BALTIMORE AIRCOIL COMPANY

Submittal Data Form

Sold To :
LEL International
LEL International
2751 New Cut Rd
Spartanburg, SC 29303
United States

Project: LEL Cooling Tower Additions
Purchase Order No: 3451
Engineer:
BAC Order # U221019102
Configuration Version: 6
Representative: JAMES M. PLEASANTS CO. INC.

All Information is per Unit

Quantity: 1 Model XES15E-1285-06FN COOLING TOWER

Certified Capacity: 300.00 USGPM of water from 95.00°F to 85.00°F at 78.00°F entering air wet bulb.

Fan Motor(s): One (1) 2 HP fan motor(s): Totally Enclosed, Air Over (TEAO),
1 Speed/1 Winding - Premium Efficiency (Inverter Duty), suitable for 460 volt, 3 phase,
60 hertz electrical service and Space Heater.
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.

Submittal Information		Equipment Summary
Mechanical Specifications		Induced Draft, Crossflow Cooling Tower
BAC Terms and Conditions of Sale		Quality Assurance - ISO 9001 Compliant
Certificate of Wind and Seismic Load Capacity		Unit Energy Efficiency per ASHRAE Standard 90.1-2016
Submittal Drawings/Diagrams		CTI Certified Thermal Performance
		Steel Panels and Structural Members are Constructed of Galvanized Steel with Stainless Steel Hot and Welded Cold Water Basin
UP-U221019102	Unit Print – RH	Standard Fan Driven by BALTIDRIVE® Power Train
SS-U221019102	Unit Support	Galvanized Steel Fan Guard
CG-U221019102	Center of Gravity	PVC Fill & Drift Eliminators
BC-U221019102	Bottom Connections	Structure Designed in accordance with the 2012 IBC
HW-U221019102	Heater Wiring	Top Inlet Connections
VL-U221019102	VCOS Location	Pump Suction Connection
VW-U221019102	VCOS Wiring	Mechanical Float Valve Assembly
EA-U221019102	External Access	Electric Immersion Heater(s) Sized to Maintain +40°F water at a 0°F Ambient with Electrical Requirements Matching Fan Motor(s)
IA-U221019102	Internal Access	Copper Heater Elements
SW-U221019102	Space Heater Wiring	Electric Immersion Heater Controls
		Mechanical Vibration Cutout Switch
		Internal Walkway

THANK YOU FOR YOUR BUSINESS!
Rigging and Installation Instructions, as well as Operating and Maintenance Instructions are available at www.baltimoreaircoil.com

BALTIMORE AIRCOIL COMPANY

Mechanical Specifications

Customer: LEL International
Project: LEL Cooling Tower Additions
Purchase Order No: 3451
Engineer:
BAC Order # U221019102

All Information is per Unit

Quantity: 1 Model XES15E-1285-06FN COOLING TOWER

Unit Type:

Factory fabricated, induced draft, crossflow cooling tower with vertical discharge.

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 compliant.

Unit Efficiency:

The unit(s) will comply with the energy efficiency requirements established by ASHRAE Standard 90.1-2016.

CTI Certification:

The thermal performance of this BAC unit has been certified through performance tests conducted by the Cooling Technology Institute in accordance with their standard STD-201 RS. Your equipment may be selected for factory-testing to verify CTI certified performance. Such certification by an independent third party assures engineers and users that the published thermal capacities accurately reflect the actual unit performance. CTI certification eliminates the additional costs of on-site, individual unit testing, oversizing the equipment or operating cost penalties from deficient equipment.

Materials of Construction:

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. The areas of the cold water basin in contact with the water will be constructed of Type 304 stainless steel. All factory seams in the cold water basin will be welded to ensure watertight construction and shall be warranted against leaks for a period of five (5) years from date of shipment. Cold water basin includes a depressed section with drain/clean-out connection and the area under the fill sections is sloped toward the depressed section for easy cleaning.
Hot water distribution basins are gravity type constructed of heavy gauge, Type 304 stainless steel. The unit is supplied with a weir dam in each hot water basin to accommodate water flow rates down to 50% of the design flow. Polypropylene metering orifices are provided to assure even distribution of water over the wet deck surface. Heavy gauge, Type 304 stainless steel covers are furnished to prevent the accumulation of debris and algae in the hot water distribution basins.

Fan & Drive System:

The fan is driven by a one-piece multi-groove, neoprene/polyester belt designed specifically for evaporative cooling equipment service. Motor is mounted on an adjustable motor base. Fan and motor sheaves are non-corrosive cast aluminum. The BALTIDRIVE® Power Train fan drive system, including fan motor, is warranted against defects in materials and workmanship for five (5) years from date of shipment.
Fan and steel fan shaft are supported by heavy-duty, self-aligning, grease-packed, relubricatable ball bearings with special seals for protection against dust and moisture. All bearings are designed for minimum L10 life of 80,000 hours (280,000 hours average life).

Fan Guard:

A heavy gauge, hot-dip galvanized steel wire fan guard is provided over the fan cylinder. The fan guard is shipped loose for field installation.

Fill:

The BACross® Fill and integral drift eliminators are formed from self-extinguishing (per ASTM D-568) polyvinyl chloride (PVC), having a flame spread rating of 5 per ASTM Standard E84-77a, and are impervious to rot, decay, and fungus or biological attack. The fill is elevated above the cold water basin floor to facilitate cleaning. This fill is suitable for a maximum entering water temperature of 130°F (54.44°C). The eliminators are designed to effectively strip entrained moisture from the leaving airstream with a minimum of air resistance.

Equipment Structure:

The structure of this equipment has been designed, tested and independently certified in accordance with the wind and seismic load requirements of the 2012 International Building Code (IBC) and ASCE/SEI 7-10. Seismic qualification is based on tri-axial shake-table testing conducted at an independent test laboratory in accordance with the ICC-ES Acceptance Criteria AC 156, "Acceptance Criteria for Seismic Qualification By Shake-Table Testing of Nonstructural Components and Systems." For more information and specific wind and seismic load capacity ratings, please see the Certificate of Wind and Seismic Load Capacity.

Water Inlet(s):

Hot water inlet flange pattern connection, suitable for ASME Class 150 flat face flanges, 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.

Basin Water Level Control:

A make-up valve with unsinkable polystyrene filled plastic float arranged for easy adjustment. The corrosion resistant make-up valve is suitable for water supply pressures between 15 psig (103 kPa) and 50 psig (345 kPa).

Basin Heater(s):

A minimum number of high-watt-density electric immersion heater elements, sized to maintain +40°F (+4°C) basin water at 0°F (-18°C) ambient with a 15 mph (24.1 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, including thermostat(s) and low water cutout switch(es) or probe(s), is provided. Disconnect switch, contactor, and wiring are not included.

Vibration Cutout Switch:

Fan system is provided with a vibration cutout switch to limit damage to the unit in the event of a high vibration condition. The vibration switch is mechanically tripped with a frequency range of 0 to 3,600 RPM and trip point of 0.2 to 2.0 g's. No input power is required. Switch rating is 10 amperes at a maximum 480 VAC, and 1/4 ampere at 250 Vdc.

Internal Access Option:

The unit has access doors on both ends and a steel internal walkway to enable maintenance inside the unit. All components meet pertinent OSHA standards.

BALTIMORE AIRCOIL COMPANY

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 not 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 Ex-works BAC Factory. At such time, title to the goods and all risk of loss, or damage shall pass to Buyer.

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:

> **Original Equipment Fan Motors** are warranted against defects in materials and workmanship for a period of seven (7) years from date of shipment when space heaters are field-wired at time of initial installation per the motor nameplate.
>
> 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. Buyer certifies that it will be the recipient of the products to be delivered by seller. Buyer acknowledges that products are subject to export/import control laws of various countries, including the Export Administration Regulations of the United States. Products sold by seller cannot be transferred, sold or re-exported to any party on the Entity List or Restricted Persons list of the US Department of Commerce Bureau of Industry and Security, any party designated by the US Treasury Department Office of Foreign Asset Control and any party debarred or sanctioned for proliferation or terrorism reasons by the US State Department.

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 – **11/05/2021**)

BALTIMORE
AIRCOIL COMPANY

Certificate of Wind and Seismic Load Capacity
2012, 2015, and 2018 International Building Code (IBC)

BAC Order #:	U221019102
Product Line:	S1500 Open Cooling Tower
Model:	XES15E-1285-06FN

The Baltimore Aircoil Company evaporative cooling product referenced in this certificate has been designed, analyzed, and tested in accordance with the wind and seismic load requirements of the 2012 IBC, 2015 IBC, 2018 IBC, ASCE/SEI 7-10, and ASCE/SEI 7-16. Seismic qualification is based on analysis and full-scale, tri-axial, shake-table testing conducted in accordance with ICC-ES Acceptance Criteria AC156 (2012), "Acceptance Criteria for Seismic Qualification By Shake-Table Testing of Nonstructural Components and Systems."

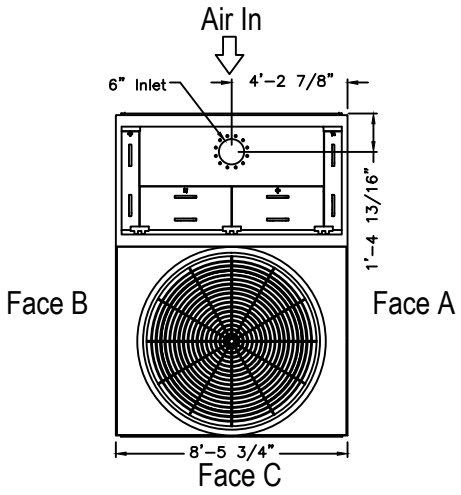
Wind and seismic load capacities for the referenced unit are provided below. It is the responsibility of the purchaser to determine the suitability of this unit for the specific application and to design the anchorage and support system for the project wind and seismic loads. Field modifications to the unit may void this certificate.

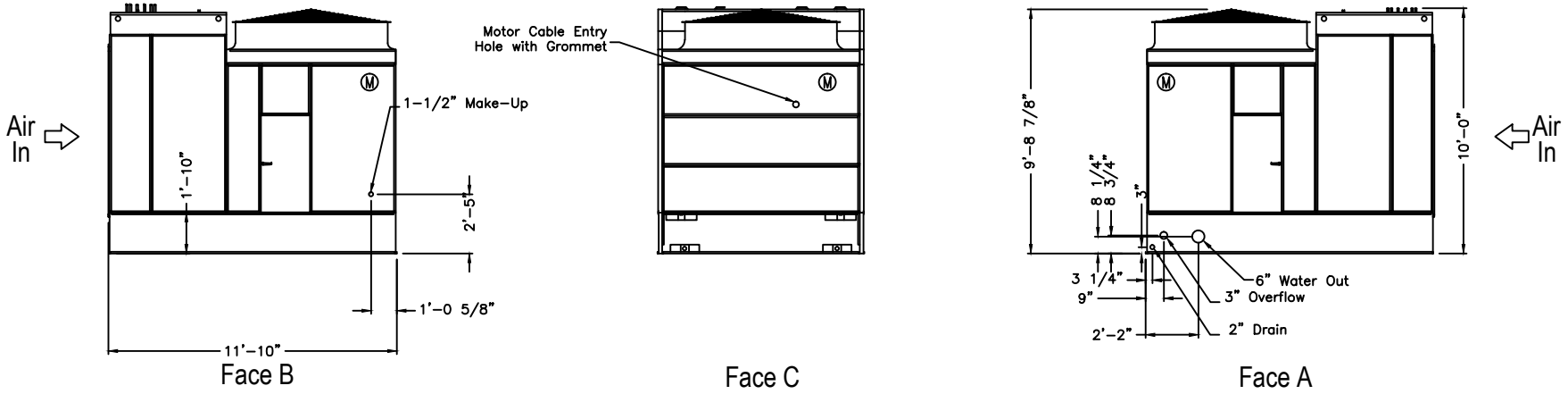
Wind Load Rating		
Horizontal Pressure (psf):	p_h = **74**	in accordance with ASCE/SEI 7-10 / 7-16
Vertical Uplift Pressure (psf):	p_v = 58.00	
Conditions:	The unit is supported and anchored as recommended. Anchor bolts are SAE J429 Grade 5 or equivalent.	

Seismic Load Rating		
Design Spectral Acceleration (g) for Importance Factor, I_p = 1.0:	S_{DS} = 4.80	on grade (z/h = 0.0), rigid mount
	S_{DS} = 1.60	on rooftop (z/h = 1.0), rigid mount
	S_{DS} = 1.07	on rooftop (z/h = 1.0), spring-isolation mount
Design Spectral Acceleration (g) for Importance Factor, I_p = 1.5:	S_{DS} = 0.00	on grade (z/h = 0.0), rigid mount
	S_{DS} = 0.00	on rooftop (z/h = 1.0), rigid mount
	S_{DS} = 0.00	on rooftop (z/h = 1.0), spring-isolation mount
General Conditions:	The unit is installed outside and not within an occupied space.	
	The unit is supported and anchored as recommended. Anchor bolts are SAE J429 Grade 5 or equivalent.	
	All piping provided by others is supported and restrained independently of the unit.	
Additional Conditions for I_p = 1.5:	Flexible pipe connectors are provided at all coil connections to allow differential seismic movements between the piping and the unit in all directions.	

Data Version 0.00
DWG Version 1.53

Notes
1) All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
2) Unless otherwise indicated, pan connections 3" and smaller are MPT. Pan Connections 4" and larger are grooved to suit a mechanical coupling and beveled for welding. The inlet is a studded bolt circle designed to mate with an ASME class 150 flat face flange with studs straddling transverse and longitudinal centerlines. The flat face flange and full face gasket are to be furnished by others for mating with the unit. Make-Up connection is FPT.
3) Field piping should be fabricated at time of installation. Pre-fabrication of pipe work is not recommended.
4) Do not support piping from unit connections. All necessary piping supports to be supplied by others.
5) For weight loadings and support requirements, refer to the suggested unit support drawing.
6) The area above the fan discharge must be unobstructed.
7) Due to height limitations on truck shipments, some items shown may ship loose for field installation.
8) Dimension to the top of the fan guard reflect all additional cowl extensions.
9) Conduit must be water tight and pitched downward to allow condensation to drain away from fan motor conduit box. Therefore, do not run the conduit through fan deck.





Model Number	Shipping Weight	Operating Weight	Heaviest Section
XES15E-1285-06FN	4220	9010	4231

RIGHT HAND

ORDER NO: **U221019102**

DATE: **4/19/2022 8:54:20 AM ConfigVer=6**

BALTIMORE AIRCOIL COMPANY

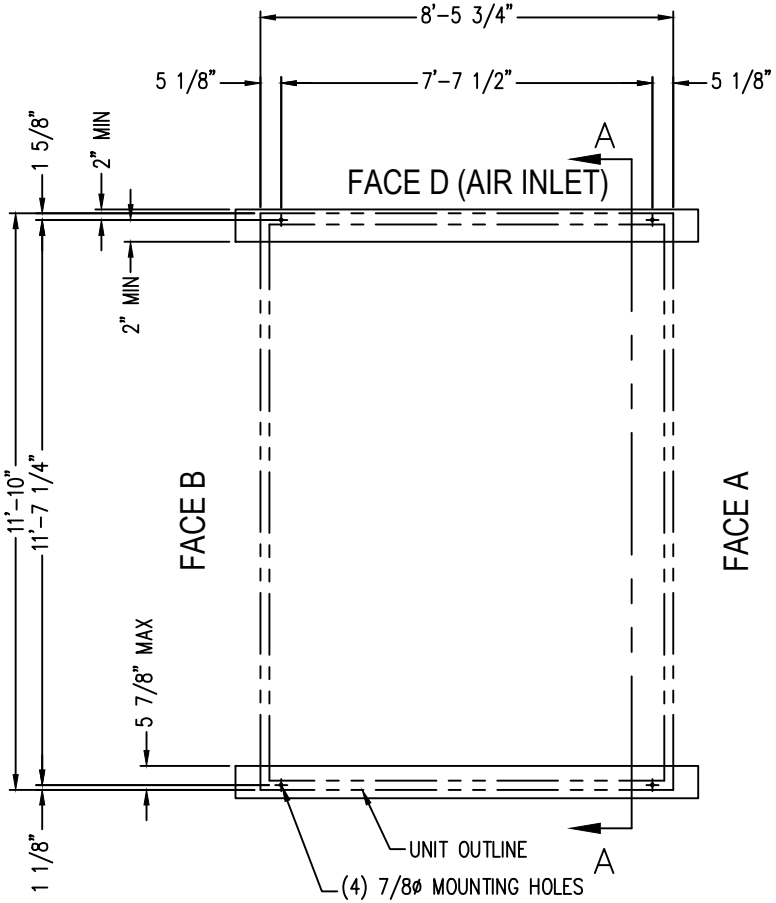
Series 1500 Single Cell Unit Print

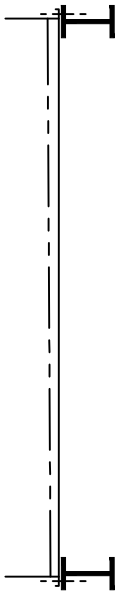
DRAWING NUMBER:
UP-U221019102

PLAN VIEW

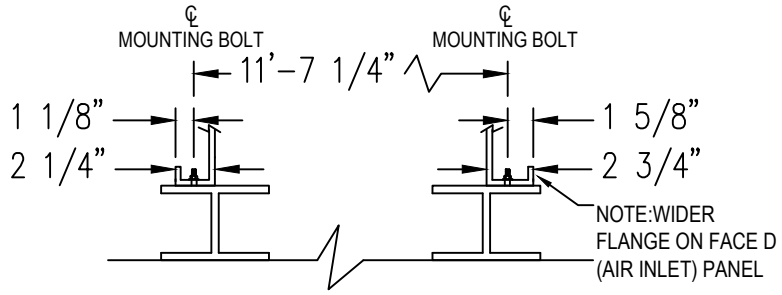
Data Version 1.09
DWG Version 1.21

Notes
1) Each beam should be designed, as a minimum, for 65% of the total unit operation weight applied as a uniformly distributed load.
2) All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
3) Operating weight and weight loading are for units with water level in basin at overflow.
4) Unit support beams and anchor bolts to be designed and furnished by others.
5) Support beams must be flush and level at top.





FACE B ELEVATION



SECTION "A-A"

PLAN "A" STEEL

Model Number	Shipping Weight	Operating Weight	Heaviest Section
XES15E-1285-06FN	4220	9010	4231

ORDER NO: **U221019102**

DATE: **4/19/2022 8:54:43 AM ConfigVer=6**

BALTIMORE AIRCOIL COMPANY

Single Cell Unit Support

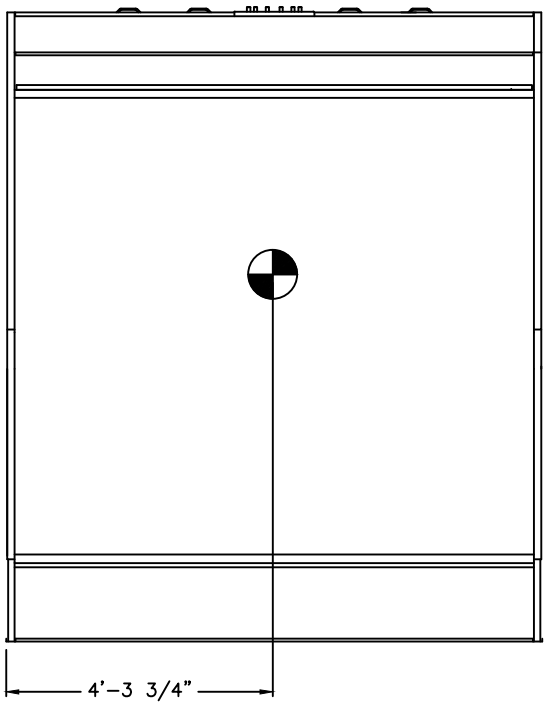
DRAWING NUMBER:
SS-U221019102

Data Version 0.00
DWG Version 1.00

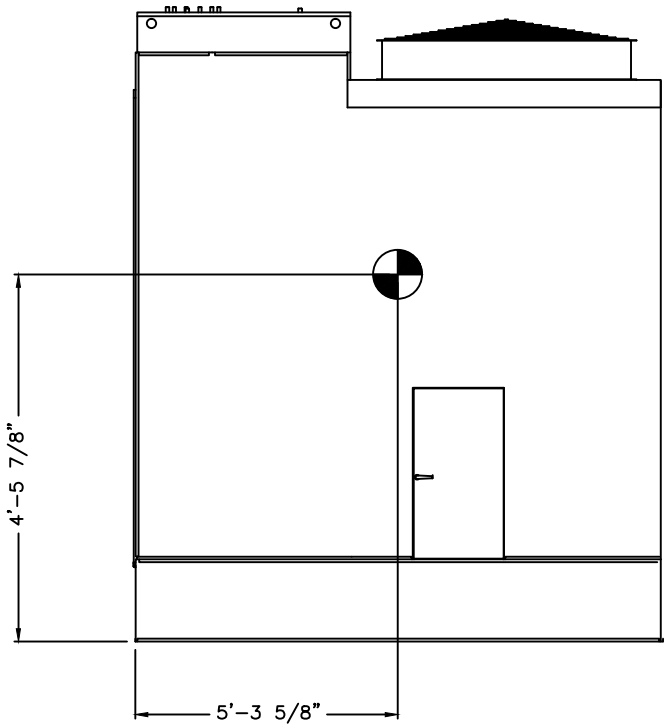
Notes

1) Drawings are not to scale.

2) Accessory weights shown above are included in the total unit Operating, Shipping and Heaviest Section values located on the Unit Print and Unit Support drawings. Ladder and cage weights are not shown above but are included in the totals. These accessories ship loose for field assembly and installation.



Face D
(Air Intake Side)

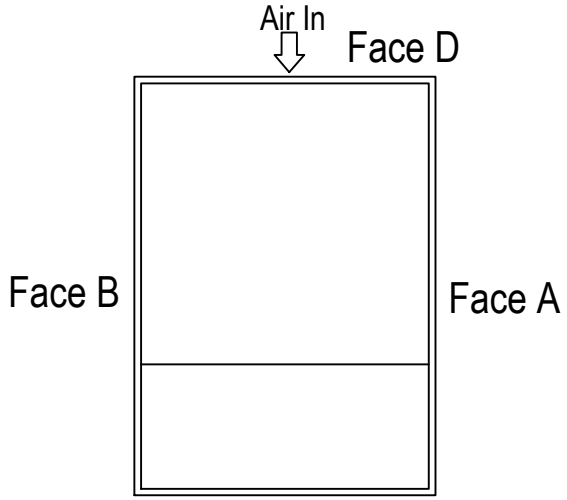


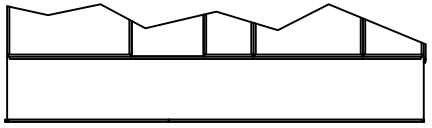
Face B

ORDER NO: **U221019102**	**BALTIMORE AIRCOIL COMPANY**	**Series 1500 Center of Gravity**
DATE: **4/19/2022 8:57:24 AM ConfigVer=6**		DRAWING NUMBER: **CG-U221019102**

Data Version 0.00
DWG Version 1.76

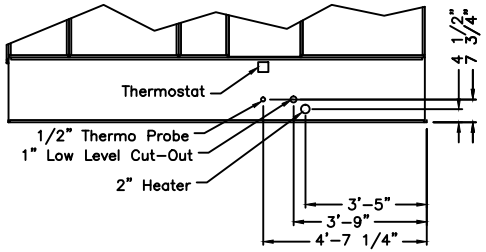
Notes

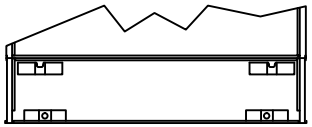




Face C

Face A





Face B

Face C

Heater Duty:0
KW per Heater:10
Heater Qty:1

ORDER NO: **U221019102**	**BALTIMORE AIRCOIL COMPANY**	**Single Cell Basin Connections**
DATE: **4/19/2022 9:04:31 AM ConfigVer=6**		DRAWING NUMBER: **BC-U221019102**

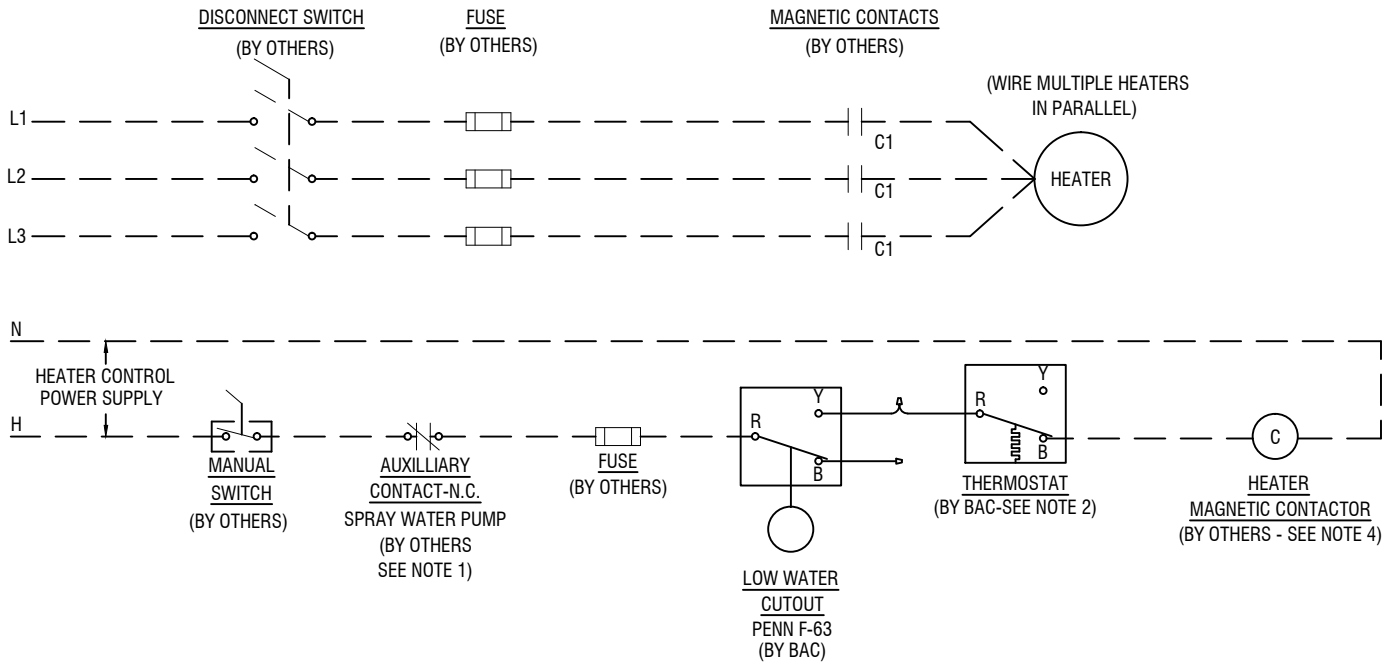
NOTES:

1. INTERLOCK IMMERSION HEATERS WITH CIRCULATING PUMP TO DE-ENERGIZE HEATERS WHEN PUMP IS RUNNING.

2. CONTROL THERMOSTAT IS TO BE SET FOR 40° F. DO NOT SET THERMOSTAT LOWER THAN 40° F.

3. BROKEN LINES INDICATE COMPONENTS AND WIRING TO BE SUPPLIED BY OTHERS.

4. CONTACTOR, FUSE PROTECTION AND POWER SUPPLY WIRING ARE TO BE SIZED TO MATCH HEATER REQUIREMENTS. WIRING MUST COMPLY TO APPLICABLE CODES AND ORDINANCES.



Data Version 1.00
DWG Version 1.20

ORDER NO: **U221019102**

DATE: **4/19/2022 9:04:45 AM ConfigVer=6**

BALTIMORE AIRCOIL COMPANY

Electric Immersion Heater Wiring
Standard Controls

DRAWING NUMBER:
HW-U221019102

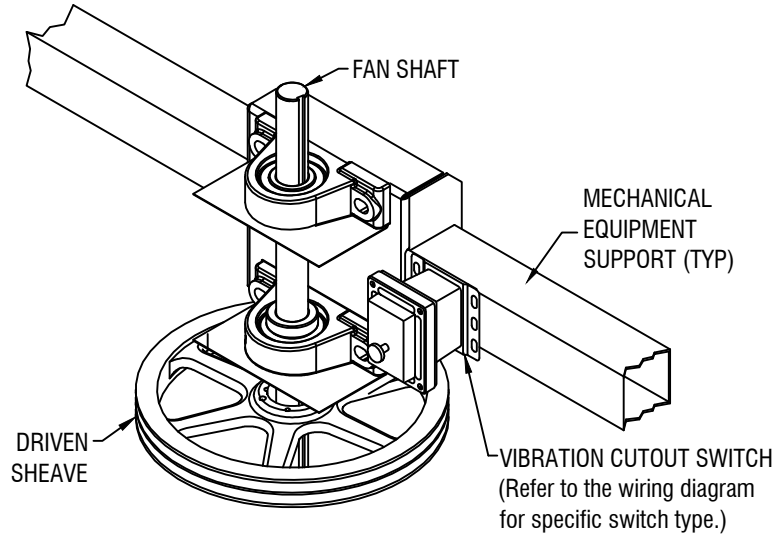
Data Version 0.00
DWG Version 1.0

OPERATING INSTRUCTIONS:
Follow the installation drawings and wiring diagram to ensure the proper operation of the vibration switch. Direct any questions to your local BAC Representative.

NOTE:
Moisture inside the switch can lead to switch failure. Care must be taken when replacing the cover on the vibration switch to ensure that the proper watertight seal is obtained.

CAUTION:
Before performing any maintenance, adjustment or inspection of the switch, make certain that all power has been disconnected and locked in the off position.

SWITCH LOCATION



ORDER NO: **U221019102**

DATE: **4/19/2022 9:05:19 AM ConfigVer=6**

BALTIMORE AIRCOIL COMPANY

VCOS LOCATION

DRAWING NUMBER:
VL-U221019102

NOTES:

1. LOCAL PUSH BUTTON RESET.

2. TO MAINTAIN HAZARDOUS DUTY RATINGS, THE FACTORY INSTALLED WATER TIGHT CONDUIT/CABLE CONNECTION FITTINGS MUST BE REMOVED AND THE FOUR CONDUCTOR CABLE MUST BE ROUTED INSIDE OF A SUITABLE EXPLOSION PROOF CONDUIT. NOTE: THE CONNECTORS CAN EASILY BE REMOVED WITHOUT HAVING TO UN-WIRE THE CONDUCTORS FROM INSIDE THE CUTOUT SWITCH.

3. THE MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH TWO WATER TIGHT CONDUIT/CABLE CONNECTORS. ONE CONNECTOR IS USED TO PROVIDE A WATER TIGHT CONNECTION TO THE VIBRATION CUTOUT SWITCH AND THE OTHER IS PROVIDED FOR THE ELECTRICIAN TO CONNECT THE WIRE CABLE TO A JUNCTION BOX LOCATED IN THE VICINITY OF THE VIBRATION CUTOUT SWITCH.

4. THE SWITCH IN THE NORMALLY CLOSED CIRCUIT (BLACK WIRE) WILL OPEN WHEN THE DEVICE EXPERIENCES VIBRATION LEVELS ABOVE THE SETPOINT VALVE. IF REVERSE CONTROL LOGIC IS DESIRED, CUT OFF THE BUTT END CONNECTOR ON THE WHITE WIRE AND INSTALL A WIRE NUT OR BUTT CONNECTOR ON THE NORMALLY CLOSED WIRE (BLACK).

5. THIS MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH ONE SINGLE POLE DOUBLE THROW SWITCH. THE SWITCH CONTACTS ARE "DRY CONTACTS" WHICH CAN BE SUCCESSFULLY USED DIRECTLY IN THE FAN STARTER CONTROL (TYPICALLY A/C VOLTAGE) CIRCUIT OR DIRECTLY IN A BUILDING MANAGEMENT SYSTEM (TYPICALLY D/C VOLTAGE).
CONTACT RATINGS: 3 AMPS@ 125 OR 480 VAC, 1/2 AMP@ 125 VDC, 1/4 AMP@ 250 VDC.

6. CAUTION: MOISTURE INSIDE THE SWITCH CAN LEAD TO SWITCH FAILURE. CARE MUST BE TAKEN WHEN REPLACING THE COVER ON THE VIBRATION SWITCH TO ENSURE THAT THE PROPER WATERTIGHT SEAL IS OBTAINED.

ADJUSTMENTS OF BAC MECHANICAL VIBRATION CUTOUT SWITCH

BAC RECOMMENDS THAT EACH VIBRATION CUTOFF SWITCH BE FIELD ADJUSTED AT START-UP TO OPTIMIZE THE TRIP POINT RELATIVE TO THE FINAL MOUNTING POSITION AND VIBRATION CHARACTERISTICS OF THE INSTALLED EQUIPMENT.

NOTE: INSTALLATION AND ADJUSTMENT MUST BE PERFORMED BY QUALIFIED, COMPETENT TECHNICIAN

1. FOR YOUR SAFETY, TURN OFF, THEN LOCK & TAG-OT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
2. PUSH IN THE MANUAL RESET SWITCH TO ENSURE UNIT IS IN UNTRIP STATE (USING AN OHMMETER, VERIFY THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED. THE SWITCH COMES WITH PRE-WIRED CABLE SO OPENING THE SWITCH IS **NOT** NECESSARY TO PERFORM THIS TASK. IF CIRCUIT IS OPEN (TRIPPED STATE) SKIP STEP 3 AND GO TO STEP 4.
3. TURN ADJUSTMENT SCREW CONTERCLOCKWISE (CCW) 1/8 TURN AT A TIME UNTIL THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS OPEN (TRIPPED STATE)
4. ONCE TRIPPED, ROTATE ADJUSTMENT SCREW ¼ TURN CLOCKWISE (CW) AND THEN PUSH IN MANUAL RESET BUTTON (THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED)
5. START UP FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE CUT-OUT SWITCH TO TRIP.
   a. IF THE VIBRATION CUTOUT SWITCH DOES NOT TRIP:
   i. START AND STOP THE FAN TWO MORE TIMES AND IF THE CUTOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.
   b. IF THE VIBRATION CUTOUT SWITCH DID TRIP:
   i. TURN OFF, THEN LOCK & TAG-OUT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
   ii. ADJUST THE SET POINT SCREW AN ADDITIONAL ¼ TURN CW AND THEN PUSH IN THE RESET BUTTON.
   iii. RE-START THE FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE SWITCH TO TRIP.

NOTE: REPEAT THIS ADJUSTMENT PROCESS (STEP 5.b.i-5.b.iii) UNTIL THE UNIT DOES NOT TRIP.

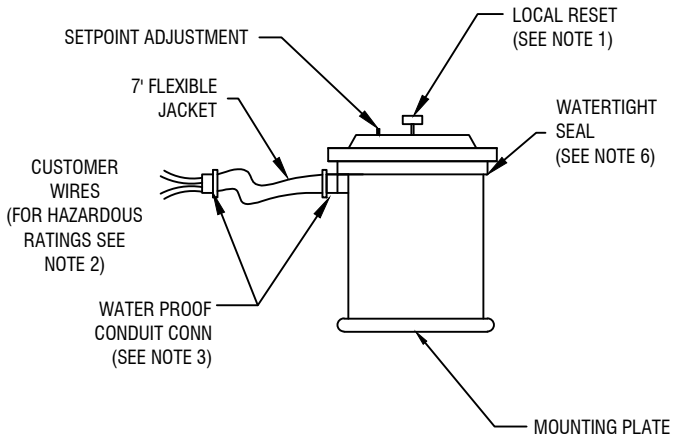
   iv. ONCE THE FINAL ADJUSTMENT HAS BEEN MADE, START AND STOP THE FAN TWO MORE TIMES AND IF THE CUOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.

WIRING OF VIBRATION CUTOUT SWITCHES ON UNITS WITH MULTIPLE MOTORS OR CUTOUT SWITCHES:

VIBRATION CUTOUT SWITCHES SHOULD BE WIRED TO SHUT OFF ALL MOTORS ON THE ASSOCIATED FAN DRIVE SYSTEM. THIS MAY REQUIRE WIRING MULTIPLE CUTOUT SWITCHES TO SHUT OFF A SINGLE MOTOR OR WIRING A SINGLE CUTOUT SWITCH TO SHUT OFF MULTIPLE MOTORS. CONTACT YOUR CONTROLS INTEGRATOR FOR DETAILS ON HOW TO WIRE MULTIPLE SWITCHES.

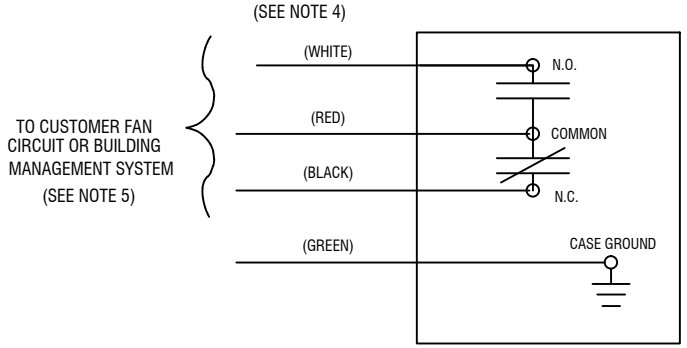
MECHANICAL VIBRATION CUT-OUT SWITCH

(ONE-SINGLE POLE DOUBLE THROW SWITCH)



WIRING DIAGRAM

(ONE-SINGLE POLE DOUBLE THROW SWITCH - SEE NOTE 5)



BEFORE PERFORMING ANY MAINTENANCE, ADJUSTMENT OR INSPECTION OF THE SWITCH, MAKE CERTAIN THAT ALL POWER HAS BEEN DISCONNECTED AND LOCKED IN THE OFF POSITION.

Data Version 1.12
DWG Version 1.10

ORDER NO: **U221019102**

DATE: **4/19/2022 9:05:01 AM ConfigVer=6**

BALTIMORE AIRCOIL COMPANY

Mechanical VCOS Wiring Shut Off with Local Reset

DRAWING NUMBER:
VW-U221019102

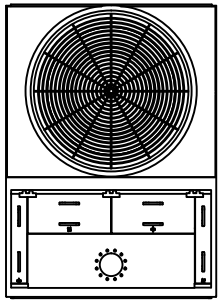
Notes

Data Version 0.00
DWG Version 1.57

Plan View

Face C

Face A

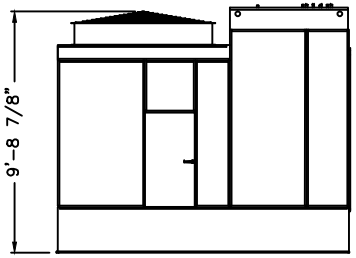


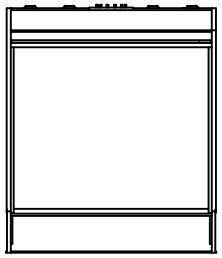
Face B

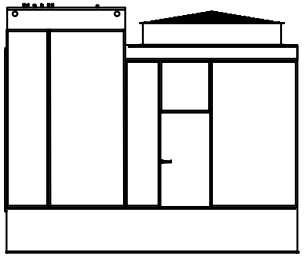
Order configuration currently does not include external accessories.

Face D

Air In







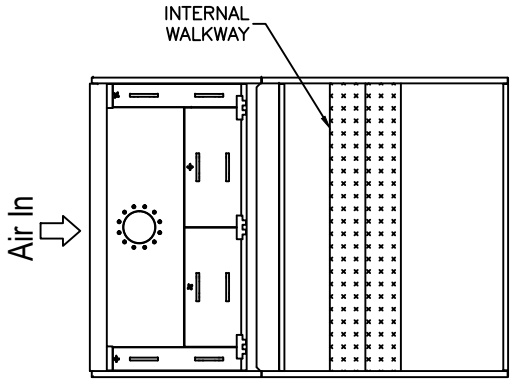
Face A

Face D

Face B

ORDER NO: **U221019102**	**BALTIMORE AIRCOIL COMPANY**	**Series 1500 External Accesory**
DATE: **4/19/2022 8:57:08 AM ConfigVer=6**		DRAWING NUMBER: **EA-U221019102**

Data Version 1.09
DWG Version 1.11

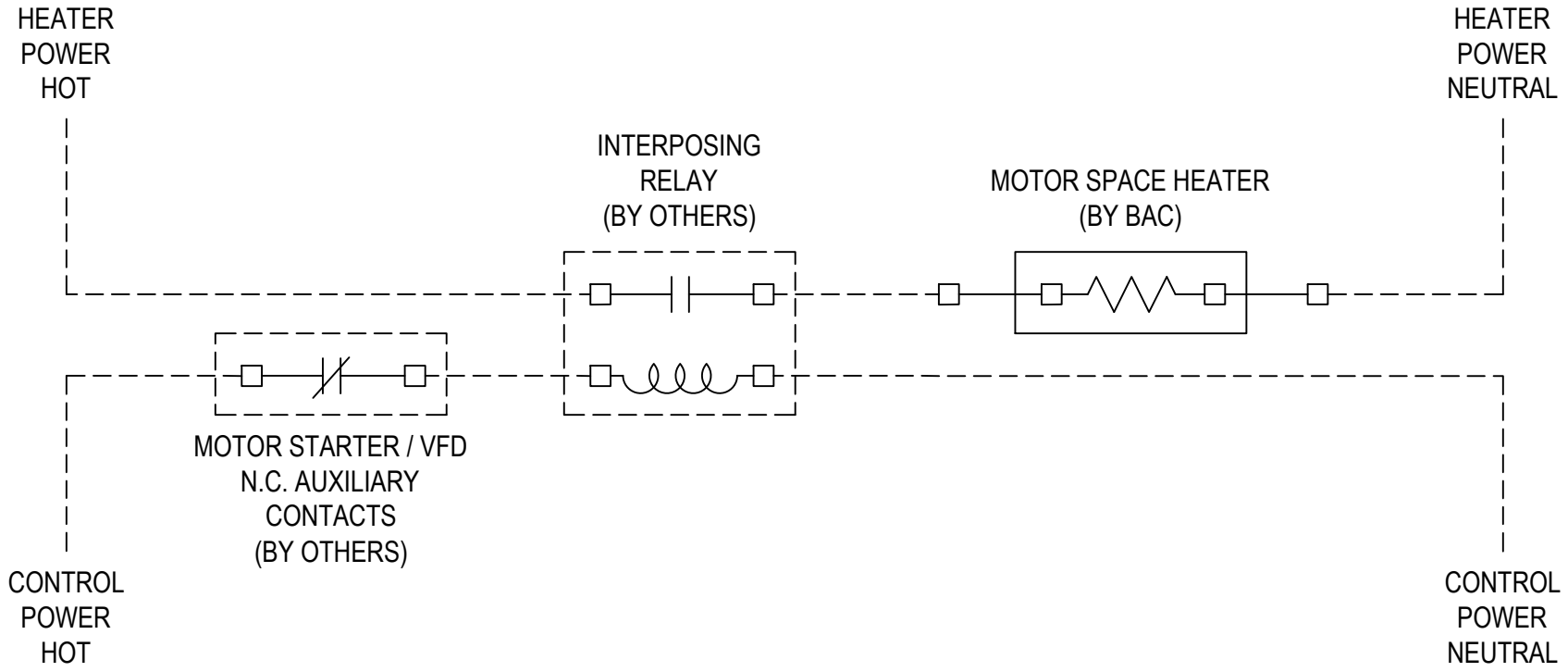


Plan View

ORDER NO: **U221019102**	**BALTIMORE AIRCOIL COMPANY**	**Internal Access**
DATE: **4/19/2022 9:02:20 AM ConfigVer=6**		DRAWING NUMBER: **IA-U221019102**

Data Version 1.09
DWG Version 1.2

Notes
1) Motor Heater should only be energized when the fan is stopped (0% fan speed).
2) Interposing relay must be sized per the heater power consumption.
3) Heater sizes shown below are maximum values. Refer to the motor nameplate for final power requirements.
4) General heater wiring details shown, see diagram on motor for specific details.
5) All wiring must comply with all codes and standards applicable for the installed jurisdiction, which may include requirements for additional disconnects, over current protection, and/or other safety devices.
6) Dashed lines represent field supplied wiring.
7) Space heater wiring leads may be located in either the main outlet box, or an auxiliary box if so equipped.



For units that ship from the US, heaters are 110-120 VAC/ 50 or 60 Hz based on motor configuration.
For units that ship from China, heaters are 200-240 VAC/ 50 or 60 Hz based on motor configuration.

ORDER NO: **U221019102**	**BALTIMORE AIRCOIL COMPANY**	**Fan Motor Space Heater Wiring Schematic - General**
DATE: **4/19/2022 8:57:37 AM ConfigVer=6**		DRAWING NUMBER: **SW-U221019102**