

CHAPTER 6

TYPES OF CONSTRUCTION

SECTION BC 601 GENERAL

601.1 Scope. The provisions of this chapter shall control the classification of buildings as to type of construction with respect to occupancy and exterior fire separation distance.

SECTION BC 602 CONSTRUCTION CLASSIFICATION

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602. Buildings constructed or altered inside the fire district shall further comply with Appendix D.

602.1.1 Minimum requirements. A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type, which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction. Classification shall be that of the minimum requirement unless all of the requirements for the higher type of construction are met.

602.2 Types I and II. Type I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials.

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.

Exceptions:

1. In Group I-1, R-1, and R-2 occupancies, all exterior walls, fire walls, exit passageways, and shaft enclosures shall be noncombustible.
2. In Group F occupancies subject to Section 270(1) of the *New York State Labor Law*, all exterior wall assemblies and all structural elements shall meet the requirements for a “fireproof building” as such term is defined in Section 264 of such law.
3. Inside the fire district, exterior load-bearing walls shall be constructed of noncombustible material.
4. Inside the fire district, exterior nonload-bearing walls may be constructed with fire-retardant-treated wood complying with Section 2303.2 where the building is equipped throughout with an automatic sprinkler system in accordance with Sections 903.3.1.1 through

903.3.1.3, unless otherwise prohibited by Exception 1 or 2 above.

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section. Fire-retardant-treated-wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

Exceptions:

1. In Group I-1, R-1, and R-2 occupancies, all exterior walls, fire walls, exit passageways, and shaft enclosures shall be noncombustible.
2. In Group F occupancies subject to Section 270(1) of the *New York State Labor Law*, all exterior wall assemblies and all structural elements shall meet the requirements for a “fireproof building” as defined in Section 264 of such law.
3. Inside the fire district, exterior load-bearing walls shall be constructed of noncombustible material.
4. Inside the fire district, exterior non-bearing walls may be constructed with fire-retardant-treated wood complying with Section 2303.2 where the building is equipped throughout with an automatic sprinkler system in accordance with Sections 903.3.1.1 through 903.3.1.3, unless otherwise prohibited by Exception 1 or 2 above.

602.4.1 Columns. Wood columns shall be sawn or glued laminated and shall not be less than 8 inches (203 mm) nominal in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an approved manner.

602.4.2 Floor framing. Wood beams and girders shall be of sawn or glued-laminated timber and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn or glued-laminated timber arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.

602.4.3 Roof framing. Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued

TYPES OF CONSTRUCTION

laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

602.4.4 Floors. Floors shall be without concealed spaces. Wood floors shall be of sawn or glued-laminated planks,

splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid cross-wise or diagonally, or 0.5-inch (12.7 mm) particleboard or planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or 1⁵/₃₂-inch (12 mm) wood structural panel or 0.5-inch (12.7 mm) particleboard. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than 0.5 inch (12.7 mm) to walls. Such 0.5-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbeling of masonry walls under the floor shall be permitted to be used in place of molding.

**TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)**

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V ⁱ	
	A	B	A ^d	B	A ^d	B	HT	A ^d	B
Structural frame ^a Including columns, girders, trusses	3 ^b	2 ^b	1	0	1	0	HT	1	0
Bearing walls Exterior ^{f, g} Interior	3 3 ^b	2 2 ^b	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior ^c	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction ^h Including supporting beams and joists	2	2	1	0	1	0	HT	1	0
Roof construction Including supporting beams and joists	1 ¹ / ₂ ^c	1 ^c	1 ^c	0 ^c	1 ^c	0	HT	1 ^c	0

For SI: 1 foot = 304.8 mm.

- a. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not a part of the structural frame.
- b. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
- c.
 - 1. Except in Factory-Industrial (F-1), Hazardous (H), Mercantile (M) and Moderate-Hazard Storage (S-1) occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
 - 2. Except in Factory-Industrial (F) occupancies subject to regulation under Sections 264(1) and 264(2) of the *New York State Labor Law*, and in Group I-1, R-1, and Group R-2 occupancies, in all occupancies heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
 - 3. Except in Factory-Industrial (F) occupancies subject to regulation under Sections 264(1) and 264(2) of the *New York State Labor Law*, and in Group I-1, R-1, and Group R-2 occupancies, in Type I and II construction, fire-retardant-treated wood shall be allowed in buildings including girders and trusses as part of the roof construction when the building is:
 - i. Type II construction of any height; or
 - ii. Type I construction two stories or less; or when over two stories, the vertical distance from the upper floor to the roof is 20 feet or more.
- d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
- e. Not less than the fire-resistance rating required by other sections of this code.
- f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).
- g. See footnote (d) of Table 602.
- h. See Section 711.3 for additional requirements.
- i. Type V construction is not permitted inside fire districts except as provided for in Section D105.1 of Appendix D.

TYPES OF CONSTRUCTION

3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A or B classification as defined in Section 1505.
5. Interior floor finish and interior finish, trim and millwork such as doors, door frames, window sashes and frames, as permitted by Chapter 8.
6. Where not installed over 15 feet (4572 mm) above grade, show windows, nailing or furring strips, wooden bulkheads below show windows, their frames, aprons and show cases, as permitted by Section 1405.
7. Finished flooring applied directly to the floor slab or to wood sleepers that are firestopped in accordance with Section 717.2.7, where combustible finish flooring is permitted by Chapter 8.
8. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and which do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
9. Platforms as permitted in Section 410.
10. Combustible exterior wall coverings in accordance with Chapter 14.
11. Blocking such as for handrails, millwork, cabinets and window and door frames.
12. Light-transmitting plastics as permitted by Chapter 26.
13. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.
14. Exterior plastic veneer installed in accordance with Section 2605.2.
15. Nailing or furring strips as permitted by Section 803.4.
16. Heavy timber as permitted by Note c, Item 2, Table 601 and Section 602.4.7.
17. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
18. Sprayed cementitious and mineral fiber fire-resistance-rated materials installed to comply with Section 1704.11.
19. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 712.
20. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 713.
21. Materials allowed in the concealed spaces of buildings of Type I and II construction in accordance with Section 717.5.
22. Materials exposed within plenums complying with Section 602 of the *New York City Mechanical Code*.

603.1.1 Ducts. The use of nonmetallic ducts shall be permitted when installed in accordance with the limitations of the *New York City Mechanical Code*.

603.1.2 Piping. The use of combustible piping materials shall be permitted when installed in accordance with the limitations of the *New York City Plumbing Code*.

603.1.3 Electrical. The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of the *New York City Electrical Code*.