SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 – GENERAL

1. DESCRIPTION:

A. Roof Curbs

B. Air Outlets and Inlets: Diffusers, Registers, and Grilles

2. QUALITY ASSURANCE:

A. Comply with NFPA 90A, SMACNA, ASHRAE and the codes in effect at the time of permitting.

B. Test and rate performance of air outlet and inlets in accordance with ASHRAE 70.

C. Install louvers rated in accordance with AMCA 500.

D. Comply with NFPA 90A.

3. SUBMITTALS:

A. Shop Drawings:
   1. Submit product data under provisions of the General Conditions. Submittal shall include a device schedule with type, size, finish, mounting type, and noise level.

4. STORAGE AND HANDLING OF MATERIAL:

A. Store materials in clean and dry environment, device faces and exposed surfaces as installed shall be clean and undamaged.

PART 2 - PRODUCTS

1. GRAVITY INTAKE / EXHAUST VENTILATORS (ROOF MOUNTED):

A. Acceptable Manufacturers include:
   1. Greenheck
   2. Ruskin

B. Aluminum, ASTM B209, ½ inch mesh aluminum welded wire bird screen, with gravity or motorized dampers where shown, accessible interior, designed for wind velocities as indicated in the Contract Document Design Criteria. Provide with factory roof curb.
   1. Spun Intake / Exhaust Ventilators: Spun aluminum structural components shall be minimum 16 gauge marine alloy aluminum, bolted to a rigid aluminum support structure. The aluminum bas shall have continuously welded curb cap corners, the spun aluminum baffle shall have a rolled bead.
   2. Louvered Hoods: Constructed from 0.081 inch extruded aluminum tiers welded to a minimum 8 gauge aluminum support structure. The hood shall be constructed of a minimum 0.064 inch marine alloy aluminum and treated for oxidation protection. The aluminum base shall have continuously welded curb cap corners.
   3. Low Silhouette Ventilators: Unit shall be of bolted and welded construction using corrosion resistant fasteners. The aluminum hood shall be minimum 14 gauge

marine alloy, bolted to a minimum 8 gauge aluminum support structure. The aluminum base shall be continuously welded.

C. Furnish units sized as scheduled on the drawings. Sizes shown on the drawings designate minimum throat areas.

2. DIFFUSERS, REGISTERS AND GRILLES:

A. Acceptable Manufacturers include:
   1. Titus
   2. Metalaire
   3. Price

B. Material - Furnish as scheduled on the drawings. If no designation, furnish as aluminum with factory white finish, concealed fasteners, and with plaster trim ring for hard ceiling installations.

C. Furnish an opposed-blade damper, adjustable from the face, for all diffusers and registers.

3. SUPPLY REGISTERS:

A. Acceptable Manufacturers include:
   a. Titus
   b. Metalaire
   c. Price

B. Double-deflection with horizontal face bars and opposed blade damper. Furnish with 1" border, ¾"bar spacing or as scheduled. Blades shall be aero-dynamically formed, stamped blades are not acceptable. All aluminum construction.

4. RETURN AND EXHAUST REGISTERS (LOUVERED):

A. Acceptable Manufacturers include:
   a. Titus
   b. Metalaire
   c. Price

B. Single-deflection with horizontal face bars and opposed blade damper. Furnish with 1" border, ¾"bar spacing or as scheduled. Blades shall be aero-dynamically formed, stamped blades are not acceptable. Devices to be all aluminum.

C. As indicated on the drawings, furnish with 1" filter tray for pleated media with spring lock for filter and locking screw for hinged face access.

5. RETURN AND EXHAUST REGISTERS (GRID):

A. Acceptable Manufacturers include:
   a. Titus
   b. Metalaire
   c. Price

B. Grid core of ½" x ½" and ¾" border. For plenum return applications, furnish with light boot of cross section equal to register or as shown on the drawings. Light boot to be finished with interior non-microbial, non-friable ½" duct liner. Device to be all aluminum construction.

6. SLOT DIFFUSERS / PLENUM

A. Acceptable Manufacturers include:
   1. Titus
   2. Metalaire
   3. Price

B. Diffuser frame and support bars shall be constructed of heavy gauge extruded aluminum. Slots shall incorporate pattern controllers to direct airflow, field adjustable.

C. Furnish and install galvanized steel plenum lined with 1" black fiberglass liner. Internal lining shall be factory fabricated, anti-microbial and non-friable. Provide plenum connection diameter equal to duct diameter shown on the drawings.

D. Maximum pressure drop at design flow rate shall not exceed 0.15 inches w.g.

7. LINEAR BAR GRILLES:

A. Acceptable Manufacturers include:
   1. Titus
   2. Metalaire
   3. Price

B. Furnish and install as extruded aluminum with standard finish or as scheduled on the drawings. Mount with concealed fasteners.

C. Device shall have a ¾" frame with bars 3/16" thick and ¾" deep or as scheduled on the drawings. Bar spacing shall be 1/8" on center with reinforcement bars 18" on center for all units not mounted on the floor. Reinforcement bars shall be 6" on center for all floor devices. Devices shall be all aluminum.

PART 3 – EXECUTION

1. GENERAL REQUIREMENTS:

A. Protect devices and material from physical damage. Place devices in first class operating condition or return them to the supplier for replacement at no cost to the owner. Continue to protect installed devices until the system is turned over to the owner. Clean all devices and maintain them free from dirt and contamination.

B. Install all devices according to the manufacture's installation directions.

C. Paint visible interior portions of duct and plenums flat black.

D. Secure all air devices to the duct with air-tight connections. Maintain insulation and vapor barrier integrity from backpan insulation to duct. The tops or rear of all supply and return air devices shall be insulated and sealed with a tape & mastic system.

E. Coordinte device locations to comply with the most recent reflected ceiling plan and field adjust to maintain symmetric arrangements with all other ceiling devices and lighting.

F. All air devices shall be provided with a means to balance the device. For devices mounted in hard ceilings or in locations where a branch duct volume damper would not be accessible, an opposed blade damper accessible from the face of the air device shall be provided.

G. All air devices mounted in rated construction shall be provided with a corresponding damper type (fire, smoke or combo fire/smoke) consistent with the rating of the mounting location. Devices mounted in rated ceilings shall be provided with a radiation damper provided by the device manufacturer.

END OF SECTION 23 37 00