PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pre-manufactured breechings and chimneys.

B. Special gas vents.

C. Guying and bracing.

1.02 DEFINITIONS

A. Breeching: The conduit conveying flue gas from the appliance to the chimney.

B. Chimney: A structure containing one or more vertical or nearly vertical passageways for conveying flue gases to the outside atmosphere.

C. Stack: A primarily vertical, round, vent.

D. Vent: A flue-gas conveying system intended for use with certain gas-, liquid-, or solid fuel-fired appliances that do not produce flue gas outlet temperatures higher than a value specified in the listing vent standards.

E. Category I Appliance: An appliance that operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

F. Category II Appliances: An appliance that operates with a non-positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

G. Category III Appliances: An appliance that operates with a positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

H. Category IV Appliances: An appliance that operates with a positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

1.03 SUBMITTALS

A. Product Data: Submit product data including materials, dimensions, weights, required clearances, and accessories.

B. Shop Drawings:

1. Indicate general construction, dimensions, weights, support, and layout of breeching, chimneys, and stacks.
2. Submit layout drawings indicating plan view, elevations, and details.
3. Submit detail assemblies and indicate method of field assembly, components, hangers and seismic restraints, and location and size of each field connection.

C. Manufacturer's Instructions: Include installation instructions and indicated assembly, support details, and connection requirements.

D. Manufacturer's Certificates: Submit certificates of compliance with specified reference standards.

E. Welders Certificates: Include welder certification of compliance with ASME BPVC-IX.

F. Wind and Seismic Certificates: Submit complete engineering report certifying that stacks meet the design wind and seismic loads.

1.04 QUALITY ASSURANCE

A. Comply with the following Codes and Standards:

1. NFPA 211 "Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances."
2. NFPA 54 "National Fuel Gas Code" for natural gas and propane burning appliances.
3. NFPA 31 "Standard for the Installation of Oil-Burning Equipment" for fuel oil appliances.
4. NFPA 37 "Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines" for generator engines.
5. UL: Comply with applicable portions of UL safety standards; provide products which have been UL listed and labeled.

6. SMACNA: Comply with SMACNA's "HVAC Duct Construction Standards" for fabricated breeching and smokepipe and with SMACNA's "Guide for Steel Stack Design and Construction" for steel stacks.
7. AWS: All welders and procedures shall be certified in accordance with AWS D1.1, "Structural Welding Code-Steel," for hangers and supports and in accordance with AWS Standard D9.1, "Sheet Metal Welding Code" for duct joining and seam welding.
8. ASHRAE: Comply with the ASHRAE Systems and Equipment Handbook for Chimney, Gas Vent, and Fireplace Systems material requirements and design criteria.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Handle breeching and stack components carefully to prevent damage, denting and scoring. Do not install damaged components; replace with new.

PART 2 - PRODUCTS AND MATERIALS

2.01 PRE-MANUFACTURED BREECHINGS AND CHIMNEYS

A. Manufacturers:

1. AMPCO.
2. DuraVent Commercial.
3. Enervex Inc.
4. Hart & Cooley, Inc.
5. Metal-Fab, Inc.
6. Schebler Chimney Systems.
7. Security Chimneys.
8. Selkirk Metalbestos.
9. Van-Packer Co.

B. General: Factory-built, double-wall metal vent system using modular connectors and manifolds, tested according to UL 103 and rated for rated up to 60 inches w.c. positive or negative pressure complying with NFPA 211. System shall be designed to compensate for flue gas induced thermal expansion.

C. Factory-Built, Residential-Type and Building Heating Appliance-Type Chimney:

1. Rated for 1000 degrees F continuous flue temperature, and up to 1700 degrees F for 10 minutes.

2. Construction: Separate inner shell and outer jacket with an annular space filled with high-temperature, ceramic-fiber insulation. Minimum separation:

   a) 1-inch.

3. Inner Shell: Type 304, 316, or AL29-4C stainless steel.
4. Outer Jacket: Galvanized, aluminized, or stainless steel.

D. Accessories, UL labeled:

1. Provide tees, adjustable lengths, elbows, increasers, draft hood connectors, terminations, dampers, adjustable roof flashings, storm collars, support assemblies, thimbles, firestop spacers, and fasteners, fabricated from similar materials and designs as vent-pipe straight sections, all listed for same assembly. Provide discharge assembly termination compatible with manufacturer system to protect against and/or drain rainfall.
2. Protect aluminized steel surfaces exposed to the elements with a minimum of one base coat of primer and one finish coat of corrosion resistant pain, suitable for outer jacket skin temperatures of the application and jacket material.

E.

2.02 SPECIAL GAS VENTS

A. Manufacturers

1. General:

   a) AMPCO.
   b) DuraVent Commercial.
   c) Enervex Inc.
   d) Heat-Fab Inc.
   e) Metal-Fab, Inc.
   f) Nova-Flex Group.
   g) ProTech Systems Inc.
   h) Schebler Chimney Systems.
   i) Security Chimneys.
   j) Selkirk Metalbestos.

B. General: UL 1738 listed, rated for 1.25 inch w.c. positive or negative flue pressure complying with NFPA 211 and suitable for condensing-gas appliances.

C. Double-wall Vents: Rated for 550 degrees F continuously, with inner and outer jacket separated by at least a 1/2 inch annular space. Construct inner shell of ASTM A949, Type AL29-4C, ASTM A276 Type 316, or ASTM A268 Type 444 stainless steel listed for condensing appliances. Construct outer jacket of aluminized coated steel or Type 304, 316, or AL29-4C stainless steel.

D. Accessories, UL labeled: Provide tees, adjustable and variable lengths, elbows, increasers, draft hood connectors, terminations, dampers, adjustable roof flashings, storm collars, support assemblies, thimbles, firestop spacers, and fasteners, fabricated from similar materials and designs as vent pipe straight sections, all listed for same assembly. Provide discharge assembly termination compatible with manufacturer system to protect against and/or drain rainfall.

E. Appliance Adapter: Provide appliance adapter to connect double wall special gas vent to flue outlet of appliance and secure with hose clamp.

a) Enervex Inc. SR.
b) Heat-Fab Model 9401RHM.
c) Selkirk Metalbestos 3CV-AA .

2.03 GUYING AND BRACING

A. Cable: Galvanized, stranded wire of the following thickness:

1. Minimum Size: 1/4 inch in diameter
2. For ID Sizes 4 to 15 inches: 5/16 inch in diameter.

B. Pipe: 1-1/4 inch diameter, galvanized steel.

C. Angle Iron: Galvanized steel 2 by 2 by 1/4 inch.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLICATION SCHEDULE

A. Category I Appliances:

1. Pre-manufactured breechings and chimneys, Residential and Building Heating Appliance-Type Chimney.

B. Category II Appliances:

1. Special gas vents double wall for flue gases up to 550 degrees F continuously.

3.03 INSTALLATION, GENERAL

A. Install in accordance with manufacturer’s instructions.

B. Maintain minimum clearances from combustibles specified in third party listing.

C. Align connections accurately with internal surfaces smooth.

D. Seal joints between sections of positive pressure vents in accordance with manufacturer's installation instructions, and using only sealants recommended by manufacturer.

E. Support breechings from building structure, rigidly with suitable ties, braces, hangers, and anchors to hold to shape and prevent buckling. Support vertical breechings, chimneys, and stacks at 12 foot spacing, to adjacent structural surfaces, or at floor penetrations. Refer to SMACNA (DCS) for equivalent duct support configuration and size.

F. Install guy wires and/or braces where maximum unsupported lengths of stacks are exceeded.

G. Install concrete inserts for support of breechings, chimneys, and stacks in coordination with formwork.

H. Pitch breechings with positive slope up from fuel-fired equipment to chimney or stack, minimum 1/4 inch per foot or per manufacturer’s recommendations, whichever is more stringent. Provide flat bottom transitions where required to maintain continuous slope. Provide condensate drain connection at low points with 3/4" plenum rated drain tubing with pigtail trap sized for system pressure. Pipe

drain line to nearest open site drain and terminate with air gap. Provide pH neutralizer in drain line in accessible location.

I. All connections to common breechings shall be 45 degree lateral tees.

J. Install firestopping to preserve fire resistance rating of partitions and other elements.

K. Coordinate installation of dampers and draft control devices. Locate dampers as close to draft hood collar as possible.

L. Install slip joints permitting removal of appliance without removal or dismantling of breeching, breeching insulation, chimneys, or stacks.

3.04 INSTALLATION OF SPECIAL GAS VENTS

A. Connect special gas vents to appliance adapters.

3.05 FIELD QUALITY CONTROL

A. Temporary Closure: At ends of breechings and chimneys that are not completed or connected to equipment, provide temporary closure that will prevent entrance of dust and debris until installations are completed.

B. Touch-up or refinish sections or accessories that are scratched or marred during shipping and handling, or require touch-up after welding.

3.06 ADJUSTING AND CLEANING

A. Clean breechings internally during installation, to remove dust and debris. Clean external surfaces to remove welding slag and mill film. Grind welds smooth.

END OF SECTION

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