

NO EXCEPTIONS TAKENMAKE CORRECTIONS NOTEDAMEND & RE-SUBMIT	☐ SUBMIT SPECIFIED ITEM ☐ REJECTED-SEE REMARKS ☐ SEE COMMENTS BELOW
CHECKING IS ONLY FOR GENERAL CONFORMANCE W GENERAL COMPLIANCE WITH THE INFORMATION GIVE SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE I RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE OF FABRICATION PROCESSES AND TECHNIQUES OF CON THAT OF OTHER TRADES AND THE SATISFACTORY PERI	EN IN THE CONTRACT DOCUMENTS. ANY ACTION DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS CONFIRMED AND CORRELATED AT THE JOB SITE, NSTRUCTION, COORDINATION OF THE WORK WITH
Stephen P. Doel SIGNATURE	9/17/13 REVIEW DATE

Project: Marriott Hotel - Portland, Maine

Submittal: 230000/2.11 Cooling Tower

Comments: NONE

Project Name: Marriott Courtyard

321 commercial Street Portland, Maine 04101

Architect:

Contractor: Opechee Construction Corporation

11 Corporate Drive Belmont, NH 03220

Subcontractor: Warren Mechanical, Inc.

P.O. Box 149

Westbrook, Maine 04098-0149

Supplier: Baltimore Aircoil Company

P.O. Box 7322 Baltimore, MD 21227

Manufacturer: Baltimore Aircoil

Section: 230000/2.11 Cooling Tower

Contractor Review Architect's Review



Submittal Data Form

8-27-2013 Revision 9-5-2013 Revision 9-9-2013 Revision 9-11-2013

Purchase Order No:

Sold To: Warren Mechanical

20 Mussey Road Scarborough, ME 04074

United States

Project: Portland Marriott

Engineer: Bennett Engineering

BAC Order # U136460601

Representative: PARKER COMPANY

All Information is per Unit

Quantity: 1 Model FXT-087 COOLING TOWER

Certified Capacity: 309.59 USGPM of water from 98.00°F to 86.00°F at 75.00°F entering air wet bulb.

Fan Motor(s): One (1) 5 HP fan motor(s): Totally Enclosed, Fan Cooled (TEFC),

1 Speed/1 Winding - Premium Efficiency (Inverter Duty), suitable for 200 volt, 3 phase,

60 hertz electrical service. Drives are based on 0 inches ESP.

NOTE: Inverter Duty fan motors, furnished in accordance with NEMA Standard Mg.1 -- Part 31, are required for applications using variable frequency drives for fan motor control

drives for fan motor control.	
Submittal Information	Equipment Summary
BAC Terms and Conditions of Sale	Forced Draft, Crossflow Cooling Tower
Mechanical Specifications	Quality Assurance - ISO 9001 Certified
Performance Curves	Unit Energy Efficiency per ASHRAE Standard 90.1-2010
Sound Data	CTI Certified Thermal Performance
Submittal Drawings/Diagrams	Steel Panels and Structural Members are Constructed of Galvanized Steel
	PVC Fill Material
UP-U136460601-R1 Unit Print - RH	Plan A Steel Support by Others
SS-U136460601-R1 Unit Support	Top Water Inlet Connection
HL-U136460601-R1 Basin Heater Location	End Outlet Pump Suction Connection
HW-U136460601-R1 Heater Wiring	Electric Water Level Control Package
EL-U136460601-R1 EWLC Location	Electric Immersion Heaters Sized to Maintain +40°F water at a -20°F Ambient with
EW-U136460601-R1	Electrical Requirements Matching Fan Motor(s)'
PD-U1356460601-R1 Piping Layout	Copper Heater Elements
WD-U136460601-R1 Weight Distribution	Heater Control Panel with Contactor and Disconnect
BAC-C00754-5001A VFD Enclosure	NEMA 3R Variable Frequency Drive(s)
BAC-C90101-4002A VFD Wiring	Temperature Sensor Only
BAC-12612 VFD Wiring Options	NEMA 3R Safety Switch(es)
BAC-12623 Temperature Sensor Only	
BAC-C95-955-11 Safety Switch(es)	
Revision 9-5-2013: Changed Controls Enclosure Type and Rating. Changed Flow Rate. Revision 9-9-2013: Changed Controls.	
, and the second	
Revision 9-11-2013: Updated the Flow Rate.	

THANK YOU FOR YOUR BUSINESS!

Rigging and Installation Instructions, as well as Operating and Maintenance Instructions are available at www.baltimoreaircoil.com



Terms and Conditions of Sale

Pricing: Prices set forth in Seller's quotation shall remain firm for thirty (30) days. Within such period, the quotation shall convert into an order provided that all of the following have occurred: (1) Buyer submits either a purchase order or a copy of Seller's quotation displaying an authorized signature of Buyer within that thirty (30)-day period; (2) Buyer provides a release for fabrication; and (3) Buyer requests a shipment date that is no later than twelve (12) weeks from the date of Buyer's submission of a purchase order or signed quotation. In the event Buyer's requested shipment date is later than twelve (12) weeks beyond such submission date, Seller's price in effect twelve (12) weeks prior to such shipment date shall apply. In the event that Buyer requests for its convenience that Seller delay delivery of products subject to an order beyond the scheduled shipment date, pricing shall be subject to the same adjustment.

Payments: Terms of payment shall be net cash in thirty (30) days from date of invoice, subject to Seller's prior credit approval. If the Buyer shall fail to make any payments in accordance with the terms and conditions of sale, the Seller, in addition to its other rights and remedies but not in limitation thereof, may, at its option, without prior notice, cancel this order as to any undelivered products or defer shipments or deliveries hereunder, or under any other agreement between Buyer and Seller, except upon Seller's receipt of cash before shipment or such security as Seller considers satisfactory. Seller reserves the right to impose an interest charge (not exceeding the lawful maximum) on the balance of each invoice not paid on its due date for the period from the due date to the date of receipt of payment by Seller. In the event Buyer's failure to make timely payments to Seller results in Seller incurring additional costs, including but not limited to collection expenses and attorneys' fees, said costs shall be added to the amount due Seller from Buyer. Buyer shall have no right to any discount or retainage and shall not withhold payment as a set-off on Seller's invoice in any amount.

Taxes: Unless listed on the front (reverse) side of this document, prices do <u>not</u> include any federal, state or local sales, use or value-added taxes payable in connection with this order. All such taxes shall be paid by Buyer. Buyer shall indemnify Seller from and against such taxes, plus interest and penalties thereon, including, but not limited to, tax, interest and penalties resulting from a failure to collect such taxes because of Seller's reliance upon an invalid exemption certificate provided to Seller.

Allocation of Risk: Deliveries shall be considered made when the products subject to this order are loaded on the carrier. At such time, title to the goods and all risk of loss, damage or shortage shall pass to Buyer, and any claims based thereon must be filed by Buyer with the carrier.

Force Majeure: Seller shall under no circumstances be liable for any loss or damage resulting from delay or failure in the performance of its obligations under this contract to the extent that such performance is delayed or prevented by: fires, floods, war, terrorist activities, riots, strikes, freight embargoes or transportation delays, shortage of labor, inability to secure fuel, material, supplies or power at current prices, or on account of shortages thereof; acts of God or of the public enemy; any existing or future laws or acts of the federal, state or local government (including specifically, but not exclusively, any orders, rules or regulations issued by any official or agency of any such government) affecting the conduct of Seller's business with which Seller in its judgment and discretion deems it advisable to comply as a legal or patriotic duty, or to any case beyond the Seller's reasonable control.

Warranties: Seller warrants that the equipment sold under this contract shall be free from defects in material and workmanship for a period of twelve (12) months from the date of equipment startup or eighteen (18) months from the date of shipment, whichever occurs first. The following original equipment components only are warranted against defects in materials and workmanship for a period of five (5) years from date of shipment: fans, fan shafts, fan motors, bearings, sheaves, gearboxes, driveshafts, couplings, and mechanical equipment support. Details of option-specific warranties follow:

Replacement Parts provided by Seller under its original equipment warranty obligations are warranted against defects in materials and workmanship for a period of twelve (12) months from date of shipment or until expiration of their original warranty, whichever occurs first. Parts purchased after expiration of the original equipment warranty are warranted against defects in materials and workmanship for a period of twelve (12) months from date of shipment.

Written notice of any defect shall be given to Seller immediately upon discovery by Buyer, and shall fully describe the claimed defect. Defective parts shall be repaired or replaced F.O.B. point of shipment, provided that inspection by Seller verifies the claimed defect(s). This shall be Buyer's exclusive remedy. This warranty does not cover the costs of removing, shipping or reinstalling the equipment. Repairs made without the prior written approval of Seller shall void all warranties covering material and workmanship. Any descriptions of the product(s) in the contract are for the sole purpose of identification and do not constitute a warranty. In the interest of product improvement, Seller reserves the right to change specifications and product design without incurring any liability therefore. The foregoing express warranties or those set forth elsewhere on this document are the only warranties of Seller applicable to the product(s) sold under this contract. All other warranties, whether verbal or written, and all warranties implied by law, including any warranties of merchantability or fitness for a particular purpose, are hereby excluded. Failure on the part of Buyer or of other parties to properly maintain the product(s) sold under this contract, or the operation of such product(s), by Buyer and/or other parties under conditions more severe than those for which such product(s) were designed, shall void all warranties covering materials and workmanship. Seller's warranties do not apply to defects in product(s) for which payment in full has not been received by Seller, and said warranties do not cover normal wear and tear or the erosion, corrosion and/or deterioration of the product(s) from unusual causes. No warranties by Seller shall apply to accessories manufactured by others, inasmuch as they are warranted separately by their respective manufacturers, except as stated above. Buyer assumes liability for and shall bear the costs of compliance with all laws, regulations, codes standards or ordinances applicable to the location, operation and maintenance of the product(s) sold under this contract, including those requirements pertaining to the distances between such product(s) and air-conditioning system duct intakes. No representative or agent of Seller is authorized to enlarge upon the express warranties of Seller.

Cancellation/Changes/Returns: Cancellation of or changes in any order by Buyer shall not be effective without Buyer's notice thereof received, agreed to, and confirmed in writing by Seller. If Seller, in its absolute discretion, approves Buyer's cancellation of an order, Buyer agrees to pay a reasonable cancellation charge. Seller's prior written consent must be obtained before Buyer returns any products, and when so returned will be subject to a handling charge and transportation costs payable by Buyer.

Liability/Indemnification: Seller shall not be liable for any damages caused by delay in delivery of the products. Buyer shall hold harmless and indemnify Seller from and against all liability, claims, losses, damages, and expenses (including attorneys' fees) for personal injury and property damage arising out of Buyer's improper unloading, handling, or use of the products subject to this order, and for Buyer's infringement of another's property rights. The Seller's maximum liability from any causes whatsoever, whether in breach of contract, tort (including negligence), strict liability, or otherwise, shall not exceed the contract price. Neither Buyer nor Seller shall in any event be liable to the other, whether such liability arises out of breach of contract, tort (including negligence), strict liability or any other cause or form of action, for any consequential, special, indirect or incidental damages, including but not limited to loss of actual or anticipated profits or loss of use arising out of this contract, other than such damages resulting from the willful misconduct of Buyer or Seller.

Storage: In the event that Buyer is unable to accept delivery of goods and the Seller is required to hold goods beyond two (2) working days from fabrication completion, a storage fee equal to the greater of \$200/day or 0.20% of the total order value/day will be assessed by Seller for every day beyond two (2) working days from fabrication date which it is required to store goods on behalf of Buyer. Storage will be assessed monthly and will need to be paid in full prior to a new shipment date being scheduled.

Government Contracts: If Buyer's purchase order is for products to be used in the performance of a U.S. Government contract, those clauses of applicable procurement regulations mandatorily required by federal law to be included in U.S. Government subcontracts shall be incorporated herein by reference.

Export Transactions: Buyer shall comply with all applicable export laws and regulations of the U.S. Government, and shall hold harmless and indemnify Seller from and against all liability, damages, and expenses (including attorneys' fees) incurred by Seller as a result of Buyer's violation of any U.S. Government export and/or international antiboycott laws or regulations.

Agreement of Sale: Buyer's order is accepted on the terms and conditions stated herein and Seller's acceptance of Buyer's order is expressly made conditional upon Buyer's assent to such terms and conditions, including any of Seller's terms and conditions which may be additional to or different from those contained in Buyer's purchase order or otherwise. Such assent shall be deemed to have been given unless written notice of objection to any such terms and conditions (including inconsistencies between Buyer's purchase order and this acceptance) is given by Buyer to Seller promptly upon receipt of this acknowledgment. Any agreement or understanding, oral or written, which modifies or waives the terms and conditions herein (whether contained in Buyer's purchase order or other documentation) shall be deemed material and shall be rejected unless hereafter agreed to in writing and signed by Seller's authorized officer. Waiver by Seller of any breach or default hereunder shall not be deemed a waiver by Seller of any other or subsequent breach or default which may thereafter occur. Neither the rights nor the obligations of either Buyer or Seller are assignable without the prior written consent of the other party. This agreement of sale and all rights and obligations of Buyer and Seller shall be governed by and construed in accordance with the laws of the State of Maryland.

Electronic copy of the latest version is available online at http://baltimoreaircoil.com/english/terms.

(Revised - 05/20/2010)



Mechanical Specifications

8-27-2013 Revision 9-5-2013 Revision 9-9-2013 Revision 9-11-2013

Customer: Warren Mechanical Project: Portland Marriott

Purchase Order No:

Engineer: Bennett Engineering

BAC Order # U136460601

All Information is per Unit

Quantity: 1 Model FXT-087 COOLING TOWER

Unit Type:

Factory fabricated, forced draft, crossflow cooling tower.

Quality Assurance:

Each unit is manufactured under closely-controlled conditions using standardized parts to ensure each unit is built precisely to the same high-quality design and construction standards. The design, manufacture, and business processes of Baltimore Aircoil Company are ISO 9001:2000 certified.

Unit Efficiency:

The unit(s) complies with the energy efficiency requirements established by ASHRAE Standard 90.1-2010.

CTI Certification:

The thermal performance is certified by the Cooling Technology Institute in accordance with CTI Certification Standard STD-201.

Materials of Construction:

All structural steel components are constructed from G-235 (Z700 metric) hot-dip galvanized steel. The edges of the hot-dip galvanized steel components are given a protective coat of zinc-rich compound. Hot water distribution basins are gravity type with factory installed hot water basin cover(s) constructed of G-235 (Z700 metric) hot-dip galvanized steel. Distribution weirs and plastic metering orifices are provided to assure even distribution of water over the wet deck surface. Circular access doors constructed of G-235 (Z700 metric) hot-dip galvanized steel are provided for interior inspection, cleaning, and adjustments.

Fans are constructed of aluminum and are fixed pitch, heavy-duty, axial flow type. G-235 (Z700 metric) hot-dip galvanized steel inlet cylinders are designed to streamline air entry and minimize fan tip loss for maximum efficiency. A heavy gauge, hot-dip galvanized steel wire fan guard is provided over each fan cylinder.

Models FXT-6 to FXT-20: Direct driven fans are mounted directly on the motor shaft with no additional fan shaft, bearings or couplings.

Models FXT-26 and Larger: V-belt sheaves are selected for 150% of motor nameplate horsepower, mounted and aligned at the factory. The carbon steel fan shaft(s) is(are) supported by heavy-duty, grease-packed, self-aligning 40,000 hours L10 life ball bearings with cast iron, pillow-block type housings. The fan motor is mounted on an adjustable motor base located near the base of the unit in the dry entering airstream for greater reliability and easy servicing.

The fan(s), fan shaft(s), bearings, mechanical equipment support and fan motors are warranted against defects in materials and workmanship for five (5) years from date of shipment.

Unit Supports:

Plan A Support Beams will be furnished and installed by others.

Water Inlet(s):

One (1) hot water inlet connection is located at the top of the designated cell(s).

Water Outlet(s):

A pipe stub connection(s) of a metal compatible with the cold water basin material and appropriately sized for design flow is provided. Please see the submittal package for the connection type, size and location. Also included is a large area, lift out strainer which matches the cold water basin material of construction and has perforated openings sized smaller than the water distribution nozzle orifices. Strainer includes anti-vortexing baffle to prevent air entrainment.

Corporate Headquarters: P.O. Box 7322, Baltimore, MD 21227 - Tele: (410) 799-6200 / Fax: (410) 799-6416

Basin Water Level Control:

Probe-type electric water level control package including solid-state relay, electrode head, stainless steel electrodes, and a solenoid valve in the make-up water connection. The electrodes are make-up on, make-up off, and ground. Field wiring is by others.

Basin Heater(s):

A minimum number of high-watt-density electric immersion heater elements, sized to maintain +40°F (+4°C) basin water at -20°F (-29°C) ambient with a 10 mph (16 km/h) wind speed, is provided. Electrical requirements match fan motor. Wiring is not included.

Heater Element Material of Construction:

The unit is supplied with copper heater elements.

Basin Heater Control:

An electric immersion heater control package which includes a control panel in a NEMA 4 enclosure is provided. It includes contactor(s), disconnect, thermostat, 24V transformer, and Type 316 stainless steel probe for water level and water temperature sensing. Panel ships loose for field mounting and wiring by others.

Controls

Qty Per Order	BAC Control Package	Selection
1	BAC Control Package	
	System Voltage:	200
	System Frequency:	60

Variable Frequency Drives

Enclosure: NEMA 3R Stainless Steel

Disconnect Type: Circuit Breaker

Bypass: 3-Contactor Bypass

Qty	Item	
1	VFD for 5 HP Main Fan	Motor
	Catalog Number:	BAC00551B1K9P6
	Enclosure Drawing:	BAC-C00754-5001
	Wiring Diagram:	BAC-C90101-4002

VFD Sensor

Qty	Item
1	Temperature Sensor Only
	Catalog Number: BAC-SP-1281

Sv	vitch ⁻	Туре:			
Pr	otecti	on:			
(Qty	Item			
	1	Safety Switch for 5 HP I	Main Fan Motor		
		Catalog Number:	DH361URK-BAC		
		Enclosure Drawing:	BAC-C95-955-11		

Safety Switches Enclosure:

Poles/Blades:

Baltimore Aircoil Company, Inc.

Cooling Tower Selection Program

Version: 8.1.2 NA
Product data correct as of: August 07, 2013

Project Name: Portland Marriott

Selection Name: U13646
Project State/Province: Maryland
Project Country: United States
Date: September 11, 2013

Model Information

Product Line: FXT Flow Rate:

Model: FXT-87 Hot Water Temp.:

Number of Units: 1 Cold Water Temp.: $86.00 \,^{\circ}\text{F}$ Fan Type: Standard Fan Wet Bulb Temp.: $75.00 \,^{\circ}\text{F}$ Fan Motor: Full Speed, $5.00 \, \text{BHP}$ Tower Pumping Head: $3.61 \, \text{psi}$ Total Standard Fan Power: $(1) \, 5.00 = 5.00 \, \text{HP/Unit}$ Reserve Capability: 0.00%

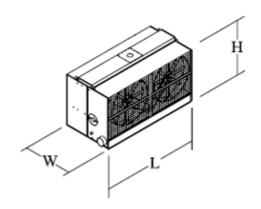
Intake Option: None Internal Option: None Discharge Option: None

Thermal performance at design conditions and standard total fan motor power is certified by the Cooling Technology Institute (CTI).

Design Conditions

309.59 USGPM

98.00 °F



Engineering Data, per Unit

Unit Length: 6' 0.13" Minimum Distance Required

 Unit Width:
 7' 3.38"
 From Solid Wall:
 3.2 ft.

 Unit Height:
 8' 4.00"
 From 50% Open Wall:
 3 ft.

Air Flow: 25,600 CFM Energy Rating:

Approximate Shipping Weight: 1,730 pounds 64.20 per ASHRAE 90.1, ASHRAE 189 and CA Title 24.

Heaviest Section: 1,730 pounds Approximate Operating Weight: 4,240 pounds

Note: These unit dimensions do not account for any options/accessories. Please contact your local BAC sales

representative for dimensions of units with options/accessories.

Baltimore Aircoil Company, Inc.

Cooling Tower Selection Program

Version: Product data correct as of: 8.1.2 NA August 07, 2013

Project Name: **Portland Marriott**

Selection Name: U13646 Project State/Province: Maryland Project Country: **United States** Date: September 11, 2013

Model & Fan Motor

Model Accessories Intake Option: Product Line: **FXT** None Model: FXT-87 Internal Option: None Number of Units: Discharge Option: None

Full Speed, 5.00 BHP Standard Fan Fan Motor: Fan Type:

Total Standard Fan Power: (1) 5.00 = 5.00 HP/Unit

Design Conditions @ Standard Total Fan Motor Power per Unit (5.00 HP)

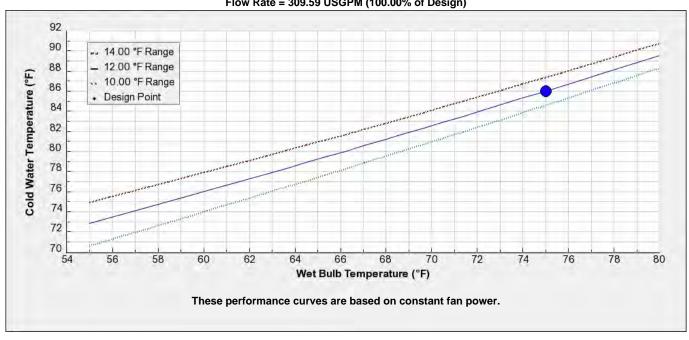
Thermal performance at design conditions and standard total fan motor power is certified by the Cooling Technology Institute (CTI).

Flow Rate: 309.59 USGPM

98.00 °F Hot Water Temp.: Cold Water Temp.: 86.00 °F Wet Bulb Temp.: 75.00 °F

Predicted Performance

Fan Motor Alternative = Full Speed, 5.00 BHP Flow Rate = 309.59 USGPM (100.00% of Design)



Baltimore Aircoil Company, Inc.

Cooling Tower Selection Program

Version: 8.1.2 NA
Product data correct as of: August 07, 2013

Project Name: Portland Marriott

Selection Name: U13646
Project State/Province: Maryland
Project Country: United States
Date: September 11, 2013

Model Information

Product Line: FXT Intake Option: None Model: FXT-87 Internal Option: None Number of Units: 1 Discharge Option: None

Fan Type: Standard Fan

Fan Motor: Full Speed, 5.00 BHP/Unit

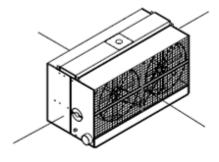
Total Standard Fan Power: (1) 5.00 = 5.00 HP/Unit

Octave band and A-weighted sound pressure levels (Lp) are expressed in decibels (dB) reference 0.0002 microbar. Sound power levels (Lw) are expressed in decibels (dB)

reference one picowatt. Octave band 1 has a center frequency of 63 Hertz.

Back				
Sound Pressure (dB)				
Octave	Dista	ance		
Band	5 ft.	50 ft.		
1	81	70		
2	79	68		
3	78	64		
4	76	64		
5	70	60		
6	64	55		
7	57	49		
8	55	45		
A-wgtd	76	65		

End				
Sound Pressure (dB)				
Octave	Dista	ance		
Band	5 ft.	50 ft.		
1	81	72		
2	76	67		
3	73	63		
4	66	59		
5	60	53		
6	51	45		
7	49	42		
8	47	41		
A-wgtd	69	60		



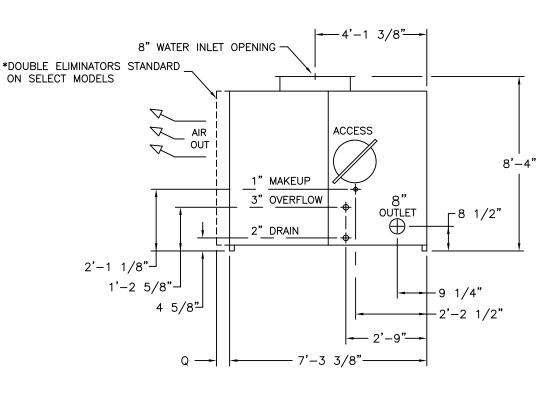
Sound Power (dB)				
Octave	Center Frequency			
Band	(Hertz)	Lw		
1	63	103		
2	125	100		
3	250	95		
4	500	94		
5	1000	89		
6	2000	84		
7	4000	79		
8	8000	76		

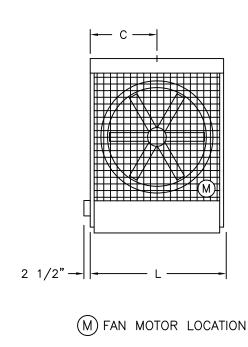
Тор				
Sound Pressure (dB)				
Octave	Dista	ance		
Band	5 ft.	50 ft.		
1	78	67		
2	78	63		
3	73	64		
4	67	57		
5	62	52		
6	59	49		
7	56	45		
8	54	44		
A-wgtd	70	60		

End					
Sound Pressure (dB)					
Octave	Dista	ance			
Band	5 ft.	50 ft.			
1	81	72			
2	76	67			
3	73	63			
4	66	59			
5	60	53			
6	51	45			
7	49	42			
8	47	41			
A-wgtd	69	60			

Air Inlet					
Soun	Sound Pressure (dB)				
Octave	Dista	ance			
Band	5 ft.	50 ft.			
1	82	72			
2	81	72			
3	81	63			
4	81	64			
5	77	60			
6	71	56			
7	67	51			
8	63	46			
A-wgtd	82	66			

Note: The use of frequency inverters (variable frequency drives) can increase sound levels.

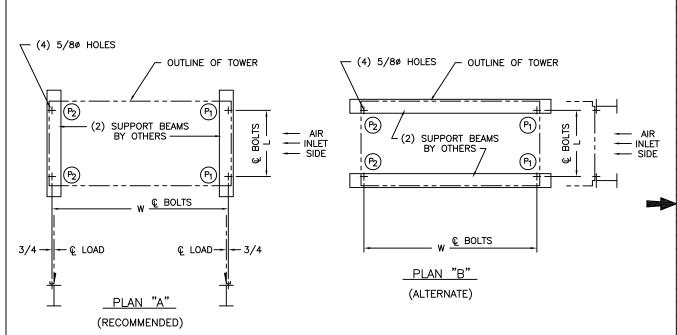




		DIMENSIONS	WEIGHT (LB)			
MODEL NO.	L	C	Q	APPROXIMATE OPERATING	APPROXIMATE SHIPPING	
FXT-74	6'-0 1/8"	3'-0"	_	4230	1720	
FXT-87	6'-0 1/8"	3'-0"	-	4240	1730	
FXT-95*	6'-0 1/8"	3'-0"	4 1/2"	4280	1770	
FXT-115	9'-1 1/8"	4'-6 1/2"	_	6080	2220	
FXT-130	9'-1 1/8"	4'-6 1/2"	_	6120	2260	
FXT-136*	9'-1 1/8"	4'-6 1/2"	4 1/2"	6160	2300	

NOTES: 1. ALL DIMENSIONS ARE IN FEET AND INCHES. WEIGHTS ARE IN POUNDS.

- 2. UNLESS OTHERWISE INDICATED, ALL CONNECTIONS 4 INCHES AND SMALLER ARE MPT AND CONNECTIONS 6 INCHES AND LARGER ARE BEVELLED FOR WELDING.
- 3. FIELD PIPING SHOULD BE FABRICATED AT THE TIME OF UNIT INSTALLATION. PRE-FABRICATION OF PIPE WORK IS NOT RECOMMENDED.
- 4. (*) DENOTES STANDARD DOUBLE ELIMINATORS



NO.		WGT. (LB)	WGT. (LB)	L	W	P1	P2
FXT-6		370	980	1'-3"	5'-1"	264	226
FXT-7.5	5	370	980	1'-3"	5'-1"	264	226
FXT-11		470	1420	2'-0"	5'-1"	369	341
FXT-16		570	1330	2'-0"	5'-1"	372	293
FXT-20		590	1350	2'-0"	5'-1"	378	297
FXT-26		940	2080	3'-6"	5'-1"	624	416
FXT-30		950	2090	3'-6"	5'-1"	627	418
FXT-33		950	2090	3'-6"	5'-1"	627	418
FXT-38		1000	2420	3'-6"	5'-1"	726	484
FXT-42		1000	2420	3'-6"	5'-1"	726	484
FXT-47		1020	2440	3'-6"	5'-1"	732	488
FXT-58		1220	3140	5'-0"	5'-1"	989	581
FXT-68		1230	3150	5'-0"	5'-1"	992	583
FXT-74		1720	4230	5'-0"	7'-1 7/8"	1163	952
FXT-87		1730	4240	5'-0"	7'-1 7/8"	1166	954
FXT-95	*	1770	4280	5'-0"	7'-1 7/8"	1178	962
FXT-11	5	2220	6080	8'-0"	7'-1 7/8"	1672	1368
FXT-13	0	2260	6120	8'-0"	7'-1 7/8"	1683	1377
FXT-13	6*	2300	6160	8'-0"	7'-1 7/8"	1695	1385
FXT-16	0	2880	8030	11'-0"	7'-1 7/8"	2208	1807
FXT-17	5	2920	8070	11'-0"	7'-1 7/8"	2219	1816
FXT-19	2*	2970	8120	11'-0"	7'-1 7/8"	2234	1826
FXT-21	6	3560	9420	11'-0"	7'-1 7/8"	2543	2167
FXT-24	0*	3610	9470	11'-0"	7'-1 7/8"	2557	2178
FXT-25	7*	3630	9490	11'-0"	7'-1 7/8"	2563	2182

MODEL

SHIPPING

OPERATING

NOTES:

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- 1. SUPPORTING STEELWORK AND ANCHOR BOLTS ARE TO BE SELECTED AND INSTALLED BY OTHERS.
- 2. ALL SUPPORTING STEEL MUST BE FLUSH AND LEVEL AT THE TOP AND MUST BE ORIENTED TO THE GAGE LINE AS SHOWN IN SECTION "A"-"A".
- 3. RECOMMENDED DESIGN LOADS FOR EACH BEAM SHOULD 65% OF THE TOTAL OPERATING WEIGHT APPLIED AS A UNIFORM LOAD TO EACH BEAM. BEAM SHOULD BE DESIGNED IN ACCORDANCE WITH STANDARD DESIGN PRACTICE. THE MAXIMUM ALLOWABLE DEFLECTION OF BEAMS UNDER UNIT IS TO BE 1/360 OF SPAN, NOT TO EXCEED 1/2 INCH.
- 4. IF REQUIRED, EACH CELL MAY BE SUPPORTED ON COLUMNS AT THE ANCHOR BOLT LOCATIONS SHOWN.
 6 INCH MINIMUM BEARING SURFACE MUST BE PROVIDED UNDER EACH OF THE CONCENTRATED LOAD POINTS.
- 5. ALL MOUNTING HOLES ARE 5/8 INCH DIAMETER AT THE LOCATIONS SHOWN.
- 6. IF CONTINUOUS VIBRATION ISOLATOR RAILS ARE USED, BE CERTAIN TO ALLOW FOR THE LENGTH OF THE RAILS WHEN DETERMINING LENGTH OF SUPPORTING STEEL. VIBRATION ISOLATOR RAILS ARE SOMETIMES LONGER THAN THE COOLING TOWER DIMENSIONS SHOWN. REFER TO VIBRATION ISOLATOR DRAWINGS FOR THIS INFORMATION. IF POINT VIBRATION ISOLATION IS USED, THE ISOLATORS SHOULD BE INSTALLED AT THE MOUNTING HOLE LOCATIONS SHOWN.

SUGGESTED STEEL SUPPORT LOCATION FXT - SINGLE CELL

ORDER NO: **U136460601**

DATE: 8/27/2013

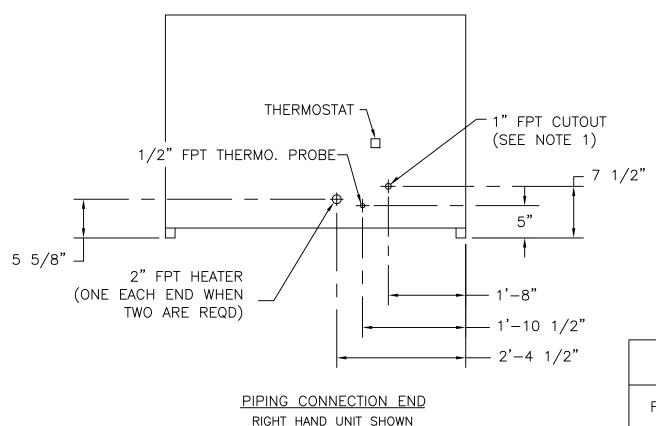


FXT-6 THRU FXT-268

DRAWING NUMBER:

SS-U136460601-R1

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LEFT HAND UNIT MIRROR IMAGE

	-20° F AMBIENT AIR TEMPERATURE
MODEL	HEATER QTY & KW
FXT-74, 87 & 95	(1) 6KW

NOTES:

AMBIENT TEMPERATURE:

- 1. OMIT THE 1" FPT CUTOUT LOCATION WHEN AN ELECTRIC WATER LEVEL CONTROL PACKAGE IS USED. THE LOW WATER CUTOUT WILL BE FURNISHED AS PART OF THE ELECTRIC WATER LEVEL CONTROL PACKAGE.

ORDER NO: **U136460601**

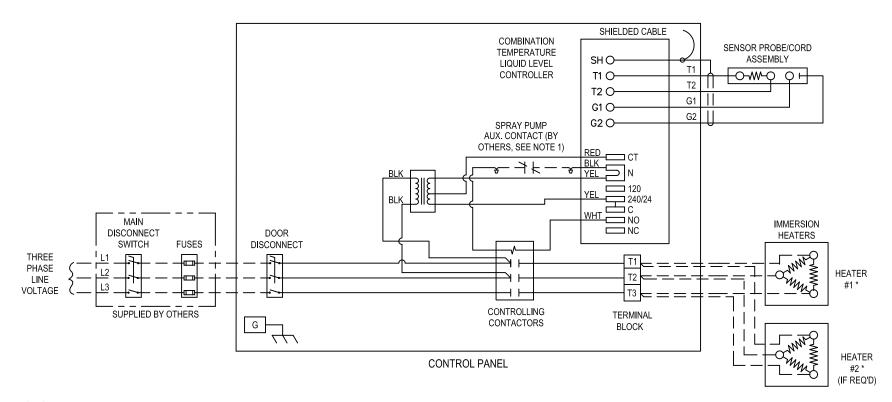
DATE: **8/27/2013**



FXT ELECTRIC HEATER CONTROL PACKAGE FXT-74 THRU FXT-95

DRAWING NUMBER:

HL-U136460601-R1



NOTES:

- 1. INTERLOCK IMMERSION HEATERS WITH SPRAY WATER CIRCULATING PUMP TO DE-ENERGIZE HEATERS WHEN SPRAY PUMP IS RUNNING.
- 2. CONTROL THERMOSTAT IS TO BE AT 40°F. DO NOT SET THERMOSTAT LOWER THAN 40°F.
- 3. FUSE PROTECTION AND POWER SUPPLY WIRING ARE TO BE SIZED TO MATCH HEATER REQUIREMENTS. WIRING MUST COMPLY WITH APPLICABLE CODES AND ORDINANCES.

* Refer to heater package drawings for heater power values.

SYMBOLS DESCRIPTION

--- BROKEN LINES INDICATE WIRING AND COMPONENTS SUPPLIED BY OTHERS.

SOLID LINES INDICATE WIRING AND COMPONENTS SUPPLIED BY BAC.

ORDER NO: **U136460601**

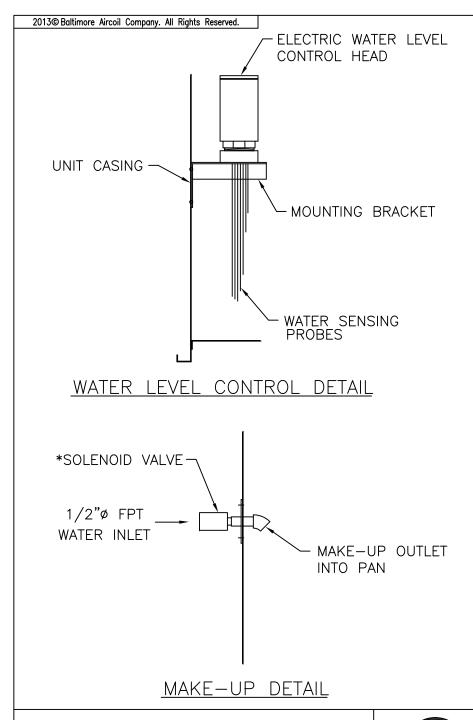
DATE: **8/27/2013**

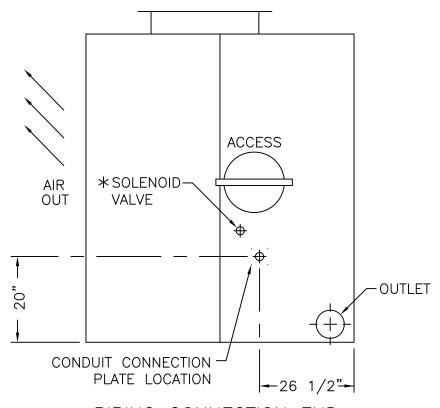


Electric Immersion Heater Wiring Single Contactor with Terminal Block

DRAWING NUMBER:

HW-U136460601-R1





PIPING CONNECTION END RIGHT HAND UNIT SHOWN LEFT HAND UNIT MIRROR IMAGE

* - SEE UNIT PRINT FOR LOCATION OF MAKE-UP

ELECTRIC WATER LEVEL CONTROL PACKAGE CONDUIT CONNECTION LOCATION

SOLENOID VALVE SIZE DIAGRAM FXT 74 TO FXT 95

U136460601 ORDER NO:

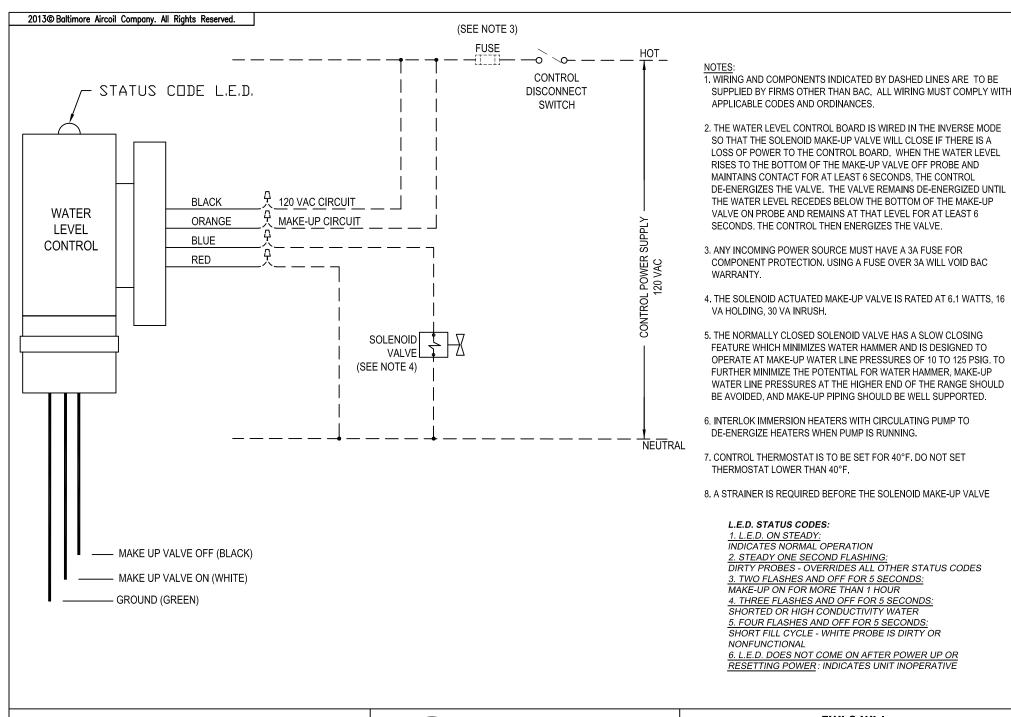
8/27/2013 DATE:



FXT COOLING TOWER EWLC LOCATION

DRAWING NUMBER:

EL-U136460601-R1



ORDER NO: **U136460601**

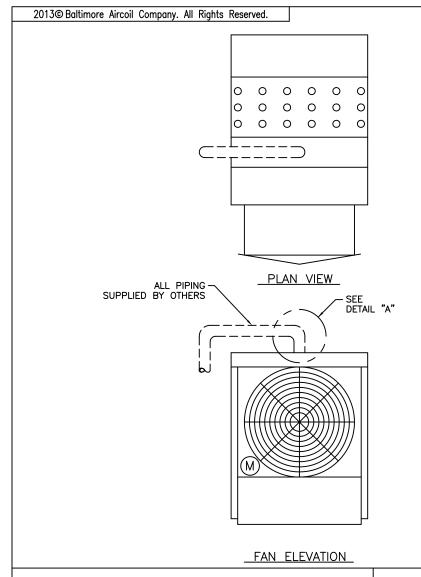
DATE: **8/27/2013**

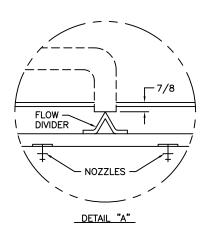


EWLC Wiring Standard

DRAWING NUMBER:

EW-U136460601-R1





NOTES:

- ALL PIPING TO BE FURNISHED BY OTHERS. REFER TO CERTIFIED DRAWING FOR DETAILS ON COOLING TOWER CONNECTION SIZE, ETC.
- 2. ALL PIPING MUST BE SUPPORTED EXTERNAL TO THE TOWER AND RESTRAINT PROVIDED TO INSURE NO VERTICAL OR HORIZONTAL MOVEMENT OF THE INLET PIPING. ALL PIPING AND SUPPORTS ARE TO BE FURNISHED BY OTHERS.
- 3. INLET PIPING REST ON A FLOW DIVIDER 7/8 INCH BELOW THE TOP OF THE WATER DISTRIBUTION BOX. THE PIPING THAT ENTERS THE OPENING MUST BE OF PROPER SIZE (SEE DETAIL "A"). REFER TO CERTIFIED DRAWING FOR DETAIL ON TOWER CONNECTION SIZE.
- 4. FLOW CONTROL VALVES ARE RECOMMENDED ON MULTI-CELL TOWERS TO INSURE PROPER WATER DISTRIBUTION AND ARE TO BE FURNISHED BY OTHERS.
- 5. IF B.A.C. VIBRATION ISOLATION RAILS ARE FURNISHED, THE TOWER PIPING MUST BE INDEPENDENTLY SUPPORTED, SINCE NO PROVISION HAS BEEN MADE FOR THE WEIGHT OF THE PIPING IN THE SELECTION OF THE V-E RAILS.

TYPICAL PIPING FOR FXT SINGLE-CELL

ORDER NO: **U136460601**

DATE: 8/27/2013



PIPING LAYOUT FXT-6 THRU FXT-257

DRAWING NUMBER:

PD-U136460601-R1

	OUTLIN	NE OF T	OWER	
+ (P ₂)		P ₁ +		- AIR
+ (P ₂)		P ₁ +	© BOLTS	- INLET - SIDE
-	W © BOLTS	-		
•	PLAN "A"	·		
((RECOMMENDED)			

					_	0AU-12	200/ (
	MODEL NO.	SHIPPING WGT. (LB)	OPERATING WGT. (LB)	L	W	P1	P2
	FXT-6	370	980	1'-3"	5'-1"	264	226
	FXT-7.5	370	980	1'-3"	5'-1"	264	226
	FXT-11	470	1420	2'-0"	5'-1"	369	341
	FXT-16	570	1330	2'-0"	5'-1"	372	293
	FXT-20	590	1350	2'-0"	5 ' -1"	378	297
	FXT-26	940	2080	3'-6"	5'-1"	624	416
	FXT-30	950	2090	3'-6"	5'-1"	627	418
	FXT-33	950	2090	3'-6"	5'-1"	627	418
	FXT-38	1000	2420	3'-6"	5'-1"	726	484
	FXT-42	1000	2420	3'-6"	5'-1"	726	484
	FXT-47	1020	2440	3'-6"	5'-1"	732	488
	FXT-58	1220	3140	5'-0"	5'-1"	989	581
	FXT-68	1230	3150	5'-0"	5'-1"	992	583
	FXT-74	1720	4230	5'-0"	7'-1 7/8"	1163	952
▶	FXT-87	1730	4240	5'-0"	7'-1 7/8"	1166	954
	FXT-95*	1770	4280	<u>5'-0"</u>	7'-1 7/8"	1178	962
	FXT-115	2220	6080	8'-0"	7'-1 7/8"	1672	1368
	FXT-130	2260	6120	8'-0"	7'-1 7/8"	1683	1377
	FXT-136*	2300	6160	8'-0"	7'-1 7/8"	1695	1385
	FXT-160	2880	8030	11'-0"	7'-1 7/8"	2208	1807
	FXT-175	2920	8070	11'-0"	7'-1 7/8"	2219	1816
	FXT-192*	2970	8120	11'-0"	7'-1 7/8"	2234	1826
	FXT-216	3560	9420	11'-0"	7'-1 7/8"	2543	2167
	FXT-240*	3610	9470	11'-0"	7'-1 7/8"	2557	2178
	FXT-257*	3630	9490	11'-0"	7'-1 7/8"	2563	2182

NOTES:

1. UNIT MOUNTING BOLTS ARE SHOWN FOR REFERENCE ONLY. REFER TO VIBRATION ISOLATION RAIL DRAWING FOR DETAILS.

ORDER NO: **U136460601**

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DATE: **8/27/2013**

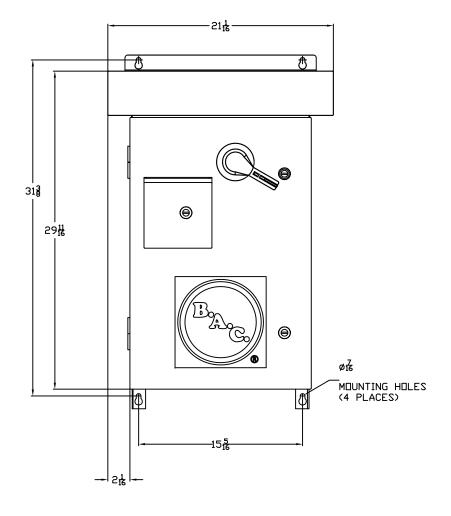


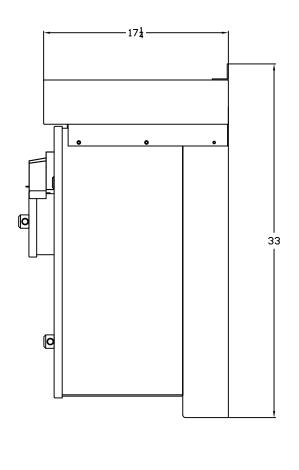
FXT WEIGHT DISTRIBUTION

DRAWING NUMBER:

WD-U136460601-R1

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NOTES:
FINISH: ENCLOSURE — 304 SST
WEIGHT: APPROXIMATELY 200 LBS
MATERIAL: 14GA
DIMENSIONS: INCHES
CONSTRUCTION: NEMA TYPE 3R OVERSIZE
ENCLOSURE SHIPS LOOSE, FIELD
INSTALLATION AND WIRING BY OTHERS

ORDER NO: U136460601

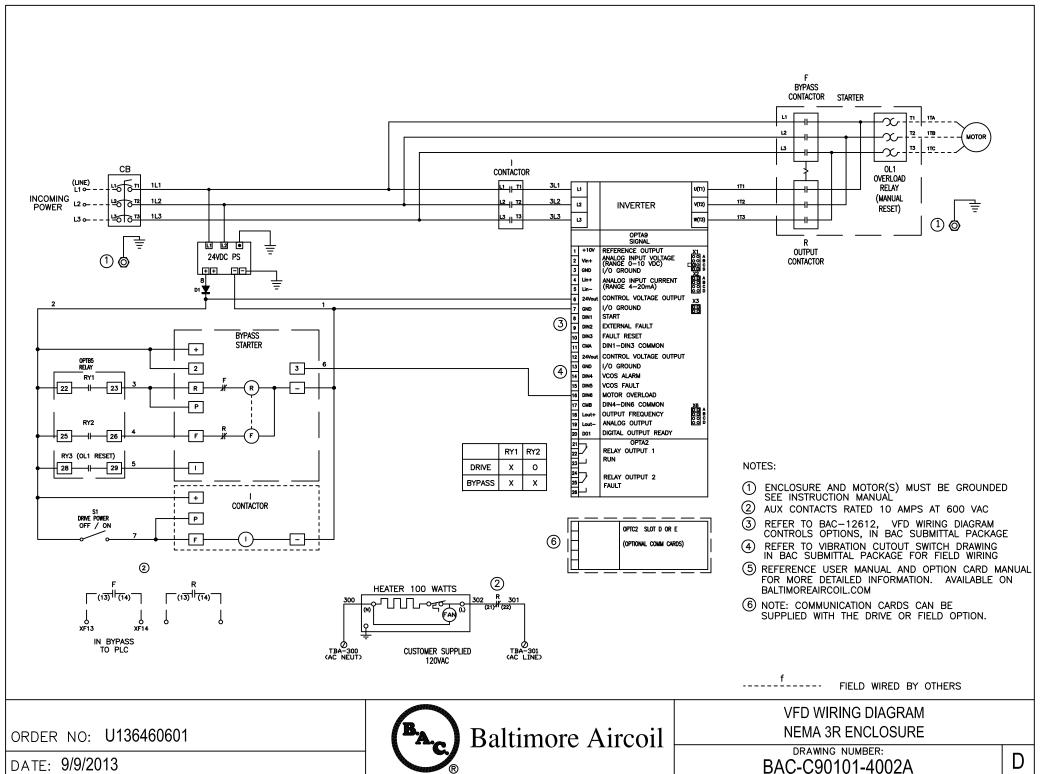
DATE: 9/9/2013



Baltimore Aircoil

NEMA 3R VFD WITH BYPASS SMALL ENCLOSURE, STAINLESS STEEL

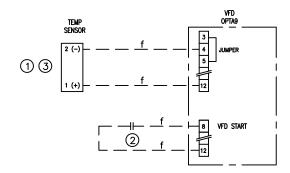
DRAWING NUMBER:
BAC-C00754-5001A



OPTION A - TEMPERATURE APPLICATION

TEMPERATURE CONTROL APPLICATION WITH EXTERNAL TEMPERATURE SENSOR PROVIDED BY BAC. SYSTEM PID IS CONTROLLED INTERNALLY BY BAC PROVIDED VFD.

BAC SUPPLIED TEMPERATURE SENSOR



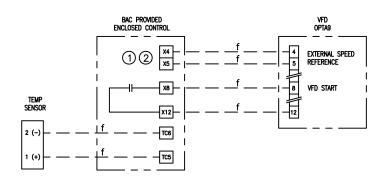
NOTES: (1) DEFAULT SENSOR RANGE: 4-20mA / 0-200°F

- SYSTEM INPUT SUPPLIED BY CUSTOMER. CLOSE CONTACT TO ENABLE VFD.
- ③ USE TWISTED SHIELD WIRE FOR ALL ANALOG SIGNALS
 _ f _ FIELD WIRED BY OTHERS

OPTION C - REMOTE CONTROL APPLICATION, CONTROLS PROVIDE BY BAC

TEMPERATURE OR PRESSURE CONTROL APPLICATION WITH CONTROL SYSTEM PROVIDED BY BAC. SYSTEM PID IS CONTROLLED BY BAC TEMPERATURE / PRESSURE CONTROL. VFD DOES NOT PERFORM PID FUNCTIONS.

BAC SUPPLIED CONTROL



NOTES: 1 4-20 mA CONTROL SIGNAL FROM BAC PROVIDED TEMPERATURE / PRESSURE CONTROLLER

OPTION B - PRESSURE APPLICATION

PRESSURE CONTROL APPLICATION WITH EXTERNAL PRESSURE SENSOR PROVIDED BY BAC. SYSTEM PID IS CONTROLLED INTERNALLY BY BAC PROVIDED VFD.

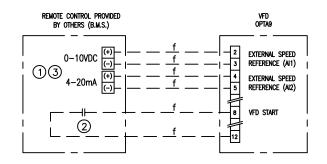
PRESSURE SENSOR PRESSURE SENSOR VFD OPTA9 4 WHITE(N/C) 2 (-) BLACK 1 (+) RED F 8 VFD START

NOTES: (1) DEFAULT SENSOR RANGE: 4-20mA / 0-500 PSI

- ② SYSTEM INPUT SUPPLIED BY CUSTOMER. CLOSE CONTACT TO ENABLE VFD.
- ③ USE TWISTED SHIELD WIRE FOR ALL ANALOG SIGNALS
 _ f _ FIELD WIRED BY OTHERS

OPTION D - REMOTE CONTROL APPLICATION, CONTROLS PROVIDED BY OTHERS

TEMPERATURE OR PRESSURE CONTROL APPLICATION WITH CONTROL SYSTEM PROVIDED BY OTHERS. SYSTEM PID IS CONTROLLED BY REMOTE CONTROL. VFD DOES NOT PERFORM PID FUNCTIONS.



NOTES: 1 4-20mA OR 0-10VAC CONTROL SIGNAL PROVIDED BY OTHERS. ONLY ONE SIGNAL SHALL BE CONNECTED. VFD SOFTWARE DEFAULT IS 4-20mA.

- ② SYSTEM INPUT SUPPLIED BY OTHERS. CLOSE CONTACT TO ENABLE VFD.
- 3 USE TWISTED SHIELD WIRE FOR ALL ANALOG SIGNALS
 f FIELD WIRED BY OTHERS

ORDER NO: U136460601

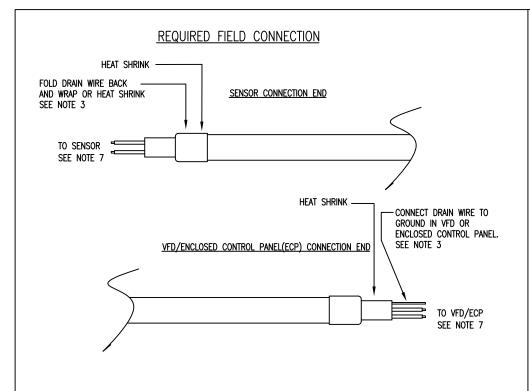
DATE: 9/9/2013



VFD WIRING DIAGRAM CONTROLS OPTIONS

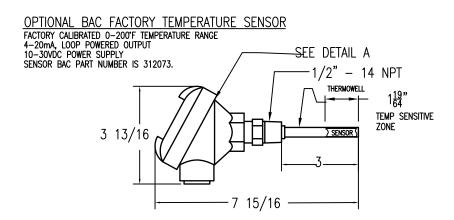
DRAWING NUMBER: BAC-12612

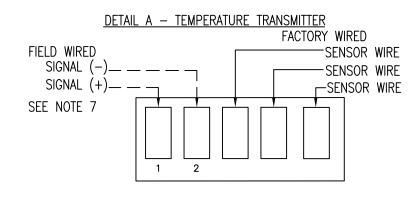
| D



NOTES:

- 1 DEFAULT SENSOR RANGE: 0-200°F/4-20mA 10-30VDC LOOP POWERED TRANSDUCER.
- 2 USE ONLY TWISTED SHIELDED CABLE FOR SENSOR WIRING.
- (3) GROUND SIGNAL CABLE DRAIN WIRE AT VFD OR ENCLOSED CONTROL CONNECTION END ONLY.
 GROUNDING CABLE AT BOTH ENDS COULD CREATE A GROUND LOOP CAUSING A SIGNAL ERROR.
- (4) FOLLOW NATIONAL ELECTRICAL CODE AND LOCAL CODES FOR INSTALLTION AND WIRING OF TEMPERATURE SENSOR.
- (5) DO NOT ROUTE TEMPERATURE SENSOR CABLE WITH WIRES CARRYING MORE THAN 150V IN VFD OR ENCLOSED CONTROL PANELS.
- (6) INSTALL SENSOR IN LEAVING WATER OR FLUID PIPING WITH TEMPERATURE SENSITIVE ZONE LOCATED IN THE MIDDLE OF FLOW STREAM.
- 7) ALL FIELD WIRING BY OTHERS.
- (8) STAINLESS STEEL THERMOWELL CAN BE INSERTED DIRECTLY INTO THE FLUID STREAM. THE SENSING PROBE MAY BE REMOVED WITHOUT BREAKING THE FLUID SEAL.





ORDER NO: U136460601

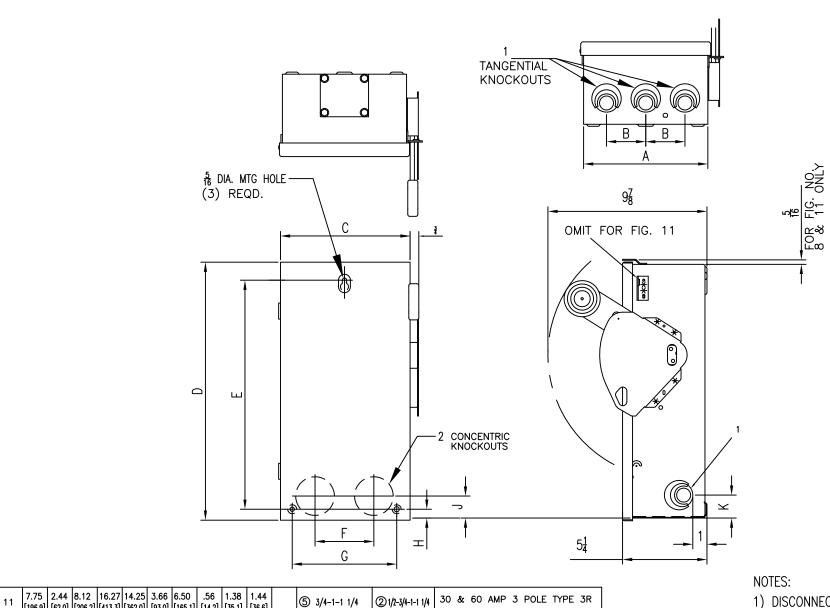
DATE: 9/9/2013

(BAc) Baltimore Aircoil

TEMPERATURE SENSOR INSTALLATION AND FIELD CONNECTION DRAWING

DRAWING NUMBER: BAC-12623

D



11	7.75 [196.9]										⑤ 3/4-1-1 1/4	21/2-3/4-1-1 1/4	30 & 60 AMP 3 POLE TYPE 3R
	10.78 [273.8]										⑤ 1 1/4-1 1/2-2	②1 1/4-1 1/2-2	100 AMP 3 POLE TYPE 3R
FIG. NO.	Α	В	С	D	E	F	O	Н	J	к	1 CONDUIT K.O. C	TY. & SIZES	DESCRIPTION

- 1) DISCONNECT SHIPS LOOSE, FIELD INSTALLATION AND WIRING BY OTHERS
- 2) DIMENSIONS: INCHES

ORDER NO: U136460601

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DATE: 9/9/2013



Baltimore Aircoil

NEMA 3R NON-FUSED DISCONNECT 30, 60, AND 100A

DRAWING NUMBER: BAC-C95-955-11

Α