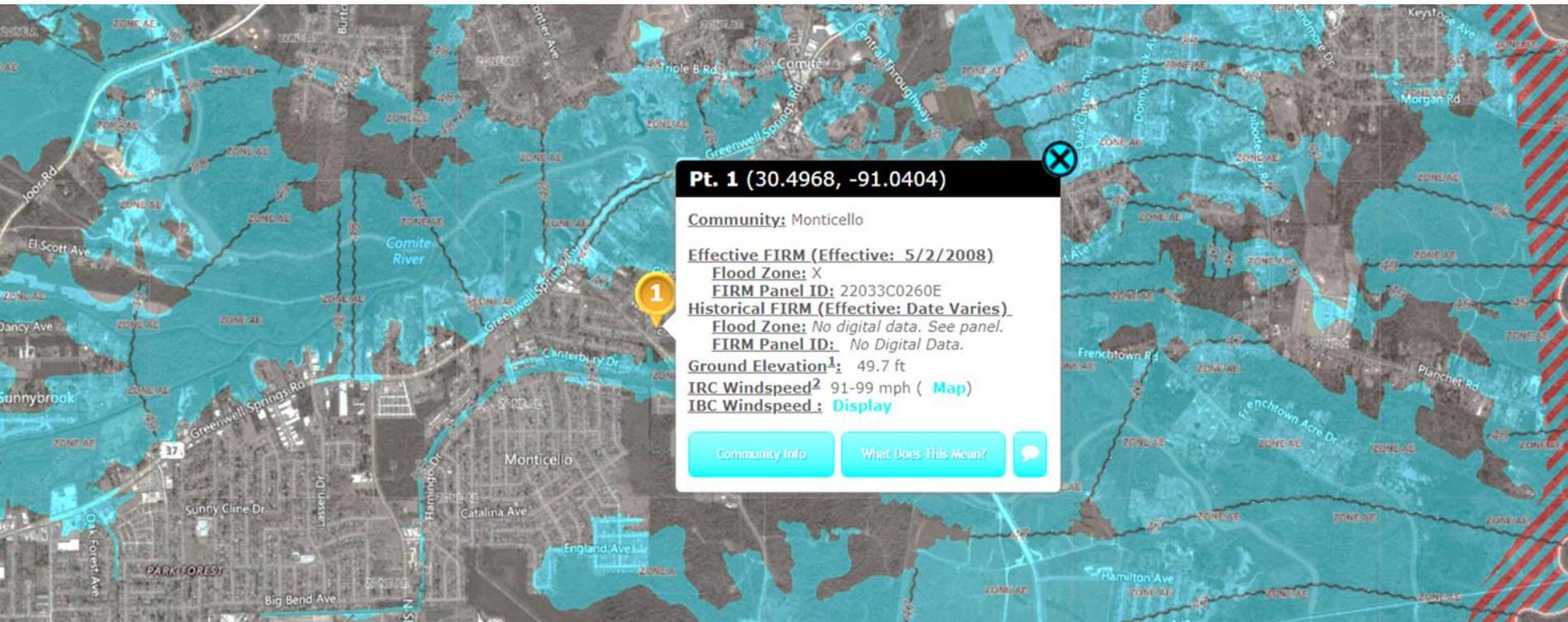


Rebuilding the Homes that “weren’t supposed to flood”



Shandy Heil, CFM
LSU AgCenter

Operation Wet Proof



- Initiated August 2017
- LSU AgCenter & LA Dept. of Health venture
- **GOAL:** Provide updated, flood hardy construction techniques to flood survivors who could not relocate

The Need Was Apparent...



Search in Louisiana Floo...

Cloria Deciroe Lauderdale 😞
feeling emotional.
Yesterday at 11:05 AM

Anyone else having some ptsd from all this rain we are getting. I can't stop thinking about it. My stomach is in knots. Praying this rain stops soon.

👍🥺❤️ 171

Rebecca Leonard
January 20 at 4:28pm · 🌐

Has anyone else seen how high the Amite River is right now with more rain coming? Can you say ANXIETY?

👍🥺 9 9 Comments

👍 Like 💬 Comment ➦ Share

TON LYNN RANCE Baym
January 19 at 9:39am · Baton Rouge · 🌐

My entire neighborhood looks like one giant Pond we're taking on water and so is almost everything by my neighborhood on Blackwater Road in central. The bridge coming in already has water over it. We lost everything in the August flood . Can we say panic mode freaking out water's coming up

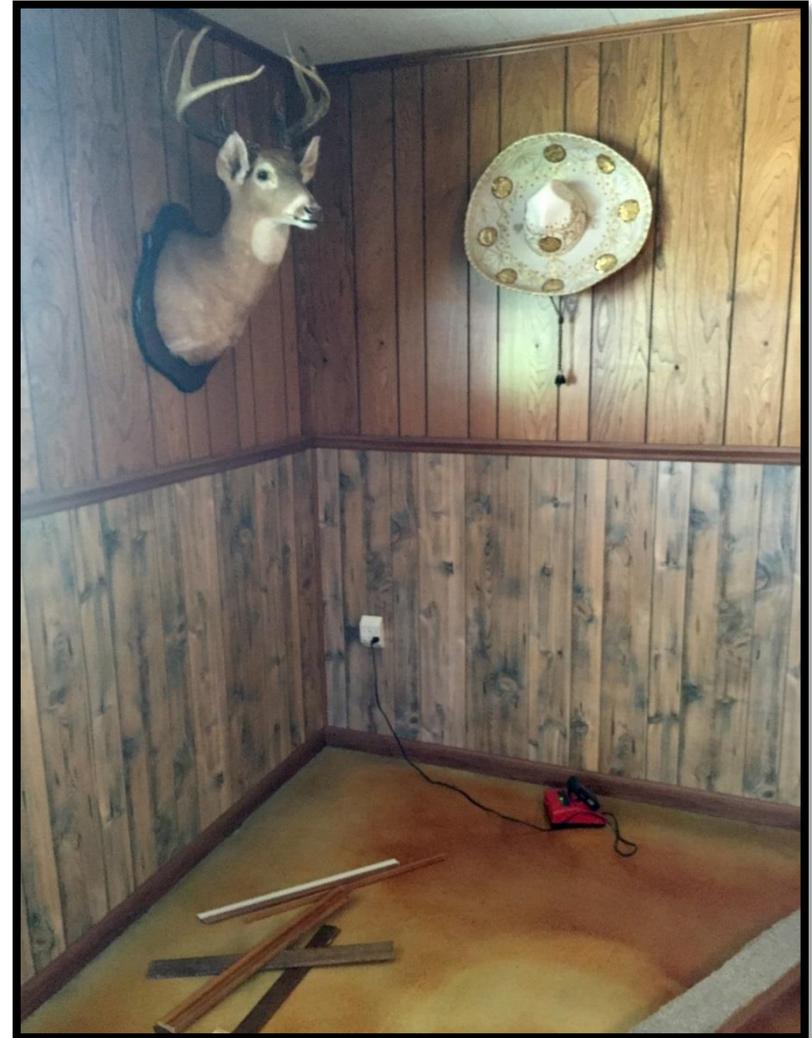
🥺👍🥺 68 71 Comments 1 Share

👍 Like 💬 Comment ➦ Share

We Knew There Were Solutions...



August 19, 2016 (5 days after flood)



October, 2016 (back in her home after 2 months)

Design/Construction Inspiration

Wet Floodproofing: Reducing Damage from Floods



The phrase "wet floodproofing" may sound like a contradiction, but it is the label used to refer to a collection of methods intended to reduce damage to a building when flooding occurs.

The difference between wet floodproofing and dry floodproofing is that dry floodproofing keeps the building interior dry by holding water outside the structure, while wet floodproofing lets water into the building but protects the structure, contents and building systems independently.

Considerations

Wet floodproofing often is the most practical method of reducing flood damage. Since it is not an "all or nothing" system – but instead is a set of improvements – wet floodproofing is flexible, can be done in stages and may be the least expensive floodproofing option.

Even small, inexpensive modifications in your choice of materials while remodeling or replacing a flooring can lead to large, easier cleanup.

If you can flood barriers wet floodproofing.

Dry floor structure to 1 while letting equalize and When the sz inadequate cc floodproofing

On the o subject to th

Before th elevated or n practical to n

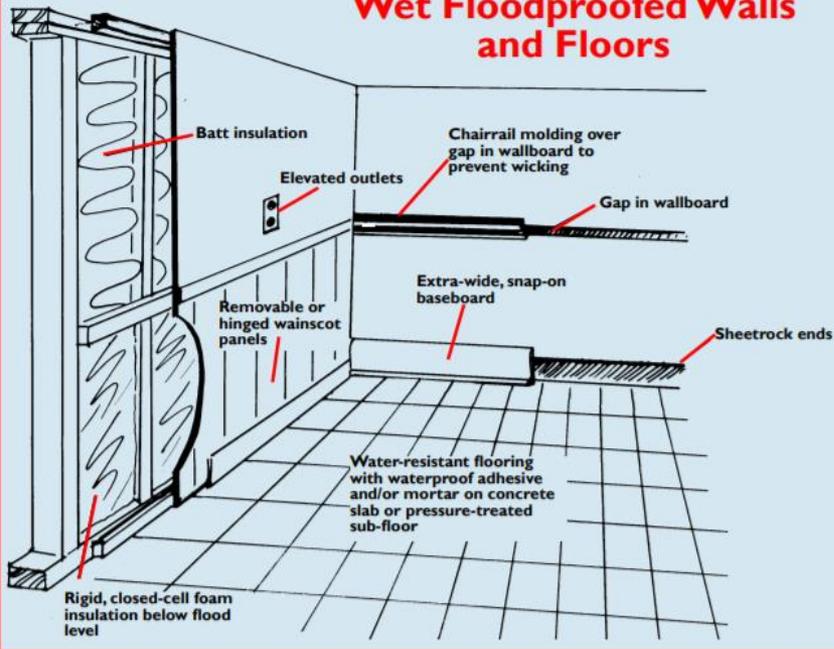
After the drying time s replacement

Wet floor flood insuran

flood damage prevention ordinances. (Certain agricultural and accessory structures are exempt from complying with elevation standards but must be wet floodproofed.) Financial assistance from the National Flood Insurance Fund for flood damage reduction generally cannot be used for wet floodproofing.

However, the Small Business Administration Disaster Loan program can lend up to 20 percent over the amount of a repair loan for mitigation actions to reduce future

Wet Floodproofed Walls and Floors



Flood Damage-Resistant Materials Requirements

for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Technical Bulletin 2 / August 2008



Classes of Building Materials						
Acceptable		Unacceptable				
5	4	3	2	1		

Material	5	4	3	2	1
Concrete block ¹					
Gypsum products					
Paper-faced gypsum board					
Non-paper-faced gypsum board					
Greenboard					
Keene's cement or plaster					
Plaster, otherwise, including acoustical					
Sheathing panels, exterior grade					
Water-resistant, fiber-reinforced gypsum exterior sheathing					
Hardboard (high-density fiberboard)					
Tempered, enamel or plastic coated					
All other types					
Mineral fiberboard					
Oriented-strand board (OSB)					
Exterior grade					
Edge swell-resistant OSB					
All other types					
Particle board					
Plywood					
Marine grade					
Preservative-treated, alkaline copper quaternary (ACQ) or copper azole (C-A)					

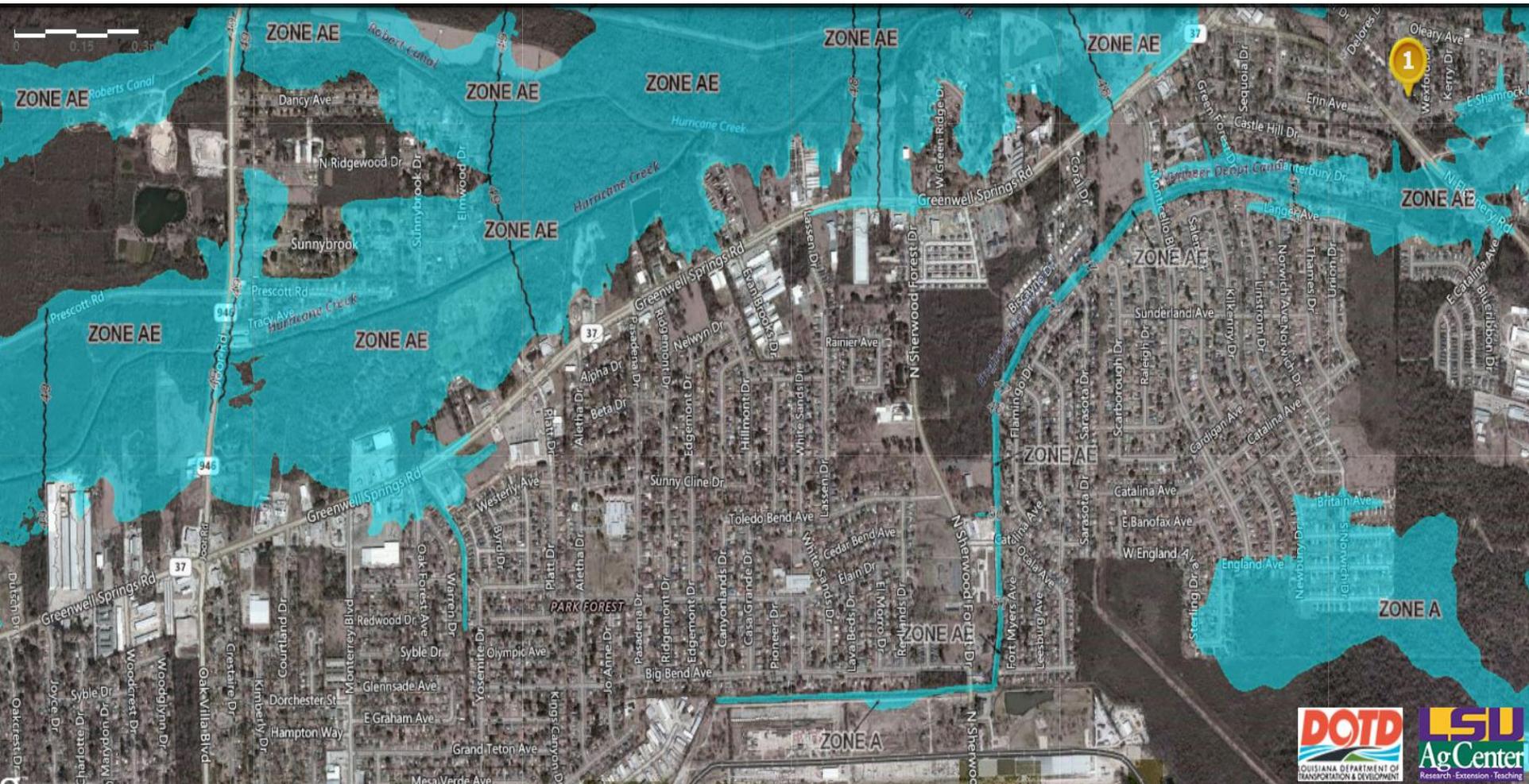
PROJECT FOCUS: N. Baton Rouge

Slab-on-grade, X Zone Structures



PROJECT FOCUS: N. Baton Rouge

Slab-on-grade, X Zone Structures



The Brave Client



- Ms. Gloria - Baton Rouge, LA
- Special Needs Aid at Elementary School (by day)
- Nursing Home Aid (by night)
- Widow of Vietnam Veteran – Was planning to retire in Dec. 2016
- **\$9,000 awarded in I.A. – Spent \$4,000 on mold remediation & demo**
- **Was told to get SBA loan for \$30,000+ rebuild (due to income level)**
- Became a Catholic Charities client to find more rebuilding options other than taking out a loan, since she still has a mortgage to pay on the house

Initial Inspection



- Partially damaged drywall on upper walls
- Ceramic tile in living areas
- Shelter In-Place Work:
 - Temporary sinks, non-moisture resistant drywall in bathrooms

Initial Inspection



Commercial gyp./Sheathing/Blackboard

- Creates interior skin of building
- Keeps water out of interior
- Plane to connect brick ties



Scope of Work

- **Create flood resistant wall assemblies**
 - Create a drainage plain to replace the missing sheathing
 - Insulate with removable closed cell foam panels
 - Construct removable lower wall assemblies
- **Elevate electrical above record flood level**
- **Help client purchase flood resistant finishes**
 - Being installed this month by Habitat for Humanity!

Volunteers & Donations

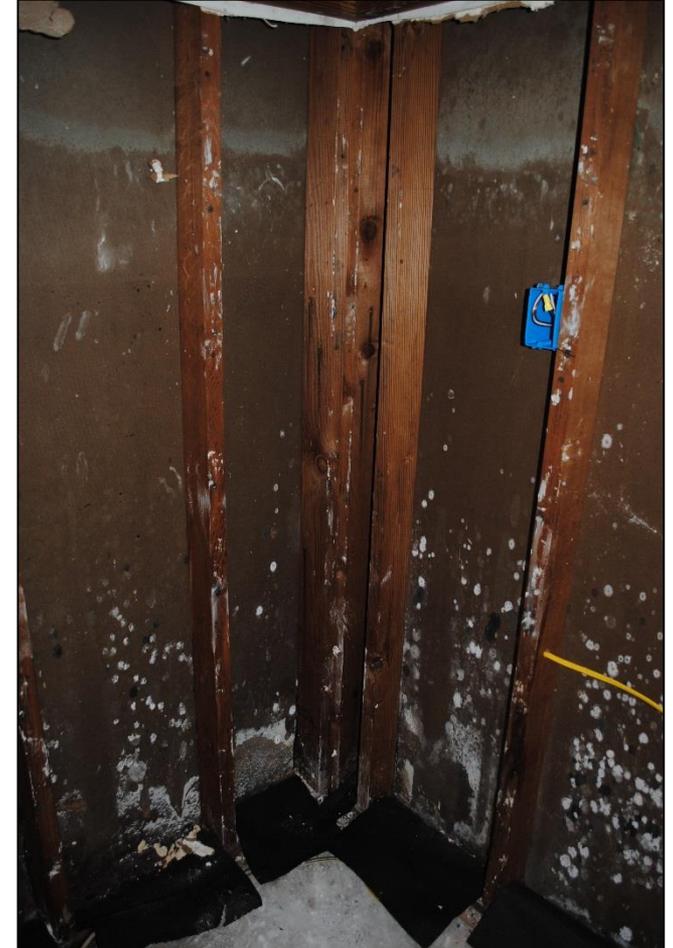


lowernine.org

A.B.V. CONSTRUCTION, LLC



Commercial Gyp. Sheathing /Blackboard

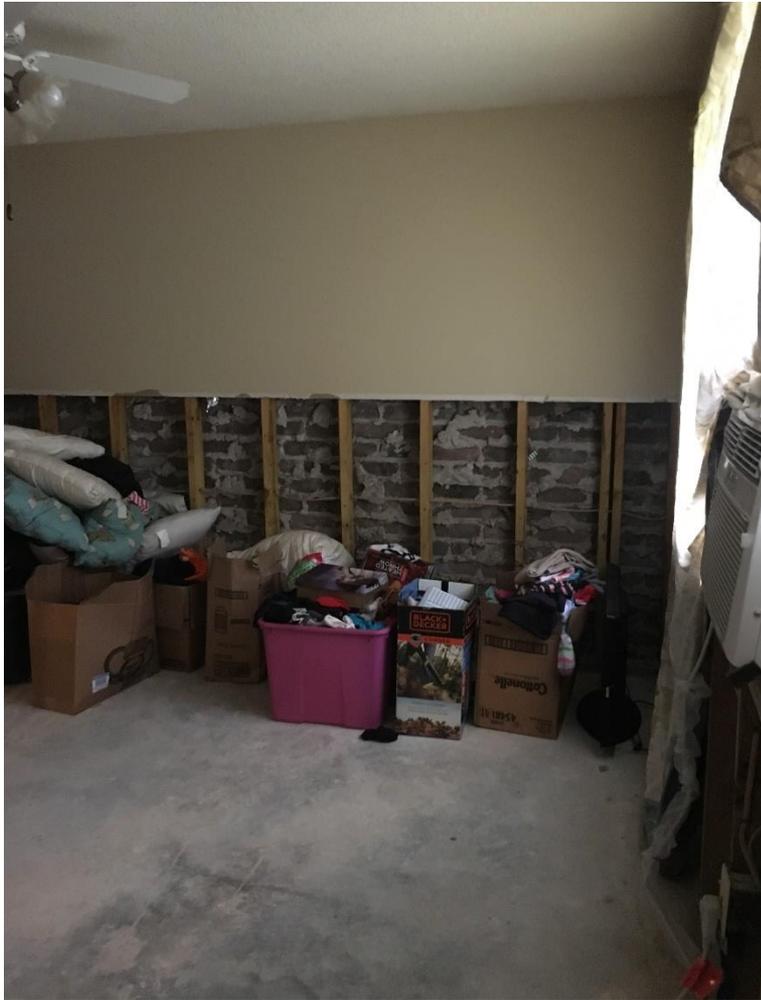


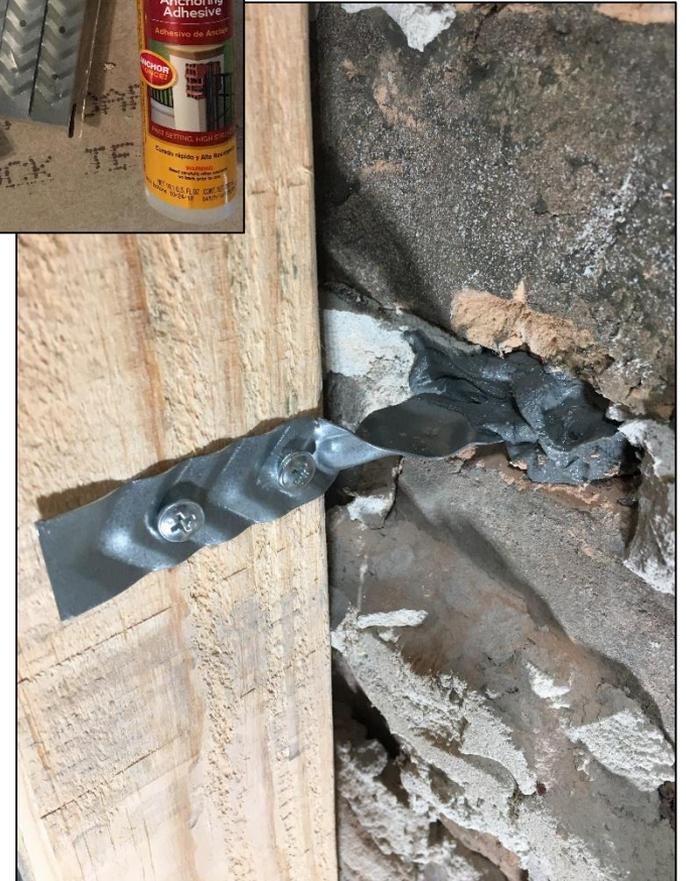
- Loses structural integrity (AKA – turns to mush)
- Breeding ground for MOLD
- Material was never meant to sit in water



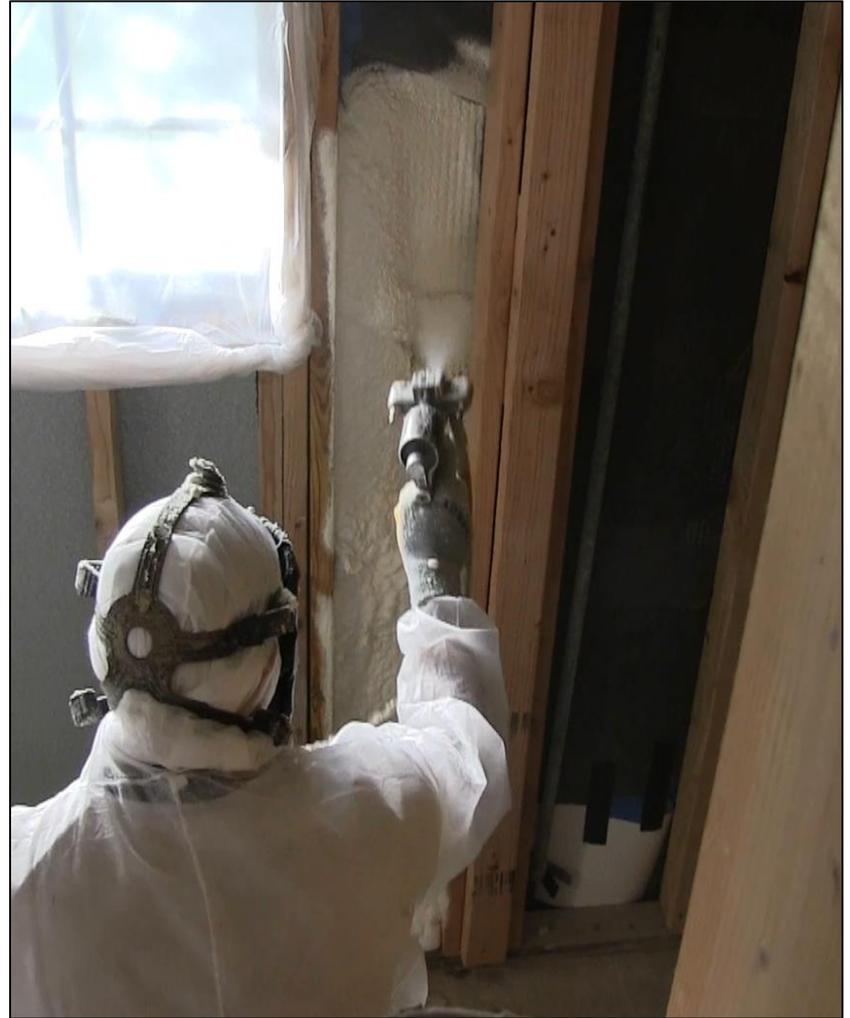
The true fix? Remove the brick veneer & replace the sheathing. BUT - Insurance does not cover the cost...

Walls with no Sheathing





- Make hole in existing mortar
- Epoxy new brick tie into hole
- Attach new brick tie to stud



- Synthetic rain screen with 2" spray foam application

Walls with Sheathing



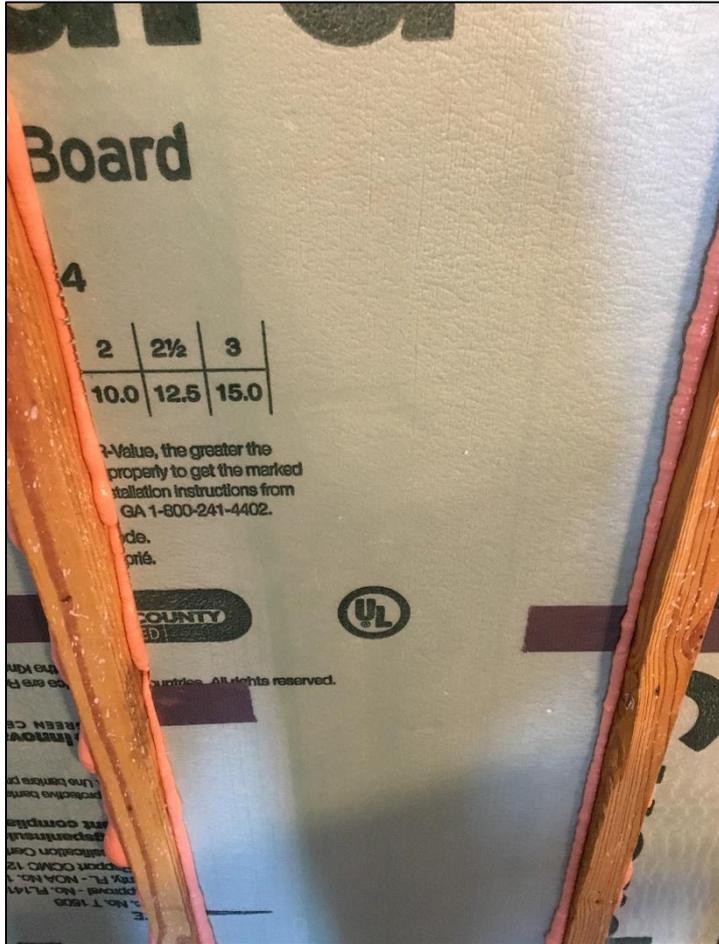
- Removable Foam Insulation panels on bottom
- Breathable, Fiberglass insulation on top



Capillary break between fiberglass and foam:

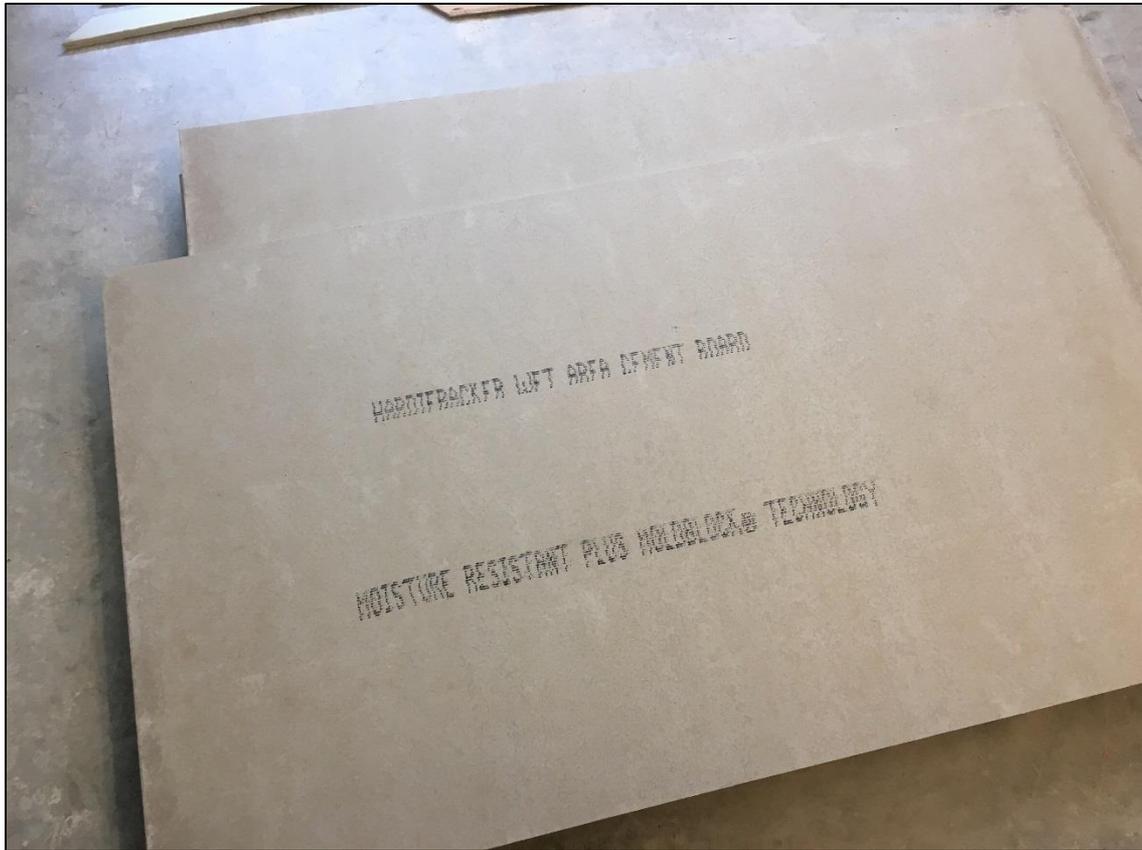
- Holds fiberglass in place
- Prevents future wetness

Material Considerations



Foam panels must be doubled paned and spray foamed around edges for full insulating value – **must be cut out after flood**

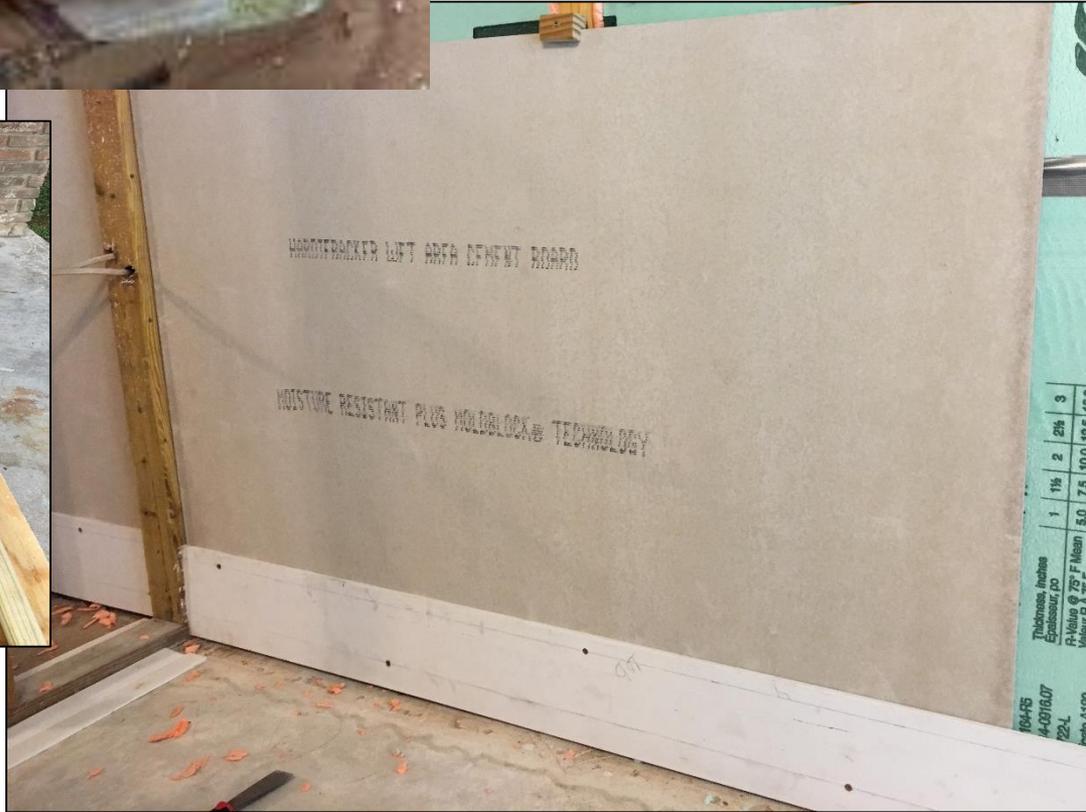
Flood Resistant Interior Walls V.1



Fiber Cement Board



Composite Baseboard



Removable Assembly:

- Mechanically fastened baseboard with rabbited channel
- Mechanically fastened chair rail



Material Considerations



Specialized Tools



Requires a lot of Trim Work
VERY unforgiving

Flood Resistant Interior Walls V.2



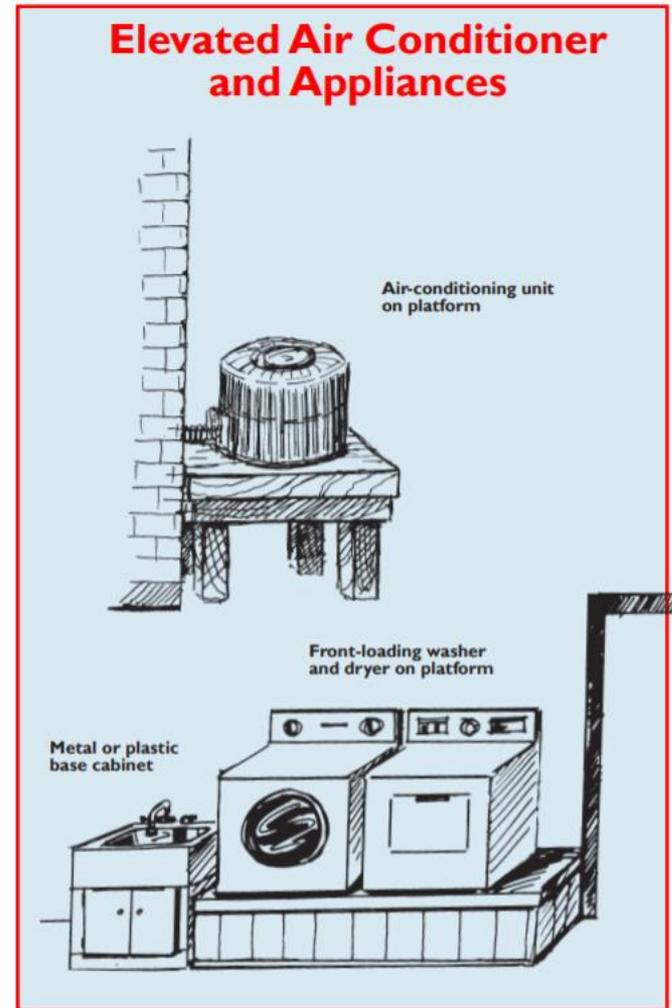
Plywood Bead Board
(painted)



Finishes



Plumbing Fixtures



Pedestals

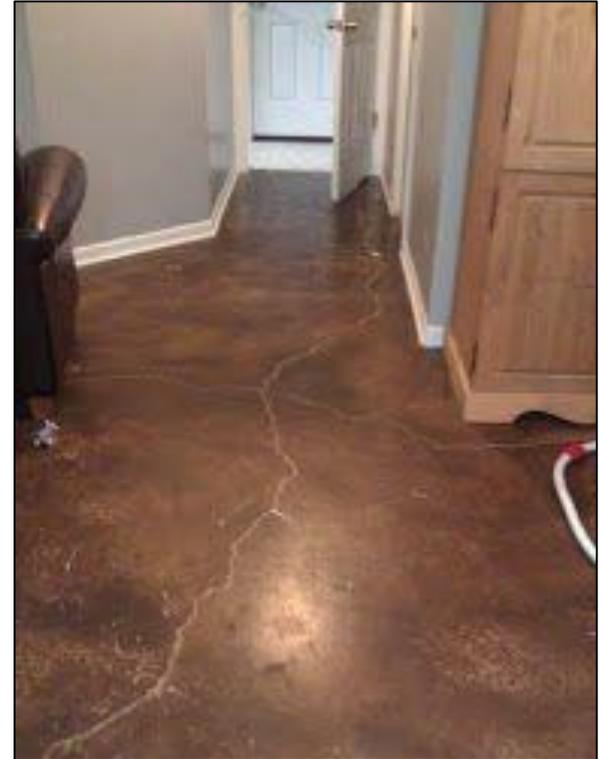
Finishes



Wood Look Ceramic Tile



Rubber



Polished/Stained Concrete

Outcomes



- True constructability with featured flood resistant materials is realized
- Photos and videos being produced for flood recovery
- Cost information is available for BCA
- Realization that better design information needs to be published...otherwise we will still rebuild the same way

Outcomes

- PRP adoption!!
 - Currently full coverage
 - Promises to keep partial once retired
 - contents, finishes, appliances



Outcomes



All Hands and Hearts
Smart Response

Dear Shandy,

I just wanted to give you some good news. **I have spoken with our CEO and other directors about what we are doing here in the Flood Proof Project and everyone is really impressed and excited about it.**

We recently merged with Happy Hearts fund and part of our new goal is also to provide Resilience to the communities that we are helping. **Repairing a flooded house with water resistance techniques fits perfectly with our new goal, and gives the homeowners hope that if they have the same problem in the future, it won't be as costly from them to repair the damage. Texas will be our pilot program with this new concept, but we will also try to take the lessons learned to other Recovery Projects like U.S.V.I and Puerto Rico.**

We already had more than 24 volunteers from 9 nationalities joining us in this project. They come from all over the U.S., and we had the following countries being represented: Brazil, Russia, Canada, Czech Republic, France, U.K, Taiwan and Sweden.

As mentioned before, this project is very special for us and we are really proud to be part of it. Keep up the good work advocating about this.

I will keep you posted on the developments of our version of the Flood Proof Project in Texas.

Best,

Aline Guidry | Program Director Louisiana Flood Recovery



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