

FAV – H

Fresh Air Humidity Mitigation System

Section 15951 - Controls and Fresh Air Ventilation

PART 1: General

- 1.1** The automatic fresh air ventilation controls (FAV - H) under this section will be supplied and installed in accordance with the General Conditions, Supplementary Conditions, and all Division I General Requirements and Referenced Documents.
- 1.2** The installation of the FAV – H shall be in accordance with all National, State and Local codes pertaining to this type of work.
- 1.3** All work must comply with Section 15050 – Basic Materials and Methods – and all other Division 15 Sections, as applicable.
- 1.4** The scope shall include furnishing and installing a ventilation control system equipped with humidity mitigation to include control panels, temperature/humidity control devices, appurtenances, etc. to accomplish specific control sequences specified herein, to provide fresh air for house, multifamily dwelling, or structure, sensing and indicating devices, supporting structures and other required components.
- 1.5** The scope shall include all sensors, damper, actuator, microprocessor central controllers, and all other components of the FAV – H system requiring connections.

PART 2: General Instructions

- 2.1** The installing HVAC Contractor shall base his Bid on the system as specified and on the sequence of operations.
- 2.2** As part of his Bid, the HVAC Contractor shall submit for review by the owner's authorized representatives a written description of his Fresh Air Humidity Mitigation Ventilation system, including block diagrams, showing all major components and control panels and required cabling between each.
- 2.3** The HVAC Contractor shall include manufacturer's literature for each type of panel, controller, or device that may be shown on the Riser Diagram.
- 2.4** The Riser Diagram shall show schematically the entire building system with all major components identified.

PART 3: Scope of Work

- 3.1** The Fresh Air Humidity Mitigation Ventilation System shall be supplied and installed completely under the HVAC Contract. Control components shall be mounted and wired by the HVAC Contractor.
- 3.2** The HVAC Contractor shall provide the engineering, installation, calibration, and checkout necessary for complete and fully operational Fresh Air Humidity Mitigation Ventilation System, as specified hereafter.

PART 4: Submittals

- 4.1** The following data/information shall be submitted for approval.
- 4.2** Complete sequence of operation.
- 4.3** Control system drawings, including all pertinent data, to provide a functional operating system.

- 4.4 Fresh Air Humidity Mitigation Ventilation schedule showing size, configuration, capacity and location of all equipment.
- 4.5 Data sheets for all hardware control components.
- 4.6 A description of the installation materials including conduit, wire, etc.
- 4.7 Fresh Air Humidity Mitigation Ventilation System, Fresh Air Intake and Outdoor Air Sensor locations.
- 4.8 Provide as part of the submittal five copies of all data and control drawings.

PART 5: Qualifications

- 5.1 The HVAC Installing Contractor shall have an office within a 100-mile radius of the job site, staffed with factory trained personnel capable of providing instruction, routine maintenance and 24-hour emergency maintenance service for all system components.
- 5.2 The HVAC Installing Contractor shall have a minimum of three years' experience installing and servicing similar microprocessor based control systems.
- 5.3 The Contractor shall be prepared to provide evidence of this history as a condition of acceptance and approval prior to bidding.

PART 6: System Description

- 6.1 The SYSTEM shall be a residential Fresh Air Humidity Mitigation Ventilation system meeting ASHRAE 62.2 – 2016 and International Mechanical Code 403.3.2.1 Fresh Air requirements.
- 6.2 Fresh air ventilation system shall provide required fresh air each 24 hour period.
- 6.3 Fresh air ventilation system shall sense outdoor air temperature and humidity every minute.
- 6.4 Fresh air ventilation system shall be programmed with an algorithm to use outdoor air temperature and humidity (enthalpy) to evaluate and determine when to allow fresh air into home, multifamily dwelling or structure, or store time for recovery, and anticipated future fresh air delivery per code.
- 6.5 Fresh air ventilation system shall have Intelligent Recovery built into controller to insure required fresh air is delivered within each 24 hour period.
- 6.6 Fresh air ventilation system shall provide automatic shut off Outside Air Damper.
- 6.7 Fresh air ventilation system shall provide for use of an OSA fan, independent of HVAC fan.
- 6.8 Fresh air ventilation system shall provide for use of house exhaust fan, independent of HVAC fan.
- 6.9 Fresh air ventilation system shall provide field configurable CFM selection from 30 CFM to 110 CFM per ASHRAE 62.2 and International Mechanical Code 403.3.2.1 minimum fresh air formula.
- 6.10 Fresh air ventilation system shall provide for optional field configurable 50% fresh air run operation.

PART 7: Control Manufacturer

- 7.1 The Fresh Air Ventilation system will be the Fresh Air Humidity Mitigation (FAV – H), as manufactured by Zonex Systems, Huntington Beach, CA. Any substitution of the above specified control system will require a 10-day prior approval by the engineer.
- 7.2 For pricing, contact the factory at 800-228-2966 or visit www.zonexproducts.com
- 7.3 For substitution, submit a complete description, engineering data, and names of existing installations of substitute products.

- 7.4 Be prepared to provide a field inspection by the engineer, if he chooses to observe the actual installation of proposed substitution.

PART 8: Fresh Air Humidity Mitigation System (FAV – H) Performance

- 8.1 FAV – H Fresh Air Ventilation System shall consist of automatic shut off damper, and system controller utilizing intelligent recovery to insure minimum required fresh air is delivered.
- 8.2 FAV-H shall have option of using FAS, Fresh Air Enthalpy Sensor, to active DEHUM function on Furnace or Air Handler
- 8.3 Automatic shut off damper shall close when there is no demand for fresh air.
- 8.4 System controller shall evaluate enthalpy, operate damper, energize motor, track operation, store unused minutes, and track 12-hour demand for fresh air.
- 8.5 Enthalpy sensor shall provide system controller with current outdoor air conditions.
- 8.6 When enthalpy is greater than 32 BTU per lb. of dry air, ventilation air shall not be admitted into the structure unless compressor is running.
- 8.7 FAV – H controller when used with FAS shall provide dehumidification output to HVAC unit when outdoor air enthalpy is greater than 32 BTU per lb. of dry air.
- 8.8 FAV – H controller shall monitor compressor operations and determine when to allow fresh air to enter home, multifamily dwelling, or structure.
- 8.9 FAV – H controller shall provide outputs to energize HVAC blower fan.
- 8.10 FAV – H controller shall provide outputs to energize Aux fan located within fresh air intake duct.
- 8.11 FAV – H controller shall allow for HVAC blower and Auxiliary fan to be interlocked.
- 8.12 FAV – H controller shall track and store unused run minutes, evaluate remaining minutes once controller has reached 8 hours of operation during each 12-hour run time, and run intelligent recovery to provide remaining minutes of fresh air as required by ASHRAE 62.2 or IMC 403.2.1.
- 8.13 FAV – H controller shall be configurable to operate 50% run strategy allowing fresh air to enter home 50% or 30 minutes of each hour.
- 8.14 FAV – H controller shall provide dehumidification strategy when configured for 50% operation if outdoor enthalpy is greater than 32 BTU per lb. of dry air.

PART 9: Transformers and Wiring

- 9.1 The FAV – H Fresh Air System shall be powered from HVAC unit transformer.

PART 10: Warranty

- 10.1 The FAV – H Fresh Air Humidity Mitigation System shall have a manufacturer's warranty for a period of two (2) years from date of installation. This warranty does not include labor.

END OF SECTION 15951

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