



INSTALLATION & MAINTENANCE INSTRUCTIONS FOR

CAP577

Vertical Flow Softwall Modular Cleanroom

Engineering Solutions with Value and Integrity

8605 Wyoming Avenue N. • Minneapolis, MN 55445
763-425-9122 • 800-423-9728 • Fax: 763-425-2004
E-Mail: sales@cleanairproducts.com
www.cleanairproducts.com

Safety Glasses



Knife



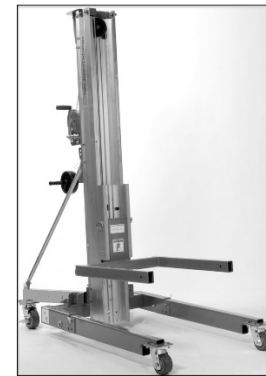
Pallet Jack



Step Ladder



Construction Lift



Drill



Wrench



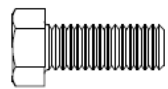
Screwdriver



Scissors



SUPPLIED HARDWARE



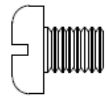
3/8" X 1 HEX BOLT



3/8" WASHER



#10 X 3/4" PAN HEAD SCREW



3/8" X 1/2" PAN HEAD BOLT



3/8" LOCK WASER



#10 X 1/2" SELF-DRILLING SCREW



#10 X 1/2" PAN HEAD SCREW



#10 WASHER



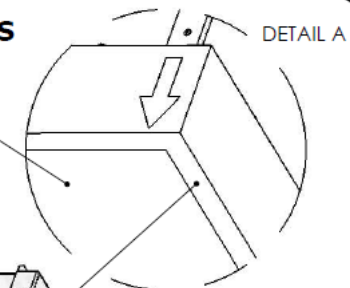
#8 X 3/4" SELF-DRILLING SCREW
(USED ONLY WITH STRIPDOORS)

- One or more A-frame style ladders that allow workers safe access above the cleanroom ceiling.
- **A sheet good lift can be useful to help position the filters in the ceiling.

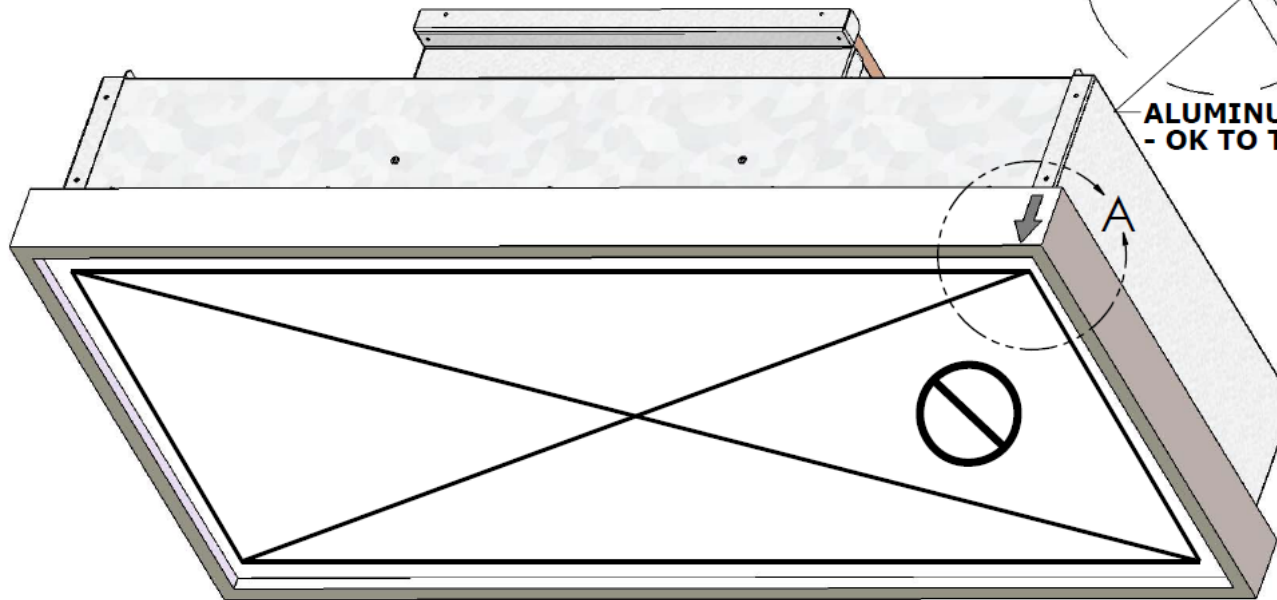
**Review the details of the clean rooms design and become familiar with the layout and optional items that have been included. Many of these options affect the build process. Relevant documents can be found on the following pages. **

CAUTION

**KEEP HANDS AND FINGERS
AWAY FROM THIS AREA
(FILTER MEDIA)**



**ALUMINUM FRAME
- OK TO TOUCH**



DO NOT TOUCH FILTER MEDIA

WHEN HANDLING THE FILTER - PAY ATTENTION NOT TO PLACE
HANDS INSIDE THE FRAME OR TOUCHING THE DIAMOND GRID
PROTECTING THE FILTER MEDIA - ANY PRESSURE ON THE
MEDIA CAN DAMAGE IT AND VOID THE WARRANTY

FN571-64/036070

Please observe the following information related to the product:

- 1) Read this guide before installing and/or operating the unit and retain for future reference.
- 2) Observe warnings associated with handling, installing, using, and maintaining the CAP577.
- 3) Follow all instructions for set-up, operation, and use.
- 4) Operate **ONLY** from the type of power source indicated. If you are unsure of the type of power available to you, contact your dealer or power company.
- 5) This unit may be equipped with a polarized alternating current (AC) plug with one blade wider than the other. This plug will only fit into the power outlet in one way for safety reasons. If the plug does not fit, call an electrician to replace the outlet. **DO NOT REMOVE THE ROUND GROUNDING TERMINAL. THIS UNIT MUST BE GROUNDED FOR SAFETY REASONS AND FOR PROPER OPERATION.**
- 6) Do not place power cords (optional) where they will be damaged, especially near the outlet, the plug, or where the power cord exits the unit.
- 7) Overloading outlets and/or extension cords can result in fire and/or electrical shock.
- 8) **ONLY** use parts supplied or authorized by the manufacturer. Substitutions may result in fire, electrical shock, or other safety hazards.

Safety Warnings

- 1) **NEVER** expose the assembly to moisture or rain.
- 2) If the unit gets wet, disconnect the power at the source and have an authorized service inspection before using it again.
- 3) Do not pull on the optional power cord to unplug the unit, and never handle the cord with wet hands.
- 4) Do not clean the unit with flammable chemicals.
- 5) Do not expose to explosive or hazardous vapors or materials.
- 6) Make sure the unit is well supported to prevent falling.
- 7) Do not block airflow to the unit.
- 8) Disconnect the power before servicing.
- 9) Do not operate below 0 degrees Fahrenheit or above 110 degrees Fahrenheit.
- 10) This unit is designed to operate in a non-hazardous (non-explosive) environment with non-condensing air.
- 11) **NEVER** put objects into the blower.
- 12) Do not operate without metal blower guard.
- 13) Review application with your safety commissioner for proper use

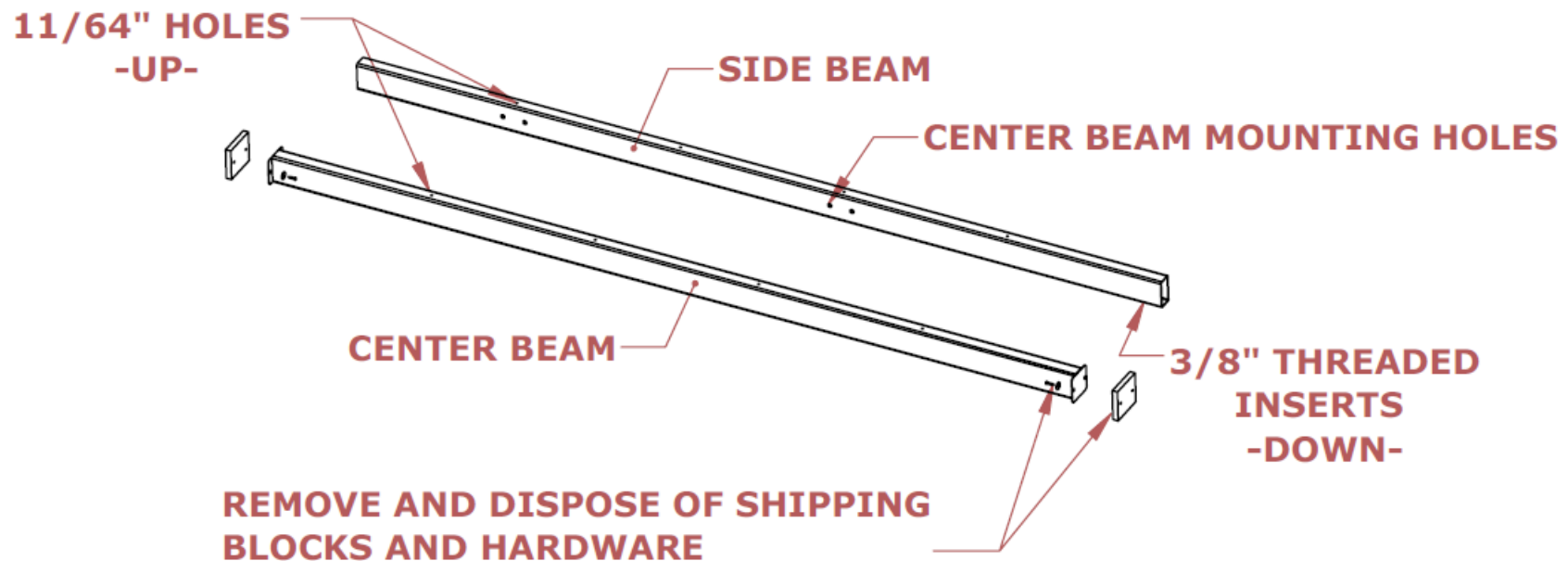
GETTING READY: UNPACK BEAMS

Locate the area that the clean room is going to be assembled and mark out on the ground the final dimensions of the room with tape or suitable substitute. This is helpful in a later step to ensure the room is "true" and square.

**** ONLY USE IPA AS CLEANER ON PAINTED METAL SURFICES TO AVOID RESIDUES THAT MAY CAUSE ISSUES WITH THE DUAL LOCK ADHESIVE ****

Open the beam boxes on the ground and leave the beams on the boxes. Remove and dispose of the shipping blocks and shipping hardware.

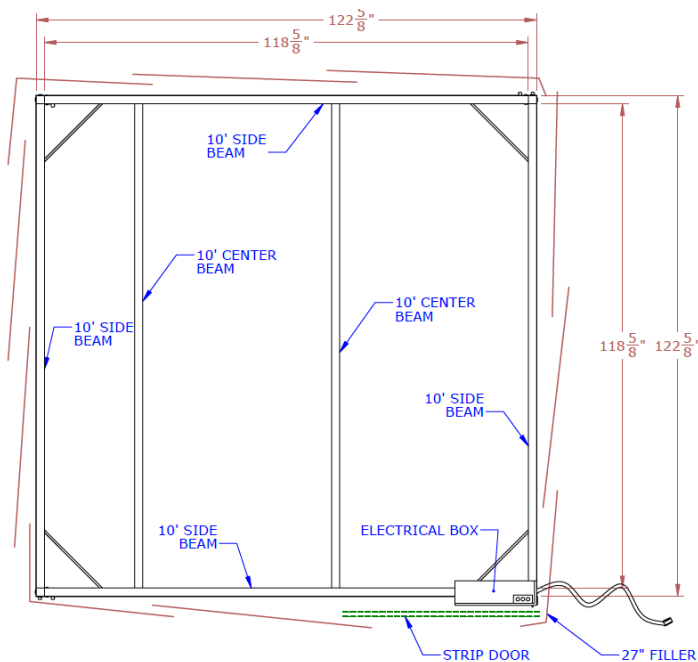
**** UNPACK BEAMS AND LEAVE ON BOXES FOR PROTECTION ****



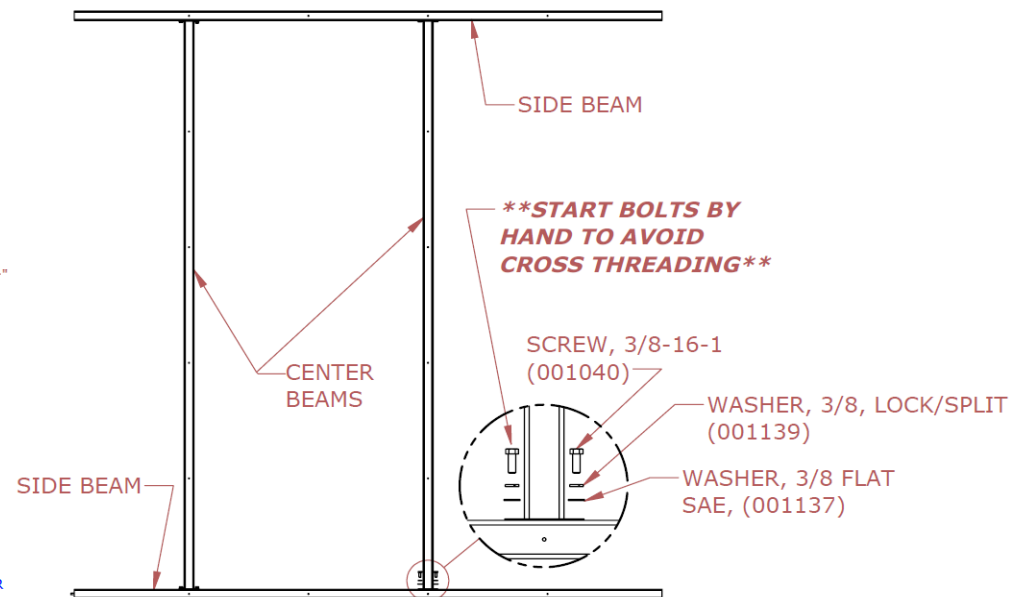
FRAME PREPARATION

Reference your Curtain drawing at the beginning of the manual for the beam layout. On the ground, arrange and bolt together one section of side beams and their corresponding center beam(s) as seen in the diagram below. Ensure that the 11/64" holes running along the beams are oriented UP. Keep the beams protected by keeping them on their shipping boxes. Note the installation order of the washer, lock washer and bolt in the diagram below.

EXAMPLE CURTAIN DRAWING



BEAM ASSEMBLY EXAMPLE

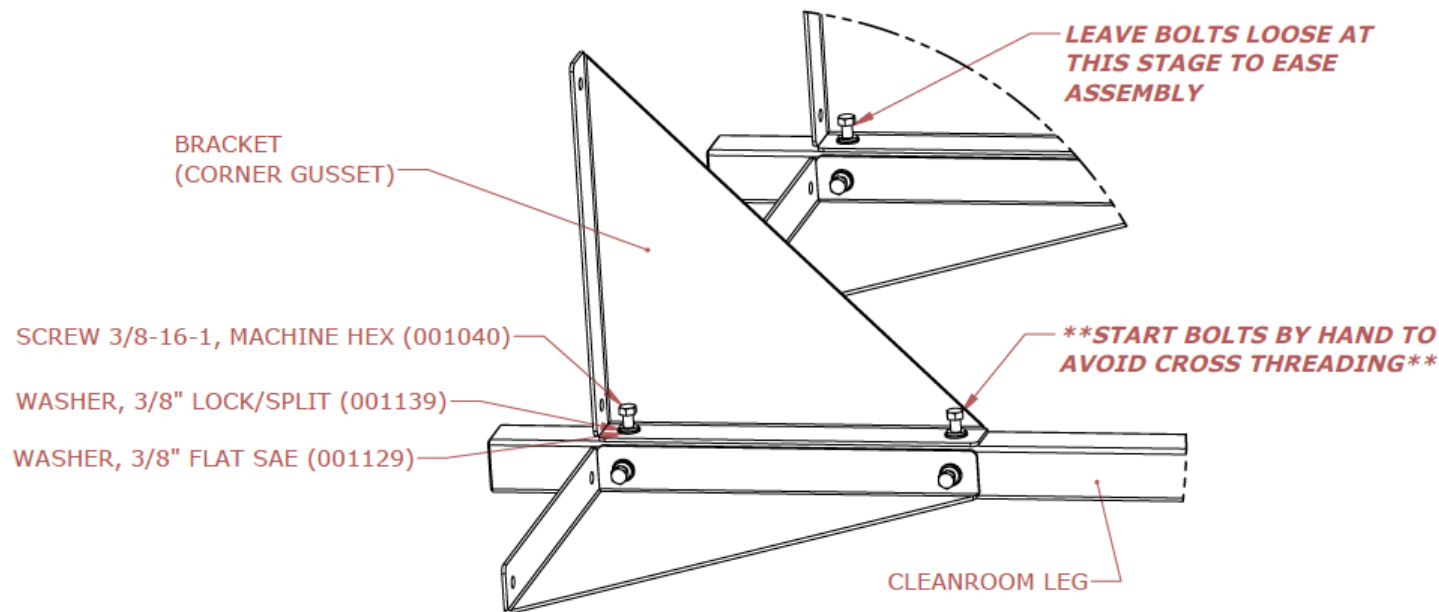


ROOM NOTES:

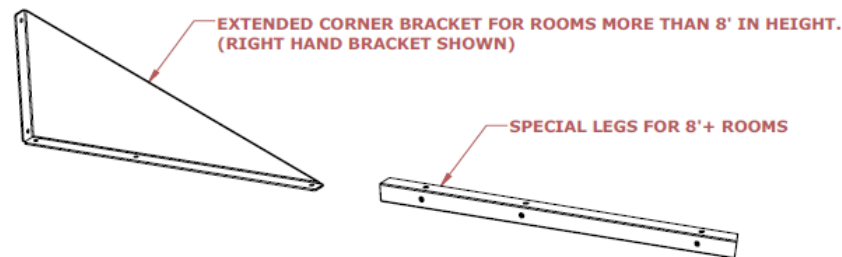
*Larger rooms with more than 4 legs will start by building one "Four Leg Section" of the frame and then add additional beam sections to the standing structure as described in the FRAME ASSEMBLY section.

LEG PREPARATION

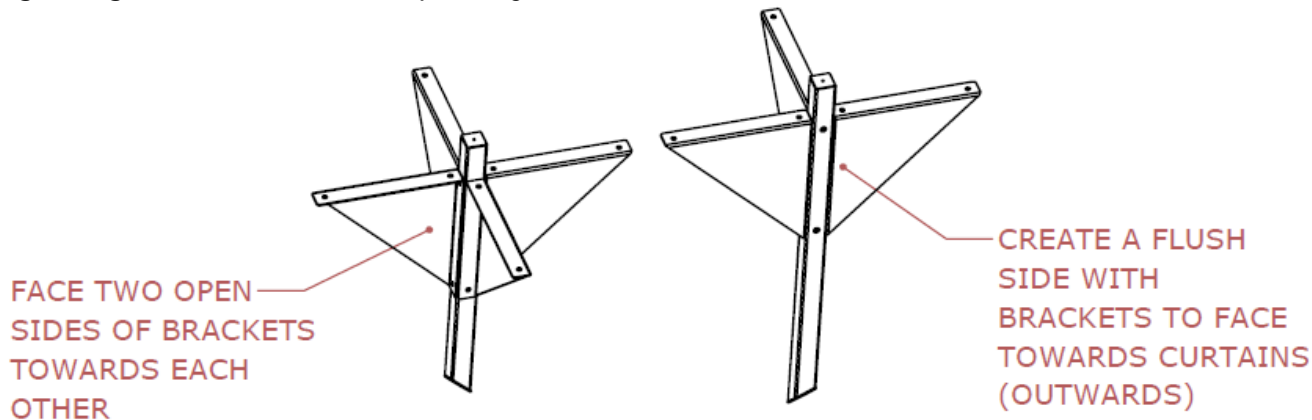
Note the installation order of the washer, lock washer and bolt. Attach the corner brackets (*577 Corner Gusset*) to the legs by manually turning the bolt three full threads by hand. This reduces the chances of cross threading when using a power driver. Assemble the brackets with the open sides towards each other as seen below. Leave the bolts loose until the legs are attached to the frame.



NOTES: *Rooms over 8' in height have special Right and Left handed extended Brackets and matching legs

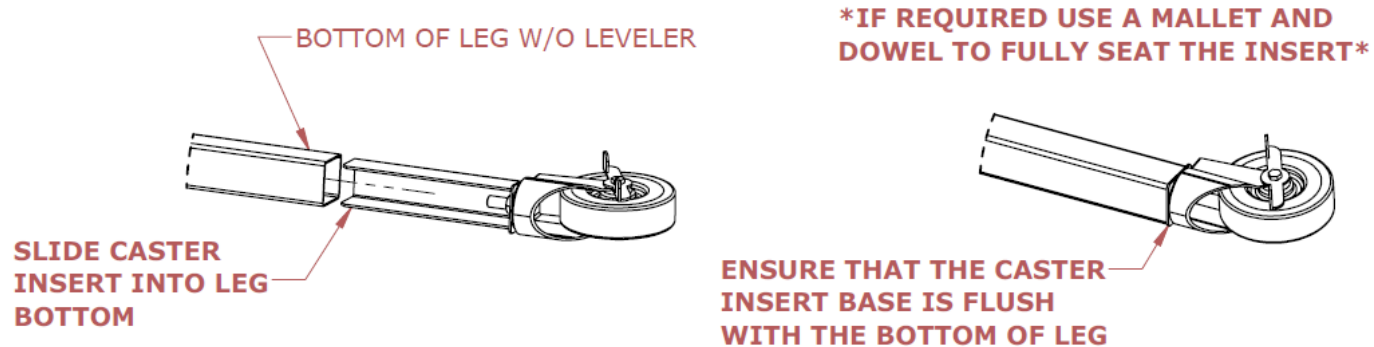


*Rooms with six or more legs will require assembling legs with 3 or 4 brackets. Reference the curtain drawing at the beginning of this manual for quantity and locations.



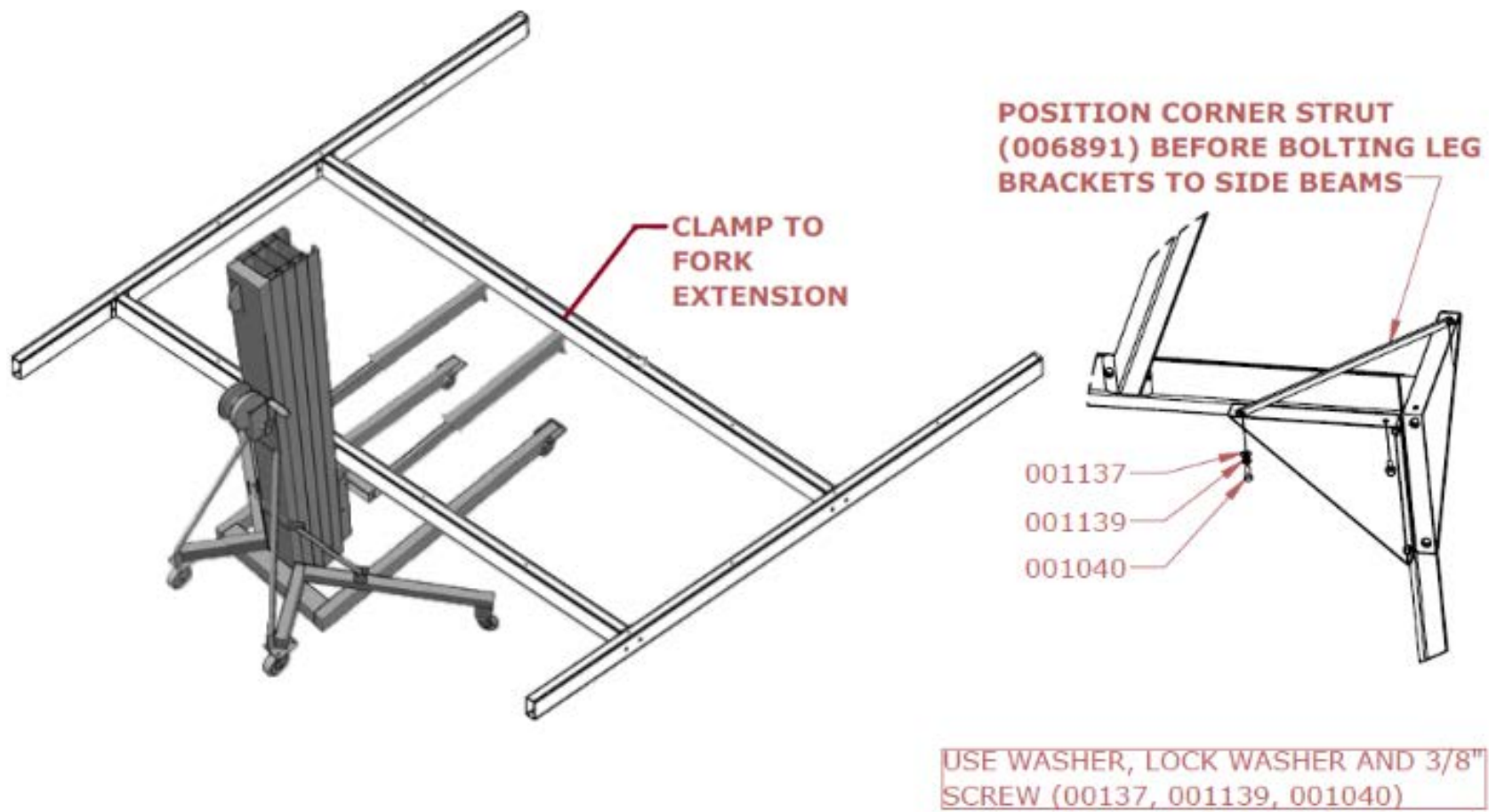
CENTER LEG INTERSECTION LEG

*Rooms with casters will require the installation of the casters into the legs. The casters are shipped separately in the hardware box. Slide the top of the caster insert into the bottom of the leg. If necessary, carefully drive the insert in with a mallet and dowel.

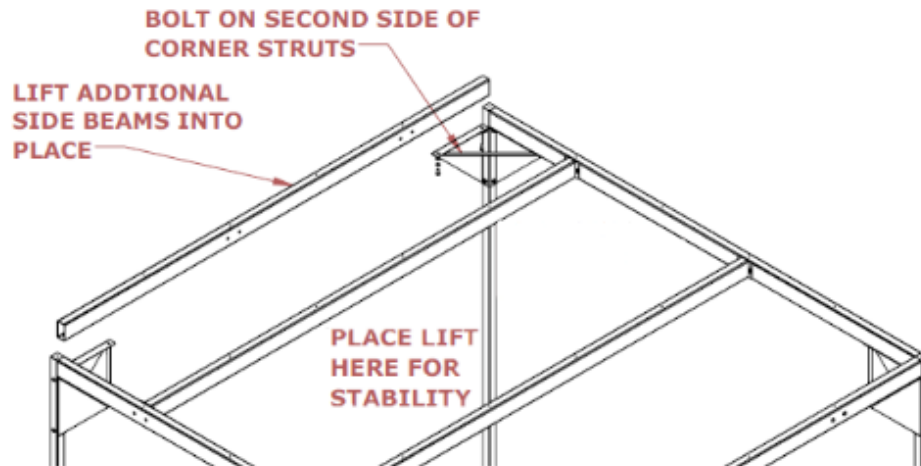


FRAME ASSEMBLY

Using a cardboard box under the beams, position the Lift so that the fork extensions span under a center beam(s). Clamp the Frame to the fork extension to aid stability. Position a worker on a ladder at a corner to help carefully lift the structure to the room height. Position a leg in the corner and bolt the leg bracket and corner strut to the side beam as shown. Leave the lift in place and repeat this process at each corner.

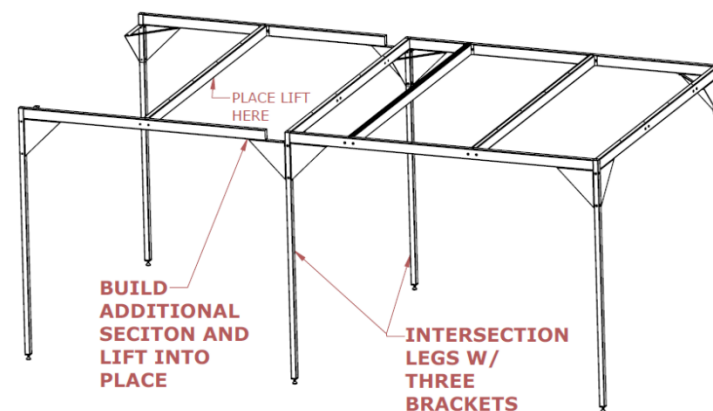


With all four legs attached use one person on each end to lift the additional side beams into place. Bolt them to the leg brackets while securing the second side of the corner struts. Check the frames dimensions and the spacing of the legs at the floor to ensure the room is square while tightening all bolts. It is now safe to remove the lift. Use the leg levelers to plumb the room.



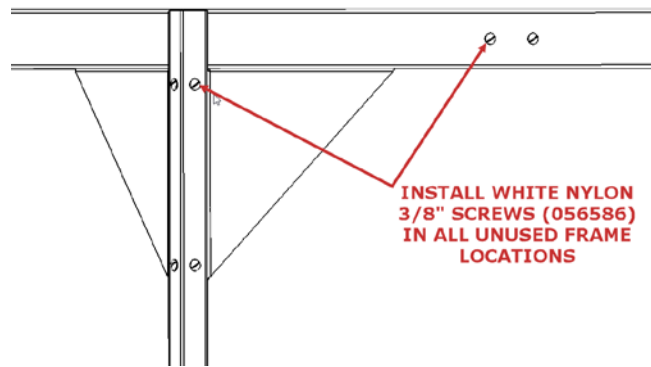
ROOMS W/ MULTIPLE SECTIONS:

Larger rooms with multiple sections are built by adding additional sections to the first by following the same procedure.



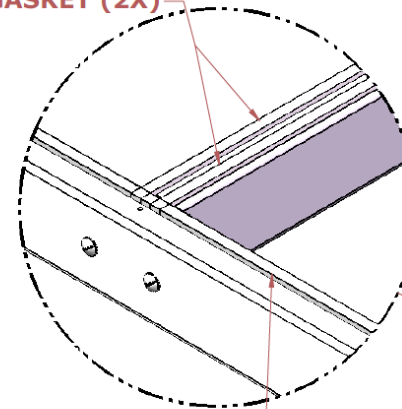
FRAME ASSEMBLY

Locate all unused 3/8" holes in the frame and legs and insert the 3/8" white nylon slotted screws (056586). Gasket the tops of the beams with the 50' roll(s) of 1/4" x 1/2" foam gasket (012231). Apply one strip around the inside perimeter of the room and two strips down the center beams as shown.

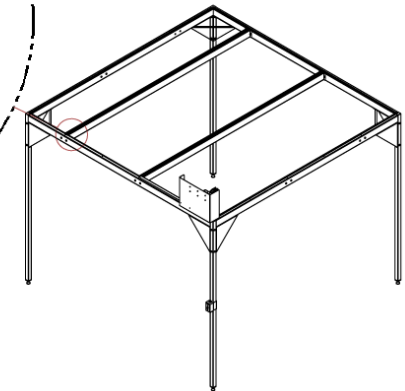


If prefabricated wiring was purchased determine the location and orientation of the optional prefabricated wiring panel. Inspect the approval drawings and determine the orientation of the 4' sides of the ceiling panels. This is the side that will have T-bars. The electrical mounting angle will be orientated in the same direction as the T-Bars and be installed in place of one. Mount the angle and then position and mount the electrical box with (3) 10x1/2 Self Drilling screws(000960). **Do not** add clips to the conduit or mount the light switch until after the curtains are installed.

1/4" X 1/2" GASKET (2X)



1/4" X 1/2" GASKET ON INSIDE PERIMETER OF FRAME



10-32 PAN HEAD (000923)

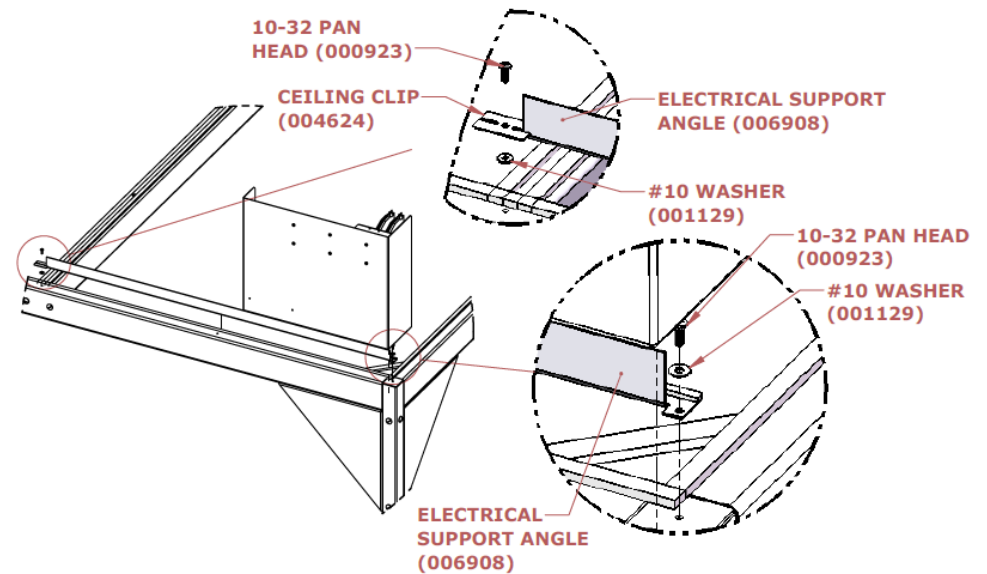
CEILING CLIP (004624)

ELECTRICAL SUPPORT ANGLE (006908)

#10 WASHER (001129)

10-32 PAN HEAD (000923)

#10 WASHER (001129)



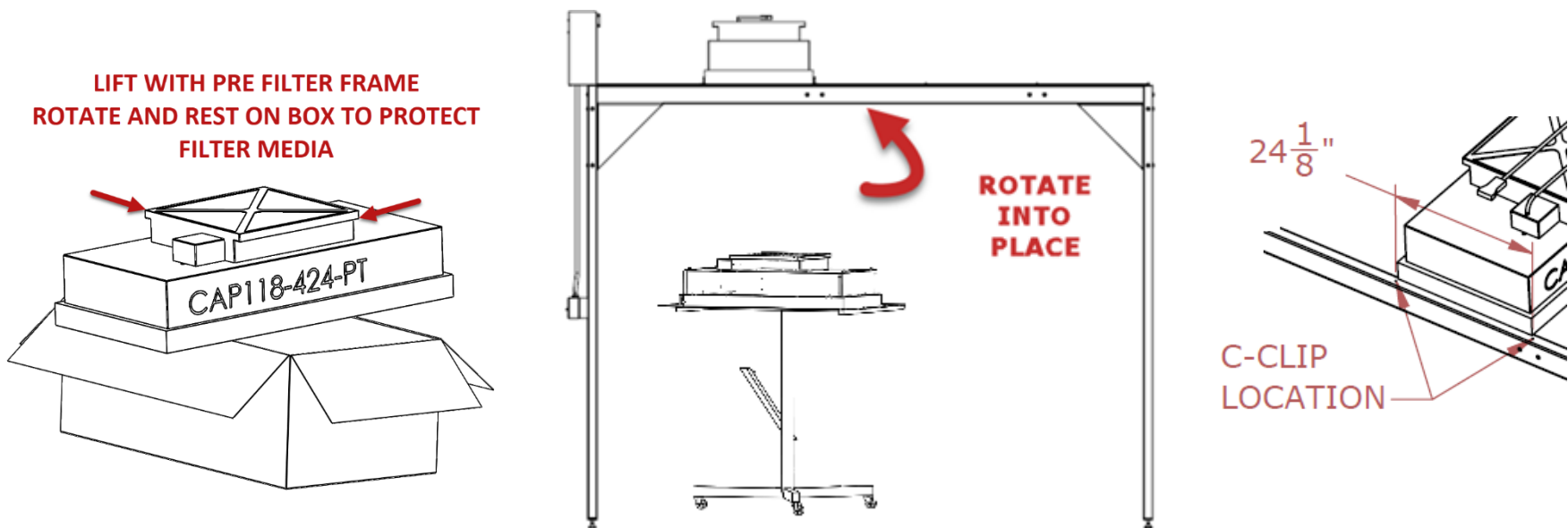
CEILING ASSEMBLY

****CAUTION: While working with the filter units do not touch the filter screen. Filter damage may result. ****

Choose the layout of the filter units in the ceiling grid or refer to the reference drawings. Install them one by one starting nearest to the wiring location so that they can be wired as they are installed. Daisy chain the filters together using the prefabricated connectors if ordered. Do not connect more than (6) to a circuit.

It is easiest to remove the filter with a helper. Hold the box steady and grasp the prefilter frame. Carefully pull the filter out and rest it perpendicularly on the box to prevent damage to the filter media.

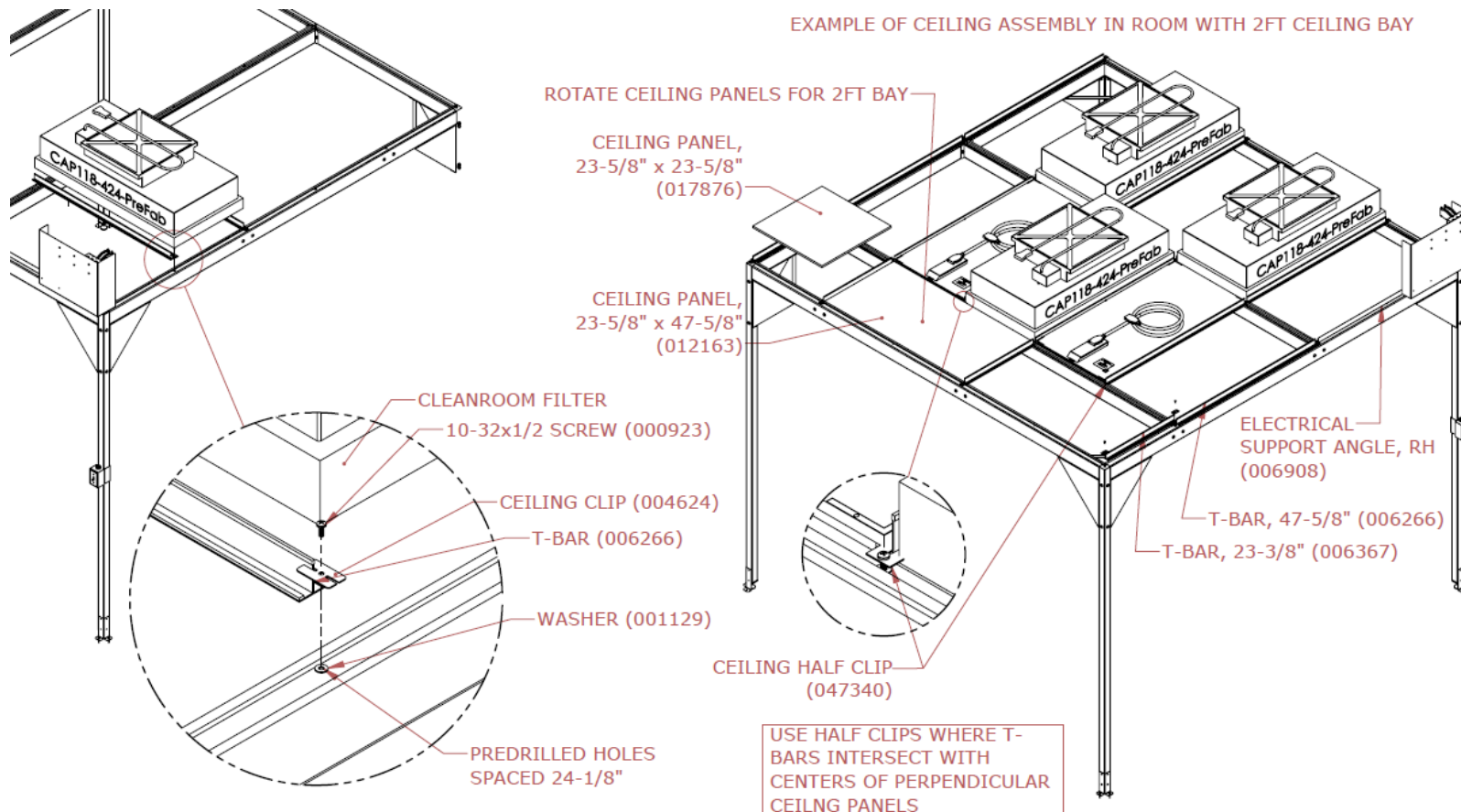
To install a filter unit place cardboard on the lift supports to protect the filter. Carefully rest a filter unit on the cardboard and lift the filter to the height of the beam grid. Carefully, avoiding contact with the filter screen, tilt the filter through the frame to rest on the tops of the beams between two holes (11/64") .



Slide a T-bar (006266) under one edge of the filter housing and attach it to the frame with a Washer (001129), Ceiling clip (004624) and 10-32 screw (000923) in the predrilled hole. Repeat the process of adding a T-bar to the other side of the filter. Continue to repeat this process to install the rest of the Filter units and Lights. When wiring is complete install the remaining T-Bars and ceiling clips to complete the grid before lifting the Gypsum ceiling panels into place.

**MAXIMUM 6 Filter Units per 20A Circuit

**16 Lights per connector/ MAXIMUM 32 lights per 20A Circuit



CURTAIN INSTALLATION

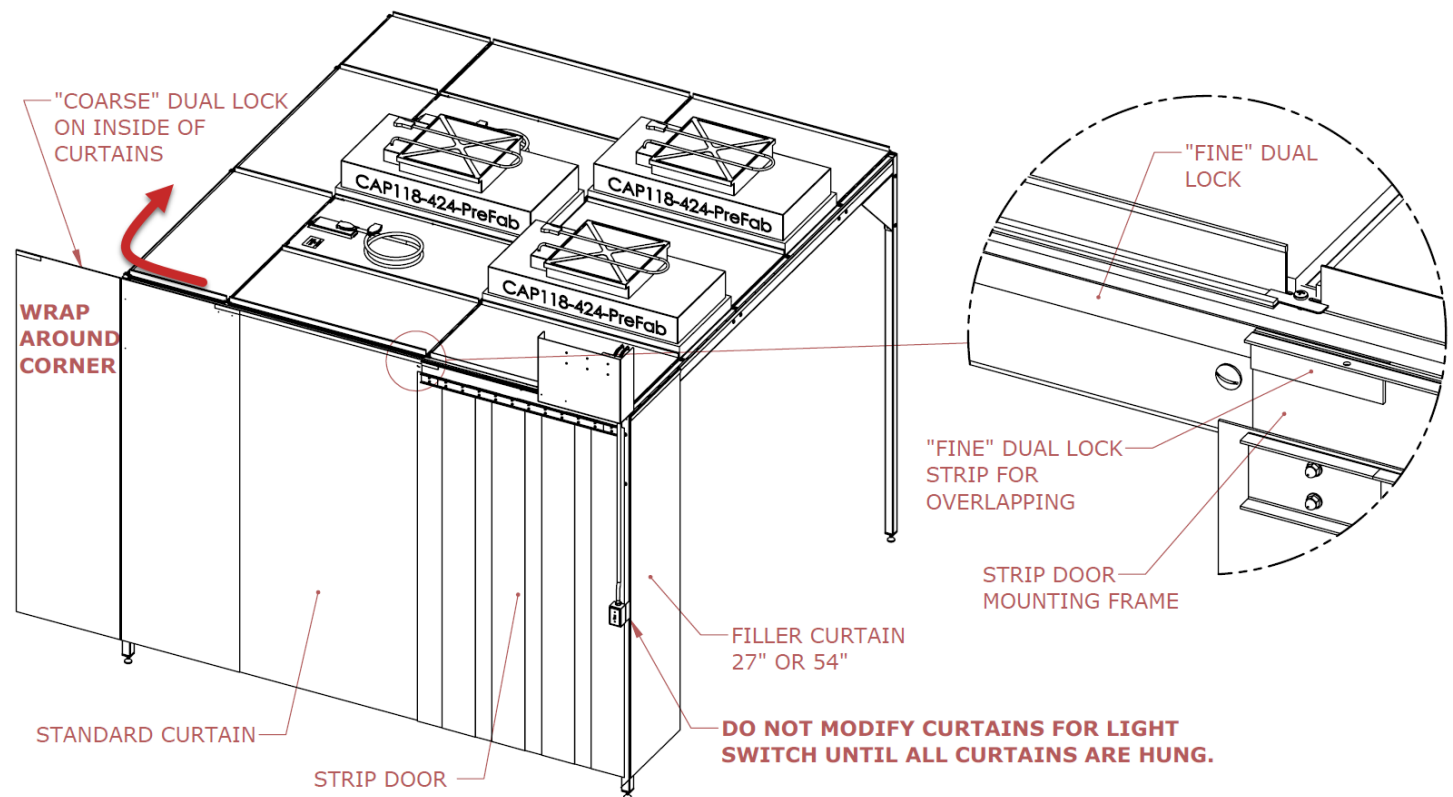
Attach the 1 inch wide "fine" Dual Lock to the outside TOP EDGE of the rooms frame. Refer to the included Curtain Drawing for suggested positioning and orientation of the cleanroom curtains.

If strip doors were ordered locate their positions and install them onto the Dual Lock. Use (3) #8 self-drilling Pan head screws (000919) to secure the door frames to the Beams.

Next place your Filler Curtain(s). Filler curtains have Dual Lock on the full width of both sides of the curtain to allow for the end curtain to overlap as needed. The filler curtain(s) will be located next to a strip door or at a room corner as seen on your rooms curtain drawing.

Be sure to attach the coarse side of the Dual Lock inwards to the already hung "Fine" style Dual Lock.

Start hanging curtains on the other side of the strip door and work around the room until the last curtain overlaps the Filler Curtain. Each curtain will overlap the last by 6" by attaching to the "Fine" Dual Lock mounted to the outside of the last curtain.

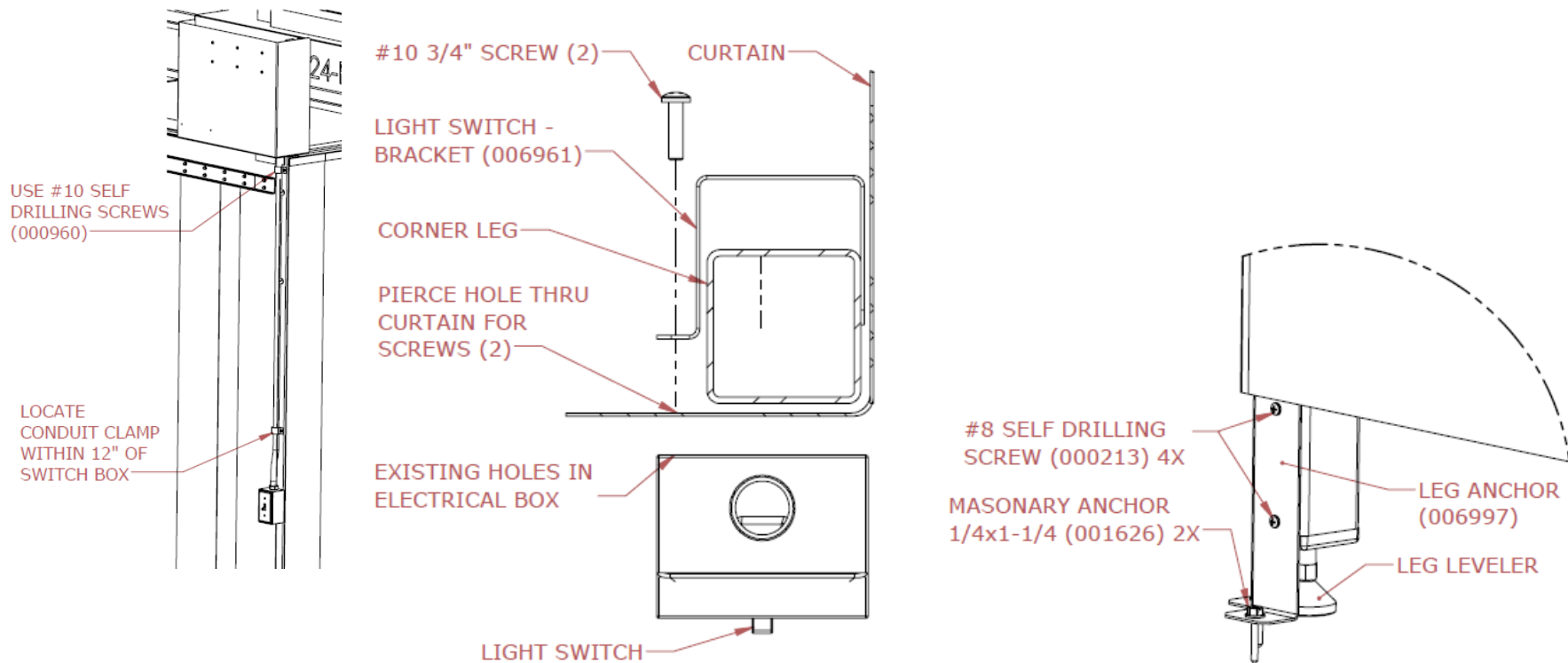


FINISHING THE ROOM

After all curtains have been hung mount the light switch with the included bracket and complete the installation of the electrical box. Secure the conduit with the two supplied 3/4" clamps (029622) and #10 self drilling screws (000960).

Anchor the room to the floor with the included Leg Anchors (006997) and 1/4" x 1-1/4" masonry anchors (001626). Use (4) #8 -1/2 self Drilling screws (000213) to attach the Leg Anchors to the Legs.

LIGHT SWITCH MOUNTING DETAIL



Maintenance of the CAP 577

PREFILTERS

It is recommended that the prefilters be visually checked on a regular basis. If the filter appears dirty, it is time to replace it. Typically, one would change the prefilters once a month. However, some environments may require different replacement intervals.

HEPA/ULPA Filters

It is recommended that clean rooms be certified by a third party on an annual basis. Certification will verify the expected class of the room. As the HEPA/ULPAs are new, the rooms have a certain number of air changes per hour based upon the class of the room. As the HEPA/ULPAs get dirty, the air changes per hour goes down. If the prefabricated wiring kit was purchased, the speed control should then be turned up so the velocity out of the filters reaches 90 feet/min. average face velocity. This will provide the proper air changes per hour. When the velocity falls to 70 feet/min. and the speed control is at its highest setting, the filters need to be changed. If this situation occurs, it does not mean that the room is not functioning, it just means the conditions are not ideal and the filters need to be replaced.

If you do not have access to a velocity meter or cannot get certification, a general rule of thumb is that the filters should last 3 to 5 years and can last as long as 10 years depending on the cleanliness of the environment.

MOTORS

The motors do not need maintenance. They are permanently lubricated.

GENERAL CARE

Periodically check cleanroom components to be sure they are in good working order.

Clean the interior of the cleanroom and floors on a regular basis.

Check the filter velocity on a regular basis.

Annually check filters for leaks.

Warranty Information

Clean Air Products Corporation warrants that it will repair FOB its factory or furnish without charge FOB its factory a similar part to replace any material in its equipment within one year after the date of sale if proved to the satisfaction of the company to have been defective at the time it was sold provided that all parts claimed defective shall be returned, properly identified to the company at its factory, freight charges prepaid. Factory installed equipment of accessories is warranted only to the extent guaranteed by the original equipment manufacturer, and this warranty shall not apply to any portion of the equipment modified by the user. Claims under this warranty should be directed to Clean Air Products, 8605 Wyoming Avenue North, Brooklyn Park, MN 55445, setting forth in detail the nature of the defect, the date of the initial installation, and the serial number and model number of the equipment.

HEPA filters are warranted to have their given efficiency at the time of shipping

Parts shipped to replace warranty items shall be invoiced out with 60 day terms. Credit shall be issued when defective parts are returned to Clean Air Products' factory. (Contaminated materials shall be credited after receipt of proper disposal is sent to Clean Air Products.)

When special shipping containers are used to ship out new product, defective parts are to be returned in the same container. This shall be so stated on the Bill of Lading sent with the replacement parts.

Contaminated Parts and Equipment

Clean Air Products must be notified if defective parts, or other materials supplied to the purchaser are contaminated with hazardous chemicals or carcinogenic materials that are considered hazardous or carcinogenic by the EPA or other regulatory agencies. These parts are not to be shipped back to Clean Air Products' factory. The purchaser shall be responsible for proper disposal and all costs associated with the disposal and/or storage of the defective contaminated equipment. Prior to their disposal, Clean Air Products may require inspection of said defective materials.

The user and purchaser shall each be responsible and be back charged for cleanup and disposal of all contaminated materials shipped back to Clean Air Products' factory.