COMMERCIAL & RESIDENTIAL GARAGE DOOR DIVISION
DASMA TECHNICAL DATA SHEET
#453

Door & Access Systems Manufacturers Association International
1300 Sumner Avenue
Cleveland, Ohio 44115-2851
Phone: 216-241-7333 • Fax: 216-241-0105
E-mail: dasma@dasma.com

DASMA Technical Data Sheet #187/294/453
Environmental Considerations for Exterior Doors
(Sectional Doors; Rolling Doors and High Performance Doors)

Scope

This Technical Data Sheet is intended to give an overview of typical environmental considerations for exterior sectional, rolling and high-performance doors. Subjects in this document include R-value and U-factor, air infiltration, solar heat gain, visible light transmittance, cycle life, operability, and volatile organic compounds (VOCs.) Please note that all items may not be applicable to all door types.

R-value and U-factor

The *R-value of a component* and the *U-factor of an installed assembly* are two indications of a product's thermal efficiency.

R-values are typically calculated values, using methods similar to those in TDS-163. Determination of U-factor for door assemblies should be determined based on either testing to ANSI/DASMA 105, or simulation in accordance with National Fenestration Rating Council (NFRC) standard 100 with validation testing in accordance with NFRC standard 102.

Air Infiltration

Air Infiltration involves the amount of air allowed to "infiltrate" through an installed door assembly.

Air infiltration values, reported as the volume of air moving per second per square foot of door area, should be determined in accordance with ANSI/DASMA 105.

Solar Heat Gain

Solar heat gain, the fraction of solar heat admitted through a glazed product, is a consideration whenever glazing is present in a door. The effect of solar heat gain is dependent on several factors: the amount of

glazing in the door; the direction the door faces, the climate from a temperature standpoint; and the climate from a cloudiness standpoint.

Solar heat gains coefficient (SHGC) values may be determined by using calculation procedures outlined in NFRC standard 200. In the case of doors that can be manufactured to fit in a 7 foot by 7 foot opening, SHGC may be determined through testing to NFRC standard 201.

Visible Transmittance

Visible transmittance (or daylighting) depends upon the amount of visible light spectrum which passes through a certain type of glazing.

Visible transmittance values can be obtained through calculations in accordance with NFRC standard 200.

Cycle Life

Longer door cycle life leads to longer product life. This reduces landfill costs for removing and disposing of the old door, reduces the energy used to manufacture and transport a replacement door, and therefore has a positive environmental effect. The life of the door can be extended in most cases by periodic replacement of worn out components. A manufacturer can determine cycle life in accordance with ANSI/DASMA 109.

Options that extend a door's cycle life are product-specific. The door manufacturer should be contacted for details.

Operability

Consideration should be given to operating doors electrically as opposed to manually. Even though energy is consumed in the process of a motor operator opening and closing a door, there may be more than an offsetting benefit for an exterior door. Building energy savings could be achieved through an electrically operated door by taking less time to operate, or by the door being more likely to be kept closed when access to the opening is no longer needed.

Volatile Organic Compound (VOC)

There are U.S. Federal limits on VOCs with respect to their release into the atmosphere. VOC- related aspects of a door may involve factory pre-painted or powder coat finishes, field applied sealants and field applied finishes. The manufacturer typically complies with these limitations and provides data for field-applied materials they might supply. A door installer who finishes a door at a job site may be required to use materials with low VOC content in accordance with state or local requirements. Building owners who choose to finish their own doors should be aware of state or local requirements, and may want to contact the door manufacturer for further guidance.