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Technical Advisory Bulletin

To: GAF Commercial Sales, GAF Contractors, Field Services, AIS, CARE
From: Technical Services
No: TAB-C-48

Changes to FM's Data Sheet 1-34 – Hail Damage

What Is The Concern?

Property Loss Prevention Data Sheet 1-34—Hail Damage was updated in March 2018 (followed by editorial changes in July). Significant changes include:

- Revised US hail map that uses a 15-year mean recurrence interval.
- Revised definitions for very severe, severe, and moderate hail areas.

This update has generated questions on how the changes affect meeting FM requirements.

What Is A Loss Prevention Data Sheet?

Loss Prevention Data Sheets provide FM's best advice for new construction and for Data Sheet 1-34, this includes new or reroofing projects on existing buildings. The data sheets are recommendations and are not mandated by FM Global.

Data Sheet 1-34 provides guidelines to minimize the potential for hail damage to buildings, and roof-mounted equipment. FM Global intends data sheets apply to its insured buildings; however, some designers use data sheets as design guidelines for buildings other than those insured by FM Global.

Important note: You should verify if Data Sheet 1-34 applies to your specific project.

What Are The Definitions Of Moderate, Severe Hail and Very Severe Hail?

Moderate Hail (MH) hazard area: Areas in which the hail size does not exceed 1.75 in. (44 mm) for the 15-year mean recurrence interval (MRI).

Severe Hail (SH) hazard area: Areas in which the hail size exceeds 1.75 in. (44 mm) but does not exceed 2 in. (51 mm) for the 15-year mean recurrence interval (MRI).

Very Severe Hail (VSH) hazards area: Areas in which the hail size exceeds 2 in. (51 mm) for the 15-year mean recurrence interval (MRI).

The MH, SH and VSH hazard areas are shown in Figure C-1, Hailstorm hazard map for the contiguous United States. See the last page of this TechFlash for the hailstorm hazard map.

Important note: The hail sizes referenced in the MH, SH and VSH definitions are used to determine the hazard areas on the map. They do not correlate to the testing procedures to determine hail ratings.

What Are The Definitions Of Moderate, Severe Hail and Very Severe Hail?

Recommendations are in Table 2.2.1.1-1 Recommended Hail Ratings for Roofs.

Hail Hazard Area	Recommended or Acceptable?	Roof Assembly Type	FM Approval Hail Rating
VSH	Recommended	Single-Ply & modified bitumen	VSH
		Concrete paver ballasted roofs. (See DS 1-29) ¹	N/A
	Acceptable ²	Standing seam & lap seam panel roofs	SH
		Asphalt shingle or tile roofs	FM Class 4
SH	Recommended	Built-Up Roof (BUR)	SH
		Any FM Approved roof	VSH, SH, FM Class 3, or FM Class 4
		Concrete paver or stone aggregate ballasted roofs. (See DS 1-29) ¹	N/A
MH	Recommended	Any FM Approved roof	VSH, SH, MH, FM Class 2, FM Class 3, or FM Class 4
		Concrete paver or stone aggregate ballasted roofs. (See DS 1-29) ¹	N/A

Does GAF Have VSH-rated Roofing Assemblies?

GAF has six VSH-rated roofing assemblies, four with steel decks and two with structural concrete decks.

Assembly 1

- 60 – 80 mil EverGuard® TPO or EverGuard Extreme® TPO adhered in EverGuard® TPO #1121 Bonding Adhesive, EverGuard® Low VOC TPO Bonding Adhesive or EverGuard® Low VOC TPO 3 Square Bonding Adhesive.
- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 1.5 in. EnergyGuard™ or EnergyGuard™ RA Polyiso Insulation mechanically attached at 1 per 2 sq. ft. (16 fasteners per 4 ft. x 8 ft. board) with Drill-Tec #12 or #14 Fasteners and Drill-Tec 3” Steel Plates, Drill-Tec™ 3” Standard Steel Plates, Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ AccuTrac® Flat Plates or Drill-Tec™ AccuTrac® Recessed Plates.
- Steel Deck
- 1-90 Wind Uplift Rating
- Class A @ 0.5 in 12 (#1121 or Low VOC 3 Square Adhesive); Class A @ 0.25 in 12 (Low VOC Adhesive)

Assembly 2

- 60 – 80 mil EverGuard® TPO or EverGuard Extreme® TPO adhered in EverGuard® TPO #1121 Bonding Adhesive, EverGuard® Low VOC TPO Bonding Adhesive or EverGuard® Low VOC TPO 3 Square Bonding Adhesive.



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- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 2.0 in. EnergyGuard™ or EnergyGuard™ RA Polyiso Insulation mechanically attached at 1 per 4 sq. ft. (8 fasteners per 4 ft. x 8 ft. board) with Drill-Tec™ #12 or #14 Fasteners and Drill-Tec™ 3" Steel Plates, Drill-Tec™ 3" Standard Steel Plates, Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ AccuTrac® Flat Plates or Drill-Tec™ AccuTrac® Recessed Plates.
- Steel Deck
- 1-90 Wind Uplift Rating
- Class A @ 0.5 in 12 (#1121 or Low VOC 3 Square Adhesive); Class A @ 0.25 in 12 (Low VOC Adhesive)

Assembly 3

- 80 mil EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra adhered in OlyBond500® Canisters applied in a spatter pattern.
- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] or min. 7/16 in. x 4 ft. x 4 ft. Oriented Strand Board (OSB) [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 1.5 in. EnergyGuard™ or EnergyGuard™ RA Polyiso Insulation mechanically attached at 1 per 2 sq. ft. (16 fasteners per 4 ft. x 8 ft. board) with Drill-Tec™ #12 or #14 Fasteners and Drill-Tec™ 3" Steel Plates, Drill-Tec™ 3" Standard Steel Plates, Drill-Tec 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ AccuTrac® Flat Plates or Drill-Tec™ AccuTrac® Recessed Plates.
- Steel Deck
- 1-90 Wind Uplift Rating
- Class A @ 0.5 in 12

Assembly 4

- 80 mil EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra adhered in OlyBond500® Canisters applied in a spatter pattern.
- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] or min. 7/16 in. x 4 ft. x 4 ft. Oriented Strand Board (OSB) [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 2.0 in. EnergyGuard™ or EnergyGuard™ RA Polyiso Insulation mechanically attached at 1 per 4 sq. ft. (8 fasteners per 4 ft. x 8 ft. board) with Drill-Tec™ #12 or #14 Fasteners and Drill-Tec™ 3" Steel Plates, Drill-Tec™ 3" Standard Steel Plates, Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ AccuTrac® Flat Plates or Drill-Tec™ AccuTrac® Recessed Plates.

- Steel Deck
- 1-90 Wind Uplift Rating
- Class A @ 0.5 in 12

Assembly 5

- 60 – 80 mil EverGuard® TPO or EverGuard Extreme® TPO adhered in EverGuard® TPO #1121 Bonding Adhesive, EverGuard® Low VOC TPO Bonding Adhesive or EverGuard® Low VOC TPO 3 Square Bonding Adhesive.
- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 0.5 in. x 4 ft. x 4 ft. EnergyGuard™, EnergyGuard™ Tapered or min. 1.5 in. x 4 ft. x 4 ft. EnergyGuard™ RA or EnergyGuard™ RA Tapered Polyiso Insulation adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Structural Concrete Deck
- 1-360 Wind Uplift Rating
- Class A @ 0.5 in 12 (#1121 or Low VOC 3 Square Adhesive); Class A @ 0.25 in 12 (Low VOC Adhesive)

Assembly 6

- 80 mil EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra adhered in OlyBond500® Canisters applied in a spatter pattern.
- Min. 19/32 in. x 4 ft. x 4 ft. Plywood [APA rated] or min. 7/16 in. x 4 ft. x 4 ft. Oriented Strand Board (OSB) [APA rated] adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Min. 0.5 in. x 4 ft. x 4 ft. EnergyGuard™, EnergyGuard™ Tapered or min. 1.5 in. x 4 ft. x 4 ft. EnergyGuard® RA or EnergyGuard™ RA Tapered Polyiso Insulation adhered in OlyBond500® Canisters or OlyBond500® Adhesive Fastener 12 in. o.c.
- Structural Concrete Deck
- 1-360 Wind Uplift Rating
- Class A @ 0.5 in 12

Does FM Offer Warranties Or Guarantees?

FM Global is an insurance company and they do not issue warranties or guarantees. FM Global's insurance policies typically include coverage for hail damage and there can be a separate deductible for hail.

The final decision on a building's protection remains with FM clients, supported by FM Global field operation offices who will discuss the benefits of following the data sheets, such as providing roofs with the appropriate hail rating.



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*Does GAF Offer A
Warranty For Hail
Damage?*

Hail damage is not covered under GAF's standard system guarantees or product warranties. GAF only offers hail coverage on certain TPO roofs through its EverGuard® TPO Puncture Resistance Limited Warranty. For coverage and restrictions, see the sample warranty at www.gaf.com.

Not all TPO roofs are eligible for the EverGuard® TPO Puncture Resistance Limited Warranty. The EverGuard® TPO Puncture Resistance Limited Warranty must accompany an EverGuard® Diamond Pledge™ Guarantee. Also, only GAF Master™ and Master Select™ Contractors can offer this warranty. Other requirements and limitations on eligibility apply.

Questions?

GAF Technical Services Can Assist You... with these and other questions you may have regarding your new roof installation. Technical Support Services can be contacted at 800-766-3411. The GAF website is a great resource for just about any question you may have or for additional information you may require. Please visit www.gaf.com to find the latest information on our products and their installation.

Important: This document supersedes any prior GAF Technical Advisory Bulletins on this topic. Please always check www.gaf.com to make sure you have the most up to date information.