# Quick Start Guide

## Protector® Echo™
## Filtered Fume Hoods

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# CHAPTER 1

# INTRODUCTION

Congratulations on your purchase of a Labconco Protector® Echo™ Filtered Fume Hood which is unique as it is built on a traditional fume hood platform along with Neutrodine® Filters that handle solvents, acids, and bases with one comprehensive filter. It offers a comfortable workspace for users accustomed to the space and utility of a standard ducted fume hood, but in the realm of a filtered fume hood. The Protector Echo Filtered Fume Hood solves the problem of ducting in laboratories that are difficult to vent because of location. The Protector Echo combines its patented (U.S. Patent No. 6,461,233) fully featured, containment-enhancing fume hood design with Neutrodine (by Erlab) filtration technology to deliver a multi-use ductless fume hood. The Protector Echo Filtered Fume Hood meets the definition of SEFA 9 DH3 ductless hoods because of its sensor package, backup filters, and communication. Building communication is one of the most important aspects of the Protector Echo. In the event of loss of airflow, damage of a primary filter, or if a leak reaches the second set of redundant filters for any reason, an alarm will sound and the communication system will alert a designated email address. The designated safety officer could be made aware of the problem immediately through any internet-enabled smart phone, tablet or computer. Large laboratories and labs where a single safety manager must handle multiple concerns will benefit most from this proactive safety system.

The Labconco Protector Echo Filtered Fume Hood has been engineered to provide maximum visibility in a laboratory, and effectively contain toxic, noxious, or other harmful materials when properly installed. The Protector Echo offers many unique features to enhance safety, performance, and visibility. To take full advantage of them, please acquaint yourself with this Quick Start Guide and keep it handy for future reference.

# Model Number Configurator

**Example:**

| 1 | 8 | 0 | 4 | 1 | 0 | 0 | 0 | 2 |
|---|---|---|---|---|---|---|---|---|

| Product Line | Family | Configuration | | Width | | Depth | | Airfoil | | Sash System | | Electrical | | Accessories | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fume Hood   1 | Filtered Hood   8 | BT None | 0 | 4' | 4 | 37.7" BT & FM | 1 | Eco-Foil | 0 | Cable | 0 | 115V | 0 | None | 0 |
| | | BT Sides | 1 | 5' | 5 | 43.7" FM | 2 | Flush | 4 | Chain BT only | 1 | 230V | 2 | 2 Fixtures | 1 |
| | | BT 360 | 2 | 6' | 6 | 55.7" FM | 3 | None-FM only | 7 | | | | | 2 Fix & 1 GFCI | 2 |
| | | FM None | 3 | 8' | 8 | | | | | | | | | (8'-2 GFCI) | |

BT= Benchtop
FM= Floor Mount

# CHAPTER 2
# GETTING STARTED

Now that the site for your filtered fume hood is properly prepared, you are ready to unpack, inspect, install, and certify your unit. Read this chapter to learn how to:

- Unpack and move your Protector Echo Hood.
- Set up the filtered fume hood with the supporting structure and work surface.
- Connect the electrical supply source.
- Connect the service lines.
- Sealing the Protector Echo Hood to the work surface.
- Commissioning the Filtration Technology.
- Re-configuration process (first time setup and replacing components).
- Arrange certification of your Protector Echo Hood.

Depending upon which model you are installing, you may need common plumbing and electrical installation tools in addition to 5/16", 3/8", 7/16", and 1/2" wrenches, ratchets, sockets, a nut driver set, a flat-blade screwdriver, a Phillips screwdriver, and a carpenter level to complete the instructions in the chapter.

**!** **The Protector Echo Hood models weigh between 400 to 835 lbs. (182-375 kg). The shipping skid allows for lifting with a mechanical lift truck or floor jack. If you must lift the fume hood manually, follow safe-lifting guidelines. Normally, the fume hood can be slid off a hydraulic lift table and be placed into position on top of the work surface. <ins>Do not lift by the front air foil</ins>.**

**Les modèles Protector Echo des Bois pèsent entre 400 à 835 livres. (182 à 375 kg). La palette d'expédition permet de levage avec un chariot élévateur mécanique ou prise de parole. Si vous devez soulever la hotte manuellement, suivre les directives de sécurité-levage. Normalement, la hotte peut être glissé sur une table de levage hydraulique et être placé en position au-dessus de la surface de travail. Ne pas soulever par la feuille d'air avant**

# Unpacking Your Fume Hood

Carefully remove the shrink-wrap or carton on your fume hood and inspect it for damage that may have occurred in transit. **All the filtration fans and lights are packaged in boxes on top of the hood liner and should not be discarded.** If your unit is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.

*The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.*
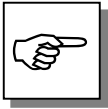
☞ DO NOT RETURN GOODS WITHOUT THE PRIOR AUTHORIZATION OF LABCONCO.  UNAUTHORIZED RETURNS WILL NOT BE ACCEPTED.

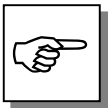☞ IF YOUR HOOD WAS DAMAGED IN TRANSIT, YOU MUST FILE A CLAIM DIRECTLY WITH THE FREIGHT CARRIER. LABCONCO CORPORATION AND ITS DEALERS ARE NOT RESPONSIBLE FOR SHIPPING DAMAGES.

Do not discard the shipping skid, fan boxes, harnesses, or packing material for your filtered fume hood until you have checked all of the components and installed and tested the unit.  Do not remove the filtered fume hood from its shipping skid until it is ready to be placed into its final location.  Move the unit by placing a flat, low dolly under the shipping skid, or by using a floor jack.

[!] **Do not move the hood by tilting it onto a hand truck.**

**Ne pas déplacer la hotte en le penchant sur un diable.**

# Removing the Shipping Skid
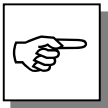
☞ LEAVE THE FUME HOOD ATTACHED TO ITS SHIPPING SKID UNTIL IT IS AS CLOSE TO ITS FINAL LOCATION AS POSSIBLE.  MOVE THE HOOD BY USING A SUITABLE FLOOR JACK, OR BY PLACING A FURNITURE DOLLY UNDERNEATH THE SKID.  DO NOT MOVE THE HOOD BY TILTING IT ONTO A HAND TRUCK.

After you verify the fume hood components, move your hood to the location where you want to install it. Then, follow the steps listed next to remove the shipping skid from your unit.

1. Remove the side panels by unscrewing the Phillips screws.
2. Find the hardware (bolts, washers, nuts) that attach the fume hood to the skid and remove the hardware.  Some hardware is on the sides and some is on the back.

# Sash Weight Release

To protect the fume hood from damage in shipment, the sash weight has been secured to the back of the fume hood with screws.  Simply remove the screws and make sure the sash cables or chains are on the pulleys or sprockets before operation of the sash.
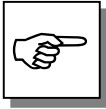
☞ **NOTE**: THE SASH WEIGHT ITSELF WAS INDIVIDUALLY MATCHED FOR THIS SPECIFIC HOOD AND SHOULD NOT BE EXCHANGED ON ANY OTHER UNIT.

# Installing the Hood on a Supporting Structure and Work Surface

[!] **The Protector Echo Hood is heavy!  Use caution when lifting or moving the unit.**

**Le Protecteur Echo Hood est lourd! Soyez prudent lorsque vous soulever ou déplacer l'appareil.**

When installing the Protector Echo Filtered Hood onto a chemically-resistant work surface or benchtop, ensure that the structure can safely support the combined weight of the fume hood and any related equipment.  The work surface should be at least as wide as the hood to properly support it. **The work surface is aligned flush with the back of the filtered fume hood for good airflow: this will provide the correct spacing under the air foil for proper bypass airflow.  The lower base cabinets are placed flush with the front of the work surface as shown in Figure 1.**

[!] **WARNING:  It is important to support the rear of the work surface and filtered fume hood.  The cross support provides support for the bottom of the work surface**. **Install the cross support after the base cabinets and work surface are leveled and before installing the hood.**

**AVERTISSEMENT : Il est important de soutenir l'arrière de la surface de travail et filtré hotte. Le support tranversal soutient le bas de la surface de travail. Installer le support transversal après que les meubles et la surface de travail soient nivelés et avant d'installer la hotte.**

The following are instructions for mounting a cross support:
1. Level the base cabinets and the work surface.  Work surface should be placed flush with the back of the filtered fume hood as shown in Figure 2-1.
2. Scribe a line on the wall or back of the base cabinet to locate the support under the work surface.
3. Mount the support by attaching it to the wall or base cabinet.
4. Place the hood on top of the work surface and cross support.

The work surface should be smooth and durable, such as a chemically-resistant epoxy resin. The surface should be nonporous and resistant to the acids, solvents, and chemicals used in conjunction with the Protector Echo Filtered Fume Hood. The work surface should also contain a dished recessed area for containing primary spills.

**Figure 2-1**
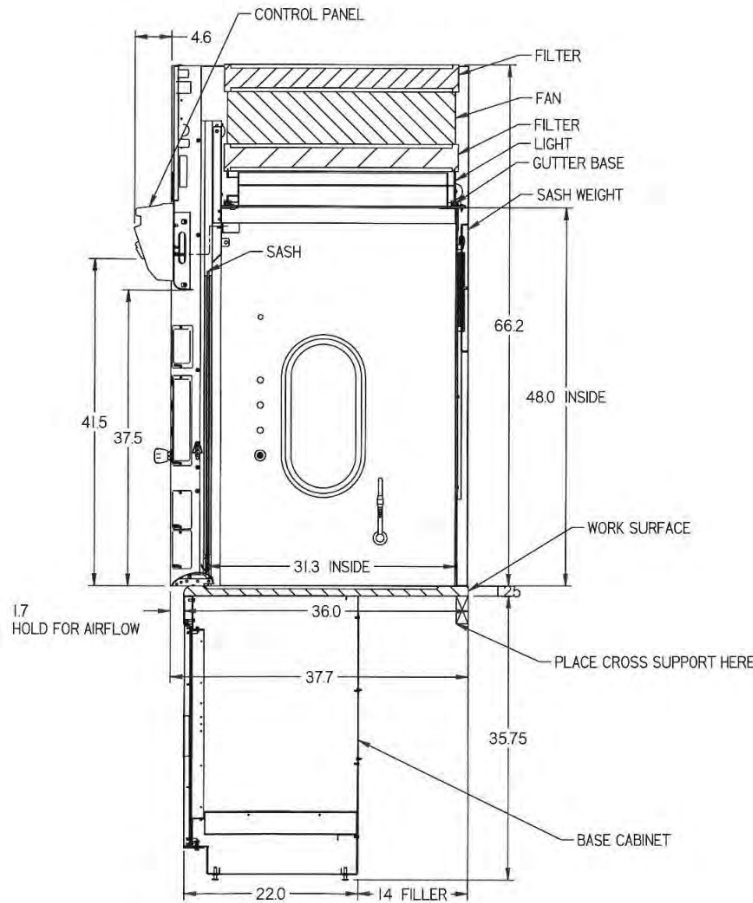


# Connecting the Electrical Supply Source to the Protector Echo Hood

Prior to connecting any electrical wiring to the fume hood structure, refer to the hood identification plate for the proper electrical requirements of your specific model.

**WARNING**: **The building electrical supply system for Protector Hoods should include overload protection. A switch or circuit breaker should be in close proximity to the equipment and within easy reach of the operator. The switch or circuit breaker is to be marked as the disconnecting device for the equipment. Consult the current version of NFPA 70®, NEC® for proper installation.**

**AVERTISSEMENT : Le système d'alimentation électrique de la Hotte Protecteur doit inclure la protection contre la surcharge. Un commutateur ou disjoncteur doit être tout près de l'équipement et à portée facile de l'opérateur. Le commutateur ou le disjoncteur doit être marqué comme l'appareil débranchant pour l'équipement. Consultez la version actuelle de la norme NFPA 70®, NEC® pour une installation correcte.**

The identification plate, model number, serial number, and electrical connection boxes are accessible from the front of the fume hood by removing the front panel.

The Protector Echo Hood is normally wired for 115 Volt, 50/60 Hz, 20 Amp or 230Volt, 50/60 Hz, 10 Amp electrical service. Check the I.D. plate behind the front panel for voltage verification. The number of circuits varies depending on the model. All of the electrical connections for the individual duplexes are terminated at the single point internal junction box for hook-up by a qualified electrician. If needed, the individual duplexes can be converted for instant attachment to a wall outlet by a qualified electrician by ordering 115V harness 9582700 or 230V harness 9582701. The main power to the control panel, fans, and lights uses less than 3 amps and a main power cord is included for instant attachment to a wall outlet. However, these power connections can be disconnected at the field wiring terminal box for hook-up by a qualified electrician. We recommend each circuit be a dedicated branch circuit. However, if wired together the maximum load allowed is the sum of individual outlets plus the rating of the unit (i.e. less than 3 Amps). The single point internal junction box is used for the connection of the lights, blower, and duplex outlets. Refer to the wiring diagram for your Protector Echo in *Chapter 3: Protector Echo Specifications.*

The fume hood is required to be grounded to the MAINS protective earthing ground for safe operation. Using a ring terminal sized for a 10-24 machine screw, connect the MAINS ground conductor to the grounding lug marked with the protective earthing symbol, ⏚ . Only MAINS ground conductors should be connected to the protective earthing ground lug, no other conductors should be connected to this grounding lug. Using wire nuts, connect the MAINS supply conductors to the fume hood supply wires. Ensure that the wires are connected as per the appropriate wire color codes for the input voltage. For 115V Phase (Hot) is black and Neutral is white, for 230V Phase1 is brown and Phase2 is blue. Refer to the wiring diagram for your Protector Echo in *Chapter 3: Protector Echo Specifications.*

Internal Junction Boxes located on top, one on each side.
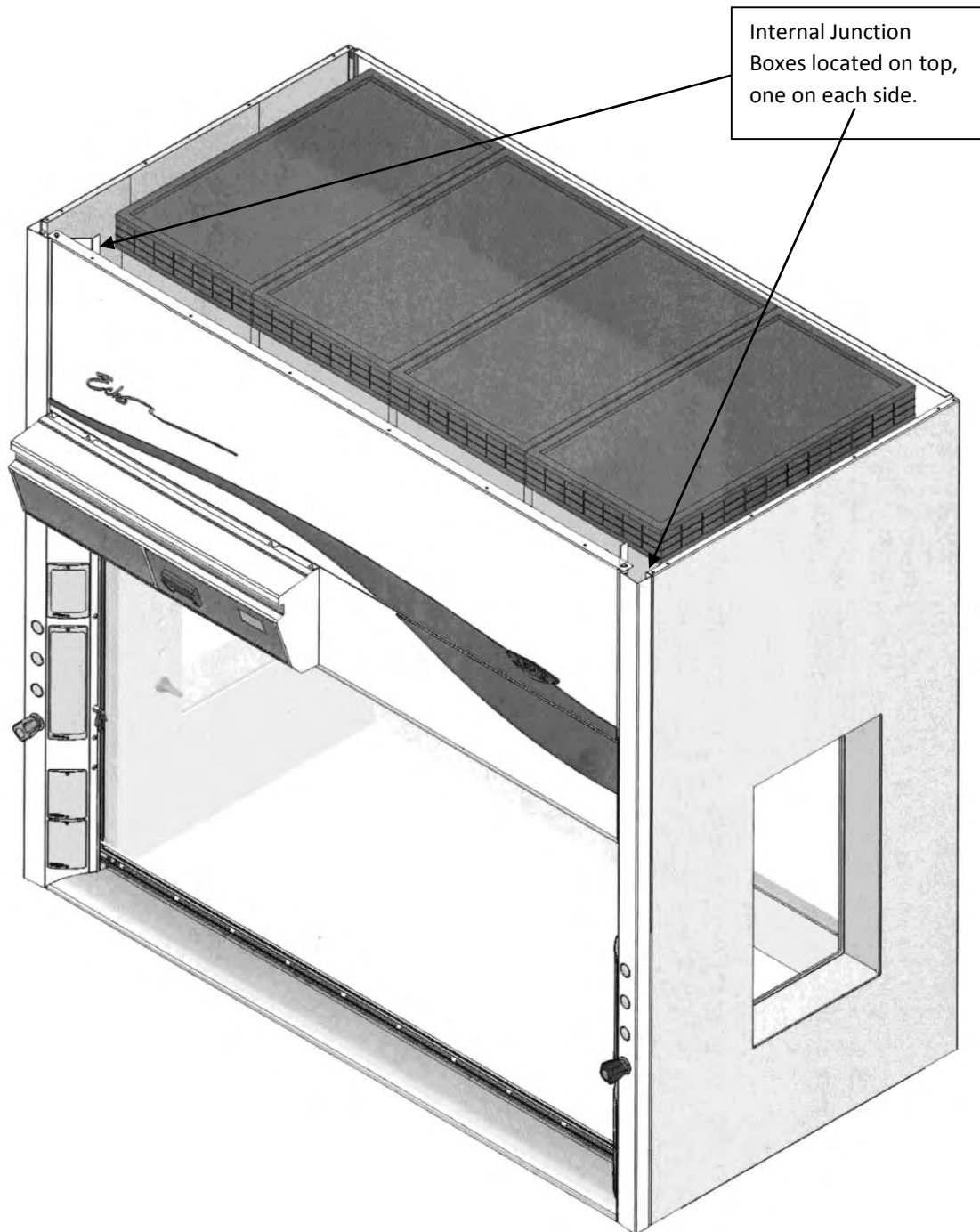
**Figure 2-2**
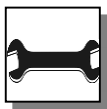
**All wiring for the filtered fume hood SHOULD be performed by a licensed electrician and conform to all local codes. In most cases, the hood will require the use of shielded conduit to protect the wiring into the hood. The grounding connection shall not be made to the terminal box cover.**

**Tout le câblage pour la hotte filtrée doit être effectuée par un électricien agréé et conformément à tous les codes locaux. Dans la plupart des cas, le capot nécessitera l'utilisation d'un conduit blindé pour protéger le câblage dans la hotte. La connexion à la terre ne doit pas être fait à la couverture de la boîte à bornes.**

The fluorescent light has been mounted inside the light module located on top of the filtered hood. To change the fluorescent light bulbs in your filtered hood, you must first remove the front panel from the hood. Next remove the filters, pre-filters, and fan modules. Lift fixture up and replace any deflective bulbs. Reverse order to reassemble.

# Connecting the Service Lines to the Protector Echo Hood

The filtered hoods with service fixtures have been plumbed from the valve to the hose connector or gooseneck for your installation convenience. Supply tubing shall be provided by the qualified installer. Tubing can enter the filtered hood from above, through the back, or through the work surface to make these connections to the service fixtures.

**NOTE: Inspect all fittings for leakage. Tighten the fittings slightly if needed.**

**NOTE : Inspecter toutes les installations à la recherche de fuite. Resserrer les installations légèrement si nécessaires.**

**CAUTION: Do not use oxygen with any standard service fixture. Contact Labconco Customer Service for oxygen fixture information.**

**PRUDENCE : Ne pas utiliser de l'oxygène avec l'accessoire de service standard. Contacter le Service Clientèle de Labconco pour les informations d'accessoire d'oxygène.**

Should access to the filtered hood plumbing fixture bodies be required, remove the service access plate on the hood front corner posts by loosening their individual screws. The valve body will now be fully exposed for any service work that may be necessary. The service fixtures supplied on your laboratory hood are designed for use with the following services:

- Air
- Cold Water
- Hot Water
- Natural Gas – See caution below
- Vacuum

**WARNING: Contact Labconco Customer Service directly before using any service other than those listed above in these valves to assure full compatibility.**

**AVERTISSEMENT : Contacter le Service Clientèle de Labconco directement avant d'utiliser n'importe quel service autre que ceux énumérés au-dessus dans ces soupapes pour assurer une pleine compatibilité.**

**CAUTION:** Natural gas should be used only in the service fixture that has been pre-plumbed with brass tubing. Sulfur content of the gas could cause deterioration of standard copper supply lines.

**PRUDENCE :** Le gaz naturel devrait être seulement utilisé dans l'accessoire de service qui a été pré soudé avec des tuyaux de cuivre. Le contenu soufré du gaz pourrait causer la détérioration des lignes d'alimentation en cuivre standard.

# Sealing the Protector Echo Hood to the Work Surface

When the filtered hood has been set in place, ducted, wired, and plumbed, it should be sealed at the work surface to prevent spilled materials from collecting under the walls of the hood. Materials such as silicone sealants are recommended to seal the hood structure.

# Setting Up the Protector Echo Floor-Mounted Filtered Hood

Specific instructions are detailed in *Chapter 5: Setting Up the Protector Echo Floor-Mounted Filtered Hood* to assemble and maneuver the Protector Echo Floor-Mount into your laboratory.

# Commissioning the Filtration Technology

<u>Overview</u>
1. Confirm order and check supplies.
2. Locate cardboard box from the pallet, the controller on the front header, the temperature sensor inside the filtered hood and the sash sensor on the left side.
3. Unpack all the filters.
4. Unpack lights, put up gutters and light box with pre-filters.
5. Check for pre-filter and install primary filter on light box.
6. Unpack fans and stack on top of primary filters.
7. Place the secondary filter on a fan box.
8. Repeat steps 3-7 until all the technology is stacked.
9. Check the Micro switch settings on the fans.
10. Install the light wires.
11. Install the fan wires.
12. Install the air sampling tubing.
13. Install the electrical cord (already completed for convenience).
14. Snake all connections up through the super structure. Make all connections from control panel to technology.
15. Plug in power cord and reconfigure.

## Step 1 – Confirm order and check supplies.

1. Confirm the order.  Make sure you have the correct number of fans for the hood size either:
   - M2 (2 column filtration) 4ft Protector Echo
   - M3 (3 column filtration) 5ft Protector Echo
   - M4 (4 column filtration) 6ft Protector Echo
   - M5 (5 column filtration) 8ft Protector Echo

2. Make sure that you have located the power supply cord to attach power to the wall.  If needed, the inlet power may be hard wired at the internal junction box.

3. Have the following tools and supplies:
   - 6ft ladder
   - Double sided tape for temp sensor
   - #2 Phillips for controller screws from controller to bracket
   - Zip ties to keep wires from moving parts of the superstructure
   - 12 volt cordless drill to mount controller bracket to superstructure (already completed)

4. The fan box with a number based on its position and micro switch settings is labeled whenever possible except for large installations.  Each fan will have a number 1, 2, 3, 4 or 5 as to the location of the fan module.  From left to right facing the superstructure, fan 1 will be to the left, then 2, 3, 4, and 5 to the right depending on the size.

5. Each Protector Echo Hood will have the following Neutrodine filters based on their size per each hood installed.
   - M2 (2 column filtration) 4 total Neutrodine filters
   - M3 (3 column filtration) 6 total Neutrodine filters
   - M4 (4 column filtration) 8 total Neutrodine filters
   - M5 (5 column filtration) 10 total Neutrodine filters

## Step 2 – Locate cardboard box on the pallet, the controller on the front header, the temperature sensor inside the hood, and the sash sensor on the left side.

For your convenience, the cardboard box on the pallet contains the operational cards to run the hood along with the modular fan and light harnesses and air sampling tubing. Please locate these now. Then locate the pre-mounted controller on the front header, the temperature sensor inside the hood, and the sash sensor on the left side of the hood. These components have been pre-mounted for convenience.

**Step 3 – Unpack all the filters.**

Unpack all of the Neutrodine filters for the hood you are commissioning. The Neutrodine filters are shipped separately from the filter manufacturer to your job site. Remove all packing material, lay them flat and stack them out of the way of the front of the superstructure but near it.

**Step 4 – Unpack lights, put up gutters, light box and pre-filters.**

The fan and light boxes will have a number that corresponds to their position on the superstructure.

***Their position is important as the micro switch settings are preset prior to shipment. Otherwise you will have to adjust them <u>before</u> powering up the controller.***

Start from the left facing the front of the superstructure. The first box to open will have a 1 on it. That will be the one that will be installed on the far left on top of the superstructure.

On the top of the opened box you will find a rectangle "gutter." Place that on top of the superstructure first.

With gutter on, next put up the light out of that same box. Make sure that the edge of the light box is properly seated into the foam of the gutter on all sides.

Now make sure the light has a white pre-filter inside the light box itself.

**Fan**

**Sampling Tubing**

**Primary Filter**

**UP**

**DOWN**

**Light**

**Gutter**
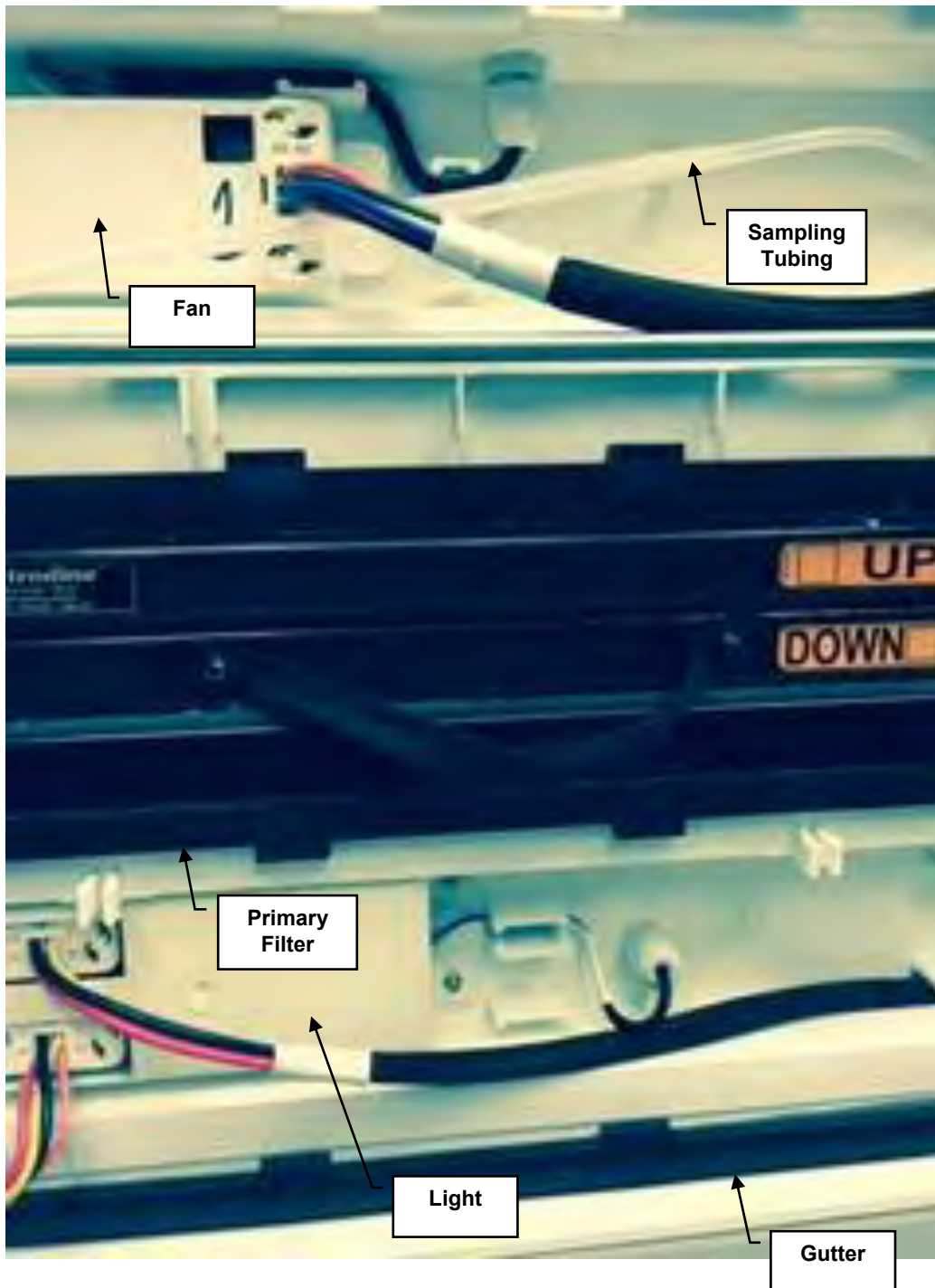
## Step 5 – Check pre-filter and place primary filter on light box.

With the pre-filter in place now you are ready to put up your first Neutrodine filter. Put the first filter on top of the light box putting the RFID tag end of the filter facing out towards the front of the superstructure. Follow the stickers for up and down positions that are on the filters.

Make sure the filter is properly seated on all sides of the light box.

## Step 6 – Unpack fans and stack on top of primary filters.

Now place the fan that you removed from the packaging and place on top of the Neutrodine filter.  Make sure the fan motor is up as shown below.



**NOTE:**  M4 Wiring Shown

### Step 7 – Place the secondary filter on fan box.

Put the secondary filter on top of the fan box putting the RFID tag end of the filters facing out towards the front of the superstructure.  Follow the stickers for up and down positions that are on the filters.

Make sure the filter is properly seated on all sides of the fan box.

### Step 8 – Repeat steps 3-7 until all the technology is stacked.

Now repeat steps 3-7 until you have all the technology stacked on the superstructure. Make sure all filters are properly seated on all sides.

### Step 9 – Check the micro switch settings.

Check the "Dip" switches on the front of each fan.  Make adjustments as needed.

Based on their positions from left to right:

Fan #1 should be **On, Off, Off, Off = Down, Up, Up, Up**
Fan #2 should be **On, Off, Off, On = Down, Up, Up, Down**
Fan #3 should be **On, Off, On, Off = Down, Up, Down, Up**
Fan #4 should be **On, Off, On, On = Down, Up, Down, Down**
Fan #5 should be **On, On, Off, Off = Down, Down, Up, Up**

If you need to adjust the DIP switch you may use a very small regular screw driver or even a pencil. Make your adjustments by putting light pressure on the DIP switch to either move it up **(off)** or down **(on)**.

**Dip Switches**

**Dip Switch Legend per fan position**

**Sampling Tubing**

## Step 10 – Install the light wires.

Now install the light wires connecting all the lights together. The sequence is top left to bottom right. Then top left to bottom right until all the lights are connected. The notched groove on the connector is always to the top.



Notched groove to top

Light wiring out

Light wiring in
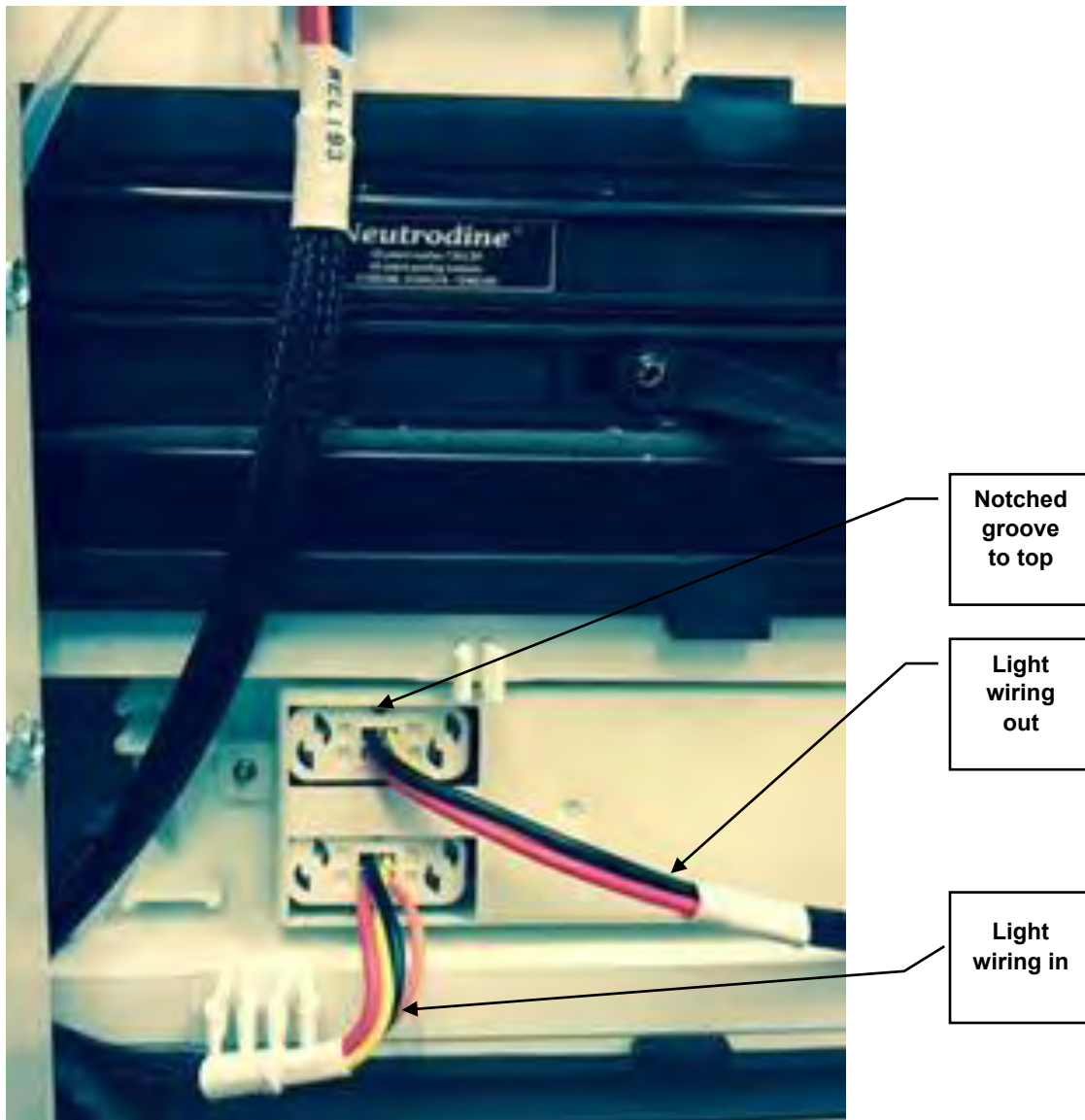
## Step 11 – Install fan wires.

Connect the fans with fan wires. Start with the fan farthest to the left. Put the wire into the right slot on the fan circuit board to the left side of the fan box to the right. The v-notched groove on the connector is always to the right.



Fan wiring inlet

V-notch groove to right on fan connectors

Fan wiring outlet

Air Sampling Tubing
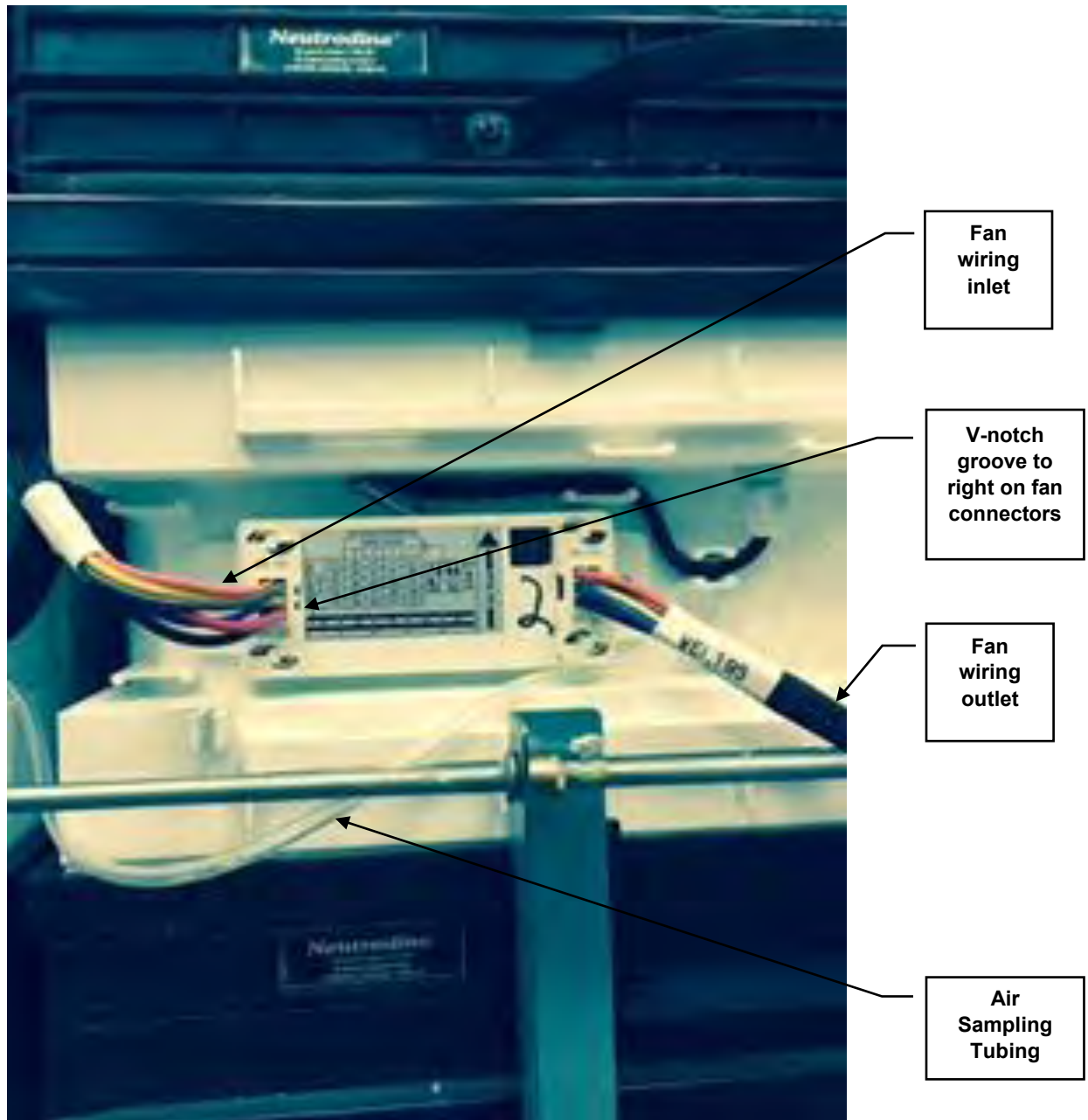
### Step 12 – Install air sampling tubing.

Slide the air sampling tubing onto fan #1.  Put the small "t" onto the fan box and run the other end over to the right to fan box #2.

Make sure the tubing is securely connected to each fan box.  Repeat the step until all fan boxes are connected together by the tubing.

### Step 13 – Install electrical wiring to controller.

**NOTE:  This step was completed at the factory for your convenience but is shown for maintenance purposes.**



Inlet wiring to power control panel, fans, and lights

Junction box (incoming power may be hard wired)

Outlet wiring to power up control panel and fans and lights

First put the rubber insulator on the cord set then attach the wires following the sequence below depending on your model:

The sequence is:   Black to Brown/Black
                           Green to Yellow/Green
                           White to Blue/White
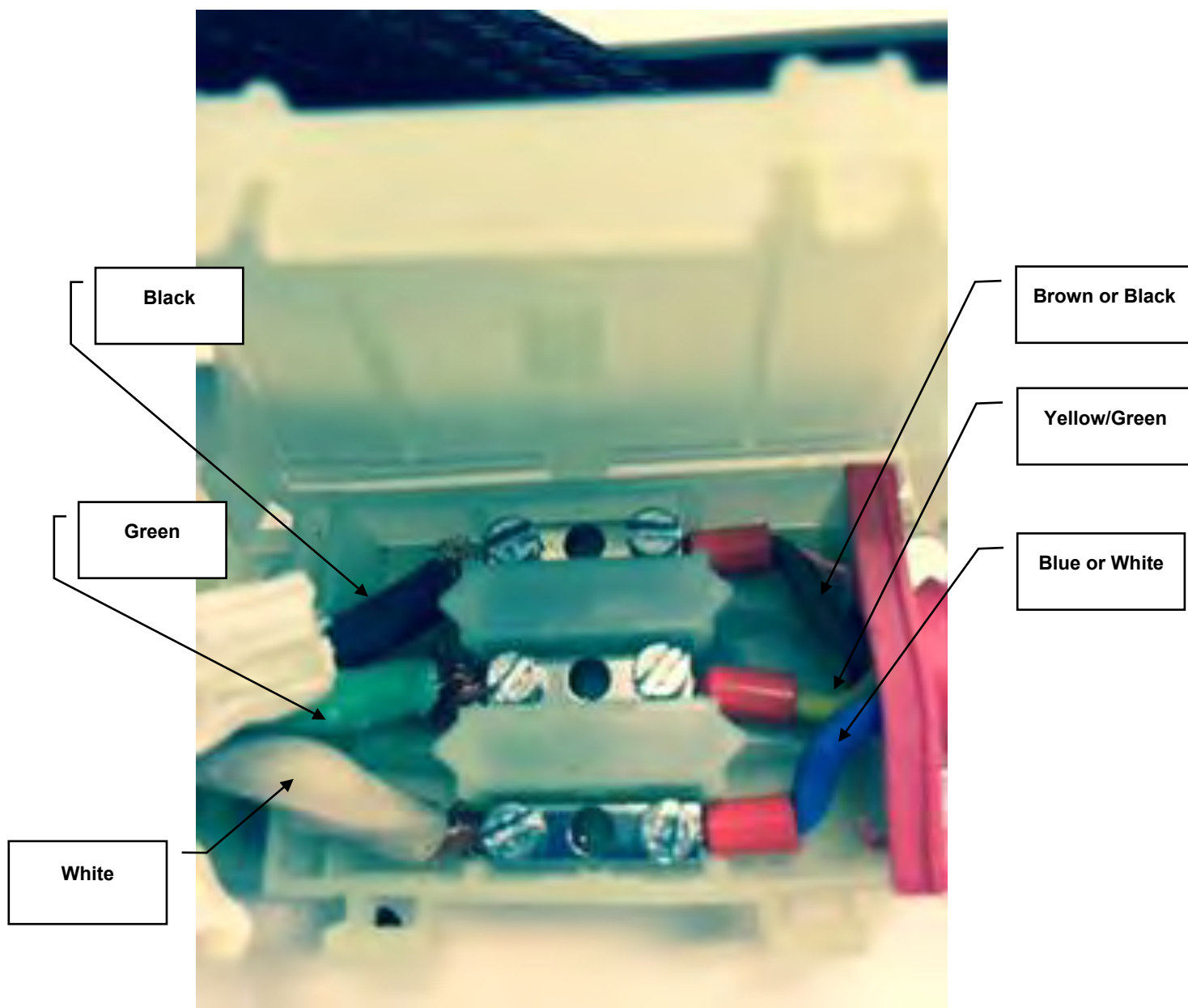


Push each wire all the way into their slot and tighten the set screws.

Make sure that after you tighten them they are secure by gently tugging on each wire. If they come out from the set screw, they need to be loosened and redone.  If not then they are secure.

Put the red rubber piece in place and close the cover to protect the wires.  Now plug in your Ethernet cable (if applicable).

Next using a small Phillips, re-install the screw that holds the cord set to the control module.

The power cord should now be connected to the control panel module.

**Step 14 – Make all connections from control panel to technology.**

In order to connect the control module to the fans and lights, you must first locate the following connections from the control module to the technology:

- Light supply wire from control module to light #1
- Fan supply wire from control module to fan #1
- Air tube from control module to the "T" on fan #1 (If necessary, use extension tubing and plastic fitting from cardboard box on pallet)
- Temp sensor (already connected)
- Sash sensor (already connected)

**NOTE: Please reference pictures from Steps 4, 6, 9 and 11.**

You should now have those connections located next to the technology.

Now connect all those connections to the technology.

**Step 15 – Plug the power cord in and reconfigure.**

Now plug in the controller. You will see it say "Booting" as it comes on. If it indicates hardware mismatch alarm 9a, follow the "Reconfigure process" combined with the GFH settings sheet to finish the installation.

Have a maintenance card in the card reader and follow the "reconfigure process" at Step #4 Delete Factory configuration.  Also set the days on the filter to the maximum of 730.  You will also now need to locate the GFH settings sheet that is in each command module for the settings to enter when it is called for during the "reconfiguration process."

If after a Reconfigure there is still a problem, check all of your connections to be sure they are properly seated.  Then unplug the controller to reboot it.  If it still gives an error after this, call Labconco Product Service.

# Re-Configuration Process

Events in which you have to "Re-configure"

- Installing or commissioning a GFH for the first time
- Replacing a fan board or a complete fan box
- Replacing an Electro/Acid Sensor
- Replacing a solvent sensor
- Replacing a RFID board
- Replacing a CPU board
- Replacing a complete control module
- Sash sensor failure
- Hardware Configuration mismatch 9A alarm

Before beginning, you will need to have the following:

- Green Fume Hood Settings sheet (example provided on next page)
- 6ft Ladder
- Any tools needed for removal of front panel
- Some white out, or a small sticker to mark the round RFID tags that are on the primary filters only (the primary filters are the lower ones that are in between the lights & fan box)
- Piece of paper and a pen
- Maintenance card
- The User card that is used to operate the hood you are going to re-configure

**Example of Protector Echo Filtered Fume Hood Settings Sheet**

**Labconco**

Fan set points are based on ASHRAE 110 testing results conducted at Labconco.

Fan Set point **Dflt 2850 rpm**
Fan Set point **Min 1500 rpm Variable Volume, 2850 rpm Constant Volume**

Semicon/Solvent sensor
**Trig. 3500mv** based on your LP questionnaire data LP #GFH-XXXXXXXXXX

Delay: **15 min**

Electro/Acid sensor
Trig. Factory set based on sensor ppm value of the gel sensor itself
Delay: **15 min**

Sash **Inverted Polarity**
Trig. **65%**

**Days on filter:** Set it to the max of **730** days. This is always set to the maximum of two years on every installation.

**Activated audible alarms**

All alarms are active (audible) out of the box.

**K,** Solvent alarm threshold permanently exceeded. Saturated filters modules

**N,** Acid alarm, threshold permanently exceeded. Saturated filter modules

**Q,** End of acid sensor lifetime alarm

**V,** 40°C temperature alarm exceeded in the enclosure

**W,** Top priority alarm 60°C temperature alarm threshold exceeded in the enclosure

This data is needed for initial commissioning and if a reconfiguration is needed on the hood during any service work.

## <u>Overview</u>

1. Identify why it is in mismatch.
2. Write down parameters under "Hood status" menu.
3. Remove front panel.
4. Delete current configuration.
5. Create new configuration.
6. Scan in filters.
7. Set Semicon Trig. Value.
8. Scan in User cards.
9. Enter network parameters (if applicable).
10. Set fan speeds.
11. Set alarm delays & choose sash type.
12. Authorize administrator for alarms.
13. Set audible alarms.
14. Calibrate the sash.
15. Turn on hood and check operation.

**Step 1 – Identify why it is in mismatch.**

You must first identify why it is in mismatch. To do this:

Insert the maintenance card in the cardholder on the GFH and in the window you will see:

**Hardware configuration mismatch 9A**
**(Maintenance)**

➢ **Hardware Mismatch**
**Hood Status**
**Administration menu**
**Maintenance menu**

At the **"Hardware Mismatch"** press **"Ok"** to open the menu.

Then arrow down to see which component it says has failed or is unidentifiable. If it is a fan, for example, you may reconfigure but if it is any other component you must contact Labconco Product Service.

So that the event can be logged, provide Labconco Product Service with the serial # of the control module along with the component that failed.

***Note at any time if the LCD screen loses illumination press **"Ok"** and it will light back up.***

If the **"Hardware Mismatch"** menu is not seen you may find it by opening the **"Hood Status menu."**

Arrow down to **"Hood Status"** and press **"Ok"** to open it.

**Step 2 – Write down parameters under "Hood Status."**

In case it is still not shown, press **"Ok"** to open the **"Hood Status"** menu again.

Then arrow up or down to record the following on paper:

**DHCP: X**

**IP: XXX.XXX.XXX.XXX**
**MSK: XXX.XXX.XXX.XXX**
**GW: XXX.XXX.XXX.XXX**

If gGuard is not installed, skip this step.

If DHCP is **yes** then you have a dynamic IP if **no** then you have a static IP which you must reenter completely.

**Elapsed Time**
**Filter X D (this is the # of days since install)**

**Fans**
**Set point Dflt. XXXX rpm**
**Set point XXXX rpm**

**Semicon S. trig value (example 3500)**
**Trig. <u>X</u>**
**Delay <u>X</u>**

**Sash**
**Which type (example. normal polarity)**
**Trig <u>X %</u>**

Now press **"X"** to return to the previous menu."

## Step 3 – Remove front panel.

Use your ladder and remove the upper front panel so you can access the RFID filter tags later in this procedure.

## Step 4 – Delete current configuration.

You should now see on the screen:

**>Hood Status**
**Administration menu**
**Maintenance menu**

Arrow down to **"Maintenance Menu"** then press **"Ok"** to select it.

You should now see:

**>Hood Integration**
**Semicon S. Alarm Delay**
**Electro S. Alarm Delay**
**Sash Sensor Trig.**
**Software Releases**
**Audible Alarm Mgmt.**

At **"Hood Integration"** press **"Ok."**

Then arrow down to **"Delete Factory Cfg"** and press **"Ok."**
You should now see **"0000000000."** Press **"Ok"** until the cursor is on the fourth zero from the right.

**"0000000000"**

Now arrow up once to make a    **"1"** press **"Ok."**
Arrow up twice to make a        **"2"** press **"Ok."**
Arrow up three times to make a  **"3"** press **"Ok."**
Arrow up four times to make a   **"4."**

You will now have **"0000001234."**

***Note if you make a mistake you can press **"X"** to move back to the left and change the entry.***

If it is correct then press **"OK."**
You should now see **"Hood will reboot please be patient."**

## <u>Step 5 – Create new configuration.</u>

After it reboots you will now see:

**>Language**
**Date and Time**
**Maintenance Menu**

Select **"Language"** by pressing **"Ok."**
Arrow down to **"English"** then press **"Ok."**
Now press **"X"** to return to the previous menu.

Arrow down to **"Date and Time"** press **"Ok."**

You should see:

**>Date**
**Time**
**Format**

Arrow down to **"Format"** then press **"Ok"** to set it to **"MMDDYY."**

If the date and time are correct you may **"Save and Exit"**

If date and/or time are incorrect, arrow up and down to each menu press **"Ok"** to select it and correct it.

Then **"Save and Exit"** after your changes.

You should now see:

**>Language**
**Date and Time**
**Maintenance Menu**

Arrow down to **"Maintenance"** and select it by pressing **"Ok."**
You will see **"Hood Integration"** press **"Ok."**

**"Create factory CFG"** press **"Ok."**

***Very important you should press **"Ok"** once and when it creates the CFG you will see the following***:

**"Discovered Hardware"**

**Fan(s) the # of fans that your hood has, either an M2, M3, M4, or M5**
**Electro (S): "Yes"**
**Semicon (S): "Yes"**
**Sash Sensor: "Yes"**
**Temperature Sensor: "Yes"**

***If one or more of the parameters is missing then press **"X"** to go back and create it again. If on the second attempt you do not see all components then recheck all component connections or you must contact Labconco Product Service.***

If all components are seen then press **"Ok."** The hood will now reboot.

**Step 6 – Scan in Filters.**

After rebooting, it will show:

**Access granted**
**(Maintenance)**
                **No Filters installed**
**>Hood Status**
**Administration menu**
**Maintenance menu**

Arrow down to the **"Administration menu"** and press **"Ok"** to select it.

You should see:

**Language**
**Date and Time**
**Filters**
**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

Arrow to **"Filters"** and press **"Ok"** to select it.

You should now see:

**>Filter list**
**Total replacement**
**Partial Replacement**

Arrow down to **"Total Replacement"** press **"Ok."**

Press **"Ok"** three times until you see **"Record new filter tags"** 0/12.

***Note it is important that the tags are not mixed up. The primary RFID tags remain on the primary filters and the secondary tags remain on the secondary filters.***

Now take off the RFID tags that are on your primary filters only.

Remove your Maintenance card.

Scan in your black RFID tags from your primary filters.

Place those RFID tags back on the primary filters.

Take off the RFID tags that are on your secondary filters only.

Scan in your black RFID tags from your secondary filters.

Place those RFID tags back on the secondary filters.

The **"0"** should now be the number of filters that you have. If not, then rescan them. If it is not in the database, it will scan it in. If it is in the database, it will say **"Already in database."**

When you have the correct number of filters press **"Ok"** three times.

Reinsert your maintenance card press **"Ok."**

You should now see **"Enter Filter Lifetime"**

**365D**
**5M**
**730MAX**

When commissioning a new hood or changing an Electro sensor, <u>always</u> **use the Max of 730 days.** Now take the **"Filter X D"** from step 2 that you wrote down and subtract it from 730.

For example,
    85D
     730
  -   85
  = 645

In the above example, the number you would enter would be 645 for the days.

Arrow down or up to get your number and then press **"Ok."**

You will now see:

**Filter list**
**Total replacement**
**Partial replacement**

Press **"X"** to return to the previous menu.

You should see:

**Language**
**Date and Time**
**Filters**

**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

Arrow to **"Alarms and Sensors"** and press **"Ok"** to select it.

**<u>Step 7 – Set semicon trigger value.</u>**

You should see:

**>Maintenance Alarm**
**Deactivation Rights**
**Semicon S. Trig. Value**
**Sash Sensor Calib.**

Select **"Maintenance Alarm"** by pressing **"Ok"** to select it.

You will now see:

**Maintenance Alarm Activated "Yes"**

Press **"Ok"** so it says **"No."**
Arrow down to **"Save and Exit."**
Press **"Ok"**

Arrow down to **"Deactivation Rights"** press **"Ok"** to select it.

You will now see:

**"Deactivation" "No."**

Press **"Ok"** so it says **"Yes."**
Arrow down to **"Save and Exit."**
Press **"Ok."**

Arrow down to **"Semicon S. Trig. Value"** press **"Ok"** to select it.

You will now see:

**>Value**
**CAS number**
**Molecule list**

Press **"OK"** to select **"Value."**

Now arrow up and down and put in **"X" for trig**. Value from your notes in step two or refer to your GFH settings sheet.  If unknown, use 3500 MV.

**"Confirm new value"** and press **"Ok"** to confirm.

Press **"X"** to return to the previous menu.

\*\*\*Disregard the sash calibration for now. It will be covered later.\*\*\*

Press **"X"** again to return to the previous menu.

**<u>Step 8 – Scan user cards.</u>**

Now you should see:

**Language**
**Date and Time**
**Filters**
**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

Arrow down to **"Users and Management"** press **"Ok"** to select it.

You should see:

**>Set**
**List**
**Delete**

Select **"Set"** by pressing **"Ok"** to select it.
Scan in the **"user card"** that was used at that hood.

Do this by removing the **"Maintenance card"** to scan in the **"user card."**

You should hear a beep and the screen will say **"user added."**

Now press **"Ok."**
Then **"X"** to return to the previous menu.

**<u>Step 9 – Enter network parameters.</u>**

You should now see:

**Language**
**Date and Time**
**Filters**
**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

Arrow down to **"Network parameters"** and press **"Ok"** to select it.

You will now see: **>Ethernet**
**Bluetooth**

Press **"Ok"** to select **Ethernet.**

**DHCP** press **"Ok"** to say **"No"** for static IP assignment if dynamic IP used.
**DHCP** should **be "yes."**
Refer to your notes from step 2 or use your lab diagram as a reference.

For Static IP enter what you recorded in step 2.
**IP:**
**MSK:**
**GW:**

When you enter the last number of the **"GW:"** check that you entered the correct numbers, if it is not correct then you must correct it before proceeding.

If correct, arrow down to **"Save and Exit"** and press **"Ok."**

You will now see **Ethernet**
**Bluetooth**

Press **"X"** to return to the previous menu:

**Language**
**Date and Time**
**Filters**
**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

***Do not touch the last two items in the menu.***

Press **"X"** again to return to the previous menu.

### Step 10 – Set fan speeds (NOTE: Fans must be off. Turn off now!)

You should now see:

**>Hood Status**
**Administration menu**
**Maintenance menu**

Arrow down to **"Maintenance menu"** press **"Ok"** to select it.

You should now see:

**>Hood integration**
**Fan set point**
**Semicon S. Alarm Delay**

**Electro S. Alarm Delay**
**Sash sensor trigger**
**Software releases**
**Audible alarm Mgmt.**

Arrow down to **"Fan set point"** press **"Ok"** to select it.

You should now see:

**>Default (2850)**
**Minimal (1500)**

Use the up or down arrows to put in **"X"** from your notes in step 2 or refer to GFH
Settings sheet.
**"Confirm new value"** press **"Ok"** to confirm.

Arrow down to **"Minimal"** press **"Ok"** to select it.
Use the up or down arrows to put in **"X"** from your notes in step 2 or refer to GFH
Settings sheet.
**"Confirm new value"** press **"Ok"** to confirm.

Place your Card back into the card reader.

Press **"X"** to return to the previous menu.

**<u>Step 11 – Set alarm delays and choose the sash type.</u>**

You should see:

**>Hood integration**
**Fan set point**
**Semicon S. Alarm Delay**
**Electro S. Alarm Delay**
**Sash sensor trigger**
**Software releases**
**Audible alarm Mgmt.**

Arrow down to **"Semicon S. alarm Delay"** press **"Ok"** to select it.

You will see:
**0̲5 Minutes**
**1 Min**
**60 Max**
Make the **0̲** a **1** for **15 Minutes**
Press **"Ok"** then **"Confirm new value"** press **"Ok"** to confirm.

You should see this menu again:

**>Hood integration**
**Fan set point**
**Semicon S. Alarm Delay**
**Electro S. Alarm Delay**

**Sash sensor trigger**
**Software releases**
**Audible alarm Mgmt.**

Arrow down to **"Electro S. alarm Delay"** press **"Ok"** to select it.

You will see:

<mark>0</mark>**5 Minutes**
**1 Min**
**60 Max**
Make the <mark>0</mark> a **1** for **15 Minutes**
Press **"Ok"** then **"Confirm new value"** press **"Ok"** to confirm.

You should see this menu again:

**>Hood integration**
**Fan set point**
**Semicon S. Alarm Delay**
**Electro S. Alarm Delay**
**Sash sensor trigger**
**Software releases**
**Audible alarm Mgmt.**

Arrow down to **"Sash sensor trig."** Press **"Ok"** to select it.

Refer back to your notes from step 2 for the type of **Sash sensor** and **trig. X%** value

Arrow down to your sash then press **"Ok"** to select it.
**"Confirm new value"** press **"Ok."**

You will see **Sash sensor trigger.**

Enter the **trig%** from step 2.
**"Confirm new value"** press **"Ok."**

For example type of sash **"inverted polarity" trig. 65%**

Press **"X"** to return to the previous menu.

**Step 12 – Authorize Administrator for alarms.**

You should see:

**>Hood integration**
**Fan set point**
**Semicon S. Alarm Delay**
**Electro S. Alarm Delay**
**Sash sensor trigger**
**Software releases**
**Audible alarm Mgmt.**

Arrow down to **"Audible alarm Mgmt."** Press **"Ok"** to select it.

You should see **"Admin Authorized No."** Press **"Ok"** to have it say **"Yes."**
Arrow down to **save and exit** press **"Ok."**

## Step 13 – Set audible alarms.

You should now see:

**Hood Status**
**Administration menu**
**Maintenance menu**

Arrow up to **"Administration menu"** and press **"Ok"** to select it.

You should now see:

**Language**
**Date and Time**
**Alarms and Sensors**
**Users and Management**
**Network Parameters**
**Erase History**
**Ventilation**

Arrow down to **"Alarms and Sensors."** Press **"Ok"** to select it.

You should see:

**>Maintenance Alarm**
**Deactivation Rights**
**Semicon S. Trig. Value**
**Sash Sensor Calib**
**Audible alarm activation**

Arrow down to **"Audible alarm activation."** Press **"Ok"** to select it.

Turn on alarms that are stated on the GFH settings sheet. For example **K, N, Q, V**, and **W.**

Arrow down to **"K."** Press **"OK"** to select it.
You should see **"Repl. Main filters: Off."** Press **"Ok"** to make it a **"Yes."**
Then arrow down to **"save and exit."** Press **"Ok"** to save and exit.

Repeat for all the remaining alarms.

After the last alarm is set, press **"X"** to return to the previous menu.

## Step 14 – Calibrate the sash.

You should see:

**Maintenance Alarm**
**Deactivation Rights**
**Semicon S. Trig. Value**
**Sash Sensor Calib**
**Audible alarm activation**

Arrow up to **"Sash sensor calib."** Press **"Ok"** to select it.

Follow the instructions:
**"Fully close the sash."** Press **"Ok."**
**"Fully open the sash."** Press **"Ok."**
**"Confirm new value."** Press **"Ok"** to confirm.

***Now lower the sash to a safe operating height.***

Press **"X"** to return to the previous menu.
Press **"X"** again to return to the previous menu.

You should see:

**Hood Status**
**Administration menu**
**Maintenance menu**

## Step 15 – Turn on hood & check operation.

Turn on the **"lights"** and **"fans."**
Arrow up to the **"Hood status menu."** Press **"Ok"** to double check your data.

Examples follow of numbers you may see from notes taken in Step 2.

Example of static IP (needed for gGuard)
**Ethernet network**
   **DHCP: No**
   **IP: 192.168.0.20**
   **MSK: 255.255.255.0**
   **GW: 192.168.0.1**

**Elapsed times**
   **Filter XD** ***Note** It will be 0 as the clock starts over at the time of
Reconfiguration (the memory is wiped clean). It displays the current days on the
filters, so for example tomorrow will show 1 then the next day a 2. However, the CPU
is still counting down the days from the number that you entered from step 5.

Example of fan speeds
**Fans**
   **Dflt 2850 rpm**
   **Set point 1500 rpm Variable Volume, 2850 rpm Constant Volume**

These values should be the ones that you entered earlier from your notes in step 2.

You should then see an rpm value (make sure hood is on and press **"Ok"** to refresh) for all the fans that your hood has based on the hood size (either a M2, M3, M4 or M5).

Example, M4 will have four fans. Your numbers will be different based on your parameters.
**Fan 1; 1533**
**Fan 2: 1522**
**Fan 3: 1511**
**Fan 4: 1630**
**Fan 5: -------**

Example
**Semicon Sensor**
      **Trig. M 3500 MV**
      **Delay 15mn**

**Electro Sensor**
      **Delay 15 mn**

**Sash**
**Type Inverted polarity**
**Trig. 65%**

Now check the audible alarm for the sash by raising the sash so it sounds. The height you hear it should be the upper end of the safe working height above the sash stop.

If not, make sure you calibrated it. If needed, recalibrate it until it is correct. To do this turn the hood off and reselect the sash type and then recalibrate it.
They should all match your notes from step 2 and your GFH settings sheet except that the days will start over at 0 and count to 730 or the number that was entered.

***If everything was entered correctly, the filtered hood will function properly. Otherwise you must turn it off and reenter the correct parameters. If you still have a problem please contact Labconco Product Service.***

# Certifying the Protector Echo Filtered Fume Hood

The filtered hood gives you the flexibility to change the airflow at the sash opening of your hood.  To determine the actual face velocity at the sash opening, airflow velocity readings will need to be taken.  This should be done across the sash opening of the hood in accordance with the *Industrial Ventilation Manual*.  Labconco recommends an average face velocity at the sash opening of 60 to 100 feet per minute.

Your Protector Fume Hood has been tested at the factory per ASHRAE 110-1995. All hoods achieve an "as manufactured rating" of less than 0.05 part per million (ppm) at 4 liters per minute (lpm); AM<0.05 (consult Labconco for individual fume

hood ratings).  For "field use" ASHRAE testing contact Labconco Sales Engineering Team or Customer Service for a certified on-site contractor. A "field use" ASHRAE method is used with isopropyl alcohol and a full report and method is available upon request and posted on Labconco's website.

**NOTE:  Face velocity profiles and smoke testing should be done periodically to ensure safe performance**.

**NOTE : Les profils de flux frontal et les tests de fumée devraient être régulièrement faits pour garantir une utilisation en toute securité.**

# CHAPTER 3
# PROTECTOR ECHO DIMENSIONS

The following pages provide dimensional data for the Protector Echo Benchtop (Figure 3-1) and the Protector Echo Floor-Mounted (Figure 3-2) Filtered Fume Hoods.

| | A | B | C | D |
|---|---|---|---|---|
| 4' Hood | 48.0" (121.9 cm) | 38.2" (97.0 cm) | 2 ea | 27.9" (70.9 cm) |
| 5' Hood | 60.0" (152.4 cm) | 50.2" (127.5 cm) | 3 ea | 36.9" (93.7 cm) |
| 6' Hood | 72.0" (182.9 cm) | 62.2" (158.0 cm) | 4 ea | 49.9" (126.7 cm) |
| 8' Hood | 96.0" (243.8 cm) | 86.2" (218.9 cm) | 5 ea | 66.9" (169.9 cm) |
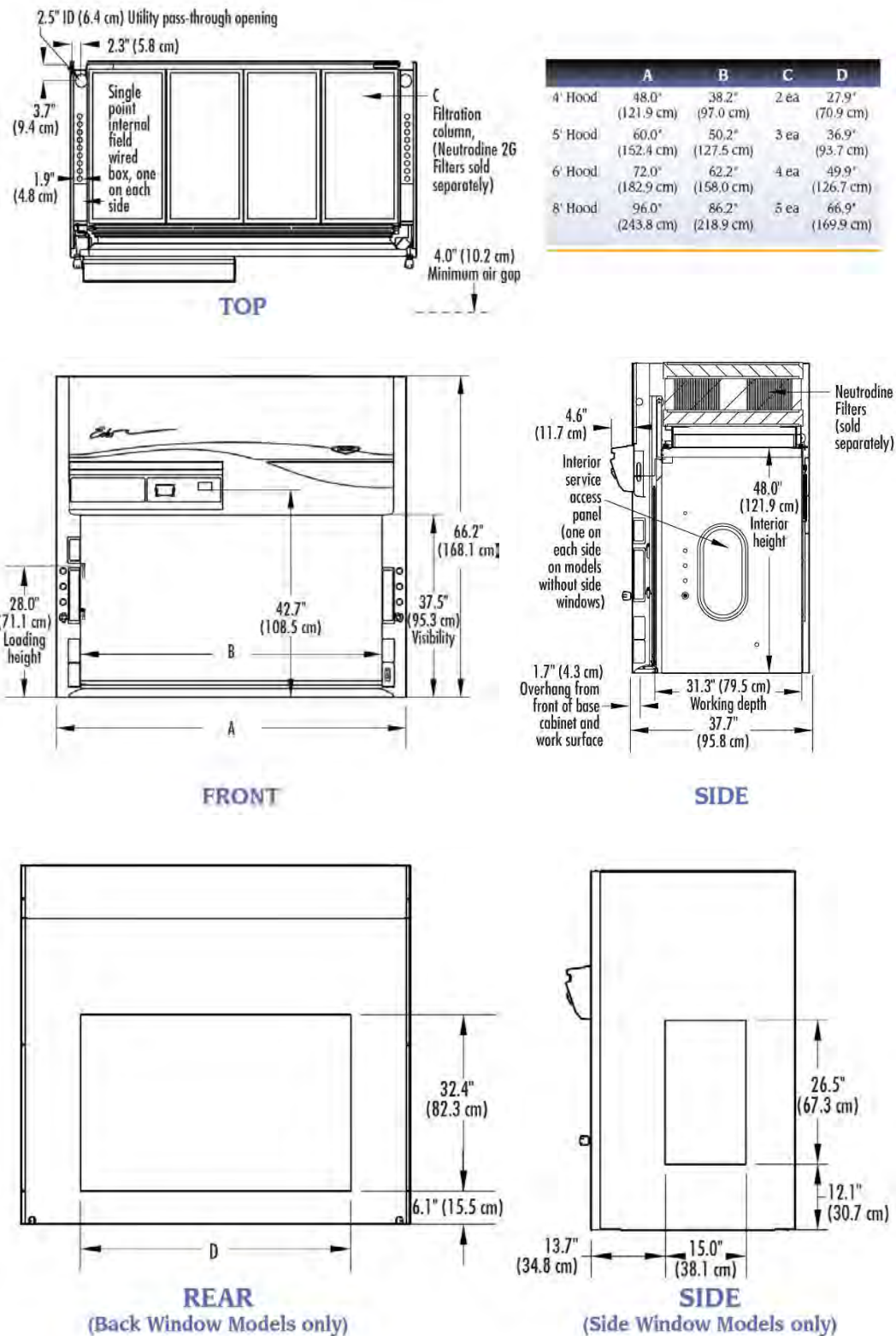
**Figure 3-1**
**Protector Echo Benchtop Filtered Fume Hoods**

**TOP**

2.5" ID (6.4 cm) Utility pass-through opening

2.3" (5.8 cm)

3.7" (9.4 cm)

1.9" (4.8 cm)

Single point internal field wired box, one on each side

C Filtration column, (Neutrodine 2G Filters sold separately)

| | A | B | C |
|---|---|---|---|
| 4' Hood | 48.0" (121.9 cm) | 38.2" (97.0 cm) | 2 ea |
| 5' Hood | 60.0" (152.4 cm) | 50.2" (127.5 cm) | 3 ea |
| 6' Hood | 72.0" (182.9 cm) | 62.2" (158.0 cm) | 4 ea |
| 8' Hood | 96.0" (243.8 cm) | 86.2" (218.9 cm) | 5 ea |

**FRONT**

A

B

73.5" (186.7 cm) Viewing height to floor

52.0" (132.1 cm) Working height from floor

13.2" (33.5 cm) Working height opening

64.0" (162.6 cm) Upper sash open height 63.6" (161. cm) Both sashes open height for loading only

102.2" (259.6 cm)

78.7" (199.9 cm)

**SIDE**

4.6" (11.7 cm)

4.0" (10.2 cm) Minimum air gap

Upper interior access panel (both sides)

E Upper working depth

F Lower working depth

37.8" (96.0 cm) Upper sash closed

38.8" (98.6 cm) Lower sash closed

Lower interior access panel (both sides)

78.7" (199.9 cm) Inside height

36.0" (91.4 cm)

D

| D | E | F |
|---|---|---|
| 37.7" (95.8 cm) | 29.7" (75.4 cm) | 28.7" (72.9 cm) |
| 43.7" (111.0 cm) | 35.7" (90.7 cm) | 34.7" (88.1 cm) |
| 55.7" (141.5 cm) | 47.7" (121.2 cm) | 46.7" (118.6 cm) |

**Figure 3-2**
**Protector Echo Floor-Mounted Filtered Fume Hoods**

# CHAPTER 4
# PROTECTOR ECHO
# SPECIFICATIONS

### Environmental Conditions

- Indoor use only.
- Maximum altitude: 10,000 feet (3,048 meters).
- Ambient temperature range: 41° to 104°F (5° to 40°C).
- Maximum relative humidity: 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).
- Main supply voltage fluctuations not to exceed ±10% of the nominal voltage.
- Transient over-voltages according to Installation Categories II (Over-voltage Categories per IEC 1010). Temporary voltage spikes on the AC input line that may be as high as 1500V for 115V models and 2500V for 230V models are allowed.
- Used in an environment of Pollution degrees 2 (i.e., where normally only non-conductive atmospheres are present). Occasionally, however, a temporary conductivity caused by condensation must be expected, in accordance with IEC 664.
- Electrical Ratings

| Volts AC | Phase | Cycle | AMP* |
|----------|-------|-------|------|
| 115 | 1 | 50/60 | 10 |
| 115 | 1 | 50 | 10 |
| 115 | 1 | 60 | 10 |
| 230 | 1 | 50/60 | 5 |
| 230 | 1 | 50 | 5 |
| 230 | 1 | 60 | 5 |

*Does not include current rating of receptacles.

WIRING DIAGRAM – ECHO HOOD
115 VOLT 50 / 60 HZ 230 VOLT 50/60 HZ
P/N 9582800 REV. B

# CHAPTER 5
# SETTING UP THE PROTECTOR ECHO FLOOR-MOUNTED FILTERED HOOD

Now that the site for your floor-mounted filtered fume hood is properly prepared, you are ready to unpack, inspect, install, and certify your unit.  Read this chapter to learn how to:

- Unpack and move your floor-mounted filtered hood.
- Set up the floor-mounted filtered fume hood on the floor.

Depending upon which model you are installing, you may need common plumbing and electrical installation tools in addition to 5/16", 3/8", 7/16", and 1/2" wrenches, ratchets, sockets, a nut driver set, a flat-blade screwdriver, a Phillips screwdriver, and a carpenter level to complete the instructions in the chapter.

> **!**
>
> **The Protector Echo Floor-Mounted Filtered Hood models weigh between 700 to 1500 lbs. (318-675 kg).  The multiple shipping pallets allow for lifting with a mechanical lift truck or floor jack. If you must lift the fume hood manually, follow safe-lifting guidelines.**
>
> **Les modèles filtrée protège-capot Echo monté au plancher pèsent entre 700 à 1500 livres. (318 à 675 kg). Les multiples palettes d'expédition permettent de levage avec un chariot élévateur mécanique ou prise de parole. Si vous devez soulever la hotte manuellement, suivre les directives safe-levage.**

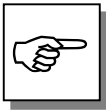# Unpacking Your Floor-Mounted Filtered Fume Hood

Your Protector Echo Floor-Mounted (Walk-In) Filtered Hood has been shipped to you as ten main component assemblies located on three shipping skids. The ten main component assemblies consist of the lower base, upper cabinet, sashes, lower sash track, corner posts, service fixtures, electrical connections, baffles, header, and front panel.

*The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.*

Carefully remove the shrink-wrap or carton on your filtered fume hood and inspect it for damage that may have occurred in transit. If your unit is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.
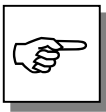
☞ DO NOT RETURN GOODS WITHOUT THE PRIOR AUTHORIZATION OF LABCONCO. UNAUTHORIZED RETURNS WILL NOT BE ACCEPTED.

☞ IF YOUR HOOD WAS DAMAGED IN TRANSIT, YOU MUST FILE A CLAIM DIRECTLY WITH THE FREIGHT CARRIER. LABCONCO CORPORATION AND ITS DEALERS ARE NOT RESPONSIBLE FOR SHIPPING DAMAGES.

Do not discard the shipping skid or packing material for your floor-mounted filtered fume hood until you have checked all of the components and installed and tested the unit. **Many components of the floor-mounted filtered hood are shipped loose such as baffles and corner posts and do not discard. See Figures 5-1 through 5-5.** Do not remove the filtered fume hood from its shipping skids until it is ready to be placed into its final location. Move the unit by placing a flat, low dolly under the shipping skid, or by using a floor jack.

[!] **Do not move the filtered hood by tilting it onto a hand truck.**

**Ne pas déplacer le capot filtrée en l'inclinant sur un camion de main.**

# Removing the Shipping Skid
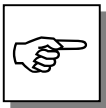
☞ LEAVE THE FILTERED FUME HOOD ATTACHED TO ITS SHIPPING SKID UNTIL IT IS AS CLOSE TO ITS FINAL LOCATION AS POSSIBLE. MOVE THE HOOD BY USING A SUITABLE FLOOR JACK, OR BY PLACING A FURNITURE DOLLY UNDERNEATH THE SKID. <u>DO NOT</u> MOVE THE HOOD BY TILTING IT ONTO A HAND TRUCK.

After you verify the filtered fume hood components, move your hood to the location where you want to install it. Then, follow the steps listed next to remove the separate shipping skids from the lower base and upper cabinet.

1. Remove the side panels by unscrewing the Phillips screws.

2. Find the hardware (bolts, washers, nuts) that attach the filtered fume hood to the skid and remove the hardware. Some hardware is on the sides and some is on the back.

## Sash Weight Release

On Filtered Floor-Mounted Hood models with vertical-rising sashes, the sash weights have been secured to the shipping skid. Remove the weights from the skid and attach them to the respective sash cables using the hooks provided.
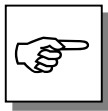
☞ **NOTE**: THE SASH WEIGHT ITSELF WAS INDIVIDUALLY MATCHED FOR THIS SPECIFIC FILTERED HOOD AND SHOULD NOT BE EXCHANGED ON ANY OTHER UNIT.

# Disassembly and Reassembly of the Protector Echo Floor-Mounted Filtered Hood

There may be some disassembly and reassembly work, due to the large physical size of your filtered hood and the ability to maneuver it into your laboratory. This is specific to each customer.
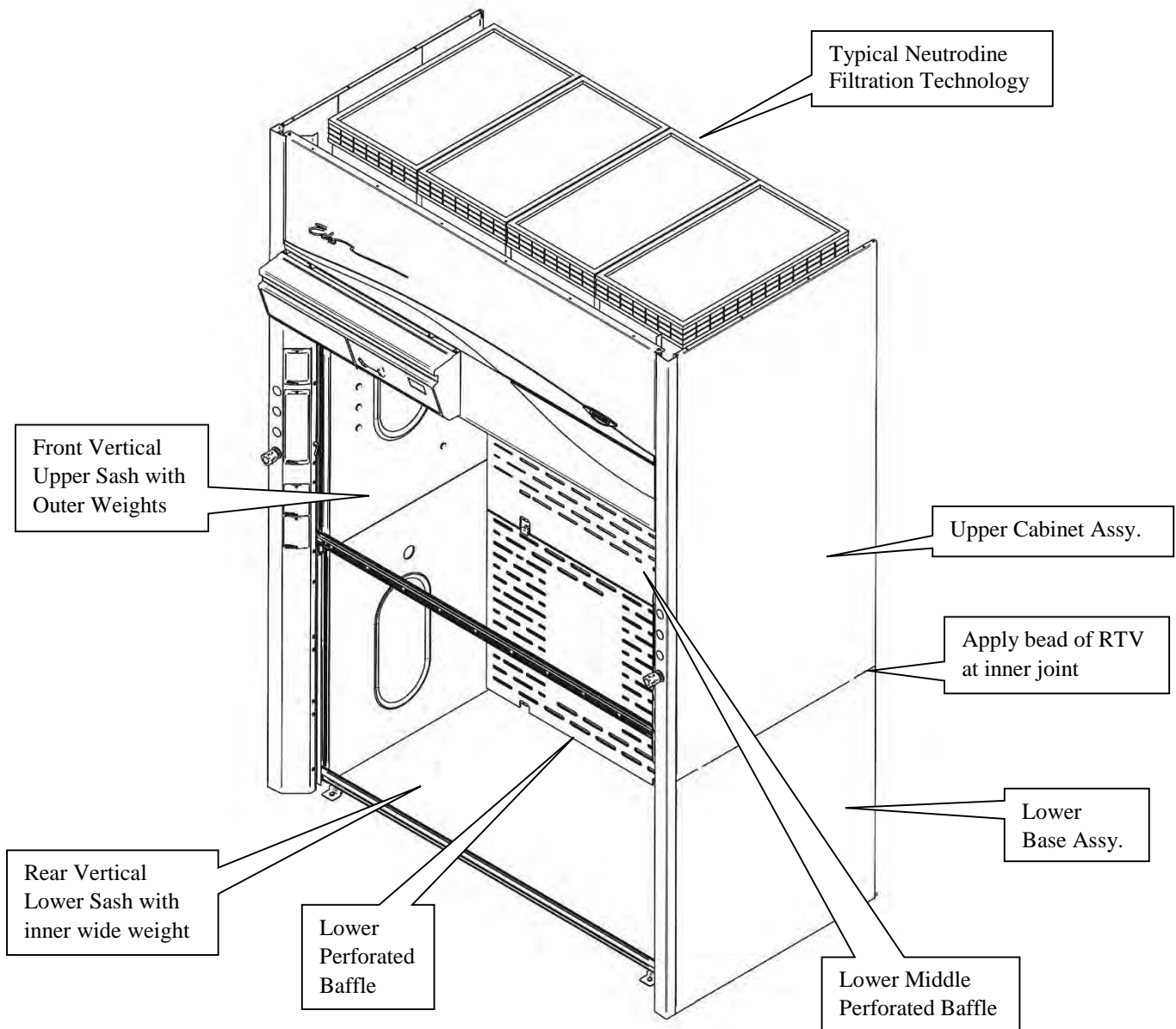
# Lower Base Installation of the Protector Echo Floor-Mounted Filtered Hood

The lower base features a panelized liner surrounded by an epoxy-coated steel and galvanized steel framework. Both the left and right side panels should be removed to allow for the correct placement of the lower cabinet assembly. Temporarily remove both vertical-rising sashes shipped with the lower base (on vertical-rising sash models only). Position the lower base on a level floor surface. Place the vertical-rising sashes back in place (on vertical-rising sash models only).

**NOTE:** If an optional floor surface is purchased, it should be positioned on the existing floor prior to placement of the lower cabinet installation. See Figure 5-1.

# Upper Cabinet Installation of the Protector Echo Floor-Mounted Filtered Hood

Remove the upper cabinet assembly side panels and front panels prior to cabinet placement. Then place the upper cabinet assembly on top of the lower base assembly, being careful to clear the lower base assembly during placement. To prevent spillage from seeping between the two liner assemblies, run a bead of white RTV sealant between the sections once they have been properly aligned. Mount the lower base to the upper cabinet using the ¼-20 hex head screws, lockwashers, and nuts included in your hood package. See Figure 5-2.

Typical Neutrodine Filtration Technology

Front Vertical Upper Sash with Outer Weights

Upper Cabinet Assy.

Apply bead of RTV at inner joint

Lower Base Assy.

Rear Vertical Lower Sash with inner wide weight

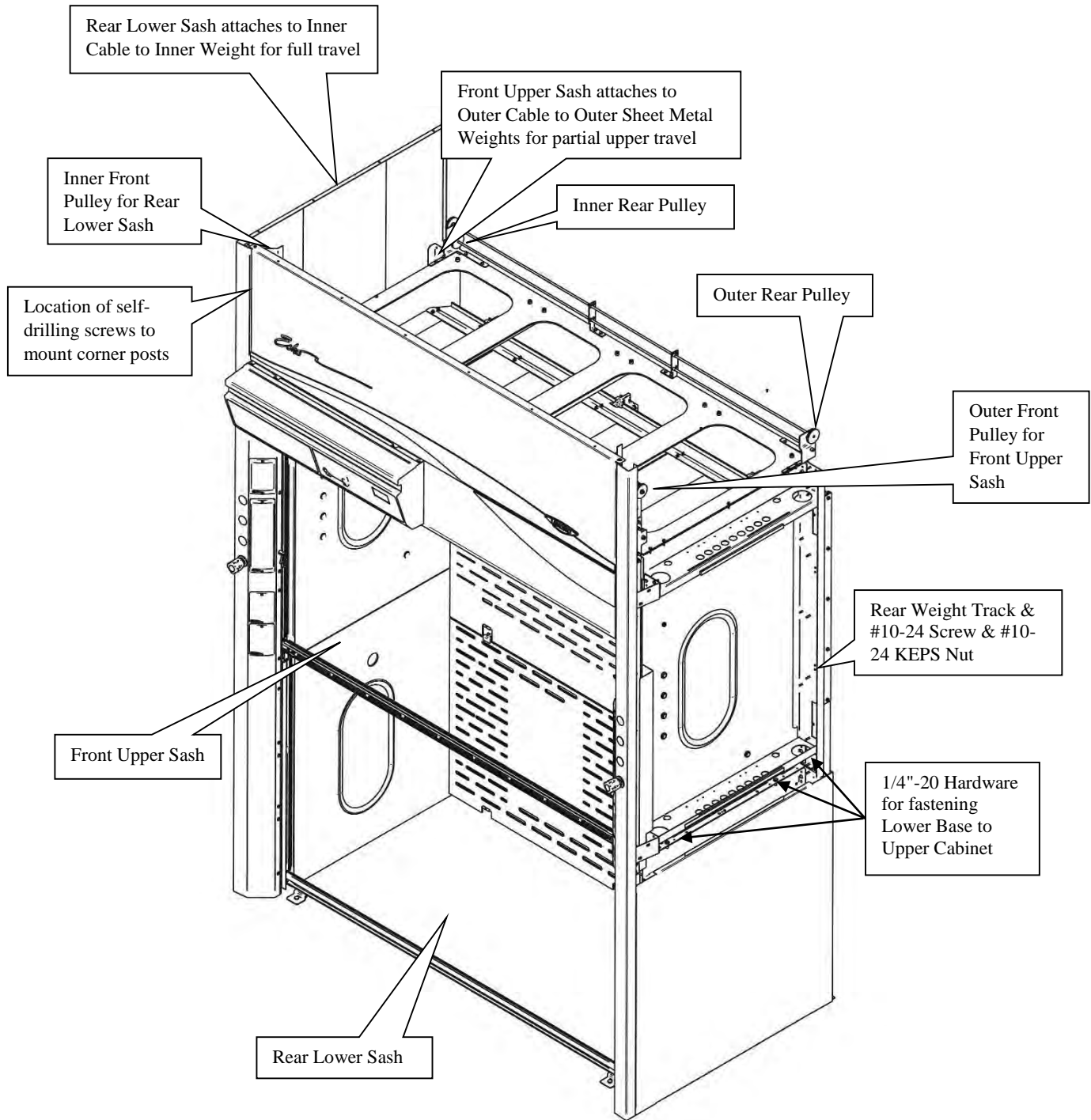Lower Perforated Baffle

Lower Middle Perforated Baffle

**Figure 5-1**

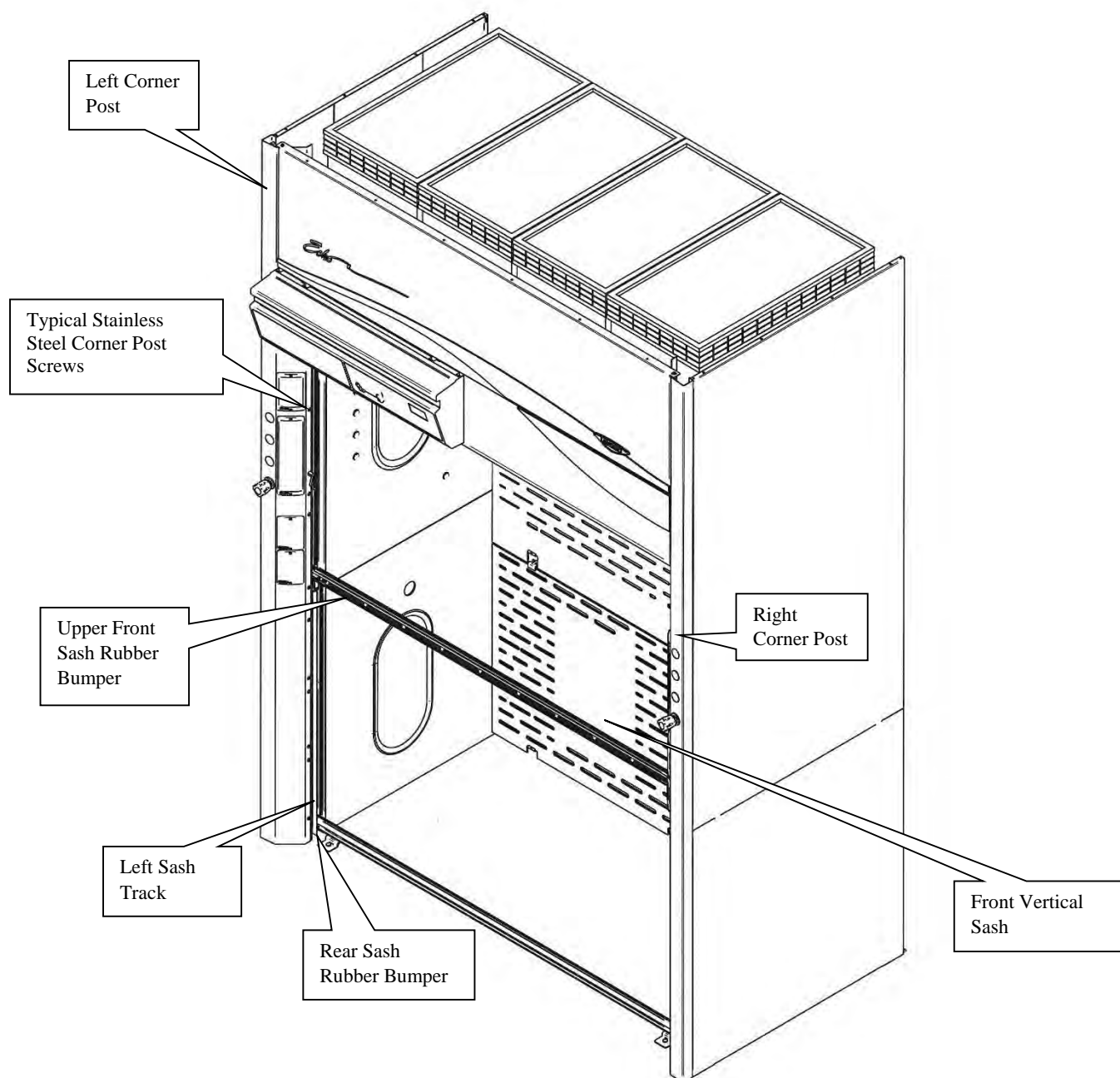# Vertical-Rising Sash Installation for the 4', 5', 6', & 8' Protector Echo Floor-Mounted Filtered Hoods

The Protector Echo Floor-Mounted Filtered Hood has two vertical-rising sashes. The rear vertical-rising sash moves from the floor to full open and picks up the front vertical-rising sash, which travels from the midpoint to full open. The vertical rising sashes are shipped captured between the hood side frame assemblies of the lower base assembly. Both upper and lower sash tracks are attached to the side frames. The hood should be at a pre-assembled state with the top section bolted to the base, and the sashes still captured between the two side frames. Bring the sides back and adjust the sash tracks left and right to assure that each sash will work properly and tighten all hardware.

Now that the sashes are in place, the counterbalance weights must be installed. The large single sheet metal sash weight is installed in the middle and attached to the lower rear sash. The two individual sash weights counterbalance the front vertical-rising sash; these weights have rollers and ride in the rear sash tracks that straddle the middle sheet metal sash weight. Install the rear weight tracks for the individual sash weights with the #10-24 screws and #10-24 KEPS nuts supplied. See Figures 5-2, 5-3, and 5-4. It is vitally important that the front upper and lower sash tracks are fully aligned and the strap plates are used to secure this alignment. See Figure 5-3 and Figure 5-4. Once the sashes are aligned and operating freely, secure the lower base to the floor with sealant or fasteners. (Note: Hardware not supplied due to installation variables.) Securing the lower base will ensure the sashes will work freely.
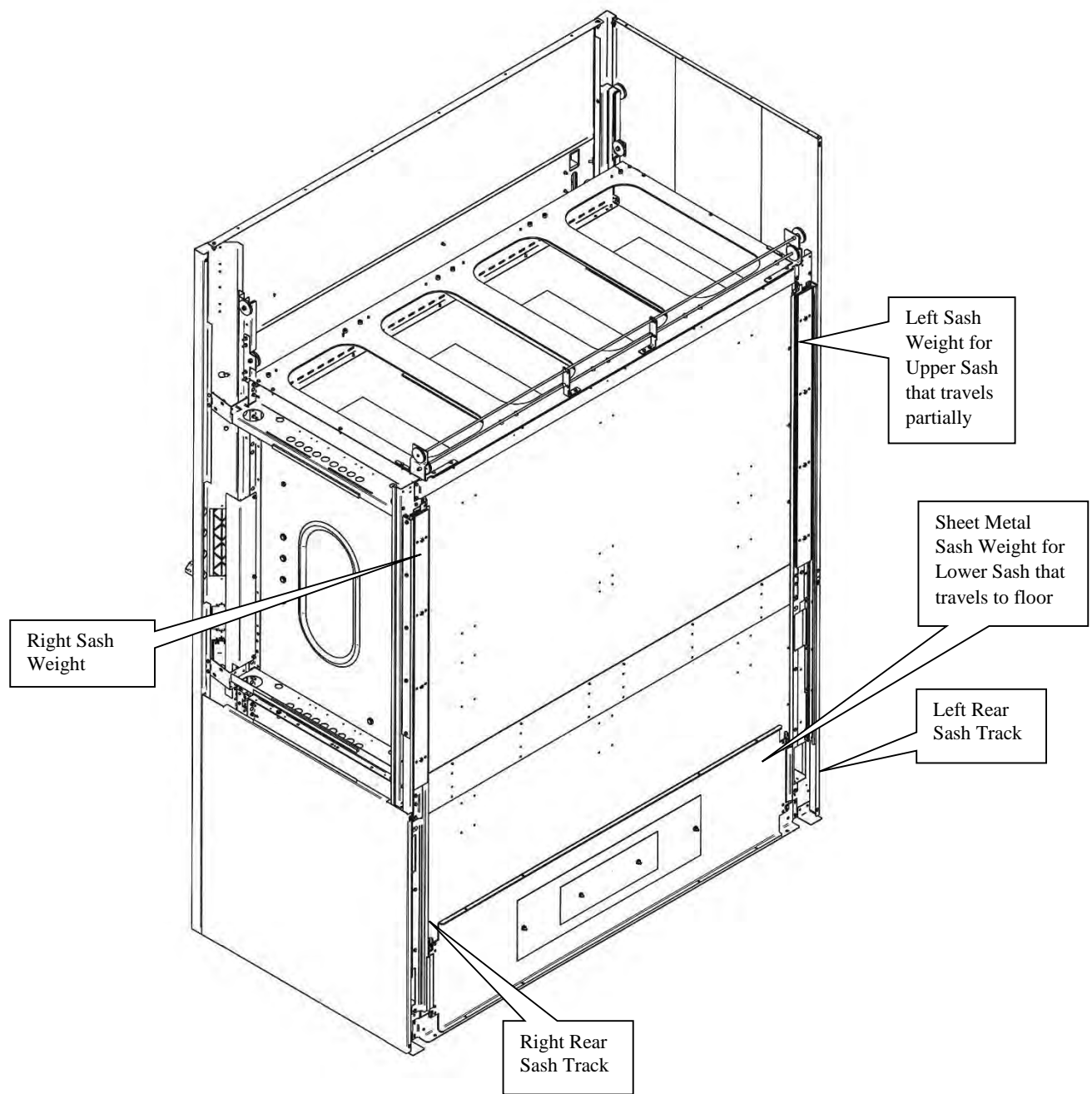
As a last step, install the four rubber bumpers with #6 screws supplied. One set of rubber bumpers prevents the front upper sash from traveling too low. The second set of rubber bumpers prevent the rear lower sash from touching the floor and provides a good sweep of clean air across the floor. See Figure 5-3.

Rear Lower Sash attaches to Inner Cable to Inner Weight for full travel

Front Upper Sash attaches to Outer Cable to Outer Sheet Metal Weights for partial upper travel

Inner Front Pulley for Rear Lower Sash

Inner Rear Pulley

Outer Rear Pulley

Location of self-drilling screws to mount corner posts

Outer Front Pulley for Front Upper Sash

Rear Weight Track & #10-24 Screw & #10-24 KEPS Nut

Front Upper Sash

1/4"-20 Hardware for fastening Lower Base to Upper Cabinet

Rear Lower Sash

**Figure 5-2**

Left Corner Post

Typical Stainless Steel Corner Post Screws

Upper Front Sash Rubber Bumper

Left Sash Track

Rear Sash Rubber Bumper

Right Corner Post

Front Vertical Sash

**Figure 5-3**

Left Sash
Weight for
Upper Sash
that travels
partially

Sheet Metal
Sash Weight for
Lower Sash that
travels to floor

Left Rear
Sash Track

Right Sash
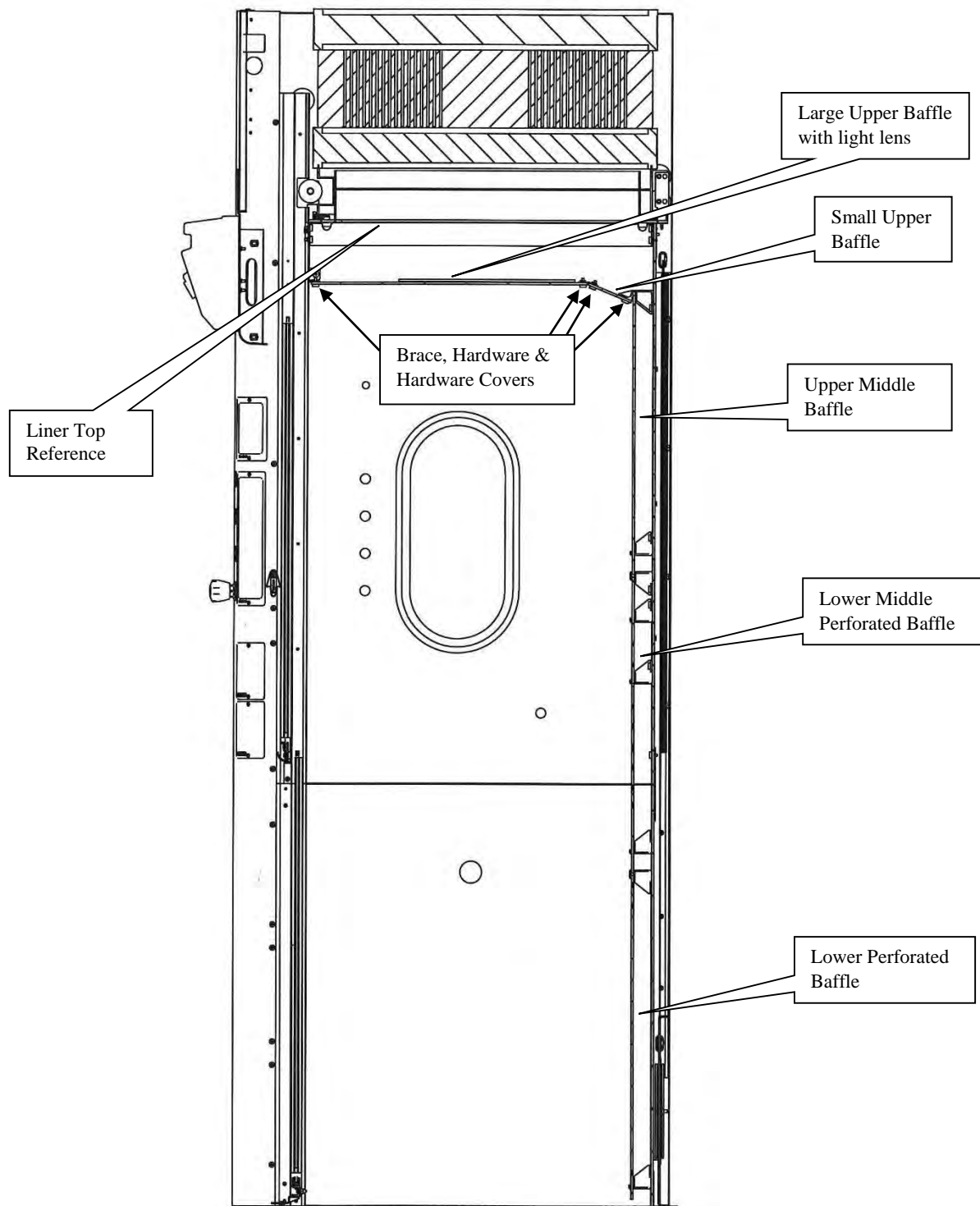Weight

Right Rear
Sash Track

Rear View

**Figure 5-4**

# Corner Post Installation for the Floor-Mounted Filtered Hoods

Both left and right corner posts have been shipped uninstalled. The one-piece corner posts are to be installed once the upper and lower cabinet assemblies have been properly positioned.

The edges on the corner posts fit directly onto the side frames. The front inner edge of both corner posts are held in place by stainless steel machine screws. The outer back edge of both corner posts are held in place with steel self-drilling screws. The screws are included in the hood manual packet. See Figure 5-2 and Figure 5-3.

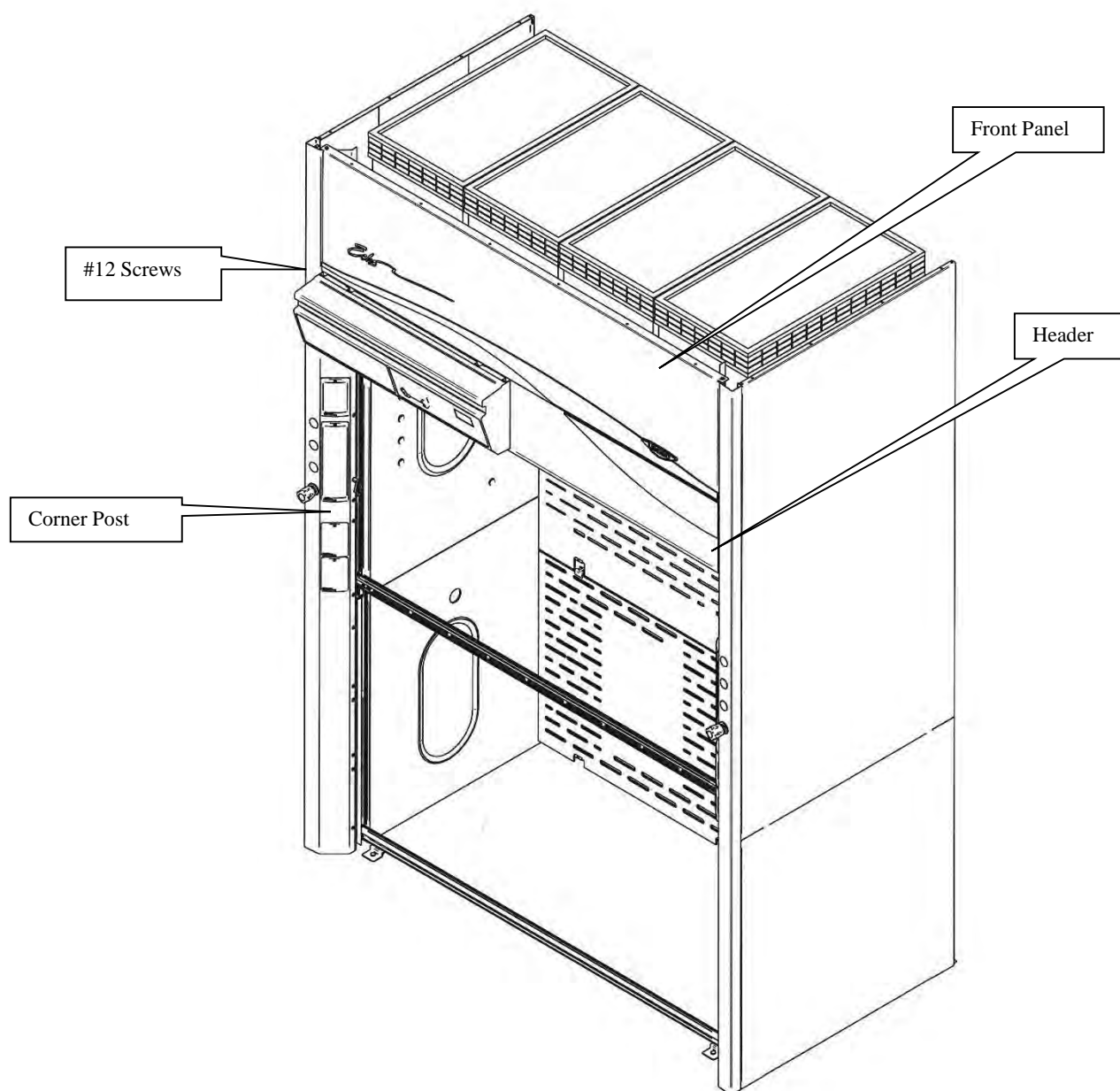# Baffle Installation for the Floor-Mounted Filtered Hoods

The baffles are critical to the proper airflow and performance of the hood. Be sure the baffles are resting in the proper baffle mount supports. Pay attention to the upper baffles that require a small baffle connected to a large baffle via a brace, hardware, and hardware covers. See Figures 5-1 and 5-5 for various sizes of baffles and their orientation.

Large Upper Baffle with light lens

Small Upper Baffle

Brace, Hardware & Hardware Covers

Upper Middle Baffle

Liner Top Reference

Lower Middle Perforated Baffle

Lower Perforated Baffle

**Figure 5-5**

# Header Installation for the Floor-Mounted Filtered Hoods

The header is shipped separately in its protective packaging.  To install, the header is fastened to the corner covers by four #12 screws.  Reach behind the corner posts from the side and install the screws to support the header.  See Figure 5-6.

Front Panel

#12 Screws

Header

Corner Post

**Figure 5-6**

# Front Panel Installation for the Floor-Mounted Filtered Hoods

The hood front panel is shipped separately and is protected.  To install each panel, hang the two plastic cylinders on the backside of the front panel over the corner posts. The bottom of the front panel will then slip behind the header once it has been properly secured at the top.  See Figure 5-6.