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SPECIFICATION DIVISION 23

NUMBER SECTION DESCRIPTION

DIVISION 23 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)
SECTION 235150 VENTING SYSTEMS FOR SPECIALTY GAS FIRED APPLIANCES

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DIVISION 23 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)
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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 01 Specification Sections, and other applicable Specification Sections including the Related Sections listed below, apply to this Section.

B. 235239 Fire Tube Boilers (Hot Water)

1.2 SUMMARY

A. Section Includes:

1. This Section includes all specifications relating to the furnishing and installing of venting systems for condensing type gas fired appliances.

1.3 REFERENCES

A. Definitions

B. Abbreviations and Acronyms

1.4 SUBMITTALS

A. Product Data: Include manufacturer, catalog number, catalog illustrations, rated capacities, performance characteristics, weights, rough-in requirements and details, materials of construction, accessories and clearance requirements from combustible materials.

B. Additionally include:

1. Shop Drawings - Catalog Cuts, Diagrams and Descriptions
2. Sizing Calculations
3. Installation Instructions and Installation Drawings
4. Operation and Maintenance Manuals
5. Warranty Documentation

1.5 QUALITY ASSURANCE

A. Manufacturers and Products: The products and manufacturers specified in this Section establish the standard of quality for the Work. Subject to compliance with all requirements, provide specified products from the manufacturers named in Part 2.

B. Reference Standards: Products in this section shall be built, tested, and installed in compliance with the specified quality assurance standards; latest editions, unless noted otherwise.

1. Reference Standards:

a. UL 1738 / ULC-S636 the U.S. Standard for Venting Systems for Gas –Burning Appliances, Category II, III and IV and ULC-S636, the Canadian Standard for Type BH gas vent systems.
b. The National Fuel Gas Code
c. ANSI Z223.1
d. NFPA-54

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials and equipment raised off the floor on pallets and protected with coverings to prevent damage due to weather and construction activities. Store in areas that prevent damage due to extreme temperatures or sunlight. Protect from damage, dirt and debris at all times.

1.7 WARRANTY

A. Contractor shall provide a complete warranty for parts and labor for a minimum of one year from the date of Substantial Completion.

1.8 INSURANCE APPROVAL

A. The entire installation shall be FM approved, Owner's insurance company.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:

1. Polypropolene Single Wall Vent (4" and Smaller)
   a. DuraVent Polypro Polypropylene Venting System
   b. Z-Flex - Z-DENS Polypropylene Venting System
   c. ECCO Polypropylene Venting System
   d. Heatfab Polyflue Polypropylene Venting System

2. Vent Double Wall (Larger Than 4")
   a. DuraVent FasNSeal or DuraSeal
   b. Selkirk Heatfab CI Plus
   c. Z-Flex Double Wall pipe
   d. ICC Model VIC

2.2 POLYPROPYLENE SINGLE WALL VENT (4" AND SMALLER)

A. The vent shall be of rigid single wall, factory built type, designed for use in conjunction with Category II or IV condensing or non-condensing gas fired appliances or as specified by the heating equipment manufacturer.

B. Maximum continuous flue gas temperature shall not exceed 110°C (230°F).

C. Vent shall be listed for a minimum positive pressure rating of 6” W.C. and shall have passed at 15” W.C.

D. The vent system shall be continuous from the appliance’s flue outlet to the vent termination outside the building. All outside vent components must be UV rated if exposed to the atmosphere. All system components shall be ULC listed and supplied from the same manufacturer.

E. All cascade (common vented) systems must be approved by the manufacturer of the appliance and conform to CSA approval.

F. PolyPro concentric vent systems shall require an adapter where the appliance being used has an outlet diameter of 110mm.

G. The vent shall be constructed from polypropylene, with a minimum wall thickness of 2.2mm for 60mm (2”), 80mm (3”), 100mm (4”), diameter vents.

H. All system components such as vent supports, roof or wall penetrations, terminations, appliance connectors and drain fittings require to install the vent system shall be UL and ULC listed and provided by the vent manufacturer.

I. Vent layout shall be designed and installed in compliance with manufacturer’s installation instructions and all applicable local codes.

2.3 VENT DOUBLE WALL (LARGER THAN 4")

A. The vent shall be of double wall, factory built type, designed for use in conjunction with Category II or IV condensing gas fired appliances or as specified by the heating equipment manufacturer.

B. Maximum continuous flue gas temperature shall not exceed 480˚F (249˚C).

C. Vent shall be listed for a minimum positive pressure rating of 6” W.C. and shall have passed at 35” W.C.

D. The vent system shall be continuous from the appliance’s flue outlet to the vent termination outside the building. All system components shall be ETL listed and supplied from the same manufacturer.

E. The vent shall be constructed with an inner and outer tube, where the annular space between the tubes is 1-inch.

1. The inner tube (flue gas conduit) shall be constructed from either AL29-4C® or 316L stainless steel. The AL29-4C stainless steel will have a wall thickness of .015” for 3” through 9” diameter vents, .020” for 10” through 16” and .024” for 18” through 24” diameter vents. The 316L stainless steel will have a minimum wall thickness of .015" for 3"-9" diameter vents, .019" for 10"-16" diameter vents and .024" for 18"-24" diameter vents.
2. The outer tube (jacket) shall be constructed from 441 stainless steel with a minimum wall thickness of .015” for 3” through 9” diameter vents, .020” for 10” through 16” and .024” for 18” through 24” diameter vents.

F. All system components such as vent supports, roof or wall penetrations, terminations, appliance connectors and drain fittings require to install the vent system shall be ETL listed and provided by the vent manufacturer.

G. Inner pipe joints shall be sealed by means of gasketing and overlap where gasket material is not exposed to condensing flue products. Use of caulking material or silicone sealant to seal joints in field is prohibited.

H. Vent layout shall be designed and installed in compliance with manufacturer’s installation instructions and all applicable local codes.

PART 3 - EXECUTION

3.1 INSTALLATION OF DOUBLE WALL CONNECTORS, BREECHINGS, AND VENTS:

A. Install UL 1738 venting system in accordance with manufacturer's installation instructions and UL listing. Maintain minimum clearances from combustibles specified in UL listing.

B. Connect and secure joints between sections of vents in accordance with manufacturer's installation instructions.

C. Support vents at intervals recommended by the manufacturer to support the weight of the vent and all accessories, independent of appliance it serves.

D. Install vent with a continuous 3/8” per foot (minimum) slope, as is required by the National Fuel Gas Code for all gas-fired appliances. Manufacturer's supplied tees and elbows that are built incorporating minimum required slope, are an allowable means to generate system slope.

3.2 ADJUSTING AND CLEANING:

A. The vent system and breechings shall be inspected and cleaned, to remove dust and debris before the final connection to the appliances.

B. Clean external surfaces upon completion of the installation.

3.3 PROTECTION:

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

END OF SECTION 235150