



PERFORMANCE AND MECHANICAL SPECIFICATIONS

**EVAPCO® AT COOLING TOWERS**

PROJECT	Family Courts Bldg		
CUSTOMER	City of Newport News		
ENGINEER			
UNIT:	(1) AT-14-812 Cooling Tower		
CUSTOMER P.O.	20102694-000	EVAPCO SERIAL NO.	10-382651
CAPACITY		IN	OUT E.W.B.
FAN MOTOR:	(2) 5 (Inverter Duty) HP	ELEC. SPEC.	208/3/60
INLET PRESSURE:	2.3 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.
- IBC COMPLIANCE** The unit structure has been designed, analyzed, and constructed in accordance with the latest edition of International Building Code (IBC) Regulations for seismic loads up to 1g and wind loads up to 60psf.
- PAN STRAINER\*** All type 304 stainless steel construction with large area removable perforated screens.
- ACCESS** G-235 hot-dip galvanized steel circular access door(s) in the upper casing for fan drive and water distribution system access. Removable louver panels on both sides of the unit for pan and sump access. Hinged swing away cover for motor access.
- FAN SHAFT** Solid shaft of ground and polished steel.
- 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** Unit fan(s) is high efficiency axial propeller type, using a high strength die cast aluminum hub and fiberglass reinforced polypropylene (PPG) wide chord blades. Each fan is statically balanced and installed in a closely fitted cowl with venturi air inlet for maximum efficiency. The fan cowl is covered with a galvanized steel fan guard.

FAN MOTOR	Totally enclosed, ball bearing type electric motor with 1.15 service factor suitable for outdoor use. The motor is mounted externally on the unit with an adjustable motor base and swing away protective cover.
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 sheave is constructed of aluminum alloy. The motor sheave is external to the unit for dry operation.
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, large orifice spray nozzles utilizing fluidic technology for superior water distribution over the fill media and to minimize water distribution system maintenance. Spray header and branches are Schedule 40 Polyvinyl Chloride (PVC) for corrosion resistance with steel connection to attach external piping. Branches have threaded end caps to facilitate debris removal.
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)
ELECTRONIC WATER LEVEL CONTROL PACKAGE	Electronic water level control package with three (3) stainless steel water level sensors ((1) one high level, one (1) low level and one (1) ground) with a NEMA 4X enclosure mounted in a cleanable Schedule 40 PVC external standpipe with slow closing solenoid Valve(s) and "y" strainer(s).

\*OMITTED ON UNITS FOR  
REMOTE SUMP OPERATION

**SPECIAL REMARKS:**

- Unit(s) to be supplied with Inverter Duty fan motor(s).
- 3-Probe Electronic Water Level Control Package.
- Unit designed with reinforced basin.
- (1) 5 KW Pan Heater(s), 208/3/60, with thermostat and low water cutoff(s).
- Left Hand Unit
- (1) 6 in MPT bypass connection(s).
- IBC Compliant up to 1g.

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UNIT	MODEL #	SCALE	NTS	DWG. #	REV.	DATE	SERIAL #
	AT-14-812	NTS		T3041224-DRE-014		3/26/10	10-382651
<b>COOLING TOWER</b>							
<p>NOTES:</p> <ol style="list-style-type: none"> <li>(M) - FAN MOTOR LOCATION</li> <li>HEAVIEST SECTION IS UPPER SECTION</li> <li>MPT DENOTES MALE PIPE THREAD FPT DENOTES FEMALE PIPE THREAD BFW DENOTES BEVELLED FOR WELDING GVD DENOTES GROOVED</li> <li>+ UNIT WEIGHT DOES NOT INCLUDE ACCESSORIES (SEE SEPARATE DRAWINGS FOR ACCESSORIES)</li> <li>MAKE-UP WATER PRESSURE 20 psi MIN [137 kPa], 50 psi MAX [344 kPa]</li> </ol>							
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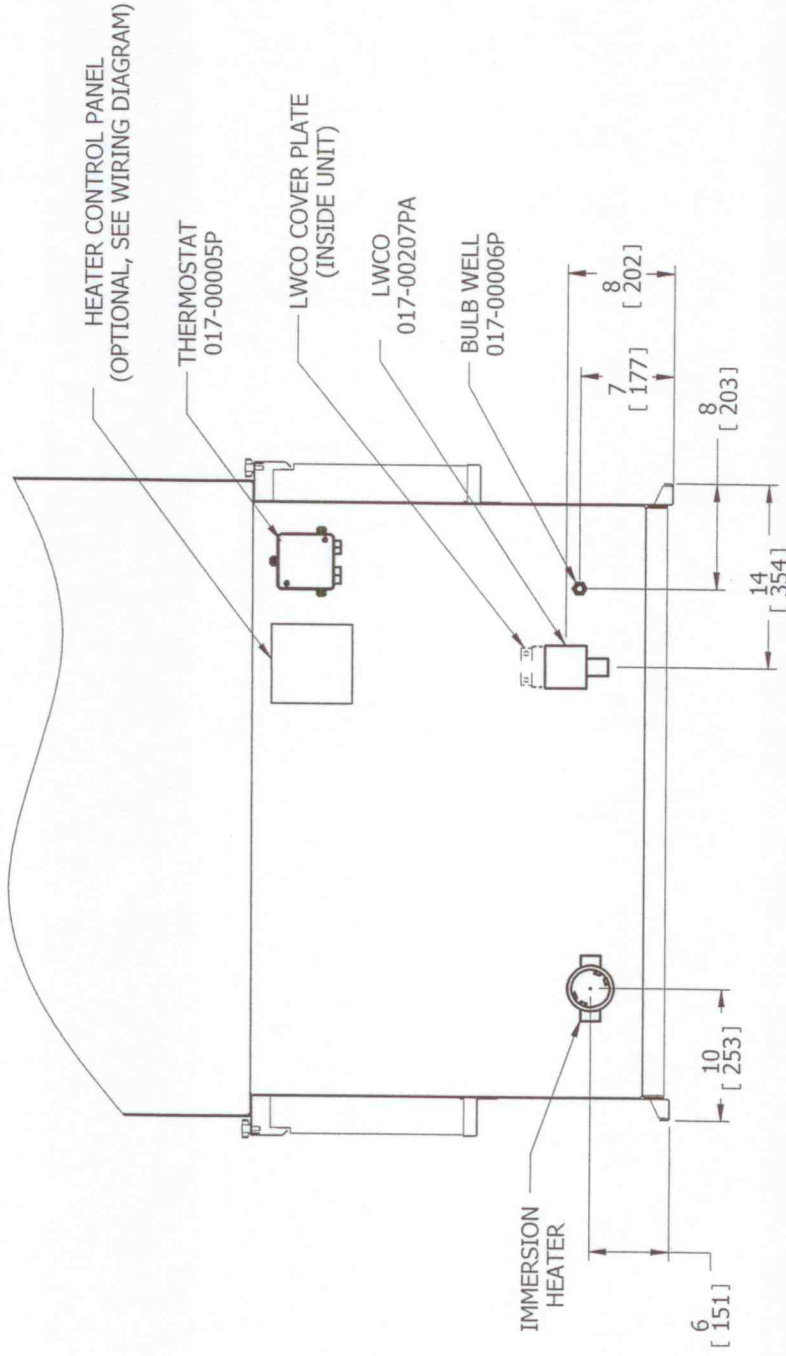
TITLE HEATER LOCATION

UNIT:

4x4/6/9/12 INDUCED DRAFT TOWER/CONDENSER/COOLER

DWG. #

HLAA30400-DA



OPP. CONN. END VIEW

NOTES:

1. A MINIMUM OF 12.75 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.
4. DIMENSIONS LISTED AS FOLLOWS: ENGLISH IN [METRIC] [mm]

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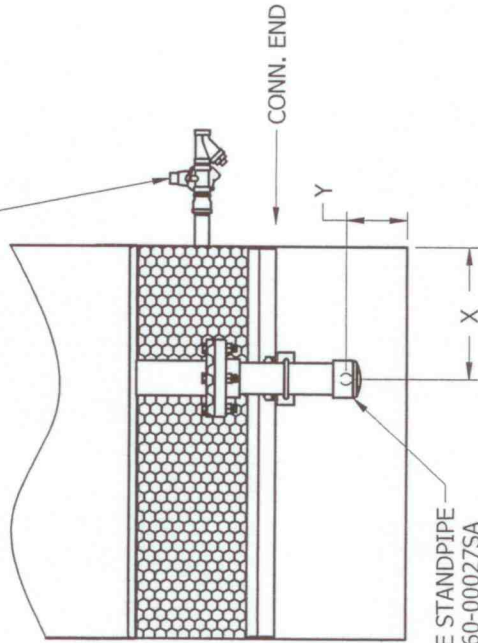
TITLE: ELECTRIC WATER LEVEL CONTROL LOCATION

UNIT: INDUCED DRAFT TOWER

DWG. #

ELT20400-DA

ELECTRIC MAKE-UP VALVE  
WITH Y-STRAINER UPSTREAM  
OF VALVE. (SEE CHART FOR  
SIZE AND QTY)



LEVEL PROBE STANDPIPE  
ASSEMBLY 060-00027SA  
(SEE CHART FOR QTY)

SIDE VIEW

UNIT SELECTED	BOX SIZE		VALVE		Y-STRAINER			STANDPIPE	
	QTY	SIZE	QTY	SIZE	QTY	SIZE	PART NO.	QTY	SIZE
<input type="checkbox"/>	1	3/4 [19]	1	3/4 [19]	1	3/4 [19]	017-00279P	1	5 1/2 [140]
<input checked="" type="checkbox"/>	1	3/4 [19]	1	3/4 [19]	1	3/4 [19]	017-00279P	1	6 1/2 [165]

**NOTES:**

1. PIPING BY OTHERS.
2. LEVEL PROBE STANDPIPE ASSEMBLY, MAKE-UP VALVE AND Y-STRAINER TO SHIP LOOSE FOR FIELD MOUNTING BY OTHERS.
3. SEE CERTIFIED PRINT FOR MAKE-UP LOCATION.
4. STANDPIPE TO BE HEAT TRACED AND INSULATED FOR WINTER OPERATION (BY OTHERS).
5. THE ELECTRONIC WATER LEVEL CONTROL ON THIS UNIT WILL MAINTAIN THE PROPER OPERATING WATER LEVEL. HOWEVER, BEFORE INITIAL START-UP THE UNIT MUST BE MANUALLY FILLED TO WITHIN 1" OF THE OVERFLOW.
6. FOR EASE OF MAINTENANCE, A SHUT-OFF VALVE IS RECOMMENDED UPSTREAM OF Y-STRAINER.
7. DIMENSIONS LISTED AS FOLLOWS: ENGLISH IN [METRIC] [mm]

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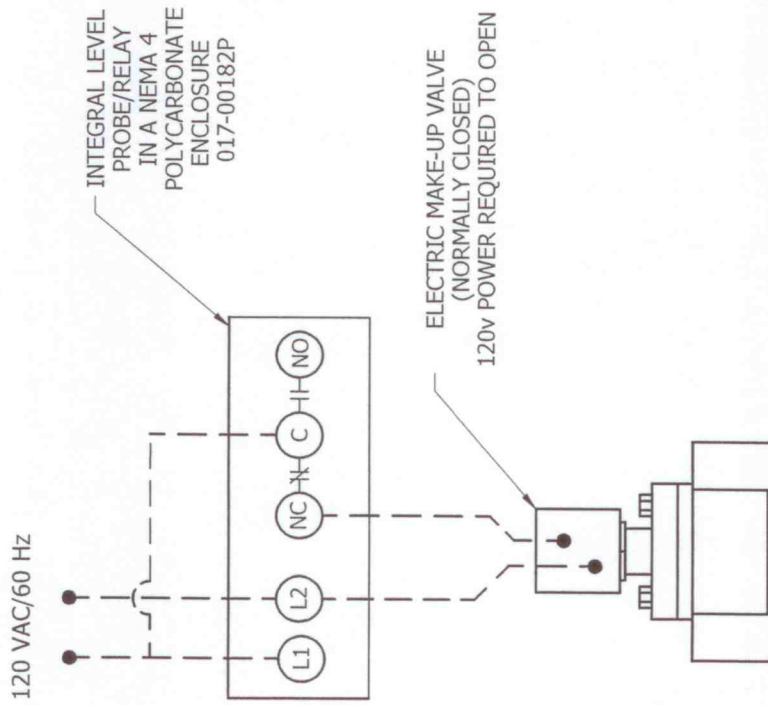
TITLE ELECTRIC WATER LEVEL CONTROL WIRING

DESCRIPTION:

INDUCED DRAFT - 3 PROBE, 1 VALVE

DWG. #

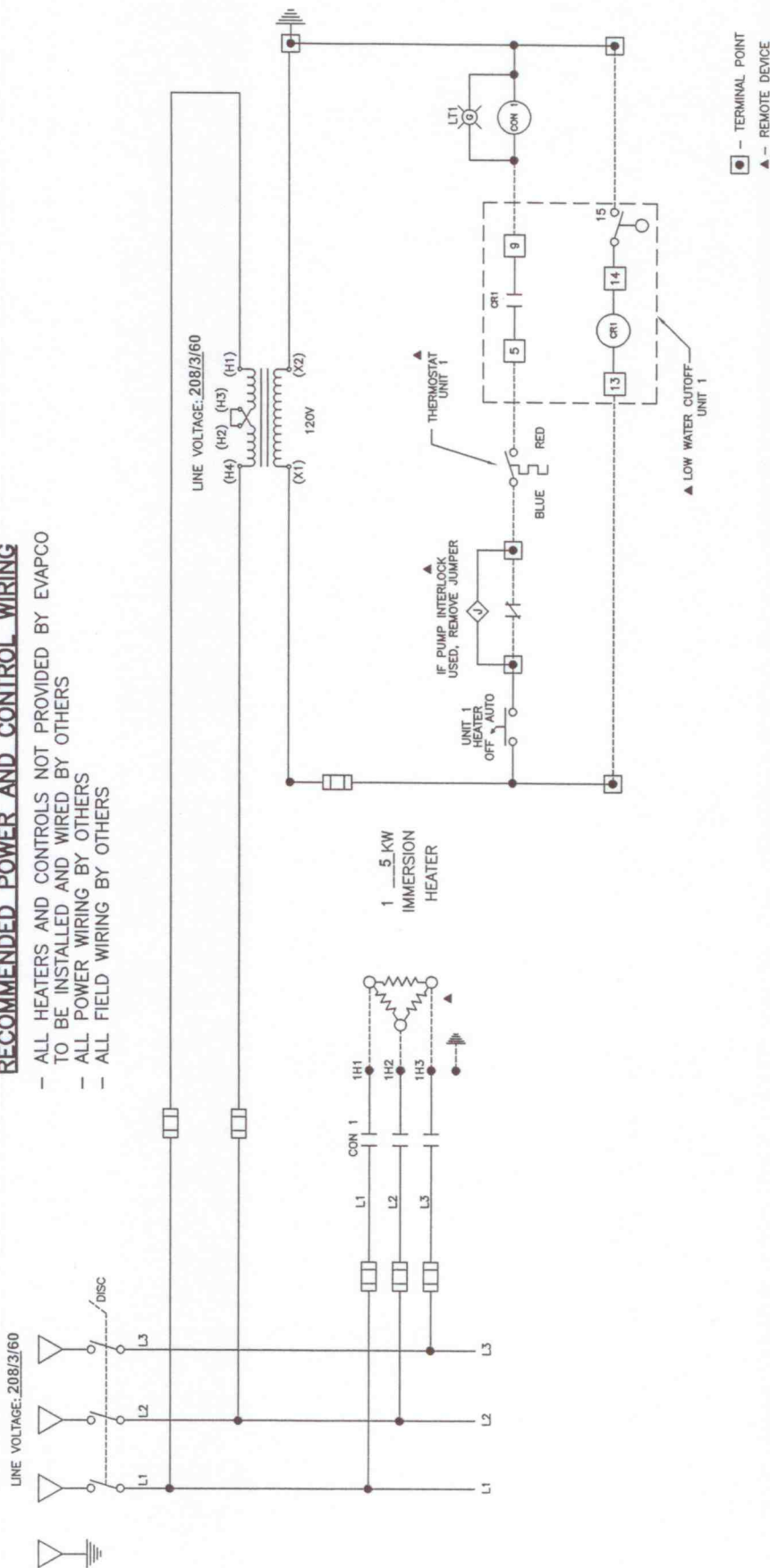
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- NOTES:
1. DASHED LINES INDICATE WIRING BY OTHERS.
  2. TYPICAL WIRING PER PROBE.

### RECOMMENDED POWER AND CONTROL WIRING

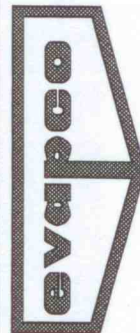
- ALL HEATERS AND CONTROLS NOT PROVIDED BY EVAPCO TO BE INSTALLED AND WIRED BY OTHERS
- ALL POWER WIRING BY OTHERS
- ALL FIELD WIRING BY OTHERS



### 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 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:	<input checked="" type="checkbox"/> EVAPCO	<input type="checkbox"/> OTHERS
LOW WATER CUTOFF/THERMOSTAT CONTROL BY:	<input checked="" type="checkbox"/> EVAPCO	<input type="checkbox"/> OTHERS
AUXILIARY N.C. PUMP INTERLOCK BY:	<input type="checkbox"/> EVAPCO	<input checked="" type="checkbox"/> OTHERS
HEATER CONTROL PANEL BY:	<input type="checkbox"/> EVAPCO	<input checked="" type="checkbox"/> OTHERS
TRANSFORMER BY:	<input type="checkbox"/> EVAPCO	<input checked="" type="checkbox"/> OTHERS
HEATER CONTACTOR BY:	<input type="checkbox"/> EVAPCO	<input checked="" type="checkbox"/> OTHERS
FUSED DISCONNECT BY:	<input type="checkbox"/> EVAPCO	<input checked="" type="checkbox"/> OTHERS



## 3φ HEATER WIRING DIAGRAM 1 HEATER

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