

**Installation Standard
For
ABS BUILDING DRAIN, WASTE AND VENT PIPE AND FITTINGS**

IAPMO IS 5-2006^{e1}

1.1 SCOPE

1.2 This installation standard shall apply to ABS building drain, waste and vent systems as governed by the Uniform Plumbing Code. Material Standard ASTM D 2661, "Standard Specification of Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste and Vent Pipe and Fittings," or ASTM F 628, "Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic, Drain, Waste and Vent Pipe with a Cellular Core," shall form a part of this standard.

1.3 Installation, material and inspection shall comply with the current edition of the Uniform Plumbing Code [UPC]TM as published by the International Association of Plumbing and Mechanical Officials and shall also comply with this standard.

Note: *The Building Official shall be consulted about penetration of fire separations, height and area or other limitations.*

Note: *The following sections of the Uniform Plumbing Code apply.*

- 101.4.1.1 Repair and Alterations
- 103.5 Inspections
- 203.0 Definition ABS
- 301.1 Minimum Standards
- 311.8 Screwed Fittings
- 310.0 Workmanship
- 311.0 Prohibited Fittings and Practices
- 313.0 Protection of Piping, Materials and Structures
- 314.0 Hangers and Supports
- 316.1.1 Threaded Joints
- 316.1.6 Type of Joints – Solvent Cement Plastic Pipe Joints
- 316.2.3 Plastic Pipe to Other Material
- 316.3.1 Flanged Fixture Connections

- 316.4 Prohibited Joints and Connections
- 316.0 Increaseers and Reducers
- 701.0 Materials (Drainage)
- 704.4 Closet Flanges
- 707.1 Cleanout Fittings
- 903.0 Materials (Venting)
- 903.4 Straining or Bending Pipe
- 1003.0 Traps Described
- 1101.3 Materials Uses
- Table 14-1 Pipe and Fittings
- ASTM D 2661 D 3311
- ASTM D 2122 F 402
- ASTM F 628

ABBREVIATIONS

- ASTM American Society for Testing and Materials
- IAPMO International Association of Plumbing and Mechanical Officials
- UPC Uniform Plumbing Code

2.1 PRODUCT REQUIREMENTS

2.2 Minimum Standards

2.2.1 Pipe

ABS pipe is furnished in straight lengths. The pipe is black in color. The pipe wall is the same thickness as that of Schedule 40 (IPS) standard steel pipe. ABS pipe markings shall be in accordance with D 2661 or F 628. [UPC 301.1.2, 701.0, 903.0]

2.2.2 Fittings

Fittings are black. Refer to Tables in ASTM D2661 and D3311 for dimensions and tolerances for pipe, fitting sockets, and laying lengths. ABS fitting markings shall be in accordance with D 2661 or F 628. [UPC 301.1.2, 701.0, 903.0]

2.2.3 Solvent Cement

*Although referenced in this standard, some of the fittings shown in the standard are not acceptable under the Uniform Plumbing Code.

Solvent cement shall be as specified in ASTM Standard D 2235. Solvent cement labels shall be in accordance with D 2235.

2.2 Protection of Piping

2.2.1 Storage

Pipe and fittings should not be stored in direct sunlight. However, exposure to direct sunlight during normal construction periods is not considered harmful. Pipe shall be stored in such a manner as to prevent sagging or bending.

2.2.2 Expansion And Contraction

Thermal expansion and contraction of plastic drain waste and vent systems shall be taken into consideration. Thermal expansion and contraction may be controlled by several methods: offset, expansion joints, or restraints. Regardless of method utilized, certain conditions shall be met.

- (a) Support, but do not rigidly restrain piping at changes of direction.
- (b) Do not anchor pipe rigidly in walls.
- (c) Holes through framing members must be adequately sized to allow for free movement.

DWV installations with frequent changes in direction will compensate for thermal expansion and contraction. Expansion joints may be utilized in vertical straight runs in excess of thirty (30) feet (9144 mm) provided they are installed per manufacturer's installation instructions.

Except piping buried below ground, horizontal and vertical piping should be installed with restraint fittings or a minimum twenty-four (24) inches (610 mm) 45° offset every thirty (30) feet (9144 mm).

Thermal expansion for installations subject to temperature changes may be determined from Table 1. The linear expansion shown is independent of the diameter of the pipe. [UPC 313.0]

2.2.3 Exposed Piping

Piping shall not be exposed to direct sunlight. Exception: Vent piping through roof. Plumbing vents through roof,

exposed to sunlight, shall be protected by water base synthetic latex paints. Adequate support shall be provided where ABS piping is exposed to wind, snow, and ice loading.

2.2.4 Protection From Damage

Piping passing through wood studs or plates shall be protected from puncture by steel nail plates not less than 18 gauge. Piping shall be protected from concrete form oil. [UPC 313.9]

2.2.5 Anti-Freeze Protection

Anti-Freeze Protection – ABS pipe and traps can be protected from freezing by the use of one of the following solutions or mixtures:

- (a) 4 quarts (3.8 liters) of water mixed with 5 quarts (4.8 liters) of glycerol
- (b) 2-1/2 lbs. (1.1 kg) of magnesium chloride dissolved in one gallon (3.8 liters) of water
- (c) 3 lbs. (1.4 kg) of table salt dissolved in one gallon (3.8 liters) of water.

The salt solutions are effective to approximately 10°F (-12°C). If lower temperatures are anticipated, the pipe should be drained or the glycerol solution should be used. [UPC 313.0]

2.2.6 Piping Installed in Fire Resistive Construction

All piping penetrations of fire resistance rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the Building Code, IAPMO Installation Standards and Chapter 15 "Firestop Protection for DWV and Stormwater Applications". [UPC 313.7]

2.3 Hangers and Supports

2.3.1 Abrasion

Hangers and straps shall not compress, distort, cut, or abrade the piping and shall allow free movement of pipe. Pipe exposed to damage by sharp surfaces shall be protected. [UPC 314.0]

2.3.2 Support

Support all piping at intervals of not more