

**SECTION 23 37 13**  
**DIFFUSERS, REGISTERS, AND GRILLES**

**PART 1 - GENERAL**

**1.1 STIPULATIONS**

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

**1.2 ADDITIONAL RELATED DOCUMENTS**

- A. Division 23 Section "Air Duct Accessories" for:
  - 1. Manual balancing dampers that are not integral to diffusers, registers, and grilles.
  - 2. Louvers.
- B. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for balancing diffusers, registers, and grilles. That Section also includes requirements for airflow pattern adjustments.

**1.3 SUMMARY**

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

**1.4 ACTION SUBMITTALS**

- A. Diffuser Register and Grille 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.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Coordination Drawings: Reflected ceiling plans and wall elevations drawn to scale to show locations and coordination of diffusers, registers, and grilles with other items installed in ceilings and walls.

## **1.6 QUALITY ASSURANCE**

- A. NFPA Compliance: Install diffusers, registers, and grilles according to NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems."
- B. Diffusers and grilles shall be tested in accordance with ANSI/ASHRAE Standard 70-2006.

## **PART 2 - PRODUCTS**

### **2.1 DIFFUSERS**

- A. General: Except as otherwise indicated, provide manufacturer's standard ceiling air diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as specified and as required for complete installation.
- B. Product Names: Where specific product names are listed in this Section, but specific product names are also indicated on the Drawings for diffusers, registers, and grilles of a generally similar type, the Drawing model name indication shall take precedence.
- C. Performance: Provide ceiling air diffusers that have, as minimum, temperature and velocity traverses, throw and drop and noise criteria ratings for each size device as listed in manufacturer's current data.
- D. Paint Finishes: Where painted finishes are specified, the color shall be factory standard off-white, unless indicated otherwise on the Drawings.
- E. Ceiling Diffusers, Louvered, Maximum Security: "W", "S", or "Z" shaped blades arranged to provide 1-way, 2-way, 2-way corner, 3-way, or 4-way air distribution patterns. Faceplate, blades, and sleeve shall be 12 gauge hot rolled steel. Louver blades shall be set at a 35 degree angle. Sleeve length shall be as required for each installation, and shall be stitch welded to the face and along the entire length of all sleeve seams. No less than five (5) sizes shall be available, ranging from 6 in. x 6 in., to 16 in. x 16 in.. Finish shall be a factory painted baked enamel or anodic acrylic. The grille design shall comply with the National Institute of Corrections guidelines for suicide prevention.
  - 1. Accessory 4-sided Mounting Frame: 1 in. x 1 in. x 3/16 in. hot rolled steel mounting frame shall be shipped loose for field welding by the Division 23 Contractor.
- F. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Ceiling Diffusers, Louvered, Maximum Security:
    - a. Price Industries ('MSRRCD' Series) - Basis of Design
    - b. Carnes ('RSPA44' Series)
    - c. Or equal as approved by the Professional.

### **2.2 REGISTERS AND GRILLES**

- A. General: Except as otherwise indicated, provide manufacturer's standard registers and grilles where shown; of size, shape, capacity and type indicated; constructed of materials and components as specified and as required for complete installation.

- B. Product Names: Where specific product names are listed in this Section, but specific product names are also indicated on the Drawings for diffusers, registers, and grilles of a generally similar type, the Drawing model name indication shall take precedence.
- C. Performance: Provide registers and grilles that have, as minimum, temperature and velocity traverses, throw and drop and noise criteria ratings for each size device and listed in manufacturer's current data.
- D. Paint Finishes: Where painted finishes are specified, the color shall be factory standard off-white, unless indicated otherwise on the Drawings.
- E. Exhaust, Relief, Transfer and Return Air Bar Grilles and Registers:
1. Grilles and registers shall be securely attached and supported from associated ductwork or, where not duct connected, shall be attached and supported from the building structural system. Grilles and registers shall not be supported by ceilings of any type.
  2. Grilles and register faces shall have baked enamel or anodic acrylic factory painted finishes.
  3. Generally, grilles shall be fabricated from steel and have horizontal steel louvers, spaced 3/4" on centers and fixed at 35 degrees deflection.
  4. Registers shall be provided with an opposed blade balancing damper, adjustable from the register face, fabricated from steel, with a white prime coat finish.
- F. Spiral Duct Mounted Bar Registers: Constructed of extruded aluminum borders and blades. Borders shall be curved to match the diameter of the round duct into which they are inserted for a flush installation, with foam gasketing around border. Blades shall be double deflection with 3/4" blade spacing and face blades parallel to long dimension. Provide a combination volume damper / extractor (e.g. air scoop) that is adjustable from the face of the grille. The register and damper shall have a white baked enamel or anodic acrylic finish.
- G. Maximum Security Grilles: Constructed of steel with a perforated surface. Grilles shall have a 3/16-inch thick steel face with 3/16 -inch diameter holes on 7/16-inch staggered centers. The sleeve shall be 3/16-inch thick and shall be stitch welded to the face and along the entire length of all sleeve seams. Finish shall be a factory painted baked enamel or anodic acrylic. The grille design shall comply with the National Institute of Corrections guidelines for suicide prevention.
1. Accessory 4-sided Mounting Frame: 1 in. x 1 in. x 3/16 in. hot rolled steel mounting frame shall be shipped loose for field welding by the Division 23 Contractor.
- H. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Exhaust, Relief, Transfer and Return Air Bar Grilles and Registers:
    - a. Price Industries ('530' Series)
    - b. Titus ('350RL' Series)
    - c. Carnes
    - d. Or equal as approved by the Professional.
  2. Spiral Duct Mounted Bar Registers:
    - a. Titus ('S300FL' Series)
    - b. Price Industries ('SDGE' Series) - Basis of Design
    - c. Carnes ("RD\_M" Series)
    - d. Or equal as approved by the Professional.

3. Maximum Security Grilles:
  - a. Titus ('SG-SD' Series)
  - b. Price Industries 'MSRRP' Series) - Basis of Design
  - c. Carnes ('RSPA5\_" Series)
  - d. Or equal as approved by the Professional.

## **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. 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 the panel. Where architectural features or other items conflict with installation, notify the Architect for a determination of final location. Support grilles registers and diffusers located in ceilings from overhead building structural steel or from ductwork. Do not support from ceiling system.
- C. Install diffusers, registers, and grilles with airtight connection to ducts and to allow service and maintenance of dampers.

### **3.3 ADJUSTING**

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing. Refer to Division 23 Section "Testing, Adjusting, and Balancing for HVAC".

### **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**