PART 1 - GENERAL

1.1 APPLICABLE REQUIREMENTS

A. All work to be furnished and installed under this Section shall comply with all the requirements of General Conditions, Supplemental Conditions, Division 01 - General Requirements, Section 230500 - Basic Materials and Methods, and other Sections in Division 23 specified herein.

1.2 SCOPE

A. All work to be furnished and installed under this Section shall comply with all the requirements of Division 01, and shall include, but not necessarily be limited to, the following:
1. Draft fans to induce flue gas combustion discharge and product conveyance.
2. Booster fans to induce exhaust flow.
3. Dampers to control combustion processes.
4. Calculations and details for vent sizing and mass flow.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 230500: Basic Materials and Methods

B. Section 235200: Heat Generation

C. Section 235100: Breechings, Chimneys, and Stacks. For flue and stack materials and construction methods.

1.4 SUMMARY

1. Vent exhaust fans.

This is an allowance for the Domestic HW Heaters and should be provided if calculations determine that fan(s) are necessary.

1.5 SUBMITTALS

A. Provide product data for the following:
   1. Vent exhaust fans.

      This is an allowance for the Domestic HW Heaters and should be provided if calculations determine that fan(s) are necessary.

B. Submit certified dimensioned shop drawings, construction details, mounting details, hardware and accessories:
   1. Detail equipment assemblies and indicate dimensions, weights, required clearances, methods of field assembly, components, and location and size of each field connection.
   2. Submit seismic support and restraint calculations stamped and signed by a licensed structural engineer.
   3. Wiring diagrams showing power, signal and control wring.

C. Operation and Maintenance Data: For draft control devices to include in emergency, operation, and maintenance manuals.

D. Provide manufacturer vent draft calculations. Certify that the calculations are based on actual jobsite conditions and are coordinated with “released-for-construction” equipment submittal data, and that the complete vent and stack systems draft range at equipment outlets are within the equipment manufacturer’s recommended range.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the site in containers with manufacturer's stamp or label affixed.

B. Store and protect products against dirt, water, chemical, and mechanical damage. Do not install damaged components. Remove damaged products from project site.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of venting system that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, structural failures caused by expansion and contraction.
   1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 VENT EXHAUST FANS

A. Comparable product by one of the following manufacturers:
   1. Enervex
   2. Field Controls
   3. Tjernlund
   4. Or equal

B. General: Centrifugal fan with constant-speed/variable-speed control mounted at end of vent for sidewall or vertical termination as required.

C. Test Standard: UL 378.

D. Fan Construction: Cast-aluminum, galvanized-steel or stainless-steel housing and components, as required by the product conveyance, and painted the manufacturer's standard color of baked enamel. Galvanized or stainless-steel vent. Cast-aluminum or stainless-steel wheel. Backward-inclined centrifugal or axial fan wheel statically and dynamically balanced. Provide access to clean the discharge area. Provide concentric makeup air inlet duct surrounding the vent to allow zero clearance to combustibles.

E. Motor: Fully enclosed, inverter ready, permanent split capacitor, out of the airstream, with pre-lubricated and sealed ball bearings.

F. Variable-Speed Controls: Boiler interlock relay starts fan when burner control cycles on. Pressure controller, control transformer, and miscellaneous controls for automatic modulation of fan speed to maintain preset negative pressure between 0” and 1.0” wg (0 and minus 249 Pa). Include controller with indicator lights, pressure differential transmitter, chimney pressure sensor probe, and fan proving switch adjustable between minus 0.07” and minus 0.15” wg (minus 17 and minus 37 Pa). Include tubing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install listed components in a manner complying with the listing.

3.2 CONNECTIONS

A. Coordinate with Division 26 for wiring and grounding.

3.3 ADJUSTING

A. Set field-adjustable switches and controls as indicated.

3.4 DEMONSTRATION

A. Provide training to Owner's Representative to adjust, operate, and maintain draft control devices.

3.5 CLEANING

A. After completing system installation, clean devices of all dirt and construction debris and repair damaged finishes.

END OF SECTION