

Business Name  
Business street address  
Key West, FL 33040  
15 August 2019

## **FLOOD EMERGENCY OPERATION PLAN (FEP)**

### **1. WHEN: DRY-FLOODPROOFING MEASURES SHALL BE DEPLOYED/REMOVED:**

**Deployment Trigger:** When the following is issued from the National Weather Service or local emergency management officials: Tropical Storm Warning, Tropical Storm Watch, Hurricane Warning, Hurricane Watch, local severe flood advisory and any other weather event when flood events may be expected. Any other time when company management or the property owner may deem it necessary to implement floodproofing measures.

**Removal Trigger:** Floodproofing measures shall not be removed until the National Weather Service or local emergency management officials announce the flood danger has passed.

When the flood events are triggered – as noted above - \_\_\_\_\_ shall inform all below listed personal about the event and instruct them to proceed with their responsibilities.

### **2. EVACUATION INSTRUCTIONS:**

All personnel who normally occupy the building, and the personnel who have installed the floodproofing measures should follow the instructions given by community officials pertaining to evacuation. All floodproofing should be installed in time to safely evacuate the community.

### **3. WHO: NOTIFICATIONS:**

a. The \_\_\_\_\_ shall notify \_\_\_\_\_ that floodproofing measures need to be deployed, leaving one exit – located at \_\_\_\_\_ - open if this building is still occupied.

b. The \_\_\_\_\_ shall notify \_\_\_\_\_ that floodproofing measures need to be completed, the building checked to ensure no people/animals remain inside, and the building sealed.

c. The building shall remained sealed until the \_\_\_\_\_ notifies

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\_\_\_\_\_ that local emergency management officials announced the flood danger has passed and floodproofing measures may be removed.

- d. The \_\_\_\_\_ shall notify \_\_\_\_\_ that photographs be taken of any damage to the building or its contents, before any clean-up begins.

**4. WHERE:**

- a. LOCATION OF DRY-FLOODPROOFING MATERIALS:

The floodproofing materials area stored \_\_\_\_\_.  
(Include map here if helpful).

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Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus.  
Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci.

The floodproofing materials include:



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### Logs/Planks

Individual planks stack in frames attached to the building to build a floodproof wall.



### Bottom Log/Plank

The bottom planks are specifically identified. There's a larger gasket on the bottom to make the seal against the floor.



### Frames

(pictured here with removal cover)

Flood planks slide down these frames to build a flood wall.



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**Compression clamps or  
Turn Knobs**

These apply downward pressure to help seal the gaskets between the planks.



**Mullions Post**

Along long open spans, these posts provided necessary support, and join multiple flood walls.



**Submersible Pump(s)**

Some seepage can be expected. These pumps remove that seepage.

Don't have the output hose directed into a sink or other plumbing fixture. There's a backflow preventer valve on the sewer line, that will prevent normal drains from working during a flood.

Route the hose over the floodproofing and outside the building.



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**5. FLOODPROOFING LOCATIONS:**

- a. There are \_\_\_\_ locations where floodproofing needs to be deployed. They are identified by matching numbers corresponding the location and floodproofing materials (Door “A” & Floodproofing Panels A1, A2 etc.):
  
- b. (insert building map here if useful)
- c. DOOR “A” IS LOCATED AT \_\_\_\_\_
- d. DOOR “B” IS LOCATED AT \_\_\_\_\_

**6. INSTALLATION PROCEDURE:**

**a. Check the building exterior:**

**1.** Walk around the entire building, looking for areas that flood waters could seep through:

- a. Cracks or holes in the building surface.
- b. Through-wall connections for pipes or wires that may have been created after the floodproofing was designed, and which will let flood waters enter the building around floodproofing measures.

**b. Order of Installation:**

**1.** Floodproofing measures will be installed in the following order:

- a. (1st location)
- b. (2nd location) etc.
- c. (Last Location) This location is last, so people needing to use the building may come and go until the building is finally sealed.

**c. For Both Flood panels & logs:**

- 1.** Match the panel identifier to the location identifier. Panels are design to fit specific locations and aren’t interchangeable.
- 2.** Remove any protective covers over the frames, and store inside the building.
- 3.** Clear the frames and base upon which the panel will rest, of any debris that could interfere with the floodproofing.

**d. Flood Panels:** *(Use either this Flood Panels section or follow Flood Logs/Planks section depending upon which type of equipment you have.)*

- 1.** Check the compression gaskets between the panels and the walls/frames:

- a. If they're missing, the floodproofing won't work.
  - b. Are they soft and flexible? If not, they may crack and cause the floodproofing to fail. Determine if they will compress and create the water-tight seal needed.
- 2.** Close and lock the door/entranceway.
- a. Attach the panel to the building, ensuring the compression gaskets are compressed.
  - b. While one person looks behind the floodproofing, have another one person use a strong flashlight to circle the gasket area from the outside. If light can be seen passing through the gasket to the inside, the floodproofing will fail.
    - i. If the panel fails the light test:
      1. Ensure you have the correct floodproofing panel for that location on the building.
      2. Tighten the mounting screws, or
      3. Reinstall the panel.
      4. Replace the gasket before finishing floodproofing.
  - c. Using a water hose from the outside, spray water at the gasket connection to the building, to help ensure the floodproofing is working.
- 3.** Repeat the process for all the floodproofing locations, except for the last location.
- 4.** Check the emergency escape exit above floodproofing to ensure it can be accessed and utilized from the inside.
- 5.** Place the sump-pump inside, behind the floodproofing to remove any seepage of flood waters.
- a. Ensure the discharge hose sends any water back outside, above the floodproofing.
  - b. Don't place the pump discharge hose in a sink or other inside drain, as the drains will seal once the flood begins, and the water won't leave the building.

**6.** Sealing last floodproofing location.

a. Walk through the building, ensuring no people or animals remain.

i. For areas accessible from the exterior, ensure no vagrants have hidden themselves inside.

b. Seal this location

2. Evacuate

**e.** **Flood Logs/Planks:** *(Use either this Flood Panels section or follow Flood Logs/Planks section depending upon which type of equipment you have.)*

**1.** Mullions Post – Some installations are so long, there may be supporting posts between plank walls.

**2.** Mount these posts first.

a. Ensure each post is installed in the position it was designed to fit. These posts aren't interchangeable. If the mounting bolts don't line-up with the mounting-bolts, you've likely got the wrong post for that location.

**3.** **Very Important!** Each floodproofing location has one plank designed to be the bottom piece. This plank has an extra-thick gasket on the bottom. Insert this plank first, so the label is right-side-up.

**4.** Insert the other flood logs/planks designed for this location on top of the bottom plank, until the top of the frame is reached.

**5.** Install compression clamps at the top. Tighten so the gaskets between the planks compress to the point where they seal out the water.

**6.** Repeat the process for all the floodproofing locations, except for the last location.

**f.** **Emergency Escape Exit**

**1.** Check the emergency escape exit above floodproofing to ensure it can be accessed and utilized from the inside.

**g.** **Sump Pump**

**1.** Place the sump-pump inside, behind the floodproofing to remove any seepage of flood waters.

**2.** Ensure the discharge hose sends any water back outside, above the

floodproofing.

- 3.** Don't place the pump discharge hose in a sink or other inside drain, as the drains will seal once the flood begins, and the water won't leave the building.

**h. Seal last floodproofing location.**

- 1.** Walk through the building, ensuring no people or animals remain.
- 2.** For areas accessible from the exterior, ensure no vagrants have hidden themselves inside.
- 3.** Seal this exit point

**i. Backflow Preventer Valve**

- 1.** Check back-flow preventer valve for proper operation.
- 2.** Ensure valve flap isn't blocked and is functioning properly.
- 3.** The backflow preventer valve is located at [insert photo, map or both here so employees will know where to find this component].

**j. Utility Shut-off**

- 1.** Water supply to building.
- 2.** Propane supply to building.

**k. Evacuate**

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## **ANNUAL INSPECTION MAINTENANCE & TRAINING PLAN**

**1. Who:**

- a. \_\_\_\_\_ is responsible for ensuring these tasks are completed.

**2. What:**

- a. Inspection and maintenance of the floodproofing components.  
b. Training of personnel responsible for installing floodproofing components

**3. When:**

- a. Annually, during the first week of May (one month prior to the start of hurricane season)

**4. Where:**

- a. On-site, at each floodproofing & backflow preventer valve installation point.

**5. Why:**

- a. To ensure
- i. All the floodproofing components can be located.
  - ii. All the components are properly code/identified/mapped to their correct installation points. (So it's easy to tell which pieces are used for which entranceways.)
  - iii. The stored parts, along with those permanently mounted to the building have not suffered damaged that would interfere with the installation and performance of the floodproofing components.
  - iv. Gaskets remain soft and pliable. If they've become hard and brittle they'll crack or break when the panels/logs are compressed, and the floodproofing will fail.
  - v. Panels/logs or frames haven't warped and fit properly when installed.
  - vi. Personnel responsible for installing the floodproofing components learn how it's done.

Responsibilities include: Informing store manager to proceed with Flood Emergency Operation Plan responsibilities. An issued Weather Service Hurricane Warning will trigger the FEP.

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Responsibilities include: During Hurricane Season (June 1st – November 30th) based on information received from National Weather Service (NOAA) the flood proofing EVENT shall be established.

**c) Supervising the installation of Flood Proofing Panels at openings identified in the plan, acceptance of the installation and testing. The water supply will be shut off, gas valve closed, and the operation of the sewer backflow valve shall be checked.**

Person Responsible: **Store Manager – Steven Williams (305)-294-0936**

**Floodproofing Measures Installer(s)- Store Owner- Eizik Shvero (305)-216-5915**

Responsibilities include:

- 1) Assigning trained and designated employees to install Flood Proofing Panels at all openings as identified in the plan and photographs in Appendix A of this document. Prior to every installation each panel shall be visually inspected; gasket shall be continuous and should not have any tears, gaps, or deterioration. All bolts shall be manually tightened until visual compression of the gasket is achieved.
- 2) Remove all panels and hardware from storage location (Opening D in Appendix A) and install.
- 3) After each panel is installed it shall be inspected using flash light for full gasket seal and bolt tightness.
- 4) Testing of backflow prevention valve shall be performed at every EVENT.
- 5) Test shall consist of:
  - Visual inspection of the valve for any mechanical damage.

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- Filling the sump with potable water until the valve closes and demonstrates proper backflow prevention.

6) Visual inspection of Building Walls and Floor Slab. Responsible Person shall inspect building walls for cracks or any other damage that can result in water leaks or new through-wall opens made for wires, pipes, etc. Walls shall be inspected inside and outside. Any cracks shall be immediately sealed with exterior grade silicone and reported to Store Manager.

7) Outdoor air conditioner condensers shall be wrapped with tarps and be secured.

8) Windows will be placed in locked position.

9) Turn off the electrical and gas to the building.

10) After all installations and tests, Responsible Person shall sign the log sheet located in the Storage area indicating Name, Date and Time for all measures.

#### **1. ANNUAL INSPECTION OF FLOODPROOFING**

Person Responsible: **Store Manager- Steven Williams (305)-294-0936**

Responsibilities include:

1. Checking the log for completeness.

2. Visual inspection of the backwater valve for any mechanical damage.

3. Flash light inspection of each baffle for gasket seal and bolt tightness.

4. Visual inspection of Building Walls and floor slabs. Responsible Person shall inspect building walls and floor slabs for cracks or any other damage that can result in water leaks such as new

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through-wall connections. Walls shall be inspected inside and outside.

5. After all inspections Store Manager shall sign the log sheet indicating Name, Date and Time.
6. A backflow prevention valve is to be installed in the proposed drain basin on the sewer line by a licensed plumber. Also a qualified contractor will inspect the flood panels condition, gaskets, bolts, materials, making repairs as found necessary, do a panel install simulation before hurricane season starts by May 31, and then sign off on the floodproofing integrity of the system.

## **2. SCHEDULE FOR EVALUATION AND UPDATE OF THE FLOOD EMERGENCY OPERATIONS PLAN (FEP)**

The FEP should be evaluated and updated by the Store Owner at least every two years to reflect changes in personnel, procedures, materials, and “*lessons learned*” from actual storm events.

## **3. ANNUAL TRAINING AND EXERCISE PROGRAM**

Such Training shall occur at least one (1) month prior each hurricane season to insure personal and materials readiness. A trial run (drill) of panel installation should also be conducted annually prior to start of hurricane season (June 1st).

Training and exercise program to keep personnel aware of their duties

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and responsibilities following this FEP as a training guide should be held at least once a year. Flood safety precautions should be repeated during each training drill.

This Plan should be posted in two clearly marked locations, such as on the store bulletin board and on the store front, and to the City of Key West, FL FEMA Coordinator.

#### **4. FLOOD PROOFING INSPECTION AND MAINTENANCE PLAN TEMPLATE**

Annual inspection of all Flood Proofing components is required. Such Inspection shall occur at least one month prior each hurricane season. It can be combined with the Training and Exercise Program. A report with results of the Inspection by the Store Manager shall be filled out and sent to property owner. All records shall be kept in secure place for minimum of 5 years.

#### **5. MECHANICAL COMPONENTS**

Testing of sewer backflow prevention Flap Valves shall be performed: Test shall consist of:

- Visual inspection of the Flap Valves for any mechanical damage.
- Filling the sump with potable water until the valve closes and prevents liquid backflow.

If any damage or malfunctioning of the valve is discovered it shall be repaired or replaced before the Hurricane Season starts.

#### **6. FLOOD PANELS**

Aluminum Flood Proofing Panels shall be visually inspected for any damage that can result in leaks (cracks on weld joints, deformations

etc.). Gaskets shall be visually inspected for any wear, tear or deterioration that can result in leaks. Gaskets shall be soft enough to provide a tight seal. If gaskets are damaged or have lost flexibility they shall be replaced with same material. A qualified contractor will make repairs/replacements, and do a panel install simulation. Attachment hardware (bolts and washers) shall be counted and threads inspected.

## **7. WALLS AND FLOOR SLABS**

Store Manager shall visually inspect building walls and floor slabs for cracks or any other damage that can result in water leaks. Concrete Masonry walls shall be inspected inside and outside to the elevation of 2

ft above the finished floor level. Any signs of cracks or other damage that may result in leaks shall be reported to the Store Owner and then repaired.

## **8. LANDSCAPING**

Keep all trees and vegetation trimmed and away from the building.

## **9. FLOOD PANELS**

Every June remove all flood panels from storage location and inspect gaskets, bolts, and connections for deterioration and replace and/or repair. Tidy-up the storage area, remove debris, organize items that block access

APPENDIX(A)PHOTOS(AND)PLANS(OF)FLOODPROOFING(PANELS)