

CONSTRUCTION SPECIAL SPECIFICATION

SECTION 15550_S

BOILER FLUES

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PART1 - GENERAL

1.01 SECTION INCLUDES

- A. Furnish and install manufactured double-wall flue vent system for fuel fired equipment.

1.02 REFERENCES

- A. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- B. NFPA 54 / ANSI Z223.1 - National Fuel Gas Code.
- C. NFPA 211 - Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances.
- D. UL 103 -Factory-built Chimneys for Residential Type and Building Heating Appliances.

1.03 DEFINITIONS

- A. Breeching: Vent connector.
- B. Chimney: Primarily vertical shaft enclosing at least one vent for conducting flue gases outdoors.
- C. Vent: That portion of a venting system designed to convey flue gases directly outdoors from a vent connector or from an appliance when a vent connector is not used.
- D. Vent Connector: That part of a venting system that conducts the flue gases from the flue collar of an appliance to a chimney or vent, and may include a draft control device.

1.04 DESIGN REQUIREMENTS

- A. Comply with NFPA 211 and provide UL listing label for factory built vents and chimneys used for venting natural draft appliances.

1.05 SUBMITTALS

- A. Include product data and shop drawings indicating size, required clearances, construction details and required supports.
- B. Contractor is to submit flue vendor generated shop drawings documenting detailed flue routing, fittings, and sizes prior to order and installation. These shop drawings will be provided to the boiler manufacturer for review and sign-off prior to submittal approval.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacture of products specified in this Section with minimum ten years documented experience.
- B. Welder Qualifications: Certified according to AWS D9.1.
- C. Manufacturer Qualifications: Firm experienced in manufacturing breechings, chimneys, and stacks similar to those indicated for this Project and that have a record of successful in-service performance.
- D. Comply with NFPA 211 for components and installation.
- E. Comply with AWS D1.1 for welder qualifications, welding details, and workmanship standards.
- F. Comply with ASHRAE “Systems and Equipment Handbook,” Chapter 31 for “Chimney, Gas Vent, and Fireplace Systems,” for material requirements and design criteria.
- G. Conform to NFPA 54 code for installation of natural gas burning appliances and equipment.

PART 2 - PRODUCTS

2.01 DOUBLE WALL METAL STACKS FOR MODULATING HOT WATER BOILERS

- A. Manufacturers:
 - 1. ProTech Systems Inc.
 - 2. Heat-Fab Inc.
 - 3. Metal-Fab Inc.
 - 4. Where a boiler flue and a boiler combustion air intake duct terminate in different pressure zones, the flue cap and combustion air intake cap must be purchased direct from the boiler manufacturer.
- B. Provide Category IV, double wall metal stacks, tested to UL 1738 for use with building heating equipment, in compliance with NFPA 211.
- C. Fabricate with ½” minimum air space between walls. Construct inner jacket of AL29-4C. Construct outer jacket of Type 304 stainless steel.

- D. Accessories: Tees, elbows, increasers, connectors, metal cap with bird barrier, adjustable roof flashing, storm collar, support assembly, thimbles, firestop fittings, and fasteners fabricated of similar materials and designs as vent pipe straight sections.

2.02 DOUBLE WALL METAL STACKS FOR STEAM BOILERS

- A. Manufacturers:
 - 1. Hart & Cooley, Inc.
 - 2. Masco Corp.; American Metal Products Co.
 - 3. Selkirk Metalbestos.
 - 4. Simpson Dura-Vent.
 - 5. Pro-Tech Systems
- B. Description: Category III, double-wall, positive pressure, metal stacks conforming to NFPA 211, suitable for use with building heating equipment burning gas, solid, or liquid fuels.
- C. Construction: Inner and outer metal shells separated by at least 1-inch airspace, with positive sealing joints.
- D. Inner Shell: Type 304 stainless steel of the following thickness:
 - 1. 6- to 24-Inch Size: 0.035 inch thick.
- E. Outer Jacket: Aluminum-coated steel of the following thickness:
 - 1. 6- to 24-Inch Size: 0.025 inch thick.
- F. Accessories: Tees, elbows, increasers, draft hood connectors, metal cap with bird barrier, adjustable roof flashing, storm collar, support assembly, thimbles, firestop spacers, and fasteners fabricated of similar materials and designs as vent pipe straight sections.

2.03 PVC COMBUSTION AIR AND VENTS FOR BOILERS < 400mbh (where manufacturers require PVC vents):

- A. Where manufacturer allows the use of PVC material for combustion air intake and vents, install and route vents per manufacturer's installation instructions, and the requirements of PART 3 of this specification. Paint PVC piping above roof levels with UV resistant paint that matches adjacent color.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions. Locate to comply with stipulated minimum clearances from combustibles.

- B. Install in accordance with ASHRAE Handbook - HVAC Systems and Equipment and NFPA 54.
- C. Maintain UL listed minimum clearances from combustibles. Assemble pipe and accessories as required for complete installation.
- D. Verify that all openings for the flue vent system are of the size, all openings are in the location shown on the Drawings, and all openings are clear of obstructions which might interfere with the installation of the ductwork or accessories.
- E. Verify that all termination locations are acceptable per boiler manufacturer's requirements.
- F. Clean stacks during installation, removing dust and debris.
- G. Install plastic siphon tube vent drain fittings at the connection to the boiler for collection of condensate, where required by the boiler manufacturer.
- H. Install thimbles if necessary to maintain clearance to combustibles wherever vents pass through walls or roofs.
- I. Supported flue vents according to SMACNA standards, or as recommended by the manufacturer, whichever is more stringent.
- J. Seal between sections of positive-pressure vents according to manufacturer's installation instructions, using only sealants recommended by manufacturer.
- K. Provide sampling connection for chimneys and stacks in accordance with State Air Control Board procedures.
- L. Coordinate to meet boiler manufacturer requirements and installation instructions. Coordinate with other trades to provide wall openings.
- M. Slope horizontal vent piping to 1/4-inch per foot rise in direction of flue gas travel.

END OF SECTION