

## 2021 International Building Code

### Overview of Changes

The scope of the International Building Code (IBC) applies to the construction, alteration, movement, enlargement, replacement, repair, use and occupancy, location, maintenance, and removal or demolition of buildings and structures. The IBC establishes the minimum requirements to safeguard the public health, safety and general welfare through structural strength, proper exits, and sanitation. The IBC is also designed to provide safety for firefighters and emergency responders from fire and other hazards associated with the building's environment.

The 2021 IBC continues to establish minimum regulations for building systems using prescriptive and performance-related provisions. The code changes in this cycle result in technical consistency with the other *International Codes*.

### New in the 2021 IBC Edition

- **404.5 Smoke control** in atriums. 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.
- **406.2.4 Floor surfaces** in parking garages. 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.
- **407.6.1 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.
- **411.5 Puzzle room exiting.** Puzzle rooms are now regulated in a manner consistent with traditional special amusement areas. Special means of egress requirements have been established for puzzle rooms.
- **414.2.3 Fire wall use for control areas.** The scoping limitations of a fire wall's use to create separate buildings have been expanded through a new allowance for the number of control areas permitted.
- **424 Play structures.** The interior finish materials of play structures are now regulated for flame spread purposes.
- **506.3.2 Allowable area frontage increase.** The methodology for establishing the permissible allowable area increase for frontage has been simplified by using a table.

## 2021 International Residential Code Overview of Changes

The *International Residential Code* (IRC) is a standalone code that regulates the construction of detached one-and-two family dwellings and townhouses not more than three stories in height. There have been significant changes made to the IRC since the initial 2000 edition. This overview is intended to highlight the significant changes contained in the 2021 IRC.

### New In the 2021 Edition

- **301.2(2) Ultimate Design Wind Speed** has been aligned with IBC and ASCE 7 maps.
- **302.5.1 Opening Protection** has been clarified to state that doors separating the garage and dwelling must be self-latching, as well as self-closing.
- **310.1.1 Operational constraints and opening control devices** clarifies that window opening control devices and fall prevention devices, complying with ASTM 2090, shall be allowed on emergency escape and rescue windows. The height of the mechanism is restricted to not more than 70" above the finished floor.
- **311.7 Stairways** clarifies that stairways not within or attached to a building, porch, or deck are not regulated by this section. *(Example: A stairway in the yard leading to a firepit area would not have to meet the riser height, tread depth, handrail, etc., requirements that a stairway inside of the house must meet.)*
- **314.3 Location** is modified with a new location requirement for smoke alarms to address areas with high ceilings adjacent to hallways serving bedrooms. *(In the hallway and in the room open to the hallway, where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24" or more.)*
- **315.2.2 Alterations, repairs and additions** is modified to require that carbon monoxide alarms be installed when there are repairs to, or replacement of, fuel fired mechanical systems.
- **323.1.1 Sealed Documents.** This is a newly added section requiring storm shelter construction documents be prepared and sealed by a registered design professional. There is an exception to this for systems that are listed and labeled to indicate compliance with ICC-500.
- **326 Habitable Attics** is modified to limit the area of a habitable attic to not greater than one-third of the floor area of the story below. The allowable area is allowed to be increased to not greater than one-half of the floor area of the story below when located within a dwelling unit equipped with a fire sprinkler system.
- **609.4.1 Garage door labeling** has been added to require that all garage doors have a permanent label provided by the manufacturer. The label shall identify the door manufacturer, the model/series number, the wind pressure rating, the installation instruction drawing reference number, and the applicable test standard.
- **N1101.14 (R401.3) Certificate** is modified by requiring additional information related to the building thermal envelope, solar energy, Energy Rating Index, and the code edition be added to the energy certificate.
- **Table N1102.1.3 (R402.1.3) Minimum R-Values and Fenestration Requirements** is modified by increasing the Ceiling R-Value requirements from R38 to R49.

- **N1104.3 (R404.3) Exterior lighting controls** have been added to require automatic shutoff of all permanently installed exterior lighting fixtures, where the total permanently installed exterior lighting power is greater than 30 watts.
- **G2415.5 Fittings in concealed locations.** Plugs and caps have been added to the list of threaded fittings approved for concealed locations.
- **G2447.2 Prohibited location** has been modified by deleting the exception allowing a commercial cooking appliance in a dwelling unit when the installation is designed by an engineer, the appliance must now also be listed as a domestic cooking appliance.
- **P2905.3 Hot water supply to fixtures** was added. The developed length of hot water piping, from the source of hot water to the fixtures that require hot water, shall not exceed 100'. Water heaters and recirculating system piping shall be considered sources of hot water.
- **E3601.8 Emergency disconnects (230.85)** is added to require all one- and two-family dwellings to have an emergency disconnect in a readily accessible outdoor location.
- **E3606.5 Surge protection (230.67)** is added requiring all services supplying one- and two-family dwelling units to be provided with a surge-protection device at the service panel. This section will also be applicable when the service equipment is replaced.
- **E3901.4.2 [210.52(C)(2)] Island and peninsular countertops and work surfaces** is modified to determine that the number of required receptacle outlets is based off the area of countertop surface. *(One receptacle outlet for the first 9 sq. ft., or fraction thereof. One receptacle outlet for each additional 18 sq. ft., or fraction thereof.)*

## **2021 International Plumbing Code Overview of Changes**

The *2021 International Plumbing Code (IPC)* contains many changes that provide clarity of content and resolve common interpretation problems. The scope of the 2021 IPC continues to encompass the initial design of the plumbing system, the installation and construction of plumbing systems, and the maintenance of operating systems. All plumbing systems which are provided for utilization by and for the general safety and well-being of the occupants of a building are intended to be governed by the code. Plumbing installations associated with one-and-two family dwellings are regulated by the *International Residential Code*.

### **New in the 2021 Edition**

- **202 Public or Public Utilization.** The definitions of “public” and “private” are simplified to make a clearer distinction as to which plumbing fixtures are intended to be configured for public use.
- **403.1.1 Fixture calculations.** The minimum fixture quantities for multiple-user toilet facilities designed to serve all genders must be calculated 100 percent based on total occupant load.
- **403.2 Separate facilities.** Designs for multiple-user facilities serving both sexes are possible.
- **407.2 Bathtub waste outlets and overflows.** Bathtubs are no longer required to have an overflow outlet.
- **606.1 Location of full-open valves.** Multiple tenant buildings must have a main water shutoff valve for each tenant space.
- **708.1.6 Cleanout equivalent.** Removable traps and removable fixtures with integral traps are acceptable as equivalent to cleanouts.

## **2021 International Mechanical Code Overview of Changes**

The latest code change cycle resolved common interpretation problems and provided clarity of content to the 2021 *International Mechanical Code* (IMC). The code was also changed to reflect current design, construction and inspection methods. In order to keep the IMC up to date on new technology, requirements to assist designers, installers and inspectors as the demand for new energy sources increase.

The 2021 IMC is primarily intended to be a commercial code. Therefore, mechanical installations associated with one-and-two family dwellings are regulated by the *International Residential Code*.

### **New in the 2021 Edition:**

- **401.4 Intake opening location.** A new type of factory-built combination exhaust and intake air fitting is introduced that does not require separation between the two openings.
- **502.20 Manicure and pedicure stations.** The code now requires the continuous operation of nail salon exhaust systems during business hours.
- **504.4.1 Termination location.** New text was added to address the possibility of dryer exhaust air being reintroduced into a building interior.
- **506.3.7 Prevention of grease accumulation in grease ducts.** A new exception exempts factory-built grease ducts from the duct slope prescriptions of the code, relying instead on the slope requirements stated in the product listing and manufacturer's installation instructions.
- **602.2.1.8 Pipe and duct insulation within plenums.** This revision addresses the practice of using pipe insulation materials to protect piping that does not meet the required fire performance requirements.
- **1105.9 Means of egress.** Revised egress requirements for machinery rooms from the IBC were added to the IMC to prevent such requirements from being overlooked.

## **2021 International Fuel Gas Code Overview of Changes**

The *2021 International Fuel Gas Code* (IFGC) consolidates all code changes from the fuel gas related installations into one convenient document. It is a compilation of fuel gas related text from the International Mechanical Code, the International Plumbing Code, and the National Fuel Gas Code. The code is designed to complement the family of International Codes, including the International Mechanical Code, the International Plumbing Code, the International Fire Code, and the International Building Code.

The IFGC regulates fuel gas distribution piping systems, gas-fired appliance installation and gas-fired appliance venting systems for structures other than one-and-two family dwellings. Fuel gas installations associated with one-and-two family dwellings are regulated by the International Residential Code.

### **New in the 2021 Edition:**

- **307.2 Fuel-burning appliances.** The termination of concealed condensate piping shall be marked to indicate whether the piping is connected to the primary drain or the secondary drain.
- **403.8.3 Threaded joint sealing.** the text was revised to require the use of thread joint sealants (aka, joint compounds, pipe dope, pipe tape). In the past, the code addressed pipe thread sealants but never required them to be used.
- **404.5 Fittings in concealed locations.** Plugs and caps have been added to the list of fittings approved for installation in concealed spaces.
- **618.6 Furnace plenums and air ducts.** New text clarifies the intent to prohibit pulling return air from the mechanical room.

## **2021 International Energy Conservation Code Overview of Changes**

The International Energy Conservation Code (IECC) establishes regulations for the design of energy-efficient residential and commercial buildings and structures, as well as portions of factory and industrial occupancies designed for human comfort.

The State of Texas is divided into climate zones which are used in determining applicable requirements for residential and commercial energy efficiency. Insulation, window and skylight requirements for the thermal envelope for both residential and commercial buildings are based on the climate zones. The performance criteria for compliance with residential energy efficiency requirements using simulated energy analysis are also addressed.

### **New in the 2021 Edition**

- **R402.1.3 Insulation Minimum R-Values.** Is modified by increasing the ceiling R-value from R38 to R49.
- **R402.4.6 Electrical and communication outlet boxes (air-sealed).** Is a newly added section that requires all electrical and communication outlet boxes installed in the building thermal envelope to be sealed, tested, and marked for compliance with NEMA OS 4.
- **R404.2 Interior lighting controls.** Is a newly added section requiring all permanently installed interior lighting fixtures to be controlled with a dimmer, an occupant sensor control, or another control that is installed or built into the fixture. Bathrooms, hallways, exterior lighting, and lighting designed for safety or security are exempt from this section.
- **R404.3 Exterior lighting controls.** Is a newly added section requiring automatic shutoff of all permanently installed exterior lighting fixtures, where the total permanently installed exterior lighting power is greater than 30 watts.

## **2021 International Property Maintenance Code**

### **Overview of Changes**

The 2021 *International Property Maintenance Code* (IPMC) continues to emphasize protection of health, safety and welfare while providing code requirements that are enforceable in the diverse types of buildings that exist. Providing a safe means of egress, preventing hazardous structural conditions and reducing health hazards by providing a clean, sanitary environment are the key components of the code.

The IPMC applies to all existing structures, including residential and nonresidential property and addresses the following areas:

- Administration, enforcement and penalties associated with the code
- Determination and assignment of responsibility for code compliance among the owner, operator and occupant of a property
- Minimum property maintenance conditions for existing structures and premises in regard to structural safety, sanitation, health and comfort
- Regulating the use of existing dwelling through the establishment of occupancy limitations
- Maintenance of means of egress and fire safety, with appropriate references to the *International Fire Code*



## 2023 National Electric Code Overview of Changes

The National Electrical Code (NEC) is published by the National Fire Protection Association and updated every three years by issuing a new edition.  
2017 Edition of the NEC.

The 2020 NEC contains several changes, most of which are designed to provide clarity for existing code provisions. However, there are some new provisions and changes included in the 2020 NEC.

### New in the 2020 Edition

- **210.8(A) Dwelling Units** now requires ground-fault circuit-interrupter (GFCI) protection for up to 250-volt receptacles in the areas previously identified as requiring GFCI protection for 125-volt receptacles.
- **210.8(A)(11) Indoor damp and wet locations.** GFCI protection is now required for indoor damp and wet locations not included in the other specific locations requiring protection.
- **210.52(C)(2) Island and peninsular countertops and work surfaces** is modified to determine that the number of required receptacle outlets is based off the area of countertop surface. *(One receptacle outlet for the first 9 sq. ft., or fraction thereof. One receptacle outlet for each additional 18 sq. ft., or fraction thereof.)*
- **230.67 Surge protection** is added requiring all services supplying one- and two-family dwelling units to be provided with a surge-protection device at the service panel. This section will also be applicable when the service equipment is replaced.
- **230.85 Emergency disconnects** is added to require all one- and two-family dwellings to have an emergency disconnect in a readily accessible outdoor location.