

The 2018 Construction Codes will be effective on February 1, 2021. The following list highlights some of the significant changes to the various construction codes.

### **2018 International Residential Code for One- and Two-Family Dwellings (IRC)**

- State amended the section for decks with new tables (60 psf live load) for deck joists, footings, posts and beams. WS R507
- When a dwelling unit undergoes an alteration requiring a permit, smoke alarms must be updated in all dwelling units in the structure per revised state amendment. R314.2.2
- Smoke and CO alarms in existing areas must be interconnected when undergoing alterations and may use wireless technology. R314.4
- State added requirements for heat detectors or heat alarms in new garage with interconnection to certain dwelling alarm. R314.2.3
- Revised Whole-house ventilation system requirements (testing, certificate, controls, design, etc. WS M1507.3.3.1
- Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks. R303.5.1
- An emergency escape and rescue opening is no longer required in basement sleeping rooms where the dwelling has an automatic fire sprinkler system and the basement has a second means of egress or an emergency escape opening. R310.1
- State added new definition and section for sleeping lofts (ceiling height less than 6'8", etc.). R202, R327
- State added alternative footing size tables for light-frame construction. R403.1.1
- State amended foundation anchorage language to allow wet-setting in some conditions. R403.1.6
- State adopted new Appendix Chapter Q – Tiny Houses with amendments. These provisions apply to a dwelling unit that is 400 sf or less in floor area excluding sleeping lofts.
- Energy storage system requirements include listed electrical equipment, ventilation, commissioning, protection from vehicle impact, etc. WS R327
- New state-amended definition of egress roof access window. R202
- New IRC definition of habitable attic (finished or unfinished habitable space) which is no longer modified by the state. R202
- State added new section for habitable attics which are to not be treated as a story when no larger than half the area of the story below and the structure is fully sprinklered. R326.3
- New tables address alternative wood stud heights and the required number of full height studs in high wind areas.
- Townhouse definition and separation provisions:
  - Must have yard or public way on two sides that extends at least 50% of the length on each of the two sides. (R202)
  - Now include options for using two separate fire-resistant-rated walls or a common wall. R302.2
  - State struck existing statewide amendment regarding structural independence in favor of the model code language. R302.2.4
- State modified townhouse continuity requirements at building overhangs. R302.2.3 & Figure R302.2(2)
- Fire sprinkler requirements have been added by the state for townhouses with 5 or more attached units. R313

### **Washington State Energy Code - Residential (WSEC-R)**

- Negative points added for 'fuel normalization' and must be factored to achieve total sum of energy credits required in 406.3 which were previously found in Table 406.2 R406.2
- New options and values added for energy credits. Energy efficiency requirements increased for additions and new construction. Also added different requirements for R2 occupancies. R406.3
- Results from whole-house ventilation system flow test rate must be documented on compliance certificate. R401.3

### **2020 Washington Cities Electrical Code (WCEC/2020 NEC)**

- Emergency Disconnects. 230.85
  - New requirement added requiring an emergency disconnect
  - disconnecting means during an emergency such as a fire, gas leak, structural damage, flooding, etc.
  - at a readily accessible outdoor location for dwelling units
- Islands and Peninsulas. 210.52(C)(2)
  - At least one receptacle outlet shall be provided for the first 9 sf, or fraction thereof, of the countertop or work surface
  - A receptacle outlet shall be provided for every additional 18 sf, or fraction thereof, of the countertop or work surface
  - At least one receptacle outlet shall be located within 2 ft of the outer end of a peninsular countertop or work surface
- Surge Protection. 230.67
  - New requirement added for surge protection on all services at dwelling units
  - The surge protection device (SPD) must be an integral part of the service equipment or located immediately adjacent to the service equipment
  - Exception permits alternate location provided an SPD is located at each next level distribution equipment downstream toward the load
  - This SPD required to be either a Type 1 or Type 2 SPD
- For service disconnecting means where two or more service disconnect enclosures are installed with combined ampere rating is 1200 amperes or more and over 1.8 m (6 ft) wide, the "Large Equipment" rules will now apply. 110.26.C.2
- Requirements added to prevent open equipment doors from impeding the entry to or egress from the working space of large equipment.

### **2018 Uniform Plumbing Code (UPC)**

- Backflow protection now required for chemical dispensers. UPC 603.5.2.1
- Provisions are now made to allow the acceptance of engineered storm drainage systems. UPC 1106
- Various material and classification changes made to bring Medical Gas and Vacuum Systems into compliance with the latest edition of NFPA 99 - Health Care Facilities Code. UPC Chapter 13
- New materials standards for sanitary drainage piping, including marking the country of origin on C.I. soil pipe and fittings. UPC Chapter 7
- New sound transmission provisions as per the Building Code for residential structures. UPC 309.5
- New standards for trap primers and electronic trap primers (ASSE 1018 and ASSE 1014). UPC 1007.2

### **2018 International Fuel Gas Code (IFGC)**

- The clearances between direct-vent appliance vent terminals and openings in the building exterior that could allow combustion products to enter the building have been revised. IFGC 503.8

- A new Section was added to recognize arc-resistant CSST products. IFGC 310.2, 310.3
- The code now allows Schedule 10 steel pipe to be used, whereas previously, Schedule 40 was the lightest steel pipe material allowed. Schedule 10 steel pipe joints are allowed to be welded, brazed, flanged or assembled with press-connect fittings. Schedule 10 pipe cannot be threaded. IFGC 403.4.2, 403.10.1
- The code clarifies that appliance shutoff valves located behind movable appliances, such as ranges and clothes dryers, are considered to be provided with the required access. IFGC 409.5.1
- The code now calls for the plastic vent pipe material to be labeled as complying with the standards for the specific pipe material as called out by the manufacturer. IFGC 503.4.1, 503.4.2

## **2018 International Building Code (IBC)**

- Increased Seismic Load in ASCE 7-16
  - ASCE 7-16, referenced by the 2018 IBC
  - Seismic design loads increased due to research findings in seismology & earthquake engineering
  - Site soil coefficients now correspond to the newest generation of ground motion attenuation equations (seismic values).
  - Incorporation of Basin Effects (WS)
- Wind speed maps updated and terminology describing wind speeds has changed with ultimate design wind speeds now called basic design wind speeds.
- Live loads on decks and balconies increase the deck live load to one and one-half times the live load of the area served.
- Metal Plate Connected Wood Trusses. Five-foot tall wood trusses requiring permanent bracing now require a periodic special inspection to verify that the required bracing has been installed. IBC 1705.2.2
- Emergency escape and rescue. The occupancies where emergency openings are required have been clarified and the minimum number of required openings in a residential basement has been revised. IBC 1030.1
- Concentrated business use areas. The method of calculating occupant load in business areas has been revised which will typically result in reduced design occupant loads. The occupant load factor for business uses has been revised to one occupant per 150 square feet. IBC 1004.5, 1004.8
- OK to Lock Doors Serving Outdoor Areas, with Conditions. 1010.1
- Locking arrangements in educational occupancies. Guidance has been provided to allow for enhanced security measures on educational classroom egress doors and yet still continue to comply with applicable means of egress requirements. IBC 1010.1.4.4
- Fire partition continuity, fire blocks and draft stops requirements have been reformatted to provide for increased clarity of their construction requirements. IBC 708
- Use of fire walls to create separate buildings is now limited to only the determination of permissible types of construction based on allowable building area and height.
- Rated corridors. Elevator hoist way doors shall be protected. Where an elevator hoistway door opens into a fire-resistance-rated corridor, the opening must be protected in a manner to address smoke intrusion into the hoistway. IBC 3006.2.1
- Gender-neutral toilet facilities are established. IBC 2902.2.2
- Changes to Definitions: Chapter 2
  - Change of Occupancy – includes: Any change in use within a group for which there is a change in application of the requirements of this code.

- Sleeping Unit. A single unit providing rooms or spaces for one or more persons that includes permanent provisions for sleeping, and can include provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.
- Occupancy classification. Clarified that occupied roofs are to be assigned one or more occupancy classifications in a manner consistent with the classification of uses inside the building. IBC 302.1
- Occupied roofs. New criteria is now provided establishing the appropriate methodology in the regulation of building height in stories above grade plane where one or more occupancies is located on the roof. IBC 503.1.4
- Accessory storage spaces of any size are now permitted to be classified as part of the occupancy to which they are accessory.
- The minimum lateral load that fire walls are required to resist is five pounds per square foot.
- New alternative fastener schedule for construction of mechanically laminated decking is added giving equivalent power-driven fasteners for the 20-penny nail.
- Solid sawn lumber header and girder spans for the exterior bearing walls reduce span lengths to allow #2 Southern Pine design values.
- Classification of Congregate Living Facilities. Dormitories and similar non-transient uses now are to be considered as Group R-3 occupancies where the occupant load is 16 or less. In addition, transient lodging houses, such as bed-and-breakfast establishments, can only be considered as Group R-3 occupancies where their total occupant load is 10 or less. IBC 310.3; 310.4
- Medical Gas Systems. IFC medical gas system requirements related directly to building construction have now been replicated in the IBC. New code sections have been introduced addressing medical gas systems and higher education laboratories. IBC 427
- 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. IBC 428
- Allowable Height and Area for Tall Wood Buildings. IBC 506
- Construction Documents. The construction document requirements for environmental and special loads have been updated for rain, snow and wind forces and their components. IBC 1603.1
- Structural Observation. Section 1704.6.1 has been added requiring structural observation of buildings that are considered a high-rise or assigned to Risk Category IV. IBC 1704.6
- Mass timber construction - special inspections required of Mass Timber Construction. IBC 1705.5.3

#### **2018 International Existing Building Code (IEBC)**

- When a work area includes more than half the building in an alteration, wall anchors must be installed at the roof line along reinforced concrete and masonry walls. IEBC 503.7.
- Anchorage of interior unreinforced masonry partitions in IEBC 906.7.
- Structural components damaged by snow events must be repaired based on snow loads for new buildings. IEBC 405.2.1.1.
- Buildings undergoing a change of occupancy shall have live, snow, wind and seismic loads checked. Design loads are based on IBC-level forces.
- When a change of occupancy occurs placing a building in a higher risk category, the seismic loads on the building must be evaluated using IBC-level forces. Access to the building must be maintained when passing through or near other buildings and structures.
- A new exception is added for loading of existing structural elements next to an addition in buildings designed using the IRC.

- Carbon Monoxide provisions have been added in the Prescriptive Method Additions, Alterations Level 2 Additions, and in Additions for I-1, I-2, I-4 and R Occupancies.
- Emergency Escape and Rescue Opening provisions related to being operational have been added to Prescriptive Compliance Method and Alterations Level 1.

### **2018 International Fire Code (IFC)**

- Addition of “accessible” definitions to meet ADA requirements. IFC 102
- Change of Occupancy Definition- includes changes to occupancy classification, change of group, and change of use within a group. IFC 102
- Fuel-fired Appliance storage tanks. IFC 603.3
- Separation from fuel storage rooms and other internal building sections. IFC 603.3.2.5
- Lower Flammability Refrigerants Classifications. IFC 605.17
- Addition of Non-metallic Cooking Oil Storage Tanks. UL Listed 2152, <200gallons each IFC 608.3.
- Type I Hood Systems for cooking unless exemptions of <5m mg/m<sup>3</sup> of grease, Group R-2 with <16 residents, Assisted Living Facilities <16 residents, Residential Treatment Facilities <16 residents, or appliances with integral down draft exhaust systems. 607.2
- Decrease to 10% of total wall surface/ ceiling surface for decorative materials. 807.2
- Artificial Decorative Vegetation must contain flame retardant or allowed in I-1, I-2 Condition 2, R-2, R-3 if <3 in any dimension, <50% of door, <30 of the wall. 807.4
- Fire pump and riser rooms must contain signs on the door, lighting, and be maintained at >40 degrees F. 901-4.6
- Integrated Fire Protection Testing for all building systems at 10 years. 901.6.2
- Fire pump rooms shall be accessed from the exterior or enclosed in a corridor that is equivalent to the rating of the fire pump room (2hr High-rise, 1hr non-High-rise, both if sprinkled). IFC 901.4.6.1-WA
- Fire Sprinklers required on Group A-1 through A-4 individual floors (according to use) and for the exit discharge serving the Group A. 903.2.1
- Sprinklers for S-1 Occupancies if; Fire area exceeds 12,00 sq/ft, or Fire area is >3 stories above grade plane, or Aggregate fire areas >24,000 sq/ft, or the Fire area used for commercial motor vehicles >5,000 sq/ft or used for storage of upholstered furniture or mattresses > 2,500 sq/ft, or self-storage facility with a fire area >2,500 sq/ft. 903.2.9
- Fire areas separated by 3hr fire resistive construction and only one story may not contain fire sprinklers. 903.2.9
- Sprinklers in bathrooms in Group R are not required if <55 sq/ft, located within sleeping units, and walls have 15-minute ratings. 903.3.1.1.2
- Non-rated construction is allowed if fire sprinkled on balconies. 903.3.1.2.1
- Attics that exceed 55’ from the lowest level of fire department access must provide sprinklers, fill the attic with non-combustible insulation, or have non-combustible construction. IFC 903.3.1.2.3
- Obstruction delaying sprinkler activation or affecting water spray must comply per standard. IFC 903.3.3
- Certification of Service Personnel working on commercial cooking and extinguishing systems shall meet ICC/NAFED standards. 904.1.1
- Domestic cooking appliances are allowed in I-1, I-2 Condition 1 and Group R-2 college dorm if protected by 300A or provided with ignition prevention. 904.13
- Aerosol Fire-extinguishing systems are allowed is NFPA 2010 compliant. Single use devices with 6-month inspections. Replace is >5% loss. 904.14
- Fire Standpipes required for stairwells over 30’ in height or four stories. IFC 905.3.1

- Locking Standpipe caps are permitted to be used. IFC 905.11
- Group E can move fire extinguishers into the classrooms and eliminate in common areas if they are installed in each classroom. Extinguishers still need to be installed <30 from domestic cooking equipment as listed in 904.13. 906.1
- Fire Alarm Construction Documents removed from Fire Code and referenced in NFPA 72. IFC 907.1.2
- Manual fire alarm required in Group A with a occupancy load >300, or >100 above/below the floor of exit discharge. 907.2.1
- Group E is required to provide an Emergency voice/alarm communication system or emergency response system unless the occupancy load is <1000. Manual Fire Alarm is not required for occupant load <50. 907.2.3
- Smoke alarms shall be replaced when they fail to respond to operability tests or exceed 10yrs of life unless the manufacture recommends differently. 907.10
- Fire Alarm service and designers must meet NICET and/or ESA-NTS certifications. 907.11
- Smoke and heat vents shall be inspected annually and tested every five years. Mechanical smoke removal devices shall be inspected annually and testing annually. IFC 910.5
- Gas Detection Systems added. IFC 916
- Mass Notification to comply with NFPA 72. IFC 917
- Business Occupant load changed from 1 person per 100 sq/ft to 1 person per 150sq/ft. IFC 1004.5
- Lobbies are considered “pass through” for exiting. IFC 1006.2.1 Ex. 1.
- Paths of egress to an exit shall not pass through more than 1 story (except R). IFC 1006.3
- Exterior areas of assisted rescue must be sprinklered or protected with 1hr restive rating. IFC 1009.7.2
- Educational Occupancies Locking arrangements modified. IFC 1010.1.4.4, 1031.2.2
- Delayed egress clarified. IFC 1010.1.9.8
- Locks on Stairway doors must be unlocked to all egress pathways but can be locked from stairs to individual floors. IFC 1010.1.9.12
- Luminous Egress Path Markings required in Group I and High-rise. IFC 1025.1
- Minimum aisle width clarified. IFC 1029.9.1
- Emergency escape and rescue opening decreased to one in basements if sprinklered in R-2 and R-3. IFC 1030.1
- Emergency Egress Lighting shall be inspected monthly for 30 seconds and annually for 90 minutes. IFC 1031.10
- Existing Group A-2 required to retrofit if occupant load is >300 AND serves alcoholic beverages. IFC 1103.5.1
- Fire protection-rated doors which are held open shall close upon activation of the fire alarm, sprinklers within the zone. IFC 1105.6.2
- Energy Systems Chapter Added. IFC Chapter 12
- Solar systems required to provide rapid shutdown switches. IFC 1204.5
- Stationary Battery Systems modified. IFC 1206.2
- Combustible dust operations require “Dust Hazard Analysis” to determine the fire protection systems required. IFC Chapter 22 and NFPA 652
- Repair of Motor Vehicles with “lighter-than-air” fuels protection systems enhanced or separated. IFC 2311.8.4
- Spray room referred to IBC and Spray Booth regulated by IFC. Defines protection requirements. IFC 2402.2

- Outdoor Pallet Storage at manufacturing and recycling sites. Security and fire plans, stack height, and fire flow requirements. IFC 2710
- Umbrellas classified as “tents”. IFC Chapter 31
- Tents shall be sprinklered if used as a Special Amusement Buildings if >1000 sq/ft or travel distance is > 50’.
- Temporary Special Event Structure defined and required a special inspection under IBC. IFC 3105
- Outdoor Assembly Events over 1000 occupants required a Public Safety Plan, Fire Access, Crowd Managers, Weather Monitor, Cooking requirements, medical systems. IFC
- Tents are assessed as “structures” with regards to placement of LPG tanks in chapter 6104.3. IFC 3107.13
- High-pile storage layout required to be maintained and re-evaluated. Must be posted. IFC 321.3.2.
- Clarification given to Commodities. IFC Table 3203.8
- Limited Group A Plastics clarified. IFC 3203.9
- High-piled Storage Areas clarified for separation areas. IFC 3211
- Fire Watch is required for building being constructed over 40’ after outside construction times. Does not exempt hot work. IFC 3304.5
- Construction of Type IV requirements for fire protection during construction. IFC 3308.9
- Laboratory Suites defined for number of control areas and fire protection systems. IFC 3804.1.1.
- Processing and extraction Facilities modified and clarified. IFC Chapter 39
- Fireworks has been defined as “fireworks” not explosives for 1.3g and 1.4g and storage increase removed even with fire sprinkler systems. IFC 5003.1.1
- Oxidizers have been clarified and defined for storage. IFC 5003.1.1
- Hazardous Materials Piping Systems need valves at the source and specific leak protection. IFC 5005.1.12
- Aerosols in plastic containers defined for quantities. IFC 5103.2
- Maximum aerosol cooking products in A, B, E, F, and R is limited to <1000lbs. <2500 allowed in other occupancy groups. IFC 5104.2.2
- Medical Gases expanded to include health care and veterinary care. When quantities exceed “permit” threshold then they must be stored properly. IFC 2306.1
- Medical gas storage defined and clarified exterior and interior. IFC 5306.2.1- 5306.2.2
- Liquid Co2 Systems >100lbs required permit and mechanical ventilation or gas detection.
- Permit required for Co2 Systems if they have a remote fill. IFC 5307.4
- On-demand Mobile Fueling required a permit, NFPA 385 compliant vehicle, safety and emergency response plan, and training records for operators. IFC 5707
- On-Demand Fueling shall be >25 from buildings, property lines, combustible storage, storm drains and ignition sources. Shall not occur on public streets and only provide a maximum of 30 gallons.
- LPG <2000 may be located within 5’ of roadways. IFC 6104.3
- Appendix N added for “Trade Shows and Exhibits”. IFC Appendix N

#### **Washington State Energy Code - Commercial (WSEC-C)**

- Added new section C411 for Solar Readiness and included in prescriptive and outcome-based paths.
- Fenestration U-Factors and SHGC revised. Table C402.4
- Allowable air leakage rate was reduced from .40 to .25 CFM per square foot and buildings are now required to meet criteria.
- Corrective action required for failed building leakage test which exceeds 0.4 CFM/FT<sup>2</sup>. C402.5.1.2

- Where DOAS is provided, increased fenestration above 30% is no longer permitted as an option. C402.4.1.1.4
- HVAC total system performance ration added for buildings required to comply with DOAS section. C403.1.1
- New limits on heated or cooled vestibules. C403.4.1.4
- Balanced ventilation with minimum 60% heat recovery with outdoor air required for R-2 dwelling units. System must allow testing for each habitable space. C403.3.6
- Several changes to thermostatic system controls in section C403.4.1. Includes requirements for switches to disable HVAC systems where doors to outside are left open. C403.4.1 & C403.4.2
- Economizer performance ratings and control requirements added or amended for several different economizer system types. C403.5
- Lighting controls amended and luminaire level lighting control concept added as an option. C405.1 & C405.2
- Efficiency requirements increased for exterior building grounds lighting. C405.5
- Commissioning requirements have been streamlined and clarity added that regardless of design methodology, system commissioning is required. C408
- The Energy Rating Index compliance alternative index values have been increased slightly however, the method for determining an index is now required to be in accordance with standard ICC/RESNET 301.
- Minimum amount of required high-efficiency lamps increased from 75% to 90%. R404.1
- Compressive strength requirements added for insulation required beneath electric water heaters. R403.5.5
- Certified passive house options have been added. R407
- The ICC/RESNET 380 standard has been included as one of standards that can be used for determining the air leakage rate of a building or dwelling unit.
- Electric readiness (power supply and space) for gas water heaters and dryers. R404.2
- The maximum allowable fenestration U-factors in Table R402.1.2 (for the prescriptive compliance path) for climates zones 3 through 8 have been reduced from the values in the 2015 edition.

#### **2018 International Mechanical Code (ISPSC)**

- Dryer ducts installed within framing cavities of walls or ceilings shall be installed without deforming the duct. IMC 504.8.2
- Return air shall not be taken from indoor pool enclosures and associated deck areas. IMC 601.5
- Minimum smoke and flame requirements for pipe and duct insulation in within plenums. IMC 602.1.8
- Factory-built chimneys/vents require steel insulation shields separating the vent and insulation and extending not less than 2 inches above insulation and secured from displacement. IMC 805.7

#### **2018 International Swimming Pool and Spa Code (ISPSC)**

- It was clarified that flotation tank systems for sensory deprivation therapy are not within the scope of the ISPSC.
- Hot water storage tanks are now required to be listed and labeled to a standard.
- New sections were introduced into the code to cover solar thermal water heating systems. Installation requirements refer to the IMC.