



# Building Stronger in Jacksonville: Best-Practices for Residential & Commercial Construction

City Council Special Committee on Resiliency

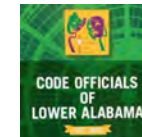
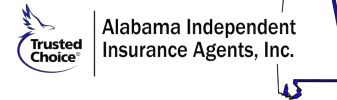
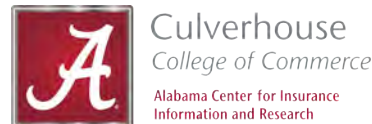
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Julie Shiyou-Woodard, President and CEO



# SMART HOME





# Why We Exist

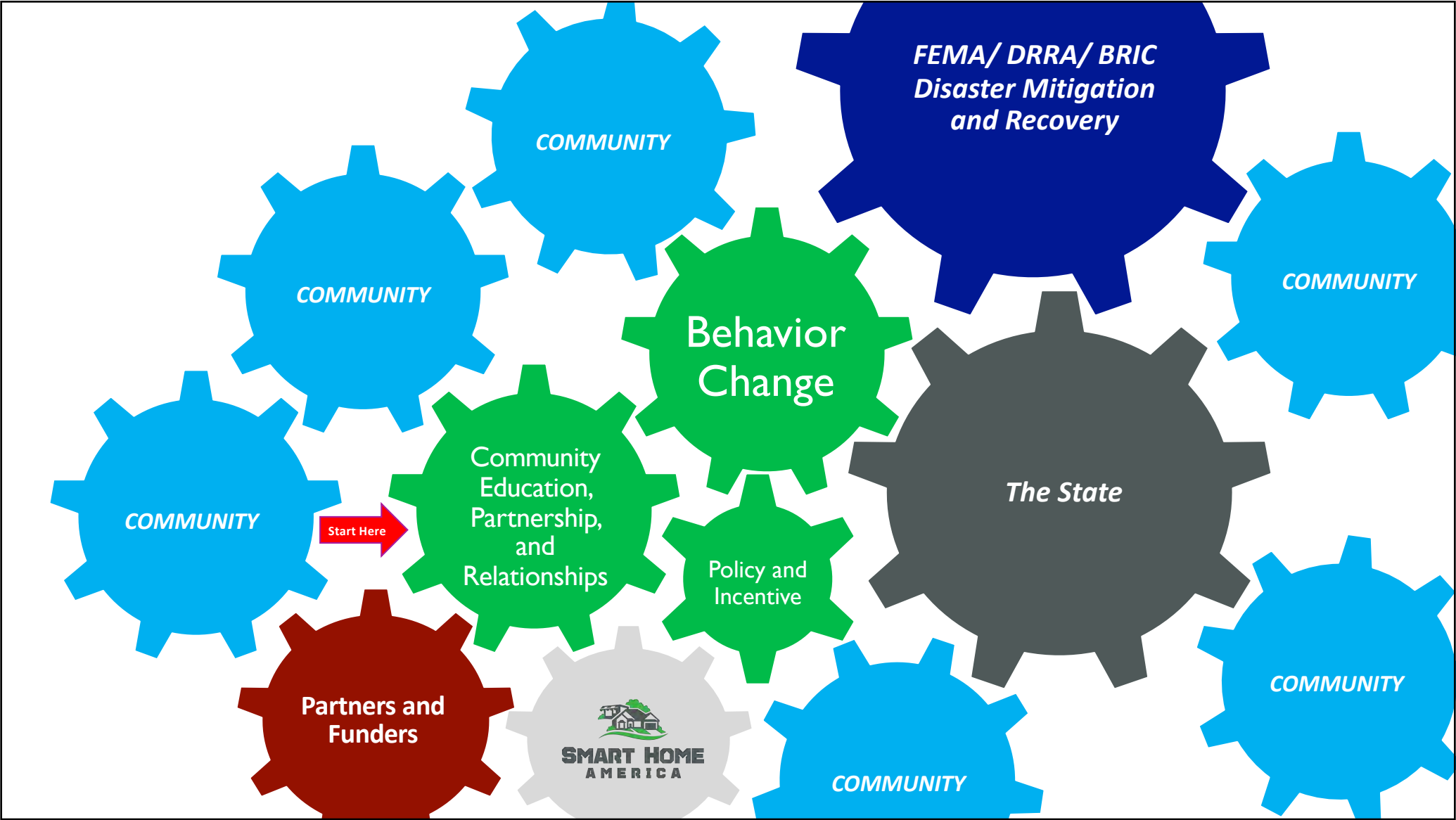
To educate leaders, residents, and industry about smarter, safer buildings and tested policies, products, and techniques that build resilient and sustainable communities.



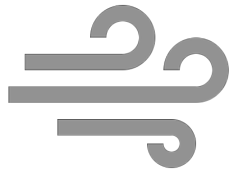


Consumers  
Building Officials  
Real Estate  
Insurers  
Elected Officials  
NGO's

Contractors  
Appraisers  
Manufacturers  
Suppliers  
Architects & Engineers  
Academics



# Multi Hazard Resilience



Wind + Water + Insurance + Contingency





<https://vimeo.com/316175383>





The IBHS mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses and communities against natural disasters and other causes of loss

# Wind

# Wind-Driven Rain

# Hail

# Wildfire



## Initial Performance (test standards)



## Aging Effects



## Repair vs. Replacement

**2/3**  
of homes  
are  
underinsured

By an  
average of  
**17%**

**\$200,000**  
**Home =**  
**\$34,000**  
**underinsured**





**75%**  
of businesses  
are not insured  
or are  
underinsured

Average  
Underinsured  
Amount is  
**40%**

**40%**  
of Small Businesses  
don't reopen after  
a disaster

FEMA.gov

We know what to do

...and home is more valued than ever



# Building Codes

**The MINIMUM Standard**



Source: Google Earth





# Water Intrusion









[fortifiedcommercial.org](http://fortifiedcommercial.org)



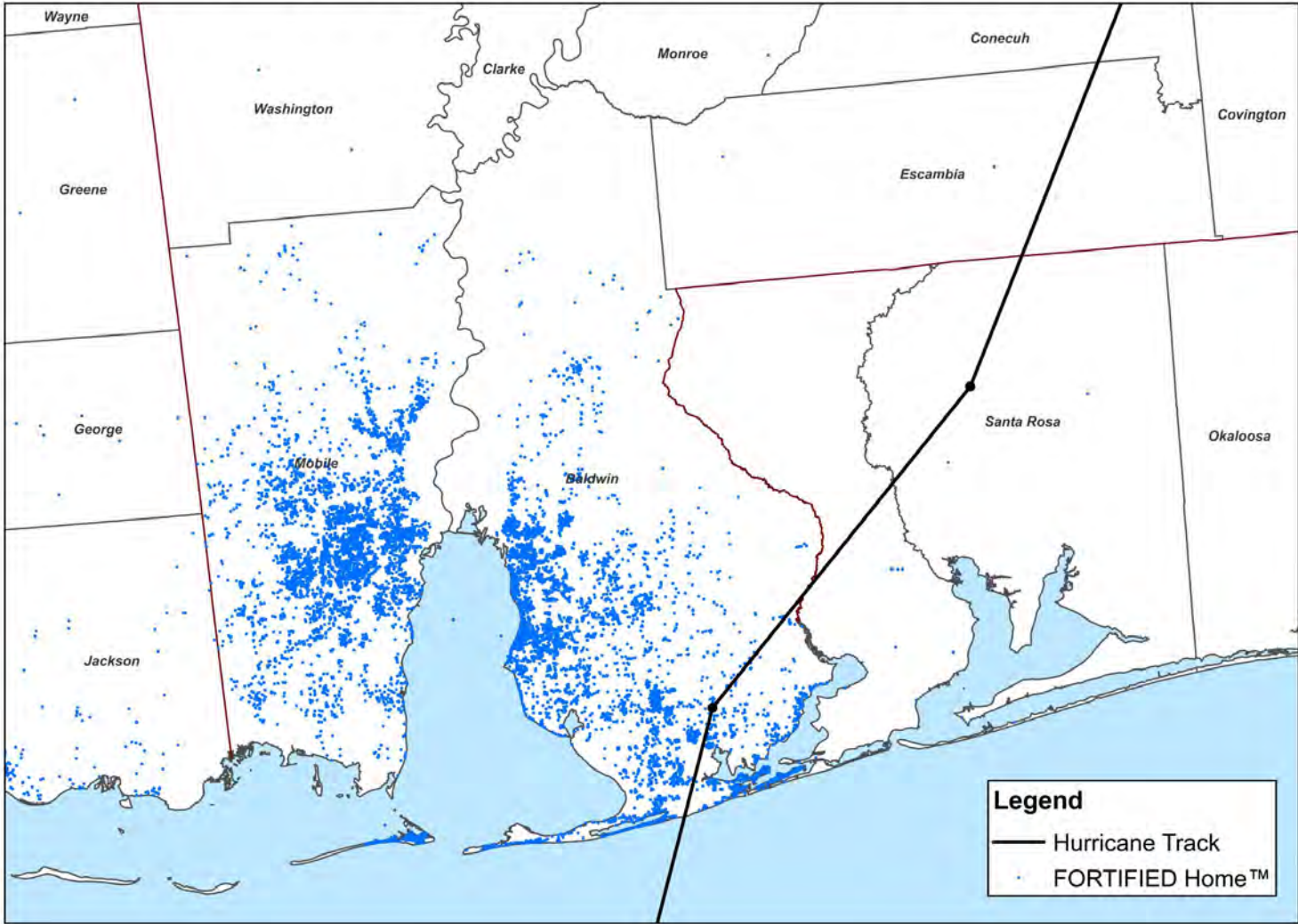
[fortifiedhome.org](http://fortifiedhome.org)

# WHAT IS FORTIFIED?



© Insurance Institute for Business & Home Safety

# Hurricane Sally and IBHS FORTIFIED Home™







ORES, AL

<https://vimeo.com/461104502>



<https://vimeo.com/463077571>





<https://vimeo.com/463078217>





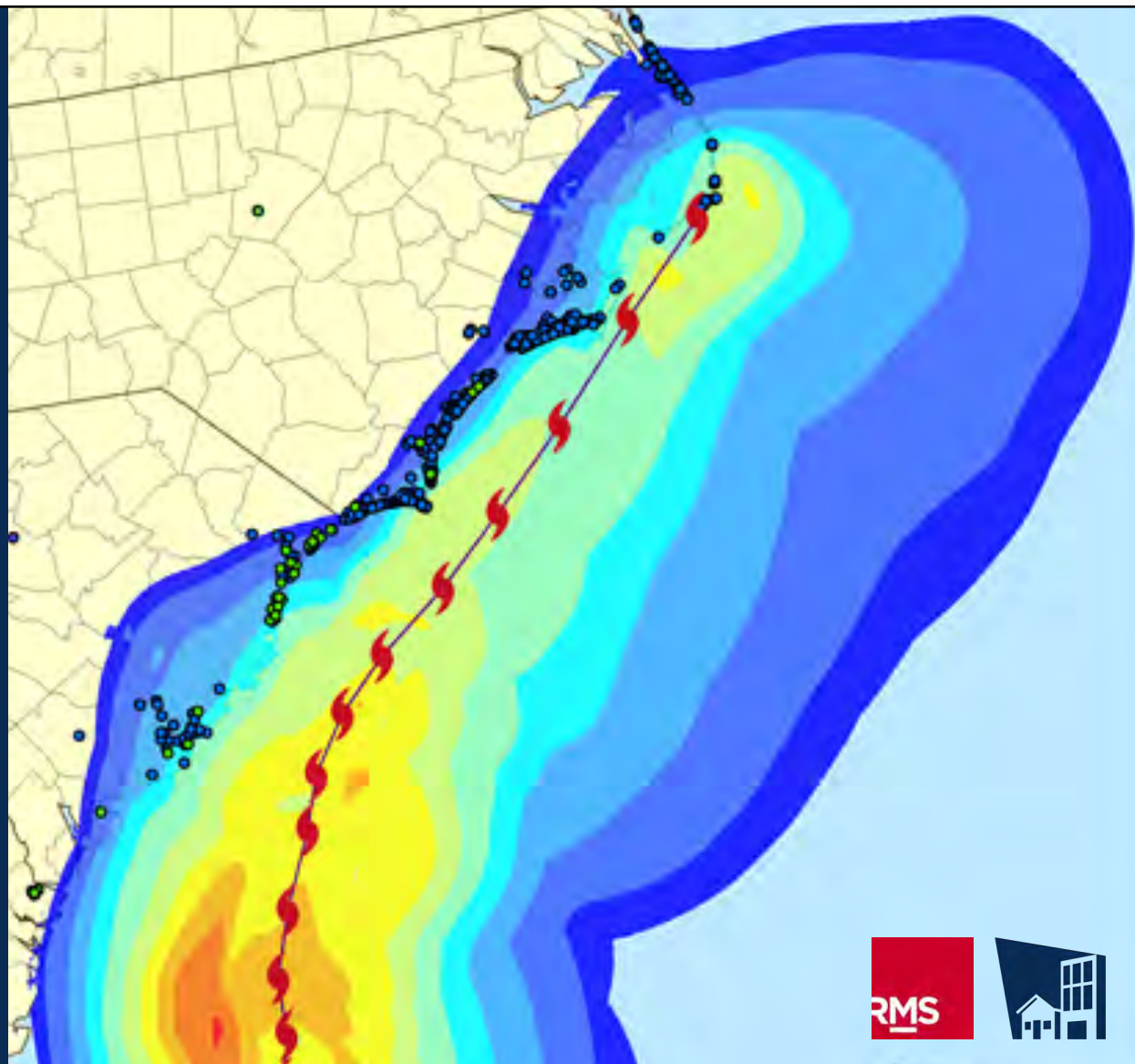
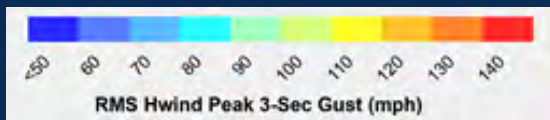
<https://vimeo.com/463080048>

# DORIAN (2019) V. FORTIFIED (~1,000 FH)

 Dorian Preliminary Track

 FORTIFIED Home™

 FORTIFIED for Safer Living®



# FORTIFIED WORKS

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A light green silhouette map of North Carolina serves as the background for the central graphic.

**1,000**

**FORTIFIED homes  
threatened during  
Dorian**



# FORTIFIED WORKS

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**99.5%**

Kept the water  
out.

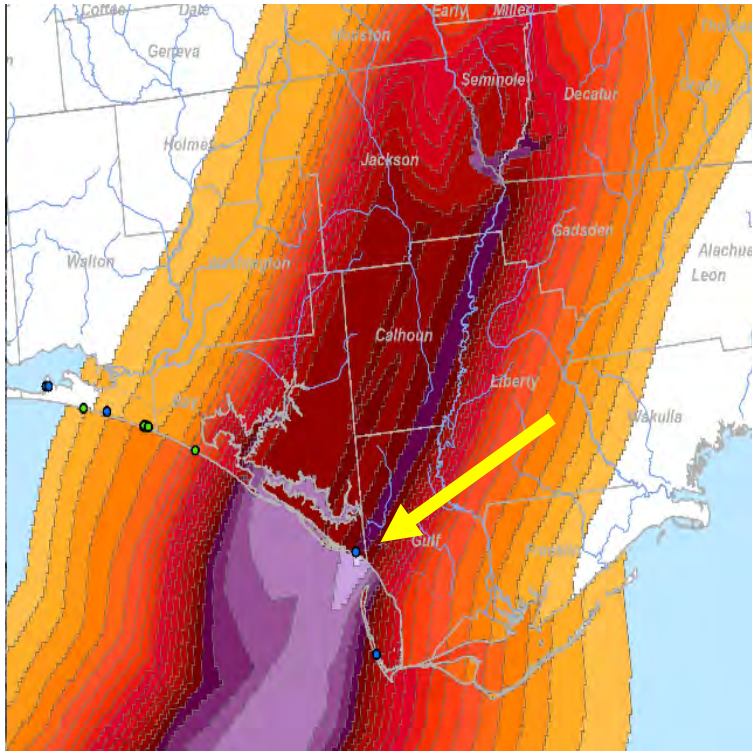






<https://vimeo.com/365287556>





“We didn’t even file a claim.” “I didn’t have enough damage to file a claim to cover the deductible. That’s a pretty big statement!”

-Paul, FORTIFIED Homeowner, Mexico Beach, FL – Hurricane Michael





# Hurricane Michael: Research

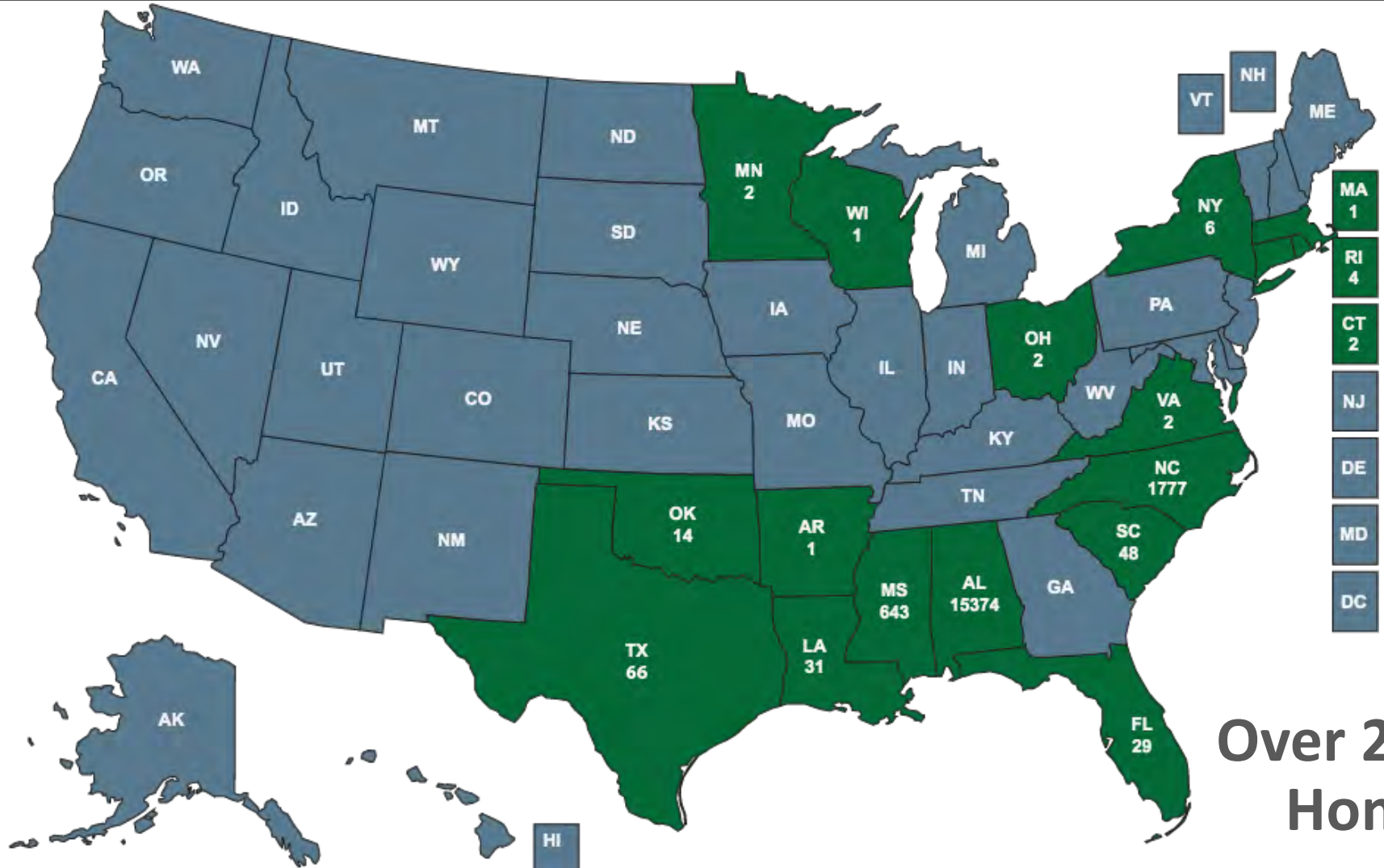




# Post Michael – Habitat Strong







Over 20,000  
Homes

IBHS



Water Intrusion Demo at the IBHS Research Center



<https://vimeo.com/122671817>





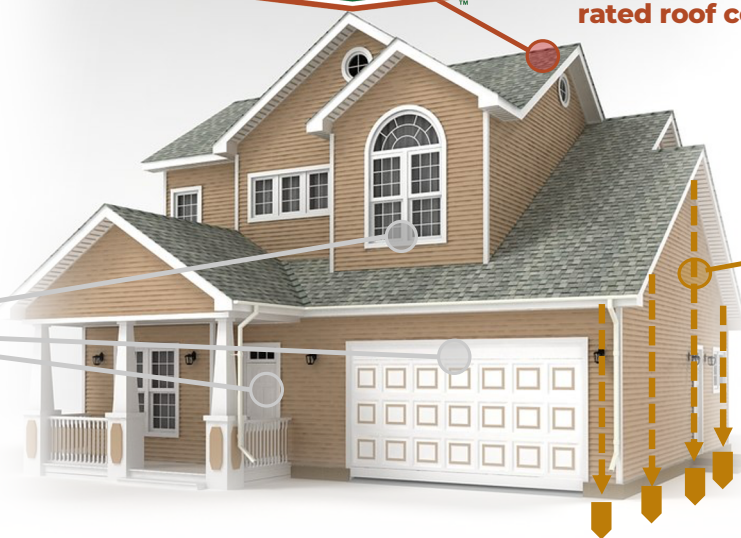
Comparison shows estimates in 2011 dollars adjusted for 2020 inflation



**Keep the roof on, water out.**  
Reduce damage amplifiers:  
Strengthen gable walls & porches.  
Strengthen garage door openings.  
Protect openings against debris impact



**Keep the roof on and water out.**  
Enhanced by a sealed roof deck  
and a high performing wind  
rated roof cover.



**Keep the roof on, water out**  
**Reduce damage amplifiers**  
**Keep the entire building intact with a**  
**continuous load path & protect against**  
**debris impact**

# FORTIFIED HOME™ HURRICANE

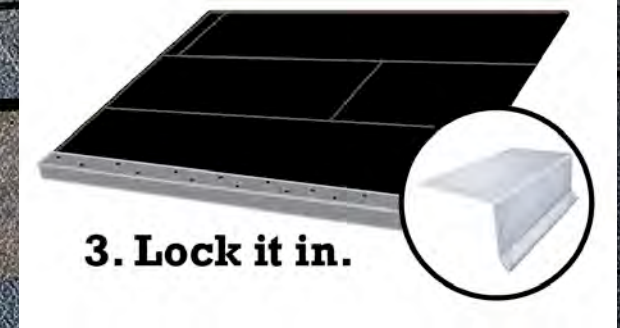
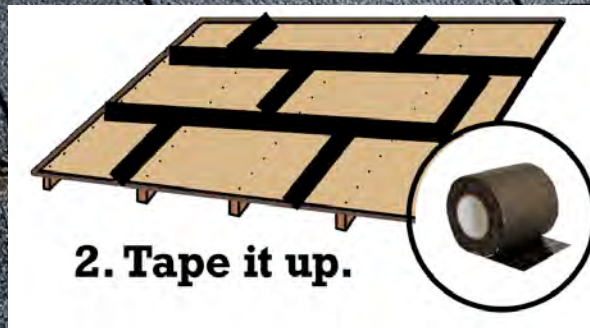
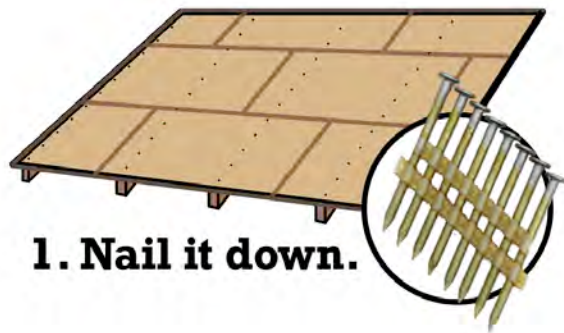


# BECAUSE LITTLE THINGS MATTER





# You need a new roof.



Make it FORTIFIED.





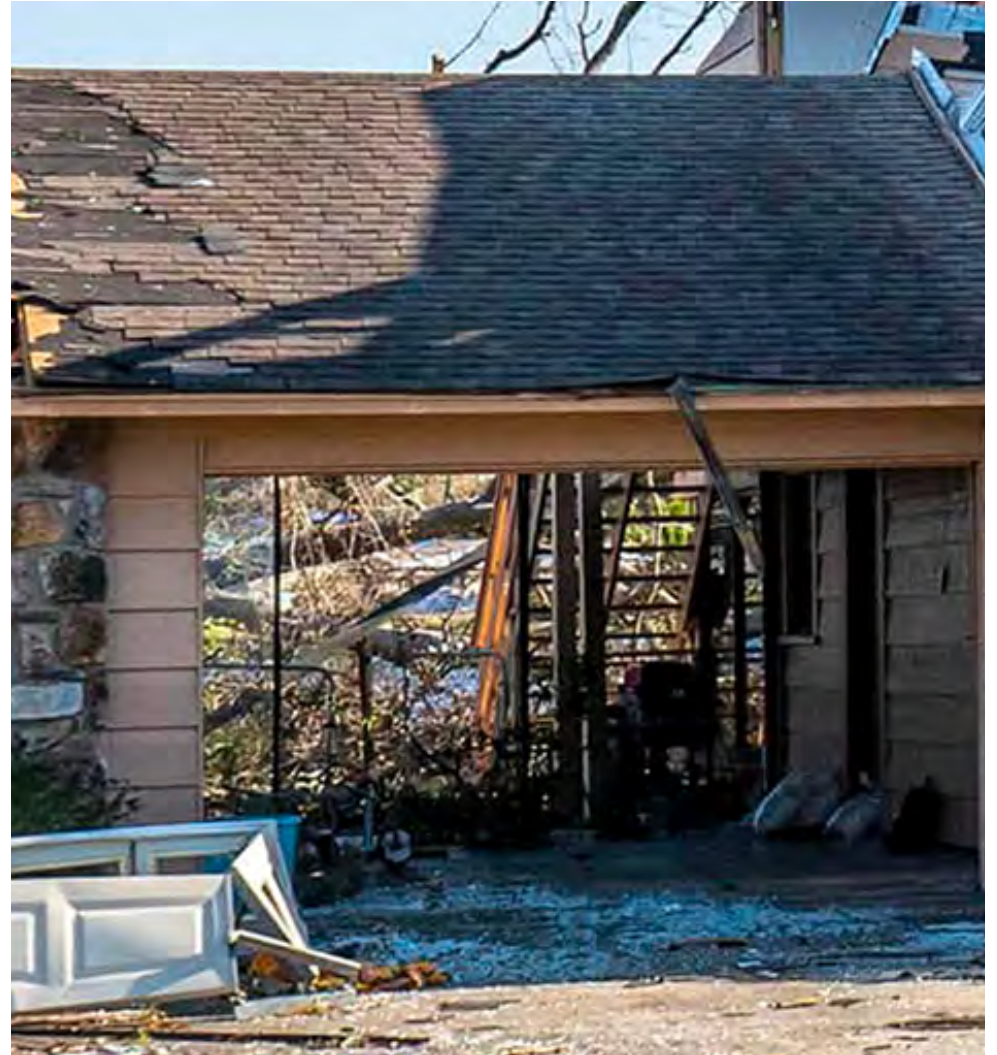


Insurance  
Institute for  
Business &  
Home  
Safety

PROTECT YOUR HOME

# WHY YOUR GARAGE DOOR MATTERS

[DISASTERSAFETY.ORG/GARAGEDOOR](https://disastersafety.org/garagedoor)



**IBHS damage investigations showed if the garage door survived the storm, 90% of homes had no structural damage to the roof.**





<https://vimeo.com/411451000>





FEMA



U.S. Small Business  
Administration



# Debris Removal Costs



**How Much** Construction and Demolition Debris (C&D) could your community expect?



*City of Central, LA  
C&D Costs - 2017*



One 2,000 Sq.Ft. house =  
600 CY Debris\* &  
**\$7,200 to Remove**

\*FEMA 325

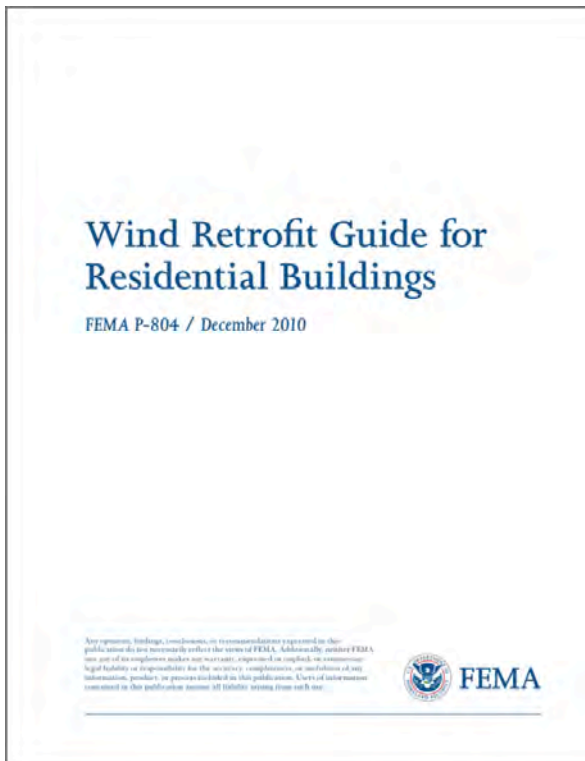


# FEMA BRIC

## Is your state or community prepared?

- Enforce modern codes, last 3 cycles
- Enforce higher, or beyond code requirements
- Pre-plan projects
- Develop and and include partners

# FEMA P-804




- P-804 incorporates the technical knowledge in FORTIFIED Home™– Hurricane.
- P-804 takes a systems-based approach, which corresponds to FORTIFIED Home:

Basic*	➡	Roof
Intermediate	➡	Silver
Advanced	➡	Gold
- P-804 **does not** include inspection requirements or a designation process.

*\*There are slight differences between the standards. Contact IBHS for info.*

# Job Aid - FEMA P-804

**FEMA**

**Job Aid**

Federal Insurance and Mitigation Administration

**Cost Effectiveness Determination for Residential Hurricane Wind Retrofit Measures Funded by FEMA**

This Job Aid establishes the use of pre-determined benefits to demonstrate the cost-effectiveness of wind retrofit projects that comply with FEMA P-804, *Wind Retrofit Guide for Residential Buildings*, December 2010 (available at <https://www.fema.gov/media-library/assets/documents/21082>). This eliminates the requirement for Applicants/subapplicants to conduct a separate benefit-cost analysis for a hurricane wind retrofit project that meets the criteria identified in the table below. The benefits are based on FEMA's existing methodology for evaluating the cost-effectiveness of residential wind retrofit projects and use updated 2014 construction costs for the measures outlined in FEMA P-804.

To qualify for these pre-determined benefits, residential structures as identified in FEMA P-804 (does not include manufactured homes) must be located in the 120-mile-per-hour (mph) basic wind speed zone for Occupancy Category II Buildings per the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) standard ASCE 7-10, *Minimum Design Loads for Buildings and Other Structures*.

Grant applications must include maps that clearly indicate the structures to be retrofitted as being in this wind zone to be eligible to use the pre-determined benefits. A list of States, boroughs, counties, parishes, and territories that meet the 120 mph requirement is attached:

- **States, Boroughs, Counties, Parishes, and Territories That Meet the Qualification Requirements for Pre-Determined Benefits** This includes areas that are completely located within the 120 mph wind zone. These areas are automatically eligible to use the pre-determined benefit costs as long as the application includes a map with the structures clearly indicated on it (see **Lst 1**).
- **States, Boroughs, Counties, Parishes, and Territories That Are Partially Located in the 120 mph Wind Zone** For structures located in these areas FEMA will need to make the determination on a case by case basis if the pre-determined benefits can be used. Applicants/subapplicants will need to submit a map with the structures clearly indicated on it to FEMA, who will then determine if the structure is located in the wind zone and can use the pre-determined benefits (see **Lst 2**).

The residential wind retrofit projects for the intermediate and advanced package, as discussed in FEMA P-804, are cost effective as long as the total project costs are less than the maximum costs listed in the table below.

Mitigation Package Type	Roof Replacement Project	Maximum Costs
Intermediate Protection	No	\$13,153.00
Intermediate Protection	Yes	\$24,820.00
Advanced Protection	No	\$40,252.00
Advanced Protection	Yes	\$52,018.00

Cost estimates submitted for a hurricane wind retrofit project that use the pre-determined benefits must be developed using industry-accepted cost-estimation standards, vendor estimates, or other sources. The costs identified in this Job Aid cannot be used to estimate or develop application project costs. Only documented, eligible costs for completed work will be reimbursed. The estimated costs above may be adjusted by the Applicant or subapplicant using the most current

FEDERAL INSURANCE AND MITIGATION ADMINISTRATION  
U.S. DEPARTMENT OF HOMELAND SECURITY

1

- Establishes the use of pre-determined benefits to demonstrate the cost-effectiveness of wind retrofit projects that comply with FEMA P-804
- Eliminates the requirement for Applicants/sub applicants to conduct a separate benefit-cost analysis for a hurricane wind retrofit project
- Include 27 Texas Counties



# COASTAL CONSTRUCTION CODE SUPPLEMENT

For Adoption by Communities Affected By Hurricanes

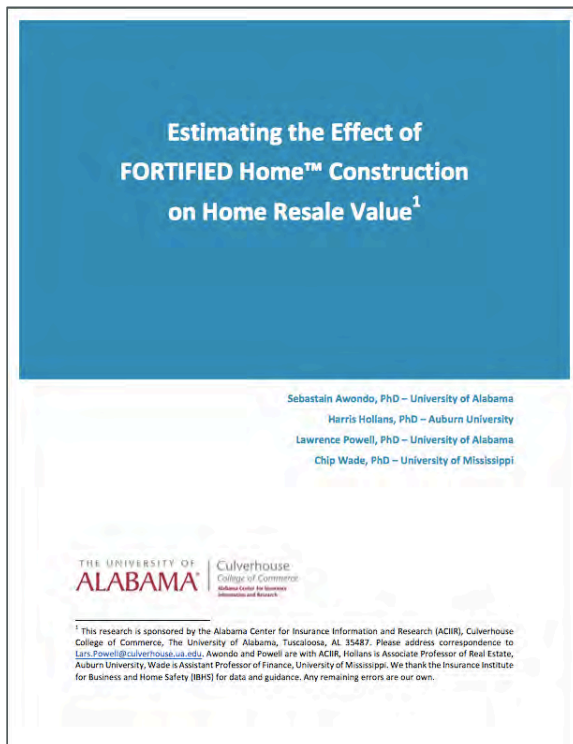


A supplemental code to the International Residential Codes (IRC) 2009, 2012 or 2015 and later editions that will be created.

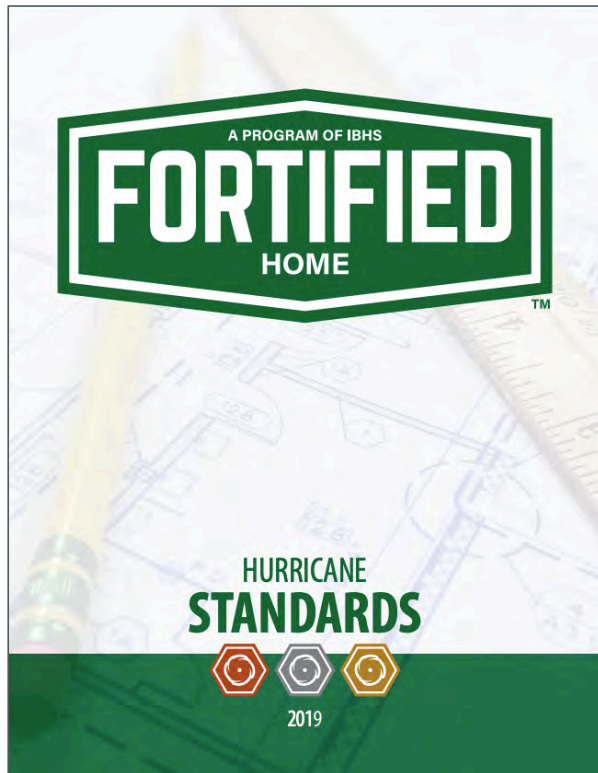


# FORTIFIED Increases Home Values Nearly 7%

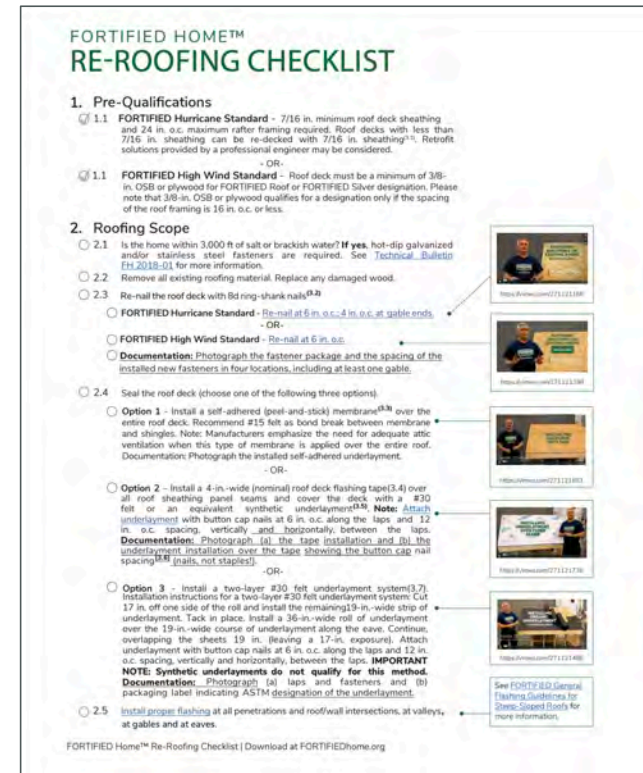
*According to a study conducted by:*



# Technical Resources



[fortifiedhome.org/standards/](https://fortifiedhome.org/standards/)



[smarthomeamerica.org/resources](https://smarthomeamerica.org/resources)







**DON'T GOOF WHEN  
YOU RE-ROOF**

[NEED A NEW ROOF?](#)

[SAVE MONEY](#)

[FORTIFIED ROOF](#)

[CONTRACTOR FRAUD](#)

[SERVICE PROVIDERS](#)

## Strength and Savings with a FORTIFIED Roof

FORTIFIED is proven to provide you with a stronger roof and can save you money.

[Learn How](#)

### Benefits of a FORTIFIED Roof

[Read the Top 5](#)





[About](#) [Contact](#)



**DON'T GOOF  
FLOOD-PROOF**

[FLOODING 101](#)

[INSURANCE](#)

[PREPAREDNESS](#)

[RECOVERY](#)

[FLOODING AND COMMUNITIES](#)

[FIND HELP](#)

# Floods Happen

You can be ready

## Flooding 101

Learn the basics of flooding - How do floods happen, what types of floods are there, and how do they affect communities?

[Learn About Floods](#)



[www.dontgoof/flood](http://www.dontgoof/flood)

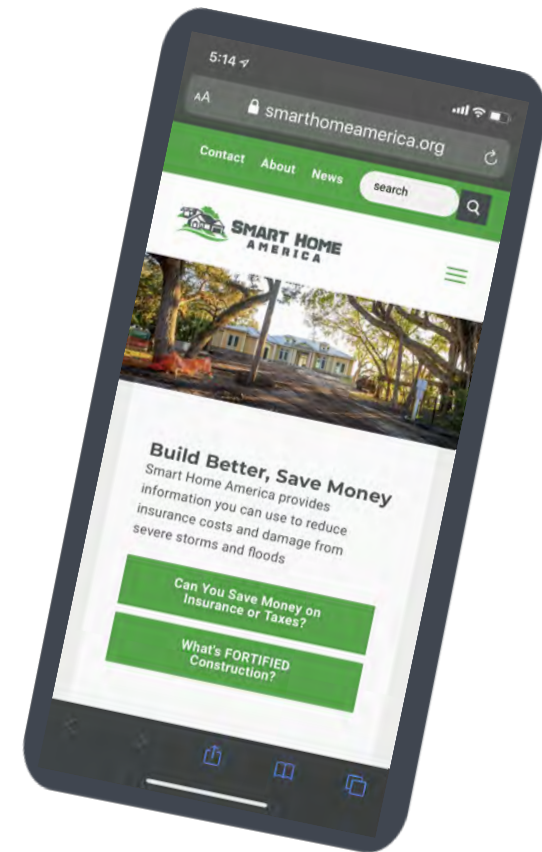


[SmartHomeAmerica.org](http://SmartHomeAmerica.org)

[DontGoof.org](http://DontGoof.org)

[FORTIFIEDhome.org](http://FORTIFIEDhome.org)

[FORTIFIEDcommercial.org](http://FORTIFIEDcommercial.org)





**Register for  
online training.**

[fortifiedhome.org/training](https://fortifiedhome.org/training)



# Questions?

## Contact Information



Julie Shiyou-Woodard  
President and CEO

[julie@smarthomeamerica.org](mailto:julie@smarthomeamerica.org)

855.742.7233 @BuildResilient