

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. Ceiling diffusers.
- 2. Ceiling linear slot outlets.
- 3. 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. Source quality-control reports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by one of the following:

- 1. Anemostat Products; a Mestek company.
- 2. Carnes.
- 3. Krueger.

4. Nailor Industries Inc.
5. Price Industries.
6. Titus.
7. Tuttle & Bailey.

2.2 GENERAL REQUIREMENTS

- A. Air inlets and outlets shall be tested in accordance with ASHRAE 70.
- B. Throw, horizontal distance from the diffuser to the point where the theoretical centerline velocity is 50 feet per minute, shall not exceed the horizontal distance between the diffuser and the nearest wall, or half the horizontal distance between ceiling diffusers.

2.3 CEILING DIFFUSERS

A. Round Ceiling Diffuser:

Retain first subparagraph below for variable-air-volume operations.

1. Devices shall be specifically designed for variable-air-volume flows.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Style: Three cone.
5. Mounting: Duct connection.
6. Pattern: Fully adjustable.
7. Dampers: Not required.

B. Rectangular and Square Ceiling Diffusers:

Retain first subparagraph below for variable-air-volume operations.

1. Devices shall be specifically designed for variable-air-volume flows.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Style: Three cone.
5. Pattern: Adjustable.
6. Dampers: Not required.
7. Equal to Anemostat Model EPLA.

C. Perforated Diffuser:

Retain first subparagraph below for variable-air-volume operations.

1. Devices shall be specifically designed for variable-air-volume flows.
2. Material: Steel backpan and pattern controllers, with steel face.
3. Finish: Baked enamel, white.
4. Duct Inlet: Round.
5. Pattern Controller: Adjustable with louvered pattern modules at inlet.
6. Dampers: Not required.

D. Critical Environment Diffuser:

1. Low velocity hemispherical 2-way pattern.
2. Material: Steel backpan and perforated face.
3. Equal to Titus Model TriTec.

2.4 CEILING LINEAR SLOT OUTLETS

A. Linear Bar Diffuser:

Retain first subparagraph below for variable-air-volume operations.

1. Devices shall be specifically designed for variable-air-volume flows.
2. Material: Steel or aluminum as scheduled.
3. Finish: Baked enamel, white or as scheduled.
4. Two-Way Deflection Vanes: Extruded construction fixed louvers with removable core.
5. Frame: 1-1/4 inches (32 mm) wide.
6. Mounting: Concealed bracket.
7. Damper Type: Adjustable opposed-blade assembly.
8. Accessories: Directional vanes.

B. Linear Slot Diffuser:

Retain first subparagraph below for variable-air-volume operations.

1. Devices shall be specifically designed for variable-air-volume flows.
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, white.
7. Slot Width: 1 inch (25 mm).

2.5 REGISTERS AND GRILLES

A. Supply Air Bar Grille:

1. Material: Steel.
2. Finish: Baked enamel, white.
3. Face Blade Arrangement: Adjustable. Vertical spaced 3/4 inch (19 mm) apart.
4. Rear Blade Arrangement: Adjustable. Horizontal spaced 3/4 inch (19 mm) apart.
5. Frame: 1-1/4 inches (32 mm) wide.
6. Mounting: Countersunk screw, concealed, or lay in as scheduled.

B. Return Air Bar Grille:

1. Material: Steel.
2. Finish: Baked enamel, white.
3. Face Blade Arrangement: 45 degree fixed horizontal spaced 3/4 inch (19 mm) apart.

4. Frame: 1-1/4 inches (32 mm) wide.
5. Mounting: Countersunk screw, concealed, or lay in as scheduled.

2.6 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