



Exaco edits 11.11.24 Janssens VERSION 2024.1

## MOUNTING INSTRUCTIONS **KATHEDRAL**

*Note: This is an all-inclusive manual. It shows optional accessories and customizations that may not apply to your greenhouse. Direct any questions to Exaco.*



**Assembly Videos can  
be found by scanning  
the code to the left with your  
smartphone.**

Or find the link to our YouTube page at [www.exaco.com](http://www.exaco.com).  
Go to the Victorian Greenhouse Playlist for all videos.



<https://docs.janssens.be/manuals/kathedral.pdf>



**[www.exaco.com](http://www.exaco.com)**

**877-760-8500**

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Customer Service or Assembly Questions?

Give us a call: 1-877-760-8500

[customerservice@exaco.com](mailto:customerservice@exaco.com)

[www.EXACO.com](http://www.EXACO.com)

Please watch our animated assembly videos on  
our Exaco YouTube Channel. Find the link at

[www.exaco.com](http://www.exaco.com) or scan the QR code:



Thank you for purchasing a Janssens' Cathedral Greenhouse, imported and distributed in North America by Exaco in Austin, TX. Exaco will provide all the North American based customer support for your greenhouse. Please feel free to reach to Exaco customer service with any questions you may have during assembly!

**Questions? Need Assembly Support?  
Please call Exaco at 877-760-8500 or email [customerservice@exaco.com](mailto:customerservice@exaco.com).**

**THE FOLLOWING SECTION CONTAINS IMPORTANT RESOURCE INFORMATION - PLEASE READ BEFORE BEGINNING ASSEMBLY**

### **Introduction**

In this manual, you will find the assembly instructions for all basic/standard-model Cathedral greenhouses. However, this manual also contains pages which apply to optional accessories that may not be included with your kit. Greenhouse "kits" may vary by retailer. Some retailers may bundle additional accessories with their greenhouses - please check your order closely so you understand which accessories your greenhouse includes before building. It is also very helpful to plan out where each of these additional accessories will go to determine if you need to insert bolts/hardware during the build.

This greenhouse is designed for cultivation of plants/flowers. Therefore leakage, water drops and condensation inside the building are allowed. The building may only be entered by competent persons during cultivation or maintenance. Painted aluminum profiles/extrusions are powder-coated for a durable finish. The rubber strips have been treated with oil/silicone on the interior to facilitate the assembly. The building should be mounted on a solid concrete foundation deep enough to get a solid and frost-free ground. Anchoring of the foundation is vital and should be checked periodically. During winter, the roof will need to be cleared of snow or supported in a suitable way (see additional notes in "Maintenance" section). The greenhouse should be built in a location protected from strong winds. Protective gear (such as gloves) should be used during assembly in order to avoid injuries. One should at all times pay attention to the local building regulations.

The Cathedral greenhouse has been engineered and manufactured in Belgium using the metric system. We strongly recommend having a metric or combination tape measure on hand during assembly. We have converted and added inches to the manual when feasible – however for the most accurate and precise measurements many do still remain in metric. Conversion of metric to inches results in unusual fractional increments or decimals that become difficult to measure on a standard US customary ruler/tape measure. Using the metric system keeps your measurements more precise. If you prefer to work only in inches, you may use a converter tool available in app stores for smart phones.

### **Preparing the Construction Site**

A properly prepared construction site is an absolute requirement for the smooth assembly of your greenhouse!

- The ground must be stable, firm, level and free of all obstacles.

- A space of about 30 inches is required around the greenhouse for the placement of ladders and installing the glazing.
- All materials for anchoring the greenhouse to a wall, on a wall, or to the foundation (such as plugs, wedge bolts, chemical anchors, etc.) are NOT provided in the kit because their use varies by region, construction site, and contractor.
- Leftover packaging, plastic, cardboard, and/or pallets are not taken back.
- The greenhouse should be built in a place sheltered from wind or heavy storms.
- Always observe the locally applicable building regulations.

## Foundation

- It is recommended that the greenhouse must be placed on a sufficient load-bearing (concrete) foundation that is deep enough to reach up to a solid frost-free ground.
- The dimensions of our aluminum structures are always the outer dimensions of the structure.
- We recommend a concrete foundation strip foundation on the outer dimensions of the greenhouse, although a slab will work as well. It must be 100% level and flat so that the lower profile can be mounted on it without the need of much additional levelling.
- For structural integrity and support strength, the portal frames and the PRO210 anchors at the corners must be embedded in concrete. Additional information on foundation and anchoring can be found further on in the section on “Foundation and Anchoring”.
- Get detailed advice on the foundation from your local professional – climate/regional requirements may vary.
- The anchoring and routine checking of condition must be provided by the owner or operator.

## Storage of the greenhouse until assembly

- The delivery must be stored in a dry place, protected from direct sunlight and any form of moisture. You may store the packaged items outdoors, but they must be securely covered and protected with a tarp from moisture and weather.
- Excessive water, moisture, humidity or condensation in the packaging can quickly lead to corrosion on profiles (from packaging) and/or glass in the form of white deposits, spots, etc.!
- The glass box is very heavy and fragile, handle it with care and always place it on a firm and level surface for safety.
- Look at the safety-instructions on the sticker on the glass box before opening the glass box.

## Required/Recommend Tools

- Metric or Combination Measuring Tape (highly recommended)
- Socket wrench or spanner - 10mm (it is helpful to have multiple)
- Needlenose or other pliers (helpful when installing corner posts)
- Level
- Screwdrivers (Phillips and Flathead)
- Drill + bits
- Impact driver and 1/2" drill bit (useful to notch channel to insert missed bolts)
- Metal Saw to cut aluminum profiles when needed (i.e. low threshold kits)
- Caulk gun
- Scissors (to cut the rubber)

- Stable Ladder/s at least 6' tall depending on the height of your greenhouse.
- Clear silicone caulk is included with the kit, you may find it desirable to use color-matched caulk (i.e. black) in some places.
- There are pop rivets included in the kit – however, they are metric and will not work with a standard rivet gun. You may choose to purchase standard rivets to use with your own rivet gun or you may just use self-tapping screws.

### Basic Assembly Order of Greenhouse

1. Preparing your site – must be level and accommodate anchoring of the structure (see section above and “Foundation and Anchoring” in section further on in this manual)
2. Unpacking, sorting, and checking components. Sorting of the profiles/extrusions according to size and shape will be helpful. The aluminum profiles (extrusions) are identified by their cross-section and length. Packages for specific accessories should be kept together – i.e. doors, windows, louvered windows, low thresholds. It is helpful to have a metric or combination tape measure for this.
3. Assembly of the complete aluminum framework, temporarily fixing it in place.
4. Checking the horizontal and vertical alignment of the structure again with a level.
5. Tightening and fastening all structural components.
6. Anchoring/securing of the greenhouse to the ground.
7. Glazing installation.

### Safety Considerations

- Only assemble in dry and windless weather
- Keep children away from the construction site.
- Glass safety
  - Store the tall pallets of glass on firm level surfaces ONLY.
  - Keep your glass pallet dry! Moisture can cause the panes of glass to stick together and may be difficult to separate.
  - **Important! Please follow glazing removal instructions on the pallet for steps to safely remove glass panes from the pallet. Contact Exaco if you have not seen these steps!**



To help guard against glass panels falling forward, Exaco recommends the following precautionary steps BEFORE unloading:

5. Unscrew the upper wooden brace
6. Move it up and forward
7. Reattach it to the crate
8. Remove the lower wooden brace entirely

Afterwards, carefully remove glass panels by pulling them down and out (see picture →)



- Tempered glass is surprisingly strong. The corners are the most vulnerable – please be aware of the corners when handling and installing glass.
- Use a quality glass suction cup when handling glass, gloves are recommended.
- Watch your step! Be sure ladders are securely placed before climbing them.

### **Additional Remarks:**

This manual is prepared for all standard constructions and is also applicable as a guide for other customized models where we recommend assembly by a skilled team. We reserve the right to make construction changes.

### **IMPORTANT!**

- Always read the entire manual before starting
- When unpacking the profiles, do not use sharp or pointed objects to avoid damaging the paintwork.
- Always comply with local building regulations, which are the responsibility of the buyer/owner.
- Insurance: it is advisable to inform your insurance company about the installation of your greenhouse.
- During heavy snowfall, the greenhouse roof must be cleared OR sufficiently supported OR the greenhouse must be heated to maintain a temperature of 12°C. (Please see section on “Maintenance of Greenhouse” for additional information for heavy snow/wind areas)
- During a storm, all open parts should be closed (roof windows, doors, side windows, etc.).
- The black rubber strips are treated with oil on the inside, which facilitates quick and easy assembly.
- It is recommended to clean your greenhouse twice a year, check the gutters, check moving parts and oil the pistons and openers, and clear the door's bottom rail of sand or gravel. See also “Maintenance of Greenhouse” section.

### **Helpful Suggestions**

- Understand which greenhouse accessories you have and where they will be placed. There will be prompts throughout the manual to insert bolts during assembly for doors, windows, etc.
- If you forget to add a bolt where one is needed, you may create an insertion point in the channel with a 1/2" drill bit and an impact driver. If possible, do it in a place that will be covered by the piece you will be attaching. We do also have hammerhead/T bolts available for purchase that may be added later.
- Look through the entire manual and watch the assembly videos to help you prepare and understand the greenhouse assembly process.
- You may start with assembly of the doors and roof windows. This helps create familiarity with the materials and construction process and gives a head start when it comes to assembly time.
- **The stainless-steel hardware included with your greenhouse is preferred for damp greenhouse settings. This high-quality metal is malleable however, and the heads of the screws can be stripped or break if proper precautions are not taken. Set your driver (impact driver is preferred) to a low setting and hand tighten the screw at the end to avoid snapping the screw head.**

*Please thoroughly read the email that was sent to you from Exaco customer service for additional addendums to the manual and other important information.*



Refer to the Exaco YouTube Playlist for the Victorian Greenhouse for animated assembly videos as well as specific installation videos regarding your greenhouse. This playlist is also accessible via the QR code to the left.

Please reach out to Exaco for additional assembly resources and help.

### **Questions? Need Assembly Support?**

**Please call Exaco at 877-760-8500 or email [customerservice@exaco.com](mailto:customerservice@exaco.com).**

**The standard Cathedral Greenhouse (15' x 19'10") comes with the following:** (additional accessories/kits may be added)

Foundation frame/base, single sliding door with low threshold, one set of hinged double doors, four roof vents (with manual spindle openers), two louvered windows (with optional auto openers and winter covers), two push out side windows with manual openers, gutters and downspouts.



#### **Doors**

Cathedral doors may be placed on the long or short side of the greenhouse in any bay (except the corner). There are heavy duty portal frames on the long side that support the roof, but if you center your double doors on the long side (or place the doors on the shorter side) these will not be an issue. Upgrades to additional single or double sliding doors and/or hinged doors are available.

## Door Options:

- **Sliding Doors:** The standard kit includes one single sliding door. Single or double options are available. The sliding door/s of the greenhouse hang/slide along the outside of the greenhouse and feature brush weatherstripping. Keyed locks are included. Double doors will have no center support. If you are building on a stem wall you must upgrade to a hinged door.
- **Low Threshold Kits:** The standard kit will include a low threshold to lower the 4 ½" base frame to a 1 ½" threshold for the doorway. The upgrade to a low threshold kit requires cutting the base frame at the doorway to allow installation of a 1 1/2" high threshold to secure the sliding door guide and make walking in and out of the greenhouse easier. Available for single or double sliding doors. Kits for single doors may need to be cut to the shorter size.
- **Hinged Doors:** The standard kit includes one set of hinged double doors. These are a very handsome upgrade, but are significantly more challenging. We recommend installation by a highly skilled handyman. The hinged doors are time-consuming, require adjustments, and special tools (such as a grinder) may be needed. The doors are inset into the frame of the greenhouse and are further weatherproofed with rubber gaskets. The doors feature their own door jamb including low threshold and high-quality adjustable hinges for easier hanging. Traditional handles with a keyed lock will keep your greenhouse secure. Double or single hinged doors are available. A hinged door is recommended if the greenhouse is placed on a stem wall. It is preferable to order hinged doors with the greenhouse as they must be sent via freight truck and shipping costs can be prohibitive if shipped at a later date.
- **Drop Door Kits –**
  - You may choose to place your “ground mount” greenhouse on a knee/stem wall if you would like to add height to your greenhouse. If you do this, you will need to upgrade to hinged doors (sliding doors do not work) and purchase a “drop door” kit. This will give you framing pieces needed to frame a header above your existing door when it is brought down to ground level.
  - The standard drop door kit allows you to place the greenhouse on a knee wall height of your choice – we give enough material for up to a 30" high knee wall. If you are building a taller wall, let us know at the time of order and we can include additional material.
  - NOTE: The Drop Door kit is hardware ONLY and does not include the glazing for above the door. The reason for this is the knee wall height is custom to your site, so the glass for above the door will be a custom size. It is best to wait until the greenhouse is fully built and then order the header glass so you can be sure of the exact size needed (slight variations can happen during builds). The glass needs to be tempered safety glass with a width of 28 ¾" and thickness of 3/16" or ¼" – the height will be determined by your build. Please reach out to a local glass shop to order – we do not have custom sizes. You cannot cut any of the tempered glass pieces to fit, they will shatter into many pieces.
  - You must upgrade to hinged doors if you are placing your greenhouse on a knee wall. Hinged doors are better suited for this application than sliding doors for the following reasons:

- Hinged doors are more forgiving of any texture/lip/capstone/veneer that may be on your knee wall. They allow about 1" of clearance beyond the exterior of your greenhouse for the above items.
- Hinged doors are designed to open 180 degrees. If you happen to build your wall beyond the exterior dimensions of the greenhouse, it may restrict the width of the opening somewhere between 90 to 180 degrees – however they will still open at least 90 degrees.
- Sliding doors slide along the outside of the greenhouse. If you place a sliding door on a knee wall – the final exterior dimensions of your knee wall (including any capstone/lip/veneer) MUST match the exterior dimensions of your greenhouse footprint so the door can slide along the outside of your wall.
- MOST IMPORTANTLY, sliding doors need to have a rail mounted at the top in which the wheels roll. This holds the weight of the door. When placing a sliding door on a knee wall – there is not an ideal way to mount the top rail to the greenhouse, so we recommend using a metal strap to support this rail - attached to the horizontal structural piece above the door (gutter extrusion or gable horizontal profile). This will require customization on your side and possibly additional materials and may not be as desirable as the easily dropped hinged doors.
- Please reference the table of contents for the pages which address how a drop door kits and knee walls under “Foundation Measurement and Planning”: “Planning/Building a Stem Wall”, and “Hinged Door/s on a Stem Wall with Drop Door Kit”

### **Custom Centering a Door on a Wall**

With additional parts and on-site customization, you may center a single door on a wall with an even number of bays - or a double door on a wall with an odd number of bays by creating narrow side lights on either side of your doorway. Please order one additional PRO1456 from Exaco to frame this extra pane. Once completed, you will need to purchase the narrower side light glass locally as this is a custom size that Exaco does not stock.

## **Windows**

The standard Cathedral will come with manual spindle openers for the roof vents. If you would like auto openers, please reach out to Exaco before your greenhouse ships if possible. The roof vents allow hot air up at the ridge to escape, while the louver or push out side wall window acts as an intake for cooler air. The roof vents are usually staggered and some placed on both sides of the ridge beam. Occasionally if there is prevailing wind from one direction, more windows may be placed on that side. We recommend the manual spindle opener be used for windows facing strong gusts of wind. The windows cannot be placed side by side. There are a variety of openers available for roof vent windows.

- **Roof Vent Openers**

- Manual Stick openers - these will be packaged in every roof window kit. They are entry level openers that work on a peg/notch system. Not recommended for daily use but may be used to “lock down” the window if needed (auto openers must be disengaged or your piston will burst).

- Manual Spindle openers - a high-quality stainless steel threaded rod to securely crank the window to desired open position with use of a removable long handle. These are heavy-duty and will hold up well to strong winds if needed.
- Automatic Opener (Ventomax) - this opener utilizes a piston that is filled with oil that expands between 68 to 70 degrees. The oil pushes out the rod of the piston to open the window. When the piston is engaged, there is no manual control of the window. If there is rain when the temperature is above 68 in the greenhouse, it is likely that the roof vent will be open and rain will come in. During the cold months the pistons may be disengaged if heating the greenhouse.
- **Louver/Jalousie Side Wall Window**
  - Placed in a sidewall bay, often opposite the door for a cross breeze
  - Comes with a manual opener installed or included auto opener (Sesam Liberty) may be installed
  - If you are installing an exhaust fan, the louvered window with auto opener may act as your intake vent.
  - Note that the louvered window cannot be placed next to the portal frames.
- **Push Out/Top Hang Side Wall Window** – This window hangs from the top and the bottom pushes out. A manual or auto opener may be used. These cannot be placed side by side.

## Optional Accessories

There are a variety of optional accessories available, some of which are listed below.

- Shadecloth – We do not have a shadecloth option for the Cathedral. If shade is needed, we recommend using an aftermarket window tint to block some UV rays to keep it cool.
- Shelves
  - Seed tray/Seedbed - The seed tray is 20" wide and has a 4" planting depth with a white polycarbonate bottom to allow for drainage. The Cathedral will only accommodate a 15' seedtray on the 15' side. The heavy portal frames will not allow attached on the long sides. It is best to order at the same time as the greenhouse as it has to ship via freight truck due to the length.
  - Top Shelf - is 4" wide and can mount either above the seed tray or on its own at your preferred height. The Cathedral will only accommodate a 15' top shelf on the 15' side. The heavy portal frames will not allow attached on the long sides. It is best to order at the same time as the greenhouse as it has to ship via freight truck due to the length.
  - Slat shelves - extremely flexible in terms of height, usage, and all around placement. They are 59" long (across two sections of glass) and may be run end to end for a long stretch of shelving. They may also be centered across 3 panes of glass if desired. Slat design works well for holding pots/planters or it may be used for a work surface. Again, these shelves will only work on the 15' long sides due to the heavy-duty portal frames on the long sides. Only available in black or green. These shelves may be shipped via FedEx or UPS.
    - 2 Slat Shelves - 9" wide x 59" long
    - 5 Slat Shelves - 21" wide x 59" long
- Fly Screens:
  - Roof Window Fly Screen - easily installs into roof vent opening
  - Louver Window Fly Screen - clips onto outside of louvered window

- Push out/Top Hang Window Fly Screen – easily installs in vent opening
- Ventilation - An exhaust fan may be installed to blow out the hottest air. Installation of an exhaust fan in a Cathedral will be most effective on a lower sidewall OR a small exhaust fan up in the cupola if you keep your roof vents closed while it is running. Replace a glass pane with a lexan panel into which you can mount the fan (polycarbonate greenhouse panels may be cut to accommodate the fan). If you are installing in a sidewall, you will need to purchase additional framing, lexan and a custom piece of glass from a local glass shop. Many exhaust fans will use an external thermostat to control at what temperature it turns on and off. Place an exhaust fan opposite your side windows to create a cross breeze. For the most effective cross breeze, it is often recommended to close window vents to force airflow through your louver window.
- Heaters - see below “Heating the Greenhouse”

## Placement of the Greenhouse

The placement of the greenhouse varies by intended usage, climate, location, and space available.

There is a wealth of information to be found online on this subject, here are some considerations:

- Will your greenhouse be in full sun or get afternoon shade? Glass greenhouses do what they are intended to do - heat up quickly on sunny days. Great for the winter, but depending on your climate, it can be a challenge during summer months. Think about what you will be growing as well as the seasonal usage of your new greenhouse to determine appropriate sun exposure. It may help to watch the seasonal variations of sun angles in your yard to determine the placement.
- Depending on what you are growing and where you are located, you may wish to orient your greenhouse east/west or north/south - many garden bloggers have weighed in on this and research may help you consider the options. In many areas of the US, we do get plenty of hours of sunlight. Some users end up placing the greenhouse based on layout/space available, aesthetics and convenience.
- The site must be level. If it is not, you will need to prepare the area to provide a firm and level surface to construct your greenhouse. This may include building a retaining wall or placing your greenhouse on a stem wall - or just leveling out the site. Consider rainwater flow in your yard if you are in a hilly area.

## Foundation and Anchoring

All greenhouses must be securely anchored. The Cathedral has two types of anchors:

- The corner brackets will attach to the interior at the foundation/base frame (holding it together in the corners) and extend an additional 12" below ground level. If you are in a high wind area or are trying to meet the structural specifications for a permit - you may wish to purchase additional corner anchor posts (PRO210) for use at all the vertical members. Please see the foundation measurement page for additional diagrams and information.
- The heavy-duty portal frames that support the roof and cupola also anchor the greenhouse. These large 2" x 6" supports are connected on the interior of the greenhouse and extend 15  $\frac{3}{4}$ " (40cm) into the surface below. For the strongest connection, it is recommended to embed

these in concrete after the structure is built. Please see the foundation measurement page for additional diagrams and information.

The manufacturer recommends an 8"-10" wide concrete strip foundation (minimum) that extends down to the frostline in your area. Please consult your local building codes for this information. It is recommended to leave a 4" diameter hole at the corners for the anchors and larger holes for the portal frames to be embedded in concrete after the greenhouse frame is assembled and it is confirmed to be level and square. You may need to adjust your 8" strip foundation out to 10" to accommodate the portal frames.

Some users have chosen a variety of alternative anchoring methods based on their climate, location, soil composition, and site considerations. These include full concrete slabs, concrete footers, pier and beam constructions, and even timbers. If you are considering the use of wood in your construction, be aware that your greenhouse will likely outlast your wood. If you use pressure treated wood, it is recommended to use a barrier material between the wood and the aluminum frame. When planning your anchoring method, you should keep in mind frost line/ground heaving, wind load, greenhouse location, ground composition, weather, climate, and local building code. If you are unsure, you should consult with a local and experienced builder. Warranty coverage does not extend to damage resulting from improper anchoring of the greenhouse outside of manufacturer's recommendations (see above).

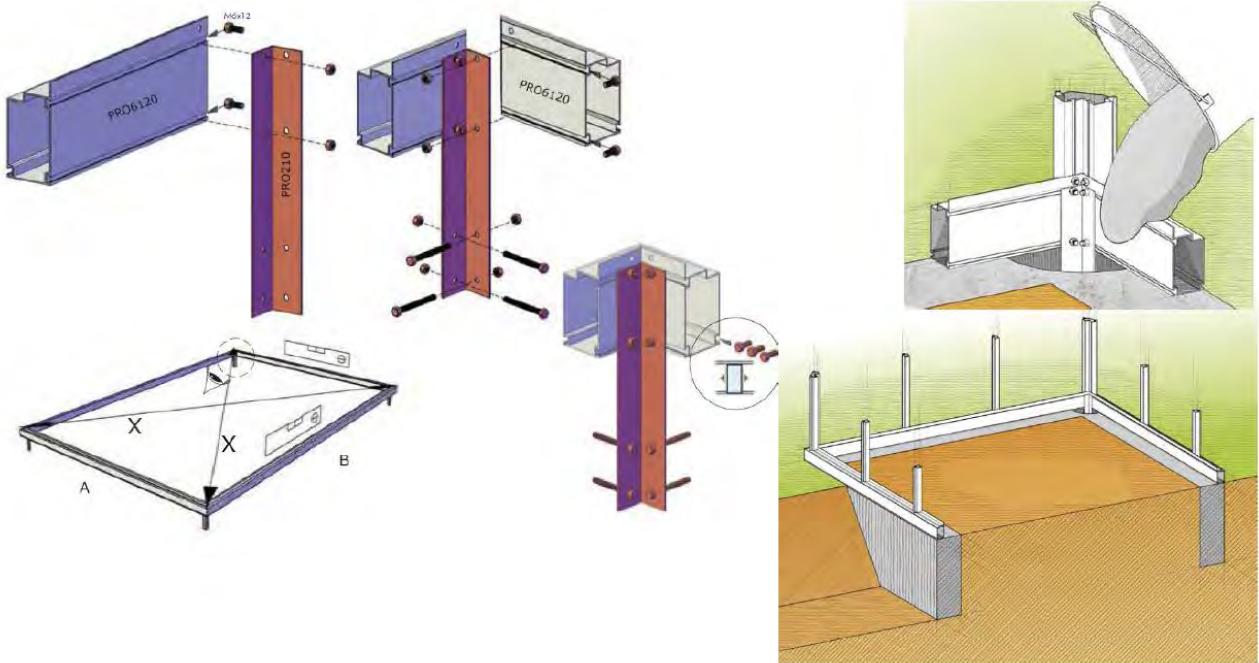
If a permit is needed in your area, we do have structural certification letters and permit sets for most of our greenhouses. They are Texas stamped. We may be able to obtain other state stamped documents, however if you need them specific to your state, we do not cover this expense. Your local engineer may reach out to our Texas engineers for documents if needed. Please contact Exaco if structural documents are needed.

#### **Anchoring Options (detail):**

***MANUFACTURER AND ENGINEER RECOMMENDED OPTION:*** Embedding the anchors into your concrete – most secure, manufacturer recommended.

It is recommended to leave a 6" diameter hole for the anchors to be embedded in concrete after the greenhouse frame is assembled and it is confirmed to be level and square. You can also have a PVC pipe or Sonotube embedded into your concrete. The PVC or Sonotube must be at least 6" wide in diameter, centered on the interior of the greenhouse (2.25" in from the edge). Note the Cathedral also has portal frames to be embedded – see foundation diagram

for specifics.

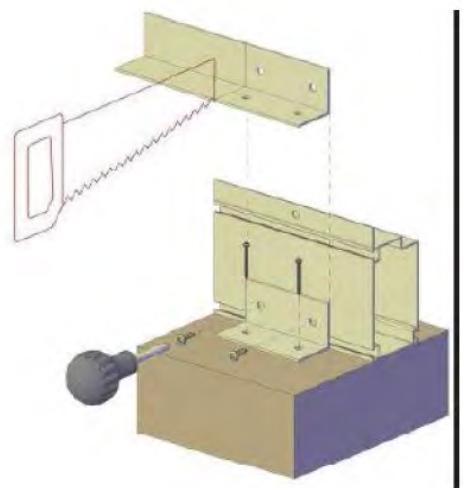


**OPTION 2 (not recommended, but this variation can be used to supplement embedding the frames):**  
Use L brackets with concrete screws/self-tapping screws

VIDEO: <https://youtu.be/3W62iOgLVG4?t=59> (may be found at minute 0:59 in the Exaco animated assembly video.

**Steps:**

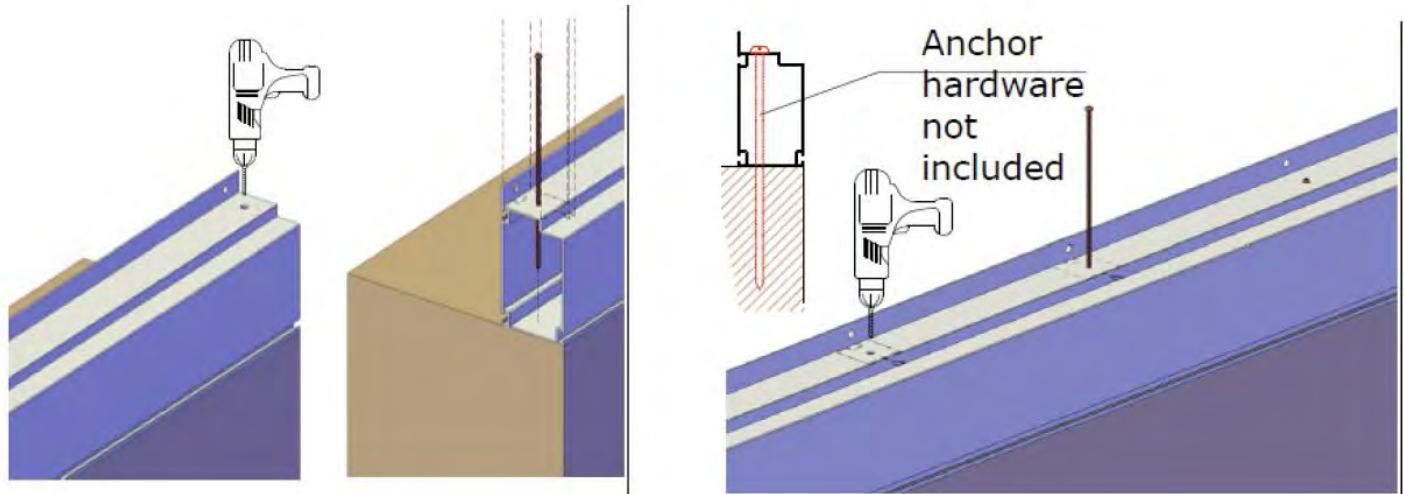
- You can cut angle irons into 4" long L brackets to mount the top half into the foundation frame and the bottom half into the concrete or other foundation.
- Use self-tapping screws or pre-drill and use normal screws to mount the top part into the foundation frame of the greenhouse.
- Use concrete anchor screws (link provided below) to attach the bottom part to your concrete. We HIGHLY recommend predrilling and using a hammer drill to drill the anchors in.
- Tapcon Concrete Anchor Screws:  
<https://www.homedepot.com/p/Tapcon-1-4-in-x-1-3-4-in-410-Stainless-Steel-Hex-Head-Concrete-Anchors-8-Pack-26120/202097033>



**OPTION 3 (recommended to add additional anchoring points) : Long Anchor into foundation frame**

Drill access holes as shown to the bottom right. Be sure to line these up with the holes in the vertical flange so they will be covered by a glazing bar (PRO1456). Use appropriate fasteners for your wall (not included). You may also leave holes at the corners to embed the long

PRO210 anchors in concrete after the greenhouse is built. This is similar to what is shown for the ground mount version.



## Flooring

The greenhouse does not include flooring material, allowing it to be customized to your needs and use. When planning your flooring, consider the intended use of the greenhouse, the plants that will be grown, drainage, heat sink benefits of the material, insulation, weed blocking, as well as aesthetics. If you use a natural flooring option - consider including a weed barrier. Here are a variety flooring options to consider:

- Soil - this is a great option if you have fertile soil and wish to plant directly into the ground. This can be used in combination with other options below.
- Pea gravel, crushed stone, etc. - provides natural drainage and some crushed rocks help with weed control
- Pavers and bricks - A very nice looking option with natural drainage capabilities. May also be used for paths in combination with in ground planting areas.
- Wood - Looks very nice, but requires more maintenance. Keep in mind that the wood may deteriorate before the greenhouse lifespan is over.
- Full concrete slab - This can double as your anchoring surface as well. Keep in mind that greenhouses can be wet environments so texture and drainage need to be considered.
- Tiling - this can be a beautiful option as well. If your greenhouse is a functioning greenhouse, consider water drainage. Tile may get very slippery when wet.

## Water and Electricity

You may choose to bring water and electricity into your greenhouse. If possible, it is recommended to plan for this ahead of time so that you can plumb/wire underneath the base frame of the greenhouse. Generally, users will bring electricity under the frame at the most convenient location and then attach conduit to the frame of the greenhouse to the desired location. Custom matched spray paint is available if needed.

## Ventilation and Cooling of Greenhouse

Glass greenhouses are effective at heating up quickly on sunny days. If you discover your greenhouse is becoming warmer than you desire, here are some options for cooling.

- Shadecloth – No interior shadecloths are available for the Cathedral currently.
- Exhaust Fan - An exhaust fan may be installed to blow out the hottest air. Installation of an exhaust fan in a Cathedral will be most effective on a lower sidewall OR a small exhaust fan up in the cupola if you keep your roof vents closed while it is running. Replace a glass pane with a lexan panel into which you can mount the fan (polycarbonate greenhouse panels may be cut to accommodate the fan). If you are installing in a sidewall, you will need to purchase additional framing, lexan, and a custom piece of glass from a local glass shop. Many exhaust fans will use an external thermostat to control at what temperature it turns on and off. Place an exhaust fan opposite your side windows to create a cross breeze. For the most effective cross breeze, it is often recommended to close window vents to force airflow through your louver window.
- Misting System - in dry environments, a misting system turning on at the hottest point of the day can cool a greenhouse up to 15 degrees.
- Tinting - Aftermarket tinting may be applied to the glass panes
- Whitewash - available from some greenhouse retailers, this can be washed off when the hot season is over.
- Exterior shade cloth - an exterior shade cloth, though not as beautiful, can be highly effective. An aluminet shade cloth is a metallic woven shade cloth that goes up and over the outside of the greenhouse. The metallic surface reflects the heat of the sun's rays before they get inside the greenhouse, while also providing shade.

### **Heating the greenhouse**

Although the greenhouse heats up quickly during sunny days, you will likely find you will need to provide supplemental heat during cold winter nights and cold cloudy days.

- Heaters - electrical, propane and wood stoves have all been used. Be sure to properly vent according to manufacturer instructions. Find a BTU calculator online to determine how powerful a heater you need. This is based on a variety of factors including greenhouse material, size, location/climate, low temperatures and desired goal temperature.
- Heat Sink - The more mass you have inside your greenhouse, the more heat can be absorbed during the warm day to release at night. This can help mitigate huge temperature swings during light frost, but can also reduce your heating costs. Easy ways to add mass that can retain heat are raised beds, a large dark water tank, or organic material. There is much information online about planning/designing more in-depth heat sinks in your greenhouse - including flooring choices.
- Resources on insulated floors and geothermal heat can be found on many garden blogs.

### **Can I Use My Greenhouse as an Additional Living Space?**

- These structures are designed to be a greenhouse first and foremost. As packaged, the greenhouse is not designed to be water/air tight. Greenhouse plants do benefit from a turn of

air. You will need to do some extra sealing with silicone on the roof around the glass to achieve watertightness.

- We recommend any furniture be indoor/outdoor and that fine wood furniture/electronics be avoided or sufficiently protected.
- The glass is single pane, so there is a good chance for condensation on the inside that might drip. The roof windows do have auto openers, so it is likely the roof vents will be open during a rainstorm if the temperature in the greenhouse is above 68 degrees. You can switch to all manual openers if preferred.
- On sunny days, glass greenhouses can get warm very quickly. Depending on your climate, you will likely be fighting the heat in the summer (late spring/early fall).

It has been done, but you will need to make customized adjustments such as extra sealing, climate control, window tinting and heating. Indoor/outdoor furnishings are strongly recommended. Exaco will not be held responsible for any damages.

### **Additional Weather Considerations and Maintenance of Greenhouse**

The following will help keep your greenhouse in tip top shape:

- **WINTER/SNOW/ICE CONSIDERATIONS:** Please take the proper precautions to protect your investment from heavy snow.
  - The roof will need to be cleared of snow, this removes weight from the roof and also allows the sun to shine in and heat your greenhouse
  - Heating your greenhouse may also help some of the snow melt/slide off to assist in keeping the roof clear. If you are heating the greenhouse, you may wish to disengage your pistons so the roof vents do not open.
  - If you are expecting heavy snowfall that you will not be able to clear in a timely manner, we recommend bracing your ridge beam with a 2x4 in the center to help support the weight. Snow should still be cleared as soon as it is possible.
  - If you are in an area that routinely gets significant snow there are some options to strengthen and support your greenhouse:
    - Install self-tapping screws in addition to the bolts where the rafters meet the ridge beam and the gutters (noted in assembly manual).
    - Purchase extra spandrels/deco supports for the ridge and gutters.
    - Add a stainless steel cable with a turnbuckle connecting opposite sidewalls/spandrels to prevent the sidewalls from bowing out if there is excessive weight on the roof.
    - NEW for 2024! We now have special bracing available for the VI46 (12'7" wide) models for high snow areas. Please call Exaco for details.
- **HIGH WIND AREA CONSIDERATIONS:** It is recommended to install your greenhouse in an area protected from high winds. If high winds are an issue in your area, we recommend the following:
  - Purchasing additional PRO210 anchors to be installed at every vertical glazing bar, embedded in a concrete foundation. Embedding the anchors into concrete will provide the strongest anchor. Alternatively, you may further strengthen the anchoring the greenhouse by:

- Cutting PRO210 anchors into 4" sections to use as L brackets into the base of the greenhouse and down into the concrete foundation
- Use long anchor bolts through the frame (underneath the glazing bars)
- Use included red shims on ALL glass panes when installing your glazing (see section on "Glazing Installation"). This is good practice regardless of wind load for your area.
- Adding Narrow Top shelves (or similar long angle iron/lateral support) from one gable end to the other (along both long walls) can help support against wind.
- Pistons and openers - Several times each year oil your piston rods, threading, and moving parts of your openers. You may use WD40 or even olive oil. If your pistons stop opening your windows, you likely need to oil them to loosen them up.
- It is recommended to clean your greenhouse twice a year, check the gutters, check moving parts and oil if necessary, and clear the door's bottom rail of sand or gravel.
- Glass Maintenance
  - Cleaning Glass - use a gentle cleaner, such as Palmolive dish soap with a soft cloth. A squeegee with a long handle is helpful as well. Distilled white vinegar can be used to remove hard water spotting.
  - Replacement Glass - if you need to replace a piece of broken glass, please refer to the glass spec sheet in this manual. Replacement panes of 3/16" standard tempered safety glass should be ordered from a local glass shop. Exaco will not ship large pieces of glass, locally ordered replacement panes of standard tempered safety glass will match the original panes.

### Questions? Need Assembly Support?

Please call Exaco at 877-760-8500 or email [customerservice@exaco.com](mailto:customerservice@exaco.com).



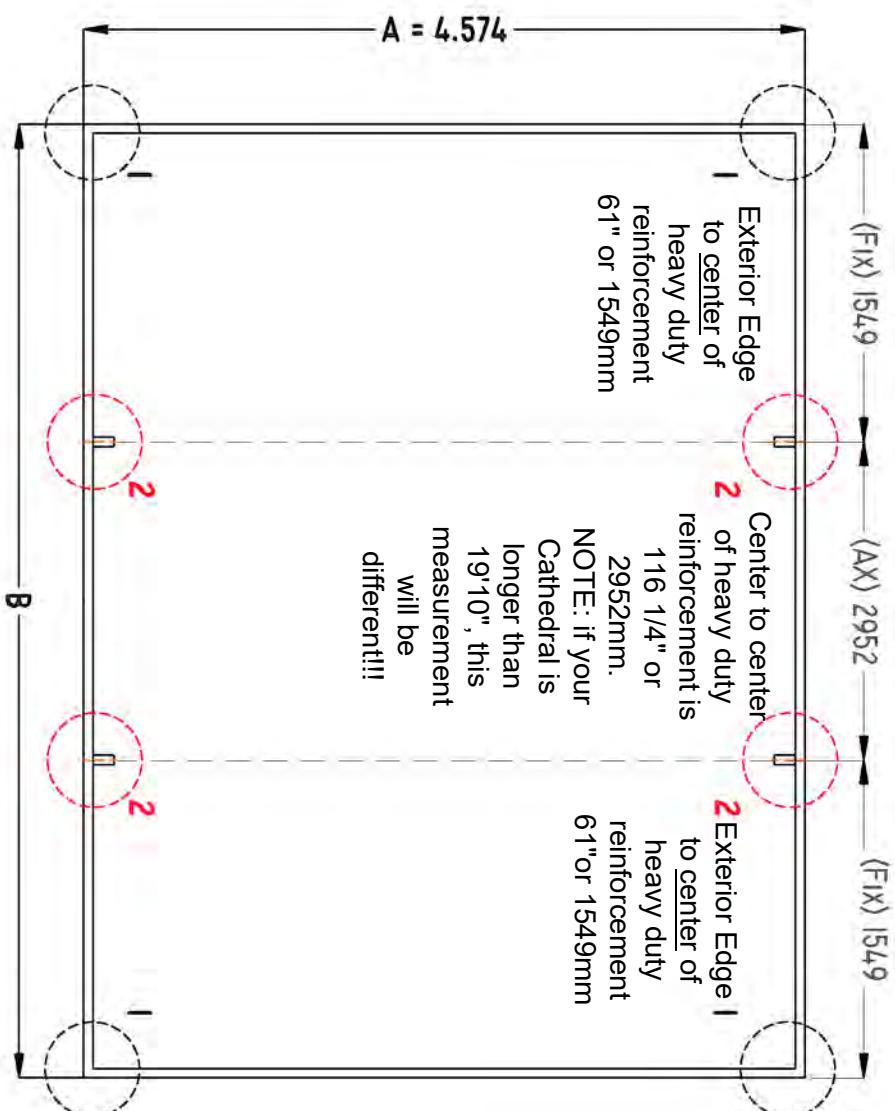
*Assembly Videos can  
be found by scanning  
the code to the left with your  
smartphone.*

Or find the link to our YouTube page at [www.exaco.com](http://www.exaco.com).

Go to the Victorian Greenhouse Playlist for all videos.

# CATHEDRAL

The diagram below refers to our stocked 15' x 19'10" Cathedral. If you ordered a custom size, you may have additional portal support frames!!!



## STUDY THIS PAGE AND THE EXAMPLE ON THE NEXT PAGE THOROUGHLY BEFORE BUILDING/SITE PREPARATION! CALL EXACO WITH QUESTIONS!

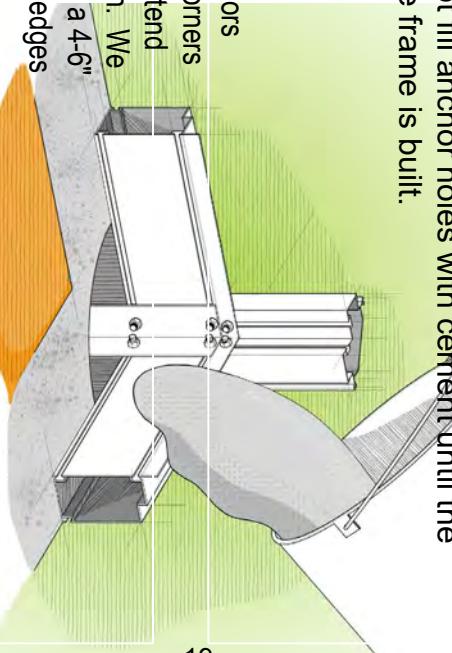
**IMPORTANT:** For proper anchoring and support, all anchors should be embedded in concrete once the structure is complete. You will need to leave holes in your foundation pour for these anchors. All anchors shown below attach on the **INSIDE** of the structure/base frame (PRO6120). The PRO6120 is 2.25" wide - center all your holes 2.5" in from exterior edge.

Concrete strip foundation needs to be at least 8"-10" wide to accommodate the embedding of anchors - see below!

Note: do not fill anchor holes with cement until the greenhouse frame is built.

### DETAIL 1

PRO210 (corner anchors attach on interior at corners of greenhouse and extend 12" into the foundation. We recommend centering a 4-6" hole 2.25" in from the edges for these.

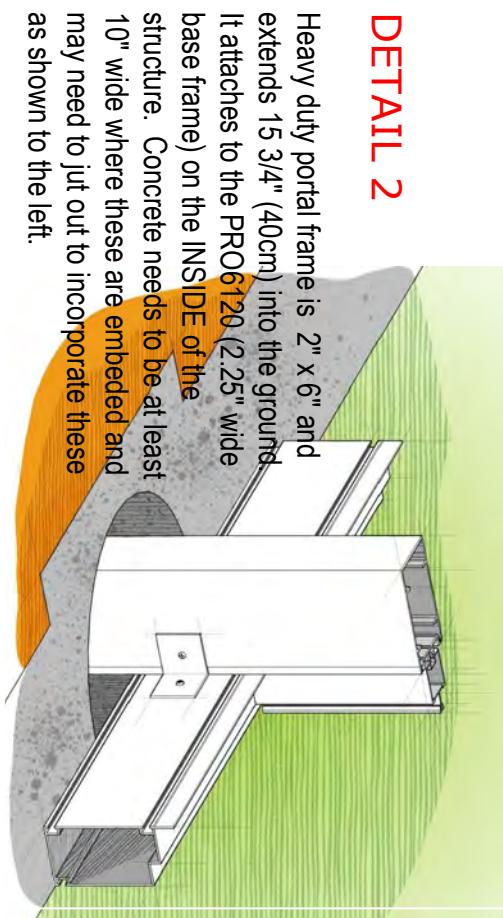


### DETAIL 2

Heavy duty portal frame is 2" x 6" and extends 15 3/4" (40cm) into the ground.

It attaches to the PRO6120 (2.25" wide base frame) on the **INSIDE** of the structure. Concrete needs to be at least 10" wide where these are embeded and may need to jut out to incorporate these as shown to the left.

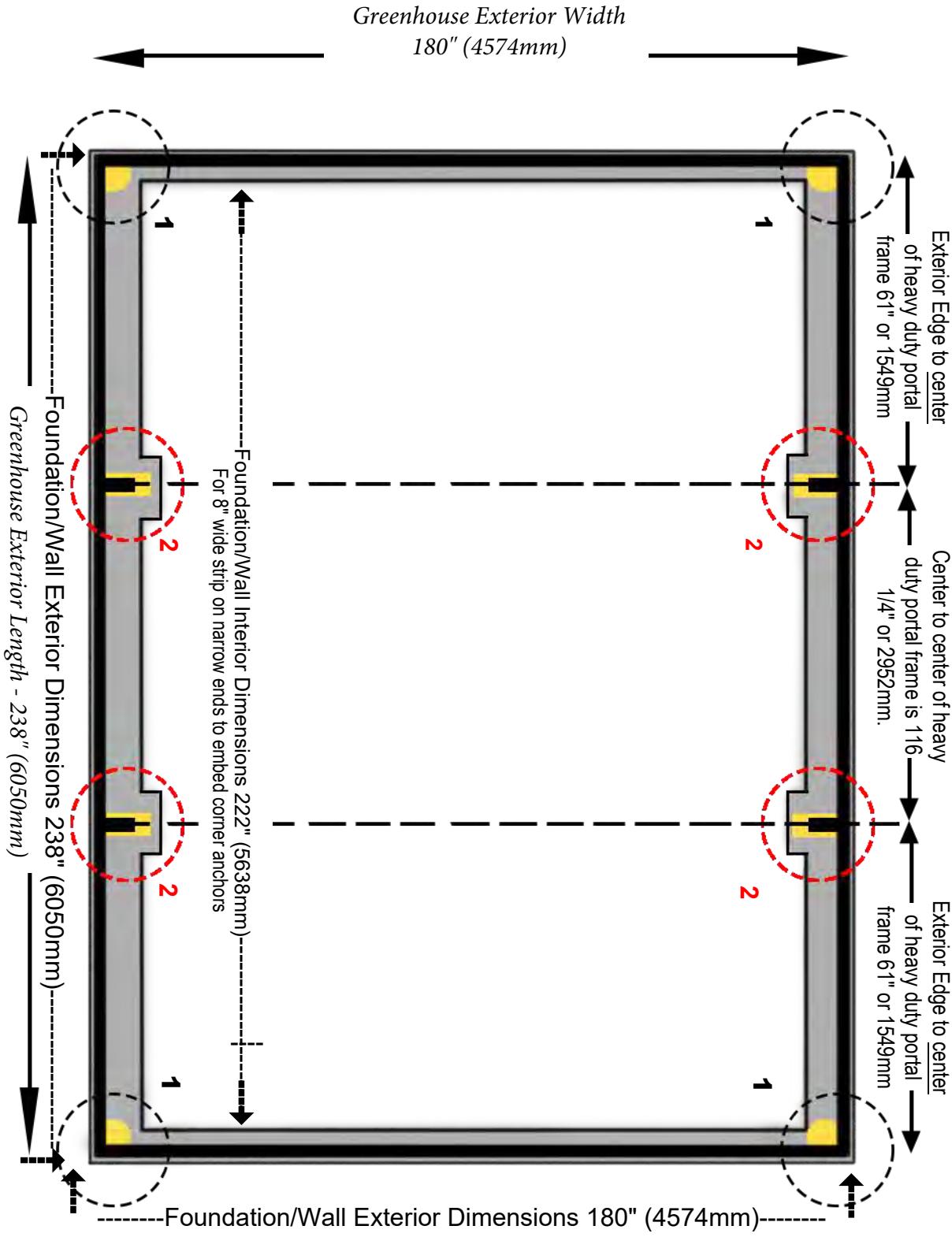
A	X	B
* 4574	* 6050 or 238" or 19'10"	6050mm or 180" x 238". There are corner anchors that hold the corners together and extend 12" down into the ground. There are also heavy duty portal reinforcements that support the roof structure. These are shown at detail 2 above and to the right. For our standard model the measurements above labeled (FIX) and (AX) are the measurements from exterior to center point of the heavy duty reinforcements.
or 180 inches	or 180 inches	
6788		
7526		
8264		
9002		
9740		
10478		
11216		
11954		



\* indicates standard order size

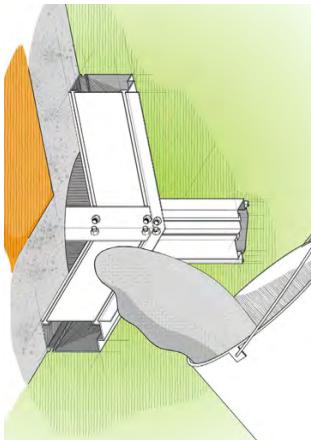
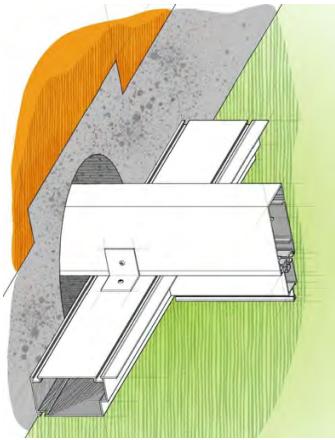
## CATHEDRAL Example Foundation/Wall

The diagram below refers to our stocked 15' x 19'10" Cathedral. If you ordered a custom size, you may have additional portal support frames!!!



## **DETAIL 1**

PRO210 (corner anchors) attach on interior at corners of greenhouse and extend 12" into the foundation. We recommend centering a 4-6" hole 2.25" in from the edges for these.



## DETAIL 2

Heavy duty portal frame is 2" x 6" and extends 15 3/4" (40cm) into the ground. It attaches to the PRO6120 (2.25" wide base frame) on the INSIDE of the structure. Concrete needs to be at least 10" wide where these are embedded and may need to jut out to incorporate these as shown below.

If you are building a knee wall, you may use this plan, however please reach out to EXACO to discuss rough opening for your doors.

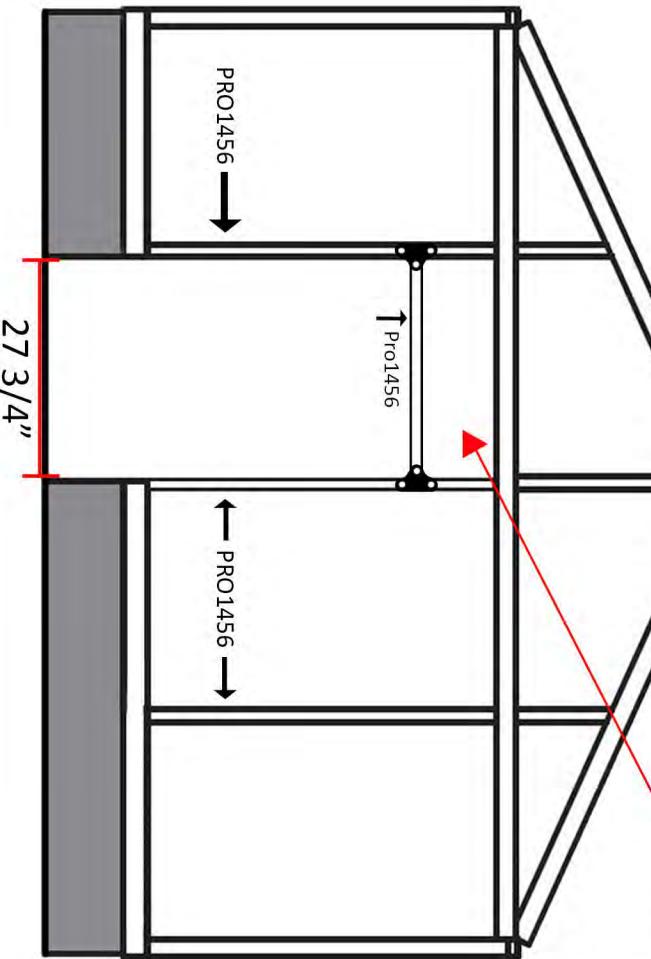
## Hinged door extension installation - View from inside Greenhouse

Can be installed on long or short gable end of greenhouse  
(see door considerations for VI36/VI46 at front of manual)

**(Single)**

Glass for header must be ordered locally due to custom wall height  
3/16" thick tempered safety glass

28 3/4" wide -height determined by wall

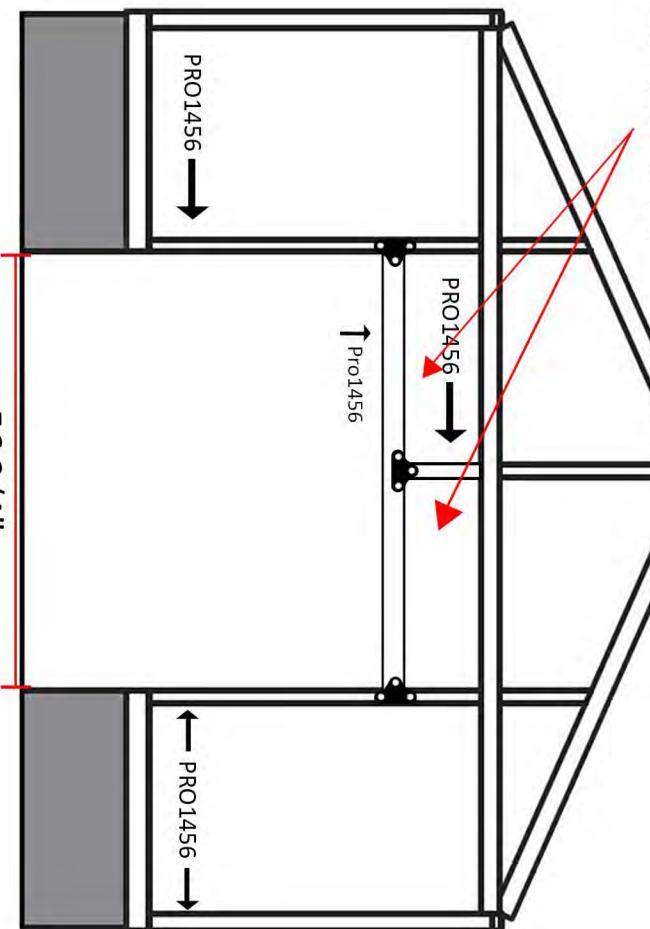


-Opening will be 27 3/4" or 703 mm wide

**Kit will include:**

- (1) PRO1456
- (2) 3-Hole Brackets
- Nuts & Bolts

**(Double)**

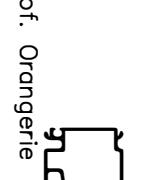
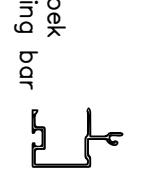
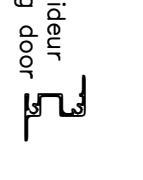
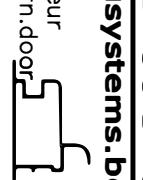
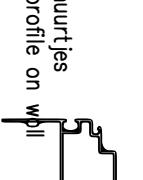
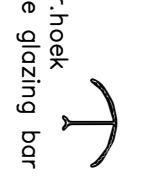
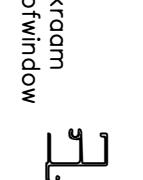
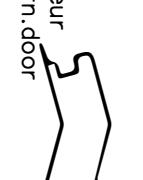
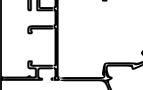
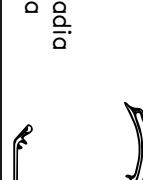
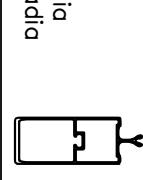
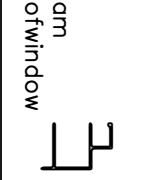
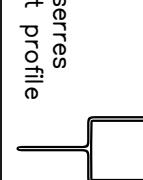
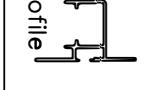
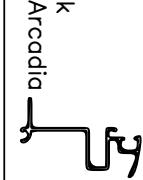
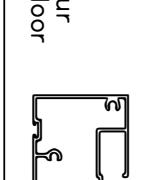
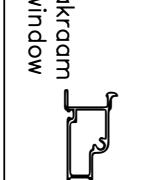
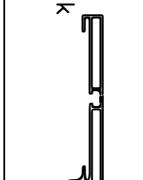
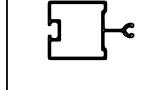
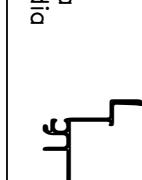
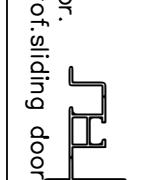
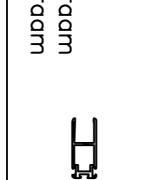
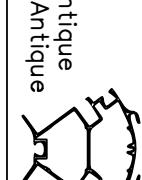
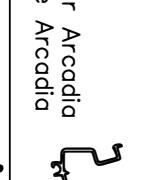
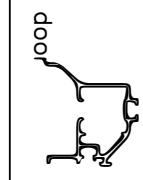
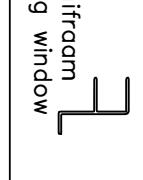
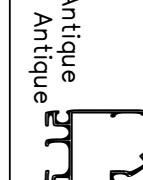
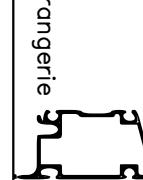
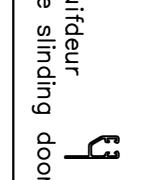
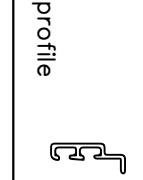
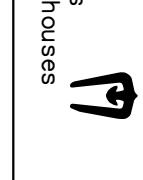
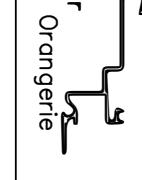
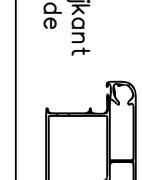
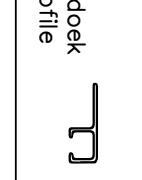
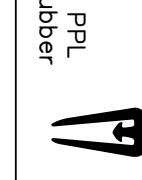
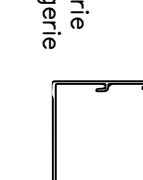
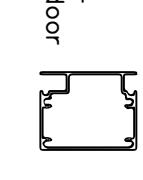
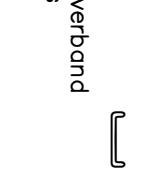


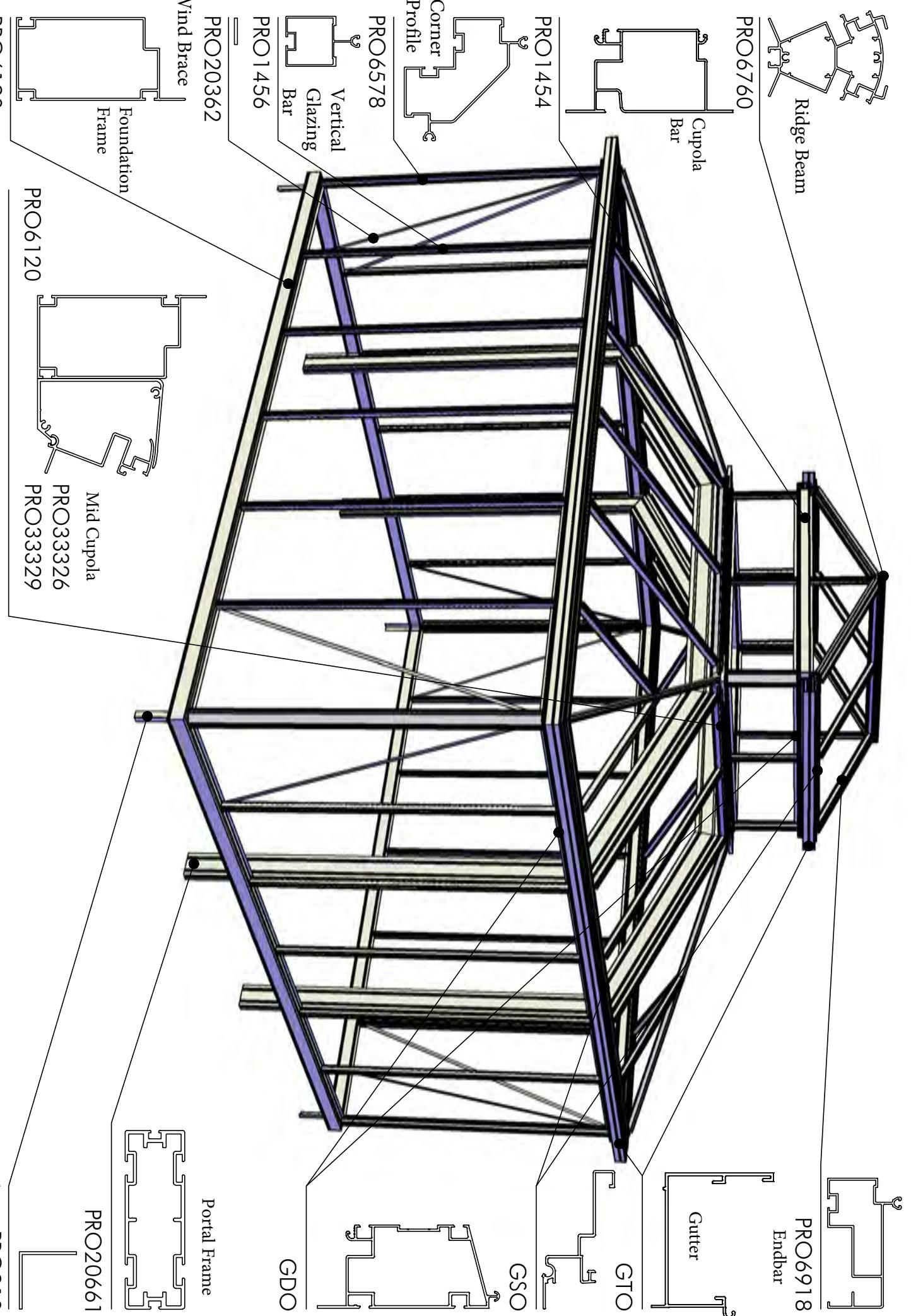
-Opening will be 56 3/4" or 1441 mm wide

**Kit will include:**

- (1) PRO1456
- (1) 30" Pro1456 (cut to match the height of stem wall)
- (3) 3-Hole Brackets
- Nuts & Bolts

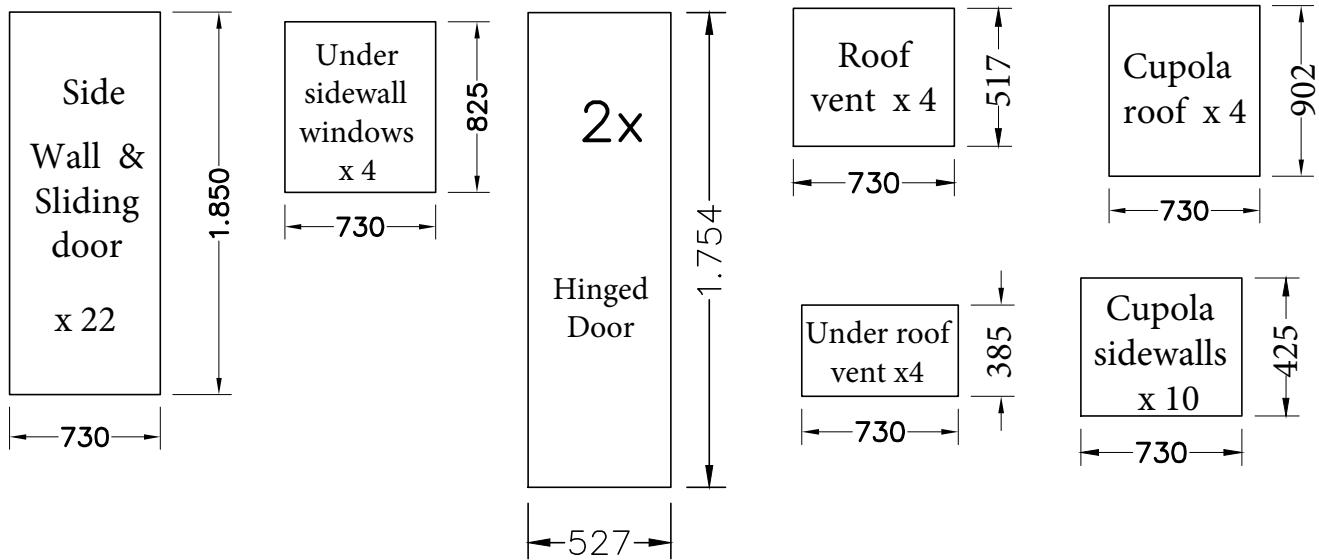
Hinged door will include its own door jamb - place the horizontal PRO1456 on top of the door jamb.  
move to manual for door assembly & installation

<b>PRO6120</b> Fundering Foundation profile		<b>PRO1454</b> Tussenregel Fundering op muurtjes Special bottomprofile on wall		<b>PRO1449</b> Glaslat var.hoek Variable glazing bar		<b>PRO42142</b> Aanslag draaideur Siding turning door		<b>PRO6964</b> Stoelp dub.ddeur Middel.dub.turn.door	
<b>PRO6760</b> Nok Helios Ridge profile		<b>PRO37358</b> Fundering op muurtjes Special bottomprofile on wall		<b>PRO1450</b> Scharnier var.hoek Hinge variable glazing bar		<b>PRO7615</b> Scharnier dakraam Topprofile roofwindow		<b>PRO6965</b> Stoelp dub.ddeur Middel.dub.turn.door	
<b>PRO20227</b> Goot Helios Gutter Helios		<b>PRO42786</b> Muurnok Arcadia Ridge Arcadia		<b>PRO3325</b> Daklat Arcadia Roofbar Arcadia		<b>PRO7609</b> Zijkant dakraam Sideprofile roofwindow		<b>YSER</b> Versteviging serres Reinforcement profile	
<b>PRO20229</b> Tussenregel Horizontal gable profile		<b>PRO3329</b> Scharnier nok Hinge ridge Arcadia		<b>PRO6951</b> Vert.schuifdeur Vert.sliding door		<b>PRO7610</b> Onderkant dakraam Bottom roofwindow		<b>PRO37359</b> Schap/zaalbak gordijnkast	
<b>PRO1456</b> Glaslat Glazing bar		<b>PRO3328</b> Goot Arcadia Gutter Arcadia		<b>PRO6121</b> Deurkader hor. Horizontal prof.sliding door		<b>PRO25827</b> Kader schuifraam Kader schuifraam		<b>PRO40091</b> Nok Helios Antique Ridge Helios Antique	
<b>PRO6578</b> Hoekstijl Corner profile		<b>PRO3327</b> Gootscharnier Arcadia Gutter-hinge Arcadia		<b>PRO7876</b> Deurgeleider Guide sliding door		<b>PRO1455</b> Geleider schuifraam Guiding sliding window		<b>PRO20779</b> Goot Helios Antique Gutter Helios Antique	
<b>PRO29909</b> Deurstijl Doorpost		<b>PRO3976</b> Geleider schuifdeur Bottom guide sliding door		<b>PRO20780</b> Glashouder Glass-secure profile		<b>PRO1748</b> Rubber serres Rubber greenhouses		<b>PRO2290</b> Zware rubber PPL Heavy duty rubber	
<b>PRO6918</b> Endlat dak Endbar roof		<b>PRO6954</b> Deurkader zijkant Doorframe side		<b>PRO29973</b> Prof. schermdak Screening profile		<b>PRO5538</b> Halve rubber Helios Half-rubber Helios		<b>PRO05538</b> Halve rubber Helios Half-rubber Helios	
<b>PRO7926</b> Hoek 150gr. Corner prof. 150gr.		<b>GTO</b> Goot Orangerie Gutter Orangerie		<b>PRO6953</b> Hor.draaideur Hor.turning door		<b>TRE</b> Trekker-windverband Side bracings		<b>School</b>	

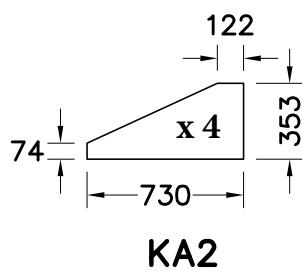
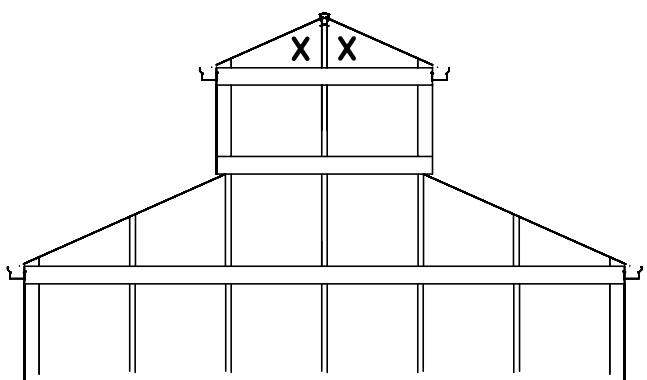
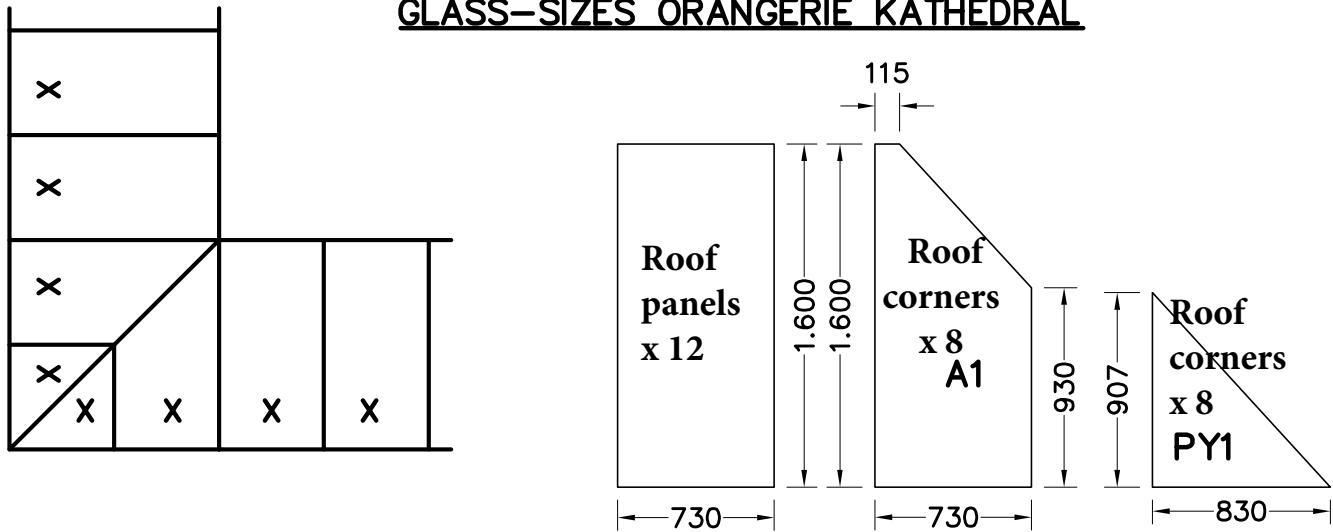


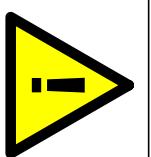
# Glass Specs for Standard Stock Cathedral 15' x 19'11"

includes: 4 roof vents, 2 push out windows and  
2 louvered windows

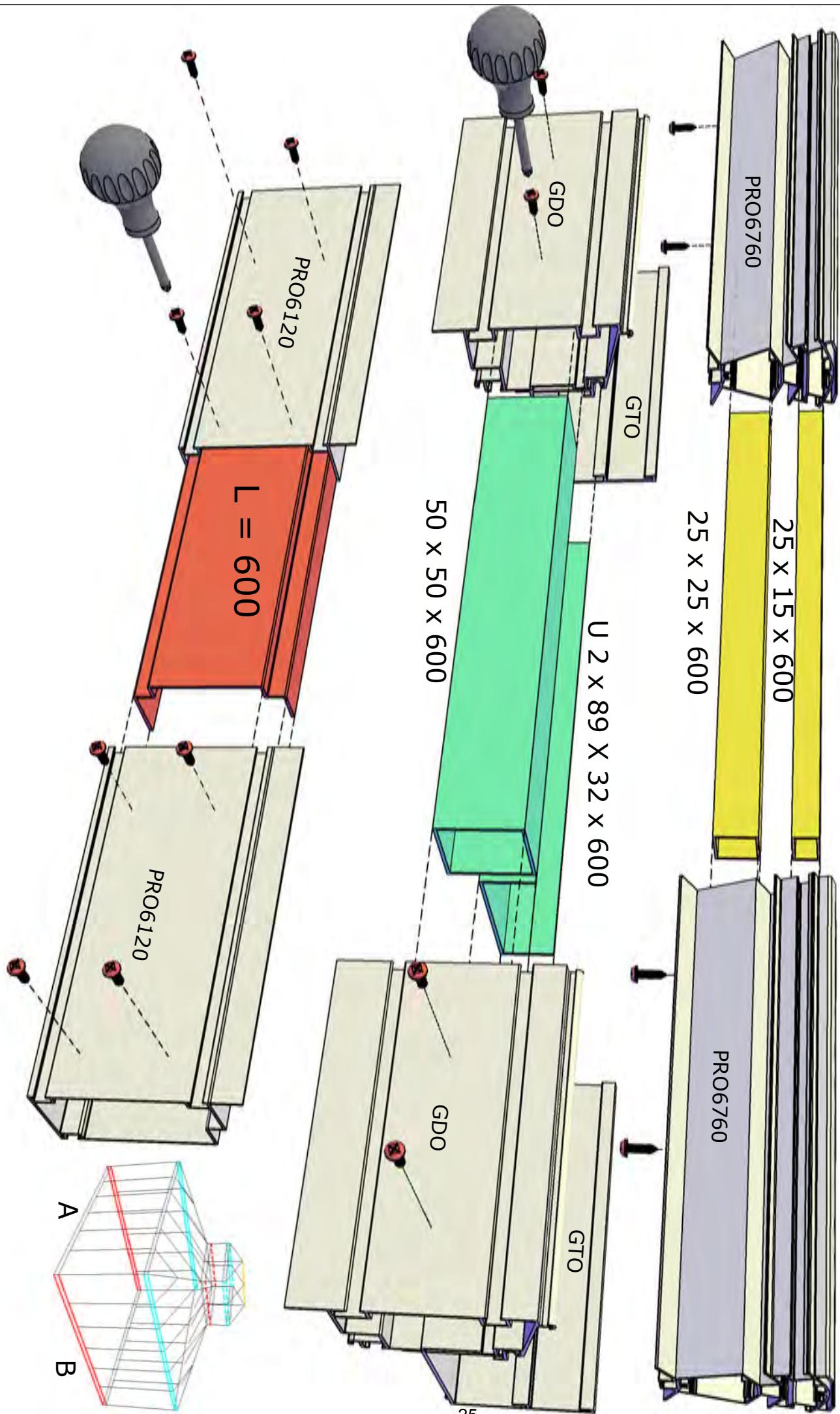
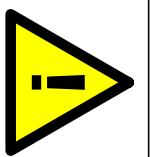


## GLASS-SIZES ORANGERIE KATHEDRAL

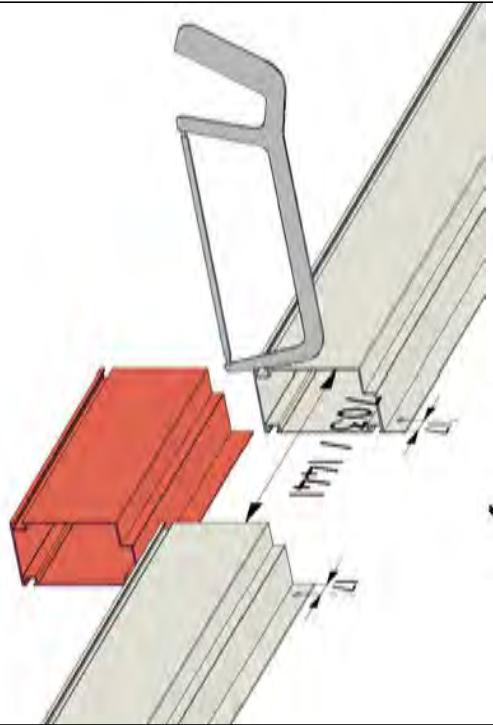
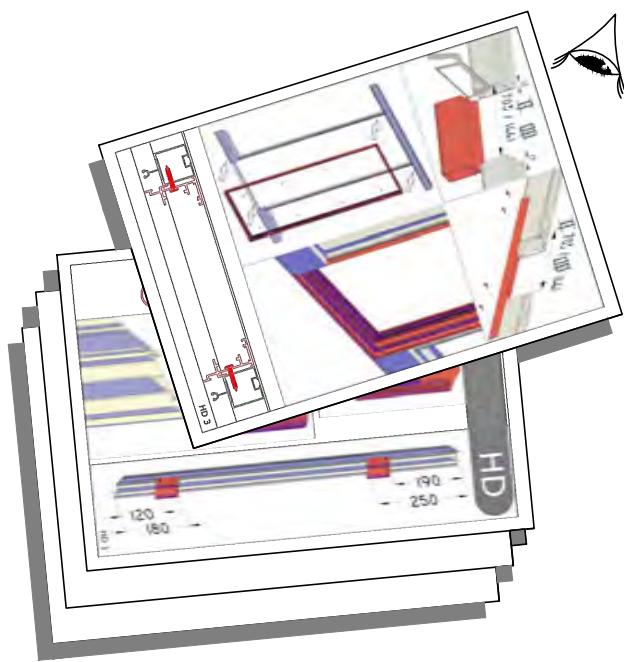




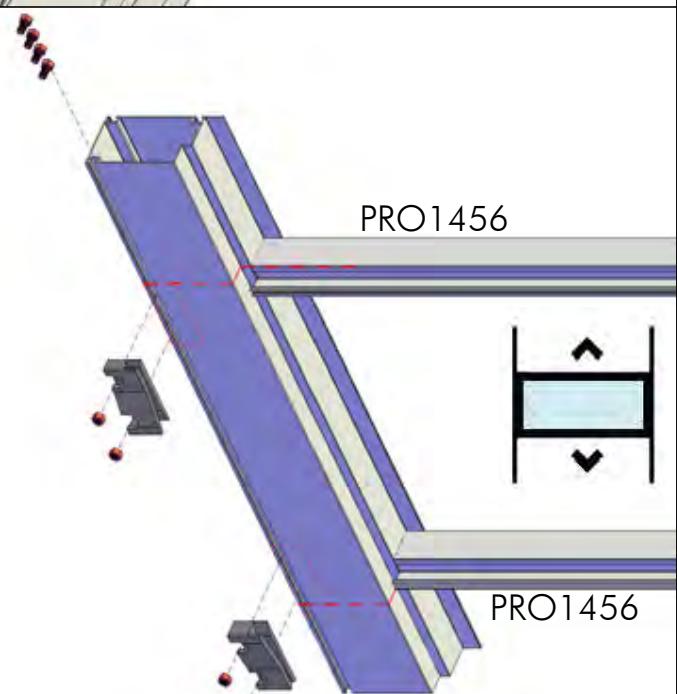
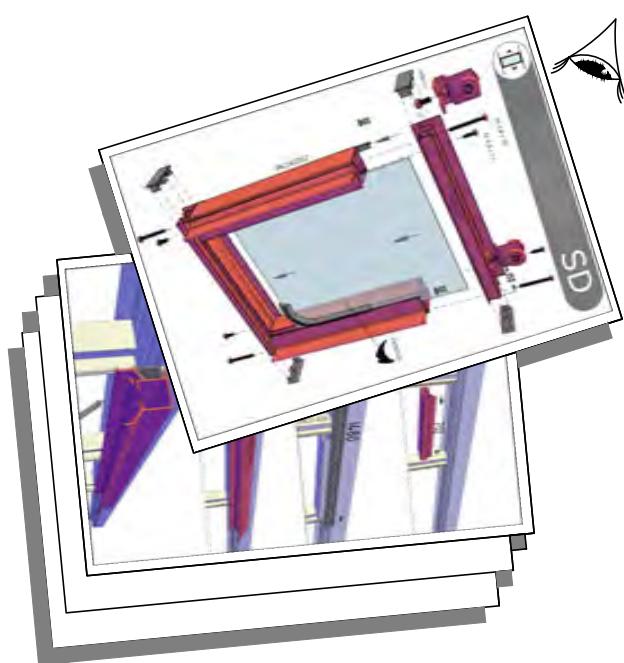
**B = LENGTH > 6m10**



## OPTION: **HD** (hinged door)

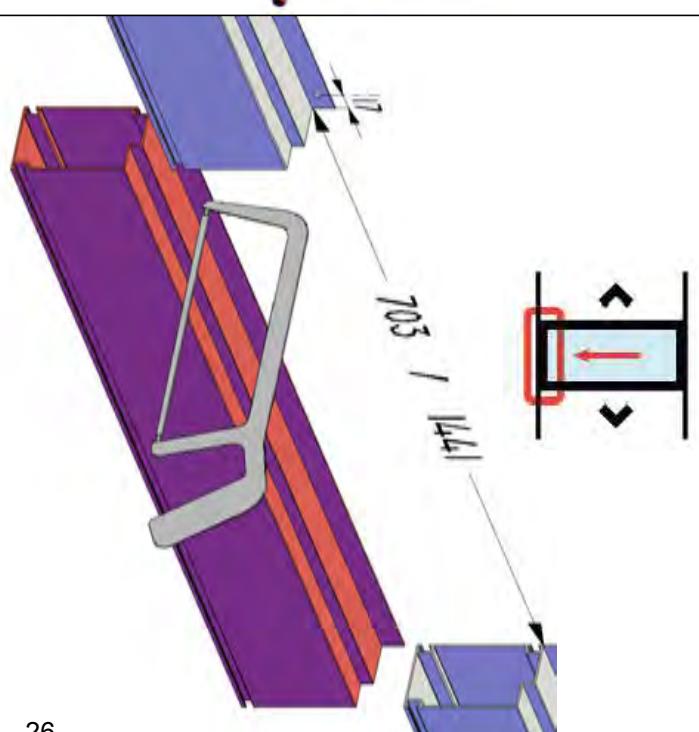
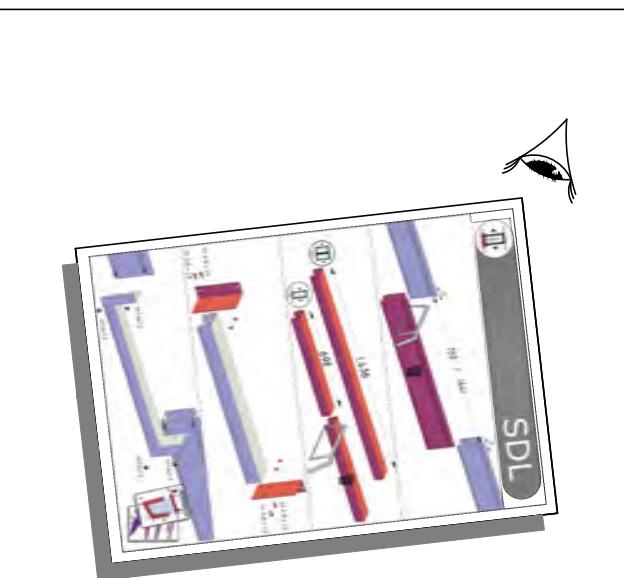


## OPTION: **SD** (sliding door)

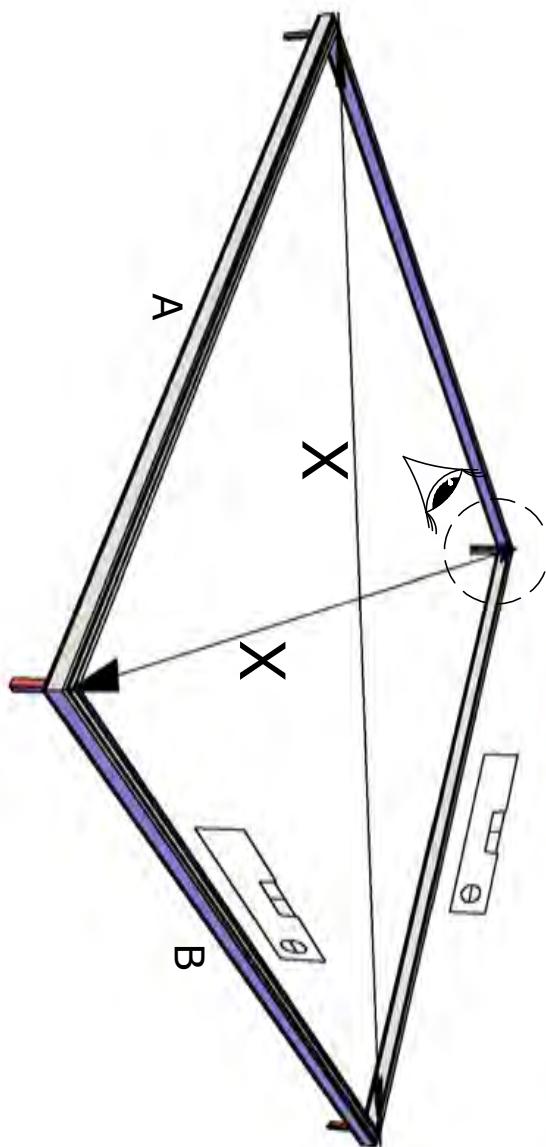


PRO1456

## OPTION: **SDL** (low threshold)

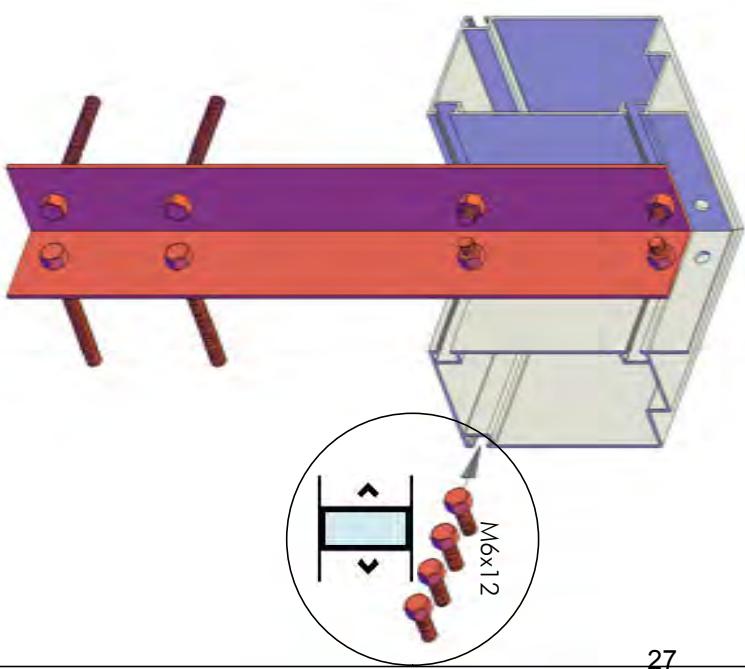
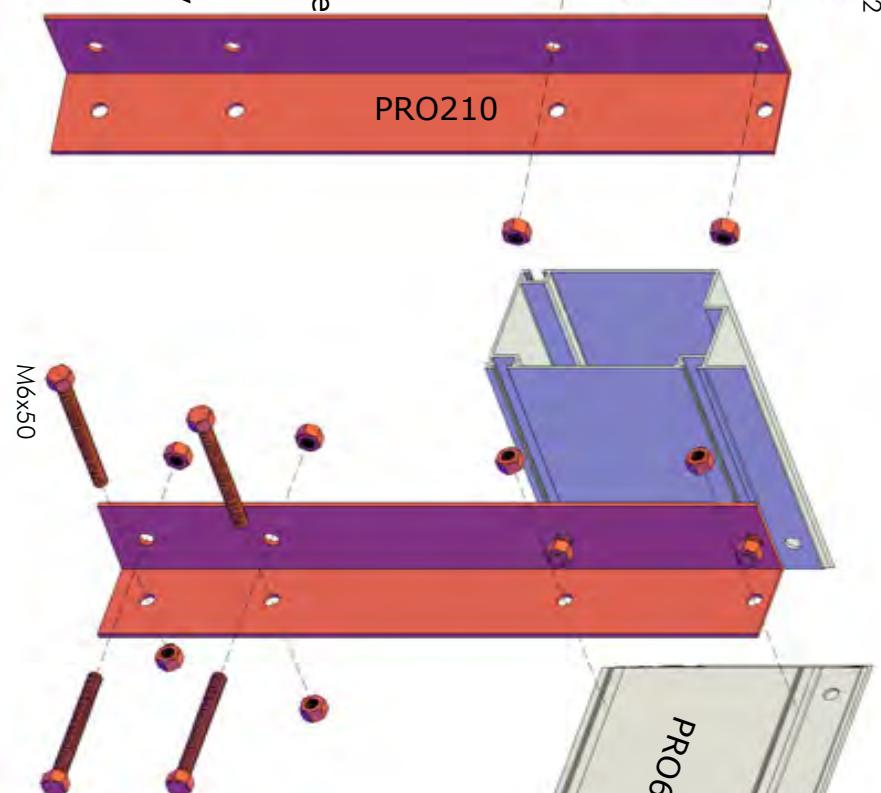


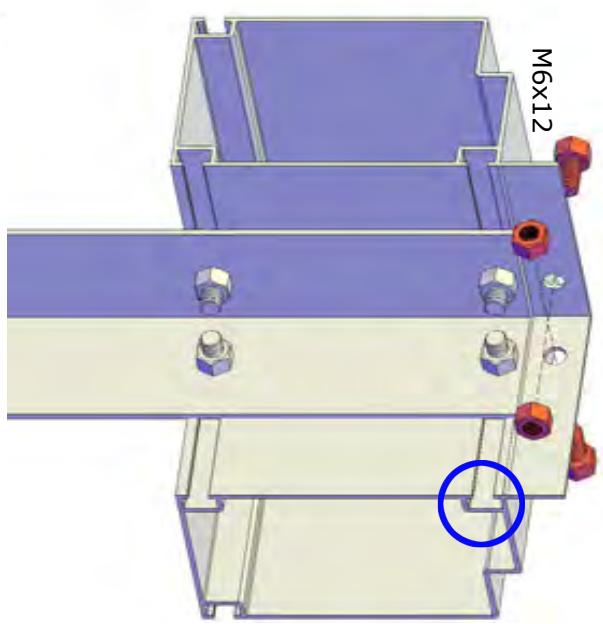
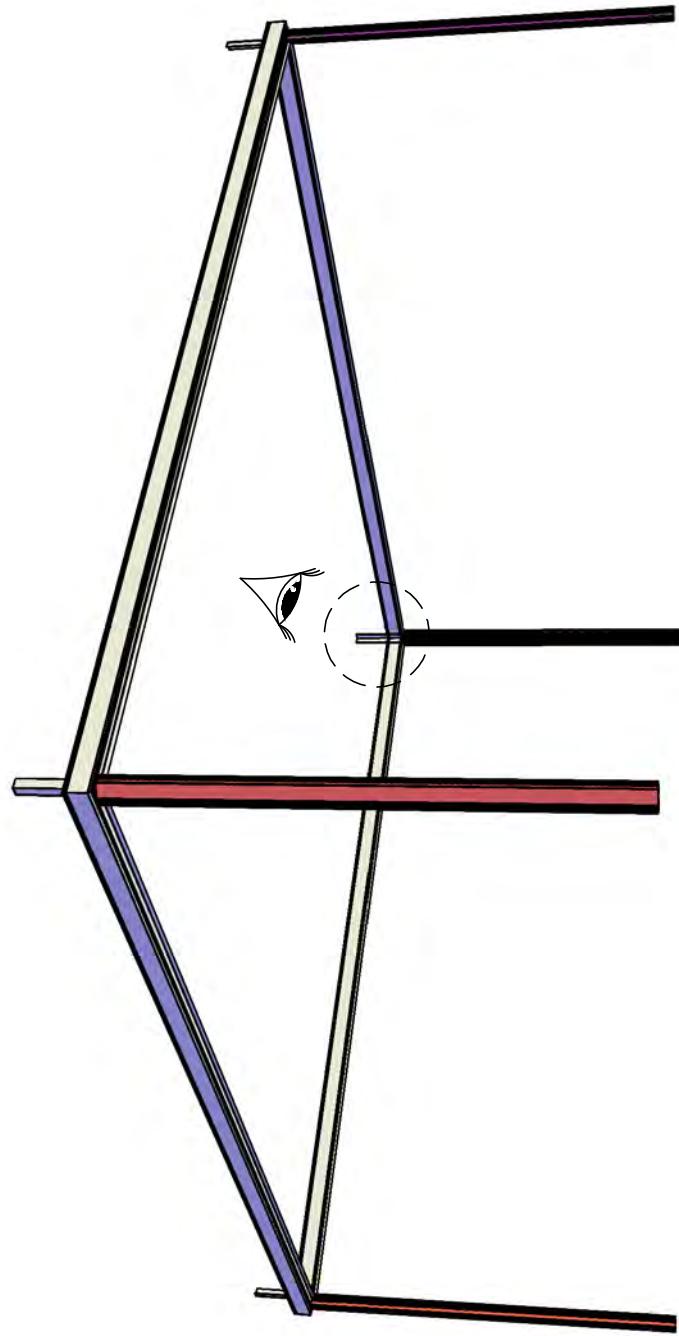
703 / 144



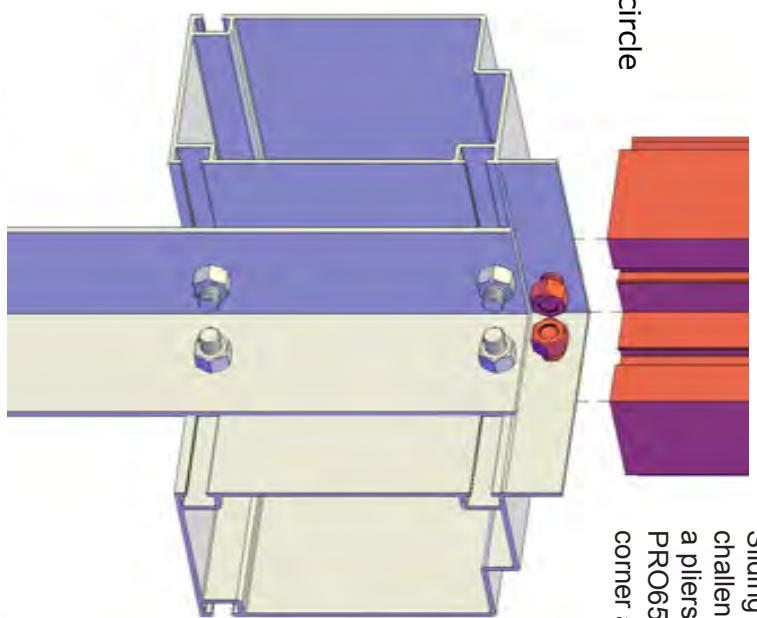
If the foundation frames are cut for the door opening, make sure "C" & "D" is correct before squaring the foundation.

Use cut section to brace sides during assembly  
- see photos

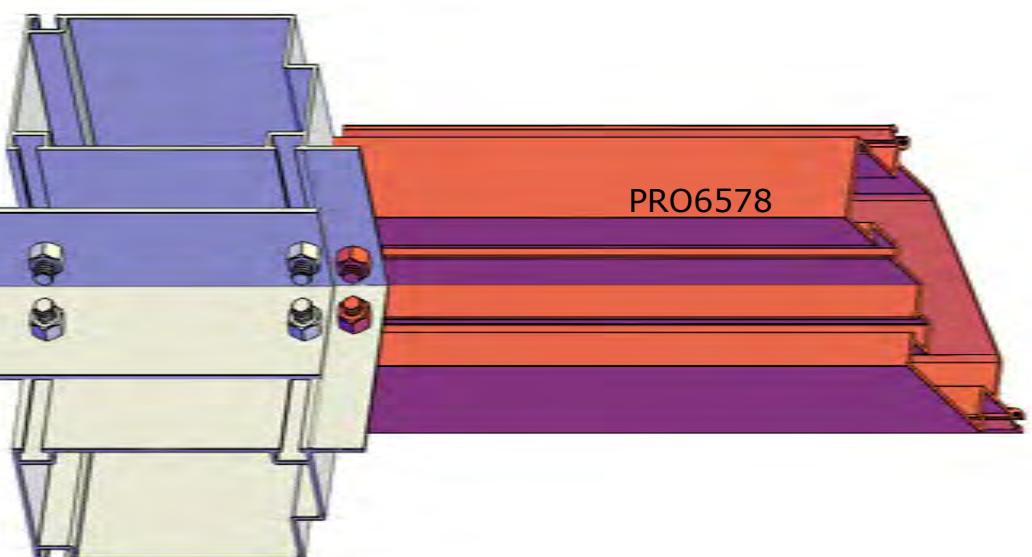




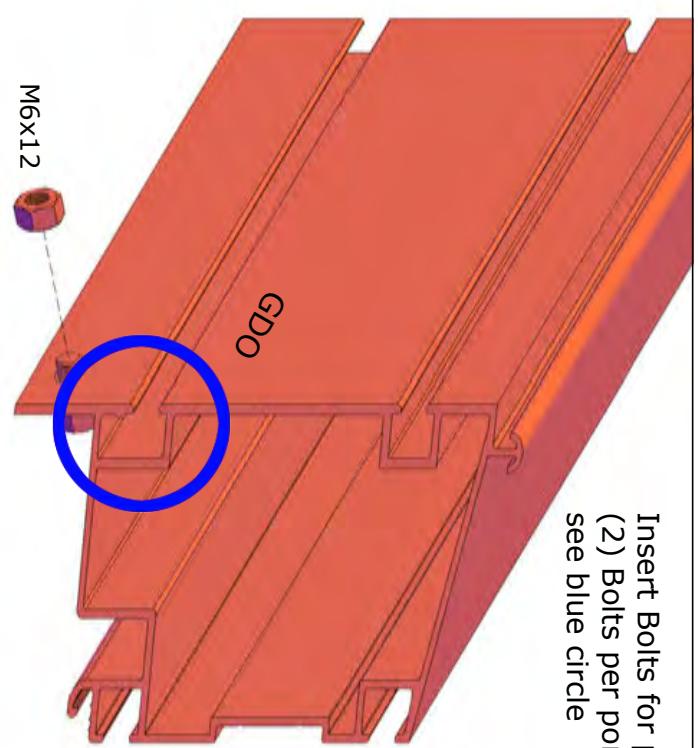
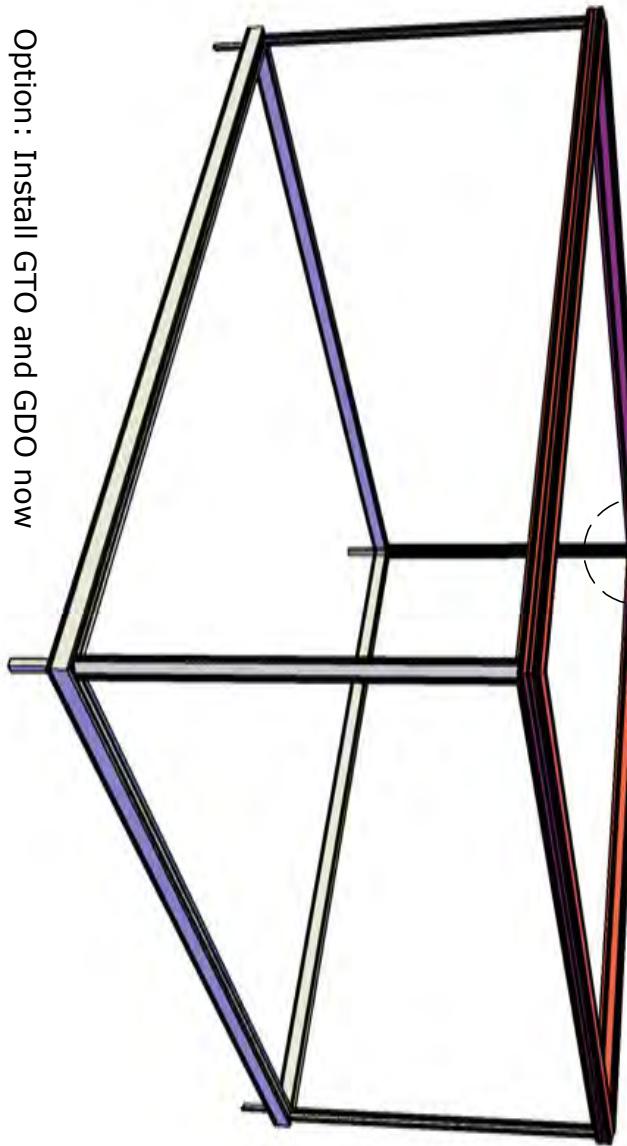
Do not tighten the corners until all the corner posts are installed.  
 Insert the bolts for portal frame brackets.  
 (2) Per Portal on the longside only. See blue circle



Sliding the corner post (PRO6578) down onto the head of the bolts can be challenging. Use two people: one hold the threaded tips of both bolts with a pliers to position the hexagonal head inline with the channels on PRO6578. It may help to loosen the nuts holding the corner anchor to allow for a little bit of play.

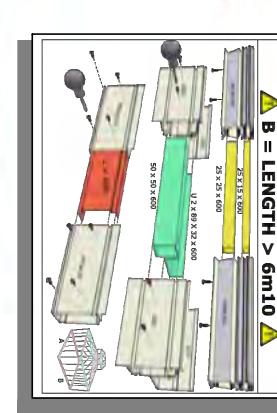
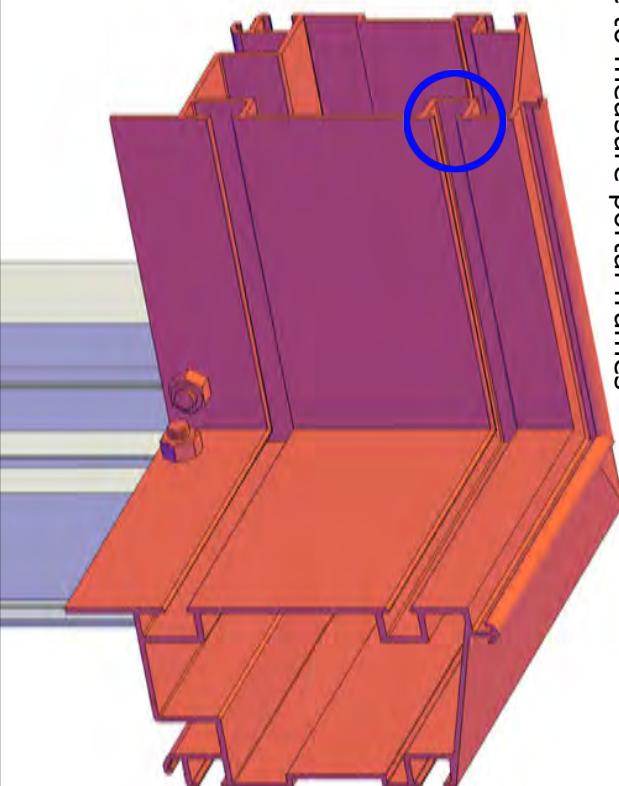


Option: Install GTO and GDO now

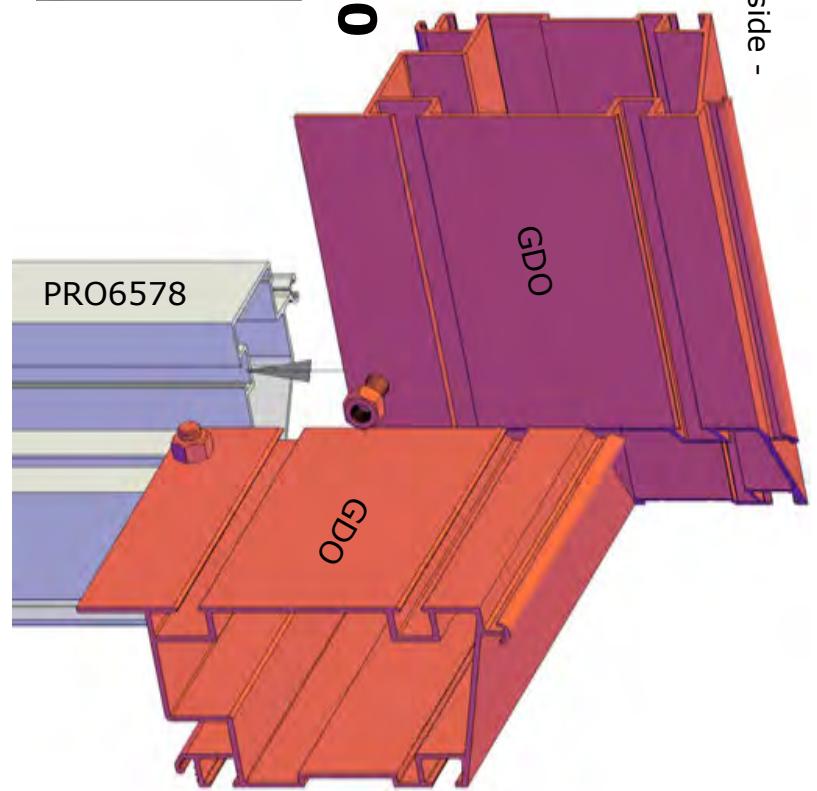


Insert Bolts for portal frame "L" Brackets  
(2) Bolts per portal frame ONLY on the longside -  
see blue circle

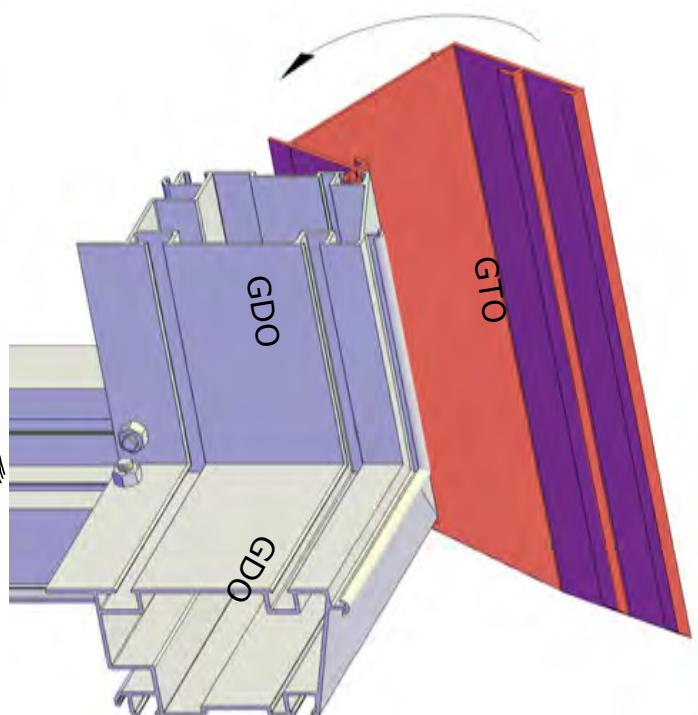
Ridge to measure portal frames



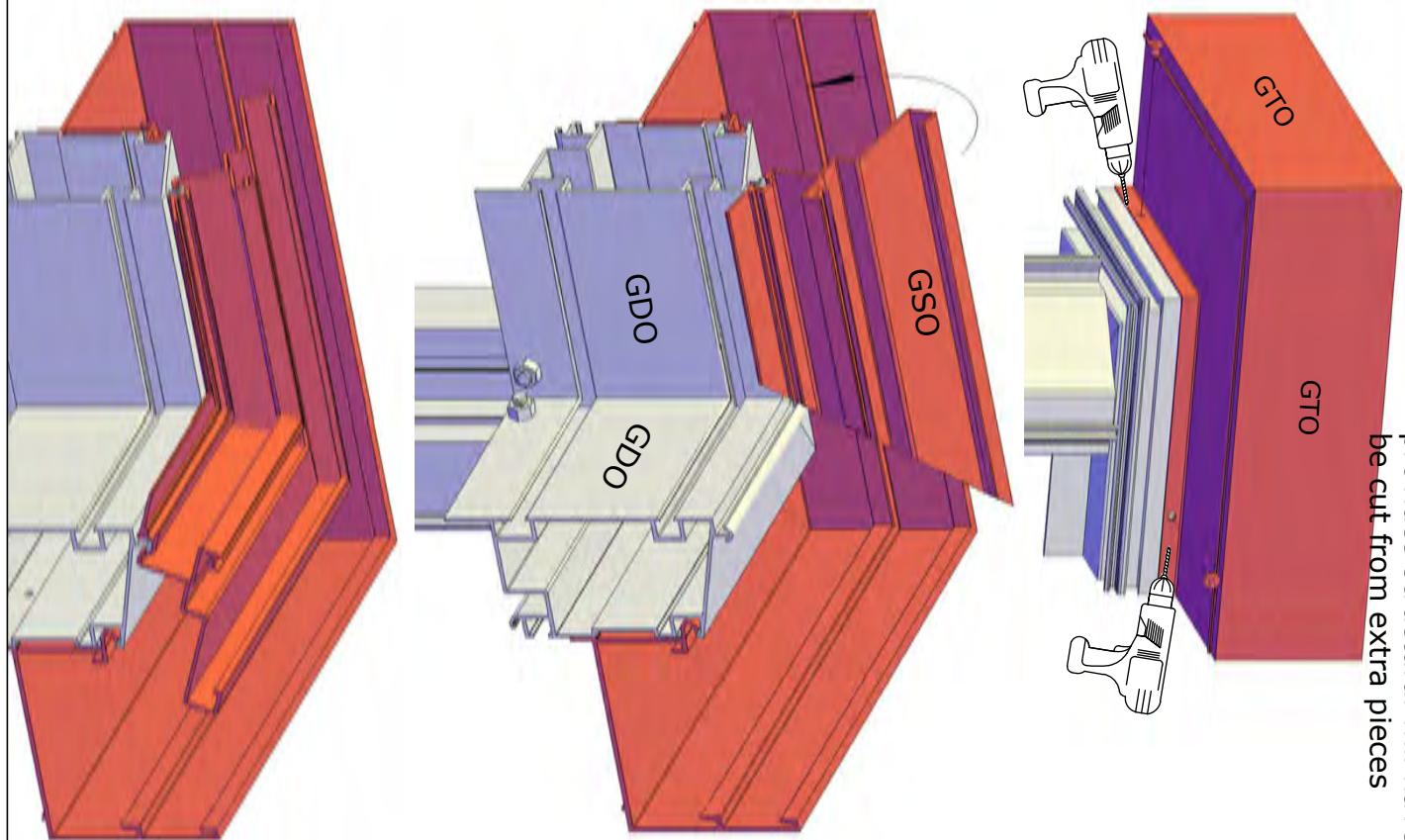
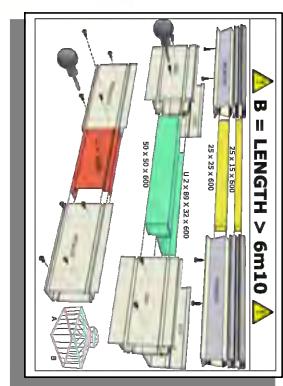
! **B > 6m10**



When structure is complete, add cover bracket to GTO outside miter

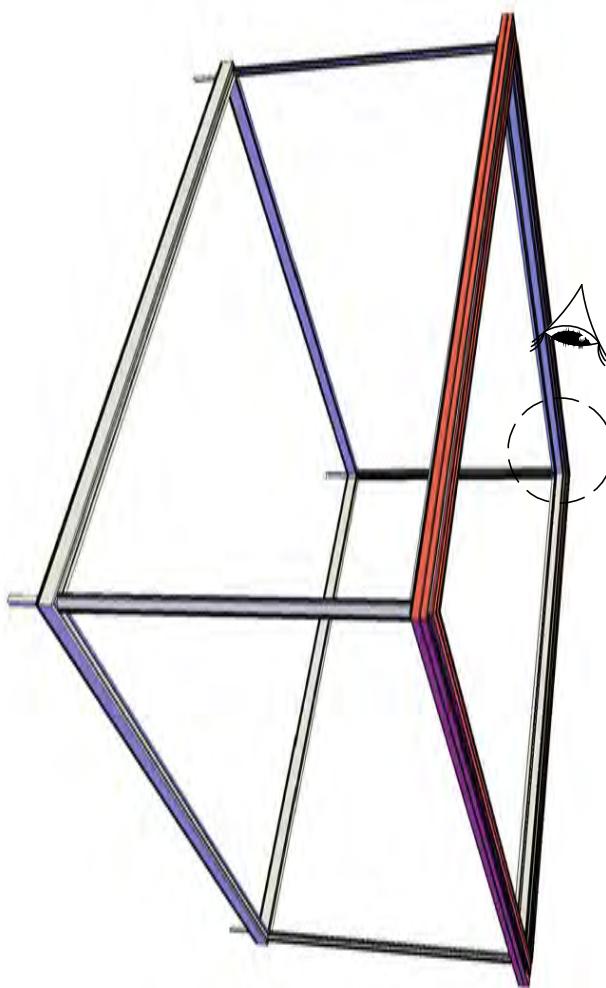


⚠ **B > 6m10**

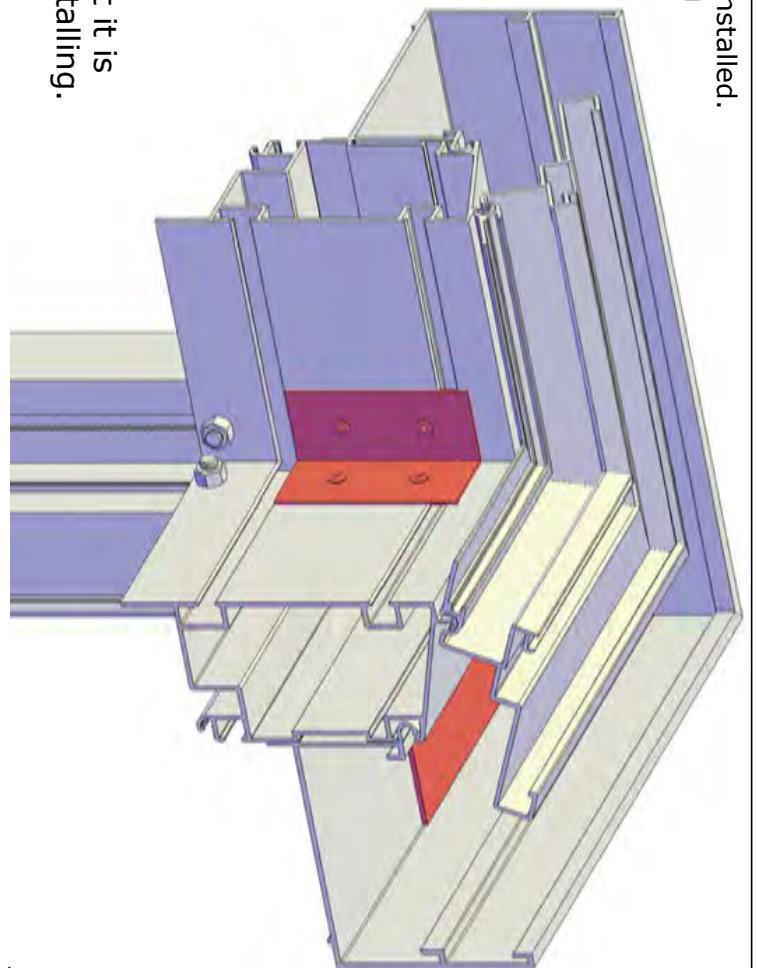
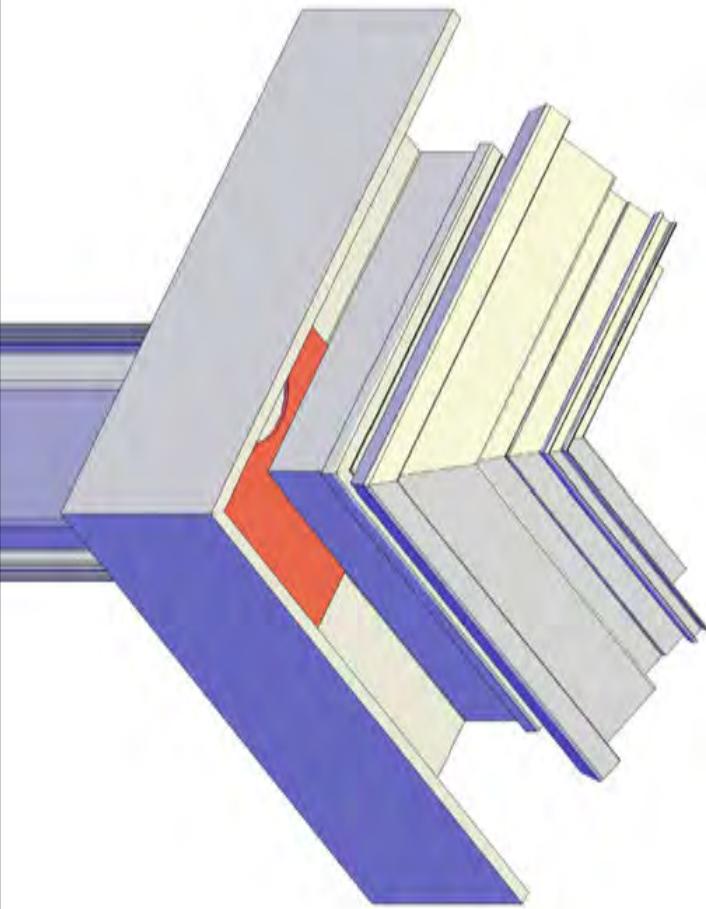
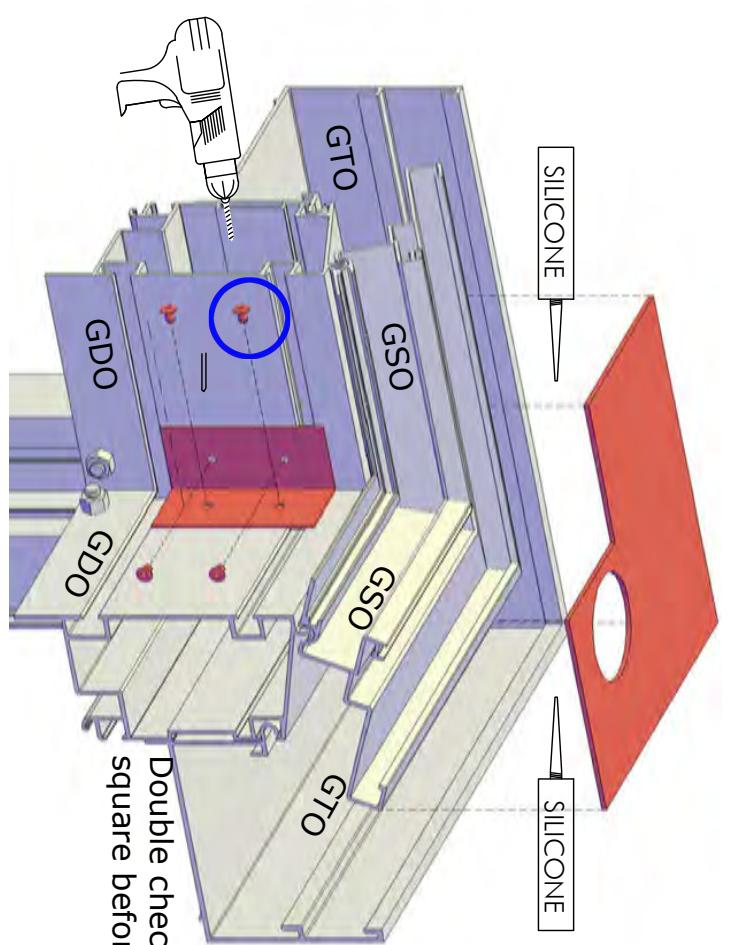


This closes the gap and provides structural will have to be cut from extra pieces

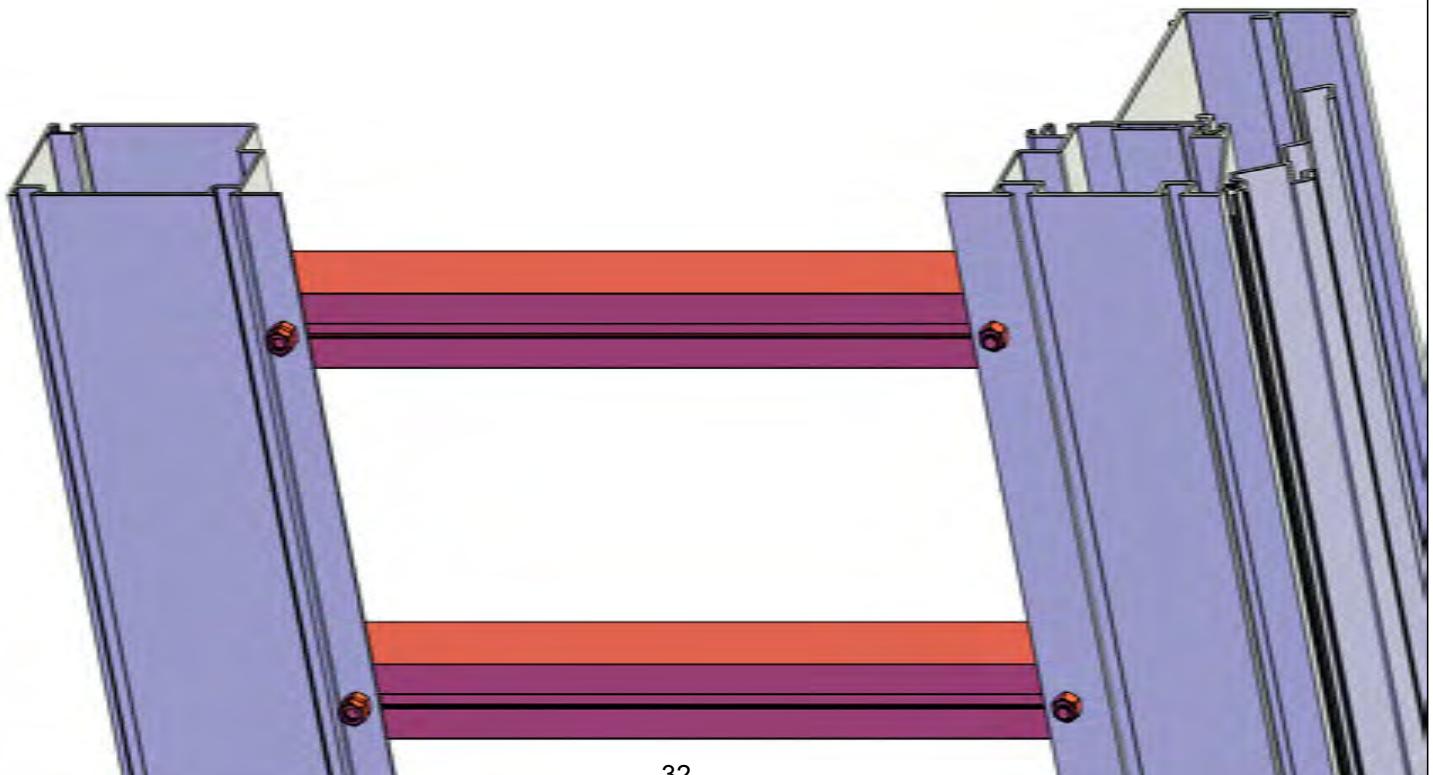
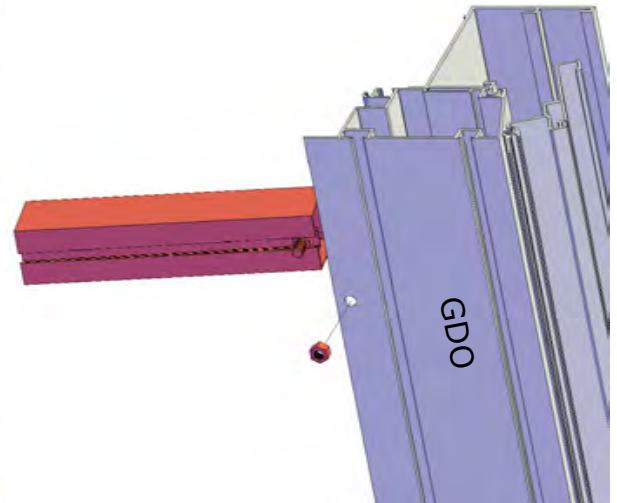
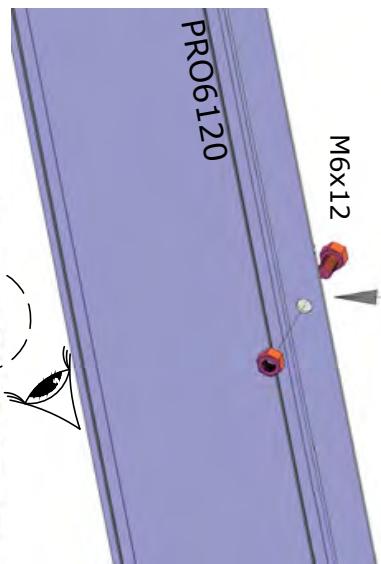
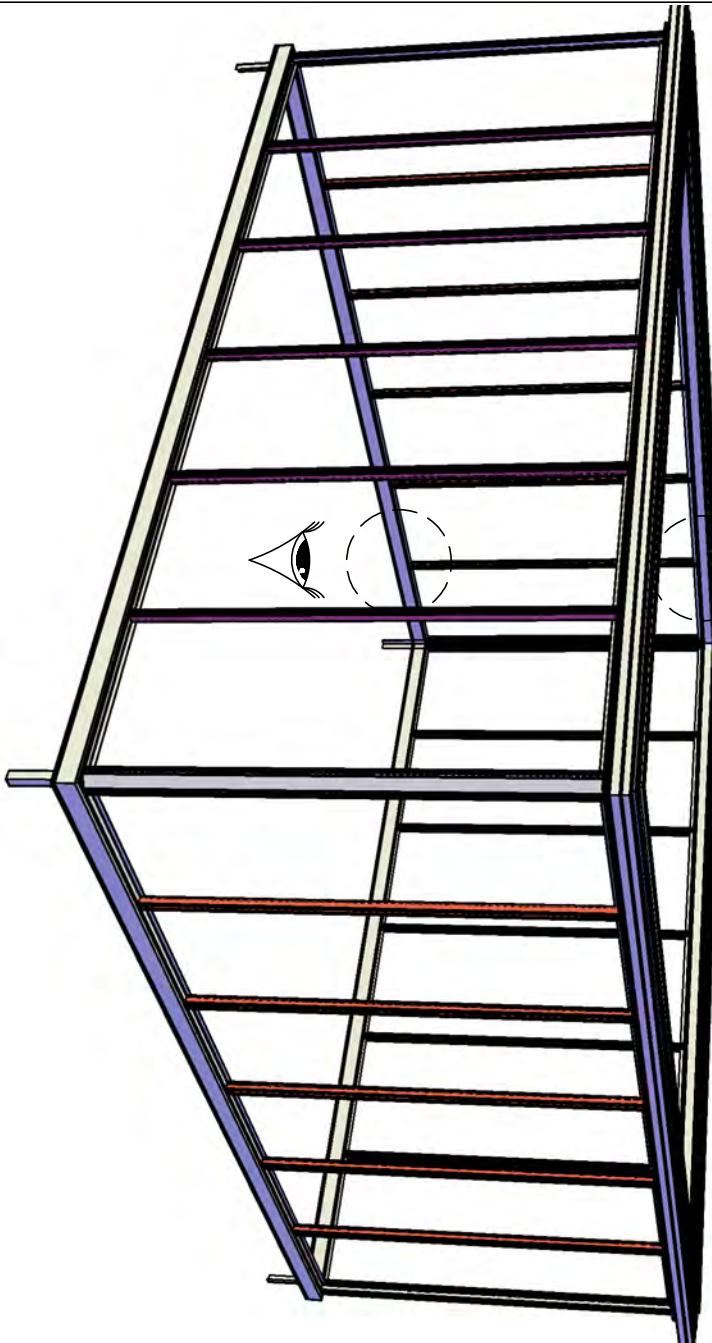
The corner connection plate w/ downspout hole will be easier to install before GSO is installed. Rotate at an angle starting from the inside. Apply Silicone to the plate at every mating surface.



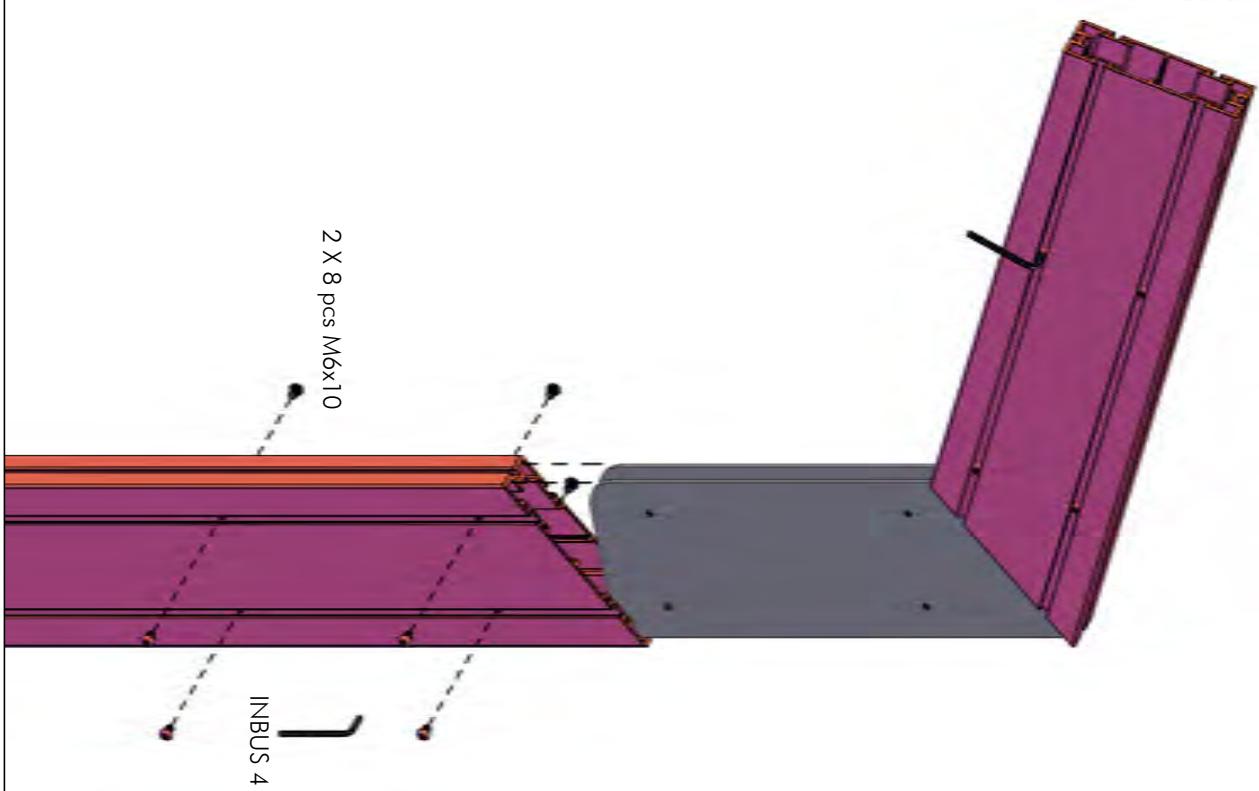
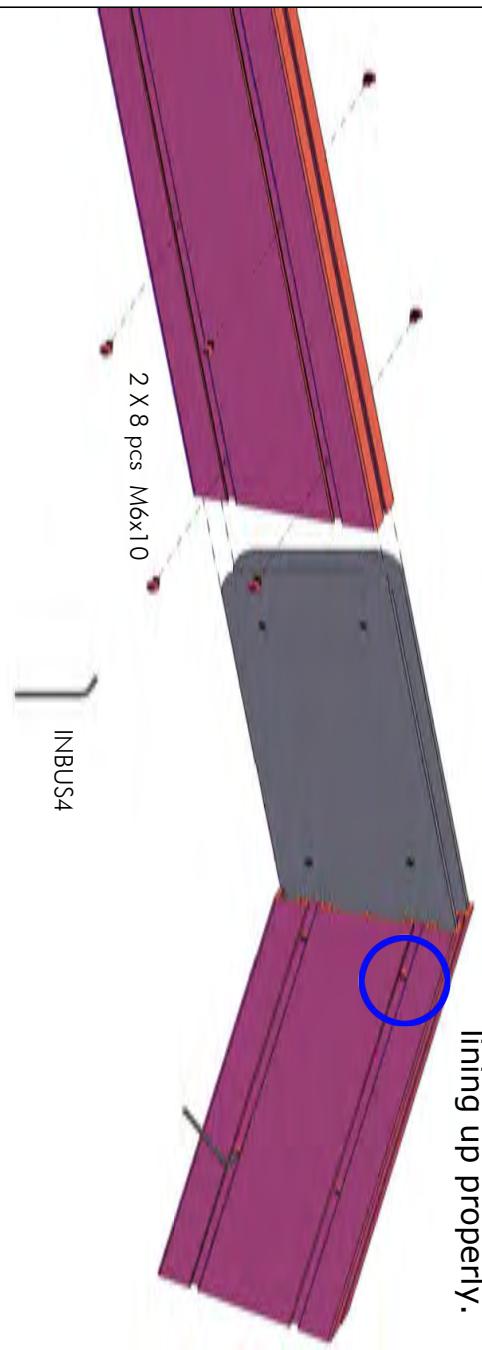
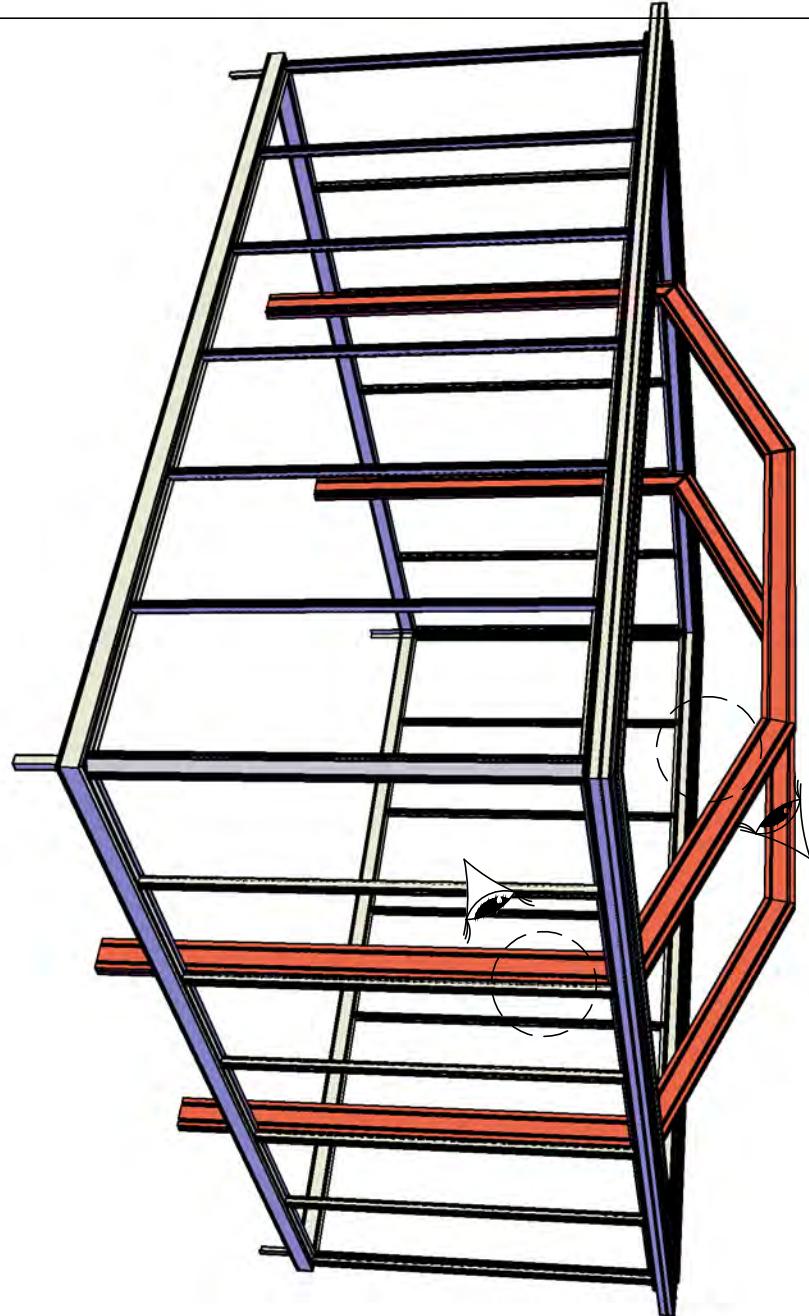
Rivets are preferred, but self-tapping screws are a good substitute.



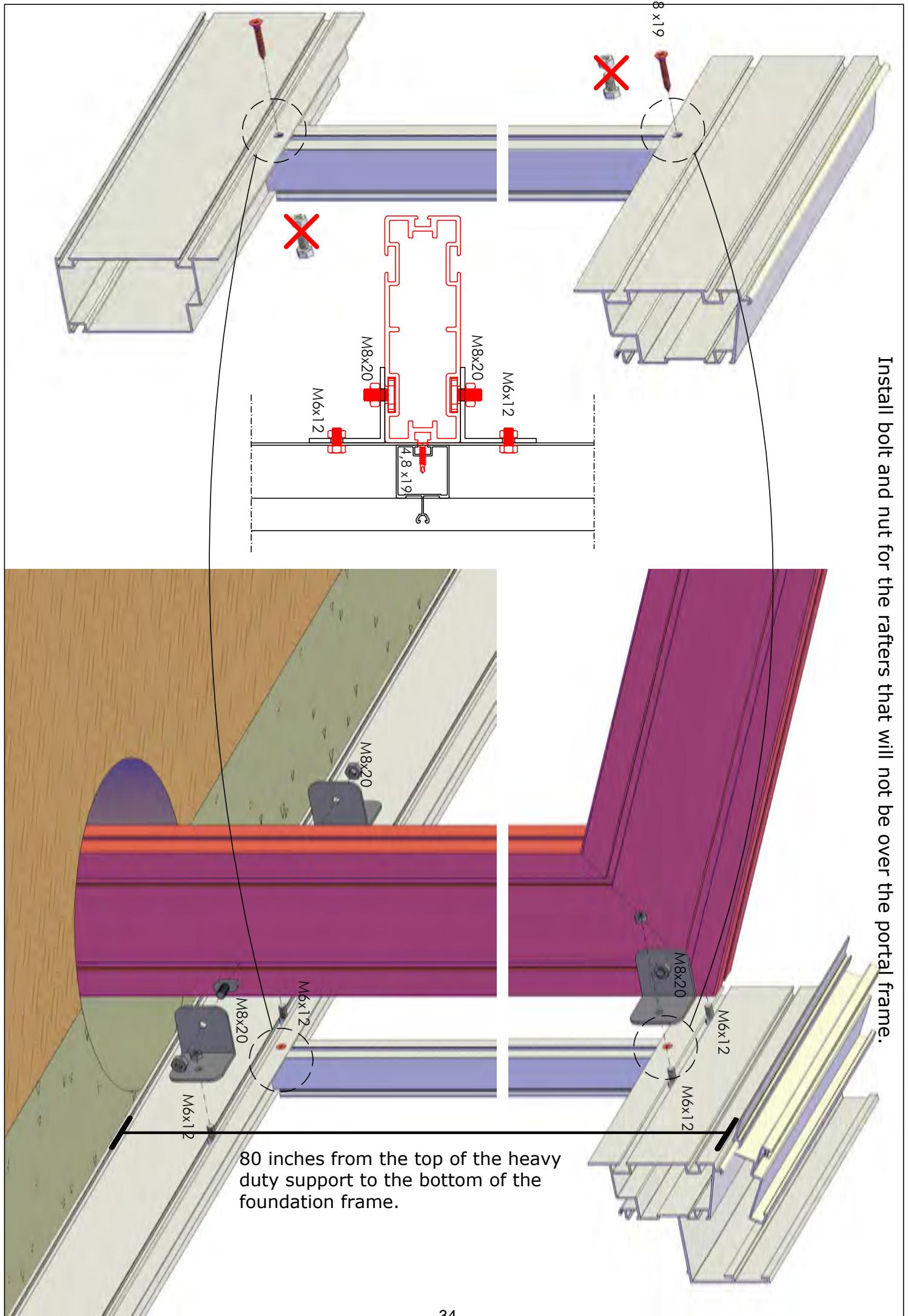
Determine the placement of pop-out/louvre widows. You will add (2) bolts in each PRO1456 for the pop-out and (4) in each PRO1456 for the louvre window(s).



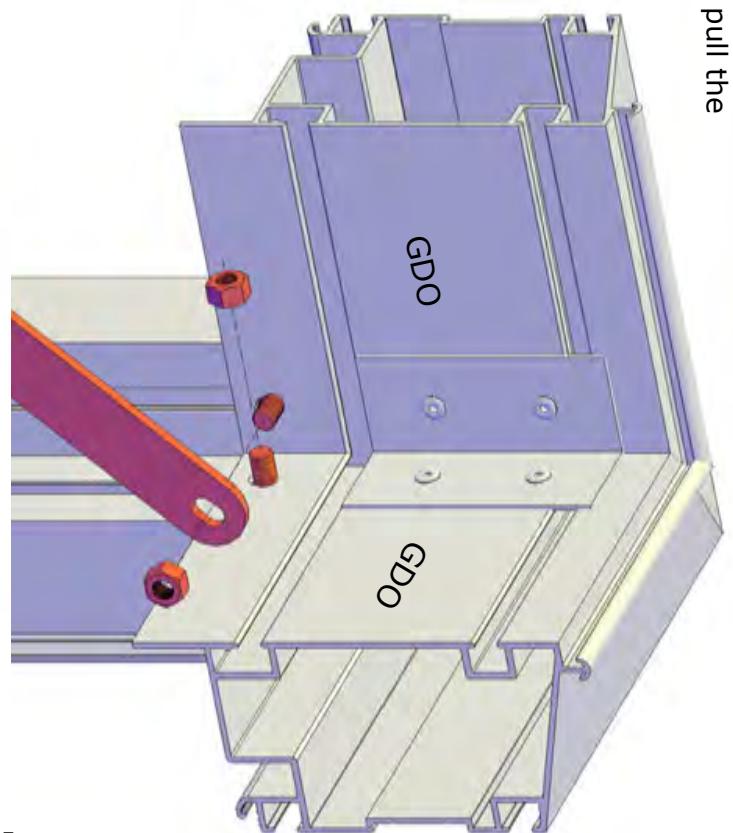
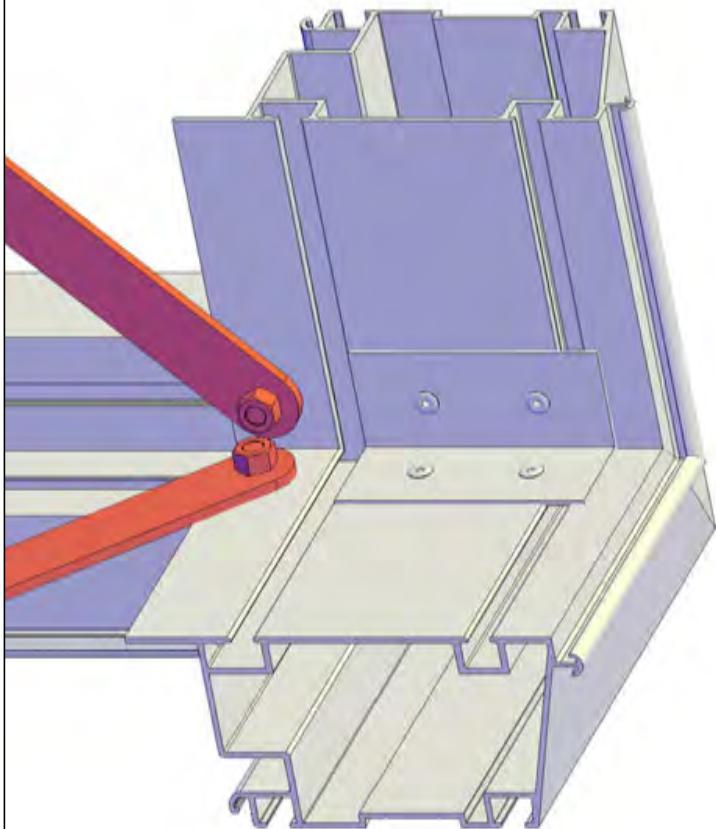
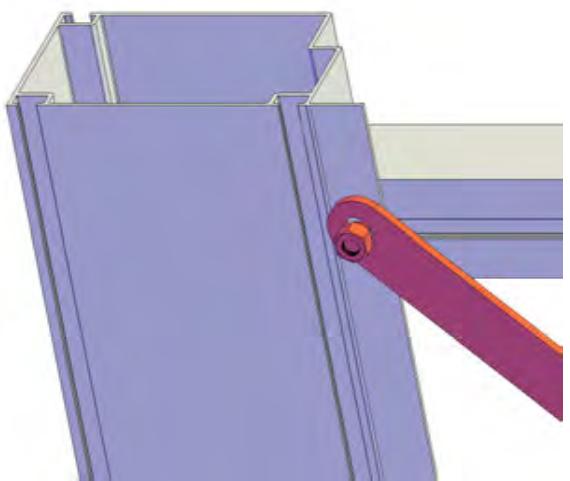
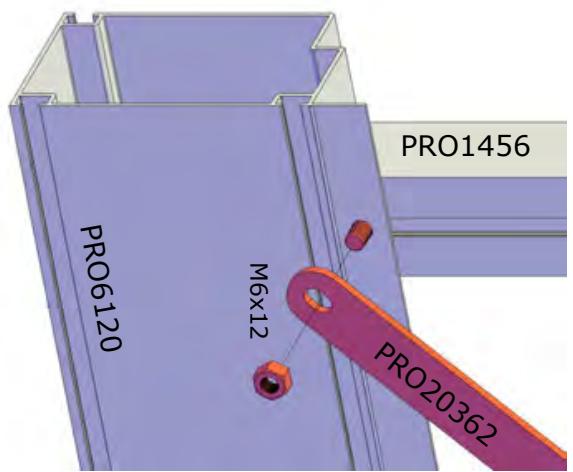
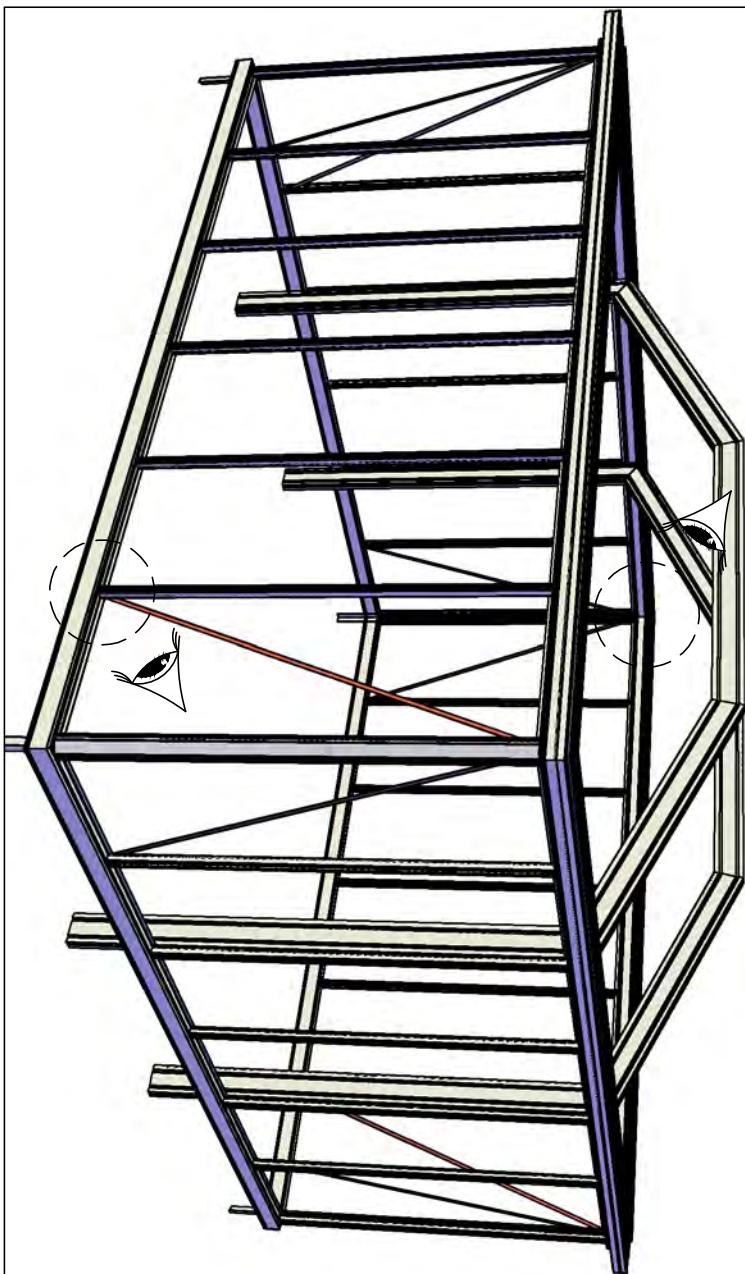
The holes on the portal frame can be slightly enlarged if they are not lining up properly.



Install bolt and nut for the rafters that will not be over the portal frame.

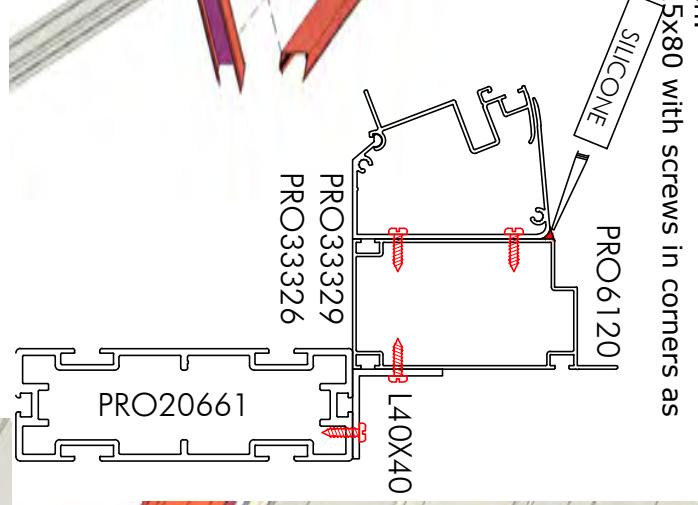
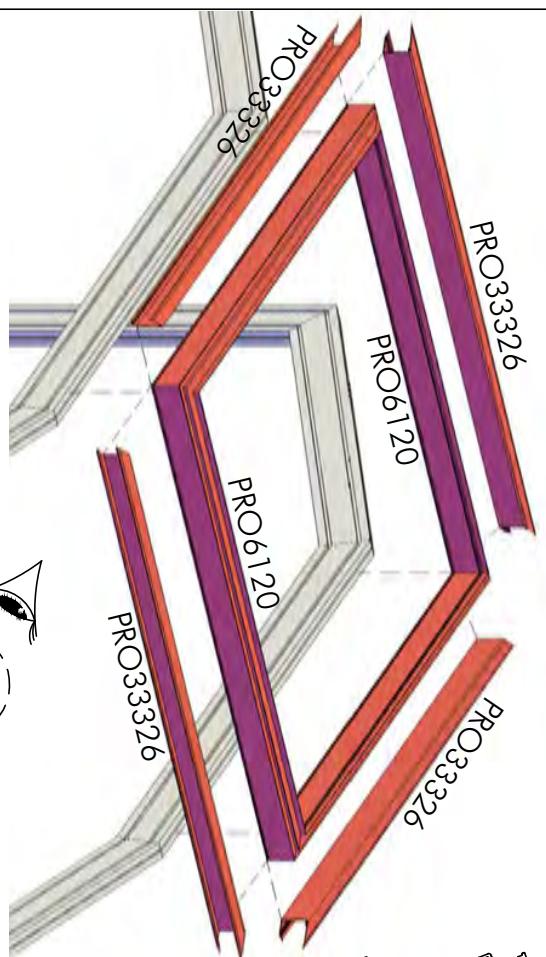


If the wind braces are slightly off, have someone on the exterior of the greenhouse push or pull the corner profile so the wind braces align.

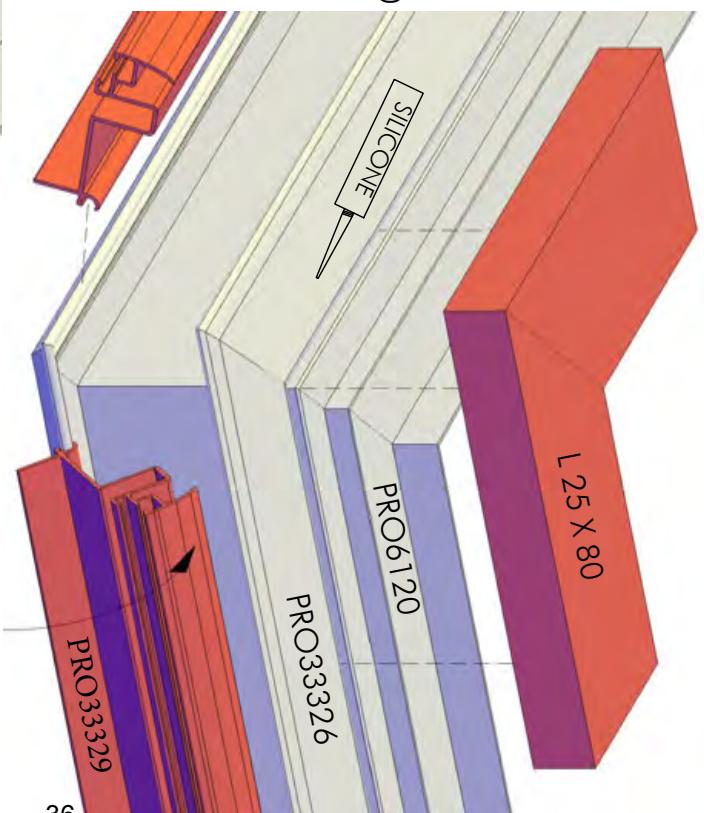
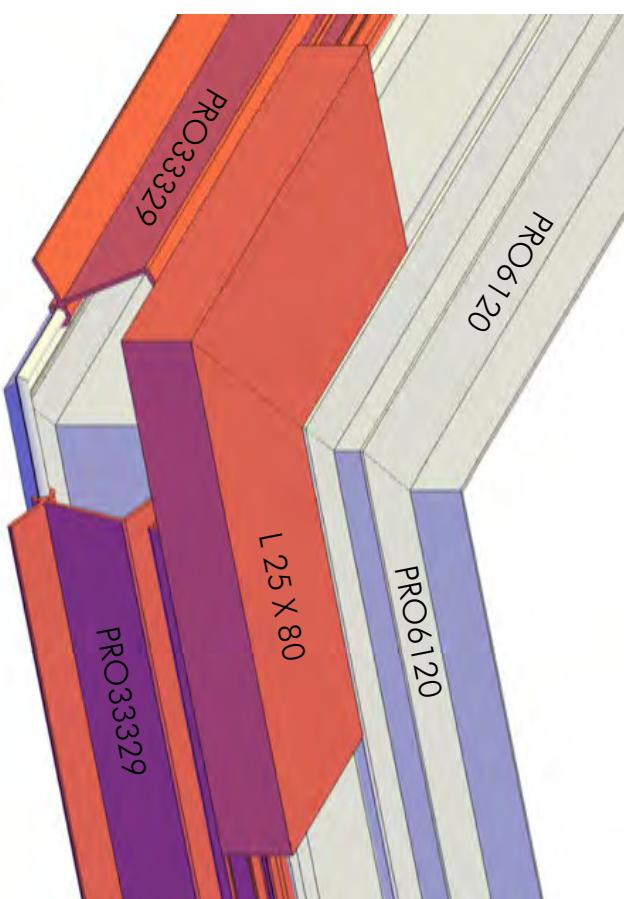


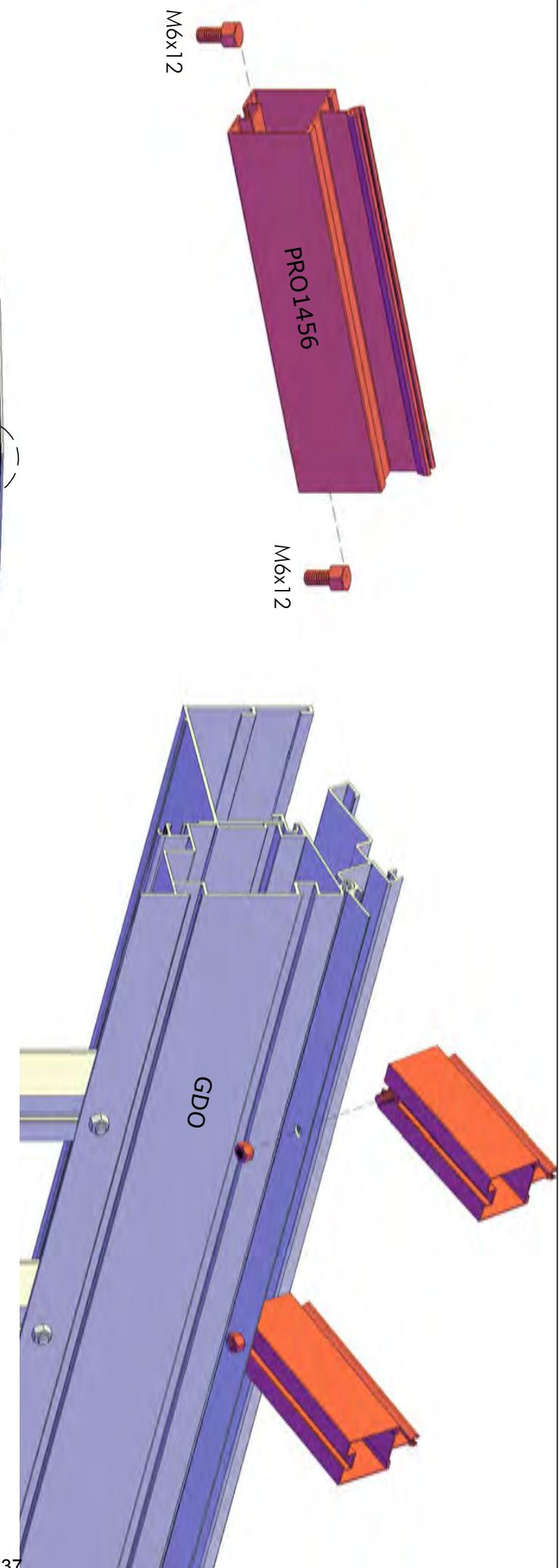
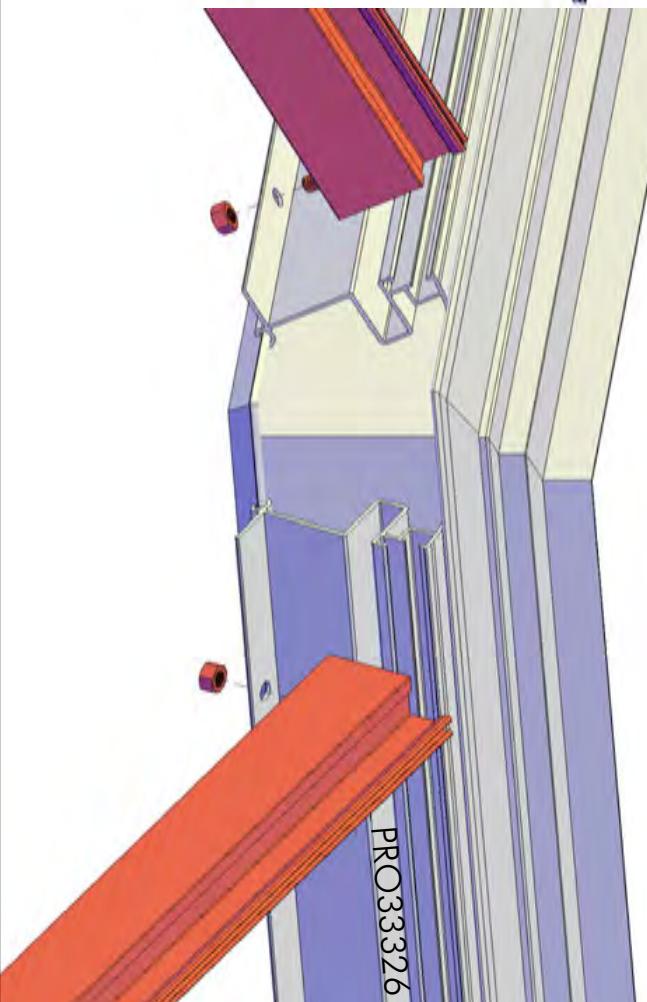
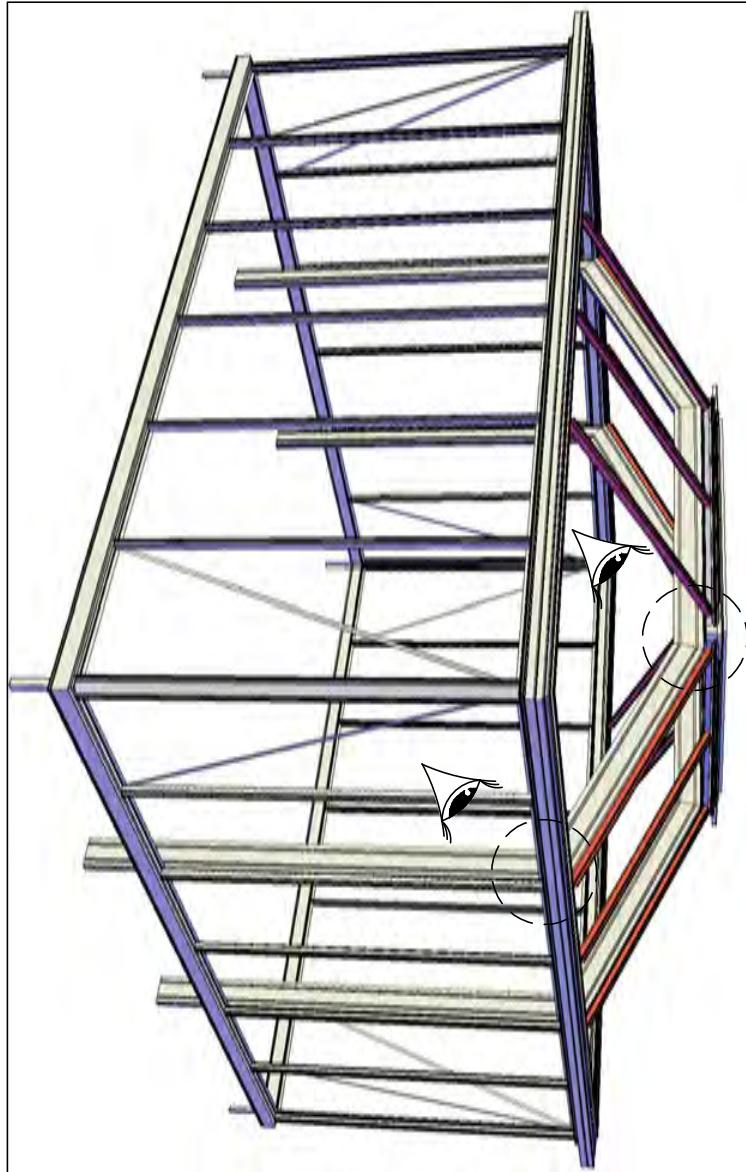
Assemble this section on flat ground. The PRO33326 is screwed into PRO6120. Use two screws vertically. (Pre-drill with 5/32nds bit and use supplied screws.) Their positions will be determined by the holes for the rafters in PRO33329. Once the PRO33326 is attached to PRO6120, apply bead of silicone to their junction. Apply silicone to PRO3326 where L25x80 contact it. Attach L25x80 with screws in corners as shown in the video.

**Do NOT attach L40x40 until structure is complete**



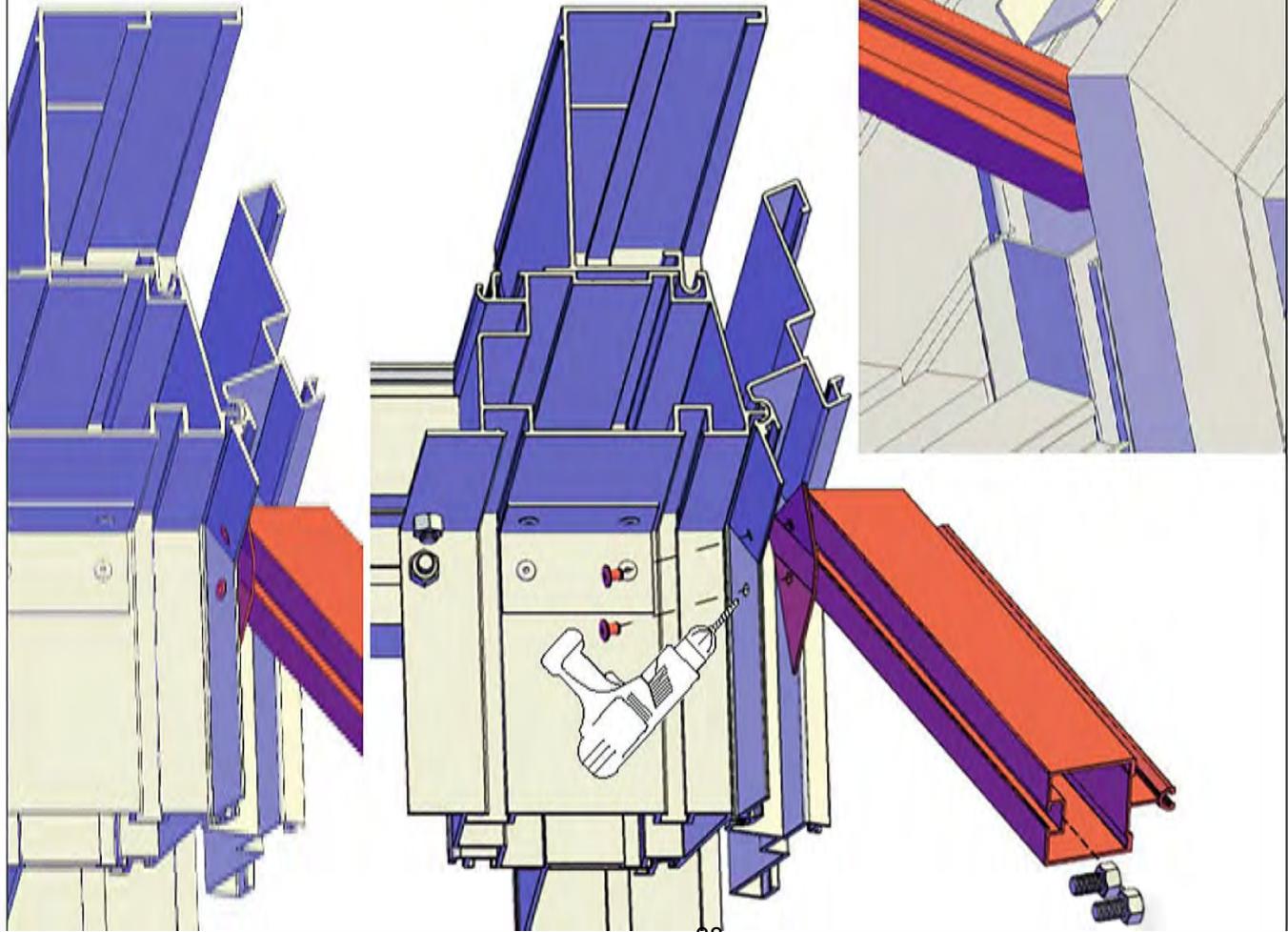
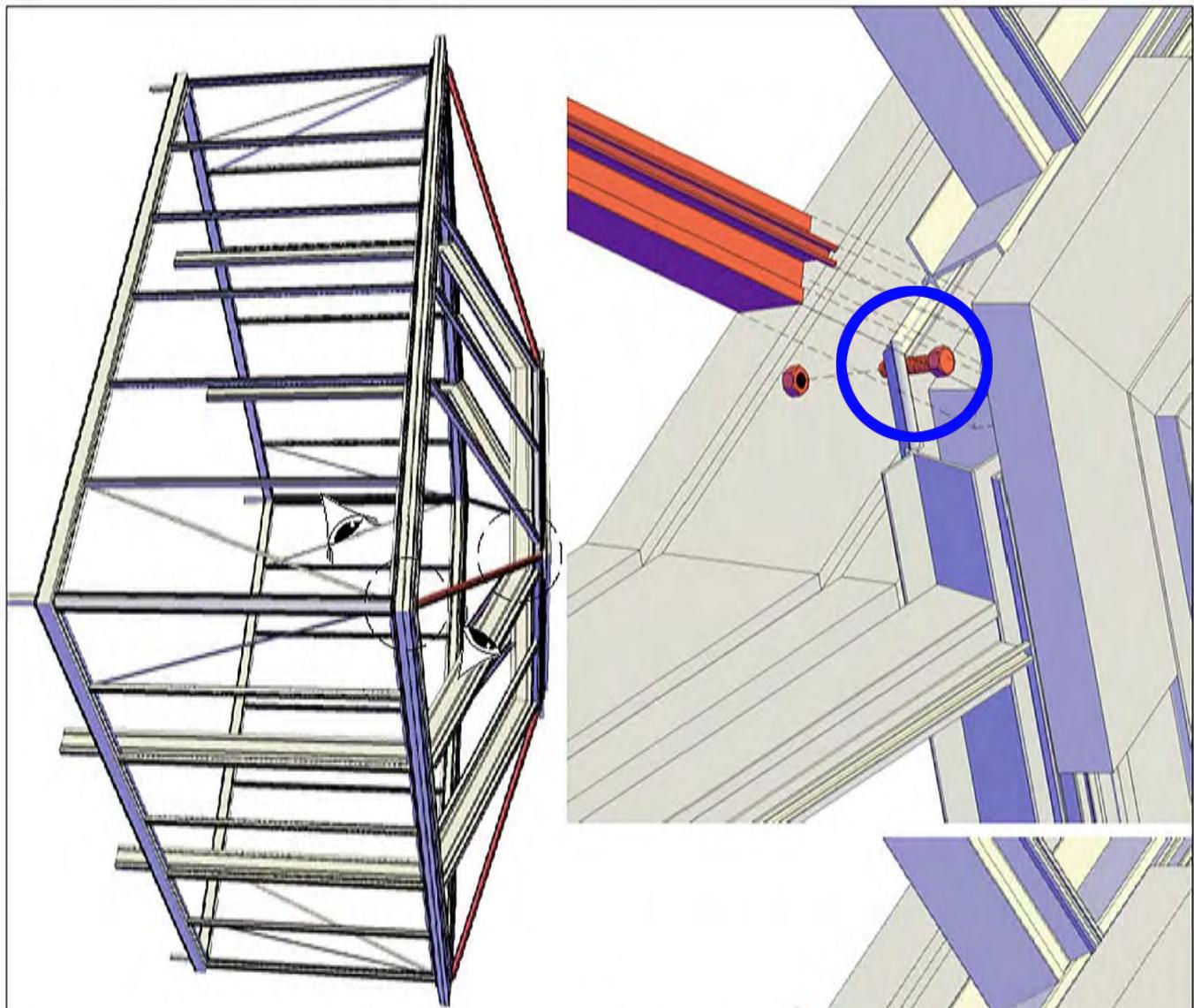
OPTIONAL: apply bead of silicone to the top of PRO33329 before assembly to create a gasket.





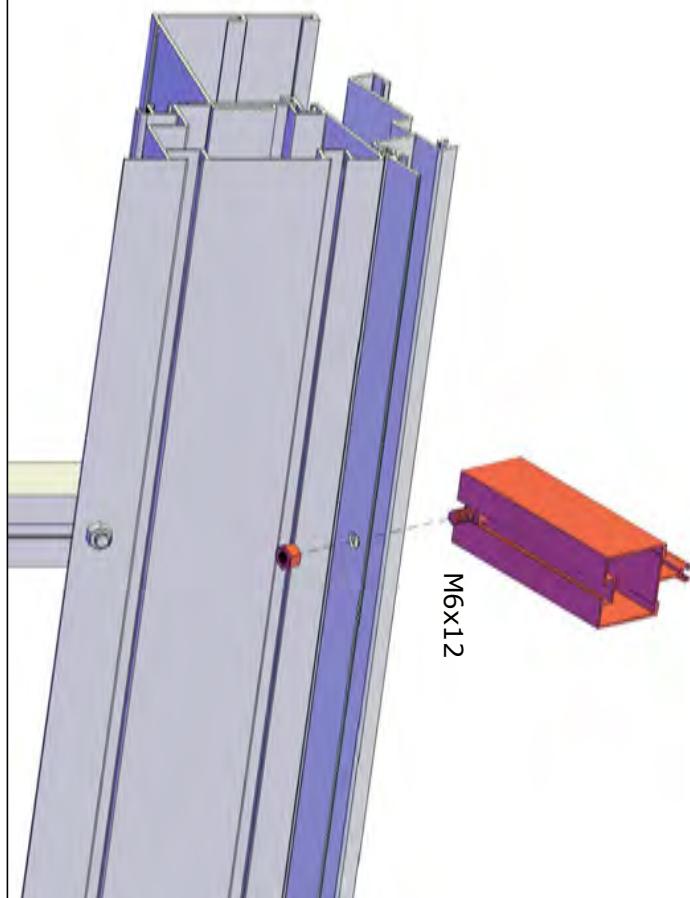
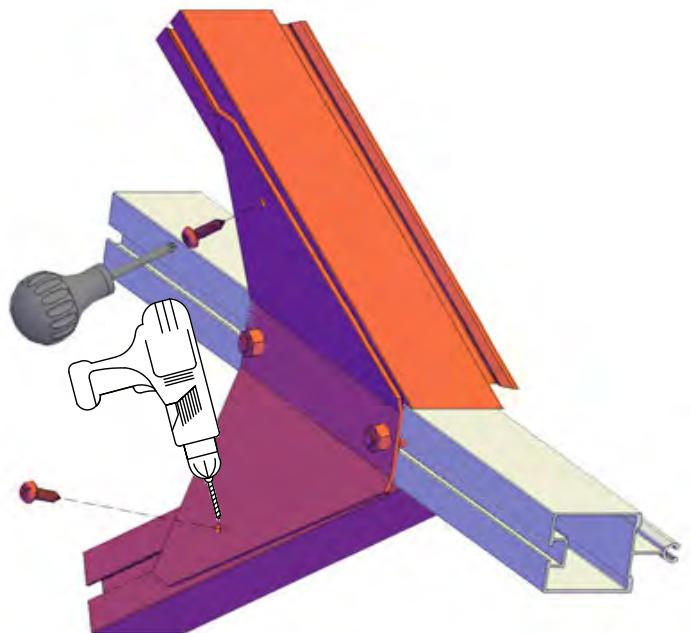
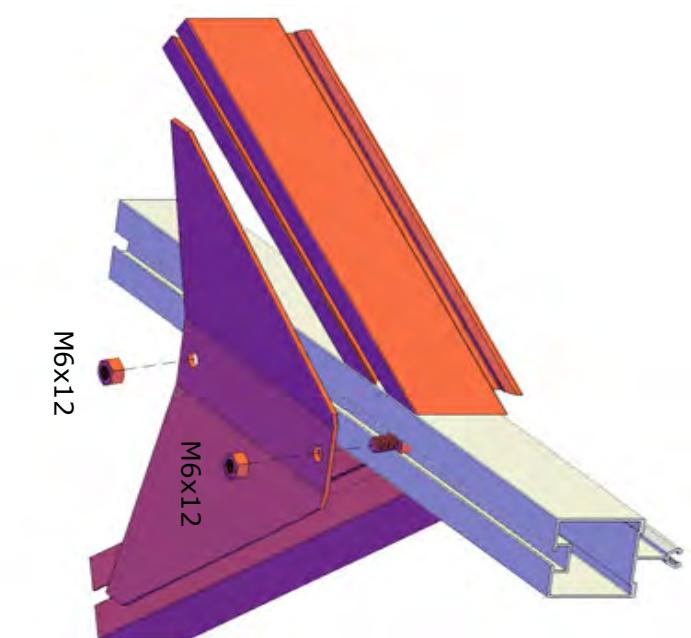
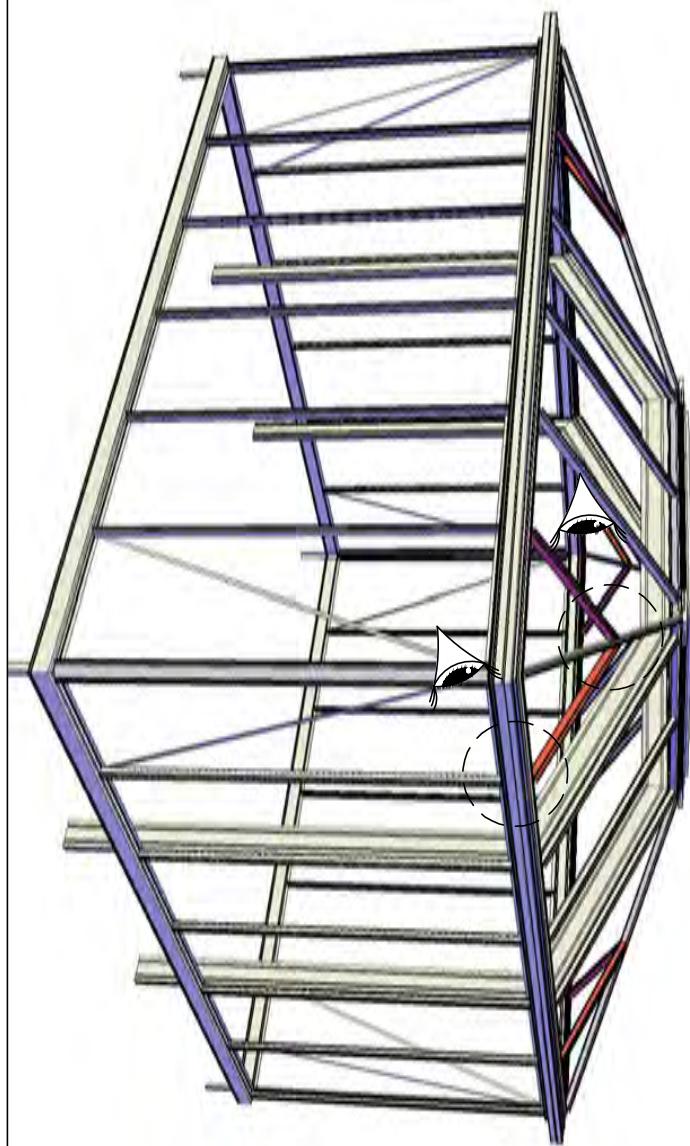
This hole may not be drilled. Drill if there is no hole.

Install the triangular bracket on the bottom of this join. Part GSO should be in between the bracket and the rafter. Rivets are preferred, but self-tapping screws can be used.

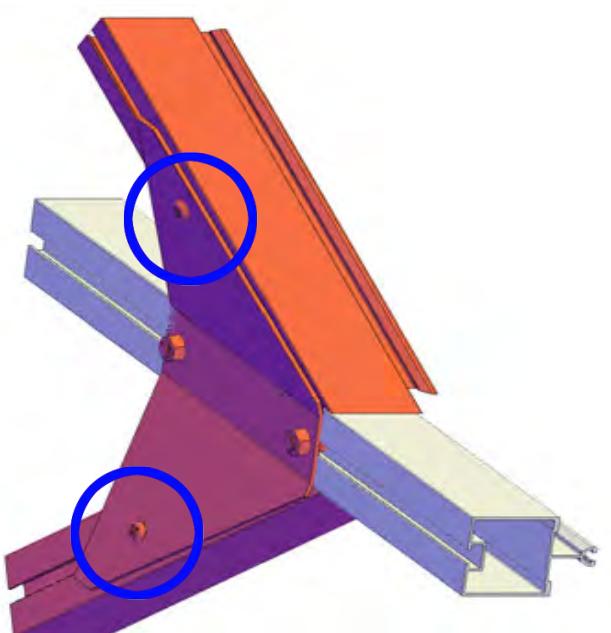


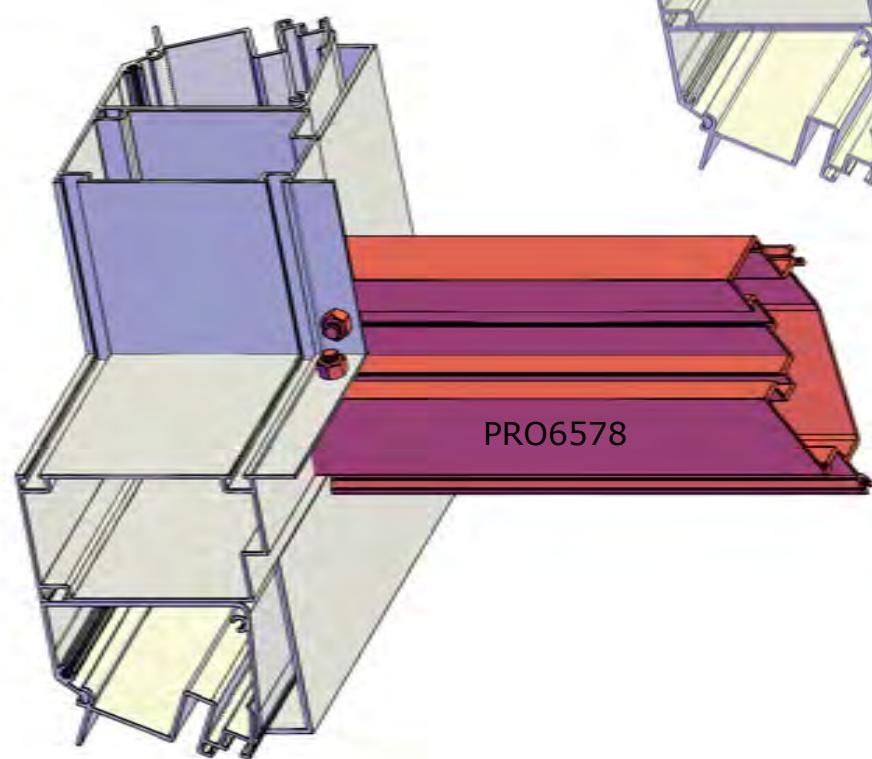
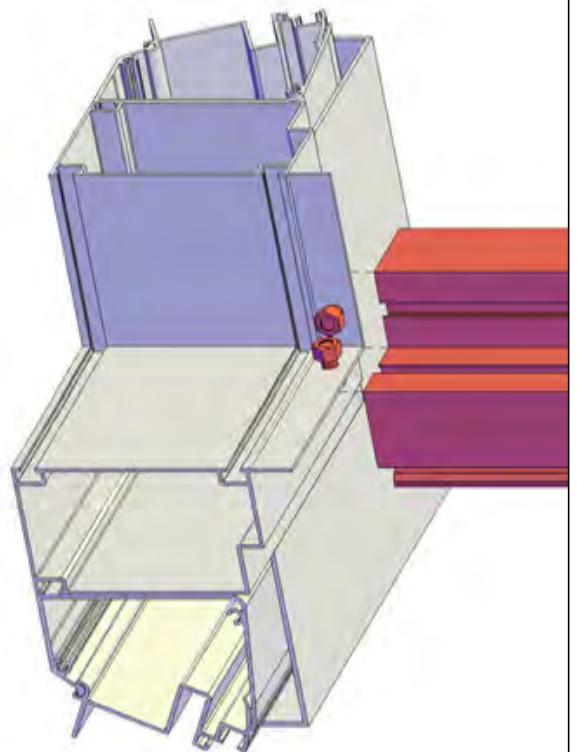
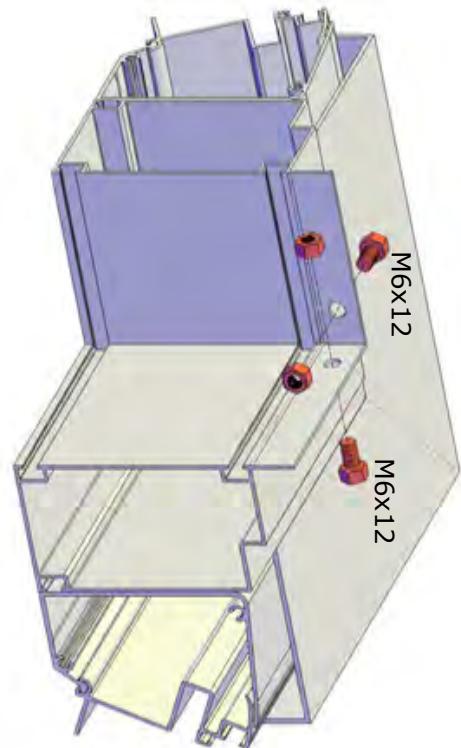
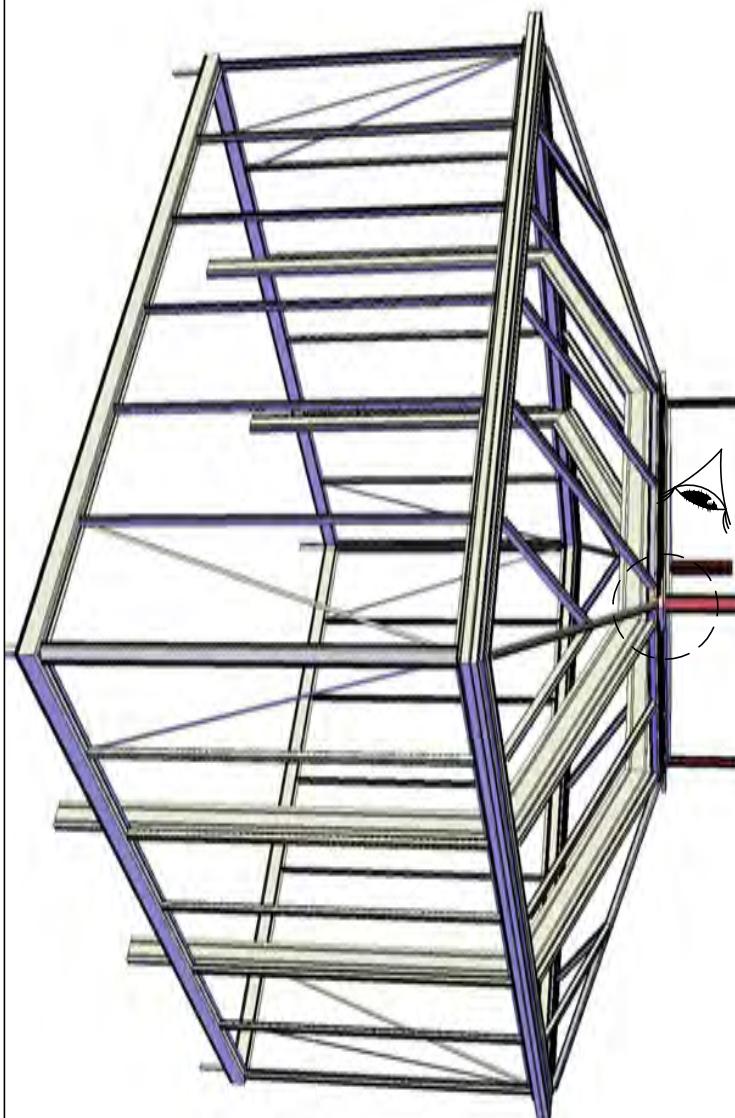
Install with nuts/bolts in the center first.

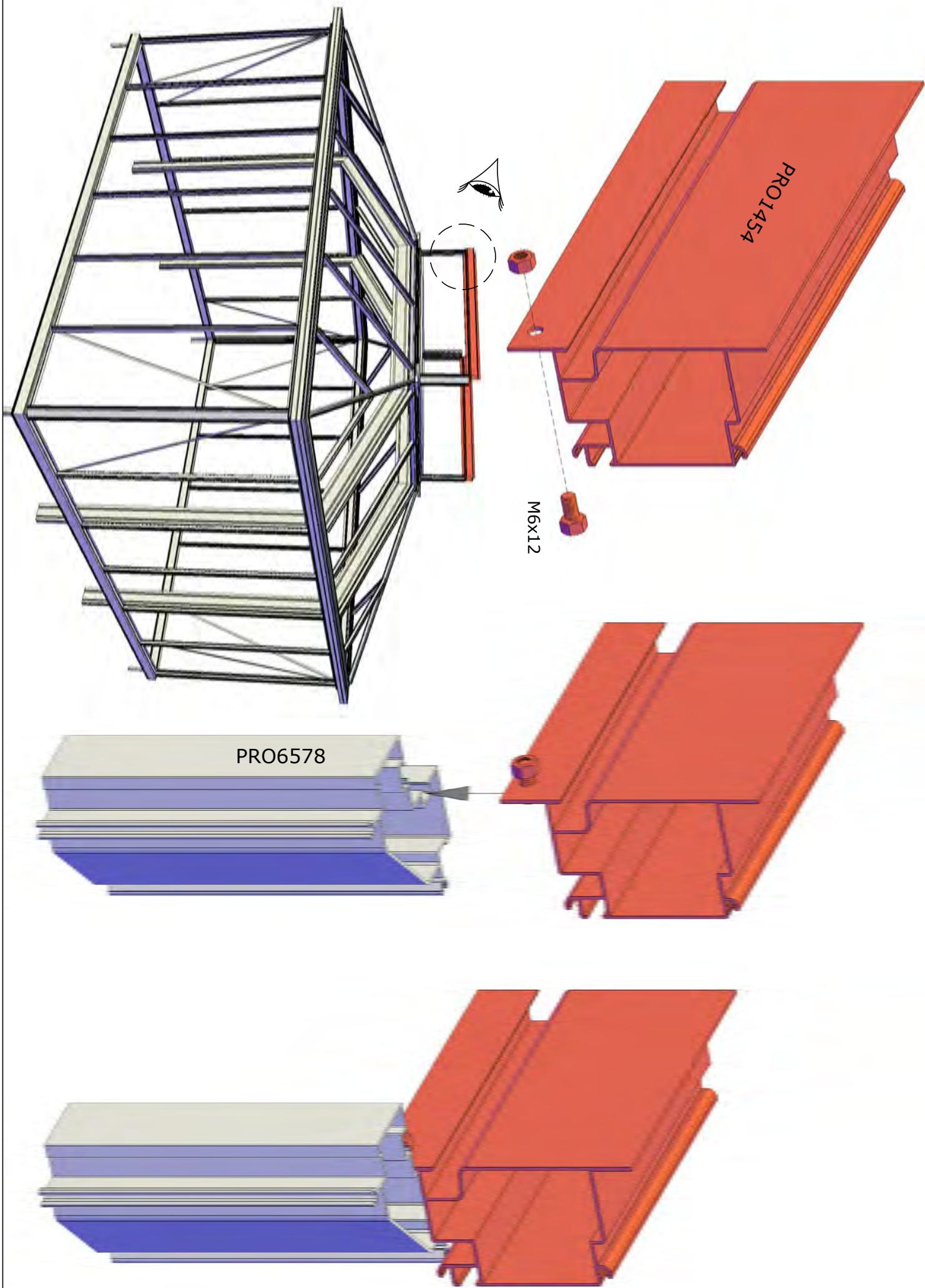
Attach flanges with screws **AFTER** glass has been installed.

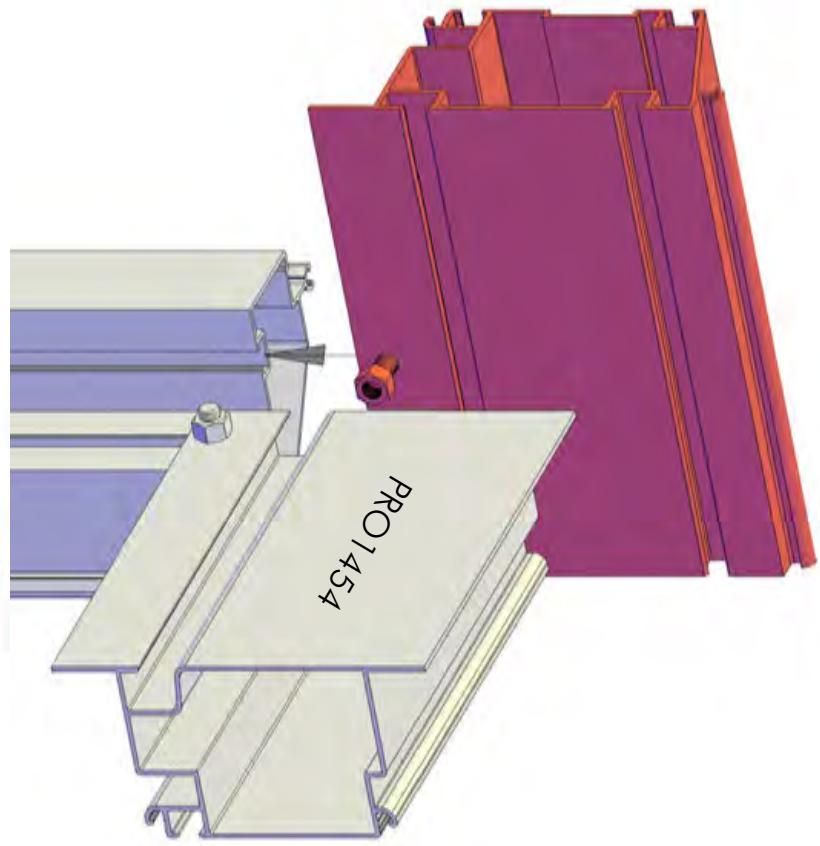
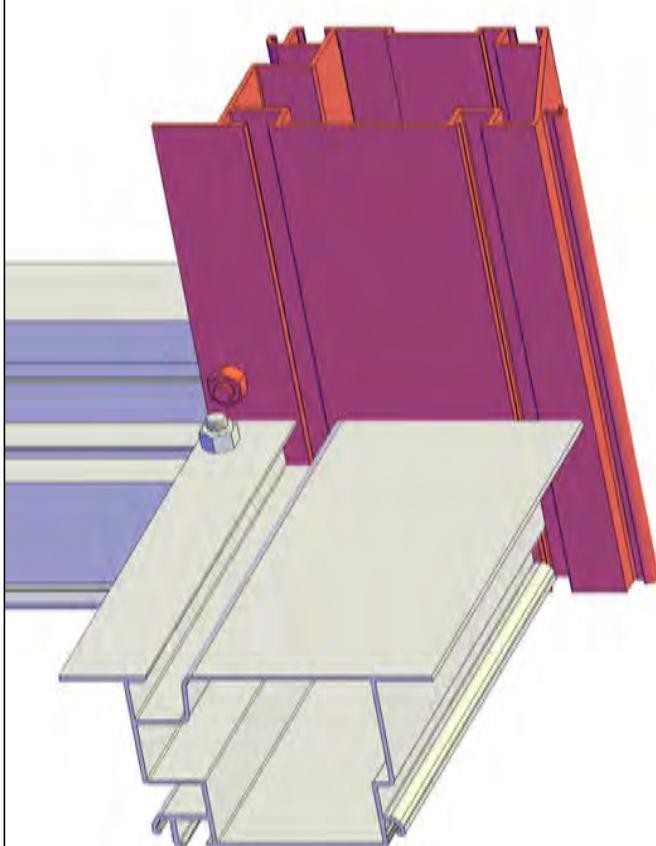
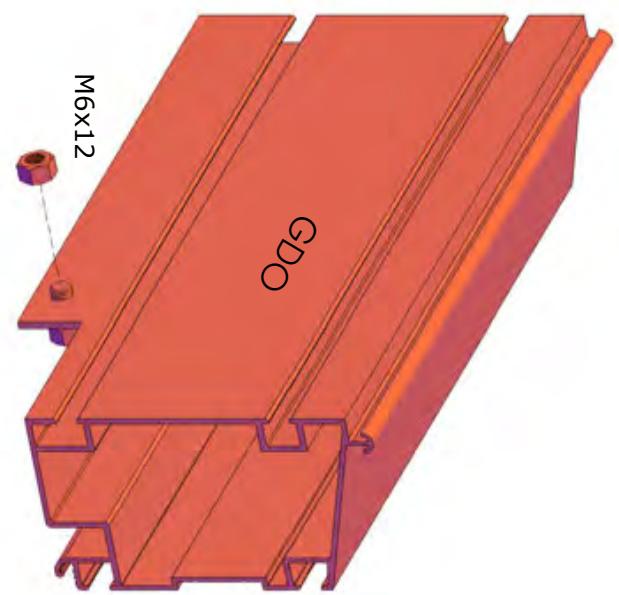
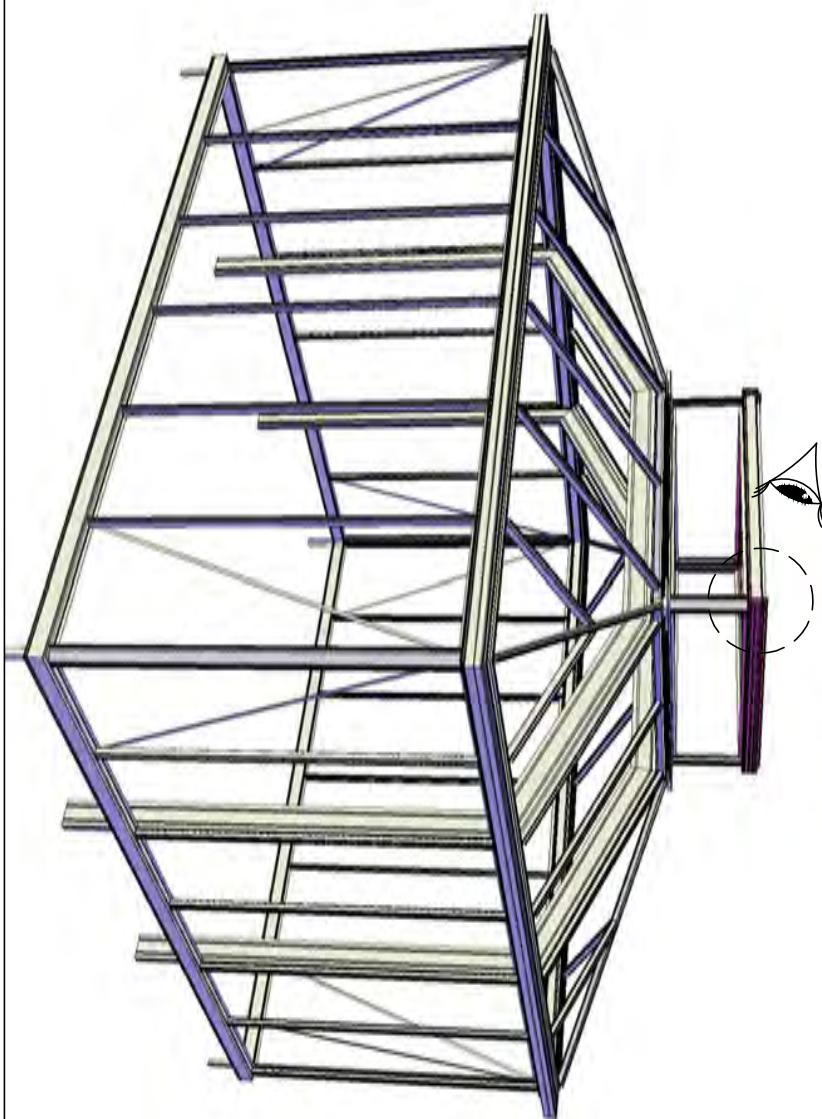


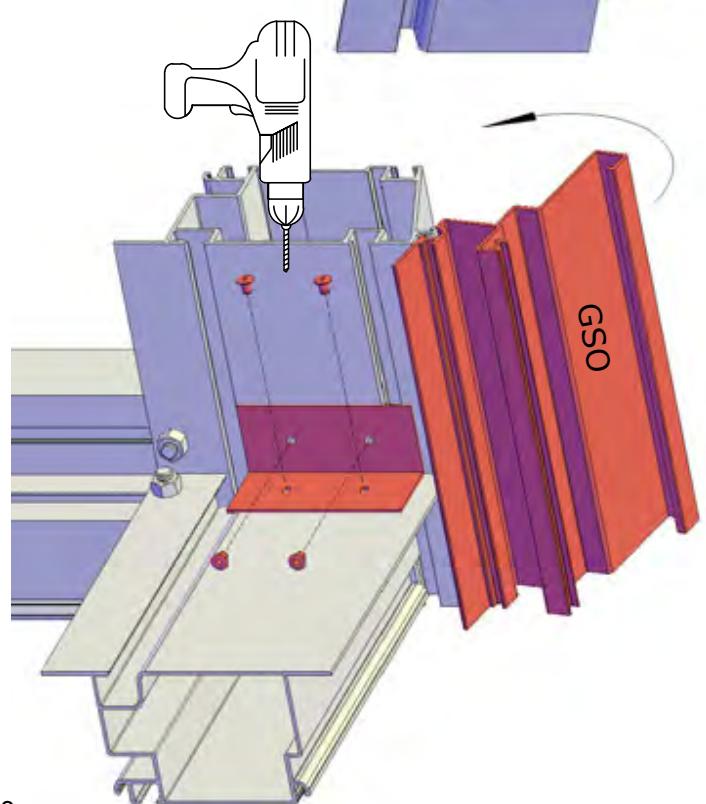
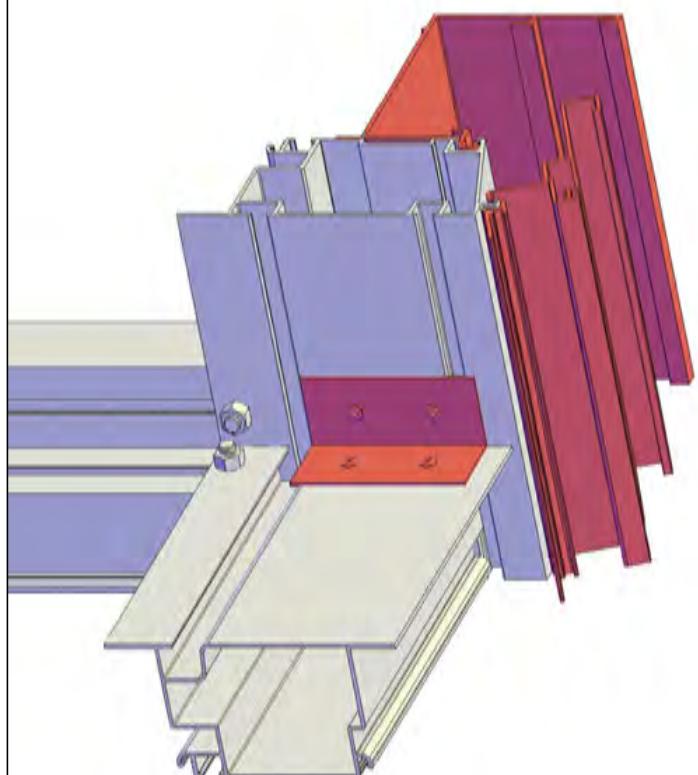
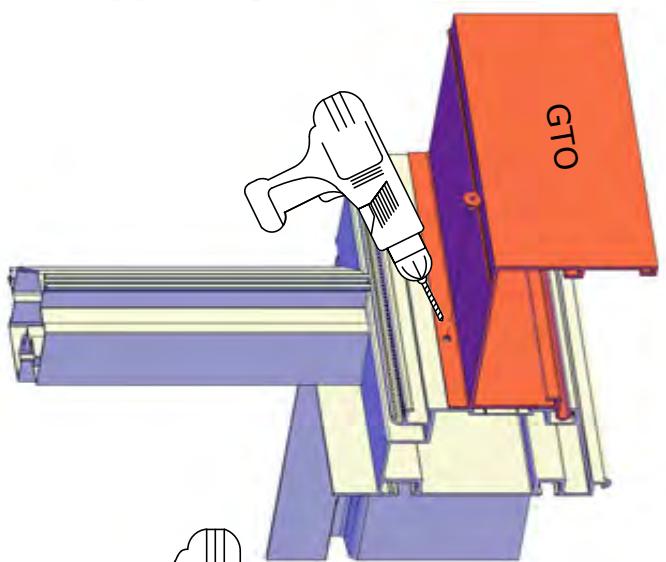
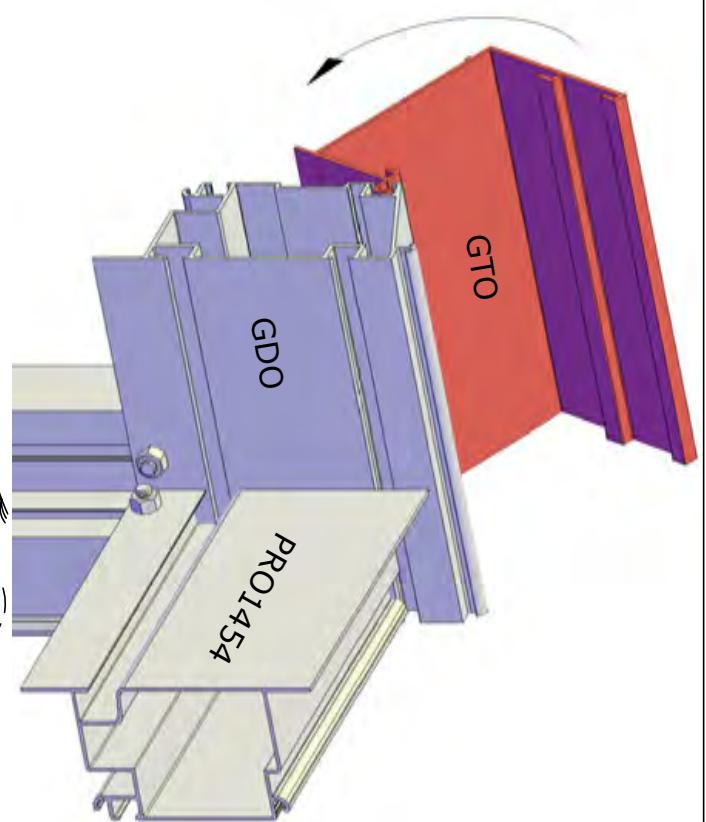
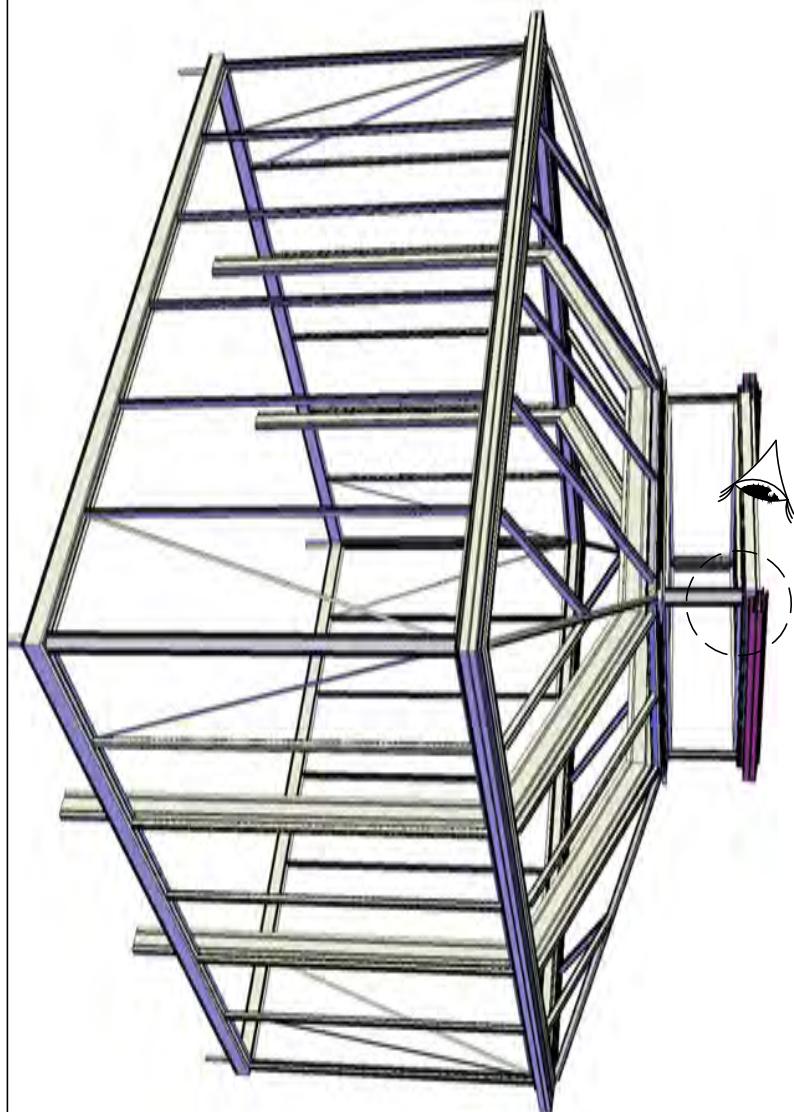
Install after glass

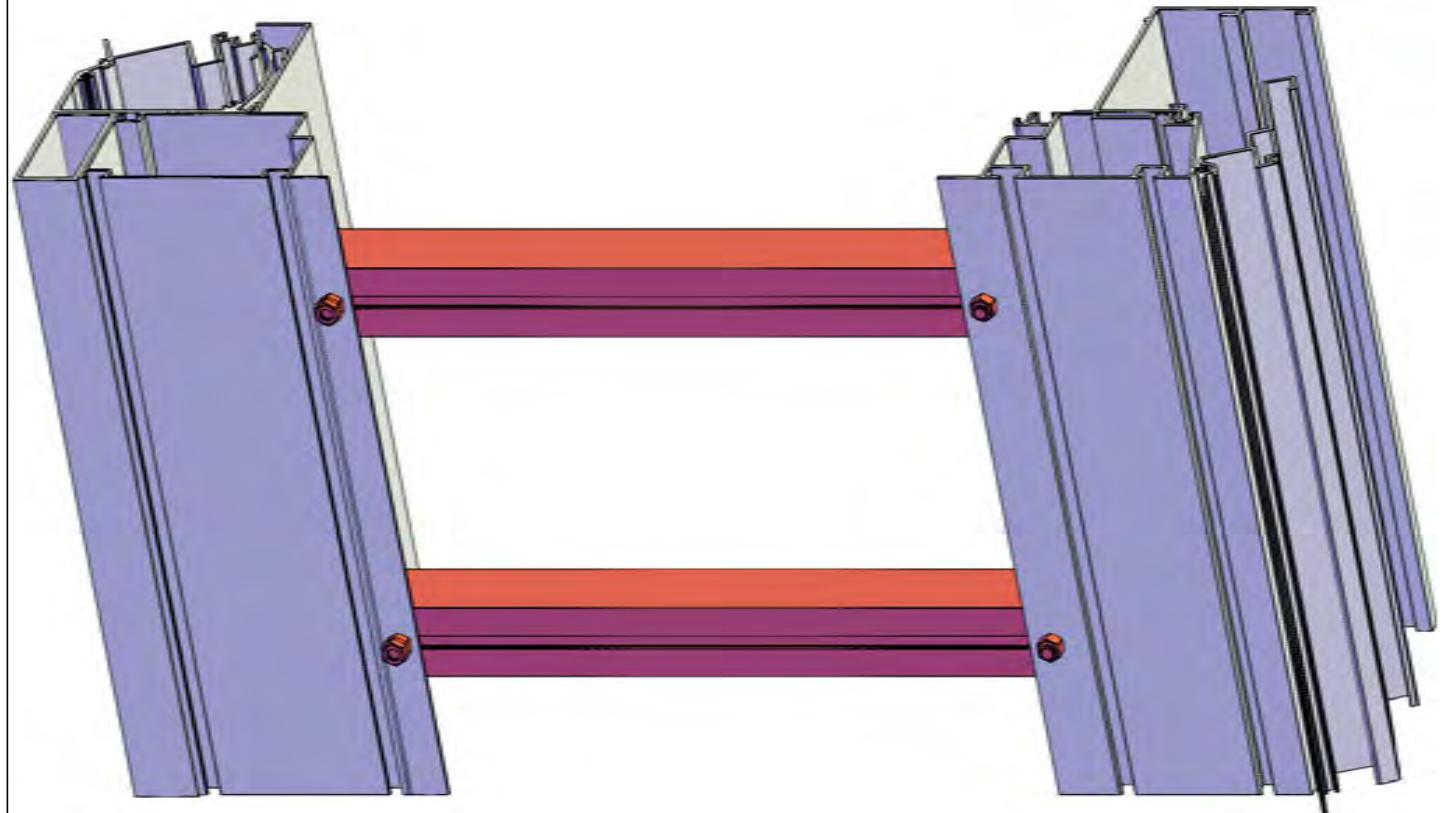
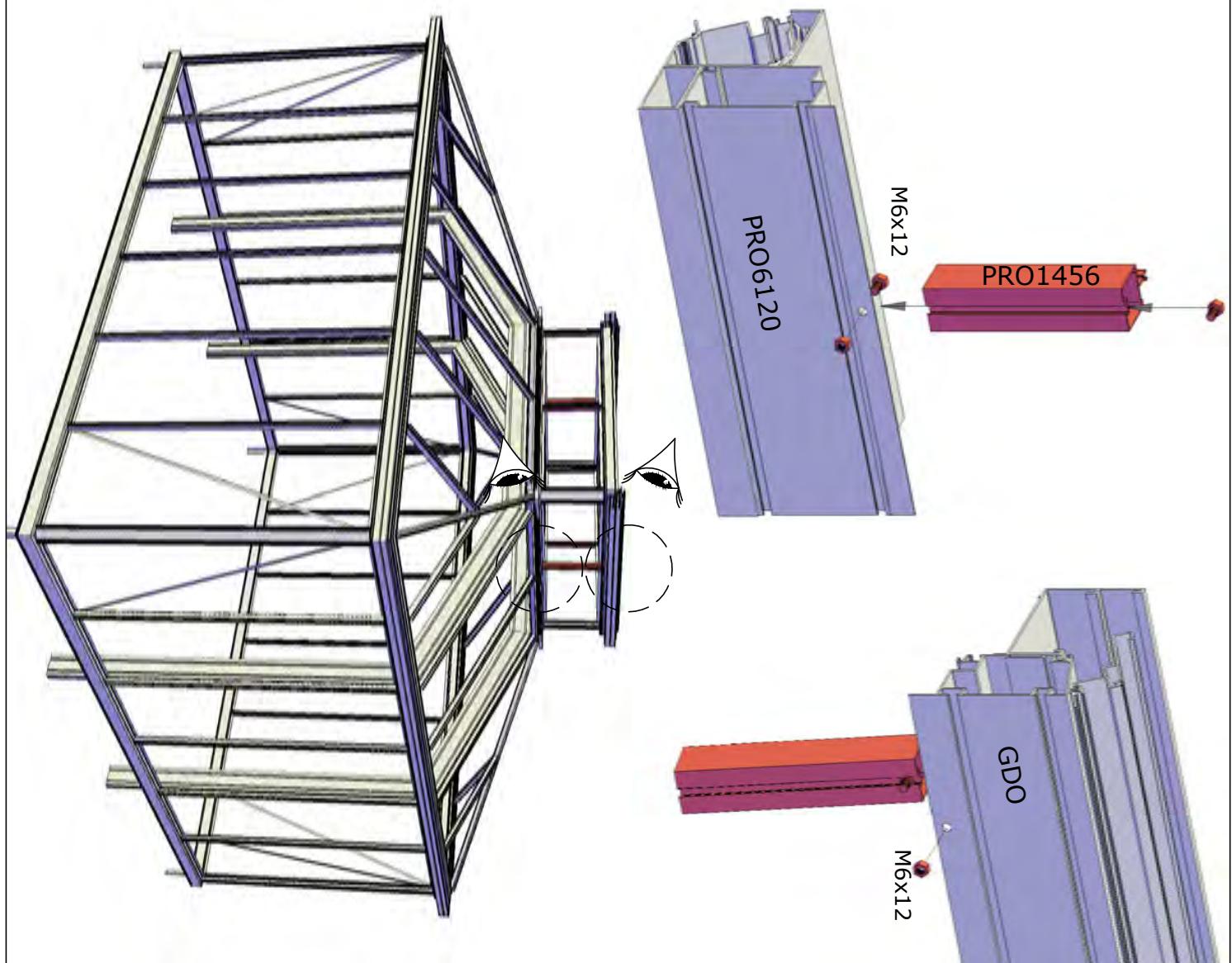


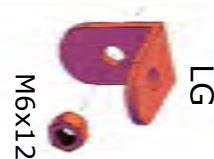
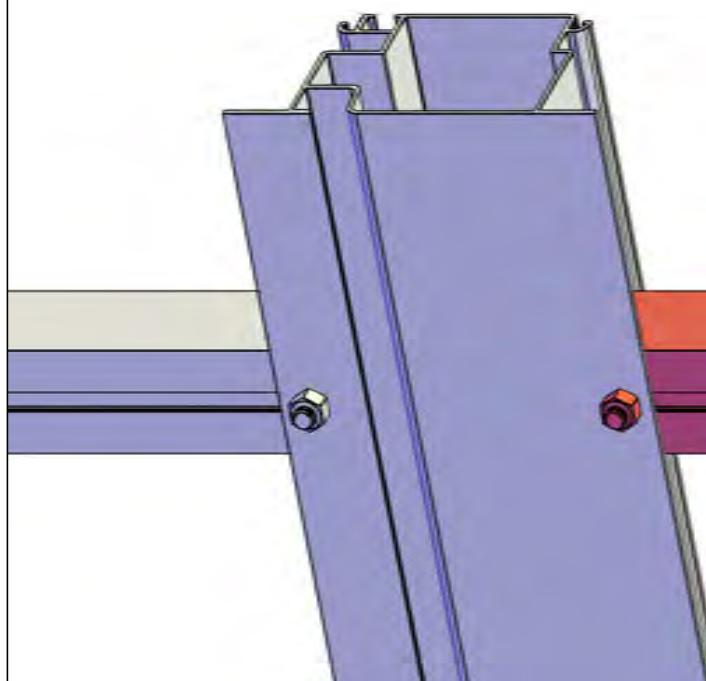
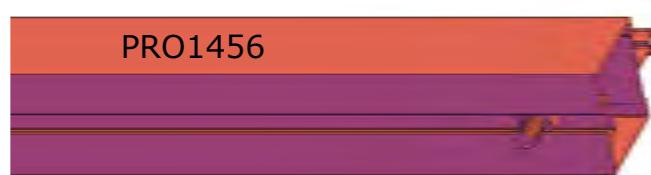
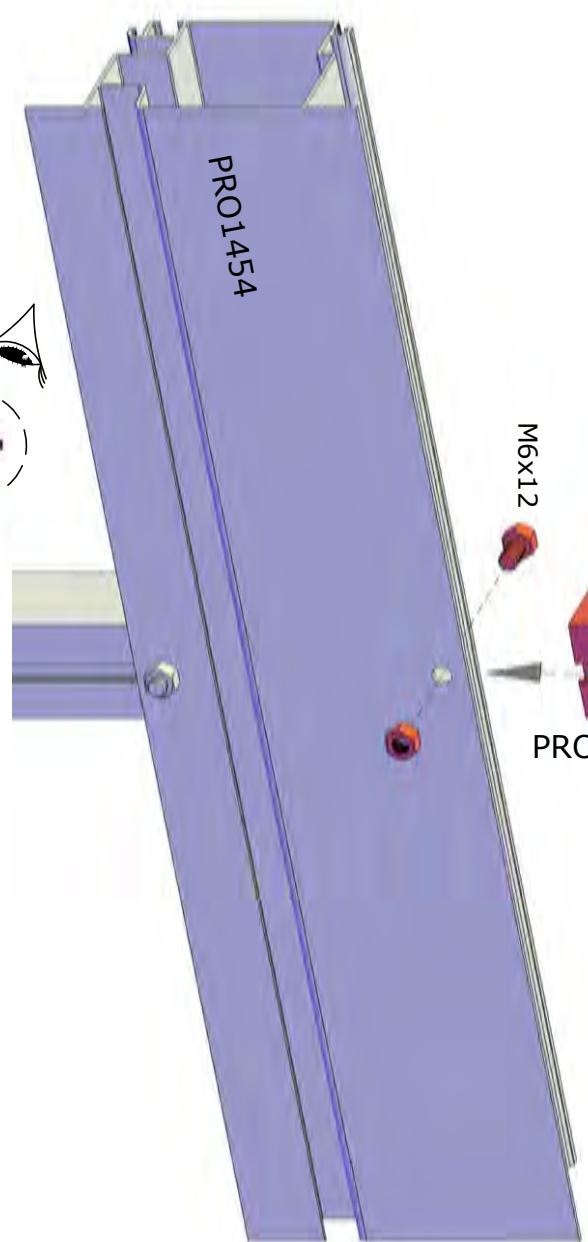
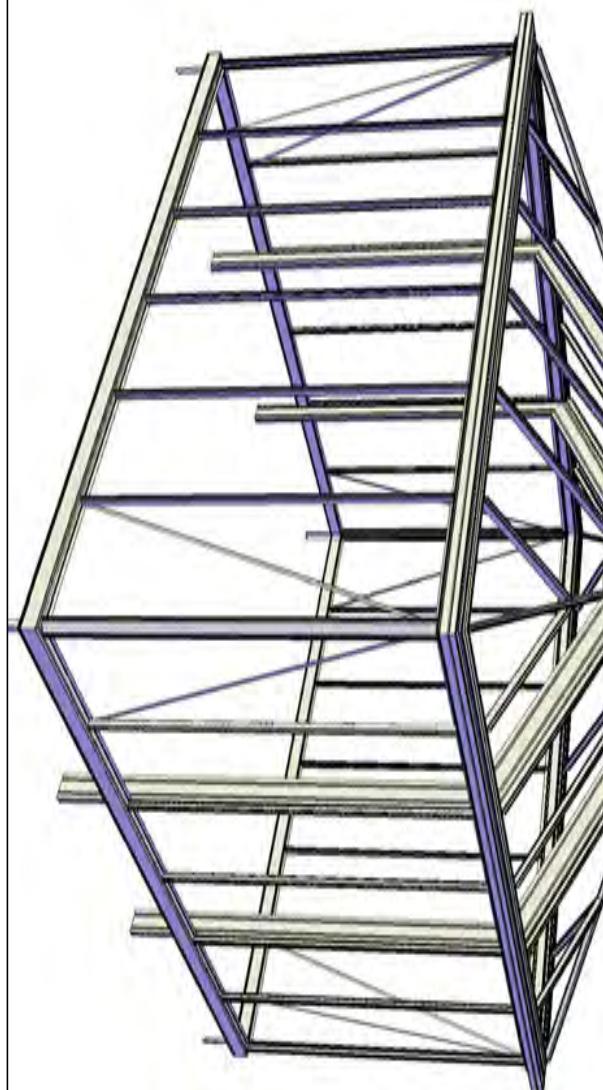


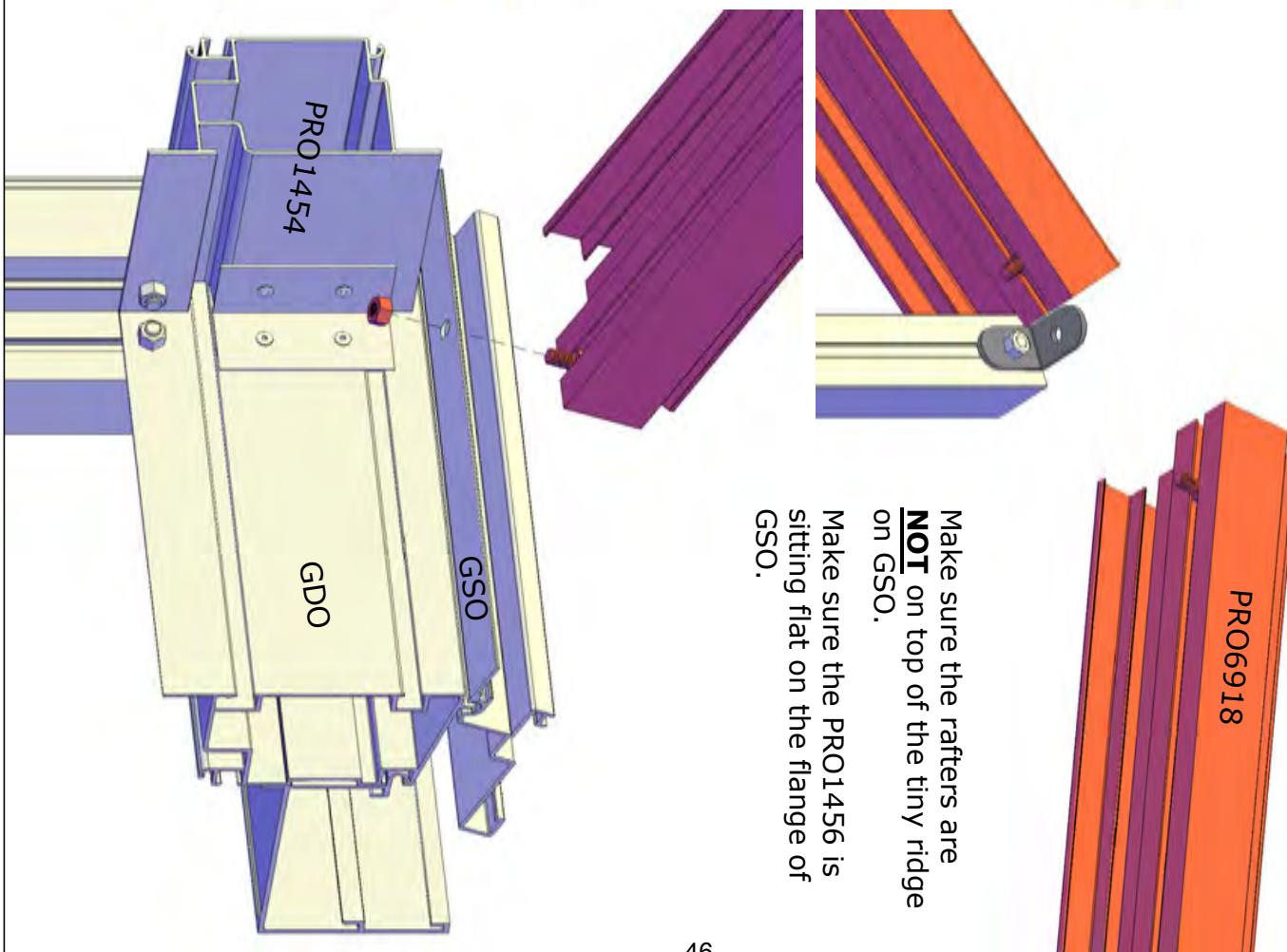
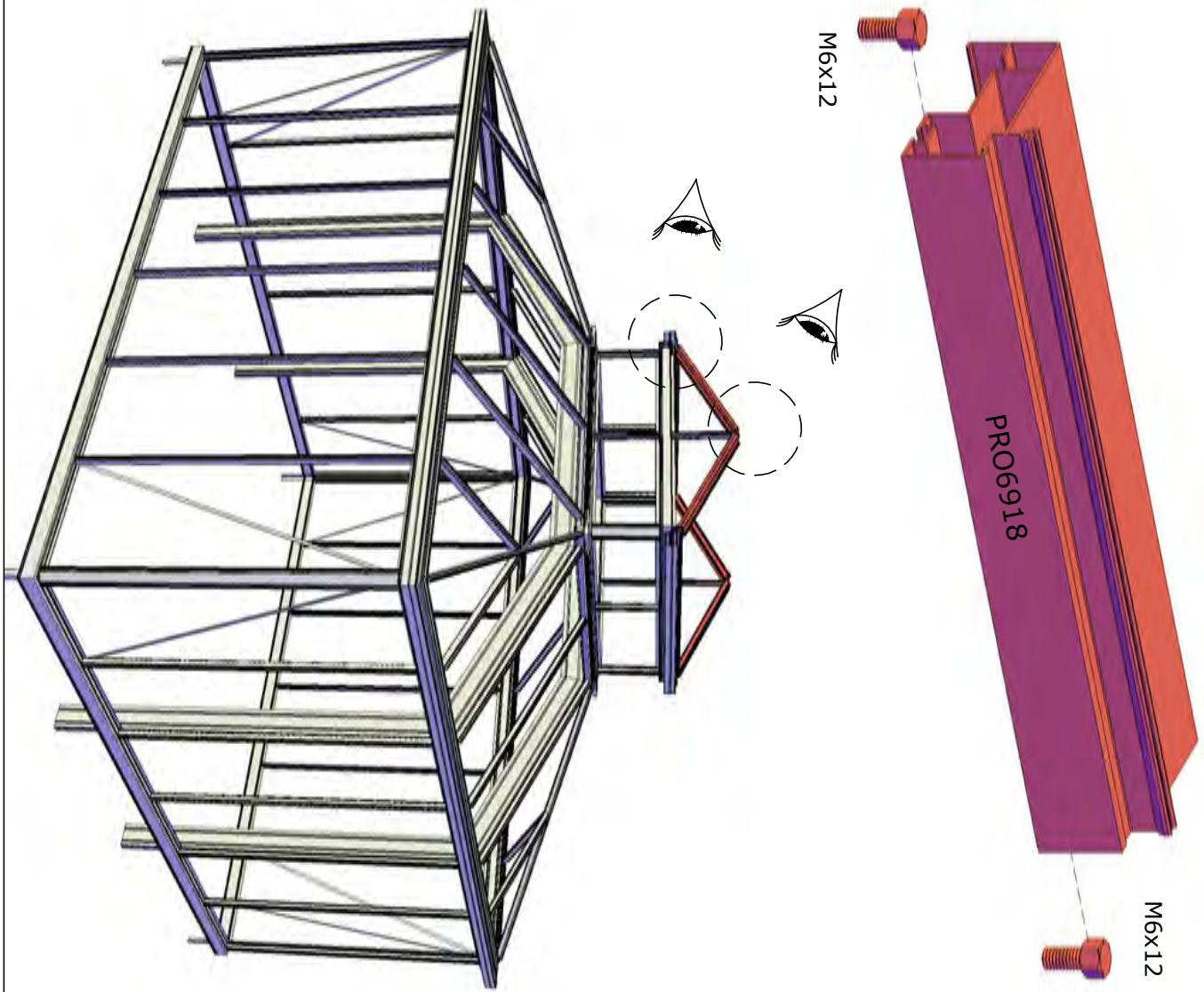


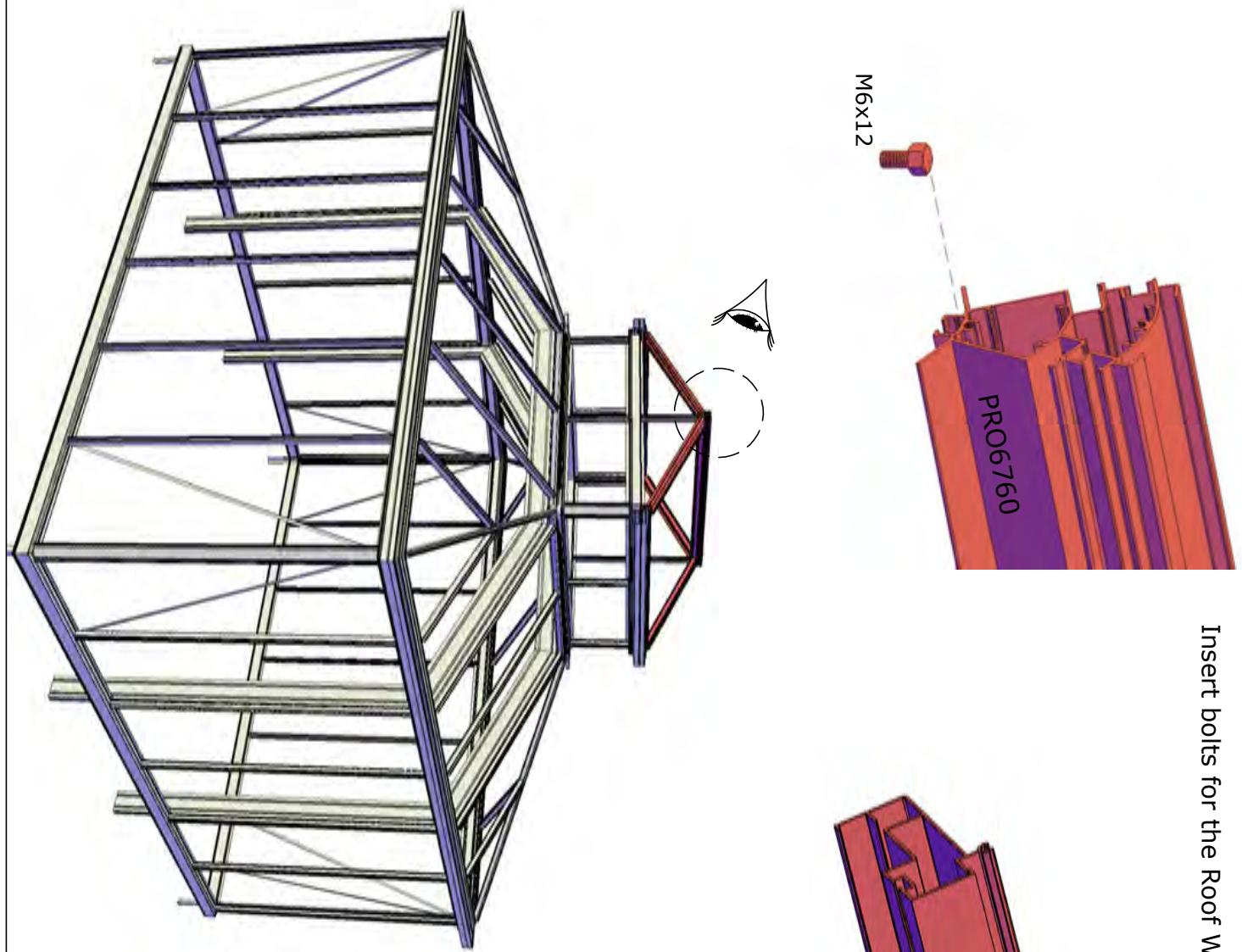




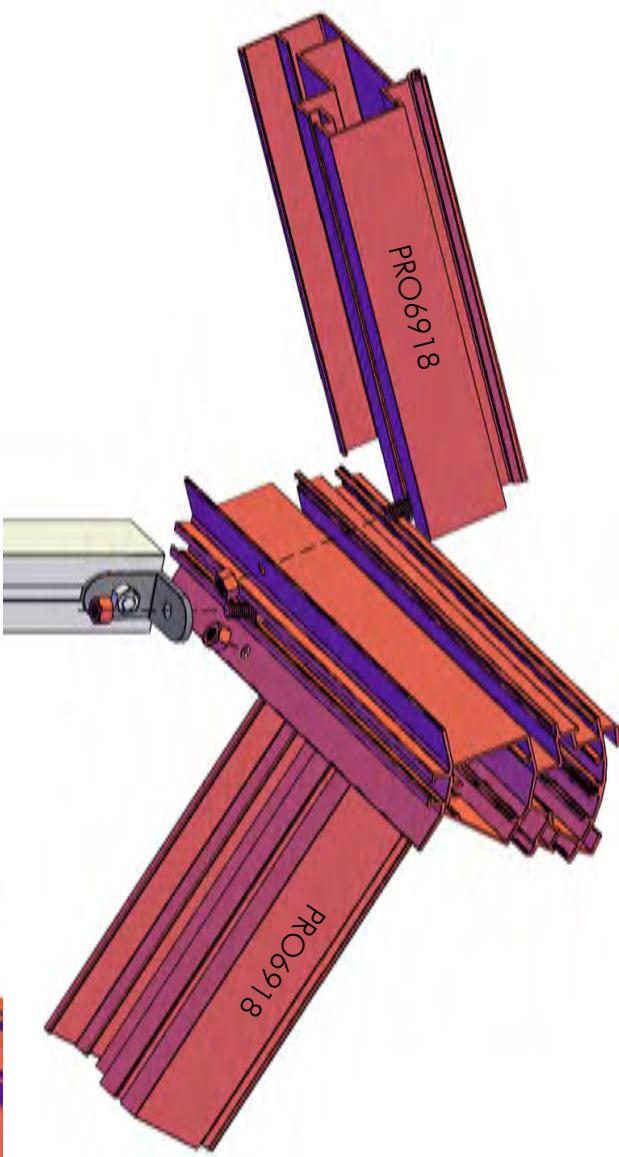
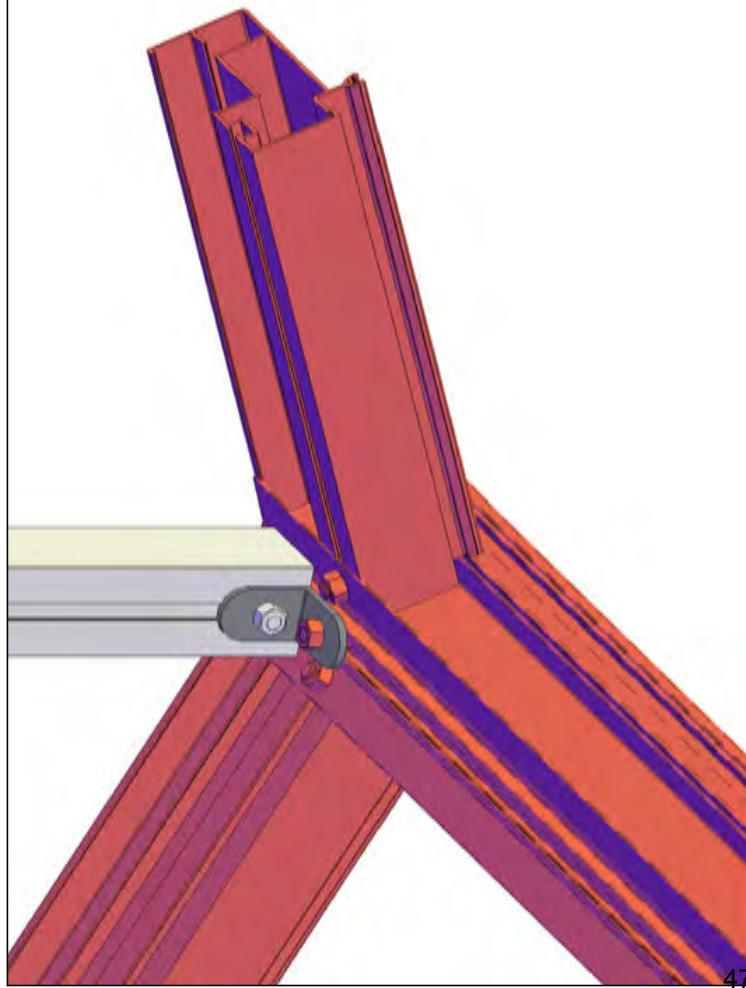




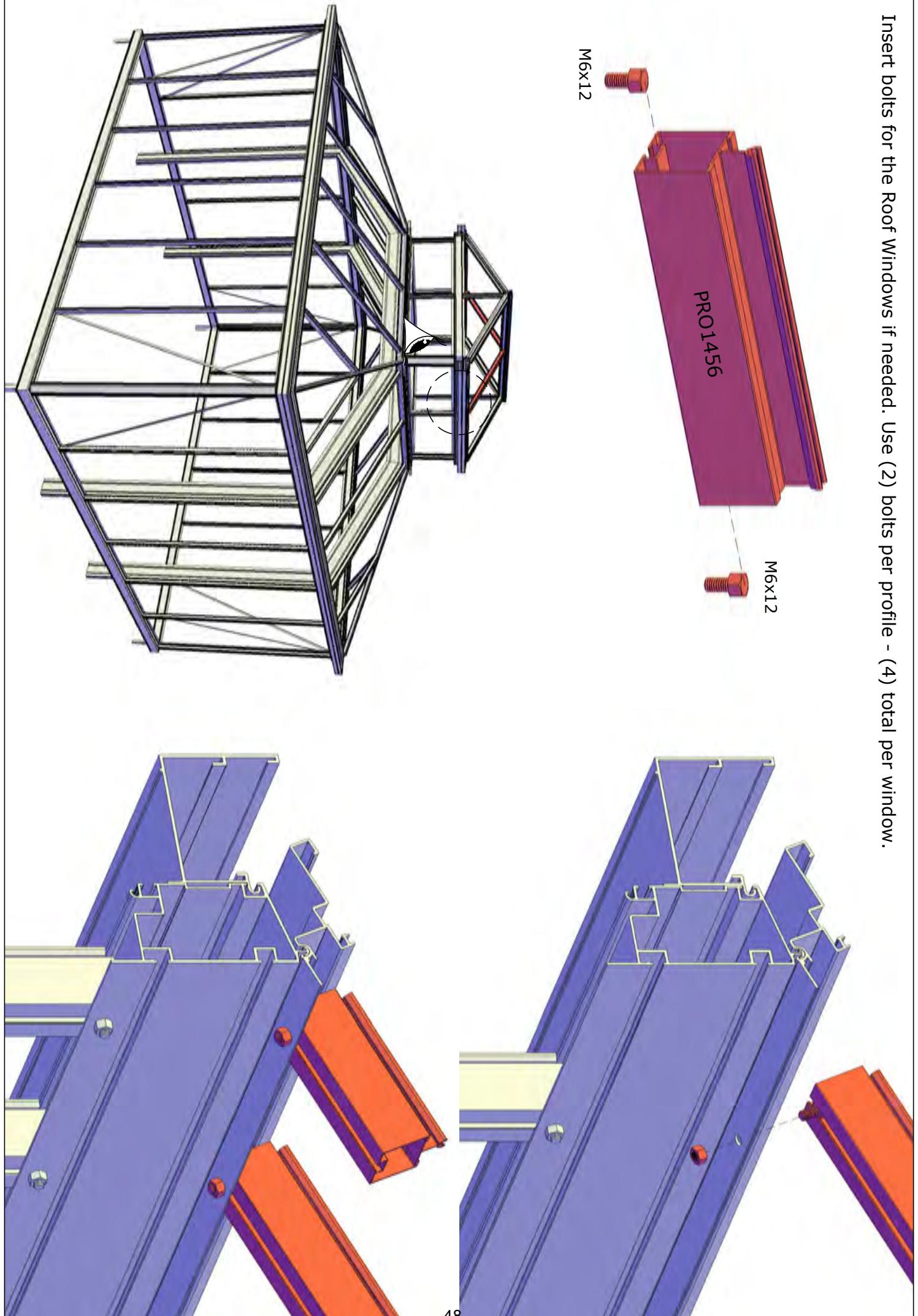


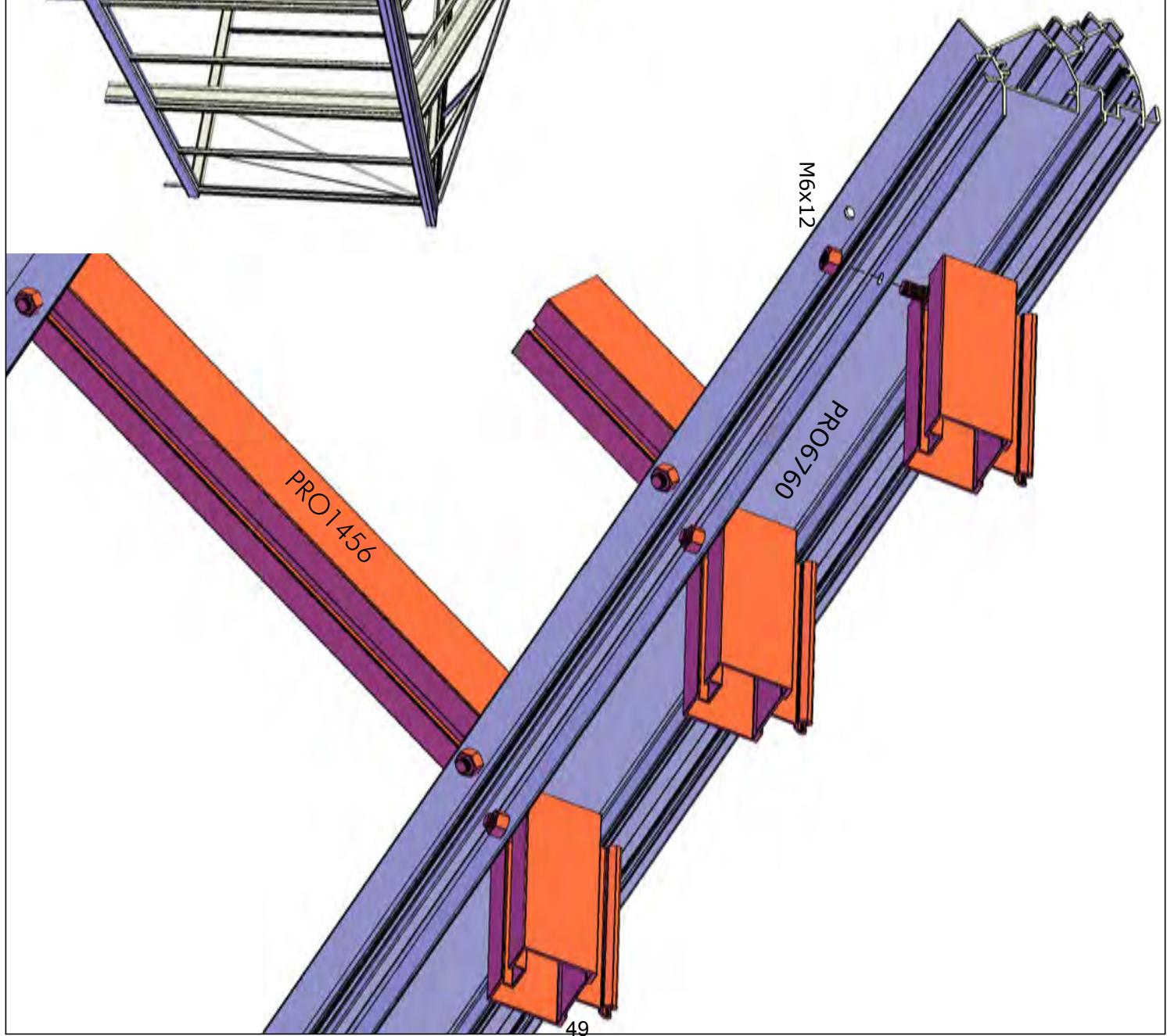
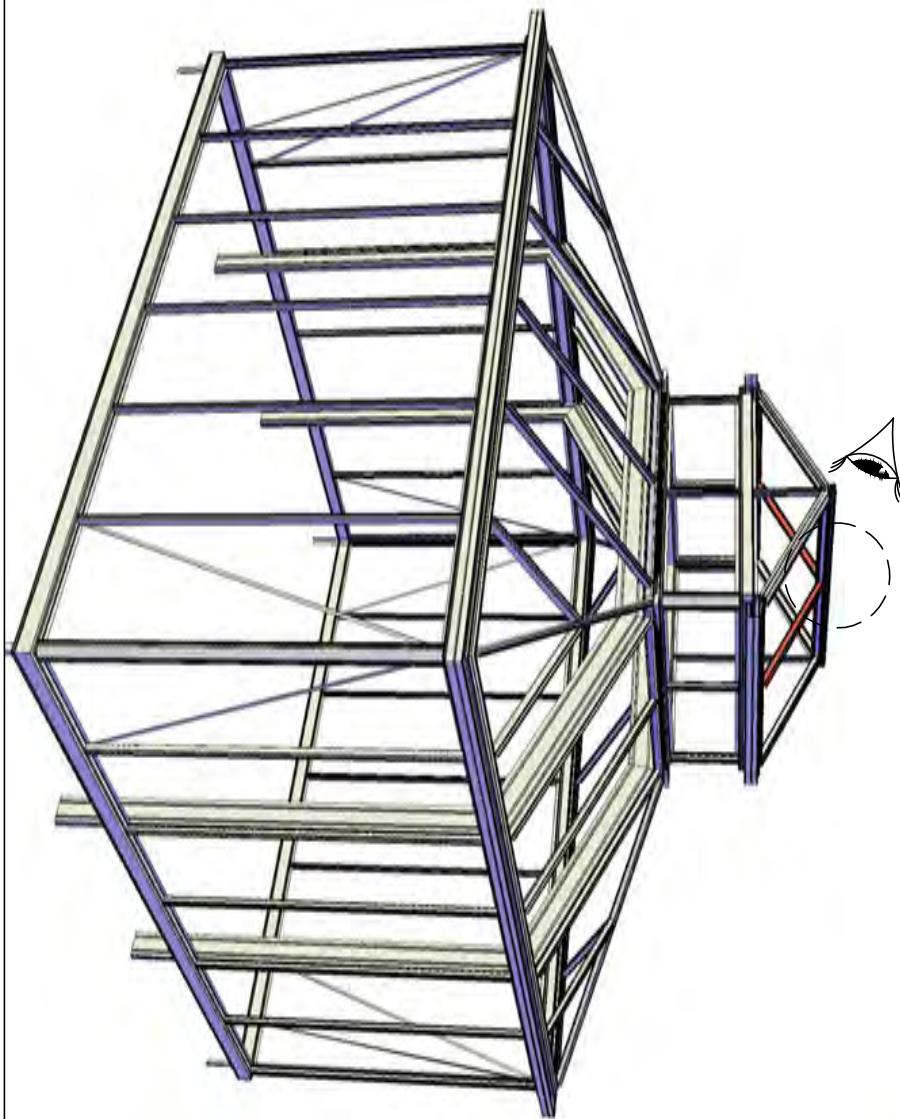


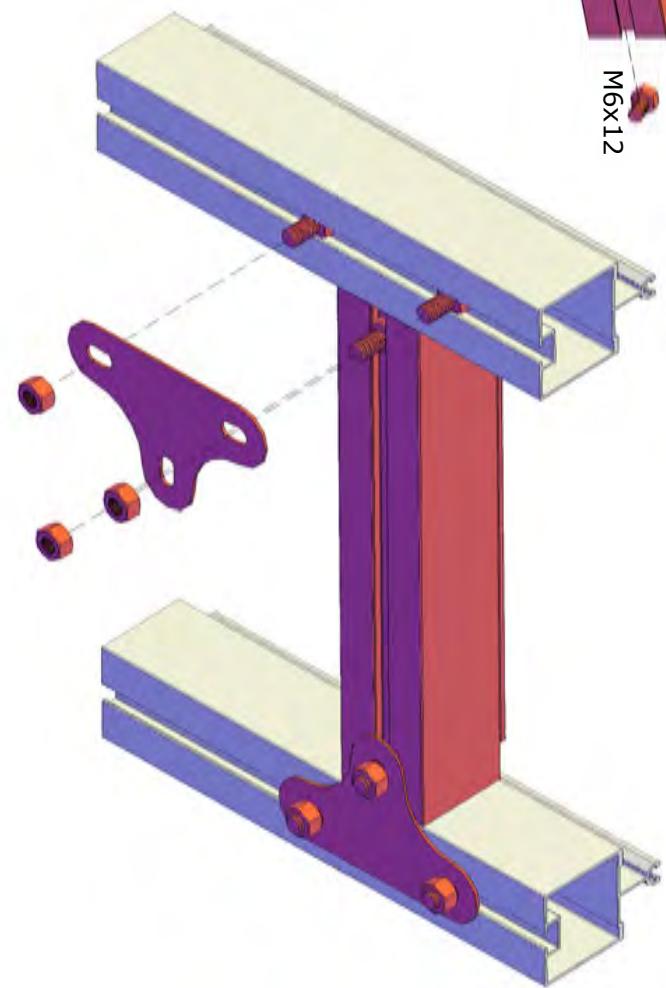
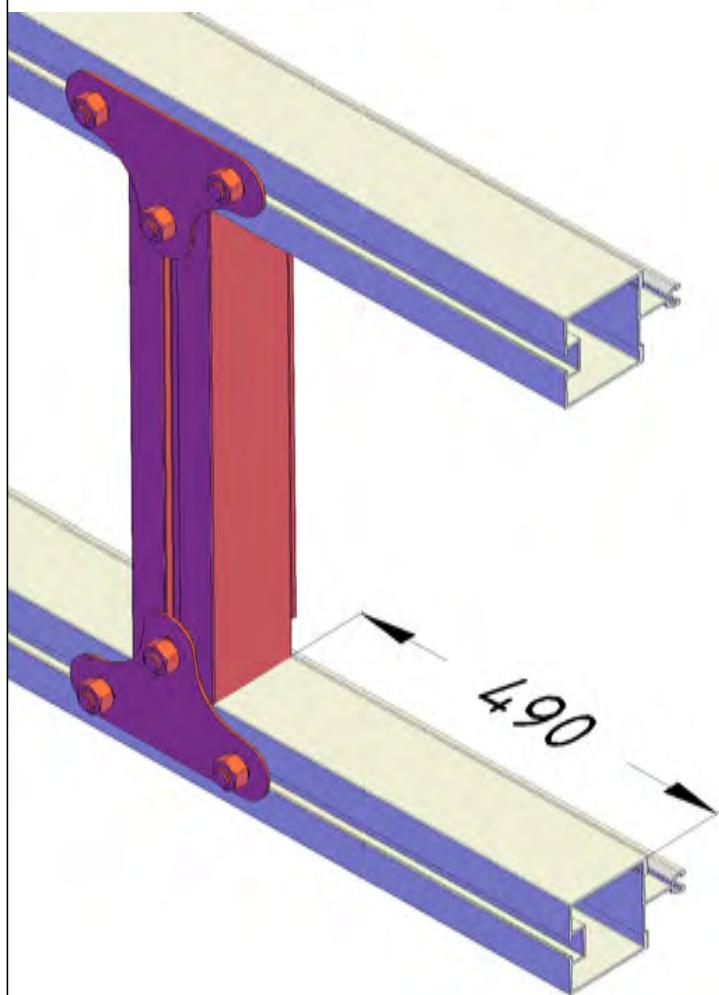
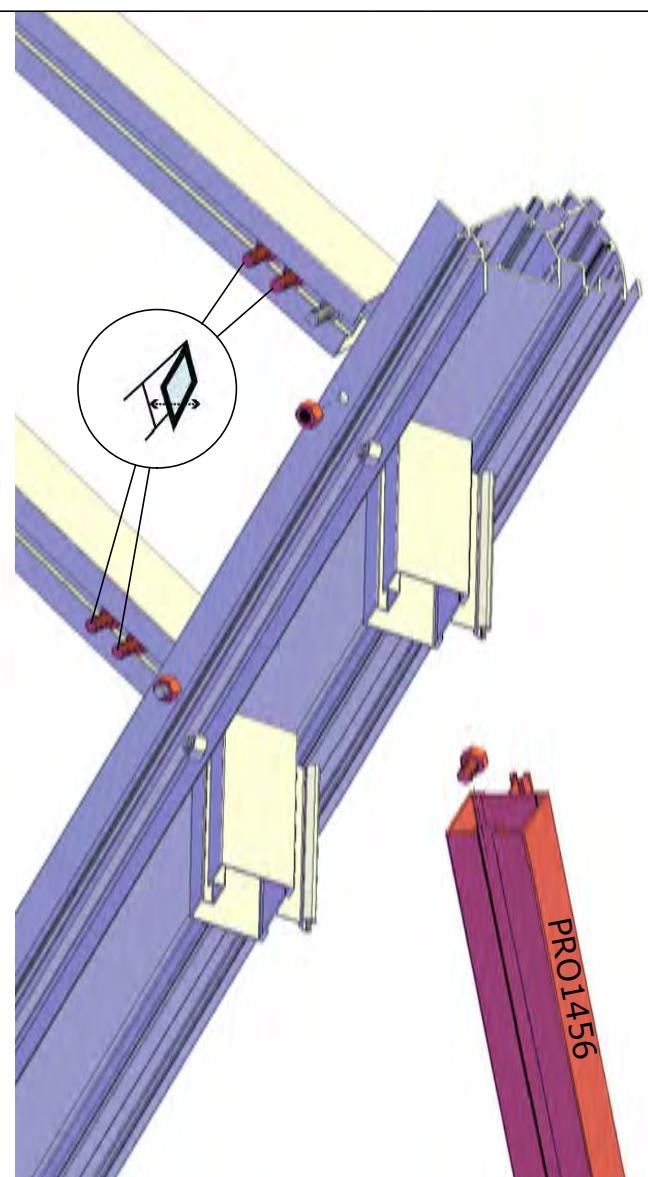
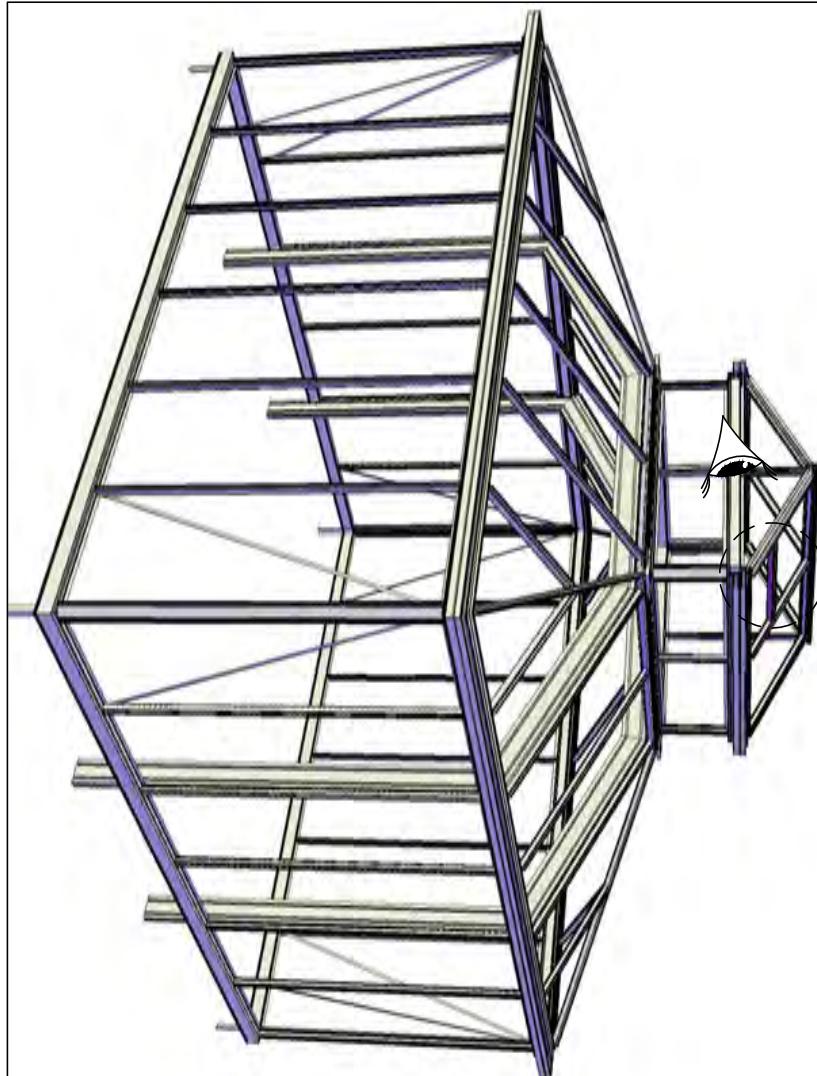
Insert bolts for the Roof Windows if needed. Use (2) bolts per profile - (4) total per window.

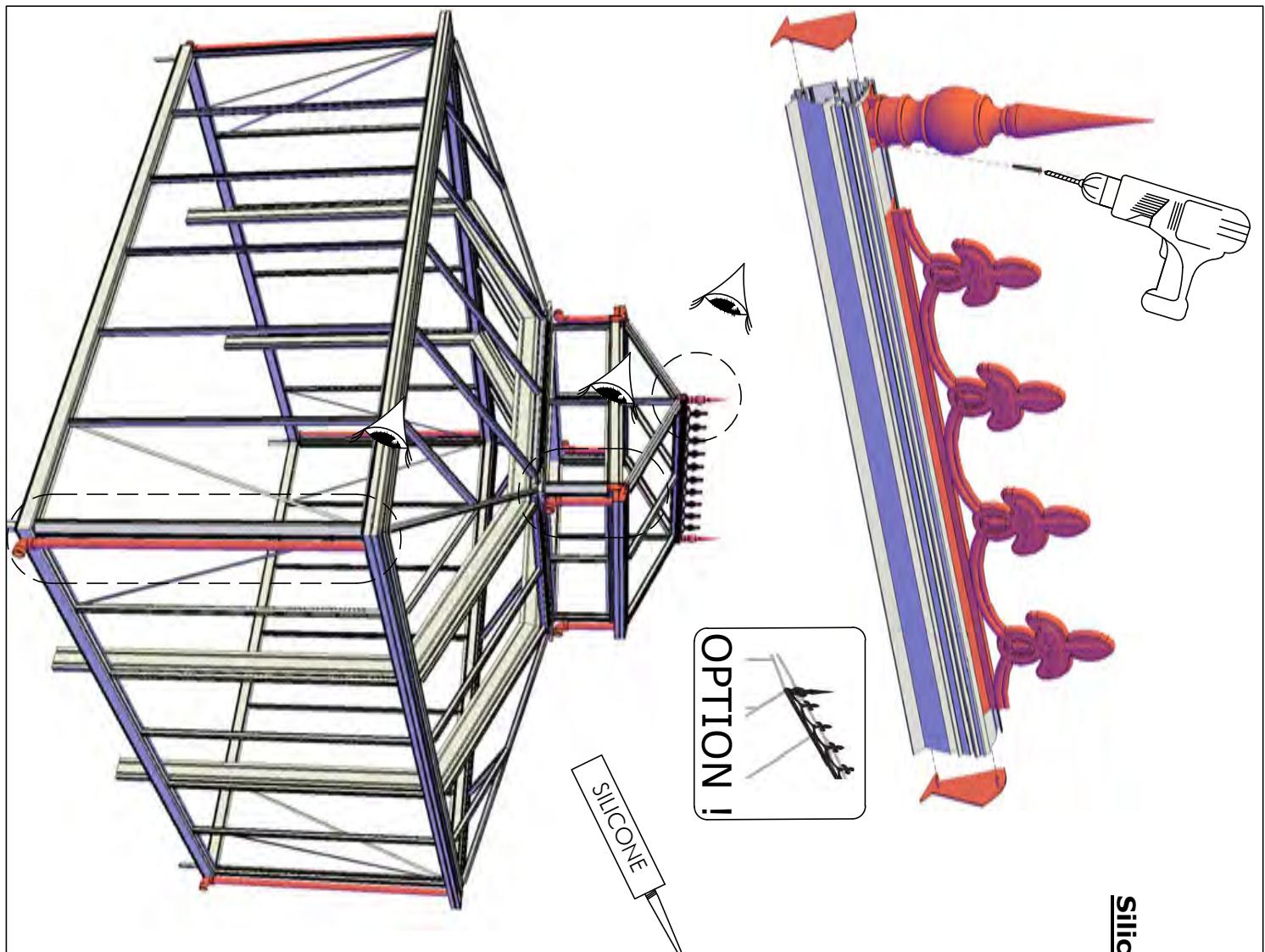


Insert bolts for the Roof Windows if needed. Use (2) bolts per profile - (4) total per window.

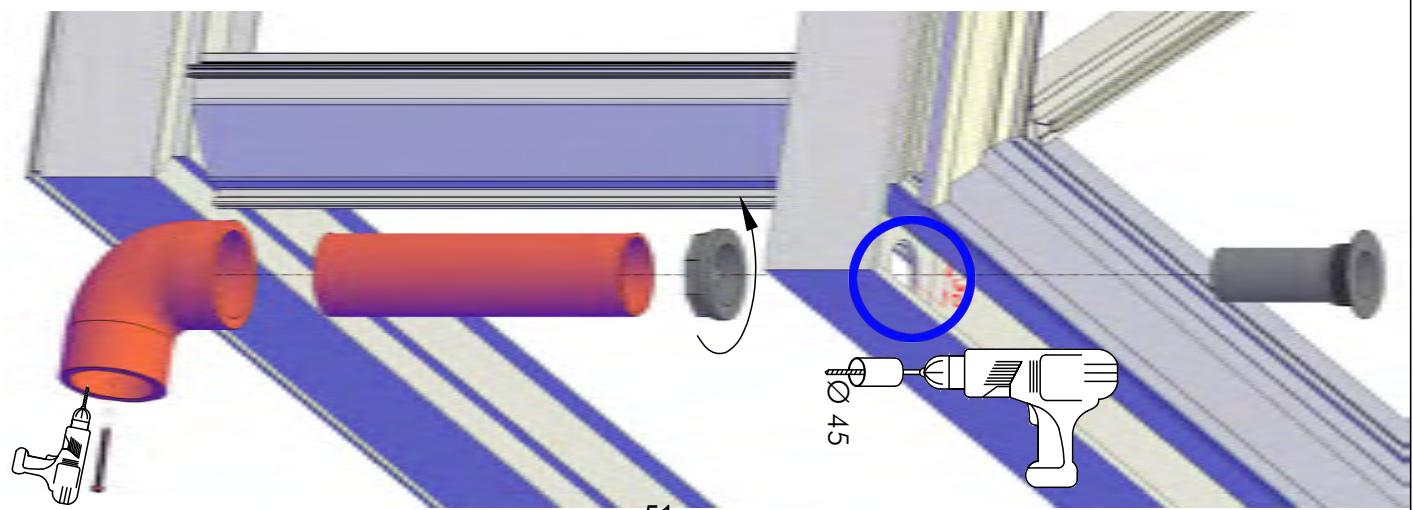
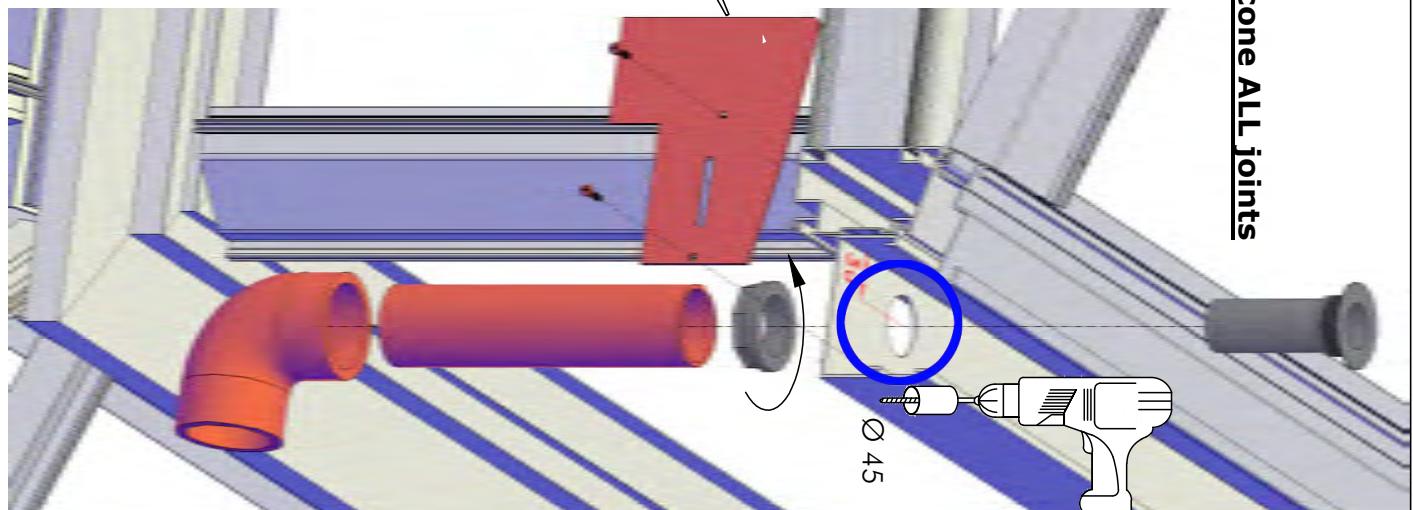








**Silicone ALL joints**



Option: drill hole and secure with screw

## **Stop!**

**Please read the following carefully to help you understand the process of glass installation!**

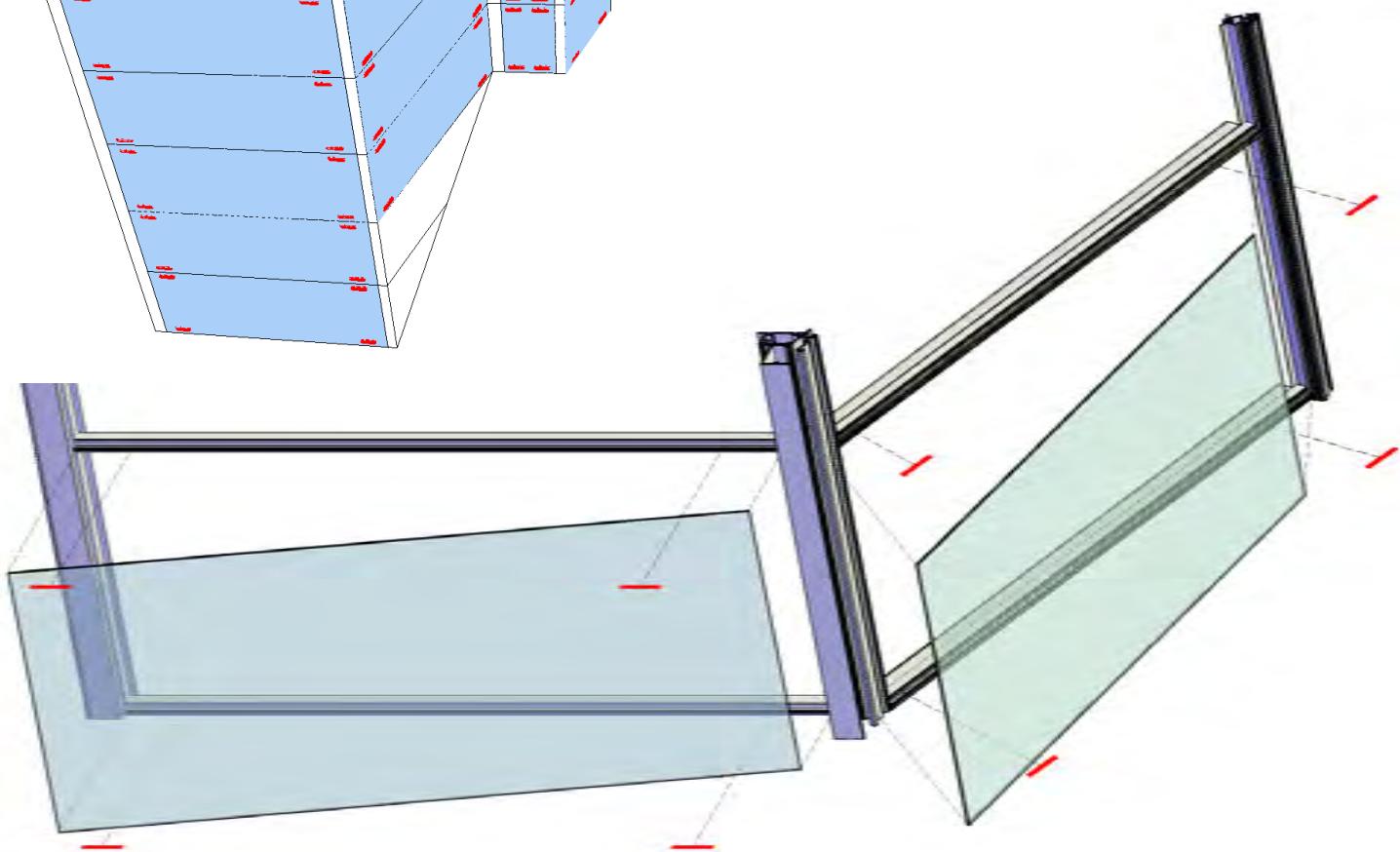
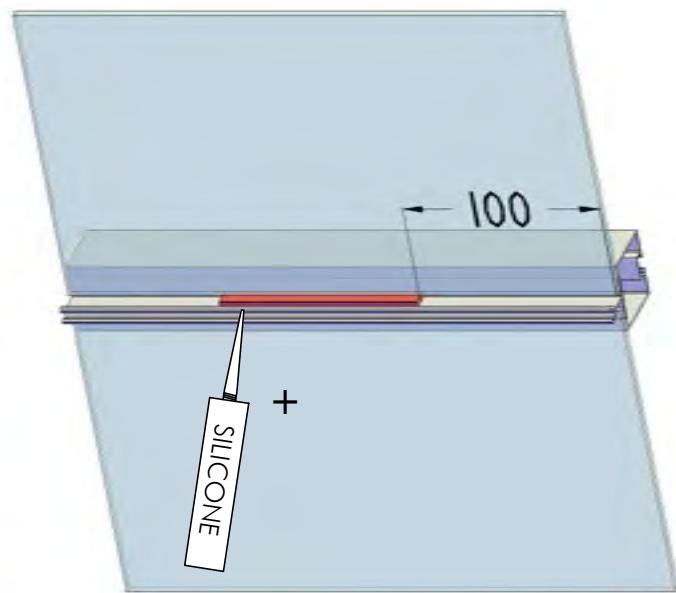
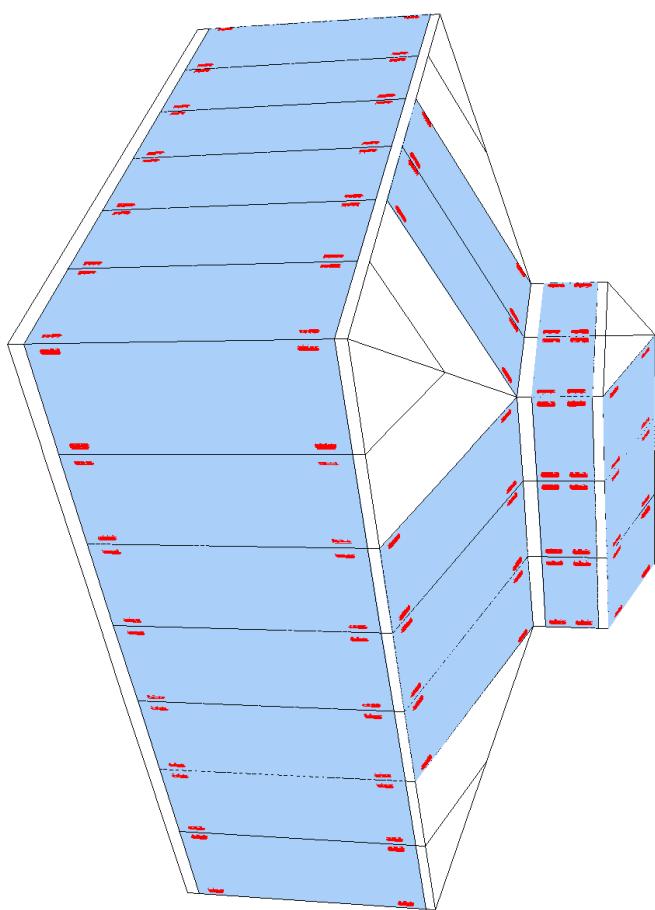
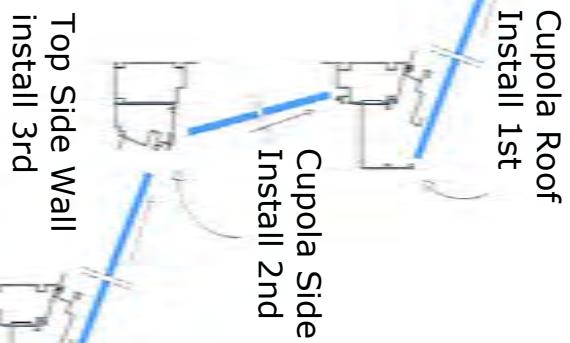
**More detailed steps/diagrams are on the following pages – this is an overview. ALWAYS work one pane at a time!**

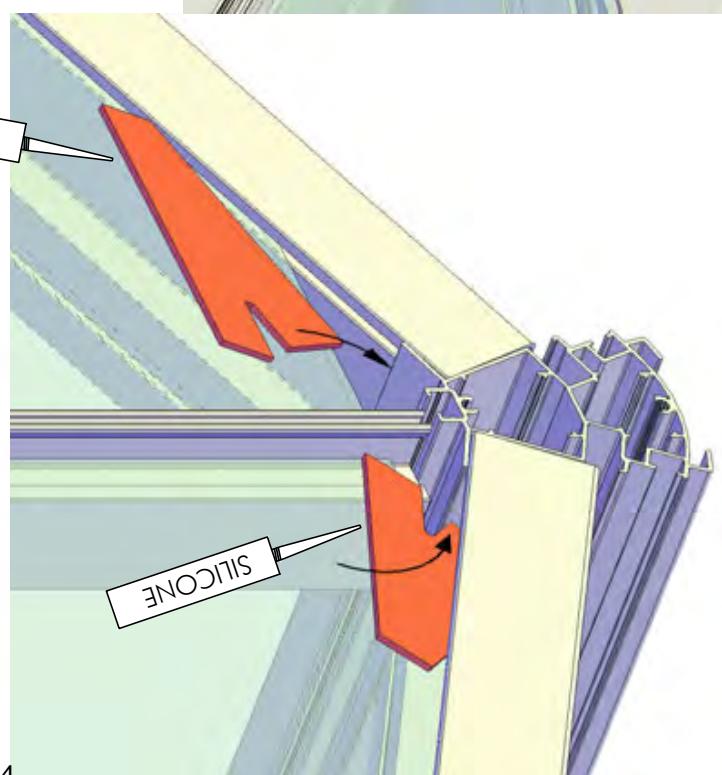
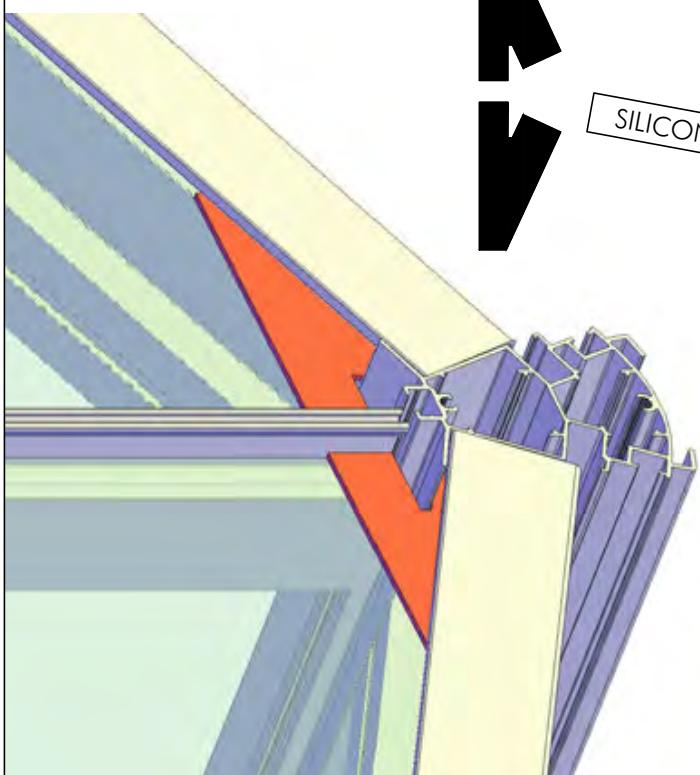
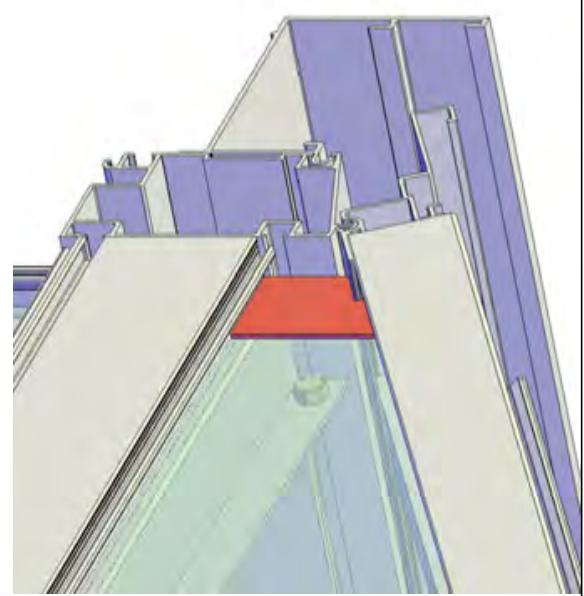
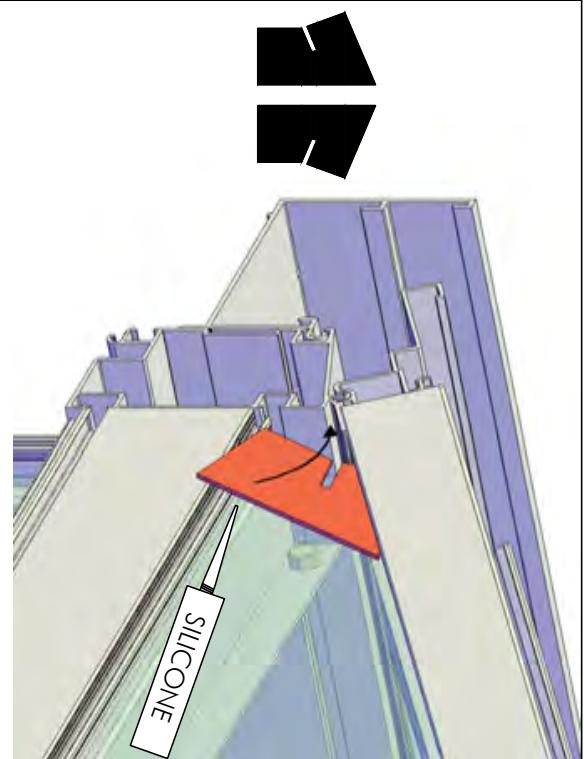
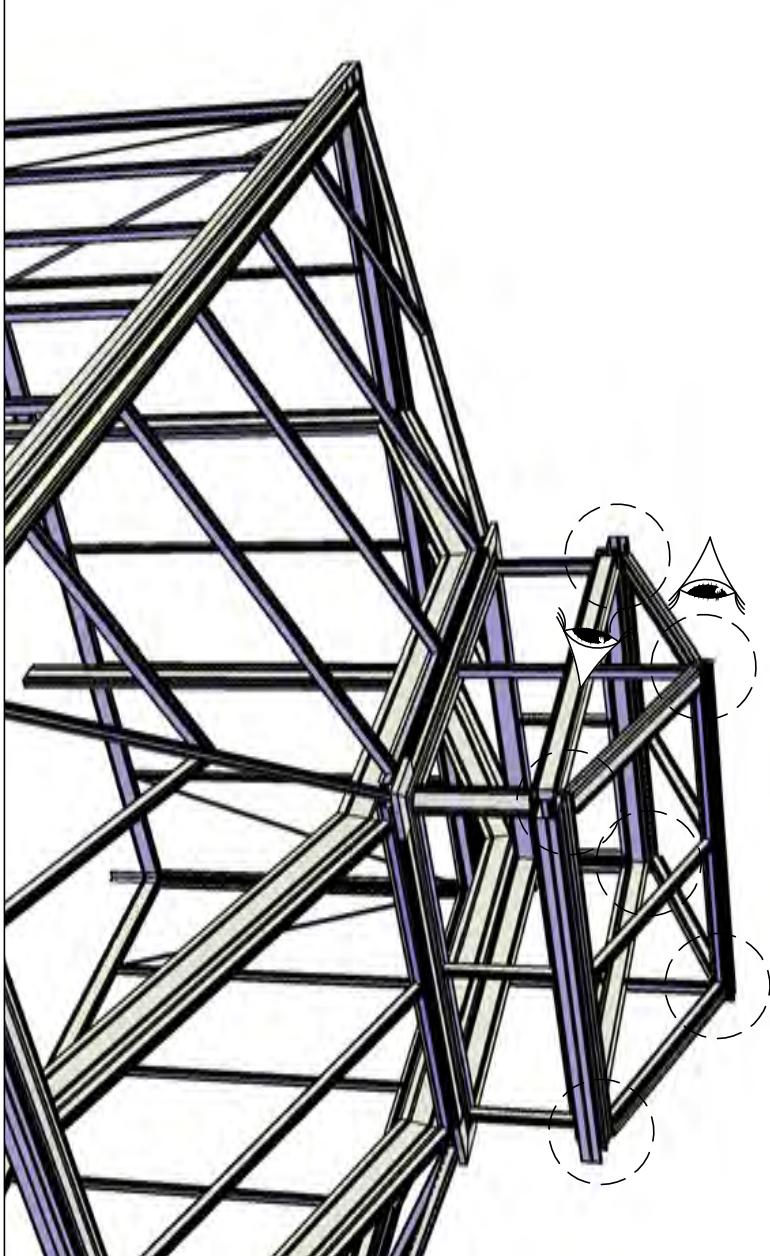
Use the provided glass suction cup holder, it is helpful to have more than one on hand. Before removing glass from the pallet, refer to the “Safety” section at the beginning of this manual. Look through all glass installation pages that follow to gain a good understanding of the process and parts that you will use.

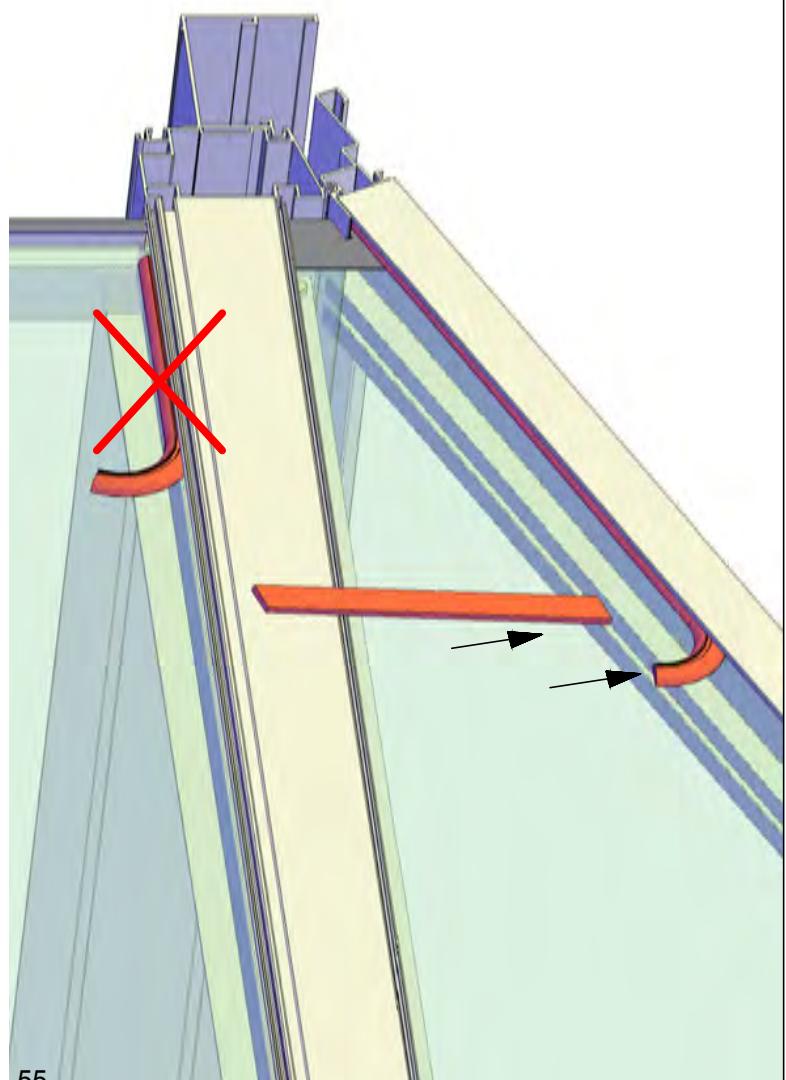
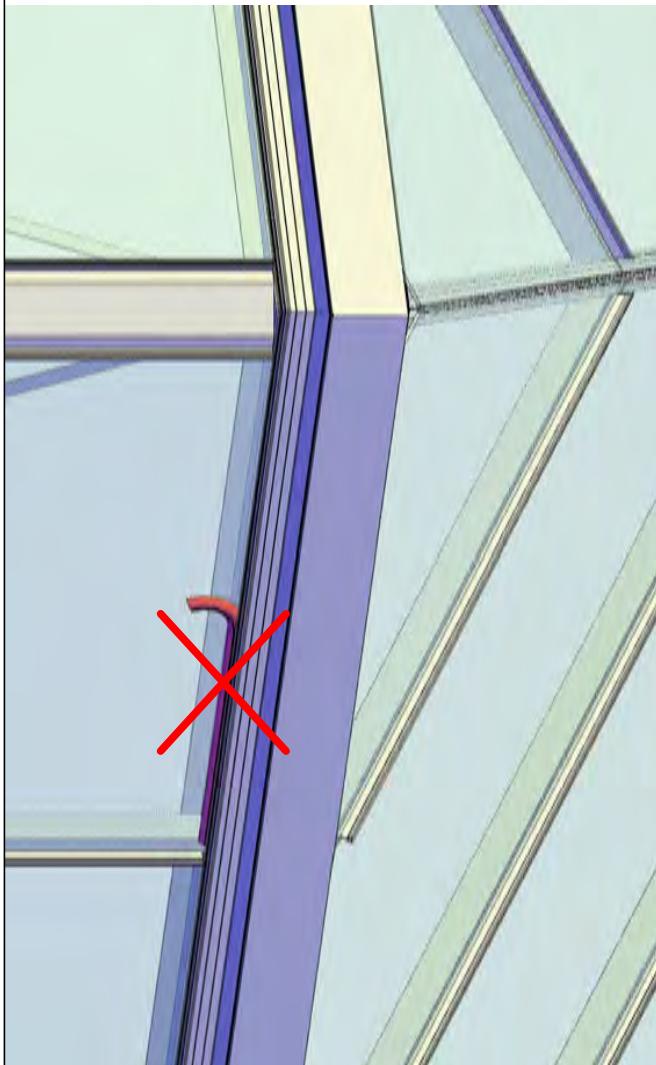
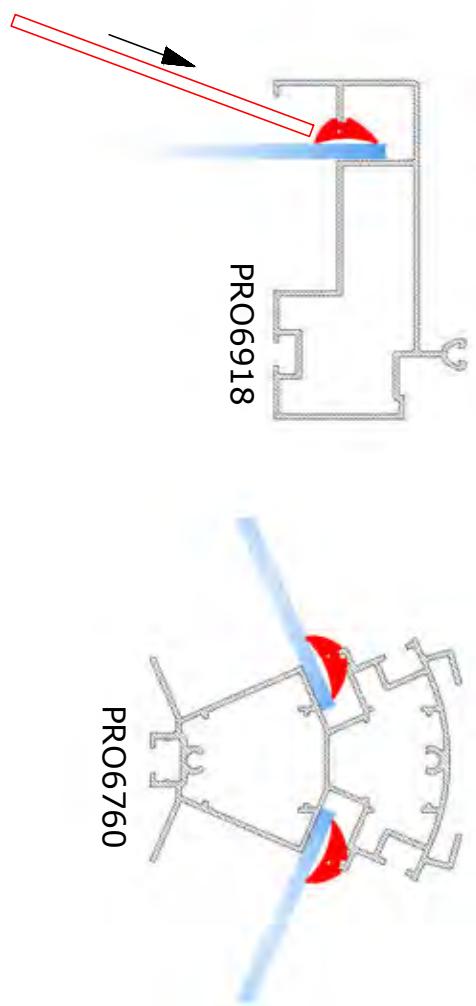
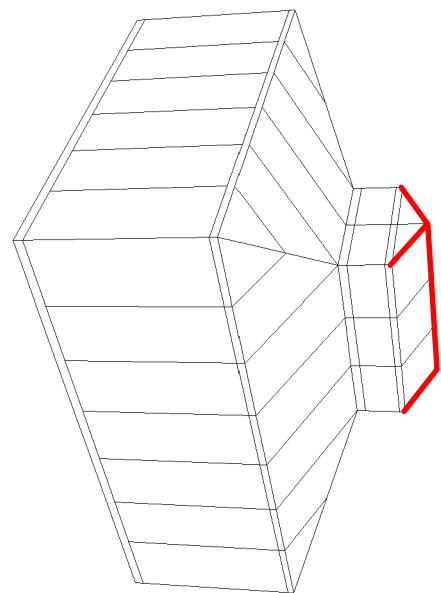
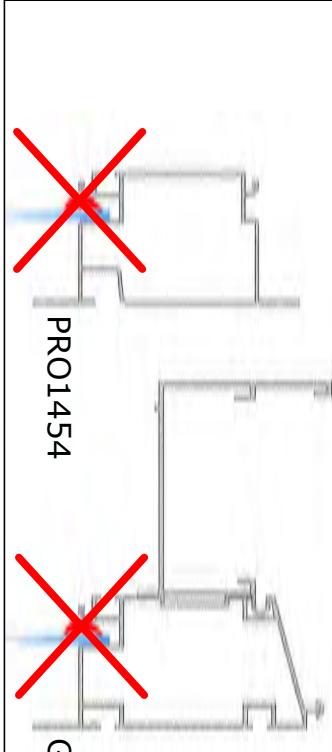
**Before starting glass installation**, please install ALL items on the top cupola including: ridge decorations (if using), ridge caps, cupola gutter caps, cupola downspouts, and install your roof vents at the top of the cupola by sliding in from the end of the ridge beam (see Roof Vent assembly/installation pages).

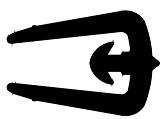
1. Install Cupola roof glass, working one pane at a time. General steps are as follows:
  - If using red shims, glue onto the PRO1456 extrusions 4" (100mm) from the top and bottom
  - Place first pane of glass
  - Insert crescent gasket (E400330) into the ridge beam (point end first)
  - Install U gasket (PRO1748) into channel on end rafter (PRO6918).
  - Place next pane of glass and the crescent gasket at ridge.
  - Reach over to install U gasket (PRO1748) into the rafter (PRO1456) between the two panes.
  - Continue repeating these steps until roof is done.
2. Install 4 angular cupola gable glass pieces:
  - Insert crescent gasket (E400330) into the edge rafter on the angled edge (pointy side first)
  - Install U gasket (PRO1748) into channel of vertical stud (PRO1456) once both pieces are in.
  - Use silicone/glue to attach black plastic angular caps at acute angles of the glass
3. Install cupola side wall glass panes:
  - There will be NO crescent gasket at the top.
  - Work one pane at a time using the U gasket (PRO1748) inserted into the PRO1456 and corner extrusions to hold glass in place.
4. Install ANGULAR PIECES of main roof glass:
  - First place two smallest triangles of glass (you may need to remove/loosen the PRO1456 rafter to insert these.
  - Then place the two longer angular pieces next to them
  - Once these four pieces are in place in the corner, use larger U gasket (PRO2290) on the diagonal PRO1456 that cross all the diagonal glass edges.
  - Then install regular U gasket (PRO1748) into the other PRO1456 extrusion.
5. Install main rectangular roof glass:
  - Work once piece at a time so you can lean over and install the regular U gasket (PRO1748) into the PRO1456 extrusions between panes. Additionally, after setting each rectangular piece, you will install the half gasket (PRO5538) along the top of the roof panes, pushed into the channel of the cupola frame.
6. Once the roof is done, work on the sidewall glass:
  - The sidewall glass will only have the U gasket (PRO1748) on the vertical sides, no other gasket is used.

Start with the triangular pieces of glass in the corners.

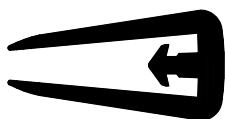
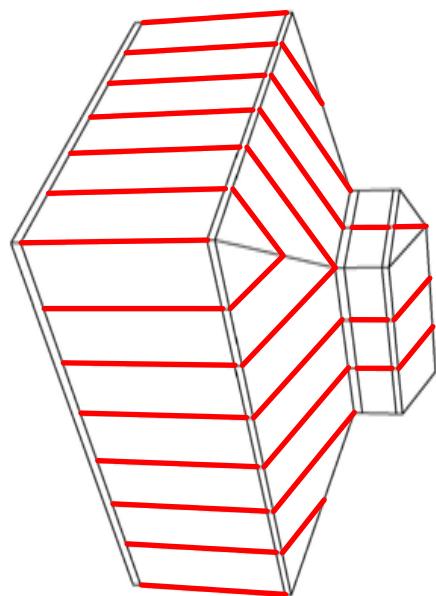
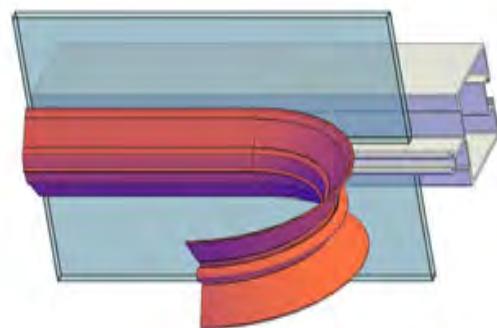




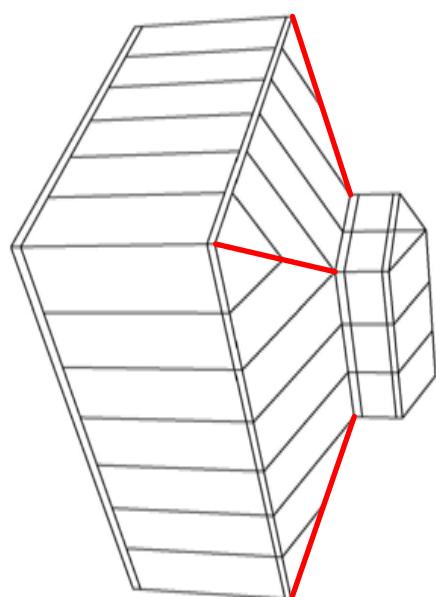
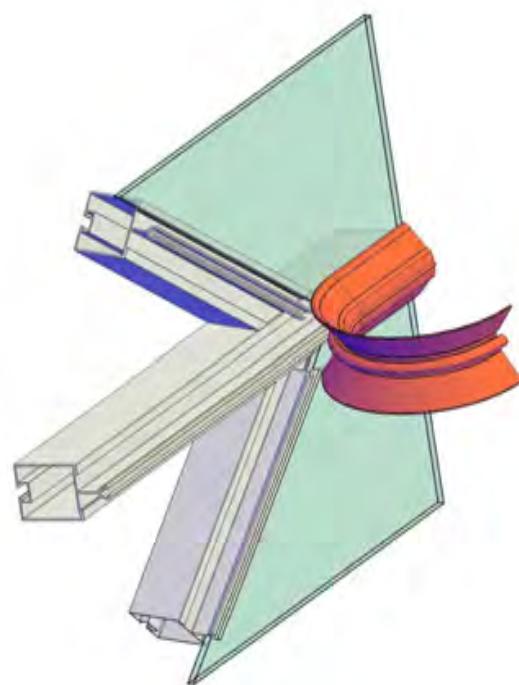




PRO 1748

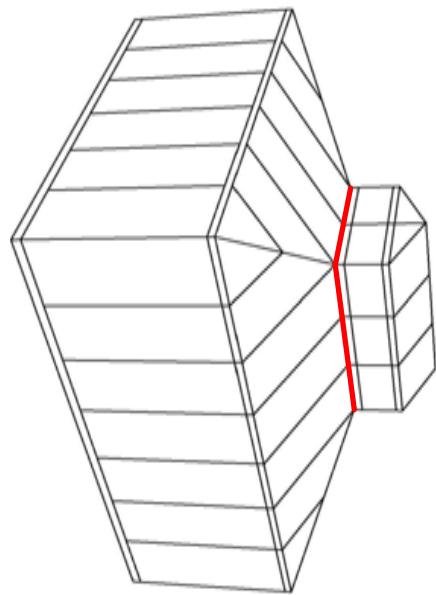
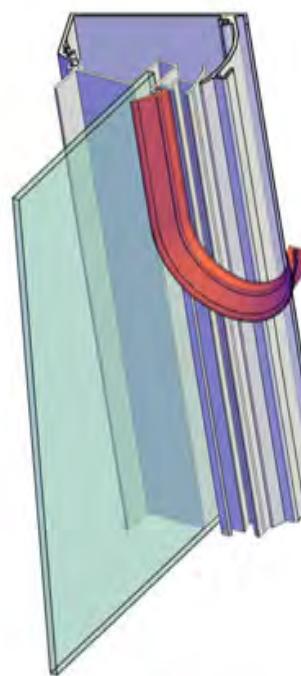


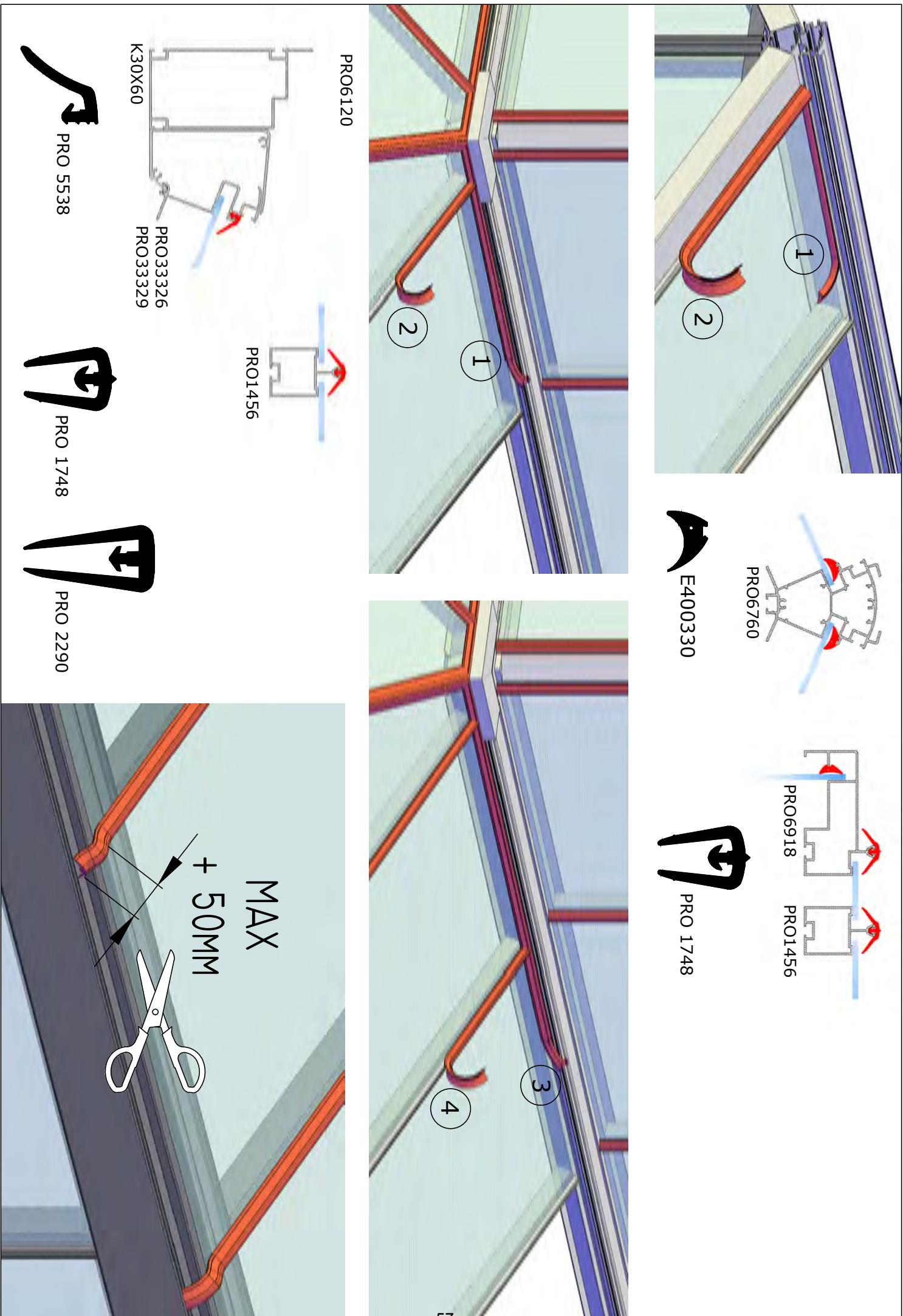
PRO 2290

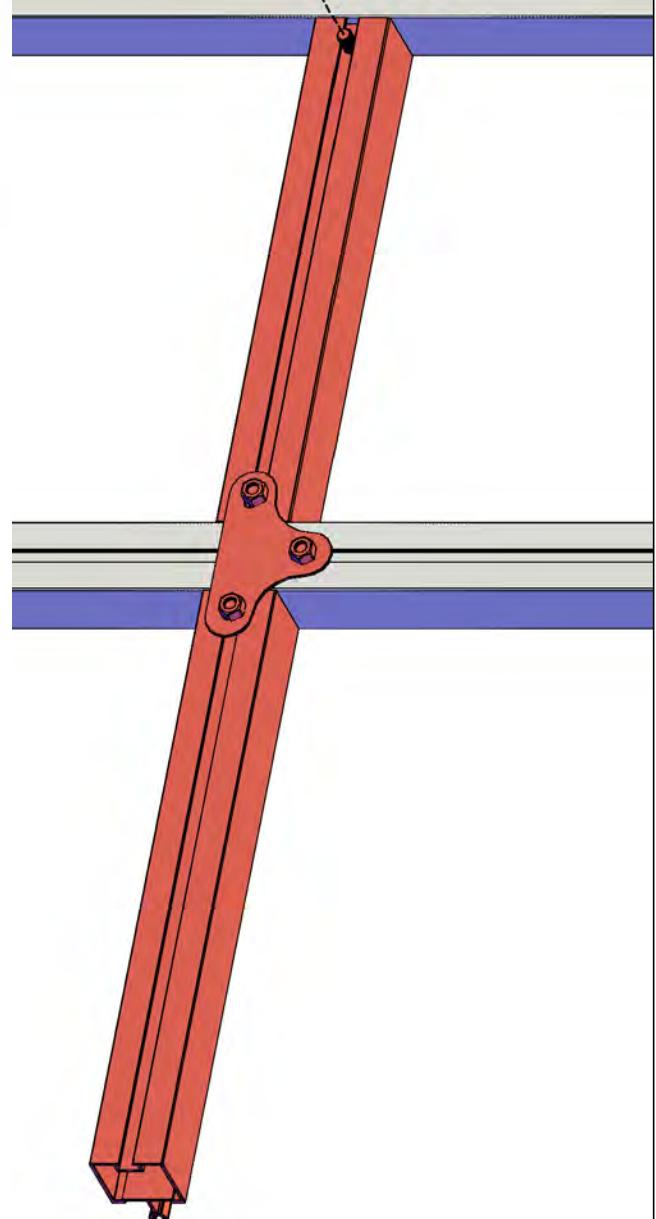
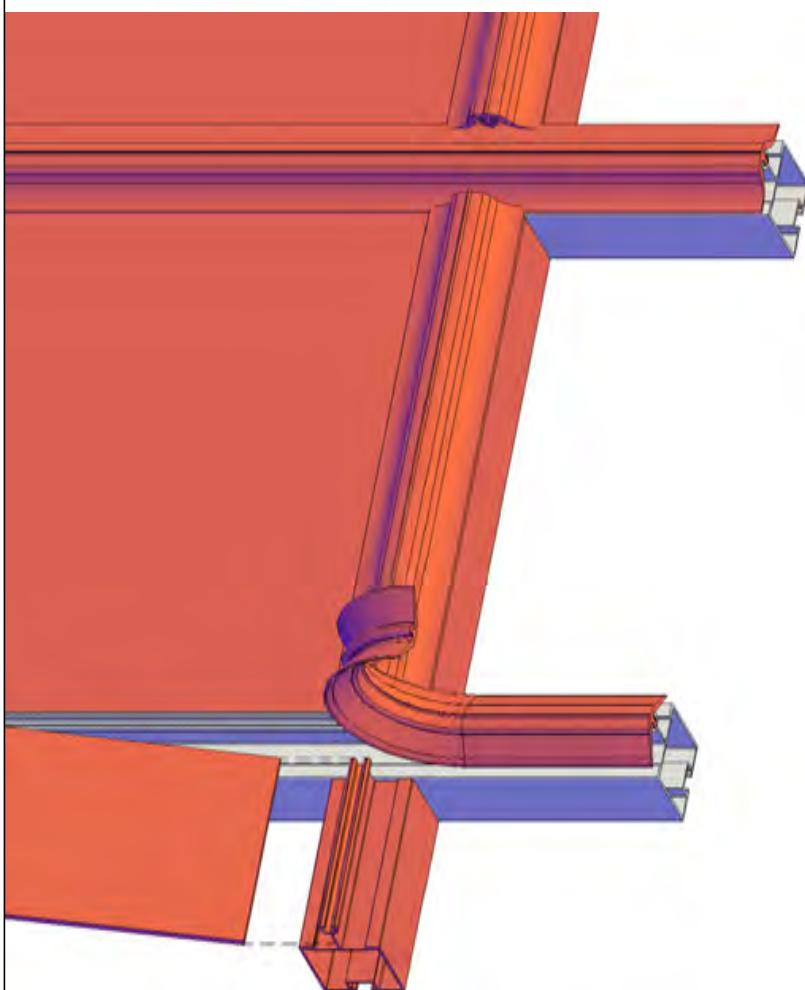
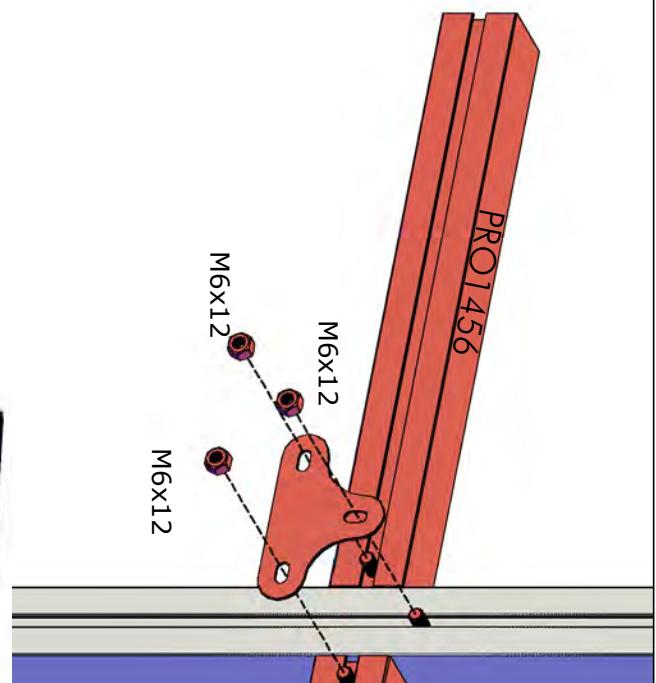
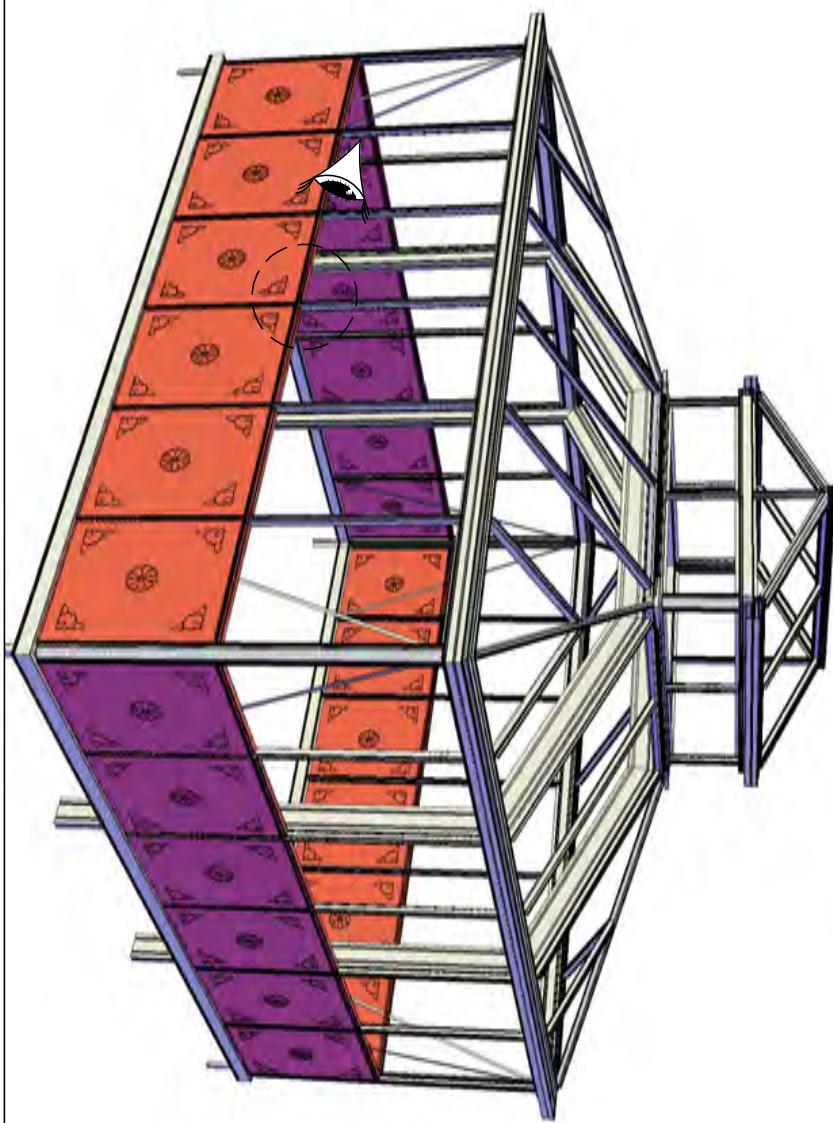


PRO 5538

This gasket is quite complicated to install. As you are installing, try to bunch the gasket up to prevent shrinkage overtime. It is best to have one long piece.







## ACCESSORIES

This section contains many of the optional accessories.

You will have some, but likely not all, items seen in this section.

IMPORTANT: Find Janssens Accessory installation video on our site here:

<https://www.exaco.com/greenhouse-victorian.php>

It will be immensely helpful!

# Doors for Your Greenhouse - Please read carefully

The standard Cathedral includes a single sliding door and a double hinged door - you may have chosen to upgrade/change your door options. Here are a few helpful notes about the sliding doors.

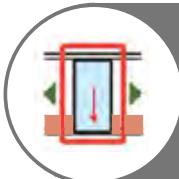
**Sliding Door Low Threshold Kit** - the manufacturer is transitioning from a low threshold kit with a four sided frame (KSD) to one with only the threshold piece (SDL). You should see one of these letter combinations on your packages to indicate which version you have.

**Sliding Doors** - the manufacturer is transitioning to a similar style sliding door with a few new features such as an additional insert for the top of the doorway, different bottom door guides, and a special latch plate for the door lock. You will be able to identify which kit you have by whether or not you have an extrusion PRO39796 for the bottom door guide.

If you have PRO39796 in your kit, please follow the assembly instructions on pages marked "Version 1".

If you do not have the PRO39796, look for the assembly pages labeled "Version 2". In the past, double doors were created by placing two single doors together. Beginning sometime in 2024, double doors will be packaged as such and have additional connector parts (Version 2). Under the new system, you may choose to place the double door as two single doors - but you will need to cut some pieces to do this. It is approachable and not difficult, but it will be important to have a way to cut through the metal.

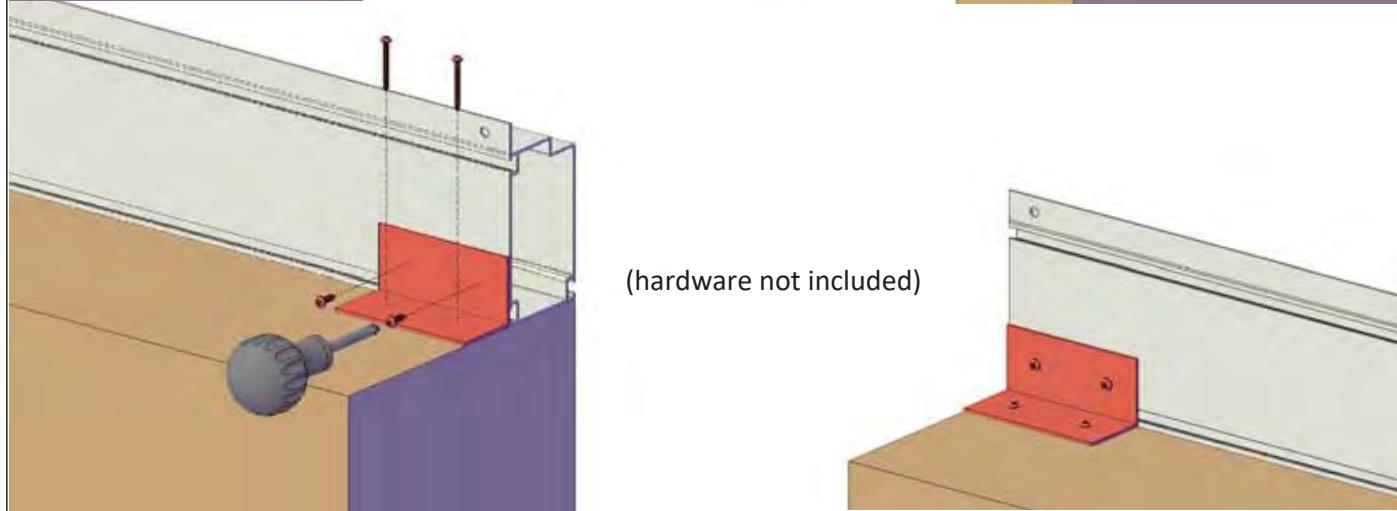
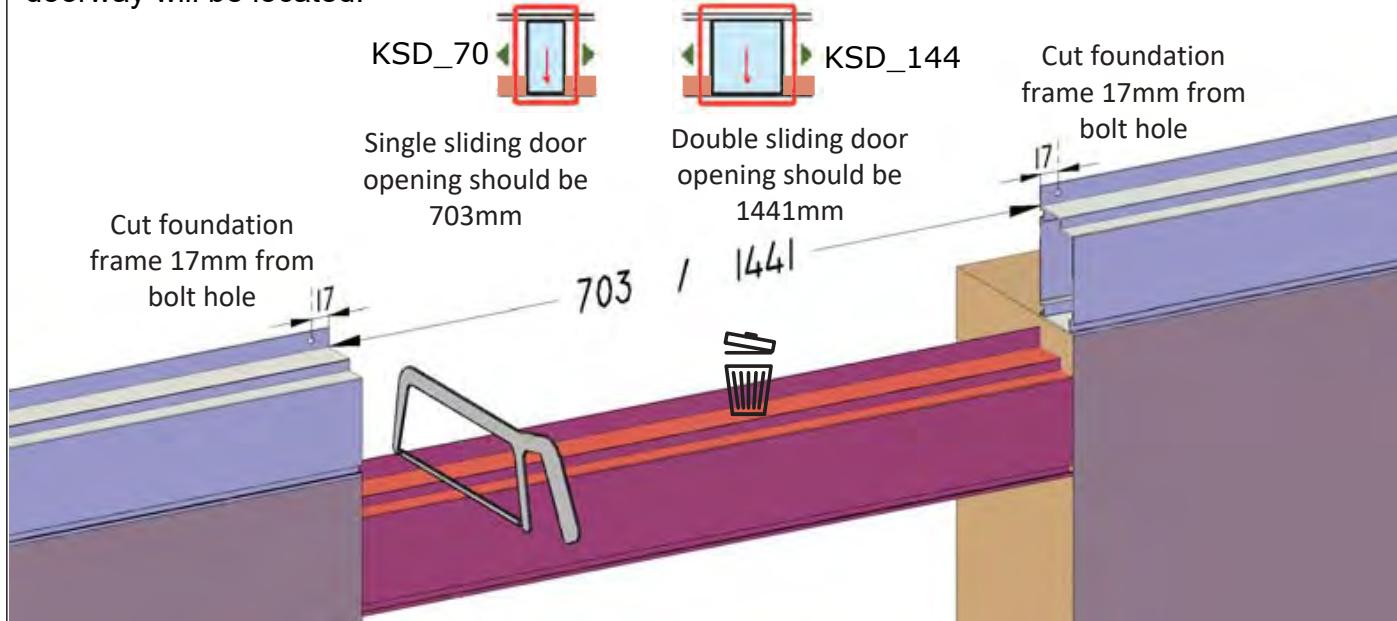
**Hinged Doors** - please make use of our playlist of Victorian YouTube videos - they are EXTREMELY helpful for sections of the hinged door assembly.



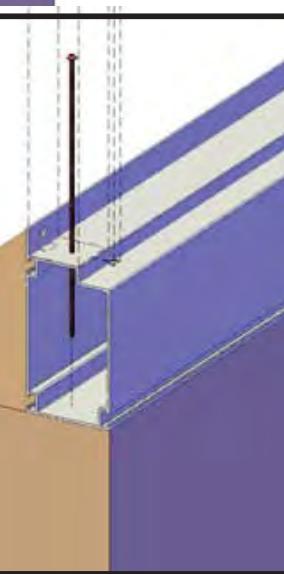
OPTION: Greenhouse  
on a stem/knee wall

# SD\_MUR

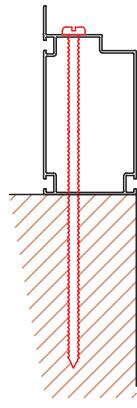
If your greenhouse is on a knee wall, you will need to cut the base frame (PRO6120) where the doorway will be located.



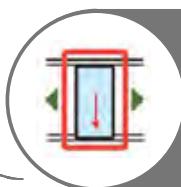
**ALTERNATIVE**



(hardware not included)



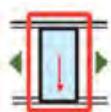
SD MUR\_1



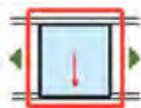
## OPTIONAL UPGRADE: Low Threshold for Sliding Door/s

# KSD

KSD\_70



Single sliding door opening  
should be 703mm



KSD\_144

Double sliding door opening  
should be 1441mm

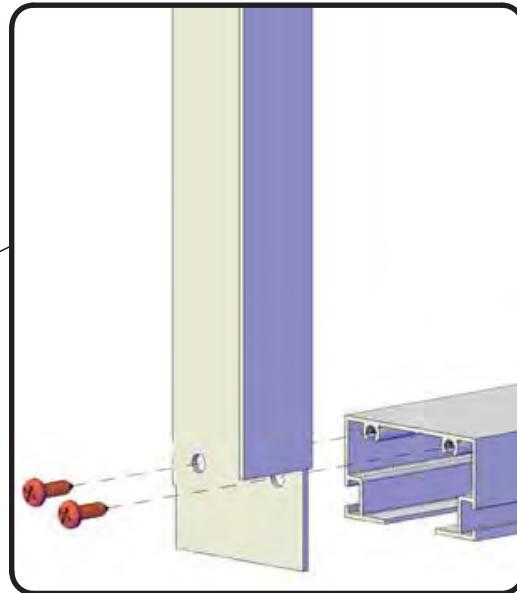
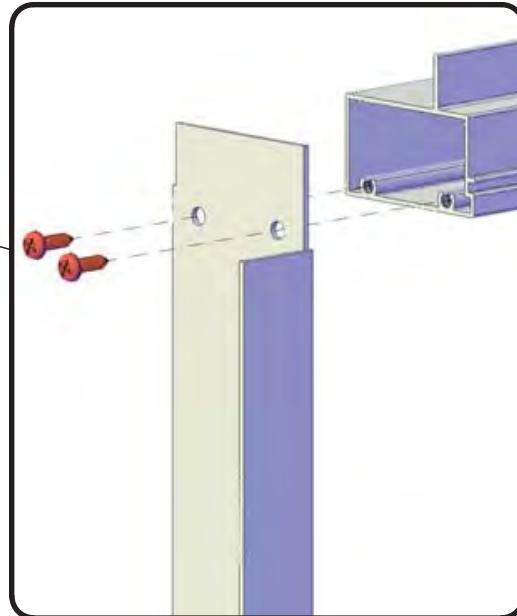
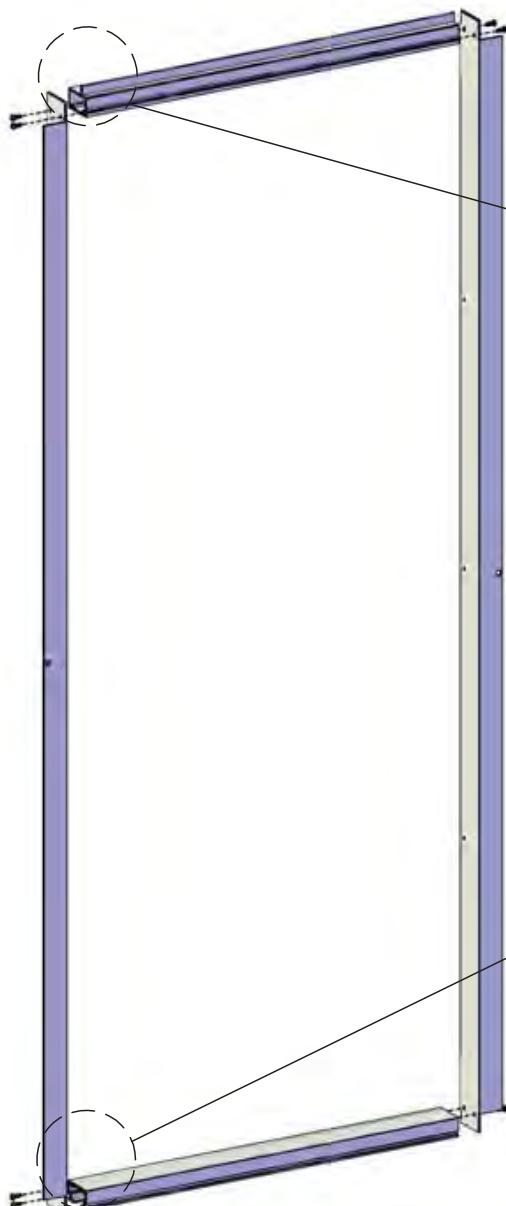
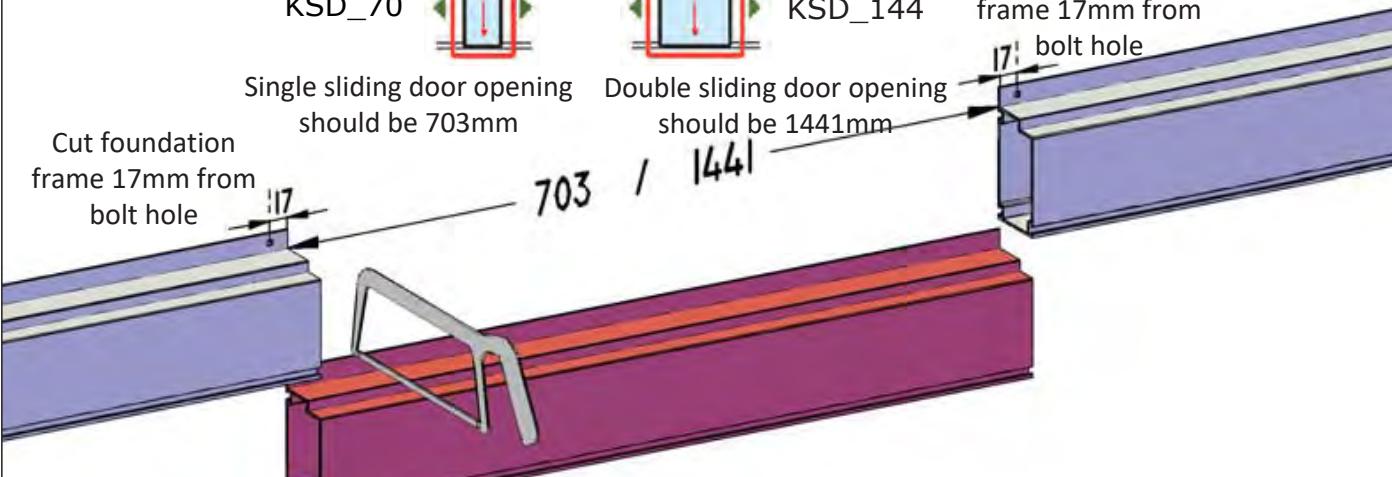
Cut foundation  
frame 17mm from  
bolt hole

Cut foundation  
frame 17mm from  
bolt hole

17

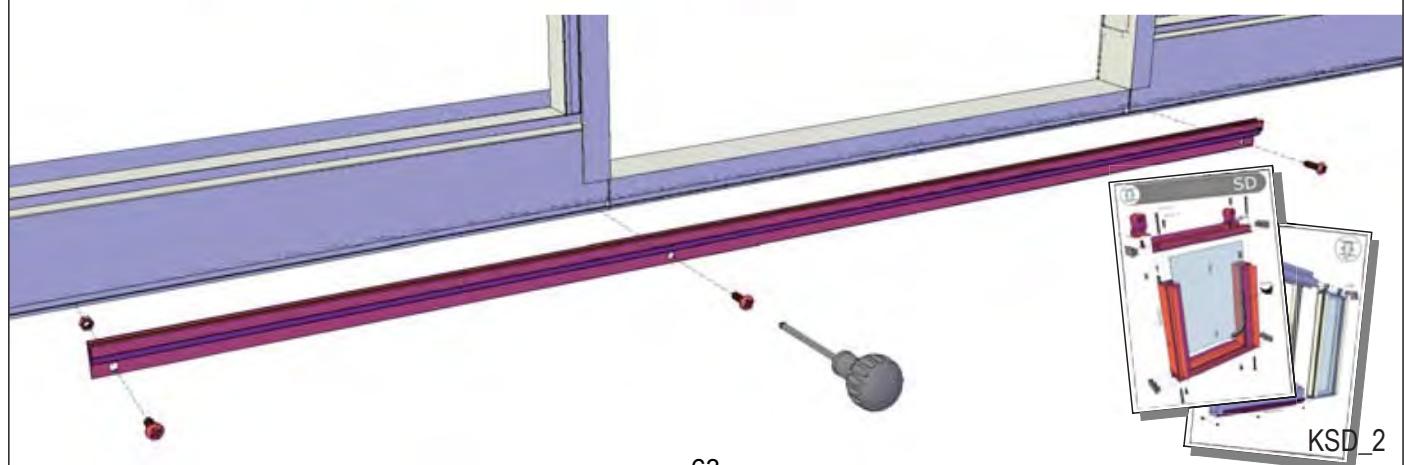
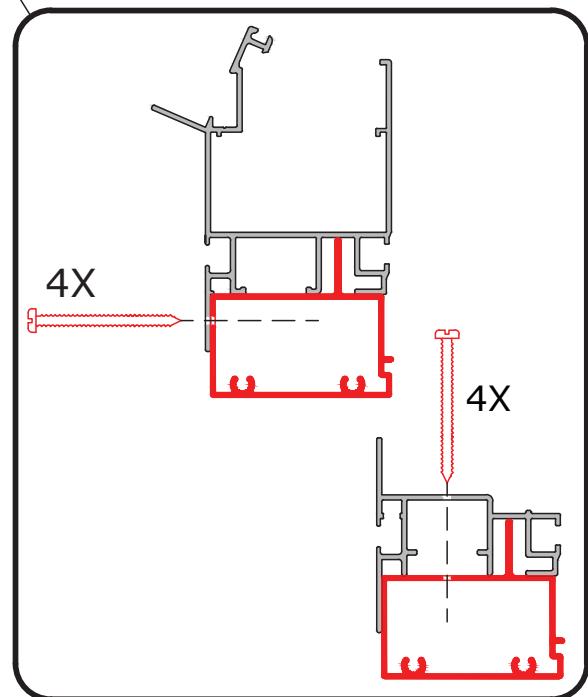
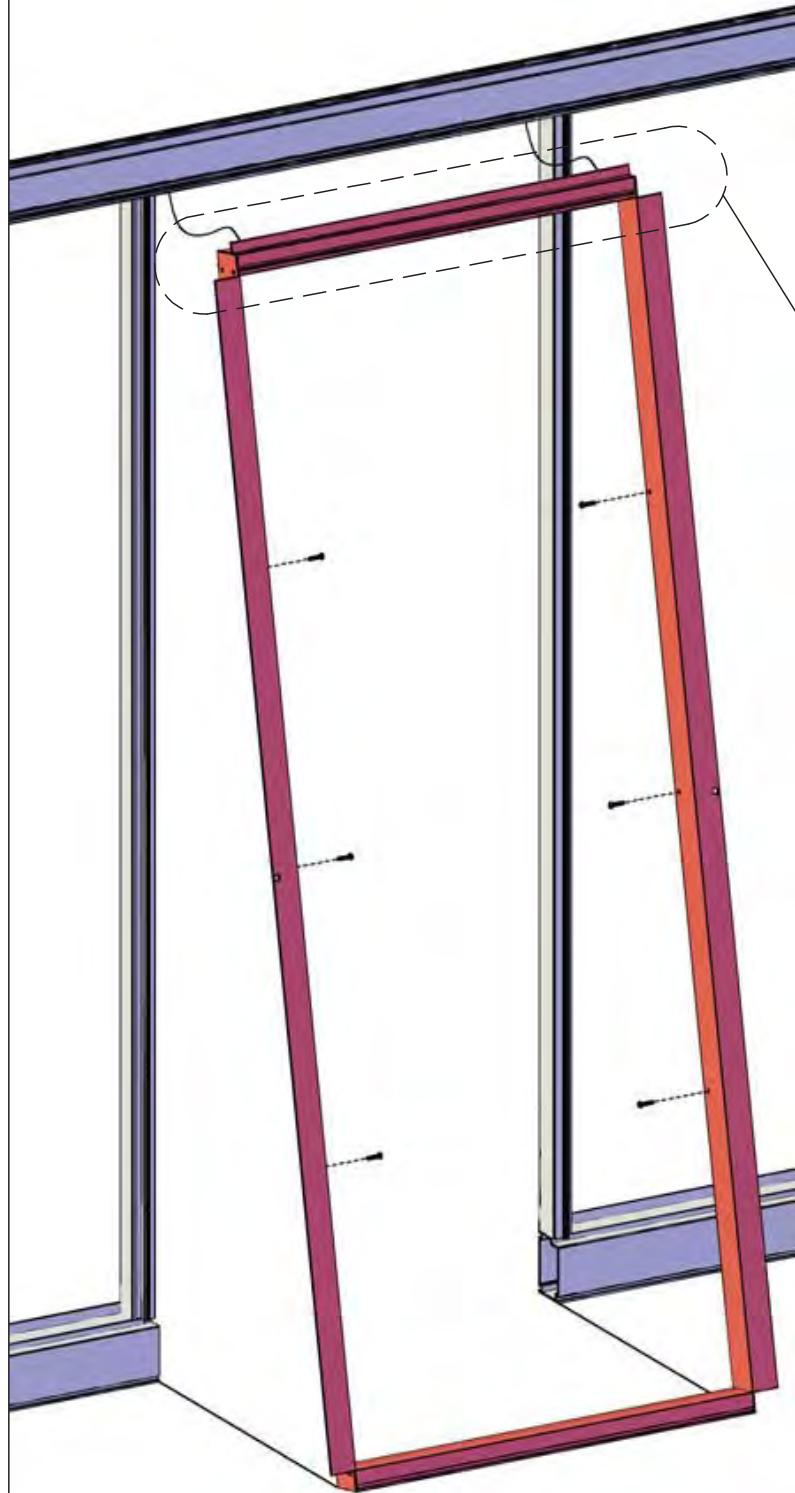
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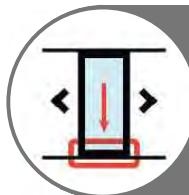
1441



KSD\_1

OPTIONAL UPGRADE: Low Threshold for Sliding Door/s





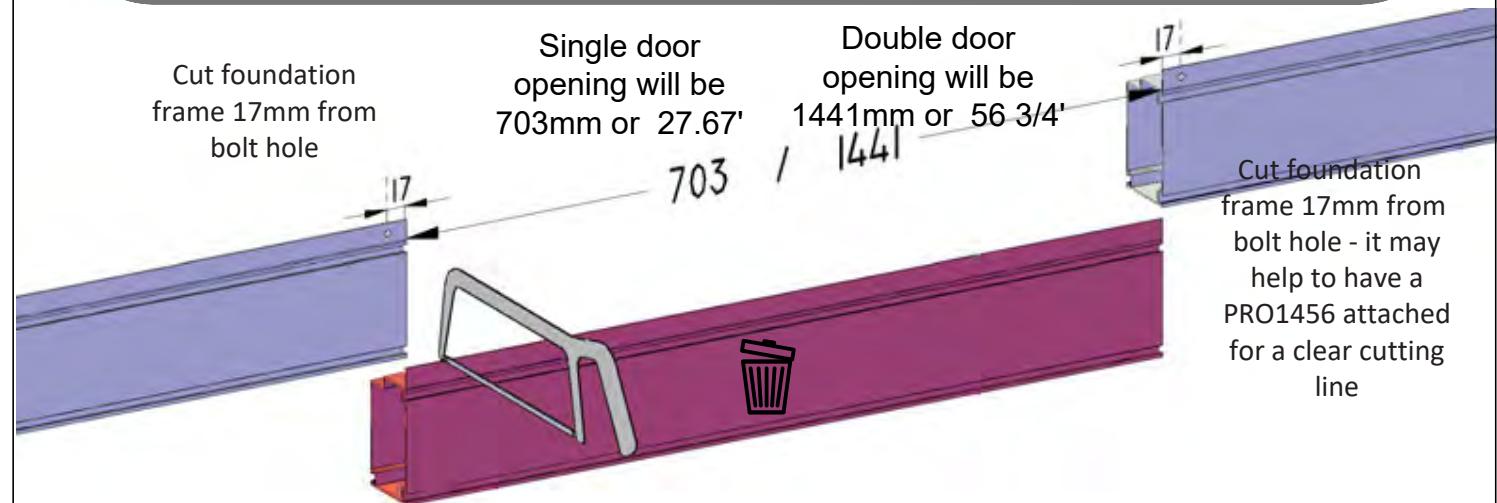
## OPTIONAL UPGRADE: late 2024 low threshold kit

# SDL

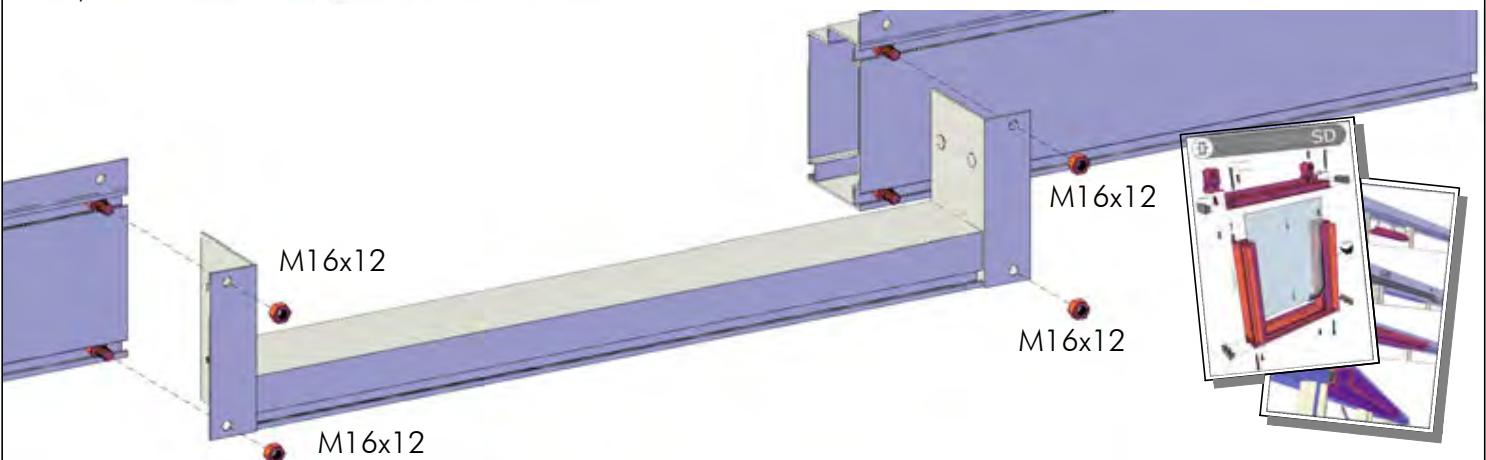
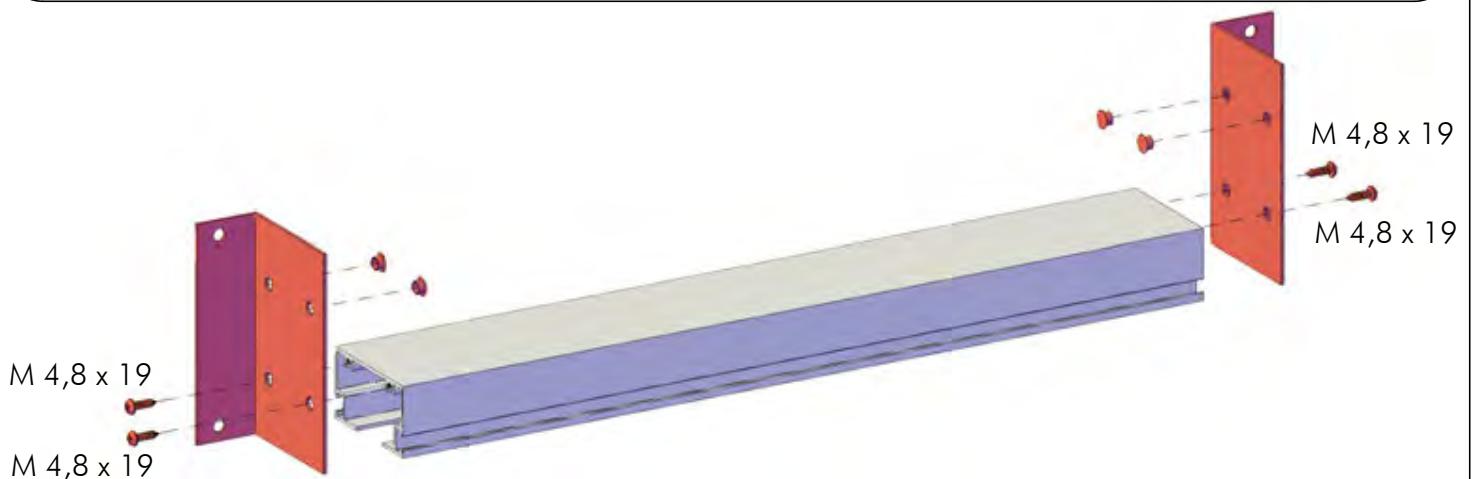
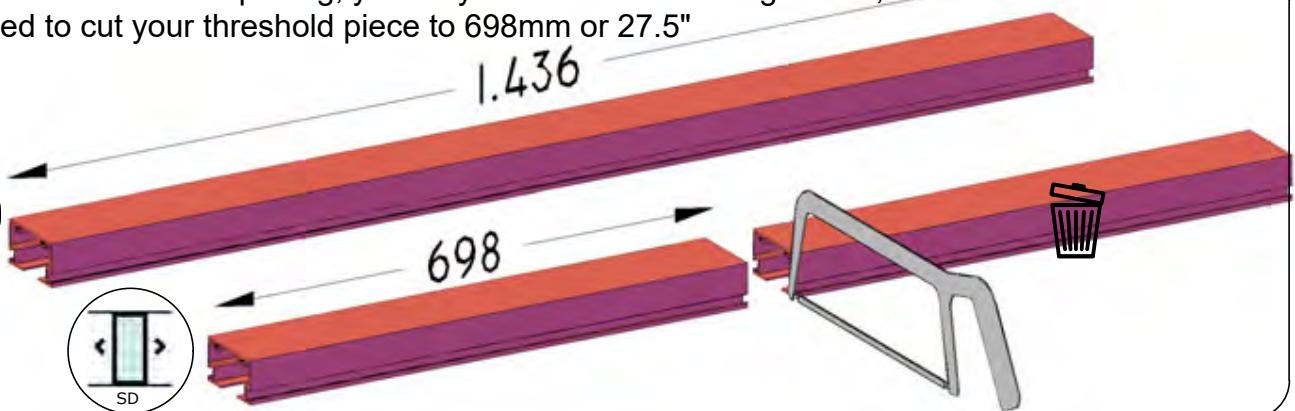
Cut foundation frame 17mm from bolt hole

Single door opening will be 703mm or 27.67"

Double door opening will be 1441mm or 56 3/4"



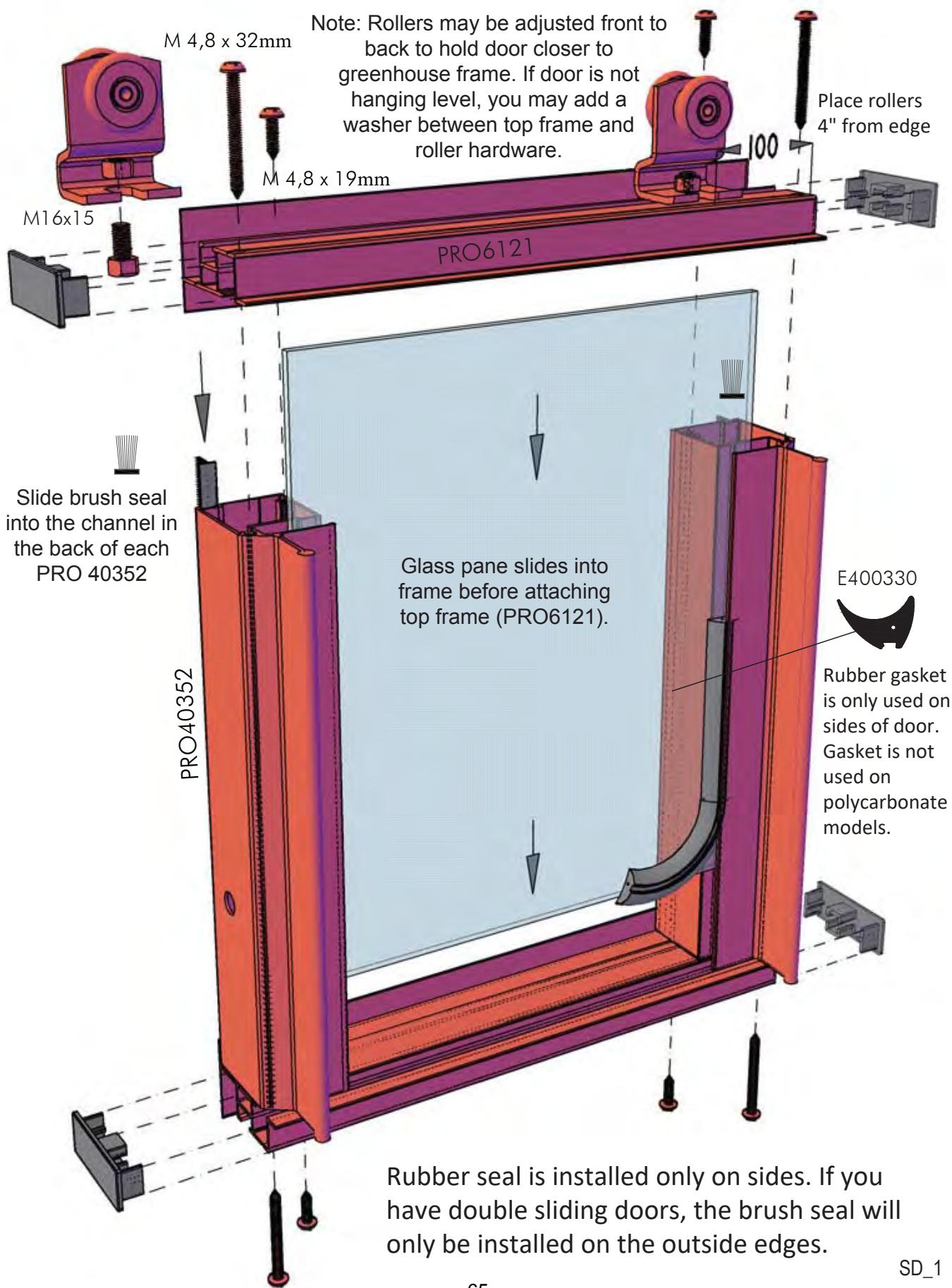
If you have a double door opening, you may use as is. For a single door, you will need to cut your threshold piece to 698mm or 27.5"





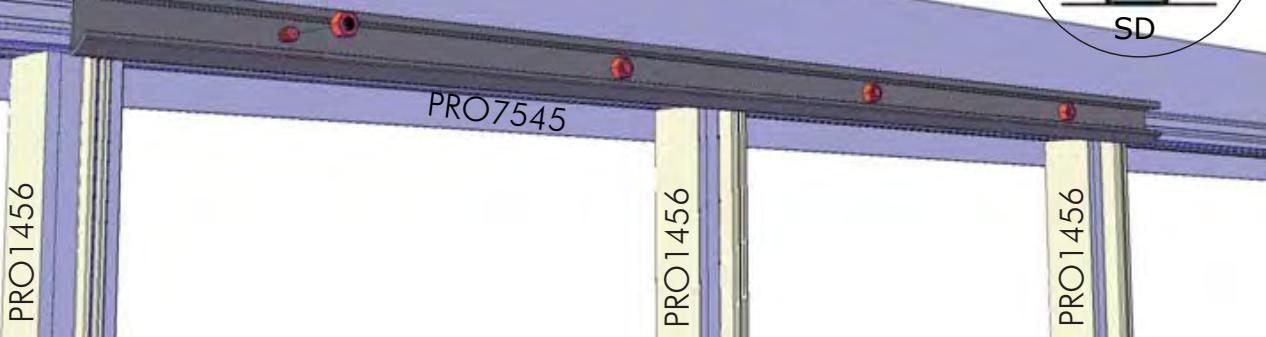
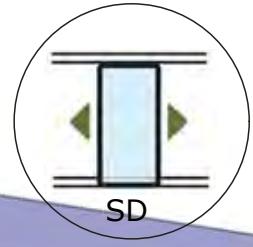
Sliding Door - Basic assembly of any sliding door.  
VI36 and VI46 have double doors, some VI34 models  
may include double doors. More doors may be added.

SD



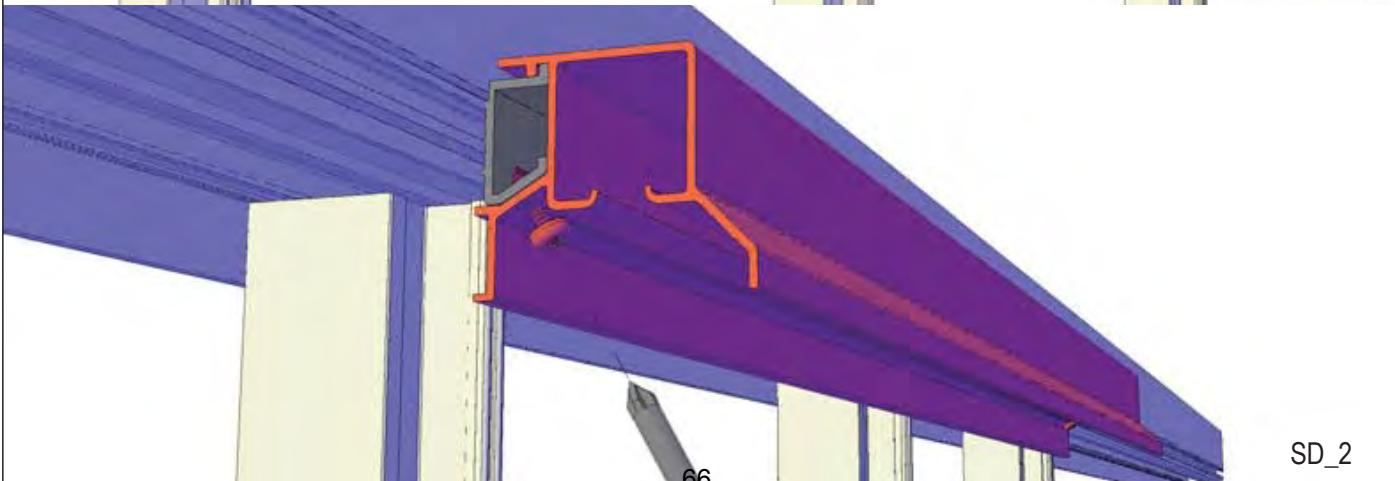
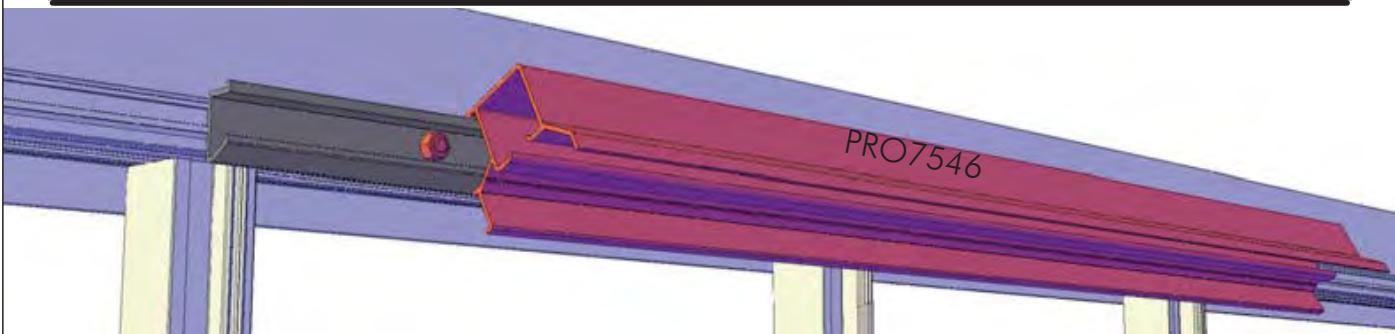
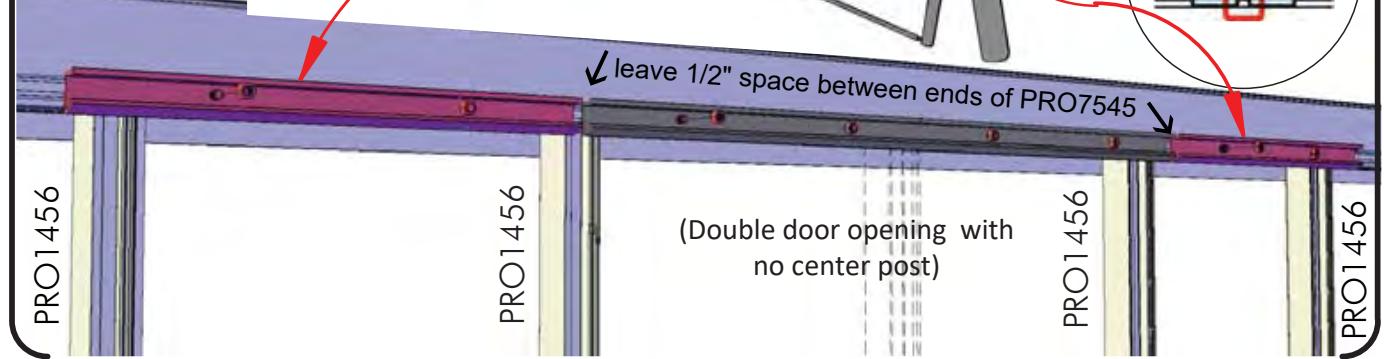
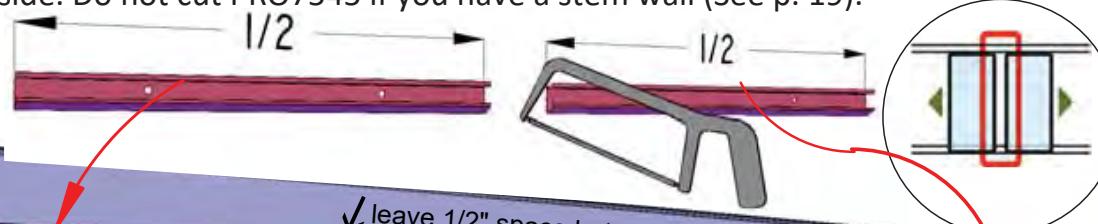
## Version 1: Single and/or Double Door Hanger installation

Sliding door/s may be attached in any bay (with exceptions to corners)

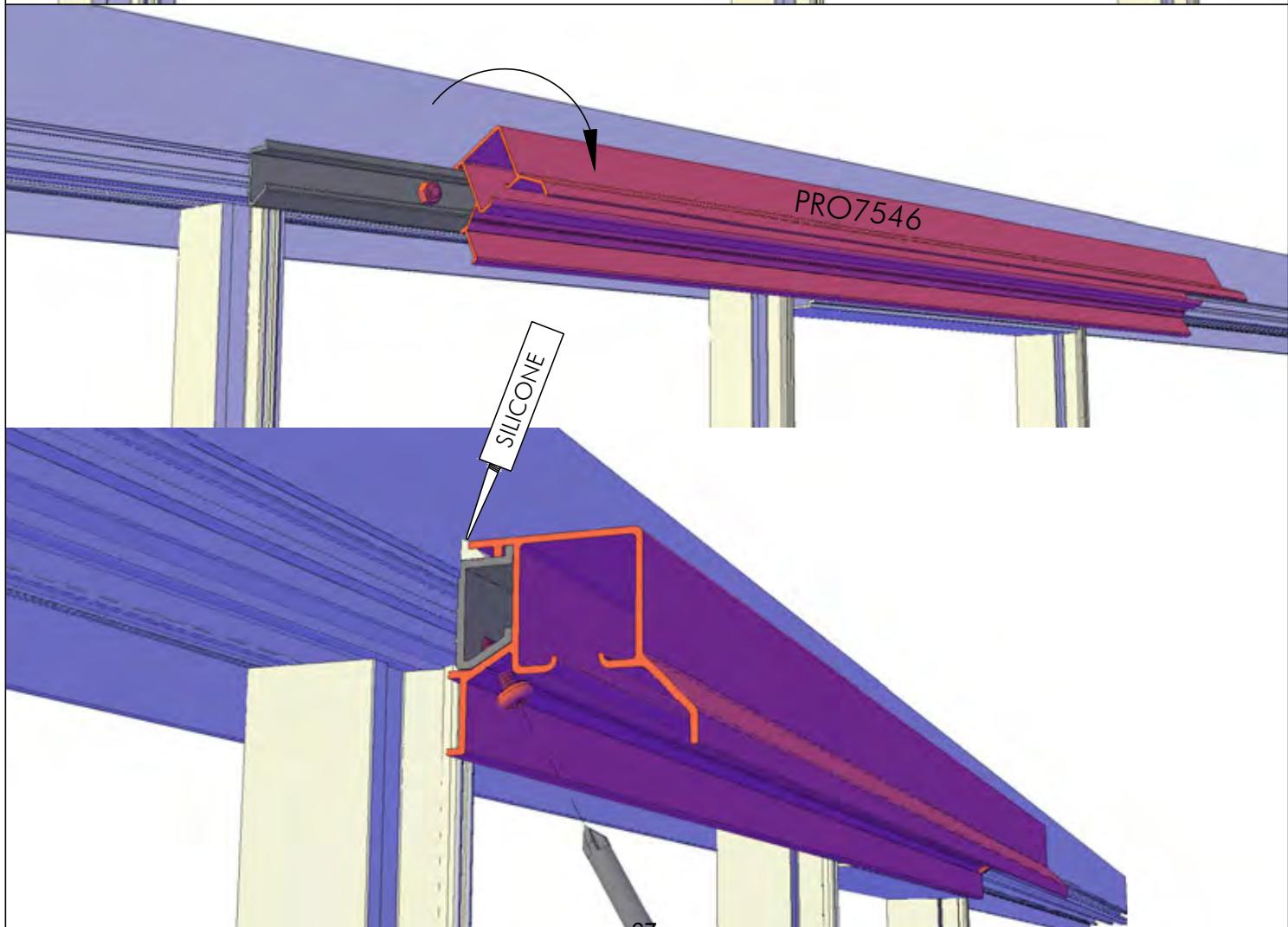
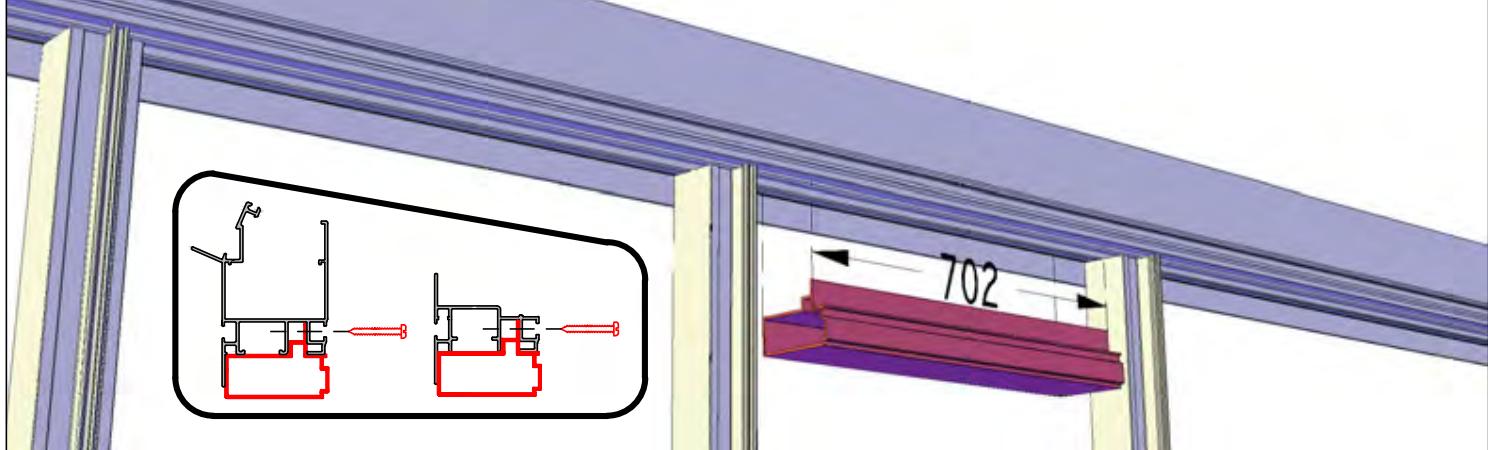


**IMPORTANT for Double Sliding Door Opening!!** Cut one PRO7545 in half.

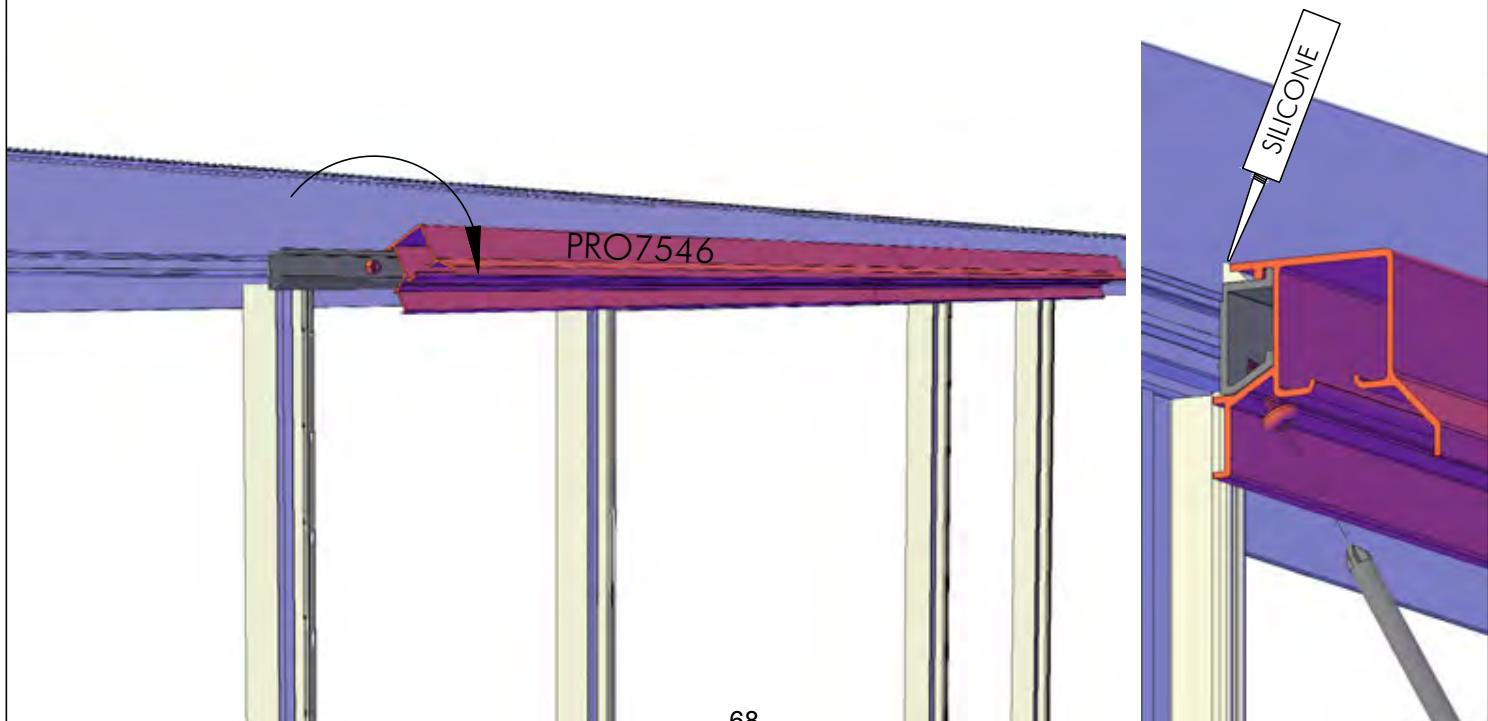
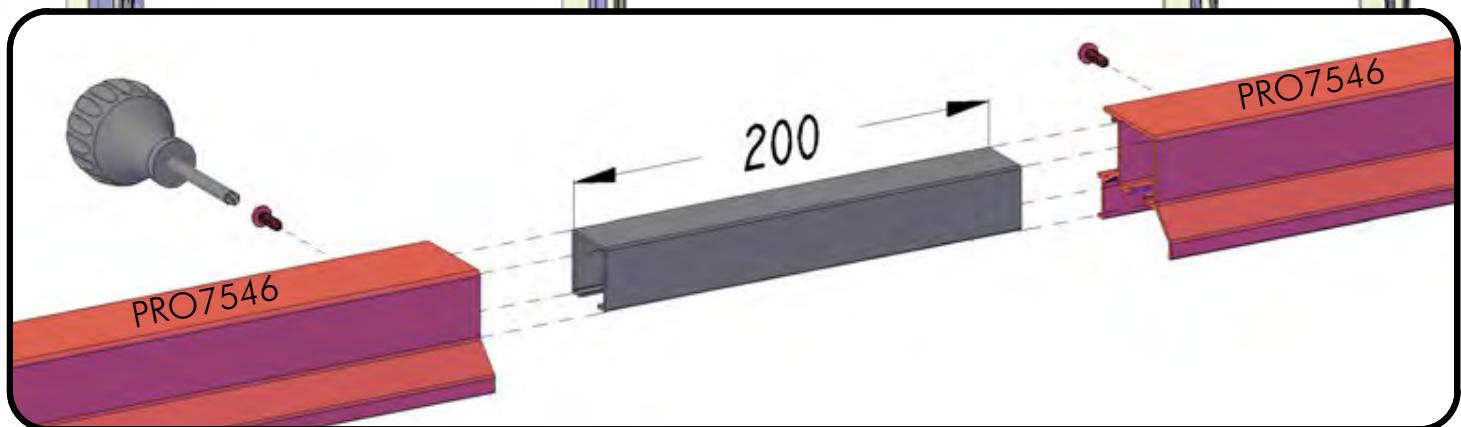
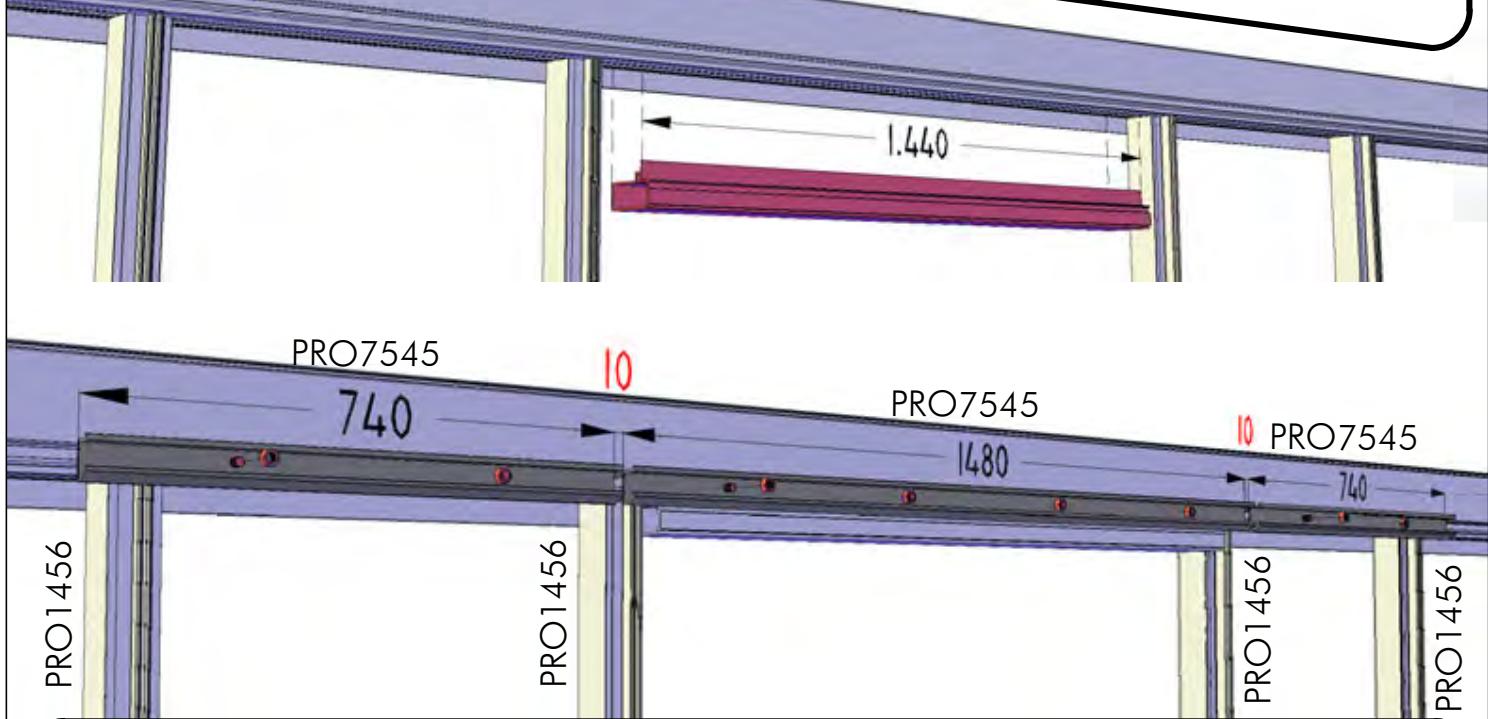
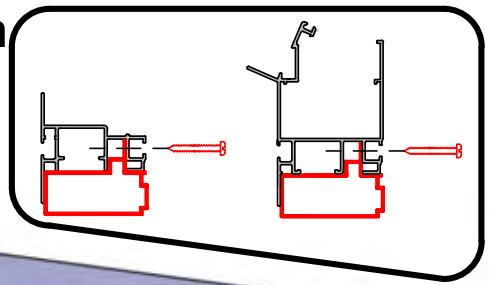
Place long PRO7545 in center (to support double opening) and the half PRO7545 on either side. Do not cut PRO7545 if you have a stem wall (See p. 19).



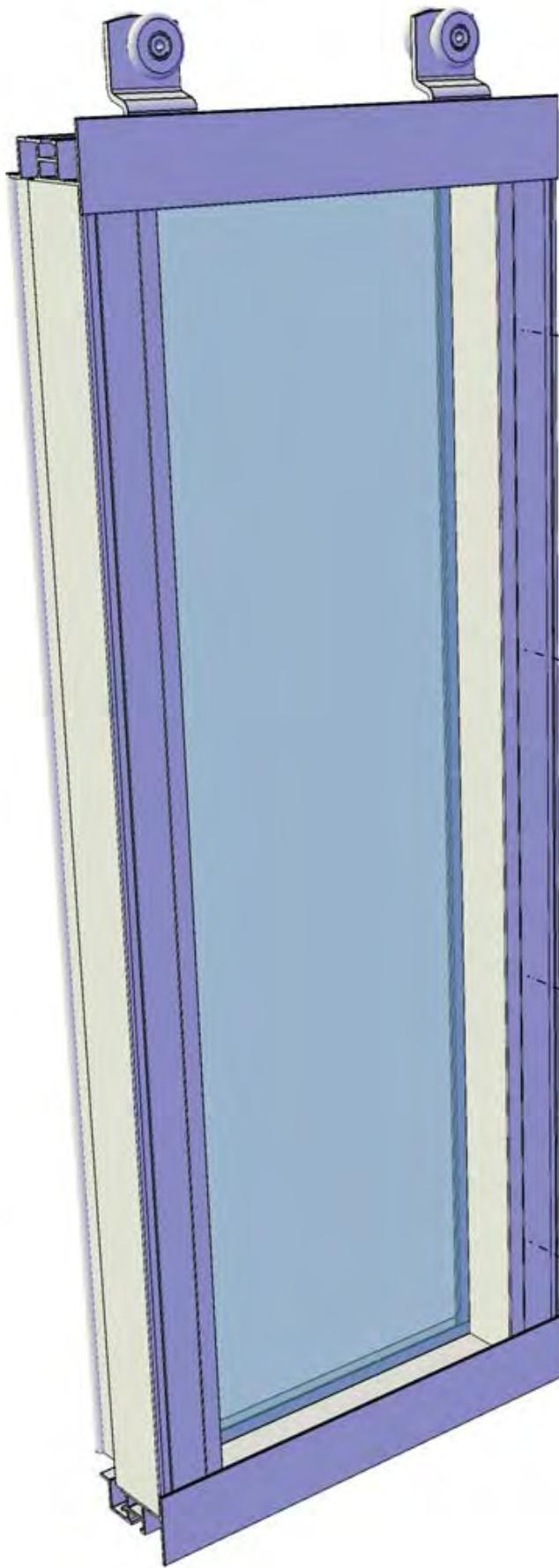
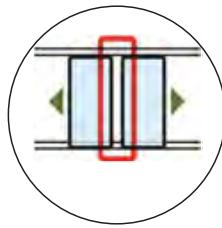
## Version 2: Single Door Hanger installation (SD)



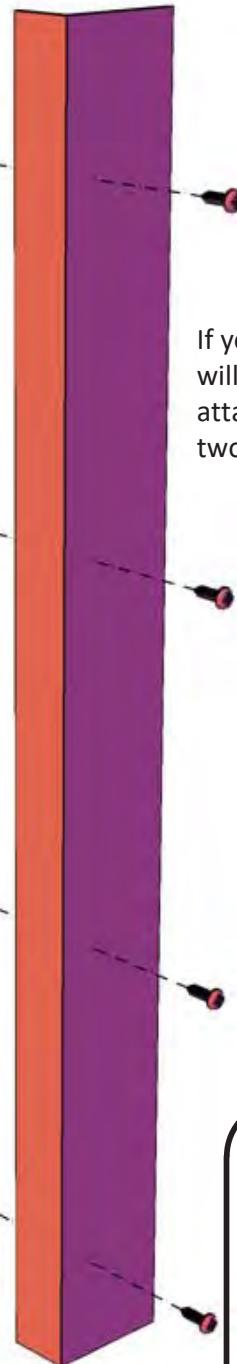
## **Version 2: Double Door Hanger installation (SDD)**



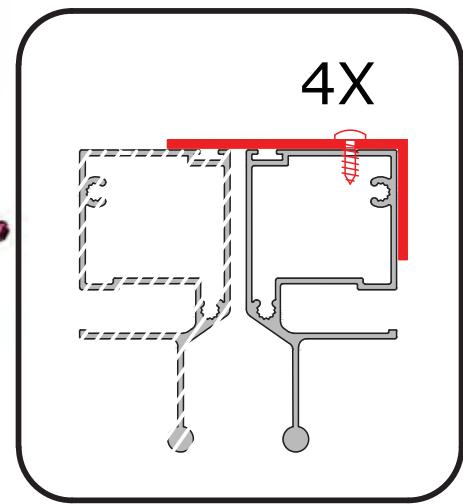
## OPTION: Double Sliding Door (Applies to Version 1 and 2)



As needed, use washer underneath door hanger to level the door/s .

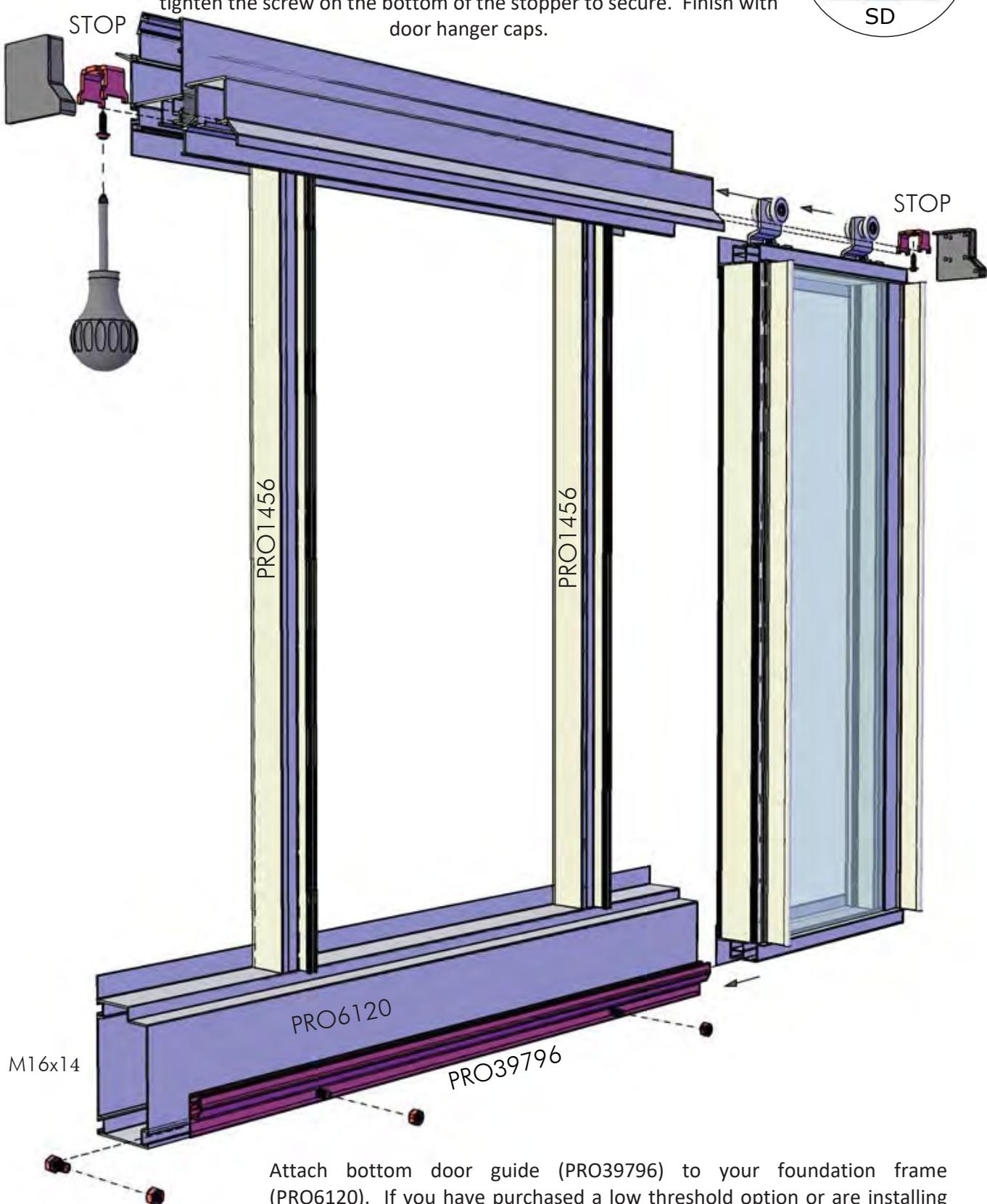
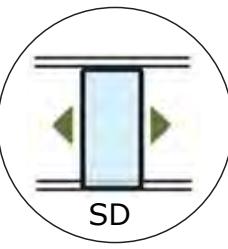


If you have a double sliding door, you will have a long L bracket that will attach to close any gap between the two doors.



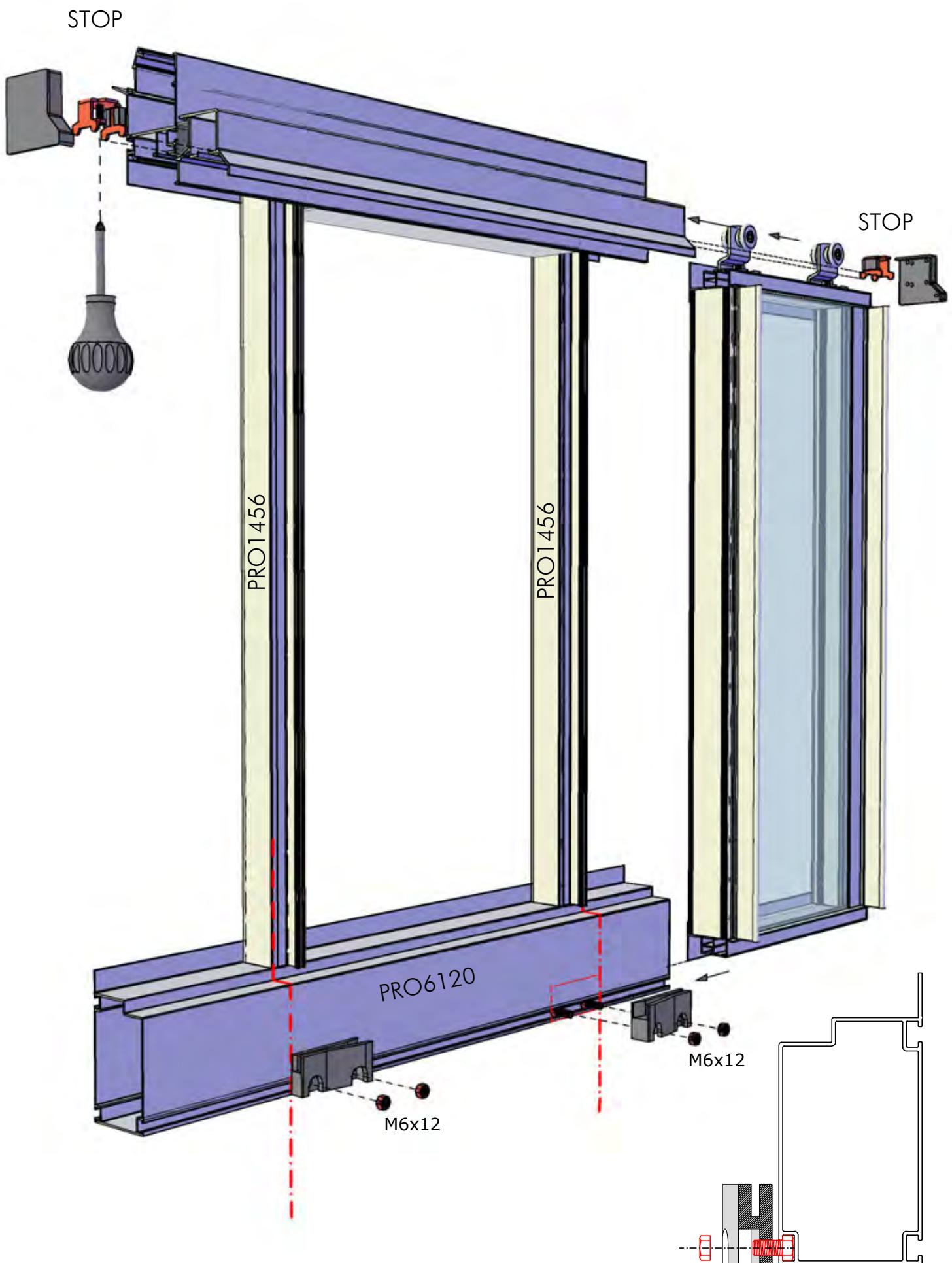
## Version 1: Door installation

Slide door rollers into top door hanger (PRO7546 or PRO7876) and slide a stopper on either side. Determine how far the door should slide, then tighten the screw on the bottom of the stopper to secure. Finish with door hanger caps.

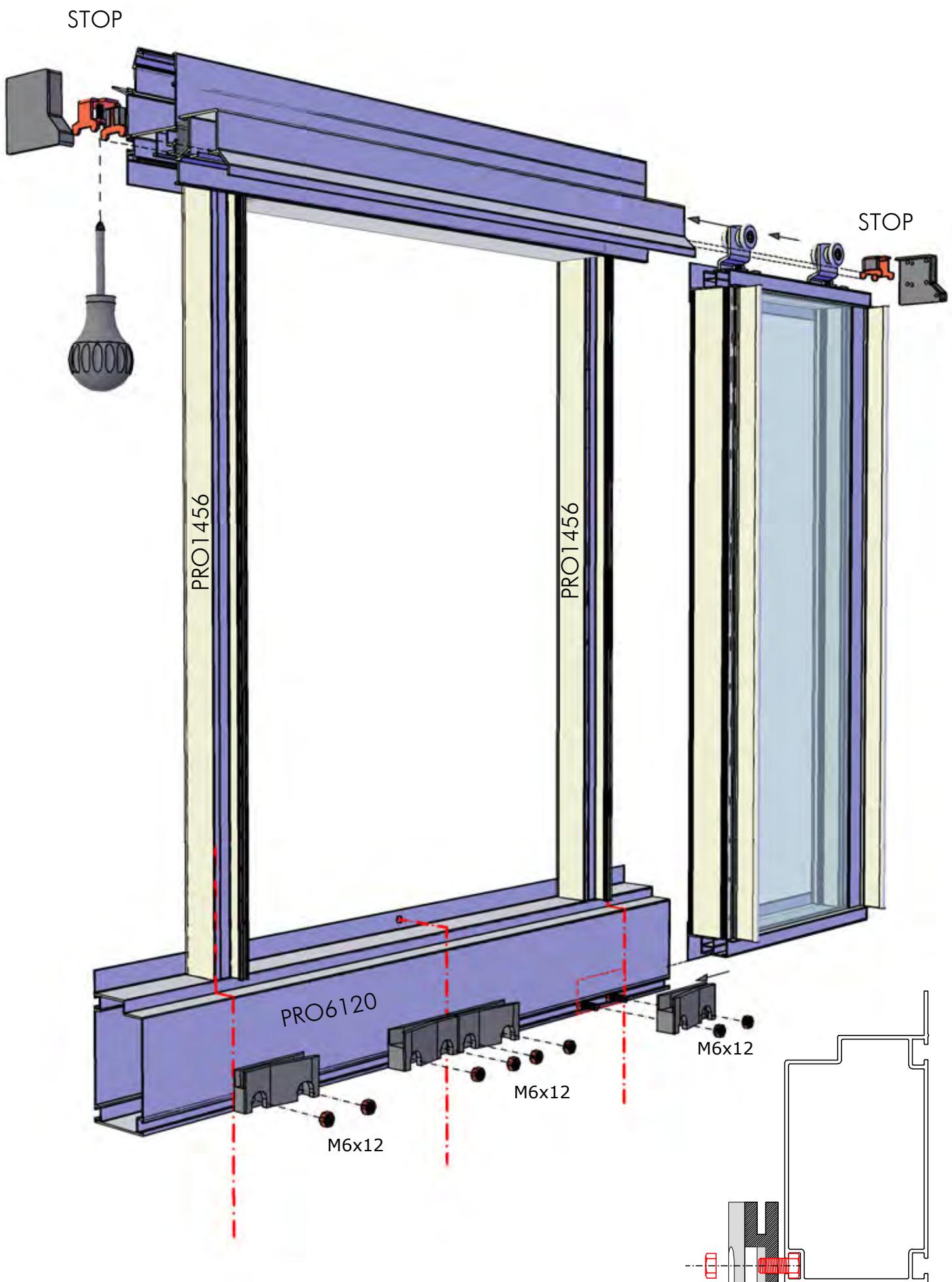


Attach bottom door guide (PRO39796) to your foundation frame (PRO6120). If you have purchased a low threshold option or are installing your greenhouse on a wall, please refer to the following pages marked SD\_MUR for stem wall and KSD for low threshold kit before installing door, bottom door guide, and locks.

## Version 2: Single Door installation



## Version 2: Double Door installation (SDD)



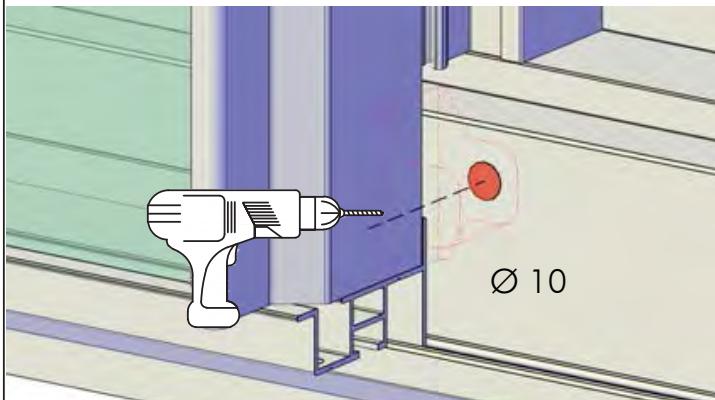
# Version 1: Sliding Door Lock Installation w/o Low Threshold

Install lock at bottom of a:

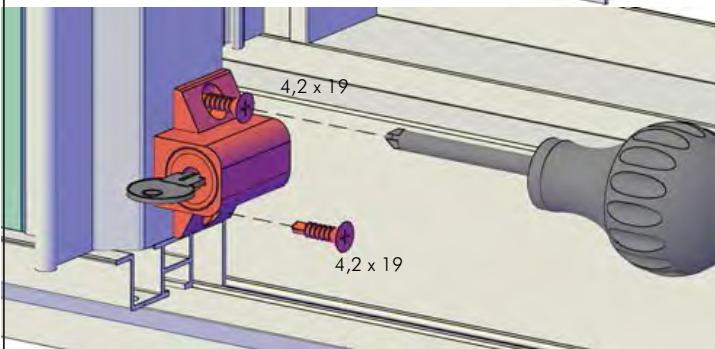
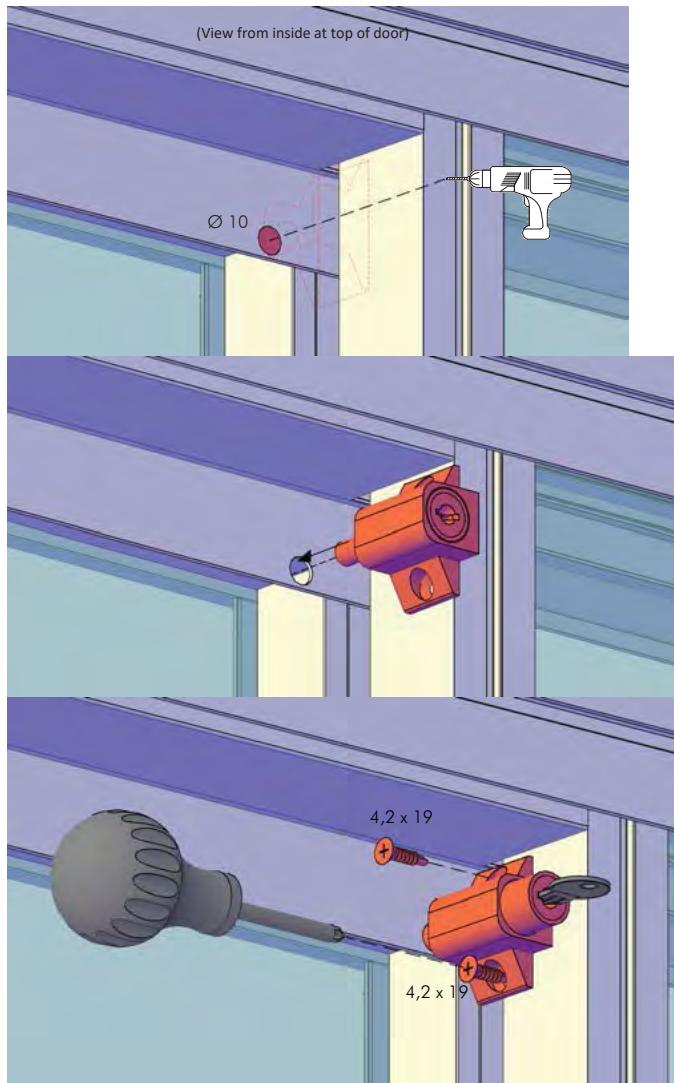
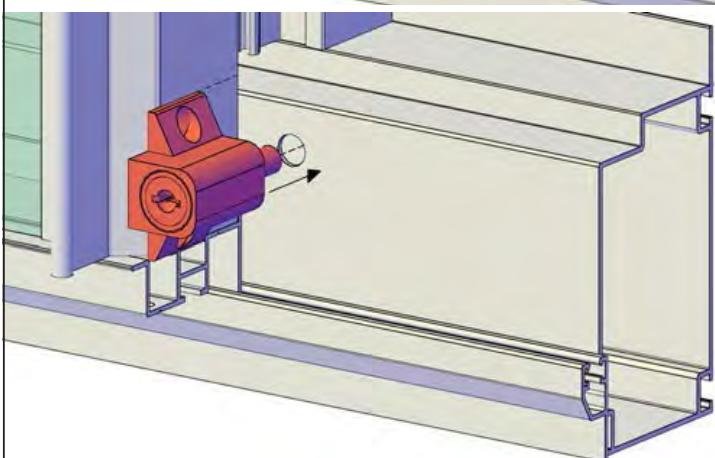
- single sliding door
- first door of double sliding doors
- both of your double sliding doors



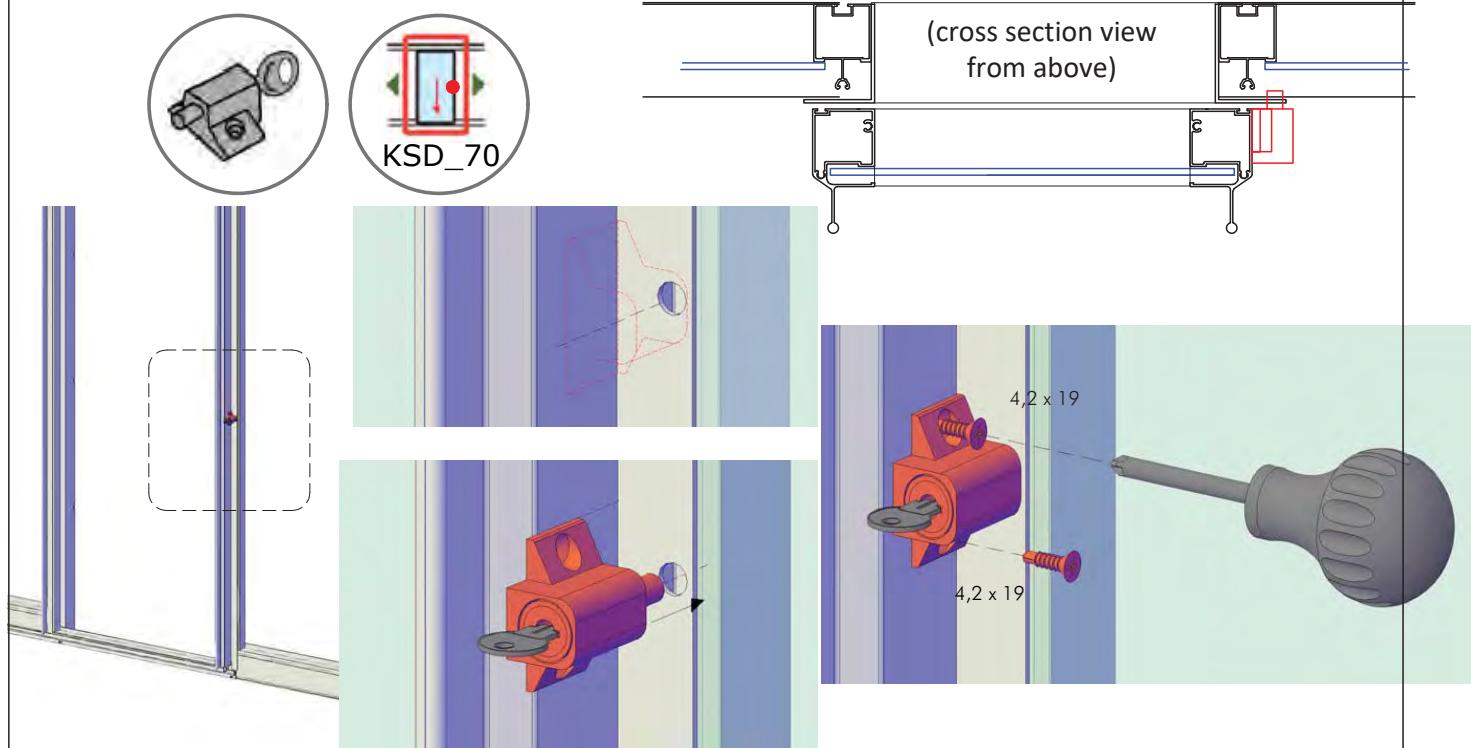
(View from outside at bottom of door)



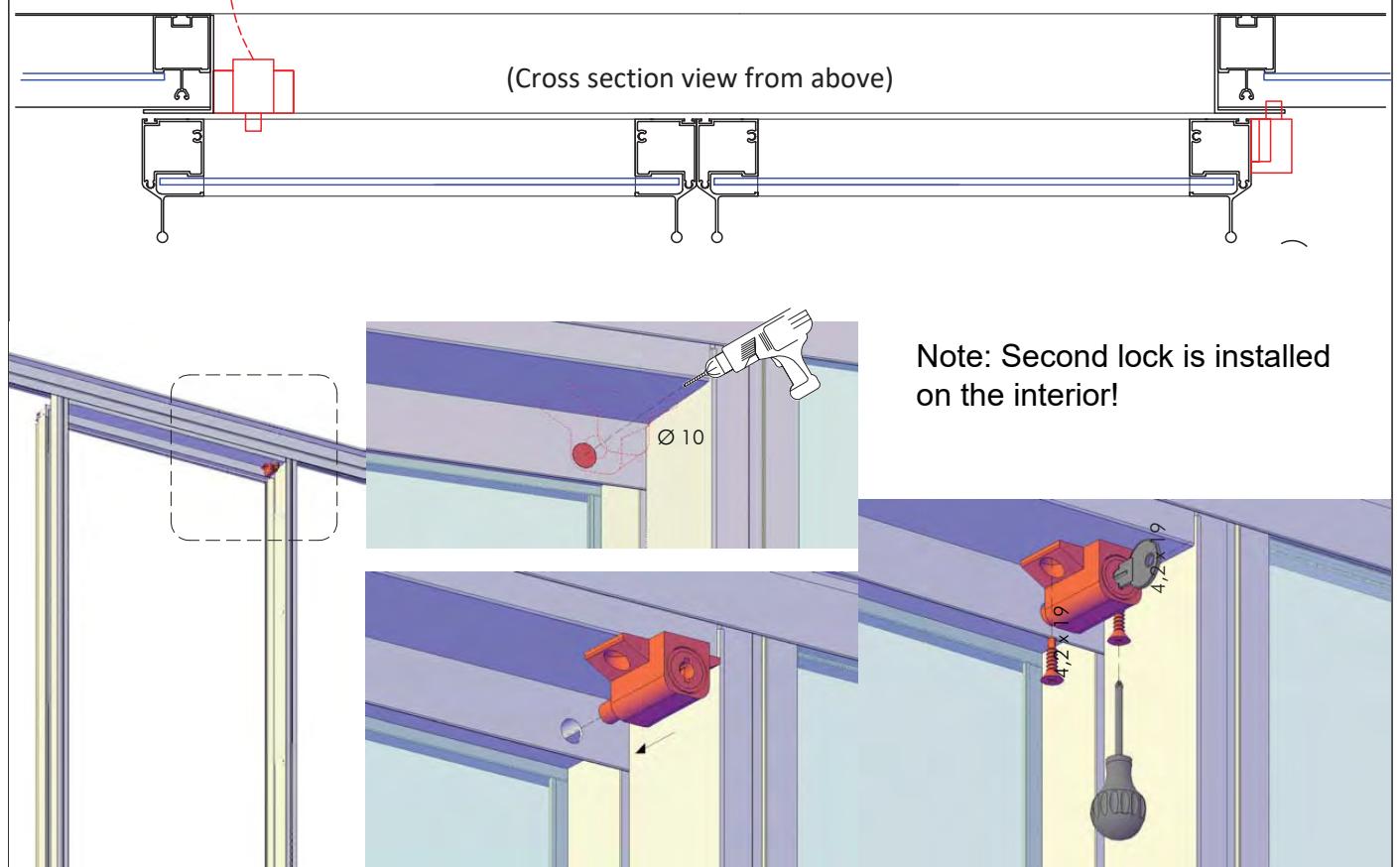
If you have a double sliding door, you may install one lock on the inside of your greenhouse as shown



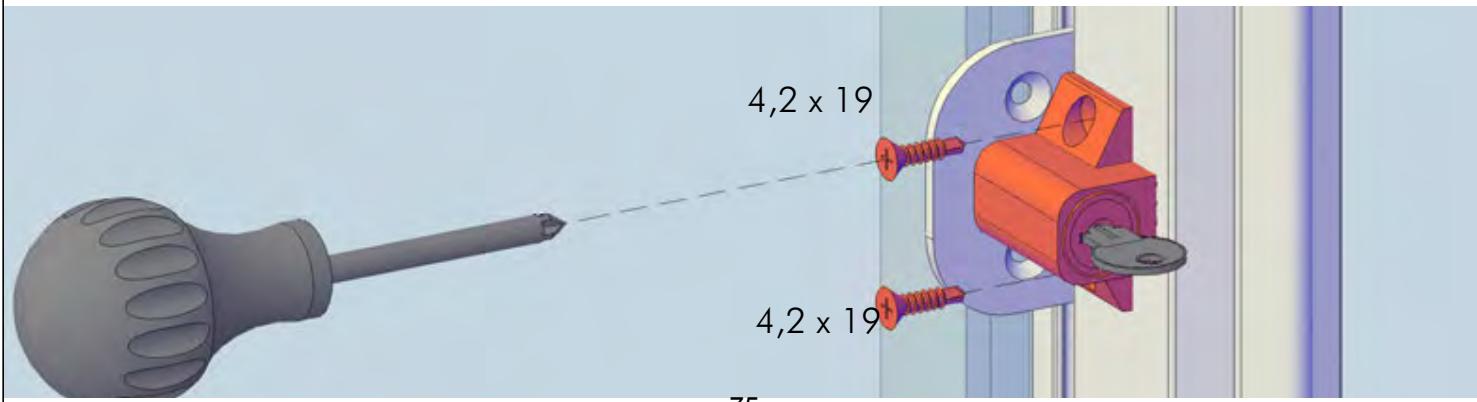
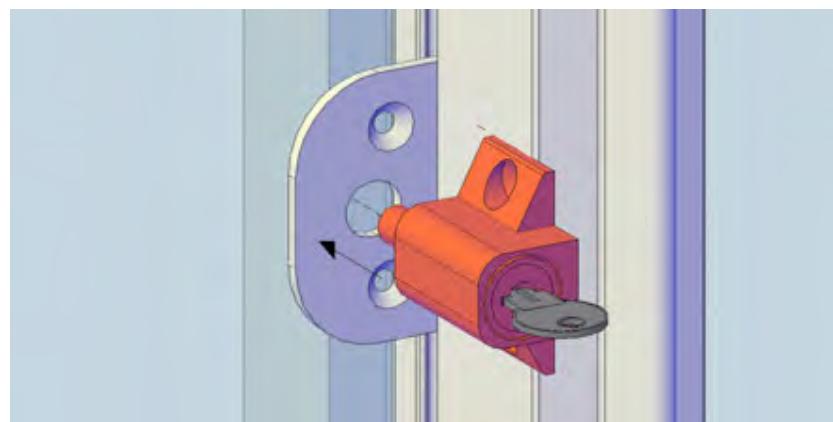
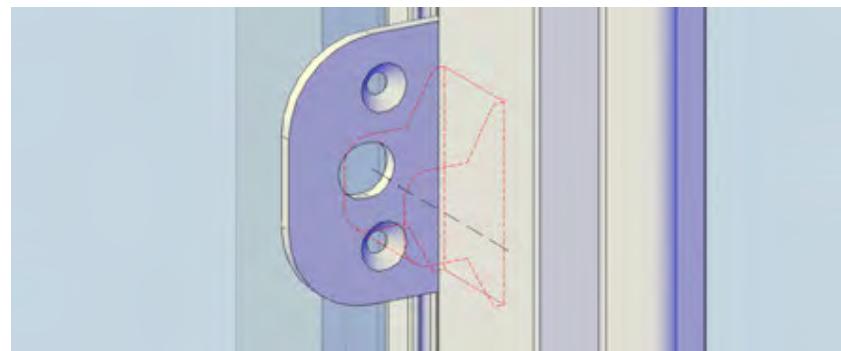
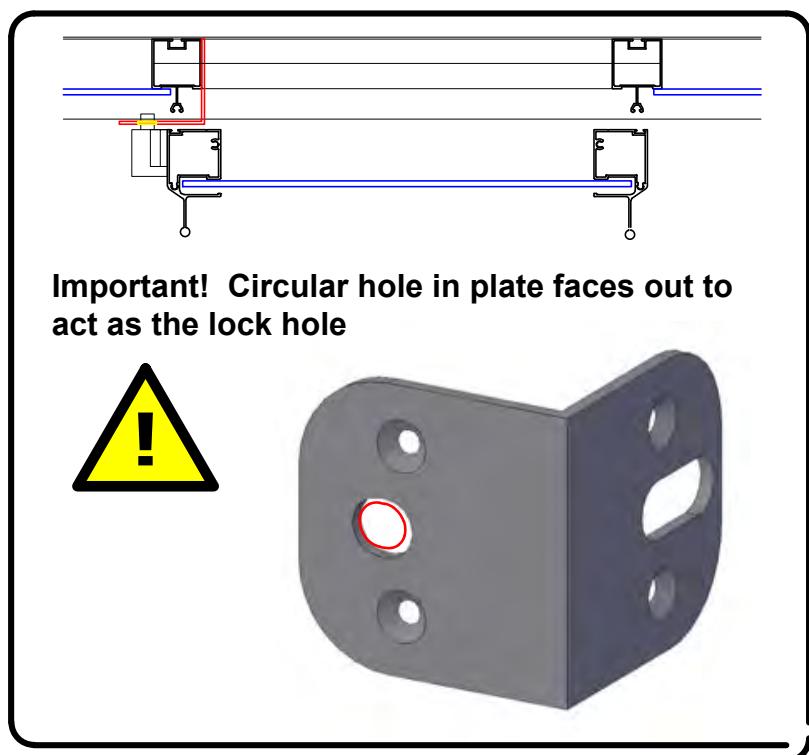
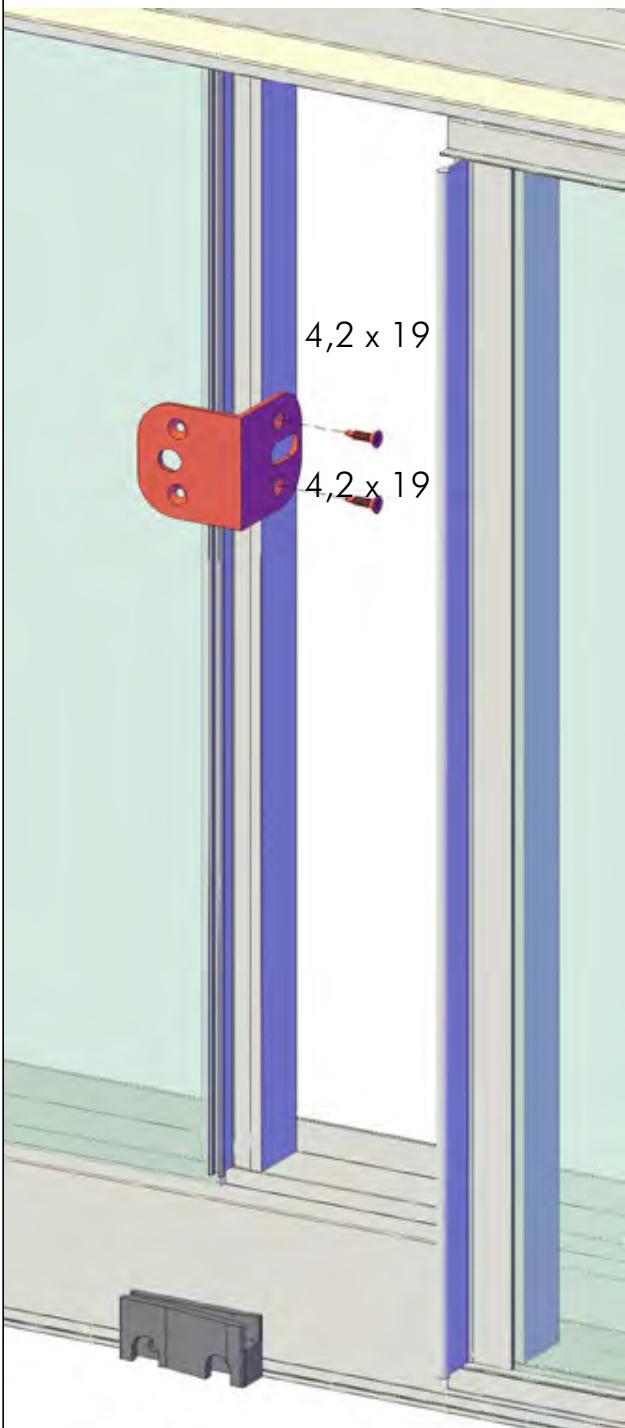
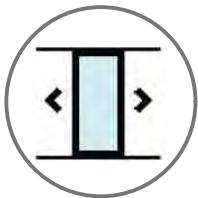
## Optional Upgrade: Lock install with KSD - 4 Frame Low Threshold Kit (Single/First door)



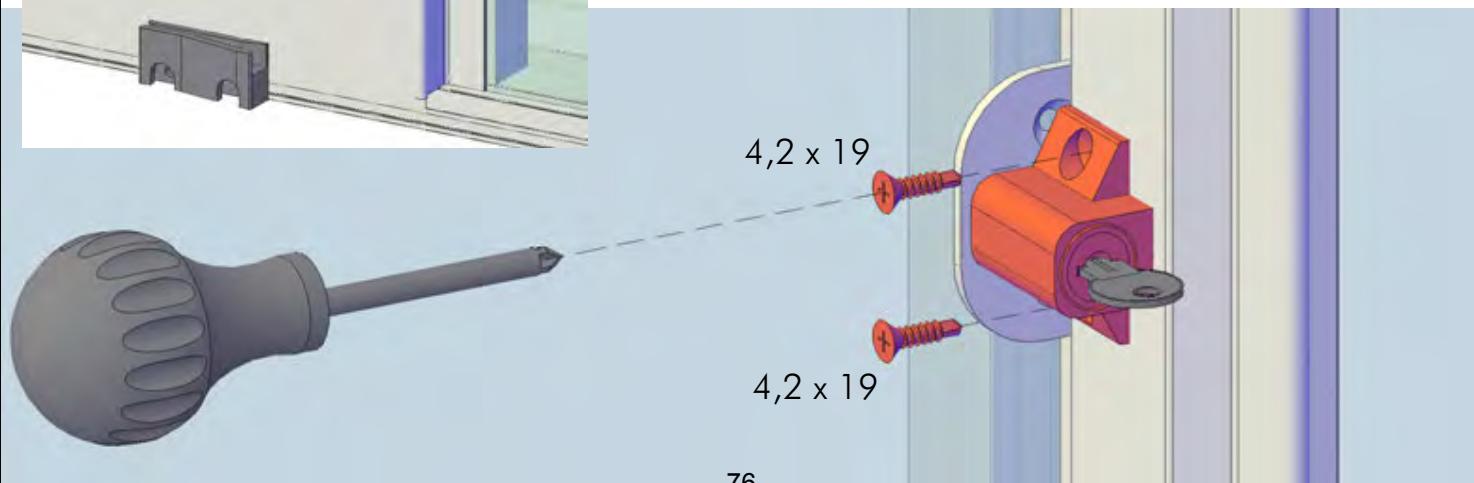
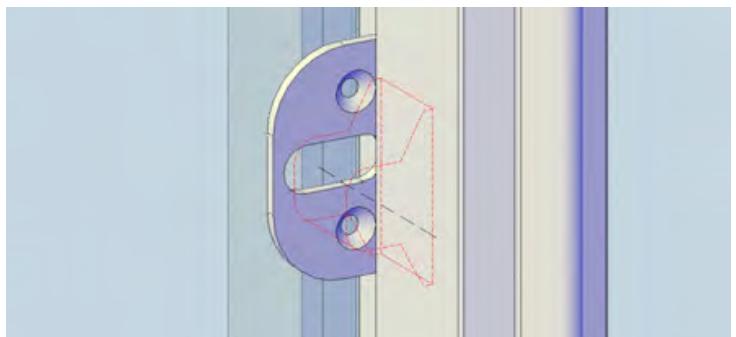
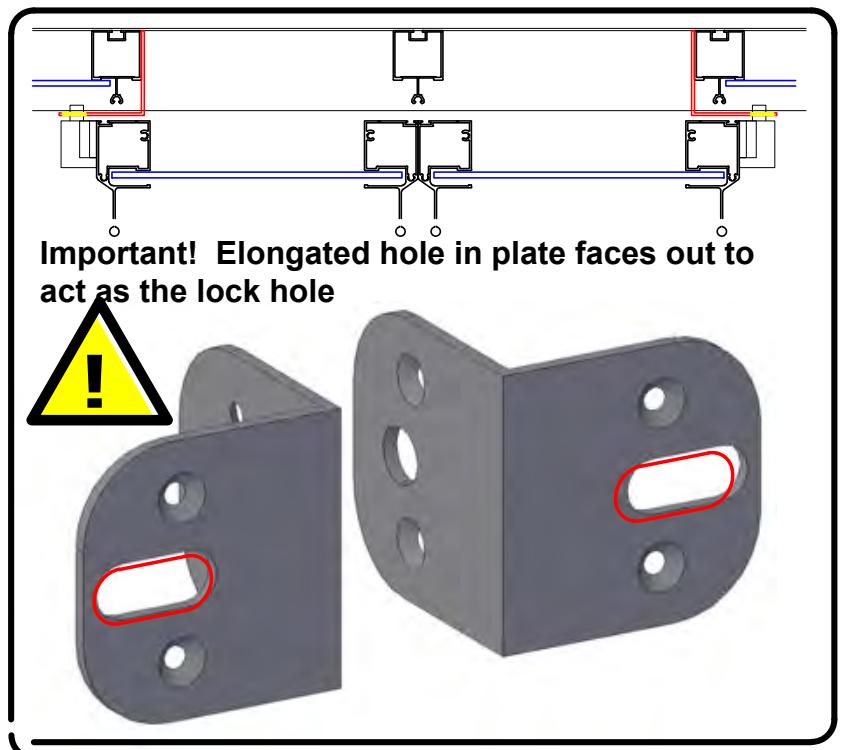
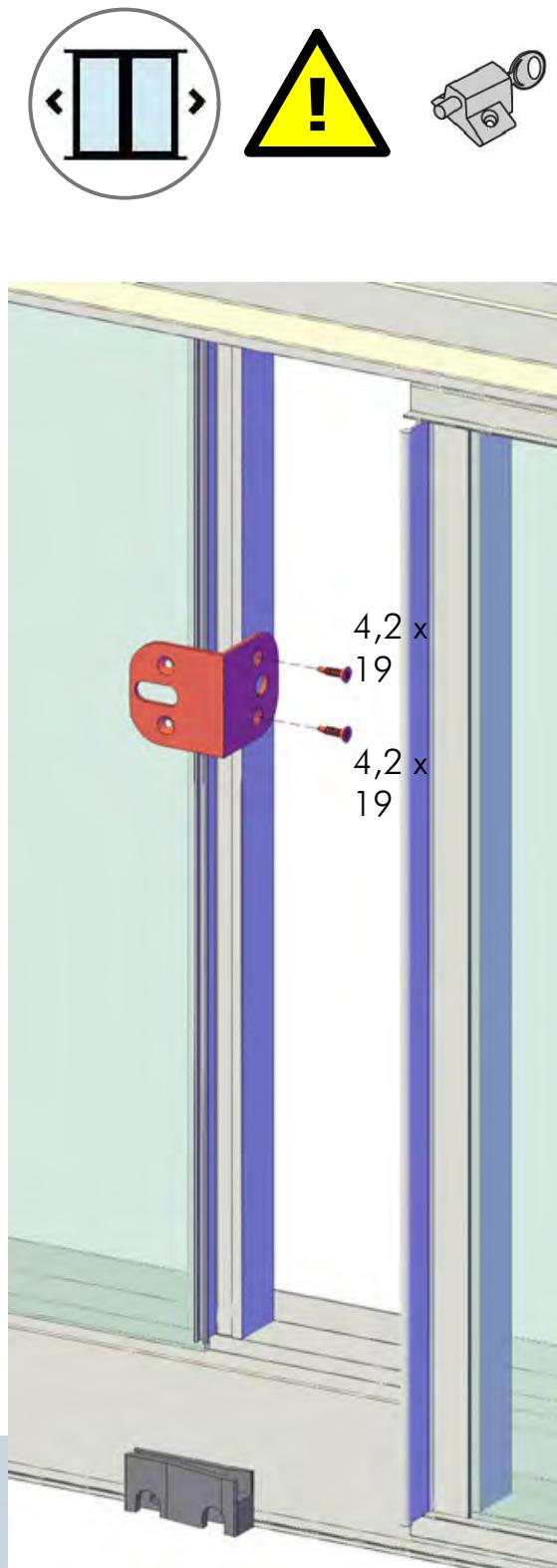
### Lock installation on Double/Second Door Using Low Threshold Kit

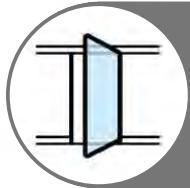


## Version 2: Door Lock Installation - Single door



## Version 2: Door Lock Installation - Double door



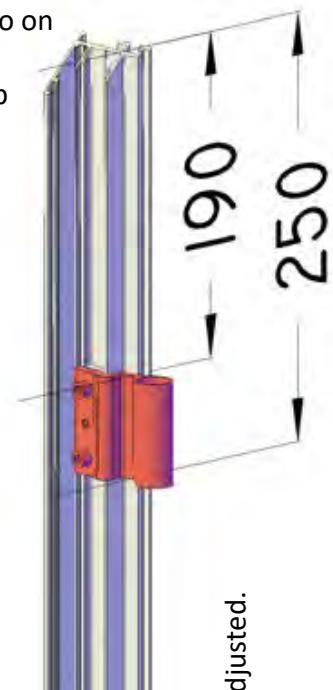
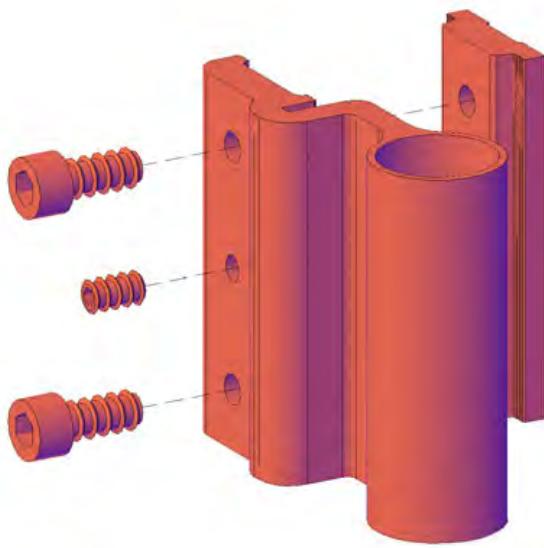


## OPTIONAL UPGRADE: Hinged Door

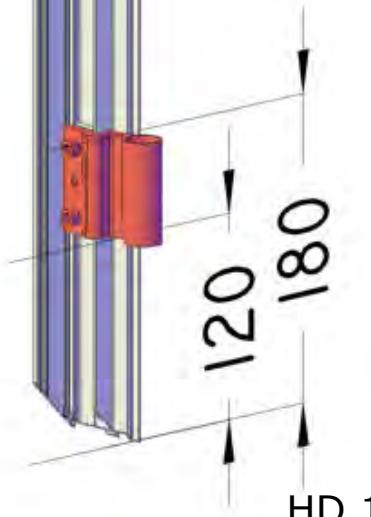
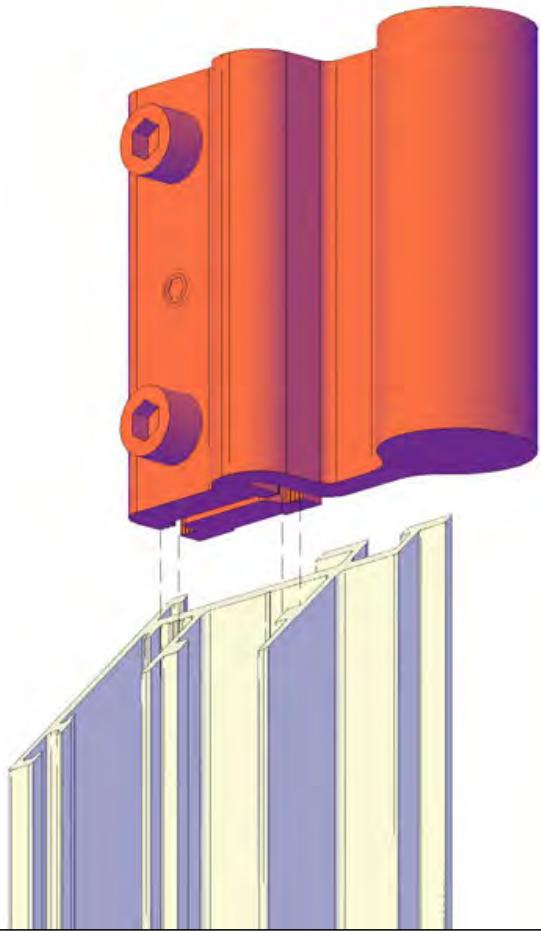
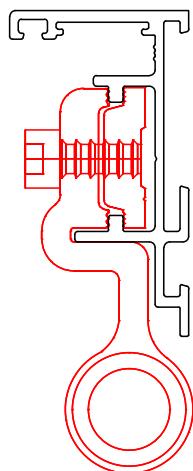
HD

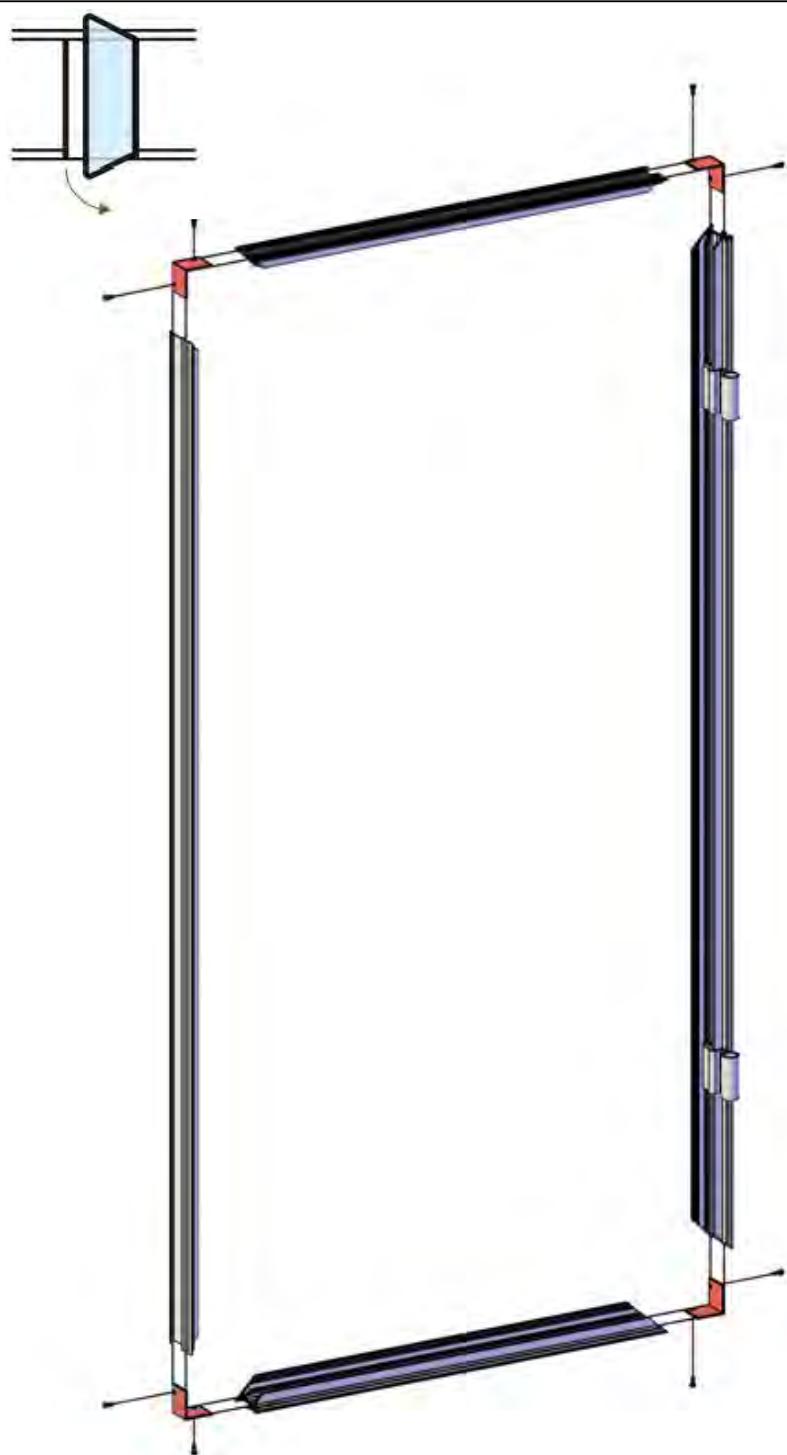


IMPORTANT: Find Janssens Accessory installation video on  
our site here:  
<https://www.exaco.com/greenhouse-victorian.php>

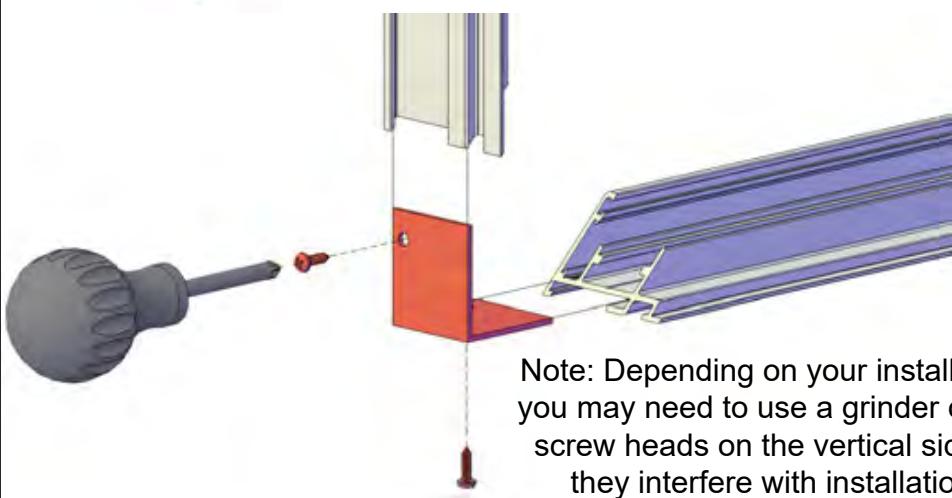
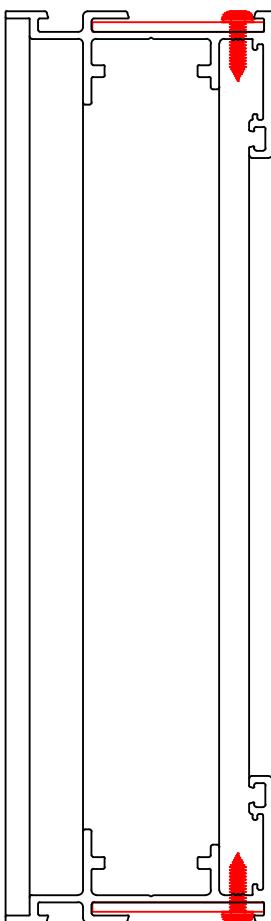


Hinges in door jamb will need to be adjusted.  
Distances are in millimeters.

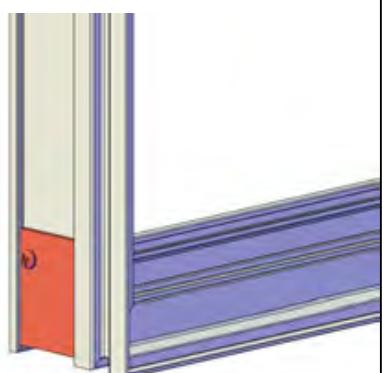




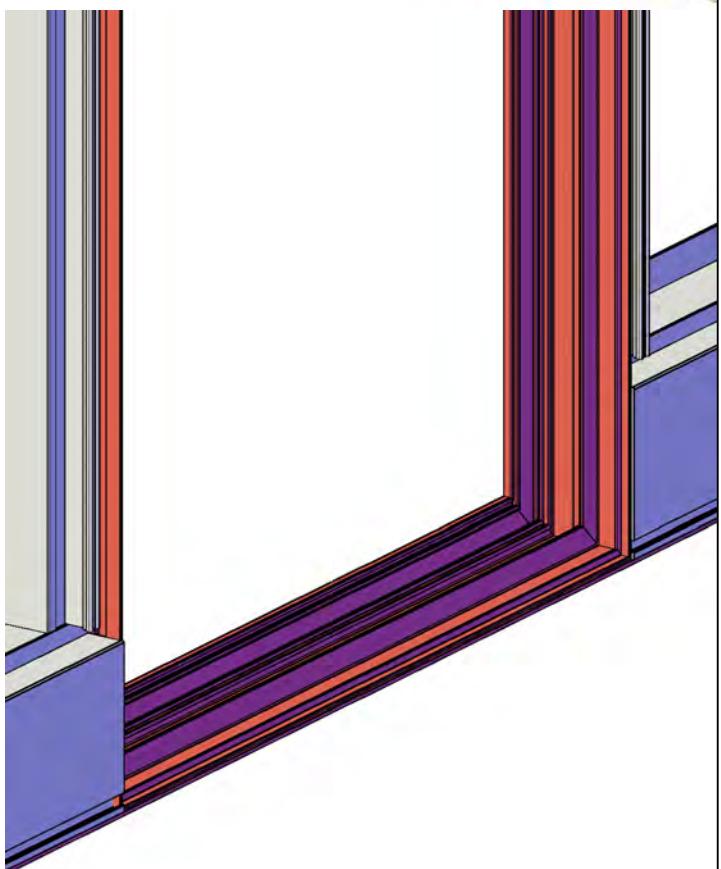
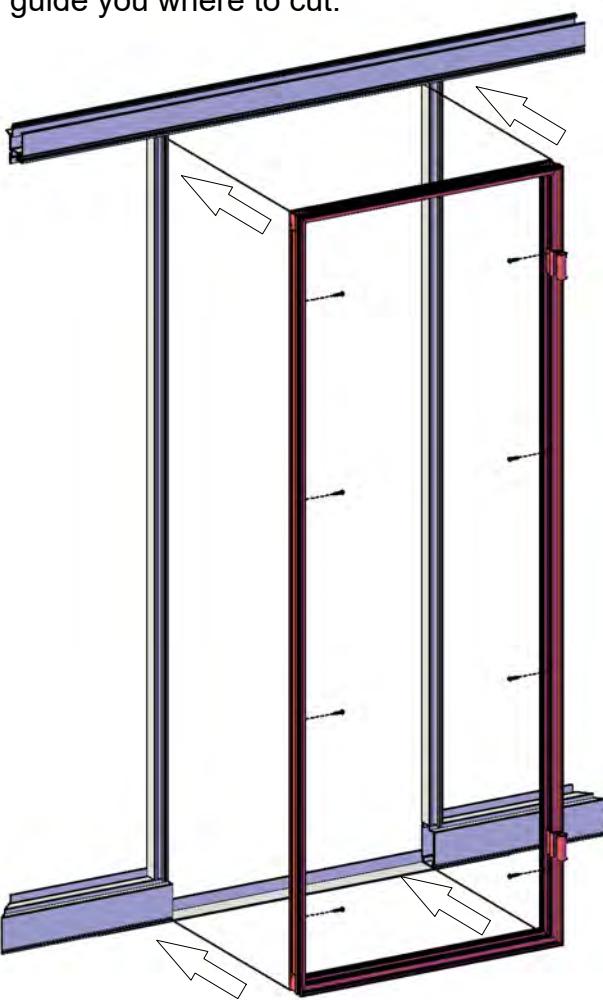
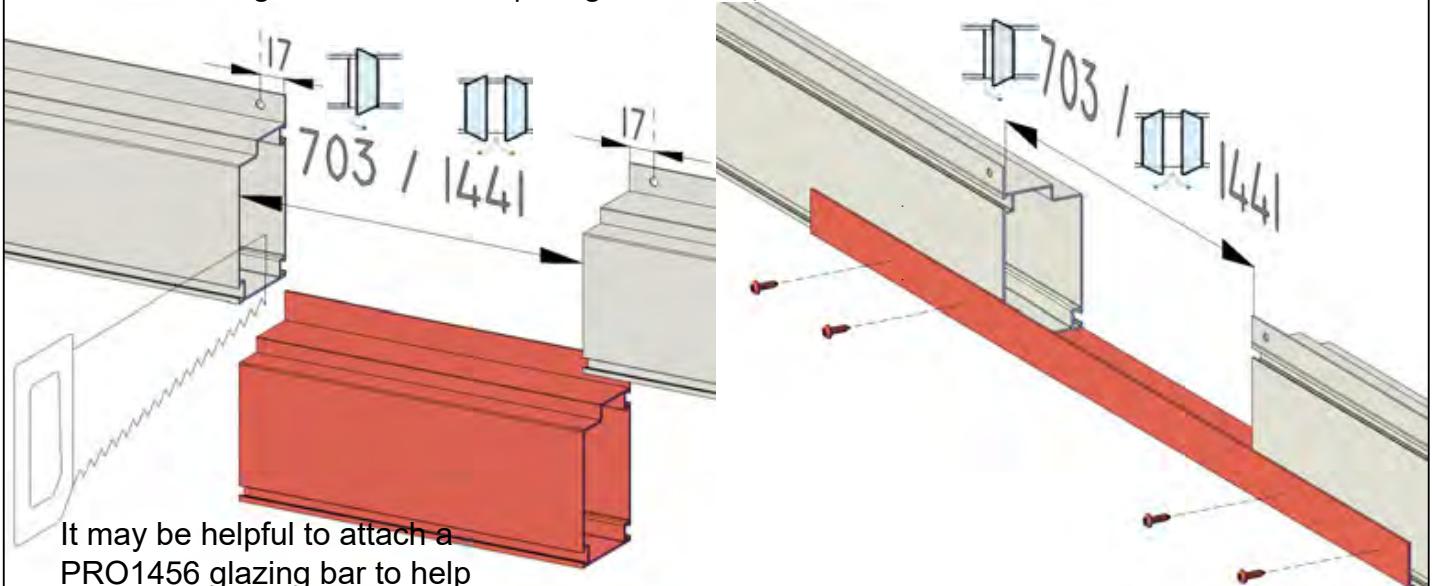
ITEM	PC.	L
L 40X40	4 PC	36 MM
PR06280	2 PC	703 MM
PR06280	2 PC	1.441 MM
PR06280	2 PC	1.930 MM
4,2 x 13	8 PC	



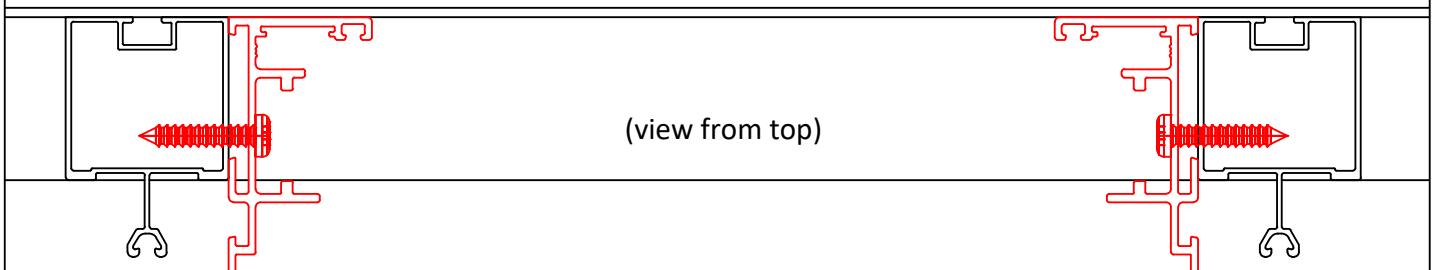
Note: Depending on your installation, you may need to use a grinder on the screw heads on the vertical sides if they interfere with installation.



Double Hinged door will need opening of 1441mm, 17mm from bolt holes on foundation frame.

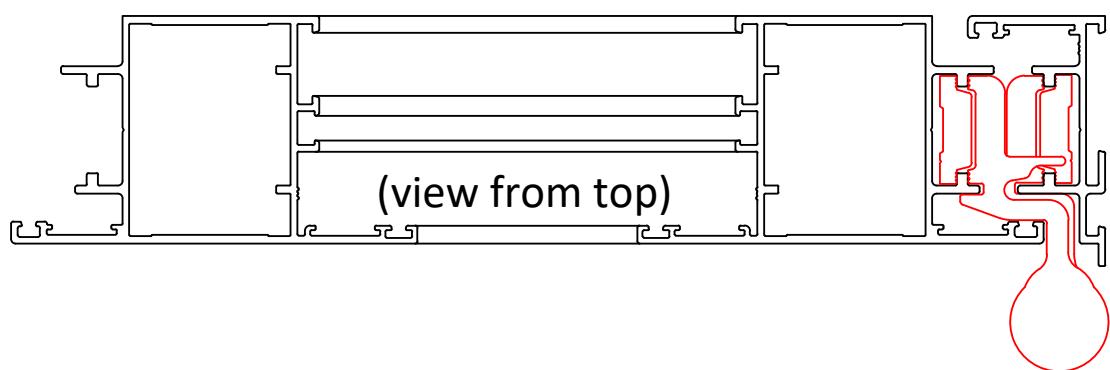
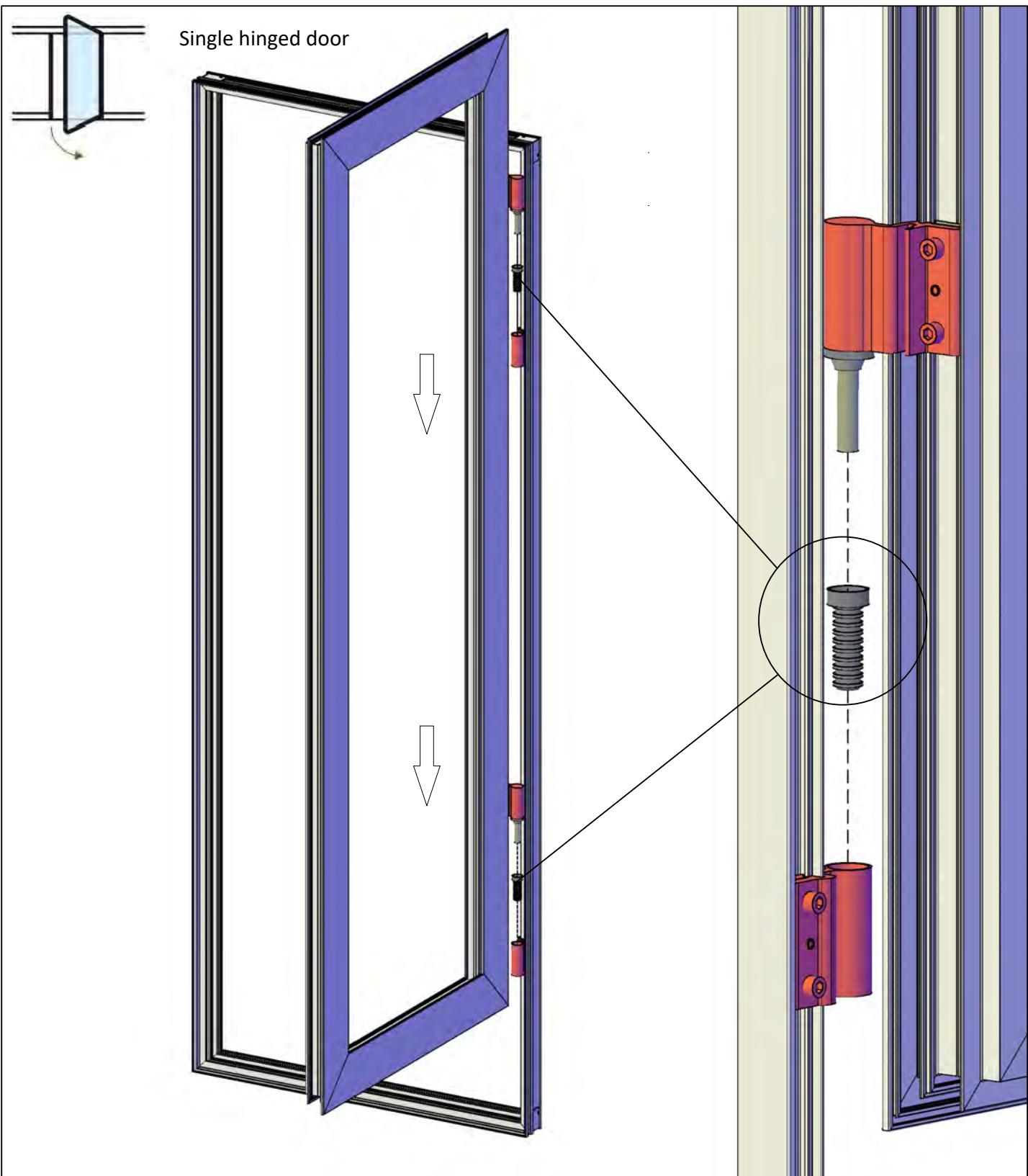


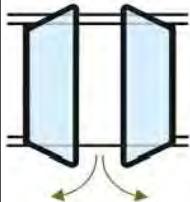
(Single door shown, double door jamb installation will be identical)



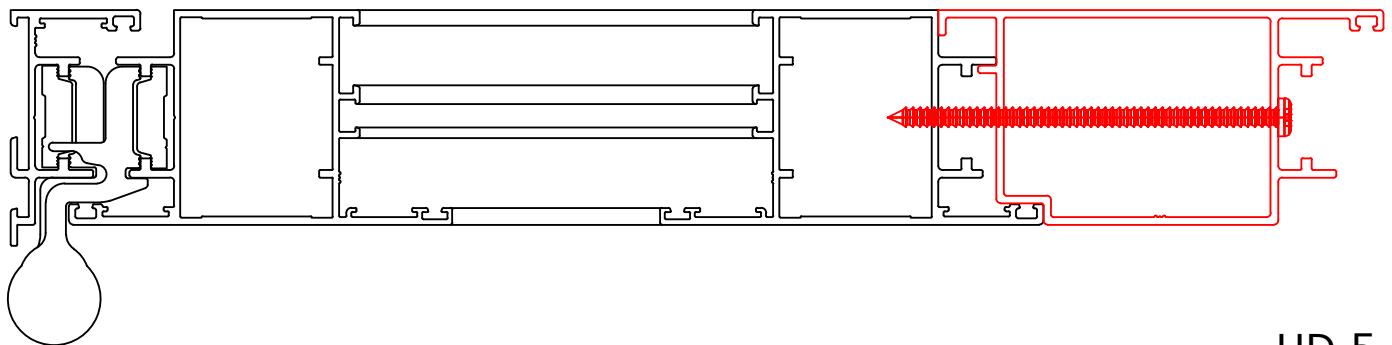
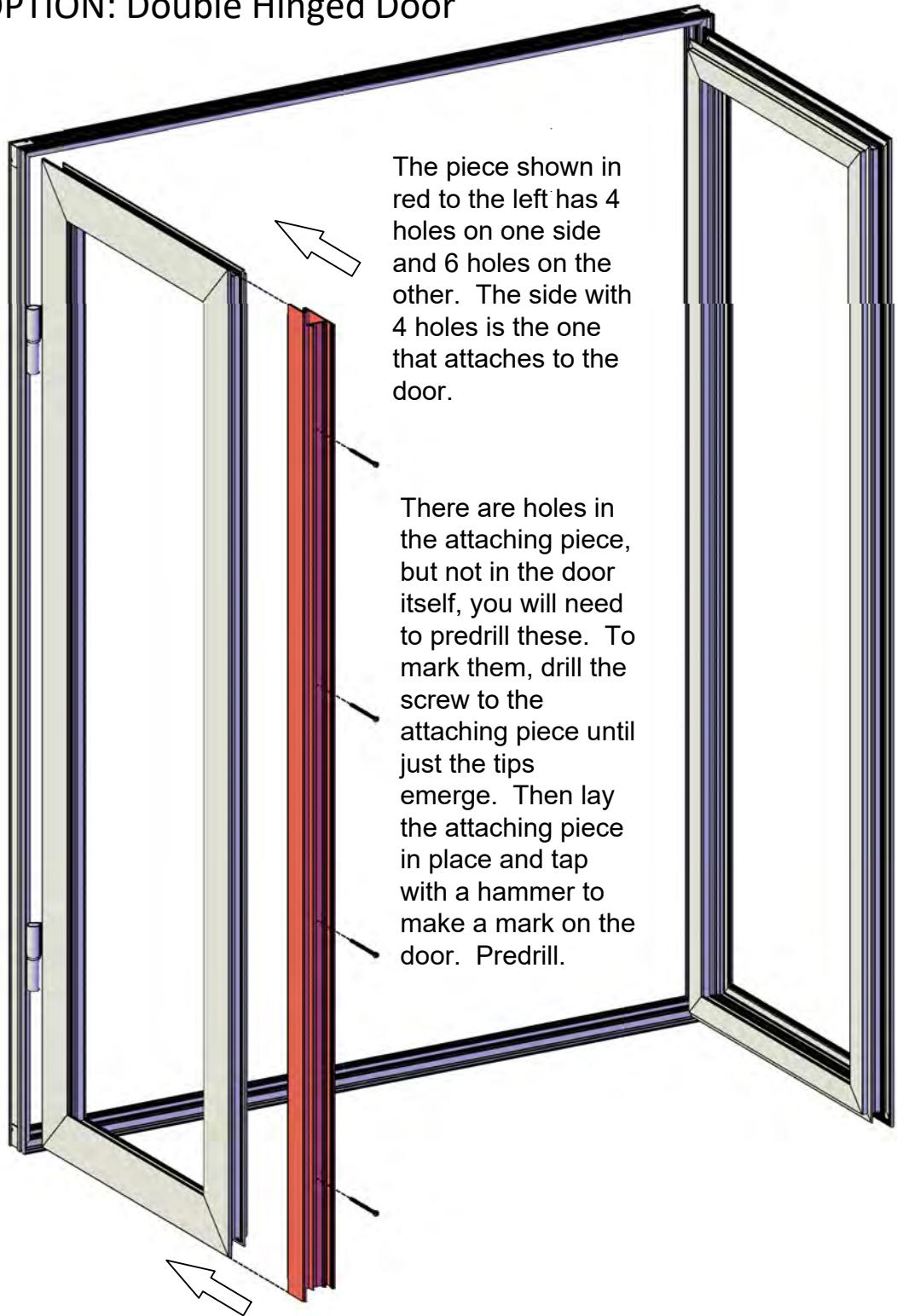
(view from top)

HD 3

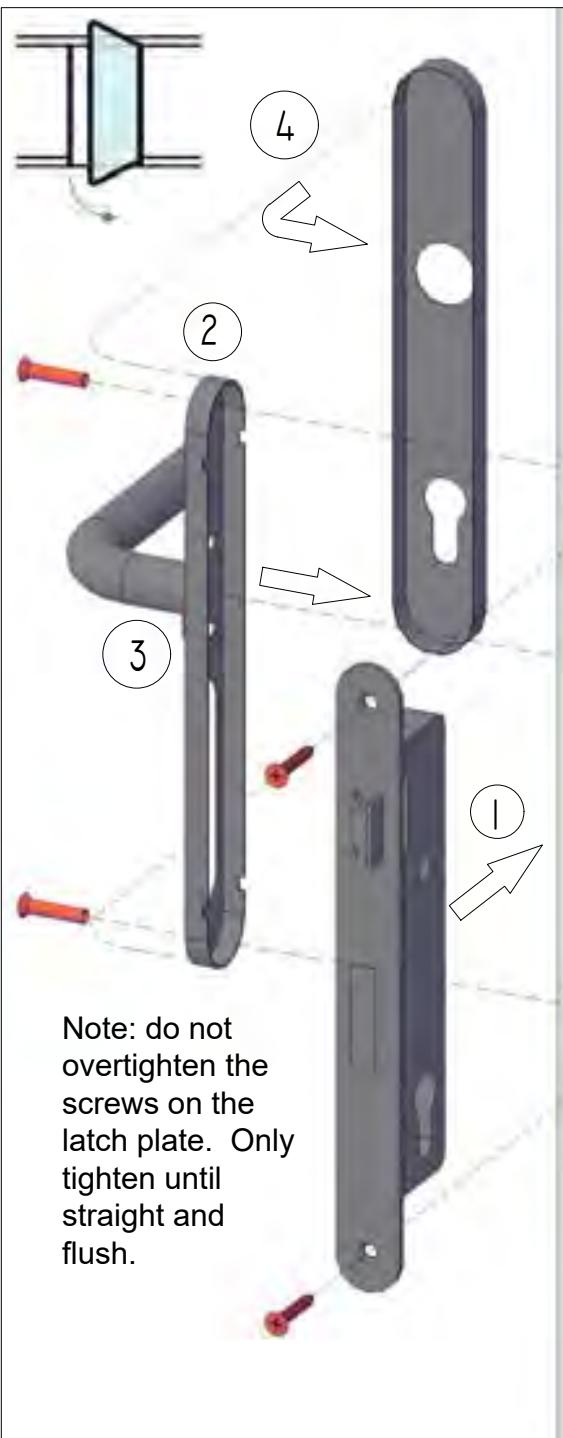




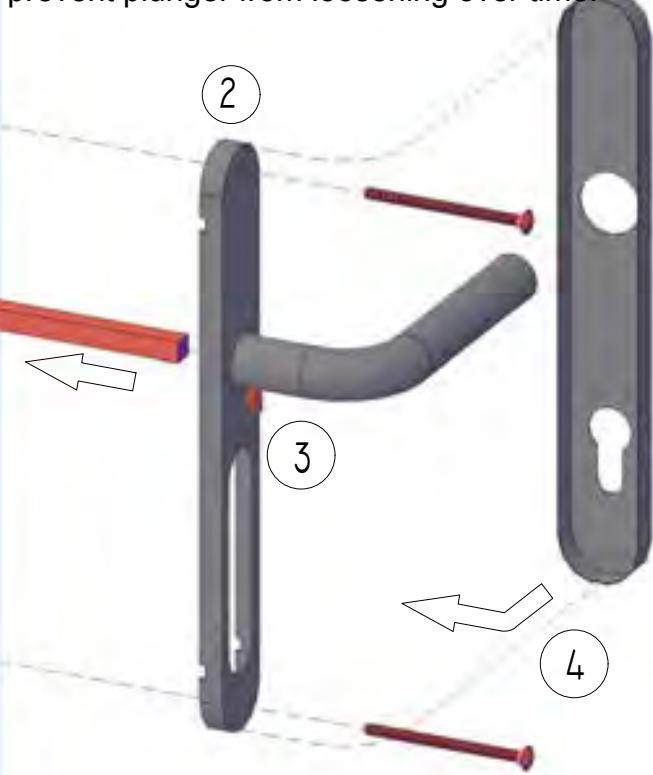
## OPTION: Double Hinged Door



HD 5



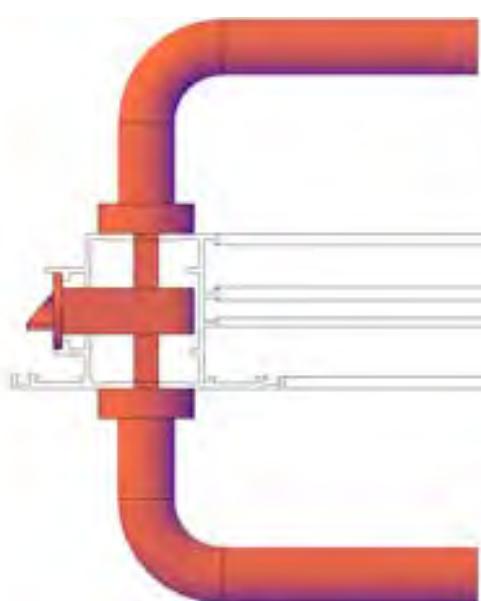
**IMPORTANT!** Step 1 - The door plunger in the rectangular cartridge may be rotated if not in the correct position for your door. This is adjusted with the flathead screw on the opposite side (inset) of the cartridge. BEFORE INSERTING CARTRIDGE IN DOOR, PLEASE PLACE A DAB OF LOCTITE ON THIS SCREW AND HAND TIGHTEN AS MUCH AS POSSIBLE to prevent plunger from loosening over time.



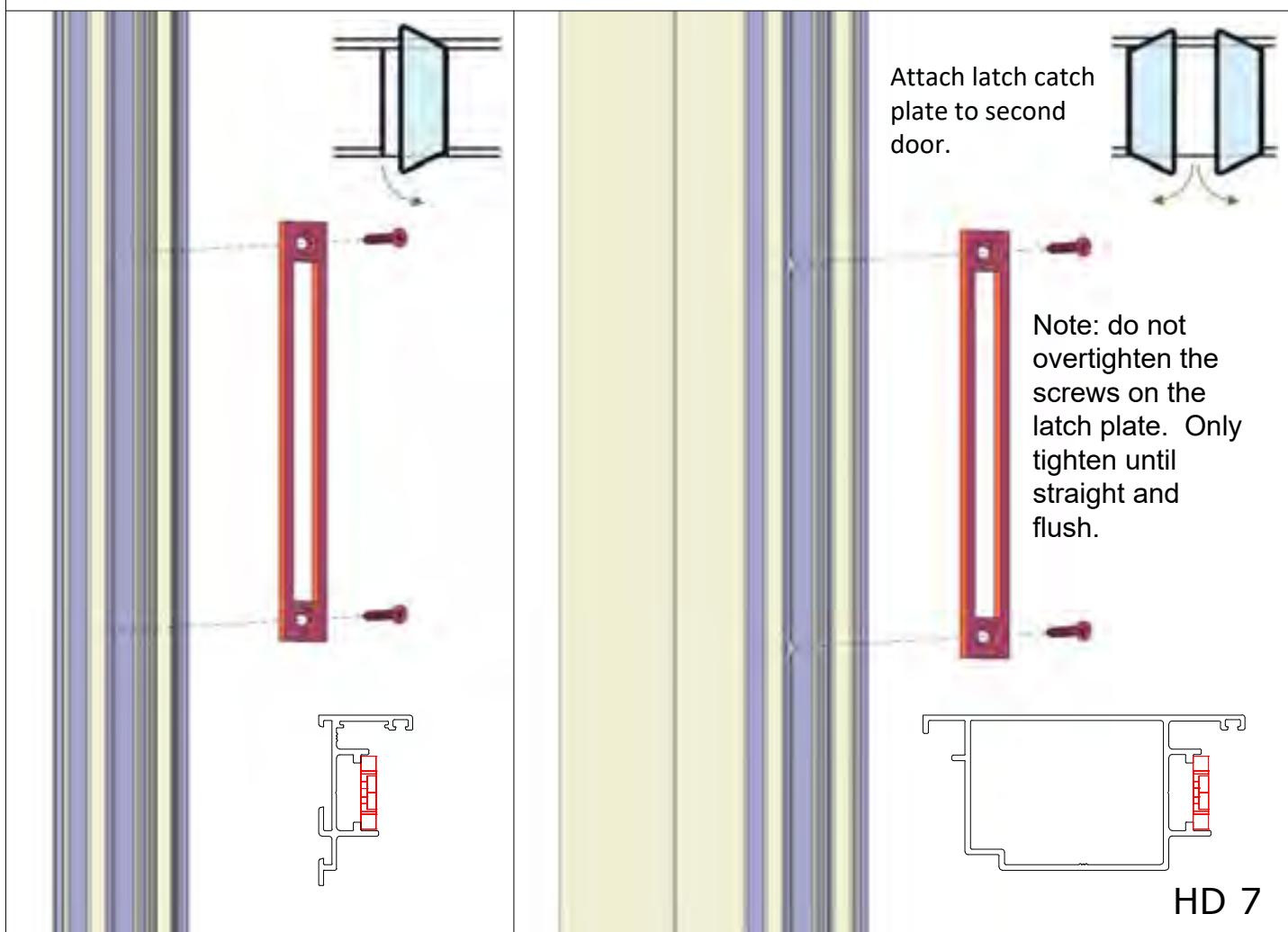
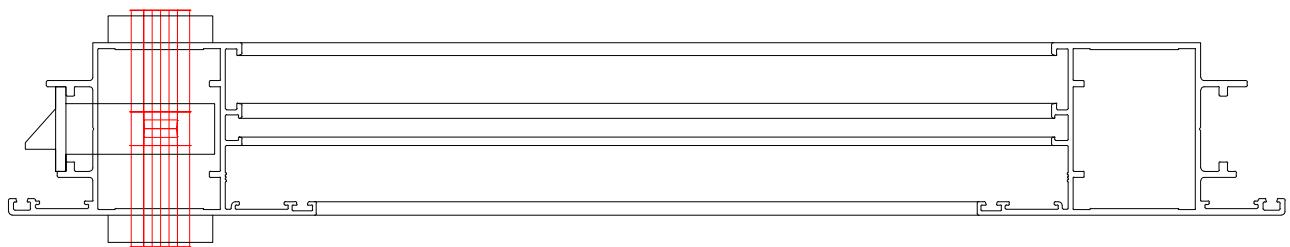
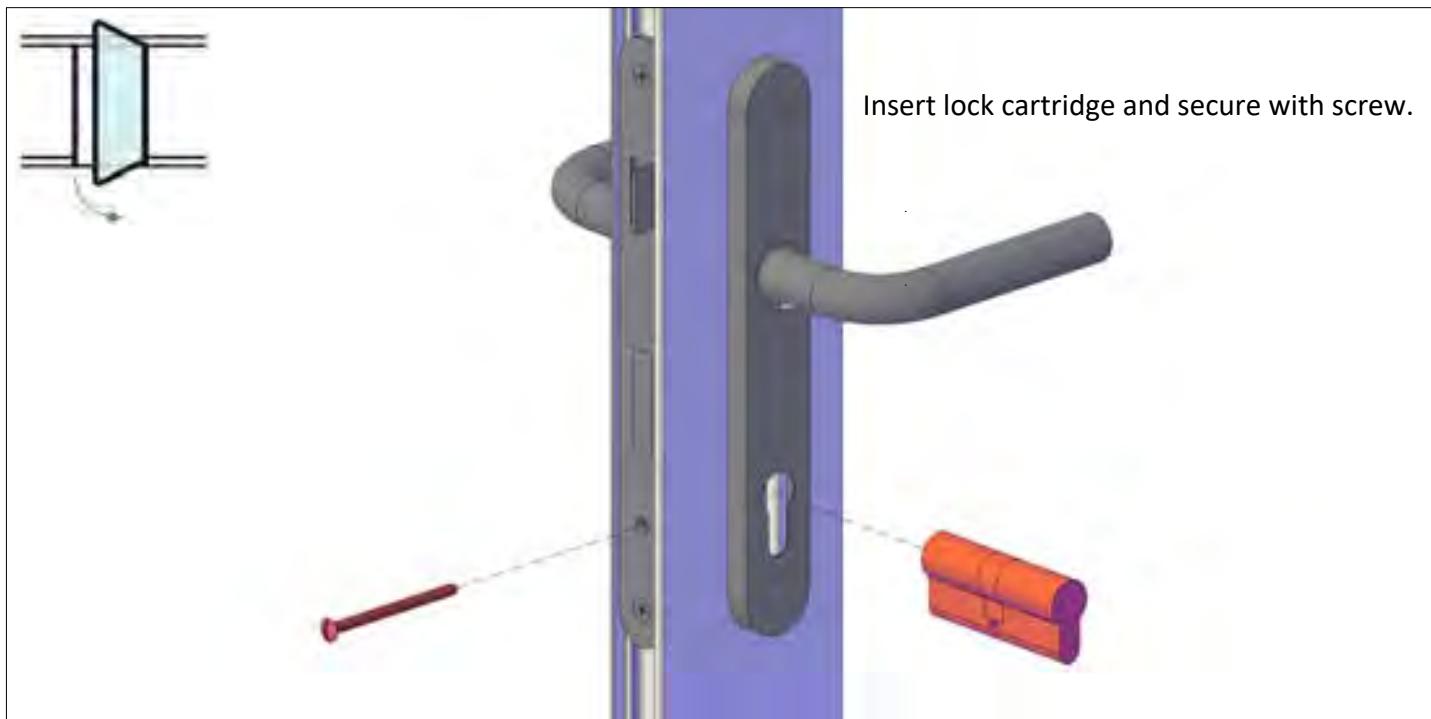
Step 1: Insert large rectangular cartridge into side cutout of door and attach with 2 screws.  
 Step 2: Insert center square rod and attach handles - with 2 extra long screws and threaded caps.

Step 3: Tighten set screw in handle - note that square rod must be equidistant from each handle.

Step 4: Slide face plates onto door handles and snap in place.

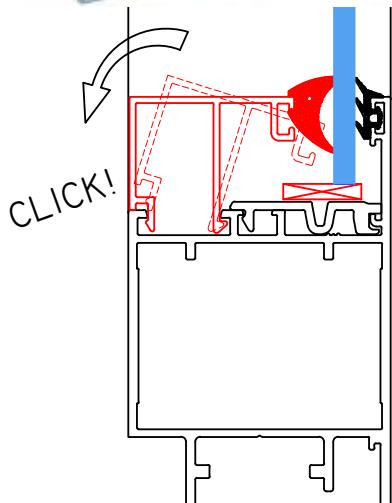
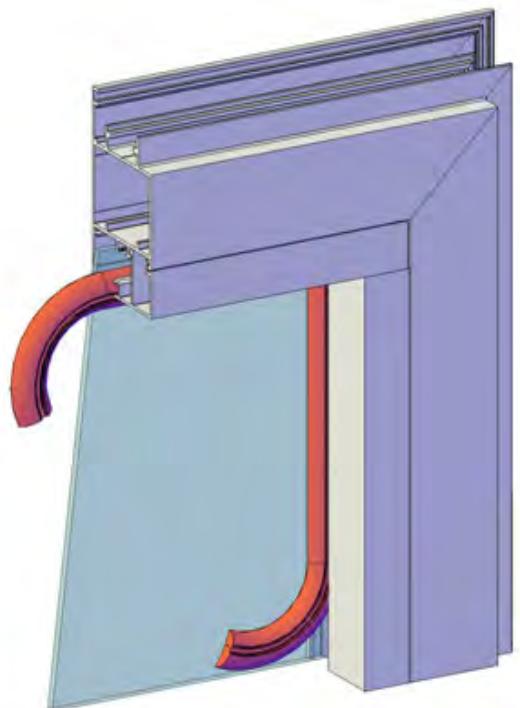
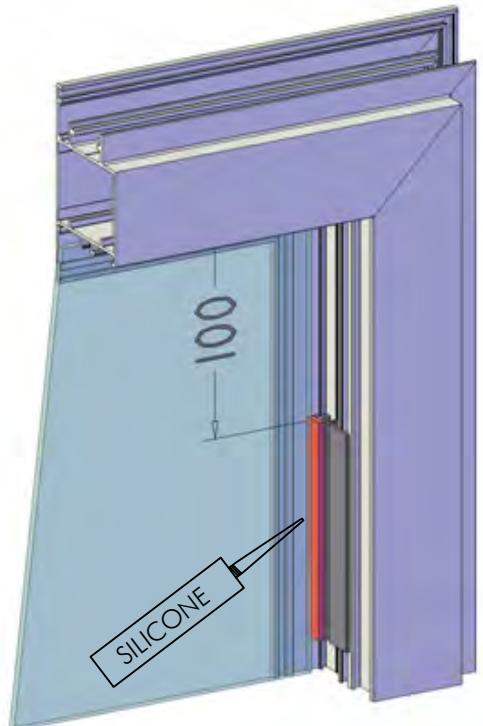
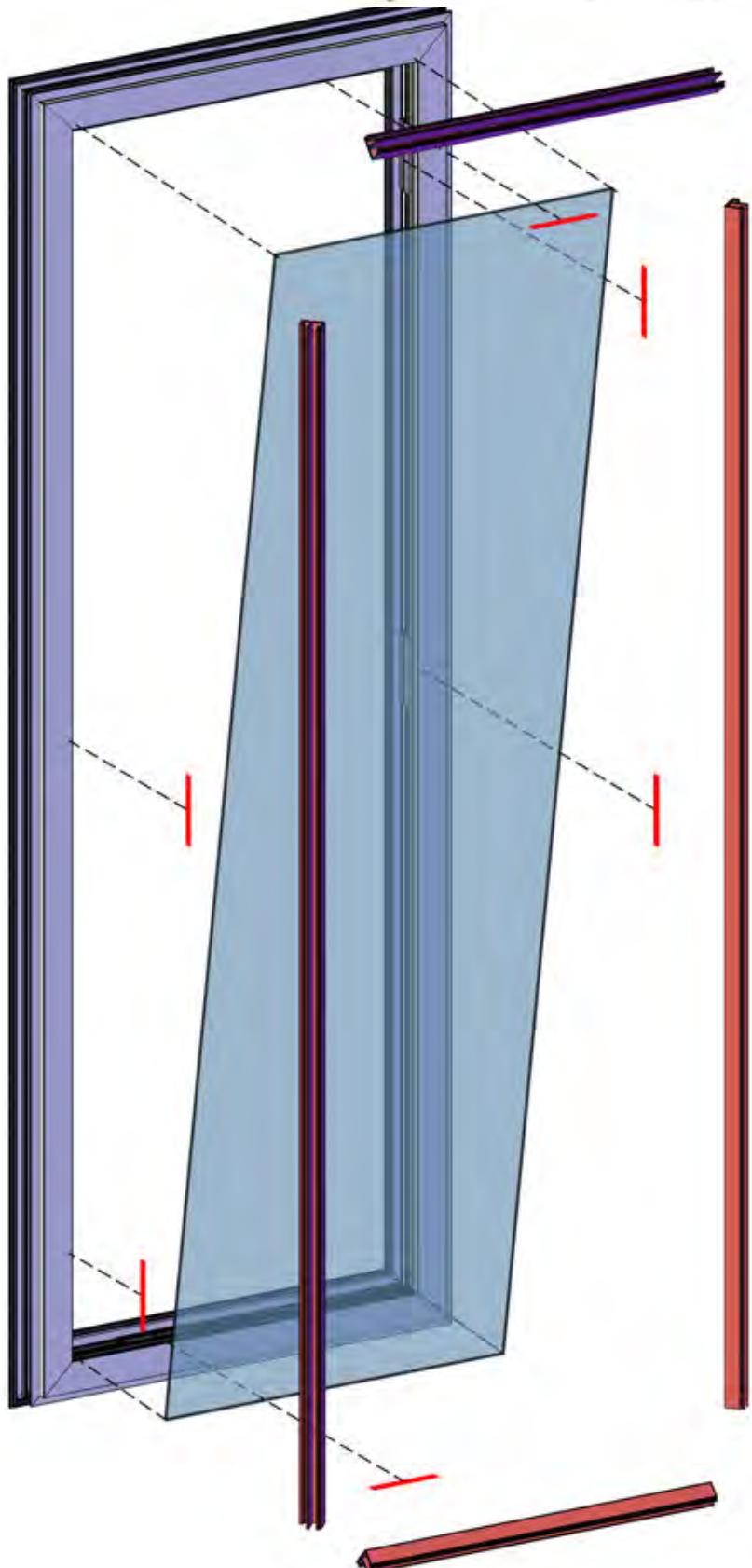
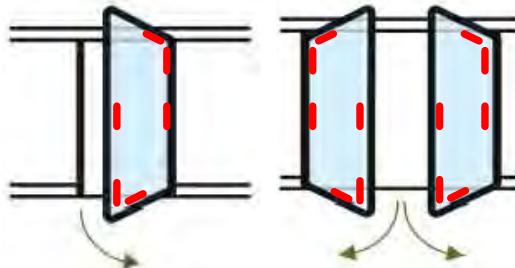


**IMPORTANT:** Find Janssens Accessory installation video on our site here: <https://www.exaco.com/greenhouse-victorian.php>



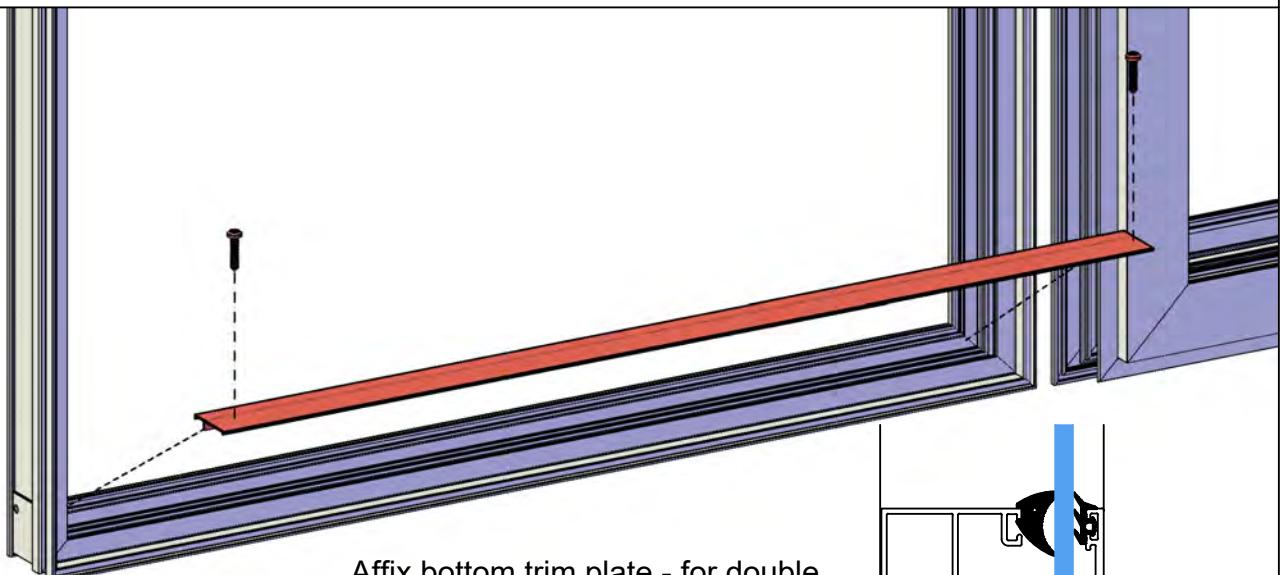
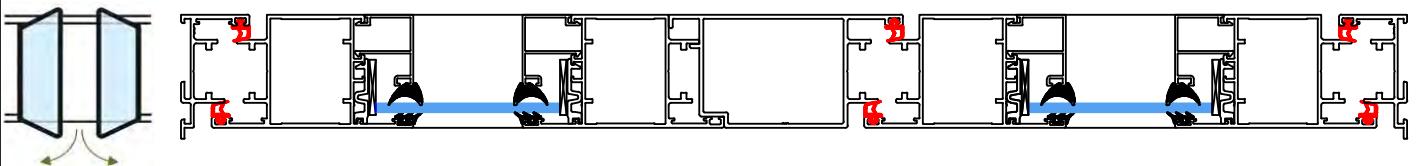
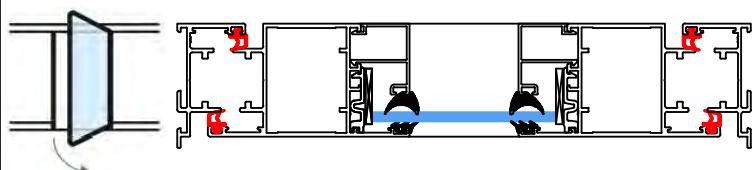
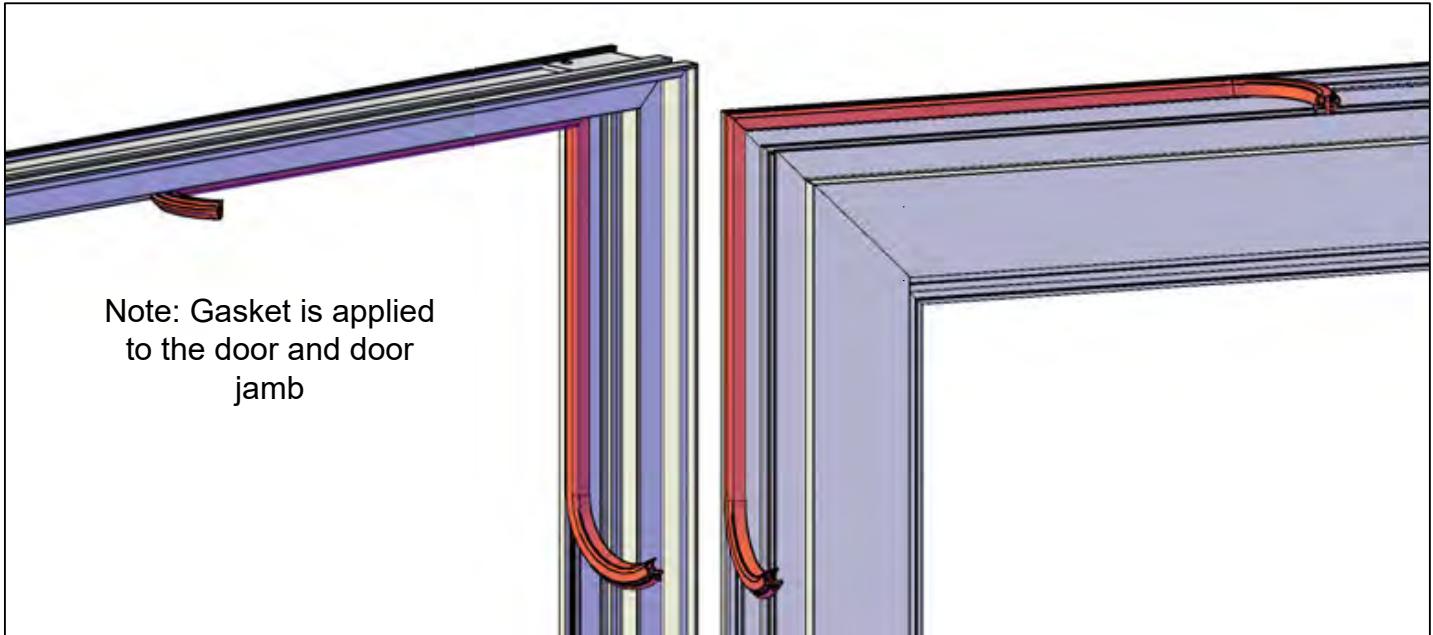
HD 7

For the next step, we recommend placing the door flat until glass is installed.

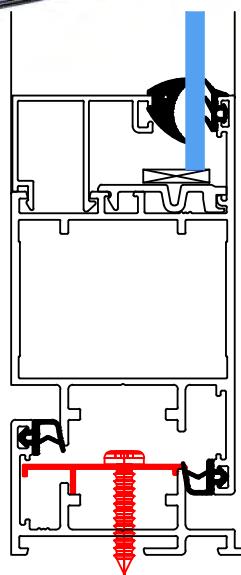


NOTE: the horizontal glazing strips shown in red above may be slightly long. Please measure and trim to fit your door using a hacksaw, hand file, angle grinder or similar tool.

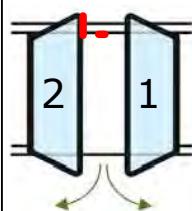
HD 8



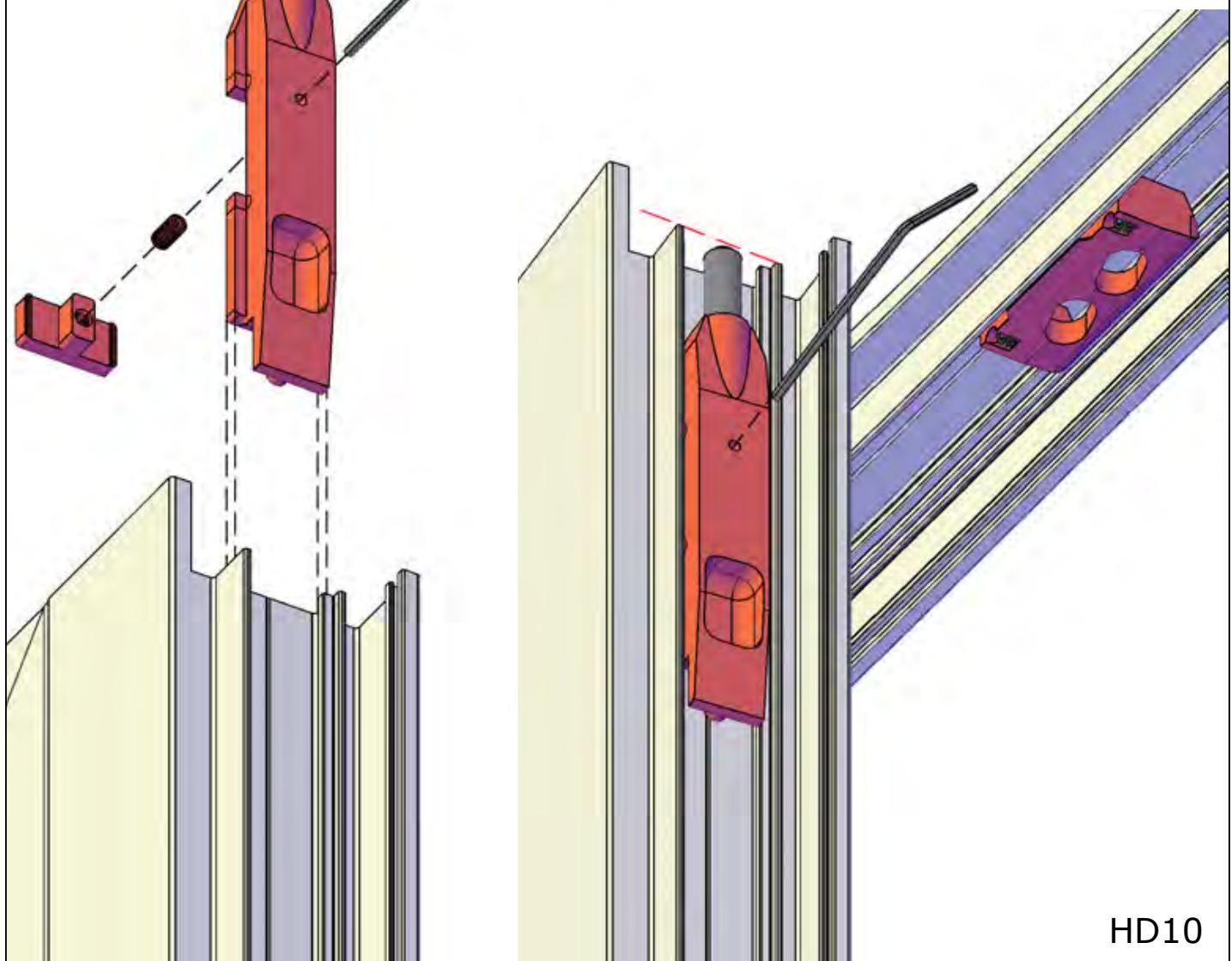
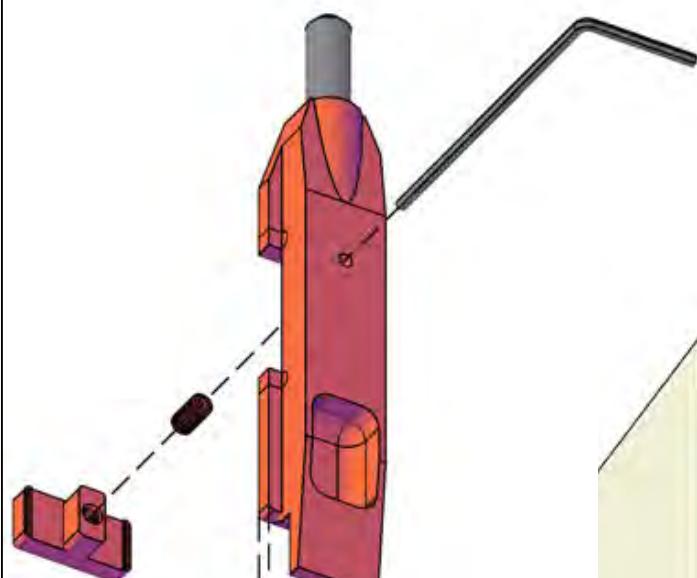
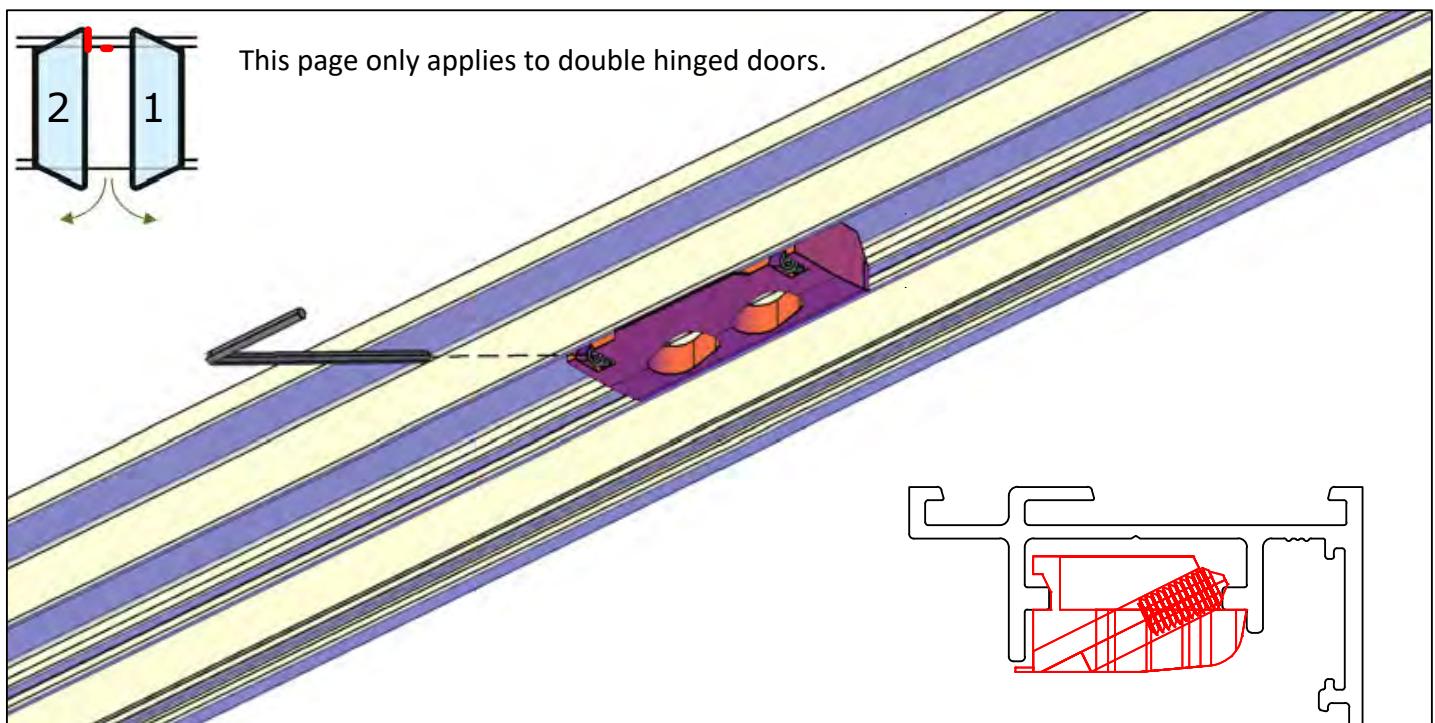
Affix bottom trim plate - for double doors see next page.



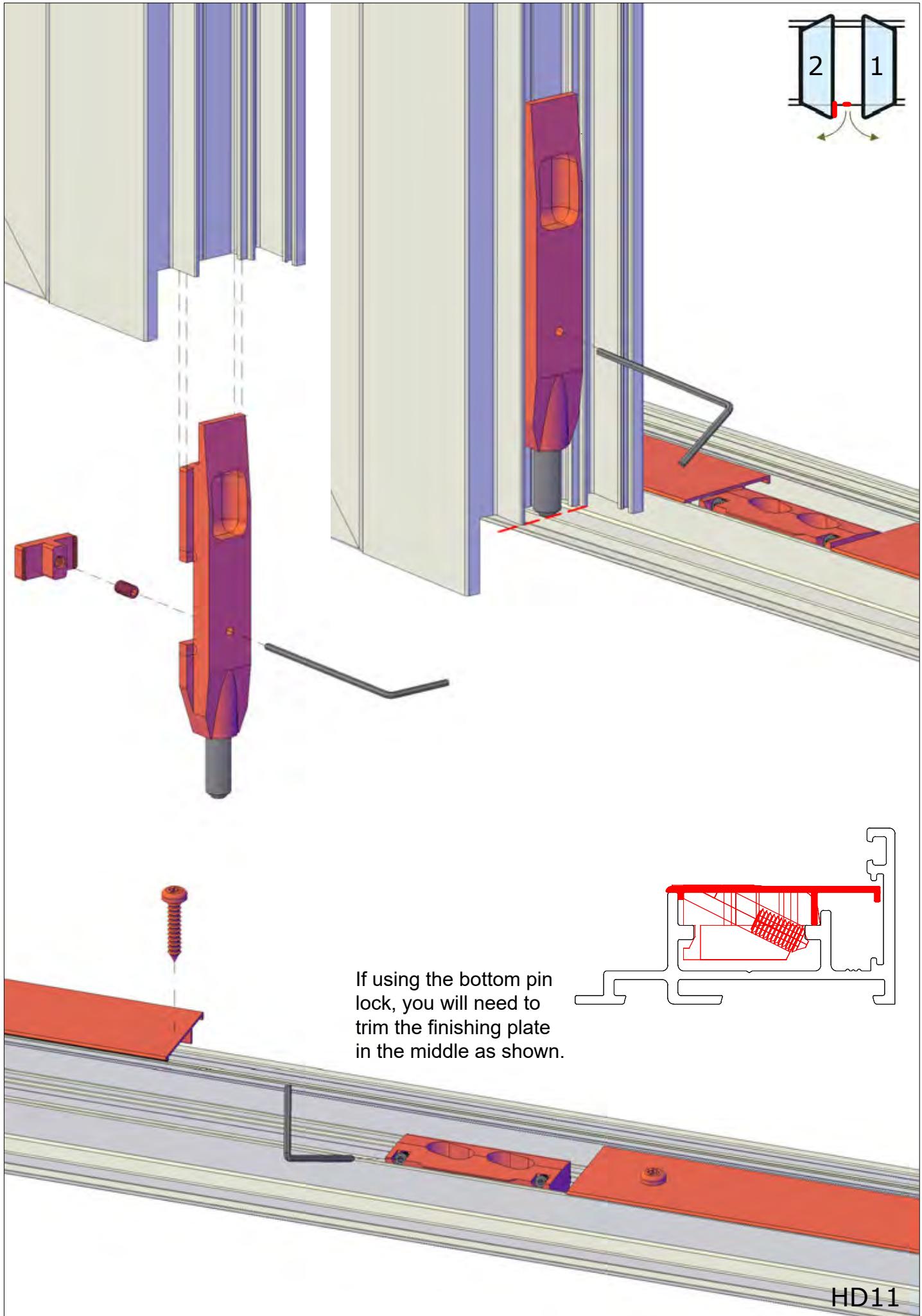
HD 9



This page only applies to double hinged doors.



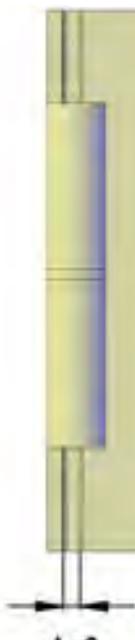
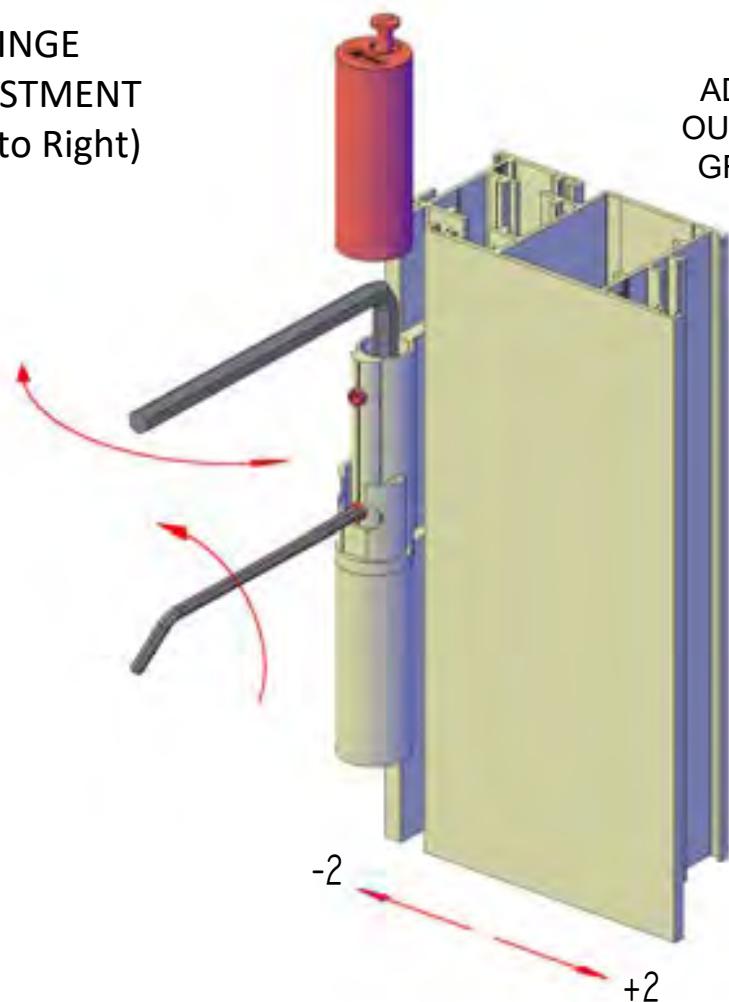
HD10



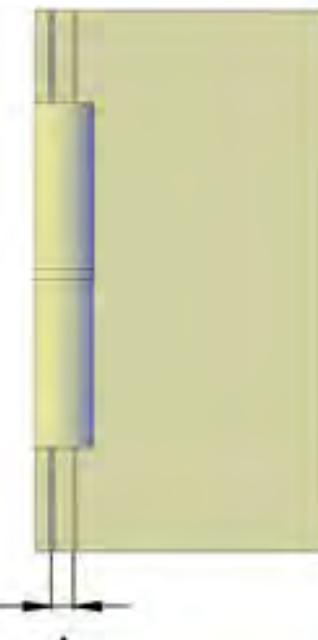


HINGE  
ADJUSTMENT  
(Left to Right)

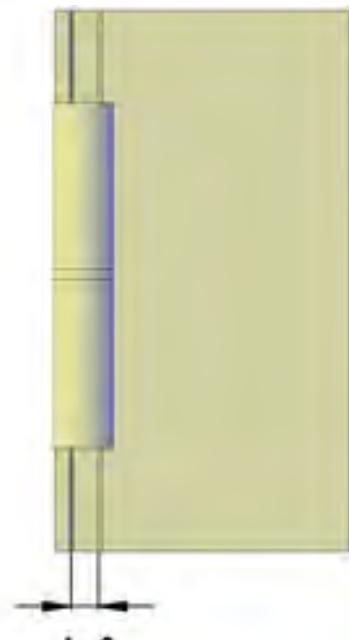
LOOK FOR HINGE  
ADJUSTMENT VIDEO ON  
OUR YOUTUBE VICTORIAN  
GREENHOUSE PLAYLIST



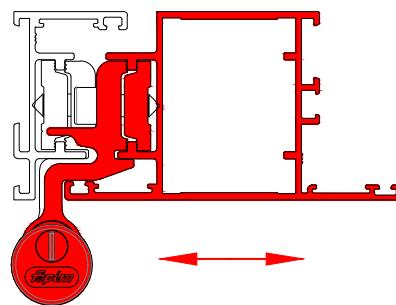
A-2



A



A+2



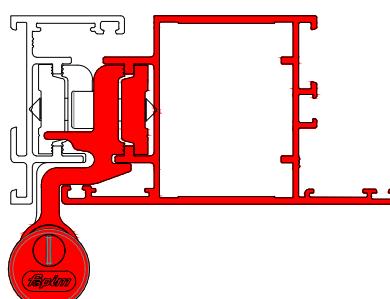
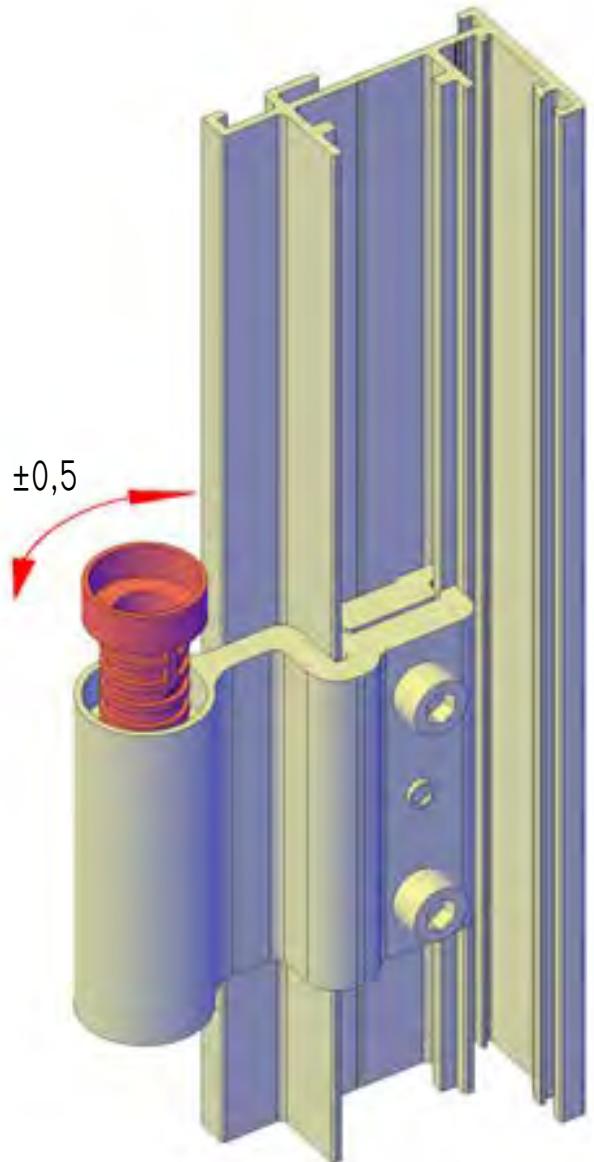
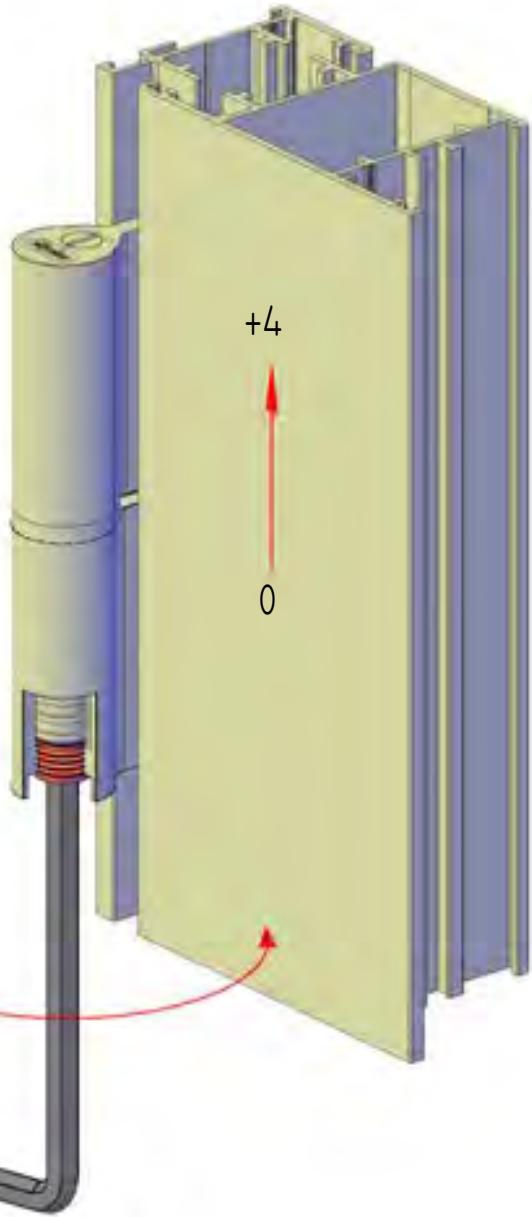
HD12



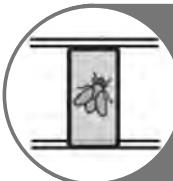
HINGE  
ADJUSTMENT  
(Up)



HINGE  
ADJUSTMENT  
(Front/Back)



HD13

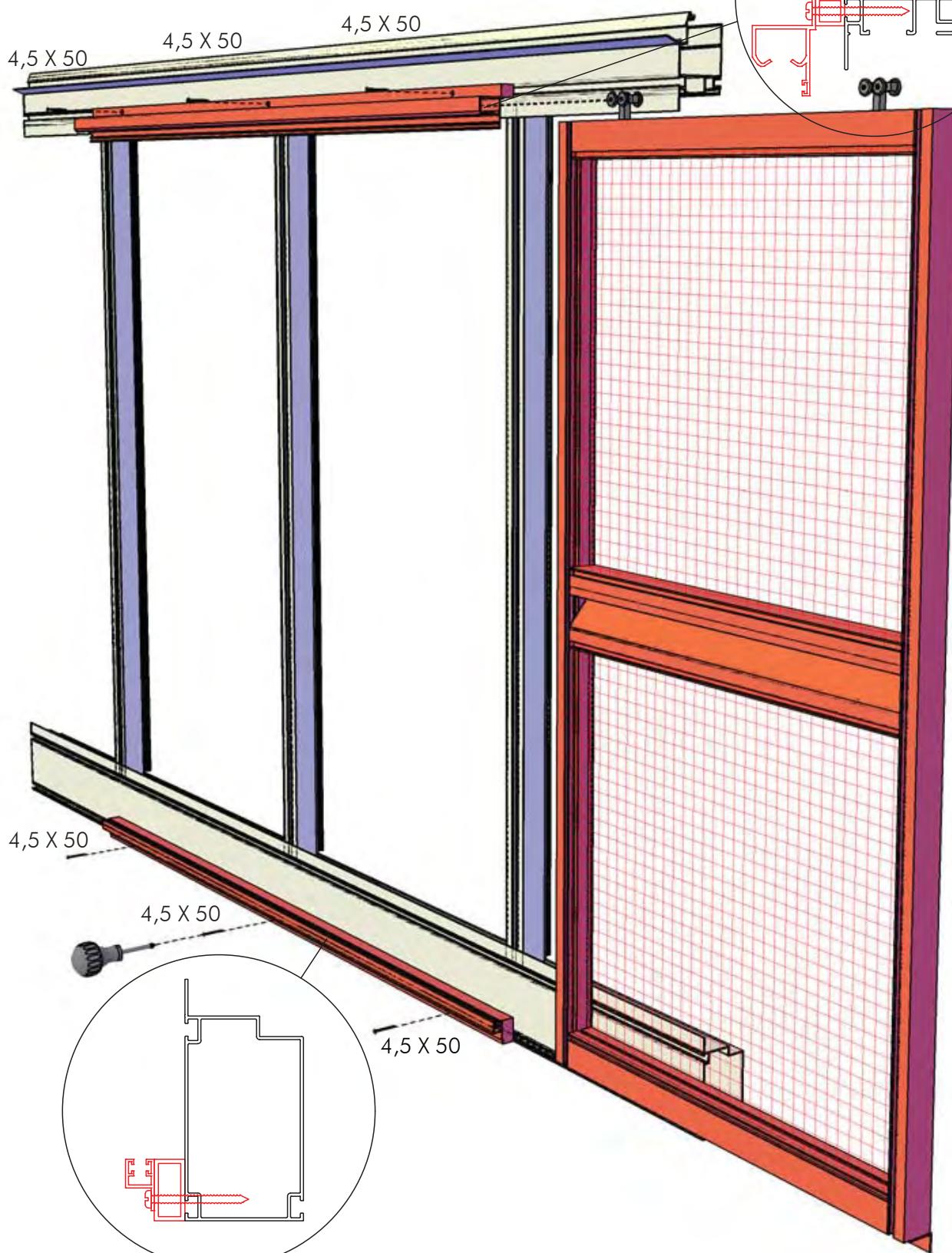


## Optional Upgrade: Door Fly Screen

(while supplies last - limited availability)

FD

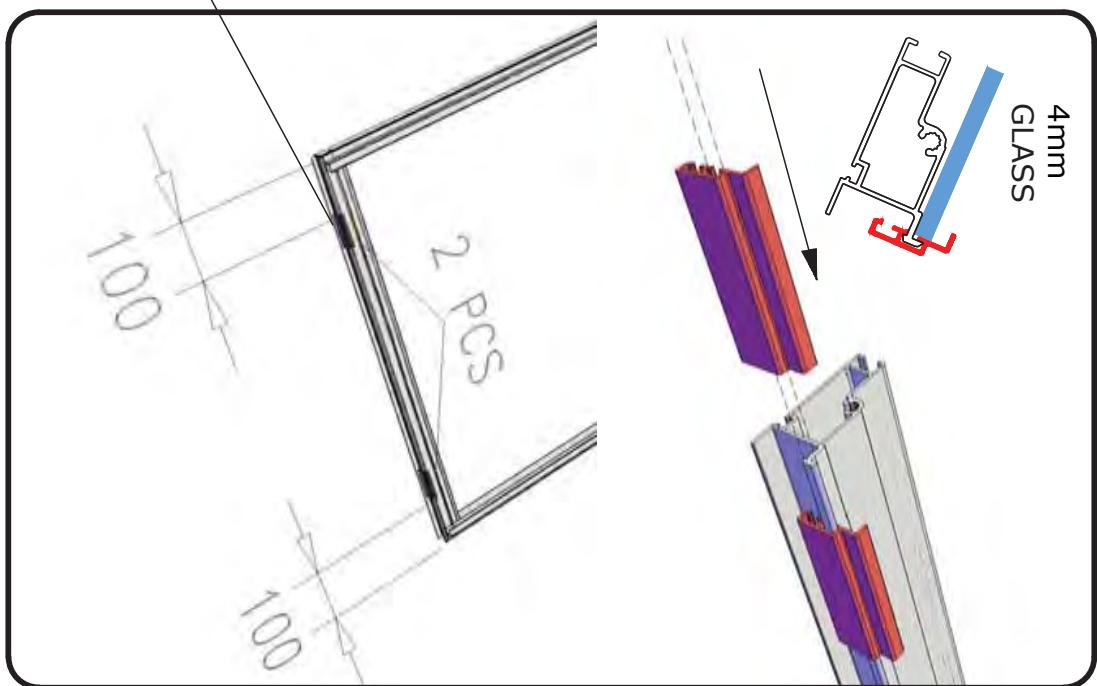
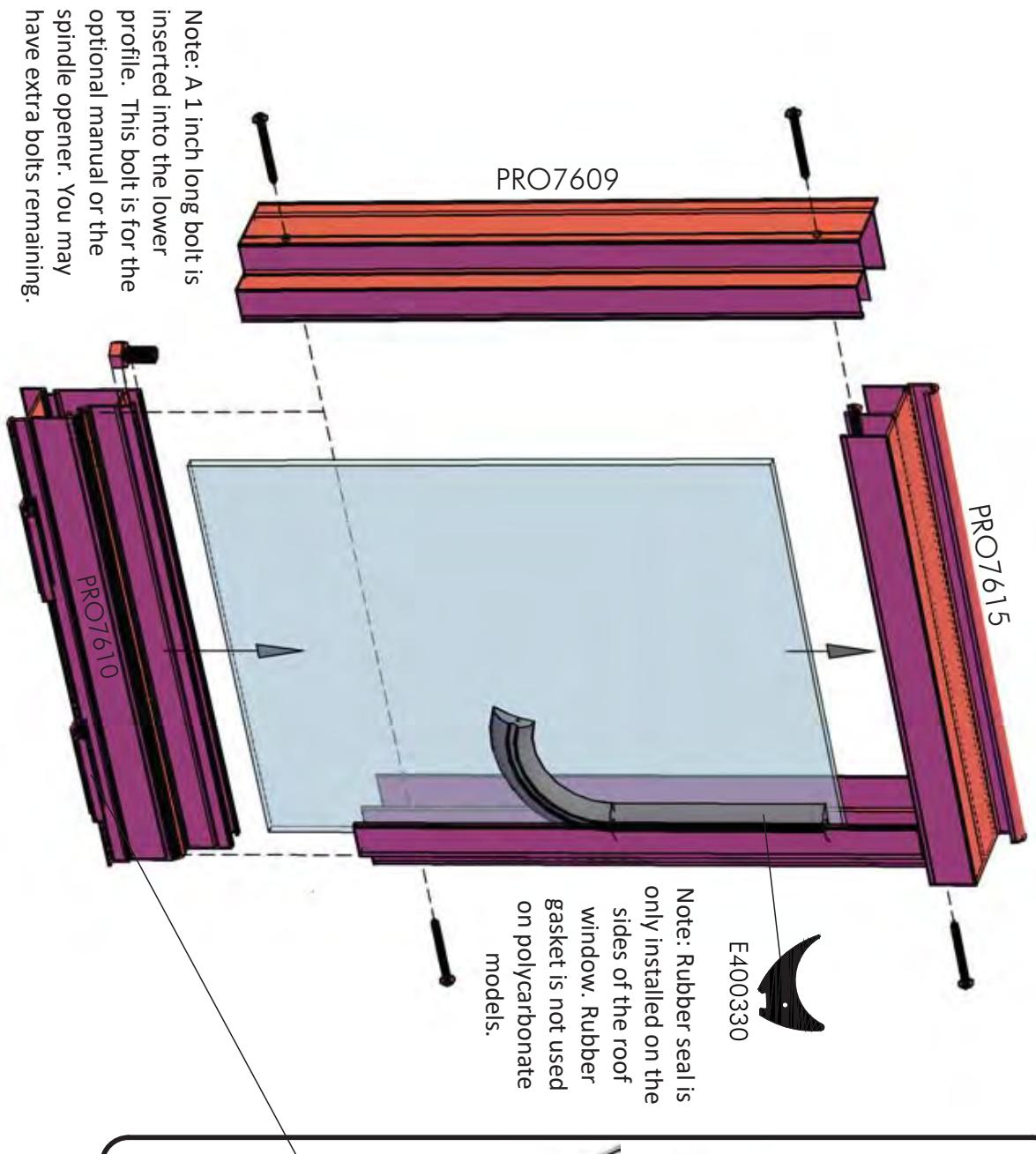
Notes about Fly Screen Door: This slides along the interior of the greenhouse, and will not be compatible with greenhouses on a stem wall. May be used with sliding or hinged doors.





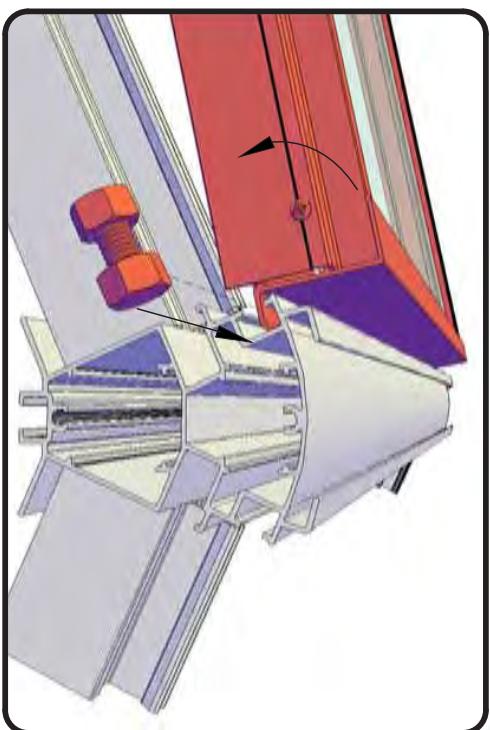
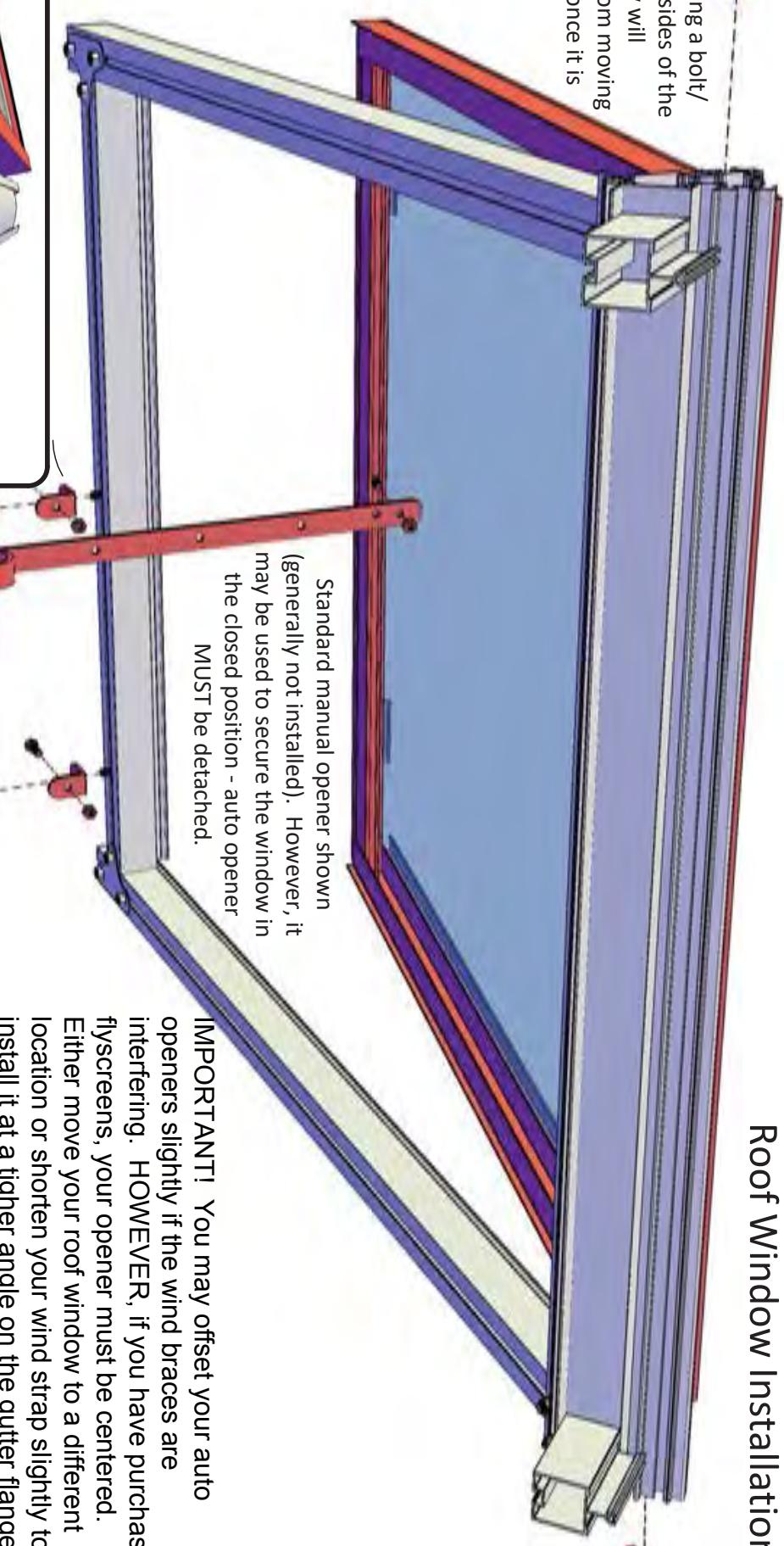
Roof Window / Vent -  
RW

all hardware will be included in roof vent package -  
including crossbar to frame opening

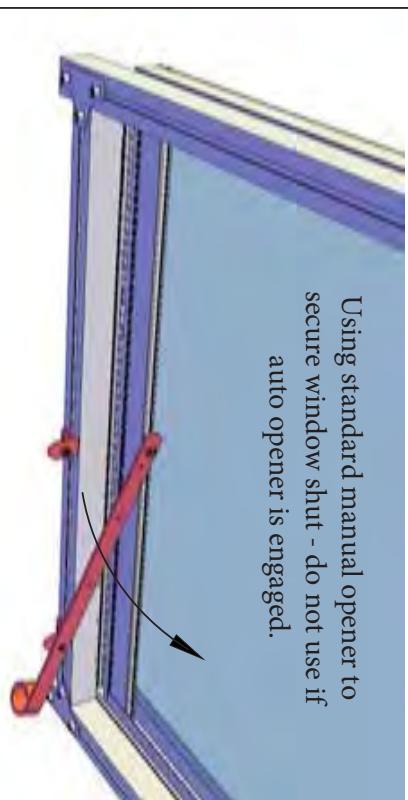


## Roof Window Installation

**Note:** Inserting a bolt/nut on both sides of the roof window will prevent it from moving side to side once it is in place.

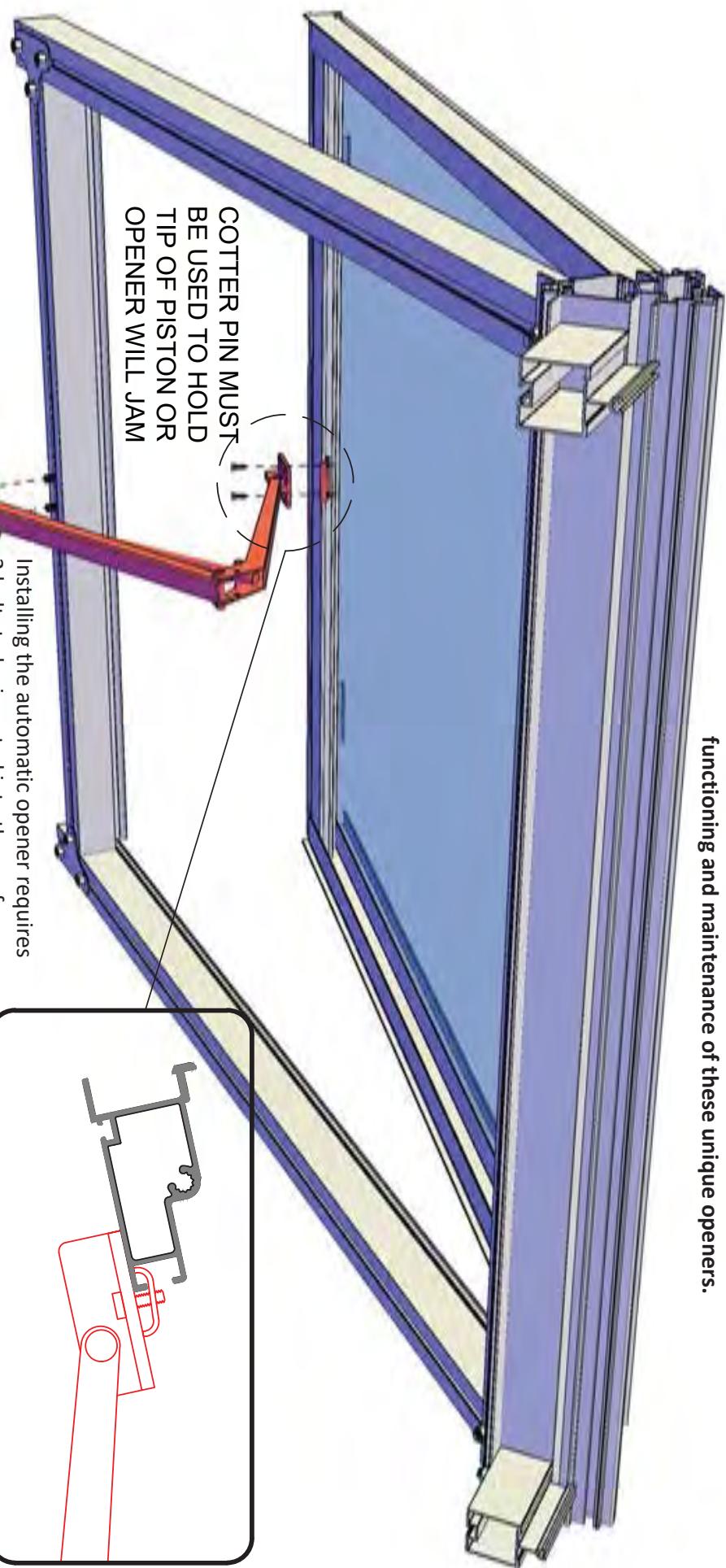


**TO INSTALL:** Slide window into the ridge beam from either end of the greenhouse. The "hook" on the top of the roof window profile will slide into the channel of the ridge beam (shown to the left).



## OPTION: Auto Opener (Ventomax)

**IMPORTANT!** Read installation instructions included in your Ventomax auto opener box to ensure proper installation. There is also information to fully understand the functioning and maintenance of these unique openers.



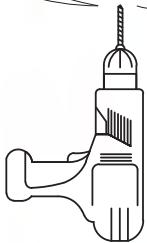
The Ventomax openers work with an oil filled piston (black cylinder). The oil begins to expand around 72 degrees and will push out and open your window when the temperature in the greenhouse is above 75 degrees (outdoor temp will likely be cooler).

If you are struggling to install your piston and it is above 70 degrees, place the piston in cold water/ fridge for 10 minutes so the rod can retract.  
Oil piston rod 2-3 times/year with a light oil such as WD40 or even olive oil.



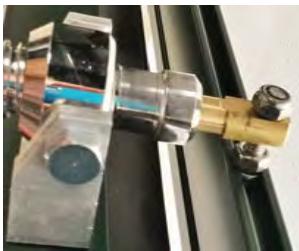
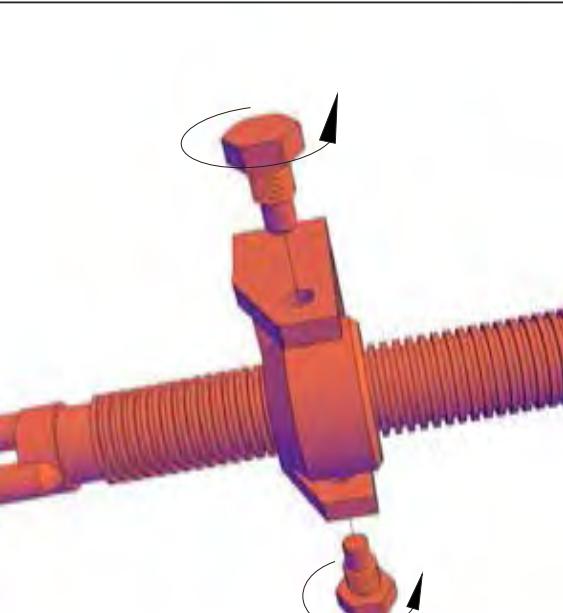
## OPTION: Spindle Manual Opener

Installation Option 1:  
Mount top of opener to  
window with a screw



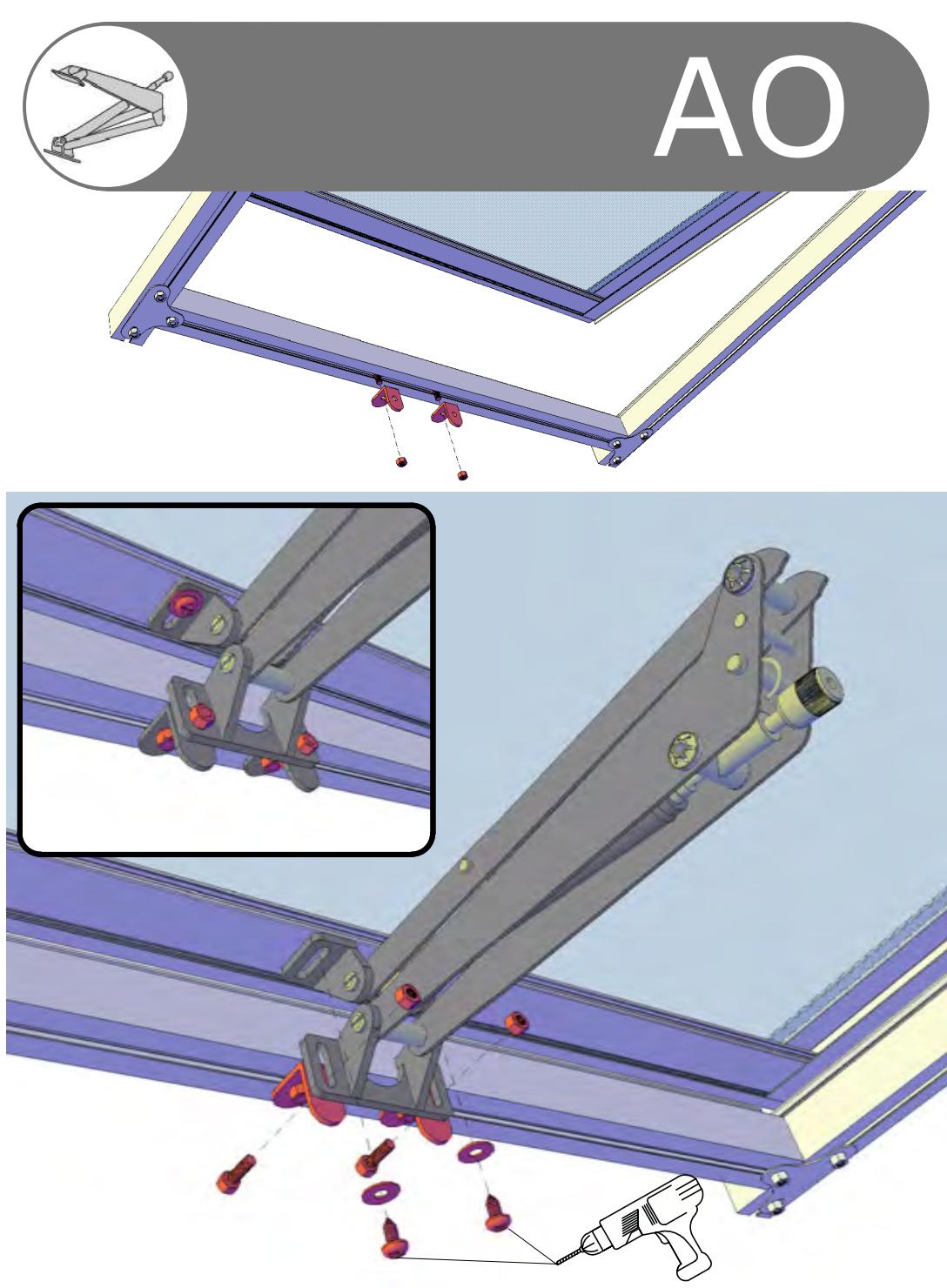
Installation Option 2: Insert a 1 inch long bolt into  
lower roof window channel. Slide to the center and  
lock it in place with a nut as shown below.

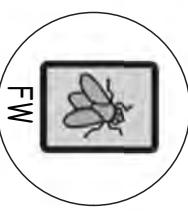
Next, hold the lower U-shaped mount up  
to the crossbar and mark the center of one  
hole. Using a 1/8" drill bit, drill the first  
hole, then screw the bracket on, check for  
level - then mark and drill the second hole.  
Slide the brass part of the opener over the  
bolt in the window channel. Use the  
supplied nylock nut to secure the opener  
on the top mounting bolt. Finally thread  
the large side bolts into the U-shaped  
mount and the opener is installed.



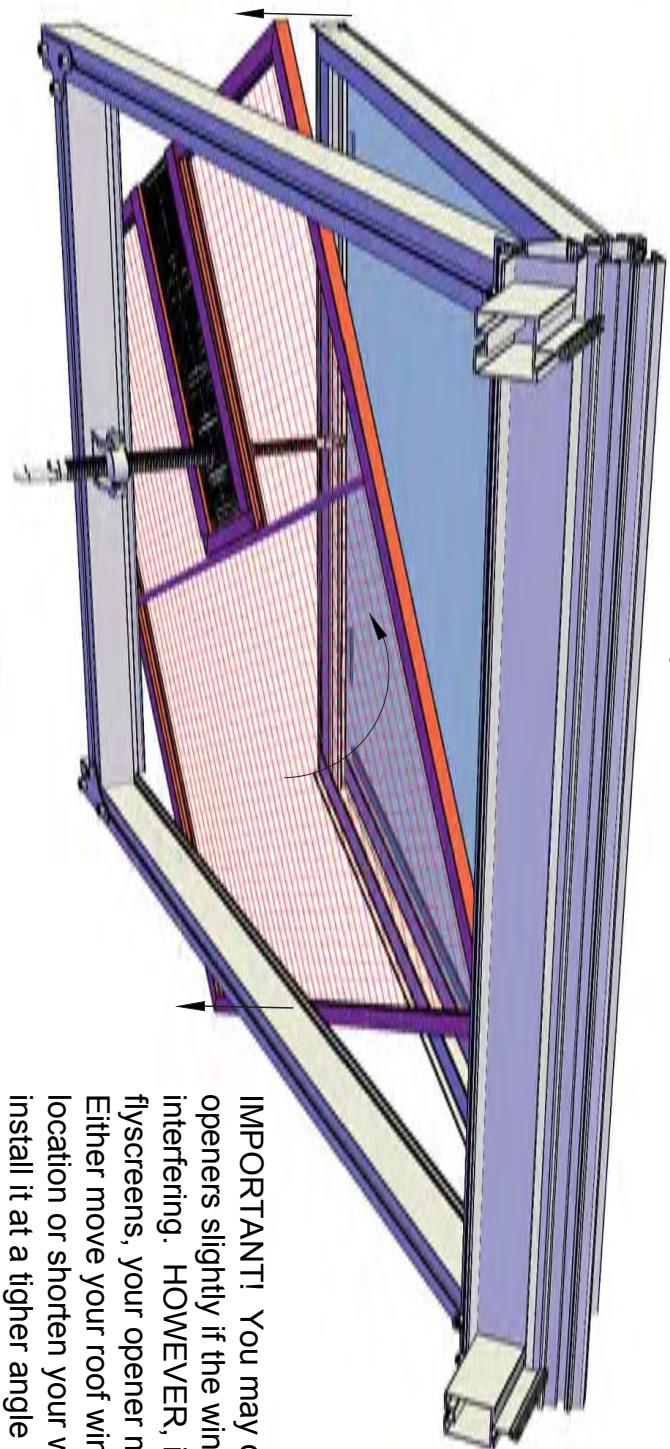
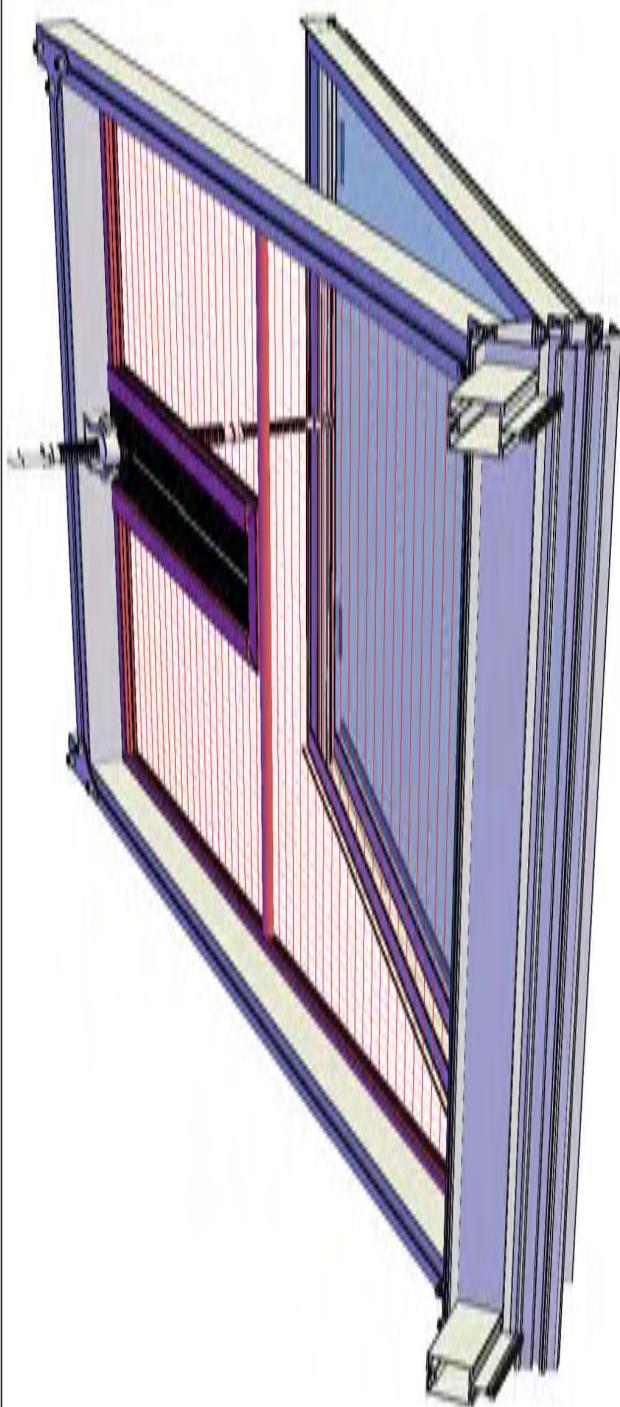
## Optional Upgrade: High Wind Auto Opener

These are not included with our standard kit - please reach out to Exaco if you need additional information on ordering.





## OPTIONAL UPGRADE: Fly screen for roof vent



**IMPORTANT!** You may offset your auto openers slightly if the wind braces are interfering. **HOWEVER**, if you have purchased flyscreens, your opener must be centered. Either move your roof window to a different location or shorten your wind strap slightly to install it at a tighter angle on the gutter flange.



## Louvre Window - All Standard Royal models include one louvred window

LV

Note: All louvered window are black (even with green models)

Numbers below refer to steps in the following pages

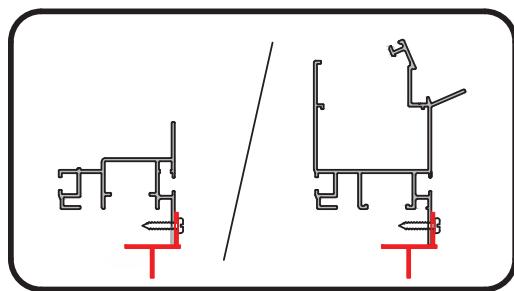


It is likely that your kit include an automatic opener (SESAM LIBERTY) for the louvre vent. Please refer to the Installation and Care manual packaged with the Sesam Liberty opener. You will need to remove the manual opener following the directions.

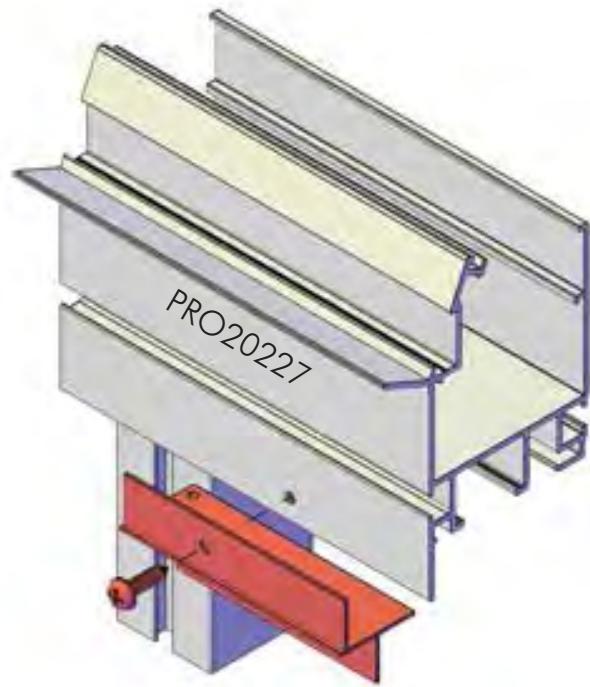
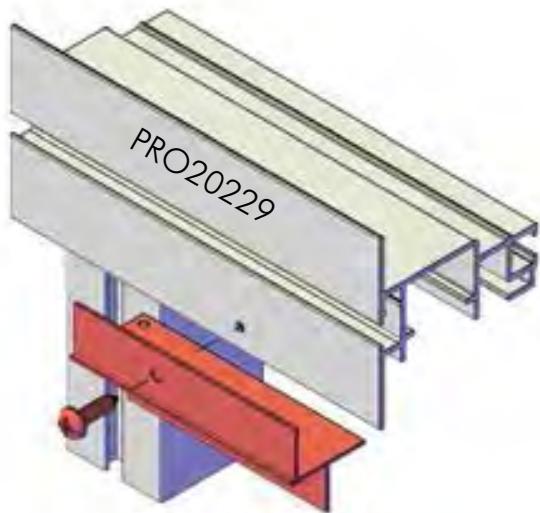
**NOTE: Once the manual opener is removed, it can only be reattached with a bolt/nut - KEEP ALL PARTS.**

**Piston maintenance:** apply a light oil (WD40 or olive oil work) to the piston rod and threading to keep it moving smoothly 2-3 times/year.

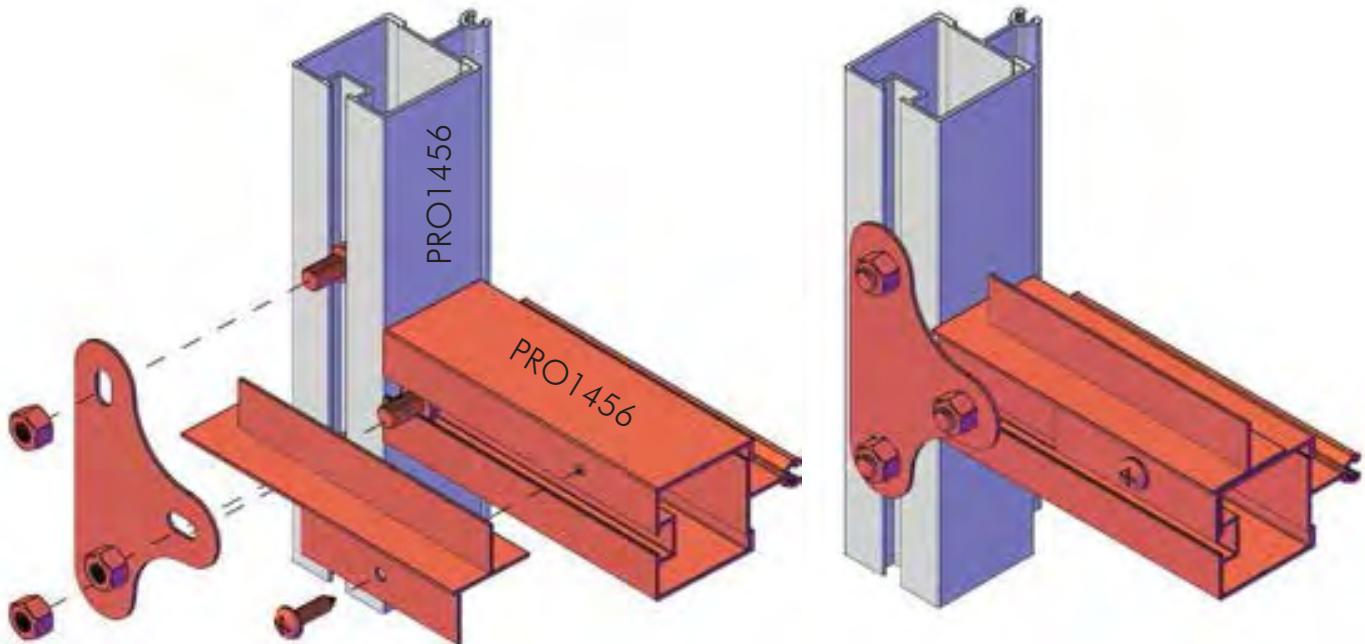
1



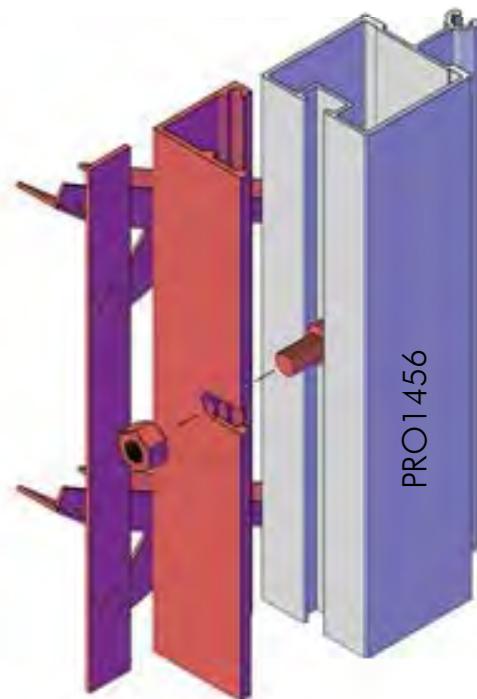
Louvred window may be installed on sidewall (under gutter profile (PRO20227)) or on gable end (under horizontal gable profile (PRO20229)). Both are shown to the left and below. Two may be placed side by side but they must keep manual openers.



2



3

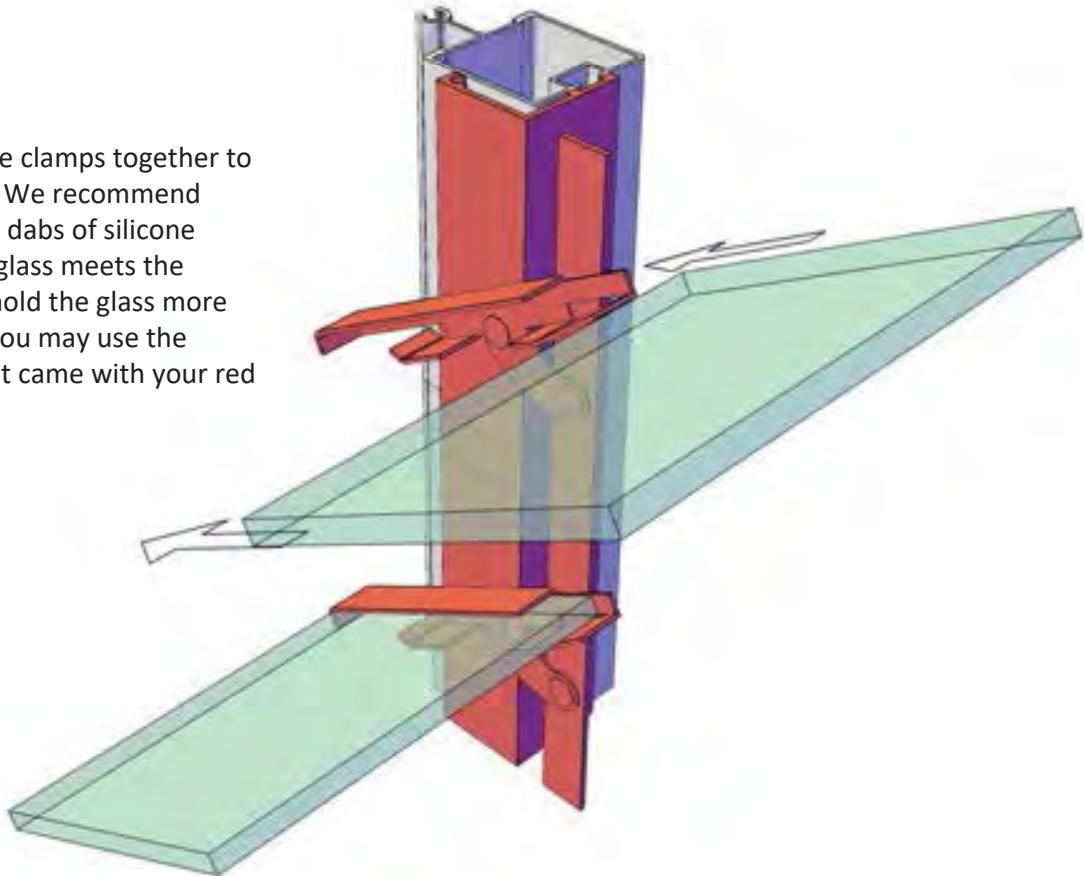


Insert a washer (not included) between black louvre frame and the greenhouse profile at all four bolt locations.

4X

4

Pinch louvre clamps together to hold glass. We recommend using a few dabs of silicone where the glass meets the clamps to hold the glass more securely. You may use the silicone that came with your red shims.



# Louver Window Cover

During cold weather, the louvered window may get drafty. Your kit includes as lexan cover to seal the louvers during this time.

To install the Lexan panel:

- Unscrew the piston from your auto opener
- Go outside the greenhouse and pull back the heavy duty rubber gaskets that hold in the panes of glass to the left, right, and bottom of the louvered window (see picture to the right)
- Place the lexan panel over the louvers as though it were a pane of glass and replace all the heavy duty gaskets (see photos below)

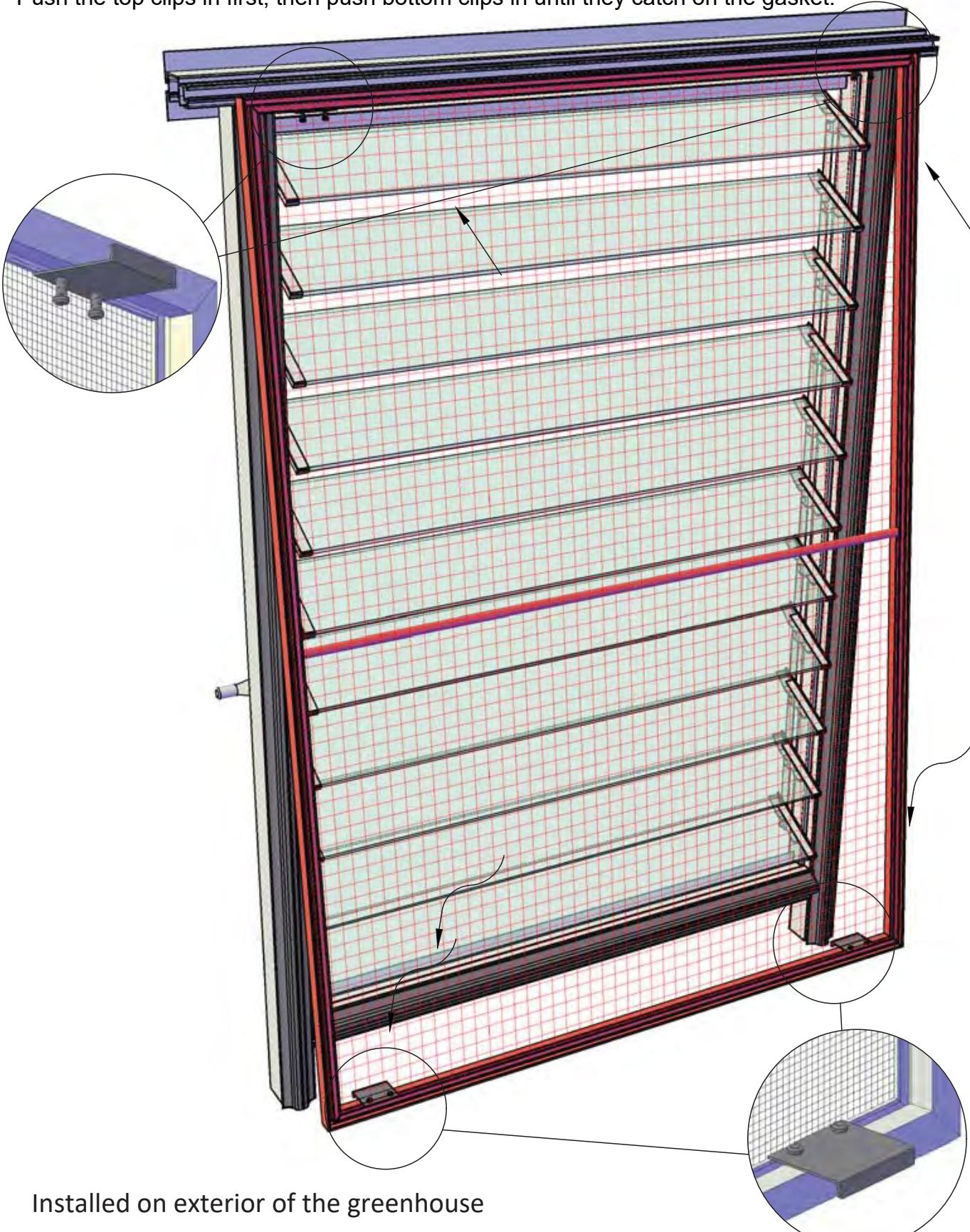




## OPTIONAL UPGRADE: Louvered Window Fly Screen

# FLV

One set of clips on the screen are spring-loaded. These spring loaded clips go at the top. Push the top clips in first, then push bottom clips in until they catch on the gasket.

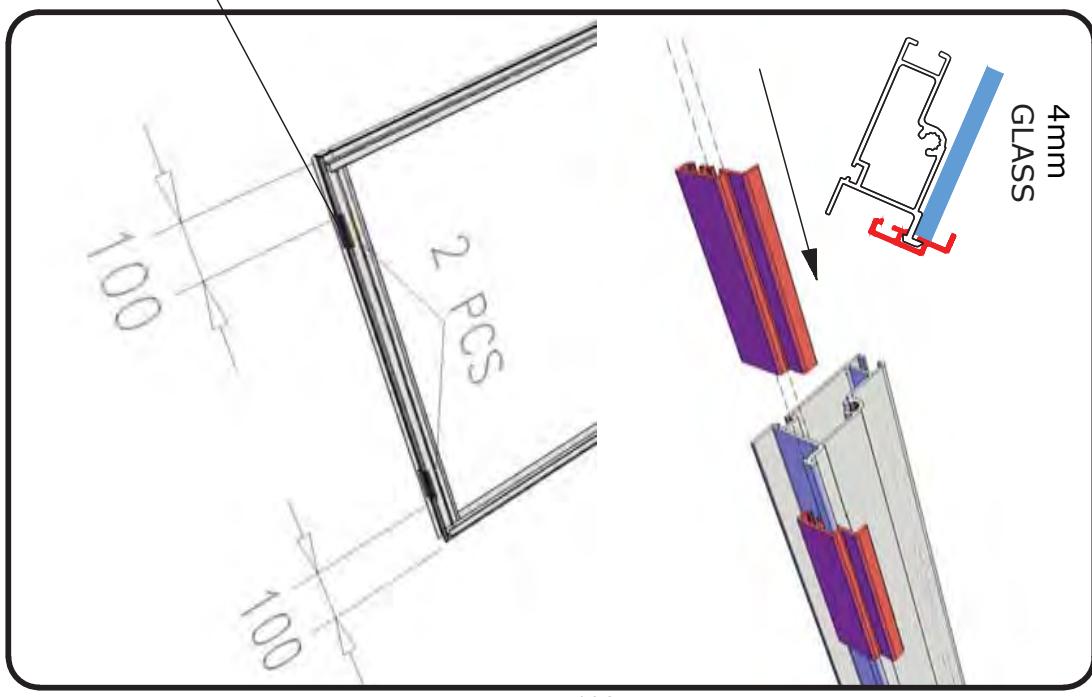
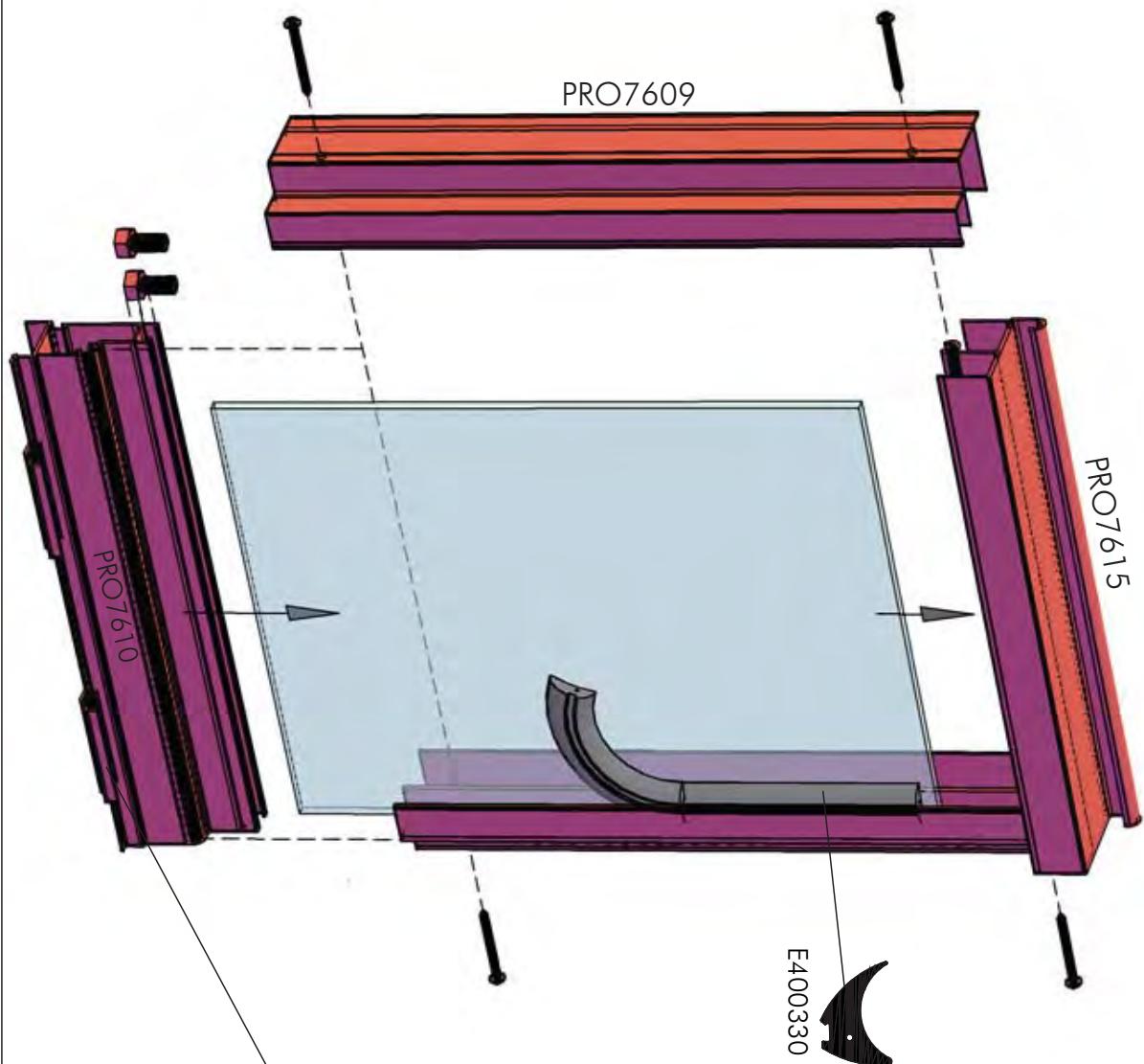


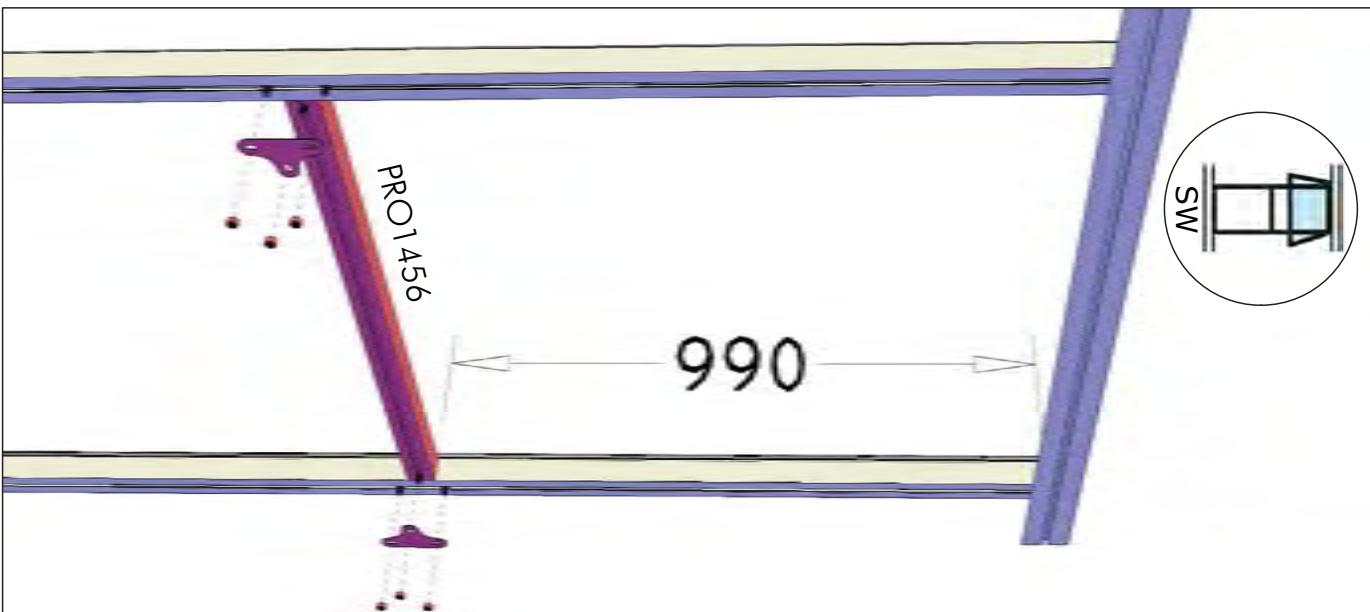
Installed on exterior of the greenhouse



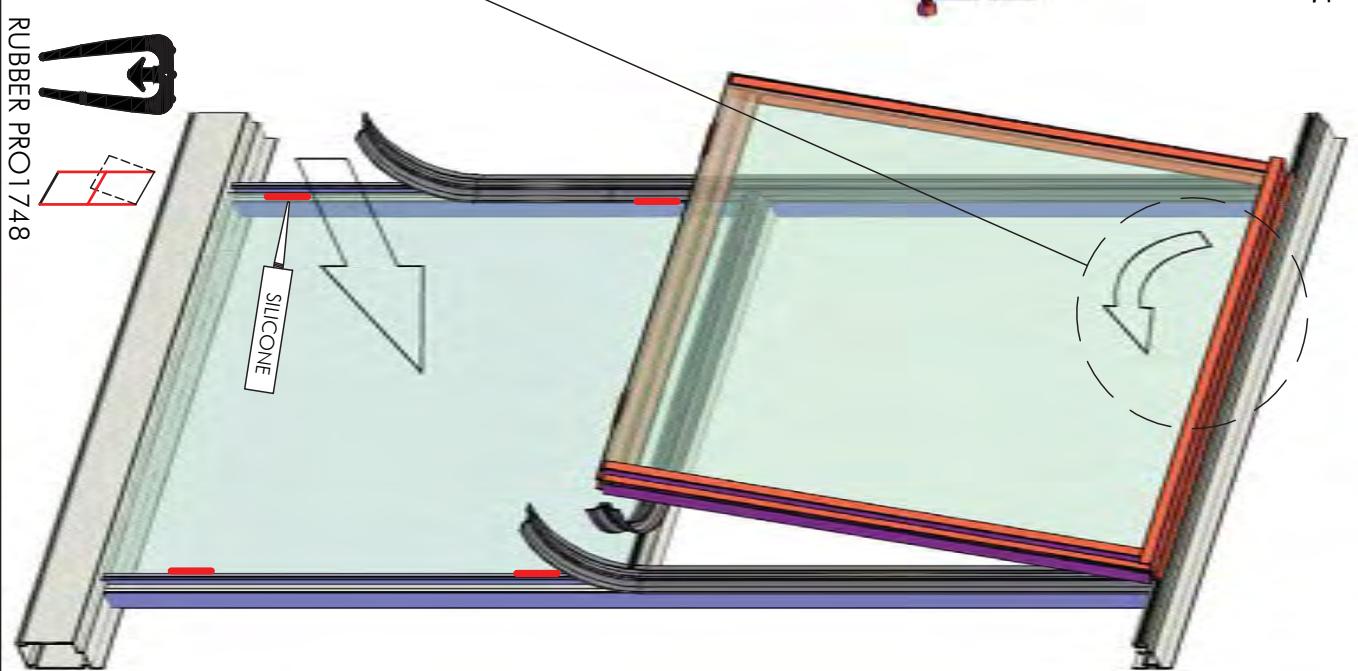
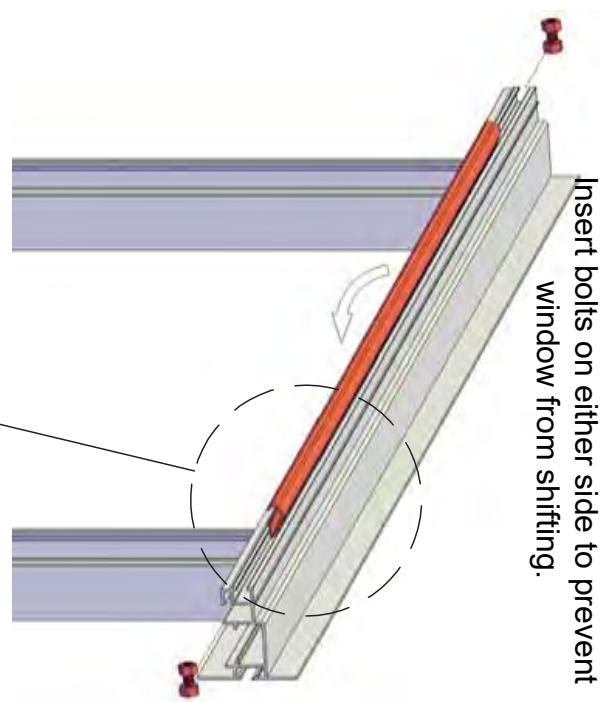
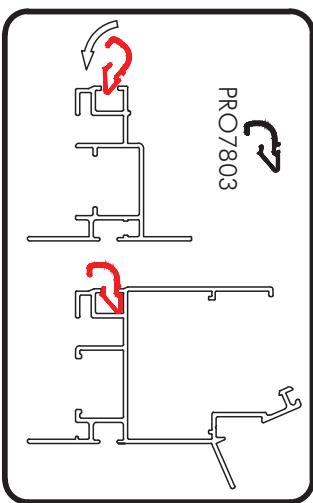
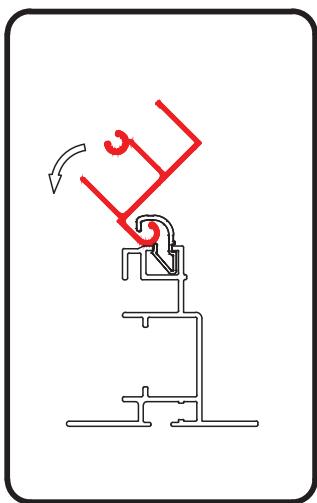
OPTIONAL UPGRADE: Push out window -  
only Retro Victorians include this option

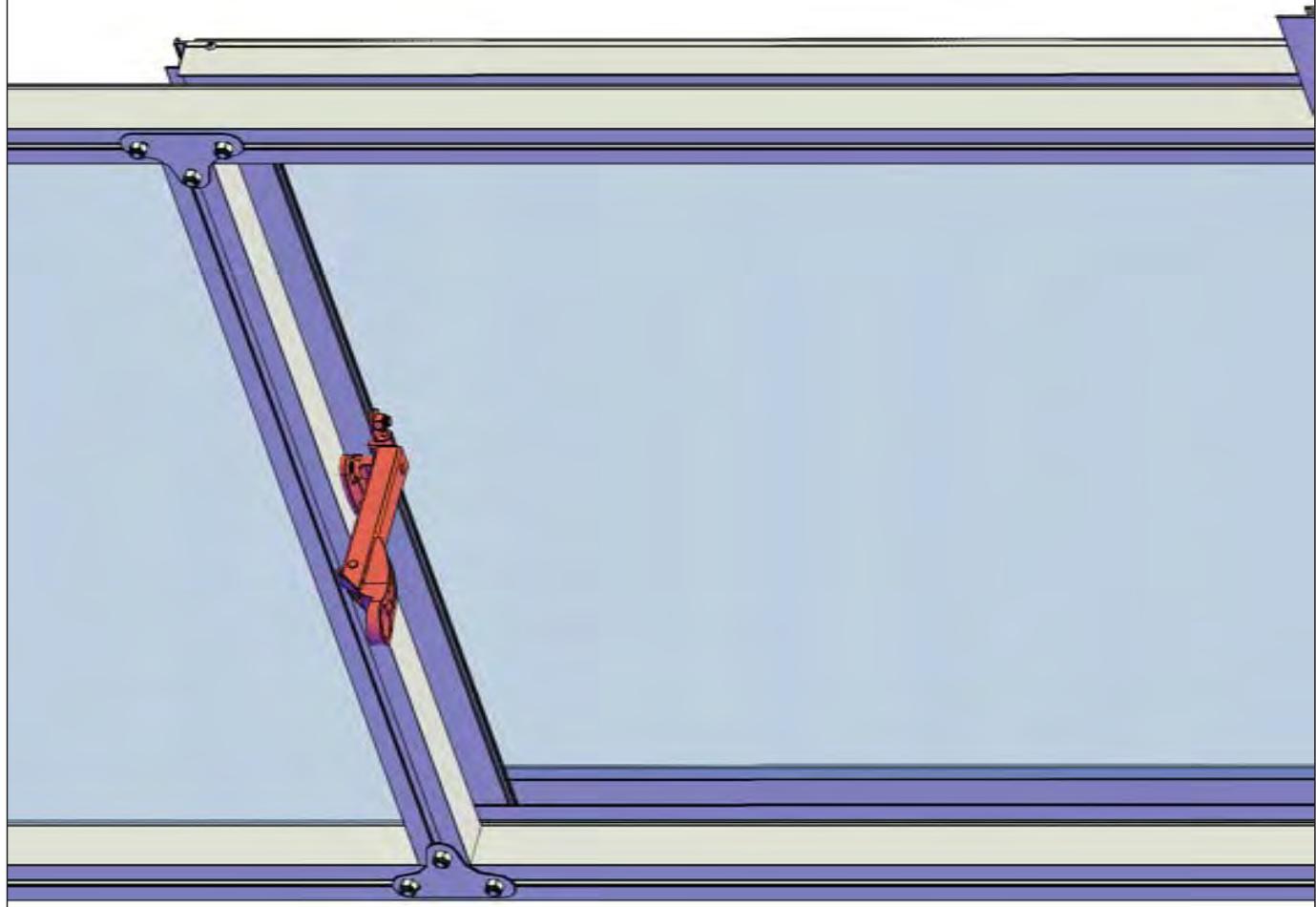
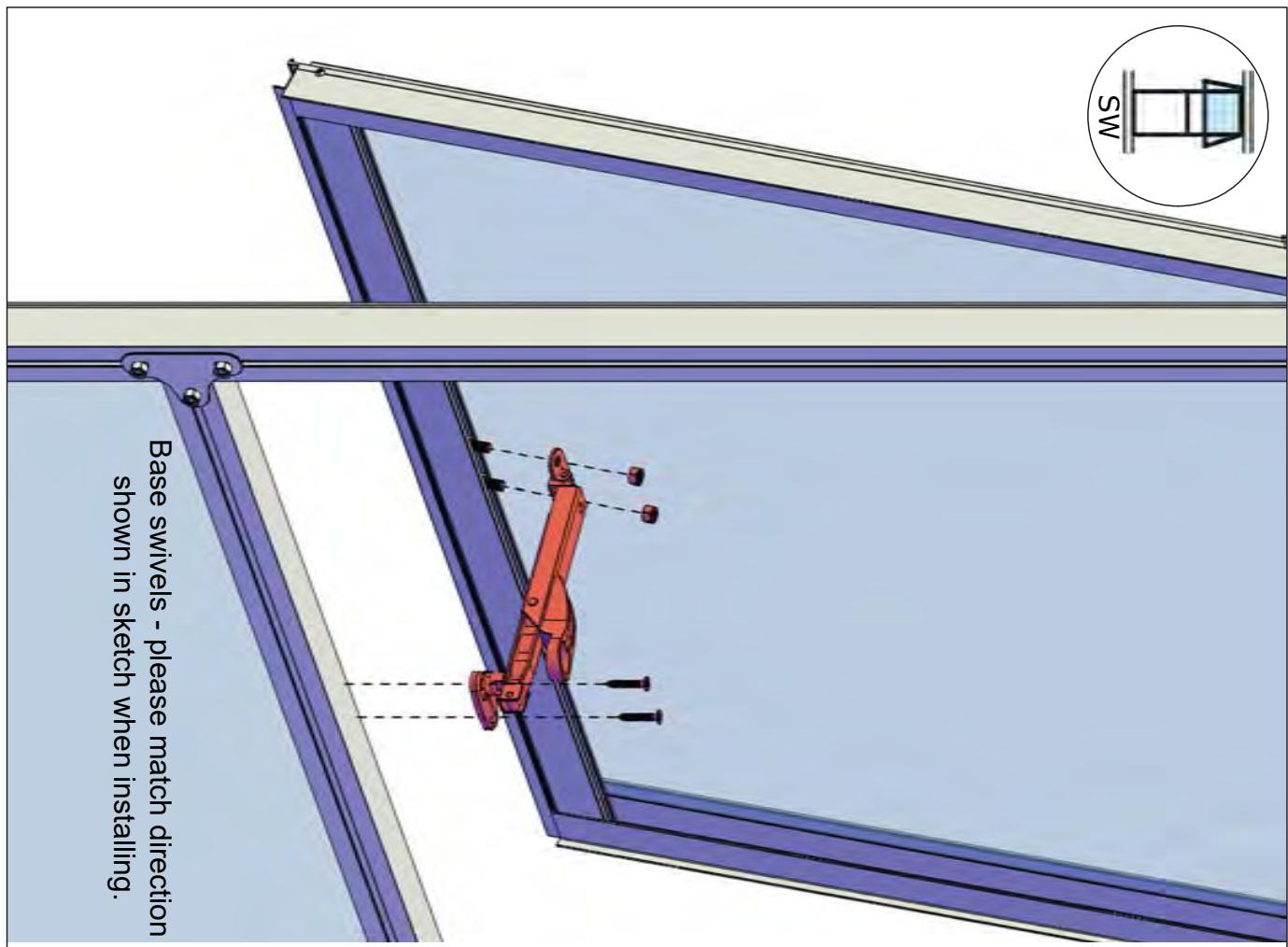
**SW**





Slide window from end of PRO7803 to install





**OPTION: Narrow Top Shelf - please check your order to see if this is included**

## **STANDARD**

Insert bolts into  
channel of PRO1456  
and secure with  
nuts.

M6x15

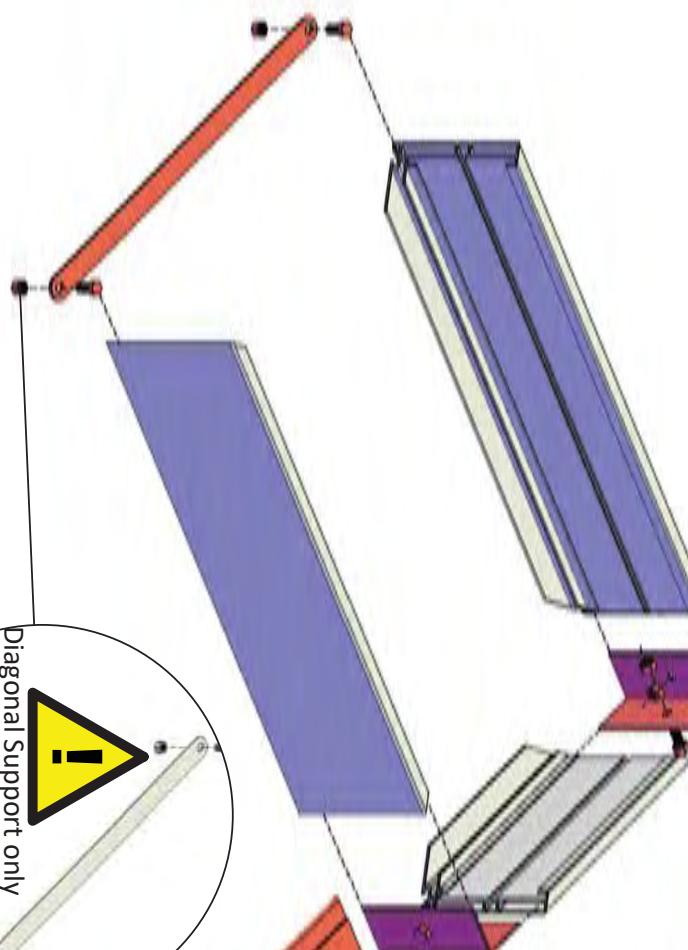
## **ALTERNATIVE**

Drill screws into  
PRO 1456 to secure

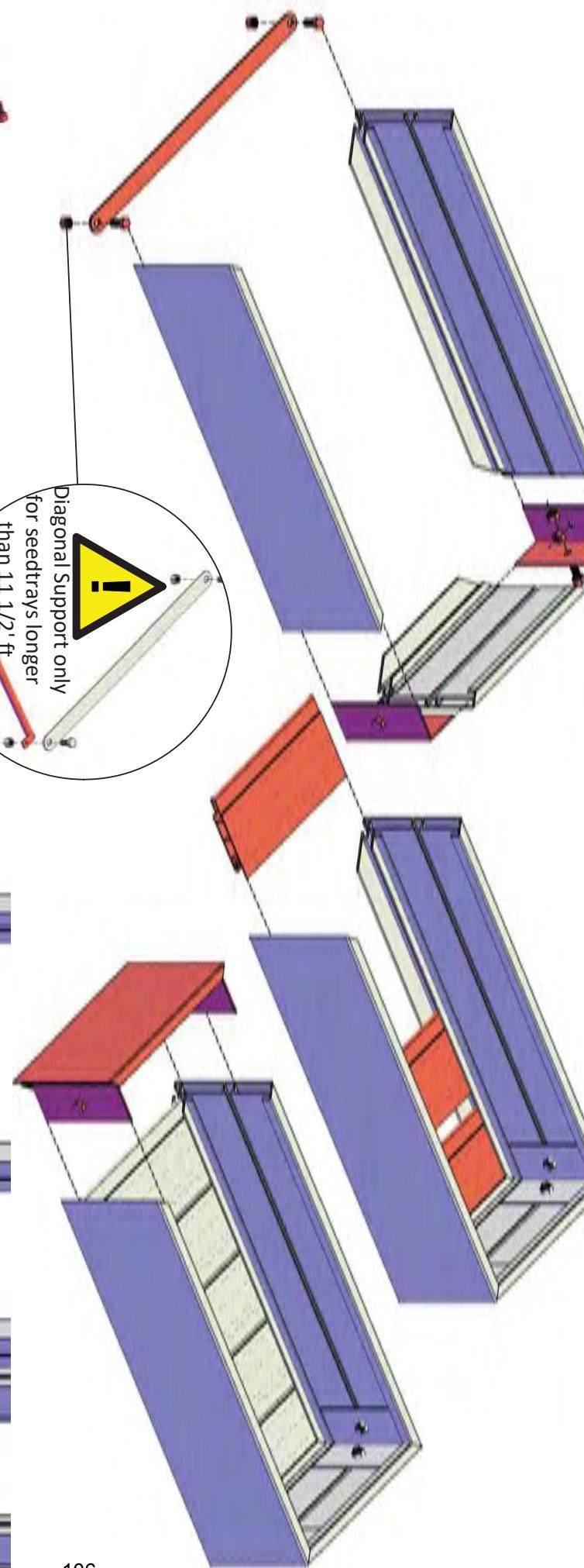
SCREW

SH

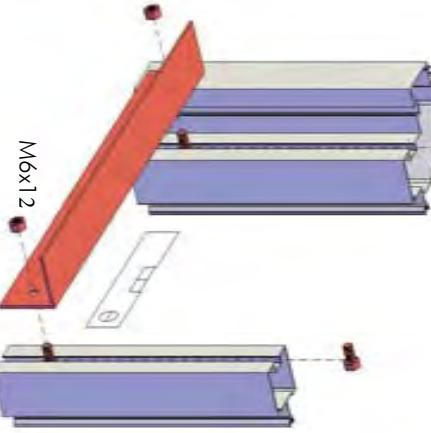
**OPTION: SEEDBED/SEEDTRAY (ST) Please check your order to see if this was included**



**STANDARD**

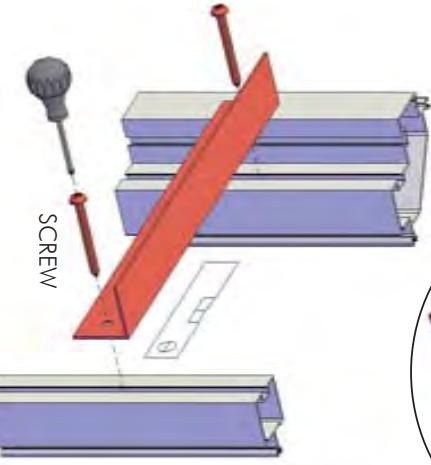


**ALTERNATIVE**



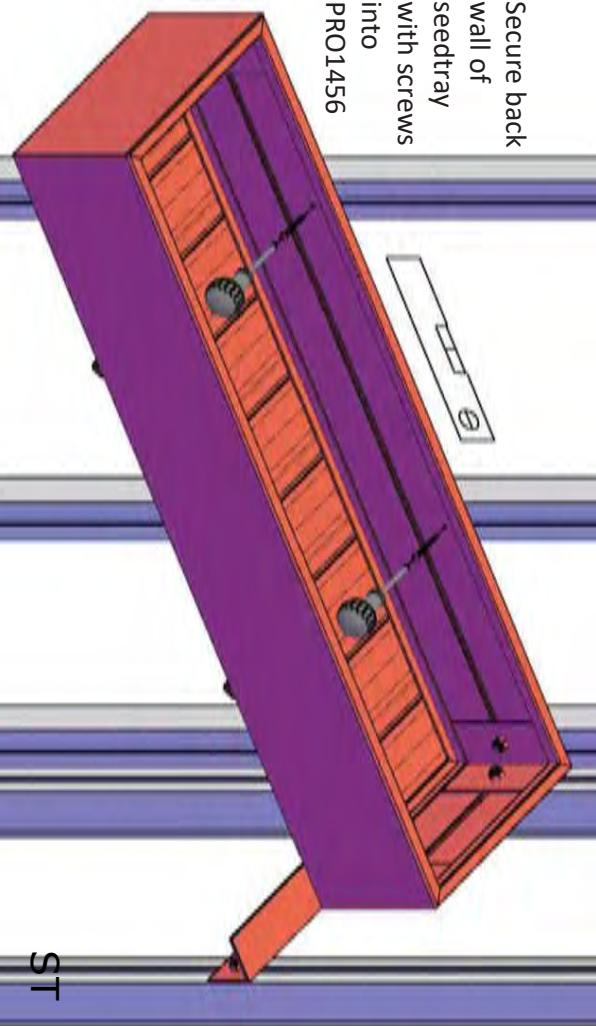
M6x12

Attach L bracket to bolts inserted into corner post and PRO1456



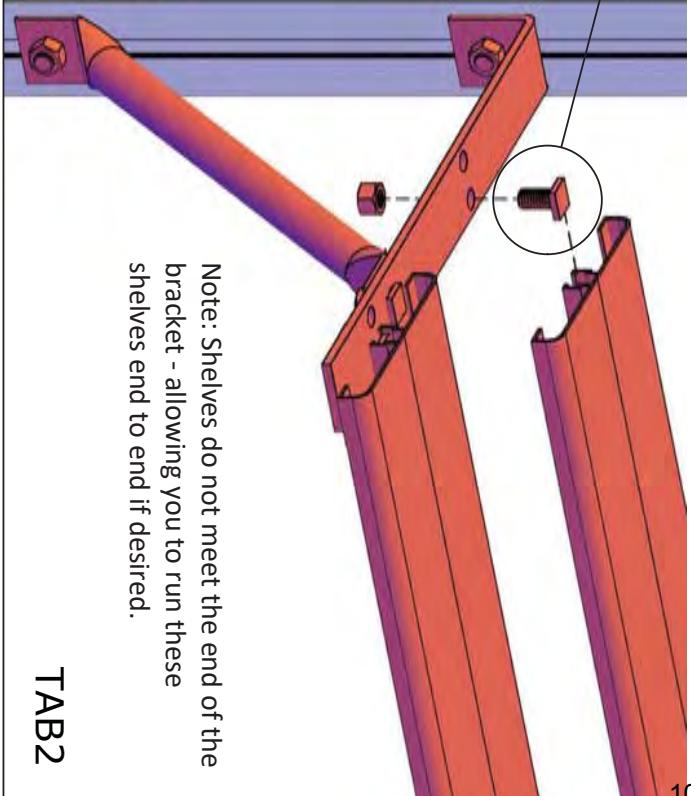
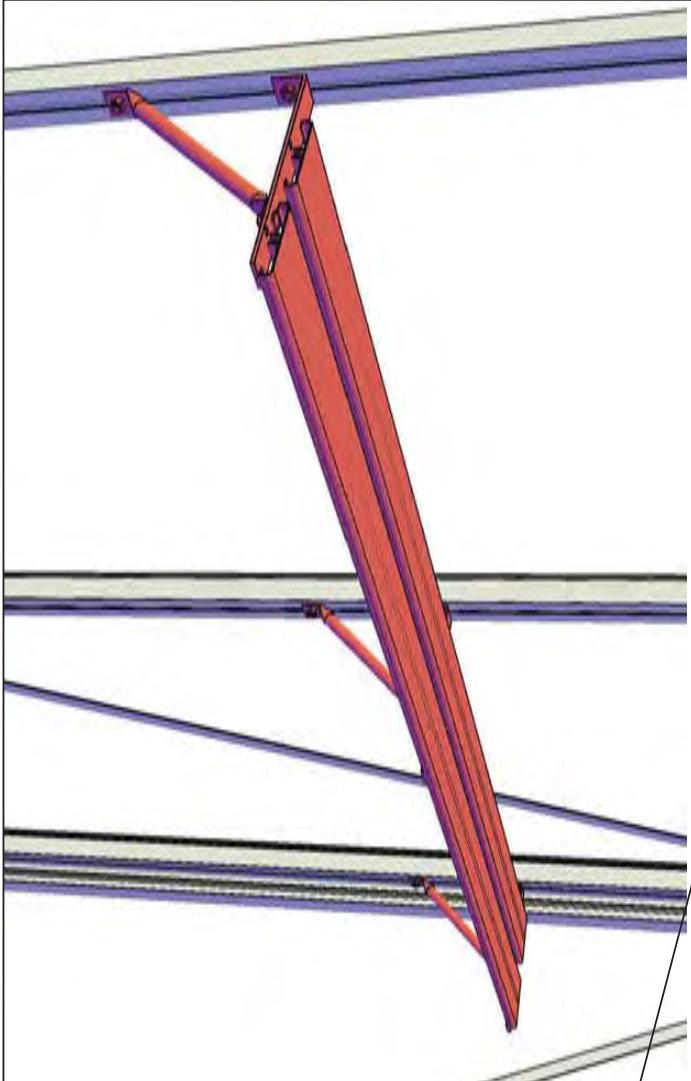
SCREW

Secure back wall of seedtray with screws into PRO1456

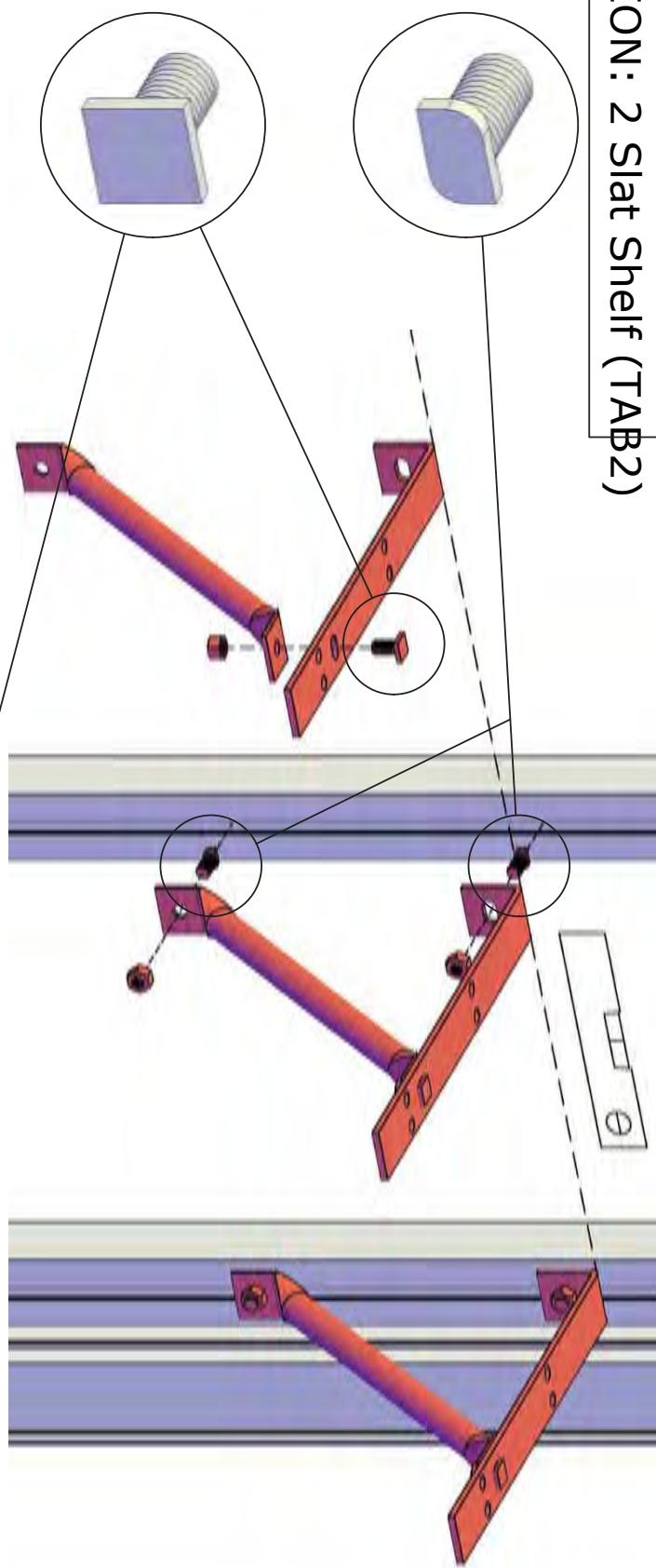


ST

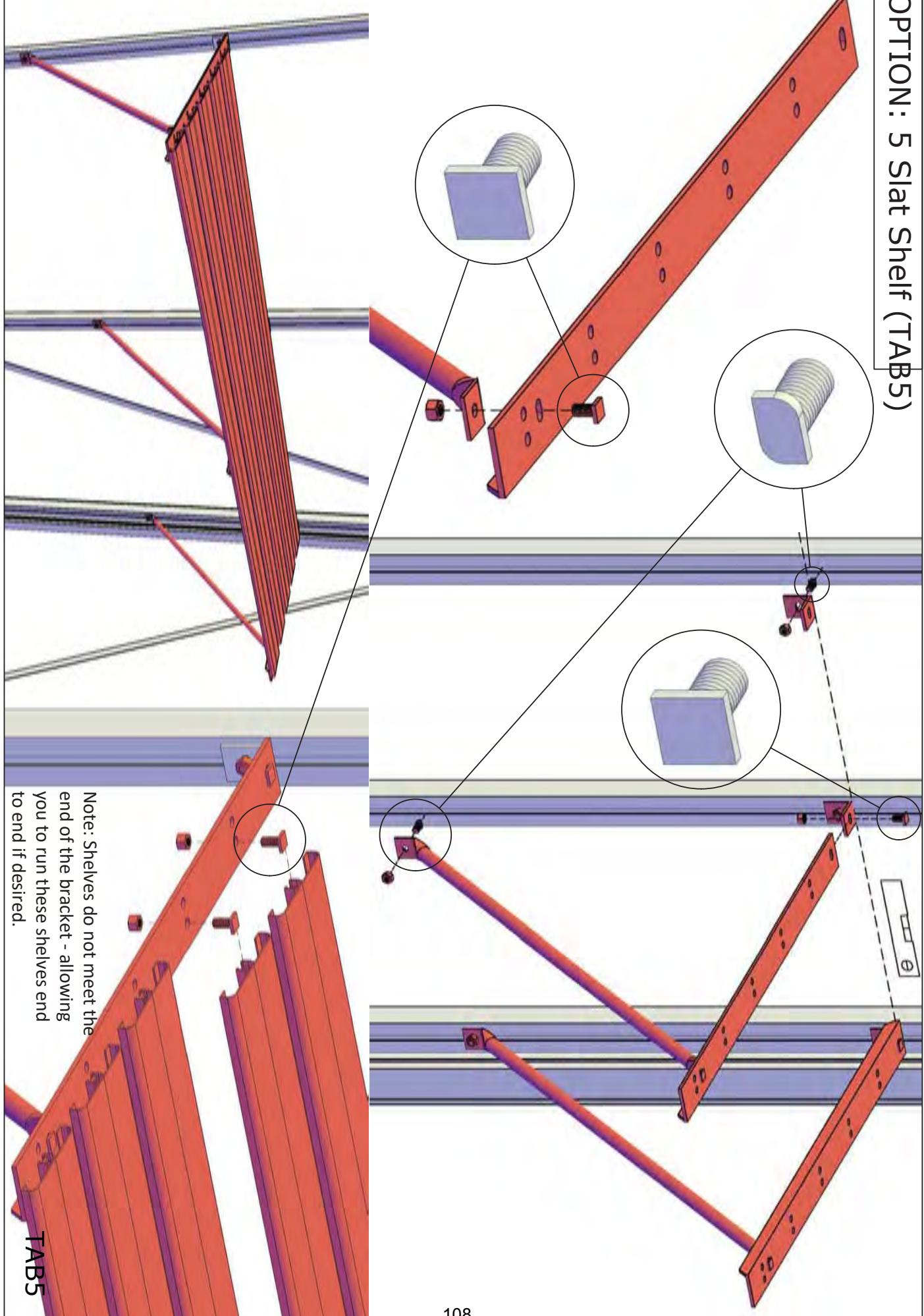
## OPTION: 2 Slat Shelf (TAB2)



TAB2



## OPTION: 5 Slat Shelf (TAB5)



## Additional Useful Accessories for Victorian Greenhouses:



**Hinged Door Stop/Catch** - you should receive these with your hinged door unless you have the auto closer. They are also available for purchase.



**Magnetic Hinged Door Stop** - These work great for greenhouses on knee walls that extend beyond the base of the greenhouse and hold the door in a nearly 90 degree opening.



**Turnbuckle Reinforcement connector**  
- Attaches to the rafters to add support to areas with heavy snow loads.  
Available in black or green.



**Metal Plant Hooks** -  
Stainless Steel with a 2 3/4" J hook. They install in the channels with a T bolt.  
Come in a pack of 5.



**T bolts** - These are perfect if you've forgotten to add a bolt or if you want to add something later. Not recommended to attach structural items.

### TWIST\_EYE



x50

**Twist Eyes** - inserts easily into the channel. Good for growing wire, supports, or attaching insulating "bubble wrap". Black plastic. Sold in bags of 50.

## Notes:

## Notes:



## Customer Service or Assembly Questions?

Give us a call

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Exaco Trading  
[www.EXACO.com](http://www.EXACO.com)

*Please watch our animated assembly  
video on our Exaco Trading Co  
YouTube Channel.  
Find the link at [www.exaco.com](http://www.exaco.com)*

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