SECTION 07 72 20

GRAVITY-TYPE ROOF VENTILATORS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7	(2010; Errata 2011; Supp 1 2013) Minimum Design Loads for Buildings and Other Structures

ASTM INTERNATIONAL (ASTM)

ASTM A653/A653M	(2015; E 2016) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B209	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B209M	(2014) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
ASTM B221	(2014) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2013) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1793	(2012) Architectural Sheet Metal Manual, 7th Edition

1.2 DESIGN REQUIREMENTS

Design ventilators for use with the specific type of project roofing system, and to provide uniform and continuous air flow. Ventilator design shall provide protection against rain and snow, and shall be provided with a continuous weep along the bottom of both sides of wind band. Units shall be self-cleaning by the action of the elements, and shall have provisions for carrying water and normal wind-transported soil matter to the outside. Design units for windspeeds of not less than 80 mph in accordance with ASCE 7. Ventilators shall be free of internal obstructions or moving parts which will require maintenance, and shall be

complete with type of mounting indicated on drawings.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Roof Ventilators; G

1.4 QUALITY ASSURANCE

Manufacturer shall specialize in design and manufacture of the type of roof ventilators specified in this section, and shall have a minimum of 5 years of documented successful experience. Provide a ventilator installer experienced in the installation of ventilator types specified.

1.5 DELIVERY, STORAGE, AND HANDLING

Roof ventilators shall be cartoned or crated prior to shipment. Protect ventilators from moisture and damage. Remove damaged items from the site.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Aluminum Extrusions

Aluminum extrusions shall be alloy 6063, temper T5 in compliance with ASTM B221.

2.1.2 Aluminum Sheets

Aluminum sheets shall be alloy 5005, temper H15 or alloy 3003, temper H14 in compliance with ASTM B209.

2.1.3 Galvanized Steel Sheets

Steel sheets shall be commercial quality, zinc-coated steel (hot-dip galvanized) of quality established by ASTM A653/A653M, minimum G90 coating thickness.

2.2 RIDGE VENTILATORS

Provide roof ridge ventilators fabricated of galvanized steel or aluminum (as indicated), and assembled to any desired length. Continuous-run ridge ventilators shall be connected with splice plates of type which will telescope together and not require fasteners, soldering or welding. Provide ventilators with manually-operated single-leaf dampers complete with accessories to meet design and performance requirements; or a UL labeled fire-actuated damper system complete with accessories to meet building code requirements. Dampers and airshafts shall be complete with urethane gasketing for extra-tight enclosures. Provide metal closure strips, which match the panel roof rib contours, to close out weather and provide a secure seat for ventilators. Insect or Bird screens shall be provided.

2.3 STATIONARY VENTILATORS

Provide stationary roof ventilators fabricated of galvanized steel or aluminum with seamless spun conical-shaped weathercap, and having straight-through drainage for eliminating the possibility of air-borne debris collecting in the ventilator openings. Insect or Bird screens shall be provided.

2.4 TURBINE VENTILATORS

Provide turbine ventilators fabricated of galvanized steel or aluminum, corrugated or flat sheets, complete with sensitive ball-bearing action to enable the slightest motion of air to move the rotor head where suction is maintained at low wind velocities. Ventilators shall have 360 degree operating surface to assure access of wind currents regardless of wind velocities. Rotor head shall be anchored to prevent head from lifting or jumping off the rotor in high winds. Rotor crown plate shall be seamless. Bird or Insect screens shall be provided.

2.4.1 Dampers

Turbine ventilators shall be provided with dampers manually-operated with direct pull-chain or rack and pinion; push-button control electric gear motor-operated dampers; or thermostat control electric gear motor-operated dampers (as indicated in drawings).

2.4.2 Rotor Shaft

Rotor shaft bearings shall be entirely shielded in corrosion-resistant aluminum casing. Bearings shall be pre-lubricated and shall have life-time warranty. Bearings shall be at top and bottom to assure accurate alignment. Shaft and bearings shall be easily replaceable as a unit. Rotor collar shall be rolled and welded.

2.5 FABRICATION

Ventilators shall be fabricated in accordance with approved shop drawings. Welds, soldered seams, rivets and fasteners shall be clean, secure, watertight, and smooth. Edges shall be wired or beaded, where necessary, to ensure rigidity. Joints between sections shall be watertight and shall allow for expansion and contraction. Galvanic action between different metals in direct contact shall be prevented by nonconductive separators.

2.6 CURB BASES

Ventilator bases for curb-mounted installations shall be of size indicated on drawings, and shall be designed specifically for the type of ventilator and roofing system approved for this project. Curb bases shall be factory-formed and flashed for a watertight installation. Curb bases shall be fabricated of material and finish to match the ventilator.

2.7 SCREENS

Screens shall be furnished by ventilator manufacturer as part of ventilator assembly. Screen (with frames) shall be manufactured of material to match ventilators, and shall be designed to be easily removed for cleaning purposes.

2.8 FINISH

2.8.1 Galvanized Steel Finish

Galvanized steel roof ventilators shall be factory-coated with rust-resistant primer and baked-on finish coats of acrylic .

2.8.2 Aluminum Finish

Aluminum roof ventilators shall be factory-finished to match metal roof finish and color .

2.8.3 Color

Color shall be in accordance with Section 09 06 00 SCHEDULES FOR FINISHES .

PART 3 EXECUTION

3.1 PREPARATION

Prepare rough openings and other roof conditions in accordance with approved shop drawings and manufacturer's recommendations. Rough openings shall be field-measured and recorded on shop drawings prior to fabrication of roof ventilators. Before starting the ventilator work, protect surrounding roof surfaces from damage. Coordinate fabrication with construction schedule. Submit dimensioned drawings indicating location of each type of ventilator including details of construction, gauges of metal, and methods of operation of dampers and controls.

3.2 INSTALLATION

Coordinate roof ventilator installation with roofing work, and in accordance with approved shop drawings, manufacturer's published instructions, and chapter 8 of SMACNA 1793. The ventilator installation shall be watertight and free of vibration noise. Protect aluminum surfaces from direct contact with incompatible materials. Aluminum surfaces which will be in contact with sealant shall not be coated with a protective material. Aluminum shall not be used with copper or with water which flows over copper surfaces. Clean roof ventilators in accordance with ventilator manufacturer's recommendations.

3.3 PROTECTION

Protect exposed ventilator finish surfaces against the accumulation of paint, grime, mastic, disfigurement, discoloration and damage for duration of construction activities.

-- End of Section --