HIGH PERFORMANCE DOOR DIVISION
DASMA TECHNICAL DATA SHEET
#456

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High Performance Door Operation Under Wind Load Conditions

Introduction

This document provides information regarding the operation of a high performance door when subjected to wind loads acting to push the door inward (positive load) or pull the door outward (negative load.) This information can help door dealers and owners understand the effects of wind on door operation, and to dialogue intelligently with high performance door manufacturers regarding the matter.

General

Whether a high performance door may still be operated at a given wind speed depends on many factors, especially door width and panel design (material type, gauge, and shape.) The maximum wind load at which a particular door is still able to operate is called the *operational wind load* of the door.

Consult high performance door manufacturers for information on how wind affects the operation of particular products. Manufacturers use a variety of methods to keep their doors operating under wind conditions.

Operational Wind Load vs. Design Wind Load

It is important to distinguish *operational wind load*, as defined above, from *design wind load*. In accordance with ASCE 7, the recognized standard for determining loads on buildings, design wind load is the wind pressure a fully closed door is designed to withstand while remaining intact and safely operable *after* the wind ceases. When the wind force exceeds the design load for the door, the door can be blown out of the guides by being pushed into the building (under positive wind load) or pulled out of the opening (under negative wind load.) The design wind load is usually much higher than the operational wind load.

Automatic Operated Door Subjected to Wind Load

When doors are operated automatically, the controls are typically wired for momentary contact on open and close buttons or sensors. When operating doors by momentary control contact in windy conditions exceeding the operational wind load, damage to the door may occur. An electrically operated door subjected to wind load may need to have the door controls wired for constant contact for both opening and closing the door. This means that the door will move while the open or close button is depressed and the door will stop when the button is released.

Specific Applications

The door manufacturer should be contacted if a door will be operated under windy conditions, or if a door is installed on a building with controlled internal pressure.