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

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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…

Gloria Desires Leaderdale 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.

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?

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
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 prevents the structure, contents, and building systems independently.

Considerations

Wet floodproofing refers to the most practical method of reducing flood damage. Since it is not an “all or nothing” system—instead it 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 savings

If you can

1. Flood barrier wet floodproofing
2. Dry floor structure to withstand the load it will support.

Dry floor structure to withstand the load it will support. Where the floodproofed floor is in contact with the groundwater or flooded areas.

On the subject of dry floor structure: floodproofing with a flood barrier has been proven to be effective. Before installation and before installation, it is a practical to:

1. Elevate the floor to prevent flooding.
2. Provide batt insulation and prohibit elevation.
3. Remove wet floodproofing and install a new one.

Wet Floodproofed Walls and Floors

- Batt insulation
- Elevated outlets
- Chair rail molding over gap in wallboard to prevent wicking
- Water-resistant flooring with waterproof adhesive and/or mortar on concrete
- Insulation below flood level
- Extra-wide, snap-on baseboard
- Removable or hinged wainscot panels
PROJECT FOCUS: N. Baton Rouge
Slab-on-grade, X Zone Structures
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Slab-on-grade, X Zone Structures
Ms. Gloria - Baton Rouge, LA
Special Needs Aid at Elementary School (by day)
Nursing Home Aid (by night)
$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

A.B.V. CONSTRUCTION, LLC

lowernine.org

A.B.V. CONSTRUCTION, LLC

Kingspan

HARDI BACKER®

The Ultimate Cement Backerboard

MIRATEC®

Treated Laminar Composites TRM
Commercial Gyp. Sheathing / Blackboard

- Loses structural integrity (AKA – turns to mush)
- Breading 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

Polished/Stained Concrete

Rubber
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

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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