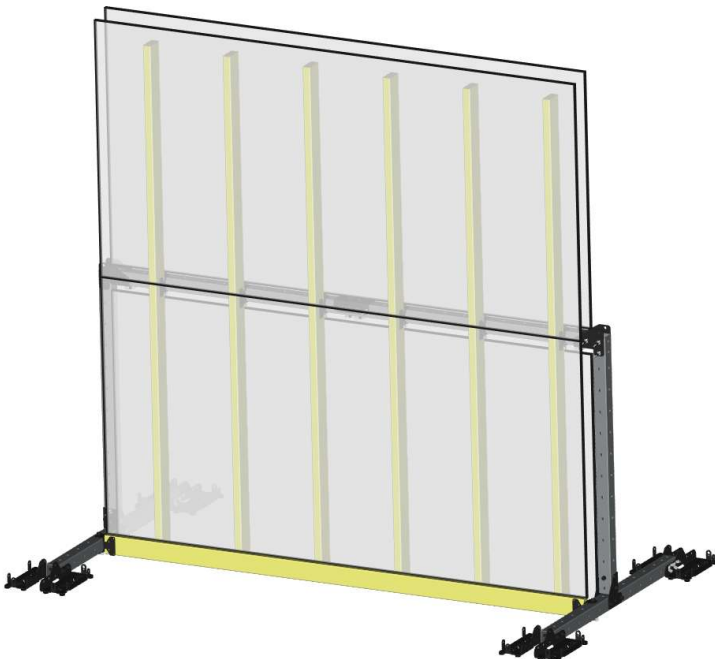


VULKA



FIRE EQUIPMENT

VTS Field Guide:
Wall & Window







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. Wear hearing protection during the operation of powered equipment.

Never Exceed Weight Limitations

Weight limitations for this equipment are 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 during 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 than 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 manufacturer's 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 places personnel above 4', ensure fall protection is provided per OSHA requirements.





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.
- 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
- 3/8” hex key (*included*)
- Rubber mallet (*included*)
- OPTIONAL:
 - Vulka Spacing Jig (*available at VulkaFire.com*)
 - Wire for entanglement hazard
 - Additional lumber for framing windows or other components
 - 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.



Material Charts

Most real-world walls 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	
	16" Spacing	24" Spacing
8' of Tube	6	4
12' of Tube	9	7
Note: Add 1 for bottom plate		

	Amount of Lumber Needed	
	8' of Tube	12' of Tube
8' Lumber	2	3
12' Lumber	3	4.5

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

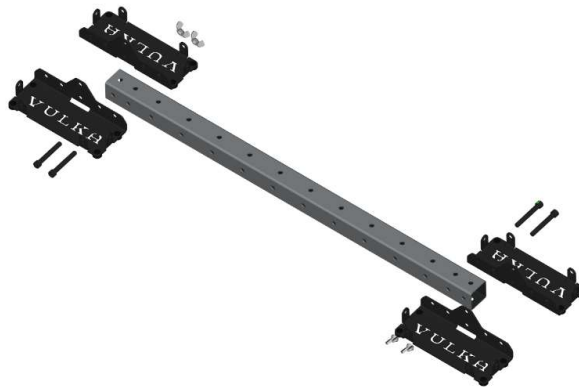
When securing bolts with wing nuts, bolts should only be hand tight. Using a 3/8" hex key will help snug the bolts tight and reduce play in the system. **Do not overtighten the bolts or use any powered tools on the bolts.** Overtightening the bolts could lead to permanent bending of the brackets and 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.

It is recommended to use the 3/8" hex key to tighten bolts until brackets are firmly in place with little play.

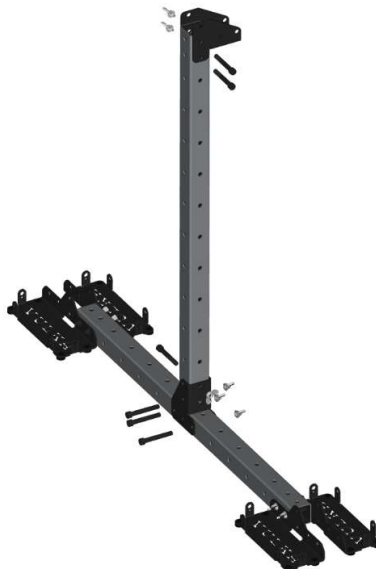
Assembly – Pitched Roof/Peaked Roof

1. Assembling the Structure

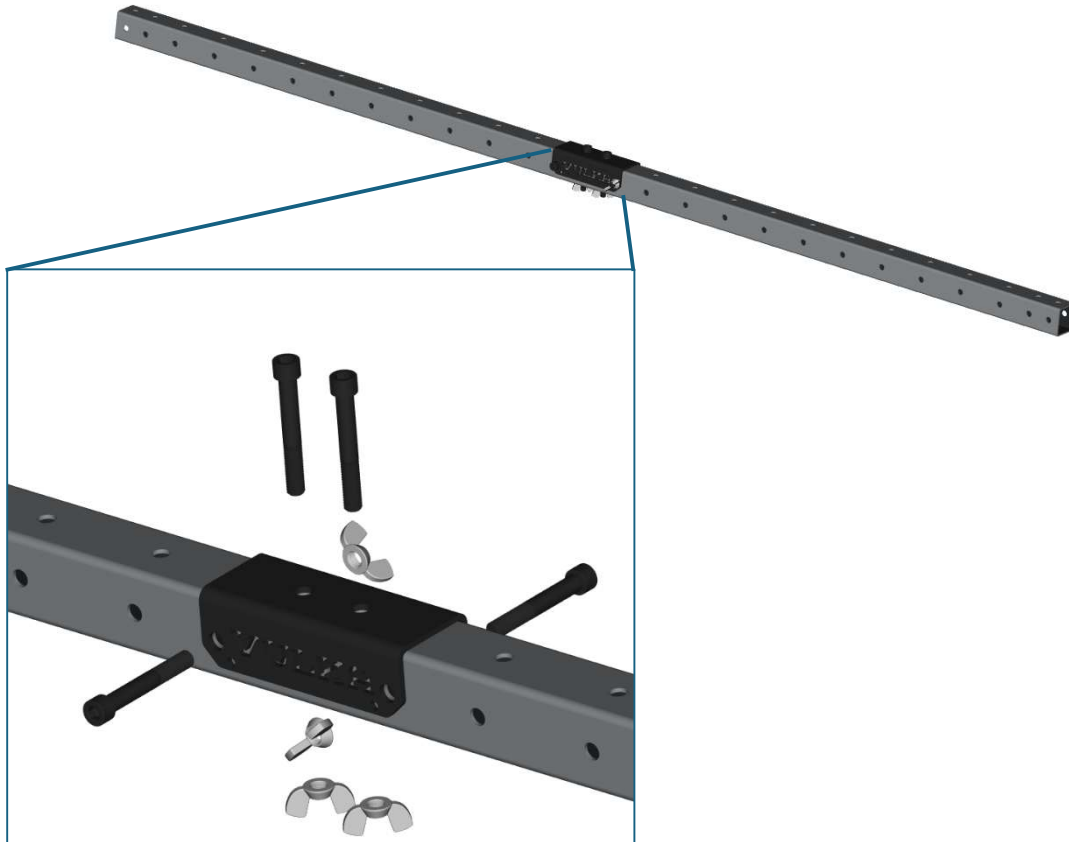
- a. Assemble (2) base rails in the following configuration:



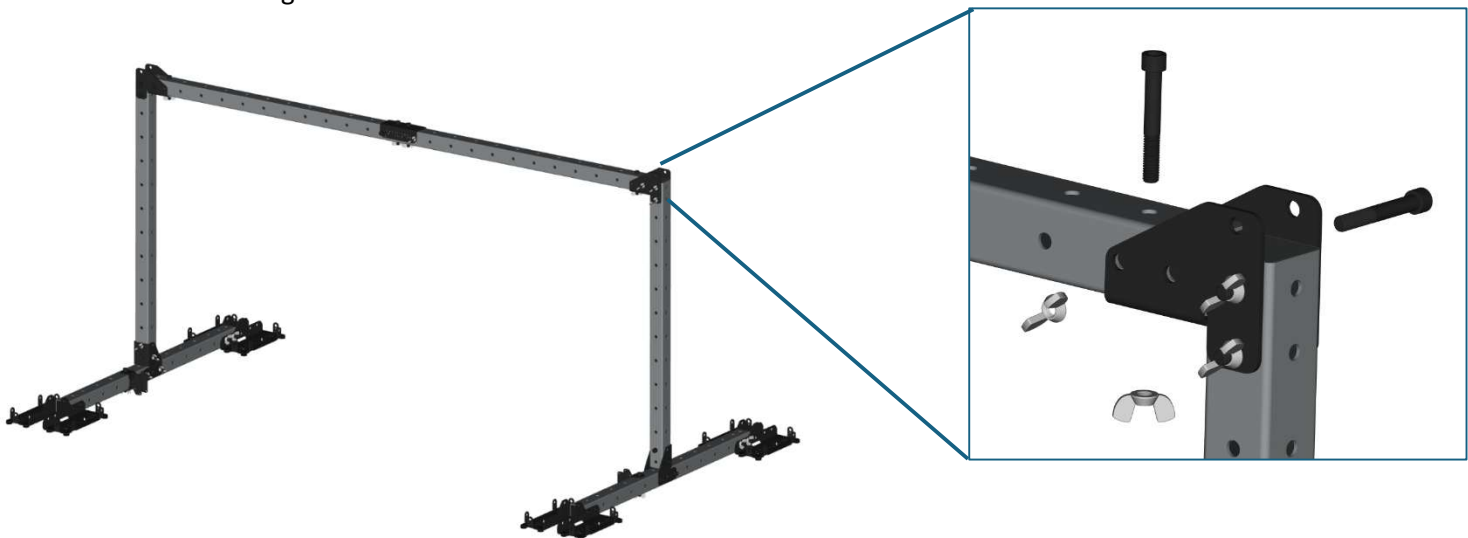
- b. Assemble the uprights on each base rail using a tube and elbow. Ensure that both uprights are placed opposite of each other. Place a second elbow for the cross beam. For a wall configuration, it's recommended to use the topmost holes to facilitate sheathing on the front and back.



- c. Assemble the cross bar at either 8' or 12' length using 2 or 3 tubes, respectively. The 8' configuration is shown here:

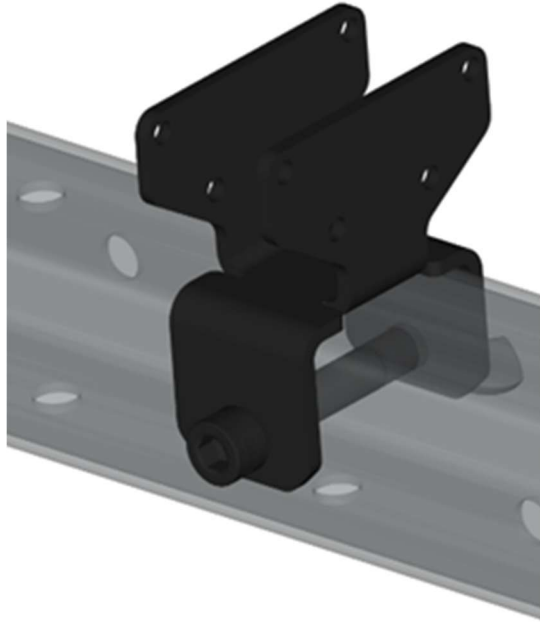


- d. Using a minimum of 2 people, place the cross bar into the elbows on the upright segments and secure with bolts:



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 hole on the tube (except those used by bases, connectors, and elbows):



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:

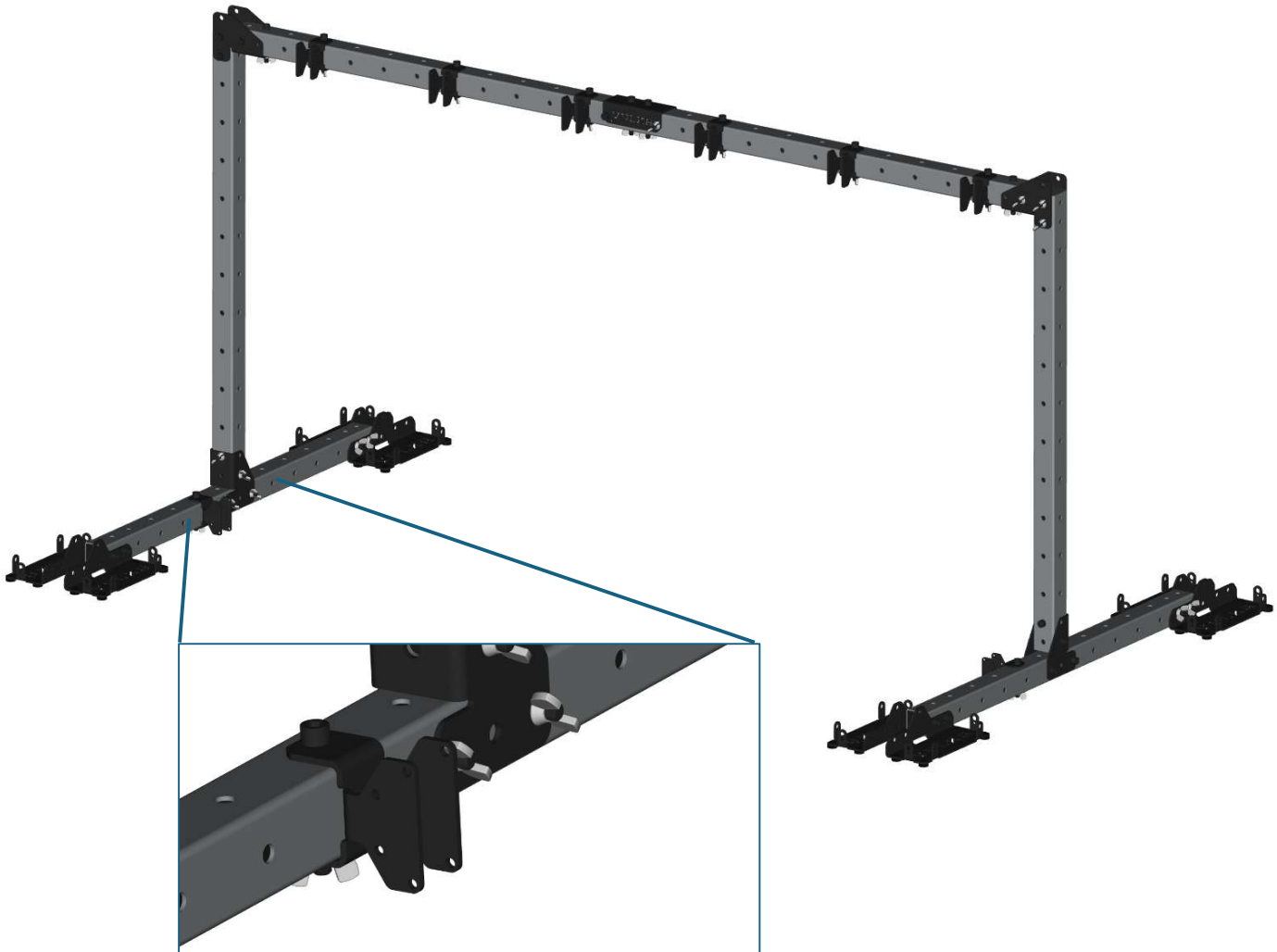


Note: a "cheater" is used on the right side above to reduce the unsupported overhang when sheathing is attached. If an unsupported overhang is acceptable for the training scenario, this can be removed and all brackets can be shifted over, resulting in the following:



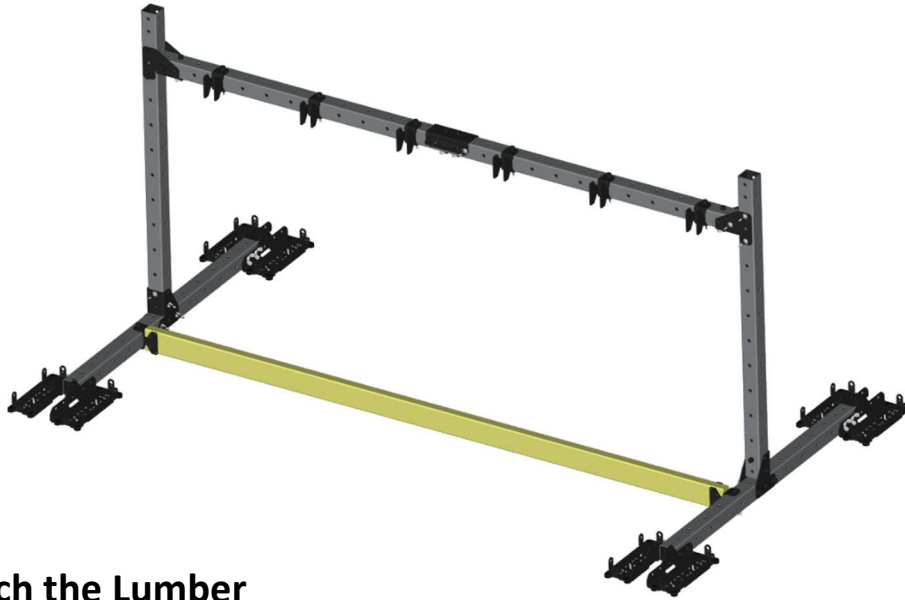
Assembled System (without Lumber):

Add a bracket to the first hole in front of the uprights on each side to hold the base board.



1. Attach the Base Board

Insert a 2x4 or greater piece of lumber that is the same length as the bracketed tube segment (8' for 2 tubes, 12' for 3) into the brackets on the base rails of the system. Secure with at least 2 metal-to-wood screws in each bracket. This will tie the bases of the vertical studs together.



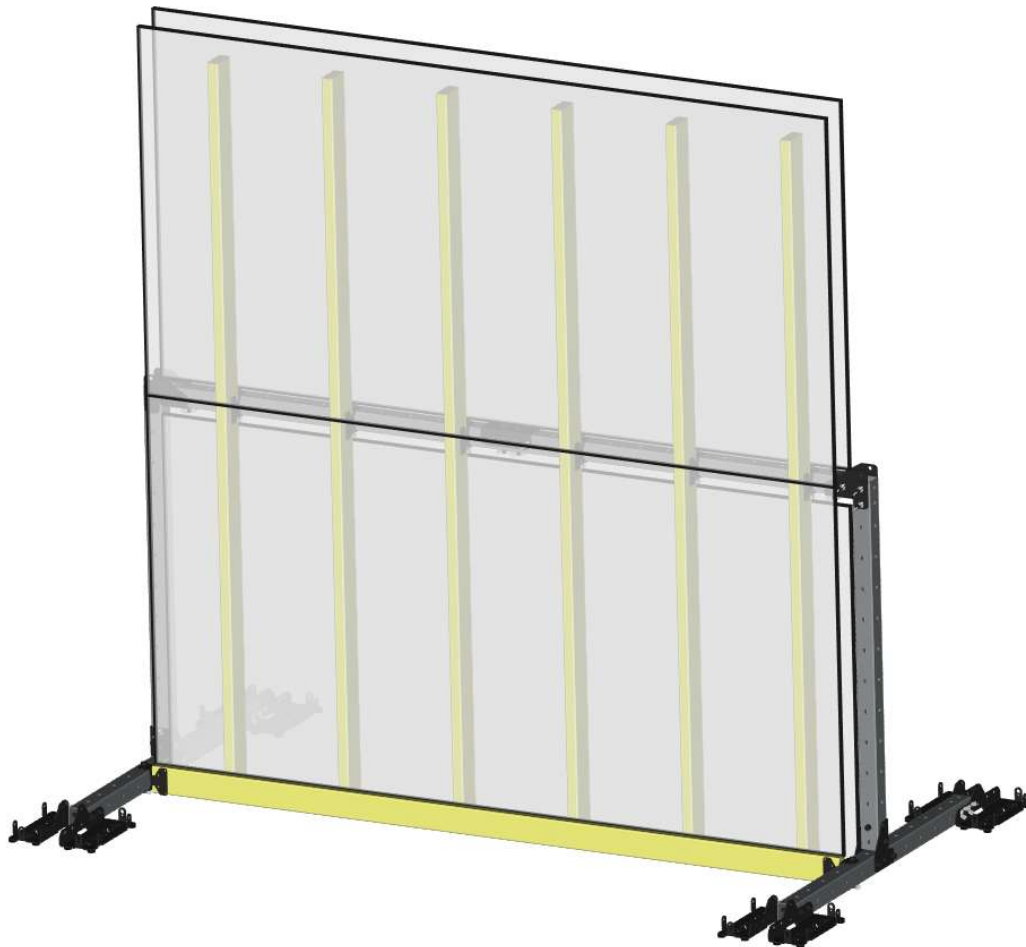
2. Attach the Lumber

Lumber is then placed directly into the brackets and secured with 2 roofing screws for each bracket. Use a tape measure and framing square or the Vulka Spacing Jig (*included in Convenience Pack Add-on*) to ensure the lumber is square and secure with a drywall or roofing screw through the base board. The system will look something like this:



3. Attach the Drywall

The drywall can be attached to one or both sides of the lumber with standard drywall screws.. 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:



4. 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. The set up is almost identical to the wall configuration shown in this guide but requires that the cross bar be raised up and out of the way using 8’ connected tubes on both sides instead of singular 4’ tubes (shown below).

Here is one possible quick way to frame out a window. This window is 26.5” wide with a sill that is 3’ off the ground. Using 1 piece of 26.5” lumber for the sill, 2 cripple studs that are 36” long, and 2 pieces of plywood that are 28”x34”. The stud bays in this configuration are all the same width, meaning multiple windows could be set up so that a reset can take place on one window while other evolutions continue (for example, window to door conversions):





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