2018 IPC Update

Based on the 2018 International Plumbing Code,® (IPC®)

ICC LEARNING CENTER

The *International Plumbing Code*® (IPC®), establishes minimum regulations for plumbing systems.

This handout will identify important changes in the IPC from 2015 to 2018 edition. Participants will be presented with those changes that will most impact their use of the code when they adopt these I-Codes. The learner will receive an overview of the most important code changes.

Goal

Participants will be able to use this document to identify changes between the 2015 and 2018 IPC allowing them to apply theses code requirements to design, plan submittals and/or inspection.

The lecture and activity format allows participants to discuss the changes, reasons for the changes, and answer knowledge review questions. Information presented will allow participants to apply these new code requirements to design, plan review, and/or inspection.

Objectives

Upon completion, participants will be better able to:

- Identify the most significant differences between the 2015 and the 2018 IPC.
- Explain the differences between the current and previous edition.
- Identify changes in organization and code requirements.
- Identify the applicability of design, plan review and inspection requirements.

Content

Chapters of the IPC included in this handout:

- Chapter 2, Definitions
- Chapter 3, General Regulations
- Chapter 4, Fixtures Faucets and Fixture Fittings
- Chapter 5, Water Heaters
- Chapter 6, Water Supply and Distribution
- Chapter 7, Sanitary Drainage
- Chapter 8, Indirect/Special Waste
- Chapter 9, Vents
- Chapter 10, Traps Inceptors and Separators
- Chapter 11, Storm Drainage
- Chapter 13 Nonpotable Water Systems

2018 IPC Chapter 2: Definitions			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
202 Addition	202	**Definitions**	New definitions include Accessible, Full-Open Valve, Press-Connect Joint, Public Swimming Pool. **ACCESSIBLE.** A site, building, facility or portion thereof that complies with Chapter 11 of the International Building Code. **FULL-OPEN VALVE.** A water control or shutoff component in the water supply system piping that, where adjusted for maximum flow, the flow path through the component's closure member is not a restriction in the component's through-flow area. **PRESS-CONNECT JOINT.** A permanent mechanical joint incorporating an elastomeric seal or an elastomeric seal and corrosion-resistant grip ring. The joint is made with a pressing tool and jaw or ring approved by the fitting manufacturer. **PUBLIC SWIMMING POOL.** A pool, other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.
			A definition has been modified: Swimming Pool. **SWIMMING POOL.** A permanent or temporary structure that is intended to be used for swimming, bathing or wading and that is designed and manufactured or built to be connected to a depth circulation system. A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household.
Modification			

2018 IPC Chapter 3: General Regulations			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
303.5 Addition		**Cast-iron soil pipe, fittings and components**	The code language follows: Cast-iron soil pipes and fittings, and the couplings used to join these products together, shall be third-party listed and labeled. Third-party certifiers or inspectors shall comply with the minimum inspection requirements of Annex A or Annex A1 of the ASTM and CISPI product standards indicated in the code for such products.
305.1 Clarification	305.1	**Protection against contact**	The code language follows: Metallic piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or cinder walls and floors or other masonry. Metallic piping shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing shall be thickness of not less than 0.008 inch (8 mil) (0.203 mm) and the sheathing shall be made of plastic. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

2018 IPC Chapter 3: General Regulations, Continued			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
305.6 Modification	305.6	**Protection against physical damage**	In concealed locations where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than 1 1/4 inches (32 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.
305.6 Clarification	305.6	**Sway Bracing**	Where horizontal pipes 4 inches (102 mm) and larger convey drainage or waste, and where a pipe fitting in that piping changes the flow direction greater than 45 degrees (0.79 rad), rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe in the direction of pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced.
305.10 Addition		**Thermal expansion tanks**	A thermal expansion tank shall be supported in accordance with the manufacturer's instructions. Thermal expansion tanks shall not be supported by the piping that connects to such tanks.

2018 IPC Chapter 4: Fixtures Faucets and Fixture Fittings			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
Table 403.1 Modification Addition of Gaming Areas	Table 403.1	**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]**	Assembly areas used for gaming (gambling) now have specific ratios for plumbing fixture requirements See below.

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]

CLASSIFICATION	DESCRIPTION	WATER CLOSETS		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN	OTHER
		MALE	FEMALE	MALE	FEMALE			
Assembly	Gaming areas	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink

2018 IPC Chapter 4: Fixtures Faucets and Fixture Fittings, Continued			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
Table 403.1 Modification	Table 403.1	**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]**	The Occupancy (Group) column of the table has been deleted for greater flexibility and accuracy for determining fixture requirements.

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]

CLASSIFICATION	DESCRIPTION	WATER CLOSETS		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN	OTHER
		MALE	FEMALE	MALE	FEMALE			

Table 403.1 Addition	Table 403.1	**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]**	The code language follows: f. The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with Section 609 of the International Swimming Pool and Spa Code.
403.1.2 Modification	403.1.2	**Single-user toilet facility and bathing room fixtures**	Single user toilet facilities having required plumbing fixtures must now be labeled for use by either sex.
403.1.3 Addition		**Lavatory distribution**	The code language follows: Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.
403.2 Modification	403.2	**Separate facilities**	The code language follows: Where plumbing fixtures are required, separate facilities shall be provided for each sex. **Exceptions:** 1. through 3. are unchanged. 4. Separate facilities shall not be required in business occupancies in which the maximum occupant load is 25 or fewer.
403.3 Clarification	403.3	**Employee and public toilet facilities**	The code language follows: ~~Customers~~ For structures and tenant spaces intended for public utilization, customers, patrons and visitors shall be provided with public toilet facilities ~~in~~. Employees associated with structures and tenant spaces ~~intended for public utilization~~ shall be provided with toilet facilities. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. ~~Employees shall be provided with toilet facilities in all occupancies.~~ Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

2018 IPC Chapter 4: Fixtures Faucets and Fixture Fittings, Continued			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
405.3.1 Clarification	405.3.1	**Water closets, urinals, lavatories and bidets**	The code language follows: A water closet, urinal, lavatory or bidet hall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction. Where partitions or other obstructions do not separate adjacent fixtures, ~~or~~ fixtures shall not be set closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of ~~the~~ a water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floor mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall-hung water closets. **Exception:** An accessible children's water closet shall be set not closer than 12 inches from its center to the required partition or to the wall on one side.
405.3.5 Clarification	405.3.5	**Urinal partitions**	The code language follows: Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The width between walls or partitions at each urinal shall be not less than 30 inches (762 mm).The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater
405.5 Addition	405.5	**Plumbing fixtures with a pumped waste arrangement**	The code language follows: Plumbing fixtures with pumped waste shall comply with ASME A112.3.4/CSA B45.9. The plumbing fixture with a pumped waste shall be installed in accordance with the manufacturer's instructions.
409.1 Modification	409.1	**Approval**	The code language follows: Commercial dishwashing machines shall conform to ASSE 1004 and NSF 3. Residential dishwashers shall conform to NSF 184.
409.4 Modification	Deletes 802.1.6	**Residential dishwasher waste connection**	The code language follows: The waste connection of a residential dishwasher shall connect directly to a wye branch fitting on the tailpiece of the kitchen sink, directly to the dishwasher connection of a food waste disposer, or through an air break to a standpipe. The waste line of a residential dishwasher shall rise and be securely fastened to the underside of the sink rim or counter top.
411.3 Addition		**Water supply**	The code language follows: Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall only be controlled by a temperature actuated mixing valve complying with ASSE 1071.
412.7 Addition	424.7	**Temperature-actuated, flow reduction ~~valves~~ devices for individual fixture fittings.**	The code language follows: Temperature-actuated, flow reduction devices, where installed for individual fixture fittings, shall conform to ASSE 1062. A temperature-actuated, flow reduction device shall be an approved method for limiting the water temperature to not greater than 120º F (49º C) at the outlet of a faucet or fixture fitting. Such ~~valves~~ devices shall not be used alone as a substitute for the balanced-pressure, thermostatic or combination shower valves required in Section ~~424.3~~ 412.3 or as a substitute for bathtub or whirlpool tub water-temperature-limiting valves required in Section 412.5.

2018 IPC Chapter 4: Fixtures Faucets and Fixture Fittings, Continued			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
Section 422 Deleted	Section 422	**Health Care Fixtures and Equipment**	Section 422 concerning Health Care Fixtures and Equipment is deleted.

2018 IPC Chapter 5: Water Heaters			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
502.1 Modification	502.1	**General**	The code language follows: Water heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired water heaters shall conform to the requirements of this code and the Inter- national Mechanical Code. Electric water heaters shall con- form to the requirements of this code and provisions of NFPA70. Gas-fired water heaters shall conform to the requirements of the International Fuel Gas Code. Solar thermal water heating systems shall conform to the requirements of the International Mechanical Code and ICC 900/SRCC 300.
504.6 Modification	504.6	**Requirements for discharge piping**	The code language follows: The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall: Items 1. through 13. are unchanged. 14. Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is installed with insert fittings. The outlet end of such tubing shall be fastened in place.
504.7 Modification	504.7	**Required pan**	The code language follows: Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a ~~galvanized steel~~ pan constructed of one of the following: ~~having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans approved for such use~~. 1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness. 2. Plastic not less than 0.036 inch (0.9 mm) in thickness. 3. Other approved materials. A plastic pan shall not be installed beneath a gas-fired water heater.

2018 IPC Chapter 6: Water Supply and Distribution			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
602.3.1 Modification	602.3.1	**Sources**	The code language follows: Dependent on geological and soil conditions and the amount of rainfall, individual water supplies are of the following types: drilled well, driven well, dug well, bored well, spring, stream or cistern. Surface bodies of water and land cisterns shall not be sources of individual water supply unless properly treated by means to prevent contamination. Individual water supplies shall be constructed and installed in accordance with the applicable state and local laws. Where such laws do not address all of the requirements set forth in NGWA-01, individual water supplies shall comply with NGWA-01 for those requirements not addressed by state and local laws.
605.13.7, 605.14.4 & 605.16.3 Clarification	605.13.7, 605.14.4 & 605.16.3	**Push-fit joints**	The code language follows: Push-fit joints shall conform to ASSE 1061 and shall be installed in accordance with the manufacturer's instructions.
607.3 Modification	607.3	**Thermal expansion control**	The code language follows: Where a storage water heater is supplied with cold water that passes through a check valve, pressure reducing valve or backflow preventer, a thermal expansion ~~tank~~ control device shall be connected to the water heater cold water supply pipe at a point that is downstream of all check valves, pressure reducing valves and backflow preventers. Thermal expansion tanks shall be sized in accordance with the tank manufacturer's instructions and shall be sized such that the pressure in the water distribution system shall not exceed that required by Section 604.8.
608.3 Modification	608.3	**Devices, appurtenances, appliances and apparatus**	The code language follows: Devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to the water supply system, shall be provided with protection against backflow and contamination of the water supply system. ~~Water pumps, filters, softeners, tanks and other appliances and devices that handle or treat potable water shall be protected against contamination.~~
608.4 Addition	608.4	**Potable water handling and treatment equipment**	The code language follows: Water pumps, filters, softeners, tanks and other appliances and devices that handle or treat potable water to be supplied to the potable water distribution system shall be located to prevent contamination from entering the appliances and devices. Overflow, relief valve and waste discharge pipes from such appliances and devices shall terminate through an air gap.
608.12 Addition		**~~Painting of~~ Potable Water Tanks**	The code language follows: Where in contact with potable water intended for drinking water, water tanks, coatings for the inside of tanks and liners for water tanks shall conform to NSF 61. The interior surface of a potable water tank shall not be lined, painted or repaired with any material that changes the taste, odor, color or potability of the water supply when the tank is placed in, or returned to, service.

2018 IPC Chapter 6: Water Supply and Distribution, Continued			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
608.17.1.1 Modification	608.17.1.1	**Carbonated beverage dispensers**	The code language follows: The water supply connection to carbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an *air gap*. The portion of the backflow preventer device downstream from the second check valve of the device and the piping downstream therefrom shall not be affected by carbon dioxide gas.
608.17.1.2 Addition		**Coffee machines and noncarbonated drink dispensers**	The code language follows: **Coffee machines and noncarbonated drink dispensers.** The water supply connection to each coffee machine and each noncarbonated beverage dispenser shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or ASSE 1024, or protected by an air gap.
608.17.10 Addition		**Humidifiers**	The water supply connection to humidifiers that do not have an internal backflow protection shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or by an air gap.
609.1 Modification	609.1	**Scope**	The code language follows: This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: ~~nursing homes~~ Group I-1, ~~homes for the aged~~ Group I-2, ~~orphanages, infirmaries, first aid stations, psychiatric~~ Group B ambulatory care facilities, ~~clinics, professional~~ medical offices ~~of dentists~~ and ~~doctors, mortuaries, educational facilities, surgery, dentistry,~~ research and testing laboratories, ~~establishments~~ and Group F facilities manufacturing pharmaceutical drugs and medicines ~~and other structures with similar apparatus and equipment classified as plumbing~~
611.1 Modification	611.1	**Design**	Point-of-use reverse osmosis drinking water treatment units shall comply with NSF 58 or CSA B483.1. Drinking water treatment units shall meet the requirements of NSF 42, NSF 44, NSF 53, NSF 62 or CSA B483.1.

<table>
<tr><th colspan="4">2018 IPC Chapter 7: Sanitary Drainage</th></tr>
<tr><th colspan="2">Code Section</th><th rowspan="2">Section Title</th><th rowspan="2">Description of Change</th></tr>
<tr><th>2018</th><th>2015</th></tr>
<tr><td>701.2
Modification</td><td>701.2</td><td><u>Connection to sewer</u> required</td><td>The code language follows:

~~Buildings in which~~ Sanitary drainage piping from plumbing fixtures ~~are installed~~ in buildings and ~~premises having~~ sanitary drainage piping systems from premises shall be connected to a public sewer~~., where~~ Where a public sewer is not available, ~~or an approved~~ the sanitary drainage piping and systems shall be connected to a private sewage disposal system in compliance with state or local requirements. Where state or local requirements do not exist for private sewage disposal systems, the sanitary drainage piping and systems shall be connected to an approved private sewage disposal system that is in accordance with the International Private Sewage Disposal Code.

Exception: Sanitary drainage piping and systems that convey only the discharge from bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to connect to a public sewer or to a private sewage disposal system provided that the piping or systems are connected to a system in accordance with Chapter 13 or 14.</td></tr>
<tr><td>701.8
Deletion</td><td>701.8</td><td>Drainage piping in food service areas</td><td>The installation of drainage piping above “food areas” is no longer prohibited.</td></tr>
<tr><td>Table 702.3
Addition</td><td>Table 702.3</td><td>Building sewer pipe</td><td>The code table follows:

TABLE 702.3 BUILDING SEWER PIPE
<table><tr><th>MATERIAL</th><th>STANDARD</th></tr><tr><td>Polypropylene (PP) Plastic Pipe</td><td>ASTM F2736; ASTM F2764; CSA B182.13</td></tr></table></td></tr>
<tr><td>703.4
Modification</td><td>703.4</td><td>Existing building sewers and building drains</td><td>The code language follows:

~~Existing~~ Where the entire sanitary drainage system of an existing building is replaced, existing building drains under concrete slabs and existing building sewers ~~and drains shall connect with new building sewer and drainage systems only where found by examination and test to conform to~~ that will serve the new system shall be internally examined to verify that the piping is sloping in ~~quality~~ the correct direction, is not broken, is not obstructed and is sized for the drainage load of ~~material. The code official shall notify~~ the ~~owner~~ new plumbing drainage system to ~~make the changes necessary to conform to this code.~~ be installed.</td></tr>
<tr><td>704.1
Modification</td><td></td><td>Slope of horizontal drainage piping</td><td>The code language follows:

Horizontal drainage piping shall be installed in uniform alignment at uniform slopes. The slope of a horizontal drainage pipe shall be not less than that indicated in Table 704.1 except that where the drainage piping is upstream of a grease interceptor, the slope of the piping shall be not less than 1/4 inch per foot (2-percent slope).</td></tr>
</table>

2018 IPC Chapter 7: Sanitary Drainage			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
704.2 Modification	704.2	**Reduction in pipe size in the direction of flow**	The code language follows: The size of the drainage piping shall not be reduced in ~~size in~~ the direction of the flow. ~~A 4-inch by 3-inch (102 mm by 76 mm) water closet connection~~ The following shall not be considered as a reduction in size~~.~~ in the direction of flow: 1. A 4-inch by 3-inch (102 mm by 76 mm) water closet flange. 2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not necessarily directly connected to, the water closet flange. 3. An offset closet flange.
705.16.4 Modification	705.16.4	**Plastic pipe or tubing to other piping material**	The code language follows: Joints between different types of plastic pipe shall be made with an *approved* adapter fitting, or by a solvent cement joint only where a single joint is made between ABS and PVC pipes at the end of a building drainage pipe and the beginning of a *building sewer* pipe using a solvent cement complying with ASTM D3138. Joints between plastic pipe and other piping material shall be made with an approved adapter fitting. Joints between plastic pipe and cast-iron hub pipe shall be made by a caulked joint or a mechanical compression joint.
709.3 Clarification	709.3	**Conversion of gpm flow to dfu values**	The code language follows: Where discharges to a waste receptor or to a drainage system are only known in gallons per minute (liters per second) values, the *drainage fixture unit* values for ~~continuous and semicontinuous flow into a drainage system~~ those flows shall be computed on the basis that 1 gpm (0.06 L/s) of flow is equivalent to two *drainage fixture* units.
712.3.2 Modification	712.3.2	**Sump pit**	The code language follows: The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless otherwise *approved*. The pit shall be ~~accessible~~ provided with *access* and shall be located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other approved materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gastight removable cover that is installed ~~flush with grade or floor level, or above~~ not more than 2 inches (51 mm) below grade or floor level. The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 9.
712.4.2 Modification	712.4.2	**Capacity**	The code language follows: A sewage pump or sewage ejector shall have the capacity and head for the application requirements. Pumps or ejectors that receive the discharge of water closets shall be capable of handling spherical solids with a diameter of up to and including 2 inches (51 mm). Other pumps or ejectors shall be capable of handling spherical solids with a diameter of up to and including ~~1~~ 1/2 inch (~~25~~ 13 mm). The capacity of a pump or ejector based on the diameter of the discharge pipe shall be not less than that indicated in Table 712.4.2.
713 Deletion	713	**Health Care Plumbing**	Section 713 covering sanitary drainage systems in health care facilities is deleted in its entirety.

2018 IPC Chapter 7: Sanitary Drainage			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
716 Modification	717	**Replacement of Underground Building Sewers and Building Drains by Pipe Bursting Methods**	Section on replacement of building sewers by pipe-bursting methods has been expanded to include replacement of underground building drains. There could be some buildings where a building drain has to be replaced and the open-trench method is prohibitive in both cost and facility downtime. For example, a large factory building could have a long underground building drain passing under floor areas having machinery or conveyors in many locations on the floor. Dismantling and moving such equipment in order to cut a trench in the floor and excavate would be an excessive disruption. Pipe bursting is an alternative for these situations.

2018 IPC Chapter 8: Indirect/Special Waste			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
802.1 Modification	802.1	**Protection**	The code language follows: Devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, humidification, distillation, processing, cooling, or storage of ice or foods, and that discharge to the drainage system, shall be provided with protection against backflow, flooding, fouling, contamination and stoppage of the drain.
802.4.3.1 Addition		**Connection of laundry tray to standpipe**	The code language follows: As an alternative for a laundry tray fixture connecting directly to a drainage system, a laundry tray waste line without a fixture trap shall connect to a standpipe for an automatic clothes washer drain. The standpipe shall extend not less than 30 inches (732 mm) above the weir of the standpipe trap and shall extend above the *flood level rim* of the laundry tray. The outlet of the laundry tray shall not be greater than 30 inches (762 mm) horizontal distance from the side of the standpipe.

2018 IPC Chapter 9: Vents			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
918.8 Modification	918.8	**Prohibited installations**	The code language follows: Air admittance valves shall not be installed in nonneutralized special waste systems as described in Chapter 8 except where such valves are in compliance with ASSE 1049, are constructed of materials *approved* in accordance with Section 702.5 and are tested for chemical resistance in accordance with ASTM F 1412. Air admittance valves shall not be located in spaces utilized as supply or return air plenums. Air admittance valves ~~without an engineered design~~ shall not be ~~utilized~~ used to vent sumps or tanks ~~of any type~~ except where the vent system for the sump or tank has been designed by an engineer. Air admittance valves shall not be installed on outdoor vent terminals for the sole purpose of reducing clearances to gravity air intakes or mechanical air intakes.

2018 IPC Chapter 10: Traps Interceptors and Separators			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
1003.3.2 Modification	1003.3.2	**Food waste disposers restriction**	The code language follows: ~~Where~~ A food waste ~~disposers connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste disposers. Emulsifiers, chemicals, enzymes and bacteria~~ disposer shall not discharge ~~into the food waste disposer~~ to a grease interceptor.
1003.3.2 Addition		**Additives to grease interceptors**	The code language follows: Dispensing systems that dispense interceptor performance additives to grease interceptors shall not be installed except where such systems dispense microbes for the enhancement of aerobic bioremediation of grease and other organic material, or for inhibiting growth of pathogenic organisms by anaerobic methods. Such microbial dispensing systems shall be installed only where the grease interceptor manufacturer's instructions allow such systems and the systems conform to ASME A112.14.6. Systems that discharge emulsifiers, chemicals or enzymes to grease interceptors shall be prohibited.

<table>
<tr><th colspan="3">2018 IPC Chapter 11: Storm Drainage</th></tr>
<tr><th colspan="2">Code Section</th><th rowspan="2">Section Title</th><th rowspan="2">Description of Change</th></tr>
<tr><th>2018</th><th>2015</th></tr>
<tr><td>TABLE 1102.4
Modification</td><td>TABLE 1102.4</td><td>Building Storm Sewer Pipe</td><td>The code table follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE
<table><tr><th>MATERIAL</th><th>STANDARD</th></tr><tr><td>Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall.</td><td>ASTM D2661; ~~ASTM D 2751;~~ ASTM F628; ASTM F1488; CSA B181.1; CSA B182.1</td></tr><tr><td>Polyethylene (PE) plastic pipe</td><td>ASTM F667;
ASTM F2306/F2306M; ASTM F2648/F2648M</td></tr><tr><td>Polypropylene (PP) Pipe</td><td>ASTM F2881; CSA B182.13;</td></tr><tr><td>Polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100) in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall.</td><td>ASTM D2665; ASTM D3034; ASTM F891; ASTM F1488;
CSA B182.4;
CSA B181.2;
CSA B182.2</td></tr></table></td></tr>
<tr><td>1106.5
Modification</td><td>1106.5</td><td>Parapet wall scuppers.</td><td>The code language follows:

~~Parapet wall~~ Where scuppers are used for primary roof drainage ~~scupper~~ or for secondary (emergency overflow) roof drainage or both, the quantity, size, location and ~~overflow scupper location shall comply with the requirements of Section 1503.4~~ inlet elevation of the scuppers shall be chosen to prevent the depth of ponding water on the roof from exceeding the maximum water depth that the roof was designed for as determined by Section 1611.1 of the International Building Code. Scupper openings shall be not less than 4 inches (102 mm) in height and have a width that is equal to or greater than the circumference of a roof drain sized for the same roof area. The flow through the primary system shall not be considered when locating and sizing secondary scuppers.</td></tr>
</table>

2018 IPC Chapter 13: Nonpotable Water Systems			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
1302.7.2 Deleted	1302.7.2	**Design and Construction**	The consensus standards covering storage tanks for gray water are removed from the code.
1303.1.1 Addition		**Fire Protection Systems**	The storage, treatment and distribution of nonpotable water to be used for fire protection systems shall be in accordance with the International Fire Code.
1303.15.8 Modification	1303.15.8	**Rainwater Quality Test**	The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction.
1303.15.9 Addition		**Collected Raw Rainwater Quality**	The code language follows: ASTM E2727 shall be used to determine what, if any, site conditions impact the quality of collected raw rainwater and whether those site conditions require treatment of the raw water for the intended end use or make the water unsuitable for specific end uses.

2018 IMC Update

Based on the 2018 International Mechanical Code,® (IMC®)

ICC LEARNING CENTER

The *International Mechanical Code*® (IMC®) establishes minimum regulations for mechanical systems.

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Goal

Participants will be able to use this document to identify changes between the 2015 and 2018 allowing them to apply theses code requirements to design, plan submittals and/or inspection.

The lecture and activity format allows participants to discuss the changes, reasons for the changes, and answer knowledge review questions. Information presented will allow participants to apply these new code requirements to design, plan review, and/or inspection.

Objectives

Upon completion, participants will be better able to:

- Identify the most significant differences between the 2015 and the 2018 IMC.
- Explain the differences between the current and previous edition.
- Identify changes in organization and code requirements.
- Identify the applicability of design, plan review and inspection requirements.

Content

Chapters are divided for code development purposes as follows:

- Chapter 2, Definitions
- Chapter 4, Ventilation
- Chapter 5, Exhaust Systems
- Chapter 6, Duct Systems
- Chapter 9, Specific Appliances, Fire Places and Solid-Fuel-Burning Equipment
- Chapter 11, Refrigeration
- Chapter 14, Solar Thermal Systems

2018 IMC Chapter 2: Definitions			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
202 Modification	202	**202 Definitions**	**COMMERCIAL COOKING APPLIANCE** The definition was completely rewritten to capture the true intent, eliminate confusion and eliminate circular language and a laundry list of appliances. The code has attempted to define "commercial. **COMMERCIAL COOKING APPLIANCES.** Appliances used in a commercial food service establishment for heating or cooking food. For the purpose of this definition, a commercial food service establishment is where food is prepared for sale or is prepared on a scale that is by volume and frequency not representative of domestic household cooking.

2018 IMC Chapter 4: Ventilation			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
403.3.2.4 Addition	403.3.2.4	**System Controls**	There is new requirement for labeling of controls for whole-house (dwelling) ventilation systems.
403.3.2.5 Addition	403.3.2.5	**Ventilating Equipment**	A new requirement was added for the testing of exhaust fans for dwelling units.
404.1 Modification	404.1	**Enclosed Parking Garages**	The code text was rewritten to clarify the intent with regard to "intermittent" operation. **404.1 Enclosed parking garages.** Mechanical ventilation systems for enclosed parking garages shall operate continuously or shall be automatically operated by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be listed in accordance with UL 2075 and installed in accordance with their listing and the manufacturers' instructions. Automatic operation shall cycle the ventilation system between the following two modes of operation: 1. Full-on at an airflow rate of not less than 0.75 cfm per square foot [0.0038 $m^3/(s \cdot m^2)$] of the floor area served. 2. Standby at an airflow rate of not less than 0.05 cfm per square foot [0.00025 $m^3/(s \cdot m^2)$] of the floor area served.

2018 IMC Chapter 5: Exhaust Systems			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
504.4 Modification	504.4	**Exhaust installation.**	The code now speaks to the sealing of clothes dryer exhaust ducts.
504.4.1 Addition		**Exhaust termination outlet and passageway size**	The code now addresses the required size of dryer exhaust duct terminals.
504.8.2 Modification	504.8.2	**Duct installation**	The code now addresses the installation of clothes dryer exhaust ducts in wall and ceiling cavities. **504.8.2 Duct installation.** Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.
506.3.13.2 506.3.13.3 Modification	506.3.13.2 506.3.13.3	**Termination through an exterior wall, Termination location**	The intent was clarified regarding clearance to openings to prevent other requirements from being overlooked. **506.3.13.2 Termination through an exterior wall.** Exhaust outlets shall be permitted to terminate through exterior walls where the smoke, grease, gases, vapors and odors in the discharge from such terminations do not create a public nuisance or a fire hazard. Such terminations shall not be located where protected openings are required by the *International Building Code*. Such terminations shall be located in accordance with Section 506.3.13.3 and shall not be located within 3 feet (914 mm) of any opening in the exterior wall. **506.3.13.3 Termination location.** Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent buildings and adjacent property lines and shall be located not less than 10 feet (3048 mm) above the adjoining grade level. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from or not less than 3 feet (914 mm) above air intake openings into any building. **Exception:** Exhaust outlets shall terminate not less than 5 feet (1524 mm) horizontally from parts of the same or contiguous building, an adjacent building, adjacent property line and air intake openings into a building where air from the exhaust outlet discharges **away from such locations.**

2018 IMC Chapter 5: Exhaust Systems			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
506.5.2 Addition		**Pollution-control units**	The code added coverage for pollution control units (PCUs) which are defined as "Manufactured equipment that is installed in a grease exhaust system for the purpose of extracting smoke, grease particles and odors from the exhaust flow by means of a series of filters." Definition of PCU from Section 202 **POLLUTION-CONTROL UNIT (PCU).** Manufactured equipment that is installed in a grease exhaust duct system for the purpose of extracting smoke, grease particles and odors from the exhaust flow by means of a series of filters.
507.2.6 Addition		**Clearances for Type I hood**	A new exception was added to recognize Type I hoods that are listed for clearances to combustibles of less than 18 inches.

2018 IMC Chapter 6: Duct Systems			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
603.5.2 Addition		**Phenolic ducts**	The code added coverage for a newer type of non-metallic duct, phenolic duct.
603.8.2 Modification	603.8.2	**Sealing**	The code now addresses the testing of underground ducts.
603.9 Modification	603.9	**Joints, seams and connections**	The code is less restrictive for Snap- and Button-lock duct joints that are located within the thermal envelope. **Exception:** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams. This exception shall not apply to snap lock and button-lock type joints and seams located outside of conditioned spaces.
607.3.1 Modification	607.3.1	**Damper testing**	The code mandates dynamic type ceiling damper where the subject to continuous air flow from HVAC fans.

2018 IMC Chapter 9: Specific Appliances, Fireplaces and Solid-Fuel-burning Equipment			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
929 Addition		**High-Volume Large-Diameter Fans**	Include code section and new definition of high volume large diameter fan **929.1 General.** Where provided, high-volume large-diameter fans shall be tested and labeled in accordance with AMCA 230, listed and labeled in accordance with UL 507, and installed in accordance with the manufacturer's instructions.

2018 IMC Chapter 11: Refrigeration			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
1105.6.3 Modification	1105.6.3	**Ventilation rate**	An important clarification was added regarding the ventilation rate required for ammonia systems, thereby resolving an interpretation issue.
1107.2 Modification		**Piping location**	This code section was rewritten to clearly state the intent regarding the prohibited locations for refrigerant piping. **1107.2 Piping location.** Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any of the following: 1. A fire-resistance-rated exit access corridor. 2. An interior exit stairway. 3. An interior exit ramp. 4. An exit passageway. 5. An elevator, dumbwaiter or other shaft containing a moving object. 6. A shaft that has one or more openings into a fire-resistance-rated exit access corridor, interior exit stairway or ramp or exit passageway.

2018 IMC Chapter 14: Solar Thermal Systems			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
Chapter 14 Revision and addition		**Solar Thermal Systems**	Chapter 14 was significantly increased in content and it was clarified that the chapter applies only to thermal solar (as opposed to solar-voltaic). The new text relies on three newly referenced solar product standards developed and maintained by the Solar Rating and Certification Corporation. The text addresses the various types of thermal solar system designs, including direct and indirect systems and drain-back systems. Much new text was added addressing: system design and installation, protection from freezing and excess pressure and temperature, protection of potable water and building structure, piping installation and insulation, heat exchanger application, heat transfer fluids, access for roof-mounted equipment and system labeling and signage.

2018 IFGC Update

Based on the 2018 International Fuel Gas Code,® (IFGC®)

ICC LEARNING CENTER

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Content

Chapters are divided for code development purposes as follows:

- Chapter 3, General Regulations
- Chapter 4, Gas Piping Installations
- Chapter 5, Chimney and Vents
- Chapter 6, Specific Appliances

2018 IFGC Chapter 3: General Regulations			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
303.3 Addition		**Prohibited Locations #6**	A new option was added to allow a gas-fired clothes dryer to be installed in a toilet room or bathroom. 6. A clothes dryer is installed in a residential bathroom or toilet room having a permanent opening with an area of not less than 100 square inches (0.06 m^2) that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet.
310.2 Modification	310.2	**CSST**	This section applied to all CSST products previously, but is now restricted to only the traditional yellow jacketed CSST product. 2018 Code.
310.2.3 Modification	310.2.3	**Bonding jumper length**	Section 310.2.3 was clarified with the regard to the purpose of any "additional grounding electrodes."
310.3 Addition		**Arc-resistant CSST.**	A new Section 310.3 was added to address the arc-resistant CSST products

2018 IFGC Chapter 4: Gas Piping Installations			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
403.4.2 and 403.10 Modification	403.4.2 and 403.10	**Steel**	**The code now allows Schedule 10 steel pipe to be used for fuel gas service.** **403.4.2 Steel**. Steel, stainless steel and wrought-iron pipe shall be not lighter than Schedule 10 and shall comply with the dimensional standards of ASME B36.10, 10M and one of the following standards: 1. ASTM A53/A53M. 2. ASTM A106. 3. ASTM A312. **403.10.1 Pipe joints.** Schedule 40 and heavier pipe joints shall be threaded, flanged, brazed, welded or assembled with press-connect fittings listed in accordance with ANSI LC4/CSA 6.32. Pipe lighter than Schedule 40 shall be connected using press-connect fittings, flanges, brazing or welding. Where nonferrous pipe is brazed, the brazing materials shall have a melting point in excess of 1,000°F (538°C). Brazing alloys shall not contain more than 0.05-percent phosphorus.

2018 IFGC Chapter 4: Gas Piping Installations			
Code Section		**Section Title**	**Description of Change**
2018	**2015**		
404.11.1-4 Modification	404.11.1-4	**Protection against corrosion**	This section was rewritten for clarity and to include three distinct prescriptive methods for protection from corrosion for steel pipe. **404.11 Protection against corrosion.** Steel pipe or tubing exposed to corrosive action, such as soil conditions or moisture, shall be protected in accordance Sections 404.11.1 through 404.11.5. **404.11.1 Galvanizing.** Zinc coating shall not be deemed adequate protection for underground gas piping. **404.11.2 Protection methods.** Underground piping shall comply with one or more of the following: 1. The piping shall be made of corrosion-resistant material that is suitable for the environment in which it will be installed. 2. Pipe shall have a factory-applied, electrically-insulating coating. Fittings and joints between sections of coated pipe shall be coated in accordance with the coating manufacturer's instructions. 3. The piping shall have a cathodic protection system installed and the system shall be monitored and maintained in accordance with an approved program. **404.11.3 Dissimilar metals.** Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. **404.11.4 Protection of risers.** Steel risers connected to plastic piping shall be cathodically protected by means of a welded anode, except where such risers are anodeless risers.
404.14 Modification	404.14	**Piping underground beneath buildings**	A listed encasement system instead of a conduit encasement is recognized where plastic piping is installed underground beneath buildings.
409.5.1 Modification	409.5.1	**Located within same room.**	**409.5.1 Located within same room.** The shutoff valve shall be located in the same room as the *appliance*. The shutoff valve shall be within 6 feet (1829 mm) of the *appliance*, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with *access*. Shutoff valves serving movable appliances, such as cooking appliances and clothes dryers, shall be considered to be provided with access where installed behind such appliances. *Appliance* shutoff valves located in the firebox of a *fireplace* shall be installed in accordance with the *appliance* manufacturer's instructions.
409.7 Addition		**Shutoff valves in tubing systems**	New text addresses shutoff valve support for tubing systems. **409.7 Shutoff valves in tubing systems.** Shutoff valves installed in tubing systems shall be rigidly and securely supported independently of the tubing.

<table>
<tr><th colspan="4">2018 IFGC Chapter 5: Chimney and Vents</th></tr>
<tr><th colspan="2">Code Section</th><th rowspan="2">Section Title</th><th rowspan="2">Description of Change</th></tr>
<tr><th>2018</th><th>2015</th></tr>
<tr><td>503.4.1, 503.4.1.1 and 503.4.2 Modification</td><td>503.4.1, 503.4.1.1 and 503.4.2</td><td>Plastic Piping, Plastic Vent Joints and Special Gas Vent</td><td>The standards to which plastic pipe venting materials must listed are addressed.
503.4.1 Plastic piping. Where plastic piping is used to vent an appliance, the appliance shall be listed for use with such venting materials and the appliance manufacturer’s installation instructions shall identify the specific plastic piping material. The plastic venting materials shall be labeled in accordance with the product standards specified by the appliance manufacturer or shall be listed in accordance with UL 1738.
503.4.1.1 Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer’s instructions. Plastic pipe venting materials listed and labeled in accordance with UL 1738 shall be installed in accordance with the vent manufacturer’s instructions. Where a primer is required, it shall be of a contrasting color.
503.4.2 Special gas vent. Special gas vent shall be listed and labeled in accordance with UL 1738 and installed in accordance with the special gas vent manufacturer’s instructions.</td></tr>
<tr><td>503.8 #2 and #3 and Table 503.8 Modification</td><td>503.8 #2 and #3 and Table 503.8</td><td>Venting system termination location.</td><td>Section 503.8, Item # 3 relative to direct-vent appliances was reformatted into table form and a new category was added for direct-vent appliances having higher Btu/hr inputs that are more consistent with non-residential appliances.
TABLE 503.8
THROUGH-THE-WALL,
DIRECT-VENT TERMINATION CLEARANCES
<table><tr><th>DIRECT-VENT APPLIANCE INPUT RATING (Btu/hr)</th><th>THROUGH-THE-WALL VENT TERMINAL CLEARANCE FROM ANY AIR OPENING INTO THE BUILDING (inches)</th></tr><tr><td>< 10,000</td><td>6</td></tr><tr><td>≥ 10,000 ≤ 50,000</td><td>9</td></tr><tr><td>> 50,000 ≤ 150,000</td><td>12</td></tr><tr><td>> 150,000</td><td>In accordance with the appliance manufacturer’s instructions and not less than the clearances specified in Section 503.8, Item 2</td></tr></table>For SI: 1 inch = 25.4 mm, 1 Btu/h = 0.2931 W.</td></tr>
</table>