

Q360 INDUCTION TERMINAL UNIT SPECIFICATIONS

2.02 GENERAL

- A. It is the design intent of these specifications to provide a fully integrated HVAC system with all parts working together. These induction units need clean, dehumidified primary air from a dedicated outdoor air unit, hot and chilled water from a boiler and chiller, piping, and controls to coordinate each component to perform as intended. In addition to the items mentioned above that are specified on other sections in division 15, wiring and power requirements in division 16 may also be impacted. Changes, modifications, or substitutions on any component will impact all the other parts of the system and can not be made without a careful review of all related specifications.
- B. Induction terminal unit shall be constant volume primary air flow units designed to induce a secondary airflow within the conditioned space using the primary conditioned air supply. Units shall be designed for ceiling installation with factory supplied hanging brackets. Hanger rods or other approved hanging system to be field supplied and installed in the field by installing contractor.
- C. Units shall be equipped with 8" round duct primary air intake, one air plenum and air induction nozzle plate, a supply and return chilled water piping connection, one supply and return hot water piping connection, one ¾" condensate drain connection, and one combination supply / return air grille for a full 360 degree coanda effect room air distribution. The grille shall have a removable center core to provide full access to the return air side of the coil. The unit shall be capable of inducing the secondary airflow within the conditioned space using the velocity pressure of the primary airflow. This secondary air must flow directly from the room to the unit and shall not use the ceiling as a return air plenum. Induction units using the ceiling plenum as a return air path are not acceptable.
- D. Each Q360 Unit shall be equipped with one water coil for chilled water and one coil for warm or hot water. Latent conditioning of the air supplied to the space shall be performed at the Dedicated Outdoor Air unit and controlled by exhaust air humidity sensors. Humidity within the building envelope is to be controlled to not exceed 55% relative humidity.
- E. Each Q360 Unit shall consist of one primary air connection, one nozzle plenum with a set of air induction nozzles, one chilled water and one hot water coil, water piping connections, a condensate drain connection, and supply/return air grille. A drainable condensate pan with **choose one** (a safety float switch attached to the drain pan to shut off the chilled water coil if condensate should accumulate for non drainable applications) or (a trap for drainable applications) shall be provided by the induction unit manufacturer.
- F. The Q360 unit shall be matched up to a supplied 47 3/4" by 47 3/4" supply/return diffuser to evenly distribute the mixed primary air in a 360 degree coanda effect air distribution pattern. The diffuser shall fit into a standard ceiling grid. The center grille center portion of the diffuser for return air shall be removable for access to interior of unit without tools. The primary air connection is a single 8" diameter duct collar which directs the primary air to the nozzles. Water connections are female national pipe thread connections.

2.03 CASINGS

- A. The entire unit shall be constructed of 20 gauge galvanized sheet metal. The primary air plenum and nozzles shall be designed and configured to provide uniform air

distribution to the nozzles with low noise operation.

B. The air diffuser shall be removable for access to the interior coil area for cleaning.

2.04 INDUCTION NOZZLES

A. Induction nozzles shall be aerodynamically designed and made of LDPE Petrothene food grade plastic having a tapered discharge for low noise levels.

2.05 WATER COIL ASSEMBLY

A. Coils shall be of the hot water type utilizing aluminum fins and copper tubes. Coils shall be factory leak tested at 350 psi water. Coil connections shall be as indicated on the drawings.

B. The water coil assembly shall consist of a two row copper tube and aluminum fins coil for cooling and a one row coil for heating. A drainable condensate pan shall be provided to collect any condensate that could temporarily form on system start up.

C. One control valve for cooling and one for heating can control one or more Q360 units in a given zone. Control valves for the units shall be supplied **choose one** by the Induction Unit Manufacturer or the Temperature Control Contractor.

2.06 QUALITY ASSURANCE

A. All induction terminal units shall be tested by an independent Nationally Recognized Testing Laboratory for performance and sound levels.

2.07 CONTROL SYSTEM

A. A digital control system shall be provided to, at a minimum, provide the following functions: temperature control for each room, monitor the drain pan float switches to shut of the valve should sufficient condensate occur, monitor the building relative humidity, provide supply air temperature and dew point set point inputs to the dedicated outdoor air unit, control the water loop temperature, and provide start stop control for the chiller and boiler as needed. Trending, alarms, and system graphical displays shall also be included. This control system shall be native BACnet and able to directly interface with other building control system using BACnet (ARC156, MS/TP, and PTP), Modbus (RTU & ASCII), N2, and LonWorks.

B. The sensible temperature control for each room shall be consist of one two position water control valve for cooling and separate rate valve for heating which shall be controlled by a digital room thermostat and controller.

C. Each induction unit shall be supplied with a 24 inch supply and return hose kit that includes manual shut off valves, automatic flow control valve, strainer, and drain valve. These shall be supplied by **choose one** either by the Induction Unit Manufacturer or the Temperature Control Contractor.

D. Control system shall allow for setting of overall minimum and maximum space temperatures within the building. Local control of space temperature to occupant comfort requirements shall be provided by space thermostat adjustment of no more than +/-2 degrees from set point

3.01 EXECUTION

- A. Follow manufacturer's installation instructions and recommendations for all equipment.
- B. Install Induction Terminal Units in ceiling in such a manner as to allow easy access to all controls.
- C. Using the hanging brackets on each unit supplied by the manufacturer, support Induction Terminal Units to supporting structure using field supplied threaded rod or other secure hanging system.
- D. Provide primary supply air connection and seal with duct sealer after installation.
- E. Provide water supply/return connection and Install temperature control valve.
- F. Connect the condensate drain to available building drains if required.
- G. Units shall be as manufactured by NuClimate Air Quality Systems, Model Q360 with supplied 48" x 48" diffuser as specified on drawings, or approved equal.