

Utility Service Installation

Outside of City Right of Way or Public Utility Easement

Guideline: G-2

Effective: January 1, 2023

Overview:

The State Plumbing Code governs the materials and methods of installation of sanitary sewer, storm sewer, and water service when located outside of the city right-of-way (ROW) or public utility easement (PUE). The permitted materials, methods of installation, and qualifications of the installer *may be different* than those permitted for installations within the ROW/PUE. The following is intended as a general guideline for such installations. For installations in the ROW or PUE, please refer to Rochester Public Works standards.

Details:

Installer Requirements:

Installation of utility service connections shall be performed by a sewer and drain contractor licensed by the City of Rochester per Rochester City Ordinance Section 12-2-8. At least one installer of the utility service piping at the active worksite shall have in possession a plumbing license or pipe layer's card, issued by the MN DLI Commissioner, certifying completion of a pipe-laying program approved by the commissioner.

Installation Details:

- A building sewer starts at 2 feet outside a building.
- Sanitary building sewer must connect to a public sewer when available per State Plumbing Code (SPC) Section 713.4.
- Cleanouts must be provided at intervals not to exceed 100 feet for sanitary and storm sewers (SPC Sec. 719.0 & 1101.12). Where permitted by the administrative authority, manholes may be used in lieu of cleanouts at intervals not exceeding 300 feet (SPC Sec. 719.6).
- When possible, sanitary building sewers shall be sloped uniformly at least 1/4-inch foot (2%). (SPC Sec. 718.1) A minimum slope of 1/8 inch per foot (1%) is permitted for sizes of 4-inch and 6-inch diameter pipe when they meet at least *one* of the following conditions:
 1. Due to the depth of street sewer or private sewage system connection,
 2. Arrangements of the building structures restrictions, or
 3. A minimum of 2 feet per second self-cleansing velocity is maintained at all times to prevent settling or forming of wastewater and sewage. Low flow fixtures in the drainage system must be considered in determining the minimum velocity of 2 feet per second.
- Building sewers shall comply with the material & applicable standards of SPC Table 701.2. (See *Attachment #1*) Building sewer materials installed within 2 feet of a building must be of materials approved for use inside of or within a building.
- See SPC Sec. 723.0 for testing requirements for building sewer; SPC Sec. 1107.0 & 712 for testing requirements building storm sewer.

1. All sanitary building sewers must be tested and be gastight or watertight (SPC Sec. 723.0).
 2. All portions of the storm sewer system located within 10 feet of the building or building waterline must be tested by the use Hydrostatic Test Method from CEAM (SPC Sec. 1109.0)
 3. Concrete manholes and sewer lines shall be tested by negative pressure per ASTM C1412-13, ASTM C1244-11, or hydrostatically.
- Building water supply shall comply with the material and applicable standards of SPC Table 604.1. (See *Attachment #2* for abbreviated version)
 - Building water supply shall be located not less than 12 inches below the maximum local frost depth.
 - In general, no building water supply shall be located in a lot other than the lot that is the site of the building served by the building supply.
 - See SPC Sec. 609.4 for testing requirements for water supply system.
 - See SPC Sec. 609.9 for disinfection of potable water system.

Isolation of Building Water from Building Sewer Installation:

- The water pipe must be installed at least 10 feet horizontally from any manhole, septic systems, catch basin, or other source of contamination, measured from the outer edge of the pipe to the outer edge of the contamination source.
- Water and Sewer Separation: A minimum horizontal separation of 10 feet should be maintained between the water pipe and any sewer, whenever possible.
- Trench: No building sewer pipe may be in a common trench with water pipe unless the sewer pipe material is approved for use within a building (see Minnesota Rules, Chapter 4714, Sections 609.2 and 720.1).
When water pipe is in a common trench with a sewer of clay or material not approved within a building:
 1. The bottom of the water pipe must be at least 12 inches above the top of the sewer.
 2. The water pipe must be on a solid shelf with a clear horizontal distance of 12 inches from the sewer.

- ***Water Sewer Crossings:*** The bottom of water pipe crossing a building sewer of clay, concrete, PVC ATSM D3034, HDPE D2306, or material not approved for use within a building must have the water pipe installed at least 12 inches above the top of the sewer. If not possible:
 1. Provide a 10-foot horizontal separation, or
 2. Provide materials *approved for use within buildings*



Attachment #1 – Permitted Materials (Building Sewer)

Materials for both sanitary and storm sewers can be found in SPC Table 701.2. Joints, connections, and installation method must also be in accordance the code and manufacturer’s installation instructions.

Piping approved for use within a building

Sewer piping

**TABLE 701.2
MATERIALS FOR DRAIN, WASTE, VENT PIPE AND FITTINGS**

MATERIAL	UNDERGROUND DRAIN, WASTE, VENT PIPE AND FITTINGS	ABOVEGROUND DRAIN, WASTE, VENT PIPE AND FITTINGS	BUILDING SEWER PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
ABS (Schedule 40)	X	X	X	ASTM D2661, ASTM D2680*	ASTM D2661, ASTM D2680*
Cast-Iron	X	X	X	ASTM A74, ASTM A888, CISPI 301	ASME B16.12, ASTM A74, ASTM A888, CISPI 301
Co-Extruded ABS (Schedule 40)	X	X	X	ASTM F628	ASTM D2661, ASTM D2680*
Co-Extruded Composite (Schedule 40)	X	X	X	ASTM F1488	ASTM D2661, ASTM D2665, ASTM F794*, ASTM F1866
Co-Extruded PVC (Schedule 40)	X	X	X	ASTM F891, ASTM F1760	ASTM D2665, ASTM F794*, ASTM F1336*, ASTM F1866
Copper and Copper Alloys (Type DWV)	X	X	X	ASTM B43, ASTM B75, ASTM B251, ASTM B302, ASTM B306	ASME B16.23, ASME B16.29
Galvanized Malleable Iron	—	X	—	—	ASME B16.3
Galvanized Steel	—	X	—	ASTM A53	—
Polyethylene	—	—	X	ASTM F714, ASTM F894	—
PVC (Schedule 40)	X	X	X	ASTM D1785, ASTM D2665, ASTM F794*	ASTM D2665, ASTM F794*, ASTM F1866
PVC (Sewer and Drain)	—	—	X	ASTM D2729	ASTM D2729
PVC PSM	—	—	X	ASTM D3034	ASTM D3034
Stainless Steel 304	—	X	—	ASME A112.3.1	ASME A112.3.1
Stainless Steel 316L	X	X	X	ASME A112.3.1	ASME A112.3.1
Vitrified Clay (Extra strength)	—	—	X	ASTM C700	ASTM C700

* For building sewer applications.



Attachment #1 – Permitted Materials (Sanitary and Storm) continued

Other Notable Materials and Alternates:

1. Plastic PVC pipe meeting ASTM D3034 is an acceptable alternate material for gravity building sewer. Installation must be on a continuous granular bed that meets ASTM D2321 and separation is provided from water supply service line under section 720.0. The local administrative authority may have additional requirements and must be consulted prior to installation.
2. Reinforced concrete (RCP) storm sewer pipe meeting ASTM C76 is an acceptable alternate material for building storm sewers and yard drainage applications. Installation must meet the requirements of Installation Standard 1, section 3.6, and separation is provided from water supply service line under section 720.0. Water-tight joints shall be provided by gaskets provided by the manufacturer and installed in accordance with the manufacturer's instructions. The local administrative authority may have additional requirements and must be consulted prior to installation.
3. High-density polyethylene (HDPE) sewers:
 - a. HDPE pipe meeting ASTM F714 may be used for pressurized sewers and must be installed per Minnesota Rules, Chapter 4714, Table 701.1, and Installation Standards 1, and separation from water supply service line meets section 720.0. All changes in directions must be through approved drainage fittings or through manhole connections. Heat fusion joints must be utilized per the manufacturer's installation instructions, and ASTM D2659 or ASTM D3261.
 - b. HDPE pipe meeting ASTM F2306 is an acceptable material under section 301.2 for installation of gravity building storm sewers and yard drainage. Installation must be on a continuous granular bed that meets ASTM D2321 and separation from water supply service line meets section 720.0. The local administrative authority may have additional requirements and must be consulted prior to installation.



Attachment #2 – Permitted Materials (Water Supply Service)

Building water supply piping



TABLE 604.1
MATERIALS FOR BUILDING SUPPLY AND WATER DISTRIBUTION PIPING AND FITTINGS

MATERIAL	BUILDING SUPPLY PIPE AND FITTINGS	WATER DISTRIBUTION PIPE AND FITTINGS	REFERENCED STANDARD(S) PIPE	REFERENCED STANDARD(S) FITTINGS
Copper and Copper Alloys	X	X	ASTM B42, ASTM B43, ASTM B75, ASTM B88, ASTM B135, ASTM B251, ASTM B302, ASTM B447	ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.26, ASME B16.50 ² , ASME B16.51, ASSE 1061
CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442, CSA B137.6	ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970, CSA B137.6
CPVC-AL-CPVC	X	X	ASTM F2855	ASTM D2846
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153
Galvanized Steel	X	X	ASTM A53	—
Malleable Iron	X	X	—	ASME B16.3
PE	X ¹	—	ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PE-AL-PEX	X	X	ASTM F1986	ASTM F1986
PE-RT	X	X	ASTM F2769, CSA B137.18	ASTM D3261, ASTM F1055, ASSE 1061, ASTM F1807, ASTM F2098, ASTM F2159, ASTM F2735, ASTM F2769, CSA B137.18
PEX	X	X	ASTM F876, ASTM F877, CSA B137.5, AWWA C904 ¹	ASSE 1061, ASTM F877, ASTM F1807, ASTM F1960, ASTM F1961, ASTM F2080, ASTM F2159, ASTM F2735, CSA B137.5
PEX-AL-PEX	X	X	ASTM F1281, CSA B137.10, ASTM F2262	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PP	X	X	ASTM F2389, CSA B137.11	ASTM F2389, CSA B137.11
PVC	X ¹	—	ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970, AWWA C907
Stainless Steel	X	X	ASTM A269, ASTM A312	—

Notes:

¹ For building supply or exterior cold-water applications, not for water distribution piping.

² For brazed fittings only.

- Plastic materials for building water supply piping shall have an approved tracer wire in accordance with SPC 604.10.1.
 - Replacement of existing metallic water service piping with an approved plastic material is allowed provided compliance with State Electrical Code grounding electrode system is verified/provided. SPC 604.10 & NEC Art 250.50

