

## SECTION 233700 - AIR OUTLETS AND INLETS

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Diffusers.
- B. Registers/grilles.
- C. Louvers.

## 1.2 RELATED REQUIREMENTS

- A. Section 09123 - Interior Painting: Painting of ducts visible behind outlets and inlets.

## 1.3 REFERENCE STANDARDS

- A. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; Air Movement and Control Association International, Inc.; 2007.
- B. ARI 890 - Standard for Air Diffusers and Air Diffuser Assemblies; Air-Conditioning and Refrigeration Institute; 2008.
- C. ASHRAE Std 70 - Method of Testing for Rating the Performance of Air Outlets and Inlets; American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.; 2006.
- D. SMACNA (DCS) - HVAC Duct Construction Standards - Metal and Flexible; Sheet Metal and Air Conditioning Contractors' National Association; 2005.

## 1.4 SUBMITTALS

- A. See Section 013300 - Submittal Procedures for submittal procedures.
- B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.
- C. Project Record Documents: Record actual locations of air outlets and inlets.

## 1.5 QUALITY ASSURANCE

- A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.
- B. Test and rate louver performance in accordance with AMCA 500-L.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Carnes Company HVAC: [www.carnes.com](http://www.carnes.com).
- B. Krueger: [www.krueger-hvac.com](http://www.krueger-hvac.com).
- C. Price Industries: [www.price-hvac.com](http://www.price-hvac.com).
- D. Titus: [www.titus-hvac.com](http://www.titus-hvac.com).
- E. Substitutions: See Section 016000 - Product Requirements.

### 2.2 PERFORATED FACE CEILING DIFFUSERS

- A. Type: Perforated face with fully adjustable pattern and removable face.
- B. Frame: Surface mount type. In plaster ceilings, provide plaster frame and ceiling frame.
- C. Fabrication: Steel with steel frame and baked enamel finish.
- D. Color: As selected by Architect from manufacturer's standard range.
- E. Accessories: Radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face. Only provide at locations which do not have a volume control damper in the ductwork shown on the floor plans.

### 2.3 CEILING SUPPLY REGISTERS/GRILLES

- A. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection. Front blades shall be parallel to short dimension.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting and gasket.
- C. Fabrication: Aluminum extrusions with factory enamel finish.
- D. Color: As selected by Architect from manufacturer's standard range.

- E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face. Only provide at locations which do not have a volume control damper in the ductwork shown on the floor plans.

#### 2.4 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

- A. Type: Streamlined blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing, with blades set at 45 degrees, vertical face.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting.
- C. Fabrication: Aluminum extrusions, with factory baked enamel finish.
- D. Color: To be selected by Architect from manufacturer's standard range.
- E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face where not individually connected to exhaust fans. Only provide at locations which do not have a volume control damper in the ductwork shown on the floor plans.

#### 2.5 WALL SUPPLY REGISTERS/GRILLES

- A. Type: Streamlined and individually adjustable blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing with spring or other device to set blades, front blades shall be parallel to short dimension, double deflection.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting and gasket.
- C. Fabrication: Aluminum extrusions, with factory baked enamel finish.
- D. Color: To be selected by Architect from manufacturer's standard range.
- E. Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face. Only provide at locations which do not have a volume control damper in the ductwork shown on the floor plans.

#### 2.6 WALL EXHAUST AND RETURN REGISTERS/GRILLES

- A. Type: Streamlined blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing, with spring or other device to set blades, blades shall be parallel to long dimension.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting.
- C. Fabrication: Aluminum extrusions, with factory baked enamel finish.
- D. Color: To be selected by Architect from manufacturer's standard range.

- E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face. Only provide at locations which do not have a volume control damper in the ductwork shown on the floor plans.

## 2.7 LOUVERS

- A. Type: 4 inch (100 mm) deep with blades on 45 degree slope with center baffle and return bend, heavy channel frame, 1/2 inch (13 mm) square mesh screen over exhaust and 1/2 inch (13 mm) square mesh screen over intake.
- B. Fabrication: 16 gage (1.50 mm) thick galvanized steel welded assembly, with factory prime coat finish.
- C. Color: To be selected by Architect from manufacturer's standard range.
- D. Mounting: Furnish with interior flat flange for installation.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
- C. Install diffusers to ductwork with air tight connection.
- D. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 099123.

END OF SECTION