



# STANDING SEAM SPOTLIGHT

**An Educational Bulletin for Metal Roofing Professionals**

## Building Codes and Metal Roofing

*Below are some excerpts from the building code, and how they apply to designing and specifying standing seam metal roofing.*

- **IBC 2000 1504.3 Wind Resistance of Non-ballasted Roofs:** *Roof coverings ... shall be designed to resist the design wind load pressures for cladding in Chapter 16.*

Whether the roofing material is an architectural cladding or structural roofing system, ALL roof coverings (with the only exception of composition shingles) must be designed for wind loading.

- **IBC 2000 1609.1.1 Determination of Wind Loads:** *Wind loads on every building or structure shall be determined in accordance with Section 6 of ASCE 7.*

The wind pressures referred to in Chapter 15 should be calculated in accordance with ASCE 7, Minimum Loads for Buildings and Other Structures. For simple structures, sometimes and alternate method is provided within the text of the building code.

- **IBC 2000 1504.3.2 Metal Panel Roof Systems:** *Metal panel roof systems through fastened or standing seam shall be tested in accordance with UL 580 or ASTM E1592.*

This requires testing in accordance with UL 580 or ASTM E1592.

**IMPORTANT:** This prescriptive requirement does not give a UL 580 Class 90 rating a "free pass" on meeting the loading requirements from ASCE 7. In fact, the code will later demonstrate that UL 580 is not even an acceptable test method for design purposes.

- **IBC 2000 1507.4.3 Material Standards:** *Metal sheet roof covering systems ... shall be designed in accordance with Chapter 22.*

- **IBC 2000 2205.1 General:** *The design of cold-formed carbon and low alloy steel structural members shall be in accordance with the AISI Specification for the Design of Cold-Formed Steel Structural Members.*

The code requires metal roofing design to comply with Chapter 22 on Steel Materials, which refers to the design of cold formed sheet metal components in the American Iron and Steel Institute (AISI) design standard as the authority on light gauge steel design.

- **CF2000-1 A Guide for Standing Seam Roof Panels:**
  - **4.2:** *[UL 580] "doesn't give realistic values for comparing to design wind pressures that a roof may experience on a particular building ... The panels behave like a pre-tensioned membrane that results in un-conservative results. However, the test method [UL 580] does provide a measure of quality assurance of the assembly." ... " [ASTM] E1592 is the best method available for evaluation of roof assemblies ...", and*
  - **8.0:** *"The nominal strength of standing seam roof panels under negative pressure shall be established by test in accordance with ASTM E1592-95."*

The AISI produced and adopted this document into the 1999 AISI design standard. Among other important design guidelines, the AISI firmly designates ASTM E1592 as the only adequate test method to determine the strength of standing seam metal roofing systems.