

SECTION 23 37 13 – 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. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.
- B. Related Sections include the following:
 - 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 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. Samples for Initial Selection: For diffusers, registers, and grilles with factory-applied color finishes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 GRILLES AND REGISTERS

A. Adjustable Bar **Grille**:

1. **Available** Manufacturers:
 - a. A-J Manufacturing Co., Inc.
 - b. Anemostat; a Mestek Company.
 - c. Carnes.
 - d. Dayus Register & Grille.
 - e. Hart & Cooley, Inc.; Hart & Cooley Div.
 - f. Krueger.
 - g. METALAIRE, Inc.; Metal Industries Inc.
 - h. Nailor Industries of Texas Inc.
 - i. Price Industries.
 - j. Titus.
 - k. Tuttle & Bailey.
2. Material: **Steel**.
3. Finish: **Baked enamel, color selected by Architect**.
4. Face Blade Arrangement: **Fixed horizontal** spaced **3/4 inch (19 mm)** apart.
5. Frame: **1 inch (25 mm)** wide.
6. Mounting: Per manufacturer's recommendation for applicable for mounting surface.
7. Damper Type: **Adjustable opposed-blade assembly**.
8. Accessories: **Front-blade** gang operator.

B. Fixed Face **Grille**:

1. **Available** Manufacturers:
 - a. A-J Manufacturing Co., Inc.
 - b. Anemostat; a Mestek Company.
 - c. Carnes.
 - d. Dayus Register & Grille.
 - e. Hart & Cooley, Inc.; Hart & Cooley Div.
 - f. Krueger.
 - g. Nailor Industries of Texas Inc.
 - h. Price Industries.
 - i. Titus.
2. Material: **Steel**.
3. Finish: **Baked enamel, color selected by Architect**.
4. Face Arrangement: **1/2-by-1/2-by-1/2-inch (13-by-13-by-13-mm) grid core**.
5. Frame: **1 inch (25 mm)** wide.
6. Mounting: Per manufacturer's recommendation for applicable for mounting surface.
7. Damper Type: **Adjustable opposed-blade assembly**.

2.3 LINEAR SLOT OUTLETS

A. Linear Bar Grille or Diffuser:

1. **Available Manufacturers:**

- a. Air Research Diffuser Products, Inc.
- b. Anemostat; a Mestek Company.
- c. Carnes.
- d. Dayus Register & Grille.
- e. Hart & Cooley, Inc.; Hart & Cooley Div.
- f. Krueger.
- g. METALAIR, Inc.; Metal Industries Inc.
- h. Nailor Industries of Texas Inc.
- i. Price Industries.
- j. Titus.
- k. Tuttle & Bailey.

2. Material: **Steel.**

3. Finish: **Baked enamel, color selected by Architect.**

4. **Two-Way Deflection Vanes:** Extruded construction fixed louvers with removable core.

5. Frame: **1 inch (25 mm)** wide.

6. Mounting: **Spring clip.**

7. Damper Type: **Adjustable opposed-blade assembly.**

8. Accessories: **Directional vanes.**

B. Linear Slot Diffuser

1. **Available Manufacturers:**

- a. Air Research Diffuser Products, Inc.
- b. Anemostat; a Mestek Company.
- c. Carnes.
- d. Hart & Cooley, Inc.; Hart & Cooley Div.
- e. Krueger.
- f. METALAIR, Inc.; Metal Industries Inc.
- g. Nailor Industries of Texas Inc.
- h. Price Industries.
- i. Titus.
- j. Tuttle & Bailey.

2. Material - Shell: **Aluminum, insulated.**

3. Material - Pattern Controller and Tees: Aluminum.

4. Finish - Face and Shell: **Baked enamel, black**

5. Finish - Pattern Controller: **Baked enamel, black.**

6. Finish - Tees: **Baked enamel, color selected by Architect**

7. Slot Width: **1 inch (25 mm).**

8. Number of Slots **Two.**

9. Length: **60 inches (1500 mm).**

10. Accessories: **Center notch.**

C. Light Troffer Diffuser :

1. **Available Manufacturers:**

- a. Anemostat; a Mestek Company.

- b. Carnes.
 - c. Hart & Cooley, Inc.; Hart & Cooley Div.
 - d. Krueger.
 - e. METALAIR, Inc.; Metal Industries Inc.
 - f. Nailor Industries of Texas Inc.
 - g. Price Industries.
 - h. Titus.
 - i. Tuttle & Bailey.
- 2. Material: **Steel with external insulation.**
 - 3. Finish: **Black enamel on visible surfaces.**
 - 4. Slot Width: **1 inch (25 mm).**
 - 5. Number of Sides: **Two.**
 - 6. Length: **48 inches (1200 mm).**
 - 7. Pattern: **Adjustable.**
 - 8. Inlet: **Side.**
 - 9. Inlet Size: **8 inches (200 mm).**

2.4 CEILING DIFFUSER OUTLETS

A. Round Ceiling Diffuser:

- 1. **Available Manufacturers:**
 - a. Anemostat; a Mestek Company.
 - b. Carnes.
 - c. Hart & Cooley, Inc.; Hart & Cooley Div.
 - d. METALAIR, Inc.; Metal Industries Inc.
 - e. Nailor Industries of Texas Inc.
 - f. Price Industries.
 - g. Titus.
 - h. Tuttle & Bailey.
- 2. Material: **Aluminum.**
- 3. Finish: **Baked enamel, color selected by Architect.**
- 4. Face Style: **Three cone.**
- 5. Pattern: **Fully adjustable.**
- 6. Dampers: **Radial opposed blade.**
- 7. Accessories:
 - a. Equaling grid.
 - b. Plaster ring.
 - c. Safety chain.
 - d. Wire guard.
 - e. Sectorizing baffles.
 - f. Operating rod extension.

B. Rectangular and Square Ceiling Diffusers:

- 1. **Available Manufacturers:**

- a. A-J Manufacturing Co., Inc.
 - b. Anemostat; a Mestek Company.
 - c. Carnes.
 - d. Hart & Cooley, Inc.; Hart & Cooley Div.
 - e. Krueger.
 - f. METALAIR, Inc.; Metal Industries Inc.
 - g. Nailor Industries of Texas Inc.
 - h. Price Industries.
 - i. Titus.
 - j. Tuttle & Bailey.
2. Material: **Aluminum**.
 3. Finish: **Baked enamel, color selected by Architect**.
 4. Face Size: **24 by 24 inches (600 by 600 mm)**.
 5. Face Style: **Three cone**.
 6. Mounting: **Surface**.
 7. Pattern: **Adjustable**.
 8. Dampers: **Radial opposed blade**.
 9. Accessories:
 - a. Equaling grid.
 - b. Plaster ring.
 - c. Safety chain.
 - d. Wire guard.
 - e. Sectorizing baffles.
 - f. Operating rod extension.

C. Perforated Diffuser

1. **Available Manufacturers:**
 - a. Air Research Diffuser Products, Inc.
 - b. A-J Manufacturing Co., Inc.
 - c. Anemostat; a Mestek Company.
 - d. Carnes.
 - e. Hart & Cooley, Inc.; Hart & Cooley Div.
 - f. Krueger.
 - g. METALAIR, Inc.; Metal Industries Inc.
 - h. Nailor Industries of Texas Inc.
 - i. Price Industries.
 - j. Titus.
 - k. Tuttle & Bailey.
 - l. Warren Technology.
2. Material: Steel backpan and pattern controllers, with ~~steel~~ **aluminum** face.
3. Finish: **Baked enamel, color selected by Architect**
4. Face Size: **24 by 24 inches (600 by 600 mm)**
5. Duct Inlet: **Round**.
6. Face Style: **Flush**.
7. Pattern Controller: **Adjustable with louvered pattern modules at inlet**.
8. Mounting: **Surface**.
9. Dampers: **Radial opposed blade**.

10. Accessories:

- a. Equaling grid.
- b. Plaster ring.
- c. Safety chain.
- d. Wire guard.
- e. Sectorizing baffles.
- f. Operating rod extension.

D. Louver Face Diffuser:

1. **Available Manufacturers:**

- a. A-J Manufacturing Co., Inc.
- b. Anemostat; a Mestek Company.
- c. Carnes.
- d. METALAIR, Inc.; Metal Industries Inc.
- e. Nailor Industries of Texas Inc.
- f. Price Industries.
- g. Titus.
- h. Tuttle & Bailey.

2. Material: **Aluminum.**

3. Finish: **Baked enamel, color selected by Architect**

4. Mounting: **Surface.**

5. Pattern: **Three-way** core style.

6. Dampers: **Radial opposed blade.**

7. Accessories:

- a. Square to round neck adaptor.
- b. Adjustable pattern vanes.
- c. Throw reducing vanes.
- d. Equaling grid.
- e. Plaster ring.
- f. Safety chain.
- g. Wire guard.
- h. Sectorizing baffles.
- i. Operating rod extension.

2.5 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 practicable. 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