CITY OF PORTLAND, MAINE RESURGAM
Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/08/15

SPX
COOLING TECHNOLOGIES

R T Forbes Co
DANVERS, MA 01923-0309
978 777.1220 /
email: scogland@comcast.net

Proposal to:
HVAC Services

Project:
Replace BAC

Engineer:

RECOLD FLUID COOLER – SUBMITTAL DATA

TOWER MODEL	PERFORMANCE CONDITIONS	MECHANICAL DATA PER CELL	TOWER DIMENSIONS	WEIGHTS
Quantity of (1) Recold MW model **MWH-44C** factory assembled 1-Cell induced draft counterflow fluid cooler	Process Water Additive: 30.0%Propylene Glycol Per 1-cell tower: 300 gpm 100.0 °F Hot Water 90.0 °F Cold Water 78.0 °F Entering WB 3.23 psi fluid pressure drop	**Fan(s): 2** **Motor(s): 2 @ 5 HP** Premium Efficiency TEFC 3 phase / 60 Hz / 208 Volts 1.15sf 1800 RPM **Pump(s): 1 @ 1.5 HP**	Each cell: (without options) Length 4' - 1 3/4" Width 13' - 3" Height 9' - 2"	Per cell: Shipping: 3,687 lb Per 1-cell tower: Shipping: 3,687 lb

Base Tower Construction/Equipment:
Galvanized steel base construction.
Grade 300 stainless steel cold water basin, side plates, doors and coil supports.
Belt drive fan(s).
Motor(s) will meet or exceed the EISA 2007 government efficiency standards.
Triple-pass 17 mil PVC drift eliminators designed and manufactured by Marley.
Drift rate guaranteed to be no greater than .005% of the design flow rate.

Coil Section:
(2) standard copper 3.125" (3.1 in) OD inlet connections per cell for process fluid.
(2) standard copper 3.125" (3.1 in) OD outlet connections per cell for process fluid.
Factory installed positive closure dampers which help protect the coil from freezing during shutdown.
Tube bundles water immersion tested to 350 psi.

Collection Basin Connections and Accessories:
Mechanical type water make-up float valve.
Electric immersion heater complete with thermostat for freeze protection of the collection basin during cold weather system shutdown.

Spray System and Accessories:
PVC distribution header pipe and branch arms with polypropylene spray nozzles.

Maintenance & Maintenance Access Features:
Large removable access doors in sump section and coil section.

Control Systems:
(1) NEMA 3R control panel per cell for single 208V motor, with ABB ACH550 VFD.
Control/Starter Panel – Factory wired pump starter w/ single point electric connection for dampers & basin heater.

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UPDATE™ Version 4.16.9
Product Data: 7/1/2015 (Current)

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7/17/2015 11:04:29 AM

Job Information

Selected By

R.T. Forbes Company, Inc.
One Lummus Ave.
Danvers, MA
scogland@comcast.net

Jeff Scogland
Tel 978-777-1220
Fax 978-777-1750

Fluid Cooler Definition

Manufacturer	Recold	Fan Motor Speed	1800 rpm
Product	MW Series	Fan Motor Capacity per cell	10.00 BHp
Model	MWH-44C	Fan Motor Output per cell	10.00 BHp
Cells	1	Fan Motor Output total	10.00 BHp
		Air Flow per cell	30300 cfm
Coil Material	Copper	Air Flow total	30300 cfm
Fan	3.000 ft, 5 Blades	Pump Motor Output per cell	1.50 BHp
Fan Speed	1140 rpm, 10744 fpm	Pump Water Flow per cell	180.0 gpm
Fans per cell	2		
Pumps per cell	1		
Model Group	Standard		

Conditions

Total Process Flow	300.0 gpm	Air Density In	0.07094 lb/ft³
Hot Water Temperature	100.00 °F	Air Density Out	0.07126 lb/ft³
Range	10.00 °F	Humidity Ratio In	0.01712
Cold Water Temperature	90.00 °F	Humidity Ratio Out	0.02881
Approach	12.00 °F	Wet-Bulb Temp. Out	87.60 °F
Wet-Bulb Temperature	78.00 °F	Estimated Evaporation	2.9 gpm
Relative Humidity	50.0 %	Coil Pressure Drop	3.2 psi
Propylene Glycol Content	30.0 %	Total Heat Rejection	1426500 Btu/h
Capacity	110.5 %		

- This selection satisfies your design conditions.
- Sound data is unavailable for this model in UPDATE.

Weights & Dimensions

	Per Cell	Total
Shipping Weight	3500 lb	3500 lb
Max Operating Weight	6550 lb	6550 lb
Width	13.250 ft	13.250 ft
Length	4.146 ft	4.146 ft
Height	9.167 ft	

Weights and dimensions do not include options; refer to sales drawings.

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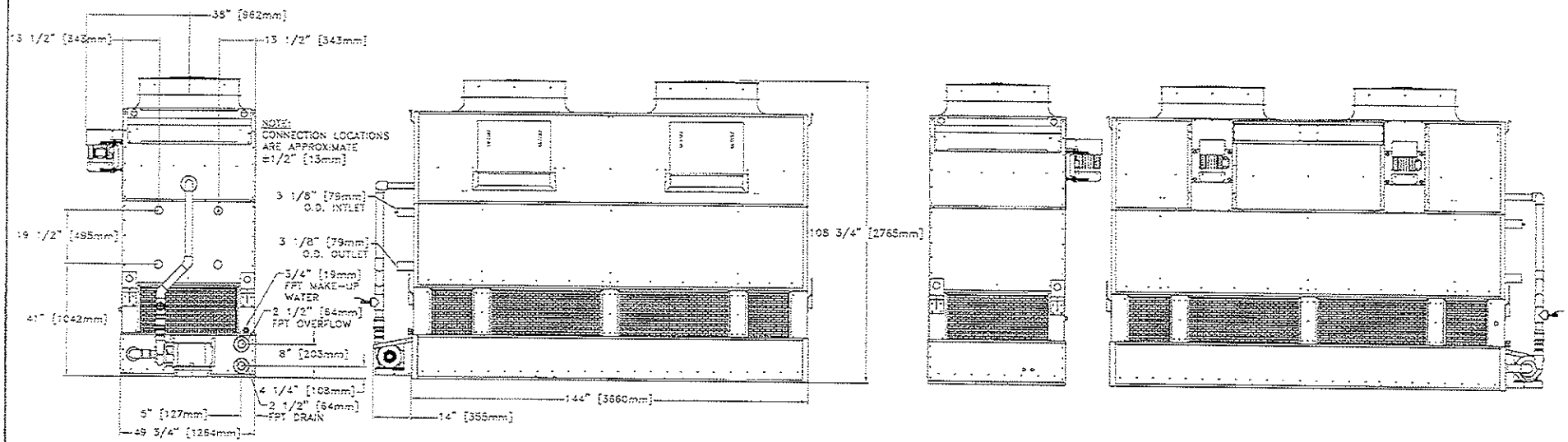

NOTES:

1. CONSULT FACTORY FOR SIZE AND LOCATION OF CONNECTIONS FOR LOW FLOW (MWL), AND STANDARD FLOW (MW).
2. DIMENSIONS APPLY TO HIGH FLOW (MWH) MODELS.
3. CONNECTION SIZES ARE STANDARD COPPER O.D. AND ARE SIZED FOR NOMINAL FLOW RATES.
4. IF SUPPORTING THE UNIT ON BEAMS, REFER TO THE RECOLD SUGGESTED SUPPORTING STEEL DRAWING FOR REQUIRED MOUNTING HOLE PATTERN.

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Recold Item No:

DRAWN BY	DRAWN DATE						
TRINH	01/14/2015	QTC DRAWING BASE UNIT MWH-44					Recold
CHECKED BY ABRAHAM_STD	CHECKED DATE 03/13/2015						
RELEASED BY ABRAHAM_STD	RELEASED DATE 03/13/2015	ECM NUMBER	ORDER NUMBER -/-	FORMAT ANSI A	PLOT 1=1	DRAWING NUMBER Z0910786	REV.

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Inspections Division
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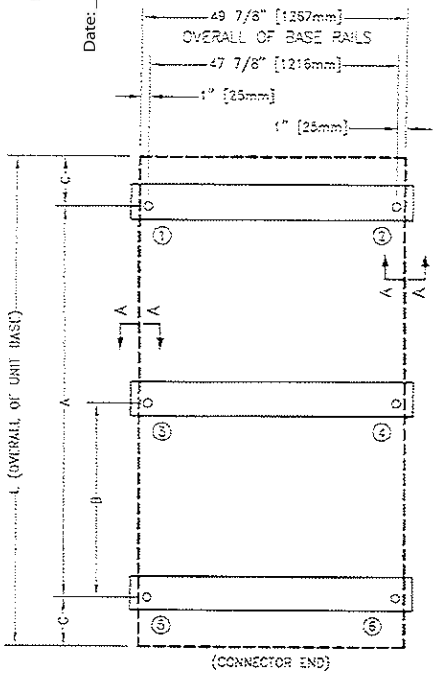
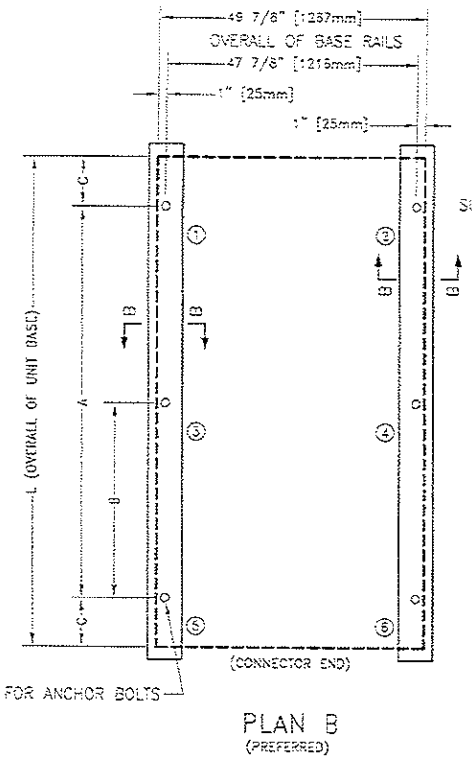
09/08/15
Date:

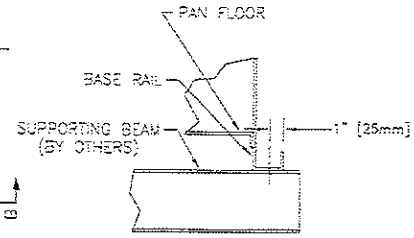
NOT TO SCALE



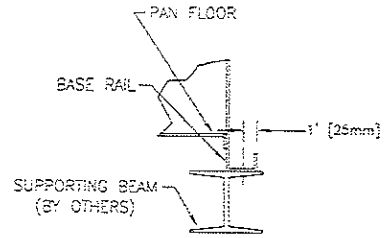
PLAN A



PLAN B
(PREFERRED)



SECTION A-A



SECTION B-B

SUGGESTED PLANS OF SUPPORTING STEEL

GENERAL NOTES

1. SUPPORTING STEEL: Purchaser to design, construct & furnish supporting steel complete with 7/8 diameter holes to anchor bolts to suit the general dimensions of this drawing. All steel must be framed flush & level at top. Maximum beam deflection to be 1/360 of span, not to exceed 1/2 inch at anchor bolts.
2. OPERATING WEIGHT AND LOADS: These loads are based upon normal water level in sump pan at shutdown. (interior of heat exchanger coil totally filled with water included in MW models.
3. WIND LOADS: Wind loads are calculated on a basis of 30 pounds per square foot. Wind loads are additive to operating loads.
4. ANCHOR BOLTS: All anchor bolts are 3/4 inch diameter and are to be furnished by others.
5. SHIPPING WEIGHT, OPERATING WEIGHT, OPERATING LOADS: These weight and loads do not include optional accessory weights. Contact Recold sales engineer for accessory weights when applicable.
6. CONCRETE SLABS: When installed at grade most units are mounted on a flat concrete slab. All applicable piping connections are designed to allow adequate clearance for connecting purchaser's piping to the unit when installed on a concrete slab.
7. VIBRATION ISOLATION: If unit is to be supported on vibration isolators, the prefered location for the isolators is beneath the supporting steel beams and not between the supporting steel beams and the unit base rails. If necessary to install isolators between the unit base rails and supporting steel beams, contact Recold sales engineer for allowable type and arrangement of isolators for a specific model and for dimensional changes on anchor bolt hole locations.

DIMENSIONS					
MODEL	MODEL	L	A	B	C
MC 50-70	MW-18 A, B, C	51 1/4	33	N/A	14-1/16
MC 90-110	MW-30 A, B, C	97 1/8	72	36	12-5/8
MC 130-170	MW-44 A, B, C	144 1/8	116	58	14-1/16

MODEL	MODEL	SHIPPING WEIGHT * (IN LBS)	OPERATING WEIGHT * (IN LBS)	OPERATING LOADS (IN LBS.) ANCHOR BOLT LOCATION**						WIND LOADS (IN LBS.) VERTICAL REACTION AT						HORIZONTAL REACTION AT					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
MC-50	MW-18A	1,713	2,918	739	680	–	–	779	720	531	531	–	–	531	531	235	235	–	–	235	235
MC-60	MW-18B	1,818	3,097	785	725	–	–	824	763												
MC-70	MW-18C	1,917	3,274	830	770	–	–	869	805												
MC-90	MW-30A	2,629	4,552	772	657	826	711	855	730	550	550	550	550	604	604	248	248	248	248	272	272
MC-100	MW-30B	2,787	4,844	819	703	873	757	910	782												
MC-110	MW-30C	2,957	5,157	870	753	924	808	964	838												
MC-130	MW-44A	3,388	6,254	978	858	1,045	926	1,303	1,143	765	765	765	765	1,005	1,005	344	344	344	344	453	453
MC-150	MW-44B	3,550	6,722	1,049	928	1,117	996	1,395	1,237												
MC-170	MW-44C	3,609	7,187	1,119	998	1,187	1,066	1,486	1,329												

* SEE NOTE 5.
**SEE NOTES 2 & 5.

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Recold Item No:

DRAWN BY	DRAWN DATE					
TRINH	01/14/2015	QTC DRAWING – SUGGESTED SUPPORTING ARRANGEMENTS MW 18-44 MC 50-170				Recold
CHECKED BY	CHECKED DATE					
ABRAHAM_STD	03/13/2015					
RELEASED BY	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT	DRAWING NUMBER / REV.
ABRAHAM_STD	03/13/2015		-/-	ANSI A	1=1	Z0910780

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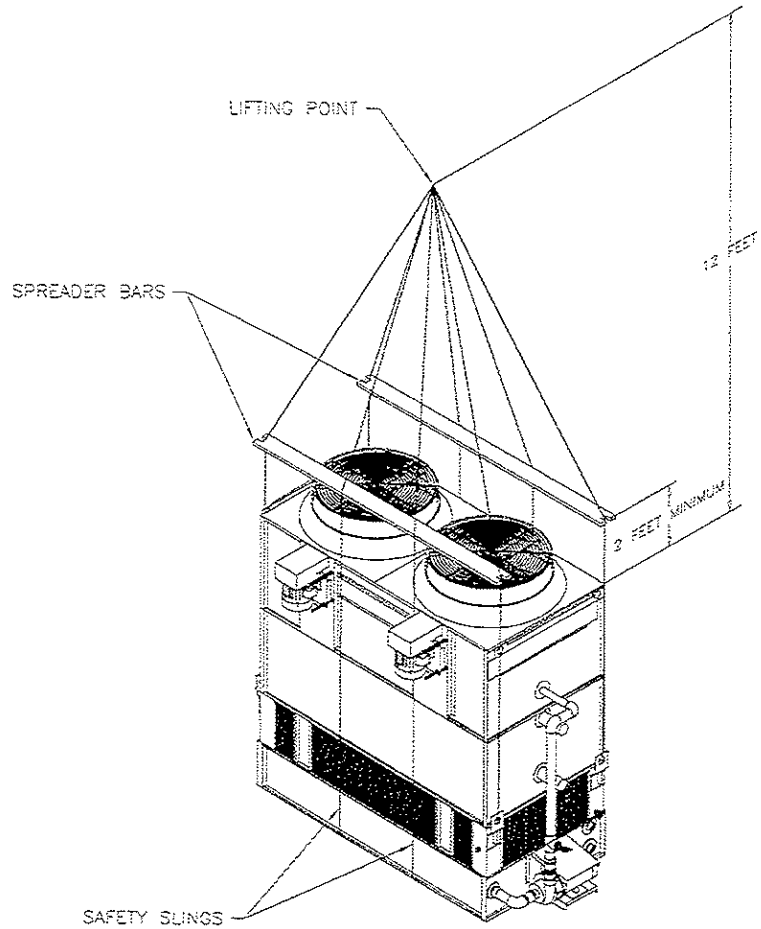
HOISTING INSTRUCTIONS FOR M-SERIES

Always use the reinforce lifting eyes located at the corners of the basin when attempting to lift the entire assembled unit. Spreader bars should always be used at the top of the unit to help balance the load and prevent damage to the top section. The bars shall be at minimum of 24" above the upper surface of the unit.

Warning: Safety slings must be placed under the unit for extended lifts or where hazards exits.



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Recold Item No:

DRAWN BY	DRAWN DATE						
TRINH	01/14/2015	QTC DRAWING					
CHECKED BY	CHECKED DATE	Hoisting Instructions, M-Series					
ABRAHAM_STD	03/13/2015						
RELEASED BY	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT	DRAWING NUMBER	REV.
ABRAHAM_STD	03/13/2015		-/-	ANSI A	1=1	Z0910783	

Recold®

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PLANNING & URBAN DEVELOPMENT
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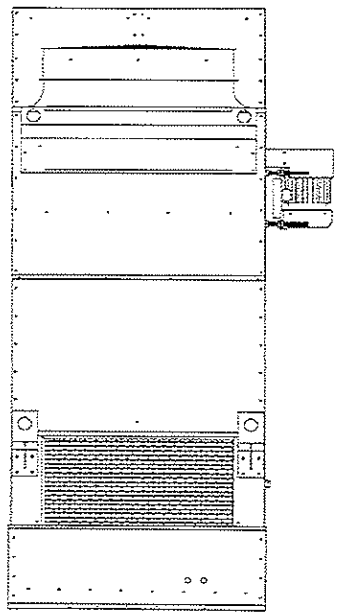
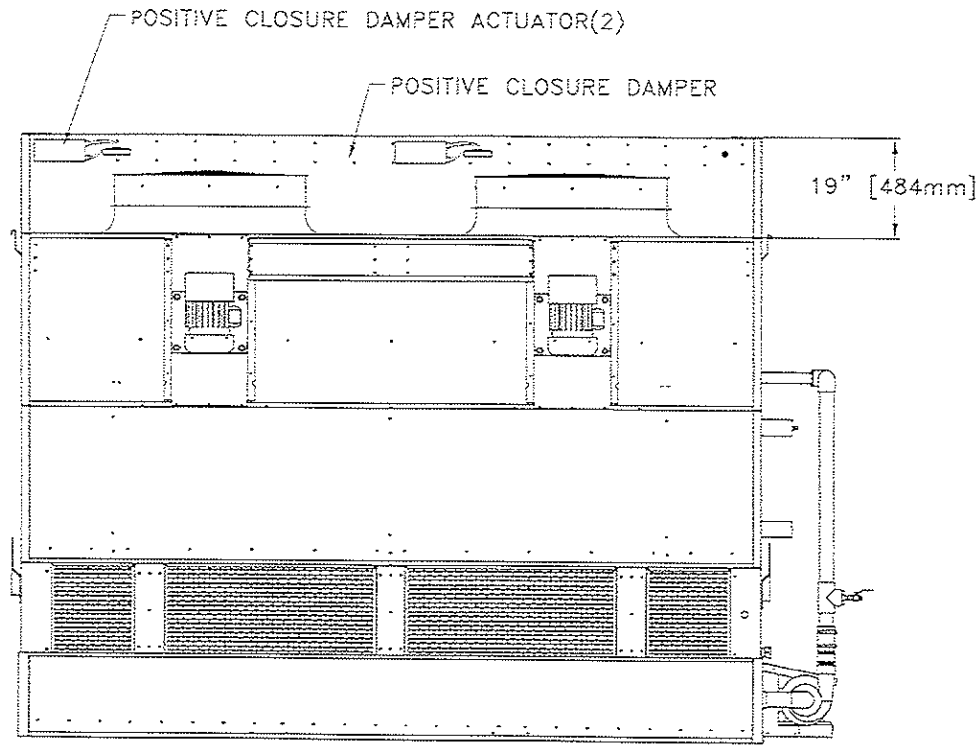


BACK ELEVATION



LEFT SIDE ELEVATION

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Recold Item No:

DRAWN BY	DRAWN DATE						
TRINH	01/14/2015	QTC DRAWING – POSITIVE CLOSURE DAMPER MW-44 MC 130-170 MT 342-343					Recold®
CHECKED BY	CHECKED DATE						
ABRAHAM_STD	03/13/2015						
RELEASED BY	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT	DRAWING NUMBER	REV.
ABRAHAM_STD	03/13/2015		-/-	ANSI A	1=1	Z0910774	

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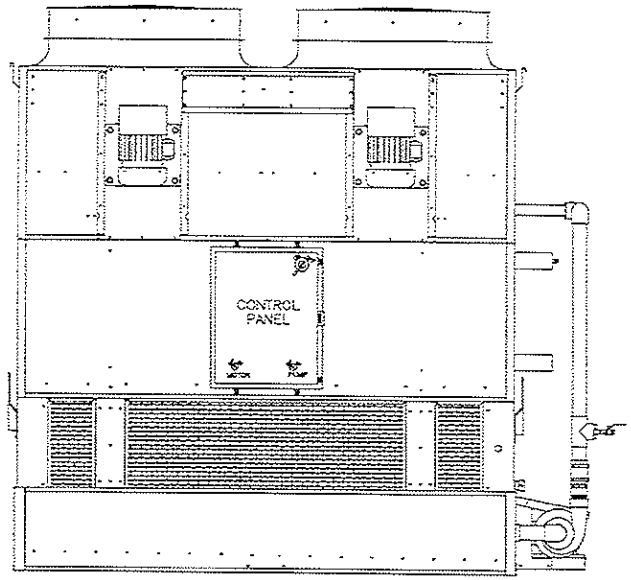

LEFT SIDE ELEVATION

NOTES:

① CONTROL PANEL LOCATION SHOWN IS STANDARD FOR M-SERIES MODELS (SINGLE AND DUAL FAN MOTORS UNITS)

② CONTROL PANEL EXACT LOCATION CAN VARY DEPENDING ON THE SPACE AVAILABLE

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Recold Item No:

DRAWN BY	DRAWN DATE						
TRINH	01/14/2015	QTC DRAWING					
CHECKED BY	CHECKED DATE	Control Panel M-Series(4X)					
ABRAHAM_STD	03/13/2015						
RELEASED BY	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT	DRAWING NUMBER	REV.
ABRAHAM_STD	03/13/2015		-/-	ANSI A	1=1	Z0910771	

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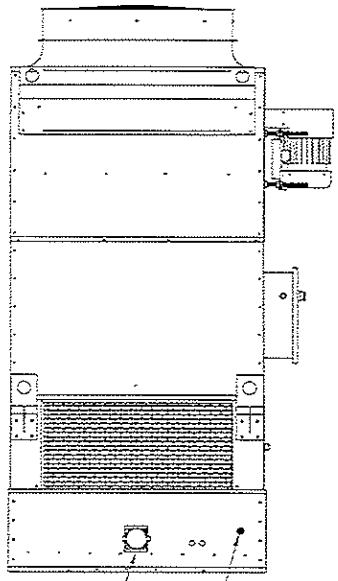
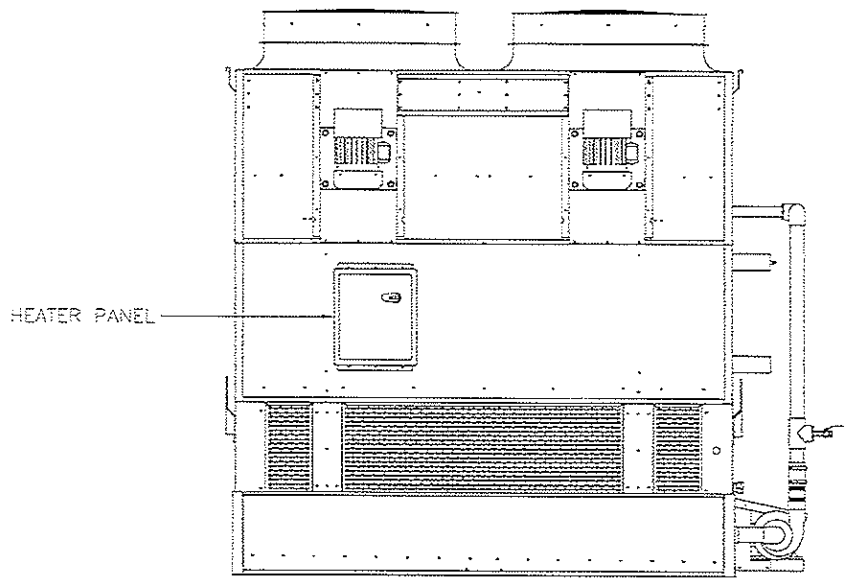


BACK ELEVATION



LEFT SIDE ELEVATION

NOTES:

1. UNIT SHOWN IS GENERIC M-SERIES WITH A INDEECO HEATER

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Recold Item No:

DRAWN BY	DRAWN DATE						
TRINH	01/14/2015	QTC DRAWING					Recold
CHECKED BY	CHECKED DATE	Sump Pan Heater Indeeco, M-Series(4X)					
ABRAHAM_STD	03/13/2015						
RELEASED BY	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT	DRAWING NUMBER	REV.
ABRAHAM_STD	03/13/2015		-/-	ANSI A	1=1	Z0910779	

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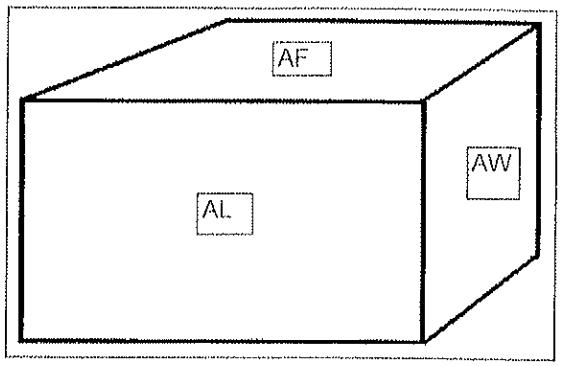
A Division of SPX Cooling Technologies
550 West Mercury Lane-Brea-CA-92821
Phone 714-529-6080 Fax 714-529-6733

SOUND RATING DATA SHEET

EFFECTIVE: 2/1/07
SUPERCEDES 1/15/89

Octave Band Sound Pressure Levels (BPL) in DB
RE.20 μ^N/m^2 for 5 feet and 50 feet distances from
Unit at sides A,B,C,D and top E
AF=Above Fan, AW=Sthorter inlet side
AL=longer inlet side



Model MW44 and MC 130, 150 and 170
Motor RPM 1800 rpm, Number of Motors 4
Fan Diameter 36 in., fan rpm 1162.08 tip speed 10952.35
NOTE: Octave Band 1 refers to the 63 Hz center frequency band

	Octiave Band Sound Pressure Levels (SPL)									
	63	125	250	500	1000	2000	4000	8000	Dba	
5' AF	89	93	93	90	87	83	75	69	92	
50' AF	73	77	78	75	72	68	60	54	77	
5' AW	79	83	81	78	73	67	65	62	79	
50' AW	71	73	67	64	59	53	49	46	65	
5' AL	83	87	85	82	77	71	69	66	84	
50' AL	80	77	71	68	63	57	53	50	70	