

The City of Missoula Building and Construction Code Update

From the 2012 to the 2018 IBC, Effective March 7, 2020

Significant Code Changes

Note: This list is a summary and does not include all code changes or modifications. Readers are advised to research and verify any code changes and requirements related to their projects. This list is not intended to replace or modify official code documents.

Chapter 1 - Scope and Application:

- 111.1 A change in a building's use, or a portion of a building's use, with no change in its occupancy classification requires the building official issue a new certificate of occupancy. A change of occupancy now includes a change in the use within a group where a change in the application of code requirements occurs – see definitions.

Chapter 3 - Use and Occupancy Classification:

- 302.1 Occupied roofs shall now be classified in the group that the occupancy most resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.
- 303.4 Greenhouses for the *exhibition* of plants that provide public access is classified use Group A-3.
- 304.1 Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities and not more than 2500 square feet in area are classified as Group B.
- 304.1 Training and skill development not in a school or academic program is classified use Group B. This includes, but not limited to, tutoring centers, martial arts studios, gymnastics and similar uses and where not classified as Group A due to occupant load.
- 309.1 Greenhouses for *display and sale* of plants that provide public access is classified use Group M.
- 310.3, 310.4 Dormitories and similar non transient uses now are to be considered as Group R-3 occupancies where the occupant load is 16 or less, transient lodging houses, such as bed-and breakfast where their total occupant load is 10 or less.
- 311.1.1 Regardless of size, storage rooms and storage spaces that are accessory to other uses are to be classified as part of the occupancy to which they are accessory.
- 311.2 Self-service storage facility (mini-storage) shall now be classified as Group S-1
- 312.1 Communication equipment structures with a gross floor area of less than 1500 square feet can now be classified as Group U.
- 312.1.1 Greenhouses not classified as another occupancy shall be classified as Group U.

Chapter 4 - Special Detailed Requirements Based on Use and Occupancy:

- 403.2.1.1 The reduction in the minimum required fire resistance ratings for certain building elements of high rise buildings is no longer applicable to Group H-2, H-3 and H-5
- 404.6 A fire barrier is not required between the atrium and the adjoining spaces where the atrium is not required to be provided with a smoke control system.
- 404.9, 404.10 The three distinct travel distance conditions that could potentially occur for areas open to an atrium are now each addressed individually in order to clarify their application.
- 406.1 Provisions specific to motor vehicle related occupancies have been aggregated to this section.
- 406.3.1 Group U private garages are now limited to 1000 square feet, however multiple Group U private garages are permitted in the same building provided they are compartmentalized by minimum 1 hour fire separations.
- 407.2.5 Shared living spaces, group meeting areas and multipurpose therapeutic spaces are now permitted to be open to corridors in Group I-2, Condition 1 nursing homes provided five specific conditions are met.
- 407.2.6 A room or space containing a cooking facility with domestic cooking appliances is now permitted to be open to the corridor in a Group I-2, Condition 1 nursing home provided 13 specific conditions are met.
- 407.5 The allowance for larger smoke compartments in hospitals and other Group I-2 occupancies has now been modified to only include compartments containing single patient sleeping rooms and suites, as well as those compartments without patient sleeping rooms. Smoke compartments shall not be more than 22,500 square feet in Group I-2. See exceptions for larger areas.
- 407.5.4 Group I-2 occupancies, any smoke compartment that does not have an exit from the compartment must now provide direct access to a minimum of two adjacent smoke compartments.
- 420.10 The installation and use of domestic cooking appliances are now regulated in both common areas and sleeping rooms of Group R-2 college dormitories.
- 427.1 IFC medical gas requirements have been replicated in this section.

Chapter 5 - General Building Heights and Areas:

- 503 The provisions regulating building height and area limitations have been extensively revised with no change in technical application in order to provide an increased degree of user friendliness and technical consistency. Table 503 has been reformatted as Table 506.2.
- 503.1 The use of fire walls is now strictly limited to only the determination of permissible types of construction, based upon allowable building area and height.
- 503.1.4 New criteria are now provided establishing the appropriate methodology in regulation of building height in stories above grade plane where one or more occupancies is located on the roof.
- Tables 504.3 and 504.4 have been reformatted.

- 505.2.1.1 Where both a mezzanine and an equipment platform are located in the same room, the general limitation for mezzanines cannot be exceeded when applying the two-thirds allowance.
- 505.2.3 Ex. 2 A mezzanine can be enclosed if two or more exits or access to exits is provided.
- 506.2 The tabular allowable area for non-sprinklered single story greenhouses classified as Group U occupancies has been substantially increased for Type VB buildings to be consistent with those greenhouses classified as Group B, M, F-2 and E.
- 507.4 The sprinkler omission permitted for indoor participant sport areas of unlimited area Group A-4 buildings is now clearly not applicable to storage rooms, press boxes, concession areas, and other ancillary spaces.
- 508.3.1.2 Additional limitations have now been established in mixed occupancy buildings regulated under the non-separated occupancy provisions where one of the occupancies involved is a Group I-2, Condition 2 hospital use.
- 508.4.1 New provisions in Section 508.4.1 and Table 508.4 clarify that the fire separations used for mixed occupancy purposes and those used for fire area purposes address different concerns, and as such the most restrictive fire resistance rated conditions shall apply.
- 509 The current description in Table 509 regulating incidental uses in regard to rooms containing stationary storage battery systems has been revised to allow for ongoing consistency with the IFC. In addition, a new entry dealing with rooms housing electrical installations and transformers references applicable provisions in NEC.
- 510.2 In the special provisions of Section 510.2 addressing pedestal buildings, there is no longer a limit of one story above grade for that portion of the structure below the 3-hour horizontal separation.
- 510.2 Vertical offsets are permitted in the horizontal fire resistance rated separation mandated for “podium buildings” provided the minimum required fire resistance rating is maintained for the offsets and their supporting elements.

Chapter 6 - Types of Construction:

- 601 All portions of the roof construction, including primary structural frame members such as girders and beams, are now selectively exempted from fire resistance requirements based on Table 601 where every portion of the roof construction is at least 20 feet above any floor below.
- 602 Where the building under construction is of Type IIB or Type VB constructions and houses a Group R-3 occupancy, it has been clarified that no fire resistance rating is required for exterior walls due to location on the lot where the fire separation distance is a minimum of 5 feet.
- 602.3, 602.4.1 It has now been clarified that fire retardant treated wood sheathing, as well as wood framing, is permitted within exterior walls of Type III and IV buildings where the wall assembly does not exceed a 2-hour rating.

- 602.4.2 Cross-laminated timber is now permitted within the exterior walls of Type IV buildings where protected by one of the three specified materials.

Chapter 7 - Fire and Smoke Protection Features:

- 704.2, 704.4.1 In walls of light-frame construction where primary structural frame members require fire-resistive protection, columns extending only between the bottom and top plates do not need to be provided with individual encasement protection.
- 705.2 The minimum required clearance between the edge of a projection and the line used to determine the fire separation distance has been decreased.
- 705.2.3, 705.2.3.1 Construction requirements for balconies, porches, decks, bay windows, and oriel windows have been relocated from Section 1406 (Combustibles Materials on the Exterior Side of Exterior Walls) to Section 705.2.3 (Combustible Projections).
- 705.8.1 The allowable area of openings in fire-resistance-rated exterior walls is to be based on the fire separation distance for each story, determined individually, in the same manner as applied in the determination of the required wall rating.
- 706.1.1 Construction as a fire wall is no longer required for a party wall provided the aggregate height and area of the buildings on each side of the party wall are compliant with Chapter 5 and applicable easements and agreements are established addressing the maintenance of all fire and life safety systems of both buildings.
- 706.2 Floor and roof sheathing is permitted to continue through double fire wall assemblies where sheathing does not exceed ¾" thick.
- 708.4 The continuity requirements for fire partitions have been reformatted to provide for increased clarity of their construction requirements.
- 708.4.2 Fireblocking and draftstopping requirements for fire partitions of combustible construction have been consolidated and modified.
- 713.8.1 Membrane penetrations not related to the purpose of a shaft enclosure are no longer prohibited from penetrating the outside of the enclosure.
- 716.2.6.5 Self-closing doors that are not also required to be automatic closing are now permitted to be equipped with delayed-action closers.
- 717.3.2.4 Corridor dampers are required in duct penetrations for corridor lids constructed with a horizontal wall assembly.

Chapter 8 - Interior Finishes:

- 803.1.1, 803.1.2 Interior wall and ceiling finish testing criteria have been reorganized to enhance their application and enforcement.
- 803.3 Materials considered heavy timber construction must now comply with interior finish requirements where exposed in interior exit stairways and exit passageways.

- 803.11, 803.12 Specific flame spread testing provisions have been added to the IBC to address the use of factory-produced laminated products with a wood substrate as well as facings and wood veneers applied over wood substrate on site.

Chapter 9 - Fire Protection Systems:

- 901.6.2 Test criteria have been added to the code with a reference to new NFPA 4, Standard for Integrated Fire Protection and Life Safety System Testing, to ensure that where multiple fire protection systems or life safety systems are integrated, the acceptance process and subsequent testing must evaluate all of the integrated systems as a whole.
- 902 A number of prescriptive requirements have been added regulating the design and construction of automatic sprinkler system riser rooms and fire pumps.
- 903.2.1 The extent to which automatic sprinkler systems are required in multistory Group A occupancies has been clarified.
- 903.2.1.6 An automatic sprinkler system is required to be installed in a building when the roof is used for a Group A-2 occupancy with an occupant load exceeding 100, or other Group A occupancies with an occupant load exceeding 300.
- 903.2.1.7 Where small Group A fire areas share a common means of egress, the occupant load of the spaces must now be added together to determine if a sprinkler system is required.
- 903.2.3 Group E educational occupancies require sprinklers where located on a floor other than the level of exit discharge or where the fire area occupant load is 300 or more.
- 903.3.1.2.1 Where nonrated Balconies with similar combustible projections of dwelling and sleeping units are permitted in Type IIIA and VA buildings, it has been clarified that the sprinkler protection is to be extended to the area of the projections.
- 903.3.1.2.2 NFPA 13R sprinkler protection must be extended to open ended corridors and associated exterior stairways – an open breezeway is an interior portion of the building.
- 903.3.1.2.3 Sprinkler protection or acceptable alternative methods for the protection of attics are now addressed for mid-rise buildings housing multi-family occupancies and equipped with an NFPA 13R sprinkler system.
- 904.12 The installation of fire-extinguishing systems as protection for commercial cooking operations must now also comply with NFPA 96. In addition, commercial cooking systems are now permitted to be protected with a water mist fire-extinguishing system complying with NFPA 750.
- 904.13 Where domestic-type cooking operations are present in Group I-1 occupancies and college dormitories classified as Group R-2, an automatic fire-extinguishing system is now mandated in conjunction with the required hood over any cooktop or range.

- 904.14 The installation, inspection, testing, and maintenance of aerosol fire-extinguishing systems are now addressed through applicable references to Section 901 and 904.4 of the IBC and NFPA 2010, as well as the system's listing and manufacturer's instructions.
- 905.3.1 Standpipe protection is now required in those buildings having four or more stories above or below grade plane regardless of the vertical distance between the floor level of the highest story and the level of the fire department vehicle access.
- 905.4 Modifications have been made regarding the location of hose connections within interior exit stairway enclosures as well as the minimum number of connections required where open breezeways and open stairs are provided.
- 907.2.1 An additional criterion now mandates the installation of a manual fire alarm system where there is a Group A occupant load of more than 100 located above or below the level of exit discharge.
- 907.2.3 A manual alarm system in Group E occupancies is required where occupant load exceeds 50 and an emergency voice/alarm communication system is required when the occupant load exceeds 100.
- 907.2.10 The installation of a manual fire alarm system and an automatic smoke detection system is no longer required in Group R-4 occupancies.
- 910 Smoke and heat removal system technical requirements have been revised.
- 915 The carbon monoxide alarm provisions have been relocated, reformatted and revised; the scope has been modified to exclude Group I-3 occupancies while adding Group E occupancies.

Chapter 10 - Means of Egress:

- 1004.5, 1004.8 The method of calculating occupant load in business and mercantile areas has been revised, which will typically result in reduced design occupant loads. However, higher design occupant loads can now be assigned to concentrated business areas such as telephone call centers and similar uses.
- 1006.2.1 Allowances for single-exit Group R spaces have been reformatted and the approach to accumulating occupant loads from adjacent rooms discharging through foyers and lobbies has been clarified.
- 1006.3, 1006.3.1 The determination of means of egress requirements has been clarified where the occupants must travel to an adjacent story to reach a complying exit or exits.
- 1007.1.2 Exit and exit access doorway separation measurement has been clarified.
- 1008.2.3 The introduction of illumination provisions specific to the exit discharge portion of the means of egress clarifies the extent of the illumination requirement. In addition, new language recognizes a long-held allowance for the use of safe dispersal areas and the necessary illumination where such areas are provided.
- 1008.3.5, 1008.2.2 In Group I-2 occupancies, the required minimum illumination level of 0.2 footcandle must now be available upon failure of a single lamp in a multi-lamp lighting unit.

- 1009.7.2 The fire-resistance-rated exterior wall with protected openings separation between a required exterior area of assisted rescue and the interior of the building is no longer mandated, provided the building is protected with an automatic sprinkler system.
- 1010.1.1 Provisions addressing limits to the width and height of door openings have been selectively reformatted and revised as necessary to correlate with the technical accessibility requirements of ICC A117.1.
- 1010.1.4.4 Guidance has been provided to allow for enhanced security measures on educational classrooms egress doors and yet still continue to comply with applicable means of egress requirements.
- 1010.1.9.8 The allowance for the use of delayed egress locking systems has been expanded to also include egress doors serving Group E classrooms with an occupant load of less than 50, as well as secondary exits or exit access serving courtrooms.
- 1010.1.9.12 Previously limited to only those stairways serving four or fewer stories, the allowance for stairway doors to be locked on the stairway side until simultaneously unlocked from a single by emergency personnel is now applicable multi story conditions which are not considered as high-rise buildings.
- 10101.3.2 New conditions of use are now provided to the building official with criteria to evaluate security access turnstiles that are located in a manner to obstruct a means of egress.
- 1013.2 The permitted location for low-level exit signs selectively required in Group R-1 occupancies has been expanded to now allow the bottom of such sign to be mounted up to 18 inches above the floor.
- 1015.6, 1015.7 The prescriptive provisions addressing the installation of personal fall arrest/restraint anchorage where mechanical equipment or roof hatches are located close to a roof edge have now been deleted with simply a reference to the ANSI/ASSE Z 359.1 standard.
- 1017.3, 202 Additional language clarifies that the common path of egress travel limitations must be applied to each room or space on every story.
- 1023.3.1 Fire-resistance-rated separation is not required between an interior exit stairway and its exit passageway extension where both the stair enclosure and exit passageway are pressurized.
- 1023.5, 1024.6 Security system and two-way communication system components are now specifically permitted to penetrate the fire-resistance-rated enclosure of exit passageways, interior exit stairways, and interior exit ramps.
- 1025.1 Luminous egress path marking is no longer required in high-rise buildings classified as Group I-2, I-3, or I-4 occupancies.
- 1026.4, 1026.4.1 The method for determining the minimum required refuge area size where a horizontal exit has been provided has been modified to allow for a more appropriate determination of the occupant load assigned to the refuge area.
- 1029.6, 1029.6.3 The various assembly seating methods have been clarified through the introduction of a new definition for open-air assembly seating and an expanded definition for smoke-protected assembly seating.

- 1030.1 The occupancies where emergency openings are required have been clarified and the minimum number of required openings in a residential basement has been revised.

Chapter 11 - Accessibility:

- 1103.2.8 Small areas used for religious ceremonies are exempt from the access requirements.
- 1103.2.14 Revised conditions have now been placed on the use of walk-in coolers and freezers exempted from accessibility provisions by requiring them to be accessed from only employee work areas and limiting the scope to only pieces of equipment.
- 1107.6.1.1 The method used to determine the required Group R accessible units within multiple buildings on a common site has been revised to consider the number of units per building in addition to the total on site. Buildings with more than 50 units are to provide accessible units within that building.
- 1109.2.1.2 Family or assisted-use toilet rooms may now also contain a child-height water closet and lavatory in order to provide a higher level of accommodation.
- 1110.4.13 Access to children's play areas is now specifically required where those areas contain play components.

Chapter 12 - Interior Environment:

- 1206.2, 1206.3 A performance-based alternative approach for meeting the required sound transmission class ratings for unit separation walls and floor-ceiling assemblies in residential buildings has been introduced which allows for the use of an engineering analysis based upon a comparison to previously tested assemblies.

Chapter 14 - Exterior Walls:

- 1402.2 The minimum required thickness of masonry and stone veneer weather coverings has been updated to align with current industry standards.
- 1404.18 Polypropylene siding is now specifically permitted for use on exterior walls of any type of construction when other provisions of the IBC allow its use.

Chapter 15 - Roof Assemblies and Rooftop Structures:

- 1504.3.3 Metal roof shingles are now addressed separately from other metal panel roof systems with reference made to applicable standards for the labeling and testing of wind resistance for the shingles.
- 1507.1 Underlayment and ice barrier requirements have been relocated into one section instead of each roofing type sections.
- 1507.18 Building-integrated photovoltaic panel systems have specific requirements as a roof covering material in the IBC.

Chapter 16 - Structural Design:

- 1601.3 The construction document requirements for environmental and special loads have been updated for rain, snow and wind forces and their components.
- 1604.3.7 Limits to the deflection of framing which supports glazing have been added to Section 1604.3
- 1604.5.1 The provisions addressing multiple occupancies within a structure now include an exception exempting buildings in their entirety from needing to qualify as Risk Category IV buildings when a storm shelter is part of the structure.
- 1607.1 Table 1607.1 is now consistent with provisions in the 2010 and 2016 editions of ASCE 7 for minimum uniformly distributed live loads on decks and balconies by increasing the deck live load to one and one-half times the live load of the area served.
- 1607.1 Table 1607.1 now clarifies where heavy live loads of 100 psf or greater may be reduced.
- 1607.15.2 The minimum lateral load that fire walls are required to resist has been established at 5 psf.
- 1609 Wind speed maps have been updated.
- 1613.3.1 Seismic maps have been updated.

Chapter 17 - Structural Tests and Special Inspections:

- 1704.6 Section 1704.6.1 has been added requiring structural observation of buildings that are considered a high-rise or assigned to Risk Category IV.
- 1705.5.2 Five-foot-tall wood trusses requiring permanent bracing now require a periodic special inspection to verify that the required bracing has been installed.
- 1705.12.1, 1705.13.1 The exceptions for special inspection of seismic force-resisting systems have been clarified for structures in moderate and high seismic regions.
- 1705.12.6 Section 1705.12.6 adds a provision for special inspection of minimum clearance of fire sprinkler components to mechanical, electrical and plumbing systems.

Chapter 18 - Soils and Foundations:

- 1804.1 Underpinning requirements at excavations adjacent to existing foundations has been added.
- 1804.4 As an exception, impervious surfaces are now allowed to slope less than 2% away from the building near doors to meet the egress requirements in Chapter 10.
- 1807.2 The requirement for consideration of a keyway in the sliding analysis of retaining walls has been deleted from Section 1807.2.
- 1810.3.8.3 Equations in Section 1810.3.8.3 addressing precast pre-stressed piles have been updated.

Chapter 22 - Steel:

- 2207.1 The 2015 edition of the combined SJI-100, Standard Specification for K-Series, and DLH Series Open Web Steel Joist and Joist Girders, is the new referenced standard for steel joists.
- 2209.2 Reference to the cantilevered storage rack standard, RMI ANSI/MH 16.3, has been added to clarify the characteristics, essential differences, and requirements for cantilevered storage racks.
- 2211 The 2015 editions of the AISI standards for cold-formed steel, including AISI S240, AISI S400, and AISI S202, have been referenced in the 2018 IBC.

Chapter 23 - Wood:

- 2303.2.2 The types of chemical treatment allowed for fire-retardant-treated lumber have been clarified.
- 2306.6 Nails and staples are required to conform to the standard ASTM F 1667 including Supplement 1. In addition, minimum average bending moment values have been added for staples.
- 2304.9.3.2 A new alternative fastener schedule for construction of mechanically laminated decking has been added to the 2018 IBC giving equivalent power-driven fasteners for the 20-penny nail.
- 2304.10.1 The 2018 IBC and IRC are now aligned by requiring 8-penny common or ring shank nails when nailing 6 inches and 12 inches on center for roof sheathing.
- 2304.10.5 Staples in preservative-treated wood and fire-retardant-treated wood are now required to be made of stainless steel.
- 2304.11 The heavy timber provisions of Chapter 23 have been reorganized and the 2015 IBC table on engineered lumber dimensional equivalencies previously located in Section 602.4 has been moved into Section 2304.11.
- 2304.12.2.5, 2304.12.2.6 The provisions for permeable floors and roofs have been modified to require positive drainage of water and ventilation below the floor or roof to protect supporting wood construction.
- 2308.4.1.1(1) The header and girder spans for the exterior bearing wall table have been updated to allow No. 2 Southern Pine rather than a minimum No. 1 Southern Pine lumber.
- 2308.4.1.1(2) The header and girder spans for the interior bearing walls table have been updated to allow No. 2 Southern Pine for spans rather than No. 1 Southern Pine lumber. Building width is updated in the table as well, supplying span lengths for narrower building areas.
- 2308.5.5.1 Single-member lumber headers are now permitted in prescriptive wood framing.

Chapter 24 - Glass and Glazing:

- 2407.1 Requirements for glass panels that are used as a structural component in a guard (baluster panels) have been clarified.
- 2406.4.7 Glazing requirements at stair landings have been clarified, now generally requiring safety glazing if located less than 60 inches above the bottom landing of a stair.

Chapter 30 - Elevators and Conveying Systems:

- 3001.2 Additional communication capabilities are now required in accessible elevators to enhance the usability of the two-way communication systems by individuals with varying degrees of hearing or speech impairments.
- 3004 Elevator hoistway provisions have been deleted, such hoistways are no longer required to be vented to the outside.
- 3006.2.1 Where an elevator hoistway door opens into a fire-resistance-rated corridor, the door opening must be protected in accordance with one of the three general methods established in Section 3006.3 which recognizes the use of elevator lobbies, additional doors, and pressurization of the hoistway.
- 3007.1 Fire service access elevators, where required, now only need to provide access to those floor levels at and above the lowest level of fire department access. In addition, elevators that only connect a parking garage to a building's lobby need not serve as fire service access elevators.
- 3008.1.1 A reduction in the minimum number of elevators that must be considered as occupant evacuation elevators now reflects a more reasonable performance-based approach while still retaining the capacity to evacuate a high-rise building more quickly than stairs alone.

Chapter 31 - Special Construction:

- 3113 A process of acceptance for relocatable modular buildings has been established in order to provide clear and consistent direction in the relocation, reuse, and/or repurposing of such buildings.

Chapter 34 - Existing Structures:

- Chapter 34 has been deleted from the IBC. Existing buildings are now regulated entirely by the International Existing Building Code (IEBC).