**Price Modular Floor Diffusers**

**Division 23 – Heating, Ventilating, and Air Conditioning**

**Section 23 37 13 – Diffusers, Registers, and Grilles**

The following specification is for a defined application. Price would be pleased to assist in developing a specification for your specific need.

**PART 1 – GENERAL**

* 1. **Summary**

1. This section includes the following:
   * + 1. Underfloor Moduflex Controller
       2. Modular Floor Diffusers

**1.02 Related Documents**

1. Section 01 30 00 – Administrative Requirements
2. Section 01 40 00 – Quality Requirements
3. Section 01 60 00 – Product Requirements
4. Section 01 74 19 – Construction/Demolition Waste Management and Disposal
5. Section 01 78 00 – Closeout Submittals
6. Section 01 79 00 – Demonstration and Training
7. Section 23 30 00 – HVAC Air Distribution
8. Section 23 32 00 – Air Plenums and Chases
   1. **Reference Standards**
9. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
10. ASHRAE Standard 55 – Thermal Environmental Conditions for Human Occupancy
11. ASHRAE Standard 62.1 – Standards for Ventilation and Indoor Air Quality
12. ASHRAE Standard 70 – Method of Testing the Performance of Air Outlets and Air Inlets
13. ASTM Standard D610 – Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
14. ASTM Standard D714 – Standard Test Method for Evaluating Degree of Blistering of Paints
15. ASTM Standard D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
16. ASTM Standard D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
17. ASTM Standard D4752 – Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub
18. ASTM Standard E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
19. NFPA Standard 70A, Article 100 – National Electrical Code
20. NFPA Standard 90B – Standard for the Installation of Warm Air Heating and Air-Conditioning Systems

**1.04 Administrative Requirements**

A. Pre-installation Meeting: Conduct a pre-installation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Sequencing: Ensure that utility connections are achieved in an orderly and efficient manner.

**1.05 Submittals**

1. See Section 01 30 00 – Administrative Requirements for submittal procedures.
2. Product Data:
   1. Provide data indicating configuration, general assembly, materials used in fabrication, rated capacities, and furnished specialties and accessories.
   2. Include drawings indicating size, profiles and dimensional requirements of the linear floor grilles that are based on the specific system indicated.
   3. Include catalog performance ratings that indicate air volume flow, initial pressure drops, sound performance, and throw, as tested in accordance with ASHRAE 70.
3. Shop Drawings: For each type of product indicated, include the following:

1. Equipment assemblies and indicated dimensions.

2. Required clearances

3. Method of field assembly

4. Revit models

1. Coordination Drawings:
   1. Include floor plans, and other details, drawn to scale, on which the following items are shown and coordinated based on input from installers:
   2. Floor or underfloor-mounted items including:
      * 1. Floor structure (floor tiles, concrete, etc.)
        2. Floor finishing (carpet, tile, etc.)
        3. Access panels
        4. Electrical components
        5. Plumbing
        6. Networking components
        7. Terminal Units and other HVAC components
2. Operation and Maintenance Data: Include manufacturer’s descriptive literature, operating instructions, maintenance schedules and repair data, and parts lists.

**1.06 Quality Assurance**

1. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum ten years of documented experience.
2. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
3. 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.

**1.07 Warranty**

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
2. Provide 18 month manufacturer warranty from date of shipment for grilles and registers.

**PART 2 – PRODUCTS**

**2.01 General**

1. Basis of Design: Price Industries, Inc.
2. Power and Control Module with UMC3 Zone Controller [Price UMC3]
3. Power and Control Module with PCU Pressure controller [Price PCU]
4. Modular Floor Diffusers with Twist Pattern [Price Model MFD TP]
5. Modular Floor Diffusers with Displacement Pattern [Price Model MFD DP]
6. Modular Floor Diffuser Accessories [ Price Models DBV, B/BS, DB/DBS, DBA/DBAS, MFB-F, MFB-VC, MFB-HC]
7. General Product Information:
8. Furnish and install Price modular floor diffusers of the sizes and capacities indicated on the drawings or outlet schedule.
9. Unit sizes shall be selected in accordance with ASHRAE guidelines and manufacturer’s literature.
10. Manufacturers shall demonstrate that they have successfully supplied and installed underfloor HVAC products, as well as the computer modeling thereof for a minimum of ten years.
11. Manufacturers must be pre-qualified to bid based on the completion of a minimum of [xx] jobs in similar climates.
12. Manufacturers shall provide a list of completed jobs and references.
13. Underfloor Air System Controls:
    1. Air Grilles and diffusers specified for underfloor service shall incorporate the following requirements:
    2. Damper construction shall include an integral flow-modulation damper and motor (air valve) that is specifically designed for low static pressure air distribution, and throw no higher than 4.5 feet under full load in the interior zone 1.5 feet from the wall surface to achieve a Ventilation Effectiveness of 1.2 or higher in accordance with ASHRAE 62.1.
    3. Air dampers shall not include fast acting actuators that require high life cycle ratings.
    4. Flow-modulation with constant plenum air temperature shall reduce air flow and throw heights in response to lower space demands. Flow-modulation technique shall be implemented to maximize stratification, leading to energy savings and increased thermal comfort.
    5. Modulation by timed duty cycle of fully open and closed periods shall not be acceptable. This type of modulation can greatly reduce stratification, removing potential energy savings. Timed duty cycle modulation also increases the possibility of creating stagnant zones and starving buoyancy driven flow. Any use of this type of modulation shall be modified in order to demonstrate stratification to the project team prior to being considered acceptable.
    6. Plenum Rated CFlex Cables: Color-coded plug-and-play plenum rated cables with [RJ12] or [RJ45] connectors shall be used between devices.
    7. Terminal block type plugs shall not be acceptable.
    8. Plug-and-Play cables shall carry both the power and control signal to each device and connect to a single port on the device control board.
    9. Cable types shall be limited to no more than one type and connector per device to reduce complexity in wiring and future modifications.
    10. Cables shall be stranded wire to increase flexibility in the wires, to improve ease of installation, and reduce damage during installation.
    11. Cables shall have six wires with redundant wires to provide a more robust system and protection against damage, and to allow the current for multiple devices to be controlled through a single cable. Solid wires shall not be acceptable.
    12. The Power and Control Module shall include a direct digital controller (DDC) and transformer to supply both power and control signals to air devices.

**2.02 Power and Control Module with UMC3 Controller**

1. Description:
2. Furnish and install Price model UMC3 with Price thermostat, with the voltage, wiring, and configurations indicated on the plans and controllers schedule. All components shall be factory wired, calibrated and pre-tested to ensure a fully functional unit.
3. The digital control package shall include a Price thermostat mounted in the occupied zone and a dedicated, microprocessor-based UMC3 controller that shall modulate up to a max thirty ModuFlex devices based on the room temperature through a series of plug and play connectors. The thermostat shall be (**select one**):
   1. Remote type
   2. Room Sensor type
   3. Dial type
   4. LCD type
   5. Motion Sensor with LCD type
4. The digital controller shall have two dedicated RJ45 ports to control up to twelve ModuFlex linear floor heaters with a maximum of six units per chain.
5. The digital controller shall have five RJ12 ports to control up to thirty ModuFlex cooling only devices with a maximum of six units per chain.
6. The UMC3 shall be provided with an integral 96VA transformer, and the controller shall have LED display lights to indicate availability of control power, overload of each output, and the direction of damper movement.
7. The UMC3 controller shall be configurable in the field with either the LCD thermostat, service port or the BACnet BAS network. The LCD thermostat will allow setup and balancing of the UMC3 controller without need to access the plenum space. It will include a zone temperature sensor, set point adjust, and character LCD display, and a service port for computer access to the UMC3 controller. The LCD and key pad functions shall include the following:
   * + - 1. Customer Mode:

Space Temperature/Set-point display

Set-point adjustment

* + - * 1. Service and Commissioning Mode (password protected):

Control sequence diagnostics

Control of VAV damper position over entire stroke (Manual Force to min/max flow, or min/max position/ Automatic Mode)

VAV Sensor calibration

* + - * 1. Configuration Mode (password protected):

Network configuration

Display option configuration

1. The programmable native BACnet controller shall be used in either a stand-alone operation or a peer-to-peer Building Automation networked architecture.
2. The controller shall have an RS-485 network port to allow for plug in connection onto a BACnet MS/TP LAN. The RJ12 Service Port shall allow for the connection of a personal computer, which shall allow for the full display of all VAV control parameters and Inputs/Outputs.
3. All components shall be factory wired, calibrated and pretested to ensure a fully functional unit. The UMC3 shall be ETL listed to UL 1995 and CSA C22.2.
4. The UMC3 with DDC Interface control package shall include a modulation controller capable of accepting an input signal from BAS network, integration by Controls Contractor. The UMC3 shall be a dedicated, microprocessor based controller mounted in the underfloor plenum, and shall have the following technical specifications:
   * + - 1. Inputs: one analog input – 8-bit
         2. Outputs: two binary triac outputs (24 VAC)
         3. Transformer: 96 VA
         4. Ambient Ratings: 32 degrees Fahrenheit to 131 degrees Fahrenheit (0 to 55 degrees Celsius), 10 to 90 percent relative humidity (non-condensing)
         5. Technology: 8-bit microprocessor
         6. Connections: 5 RJ12 connectors plus 5 RJ45 connectors
         7. Wiring: Class II
         8. Size (including housing): 3.8 x 15.5 x 8.5 inches (97 x 394 x 216 millimeters)
         9. Weight: 10.18 pounds (4618 grams)
         10. Enclosure: All control components shall be mounted inside a protective metal enclosure.

**2.03 Power and Control Module with PCU Pressure Controller**

1. Description:
2. Furnish and install Price model PCU with Price Relative Pressure Node (RPN), with the voltage, wiring, and configurations indicated on the plans and controllers schedule. All components shall be factory wired, calibrated and pre-tested to ensure a fully functional unit.
3. The digital control package shall include at least one Price Relative Pressure Node (RPN) mounted on a manufacturer supplied Blank of Plate, a Price thermostat (optional for variable pressure sequence), and a dedicated, microprocessor-based PCU controller that shall modulate up to a max twelve Deflection grilles with dampers (DGD) or VFD to maintain the plenum static pressure based on the pressure signal from the Pressure Node(s) (RPN). The RPN shall have the following feature(s);
   1. It shall be mounted on a manufacturer supplied Blank of plate that shall be installed in an inactive Modular floor diffuser MFD
   2. When multiple RPNs are used with the PCU, the PCU shall be configured to control based on one of the following options Average, Maximum or Minimum pressure signal.
   3. A pitot tube for measuring the underfloor plenum pressure shall be supplied and connected to the RPN via clear tubing provided by the manufacturer
   4. Static pressure measurement accuracy shall be to ±1% full scale in normal ambient temperature environments
   5. The units shall be temperature compensated to less than ±0.033% FS/oF of thermal error over the temperature range of 0 degree Fahrenheit to +150 degrees Fahrenheit

**2.04 Modular Floor Diffuser with Twist Pattern**

1. Description:
2. Furnish and install Price model [MFD TP] Modular Floor Diffusers with Twist Pattern in the sizes, core style, configurations and capacities indicated on the plans and air outlet schedule.
3. Performance:
   1. The manufacturer of the modular floor diffuser shall provide performance data for air volume, initial pressure drop, and sound levels.
   2. Air shall be delivered to the space at low noise levels with turbulent flow resulting in a stratified zone temperature distribution within the occupied zone without the use of nozzles.
   3. Throw shall be no higher than 4.5 feet above the floor under full load in the interior zone and 1.5 feet from the wall surface to achieve a Ventilation Effectiveness of 1.2 or higher in accordance with ASHRAE 62.1. Diffuser manufacturer shall provide sound and pressure drop data tested in accordance with ASHRAE 70.
4. Construction:
   1. The diffuser face shall have a positive interlock with the mounting hardware to reduce the chance of accidental adjustment due to foot traffic.
   2. The diffuser core shall consist of multiple radial slots with an incline angle of 30 degrees, and shall be (select one):
      * + 1. An eight inch diameter core constructed of (**select one**):
5. Fire-rated polymer with permeating color in [black] or [dusty grey], in compliance with UL2043.
6. Finished aluminum.
   * + - 1. A ten inch diameter core shall be constructed of finished aluminum
   1. The diffuser shall comply with NFPA 90B and shall be able to withstand a maximum mechanical loading of:
      1. [**Polymer**] 1250 pounds
      2. [**Aluminum**] 3000 pounds
   2. The assembly shall include a [black] or [gray] polycarbonate standard distributor basket with damper device. Refer to “Modular Floor Diffuser Accessories” section for basket details.
7. Mounting/Fastening (**select one**):
8. The diffuser shall be installed with a ring press fit (RPF).
9. The diffuser shall be installed with a Zip Clip® for tool-free fastening from the room side. The Zip Clip® shall use a ratcheting mechanism to tightly and evenly secure the gasketed mounting ring and the entire assembly to the floor.

**2.05 Modular Floor Diffuser with Displacement Pattern**

1. Description:
2. Furnish and install Price model MFD DP modular floor diffusers with displacement pattern in the sizes, core style, configurations and capacities indicated on the plans and air outlet schedule.
3. Performance:
4. Air shall be delivered to the space at low noise levels and low velocities that result in low induction horizontal flow resulting in a stratified zone temperature distribution within the occupied zone without the use of nozzles.
5. The diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE 70.
6. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE 55-2004.
   1. If %DR performance data is not available, the manufacturer shall then provide a software program that allows room comfort evaluation for specific operating conditions and diffuser locations to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than five years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.
7. Construction:
8. The diffuser face shall have a positive interlock with the mounting hardware to reduce the chance of accidental adjustment due to foot traffic.
9. The diffuser core shall create horizontal flow with narrow slots arranged in a star pattern, and a perforated section in the center to resist induction of room air. The diffuser shall be (**select one**):
   * + - 1. An eight inch diameter core constructed of (**select one**):
10. Fire-rated polymer with permeating color in [black] or [dusty grey], in compliance with UL2043.
11. Finished aluminum.
    * + - 1. A ten inch core shall be constructed of finished aluminum.
12. The diffuser shall comply with NFPA 90B and shall be able to withstand a maximum mechanical loading of:
13. [**Polymer**] 1250 pounds.
14. [**Aluminum**] 4500 pounds.
15. The assembly shall include a [black] or [gray] polycarbonate standard distributor basket with damper device. Refer to “Modular Floor Diffuser Accessories” section for basket details.
16. Mounting/Fastening:
    * + 1. The diffuser shall be installed with a ring press fit (RPF).
        2. The diffuser shall be installed with a Zip Clip® for tool-free fastening from the room side. The Zip Clip® shall use a ratcheting mechanism to tightly and evenly secure the gasketed mounting ring and the entire assembly to the floor.

**2.06 Modular Floor Diffuser Accessories**

1. Modular Floor Baskets [Models DBA, DBAS, DB, DBS, B, BS, DBV/DBV-HP]
2. DBA Standard Basket with Face Adjustable Damper:
   1. Furnish and install Price model DBA modular floor adjustable diffuser basket as indicated on the plans and air outlet schedule.
   2. The discharge air flow shall be controlled by the basket and shall be adjustable from the face of the diffuser.
   3. The minimum flow limit shall be adjustable from zero to fifty percent of maximum flow using a mechanical stop.
   4. The adjustable diffuser face shall have a positive interlock with the mounting ring to reduce the chance of accidental adjustment due to foot traffic.
   5. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   6. The basket shall minimize sightlines through the diffuser.
   7. The basket shall be supplied in [eight inch] or [ten inch] diameter.
3. DBAS Short Basket with Face Adjustable Damper:
   1. Furnish and install Price model DBA modular floor adjustable diffuser basket as indicated on the plans and air outlet schedule. The short basket shall have a maximum height of 2.75 inches.
   2. The discharge air flow shall be controlled by the basket and shall be adjustable from the face of the diffuser.
   3. The minimum flow limit shall be adjustable from zero to fifty percent of maximum flow using a mechanical stop.
   4. The adjustable diffuser face shall have a positive interlock with the mounting ring to reduce the chance of accidental adjustment due to foot traffic.
   5. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   6. The basket shall minimize sightlines through the diffuser.
   7. The basket shall be supplied in eight inch diameter.
4. DB Standard Basket with Damper:
   1. Furnish and install Price model DB modular floor diffuser basket as indicated on the plans and air outlet schedule.
   2. The discharge air flow shall be controlled by the basket.
   3. The minimum flow limit shall be adjustable from zero to fifty percent of maximum flow using a mechanical stop.
   4. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   5. The basket shall minimize sightlines through the diffuser.
   6. The basket shall be supplied in [eight inch diameter] or [ten inch diameter].
5. DBS Short Basket with Damper:
   1. Furnish and install Price model DBS short modular floor diffuser basket as indicated on the plans and air outlet schedule. The short basket shall have a maximum height of 2.75 inches.
   2. The discharge air flow shall be controlled by the basket.
   3. The minimum flow limit shall be adjustable from zero to fifty percent of maximum flow using a mechanical stop.
   4. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   5. The basket shall minimize sightlines through the diffuser.
   6. The basket shall be supplied in eight inch diameter.
6. B Standard Basket:
   1. Furnish and install Price model B modular floor diffuser basket as indicated on the plans and air outlet schedule.
   2. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   3. The basket shall minimize sightlines through the diffuser.
   4. The basket shall be supplied in [eight inch diameter] or [ten inch diameter].
7. BS Short Basket:
   1. Furnish and install Price model BS short modular floor diffuser basket as indicated on the plans and air outlet schedule. The short basket shall have a maximum height of 2.75 inches.
   2. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043, and shall provide air flow equalization across the diffuser face.
   3. The basket shall minimize sightlines through the diffuser.
   4. The basket shall be supplied in eight inch diameter.
8. DBV/DBV-HP VAV Basket:
   1. Furnish and install Price model [DBV] [DBV-HP (High Performance)] modular floor distributor basket with integral VAV damper.
   2. The DBV shall include two modular jacks (RJ12) for system connection and one 25 foot (7.6 meter) plenum rated modular plug-in control cable.
   3. The electric actuator shall be 24 VAC bidirectional, directly coupled to the damper screw.
   4. The damper shall move from a fully open position to a fully closed position in 90 seconds.
   5. The basket shall be equipped with low leakage gasket at the fully closed position.
   6. The actuator must be capable of operating in the stalled position without overheating or mechanical damage.
   7. The basket shall be constructed out of black fire-rated polycarbonate in compliance with UL 94 and UL 2043.
   8. The basket shall be supplied in [eight inch diameter] or [ten inch diameter]. (**DBV-HP**only available in eight inch diameter)
      * 1. Round Basket with Collar [Price Model RBC]:
           1. The round basket with collar shall be available for eight inch diameter diffusers in ducted applications.
           2. The basket shall have a maximum height of 2.25 inches.
           3. The basket shall be supplied in eight inch diameter.
        2. Modular Floor Boot [Price Model MFB]:
           1. Furnish and install Price model MFB modular floor boot as indicated on the plans and air outlet schedule.
           2. The modular floor boot shall be used in conjunction with [eight] and [ten] inch modular floor diffusers to facilitate supply connections and debris collection, and shall be supplied in the following configuration (**select one**):
        3. Modular Floor Boot, Fan Sourced (MFB-F):
           1. The boot shall be constructed of 22 gauge galvanized steel with a [six] or [eight] inch inlet.
           2. The boot shall mount under a standard floor tile. An optional mounting flange can be supplied to blank off structural depressions which may exist on the bottom surface of the floor tile thereby ensuring proper sealing to the diffuser.
           3. (**Optional**) The modular floor boot shall be supplied with a manual cable adjustable duct damper.
           4. (**Optional**) The modular floor boot shall be internally lined with half inch acoustic insulation (**select one**):

Dual density fiberglass:

Fiber-free:

* + - 1. Modular Floor Boot, Heating and Cooling Supply (MFB-HC):
         1. The modular floor boot shall be constructed of 22 gauge galvanized steel with a [six] or [eight] inch heating air inlet and [six] or [eight] inch cooling air inlet, complete with control damper.
         2. The boot shall mount under a standard floor tile. An optional mounting flange can be supplied to blank off structural depressions which may exist on the bottom surface of the floor tile thereby ensuring proper sealing to the diffuser.
         3. The modular floor boot shall be supplied with a floating point actuator furnished with two modular jacks (RJ12) for system connections and one CFlex cable.
         4. The electric actuator shall be 24 VAC bidirectional, directly coupled to the cooling air control damper shaft. The actuator must be capable of operating in the stalled position without overheating or mechanical damage. The supplied actuator shall have a fully adjustable hardware stop allowing field adjustment and balancing.
         5. A peripheral gasket shall be provided on the control damper.
         6. (**Optional**) The modular floor boot shall be supplied with a manual cable adjustable duct damper.
         7. (**Optional**) The modular floor boot shall be internally lined with acoustic insulation (**select one**):

Dual density fiberglass:

Fiber-free:

* + - 1. Modular Floor Boot, VAV Cooling (MFB-VC):
         1. The modular floor boot shall be constructed of 22 gauge galvanized steel with a [six] or [eight] inch cooling air inlet complete with control damper.
         2. The modular floor boot shall mount under a standard floor tile. An optional mounting flange can be supplied to blank off structural depressions which may exist on the bottom surface of the floor tile thereby ensuring proper sealing to the diffuser.
         3. The modular floor boot shall be supplied with a floating point actuator furnished with two modular jacks (RJ12) for system connections and one CFlex cable.
         4. The electric actuator shall be 24 VAC bidirectional, directly coupled to the cooling air control damper shaft. The actuator must be capable of operating in the stalled position without overheating or mechanical damage. The supplied actuator shall have a fully adjustable hardware stop allowing field adjustment and balancing.
         5. A peripheral gasket shall be provided on the control damper.
         6. (**Optional**) The modular floor boot shall be internally lined with [dual density fiberglass] or [fiber-free] insulation.

**PART 3 – EXECUTION**

**3.01 Examination**

A. Verify that conditions are suitable for installation.

B. Verify that field measurements are as shown on the drawings.

## 3.02      Manufacturer’s Field Services

* + 1. The manufacturer shall provide the services of an underfloor air systems specialist. This engineer shall make at a minimum the following trips to the site with construction and design personnel.
       1. The first trip to the job shall occur right before the raised access floor is being installed. The Price engineer will inspect and ensure proper installation of Price products. While on site, the Price engineer will also inspect the area near the Price products for any obvious concerns with construction within the underfloor plenum in regards to the air tightness of the plenum. Any deficiencies found shall be brought to the general contractor's attention on site that day. Site observation report shall be made and emailed to the Engineer of Record for approval. If approved they shall forward the report to the construction team as appropriate. The Price engineer will address any issues regarding the equipment supplied by Price to help ensure a successful completion of the project. Price will not be held liable for issues outside of the operation of the product supplied by Price.
       2. The second trip to the job shall occur during the building commissioning process. The Price engineer shall verify proper operation and installation of the Price supplied equipment and assist to solve problems that may prevent project completion due to said equipment. Any deficiencies found shall be brought to the general contractor's attention on site that day. Site observation report shall be made and emailed to the Engineer of Record for approval. If approved they shall forward the report to the construction team as appropriate. The Price engineer will address any issues regarding the goods supplied by Price to help ensure a successful completion of the project. Price will not be held liable for issues outside of the operation of the product supplied by Price.

**3.03 Installation**

1. See drawings for the size(s) and locations of modular floor diffusers.
2. Install modular floor diffusers level and plumb. Maintain sufficient clearance for normal services, maintenance, or in accordance with construction drawings.
3. Complete installation and startup checks according to manufacturer’s instructions and perform the following:

1. Verify that inlet duct connections are as recommended by manufacturer to achieve proper performance.

2. Verify that any identification tags are visible.

3. Verify locations of thermostats, humidistats, and other exposed control sensors with drawings and room details before installation.

1. Connect to ductwork in accordance with Section 23 31 00.

**3.04 Adjusting**

1. Balance outlets according to manufacturer’s recommendations.
2. Verify that field measurements are as shown on the drawings.

**3.05 Field Quality Control**

1. See Section 01 40 00 – Quality Requirements for additional requirements.

**3.06 Cleaning**

1. See Section 01 74 19 – Construction Waste Management and Disposal for additional requirements.

**3.07 Closeout Activities**

1. See Section 01 78 00 – Closeout Submittals for closeout documentation requirements.
2. See Section 01 79 00 – Demonstration and Training for additional requirements.