ALEXANDER CITY
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On March 26, 2022, the City of Alexander City will place into effect the latest edition of the International Code Counsel updated code changes. The new code standards which will be followed are the 2021 Residential, Building, Plumbing, Energy Conservation, Existing Building, Property Maintenance, Pool, Mechanical, Gas, and Fire Codes. We have also adopted the 2020 NEC (National Electrical Code). Any residential or commercial plans submitted on or after April 15, 2022 will fall under the 2021 Building Code.

The following are some of the significant changes associated with the adoption of the 2021 Residential Code. The International Residential Code applies to 1 and 2 family dwellings. We hope to make this an easy transition for everyone by giving you information on some of these significant changes.

International Building Code Changes

- **Type IV-A ,IV-B, IV**- C connection protection inspection- A new inspection has been established, applicable only to Type IV-A ,IV-B, IV-C construction, that deals with connections where fire-resistance is provided by the wood cover.
- **Moderate-**hazard factory industrial, Group F-1- Energy storage systems and water/sewer treatment activities have been added to the listing of Group F-1 occupancies
- **Uses other than Group H-** The distilling or brewing of alcoholic beverages, as well as the storage of beer, distilled spirits, and wine, are now considered as conditions where the quantities of the beverages are not limited in a non-Group H occupancy provided compliance with the IFC is achieved.
- **Type of Construction in High-Rise Buildings-** The reduction in the minimum required fire-resistance ratings for certain building elements of high-rise buildings are no longer applicable to Group H-2, H-3, and H-5 occupancies due to the high physical hazard level such uses pose.
- **Water supply to required fire pumps-** The mandate for the water supply to require fire pumps by two water mains has been extended to those buildings more than 120 in height where the building's type of construction is either IV-A or IV-B.
- **Smoke control-** In the evaluation of whether a smoke control system is required for an atrium condition, vertical opening protection consisting of a combination of both the atrium and a shaft enclosure is now recognized.
- **Enclosure of Atriums-** Horizontal assembly separation of the atrium from adjacent spaces is no longer required at those openings created for complying escalators and/or exit access stairways.
- **Floor Surfaces-** The mandate for a sloping floor in the vehicle areas of parking garages has been reinstated in the IBC for those garages classified as Group S-2 occupancies.

- **Maximum Smoke Compartment Size-** The allowance for larger smoke compartments in hospitals and other Group I-2, Condition 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.
- **Required Egress from Smoke Compartments-** In 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.
- **Exit access through care suites Accesses to the corridor-** Egress trave allowances, both within an individual care suite as well as from a suite into a corridor, have been revised to allow for additional design flexibility and consistency with the CMS federal standard.
- **Activation of automatic-closing doors-** In Group I-2 occupancies, the closing of automatic-closing doors on hold-open devices must now also occur upon activation of the fire alarm system or automatic sprinkler system.
- **Puzzle room exiting-** A new type of building use, the puzzle room, is now regulated in a manner consistent with traditional special amusement areas. In addition, special means of egress requirements have been established that are specific only to such puzzle rooms.
- **Corridor Protection in Assisted Living Units-** Shared living spaces, group meeting spaces, and multipurpose therapeutic spaces are now permitted to be open to fire-rated corridors in Group I-1 assisted living housing facilities provided specific conditions are met.
- **Group I-1 Cooking Facilities-** A room or space containing a cooking facility with domestic cooking appliances is now permitted to be open to a corridor in Group I-1 occupancies provided nine specific conditions are met.
- **Dormitory Cooking Facilities-** The installation and use of domestic cooking appliances are now regulated in both common areas and sleeping rooms of Group R-2 College dormitories.
- **Domestic Cooking-** Where domestic cooking facilities are provided in ambulatory care facilities, conditions addressing the installation of the cooking appliances have now been established to address any fire concerns.
- **Play Structures-** The interior finish materials of play structures are now regulated for flame spread purposes. In addition, the scoping provisions have been modified to include larger structures, and the requirements are no longer limited to play structures for children's use.
- **Medical Gas Systems**- To provide a more comprehensive and efficient compilation of construction regulations, those IFC medical gas system requirements related directly to building construction have now been replicated in the IBC.
- **Higher Education Laboratories**- Higher education laboratories using hazardous materials can now be considered Group B occupancies provided such laboratories comply with new Section 428 which provides an alternative approach to the existing control area provisions.
- **Height in Feet-** Height limits in feet above grade plane have now been established for the three new construction types addressing mass timber construction: IV-a, IV-B, and IV-C.
- **Number of Stories-** Height limits in stories above grade plane have now been established for the three new construction types included in mass timber construction, and increases in allowable height for Group S-1 occupancies in sprinkled buildings of Type IIB and IIIB construction have been made.
- **Allowable Area Determination-** Building area limitations have now been established for the three new construction types included in mass timber construction. An increase has occurred in allowable single-story floor areas for Group I-3 occupancies in sprinkled buildings Type IIA construction.
- **Construction of Fire Separation of Mass Timber-** Additional criteria for the use of mass timber elements serving as fire barriers and horizontal assemblies in mass timber buildings include the installation of a thermal barrier as part of any required incidental use and occupancy separations.
- **Horizontal building separation allowance, stairway construction in podium buildings-** Where a combustible building (Type III, IV, or V) is located above the lower noncombustible (Type IA) building when applying for the horizontal building separation allowance, interior exit stairways located withing the Type IA building may be constructed of combustible materials where specified conditions are met.
- **FRT Wood Sheathing in Exterior Wall Assemblies-** It has now been clarified that wood sheathing, as well wood framing, is permitted in exterior walls of Type III and IV buildings where fire-retardant-treated wood is used.

- **Mass Timber Type IV Buildings-** While the past allowances for Type IV buildings have been maintained as Type IV-HT construction, three new construction types have been introduced to recognize other forms of mass timber construction. New construction types (Types IV-A, IV-B, and IV-C).
- **Allowable combustible Materials in Types I and II construction-** In buildings of Type I and II construction, the allowance for the use of fire-retardant-treated wood in shaft enclosure and roof construction has been modified for Group I-2 buildings. In addition, the use of wood nailer for parapet flashing and roof cants is permitted in all buildings.
- **Determination of noncombustible Protection for Mass Timber-** A test method has been provided to determine the contribution time of noncombustible protection to mass timber fire resistance. In addition, edges and intersections between adjacent elements are to be sealed to limit smoke and air movement within a building.
- **Party Walls Not Constructed as Fire Walls-** Construction, as a firewall 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.
- **Structural Continuity of Double Fire Walls**- In Seismic Design Categories D through F, floor and roof sheathing is permitted to continue through light frame double firewall assemblies where the sheathing does not exceed a thickness of ¾ inch.
- **Separations of Energy Storage Systems-** To both adequately isolate and protect energy storage systems from potential thermal runaway, the use of glazing with only a fire-protection rating is prohibited in fire-resistance-rated walls that are a portion of the enclosure of energy storage systems.
- **Enclosures of Exit Passageways-** Fire barriers creating an exit passageway may now terminate at a fire-resistance-rated top (lid) instead of continuing to the underside of the roof slab above.
- **Membrane Penetrations of Shaft Enclosures-** Membrane penetrations not related to the purpose of a shaft enclosure are no longer prohibited from penetrating the outside of the enclosure.
- **Delayed-Action Self-Closing Doors-** Self-closing doors that are not also required to be automatic-closing are now permitted to be equipped with delayed-action closers.
- **Fire protective curtain assembly-** Labeling and performance requirements for fabric fire-protective curtain assemblies have been established.
- **Doors in Double Firewalls-** Appropriate opening protection is now addressed where two doors are used to protect a single opening, such as between adjacent hotel rooms or where a double firewall is constructed.
- **Access to Dampers**- Specific damper access requirements have been established, including an allowance for remote inspection where access cannot be provided.
- **Fire-Resistance Rating of Mass Timber**- A prescriptive approach has been provided to achieve the required fire-resistance ratings for new mass timber construction type members and assemblies.
- Interior Finish Requirements for Heavy Timber Construction- Materials considered heavy timber construction must now comply with interior finish requirements where exposed I interior exit stairways and exit passageways.
- **Flame Spread Testing of Laminates and Veneers**- 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 a wood substrate on site.
- **Combustible Lockers as Interior Finish**- Combustible lockers are now regulated for interior finish purposes.
- **Integrated Fire Protection System Testing-** 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.
- **Sprinklers in Group E Occupancies-** Criteria for occupant load threshold and location within the building have been added as conditions that could require sprinkler protection in a Group E educational occupancy.
- **Sprinklers in Parking Garages**- Mechanical-access enclosed parking garages are now defined and require an automatic sprinkler system.

- **NFPA 13R Sprinkler Protection-** The maximum building height where an NFPA 13R sprinkler system is permitted has been reduced. In addition, where the podium provisions of Section 510 are applied, the story height measuring point has been changed to grade plane.
- **Sprinkler Protection at Balconies and Decks-** Where nonrated balconies and similar combustible projections of dwellings 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.
- **Corridor and Balcony Sprinklers-** Sprinkler protection must now be extended into corridors and balconies used in the means of egress, even though the location may be exempt based upon the NFPA 13R standard.
- **Protection of Attics in Group R Occupancies-** 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.
- **Domestic Cooking Protection in Institutional and Residential Occupancies-** Where domestic-type cooking operations are present in Group I-1 occupancies and college dormitories classified and Group R-2, an automatic fire-extinguishing system is now mandated in conjunction with the required hood over any cooktop or range.
- **Aerosol Fire Extinguishing Systems**- 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.
- **Class III Standpipes-** Standpipe system 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.
- **Standpipes in Parking Garages**- The standpipe requirements for both open and enclosed parking garages have been modifies impacting the type of system, the threshold heights, and the necessary water supply.
- **Class I Standpipe Connection Location**- Modifications have been made regarding the location of hose connections within interior exit stairway enclosures as well as the minimum number of connections requires where open breezeways and open stairs are provided.
- **Fire Alarms in Group A Occupancies-** 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.
- **Manual Alarms in Group S Occupancies-** A manual fire alarm system is now required in self-storage facilities that are three stories or more in height and have interior corridors.
- **Fire Alarm Occupant Notification**- Where a fire alarm system is required in Group R-1 and R-2 occupancies, a low-frequency signal shall be used in the sleeping rooms to improve the waking effectiveness of the occupant notification devices.
- **Smoke-proof Enclosures-** A new alternative method of pressurizing both the stair enclosure and the vestibule relative to the fire floor has been established for smoke-proof enclosures.
- **Fire Command Centers in Group F-1 and S-1-** A fire command center is now required in buildings housing Group F-1 or S-1 occupancies where the building footprint is over 500,000 square feet in size.
- **Group R Spaced with One Exit or Exit Access Doorway-** 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.
- **Egress from Mechanical Rooms and Penthouses**- The common path of travel distance limitations for unoccupied mechanical rooms and penthouses have been eliminated.
- **Egress through Adjacent Stories-** 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.
- **Egress from Occupied Roofs-** The means of egress provisions applicable to occupied roofs has been clarified.
- **Single Exit Stories-** For single-exit stories, the travel distance limits are now based on the exit access travel distance as opposed to the common path of egress travel.

- **Stairway Illumination-** The minimum illumination level for both exit and exit access stairways has been increased from 1 foot-candle to 10 foot-candles.
- **Accessible Elevators to Occupied Roofs-** An elevator serving an occupied roof must now be considered as one of the required accessible means of egress where the roof is located directly above the third story above the level of exit discharge.
- **Areas of Refuge-** The use of an interior area of refuge at the level of exit discharge instead of an exterior area for assisted rescue is now permitted.
- **Area of Refuge Floor Space-** The minimum required size of the clear floor space for a wheelchair has been increased to 30 inches in width by 52 inches in length to coordinate with the 2017 edition of the ICC A117.1 Standard.
- **Projections into Door Openings-** Additional components are now specifically permitted to project into the minimum required door opening height.
- **Door Opening Forces-** The requirements for releasing the latching hardware and the force to open the door has been divided into separate subsections to provide coordination with the 2017 edition of the ICC A117.1.
- **Locking Arrangements in Educational Occupancies-** Guidance has been provided to allow for enhanced security measures on educational classroom egress doors and yet continue to comply with applicable means of egress requirements.
- **Use of Delayed Egress Locking Systems in Group E Classrooms-** 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 doors serving courtrooms.
- **Locks and Latches-** The general locking provisions have been expanded to allow locked doors in the egress system when desired due to the clinical needs of care recipients or where exterior areas of egress back through the building.
- **Locking Arrangements in Group I-4-** Group I-4 occupancies are now regulated under the special locking arrangements allowed for other “educational occupancies”.
- **Security Access Turnstiles-** 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.
- **Stairway Landings-** Requirements addressing the layout and configuration of landings, both curved and those that exceed the minimum size, have been revised.
- **Floor Level Exit Sign Location-** 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.
- **Egress though Intervening Spaces-** Egress through an enclosed elevator lobby area is now permitted for spaces requiring only one means of egress.
- **Exit Access Stairways-** The allowance exempting the enclosure of exit access stairways that only serve two stories has been clarified by mandating that the stories be adjacent.
- **Dead-End Corridors-** In hospitals, a corridor that does not serve patient rooms or treatment spaces is now allowed a maximum 30-foot dead end.
- **Stairway Extensions- 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.
- **Refuge Areas for Horizontal Exits-** 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.
- **Required Emergency Escape and Rescue Openings-** The occupancies where emergency openings are required have been clarified and the minimum number of required openings in a residential basement has been revised.
- **Handrails at Social Stairs-** Guidance is now provided to address what is often called “social stairs”, which are regulated by a combination of the general stairway provisions and those for assembly seating.

- **Emergency Escape and Rescue Openings-** Although predominately a reorganization of the emergency escape and rescue opening provisions to coordinate the IBC and the International Residential Code (IRC) provisions have also been added to address the size of steps from an area well and the use of a door.
- **Accessible Design Compliance-** The IC A117.1 standard that is referenced by the International Building Code (IBC) for the design and construction of accessible buildings and facilities has been updated from the 2009 edition to the 2017 edition and includes several new and revised technical requirements.
- **Access to Walk-In Coolers and Freezers-** Revised conditions have now been placed on the use of walk-in coolers and freezers exempted from the accessibility provisions by requiring them to be accessed from only employee work areas and limiting the scope to only pieces of equipment.
- **Vehicle Charging Stations-** Scoping provisions have bee provided to make electric vehicle charging stations accessible.
- **Fixtures in Family or Assisted**-Use Toilet Rooms- Family or assisted-use toilet rooms may now also contain a child height water closet and lavatory to provide a higher level of accommodations.
- **Assisted Toileting and Bathing-** A series of changes were made to the assisted living and nursing home provisions to allow some units to have toilet and bathing facilities designed for assisted use instead of the independent use generally intended by the ICC A117.1 Accessible unit provisions.
- **Bottle Filling Stations-** Where provided, bottle filling stations must now be accessible.
- **Service Windows-** Sales and service counters now specifically address windows, and such elements are to be accessible whether or not a counter is provided at that location.
- **Operable Parts-** A new reference to the provisions of the operable part of ICC A117.1 allows the removal of like exceptions from the IBC.
- **Insulation of Unvented Attics**- A new option is available for the regulation of unvented attics with air-permeable insulation and vapor diffusion ports in warmer climates.
- **Engineering Analysis of Sound Transmission**- A performance-based alternative approach for meeting the required sound transmission class rating 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.
- **Enhanced Classroom Acoustics-** Educational occupancies are now required to meet the enhanced classroom acoustic requirements of Section 808 ICC A117.1.
- **Efficiency Dwelling Units-** The minimum required floor area of an efficiency dwelling unit has been reduced to 190 square feet, and a definition of an efficiency dwelling unit has been added.
- **Restroom Privacy-** Concerns regarding privacy within public restrooms have been addressed by requiring a screening element at the entry of the restroom.
- **Vapor Retarders-** Vapor retarder provisions have been reorganized and thresholds clarified for when a vapor retarder is required and which retarder is required as well as location and climate zone requirements.
- **Class II Vapor Retarders-** New Table 1404.3.1 assigns minimum continuous insulation R-values where Class II vapor retarders are installed.
- **Class III Vapor Retarders-** The appropriate use of Class III vapor retarders with spray foam insulation has been clarified.
- **Parapet Walls-** Parapet walls now require moisture resistance in a manner similar to the remainder of the building.
- **Metal Roof Shingles-** 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.
- **Ballasted Roofs-** All requirements applicable to the design and construction of ballasted low-slope roofs are now contained in the ANSI/SPRI RP-4 standard.
- **Aggregate-Surfaced Roofs-** Parapets of a minimum height is now required for aggregate surfaced roofs to prevent blow-off.

- **Construction Documents-** The construction document requirements for environmental and special loads have been updated for rain, snow, and wind forced and their components.
- **Construction Document Wind Zones-** Component and cladding wind zones must now be identified in the construction documents.
- **Deflection of Glass Framing-** Limits to the deflection of framing which supports glazing has been added to Section 1604.3.
- **Risk Categories of Assembly Spaces-** Mixed occupancy buildings with assembly spaces are now designated as Risk Category III when the total public assembly occupant load is greater than 2,500 people.
- **Storm Shelters-** The development of loads for storm shelters is to be based on ICC 500 which provides wind speeds for tornado and hurricane shelter design using ASCE 7 load combinations.
- **Load Combinations-** The strength design and allowable stress design load combinations have been deleted while direct reference to Chapter 2 of ASCE 7 has been added to Section 1605.
- **Dead Loads-** Dead loads at the roof level have been clarified as well as fixed service equipment concentrated loads.
- **Deck Live Loads**- Table 1607.1 is now consistent with the 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.
- **Rope Decent Systems-** Rope decent system anchorage has been added to the section on fall arrest and lifeline anchorage.
- **Minimum Fire Load**- The minimum lateral load that firewalls are required to resist has been established at five pounds per square foot.
- **Fixed Ladder Live Load-** Live loads for fixed and ship's ladders have been added to the IBC.
- **Snow Maps-** The ground snow load map has been updated to provide consistency with ASCE 7-16 snow maps by adding a reference to ASCE 7 snow tables in states with large case study areas.
- **Wind Loads-** Section 1609 now has updated wind speed maps, including maps for the state of Hawaii. Terminology for describing wind speeds has been changed again with ultimate design wind speeds now called basic design wind speeds.
- **Soil-Caused Uplift-** Concrete slabs on the ground must now be designed for uplift due to soil expansion and water pressure in areas prone to soil movement or a shallow water table.
- **Rain Loads-** Secondary drainage system rain loads have been updated to be consistent with ASCE 7.
- **Flood Hazard Documents-** The design of hydrostatic loads on breakaway walls is required when the walls do not meet the requirements of ASCE 24.
- **Earthquake Loads-** The site coefficients contained in the IBC have now been brought into alignment with the newest generation of ground motion attenuation equations.
- **Seismic Maps-** The IBC seismic maps have been updated to match new maps in the 2015 NEHRP Provisions and 2016 ASCE 7 standard.
- **Tsunami Loads-** There are many costal communities in the western United States and on the islands in the Pacific Ocean that need tsunami-resistant design of critical infrastructure and essential facilities. New IBC Section 1615, Tsunami Loads, has been added to address the design of these facilities.
- **Structural Observations-** Section 1704.6.1 has been added requiring structural observation of buildings that are considered a high-rise of assigned to Risk Category IV.
- **Structural Observations**- A structural observer must now visually observe the construction of structural systems for general design conformance for all buildings assigned to Risk Category III or IV.
- **Metal-plate-connected Wood Trusses**- Five-foot wood trusses requiring permanent bracing now require a periodic special inspection to verify that the required bracing has been installed.
- **Special Inspection of Precast Concrete**- Special inspection requirements for precast concrete diaphragm connections have been added to the list of general concrete special inspections and tests.
- **Empirically Designed Masonry-** Empirically designed masonry is no longer allowed in Risk Category IV buildings.

- **Mass Timber Special Inspection-** Special inspection requirements have been added to address the anchorage and connection of mass timber structural elements.
- **Structural Integrity of Deep Foundations-** When installed, deep foundation elements appear to be understrength due to quality, location, or alignment, an engineering assessment must now be done.
- **Designated Seismic Systems-** Section 1705.12.6 adds a provision for a minimum clearance of fire sprinkler components considered as a designated seismic system.
- **Special Inspection of Storage Racks**- Steel storage rack special inspection duties have been clarified with the addition of special inspection tasks.
- **Firestop Inspections in Group R-** The installation of firestops, fire-resistant joint systems, and perimeter fire barrier systems in residential-use buildings now requires special inspection in those Group R fire areas having an occupant load exceeding 250.
- **Window and Door Assemblies-** Testing standards and analysis procedures have been clarified for exterior door and window assemblies, including garage door assemblies.
- **Impact Protection**- Required windborne debris protection for glazing has been clarified through the addition of a design standard and a definition of impact protective system.
- **Retaining Walls-** The requirements for consideration of a keyway in the sliding analysis of retaining walls has been deleted from Section 1807.2.1.
- **Precast Pre-stressed Piles-** Equations in Section 1810.3.8.3 addressing precast pre-stressed piles have been updated.
- **Frost Protection at Required Exits-** Frost protection for egress doors has been added to the foundation requirements.
- **Allowable Stresses in Deep Foundations-** The maximum allowable stress for materials in deep foundation elements has been updated to be consistent with the capacity of materials used today.
- **Helical Piles-** Calculation of the allowable axial design load, Pa, has been clarified.
- **Structural Steel H-piles-** The design and detailing of H-piles must now conform with AISC 341 requirements for a structure assigned to Seismic Design Category D, E, or F.
- **Deep Foundation Element Splicing-** Deep foundation element splices for buildings in Seismic Design Category A and B regions designed by general engineering practices do not have to meet the 50 percent tension and bending capacity requirements.
- **Precast Concrete Piles-** Precast concrete piles are now to be designed in accordance with ACI 318 rather than IBC provisions.
- **Pile Caps-** Pile cap requirements have been updated to align with the 2019 edition of ACI 318.
- **Vibratory Drivers-** Where vibratory drivers are used to install piles, load tests are no longer required when pile installation is completed with an impact hammer of when a pile is only used for lateral resistance.
- **Concrete Design and Construction-** ACI 318 has been updated to the 2019 edition and includes changes addressing deep foundations, materials, and seismic design.
- **Structural Concrete Tolerances-** American Concrete Institute standards ACI 117 and ITG-7 have been added to the IBC by reference to provide acceptable tolerances for concrete construction.
- **Exterior Finish of Adobe Masonry-** The use of plater as an exterior finish for adobe construction has been clarified, with cement-lime, lime, and clay plaster minimum requirements now addressed.
- **AISC 358 for Prequalified Connections-** Beam-column moment connections in Seismic Design Category B and C buildings are now required to be prequalified where the response modification coefficient exception is not applied.
- **SJI Standard-** The 2015 edition of the combined SJI-100 Standard Specification for K-Series, LH-Series, and DLH Series Open Web Steel Joists and Joist Birders in the new referenced standard for steel joists.
- **Steel Storage Racks-** Steel Storage Racks Requirements for steel storage racks and their anchorage qualification continue to be clarified.
- **Cold-formed Steel Light-frame Construction-** The 2015 editions of the AISI standards for cold-formed steel are adopted in the 2018 IBC. These new standards include AISI S240, AISI S400, and AISI S202.

- **Fire-Retardant Treated Wood-** The types of chemical treatment allowed for fire-resistant-treated lumber are clarified.
- **Fire-Retardant-Treated Wood-** ASTM E84 has been updated to now include requirements previously only addressed I the IBC; accordingly, the code language has been deleted.
- **Wood Truss Bracing**- Specific requirements have been added to address wood truss members diagonal bracing and restraint.
- **Mass Timber Connection Protection-** In Type IV-A, IV-B, and IV-C construction, both a testing option for connections that are part of a fire-resistance-rated assembly and a calculation option for connections that are required to be protected for the fire-resistance rating time of the connected elements have been provided.
- **Sheathing Fasteners-** Additional fastener options have been added to the sheathing fastening schedule and nail patterns have been updated to current industry standards and the new ASCE 7 wind loads.
- **Concealed Spaces in Type IV HT-** Concealed spaces are now permitted in floors and roof decks for Type IV-HT.
- **Nails and Staples-** Nails and staples are required to conform to the standard ASTM F 1667 including Supplement 1. Minimum average bending moment values are added for staples.
- **Mechanically Laminated Decking-** A new alternative fastener schedule for construction of mechanically laminated decking is added to the 2018 IBC giving equivalent power-driven fasteners for the 20-penny nail.
- **Ring Shank Nails-** The 2018 IBC and IRC are now aligned by requiring an 8-penny common or ring shank nail when nailing 6:12 on center for roof sheathing.
- **Supporting members for permeable floors and roofs**- The provisions for permeable floors and roofs are modified to require positive drainage of water and ventilation below the floor or roof to protect supporting wood construction.
- **Lateral Force-Resisting Systems-** The 2021 edition of the SDOWS, which includes shear wall and diaphragm design provisions for cross-laminated timber, is now referenced in the IBC.
- **Header and Girder Spans-Exterior Walls-** The header and girder spans for the interior bearing walls table are updated to allow No. 2 Southern Pine design values for spans rather than No. 1 Southern Pine thereby reducing span lengths.
- **Rafter Tie Connections-** Rafter tie connection requirements have been updated to reflect current standards.
- **Water-Resistive Barrier for Stucco-** Water-resistive barrier requirements for stucco have been divided into two categories based on whether the building is in a dry or moist climate.
- **Minimum Plumbing Facilities-** Multiple clarifications and modifications have been made to the regulation of plumbing facilities to address significant issues of gender and equality of access.
- **Toilet Fixtures in Storage Facilities-** The location and distance limits imposed for travel to required employee toilet facilities are no longer applicable to Group S storage occupancies where approved by the building official.
- **Emergency Elevator Communication Systems-** Additional communication capabilities are now required in accessible elevators to enhance the usability of the two-way communication system by individuals with varying degrees of hearing or speech impairments.
- **Emergency Elevator Communication Systems-** Additional direction and clarity have been provided regarding the appropriate emergency two-way communication features that are mandated for accessible elevators.
- **Extent of Fire Service Access Elevator Travel-** Fire service 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.

- **Required Number of Occupant Evacuation Elevators- 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.
- **Relocatable Buildings-** A process of acceptance for relocatable modular buildings has been established to provide clear and consistent direction in the relocation, reuse, and/or repurposing of such buildings.
- **Public Use Restrooms in Flood Hazard Areas-** Special criteria to be applied where public-use restrooms are located within designated flood hazard areas of publicly owned lands have been established to allow such restrooms to be at-grade or above-grade but below the base flood.
- **Intermodal Shipping Containers**- The use of intermodal shipping containers as buildings and structures is now recognized in the IBC and criteria have been established to address the minimum safety requirements without duplicating existing code provisions.
- **Stairways in Buildings under Construction-** At least one temporary or permanent stairway must now be provided in a building under construction once the building has reached a height of 40 feet as measured from the lowest level of fire department vehicle access.
- **Fire Protection during Construction Modification-** The scoping provisions addressing the timing and availability of the required water supply for buildings under construction have been expanded and specific fire flow requirements have now been established.
- **Fire Watch during Construction**- In order to protect adjacent properties from fire in a building of considerable height when under construction, new provisions have been established to give authority to the fire code official to require a fire watch during those hours where no construction work is being done.