



# CPA INSTALLATION INSTRUCTIONS

## General:

Please read the following instructions before attempting to rig or install EVAPCO CPA critical process air units. **The CPA Series of units can be a complicated piece of equipment and these installation instructions are not intended to replace the knowledge and experience of a licensed installation contractor. It is rather provided to familiarize the installation personnel with the CPA system. Installation and service individuals may be exposed to many conditions such as refrigerants, pressures, rotating components and high and low voltage devices. It is the responsibility of the installation and maintenance personnel to be familiar with the potential hazards and protect themselves accordingly. Failure to do so could result in serious damage to the equipment and/or property as well as severe personal injury or death to themselves and people at the installation.**

It is recommended the CPA unit(s) be started by trained EVAPCO personnel (call EVAPCO for startup rates). **If not started by EVAPCO, the startup must be performed by a licensed, experienced individual familiar with all components and systems in the CPA unit(s). The startup person is expected to have read and understood this document and any referenced materials and component literature. The startup/maintenance personnel should also be familiar with and comply with all applicable governmental standards and regulations regarding the CPA and associated components.**

This manual, in combination with other information in the manual provides the basic information required to safely install and startup the Evapco unit. Since the units are built to order some areas may be beyond the scope of this manual. If there are any questions please call Evapco at 507-446-8005.

Also read the "General Precautions and Safety Procedures" Section on the back page for important safety information.

## Receiving:

Carefully inspect the unit(s) upon arrival to make certain that no damage has occurred during shipment. All items should be checked against the bill of lading to ensure that all crates and cartons have been received. All components should be carefully checked for damage. Any visible damage or shortage should be immediately noted on the bill of lading and a claim submitted to the transportation company. If after further inspection, concealed damage is found, again a claim should be made at once to the transportation company. **This procedure is essential to preserve your right to reimbursement for any transportation damage.** EVAPCO Incorporated will gladly assist you in any way, however, all damage claims must be filed through the transportation company.

The refrigerant coil on all EVAPCO evaporators is shipped from the factory with a low pressure nitrogen charge. Quickly open the valve located on the coil headers to hear or feel escaping nitrogen. Once it has been determined that the coil is charged, the valve should be closed. It is recommended that this charge be maintained until just prior to connecting refrigerant piping to the unit.

A coil not showing signs of a nitrogen charge may have been damaged during shipment. If this is suspected, the coil should be pressure tested with dry nitrogen gas to ensure that it is leak-free. Please notify EVAPCO, before installation, of any evaporator that has lost the factory nitrogen charge.

### **Unit Handling:**

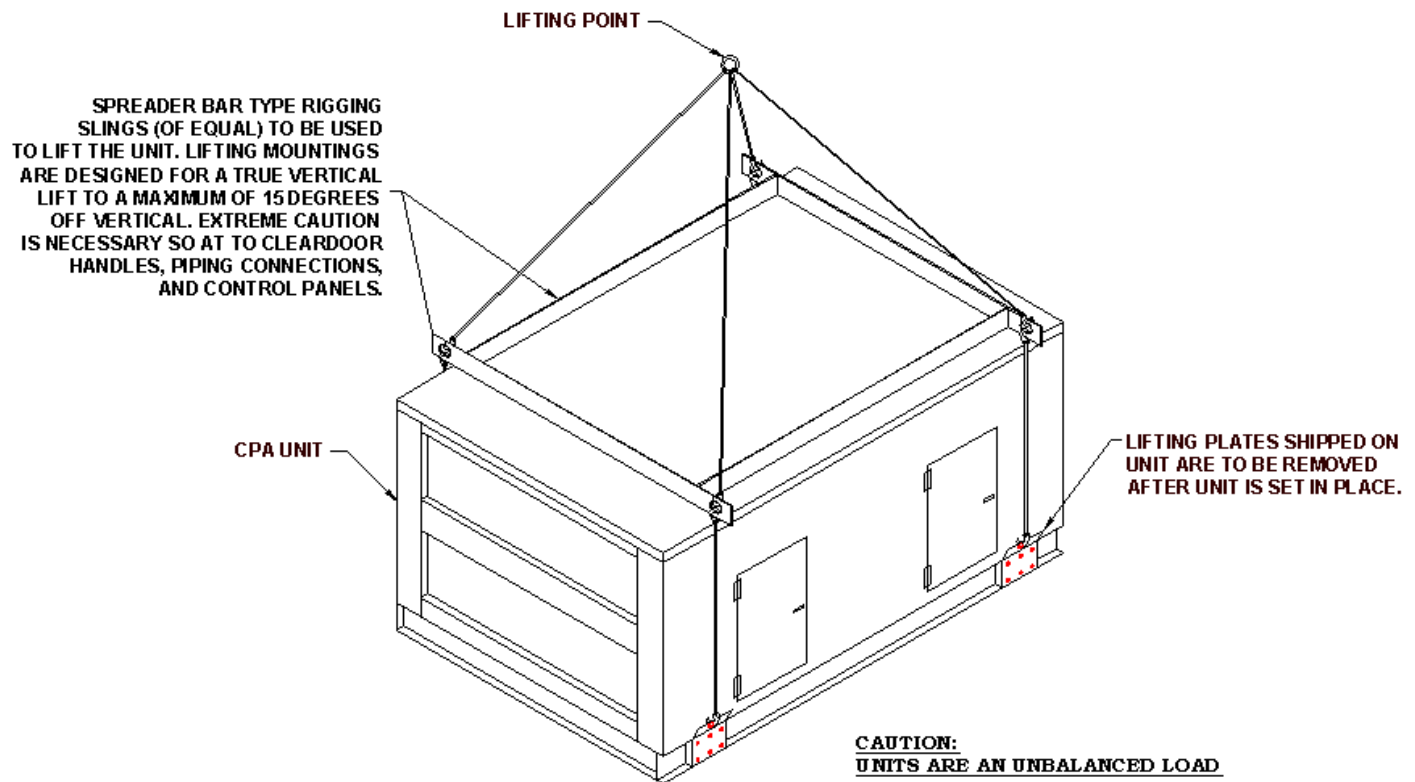
The unit is designed to be lifted via the four (or more depending on the unit size and weight) lifting lugs located at the base of each section of the unit. The unit should never be pulled or pushed since this could damage the structure and integrity of the unit.

The unit must be lifted using a spreader bar. The spreader bar must extend the full width of the unit so the chains or slings hang vertically. Make sure that the lifting chains are not be in a position to damage such protruding items as coil connections, door handles and control panels. **CAUTION – when lifting use all lifting lugs to avoid damage and/or personal injury. Lift the CPA unit only in the upright position. NEVER lift or move a unit on its side or upside down. Close all unit doors before lifting.**

All rigging materials are to be provided by others.

**Note: The CPA unit, depending upon the accessories included within the unit, may be an unbalanced or top heavy load. Therefore, make sure appropriate measures are taken to lift the unit properly.**

See next page.

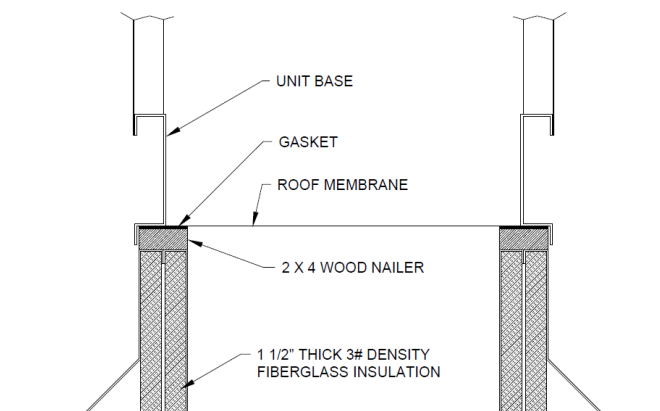


## Unit Support:

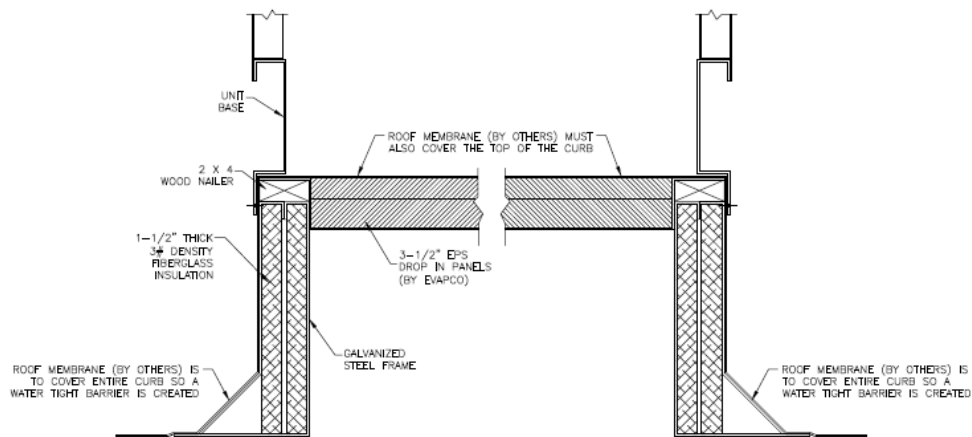
The unit must be mounted level. If unit is roof mounted, it can either be mounted on a full perimeter roof curb, roof supports (stringers) or off from the roof on structural steel. If the unit is located inside of the building, it can either be supported off from the structural steel frame or be ceiling hung.

### a) Roof Mounting

Full perimeter roof curb – the unit can be mounted on a full perimeter roof curb. EVAPCO has available standard 12" or 18" high, canted, and insulated curbs for flat or pitched roofs. The flashing of the curb to the roof must follow standard roofing practices to ensure a watertight seal. It is recommended that some form of seal be placed between the base of the unit and the top of the curb, typically the roof membrane ran over the curb to seal water from leaking into the curb. Sealants or other types of materials are certainly acceptable.



Roof Mounting curb detail for lower temperature applications (see specific job order I for curb detail)



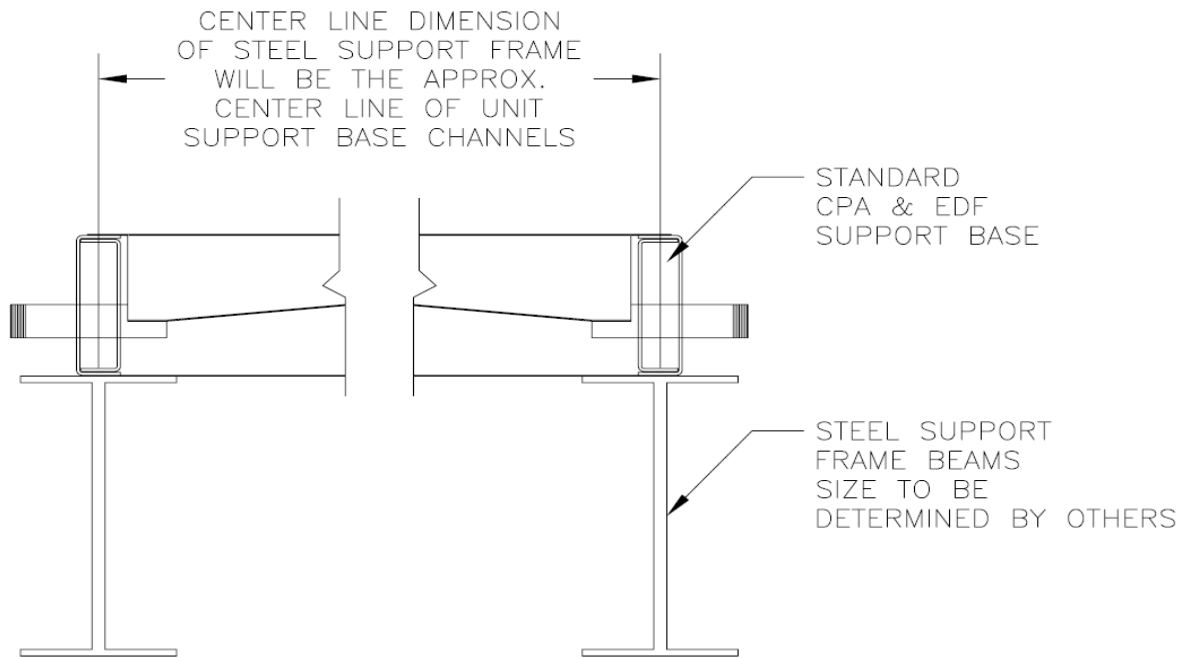
#### b) Equipment Supports

The unit can be mounted on a series of equipment supports. Essentially these are individual supports flashed into the roof, keeping the unit off the roof deck. With this support method, the bottom of the unit is typically exposed to the atmosphere.

#### c) Structural Steel Support

The most common way to mount the unit is using a structural steel support. This support should be designed for the weight of the unit and any accessories that may be fastened to the unit, such as ductwork, piping and service platforms. At minimum, the structural frame must provide a full perimeter support around the outside frame of the unit.

**NOTE: The support structure must have no more deflection than L/360 and not to exceed 0.5" with the unit mounted on the support. Deflection in the support in excess of this may result in misalignment of the unit sections and/or unit structural damage.**

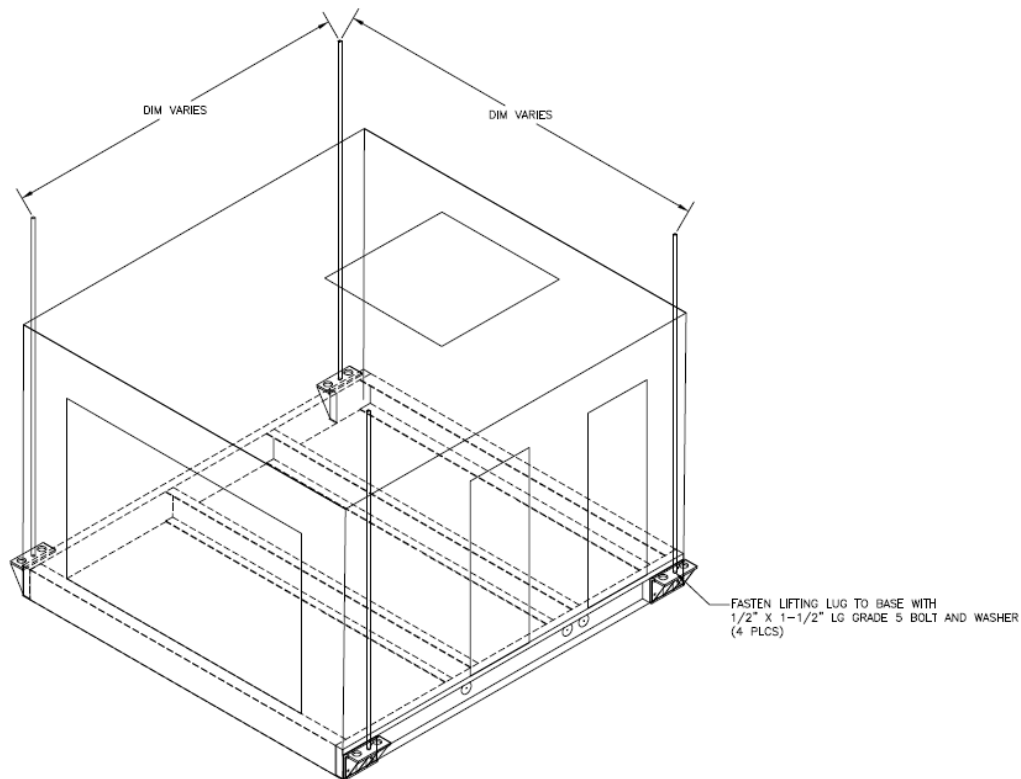


## Unit Support:

### d) Indoor Installation

Structural support – the unit can be mounted inside the building on a structural support stand. The stand must be designed for the operating weight of the unit and any other weights, which may be transmitted to the structure, such as ductwork, piping and service platforms. At minimum, the structural frame must provide a full perimeter support around the outside frame of the unit. **NOTE: The support structure must have no more deflection than  $L/360$  and not to exceed 0.5" with the unit mounted on the support. Deflection in the support in excess of this may result in misalignment of the unit sections and/or unit structural damage.**

Ceiling hung – under rare instances, the units can be ceiling hung. The units must be hung from each of the four lifting/hanger lugs on each of the sections. Lifting lugs will differ from standard lifting lugs, please see diagram below. Note that each of the sections has a different weight and therefore, may require different size hanger rods and/or spring isolation. See next page.



### Unit Location:

The unit(s) is furnished with multiple service doors for access to the interior of the unit for service and cleaning. Accessibility to the doors should be reviewed prior to final location of the unit and installation. If the unit is located near the edge of the roof, consult local codes and OSHA requirements, which may dictate railings or other safety devices along the building edge to facilitate safe personnel access to the unit.

It is recommended that a minimum of 36" (or more to meet National Electric Code for control panel access) be provided on the door side of the unit and if possible, on one side of the unit, a full unit width be provided to enable possible servicing of larger internal components such as coils and blowers.

### Multiple Section Units:

Larger CPA unit are shipped in multiple sections for ease of handling and shipment. The lifting lugs on the unit(s) can be used to pull the unit sections together. **However, the inside channels or angles are used to fasten the sections together and should never be used to pull the unit sections together.**

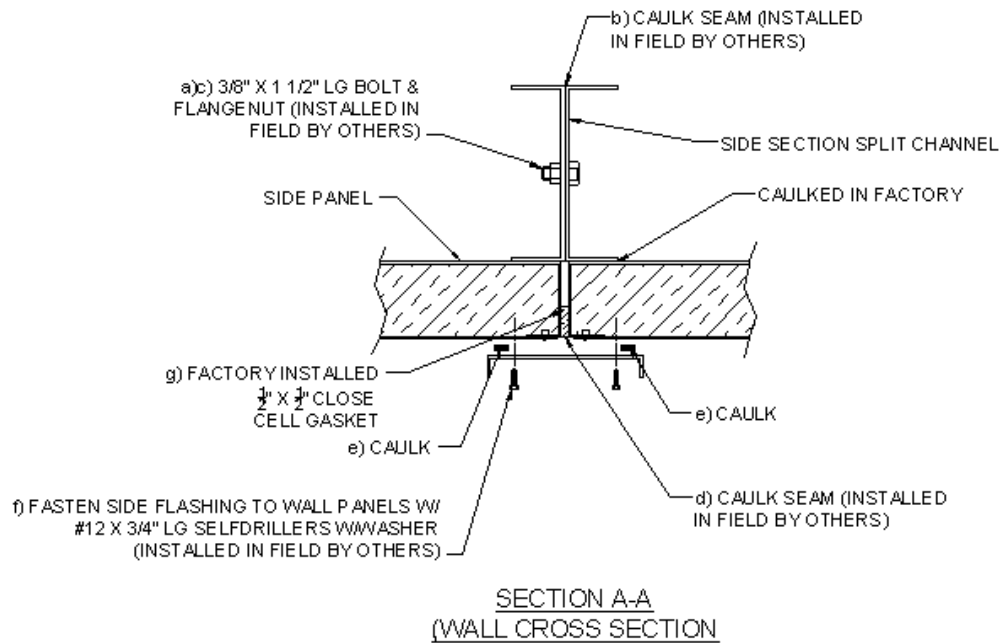
To ensure the watertight integrity of the unit, it is critical that the section splits be properly sealed water and airtight in the field.

Follow these instructions to ensure a water and airtight side seam seal.

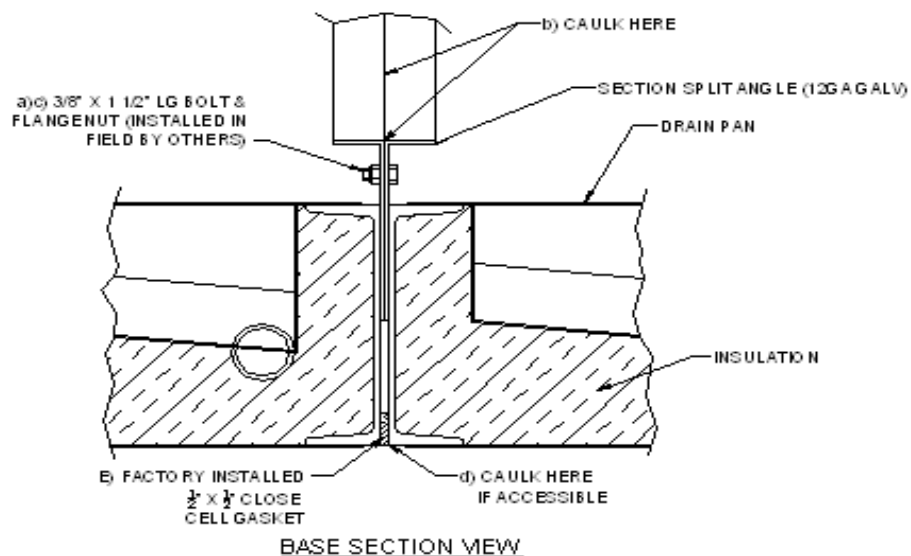
- a) Bolt the unit sections together using the bolts and nuts provided.
- b) Use the caulking provided (tubes) to seal the inside section seam. Penetrate the seam as far as possible.

- c) Caulk the heads and nuts of the section bolts.
- d) Caulk the exterior section split seam with the caulking (tubes) provided. Penetrate the seam as far as possible.
- e) Apply caulking over the two edges of the side flashing. Make sure the caulking covers the holes in the side flashing.
- f) Fasten the batten strip to the side of the unit with the self-drilling screws provided.

### Wall Cross-Section Detail (Top View)



### Base Section View Detail

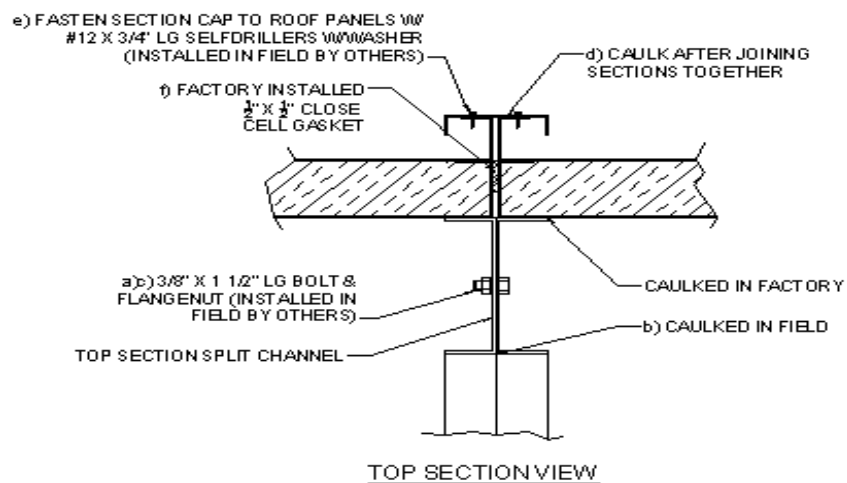


The top seam of the unit is supplied with a separate galvanized steel section cap.

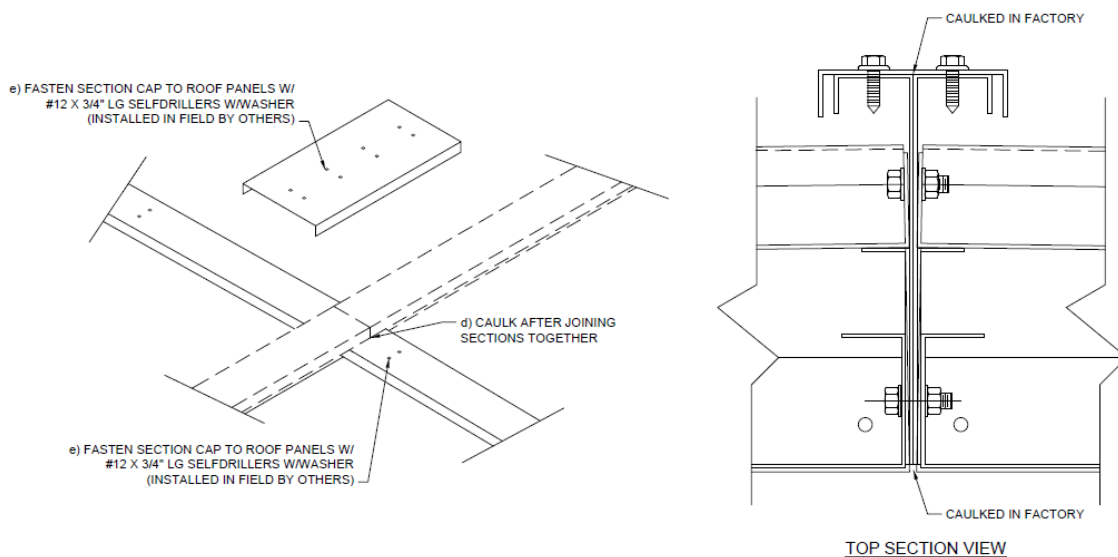
Follow these instructions to ensure a water and airtight top seam seal.

- a) Bolt the unit section together using the bolts and nuts provided.
- b) Use the caulking provided (tubes) to seal the inside section seam. Penetrate the seam as far as possible.
- c) Caulk the heads and nuts of the section bolts.
- d) Caulk the exterior section split seam with the caulking (tubes) provided and top of flanges. Penetrate the seam as far as possible.
- e) Fasten the batten strip to the side of the unit with the self-drilling screws provided.

### Top Section View Detail



### Top Section View Detail (Double Pitched Roof)





## Duct Work Installation:

All ductwork must be fabricated and installed according to all state and local codes and acceptable industry practices. The CPA unit itself is designed to be cleaned and sanitized on the interior. **Therefore, it is recommended that any ductwork to and from the unit also be designed so that it is fully cleanable. This is will necessitate special constructions so the ductwork is air and water tight and fully drainable. It is strongly recommended access doors be mounted in the ductwork for inspection and/or cleaning purposes. Access doors at intervals of 10 feet are typically recommended.**

If the ductwork is located on the roof, it must be insulated on the exterior. **Interior duct insulation should not be used.** Depending upon the type of insulation used, it should be protected on the exterior from the elements. Larger ductwork should be pitched on the top to minimize or eliminate the possibility of standing water.

If the ductwork is located within the critical space, the ductwork again must be insulated on the exterior, however, it must then be coated or covered with a watertight, cleanable surface.

The duct openings on the units are a “finished” opening. The insulation is fully enclosed by the sheet metal. Duct can be either fastened to the outside unit casing face or to the metal on the inside of the opening. Attachment method is dependent on the type of duct used. All fasteners should be sealed water and air tight. Caution should be used when sensors are installed in or near duct openings. Duct flanges can be provided by Evapco on the supply and return. Standard flange extends 1.5” from the unit.



## Drain Pans:

The unit(s) must be installed in a level position so the drains will drain completely. This is critical so there is no standing water in the drain pans.

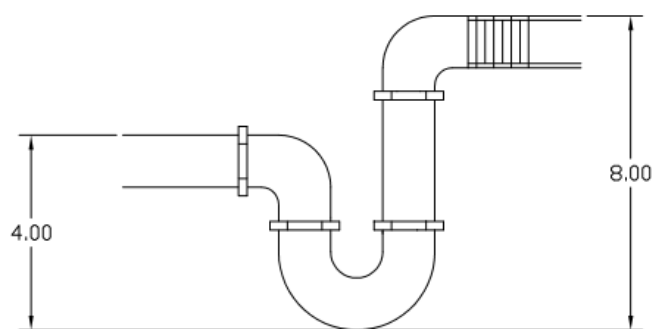
The unit(s) is shipped with a drain pan in each section of the unit. Under most operating conditions, only the drain pan(s) under the cooling coil(s) and the pan downstream of the cooling coil pan, will experience continuous flow of water. Therefore, typically only the drain pan(s) under the cooling coils need to be trapped. However, as a precaution, it is recommended the drain pan downstream of the coil pan also be trapped.

The remaining drain pan(s) are usually used only for cleaning purposes and therefore can be either capped during normal operation or install a hand valve on each of the drains and open only for cleaning. Keep the caps on or the hand valve closed during normal operation.

If all of the drains are utilized, each must have its own P-trap. The sections within the unit have different pressures and therefore, airflow between sections would be possible if the drains are not individually trapped and sealed. If all sections are trapped, the traps should be checked weekly to ensure the traps maintain their water seal. An alternate method would be to include hand valves on the drains not normally having water flow and keep closed during normal operation.

#### Notes:

1. Units CPA-2 through CPA-24 have drains on one side. Larger units and the integral exhaust sections will have drains on both sides.
2. Do not tie the drains together to a single trap. Air can flow from one section to another through the drain piping.
3. Do not discharge cleaning water directly onto the roof.
4. See detail below for proper trap depth.



DRAIN TRAP DETAIL

**NOTE – there is one exception to this trapping guideline.** If the unit has a desiccant wheel there is a possibility that the unit will generate no water from the coils and therefore the traps will dry out and cause operational problems for the desiccant system. If the desiccant unit has a pre-cooling coil, trap the coils drains as recommended above. All the other drains should be either capped or have a hand valve to close them.

#### Piping:

The coil connections extend through the side of the unit for field connection to the refrigeration and/or heating system.

**Note: The field installed piping cannot be supported on the unit coil connections or the unit casing. The field piping must be fully supported external to the unit. Every effort must be made in the field piping to keep stresses to a minimum on coil connections to:**

- a) Allow for thermal expansion and contraction of the field piping.
- b) Allow for wind loading on the piping and unit.
- c) To minimize the transmittal of vibration through the piping to the unit coils.

All piping to the unit must meet all state and local codes. It is suggested that all IIR good engineering and recommended piping guidelines be followed.

## **REFRIGERANT PIPING**

**Stainless Tube/Aluminum Fin Coils** - All stainless tube/aluminum fin evaporator coils are furnished with multiple coil connections. Each of the connections will have a threaded end that is equipped with a pipe cap. This cap seals the coil and allows a factory nitrogen charge to be added. The threaded end shall be cut off in the field. The remaining piece of pipe shall be prepared for welding before final connection of the incoming service piping to the coil.

As described earlier, all evaporators are shipped from the factory with a low pressure nitrogen charge. The unit should remain charged as long as possible before final piping connection to prevent moisture from entering the coil.

The refrigerant piping system must be properly evacuated to remove non-condensables and moisture prior to charging.

**Steam Piping** – If the CPA unit is supplied with a steam coil, the piping must be installed in accordance with state and local codes and accepted industry practices. Please refer to the submittal information for the unit to ensure that the coil is supplied with the proper steam pressure. Exceeding the designed steam pressure will shorten the life of the system and could pose a safety hazard.

**Water or Glycol Coils** – The water or glycol piping must be installed in accordance with state and local codes and accepted industry practices. It is critical that the piping is installed so it can be drained. It is essential that there are no traps or pockets in the system where water or glycol can collect and possibly freeze. All piping must be pitched away from the unit coil. In applications where the coils will see freezing temperatures, it is strongly recommended that the coils and piping be drained and filled with an antifreeze solution to eliminate the possibility of freezing and damaging the coil.

## Blower, Motor and Drive Assembly:

**CAUTION: DISCONNECT ALL ELECTRICAL POWER TO THE UNIT BEFORE ATTEMPTING TO CHECK OR SERVICE THE BLOWER, MOTOR AND DRIVE SYSTEM. FAILURE TO DO SO COULD RESULT IN BODILY HARM OR DEATH.**

**Pre-Startup Inspection for belt drive assemblies** – It is essential the blower, motor and drive assembly be carefully checked prior to startup of the unit. First, rotate the blower(s) by hand to make sure that all of the components rotate freely. Then check the following;

- a) Check the tightness of the fan bearing bolts.
- b) Check the tightness of the blower wheels to its shaft.
- c) Check the tightness of the blower and motor sheaves.
- d) Check the tightness of all motor mounting bolts.

All belts will stretch to some extent during operation. This is most evident after the first few hours of operation. Therefore, it is recommended that the belt tension be checked after the first 50 – 100 hours of operation to ensure that it is at the proper tension. See attached sheet for specific details.

**Pre-Startup Inspection for direct drive assemblies** – It is essential the blower and motor assembly be carefully checked prior to startup of the unit. First, rotate the blower(s) by hand to make sure that all of the components rotate freely. Then check the following;

- a) Check the tightness of the blower wheel to the motor shaft.
- b) Check all motor mounting bolts.

## Blower/Motor Vibration Isolation (option)

For shipment, the vibration base is supported with 2x4 wood spacers and zip tied in place. After installation of the unit, remove zip ties and wood spacers.



## Filters:

The filters for the CPA System are shipped in their original cartons, either inside of the air handling unit or on a separate pallet. It is strongly recommended that once the unit is received, that these filters be removed and placed in a secure, dry location for installation prior to startup.

**Note: The final filter(s) should not be installed until the unit has been tested and final cleaning of the duct, unit and room has been performed.**

An optional pre-filter manometer can be factory installed with the sensing tubes going inside of the unit, sensing the air pressure on the upstream and downstream sides of the filter. The standard MERV 8-10 (35%), 4" pleated pre-filter should be changed out at between 0.8" and 1.0" w.g.

On unit(s) supplied with a final filter section, a filter manometer is located on the discharge air of the unit. This manometer is used to determine when the final filters should be changed. The change out point for MERV 14-15 (95%) filters is 1.2" W.G. and 2.0" W.G. for units with absolute (HEPA) filters. As an option, a combination filter gauge, pressure transducer can be used with a PLC system.

The final filter manometer has factory installed tubes, which go to the inside of the unit, sensing the air pressure on the upstream and downstream sides of the filter.

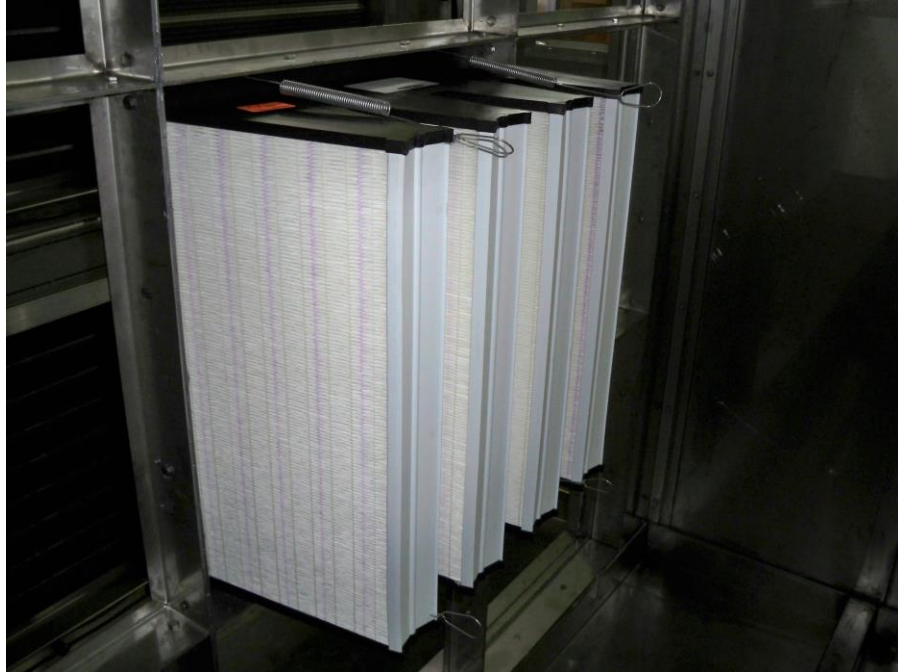
The interior of the unit should be cleaned and sanitized before the filters are placed in the unit. The pre-filters should be held in the frame using two clips per filter. The clips are installed by sliding one end over the back flange of the filter frame. The filters are held in place by just turning the "P" clip over the filter as shown below.

### **MERV 8-10, 4" Pre-Filter Clip Installation**



The MERV 14 and 15 final filters are held in place with four spring holding clips or clamps. The MERV 14-15 (95%) filters use a spring clip, fastened to the back flange of the filter frame. Once the filter is installed, the spring clip should be fastened on the plastic part of the filter. All filters should be installed, if possible, with the pleats vertical.

#### **MERV 14 and MERV 15 Filter clip installation**



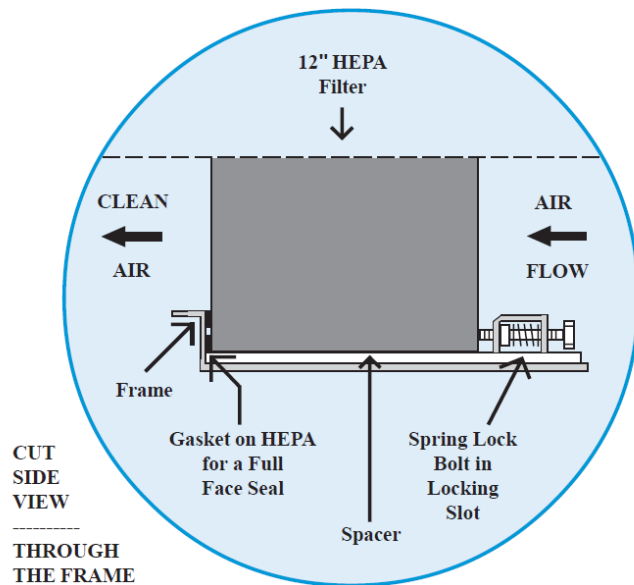
The 99.95% HEPA filters use an angle clip that fits in a notch in the frame. The HEPA filters are installed using the following procedure:

- Carefully open the box. Touch only the frame of the filter, never the white media.
- Slide in the filter into the frame, centering on the filter frame.
- Install four spring bolts to a compression of approximately 30-50%.





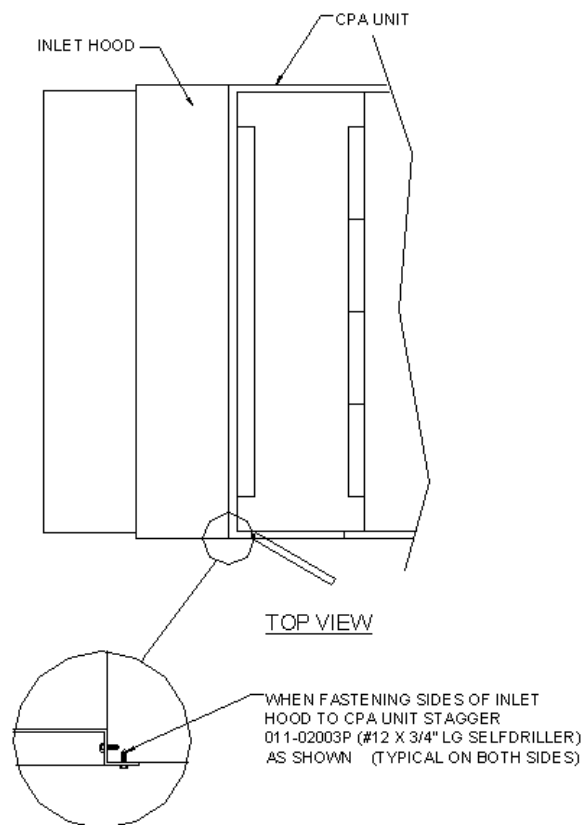
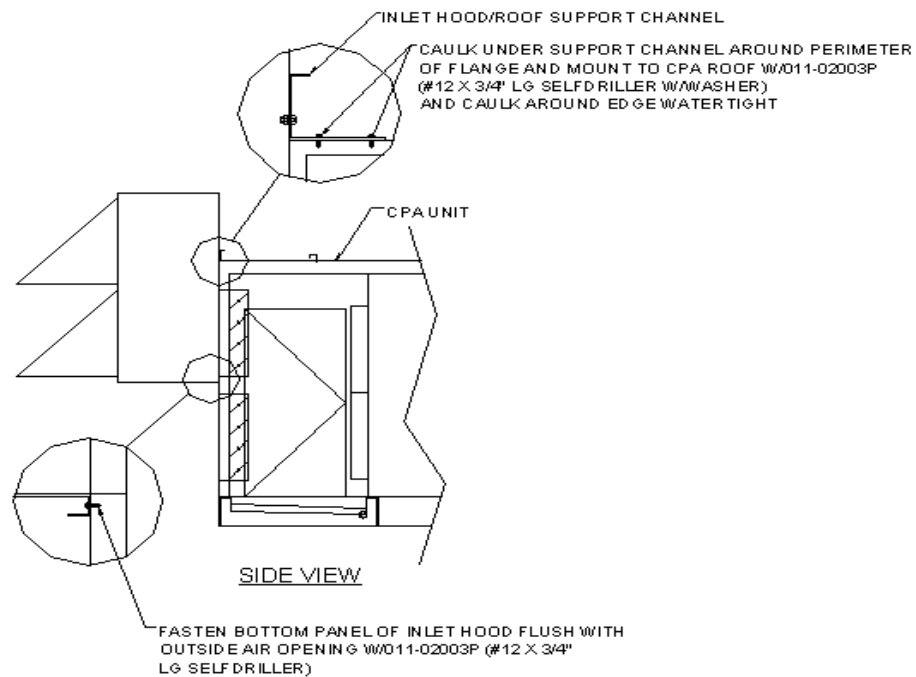
HEPA (MERV 17) filter clip details:



Some applications will have a three filter system, a pre, an intermediate and a final filter. The pre and intermediate filters are held in the same pre- filter frame at the inlet of the unit using the same type of “P” clip, only longer to accommodate the intermediate filter frame. The intermediate filter “pushes through” the frame and the pre filters sits in front. The following shows the installation of the “P” clip. Four clips are used with a pre and intermediate filter installation.

## Inlet Hood:

The outside air inlet hood for the unit is shipped separately for field mounting.





## Surge Drum (Option):

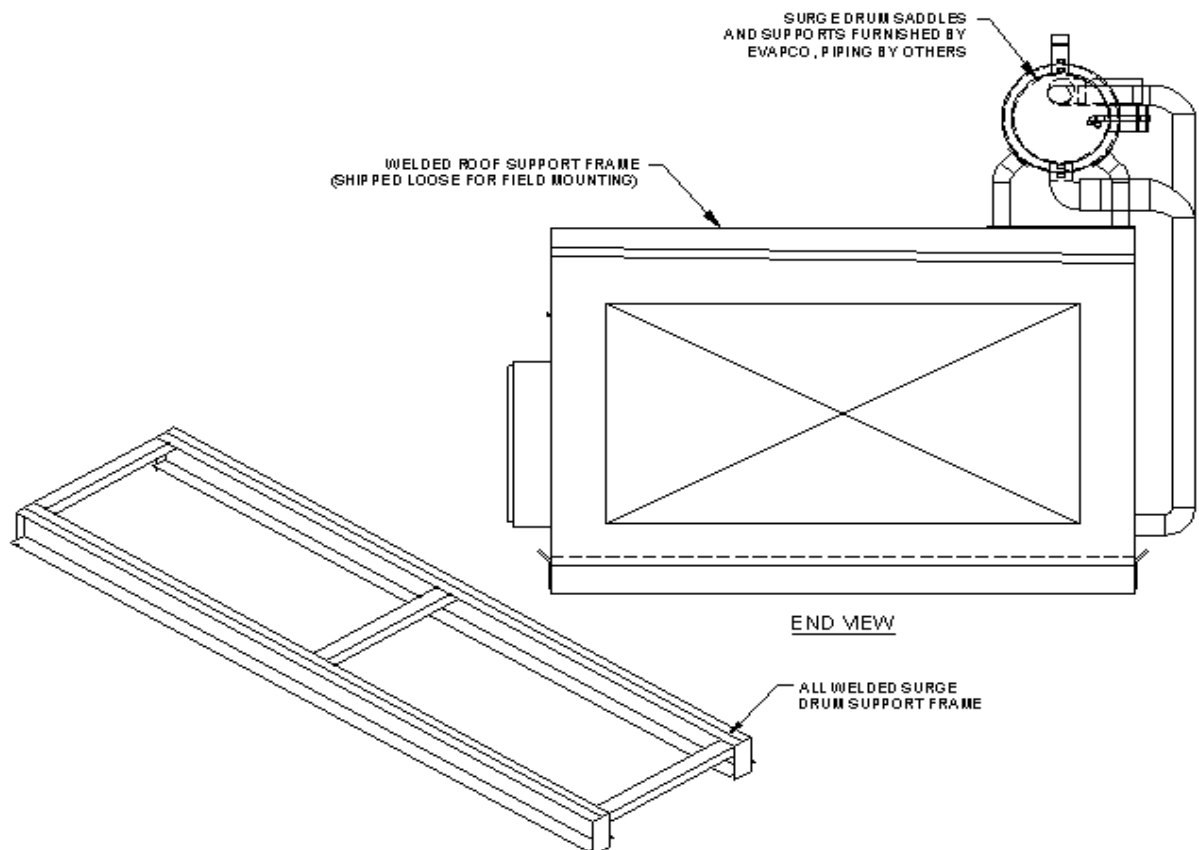
CPA units supplied with flooded ammonia cooling coils can be provided with an optional roof support and surge drum assembly. The roof support and surge drum are shipped loose for field mounting. **NOTE – all valves and interconnecting piping by others.**

The surge drum roof cross support should be centered on the cooling coil to allow the coil feed connection on the drum to line up with the coil inlet connection. It does not require fastening to the unit.

**NOTE: When the roof mounted surge drum option is purchased, special structural support is provided in the unit and cross support. Do not support any component directly on the roof of the unit without this support option. Roof or casing damage can result from improper supporting of components on the unit. Use only the factory supplied surge drum roof support system.**

The relief valve(s) (by others) for the drum should be properly sized for the application and the relief piping should be of a sufficient distance from the unit outside air inlet to meet all local, state and federal codes.

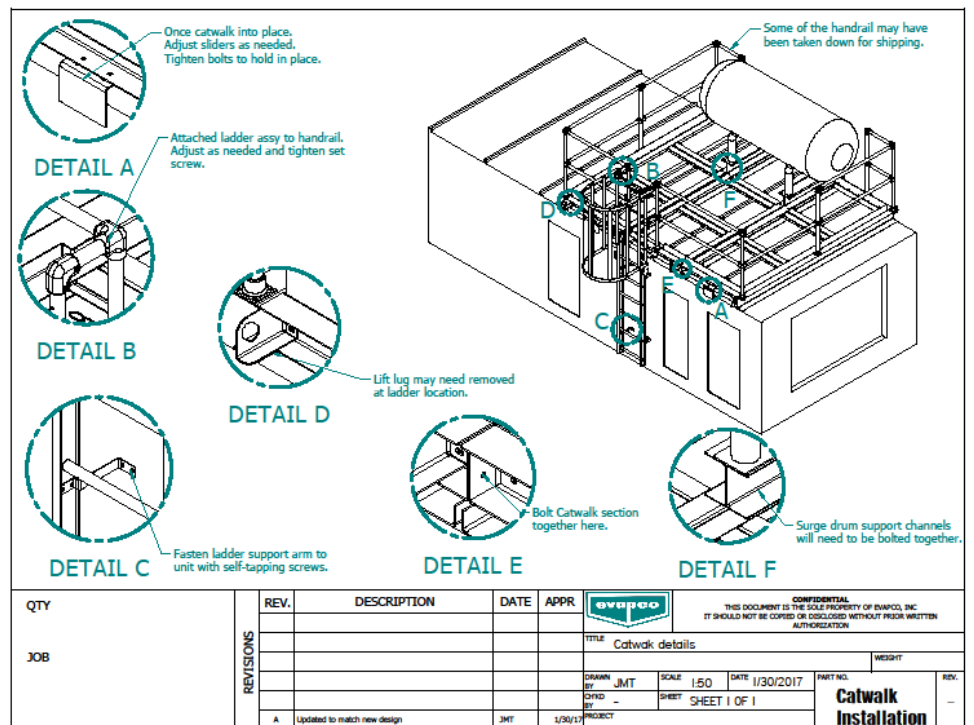
Do not support any piping, valves, or insulation from the CPA unit roof itself. Protect the unit casing while welding piping or valves.



## Surge Drum Catwalk/Ladder system (option):

Install the surge drum catwalk and ladder as per the drawing/instructions below.  
Install the surge drum on the channels on the surge drum support.  
Instructions/drawings placed in plastic bag and fastened to catwalk hand rail tubes at time of shipping.

1. Place Catwalk sections together on roof as shown on unit drawing in release submittal. Catwalk will be dimensioned from end of unit. Note ladder location on drawing as it has a specific location to avoid other components and allow access.
2. Once catwalk is in place, adjust sliders as needed and tighten bolts to hold in place. (Detail A)
3. Attach ladder assembly to handrail. Adjust as needed and tighten set screw. (Detail B)
4. Fasten ladder support arm to unit with self-tapping screws. (Detail C)
5. A lifting lug may need to be removed at ladder location. (Detail D)
6. Bolt Catwalk Section together. (Detail E)
7. Surge Drum Support channels will need to be bolted together. (Detail F)
8. Some of the handrail may be taken down for shipping so assembly may be needed.





### Room Pressure Control (option):

Some units include an automatic room pressure control either for general room pressurization or for use with the economizer cycle. The typical systems have the differential pressure control mounted in the main panel of the unit. The “common” sensor location is to ambient and uses a pipe/sensor assembly (see photo at right) which is mounted on the main control panel. This assembly is shipped disassembled (to prevent damage) and must be re-installed in the field and the sensor tubing attached from the assembly to the differential pressure sensor. The “control” sensor is shipped loose and is field mounted in the room. Plastic ¼” tubing (by contractor) is run from the remote sensor to the unit control panel differential pressure controller.



## BAPI PICKUP PORT INSTALLATION

**SHIPPING ASSEMBLY**



**FINAL ASSEMBLY**

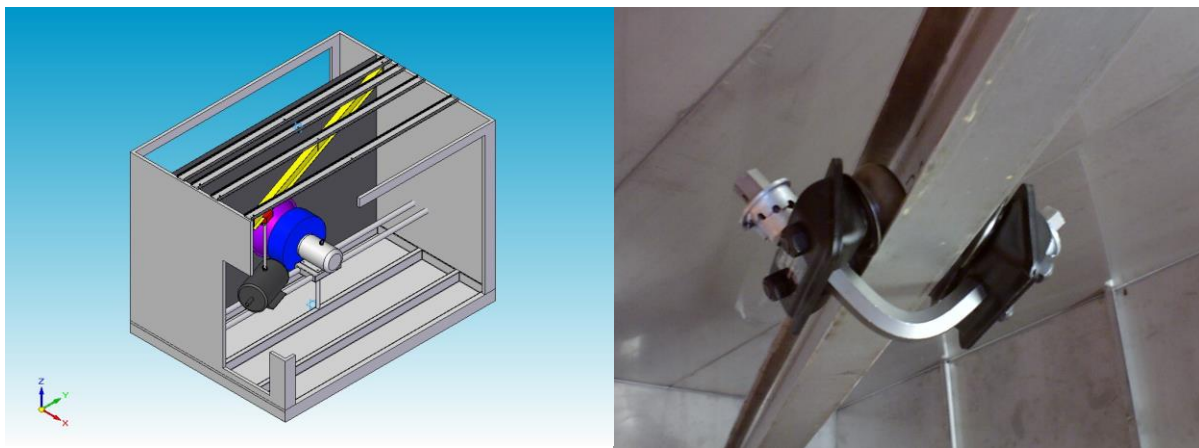


**REMOVE THIS DECAL AFTER ASSEMBLY**

**015-02138**

### Unit Motor Removal Rail (option):

Some units include the motor removal rail/trolley system option which can facilitate easier and safer removal of the unit motor. For safety, the trolley is shipped off the rail to be mounted in the field upon unit installation. Please refer to the trolley installation instructions for proper mounting of the trolley. Prior to every use, make sure the fasteners and hardware are tight and aligned. Do not “swing” the motor when on the trolley since this may stress the beam or trolley and cause an unsafe condition. **NEVER use the trolley without first checking the service instructions.**



### For Systems With The ESS UVC Light Option:

**CAUTION! NEVER EXPOSE EYES OR SKIN TO UVC LIGHT FROM ANY SOURCE. ALWAYS TURN OFF POWER BEFORE ENTERING OR WEAR GLOVES, FACE SHIELDS AND COVER ANY EXPOSED SKIN. DO NOT TOUCH EMITTER GLASS WITHOUT GLOVES.**

Improper installation, adjustment, alteration, service, maintenance, or use can cause fire, electrical shock, or other conditions, which may cause personal injury or property damage. Use only factory kits or accessories when installing the lights.

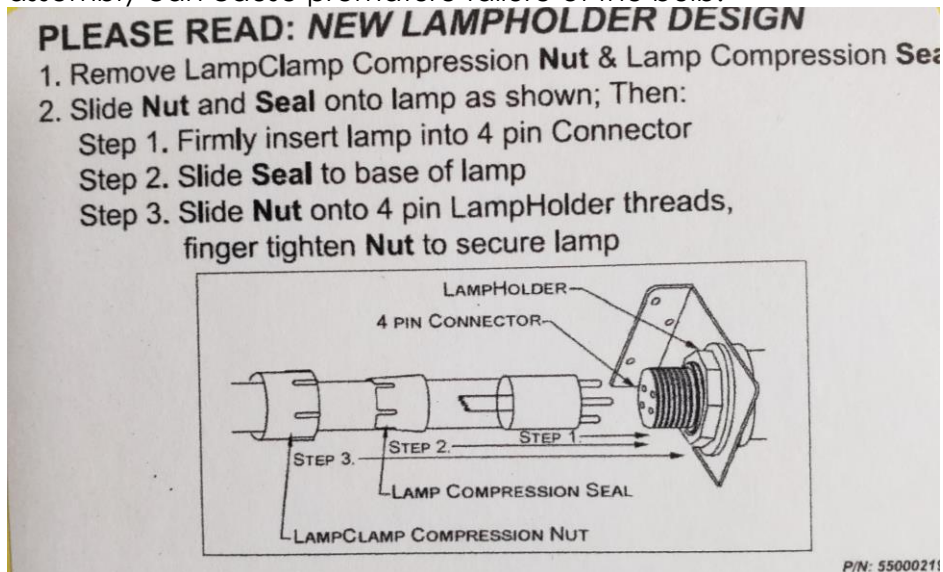
**Warning: Before installing or servicing this unit, always turn all power off. NOTE - There may be more than one disconnecting switch. Follow all safety codes, wear safety glasses and work gloves.**

### General Information

1. To prevent possible shipping damage, the lights are shipped in their original container. To install, remove LampClamp compression **Nut** & Lamp Compression **Seal**.
2. Slide **Nut** and **Seal** onto lamp as shown



3. Firmly insert lamp into 4 pin connector and make sure it is fully seated.
4. Slide **Seal** to base of lamp.
5. Slide **Nut** onto 4 pin LampHolder threads, finger tighten Nut to secure lamp.  
**Hand tighten only – never use a tool!** Failure to properly install the waterproof assembly can cause premature failure of the bulb.



6. Fixtures should be operated continuously.
7. Any potential access to the lamp area must be interlocked with the power source to turn the lamp(s) off should the access doors be opened.
8. The lights will last approximately 12 to 18 months of continuous use. Lights should be changed on a periodic maintenance basis or through the use of a radiometer (optional equipment).

Maintenance of ESS UVC system:

- 1) **CAUTION! NEVER EXPOSE EYES OR SKIN TO UVC LIGHT. ALWAYS TURN POWER OFF, OR WEAR GLOVES, FACE SHIELDS AND COVER ANY EXPOSED SKIN, BEFORE SERVICING THE UNIT.**
- 2) **CAUTION! IMPROPER SERVICE AND MAINTENANCE CAN CAUSE FIRE, ELECTRICAL SHOCK OR OTHER CONDITIONS THAT MAY CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.**
- 3) The bulbs should be replaced annually and should need no maintenance between replacements. Carefully remove the old bulb(s) and check all wiring and connections to the bulbs. Carefully inspect the watertight assembly for wear and replace if necessary.

- 4) Test all circuits and then turn the lights on. A “blue hue” will glow from the light indicating the fixture is working. **Remember – only view the lights through the service door window, or while wearing the protective gear as described above.**
- 5) Mark your preventative maintenance calendar to replace the bulbs one year from the replacement date.
- 6) Check local codes for proper disposal of the used bulbs.

#### **For Systems With Indirect Fired Gas Heat Exchangers:**

See separate supplemental installation instructions for heat exchangers.

**CAUTION! THE INSTALLATION OF THE EXHAUSTER STACK AND TERMINATION CONE IS CRITICAL AND MUST FOLLOW ALL STATE AND LOCAL CODES.**

**CAUTION! INDIRECT FIRED HEAT CHANGERS ARE SUPPLIED WITH CONDENSATE DRAIN CONNECTIONS PIPED TO THE OUTSIDE OF THE UNIT. THE EXHAUST STACKS ALSO HAVE A DRAIN CONNECTION, AND DEPENDING ON THE UNIT TYPE CAN BE INSIDE THE PIPING ENCLOSURE AND PIPED TO THE EXTERIOR OF THE ENCLOSURE OR CAN BE EXPOSED IF THE STACK IS EXTERNAL TO THE PIPING ENCLOSURE. THE CONDENSATE FROM BOTH DRAINS CAN BE VERY CORROSIVE AND EXTREME CARE SHOULD BE EXERCISED WHEN SELECTING A LOCATION FOR DISCHARGE OF THE CONDENSATE. CONDENSATE SHOULD NOT BE DISCHARGED ON TO A ROOF. FOLLOW ALL STATE AND LOCAL CODES.**

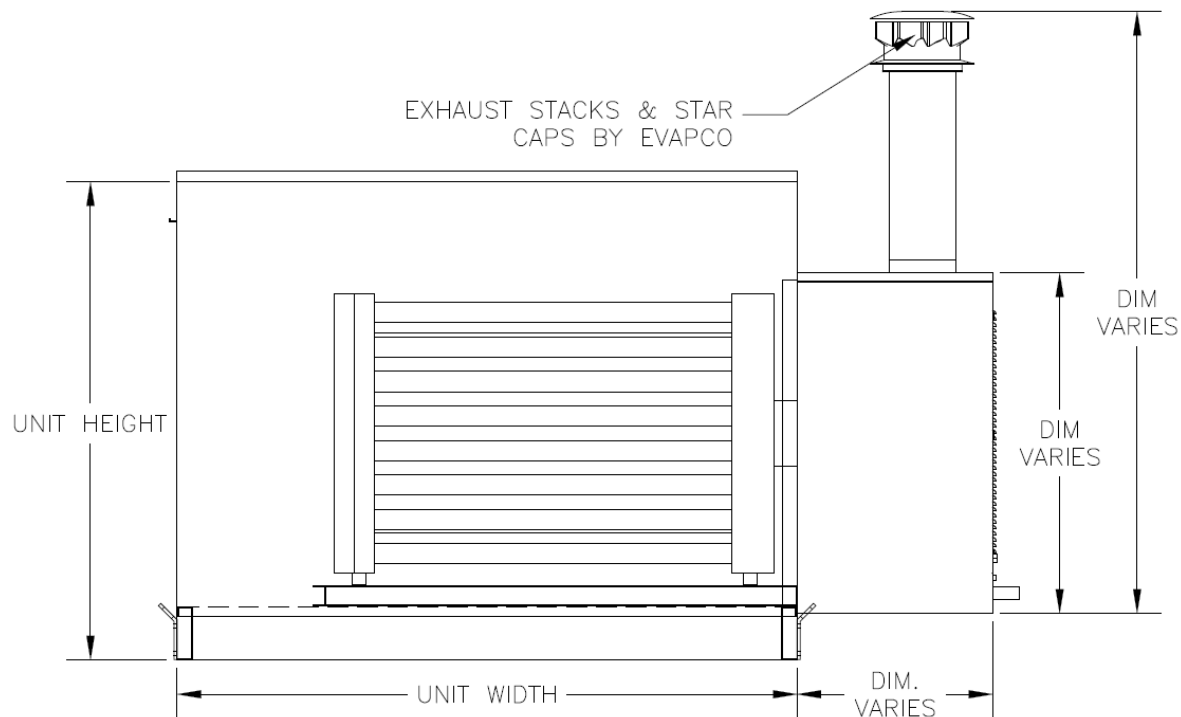
**SEMI-ANNUALLY CHECK THE DRAINS AND DRAIN PIPING/TRAPS TO ENSURE THEY ARE FREE FLOWING. FAILURE TO EFFECTIVLY DRAIN CONDENSATE FORMED IN THE HEAT EXCHANGER CAN RESULT IN PREMATURE CATASTROPHIC FAILURE OF THE HEAT EXCHANGER.**

The CPA unit heat exchanger is complete with the exhaust stack. However, there is some field installation required. The universal adaptor, elbow, universal condensate drains and vent pipes are factory mounted. The outside vent pipe, flat flashing and storm collar are shipped loose.

Once the unit is installed, place the flat flashing on the roof of the piping vestibule. Then slid the external vent from the outside of the piping cabinet down through the hole in the roof and insert in the interior vent pipe.

Install the storm collar. Seal with high temperature sealant.

The external vent pipe in normal circumstances should not need bracing. However, in high wind areas bracing may be advised.



#### Unit Roof Fall Protection Anchor(s) (option):

As an option, CPA units can be supplied with roof mounted fall protection anchor(s). The system includes a heavy backing plate, installed at the factory, with an anchor fastened to the heavy plate. Unit sizes CPA-20 and larger are of a height the anchor would make the shipment too high for standard shipping and therefore the anchor is shipped loose for field mounting. If shipped loose use the following mounting procedure:



1. Place a bead of caulk over the holes in the heavy plate factory mounted on top of the unit.
2. Position the anchor on the plate.
3. Fasten down the anchor using 32 (eight in each corner) 1/4-14 self- drilling screws supplied with the anchor. Make sure all screws are tight.

**WARNING – this anchor is part of a personal fall arrest or fall restraint system. The instructions in this document and the information in the O&M manual must be read and understood before using the anchor. Alterations or misuse of the anchor or failure to follow instructions may result in serious injury or death.**

The end user or contractor using the anchor must use OSHA approved full body harness and lifelines and selected for the application. Do not hang, lift or support tools or equipment from the anchor, or attach guy lines to the anchor.

It is the responsibility of the users to assure they are familiar with the instructions, trained in the correct care and use of, and are aware of the operating characteristics, application limitations, and consequences of improper use of the anchor.

The anchor is designed for use by one person with a combined weight (clothing, tools, etc.) of not more than 310 lbs (141 kg). Only one person shall be attached to the anchor at any one time.

The anchor should be inspected before each use and, additionally, by a competent person other than the user at intervals of no more than one year. Follow the inspection procedures outlined in the O&M manual. Results of the Competent Person inspection should be recorded in the maintenance log.

The anchor is not repairable. If the anchor is subject to a fall force or inspection reveals an unsafe or defective condition, remove the anchor from service.

#### **Ammonia Detector (option):**

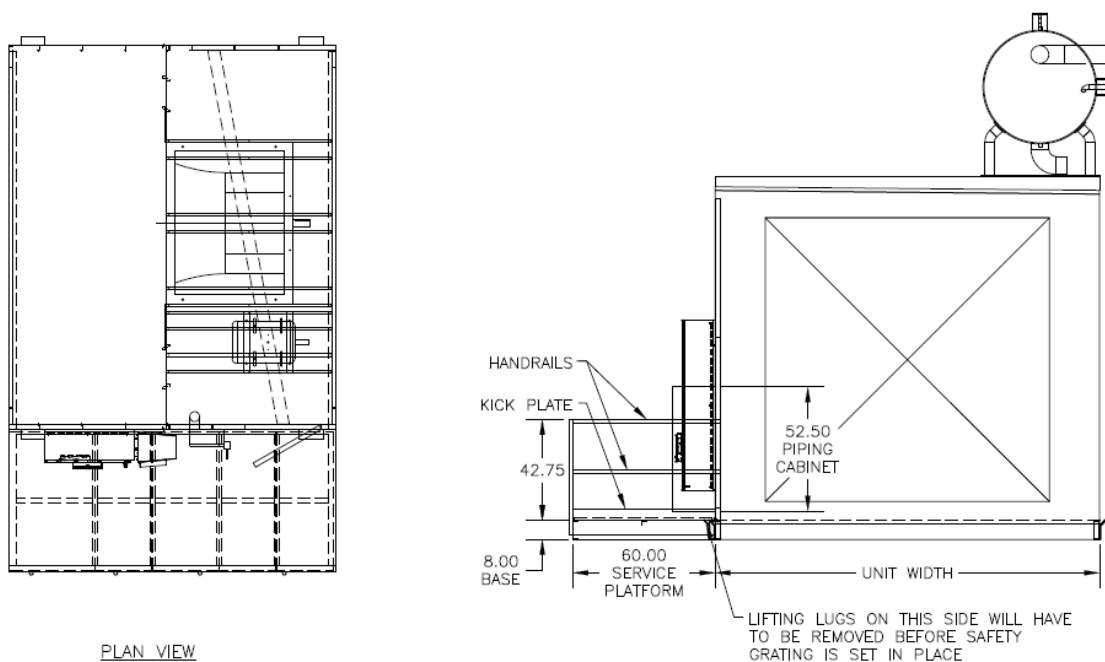
CPA units can be provided with ammonia detectors to provide unit shutdown and/or alarm upon an ammonia release. See instructions in the installation packet for complete details and operation. The ammonia sensor comes unplugged and with a cap over the sensor. Sensor will need to be plugged in and cap removed or the PLC will show an NH<sub>3</sub> alarm.

The ammonia detector comes factory calibrated. **However, if the detector requires gas calibration after installation it is the responsibility of the installation contractor to perform this gas calibration.**



## Evapco Service Platform (option):

CPA units can be provided with a service catwalk to provide access to the unit for service and maintenance. This platform shares common base steel with the CPA unit and does not require external support. The platform includes pre-cut aluminum safety grating, galvanized steel handrail system, and self-closing safety gate. Some of the safety grating may not be installed during shipment for rigging purposes. To install safety grating over lifting lug, remove lifting lug after set. Place safety grating in proper location and tighten down. Access ladders or stairs are provided BY OTHERS.

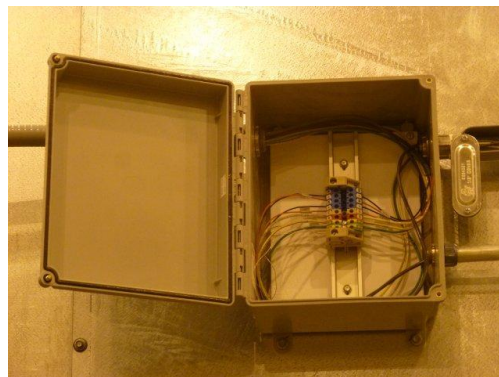


## General Electrical Information:

**Depending on the size of the unit, it may be shipped in sections. If so, the control and/or power wiring must be split at the section. At each section split will be an electrical junction box with terminals. It is the contractors responsibility to reconnect the wires at the junction box.**

Retighten all terminals and electrical connections. All conduit penetrations into the control panel must be sealed air tight. All junction boxes and control panels must be sealed tight. DO NOT install conduit in the top of the control panel.

The grounding of the unit, especially when the unit has a PLC or VFD system, is critical to the proper operation of the unit. Improper grounding of the unit and panel can cause faults or damage to the sensitive electronic systems. Follow all NEC guidelines.



**Please follow all wiring diagrams for the unit. DO NOT make any field modifications to the controls or wiring since improper wiring can cause component failure, damage to the control system, sever damage to the unit and building and personal injury or death.**

### **Cleaning and Sanitizing Before Startup:**

It is strongly recommended that the interior of the unit and the ductwork be cleaned and sanitized before the unit is operated. Operating the unit before cleaning and sanitizing can: 1) prematurely plug the filters, and 2) blow dust, dirt and other contaminants into the space being served by the unit.

The sanitizing chemicals used to clean and sanitize the unit and ductwork should be checked very carefully to make sure they are compatible with the interior liner construction and the duct material.

### **GENERAL PRECAUTIONS AND SAFETY PROCEDURES FOR EVAPCO EVAPORATORS**

1) Caution must be employed in the use of any refrigerant. Wherever people or product may be exposed to the refrigerant, frequent visual inspections should be made and continuous monitoring is recommended for the detection of any defect or malfunction, which may result in the release of refrigerant. Electronic detection devices should be used for warning of the presence of refrigerants in the atmosphere. In addition, temperature monitoring devices should be used constantly to warn against the loss of refrigerant capacity or temperature rise in refrigerated spaces, which may prove harmful to people, product, or equipment. **Only experienced, qualified personnel should service, operate and maintain refrigerant equipment.**

2) Where there are liquid lines, or any lines which may contain liquid refrigerant, certain precautions must be taken to avoid hydraulic shock or hammer, and hydraulic lock-up. Hydraulic lock-up may occur when the ambient temperature causes a temperature increase in a section full of trapped liquid. If the evaporator coil is part of this trapped section, serious damage may result from the expansion of the liquid. Hydraulic shock caused by liquid accumulation in hot gas lines or suction lines used for hot gas defrost can also cause coil damage. Traveling at high velocity, the energy of a liquid slug may be sufficient to break coil header caps or plugs from their lines. For hot gas defrost applications, the units should never be operated without a check valve or some other device which will prevent liquid refrigerant from draining into and accumulating in the hot gas pan coil. For more information, see IAR II or ASHRAE Standard 15.

3) If isolating an evaporator, remove liquid refrigerant from the coil or section to be isolated before hand valves are closed in order to protect equipment, personnel, and product. Pump out lines to remove liquid accumulation which, in combination with high flow velocities, may produce hydraulic shock or hammer.

4) Refrigeration coils and unit coolers must not be used with refrigerants other than the type indicated on the certified drawings from the factory. Likewise, the type feed

should not be different than that which is specified on the certified drawings. The coils must never be subjected to pressures in excess of 300 psig.

5) All refrigerant piping systems must be properly evacuated to remove noncondensables and moisture prior to charging.

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2/28/2020