

NFPA 220, “Standard on Types of Building Construction, 2018” REVIEW
SUMMARY

1) NFPA 220 REVISION SUMMARY

The 2018 edition of NFPA 220 contains several additions to building construction standards. The definition of a limited combustible material has been expanded in accordance with ASTM E2965. Ceiling cavity plenums and raised floor plenums are no longer subject to limitations set forth in Section 1.3 of NFPA 90A. Concealed spaces are permitted within 1-hour fire resistance-rated interior walls and partitions. Additionally, floors shall not be constructed with concealed spaces. Cross-laminated timber complying with 45.5.7 of NFPA 5000 is conditionally permitted for the construction of concealed spaces, floors, structural elements, and exterior walls.

2) NOTED CHANGES OF SIGNIFICANCE

NFPA 220 2015 Edition	NFPA 220 2018 Edition
Chapter 1 – Administration	
No Substantial Changes Noted.	No Substantial Changes Noted.
Chapter 2 – Referenced Publications	
<p>2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.</p> <p>NFPA90A, <i>Standard for the Installation of Air-Conditioning and Ventilating Systems</i>, 2015 edition.</p> <p>NFPA 101®, <i>Life Safety Code</i>®, 2015 edition.</p> <p>NFPA 259, <i>Standard Test Method for Potential Heat of Building Materials</i>, 2013 edition.</p> <p>NFPA 285, <i>Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components</i>, 2012 edition.</p>	<p>2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.</p> <p>NFPA 90A, <i>Standard for the Installation of Air-Conditioning and Ventilating Systems</i>, 2018 edition.</p> <p>NFPA 101®, <i>Life Safety Code</i>®, 2018 edition.</p> <p>NFPA 285, <i>Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies Containing Combustible Components</i>, 2012 edition.</p> <p><i>NFPA 5000</i>®, <i>Building Construction and Safety Code</i>®, 2018 edition.</p>

<i>NFPA 5000®</i> , <i>Building Construction and Safety Code®</i> , 2015 edition.	
Chapter 3 – Definitions	
<p>3.2.6 Standard. A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the <i>Manual of Style for NFPA Technical Committee Documents</i>.</p>	<p>3.2.6 Standard. An NFPA Standard, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the <i>NFPA Manuals of Style</i>. When used in a generic sense, such as in the phrase “standards development process” or “standards development activities,” the term “standards” includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.</p>
Chapter 4 – Types of Construction	
<p style="text-align: center;">Content Added</p>	<p>4.1.6.5 An alternate approach for a material to be considered a limited combustible material is where the material is tested in accordance with ASTM E2965, <i>Standard Test for Determination of Low Levels of heat Release Rate for Materials and Products Using an Oxygen Combustion Calorimeter</i>, at an incident heat flux of 75 kW/m² for a 20-minute exposure, the peak heat release rate does not exceed 150 kW/m² for longer than 10 seconds, the total heat release does not exceed 8 MJ/m².</p>
<p>4.3.2.10 Heavy Timber Structural Elements. In all occupancies, heavy timber structural members shall be permitted to be used for the roof construction where a 1-hour fire resistance rating or less is required. [5000:7.2.3.2.10]</p>	<p>4.3.2.10 Heavy Timber Structural Elements. In all occupancies, heavy timber structural elements shall be permitted to be used for the roof construction where a 1 hour fire resistance rating or less is required. [5000:7.2.3.2.10]</p>

<p>4.3.2.13 Combustible Materials. Combustible materials shall be permitted in accordance with the following:</p> <ul style="list-style-type: none"> (1) Foam plastic insulation complying with Section 48.4 of <i>NFPA 5000</i> (2) Metal composite material complying with Section 37.4 of <i>NFPA 5000</i> (3) Thermal and acoustical insulation, other than foam plastic, complying with Section 8.16 of <i>NFPA 5000</i> (4) Interior floor finish and interior finish, trim, and millwork, such as doors, door frames, window sashes, and window frames (5) Light-transmitting plastic complying with Sections 38.11 and 48.7 of <i>NFPA 5000</i> (6) Class A, Class B, or Class C roof coverings (7) Blocking <p>[5000:7.2.3.2.13]</p>	<p>4.3.2.13 Combustible Materials. Combustible materials shall be permitted in accordance with the following:</p> <ul style="list-style-type: none"> (1) Foamed plastic insulation complying with Section 48.4 of <i>NFPA 5000</i> (2) Metal composite material complying with Section 37.4 of <i>NFPA 5000</i> (3) Thermal and acoustical insulation, other than foamed plastic, complying with Section 8.16 of <i>NFPA 5000</i> (4) Interior floor finish and interior finish, trim, and millwork, such as doors, door frames, window sashes, and window frames (5) Light-transmitting plastic complying with Sections 38.11 and 48.7 of <i>NFPA 5000</i> (6) Class A, Class B, or Class C roof coverings (7) Blocking <p>[5000:7.2.3.2.13]</p>
<p>4.3.2.14 Ceiling Cavity Plenums and Raised Floor Plenums. The space between the top of the finished ceiling and the underside of the floor or roof above the space between the top of the finished floor and the underside of a raised floor shall be permitted to be used to supply air to the occupied area or return and exhaust air from the occupied area, provided that the requirements of 4.3.2.15 through 4.3.2.20 are met.</p>	<p>4.3.2.14 Ceiling Cavity Plenums and Raised Floor Plenums. [5000:7.2.3.2.14] For the purpose of this <i>Code</i>, the application of these provisions for ceiling cavity plenums and raised floor plenums shall apply to all buildings and shall not be subject to the limitations as set forth in Section 1.3 of <i>NFPA 90A</i>.</p>
<p>4.3.2.15.1 Fire-retardant-treated wood complying with, Chapter 45 of <i>NFPA 5000</i> shall be permitted.</p>	<p style="text-align: center;">Content Removed</p>
<p>4.3.2.16 Plenum Fire Stopping. The integrity of the fire stopping for penetrations shall be maintained.</p>	<p style="text-align: center;">Content Removed</p>
<p>4.3.2.17 Plenum Light Diffusers. Light diffusers, other than those made of metal or glass, used in air-handling light fixtures shall be listed and marked as follows: Fixture Light Diffusers for Air-Handling Fixtures</p>	<p style="text-align: center;">Content Removed</p>

<p>4.3.2.18 Plenum Air Temperature. The temperature of air delivered to plenums shall not exceed 250°F (121°C).</p>	<p>Content Removed</p>
<p>4.3.2.19 Plenum Materials Exposure. Materials used in the construction of a plenum shall be suitable for continuous exposure to the temperature and humidity conditions of the environmental air in the plenum.</p>	<p>Content Removed</p>
<p>4.5.1 Type IV Construction. Type IV (2HH) construction shall be that type in which fire walls, exterior walls, and interior bearing walls and structural elements that are portions of such walls are of approved noncombustible or limited-combustible materials. Other interior structural elements, arches, floors, and roofs shall be of solid or laminated wood without concealed spaces and shall comply with the allowable dimensions of 4.5.5. [5000:7.2.5.1]</p>	<p>4.5.1 Type IV Construction. Type IV (2HH) construction shall be that type in which fire walls, exterior walls, and interior bearing walls and structural elements that are portions of such walls are of approved noncombustible or limited-combustible materials, except as allowed for exterior walls in 4.5.6.7. Other interior structural elements, arches, floors, and roofs shall be of solid or laminated wood or cross-laminated timber without concealed spaces or with concealed spaces conforming to 4.5.6.7 and shall comply with the allowable dimensions of 4.5.5. [5000:7.2.5.1]</p>
<p>4.5.4: Concealed Spaces. Certain concealed spaces shall be permitted in accordance with 4.5.5.3.4.</p>	<p>4.5.4: Concealed Spaces. Certain concealed spaces shall be permitted in accordance with the following:</p> <ul style="list-style-type: none"> (1) Concealed spaces in accordance with 4.5.5.3.4. (2) Concealed spaces within 1-hour fire resistance-rated interior walls and partitions in accordance with 4.5.6.3 do not require additional protection. (3) Concealed spaces in floors, roofs, or walls, of cross-laminated timber construction in accordance with one or more of the following and which do not contain combustibles other than building elements and electrical, mechanical, fire protection, or plumbing materials and equipment: <ul style="list-style-type: none"> (a) The building is sprinklered throughout and automatic sprinklers are also provided in the concealed space.

	<p>(b) The concealed space is filled completely with noncombustible insulation.</p> <p>(c) Surfaces within the concealed space are fully sheathed with not less than ½ in. (12.7 mm) gypsum board or noncombustible materials.</p>
<p>4.5.5 Type IV (2HH) Allowable Dimensions. All dimensions in 4.5.5 shall be considered nominal. [5000:7.2.5.5]</p>	<p>4.5.5 Type IV (2HH) Allowable Dimensions. All dimensions in 4.5.5 for solid sawn members shall be considered nominal. [5000:7.2.5.5]</p>
<p>4.5.5.3.1 Framed or glued laminated arches that spring from grade or the floor line, and timber trusses that support floor loads, shall be not less than 8 in. (205 mm) in width or depth. [5000:7.2.5.5.3.1]</p>	<p>4.5.5.3.1 Framed or glued laminated arches that spring from the finished ground level or the floor line, and timber trusses that support floor loads, shall be not less than 8 in. (205 mm) in width or depth. [5000:7.2.5.5.3.1]</p>
<p>4.5.5.5 Floors. Floors shall be constructed of spline or tongue-and-groove plank not less than 3 in. (75 mm) in thickness that is covered with 1 in. (25 mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½ in. (12.7 mm) wood structural panel; or they shall be constructed of laminated planks not less than 4 in. (100 mm) in width, set close together on the edge, spiked at intervals of 18in. (455 mm), and covered with 1 in. (25mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½ in. (12.7 mm) wood structural panel.</p>	<p>4.5.5.5 Floors. Floors shall be constructed without concealed spaces and shall be permitted to any of the following materials:</p> <p>(1) Materials shall be spline or tongue-and-groove plank not less than 3 in. (75 mm) in thickness that is covered with 1 in. (25 mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½ in. (12.7 mm) wood structural panel; or they shall be constructed of laminated planks not less than 4 in. (100 mm) in width, set close together on the edge, spiked at intervals of 18in. (455 mm), and covered with 1 in. (25mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½ in. (12.7 mm) wood structural panel.</p> <p>(2) Cross-laminated timber complying with 4.5.5.7 of NFPA 5000 shall be laminated not less than 4 in. (100 mm) thick and shall be continuous between supports. Individual timbers shall be fastened to one another. Cross-laminated timbers</p>

	<p>shall be permitted to be connected to walls without shrinkage gaps provided dimensional changes are considered in design. Concealed spaces shall be permitted in accordance with 4.5.4.</p>
<p>4.5.5.6 Roof Decks. Roof decks shall be constructed of spline or tongue-and-groove plank not less than 2 in. (51 mm) in thickness; or of laminated planks not less than 3 in. (75 mm) in width, set close together on edge, and laid as required for floors; or of 1 1/8 in. (29 mm) thick interior wood structural panel (exterior glue); or of approved noncombustible or limited-combustible materials of equivalent fire durability. [5000:7.2.5.5.8]</p>	<p>4.5.5.6 Roof Decks. Roof decks shall be permitted to be constructed of any of the following materials:</p> <ul style="list-style-type: none"> (1) Spline or tongue-and-groove plank not less than 2 in. (51 mm) in thickness (2) Laminated planks not less than 3 in. (75 mm) in width, set close together on edge, and laid as required for floors (3) 1 1/8 in. (29 mm) thick interior wood structural panel, exterior glue (4) Cross-laminated timber (5) Approved noncombustible or limited-combustible materials of equivalent fire durability [5000:7.2.5.5.8]
<p>4.5.6.1 Structural Elements. Structural elements shall be of heavy timber members (sawn or glued-laminated) or of fire resistance-rated construction as set forth in Table 4.1.1 when materials other than heavy timber are used.</p>	<p>4.5.6.1 Structural Elements. Structural elements shall be of heavy timber members (sawn or glued-laminated), cross-laminated timber, or fire resistance-rated construction as set forth in Table 4.1.1 when materials other than heavy timber are used.</p>
<p>4.5.6.7 Exterior Walls. Approved fire-retardant-treated wood framing shall be permitted within the assembly of exterior walls having a required fire resistance rating of 2 hours or less and a horizontal separation of not less than 60 in. (1525 mm), provided that the fire resistance rating is maintained and the exposed outer and inner faces of such walls are constructed of limited-combustible or noncombustible materials.</p>	<p>4.5.6.7 Exterior Walls. Exterior walls having a required fire resistance rating of 2 hours or less shall be permitted to be constructed with any of the following materials:</p> <ul style="list-style-type: none"> (1) Noncombustible material shall be permitted. (2) Limited-combustible material shall be permitted. (3) Fire-retardant-treated wood shall be permitted. Approved fire-retardant-treated wood framing shall be permitted within the assembly of exterior walls having a horizontal separation of not less than 60 in. (1525 mm), provided that the fire resistance rating is maintained and

	<p>the exposed outer and inner faces of such walls are constructed of limited-combustible or noncombustible materials.</p> <p>(4) Cross-laminated timber complying with 45.5.7 of <i>NFPA 5000</i> shall be permitted provided the exterior surface of the cross-laminated timber is protected by one of the following:</p> <p>(a) Fire-retardant-treated wood not less than 15/32 in. (12 mm) thick</p> <p>(b) Gypsum board not less than ½ in. (12.7 mm) thick</p> <p>(c) Noncombustible material</p>
Chapter 5 – Fire Resistance Rating Requirements for Structural Elements	
No Substantial Changes Noted.	No Substantial Changes Noted.

3) RESULTS IN A FUNDING ISSUE (Do Not Adopt Until Resolved)?

No.

4) FIRE PROTECTION PROGRAM CHANGE REQUIRED (Changes Required During Implementation After Adoption)?

No.

5) IMPORTANT INFORMATION FOR FIELD ENGINEERS?

No.

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Date:
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