



**SPECIAL PROVISIONS
FOR
DUCTILE IRON PIPE**

**Woodbury County
IM-NHS-029-6(257)147--03-97**

**Effective Date
March 18, 2014**

THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

120142.01 DESCRIPTION.

A. Summary.

Ductile iron vent piping, hanger, and support.

B. References.

1. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
2. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in., for Water and Other Liquids.
3. AWWA C115 - Flanged Ductile-Iron Pipe with Threaded Flanges.
4. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
5. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
6. ANSI A21.52 - Ductile-Iron Pipe, Centrifugally Cast, In Metal Molds or Sand Lined Molds for Gas.
7. ANSI B18.2.1 - Square and Hex Bolts and Screws Inch Series.
8. ANSI B18.2.2 - Square and Hex Nuts.
9. AWS A5.6 - Specification for Covered Copper and Copper Alloy Arc Welding Electrodes.
10. AWS A5.15 - Specification for Welding Electrodes and Rods for Cast Iron.

120142.02 MATERIALS.

A. Minimum Thickness Class.

Flanged Joint Pipe: Thickness Class 53.

B. Inside Lining.

Pipe and fittings shall be provided with interior coating of American Polybond Plus Lining, 60-mil thickness; or Griffin Sewper Coat Lining, 160-180 mil thickness; or Clow Protecto 401 Ceramic Epoxy, 40-60 mil thickness.

C. Flanged Joints.

1. Fabrication of flanged pipe, including assembly of flange or pipe shall be performed by pipe manufacturer in accordance with AWWA C115. Assembly of flange on pipe outside of manufacturer's shop is unacceptable.
2. Flange material for flanged pipe shall be ductile iron. Flanged pipe with gray iron flanges is not acceptable.
3. Gasket material shall be suitable for service and maximum operating temperature of piping system. Torque requirement of gaskets shall be less than torque rating of flange, bolts, and nuts.
4. Gaskets shall be full face, 1/8 inch thick, and conform to dimensions shown in Appendices to AWWA C110 and C115.
5. Bolts:
 - a. Size, length, and number as shown in AWWA C110 and C115.
 - b. Material: Stainless steel, ASTM A193 Grade B8M.
 - c. Dimensions: ANSI B18.2.1, heavy hex.
6. Nuts:
 - a. Size, length, and number as shown in AWWA C110 and C115.
 - b. Material: Stainless steel, ASTM A194 Grade 8M.
 - c. Dimensions: ANSI B18.2.2, heavy hex.

D. Fittings.

1. Pressure rating shall be 250 psi, minimum.
2. Standard fittings for liquid and air service shall be as follows:

Flanged Joint Fittings:

 - a. Ductile iron.
 - b. AWWA C110.
 - c. Flange dimensions in accordance with AWWA C115.
3. Wall Pipe and Floor Pipe:
 - a. Ductile iron.
 - b. Wall thickness of body equal to or greater than wall thickness of connecting pipe.
 - c. Flanges set flush with face of concrete shall be tapped for stud bolts.
 - d. Collar dimensions as shown on Drawings.
 - e. Collar cast integral with pipe or fabricated by welded attachment of collar to pipe.
 - f. Fabricated wall pipe and floor pipe shall be as follows.
 - 1) Rated for dead end thrust due to 250 psi internal pressure.
 - 2) Ductile iron collar welded continuously around pipe on both sides of collar.
 - 3) Weld in pipe manufacturer's shop by qualified welder.

- 4) Electrodes: AWS A5.15, Class ENiFe-CI or AWS 5.6, Class ECuAl-2.

E. Outside Coating.

Ferrous Metals, Submerged/Splash, Semi-Gloss Sheen-For Use with Wastewater.

1. Application: Vent Piping.
2. Preparation:
 - a. NAPF 500-03-04 for Ductile Iron Pipe
 - b. NAPF 500-03-05 for Cast Ductile Iron Fittings
3. System:
 - a. Primer: 1 coat/2.5 to 3.0 dry film thickness (mils/coat) "Series 1 Omnithane" by Tnemec.
 - b. Top Coat: 2 coat/7.0 to 9.0 dry film thickness (mils/coat) "446 Permashield MCU" by Tnemec.
4. Finish colors shall be:

Vent Pipe - Black.

F. Piping Support Systems.

1. Install Contractor-designed and selected support system, as follows:
 - a. Pipe support systems shall be constructed of all Stainless Steel parts.
 - b. Support large or heavy valves, fittings, and appurtenances independently of connected piping.
 - c. Do not support pipe from the pipe above it.
 - d. Provide supports at piping changes in direction or in elevation, adjacent to flexible joints and couplings, and where otherwise shown.
 - e. Do not install pipe supports and hangers in equipment access areas or bridge crane runs.
 - f. Brace hanging pipes against horizontal movement by both longitudinal and lateral sway bracing.
 - g. Dielectric Barrier.
Provide between stainless steel supports and non-stainless steel ferrous piping.
 - h. At each channel type support, provide every pipe with intermediate pipe guide, except where pipe anchors and alignment guides are required.
 - i. Channel Type Support Framing System Spacing:
 - 1) Install on 10 foot maximum centers, unless otherwise shown.
 - 2) Generally satisfactory for steel and ductile iron pipe 3 inches and larger.
 - 3) Other pipelines and special situations will require supplementary hangers and supports.
2. Support Types.
 - a. Horizontal Suspended Single Pipes: Adjustable swivel-ring, split-ring, or clevis hangers.
 - b. Horizontal Pedestal Mounted: Saddle type supports.
 - c. Horizontal Wall Mounted: Wall brackets.
 - d. Vertical Pipes: Wall brackets, base elbows, or riser clamps on floor penetrations.

120142.03 CONSTRUCTION.

A. Submittals.

1. Product Data: Include Manufacturer's specifications, catalog cuts, and literature:
 - a. Pipe.
 - b. Outside coatings.
 - c. Inside linings.
 - d. Flanged joints.

- e. Standard fittings.
 - f. Wall pipe and floor pipe.
- 2. Submit product data and coating system information specified above in one complete submittal.

B. Installation.

In accordance with manufacturer's recommendations.

C. Wall Pipe.

Support by formwork to prevent contact with reinforcing steel.

120142.04 METHOD OF MEASUREMENT.

Incidental to Siphon Structures

120142.05 BASIS OF PAYMENT.

Incidental to Siphon Structures and will not be paid for separately.