Overview

- Describing the hail hazard
- What is hail resiliency?
- Field observations of hail damage
- Personal & carrier perspective of hail resiliency
- Open discussion
10 Year Return Period - Observed Hail

Allen et al. 2017 (Mon. Wea. Rev.)

Evaluation of the maximum expected size of hail at grid points and the nearby region for given return periods in years.

What about the OKC Return Period for Large Hail Sizes?

What is hail resiliency?

What is Oxidation?

Malarkey Roofing Products®

Typical Asphalt Shingle Aging Process

Performance vs. Time

Oxidation of Asphalt

What Is Oxidation?
What is Resiliency?

**resilience**

Definition of resilience
1. The capability of a strained body to recover its size and shape after deformation caused especially by compressive stress.
2. The ability to recover from or adjust to adversity (such as in the context of relocation or change).

The Alaskan is created by using superior roofing asphalt, which Malarkey then modifies with SBS: Styrene Butadiene Styrene (SBS) polymers. This modification process enhances the asphalt, providing superior strength and flexibility.
By engineering properties using polymers we can alter asphalt's performance.

**OXIDIZED ASPHALT**

**SBS ASPHALT**

For asphalt shingles, a visible crack of the asphalt on the back of the shingle shall be determined to be a failure.

**UL 2218 Impact Resistance Test**

**Acceptance Criteria (7.2)**

- For asphalt shingles, a visible crack of the asphalt on the back of the shingle shall be determined to be a failure.

**Field Observations of Hail Damage**

- As a private company, we are commonly assigned jobs to:
  1. Determine if hail damage is present
     - Fringe of hail swath
     - Neighbor got new roof
  2. Extent of damage
  3. Mechanical or simulated damage
  4. Date of occurrence
Field Observations

• Determination of hail damage
  – Client found no obvious hail damage
  – Often see anomalies not related to hail impact
    • Blisters
    • Manufacturing anomalies
    • Mechanical damage

Field Observations

• Extent of damage
  – Newly-installed products perform better than aged products
  – Thicker materials perform better (i.e., laminated generally outperform similarly-aged three-tab)
  – Poorly-supported materials are more prone to damage
  – Windward sides experience more damage
  – Spatter/dents are not damage
    • Damage results in puncture/loss of water shedding capability of material

Asphalt composition shingles

Concrete tiles and slate
Field Observations

Metal panels and wood shake/shingles

Field Observations

BUR and mod-bit (coated/uncoated)

Field Observations

Single-ply membranes

Field Observations

SPF

Hail Resiliency: A Personal Story and a Carrier Perspective

Rob Galbraith, CPCU, CLU, ChFC
Author, The End Of Insurance As We Know It

April 2016 San Antonio hail event

Sources: KSAT 12 News (ABC), NWS Austin/San Antonio
Billion dollar disasters: 1980-2017

Insurance losses by type 1980-2017

IBHS Hail Study 2017

Impact-Resistant Roofs Work!

What’s needed to “solve” our hail problem?

Challenges:
• Better hail observational data is key
• Fast claims response to storms at scale
• Unique peril requires unique approach

Opportunities:
• Integration & evaluation of new data sources
• Moving from reactive to proactive approach
• Leveraging new tech such as:
  • aerial imagery
  • machine learning
  • natural language processing

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