

Disaster Safety Review

**BUILDING
COMMUNITY
RESILIENCE**



IBHS ROOF FARMS: EFFECTS OF LONG-TERM AGING

Several IBHS closed claims studies have shown that older buildings have higher claim frequencies in a variety of natural disasters. In some cases, this may be due to changes in building codes requiring stronger construction for new buildings. In other instances, it could be due to degradation of building materials or poor maintenance practices for older buildings. Many roofing products are known to degrade over time, with the amount of degradation expected to vary with the local environment. Controlled aging of roofs in various climates coupled with systematic testing for wind and impact resistance will provide needed data to improve vulnerability assessments.

IBHS has initiated a long-term aging program to study performance of aged roofing materials when subjected to high wind or impact tests. Material types, roof pitch, aging lengths, and type of weathering concerns were prioritized by the Research Advisory Council's Shingle Roofing Research Task

Force, comprised of council members and Lab Founders within the IBHS Residential Committee.

PRIMARY AREAS OF FOCUS

AGING	MATERIAL	ROOF SLOPE	WEATHERING TYPE
Control (baseline) 5-year 10-year 15-year 20-year	3-tab asphalt Architectural asphalt	6 x 12	Effect of climate Length of aging Directionality of sun exposure

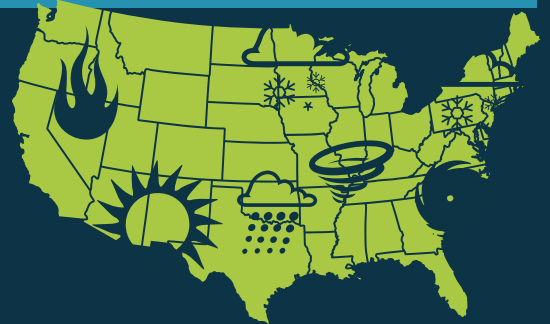
IBHS ROOF FARMS: EFFECTS OF LONG-TERM WEATHERING

The IBHS Roof Farm project scope was developed to ensure consistent designs and focused variability. Specimens are constructed as a "set." Each set includes new specimens, as well as those that will age for 5, 10, 15, and 20 years. Each individual specimen includes multiple panels to allow for repetition in testing of various wind and hail test standards, and each features north-facing and south-facing panels to examine differences that may occur due to sun exposure.

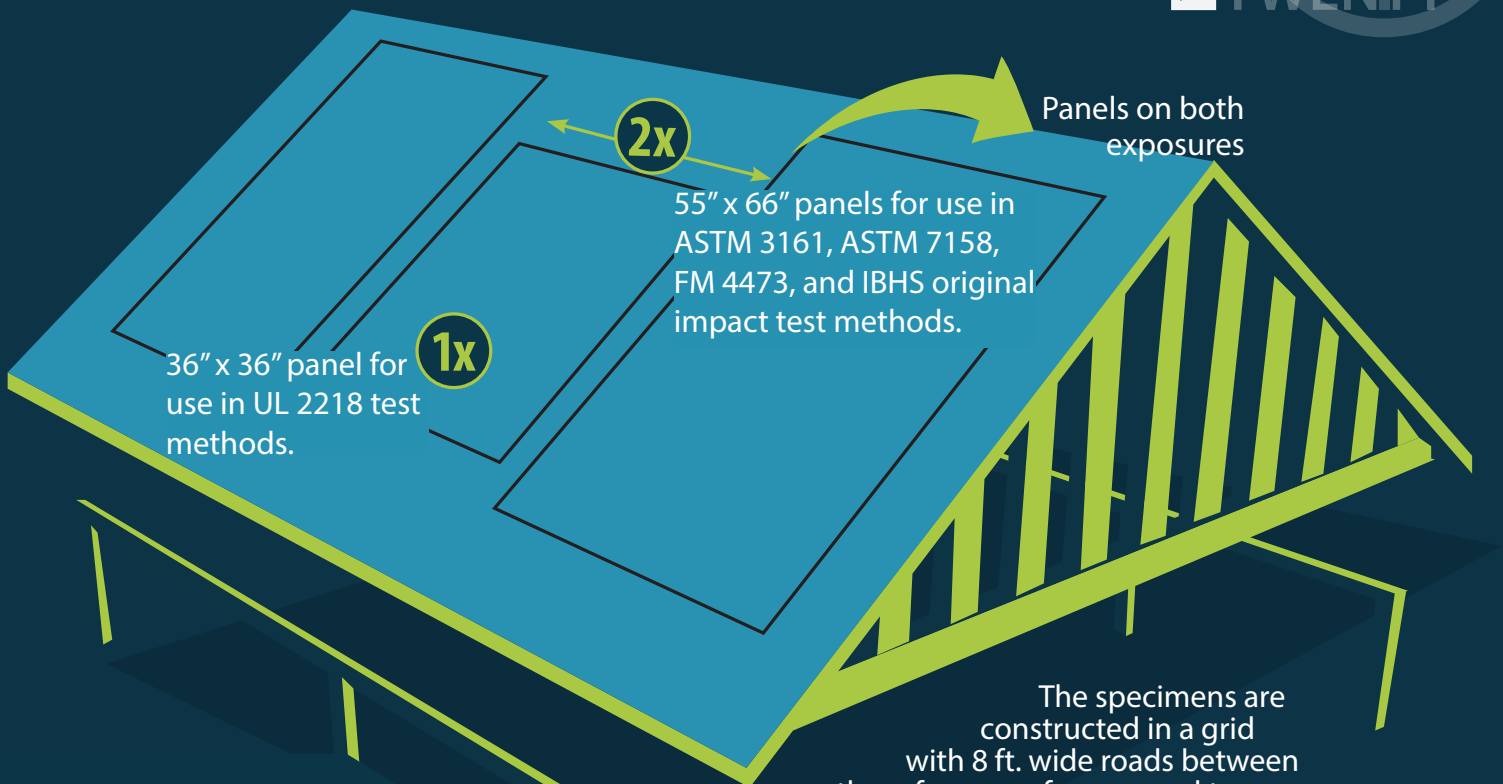
SCOPE

Each specimen is 15 ft. x 15 ft. with a simple gable roof, 6/12 pitch, and code-required soffit and ridge ventilation. The roof is enclosed on the sides and bottom to create an enclosed ventilated attic. Specimens will be aged for future wind and impact testing. 2,900 sq. ft. (0.07 acres) is required for a "set" of four roof specimens.

CLIMATES & ELEMENTS



IBHS is interested in collaborating with partners who are willing to construct and install duplicate specimens and similar instrumentation systems at their respective locations.



36" x 36" panel for use in UL 2218 test methods.

55" x 66" panels for use in ASTM 3161, ASTM 7158, FM 4473, and IBHS original impact test methods.

Panels on both exposures

The specimens are constructed in a grid with 8 ft. wide roads between them for ease of access and to reduce shadows.

ROOF PRODUCTS SELECTED BY:

- TYPE
- MANUFACTURER
- MARKET PREVALENCE
- STANDARD TEST RATINGS

The specimens are installed on a post system approximately 3-4 ft. above ground level.



Advancing Stronger Building Codes

IBHS CODE PROPOSALS ADOPTED

A major priority for IBHS is to drive better roof design, installation, repair and replacement practices – as well as improving roofing material standards – with the goal of “getting the roof right” across the country. The roof is the first line of defense against extreme weather events, and it also is the most vulnerable component on any building. The best, fastest path to significantly reducing property losses is by focusing first on roofs. The Institute made important progress on this front in 2013, with adoption of three roof-related model code proposals by the International Code Council (ICC); all three will be included in the 2015 International Residential Code® (IRC).

All three IBHS proposals address roof cover underlayments or recognize methods for sealing the roof deck – an effective way to reduce interior water damage

when roof cover is damaged or lost. The IBHS proposals:

- clarify the installation and use of certain underlayments that can be used as an effective method for sealing roof decks;
- consolidate underlayment requirements for all roof covering types in one section of the code to make them easier to find; and
- lower the wind speed threshold triggering the enhanced underlayment provisions from 120 mph to 110 mph, so that more areas of the country prone to high winds will be covered by the underlayment requirements.

In other action at the ICC this year, IBHS joined several organizations and individuals in opposing a proposal that would have undermined a minimum fire safety requirement in the IRC. The proposal

sought to exclude attic vents from the fire separation requirements of the code, which could have allowed vents to be installed too close to property lines and facilitated the spread of fire between houses.

This is the first three-year IRC amendment cycle during which code proposals based on IBHS Research Center laboratory testing were proposed. And we believe that their acceptance signals even more success in the future as we advocate science-based best practices for residential and commercial construction and retrofitting.

MIDTERM UPDATE TO RATING THE STATES REPORT

IBHS released a midterm update to its *Rating the States* report in August, which reviewed the progress that the 18 most hurricane-prone coastal states along the Gulf of Mexico and the Atlantic Coast have made in strengthening their residential building codes, since the original report was released in January 2012. In a positive development, the review concluded that half (nine) of the states have acted to improve their codes, and most of the states with strong code systems in place at that time of the original report remain committed to building safety. These states have updated their codes to the most recent model building codes, and in some instances, passed legislation to further strengthen code protections. Seven states have taken no action, and two have acted to weaken their code systems.

IBHS plans to issue a new report in 2015, which will revise the rating for each state based on actions taken since the original report. To review the *Rating the States Midterm Update*, visit www.disastersafety.org/building_codes/rating-the-states_ibhs.



All three
IBHS
proposals
address
roofing
issues



110
mph

120
mph



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