Date 4/11/2005

PERFORMANCE AND MECHANICAL SPECIFICATIONS

EVAPCO® AT COOLING TOWERS

PROJECT	Umstead Hospital		
CUSTOMER	Southern Piping Company		
ENGINEER	United Eng		
UNIT:	(1) AT 112-318 Cooling Tower		
CUSTOMER P.O.	R2517-4278	EVAPCO SERIAL NO.	5-125319
CAPACITY	1470 GPM	95 °F IN 85 °F OUT	80 °F E.W.B.
FAN MOTOR:	(1) 30 (Inverter Duty) HP	ELEC. SPEC.	460/3/60
INLET PRESSURE:	1.3 PSIG	DRIVES SIZED FOR 0" ESP.	

UNIT TYPE	Factory assembled, induced draft, counterflow cooling tower.
CONSTRUCTION	All cold water basin components including vertical supports and air inlet louver frames are constructed of type 304 Stainless Steel. Casing, channels and angle supports are constructed of heavy gauge mill hot-dip galvanized steel. All galvanized steel is coated with a minimum of 2.35 ounces of zinc per square foot of area (G-235 designation). During fabrication, all galvanized steel panel edges are coated with a 95% pure zinc-rich compound.
MAKE UP FLOAT VALVE ASSEMBLY*	Brass float valve with adjustable plastic float.
PAN STRAINER*	All type 304 stainless steel construction with large area removable perforated screens.
ACCESS	Hinge mounted door in the upper casing for fan drive and water distribution system access. Removable louver panels on all four sides of the unit for pan and sump access.
FAN SHAFT	Solid shaft of ground and polished steel. Exposed surface coated with rust preventative.
FAN SHAFT BEARINGS	Heavy-duty, self-aligning ball type bearings with extended lubrication lines to grease fittings located on access door frame. Bearings are designed for a minimum L-10 life of 75,000 hours.
FANS	Fans are axial propeller type constructed of aluminum alloy and statically balanced. The fan is installed in a closely fitted cowl with venturi air inlet. Fan screens are galvanized steel and have steel frames bolted to the fan cowl.
FAN MOTOR	Totally enclosed, ball bearing type electric motor(s) suitable for moist air service. Motor(s) are 1.15 service factor design.

FAN DRIVE	**The fan drive is a multi-groove, solid back, reinforced neoprene V-belt type with taper lock sheaves designed for 150% of the motor nameplate horsepower. Fan and motor sheaves are constructed of aluminum alloy.**
FILL	**Polyvinyl Chloride (PVC) of cross-fluted design. PVC sheets are bonded together for strength and durability. Fill is self-extinguishing for fire resistance, has a flame spread of 5 under A.S.T.M. designation E-84-81a, and is resistant to rot, decay and biological attack.**
WATER DISTRIBUTION SYSTEM	**Precision molded ABS spray nozzles with large 3/8" x 1" orifice to eliminate clogging. Spray header and branches are Polyvinyl Chloride (PVC) for corrosion resistance with steel connection to attach external piping.**
ELIMINATORS	**The eliminators are constructed entirely of Polyvinyl Chloride (PVC) in easily handled sections. Design incorporates three changes in air direction and limits the water carryover to a maximum of 0.001% of the circulating water rate.**
AIR INLET LOUVERS	**The air inlet louvers are constructed from UV inhibited polyvinyl chloride (PVC) and incorporate a framed interlocking design that allows for easy removal of louvers for access to the entire basin area for maintenance. The louvers have a minimum of two changes in air direction and are of a non-planar design to prevent splash-out, block direct sunlight and debris from entering the basin. (Patent Pending)**
***OMITTED ON UNITS FOR REMOTE SUMP OPERATION**	**12 & 14 FT WIDE BELT DRIVE AT12/14ST-ST**

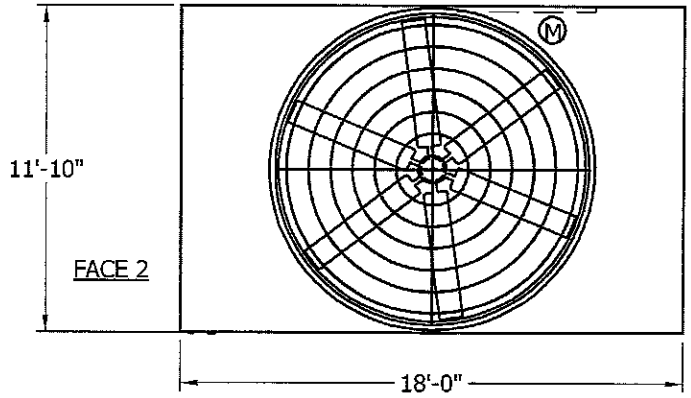
SPECIAL REMARKS:

- **Unit(s) to be supplied with Inverter Duty fan motor(s).**
- **(2) 9 KW Pan Heater(s), 460/3/60, with thermostat and low water cutoff(s).**
- **Heater package includes contactor, 460/3/60, in a NEMA 4 enclosure (wiring by others).**
- **Unit(s) provided with ladder(s).**

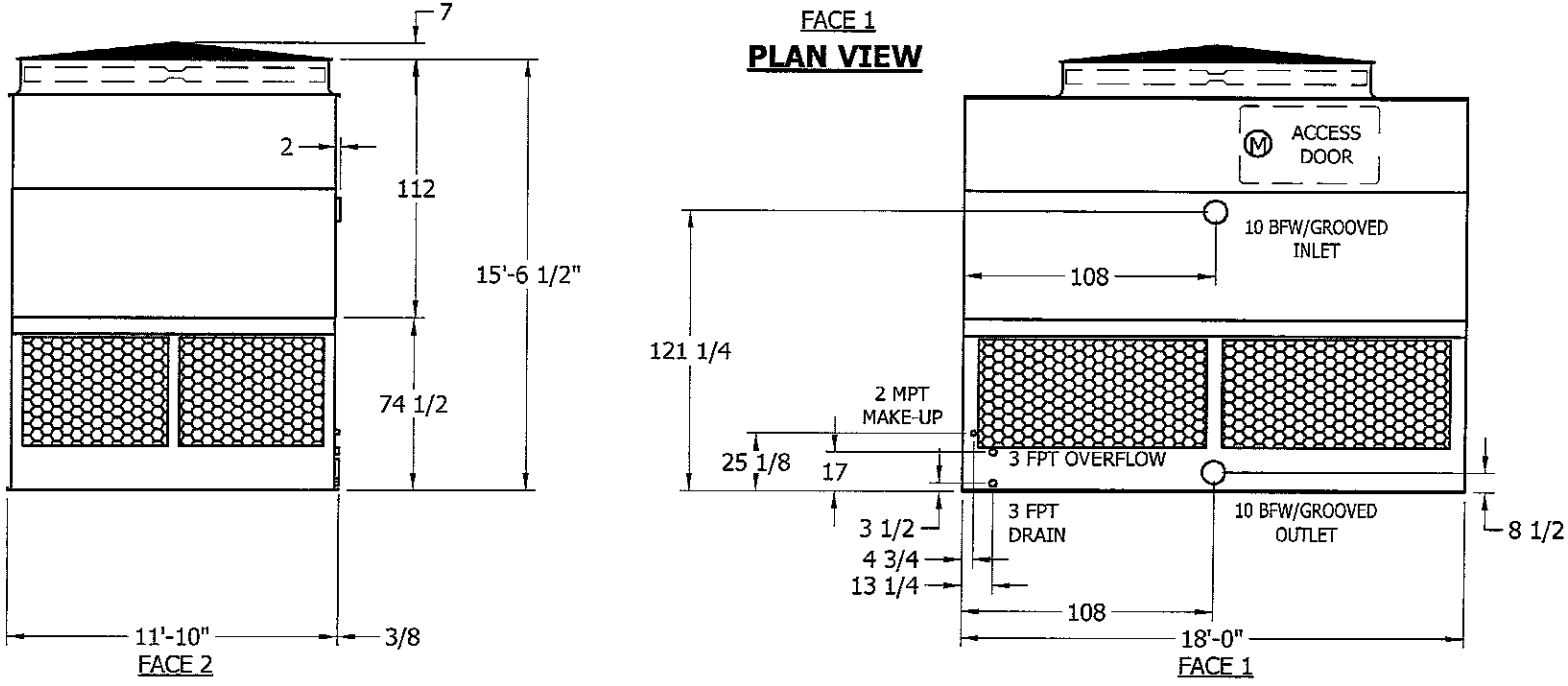
EVAPCO, INC.

UNIT	MODEL #	SCALE	DWG. #	REV.	DATE	SERIAL #
COOLING TOWER	AT 112-318	NTS	T2121836-ERB-ST	-	4/11/2005	5-125319

NOTES:
1. (M)- FAN MOTOR LOCATION
2. HEAVIEST SECTION IS UPPER 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 SEPARATE DRAWINGS FOR ACCESSORIES)
5. 3/4" DIA. MOUNTING HOLES. REFER TO RECOMMENDED STEEL SUPPORT DRAWING
6. MAKE-UP WATER PRESSURE-20 psi MIN, 50 psi MAX



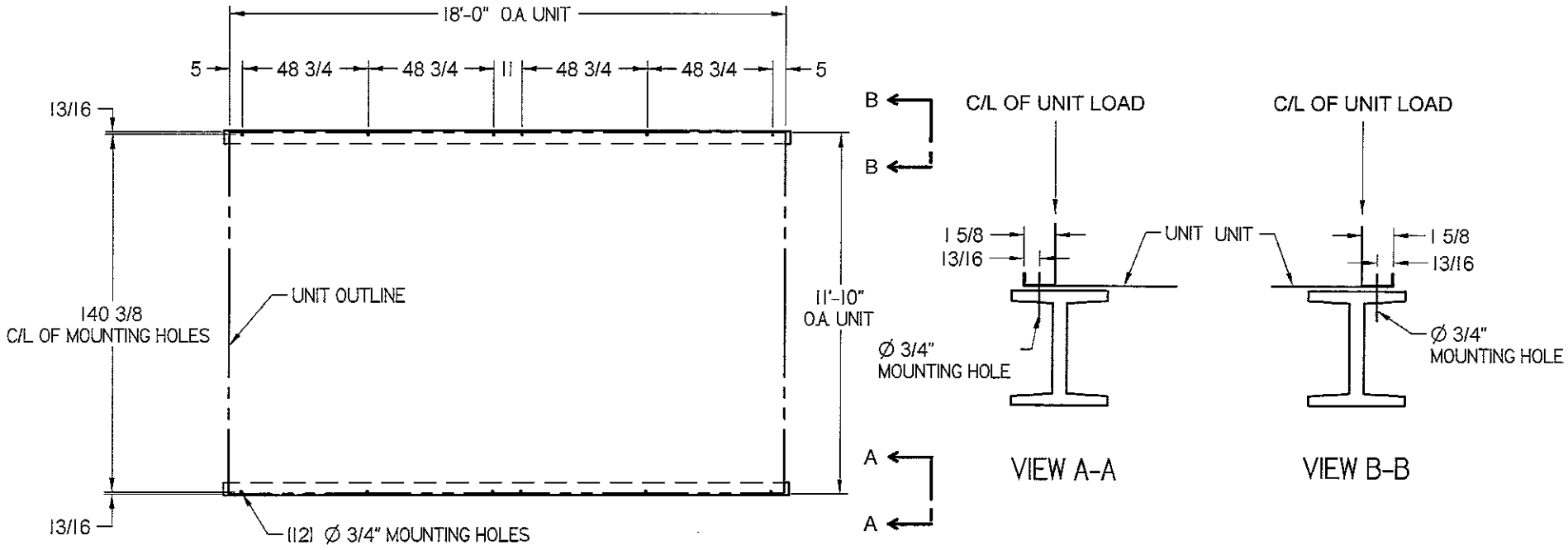
PLAN VIEW



SHIPPING WEIGHT	11580 lbs.+	OPERATING WEIGHT	20850 lbs.	HEAVIEST SECTION WEIGHT	8020 lbs.	NO. OF SHIPPING SECTIONS	2

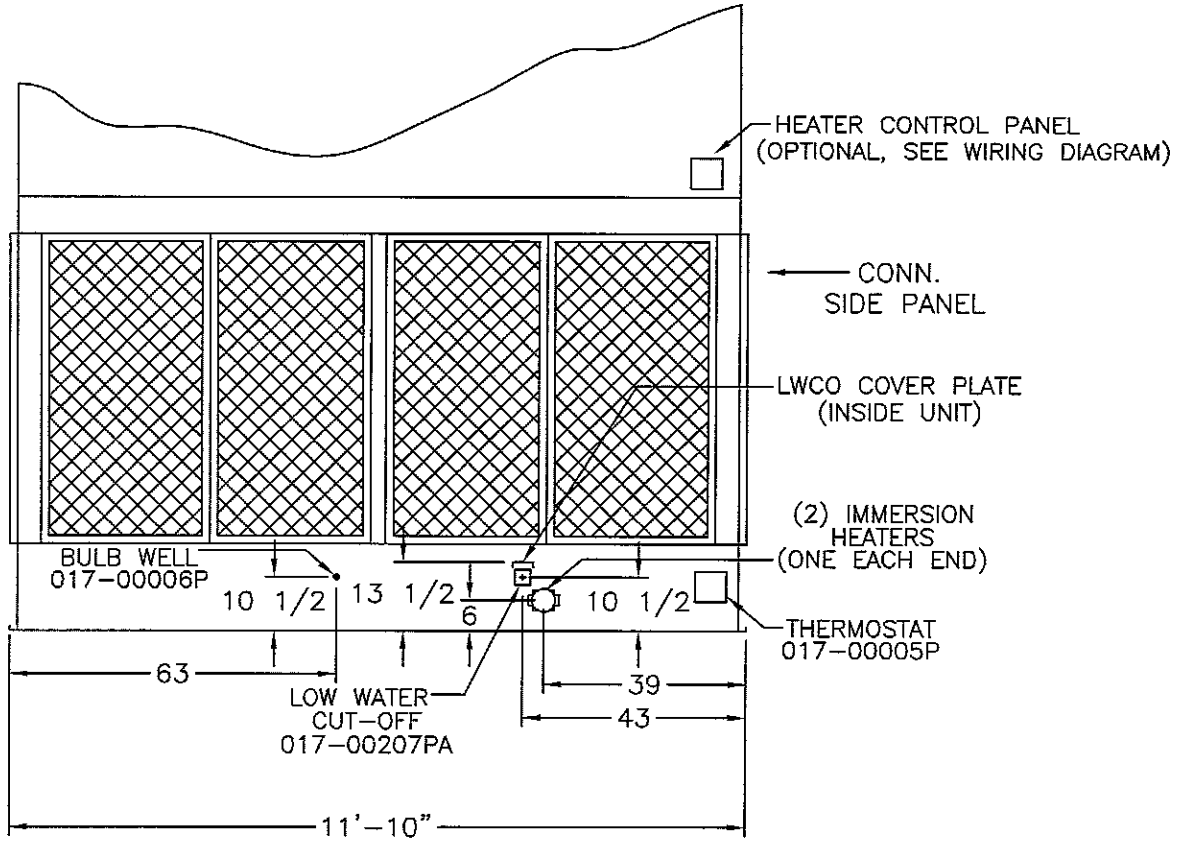
EVAPCO, INC.

TITLE	UNIT:	SCALE	DWG. #	SERIAL #
STEEL SUPPORT CONFIGURATION	12X18 INDUCED DRAFT	1:60	SL-AI1218EA	5-125319



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".
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 5/8".
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 PLACING SHIMS BETWEEN THE UNIT MOUNTING FLANGE AND THE SUPPORTING BEAM.
6. ANCHORING ARRANGEMENT SHOWN HAS A MAXIMUM WIND RATING OF 30 PSF ON CASED VERTICAL SURFACES.
7. THE FACTORY RECOMMENDED STEEL SUPPORT CONFIGURATION IS SHOWN. CONSULT THE FACTORY FOR ALTERNATE SUPPORT CONFIGURATIONS.
8. UNIT SHOULD BE POSITIONED ON STEEL SUCH THAT THE ANCHORING HARDWARE FULLY PENETRATES THE BEAM'S FLANGE AND CLEARS THE BEAM'S WEB.



END VIEW
12X12/14/18/20 AT/USS TOWER

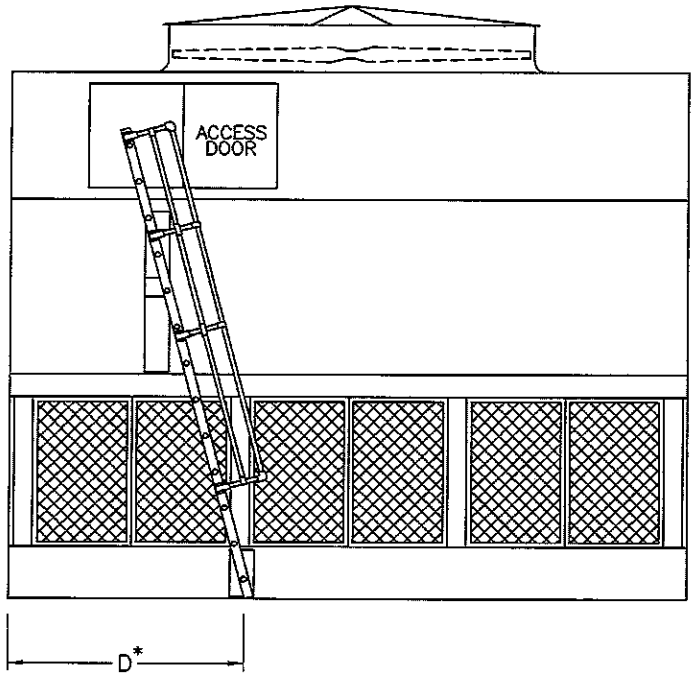
NOTES:

1. A MINIMUM OF **21.75 in** CLEARANCE IS REQUIRED BETWEEN THE HEATER OUTLET BOX AND THE NEAREST OBSTRUCTION FOR REMOVAL OF THE HEATER.
2. ALL NIPPLES ON UNIT ARE NOT SHOWN IN ORDER TO CLARIFY HEATER COMPONENT LOCATIONS.
3. ALL HEATER COMPONENTS BY EVAPCO ARE FACTORY MOUNTED WHEN POSSIBLE.

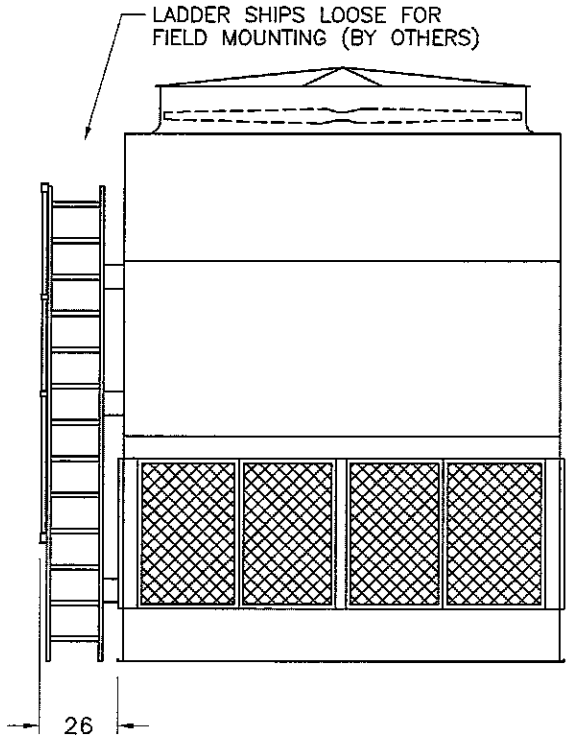
evapco

HEATER
LOCATION

HLT212VW-EC



SIDE VIEW



END VIEW

Ⓜ –FAN MOTOR LOCATION

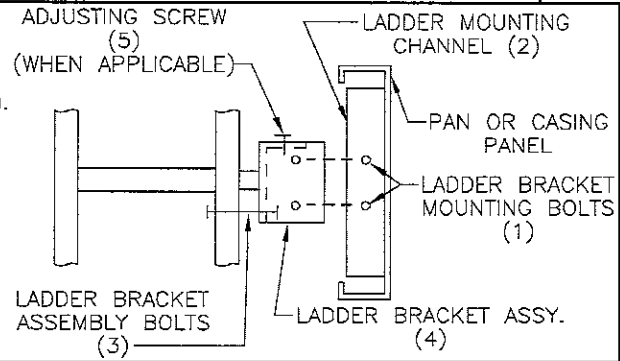
* THE BOTTOM OF THE LADDER IS AT THE BASE OF THE UNIT. IF THE UNIT IS ELEVATED THEN A LADDER EXTENSION SHOULD BE CONSIDERED. (CONSULT FACTORY). LADDER EXTENSIONS OF UP TO 3 FEET CAN BE ADDED WITHOUT ANY ADDITIONAL SUPPORT. FOR A LADDER EXTENSION LONGER THAN 3 FEET ADDITIONAL SUPPORT MUST BE PROVIDED BY OTHERS.

RIG LADDERS BEFORE PIPING UNIT

TOWERS	D(IN)
AT/USS 112–018/118	86 3/4
AT/USS 112–218/318 518/718	89 3/8
AT/USS 112–418/618 818/918	93 1/8

CUSTOMER INSTALLATION NOTES:

a. REMOVE LADDER BRACKET MOUNTING BOLTS (1) FROM LADDER MOUNTING CHANNELS (2) ON PAN AND CASING SECTIONS.
b. LOOSEN, BUT DO NOT REMOVE, LADDER BRACKET AND ASSY. BOLTS (3).
c. TO ASSEMBLE, SLIDE LADDER BRACKET ASSY. (4) OVER LADDER MOUNTING CHANNELS (2) LOCATED ON PAN AND CASING (DO NOT REMOVE LADDER BRACKET ASSY. (4) FROM LADDER.)
d. ALIGN HOLES AND REINSTALL LADDER BRACKET MOUNTING BOLTS (1) THROUGH LADDER BRACKET ASSY. (4) AND LADDER MOUNTING CHANNELS (2).
e. TIGHTEN ALL BOLTS.
f. TIGHTEN ADJUSTING SCREW (5) IN THE ADJUSTABLE MOUNTING BRACKETS WHEN APPLICABLE.



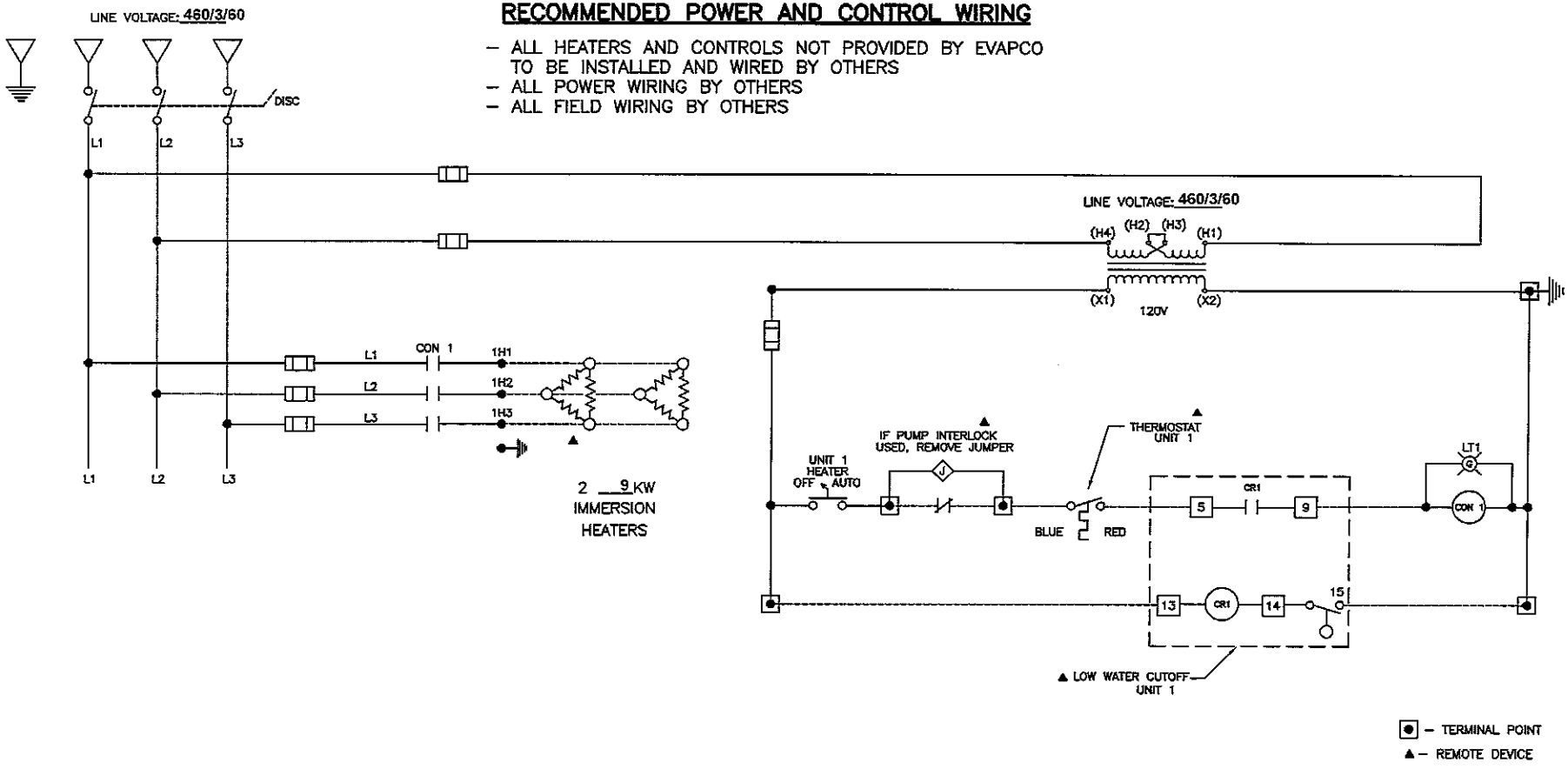
evapco

SLOPED LADDER INSTALLATION PACKAGE

T21218ERA–LD

RECOMMENDED POWER AND CONTROL WIRING

- ALL HEATERS AND CONTROLS NOT PROVIDED BY EVAPCO TO BE INSTALLED AND WIRED BY OTHERS
- ALL POWER WIRING BY OTHERS
- ALL FIELD WIRING BY OTHERS



NOTES:

1. DASHED LINES INDICATE FIELD WIRING.
2. THE HEATERS HAVE BEEN SIZED TO MAINTAIN 40°F PAN WATER AT AN AMBIENT TEMPERATURE OF 0 °F.
3. ALL COMPONENTS BY EVAPCO HAVE NEMA 4 ENCLOSURES.
4. AUXILIARY N.C. CONTACT INTERLOCKS IMMERSION HEATERS WITH SPRAY WATER CIRCULATING PUMP TO DE–ENERGIZE HEATERS WHEN SPRAY PUMP IS RUNNING.
5. (1) CONTACTOR IS SUPPLIED FOR EVERY (2) HEATERS
   – CONTACTOR SHOULD BE WIRED WITH SEPARATE SUPPLY TERMINALS FOR EACH HEATER.
6. (1) CONTACTOR IS SUPPLIED PER CELL OF A MULTICELL UNIT
   – PROVIDES FOR INDIVIDUAL CELL OPERATION

IMMERSION HEATER BY:	☑ EVAPCO	☐ OTHERS
LOW WATER CUTOFF/THERMOSTAT CONTROL BY:	☑ EVAPCO	☐ OTHERS
AUXILIARY N.C. PUMP INTERLOCK BY:	☐ EVAPCO	☑ OTHERS
HEATER CONTROL PANEL BY:	☑ EVAPCO	☐ OTHERS
TRANSFORMER BY:	☐ EVAPCO	☑ OTHERS
HEATER CONTACTOR BY:	☑ EVAPCO	☐ OTHERS
FUSED DISCONNECT BY:	☐ EVAPCO	☑ OTHERS

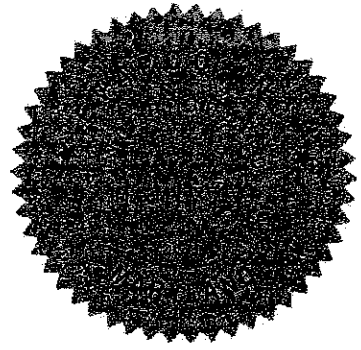
evapco

3ø HEATER WIRING DIAGRAM 2 HEATERS

B2AU0000–ED

Guarantee of Thermal Performance by EVAPCO

EVAPCO® unequivocally guarantees the thermal performance of its equipment as shown on the certified drawings, when the equipment is installed in accordance with good engineering practice. If after installation and start-up there is any question regarding thermal performance of the equipment, at the owner's request EVAPCO will send its engineers to the jobsite to conduct a performance test. This test may be observed by the owner and the consulting engineer or by their authorized representatives. If the results of the evaluation show the equipment to be deficient, EVAPCO will make the necessary repairs or alterations to correct the deficiency at no cost to the owner. If the equipment is found to be performing in accordance with its certified drawing, the owner is expected to reimburse the company for its costs associated with this performance test.



AOS2636