

**WINDOW AND DOOR MANUFACTURERS ASSOCIATION
INDUSTRY STANDARD
I.S. 11 – 2016
ANALYTICAL METHOD FOR
DESIGN PRESSURE (DP) RATINGS OF FENESTRATION PRODUCTS**

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0 INTRODUCTION non-mandatory

0.1 This WDMA I.S.11 “*Industry Standard for analytical Method for Design Pressure (DP) Ratings of Fenestration Products*”, offers Hallmark licensees two paths to reduce testing. Section 1.1.1 Total Product Comparative Analysis is for both windows and doors, operating and fixed that are smaller than the test unit.

Section 1.1.2 Total Product Extrapolation Analysis is only for fixed windows that are larger than the tested product. The rating(s) claimed is still limited by water testing, glazing, and structural hardware loads. The larger sizes are limited to 175% of test unit width, 175% of test unit height, and 200% of unit area, and the glazing aspect ratio must not exceed 10.

One of the features of this standard is deciding whether the extrapolated unit is similar enough on all four sides, so that it can be transposed. Products that are not transpose eligible can still potentially cover a good range of larger sizes. Being transpose eligible allows the one test unit to cover an even larger array of sizes. The specifics of being transpose eligible are described in section 3.3.5. When considering strength, one can have an engineer calculate the section modulus, or do beam testing (as in AAMA 450 option 2). When considering stiffness one can have an engineer calculate moment of inertia, or do beam testing (as in AAMA 450 option 2). If the frame cross section is one piece of the same material, the calculation method may be favored. If different materials are involved with an unknown amount of composite action, then the beam flexural testing approach may be more effective.

Note that to meet or exceed the section 3.3.5 minimum of 95% strength and stiffness, that C.S.3 item S2 allows for increases in cross-sectional width and thickness of stiles, rail and/or frames beyond that of the test unit provided that construction details are consistent.

1. Scope

1.1 This document describes analytical methods for obtaining design pressure (“DP”) ratings of fenestration products of sizes other than that of a tested specimen or specimens. For purposes of compliance with this document, DP ratings shall be permitted in increments of no less than one psf.

1.1.1 Total Product Comparative Analysis: This method allows interpolation between two or more successful whole product specimen tests to arrive at DP ratings for a specific product size or sizes. One or more tested specimens shall be of a smaller size and higher DP rating than the other tested specimen(s). The product size(s) for which the interpolated DP rating(s) is/are determined shall be equal to or smaller in width and/or height than the larger tested specimen(s) as well as equal to or larger in width and/or height than the smaller tested specimen(s). The basis for the Total Product Comparative Analysis shall be the interpolated DP rating(s) achieved from the tested specimen(s). The interpolated DP rating(s) may exceed the DP rating of the larger tested specimen(s), but shall not exceed the DP rating of the smaller tested specimen(s). The tested specimens shall comply with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440 or optionally for side hinged door systems of ASTM E330 Procedure A. For composite units, these restrictions shall apply to each window/door element of the composite unit.