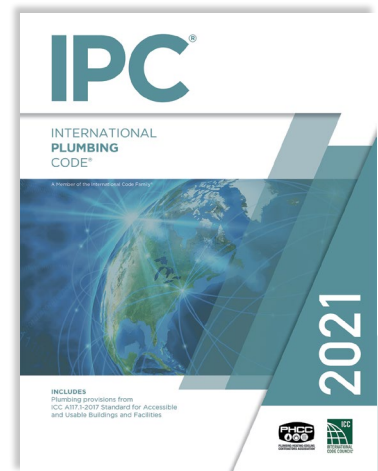


The 2021 International Plumbing Code (IPC)®

Why is the IPC the most resilient plumbing code around?

Extreme weather and other hazardous events can have devastating and costly impacts on the built environment. Ensuring that homes and buildings are resilient requires a comprehensive set of modern construction codes. The Federal Emergency Management Agency (FEMA) recognizes the International Code Council's Family of Codes (or I-Codes) within its Consensus-Based Codes, Specifications and Standards for Public Assistance (CBCSS) document for the construction of homes and buildings that are hazard-resilient, which includes the International Plumbing Code® (IPC).¹ Given its benefits, the IPC is the most widely used plumbing code across the country—it's currently adopted in 37 states, the District of Columbia, Puerto Rico, and Guam. Approximately 75% of the U.S. population live in areas that have adopted the IPC. Beyond FEMA, the General Services Administration, Department of Defense, Department of Veterans Affairs, Architect of the Capitol, Indian Health Service, National Aeronautics and Space Administration, and Smithsonian Institution utilize it. Common hazards that the IPC addresses are detailed below.



FIRE

- Automatic fire sprinklers are required for residential occupancies in accordance with the International Residential Code (IRC).
- Penetrations of floor assemblies and ceiling assemblies must be fire-resistant.
- Prohibits plumbing systems that constitute a fire or health hazard, insanitary condition, or are otherwise dangerous to human life.
- Plumbing materials located within a plenum must be noncombustible, limiting flame and smoke spread.
- Plumbing systems, including medical gas and oxygen systems, must mitigate fire risk and cannot undermine fire protection systems.
- Unique among model plumbing codes through its correlation with the International Fire Code and the International Wildland-Urban Interface Code (IWUIC).

FLOOD/WATER INTRUSION

- Plumbing systems, appliances, equipment, piping, combustion openings, and components must be at or above the flood level or be constructed of flood damage-resistant materials and designed to resist hydrostatic and hydrodynamic loads.
- Joints at the roof and around vent piping, including pipe penetrations through an exterior wall, must be sealed to protect the structure from water damage.
- Enables the use of innovative leak detection devices.
- Piping must be protected from corrosion and physical damage.

¹ FEMA, Consensus-Based Codes, Specifications and Standards for Public Assistance (FEMA Recovery Interim Policy FP-104-009-11 Version 2.1).

SEISMIC

- Plumbing system supports, anchorage and bracing (including those used for equipment and appliances such as water heaters) must be designed and installed to withstand seismic forces.
- Piping must be protected from structural damage and building loads as well as strains and stresses, including from a seismic event, which exceed the pipe's structural strength.
- To prevent pipe breakage or improper slope of drainage piping due to seismic, flooding, and other events, buried piping must be supported throughout its entire length.

WIND

- Exposed plumbing equipment, appliances and piping must resist wind loads.
- Roof elements, including architectural features, cannot subject plumbing vents to adverse wind events.
- Roof-mounted solar thermal collectors used for heating potable water must withstand applicable wind speeds.

SNOW and ICE

- Plumbing systems, appliances, and equipment, including solar thermal systems and components, must be protected from freezing and expansion and contraction, functioning effectively despite environmental exposure.
- Combustion air openings must be protected against local weather conditions and be located to prevent snow or ice blockage.

PROTECTION OF THE POTABLE WATER SUPPLY

- New potable water supply systems are required to be purged of harmful matter and disinfected prior to use.
- Potable water supply systems must prevent contamination from nonpotable liquids, solids, or gases.
- All faucets, drinking fountains, fixture fittings, piping, pipe fittings, valves and other devices that provide drinking water are required to meet lead and contaminant restrictions.

GRID RESILIENCY

- Plumbing systems, equipment and appliances must be designed and installed to utilize energy and water efficiently; the IPC is unique among model plumbing codes through its correlation with the International Energy Conservation Code (IECC) and International Green Construction Code (IgCC).
- To reduce the amount of water that is wasted while waiting for hot water to reach a shower or faucet, the IPC limits the length of piping from the water heater to the fixture.
- Enables the use of hot water recirculation systems and smaller diameter piping that can conserve both water and energy.

PASSIVE SURVIVABILITY

- Enables the reuse of wastewater, rainwater and stormwater.
- Facilities that provide nursing and medical care must be able to sustain the loss of their largest service pipe and continue to meet water demand.

For more information contact one of our experts at Plumbing@iccsafe.org or www.iccsafe.org/products-and-services/i-codes/pmg-technical-team/