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## 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 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

## A. Section Includes:

- 1. Rectangular and square ceiling diffusers.
- 2. Fixed face registers and grilles.

## B. Related Sections:

- 1. Division 08 Section "Louvers and Vents" for fixed and adjustable louvers and wall vents, whether or not they are connected to ducts.
- 2. Division 23 Section "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to diffusers, registers, and grilles.

## 1.3 SUBMITTALS

## A. Product Data: For each type of product indicated, include the following:

- 1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
- 2. Diffuser, Register, and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

## B. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:

- 1. Ceiling suspension assembly members.
- 2. Method of attaching hangers to building structure.
- 3. Size and location of initial access modules for acoustical tile.
- 4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
- 5. Duct access panels.

## C. Source quality-control reports.

## PART 2 - PRODUCTS

## 2.1 CEILING DIFFUSERS

## A. Round Ceiling Diffuser:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Krueger.
  - b. METALAIRE, Inc.
  - c. Nailor Industries Inc.
  - d. Price Industries.
  - e. Titus.
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Aluminum.
4. Finish: Baked enamel, color selected by Architect.
5. Mounting: Duct connection.

## B. Rectangular and Square Ceiling Diffusers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Krueger.
  - b. METALAIRE, Inc.
  - c. Nailor Industries Inc.
  - d. Price Industries.
  - e. Titus.
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Aluminum.
4. Finish: Baked enamel, color selected by Architect.

## 2.2 REGISTERS AND GRILLES

## A. Fixed Face Register:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Krueger.
  - b. METALAIRE, Inc.
  - c. Nailor Industries Inc.
  - d. Price Industries.

- e. Titus.
  - 2. Material: Aluminum.
  - 3. Finish: Baked enamel, color selected by Architect.
  - 4. Face Arrangement: 1/2-by-1/2-by-1/2-inch grid core.
  - 5. Core Construction: Integral.
  - 6. Frame: 1 inch wide.
  - 7. Mounting: Lay in.
- B. Fixed Face Grille:
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Krueger.
    - b. Nailor Industries Inc.
    - c. Price Industries.
    - d. Titus.
  - 2. Material: Aluminum.
  - 3. Finish: Baked enamel, color selected by Architect.
  - 4. Face Arrangement: 1/2-by-1/2-by-1/2-inch grid core.
  - 5. Core Construction: Integral.
  - 6. Frame: 1 inch wide.
  - 7. Mounting: Lay in.

### 2.3 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

## 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.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.

- B. Ceiling-Mounted Outlets and Inlets: 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 practical. For units installed in lay-in ceiling panels, locate units in the center of 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 connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

### 3.3 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713