

## SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections include the following:
  - 1. Division 23 Section "Common Work Results for HVAC"
  - 2. Division 23 Section "Ductwork"
  - 3. Division 23 Section "Testing, Adjusting, and Balancing" for balancing diffusers, registers, and grilles.

## 1.2 SUMMARY

- A. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.

## 1.3 SUBMITTALS

- A. Each manufacturer shall check noise level ratings for registers and diffusers to insure that the sizes selected will not produce noise to exceed 30 db, "A" scale, measured at occupant level; notify Owner's representative of problems prior to shop drawing submittal.
- B. Pressure drop, airflow and noise criteria selection is based on design equipment. Manufacturers not submitting design makes must provide written certification in front of submittal that equipment submitted has been checked against and performs equal to the design make.
- C. Product Data: For each model indicated, include the following:
  - 1. Data Sheet: For each type of air outlet and inlet, and accessory furnished; indicate construction, finish, and mounting details.
  - 2. Performance Data: Include throw and drop, static-pressure drop, and noise ratings for each type of air outlet and inlet.
  - 3. Schedule of diffusers, registers, and grilles indicating drawing designation, room location, quantity, model number, size, and accessories furnished.
  - 4. Assembly Drawing: For each type of air outlet and inlet; indicate materials and methods of assembly of components.
- D. Coordinate locations with reflected ceiling plans and wall elevations as applicable.
- E. Coordinate mounting frame with associated mounting surface.

## 1.4 QUALITY ASSURANCE

- A. Product Options: Drawings and schedules indicate specific requirements of diffusers, registers, and grilles and are based on the specific requirements of the systems indicated. Other manufacturers'

products with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

- B. NFPA Compliance: Install diffusers, registers, and grilles according to NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems."
- C. Sound pressure levels shall be determined by using AHRI Standard 885-2008 "Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Outlets".

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Diffusers, registers, and grilles are scheduled on Drawings.
- B. Mounting type shall match the mounting surface. Coordinate with mounting conditions.
- C. Material shall match the specified ductwork. Coordinate with Section 233113 "Ductwork".
- D. Testing: Test performance according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- E. Grilles shall be finished in White Powder Coat, unless noted otherwise.
- F. Manufacturers
  - 1. Price
  - 2. Titus
  - 3. Metal-Aire
  - 4. Anemostat
  - 5. Nailor

### 2.2 RETURN OR EXHAUST

- A. Return/Exhaust Grilles: Return / exhaust grilles & registers shall be steel fixed blade, non-adjustable grilles as scheduled. Provide sizes and mounting types as scheduled. For surface mounting applications, countersunk mounting holes shall be provided in the border, with oval head screws also provided by the grille manufacturer. Blades shall be on 1/2" or 3/4" spacing, and shall run horizontal or vertical (short or long dimension) as shown. Blades shall be positioned at 0° or 45° deflection angles as scheduled, and held rigidly fixed in place by rear mullions welded to the grille frame. Corners shall be welded or staked for neat, uniform mitered corners.

### 2.3 SUPPLY

- A. Square ceiling diffusers, Adjustable pattern; Anemostat EPL-D; Ceiling diffusers shall be square type and shall be selected to integrate with the ceiling system as shown on the plans and as scheduled. Provide diffusers with directional control to proportion the horizontal discharge air shall include field adjustable deflectors that are factory welded to the inner cone assembly. Diffuser cones shall be die stamped and shall be smooth and without corner joints. Diffusers shall have integral, drawn round necks for duct attachment, and shall utilize 3-cones regardless of inlet size for a uniform appearance. Diffusers shall have a 360° horizontal air discharge pattern. The diffuser inner assembly shall be removable, without

tools, for cleaning and installation. Diffusers shall be constructed from steel. The manufacturer shall provide performance data obtained in accordance with current ANSI/ASHRAE standard 70.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb, according to manufacturer's written instructions, Coordination Drawings, original design, and referenced standards.
- B. Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of the panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connection to ducts.

#### 3.3 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing. Adjustable outlet diffuser: adjust pattern for draft-free air distribution.

#### 3.4 CLEANING

- A. After installation of diffusers, registers, and grilles, inspect exposed finish. Clean exposed surfaces to remove burrs, dirt, and smudges. Replace diffusers, registers, and grilles that have damaged finishes.

END OF SECTION 233713