

**UNITED INDUSTRIES GROUP, INC.**

 **SPECIFICATION SECTION 13200**

 **ALUMINUM SELF-SUPPORTING DOME ROOF**

**MATERIALS:**

* All aluminum alloys shall be as defined by the Aluminum Association, ADM 2015 and published in the ALUMINUM STANDARDS AND DATA.

1. **Bolts and Fasteners:**

Bolts shall be 300 series stainless steel per ASTM F593, Alloy Group 1, UNE-EN-ISO 3506 AISI SS316/A4.

Screws shall be aluminum or 300 series stainless steel.

2. **Plates and Sheets:**

Roof panels shall be AA3000 or AA5000 series with 0.050” (1.2mm) thickness

Plate and sheet material shall be aluminum alloy, 3003-H16, 5754-H22/H24, 5052-H32, 5052-H36; mill finish AA - M10 as fabricated.

Tension ring gussets shall be 0.3125 inch minimum thickness.

Sheet materials shall be 0.050” (1.27mm) minimum thickness.

The aluminum closure panels shall be attached continuously along their edges to the structural members by means of batten bars which engage the panels in an interlocking joint. This batten bar shall also secure an elastomeric weather-seal gasket that shall form a continuous watertight seal along the panel edges.

3. **Structural Shapes**:

Aluminum structural shapes shall be alloy 6082-T6, AA6005A-T6, 6061-T6.

The aluminum structural members shall be a minimum of 4 ½ inches deep.

4. **Internal Columns** - 300 series stainless steel (if they are used).

5. **Miscellaneous Shapes:**

Miscellaneous aluminum shapes shall be alloy 6061-T6, 6082-T6/T651, 6063-T5.

6. **Gaskets:**

All gaskets shall be EPDM or Silicone. The gaskets must have a ¼” minimum thickness.

7. **Sealant:**

All sealants shall be silicone and resistant to ozone and ultraviolet light.

8. **Miscellaneous Penetration Seals**:

All other penetration seals shall be weatherproof rubber seals.

**UNITED INDUSTRIES GROUP, INC.**

**DESIGN DATA:**

* Live load – Min. 20PSF
* Panel Design – Triangulated
* AWWA D108-10, **ADM2015**, ASCE7-10, IBC 2012.
* Wind speed – mph, Cat. (exposure requirement )
* Seismic - as per site location.
* Internal pressure - Atmospheric
* Max Roof Height – as required.

**NOTE:**

The entire roof structure shall be designed to sustain the loads specified herein, with the stress limitations of the Aluminum Association SPECIFICATIONS FOR ALUMINUM STRUCTURES and/or **ADM2015.** For members subjected to axial forces and bending moments due to load eccentricity or lateral loads, the combined member stresses shall be determined by adding the stress component due to axial load to the stress components due to bending in both the major and minor axis.

In no case shall the roof be designed for any loads less than those specified by the local building code and/or local amendments.

1. **Dead Load** – The dead load shall be defined as the weight of the structure and all permanently attached to and supported by the structure.

2. **Load Combinations** – As required per ASCE 7-10 Section 2.4.1.

3. **Temperature** - The load combinations listed above shall be considered for a temperature change of 100 degrees F below the installation temperature and 100 degrees F above the installation temperature and for a material temperature range of 40 degrees F below 0 to 160 degrees F above zero.

4. **Panel Design Load** - In addition to the above mentioned loads and load combinations, the aluminum panels shall be designed for a 250 pound load distributed over one square foot at any location and a plus or minus 60 psf load distributed over the entire area of any given panel. These loads are to be taken as acting separately from one another and not simultaneously with other design loads.

**UNITED INDUSTRIES GROUP, INC.**

**ACCESSORIES:**

* Access Hatch
* Gravity vents with AL. insect screens
* Eyebolt/Safety Pin
* Non-Slip walking tape to the apex of the dome roof
* AL. single handrail to the apex of the dome roof
* Anode Hand Holes



**SUBMITTALS:**

1. Design calculations and Drawings shall be submitted to the engineer showing dimensions, sizes, thickness, gauges, materials, finishes, joint attachment and erection procedure.

2. The structural analysis shall be performed using stiffness analysis models. The structural computer models shall include the effect of geometry irregularities such as dormer openings and perimeter support members. Full provisions shall be made to allow for thermal expansion.

3. Fasteners shall be designed with a factor of safety of 2.34 on ultimate strength and 1.65 on yield strength

4. Connection forces shall be transferred through gusset plates connected to the top and bottom flanges of the beam struts. The connections shall be designed as moment connections; a minimum of four bolts shall be used to connect the gusset plate to each strut flange

5. All metal components of the aluminum roof structure shall be aluminum or 300 series stainless steel. No galvanized, aluminized, painted, or plated steel shall be used anywhere in the roof above the mounting bracket base plates. Dissimilar materials in the supporting structure shall be isolated from the aluminum roof by means of a compatible elastomeric gasket.

6. The entire structure shall be designed as a watertight system under all design load and temperature conditions

.