

## CHAPTER 5 PLUMBING CODE

### 4-5-1. ADOPTION.

- (A) Pursuant to the authority granted by 65 ILCS 5/1-2-4, and pursuant to its home rule powers, the City of Evanston hereby adopts by reference the 2014 Illinois Plumbing Code, Ill. Admin. Code tit. 77 § 890 (2014), with the additions, deletions, exceptions, and other amendments set forth in this Chapter.
- (B) Any reference in the 2014 Illinois Plumbing Code to "Authorities Having Jurisdiction" shall refer to the City's Manager of Building and Inspection Services. Any reference to "municipality" shall mean the City of Evanston.

### 4-5-2. AMENDMENTS.

The 2014 Illinois Plumbing Code adopted hereby shall read as follows with respect to these Sections.

#### Subsection 890.340(f):

- f) Copper Water Tube. Joints in copper tubing shall be made with case bronze or wrought copper pressure fittings, properly soldered or brazed, or by means of compression or flared joints as provided in Sections 890.320(d), (e), (h) and (p)(2). Flared joints and compression fittings shall not be installed underground except for water services, water meter yokes, and stop box connections. Soldered and braised fittings shall not be installed below grade.

#### Section 890.610 General Requirements—Material and Design:

- a) Quality of Fixtures: Plumbing fixtures shall comply with approved designs, be constructed from approved materials, have smooth, impervious surfaces and be free of defects and concealed fouling surfaces. (See Appendix A: table A "Approved Materials and Standards for Plumbing Fixtures" and "Approved Standards for Plumbing Appliances/Appurtenances/Devices.")
- b) Used plumbing material, equipment and fixtures for plumbing installations shall comply with this Part.
- c) Any plumbing equipment condemned by the Department because of wear, damage, defects or sanitary hazards shall not be used in a plumbing system.
- d) All new and replacement plumbing fixtures and irrigation controllers installed after the effective date of this ordinance shall bear the Watersense label as designated by the U.S. Environmental Protection Agency Watersense Program when such labeled fixtures are available.

#### Section 890.680 Lavatories:

- a) Waste Outlets. Wastes shall have a strainer or stopper and have a waste outlet at least 1¼ inches in diameter.
- b) Lavatory Faucets. All lavatory faucets shall have air gaps as specified in Appendix A, table C.

- c) When metering faucets are located on lavatories in public restrooms, they shall be adjusted to remain open for a minimum of 10 seconds and shall comply with the water consumption requirements of ASME/ANSI 112.18.1. Metering faucets shall be designed for hot and cold, tempered and cold, or tempered water only.
- d) Fixture Calculation. Eighteen lineal inches of wash sink or 18 inches of a circular basin, when provided with water outlets for the space, shall be considered equivalent to one lavatory. (See Appendix F, Illustration B.)
- e) Water Temperature. All lavatory faucets for public use shall be provided with an automatic safety water mixing device to prevent sudden unanticipated changes in water temperature or excessive water temperatures. The automatic safety water mixing device shall comply with ASSE 1070 or 1017 in accordance with Section 890.210, and shall be adjusted to a maximum setting of 110 degrees Fahrenheit, at the time of installation. Exception: Units constructed in accordance with Section 890.1220(a)(9)(B) may be used in lieu of an automatic safety water mixing device to provide hot or tempered water to public lavatories.
- f) All lavatories for public use in new construction or remodeling shall be equipped with metering or self-closing faucets.

**Subsection 890.810(a)(2)(C):**

- C) Restroom Location, Designation, and Requirements. The required number of plumbing fixtures for a restroom shall be located within the restroom area and not in the hallways or vestibule. Lavatories required by Appendix A: Table B shall be installed in restrooms at a ratio of not less than one lavatory per two water closets or urinals. (See Footnote 2, Appendix A: Table B.) All restroom facilities must comply with designation requirements set forth in Section 2902.2 of the 2021 International Building Code, adopted by City Code Section 4-2-2 of the City of Evanston.

**Subsection 890.1130(g):**

- g) Installation of Devices or Assemblies
  - 1) Devices of All Types. Backflow preventer assemblies and devices shall be installed to be accessible for observation, maintenance and replacement services. Backflow preventer devices or assemblies shall not be installed where they would be subject to freezing conditions, except as allowed in Section 890.1140(d).
  - 2) All in-line backflow/back siphonage preventer assemblies shall have a full port type valve with a resilient seated shut-off valve on each side of the preventer. Relocation of the valves is not permitted.
  - 3) A protective strainer shall be located upstream of the first check valve on all backflow/back siphonage preventers unless the device contains a built-in strainer. Fire safety systems are exempt from the strainer requirement.

- 4) Atmospheric vacuum breakers shall be installed with the critical level above the flooded level rim of the fixture they serve, and on the discharge side of the last control valve of the fixture. No shut-off valve or faucet shall be installed beyond the vacuum breaker.
- 5) No in-line double check valve backflow preventer assembly (DCV) or reduced pressure principled backflow preventer assembly (RPZ) shall be located more than 5 feet above a floor, or be installed where it [is] subject to freezing or flooding conditions. After installation, each DCV and RPZ shall be field tested in-line in accordance with the manufacturer's instructions by a cross-connection control device inspector before initial operation. (See subsection (b)).
- 6) A dual check backflow preventer with atmospheric vent assembly shall not be installed where it is subject to freezing or flooding conditions.
- 7) Closed water systems with hot water storage shall have a properly sized thermal expansion tank located in the cold water supply as near to the water heater as possible and with no shut-off valve or other device between the heater and the expansion tank. Exception: In existing buildings with a closed water system, a properly sized pressure relief valve may be substitute in place of a thermal expansion tank. For closed water systems created by backflow protection in manufactured housing, as required in Section 890.1140(i), a ballcock with a relief valve may be substituted for the thermal expansion tank.
- 8) A backflow prevention device shall be installed on each water service pipe/line to a business, commercial, or industrial facility in accordance with the Illinois Plumbing Code. This requirement applies whenever there is an installation of a water service pipe/line, or alteration, renovation, or replacement of an existing pipe/line, and for new construction. A reduced pressure principle backflow, prevention assembly (RPZ) shall be installed in the water service supplying food service, manufacturing, or production establishments.

**Subsection 890.1150(a)(3):**

- a) 3) The minimum depth for any water service pipe shall be at least 60" deep or the maximum frost penetration of the local area, whichever is greater.

**Subsection 890.1190(b):**

- b) The water meter shall be installed within the building within 60" of the water service entrance. The meter shall have unions on the inlet and outlet openings. A full-port valve with an open area at least that of the water service shall be provided for all meters and shall be provided with a drain valve installed on the discharge side of the meter valve when located inside of a building. (See Appendix I, Illustrations H and I.)

**Subsection 890.1200(a):**

- a) Water Service Piping Sizing. The water service pipe from the street main (including the tap) to the water distribution system for the building shall be sized in accordance with Appendix A, Tables M, N, O, P, and Q. Water service pipe and fittings shall be at least one inch in diameter. If flushometers or other devices requiring a high rate of water flow are used, the water service pipe shall be designed and installed to provide this additional flow.

## 890 Appendix A, Table A

### Approved Materials for Building Sewer

- 1) Cast Iron Soil Pipe/Fittings ASTM A 74-2009  
CSA B70-2012  
  
Rubber Gaskets ASTM C 564-2012  
ASTM D 4161-2010  
CSA B70-2012  
CSA B602-2010
- 2) High-Density Polyethylene (HDPE) Pipe ASTM D 3350-2010
- 3) Polyvinyl Chloride (PVC) Pipe  
ASTM F 1866-2007  
ASTM D 2665-2012  
ASTM D 2949-2010  
CSA B182.1-2011 in 81800  
CSA B182.2-2011 in 81800  
CSA B182.4-2011 in 81800  
CSA B181.2-2011 in 81800  
ASTM D 2855-2010  
ASTM D 3212-2013  
CSA B602-2010  
ASTM F 656-2010  
ASTM D 2564-2012  
ASTM D 3138-2011  
CSA B181.2-2011 in B1800
- 4) Polypropylene Pipe<sup>2</sup> ASTM 2389-2010  
AWWA C901-2008  
AWWA C906-2012  
(Material Code PE3408)<sup>3</sup>  
(Material Codes PE2406 and PE3406)<sup>4</sup>
- 5) Identification of Piping Systems  
ASME A13.1-2007

#### Agency Notes:

- <sup>1</sup> Solvent cement must be handled in accordance with STM F 402-1988.
- <sup>2</sup> PVC pipe with cellular core and vitrified clay pipe are approved only for gravity drainage.

<sup>3</sup> Dimension Ratio (DR) 17 or less.

<sup>4</sup> Dimension Ratio (DR) 13.5 or less.

### **Approved Materials for Water Service Pipe**

- 1) Cast Iron (ductile iron)<sup>2</sup> ASTM A 377-2008e1  
Water Pipe CSA B70-2012
- 2) Copper/Copper Alloy Tubing<sup>2,3</sup> ASTM B 88-2009
- 3) Polyethylene (PE) Pipe<sup>2,7</sup> ASTM D 2239-2012a  
AWWA C901-2008  
AWWA C906-2012  
(Material Code PE3408)<sup>4</sup>  
Material Codes PE2406, PE3406)

#### Agency Notes:

<sup>1</sup> Solvent cement must be handled in accordance with ASTM F 402-1988.

<sup>2</sup> Water service pipe must meet the appropriate NSF standard for potable water.

<sup>3</sup> Minimum Type K copper shall be installed underground.

<sup>4</sup> Dimension Ratio (DR) 17 or less.

<sup>5</sup> Dimension Ratio (DR) 13.5 or less.

<sup>6</sup> ASME B.1.20.1-1983

<sup>7</sup> Up to a developed distance of twenty-four (24) inches to be used only in the transition between similar types of service pipe.

### **Approved Materials for Water Distribution Pipe**

- 1) Brass Pipe<sup>2,6</sup> ASTM B 43-2009
- 2) Copper/Copper Alloy Pipe<sup>2</sup> ASTM B 42-2010  
ASTM B 302-2012
- 3) Galvanized Steel Pipe<sup>2,7</sup> ASTM A 53-2012  
AWWA C606-2011

#### Agency Notes:

<sup>1</sup> Solvent cement must be handled in accordance with ASTM F 402-1988.

<sup>2</sup> Water distribution pipe must meet the appropriate NSF standard for potable water, minimum Type L copper shall be installed above grade.

<sup>3</sup> Use for cold or tempered water only.

<sup>4</sup> ASME B.1.20.1-1983

<sup>5</sup> Safety color.

<sup>6</sup> For repairs only.

<sup>7</sup> For repairs only, except for the distribution and conveyance of distilled or deionized water.

#### 4-5-3. ADDITIONAL REQUIREMENTS.

The following are requirements additional to the 2014 Illinois Plumbing Code. In the event that any provision of City Code Section 4-5-3 is in conflict with the 2014 Illinois Plumbing Code, as amended, the 2014 Illinois Plumbing Code shall prevail.

- (A) *Existing Plumbing:* Plumbing fixtures not maintained shall be disconnected, removed, and sealed.
- (B) *Safety:* Any part of a structure or premises which is changed, altered, or for which replacement is required as a result of the installation, alteration, renovation, or replacement of a plumbing system, or any part thereof, shall be left in a safe, nonhazardous condition. All penetrations through fire rated construction shall be fire stopped with a through penetration protection system approved by the Building Official.
- (C) *Installation:* All plumbing installed within the City of Evanston shall be installed in accordance with the 2014 Illinois Plumbing Code. If required by the Code Official, an approved backflow prevention device is necessary for the safety of the public water supply system, the Public Works Agency Director or his/her designee will give notice to the property owner or person in charge (collectively, "property owner") of the building structure or premises to install such an approved device immediately. The property owner shall, at his/her own expense, immediately install such an approved device at a location and in a manner in accordance with the 2014 Illinois Plumbing Code; Illinois Environmental Agency Rules and Regulations, Title 35: Environmental Protection, Subtitle F: Public Water Supply, Chapter I: Pollution Control Board, Part 604 Subpart O: Cross Connections and Chapter II: Environmental Protection Agency, Part 653 subpart H Cross Connections; and all applicable local regulations, and shall have inspections and tests made of such approved devices upon installation and annually thereafter, at a minimum. The property owner shall maintain records to document that testing, servicing, and repairs are conducted as required.
- (D) *Right of Entry:* A City inspector, who shall be a licensed plumber, shall have the right to enter at any reasonable time any property served by a connection to the public water supply or distribution system of the City for the purpose of verifying information submitted by the property owner or person in charge of the building, structure, or premises regarding the required cross connection control inspection. On demand, the property owner or person in charge of the building, structure, or premises so served shall furnish to the Code Official, his/her authorized agent, or approved cross connection control device inspector any information which these individuals may request regarding the piping system or systems or water use on such property. The Code Official or his/her authorized agents shall have a right to enter at any reasonable time any property served by a connection to the public water supply or distribution system of the City for the purpose of verifying information submitted by the property owner or person in

charge of the building, structure, or premises regarding the required cross connection inspection.

- (E) *Contamination*: The occupant or property owner of the building, structure, or premises responsible for back siphoned material or contamination of the potable water supply system which occurs through an illegal cross connection or an improperly installed, maintained, or repaired device, or a device which has been bypassed, must bear the cost of cleanup of the potable water supply system. Said costs to include, but not be limited to, overhead and administrative costs of the City and any other costs reasonably incurred by the City in the cleanup.
- (F) *Discharge to Sanitary Drainage System*: Every plumbing fixture, drain, appliance, or appurtenance thereof which is to receive water or waste, or discharge any liquid wastes or sewage, shall discharge to the sanitary drainage system of the structure in accordance with the requirements of this Chapter. Building Drains shall be constructed of either service weight cast iron or schedule 40 PVC pipe and fittings or a material approved by the city Plumbing Inspector. Building Sewers shall be constructed of either service weight cast-iron, schedule 40 PVC pipe and fittings, SDR 26 or SDR 35 or a material approved by the city Plumbing Inspector. Underground piping shall be laid on a firm bed of sand or gravel for its entire length, except where support is otherwise provided and approved by a City Plumbing Inspector. Six (6) inches of compacted stone, sand, or other approved material shall be provided under pipe and minimum of twelve (12) inches of stone or sand shall be provided above the crown of the pipe. The remaining soil fill shall be compacted in compliance with Metropolitan Water Reclamation District bedding regulations.
- (G) *Automatic Clothes Washing Machine/Water Heater Floor Drains*: For all new construction, a pan or receptor with a drain to an approved floor drain, or an impervious floor with a floor drain, shall be required for all automatic clothes washing machines and water heaters in multi-family and commercial occupancies. For existing multi-family and commercial buildings, a pan and automatic shut-off valve shall be required for all automatic clothes washing machines and water heaters where installation of a floor drain is not feasible.
- (H) *Underground Piping*: Piping installed in underground plumbing systems shall be protected from structural damage by an approved method of installation which accounts for the conditions of the installation and application and the type of piping material. In new construction, all plumbing shall be overhead. All fixtures below grade shall be directed to an ejector pit and lifted to an overhead system. Footings, grade beams and/or foundation walls shall be properly sleeved or cored in compliance with a design from a licensed design professional to accommodate for the proper installation of the buildings plumbing system.
- (I) *Sillcocks*: All buildings have a minimum of two (2) frost-proof, anti-siphon type sillcocks.

- (J) *Public Toilet Room Drains:* All public toilet rooms, including employee facilities, shall be graded into floor drains.
- (K) *Unmaintained Plumbing Fixtures:* All plumbing fixtures not maintained shall be disconnected, removed, and sealed.
- (L) *Sewer Depth:* Building sewers shall be installed below frost line depth per IRC Table R301.2(1). Current frost line depth is forty-two inches (42”).
- (M) *Subsoil Drain Pipe:* Subsoil drains shall be open jointed, horizontally split or perforated pipe. Footing drains to be connected to the sump pump as discharge shall terminate water discharge to grade a minimum of three feet (3’) away from any portion of the structure and not within ten feet (10’) of any property line or as approved by the Civil Reviewer. Water discharge shall not be directed toward adjacent properties or discharge in a manner that will disturb adjacent properties. Discharge to storm or combination sewer will be upon approval the Public Works Director, Civil Engineer Reviewer or his/her designee. Discharge to sanitary sewer shall not be allowed. All windows wells require drains. The drains shall be connected to drain tile and drain into the sump.
- (N) *Roof Drains:* Roof drains shall conform to ASME A112.21.2. Buildings in R1, R2 and R3 zoning districts, and all one- and two-family dwelling units shall drain roof stormwater by gutters and downspouts to the front and rear of the property, Water discharge shall terminate to grade a minimum of three feet (3”) away from any portion of the structure and not within ten feet (10’) of any property line or as approved by the Civil Reviewer. Water discharge shall not be directed toward adjacent properties or discharge in a manner that will disturb adjacent properties. No connections to the combined or sanitary sewer shall be made in the above zoning districts. All roofs of buildings not mentioned above may drain directly in the storm sewer system.
- (O) *Car Wash Facilities:* Unless designed to use thirty (30) gallons or less of water per wash, new car wash facilities or replacement of existing facilities shall be equipped with water recycling systems.
- (P) *Reduced Pressure Principle Backflow Preventers:* A reduced pressure principle backflow prevention assembly (RPZ) shall be installed in the water service supplying food service, manufacturing or production establishments. RPZs shall conform to ASSE 1013, 1047 AWWA C511 or CSA CAN/CSA-B64.4. These devices shall be allowed where subject to continuous pressure conditions. The relief opening shall discharge by air gap and shall be prevented from being submerged.

#### **4-5-4. PENALTIES.**

Any persons who violates any provision of this Chapter or fails to comply with any of the requirements thereof, or erects, installs, alters, or repairs work in violation of the approved construction documents or directives of the Code Official, or of a permit or certificate issued under the provisions of this Chapter, shall be fined as set forth in this Section:



- (A) 1. The fine for a first violation is one hundred fifty dollars (\$150.00).
- 2. The fine for a second violation is four hundred dollars (\$400.00).
- 3. The fine for a third or subsequent violation is seven hundred fifty dollars (\$750.00).
- (B) Each day a provision of this Chapter is found to have been violated constitutes a separate violation subject to the fine schedule set forth in Subsection (A) of this Section.
- (C) The fines provided for herein shall not be construed as limiting the power of a court of competent jurisdiction or an administrative hearing officer to impose other penalties and remedies as provided for by applicable legislation.

**4-5-5. SEVERABILITY.**

It is the intention of the City Council that the provisions of this Chapter and the Code adopted hereby are severable and the invalidity of any Section or any portion of any such Section of either of them shall not affect any other Section.

**4-5-6. IDENTIFICATION OF ORDINANCE WITH THE ILLINOIS CAPITAL BOARD.**

The adoption of this Ordinance and code, by title and edition, shall be reported to the Illinois Capital Development Board Illinois or any successor agency of the State of Illinois pursuant to Section 1-2-3.1 of the Illinois Municipal Code, 65ILCS 5/1-2-3.1.

**4-5-7. EFFECTIVE DATE.**

This Ordinance shall be in full force and effect thirty (30) days after its approval and passage.