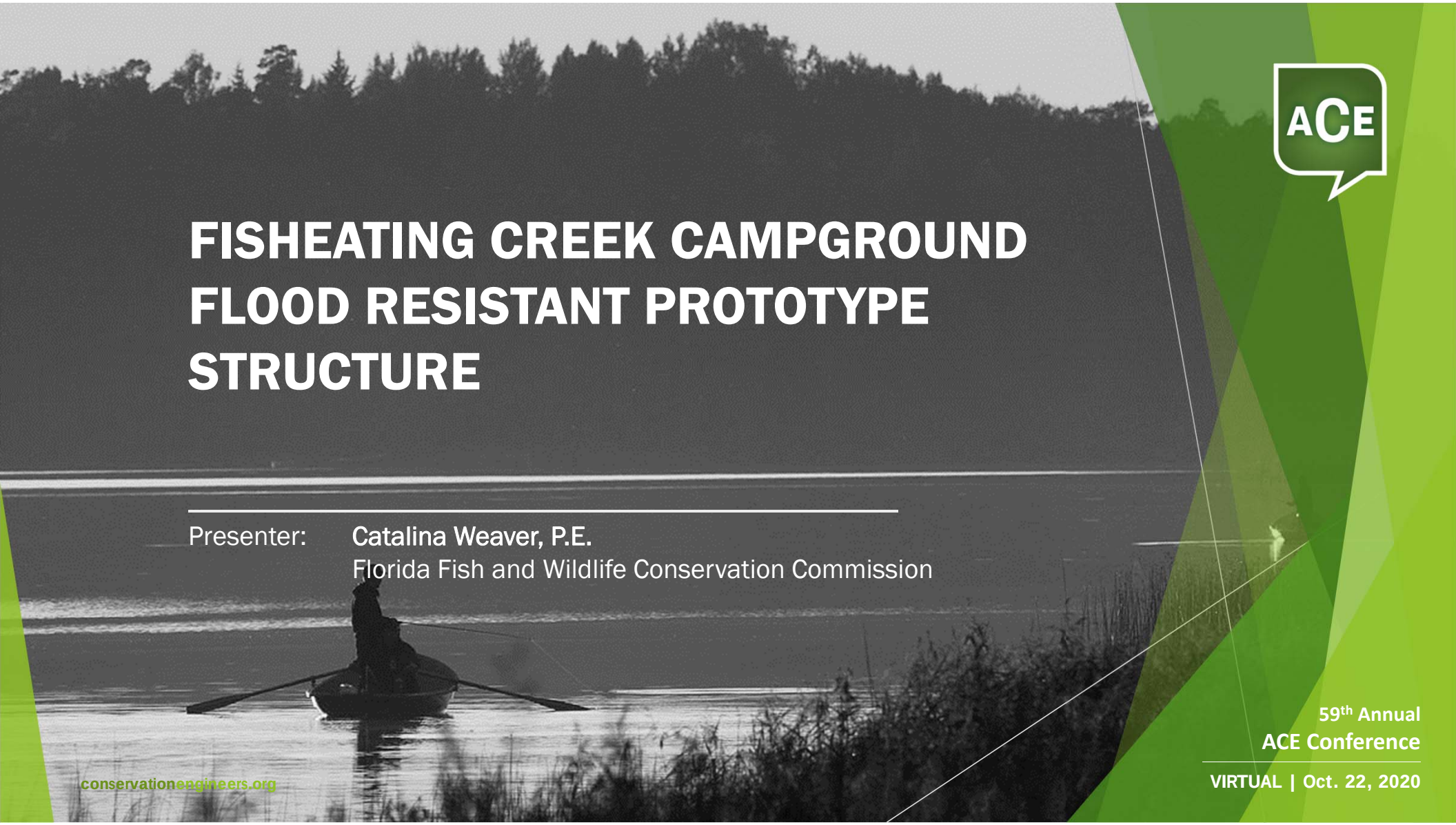


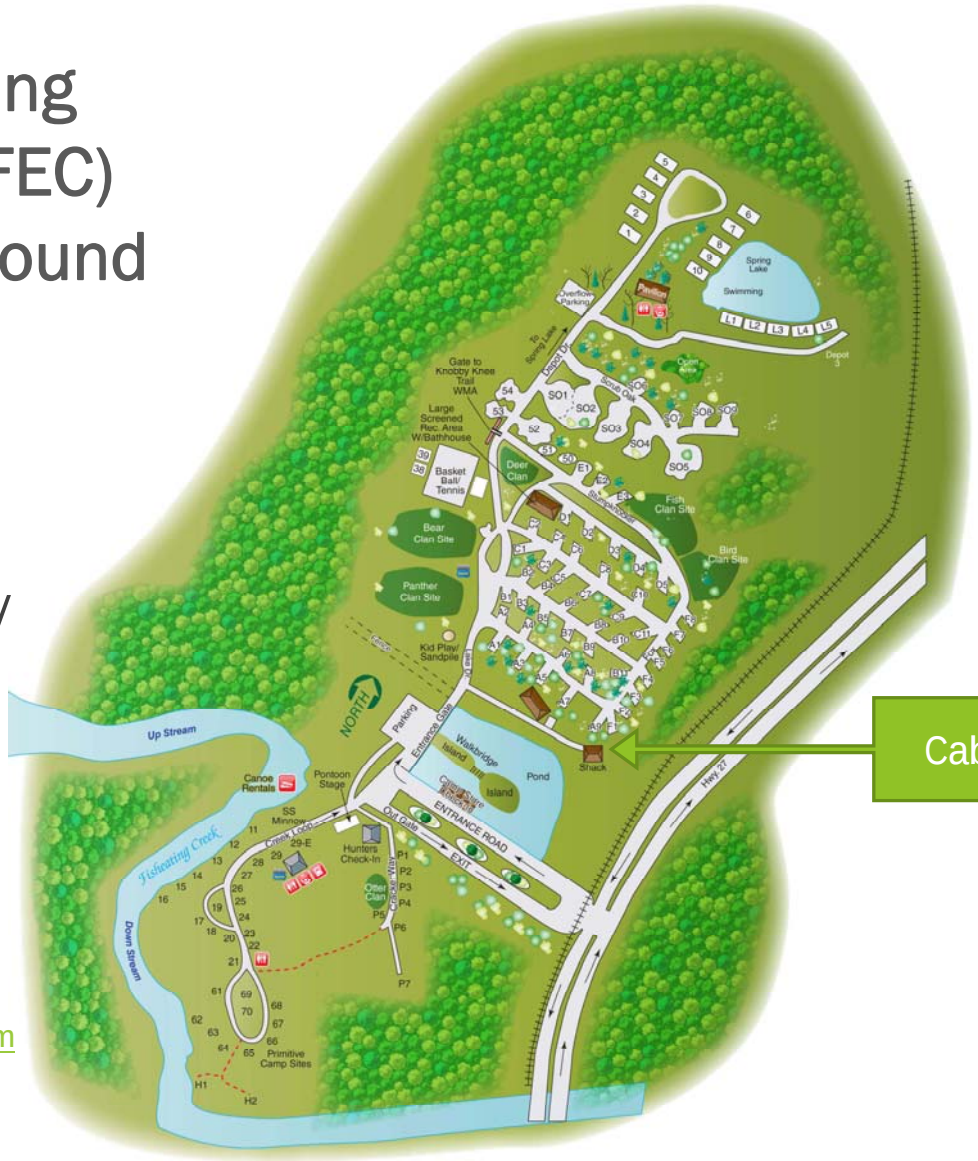
FISHEATING CREEK CAMPGROUND FLOOD RESISTANT PROTOTYPE STRUCTURE

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

59th Annual
ACE Conference
VIRTUAL | Oct. 22, 2020

Fisheating Creek (FEC) Campground

Located near
Palmdale
In Glades County
Florida



https://fisheatingcreekoutpost.com

conservationengineers.org

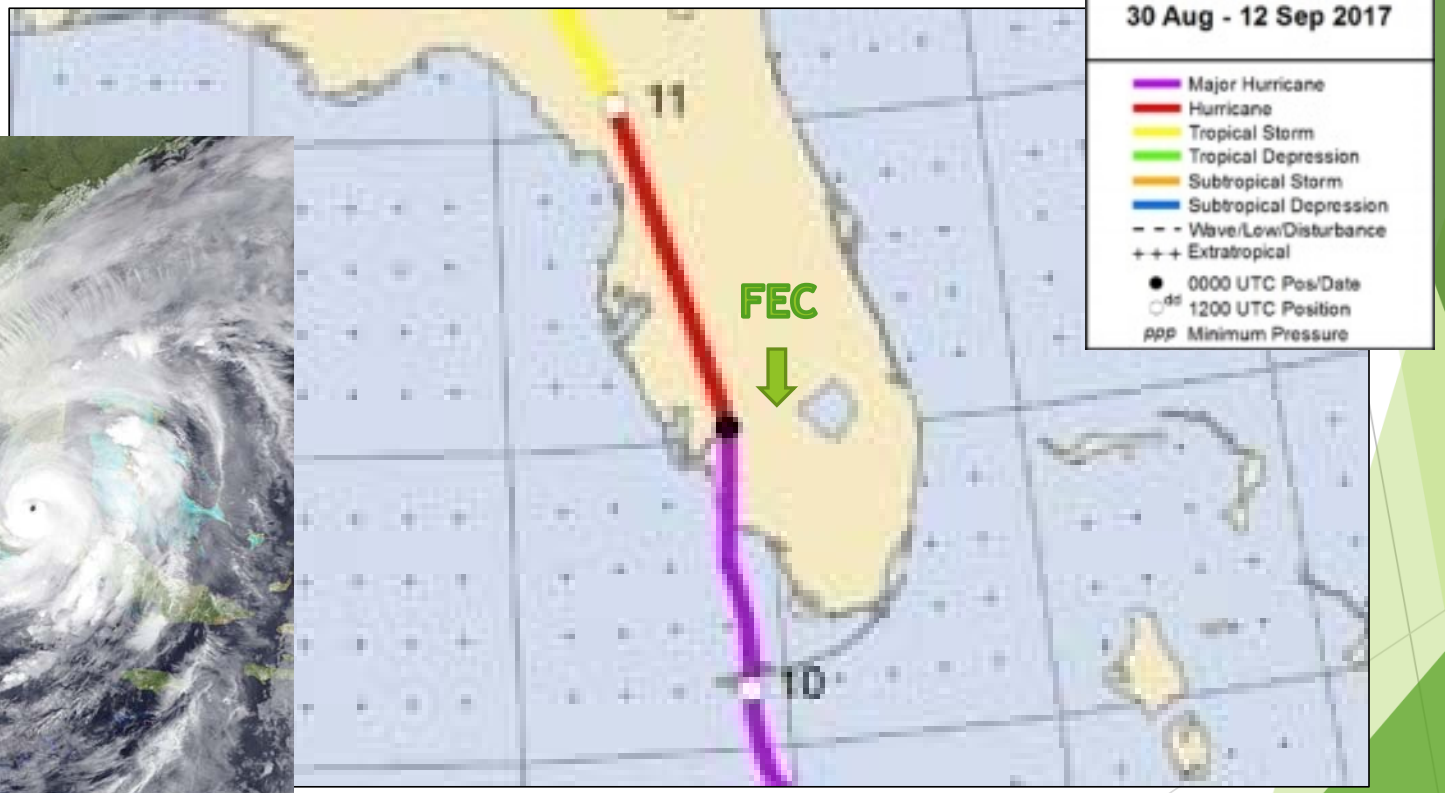
FEC Campground Activities

https://fisheatingcreekoutpost.com

Original Cabin

One open large room with a kitchenette and a bathroom

Hurricane Irma



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?

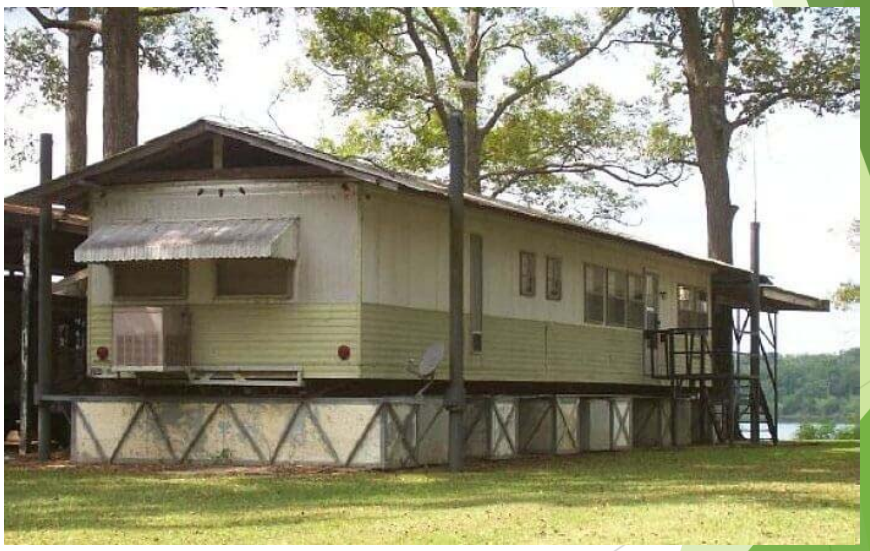
Brain Storming

- What kind of floating structure?

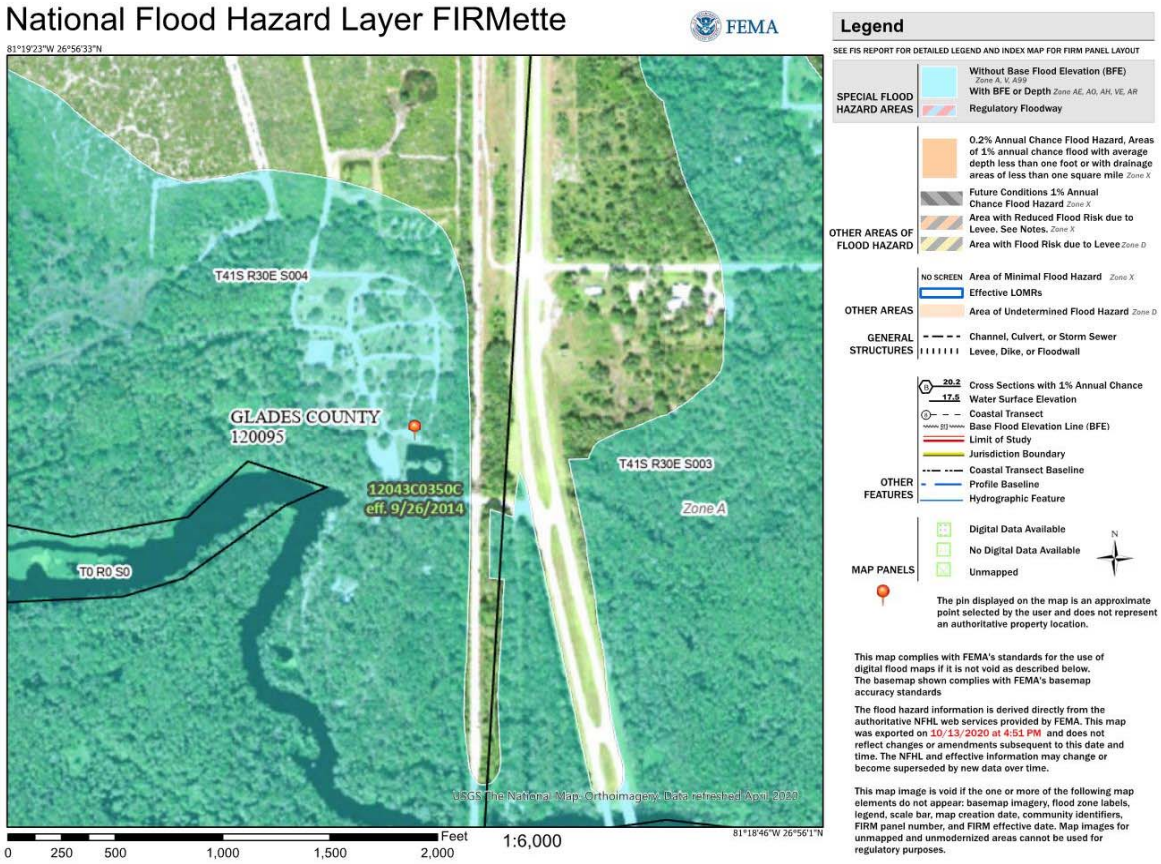
A houseboat?

Brain Storming

Need something that can go up or sit on the ground



Finished Floor Elevation (F.F.E.)



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

Design Team

Prime consultant:

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

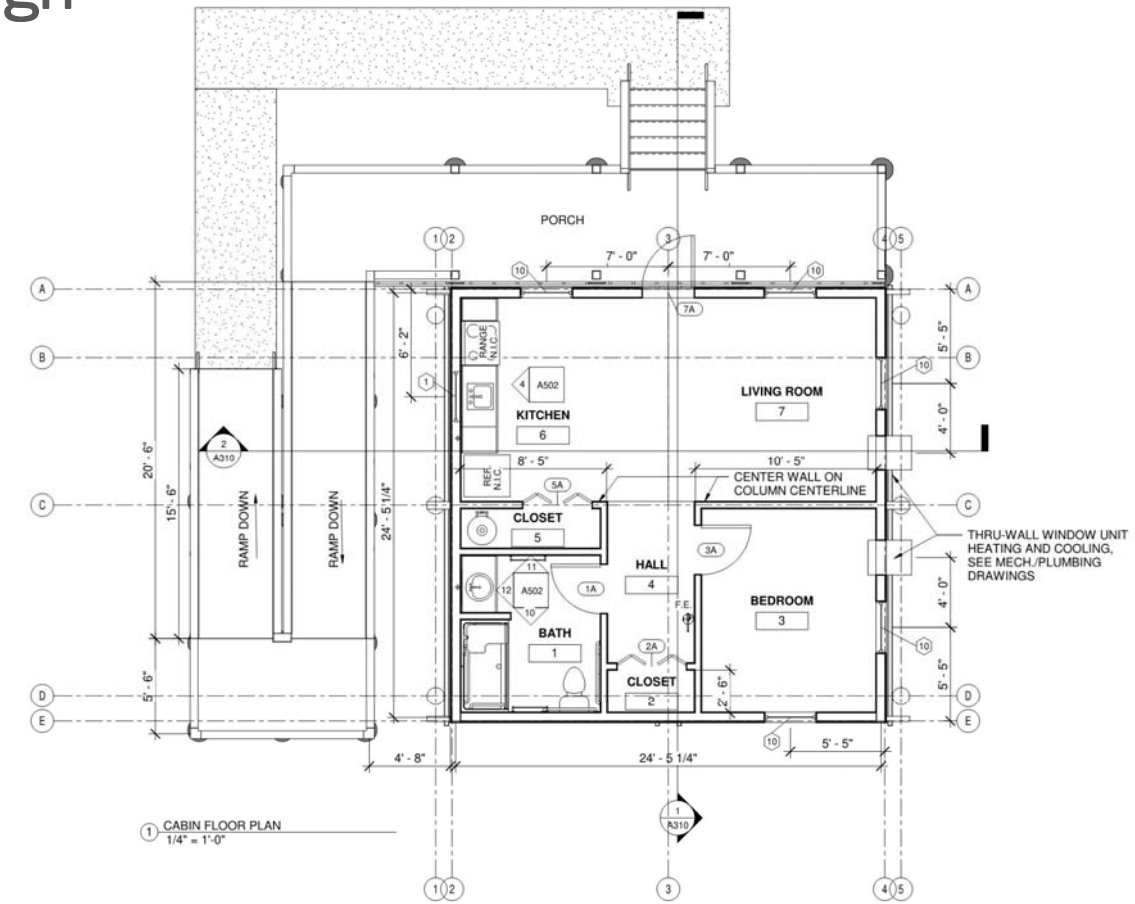
Civil subconsultant:

- Kimley-Horn and Associates, Inc.

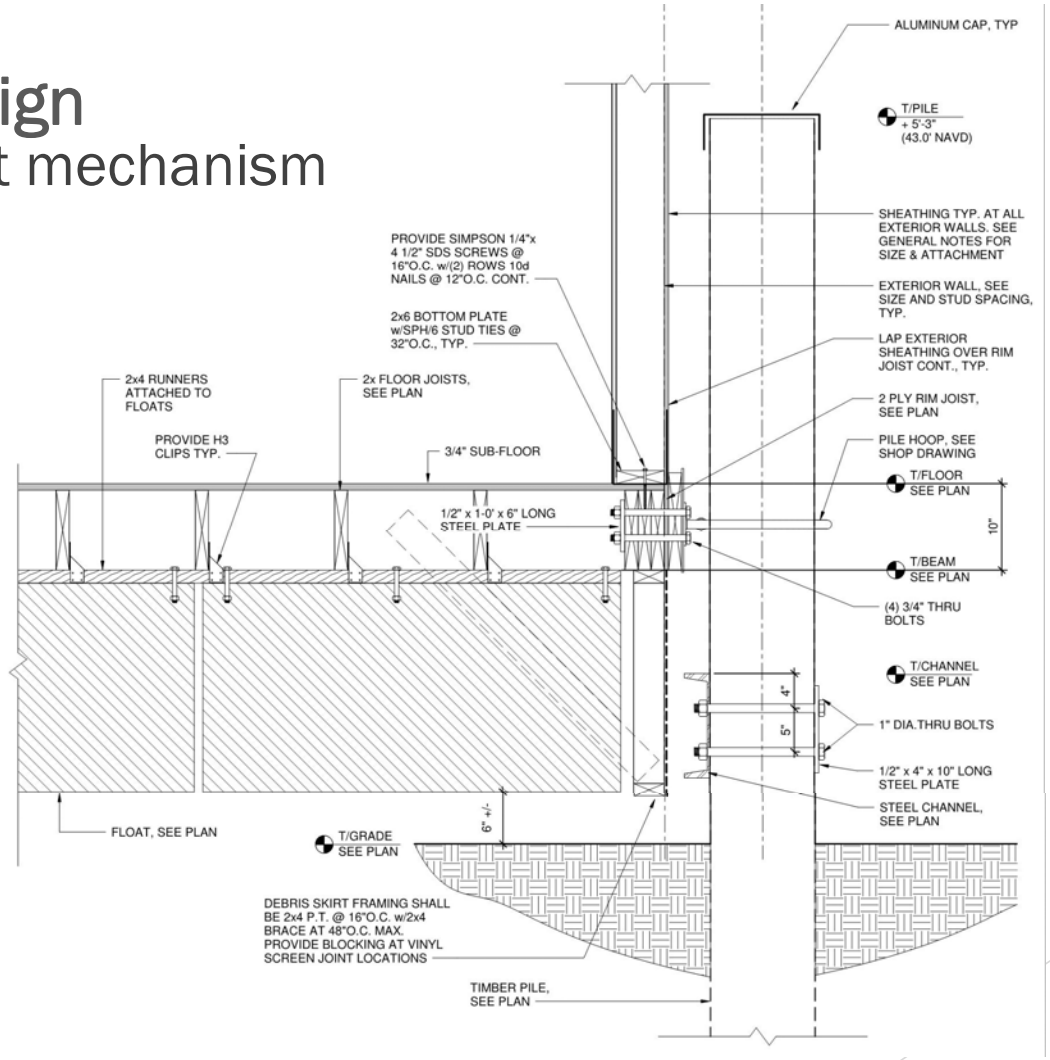
Mechanical and electrical subconsultant:

- Simes & Rosch, LLC.

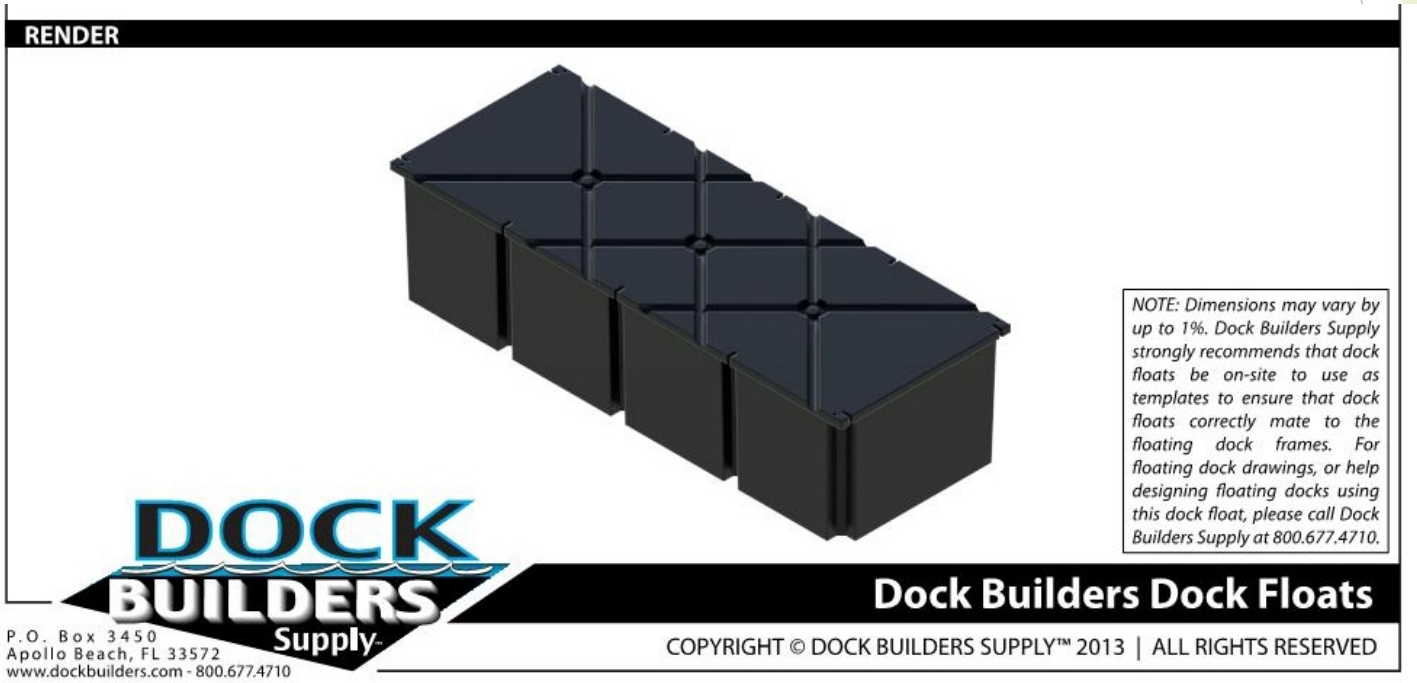
Design


PORCH
7' - 0"
7' - 0"
LIVING ROOM
7
KITCHEN
6
CLOSET
5
HALL
4
BATH
1
CLOSET
2
BEDROOM
3
RAMP DOWN
RAMP DOWN
CENTER WALL ON
COLUMN CENTERLINE
THRU-WALL WINDOW UNIT
HEATING AND COOLING,
SEE MECH./PLUMBING
DRAWINGS
24' - 5 1/4"
4' - 8"
5' - 5"
20' - 6"
15' - 6"
5' - 6"
24' - 5 1/4"
8' - 5"
10' - 5"
6' - 2"
5' - 5"
4' - 0"
4' - 0"
5' - 5"
2' - 6"
CABIN FLOOR PLAN
1/4" = 1'-0"

Design
Float mechanism



Design
Floats



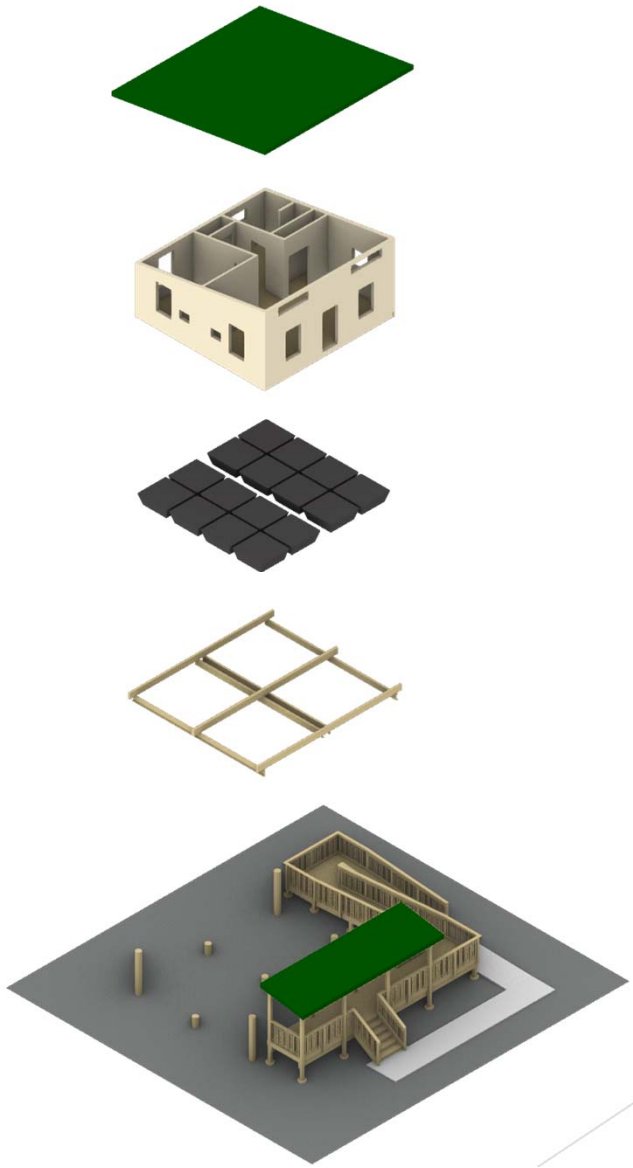
Design
Supports

Design

Guiding pilings

Design
Accessibility

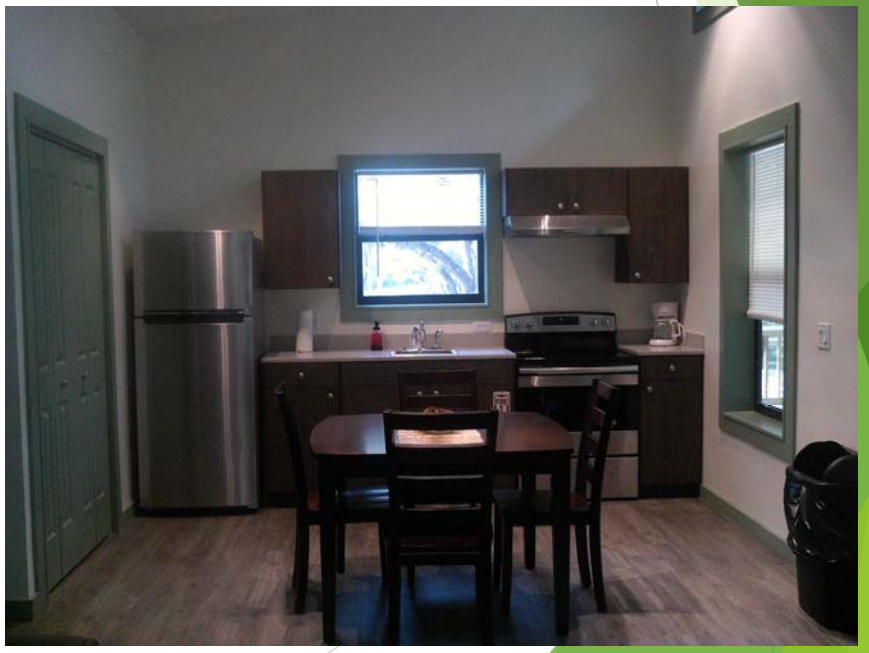
Final Design



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