VULKA

FIRE EQUIPMENT

VTS Field Guide:

Wall
Window
Roll-Down Door

SAFETY PRECAUTIONS

ALWAYS Use Personal Protective Equipment

Always wear appropriate P.P.E. including helmet, gloves, and eye protection when setting up and operating this equipment.

Never Exceed Weight Limitations

Weight limitations for this equipment is available in this guide. Under most circumstances, this equipment can support 1500 pounds, inclusive of the weight of lumber/sheathing/materials used.

Never Use Damaged Parts

If a part is bent, cut, dented or otherwise damaged, DO NOT use that part. Replacement parts are available by contacting support@vulkafire.com. Paint/powder coat chipping and scratching are expected in the course of normal use and will not affect the equipment operationally.

Always Use Official Vulka Parts and Hardware

Only use parts and equipment designed for this product. Using anything other that Vulka Fire Equipment approved parts will void the warranty and could lead to failure of the system and subsequent injury. Replacement parts are available by contacting support@vulkafire.com.

Do Not Practice Techniques You Have Not Been Trained On

Firefighting is a dangerous job and the techniques involved could lead to injury, even in a controlled environment, if executed poorly or improperly. Always ensure that instructors are trained and competent in the subject matter being practiced and are appropriately trained to instruct.

Do Not Operate Power Tools or Equipment You Are Not Familiar With

Always follow the manufacturers recommended operating procedures and safety precautions when using power tools and equipment. Failure to do so could result in injury.

Always Use Fall Protection When Operating at Height

Most configurations of this system will not place the user above 4’ off the ground. If using a configuration that exceeds 4’, ensure fall protection is provided per OSHA requirements.

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Overview

The Vulka Training System provides a customizable wall structure for several firefighting and RIT scenarios. This configuration provides training scenarios such as wall breaching, stud egress, “drywall climbing”, and overhaul.

Additional scenarios can be set up from this configuration as well, including framing out windows for “window to door” conversions, adding wires for real-world entanglement hazards, and using corrugated metal to simulate a garage or roll-down door.

Tools & Materials

The following parts and materials will be needed:

- (1) VTS Unit
- Lumber for studs. Quantity depends on desired spacing – typically 16” or 24” on center. Chart below shows required lumber depending on spacing.
- (2) 2x6 pieces of lumber, 8’ length – for stabilizers.
- Drywall/sheathing sheets. Generally ½” or ¾”. Chart below shows amount needed to cover 1 evolution, depending on system width and lumber length.
- Screws for attaching drywall/sheathing to studs. Drywall screws (2” or greater) are typically okay.
- Screws for attaching lumber to brackets. Metal to wood roofing screws (#8-#14, 1.5” length) are recommended since they provide a gasket to cushion the metal bracket.
- Power drill with bits for roofing screws and drywall screws above.
- Pencil/marker, tape measure
- Circular saw with wood cutting blade
- A-frame ladder
- Rubber mallet
- OPTIONAL: wire for entanglement hazard
- OPTIONAL: additional lumber for framing windows or other components
- OPTIONAL: corrugated metal for garage door or roll-down gate cutting simulation

Set Up

This Field Guide will cover how to set this configuration up properly:

- Determine desired width of system (8’ or 12’) and desired lumber spacing
- Set up tube and brackets
- Attach lumber
- Attach drywall

See below for more detailed steps and diagrams.

Set Up Time

Set up time should take approximately 15-20 minutes with at least 2 people.

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Material Charts

Most real-world floors and roofs are framed at 16 or 24 inch on center. These charts will help you figure out how much material is needed for these common spacings with 8 and 12 foot long pieces of lumber. Obviously, more evolutions will require more sheathing and it's always a good idea to get about 25% more lumber than expected.

	Amount of Lumber Needed	
System Width	**16" Spacing**	**24"Spacing**
8'	6	4
12'	9	7
Note: add 2 extra pieces of the same length lumber for tying the bases together		

	4x8 Sheathing Needed	
Lumber Length	**8' Width**	**12' Width**
8'	2	3
12'	4.5	9

Other spacings (for example, 12" or 20") and different lengths of lumber are possible. Refer to the allowable spans chart in the General Information Field Guide.

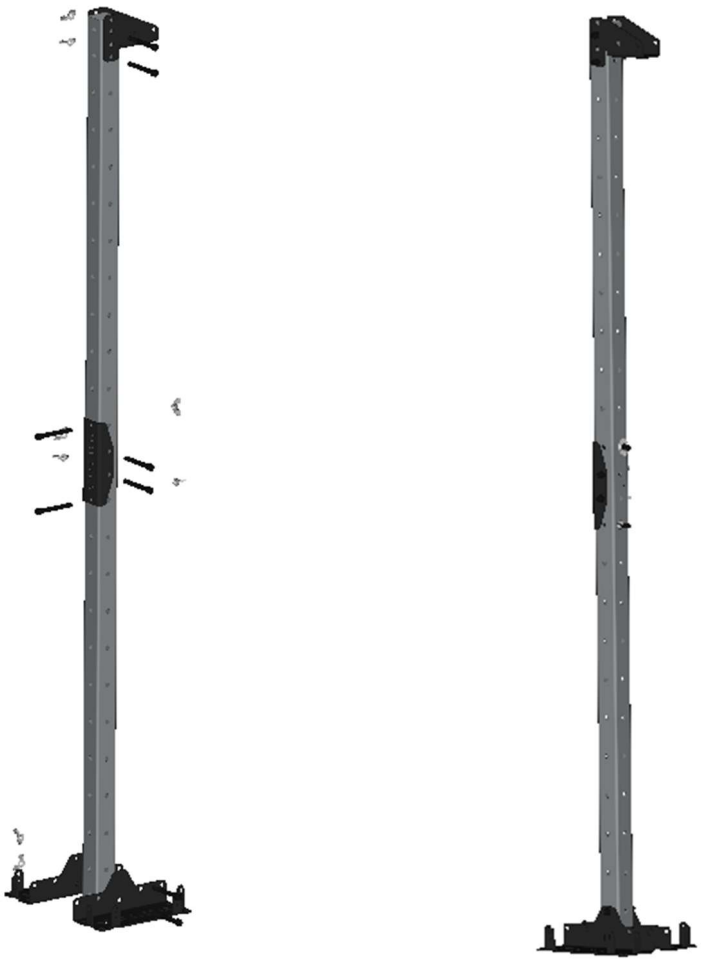
Inserting and Securing Bolts

When securing bolts with wing nuts, bolts should only be hand tight. **Do not overtighten the bolts.** Overtightening the bolts could lead to permanent bending of the brackets and difficulty removing the bolts. Though uncommon, a bolt may require light tapping with a rubber mallet when inserting or removing due to slight hole size variance and/or powder coating thickness – if this is needed, be sure to use as little force as necessary to get the bolt through.

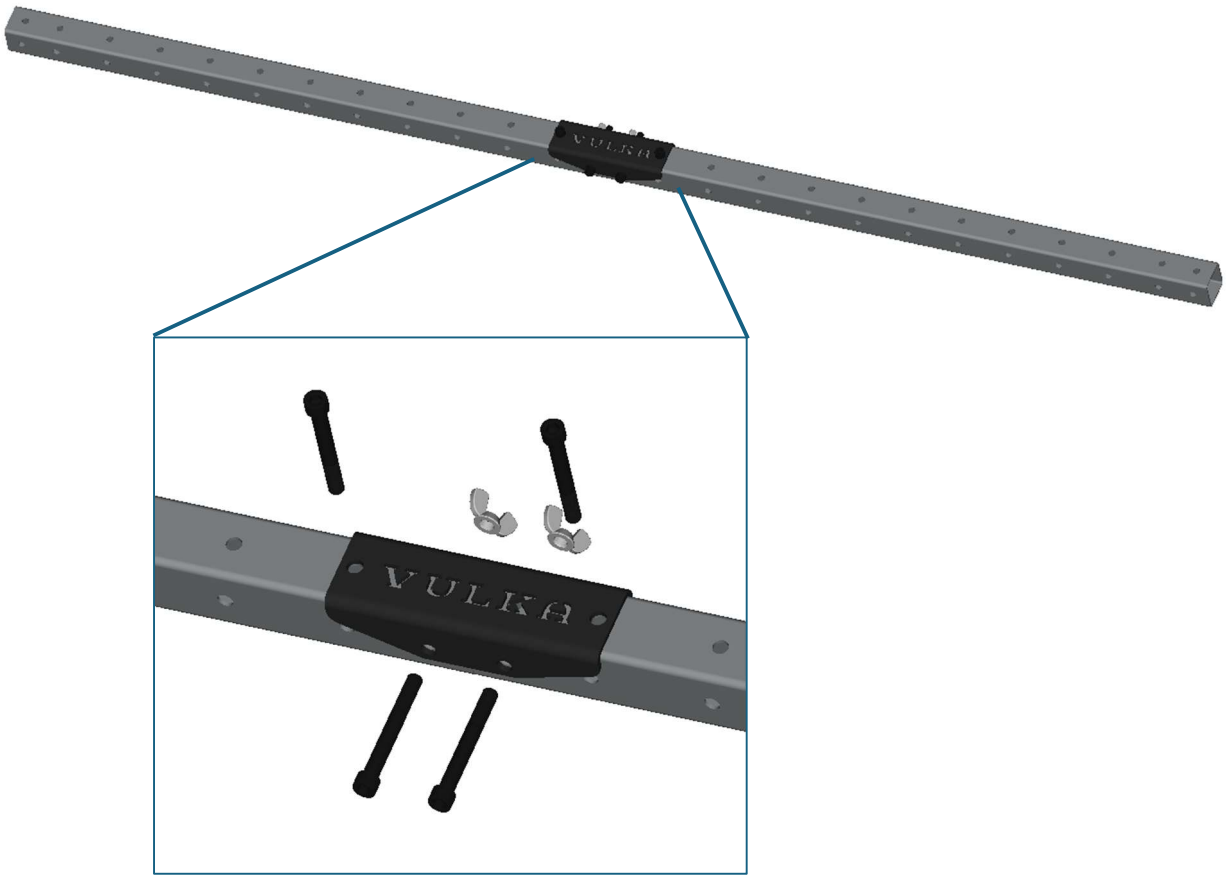
Assembly

1. Assembling the Structure

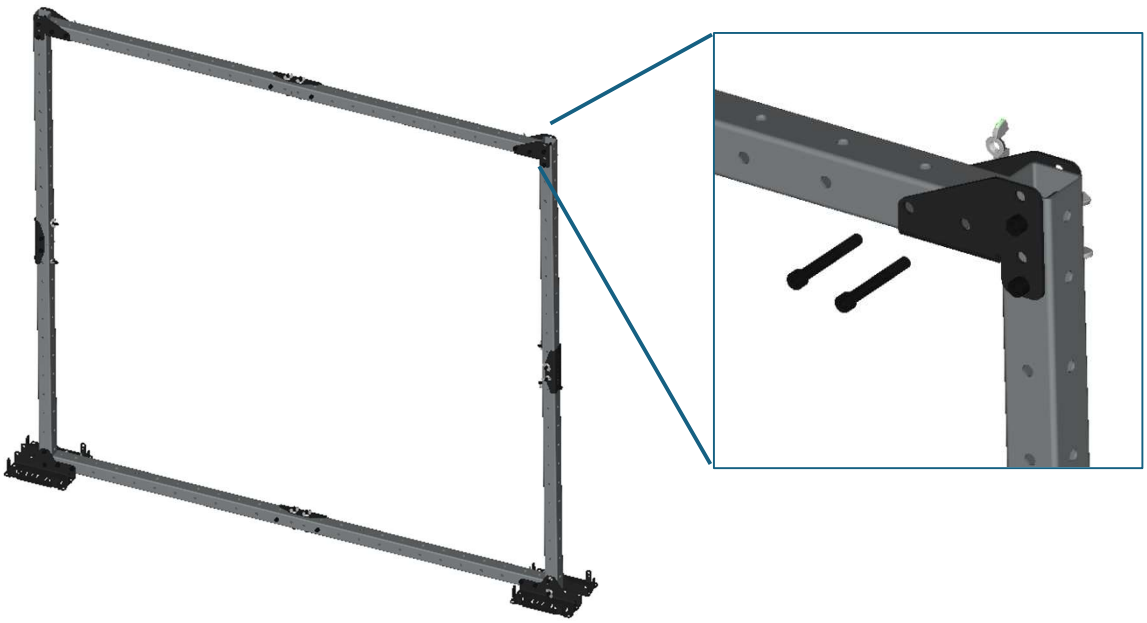
a. Start by assembling (2) upright structures with elbows mounted towards the top. Uprights can be single or double tube height, depending on training needs. Double tube height is shown here:



b. Assemble (2) cross bar brackets at either 8’ or 12’ length using 2 or 3 tubes, respectively. The 8’ configuration is shown here:

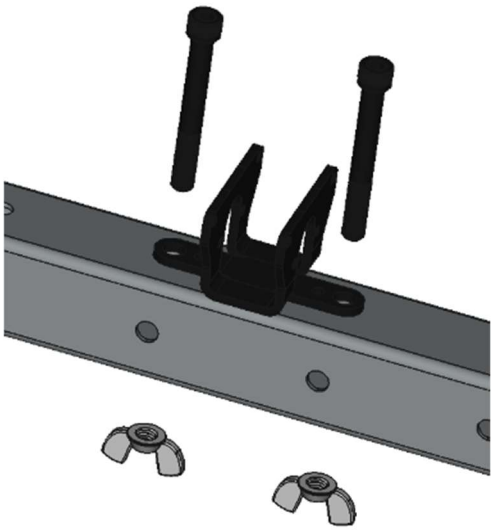


c. Using a minimum of 2 people, place the cross bars into the elbows and bases on the upright segments and secure with bolts (note: connectors are placed on the side to facilitate brackets in next step):



2. Attaching the Brackets

The lumber brackets are designed to hold any lumber with a width of 1.5” (i.e. 2x4, 2x6, 2x8…). The brackets are attached to any 2 holes on the tube, except for the first and the last, as follows:



The lumber brackets can be attached at any interval of 4 inches, but typical construction (floors, roofs, and walls) uses either 16 or 24 inches on center. The following diagrams show example configurations to achieve those spacings:

16” O.C. Spacing:

24” O.C. Spacing:

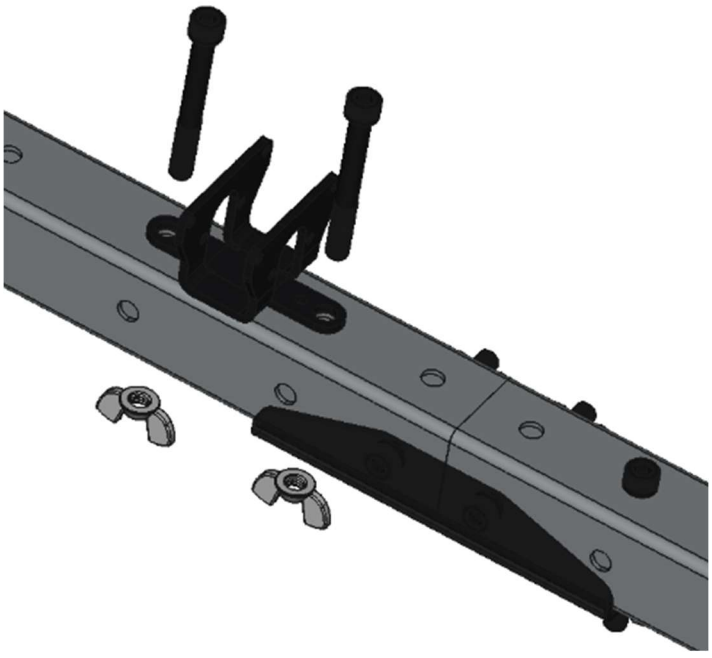
Note: a “cheater” is used on the left side above to reduce the unsupported overhang when sheathing is attached. If an unsupported overhang is acceptable for the training scenario, this can be removed and all brackets can be shifted over, resulting in the following:

Elbow Overlap

When attaching the lumber brackets close to an elbow, the bracket may overlap with the elbow – if that's the case, simply remove the horizontal elbow bolt and place vertically through the bracket and the bottom hole of the elbow, as shown here:

Connector Overlap

When attaching the lumber bracket close to a connector, the connector can be rotated to the opposite side of the tube from the bracket and a bolt can be used to through both the connector and the bracket, as shown here:



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Assembled System (without Lumber):

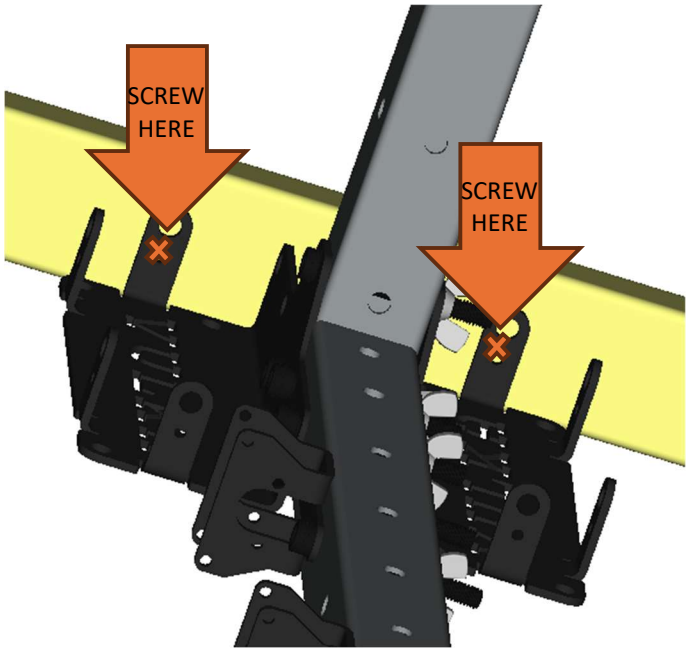
Assembled structure is shown below. This example shows an 8’ system width (2 tube lengths), 8’ system height (2 tube lengths), and 16” spacing. Not that a single 12” spacing is utilized as a “cheater” on the left side to allow for better connection of drywall.

DO NOT FORGET TO EXTEND THE BASES (NEXT STEP) BEFORE USING THIS CONFIGURATION!

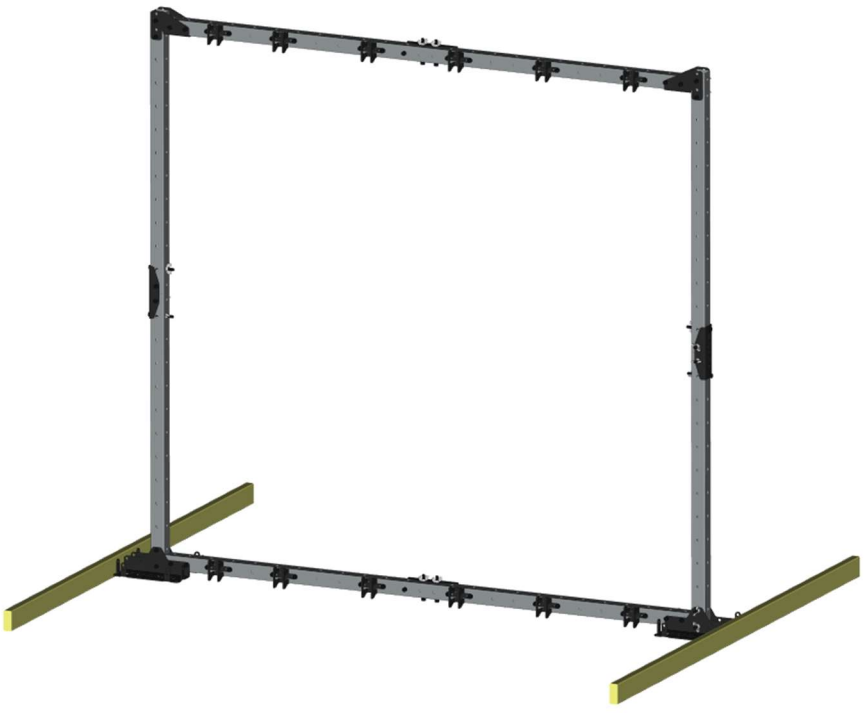
3. Extending the Bases

In order to keep the wall segment secure when in use, the bases need to be extended with lumber to keep the system from potentially tipping. These lumber sections should be 8’ lengths of 2x4 at a minimum.

The lumber should be attached as shown below, with roofing screws through the ¼” tab holes and into the lumber using both tabs on each base. The mid point of the lumber should be even with the middle of the tube:



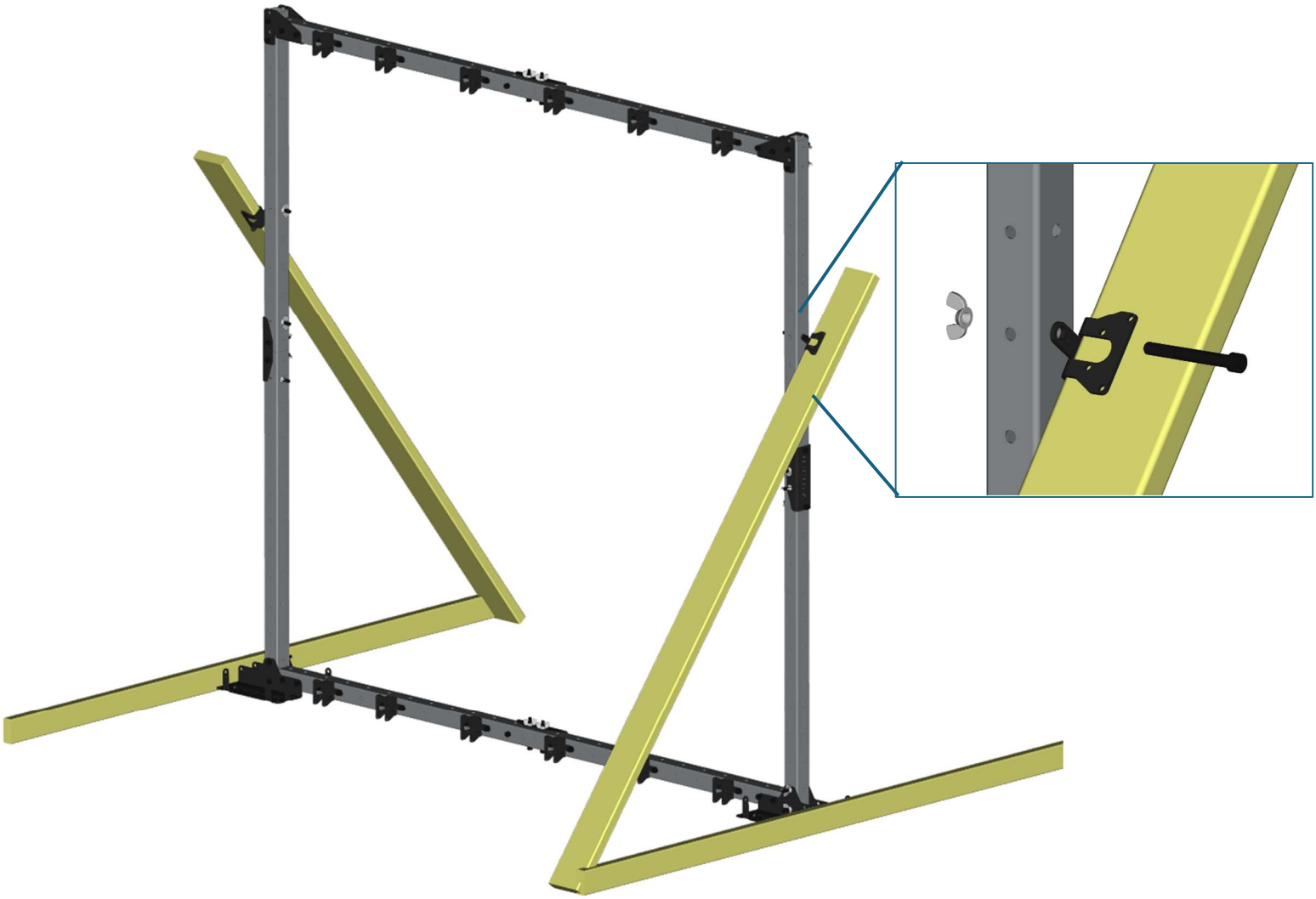
With both sides extended it should look something like this:



4. Attaching the Stabilizers

To keep the wall stable during use, 2 stabilizers need to be placed. The lumber used should be 2x6, 8’ length, to fit correctly.

Place a bracket in the uptight as shown using a single bolt. This will allow the bracket to pivot. Place the 2x6 in the bracket and secure with 2 screws. Swing the 2x6 into position so that it can be secured to the base extension 2x4 with 2 screws. Repeat this process on the other side, in the opposite direction, as shown.



5. Attaching the Lumber

Lumber is then placed directly into the brackets and secured with 2 roofing screws for each bracket. Best practice is to place one screw on each side of each bracket. The lumber should be even and overhang the tube on each side. With each piece of lumber secured with 4 screws, the system will look something like this:

6. Attaching the Drywall

The drywall can be attached to one or both sides of the lumber with standard drywall screws. If drywall is desired on the back side, it will have to be trimmed slightly to fit between the tube. Alternatively, a single piece can be used on the back side of the lumber (for example, with through-the-stud egress, drywall is only needed on the lower half of the lumber). The 2 tube length structure width lends itself well for stacking 2 pieces of drywall, as shown below:

7. Final Assembly & Check

Before use, be sure to verify that all bolts are in place and hand tight, and all lumber is secured with screws.

At this point, the VTS is ready for use. Additional materials (wires, insulation, etc..) can be placed if desired. Drywall can be replaced as needed by simply backing out the screws and placing new drywall. Replace the lumber if it has been compromised. Review safety precautions before training begins.

Adding Wires/Piping

For a truly realistic wall breaching experience (or for visibly demonstrating modern building construction), wires and piping can be added by simply drilling the appropriately sized hole in the stud and threading through standard Romex wire. The ends of the wiring can be stapled or tied off in place.

Framing a Window

The studs can be moved around easily to obtain spacing to frame out a window. This could be useful for demonstrating window construction, practicing “window to door” conversions for removing downed firefighters or occupants, standard victim removal techniques, or V.E.I.S.

Here is one possible quick way to frame out a window. This window is 28” wide with a sill that is 4’ off the ground. Using 1 piece of 26.5” lumber for the sill, 2 cripple studs that are 4’ long, and two brackets on the bottom for the cripple studs:

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Garage Door/Roll Down Door

With a couple studs and some corrugated roof paneling, a simulated garage/roll down door can easily be created.

First, place 2 studs on the outside holes of the crossbar tubes. Then, use metal to wood roofing screws to secure the metal sheets into place on the studs. The sheets should overlap slightly and be screwed or bolted together at the overlap. The result should look something like this:

Question? Concerns? Improvements?

Please be sure to reach out to us at support@vulkafire.com !

General information and additional configurations are available in their own Field Guide. Please be sure to check vulkafire.com.

Add-ons for the VTS are also available at vulkafire.com!

END OF GUIDE