exhaust Equipment**

**M506.5.1.2 In-line fan location.** Where enclosed duct systems are connected to in-line fans not located outdoors, the fan shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of fan components. Such rooms or spaces shall be ventilated in accordance with the fan manufacturer's installation instructions.

**M506.5.3 Exhaust fan mounting.** Up-blast fans serving Type I hoods and installed in a vertical or horizontal position shall be hinged, supplied with a flexible weatherproof electrical cable to permit inspection and cleaning and shall be equipped with a means of restraint to limit the swing of the fan on its hinge. The ductwork shall extend not less than 18 inches (457 mm) above the roof surface.

**SECTION 507 Commercial Kitchen Hoods**

**M507.1.1 Operation.** Commercial kitchen exhaust hood systems shall operate during the cooking operation. The hood exhaust rate shall comply with the listing of the hood or shall comply with Section 507.5. The exhaust fan serving a Type I hood shall have automatic controls that will activate the fan when any appliance that requires such Type I Hood is turned on, or a means of interlock shall be provided that will prevent operation of such appliances when the exhaust fan is not turned on. Where one or more temperature or radiant energy sensors are used to activate a Type I hood exhaust fan, the fan shall activate not more than 15 minutes after the first appliance served by that hood has been turned on. A method of interlock between an exhaust hood system and appliances equipped with standing pilot burners shall not cause the pilot burners to be extinguished. A method of interlock between an exhaust hood system and cooking appliances shall not involve or depend upon any component of a fire-extinguishing system. The net exhaust volumes for hoods shall be permitted to be reduced during part-load cooking conditions, where engineered or *listed* multispeed or variable speed controls automatically operate the exhaust system to maintain capture and removal of cooking effluents as required by this section. Reduced volumes shall not be below that required to maintain capture and removal of effluents from the idle cooking appliances that are operating in a standby mode.

**M507.1.1.1 Multiple hoods utilizing a single exhaust system.** Where heat or radiant energy sensors are utilized in hood systems consisting of multiple hoods served by a single exhaust system, such sensors shall be provided in each hood. Sensors shall be capable of being accessed from the hood outlet or from a cleanout location.

**SECTION 508 Commercial Kitchen Makeup Air**

**M508.1.2 Air balance.** Design plans for a facility with a commercial kitchen ventilation system shall include a schedule or diagram indicating the design outdoor air balance. The design outdoor air balance shall indicate all exhaust and replacement air for the facility, plus the net exfiltration if applicable. The total replacement air airflow rate shall equal the total exhaust airflow rate plus the net exfiltration.

**SECTION 510 Hazardous Exhaust Systems**

**M510.4 Independent system.** Hazardous exhaust systems shall be independent of other types of exhaust systems.

**M510.5 Incompatible materials and common shafts.** Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.
**Exception:** The provisions of this section shall not apply to laboratory exhaust systems where all of the following conditions apply:

**1.** All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation.
**2.** The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area.
**3.** Hazardous exhaust ductwork originating in different fire areas and manifolded together in a common shaft shall meet the provisions of Section 717.5.3,Exception 1, Item 1.1 of the *International Building Code*.
**4**. Each control branch has a flow regulating device.
**5**. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding.
**6.** Radioisotope hoods are equipped with filtration, carbon beds or both where required by the *registered design professional*.
**7.** Biological safety cabinets are filtered.
**8.** Each hazardous exhaust duct system shall be served by redundant exhaust fans that comply with either of the following:
**8.1.** The fans shall operate simultaneously in parallel and each fan shall be individually capable of providing the required exhaust rate.
**8.2.** Each of the redundant fans is controlled so as to operate when the other fan has failed or is shut down for servicing.

**M510.7.1.1 Shaft penetrations.** Hazardous exhaust ducts that penetrate fire-resistance-rated shafts shall comply with Section 714.3.1 or 714.3.1.2 of the *International Building Code*.

**SECTION 601 General (Duct Systems)**

**M601.5 Return air openings.** Return air openings for heating, ventilation and air- conditioning systems shall comply with all of the following:
**1.** Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
**2.** Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
**3.** The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
**4.** Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
**5.** Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
**6.** Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
**7.** Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.
**Exceptions:**
**1.** Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
**2.** Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage.

**SECTION 602 Plenums**

**M602.2.1.5 Discrete plumbing and mechanical products in plenums.** Where discrete plumbing and mechanical products and appurtenances are located in a plenum and have exposed combustible material, they shall be listed and labeled for such use in accordance with UL 2043.

**SECTION 701 General (Combustion Air)**

**M701.2 Dampered openings.** Where combustion air openings are provided with volume, smoke or fire dampers, the dampers shall be interlocked with the firing cycle of the appliances served, so as to prevent operation of any appliance that draws combustion air from the room or space when any of the dampers are closed. Manual dampers shall not be installed in combustion air ducts. Ducts not provided with dampers and that pass through rated construction shall be enclosed in a shaft in accordance with the *International Building Code*.

**SECTION 802 Vents**

**M802.9 Door swing.** Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminals. Doorstops or closers shall not be installed to obtain this clearance.

**SECTION 903 Factory Built Fireplaces**

**M903.4 Gasketed fireplace doors.** A gasketed fireplace door shall not be installed on a factory-built fireplace except where the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127.

**SECTION 922 Kerosene and Oil-Fired Stoves**

***NYS supplement*** ***M922*** *renamed "****Kerosene and Oil-Fired Stoves and Heaters****".*

***NYS supplement M922.2 Approved portable kerosene heater****. Unvented portable kerosene-fired heaters tested and listed in accordance with UL 647 are approved by the Secretary of State for use in New York State if packaged for sale with all provisions required in New York State Real Property Law Article 7A Section 239-a(7). Unvented portable kerosene-fired heaters shall not be located in, or obtain combustion air from, any of the following rooms or spaces: sleeping rooms, bathrooms, toilet rooms, or storage closets. Portable kerosene heaters shall be prohibited in buildings of occupancy groups A, E, I, R-1, R-2, R-3 and R-4 (except for one- and two-family homes and townhouses). The use of unvented portable kerosene-fired heaters is further regulated by New York State Real Property Law Article 7A.*

**SECTION 1102 System Requirements**

**M1102.3 Access port protection.** Refrigerant access ports shall be protected in accordance with Section 1101.10 whenever refrigerant is added to or recovered from refrigeration or air-conditioning systems.

## Chapter 6 Fuel Gas Code

**SECTION 202 General Definitions**

***NY Supplement FG202 CSST.*** *Corrugated stainless steel tubing.*

***NY Supplement FG202 LISTED CONDUCTIVE JACKETED CSST (or LISTED CJ-CSST).*** *CSST which is:*
*1. Encased in a conductive jacket, and2. Listed in a currently effective evaluation report issued by a nationally recognized building product evaluation service as having been:*
*i. tested in accordance with the published National Standard ANSI LC 1-2014 including the performance criteria of Section 5.16 and*
*ii. shown by such testing to satisfy such published performance criteria and to provide, without additional bonding, protection against damage from indirect lightning strikes that is at least equivalent to that provided by direct bonding as prescribed in Section 310 of this code.*

***NY Supplement FG202 UNVENTED ROOM HEATER****. An unvented heating appliance designed for stationary installation and utilized to provide comfort heating. Such appliances provide radiant heat or convection heat by gravity or fan circulation directly from the heater and do not utilize ducts. A wall-mounted unvented room heater would be of the type designed for insertion in or attachment to a wall or partition. A wall-mounted unvented room heater does not incorporate concealed venting arrangements in its construction and discharges all products of combustion through the front into the room being heated.*

**SECTION 310 Electrical Bonding**

***NY Supplement deletes ~~310.1.1 CSST.~~*** *~~Corrugated stainless steel tubing (CSST) gas piping systems and piping systems containing one or more segments of CSST shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.~~*

***NY Supplement 310.2 Gas pipe bonding – CSST.*** *A gas piping system that contains any CSST shall be electrically continuous and shall be or a grounding electrode conductor. CSST shall be installed and bonded in accordance with Section 310.2, and the stricter of: directly bonded to the electrical service grounding electrode system. No portion of the gas piping system shall be used as or considered to be a grounding electrode*
***Exception:*** *Where all of the CSST contained in a gas piping system is listed CJ-CSST and the gas piping system satisfies all of the other criteria set*

1. *The requirements set forth in the CSST manufacturer's installation instructions, or*
2. *The requirements set forth Sections 310.2.1, 310.2.2, 310.2.3, and 404.7 of this code.*

*forth in Section 310.3 of this code, such gas piping system shall comply with said Section 310.3.*

***NY Supplement 310.2.1 Bonding jumper.*** *Where the electric service for the individual installation is 200 amperes or less, the bonding jumper shall not be smaller than 6 AWG copper wire or 4 AWG aluminum or copper-clad aluminum wire, and shall be permanently connected to the grounding electrode system. Where the electric service for the individual installation is more than 200 amperes, the bonding jumper size shall be determined in accordance with Table 250.66 and Sections 250.66(A) through 250.66(C) of NFPA 70, and shall be permanently connected to the grounding electrode system.*

***NY Supplement 310.2.2 Bonding clamp.*** *The bonding jumper shall be connected to the gas piping system with a bonding clamp that is listed for the material of the bonding jumper and for the material of the component of the gas piping system to which the bonding clamp is attached. The bonding clamp shall be attached to the gas piping system, on the downstream side of the gas meter or regulator between the point of delivery and the first downstream CSST fitting, in an unconcealed and readily accessible space, and as close as possible to the point where the bonding jumper is connected to the electrical service grounding electrode system, and shall not exceed 75 feet. Any additional grounding electrodes used shall be bonded to the electrical service grounding electrode system*

***NY Supplement 310.2.2.1 Bonding connections.*** *Bonding connections shall be in accordance with NFPA 70.*

***NY Supplement 310.2.2.2 Connection devices.*** *Devices used for making the bonding connections shall be listed for the application in accordance with UL 467.*

***NY Supplement 310.2.3 Prohibited uses.*** *CSST shall not be supported on or by other electrically conductive systems including copper water pipe, electric power cables, air-conditioning and heating ducts, communication cables and structural steel beams. Electrical wiring, including the bonding conductor, shall be supported and secured independently of the CSST so that it does not come in contact with the CSST.*

***NY Supplement 310.3 Gas pipe bonding - listed CJ-CSST.*** *Where:*

1. *All of the CSST contained in a gas piping system consists of listed CJ-CSST,*
2. *such gas piping system is electrically continuous, and*
3. *at least one appliance is:*
   - i. *connected to such gas piping system,*
   - ii. *connected to a grounded electrical circuit, and*
   - iii. *connected to the equipment grounding conductor of such electrical circuit by a bonding conductor that is 14 AWG (or larger) copper,*

*Such gas piping system shall be installed and bonded in accordance with the stricter of:*

1. *the requirements set forth in the listed CJ-CSST manufacturer's installation instructions, or*
2. *the requirements set forth in Sections 310.3.1, 310.3.2, 310.3.3, and 404.7 of this code.*

***NY Supplement 310.3.1 Bonding.*** *A gas piping system that contains only listed CJ-CSST and satisfies all the other criteria specified in Section 310.3 of this code shall be considered to be bonded to an effective ground-fault current path, and shall not be required to be directly bonded as prescribed by Section 310.2 of this code. However, nothing in this Section 310.3.1 shall prohibit the bonding any such gas piping system in any manner described in Section 250.104(B) of NFPA 70.*

***NY Supplement 310.3.2 Grounding electrodes.*** *No portion of the gas piping system shall be used as or considered to be a grounding electrode or a grounding electrode conductor.*

***NY Supplement 310.3.3 Prohibited uses.*** *The listed CJ-CSST shall not be supported on or by other electrically conductive systems including copper water pipe, electric power cables, air-conditioning and heating ducts, communication cables and structural steel beams. Electrical wiring shall be supported and secured independently of the listed CJ-CSST so that it does not come in contact with the listed CJ-CSST.*

**SECTION 402 Pipe Sizing**

**FG402.2 Maximum gas demand.** The volumetric flow rate of gas to be provided shall be the sum of the maximum input of the appliances served. The total connected hourly load shall be used as the basis for pipe sizing, assuming that all appliances could be operating at full capacity simultaneously. Where a diversity of load can be established, pipe sizing shall be permitted to be based on such loads. The volumetric flow rate of gas to be provided shall be adjusted for altitude where the installation is above 2,000 feet (610 m) in elevation.

**SECTION 403 Piping Materials**

**FG403.6 Plastic pipe, tubing and fittings.** Polyethylene plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D2513. Such pipe shall be marked "Gas" and "ASTM D2513." Plastic pipe, tubing and fittings, other than polyethylene, shall be identified and conform to the 2008 edition of ASTM D2513. Such pipe shall be marked "Gas" and "ASTM D2513." Polyvinyl chloride (PVC) and chlorinated polyvinyl chloride (CPVC) plastic pipe, tubing and fittings shall not be used to supply fuel gas.

**FG403.10.4 Metallic fittings**. Metallic fittings shall comply with the following:
1. Threaded fittings in sizes larger than 4 inches (102 mm) shall not be used.
2. Fittings used with steel or wrought-iron pipe shall be steel, copper alloy, malleable iron or cast iron.
3. Fittings used with copper or copper alloy pipe shall be copper or copper alloy.
4. Fittings used with aluminum-alloy pipe shall be of aluminum alloy.
5. Cast-iron fittings:
5.1. Flanges shall be permitted.
5.2. Bushings shall not be used.
5.3. Fittings shall not be used in systems containing flammable gas-air mixtures.

5.4. Fittings in sizes 4 inches (102 mm) and larger shall not be used indoors except where approved.
5.5. Fittings in sizes 6 inches (152 mm) and larger shall not be used except where approved.
6. Aluminum-alloy fittings. Threads shall not form the joint seal.
7. Zinc aluminum-alloy fittings. Fittings shall not be used in systems containing flammable gas-air mixtures.
8. Special fittings. Fittings such as couplings, proprietary type joints, saddle tees, gland-type compression fittings and flared, flareless and compression-type tubing fittings shall be: used within the fitting manufacturer's pressure-temperature recommendations; used within the service conditions anticipated with respect to vibration, fatigue, thermal expansion and contraction; and shall be approved.
9. Where pipe fittings are drilled and tapped in the field, the operation shall be in accordance with all of the following:
9.1. The operation shall be performed on systems having operating pressures of 5 psi (34.5 kPa) or less.
9.2. The operation shall be performed by the gas supplier or the gas supplier's designated representative.
9.3. The drilling and tapping operation shall be performed in accordance with written procedures prepared by the gas supplier.
9.4. The fittings shall be located outdoors.
9.5. The tapped fitting assembly shall be inspected and proven to be free of leakage.

**SECTION 404 Piping System Installation**

**FG404.2 CSST.** CSST piping systems shall be installed in accordance with the terms of their approval, the conditions of listing, the manufacturer's instructions and this code.

**FG404.5 Fittings in concealed locations.** Fittings installed in concealed locations shall be limited to the following types:
1. Threaded elbows, tees and couplings.
2. Brazed fittings.
3. Welded fittings.
4. Fittings listed to ANSI LC-1/CSA 6.26 or ANSI LC-4.

***NY Supplement 404.7 Protection against physical damage****. In concealed locations, where piping other than black or galvanized steel is installed through holes or notches in wood studs, joists, rafters or similar members less than 1.75 inches (44.45 mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Such shield plates shall comply with the requirements of Section 404.7.1, shall cover the area of the pipe where the member is notched or bored, and shall extend a minimum of 4 inches (102 mm) above sole plates, below top plates and to each side of a stud, joist or rafter. The movement of piping made of CSST (including, but not limited to, piping made of listed CJ-CSST) shall not be otherwise constrained by straps, clips or other support devices. In addition, where CSST (including, but not limited to, listed CJ-CSST) is installed in a concealed location and parallel to any joist, rafter, or similar member, the CSST shall be protected by shield plates in any area where the CSST is not:*

1. *Physically supported in a manner that ensures the CSST will always be at least 1.75 inches (44.45 mm) away from the nearest edge of any member, or*
2. *Encased in a protective metal pipe made of schedule 40 steel or iron pipe or in a protective pipe sleeve made of a material approved by the code enforcement official as the equivalent of schedule 40 steel or iron pipe.*
   *Such shield plates shall comply with the requirements of Section 404.7.1, shall cover the area the where the CSST is located, and shall extend a minimum of 4 inches (102 mm) to each side of the CSST.*

***NY Supplement 404.7.1 Shield plates****. In all cases, shield plates shall be certified or listed as complying with ANSI LC-1. In addition, in the case of piping made of CSST, shield plates shall be listed for use with the manufacturer's CSST system.*

**FG404.18 Pipe cleaning.** The use of a flammable or combustible gas to clean or remove debris from a *piping* system shall be prohibited.

**SECTION 411 Appliance and Manufactured Home Connections**

**FG411.1.1 Commercial cooking appliances**. Commercial cooking appliances installed on casters and appliances that are moved for cleaning and sanitation purposes shall be connected to the *piping* system with an appliance connector listed as complying with ANSI Z21.69. The commercial cooking appliance connector installation shall be configured in accordance with the manufacturer's instructions. Movement of appliances with casters shall be limited by a restraining device installed in accordance with the connector and appliance manufacturer's instructions.

**SECTION 502 Vents**

**FG502.7.1 Door swing.** Appliance and equipment vent terminals shall be located such that doors cannot swing within 12 inches (305 mm) horizontally of the vent terminal. Door stops or closers shall not be installed to obtain this clearance

**SECTION 503 Venting of Appliances**

**FG503.6.9.3 Category II, III and IV appliances.** The sizing of gas vents for Category II, III and IV appliances shall be in accordance with the *appliance* manufacturer's instructions. The sizing of plastic pipe that is specified by the appliance manufacturer as a venting material for Category II, III and IV appliances shall be in accordance with the manufacturer's instructions.

**FG503.8 Venting system termination location.** The location of venting system terminations shall comply with the following (see Appendix C):
1. A mechanical draft venting system shall terminate not less than 3 feet (914 mm) above any forced-air inlet located within 10 feet (3048 mm).
**Exceptions:**
1. This provision shall not apply to the *combustion air* intake of a direct-vent *appliance*.
2. This provision shall not apply to the separation of the integral outdoor air inlet and flue gas discharge of *listed* outdoor appliances.
2. A mechanical draft venting system, excluding *directvent appliances*, shall terminate not less than 4 feet (1219 mm) below, 4 feet (1219 mm) horizontally from, or 1 foot (305 mm) above any door, operable window or gravity air inlet into any building. The bottom of the vent terminal shall be located not less than 12 inches (305 mm) above finished ground level.
3. The vent terminal of a direct-vent *appliance* with an input of 10,000 Btu per hour (3 kW) or less shall be located not less than 6 inches (152 mm) from any air opening into a building. Such an *appliance* with an input over 10,000 Btu per hour (3 kW) but not over 50,000 Btu per hour (14.7 kW) shall be installed with a 9-inch (230 mm) vent termination *clearance*, and an *appliance* with an input over 50,000 Btu per hour (14.7 kW) shall have not less than a 12-inch (305 mm) vent termination *clearance*. The bottom of the vent terminal and the air intake shall be located not less than 12 inches (305 mm) above finished ground level.
4. Through-the-wall vents for Category II and IV appliances and noncategorized condensing appliances shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves or other *equipment*. Where local experience indicates that condensate is a problem with Category I and III appliances, this provision shall also apply. Drains for condensate shall be installed in accordance with the appliance and vent manufacturers' instructions.
5. Vent systems for Category IV appliances that terminate through an outside wall of a building and discharge flue gases perpendicular to the adjacent wall shall be located not less than 10 feet (3048 mm) horizontally from an operable opening in an adjacent building. This requirement shall not apply to vent terminals that are 2 feet (607 mm) or more above or 25 feet (7620 mm) or more below operable openings.

**SECTION 602 Decorative Appliances for Installation in Fireplaces**

***NY Supplement 602.2 Flame safeguard device****. Decorative vented appliances for installation in approved solid fuel-burning fireplaces**,** with the exception of those tested in accordance with ANSI Z21.84, shall utilize a direct ignition device, an igniter or a pilot flame to ignite the fuel at the main burner, and shall be equipped with a flame safeguard device. The flame safeguard device shall automatically shut off the fuel supply to a main burner or group of burners when the means of ignition of such burners becomes inoperative.*

**SECTION 614 Clothes Dryer Exhaust**

**FG614.5 Dryer exhaust duct power ventilators.** Domestic dryer exhaust duct power ventilators shall be listed and labeled to UL 705 for use in dryer exhaust duct systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions.

**FG614.8.4.3 Dryer exhaust duct power ventilator length.** The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer's installation instructions.

## Chapter 7 - 2015 Fire Code

**SECTION 307 Open Burning, Recreational Fires and Portable Outdoor Fireplaces**

**307.4.3 Portable outdoor fireplaces.** Portable outdoor fireplaces shall be used in accordance with the manufacturer's instructions and shall not be operated within 15 feet (3048 mm) of a structure or combustible material.

**Exception:** Portable outdoor fireplaces used at one- and two-family *dwellings*.

**SECTION 308 Open Flames**

**308.1.3 Torches for removing paint.**
Persons utilizing a torch or other flame-producing device for removing paint from a structure shall provide a minimum of one portable fire extinguisher complying with Section 906 and with a minimum 4-A rating, two portable fire extinguishers, each with a minimum 2-A rating, or a water hose connected to the water supply on the premises where such burning is done. The person doing the burning shall remain on the premises 1 hour after the torch or flame-producing device is utilized.

~~**NYS 308.4 Torches for removing paint.** Removing paint in or on structures with a torch or any other flame-producing device shall be prohibited. The use of heat-producing devices other than open-flame devices shall be permitted. The person or persons removing the paint, or their responsible agent, shall remain in view of this area at all times and for 1 hour after using the heat-producing device.~~

**SECTION 315 General Storage**

**Section 315.6 Storage in Plenums.** Storage shall not be permitted in plenums. Abandoned material in plenums shall be deemed to be storage and shall be removed. Where located in plenums, the accessible portion of the abandoned cables that are not identified for future use with a tag shall be deemed storage and shall be removed. (2015)

**SECTION 403 Emergency Preparedness Requirements**

**Section 403.2 Group A Occupancies.** An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for a Group A occupancies, other than those occupancies used exclusively for the purposes of religious worship with an occupant load less than 2000*, and for buildings containing both a Group A occupancy and an atrium.*

***NYS 403.2.5 Education Law requirements for Groups A college and university buildings.*** *In addition to other requirements, the frequency and timing of drills shall be in accordance with the requirements of Section 807.3 of the Education Law, which requires not less than 3 drills annually, one of which shall take place between September 1 and December 1. At least one of the drills shall use fire escapes, where provided. Where summer sessions are provided, at least one of the required drills shall be held during the first week of summer school.*

**403.4 Group B occupancies.** An *approved* fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for buildings containing a Group B occupancy where the Group B occupancy has an *occupant load* of 500 or more persons or more than 100 persons above or below the lowest *level of exit discharge* and for buildings having an ambulatory care facility.

***NYS 403.4.1 Education Law requirements for Group B college and university buildings.*** *In addition to other requirements, the frequency and timing of drills shall be in accordance with the requirements of Section 807.3 of the Education Law, which requires not less than 3 drills annually, one of which shall take place between September 1 and December 1. At least one of the drills shall use fire escapes, where provided. Where summer sessions are provided, at least one of the required drills shall be held during the first week of summer school.*

***NYS 403.5.4 Education Law requirements for Group E occupancies.*** *In addition to other requirements, the frequency and timing of drills shall be in accordance with the requirements of Section 807.1 of the Education Law, which requires not less than 12 drills annually, eight of which shall take place between September 1 and December 1. At least one-third of the drills shall use fire escapes, where provided. At least one drill shall be held during a lunch period, or pupils shall be instructed in procedures to be followed during a lunch period. At least four additional drills shall be held during hours after sunset or before sunrise, where students reside at the school. At least two additional drills shall be held during the first week of summer school.*

**403.6 Group F Occupancies.** An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for buildings containing a Group F occupancy where the Group F occupancy has an occupant load of 500 or more persons or more than 100 above or below the lowest level of exit discharge

**403.9 Group M occupancies.** An *approved* fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for buildings containing a Group M occupancy where the Group M occupancy has an *occupant load* of 500 or more persons or more than 100 persons above or below the lowest l*evel of exit discharge* and for buildings containing both a Group M occupancy and an atrium.

**SECTION 404 Fire Safety, Evacuation and Lockdown Plans**

**404.2.3 Lockdown plans.** Where facilities develop a lockdown plan, the lockdown plan shall be in accordance with Sections 404.3.3.1 through 404.3.3.3.

**404.2.3.1 Lockdown plan contents.** Lockdown plans shall be *approved* by the *fire code official* and shall include the following:1. Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.2. Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.3. Recall. The plan shall include a prearranged signal for returning to normal activity.4. Communication and coordination. The plan shall include an *approved* means of two-way communication between a central location and each secured area.

**404.2.3.2 Training frequency.** The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in Section 405.2.

**404.2.3.3 Lockdown notification.** The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.

**SECTION 407 Hazard Communication**

**407.2 Material Safety Data Sheets.** Material Safety Data Sheets (MSDS) for all hazardous materials shall be either readily available on the premises as a paper copy, or where *approved*, shall be permitted to be readily retrievable by electronic access.

**SECTION 503 Fire Apparatus Access Roads**

**503.1.1 Buildings and facilities.**
*Approved* fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an *approved* route around the exterior of the building or facility.
**Exception:** The *fire code official* is authorized to increase the dimension of 150 feet (45 720 mm) where:

1.1 The building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.

1.2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an *approved* alternative means of fire protection is provided.

~~1.3. There are not more than two Group R-3 or Group U occupancies.~~

***NYS Fire Code Supplement***

***Exception 1.3:*** *Group U occupancies.*

***Exception 1.4:*** *One- or two-family detached dwellings or not more than two Group R-3 occupancies that meet the requirements of Section 511.*

**SECTION 503 Fire Apparatus Access Roads**

**503.4.1. Traffic calming devices.** Traffic calming devices shall be prohibited unless *approved* by the *fire code official.*

**SECTION 505 Premises Identification**

**IFC 505.1 Address identification.**
New and existing buildings shall have *approved* address numbers, building numbers or *approved* building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Where required by the *fire code official*, address numbers shall be provided in additional *approved* locations to facilitate emergency response. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure. Address numbers shall be maintained.
***NYS Exception:*** *Buildings identified under an addressing scheme as part of a countywide 911 numbering system.*

**SECTION 507 Fire Protection Water Supplies**

**507.2 Type of water supply.**
A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.
*NYS Exception: In rural and suburban areas in which adequate and reliable water supply systems do not exist, the code official is authorized to approve use of NFPA 1142*

**SECTION 510 Emergency Responder Radio Coverage**

**510.1 Emergency responder radio coverage in new buildings.** When required by the code official, all new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. The requirement of the system shall be based on the type of construction, size of building, special conditions within the building that will be adverse to radio coverage, and signal strength at the location by the public safety communication system. This section shall not require improvement of the existing public safety communication systems.

**510.4.1 Radio signal strength.** The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in **95 percent of all areas on each floor of the building** meet the signal strength requirements in Sections 510.4.1.1 and 510.4.1.2.

***NYS SECTION 511 Supplement***

*EMERGENCY VEHICLE ACCESS FOR DETACHED ONE- AND TWO-FAMILY DWELLINGS*

***511.1*** *Emergency vehicle access for one or two Group R-3 buildings and detached one- and two-family dwellings constructed by the Residential Code of New York State hereafter constructed or moved into the jurisdiction shall be provided in accordance with this section*

*Exceptions:*

*1. Construction of dwellings on premises which have had local site plan approval prior to the adoption of this code.*

*2. Accessory storage buildings.*

*3. Dwellings without electrical service and permitted to not have electrical service by the Residential Code of New York State .*

***511.2 Driveways**. Driveways shall be provided when an exit door required by Residential Code of New York State Section R311.4 is located more than 300 feet (91 440 mm) from a fire apparatus access road or public street.*

*Exception: The measurement is permitted to be increased beyond 300 feet (91 440 mm) if driveways cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions and the building is protected by an automatic sprinkler system in accordance with 903.3.1.1, 903.3.1.2, or 903.3.1.3.*

***511.2.1 Dimensions.** Driveways shall provide a minimum unobstructed width of 12 feet (3658 mm) and a minimum unobstructed height of 13 feet, 6 inches (4115 mm).*

***511.2.2 Turnaround.** When driveways are in excess of 500 feet (152 400 mm) in length and does not exit to another fire apparatus access road or public street, a turnaround shall be provided suitable for use by fire apparatus.*

***511.2.3 Turnouts.** Driveways in excess of 500 feet (152 400 mm) in length and less than 20 feet (6096 mm) in width shall be provided with turnouts along the driveway that are a minimum 20 feet in width for a length of 50 feet (15 240 mm) in length. The turnouts shall be placed at intervals not to exceed 500 feet (152 400 mm) along the driveway*

***511.2.4 Stability.** Driveways, including bridges and other supporting structure of driveways, shall be constructed to support fire apparatus in all weather conditions.*

***511.2.5 Design.** The design of driveways, including turning radius and grade, shall facilitate passage of fire apparatus and be approved.*

***511.2.6** Driveways, and portions thereof, that serve more than four buildings shall meet the design requirements of fire apparatus access roads in Section 503.*

**SECTION 603 Fuel Fired Appliances**

**603.4.2 Portable outdoor gas-fired heating appliances.** Portable gas-fired heating appliances located outdoors shall be in accordance with Sections 603.4.2.1 through 603.4.2.3.4.

**603.4.2.1 Location.** Portable outdoor gas-fired heating appliances shall be located in accordance with Sections 603.4.2.1.1 through 603.4.2.1.4.

**603.4.2.1.1 Prohibited locations.** The storage or use of portable outdoor gas-fired heating appliances is prohibited in any of the following locations:

1. Inside of any occupancy when connected to the fuel gas container.
2. Inside of tents, canopies and membrane structures.
3. On exterior balconies.

**Exception:** As allowed in Section 6.19 of NFPA 58.

**603.4.2.1.2 Clearance to buildings.** Portable outdoor gas-fired heating appliances shall be located at least 5 feet (1524 mm) from buildings.

**603.4.2.1.3 Clearance to combustible materials.** Portable outdoor gas-fired heating appliances shall not be located beneath, or closer than 5 feet (1524 mm) to combustible decorations and combustible overhangs, awnings, sunshades or similar combustible attachments to buildings.

**603.4.2.1.4 Proximity to exits.** Portable outdoor gas-fired heating appliances shall not be located within 5 feet (1524 mm) of *exits* or *exit discharges*.

**603.4.2.2 Installation and operation.** Portable outdoor gas-fired heating appliances shall be installed and operated in accordance with Sections 603.4.2.2.1 through 603.4.2.2.4.

**603.4.2.2.1 Listing and approval.** Only *listed* and *approved* portable outdoor gas-fired heating appliances utilizing a fuel gas container that is integral to the appliance shall be used.

**603.4.2.2.2 Installation and maintenance.** Portable outdoor gas-fired heating appliances shall be installed and maintained in accordance with the manufacturer's instructions

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**603.4.2.2.3 Tip-over switch.** Portable outdoor gas-fired heating appliances shall be equipped with a tilt or tip-over switch that automatically shuts off the flow of gas if the appliance is tilted more than 15 degrees (0.26 rad) from the vertical.

**603.4.2.2.4 Guard against contact.** The heating element or combustion chamber of portable outdoor gas-fired heating appliances shall be permanently guarded so as to prevent accidental contact by persons or material.

**603.4.2.3 Gas containers.** Fuel gas containers for portable outdoor gas-fired heating appliances shall comply with Sections 603.4.2.3.1 through 603.4.2.3.4.

**603.4.2.3.1 Approved containers.** Only *approved* DOTn or ASME gas containers shall be used.

**603.4.2.3.2 Container replacement.** Replacement of fuel gas containers in portable outdoor gas-fired heating appliances shall not be conducted while the public is present.

**603.4.2.3.3 Container capacity.** The maximum individual capacity of gas containers used in connection with portable outdoor gas-fired heating appliances shall not exceed 20 pounds (9 kg).

**603.4.2.3.4 Indoor storage prohibited.**
Gas containers shall not be stored inside of buildings except in accordance with Section 6109.9.

**SECTION 605 Electrical Equipment. Wiring and Hazards**

**605.11 Solar photovoltaic power systems.** Solar photovoltaic power systems shall be installed in accordance with Sections 605.11.1 through 605.11.2, the *International Building Code* or *International Residential Code*, and NFPA 70.

**605.11.1 Access and pathways.** Roof access, pathways ,and spacing requirements shall be provided in accordance with Sections 605.11.1.1 through 605.11.1.3.3.
**Exceptions:**
1. Detached, non-habitable Group U structures including, but not limited to, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where the fire chief has determined that rooftop operations will not be employed.

**605.11.1.1 Roof access points.** Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.

**605.11.1.2 Solar photovoltaic systems for Group R-3 buildings.** Solar photovoltaic systems for Group R-3 buildings shall comply with Sections 605.11.1.2.1through 605.11.1.2.5.
**Exception:** These requirements shall not apply to structures designed and constructed in accordance with the *International Residential Code*.

**605.11.1.2.1 Size of solar photovoltaic array.** Each photovoltaic array shall be limited to 150 feet (45720 mm) by 150 feet (45 720 mm). Multiple arrays shall be separated by a 3-foot-wide (914 mm) clear access pathway.

**605.11.1.2.2 Hip roof layouts.** Panels and modules installed on Group R-3 buildings with hip roof layouts shall be located in a manner that provides a 3-foot-wide (914 mm) clear access pathway from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be at a location on the building capable of supporting the fire fighters accessing the roof.
**Exception:** These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

**605.11.1.2.3 Single-ridge roofs.** Panels and modules installed on Group R-3 buildings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels and modules are located.
**Exception:** This requirement shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

**605.11.1.2.4 Roofs with hips and valleys.** Panels and modules installed on Group R-3 buildings with roof hips and valleys shall not be located closer than 18 inches (457 mm) to a hip or a valley where panels/ modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.
**Exception:** These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

**605.11.1.2.5 Allowance for smoke ventilation operations.** Panels and modules installed on GroupR-3 buildings shall be located not less than 3 feet (914 mm) from the ridge in order to allow for fire department smoke ventilation operations.
**Exception:** Panels and modules shall be permitted to be located up to the roof ridge where an alternative ventilation method *approved* by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.

**605.11.1.3 Other than Group R-3 buildings.** Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 605.11.1.3.1 through 605.11.1.3.3.
**Exception:** Where it is determined by the fire code official that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 605.11.1.2.1 through 605.11.1.2.5 shall be permitted to be used.

**605.11.1.3.1 Access.** There shall be a minimum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.
**Exception:** Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum 4 foot wide (1290 mm).

**605.11.1.3.2 Pathways.** The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:
1. The pathway shall be over areas capable of supporting fire fighters accessing the roof.
2. The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting fire fighters accessing the roof.
3. Pathways shall be a straight line not less than 4 feet (1290 mm) clear to roof standpipes or ventilation hatches.
4. Pathways shall provide not less than 4 feet (1290 mm) clear around roof access hatch with not less than one singular pathway not less than 4 feet (1290 mm) clear to a parapet or roof edge.

**605.12 Abandoned wiring in plenums.** Accessible portions of abandoned cables in air handling plenums shall be removed. Cables that are unused and have not been tagged for future use shall be considered abandoned.

**SECTION 607 Elevator Operation, Maintenance and Fire Service Keys**

**607.8 Standardized fire service elevator keys.** Buildings with elevators equipped with Phase I emergency recall, Phase II emergency in-car operation, or a fire service access elevator shall be equipped to operate with a standardized fire service elevator key approved by the *fire code official*.

Exception: The owner shall be permitted to place the building's non standardized fire service elevator keys in a key box installed in accordance with Section 506.1.2.

**607.8.1 Requirements for standardized fire service elevator keys.** Standardized fire service elevator keys shall comply with all of the following:

1. All fire service elevator keys within the jurisdiction shall be uniform and specific for the jurisdiction. Keys shall be cut to a uniform key code.
2. Fire service elevator keys shall be of a patent-protected design to prevent unauthorized duplication.
3. Fire service elevator keys shall be factory restricted by the manufacturer to prevent the unauthorized distribution of key blanks. Uncut key blanks shall not be permitted to leave the factory.
4. Fire service elevator keys subject to these rules shall be engraved with the words "DO NOT DUPLICATE."

**607.8.2 Access to standardized fire service keys.** Access to standardized fire service elevator keys shall be restricted to the following:

1. Elevator owners or their authorized agents.
2. Elevator contractors.
3. Elevator inspectors of the jurisdiction.
4. *Fire code officials* of the jurisdiction.
5. The fire department and other emergency response agencies designated by the *fire code official*.

**607.8.3 Duplication or distribution of keys.** A person shall not duplicate a standardized fire service elevator key or issue, give, or sell a duplicated key unless in accordance with this code.

**607.8.4 Responsibility to provide keys.** The building owner shall provide up to three standardized fire service elevator keys where required by the *fire code official*, upon installation of a standardized fire service key switch or switches in the building.

**SECTION 609 Commercial Kitchen Hoods**

**609.3.3.2 Grease accumulation.** If during the inspection it is found that hoods, grease-removal devices, fans, ducts or other appurtenances have an accumulation of grease, such components shall be cleaned in accordance with ANSI/IKECA C 10
ANSI – American National Standards Institute
IKECA – International Kitchen Exhaust Cleaning Association

**SECTION 611 Hyperbaric facilities**

**611.1 General.**
Hyperbaric facilities shall be inspected, tested and maintained in accordance with NFPA 99.

**611.2 Records.**
Records shall be maintained of all testing and repair conducted on the hyperbaric chamber and associated devices and equipment. Records shall be available to the *fire code official*.

**SECTION 703 Fire Resistant Rated Construction**

**703.1.1 Fireblocking and draftstopping.**
Required *fire-blocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

**703.1.2 Smoke barriers and smoke partitions.**
Required *smoke barriers* and smoke partitions shall be maintained to prevent the passage of smoke. All openings protected with *approved* smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

**703.1.3 Fire walls, fire barriers and fire partitions.**
Required *fire walls*, *fire barriers* and *fire partitions* shall be maintained to prevent the passage of fire. All openings protected with *approved* doors or fire dampers shall be maintained in accordance with NFPA 80.

**703.4 Testing.**
Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure. A written record shall be maintained and be available to the *fire code official*.

**SECTION 805 Upholstered Furniture and Mattresses in New and Existing Buildings**

**805.4 Group R-2 college and university dormitories.**
The requirements of Sections 805.4.1 through 805.4.2.3 shall apply to college and university dormitories classified in Group R-2, including decks, porches and balconies.

**SECTION 806 Decorative Vegetation in New and Existing Buildings**

**IFC 806.1 Natural cut trees.**
Natural cut trees, where allowed by this section, shall have the trunk bottoms cut off at least 0.5 inch (12.7 mm) above the original cut and shall be placed in a support device complying with Section 806.1.2.
**806.1.1 Restricted occupancies.**
Natural cut trees shall be prohibited in Group A, E, I-1, I-2, I-3, I-4, M, R-1, R-2 and R-4 occupancies.
**Exceptions:**

1. Trees located in areas protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be prohibited in Groups A, E, M, R-1 and R-2

2. Trees shall be allowed within *dwelling units* in Group R-2 occupancies.

*NYS Exception 3.In places of public assembly as defined in Article 1 of the Labor Law, natural cut trees shall be permitted without the installation of an approved automatic sprinkler system, as provided in Title 12 NYCRR Part 36, Section 36-2.9(a4).*

**SECTION 901 General (Fire Protection Systems)**

**901.8.2 Removal of existing occupant-use hose lines.** The code official is authorized to permit the removal of existing occupant use hose lines (1 ½ inch lines) where all of the following conditions exist:

1. Installation is not required by this code or the IBC.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings

**SECTION 903 Automatic Sprinkler Systems**
**903.2.1.1 Group A-1. ( Palace Theater Albany)** An *automatic sprinkler system* shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 $m^2$).
2. The *fire area* has an *occupant load* of 300 or more.
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.
4. The *fire area* contains a multi-theater complex.

**903.2.1.3 Group A-3. (Court room)** An *automatic sprinkler system* shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 $m^2$).
2. The *fire area* has an *occupant load* of 300 or more.
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**903.2.1.4 Group A-4. (Indoor pool)** An *automatic sprinkler system* shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 $m^2$).
2. The *fire area* has an *occupant load* of 300 or more.
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**903.2.1.6 Assembly Occupancies on Roofs**. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for group A-2 and 300 for other Group A occupancies, all floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler in accordance with Section 903.3.1.1 or 903.3.1.2 (NFPA 13 or 13R systems)

Exception: Open Parking garages of Type 1 or Type 2 construction.

**903.2.1.7 Multiple Fire Areas**. An automatic sprinkler system shall be provided where multiple fire areas of Group A-1, A-2, A-3, or A-4 occupancies share exit or exit access components and the combined occupant load of these areas is 300 or more.

**NYS FC903.2.10.3 Buildings 30 feet or more in height.** An automatic sprinkler system shall be installed throughout buildings with a floor level having an occupant load of **30** or more that is located 30 feet (16 764 mm) or more above the lowest level of fire department vehicle access.

Exceptions:

~~1.Airport control towers.~~

2. Open parking structures.

3. Occupancies in Group F-2.

**903.2.11.3 Buildings 55 feet or more in height.**
An *automatic sprinkler system* shall be installed throughout buildings with a floor level having an *occupant load* of 30 or more that is located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access.

**Exceptions:**

1. Open parking structures.
2. Occupancies in Group F-2.

**903.3.1.2 NFPA 13R sprinkler systems.**
*Automatic sprinkler systems* in Group R occupancies up to and including four stories in height not exceeding 60 feet in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R.

~~NY **903.3.5.1.1 Limited area sprinkler systems.** Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:~~

~~1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.~~

~~**Exception:** An *approved* indicating control valve supervised in the open position in accordance with Section 903.4.~~

~~2.The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13D or NFPA 13R.~~

**903.3.8.1 Number of Sprinklers**
Limited area sprinkler systems shall not exceed six sprinklers in any single fire area. (2015)

**SECTION 907 Fire Alarm and Detection Systems**

**NY FC 907.2.1 Group A.** A manual fire alarm system ~~and automatic fire detection system~~ shall be installed in Group A occupancies. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

**907.2.1 Group A.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more. Group A occupancies not separated from one another in accordance with Section 707.3.9 of the *International Building Code* shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

**907.2.1.1 System initiation in Group A occupancies** with an occupant load of 1,000 or more.
Activation of the fire alarm in Group A occupancies with an *occupant load* of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.5.2.2.

**Exception:** Where *approved*, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an *approved*, constantly attended location.

**907.2.1.2 Emergency voice/alarm communication system captions.** Stadiums, arenas and grandstands required to caption audible public announcements shall be in accordance with Section 907.5.2.2.4.

***NYS 907.2.1.3 Automatic smoke detection system.*** *A smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies unless the fire area is protected with an automatic fire sprinkler system installed in accordance with 903.3.1.1.*

**IFC 907.2.2 Group B.**
A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B *occupant load* of all floors is 500 or more.

2. The Group B *occupant load* is more than 100 persons above or below the lowest *level of exit discharge*.

3. The *fire area* contains an ambulatory care facility.

~~***NYS 907.2.2.1 Fire detection****. Areas of Group B buildings that are not protected by an automatic sprinkler system and that have an occupant load of more than 100 persons shall be provided with automatic fire detection or automatic heat detection installed in accordance with NFPA 72.*~~

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

***IFC* 907.2.7 Group M.**
A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group M occupancies where one of the following conditions exists:

1. The combined Group M *occupant load* of all floors is 500 or more persons.
2. The Group M *occupant load* is more than 100 persons above or below the lowest *level of exit discharge*.

**Exceptions:**

1. A manual fire alarm system is not required in covered or open mall buildings complying with Section 402 of the *International Building Code*.

Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will automatically activate throughout the notification zones upon sprinkler water flow.

~~***NYS 907.2.7.2 Fire detection.** Areas of Group M buildings that are not protected by an automatic sprinkler system and that have an occupant load of more than 100 persons shall be provided with automatic smoke detection or automatic heat detection installed in accordance with NFPA 72.~~

**SECTION 909 Smoke Control Systems**

**909.5 Smoke barrier construction.**
*Smoke barriers* shall comply with the *International Building Code. Smoke barriers* shall be constructed and sealed to limit leakage areas exclusive of protected openings. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

~~**2015 IFC Section 915 (Carbon monoxide detection systems).**~~

Section 915 of the 2015 IFC shall be deemed to be amended to read as follows:

**915.1. General.** Carbon monoxide alarms and carbon monoxide detectors shall be installed in buildings as required in accordance with section 915.2 for residential buildings or section 915.3 for commercial buildings.

***NYS Supplement Amended*** Section 915 of the IFC to the existing NYS requirements INCLUDING Residential and Commercial Buildings Carbon Monoxide Detectors.

**SECTION 1005 Means of Egress Sizing**

**[BE]1005.3 Required capacity based on occupant load.**
The required capacity, in inches (mm), of the *means of egress* for any room, area, space or story shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2:

**[BE]1005.3.1 Stairways.**
The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of *egress* capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one story, only the *occupant load* of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story.

Exceptions:
1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a *means of egress* capacity factor of 0.2 inches (5.1 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped *aisles* for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped *aisles* for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

**[BE] 1005.3.2 Other egress components.**
The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a *means of egress* capacity factor of 0.2 inches (5.1 mm) per occupant.
Exceptions:
1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a *means of egress* capacity factor of 0.15 inches (3.8 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped aisles for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped aisles for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

**SECTION 1018 Aisles**

**[BE] 1018.3 In Group B and M occupancies,** the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall not be less than that required for corridors by Section 1020.2

~~Exception: Non-public aisle serving less than 50 people and are not required to be accessible by Chapter 11 of the IBC need not exceed 28 inches in width.~~ **(Chapter 11 amended to Supplement**

**1020.2 Width and Capacity**

The required capacity of corridors shall be determined as specified in Section 1005.1, but the minimum width shall not be less than that specified in Table 1020.2

Exception:

In Group I-2 occupancies, corridors are not required to have a clear width of 96 inches in areas where there will not be stretcher or bed movement for access to care or as part of a defend-in-place strategy.

**SECTION 1031 Maintenance of the Means of Egress**

**1031.2.1 Security devices and egress locks.**
Security devices affecting *means of egress* shall be subject to approval of the *fire code official*. Security devices and locking arrangements in the *means of egress* that restrict, control, or delay egress shall be installed and maintained as required by this chapter.

## *Chapter 11 of the IFC shall be amended to read as follows:*

## *NYS CHAPTER 11 MEANS OF EGRESS FOR EXISTING BUILDINGS*

***NYS 1101.1 General.*** *Means of egress in existing buildings shall comply with the minimum egress requirements of this section. Where the provisions of this chapter conflict with the building code that applied at the time of construction, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements where specified in Table 1103.1 as further enumerated in Sections 1101.2 through 1101.28.*

***Exceptions:***

*1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the Residential Code of New York State.*

*2. Buildings constructed in conformance with the Uniform Fire Prevention and Building Code, the State Building Construction Code or other building code in force before the effective date of this code shall have exits maintained in compliance with the code in effect at the date of substantial completion.*

*3. Buildings rehabilitated in conformance with the Existing Building Code of New York State shall have the means of egress maintained in compliance with such code.*

**SECTION 2004 General Requirements Aviation Facilities**

**2004.7 Other aircraft maintenance.**
Maintenance, repairs, modifications, or construction performed upon aircraft not addressed elsewhere in this code shall be conducted in accordance **with NFPA 410. (2010 edition)**

**SECTION 2106 Spotting and Pretreating**

**2106.2 Class I solvents.**
The maximum quantity of Class I solvents permitted at any work station shall be 1 gallon (4 L). Spotting or prespotting shall be permitted to be conducted with Class I solvents where they are stored in and dispensed from *approved* safety cans or in sealed DOT-approved metal shipping containers of not more than 1-gallon (4 L) capacity.

**2106.2.1 Spotting and prespotting.**
Spotting and pre-spotting shall be permitted to be conducted with Class I solvents where dispensed from plastic containers of not more than 1 pint (0.5 L) capacity.

**SECTION 2206**

~~***NYS 2206.7.6 Fuel delivery nozzles.*** *A listed automatic-closing-type hose nozzle valve without a latch-open device shall be provided on island-type dispensers used for dispensing Class I, II or IIIA liquids. Overhead-type dispensing units shall be provided with a listed automatic-closing-type hose nozzle valve without a latch-open device.*~~

~~***Exception:*** *A listed automatic-closing-type hose nozzle valve with latch-open device is allowed to be used on overhead-type dispensing units where the design of the system is such that the hose nozzle valve will close automatically in the event the valve is released from a fill opening or upon impact with a driveway.*~~

**NYS SECTION 2206 Flammable and Combustible Liquid Motor Fuel Dispensing Facilities**

~~**NYS FC 2206.8 Fire protection system.** An automatic fire-extinguishing system using an extinguishing agent suitable for petroleum fires and installed in accordance with Section 904.6 shall be provided for all new flammable motor fuel-dispensing systems subject to Section 2206. Fire protection systems at unattended self-service stations shall be monitored by an approved supervising station in accordance with Section 907.~~

**SECTION 2306 Flammable and Combustible Liquid Motor Fuel Dispensing Facilities**

**IFC 2306.7.6 Fuel delivery nozzles.**
A listed automatic-closing-type hose nozzle valve with or without a latch-open device shall be provided on island-type dispensers used for dispensing Class I, II or III liquids.
Overhead-type dispensing units shall be provided with a *listed* automatic-closing-type hose nozzle valve without a latch-open device.
**Exception:** A *listed* automatic-closing-type hose nozzle valve with latch-open device is allowed to be used on overhead-type dispensing units where the design of the system is such that the hose nozzle valve will close automatically in the event the valve is released from a fill opening or upon impact with a driveway.

**SECTION 2306 Flammable and Combustible Liquid Motor Fuel Dispensing Facilities**

**2306.8 Alcohol-blended fuel-dispensing operations.**
The design, fabrication and installation of alcohol-blended fuel-dispensing systems shall be in accordance with Section 2306.7 and Sections 2306.8.1 through 2306.8.5.

**2306.8.1 Listed equipment.**
Dispensers shall be *listed* in accordance with UL 87A. Hoses, nozzles, breakaway fittings, swivels, flexible connectors or dispenser emergency shutoff valves, vapor recovery systems, leak detection devices and pumps used in alcohol-blended fuel-dispensing systems shall be *listed* for the specific purpose.

**2306.8.2 Compatibility.**
Dispensers shall be used only with the fuels for which they have been *listed* and which are marked on the product. Field-installed components including hose assemblies, breakaway fittings, swivel connectors and hose nozzle valves shall be provided in accordance with the listing and the marking on the unit.
E-85 fuel pump requirements

**2306.8.3 Facility identification.**
Facilities dispensing alcohol-blended fuels shall be identified by an *approved* means.

**2306.8.4 Marking.**
Dispensers shall be marked in an *approved* manner to identify the types of alcohol-blended fuels to be dispensed.

**2306.8.5 Maintenance and inspection.**
Equipment shall be maintained and inspected in accordance with Section 2305.2.

**2307.4 Location of dispensing operations and equipment.** The point of transfer for LP-gas dispensing operations shall be separated from buildings and other exposures in accordance with the following:

1. Not less than 25 feet (7620 mm) from buildings where the *exterior wall* is not part of a fire-resistance-rated assembly having a rating of 1 hour or greater.

2. Not less than 25 feet (7620 mm) from combustible overhangs on buildings, measured from a vertical line dropped from the face of the overhang at a point nearest the point of transfer.

3. Not less than 25 feet (7620 mm) from the lot line of property that can be built upon.

4. Not less than 25 feet (7620 mm) from the centerline of the nearest mainline railroad track.

5. Not less than 10 feet (3048 mm) from public streets, highways, thoroughfares, sidewalks and driveways.

6. Not less than 10 feet (3048 mm) from buildings where the *exterior wall* is part of a fire-resistance-rated assembly having a rating of 1 hour or greater.

**Exception:** The point of transfer for LP-gas dispensing operations need not be separated from canopies that areconstructed in accordance with the *International Building Code* and that provide weather protection for the dispensing equipment. LP-gas containers shall be located in accordance with Chapter 61. LP-gas storage and dispensing equipment shall be located outdoors.

**IFC 2307.7 Public Fueling of Motor Vehicles** Self-service LP-gas dispensing systems , including key , code, and card lock dispensing systems, shall be limited to filling of permanently mounted containers providing fuel to the LP-Gas powered vehicle. The requirements for self service LP-gas dispensing systems shall be in accordance with the following:

1. The arrangement and operation of the transfer of product into a vehicle shall be in accordance with this section and Chapter 61

2. The system shall be provided with an emergency shut off switch located within 100 feet of, but not less than twenty feet from, the dispensers

3. The owner of the LP-gas fuel dispensing facility or the owners designee shall provide for the safe operation of the system and training of users.

4. The dispenser and hose end valve shall release not more than 1/8 fluid ounce of liquid to the atmosphere upon breaking the connection with the fill valve on the vehicle.

5. Portable fire extinguishers shall be provided in accordance with Section 2305.5 ( Minimum rating of 2-A:20BC not more than 75 feet away)

6. Warning signs shall be provided in accordance with Section 2305.6.

7. The area around the dispenser shall be maintained in accordance with Section 2305.7.

**SECTION 2407 Electrostatic Apparatus**

**2407.2 Location and clear space.**
A space of not less than twice the sparking distance shall be maintained between goods being painted or deteared and electrodes, electrostatic atomizing heads or conductors. A sign stating the sparking distance shall be conspicuously posted near the assembly.

**Exception:** Portable electrostatic paint-spraying apparatus *listed* for use in Class I, Division 1, locations.

**SECTION 3103 Temporary Tents and Membrane Structures**

**3103.9.1 Tents and membrane Structures exceeding one story**

Tents and membrane structures exceeding one story shall be designed and constructed in accordance with Chapter 16 of the IBC

**SECTION 3105 Temporary Stage Canopies**

**3105.2 Approval** Temporary stage canopies in excess of 400 square feet shall not be erected, operated or maintained for any purpose without first obtaining approval and a permit from the fire code official and the building official.

**3105.4 Use Period** Temporary stage canopies shall not be erected for a period more than 45 days

**3105.5 Required documents.** The following documents shall be submitted to the *fire code official* and the building official for review before a permit is *approved*:
1. Construction documents: *Construction documents* shall be prepared in accordance with the *International Building*
*Code* by a registered design professional. *Construction* documents shall include:
1.1. A summary sheet showing the building code used, design criteria, loads and support reactions.
1.2. Detailed construction and installation drawings.
1.3. Design calculations.
1.4. Operating limits of the structure explicitly outlined by the registered design professional including environmental conditions and physical forces.
1.5. Effects of additive elements such as video walls, supported scenery, audio equipment, vertical and horizontal coverings.
1.6. Means for adequate stability including specific requirements for guying and cross-bracing, ground anchors or ballast for different ground conditions.

2. Designation of responsible party: The *owner* of the temporary stage canopy shall designate in writing a person to have responsibility for the temporary stage canopy on the site. The designated person shall have sufficient knowledge of the construction documents, manufacturer's recommendations and operations plan to make judgments regarding the structure's safety and to coordinate with the *fire code official.*
3. Operations plan: The operations plan shall reflect manufacturer's operational guidelines, procedures for environmental monitoring and actions to be taken under specified conditions consistent with the *construction documents.*

**3105.6 Inspections.** Inspections shall comply with Section106 and Sections 3105.6.1 and 3105.6.2.

**3105.6.1 Independent inspector.** The *owner* of a temporary stage canopy shall employ a qualified, independent approved agency or individual to inspect the installation of a temporary stage canopy.

**3105.6.2 Inspection report.** The inspecting agency or individual shall furnish an inspection report to the *fire code official*. The inspection report shall indicate that the temporary stage canopy was inspected and was or was not installed in accordance with the approved *construction documents*. Discrepancies shall be brought to the immediate
attention of the installer for correction. Where any discrepancy is not corrected, it shall be brought to the attention of the *fire code official* and the designated responsible party.

**3105.7 Means of egress.** The *means of egress* for temporary stage canopies shall comply with Chapter 10.

**3105.8 Location.** Temporary stage canopies shall be located a distance from property lines and buildings to accommodate distances indicated in the construction drawings for guy wires, cross-bracing, ground anchors or ballast. Location shall not interfere with egress from a building or encroach on fire apparatus access roads.

**SECTION 3206 General Fire Protection and Life Safety Features**

**3206.4.1 Pallets.** Automatic sprinkler system requirements based upon the presence of pallets shall be in accordance
with NFPA 13.

**3206.4.1.1 Plastic pallets.** Plastic pallets listed and labeled in accordance with UL 2335 or FM 4996 shall be treated as wood pallets for determining required sprinkler protection

**SECTION 3510 Hot Work on Flammable and Combustible Liquid Storage Tanks**

**3510.1 General.** Hot work performed on the interior or exterior of tanks that hold or have held flammable or *combustible liquids* shall be in accordance with Section 3510.2 and Chapters 4, 5, 6, 7 and 10 of NFPA 326.

**3510.2 Prevention.** The following steps shall be taken to minimize hazards where hot work must be performed on a
flammable or *combustible liquid* storage container:
1. Use alternative methods to avoid hot work where possible.
2. Analyze the hazards prior to performing hot work, identify the potential hazards and the methods of hazard control.
3. Hot work shall conform to the requirements of the code or standard to which the container was originally fabricated.
4. Test the immediate and surrounding work area with a combustible gas detector and provide for a means of continuing monitoring while conducting the hot work.
5. Qualified employees and contractors performing hot work shall use an industry-approved hot work permit system to control the work.
6. Personnel shall be properly trained on hot work policies and procedures regarding equipment, safety, hazard controls and job-specific requirements.
7. On-site safety supervision shall be present where hot work is in progress to protect the personnel conducting the hot work and provide additional overview of site specific hazards.

~~***NYS 3803.2.1.3 Group F occupancies.*** *Portable LP-gas containers shall not be permitted within buildings of Group F occupancy, except as permitted in Sections 3803.2.1.2, 3803.2.1.5, 3803.2.1.6, 3803.2.1.7 and 3803.2.2.*~~

**SECTION 5003 General Requirements (Hazardous Materials)**

**5003.11.3.11 Storage plan.** A storage plan illustrating the intended storage arrangement, including the location and dimensions of aisles, and storage racks shall be provided.

**SECTION 5307 Carbon Dioxide Systems used in Beverage Dispensing Applications**

**5307.1 General.** Carbon dioxide systems with more than 100 pounds (45.4 kg) of carbon dioxide used in beverage dispensing applications shall comply with Sections 5307.2 through 5307.5.2.

**5307.2 Permits.** Permits shall be required as set forth in Section 105.6.

**5307.3 Equipment.** The storage, use, and handling of liquid carbon dioxide shall be in accordance with Chapter 53 and the applicable requirements of NFPA 55, Chapter 13. Insulated liquid carbon dioxide systems shall have pressure relief devices vented in accordance with NFPA 55

**5307.4 Protection from damage.** Carbon dioxide systems shall be installed so the storage tanks, cylinders, piping and fittings are protected from damage by occupants or equipment during normal facility operations.

**5307.5 Required protection.** Where carbon dioxide storage tanks, cylinders, piping and equipment are located indoors, rooms or areas containing carbon dioxide storage tanks, cylinders, piping and fittings and other areas where a leak of carbon dioxide can collect shall be provided with either ventilation in accordance with Section 5307.5.1 or an emergency alarm system in accordance with Section 5307.5.2.

**5307.5.1 Ventilation.** Mechanical ventilation shall be in accordance with the *International Mechanical Code* and shall comply with all of the following:
1. Mechanical ventilation in the room or area shall be at a rate of not less than 1 cubic foot per minute per square foot [0.00508 m3/(s • m2)].
2. Exhaust shall be taken from a point within 12 inches (305 mm) of the floor.
3. The ventilation system shall be designed to operate at a negative pressure in relation to the surrounding Area

**5307.5.2 Emergency alarm system.** An emergency alarm system shall comply with all of the following:
1. Continuous gas detection shall be provided to monitor areas where carbon dioxide can accumulate.
2. The threshold for activation of an alarm shall not exceed 5,000 parts per million (9,000 mg/m3).
3. Activation of the emergency alarm system shall initiate a local alarm within the room or area in which the system is installed.

## IFC Chapter 56 shall be amended with the addition of Section 5610 Sparkling Devices

**SECTION 5704 Storage (Flammable and Combustible Liquids)**

**5704.2.7.6 Repair, alteration or reconstruction of tanks and piping.**
The repair, *alteration* or reconstruction, including welding, cutting and hot tapping of storage tanks and piping that have been placed in service, shall be in accordance with NFPA 30. Hot work, as defined in Section 202, on such tanks shall be conducted in accordance with Section 3510.

***NYS 5704.2.16 Abandonment of heating oil storage tanks.*** *The abandonment or removal of tanks used for storing heating oil for consumptive use on the premises where stored, referred to in this section as heating oil storage tanks, and related piping in connection with the conversion of liquid fuel burning appliance to alternative fuel shall be in accordance with all of the following:*

1. *The entire contents of the heating oil storage tank and related piping shall be emptied, cleaned and purged of all vapor. The contents of the storage tank and related piping shall be removed from the premises or property and disposed of in accordance with applicable local, state or federal rules and regulations;*

2. *If the heating oil storage tank is to be abandoned in place, the event line shall remain open and intact, unless the tank is filled with an inert material. The oil fill pipe and other related piping shall either be removed, or the oil fill pipe shall be filled with concrete;*
3. *If the heating oil storage tank is to be removed, the vent line, oil fill pipe and related piping shall*

*also be removed, or the oil fill pipe shall be filled with concrete;*

4. *An appropriate and qualified inspector, as determined by the local government, shall cause an inspection to be made of the abandonment or removal in connection with the conversion to determine conformity with the uniform code; provide, however, that the local government official may waive such inspection for good cause shown; and*
5. *No approval of such abandonment or removal shall be granted unless written proof of the heating oil storage tank's oil fill pipe having been removed or filled with concrete in accordance appropriate provisions of the uniform code has been provided by the property owner to the local inspector or, in the event that an inspection has been waived for good cause shown, to the local government.*

**SECTION 6103 Installation of Equipment (LPG)**

**IFC 6103.2.1.3 Group F occupancies.**

In Group F occupancies, portable LP-gas containers **are allowed** to be used to supply quantities necessary for processing, research or experimentation. Where manifolded, the aggregate water capacity of such containers shall not exceed 735 pounds (334 kg) per manifold. Where multiple manifolds of such containers are present in the same room, each manifold shall be separated from other manifolds by a distance of not less than 20 feet (6096 mm).

### SECTION 304 Exterior Structure

**304.1.1 Unsafe conditions.** The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the *International Building Code* or the *International Existing Building Code* as required for existing buildings:
1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;
3. Structures or components thereof that have reached their limit state;
4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight;
5. Structural members that have evidence of *deterioration* or that are not capable of safely supporting all nominal loads and load effects;
6. Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;
7. Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;
8. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;
9. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects;
10. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects;
11. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;
12. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guard*s and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects; or
13. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored,* or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.

**Exceptions:**
1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

**[F] 304.3 Address identification.** Buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position to be visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numerals or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of 4 inches (102 mm) in height with a minimum stroke width of 0.5 inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.

*NYS Exception:*

*Buildings identified under an addressing scheme as part of a countywide 911 numbering scheme*

**304.14 Insect screens.** During the period from **[DATE]** to **[DATE]**, every door, window and other outside opening required for *ventilation* of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored shall be supplied with *approved* tightly fitting screens of minimum 16 mesh per inch (16 mesh per 25 mm), and every screen door used for insect control shall have a self-closing device in good working condition.
**Exception:** Screens shall not be required where other *approved* means, such as air curtains or insect repellent fans, are employed.

**304.18 Building security.** Doors, windows or hatchways for *dwelling units*, room units or *housekeeping units* shall be provided with devices designed to provide security for the *occupant*s and property within.
**304.18.1 Doors.** Doors providing access to a *dwelling unit*, *rooming unit* or *housekeeping unit* that is rented, leased or let shall be equipped with a deadbolt lock designed to be readily openable from the side from which egress is to be made without the need for keys, special knowledge or effort and shall have a minimum lock throw of 1 inch (25 mm). Such deadbolt locks shall be installed according to the manufacturer's specifications and maintained in good working order. For the purpose of this section, a sliding bolt shall not be considered an acceptable deadbolt lock.

**304.18.2 Windows.** Operable windows located in whole or in part within 6 feet (1828 mm) above ground level or a walking surface below that provide access to a *dwelling unit*, *rooming unit* or *housekeeping unit* that is rented, leased or let shall be equipped with a window sash locking device.

**304.18.3 Basement hatchways.** *Basement* hatchways that provide access to a *dwelling unit*, *rooming unit* or *housekeeping unit* that is rented, leased or let shall be equipped with devices that secure the units from unauthorized entry.

**SECTION 305 Interior Structure**

**305.1.1 Unsafe conditions.** The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the *International Building Code* or the *International Existing Building Code* as required for existing buildings:
1. The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;
2. The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;
3. Structures or components thereof that have reached their limit state;
4. Structural members are incapable of supporting nominal loads and load effects;
5. Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;
6. Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.
**Exceptions:**
1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted when *approved* by the *code official.*

**SECTION 306 Component Serviceability**

**306.1.1 Unsafe conditions.** Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be determined as unsafe and shall be repaired or replaced to comply with the *International Building Code* or the *International Existing Building Code* as required for existing buildings:
1. Soils that have been subjected to any of the following conditions:
 1.1. Collapse of footing or foundation system;
 1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion;
 1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil;
 1.4. Inadequate soil as determined by a geotechnical investigation;
 1.5. Where the allowable bearing capacity of the soil is in doubt; or

1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.
2. Concrete that has been subjected to any of the following conditions:
2.1. *Deterioration*;
2.2. *Ultimate deformation*;
2.3. Fractures;
2.4. Fissures;
2.5. Spalling;
2.6. Exposed reinforcement; or
2.7. *Detached*, dislodged or failing connections.
3. Aluminum that has been subjected to any of the following conditions:
3.1. *Deterioration*;
3.2. Corrosion;
3.3. Elastic deformation;
3.4. *Ultimate deformation*;
3.5. Stress or strain cracks;
3.6. Joint fatigue; or
3.7. *Detached*, dislodged or failing connections.
4. Masonry that has been subjected to any of the following conditions:
4.1. *Deterioration;*
4.2. *Ultimate deformation;*
4.3. Fractures in masonry or mortar joints;
4.4. Fissures in masonry or mortar joints;
4.5. Spalling;
4.6. Exposed reinforcement; or
4.7. *Detached,* dislodged or failing connections.
5. Steel that has been subjected to any of the following conditions:
5.1. *Deterioration;*
5.2. Elastic deformation;
5.3. *Ultimate deformation;*
5.4. Metal fatigue; or
5.5. *Detached,* dislodged or failing connections.
6. Wood that has been subjected to any of the following conditions:
6.1. *Ultimate deformation;*
6.2. *Deterioration;*
6.3. Damage from insects, rodents and other vermin;
6.4. Fire damage beyond charring;
6.5. Significant splits and checks;
6.6. Horizontal shear cracks;
6.7. Vertical shear cracks;
6.8. Inadequate support;
6.9. *Detached,* dislodged or failing connections; or
6.10.Excessive cutting and notching.

**Exceptions:**

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official.*

**SECTION 404 Occupancy Limitations**

**404.2 Minimum room widths.**

A habitable room, other than a kitchen, shall not be less than 7 feet (2134 mm) in any plan dimension. Kitchens shall have a clear passageway of not less than 3 feet (914 mm) between counter fronts and appliances or counter fronts and walls.

~~*NY Exceptions:*~~

~~*1. Manufactured housing regulated in the Residential Code of New York State shall be permitted to retain room dimensions provided for at time of manufacture.*~~

~~*2. Spaces legally in existence before January 1, 2003, and spaces for which a variance has been legally granted shall be allowed to be occupied.*~~

**404.3 Minimum ceiling heights.** *Habitable spaces*, hallways, corridors, laundry areas, *bathrooms*, *toilet rooms* and habitable *basement* areas shall have a minimum clear ceiling height of 7 feet (2134 mm).
**Exceptions:**
1. In one- and two-family dwellings, beams or girders spaced not less than 4 feet (1219 mm) on center and projecting a maximum of 6 inches (152 mm) below the required ceiling height.
2. *Basement* rooms in one- and two-family dwellings occupied exclusively for laundry, study or recreation purposes, having a minimum ceiling height of 6 feet 8 inches (2033 mm) with a minimum clear height of 6 feet 4 inches (1932 mm) under beams, girders, ducts and similar obstructions.
3. Rooms occupied exclusively for sleeping, study or similar purposes and having a sloped ceiling over all or part of the room, with a minimum clear ceiling height of 7 feet (2134 mm) over not less than one third of the required minimum floor area. In calculating the floor area of such rooms, only those portions of the floor area with a minimum clear ceiling height of 5 feet (1524 mm) shall be included.

***NYS Supplement***
*4. Manufactured housing regulated in the Residential Code of New York State shall be permitted to retain ceiling heights provided at time of manufacture.*
*5. Spaces legally in existence before January 1, 2003, and spaces for which a variance has been legally granted shall be allowed to be occupied.*
*6. Ceiling heights reduced by necessary repairs shall be no lower than 6 feet, 8 inches.*

**SECTION 502 Required Facilities**

**[P] 502.5 Public toilet facilities.** Public toilet facilities shall be maintained in a safe, sanitary and working condition in accordance with the *International Plumbing Code*. Except for periodic maintenance or cleaning, public access and use shall be provided to the toilet facilities at all times during *occupancy* of the *premises*.

**502.1 Dwelling units.** Every dwelling unit shall contain its own bathtub or shower, lavatory, water closet and kitchen sink which shall be maintained in a sanitary, safe working condition. The lavatory shall be placed in the same room as the water closet or located in close proximity to the door leading directly into the room in which such water closet is located. A kitchen sink shall not be used as a substitute for the required lavatory.
***NYS Supplement***
***Exception:***
*Owner-occupied one-family dwellings subject to the approval of the code enforcement official.*

**SECTION 506 Sanitary Drainage System**

**[P] 506.3 Grease interceptors.** Grease interceptors and automatic grease removal devices shall be maintained in accordance with this code and the manufacturer's installation instructions. Grease interceptors and automatic grease removal devices shall be regularly serviced and cleaned to prevent the discharge of oil, grease, and other substances harmful or hazardous to the building drainage system, the public sewer, the private sewage disposal system or the sewage treatment plant or processes. Records of maintenance, cleaning and repairs shall be available for inspection by the code official.

**SECTION 602 Heating Facilities**

**602.2 Residential occupancies.** Dwellings shall be provided with heating facilities capable of maintaining a room temperature of 68°F (20°C) in all habitable rooms, bathrooms and toilet rooms based on the winter design dry-bulb temperature for the locality indicated in the *Energy Conservation Construction Code of New York State*. Cooking appliances shall not be used to provide space heating to meet the requirements of this section.
***NYS Supplement***
***Exception:***
*Owner-occupied one-family dwellings subject to the approval of the code enforcement official.*

**SECTION 604 Electrical Facilities**

**604.1 Facilities required.** Every occupied building shall be provided with an electrical system in compliance with the requirements of this section and Section 605.
***NYS Supplement***
***Exception:***
*Owner-occupied one-family dwellings not supplied with electrical power, subject to the approval of the code enforcement official.*

**604.3.1 Abatement of electrical hazards associated with water exposure.**
The provisions of this section shall govern the repair and replacement of electrical systems and equipment that have been exposed to water.

**604.3.2 Abatement of electrical hazards associated with fire exposure.**
The provisions of this section shall govern the repair and replacement of electrical systems and equipment that have been exposed to fire.

**SECTION 606 Elevators, dumbwaiters and escalators**

***~~NYS 606.1.1 Maintenance and inspection.~~***
*~~Elevators, dumbwaiters, escalators and platform lifts shall be maintained and meet schedule of inspections in accord with Building Code of New York State, Section 3001, and Appendix N, Table-1 of ASME A17.1 and ASME A18.1.~~*

**606.1 General.**
Elevators, dumbwaiters and escalators shall be maintained in compliance with ASME A17.1. The most current certificate of inspection shall be on display at all times within the elevator or attached to the escalator or dumbwaiter, or the certificate shall be available for public inspection in the office of the building operator. The inspection and tests shall be performed at not less than the periodical intervals listed in ASME A17.1, Appendix N, except where otherwise specified by the authority having jurisdiction.

**SECTION 608 Assistive Listening Devices**

***~~NYS 608.1 General.~~***
*~~The owner or operator of each assembly space shall have the assistive listening system and all components thereof inspected annually and shall thereupon certify to the local authority having jurisdiction that each such system continues to comply with the Building Code of New York State, Appendix L , including the minimum number of required receivers/transducers.~~*

**Section 705 Carbon Monoxide**

***NYS Supplement 705.1 General.***
*Carbon monoxide alarms and detectors shall comply with the Fire Code of New York State.*

# Chapter 9 Existing Building Code

***CHAPTER 9 Amendments to the 2015 IEBC***

*For the purposes of applying the 2015 IEBC in this State, the 2015 IEBC shall be deemed to be amended in the manner specified in this Chapter.*

**Chapter 2 Definitions**

**[BS] SUBSTANTIAL STRUCTURAL DAMAGE.** A condition where one or both of the following apply:
1. In any story, the vertical elements of the lateral force resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than 33 percent from its pre-damage condition.
2. The capacity of any vertical gravity load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

**UNSAFE.** Buildings, structures or equipment that are unsanitary,or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "*Dangerous*," or that are otherwise *dangerous* to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

**SECTION 301 General Provisions (Provisions for All Compliance Methods)**

**[BS] 301.1.4 Seismic evaluation and design procedures.**
The seismic evaluation and design shall be based on the procedures specified in the *International Building Code* or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 301.1.4.2.

**[BS] 301.1.4.1 Compliance with International Building Code-level seismic forces.** Where compliance with the seismic design provisions of the *International Building Code* is required, the criteria shall be in accordance with one of the following:
1. One-hundred percent of the values in the *International Building Code*. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of *R*, $\Omega_0$ and *Cd* used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. ASCE 41, using a Tier 3 procedure and the two level performance objective in Table 301.1.4.1 for the applicable risk category.

**[BS] 301.1.4.2 Compliance with reduced International Building Code-level seismic forces.** Where seismic evaluation and design is permitted to meet reduced *International Building Code* seismic force levels, the criteria used shall be in accordance with one of the following:
1. The *International Building Code* using 75 percent of the prescribed forces. Values of *R*, $\Omega_0$ and *Cd* used for analysis shall be as specified in Section 301.1.4.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 and subject to the limitations of the respective Appendix A chapters shall be deemed to comply with this section.
2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Risk Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Risk Category I or II are permitted to be based on the procedures specified in Chapter A2.
2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A3.
2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A4.

2.5. Seismic evaluation and design of concrete buildings assigned to Risk Category I, II or III are permitted to be based on the procedures specified in Chapter A5.
3. ASCE 41, using the performance objective in Table 301.1.4.2 for the applicable risk category.

**SECTION 401 General (Prescriptive Compliance Method)**

**401.1 Scope.** The provisions of this chapter shall control the *alteration, repair, addition* and *change of occupancy* or relocation of *existing buildings* and structures, including *historic buildings* and structures as referenced in Section 301.1.1.
**Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

**SECTION 408 Historic Buildings**

**408.1 Historic buildings.** The provisions of this code that require improvements relative to a building's existing condition or, in the case of repairs, that require improvements relative to a building's pre-damage condition, shall not be mandatory for historic buildings unless specifically required by this section.

**408.2 Life safety hazards.** The provisions of this code shall apply to historic buildings judged by the building official to constitute a distinct life safety hazard.

**[BS] 408.3 Flood hazard areas.** Within flood *hazard areas* established in accordance with Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, where the work proposed constitutes *substantial improvement,* the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable:
**Exception:** *Historic buildings* need not be brought into compliance that are:
1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

**SECTION 410 Accessibility for Existing Buildings**

**410.1 ACCESSIBILITY FOR EXISTING BUILDINGS Scope.** The provisions of Sections 410.1 through 410.9 apply to maintenance, *change of occupancy*, *additions* and *alterations* to *existing buildings*, including those identified as *historic buildings*.

**410.4 Change of occupancy.** *Existing buildings* that undergo a change of group or occupancy shall comply with this section.
**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

**410.4.1 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections 410.6, 410.7 and 410.8.

**410.4.2 Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section 410.4.1 and shall have all of the following accessible features:
1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.
Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.
**Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

**410.6 Alterations.** A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.
**Exceptions:**
1. The altered element or space is not required to be on an accessible route, unless required by Section 410.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

**410.7 Alterations affecting an area containing a primary function.** Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be *accessible*. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.
**Exceptions:**
1. The costs of providing the *accessible* route are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

**410.8 Scoping for alterations.** The provisions of Sections 410.8.1 through 410.8.14 shall apply to *alterations* to *existing buildings* and *facilities*.

**410.8.1 Entrances.** *Accessible* entrances shall be provided in accordance with Section 1105.
**Exception:** Where an *alteration* includes alterations to an entrance, and the *facility* has an *accessible* entrance, the altered entrance is not required to be *accessible*, unless required by Section 410.7. Signs complying with Section 1111 of the *International Building Code* shall be provided.

**410.9 Historic buildings.** These provisions shall apply to *facilities* designated as historic structures that undergo *alterations* or a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the *facility*, as determined by the applicable governing authority, the alternative requirements of Sections 410.9.1 through 410.9.4 for that element shall be permitted.
**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

**410.9.1 Site arrival points.** At least one accessible route from a site arrival point to an accessible entrance shall be provided.

**410.9.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

**410.9.3 Entrances.** At least one main entrance shall be accessible.
**Exceptions:**
1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided. Signs complying with Section 1111 of the *International Building Code* shall be provided at the primary entrance and the accessible entrance.

**410.9.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.

**SECTION 502 Repairs**

**502.1 Scope.** *Repairs,* as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, *equipment or fixtures* for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

**502.2 Application.** *Repairs* shall comply with the provisions of Chapter 6.

**SECTION 606 Structural (repairs)**

**[BS] 606.2 Repairs to damaged buildings.** Repairs to damaged buildings shall comply with this section.

**[BS] 606.2.1 Repairs for less than substantial structural damage.** For damage less than *substantial structural damage*, the damaged elements shall be permitted to be restored to their pre-damage condition.

**[BS] 606.2.2 Substantial structural damage to vertical elements of the lateral force-resisting system.** A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 606.2.2.1, and either repaired in accordance with Section 606.2.2.2 or repaired and rehabilitated in accordance with Section 606.2.2.3, depending on the results of the evaluation.

**Exceptions:**

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

**[BS] 606.2.2.1 Evaluation.** The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced *International Building Code*-level seismic forces.

**[BS] 606.2.2.2 Extent of repair for compliant buildings.** If the evaluation establishes that the building in its Pre-damage condition complies with the provisions of Section 606.2.2.1, then the damaged elements shall be permitted to be restored to their pre-damage condition.

**[BS] 606.2.2.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish that the building in its pre-damage condition complies with the provisions of Section 606.2.2.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind loads for the *repair* and *rehabilitation* shall be those required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the *International Building Code*. The seismic loads for this *rehabilitation* design shall be those required by the building code in effect at the time of original construction, but not less than the reduced *International Building Code*-level seismic forces.

**[BS] 606.2.3 Substantial structural damage to gravity load-carrying components.** Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions for dead and live loads in the *International Building Code*. Snow loads shall be considered if the *substantial structural damage* was caused by or related to snow load effects. Undamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the *rehabilitation* design.

**[BS] 606.2.3.1 Lateral force-resisting elements.** Regardless of the level of damage to gravity elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 606.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 606.2.2.3.

**Exceptions:**

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

~~603.2 Existing foam plastic interior finishes in nightclubs.~~
~~Foam plastic materials that are not permitted to be used in new construction by the Building Code of New York State shall be removed in existing nightclubs.~~

**SECTION 703 FIRE PROTECTION (Alterations Level 1)**

**703.1 General.** *Alterations* shall be done in a manner that maintains the level of fire protection provided.

**705.1.9 Toilet rooms.** Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

**NYS 701.3 Compliance.**
All new construction elements, components, systems, and spaces shall comply with the requirements of the Building Code of New York State.
Exceptions:
1. Windows may be added without requiring compliance with the light and ventilation requirements of the Building Code of New York State.
2. Newly installed electrical equipment shall comply with the requirements of Section 708.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 705.6.
~~4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 6 feet 8 inches (2032 mm). Basement spaces of R, M, B and S occupancies can have a ceiling height of not less than 6 feet 4 inches (1930 mm) of clear height under beams, girders, ducts and similar obstructions, provided no more than 30 percent of the floor area is below 6 feet 8 inches (2032 mm) and the basement is limited to one story below grade.~~

**SECTION 801 General (Alterations Level 2)**

**801.3 Compliance.** All new construction elements, components,systems, and spaces shall comply with the requirements of the *International Building Code*.

**Exceptions:**

1. Windows may be added without requiring compliance with the light and ventilation requirements of the *International Building Code*.
2. Newly installed electrical equipment shall comply with the requirements of Section 808.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 805.6.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).

**SECTION 804 Fire Protection (Alterations Level 2)**

**804.1.1 Corridor ratings.** Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the *International Building Code*. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.

**NYS 704.2.2 Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2.**
In buildings with occupancies in Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that include exits or corridors shared by more than one tenant that serve an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:
Exception~~: Work areas in Group R-1, R-2 and R-4 occupancies three stories or less in height.~~
1. The work area is required to be provided with automatic sprinkler protection in accordance with the Building Code of New York State as applicable to new construction;
2. The work area exceeds 50 percent of the floor area; and
~~3. The building has sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump.~~

**804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2.** In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:
1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.
**Exception:** If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

**NYS 704.2.3 Windowless stories.**
Work located in a windowless story, as determined in accordance with the Building Code of New York State , shall be sprinklered where the work area is required to be sprinklered under the provisions of the Building Code of New York State for newly constructed buildings and the building has a sufficient municipal water supply ~~available to the floor~~ without installation of a new fire pump.

**804.2.3 Windowless stories.** Work located in a windowless story, as determined in accordance with the *International Building Code*, shall be sprinklered where the work area is required to be sprinklered under the provisions of the *International Building Code* for newly constructed buildings and the building has a sufficient municipal water supply without installation of a new fire pump.

**NYS 704.2.4 Other required suppression systems**.
In buildings and areas listed in Table 903.2.13 of the Building Code of New York State, work areas that include exits or corridors shared by more than one tenant or serving an occupant load greater than 30 shall be provided with sprinkler protection under the following conditions:
1. The work area is required to be provided with automatic sprinkler protection in accordance with the Building Code of New York State applicable to new construction; and
2. The building has sufficient municipal water supply for design of a ~~fire sprinkler system~~ available to the floor without installation of a new fire pump.

**804.2.4 Other required automatic sprinkler systems.** In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:
1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction; and
2. The building has sufficient municipal water supply for design of an automatic sprinkler system available to the floor without installation of a new fire pump.

**NYS 704.2.5 Supervision**.
Fire sprinkler systems required by this section shall be supervised by one of the following methods:
1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or
4. ~~Approved~~ local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.
Exception: Supervision is not required for the following:
1. Underground gate valve with roadway boxes.
2. Halogenated extinguishing systems.
3. Carbon dioxide extinguishing systems.
4. Dry and wet chemical extinguishing systems.
5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.

**804.2.5 Supervision.** Fire sprinkler systems required by this section shall be supervised by one of the following methods:
1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or
4. When approved by the *code official*, approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.
**Exception:** Supervision is not required for the following:
1. Underground gate valve with roadway boxes.
2. Halogenated extinguishing systems.
3. Carbon dioxide extinguishing systems.
4. Dry- and wet-chemical extinguishing systems.
5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.

**NYS 704.3 Standpipes.** Where the aggregate work area exceeds 50 percent of any single floor area and any work area is located ~~more than 30 feet~~ (9144 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the Building Code of New York State.
Exceptions:
1. Manual fill pipes are permitted provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons a minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448 kPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448 kPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/kPa) requirements of this exception for possible future extension of the standpipe.
2. The interconnection of multiple standpipe risers shall not be required.

**804.3 Standpipes.** Where the *work area* includes exits or corridors shared by more than one tenant and is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the *International Building Code*.
**Exceptions:**
1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.
2. The interconnection of multiple standpipe risers shall not be required.

***805.3.1.1 Single-exit buildings.*** *Only one exit is required from buildings and stories of the following occupancies:*
*1. In Group A, E, F and U located on the level of exit discharge, in buildings not more than five stories, when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).*
*2. Group B, S2 or M, located on the level of exit discharge in buildings not more than 5 stories, provided the required building features in Table 805.3.1.1 (1) shall be provided.*
*3. Group B, F2, and S2, in buildings not more than two stories that are not greater than 3,500 square feet per floor (326 $m^2$) when the exit access travel distance does not exceed 75 feet (22,860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.*
*4. Open parking structures where vehicles are mechanically parked.*
*5. In group B, S2 or M, in buildings from three stories to five stories, provided the required building features in Table 805.3.1.1(1) shall be provided.*
*6. In Group R-2 or R-3 buildings not more than 5 stories, provided the required building features in Table 805.3.1.1(2) shall be provided.*
*7. In H-4, H-5 and I occupancies and in rooming houses and child care centers located on the level of exit discharge, a single exit is permitted with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm).*

***TABLE 805.3.1.1(1) GROUP B, S2 OR M LOCATED ON THE LEVEL OF EXIT DISCHARGE SINGLE EXIT BUILDING***

| REQUIRED BUILDING FEATURES | Maximum Number of Stories Above Grade | | | | |
|---|---|---|---|---|---|
| | 1 or 2 story | | 3 story | | 4 & 5 story |
| | NO SPRINKLERS | SPRINKLERS | NO SPRINKLERS | SPRINKLERS | SPRINKLERS |
| **Permitted Occupancy** | **B, S2 or M** | **B, S2 or M** | **B or S2** | **B, S2 or M** | **B or S2** |
| Content restriction limited to storage or retail display of hazardous materials within the building not exceeding 10% of maximum allowable quantities in Table B 307.1(1) | Yes | Yes | Yes | Yes | Yes |
| Maximum gross floor area per story (square feet) | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 |
| Exit access travel distance (feet) | 50 | 75 | 50 | 75 | 75 |
| One emergency escape and rescue opening on each floor and accessible to each tenant[d] | Yes | No | Yes | Yes | Yes |
| Shaft and vertical exit enclosures fire resistance rating (hours) | 1 | 1/2 | 1 | 1/2 | 2 |
| Corridor fire resistance rating (hours)[b] | 1/2 | 0 | 1 | 1/2 | 1 |
| Corridor opening protective fire protection rating (hours) | 0.33 | self-closing | 3/4 | 0.33 | 3/4 |
| Vertical exit and hoistway venting at 3.5% of shaft area per F910 and activated by a smoke detector or pressurization per F909 | No | No | No | No | Yes |
| Corridor and exit interior finish per F803 | Yes | Yes | Yes | Yes | Yes |
| Horizontal assemblies between use groups (hours)[b] | 1/2 | 0 | 1/2 | 0 | 1 |
| Fire partitions between tenants (hours)[b] | 1/2 | 0 | 1/2 | 0 | 1 |
| Table B508.2 incidental use areas fire resistance rating enclosures (hours) | 1 | 1/2 | 2 | 1/2 | 2 |
| Fire dampers per B716 for duct and air transfer openings in horizontal assemblies and shaft enclosures which require a fire resistance rating | Yes | No | Yes | No | Yes |
| Electrical branch circuits meet NFPA 70 requirements | Yes | Yes | Yes | Yes | Yes |
| Manual fire alarm system per F907 with supervisory service per B901.6 | Yes | Yes | Yes | Yes | Yes |
| Automatic heat detection system per F907 throughout building in spaces which would otherwise be provided with fire sprinklers per NFPA 13 | Yes | No | Yes | No | No |
| Automatic smoke detection per F907 in shared exit access corridors | No | No | No | No | No |
| Electrically supervised quick response wet pipe sprinkler system throughout building per B903.3[c] | No | Yes | No | Yes | Yes |
| Class I Manual - Wet Fire Standpipe System per F905.3 | No | No | No | No | Yes |

*a. Provided the building has not more than one level below the first story. Not applicable for Type V construction greater than 3 stories in height.*

*b. Zero (0) fire resistance rating means wall is required to resist the passage of smoke.*

*c. Dry pipe sprinkler protection with standard response sprinklers is only permitted in unheated spaces subject to freezing temperatures.*

*d. Where required, an emergency escape and rescue opening shall have the following characteristics: it shall have a minimum net clear opening of 4 square feet with a minimum dimension of 18 inches (457mm) with bottom of opening no higher than 3 feet 6 inches (1067 mm) nor lower than 18 inches (457 mm) above finished floor in all above grade stories and no higher than 4 feet 6 inches (1372 mm) in a basement.*

***TABLE 805.3.1.1(2) GROUP R-2 OR R-3 SINGLE EXIT BUILDING***

| REQUIRED BUILDING FEATURES | Maximum Number of Stories Above Grade[a] | | | | |
|---|---|---|---|---|---|
| | 1 or 2 story | | 3 story | | 4 & 5 story |
| | NO SPRINKLERS | SPRINKLERS | NO SPRINKLERS | SPRINKLERS | SPRINKLERS |
| Permitted Occupancy | R2 | R2 | R2 | R2 | R2 |
| | R3 | R3 | R3 | R3 | R3 |
| Content restriction limited to storage or retail display of hazardous materials within the building not exceeding 10% of maximum allowable quantities in Table B 307.1(1) | Yes | Yes | Yes | Yes | Yes |
| Maximum number of dwelling units per story and maximum gross floor area per story (square feet) | 4 dwelling units and 3,500 GSF | 4 dwelling units and 3,500 GSF | 4 dwelling units and 3,500 GSF | 4 dwelling units and 3,500 GSF | 4 dwelling units and 3,500 GSF |
| Exit access travel distance (feet) | 50 | 75 | 50 | 75 | 75 |
| One emergency escape and rescue opening within each dwelling unit or on each floor accessible to each sleeping room where dwelling units are not present[d] | Yes | No | Yes | Yes | Yes |
| Shaft and vertical exit enclosures fire resistance rating (hours) | 1 | 1/2 | 1 | 1/2 | 2 |
| Corridor fire resistance rating (hours)[b] | 1/2 | 0 | 1 | 1/2 | 1 |
| Corridor opening protective fire protection rating (hours) | 0.33 | self-closing | 3/4 | 0.33 | 3/4 |
| Vertical exit and hoistway venting at 3.5% of shaft area per F910 and activated by a smoke detector or pressurization per F909 | No | No | No | No | Yes |
| Corridor and exit interior finish per F803 | Yes | Yes | Yes | Yes | Yes |
| Horizontal assemblies between use groups (hours)[b] | 1/2 | 0 | 1/2 | 0 | 1 |
| Fire partitions between tenants (hours)[b] | 1/2 | 0 | 1/2 | 0 | 1 |
| Table B508.2 incidental use areas fire resistance rating enclosures (hours) | 1 | 1/2 | 2 | 1/2 | 2 |
| Fire dampers per B716 for duct and air transfer openings in horizontal assemblies and shaft enclosures which require a fire resistance rating | Yes | No | Yes | No | Yes |
| Electrical branch circuits meet NFPA 70 requirements | Yes | Yes | Yes | Yes | Yes |
| Manual fire alarm system per F907 with supervisory service per B901.6 | Yes | Yes | Yes | Yes | Yes |
| Automatic heat detection system per F907 throughout building in spaces which would otherwise be provided with fire sprinklers per NFPA 13 | Yes | No | Yes | No | No |
| Single and multiple station smoke alarms within dwelling units per F907.2.10.2 and F907.2.10.3 | Yes | Yes | Yes | Yes | Yes |
| Automatic smoke detection in shared exit access corridors | Yes | No | Yes | No | No |
| Electrically supervised quick response or residential (as applicable) wet pipe sprinkler system throughout building per B903.3[c] | No (note C) | Yes | Not required except Type V construction (c) | Yes | Yes |
| Class I Manual–Wet Fire Standpipe System per F905.3 | No | No | No | No | Yes |

*a. Provided the building has not more than one level below the first story. Not applicable for Type V construction greater than 3 stories in height.*

*b. Zero (0) fire resistance rating means wall is required to resist the passage of smoke.*

*c. Quick response sprinkler protection is required in all non-residential occupancies located below Group R and for all 3 story, Type V buildings. Dry pipe sprinkler protection with standard response sprinklers is only permitted in unheated spaces subject to freezing temperatures.*

*d. Where required, an emergency escape and rescue opening shall have the following characteristics: it shall have a minimum net clear opening of 4 square feet with a minimum dimension of 18 inches (457mm) with bottom of opening no higher than 3 feet 6 inches (1067 mm) nor lower than 18 inches (457 mm) above finished floor in all above grade stories and no higher than 4 feet 6 inches (1,372 mm) in a basement.*

**NYS 705.3.1.2.1 Fire escape access and details.**
Fire escapes shall comply with all of the following requirements:
1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.
2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2, and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications. ~~These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.~~
3. Newly constructed fire escapes shall be permitted only where exterior stairs cannot be utilized because of lot lines limiting the stair size or because of the sidewalks, alleys, or roads at grade level.
4. Openings within 10 feet (3048 mm) of fire escape stairs shall be protected by fire assemblies having minimum 3/4-hour fire-resistance ratings.
Exception: Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.
5. In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses, and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

**805.3.1.2.1 Fire escape access and details.** Fire escapes shall comply with all of the following requirements:
1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.
2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.
2.1. The window shall have a minimum net clear opening of 5.7 square feet (0.53 m2) or 5 square feet (0.46 m2) where located at grade.
2.2. The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).
2.3. The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.
2.4. The operation of the window shall comply with the operational constraints of the *International Building Code*.
3. Newly constructed fire escapes shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting the stairway size or because of the sidewalks, alleys, or roads at grade level.
4. Openings within 10 feet (3048 mm) of fire escape stairways shall be protected by fire assemblies having minimum 3/4-hour fire resistance ratings.
**Exception:** Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.
5. In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

**NYS 705.3.3 Main entrance—Group A.** All buildings of Group A with an occupant load of ~~100 or more~~ shall be provided with a main entrance capable of serving as the main exit with an egress capacity of at least one half of the total occupant load. The remaining exits shall be capable of providing one half of the total required exit capacity.
Exception: Where there is no well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total width of egress is not less than 100 percent of the required width.

**805.3.3 Main entrance—Group A.** All buildings of Group A with an occupant load of 300 or more shall be provided with a main entrance capable of serving as the main exit with an egress capacity of at least one-half of the total occupant load. The remaining exits shall be capable of providing one-half of the total required exit capacity.
**Exception:** Where there is no well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total width of egress is not less than 100 percent of the required width.

~~**NYS 705.11 Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required means of egress.~~
~~Exceptions:~~
~~1. Elevators used as an accessible means of egress, where allowed by Section 1104.4 of the Building Code of New York State.~~
~~2. Previously approved escalators and moving walks in existing buildings.~~

**SECTION 904 Fire Protection (Alterations Level 3)**
**NYS 804.1.2 Rubbish and linen chutes**.
Rubbish and linen chutes located in the work area shall be provided with sprinklered protection where protection of the rubbish and linen chute would be required under the provisions of the Building Code of New York State for new construction ~~and the building has sufficient municipal water supply available to the site.~~

**904.1.2 Rubbish and linen chutes.** Rubbish and linen chutes located in the *work area* shall be provided with automatic sprinkler system protection or an approved automatic fire-extinguishing system where protection of the rubbish and linen chute would be required under the provisions of the *International Building Code* for new construction.

**NYS 804.2 Fire alarm and detection systems.**
Fire alarm and detection systems ~~complying with Sections 704.4.1 and 704.4.3~~ shall be provided throughout the building in accordance with the Building Code of New York State.

**904.2 Fire alarm and detection systems.** Fire alarm and detection shall be provided in accordance with Section 907 of the *International Building Code* as required for new construction.

**SECTION 906 Accessibility (Alterations Level 3)**
~~**NYS 806.2 Type B Units.**~~
~~When more than four Group R-2 or R-3 dwelling units or sleeping units are being altered, 25 percent shall comply with Section 1107.2 of the Building Code of New York State.~~

~~Exception: Buildings without elevator services where the lowest story containing Group R-2 or R-3 dwelling units is not the ground floor.~~

**906.2 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.
**Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

**SECTION 1002 Special Use and Occupancy**

**NYS 902.1 Compliance with the Building Code of New York State.** Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the Building Code of New York State, the building shall comply with all of the applicable requirements of the Building Code of New York State :
1. Covered mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.

6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.

**1002.1 Compliance with the building code.** Where the character or use of an *existing building* or part of an *existing building* is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:
1. Covered and open mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.
10. Ambulatory care facilities.
11. Group I-2 occupancies.

**SECTION 1012 Change of Occupancy**

**NYS 912.4.1 Means of egress for change to higher hazard category**.
When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 912.4, the means of egress shall comply with the requirements of Chapter 10 of the Building Code of New York State.
Exceptions:
1. Stairways shall be enclosed in compliance with the applicable provisions of Section 803.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 7 shall be permitted for continued use subject to approval of the code enforcement official.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted
5. Existing corridor doorways, transoms, and other corridor openings shall comply with the requirements in Sections 705.5.1, 705.5.2, and 705.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 705.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 m2) and with minimum opening ~~height and width of 18 inches~~ (457 mm) shall be accepted as an emergency escape and rescue opening.

**1012.4.1 Means of egress for change to higher hazard category.** When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 1012.4, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.
**Exceptions:**
1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $_1/_2$- inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 805.5.1, 805.5.2 and 805.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 805.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 $m_2$) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.

**1012.5.1.1 Fire wall alternative.** In other than Groups H, F-1 and S-1, fire barriers and horizontal assemblies constructed in accordance with Sections 707 and 711, respectively, of the *International Building Code* shall be permitted to be used in lieu of fire walls to subdivide the building into separate buildings for the purpose of complying with the area limitations required for the new occupancy where all of the following conditions are met:
1. The buildings are protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code*.
2. The maximum allowable area between fire barriers, horizontal assemblies, or any combination thereof shall not exceed the maximum allowable area determined in accordance with Chapter 5 of the *International Building Code* without an increase allowed for an automatic sprinkler system in accordance with Section 506 of the *International Building Code*.
3. The fire-resistance rating of the fire barriers and horizontal assemblies shall be not less than that specified for fire walls in Table 706.4 of the *International Building Code*.
**Exception:** Where horizontal assemblies are used to limit the maximum allowable area, the required fire resistance rating of the horizontal assemblies shall be permitted to be reduced by 1 hour provided the height and number of stories increases allowed for an automatic sprinkler system by Section 504 of the *International Building Code* are not used for the buildings.

**SECTION 1102 Heights and Areas (Additions)**

**NY 1002.2 Area limitations.**
No addition shall increase the area of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the Building Code of New York State for new buildings unless a ~~fire wall~~ as required by the Building Code of New York State is provided.
Exceptions
1. In-filling of floor openings and non-occupiable appendages such as elevator and exit stair shafts shall be permitted beyond that permitted by the Building Code of New York State.
~~2. Existing one and two-story buildings shall be permitted to be expanded beyond what is permitted by up to 25 percent of the existing floor area, not to exceed an area of 125 percent of that permitted by the Building Code of New York State, without providing a fire wall.~~

**1102.2 Area limitations.** No *addition* shall increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.
**Exception:** In-filling of floor openings and non-occupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.

**SECTION 1103 Structural (Additions)**

**NYS 1003.3.1 Vertical addition.**
Any element of the lateral-force-resisting system of an existing building subjected to an increase in vertical or lateral loads from the vertical addition shall comply with the lateral load provisions of the Building Code of New York State.

**NYS 1003.3.2 Horizontal addition.**
Where horizontal additions are structurally connected to an existing structure, all lateral-force-resisting elements of the existing structure affected by such addition shall comply with the lateral load provisions of the Building Code of New York State.

**[BS] 1103.3.1 Vertical addition.** Any element of the lateral force-resisting system of an *existing building* subjected to an increase in vertical or lateral loads from the vertical *addition* shall comply with the *International Building Code* wind provisions and the *International Building Code*-level seismic forces specified in Section 301.1.4.1 of this code.

**[BS] 1103.3.2 Horizontal addition.** Where horizontal *additions* are structurally connected to an existing structure, all lateral force-resisting elements of the existing structure affected by such *addition* shall comply with the *International Building Code* wind provisions and the IBC level seismic forces specified in Section 301.1.4.1 of this code.

**SECTION 1104 Smoke Alarms in Occupancy Groups R and I-1**

**NYS 1004.1 Smoke alarms in existing portions of a building.**
Whenever an addition is made to a building or structure of a ~~Group R-3 or R-4~~ occupancy, the existing building shall be provided with smoke alarms as required by the Building Code of New York State.

**1104.1 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms as required by ~~Section 1103.8~~ of the *International Fire Code* or Section R314 of the *International Residential Code* as applicable.
Replaced by Section 1102.1 of the NY Supplement

***NY Supplement 1102.1 Single- and multiple-station smoke alarms.*** *Single- and multiple-station smoke alarms shall be installed in existing Group I-1 and R occupancies in accordance with Sections 1102.1.1 through 1102.1.3.*

## SECTION 1105 Accessibility (Additions)

**NYS 1005.1 Minimum requirements.**
Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, primary function shall comply with the requirements of ~~Section 605.~~

**1105.1 Minimum requirements.** Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, *primary function* shall comply with the requirements of Sections 705, 806 and 906, as applicable.

**SECTION 1202 Repairs (Historic Buildings)**

**NYS 1102.2 Dangerous buildings.**
When a historic building is determined to be ~~dangerous~~, no work shall be required except as necessary to correct identified unsafe conditions.

**1202.2 Unsafe conditions.** Conditions determined by the *code official* to be *unsafe* shall be remedied. No work shall be required beyond what is required to remedy the *unsafe* conditions.

**[BS] DANGEROUS.** Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:
1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

**SECTION 1204 Alterations (Historic Buildings)**

**NYS 1104.1.4 Toilet and bathing facilities.**
Where toilet rooms are provided, at least one accessible toilet room shall be provided for each sex, or a unisex toilet room complying with Section 1109.2.1 of the Building Code of New York State shall be provided.

**1204.1.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.

**SECTION 1205 Change of Occupancy (Historic Buildings)**

**NYS 1105.15 Accessibility requirements.**
The provisions of Section 912.8 shall apply to buildings and facilities designated as historic structures that undergo a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, ~~as determined by the code enforcement official or the State Historic Preservation Officer~~, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for those elements shall be permitted.

**1205.15 Accessibility requirements.** The provisions of Section 1012.8 shall apply to facilities designated as historic structures that undergo a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the authority having jurisdiction, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for those elements shall be permitted
**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

**SECTION 1302 (Relocated or Moved Buildings)**

**NYS 1202.3 Wind loads**. Buildings shall comply with Building Code of New York State wind provisions.
Exceptions:
1. Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by ~~more than 5 percent~~.

**NYS 1202.4 Seismic loads**. Buildings shall comply with Building Code of New York State seismic provisions at the new location.
Exceptions:
1. Structures in Seismic Design Categories A and B where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more ~~than 5 percent.~~

**[BS] 1302.3 Wind loads.** Buildings shall comply with *International Building Code* or *International Residential Code* wind provisions as applicable.
**Exceptions:**
1. Detached one- and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

**[BS] 1302.4 Seismic loads.** Buildings shall comply with *International Building Code* or International Residential Code seismic provisions at the new location as applicable.
**Exceptions:**
1. Structures in Seismic Design Categories A and B and detached one- and two-family dwellings in Seismic Design Categories A, B and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

**SECTION 1401 General (Performance Compliance Method)**

**NYS 1301.2.5 Accessibility requirements.**
All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of ~~Chapter 11 of the Building Code of New York State.~~

**1401.2.5 Accessibility requirements.** Accessibility shall be provided in accordance with Section 410 or 605.

## C402 Building Envelope (Examples)

**C402.4.2 Minimum skylight fenestration area.**
In an enclosed space greater than 2,500 square feet (232 m2) in floor area, directly under a roof with not less than 75 percent of the ceiling area with a ceiling height greater than 15 feet (4572 mm), and used as an office, lobby, atrium, concourse, corridor, storage space, gymnasium/exercise center, convention center, automotive service area, space where manufacturing occurs, non-refrigerated warehouse, retail store, distribution/sorting area, transportation depot or workshop, the total *daylight zone* under skylights shall be not less than half the floor area and shall provide one of the following:
1. A minimum skylight area to *daylight zone* under skylights of not less than 3 percent where all skylights have a VT of at least 0.40 as determined in accordance with Section C303.1.3. 2. A minimum skylight effective aperture of at least 1 percent, determined in accordance with Equation 4-4.
**(Equation 4-4)**
where:
Skylight area = Total fenestration area of skylights.
Skylight VT = Area weighted average visible transmittance of skylights.
WF = Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater.
Light well depth = Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.
**Exception:** Skylights above *daylight zones* of enclosed spaces are not required in:
1. Buildings in *Climate Zones* 6 through 8.
2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft2 (5.4 W/m2).
3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
4. Spaces where the *daylight zone* under rooftop monitors is greater than 50 percent of the enclosed space floor area.
5. Spaces where the total area minus the area of *daylight zones* adjacent to vertical fenestration is less than 2,500 square feet (232 m2), and where the lighting is controlled according to section C405.2.5

## C403 Mechanical Equipment (Examples)

**C403.2.4.4 Zone isolation.** HVAC systems serving *zones* that are over 25,000 square feet (2323 m2) in floor area or that span more than one floor and are designed to operate or be occupied non-simultaneously shall be divided into isolation areas. Each isolation area shall be equipped with isolation devices and controls configured to automatically shut off the supply of conditioned air and outdoor air to and exhaust air from the isolation area. Each isolation area shall be controlled independently by a device meeting the requirements of Section C403.2.4.2.2. Central systems and plants shall be provided with controls and devices that will allow system and equipment operation for any length of time while serving only the smallest isolation area served by the system or plant.
**Exceptions:**
1. Exhaust air and outdoor air connections to isolation areas where the fan system to which they connect is not greater than 5,000 cfm (2360 L/s).
2. Exhaust airflow from a single isolation area of less than 10 percent of the design airflow of the exhaust system to which it connects.
3. Isolation areas intended to operate continuously or intended to be inoperative only when all other isolation areas in a *zone* are inoperative

**C403.2.4.7 Economizer fault detection and diagnostics**
**(FDD).** Air-cooled unitary direct-expansion units listed in Tables C403.2.3(1) through C403.2.3(3) and variable refrigerant flow (VRF) units that are equipped with an economizer in accordance with Section C403.3 shall include a fault detection and diagnostics (FDD) system complying with the following:
1. The following temperature sensors shall be permanently installed to monitor system operation:
1.1. Outside air.
1.2. Supply air.
1.3. Return air.
2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C)

3. Refrigerant pressure sensors, where used, shall have an accuracy of ±3 percent of full scale.
4. The unit controller shall be capable of providing system status by indicating the following:
    4.1. Free cooling available.
    4.2. Economizer enabled.
    4.3. Compressor enabled.
    4.4. Heating enabled.
    4.5. Mixed air low limit cycle active.
    4.6. The current value of each sensor.
5. The unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.
6. The unit shall be capable of reporting faults to a fault management application accessible by day- to- day operating or service personnel, or annunciated locally on zone thermostats.
7. The FDD system shall be capable of detecting the following faults:
    7.1. Air temperature sensor failure/fault.
    7.2. Not economizing when the unit should be economizing.
    7.3. Economizing when the unit should not be economizing.
    7.4. Damper not modulating.
    7.5. Excess outdoor air.

**C403.2.8 Kitchen exhaust systems.** Replacement air introduced directly into the exhaust hood cavity shall not be greater than 10 percent of the hood exhaust airflow rate. Conditioned supply air delivered to any space shall not exceed the greater of the following:

1. The ventilation rate required to meet the space heating or cooling load.
2. The hood exhaust flow minus the available transfer air from adjacent space where available transfer air is considered that portion of outdoor ventilation air not required to satisfy other exhaust needs, such as restrooms, and not required to maintain pressurization of adjacent spaces.

Where total kitchen hood exhaust airflow rate is greater than 5,000 cfm (2360 L/s), each hood shall be a factory built commercial exhaust hood listed by a nationally recognized testing laboratory in compliance with UL 710. Each hood shall have a maximum exhaust rate as specified in Table C403.2.8 and shall comply with one of the following:

1. Not less than 50 percent of all replacement air shall be transfer air that would otherwise be exhausted.
2. Demand ventilation systems on not less than 75 percent of the exhaust air that are capable of not less than a 50-percent reduction in exhaust and replacement air system airflow rates, including controls necessary to modulate airflow in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle.
3. Listed energy recovery devices with a sensible heat recovery effectiveness of not less than 40 percent on not less than 50 percent of the total exhaust airflow.

Where a single hood, or hood section, is installed over appliances with different duty ratings, the maximum allowable flow rate for the hood or hood section shall be based on the requirements for the highest appliance duty rating under the hood or hood section.

**Exception:** Where not less than 75 percent of all the replacement air is transfer air that would otherwise be exhausted

## C404 Service Water Heating (Example)

**C404.4 Insulation of piping.** Piping from a water heater to the termination of the heated water fixture supply pipe shall be
insulated in accordance with Table C403.2.10. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated in accordance with Table C403.2.10 or the heat trace manufacturer's instructions. Tubular pipe insulation shall be installed in accordance with the insulation manufacturer's instructions. Pipe insulation shall be continuous except where the piping passes through a framing member. The minimum insulation thickness requirements of this section shall not supersede any greater insulation thickness requirements necessary for the protection of piping from freezing temperatures or the protection of personnel against external surface temperatures on the insulation.

**Exception:** Tubular pipe insulation shall not be required on the following:

1. The tubing from the connection at the termination of the fixture supply piping to a plumbing fixture or plumbing appliance.
2. Valves, pumps, strainers and threaded unions in piping that is 1 inch (25 mm) or less in nominal diameter.
3. Piping from user-controlled shower and bath mixing valves to the water outlets.
4. Cold-water piping of a demand recirculation water system.

5. Tubing from a hot drinking-water heating unit to the water outlet.
6. Piping at locations where a vertical support of the piping is installed.
7. Piping surrounded by building insulation with a thermal resistance (*R*-value) of not less than R-3.

## C405 Electrical Power and Lighting Systems (Example)

**C405.1 General (Mandatory).** This section covers lighting system controls, the maximum lighting power for interior and exterior applications and electrical energy consumption.

**Exception:** Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through C405.5, provided that they comply with Section R404.1.

Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with Section C403.2.15 or C403.2.16.

**C405.2 Lighting controls (Mandatory).** Lighting systems shall be provided with controls as specified in SectionsC405.2.1, C405.2.2, C405.2.3, C405.2.4 and C405.2.5.

**Exceptions:** Lighting controls are not required for the following:

1. Areas designated as security or emergency areas that are required to be continuously lighted.
2. Interior exit stairways, interior exit ramps and exit passageways.
3. Emergency egress lighting that is normally off.

## C406 Additional Efficiency Package Options (Example)

**C406.1 Requirements.** Buildings shall comply with at least one of the following:

1. More efficient HVAC performance in accordance with Section C406.2.
2. Reduced lighting power density system in accordance with Section C406.3.
3. Enhanced lighting controls in accordance with Section C406.4.
4. On-site supply of renewable energy in accordance with Section C406.5.
5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6.
6. High-efficiency service water heating in accordance with Section C406.7

## C408 System Commissioning (Examples)

**C408.3 Lighting system functional testing.** Controls for automatic lighting systems shall comply with this section.

**C408.3.1 Functional testing.** Prior to passing final inspection, the *registered design professional* shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the *construction documents* and manufacturer's instructions. Functional testing shall be in accordance with Sections C408.3.1.1 and C408.3.1.2 for the applicable control type.

**C408.3.1.1 Occupant sensor controls.** Where *occupant sensor controls* are provided, the following procedures shall be performed:

1. Certify that the *occupant sensor* has been located and aimed in accordance with manufacturer recommendations.
2. For projects with seven or fewer *occupant sensors,* each sensor shall be tested.
3. For projects with more than seven *occupant sensors*, testing shall be done for each unique combination of sensor type and space geometry.

Where multiples of each unique combination of sensor type and space geometry are provided, not less than 10 percent, but in no case less than one, of each combination shall be tested unless the *code official* or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested controls fail, all remaining identical combinations shall be tested.

For *occupant sensor controls* to be tested, verify the following:

3.1. Where *occupant sensor controls* include status indicators, verify correct operation.
3.2. The controlled lights turn off or down to the permitted level within the required time.
3.3. For auto-on *occupant sensor controls*, the lights turn on to the permitted level when an occupant enters the space.
3.4. For manual-on *occupant sensor controls*, the lights turn on only when manually activated.
3.5. The lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation.

**C408.3.1.2 Time-switch controls.** Where t*ime-switch controls* are provided, the following procedures shall be performed:

1. Confirm that the *time-switch control* is programmed with accurate weekday, weekend and holiday schedules.

` 2. Provide documentation to the owner of *timeswitch controls* programming including weekday, weekend, holiday schedules, and set-up and preference program settings.

3. Verify the correct time and date in the time switch.

4. Verify that any battery back-up is installed and energized.

5. Verify that the override time limit is set to not more than 2 hours.

6. Simulate occupied condition. Verify and document the following:

6.1. All lights can be turned on and off by their respective area control switch.

6.2. The switch only operates lighting in the enclosed space in which the switch islocated.

7. Simulate unoccupied condition. Verify and document the following:

7.1. Nonexempt lighting turns off.

7.2. Manual override switch allows only the lights in the enclosed space where the override switch is located to turn on or remain on until the next scheduled shutoff occurs.

8. Additional testing as specified by the *registered design professional*.

**C408.3.1.3 Daylight responsive controls.** Where *daylight responsive controls* are provided, the following shall be verified:

1. Control devices have been properly located, field calibrated and set for accurate setpoints and threshold light levels.

2. Daylight controlled lighting loads adjust to light level set points in response to available daylight.

3. The locations of calibration adjustment equipment are readily accessible only to authorized personnel.

## Supplement from the 2015 Energy Code - Residential

***R103.2.1 Building thermal envelope depiction.*** *The building's thermal envelope shall be represented on the construction drawings.*

***R103.3.3 Phased approval.*** *The code official shall have the authority to issue a permit for the construction of part of an energy conservation system before the construction documents for the entire system have been submitted or approved, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire energy conservation system will be granted.*

***R103.5 Retention of construction documents.*** *One set of approved construction documents shall be retained by the code official for a period of not less than seven years from the date of the demolition and removal of the building.*

***R104.2 Required inspections.*** *The code official or his or her designated agent, upon notification, shall make the inspections set forth in Sections R104.2.1 through R104.2.6.*

***R104.2 Required inspections.*** *The code official or his or her designated agent, upon notification, shall make the inspections set forth in Sections R104.2.1 through R104.2.6.*

### *R107 INTERPRETATION OF CODE REQUIREMENTS*

### ~~*R108 (Stop work order)*~~

### ~~*R109 (Board of appeals)*~~

### *R202 (General Definitions).*

***AIR-IMPERMEABLE INSULATION.*** *An insulation having an air permeance equal to, or less than 0.02 L/s-m2 at 75 Pa pressure differential tested according to ASTM E 2178 or E 283.*

***AREA WEIGHTED AVERAGE.*** *A mathematical technique for combining different amounts of various components, based on proportional relevance, into a single number. Weighted averaging may be used where there is more than one R-value for floor, wall, or ceiling insulation, or more than one U-factor for fenestration in a building. As an example, the area weighted average for window fenestration U-factors equals (Area 1 x U-factor 1) + (Area 2 x U-factor 2) + …/Total Area = maximum allowable fenestration U-factor.*

***BUILDING.*** *Any structure used or intended for supporting or sheltering any use or occupancy or for affording shelter to persons, animals or property, together with (A) any equipment, mechanical systems, service water heating systems, and electric power and lighting systems located in such structure, and (B) any mechanical systems, service water heating systems, and electric power and lighting systems located on the site where such structure is located and supporting such structure. The term "building" shall include, but shall not be limited to, factory manufactured homes (as defined in section 372(8) of the Executive Law) and mobile homes (as defined in section 372(13) of the Executive Law).*

***BUILDING SYSTEM.*** *The term "building system" means a combination of central or terminal equipment or components or controls, accessories, interconnecting means, and terminal devices by which energy is transformed so as to perform a specific function, such as heating, ventilation and air conditioning, service water heating or illumination.*

***BUILDING THERMAL ENVELOPE.*** *The exterior walls (above and below grade) , floor, roof, and any other building elements that enclose conditioned space or provides a boundary between conditioned space and exempt or unconditioned space.*

***CONDITIONED SPACE.*** *An area or room within a building which is within the thermal envelope of a building which is directly or indirectly heated or cooled using fossil fuel or electricity as the energy source. Spaces that are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling using fossil fuel or electricity.*

***ERI REFERENCE DESIGN.*** *A version of the rated design that meets the minimum requirements of the 2006 International Energy Conservation Code, and which establishes the index value of 100 on the Energy Rating Index scale.*

**HIGH-EFFICACY LAMPS**. Compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:
1. 60 lumens per watt for lamps over 40 watts;
2. 50 lumens per watt for lamps over 15 watts to 40 watts; and
3. 40 lumens per watt for lamps 15 watts or less.

***HISTORIC BUILDING.*** *Any building that is (a) listed on the national register of historic places or on the state register of historic places, (b) determined by the commissioner of parks, recreation and historic preservation to be eligible for listing on the state register of historic places, (c) determined by the commissioner of parks, recreation and historic preservation to be a contributing building to an historic district that is listed or eligible for listing on the state or national registers of historic places, or (d) otherwise defined as an historic building in regulations adopted by the state fire prevention and building code council.*

***REGISTERED DESIGN PROFESSIONAL.*** *An individual who is a licensed and registered architect (RA) in accordance with Article 147 of the New York State Education Law or a licensed and registered professional engineer (PE) in accordance with Article 145 of the New York State Education Law.*

***RESIDENTIAL BUILDING.*** *The term "residential building" includes:*

*(1)* *detached one-family dwellings having not more than three stories above grade plane;*
*(2)* *detached two-family dwellings having not more than three stories above grade plane;*
*(3)* *buildings that (i) consist of three or more attached townhouse units and (ii) have not more than three stories above grade plane;*

*(4)* *buildings that (i) are classified in accordance with Chapter 3 of the 2010 edition of the Building Code of New York State in Group R-2, R-3 or R-4 and (ii) have not more than three stories above grade plane;*

*(5) factory manufactured homes (as defined in section 372(8) of the Executive Law); and*

*(6) mobile homes (as defined in section 372(13) of the Executive Law)*

*For the purposes of this definition of the term "residential building," the term "townhouse unit" means a single-family dwelling unit constructed in a group of three or more attached units in which each unit (i) extends from the foundation to roof and (ii) has open space on at least two sides.*

**R303.1.1 Building thermal envelope insulation.** An R-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and R-value of insulation installed in each element of the building thermal envelope. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled R-value, installed density, coverage area and number of bags installed shall be listed on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and R-value of installed thickness shall be listed on the certification. For insulated siding, the R-value shall be labeled on the products package and shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

**R303.1.4.1 Insulated siding.** The thermal resistance (R-value) of insulated siding shall be determined in accordance with ASTM C 1363. Installation for testing shall be in accordance with the manufacturer's instructions.

**R401.2 Compliance.**

Projects shall comply with one of the following:

1. Sections **R401** through **R404**.
2. Section **R405** and the provisions of Sections **R401** through **R404** labeled Mandatory.
3. An energy rating index (ERI) approach in Section **R406**.

***R402.1 General (Prescriptive**). The building thermal envelope shall meet the requirements of Sections R402.1.1 through R402.1.5.*

***Exceptions:***

*The following low-energy buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this section shall be exempt from the building thermal envelope provisions of Section R402.*

1. *Those with a peak design rate of energy usage less than 3.4 Btu/h · ft2 (10.7 W/m2) or 1.0 watt/ft2 of floor area for space-conditioning purposes.*
2. *Those that do not contain conditioned space.*

2. *In lieu of compliance with Section R402.1, log structures shall be permitted to comply with Section 305 of ICC 400-2012, Standard on the Design and Construction of Log Structures.*

**R402.1.1 Vapor retarder.** Wall assemblies in the building thermal envelope shall comply with the vapor retarder requirements of Section R702.7 of the International Residential Code or Section 1405.3 of the International Building Code, as applicable.

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

| CLIMATE ZONE | FENESTRATION *U*-FACTOR[b] | SKYLIGHT[b] *U*-FACTOR | GLAZED FENESTRATION SHGC[b, e] | CEILING *R*-VALUE | WOOD FRAME WALL *R*-VALUE | MASS WALL *R*-VALUE[i] | FLOOR *R*-VALUE | BASEMENT[c] WALL *R*-VALUE | SLAB[d] *R*-VALUE & DEPTH | CRAWL SPACE[c] WALL *R*-VALUE |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NR | 0.75 | 0.25 | 30 | 13 | 3/4 | 13 | 0 | 0 | 0 |
| 2 | 0.40 | 0.65 | 0.25 | 38 | 13 | 4/6 | 13 | 0 | 0 | 0 |
| 3 | 0.35 | 0.55 | 0.25 | 38 | 20 or 13+5[h] | 8/13 | 19 | 5/13[f] | 0 | 5/13 |
| 4 except Marine | 0.35 | 0.55 | 0.40 | 49 | 20 or 13+5[h] | 8/13 | 19 | 10 /13 | 10, 2 ft | 10/13 |
| 5 and Marine 4 | 0.32 | 0.55 | NR | 49 | 20 or 13+5[h] | 13/17 | 30[g] | 15/19 | 10, 2 ft | 15/19 |
| 6 | 0.32 | 0.55 | NR | 49 | 20+5 or 13+10[h] | 15/20 | 30[g] | 15/19 | 10, 4 ft | 15/19 |
| 7 and 8 | 0.32 | 0.55 | NR | 49 | 20+5 or 13+10[h] | 19/21 | 38[g] | 15/19 | 10, 4 ft | 15/19 |

**R402.1.3 R-value computation.** Insulation material used in layers, such as framing cavity insulation, or continuous insulation shall be summed to compute the corresponding component R-value. The manufacturers settled R-value shall be used for blown insulation. Computed R-values shall not include an R-value for other building materials or air films. Where insulated siding is used for the purpose of complying with the continuous insulation requirements of Table R402.1.2, the manufacturers labeled R-value for insulated siding shall be reduced by R-0.6.

**TABLE R402.1.4**
**EQUIVALENT *U*-FACTORS[a]**

| CLIMATE ZONE | FENESTRATION *U*-FACTOR | SKYLIGHT *U*-FACTOR | CEILING *U*-FACTOR | FRAME WALL *U*-FACTOR | MASS WALL *U*-FACTOR[b] | FLOOR *U*-FACTOR | BASEMENT WALL *U*-FACTOR | CRAWL SPACE WALL *U*-FACTOR |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.50 | 0.75 | 0.035 | 0.084 | 0.197 | 0.064 | 0.360 | 0.477 |
| 2 | 0.40 | 0.65 | 0.030 | 0.084 | 0.165 | 0.064 | 0.360 | 0.477 |
| 3 | 0.35 | 0.55 | 0.030 | 0.060 | 0.098 | 0.047 | 0.091[c] | 0.136 |
| 4 except Marine | 0.35 | 0.55 | 0.026 | 0.060 | 0.098 | 0.047 | 0.059 | 0.065 |
| 5 and Marine 4 | 0.32 | 0.55 | 0.026 | 0.060 | 0.082 | 0.033 | 0.050 | 0.055 |
| 6 | 0.32 | 0.55 | 0.026 | 0.045 | 0.060 | 0.033 | 0.050 | 0.055 |
| 7 and 8 | 0.32 | 0.55 | 0.026 | 0.045 | 0.057 | 0.028 | 0.050 | 0.055 |

***R402.4.1.2 Testing.*** *The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding three air changes per hour. Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.*
*During testing:*

1. *Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather stripping or other infiltration control measures.*
2. *Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.*
3. *Interior doors, if installed at the time of the test, shall be open.*
4. *Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.*
5. *Heating and cooling systems, if installed at the time of the test, shall be turned off.*
6. *Supply and return registers, if installed at the time of the test, shall be fully open.*

***Exception:*** *Where two or more dwelling units are located within the thermal envelope of the building, the procedure specified in this exception shall be permitted as an alternative to compliance with Section R402.4.1.2. Each dwelling unit and each other conditioned occupied space (hereinafter referred to collectively as " testing units") located within the building thermal envelope shall be tested and verified as having an air leakage rate not exceeding 0.3 $CFM_{50}$ per square foot of enclosure surface area. Enclosure surface area shall be the sum of the areas of interior walls abutting other testing units, exterior walls, ceilings separating testing units within the building thermal envelope, and floors separating testing units within the building thermal envelope. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals), and shall be conducted in accordance with ASHRAE/ASTM E779.*

*For buildings with more than seven dwelling units, the sampling protocol set forth herein shall be used only when approved by the Code Enforcement Official.*

1. *Testing units shall be grouped into sample sets of not more than seven units and common rooms in each sample set. Each sample set shall contain testing units that are representative of all dwelling unit types and all other conditioned occupied spaces.*
2. *If all testing units in the first sample set tested are verified as having an air leakage rate not exceeding 0.3 $CFM_{50}$, remaining sample sets shall be permitted to be tested at the rate of one testing unit per sample set.*
3. *If any testing unit tested in accordance with paragraph 2 above is not verified as having an air leakage rate not exceeding 0.3 $CFM_{50}$, two additional testing units in the sample set shall be tested.*
4. *If any testing unit tested in accordance with paragraph 3 above is not verified as having an air leakage rate not exceeding 0.3 $CFM_{50}$, all testing units in the sample set shall be tested, and all testing units in the subsequent sample set, if any, shall be tested.*

*5.If all testing units in the sample set tested in accordance with paragraph 4 above are verified as having an air leakage rate not exceeding 0.3 $CFM_{50}$, subsequent sample sets shall be permitted to be tested in accordance with paragraph 2 above, where approved by the code official.*

**R402.2.2 Ceilings without attic spaces.** Where Section R402.1.2 would require insulation levels above R-30 and the design of the roof/ceiling assembly does not allow sufficient space for the required insulation, the minimum required insulation for such roof/ceiling assemblies shall be R-30. This reduction of insulation from the requirements of Section R402.1.2 shall be limited to 500 square feet (46 m) or 20 percent of the total insulated ceiling area, whichever is less. This reduction shall not apply to the U-factor alternative approach in Section R402.1.4 and the total UA alternative in Section R402.1.5.

**R402.2.3 Eave baffle.** For air-permeable insulations in vented attics, a baffle shall be installed adjacent to soffit and eave vents. Baffles shall maintain an opening equal or greater than the size of the vent. The baffle shall extend over the top of the attic insulation. The baffle shall be permitted to be any solid material.

**R402.2.6 Steel-frame ceilings, walls and floors**. Steel-frame ceilings, walls, and floors shall meet the insulation requirements of Table R402.2.6 or shall meet the U-factor requirements of Table R402.1.4. The calculation of the U-factor for a steel-frame envelope assembly shall use a series-parallel path calculation method.

**R402.2.7 Walls with partial structural sheathing**. Where Section R402.1.2 would require continuous insulation on exterior walls and structural sheathing covers 40 percent or less of the gross area of all exterior walls, the continuous insulation R-value shall be permitted to be reduced by an amount necessary to result in a consistent total sheathing thickness, but not more than R-3, on areas of the walls covered by structural sheathing. This reduction shall not apply to the U-factor alternative approach in Section R402.1.4 and the total UA alternative in Section R402.1.5.

**R402.2.13 Sunroom insulation.** Sunrooms enclosing conditioned space shall meet the insulation requirements of this code.
**Exception:** For sunrooms with thermal isolation, and enclosing conditioned space, the following exceptions to the insulation requirements of this code shall apply:
**1.** The minimum ceiling insulation R-values shall be R-19 in Climate Zones 1 through 4 and R-24 in Climate Zones 5 through 8.
**2.** The minimum wall R-value shall be R-13 in all climate zones. Walls separating a sunroom with a thermal isolation from conditioned space shall meet the building thermal envelope requirements of this code.

**R402.3.2 Glazed fenestration SHGC.** An area-weighted average of fenestration products more than 50-percent glazed shall be permitted to satisfy the SHGC requirements. Dynamic glazing shall be permitted to satisfy the SHGC requirements of Table R402.1.2 provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the dynamic glazing is automatically controlled to modulate the amount of solar gain into the space in multiple steps.
Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted.
**Exception:** Dynamic glazing is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Table R402.1.1.

**R402.3.5 Sunroom fenestration.** Sunrooms enclosing conditioned space shall meet the fenestration requirements of this code.
**Exception:** For sunrooms with thermal isolation and enclosing conditioned space in Climate Zones 2 through 8, the maximum fenestration U-factor shall be 0.45 and the maximum skylight U-factor shall be 0.70. New fenestration separating the sunroom with thermal isolation from conditioned space shall meet the building thermal envelope requirements of this code.

**R402.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

***R402.4.2 Fireplaces.*** *. New wood burning fireplaces or fireplace units designed to allow an open burn, shall have tight fitting flue dampers or doors, and shall be provided with a source of outdoor combustion air. Where using tight fitting doors on factory built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.*
*Fireplaces shall be provided with a source of combustion air as required by the fireplace construction provisions of the 2015 Building Code of New York State, the 2015 Residential Code of New York State or the New York City Building Code, as applicable.*

**R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m2), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m2), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.
**Exception:** Site-built windows, skylights and doors.

**R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.
**Exceptions:**
**1.** Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
**2.** Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the International Residential Code

**R403.2 Hot water boiler outdoor temperature setback.** Hot water boilers that supply heat to the building through one- or two-pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.

**R403.3.1 Insulation (Prescriptive).** Supply and return ducts in attics shall be insulated to a minimum of R-8 where 3 inches (76 mm) in diameter and greater and R-6 where less than 3 inches (76 mm) in diameter. Supply and return ducts in other portions of the building shall be insulated to a minimum of R-6 where 3 inches (76 mm) in diameter or greater and R-4.2 where less than 3 inches (76 mm) in diameter.
**Exception:** Ducts or portions thereof located completely inside the building thermal envelope.

**R403.3.2 Sealing (Mandatory).** Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or International Residential Code, as applicable.
**Exceptions:**
**1.** Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
**2.** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams of other the snap-lock and button-lock types.
**R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

**R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:
**1.** Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
**2.** Post construction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturers air handler enclosure. Registers shall be taped or otherwise sealed during the test.
**Exception:** A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official

**R403.3.4 Duct leakage (Prescriptive).** The total leakage of the ducts, where measured in accordance with Section R403.3.3, shall be as follows:
**1.** Rough-in test: The total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (85 L/min) per 100 square feet (9.29 m2) of conditioned floor area.
**2.** Post construction test: Total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area.

**R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

**R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

**R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

**R403.5.2 Demand recirculation systems.** A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following:
**1.** The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.
**2.** The control shall limit the temperature of the water entering the cold water piping to 104ºF (40ºC).

**R403.5.3 Hot water pipe insulation (Prescriptive).** Insulation for hot water pipe with a minimum thermal resistance (R-value) of R-3 shall be applied to the following:
**1.** Piping 3/4 inch (19.1 mm) and larger in nominal diameter.
**2.** Piping serving more than one dwelling unit.
**3.** Piping located outside the conditioned space.
**4.** Piping from the water heater to a distribution manifold.
**5.** Piping located under a floor slab.
**6.** Buried in piping.
**7.** Supply and return piping in recirculation systems other than demand recirculation systems.

**TABLE R403.6.1**
**MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

| FAN LOCATION | AIR FLOW RATE MINIMUM (CFM) | MINIMUM EFFICACY (CFM/WATT) | AIR FLOW RATE MAXIMUM (CFM) |
|---|---|---|---|
| Range hoods | Any | 2.8 cfm/watt | Any |
| In-line fan | Any | 2.8 cfm/watt | Any |
| Bathroom, utility room | 10 | 1.4 cfm/watt | < 90 |
| Bathroom, utility room | 90 | 2.8 cfm/watt | Any |

**R403.7 Equipment sizing and efficiency rating (Mandatory).** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**R403.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the IECC Commercial Provisions in lieu of Section R403.

**R403.9 Snow melt and ice system controls (Mandatory).** Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50F (10C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40F (4.8C).

**R403.10.2 Heaters.** The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

**R403.10.3 Time switches.** Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.
**Exceptions:**

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.

**R403.10.4 Covers.** Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other approved vapor-retardant means.
**Exception:** Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

**R403.11 Portable spas (Mandatory).** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

**R403.12 Residential pools and permanent residential spas.** Residential swimming pools and permanent residential spas that are accessory to detached one- and two-family dwellings and townhouses three stories or less in height above grade plane and that are available only to the household and its guests shall be in accordance with APSP-15.

**R404.1 Lighting equipment (Mandatory).** Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.
**Exception:** Low-voltage lighting.

**R404.1.1 Lighting equipment (Mandatory).** Fuel gas lighting systems shall not have continuously burning pilot lights.

**R405.4.2.1 Compliance report for permit application**. A compliance report submitted with the application for building permit shall include the following:
1. Building street address, or other building site identification.
2. A statement indicating that the proposed design complies with Section R405.3.
3. An inspection checklist documenting the building component characteristics of the proposed design as indicated in Table R405.5.2(1). The inspection checklist shall show results for both the standard reference design and the proposed design with user inputs to the compliance software to generate the results.
4. A site-specific energy analysis report that is in compliance with Section R405.3.
5. The name of the individual performing the analysis and generating the report.
6. The name and version of the compliance software tool.

***R406.2 Mandatory requirements.*** *Compliance with this section requires that the mandatory provisions identified in Sections R401.2 and R403.5.3 be met. The building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code, or the Energy Conservation Construction Code of New York State-2010.*

***Exceptions:***

1. *Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.*
2. *Log structures in complying with Section 305 of ICC 400-2012, Standard on the Design and Construction of Log Structures, shall not be required to comply with the provisions of Section. Table 402.1.2 or 402.1.4 of the 2015 International Energy Conservation Code.*

***R501.4 Compliance.*** *Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in the International Residential Code, International Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, and NFPA 70, as such code may be adopted and amended in the 2015 Supplement to the New York State Uniform Fire Prevention and Building Code. In the City of New York, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in the New York City Building Code, as applicable.*

**R502.1.1.1 Building envelope.** New building envelope assemblies that are part of the addition shall comply with R402.1, R402.2, R402.3.1 through R402.3.5, and R402.4.
**Exception:** Where non-conditioned space is changed to conditioned space, building envelope of the addition shall comply where the UA, as determined in Section 402.1.4, of the existing building and the addition, and any alterations that are part of the project, is less than or equal to UA generated for the existing building.

**R502.1.1.2 Heating and cooling systems.** New heating, cooling and duct systems that are part of the addition shall comply with Sections R403.1, R403.2, R403.3, R403.5 and R403.6.
**Exception:** Where ducts from an existing heating and cooling system are extended to an addition, duct systems with less than 40 linear feet (12.19 m) in unconditioned spaces shall not be required to be tested in accordance with Section R403.3.3.

**R502.1.1.3 Service hot water systems.** New service hot water systems that are part of the addition shall comply with Section R403.4.

**R502.1.1.4 Lighting**. New lighting systems that are part of the addition shall comply with Section R404.1.

**R502.1.2 Existing plus addition compliance (Simulated Performance Alternative).** Where nonconditioned space is changed to conditioned space, the addition shall comply where the annual energy cost or energy use of the addition and the existing building, and any alterations that are part of the project, is less than or equal to the annual energy cost of the existing building when modeled in accordance with Section R405. The addition and any alterations that are part of the project shall comply with Section R405 in its entirety.

**R503.1.1 Building envelope:** Building envelope assemblies that are part of the alteration shall comply with Section R402.1.2 or R402.1.4, Sections R402.2.1 through R402.2.12, R402.3.1, R402.3.2, R402.4.3 and R402.4.4.
**Exception:** The following alterations need not comply with the requirements for new construction provided the energy use of the building is not increased:
**1**. Storm windows installed over existing fenestration.
**2.** Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
**3.** Construction where the existing roof, wall or floor cavity is not exposed.
**4.** Roof recover.
**5**. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
**6**. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided the code does not require the glazing or fenestration assembly to be replaced.

**R503.1.1.1 Replacement fenestration.** Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the replacement fenestration unit shall meet the applicable requirements for U-factor and SHGC as provided in Table R402.1.4.

**R503.1.2 Heating and cooling systems.** New heating, cooling and duct systems that are part of the alteration shall comply with Sections R403.1, R403.2, R403.3 and R403.6.
**Exception**: Where ducts from an existing heating and cooling system are extended, duct systems with less than 40 linear feet (12.19 m) in unconditioned spaces shall not be required to be tested in accordance with Section R403.3.3.

**R503.1.3 Service hot water systems.**
New service hot water systems that are part of the alteration shall comply with Section R403.4.

**R503.1.4 Lighting.**
New lighting systems that are part of the alteration shall comply with Section 404.1.
**Exception:** Alterations that replace less than 50 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.

**R503.2 Change in space conditioning.** Any non-conditioned or low-energy space that is altered to become conditioned space shall be required to be brought into full compliance with this code.
**Exception**: Where the simulated performance option in Section R405 is used to comply with this section, the annual energy cost of the proposed design is permitted to be 110 percent of the annual energy cost otherwise allowed by Section R405.3.

**R504.1 General.** Buildings, structures and parts thereof shall be repaired in compliance with Section R501.3 and this section. Work on non-damaged components necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section R501.3, ordinary repairs exempt from permit and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

**R504.2 Application.**
For the purposes of this code, the following shall be considered repairs:
**1.** Glass-only replacements in an existing sash and frame.
**2.** Roof repairs.
**3.** Repairs where only the bulb and/or ballast within the existing luminaires in a space are replaced provided that the replacement does not increase the installed interior lighting power.

**R505.1 General.** Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code.

**R505.2 General.** Any space that is converted to a dwelling unit or portion thereof from another use or occupancy shall comply with this code.
**Exception:** Where the simulated performance option in Section R405 is used to comply with this section, the annual energy cost of the proposed design is permitted to be 110 percent of the annual energy cost otherwise allowed by Section R405.3.