



Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference¹

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INTRODUCTION

Computations are the accepted method for determining the structural capacity of most metal products. However, some conditions are outside the scope of analysis by industry specifications.

Methods of computation and a discussion of these conditions are found in the following documents: AISI Specification for the Design of Cold-Formed Steel Structural Members and Load and Resistance Factor Specification for Cold-Formed Steel Structural Members and Aluminum Association Specifications for Aluminum Structures.

This test method is not to be considered as a wind design standard. It is a structural capacity test to determine the ability of a panel system (including attachments) to resist uniform static pressure. Actual wind pressure is nonuniform and dynamic. These uniform static test results should be used in conjunction with commonly recognized wind design standards, and will yield highly conservative results.

When additional fasteners are installed across panel flats at eaves, ridges, or reinforced end laps, the crosswise distortion is eliminated and *both flexural capacity and anchor-to-panel attachment strength can vary with the distance from such conditions*. This test procedure can be used to evaluate the strength of panels and attachments at any distance from end or edge perimeter conditions. The size of the specimen and limitations on air seals are designed to minimize any interference with the natural response of the panels under load.

1. Scope

1.1 This test method covers the evaluation of the structural performance of sheet metal panels and anchor-to-panel attachments for roof or siding systems under uniform static air pressure differences using a test chamber or support surface.

1.2 The provisions of this test method are applicable to standing seam, trapezoidal, ribbed, or corrugated metal panels in the range of thickness from 0.012 to 0.050-in. (0.3 to 1.3-mm) and apply to the evaluation of uniform pressure applied to single-skin construction or one sheet metal layer of multiple-skin construction. They do not cover requirements for the construction of a specimen to determine the load sharing that can occur with either composite or multiple-layer con-

struction such as: (1) metal cladding over wood sheathing; or (2) field assemblies of insulation sandwiched between corrugated or formed metal panels.

1.3 Proper use of this test method requires knowledge of the principles of pressure and deflection measurement.

1.4 This test method describes optional apparatus and procedures for use in evaluating the structural performance of a given system for a range of support spacings or for confirming the structural performance of a specific installation.

1.5 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units are approximate.

1.6 The text of this standard references notes and footnotes exclusive of those for tables and figures. These notes and footnotes provide explanatory material and shall not be considered as requirements of the standard.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

¹ This test method is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.57 on Performance of Metal Roof Systems.

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