SECTION 403250 - NONABRASIVE MATERIALS PIPING AND CHUTES

Note that this section has only been edited for NYSOGS standardization and has not been technically edited. The designer shall make all technical edits specific to the project for this section.

This Section specifies requirements for conveyance of nonabrasive bulk material solids from storage bins or silos.

Consult with piping or chute manufacturer and select materials based on specific application.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes: Pipes, hoses, and chutes for conveying nonabrasive bulk material solids.
          2. Related Requirements:

List other Sections directly related to or affecting Work of this Section. Include Sections specifying information expected to be found in this Section as well as Sections required to describe complete system or assembly requirements.

Section 055000 - Metal Fabrications: Miscellaneous metalwork and fasteners as required by this Section.

Section 400523 - Stainless Steel Process Pipe and Tubing.

Section 400524 - Steel Process Pipe.

* + - 1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

* + - * 1. ASTM International:

ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

ASTM B241 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

ASTM B361 - Standard Specification for Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings.

ASTM D638 - Standard Test Method for Tensile Properties of Plastics.

ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

* + - * 1. National Sanitation Foundation:

NSF Standard 61 - Drinking Water System Components - Health Effects.

NSF Standard 372 - Drinking Water System Components - Lead Content.

* + - 1. PREINSTALLATION MEETINGS
         1. Convene minimum [**one week**] [**<\_\_\_\_\_\_\_\_> weeks**] prior to commencing Work of this Section.
      2. SUBMITTALS

Only request submittals needed to verify compliance with Project requirements.

* + - * 1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
        2. Manufacturer’s installation instructions shall be provided along with the product data.
        3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
        4. Product Data: Submit manufacturer's product information for system materials and component equipment.

USE PARAGRAPH BELOW WITH EPD REQUIREMENT WHEN PROJECT ESTIMATE IS $1M OR MORE.

* + - * 1. Submit an Environmental Product Declaration (EPD) from the manufacturer for steel pipe within this specification section, if available. A statement of the contractor’s good faith effort to obtain the EPD shall be provided if not available.

Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

* + - * 1. Shop Drawings:

Indicate system materials and component equipment.

Submit installation and anchoring requirements, including fasteners and other details.

Indicate diverter valve identification number, location, service, type, size, and actuator details.

* + - * 1. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate Paragraphs for additional certifications.

Include following Paragraph when Contractor is responsible for designing products or assemblies. List affected products when Section specifies more than one product.

* + - * 1. Delegated Design Submittals: Submit signed and sealed Shop Drawings with structural design calculations and assumptions.
        2. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
        3. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
        4. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
        5. Manufacturer Reports: Certify that [**equipment has been installed according to manufacturer instructions**] <**\_\_\_\_\_\_\_\_**>.
        6. Qualifications Statements:

Coordinate following Subparagraph with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer, fabricator, installer, and licensed professional.

Submit fabricator's approval of installer.

* + - 1. QUALITY ASSURANCE

Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

* + - * 1. Materials in Contact with Potable Water: Certified to NSF Standard 61 and NSF Standard 372.

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Perform Work according to <**\_\_\_\_\_\_\_\_**> standards.

Include following Paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting the Work of this Section on Site.
      1. QUALIFICATIONS

Coordinate following Paragraph with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
        2. Fabricator: Company specializing in fabricating products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
        3. [**Installer**]: Company specializing in performing Work of this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience [**and approved by manufacturer**].
        4. Licensed Professional: [**Professional engineer**] <**\_\_\_\_\_\_\_\_**> experienced in design of specified Work and licensed [**at Project location**] [**in State of <\_\_\_\_\_\_\_\_>**].
      1. DELIVERY, STORAGE, AND HANDLING
         1. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
         2. Storage: Store materials according to manufacturer instructions.
         3. Protection:

Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

Provide additional protection according to manufacturer instructions.

* + - 1. EXISTING CONDITIONS
         1. Field Measurements:

Verify field measurements prior to fabrication.

Indicate field measurements on Shop Drawings.

* + - 1. WARRANTY

This Article extends warranty period beyond one year. Extended warranties may increase construction costs and State enforcement responsibilities. Specify warranties with caution.

* + - * 1. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for piping and chutes.

1. PRODUCTS
   * + 1. PERFORMANCE AND DESIGN CRITERIA
          1. Media:

Type: [**Powder**] [**Pellets**] [**Granular material**] <**\_\_\_\_\_\_\_\_**>.

Characteristic: [**Non-**] [**abrasive**] [**corrosive**].

Density: <**\_\_\_\_\_\_\_\_**> lb./cu. ft.

Moisture Content: <**\_\_\_\_\_\_\_\_**> percent.

Temperature:

Maximum: <**\_\_\_\_\_\_\_\_**> deg. F

Operating: <**\_\_\_\_\_\_\_\_**> deg. F

Size:

Maximum Diameter: <**\_\_\_\_\_\_\_\_**> inch

Minimum Diameter: <**\_\_\_\_\_\_\_\_**> inch

* + - 1. NONABRASIVE MATERIALS PIPING
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=13122&mf=04&src=wd):

designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Subparagraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above. Include configuration, size, color, material composition, and other properties needed to describe product.

* + - * 1. Aluminum Piping:

Comply with ASTM B241.

Diameter: [**2**] [**8**] <**\_\_\_\_\_\_\_\_**> inches

Schedule: [**5**] [**10**] [**40**].

Fittings and End Connections: Comply with ASTM B361.

* + - * 1. Steel Piping:

Comply with ASTM A53.

Diameter: [**2**] [**8**] <**\_\_\_\_\_\_\_\_**> inches

Schedule: [**5**] [**10**] [**40**].

Finish: Hot-dip galvanized.

Fittings: As specified in Section 400524 - Steel Process Pipe.

End Connections:

Piping 2 Inches and Smaller: Threaded.

Piping 2-1/2 Inches and Larger: Welded or flanged.

As specified in Section 400524 - Steel Process Pipe.

* + - * 1. Stainless-Steel Piping:

Comply with ASTM B241.

Diameter: [**2**] [**8**] <**\_\_\_\_\_\_\_\_**> inches

Grade: Type [**304**] [**316**] <**\_\_\_\_\_\_\_\_**>.

Schedule: [**5**] [**10**] [**40**].

Fittings: As specified in Section 400523 - Stainless Steel Process Pipe and Tubing.

End Connections:

Piping 2 Inches and Smaller: Socket welding.

Piping 2-1/2 Inches and Larger: Butt welding.

As specified in Section 400523 - Stainless Steel Process Pipe and Tubing.

* + - 1. NONABRASIVE MATERIALS HOSES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=13123&mf=04&src=wd):

designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Subparagraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above. Include configuration, size, color, material composition, and other properties needed to describe product.

* + - * 1. Stainless Steel:

Service Rating: [**Light**] [**Medium**] [**Heavy**] duty.

Internal Diameter: [**2**] [**6**] <**\_\_\_\_\_\_\_\_**> inches

Length: [**<\_\_\_\_\_\_\_\_> feet**] [**As indicated on Drawings**].

Liner:

Material: Stainless steel.

Thickness: [**0.015**] <**\_\_\_\_\_\_\_\_**> inch

End Connections: Threaded NPT nipples.

* + - * 1. PVC:

Classification: Food grade.

Color: [**Clear**] <**\_\_\_\_\_\_\_\_**>.

Internal Diameter: [**2**] [**6**] <**\_\_\_\_\_\_\_\_**> inches.

Length: [**<\_\_\_\_\_\_\_\_> feet**] [**As indicated on Drawings**].

Liner: [**None**] [**Urethane**].

[**Furnish embedded ground wire.**]

End Connections:

[**Stainless**] [**Galvanized**]-steel clamps.

Type: [**Ribbed**] [**Slotted worm gear**].

Service Rating: [**Light**] [**Medium**] [**Heavy**] duty.

* + - * 1. Silicone:

Classification: Food grade.

Color: [**Clear**] <**\_\_\_\_\_\_\_\_**>.

Internal Diameter: [**2**] [**6**] <**\_\_\_\_\_\_\_\_**> inches

Length: [**<\_\_\_\_\_\_\_\_> feet**] [**As indicated on Drawings**].

[**Furnish embedded ground wire.**]

End Connections:

[**Stainless**] [**Galvanized**]-steel clamps.

Type: [**Ribbed**] [**Slotted worm gear**].

Service Rating: [**Light**] [**Medium**] [**Heavy**] duty.

* + - 1. NONABRASIVE MATERIALS CHUTES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=13124&mf=04&src=wd):

designer to provide two manufacturers and approved equivalent for all listed products.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Subparagraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above. Include configuration, size, color, material composition, and other properties needed to describe product.

Edit following Paragraph if material other than fiberglass is required.

* + - * 1. Fiberglass:

Description:

Configuration and Size: As indicated on Drawings.

Construction: One piece; molded.

Support: Self-supporting with local reinforcement as required.

Cut Edges: Sealed with resin.

Color: [**White**] [**Gray**] <**\_\_\_\_\_\_\_\_**>.

Performance and Design Criteria:

Maximum Deflection at Design Loading: 0.5 percent of span.

Resin: [**Polyester**] [**Vinyl ester**].

Minimum Nominal Thickness: 1/4 inch

Flex Strength:

31,800 psi

Comply with ASTM D790.

Flex Modulus:

1,270,000 psi

Comply with ASTM D790.

Tensile Strength:

20,000 psi

Comply with ASTM D638.

Tensile Modulus:

1,430,000 psi

Comply with ASTM D638.

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that items provided by other Sections of Work are ready to receive Work of this Section.
       2. INSTALLATION
          1. According to [**manufacturer**] [**fabricator**] instructions.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Installation Standards: Install Work according to <**\_\_\_\_\_\_\_\_**> standards.
      1. FIELD QUALITY CONTROL
         1. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than <**\_\_\_\_\_\_\_\_**> [**days**] [**hours**] on Site for installation, inspection, startup, field testing, and instructing Director’s Representative's personnel in operation and maintenance of equipment.
         2. Equipment Acceptance:

Adjust, repair, modify, or replace components failing to perform as specified and rerun inspections and tests.

Make final adjustments to equipment under direction of manufacturer's representative.

* + - * 1. Furnish installation certificate from equipment manufacturer's representative attesting that equipment has been properly installed and is ready for startup and testing.

END OF SECTION 403250