

CA-02-GC-04-21

FM 1-29 Data Sheet – 2020 Summary Update

Carlisle's Code Alerts address issues pertaining to FM and UL, bring awareness to industry updates and new approvals, and discuss existing approved assemblies that may require additional clarification. The contents of each release will address specific field inquiries or respond to unique market trends. Feedback concerning future topics is strongly encouraged.

FM 1-29 Data Sheet – Summary Update Adhered Roofing Systems

An updated version of the FM 1-29 Property Loss Prevention Data Sheet was published in February 2020. Changes made to that document that affect adhered roofing systems include the following:

New designations for field, perimeter, and corner areas. Now referred to as Zones 1, 2, and 3, respectively.
Addition of a new secondary interior field area, designated as Zone 1' (Zone 1 Prime).
Modified perimeter and corner prescriptive insulation attachment enhancements for adhered roofing systems utilizing ribbon adhesive. (Mechanically attached insulation enhancements have not changed.)

This Code Alert will focus on the February 2020 FM 1-29 prescriptive enhancement requirements for insulation attachment using mechanical fasteners and ribbons of adhesive on adhered roofing systems.

Prescriptive Enhancements – Adhered Systems

Prescriptive enhancements for Zones 2 and 3 of a building are acceptable when either of the following conditions are met:

- The FM Zone 1 rating in any location does not exceed 1-90, OR
- The building is located in a non-tropical cyclone-prone region and the Zone 1 rating does not exceed 1-105.

Buildings that do not meet these criteria must use a roofing system with an FM-approved wind uplift rating that meets or exceeds the design rating for each Zone (1', 1, 2, and 3).

Adhered Systems Using Mechanical Fasteners

The method for prescriptively enhancing adhered systems that utilize mechanically fastened insulation has not changed. The attachment requirements are as follows:

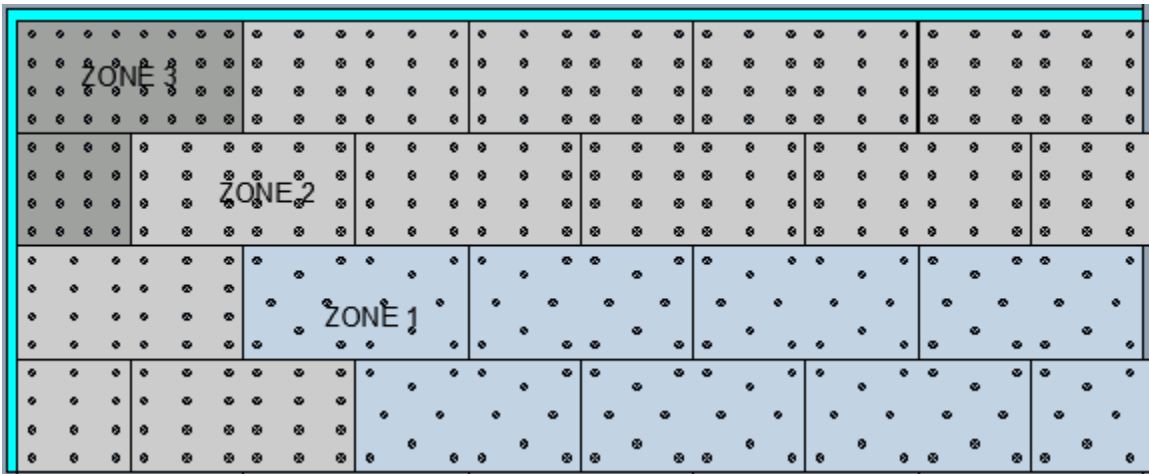
- Zone 2 - 50% increase over Zone 1 but no less than 1 fastener/plate per 2 ft² (16 per 4' x 8' board).
- Zone 3 - 1 fastener/plate per 1 ft² (32 per 4' x 8' board).

Mechanically Fastened Insulation Example

A roofing assembly specified for use in a non-tropical cyclone-prone region achieves a 1-105 wind uplift rating using 1 fastener/plate per 2 ft² (16 per 4' x 8' board). The enhanced Zone fastening would be as detailed in the following table.

1-105 Rated Adhered Assembly – Fastened Insulation			
Zone 1' Fastening	Zone 1 Fastening (Tested)	Zone 2 Fastening (50% increase of Zone 1)	Zone 3 Fastening
Use Zone 1 or alternate system meeting Zone 1' rating requirements	16 fasteners per 4' x 8' board	24 fasteners per 4' x 8' board	32 fasteners per 4' x 8' board

The plan view fastening for this example would appear as shown below. Zone 1' is not shown.



Adhered Systems Using Ribbon-Applied Adhesives

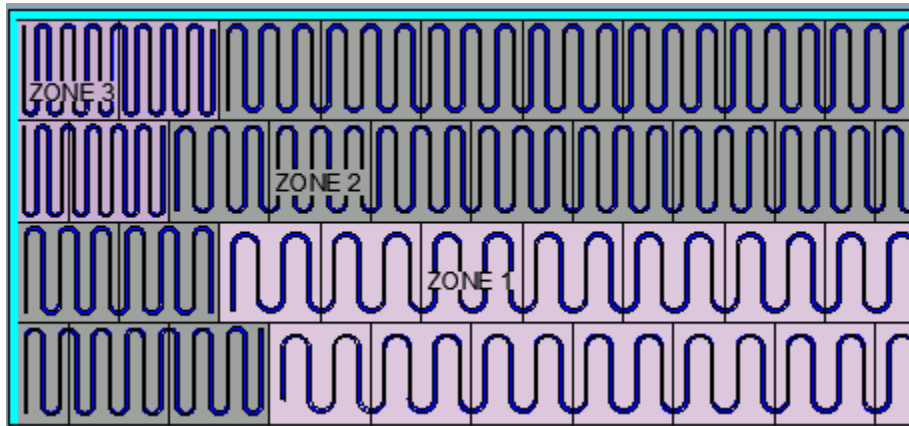
The method for prescriptively enhancing insulation attachment with ribbon-applied adhesive on adhered systems has changed. The Zone 2 reduction in spacing between ribbons has changed from 60% (previously allowed) to 67% of the tested Zone 1 spacing. Likewise, the Zone 3 reduction of spacing between ribbons has changed from 40% to 50% of the Zone 1 spacing.

Ribbon-Attached Insulation Example

A roofing assembly specified for use in a non-tropical cyclone-prone region achieves a 1-105 wind uplift rating using ribbons of adhesive spaced 12" o.c. The enhanced Zone ribbon spacing would be as detailed in the following table.

1-105 Rated Adhered Assembly – Adhesive Ribbons			
Zone 1' Spacing	Zone 1 Spacing (Tested)	Zone 2 Spacing (67% of Zone 1)	Zone 3 Spacing (50% of Zone 1)
Use Zone 1 or alternate system meeting Zone 1' rating requirements	12" o.c. max.	8" o.c. max.	6" o.c. max.

The plan view ribbon spacing for this example would appear as shown below. Zone 1' is not shown.



Non-Prescriptive Enhancements

The option is always available to provide a roofing system that has been tested to achieve the uplift pressure requirement/FM rating for each roof Zone. As such, a system that meets the Zone 3 requirements may be installed over the entire roof, or multiple systems may be installed to meet the individual Zone 1', 1, 2, and 3 design pressures.

This code alert is intended for informational reference only and shall not be considered a replacement for the actual FM 1-29 publication. All FM-insured projects must be reviewed by the local FM Engineering office before beginning any roofing work.

For additional information, please visit <https://www.roofnav.com> to access the RoofNav number search, RoofNav Ratings Calculator, and all applicable Property Loss Prevention Data Sheets.

Care must be taken with these systems to ensure Carlisle's minimum warranty requirements are met. The fastening rates and ribbon spacings used in these examples may not satisfy warranty requirements.