

FLOOD RISK AMERICA



Flood Protection Solutions



The FRA Flood Panel

Installation Instructions and Operations Manual

2021



Table of Contents

Warranty Information	Page 3
FRA Flood Panel Inspection and Maintenance.....	Page 5
FRA Flood Panel Safety Information	Page 7
FRA Flood Panel Installation Information	Page 9
Wall Anchor Location with Mounting Hardware (4X4 Angles)	Page 15
Multiple Panel Deployment Procedure (Vertical Spline)	Page 16
Multiple Panel Deployment Procedure (Horizontal Flange)	Page 17
FRA Panel with Compression Jack.....	Page 18

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This manual has been compiled and published covering the latest product descriptions and specifications. The contents of this manual and the specifications of this product are subject to change without notice.

FLOOD RISK AMERICA reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

LIMITED WARRANTY

Flood Risk America (“FRA”) warrants that the FRA Flood Panel sold to the Owner will be free of defects in design, materials and workmanship (ordinary wear and tear excepted) FRA warrants the anchoring components and gaskets to be free from defects in material and workmanship for a period of ten (10) years from date of shipment. Any field labor charges incurred as a result of mis-handling, improper storage or owner’s and/or their representative’s failure to comply with this manual are the sole responsibility of the customer. To make a claim under this warranty, please contact Flood Risk America, in writing, at the address shown above. A lifetime warranty is provided on the FRA Flood Panel.

Thereafter, the customer may enter into a maintenance contract with associated charges that will apply to any repair or replacement of anchoring components and gaskets. Claims under this Limited Warranty must be made within 30 (thirty) days after shipping date. Unauthorized modification of this product voids the Flood Risk AMERICA Limited Product Warranty.

WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, AND FLOOD RISK AMERICA EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE. FLOOD RISK AMERICA SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW, WITH RESPECT TO THE PRODUCTS SOLD OR SERVICES RENDERED BY FLOOD RISK AMERICA, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO.

LIMITATION OF LIABILITY: IN NO EVENT SHALL FLOOD RISK AMERICA BE RESPONSIBLE FOR, OR LIABLE TO ANYONE FOR, SPECIAL, INDIRECT, COLLATERAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF FLOOD RISK AMERICA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Such excluded damages include, but are not limited to, personal injury, damage to property, loss of goodwill, loss of profits, loss of use, cost of cover with any substitute product, interruption of business, or other similar indirect financial loss.



WARRANTY REGISTRATION

Owner Name: _____

Product: _____

Company: _____

Quantity: _____

Address: _____

Date Installed: _____

City: _____

Inspected By: _____

State/Province: _____

Country: _____

Postal Code: _____

Warranty Registration Information shall be used solely for activation of warranty

IN ORDER TO VALIDATE THE WARRANTY, THE FOLLOWING FORM MUST BE COMPLETELY FILLED OUT AND RETURNED TO FRA AT THE ADDRESS LISTED ABOVE. FAILURE TO FILL OUT AND RETURN THIS FORM WILL VOID THIS LIMITED WARRANTY

INSPECTION AND MAINTENANCE

TO PREVENT DAMAGE TO CONTENTS, STORE DRY
BETWEEN 40° AND 90° F.

Flood Risk America recommends that the owner implement a regular maintenance program to inspect all anchoring components, gaskets, and panels. This program may require the replacement of gaskets; touch up painting and accounting for of all the latching devices.

If the water height exceeds the level of any door penetrations or water protective design height, leakage will occur. Flood Risk America recommends a flood preparedness plan be developed, trained on, and implemented to be activated during times of potential flooding conditions.

This product is a flood protective panel. The effectiveness of the product is directly related to the proper installation and maintenance of this product. Failure to properly maintain this product will adversely affect performance.

Sealants: Inspect all sealants used on frames and connections to insure their effectiveness. Replace any cracked, loose, or otherwise non-performing sealants. Use only Flood Risk America approved products.

Lubrication: Periodically lubricate hardware and other components every year.

Cleaning: Inspect and clean finishes periodically, keep hardware and anchors free of any debris and keep the area clean throughout the operating area of the FRA Flood Panels.

Anchors: All anchors are engineered for load design and shall not be changed without Flood Risk America authorization.

Installation Instructions: It is important to verify the door opening to the door size before starting with the installation.

Please keep this Owners
Operation and Maintenance
manual for later reference
and read them before
attempting any maintenance,
operation, or storage of the
product.

-Flood Risk America

Door sill / Door and Window Jams:

1. Clean floor sill and sidewall jams. Keep area clean.
2. Measure door-opening width at the top
3. Measure door-opening width at the floor
4. Measure door-opening height at left side
5. Measure door-opening height at right side
6. Surface MUST be level and plumb

Protect all gaskets and hardware. Always consult Flood Risk America for all installation dimensions, details, hardware, and specifications. Check gaskets around perimeter of opening.

When the FRA Flood Panel is not deployed, an anchor cap seal is used to protect the Anchors. Inspect and clean periodically. Keep all bolts, nuts, dock washers and associated hardware clean.

NOTICE

FRA FLOOD PANEL SAFETY PRECAUTIONS

The FRA Flood Panel is a specially designed Flood Panel Barrier capable of providing floodwater protection. FRA Flood Panel is specifically manufactured to meet individual window or door opening dimensions to a Water Protective Height of each customer's specific site requirements. Due to the custom design each FRA Flood Panel, they will not look the same and will not anchor the same. Refer to installation shop drawings and related construction documentation for specific installation details for each panel.

The Flood Risk America Flood Panel system is to be installed in accordance with FRA's standard design, specification, and fabrication methods for Custom Flood Panels. This product is a flood protective barrier. The effectiveness of the product is directly related to its proper installation and maintenance. Failure to properly maintain this product will affect the product's performance.

GENERAL INFORMATION:

This manual contains information regarding operation and maintenance of custom water resistant flood panel assemblies.

This product is manufactured to specific guidelines. Unauthorized alteration in any way will result in voiding Factory Warranty, and may cause product failure.



OPERATION GUIDELINES

The following procedures and information are supplied for the operation of the FRA Flood Panel Barrier assemblies. Operation in a manner other than intended could result in damage or less than acceptable performance at time of need, for which Flood Risk America will not be held responsible. Always plan for potential leakage and condensation that can occur during flooding conditions.

SAFETY PRECAUTIONS:



- Ensure opening is clear of all obstructions or debris during operation.
- Do not force planks or components if they do not operate freely.
- If removing panels or hardware for maintenance, consult documents for component weights, and use appropriate lifting equipment. Protect all gaskets and hardware. Always consult original factory drawings for all installation dimensions, details, hardware, and specifications.

OPERATION UNDER FLOODING CONDITIONS:

Pre-flooding or Potential Flooding Conditions:

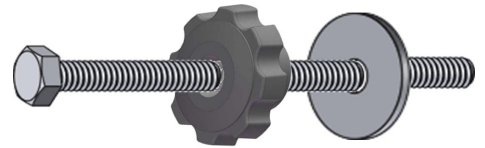
- Conduct Inspection and Maintenance activities as described in this Operations & Maintenance Manual and in accordance with any Flood Maintenance Plan and Emergency Action Plan.
- Ensure the FRA Flood Panel system is located near each required opening prior to flooding conditions and is deployed for placement when needed.

Flooding Conditions Present:

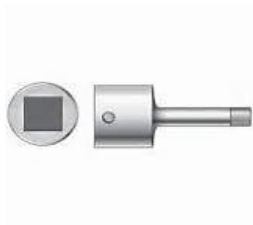
- Ensure FRA Flood Panel system remains fully anchored when flood event conditions are present.
- Check FRA Flood Panel system for leakage or condensation accumulation during flood conditions

THIS IS A FLOOD PROTECTION BARRIER. NEVER OPEN DURING ANY FLOODING CONDITIONS AS WATER LEAKAGE WILL OCCUR AND YOU WILL NOT BE ABLE TO RE-CLOSE THE BARRIER.

Picture Guide For FRA Flood Panel Installation



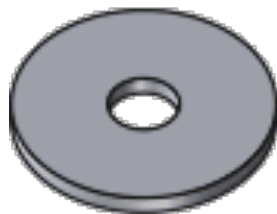
Snake or Hilti Anchor



Anchor Set Tool



Hex Bolt



3" Dock Washer with gasket faces



FRA Easy Turn Knob

FRA Flood Panel Installation

Use caution when unpacking upon delivery. To reduce the risk of damaging gaskets do not use a razor blade or box knife or any other sharp instrument to unpack the panels. Check packing list to make sure all hardware is present.

FRA Flood Panels, in most cases, can be installed with one person, although it can be significantly easier with 2 people. There are some cases where 2 people are required to safely install the **FRA Flood Panel**.

- The panel comes with holes pre-drilled in predetermined locations
- Temporarily set the panel making sure the panel is level and square.
- Use extreme caution with the panel in windy situations.
- Use a pencil or marker to mark all the holes on the left and right verticals.
- The holes are larger than the bolt size.
- Make your mark on the bottom half of the holes.

Do not mark the sill plate holes at this time. Remove The FRA Flood Panel

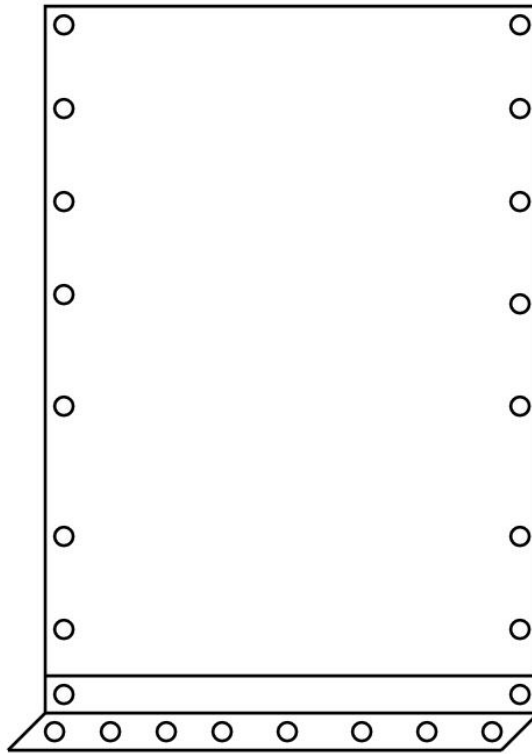


FRA Flood Panels hole. Make mark on bottom half of elongated hole.

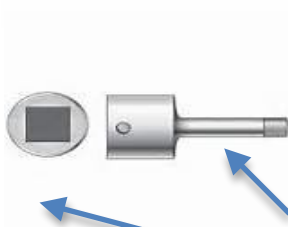
Use a proper drill to drill all marked holes. Refer to your architectural drawings to find what size holes you will be drilling. Drills and drill bits may vary depending on the material penetrated. Caution should be taken to utilize the appropriate tools when drilling. Refer to the Buildings Finish Materials's manufacturing specifications to become familiar with the material penetrated.

IMPORTANT

- Do not drill the holes too deep.
- Refer to anchor manufacturer's specifications for depth guide.

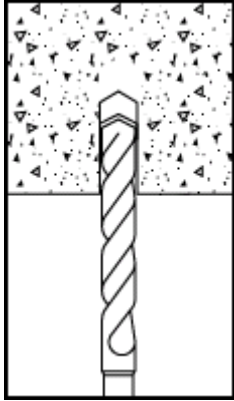


Anchor Installation Tools Needed:



Drill/Drill Bit

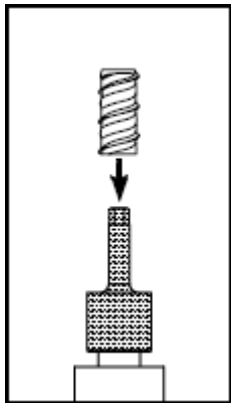
Anchor Installation



Step 1

Using the proper drill bit size, drill a hole into the base material to the required depth.

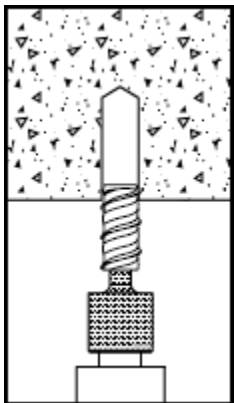
******DO NOT DRILL THE HOLE TOO DEEP.***



Step 2

- *Select a powered impact wrench that does not exceed the maximum torque for the selected anchor diameter.*
- *Attach the Snake plus setting tool supplied by Powers Fasteners to the impact wrench.*
- *Mount the anchor onto the setting tool.*

Fill Anchor hole with a construction adhesive



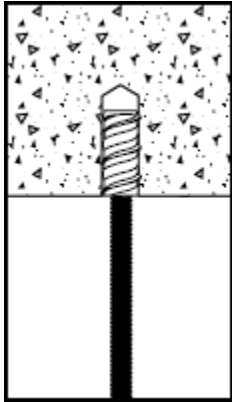
Step 3

Drive the anchor into the hole until the shoulder of the Snake+ setting tool comes into contact with the surface of the base material.

Do not spin the setting tool off the anchor to disengage.

Refer to epoxy manufacturer for epoxy set times.

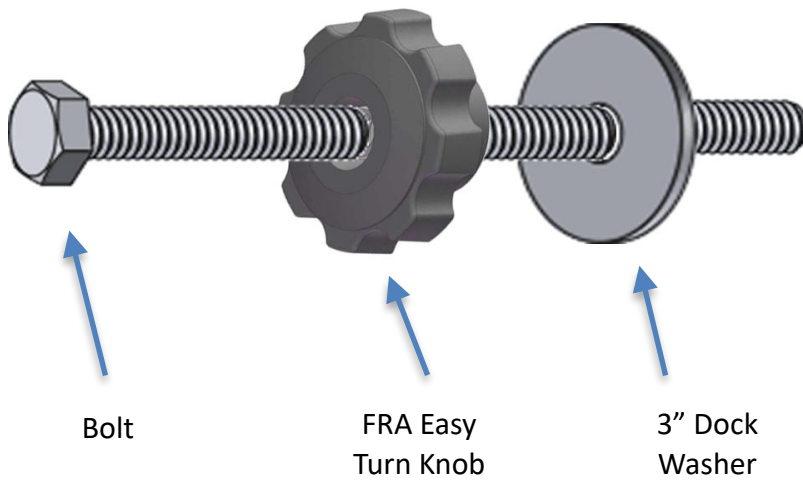
Make sure epoxy is fully set before you proceed.



Step 4

Insert threaded rod or a bolt into the Snake+, taking care not to exceed the maximum specified tightening torque of the steel insert element.

The anchors are set. You can now proceed to assembling the hardware.



****Optional
Dock
washer with
gasket faces**

IMPORTANT

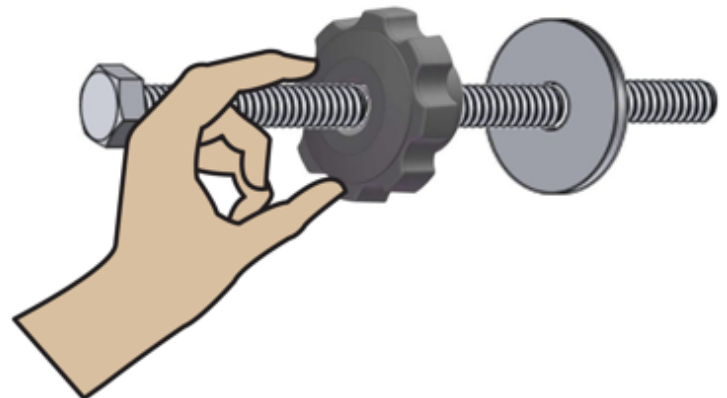
- Place FRA Flood Panel back in place.
- Make sure that all anchors are in line with all anchor holes.
- Place all vertical hardware and hand tighten the FRA Easy Turn Knob onto the anchors. Hand tightening is all that is necessary.

NOTE: Ensure the proper anchor is installed as per site specific shop drawing which is provided with each installation project

NOTICE

- Do NOT over tighten.
- Over tightening can cause the anchor to fail, which could cause a complete failure of the flood panel.
- Starting at eye level, begin to tighten until you see the gasket compress.
- Once you see compression of the gasket move on to the next hole.
- Work from side to side. You are only looking for compression of the gasket.
- Drill the final holes for the sill plate.
- Remove FRA Flood Panel
- Drill Floor Material and set the anchors for the sill plate.

Recommendation: Take 2 pieces of 11' all-thread (not included) and place them in the holes at eye level. Hand- tighten all-thread into anchor.



Final Installation

- Place **FRA Flood Panel** back in place, paying close attention to make sure panel aligns with wall anchors.
- Mount the panel's side hardware for the final Installation.
- Begin tightening the lower vertical hardware.
DO NOT TIGHTEN ALL THE WAY DOWN.

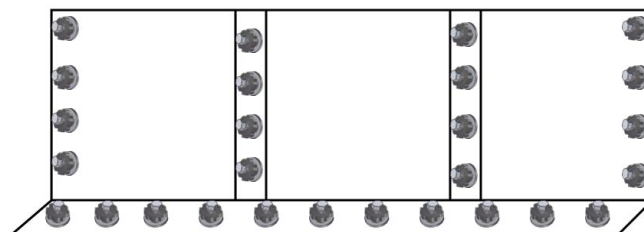
NOTICE

- As you begin tightening the lower side hardware, alternating from side to side, you will begin to see the anchors of the sill plate.
- Once the sill plate anchors are centered in the sill holes, place all sill plate bolts into the anchors.
- Begin tightening the sill hardware. Before the sill plate hardware is tightened all the way, loosen all vertical hardware.
- You can now tighten all sill plate hardware. (**Only tighten until you see gasket compression**).

- **Do Not Over Tighten.** Over tightening can cause the anchor to fail, which could cause a complete failure of the flood panel.




- After the sill plate gasket is compressed, you can retighten all vertical hardware. Only tighten until you see gasket compression.



Wall Anchor Location with Mounting Hardware (4"X 4" Angles) (Vertical Mounting Hardware Deployment Procedure)

In the event FRA Panel deployment requires mounting to the butt end of the building (as opposed to face mounting), a 4" x 4" FRP angle (mounting hardware) is provided. For this mounting condition, the following deployment procedure should be utilized.

- Remove all sidewalk bolts in the preset walls and floor anchors.
- Set the mounting hardware in place aligning the holes in the mounting hardware with the anchors in the wall and floor slab.
- Securely attached the mounting hardware to the wall and floor slab ensuring good (approximately 25%) gasket compression at all wall, floor and mounting hardware interfaces.
- All individual panels should be set in place to confirm proper alignment with all anchors in the floor slab and in the mounting hardware.
- Temporary connecting of individual panels will need to occur.
- Connect one side and bottom of the overall opening to be anchored the mounting hardware, only slightly tightening all connections.
- Slide the next individual panel into the panel just deployed and anchor the two panels together with the patented FRA Tightening Knobs, only slightly tightening all connections.
-  • **"IMPORTANT"** Take note that the 3" diameter dock washers for these locations are provided with ¼" gasket's on both faces **MUST** be utilized at the spline connection locations.
- Continue this procedure until all individual panels are connected vertically along the mounting hardware (at each end of the opening), to the floor slab and to one another.
- Ensure all gaskets are tight to the structure and perform final tightening of all hardware, making sure to NOT over tighten the connections. Proper tightening is accomplished when the normal gaskets being approximately 25% compressed. In the event of uneven mounting surface, we provide a "soft sponge" gasket. When this "soft sponge" gasket is utilized, the gasket compression should be to 80% to 90%.
- DO NOT over tighten. Over tightening can cause anchors to pull from the building which could cause a complete failure of the flood panel system.

Multiple Panel Deployment ("T" and "H" Support Installation Procedure)

- Step 1 Place panels against walls and slab along with all vertical supports to ensure proper spacing of all panels allowing a minimum of four-inch (4") edge distance for the wall anchors at each end. If the configuration of the panels for the opening consists of multiple panels that will need to be stacked, **ONLY** place the bottom row of panels for Step 1.
- Step 2 Mark on the walls and slab for the drilling locations to insert the anchors.
- Step 3 Remove the panels and supports and drill the holes that were in step 2.
- Step 4 Set the anchors into the walls and slab.
- Step 5 Re-locate the single row of panels along with the vertical supports ensuring all holes align and begin inserting the hardware in place. Slightly tighten the hardware - **DO NOT** fully tighten the hardware until all hardware is in place.
- Step 6 When all hardware is in place, tighten all hardware.
- Step 7 If the panel configuration requires the stacking of panels, place the next row of panels on top of the lower row of panels already in place and repeat steps 2 through 6. This procedure is to be repeated for each row of stacked panels.
- Step 8 **IMPORTANT** - Photograph the installed panel. The photographing of installed panels is required for proof to Code Authorities for confirmation of floodproofing



Multiple Panel Deployment Procedure (Vertical Spline Deployment Procedure)

In the event FRA Panel deployment requires multiple panels to be joined side by side, to accommodate larger openings, a vertical tongue and groove connection is provided. The following deployment procedure should be utilized when connecting panels side by side.

- Remove all sidewalk bolts in the preset walls and floor anchors.
- All individual panels should be set in place to confirm proper alignment with all anchors.
- Temporary connecting of all individual panels will need to occur.
- Connect one side of the overall opening to be anchored the building and connect the panel to the building, only slightly tightening all connections.
- Connect the bottom of the first individual panel to the structure, only slightly tightening all connections.
- Slide the next individual panel into the panel just deployed and anchor the two panels together with the patented FRA Tightening Knobs, only slightly tightening all connections.



- “IMPORTANT” Take note that the 3” diameter dock washers for these locations are provided with ¼” gasket’s on both faces **MUST** be utilized at the spline connection locations.
- Continue this procedure until all individual panels are connected along the walls (at each end of the opening), the bottom and to one another.
- Ensure all gaskets are tight to the structure and perform final tightening of all hardware, making sure to NOT over tighten the connections. Proper tightening is accomplished when the normal gaskets being approximately 25% compressed. In the event of uneven mounting surface, we provide a “soft sponge” gasket. When this “soft sponge” gasket is utilized, the gasket compression should be to 80% to 90%.
- DO NOT over tighten. Over tightening can cause anchors to pull from the building which could cause a complete failure of the flood panel system.
- Ensure there is good (min. 50%) gasket compression against the gasketed dock washers at all tightening knob locations.

Multiple Panel Deployment Procedure (Horizontal Flange Deployment Procedure)

In the event FRA Panel deployment requires multiple panels to be stacked, to accommodate larger openings in eight, a horizontal “flanged” connection is provided. The following deployment procedure should be utilized when stacking panels on top of one another.

- Remove all sidewalk bolts in the preset walls and floor anchors.
- All individual lower panels should be set in place to confirm proper alignment with all anchors.
- Temporary connecting of all individual panels will need to occur.
- Stack the next panel on top of the already “in place” panel(s) and anchor the two panels together with the patented FRA Tightening Knobs, only slightly tightening all connections
- Continue this procedure until all individual panels are connected along the walls (at each end of the opening), the bottom and to one another.
- Ensure all gaskets are tight to the structure, and stacking flanges, and perform final tightening of all hardware, making sure to NOT over tighten the connections. Proper tightening is accomplished when the normal gaskets being approximately 25% compressed. In the event of uneven mounting surface, we provide a “soft sponge” gasket. When this “soft sponge” gasket is utilized, the gasket compression should be to 80% to 90%.

FRA Panel Spline Enhancement

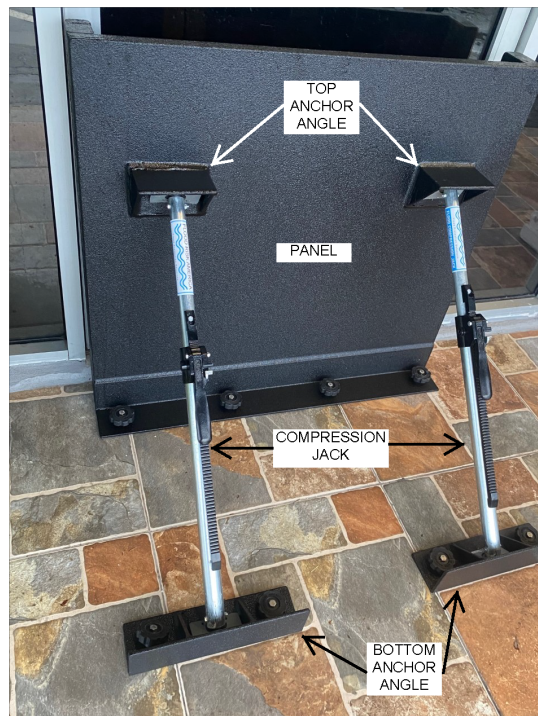
1. Once FRA Panels with splines are connected and deployed, gather supplies
2. Run Caulk along seam of FRA Panel from bottom bracket to top of FRA Panels, covering all of the connection seam.
3. Run finger along the seam where caulking is applied to smooth surface of caulk
4. Allow caulking to dry

See FRA Panel enhancement video for step by step instructions on how to apply and disassemble:



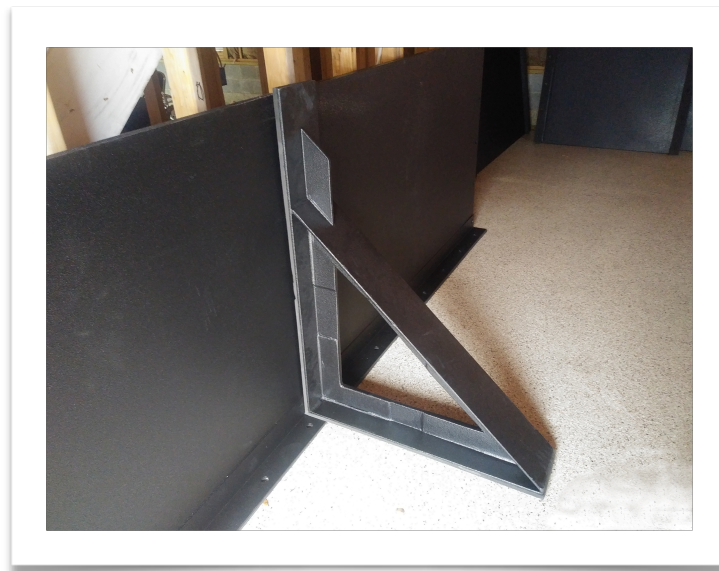
(FRA Panel with Compression Jack)

- Set FRA Panel in its final location as per previous instructions. "DO NOT DRILL FOR VERTICAL ANCHORS IN THE BUILDING WALL / GLAZING MULLIONS"
- Set compression jack to the shortest length setting by adjusting lever gearing on the jack
- Place the compression jack into the top anchor angle, sloping downward away from the panel toward the floor slab / material
- Place the bottom anchor angle loosely under the bottom foot of the compression jack leaving approximately 1" from the compression jack foot to the vertical leg of the bottom anchor angle.
- Mark the locations for drilling of the slab anchors on the slab finish surface
- Remove the compression jack and bottom anchor angle
- Drill the floor slab / material and set the slab anchors for the bottom - wait for epoxy to dry, if utilized
- Set the compression jack in place between both the top and bottom anchor angles prior to setting the bottom anchor angle
- Secure the bottom anchor angle to the slab / floor material
- Extend the compression jack via the lever gearing (located on the side of the compression jack) to ensure compression is achieved on the vertical gaskets against the wall / glazing mullion material



Tension Brace Installation Procedure

- Step 1 Place panels against walls and slab with a minimum ½” to maximum 1” gap at the vertical panel joint location.
- Step 2 Place the tension brace in place at the vertical panel joint location. Ensure when the tension brace gets placed that there is room enough to install the slab anchor washer and tightening knobs directly adjacent to the brace into the slab. If more room is needed for the hardware, enlarge the gap at the vertical panel joint location.
- Step 3 Mark on the vertical and horizontal flange faces of the tension brace the locations for field drilling
- Step 4 Remove the tension brace and drill the holes that were in step 3.
- Step 5 Replace the tension brace against the panels and mark the vertical holes to be drilled on the face of the panels.
- Step 6 Remove the tension brace and panels and drill the holes through the panels.
- Step 7 Re-locate the panels and the tension brace ensuring all holes align and mark the locations on the walls and slab for the drilling locations to insert the anchors.
- Step 7 Remove the tension brace and panels and drill the holes for the anchors.
- Step 8 Set the anchors into the walls and slab.
- Step 9 Re-locate the panels and the tension brace ensuring all holes align and begin inserting the hardware in place. Slightly tighten the hardware - DO NOT fully tighten the hardware until all hardware in in place.
- Step 10 When all hardware is in place, tighten all hardware.
- Step 11 IMPORTANT - Photograph the installed panel. The photographing of installed panels is required for proof to Code Authorities for confirmation of floodproofing



Storage

- Remove **FRA Flood Panel** from wall and slab anchors.
- Inspect all hardware and gaskets to ensure integrity.
- Documents any adverse conditions. Replace any damaged gaskets or hardware as required. Use only FRA approved gaskets and hardware
- **NEVER** transport panels in a manner that will damage or compress any gaskets or hardware.
- **NEVER** store panels in a manner that will damage or begin to compress any gaskets or hardware
- Panels should be stored horizontally with all gaskets facing upward. Wood cribbing should be utilized to separate panels and avoid adjacent panels from compressing any gaskets.
- **NEVER** store the first panel directly on the floor surface. Provide wood cribbing to allow the first panel to be elevated off the floor surface.
- **NEVER** store any items on the panels including provided hardware.
- **Do Not Over Tighten.** Over tightening can cause the anchor to fail, which could cause a complete failure of the flood panel.

FLOOD RISK AMERICA



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