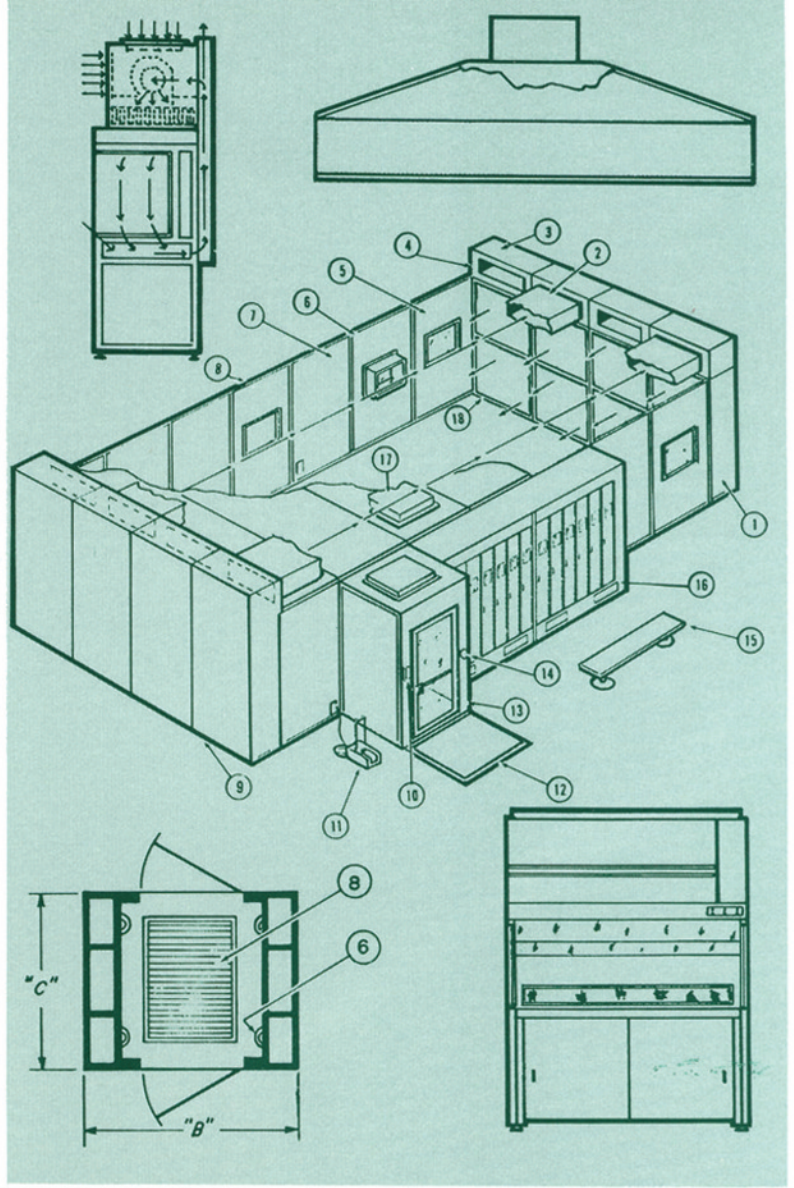
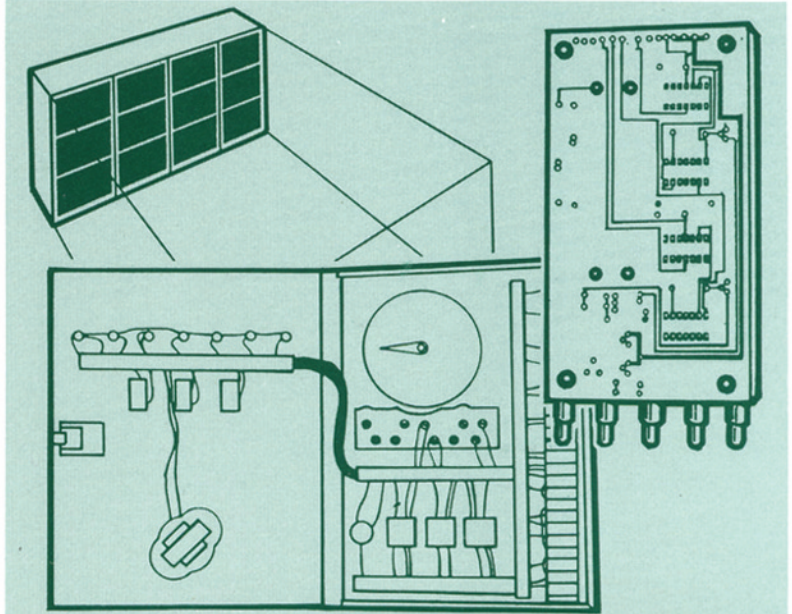


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PRODUCTS MANUAL





HALCO PRODUCTS COMPANY

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PASS-THRU MODULES INSTALLATION INSTRUCTIONS SWING TYPE DOORS

PASS-THRU MODULES Swing type doors

MODEL#AS SHOWN ON DATA PLATE
SN: AS SHOWN ON DATA PLATE



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HALCO
PRODUCT
INFORMATION

300.1001

CLEANROOM PASS-THRU



Applications

Hospitals
Bio Containment Labs (BSL-1-4)
Pharmacies
Military
Radioactive Facilities
Pharmaceuticals Manufacturing
Cultivation Rooms

Functional pass-thrus are essential for maintaining the integrity and cleanliness of a cleanroom. Pass-thrus allow material to pass into and out of the cleanroom with minimal contamination. Halco™ pass-thrus have many features to ensure functionality and ease of operation. Our pass-thrus have mechanical or electrical interlocks, which ensure that only one door may be open at a time, reducing airborne contamination. Our pass-thrus come in dozens of sizes, materials and finishes, and a variety of additional options, including HEPA filtered and fire rated for state and local codes, ADA compliance, and BSL-3/4 seals.

CONSTRUCTION MATERIALS AVAILABLE

- Aluminized steel (ALST)
- Steel (painted or unpainted) (ST)
- Stainless 304/316 steel (SS)
- Plastic (PP)
- Fire rated (FD)

DOORS:

The doors have a stainless steel frame with tempered safety glass windows, optional amber (gold color) or fire rated available.

HARDWARE:

Door is hinged and uses stainless steel hinges and latch handle with gasketed seal to ensure no cross-contamination.

INTERLOCK:

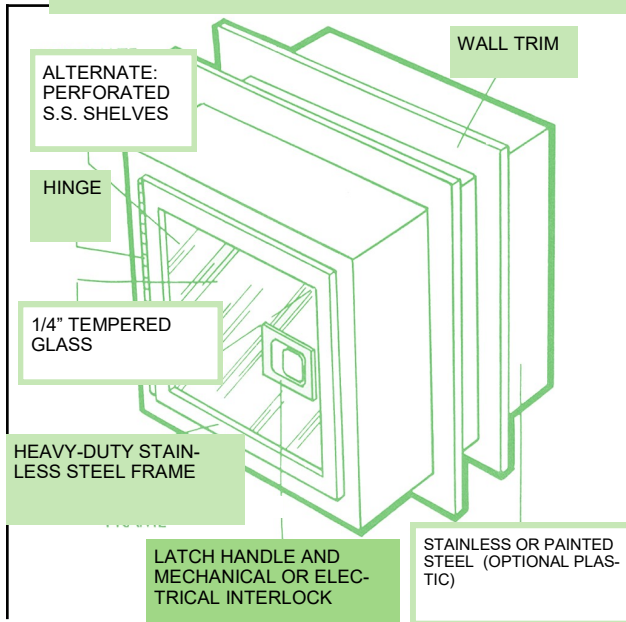
The mechanical or electrically operated interlock system has a specially concealed latch that allows for doors to be opened one at a time. This guarantees the integrity of the clean room.

- Mechanical Interlock (MI)
- Electrical Interlock (EI)

INSTALLATION:

The pass-thru can be flush mounted to the clean room wall side or centered, inserted into the wall opening and held in place with the stainless steel angle.

SPECIFICATIONS



CART PASS-THRU

Dedicated isolation and decontamination when transferring materials in and out of ISO areas

- Auto Doors
- Interlocks
- Floor and Trays
- Safety Glass
- Exhaust Connection
- UV Lighting
- Wall Bumpers
- Amber Glass
- HEPA filtered
- Purge timer (ADJ)
- Challenge port
- DP gauge
- Pilot lights
- Sloped top
- Roll-up doors
- Fire rated

CART PASS-THRUS ALLOW MOVING MATERIALS ROOM TO ROOM AND MINIMIZE CONTAMINATION.



OPTIONS:

- **Fire Rated**
- Programmable logic controller
- Adjustable stainless steel shelves (solid or perforated)
- 304/316 stainless steel laminated interior
- Fluorescent/UV germicidal lights
- Explosion proof
- Talk-thru installed in doors
- Additional doors
- Inert gas purge
- Motorized doors
- Indicator lights
- Roll-up doors
- Door status lights
- Hazardous location
- HEPA filtration
- ULPA filtration
- Aerosol injection port
- Upstream sample port
- Lead lined
- Hanging rod
- Fire door
- Ion static elimination
- L-shaped
- Custom sizes
- Support gussets
- Support legs
- Sloped top
- BMS alarm integration
- Card reader security

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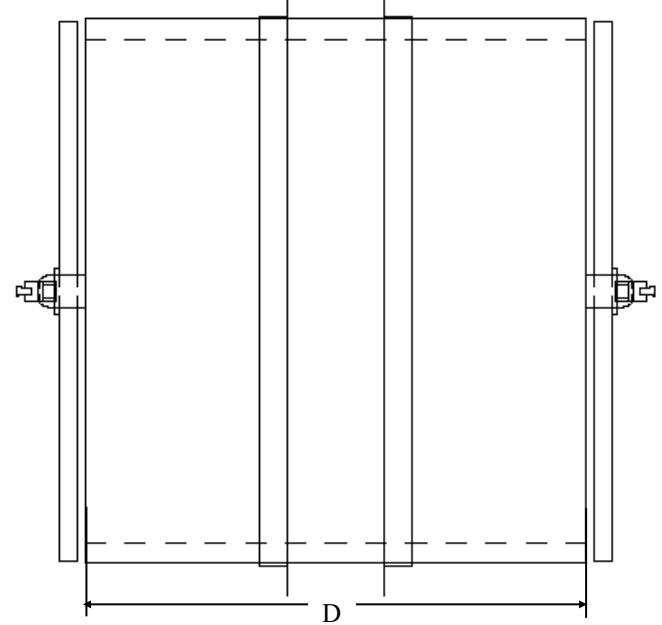
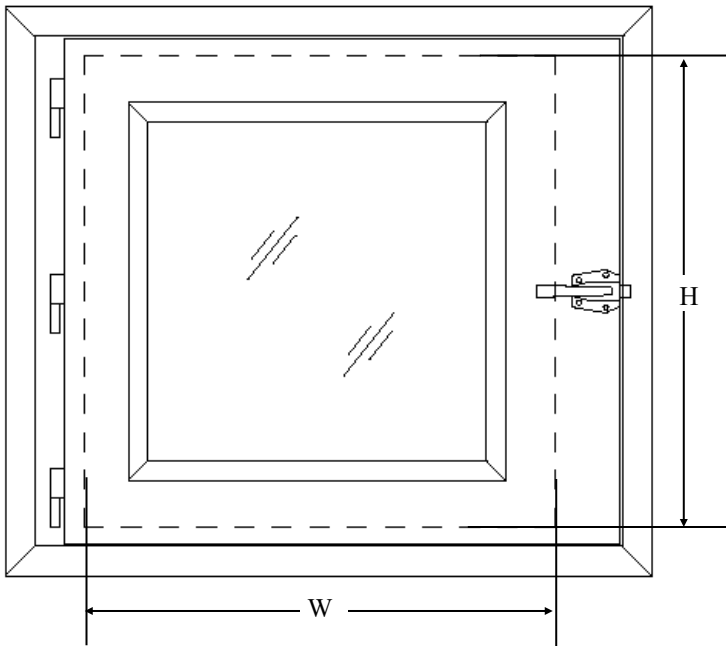
E-Mail: Info@Halco-Products.com

Website: halco-products.com

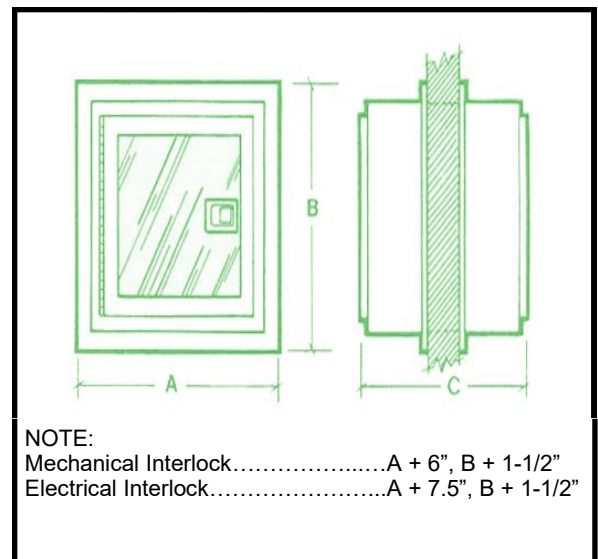
Standard Pass-Thru Physical Layout Description and Diagram

Halco Pass-Throughs flush- or center-mounted

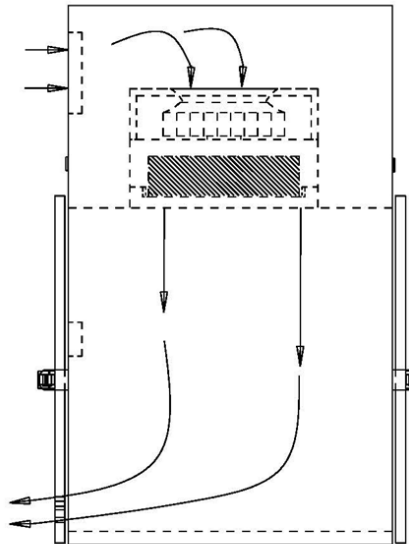
Halco offers designs for both requirements. Our system mounts flush against the cleanroom wall to eliminate particle accumulation and simplify cleaning. Flush-mount chambers protrude into the “dirty” side room and can be braced, if needed; Halco provides supports for this purpose. Alternatively, chambers can be specified for center-mounting in nearly any wall thickness. Electronic pass-throughs can even be specified with access doors on adjacent corner walls.



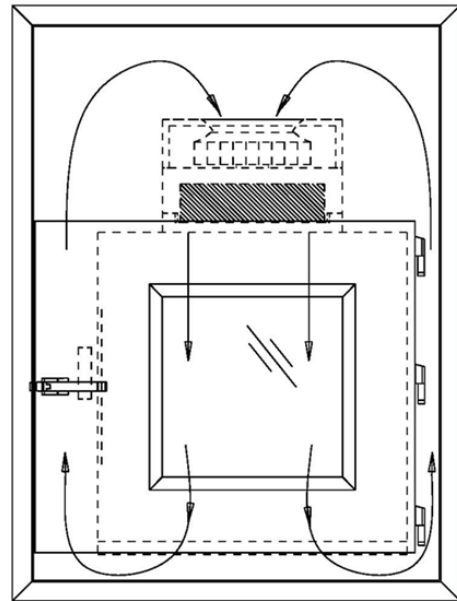
Inside Dimensions			
Model No.	W	H	D
PT1212-13	12"	12"	13"
PT1818-18	18"	18"	18"
PT2424-24	24"	24"	24"
PT2430-24	24"	30"	24"
PT3024-24	30"	24"	24"
PT3030-30	30"	30"	30"
PT3636-36	36"	36"	36"
<i>*Other sizes available upon request</i>			



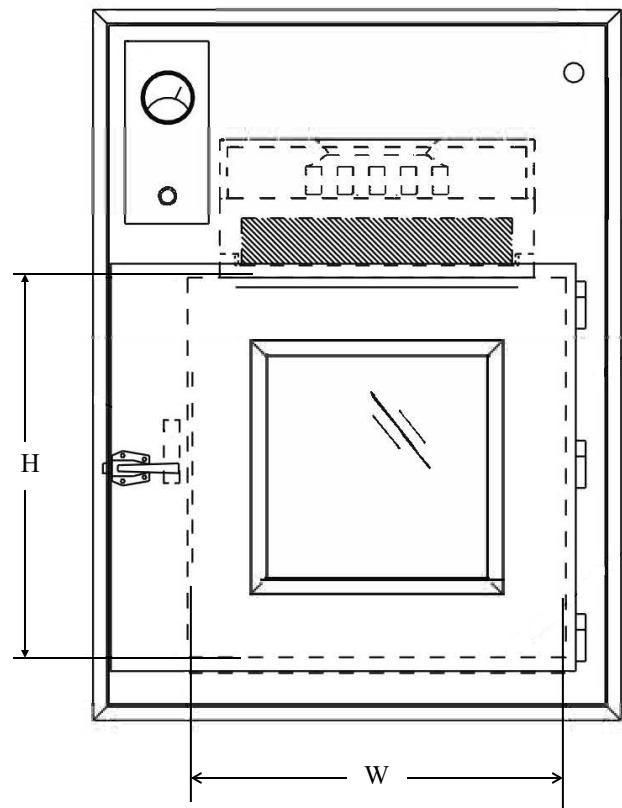
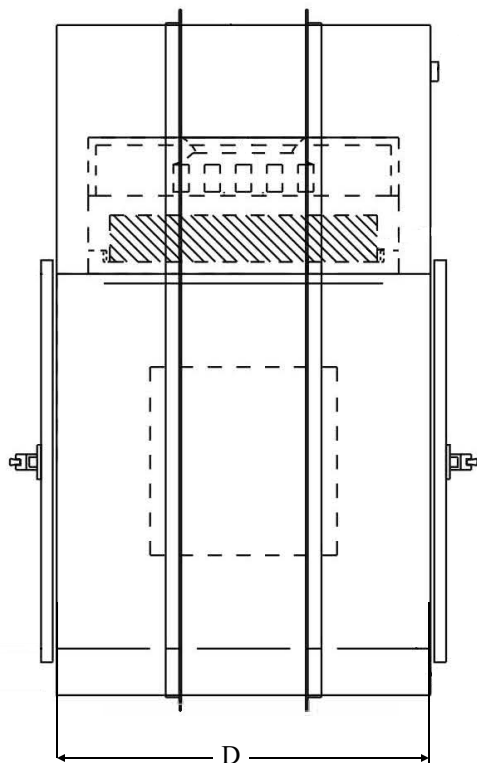
HEPA Filtered Pass-Thru Physical Layout Description and Diagram



SINGLE PASS HEPA FILTRATION
(FAN RUNS CONTINUOUSLY)



RECIRCULATING HEPA FILTRATION
(FAN ON AN ADJUSTABLE TIMER)



Hepa Filtered Styles

100% Recirculated



These pass-through blower modules have RECIRCULATED air flow within the module to provide ISO rated cleanliness.

We can provide options for removable shelves or base sections for serviceability.

All of our pass-throughs are interlocked so only one door opens at any given time.

Single Pass



Ducted



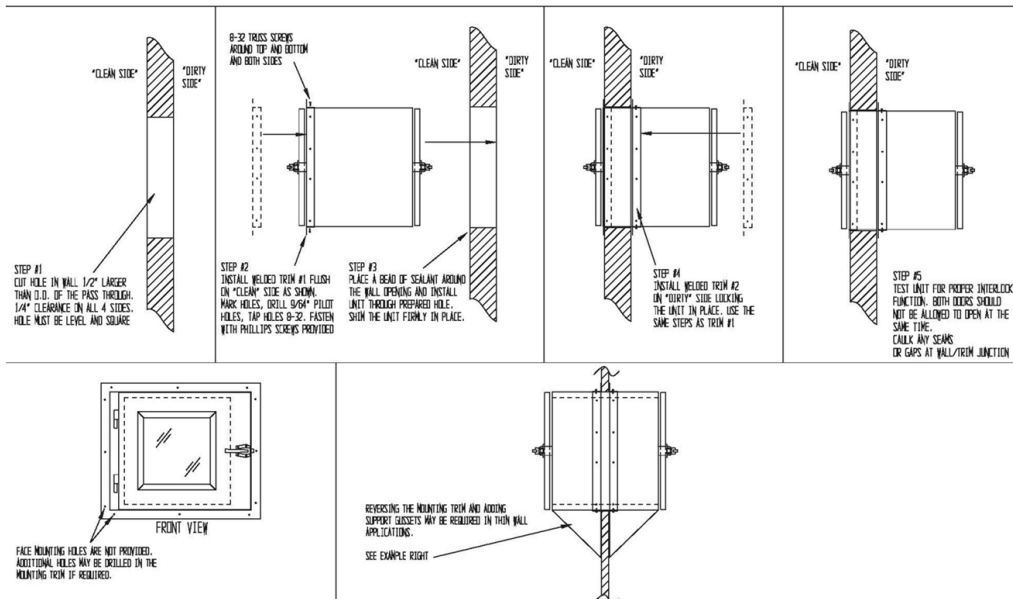
Typical Install Detail

PASS THROUGH INSTALLATION INSTRUCTIONS

TOOLS REQUIRED:

LEVEL, SQUARE, CORLESS DRILL
PHILLIPS SCREWDRIVER, 9/64 DRILL BIT, 8-32 TAP
CAULKING GUN, SEALANT OR CAULKING

RECOMMENDED PASS THROUGH INSTALLATION INSTRUCTIONS ARE SHOWN BELOW. PASS THROUGH MAY BE CENTERED IN THE WALL TO PROTRUDE EQUALLY ON BOTH SIDES. CUSTOMER/INSTALLER PREFERENCE.
(NOTE: TRIMS ARE FULLY WELDED AND POLISHED ON BOTH SIDES TO ACCOMMODATE ANY TYPE OF INSTALLATION)



BSL Rated Pass Throughs



- Inflatable door seals
- Access ports for sterilization
- Positive interlock system
- Viewing windows
- HEPA filtration and ventilation

Customized specifications upon request.
Please contact our office for details.

Halco Products Company, Inc.



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07/30/2025

INSTALLATION & Maintenance INSTRUCTIONS

PASS-THRU MODULE **STANDARD OR HEPA FILTERED** **SWING STYLE DOORS**

Congratulations on purchasing your HALCO™ Pass-Thru Module.

Correct and meticulous care of your installation will ensure many years of trouble-free service. Your Pass-Thru module offers an effective way to reduce contamination carried by Materials and parts entering or leaving a controlled area. The Pass-Thru Module can solve many of your decontamination problems.

A. Requirements for installation

- 1.0 Pass-Thru Module installation must be accomplished by experienced trained professionals having experience in the Controlled Environmental Facility (CEF) Clean Room field.
- 1.1 Pass-Thru Modules final location must be free and clear of debris and impediments from floor to ceiling to allow for overall clearances on all sides and above when completed.
- 1.2 **Prior to any work**, you must verify:
 - a. Required orientation as to entrance and exit for the final location of the Control panel if unit is a HEPA filtered module.
 - b. location of module is free and clear of debris.
 - c. (IMPORTANT) Opening must be internally secured with framing of wood or steel structural, to properly support Module weight within wall.
 - d. Verify Pass-Thru orientation and location, prior to any work.
 - e. Verify Entry & Exit sides prior to beginning any work.
 - f. you have the required tools and equipment to complete the installation without any delay or problems.
- 1.3 **REQUIRED TOOLS:**
 - a. Basic hand tools screwdrivers, wrenches, Electrical Meter if unit is a HEPA filtered design, pry bars, tape measure, flashlight, battery operated drill and hex driver bits, masonry bits and drill bits, shop vacuum, drop cords. And any miscellaneous tools that may be required for job specific needs.
- 1.4 **REQUIRED EQUIPMENT:**
 - a. Ladders 10' or 8'
 - b. Lift truck or pallet jack to move crates to location.

(**WARNING**, Make sure there are no sprinkler mains or equipment above work location)

B. INSTALLATION

- 2.0 Halco™ Pass-Thru modules are built and shipped in one section. There is a wall trim frame shipped loose for field mounting. Many times, there are bottom support brackets and sloped top sections that must be

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Visit our WEBSITE at www.halco-products.com

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installed during installation. Verify that the crates are not damaged or destroyed from shipping and handling. If you find damage immediately report it to your supervisor prior to proceeding. Verify that you have the correct module prior to opening any crates. Once you have verified that you have the correct matching modules, and that you have the correct location of the installation, carefully bring the equipment to the location of the installation.

- 2.1 **PASS-THRU SECTION:** Uncrate and open the crate being careful to avoid scratching or denting interior components. Some Pass-THRU modules are shipped on their side.
(**WARNING**) do not remove any cribbing, Shipping braces, or adhesive protective plastic on surfaces, prior to tipping up this module. It is important to avoid bending or damaging the geometry of the door frames. The door frames must remain square for proper door swing operation upon completion.
- A. Pre-Measure opening to verify that the module will fit.
 - B. When ready move the crate near the final location and gently tip up avoiding damaging the module. Make sure that you have the ENTRANCE & EXIT DOORS in the correct orientation.
 - C. DO NOT remove cribbing, shipping braces, or adhesive protective plastic on surfaces.
 - D. Set the module in the opening. These modules can be centered or flush mounted to either side per specifications. If flushed to one side the proper bottom brackets are to be installed per specifications.
 - E. Project approved adhesive or caulk should be applied to wall joints for a good joint seal. Take care to avoid soiling the adjacent areas.
 - F. Locate the Wall trim. Holes are predrilled on the trim. Assemble the trim to the pass-thru and mark the holes on the pass-thru. Drill each hole to match the fastener and then Tap the hole prior to setting the screws.
 - G. Trim frames are made 1/8" larger to avoid scratching the module when putting them on. This also allows for slight bend deviations. With the trim installed with an even gap all the way around, caulk the opening for a finished product. You can also reverse the trim and Install some face mounted fasteners, so the leg does not protrude and then it is just an even gap fill around the perimeter.
 - H. If this module requires a Sloped top set and install at this time.
 - I. If electrical wiring is required, set up for local switch per code. Connect all wiring per instructions provided.
 - J. Installation is complete.
- 2.2 **START, TEST and VALIDATION:** It is important this module be started up and evaluated to verify proper operation. Formal Start up documentation is included in this package for your use in properly accomplishing this work.
- (**NOTE**) If Start-up documentation is not completed dated & Signed, HALCO™ warranties "ARE NOT" applicable.
- A. Locate and complete the Start-up tasting and validation documents.
 - B. Remove all plastic protective sheeting and finally clean all surfaces.
 - C. Complete Customer training and familiarize them with operation.
 - D. Set up in the Maintenance program for follow up maintenance as required in HALCO service manuals.

INSTALLATION IS COMPLETE

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MAINTENANCE INSTRUCTIONS

3.0 BASIC CARE AND CLEANING

- A. Attention must be paid to the IQ/OQ/PQ qualifications for the project location.
- B. For standard applications, wash the module with a mild anti-bacterial soap “APPROVED” by the site manager prior to starting any work.
- C. Use a clean non-shedding wipe, applying light pressure to avoid scratching any sensitive surfaces.
- D. Rinse with Clean Water and dry using non shedding wipes, non-abrasive cloths or a chamois.
- E. A final anti-bacterial spray should be considered to try and remove any germs or biologicals that may have been left behind.

4.0 GENERAL MAINTENANCE

- A. Attention must be paid to the IQ/OQ/PQ qualifications for the project location.
- B. **Standard pass-thru modules** must be cleaned and tested on an annual basis for operation and compliance to the IQ/OQ/PQ qualifications for the project location.
- C. **Hepa filtered Modules** must be cleaned and tested on an annual basis for operation and compliance to the IQ/OQ/PQ qualifications for the project location. The HEPA filter should be tested and/or replaced when tested to be contaminated, defective or a reduction of 25% airflow from initial start-up.
- D. Accurate testing documentation shall be maintained per the IQ/OQ/PQ qualifications for the project location.
- E. Lab Employees shall be trained in the operation of these modules to avoid damage to the equipment.

END

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TOOLS REQUIRED:

LEVEL, SQUARE, CORELESS DRILL
 PHILLIPS SCREWDRIVER, 9/64" DRILL BIT, 8-32 TAP
 CAULKING GUN, SEALANT OR CAULKING

PASS THROUGH INSTALLATION INSTRUCTIONS**FLUSH TO ONE SIDE INSTALLATION**

NOTE: THESE ARE RECOMMENDED PASS THROUGH INSTALLATION INSTRUCTIONS (TRIMS ARE FULLY WELDED AND POLISHED ON BOTH SIDES TO ACCOMMODATE ANY TYPE OF INSTALLATION)

"CLEAN SIDE"

"DIRTY SIDE"

STEP #1
 PREPARE THE WALL OPENING SO IT IS 1/2" LARGER IN WIDTH AND 1/2" LARGER IN HEIGHT THAN THE O.D. OF THE PASS THROUGH. CUTOUT MUST BE LEVEL AND SQUARE

8-32 TRUSS SCREWS PROVIDED.
 FASTEN AROUND TOP, BOTTOM,
 AND BOTH SIDES

"CLEAN SIDE"

"DIRTY SIDE"

DO NOT REMOVE
 SHIPPING BRACES
 FROM THE INSIDE OF
 THE PASS THROUGH
 UNTIL INSTALLATION IS
 COMPLETE

STEP #2
 INSTALL WELDED TRIM #1 FLUSH ON "CLEAN" SIDE AS SHOWN. MARK HOLES, DRILL 9/64" PILOT HOLES, TAP HOLES 8-32. FASTEN WITH PHILLIPS SCREWS PROVIDED

STEP #3
 PLACE A BEAD OF SEALANT ON THE FACE OF THE WALL OPENING AROUND THE ENTIRE PERIMETER. INSTALL UNIT THROUGH PREPARED HOLE. SHIM THE UNIT FIRMLY IN PLACE. CONFIRM UNIT IS LEVEL.

"CLEAN SIDE"

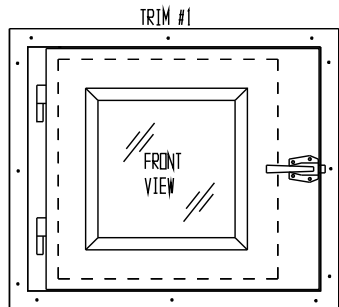
"DIRTY SIDE"

STEP #4
 INSTALL WELDED TRIM #2 ON "DIRTY" SIDE LOCKING THE UNIT IN PLACE. USE THE SAME STEPS AS TRIM #1 (DRILLING INTO THE WALL IS NOT REQUIRED)

"CLEAN SIDE"

"DIRTY SIDE"

STEP #5
 TEST UNIT FOR PROPER INTERLOCK FUNCTION. BOTH DOORS SHOULD NOT BE ALLOWED TO OPEN AT THE SAME TIME. CAULK ANY SEAMS OR GAPS AT WALL/TRIM JUNCTION

FLUSH TO BOTH SIDES INSTALLATION (ADDITIONAL STEPS REQUIRED)

IF THE CUSTOMER REQUIRES TRIM #2 TO BE REVERSED, THEN TRIM #1 WILL NEED FACE HOLES DRILLED TO SECURE THE PASS THROUGH TO THE WALL. TRIM #2 IS THEN CAULKED IN PLACE TO COMPLETE THE INSTALL.

TRIM #1

TRIM #2

FACE HOLES AND SCREWS
 BY INSTALLER.

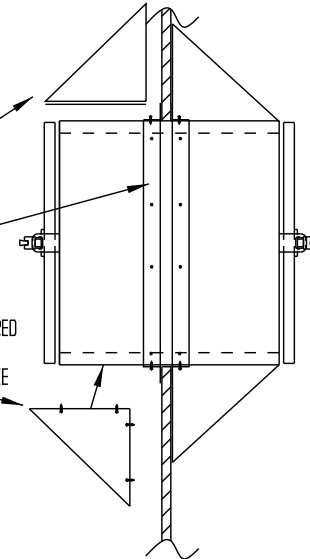
IN THIS APPLICATION TRIM #2 IS REVERSED. IT IS THEN CAULKED AND PRESSED INTO THE WALL OPENING FOR COSMETIC PURPOSES ONLY. (HOLES CAN BE DRILLED TO FACE MOUNT IF WALL IS UNEVEN)

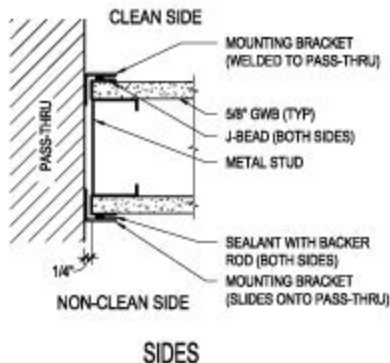
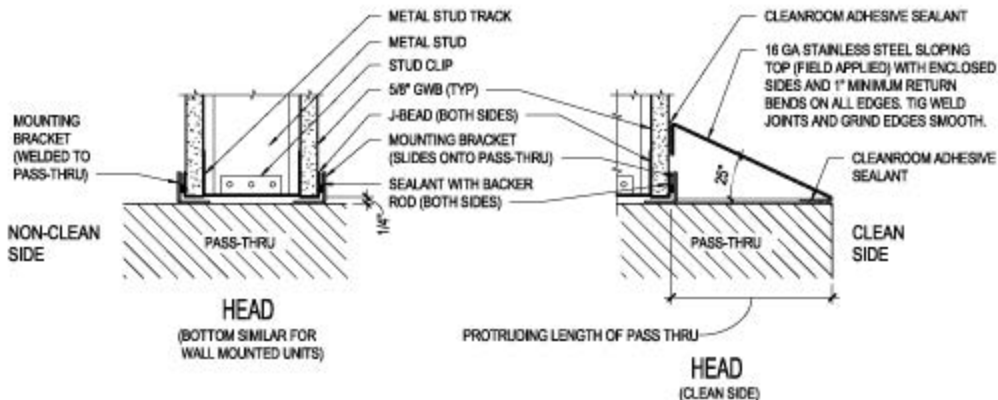
CENTERED IN WALL WITH OPTIONS INSTALLATION

SLOPED TOPS ARE AN OPTION. REMOVE THE ADHESIVE TAPE ON THE SLOPED TOP AND STICK TO THE TOP OF THE PASS THROUGH. CAULK SEAMS WHERE SLOPED TOP JOINS THE PASS THROUGH AND THE WALL.

REVERSING THE MOUNTING TRIM MAY BE REQUIRED IF THE TRIM IS LONGER THAN THE THICKNESS OF THE WALL.

ADDITION OF SUPPORT GUSSETS MAY BE REQUIRED DEPENDING ON WALL THICKNESS, WEIGHT OF MATERIALS PLACED IN THE UNIT, AND DISTANCE THE PASS THROUGH PROTRUDES THROUGH THE WALL.

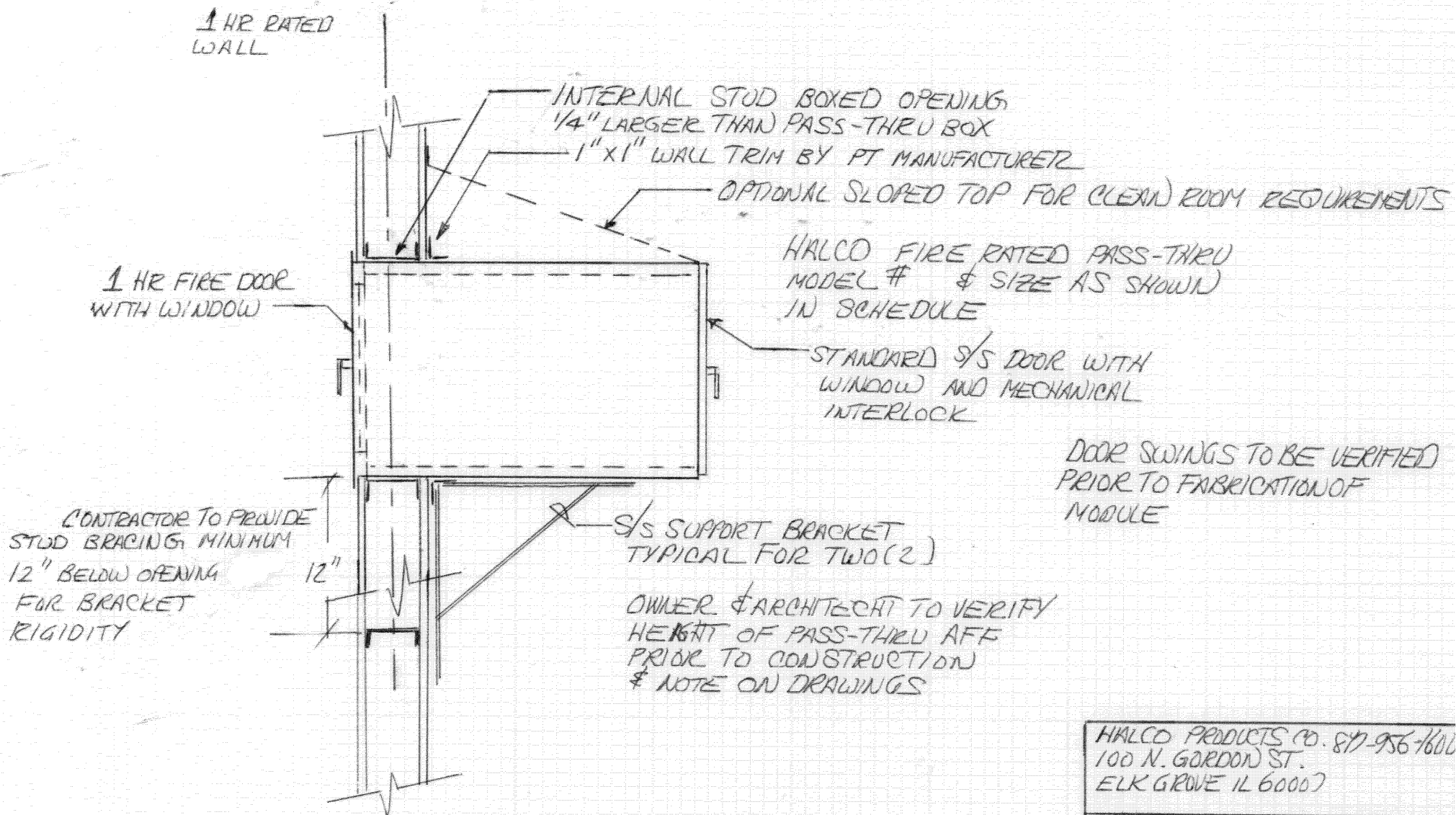




3

PASS-THRU INSTALLATION

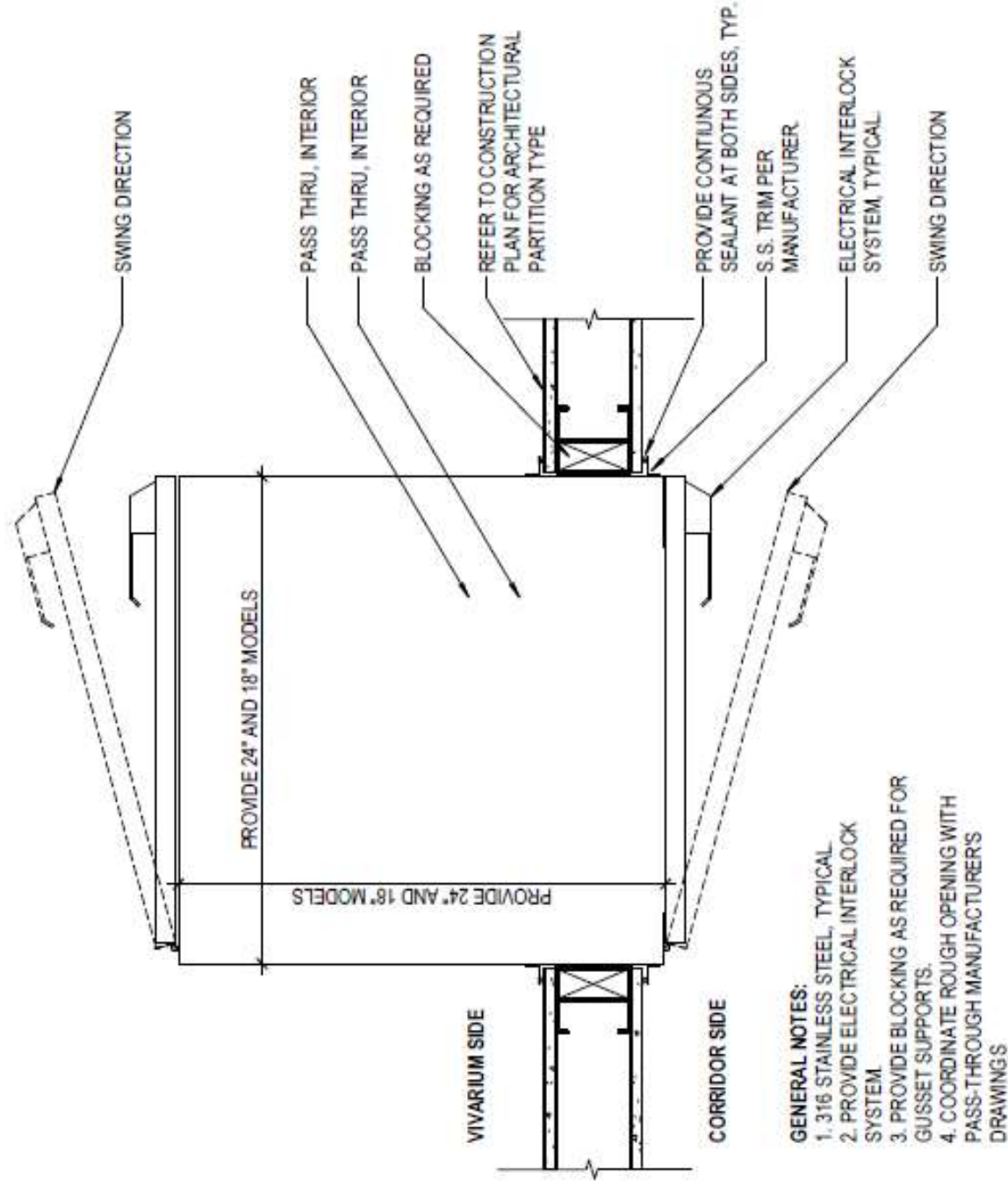
3" = 1'-0"



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05-23-08 NO SCALE
A. BRIAN HALE

PASS-THRU
DETAIL



A2 PASS THROUGH PLAN DETAIL

1 1/2" = 1'-0"



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DATE: _____

(PASS-THRU) (CART PASS-THRU) START UP WORKSHEET

PROJECT NAME: _____

LOCATION: _____

UNIT TAG# _____

FACTORY / FIELD START UP

SITE NAME:		CONTRACTOR:	
ADDRESS:		ADDRESS:	
CITY, STATE, ZIP:		CITY, STATE, ZIP:	
PHONE:	FAX:	PHONE:	FAX:
CONTACT		CONTACT:	
UNIT MODEL:	S/N:	START UP PERFORMED BY:	DATE:

PRELIMINARY UNIT CHECKS

INSPECTED UNIT UPON ARRIVAL FOR DAMAGE		YES ☐	NO ☐
IF YES EXPLAIN DAMAGE		YES ☐	NO ☐
		NO DAMAGE ☐	
BLOWER SECTION	BLOWER HOUSING & MOTOR	YES ☐	NO ☐
	HEPA FILTER AND GRILL	YES ☐	NO ☐
	PILOT LIGHTS, WIRING, AND CONTROLS	YES ☐	NO ☐
UNIT ASSEMBLY	ASSEMBLY OF UNIT MATCHES DRAWING	YES ☐	NO ☐
	DOORS, HINGES, AND CLOSERS OK	YES ☐	NO ☐
	COMPONENTS PROPERLY REASSEMBLED	YES ☐	NO ☐
ELECTRICAL	ALL SCREW TERMINALS TIGHTENED	YES ☐	NO ☐
	ALL FUSES AND CIRCUIT BREAKERS ON AND OK.	YES ☐	NO ☐
UNIT SPECIFICATIONS, DOES VOLTAGE AND PHASE AGREE WITH NAME PLATE		YES ☐	NO ☐

ELECTRICAL DATA

VOLTAGE	L1	L2		STEPDOWN TRANSFORMER
LINE VOLTAGE TO GROUND	L1	L2		LOW VOLT



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MOTOR OPERATING DATA

BLOWER	NAMEPLATE	NOTES	BLOWER	NAMEPLATE	NOTES
MAKE			MAKE		
H.P.			H.P.		
R.P.M			R.P.M		
VOLTS			VOLTS		
AMPS			AMPS		
PHASE			PHASE		
MOTOR ROTATION CHECKED? YES ☐ NO ☐			MOTOR ROTATION CHECKED? YES ☐ NO ☐		

ROLL UP DOOR DATA

ENTRY	NAMEPLATE	MODEL	EXIT	NAMEPLATE	MODEL
MAKE			MAKE		
H.P.			H.P.		
R.P.M			R.P.M		
VOLTS			VOLTS		
AMPS			AMPS		
PHASE			PHASE		
MOTOR ROTATION CHECKED? YES ☐ NO ☐			MOTOR ROTATION CHECKED? YES ☐ NO ☐		



PASS-THRU OPERATIONAL CHECKS

Verify that the pass-thru has been properly installed per the assembly instructions provided with the unit.	YES ☐ NO ☐
Verify that all wiring to the controls enclosure are correct.	YES ☐ NO ☐
Verify that the power feed has been run and that the correct voltage has been supplied to the Pass-thru.	YES ☐ NO ☐
Power up the pass-thru	YES ☐ NO ☐
Verify that the Module operates per timing and operation sequence	YES ☐ NO ☐
Timing seconds entered	30
Operating functions checked	YES ☐ NO ☐

TIMER SETTINGS

FUNCTION	TIME			
----------	------	--	--	--



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contamination. Internal purge timer will begin and time out. During timing Both doors will be locked until timer times out. Once the door has closed the Pass-Thru shall go into the Medium-pressure scrubbing mode with the air velocity at about 100 FPM. While in this mode, both entry and exit doors shall be locked. The Pass-thru scrubbing mode will be terminated once the programmed time cycle (factory set @ 30-second time period) is completed. The exit door shall unlock allowing personnel to remove the cart or materials. Once the exit door is opened the entry door shall lock. Once the Cleanroom side door has closed the system shall be ready for another cycle.

In case of emergency the Emergency Stop button may be pressed which will sound the audible alarm and disable all systems including the interlock system allowing unrestricted access to the interior of the Pass-thru.

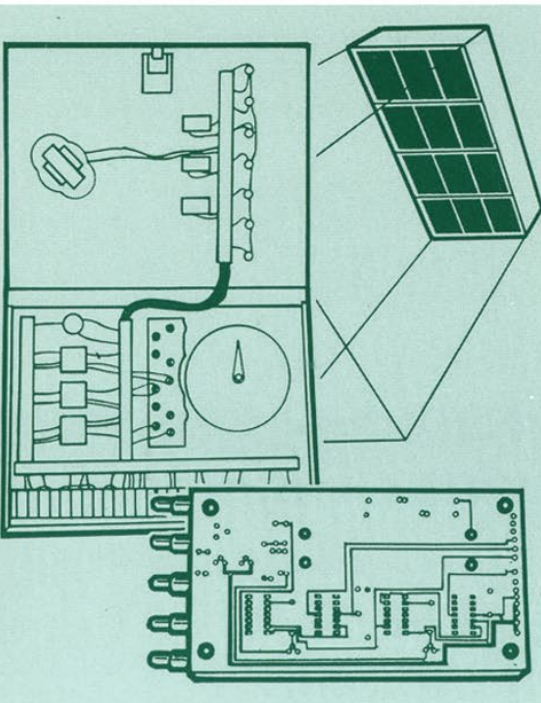
END OF SECTION # _____

HALCO PRODUCTS COMPANY

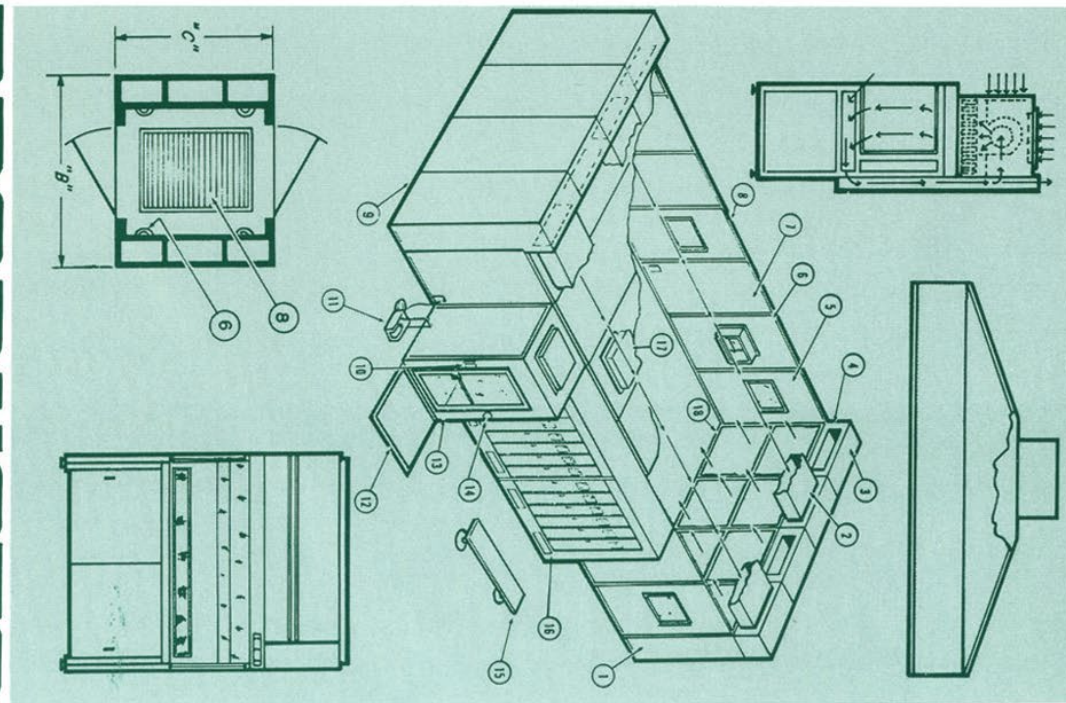
100 NORTH GORDON STREET • ELK GROVE VILLAGE, ILLINOIS 60007-1193

TEL: 847-956-1600 FAX: 847-956-0595 WEBSITE: WWW.HALCO-PRODUCTS.COM

ISO 5 (CLASS 100) HEPA FILTERED PASS THROUGHS FOR CLEANROOM APPLICATIONS



PRODUCTS MANUAL





HALCO PRODUCTS COMPANY, INC.

ISO 5 (CLASS 100) HEPA FILTERED PASS THROUGHS FOR CLEANROOM APPLICATIONS



HALCO PRODUCTS COMPANY, INC.

**HALCO USES THE MOST ADVANCED
FABRICATION AND IN HOUSE DESIGN.
EVERY PROJECT CAN BE CUSTOMIZED TO
END USER SPECIFICATIONS.**

HEPA FILTERED PASS-THROUGH WITH BLOWER SINGLE PASS SYSTEM



- Pass Through blower unit with exhaust perforations in one of the doors usually mounted on the “dirty” side.
- The door on the other side, “clean” side, has no vents.
- This is a “single pass system”, not recirculating
- Room air goes in the top or face mounted pre-filter then through the HEPA inside, then out the exhaust vent in the door back into the room.
- All of our pass throughs are interlocked so only one door opens at any given time.



CLEAN SIDE VIEW

CLEAN SIDE DOOR WITHOUT
EXHAUST PERFORATIONS AND
WITH OPTIONAL PRESSURE
GAUGE TO MONITOR HEPA
FILTER STATIC PRESSURE.





AIR INTAKE

TOP BLOWER INTAKE WITH
WASHABLE SCOTTFOAM
PREFILTER.

INTAKE CAN BE MOUNTED ON
THE FACE OF THE UNIT FOR
FLUSH WALL MOUNTING
APPLICATIONS





AIR EXHAUST

EXHAUST PERFORATIONS IN
ONE DOOR.

CUSTOMER TO INDICATE
WHICH ROOM TO EXHAUST
INTO.





HEPA CEILING

INTERIOR CEILING VIEW WITH
REMOVEABLE SS STEEL
PERFORATED SCREEN FOR
EASY FILTER TESTING AND
REPLACEMENT. REMOVE THE
4EA TRUSSHEAD GRILL
SCREWS. THE HEPA FILTER IS A
GEL SEAL 99.99% EFFICIENT ON
0.3 MICRONS OR LARGER.
FILTER IS HELD IN BY 1/4 TURN
TABS. ACCESS TO THE BLOWER
IS BY REMOVING THE HEPA
FILTER.





MAGNETIC LOCKS

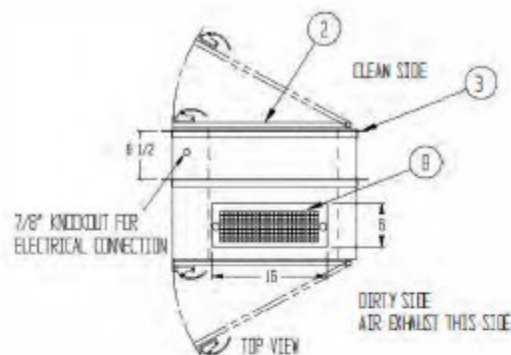
Magnetic locks are recommended in blower units that already require a 120v connection.

Flush access panel is shown in the wall to service locks, breakers and 24vdc power supply

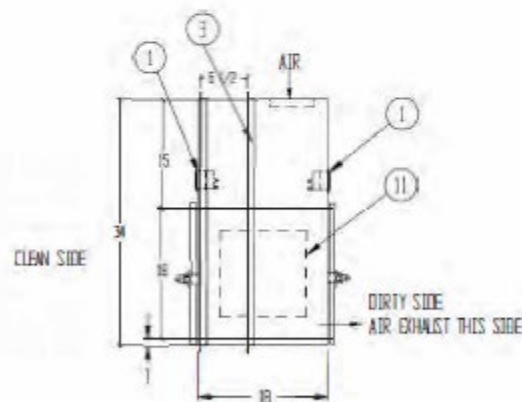


NOTES:

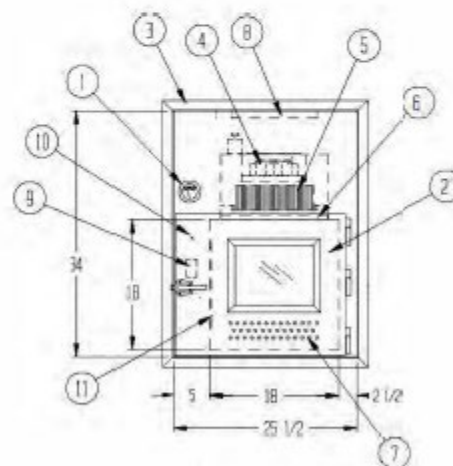
- UNIT TO BE CONSTRUCTED OF 16 GA. TYPE 304 STAINLESS STEEL WITH A #4 FINISH ON ALL EXPOSED SURFACES
- UNIT TO HAVE ELECTRICAL INTERLOCKING SYSTEM
- ROUGH OPENING SIZE SHOULD BE 1/4" LARGER THAN UNIT O.D.
- INTERNAL FAN TO RUN CONTINUOUSLY
- CUSTOMER TO SUPPLY ELECTRICAL CONNECTION TO UNIT 115 VOLT, 1 PHASE, 2.0 FLA



- 1 2 EA. MINICHELL DIFFERENTIAL PRESSURE GAUGES
- 2 TYPE 304 STAINLESS STEEL DOORS WITH STAINLESS STEEL PIN HINGE, SS LATCHING HANDLE, EPDM DOOR GASKET AND 1/4" CLEAR ACRYLIC GLAZING
- 3 1-1/2" X 1-1/2" X 16 GA. TYPE 304 STAINLESS STEEL ONE PIECE WELDED FINISHING TRIMS (SHIPPED LOOSE FOR FIELD INSTALLATION)
- 4 BACKWARD CURVED IMPELLER BLOWER CAPABLE OF PRODUCING 100 CFM AT 0.8" SP
- 5 1 EA. 12" X 12" X 3-1/2" 99.99% EFFICIENT GEL SEAL HEPA FILTER
- 6 PERFORATED TYPE 304 STAINLESS STEEL HEPA DIFFUSION GRILLE
- 7 PERFORATIONS ON DIRTY SIDE DOOR FOR AIR EXHAUST
- 8 TOP MOUNTED FLUSH PERFORATED AIR INTAKE GRILL WITH 300 DISPOSABLE PRE-FILTER 10" X 6" X 1"
- 9 ELECTROMAGNETIC FAIL SAFE DOOR LOCK
- 10 DOOR STATUS SWITCH
- 11 INTERLOCK CONTROL SERVICE ACCESS PANEL



LEFT SIDE VIEW



DIRTY SIDE
AIR EXHAUST THIS SIDE
FRONT VIEW

1 UNIT REQUIRED AS SHOWN

CRITICAL POINT LLC TRAINING CENTER	Halco Products Co. 100 Gordon Street, Elk Grove, IL 60007			
	TITLE PT1818-18/SS/EL/HC			
DRAWN BY SW	DATE 3/4/10	DESIGNED BY JCB/KA	DATE 11/20/10	REV 151959000
APPROVED BY	DATE 3/4/10	DATE 11/20/10	DATE 11/20/10	DATE 11/20/10

SPECS HEPA FILTERED PASS THROUGH SINGLE PASS WITH BLOWER



■ **SPECS OF A 18" X 18" X 18" HEPA FILTERED PASS THROUGH**

- Model: PT1818-18/SS/EI/HC material pass-through
- -HEPA filtration (single pass)
- -ID: 18" wide x 18" high x 18" deep
- -OD: 25-1/2" wide x 34" high x 20-1/2" deep
- -Constructed of 16 & 20 ga type 304 stainless steel with a #4 finish
- -Double wall construction with inward turned flanges for smooth cleanable surfaces
- -Doors provided with stainless pin hinges, stainless latching handle, 1/4" clear acrylic glazing and EPDM gasket
- -Unit provided with electrical door interlock system
- -One piece welded finishing trim provided for both sides of pass-thru unit
- -Fan runs continuously

HEPA FILTERED PASS THROUGH DUCTED UNIT SINGLE PASS SYSTEM



- Ducted unit with exhaust vents in one of the doors, “dirty” side.
- The door on the other side, “clean” side is solid, no vents.
- Installer to provide conditioned supply air to collar on top of the unit.
- All of our pass throughs are interlocked so only one door opens at any given time.

HEPA FILTERED PASS-THROUGH WITH BLOWER

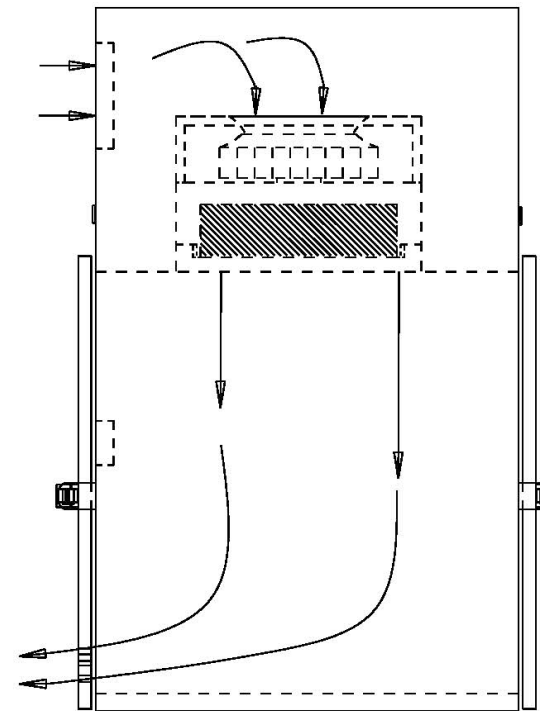
SINGLE PASS SYSTEM



These pass-through blower modules have exhaust perforations in one or both of the doors, usually on the “dirty” side.

Room air goes in the top or face mounted pre-filter then through the HEPA inside, then out the exhaust vent in the door back into the room.

All of our pass-throughs are interlocked so only one door opens at any given time.



SINGLE PASS HEPA FILTRATION
(FAN RUNS CONTINUOUSLY)



DUCT CONNECTION

6" inch stainless steel duct connection is standard on ducted units.

Optional red/green status indicator is shown in the face of this unit.





HEPA CEILING

Our standard HEPA grill and filter is included in all HEPA filtered pass throughs.

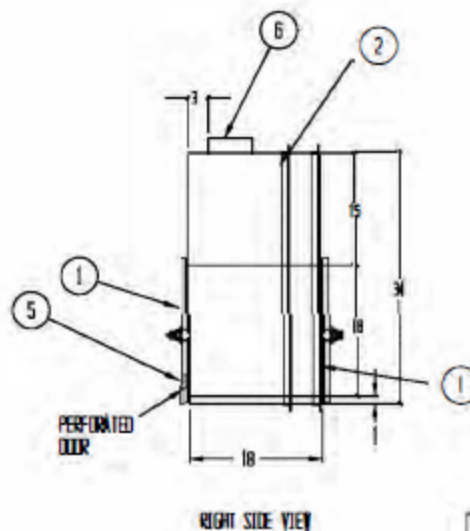
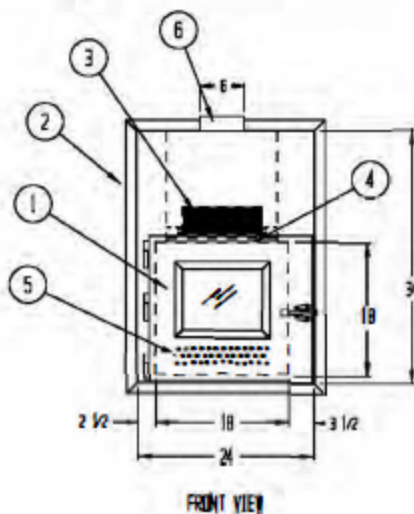
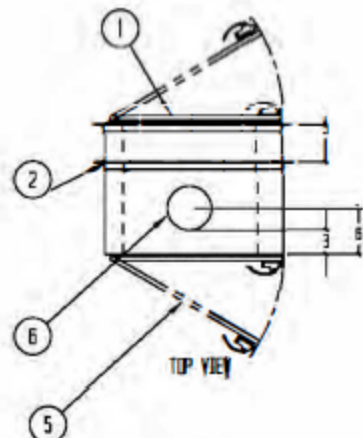




DUCT OPTIONS

Duct collars can be round, square or oval as shown





NOTES:

- UNIT TO BE CONSTRUCTED OF 16 GA. TYPE 304 STAINLESS STEEL WITH A #4 FINISH ON ALL EXPOSED SURFACES
- UNIT TO HAVE MECHANICAL INTERLOCKING SYSTEM
- ROUGH OPENING SIZE SHOULD BE 1/4" LARGER THAN UNIT O.D.

- 1 TYPE 304 STAINLESS STEEL DOORS WITH STAINLESS STEEL PIN HINGE, SS LATCHING HANDLE, EPDM DOOR GASKET AND 1/4" CLEAR ACRYLIC GLAZING
- 2 1-1/2" X 1-1/2" X 16 GA TYPE 304 STAINLESS STEEL ONE PIECE WELDED FINISHING TRIM (SHIPPED LOOSE FOR FIELD INSTALLATION)
- 3 1 EA. 12" X 12" X 3-1/2" 99.99% EFFICIENT GEL SEAL HEPA FILTER
- 4 PERFORATED TYPE 304 STAINLESS STEEL HEPA DIFFUSION GRILLE
- 5 PERFORATIONS ON DIRTY SIDE DOOR FOR AIR EXHAUST
- 6 TOP MOUNTED 6" DIA SUPPLY DUCT COLLAR

		Halco		Halco Products Co.	
		100 Gordon Street, Elk Grove, IL 60007			
TITLE		PT1818-18/SS/NI/HC/05			
DESIGN BY	DK	DATE	1/3/14	CHK BY	15/02/2014
APPROVED BY		SCALE	3/4" = 1' 0"	DATE	10/13/16

SPECS HEPA FILTERED PASS THROUGH SINGLE PASS DUCTED



■ SPECS OF A 18" X 18" X 18" HEPA FILTERED PASS THROUGH

- Model: PT1818-18/SS/MI/HC/D6 material pass-through
- -HEPA filtration (single pass)
- -ID: 18" wide x 18" high x 18" deep
- -OD: 24" wide x 34" high x 20-1/2" deep
- -Constructed of 16 & 20 ga type 304 stainless steel with a #4 finish
- -Double wall construction with inward turned flanges for smooth cleanable surfaces
- -Doors provided with stainless pin hinges, stainless latching handle, 1/4" clear acrylic glazing and EPDM gasket
- -Unit provided with mechanical door interlock system
- -One piece welded finishing trim provided for both sides of pass-thru unit
- -6" ss duct collar for customer connection

HEPA FILTERED PASS THROUGH RECIRCULATING UNIT



- “Recirculating” Purge unit, No exhaust vents in the doors.
- After you open either door the fan turns on and after the door is closed the unit will run for an adjustable time cycle, usually 2 minutes.
- Both doors will remain locked until the cycle is complete. (time cycle adjustable from within the chamber)
- Air goes through the HEPA filter in the ceiling and is forced down into a perforated interior floor/bottom, up through the walls of the pass through and back through the HEPA filter.
- All of our pass throughs are interlocked so only one door opens at any given time.

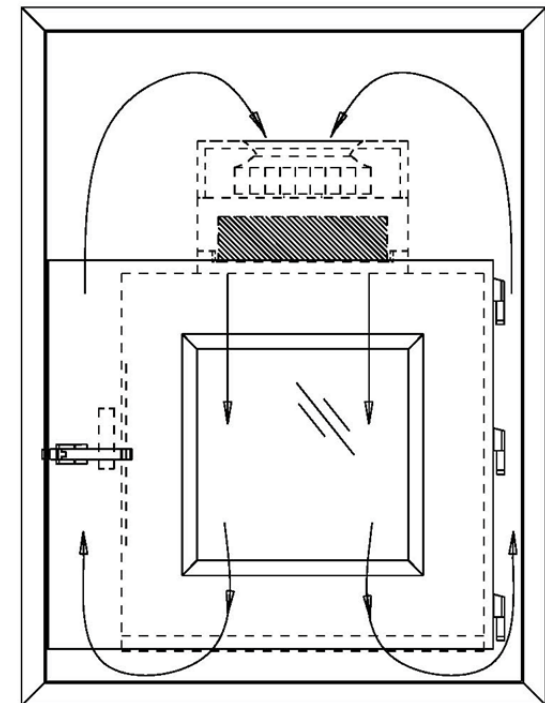
HEPA FILTERED PASS-THROUGH WITH BLOWER RECIRCULATING SYSTEM



These pass-through blower modules have RECIRCULATED air flow within the module to provide ISO rated cleanliness.

We can provide options for removable shelves or base sections for serviceability.

All of our pass-throughs are interlocked so only one door opens at any given time.



RECIRCULATING HEPA FILTRATION
(FAN ON AN ADJUSTABLE TIMER)



RECIRCULATING INTERIOR

Recirculating interior with
standard HEPA grill and perforated
bottom for airflow.

Rectangular magnetic lock shown
on the right.





RECIRCULATING UNIT WITH STATUS LIGHT OPTION

Recirculating unit in production
with optional green indicator light
showing "unit ready" and door
unlocked.





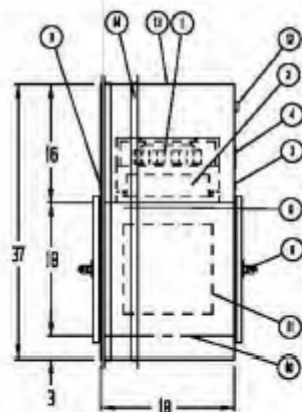
RECIRCULATING UNIT WITH MULTIPLE OPTIONS

Recirculating unit in production with optional red indicator light showing unit “in use” and door locked. Also with optional minihelic gauge and aerosol injection port on the top right.

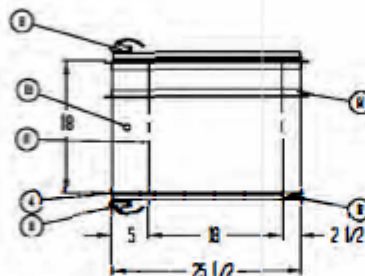


SEQUENCE OF OPERATION:

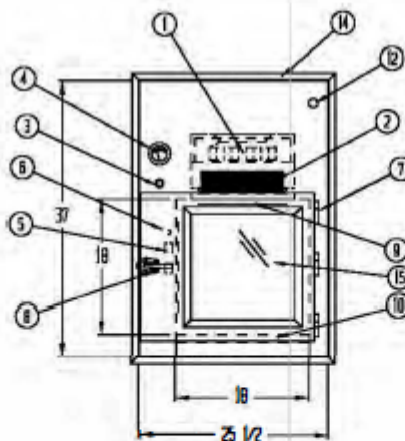
- TECHNICIAN WILL OPEN ONE DOOR, WHICH WILL LOCK OPPOSITE DOOR AND TURN THE OPPOSITE INDICATOR RED
- MATERIAL WILL BE LOADED INTO PASS-THRU AND DOOR WILL BE CLOSED
- ONCE THE EMPTY DOOR IS CLOSED, BOTH DOORS WILL UNLOCK AND BOTH INDICATORS WILL BE GREEN
- TECHNICIAN WILL OPEN THE UNLOADED SIDE DOOR WHICH WILL LOCK THE OPPOSITE DOOR AND TURN THE OPPOSITE INDICATOR RED
- MATERIAL WILL BE REMOVED FROM PASS-THRU AND DOOR WILL BE CLOSED
- ONCE THE DOOR IS CLOSED BOTH DOORS WILL UNLOCK AND BOTH INDICATORS WILL BE GREEN
- THE RECYCLING FAN WILL TURN ON WHEN EITHER DOOR IS OPENED AND WILL TURN OFF AFTER BOTH DOORS ARE CLOSED (TIME CYCLE IS ADJUSTABLE, FACTORY SET AT 2 MINUTES)



SIDE VIEW



TOP VIEW



FRONT VIEW

NOTES:

- UNIT TO BE CONSTRUCTED OF 30 GA. TYPE 304 STAINLESS STEEL WITH A 4# FINISH
- DOORS TO BE TYPE 304 STAINLESS STEEL FRAMED WITH 1/4" THICK CLEAR SAFETY GLASS GLAZING, SS LATCHING HANDLE, SS PIN HINGES AND GLOVED CELL EPDM GASKET
- MOUNTING HOLE TO BE 1-1/2" X 1-1/2" X 30 GA. ONE PIECE, FULLY WELDED TYPE 304 STAINLESS STEEL (SUPPLIED, NOT ATTACHED)
- UNIT TO HAVE FAIL-SAFE ELECTRONIC INTERLOCKING SYSTEM WITH MAGNETIC LOCKS THAT FAIL OPEN WITH LOSS OF POWER
- REAR OPENING SIZE SHOULD BE 1/4" LARGER THAN UNIT SIZE

- 1 REVERSE ROTATING CARVED IMPELLER BLOWER 1 IS VOLT 120 WATS CAPABLE OF PRODUCING 100 CFM OF AIR
- 2 1/2" X 1/2" X 3-1/2" DOWNSTREAM VEL SEAL HEPA FILTER 99.99% EFFECTIVE ON PARTICLES OF 0.3 MICRONS IN SIZE
- 3 RED/GREEN LOCK STATUS INDICATOR LIGHT ON BOTH SIDES
- 4 REA MICROPOL IC DIFFERENTIAL PRESSURE GAUGE
- 5 ELECTRO-MAGNETIC DOOR LOCKS
- 6 DOOR STATUS SWITCHES
- 7 STAINLESS STEEL PIN HINGES
- 8 STAINLESS STEEL LATCHING HANDLE
- 9 REMOVABLE PERFORATED HEPA GRILL
- 10 PERFORATED STAINLESS STEEL DECK WITH AIR RETURN FROM DECK
- 11 ELECTRONIC CONTROLS WITH FLUSH MOUNTED INTERIOR ACCESS PANEL
- 12 3/4" NPT AEROSOL INJECTION PORT WITH FLUSH PLUG
- 13 1/2" ELECTRICAL CHECKOUT FOR CUSTOMER POWER CONNECTION
- 14 WELDED ONE PIECE FINISHING TRIMS POLISHED ON BOTH SIDES
- 15 1/4" THICK CLEAR SAFETY GLASS GLAZING

1 UNIT REQUIRED AS SHOWN

		Halco Products Co. 100 Jackson Street, All Grove, IL 60009	
TITLE: PT1818-18/SS/EL/RHC			
DRAWN BY: OK	DATE: 1/4/84	DESIGNED BY: 151977 WEA	CHECKED BY:
APPROVED BY:	SCALE: 3/4" = 1'-0"	DATE: 4/6/77	DESIGNED BY:

SPECS HEPA FILTERED PASS THROUGH RECIRCULATING



■ SPECS OF A 18" X 18" X 18" HEPA FILTERED PASS THROUGH

- Model: PT1818-18/SS/EI/RHC material pass-through
- -HEPA filtration (recirculating)
- -ID: 18" wide x 18" high x 18" deep
- -OD: 25-1/2" wide x 37" high x 20-1/2" deep
- -Constructed of 16 & 20 ga type 304 stainless steel with a #4 finish
- -Double wall construction with inward turned flanges for smooth cleanable surfaces
- -Doors provided with stainless pin hinges, stainless latching handle, 1/4" clear acrylic glazing and EPDM gasket
- -Unit provided with electrical door interlock system
- -One piece welded finishing trim provided for both sides of pass-thru unit
- -Adjustable timer purge cycle
- -Backward curved impeller fan



STANDARD PASS THROUGH EXTERIOR

Standard Static chamber Pass
Through unit, interlocked so only
one door opens at any given time.



STANDARD PASS THROUGH

NOT HEPA FILTERED



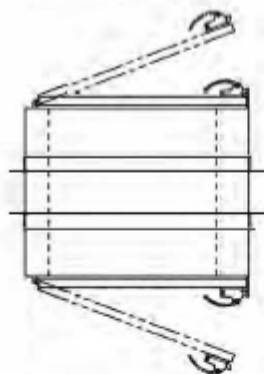
- Pass Through unit interlocked so only one door opens at any given time.



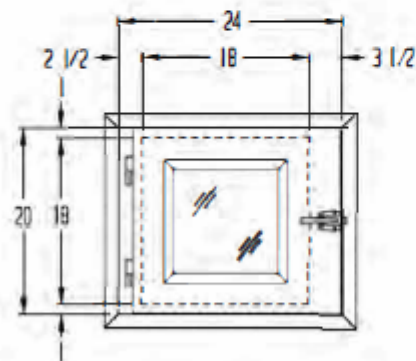
STANDARD PASS THROUGH INTERIOR

Interior of standard pass through
with cleanable seams and full
EPDM gasket

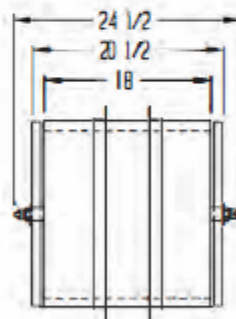




PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

- UNIT FABRICATION TO BE DOUBLE WALL, CONSTRUCTION
- UNIT TO BE CONSTRUCTED OF 16 & 20 GA. 304 STAINLESS STEEL WITH #4 FINISH
- DOORS TO BE CONSTRUCTED OF 16 GA. 304 STAINLESS STEEL WITH 1/4" THICK CLEAR ACRYLIC GLASS GLAZING, SS PIN HINGES AND STAINLESS STEEL LATCHING HANDLE
- UNIT TO BE SUPPLIED WITH 1-1/2" X 1-1/2" X 16 GA. 304 STAINLESS STEEL WELDED ONE PIECE FINISHING TRIMS POLISHED BOTH SIDES (TO BE FIELD INSTALLED)
- UNIT TO HAVE A MECHANICAL DOOR INTERLOCK SYSTEM
- ROUGH OPENING TO BE 1/4" LARGER THAN OUTSIDE DIMENSIONS OF UNIT

DRAWN FOR		Halco TM Halco Products Co. 100 Gordon Street, Elk Grove, IL. 60007	
TITLE		PT1818-18/SS/MI	
DRAWN BY	SM	SIZE	14157
APPROVED BY		SCALE	5/8" = 1"
		DATE	9/12/17
		DRG NO.	1520074ND
		REV	

SPECS STANDARD PASS THROUGH



■ SAMPLE SPECS OF A 18" X 18" X 18" STANDARD PASS THROUGH

- Model: PT1818-18/SS/MI material pass-through
- -ID: 18" wide x 18" high x 18" deep
- -OD: 24" wide x 20" high x 20-1/2" deep
- -Constructed of 16 & 20 ga type 304 stainless steel with a #4 finish
- -Double wall construction
- -Doors provided with stainless pin hinges, stainless latching handle, 1/4" clear acrylic glazing and EPDM gasket
- -Unit provided with mechanical door interlock system
- -One piece welded finishing trim provided for both sides of pass-thru unit

OPTIONS FOR ALL PASS THROUGHs



- -HEPA FILTRATION
- -ULPA FILTRATION
- -SAFETY GLASS, TEMPERED GLASS, ANTI-STATIC PVC GLASS
- -INTERIOR LIGHTING
- -U.V. LIGHTING
- -DOOR STATUS LIGHTS (RED/GREEN)
- -PLC OPERATION WITH CUSTOM PROGRAMMING
- -AEROSOL INJECTION PORT
- -UPSTREAM SAMPLE PORT
- -ELECTRIC INTERLOCK
- -SHELF (SOLID OR PERFORATED)
- -HAZARDOUS LOCATION
- -VERTICAL SLIDING DOOR
- -HANGING ROD
- -FIRE DOOR
- -ION STATIC ELIMINATION
- -L SHAPE
- -3 DOOR
- -CONSTRUCTION IN POLYPROPYLENE, 304 STAINLESS STEEL, 316L STAINLESS STEEL, LAMINATED WOOD
- -DUPLEX RECEPTACLE
- -ELECTROPOLISHED
- -CUSTOM SIZES
- -SUPPORT GUSSETS OR SUPPORT LEGS
- -SLOPED TOP
- -BMS ALARM INTEGRATION
- -CARD READER SECURITY

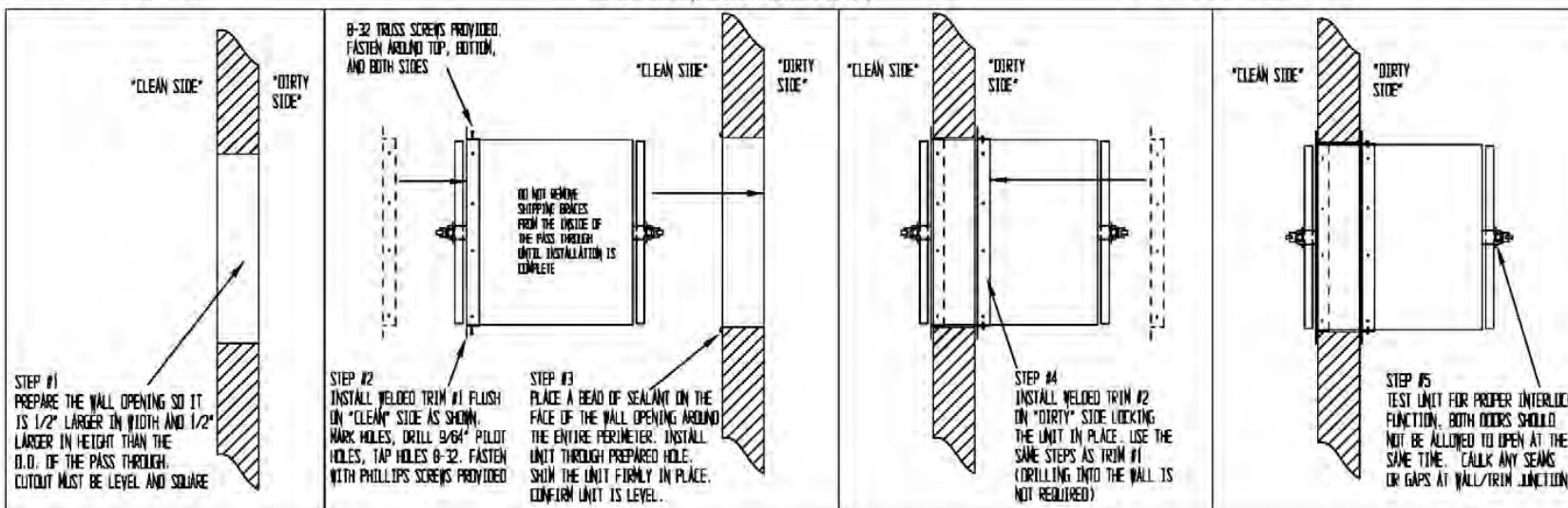
TOOLS REQUIRED:

LEVEL, SQUARE, CORDLESS DRILL,
PHILLIPS SCREWDRIVER, 9/64" DRILL BIT, 8-32 TAP
CAULKING GUN, SEALANT OR CAULKING

PASS THROUGH INSTALLATION INSTRUCTIONS

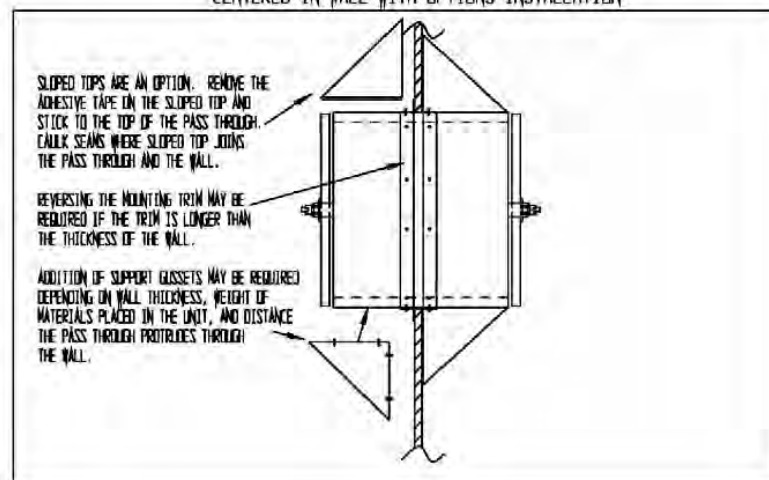
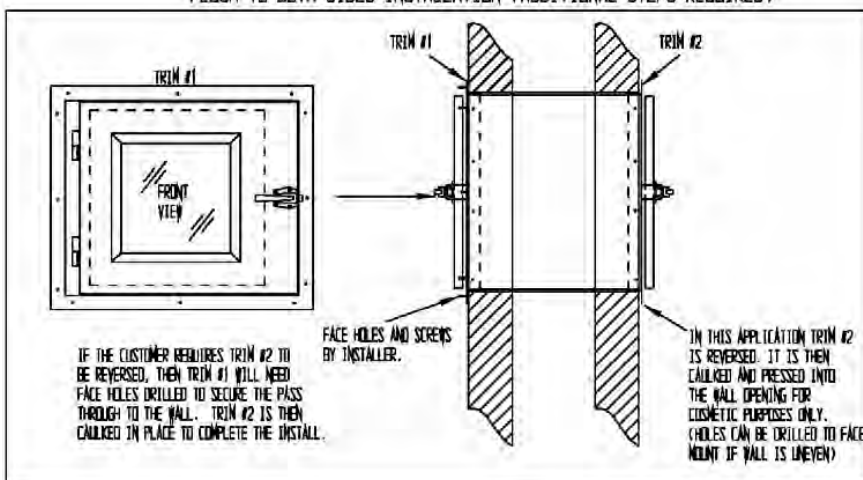
FLUSH TO ONE SIDE INSTALLATION

NOTE: THESE ARE RECOMMENDED PASS THROUGH INSTALLATION INSTRUCTIONS
(TRIMS ARE FULLY WELDED AND POLISHED ON BOTH SIDES TO
ACCOMMODATE ANY TYPE OF INSTALLATION)



FLUSH TO BOTH SIDES INSTALLATION (ADDITIONAL STEPS REQUIRED)

CENTERED IN WALL WITH OPTIONS INSTALLATION





FILTER CHANGE

Gel seal filter is easy to change with 1/4 turn tabs.

GEL SEAL FILTER INSTALLATION INSTRUCTIONS (1/4 TURN LOCKING TABS) ND 2008



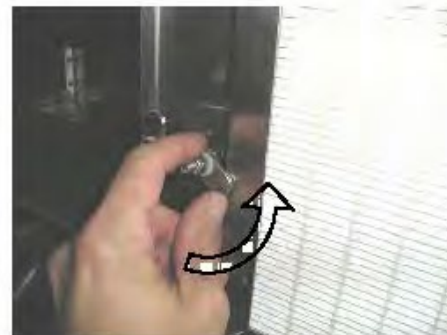
STEP #1 - TURN ALL FILTER JACK TABS PARALLEL TO FILTER KNIFE EDGE ON UNIT TO ACCOMMODATE FILTER



STEP #2 - POSITION FILTER INTO OPENING OF UNIT
"BE SURE FILTER IS CENTERED IN OPENING"



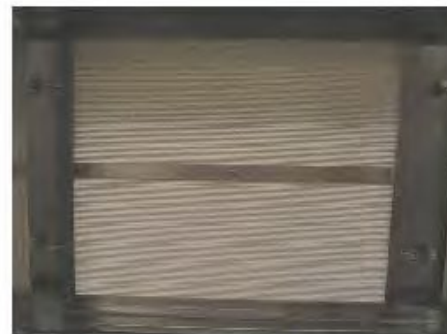
STEP #3 - PUSH FILTER FIRMLY FROM EDGE TO SEAT FILTER "CAUTION DO NOT PUSH ON FILTER MEDIA" MEDIA OF FILTER IS EASILY DAMAGED



STEP #4 - TURN LOCKING TABS 90 DEG WHILE GENTLY PUSHING ON FILTER FROM FILTER EDGE ONLY



STEP #5 - FILTER JACK LOCKING TABS SHOULD NOW BE PERPENDICULAR TO KNIFE EDGE AND FILTER FRAME



PROPERLY INSTALLED GEL SEAL FILTER WITH FILTER LOCKING TABS

PASS THROUGH FORMAL SPECIFICATIONS



PASS-THRU SPECIFICATION

Section # _____ BISL Lab "Specialties" Pass-Thru Module

Part I General

1.01 Description:

- A. Pass-Thru to provide airtight enclosure to allow passing and handling of samples from outside to inside of BISL Lab without causing possible cross contamination of either side.
- B. Unit Size: As shown on drawings and bill of material listings.
- C. Operation: In accordance with (CDC/NIH/US), (OBS/LCDC/Canada)
And any applicable specification for this specific project as noted on drawings and here in specifications.

1.02 Submittals:

- A. Submit shop drawings showing plan and elevation views with overall and interconnect point dimensions.
- B. Product Data: Submit data sheets; component cuts and specific detail drawings for subcomponent items unique and part of specified unit.
- C. Installation Instructions: Submit placement and configuration drawings; utility connection requirements; if any; job specific instructions and description.
- D. Manufacturer's Certificate: Certify that product will meet or exceed specified requirements. Provide standard testing protocol list; to insure requirements are met and that unit is factory tested and certified prior to shipment.

1.03 Close Out Submittals:

- A. Section 01700-Execution requirements close out procedures.
- B. Operation and Maintenance Data:
Submit start-up instructions maintenance data, parts lists, controls and accessories.

1.04 Qualifications:

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum of 10 years experience.
- B. Installer: Company specializing in performing work of this section with Minimum three (3) years documented experience approved by manufacturer.

1.05 Delivery, Storage, Handling:

- A. Section 01600 product requirements: Product storage and handling requirements.
- B. Accept Pass-thru Modules on site in factory packaging and inspect for damage.
- C. Protect Pass-thru Modules from contamination by stroing in clean "Project Manager Approved" location.

1.06 Field Measurements:

- A. Verify field measurements prior to fabrication

1.07 Warranty:

- A. Section 01700 Execution Requirements: Product warranties and product "As-Built" drawings and manuals.
- B. Provide (1) one year warranty from date of acceptance on unit and all subcomponents against defect in material and workmanship.

Part 2 Products

2.01 Pass-Thru and Specialties:

- A. Manufacturers:
 - 1. Halco Products Company
 - 2. _____
 - 3. _____
 - 4. Substitutions: Section 01600-Product Requirements.

2.02 Usage and Isolation Level:

- A. Pass-thru shall be utilized in a _____ (laboratory/clean room) rated at _____ (insert rating) i.e. BISL 1,2,3 or 4 or class/iso rating _____ (insert rating) and shall be designed for such use.

2.03 Purging, Isolation, Decontamination, Control Within the Pass-Thru:

- A. Pass-Thru shall include _____ (insert spec). QA/QC Protocols and applicable agency FDA/CSA/OBS/LCDC or _____ and include _____ valving for Purge/Decontamination.

2.04 Doors:

- A. Pass-Thru shall have _____ (insert type) doors. IE roll-up, sliding, motorized sliding, automatic swing, bi-part motorized sliding, Etc., Etc., Etc. Windows in the doors to _____ (insert spec) of a _____ width by _____ height, color to be _____ (insert color), and rated at _____ (insert rating).
- B. Doors to be _____ (interlocked, not interlocked) using _____ (mechanical, electrical, pneumatic) power to avoid having both doors open at the same time to avoid contamination cross over.
- C. Seals to be
 - 1. Standard closed cell gasket
 - 2. Inflatable bubble tight rubber type
 - 3. _____
- D. Pass-Thru to be fired rated for _____ (insert rating) hours.

2.05 Materials of Construction:

- A. Pass-Thru to be constructed of _____ (insert material). IE laminated particle board, polycarbonate, steel painted with _____ (insert paint spec) stainless steel _____ (insert S/S spec) other _____ (insert other spec).
- B. Unit to include (drawers/shelves/cubby holes) (fixed or adjustable), sliding or motorized up and down, fabricated of _____ (insert spec), and be _____ (fixed, moveable, motorized, sliding, adjustable).

2.06 Cart Pass-Thru Designs:

- A. Pass-Thru shall be designed to allow passage of wheeled carts of _____ (insert size and type) and include internal bumper rails to prevent damage to items. Interior to be _____ (insert spec) IE ventilated with high pressure HEPA filtered air through nozzles to blow off any dust and exhaust to return air system, by using _____ (insert spec) fed from and supported by _____ (insert spec). CFMS, voltages and sizes as shown on drawings.

2.07 Specialties:

- A. Interior to be supplied with HEPA Filtered air to maintain Class/ISO _____ (insert value) conditions.
- B. Interior to be exhausted to system return air to maintain alight (negative/positive) in relation to primary clean room area. CFMS and sizes as shown on drawings.
- C. UV germicidal lamps
- D. Anit-static systems and power supplies, voltage as shown on drawings.
- E. Special purge options and designs, CFMS and sizes as shown on drawings.

PASS THROUGH FORMAL SPECIFICATIONS



- F. Special supply air and exhaust air options as shall be required CFMS and sizes as shown on drawings.
- G. Site specific items such as seismic tie down lugs, broken down designs to allow easy access in to the area, top, bottom, side rear, access of any items so specified, colors, paints, voltages, air pressures, handicap, illumination, support of and installation specific details. (As shown on drawings)

Part 3 Execution

3.01 Examination:

- A. Verify that area and surfaces are ready to receive and accept unit installation and field dimensions are as shown on drawings prior to starting installation.
- B. Verify that proper required utilities are available and in proper location and ready for use.
- C. Beginning of installation means installer accepts existing conditions.

3.02 Installation:

- A. Install in accordance with manufacturer's instructions.

3.03 Field Quality Control:

- A. Field inspection and testing will be performed under provisions of general conditions.
- B. Unit to be cleaned and tested and validation report submitted to project manager for files and future reference.

END OF SECTION # _____

Customized specifications upon request.
Please contact our office for details.



Halco Products Company, Inc.

Designers & Manufacturers Of Controlled Environments

For current information on sterile compounding, air shower, pass-through placement and USP 797/800 information please refer to:

<https://www.criticalpoint.info/>

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WARRANTY

HALCO PRODUCTS COMPANY warrants that the workmanship, materials, and construction of this item is free of manufacturing defects. This item and its associated systems are such that if operated and maintained in accordance with the manual supplied by **HALCO PRODUCTS COMPANY**, it will meet all contract specifications for a period of one (1) year from date of delivery. This warranty shall not apply to replaceable items such as filters or light bulbs, or if the equipment is subject to misuse, accident, negligence, or lack of proper maintenance. Electrical motors and blowers and pre-manufactured items are subject to manufacturers' guarantees.

CUSTOMER: _____

ADDRESS: _____

P.O. # : _____ INVOICE # : _____ SERIAL # : _____

MODEL #: _____ SIZE: _____

START-UP DATE: _____ INSPECTED BY: _____ DATE: _____

WARRANTY REGISTRATION CARD

Please return this card within 30 days of delivery

Customer: _____

Address: _____

P.O.#: _____ Invoice #: _____ Serial #: _____

Model #: _____ Start-Up Date: _____

Sizes: _____ Customer Inspector: _____ Date: _____