

Technical Bulletin

Issue Date: May 1st, 2020
Issued By: FiberTite Technical Services
Re: FM Global Updates Data Sheet 1-28, Wind Design

Notice:

Until recently, FM Global based wind uplift calculations on ASCE 7-05. In the February 2020 release, FM Global has updated the Property Loss Prevention Data Sheet 1-28 that will significantly impact uplift requirements for FM Global projects.

This update will maintain the existing DS 1-28 wind maps based on ASCE 7-05 wind maps, utilizing allowable wind speeds based with a 50 to 100 year mean recurrence interval (MRI). This decision was made based on the worldwide nature of FM Global’s business and the norm of employing allowable wind speeds as opposed to ultimate wind speeds in system design for the vast majority of the 140 countries in which they currently conduct business.

Additionally, wind uplift calculations following FM DS 1-28 will continue to use an Importance Factor (IF) of 1.15 and a Safety Factor (SF) of 2.0 for new construction.

The major change to the FM Global DS 1-28 is the adoption of the new roof pressure coefficients and low slope roof zone dimensions from ASCE 7-16. The adoption of the new ASCE 7-16 external pressure coefficients for components and cladding will result in increased uplift pressures in the field (Zone 1), perimeter (Zone 2), and corners (Zone 3). This increase in roof uplift pressures may result in the need to increase fastening patterns for Zone 1-3.

The roof zone dimension changes include revised perimeter and corner dimensions for low slope roofs ($\leq 7^\circ$). Those zone widths have increased from 0.4 times the building height to 0.6, resulting in larger perimeter (Zone 2), corner (Zone 3), and a new dimension requirement for the field (Zone 1). Corners (Zone 3) dimensions have also been changed to form an “L” shape, with dimensions established from 0.2 * height for the width and 0.6 * height for the length of Zone 3.

- Zone 1: Interior Field, 0.6* Height in from Zone 1 and 1.2* Height in from roof edge
- Zone 1: 0.6 * Height in from Zone 2
- Zone 2: 0.6 * Height in from roof edge
- Zone 3: 0.2 * Height for width and 0.6 * height for length

The addition of Zone 1 Prime (1') from ASCE 7-16 will provide a 10% reduction for final wind pressures in the interior field of buildings that meet the necessary dimensions required to include a Zone 1', typically wide roofs with a height of 60 feet or less. Below are examples of the various zone layouts that could result from different building dimensions.

