

SECTION 15850  
DIFFUSERS, REGISTERS AND GRILLES

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 15050, "Basic Mechanical Materials and Methods" apply to work specified in this Section.

1.02 SUMMARY

- A. Extent of diffuser, register and grille work is indicated by drawings and schedules, and by requirements of this Section.
- B. Types of diffusers, registers and grilles required for project include the following:
  - 1. Ceiling air diffusers
  - 2. Ceiling registers and grilles.
  - 3. Wall registers and grilles.
- C. Related Work Specified in Other Sections:
  - 1. Refer to other Division-15 Sections for ductwork and duct accessories required in conjunction with diffusers, registers and grilles.
  - 2. Refer to other Division-15 Sections for balancing of diffusers, registers and grilles.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data for diffusers, registers and grilles including the following:
  - 1. Schedule of diffusers, registers and grilles indicating drawing designation, room location, number furnished, model number, size, and accessories furnished.
  - 2. Data sheet for each type of diffuser, register and grille, and accessory furnished; indicating construction, finish, and mounting details.
  - 3. Performance data for each type of diffuser, register and grille furnished, including aspiration ability, temperature and velocity traverses; throw and drop; and noise criteria ratings. Indicate selections on data.
- B. Shop Drawings: Submit manufacturer's assembly-type shop drawing for each type of diffuser, register and grille, indicating materials and methods of assembly of components.
- C. Maintenance Data: Submit maintenance data, including cleaning instructions for finishes, and spare parts lists. Include this data, product data, and shop drawings in maintenance manuals; in accordance with requirements of Division 1.

#### 1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of diffusers, registers and grilles of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
  - 1. ARI Compliance: Test and rate diffusers, registers and grilles in accordance with ARI 650 "Standard for Air Outlets and Inlets".
  - 2. ASHRAE Compliance: Test and rate diffusers, registers and grilles in accordance with ASHRAE 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets".
  - 3. NFPA Compliance: Install diffusers, registers and grilles in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

#### 1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver diffusers, registers and grilles wrapped in factory-fabricated fiber-board type containers. Identify on outside of container type of diffuser, register or grille and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.
- B. Store diffusers, registers and grilles in original cartons and protect from weather and construction work traffic. Where possible, store indoors; when necessary to store outdoors, store above grade and enclose with waterproof wrapping.

#### 1.06 MAINTENANCE MATERIALS

- A. Furnish to Owner, with receipt, 3 operating keys for each type of diffuser and register that requires them.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Diffusers, Registers and Grilles: Subject to compliance with requirements, provide products of one of the following:
  - 1. Titus Products Div.; Philips Industries, Inc.
  - 2. Metal\*Aire.
  - 3. Anemostat Products Div.; Dymanics Corp. of America.
  - 4. Air Factors, Inc.
  - 5. United McGill

## 2.02 DIFFUSERS, REGISTERS AND GRILLES

- A. General: Except as otherwise indicated, provide manufacturer's standard diffusers, registers and grilles where shown, constructed of materials and components as indicated, and as required for complete installation.
- B. Sizes and pattern numbers shown are for general guidance. Approved manufacturer and Contractor shall be responsible for proper sizing of diffusers, registers and grilles to provide draftless air distribution at noise level compatible with occupancy. Base selection on maximum residual air velocity in breathing zone of 35 feet per minute, on space noise level of NC 30 maximum, and on maximum pressure drop of 0.15 inches water gauge.
- C. Ceiling Compatibility: Provide diffusers, registers and grilles with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of diffuser, register and grille.
  - 1. Provide units mounted on walls or plaster/drywall ceilings with sponge rubber seal around edge.
  - 2. Provide baffles to direct air away from walls, columns, or other obstructions within radius of diffuser operation.
  - 3. Provide antimudger frames or plaques on diffusers located in rough textured surfaces such as acoustical plaster.
  - 4. Diffusers Installed in Exposed T-bar Ceilings: Provide diffuser type designed to fit T-bar framing of lay-in tile ceiling.
  - 5. Diffusers Installed on Exposed Ductwork: Provide extended metal flanges to provide ceiling effect.
  - 6. Diffusers Installed in Tegular, Fine Line Ceilings: Provide diffuser type designed to fit and be supported by the ceiling grid system.
- D. Supply Diffusers
  - 1. Fabricate of aluminum or steel with 1, 2, 3 or 4 way blow as indicated. Each side to deliver quantity of air proportional to area served. Removable inner core for access to damper. Round/square/rectangular neck as indicated.
  - 2. Provide a minimum 6 inch deep square to round transition plenum for connection to round duct.
  - 3. Provide multiblade equalizing deflector and opposed blade damper in neck connection of diffuser. Damper adjustable through face of diffuser.
  - 4. Finish: Factory baked on white enamel to match ceiling grid.
- G. High Capacity Radial Diffusers:
  - 1. Fabricate of steel with 180° and 90° laminar radial pattern as indicated. Each side to deliver quantity of air proportional to area served. Face is removable from room side.

2. Provide a factory fabricated, assembled intake plenum with inlet connection as scheduled and detailed on drawings.
3. The diffuser, equalizing deflector and lined plenum to be a complete factory assembled and tested as one unit. The diffuser is a fully gasketed unit.
4. Finish: Factory baked on white enamel to match ceiling grid.

#### H. Registers and Grilles

1. Provide registers and grilles with key operated, multishutter, streamlined contour, opposed blade dampers and filtered where specified.
2. Sidewall Supply Outlets: Provide with streamlined, horizontal face bars. Provide turning vanes in ductwork behind registers where indicated or where required. Provide concealed fasteners.
3. Return Air, Relief Air and Exhaust Intakes: Provide with streamlined, horizontal fixed bar grille faces with bars set straight for ceiling installation and set at an angle of 45°, turned down for low sidewall installation and turned up for high sidewall installation.
4. Fabricate of steel with 20 gauge minimum frames and 22 gauge minimum blades, aluminum of equivalent gauges or aluminum extrusions. Provide countersunk screw holes in margin.
5. Finish: Factory applied baked on white enamel to match ceiling grid.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine areas and conditions under which diffusers, registers and grilles are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

#### 3.02 INSTALLATION

- A. Install diffusers, registers and grilles in accordance with manufacturer's written instructions and in accordance with recognized industry practices to insure that products serve intended function.
- B. Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of diffusers, registers and grilles with other work.
- C. Locate ceiling air diffusers, registers, and grilles, as indicated on general construction "Reflected Ceiling Plans". Unless otherwise indicated, locate units in center of acoustical ceiling module.
- D. All ductwork behind diffusers, registers and grilles shall be painted flat black.

END OF SECTION 15840