

**DIVISION 23**  
**SECTION 23 51 16**  
**PREFABRICATED BREECHINGS AND ACCESSORIES**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. This Section includes requirements for the provision of a UL Listed double-wall, prefabricated, insulated breeching system to serve the natural gas fired, low-pressure central steam boiler plant. The Contract Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Specifications, apply to this Section.
1. This Section **does NOT include** the requirements for provision of any flue gas breechings nor any combustion air intake breechings for the gas-fired domestic hot water heaters of any of the buildings of the Site. Refer to the specified requirements of Section 23 51 23, "Gas Vents", for provision of flue gas breechings and combustion air intake breechings for the gas-fired domestic hot water heaters of the buildings of the Site.
  2. This Section **does NOT include** the requirements for provision of the chimney liner for the gas-fired central steam boiler plant. Refer to the specified requirements of Section 23 51 00, "Chimney Liner", for provision of the chimney liner for the gas-fired central steam boiler plant.
- B. Related Sections:
1. Section 01 51 23 - Temporary Heating
  2. Section 23 05 00 – Common Work Results For HVAC
  3. Section 23 05 13 - Common Motor Requirements For HVAC Equipment
  4. Section 23 05 23 - General Duty Valves For HVAC Piping
  5. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment
  6. Section 23 05 53 - Identification for HVAC Piping and Equipment
  7. Section 23 05 93 - Testing, Adjusting and Balancing for HVAC
  8. Section 23 07 00 - HVAC Insulation
  9. Section 23 09 13 - Instrumentation and Control for HVAC
  10. Section 23 09 14 - Natural Gas and CO Gas Leak Detection Equipment
  11. Section 23 09 23 - Control Dampers
  12. Section 23 09 24 - Steam Flow Meters
  13. Section 23 22 13 - Steam and Condensate Heating Piping
  14. Section 23 25 19 - Water Treatment for Steam System Feedwater
  15. Section 23 31 13 - Metal Ducts
  16. Section 23 33 00 - Air Duct Accessories
  17. Section 23 34 16 - Boiler Room Combustion Air Makeup And Ventilation System
  18. Section 23 51 00 - Chimney Liner
  19. Section 23 51 16 - Prefabricated Breechings and Accessories
  20. Section 23 51 23 - Gas Vents
  21. Section 23 52 39 - Firetube Boilers

- 22. Section 23 53 12 - Vacuum Condensate Pumps
- 23. Section 23 53 13 - Boiler Feedwater Pumps

## 1.02 SUBMITTALS

### A. Shop Drawings

- 1. Submit shop drawings showing fabrication and installation details for the boilers double-wall prefabricated insulated breeching system. Include plans, elevations, sections, details, and attachments. Detail assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, hangers, and location and size of each field connection. Shop drawings shall indicate:
  - a. Layout plans, elevations, sections and details of the boilers breeching system, including details of flanged gasketed and sealed junction with the chimney liner connector, all hangers, suspension support systems and supplemental galvanized steel support members.
  - b. The shop drawing submittal shall also indicate the relationship of the breeching system to Boiler Room structural and architectural features, piping, electrical conduits, lights, maintenance catwalks, and all other items and accessories.

### B. Certified Sizing Calculations: Manufacturer shall certify system sizing calculations.

### C. Quality Control Submittals

- 1. Certificates: Submit certificates of materials compliance with specified ASTM, UL, and ASHRAE requirements.

### D. New York City Building Department: Submit copy of all approved plan and permits.

### E. New York City Department of Environmental Protection: Submit copy of Bureau of Air Resources approval of application and plans.

### F. Submit manufacturer's ten (10) year warranty for the boilers prefabricated double-wall insulated metal breeching system. Warranty start period shall begin as of the date of Substantial Completion and successful completion of the smoke testing of the flue gas breeching system and acceptance by NYCHA. In order to obtain a ten (10) year warranty, the final layout of shop drawings for the prefabricated double-wall metal breeching system shall be delivered and approved by the manufacturing company, and the installation shall be field inspected and certified to be in compliance with the factory requirements by a factory authorized representative of the manufacturing company.

### G. Certification: Manufacturer's affidavit for gas-fired steam boilers double-wall insulated prefabricated metal breeching system, certifying that the double-wall breeching system has been installed properly and in accordance with the manufacturer's published installation instructions.

### **1.03 QUALITY ASSURANCE**

#### **A. Codes and Standards**

1. NFPA: Comply with NFPA 211-2010: Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances.
2. UL: Comply with applicable portions of UL safety standards; provide products that have been UL listed and labeled.
3. ASHRAE: Comply with the ASHRAE Equipment Handbook, for Chimney, Gas Vent, and Fireplace Systems, material requirements and design criteria.
4. Comply with the City of New York Construction Codes and the State of New York Building Code and any other public authorities having jurisdiction.
5. For prefabricated double-wall breechings, all system components shall be the source of only a single manufacturing company.
6. Testing of material shall be in accordance with Section §28-113 of the NYC Administrative Code (reference Section MC 301.5 of the 2014 NYC Mechanical Code). Whenever the NYC Construction Codes or the Rules of the Department of Buildings requires that material be listed or labeled and material proposed to be used is not so listed or labeled, the use of such material shall be subject to prior approval by the Commissioner (Office of Technical Certification and Research OTCR) and such material shall be used only to the extent set forth in such approval. Materials that were previously approved by the Board of Standards and Appeal (BSA) or by the Department (MEA) before the effective date of the NYC Construction Codes may continue to be used, but only to the extent set forth in such approval, and only if such approval is not specifically amended or repealed by the Commissioner.
7. The installation, alteration, maintenance, design, minimum safety requirements, re-pair and approval of factory built breeching systems shall be in accordance with Chapter 5 of the NYC Fuel Gas Code, Chapter 8 of the NYC Mechanical Code and Chapter 21 of the NYC Building Code.

- B. Certified Sizing Calculations: Manufacturer shall certify venting system sizing calculations.

### **1.04 WARRANTY**

- A. All warrantees shall use the date of Substantial Completion as the start date. Boilers double-wall prefabricated insulated metal breeching systems shall be warranted by the manufacturer for a period of at least ten (10) years from the date of Substantial Completion and successful completion of the installation's required smoke testing and acceptance by NYCHA. In order to obtain a ten (10) year warranty, the final layout shop drawing for the prefabricated double-wall prefabricated insulated metal breeching system shall be reviewed and approved by the manufacturing company, and installation shall be field inspected and certified to be in compliance with the factory requirements by an authorized representative of the manufacturing company.

## PART 2 - PRODUCTS

### 2.01 UL LISTED DOUBLE-WALL INSULATED PREFABRICATED BREECHING SYSTEM FOR NATURAL GAS-FIRED STEAM BOILERS

A. Available Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Selkirk Inc.; Selkirk Metalbestos
2. Schebler Inc.
3. Metal-Fab, Inc.
4. Or approved equal

B. Description:

1. Breeching and connections to boilers flue outlets shall be constructed of sectionalized double-wall construction. The inner shell shall be constructed of type 316 stainless steel with a minimum thickness of 0.035-inch. The outer shell shall be constructed of type 304 stainless steel with a minimum thickness of 0.025-inch. All outer shell seams shall be full penetration welded the entire length of the breeching section. Between the inner and outer shells there shall be a minimum of 2-inches thickness of 1600°F rated low conductivity ceramic fiber or mineral wool insulation. The insulation is to be securely attached to the inner shell with steel straps and insulating pins welded to inner shell. Centering clips shall be welded to outer shell to ensure concentricity of the shells. The inner pipe and outer jacket shall be joined at the factory and shipped as a factory-assembled unit. Breeching systems which have the outer jacket attached during the field installation will not be acceptable.
2. Breeching system shall be U.L. listed and NYC approved.
3. The prefabricated expansion joints shall have 1-1/2-inches overlap and shall be filled with non-setting, low-shear grout. The external joint consists of a metal band and refractory felt, the band to be secured to the bottom part of support section, per the manufacturer's recommendations.
4. High temperature sealants and draw bands shall be provided for inner shell shall be suitable for positive pressure applications with rated capability of maintaining gas-tight integrity at operating pressures up to 72-inches WG static pressure, and for up to at least 1000°F operating temperatures. The Contractor shall seal all joints of the breeching system sections with the Manufacturer furnished P-1400 sealant, or approved equal, in strict accordance with the manufacturer's published installation instructions.
5. Installation and supports shall be per manufacturer's recommendations. Pitch breechings continuously upward in the direction of gas flow (towards the vertical chimney liner) at a minimum slope of at least 1/4-inch per linear-foot.
6. Prefabricated breeching connections between boilers and horizontal prefabricated breeching shall be prefabricated sections as specified herein, shall include provision of prefabricated combination-lateral-Tee-and-elbow fittings at their vertical junctions with the undersides of the horizontal breechings, and shall be provided in accordance with the manufacturer's recommendations.

7. The breeching system shall be warranted against functional failure due to defects in material and manufacturer's workmanship for a period of ten years from date of completion of installation smoke testing and acceptance by NYCHA.
8. Provide flanged and high-temperature sealed and gasketed junction between the double-wall prefabricated breeching system and the single-wall stainless steel chimney liner connection to be provided as specified under Section 23 51 00.
9. NYC BAR Test Outlets: Each chimney shall be provided with test holes in accordance with the requirements of the New York City Bureau of Air Noise and Hazardous Materials (BAR).

C. Accessories:

1. Fittings: Tees, elbows, increasers, support assemblies, firestop spacers, and fasteners; fabricated from similar or compatible materials and designs.
2. Sealant: Manufacturer's factory furnished and approved standard high-temperature sealant.
3. Annular Insulation Between Inner And Outer Walls: Manufacturer's standard high-temperature insulation material in annular space surrounding chimney liner shall include high-temperature, ceramic-fiber insulation required to insulate and seal the breeching system throughout.
4. Cleanout access shall be provided by means of prefabricated double-wall insulated Tee fittings with removable cap fittings, as shown on the Contract Drawings. Cleanout Tees shall be installed as shown on the Contract Drawings, as necessary to provide cleanout access, as required by the NYCMC, at each change in direction and at spacings not to exceed 15-feet on-centers, in accessible locations, and never on the bottom of breeching.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Double-wall prefabricated insulated metal breeching system for steam boilers:
1. Install in accordance with manufacturer's published installation instructions and UL listing. Maintain minimum clearances from combustibles specified in UL listing.
  2. Seal joints between sections of positive pressure chimneys in strict accordance with manufacturer's published installation instructions, and using only sealants recommended by manufacturer.
  3. Support chimneys at intervals recommended by the manufacturer to support the weight of the chimney and all accessories, without exceeding loading of appliances.
  4. Pitch breechings continuously upward in the direction of gas flow (towards the chimney liner) at a minimum slope of at least 1/4-inch per linear-foot.
  5. Provide prefabricated expansion joints in the breeching system where shown on the Contract Drawings.

### **END OF SECTION**

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SAMPLE