



# FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

## FISHEATING CREEK CAMPGROUND

### FLOOD RESISTANT PROTOTYPE STRUCTURE

#### **Background:**

Hurricane Irma made landfall September 10, 2017 inflicting widespread damage via high winds and extreme flood waters to the Fisheating Creek Wildlife Management Area (WMA) Campground. Approximately 80 acres of the campground were flooded with over 3 feet of water, damaging most of the facilities on this remote site. The campground is located on a zone designated by the Federal Emergency Management Agency (FEMA) as a special flood area without base flood elevation.

At the campground, flooding damaged the cabin in its entirety. Mold intrusion occurred throughout. The building became a safety hazard and was demolished.

#### **Project:**

Since there is not a FEMA established flood elevation at the site, the cabin replacement had to allow for flexibility for the finished floor elevation (FFE). Other considerations such as cost, and accessibility also had to be considered. Constructing a cabin elevated above all reasonable flood elevations would result in difficulties meeting the American with Disabilities Act (ADA). Replacing the cabin with a building similar to the demolished one, built on grade, would be more economical but the new structure would inevitably be affected by flood damage in the future. The Commission decided that the best solution was to make a larger front-end investment for a building that would be resilient to future flooding conditions.

The project constructed a structure attached to plastic floats that allow vertical movement of up to 5 feet above the FFE, set 42 inches above the surrounding grade. The FFE is two feet higher than the highest recorded flood elevation based on the South Florida Water Management District's data. The floating cabin design includes a connection to a stationary front porch for access by stairs or an ADA ramp. The floats are attached with 2 x 4 wood runners to the cabin's wood joists, so the building's wood floor elements remain dry even during flooding conditions. During dry conditions, the wood joists are designed to sit above leveling beams and steel channels attached to wood piles, this prevents the weight of the building from damaging the plastic floats. During flooding conditions, the building is kept in place by metal hoops that roll up and down wood piles located at each corner of the building.

The project was submitted to 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.

The prototype cabin has been very well received by the campground patrons. The Commission may consider other similar buildings in the future since so many of the areas it manages are highly susceptible to flooding. Initial engineering cost were negotiated with the understanding that the design could be used for future projects with a small reuse fee.



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**Pictures:**



**Original cabin**



**Flooding at cabin caused by Hurricane Irma**



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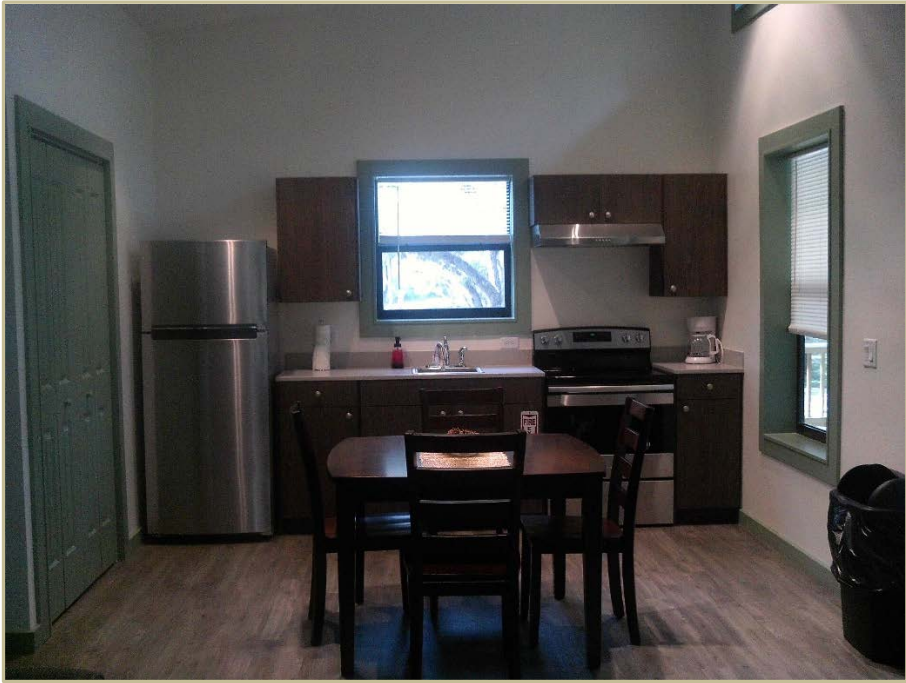
**New cabin support structure and plastic floats**





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**Stationary ADA access connected to front porch**



**Finished cabin interior**



**Finished cabin exterior**