METROLINX

Capital Projects Group

Flue Gas Vents Specification

Specification 23 51 23

Revision 0
Date: August 2018

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Amendment Record Sheet

Amendment in Clause No.	Date of Amendment	Description of Changes

LIST OF CONTENT

1. GENERAL

1.1. SCOPE OF WORK

1.1.1. Provide flue gas vents as required, scheduled and specified herein.

1.2. DESIGN REQUIREMENTS

1.2.1. Design requirements are based on Part 2 specified requirements of products.

1.2.2. For boiler venting, coordinate with boiler requirements of Sections 23 52 22 and 23 52 23.

1.3. RELATED WORKS

1.3.1. Section 20 05 05 - Mechanical Work General Instructions.

1.3.2. Section 20 05 10 - Basic Mechanical Materials and Methods.

1.3.3. Section 20 05 40 – Mechanical Work Commissioning.

1.4. REFERENCE STANDARDS

1.4.1. Standards and codes to be latest editions adopted by and enforced by local governing authorities.

1.4.2. CAN/CSA B149.1 Natural Gas and Propane Installation Code.

1.4.3. CAN/ULC S604 Standard for Factory-Built Type "A" Chimney.

1.4.4. CAN/ULC S605 Gas Vents.

1.4.5. CAN/ULC-S609 Low Temperature Vents-Type L.

1.5. TRAINING

1.5.1. Training is to be a full review of all components including but not limited to a full operation and maintenance demonstration, with abnormal events.

1.5.2. Include for 3 training sessions of maximum 7 hours duration per session for 7 Metrolinx people per session.

1.5.3. Refer to Section 20 05 05 for additional general requirements.

1.6. WARRANTY

1.6.1. Products to be guaranteed by manufacturer, for a minimum of 2 years after acceptance by Metrolinx.

1.7. DELIVERY, STORAGE AND HANDLING.

1.7.1. Handle and store products in accordance with manufacturer's instructions, in locations approved by Metrolinx. Include one copy of these instructions with product at time of shipment.

1.8. SUBMITTALS

1.8.1. Refer to submittal requirements in Section 20 05 05.

1.8.2. Supply a reviewed shop drawing to appropriate trade to indicate vent size and flashing materials supplied, and accurately locate building openings.

1.8.3. Submit shop drawings/product data sheets as follows:

a) to regulatory authority for review and approval prior to submitting to Consultant.

b) for all products specified in this Section.

1.8.4. Product Data:

a) Submit product data sheets indicating:

1) technical data, supplemented by bulletins, component illustrations, detailed views, technical descriptions of items, and parts lists;

2) performance criteria, compliance with appropriate reference standards, characteristics, limitations, and troubleshooting protocol;

3) product transportation, storage, handling, and installation requirements;

4) product identification in accordance with Metrolinx requirements.

1.8.5. Shop Drawings:

a) Submit shop drawings indicating:

1) capacity and ratings;

2) mounting details to suit locations shown, indicating methods and hardware to be used.

1.9. QUALITY ASSURANCE

1.9.1. Manufacturers Qualifications

a) Manufacturer shall be ISO 9000, 9001 or 9002 certified. Manufacturer of product shall have produced similar product for a minimum period of five years. When requested by Consultant, an acceptable list of installations with similar product shall be provided demonstrating compliance with this requirement.

b) Where manufacturers provide after installation onsite inspection of product installations, include for manufacturer's authorized representative to perform onsite inspection and certificate of approvals.

1.9.2. Installers Qualifications

a) Installers for work to be performed by or work under licensed Mechanical Contractor.

b) Installers of equipment, systems and associated work are to be fully qualified and experienced installers of respective products and work in which they are installing.

c) Where manufacturers provide training sessions to installers and certificates upon successful completion, installers to have obtained such certificates and submit copies with shop drawings.

1.9.3. Regulatory Requirements

a) Products and work to comply with applicable local governing authority regulations, bylaws and directives.

b) Include for required inspections and certificate of approvals of installation work from local governing authorities.

2. PRODUCTS

2.1. DOUBLE WALL TYPE "A" VENT

2.1.1. Sectional, prefabricated, double wall, type 316 stainless steel, insulated Type "A" all fuel vent, ULC listed and labelled to CAN/ULC S604, Standard for Factory-Built Type "A" Chimney, maximum 540°C (1000°F) rated, with prefabricated mated fittings, couplings and accessories including a flashing accessory, storm collar counter-flashing piece, and a termination cap.

2.2. DOUBLE WALL TYPE "B" VENT

2.2.1. Sectional, prefabricated, double wall Type "B" gas vent, ULC listed and Labelled to CAN/ULC S605, Gas Vents, maximum 243°C (460°F) rated, with an aluminium alloy inner wall, G90 galvanized steel outer wall, annular air space, prefabricated mated fittings, couplings and accessories including a flashing accessory, storm collar counter-flashing piece, and a termination cap.

2.3. DOUBLE WALL STAINLESS STEEL VENT FOR CONDENSING EQUIPMENT

2.3.1. Positive pressure double wall stainless steel flue gas vent with a type 304 outer casing, an AL29-4C inner flue, and a 25 mm (1") annular air space, ULC S636 listed and labelled, complete with prefabricated mated fittings and accessories including a flashing accessory, storm collar counter-flashing piece, and a termination cap.

2.4. DOUBLE WALL TYPE "L" VENT

2.4.1. Type "L" Neutral or negative pressure Type "L" double wall stainless steel flue gas vent, listed and labelled to CAN/ULC-S609, Low Temperature Vents-Type L, with a type 304 stainless steel outer casing, type 304 stainless steel inner flue, and a 12 mm (½") annular air space, maximum 300°C (570°F) rated, complete with prefabricated mated fittings and accessories including a flashing accessory, storm collar counter-flashing piece, and a termination cap.

2.5. BAROMETRIC DAMPERS

2.5.1. Field Controls or approved equivalent, UL/ULC listed and CSA certified Type M+MG2, field adjustable, single or double acting barometric damper to suit burner fuel, each complete with a gate which rests on a long, thin, stainless steel knife edge which in turn is supported by self-aligning and self-cleaning bearings, sized to suit the application, approved by equipment manufacturer, and complete with a field thermal switch accessory for dual fuel oil/gas fired burners.

3. EXECUTION

3.1. INSTALLATION OF CONDENSING EQUIPMENT GAS VENTS

3.1.1. Provide double wall stainless steel type flue gas vents and combustion air intakes for condensing appliances.

3.1.2. Support spacing is to be in accordance with flue gas vent manufacturer's instructions. Installation is to be in accordance with gas fired appliance manufacturer's instructions and requirements of CAN/CSA B149.1.

3.1.3. Route piping using shortest route possible to termination point while avoiding interference with other work. Slope vent piping for positive drainage.

3.1.4. Equip termination of vent with a turn-down elbow with open end covered with bronze insect screen. Terminate exhaust vent a minimum of 3 m (10') away from fresh air intakes and operable windows.

3.1.5. Confirm flue gas vent diameter prior to ordering.

3.2. INSTALLATION OF FLUE GAS VENTS

3.2.1. Provide ULC listed and labelled flue gas vents for equipment. Confirm flue gas vent diameters prior to ordering.

3.2.2. Secure horizontal sections in place by means of support hardware supplied with vents and conforming to flue diameter, and hanger rods attached to structure. Support spacing is to be in accordance with vent manufacturer's instructions.

3.2.3. Support vertical flue sections inside building at roof level and wherever else required by means of purpose made vertical support accessories supplied by manufacturer.

3.2.4. Hand flashing collars to roofing trade at site on roof for installation and flashing into roof construction. Install counter-flashing pieces over collars.

3.2.5. Equip termination of each chimney with a rain cap. Confirm height requirement for chimney above roof prior to installation, and ensure proper distance from fresh air intakes is maintained.

3.2.6. Provide braided stainless steel aircraft cable guy wires attached to roof anchors and to stainless steel strap anchors on the vents as required and/or shown.

3.2.7. Where required, anchor and restrain vents in accordance with local governing code requirements for seismic control and restraint.

3.2.8. Provide required accessories, including insulated thimbles at building wall penetrations, barometric damper(s), cleanout(s), fire stops, and expansion joints where shown and/or required.

3.2.9. Locate and install barometric dampers in accordance with manufacturer's instructions and field adjust to suit operating conditions.

END OF SECTION