

## SECTION 15940

### AIR OUTLETS AND INLETS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

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

##### 1.02 RELATED SECTIONS

- A. Section 09900 - Painting: Painting of ductwork visible behind outlets and inlets.

##### 1.03 REFERENCES

- A. ADC 1062 - Certification, Rating and Test Manual.
- B. AMCA 500 - Test Method for Louvers, Dampers and Shutters.
- C. ARI 650 - Air Outlets and Inlets.
- D. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
- E. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.
- F. NFPA 70 - National Electrical Code.
- G. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

##### 1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- 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, application, and noise level.

##### 1.05 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Record actual locations of air outlets and inlets.

##### 1.06 QUALITY ASSURANCE

- A. Test and rate air outlet and inlet performance in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
- B. Test and rate louver performance in accordance with AMCA 500.

## 1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Titus.
- B. Anemostat.
- C. Metalaire.
- D. Price.
- E. Tuttle and Bailey.
- F. Krueger.
- G. Penn.
- H. Greenheck.
- I. American Warming and Ventilating.
- J. Arrow.
- K. Ruskin.
- L. Loren Cook.
- M. Acme.

### 2.02 RECTANGULAR PERFORATED CEILING DIFFUSERS

- A. Type: Square, perforated flush face, individually adjustable curved deflector blades mounted in the neck of the diffuser to allow the discharge air to enter the room in either vertical or 1, 2, 3, or 4-way horizontal jets.
- B. Perforated Face: Easily unlatched from back pan to facilitate removal of the face for pattern controller adjustment or to access opposed blade damper.
- C. Frame: Surface mount or inverted t-bar. Coordinate with ceiling construction.
- D. Fabrication: Steel with baked enamel off-white finish.

### 2.03 RECTANGULAR PERFORATED RETURN/EXHAUST AND TRANSFER GRILLES

- A. Type: Square, perforated flush face.
- B. Perforated Face: The return model shall have the same face and border construction as the supply model for harmonious appearance.
- C. Frame: Surface mount or inverted t-bar. Coordinate with ceiling construction.

D. Fabrication: Steel with baked enamel off-white finish.

#### 2.04 WALL SUPPLY GRILLE

A. Type: Streamlined blades, minimum 3/4" depth, 3/4" maximum spacing, double deflection, front blade parallel to long dimension, spring or other device to set blades.

B. Frame: 1- 1/4 inch margin with countersunk surface mounting.

C. Fabrication: Heavy duty steel construction with factory off-white baked enamel finish.

#### 2.05 EXHAUST REGISTER (PARKING GARAGE EXHAUST)

A. Type: Roll formed steel border and blades, 3/4" blade spacing, 0° Fixed blades, reinforced corners, blades parallel to long dimension

B. Frame: 1-3/8" margin with countersunk screw mounting.

C. Damper: Integral, gang operated, opposed blade damper with screwdriver slot operator, operable from face.

D. Fabrication: Heavy duty steel construction with factory off-white baked enamel finish.

#### 2.06 LINEAR BAR GRILLE

A. Type: Linear bar diffuser with 15 degree deflection, 1/8" x 3/4" bars on 1/4" center.

B. Diffuser Core: Extruded aluminum bars locked into a heavy extruded border. The deflection bars must be fixed and parallel to the long dimensions. The core must have support bars located no more than 9 inch apart and shall be parallel to the short dimensions.

C. Frame: 1 inch margin all around with concealed mounting and gasket, sidewall application. Provide heavy gauge extruded aluminum end borders and mitered corners to close off the ends of the diffusers.

D. Fabrication: Aluminum extrusions, aluminum finish.

#### 2.07 ADJUSTABLE PLENUM SLOT DIFFUSERS

A. Type: Continuous 3/4 inch wide slot, with adjustable (180 ° control pattern) vanes for left, right or vertical discharge, and air volume control for final air balancing. All adjustments shall be accessible from the face of the diffuser.

B. Plenum: Integral, galvanized steel.

C. Frame: Support clips for t-bar mounting, mitered and border and cap. Provide with cross notch slot. Coordinate cross notch slot locations with reflected ceiling plan.

D. Fabrication: 24 gauge galvanized steel, black exposed surfaces and controller.

#### 2.08 ADJUSTABLE LINEAR SLOT DIFFUSER

A. Continuous 3/4 inch wide slot, with adjustable (180° control pattern) vanes for left, right or vertical discharge and air volume control for final air balancing. All adjustments shall be accessed from the face of the diffuser.

B. Plenum: Integral, galvanized steel with oval inlet.

- C. Frame: Surface mount border for mounting in gypsum ceiling. Provide heavy gauge aluminum end border and end caps.
- D. Fabrication: Aluminum extrusion. White border with black pattern controllers. Architectural elements shall match adjustable plenum slot diffuser.

## 2.09 LOUVERS

- A. Type stationary site proof 6 inches deep extruded aluminum blades, .081 inch wall thickness. Chevron blades at 60 degree angle, spaced 4 inches center to center.
- B. Frame: 4" deep extruded aluminum with .081 inch wall thickness.
- C. Screen: 3/4" x .051 inch expanded flattened aluminum bird screen in removable frame. Architecturally styled hidden mullions.
- D. Mounting: Furnish with box frame.
- E. Finish: Louver shall receive a 204-RI clear anodized finish complying with aluminum association code AA-C22A31. Finish is applied to chemically etched and pretreated aluminum extrusions to 0.4 mils minimum surface depth.

## PART 3 EXECUTION

### 3.01 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. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
- E. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 09900.
- F. Exhaust louver L-1: Contractor to confirm louver size prior to submittals based on field verified rough opening dimensions.

END OF SECTION