



Rigging & Assembly Instructions

**ATC-E, ATC-ES,
eco-ATC-A, ATWB,
eco-ATWB**

EVAPORATIVE CONDENSERS
AND CLOSED CIRCUIT COOLERS



Mr. GoodTower®

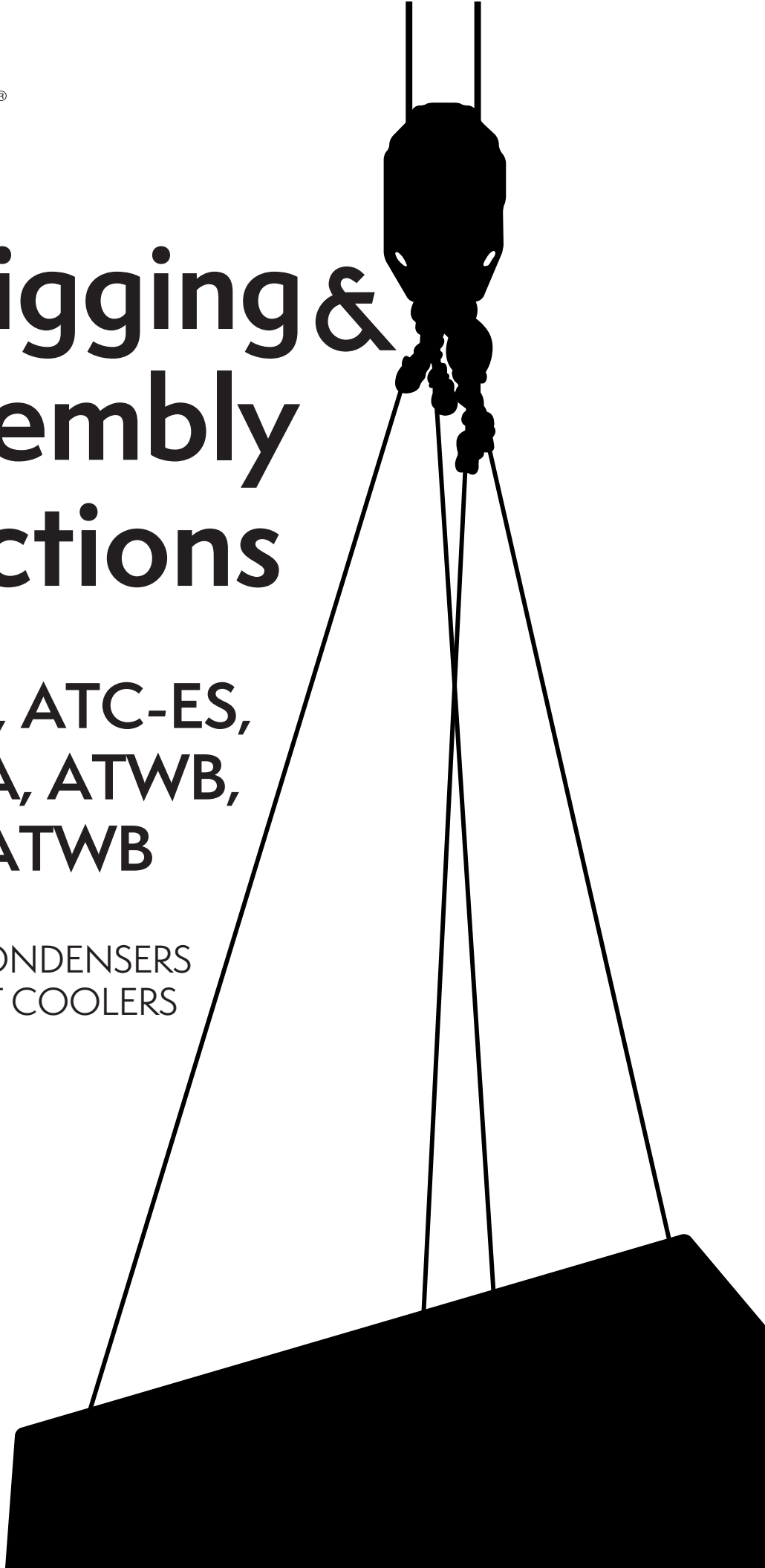




Table of Contents

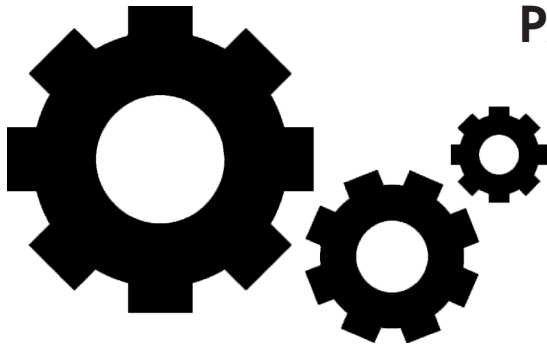
Introduction	4
Method of Shipment.....	4
Structural Steel Support.....	4
Rigging Basin Section	5
Rigging Multi-Cell Units	5
Equalizer Blank-Off Plate: Multi-Cell Units.....	8
Application of Sealer Tape	8
3-Section Shipments.....	10
Fan Section Rigging	10
Extended Lifts.....	11
Assembly of the Coil/Fan Section to the Basin	11
Containerized Unit Assembly.....	13
Assembly of the Fan Section to the Coil Section (Containerized).....	16
Assembly of the Coil Section to the Basin (Containerized).....	16
Installing Watertight Partitions & Firewalls	17
External Motor Installation — Belt Drive	18
Optional Motor & Gear Box Davit Installation.....	19
Mounting Fan Screens	20
Sloped Ladder Installation.....	21
External Platform and Vertical Ladder Installation	22
Optional Discharge Hood Damper Section Assembly - ATW Models.....	23
Notes	24

The ATC-E, ATC-ES, eco-ATC-A, ATWB, AND eco-ATWB EVAPORATIVE CONDENSERS AND CLOSED CIRCUIT COOLERS should be rigged and assembled using the instructions and recommendations outlined in this bulletin.

All personnel should review these procedures, as well as the latest industry-approved installation practices, prior to rigging and assembly. The information in this bulletin is for informational purposes only. These instructions do not purport to cover all variations and possible contingencies in connection with installation. Additionally, the procedures described herein are subject to change without prior notice, due to EVAPCO, Inc.'s ongoing research and development.

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Introduction

This manual provides instructions and recommendations to safely and correctly install all ATC-E, ATC-ES, eco-ATC-A, ATWB, and eco-ATWB, evaporative condensers and closed circuit coolers. It is recommended that all instructions provided in this manual be reviewed in detail prior to rigging and assembly. If at any point, specific circumstances not covered by this manual arise, please contact your local EVAPCO representative for assistance.

Proper care must be taken by all parties involved in handling and assembling the equipment to ensure that safe and thorough installation practices are implemented to prevent damage or injury to the equipment, persons, and environment involved.

Method of Shipment

Induced draft coil products are shipped with the top section(s) separate from the bottom section(s). These sections have mating flanges and will join together in a waterproof joint when sealed and bolted together as described in the following instructions. Miscellaneous items, such as sealer, self-tapping screws and any other required materials, are packaged and placed inside the pan for shipment. For units consisting of multiple cells, drip channels and splash guards will ship loose in the basin for field installation.

For 7' and 8.5' (2.2m and 2.6m) and 14' and 17' (4.3m and 5.2m) wide units, the motors and drives are factory aligned and then shipped loose inside the basin section for mounting during installation. Refer to the "External Motor Installation" section in this bulletin.

NOTE: All casing sections are factory inspected prior to shipment to verify proper fit for rigging. Please take extra care to handle and rig unit section per the instructions of this manual to avoid possible distortion and poor casing alignment. It is advisable to check each section upon receipt and during each lift to ensure that the factory alignment has not been altered. Should the field inspection indicate the section alignment ("square") has been altered, please contact the factory or your local EVAPCO representative for additional instructions to obtain proper section fit.

Structural Steel Support

Two structural I-beams running the length of the unit are required for support of each cell of the units. These beams should be located underneath the outer flanges of the unit (See **Table 1**). Mounting holes 3/4" (19mm) in diameter are located in the bottom flanges of the unit for bolting to the structural steel (See steel support print in unit submittal for exact bolt hole location). Bolt the bottom section to the steel support before rigging the top section.

Beams should be sized in accordance with accepted structural practices. Maximum deflection of the beam under the unit to be 1/360th of the unit length, not to exceed 1/2" (13mm). Deflection may be calculated by using 55% of the operating weight of the unit as a uniform load on each beam (See certified print in unit submittal for operating weight).

The supporting I-beams should be level before setting the unit. Do not level the unit by shimming between the bottom flanges and the beams as this will not provide proper and continuous longitudinal support. Support beams and anchor bolts are to be furnished by others. Always refer to the certified print in the unit submittal for unit weights, dimensions and technical data.

Please refer to the unit submittal for detailed, project specific steel support arrangement.

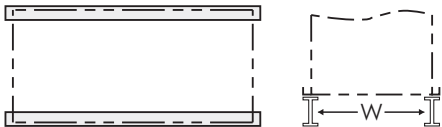
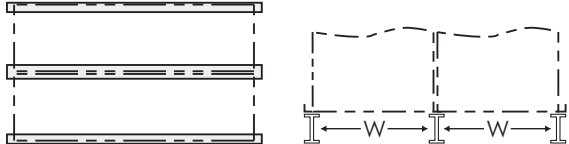
<p>3' (0.914m), 4' (1.2m), 7' (2.2m), 8.5' (2.6m), 10' (3m), and 12' (3.6m) wide single & multi-cell units</p>	
<p>14' (4.3m), 16' (4.8m), 17' (5.2m), 20' (6m) and 24' (7.3) wide multi-cell units</p>	

Table 1 – Standard Longitudinal Steel Support Arrangement

Rigging Basin Section

Lifting devices are located in the bottom corners of the basin (Figure 1), additional lifting points can be found in the middle for basins with a length of 24' (7.3m) and over (Figure 2). The hook of the crane must be a minimum dimension of "H" above the top of the section being lifted to prevent undue strain on the lifting devices. See Table 2 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the section. (See "Extended Lifts" section for proper arrangement.) Bolt the basin section to the steel support before rigging the coil/fan section.

BASIN SECTION LENGTH		MINIMUM "H" DIMENSION	
FEET	METERS	FEET	METERS
3 - 6	0.9-1.8	8	2.4
8.5	2.6	10	3
9	2.7	10	3
10.5	3.2	11	3.4
12	3.6	15	4.6
14	4.3	17	5.2
18	5.5	19	5.8
20	6	21	6.4
21	6.4	22	6.7
24	7.3	15	4.6
28	8.5	16	4.9
36	11	19	5.8
40	12.2	21	6.4

Table 2 — Minimum "H" Dimensions for Basin Sections

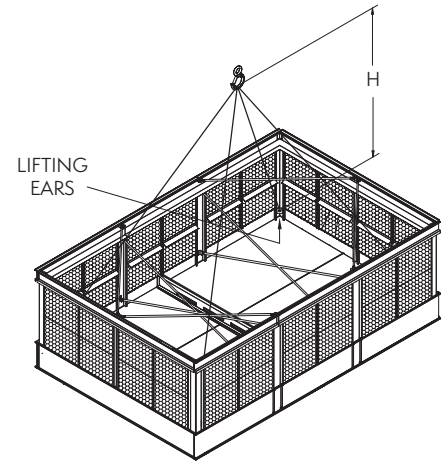


Figure 1 — Basin Section up to 21' (6.4m) Long

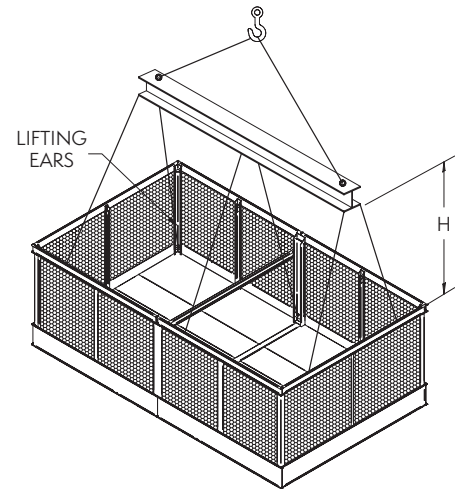


Figure 2 — Basin Section 24' (7.3m) to 40' (12.2m) Long

Rigging Multi-Cell Units

On all two-cell models, the two bottom sections are shipped separately and are typically furnished with a connecting equalizer flume box between them.

In addition to the equalizer flumes, these units are provided with horizontal drip channels and vertical splash guards to keep water from splashing out from between the cells. All units have one or more horizontal drip channels and two vertical splash guards per flume box. Flume boxes are a standard offering on multi-cell units.

The equalizer flume box is factory installed on one section for field connection to the other. It is important to connect the equalizer flume to balance the water level in the pans for proper pump suction operation. The procedures that follow should be performed in sequence.



For units on which the flume box ships loose:

1. Rig one of the bottom sections of the multi-cell unit. Bolt to steel support.
2. One face of the flume box is provided with 3/8" (10mm) welded bolts. Clean the mating flume opening on the rigged bottom section and apply a layer of sealer tape on this surface, centered between the hole centers and the outside edge. Remove paper backing strip from sealer tape.
3. Align the bolt holes in the rigged bottom section with the welded 3/8" (10mm) bolts on the flume box.
4. Install 3/8" (10mm) nuts and washers on every bolt around the flume opening and tighten.
5. Follow steps 4 through 10 as shown below.

For units on which the flume box ships mounted to one cell:

1. Install the bottom section with the factory installed flume box on it as described above.
2. Clean the flanges on the flume box on the end to be field connected. Apply a layer of sealer tape on the flange, centered between the hole centers and the outside edge. Remove paper backing strip from the sealer tape.
3. Clean the mating surface of the flume opening of any dirt, grease or moisture.
4. Rig the second bottom section adjacent to the equalizer flume on the steel support as shown in the sequential figures that follow.
5. Align the bolt holes in the flume box and flume opening with drift pins (by others) while drawing the second bottom section against the flanged connection.
6. Install 3/8" (10mm) bolts, nuts, and washers in every hole around the flume opening and tighten.
7. Bolt the second bottom section to the steel support.
8. Remove the 1/4" (6mm) bolts which hold the drip channel retaining clips to the end panel. Place the drip channel over the adjoining pan section flanges. Turn around the retaining clips and install them using the same hardware.
9. If there are multiple drip channels, fasten them together end-to-end by driving a self-tapping 5/16" (8mm) screw through the section end with the larger hole into the mating end with the smaller hole. Stainless steel units will use 5/16" (8mm) stainless steel nuts and bolts.
10. Place the vertical splash guard in the bend of the vertical supports. On galvanized units, attach the vertical splash guard using 5/16" (8mm) self-tapping screws. On stainless steel units, attach the vertical splash guards using 5/16" (8mm) stainless steel nuts and bolts. (See Figure 3a)
11. Once the bottom of the vertical splash guard has been attached to the drip channel, place the filler cap channel in the upper flanges of the bottom section as shown in Figure 3b. Attach to vertical splash guards using 5/16" (8mm) tappers (for galvanized units) or stainless steel nuts and bolts (for stainless steel units).

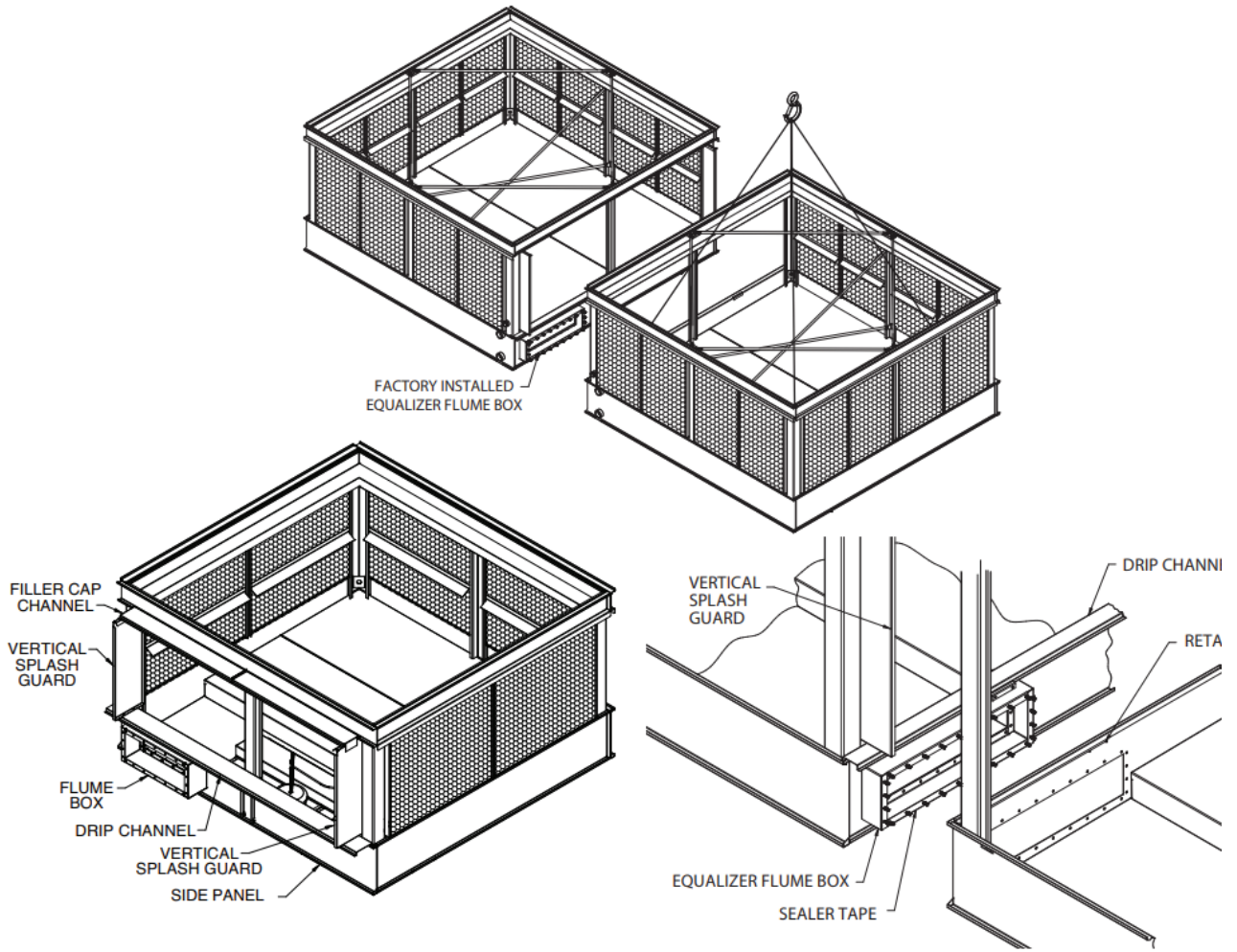


Figure 3a — Joining Bottom Sections - Multi Cell Units

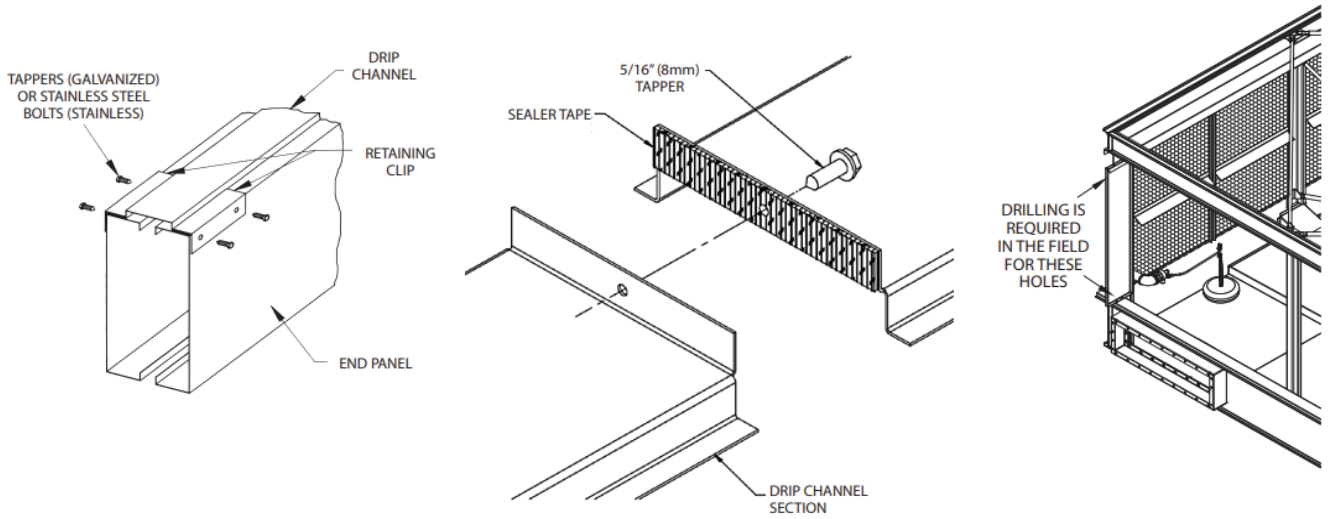


Figure 3b — Drip Channel and Vertical Splash Guard Installation

Equalizer Blank-Off Plate: Multi Cell Units

Equalizer blank-off plate(s) are available to isolate the bottom sections for individual cell operation, periodic cleaning, or maintenance. The optional equalizer blank-off plate is factory installed on the equalizer flume and secured by wing nuts. This plate is also known as a “flume plate” or “positive closure plate.”

For units not requiring the blank-off plate under normal operating conditions, remove the wing nuts, washers, plate and gasket. Reinstall washers and wing nuts for proper leak free operation of the equalizer flume box.

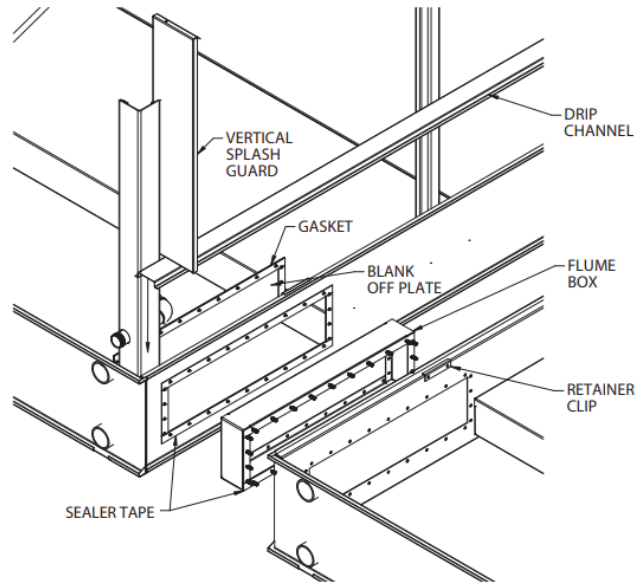


Figure 4 — Equalizer Blank-Off Plate Installation

Application of Sealer Tape

Once the bottom section has been set on the supporting steel and bolted in place, the top flanges should be wiped down to remove any dirt or moisture. Sealer tape should be placed over the mounting hole centerline on the side flanges along the entire length of all sides. Apply two strips of sealer tape, one partially overlapping the other, on the entire length of the end flanges (flanges with no bolt holes).

The sealer tape should overlap on the corners as shown in Figure 5a. Do not splice the sealer tape along the end flanges and preferably not on the side flanges if it can be avoided. Always remove the paper backing from the sealer tape. All models with two or more top sections must have sealer tape applied along the entire length of all internal flanges, as shown in Figure 5b.

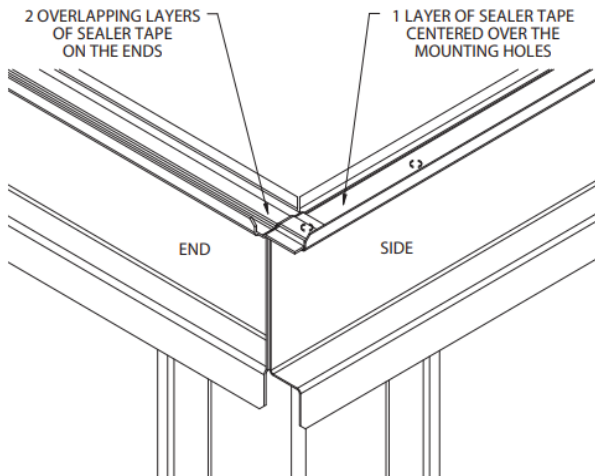


Figure 5a — Sealer Tape on Flange of Bottom Section

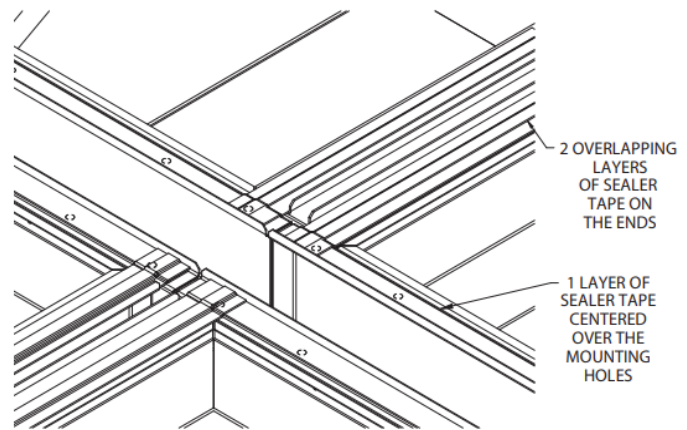


Figure 5b — Sealer Tape Detail for Center Joint of Units with Four Top Sections

Rigging Coil/Fan Section

Four lifting ears are provided in the lower corners of most coil/fan sections for lifting into final position. Some 18' (5.5m) long sections and longer will have two additional lifting ears in the middle of the section. (See Figures 6a and 6b.)

Use all lifting ears. A spreader beam must be used for lifting the top section(s) as shown in Figures 6a and 6b.

The hook of the crane must be a minimum dimension "H" above the lifting ear to prevent undue strain on the lifting ears. See Table 3 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the section. (See "Extended Lifts" for proper arrangement.)

Note: For 7' (2.24m) and 8.5' (2.6m) wide models, mount the external motor prior to rigging as detailed in the "External Motor Installation" section.

Section Width		Section Length		Minimum "H" Dimension	
Feet	Meters	Feet	Meters	Feet	Meters
4	1.2	4	1.2	5	1.5
		6	1.8	6	1.8
		9	2.7	8	2.4
		12	3.6	11	3.4
6	1.8	8.5	2.6	9	2.7
7	2.2	9	2.7	9	2.7
		12	3.6	10	3
		18	5.5	14	4.3
8/8.5	2.4/2.6	6	1.8	7	2.1
		7.5	2.4	8	2.4
		9	2.7	9	2.7
		10.5	3.2	10	3
		12	3.6	10	3
		14	4.3	12	3.6
		18	5.5	14	4.3
10	3	12	3.6	12	3.6
		18	5.5	14	4.3
12	3.6	12	3.6	12	3.6
		14	4.3	13	4
		18	5.5	14	4.3
		20	6	15	4.6
14	4.4	24	7.3	17	5.2
		26	7.8	22	6.7

Table 3 – Minimum "H" Dimensions for Coil/Fan Sections

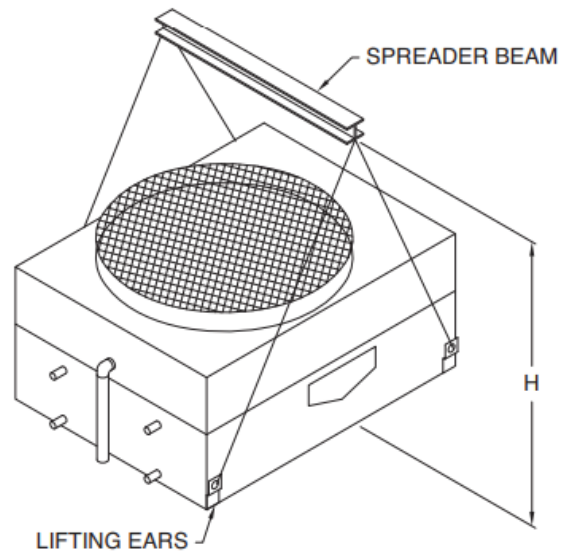


Figure 6a – Four Point Lift

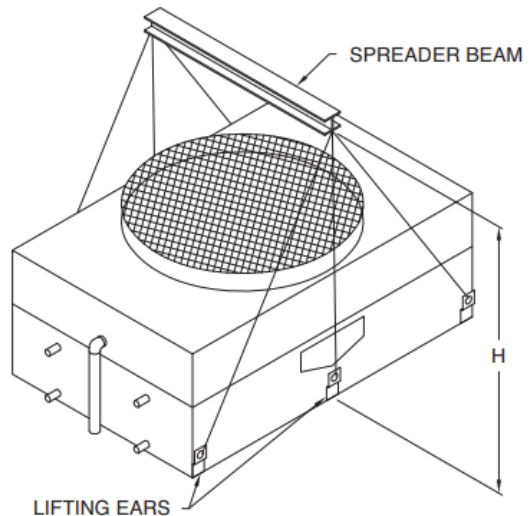


Figure 6b – Six Point Lift

3-Section Shipments

In some cases, a unit is shipped in 3 sections (Fan, Casing and Basin) in lieu of the standard 2 sections (Fan + Casing, and Basin). This is often done to reduce the shipping height of each individual section, which in turn may reduce the size of the crane required to rig the unit.

Casing Section Rigging

All casing sections will be rigged as a six-point lift as shown in Figure 7.

Section Length	Minimum "H" Dimension
24' (7.3m)	11' (3.4m)

Table 4 — Minimum "H" Dimension for Six-Point Lift of Coil Casing Sections

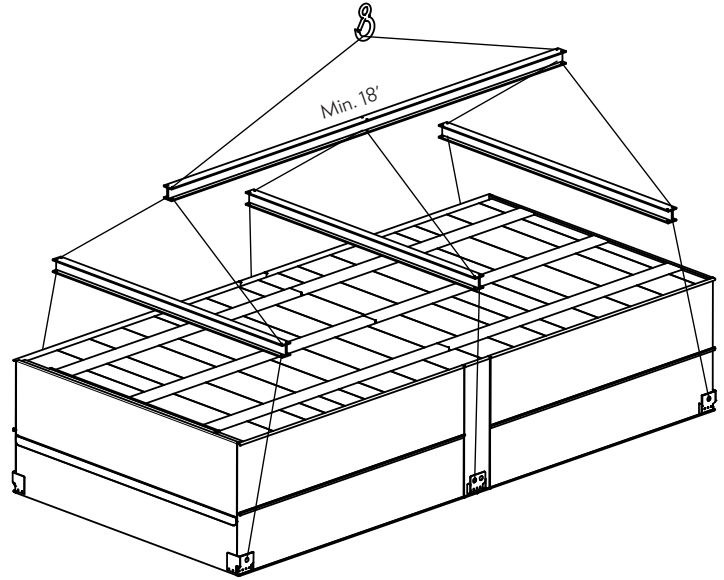


Figure 7 — Six-Point Rigging of Coil Casing Section

Fan Section Rigging

When lifting the fan section separate from the casing section, the center of gravity of the fan section is heavily biased towards the location of the fan motor and major drive components. In order to avoid lifting the fan section at a lopsided angle, a six-point lift is necessary. In such a case, an additional lifting ear is provided by the factory on the mechanical bearing support assembly. The "U" bolts on the fan deck which are located close to the fan motor are removed.

Figure 8 shows the proper six-point lifting method for the fan section. The hook of the crane must be a minimum dimension "H" above the top of the section being lifted to prevent undue strain on the "U" bolts.

See Table 5 below for minimum "H" dimension to safely lift the fan section during a six-point lift.

Section Length	Minimum "H" Dimension	Minimum "H" Dimension SLSF
24' (7.3m)	13' (4m)	13'(4m)

Table 5 — Minimum "H" Dimension for Six-Point Lifts

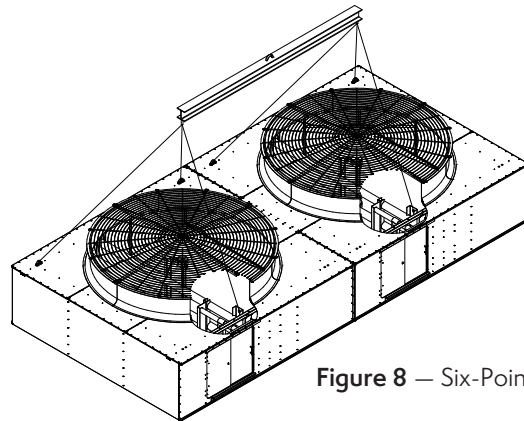


Figure 8 — Six-Point Lift

Prior to lowering the fan section onto the casing section, the side flanges on the casing sections must be cleaned by the installer and have sealer tape applied to them. The ends will need to be cleaned and have 2 overlapping layers of sealer tape applied to them. Follow instructions from the "Application of Sealer Tape" section of this manual.

Drift pins should be used to align the fan section with the casing section. The installer will need to attach the fan section **end panels** to the casing section **end panels** and the fan section **side panels** to the casing section **side panels** with self-threading tappers (galvanized units) or bolts (stainless units).

NOTE: Fan screen and fan screen support will be shipped loose in the event of a 3-section shipment. Both these items need to be installed after rigging.

Extended Lifts

Important: The lifting devices and “U” bolts should be used for final positioning only and for lifting where no danger exists. If they are used for extended lifts, safety slings should be provided under the sections.

Safety slings and skids must be removed before final positioning of the unit.

The preferred method for extended lifts is to use slings under the unit, as shown in Figure 9 below. Spreader bars should always be used between the cables at the top of the section to prevent damage to the upper flanges or fan cylinders.

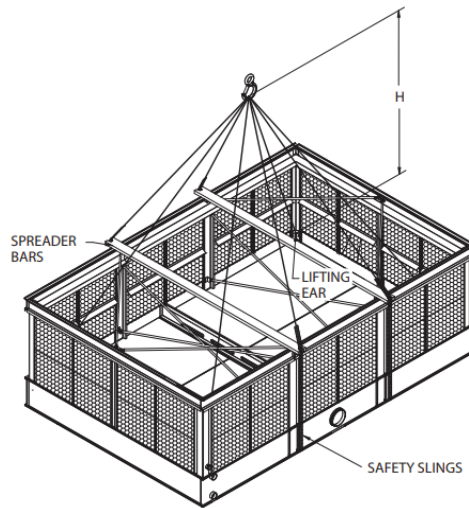


Figure 9 — Extended Lifts

Assembly of the Coil/Fan Section to the Basin

Before securing the upper section to the bottom section, remove any loose parts shipped in the basin.

Wipe the flanges on the bottom of the upper section. Check to see that the water distribution connection on the top section is in the correct position relative to the bottom section (see unit certified drawing). Units are also provided with match markings on each section (i.e. A1 of bottom section should match up with A1 of top section).

Lower the upper section to within several inches of the bottom section making sure the two sections do not touch and the sealer tape is not disturbed. Fasten all four corners. Make use of drift pins to simplify the fastening process, for further instructions on the use of drift pins, see page 12.

Install the remaining fasteners, working from the corners towards the center. Fasteners must be installed in every hole in the side flanges. No fasteners are required on the end flanges.

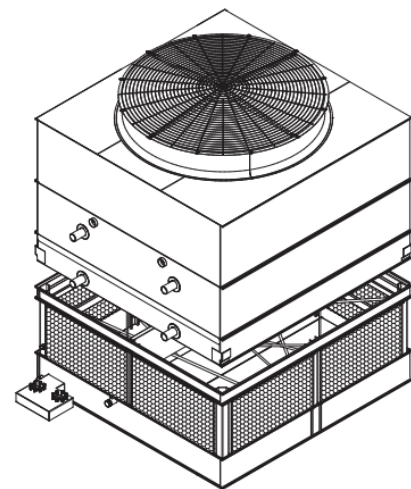


Figure 10 — Mating Upper Section to Basin Section

Assembly of the Coil/Fan Section to the Basin (Cont.)

Use of Drift Pins for Final Positioning

Drift pins are tools used to align holes in the flanges of the upper and lower sections of the unit prior to final fastening. By the time drift pins are needed, the lower section of the unit has already been anchored to its support structure. The sealer tape has been laid down on the lower section's flanges, and the upper section is now hovering over the lower section.

A drift pin should be driven in to each of the corner bolt holes such that the upper and lower flanges are aligned as best as possible with sideways motion restricted.

On units which are longer than 12' ("L" > 12' [3.7m]), a drift pin should be used at an intermediate pair of bolt holes in the rigging seam to allow for proper alignment.

Notes:

For multi-cell units, the side flanges located in between cells can be accessed from inside the unit.

Bolts can be driven upward through the mating flanges if access is restricted.

All rigging hardware is provided by EVAPCO. Drift pins are provided by others.

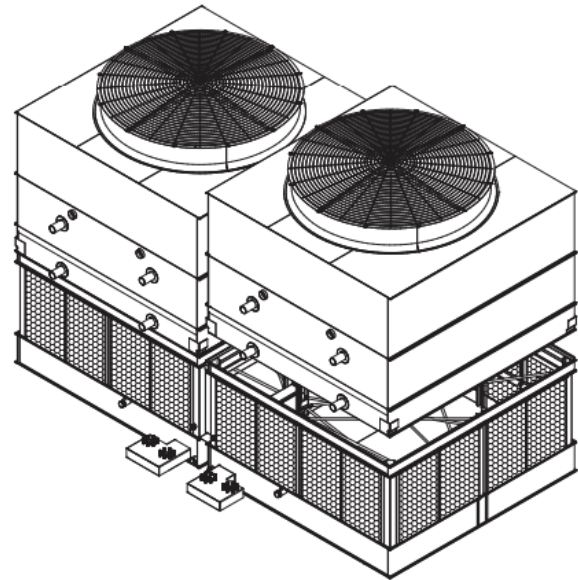


Figure 11 — Mating Upper Section to Basin Section

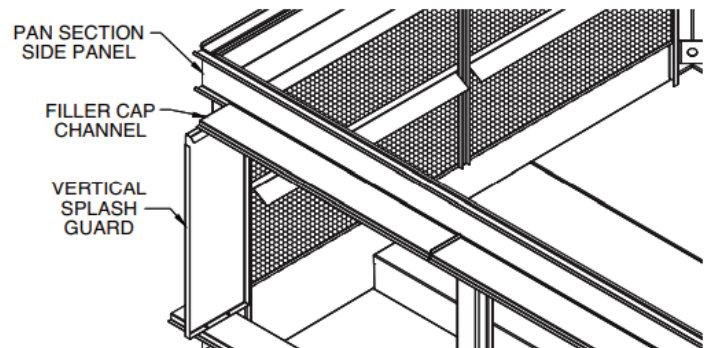


Figure 12 — Filler Cap Channel Assembly

Containerized Unit Assembly

7' and 14' (2.2m and 4.4m) wide ATWB units are optimized to be transported in export containers for overseas shipment. When these units are required to be shipped in containers, the fan section is loosely bolted to the basin section prior to placing in the container.

Depending on the size of the unit and accessory options, there are a few different shipping configurations as outlined below.

Unit Type	Box Size	# of Containers Required	
		Standard Fan	SLSF
Single Cell	7 x 9	(1) 20'	(1) 40'
	7 x 12	(1) 40' HC*	(1) 40'
	7 x 18	(1) 40' HC*	(1) 40' + (1) 20'
Multi-Cell	14 x 9	(1) 40' HC*	(2) 40'
	14 x 12	(1) 40' HC + (1) 20'	(2) 40'
	14 x 18	(2) 40' HC*	(3) 40'
Multi-Cell	7 x 24	(1) 40' HC + (1) 20'	(2) 40'
	7 x 36	(2) 40' HC*	(3) 40'

Table 6 – Number of Containers Required

Note: *HC indicates "High Cube." High cube containers provide an additional foot of container height which allows for standard fan cylinders to ship mounted to the fan sections (See Figure 13 for an example of a high cube container).

Figure 13 below shows an example of a 7' x 18' unit shipping in a 40' high cube container. A high cube container is used so that the fan cylinders can ship mounted to the fan section. In such a case, the fan section is loosely bolted to the basin section.

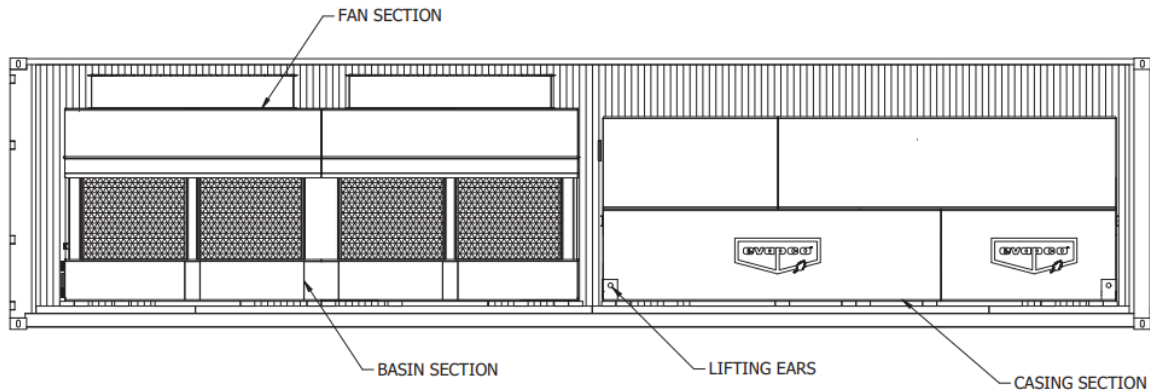


Figure 13 – 40' High Cube Container Shipment

Figure 14 shows a 7' x 9' unit shipping in a 20' standard height container. 20' containers are not available in high cube configuration, therefore requiring the fan cylinders to ship loose in the basin for assembly in the field.

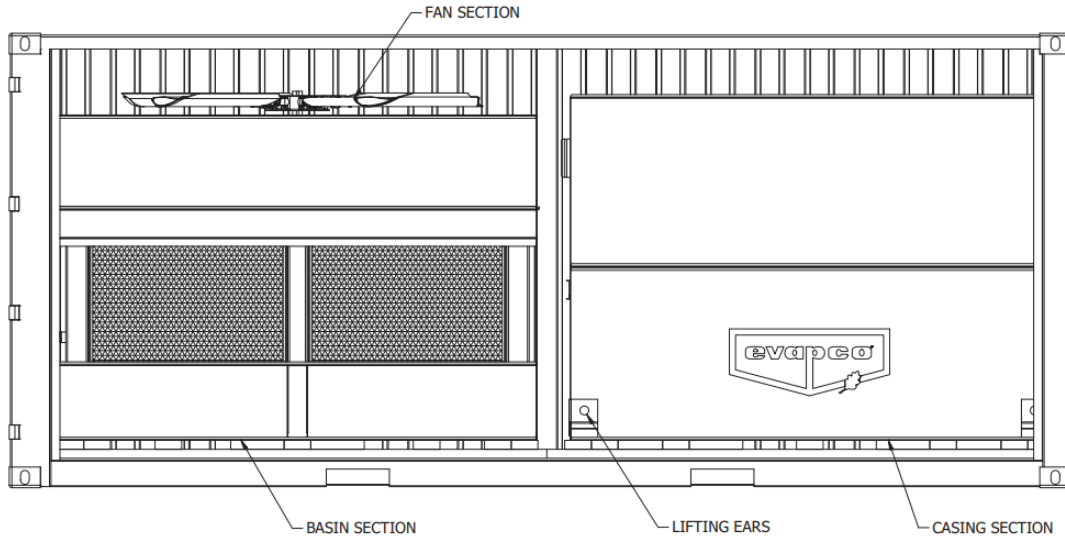


Figure 14 – 20' Standard Height Container Shipment

Instructions to put together fan cylinder:

1. Line up match-markings on the fan deck to ensure proper alignment.
2. Make sure fan assembly is centered within cylinder before attaching to fan section.

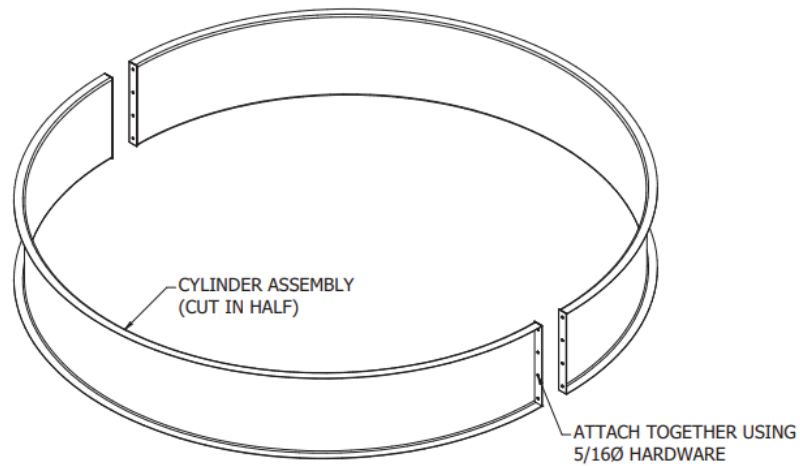


Figure 15 – Split Fan Cylinder for Standard Height Container Shipment

Figure 16 shows a 7' x 12' unit with super low sound fan shipping in a 40' standard height shipping container. Any containerized unit selected with Super Low Sound Fans will ship in 3 pieces as shown below.

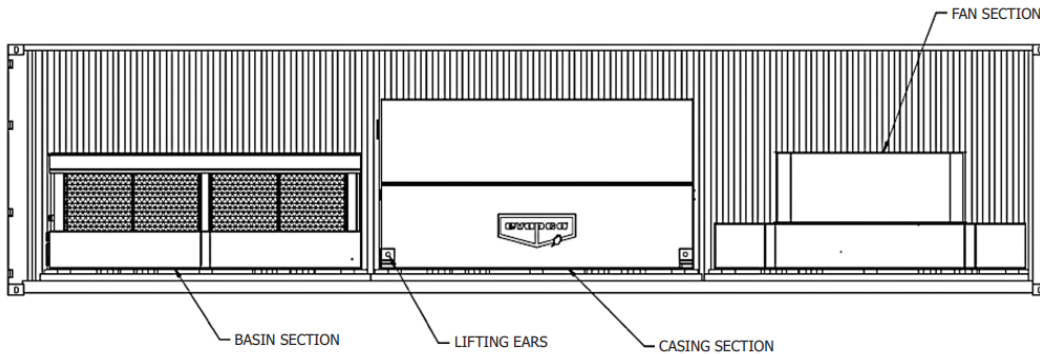
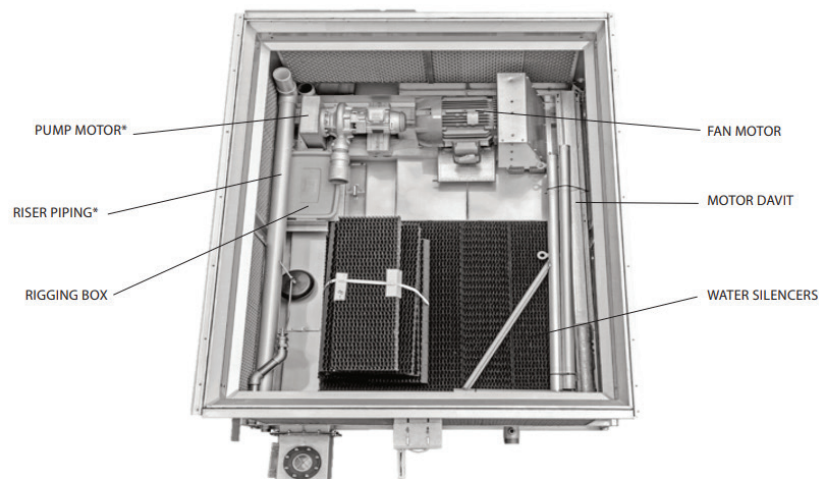


Figure 16 – Shipment in 3 pieces

Once the sections have been unloaded from the shipping container, follow the below steps to complete assembly. Please check table of contents for associated page numbers to get to the instructions referenced below.

1. Unbolt fan section from basin section.
2. Lift fan section and rig to casing section using instructions from "Assembly of the fan section to the coil section (Containerized)".
3. Rig basin section using instructions from "Rigging Basin Section".
4. Lift upper section (fan + casing) and rig to basin using instructions from "Assembly of the Coil Section to the Basin (Containerized)."

While the image below is not representative of all possible accessory options, but it provides an example of how containerized unit's basins are set up for shipment. Platforms and ladders are strapped to the top of the casing



* On Coolers & Condensers only. Not applicable to towers.

Assembly of the Fan Section to the Coil Section (Containerized)

7' and 14' (2.2m and 4.4m) Wide Models – Fan Section Will Need To Be Mounted to the Coil Section First.

Four lifting U-Bolts are provided in the top corners of most fan sections for lifting into final position. 18' (5.5m), long sections will have two additional U-Bolts in the middle of the fan section. Use all U-Bolts. The hook of the crane must be a minimum dimension "H" above the top section being lifted to prevent undue strain on the section being lifted. See Table 3 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the section. (See "Extended Lifts" for proper arrangement.)

Before assembling the fan section to the coil section, wipe the flanges on the bottom of the fan section and apply sealer tape. Check to see that the motor access doors are in the correct position relative to the coil section (see certified print). Units are also provided with match markings on each section (i.e. A1 of the coil section should match up with the A1 of the fan section). Place nuts and bolts in all four corner bolt holes. Then continue to install the rest of the nuts and bolts working from the corners towards the center. Nuts and bolts are required on the end flanges. Drift pins are provided in rigging box to assist with alignment.

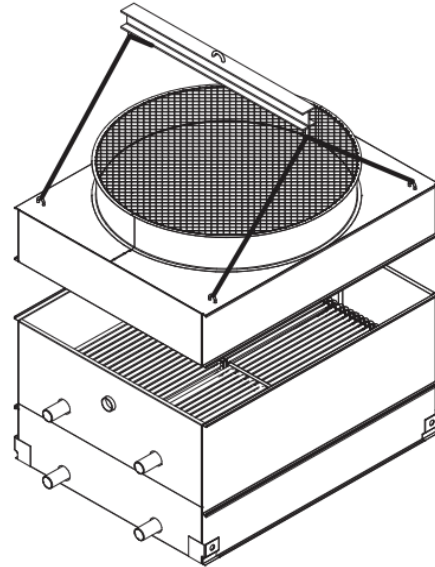


Figure 17 – Mating Fan Section to Coil Section

Assembly of the Coil Section to the Basin (Containerized)

7' and 14' (2.2m and 4.4m) Wide Models – Fan Section Will Need To Be Mounted to the Coil Section First

Before assembling the coil section to the basin section, remove any loose parts shipped in the pan. Four lifting ears are provided in the corners of coil sections for lifting into final position. 18' (5.5m), long sections will have two additional lifting ears in the middle of the section. Use all lifting ears. When lifting assembled fan/coil sections, use the lifting ears at the bottom of the coil section and not the U-Bolts of the fan section. The hook of the crane must be a minimum dimension "H" above the lifting ear to prevent undue strain on the lifting ears. See Table 3 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the section. (See "Extended Lifts" for proper arrangement.)

Before assembling the fan/coil section to the basin section, wipe the flanges on the bottom of the coil section and apply sealer tape to the basin section. Check to see that the access doors are in the correct position relative to the basin section (see certified print). Units are also provided with match markings on each section (i.e. A1 of the coil section should match up with the A1 of the fan section). Place nuts and bolts in all four corner bolt holes. Then continue to install the rest of the nuts and bolts working from the corners towards the center. Nuts and bolts are required on the end flanges. Drift pins are provided in rigging box to assist with alignment.

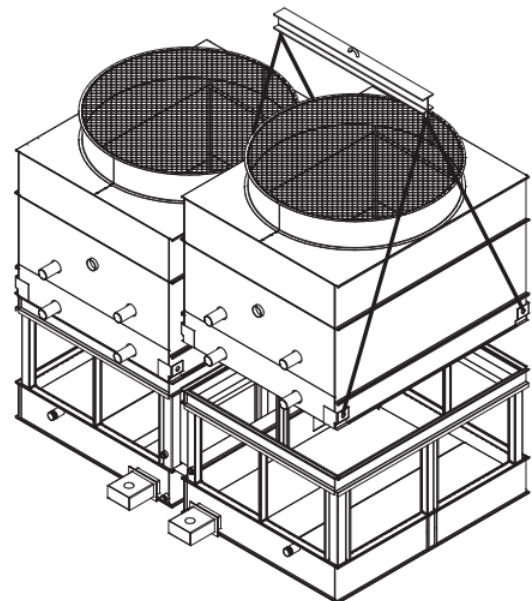


Figure 18 – Mating Fan/Coil Section to Basin Section

Installing Watertight Partitions & Firewalls

In some cases, a multi-cell unit is ordered with watertight partitions to allow for independent cell operation. To correctly assemble the upper sections to the bottom sections, access to the rigging seams in between cells is necessary. To facilitate with this access, the upper watertight partition is shipped loose for installation in the field. Figure 19 below provides instruction to install these in the field.

Note: The below instruction and arrangement also applies for Factory Mutual (FM) Approved multi-cell units, in which case these partitions will be referred to as firewalls

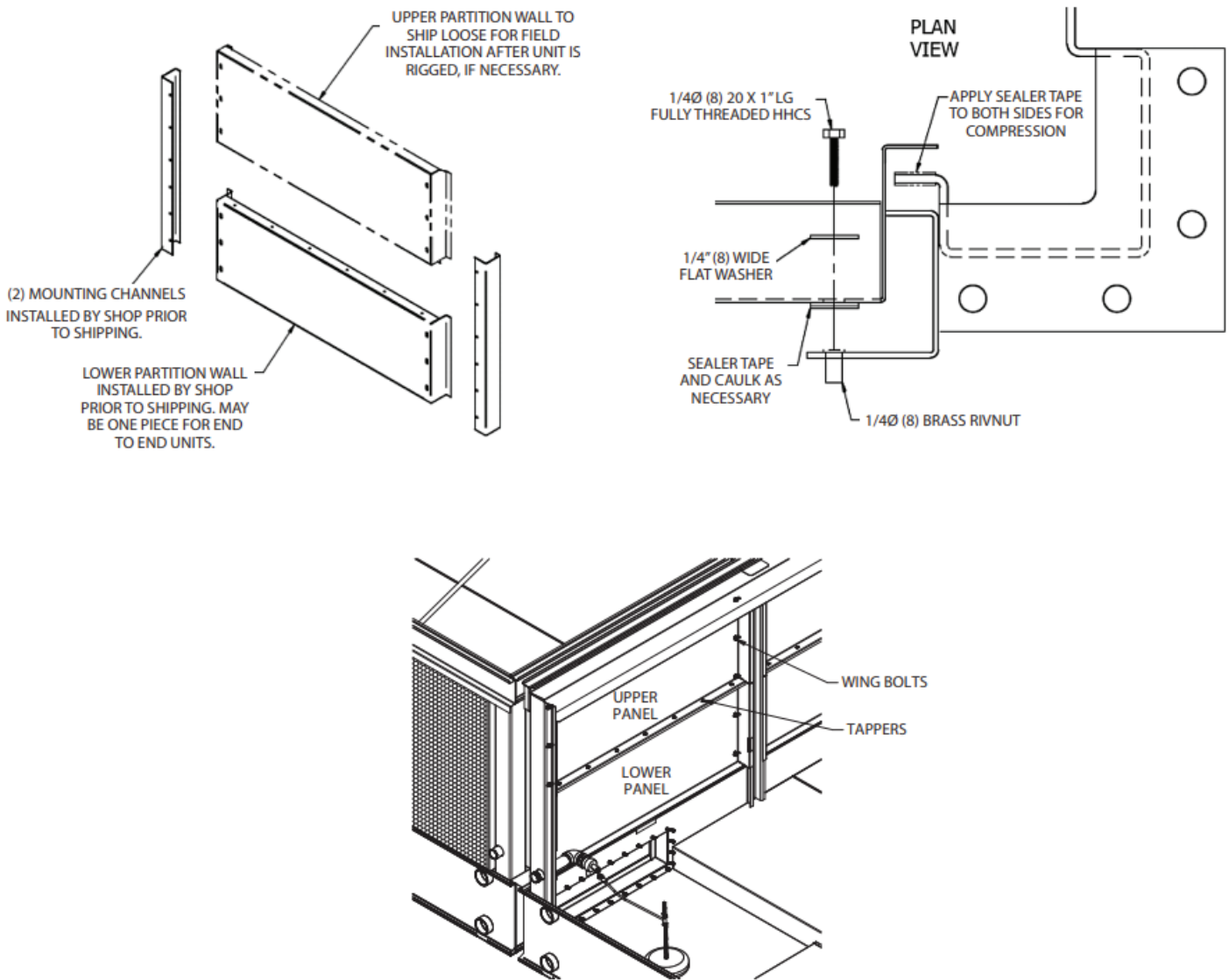


Figure 19 — Upper Partition/Firewall Installation in Field

External Motor Installation – Belt Drive

All units narrower than 10' (3m) wide have their motors installed outside the unit in a shaft up configuration as shown in figures 20a and 20b below. Due to shipping width restrictions, these motors cannot ship mounted on the units since they would extend past the width of the truck. For this reason, the motor(s), motor base(s), motor guard(s), "J" bolts, pivot pins and belt(s) are shipped in the cold-water basin of the cooling tower. Please follow the step-by-step instructions below to properly install these components.

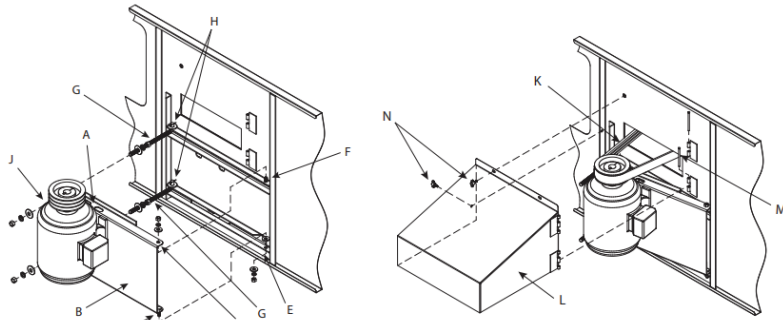


Figure 20a – External Motor Installation **Figure 20b** – Motor Guard and Power-Band Belt Installation

1. Study Figure 20a above before installing the motor base on the unit.
2. Insert the lifting device into the slots **A** located on the top of the motor base.
3. Lift the motor base **B** and insert the pivot pin **C** down into hole **E** and pivot pin **F** into hole **D**.
4. Install washer and nut (do not overtighten) on pivot pins. Install jam nut on pivot pin **C**.
5. Insert "J" bolts **G** into holes **H**. Install flat washers and cotter pins. Place nuts and washers on threaded portion of "J" bolts. These will be behind the motor base installed in the next step.
6. Install "J" bolts **G** into holes **J** in the motor base. Install flat washers, lock washer and nuts. Remove lifting device from the motor base. Position motor base towards top section of unit for belt installation.
7. Install Power-Band belt **K** (Figure 20b) around fan sheave and motor sheave. Tighten belt by adjusting nuts on "J" bolts. Do not overtighten the belts. The center of the belt should deflect approximately 3/4" (19mm) in the horizontal plane with moderate hand pressure.
8. Measure to see that the top and bottom of the motor base are the same distance out from the casing of the unit. This will ensure that the sheaves are properly aligned since the driven sheave on the fan shaft comes pre-set from the factory.
9. As a final check, lay a straight edge from sheave to sheave as shown below in Figure 21. There should be four-point contact. Adjust the position of the motor sheave as necessary until four-point contact is achieved.
10. To install motor guard **L**, match up hinges and install hinge pins **M** as shown in Figure 20b.
11. Close motor guard **L** and install wing bolts **M**.

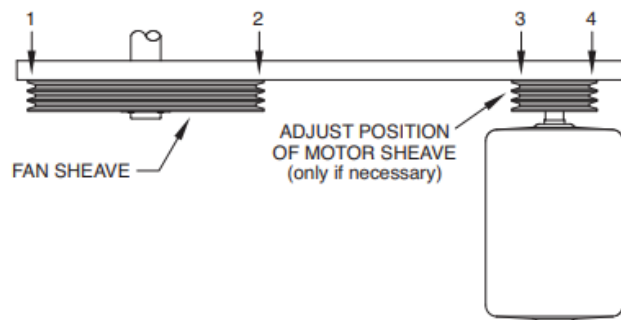


Figure 21 – Sheave Alignment Check

Note: For the European market, an additional belt cover plate needs to be installed

Optional Motor & Gear Box Davit Installation

Motor davits, also known as jib-booms, are offered by EVAPCO as an optional accessory to facilitate removal of the motor, fan assembly or gear box. The assembly consists of a davit and a mounting base that is to be attached to the side of the unit next to the access door, as shown below in Figure 22. Both these items will ship loose in the unit's basin. On multi-cell units, there will be provisions to install a mounting channel on each cell. Use the following procedure to install the mounting channel:

1. Align the mounting channel with 3/8" (10mm) bolts and flat washers to the factory installed mounting brackets.
2. Use 3/8" (10mm) flat washers, lock washers and nuts to secure the mounting channel to the bracket, as shown in Figure 23.

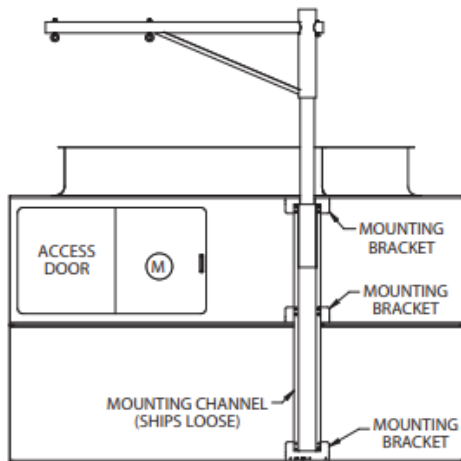


Figure 22 — Dual-Point Davit Arrangement

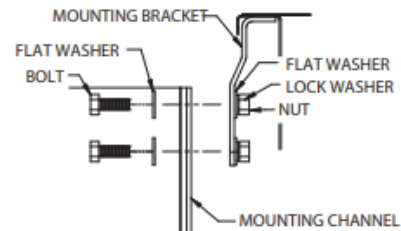


Figure 23 — Mounting Channel Installation

Mounting Fan Screens

On 10' (3m) wide units and larger, a conical fan screen support is used in order to prevent the fan screen from sinking down into the fan cylinder. In some cases, shipping height restrictions may require the fan screen support(s) and fan screen(s) to ship loose for installation in the field. Please follow the below instructions to install these components on the fan cylinder(s).

1. Set the fan screen support across the top of the fan cylinder as shown in Figure 24.
2. Place both halves of the fan screen on top of the fan screen support. Each half will be tagged to match markings on the cylinder. Align the eyelets of the fan screen with the holes on the cylinder perimeter.
3. Join the two screen halves with "U" bolts, as shown in Figure 25.
4. At each hole, attach the fan screen to the fan cylinder as shown in Figure 24. At the four points where the fan screen support meets the cylinder, bolt the support to the cylinder together with the fan screen.

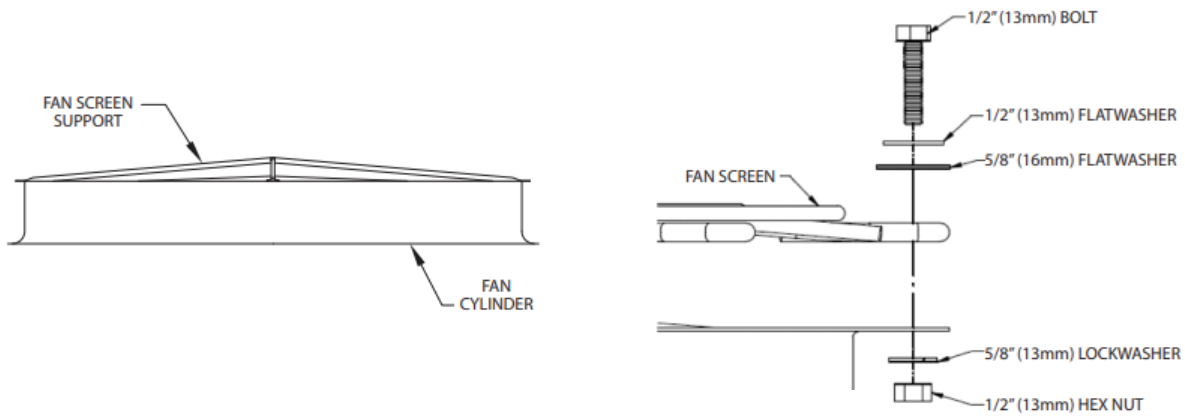


Figure 24 — Fan Screen Support & Fan Screen Installation

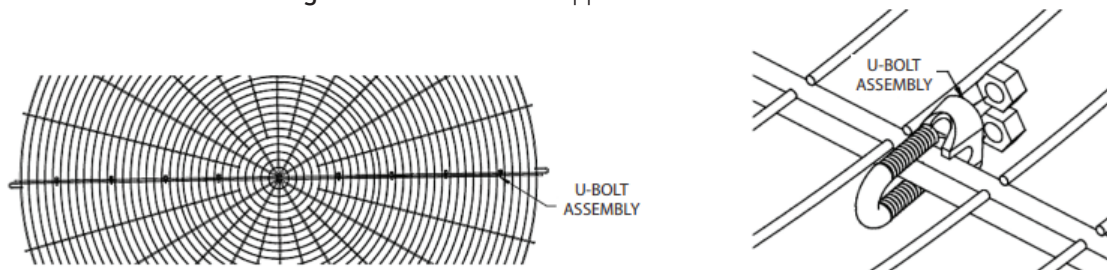


Figure 25 — U-Bolt Assembly Spacing & Arrangement

Sloped Ladder Installation

When sloped ladders are supplied with a unit, they are shipped in the unit's basin. One sloped ladder will be provided for each cell. Assembly is identical for each cell, unless otherwise noted in the submittal.

Sloped ladders are attached at a minimum of three points. At each point of attachment, the ladder will be fitted with a ladder bracket assembly. The ladder bracket assembly looks like a metal box and is shown as component (d) in Figure 26 below. The upper two assembly brackets will be rigidly mounted to the ladder and are not adjustable. These two brackets define the slope of the ladder. The lower bracket(s) are adjustable.

To install the ladder assembly, complete the steps that follow. Refer to Figure 26:

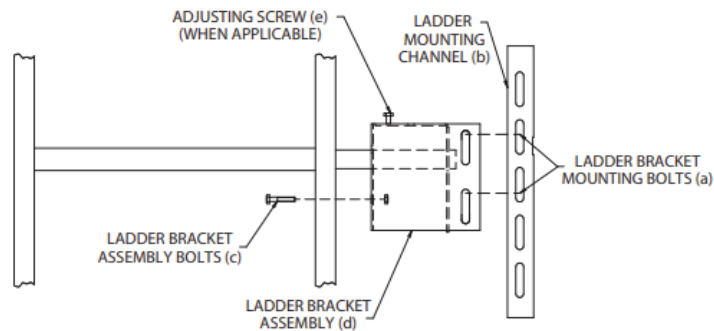


Figure 26 – Detail of Ladder, Ladder Bracket Assembly & Mounting Channel

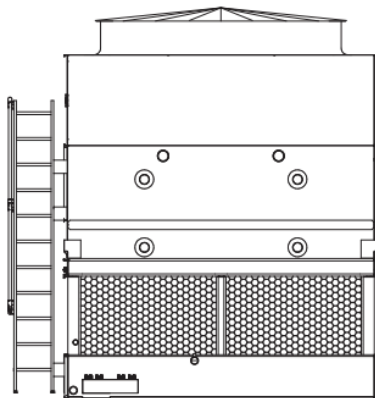


Figure 27a – End View of Ladder Assembly

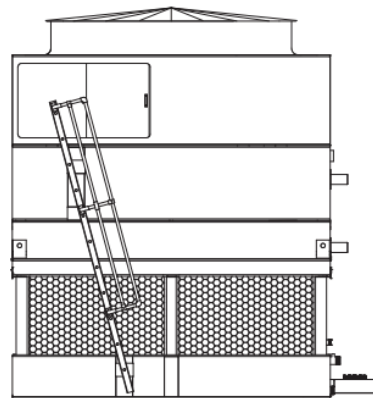


Figure 27b – Side View of Ladder Assembly

1. Remove the ladder bracket mounting bolts (a) from the ladder mounting channels (b) on basin and casing sections.
2. Loosen, but do not remove, the ladder bracket and assembly bolts (c).
3. Slide the bracket assembly (d) over the ladder mounting channels (b) located on the pan and casing sections. Do not remove the ladder bracket assembly (d) from the ladder.
4. Align the bolts and reinstall the ladder bracket assembly mounting bolts (a) through the ladder bracket assembly and the ladder mounting channels (b).
5. Tighten all bolts.
6. Tighten the adjusting screw (e) in the adjustable mounting bracket where applicable.

Notes:

Upper section of unit must be properly oriented with respect to the lower section.
 All mounting brackets must be on the same side of the unit. Refer to submittal for proper orientation.
 Sloped ladders are not CE compliant & are not available for European market.



External Service Platform and Vertical Ladder Installation

If your unit is accessorized with an external service platform assembly with a vertical ladder, this equipment is shipped in the basin of your unit. In some cases, they are shipped separately due to other basin accessories that may interfere with storage. The platform is partially assembled prior to shipment to minimize field assembly.

Typically, there is one working platform and ladder assembly per fan section. Refer to your factory submittal for details.

The platform and ladder assembly should be attached after the unit is fully rigged, by following the instructions in the drawing below.

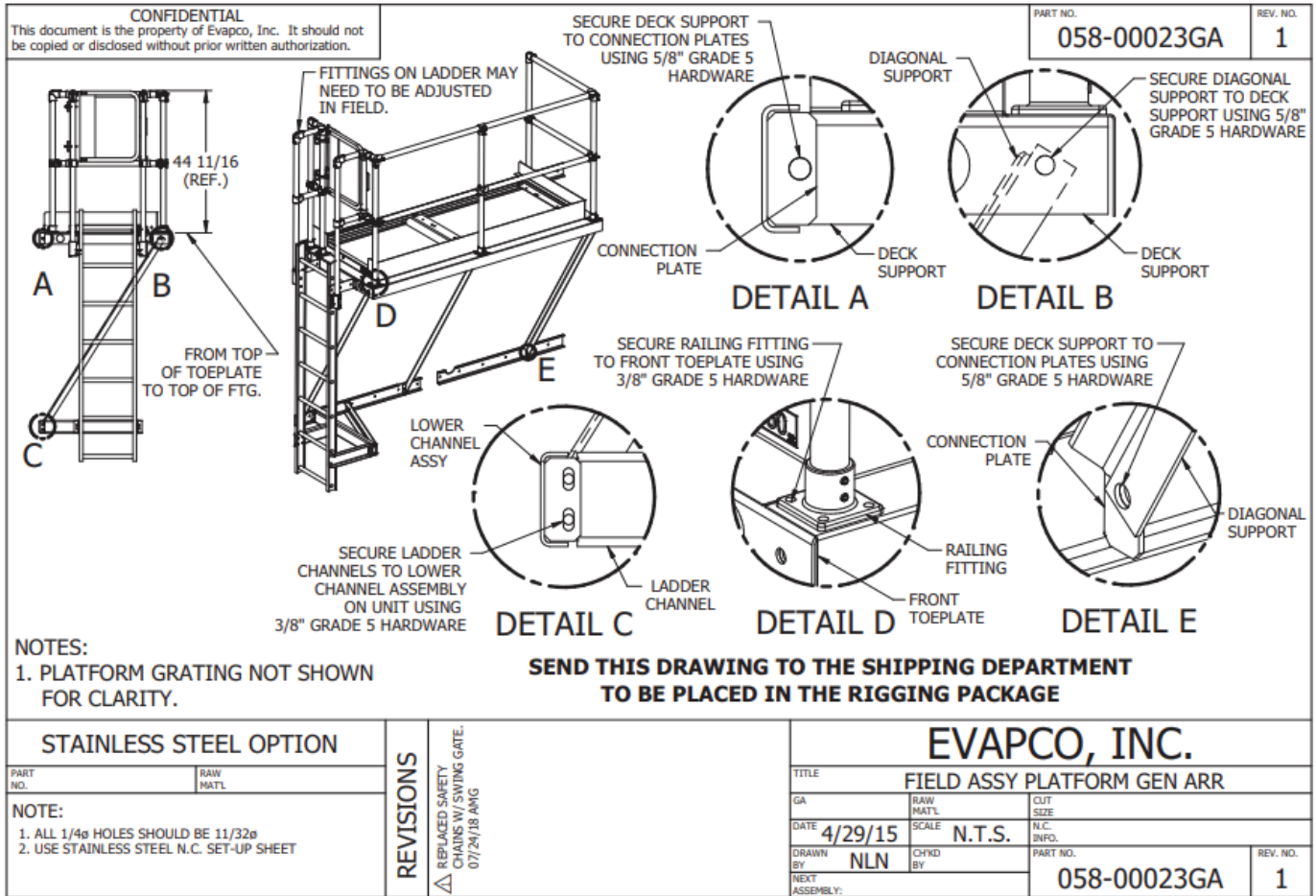


Figure 28 – Platform Mounting General Arrangement

Optional Discharge Hood Damper Section Assembly - ATW Models

Once the upper section (casing/fan section) has been secured to the bottom section, inspect the top of the upper section to ensure removal of any shipping blocks or other obstructions. Lower the discharge hood damper section onto the top of the upper section while aligning the holes located in each corner.

Place self-tapping bolts in all four corner bolt holes. Then continue to install the rest of the self-tapping bolts working from the corners toward the center using drift pins to align the holes. A self-tapper must be installed in every hole on the side flanges although none are required on the end flanges.

Note: Do not use U-bolts to lift the discharge hood damper section when attached to another part of the equipment. Always lift the hood separately and follow the rigging sequence shown.

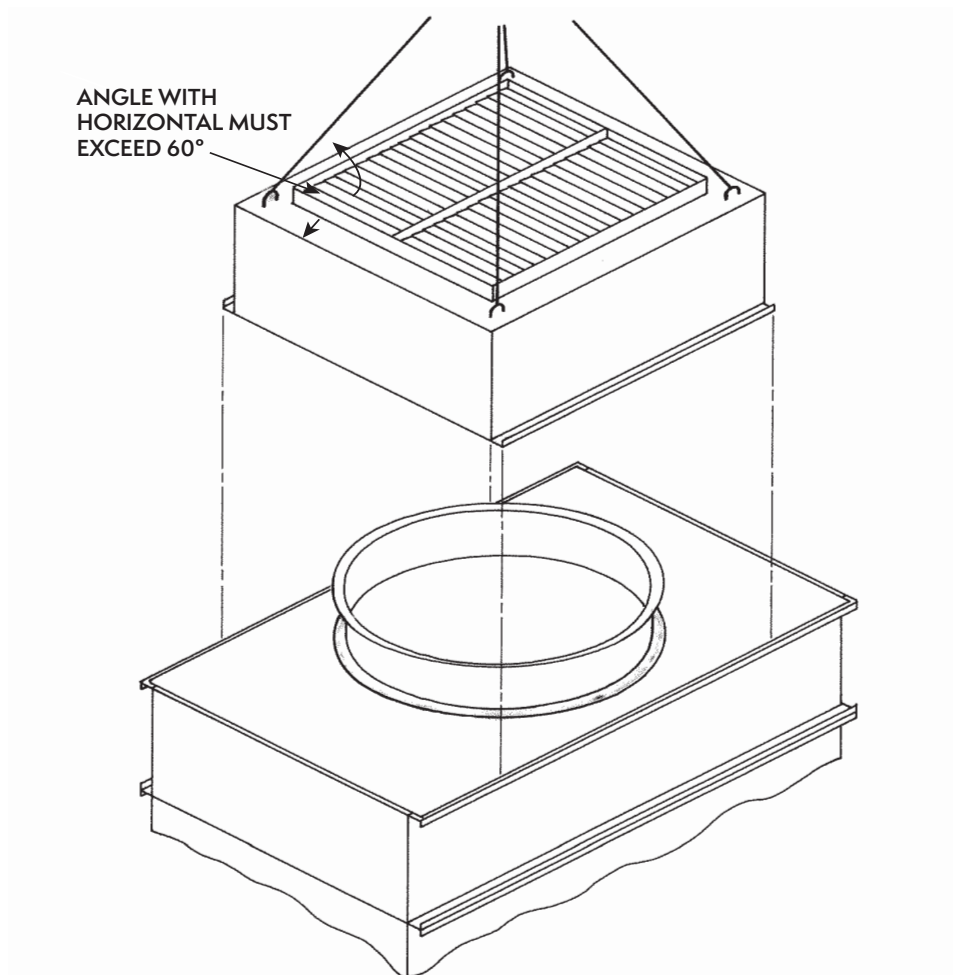


Figure 29 — Mating Discharge Hood Damper Section to Coil/Fan Section



Notes:



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