

# SUBMITTAL DATA FORM



**BALTIMORE AIRCOIL**

ONE OF THE  
**Amsted**  
INDUSTRIES

<b>C U S T O M E R</b>	<b>PRINCETON TECHNOLOGY CENTER</b> 429 RIDGE RD DAYTON, NJ 08810	<b>DATE</b> 4/22/98	<b>P.O. NO.</b> 981136
		<b>B.A.C. NO.</b> 97418181	<b>MODEL NO.</b> 33707-2WX

<b>PROJECT:</b>	<b>PRINCETON TECHNOLOGY CENTER - DAYTON, NJ</b>
<b>ENGINEER:</b>	<b>BRUCE E. BROOKS &amp; ASSOCIATES - PHILADELPHIA, NJ</b>
<b>B.A.C. REP:</b>	<b>NEWTON-METALLO, INC - ELMWOOD PARK, NJ</b>

**SERIES 3000 COOLING TOWER**

**EACH UNIT**

**CERTIFIED CAPACITY:** 3866 USGPM OF WATER FROM 95 F TO 85 F AT 78 F ENTERING WET BULB

**FAN MOTOR(S):** (2) 30 HP, 1800 RPM, 3 PHASE, 60 HERTZ, 230/460 VOLTS, INVERTER DUTY, TEAO ENCLOSURE.

NOTE: Two speed fan motors and/or Energy Miser Fan Systems require a starter that incorporates a 15 second time delay when switching from high to low speed.

12 COPIES OF SUBMITTAL DATA FOR RECORD

FEATURE	FEATURE
EASY CONNECT PIPING ARRANGEMENT STAINLESS STEEL COLD WATER BASIN INVERTER DUTY MOTORS AIR INLET SCREENS ELECTRIC BASIN HEATER PACKAGE PER CELL INDEPENDENT CELL OPERATION - LESS FLUME BOX INTERNAL WALKWAYS W/ SERVICE PLATFORM W/ LADDER EXTERNAL HANDRAIL, LADDER & SAFETY CAGE BALANCE CLEAN DRAIN VALVES BOTTOM EQUALIZER CONNECTIONS	

THANK YOU FOR YOUR ORDER ACCEPTED AT THE B.A.C. MILFORD, DE PLANT ON: APRIL 17, 1998.

AN APPROVED SUBMITTAL IS NOT REQUIRED. YOUR ORDER IS SCHEDULED TO SHIP FROM OUR FACTORY APPROXIMATELY 6/5/98. PLEASE BE PREPARED FOR THE ARRIVAL OF THIS EQUIPMENT, AS OUR FACILITIES CANNOT ACCOMMODATE THE STORAGE OF COMPLETED UNITS.

**CC:** JAMES R McQUAIDE, INC - MAPLE SHADE, NJ

P.O. BOX 7322, BALTIMORE, MARYLAND 21227 / TELE: (301) 799-6200 / FAX: 301-799-6416  
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 P.O. BOX 402, MILFORD, DELAWARE 19963 / TELE: (302) 422-3061 / FAX: 1-800-695-4329

**MECHANICAL SPECIFICATIONS**

**BALTIMORE AIRCOIL SERIES 3000 COOLING TOWERS**

G235(Z700 metric) Hot-Dip Galvanized Steel Structural Elements  
with Stainless Steel Cold Water Basin

PROJECT: PRINCETON TECHNOLOGY CENTER - DAYTON, NJ  
CUSTOMER: PRINCETON TECHNOLOGY CENTER  
CUSTOMER P.O. NUMBER: 981136  
B.A.C. SERIAL NUMBER: 97418181  
ENGINEER: BRUCE E. BROOKS & ASSOCIATES - PHILA, PA

**UNIT TYPE** Factory assembled, induced draft, crossflow cooling tower with vertical air discharge. Principal construction is of heavy gauge G235(Z700 metric) hot-dip galvanized steel angles and channels.

**CASING** Casing is constructed of fiberglass-reinforced polyester (FRP) panels.

**ACCESS** A 34" x 35" hinged access door is provided in the center of both side walls of the tower for access to eliminators and fan plenum section.

**COLD WATER BASIN** Constructed of heavy gauge Type 304 stainless steel. Basin includes a depressed center section with drain/clean-out connection. Basin area under the fill sections are sloped toward the depressed center section for easy cleaning.

**CONNECTIONS** All cold water basin connections four inches (4") and larger are both beveled for welding and grooved for mechanical coupling. Connections less than four inches (4") are provided with male pipe thread (MPT).

**MAKE-UP ASSEMBLY** Mechanical bronze make-up valve with unsinkable polystyrene filled plastic float arranged for easy adjustment. The make-up valve is suitable for city water supply pressures between 15 and 50 psig.

**STRAINER** Large area, lift out, stainless steel strainer screens are provided. Strainer includes anti-vortexing hood to prevent air entrainment.

**AIR INLET LOUVERS** Inlet louvers are wave-formed, fiberglass reinforced polyester (FRP), spaced to minimize air resistance and prevent water splash-out.

SERIES 3000 COOLING TOWER

Page 1

**WATER  
DISTRIBUTION  
SYSTEM**

Inlet water enters the high density polyethylene(HDPE) BALANCE CLEAN Chamber thru the EASY CONNECT Piping Arrangement. The BALANCE CLEAN Chamber includes a strainer with perforated openings sized smaller the water distribution nozzle orifices and a plugged blow-down connection to permit purging the BALANCE CLEAN Chamber of dirt and debris. It automatically balances water flow to the hot water distribution basins.

Hot water distribution basins are open gravity type constructed of heavy gauge hot-dip galvanized steel. Distribution basins covers are hot-dip galvanized steel. Polypropylene metering orifices are provided to assure even distribution of water over the wet deck surface.

**FAN DRIVE  
SYSTEM**

Fan is driven by a one-piece, multi-groove, solid back, neoprene/polyester powerband designed specifically for cooling tower service. Powerband tension is adjusted by a threaded bolt-and-nut arrangement. Fan and motor sheaves are aluminum.

**FAN SHAFTS AND  
BEARINGS**

Fan and fan shaft are supported by heavy duty, self-aligning, grease packed, relubricatable ball bearings with integral slinger rings and special seals for protection against dust and moisture. All bearings are designed for minimum  $L_{10}$  life of 40,000 hours (280,000 hours average life).

**FAN AND FAN  
CYLINDER**

Fan(s) are heavy duty, axial flow type with aluminum alloy blades. Heavy gauge, hot-dip galvanized steel fan cylinder(s) are designed for streamlined air entry and minimum tip clearances for maximum fan efficiency.

**FAN GUARD**

A heavy gauge, hot-dip galvanized steel wire fan guard is provided over each fan cylinder.

**MOTOR**

Fan motor is totally enclosed, air-over (TEAO), one speed, one winding, reversible squirrel cage, ball bearing type, designed specifically for cooling tower service. Motor is furnished with special moisture protection on windings, shafts and bearings. Motor is designed per NEMA MG1-Part 31 for Inverter duty service.

**BACross® WET  
DECK SURFACE  
AND DRIFT  
ELIMINATORS**

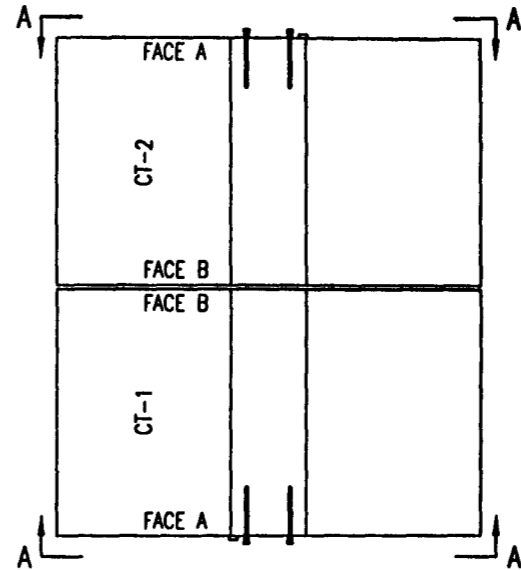
The wet deck surface and integral drift eliminators are formed from polyvinyl chloride (PVC). They are impervious to rot, decay, fungus or biological attack, and have a flame spread rating of 5 per ASTM Standard E84-77a. The eliminators are designed to effectively strip entrained moisture from the leaving airstream with a minimum of air resistance. Wet deck is suitable for a maximum entering water temperature of 120°F.

**CORROSION  
PROTECTION**

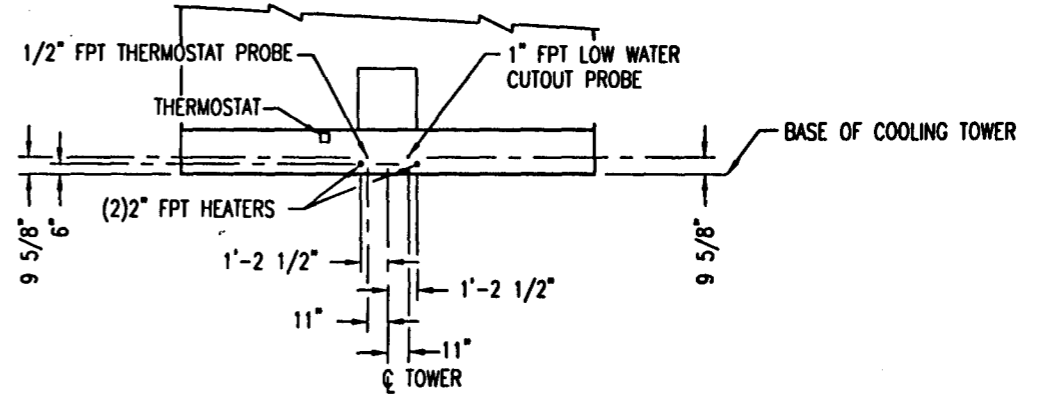
All steel components of the tower are heavy gauge G235(Z700 metric) hot-dip galvanized steel with cut edges coated with a zinc-rich compound.

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HEATER: 460 VOLTS, 3 PHASE,  
60 HZ, 0° AMBIENT TEMPERATURE.  
(2) @ 12KW



PLAN VIEW  
(2 CELL UNIT)



VIEW A - A  
HEATERS AND CONTROLS  
BOTH ENDS OF UNIT.

HEATERS, LOW WATER CUTOUT  
AND THERMOSTAT IN EACH CELL

B.A.C.  
ORDER NO: 97418181



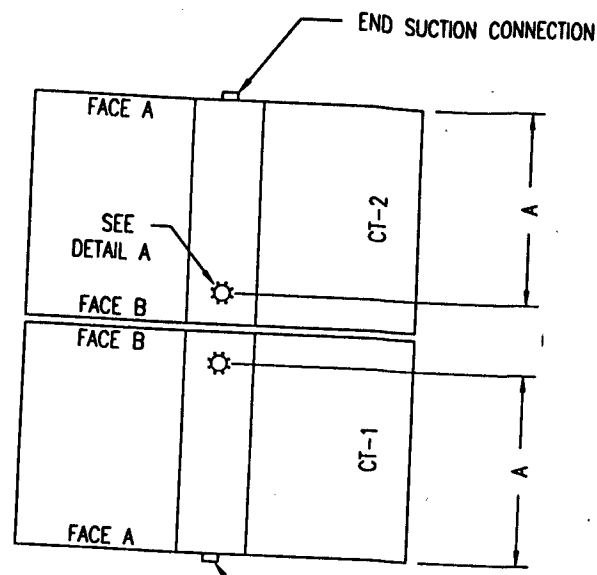
BALTIMORE AIRCOIL  
COMPANY

SERIES 3000/ JE PREMIER  
ELECTRIC PAN HEATER PACKAGE

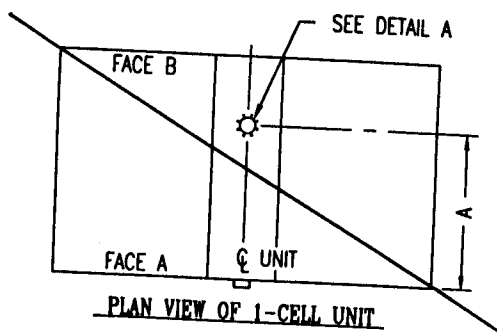
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BAC-18684A

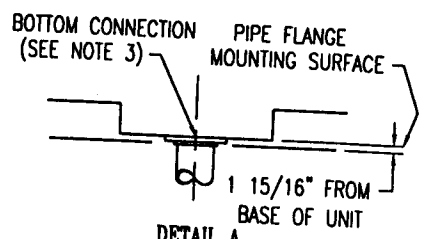
A



PLAN VIEW OF 2-CELL UNIT



PLAN VIEW OF 1-CELL UNIT



DETAIL A  
ELEVATION VIEW  
BOTTOM EQUALIZER

**NOTES:**

1. DO NOT SUPPORT PIPING FROM COOLING TOWER. ALL NECESSARY PIPING SUPPLIED BY OTHERS.
2. FIELD PIPING SHOULD BE FABRICATED AT TIME OF INSTALLATION. PRE-FABRICATION OF PIPE WORK IS NOT RECOMMENDED.
3. THE BOLT HOLE PATTERN IS DRILLED TO MATCH THE BOLT HOLE PATTERN OF A 150 POUND FLAT FACE AMERICAN STANDARD FLANGE. THE FLAT FACE FLANGE AND FULL FACE GASKET IS TO BE FURNISHED BY OTHERS FOR MATING WITH THE UNIT.

**TABLE-1 CONNECTION LOCATIONS**

MODEL NUMBER	A
33235 THRU 33315	
JE3235 THRU JE3315	5'-10"
33341 THRU 33424	
JE3341 THRU JE3424	6'-9 1/4"
33427 THRU 33485	
JE3427 THRU JE3485	8'-8"
33491 THRU 33646	
JE3491 THRU JE3646	8'-8"
33707 THRU 33803	
JE3707 THRU JE3803	8'-8"
33813 THRU 33860	
JE3813 THRU JE3860	8'-8"
33935 THRU 331055	
JE3935 THRU JE31055	12'-3 3/8"

**TABLE-2 MAXIMUM FLOW RATE FOR BOTTOM EQUALIZER CONNECTIONS (GPM)**

CONN. SIZE	EQUALIZER *
6"	750
8"	1300
10"	2300
12"	3200
14"	3730

\* MAXIMUM FLOW RATE TO COOLING TOWERS BEING EQUALIZED

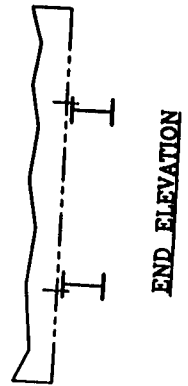
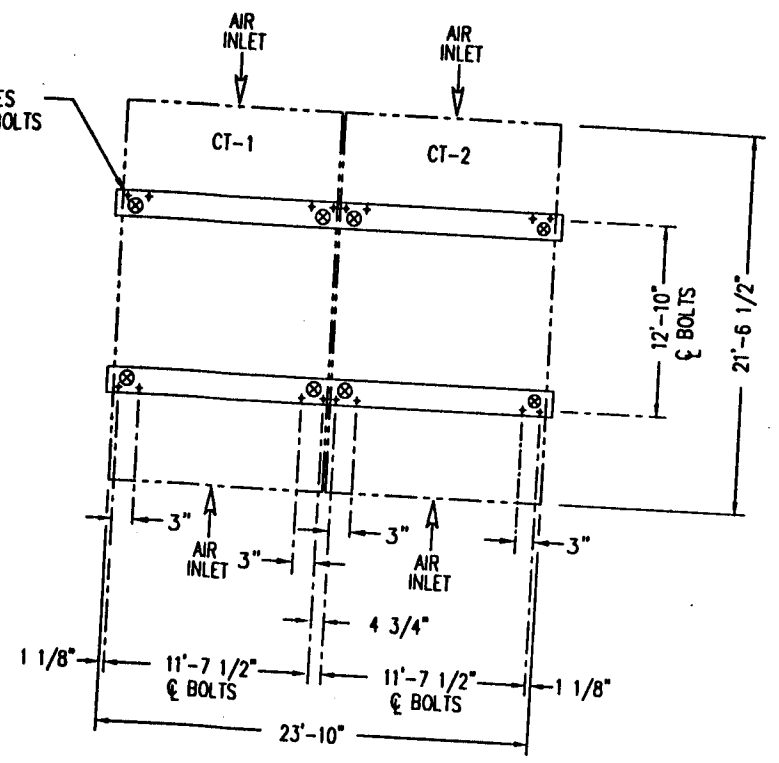
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UNIT WITH END SUCTION & BOTTOM EQUALIZER  
SERIES 3000/JE PREMIER  
BOTTOM EQUALIZER  
DRAWING NUMBER:  
BAC-19101A

3/4" DIA. MOUNTING HOLES FOR 5/8" DIA. ANCHOR BOLTS (16 REQUIRED)



PLAN VIEW

MODEL NO.	SHIPPING WEIGHT (LBS)	OPERATING WEIGHT (LBS)	WEIGHT AT ⊗ (LBS)	WIND REACTIONS (30 PSF)		SEISMIC REACTIONS (UBC-ZONE 4)	
				MAX. VERT. REACTION AT ⊗ (LBS)	MAX. HORIZ. REACTION AT ⊗ (LBS)	MAX. VERT. REACTION AT ⊗ (LBS)	MAX. HORIZ. REACTION AT ⊗ (LBS)
33707-2							
JE3707-2	25800	69380	8673	+/- 3285	2465	+/- 6150	5235
33758-2							
JE3758-2	25920	69500	8688	+/- 3285	2465	+/- 6150	5235
33803-2							
JE3803-2	26240	69820	8728	+/- 3285	2465	+/- 6150	5235

NOTES:

1. SUPPORTING STEELWORK AND ANCHOR BOLTS TO BE DESIGNED AND FURNISHED BY OTHERS.
2. ALL SUPPORTING STEEL MUST BE LEVEL AT TOP.
3. BEAMS SHOULD BE SELECTED IN ACCORDANCE WITH ACCEPTED STRUCTURAL PRACTICE. MAXIMUM DEFLECTION OF BEAM UNDER UNIT TO BE 1/360 OF SPAN, NOT TO EXCEED 1/2 INCH.
4. ALTERNATELY THE TOWER MAY BE SUPPORTED ON COLUMNS AT THE ANCHOR POINTS SHOWN. COLUMNS MUST PROVIDE A MINIMUM OF 12" X 12" BEARING SURFACE UNDER EACH OF THE CONCENTRATED LOAD POINTS.
5. IF VIBRATION ISOLATION RAILS ARE USED BETWEEN TOWER AND SUPPORTING STEEL, BE CERTAIN TO ALLOW FOR THE LENGTH OF THE VIBRATION RAILS WHEN DETERMINING LENGTH OF SUPPORTING STEEL. VIBRATION RAIL LENGTH AND MOUNTING HOLE LOCATION MAY DIFFER FROM THOSE OF THE COOLING TOWER. REFER TO VIBRATION ISOLATOR DRAWINGS FOR THIS DATA.
6. OPERATING WEIGHT AND WEIGHT LOADING ARE FOR TOWER WITH WATER LEVEL IN PAN AT OVERFLOW.

WIND OR SEISMIC REACTIONS ARE ADDITIVE TO OPERATING WEIGHT.

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BALTIMORE AIRCOIL COMPANY

SERIES 3000/JE PREMIER  
SUGGESTED STEEL SUPPORT-PLAN C

DRAWING NUMBER:  
BAC-18630A

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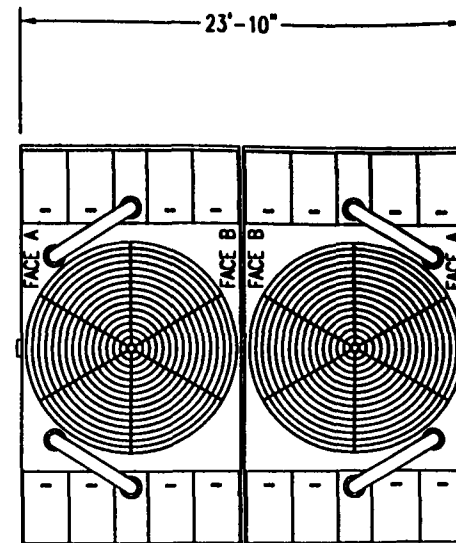
**NOTES:**

1. CONNECTIONS 3" & SMALLER ARE MPT. CONNECTIONS 4" & LARGER ARE GROOVED TO SUIT A MECHANICAL COUPLING AND BEVELED FOR WELDING.
2. ALL DIMENSIONS ARE IN FEET AND INCHES. WEIGHTS ARE IN POUNDS.
3. FOR WEIGHT LOADING AND SUPPORT REQUIREMENTS REFER TO THE SUGGESTED STEEL SUPPORT DRAWING.
4. THE AREA ABOVE THE DISCHARGE OF THE FAN MUST BE UNOBSTRUCTED.

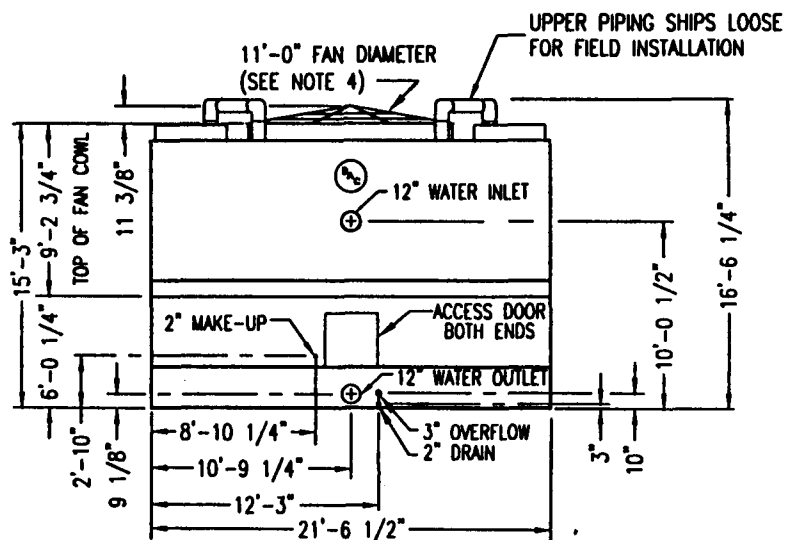
MODEL NUMBER	SHIPPING WEIGHT	HEAVIEST SECTION	OPERATING WEIGHT
33707-2	25800	7740	69920
JE3707-2			
33758-2	25920	7800	69500
JE3758-2			
33803-2	26240	7960	69820
JE3803-2			

UPPER SECTION IS HEAVIEST SECTION

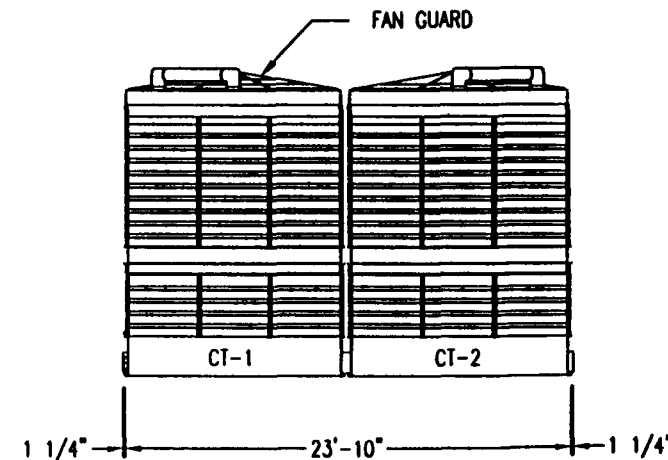
**NOTE: LESS FLUME BOX-  
INDEPENDENT CELL  
OPERATION**



PLAN VIEW



END ELEVATION (FACE A)  
ALL CONNECTIONS SAME BOTH ENDS



SIDE ELEVATION

B.A.C.  
ORDER NO: 97418181



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COMPANY

SERIES 3000/JE COOLING TOWER  
SIDE WATER INLET/SIDE OUTLET

DRAWING NUMBER: