



The Corporation of the Town of LaSalle

<b>Date</b>	March 22, 2018	<b>Report No:</b>	PW-15-18
<b>Directed To:</b>	Mayor and Members of Council	<b>Attachments:</b>	~ TS Engineering recommendation letter
<b>Department:</b>	Public Works	<b>Policy References:</b>	
<b>Prepared By:</b>	Mark Masanovich – Manager of Facilities & Peter Marra, P.Eng. – Director of Public Works		
<b>Subject:</b>	Vollmer Ice Plant Cooling Tower Pre-purchase		

**RECOMMENDATION:**

That Council approve the pre-purchase of the evaporative cooler for the Vollmer ice plant 2018 modifications.

**REPORT:**

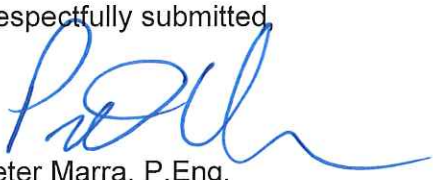
As part of the 2018 budget, Council approved modification to the ice plant at the Vollmer. As part of the ice plant modification, the first phase will include replacing the cooling tower and the dehumidification units. The planned shut down to replace the cooling tower will be scheduled in the summer of 2018, final dates to be confirmed.

The cooling tower/evaporative cooler is the main piece of equipment to dissipate heat out of the ice plant system into the atmosphere. This piece of equipment requires a long lead-time for manufacturing and delivery. In order to maintain a schedule for a planned summer shutdown, it is recommended that Council authorize administration to issue pre-purchase direction to Evapco. The cooling tower cost will be just under \$138,000.00 USD. This has been accounted for in the overall project budget.

Enclosed is a letter from TS Engineering providing details. The work for removal of the existing system, structural modifications, and installation of the new cooler has not been tendered yet. Once the project is tendered, the pre-purchased cooler will be utilized in the final reconstruction and the successful contractor will coordinate delivery and complete the final installation and commissioning.

We are available for any questions.

Respectfully submitted,



Peter Marra, P.Eng.  
Director of Public Works

Reviewed by:							
CAO	Treasury	Clerks	Public Works	Planning	Cult. & Rec.	Building	Fire



March 21, 2018

Mr. Mark Masanovich  
Town of Lasalle  
5950 Malden Road  
LaSalle, Ontario N9H 1S4

**Re: Vollmer Complex Retrofits – Evaporative Cooler Pre-Purchase**

Mark,

The Town of LaSalle has initiated a reconstruction of the Vollmer Complex ice rink refrigeration plant. A key portion of this project is the replacement of the evaporative cooler/cooling tower. This equipment is normally a long lead time for manufacturing and delivery. We are recommending that the Town pre-purchase the evaporative cooler component of the project now, in order to meet the deadline for 2018 summer shut down. Once an installation contractor is chosen, this unit will be utilized in the final reconstruction project.

Enclosed you will find the proposed evaporative cooler make and model as supplied by Evapco. We have carried out our detailed review of this product and recommend that the Town authorize Evapco to manufacture and supply the cooler for this project.

Please let me know if you require any additional assistance.

Regards,

Paul Farrant, P.Eng  
Partner, TS Engineering Inc.  
[pfarrant@tsengineering.ca](mailto:pfarrant@tsengineering.ca)  
905-995-0704

cc. Peter Marra – Town of LaSalle

# Unit Pricing Details



Josh Martin  
5151 Allendale Lane  
Taneytown, Maryland 21787  
USA  
Email: jmartin@Evapco.com

## ESWA-153-45I

### Project Details

Project Name : Windsor, ON Fluid Cooler

Date: 02/01/2018

Location: TBD Windsor Ontario

Job Reference: *Vollmer Complex*

Job Number:

### Base Unit

Evaporative Cooler

One(1) EVAPCO ESWA-153-45I

\$125,048 per unit ✓

### Options/Accessories per unit

CrossCool Coil

included in price

External Service Platform with Ladder

\$10,224 ✓

Oversized Outlet for Remote Sump

included in price

Motor Davit with Base

\$2,960 ✓

(2) Fan Motor: Space Heaters

included in price

Ornit Pump

\$-1,384 ✓

High Flow Connection for ESWA

\$344 ✓

(2) Fan Motor: Inverter Capable, Premium Efficient

included in price

IBC Standard Structural Design

included in price

~~304 Welded Stainless Steel Cold Water Basin~~

~~-\$18,728~~ X

Price per Unit (Base + Accessories)

~~-\$155,920~~

Number of Units

x 1

Total Net Price ex-works

~~-\$155,920~~

### Total NET Billing Price

~~\$155,920~~

\* excluding applicable tax

\$137,192 USD

Pricing: Quoted pricing is valid for acceptance within thirty (30) days from the date of this quotation and shipment within six (6) months from date of order placement.

Evaporative Cooler Shipment: Six (6) weeks (or less) after drawing approval and release for fabrication.

Terms: All Purchase Orders must be addressed to EVAPCO, Inc c/o the undersigned

All purchases are subject to Evapco's Terms and Conditions for Customers, as found on Evapco's website at <https://www.evapco.com/terms-conditions-and-warranty-statements>, which are incorporated herein. The only warranty that applies to equipment purchased is the Evapco Standard Express Warranty that applies to the product (unless an extended warranty applies) as found on Evapco's website at <https://www.evapco.com/terms-conditions-and-warranty-statements>



# Closed Circuit Cooler Technical Data Sheet



Josh Martin  
5151 Allendale Lane  
Taneytown, Maryland 21787  
USA  
Email: jmartin@Evapco.com

## ESWA-153-45I

### Project Details

Project Name : Windsor, ON Fluid Cooler  
Location: TBD Windsor Ontario

Date: February 01, 2018  
Customer: TS Engineering Inc.

Toronto Alberta

### Product Description

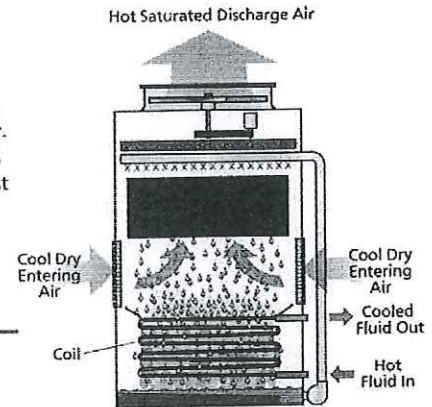
The ESWA utilizes fill media in conjunction with a closed loop coil providing sensible and latent heat transfer. The ESWA provides superior evaporative cooling performance as a result of it's hybrid technology and it's full footprint patented Sensi-Coil featuring **CrossCool Internal Tube Enhancement**. This results in the most efficient Closed Circuit Cooler in the industry with the lowest connected fan horsepower and smallest footprint. With the coil located out of the air stream, only sensible cooling is utilized, resulting in no evaporation on the coil which reduces scale build up!

### Selection Criteria

Flow: 875.00 GPM  
Fluid: 50% Ethylene Glycol  
Entering Fluid Temp: 95.00 F  
Leaving Fluid Temp: 85.00 F  
Wet Bulb: 76.00 F

### Required Capacity

3,723.20 MBH  
248.21 Tons



### Unit Selected

One(1) EVAPCO ESWA-153-45I at 100.1% capacity (3,725.64 MBH)

Product Line is CTI/ECC Certified. Selection is rated in accordance with CTI Standard 201 RS



### Physical Data Per Unit

Overall Dimensions (WxLxH): 8'-5 1/2" x 18'-0" x 17'-4 5/8"  
Operating Weight: 25,120 lbs  
Shipping Weight: 19,490 lbs  
Heaviest Section: 12,950 lbs  
\*weights and dimensions could vary depending on options selected

### IBC Design Capability

IBC Standard Structural Design  
Importance Factor: 1.0  
Seismic(Sds): up to 0.67 g, z/h = 0  
Wind Load(P): up to 119 psf

### Fan Motor Data per Unit

# of Fan Motors: 2  
Number of Fans: 2  
Nameplate Power (460/3/60): 10.00 HP per motor  
Total Connected Nameplate Power: 20.00 HP

### Additional Details

Air Flow: 85,400 CFM  
Riser Pipe Diameter: 6"

### Hydraulic Data

Pressure Drop Through Coil: 19.5 psi  
Evaporated Water Rate: 5.96 GPM  
Spray Water Flow: 1,025 GPM

### Layout Criteria

From FACE B/D to wall: 3.00ft  
From FACE A/C to wall: 3.00ft  
Between FACE B/D ends: 6.00ft  
Between FACE A/C sides: 6.00ft

### Sound Data(dB(A) @ 5'/50')

Face A (Opp Mtr. Side): 78/67      Face C (Motor Side): 79/68      Top: 84/73  
Face B (End): 77/66      Face D (Opp End): 77/66  
Notes: Sound Pressure Levels are according to CTI Standard ATC-128. Sound data is shown for 1 cell operating at full speed. The use of frequency inverters (Variable Frequency Drives) can increase sound levels. Sound Options: None

### Shipping Data

1 Basin Sections: (WxLxH): 102" x 240" x 102" ; 12885lbs each\* | 1 Casing Sections: (WxLxH): 102" x 240" x 111" ; 6540lbs each\*  
\*dimensions and weights above include shipping skids

### Accessories

- |                                                 |                                                    |                                               |
|-------------------------------------------------|----------------------------------------------------|-----------------------------------------------|
| (1) CrossCool Coil                              | (1) External Service Platform with Ladder          | (1) Oversized Outlet for Remote Sump; BFW; 12 |
| (1) Motor Davit with Base                       | (2) Fan Motor: Space Heaters                       | (1) Omit Pump                                 |
| (1) High Flow Connection for ESWA               | (2) Fan Motor: Inverter Capable, Premium Efficient | (1) IBC Standard Structural Design            |
| (1) 304 Welded Stainless Steel Cold Water Basin |                                                    |                                               |

# Mechanical Specification



Josh Martin  
5151 Allendale Lane  
Taneytown, Maryland 21787  
USA  
Email: jmartin@Evapco.com

## SECTION 23 65 00 CLOSED CIRCUIT COOLERS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. This Section includes factory assembled and tested, closed circuit mechanical induced-draft vertical discharge closed circuit cooler.

#### 1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, pressure drop, performance curves with selected points indicated, furnished specialties, and accessories.

B. Shop Drawings: Complete set of manufacturer's prints of equipment assemblies, control panels, sections and elevations, and unit isolation. Include the following:

1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
4. Sizes and locations of piping and wiring connections.
5. Wiring Diagrams: For power, signal, and control wiring. Differentiate between manufacturer installed and field installed wiring.

C. Operation and Maintenance Data: Each unit to include operation and maintenance manual.

#### 1.4 QUALITY ASSURANCE

A. Verification of Performance:

1. The thermal performance shall be certified by the Cooling Technology Institute in accordance with CTI Certification Standard STD-201. Lacking such certification, a field acceptance test shall be conducted within the warranty period in accordance with CTI Acceptance Test Code ATC-105, by a Certified CTI Thermal Testing Agency. The Evaporative Heat Rejection Equipment shall comply with the energy efficiency requirements of ASHRAE Standard 90.1.

2. Unit Sound Performance ratings shall be tested according to CTI ATC-128 standard. Sound ratings shall not exceed specified ratings.

B. Unit shall meet or exceed energy efficiency per ASHRAE 90.1

#### 1.5 WARRANTY

A. Submit a written warranty executed by the manufacturer, agreeing to repair or replace components of the unit that fail in materials and workmanship within the specified warranty period.

1. The Entire Unit shall have a comprehensive five (5) year warranty against defects in



materials and workmanship from date of shipment.

2. Fan Motor/Drive System: Warranty Period shall be Five (5) years from date of unit shipment from Factory (fan motor(s), fan(s), bearings, mechanical support, sheaves, bushings and belt(s)).

3. Heat Transfer Coil: Warranty Period shall be One (1) year from date of unit shipment from Factory.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide closed circuit coolers manufactured by one of the following:

1. EVAPCO Model ESWA-153-45I
2. Approved Substitute

### 2.2 THERMAL PERFORMANCE

A. Each unit shall be capable to cool 875.00 GPM of ethylene glycol entering at 95.00° F leaving at 85.00° F at a design wet bulb of 76.00° F with a pressure drop across the coil not to exceed 19.53 psi.

### 2.3 IBC COMPLIANCE

A. The unit structure shall be designed, analyzed, and constructed in accordance with the latest edition of International Building Code (IBC) for:  $I_p = 1.0$ ,  $S_{DS} = 0.67$ ;  $z/h = 0$ ,  $P = 119$  psf.

### 2.4 COMPONENTS

A. Description: Factory assembled and tested, induced draft counter flow closed circuit cooler complete with fan, coil, fill, louvers, accessories and rigging supports

B. Materials of Construction

1. All cold water basin components including vertical supports, air inlet louver frames and panels up to rigging seam shall be constructed of Type 304 Stainless Steel. All factory cold water basin seams shall be welded for water tight construction. "Series 300" stainless steel shall not be acceptable as equivalent to Type 304 Stainless Steel.
2. Upper Casing, channels and angle supports shall be constructed of heavy gauge mill hot-dip galvanized steel. Fan cowl and guard shall be constructed of galvanized steel. All galvanized steel shall be coated with a minimum of 2.35 ounces of zinc per square foot of area (G-235 Hot-Dip Galvanized Steel designation). During fabrication, all galvanized steel panel edges shall be coated with a 95% pure zinc-rich compound.

C. Fan(s):

1. Fan(s) shall be high efficiency axial propeller type with aluminum wide chord blade construction. Each fan shall be dynamically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

D. Drift Eliminators

1. Drift eliminators shall be constructed entirely of Polyvinyl Chloride (PVC) in easily handled sections. Design shall incorporate three changes in air direction and limit the water carryover to a maximum of 0.001% of the recirculating water rate.

E. Water Distribution System

1. Spray nozzles shall be precision molded ABS with large orifice threaded into branch piping with internal sludge ring to eliminate clogging. Spray header and branches shall

be schedule 40 Polyvinyl Chloride (PVC) for corrosion resistance.

#### F. Heat Transfer Media

1. Heat transfer coil shall be tightly spaced elliptical tubes of prime surface steel, encased in steel framework with the entire assembly hot-dip galvanized after fabrication. The coil assembly shall be designed with sloping tubes for liquid drainage and air pressure tested to 390 psig. ASME/ANSI B31.5.

#### G. Air Inlet Louvers

1. The air inlet louver screens shall be constructed from UV inhibited polyvinyl chloride (PVC) and incorporate a framed interlocking design that allows for easy removal of louver screens for access to the entire basin area for maintenance. The louver screens shall have a minimum of two changes in air direction and shall be of a non-planar design to prevent splash-out and block direct sunlight & debris from entering the basin.

### 2.5 MOTORS AND DRIVES

#### A. General requirements for motors are specified in Division 23 Section "Motors"

#### B. Fan Motor

1. Fan motor(s) shall be totally enclosed, ball bearing type electric motor(s) suitable for moist air service. Motor(s) are Premium Efficient, Class F insulated, 1.15 service factor design. Inverter rated per NEMA MG1 Part 31.4.4.2 and suitable for variable torque applications and constant torque speed range with properly sized and adjusted variable frequency drives.
2. Fan motor(s) shall include strip-type space heaters with separate leads brought to the motor conduit box.

#### C. Fan Drive

1. The fan drive shall be multigroove, solid back V-belt type with QD tapered bushings designed for 150% of the motor nameplate power. The belt material shall be neoprene reinforced with polyester cord and specifically designed for evaporative equipment service. Fan sheave shall be aluminum alloy construction. Belt adjustment shall be accomplished from the exterior of the unit.

#### D. Fan Shaft

1. Fan shaft shall be solid, ground and polished steel. Exposed surface shall be coated with rust preventative.

#### E. Fan Shaft Bearings

1. Fan Shaft Bearings shall be heavy-duty, self-aligning ball type bearings with extended lubrication lines to grease fittings located on access door frame. Bearings shall be designed for a minimum L-10 life of 100,000 hours.

### 2.6 MAINTENANCE ACCESS

#### A. Fan Section

1. Access door shall be hinged and located in the fan section for fan drive and water distribution system access. Swing away motor cover shall be hinged for motor access.

#### B. Basin Section

1. Framed removable louver panels shall be on all four (4) sides of the unit for pan and sump access.
2. Unit shall be provided with removable panels around the coil to permit easy inspection of the coil and basin without unit entry.



#### C. Internal Working Platform

1. Internal working platform shall provide easy access to the fans, belts, motors, sheaves, bearings, all mechanical equipment and complete water distribution system. The fill shall be an acceptable means of accessing these components.

#### D. External Service Platform with Ladder

1. An external service platform compliant with OSHA shall be provided at the motor access door of the unit extending the full length of the access door. Each platform shall have at least a 36 inch wide walking surface. The platforms shall have galvanized steel grating, supported by galvanized steel framework attached to the unit and surrounded by a handrail, knee rail and toe plate system that is compliant with OSHA. Mounting channels shall be the same material as the casing section (galvanized or stainless steel). A vertical ladder shall be provided from the base of the unit to the platform.

#### E. Motor Davit with Base

1. Unit shall be provided with mechanical external motor davit assembly which facilitates in removal of larger fan section components. Davit arm shall be constructed of aluminum and base shall be galvanized steel.

### 2.7 ACCESSORIES

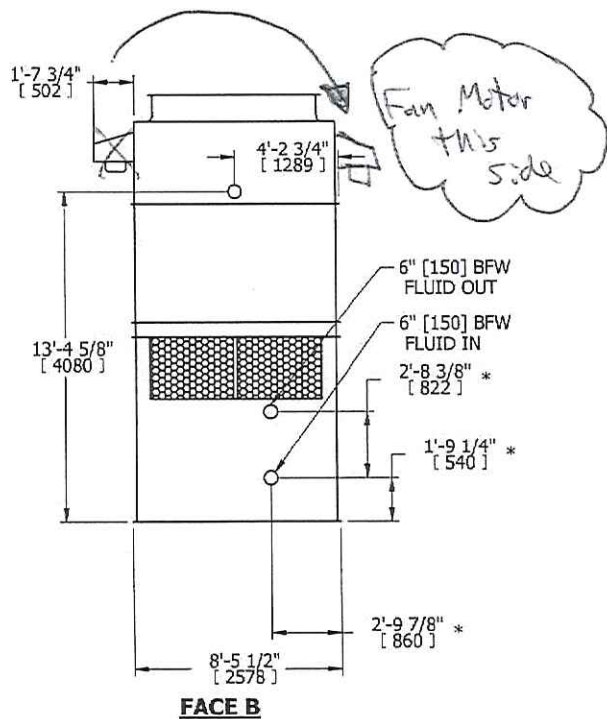
#### A. Piping Connections

1. Unit shall include an oversized outlet connection for remote sump operation. Suction hood and strainer assembly as well as make-up, overflow and drain connections shall be omitted.

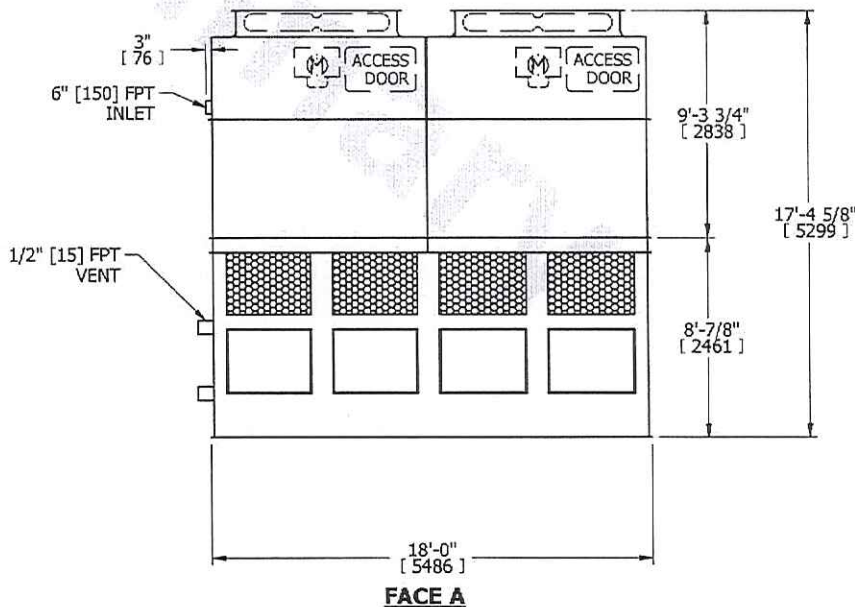
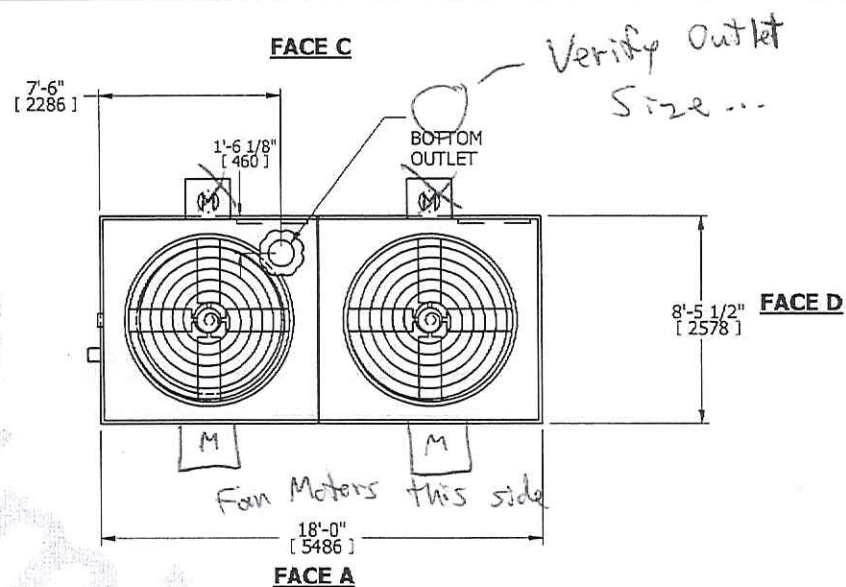
UNIT		CLOSED CIRCUIT COOLER		DWG. #	WZ309184810-DRB-HR	REV.	-
MODEL #	ESWA-153-451	SCALE	NTS	SERIAL #		DATE	2/1/2018

# NOTES:

1. (M) - FAN MOTOR LOCATION
2. HEAVIEST SECTION IS COIL SECTION
3. MPT DENOTES MALE PIPE THREAD  
FPT DENOTES FEMALE PIPE THREAD  
BFW DENOTES BEVELED FOR WELDING
4. +UNIT WEIGHT DOES NOT INCLUDE  
ACCESSORIES (SEE ACCESSORY  
DRAWINGS)
5. 3/4" [19MM] DIA. MOUNTING HOLES.  
REFER TO RECOMMENDED STEEL  
SUPPORT DRAWING
6. DIMENSIONS LISTED AS FOLLOWS:  
ENGLISH FT-IN  
[METRIC] [mm]
7. THE SPRAY PUMP SHOULD BE SIZED FOR  
1030 GPM [65 L/S] AND AT 3.5 PSIG [24 kPa]  
AT THE INLET CONNECTION
8. \* - APPROXIMATE DIMENSIONS DO  
NOT USE FOR PRE-FABRICATION  
OF CONNECTING PIPING

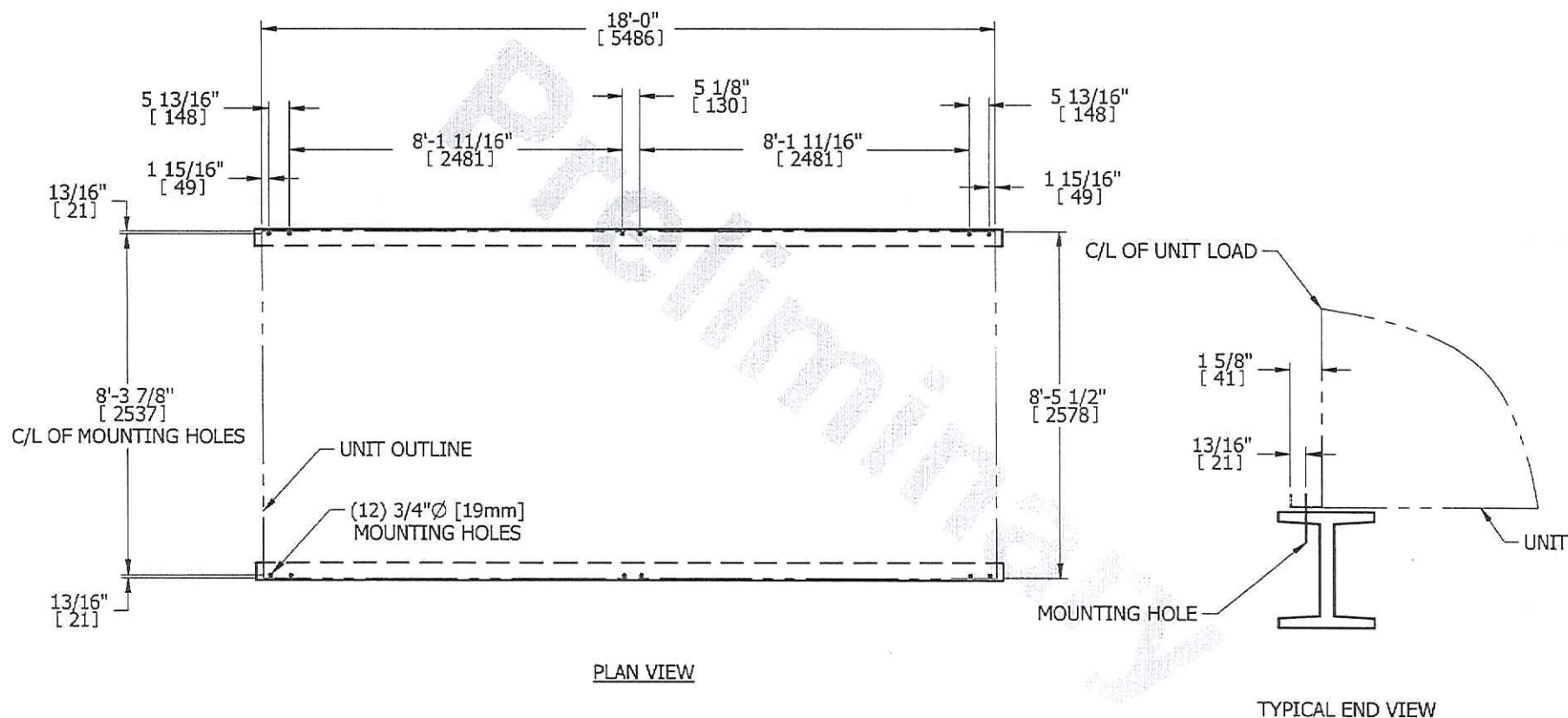


**FACE B  
PLAN VIEW**



SHIPPING WEIGHT	19490 lbs+ [8841] kg+	OPERATING WEIGHT	25120 lbs+ [11395] kg+	HEAVIEST SECTION WEIGHT	12950 lbs+ [5875] kg+	NO. OF SHIPPING SECTIONS	2	DRAWN BY:	AWD
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UNIT	ESWA-153-45I	<b>EVAPCO, INC.</b> 	DWG. #	SLWZ30918-DC	
TITLE	STEEL SUPPORT CONFIGURATION		SCALE	N.T.S.	DRAWN BY BLL



#### NOTES:

1. BEAMS SHOULD BE SIZED IN ACCORDANCE WITH ACCEPTED STRUCTURAL PRACTICES. MAXIMUM DEFLECTION OF BEAM UNDER UNIT TO BE 1/360 OF UNIT LENGTH NOT TO EXCEED 1/2" [13mm].
2. DEFLECTION MAY BE CALCULATED BY USING 55% OF THE OPERATING WEIGHT AS A UNIFORM LOAD ON EACH BEAM. SEE CERTIFIED PRINT FOR OPERATING WEIGHT.
3. SUPPORT BEAMS AND ANCHOR HARDWARE ARE TO BE FURNISHED BY OTHERS. ANCHOR HARDWARE TO BE ASTM A325 5/8" [16mm] BOLT OR EQUIVALENT.
4. BEAMS MUST BE LOCATED UNDER THE FULL LENGTH OF THE PAN SECTION.
5. SUPPORTING BEAM SURFACE MUST BE LEVEL. DO NOT LEVEL THE UNIT BY
6. THE FACTORY RECOMMENDED STEEL SUPPORT CONFIGURATION IS SHOWN. CONSULT THE FACTORY FOR ALTERNATE SUPPORT CONFIGURATIONS.
7. UNIT SHOULD BE POSITIONED ON STEEL SUCH THAT THE ANCHORING HARDWARE FULLY PENETRATES THE BEAM'S FLANGE AND CLEARS THE BEAM'S WEB.
8. WHEN VIBRATION ISOLATION IS REQUIRED, THE VIBRATION ISOLATORS (BY OTHERS) MUST BE LOCATED UNDER THE SUPPORTING BEAMS AND NOT BETWEEN THE SUPPORTING STEEL BEAMS AND THE UNIT.
9. DIMENSIONS LISTED AS FOLLOWS: ENGLISH FT-IN [METRIC] [mm]

PLACING SPACERS BETWEEN THE UNIT MOUNTING FLANGE AND THE SUPPORTING BEAM.

Spectrum Version: 1.2010.125.1

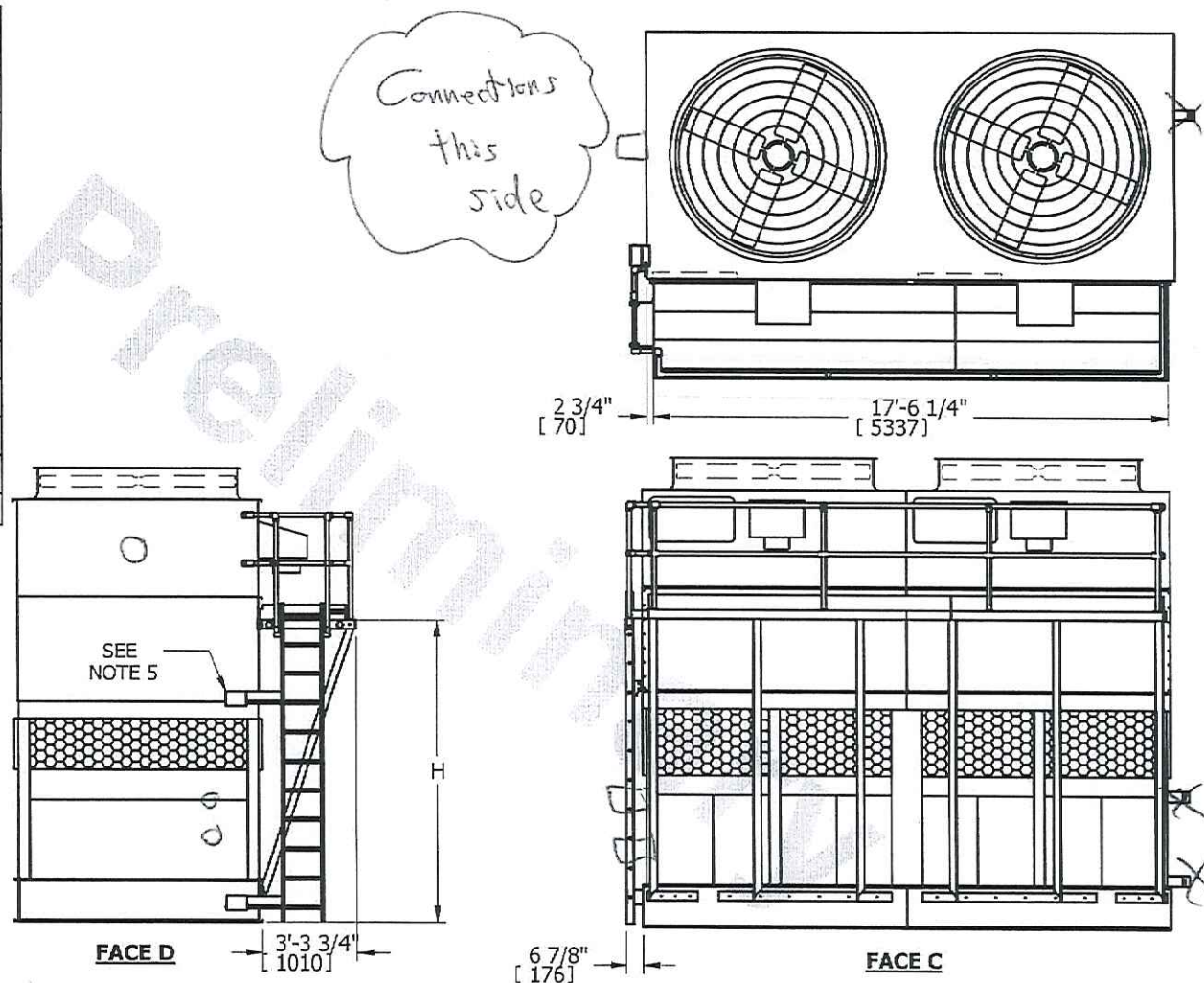


UNIT	ESWA-153-45I
TITLE	EXTERNAL SERVICE PLATFORM

**EVAPCO, INC.** 

DWG. #	PLWZ0918-DA
SCALE	N.T.S.
DRAWN BY	SLR

MODEL #	H DIM	
	FT-IN	[mm]
ESWA 153-23H, 23I, 23J	8'-10 1/2 "	2705
ESWA 153-24H, 24I, 24J	9'-6"	2896
ESWA 153-25H, 25I, 25J	10'-1 1/2 "	3086
ESWA 153-26H, 26I, 26J	10'-9"	3277
ESWA 153-33H, 33I, 33J	9'-10 1/2 "	3010
ESWA 153-34H, 34I, 34J	10'-6"	3200
ESWA 153-35H, 35I, 35J	11'-1 1/2 "	3391
ESWA 153-36H, 36I, 36J	11'-9"	3581
ESWA 153-43I, 43J, 43K	10'-10 1/2 "	3315
ESWA 153-44I, 44J, 44K	11'-6"	3505
ESWA 153-45I, 45J, 45K	12'-1 1/2 "	3696
ESWA 153-46I, 46J, 46K	12'-9"	3886



**NOTES:**

1. LADDER AND PLATFORM SHIP LOOSE. FIELD INSTALLATION BY OTHERS IS REQUIRED.
2. THE BOTTOM OF THE LADDER DOES NOT EXTEND PAST THE BASE OF THE UNIT.  
IF THE UNIT IS ELEVATED THEN AN OPTIONAL EXTENDED LADDER PACKAGE SHOULD BE CONSIDERED. (CONSULT FACTORY)
3. REFER TO RIGGING PACK FOR LADDER AND PLATFORM MOUNTING INSTRUCTIONS.
4. EACH PLATFORM AND LADDER ASSY. WEIGHS 1100 LBS. [499 KG]
5. MODELS ESWA 153-23H, 23I, 23J DO NOT REQUIRE AN INTERMEDIATE LADDER BRACKET.
6. DIMENSIONS LISTED AS FOLLOWS: ENGLISH FT-IN

[METRIC] mm