



FISHEATING CREEK CAMPGROUND FLOOD RESISTANT PROTOTYPE STRUCTURE

Presenter: Catalina Weaver, P.E.
Florida Fish and Wildlife Conservation Commission



Fisheating Creek (FEC) Campground

Located near
Palmdale
In Glades County
Florida



<https://fisheatingcreekoutpost.com>

conservationengineers.org



FEC Campground Activities



<https://fisheatingcreekoutpost.com>

conservationengineers.org



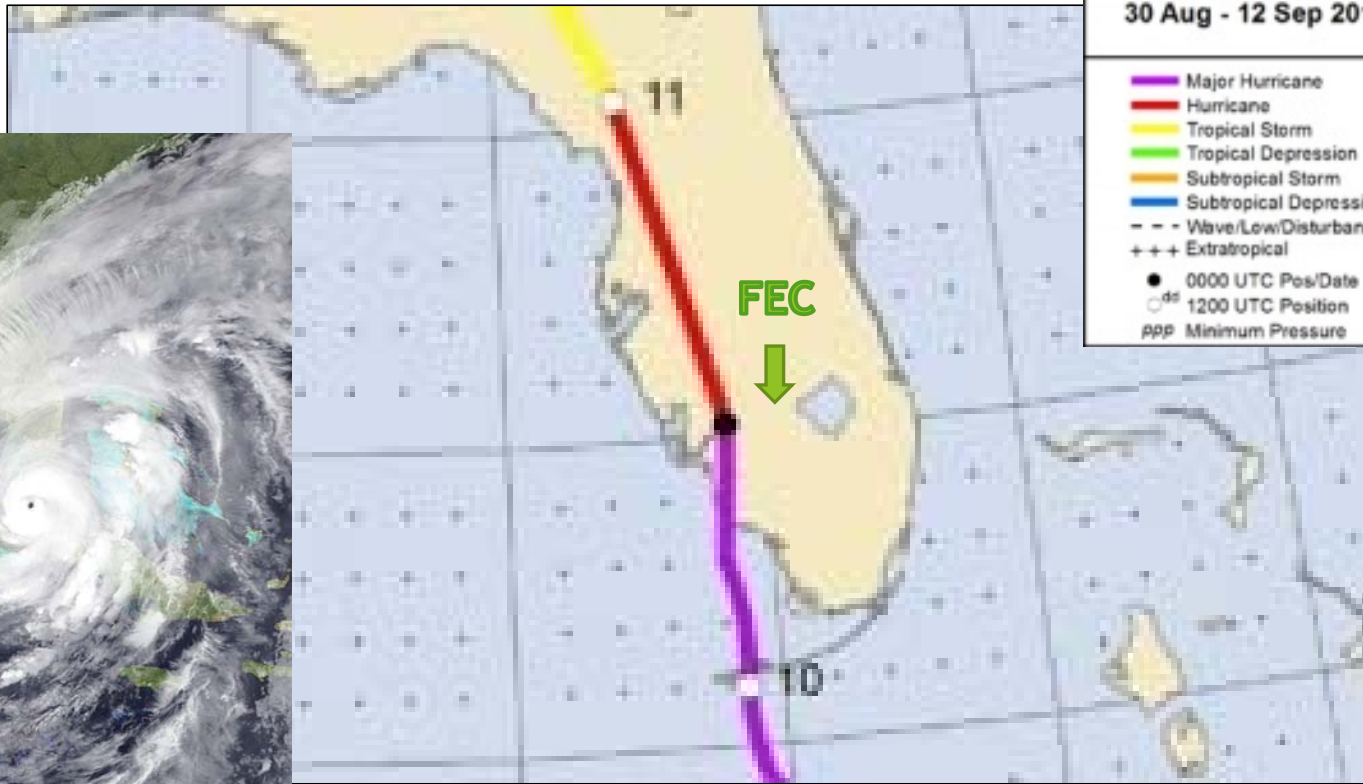
Original Cabin

One open large room with a kitchenette and a bathroom





Hurricane Irma



Hurricane Irma
30 Aug - 12 Sep 2017

- Major Hurricane
- Hurricane
- Tropical Storm
- Tropical Depression
- Subtropical Storm
- Subtropical Depression
- Wave/Low/Disturbance
- Extratropical
- 0000 UTC Pos/Date
- ^{ds} 1200 UTC Position
- PPP Minimum Pressure



Campground Damage



Water over 3 feet deep





Cabin Damage



Water damage



Mold



Brain Storming

- Repair?



- Rebuild on grade?





Brain Storming

- Build on stilts?





Brain Storming

- Build floating structure?





Brain Storming

- What kind of floating structure?



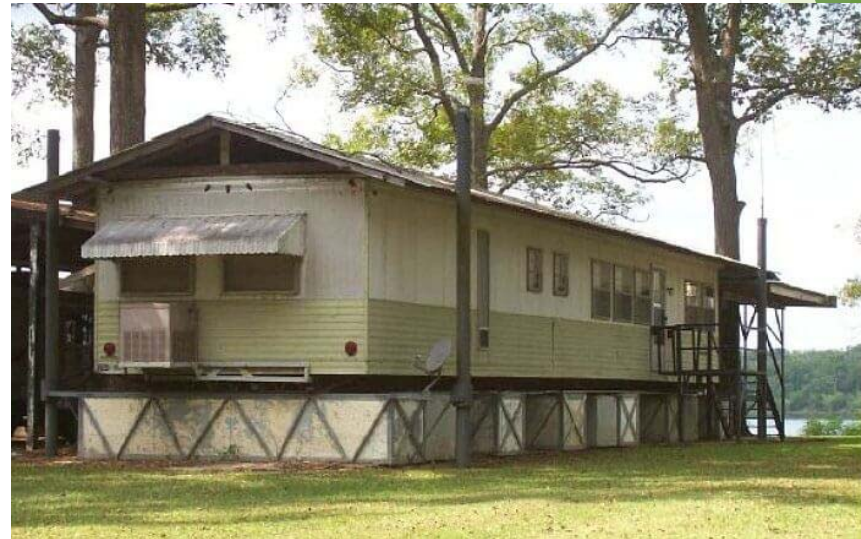
A houseboat?





Brain Storming

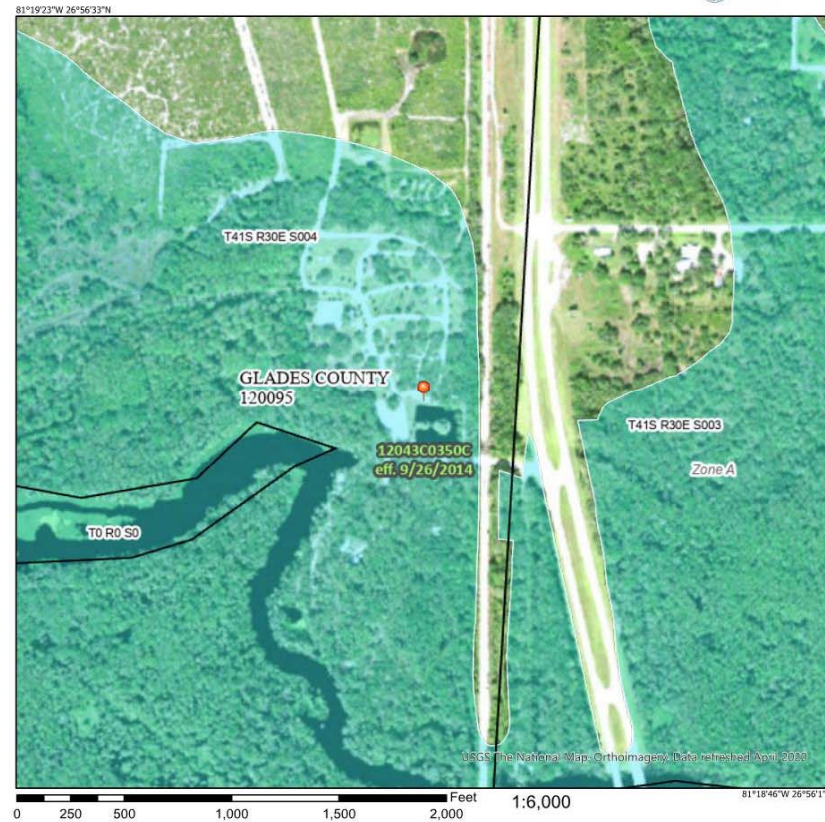
Need something that can go up or sit on the ground





Finished Floor Elevation (F.F.E.)

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) *Zone A, V, VE*
 - With BFE or Depth *Zone AE, AG, AH, VE, AR*
 - Regulatory Floodway
 - OTHER AREAS OF FLOOD HAZARD**
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
 - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
 - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
 - Area with Flood Risk due to Levee *Zone D*
 - OTHER AREAS**
 - NO SCREEN Area of Minimal Flood Hazard *Zone X*
 - Effective LOMRs
 - Area of Undetermined Flood Hazard *Zone D*
 - GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
 - OTHER FEATURES**
 - 20.2 Cross Sections with 1% Annual Chance
 - 17.8 Water Surface Elevation
 - Coastal Transect
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - MAP PANELS**
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/13/2020 at 4:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



F.F.E. selected 2-7 feet above highest recorded flood level



Design Team

Prime consultant:

G. M. Hill Engineering, Inc.
Structural Engineering
Architecture

Civil subconsultant:

Kimley-Horn and Associates, Inc.

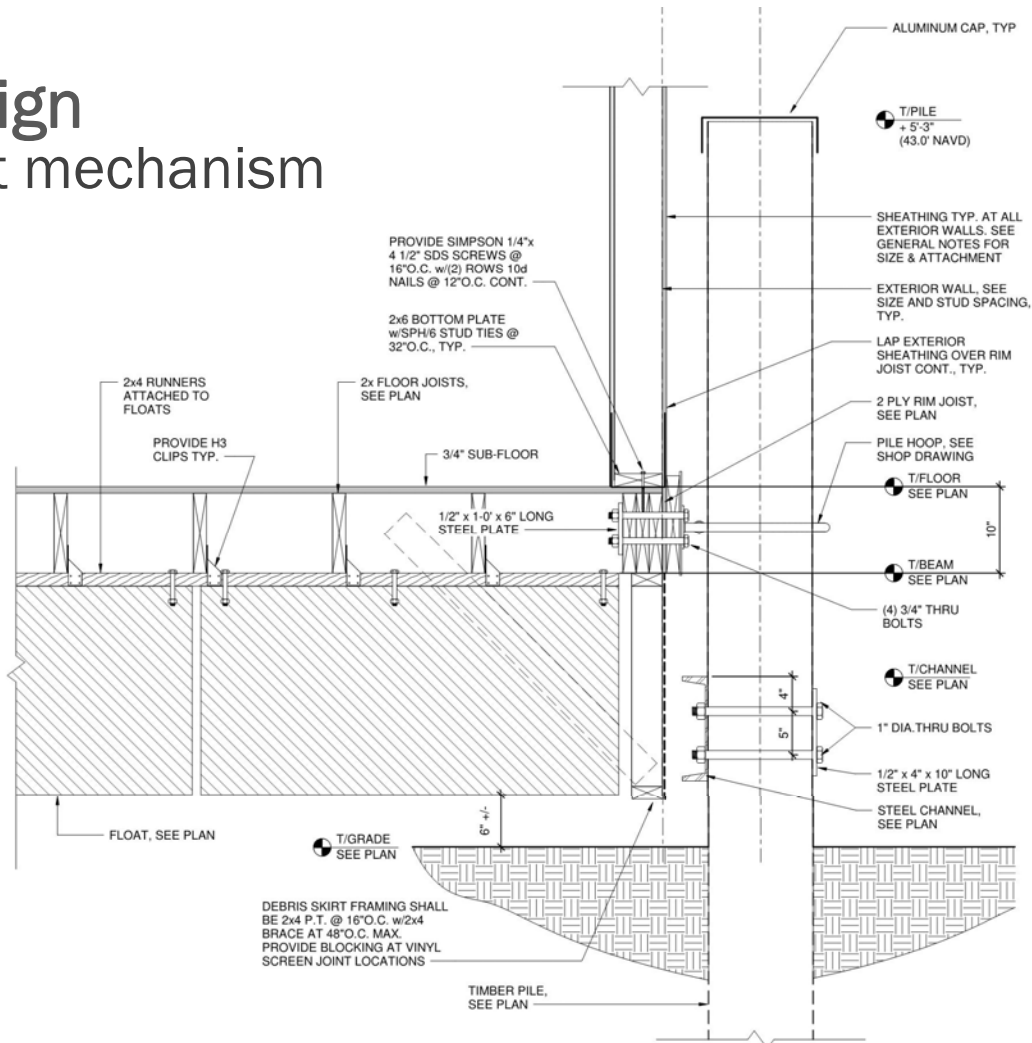
Mechanical and electrical subconsultant:

Simes & Rosch, LLC.





Design Float mechanism

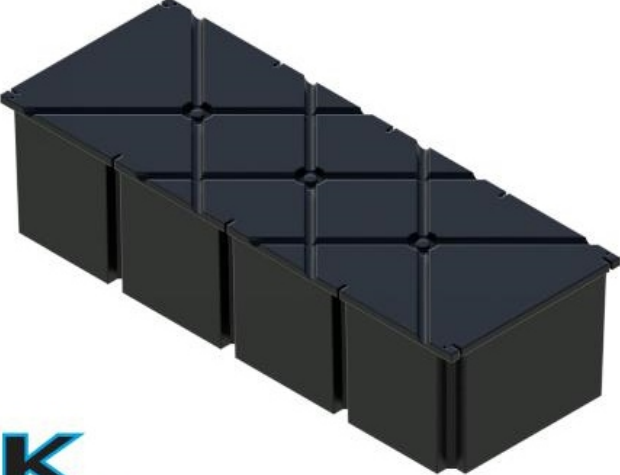




Design Floats



RENDER



NOTE: Dimensions may vary by up to 1%. Dock Builders Supply strongly recommends that dock floats be on-site to use as templates to ensure that dock floats correctly mate to the floating dock frames. For floating dock drawings, or help designing floating docks using this dock float, please call Dock Builders Supply at 800.677.4710.

DOCK BUILDERS Supply

Dock Builders Dock Floats

P.O. Box 3450
Apollo Beach, FL 33572
www.dockbuilders.com - 800.677.4710

COPYRIGHT © DOCK BUILDERS SUPPLY™ 2013 | ALL RIGHTS RESERVED



Design Supports





Design Guiding pilings



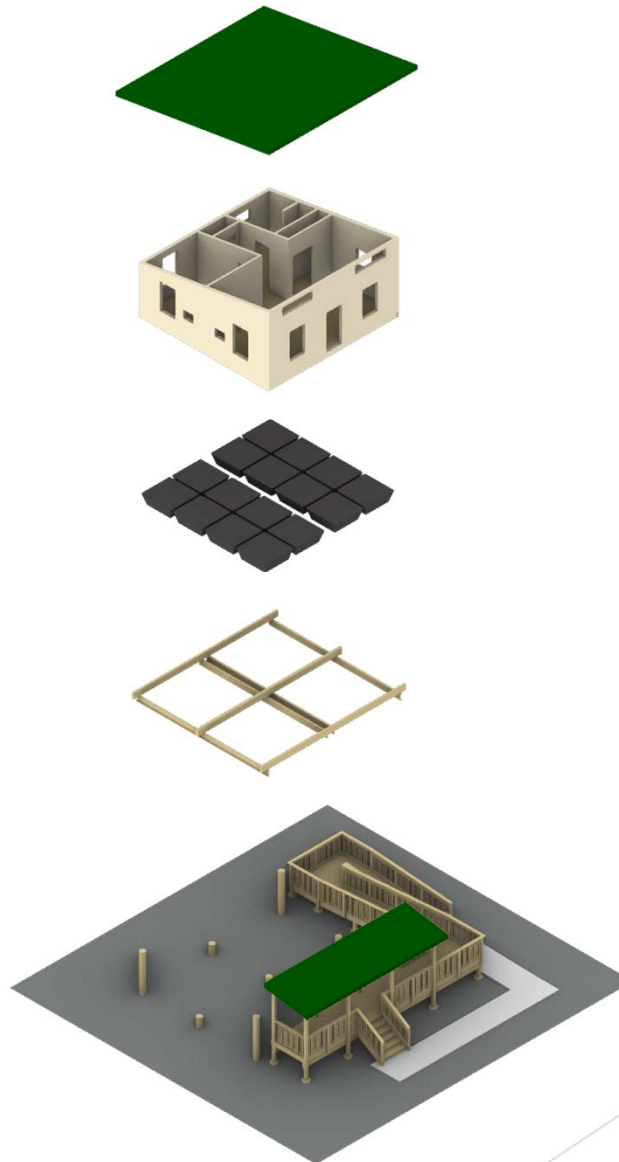


Design Accessibility





Final Design





Final Design





Finished Cabin Kitchen



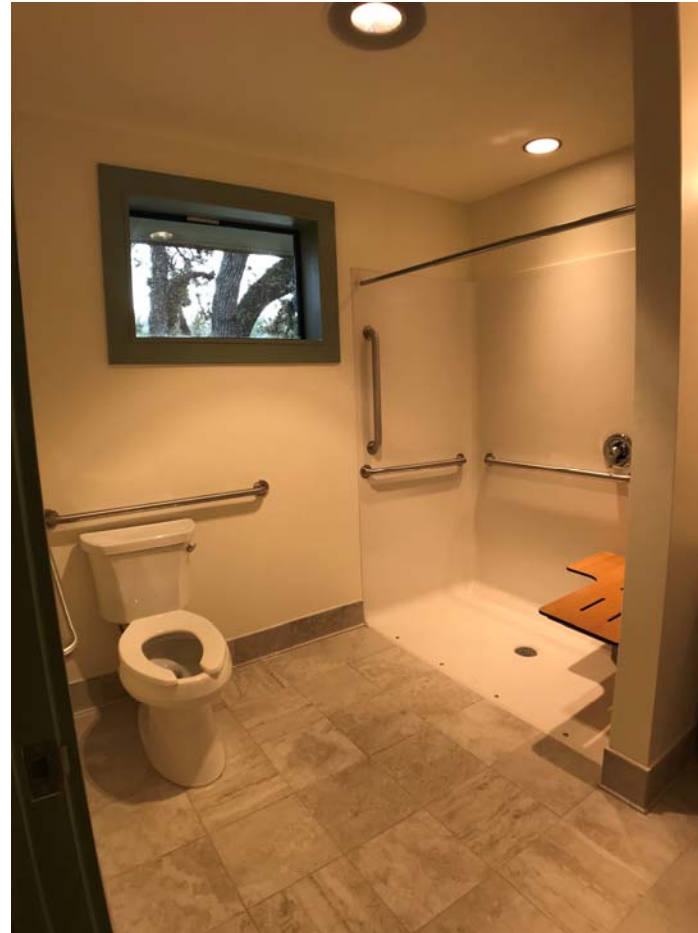


Finished Cabin Living Room





Finished Cabin Bathroom





Finished Cabin Bedroom





Finished Cabin Exterior





Finished Cabin Exterior





Finished Cabin Exterior





What happens when it floods?

Emergency flood plan:

- Monitor the Palmdale United States Geological Survey (USGS) water gage.
- Fisheating Creek enters flood stage when the water level reaches 6.5 feet.
- Within 12 hours of water levels predicted to reach 7.5 feet the utilities at the cabin are disconnected.





What happens when it floods?

Disconnection procedure includes:

- Flushing sanitary pipe with clean water.
- Closing all faucets and water isolation valve.
- Disconnecting flexible water supply hose and capping pipe ends.
- Removing sanitary spool piece and installing blind flanges on pipe ends.





Federal Emergency Management Agency

The project was submitted to Federal Emergency Management Agency (FEMA) for reimbursement of 90% of the cost and FEMA approved the project although it did not provide an exact replacement of the damaged building, because the design mitigates the chances of future damage.





Make it a prototype

FWC will be able to reuse the general design at as part of an agreement with the consultant, G.M. Hill Engineering, Inc. The cost to modify the design for specific conditions will be much less than the cost for the design of the cabin.

General can be reused for structures like:

- Other cabins
- Check stations
- Classrooms
- Offices





Awards



AIA Jacksonville

Chapter of the American Institute of Architects

Project received the Award of Excellence
in the Residential Built category





Questions

