

# Model Specification: Standard-Duty Aluminum Interlocking Flat Panel Cover

March 14, 2024

Specifier Notes: Architect or engineer should carefully review and edit this section to meet the requirements of the project and local building codes. The Architect or Engineer shall assign a section number to this section and is being generically identified here as Section 055XX. Coordinate this section with other specification sections and the drawings and delete any unused "Specifier Notes" and options shown in "red" after editing.

This section covers Pleasant Mount Welding, Inc.'s "Standard-Duty Aluminum Interlocking Flat Panel Cover". Consult PMWI ([www.pmwi.net](http://www.pmwi.net)) for assistance in editing this section for specific applications. Call 570.282.6164 or email [sales@pmwi.net](mailto:sales@pmwi.net) with any questions.

## SECTION 055XX – Aluminum Covers

### Part 1: General

#### 1.1 Description

- A. Provide aluminum covers, support members and appurtenances as indicated and specified.
- B. Aluminum covers shall be the product of one manufacturer.

#### 1.2 Reference Standards

- A. ASTM B221: Aluminum Extruded Bars and Shapes.
- B. ASTM F593: Standard Specifications for Stainless Steel Bolts, Hex Cap Screws and Studs.
- C. ASTM F594: Standard Specification for Stainless Steel Nuts.

#### 1.3 Seismic Design Requirements

- A. The Contractor shall conform to the seismic design requirements for this project and for the work of this specification section.

#### 1.4 Action Submittals

- A. Shop Drawings: The contractor shall submit shop drawings to the Engineer for approval for the fabrication of all Aluminum Covers based on construction drawings of current issue. The drawings shall be approved and released to the shop before fabrication of the covers. Include plans, sections, shop details, and connections as required by the contract documents. Show type and location of all fasteners. Preliminary drawings shall be stamped by the cover manufacturer's PE. Final drawings shall be signed and sealed by a local state PE if required by contract documents. All work shall be fabricated and erected in accordance with the approved shop drawings.
- B. Stress Analysis: Prior to executing any work in this section, complete structural calculations showing the load criteria and governing stresses in all members and connections shall be submitted to the Engineer for approval.

These calculations shall be signed and sealed by a registered professional engineer if required by contract documents. All work shall be fabricated and erected in accordance with the approved structural calculations.

### 1.5 Quality Assurance

- A. The Standard-Duty Aluminum Interlocking Flat Panel Covers, as specified, shall be the product of a single manufacturer regularly engaged in the design and manufacture of engineered aluminum covers. When requested by the Engineer, submit written evidence to show experience qualifications and facility capabilities for performance of contract requirements.
- B. Welders: Welders performing work on the Standard-Duty Aluminum Interlocking Covers shall be qualified within the past two years in accordance with AWS.
- C. Warranty: Provide a two (2) year warranty from material and workmanship defects.

### 1.6 Operation & Maintenance Manual

- A. The cover manufacturer shall provide an O&M Manual that includes maintenance instructions, removal and replacement instructions, and drawings for the installed cover.

## Part 2: Products

### 2.1 Source Requirements:

Design is based upon use of aluminum covers as manufactured by Pleasant Mount Welding, Inc. and terminology used herein may include reference to the specific performance or product of this manufacturer. Such reference shall be construed only as establishing the quality of materials, operational features and workmanship used under this section and shall not, in any way, be construed as limiting competition.

### 2.2 Manufacturers:

Acceptable manufacturers include Pleasant Mount Welding, Inc. (45 Dundaff Street, Carbondale, PA 18407, 570-282-6164, [www.pmwi.net](http://www.pmwi.net)) or approved equal.

### 2.3 Manufactured Units:

- A. **Description:** Standard-Duty Aluminum Interlocking Flat Panel Covers consisting of removable hinged and non-hinged cover panels, interlock beams with stiffening support members (if required), and associated anchorage fasteners.
  1. **Cover Decking:** Extruded aluminum double-interlocking planks.
  2. **Support Beam:** Extruded aluminum interlock beam with stiffening structural support members to meet specified loading/span requirements.
  3. **Cover Panel Type:** Aluminum cover panels may be configured **hinged** or **non-hinged**.
  4. All cover panels shall be removable and capable of being removed without disruption of adjacent panels.

5. **Locking Mechanism:** Each cover panel shall use extruded slide latch assemblies to resist uplift and secure covers to interlock beams.
6. **Top Surface of Cover:** Slip Resistance Striations **with SlipNOT® Slip Resistance Coating.** The cover surface shall consist of integral slip resistance striations to prevent slipping and no exposed area of the cover wider than 1.75" shall be without striations. This surface shall not be achieved by the use of paint, adhesive tapes, sand blasting, or any other means other than an extruded process.
7. The clear span length and width of cover panels shall be as noted in the contract documents.
8. The weight of an individual cover panel shall not exceed 150 pounds. The lifting force shall not exceed the dead weight of the panel.
9. Covers shall allow for thermal expansion and contraction.
10. Cover Mounting Configuration: **Top mount** or **Flush Mount** arrangement.

**B. Fabrication:** Fabricate aluminum covers to required manufacturer's specifications and contract drawings.

**C. Design Criteria:**

1. **Distributed Design Live Load & Deflection:** All structural components shall be designed to support the dead weight of the structure, plus a live load of 50 pounds per square foot of cover surface. The maximum deflection of any component under this load shall not exceed L/240 of the span of that component.
2. **Concentrated Load:** All structural components shall be designed to support a 400 pound load on a 6" x 6" area located anywhere on the surface of the cover without permanently deforming the tested area.
3. **Design Stresses:** All aluminum structural members and connections shall be designed in accordance with the Aluminum Association's "Specification for Aluminum Structures" for building-type structures.
4. **Chemical Resistance:** Aluminum cover panels and interlock beams shall be comprised entirely of 6061-T6 corrosion resistant aluminum extrusions and any required stiffening support members shall also be 6061-T6 aluminum. Replaceable Santoprene™ seals shall isolate the cover perimeter from the concrete and at every panel-to-panel interface to ensure a significantly air-tight cover.

**D. Materials:** All aluminum cover decking components, interlock beams, and stiffening support members shall be made from 6061-T6 corrosion resistant aluminum of sufficient section modulus and moment of inertia to withstand the design loads. Material shall be of top quality.

**E. Welding Electrodes:** Welding shall be with electrodes of an alloy, which shall produce welds with strength and corrosion resistance compatible to base material.

**F. Fasteners:** All fasteners used to attach aluminum cover system to concrete shall be stainless steel. No carbon steel accessories shall be used.

**G. Finish:** Aluminum covers shall be mill finish.

## **2.4 Accessories:**

Provide appropriate fasteners for type, grade, and class required for approved anchorage system in accordance with the approved shop drawings and specifications.

## **Part 3: Testing**

### **3.1 Loads:**

After installation the cover system will be tested for conformance with the deflection limits. A load of 400 pounds will be placed as directed by the Engineer and the maximum deflection created by the load will be measured.

### **3.2 Prequalified Shop Testing:**

Manufacturer shall perform a prequalified shop air tightness test and certification for the proposed cover system. This test shall be performed in accordance with the "Procedural Standards for Testing, Adjusting and Balancing of Environment System" as published by the National Environmental Balancing Bureau (NEBB) on cover components of not less than 80 square feet. The test shall be conducted and witnessed by a NEBB certified technician. The method of testing, test apparatus and proposed contents of the test report shall be submitted to the Engineer for approval. The test report shall be prepared by the certified technician and shall be sealed with the NEBB seal. The test report shall include descriptions and illustrations of the test components, test apparatus and will contain the results of the test. The cover system shall maintain an air intrusion leakage rate not to exceed 0.2 cfm per square foot at an applied negative pressure of 0.2 inches of water column.

## **Part 4: Execution**

### **4.1 Field Verification:**

Take field measurements prior to preparation of final shop drawings (and fabrication where required) to ensure proper fitting of the work.

### **4.2 Installation**

- A. Prior to aluminum cover installation, contractor shall inspect supporting structure (concrete and any other support locations) to confirm correct elevations and conditions for proper attachment and support of the cover. Any inconsistencies between contract drawings and supporting structure deemed detrimental to cover placement shall be reported in writing to the engineer, architect or owner's agent prior to placement.
- B. Install aluminum cover in accordance with approved shop drawings and specifications.
- C. Protection of Aluminum from Dissimilar Materials:
  - 1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with one coat of bituminous paint, powder coat paint, or other approved insulating material.

2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry or lime mortar, exposed aluminum surfaces shall be painted with one coat of bituminous paint, powder coat paint, or other approved insulating material.

**4.3 Cover Attachment:**

Use approved attachment system and fasteners to secure aluminum covers to supporting members as shown on approved drawings.