

**SECTION 220529.12**  
**HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe hangers for various installed pipe systems.

**1.02 SUBMITTALS**

- A. Submit under provisions of Section 013300.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- A. NATIONAL PIPE HANGER CORPORATION (NPHC), Grinnell, Fee and Mason, or Elcen.

**2.02 MATERIALS**

- A. All pipe hangers and supports for piping systems shall be of stainless steel construction. Provide dielectric/isolation wrapping in systems of dissimilar metals.
- B. Unistrut Trapeze Hangers: Stainless steel construction, where three or more lines of pipe run parallel, support them with trapeze hangers.
- C. C-Clamps: NPHC Model 615 - stainless steel. Use these for attaching hangers to steel beams. Welding hanger rods to steel members is not permitted. Provide retaining clip for C-Clamps.
- D. Malleable Beam Clamps: NPHC Model 675 - galvanized steel. Use these for attaching hangers to bar joists. Provide retaining clip for all beam clamps.
- E. Floor supports: Galvanized coated cast iron adjustable pipe saddle, locknut, nipple, floor flange and concrete pier or steel support.

**PART 3 - EXECUTION**

**3.01 PIPE HANGERS**

- A. Support pipes on specified hangers so that equipment, pumps, and fittings do not bear weight of pipe.
- B. Do not use perforated metal, strap iron, or band iron.
- C. Do not make offsets in hangers.
- D. Maximum allowable spacing of pipe hangers for horizontal piping is listed below. Space hangers and brackets at close intervals where necessary to maintain levels, slopes, and drainage, or to prevent sagging.
- E. Place hangers within 12 inches of each horizontal elbow.

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- F. Use hangers with 1-½ inch minimum vertical adjustment.
- G. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

#### **3.02 PIPE SUPPORTS**

- A. Maximum allowable spacing of pipe supports for vertical piping shall be supported according to manufacturer's recommendations.

#### **3.03 SCHEDULES - HANGER SPACING**

- A. PVC Pipe:
  - 1. ½ to 1-inch - 4'-0" o.c.
  - 2. 1¼ to 2-inches - 5'-0" o.c.

#### **END OF SECTION**

**SECTION 220553.11**  
**PLUMBING IDENTIFICATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Stencils.
- D. Pipe Markers.

**1.02 REFERENCES**

- A. Section 014500 - Quality Control: Requirements for references and standards.
- B. ASME A13.1 - Scheme for the Identification of Piping Systems.

**1.03 SUBMITTALS FOR REVIEW**

- A. Section 013300 - Submittal Procedures.
- B. Submit list of wording, symbols, letter size, and color coding for mechanical identification.

**1.04 SUBMITTALS FOR INFORMATION**

- A. Section 013300 - Submittal Procedures.
- B. Manufacturer's Instructions: Indicate installation instructions, special procedures, and installation.

**1.05 REGULATORY REQUIREMENTS**

- A. Colors shall conform to ASME A13.1.

**PART 2 - PRODUCTS**

**2.01 NAMEPLATES**

- A. Manufacturer: SETON NAMEPLATE COMPANY.
- B. Other acceptable manufacturers offering equivalent products.
  - 1. BUNTING.
  - 2. BRADY
- C. Description: Laminated three-layer plastic with engraved white letters on dark contrasting background color.

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## 2.02 TAGS

- A. Plastic Tags:
  - 1. Manufacturers:
    - a. SETON NAMEPLATE COMPANY.
    - b. BUNTING.
    - c. BRADY.
    - d. Laminated three-layer plastic with engraved white letters on dark contrasting background color. Tag size minimum 1-1/2 inches diameter, brass S hook.
- B. Metal Tags:
  - 1. Manufacturers:
    - a. SETON NAMEPLATE COMPANY Model M4506.
    - b. BUNTING.
    - c. BRADY.
  - 2. Brass with stamped letters and service designation tag size minimum 1-1/2 inches diameter with smooth edges, brass S hooks.
- C. Tag Chart: Typewritten letter size list in anodized aluminum frame with plastic window.

## 2.03 STENCILS

- A. Manufacturer: SETON NAMEPLATE COMPANY Model SPS.
- B. Other acceptable manufacturers offering equivalent products.
  - 1. BUNTING.
  - 2. BRADY.
- C. Stencils: With clean cut symbols and letters of following size:
  - 1. Up to 2 inch Outside Diameter of Insulation or Pipe: 1/2 inch high letters.
  - 2. 2-1/2 to 6 inches Outside Diameter of Insulation or Pipe: 1 inch high letters.
  - 3. Over 6 inches Outside Diameter of Insulation or Pipe: 1-3/4 inches high letters.
- D. Stencil Paint: Semi-gloss enamel, colors and lettering size conforming to ASME A13.1.

## 2.04 PIPE MARKERS

- A. Color and Lettering: Conform to ASME A13.1.
- B. Plastic Pipe Markers:
  - 1. Manufacturers:
    - a. SETON NAMEPLATE COMPANY Model SETMARK.
    - b. BUNTING
    - c. BRADY
    - d. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.
- C. Plastic Tape Pipe Markers:
  - 1. Manufacturers:
    - a. SETON NAMEPLATE COMPANY.
    - b. BUNTING.

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- c. BRADY.
- d. Substitutions: Refer to Section 012500 - Substitution Procedures.
- 2. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces for stencil painting.

### 3.02 INSTALLATION

- A. Section 014500 - Quality Control: Manufacturer's instructions.
- B. Install identifying devices after completion of coverings and painting.
- C. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
- D. Install labels with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
- E. Install tags using corrosion resistant chain. Number tags consecutively by location.
- F. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping 3/4 inch (20 mm) diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet (6 m) on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.

### 3.03 SCHEDULES

Outside Diameter of Insulation or Pipe Inches	Letter Height Inches	Color Field Inches
3/4 to 1-1/4	1/2	8
1-1/2 to 2	3/4	8
2-1/2 to 6	1	12
8 to 10	2	24
Over 10	2	24
Equipment	2	24

## END OF SECTION

**SECTION 221000**  
**PLUMBING PIPING**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, valves, and connections for piping systems.
  - 1. Storm water.

**1.02 RELATED SECTIONS**

- A. Section 220553 - Plumbing Identification

**1.03 REFERENCES**

- A. Section 014500 - Quality Control: Requirements for references and standards.
- B. ANSI/UL 263 - Standard for Safety for Fire Tests of Building Construction and Materials
- C. ASME B16.51 - Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24
- D. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- E. ASTM D1784 - Rigid Vinyl Compounds.
- F. ASTM D1785 - PVC Plastic Pipe, Schedule 40
- G. ASTM D2466 - PVC Plastic Fittings, Schedule 40
- H. ASTM D2665 - PVC Drain, Waste, and Vent Pipe and Fittings
- I. ASTM D2564 - Solvent Cements for PVC Pipe and Fittings
- J. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
- K. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
- L. ASTM F1866 - Fabricated PVC DWV Fittings
- M. CISPI 310 - Couplings for use in connection with Hubless Cast Iron Soil Pipe and fittings for Sanitary, Storm Drainage, and Vent Systems.
- N. NSF/ANSI Standard 14 - Plastic Piping Components and Related Materials.
- O. PPI Technical Report TR-4/06
- P. Plumbing Code of New York State

**1.04 SUBMITTALS FOR REVIEW**

- A. Section 013300 - Submittals: Procedures for submittals.

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- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Shop Drawings: Provide installation drawings indicating pipe/tubing layout and location of plumbing fixtures.

#### **1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with State of New York and Town code.

#### **1.06 REGULATORY REQUIREMENTS**

- A. Perform Work in accordance with the State of New York and the Town code.
- B. Conform to applicable code for installation of backflow prevention devices.

#### **1.07 DELIVERY, STORAGE, AND PROTECTION**

- A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

### **PART 2 - PRODUCTS**

#### **2.01 SANITARY SEWER, VENT & STORM PIPING, ABOVE GRADE**

- A. PVC Schedule 40 Solid Wall Pipe and PVC DWV Fittings: Manufactured from virgin rigid PVC (polyvinyl chloride) vinyl with a Cell Class of 12454 as identified in ASTM D 1784. This system is intended for use in a non-pressure applications where operating temperatures will not exceed 140° F. PVC piping shall not be used in return air plenums.
  - 1. Fittings: PVC DWV fittings. Injection molded PVC DWV fittings shall conform to ASTM D2665. Fabricated PVC DWV fittings shall conform to ASTM F1866. Pipe and fittings shall conform to NSF International Standard 14.
  - 2. Joints: solvent-cement joints. All primers shall conform to ASTM F656. All Solvent cements for use with PVC, shall conform to ASTM D2654. Solvent cements for use with PVC shall conform to SCAQMD 1168/16A containing low VOC levels at maximum 510 grams per liter.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Section 013100 - Project Management and Coordination: Verification of existing conditions before starting work.

#### **3.02 PREPARATION**

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

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#### **3.03 INSTALLATION (GENERAL)**

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls. Effect changes in size with reducing fittings.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Provide loops, pipe offsets or expansion loops.
- G. PVC pipe and fittings shall be manufactured as a system and be the product of one manufacturer.
- H. PVC pipe systems are not permitted for use in applications with operating temperatures exceeding 140°F.
- I. PVC pipe systems shall be protected from chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents not compatible with PVC compounds.
- J. Identify piping under provisions of Section 220553.11

#### **3.04 ERECTION TOLERANCES**

- A. Section 014500 - Quality Control: Tolerances.
- B. Establish invert elevations, slopes for drainage to ¼ inch per foot minimum. Maintain gradients.
- C. Slope water piping minimum 0.25 percent and arrange to drain at low points.

#### **END OF SECTION**

**SECTION 224400**  
**PLUMBING SPECIALTIES**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Roof Drains.

**1.02 REFERENCES**

- A. ASME A112.21.2 - Roof Drains.

**1.03 SUBMITTALS FOR REVIEW**

- A. Section 013300 - Submittal Procedures: Procedures for submittals.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.

**1.04 SUBMITTALS FOR INFORMATION**

- A. Section 013300 - Submittal Procedures: Procedures for submittals.
- B. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.

**1.05 SUBMITTALS AT PROJECT CLOSEOUT**

- A. Section 017800 - Closeout Submittals: Procedures for submittals.
- B. Project Record Documents: Record actual locations of equipment, cleanouts, water hammer arrestors and specialties.
- C. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

**1.06 DELIVERY, STORAGE, AND PROTECTION**

- A. Accept specialties on site in original factory packaging. Inspect for damage.

**PART 2 - PRODUCTS**

**2.01 ROOF DRAINS & AREAWAY DRAIN**

- A. Round Roof Drain
  - 1. Manufacturer: Zurn Model Z100-DR with Top-Set Drain Riser and sump pan as per manufacturer.
    - a. Fifteen (15) inch diameter roof drain, with adjustable extension, Dura-Coated cast iron body with combination flashing clamp/gravel guard and low silhouette cast iron dome.

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**PART 3 - EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

**END OF SECTION**