



GLOBAL
FINISHING
SOLUTIONS



Dry Filter: Open Face and Enclosed Finishing Booths

Installation Manual

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Read and keep this manual for future reference. All personnel operating the equipment described in this manual should review and understand all instructions before use.

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Introduction

About Global Finishing Solutions LLC

Leading the Industry in Paint Booth and Finishing System Technology

With decades of experience, Global Finishing Solutions is the leading manufacturer of paint booths and finishing systems for many industries, including automotive refinish, aerospace and defense, industrial manufacturing, woodworking, and large equipment. By combining high-quality components, strong relationships with paint manufacturers, and our experienced distribution network, GFS provides the best equipment and support to set your business up for success.

Contacting Global Finishing Solutions

General information

- Toll-free: 800-848-8738
- Fax: 715-597-2193
- Email: info@globalfinishing.com
- Online: www.globalfinishing.com

Technical support

- Toll-free: 800-848-8738
- Fax: 715-597-8818
- Email: techservices@globalfinishing.com

Parts and filters

- Toll-free: 800-848-8738
- Fax: 888-338-4584
- Email: parts@globalfinishing.com

Target audience

This document is intended for use by trained, experienced paint booth installers and maintenance technicians. If you have questions about the installation procedure described in this manual, contact GFS as described above.

Conventions used in this manual

This section describes how information is presented, organized, and referenced within this manual.

Safety notices

This manual uses the following standards to identify conditions related to safety hazards and equipment damage.

Table 1. Safety notices

Symbol	Description
DANGER	Indicates an imminent hazard that will result in death.
WARNING	Indicates a hazard that can result in serious personal injury or death.
CAUTION	Indicates a hazard that can result in personal injury.
NOTICE	Indicates a situation that can result in equipment or property damage, but poses no risk of personal injury.

Information notices

In addition to the safety notices described above, this manual uses a boldface keyword to identify certain other types of information.

Table 2. Information notices

Keyword	Description
NOTE	Denotes general information that provides additional context or guidance.
Important	Denotes information to which you should pay special attention.
Reference	Directs you to related content in a separate document.
Prerequisites	Specifies other tasks that must be completed or conditions that must exist before you perform the current task.
Scope	Describes limitations to the current task or conditions under which the task applies or does not apply to the procedure.

General safety

Follow all safety guidelines when assembling, operating, or servicing this product.

WARNING

There are inherent hazards associated with the operation and service of this equipment. For your personal safety, observe all safety information. Failure to observe these safety practices can result in personal injury or death.

WARNING

Operation and maintenance of this product must be performed properly by qualified personnel who observe the warnings in all documentation and notes provided with and on the product.

WARNING

Follow all general standards for installation and safety for work on installations. Follow all good practices for the proper use of lifting tackle and equipment. The use of protective equipment such as safety goggles and protective footwear must be considered.

WARNING

All persons who will operate, service, inspect, or otherwise handle this product must read and understand the safe operating practices, safety precautions, and warning messages in this documentation.

WARNING

The roofs of GFS equipment are not designed or intended to be walked upon or to support weight of any kind. As designed and manufactured, equipment roofs do not meet the minimum requirements of a safe walking and/or working surface under OSHA 1910.22. Under no circumstances should the roof be used by maintenance personnel or others for walking, standing, or storage of any kind. When necessary, roof access should be secured through the use of a properly supported platform that satisfies the minimum load requirements specified by ASCE 7 (Minimum Design Loads and Associated Criteria for Buildings and Other Structures) and ASCE 37 (Design Loads on Structures during Construction). Additionally, personnel should always utilize appropriate fall safety protocols when using an elevated platform. Use of the roof in a contrary manner may result in injury and/or death.

WARNING

Comply with OSHA guidelines and with all applicable local electrical, safety, and fire codes and standards.

WARNING

All field wiring provided must comply with local codes or, in the absence of local codes, the National Electrical Code (NFPA 70). Article 516 covers applicable of flammable and combustible materials.

WARNING

Electrical installation should be completed by a qualified electrician. Installation must meet all applicable national, state, and local electrical codes.

WARNING

Ensure that all electrical components are grounded to a central ground.

WARNING

Disconnect and lock out the main electrical service before installing, adjusting, or servicing the product.

WARNING

Guards and covers that prevent contact with electrically energized or moving parts are required and must not be removed or left open during operation.

WARNING

Welding, cutting, and other spark-producing operations shall not be permitted in or adjacent to a booth until a written permit authorizing such work has been issued. The permit shall be issued by a person in authority following his or her inspection of the area to ensure that precautions have been taken and will be followed until the job is completed.

WARNING

Local fire and building codes require fire protection. Check with local inspector authorities for requirements.

CAUTION

Read and save these instructions before attempting to assemble, install, operate, or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage. Retain these instructions for future reference.

CAUTION

This manual contains statements that relate to worker safety. Read this manual thoroughly and comply as directed. Operate this equipment in accordance with the guidelines set forth in this manual. It is impossible to list all potential hazards of this equipment. Instruct all personnel involved with this equipment in the safe conduct and operation of the system. GFS recommends that only qualified personnel operate and maintain this equipment.

CAUTION

Safety signs, panels, and labels that are normally affixed to the product must be replaced immediately if illegible or missing.

CAUTION

New or replacement parts that are installed during repair or maintenance must include all safety signs, panels, and labels as specified by the manufacturer. These must be affixed to the new or replacement parts as specified by the manufacturer.

CAUTION

Where applicable, use earplugs or take other safety measures for hearing protection.

NOTICE

The product must be installed and serviced only by a trained, qualified service technician. Incorrect installation may void the warranty.

NOTICE

If you have questions about the warranty, please contact your distributor prior to contacting GFS.

Booth safety

DANGER

Ceiling panel load capacity for installation and maintenance: You must use temporary platforms that span at least two structural frames for maintenance. **Do not walk on or apply any pressure to lights or explosion (deflagration) relief panels.**

WARNING

All equipment must be operated and maintained in accordance with local, state, and federal (OSHA) requirements governing occupational safety, fire protection, and booth operations. Operators must read and understand GFS and included independent equipment and/or component manufacturer's instructions prior to use. **Disclaimer:** GFS is not responsible for any injury, illness, or property damage that results from not abiding by local, state, or federal (OSHA) requirements that govern occupational safety, fire protection, and booth operations. GFS is also not responsible for any injury, illness, or property damage that is the result of not adhering to GFS and/or independent equipment/component operating, service, maintenance, and/or installation requirement's or directives.

WARNING

Install the booth in compliance with locally enforced codes and standards.

WARNING

A fire suppression system is required by the International Fire Code and NFPA 33. A fire suppression system is not supplied with this booth.

WARNING

Do not allow overspray to accumulate on the inside of the paint booth walls. When overspray accumulates, remove it as soon as possible to prevent a possible fire hazard. Use a non-ferrous, non-sparking scraper to eliminate any possibilities of igniting combustible material.

WARNING

Do not leave piles of paint sweepings in the booth as it creates a possible fire hazard.

WARNING

Treat used filters and any other paint-contaminated items as flammable products and dispose of them safely.

WARNING

If coatings containing nitrocellulose are sprayed in the booth, all residue must be removed from exhaust diffuser components and all exhaust filters must be changed at least once a day.

WARNING

Improper disposal of used filters may cause spontaneous combustion. You must consult local authorities for proper storage and disposal requirements. Guidelines include:

- Immediately remove all contaminated filters from the paint booth.
- Discard filters to a safe, detached location, place them in a non-combustible container with tight-fitting lid, or place them in a water-filled metal container to prevent a possible fire hazard.
- Disposal varies depending on the type of paint that is being captured. Consult local authorities for storage and disposal requirements.

WARNING

Duct the exhaust air from the fan away from the working environment to the outdoors. Do not operate the booth unless exhaust has been ducted properly.

WARNING

Isolate the outdoor vent from air-conditioning intakes, windows, and any other equipment that may re-circulate the exhaust indoors.

WARNING

Turn on the exhaust fan before using the booth. Ensure that the exhaust fan is operating correctly before entering the booth.

WARNING

Check local codes to see if a booth interlock is required. A booth interlock prevents the spray devices from operating unless the exhaust fan is operating.

WARNING

Some spray activities may require the use of respiratory protection.

WARNING

Use an OSHA-approved paint spray respirator when spraying in the booth.

WARNING

Do not operate the booth when the manometer indicates the filters need to be replaced.

WARNING

Do not overfill the manometer. Overfilling allows fluid to collect in the flexible plastic connecting loop in the back of the manometer, which could cause a serious reading error. If the manometer is subject to overflow, make sure that the fluid has not passed into the plastic connecting loop.

WARNING

This equipment is designed for the removal of particulate matter only. Reduction of volatile organic compounds (VOCs) requires either coating reformulation or optional, additional equipment.

CAUTION

Become familiar with all controls before operating or servicing this booth.

CAUTION

Proper door alignment is critical to the operation of the booth. Ensure that there is equal space around the doors. Move the bottom of the door jamb to the left or right or in and out until the doors are sealed and plumb.

CAUTION

If this installation includes pumps or compressors, install and connect those devices in accordance with the manufacturer's documentation.

NOTICE

GFS recommends storing crates indoors pending installation. If you must store crates outside, protect crates and their contents from moisture to prevent damage to equipment.

NOTICE

Install the control panel per NFPA 70 and local codes and standards.

NOTICE

Failure to anchor the booth structure to the floor properly may result in structural damage.

Booth description

With crossdraft airflow, GFS' Open Face and Enclosed Finishing booths provide a flexible, cost-effective solution for a wide variety of finishing applications.

The simplest configuration, crossdraft booths use an exhaust fan to pull air in from the front of the booth:

- In Open Face booths, air enters the working area unfiltered.
- In Enclosed Finishing booths, air enters the working area through a filtered product door.

Air then flows horizontally through the working area, over the product or part, and into the filtered exhaust bank at the booth rear (Figure 1).

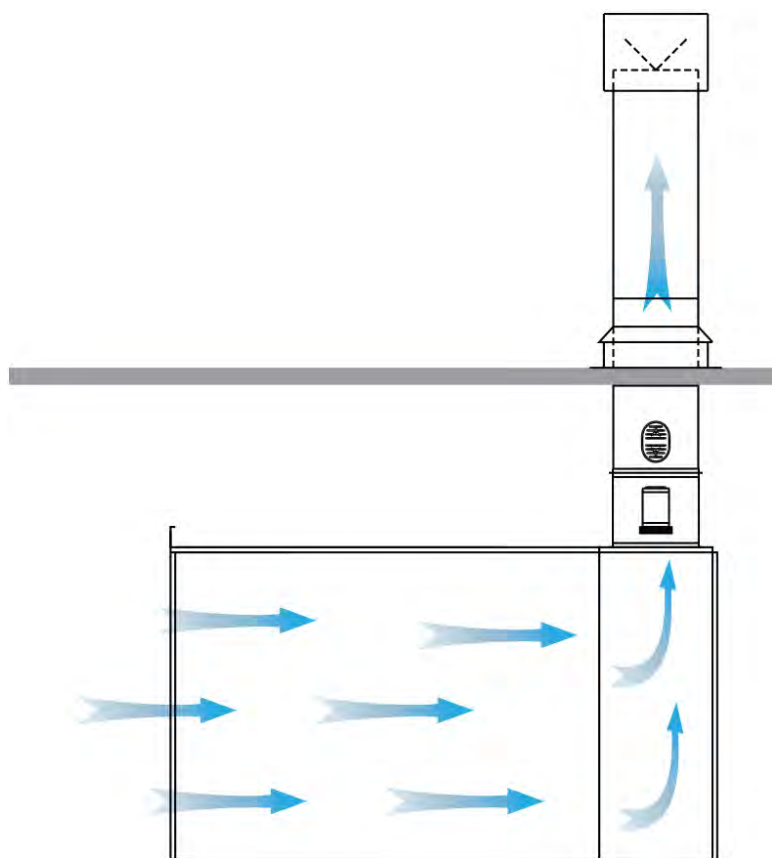


Figure 1. Airflow in GFS' Open Face booths and Enclosed Finishing booths

Preparing for installation

Accepting delivery of your booth

The booth is delivered unassembled, in multiple crates.

Upon delivery, count the number of crates you received and compare that number to the expected number per the Bill of Lading. Also inspect each crate for any signs of damage during shipment.

NOTE

If you see shipping damage, note it on the freight carrier's paperwork; failure to do so may result in claim denial.

If any parts are missing or damaged, contact Global Finishing Solutions at 800-848-8738 to speak to a Technical Service Representative.

NOTICE

GFS recommends storing crates indoors pending installation. If you must store crates outside, protect crates and their contents from moisture to prevent damage to equipment.

Gathering required documentation

Ensure that you can locate these documents and that they are available during the installation procedure.

NOTE

Certain manuals, project drawings, and the Job-Specific Guide are also provided electronically to distributors via box.com. Many manuals are available for download on globalfinishing.com.

Table 3. Additional documentation

Document	Description	How provided
Design Drawings	Provides instructions for assembling this particular booth and includes information about the booth order, configuration, and components.	Ships in the "Miscellaneous" box
General Booth Details	Provides drawings and assembly instructions for common components; may include drawings that do not apply to this particular booth.	Ships in the "Miscellaneous" box
<i>If applicable:</i> Electrical Drawings	Provides wiring diagrams for electrical components. NOTE Electrical Drawings are provided only if the booth includes a control panel from GFS.	Ships inside the control panel
<i>If applicable:</i> Control Panel Operator Manual	Setup and operation instructions for the control panel. NOTE A manual is provided only if the booth includes a control panel from GFS.	Ships inside the control panel
Startup documents	A set of documents related to booth startup and commissioning.	Ships in the "Miscellaneous" box

Confirming site requirements

Before beginning the installation procedure, confirm that the site where the equipment will be assembled meets the following requirements:

- The floor where you will assemble the paint booth is level.

NOTE

If not, you must use washers to avoid any misalignment.

- The area is large enough to allow a minimum of 3 feet (914 mm) of clear space on all four sides of the booth. Check local codes and refer to NFPA guidelines to determine particular space allowances.
- The front of the booth is sufficiently clear to allow for proper circulation of air through the booth.
- There is sufficient overhead clearance for an exhaust unit and the exhaust ductwork in the area where the equipment is to be located.
- A licensed electrician has verified that the incoming power meets the requirements specified for the equipment. (The power specification is included with the submittal or provided at delivery.)
- The appropriate devices for lifting/rigging are available onsite. (Either purchased from GFS with the booth, or obtained elsewhere by the customer.)
- The appropriate miscellaneous hardware kits are available on-site. (Either purchased from GFS with the equipment, or obtained elsewhere by the customer.)

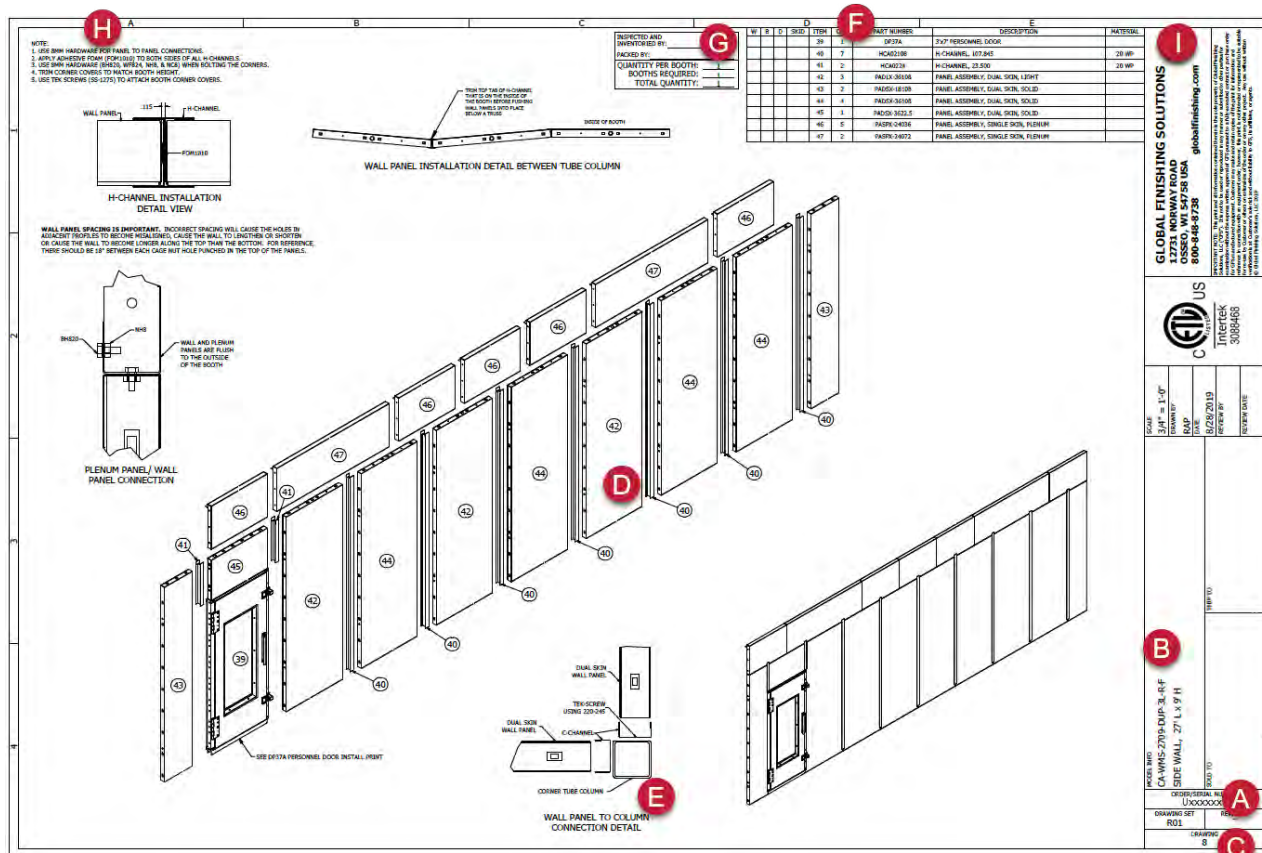
About the Design Drawings document

Use this manual in conjunction with the provided Design Drawings document. This Design Drawings document defines the overall layout and detailed structure of your particular booth. If applicable, it also includes exploded-view diagrams and parts lists for each section (or subassembly) of the booth.

Page elements

Pages within the Design Drawings document contain the following elements:

- **Title block:** The title block is located along the right edge of each page. It contains the model information, drawing identification label or number, the order/serial number, and other information.
- **Model Info:** Contains text that identifies each page within the Design Drawings document, e.g., "Overall Assembly". When the installation instructions refer you to a specific page within the Design Drawings, look for that text in the Model Info field. (For a description of the various page types that might be included in your Design Drawings document, see "Page types" (page 17).)
- **Scale:** If the drawing is to scale, the scale is defined here (e.g., 3/16" = 1' 0"). Otherwise, this field contains "NTS," or "Not to Scale."
- **Drawings:** The main area of each page can contain any or all of these types of drawings:
 - An exploded and/or assembled view of the product or subassembly
 - Additional views or "Detail" drawings
- **Bill of Materials:** Any page that includes a drawing with labeled parts also includes a table that lists each item number with its corresponding part number and quantity.
- **Quantity per Booth:** Pages that show a subassembly of the product and list the quantity provided of that particular subassembly.
- **Notes:** Pages within the Design Drawings often contain notes that provide information about how to install that particular section or subassembly.



- A:** Serial number
B: Model info
C: Drawing number
D: Drawings: Main view (exploded and/or assembled)
E: Drawings: Detail view
F: Bill of materials
G: Quantity per booth
H: Notes
I: Title block

Page types

The Design Drawings document may contain any of the following pages that apply to your particular product.

Table 4. Page names in the Design Drawings document

Page name	Description
Chamber Wall	Shows an exploded view of an exhaust bridge chamber's back wall. NOTE This page applies only to non-drive-through Enclosed Finishing booths that use an exhaust bridge chamber instead of a standard (non-bridge) exhaust chamber.
Concept Drawing	Shows a top view of the booth (labeled "Plan View"), as well as front, side, and rear elevations.
Dry Filter Roll Media Option	Shows how to install roll-style exhaust filter media.
End Wall	Shows how to install a front end wall; applies only to Enclosed Finishing booths with a width of 10 feet or less.
Exhaust Bridge Chamber	Shows an exploded view of an exhaust bridge chamber. NOTE An exhaust bridge chamber is an option for Enclosed Finishing booths.
Exhaust Chamber	Shows how to assemble a standard (non-bridge) exhaust chamber.
Filter Wall	Shows how to assemble a filter wall; applies only to Enclosed Finishing booths with a width of 12 feet or more.
General Structural Notes	Shows how to anchor various booth components to the slab.
Overall Assembly	Shows an exploded view of the entire booth; identifies the major components and sub-assemblies of the booth. NOTE For an Enclosed Finishing booths that uses an exhaust bridge chamber, this page also includes a back view of the booth.
Personnel Door Module Kit	Shows how to replace a side wall panel with a personnel door.
Product Door	For an Enclosed Finishing booth, the Design Drawings include a page for each type of product door included in the booth: <ul style="list-style-type: none"> • Product Door - Filter: Applies to all Enclosed Finishing booths. • Product Door - Solid: Applies only to a drive-through Enclosed Finishing booth.
Universal Bay	Shows how to assemble the work bay(s) included in the booth.

Required materials

This section lists the tools, equipment, and documentation required for installing your booth.

NOTE

Depending on the type of equipment you are installing, additional tools may be required.

Required tools

- Screwdrivers
- Wrenches and socket set
- Hammer and mallet
- Drift pins (two per person; 1/8-inch to 5/8-inch taper)
- Caulk gun
- Impact driver and drill
- Chalk and/or felt-tip marker (for marking initial measurements on floor)
- Chalk-line tool
- Laser level (*Suggested*: Quad laser or rotary laser level)
- Tape measures (35-foot and 100-foot)
- Tin snips
- Drill with 1/8-inch, 3/8-inch, and 1/2-inch bits
- Torque nut runner
- Reciprocating saw
- *Optional*: Torch and welder in case modifications need to be made on site
- Tools required for decal placement:
 - Stiff squeegee
 - Spray bottle with soapy-water mixture
 - Paper towels
 - Scissors

Recommended equipment

- Ladders
- Material handler
- Two 26-foot T scissor-lift platforms
- Warehouse forklift with 5000-pound lift weight and a maximum lift height higher than 16 feet

NOTE

Lifts and cranes are not required, but they may improve both the safety and speed of installation.

NOTE

The end user is responsible for providing any lifts, cranes, and material handlers. Alternatively, the end user can coordinate with the installer so the installer can rent those items before starting the work.

Installation best practices

Unpack in stages

As you begin each section of the installation procedure, unpack the crate(s) that contain the parts for that section. In general, the skids are organized so the parts that go together during assembly are packed on the same skid.

NOTE

For faster unpacking, use a reciprocating saw to cut the crates.



Figure 2. Skids awaiting unpacking

A packing list is attached to each crate. As you unpack a crate, compare all the parts with that crate's packing list to check for shortages or losses in transit. Also check parts for any damage that might have been caused in shipping.

NOTE

Slightly bent panels and angle braces can be straightened and will cause no performance or assembly problems.

If any parts are missing or damaged, contact Global Finishing Solutions at 800-848-8738 to speak to a Technical Service Representative.

Sort and label

To help installation proceed more efficiently, sort booth panels and tie angles by size as you unpack them (Figure 3).

For best results:

- Use the *part number* to help identify components as you sort them.
- Label each part with its corresponding *item number* so you can select the correct parts quickly during assembly.



Figure 3. Panels sorted by size in preparation for assembly

Using the part number

If in doubt whether two parts are equivalent, check the *part number*. The part number is either etched into the part or printed on a label affixed to the part (Figure 4).

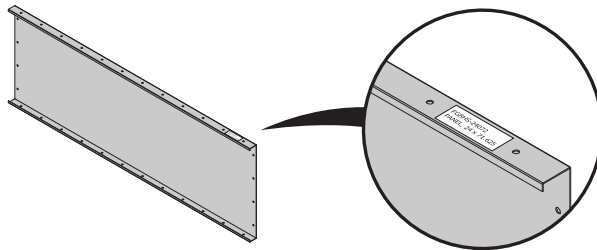


Figure 4. Example of a part number label

Using the item number

To make it easier to identify a part in relation to the Design Drawings document, identify each part by its *item number*.

To find the item number, look on the Design Drawings document page where that part is used and find the part number in that page's Bill of Materials. Then find the corresponding item number.

For example, in Figure 5, part number PG8HS-24072 corresponds to item number 18. (The numbers on your Design Drawings may be different than shown here.)

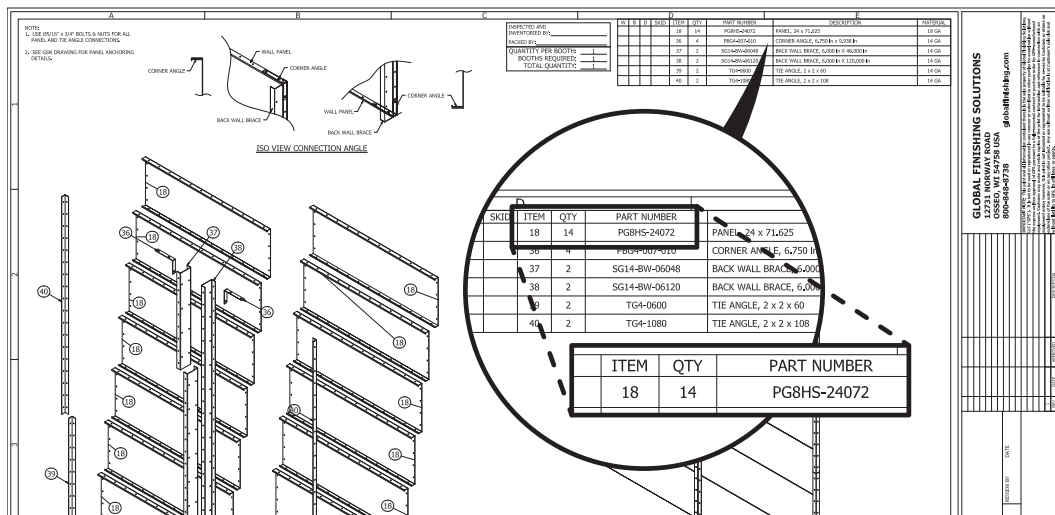


Figure 5. Example of finding the item number that corresponds to a part number

Once you've found a part's item number, write the item number on that part with a marker (Figure 6).

NOTE

Be sure to write the item number in a location that will not be visible after the booth is assembled (for example, on a flange).

Labeling parts with their corresponding item numbers does require more set-up time, but you'll be able to find parts more quickly, with less chance of selecting the wrong part during assembly.

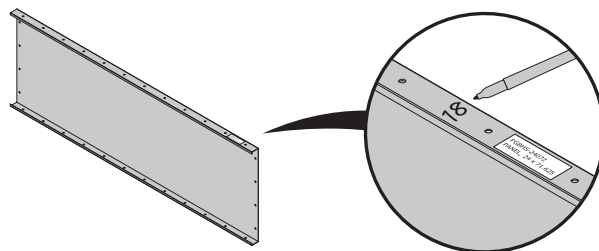


Figure 6. Example of an item number written on a panel flange

Follow assembly guidelines

Follow these guidelines when assembling the booth:

- As you build each section, tighten the bolts only to finger-tight.
- When directed to do so, tighten the bolts within a section to *snug-tight*. Snug-tight is defined as “the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the plies into firm contact.” (RCSC 2014)
- Orient panels so that each panel’s flanged side faces outward, and the non-flanged side faces the interior.
- Orient bolts so that the bolt heads are on the interior and the threads are on the exterior. At corners where an assembly angle is used, place the nuts on the inside of the panel flanges.
- Use 5/16-inch by 3/4-inch bolts and nuts for all tie angle and panel connections. Use other hardware as specified within the installation instructions or on the Design Drawings.
- Plumb the panels so that they are perpendicular to the floor. The sides of the booth must be parallel to each other.

Installation procedure

This procedure describes how to install an Open Face or Enclosed Finishing Booth.

Prepare the floor

1. Sweep the floor clear of debris.
2. Use a laser level to check the floor:
 - If the floor is out of level by **1/4 inch or less** over the full length of the booth, continue to the next step. (You do not need to take any corrective action now. You can correct for slope later in the procedure by placing washers under the tie angles or panels where the anchors are located. GFS does not supply washers.)
 - If the floor is **more than 1/4 inch** out of level over the full length of the booth, shim or grout the floor as needed to get it to within 1/4 inch of level. GFS does not supply shims.
3. Referring to the Working Width and Working Depth from the Concept Drawing page of the Design Drawings, measure the booth's footprint on the floor and mark the corners.

NOTE

On the Concept Drawing page of the Design Drawings, the Working Width is noted in the Front View diagram; the Working Depth is noted in the Side View diagram.

NOTE

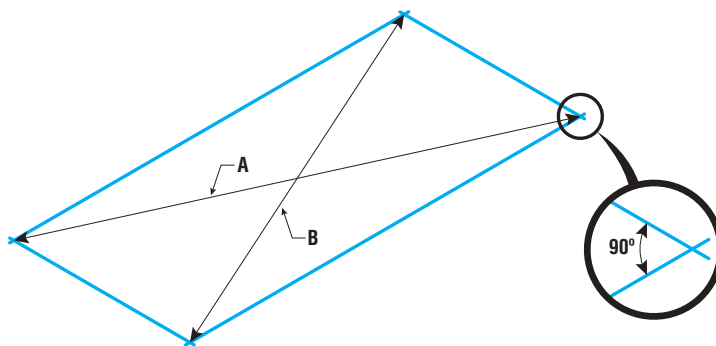
Ensure that the location allows for the clearances specified in "Confirming site requirements" (page 14).

NOTE

Use a piece of chalk or other temporary mark at this stage, in case you have to adjust the position of the marks in the next step.

4. Measure the diagonals to confirm that the opposite sides are parallel and that adjacent sides are perpendicular to each other.

Re-measure and adjust the corner markings as needed until the diagonals are equal length.



5. After confirming that the measurements are correct and the angles are 90 degrees, snap chalk lines to mark the outline of the booth's footprint.

If applicable: Assemble the exhaust chamber

Scope: This task applies to all Open Face booths. It also applies to Enclosed Finishing booths that use an exhaust chamber rather than an exhaust bridge chamber. (If you are installing an Enclosed Finishing booth that uses an exhaust bridge chamber, perform “*If applicable: Assemble the exhaust bridge chamber*” (page 26) and “*If applicable: Build the chamber wall or install the door frame*” (page 30) instead of this task.)

Prerequisites: The booth's footprint must already be marked on the floor as described in “Prepare the floor” (page 24).

Reference: Refer to the Exhaust Chamber page of the Design Drawings.

1. Assemble the panels and tie angles that form the rear wall and the left and right side walls of the exhaust chamber.
2. Assemble the panels, tie angles, and fan panel that form the roof of the exhaust chamber.
3. Install the floor channel(s) and the vertical front panels.

NOTE

For booths up to 10 feet wide, the exhaust chamber has one floor channel. For booths 12 feet or wider, the exhaust chamber has two floor channels.

NOTE

One front vertical panel adjoins each side wall.

NOTE

When installing the vertical front panels, also install the floor tie angle and the rear-most vertical wall panel from the Universal Bay assembly. See “*If applicable: Build bays for a narrow booth*” (page 32) or “*If applicable: Build bays for a wide booth*” (page 34) for details, as appropriate.

4. Install the horizontal front panel(s).

NOTE

For booths up to 10 feet wide, the exhaust chamber has one horizontal front panel. For booths 12 feet or wider, the exhaust chamber has two horizontal front panels.

NOTE

Also install part of the Universal Bay assembly during this step:

- **If the booth width is 10 feet or less:** Install the rear-most ceiling panel of the Universal Bay assembly during this step. Refer to the Universal Bay page of the Design Drawings to identify the ceiling panel.
- **If the booth width is 12 feet or more:** Install the ceiling tie angles from the Universal Bay assembly during this step. Refer to the Universal Bay page of the Design Drawings to identify the tie angles.

5. *If applicable:* Install the exhaust baffle.

NOTE

This step applies only if the exhaust chamber's discharge opening is to the rear of the booth rather than the top of the booth.

NOTE

For connection details, refer to the Baffle Detail views on the Exhaust Chamber page of the Design Drawings.

6. Install the filter racks and filter rack brace (if applicable).

NOTE

The filter rack brace applies only to booths with a width of 12 feet or more. For installation instructions, refer to the Filter Rack Brace Details view on the Exhaust Chamber page of the Design Drawings.

7. Ensure that the completed exhaust chamber is plumb, square, and level.
8. Tighten all bolts in the exhaust chamber to snug-tight.
9. After tightening the exhaust chamber bolts, jump to “Build the bay(s)” (page 32).

If applicable: Assemble the exhaust bridge chamber

Scope: This task applies only to an Enclosed Finishing booth that uses an exhaust bridge chamber instead of a standard (non-bridge) exhaust chamber. (If you are installing an Open Face booth or an Enclosed Finishing booth that uses a standard exhaust chamber, perform “*If applicable: Assemble the exhaust chamber*” (page 25) instead of this task.)

Prerequisites: The booth's footprint must be marked on the floor as described in “Prepare the floor” (page 24)

NOTE

Use 5/16-inch x 3/4-inch bolts and nuts for all panel-to-panel, tie angle-to-tie angle, and panel-to-tie angle connections.

NOTE

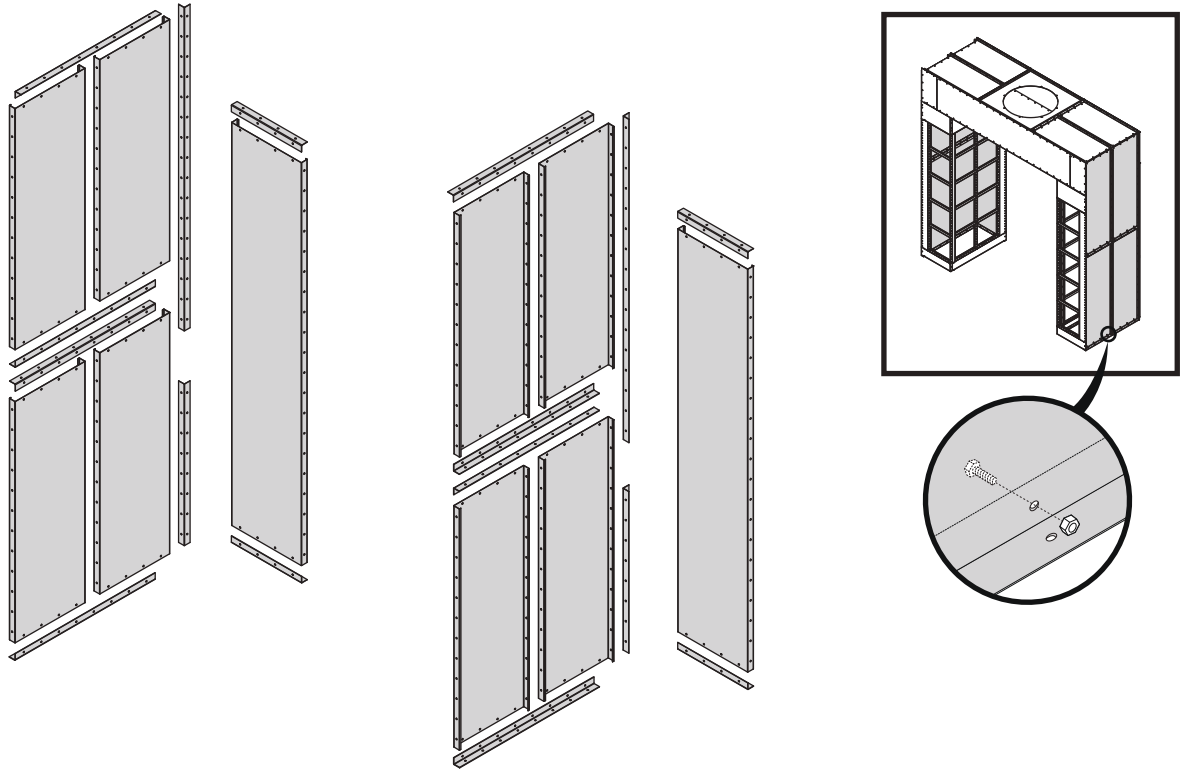
Use one 5/16-inch x 1/2-inch bolt and nut every six inches for all filter rack-to-filter rack connections and for all panel-to-filter rack connections.

Reference: Refer to the Exhaust Bridge Chamber page of the Design Drawings.

IMPORTANT

The images below provide *general* building instructions and design concepts. **Always refer to the appropriate page in the Design Drawings** for guidance on your *specific* booth.

1. Build the rear corners.



2. Build the filter racks.

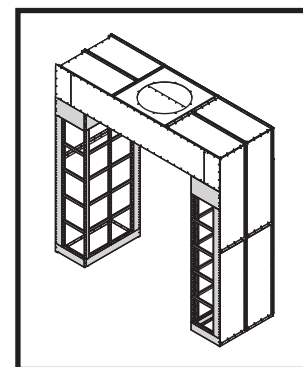
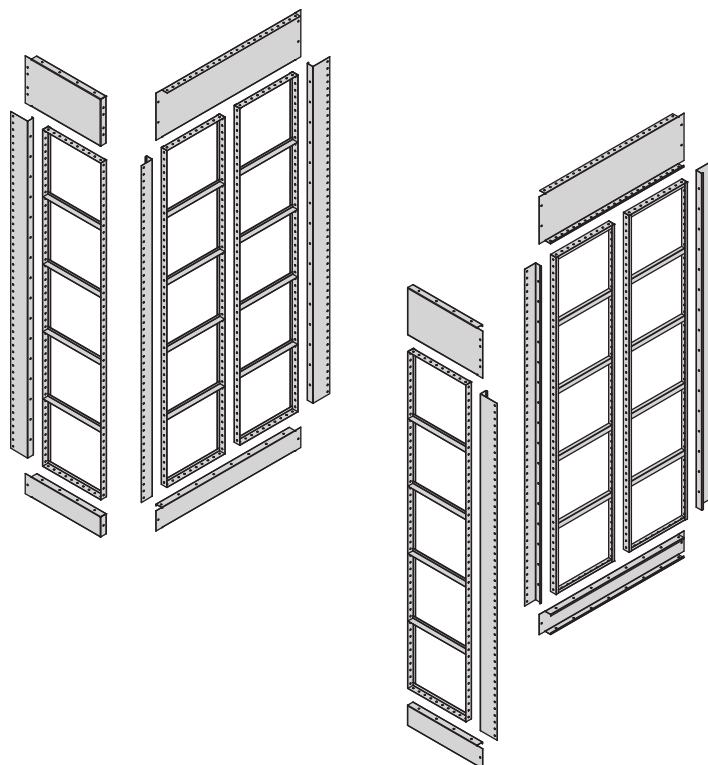
NOTE

When installing the front filter racks, also install the floor tie angle and the rear-most vertical wall panel from the Universal Bay assembly. See task “*If applicable: Build bays for a narrow booth*” (page 32) or “*If applicable: Build bays for a wide booth*” (page 34) for details, as appropriate.

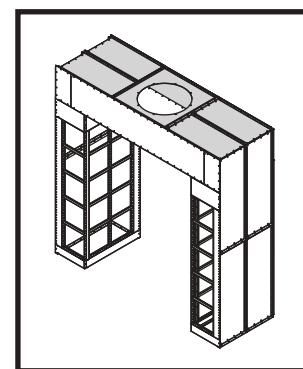
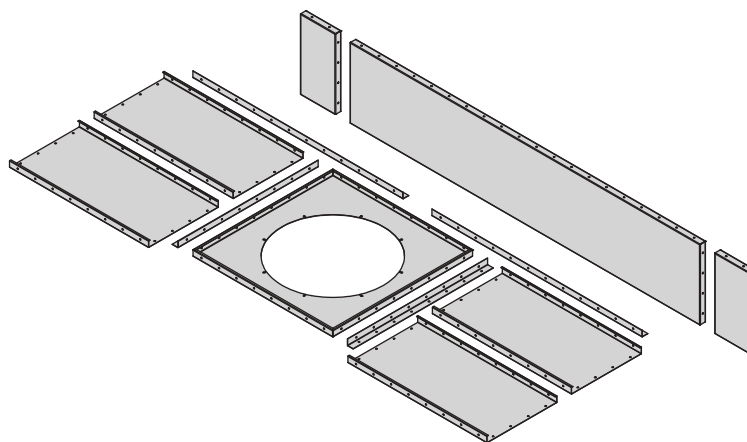
NOTE

Also install part of the back wall or rear door frame during this step:

- **If this booth has a solid back wall:** Install the floor tie angle and the outermost panels for the chamber wall during this step. Otherwise, you will have to remove bolts in order to install the outermost panels later. See “*If applicable: Build the chamber wall*” (page 30) for details.
- **If this booth has a product door at the rear of the booth:** Install the door jambs during this step. Otherwise, you will have to remove bolts in order to install the door jambs later. See “*If applicable: Install the door frame for the rear product door*” (page 32) for details.



3. Build the roof and back of the plenum.



4. Build the floor of the plenum.

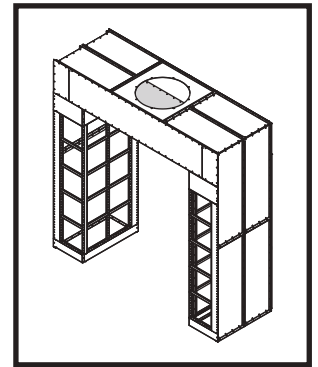
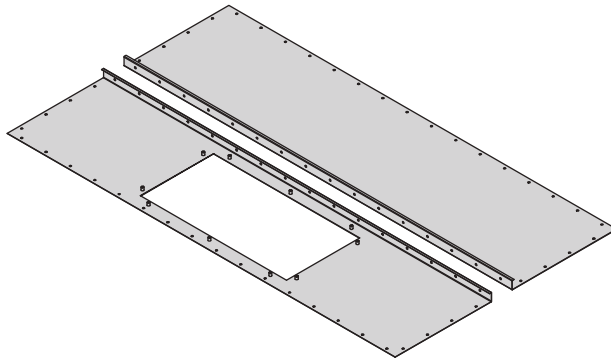
NOTE

Also install part of the back wall or rear door frame during this step:

- **If this is a solid back wall:** Install the top tie angle from the chamber wall during this step. See “*If applicable: Build the chamber wall*” (page 30) for details.
- **If this booth has a product door at the rear of the booth:** Install the door header assembly during this step. See “*If applicable: Install the door frame for the rear product door*” (page 32) for details.

NOTE

Do not install the access door at this time. You will be directed to install the access door in “*If applicable: Install the access door in the exhaust plenum*” (page 66).

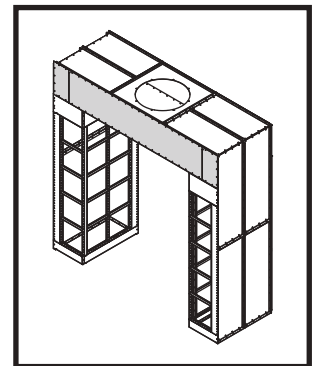
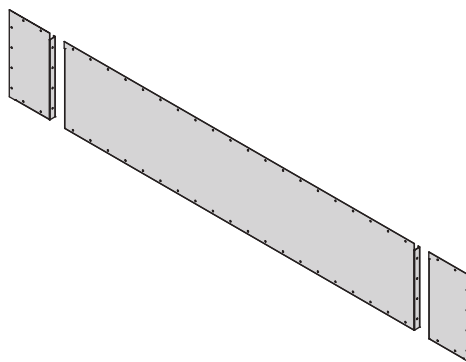


5. Build the front of the exhaust chamber.

NOTE

Also install part of the Universal Bay assembly during this step:

- **If the booth width is 10 feet or less:** Install the rear-most ceiling panel of the Universal Bay assembly during this step. Refer to the Universal Bay page of the Design Drawings to identify the ceiling panel. Refer to the Side-Bridge Plenum Section view on the Exhaust Bridge Chamber page of the Design Drawings for connection details.
- **If the booth width is 12 feet or more:** Install the ceiling tie angles from the Universal Bay assembly during this step. Refer to the Universal Bay page of the Design Drawings to identify the tie angles. Refer to the Side-Bridge Plenum Section view on the Exhaust Bridge Chamber page of the Design Drawings for connection details.



6. Ensure that the completed exhaust bridge chamber is plumb, square, and level.
7. Tighten all bolts in the exhaust bridge chamber to snug-tight.

If applicable: Build the chamber wall or install the door frame

Scope: This task applies only to an Enclosed Finishing Booth that uses an exhaust bridge chamber instead of a standard (non-bridge) exhaust chamber.

Prerequisites: The exhaust bridge chamber must be completed as described in “*If applicable: Assemble the exhaust chamber*” (page 25).

NOTE

Depending on the specific configuration for this booth, the back wall may consist of a solid-back “chamber wall” or a product door. Refer to the Back View on the Overall Assembly page of the Design Drawings to determine which type of back wall is specified for this booth. Then perform the appropriate task:

- **For a wall:** Perform “*If applicable: Build the chamber wall*” (page 30).
- **For a door:** Perform “*If applicable: Install the door frame for the rear product door*” (page 32).

If applicable: Build the chamber wall

NOTE

This task applies only to an Enclosed Finishing booth that has a solid wall at the back. For an Enclosed Finishing booth that has a product door at the back instead of a solid wall, perform “*If applicable: Install the door frame for the rear product door*” (page 32) instead of this task.

Reference: Refer to the Chamber Wall page of the Design Drawings.

IMPORTANT

The images below provide *general* building instructions and design concepts. **Always refer to the appropriate page in the Design Drawings** for guidance on your *specific* booth.

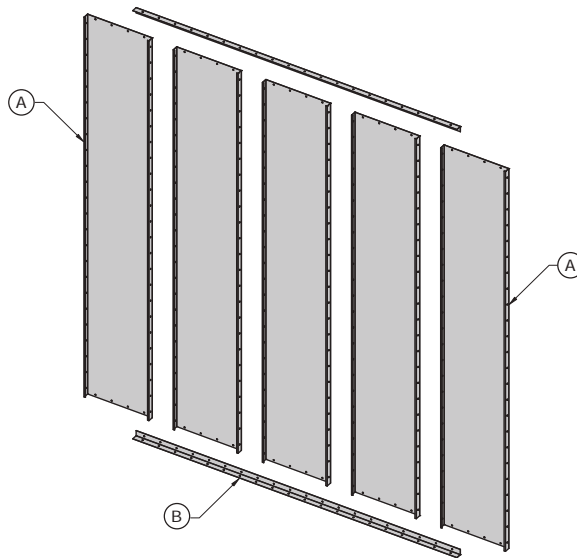
1. Install the tie angles and panels.

NOTE

Ensure that the panel flanges face the exterior of the booth.

NOTE

You should have installed the floor tie angle and the outermost panels of the chamber wall when assembling the filter racks for the exhaust bridge chamber (see “*If applicable*: Assemble the exhaust bridge chamber” (page 26)). If you did not install the outermost panels at that time, you must remove some bolts in order to install them now.



A: Outermost panels (already installed)

B: Floor tie angle (already installed)

2. Ensure that the completed chamber wall is plumb, square, and level.
3. Tighten all bolts in the chamber wall to snug-tight.

If applicable: Install the door frame for the rear product door

Scope: This task applies only if the booth has a product door at the rear. If this booth has a solid wall at the back instead of a product door, perform “*If applicable: Build the chamber wall*” (page 30) instead of this task.

Reference: Refer to the appropriate Product Door - Solid page of the Design Drawings.

1. Install the left and right door jamb assemblies.

NOTE

For greater efficiency, install the door jambs when you build the exhaust bridge chamber. If the exhaust bridge chamber is already assembled, you will have to remove some bolts in order to install the door jambs.

2. Connect the door header assembly to the left and right door jamb assemblies.

NOTE

Refer to the Jamb/Header Connections detail on the Product Door page of the Design Drawings.

NOTE

Use 5/16-inch x 1-inch bolts and nuts for jamb-to-header connections.

3. Confirm that the door frame is plumb, square, and level.

NOTE

An uneven floor can cause product doors to sag or bind. If necessary, place shims under door jambs to even the doors out. GFS does not provide shims for product doors.

4. Tighten all bolts in the door frame to snug-tight.

NOTE

Do not anchor the door jambs at this time. You will be directed to anchor the door jambs later in the procedure.

Build the bay(s)

NOTE

Open Face and Enclosed Finishing booths can have one or two bays. Refer to the Overall Assembly page of the Design Drawings to determine how many bays this booth has.

Perform the appropriate task depending on the width of the booth:

- **If the booth width is 10 feet or less:** Follow the instructions in “*If applicable: Build bays for a narrow booth*” (page 32).
- **If the booth width is 12 feet or more:** Follow the instructions in “*If applicable: Build bays for a wide booth*” (page 34).

If applicable: Build bays for a narrow booth

Scope: This task applies only for a booth with a width of 10 feet or less. If the booth width is 12 feet or more, perform “*If applicable: Build bays for a wide booth*” (page 34) instead of this task.

NOTE

If the booth has two bays, begin with the rear bay, that is, the bay that adjoins the exhaust chamber (or exhaust bridge chamber, if applicable).

NOTE

For a booth with two bays, you can discard the fire curtain that is included with the parts for the rear bay.

Reference: Refer to the Universal Bay page of the Design Drawings.

1. **For the rear (or only) bay:** Complete the side walls:

NOTE

The floor tie angle and the rear-most vertical panel of each side wall were installed earlier, in conjunction with the exhaust chamber (or exhaust bridge chamber, if applicable).

- a. Install the remaining vertical panels on the left or right side wall.
- b. Install the tie angle that extends across the top of those vertical panels.
- c. Repeat Step 1.a and Step 1.b for the opposite side wall.

2. **For the rear (or only) bay:** Install the remaining ceiling panels.

NOTE

The rear-most ceiling panel was installed earlier, in conjunction with the exhaust chamber (or exhaust bridge chamber, if applicable).

3. **If this booth has two bays:** Install the warning panel for the rear bay together with the rear-most ceiling panel from the front bay.

NOTE

This step applies only if the booth has two bays. If this booth has only one bay, skip to Step 5.

4. **If this booth has two bays:** Build the side walls and ceiling of the front bay:

NOTE

This step applies only if the booth has two bays. If this booth has only one bay, skip to Step 5.

- a. Install the tie angles and vertical panels for each side wall.
- b. Install the remaining ceiling panels for the front bay.

5. **For the front (or only) bay:** Install the warning panel and the fire curtain.

NOTE

For connection details, refer to the Fire Curtain Detail on the Universal Bay page of the Design Drawings.

NOTE

For an Enclosed Finishing booth: Also install the horizontal tie angle from the front end wall. For connection details, refer to the Side Section view on the End Wall page of the Design Drawings.

6. Ensure that the bay(s) are plumb, square, and level.
7. Tighten all bolts in the bay(s) to snug-tight.

If applicable: Build bays for a wide booth

Scope: This task applies only for a booth with a width of 12 feet or more. If the booth width is 10 feet or less, perform “*If applicable: Build bays for a narrow booth*” (page 32) instead of this task.

NOTE

If the booth has two bays, begin with the rear bay, that is, the bay that adjoins the exhaust chamber (or exhaust bridge chamber, if applicable).

Reference: Refer to the Universal Bay page of the Design Drawings.

1. **For the rear (or only) bay:** Complete the side walls:

NOTE

The floor tie angle and the rear-most vertical panel of each side wall were installed earlier, in conjunction with the exhaust chamber (or exhaust bridge chamber, if applicable).

- a. Install the remaining vertical panels on the left or right side wall.
 - b. Install the tie angles that extend across the top of those vertical panels.
 - c. Repeat Step 1.a and Step 1.b for the opposite side wall.
2. Assemble the corner brackets, left and right frame members, and splice plate on the floor.
 3. Lift the assembled corner brackets, frame members, and splice plate into position and bolt the assembly to the front vertical panels on each side of the bay.

NOTE

For connection details, refer to the Corner Brace Detail (Section and Isometric View) on the Universal Bay page of the Design Drawings.

NOTE

If this bay is the rear bay of two: Also install the ceiling tie angles from the front bay during this step.

NOTE

If this bay is the front (or only) bay of an Open Face booth: Also install the fire curtain during this step. For connection details, refer to the Fire Curtain Detail on the Universal Bay page of the Design Drawings document.

NOTE

If this bay is the front (or only) bay of an Enclosed Finishing booth: Also install the horizontal tie angles from the filter wall during this step. Refer to the Filter Wall page of the Design Drawings.

4. Install the ceiling panels.
5. Install the frame brace.

NOTE

For instructions, refer to the Frame Brace Detail view and to the notes on the Universal Bay page of the Design Drawings.

6. *If applicable:* Install the front bay.

NOTE

If this booth has only one bay, skip this step and continue to Step 7.

- a. Build the left and right side walls of the bay.
 - b. Repeat Step 2 through Step 5 to complete assembly of the front bay.
7. Ensure that the bay(s) are plumb, square, and level.
 8. Tighten all bolts in the bay(s) to snug-tight.

If applicable: Build the front wall of the booth

Scope: This task applies only to an Enclosed Finishing Booth. If you are installing an booth, skip this task and “*If applicable: Install the door frame for the front product door*” (page 36) and proceed to “Anchor the booth” (page 36).

Perform the appropriate task depending on the width of the booth:

- **If the booth width is 10 feet or less:** Follow the instructions in “*If applicable: Build an end wall*” (page 35).
- **If the booth width is 12 feet or more:** Follow the instructions in “*If applicable: Build a filter wall*” (page 35).

If applicable: Build an end wall

Scope: This task applies only to an Enclosed Finishing booth with a width of 10 feet or less. If the booth is wider than 10 feet, perform “*If applicable: Build a filter wall*” (page 35) instead of this task.

Prerequisites: All bays must be completely assembled.

NOTE

The horizontal tie angle from the end wall assembly was installed in conjunction with the warning panel for the front (or only) bay. (See “*If applicable: Build bays for a narrow booth*” (page 32).)

Reference: Refer to the End Wall page of the Design Drawings.

Install the left and right jamb panels.

If applicable: Build a filter wall

Scope: This task applies only to an Enclosed Finishing booth with a width of 12 feet or more. If the booth is 10 feet wide or less, perform “*If applicable: Build an end wall*” (page 35) instead of this task.

Prerequisites: All bays must be completely assembled.

NOTE

The horizontal tie angles from the filter wall assembly were installed in conjunction with the frame assembly for the front (or only) bay. (See “*If applicable: Build bays for a wide booth*” (page 34).)

Reference: Refer to the Filter Wall page of the Design Drawings.

1. For each side of the booth: Connect a vertical tie angle to the front-most panel of the side wall.
2. On the left and right sides of the filter wall:
 - a. Connect a filter rack to the vertical tie angle.
 - b. Connect a vertical panel to the inner edge of the filter rack.
 - c. Connect a horizontal panel above the filter rack and vertical panel.

***If applicable:* Install the door frame for the front product door**

Scope: This task applies only to an Enclosed Finishing booth.

Prerequisites:

- **If the booth width is 10 feet or less:** The end wall must be installed as described in “*If applicable:* Build an end wall” (page 35).
- **If the booth width is 12 feet or more:** The filter wall must be installed as described in “*If applicable:* Build a filter wall” (page 35).

NOTE

On an Enclosed Finishing booth, the front product door is always a filtered door.

1. Install the left and right door jamb assemblies.

NOTE

For greater efficiency, install the door jambs when you build the filter wall or end wall where this door frame will be installed. If the filter wall or end wall is already assembled, you will have to remove some bolts in order to install the door jambs.

2. Connect the door header assembly to the left and right door jamb assemblies.

NOTE

Refer to the Jamb/Header Connections detail on the Product Door page of the Design Drawings.

NOTE

Use 5/16-inch x 1-inch bolts and nuts for jamb-to-header connections.

Anchor the booth

Prerequisites:

- The bay(s) must already be installed.
- The exhaust chamber (or the exhaust bridge chamber, if applicable) must already be installed.
- *If applicable:* The appropriate chamber wall, end wall, filter wall, and/or door frames must already be installed.

Reference: For instructions on anchoring, refer to the Panel to Slab Connection view and related notes on the General Structural Notes page of the Design Drawings.

1. Double-check that the following sections of the booth are plumb, square, and level:
 - The exhaust chamber (or the exhaust bridge chamber, if applicable)
 - *If applicable*: Chamber wall, end wall, filter wall, and/or door frame(s)

NOTE

For uneven floors, place washers under the tie angles or panels where the anchors are located to level the booth. Washers are not provided by GFS.

2. Double-check that all bolts have been installed and are tightened to snug-tight.
3. Anchor the exhaust chamber (or the exhaust bridge chamber, if applicable).
4. Anchor the bay(s).
5. *If applicable*: Anchor the chamber wall at the rear of the booth.

NOTE

This step applies only for an Enclosed Finishing booth with an exhaust bridge chamber and a solid-back end wall at the rear of the booth.

6. *If applicable*: Anchor the end wall or filter wall at the front of the booth.

NOTE

This step applies only to an Enclosed Finishing booth.

Install the exhaust fan

Perform the appropriate task depending on the booth type and the location of the exhaust discharge:

- **For an Open Face booth:**
 - If the discharge opening is on **top** of the exhaust chamber: Perform “*If applicable*: Install an exhaust fan for a top-discharge exhaust chamber” (page 37).
 - If the discharge opening is at the **rear** of the exhaust chamber: Perform “*If applicable*: Install an exhaust fan for a rear-discharge exhaust chamber” (page 39).
- **For an Enclosed Finishing booth that uses an exhaust chamber:**
 - If the discharge opening is on **top** of the exhaust chamber: Perform “*If applicable*: Install an exhaust fan for a top-discharge exhaust chamber” (page 37).
 - If the discharge opening is at the **rear** of the exhaust chamber: Perform “*If applicable*: Install an exhaust fan for a rear-discharge exhaust chamber” (page 39).
- **For an Enclosed Finishing booth that uses an exhaust bridge chamber:** Perform “*If applicable*: Install an exhaust fan for a top-discharge exhaust chamber” (page 37) to install the exhaust fan on top of the chamber.

***If applicable*: Install an exhaust fan for a top-discharge exhaust chamber**

Scope: This task applies to a booth that uses an exhaust chamber or an exhaust bridge chamber with a discharge opening on top of the chamber. If the booth uses an exhaust chamber with the discharge opening at the rear of the chamber, perform “*If applicable*: Install an exhaust fan for a rear-discharge exhaust chamber” (page 39) instead of this task.

Prerequisites: The booth must be anchored as described in “Anchor the booth” (page 36).

NOTE

The direction of the fan blade rotation and the direction of the airflow are indicated on the outside of the exhaust fan housing.

1. Place the exhaust fan on a forklift, orienting the fan so that the fan motor will be facing the appropriate side of the booth when the fan is removed from the forklift.

NOTE

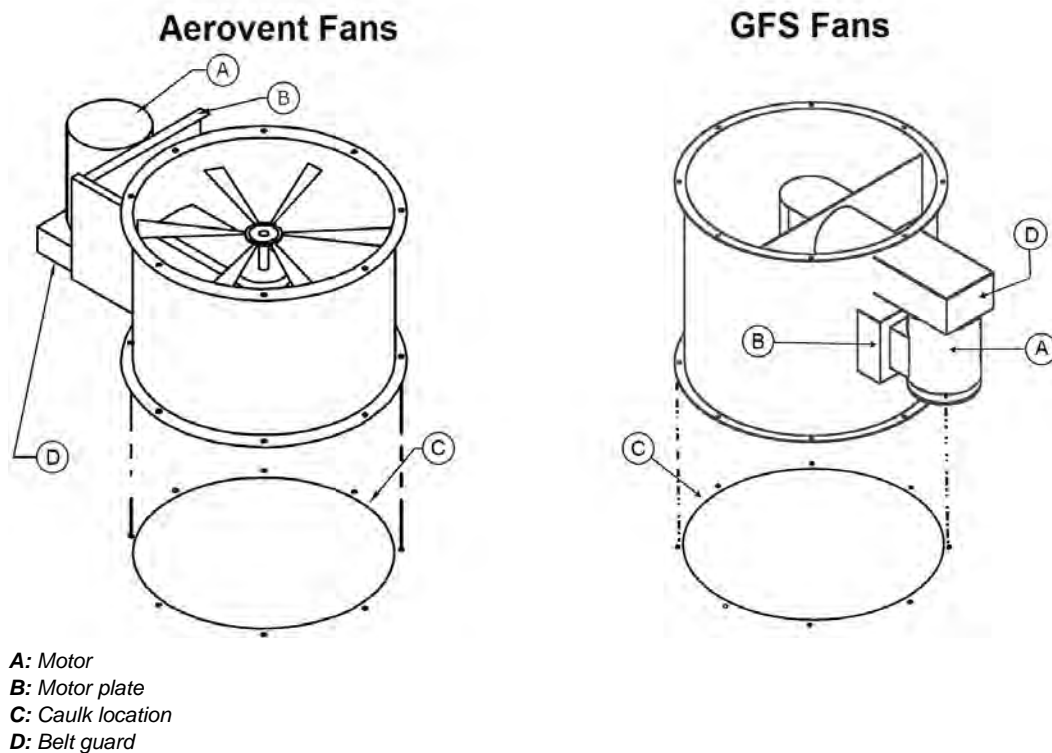
Refer to the Plan View on the Concept page of the Design Drawings to see how the fan motor should be oriented relative to the booth.

2. Apply caulk around the opening of the fan panel.

NOTE

To identify the fan panel, refer to the Exhaust Chamber page or the Exhaust Bridge Chamber page of the Design Drawings.

3. Lift the fan to the top of the exhaust chamber and place it onto the fan panel, orienting the fan so that:
 - The arrows on the airflow label point the correct direction.
 - The holes in the fan's lower flange align with the holes in the fan panel.



4. Bolt the lower flange of the exhaust fan to the fan panel using 5/16-inch x 1-1/2-inch bolts.

NOTE

Tighten the bolts to finger-tight until they are all installed; then tighten them to snug-tight.

5. Caulk the outside of the joint between the fan and the fan panel.

If applicable: Install an exhaust fan for a rear-discharge exhaust chamber

Scope: This task applies only to a booth that uses an exhaust chamber with a discharge opening at the rear of the chamber. If the booth uses an exhaust chamber with the discharge opening on top of the chamber, or if the booth uses an exhaust bridge chamber (which always discharges to the top), perform “*If applicable: Install an exhaust fan for a top-discharge exhaust chamber*” (page 37) instead of this task.

Prerequisites: The booth must be anchored as described in “Anchor the booth” (page 36).

NOTE

The direction of the fan blade rotation and the direction of the airflow are indicated on the outside of the exhaust fan housing.

NOTE

Use the following hardware for flange-to-flange connections:

- (8) 5/16-inch x 1-inch bolts
- (16) 5/16-inch flat washers
- (8) 5/16-inch lock washers
- (8) 5/16-inch nuts

1. Assemble the fan support and set it aside.

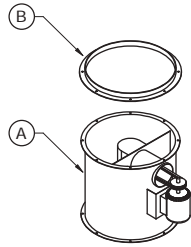
NOTE

The fan support consists of two fan support angles attached crosswise to two fan support “legs.”

2. Refer to the Duct Info - Roof/Wall Openings specifications on the Concept page of the Design Drawings to determine whether this booth uses plain duct or spiral duct for the exhaust stack:
 - If the exhaust type is listed as “Plain Pipe,” the booth uses plain duct.
 - If the exhaust type is listed as “Spiral,” the booth uses spiral duct.
3. **If the booth uses plain duct:**
 - a. Obtain the fan ring from the duct kit.
 - b. Apply caulk to the upper flange of the exhaust fan.
 - c. Orient the fan ring with the flange facing down and duct lip facing up; then bolt the fan ring to the upper flange of the exhaust fan using the flange-to-flange hardware specified above.

NOTE

Tighten the bolts to finger-tight until they are all installed; then tighten them to snug-tight.



A: Exhaust fan

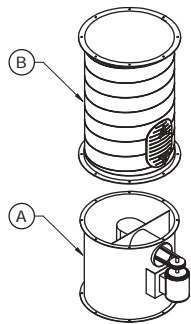
B: Fan ring (flange down; duct lip up)

4. If the booth uses spiral duct:

- a. Obtain the spiral duct with clean-out door from the duct kit.
- b. Apply caulk to the upper flange of the exhaust fan.
- c. Bolt the lower flange of the spiral duct with clean-out door to the upper flange of the exhaust fan using the flange-to-flange hardware specified above.

NOTE

Tighten the bolts to finger-tight until they are all installed; then tighten them to snug-tight.



A: Exhaust fan

B: Spiral duct with clean-out door

5. Tip the fan (with either the fan ring or the spiral duct with clean-out door attached to it) onto its side and place it on a forklift.

NOTE

Orient the fan so that when you lift it into position, the lower flange of the fan will be facing the fan panel on the back of the exhaust chamber and the fan motor will be facing the appropriate side of the booth.

NOTE

Refer to the Plan View on the Concept page of the Design Drawings to see how the fan motor should be oriented relative to the booth.

6. Lift the fan to the fan panel, ensuring that:
 - The fan motor points toward the appropriate side of the booth.
 - The holes in the fan's lower flange align with the holes in the fan panel.
7. Apply caulk around the opening of the fan panel.

NOTE

The fan panel is located on the rear side of the exhaust chamber.

8. Bolt the lower flange of the exhaust fan to the fan panel using .

NOTE

Tighten the bolts to finger-tight until they are all installed; then tighten them to snug-tight.

9. Remove the forklift from under the fan.
10. Obtain the assembled fan support and place it under the fan, connecting the top of each fan support leg to the fan ring.

NOTE

For a plain-duct exhaust stack, you attached a stand-alone fan ring to the exhaust fan in Step 3. For a spiral-duct exhaust stack, the fan ring is built into the bottom of the spiral duct with clean-out door that you attached to the exhaust fan in Step 4.

NOTE

For connection details, refer to the Fan Support Detail view on the Exhaust Chamber page of the Design Drawings.

11. Anchor the two fan support legs to the floor.

NOTE

For anchoring details, refer to the General Structural Notes page of the Design Drawings.

12. Caulk the outside of the joint between the fan and the fan panel.

If applicable: Install product door(s)

Scope: This task applies only to an Enclosed Finishing booth.

Prerequisites: The appropriate door frame must be installed at the front of the booth. If this booth is a drive-through booth, the appropriate door frame must also be installed at the back of the booth.

References:

- **For the front product door:** Refer to the Product Door - Filter page of the Design Drawings.
- **For the rear product door** (if applicable): Refer to the Product Door - Solid page of the Design Drawings.

1. Install the hinges and hang the product door as directed on the appropriate Product Door page.

NOTE

Use 5/16-inch x 3/4-inch bolts and nuts for hinge connections.

NOTE

Refer to the Door Hinge Detail view on the appropriate door Product Door page.

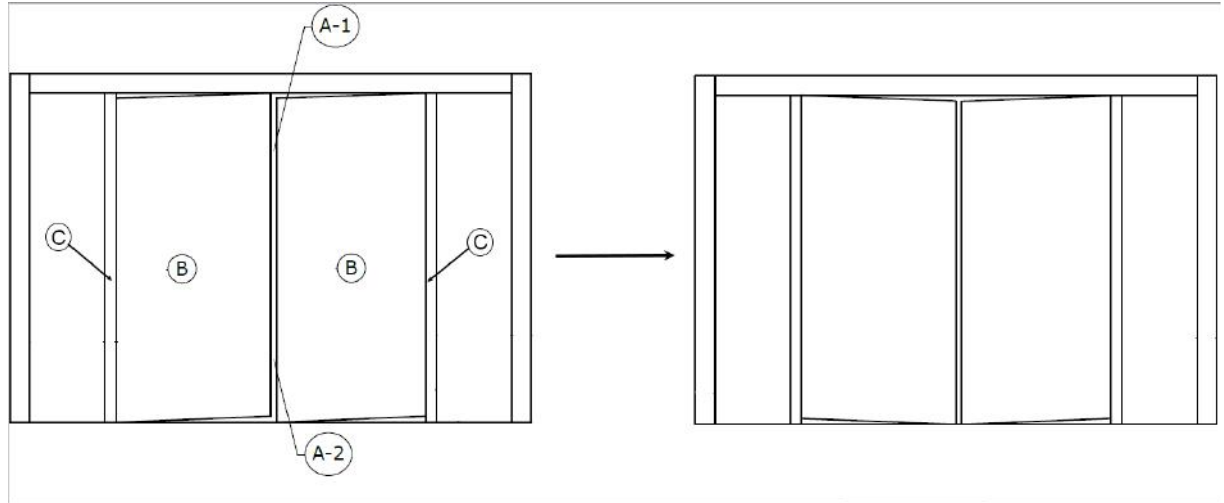
2. Align and square the doors.

NOTE

Check the gaps between hinged connections and ensure that they meet the specifications on the appropriate Product Door page.

CAUTION

Proper door alignment is critical to the operation of the booth. Ensure that there is equal space around the doors. Move the bottom of the door jamb to the left or right or in and out until the doors are sealed and plumb.



A: Gap between doors: The gap between the doors at the top (A-1) must be equal to the gap between the doors at the bottom (A-2)

B: Door slab

C: Door jamb

3. Once the doors have been squared and gaps are established, tighten the bolts to snug-tight and install Tek screws to lock them into place.
4. Anchor the door jambs to the floor.

NOTE

For instructions on anchoring, refer to the "Jamb to Slab Connection" view and related notes on the General Structural Notes page of the Design Drawings.

5. Install the door handles.

NOTE

Position the handles as shown on the Product Door page of the Design Drawings.

6. Install the Brixon safety latches.

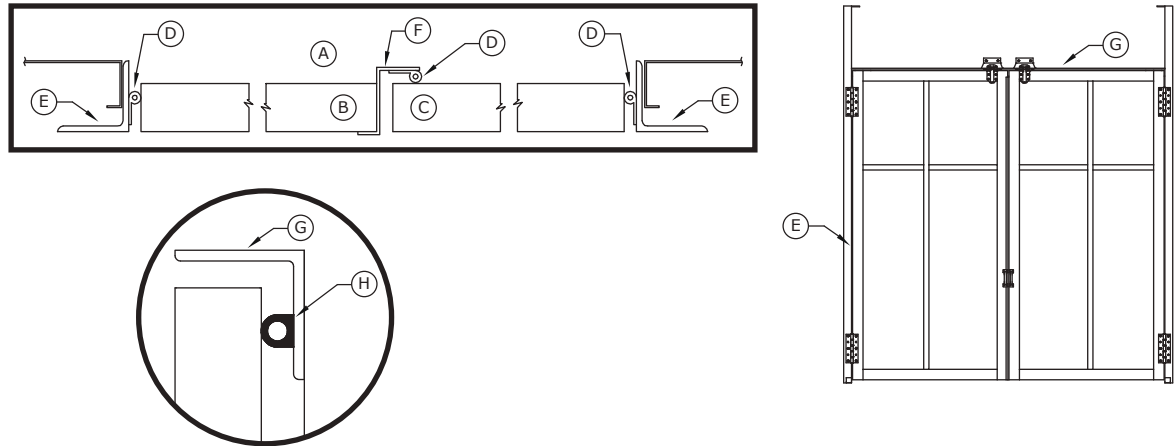
NOTE

Refer to the view on the appropriate Product Door page of the Design Drawings. Also refer to the Brixon Template and to the manufacturer's instructions included with the Brixon hardware.

7. Install the door seals:
 - a. Affix P-seal gasket along the left and right door jambs; cut to length.
 - b. Affix P-seal gasket along the door stop; cut to length.
 - c. Affix the large D-seal gasket along the header; cut to length.

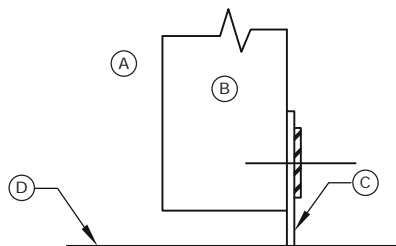
NOTE

Refer to the appropriate Product Door page of the Design Drawings document for seal locations.



A: Booth interior
B: Left door
C: Right door
D: P-seal gasket
E: Door jamb
F: Door stop
G: Door header
H: Large D-seal gasket

8. Remove the pre-installed door sweep; level it with the floor and cut accordingly; then reattach it to the door.



A: Booth interior
B: Product door
C: Door sweep (installed at GFS)
D: Finished floor

9. Place plugs (GFS part number 1014081) in all large open holes.

If applicable: Install a personnel door

Scope: This task applies only if the booth includes a personnel door.

Prerequisites:

- The booth assembly must be complete, and all sections of the booth must be snug-tightened and anchored to the floor.
- The door jambs and headers for the personnel doors should be already installed in the side walls of the appropriate bay(s).

IMPORTANT

The images below provide *general* building instructions and design concepts. **Always refer to the appropriate page in the Design Drawings** for guidance on your *specific* booth.

Prepare the side wall at the door location

NOTE

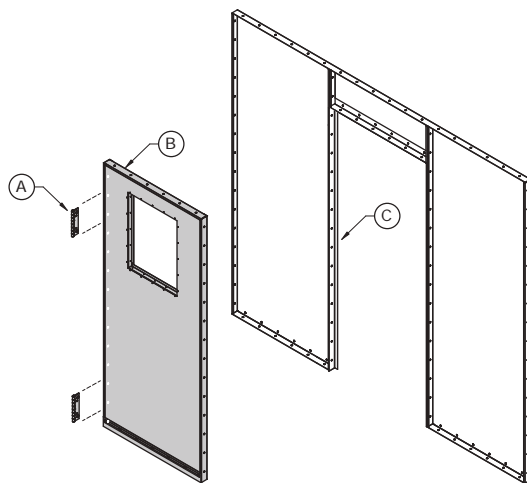
GFS recommends that the personnel door be placed in the vertical wall panel adjacent to the exhaust chamber.

Reference: Refer to the Personnel Door Module Kit page of the Design Drawings.

1. At the booth, remove the side wall panel that will be replaced by the personnel door.
2. **Following the instructions in the Replacement Detail view** on the Personnel Door Module Kit page of the Design Drawings:
 - a. Cut the floor tie angle and remove the portion of the tie angle that extended under the removed panel.
 - b. **If so directed:** Cut the upper tie angle(s) above the removed panel and remove that portion of the tie angle(s) from the booth.
3. Using materials from the personnel door kit, install any panels and tie angles that fit above the door opening.
4. Install the door jambs.
5. Install the door header.

Mount the door

1. Confirm that the door frame is plumb, square, and level.
2. Use 5/16-inch x 3/4-inch bolts to mount the hinges to the personnel door.



A: Hinge
B: Personnel door (with or without window)
C: Door jamb

3. Use 5/16-inch x 3/4-inch bolts and nuts to mount the hinges to the door jamb.

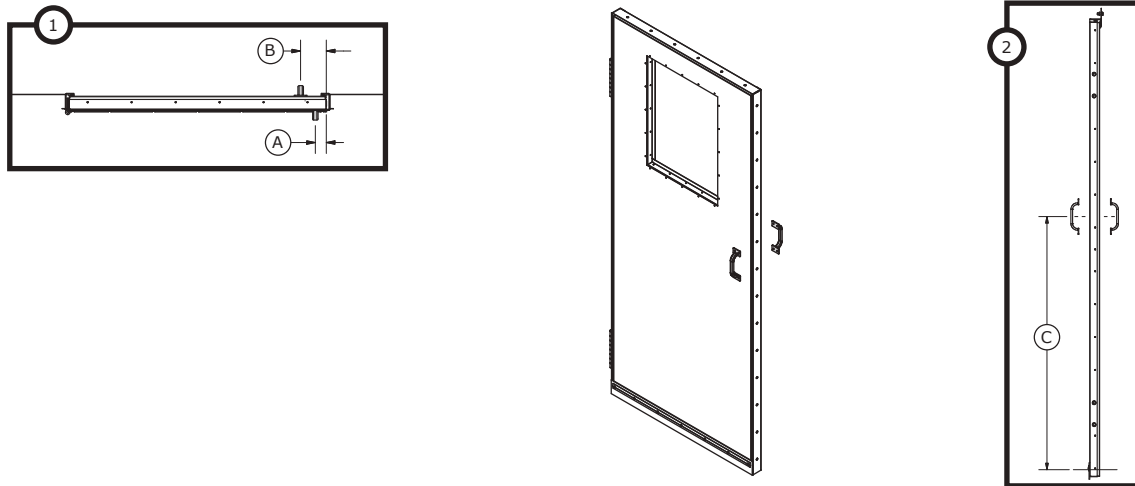
Attach the handles

Reference: Refer to the Installation Instructions page for the personnel door (provided in the personnel door kit inside the "Miscellaneous" box).

Use Tek screws to fasten a door handle to each side of the door.

NOTE

Follow the positioning guidelines in the accompanying diagram.



A: Horizontal placement, outer handle: 1-1/2 inches from door edge

B: Horizontal placement, inner handle: 3-1/2 inches from door edge

C: Vertical placement (both handles): 4 feet 0 inches from bottom of door to center of handle

Install the Brixon safety latch

Reference: Refer to the supplied Brixon Template. Also refer to the manufacturer's instructions included with the Brixon hardware. The template and hardware ship in the "Miscellaneous" box.

NOTE

For optimum interoperability, do not exceed a 1/4 inch between the body and the strike.

NOTE

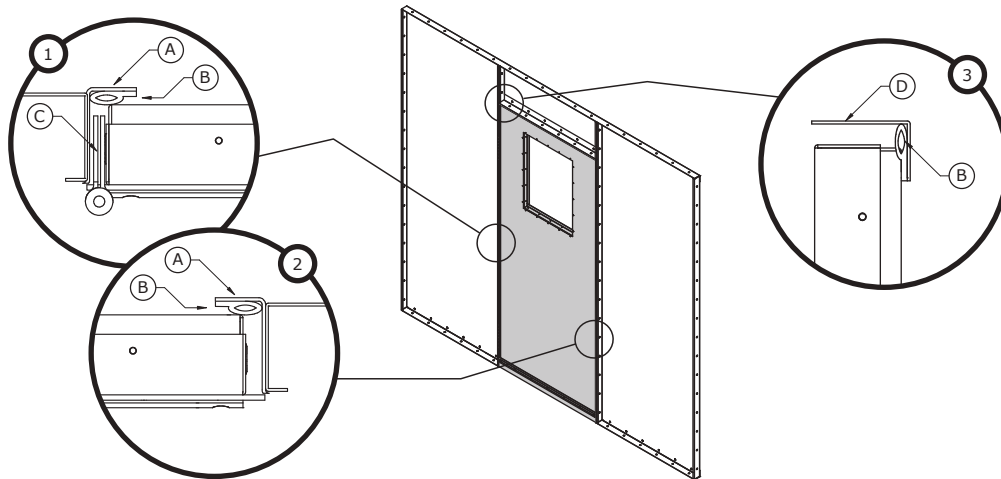
Position the Brixon latch under the door handle so that the center of the Brixon latch is 3 feet 6 inches from the bottom of the door.

1. Use the Brixon Template to establish proper hole locations for Brixon-to-door and latch-to-jamb.
2. Drill two 3/8-inch holes through the door.
3. Mount the Brixon to the door using 5/16-inch x 2-1/2-inch bolts, nuts, and washers, with the bolt head to the inside of the door.
4. Mount the latch to the jamb/panel using 5/16-inch x 1-1/4-inch bolts, nuts, and washers.
5. Adjust the Brixon tension as necessary to ensure proper operation.

Install door seals

NOTE

Refer to the following diagram while completing this task.



A: Door jamb
B: P-seal
C: Hinge
D: Door header

1. Affix P-seal gasket along the left and right door jambs; cut to length.
2. Affix P-seal gasket along the header; cut to length.

Assemble the exhaust stack

Prerequisites: The exhaust fan(s) must be installed as directed in “Install the exhaust fan” (page 37).

***If applicable:* Install plain duct with Automatic Roof Ventilator (ARV)**

Scope: This task applies only if the site is using plain duct in their exhaust stack. If the site is using spiral duct instead of plain duct, perform “*If applicable:* Install spiral duct with Automatic Roof Ventilator (ARV)” (page 48) instead of this task.

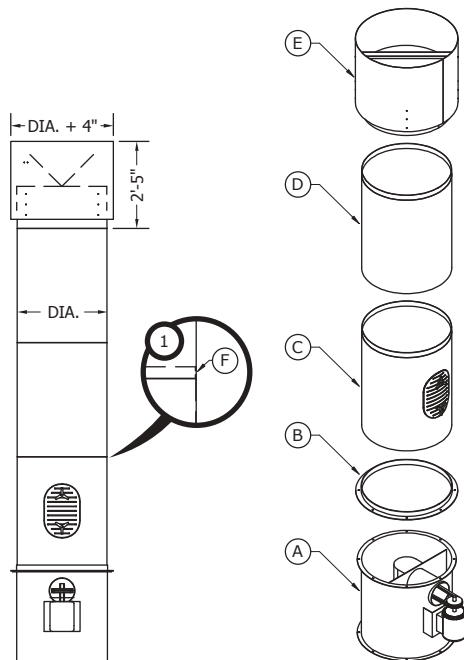
Important: If the roof opening is already cut, install all exhaust ductwork (including the ARV) during this step. If the roof opening is not cut, install the exhaust ductwork to just below the roof. (In that case, you will have to finish installing the rest of the ductwork later, after the roofer has cut the roof opening.)

NOTE

Use #10 self-tapping screws for duct-to-duct connections.

NOTE

Refer to the diagram below while completing this task.



A: Exhaust fan

B: Fan ring (flange down; duct lip up)

C: Plain duct with clean-out door

D: Plain duct (no door)

E: ARV

F: Use #10 self-tapping screws for duct-to-duct connections; caulk outside of all connections

1. **If not already done:** Apply caulk to the upper flange of the exhaust fan; then connect the fan ring to exhaust fan using the following hardware:

- (8) 5/16-inch x 1-inch bolts
- (16) 5/16-inch flat washers
- (8) 5/16-inch lock washers
- (8) 5/16-inch nuts

NOTE

If the booth has a rear-discharge exhaust chamber, you should have already installed the exhaust ring during “*If applicable: Install an exhaust fan for a rear-discharge exhaust chamber*” (page 39).

2. Connect the plain duct with clean-out door to the ring.

NOTE

Slip the bottom of the plain duct with clean-out door into the ring; then Tek-screw the duct from the outside in.

3. Connect a section of plain duct (without clean-out door) to the previous duct section.

NOTE

Slip the bottom of the plain duct into the top of the previous section; then Tek-screw the duct from the outside in.

4. Repeat Step 3 for each additional piece of duct in the exhaust stack.

When you have connected all the ductwork required for the exhaust stack, continue to Step 5.

5. *If applicable:* Install the roof flange and collar:

NOTE

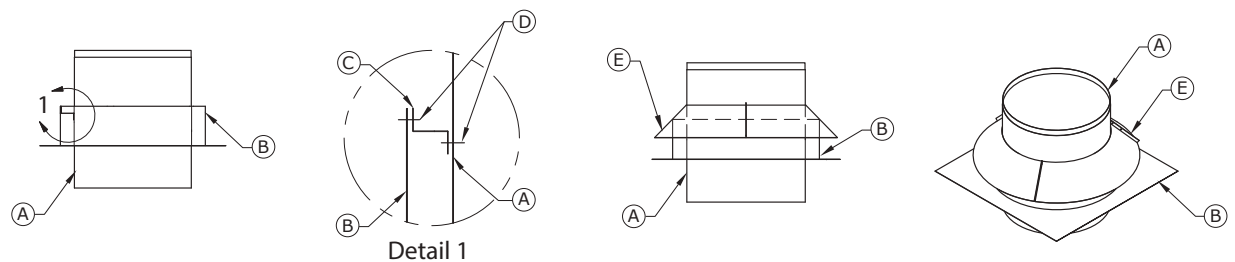
This step applies only if the booth includes the optional roof flange kit. If you are not sure which options are included with this booth, refer to the Concept page of the Design Drawings.

NOTE

The building contractor or roofer is responsible for sealing the roof flange after installation is completed.

NOTE

Refer to the diagram below while completing this step.



A: Duct
B: Roof flange
C: Stand-off
D: #10 Tek screw
E: Collar

- a. Orient the roof flange with the flat base facing down and the cylinder facing up; then slide the roof flange down over the ductwork (which extends up through the roof opening) until the base of the roof flange rests on the roof.
- b. Using #10 Tek screws, connect the stand-offs between the roof flange and the duct.

NOTE

Distribute the stand-offs so that they are (approximately) evenly spaced around the duct. Ensure that each stand-off is either flush with or slightly below the top of the roof flange.

- c. Bolt together the collar sections; then slip the assembled collar over the ductwork and slide it down so that it rests on the top edge of the roof flange.
6. Slip the bottom of the ARV into the top-most duct section; then Tek-screw the ARV from the outside in.
 7. Working down from the ARV to the exhaust fan, caulk the outside of all connections in the exhaust stack.

NOTE

If the exhaust stack includes a roof flange and collar, be sure to caulk the joint between the collar and the duct.

***If applicable:* Install spiral duct with Automatic Roof Ventilator (ARV)**

Scope: This task applies only if the site is using spiral duct in their exhaust stack. If the site is using plain duct instead of spiral duct, perform “*If applicable:* Install plain duct with Automatic Roof Ventilator (ARV)” (page 46) instead of this task.

Important: If the roof opening is already cut, install all exhaust ductwork (including the ARV) during this step. If the roof opening is not cut, install the exhaust ductwork to just below the roof. (In that case, you will have to finish installing the rest of the ductwork later, after the roofer has cut the roof opening.)

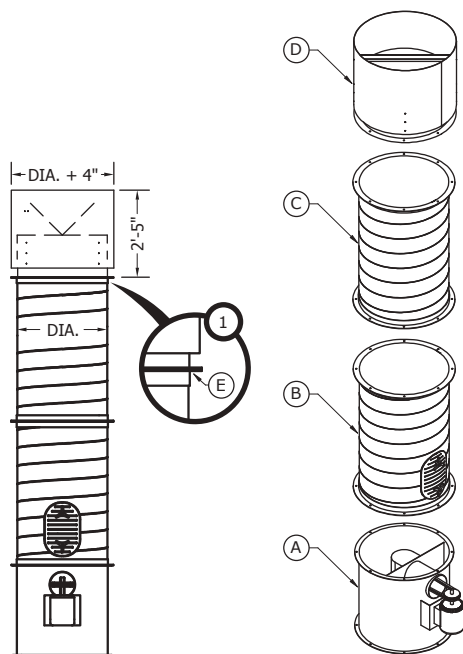
NOTE

For flange-to-flange connections, use:

- (8) 5/16-inch x 1-inch bolts
- (16) 5/16-inch flat washers
- (8) 5/16-inch lock washers
- (8) 5/16-inch nuts

NOTE

Refer to the diagram below while completing this task.



A: Exhaust fan

B: Spiral duct with clean-out door

C: Spiral duct (no door)

D: ARV

E: Flange-to-flange connection between ARV and duct

1. **If not already done:** Install the spiral duct with clean-out door:
 - a. Apply caulk to the upper flange of the exhaust fan.
 - b. Orient the spiral duct with clean-out door so that the door is toward the bottom.
 - c. Connect the spiral duct with clean-out door to the exhaust fan flange-to-flange using the specified hardware.

NOTE

If the booth has a rear-discharge exhaust chamber, you should have already installed the spiral duct with clean-out door during “*If applicable: Install an exhaust fan for a rear-discharge exhaust chamber*” (page 39).

2. Install the next section of spiral duct:
 - a. Apply caulk to the top flange of the previous duct section.
 - b. Connect the next section of spiral duct (without door) to the previous duct section flange-to-flange using the specified hardware.

3. Repeat Step 2 for each additional section of duct in the exhaust stack.

When you have connected all the ductwork required for the exhaust stack, continue to Step 4.

4. *If applicable:* Install the roof flange and collar:

NOTE

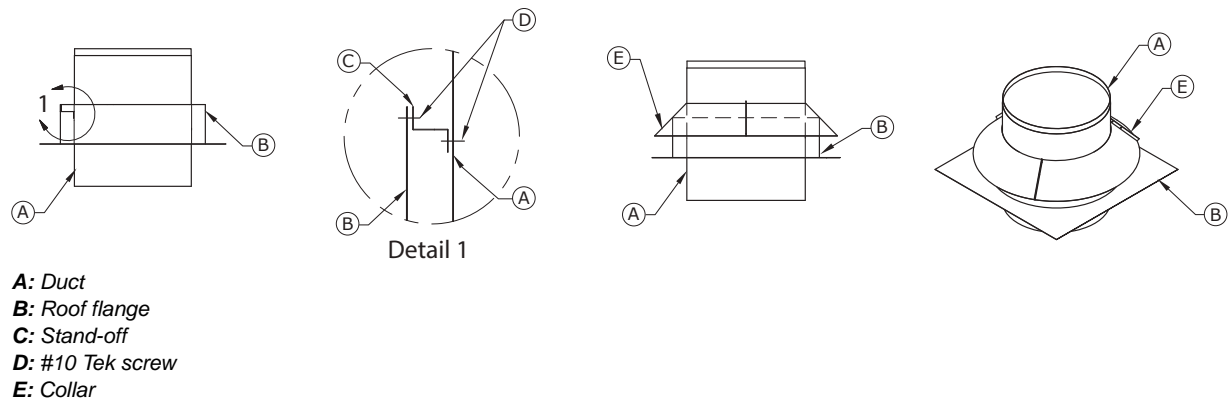
This step applies only if the booth includes the optional roof flange kit. If you are not sure which options are included with this booth, refer to the Concept page of the Design Drawings.

NOTE

The building contractor or roofer is responsible for sealing the roof flange after installation is completed.

NOTE

Refer to the diagram below while completing this step.



- a. Orient the roof flange with the flat base facing down and the cylinder facing up; then slide the roof flange down over the ductwork (which extends up through the roof opening) until the base of the roof flange rests on the roof.
- b. Using #10 Tek screws, connect the stand-offs between the roof flange and the duct.

NOTE

Distribute the stand-offs so that they are (approximately) evenly spaced around the duct. Ensure that each stand-off is either flush with or slightly below the top of the roof flange.

- c. Bolt together the collar sections; then slip the assembled collar over the ductwork and slide it down so that it rests on the top edge of the roof flange.

5. Install the ARV:

- a. Apply caulk to the top flange of the top-most duct section.
 - b. Connect the ARV to the top-most duct section flange-to-flange using the specified hardware.
6. Working down from the ARV to the exhaust fan, caulk the outside of all connections in the exhaust stack.

NOTE

If the exhaust stack includes a roof flange and collar, be sure to caulk the joint between the collar and the duct.

If applicable: Install the guy-wire kit

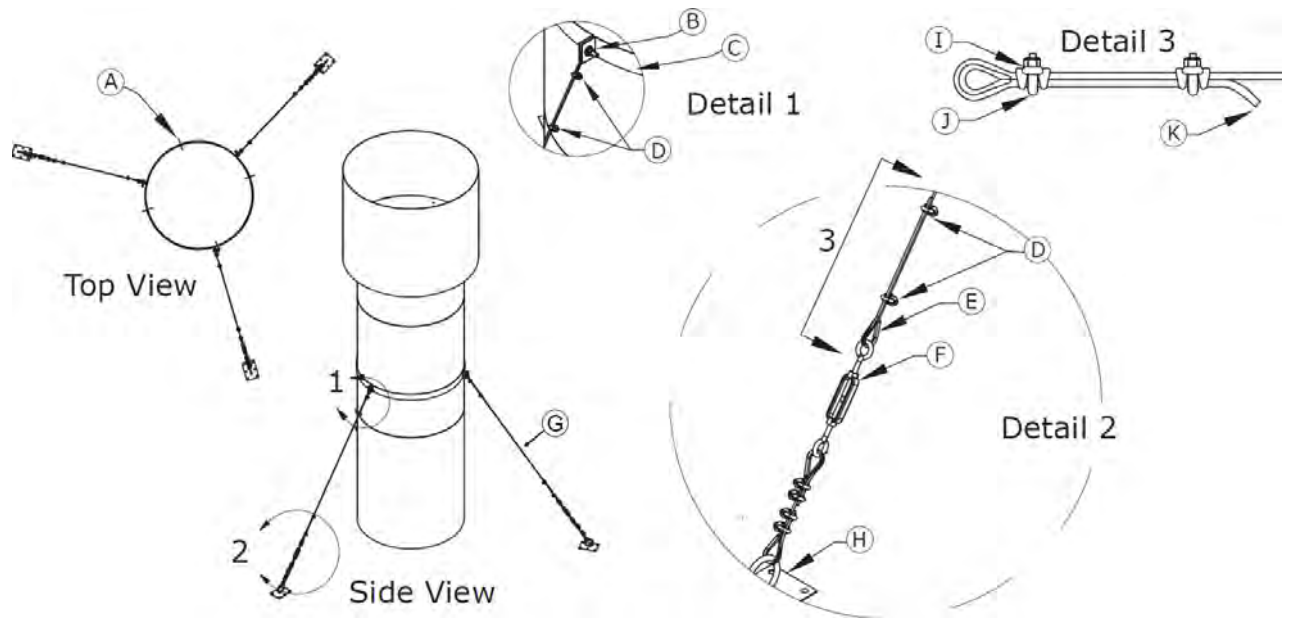
Prerequisites: The ductwork and ARV must be installed as described in “*If applicable: Install spiral duct with Automatic Roof Ventilator (ARV)*” (page 48) or “*If applicable: Install plain duct with Automatic Roof Ventilator (ARV)*” (page 46).

NOTE

Install the guy-wire kit per the instructions below. It is the responsibility of the customer or their agent (for example, a roofer or building contractor) to supply and install the cable tie-off points on the building roof (plate with ring). The diagram below is provided for reference only.

NOTE

Use #10 Tek screws to attach duct strap to exhaust duct; caulk to seal.



A: #10 Tek screw

B: For each connection, use one cable thimble; one 5/16-inch x 1-1/2-inch bolt; two 5/16-inch flat washers; one 5/16-inch lock washer; and one 5/16-inch nut.

C: Duct strap

D: Cable clamps (2)

E: Thimble

F: Turnbuckle

G: Cable; thimbles (2); cable clamps (4)

H: Plate with ring

I: Grip base

J: U-bolt (must have U-bolt over dead end of cable)

K: Dead end

Install the lights

Prerequisites: The booth must be assembled.

NOTE

This task covers only the mechanical installation of the lighting fixtures; wiring should be performed by a qualified electrician as specified in "Perform electrical hookup" (page 66).

Install cage nuts in the light fixture

NOTE

It is usually more efficient to install the cage nuts in all the light fixtures at one time (before you begin installing the lights).

NOTE

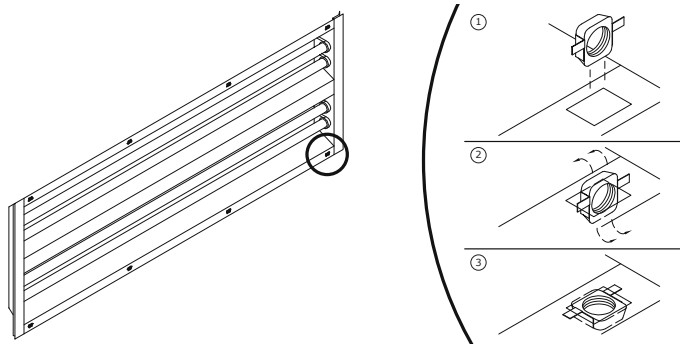
The light fixture box requires eight cage nuts.

1. Open the boxes containing the light fixture(s) and remove the hardware kit and the manufacturer's instructions.

2. For each square hole on the light fixture box: Insert a cage nut into the hole and snap into position.

NOTE

Some force is required to snap in the nut.



3. Confirm that each cage nut can slide within its hole.

NOTE

The cage nut must be able to slide to ensure that it can align with the cover bolt.

4. Repeat this procedure as needed to install cage nuts in all light fixture boxes.

Install the light fixture in the panel

Prerequisites: Cage nuts must be installed in each light fixture as directed in “Install cage nuts in the light fixture” (page 52).

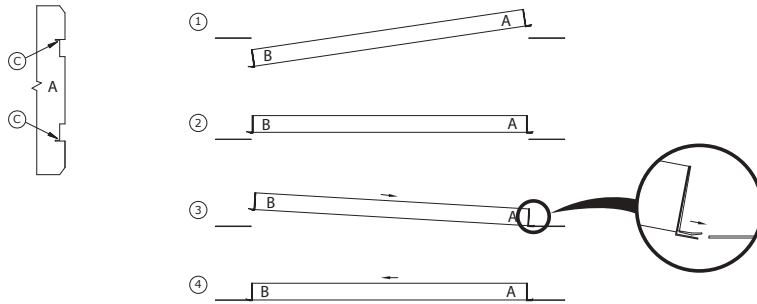
IMPORTANT

Make sure to position the light’s power cord (“whip”) on the back side of the light fixture (i.e., on the side that faces the exterior of the equipment). Wire to NFPA 70 and do not run wiring over the face of beams. In addition:

- **If the booth width is 10 feet or less:** Ensure that the whips are positioned either all toward the left side or all toward the right side of the booth. (If the booth has a control panel, position the whips all toward the control-panel side of the booth.)
- **If the booth width is 12 feet or more:** Ensure that the whips are positioned either all toward the front or all toward the back of the booth.

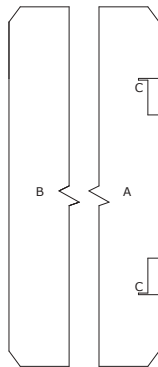
NOTE

Refer to the following diagram as you complete this task.



A: Flange with notches
B: Flange without notches
C: Slot in notch

1. Obtain a light box with cage nuts already installed.
2. Stand facing the light panel from the interior and hold the light fixture so that its flanged edge is toward you, with the notched flange "A" on the side.
3. Insert the light fixture into the opening of the panel with flange "A" to the side.
4. Slide the fixture over until flange "B" engages the other edge of the opening in the panel; then move the fixture back in the opposite direction.
5. Bend the edges of each notch so that the light panel fits into the slot at the corner of the notch.



A: Flange with notches
B: Flange without notches
C: Slot in notch

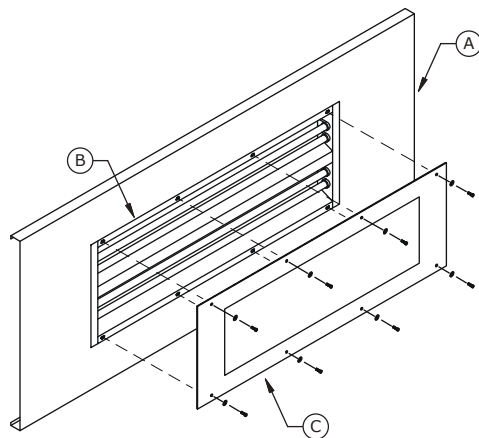
Install a cover over the light fixture

Prerequisites: The light fixture must be installed in the light panel as directed in “Install the light fixture in the panel” (page 53), with the whip positioned on the back side of the light fixture.

Place a light fixture cover over the light fixture and attach it using 6-mm x 20-mm cap-head screws.

NOTE

To prevent damage to the cover, finger-tighten each of the cap-head screws to a torque rating between 2 and 5 inch-pounds.



*A: Light panel
B: Light fixture installed in light panel
C: Light cover*

Affix the GFS decal to the front of the booth

NOTE

For a list of tools related to decal placement, see “Required tools” (page 18).

NOTE

The specific panel to which the decal is applied depends on the width of the booth:

- **If the booth width is 10 feet or less:** Affix the GFS decal near the left end of the warning panel on the front bay. (The warning decal and booth identification label are already present at the right end of the warning panel.)
- **If the booth width is 12 feet or more:** Affix the GFS decal near the left end of the front bay’s left frame member. (The warning decal and booth identification label are already present on the right frame member.)

1. Inspect the panel where the GFS decal will be applied and ensure that it is clean.

NOTE

If necessary, spray the panel with soapy water and wipe it dry with a lint-free cloth.

2. Ensure that your hands are clean; then obtain the GFS decal from the “Miscellaneous” box.

3. Liberally spray the left half of the panel with soapy water.
4. Starting from the left edge of the decal, carefully separate the backing from the decal and begin peeling off the backing paper.
5. Adhere the left edge of the decal to the left side of the panel, positioning the decal so that it is about 2 inches from the left edge of the panel and about 2 inches from the bottom edge of the panel.

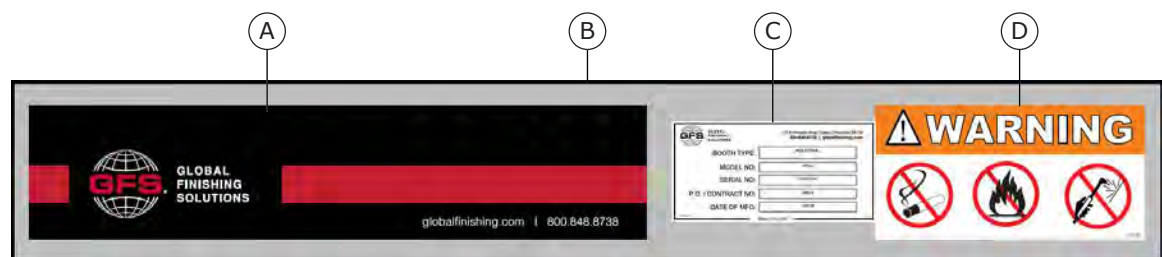
NOTE

You can also use the placement of the warning decal (on the right end of the panel) as a guide for aligning the top and bottom of the GFS decal.

6. Continue peeling off the backing and smoothing the decal onto the panel until the decal is fully applied.

NOTE

Every few inches, use a squeegee to remove wrinkles and air bubbles.



A: GFS decal

B: Warning panel (for booth up to 10 feet wide) or assembled frame members (for booth 12 feet wide or more)

C: Booth identification label (pre-installed)

D: Warning decal (pre-installed)

7. After applying the decal, double-check the decal and the entire panel for hand-prints or smudges; clean the decal and panel, if necessary.
8. Wipe off any excess water from the decal and panel.

Install the manometer

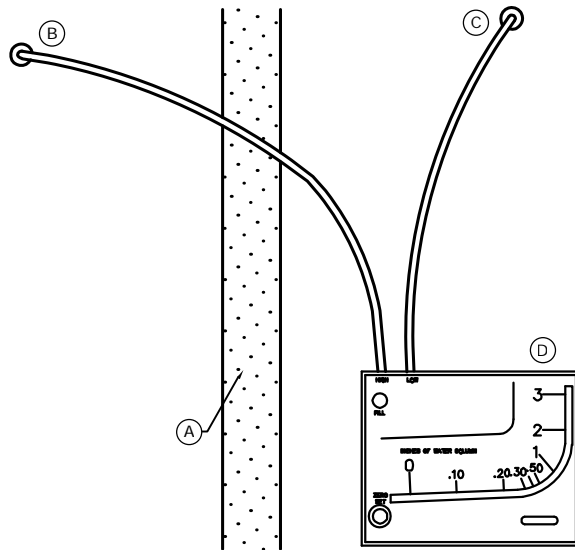
Scope: This task applies only to the standard manometer (GFS part number 1011003) paired with GFS single-stage exhaust filter media.

1. Position the manometer on the outside of the booth.

NOTE

Choose a convenient location, approximately 5 feet from the floor and within 3 feet of the filter bank.

2. Drill two holes (1/8-inch or 9/64-inch in diameter) on a vertical line 3-15/16 inches apart for the provided fittings.
3. Loosely mount the manometer with the provided self-tapping screws.
4. Adjust the gauge until the bubble is centered in the level vial, then secure the manometer tightly.
5. Install tubing adapters on each side of the filter.
6. Run tubing:
 - a. Run the high-pressure line (left fitting) to the booth.
 - b. Run the low-pressure line (right fitting) to the exhaust chamber.



- A:** Filter media
B: High-pressure line to booth side of filters
C: Low-pressure line to chamber side of filters
D: Manometer

7. Turn the white adjustment knob counterclockwise until it stops, then turn clockwise three full turns. This puts zero approximately in the middle of the travel adjustment in either direction.
8. Remove the fill plug and carefully pour the red indicating fluid until it reaches zero on the scale.

NOTE

Minor adjustments can be made by turning the white adjustment knob.

9. Replace the fill plug.

NOTE

If the gauge is overfilled, remove the excess by inserting a pipe cleaner through the fill port to blot up excess fluid.

10. Place the supplied red pointer flag at the appropriate location referenced below (indicating dirty filters):

- **GFS Wave®:** 1/2 inch w.c.
- **GFS Poly™:** 1/2 inch w.c.

NOTE

For other filters, the differential setting should be adjusted to the manufacturer's recommendations.

If applicable: Install the control panel

NOTE

The control panel houses Main Disconnect, Lighting, and Motor Branch Circuit Protection per NEC requirements. It also houses all operator controls.

NOTE

This task covers only the mechanical installation of the control box; wiring should be performed by a qualified electrician as specified in "Perform electrical hookup" (page 66).

NOTE

If you mount the control panel to the side of the booth (rather than mounting it to an adjacent wall), GFS recommends that you use strut channel with strut hardware. You can cut the strut to span the distance between booth back brake flanges in the dimensions that will allow the control panel to be mounted to the strut. When mounting large enclosures, GFS recommends that the strut extend up from the floor for extra support. **Strut channel is not provided by GFS.**

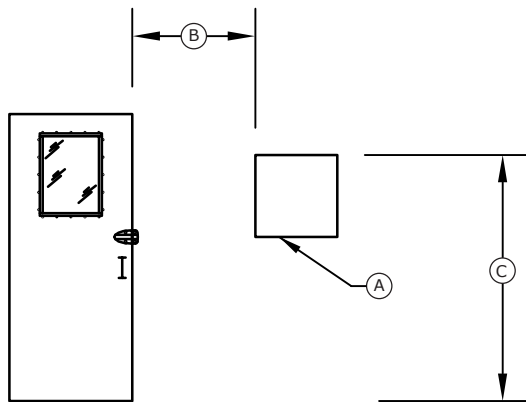
Mount the control panel either on the exterior booth wall or an adjacent wall.

NOTE

Position the control panel so that its top is between 70 and 74 inches from the floor. The control panel must be at least 36 inches (914 mm) from any booth opening.

NOTE

Do *not* mount the control panel inside the booth enclosure.



A: Control panel

B: Minimum of 36-inches between the control panel and any booth doors or openings

C: 70 to 74-inches from the floor to the top of the control panel

Install miscellaneous electrical devices

NOTE

Ensure that the placement of all electrical devices meets the NEC requirements for clearance from combustible areas.

NOTE

This section provides instructions for installing miscellaneous electrical devices. As you install each device, retain any unused hardware. Place unused hardware in a bag and tape it to the device so that it will be available for the electrician.

Install the air solenoid valve

Prerequisites: The booth's air supply line must already be installed.

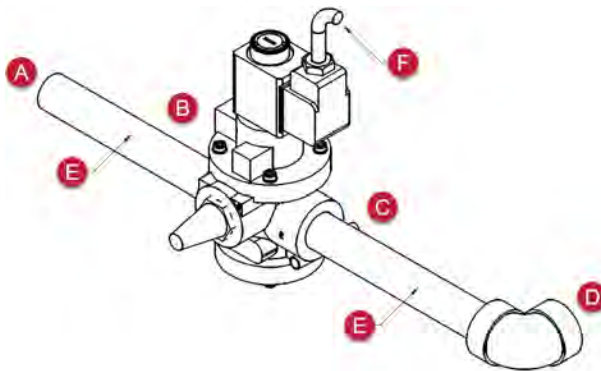
NOTE

This task covers the installation of the directional valve in the compressed air line piping, and is usually performed by a plumber or mechanical contractor. An electrician will perform the wiring from the valve to the control panel, as described in "Perform electrical hookup" (page 66).

Install the air solenoid valve as close as possible to where the compressed air enters the booth, but no closer than 3 feet to any door or opening.

NOTE

Refer to the following diagram to complete this task:



A: From building air supply

B: Inlet

C: Outlet

D: Through booth wall

E: NPT pipe nipple (size will vary)

F: Conduit with wiring to control panel

If applicable: Install the Economy Mode switch

Prerequisites: The booth's air supply line must already be installed.

NOTE

This task applies only if the site purchased the optional Economy Mode switch with the booth.

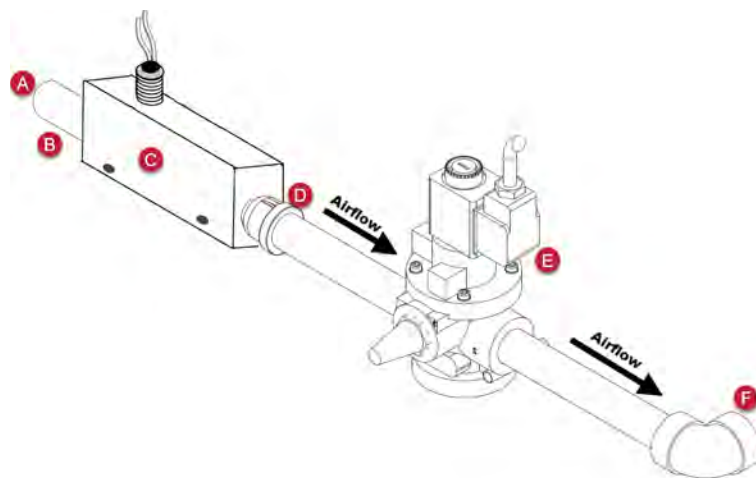
NOTE

This task covers the installation of the switch in the compressed air line piping and is usually performed by a plumber or mechanical contractor.

NOTE

Compressed air must be clean, filtered, and dry.

Connect the Economy Mode switch into the air line just before the air solenoid valve (i.e., between the air supply coming from the building and the air solenoid valve).



A: From building air supply
B: 1/2-inch or 3/4-inch NPT
C: Economy Switch
D: Outlet
E: Air solenoid valve
F: Through booth wall

NOTE

Install the switch horizontally, with electrical to the top.

Figure 7. Economy Switch Installation (Thomas Products Model Number 1500)

If applicable: Install the gun hanger switch

Scope: This task applies only if the site purchased the optional gun hanger with their booth.

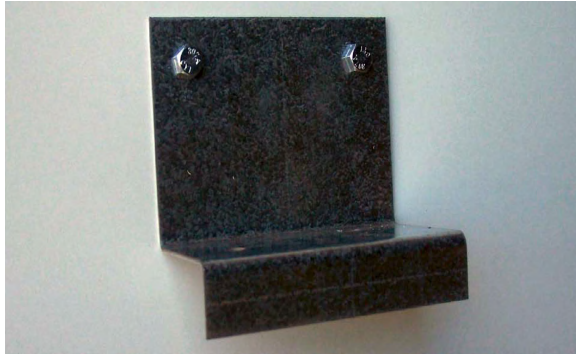
NOTE

The gun hanger is optional hardware that provides a place to store a paint gun when it's not in use. Hanging the paint gun on the gun hanger activates a switch that places the booth into Economy Mode (an energy-saving state). The booth remains in Economy Mode until the paint gun is removed from the hanger.

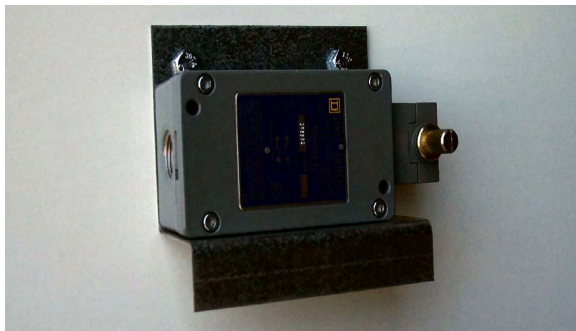
1. Mount the gun hanger bracket to an interior booth wall using two 5/16-inch bolts.

NOTE

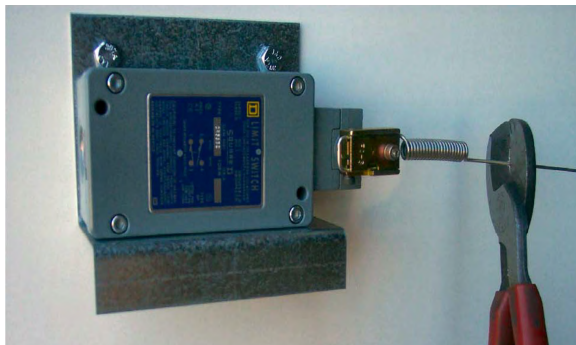
Locate the bracket at about waist height near the most commonly used personnel door.



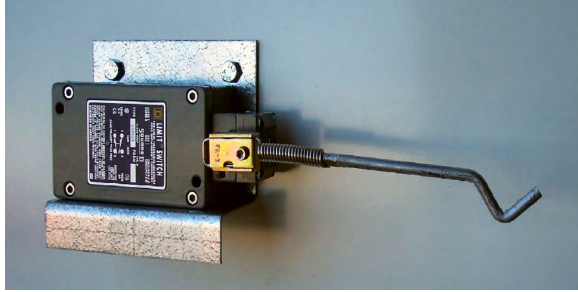
2. Mount the limit switch to the bracket using two 1/4-inch #20 bolts.



3. Mount the arm and cut off the excess.



4. Install the hanger in the spring assembly.



If applicable: Install proximity switches

Prerequisites: Product doors and personnel doors must be installed.

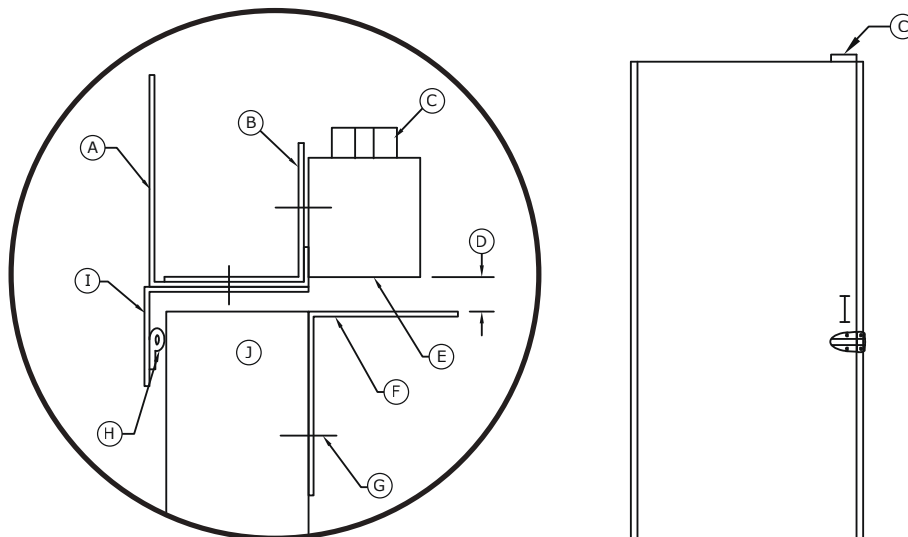
NOTE

Perform this task only if this booth uses proximity switches. Proximity switches are standard on pressurized booths and an option on non-pressurized booths.

1. Install proximity switches on personnel doors.

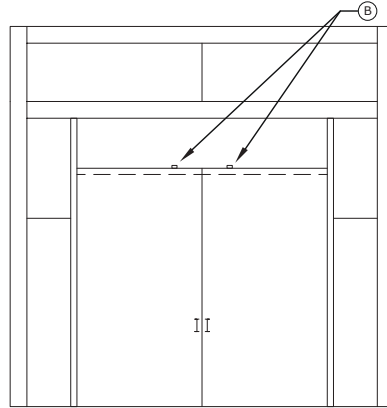
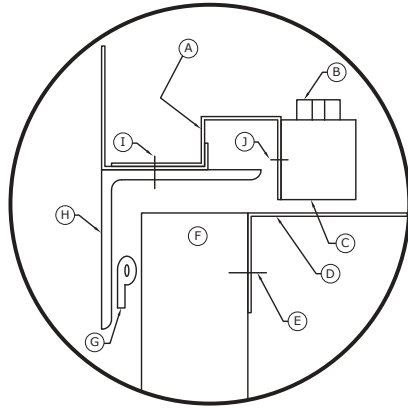
NOTE

Locate the proximity switch above the door, within 12 inches of the top corner (on the handle side of the door).



- A:** Panel
- B:** Proximity mount bracket (BKTG-PS-MDS)
- C:** Door limit switch (proximity switch)
- D:** 1/4-inch maximum
- E:** Sensing area
- F:** Shutoff bracket
- G:** Field-drill and use self-tapping screws
- H:** P-seal
- I:** Door stop
- J:** Personnel door

2. *If applicable:* Install proximity switches on a non-roll-up product door.



A: Proximity mount bracket (BKTG-PS-PDS)

B: Door limit switch (proximity switch)

C: Sensing area

D: Shutoff bracket

E: Use self-tapping screws

F: Product door

G: P-seal

H: Door header

I: Field-drill and bolt using 5/16-inch x 3/4-inch bolts and nuts

J: Field-drill and bolt using hardware provided with proximity switch. **The use of power tools or overtightening may result in damage to the device.**

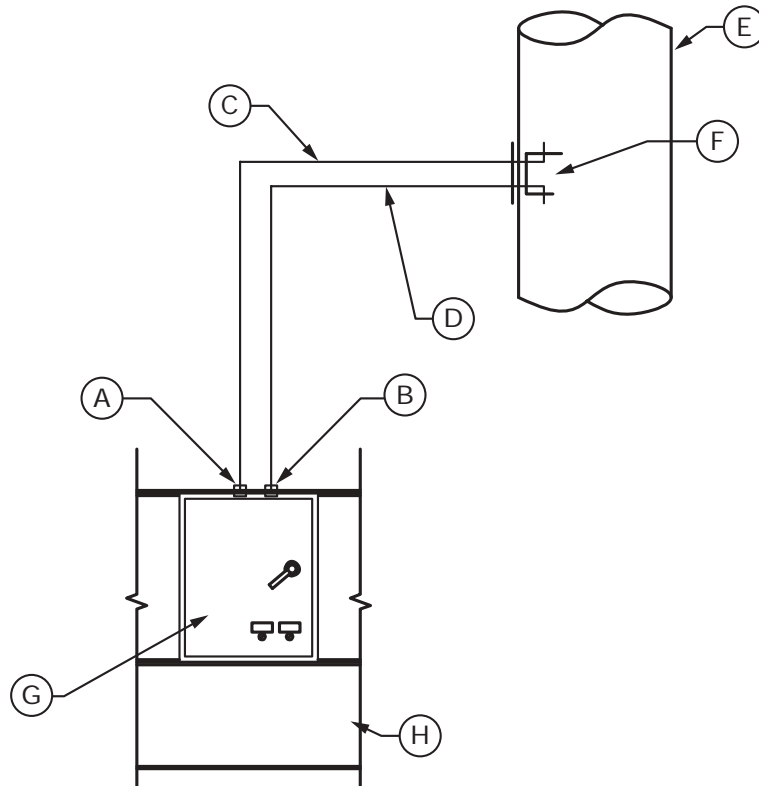
If applicable: Install the Consta-Flow System

Scope: This task applies only if the site purchased the optional Consta-Flow System (GFS part number 1009762). If you are not sure what options are included with this booth, refer to the Concept page of the Design Drawings.

NOTE

The Consta-Flow System kit ships in the "Miscellaneous" box.

Reference: Refer to Consta-Flow System - Universal instruction sheet included in the Consta-Flow Kit and to the diagram below.



- A:** Low-pressure bulkhead fitting
B: High-pressure bulkhead fitting
C: Low-pressure sensing tube
D: High-pressure sensing tube
E: Exhaust stack
F: Consta-Flow System
G: Control panel
H: Outside booth (minimum 3 feet from any opening)

1. Install the Consta-Flow device on the exhaust-stack ductwork.

NOTE

For details, refer to the Consta-Flow System - Universal sheet included with the Consta-Flow Kit.

2. Attach tubing to the high- and low-pressure fittings on the Consta-Flow device.
3. Attach the other end of the tubing to the control panel bulkhead fittings for high- and low-pressure.

If applicable: Install the air-proving switch

Reference: Refer to the instructions for the Airflow Switch Installation in the Electrical Drawings document.

NOTE

For information on locating the Electrical Drawings document, refer to “Gathering required documentation” (page 13).

Perform electrical hookup

WARNING

Electrical installation should be completed by a qualified electrician. Installation must meet all applicable national, state, and local electrical codes.

Reference: Refer to the Electrical Drawings document while completing this task. (For information on locating the Electrical Drawings, see “Gathering required documentation” (page 13).)

1. Complete the wiring for the following items:
 - Exhaust fan
 - Air solenoid valve
2. *If applicable:* Complete the wiring for the lights.

NOTE

Lights have five conductor cables:

- Black (hot) and white (neutral): Power
 - Orange and red: Proximity switches
 - Green: Ground
3. Complete the wiring for any of the following items that are included with this booth:
 - *If applicable:* Control panel
 - *If applicable:* Proximity switches on product doors and personnel doors
 - *If applicable:* Consta-Flow System
 - *If applicable:* Air-proving switch for exhaust stack
 - *If applicable:* Economy Mode switch and gun hanger

NOTE

If you are not sure what options are included with this booth, refer to the Concept page of the Design Drawings.

Caulk the booth

Prerequisites: The booth must be assembled and anchored to the floor, with the lights already installed.

NOTE

Do *not* caulk around the light fixtures.

Caulk all booth panel seams, including panel to floor (after the booth is tightened and secured to the floor).

If applicable: Install the access door in the exhaust plenum

Scope: This task applies only to an Enclosed Finishing booth that uses an exhaust bridge chamber instead of a standard (non-bridge) exhaust chamber.

NOTE

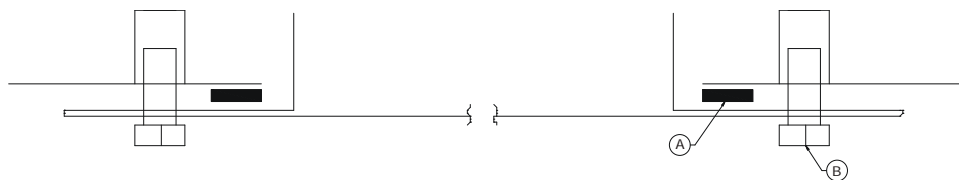
The access door fits over the cutout in the floor of the exhaust plenum.

Reference: Refer to the Access Door Section detail on the Exhaust Bridge Chamber page of the Design Drawings document.

IMPORTANT

The images below provide *general* building instructions and design concepts. **Always refer to the appropriate page in the Design Drawings** for guidance on your *specific* booth.

1. Obtain the access door for the exhaust chamber and make sure the vinyl tape (GFS part number 1014886) has been applied around all four sides of the access door, in the area between the bolt holes, and in the raised inset.

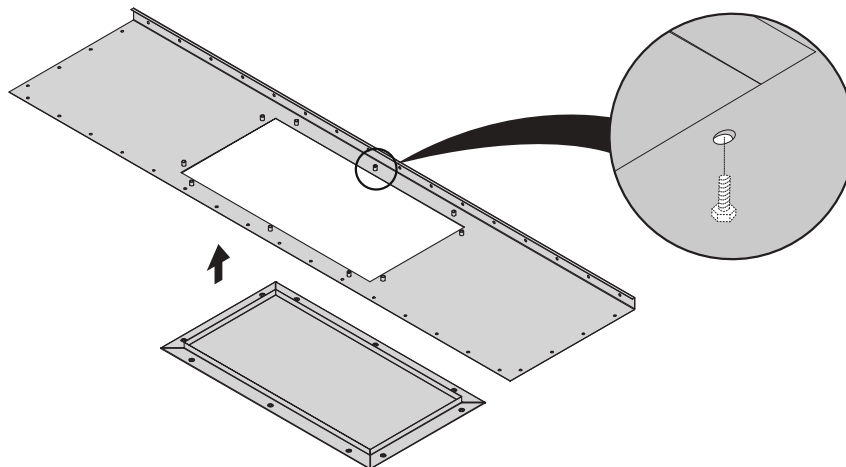


A: Vinyl tape

B: 5/16-inch x 3/4-inch bolts

2. Working from the underside of the plenum floor, insert the access door up into the opening on the floor of the exhaust chamber's plenum.

Then use 5/16-inch x 3/4-inch bolts to connect the access door to the plenum panel.



Install filters

Prerequisites: Complete all other installation tasks before installing the filters. Waiting until the end of the procedure to install the filters helps ensure that the filters remain clean.

If applicable: Install the intake filters

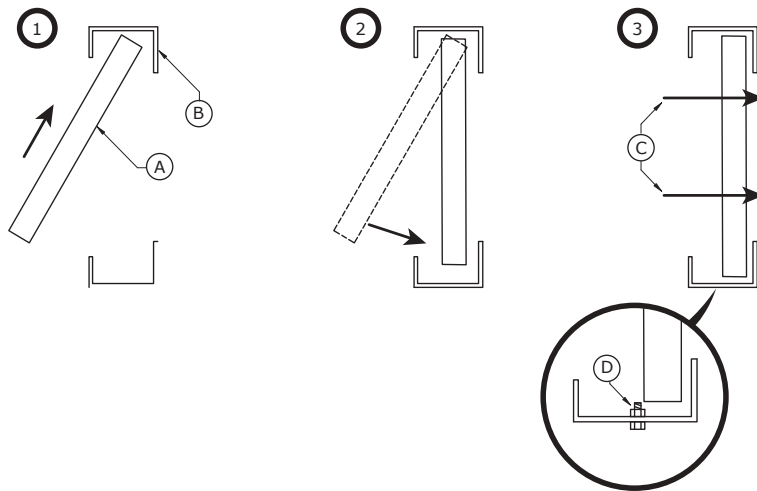
NOTE

On an Enclosed Finishing booth, the intake filters are inserted into filter racks located in the filter wall (if applicable) and in the filter door at the front of the booth.

Insert intake filters into the filter racks so that the tacky side of the filter is toward the air-leaving side of the booth.

NOTE

Ensure that the filter is behind the bolt or bolt head, as shown in the inset, below.



A: Tacky side of intake filter

B: Filter rack

C: Airflow direction

D: Keep the filter under the bolt or bolt head

Install the exhaust filters

Prerequisites: Complete all other installation tasks before installing the filters. Waiting until the end of the procedure to install the filters helps ensure that the filters remain clean.

NOTE

The exhaust filters are inserted into the filter racks of the exhaust chamber (or the exhaust bridge chamber, if applicable).

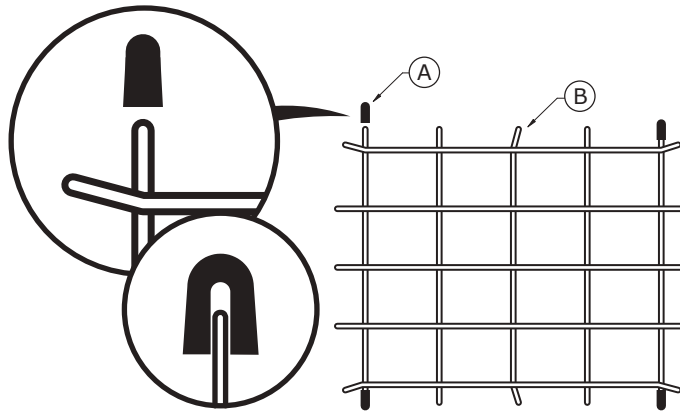
1. Remove the filter grids from the carton.
2. Place rubber tips onto the four straight corners of the filter grids.

NOTE

The rubber tips hold the grid in place.

NOTE

Do not push the rubber tip all the way onto the grid end.



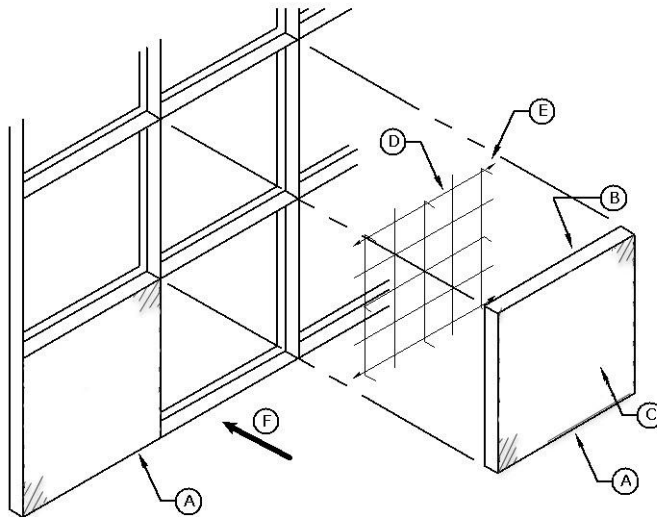
A: Rubber tip

B: Filter grid

3. **If the booth uses standard exhaust filters:** Place the grids into the openings in the exhaust chamber filter racks; then install the filters onto the grids.

NOTE

Pay attention to the orientation of the filter, as shown in the accompanying diagram.



A: Exhaust filter

B: Air-leaving side (dense side of filter)

C: Air-entering side

D: Filter grid

E: Rubber tip on grid corner

F: Airflow

4. **If the booth uses the roll media option instead of standard exhaust filters:** Follow the instructions on the Dry Filter Roll Media Option page of the Design Drawings document to install the roll media.

Startup resources

This section provides helpful information for performing a booth startup.

Startup tools and test equipment

This section lists tools and equipment used during the startup procedure.

Hand tools

- 1/8-inch tip terminal screwdriver
- #2 straight-tip screwdriver
- #2 Phillips screwdriver
- 6-inch adjustable wrench
- 10-mm deep-well socket and ratchet
- Standard hex key (Allen wrench) set
- Adjustable pliers
- Wire stripper

Test equipment

- Digital multi meter with AC and DC capabilities
- Clamp-on ammeter
- Anemometer 25-5,000 FPM range
- Digital manometer with 0.01-20 inch w.c. resolution

Optional equipment

- Non-contact voltage detector

Complete the Customer Pre-Startup Checklist

Scope: This task applies only if the site purchased the GFS factory startup service.

Prerequisites: The booth is fully assembled and an electrician has completed the wiring.

NOTE

This task is the responsibility of the customer.

NOTE

The Customer Pre-Startup Checklist is included with the startup documents that ship in the “Miscellaneous” box.

1. Complete the Customer Pre-Startup Checklist to verify that the booth is ready for startup.
2. Return the completed Customer Pre-Startup Checklist to GFS as directed on the form.

NOTE

If you purchased GFS factory startup, then upon receipt of your completed form, GFS will schedule an authorized startup technician to travel to your site to perform startup, commissioning, and training on the equipment.

Perform the startup procedure

Prerequisites: All applicable services, hookups, and other conditions specified in the Customer Pre-Startup Checklist must be ready.

NOTE

This task is the responsibility of the startup technician.

NOTE

The Startup Checklist and the Dry Filter Booth Startup Report are included with the startup documents that ship in the “Miscellaneous” box.

1. Complete the tasks in the Startup Checklist to verify that the booth is ready for operation.

NOTE

For recommended tools, see “Startup tools and test equipment” (page 70).

2. *If applicable:* Return the completed Startup Checklist to GFS as directed on the form.
3. Perform booth testing.

NOTE

Inspection results shall be recorded and maintained for at least two years.

4. Notify the customer that the booth is ready for use.

The customer is responsible for completing the Customer Sign-Off Form and returning it to GFS as directed on the form.