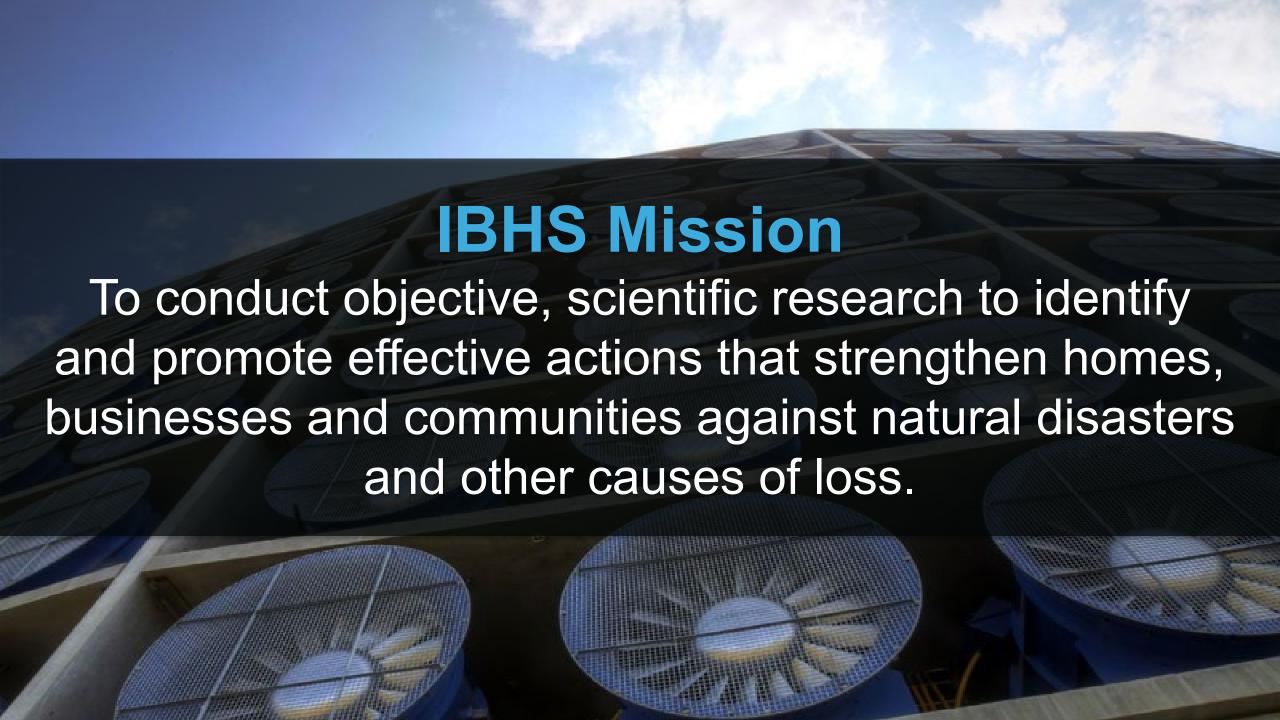


Chuck Miccolis
Vice President, Commercial Lines
Insurance Institute for Business & Home Safety







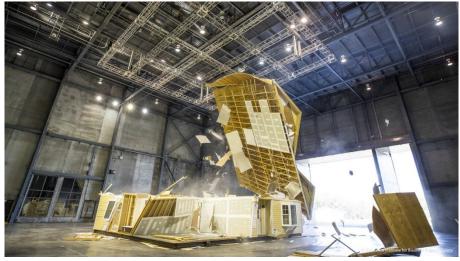
### Common Failure Points in Natural Hazards

- Roof—first line of defense
- Openings—keep Mother Nature out
- Connections—details matter



## The Roof – First Line of Defense











## Preventing Damage

### **Roof – first line of defense**

- Product selection
- Perimeter/Corner
  - Need additional securement!
- Installation details
- Flashing details





# Roof Vulnerabilities Caused by Natural Weathering

- Product brittleness
- Loss of protective coatings
- Degradation of impactresistant characteristics

How does climate impact these?

How does
length of
exposure
impact these?



#### ■

### Preventative Maintenance

- Implement periodic roof inspection and repair plan
- Repair roof leaks/ bubbles/wet insulation
- Check all penetrations

- Check roof-mounted equipment
- Remove loose objects
- Remove loose pea gravel
- Check drainage/gutters



## Failure of Roof Components

- Flat/Low-slope roof cover
   & deck failures
  - Often begin at perimeter/corner
- Roof edge fascia/flashing
- Roof-mounted equipment
- Structural and load path failures









## Metal Edge Flashing

### Why is it so important?

- Found on nearly all roof cover systems
- Encapsulates roof cover's termination
- Roof cover's first line of defense
- Failure of flashing can result in partial/total loss of roof cover
- Easy to identify if a problem and inexpensive to repair





## Openings and Connections – Details Matter



## Consequences of Building Envelope Breach

Wind damage to building's main envelope can cause consequences including but not limited to

- Water intrusion
- Mold growth
- Structural stability issues
- Safety concerns
- Business downtime





# Low-Slope Roof Covers Recommended Wind Ratings

### Low-slope roofs

FM Approvals



Miami-Dade County Approved NOA



- Florida Product Approval
- Texas Dept. of Insurance, "Product Evaluation Index for Roof Coverings"
- ICC Evaluation Services (ES)









# Steep-Slope Roof Covers Recommended Wind Ratings

#### **Steep-slope roofs**

Attach deck with 2.0 safety factor and seal the roof deck

#### Asphalt shingle

- 110 mph = ASTM D3161 Class F; MDCA TAS 107; ASTM D7158 Class G or H
- 120 mph = ASTM D7158 Class G or H
- ≥ 130 mph = ASTM D7158 Class H

#### Concrete, clay tile

 Concrete and Clay Roof Tile Installation Manual by the Tile Roofing Institute (avoid mortar set installations)



## Hail Impact–Resistance Ratings

### Low-slope roofs

- FM Approvals Standard 4470, Class 1-SH
- UL 2218 Class 4 (Steep-slope/shingles)
- ASTM D3746 Standard Test for Bituminous Roofing Systems



# How Much Would You Spend to Stay Open for Business®?

- Upgrades to a stronger building may cost less than 5% of total building construction cost
- In many areas of the country, 5% is less than cost of sales tax on building materials





# Mitigation

\$6 in savings for every \$1 spent via federal mitigation grants

According to 2017 NIBS Study



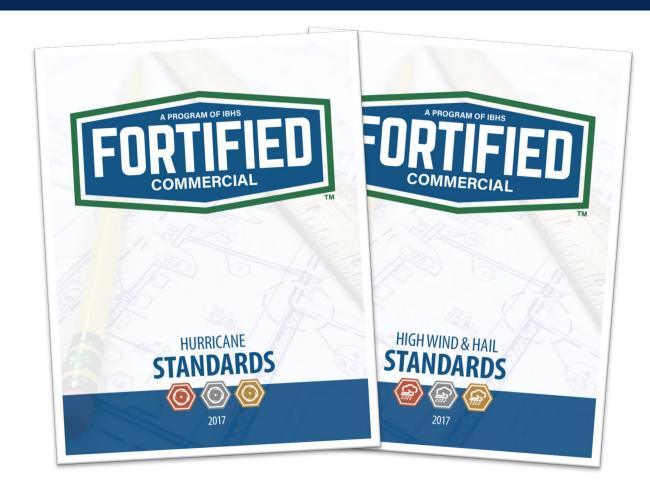
### **FORTIFIED**

- Voluntary, superior construction standards designed to build and retrofit stronger, safer buildings that are more disaster-resistant
  - Grounded in 20+ years IBHS research
  - Technical standards (FORTIFIED Commercial™ and FORTIFIED Home™)
  - Inspection- and quality control-based



## FORTIFIED Commercial: Eligible Buildings

- Chapter 3, Section 302 of the 2015 International Building Code
- NOT high hazard occupancies and low-value buildings (sheds)





## FORTIFIED Commercial: Systems Evaluated

Hurricane

High Wind & Hail



Roof System



Roof System



Building Envelope and Electrical Connections for Backup Power



Building Envelope Protection and Optional Electrical Connections for Backup Power



Continuous Load Path; On-Site Backup Power for Critical Utilities



Continuous Load Path; On-Site Backup Power for Critical Utilities







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