

SECTION 23 37 20 - GRAVITY VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes roof mounted intakes (OAI) and relief vents (RV). Refer to drawing schedules for type(s) of Gravity Ventilators required.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Intake and relief ventilators shall be capable of withstanding the effects of gravity loads, wind loads and thermal movements without permanent deformation of components, noise or metal fatigue, or permanent damage to fasteners and anchors.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include details on ventilator size, performance data, and roof curb details.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain ventilators through one source from a single manufacturer regularly engaged in the manufacture of gravity ventilators.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1.6 COORDINATION

- A. Coordinate installation of roof curbs and roof penetrations.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminium Extrusions : ASTM B 221 (ASTM B 221M), Alloy 6063-T5 or T-52.
- B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), Alloy 3003 or 5005 with temper as required for forming or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Same basic metal and alloy as fastened metal. Do not use metals that are incompatible with joined materials.

2.2 GENERAL FABRICATION

- A. Fabricated intake and relief ventilators to minimize field splicing and assembly. When required, disassemble units to the minimum extent as necessary for shipping and handling. Clearly mark units for reassembly and coordinated installation.
- B. Fabricate frames, including integral bases, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
- C. Fabricate units with closely fitted joints and exposed connections accurately located and secured.
- D. Fabricate supports, anchorages, and accessories required for complete assembly.

2.3 GRAVITY VENTILATORS

- A. Manufacturers: Subject to compliance with requirements, provide gravity intake and/or exhaust roof ventilators manufactured by Loren Cook model GR and/or GI. Subject to review, equipment meeting the full requirements of the specifications, manufactured by the following will be considered:
 - 1. Carnes.
 - 2. Greenheck.
 - 3. Penn-Barry
- B. The unit shall be of bolted and welded construction utilizing corrosion resistant fasteners. The hood shall be constructed of minimum 18-gauge aluminum, bolted to a minimum 8-gauge aluminum support structure. A radius throat must be provided for optimum performance. Lifting lugs shall be provided to help prevent damage from improper lifting. The base shall have continuously welded curb cap corners for maximum leak protection. Bird screen constructed of 1/2" galvanized mesh shall be mounted in the hood. Unit shall bear an engraved aluminum nameplate. Nameplate shall indicate design CFM and static pressure.

2.4 GOOSENECKS

- A. Factory or shop fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible, with galvanized-steel sheet.
- B. Bird Screening: Galvanized-steel, 1/2-inch square mesh, 0.041-inch wire.
- C. Galvanized-Steel Sheet Finish:

1. Surface Preparation: Clean surfaces of dirt, grease, and other contaminants. Clean welds, mechanical connections, and abraded areas and repair galvanizing according to ASTM A 780. Apply a conversion coating suited to the organic coating to be applied over it.

2.5 ROOF CURBS

- A. Furnish insulated metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints, with integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
- B. Refer to drawings for the type of curb required for the specified roofing system and the required curb height. Provide curbs with an integral metal cant, stepped integral metal cant raised the thickness of roof insulation or as required to suit the details.
- C. Provide / Furnish curbs to match the roof slope. Refer to contract drawings to verify roof slope.
- D. Curb Material: Galvanized sheet, 0.090 inch thick

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install intake and relief ventilators level, plumb.
- B. Secure intake and relief ventilators to roof curbs with cadmium-plated hardware. Use concealed anchorages where possible.
- C. Install goosenecks on curb base.
- D. Install intake and relief ventilators with clearances for service and maintenance.
- E. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
- F. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- G. Install motor operated and / or backdraft dampers where indicated.
- H. Roof curbs: furnish and install a roof curb for all roof mounted vents. Install the roof mounted unit(s) on the roof curb immediately after the curb is installed. If immediate installation is not performed provide temporary watertight covering, for all curb openings, consisting of minimum 3/4" exterior grade plywood and watertight rubber or plastic cover.

3.2 CONNECTIONS

- A. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories.

3.3 ADJUSTING

- A. Where applicable, adjust damper linkages for proper damper operation.

END OF SECTION 23 37 20