

PROJECT MANUAL

FOR THE

IU HEALTH CENTRAL UTILITY PLANT (CUP)

BID RELEASE 3 & 4



WEDDLE BROS.
BUILDING GROUP, LLC
A Weddle Bros. Construction Company



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SECTION 1- PROJECT TEAM

OWNER

Indiana University Health, Inc.
Fairbanks Hall
340 West 10th Street
Indianapolis, Indiana 46202

CONSTRUCTION MANAGER

Weddle Bros. Building Group, LLC
6330 East 75th Street, Suite 216
Indianapolis, Indiana 46250
(317) 813-8410

ARCHITECT

VPS Architecture
528 Main Street, Suite 400
Evansville, Indiana 47708
(812) 423-7729

CIVIL ENGINEER

Cripe
9339 Priority Way West Drive, Suite 100
Indianapolis, Indiana 46240
(317) 844-6777

STRUCTURAL ENGINEER

CE Solutions
10 Shoshone Drive
Carmel, Indiana 46032
(317) 818-1912

MECHANICAL/ELECTRICAL ENGINEER

Applied Engineering Services, Inc.
5975 Castle Creek Parkway N. Drive
Indianapolis, Indiana 46250
(317) 810-4141

SECTION 2- INSTRUCTIONS TO BIDDERS

BID SUMMARY

The IU Health Central Utility Plant (CUP) project will have (4) Bid Releases with multiple Bid Packages released within each release date. Below is a summary of the release and due dates.

Any changes to dates or content of the Bid Releases will be issued via Addendum.

1. BID RELEASE 1 – Site / Civil
 - a. Release Date: 1/25/2023
 - b. Due Date: 2/15/2023 at Noon
 - i. BP-03 Earth Retention
 - ii. BP-04 Deep Foundations
 - iii. BP-05 Site Clearing & Earthwork
 - iv. BP-06 Site Utility Distribution
 - v. BP-15 Exterior Improvements
2. BID RELEASE 2 – Structural
 - a. Release Date: 1/25/2023
 - b. Due Date: 2/15/2023 at Noon
 - i. BP-09 Concrete and Rebar
 - ii. BP-07A Steel Fabrication
 - iii. BP-07B Steel Erection
3. BID RELEASE 3 – MEP Systems
 - a. Release Date: 2/5/2023
 - b. Due Date: 3/22/2023 at Noon
 - i. BP-14A Mechanical – Piping and Hydronic Equipment
 - ii. BP-14B Mechanical – Ductwork and HVAC Equipment
 - iii. BP-14C Diesel Fuel System
 - iv. ~~BP-14D Test & Balance~~
 - v. BP-14E Temperature Controls
 - vi. BP-14F Plumbing
 - vii. BP-14G Fire Suppression
 - viii. BP-15A Electrical Power and Lighting
 - ix. BP-15B Communication
 - x. ~~BP-15C Electronic Safety and Security~~
 - xi. ~~BP-15D Fire Alarm~~
4. BID RELEASE 4 – General Trades
 - a. Release Date: 2/15/2023
 - b. Due Date: 3/8/2023 at Noon
 - i. BP-11 General Trades
 1. Flooring, Metal Studs/Drywall/Ceilings, Painting, Sealants, Fireproofing, Final Cleaning, Specialties, Furnishings, Work associated with the JCI building
 - ii. BP-02 Masonry
 - iii. BP-10 Roofing
 - iv. BP-12 Glass and Glazing
 - v. BP-13 Metal Panels and Screen Walls

- vi. BP-08A Pre-Cast Fabrication
- vii. BP-08B Pre-Cast Erection

PRE-BID MEETINGS

Virtual pre-bid meetings and attendance instructions will be published to all potential bidders as details are finalized. **Each bid release will have its own pre-bid meeting.** Matchmaking sessions will be part of each pre-bid meeting to allow for all potential subcontractors and suppliers to be connected with potential prime bidders. XBE firms are encouraged to attend these meetings and sessions to connect with the appropriate prime bidders.

PRE-QUALIFICATION

All Bidders are required to be pre-qualified prior to submitting a bid for this project. SmartBid will be utilized for this process. For free registration to SmartBid, project updates, and to start the pre-qualification process, go to <https://www.weddlebros.com/planroomiuhealthcup>. Contact Josh Naugle at jnaugle@weddlebros.com with any questions.

BID SUBMISSION

All bids are to be emailed to Josh Naugle at jnaugle@weddlebros.com prior to the due date and time listed for each bid package. Late bids will not be considered. Bids will be opened in private and go through a thorough review process.

The Owner reserves the right to accept or reject any bid.

PRE-BID RFIs

Bidders are encouraged to seek clarification for any questions that are related to the project scope of work. All questions and answers will be published in an addendum prior to the bid due date. All RFIs are due 5 business days prior to the bid package due date. The last addendum will be issued no later than 2 business days prior to the bid package due date.

Submit all questions to Josh Naugle (jnaugle@weddlebros.com).

BID REQUIREMENTS

Prime bidders are to include all components listed in the appropriate scope of work document. Partial inclusions will not be accepted. After bid receipt, each bidder will be contacted for a bid / scope review meeting.

Pay close attention to the supplemental requirement documents that are placed within the specifications. These requirements will be strictly enforced and will also be major components of the bid evaluation process.

Bid Bonds are NOT required. Payment and Performance Bonds are requested as alternates (see Scope of Work and Bid Forms).

SECTION 3- BID PACKAGES / DESCRIPTION OF THE WORK

The following documents are contained within this section of the Project Manual.

1. **SUMMARY OF WORK MATRIX-** This document contains a list of the specification sections that serve as a guide for what is expected to be contained within each bid package.
2. **SUMMARY OF WORK – MULTIPLE CONTRACTS**
3. **BID PACKAGE SCOPE OF WORK**
4. **BID FORMS**
5. **ATTACHMENTS**

	BID PACKAGES																									
	BP 02 - Masonry	BP 03 - Earthwork Retention	BP 04 - Deep Foundations	BP 05- Site Clearing & Earthwork	BP 06 - Site Utility Distribution	BP 07A - Steel Fabrication	BP 07B - Steel Erection	BP 08A - Precast Fabrication	BP 08B - Precast Erection	BP 09 - Concrete & Rebar	BP 10 - Roofing	BP - 11 General Trades	BP 12 - Glass & Glazing	BP 13 - Metal Panels & Screen Wall	BP 14A - Mechanical - Piping & Hydronic Equipment	BP 14B - Mechanical - Ductwork & Equipment	BP 14C - Diesel Fuel System	BP 14D - Test & Balance	BP 14E - Temperature Controls	BP 14F - Plumbing	BP 14G - Fire Suppression	BP 15A - Electrical Power & Lighting	BP 15B - Communications	BP 15C - Electronic Safety & Security	BP 15D - Fire Alarm	BP 16 - Package Deleted
DIVISION 00 PROJECT MANUAL																										
All Project Manual Contents	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DIVISION 01 GENERAL REQUIREMENTS																										
All Division 01 Contents	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DIVISION 02 EXISTING CONDITIONS																										
SECTION 024111 Demolition				X								X														
DIVISION 03 CONCRETE																										
SECTION 031000 Concrete Forming and Accessories										X					X	X	X			X	X					X
SECTION 032000 Concrete Reinforcing										X					X	X	X			X	X					X
SECTION 033000 Cast-in-Place Concrete									X						X	X	X			X	X					X
SECTION 034500 Precast Architectural Concrete								X	X						X	X	X			X	X					X
DIVISION 04 MASONRY																										
SECTION 042200 Concrete Unit Masonry	X																									
DIVISION 05 METALS																										
SECTION 051200 Structural Steel Framing						X	X																			
SECTION 053100 Steel Decking						X	X																			
SECTION 054000 Cold-Formed Metal Framing												X														
SECTION 055000 Metal Fabrications						X	X																			
SECTION 055113 Metal Pan Stairs						X	X																			
SECTION 055213 Pipe and Tube Railings						X	X																			
SECTION 055313 Bar Gratings						X	X																			
DIVISION 06 WOOD, PLASTICS, AND COMPOSITES																										
SECTION 061053 Miscellaneous Rough Carpentry												X														
SECTION 064116 Plastic-Laminate-Faced Architectural Cabinets												X														
DIVISION 07 THERMAL AND MOISTURE PROTECTION																										
SECTION 072100 Thermal Insulation	X							X			X	X														
SECTION 072500 Weather Barriers												X														
SECTION 074113.16 Standing Seam Metal Roof Panels											X															
SECTION 074213.19 Insulated Metal Wall Panels														X												
SECTION 075423 Thermoplastic Polyolefin (TPO) Roofing											X															
SECTION 077100 Roof Specialties											X															
SECTION 077200 Roof Accessories											X															
SECTION 078100 Applied Fire Protection												X														
SECTION 078413 Penetration Firestopping												X			X	X	X		X	X	X	X	X	X	X	
SECTION 078443 Joint Firestopping									X			X			X	X	X		X	X	X	X	X	X	X	
SECTION 079200 Joint Sealants	X								X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X
SECTION 079500 Expansion Control												X														
DIVISION 08 OPENINGS																										
SECTION 081113 Hollow Metal Doors and Frames												X														
SECTION 081213 Hollow Metal Frames												X														
SECTION 081416 Flush Wood Doors												X														
SECTION 083113 Access Doors and Frames												X			X	X	X		X	X	X	X	X	X	X	
SECTION 084113 Aluminum Framed Entrances and Storefronts													X						X	X						
SECTION 084413 Glazed Aluminum Curtain Walls													X													

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SECTION 087100 Door Hardware												X	X													
SECTION 088000 Glazing												X	X													
SECTION 089119 Fixed Louvers												X														
DIVISION 09 FINISHES																										
SECTION 092116.23 Gypsum Board Shaft Wall Assemblies												X														
SECTION 092216 Non-Structural Metal Framing												X														
SECTION 092900 Gypsum Board												X														
SECTION 096513 Resilient Base and Accessories												X														
SECTION 096723 Resinous Flooring												X														
SECTION 099123 Interior Painting												X														
DIVISION 10 SPECIALTIES																										
SECTION 102600 Wall and Door Protection												X														
SECTION 102800 Toilet, Bath, and Laundry Accessories												X														
SECTION 104413 Fire Protection Cabinets												X														
SECTION 104416 Fire Extinguishers												X														
DIVISION 12 FURNISHINGS																										
SECTION 123661 Simulated Stone Countertops												X														
DIVISION 21 - FIRE SUPPRESSION																										
SECTION 210513 Common Motor Requirements for Fire Suppression Equipment																					X	X				
SECTION 210517 Sleeves and Sleeve Seals for Fire-Suppression Piping																					X					
SECTION 210518 Escutcheons for Fire-Suppression Piping																					X					
SECTION 210523 General-Duty Valves for Water-Based Fire-Suppression Piping																					X					
SECTION 210529 Hangers and Supports for Fire-Suppression Piping and Equipment																					X					
SECTION 210548 Vibration and Seismic Controls for Fire-Suppression Piping and Equipment																					X					
SECTION 210553 Identification for Fire-Suppression Piping and Equipment																					X					
SECTION 210800 Fire Protection Commissioning																					X					
SECTION 211119 Fire Department Connections																					X					
SECTION 211200 Fire-Suppression Standpipes																					X					
SECTION 211313 Wet-Pipe Sprinkler Systems																					X					
SECTION 211316 Dry-Pipe Sprinkler Systems																					X					
SECTION 212200 Clean-Agent Fire-Extinguishing Systems																					X					
SECTION 213113 Electric-Drive, Centrifugal Fire Pumps																					X					
SECTION 213213 Electric-Drive, Vertical-Turbine Fire Pumps																					X					
SECTION 213413 Pressure-Maintenance Pumps																					X					
DIVISION 22 - PLUMBING																										
SECTION 220513 Common Motor Requirements for Plumbing Equipment																				X		X				
SECTION 220517 Sleeves and Sleeve Seals for Plumbing Piping																				X						
SECTION 220518 Escutcheons for Plumbing Piping																				X						
SECTION 220519 Meters and Gages for Plumbing Piping																				X						
SECTION 220523.12 Ball Valves for Plumbing Piping																				X						
SECTION 220523.13 Butterfly Valves for Plumbing Piping																				X						
SECTION 220523.14 Check Valves for Plumbing Piping																				X						
SECTION 220523.15 Gate Valves for Plumbing Piping																				X						
SECTION 220529 Hangers and Supports for Plumbing Piping and Equipment																				X						
SECTION 220533 Heat Tracing for Plumbing Piping																				X		X				
SECTION 220548 Vibration and Seismic Controls for Plumbing Piping and Equipment																				X						
SECTION 220553 Identification for Plumbing Piping and Equipment																				X						
SECTION 220716 Plumbing Equipment Insulation																				X						
SECTION 220719 Plumbing Piping Insulation																				X						
SECTION 220800 Commissioning of Plumbing Systems																				X						

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SECTION 221116 Domestic Water Piping																				X						
SECTION 221119 Domestic Water Piping Specialties																				X						
SECTION 221123.13 Domestic-Water Packaged Booster Pumps																				X						
SECTION 221123.21 Inline, Domestic-Water Pumps																				X						
SECTION 221316 Sanitary Waste and Vent Piping																				X						
SECTION 221319 Sanitary Waste Piping Specialties																				X						
SECTION 221319.13 Sanitary Drains																				X						
SECTION 221414 Storm Drainage Piping																				X						
SECTION 221423 Storm Drainage Piping Specialties																				X						
SECTION 223100 Domestic Water Softeners																				X						
SECTION 223300 Electric, Domestic-Water Heaters																				X						
SECTION 224213.13 Commercial Water Closets																				X						
SECTION 224213.16 Commercial Urinals																				X						
SECTION 224216.13 Commercial Lavatories																				X						
SECTION 224216.16 Commercial Sinks																				X						
SECTION 224223 Commercial Showers																				X						
SECTION 224500 Emergency Plumbing Fixtures																				X						
DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)																										
SECTION 230513 Common Motor Requirements for HVAC Equipment															X	X						X				
SECTION 230516 Expansion Fittings and Loops for HVAC Piping															X	X										
SECTION 230517 Sleeves and Sleeve Seals for HVAC Piping															X	X										
SECTION 230518 Escutcheons for HVAC Piping															X	X										
SECTION 230519 Meters and Gages for HVAC Piping															X	X										
SECTION 230523 General-Duty Valves for HVAC Piping															X	X										
SECTION 230529 Hangers and Supports for HVAC Piping and Equipment															X	X										
SECTION 230533 Heat Tracing for Hvac Piping															X	X						X				
SECTION 230548 Vibration and Seismic Controls for HVAC															X	X										
SECTION 230553 Identification for Hvac Piping and Equipment															X	X										
SECTION 230593 Testing, Adjusting, And Balancing for HVAC															X	X		X								
SECTION 230713 Duct Insulation																X										
SECTION 230716 HVAC Equipment Insulation															X	X										
SECTION 230719 HVAC Piping Insulation															X	X										
SECTION 230923 Direct Digital Control (DDC) System Hvac																			X							
SECTION 230923.11 Control Valves																			X							
SECTION 230923.12 Control Dampers																			X							
SECTION 230923.13 Energy Meters																			X							
SECTION 230923.14 Flow Instruments																			X							
SECTION 230923.16 Gas Instruments																			X							
SECTION 230923.18 Leak Detection Instruments																			X							
SECTION 230923.22 Position Instruments																			X							
SECTION 230923.23 Pressure Instruments																			X							
SECTION 230923.27 Temperature Instruments																			X							
SECTION 230923.33 Vibration Instruments																			X							
SECTION 230923.43 Weather Stations																			X							
SECTION 231113 Facility Fuel Oil Piping																	X									
SECTION 231123 Facility Natural-Gas Piping																	X									
SECTION 231213 Facility Fuel Oil Pumps																	X									
SECTION 231313 Facility Underground Fuel Oil Storage Tanks																	X									
SECTION 232113 Hydronic Piping															X											
SECTION 232116 Hydronic Piping Specialties															X											

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SECTION 232123 Hydronic Pumps															X											
SECTION 232213 Steam and Condensate Piping															X											
SECTION 232216 Steam and Condensate Heating Piping Specialties															X											
SECTION 232223 Steam Condensate Pumps															X											
SECTION 232300 Refrigerant Piping															X											
SECTION 232500 HVAC Water Treatment															X											
SECTION 232533 HVAC Makeup-Water Filtration Equipment															X											
SECTION 233113 Metal Ducts																X										
SECTION 233300 Air Duct Accessories																X										
SECTION 233346 Flexible Ducts																X										
SECTION 233423 HVAC Power Ventilators																X										
SECTION 233516.13 Positive Pressure Engine Exhaust Systems																X										
SECTION 233600 Air Terminal Units																X										
SECTION 233713.13 Air Diffusers																X										
SECTION 233713.23 Registers and Grilles																X										
SECTION 233723 HVAC Gravity Ventilators																X										
SECTION 235123 Gas Vents															X											
SECTION 235700 Heat Exchangers for HVAC															X											
SECTION 236416 Centrifugal Water Chillers - Install															X											
SECTION 236514.14 Open-Circuit, Induced-Draft, Crossflow Cooling Towers – Install															X											
SECTION 237313.16 Indoor, Semi-Custom Air-Handling Units															X											
SECTION 238123.11 Small Capacity (6 Tons (21 Kw) And Smaller), Computer-Room Air-Conditioners,															X											
SECTION 238219 Fan Coil Units															X	X										
SECTION 238239.16 Propeller Unit Heaters															X											
DIVISION 26 - ELECTRICAL																										
SECTION 260010 Supplemental Requirements for Electrical																						X				
SECTION 260011 Facility Performance Requirements for Electrical																						X				
SECTION 260500 Common Work Results for Electrical																						X				
SECTION 260513 Medium-Voltage Cables																						X				
SECTION 260519 Low-Voltage Electrical Power Conductors and Cables																						X				
SECTION 260523 Control-Voltage Electrical Power Cables																						X				
SECTION 260526 Grounding and Bonding for Electrical Systems																						X				
SECTION 260529 Hangers and Supports for Electrical Systems																						X				
SECTION 260533 Raceways and Boxes for Electrical Systems																						X				
SECTION 260533.11 Electrical Heat Tracing																						X				
SECTION 260536 Cable Trays for Electrical Systems																						X				
SECTION 260543 Underground Ducts and Raceways for Electrical Systems																						X				
SECTION 260544 Sleeves and Sleeve Seals for Electrical Raceways and Cabling																						X				
SECTION 260548.16 Seismic Controls for Electrical Systems																						X				
SECTION 260553 Identification for Electrical Systems																						X				
SECTION 260573.13 Short-Circuit Studies																						X				
SECTION 260573.16 Coordination Studies																						X				
SECTION 260573.19 Arc-Flash Hazard Analysis																						X				
SECTION 260580 Equipment Wiring Systems																						X				
SECTION 260800 Commissioning of Electrical Systems																						X				
SECTION 260923 Lighting Control Devices																						X				
SECTION 261116.11 Secondary Unit Substations with Switchgear Secondary – Purchase																						Ref				
SECTION 261116.11.1 Secondary Unit Substation with Switchgear Secondary – Install																						X				
SECTION 261116.12 Secondary Unit Substations with MV Switchgear Secondary – Purchase																						Ref				
SECTION 261116.12.1 Secondary Unit Substations with MV Switchgear Secondary – Install																						X				

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SECTION 261326 Medium-Voltage Metal-Clad Switchgear – Purchase																						Ref				
SECTION 261326.1 Medium-Voltage Metal-Clad Switchgear – Install																						X				
SECTION 261327 Medium-Voltage Paralleling Metal-Clad Switchgear – Purchase																						Ref				
SECTION 261327.1 Medium-Voltage Paralleling Metal-Clad Switchgear – Install																						X				
SECTION 261327.11 Sequence of Operation																						X				
SECTION 262213 Low-Voltage Distribution Transformers																						X				
SECTION 262300.01 HMI Dashboard System																						X				
SECTION 262413 Switchboards																						X				
SECTION 262416 Panelboards																						X				
SECTION 262726 Wiring Devices																						X				
SECTION 262813 Fuses																						X				
SECTION 262816 Switches and Circuit Breakers																						X				
SECTION 262923 Variable-Frequency Motor Controllers																						X				
SECTION 262933 Controllers for Fire Pump Drivers																						X				
SECTION 263213.13 Diesel-Engine-Driven Generator Sets – Purchase																						Ref				
SECTION 263213.13.1 Diesel-Engine-Driven Generator Sets – Install																						X				
SECTION 263323.11 Central Battery Equipment for Emergency Lighting																						X				
SECTION 263343 Battery Chargers																						X				
SECTION 263353 Static Uninterruptible Power Supply																						Ref				
SECTION 263600 Transfer Switches – Purchase																						X				
SECTION 263600.1 Transfer Switches – Install																						X				
SECTION 264113 Lightning Protection for Structures																						X				
SECTION 264313 Surge Protective Devices for Low-Voltage Electrical Power Circuits																						X				
SECTION 265119 LED Interior Lighting																						X				
SECTION 265213 Emergency and Exit Lighting																						X				
SECTION 265619 LED Exterior Lighting																						X				
DIVISION 27 - COMMUNICATIONS																										
SECTION 270200 General Requirements																							X			
SECTION 270400 Execution																							X			
SECTION 270500 Common Work Results for Communications																							X			
SECTION 270528 Pathways for Communications Systems																							X			
SECTION 270529 Hangers and Supports for Communications Systems																							X			
SECTION 270532 Firestopping for Telecommunications Systems																							X			
SECTION 270533 Conduits and Backboxes for Communications Systems																							X			
SECTION 270536 Cable Trays for Communications Systems																							X			
SECTION 270539 Surface Raceways for Communications Systems																							X			
SECTION 270543 Underground Ducts and Raceways for Communications Systems																							X			
SECTION 270553 Identification for Communications Systems																							X			
SECTION 271000 Structured Cabling																							X			
SECTION 271100 Communications Equipment Room Fittings																							X			
SECTION 271117 UPS Installation																							X			
SECTION 271119 Communications Termination Blocks and Patch Panels																							X			
SECTION 271123 Communications Cable Management and Ladder Rack																							X			
SECTION 271300 Communications Backbone Cabling																							X			
SECTION 271323 Communications Optical Fiber Backbone Cabling																							X			
SECTION 271500 Communications Horizontal Cabling																							X			
SECTION 271523 Communications Optical Fiber Horizontal Cabling																							X			
SECTION 271543 Communications Faceplates and Connectors																							X			
SECTION 271600 Communications Connecting Cords, Devices and Adapters																							X			
SECTION 275319 Distributed Antenna System																							X			

	BP 02 - Masonry	BP 03 - Earthwork Retention	BP 04 - Deep Foundations	BP 05 - Site Clearing & Earthwork	BP 06 - Site Utility Distribution	BP 07A - Steel Fabrication	BP 07B - Steel Erection	BP 08A - Precast Fabrication	BP 08B - Precast Erection	BP 09 - Concrete & Rebar	BP 10 - Roofing	BP - 11 General Trades	BP 12 - Glass & Glazing	BP 13 - Metal Panels & Screen Wall	BP 14A - Mechanical - Piping & Hydronic Equipment	BP 14B - Mechanical - Ductwork & Equipment	BP 14C - Diesel Fuel System	BP 14D - Test & Balance	BP 14E - Temperature Controls	BP 14F - Plumbing	BP 14G - Fire Suppression	BP 15A - Electrical Power & Lighting	BP 15B - Communications	BP 15C - Electronic Safety & Security	BP 15D - Fire Alarm	BP 16 - Package Deleted
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY																										
SECTION 281300 Access Control for Electronic Safety and Security																								X		
SECTION 282300 Video Surveillance for Electronic Safety and Security																								X		
SECTION 283111 Digital, Addressable Fire-Alarm System																									X	
DIVISION 31 – EARTHWORK																										
SECTION 311000 Site Clearing				X																						
SECTION 312200 Earthwork / Grading				X	X																					
SECTION 312316 Excavation				X	X																					
SECTION 312316.13 Trenching				X	X																					
SECTION 312319 Dewatering				X	X																					
SECTION 312323 Fill				X	X																					
SECTION 312400 Temporary Erosion and Sedimentation Control				X																						
SECTION 315000 Excavation Support and Protection		X			X																					
SECTION 316100 Rammed Aggregate Piers			X																							
SECTION 316200 Steel Helical Piles			X																							
DIVISION 32 – EXTERIOR IMPROVEMENTS																										
SECTION 321123 Aggregate Base Courses												X														
SECTION 321216 Asphalt Paving												X														
SECTION 321313 Concrete Paving												X														
SECTION 321314 Concrete Exterior Joints												X														
SECTION 321723 Pavement Markings												X														
SECTION 321726 Tactile Warning Surfacing												X														
DIVISION 33 – UTILITIES																										
SECTION 330513 Storm Manholes and Structures					X																					
SECTION 330514 Sanitary Manholes and Structures					X																					
SECTION 331416 Site Water Utility Distribution Piping					X																					
SECTION 333113 Site Sanitary Sewerage Gravity Piping					X																					
SECTION 334100 Subdrainage					X																					
SECTION 334211 Stormwater Gravity Piping					X																					

SUMMARY OF WORK- MULTIPLE CONTRACTS

A. List of Bid Releases and Bid Packages for this Project:

1. BID RELEASE 1 – Site / Civil
 - a. BP-03 Earth Retention
 - b. BP-04 Rammed Aggregate Piers
 - c. BP-05 Site Clearing & Earthwork
 - d. BP-06 Site Utility Distribution
 - e. BP-16 Exterior Improvements
2. BID RELEASE 2 – Structural
 - a. BP-09 Concrete and Rebar
 - b. BP-07A Steel Fabrication
 - c. BP-07B Steel Erection
3. BID RELEASE 3 – MEP Systems
 - a. BP-14A Mechanical – Piping and Hydronic Equipment
 - b. BP-14B Mechanical – Ductwork and HVAC Equipment
 - c. BP-14C Diesel Fuel System
 - d. ~~BP-14D Test & Balance~~
 - e. BP-14E Temperature Controls
 - f. BP-14F Plumbing
 - g. BP-14G Fire Suppression
 - h. BP-15A Electrical Power and Lighting
 - i. BP-15B Communication
 - j. ~~BP-15C Electronic Safety and Security~~
 - k. ~~BP-15D Fire Alarm~~
4. BID RELEASE 4 – General Trades
 - a. BP-11 General Trades
 - i. Flooring, Metal Studs/Drywall/Ceilings, Painting, Sealants, Fireproofing, Final Cleaning, Specialties, Furnishings, Work associated with the JCI building
 - b. BP-02 Masonry
 - c. BP-10 Roofing
 - d. BP-12 Glass and Glazing
 - e. BP-13 Metal Panels and Screen Walls
 - f. BP-08A Pre-Cast Fabrication
 - g. BP-08B Pre-Cast Erection

B. General Scope Inclusions – Applicable to all Bid Packages

1. Unless otherwise indicated, the work described in this Section for each Contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
2. This summary should in no way be construed as being all inclusive. It is issued as a guide to aid in the assignment of Work. If a conflict regarding assignment of work exists between the drawing notes or specifications and these descriptions, the Bid Category Scope of Work descriptions take precedence.
3. Each contract shall include provisions for its own excavation and backfill.

IU Health Central Utility Plant (CUP)

Project Manual

4. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each Contract shall be the work of the General Trades Contract.
5. Furnishing of access panels for the work of each Bid Package shall be the work of each contract for its own work. Installation of access panels shall be the work of the General Trades Contract.
6. Equipment pads shown in the structural drawings shall be completed by BP-09 Concrete and Rebar. Other housekeeping pads not shown on the structural drawings shall be completed by the requiring contractor.
7. Roof-mounted equipment curbs for the work of each Contract shall be the work of each contract for its own work.
8. Roof penetrations / patching for the work of each Contract shall be the work of the Roofing Contract.
9. Cutting and Patching: Work shall be coordinated to avoid cutting and patching within the facility. Exterior cutting and patching (i.e. utility work) will be assigned to the appropriate Bid Package.
10. Progress cleaning of work areas affected by its operations shall be the responsibility of each contractor on a daily basis.
11. Each bid package is to include Joint Sealants as applicable to their scope of work.
12. Temporary Toilets will be provided by the General Trades bid package.
13. Dumpsters will be provided by the General Trades bid package.
14. Site Fencing will be provided by the General Trades bid package.
15. The Construction Manager will obtain the general building permit. Any permits required to complete the work of an individual trade shall be included with the applicable Bid Package.³
16. The project is going for a LEED Silver certification. All Bid Packages are to include provisions to meet the requirements of the LEED plan included in Division 1 of the Specifications.
17. Contractors are to coordinate work regarding the Johnson Controls Building that will remain within the project limits (i.e. demo of façade and foundations prior to excavation and deep foundations at the southwest corner of the CUP)

C. Bid Package Inclusions

1. See attached Scope of Work Documents for specification assignments to Bid Packages. This document is to be used in conjunction with the individual scopes of work.
2. All work associated with the Tunnel is to be included as an alternate (see individual bid package bid forms).

END OF SUMMARY OF WORK

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, **2023**

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

- a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/SF of CMU block wall _____

4. REQUESTED BREAKDOWNS

- a. Total square feet of CMU walls _____

- b. Total Tons of brick walls _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-02 MASONRY

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install **Masonry** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to:
 - a. Furnish and install all masonry products as identified in the documents
 - b. Grout any wall assemblies required by the documents
 - c. Furnish and install rebar
 - d. Furnish and install all steel angle or lintels required
 - e. Coordinate wall penetrations with other trades
 - f. Any rigid insulation identified behind masonry wall assemblies
- C. Layout of all areas where the work applies. Control points will be provided by Others.
- D. All excess excavated materials (non-hazardous) must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state and local codes and regulations are to be followed. The Subcontractor is responsible for all hauling of materials excavated by this subcontract, and any applicable fees, required to complete the work.
- E. Temporary power will not be available at the time this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.
- F. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide

**IU HEALTH CENTRAL UTILITY PLANT
BP-02 MASONRY
Wednesday, February 15, 2023**

all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

- G. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- H. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- I. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- J. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- K. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: \$/SF of CMU Block – include furnishing and installing material

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

IU HEALTH CENTRAL UTILITY PLANT
BP-02 MASONRY
Wednesday, February 15, 2023

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. Total square feet of CMU walls
2. Total square feet of brick walls

END OF SCOPE OF WORK

BP-08A PRECAST FABRICATION
BP-08B PRECAST ERECTION

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

Select one of the following bid packages or combination bid options. Complete all applicable unit costs and breakdowns below.

BP-07A STEEL FABRICATION _____ BP-07B STEEL ERECTION _____ COMBINATION _____

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars
\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____
_____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1- Mobilization and delivery of leave-out panel _____

4. REQUESTED BREAKDOWNS

- a. Identify the heaviest piece of precast panel assembly to allow for proper crane sizing and coordination with Precast Erectors _____

- b. How many square feet of precast panel are included? _____

- c. Please provide lead times for the following:

- i. Shop Drawings _____
ii. Fabrication _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-08A PRECAST FABRICATION

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #4, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.
- D. This package may be combined with BP-08B Precast Erection. See Bid Form.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. **Precast Fabrication** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to detailing, shop drawings, fabrication, and delivery of all precast concrete panel products as required by the Documents.
- C. This bid package will provide any concrete embedded items required for this package (for installation by BP-09 Concrete).
- D. Finishes of all products furnished under this bid package shall be as per the specifications.
- E. There is minimal laydown area on the site, so just in time deliveries of all materials should be accounted for within this bid.
- F. This bid package is responsible for furnishing any transportation permits required for the delivery of its materials.
- G. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- H. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.

**IU HEALTH CENTRAL UTILITY PLANT
BP-08A PRECAST FABRICATION
Wednesday, February 15, 2023**

- I. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- J. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Additional delivery for leave out panel

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

- 1. Identify the weight of the heaviest piece of precast to allow for proper crane sizing and coordination with BP-08B Precast Erection.
- 2. How many square feet of precast panel are included?
- 3. Verify durations for the following:
 - a. Shop Drawings
 - b. Fabrication

END OF SCOPE OF WORK

IU HEALTH CENTRAL UTILITY PLANT

BP-08B PRECAST ERECTION

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.
- D. This package may be combined with BP-08A Precast Fabrication. See Bid Form.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. **Precast Erection** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to receiving, unloading, shake out and distribution, installation and detailing of structural and miscellaneous metals.
- C. This bid package will install all precast concrete panels, firestopping related to panel joints, and joint sealants at panel joints.
- D. Any temporary supports and bases are to be included in this package.
- E. This bid package shall be responsible for coordinating the delivery of precast concrete through the Construction Manager. The most efficient erection process shall be pre-planned with all project team members and agreed to during the scheduling process.
- F. Finishes of all products furnished under this bid package shall be as per the specifications. The Precast Erector will be responsible for any field field patching required.
- G. Subcontractor shall coordinate with the Construction Manager and Materials Testing Agency for inspections required by the Documents.
- H. Layout of all areas where the work applies. Control points will be provided by Others.
- I. Temporary power will not be available at the time this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.

**IU HEALTH CENTRAL UTILITY PLANT
BP-08B PRECAST ERECTION
Wednesday, February 15, 2023**

- J. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- K. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- L. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- M. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- N. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- O. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Additional mobilization to install leave-out panels

**IU HEALTH CENTRAL UTILITY PLANT
BP-08B PRECAST ERECTION
Wednesday, February 15, 2023**

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. N/A

END OF SCOPE OF WORK

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, **2023**

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

- a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of
(Title)

the above _____ and
(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/SF of membrane roof assembly _____

- b. UNIT PRICE #2: EACH for typical boot penetration _____

4. REQUESTED BREAKDOWNS

- a. N/A

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-10 ROOFING

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install **Roofing** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to:
 - a. Furnish and install all roofing products as identified in the documents
 - b. Furnish and install all roof insulation, vapor barriers, protections boards, etc. from the metal roof deck outward. All products are to be furnished and installed as required by manufacturer standards to achieve all warranty requirements.
 - c. Furnish and install copings, flashings, etc.
- C. Temporary power will not be available at the time this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.
- D. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

**IU HEALTH CENTRAL UTILITY PLANT
BP-10 ROOFING
Wednesday, February 15, 2023**

- E. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- F. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- G. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- H. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- I. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: \$/SF of membrane roof assembly– include furnishing and installing material

UNIT PRICE #2: EACH price for typical boot penetration

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. N/A

END OF SCOPE OF WORK

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of
(Title)

the above _____ and
(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

- c. ALTERNATE BID NO. 3: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. N/A

4. REQUESTED BREAKDOWNS

- a. N/A

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-11 GENERAL TRADES

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install **all General Trades** work for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to:
 - a. Site concrete including concrete pavement in the Service Yard, stoops, sidewalks as identified in the attached site improvements document
 - b. Asphalt patching as identified in the attached site improvements document
 - c. All work associated with the demolition and re-construction of the Johnson Controls Building (also known as the JCI building). Additional details will be added via addendum.
 - d. Metal Studs and Drywall, in wall insulation, rigid insulation adhered to interior CMU and pre-cast partitions, furring or girts, acoustical sealants, etc. as required to provide complete and functional wall systems
 - i. Coordinate framing and topping out of drywall with other trades. Coordinated MEP systems take priority.
 - e. All ceiling systems as shown in the documents.
 - f. Doors, frames, and hardware
 - i. Note: hardware in aluminum doors will be by the Glass and Glazing bid package.
 - ii. Coordinate the delivery of hollow metal frames in masonry walls to be set prior to the installation of masonry walls. Masonry bid package is responsible to grout frames.
 - g. Overhead doors, frames, accessories
 - h. Fire Extinguishers, Cabinets, Toilet Accessories
 - i. Lockers including any bases, tops, locks, as required by the documents
 - j. Furnish and install Service Yard Gate (opening 104C)
 - k. Furnish and install steel stairs and fill pans with concrete- includes Stair 1, Stair 2, and all mezzanine stairs
 - l. Provide all rough carpentry- in wall blocking, roof blocking, strapping, plywood backer boards, etc.
 - m. Furnish and / or install items as noted on the Equipment / Furniture schedule on Sheets A106, A107
 - n. Provide all flooring as indicated in the documents

IU HEALTH CENTRAL UTILITY PLANT

BP-10 ROOFING

Wednesday, February 15, 2023

- o. Provide all painting as indicated in the documents
 - p. Provide any counters, cabinets, brackets, accessories, etc.
 - q. Hatches and access panels are to be furnished and installed by this Bid Package. Coordinate locations with other trades.
 - r. Joint sealants associated with work within this Bid Package
 - s. Firestopping of architectural and structural work (MEP firestopping is the responsibility of those packages)
 - t. Roller Shades
- C. Temporary power may not be available in the early stages for this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor. See project schedule for temporary power milestone dates.
- D. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- E. The Subcontractor is required to call 811 and conduct private utility locates prior to any excavation that may be required by this scope of work.
- F. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- G. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- H. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.

**IU HEALTH CENTRAL UTILITY PLANT
BP-10 ROOFING
Wednesday, February 15, 2023**

- I. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- J. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: N/A

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

ALTERNATE #3: Provide added cost for all work associated with the Tunnel.

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. N/A

END OF SCOPE OF WORK

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, **2023**

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

- a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/SF of glazing assembly _____

4. REQUESTED BREAKDOWNS

- a. SF of Glazing Systems _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-12 GLASS AND GLAZING

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install **Glass and Glazing** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to:
 - a. Furnish and install all glazing assemblies
 - b. Furnish and install flashings and all components required by the manufacturer details.
 - c. Furnish and install all joints sealants (interior and exterior) as required by glazing assemblies
- C. Temporary power will not be available at the time this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.
- D. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- E. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the

**IU HEALTH CENTRAL UTILITY PLANT
BP-12 GLASS AND GLAZING
Wednesday, February 15, 2023**

position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.

- F. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- G. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- H. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- I. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: \$/SF of glazing assembly– include furnishing and installing material

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. SF of glazing systems

END OF SCOPE OF WORK

IU HEALTH CENTRAL UTILITY PLANT

BP-13 METAL PANELS AND SCREEN WALL

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **January 20, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 8, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install **Metal Panels and Screen Wall** for the Central Utility Plant as defined by the project documents. This shall specifically include, but not be limited to:
 - a. Furnish and install all metal panel assemblies including but not limited to the following components:
 - i. Outboard rigid insulation that is part of the metal panel wall assembly
 - ii. Joint sealants or flashings as required by the metal panel wall assembly
 - iii. All trims required to work with adjacent materials
 - iv. Metal panels
 - b. Furnish and install all screen wall assemblies including but not limited to the following components:
 - i. All girts and/or furring from structural steel required for the installation of the screen wall assembly (structural steel frame will be furnished by others)
 - c. Pay close attention to any delegated design requirements in the specifications
 - d. Pay close attention to any building envelope commissioning requirements in the specifications
- C. Temporary power will not be available at the time this work is to be performed. Subcontractor shall anticipate operating off of generators or other appropriate equipment for their operations. Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.
- D. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all

**IU HEALTH CENTRAL UTILITY PLANT
BP-13 METAL PANELS AND SCREEN WALL
Wednesday, February 15, 2023**

necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

- E. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- F. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- G. Subcontractor shall provide a minimum two-year warranty. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- H. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- I. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: \$/SF of metal panel assembly– include furnishing and installing material

UNIT PRICE #2: \$/SF of screen wall assembly– include furnishing and installing material

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide cost for Payment and Performance Bond.

IU HEALTH CENTRAL UTILITY PLANT
BP-13 METAL PANELS AND SCREEN WALL
Wednesday, February 15, 2023

PART 4- PROJECT INFORMATION

Provide the following breakdowns at the time of bid submission. See Bid Form.

1. SF of metal wall panels
2. SF of screen wall assembly

END OF SCOPE OF WORK

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, **2023**

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

- a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of
(Title)

the above _____ and
(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/SF of metal wall panels _____
- b. UNIT PRICE #2: \$/SF of screen wall assembly _____

4. REQUESTED BREAKDOWNS

- a. SF of Metal Wall Panels _____
- b. SF of Screen Wall Assembly _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____ Dollars

- c. ALTERNATE BID NO. 3: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/LF of 36" CHWS/R Piping

\$/LF of 20" HHWS/R Piping

\$/LF of 10" HPS Piping

\$/LF of 4" PCR Piping

\$/LF of 1-1/2" HPSR Piping

- b. UNIT PRICE #2: Unit pricing to replace pump seals and re-align motors (labor and materials):
- | | Seal Replacement | Motor Re-Alignment | Pump ID |
|--|------------------|--------------------|---------|
|--|------------------|--------------------|---------|

Pump 1:	_____	_____	_____
Pump 2:	_____	_____	_____
Pump 3:	_____	_____	_____
Pump 4:	_____	_____	_____
Pump 5:	_____	_____	_____
Pump 6:	_____	_____	_____
Pump 7:	_____	_____	_____

Continue on additional sheet if required.

4. REQUESTED BREAKDOWNS

Cost for firestopping penetrations, total dollars (\$) _____

Cost of Chilled Water Pumps, total dollars (\$) _____

Cost of Heating Hot Water Boilers, total dollars (\$) _____

Linear Feet of 10" HPS pipe in tunnel _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
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COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebos.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1 of the MEP Systems based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The Subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete **Package for Mechanical Piping and Hydronic Equipment** for the Central Utility Plant (CUP) as defined by the mechanical drawings (Pre-fix M). In addition, this shall specifically include, but not be limited to all scheduled equipment, supply & return piping for: chilled water, condenser water, HP steam, condensate, heating hot water, reverse osmosis, chemical treatment, and natural gas, all specialties, valves, sleeves, seals, hangers, supports, meters, gauges, testing, coring, commissioning, freight and labeling.
- C. Provide and install a complete Water Treatment System for the CUP. In addition, this shall specifically include, but not be limited to, scheduled service, chemicals, tanks, pumps, pipe, tubing, secondary containment, valves, injection quills, filters, and equipment. The chemical treatment subcontractor will be responsible for inspecting and accepting the condition of all equipment prior to filling the system.
- D. Heat Tracing for all systems for the CUP shall be provided by the Electrical Subcontractor with the intent of having only one provider of heat tracing on the project. This Subcontractor shall coordinate with the Electrical Subcontractor for the installation of heat tracing for all areas connected to this scope of work.
- E. The Building Management System is not part of this Subcontract and should be excluded. See Building Management System SOW
- F. Insulation of work installed by this Subcontractor is to be included in this scope of work.
- G. Diesel fuel oil piping and equipment is not part of this Subcontract and should be excluded. See Diesel Fuel System SOW.
- H. Test and Balance is a separate bid package to be performed by an independent third party Subcontractor. See Test and Balance SOW. This Subcontractor shall coordinate and support all testing and balancing operations.

IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023

- I. The Subcontractor shall identify, layout and provide equipment weights and anchor patterns for concrete pads to be provided and installed. Equipment pads shown and identified on the structural drawings (Pre-fix S) shall be installed by others. Equipment pads not shown on the structural drawings shall be by the Mechanical Subcontractor. This includes layout for boilers, heat exchanger, chillers, cooling towers, tanks and pumps. It is this Subcontractor's responsibility to coordinate with the Construction Manager with this information.
- J. The Owner has pre-purchased the Chillers and Cooling Towers. Please refer to the Contract Documents for additional information about the equipment selected.
 - (a) Subcontractor is responsible for coordinating shipping, layout, and installation details with the installing contractor.
 - (b) Receipt, handling, and setting of this equipment is by others.
 - (c) Subcontractor is responsible for final connections into Owner-furnished equipment.
 - (d) Subcontractor shall perform startup/testing of this equipment with the assistance of the manufacturer.
 - (e) This Subcontractor shall provide parts, pieces, and labor where Submittals state "by others".
 - (f) Subcontractor is responsible for maintaining this equipment throughout construction.
 - (g) Subcontractor is responsible for turning this equipment over in like new condition at the time of Substantial Completion.
- K. The heavy-duty grate for the 3'x3'x2' drainage pits, shown on P501, are provided by others, and can be excluded by this subcontractor. This subcontractor remains responsible for any modifications to the grating necessary to accommodate proper discharge of your piping systems without excessive splashing.
- L. All bollards shall be furnished and installed by others. It will be this Subcontractor's responsibility to identify and layout appropriate locations for protecting all equipment installed by this Subcontractor.
- M. All ductwork, breeching and stacks related to any of this Subcontractor's equipment should be excluded. See the Mechanical Ductwork & HVAC Equipment SOW.
- N. Low voltage power and communications wiring are not to be included in this scope of work, but it will be this Subcontractor's responsibility to coordinate specific electrical requirements with the Electrical Subcontractor and terminate all low voltage or communications cables within the equipment this Subcontractor is providing or installing.
- O. There will be a pneumatic tube system passing through the CUP installed by another contractor. This installation will require this Subcontractor's cooperation and coordination and may impact the timing of your efforts.
- P. This Subcontractor is to include piping for all condensate drains, flue drains, condensate neutralization kits, and flu-drains which are shown, implied, or can be reasonably inferred from the Mechanical and HVAC drawings (Pre-fix M & H).
- Q. All drainage piping shall be extended into the nearest floor drain, floor sump or trench drain to minimize splashing and maintain a dry floor area.
- R. Chiller refrigerant vent piping and installation of rupture disk or similar is this Subcontractor's responsibility.

IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023

- S. This Subcontractor is responsible for coordinating testing, flushing, and startup of these systems and all related equipment provided. This will require the cooperation of multiple subcontractors. This Subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- T. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of penetrations made during work. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- U. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the subcontractor and are to be included.
- V. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- W. The layout and sizing of equipment housekeeping pads and foundations as it applies to the equipment being provided shall allow for all required maintenance and pull-out clearances required by the equipment being installed.
- X. This Subcontractor is responsible for the fabrication and installation of floor mounted structural pipe supports in the tunnel required to support their work in this construction package.
- Y. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work indicated in this construction package that is not shown in the structural package.
- Z. This Subcontractor shall provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.
- AA. Temporary power is anticipated to be provided by the Construction Manager; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Construction Manager.
- BB. Temporary heat will be provided under Bid Package 14B – Mechanical Ductwork & HVAC Equipment.
- CC. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show locations that have been coordinated with the Construction Manager before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023**

- DD. This Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- EE. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified, the Construction Manager reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this subcontractor.
- FF. The Subcontractor shall keep an up-to-date copy of red lines readily available for review by the Construction Manager. They must be current within ten (10) working days. Failure to do so may delay processing of payment.
- GG. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.
- HH. This Subcontractor shall provide **a minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). For each Bid Item, Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- II. This Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this Subcontractor is to have included, as indicated in the referenced schedule.
- a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- JJ. This Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Construction Manager.
- KK. This Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- LL. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.

IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023

MM.....Not used.

NN. Any excavation deemed necessary to complete this scope of work is the responsibility of this subcontractor. The Subcontractor shall **contact 811** and **Private Utility Locate** prior to any excavation activity. Coordinate all excavation with the Construction Manager to avoid damage to previously installed items and verify allowed depths of excavation.

OO. A full environmental analysis of the current soil conditions has not been completed at this time. The Subcontractor is to assume all material is non-hazardous and can be exported per local regulations. All excess excavated materials must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state and local codes and regulations are to be followed. The Subcontractor is responsible for hauling of materials excavated by this subcontract and any applicable fees.

PP. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.

QQ. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.

RR. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers, and all related equipment necessary for system functionality by March 19, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Any repairs, rework, rerouting, or temporary removal of piping systems for the installation of other work will be the responsibility of this Subcontractor. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to fuel oil systems, softeners, chemical treatment, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Provide a unit cost per linear foot of steel piping to be routed through the tunnel of the following sizes: 36"CHWS/R, 20"HHWS/R, 10" HPS, 4" PCR and 1-1/2" HPSR in accordance with the specifications.

UNIT PRICE #2: Provide unit pricing to replace pump seals and re-align motors. Subcontractor to supply new seals and gaskets as necessary to ensure owner maintains all required spare parts if owner parts are used.

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid.

ALTERNATE #2: Subcontractor shall provide all work associated with the tunnel as an add alternate.

ALTERNATE #3: Subcontractor shall provide a payment and performance bond.

IU HEALTH CENTRAL UTILITY PLANT
BP-14A MECHANICAL PIPING & HYDRONIC EQUIPMENT
Wednesday, February 15, 2023

PART 4- PRICING/QUANTITY BREAKDOWNS

Provide lump sum cost for the following tasks/items:

Cost for firestopping penetrations, total dollars (\$)

Cost of Chilled Water Pumps, total dollars (\$)

Cost of Heating Hot Water Boilers, total dollars (\$)

Linear Feet of 10" HPS pipe in tunnel

END OF SCOPE OF WORK

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.
3. 50% Local Spend

4. XBE Workforce Inclusion of 17% People of Color and 5% Women
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8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____ day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each Partner this _____ day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

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Attach detailed information and associated costs on company letterhead and attach to this bid form.

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Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

- c. ALTERNATE BID NO. 3: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

Unit Cost per fan coil unit serving the tunnel _____

4. REQUESTED BREAKDOWNS (Refer to Bid Package Scope of Work for complete descriptions of each Breakout Price). State amount to be added to or deducted from the Base Bid, should the specific Breakout be accepted.

- a. TEMPORARY HEAT ALLOWANCE FOR PROJECT DURATION

(Add) (Deduct) \$ _____ Dollars

- b. Pricing for final set of filters for:

Make-Up Air Units (MUAs) _____

Air Handling Units (AHUs) _____

- c. Total Cost for Roof Mounted Exhaust Fans _____

- d. Total Cost for HVAC Coils Pumps with Motors _____

- e. Cost for Firestopping Penetrations, total dollars _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

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MBE TOTAL \$ _____ % OF BID: _____
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COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

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[illegible]

IU HEALTH CENTRAL UTILITY PLANT
BP-14B MECHANICAL DUCTWORK & HVAC EQUIPMENT
Wednesday, February 15, 2023



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PART 2- BID PACKAGE CLARIFICATIONS

- A. The Subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete **Package for Mechanical Ductwork and HVAC Equipment** for the Central Utility Plant as defined by the HVAC drawings (Pre-fix H). In addition, this shall specifically include, but not be limited to all scheduled equipment (AHUs, MUAs, BCUs, FCUs, VAVs, Intake Hoods, EFs, CRACs, Filters), Grilles, Registers, Diffusers (GRD), Curbs, Sound Attenuators, Louvers, Ductwork, Accessories, Flexible Connections, Plenum Housings, Dampers, Fire Dampers, Hangers, Mechanical Insulation, High-temperature Insulations, Generator Silencers, Flues, Breechings and labeling.
- C. Low voltage power and communications wiring are not to be included in this scope of work, but it will be this Subcontractor's responsibility to coordinate specific electrical requirements with the electrical subcontractor and terminate all low voltage or communications cables within the equipment this subcontractor is providing or installing.
- D. The Building Management System is not part of this Subcontract and should be excluded. See Building Management System SOW.
- E. Test and Balance is a separate bid package to be performed by an independent third party Subcontractor. See Test and Balance SOW. This Subcontractor shall coordinate and support all testing and balancing operations.
- F. This Subcontract shall exclude piping for condensate drains, flue drains, condensation neutralization kits and all piping shown on Mechanical drawings (Pre-fix M).
- G. Any refrigerant piping that is required for split units, CRACs, or similar equipment is this Subcontractor's responsibility to install, test, insulate, and charge. Refrigerant vent piping related to chillers is not within this scope of work.
- H. Insulation of work installed by this subcontractor is to be included in this scope of work.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14B MECHANICAL DUCTWORK & HVAC EQUIPMENT
Wednesday, February 15, 2023**

- I. This Subcontractor to set rooftop curbs and rails for his equipment, cut and remove the metal deck, provide fall protection, and leave the curb weathertight. Sloped curbs are to be provided by this Subcontractor. All curbs are to be installed level and parallel or perpendicular to surrounding points of reference, as determined by the Contractor. Under no circumstances should blocking exceed 1-1/2".
- J. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of penetrations made during work. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- K. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the subcontractor and are to be included.
- L. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- M. The Subcontractor shall identify, layout and provide equipment weights and anchor patterns for concrete pads to be provided and installed. Equipment pads shown and identified on the structural drawings (Prefix S) shall be installed by others. Equipment pads not shown on the structural drawings shall be by this Mechanical Contractor. This includes layout for air handling units, make-up air units, filters, tanks and pumps. It is this Subcontractors responsibility to coordinate with the Construction Manager with this information.
- N. This Subcontractor shall provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.
- O. This Subcontractor shall coordinate with the Construction Manager and Mechanical Piping/Hydronic Equipment Contractor for the installation of boiler stacks, vents and breechings.
- P. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work indicated in this construction package that is not shown in the structural package.
- Q. All bollards shall be furnished and installed by others. It will be this Subcontractor's responsibility to identify and layout appropriate locations for protecting all equipment installed by this Subcontractor.
- R. Temporary power is anticipated to be provided by the Contractor; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Contractor.
- S. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show crane locations that have been coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway

IU HEALTH CENTRAL UTILITY PLANT
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trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

- T. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- U. Any excavation deemed necessary to complete this scope of work is the responsibility of this subcontractor. The Subcontractor shall **contact 811 and Private Utility Locate** prior to any excavation activity. Coordinate all excavation with the Construction Manager to avoid damage to previously installed items and verify allowed depths of excavation.
- V. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified contractor reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this subcontractor.
- W. This Subcontractor shall provide an allowance for all temporary heat through the duration of the project. This will include set up and erection of partitions, providing indirect-fired and/or direct-fired heating devices and proper adequate ventilation of temporary enclosed spaces. All work shall be done in accordance with OSHA 1926.154.
- X. This Subcontractor is responsible for coordinating the testing and startup of these systems and all related equipment they provide. This will require the cooperation of multiple subcontractors. This subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- Y. The Subcontractor shall keep an up-to-date copy of red lines readily available for review by the Construction Manager. They must be current within ten (10) working days. Failure to do so may delay processing of payment.
- Z. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.
- AA. Subcontractor shall provide **a minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). For each Bid Item, Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- BB. Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this Subcontractor is to have included, as indicated in the referenced schedule.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14B MECHANICAL DUCTWORK & HVAC EQUIPMENT
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- a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- CC. Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Construction Manager.
- DD. Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- EE. The Owner has not pre-purchased any equipment to be assigned to this package.
- FF. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.
- GG. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- HH. Make-up Air Units (MAUs) will be started and operational while construction activities are still ongoing. Other equipment may also be started while construction activities are still occurring. It will be this Subcontractor's responsibility to provide filter changes as recommended by the manufacturer or visual inspection to protect all operating equipment. It will also be this Subcontractor's responsibility to protect all ductwork, GRD, and related equipment, as determined by the Construction Manager, from contamination while these systems are operating. A final set of filters is to be included and installed at the completion of all construction activities but not prior to substantial completion.
- II. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers and all related equipment necessary for system functionality by March 19, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Any repairs, rework, rerouting, or temporary removal of duct systems for the installation of other work will be the responsibility of this Subcontractor. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to fuel oil systems, softeners, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Provide a unit cost for the fan coil units serving the tunnel.

**IU HEALTH CENTRAL UTILITY PLANT
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ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Subcontractor shall provide a payment and performance bond.

ALTERNATE #3: Subcontractor shall provide all work associated with the tunnel as an add alternate.

PART 4- PROJECT INFORMATION

Provide the following breakout prices:

- A. Pricing for Temporary Heat for duration of project. Includes indirect and direct-fired heaters, partitions and setup per OSHA guidelines.
- B. Pricing for final set of filters for (1) MAUs and (2) AHUs.
- C. Total cost for Roof Mounted Exhaust Fans, total dollars (\$)
- D. Total cost for HVAC Coils Pumps with Motors, total dollars (\$)
- E. Cost for firestopping penetrations, total dollars (\$)

END OF SCOPE OF WORK

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/Gal for additional delivered fuel _____

4. REQUESTED BREAKDOWNS (Refer to Bid Package Scope of Work for complete descriptions of each Breakout Price). State amount to be added to or deducted from the Base Bid, should the specific Breakout be accepted.

- a. DIESEL FUEL PRICE FOR:
START-UP AND TESTING (\$)

FINAL TOP-OFF (\$)

- b. PRICING FOR DIESEL TANKS, TOTAL COST:

- c. COST FOR FIRESTOPPING PENETRATIONS(\$)

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-14C DIESEL FUEL SYSTEM

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1 of the MEP Systems based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete **Diesel Fuel System** for the Central Utility Plant. In addition, this shall specifically include, but not be limited to underground tanks, day tanks, pumps, fuel, filter/polishers, master controllers, leak detection systems, remote fill stations, concrete hold-down pads, freight, PVF specialties, valves, double and single wall pipe, hangers, containment pumps, testing, coring, permits and labeling.
- C. Medium and low voltage power and communications wiring are not to be included in this scope of work, but it will be this Subcontractor's responsibility to coordinate specific electrical requirements with the Electrical Subcontractor and terminate all low voltage or communications cables within the equipment this Subcontractor is providing or installing.
- D. This Subcontractor is responsible for coordinating the testing, flushing and startup of this system. This will require the cooperation of multiple subcontractors. This Subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- E. Test and Balance is not part of this Subcontract and should be excluded. See Test and Balance SOW.
- F. The Subcontractor is responsible for excavating, shoring, bracing, water removal, complete backfill of excavations and all OSHA required safety measures required for the installation of the underground storage tanks. The Subcontractor shall **contact 811 and Private Utility Locate** prior to any excavation activity. Coordinate all excavation with the Construction Manager to avoid damage to previously installed items and verify allowed depths of excavation.
- G. A full environmental analysis of the current soil conditions has not been completed at this time. The Subcontractor is to assume all material is non-hazardous and can be exported per local regulations. All excess excavated materials must be hauled off and disposed of lawfully at an approved dumpsite. All

**IU HEALTH CENTRAL UTILITY PLANT
BP-14C DIESEL FUEL SYSTEM
Wednesday, February 15, 2023**

federal, state and local codes and regulations are to be followed. The Subcontractor is responsible for hauling of materials excavated by this subcontract and any applicable fees.

- H. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the subcontractor and are to be included.
- I. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- J. The Subcontractor shall identify, layout and provide equipment weights (dry and operating) and anchor patterns for concrete pads to be provided and installed. Equipment pads shown and identified on the structural drawings (Pre-fix S) shall be installed by others. Equipment pads not shown on the structural drawings shall be by the Mechanical Contractor. This includes layout for tanks, filters and pumps. It is this Subcontractors responsibility to coordinate with the Construction Manager with this information.
- K. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work indicated for the Diesel Fuel System package that is not shown in the structural package.
- L. This Subcontractor is responsible to provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.
- M. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of penetrations made during work. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- N. Temporary power is anticipated to be provided by the Construction Manager; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Construction Manager.
- O. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show crane locations that have been coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. . Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- P. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the

**IU HEALTH CENTRAL UTILITY PLANT
BP-14C DIESEL FUEL SYSTEM
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interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.

- Q. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified contractor reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this subcontractor.
- R. The Subcontractor shall keep an up-to-date copy of red lines readily available for review by the Construction Manager. They must be current within ten (10) working days. Failure to do so may delay processing of payment.
- S. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.
- T. Subcontractor shall provide **a minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). For each Bid Item, Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- U. Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- V. Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Contractor.
- W. Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- X. The Owner has not pre-purchased any equipment to be assigned to this package.
- Y. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14C DIESEL FUEL SYSTEM
Wednesday, February 15, 2023**

- Z. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- AA. This Subcontractor shall include 31,013 gallons of fuel for Startup and Testing and 156,002 gallons of fuel for a Final Top-Off of the system.
- BB. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers, and all related equipment necessary for system functionality by March 19, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to; fuel oil systems, softeners, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Provide per gallon price for additional delivered fuel.

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Subcontractor shall provide a payment and performance bond.

PART 4- PROJECT INFORMATION

Provide the following breakout price:

- A. Diesel Fuel prices for (1) Startup and Testing and (2) Final Top-Off.
- B. Pricing for Diesel Tanks, total cost (\$)
- C. Cost for Firestopping Penetrations, total dollars (\$)

END OF SCOPE OF WORK

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, **2023**

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

- a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.
3. 50% Local Spend

4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____ day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each Partner this _____ day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____
_____ Dollars

- c. ALTERNATE BID NO. 3: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____
_____ Dollars

3. UNIT PRICES

Not used.

4. REQUESTED BREAKDOWNS

Cost for Firestopping Penetrations, total dollars(\$) _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT
BP-14E BUILDING MANAGEMENT SYSTEM
Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1 of the MEP Systems based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The Subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete **Building Management System** for the Central Utility Plant. In addition, this Subcontractor shall specifically include, but not be limited to, a Direct Digital Control (DDC) System for HVAC, low voltage wiring, communications wiring, conduit, control panels, sensors, control valves, control dampers, energy meters, flow instruments, leak detection, position instruments, pressure instruments, temperature instruments, vibration instruments, weather stations, actuators, programming, graphics, and training & support.
- D. This Subcontractor is responsible for coordinating testing and startup of this system. This will require the cooperation of multiple subcontractors. This Subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- E. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of their penetrations. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- F. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the subcontractor and are to be included.
- G. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- H. This Subcontractor is responsible to assist other trades with the layout and sizing of equipment housekeeping pads, and foundations as it applies to the equipment they are providing or installing.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14E BUILDING MANAGEMENT SYSTEM
Wednesday, February 15, 2023**

- I. This Subcontractor is responsible to provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.
- J. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work including all equipment and conduit indicated in this construction package.
- K. Temporary power is anticipated to be provided by the Construction Manager; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Construction Manager.
- L. This Subcontractor shall provide all ladders, scaffold stairs, lifts, or other means for access for employees to their working locations.
- M. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show locations have been coordinated with the Construction Manager before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. . Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- N. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- O. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified, the Construction Manager reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this Subcontractor.
- P. The Subcontractor shall keep an up-to-date copy of red lines readily available for review by the Construction Manager. They must be current within ten (10) working days. Failure to do so may delay processing of payment.
- Q. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.

**IU HEALTH CENTRAL UTILITY PLANT
BP-14E BUILDING MANAGEMENT SYSTEM
Wednesday, February 15, 2023**

- R. Subcontractor shall provide a **minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). For each Bid Item, the Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- S. Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- T. This Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Construction Manager.
- U. This Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- V. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.
- W. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- X. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers, and all related equipment necessary for system functionality by March 19, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Any repairs, rework, rerouting, or temporary removal of control systems for the installation of other work will be the responsibility of this Subcontractor, if affected. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to fuel oil systems, softeners, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternate at the time of bid submission. See Bid Form.

- A. **UNIT PRICE #1:** Not Used.
- B. **ALTERNATE #1:** Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base

**IU HEALTH CENTRAL UTILITY PLANT
BP-14E BUILDING MANAGEMENT SYSTEM
Wednesday, February 15, 2023**

bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

C. **ALTERNATE #2:** Subcontractor shall provide all work associated with the tunnel as an add alternate.

D. **ALTERNATE #3:** Subcontractor shall provide a payment and performance bond.

PART 4- PRICING/QUANTITY BREAKDOWNS

Provide lump sum cost for the following tasks/items:

Cost for firestopping penetrations, total dollars (\$)

END OF SCOPE OF WORK

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.

3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by

each Partner this _____day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____ Dollars

- c. ALTERNATE BID NO. 3: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

- d. ALTERNATE BID NO. 4: PROVIDE ZURN Z-1322-EZ OR EQUAL

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

- a. UNIT PRICE #1: \$/Ton for Brine tank salt.

4. REQUESTED BREAKDOWNS

Cost for Firestopping Penetrations, total dollars (\$)

Total Cost of Plumbing Pumps, total dollars (\$)

Total Cost of Plumbing Fixtures, total dollars (\$)

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-14F PLUMBING

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1 of the MEP Systems based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete **Plumbing System** for the Central Utility Plant as defined by the plumbing drawings (Pre-fix P). This shall specifically include, but not be limited to piping for domestic water, sanitary waste and vent, storm drainage, natural gas, compressed air, make-up water, plumbing fixtures per schedule, drainage fixtures per schedule, plumbing equipment per schedule, tunnel ramp drainage system, water softening system, valves, fittings, specialties, hangers, testing, coring, freight, permits, and labeling.
- C. The Diesel Fuel System, including diesel oil piping, equipment, installation and excavation, is not part of this Subcontract and should be excluded. See Diesel Fuel System SOW.
- D. Test and Balance is a separate bid package to be performed by an independent third party Subcontractor. See Test and Balance SOW. This Subcontractor shall coordinate and support all testing and balancing operations.
- E. Heat Tracing for all systems for the CUP shall be provided by the Electrical Subcontractor with the intent of having only one provider of heat tracing on the project. This Subcontractor shall coordinate with the Electrical Subcontractor for the installation of heat tracing for all areas connected to this scope of work.
- F. The heavy-duty grates for the 3'x3'x2' drainage pits, shown on P501, are provided by others and can be excluded by this Subcontractor. This Subcontractor remains responsible for the floor sink in this location and any modifications to the grating necessary to accommodate proper discharge of your piping systems without excessive splashing.
- G. Insulation of work installed by this Subcontractor is to be included in this scope of work.
- H. Excavation and foundations for underground tanks (except diesel tanks) are provided by this Subcontractor.

IU HEALTH CENTRAL UTILITY PLANT
BP-14F PLUMBING
Wednesday, February 15, 2023

- I. Subcontractor shall include excavation and backfill deemed necessary to complete this scope of work as the responsibility of this subcontractor. The Subcontractor shall **contact 811** and **Private Utility Locate** prior to any excavation activity. Coordinate all excavation with the Construction Manager to avoid damage to previously installed items and verify allowed depths of excavation.
- J. A full environmental analysis of the current soil conditions has not been completed at this time. The Subcontractor is to assume all material is non-hazardous and can be exported per local regulations. All excess excavated materials must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state and local codes and regulations are to be followed. The Subcontractor is responsible for hauling of materials excavated by this subcontract and any applicable fees.
- K. Low voltage power and communications wire are not to be included in this scope of work, but it will be this Subcontractor's responsibility to coordinate specific electrical requirements with the Electrical Subcontractor and terminate all low voltage and communications cables within the equipment this Subcontractor is providing or installing.
- L. This Subcontractor is responsible for coordinating testing, flushing, and startup of this system. This will require the cooperation of multiple subcontractors. This Subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- M. All potability testing is to be included by this Subcontractor. Multiple tests may need to be conducted and are to be included as necessary.
- N. All bollards shall be furnished and installed by others. It will be this Subcontractor's responsibility to identify and layout appropriate locations for protecting all equipment installed by this Subcontractor.
- O. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work including all equipment and piping indicated in this construction package that is not shown on the structural drawings.
- P. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of penetrations made during work. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- Q. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the Subcontractor and are to be included.
- R. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- S. This Subcontractor is responsible to assist other trades with the layout and sizing of equipment housekeeping pads, and foundations as it applies to the equipment they are providing or installing.
- T. This Subcontractor is responsible to provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.

IU HEALTH CENTRAL UTILITY PLANT
BP-14F PLUMBING
Wednesday, February 15, 2023

- U. Temporary power is anticipated to be provided by the Construction Manager; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Construction Manager.
- V. This Subcontractor shall provide all ladders, scaffold stairs, lifts, or other means for access for employees to their working locations.
- W. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show locations that have been coordinated with the Construction Manager before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- X. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- Y. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified, the Construction Manager reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this Subcontractor.
- Z. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.
- AA. Subcontractor shall provide **a minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). Each Bid Item Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- BB. Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services

**IU HEALTH CENTRAL UTILITY PLANT
BP-14F PLUMBING
Wednesday, February 15, 2023**

- b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- CC. Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Construction Manager.
- DD. Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- EE. A full load of salt is to be provided with the domestic water softening system at startup. All salt necessary for startup of the softener system will be this Subcontractor's responsibility. At substantial completion this Subcontractor will provide a final full fill of the brine tank for Owner's use.
- FF. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.
- GG. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- HH. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers, and all related equipment necessary for system functionality by March 1st, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Any repairs, rework, rerouting, or temporary removal of piping systems for the installation of other work will be the responsibility of this Subcontractor, if affected. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to; fuel oil systems, softeners, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Per ton price for brine tank salt.

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide Zurn Z-1322-EZ or similar cored opening wall hydrant in lieu of scheduled product.

IU HEALTH CENTRAL UTILITY PLANT
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Wednesday, February 15, 2023

ALTERNATE #3: Subcontractor shall provide all work associated with the tunnel as an add alternate.

ALTERNATE #4: Subcontractor shall provide a payment and performance bond.

PART 4- PRICING BREAKDOWNS

Provide lump sum costs for the following tasks/items:

Cost for firestopping penetrations, total dollars (\$)

Total cost of Plumbing Pumps, total dollars (\$)

Total cost of Plumbing Fixtures, total dollars (\$)

END OF SCOPE OF WORK

2. Addendum No. _____ Dated _____

3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of God, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities.
3. 50% Local Spend

4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____ day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _____ President

By: _____ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each Partner this _____ day of _____, 2023.

By: _____ Partner

By: _____ Partner

By: _____ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of

(Title)

the above _____ and

(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

(Add) (Deduct) \$ _____ Dollars

- c. ALTERNATE BID NO. 2: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

(Add) (Deduct) \$ _____ Dollars

3. UNIT PRICES

Provide unit prices for each type of sprinkler head to be installed on the job site. An attachment may be provided.

4. REQUESTED BREAKDOWNS

Cost for Firestopping Penetrations, total dollars _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

IU HEALTH CENTRAL UTILITY PLANT

BP-14G FIRE SUPPRESSION

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1 of the MEP Systems based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The Subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. Provide and install a complete, fully functional **Fire Suppression System** for the Central Utility Plant as defined by the fire protection drawings (Pre-fix FP). In addition, this shall specifically include, but not be limited to, split-case and vertical fire pumps, pipe, valves, fittings (PVF), specialties, clean agent system, wet-pipe system, dry-pipe system, preaction system, standpipes, drains, all scheduled equipment, control panels, flow switches, pressure gauges, signage, fire department connections, testing, coring, permits and labeling.
- C. Programming of the pre-action and all other panels provided by this Subcontractor is to be included in this scope of work.
- D. Pressure testing of MDF Data Room, Switchgear Room or other spaces as required for clean agent systems will be this Subcontractor's responsibility.
- E. Low voltage power and communications cables are not to be included in this scope of work, but it will be this subcontractor's responsibility to coordinate specific electrical requirements with the Electrical Subcontractor and terminate all low voltage or communications cables within the equipment this Subcontractor is providing or installing.
- F. This Subcontractor is responsible for coordinating testing, flushing, and startup of this system. This will require the cooperation of multiple subcontractors. This Subcontractor is expected to coordinate with the Construction Manager concerning those activities.
- G. This Subcontractor is responsible to coordinate and manage all testing, certifications, and permit applications required by the Fire Marshall or other Authority Having Jurisdiction (AHJ).

**IU HEALTH CENTRAL UTILITY PLANT
BP-14G FIRE SUPPRESSION
Wednesday, February 15, 2023**

- H. This Subcontractor is responsible for caulking, fire caulking, and fire stopping of their penetrations. Both sides of any wall penetration are to be caulked unless prohibited by manufacturer instructions or AHJ.
- I. Multiple mobilizations, if required to fulfill the terms of the contract, may be required by the Subcontractor and are to be included.
- J. This Subcontractor is expected to pre-fabricate all systems offsite utilizing fully coordinated shop fabrication drawings. All systems should be shipped to the site in the longest allowable lengths fully cleaned, capped, and protected as necessary for a quality installation. Field welding and fabrication should be kept to an absolute minimum. All work should be supervised and installed by craftsmen with experience on similar projects.
- K. This Subcontractor is responsible to assist other trades with the layout and sizing of equipment housekeeping pads, and foundations as it applies to the equipment they are providing or installing.
- L. The Subcontractor shall identify, layout and provide equipment weights and anchor patterns for concrete pads to be provided and installed. Equipment pads shown and identified on the structural drawings (Prefix S) shall be installed by others. Equipment pads not shown on the structural drawings shall be by this Subcontractor. This includes layout for tanks and pumps. It is this Subcontractor's responsibility to coordinate with the Construction Manager with this information.
- M. All bollards shall be furnished and installed by others. It will be this Subcontractor's responsibility to identify and layout appropriate locations for protecting all equipment installed by this Subcontractor.
- N. This Subcontractor is responsible to provide fully dimensioned wall and floor penetration layout drawings and install sleeves in foundations and slabs as necessary for their work.
- O. All drainage piping shall be extended into the nearest floor drain, floor sump or trench drain to minimize splashing and maintain a dry floor area, as applicable.
- P. This Subcontractor is responsible for the fabrication and installation of support steel required to support their work including all equipment and piping indicated in this construction package that is not shown on the structural drawings.
- Q. Temporary power is anticipated to be provided by the Construction Manager; however, Subcontractor's operations shall not be dependent on any temporary construction electrical power supplied by the Owner or Construction Manager.
- R. This Subcontractor is responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Provide crane plans that show locations that have been coordinated with the Construction Manager before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.

IU HEALTH CENTRAL UTILITY PLANT
BP-14G FIRE SUPPRESSION
Wednesday, February 15, 2023

- S. Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- T. This Subcontractor shall coordinate all coating systems and their locations to ensure all materials and equipment that are exterior and/or exposed to weather have the appropriate coating. All finishes and tolerances shall be in accordance with the specifications. If the finish or material type is not specified, the Construction Manager reserves the right to direct the use of 304SS. Touch-up patching and painting is also the responsibility of this Subcontractor.
- U. This Subcontractor is responsible for all excavation and backfill required by this scope of work with the exception of the in-ground fire protection water storage tank. The Subcontractor shall **contact 811 and Private Utility Locate** prior to any excavation activity. Coordinate all excavation with the Construction Manager to avoid damage to previously installed items and verify allowed depths of excavation.
- V. A full environmental analysis of the current soil conditions has not been completed at this time. The Subcontractor is to assume all material is non-hazardous and can be exported per local regulations. All excess excavated materials must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state and local codes and regulations are to be followed. The Subcontractor is responsible for hauling of materials excavated by this subcontract and any applicable fees.
- W. The Subcontractor shall keep an up-to-date copy of red lines readily available for review by the Construction Manager. They must be current within ten (10) working days. Failure to do so may delay processing of payment.
- X. This Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the Construction Manager reserves the right to hold retainage in excess of the value of the work. This Subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Construction Manager to review.
- Y. This Subcontractor shall provide **a minimum two-year warranty**. These warranties shall start on the day of SUBSTANTIAL COMPLETION and NOT the day the equipment/work was shipped, completed, started, or any other day (even if the specification states another day). For each Bid Item, the Subcontractor shall include any extra costs in the base bid to extend the manufacturer's warranty if the manufacturer's standard warranty does not start on the date of substantial completion.
- Z. This Subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load

**IU HEALTH CENTRAL UTILITY PLANT
BP-14G FIRE SUPPRESSION
Wednesday, February 15, 2023**

- AA. This Subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Construction Manager.
- BB. This Subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- CC. The approximate milestone schedule dates for this Subcontract shall be per the attached project schedule.
- DD. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- EE. Per the attached *Early Services Plan* it will be necessary to install and start chillers, cooling towers, hot water boilers, and all related equipment necessary for system functionality by March 19, 2025, to ensure heating and cooling services are available to IU Health Campus. This will require piping to these systems to be installed, flushed, tested, and insulated earlier than normal. Any repairs, rework, rerouting, or temporary removal of piping systems for the installation of other work will be the responsibility of this Subcontractor, if affected. Systems required for the early startup of the chillers, towers, boilers and pumps include, but are not limited to; fuel oil systems, softeners, expansion tanks, back-flow preventers, flues, and insulation. Refer to the attached schedule for expected startup dates.

PART 3- PRICING ALTERNATES

Provide the following Unit Prices and Alternates at the time of bid submission. See Bid Form.

UNIT PRICE #1: Provide unit prices for each type of sprinkler head to be installed on the job site.

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Subcontractor shall provide all work associated with the tunnel as an add alternate.

ALTERNATE #3: Subcontractor shall provide a payment and performance bond.

PART 4- PRICING/QUANTITY BREAKDOWNS

Provide lump sum cost for the following tasks/items:

Cost for firestopping penetrations, total dollars (\$)

END OF SCOPE OF WORK

2. ADDENDA

a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____
2. Addendum No. _____ Dated _____
3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities
3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____ day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _ President

By: _ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each

Partner this _____ day of _____, 2023.

By: _ Partner

By: _ Partner

By: _ Partner

ACKNOWLEDGEMENT:

STATE OF)
COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of
(Title)

the above _____ and
(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

3.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

\$ _____ Dollars

- c. ALTERNATE BID NO. 3: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

\$ _____ Dollars

- d. ALTERNATE BID NO. 4: CHANGE FROM ALUMINUM TO COPPER ALL PANEL FEEDERS ABOVE 150 AMPS

\$ _____ Dollars

- e. ALTERNATE BID NO. 5: RECEIPT OF / STORAGE / RIGGING / INSTALLATION of owner purchased equipment. (DEDUCT)

\$ _____ Dollars

- f. ALTERNATE BID NO. 6: ADD TO INTALL 6 ELECTRICAL MANHOLES AND ASSOCIATED DUCTBANK

\$ _____ Dollars

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

BID FORM ATTACHMENT 4 – ESTIMATED QUANTITIES

1. 4" Conduit	_____	LF Building only
2. 5" Conduit	_____	LF Building only
3. 6" Conduit	_____	LF Building only
4. 15 KV Cable	_____	LF Building only
5. 15 KV Cable to Hospital	_____	LF
6. Light Fixtures	_____	QTY
7. Labor Force Field Hours	_____	# of Hours
8. Peak Manpower	_____	# of People
9. Firestopping	\$_____	

IU HEALTH CENTRAL UTILITY PLANT

BP-15 A Electrical

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. The subcontractor shall review all documents and is responsible for all work as shown or called out on these documents for a complete system.
- C. The subcontractor shall be responsible for excavation and backfill for all earthwork required for the completion of the electrical systems.
- D. All excess excavated materials (non-hazardous) must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state, and local codes and regulations are to be followed. The Subcontractor is responsible for all hauling of materials excavated by this subcontract, and any applicable fees, required to complete the work. Make sure the earthwork contractor you select is aware of these requirements.
- E. A full environmental analysis of the current soil conditions has not been completed at this time. Subcontractor is to assume all material is non-hazardous and can be exported per local regulations.
- F. The subcontractor shall be responsible for the coordination of all block outs and sleeves, with the concrete contractor, as required for routing of the electrical systems. Any penetrations that are missed will be the responsibility of this subcontractor
- G. The subcontractor shall be responsible for firestopping of penetration for the electrical work
- H. The subcontractor shall be responsible for layout of all areas where the work applies. Control points will be provided by Others.
- I. The subcontractor shall be responsible for all equipment pads necessary for your work, not shown on the structural drawings.

IU HEALTH CENTRAL UTILITY PLANT
BP-15 A Electrical
Wednesday, February 15, 2023

- J. The subcontractor shall be responsible for installation and maintenance of temporary power. There will be a 480-volt source available within 100 feet of the building. You will be responsible for providing 480 208/120 distribution on all levels. You will be responsible for lighting and maintenance of lighting.
- K. The Subcontractor shall be responsible for all hoisting that may be required for the performance of this Scope of Work. This includes cranes, forklifts, man lifts, scaffolding, ladders, operators, traffic control, barricades, flagmen, labor and material for rigging, timber matting or steel plate as required for stability of cranes, equipment and personnel certifications/inspections, and other incidental equipment associated with material hoisting for this Scope of Work. Crane locations shall be coordinated with the Contractor before erection. This Subcontractor shall be responsible for the verification of subgrade stability. Provide all equipment and load testing, including weights, required to comply with all applicable codes and safety requirements before the construction use of each crane. Include application and procurement of all necessary permits, including but not limited to highway trucking permits, road closure permits, and FAA permits (including annual renewal) as required by Federal, State, and Local codes and the Contract Documents. Provide all work associated with the installation and maintenance of all permit requirements. Any crane path must be coordinated to avoid imposing loads on adjacent foundations or below-grade components.
- L. The Subcontractor will be responsible for the receipt of, storage of, and delivery to the site of all owner purchased electrical equipment. A detailed delivery schedule will be developed and will need your input as to how you need shipments to perform your work.
- M. The documents show nine generators with a spare. There are only going to be 8 generators. The line up will be Gen1, Gen2, Gen3, Gen4, with Gen5 as a future on one side and Gen6, Gen7, Gen8, Gen9, with Gen10 as a future on the other side,
- N. The subcontractor shall be responsible for the assembly and interconnection for a complete and functioning system of all of the owner purchased electrical gear
- O. The Subcontractor shall be aware that the work of this contract is in proximity to an active interstate and neighboring businesses. Special provisions are required if the crane used for the work of this subcontract has a horizontal boom length long enough to reach any of these entities. Plan the work so that the position of the crane and boom length is utilized to complete the work so that it is not possible to foul the interstate property or businesses under any circumstance. This Subcontract is responsible for all costs required by INDOT if a plan cannot be created to meet the requirements stated above.
- P. The Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- Q. The Subcontractor shall keep an up-to-date electronic copy of red lines readily available for review by the construction manager. They must be current within 10 working days. Failure to do so may delay processing of payment.
- R. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.

IU HEALTH CENTRAL UTILITY PLANT
BP-15 A Electrical
Wednesday, February 15, 2023

- S. Early services will require normal power tested and energized by March 19th 2025
- T. The Subcontractor shall be responsible for providing and installing all heat trace and shall coordinate its installation with the mechanical contractor.
- U. The Subcontractor shall provide adequate labor sources to meet the schedule.
- V. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- W. The quantities that are being asked for are for comparison to budget and that you have a complete understanding of the project.
- X. The subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3, Full Load
- Y. The subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Contractor.
- Z. The subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- AA. The subcontractor is responsible to provide and install the 6 electrical manholes and associated duct bank at the CUP. Include all excavation and rigging to complete your work.
- BB. The subcontractor is responsible for the installation, termination, and testing of the 15KV feeds to the hospital.

PART 3- SCOPE FOR 15A

Including but not limited to:

1. Bid documents.
 - a. Drawings
 - b. Specifications
2. Grounding System
3. Lightning Protection
4. Arc Flash
5. Heat Trace
6. 120/208 V System
7. 277/480 V System
8. 4160 V System
9. 13.2 KV System
10. UPS
11. Lighting
12. Lighting Control
13. Receive and set owner purchased equipment.
 - a. Switchgear
 - b. Paralleling gear
 - c. Automatic Transfer Switches
 - d. Generators
14. QA QC Program
15. Manpower Curve Labor
16. Manholes
17. Ductbanks

PART 4- ESTIMATED QUANTITIES

- | | | |
|----------------------------|----------|------------------|
| 1. 4" Conduit | _____ | LF Building only |
| 2. 5" Conduit | _____ | LF Building only |
| 3. 6" Conduit | _____ | LF Building only |
| 4. 15 KV Cable | _____ | LF Building only |
| 5. 15 KV Cable to Hospital | _____ | LF |
| 6. Light Fixtures | _____ | QTY |
| 7. Labor Force Field Hours | _____ | # of Hours |
| 8. Peak Manpower | _____ | # of People |
| 9. Firestopping | \$ _____ | |

PART 5- ALTERNATES

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide added cost for Payment and Performance Bond.

ALTERNATE #3: Provide added cost for all work associated with the Tunnel.

ALTERNATE #4: Provide added cost to change from aluminum to copper all panel feeders above 150 amps.

ALTERNATE #5: Provide deduct for receipt of / storage / rigging / installation of owner purchased equipment.

ALTERNATE #6: Provide add for electrical manholes and associated duct bank at the CUP.

PART 6- PROJECT INFORMATION

CONTRACTOR'S BID ON: **IU HEALTH CENTRAL UTILITY PLANT (CUP)**
 13th AND SENATE
 INDIANAPOLIS, IN 46202

DATE: _____, 2023

TO: **WEDDLE BROS. BUILDING GROUP, LLC**
 2182 West Industrial Park Drive
 Bloomington, Indiana 47404

SUBMITTED BY:

Bidder: (firm) _____

Address: _____

City/State/Zip: _____

Telephone #: _____

Contact: _____

Title: _____

Pursuant to notices given, the undersigned proposes to furnish all material and labor, and perform all work necessary to complete **IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana**, in accordance with Contract Documents, prepared by Applied Engineering Services, Inc. and their consultants, and all Addenda acknowledged herein:

1. BIDDER'S CERTIFICATION

- a. The undersigned Bidder certifies that he/she has examined and fully comprehends the bidding requirements, the Conditions of the Contract, and the requirements and intent of the Bidding Documents.
- b. The undersigned Bidder certifies that he/she has visited the site(s) and examined all conditions affecting the Work.
- c. The undersigned Bidder certifies that applicable federal and Indiana state taxes are included in the Base Bid and the Alternate Proposals.
- d. The undersigned Bidder certifies that allowances described in the Bid Package Scope of Work are included in the Base Bid and Alternate Bids as specified.

2. ADDENDA

a. The undersigned Bidder acknowledges receipt of the following Addenda:

1. Addendum No. _____ Dated _____
2. Addendum No. _____ Dated _____
3. Addendum No. _____ Dated _____

3. ACKNOWLEDGEMENT

The undersigned Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding process. This bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date prescribed for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the opening of this bid, or at any time thereafter before it is withdrawn, the undersigned will execute and deliver the Contract Documents to the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the proof of insurance coverage, within ten (10) days after personal delivery or after deposit in the mail of acceptance of bid.

4. TIME OF COMPLETION

The Bidder agrees that, if awarded the Contract, the Project will commence and complete per the schedule contained in the bid documents, ready for occupancy by the Owner, except for delays caused by Strikes, Acts of god, or other causes beyond the Contractor's control.

5. TAX EXEMPTIONS

The undersigned Bidder has informed himself and all his prospective subcontractors and suppliers of the tax-exempt status of the Owner, as set forth in the Special Conditions, and therefore, has not included these taxes in his Lump Sum Base Bid price.

6. SUBSTITUTIONS

The undersigned Bidder has based his/her bid upon the materials, products, articles, equipment, brands, manufacturers and processes described in the Bidding Documents or upon approved equivalents. Proof of equivalency of substitutions is the responsibility of the Bidder, but the Architect shall be the sole judge of equivalency. Proposed equivalent substitutions shall be equal in all respects to the requirements of the Bidding Documents, including but not limited to the design, quality, physical size, performance characteristics, strength, previous history of use, and to the method of installation, attachment, or connection to related or adjoining work. Determination of equivalency of proposed substitutions shall be made by the Architect before the bid opening date.

7. ADDITIONAL CERTIFICATIONS

The documents attached to this bid form certify the following:

1. Base bid cost with any unit costs and / or alternates
2. XBE efforts toward the required 30% goal for MBE, WBE, VBE entities
3. 50% Local Spend
4. XBE Workforce Inclusion of 17% People of Color and 5% Women
5. Listing of Subcontractors and Suppliers.

8. SIGNATURES

In testimony whereof, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and fixed its corporate seal this _____ day of _____, 2023.

Notice: No bid is valid unless signed by the person making the proposal. If the bidder is a corporation, a person authorized to execute bids on behalf of the Corporation shall sign the bid with the name of the Corporation. If the bidder is a partnership, the bid shall be signed with the partnership name and by one of its partners.

Corporation Signatures:

By: _ President

By: _ Secretary

Corporate Seal

Partnership Signatures:

In testimony whereof, the Bidder (a Partnership) has caused this proposal to be signed by each

Partner this _____ day of _____, 2023.

By: _ Partner

By: _ Partner

By: _ Partner

ACKNOWLEDGEMENT:

STATE OF)

COUNTY OF)

_____, being duly sworn,

deposes and says that he/she is _____ of
(Title)

the above _____ and
(Name of Organization)

that the statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2023.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID FORM ATTACHMENT 1 – BID AMOUNT, ALTERNATES, UNIT PRICES, REQUESTED BREAKDOWNS

1. BASE BID FOR THE WORK: IU HEALTH CENTRAL UTILITY PLANT, Indianapolis, Indiana.

Sum of Total Base Bid in Words:

_____ Dollars

\$ _____

(Show Bid Amounts in both words and figures. In the case of discrepancy between the words and the figures, the words shall govern.)

2. ALTERNATE BIDS FOR THE WORK (Refer to Bid Package Scope of Work for complete descriptions of each Alternate Bid). State amount to be added to or deducted from the Base Bid, should the specific Alternate Bid be accepted.

3.

- a. ALTERNATE BID NO. 1: VOLUNTARY ALTERNATES

Attach detailed information and associated costs on company letterhead and attach to this bid form.

- b. ALTERNATE BID NO. 2: PAYMENT AND PERFORMANCE BOND

Provide a payment and performance bond.

\$ _____ Dollars

- c. ALTERNATE BID NO. 3: WORK ASSOCIATED WITH THE TUNNEL

Provide an add for all work associated with the tunnel.

\$ _____ Dollars

- d. ALTERNATE BID NO. 4: WORK ASSOCIATED WITH THE DAS

Provide a (add) for all work associated with the DAS.

\$ _____ Dollars

- e. ALTERNATE BID NO. 5: WORK ASSOCIATED WITH THE SCADA

Provide a (add) for all work associated with the SCADA.

\$ _____ Dollars

- f. ALTERNATE BID NO. 6: ADD TO INSTALL SCADA MANHOLE AND ASSOCIATED DUCT BANK

\$ _____ Dollars

4. UNIT PRICES

- a. UNIT PRICE #1: WAP

\$ _____

- b. UNIT PRICE #2: Data Point

\$ _____

BID FORM ATTACHMENT 2 – XBE DOCUMENTATION

Each bid package has a goal of 30% participation from MBE, WBE, and VBE firms. Document below the Subcontractors or Suppliers that this firm intends to enter into an agreement with for this project:

TOTAL BID: \$ _____
30% GOAL: \$ _____

CONTRIBUTIONS TOWARD GOAL

MBE TOTAL \$ _____ % OF BID: _____
WBE TOTAL \$ _____ % OF BID: _____
VBE TOTAL \$ _____ % OF BID: _____

TOTAL XBE CONTRIBUTION \$ _____ % OF BID: _____

PROVIDE INFORMATION BELOW FOR XBE ENTITIES YOU INTEND TO CONTRACT WITH (Attach additional pages if required):

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

COMPANY	CONTACT (NAME, PHONE, EMAIL)	
TRADE	BID AMOUNT	MBE / WBE / VBE

Certificates for all listed entities are to be emailed to Josh Naugle (jnaugle@weddlebros.com) within 48 hours of bid submission.

BID FORM ATTACHMENT 3 – SUBCONTRACTORS AND SUPPLIERS

Provide information below for all Subcontractors and Suppliers that are providing work valued at more than \$25,000. Attach more pages if necessary. Supplemental listings or bid breakdowns may be requested as part of the post-bid scope review process.

[illegible]

BID FORM ATTACHMENT 4 – ESTIMATED QUANTITIES

- | | | |
|----------------------------|----------|-------------|
| 1. Cable Tray Footage | _____ | LF |
| 2. Backbone Cable | _____ | LF |
| 3. Backbone Fiber | _____ | QTY |
| 4. Labor Force Field Hours | _____ | # of Hours |
| 5. Peak Labor | _____ | # of People |
| 6. Firestopping | \$ _____ | |

IU HEALTH CENTRAL UTILITY PLANT

BP-15 B Communications

Wednesday, February 15, 2023



TO ALL BIDDERS:

This Bid Package Summary is issued in accordance with the provisions of Contract Documents and becomes a part of the Contract Documents as provided therein. The information contained herein represents Bid Release #1, based on the original Bidding Documents dated **February 10, 2023**, which represent 100% Design Development Documents. Bidders are required to complete all portions of the bid form to comply.

PART 1- GENERAL ITEMS

- A. **The bid date for this package is Wednesday, March 22, 2023, at 12:00 PM.**
- B. Please pay special attention to the Instructions to Bidders included within the Project Manual.
- C. All Prime Bidders are required to be pre-qualified prior to submitting their bid.

PART 2- BID PACKAGE CLARIFICATIONS

- A. The subcontractor shall furnish all labor, tools, hoisting, equipment, supplies, supervision, engineering, and all incidentals, all-inclusive of overhead and profit necessary to furnish and install complete, unless specifically stated to the contrary within this document, the Scope of Work defined within the Contract Documents as identified in the Document and Drawing Listing, codes and Authorities Having Jurisdiction (AHJ). This package shall include all elements required for a fully functional system whether expressed or implied.
- B. The subcontractor shall review all documents and is responsible for all work as shown or called out on these documents for a complete system.
- C. The subcontractor shall be responsible for excavation and backfill for all earthwork required for the completion of the communication systems.
- D. All excess excavated materials (non-hazardous) must be hauled off and disposed of lawfully at an approved dumpsite. All federal, state, and local codes and regulations are to be followed. The Subcontractor is responsible for all hauling of materials excavated by this subcontract, and any applicable fees, required to complete the work. Make sure the earthwork contractor you select is aware of these requirements.
- E. A full environmental analysis of the current soil conditions has not been completed at this time. Subcontractor is to assume all material is non-hazardous and can be exported per local regulations.
- F. The subcontractor shall be responsible for the coordination of all block outs and sleeves, with the concrete contractor, as required for routing of the communications systems.
- G. The subcontractor shall be responsible for firestopping for all penetration for this scope of work.
- H. The subcontractor shall be responsible for layout of all areas where the work applies. Control points will be provided by Others.
- I. The subcontractor shall be responsible for all backer boards and supports for a complete system.

IU HEALTH CENTRAL UTILITY PLANT
BP-15 B Communication
Wednesday, February 15, 2023

- J. The Subcontractor shall turn over all closeout documents, including but not limited to as-builts, etc. before final completion. If this Subcontractor fails to provide closeout documents before final completion, the contractor reserves the right to hold retainage in excess of the value of the work. This subcontractor shall be responsible for maintaining as-builts throughout the project. Documents shall be kept in a central location and readily available for the Contractor to review.
- K. The Subcontractor shall keep an up-to-date electronic copy of red lines readily available for review by the construction manager. They must be current within 10 working days. Failure to do so may delay processing of payment.
- L. The approximate milestone schedule dates for this subcontract shall be per the attached project schedule.
- M. The Subcontractor shall provide adequate labor sources to meet the schedule.
- N. The specification sections identified on the attached *Specification Assignment Worksheet* and portions of specifications as may be inferred from the Scope of Work outlined herein are included in this scope of work.
- O. The quantities that are being asked for are for comparison to budget and that you have a complete understanding of the project.
- P. The subcontractor shall include the testing and commissioning of all equipment and systems installed under the work of this subcontract. There will be six (6) separate commissioning efforts that this subcontractor is to have included, as indicated in the referenced schedule.
 - a. Early Services
 - b. South Support Building (SSB)
 - c. Hospital Podium
 - d. Hospital Tower 1
 - e. Hospital Tower 2
 - f. Hospital Tower 3 Full Load
- Q. The subcontractor shall provide a designated individual to manage the commissioning of their work. This individual will be responsible for assisting the Owner's Commissioning Authority (CxA) in the formal commissioning of the systems. All activities will be scheduled and coordinated through the Contractor.
- R. The subcontractor is responsible for taking corrective action to address any items of work deemed as "non-conforming" or "non-compliant" by the commissioning agent through the commissioning agent's Resolution Tracking system. Subcontractor is aware that any work installed by this Subcontractor that is determined to be non-conforming work will be replaced at this Subcontractor's expense.
- S. The subcontractor is responsible for providing an alternative for the SCADA system and price based on what you are providing.
- T. The subcontract is responsible to provide and install the SCADA manhole and associated duct work as an alternate. Include all rigging and excavation for this work

PART 3- SCOPE FOR 15B

Including but not limited to:

1. Bid documents.
 - a. Drawings
 - b. Specifications
2. Communications
3. DAS
4. WIFI
5. SCADA
6. Grounding
7. MDF / IDF
8. QA QC Program

PART 4- ESTIMATED QUANTITIES

- | | |
|----------------------------|-------------------|
| 1. Cable Tray Footage | _____ LF |
| 2. Backbone Cable | _____ LF |
| 3. Backbone Fiber | _____ LF |
| 4. Labor Force Field Hours | _____ # of Hours |
| 5. Peak Manpower | _____ # of People |
| 6. Firestopping | \$ _____ |

PART 5- ALTERNATES

ALTERNATE #1: Subcontractor may submit voluntary alternates for consideration. The alternate shall be clearly identified and include a scope of work. The alternate shall be submitted separately from the base bid. The alternate shall include the total fee for the alternate and identify the alternate as an adder or deduct from the base price.

ALTERNATE #2: Provide added cost for Payment and Performance Bond.

ALTERNATE #3: Provide added cost for all work associated with the Tunnel.

ALTERNATE #4: Provide deduct for DAS.

ALTERNATE #5: Provide deduct for SCADA.

ALTERNATE #6: Provide add for SCADA manhole and associated ductbank

PART 6- PROJECT INFORMATION

February 01, 2023



Rigging/Placement Owner Purchased Electrical Equipment

1. Generators

- a. EG 1
- b. EG 2
- c. EG 3
- d. EG 4
- e. EG 5
- f. EG 6
- g. EG 7
- h. EG 8

2. MV Switchgear

- a. USS-CH-1 Side A Secondary
- b. USS-CH-1 Side B Secondary
- c. USS-CH-2 Side A Secondary
- d. USS-CH-2 Side B Secondary
- e. MSS
- f. ESS
- g. MSS Control Module
- h. USS-CH1 Control Module
- i. USS-CH2 Control Module
- j. USS-CH1 Side A Primary
- k. USS-CH1 Side B Primary
- l. USS-CH2 Side A Primary
- m. USS-CH2 Side B Primary
- n. USS-MECH1 Side A Primary
- o. USS-MECH1 Side B Primary
- p. USS-MECH2 Side A Primary
- q. USS-MECH2 Side B Primary
- r. USS-CH-1 LH TX
- s. USS-CH-1 RH TX
- t. USS-CH-2 LH TX
- u. USS-CH-2 RH TX
- v. USS-MECH-1 LH TX
- w. USS-MECH-1 RH TX
- x. USS-MECH-1 LH TX
- y. USS-MECH-1 RH TX

3. Low Voltage Switchgear

- a. USS-MECH1 A
- b. USS-MECH1 B
- c. USS-MECH2 A
- d. USS-MECH2 B

4. Paralleling Gear

- a. PS

5. Automatic Transfer Switches

- a. MV-ATS-IUH-OS-A
- b. MV-ATS-IUH-EQ-A
- c. MV-ATS-IUH-MECH-A
- d. MV-ATS-IUH-CH-A
- e. MV-ATS-IUH-OS-B
- f. MV-ATS-IUH-EQ-B
- g. MV-ATS-IUH-MECH-B
- h. MV-ATS-IUH-CH-B

6. Medium Voltage Load Bank Roof

7. Batteries and racks

8. Neutral Ground Resistors

- a. EG 1 NGR
- b. EG 2 NGR
- c. EG 3 NGR
- d. EG 4 NGR
- e. EG 5 NGR
- f. EG 6 NGR
- g. EG 7 NGR
- h. EG 8 NGR

9. All loose equipment associated for a complete installation.

10. Rigging / Placement \$ _____

11. Offloading / Storage / Delivery to Site \$ _____



WEDDLE BROS.
BUILDING GROUP, LLC
A Weddle Bros. Construction Company



Early Services Outline

Schedule

1. See Current Project Schedule
 - a. Approximate duration will be March 31, 2025, end at Substantial Completion, July 28, 2025. This is subject to change based on schedule development and is this subcontractors' responsibility to confirm.

Startup & Operation

1. The intent is to monitor equipment during normal working hours and provide emergency monitoring with on-call service outside of staffed hours. This would mean the installing subcontractors would inspect, and log equipment status every morning and evening but would not keep personnel on site after their normal working hours. In the event the system issued an alarm, a notification would be sent to appropriate personnel who would then return to site within 2 hours.
2. Multiple startups may be necessary to accommodate the 6 commissioning efforts reflective of campus buildings being connected to the distribution system.
3. Maintenance
 - a. All maintenance as identified in the IOM or as directed by the manufacturer to be coordinated or completed by the appropriate MEP contractor. Service tickets to be completed and submitted as proof of work completed.
 - b. All early packages: chillers, towers, generators, paralleling gear, and MV gear have manufacturer maintenance programs that will cover operation during this period.
4. Warranty
 - a. Manufacturer & Contractor responsibility as appropriate
 - b. MEP contractor responsible to coordinate and resolve warranty issues during the time frame identified in this document. This is intended to be an all-inclusive service provided by the MEP subcontractors that provided or installed the equipment. This includes contacting appropriate representatives, coordinating the efforts of all parties, escorting service staff, shutdown/startup of services, replacement of damaged components or materials not covered by the offending manufacturer, updating submittals, collecting & submitting service tickets, etc.

Services

1. Contractual obligation will be to provide the following.
 - a. Chilled Water (2,000 Ton Chillers & Towers) Two in lead-lag operation.
 - b. Heating Water Boilers. Two in lead-lag operation.
2. Electrical Power Availability
 - a. Temporary Construction Power
 - b. MV switchgear arrival September 16, 2024
 - c. AES 1st feed March 1, 2024



3. Related support services that are required to be available. This list may not be all inclusive.
 - a. MAU's-Provide tempered combustion air to boilers
 - b. Chemical treatment
 - c. Softeners & brine tanks
 - d. Heat Trace
 - e. Temporary building heat to protect from freezing
 - f. Piping
 - i. Chilled water S&R
 - ii. Condenser water S&R
 - iii. Drain
 - iv. Natural Gas
 - v. Gas vent
 - vi. Chemical
 - vii. Domestic water
 - viii. Heating water S&R
 - ix. Refrigerant vent
 - x. Soft water
 - xi. Specialties
 - xii. Valves-Control & Manual
 - g. Pumps & Strainers
 - h. Flues
 - i. Side stream Filter
 - j. Temperature controls and monitoring
 - k. Makeup water systems
 - i. Booster pump skids
 - ii. Metering
 - l. Natural gas or diesel fuel (may require temporary NG service)

Maintenance Costs

1. The cost of this should be included by the subcontractor that provided or installed the equipment.
 - a. Oil changes
 - b. Salt
 - c. Chemicals
 - d. Diesel
 - e. Filters
 - f. Strainer blowdown\cleaning



CH-1-6 Submittal

Prepared For:

IU Health
Applied Engineering, Inc.

Date: January 18, 2023

Job Name:

IU Health Downtown Medical Campus Central Utility

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty Product

6 CVHH Centrifugal Chillers

**IN REVIEW-
NOT FOR CONSTRUCTION**

Brian Lohman / Bryan Benson

Trane U.S. Inc.

5355 North Post Road

Indianapolis, IN 46216

Office Phone: (317) 255-8777

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

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 Centrifugal Chiller ECTV 40

Tag Data – CVHH Centrifugal Chiller (Qty: 6)

Item	Tag(s)	Qty	Description	Model Number
A1	CH-1, CH-3, CH-5	3	Centrifugal Chiller ECTV (ECTV)	CVHH170
A2	CH-2, CH-4, CH-6	3	Centrifugal Chiller ECTV (ECTV)	CVHH170

Product Data – CVHH Centrifugal Chiller**All Units**

Standard delivery CVHH with customer witness test

Startup Included - Trane Service must start equipment for warranty to be honored

Centrifugal liquid chiller direct drive multi-stage

Standard cooling

IBC Seismic - unit option

Control power transformer option: No

Compressor size: 1700 nominal tons

Incoming line voltage: 4160 volt / Incoming hertz: 60 / Motor voltage: 4160 volt / Motor hertz: 60.

60 hz Compressor motor power: 1338 kW / Motor frame size: 5800L

Compressor motor RTDs: Standard

Evaporator

Evaporator shell size: 220 long

Design special: Factory installed sacrificial anode & Belzonna ceramic coating of waterboxes and tubesheets

Evaporator bundle size: 2200 nominal tons

Evaporator tubes: 1.00 inch (25.4 mm) diameter micro internally enhanced copper low pressure tubes

Evaporator tube code: 1.00 GewaB5LSL

Evaporator tube wall: .028 inch (0.7 mm) thick

Evaporator waterbox pressure: 150 psig (1034 kPa)

Evaporator waterbox construction: Standard

Evaporator waterbox passes: Two Pass

Evaporator waterbox type: Marine

Evaporator waterbox connection: Victaulic

Evaporator waterbox hinge: both supply and return

Evaporator fluid type: Water

Thermal dispersion flow switch (IFM) - Field Installed (Field Installed)

Condenser

Condenser shell size: 220 long

Design special: Factory installed sacrificial anode & Belzonna ceramic coating of waterboxes and tubesheets

Condenser bundle size: 2200 nominal tons

Condenser tube: 1.00 inch (25.4 mm) diameter micro internally enhanced copper low pressure tubes

Condenser tube code: 1.00 GewaC+LW tube

Condenser tube wall: .028 inch (0.7 mm) thick

Condenser shell construction: ASME

Condenser waterbox pressure: 150 psig (1034 kPa)

Condenser waterbox construction: Standard

Two pass waterbox condenser

Condenser waterbox type: marine

Condenser waterbox arrangement: in RH rear - out RH rear

Condenser waterbox connection: Victaulic

Condenser waterbox hinge: both supply and return

Condenser fluid type: Water

Without condenser variable flow

Thermal dispersion flow switch (IFM) - Field installed (Field Installed)

Agency listing: U.L. listed unit (United States requirement)

Factory testable – yes, LaCrosse, Wisconsin

Factory Performance Test: Customer Witnessed Sound & 3 Part Load Points

Selection tolerance: AHRI Standard 550/590 tolerance

Unit option: Insulation package

Extended operation

With enhanced protection

BACnet interface (all points mapping & BAS integration by others, assistance provided by Trane

Brass logo with customer specified engraving (customer witness test)

Shipping package: Domestic without skid

Liquidated damages - delivery: NO

Liquidated damages performance: NO

Relief device: Rupture guard factory installed

Orifice size: 172

Orifice size: 163

Accessory: 2 Thermometers, 10 inch (254 mm) standard well (Field Installed)

Trane Supplied Refrigerant, R1233zd Refrigerant

Factory Eddy Current Test

Medium Voltage starter model CVKF

Unit Mounted Auto Transformer Starter

Maximum Starter RLA - 360 Amps

Starter power connection: Isolation switch

Starter power connection maximum RLA - 432 Amps

Standard NEMA1 starter enclosure

50,000 amp SCCR

1st & 2nd Year Parts, Labor & Refrigerant Warranty, Entire Chiller with Trane Supplied Starter

Chiller Tool Kit

Power Factor Correction Capacitors (Field installed by Trane)

1st Year Service & Maintenance Agreement

Evaporator and Condenser Tube Brushing after 1st Year of Operation

Item: A1 Qty: 3 Tag(s): CH-1, CH-3, CH-5

Evaporator waterbox arrangement: In LH front - out LH rear

Item: A2 Qty: 3 Tag(s): CH-2, CH-4, CH-6

Evaporator waterbox arrangement: In LH rear - out LH front



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

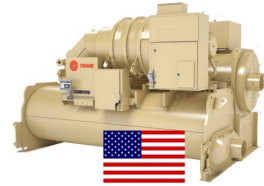
Unit Tag: CH-1, CH-3, CH-5
Quantity: 3

Unit Features

Chiller Model	Refrigeration Capacity	Total Power	Fullload Eff	Refrigerant	Line Volt	Line Frequency	Starter Type
CVHH	2000 tons	1217 kW	0.6085 kW/ton	R-1233zd(E)	4160. V	60. Hz	Mechanical

Unit Overview

Application type	Standard cooling
Insulation	Unit insulation package
Seismic Compliance	IBC Compliant
Compressor	1700
NPLV/IP	0.5103 kW/ton
Rated NPLV/IP	0.5103 kW/ton
Stage 1 impeller size	865.00
Stage 2 impeller size	780.00
Evaporator orifice size	172
Condenser orifice size	163



Selection Tolerances

Selection Tolerance	AHRI Tolerance
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Shell Information

	Evaporator	Condenser		Evaporator	Condenser
	Fluid Temperature			Construction Features	
Entering	57.93 F	85.00 F	Shell Size	220L	220L
Leaving	42.00 F	94.49 F	Bundle Size	2200	2200
	Fluid Properties		Tube Type	IMC1	IECU
Fluid Type	water	water	Tube Thickness	0.028"	0.028"
Fluid Concentration	0.00 %	0.00 %	Connection Type	Victaulic connection evap	Victaulic connection cond
Fouling Factor	0.000100 hr-sq ft-deg F/ Btu	0.000250 hr-sq ft-deg F/ Btu	Water box type	marine	marine
	Flow/Capacity		Water box pressure	150 psig	150 psig
Flow/Capacity	1.500 gpm / ton	3.000 gpm / ton	Flow Proving	Thermal dispersion flow switch (IFM)	Thermal dispersion flow switch (IFM)
	Flow Rate		Number of Passes	Two pass waterbox evaporator	Two pass waterbox cond
Design Flow	3000 gpm	6000 gpm	Hinged Waterbox	Evap both ends	Cond both ends
Min Flow	1122 gpm	2316 gpm	Wbox Arrangement	Evap in LH front - evap out LH rear	Cond in RH rear - cond out RH rear
Max Flow	8227 gpm	8493 gpm	Shell Side Volume	294.93 cu ft	127.31 cu ft
	Fluid Pressure Drop				
PD at Design Flow	9.06 ft H2O	22.8 ft H2O			
PD at Min Flow	0.950 ft H2O	4.09 ft H2O			
PD at Max Flow	68.6 ft H2O	42.9 ft H2O			

Unit Electrical

Med voltage starter type	Unit Mtd Auto Transformer	Min Circuit Ampacity	242.00 A
Med voltage starter conn	Isolation switch	Max Overcurrent Protection	390.00 A
Med voltage starter size (Max RLA)	360 max RLA	Nameplate RLA	191.80 A
Starter enclosure type	Standard starter enclosure	Primary RLA	193.80 A
Motor	1338	Motor Locked Rotor Amps	994.00 A
Total Power	1217 kW	Un-Corrected Power Factor	0.91

Design and Physical Information

Operating Weight	73027.0 lb	Shipping Weight - No Charge	58250.0 lb	Refrigerant charge	2950.0 lb
Agency Listing	UL	Regional Code Requirement	No Requirement	Cond Shell Construction	ASME condenser construction
		Chiller Heat Rejected to ambient	20.77 MBh		



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: CH-1, CH-3, CH-5
Quantity: 3

Information for AHRI and ASHRAE Projects

AHRI 550/590 2015 classification	Certified
ASHRAE 90.1 - 2007	Non-compliance
ASHRAE 90.1 - 2007 Add. M	Non-compliance
ASHRAE 90.1-2010	Non-compliance
ASHRAE 90.1-2013	Non-compliance
ASHRAE 90.1 - 2016	Non-compliance

Certified in accordance with the AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Warranty

Parts whole unit	Year 2 Parts Warranty Unit	Labor after 1st year	2nd year labor warranty whole unit
Parts less motor and compressor	No parts less motor & cmpr warranty	Refrigerant quality warranty 1st year	1st year refrigerant quality warranty
Motor/compr parts warr. up to 10 years	No motor & compressor parts warranty	Refrigerant quality warranty beyond 1st year	2nd year refrigerant quality warranty

Information for LEED Projects

Refrigeration capacity	2000 tons	Total power	1217 kW
Refrigerant charge	2950.0 lb	NPLV.IP	0.5103 kW/ton
		Rated NPLV.IP	0.5103 kW/ton

Compliant with the requirements of the LEED Energy and Atmosphere Enhanced Refrigerant Management Credit (EA4) due to the R-1233zd refrigerant GWP being 1.

Note: Trane recognizes and respects the U.S. Green Building Council® mandate that a default 2% Refrigerant Leakage Rate (Lr) be used by all manufacturers of centrifugal chillers when calculating the Enhanced Refrigerant Management Credit because there is no industry standard. Trane has exhaustively documented a leak rate of less than 0.5% for CenTraVac™ chillers (models CVHE, CVHF, CVHG, CVHS, CVHM, CDHF, CDHG, CVHH and CDHH) and utilizes an average design refrigerant charge of less than 2 lb./ton.

The U.S. Green Building Council's LEED® green building program is the preeminent program for the design, construction, maintenance and operations of high-performance green buildings. It provides independent, third-party verification that a building project meets the highest green building and performance measures.

Trane Select Assist
Version Number: 55250.00 Each
Data Generation Date: 1/14/2023



Partload Information

NPLV.IP 0.5103 kW/ton

% Load %	100	75	50	25
Cooling Capacity tons	2000	1500	1000	500.0
Evap LWT F	42.00	42.00	42.00	42.00
Evap FR gpm	3000	3000	3000	3000
Evap EWT F	57.93	53.94	49.96	45.98
Evap PD ft H2O	9.06	9.06	9.06	9.05
Cond EWT F	85.00	75.00	65.00	65.00
Cond FR gpm	6000	6000	6000	6000
Cond LWT F	94.49	81.95	69.59	67.37
Cond PD ft H2O	22.9	23.5	24.3	24.4
kW kW	1217	775.6	481.9	304.3
Amps A	193.80	127.70	86.600	64.100
Eff kW/ton	0.6085	0.5171	0.4819	0.6086

AHRI Relief at 10% interval

% Load %	100	90	80	70	60	50	40	30	20	10
Cooling Capacity tons	2000	1800	1600	1400	1200	1000	800.0	600.0	400.0	
Evap LWT F	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	
Evap FR gpm	3000	2700	2400	2100	1800	1500	1200	1143	1183	
Evap EWT F	57.93	57.93	57.93	57.93	57.93	57.93	57.93	54.54	50.08	
Evap PD ft H2O	9.06	7.33	5.75	4.34	3.09	2.01	1.12	0.960	1.02	
Cond EWT F	85.00	81.00	77.00	73.00	69.00	65.00	65.00	65.00	65.00	
Cond FR gpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Cond LWT F	94.49	89.42	84.44	79.47	74.52	69.59	68.71	67.82	66.94	
Cond PD ft H2O	22.9	23.1	23.4	23.6	24.0	24.3	24.3	24.3	24.4	
kW kW	1217	1002	851.4	717.4	594.5	492.3	430.9	355.0	289.8	
Amps A	193.80	160.60	138.00	118.40	101.10	86.900	78.400	69.000	61.100	
Eff kW/ton	0.6085	0.5568	0.5321	0.5124	0.4954	0.4923	0.5386	0.5917	0.7244	

Constant Condenser at 10% interval

% Load %	100	90	80	70	60	50	40	30	20	10
Cooling Capacity tons	2000	1800	1600	1400	1200	1000	800.0	600.0	400.0	
Evap LWT F	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	
Evap FR gpm	3000	2700	2400	2100	1800	1500	1200	1143	1183	
Evap EWT F	57.93	57.93	57.93	57.93	57.93	57.93	57.93	54.54	50.08	
Evap PD ft H2O	9.06	7.33	5.75	4.34	3.09	2.01	1.12	0.960	1.02	
Cond EWT F	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	
Cond FR gpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Cond LWT F	94.49	93.48	92.55	91.63	90.71	89.80	88.89	87.97	87.06	
Cond PD ft H2O	22.9	22.9	22.9	22.9	23.0	23.0	23.0	23.0	23.0	
kW kW	1217	1041	937.4	830.1	735.2	644.1	557.5	468.2	380.4	
Amps A	193.80	166.60	151.30	135.40	121.60	108.60	95.900	83.600	71.700	
Eff kW/ton	0.6085	0.5781	0.5859	0.5929	0.6127	0.6441	0.6969	0.7803	0.9510	

Trane Select Assist
Version Number: 55250.00 Each
Data Generation Date: 1/14/2023



Partload Information

NPLV.IP 0.5103 kW/ton

% Load %	100	75	50	25
Cooling Capacity tons	2000	1500	1000	500.0
Evap LWT F	42.00	42.00	42.00	42.00
Evap FR gpm	3000	3000	3000	3000
Evap EWT F	57.93	53.94	49.96	45.98
Evap PD ft H2O	9.06	9.06	9.06	9.05
Cond EWT F	85.00	75.00	65.00	65.00
Cond FR gpm	6000	6000	6000	6000
Cond LWT F	94.49	81.95	69.59	67.37
Cond PD ft H2O	22.9	23.5	24.3	24.4
kW kW	1217	775.6	481.9	304.3
Amps A	193.80	127.70	86.600	64.100
Eff kW/ton	0.6085	0.5171	0.4819	0.6086

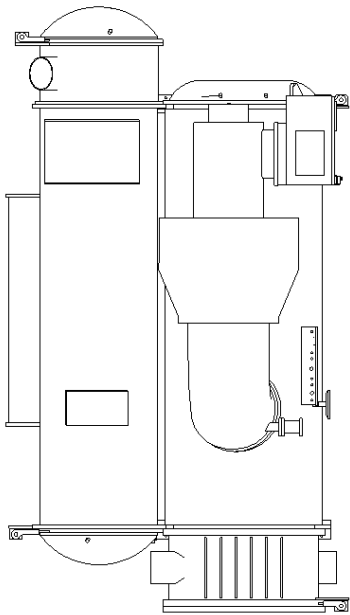
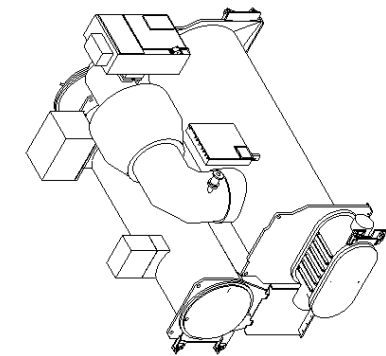
AHRI Relief at 10% interval

% Load %	100	90	80	70	60	50	40	30	20	10
Cooling Capacity tons	2000	1800	1600	1400	1200	1000	800.0	600.0	400.0	
Evap LWT F	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	
Evap FR gpm	3000	2700	2400	2100	1800	1500	1200	1143	1183	
Evap EWT F	57.93	57.93	57.93	57.93	57.93	57.93	57.93	54.54	50.08	
Evap PD ft H2O	9.06	7.33	5.75	4.34	3.09	2.01	1.12	0.960	1.02	
Cond EWT F	85.00	81.00	77.00	73.00	69.00	65.00	65.00	65.00	65.00	
Cond FR gpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Cond LWT F	94.49	89.42	84.44	79.47	74.52	69.59	68.71	67.82	66.94	
Cond PD ft H2O	22.9	23.1	23.4	23.6	24.0	24.3	24.3	24.3	24.4	
kW kW	1217	1002	851.4	717.4	594.5	492.3	430.9	355.0	289.8	
Amps A	193.80	160.60	138.00	118.40	101.10	86.900	78.400	69.000	61.100	
Eff kW/ton	0.6085	0.5568	0.5321	0.5124	0.4954	0.4923	0.5386	0.5917	0.7244	

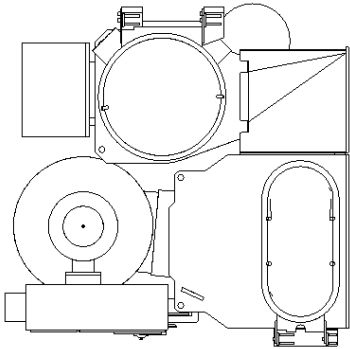
Constant Condenser at 10% interval

% Load %	100	90	80	70	60	50	40	30	20	10
Cooling Capacity tons	2000	1800	1600	1400	1200	1000	800.0	600.0	400.0	
Evap LWT F	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	
Evap FR gpm	3000	2700	2400	2100	1800	1500	1200	1143	1183	
Evap EWT F	57.93	57.93	57.93	57.93	57.93	57.93	57.93	54.54	50.08	
Evap PD ft H2O	9.06	7.33	5.75	4.34	3.09	2.01	1.12	0.960	1.02	
Cond EWT F	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	
Cond FR gpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	
Cond LWT F	94.49	93.48	92.55	91.63	90.71	89.80	88.89	87.97	87.06	
Cond PD ft H2O	22.9	22.9	22.9	22.9	23.0	23.0	23.0	23.0	23.0	
kW kW	1217	1041	937.4	830.1	735.2	644.1	557.5	468.2	380.4	
Amps A	193.80	166.60	151.30	135.40	121.60	108.60	95.900	83.600	71.700	
Eff kW/ton	0.6085	0.5781	0.5859	0.5929	0.6127	0.6441	0.6969	0.7803	0.9510	

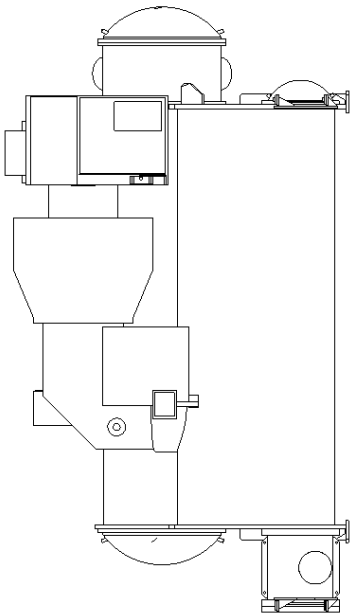
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Version Number: 55250.00 Each
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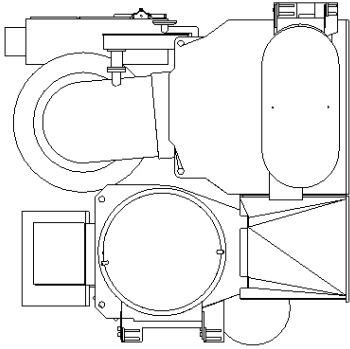
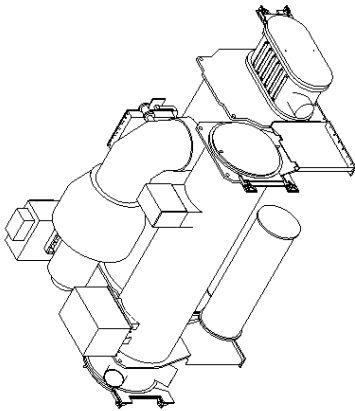
TOP VIEW



RIGHT SIDE VIEW



FRONT VIEW



LEFT SIDE VIEW

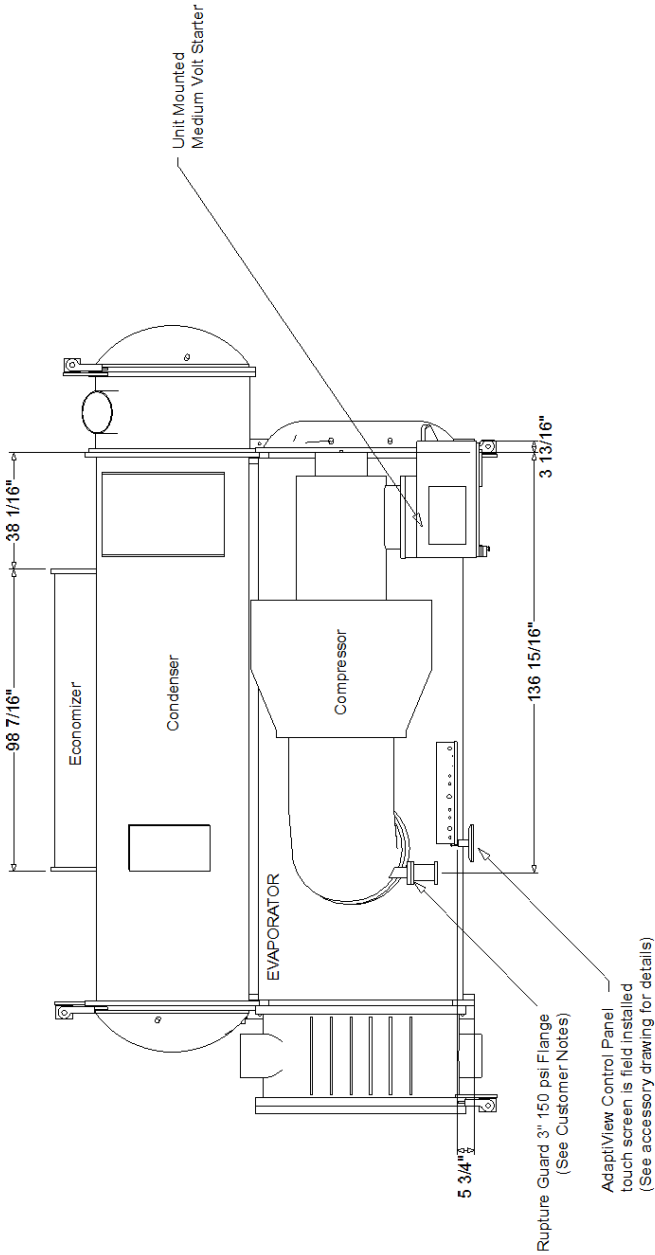
SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN FRONT OUT REAR
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS. UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO SUCTION ELBOW TOLERANCE VARIATION

EVAP CONNS ARE FRONT INLET AND REAR OUTLET.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES. TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER. FACTORY SUPPLIED (INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS



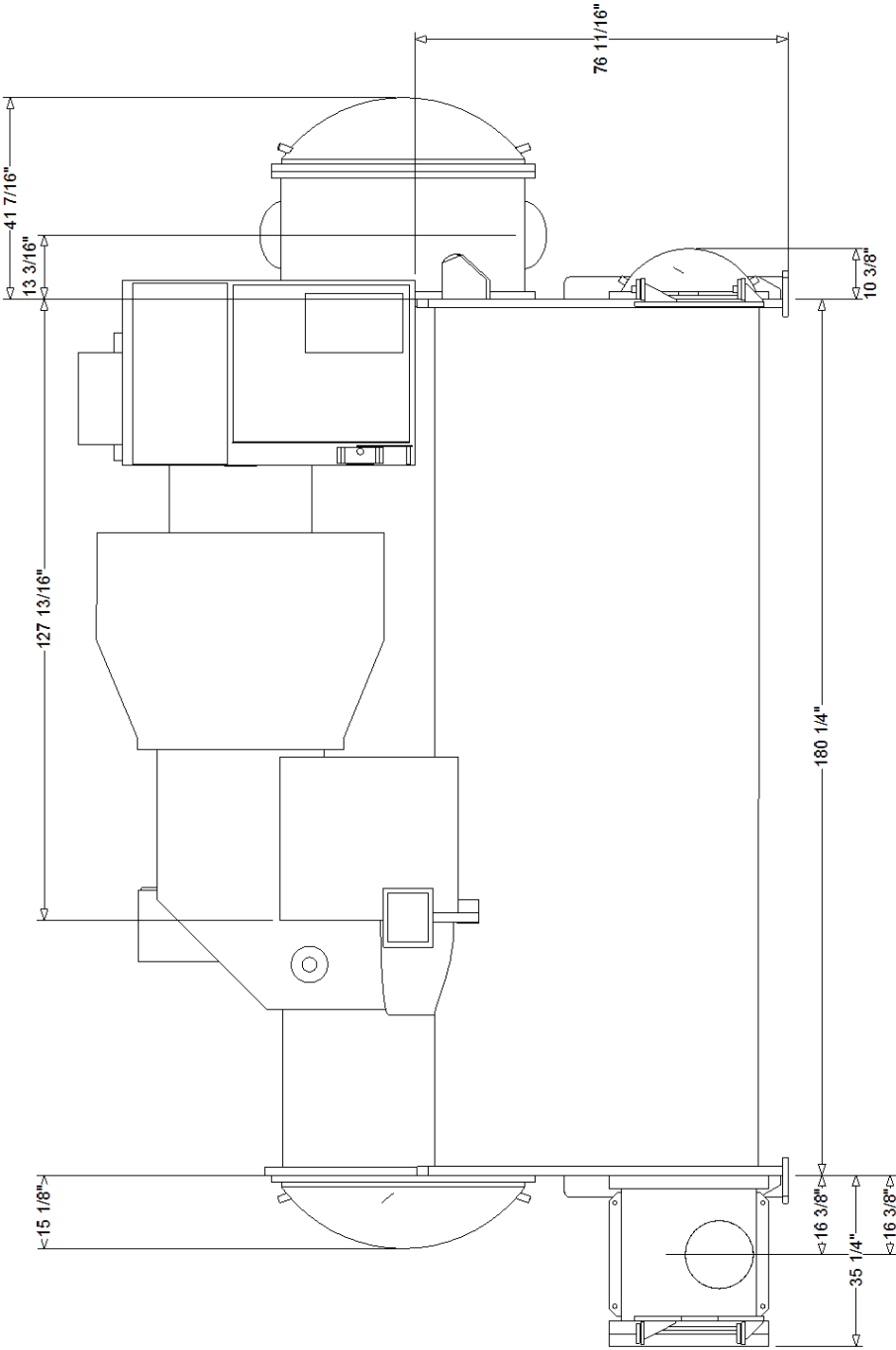
TOP VIEW

CUSTOMER NOTES:

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 WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN FRONT OUT REAR
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP



FRONT VIEW

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS. UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.

RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO SUCTION ELBOW TOLERANCE VARIATION

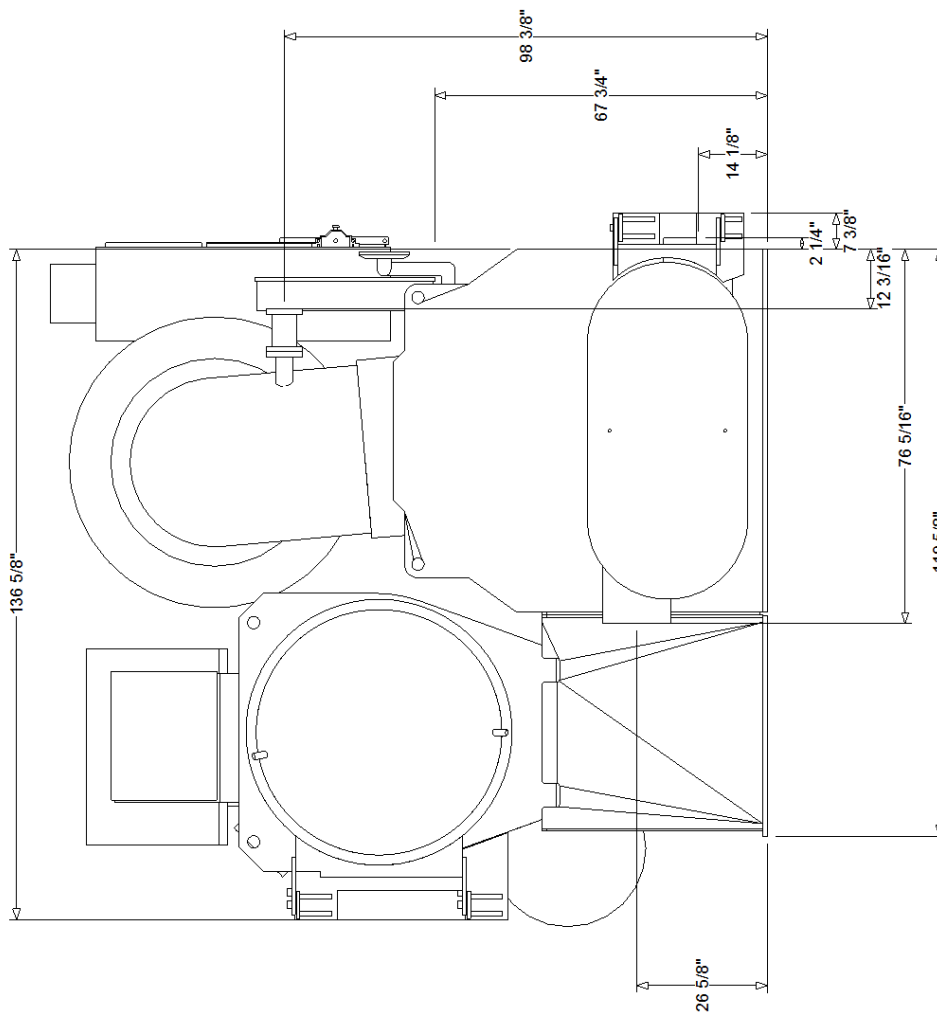
EVAP CONNS ARE FRONT INLET AND REAR OUTLET.

WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER, FACTORY SUPPLIED (INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).

WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN FRONT OUT REAR
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP



LEFT SIDE VIEW

CUSTOMER NOTES:

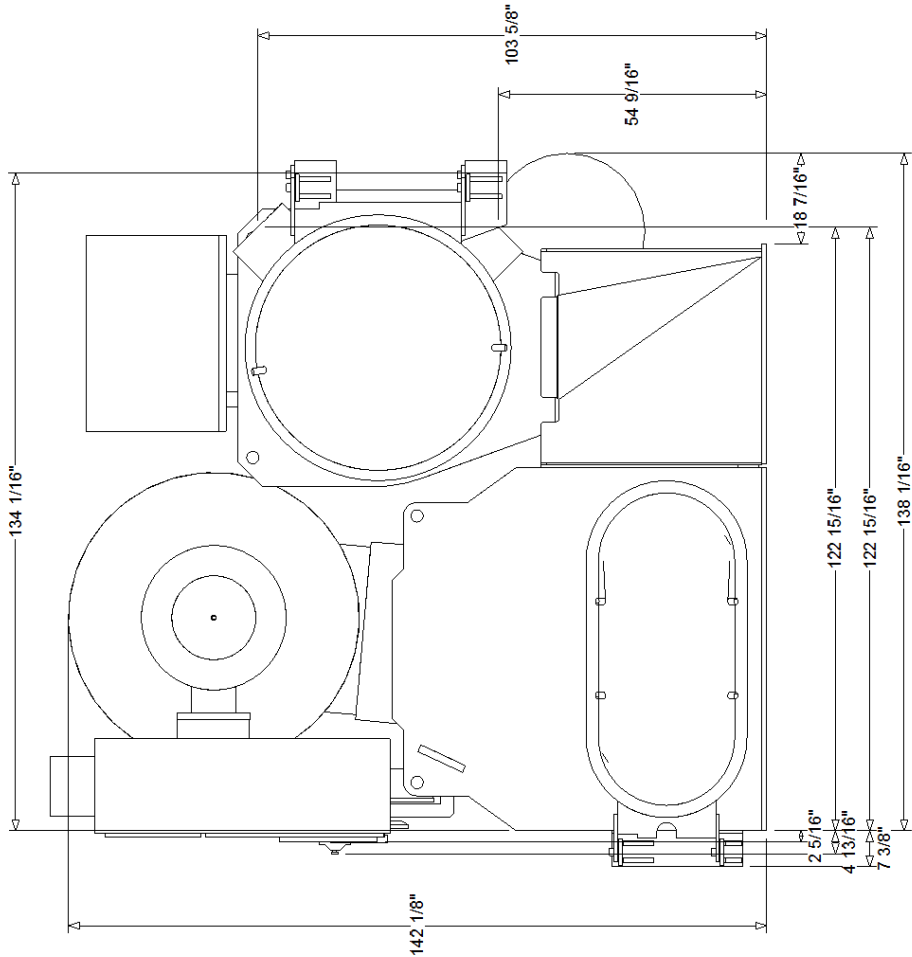
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO

SUCTION ELBOW TOLERANCE VARIATION
EVAP CONNS ARE FRONT INLET AND REAR OUTLET.

EVAP. COILS ARE FRONT, INLET AND REAR OUTLET.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.
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(INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTALIC	IN FRONT OUT REAR
COOLING COND	14"	VICTALIC	IN BOTTOM OUT TOP



RIGHT SIDE VIEW

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN FRONT OUT REAR
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP

CUSTOMER NOTES:

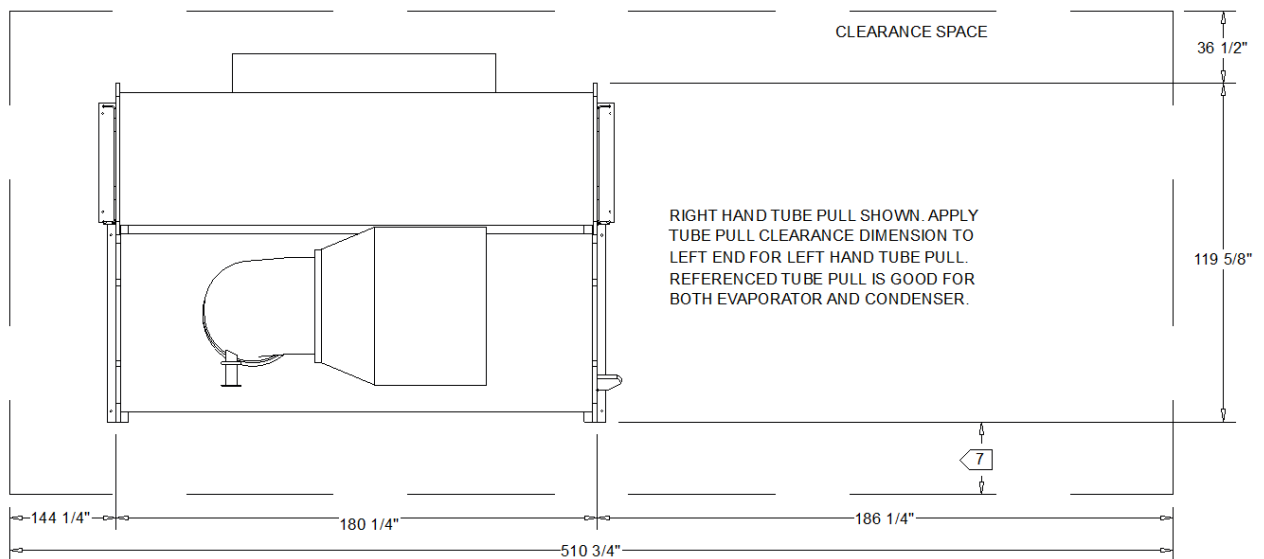
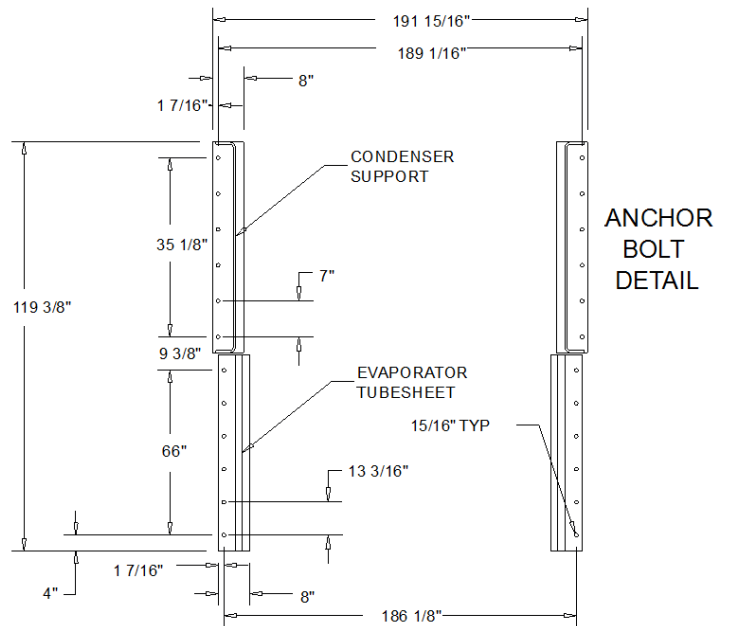
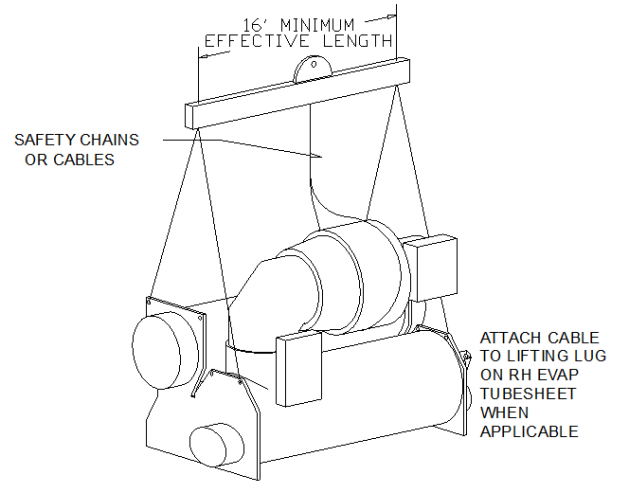
GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/16"$
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO
SUCTION ELBOW TOLERANCE VARIATION
EVAP COILS ARE FRONT INLET AND REAR OUTLET
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES
TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER, FACTORY SUPPLIED
(INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS)
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

⚠ WARNING

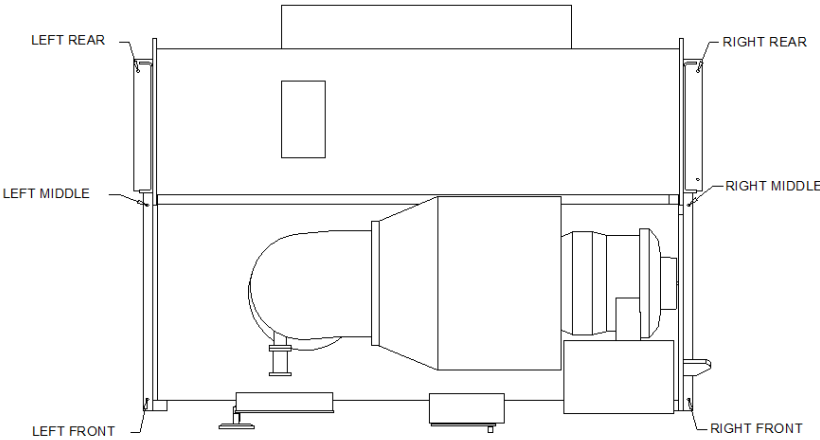
1. **HEAVY OBJECTS!**
DO NOT USE CABLES (CHAINS OR SLINGS) EXCEPT AS SHOWN. EACH OF THE CABLES (CHAINS OR SLINGS) USED TO LIFT THE UNIT MUST BE CAPABLE OF SUPPORTING THE ENTIRE WEIGHT OF THE UNIT. LIFTING CABLES (CHAINS OR SLINGS) MAY NOT BE OF THE SAME LENGTH. ADJUST AS NECESSARY FOR EVEN UNIT LIFT. OTHER LIFTING ARRANGEMENTS MAY CAUSE EQUIPMENT OR PROPERTY-ONLY DAMAGE. FAILURE TO PROPERLY LIFT UNIT MAY RESULT IN DEATH OR SERIOUS INJURY. SEE DETAILS BELOW.
2. **IMPROPER UNIT LIFT!**
TEST LIFT UNIT APPROXIMATELY 24 INCHES TO VERIFY PROPER CENTER OF GRAVITY LIFT POINT. TO AVOID DROPPING OF UNIT, REPOSITION LIFTING POINT IF UNIT IS NOT LEVEL. FAILURE TO PROPERLY LIFT UNIT COULD RESULT IN DEATH OR SERIOUS INJURY OR POSSIBLE EQUIPMENT OR PROPERTY-ONLY DAMAGE.
3. ATTACH SAFETY CHAIN OR CABLE AS SHOWN WITHOUT TENSION, NOT AS A LIFTING CHAIN OR CABLE, BUT TO PREVENT THE UNIT FROM ROLLING.
4. DO NOT FORKLIFT THE UNIT TO MOVE OR LIFT.
5. LIFTING HOLES PROVIDED ON CHILLER TO ATTACH CABLES (CHAINS OR SLINGS).
6. 36" (900 MM) RECOMMENDED CLEARANCE ABOVE HIGHEST POINT OF COMPRESSOR.
7. FOLLOW NEC SECTION 110 AND OTHER APPLICABLE LOCAL CODES FOR CLEARANCES IN FRONT OF ELECTRICAL ENCLOSURES.
8. SPECIFIC SHIPPING AND OPERATING WEIGHTS OF THE SUBMITTED CHILLER ARE PROVIDED IF THE CENTRIFUGAL CHILLER SELECTION WAS ENTERED IN TOPSS. DETAILED LOAD POINT AND SPRING ISOLATOR APPLICATION WEIGHTS ARE AVAILABLE FROM "CENTRAVAC ISOLATOR SELECTION REPORT" AVAILABLE FROM THE REPORT GENERATOR OF THE TRANE TOPSS CHILLER SELECTION PROGRAM. CONTACT YOUR LOCAL TRANE SALES ENGINEER IF THIS DATA IS REQUIRED.
9. ADDITIONAL MARINE WATERBOX SERVICE CLEARANCE MAY BE ACHIEVED BY PLACING THE UNIT ON A HOUSEKEEPING PAD SPACERS, OR SPRINGS. IF A HOUSEKEEPING PAD IS PROVIDED, IT SHOULD NOT EXTEND MORE THAN 6" PAST THE OUTSIDE FACE OF THE TUBESHEET.

(SEE NOTE 8 ABOVE)	
MAXIMUM SHIPPING	Shipping weight - No Charge
MAXIMUM OPERATING	73,027.0 lb





WEIGHTS AND CENTER OF GRAVITY



SPRING ISOLATOR SELECTION				
LOCATION	ISOLATOR LOAD*	VENDOR P/N	TRANE P/N	ISOLATOR COLOR
LEFT FRONT	11,843.0 lb			
LEFT REAR	9,931.0 lb			
RIGHT FRONT	13,853.0 lb			
RIGHT REAR	11,791.0 lb			
LEFT MIDDLE	10,728.0 lb			
RIGHT MIDDLE	12,652.0 lb			

COMPONENT	WEIGHT*
COMPRESSOR WEIGHT	7,086.0 lb
MOTOR WEIGHT	5,410.0 lb
STARTER WEIGHT	1,702.0 lb
SUCTION ELBOW WEIGHT	770.0 lb
ECONOMIZER WEIGHT	1,620.0 lb
EVAPORATOR WEIGHT	17,872.0 lb
EVAPORATOR WATERBOXES WEIGHT	2,090.0 lb
CONDENSER WEIGHT	11,999.0 lb
CONDENSER WATERBOXES WEIGHT	2,304.0 lb
AUXILIARY CONDENSER WEIGHT	N/A
AUXILIARY CONDENSER WATERBOXES WEIGHT	N/A
MISCELLANEOUS WEIGHT	5,244.0 lb

UNIT CENTER OF GRAVITY	
CG Z (DIMENSION FROM RIGHT TO LEFT)	80.000 in
CG X (DIMENSION FROM FRONT TO REAR)	59.000 in
CG Y (HEIGHT DIMENSION FROM FLOOR)	63.000 in

RIGHT FRONT ISOLATOR MOUNTING HOLE
BOTTOM OF THIS HOLE IS 0,0,0 POINT
FOR CENTER OF GRAVITY DIMENSIONS

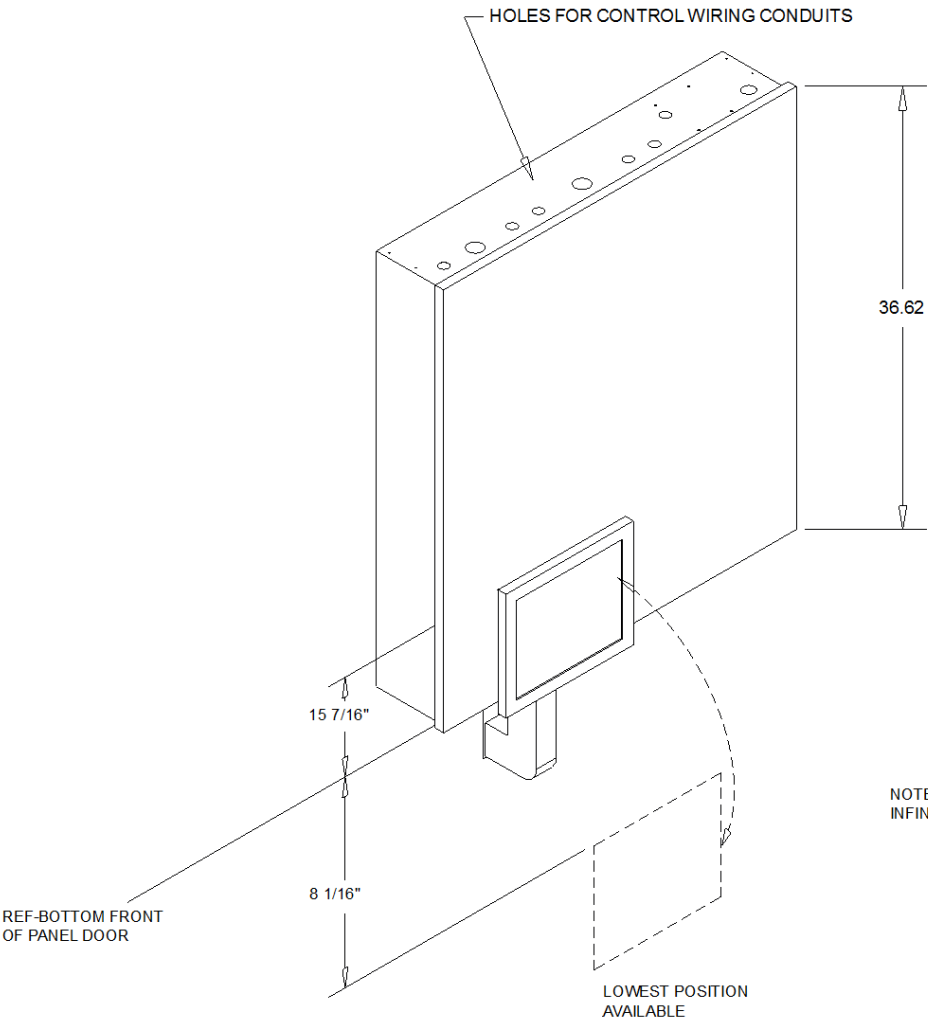
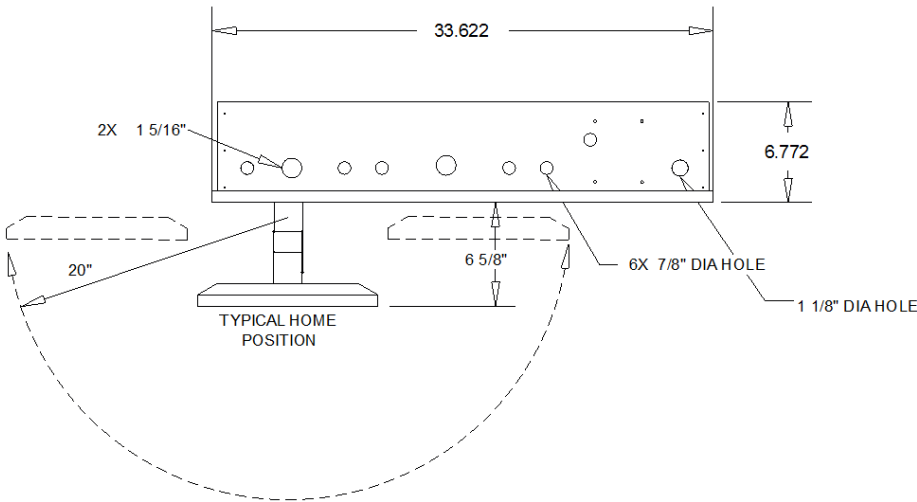
WEIGHTS	
SHIPPING	OPERATING
58,250.0 lb	73,027.0 lb

NAMEPLATE PRODUCT DESCRIPTION:					
MODL	CVHH	VOLT	4160	PTON	2,000.00 tons
EVTM	IMC1	CDTM	IECU	CPKW	1338
CDBS	2200			EVSZ	220L
ORCD	163	OREC	N/A	OREV	172
				CDSZ	220L

*ALL PUBLISHED WEIGHTS ACCURATE TO +/- 10 %

ADAPTIVIEW CONTROL PANEL

TOP VIEW



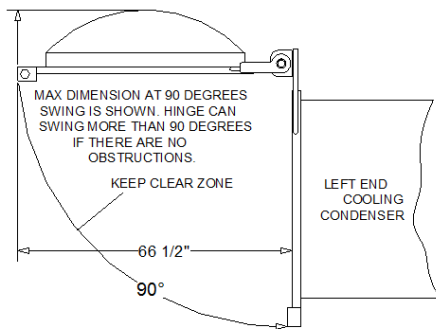
NOTE: DISPLAY CAN MOVE TO AN INFINITE NUMBER OF POSITIONS.

HINGE SWING DETAIL DRAWING

ALL VIEWS ON THIS PAGE ARE TOP VIEWS

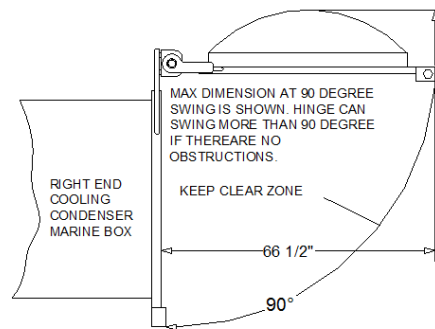
LEFT END OF COOLING CONDENSER

LEFT HAND 150 PSI RETURN BOX AND HINGE SWING



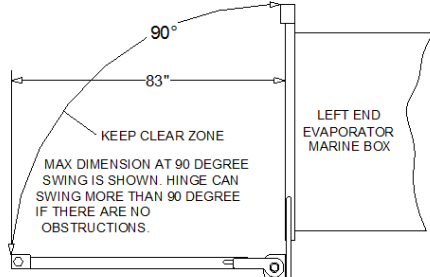
RIGHT END OF COOLING CONDENSER

RIGHT HAND 150 PSI MAR BOX COVER AND HINGE SWING



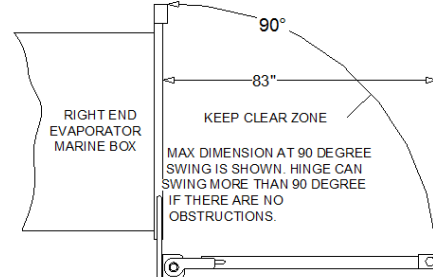
LEFT END OF EVAPORATOR

LEFT HAND 150 & 300 PSI MARINE BOX COVER AND HINGE SWING



RIGHT END OF EVAPORATOR

RIGHT HAND 150 & 300 PSI MARINE BOX COVER AND HINGE SWING



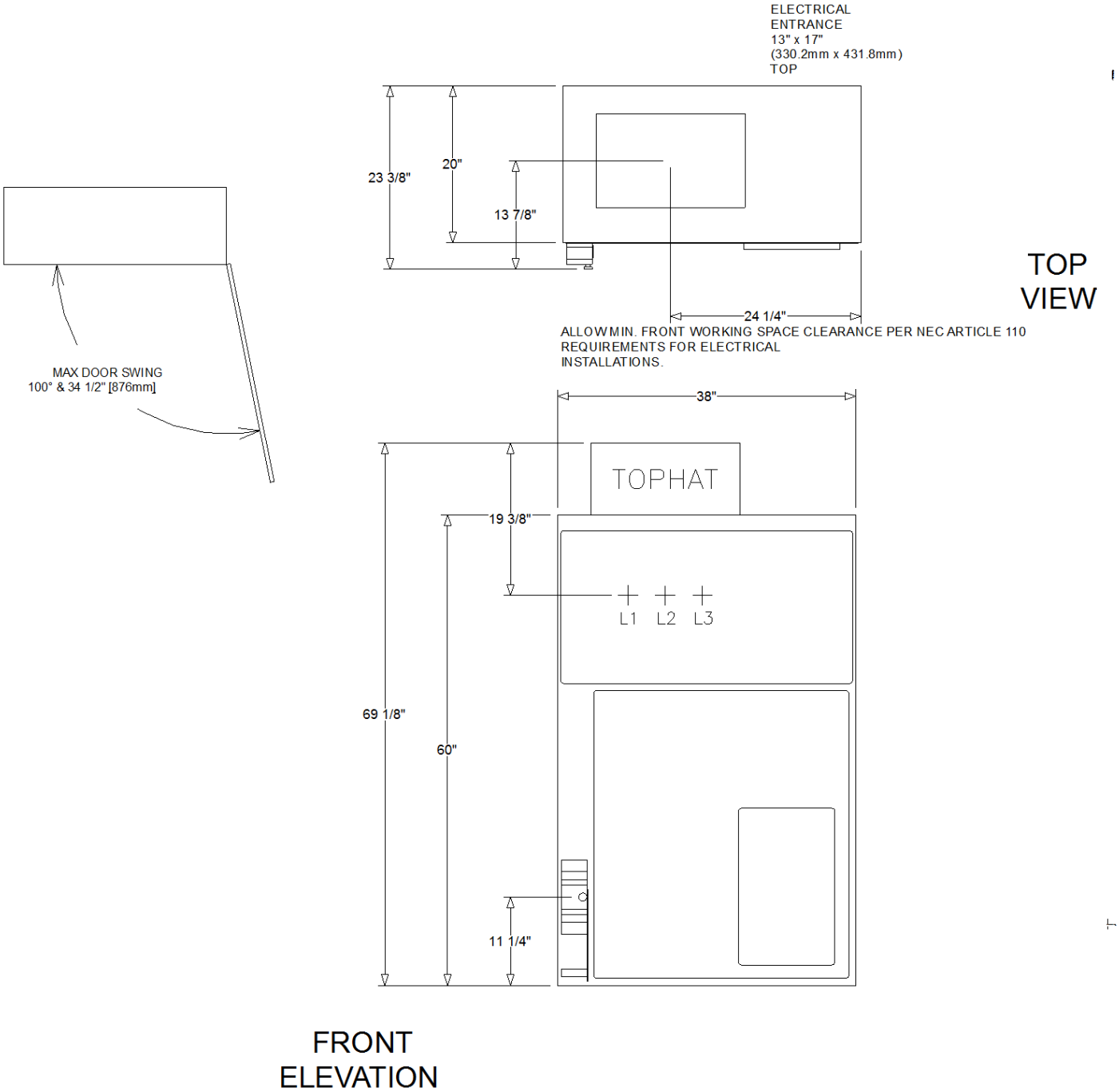
UNIT MOUNTED AUTO TRANSFORMER STARTER

SIZE	BREAKER AICAMPS	SHORT CIRCUIT WITHSTAND RATINGS (RMS SYMETRICALAMPS)	LINE CONNECTION LUGS AUTO TRANSFORMER	PANEL CONNECTION	INTERNAL WIRE LENGTH
---	N/A	N/A	SEE CABLE NOTE BELOW	ISSW	SEE BELOW

POWER FACTOR CORRECTION CAPACITORS, WHEN SELECTED, ARE NOT INCLUDED IN THE UL SHORT CIRCUIT RATING OF THE STARTER.
NOTE TO INSTALLER: SEE THE AVAILABLE WIRE BENDING SPACE DIMENSION FOR CABLE TERMINATION.
MAXIMUM LINE CABLE SIZE IS 500 MCM, ONE PER PHASE.
TERMINATIONS ON THE CABLE ARE TO BE FIELD SUPPLIED AND FIELD INSTALLED, GRADE 5, 3/8 16 STEEL
HARDWARE SHOULD BE USED TO CONNECT THE LUGS TO THE ISOLATION SWITCH TABS.
FOLLOW THE INSTALLATION MANUAL FOR CABLE TERMINATION AND TOP HAT SECTION INSTALLATION.

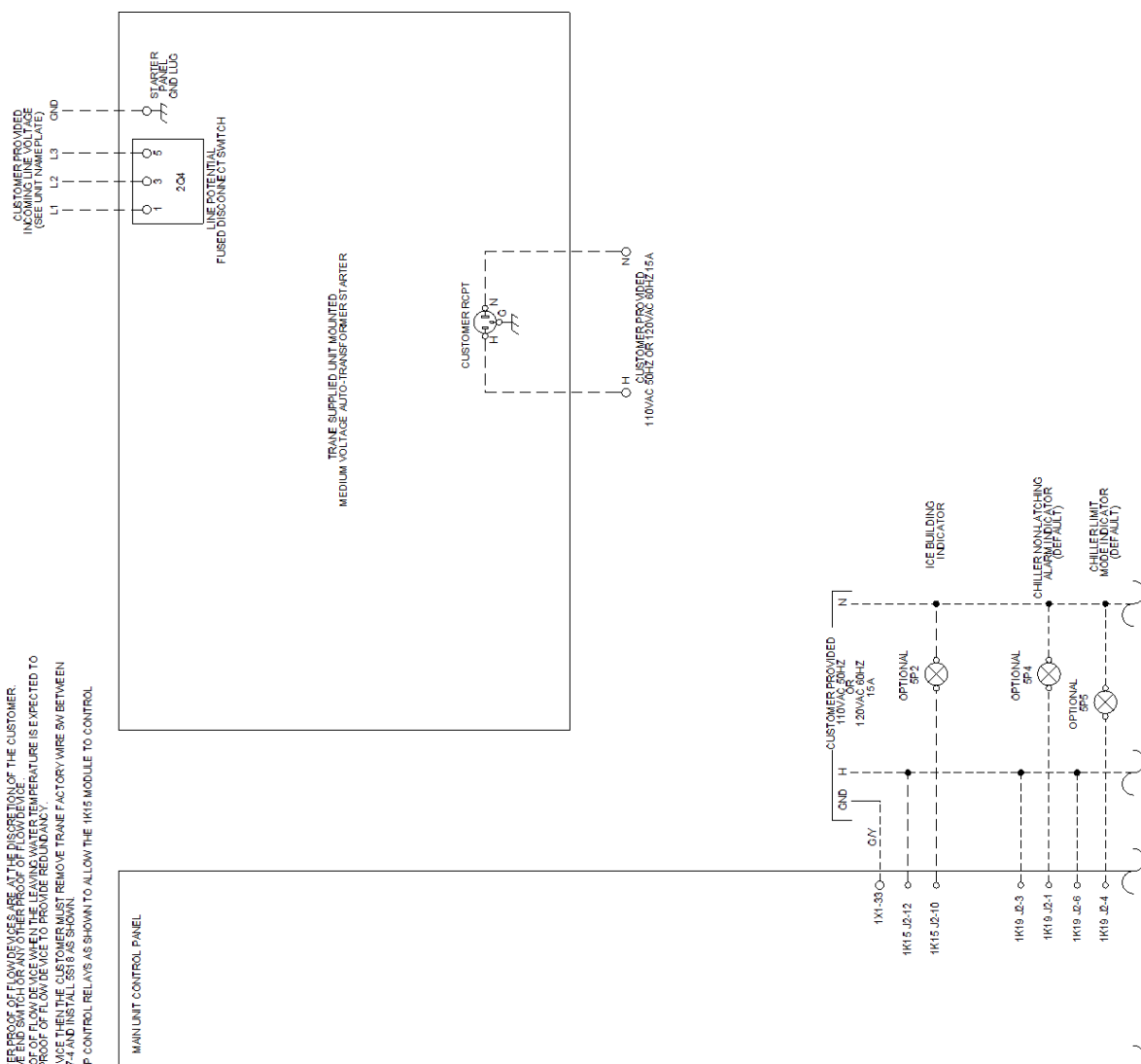
ISSW = ISOLATION SWITCH

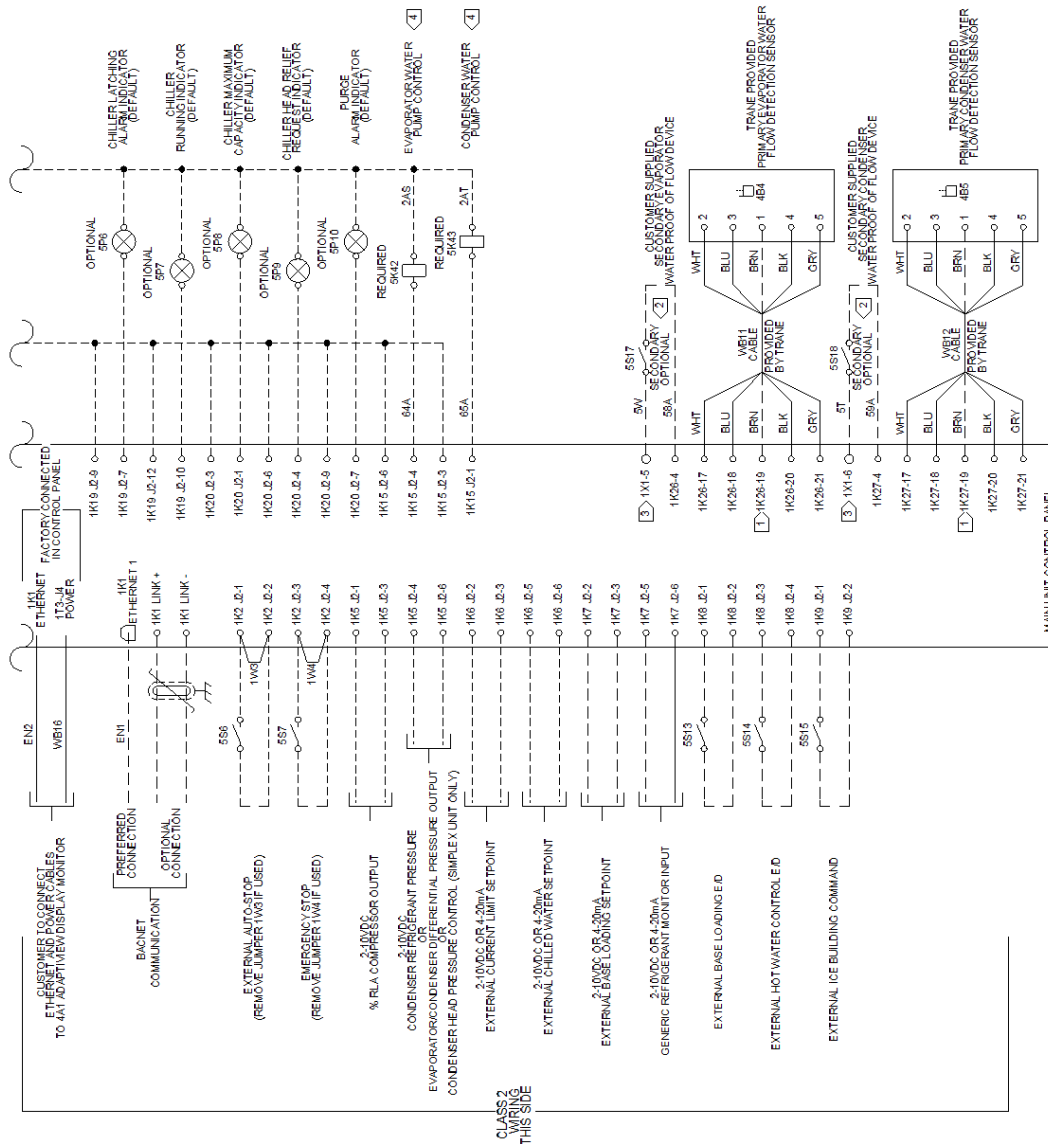
NOTE TO INSTALLER, SEE THE AVAILABLE WIRE BENDING SPACE DIMENSION FOR CABLE TERMINATION.



NOTES:

1. INSTALLATION OF PRIMARY VAPORATORS AND CONDENSED WATER PROOF OF FLOW DEVICES ARE REQUIRED. THESE ARE INDICATED AS TRANE INSTALLED IN 1026 AND 1127.
2. WATER FLOW RATE OF REACTION CONTROLLERS.
3. INSTALLATION OF CUSTOMER SUPPLIED SECONDARY VAPORATOR AND CONDENSED WATER PROOF OF FLOW DEVICES ARE AT THE DISCRETION OF THE CUSTOMER.
4. TRANE RECOMMENDS INSTALLATION OF THE 5167 SECONDARY VAPORATOR WATER PROOF OF FLOW DEVICES WHEN THE LEAVING WATER TEMPERATURE IS EXPECTED TO BE 35F OR LESS AND THAT THE METHOD USED IS INDEPENDENT OF THE PRIMARY WATER PROOF OF FLOW DEVICE TO PROVIDE REDUNDANCY.
5. IF THE CUSTOMER CHOOSES TO INSTALL EITHER SECONDARY WATER PROOF OF FLOW DEVICE, THEN THE CUSTOMER MUST REMOVE TRANE FACTORY WIRE AWAY BETWEEN IN 1026 AND 1126A AND INSTALL 5167 AS SHOWN AND WIRE 57 BETWEEN IN 1026 AND 1127A AND INSTALL 5167 AS SHOWN.
6. PROPER SENSING MUST BE WIRING IN THE 5167 AS VAPORATOR AND 9143 CONDENSER WATERTEMP. CONTROL RELAYS AS SHOWN TO ALLOW THE 11657 MODULE TO CONTROL.

[illegible]



ANY 1K19 OR 1K20 DEFAULT OUTPUT MAY BE REPROGRAMMED TO ANY ALTERNATE ALARM STATUS OUTPUT SHOWN BELOW

OPTIONAL SP14 CHILLER ALARM INDICATOR

⚠️ WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE CONTROL SYSTEMS BEFORE WORKING ON THIS WIRING. INSURE THAT ALL MOTOR OR CAPACITORS HAVE DISCHARGED STORED VOLTAGE UNITS WITH THE FOLLOWING INSTRUCTIONS FOR CAPACITOR DISCHARGE FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠️ AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS D'ISOLANCE. PUIS SUIVRE LES PROCÉDURES DE VÉRIFICATION ET DES UNITÉS DE DÉCHARGES DES CONDENSATEURS. VÉRIFIER QUE TOUTES LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. MANUTENIR LA VITESSE VARIABLE. LE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS. UN MANQUEMENT À LA PROCÉDURE POUVRA CAUSER DES BLESSURES GRAVES, VOIRE LA MORT.

⚠️ ADVERTENCIA

¡VOLTAGE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE TRABAJAR EN EL EQUIPO. ASEGURESE DE QUE TODOS LOS CONDENSADORES DE LOS MOTORES SEAN DESCARGADOS. MANTENGA LA VELOCIDAD VARIABLE. CONSULTE LAS INSTRUCCIONES DE MANTENIMIENTO PARA LAS UNIDADES CON TRANSMISIÓN DE VELOCIDAD VARIABLE. CONECTE LAS INSTRUCCIONES DEL CONDENSADOR. NO REALIZARLO ANTECHICO PUEDEN PROVOCAR LA MUERTE O LESIONES GRAVES.

DEVICE PREFIX CODE
1 = MAIN UNIT CONTROL PANEL DEVICE
2 = STARTER OR DRIVE PANEL DEVICE
3 = CUSTOMER PROVIDED DEVICE
4 = CUSTOMER PROVIDED DEVICE
5 = CUSTOMER PROVIDED DEVICE
6 = CUSTOMER PROVIDED DEVICE
7 = CUSTOMER PROVIDED DEVICE
8 = CUSTOMER PROVIDED DEVICE
DASHED LINES INDICATE CUSTOMER WIRING.
WIRE NUMBERS SHOWN ARE RECOMMENDED BY TRANE.

NOTICE

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER THAN COPPER WIRING.
FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.
COPPER MUST BE USED FOR ALL WIRING.
DO NOT ROUTE LOW VOLTAGE (30VDC) WITH CONTROL VOLTAGE (120VAC).
DO NOT POWER UNIT UNTIL CHECK-OUT AND START-UP PROCEDURES HAVE BEEN COMPLETED.

AVIS

UTILISER QUE DES CONDUCTEURS EN COUPRE!
LES BORSES DE L'UNITÉ NE SONT PAS CONÇUES POUR ACCEPTER D'AUTRES TYPES DE CONDUCTEURS.
UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAVNER DES DOMMAGES À L'ÉQUIPEMENT.
NE PAS ROUTER LA TENSION FAIBLE (30VDC) AVEC LA TENSION DE CONTRÔLE (120VAC).
NE PAS ALIMENTER L'UNITÉ JUSQU'À LA COMPLETION DES PROCÉDURES DE VÉRIFICATION ET DE MISE EN MARCHÉ.

AVISO

UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO SON DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
NO REALIZARLO ANTECHICO PUEDEN PROVOCAR DAÑOS EN EL EQUIPO.
NO RUTAR LA TENSIN BAJA (30VDC) CON LA TENSIN DE CONTROL (120VAC).
NO REALIZAR LA ALIMENTACIÓN DE LA UNIDAD HASTA QUE SE HAYAN COMPLETADO LOS PROCEDIMIENTOS DE VERIFICACIÓN Y PUESTA EN MARCHA.

Wire Sizing Reference

(AWG/MCM equivalents in mm²)

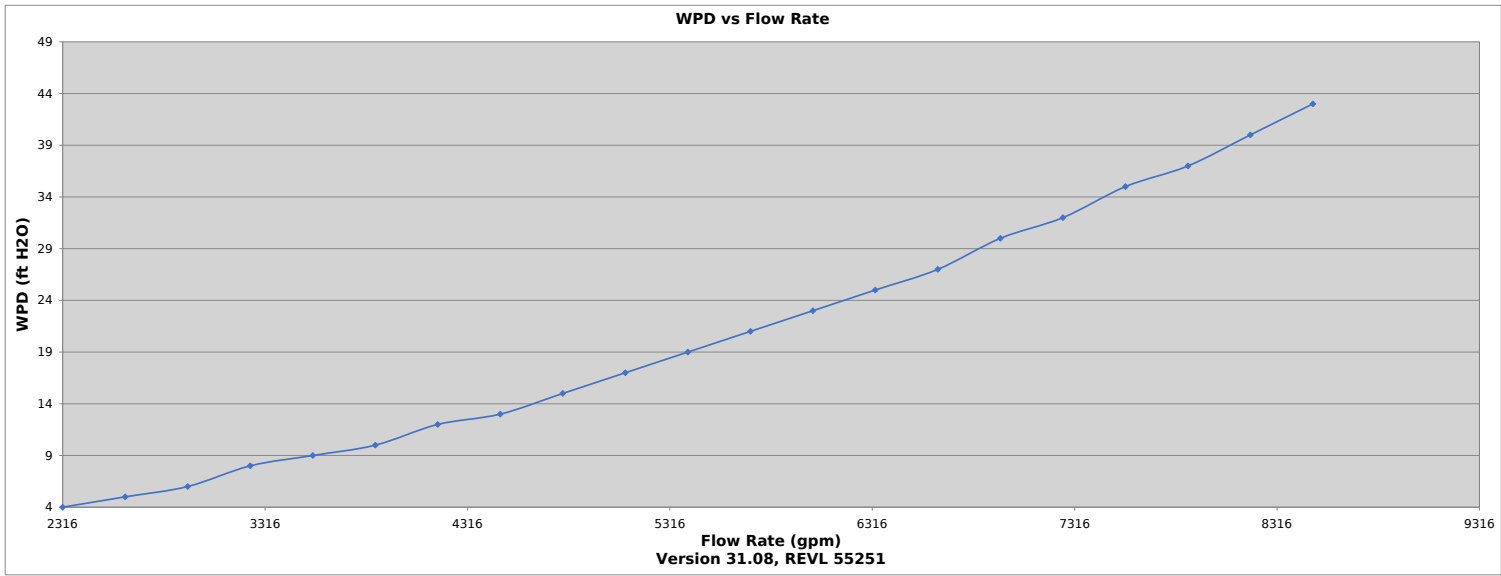
AWG/MCM	mm ² equivalent
22	0.32
21	0.35
20	0.5
18	0.75
17	1.0
16	1.5
14	2.5
12	4
10	6
8	10
6	16
4	25
2 or 1	35
1/0	50
2/0	70
2/0 or 3/0	95
4/0 or 250	120
300	150
350 or 400	185
450 or 500	240
Note: AWG = American Wire Gauge	

Important: Customers are responsible for all field wiring in compliance with local, national, and/or international codes.



CenTraVac Condenser WPD Curve

Pressure Drop Curve

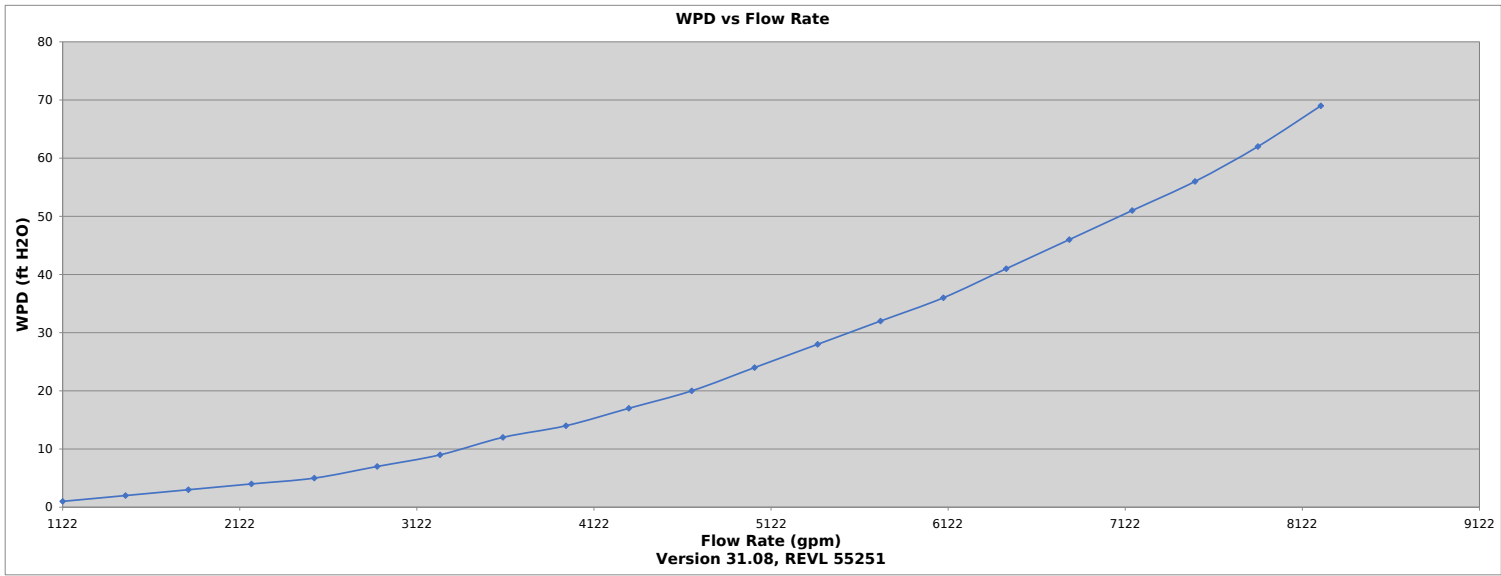


Flow Rate Table		Unit Configuration		
Flow Rate (gpm)	WPD (ft H2O)			
2316	4	SRTY-UATR	EVVF- NO	FTST-YES
2625	5	MODL-CVHH	EVFP-TDFS	TEST-AIR
2934	6	SEIS-IBC	CDSZ-220L	TTOL-AIR
3243	8	CPTR- NO	CTSP-NONE	ASTT- NO
3552	9	NTON-1700	CDBS-2200	ASKT-NONE
3861	10	ENCL-STD	CDTM-IECU	OPMM-KWTN
4169	12	IVLT-4160	CDTC-256	INSL-YES
4478	13	IHRZ- 60	CDTH- 28	EXOP-YES
4787	15	VOLT-4160	CDWP- 2	TRMM-BCNT
5096	17	HRTZ- 60	HGCD-HGBT	WCNM-BNMP
5405	19	CPKW-1338	CDVF- NO	LANG-ENGL
5714	21	FRAM-580L	CDFP-TDFS	LQDD- NO
6023	23	CRTD-STD	OREV-172	LQDP- NO
6331	25	DSOP- NO	ORCD-163	RLDV-RPGD
6640	27	EVSZ-220L	RCRQ-NONE	CRFG-1233
6949	30	EVBS-2200	ARCL-CERT	THRM-2TMS
7258	32	EVTM-IMC1	AH07-NOTC	ACOU-NO
7567	35	EVTC-278	AH7M-NOTC	
7876	37	EVTH- 28	AH10-NOTC	
8184	40	EVWP- 2	AH13-NOTC	
8493	43	HGEV-HGBT	AH16-NOTC	



CenTraVac Evaporator WPD Curve

Pressure Drop Curve



Flow Rate Table

Flow Rate (gpm)	WPD (ft H2O)
1122	1
1477	2
1832	3
2188	4
2543	5
2898	7
3253	9
3608	12
3964	14
4319	17
4674	20
5029	24
5385	28
5740	32
6095	36
6450	41
6806	46
7161	51
7516	56
7871	62
8226	69

Unit Configuration

SRTY-UATR	EVVF- NO	FTST-YES
MODL-CVHH	EVFP-TDFS	TEST-AIR
SEIS-IBC	CDSZ-220L	TTOL-AIR
CPTR- NO	CTSP-NONE	ASTT- NO
NTON-1700	CDBS-2200	ASKT-NONE
ENCL-STD	CDTM-IECU	OPMM-KWTN
IVLT-4160	CDTC-256	INSL-YES
IHRZ- 60	CDTH- 28	EXOP-YES
VOLT-4160	CDWP- 2	TRMM-BCNT
HRTZ- 60	HGCD-HGBT	WCNM-BNMP
CPKW-1338	CDVF- NO	LANG-ENGL
FRAM-580L	CDFP-TDFS	LQDD- NO
CRTD-STD	OREV-172	LQDP- NO
DSOP- NO	ORCD-163	RLDV-RPGD
EVSZ-220L	RCRQ-NONE	CRFG-1233
EVBS-2200	ARCL-CERT	THRM-2TMS
EVTM-IMC1	AH07-NOTC	ACOU-NO
EVTC-278	AH7M-NOTC	
EVTH- 28	AH10-NOTC	
EVWP- 2	AH13-NOTC	
HGEV-HGBT	AH16-NOTC	



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: CH-2, CH-4, CH-6
Quantity: 3

Unit Features

Chiller Model	Refrigeration Capacity	Total Power	Fullload Eff	Refrigerant	Line Volt	Line Frequency	Starter Type
CVHH	2000 tons	1217 kW	0.6085 kW/ton	R-1233zd(E)	4160. V	60. Hz	Mechanical

Unit Overview

Application type	Standard cooling
Insulation	Unit insulation package
Seismic Compliance	IBC Compliant
Compressor	1700
NPLV/IP	0.5103 kW/ton
Rated NPLV/IP	0.5103 kW/ton
Stage 1 impeller size	865.00
Stage 2 impeller size	780.00
Evaporator orifice size	172
Condenser orifice size	163



Selection Tolerances

Selection Tolerance	AHRI Tolerance
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Shell Information

	Evaporator	Condenser		Evaporator	Condenser
	Fluid Temperature			Construction Features	
Entering	57.93 F	85.00 F	Shell Size	220L	220L
Leaving	42.00 F	94.49 F	Bundle Size	2200	2200
	Fluid Properties		Tube Type	IMC1	IECU
Fluid Type	water	water	Tube Thickness	0.028"	0.028"
Fluid Concentration	0.00 %	0.00 %	Connection Type	Victaulic connection evap	Victaulic connection cond
Fouling Factor	0.000100 hr-sq ft-deg F/ Btu	0.000250 hr-sq ft-deg F/ Btu	Water box type	marine	marine
	Flow/Capacity		Water box pressure	150 psig	150 psig
Flow/Capacity	1.500 gpm / ton	3.000 gpm / ton	Flow Proving	Thermal dispersion flow switch (IFM)	Thermal dispersion flow switch (IFM)
	Flow Rate		Number of Passes	Two pass waterbox evaporator	Two pass waterbox cond
Design Flow	3000 gpm	6000 gpm	Hinged Waterbox	Evap both ends	Cond both ends
Min Flow	1122 gpm	2316 gpm	Wbox Arrangement	Evap in LH rear - evap out LH front	Cond in RH rear - cond out RH rear
Max Flow	8227 gpm	8493 gpm	Shell Side Volume	294.93 cu ft	127.31 cu ft
	Fluid Pressure Drop				
PD at Design Flow	9.06 ft H2O	22.8 ft H2O			
PD at Min Flow	0.950 ft H2O	4.09 ft H2O			
PD at Max Flow	68.6 ft H2O	42.9 ft H2O			

Unit Electrical

Med voltage starter type	Unit Mtd Auto Transformer	Min Circuit Ampacity	242.00 A
Med voltage starter conn	Isolation switch	Max Overcurrent Protection	390.00 A
Med voltage starter size (Max RLA)	360 max RLA	Nameplate RLA	191.80 A
Starter enclosure type	Standard starter enclosure	Primary RLA	193.80 A
Motor	1338	Motor Locked Rotor Amps	994.00 A
Total Power	1217 kW	Un-Corrected Power Factor	0.91

Design and Physical Information

Operating Weight	73027.0 lb	Shipping Weight - No Charge	58250.0 lb	Refrigerant charge	2950.0 lb
Agency Listing	UL	Regional Code Requirement	No Requirement	Cond Shell Construction	ASME condenser construction
		Chiller Heat Rejected to ambient	20.77 MBh		



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: CH-2, CH-4, CH-6
Quantity: 3

Information for AHRI and ASHRAE Projects

AHRI 550/590 2015 classification	Certified
ASHRAE 90.1 - 2007	Non-compliance
ASHRAE 90.1 - 2007 Add. M	Non-compliance
ASHRAE 90.1-2010	Non-compliance
ASHRAE 90.1-2013	Non-compliance
ASHRAE 90.1 - 2016	Non-compliance

Certified in accordance with the AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Warranty

Parts whole unit	Year 2 Parts Warranty Unit
Parts less motor and compressor	No parts less motor & cmpr warranty
Motor/compr parts warr. up to 10 years	No motor & compressor parts warranty

Labor after 1st year	2nd year labor warranty whole unit
Refrigerant quality warranty 1st year	1st year refrigerant quality warranty
Refrigerant quality warranty beyond 1st year	2nd year refrigerant quality warranty

Information for LEED Projects

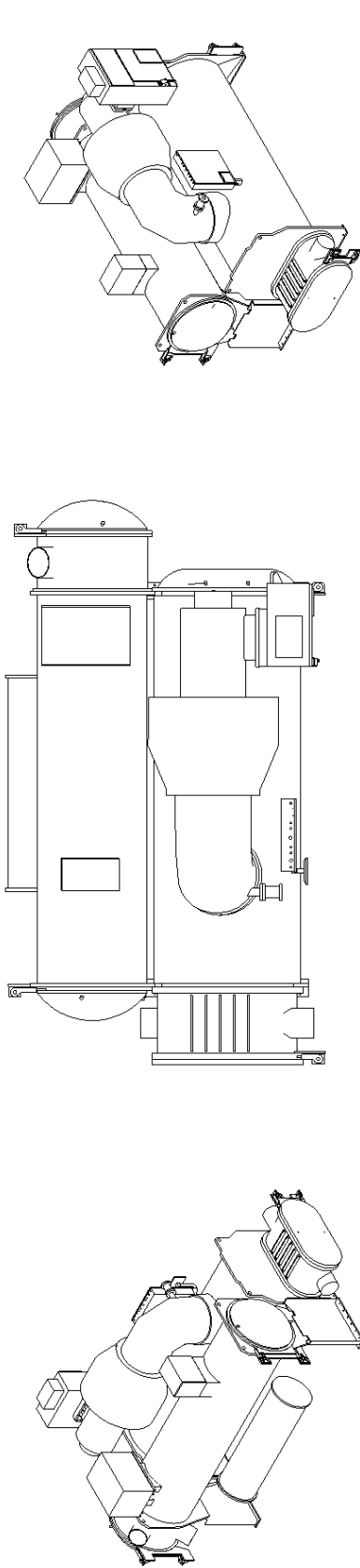
Refrigeration capacity	2000 tons	Total power	1217 kW
Refrigerant charge	2950.0 lb	NPLV.IP	0.5103 kW/ton
		Rated NPLV.IP	0.5103 kW/ton

Compliant with the requirements of the LEED Energy and Atmosphere Enhanced Refrigerant Management Credit (EAc4) due to the R-1233zd refrigerant GWP being 1.

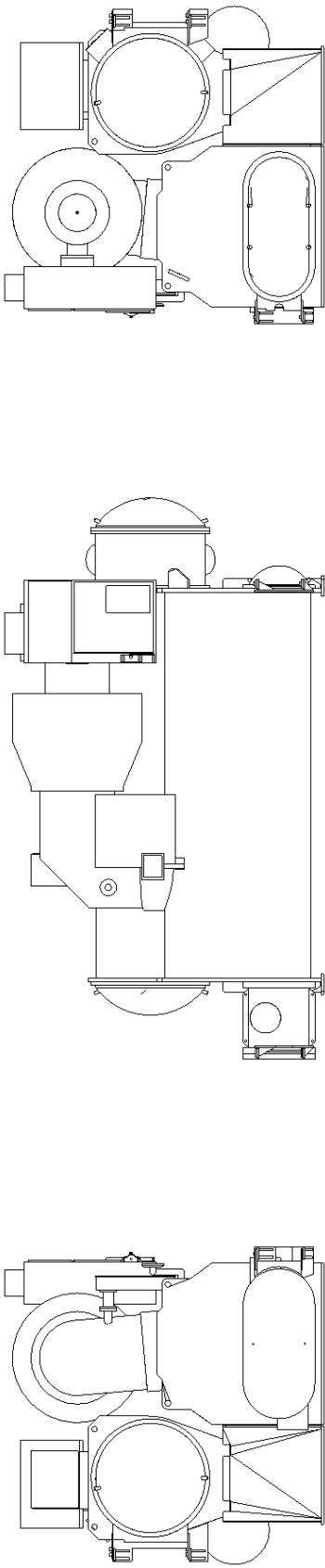
Note: Trane recognizes and respects the U.S. Green Building Council® mandate that a default 2% Refrigerant Leakage Rate (Lr) be used by all manufacturers of centrifugal chillers when calculating the Enhanced Refrigerant Management Credit because there is no industry standard. Trane has exhaustively documented a leak rate of less than 0.5% for CenTraVac™ chillers (models CVHE, CVHF, CVHG, CVHS, CVHM, CDHF, CDHG, CVHH and CDHH) and utilizes an average design refrigerant charge of less than 2 lb./ton.

The U.S. Green Building Council's LEED® green building program is the preeminent program for the design, construction, maintenance and operations of high-performance green buildings. It provides independent, third-party verification that a building project meets the highest green building and performance measures.

Trane Select Assist
Version Number: 55250.00 Each
Data Generation Date: 1/14/2023



TOP VIEW



FRONT VIEW

RIGHT SIDE VIEW

LEFT SIDE VIEW

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN REAR OUT FRONT
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS. UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.

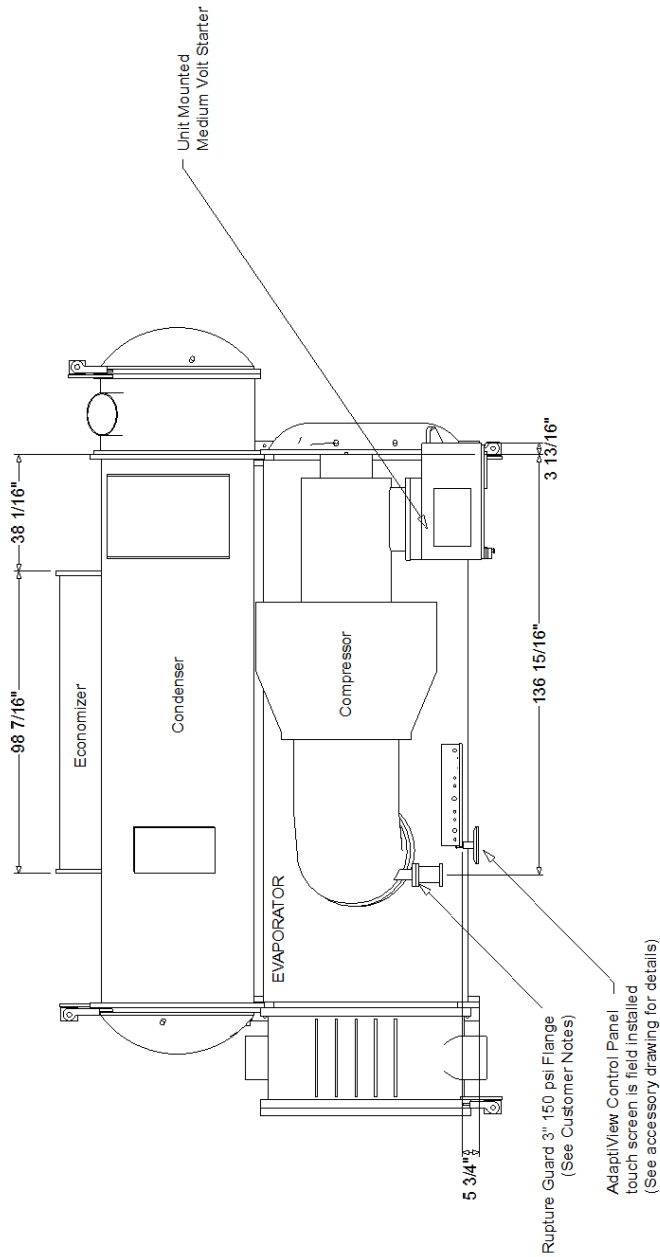
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO SUCTION ELBOW TOLERANCE VARIATION

EVAP CONNS ARE REAR INLET AND FRONT OUTLET.

WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER, FACTORY SUPPLIED (INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).

WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS



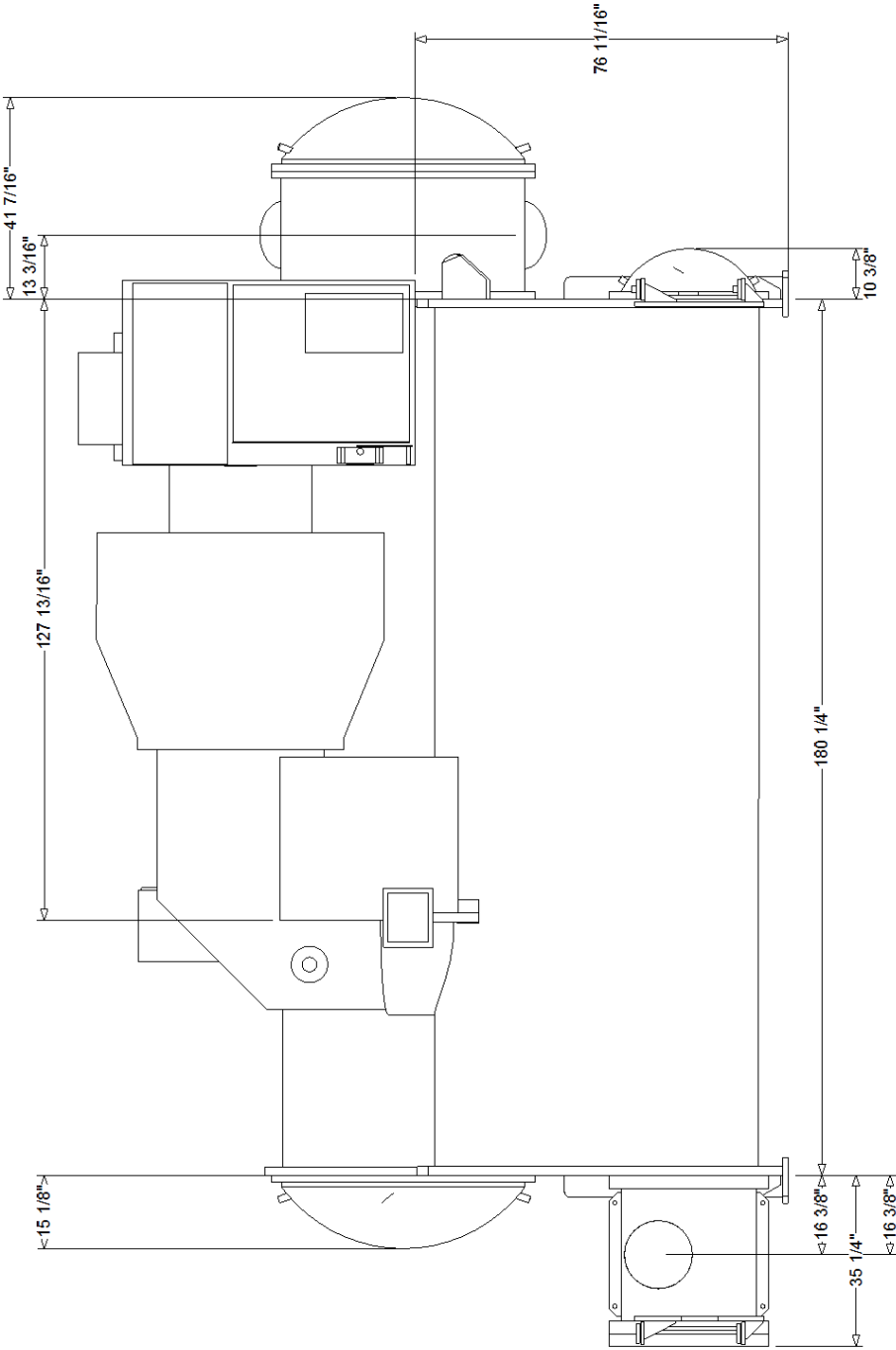
TOP VIEW

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SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN REAR OUT FRONT
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP

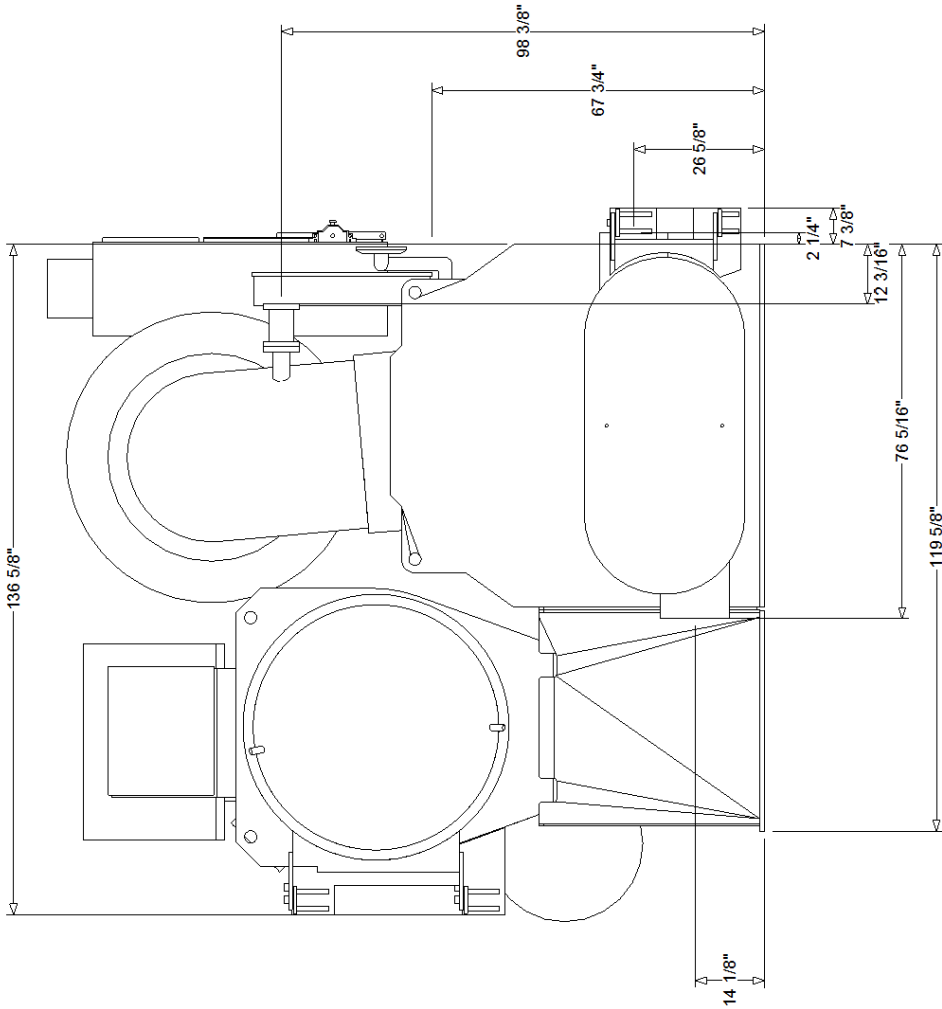


FRONT VIEW

CUSTOMER NOTES:

- GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS. UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.
- UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO SUCTION ELBOW TOLERANCE VARIATION
EVAP CONNS ARE REAR INLET AND FRONT OUTLET.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.
TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER, FACTORY SUPPLIED (INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTAULIC	IN REAR OUT FRONT
COOLING COND	14"	VICTAULIC	IN BOTTOM OUT TOP



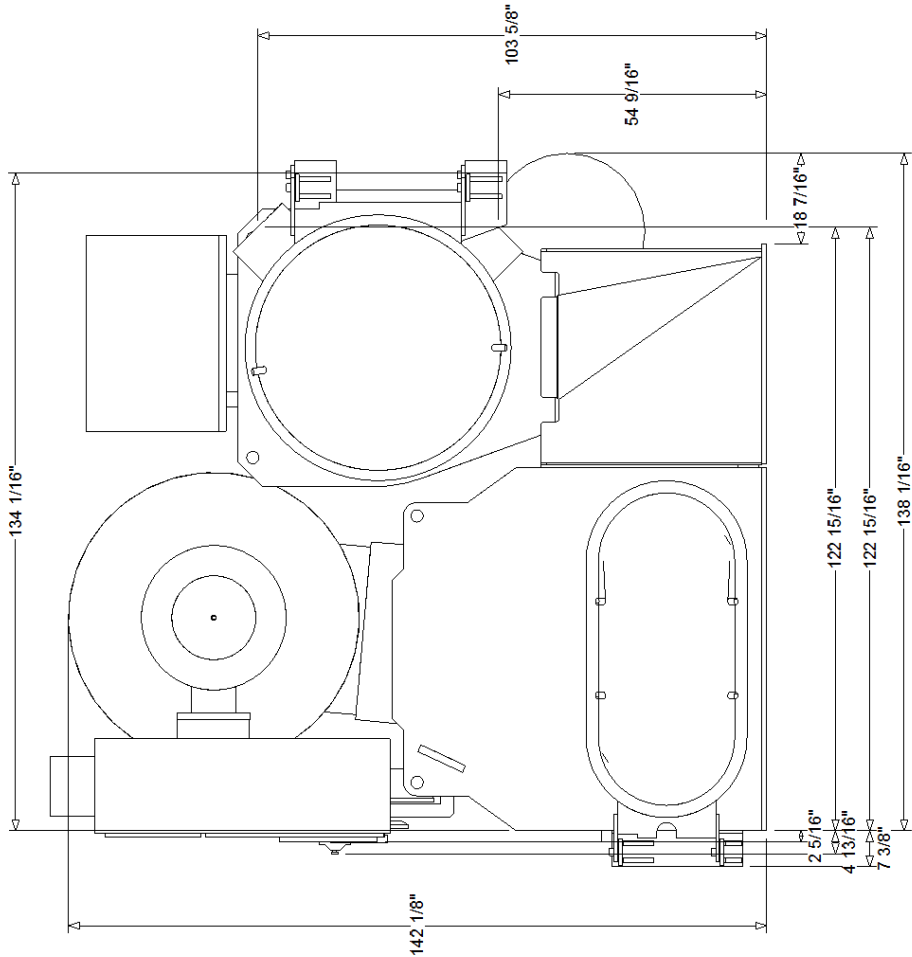
LEFT SIDE VIEW

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTALIC	IN REAR OUT FRONT
COOLING COND	14"	VICTALIC	IN BOTTOM OUT TOP

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS. UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT DUE TO SUCTION ELBOW TOLERANCE VARIATION
EVAP CONNS ARE REAR INLET AND FRONT OUTLET.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES. TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER. FACTORY SUPPLIED (INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS



RIGHT SIDE VIEW

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	14"	VICTALLIC	IN REAR OUT FRONT
COOLING COND	14"	VICTALLIC	IN BOTTOM OUT TOP

CUSTOMER NOTES:

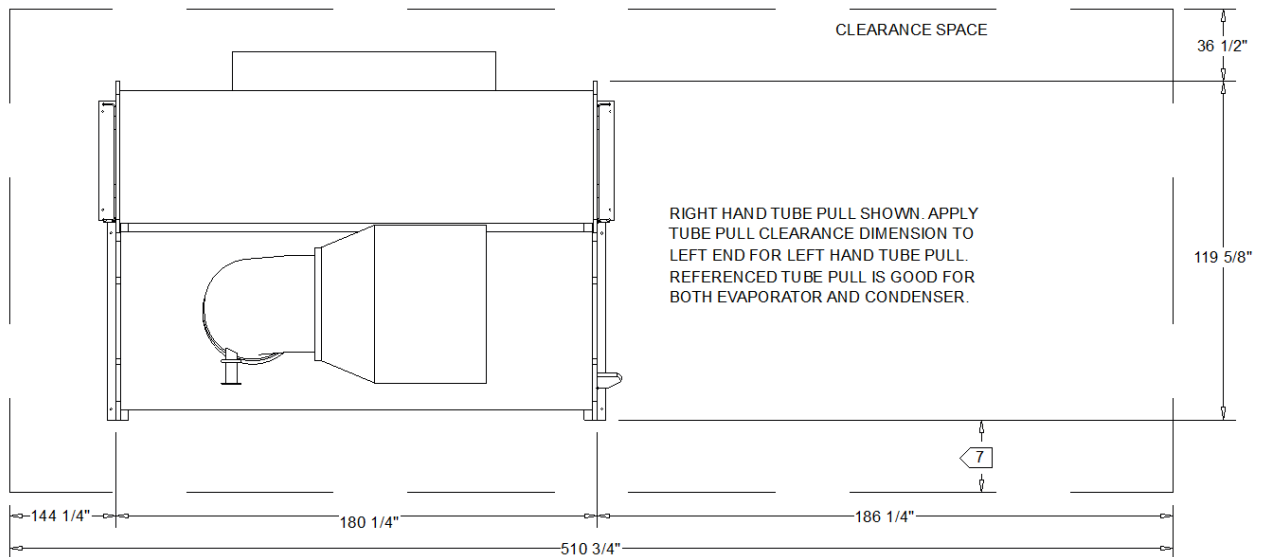
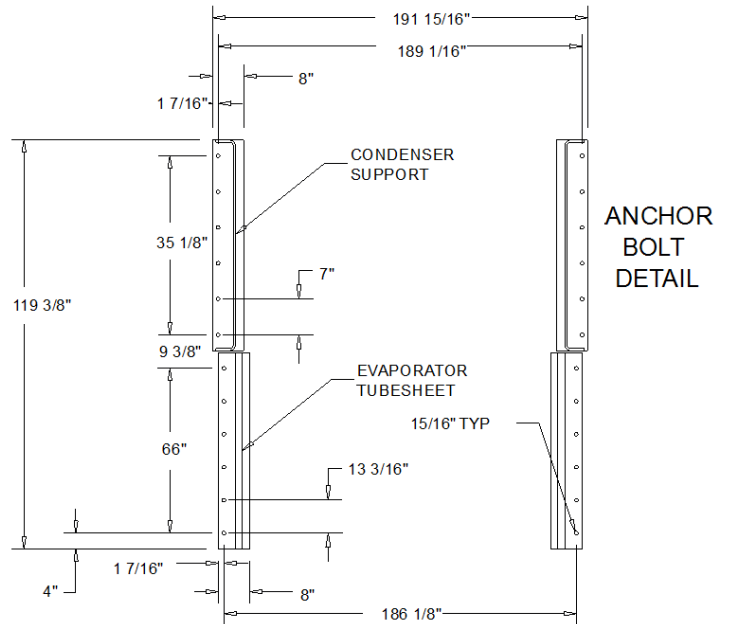
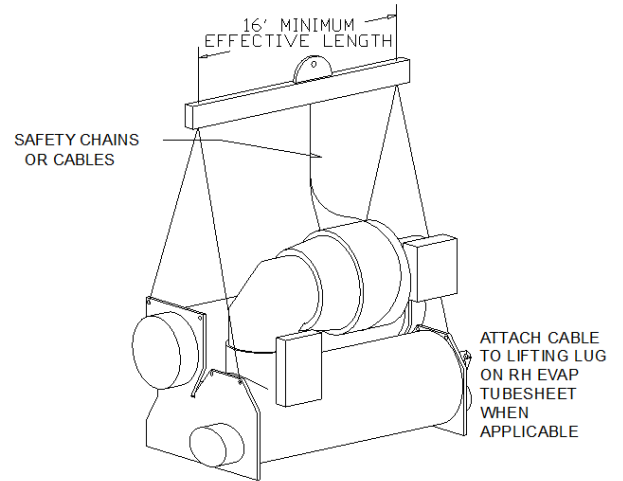
GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/16"$
RELIEF DEVICE DISCHARGE LOCATION MAY VARY FROM UNIT TO UNIT DUE TO
SUCTION ELBOW TOLERANCE VARIATION
EVAP CONNS ARE REAR INLET AND FRONT OUTLET
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES
TOP HAT SECTION FOR UNIT MOUNTED MEDIUM VOLTAGE STARTER, FACTORY SUPPLIED
(INSIDE STARTER) AND FIELD INSTALLED (SEE ACCESSORY DRAWING FOR DETAILS).
WATER CONNECTION GROOVES ARE NOT COMPATIBLE WITH AGS FITTINGS

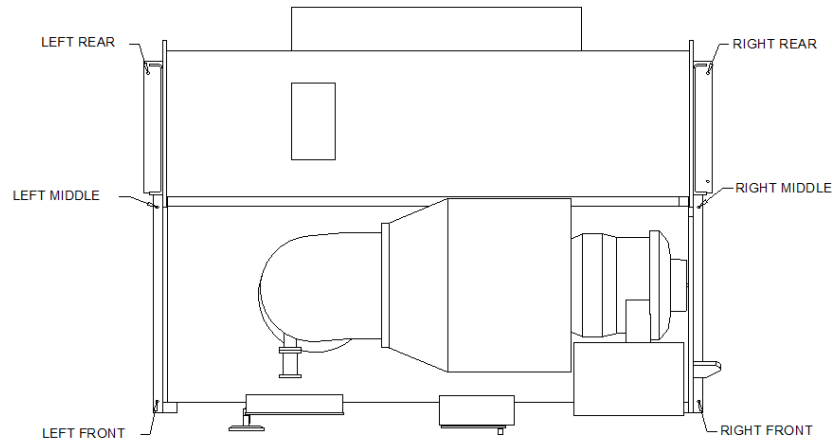
⚠ WARNING

1. **HEAVY OBJECTS!**
DO NOT USE CABLES (CHAINS OR SLINGS) EXCEPT AS SHOWN. EACH OF THE CABLES (CHAINS OR SLINGS) USED TO LIFT THE UNIT MUST BE CAPABLE OF SUPPORTING THE ENTIRE WEIGHT OF THE UNIT. LIFTING CABLES (CHAINS OR SLINGS) MAY NOT BE OF THE SAME LENGTH. ADJUST AS NECESSARY FOR EVEN UNIT LIFT. OTHER LIFTING ARRANGEMENTS MAY CAUSE EQUIPMENT OR PROPERTY-ONLY DAMAGE. FAILURE TO PROPERLY LIFT UNIT MAY RESULT IN DEATH OR SERIOUS INJURY. SEE DETAILS BELOW.
2. **IMPROPER UNIT LIFT!**
TEST LIFT UNIT APPROXIMATELY 24 INCHES TO VERIFY PROPER CENTER OF GRAVITY LIFT POINT. TO AVOID DROPPING OF UNIT, REPOSITION LIFTING POINT IF UNIT IS NOT LEVEL. FAILURE TO PROPERLY LIFT UNIT COULD RESULT IN DEATH OR SERIOUS INJURY OR POSSIBLE EQUIPMENT OR PROPERTY-ONLY DAMAGE.
3. ATTACH SAFETY CHAIN OR CABLE AS SHOWN WITHOUT TENSION, NOT AS A LIFTING CHAIN OR CABLE, BUT TO PREVENT THE UNIT FROM ROLLING.
4. DO NOT FORKLIFT THE UNIT TO MOVE OR LIFT.
5. LIFTING HOLES PROVIDED ON CHILLER TO ATTACH CABLES (CHAINS OR SLINGS).
6. 36" (900 MM) RECOMMENDED CLEARANCE ABOVE HIGHEST POINT OF COMPRESSOR.
7. FOLLOW NEC SECTION 110 AND OTHER APPLICABLE LOCAL CODES FOR CLEARANCES IN FRONT OF ELECTRICAL ENCLOSURES.
8. SPECIFIC SHIPPING AND OPERATING WEIGHTS OF THE SUBMITTED CHILLER ARE PROVIDED IF THE CENTRIFUGAL CHILLER SELECTION WAS ENTERED IN TOPSS. DETAILED LOAD POINT AND SPRING ISOLATOR APPLICATION WEIGHTS ARE AVAILABLE FROM "CENTRAVAC ISOLATOR SELECTION REPORT" AVAILABLE FROM THE REPORT GENERATOR OF THE TRANE TOPSS CHILLER SELECTION PROGRAM. CONTACT YOUR LOCAL TRANE SALES ENGINEER IF THIS DATA IS REQUIRED.
9. ADDITIONAL MARINE WATERBOX SERVICE CLEARANCE MAY BE ACHIEVED BY PLACING THE UNIT ON A HOUSEKEEPING PAD SPACERS, OR SPRINGS. IF A HOUSEKEEPING PAD IS PROVIDED, IT SHOULD NOT EXTEND MORE THAN 6" PAST THE OUTSIDE FACE OF THE TUBESHEET.

(SEE NOTE 8 ABOVE)	
MAXIMUM SHIPPING	Shipping weight - No Charge
MAXIMUM OPERATING	73,027.0 lb



WEIGHTS AND CENTER OF GRAVITY



SPRING ISOLATOR SELECTION

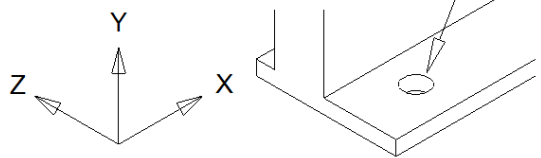
LOCATION	ISOLATOR LOAD*	VENDOR P/N	TRANE P/N	ISOLATOR COLOR
LEFT FRONT	11,843.0 lb			
LEFT REAR	9,931.0 lb			
RIGHT FRONT	13,853.0 lb			
RIGHT REAR	11,791.0 lb			
LEFT MIDDLE	10,728.0 lb			
RIGHT MIDDLE	12,652.0 lb			

COMPONENT	WEIGHT*
COMPRESSOR WEIGHT	7,086.0 lb
MOTOR WEIGHT	5,410.0 lb
STARTER WEIGHT	1,702.0 lb
SUCTION ELBOW WEIGHT	770.0 lb
ECONOMIZER WEIGHT	1,620.0 lb
EVAPORATOR WEIGHT	17,872.0 lb
EVAPORATOR WATERBOXES WEIGHT	2,090.0 lb
CONDENSER WEIGHT	11,999.0 lb
CONDENSER WATERBOXES WEIGHT	2,304.0 lb
AUXILIARY CONDENSER WEIGHT	N/A
AUXILIARY CONDENSER WATERBOXES WEIGHT	N/A
MISCELLANEOUS WEIGHT	5,244.0 lb

UNIT CENTER OF GRAVITY

CG Z (DIMENSION FROM RIGHT TO LEFT)	80.000 in
CG X (DIMENSION FROM FRONT TO REAR)	59.000 in
CG Y (HEIGHT DIMENSION FROM FLOOR)	63.000 in

RIGHT FRONT ISOLATOR MOUNTING HOLE
BOTTOM OF THIS HOLE IS 0,0,0 POINT
FOR CENTER OF GRAVITY DIMENSIONS



WEIGHTS

SHIPPING	OPERATING
58,250.0 lb	73,027.0 lb

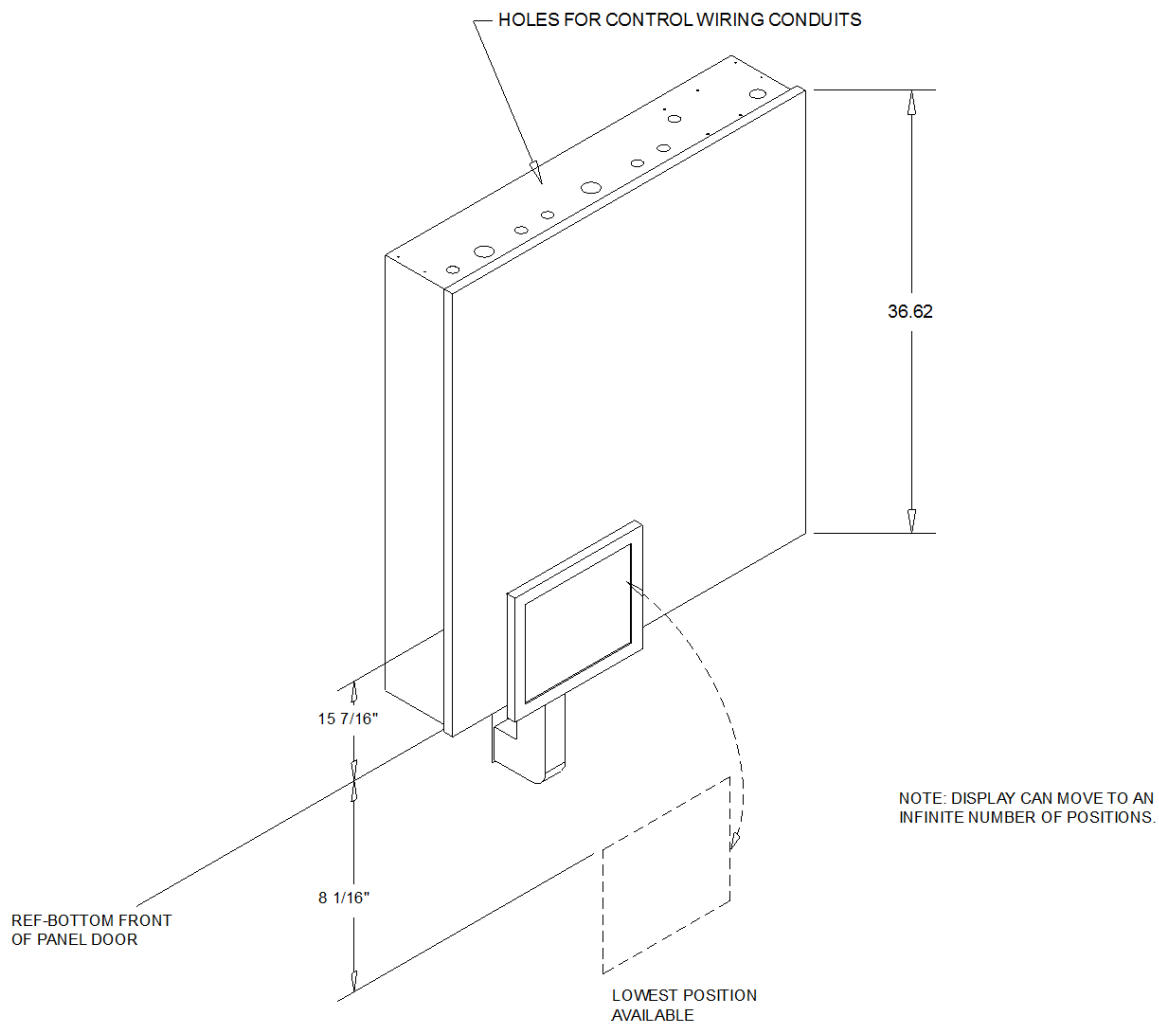
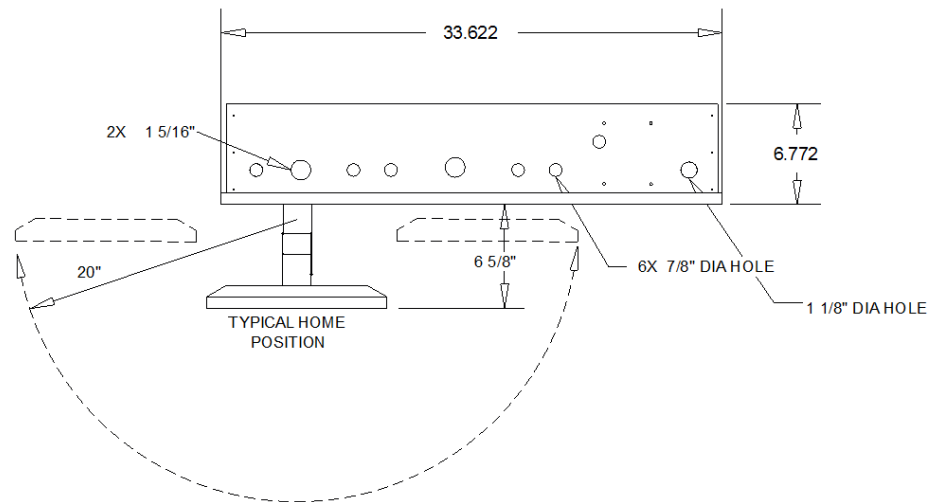
NAMEPLATE PRODUCT DESCRIPTION:

MODL	CVHH	VOLT	4160	PTON	2,000.00 tons	NTON	1700
EVTM	IMC1	CDTM	IECU	CPKW	1338	CPIM	N/A
CDBS	2200			EVSZ	220L	EVBS	2200
ORCD	163	OREC	N/A	OREV	172	CDSZ	220L

*ALL PUBLISHED WEIGHTS ACCURATE TO +/- 10 %

ADAPTIVIEW CONTROL PANEL

TOP VIEW

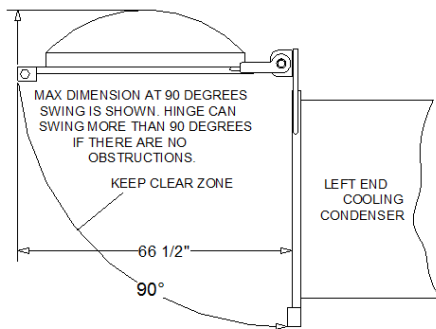


HINGE SWING DETAIL DRAWING

ALL VIEWS ON THIS PAGE ARE TOP VIEWS

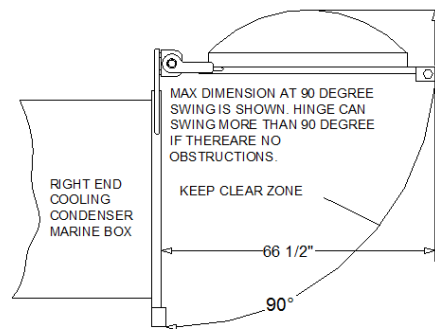
LEFT END OF COOLING CONDENSER

LEFT HAND 150 PSI RETURN BOX AND HINGE SWING



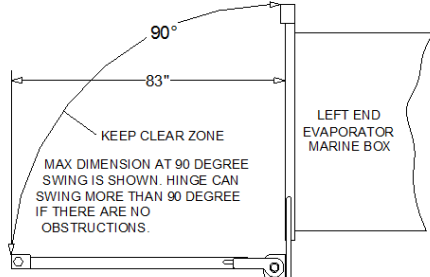
RIGHT END OF COOLING CONDENSER

RIGHT HAND 150 PSI MAR BOX COVER AND HINGE SWING



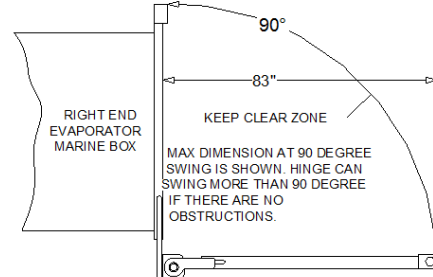
LEFT END OF EVAPORATOR

LEFT HAND 150 & 300 PSI MARINE BOX COVER AND HINGE SWING



RIGHT END OF EVAPORATOR

RIGHT HAND 150 & 300 PSI MARINE BOX COVER AND HINGE SWING





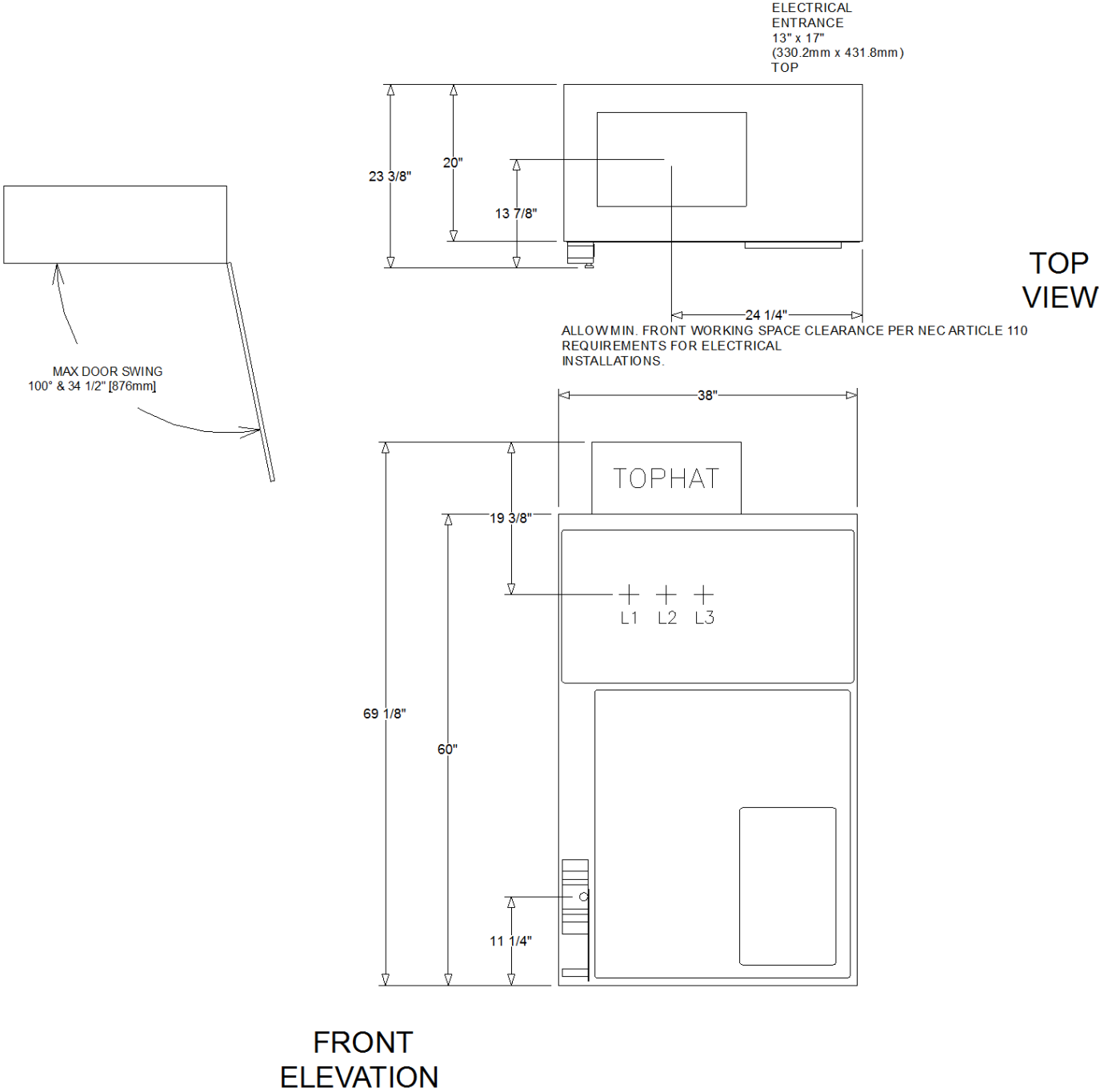
UNIT MOUNTED AUTO TRANSFORMER STARTER

SIZE	BREAKER AICAMPS	SHORT CIRCUIT WITHSTAND RATINGS (RMS SYMETRICALAMPS)	LINE CONNECTION LUGS AUTO TRANSFORMER	PANEL CONNECTION	INTERNAL WIRE LENGTH
---	N/A	N/A	SEE CABLE NOTE BELOW	ISSW	SEE BELOW

POWER FACTOR CORRECTION CAPACITORS, WHEN SELECTED, ARE NOT INCLUDED IN THE UL SHORT CIRCUIT RATING OF THE STARTER.
NOTE TO INSTALLER: SEE THE AVAILABLE WIRE BENDING SPACE DIMENSION FOR CABLE TERMINATION.
MAXIMUM LINE CABLE SIZE IS 500 MCM, ONE PER PHASE.
TERMINATIONS ON THE CABLE ARE TO BE FIELD SUPPLIED AND FIELD INSTALLED, GRADE 5, 3/8 16 STEEL
HARDWARE SHOULD BE USED TO CONNECT THE LUGS TO THE ISOLATION SWITCH TABS.
FOLLOW THE INSTALLATION MANUAL FOR CABLE TERMINATION AND TOP HAT SECTION INSTALLATION.

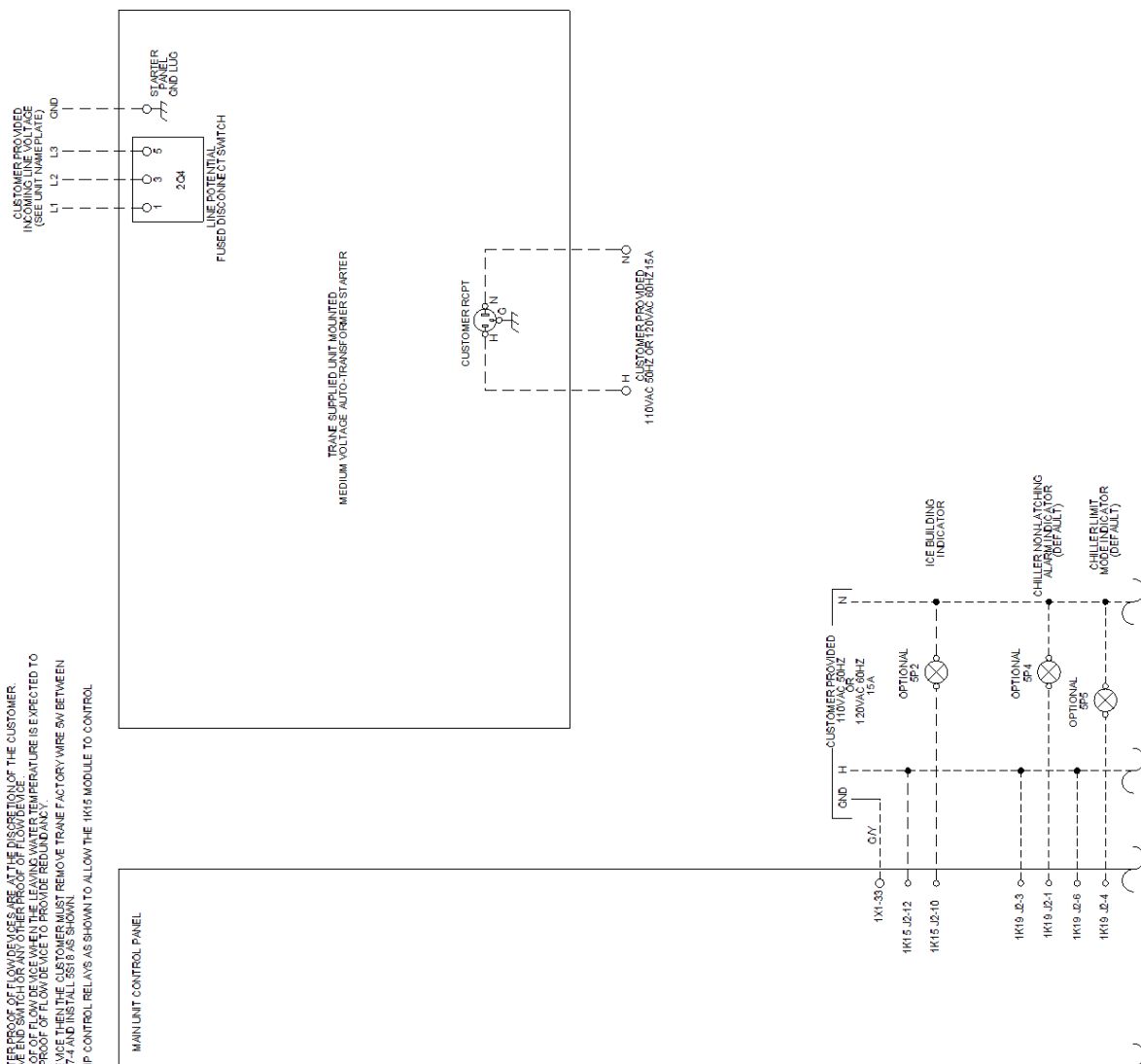
ISSW = ISOLATION SWITCH

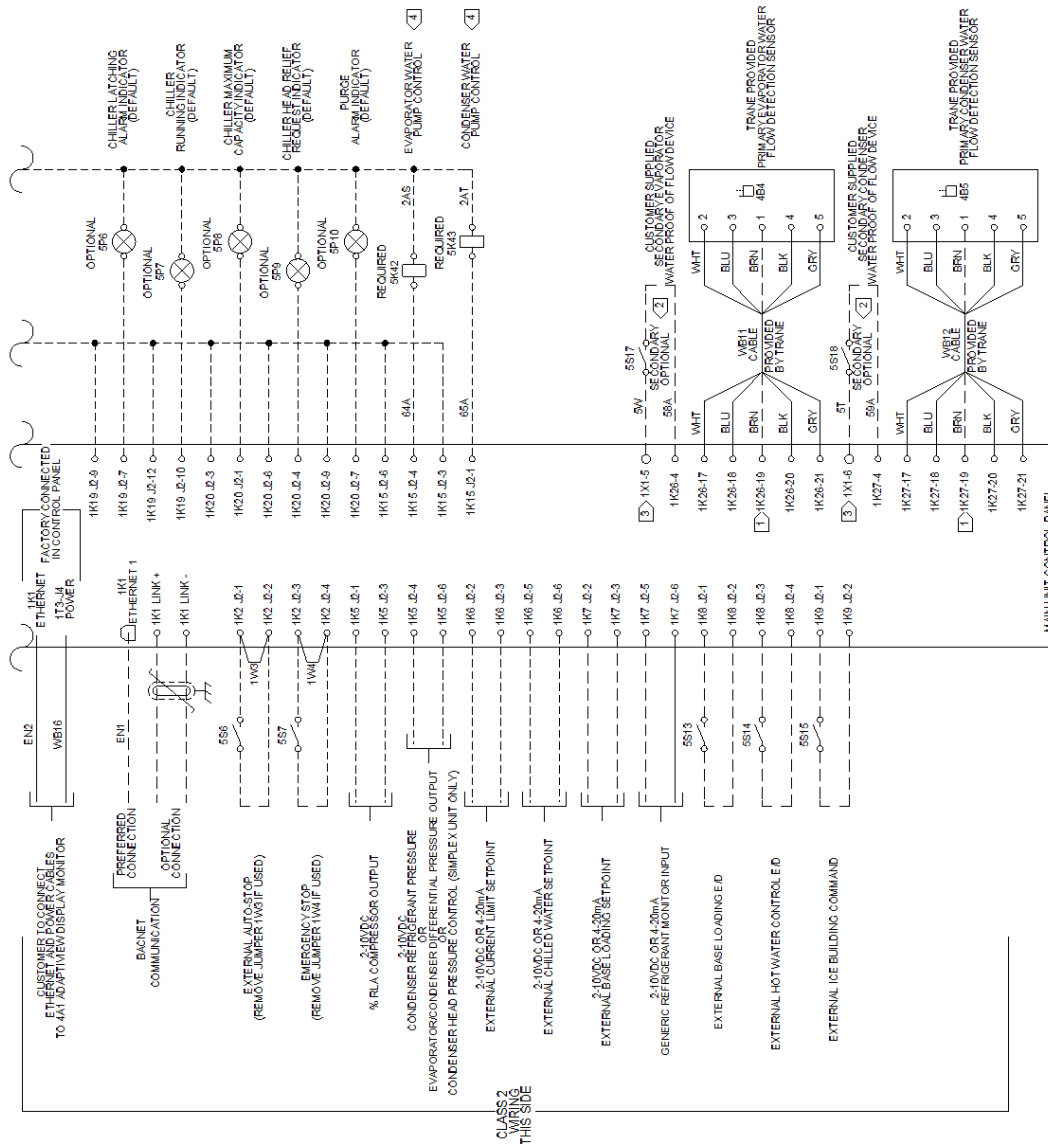
NOTE TO INSTALLER, SEE THE AVAILABLE WIRE BENDING SPACE DIMENSION FOR CABLE TERMINATION.



NOTES:

1. INSTALLATION OF PRIMARY EVAPORATOR AND CONDENSER WATER PROOF OF FLOW DEVICES ARE REQUIRED. THESE ARE INDICATED AS TRANE INSTALLED HQ39 AND HK27. WATER FLOW RATE OF TECTON COLLECTORS.
2. INSTALLATION OF SECONDARY EVAPORATOR AND CONDENSER WATER PROOF OF FLOW DEVICES ARE AT THE DISCRETION OF THE CUSTOMER. TRANE RECOMMENDS INSTALLATION OF THE 5817 SECONDARY EVAPORATOR WATER PROOF OF FLOW DEVICES WHEN THE LEAVING WATER TEMPERATURE IS EXPECTED TO BE 38°F OR LESS AND THAT METHOD USED IS INDEPENDENT OF THE PRIMARY WATER PROOF OF FLOW DEVICES TO PROVIDE REDUNDANCY.
3. IF THE CUSTOMER CHOOSES TO INSTALL EITHER SECONDARY WATERPROOF OF FLOW DEVICES THEN THE CUSTOMER MUST REMOVE TRANE FACTORY WIRE AWAY BETWEEN THE CUSTOMER AND INSTALL 5817 AS SHOWN AND MAKE SURE 5817 BETWEEN HQ39 AND HK27 AND INSTALL 5817 AS SHOWN.
4. TRANE RECOMMENDS WIRING THE 5817 EVAPORATOR AND 5817 CONDENSER WATERPUMP CONTROL RELAYS AS SHOWN TO ALLOW THE HK5 MODULE TO CONTROL.

[illegible]



ANY 1K19 OR 1K20 DEFAULT OUTPUT MAY BE REPROGRAMMED TO ANY ALTERNATE ALARM STATUS OUTPUT SHOWN BELOW

OPTIONAL SP14 CHILLER ALARM INDICATOR

⚠ WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE CONTROL CIRCUITS BEFORE WORKING ON THIS WIRING. INSURE THAT ALL MOTOR OR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH INSTALLED CAPACITORS MUST BE REPROGRAMMED TO THE FOLLOWING INSTRUCTIONS FOR CAPACITOR DISCHARGE FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS D'ISOLANCE. PUIS SUIVRE LES PRECAUTIONS DE SÉCURITÉ. ASSURER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANSE CAS D'UNITS AVEC DES CONDENSATEURS INSTALLÉS, IL FAUT RÉPROGRAMMER LES UNITÉS SELON LES INSTRUCTIONS D'ÉCHARGEMENT DES CONDENSATEURS. L'OMISSION DE LA PROCÉDURE CI-DESSUS PEUT PROVOQUER DES BLESSURES GRAVES, VOIRE LA MORT.

⚠ ADVERTENCIA

¡VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELECTRICA INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE TRABAJAR EN EL EQUIPO. ASEGURESE DE QUE TODOS LOS CONDENSADORES SE HAYAN DESCARGADO EL VOLTAGE ALMACENADO PARA LAS UNIDADES CON TRANSMISIÓN DE VELOCIDAD VARIABLE. CONECTE LAS INSTRUCCIONES PARA EL DESCARGO DEL CONDENSADOR.

NO REALIZARLO ANTECHICO PUED PROVOCAR LA MUERTE O LESIONES GRAVES.

NOTICE

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER THAN COPPER.
FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.
C'EST SEULS PEUT ENTRAINER DES DOMMAGES À L'ÉQUIPEMENT.

AVIS

UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORDES DE LA UNITÉ NE SONT PAS CONÇUES POUR ACCEPTER D'AUTRES TYPES DE CONDUCTEURS.
UN MANQUEMENT À LA PROCÉDURE CI-DESSUS PEUT ENTRAINER DES DOMMAGES À L'ÉQUIPEMENT.

AVISO

UTILICE SÓLO CABLES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO SON DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
NO REALIZARLO ANTECHICO PUED PROVOCAR DAÑOS EN EL EQUIPO.

DO NOT ROUTE LOW VOLTAGE (30VDC) WITH CONTROL VOLTAGE (120VAC).
DO NOT POWER UNIT UNTIL CHECK-OUT AND START-UP PROCEDURES HAVE BEEN COMPLETED.

DEVICE PREFIX CODE

- 1 = MAIN UNIT CONTROL PANEL DEVICE
- 2 = STARTER OR DRIVE PANEL DEVICE
- 3 = CUSTOMER PROVIDED DEVICE
- 4 = CUSTOMER PROVIDED DEVICE
- 5 = CUSTOMER PROVIDED DEVICE
- 6 = CUSTOMER PROVIDED DEVICE
- 7 = CUSTOMER PROVIDED DEVICE
- 8 = CUSTOMER PROVIDED DEVICE

DASHED LINES INDICATE CUSTOMER WIRING.
WIRE NUMBERS SHOWN ARE RECOMMENDED BY TRANE.

Wire Sizing Reference

(AWG/MCM equivalents in mm²)

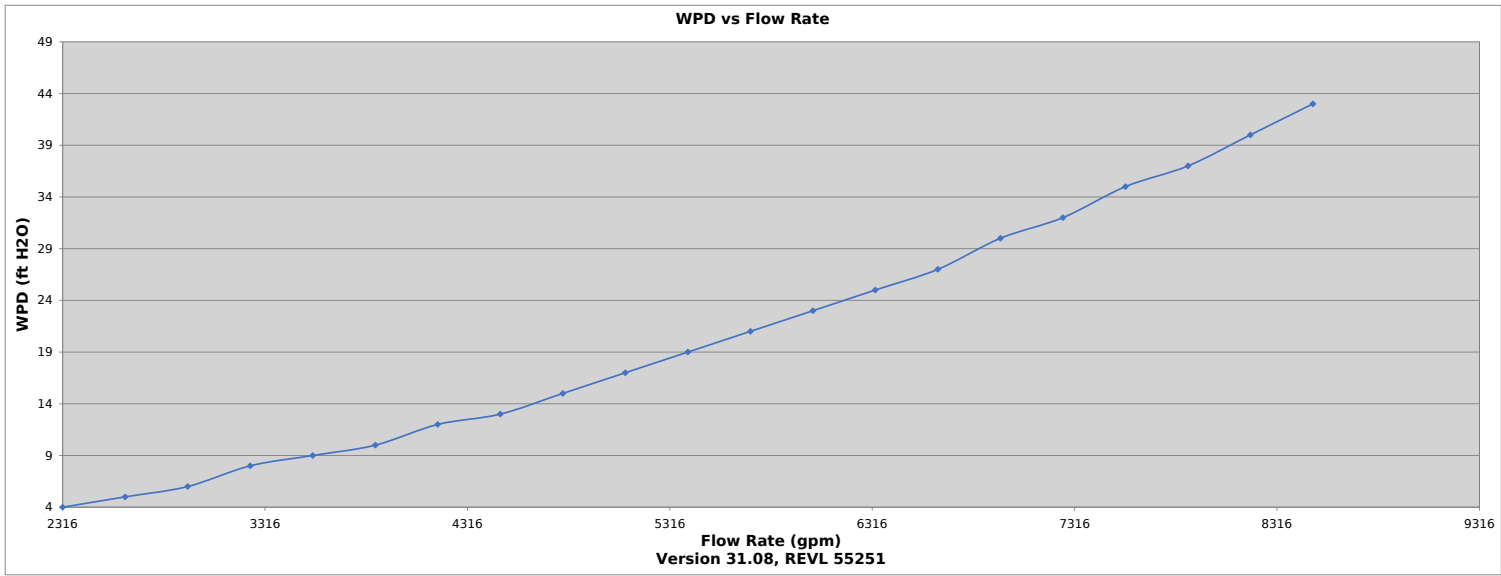
AWG/MCM	mm ² equivalent
22	0.32
21	0.35
20	0.5
18	0.75
17	1.0
16	1.5
14	2.5
12	4
10	6
8	10
6	16
4	25
2 or 1	35
1/0	50
2/0	70
2/0 or 3/0	95
4/0 or 250	120
300	150
350 or 400	185
450 or 500	240
Note: AWG = American Wire Gauge	

Important: *Customers are responsible for all field wiring in compliance with local, national, and/or international codes.*



CenTraVac Condenser WPD Curve

Pressure Drop Curve

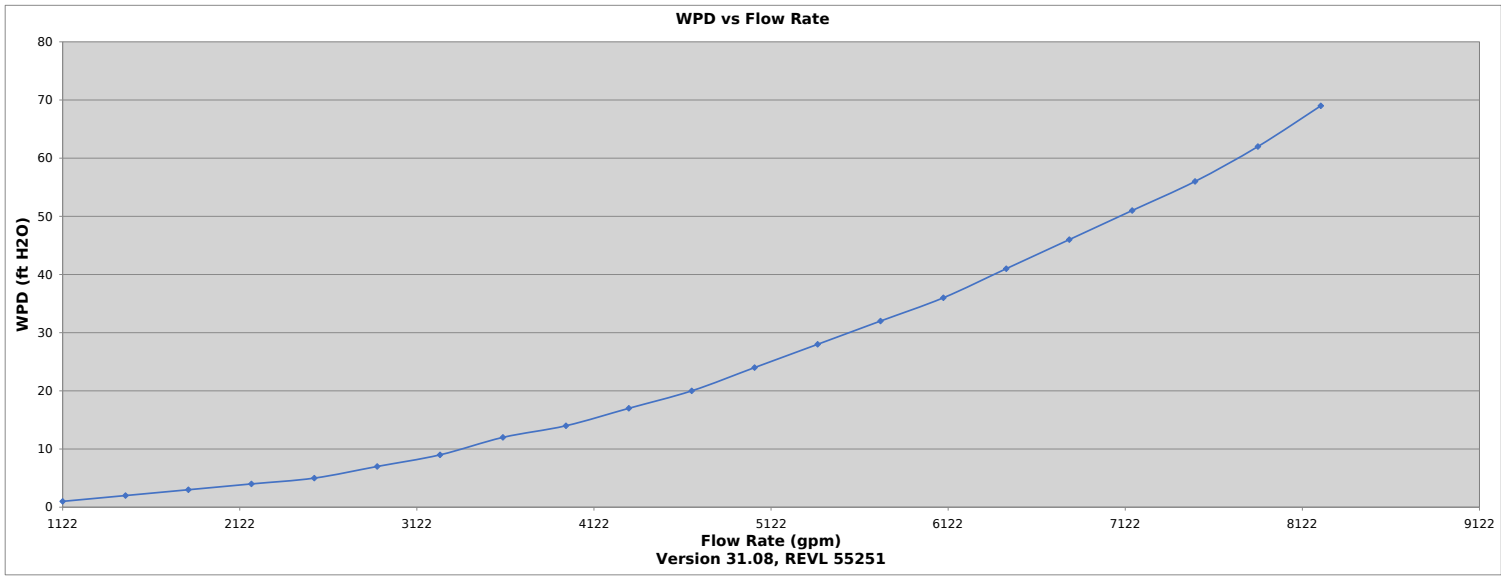


Flow Rate Table		Unit Configuration		
Flow Rate (gpm)	WPD (ft H2O)			
2316	4	SRTY-UATR	EVVF- NO	FTST-YES
2625	5	MODL-CVHH	EVFP-TDFS	TEST-AIR
2934	6	SEIS-IBC	CDSZ-220L	TTOL-AIR
3243	8	CPTR- NO	CTSP-NONE	ASTT- NO
3552	9	NTON-1700	CDBS-2200	ASKT-NONE
3861	10	ENCL-STD	CDTM-IECU	OPMM-KWTN
4169	12	IVLT-4160	CDTC-256	INSL-YES
4478	13	IHRZ- 60	CDTH- 28	EXOP-YES
4787	15	VOLT-4160	CDWP- 2	TRMM-BCNT
5096	17	HRTZ- 60	HGCD-HGBT	WCNM-BNMP
5405	19	CPKW-1338	CDVF- NO	LANG-ENGL
5714	21	FRAM-580L	CDFP-TDFS	LQDD- NO
6023	23	CRTD-STD	OREV-172	LQDP- NO
6331	25	DSOP- NO	ORCD-163	RLDV-RPGD
6640	27	EVSZ-220L	RCRQ-NONE	CRFG-1233
6949	30	EVBS-2200	ARCL-CERT	THRM-2TMS
7258	32	EVTM-IMC1	AH07-NOTC	ACOU-NO
7567	35	EVTC-278	AH7M-NOTC	
7876	37	EVTH- 28	AH10-NOTC	
8184	40	EVWP- 2	AH13-NOTC	
8493	43	HGEV-HGBT	AH16-NOTC	



CenTraVac Evaporator WPD Curve

Pressure Drop Curve



Flow Rate Table

Flow Rate (gpm)	WPD (ft H2O)
1122	1
1477	2
1832	3
2188	4
2543	5
2898	7
3253	9
3608	12
3964	14
4319	17
4674	20
5029	24
5385	28
5740	32
6095	36
6450	41
6806	46
7161	51
7516	56
7871	62
8226	69

Unit Configuration

SRTY-UATR	EVVF- NO	FTST-YES
MODL-CVHH	EVFP-TDFS	TEST-AIR
SEIS-IBC	CDSZ-220L	TTOL-AIR
CPTR- NO	CTSP-NONE	ASTT- NO
NTON-1700	CDBS-2200	ASKT-NONE
ENCL-STD	CDTM-IECU	OPMM-KWTN
IVLT-4160	CDTC-256	INSL-YES
IHRZ- 60	CDTH- 28	EXOP-YES
VOLT-4160	CDWP- 2	TRMM-BCNT
HRTZ- 60	HGCD-HGBT	WCNM-BNMP
CPKW-1338	CDVF- NO	LANG-ENGL
FRAM-580L	CDFP-TDFS	LQDD- NO
CRTD-STD	OREV-172	LQDP- NO
DSOP- NO	ORCD-163	RLDV-RPGD
EVSZ-220L	RCRQ-NONE	CRFG-1233
EVBS-2200	ARCL-CERT	THRM-2TMS
EVTM-IMC1	AH07-NOTC	ACOU-NO
EVTC-278	AH7M-NOTC	
EVTH- 28	AH10-NOTC	
EVWP- 2	AH13-NOTC	
HGEV-HGBT	AH16-NOTC	

Mechanical Specifications - Centrifugal Chiller ECTV**Item: A1, A2 Qty: 6 Tag(s): CH-1, CH-3, CH-5, CH-2, CH-4, CH-6****Compressor-Motor**

Direct drive multiple-stage compressor, multi-stage capacity control guide vanes. Shrouded aluminum alloy impellers dynamically balanced. Motor-compressor assembly balanced to 0.2 "/sec(5 mm/sec) maximum vibration measured on motor and bearing housings. Refrigerant cooled, hermetically sealed, two-pole, squirrel cage induction motor. Two pressure lubricated hydro dynamic bearings support the rotating assembly. A direct drive submerged oil pump motor provides filtered and temperature controlled oil to the compressor bearings.

Evaporator-Condenser

Shells are carbon steel plate. The evaporator, condenser, economizer and oil tank are ASME rated and certified. Evaporator includes rupture disk-relief valve per BSR/ASHRAE 15 Safety Code. Carbon steel tube sheets are drilled, reamed and grooved to accommodate tubes. Tubes are individually replaceable externally finned seamless copper or other alloys. Tubes are mechanically expanded into tube sheets. Eliminators are installed over entire length of the evaporator tube bundle. A multiple orifice control system maintains proper refrigerant flow. Condenser baffle prevents direct impingement of compressor discharge gas upon the tubes. Refrigerant side of the assembled unit is tested at both pressure (leak test) and vacuum. Water side is hydrostatically tested at one and 1.3 times design working pressure.

Relief Device

The system relief device consists of a non-fragmenting rupture disk and a pressure relief valve. The rupture disk functions as the chiller's primary pressure relieving device and provides a leak free seal between the chiller and atmosphere. The pressure relief valve is installed downstream of the rupture disk and functions as an interim primary pressure relieving device and seal. If the chiller's internal pressure would exceed the design pressure, the rupture disk bursts allowing the pressure to be relieved through the relief valve. After the chiller's pressure is reduced, the pressure relief valve closes stopping the flow of refrigerant to the atmosphere.

Trane reserves the right to implement chiller technology enhancements that will reduce the chiller's refrigerant charge, with no impact on chiller performance. Changes may be reflected in the chiller's nameplate refrigerant charge and the quantity of refrigerant charge shipped to the jobsite, depending upon the final date of equipment manufacture.

Water Boxes

Drains and vents - Water boxes typically have 3/4-inch NPTI vents and drain connections provided. Evaporators have 2 vents and 2 drains, condensers have 1 vent and 1 drain. If grooved connections are offered, the design is based on Style 77.

Evaporator water box - marine type:

Evaporator water boxes have removable end plates and water connections on the sides.

Condenser water box - marine type:

Condenser water boxes have removable end plates and water connections on the sides.

Evaporator Water box Hinge

The water box is provided with a hinge on both ends of the evaporator to facilitate access to and maintenance of the evaporator tubes as needed without the need for separate rigging. See the dedicated drawing of the hinges being supplied.

Condenser Water box Hinge

The water box is provided with a hinge on both ends of the condenser to facilitate access to and maintenance of the condenser tubes as needed without the need for separate rigging. See the dedicated drawing of the hinges being supplied.

Economizer

A flash economizer with no moving parts provides power saving capability.

Purge System

The EarthWise(TM) purge includes a 1/4 hp 115V/60/1, 100V/50/1 air cooled condensing unit, purge tank, drier elements, a 1/20 hp (.037 kW) 115V/60/1, 110V/50/1 pump-out compressor, a carbon tank, and a heater. The purge is designed with an activated carbon filtration system that includes an autoregeneration feature which results in automatic high-efficiency removal of noncondensibles from the chiller without manual carbon maintenance. The purge is rated in accordance with AHRI Standard 580.

Adaptiview Control Panel:

The Tracer(tm) Adaptiview is a microprocessor-based chiller control system that provides complete stand alone system control and monitoring for the water cooled CenTraVac (TM). It is a factory mounted package including a full complement of controls to safely and efficiently operate the CenTraVac chiller, including oil management, purge operation, interface to the starter, and comprehensive motor protection including three phase solid state motor overload. Inlet and outlet water (fluid) temperature sensors are located in the evaporator and condenser waterbox connections as standard.

The display is a touch sensitive 12 1/8" diagonal color liquid crystal display (LCD) that uses color graphics and animation to ensure ease of use. The touch sensitive interface allows the operator to view the chiller graphically and receive a status indication via subsystem animations. The operator can navigate easily between the primary chiller subsystems including: compressor, evaporator, condenser, and motor. For each subsystem, you can view status and detailed operating parameters. In addition, alarms, reports, trending, and settings can all be accessed quickly from the main screen. The display is mounted on a flexible ""arm"" that allows extensive height and viewing angle variations.

The panel supports an extensive list of languages including the default English. The data can be set to be viewed in inch pounds IP or metric units SI. For remote starters - Class 1 control panel voltage (30-115 V) are clearly labeled in the control panel. Class 2 input voltage (30V max) is also labeled in the control panel.

Operating Data including:

- *operating hours
- *number of starts
- *chilled water setpoint
- *evaporator and condenser water flow status
- *evaporator entering and leaving water temperatures
- *evaporator saturated refrigerant temperatures
- *evaporator approach temperature
- *evaporator refrigerant pressure
- *condenser entering and leaving water temperatures
- *condenser saturated refrigerant temperatures
- *condenser approach temperature
- *condenser refrigerant pressure
- *oil differential pressure
- *oil tank temperature
- *purge mode
- *purge average daily pump-out time
- *% RLA per phase for motor
- *RLA per phase
- *volts per phase
- *power factor
- *kw
- *kwh
- *frequency

The Adaptiview also contains the following dedicated reports:

Evaporator, Condenser, Compressor, Motor, Purge, and ASHRAE. Each report is comprised of a detailed listing of operational data relative to that chiller subsystem.

Control functions including:

- *leaving chilled water temperature
- *percent demand limit
- *chiller water reset (based on return water temperature)
- *front panel control type
- *setpoint source
- *differential to start
- *differential to stop

Status data including:

- *waiting to start
- *running
- *run limit

*run inhibit (adaptive)

*auto

Hardwire Binary and Analog Inputs and Outputs

The following hardwire binary outputs are available:

*Compressor running relay

*Alarm relay - machine manual reset

*Alarm relay - machine auto reset

*Limit warning relay

*Purge Alarm relay

*Maximum capacity relay

*Head relief request relay

The following hardwire analog inputs are available:

* Wall mounted refrigerant specific monitor

*Chilled water setpoint

*Current limit setpoint

* Current limit setpoint

The following hardwire analog outputs are available:

*Condenser pressure output

*Percent RLA

The devices are of a latching trip out type requiring manual reset. Non-latching safety trip outs for operating conditions external to the chiller automatically permits unit to resume normal operation when condition is corrected.

Advanced motor protection monitors 3-phase current to provide latching trip out protection from adverse effects of phase loss, phase unbalance, phase reversal, loss of phase reversal protection, and electrical distribution faults (momentary power loss) by instantaneous trip out of motor.

Surge protection - Detects surge and limits chiller loading through inlet vane modulation. Head relief through lowering cooling tower water temperature can be requested. If not corrected within 7 minutes, chiller is shut down.

Enhanced Adaptive Control(TM) - Built in intelligence to keep the chiller on line (safely making maximum tons) while simultaneously preventing chiller damage/failure. During any chiller limiting mode of operation, the control panel enunciates the condition via a relay output.

Trending:

The controller provides 10 standard graphs for trending multiple parameters. The operator can add an additional 6 custom graphs if desired. On any one custom graph, the operator can choose to trend up to 10 unique parameters from a more comprehensive list. Two Y axes are available for any graph to facilitate readability.

Diagnostics:

Adaptview includes comprehensive diagnostic monitoring. All active diagnostics are available, and up to 20 historic diagnostics are communicated to the operator via the 12 1/8" LCD display with graphic navigation system. Each diagnostic is time and date stamped.

Service Tool:

A PC-based service tool, connected to the chiller via USB port, is available and displays the last 100 diagnostics, indicating the time, date of occurrence, and system parameters at the time of the diagnostic. The service tool provides advanced troubleshooting and access to sophisticated configuration settings not needed during operation of the chiller.

Security:

The Adaptview can be set to prevent unauthorized access to the chiller settings. The operator can choose to secure the operating settings with a password. Data and reports can still be accessed once the settings are locked out.

The memory for the Adaptview is non-volatile type, so if power is lost, operating settings are retained. A life time battery is standard, which is used only to support the clock function for the chiller.

Chilled and Condenser water pump relays:

Chilled water and condenser water pump relays are provided and it is recommended that they be used for pump control.

BACnet(MSTP) & Modbus Direct Points List

The following points are available directly from the chiller. Recognize that some of these points require chiller options or specific configurations.

Inputs Including

Chilled Water Setpoint
Chiller Auto/Stop
Chiller Mode (e.g. cool)
Clear Diagnostics
Current Limit Setpoint
External Base Loading Enable/Disable (requires Extended Operation option)
External Base Loading Setpoint (requires Extended Operation option)
Heating Setpoint (requires Extended Operation option)
Pump Overrides (Modbus only)
Wall Mounted Refrigerant Specific Monitor (requires Extended Operation option)

Outputs Including

Active Base Loading Setpoint (requires Extended Operation option)
Active Chilled/Hot Water Setpoint
Active Current Limit Setpoint
AFD Output frequency
AFD transistor temperature
Alarm Reset
Alarms Description1
 Auto Reset Alarm relay
Base Loading Active (requires Extended Operation option)
Chilled Water Flow Status
Chiller capacity (requires Flow Compensation option)
Chiller Modes (i.e. Off, Starting, Running, Shutting Down)
Chiller On/Off
Compressor Discharge Refrigerant Temperature (requires Enhanced Protection option)
Compressor Run Time
Compressor Running relay
Compressor Starts
Condenser Pump relay
Condenser Refrigerant Pressure
Condenser Refrigerant Temperature

Condenser Water Flow Rate (requires Flow Compensation option)
Condenser Water Flow Status
Current Per Line
Differential refrigerant pressure (not for head pressure control)
Entering Chilled Water Temperature
Entering Condenser Water Temperature
Evaporator Pump relay
Evaporator Refrigerant Pressure
Evaporator Refrigerant Temperature
Evaporator Water Flow Rate (requires Flow Compensation option)
Head Relief Request relay
 High Side Oil Pressure
Hot Gas Bypass Active (requires Hot Gas Bypass option)
Inboard bearing oil temperature (requires Enhanced Protection option)
Inlet guide vane position
Leaving Chilled Water Temperature
Leaving Condenser Water Temperature

Limit Warning relay
 Low Side Oil Pressure
 Manual Reset Alarm relay
Maximum Capacity relay
Motor power factor (uncorrected)
Motor winding temperature
Oil Pressure Differential
Oil Temperature
Operating Mode (e.g. Cool)
Operating Status (Alarm, Run Enabled, Local Control, Limited)
Outboard bearing oil temperature (requires Enhanced Protection option)
Percent RLA, per phase
 Purge Alarm relay
Purge carbon tank temperature
Purge liquid temperature
Purge pump-out
Purge pumpout Average (24 hour)
Purge pump-out chiller off-7 days
Purge pump-out chiller on-7 days
Purge pump-out life
Purge regeneration
Purge regeneration life
Purge Status2
Purge suction temperature
Purge time to next purge run
Refrigerant monitor
Second Condenser Entering Water Temperature (requires HR or Aux condenser bundle)
Second Condenser Leaving Water Temperature (requires HR or Aux condenser bundle)
Unit Power Consumption (kW)
Voltage Per Phase

Enhanced Protection Option provides:

Bearing temperatures sensors installed for both bearings, displayed on unit controller
Compressor discharge refrigerant from the compressor
Actual pressure transducer in the condenser for enhanced condenser limit control

Evaporator Proof of Flow - Thermal Dispersion

A factory provided, field installed thermal dispersion type proof of flow switch (IFM) is provided. The thermal dispersion controller is mounted in the chiller control panel, the piping probe and wiring is shipped loose for field installation in the ship with components box. Follow the installation instructions in the chiller installation manual. Reference specific IFM Installation manual (PART-SVN223*-EN) notes shipped with your rupture guard /contact local Trane sales office.

Condenser Proof of Flow - Thermal Dispersion

A factory provided, field installed thermal dispersion type proof of flow switch (IFM) is provided. The thermal dispersion controller is mounted in the chiller control panel, the piping probe and wiring is shipped loose for field installation in the ship with components box. Follow the installation instructions in the chiller installation manual. Reference specific IFM Installation manual (PART-SVN223*-EN) notes shipped with your rupture guard /contact local Trane sales office.

Paint

All CenTraVac(TM) painted surfaces are coated with a primer and an air-dry beige primer-finisher prior to shipment.

Shipment

All units are of hermetic design, leak tested, charged to 5.00 psi and shipped as a single factory assembled package. Full oil charge shipped in oil sump. Refrigerant shipped to jobsite from refrigerant manufacturer. The entire chiller is shrink wrapped for protection.

International Building Code IBC 2015 Seismic

Certified Seismic Design Levels

Certification is not valid if required SDS level exceeds values below

SDS Limit = 1.45 for units installed above grade ($z/h > 0$)

SDS Limit = 2.28 for units installed at grade ($z/h = 0$)

IP = 1.5

Not available with spring Isolators

See VMA-50102-01C at <https://ibcapproval.com> for certification details

Insulation

Factory applied insulation. All low temperature surfaces are covered with 0.75 inch Armaflex II or equal (thermal conductivity=0.28 BTU/hr-ft sq.) (1.59 W/m²-K), including the evaporator, water boxes and suction elbow. The economizer is insulated with 3/8" insulation. On units with the water box hinges option, the hinges are not factory insulated.

Unit Mounted Starter - Auto-Transformer

Auto-Transformer, NEMA 1 enclosure. Starter factory mounted and completely pre-wired to compressor motor and control panel. The auto-transformer starter is a reduced voltage starter and therefore draws 45% of locked rotor amps, and the motor acceleration time is 3-8 seconds typically.

All Unit Mounted Medium Voltage Starters

The unit mounted design is based on the proven AMPGARD remote design.

The starter uses the enhanced SL vacuum contactors designed specifically for use with chiller squirrel cage induction motors. An externally operated manual 3 pole, non-load break isolation switch is provided as standard. In the open position, the switch isolates the starter from the line connectors with a mechanically driven isolating shutter leaving no exposed high voltage. The isolation switch handle has provisions for a padlock.

Current limiting power fuses of the self protecting type with visible fuse condition indicators are provided as standard.

NEMA Class E2 Fused Interrupting Ratings is 50,000 amps.

A built in test circuit for checking the starter pilot circuit with the high voltage de-energized and isolated, and with the contactor in its normal position is provided.

Fully rated 200 amp contactors are used unless the chiller motor RLA is greater than 187 amps.

The starter is designed tested and assembled to comply with NEMA standards for Industrial Control ICS3, Part 2, Class E2 and UL 347.

There is a control power transformer to power chiller unit controller, purge and oil system, with line power, and no other power is needed for auxiliary equipment on the chiller.

The line power entry is through the top only with a bolted line connection for field wiring flexibility.

Isolation switch is mounted on starter. Starter door cannot be opened unless Isolation switch is off.

Environmental specification: Operation from sea level to 6000 ft (1829 m). Operating ambient temperature range 32 to 104 F (0 to 40C) . Non-operating ambient temperature range -40 to 158 F (- 40 to +70C). Relative humidity, non-condensing 5% to 95% through the ambient temperature range. Voltage utilization +- 10%.

Required Installer Responsibilities

The following are considered functions normally required of the equipment installer.

Install unit on a foundation with flat support surfaces level within 1/16" and of sufficient length to support concentrated loading.

Place isolation pads provided by the chiller manufacturer under the unit.

Install unit per applicable Trane Installation Manual.

Complete all water and electrical connections.

Where specified, provide and install valves in water piping upstream and downstream of the evaporator and condenser water boxes as means of isolating shells for maintenance and to balance and trim system.

Furnish and install a flow switch or equivalent device in both the chilled water and condenser water piping properly interlocked to insure that unit can operate only when water flow is established.

Furnish and install taps for thermometers and pressure gauges in water piping adjacent to inlet and outlet connections of both evaporator and condenser.

Furnish and install drain valves to each water box.

Install vent cocks on each water box.

Where specified, furnish and install strainers ahead of all pumps and automatic modulating valves.

Furnish sufficient refrigerant 25.0 lb per machine and dry nitrogen 50.0 lb per machine for pressure testing under manufacturer's supervision.

Start-up unit under supervision of a qualified Trane field engineer.

Where specified, insulate evaporator and any other portions of machine required to prevent sweating under normal operating conditions.

Water connection piping must not transfer forces to the chiller. Because of cumulative tolerances in manufacture and field installation, prepiping of water connections closer than 36" is not recommended. Any problems associated with pre-piping of water connections closer than 36" to the chiller are the responsibility of the installing contractor.

Furnish and install vent lines for rupture disk and purge venting to atmosphere per ASHRAE 15 and unit installation manual.

Due to cumulative tolerances in manufacture, pre-piping of the relief device venting connection closer than 36" to the chiller is not recommended. Also, any problems associated with pre-piping of the relief device venting connection closer than 36" to the chiller are the responsibility of the installing contractor.

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Centrifugal Chiller ECTV

Item	Tag(s)	Qty	Description	Model Number
A1	CH-1, CH-3, CH-5	3	Centrifugal Chiller ECTV (ECTV)	CVHH170
A2	CH-2, CH-4, CH-6	3	Centrifugal Chiller ECTV (ECTV)	CVHH170

Field Installed Option Description	Part/Ordering Number
Thermal dispersion flow switch (IFM) - Field Installed	
Thermal dispersion flow switch (IFM) - Field installed	
Accessory: 2 Thermometers, 10 inch (254 mm) standard well	



HRC-1-5 Submittal

Prepared For:

IU Health
Applied Engineering, Inc.

Date: January 18, 2023

Job Name:

IU Health Downtown Medical Campus Central Utility

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty Product

5 Centrifugal Water-Cooled Agility HDWA Chiller

**IN REVIEW-
NOT FOR CONSTRUCTION**

Brian Lohman / Bryan Benson

Trane U.S. Inc.

5355 North Post Road

Indianapolis, IN 46216

Office Phone: (317) 255-8777

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

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Centrifugal Chiller Water-Cooled Agility (Item A1) 3

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 Centrifugal Chiller Water-Cooled Agility 25

Tag Data - Centrifugal Chiller Water-Cooled Agility (Qty: 5)

Item	Tag(s)	Qty	Description	Model Number
A1	HRC-1, HRC-2, HRC-3, HRC-4, HRC-5	5	Centrifugal Chiller Water-Cooled Agility	HDWA040

Product Data - Centrifugal Chiller Water-Cooled Agility**Item: A1 Qty: 5 Tag(s): HRC-1, HRC-2, HRC-3, HRC-4, HRC-5**

North America region

Startup Included - Trane Service must start equipment for warranty to be honored**Centrifugal water cooled chiller, high speed, direct drive, magnetic bearing, variable speed drive****Standard cooling & Heat Recovery high temperature condenser water capability****IBC Seismic - unit option**

Compressor size: 400 nominal tons

Incoming line voltage: 460 volt / Incoming line frequency: 60 Hz / Compressor motor voltage: 460 volt

Compressor motor hertz 60 / Compressor motor power: 441 kW

Motor frame size: T1

Evaporator

Evaporator shell size: 040A

NO sacrificial anode for evaporator (not available in standard non-marine waterboxes)**Belzonna Ceramic Coated Tubesheet and Waterbox**

Standard tube sheet construction

Evaporator tube bundle size = B

Evaporator tubes: 0.75 inch (19.1mm) diameter high performance internally enhanced surface copper tube

Evaporator tube code: 280

Evaporator tube wall: .025 inch (0.6 mm) thick

Evaporator waterbox pressure: 150 psig (1034 kPa)

Evaporator water box construction: Standard

Evaporator water box passes: Two pass

Evaporator waterbox type: Non-marine**Evaporator waterbox arrangement: in LH end - out LH end**

Evaporator waterbox connection: Victaulic

Evaporator fluid type: Water

Thermal dispersion flow switch (IFM) - Field Installed (Field Installed)**Evaporator waterbox hinge: both supply and return****Condenser**

400 Ton condenser shell

Design special: Sacrificial anode factory installed in condenser**Belzonna Ceramic Coated Tubesheet and Waterbox**

Standard tube sheet construction

Coated tubesheet and waterbox

Cond tube bundle size = C

Condenser tube: 0.75 inch (19.1 mm) diameter high performance internally enhanced surface copper tube

Condenser tube code: 283

Condenser tube wall: .028 inch (0.7 mm) thick

Condenser shell construction: ASME

Condenser waterbox pressure: 150 psig (1034 kPa)

Condenser waterbox construction: Standard

Condenser water box passes: Two pass

Condenser water box type: marine**Condenser water box arrangement: Cond in RH FRONT - Cond out RH TOP**

Condenser waterbox connection: Victaulic

Condenser fluid type: Water

Thermal dispersion flow switch (IFM) - Field Installed (Field Installed)**Condenser waterbox hinge: both supply and return**

Evaporator expansion valve size: 400

Agency listing: U.L. / CUL listed

Factory testable - yes

Factory performance test: Customer Witness Sound & 3 Part Load Points

Selection tolerance: Standard – AHRI 550/590

Unit option: Standard 3/4" Insulation package

Operating Status

Generic BAS

BACnet interface (all points mapping & BAS integration by others, assistance by Trane)

Shipping package: Domestic without skid

Trane Supplied Refrigerant, R513A Refrigerant

Spring loaded relief valve

Accessory: 2 Thermometers, 10 inch (254 mm) standard well (Field Installed)

Liquid cooled AFD

Unit mounted adaptive frequency drive

Frame size - 439 max RLA

With IEEE 519 harmonic filter option

65,000 amp SCCR

1st & 2nd Year Parts, Labor & Refrigerant Warranty Entire Chiller with Trane Supplied Starter

Chiller Tool Kit

FIELD Eddy Current Test prior to startup

First Year Service & Maintenance Agreement

Evaporator & Condenser Tube Brushing after First Year of Operation



Custom Unit Performance

Custom Unit which is outside of the scope of AHRI Water-Cooled Water Chilling Packages Using Vapor Compression Cycle Certification Program, but is rated in accordance with AHRI Standard 550/590 (I-P).

	Unit	1	2
Chiller Tag		Full load	70% demand limit
Revision Level		9247	9247
Performance Information			
Full Load Cooling Capacity	ton	300	300
Evaporator TONS	ton	300	210
Condenser Q	MBh	-4489.6	-3113.5
Order kW/ton	kW/ton	0.8766	0.8341
Unit Order kW	kW Input	262.99	175.17
Unit Information			
Unit Model		HDWA	HDWA
Unit Size		400	400
Refrigerant Type		R513A	R513A
Starter Model		VFDC	VFDC
Starter Type		UAFD	UAFD
Circuit 1 Starter Size		439	439
Starter Filter		N	N
Circuit 1 Motor CPKW		441	441
Line Hertz	Hz	60	60
Line Volt	V	460	460
Motor Hertz	Hz	60	60
Motor Volt	V	460	460
Circuit 1 Stage 1 IGV	°	90	90
Circuit 1 Impeller Speed	rpm	15109	13830
Circuit 1 Stage 1 Blade Diameter	inch	7.874	7.874
Circuit 1 Stage 2 Blade Diameter	inch	6.85	6.85
Circuit 1 Orifice ORSZ		400	400
Evaporator Information			
Evaporator Fluid Leaving Temperature	°F	42	45.45
Evaporator Fluid Entering Temperature	°F	58	58
Evaporator Fluid Flow	gpm	448	400
Evaporator gpm/ton	gpm/ton	1.49	1.9
Evaporator Fluid Total Pressure Drop	ft of water	3.88	3.04
Evaporator Tube Fluid Velocity	ft/s	2.904	2.593
Evaporator Fluid Type		WATE	WATE
Evaporator Fluid Concentration	% Weight	0	0
Evaporator Fouling Factor	h. ² F.ft ² /Btu	0.0001	0.0001
Evaporator Inlet Side		LEFT	LEFT
Evaporator Shell Size		040A	040A
Evaporator Bundle Size		B	B

Evaporator Tube Code		TMCU	TMCU
Evaporator Tube Thickness		25	25
Evaporator Waterbox Pressure	psi	150	150
Evaporator Waterbox Type		NMAR	NMAR
Evaporator Pass		2	2
Circuit 1 Evaporator Refrigerant Saturated Temperature	°F	40.78	44.42
Evaporator Minimum Fluid Flow	gpm	295.1	295.1
Evaporator Maximum Fluid Flow	gpm	1685.4	1685.4
Condenser Information			
Condenser Fluid Entering Temperature	°F	100	100
Condenser Fluid Leaving Temperature	°F	120	113.73
Condenser Fluid Flow	gpm	453.6	457.9
Condenser gpm/ton	gpm/ton	1.51	2.18
Condenser Fluid Total Pressure Drop	ft of water	4.2	4.33
Condenser Tube Fluid Velocity	ft/s	3.143	3.173
Condenser Fluid Type		WATE	WATE
Condenser Fluid Concentration	% Weight	0	0
Condenser Fouling Factor	h.°F.ft ² /Btu	0.00025	0.00025
Condenser Inlet Side		RIGHT	RIGHT
Condenser Shell Size		040A	040A
Condenser Bundle Size		C	C
Condenser Tube Code		TECU	TECU
Condenser Tube Thickness		25	25
Condenser Waterbox Pressure	psi	150	150
Condenser Waterbox Type		NMAR	NMAR
Condenser Pass		2	2
Circuit 1 Condenser Refrigerant Saturated Temperature	°F	121.76	115.02
Condenser Minimum Fluid Flow	gpm	434.3	434.3
Condenser Maximum Fluid Flow	gpm	1494.1	1529.3
Electrical Information			
Circuit 1 Order RLA	A	371.8	250.2
Circuit 1 Motor Order RLA	A	416.8	295.6
Circuit 1 Line-Side MCA	A	464	
Circuit 1 Line-Side MOP	A	800	
Physical Information			
Unit Shipping Weight	lb	12002	12002
Unit Operating Weight	lb	14360	14360
Unit Refrigerant Charge	lb	800	800
Heat Rejected to Equipment Room	MBh	-4.49	-2.99
Circuit 1 Starter Heat Rejected to Ambient	MBh	-13.9	-9
Condenser Shell Construction		ASME	ASME



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: HRC-1, HRC-2, HRC-3, HRC-4, HRC-5
Quantity: 5

Unit Features

Chiller Model	Application Type	Total Power	Refrigerant	Line Volt	Line Frequency	Starter Type
HDWA	Standard cooling	187.6 kW	R-513A	460. V	60. Hz	VFD

Unit Overview

Cooling Capacity	300.0 tons
Full Load Cooling Efficiency	0.6254 kW/ton
Insulation	Standard 3/4" unit insulation package
Tracer Controls	BACnet
Seismic Compliance	IBC Compliant
Compressor	400
Orifice	400
NPLV/IP	0.3735 kW/ton



Selection Tolerances

Selection Tolerance	AHRI Tolerance
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Shell Information

	Evaporator	Condenser		Evaporator	Condenser
	Fluid Temperature			Construction Features	
Entering	57.93 F	88.00 F	Shell Size	040A	040A
Leaving	42.00 F	98.00 F	Bundle Size	B	C
	Fluid Properties		Tube Type	TMCU	TECU
Fluid Type	water	water	Tube Thickness	0.025"	0.028"
Fluid Concentration	0.00 %	0.00 %	Connection Type	Victaulic connection	Victaulic connection
Fouling Factor	0.000100 hr-sq ft-deg F/ Btu	0.000250 hr-sq ft-deg F/ Btu	Water box type	Non-marine	Marine Waterbox
	Flow Rate		Water box pressure	150 psig	150 psig
Design Flow	450.0 gpm	850.6 gpm	Wbox Arrangement	Evap in LH end - evap out LH end	Cond in RH FRONT - Cond out RH TOP
Min Flow	295.1 gpm	425.5 gpm	Flow Proving	Thermal dispersion flow switch (IFM)	Thermal dispersion flow switch (IFM)
Max Flow	1685 gpm	1550 gpm	Number of Passes	Two pass evap water box	Two pass cond water box
	Fluid Pressure Drop		Shell Side Volume	30.01 cu ft	28.42 cu ft
PD at Design Flow	3.96 ft H2O	13.8 ft H2O			
PD at Min Flow	1.56 ft H2O	4.15 ft H2O			
PD at Max Flow	57.9 ft H2O	41.0 ft H2O			

Unit Electrical

Low Voltage AFD type	Unit mounted low voltage AFD	Min Circuit Ampacity	306.00 A
AFD frame size	439 max RLA	Max Overcurrent Protection	500.00 A
Harmonic filter option	Yes	Primary RLA	245.90 A
Motor	441	Motor Locked Rotor Amps	1000.0 A
Total Power	187.6 kW		

Design and Physical Information

Operating Weight	16351.0 lb	Shipping Weight - No Charge	13713.0 lb	Refrigerant charge	800.0 lb
Agency Listing	U.L. / CUL listed	Shipping Weight - Charge	14261.0 lb	Cond Shell Construction	ASME condenser construction
AFD Heat Rejected to ambient	12.22 MBh	Chiller Heat Rejected to ambient	3.120 MBh		

Information for AHRI and ASHRAE Projects

AHRI 550/590 2015 classification	Certified
ASHRAE 90.1-2013	Complies
ASHRAE 90.1-2016	Complies

Certified in accordance with the AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.





Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: HRC-1, HRC-2, HRC-3, HRC-4, HRC-5
Quantity: 5

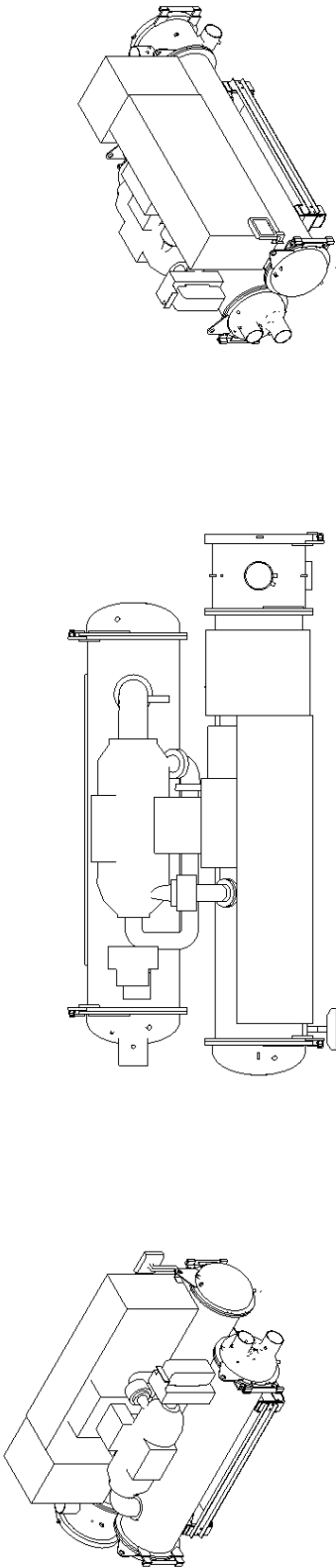
Warranty			
Parts whole unit	2nd year parts warranty whole unit	Refrigerant quality warranty 1st year	1st year refrigerant quality warranty
Parts less motor and compressor	No parts less motor & cmpr warranty	Refrigerant quality warranty beyond 1st year	2nd year refrigerant quality warranty
Motor/compr parts warr. up to 10 years	No motor & compressor warranty		
Labor 1st year	1st year labor warranty whole unit		
Labor after 1st year	2nd year labor warranty whole unit		

Information for LEED Projects			
Refrigeration capacity	300.0 tons	Total power	187.6 kW
Refrigerant charge	800.0 lb	NPLV.IP	0.3735 kW/ton

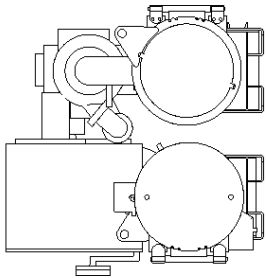
The U.S. Green Building Council's LEED® green building program is the preeminent program for the design, construction, maintenance and operations of high-performance green buildings. It provides independent, third-party verification that a building project meets the highest green building and performance measures.

Trane Select Assist
Version Number: 55250.00 Each
Data Generation Date: 1/14/2023

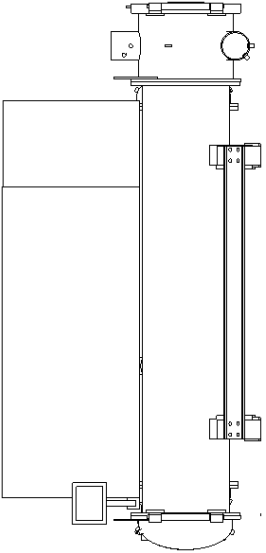
Model HDWA
Nominal tons 400



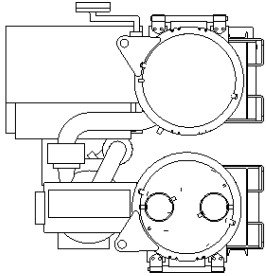
TOP VIEW



RIGHT SIDE VIEW



FRONT VIEW



LEFT SIDE VIEW

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

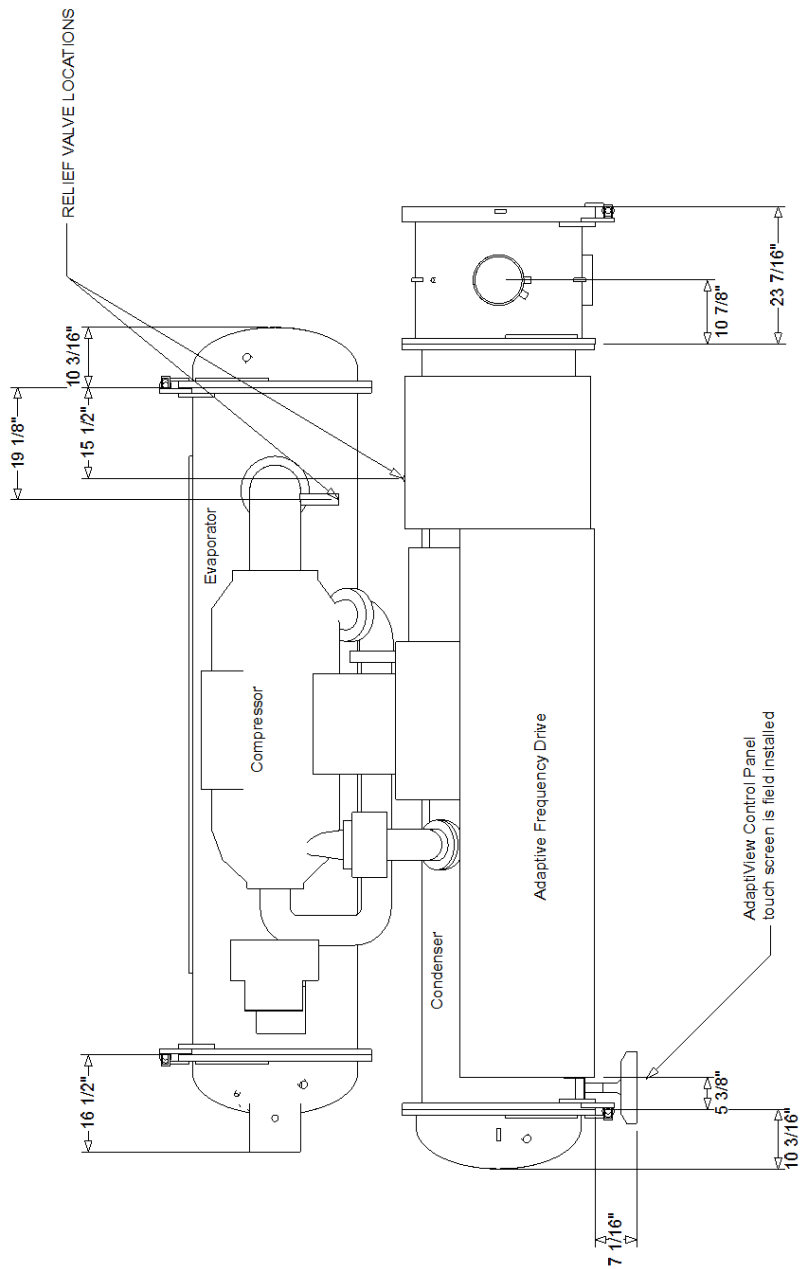
SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR CONDENSER	8" 8"	VICTAULIC VICTAULIC	IN BOTTOM OUT TOP IN BOTTOM OUT TOP



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: HRC-1, HRC-2, HRC-3, HRC-4, HRC-5
Quantity: 5

Model HDWA
Nominal tons 400



TOP VIEW

CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

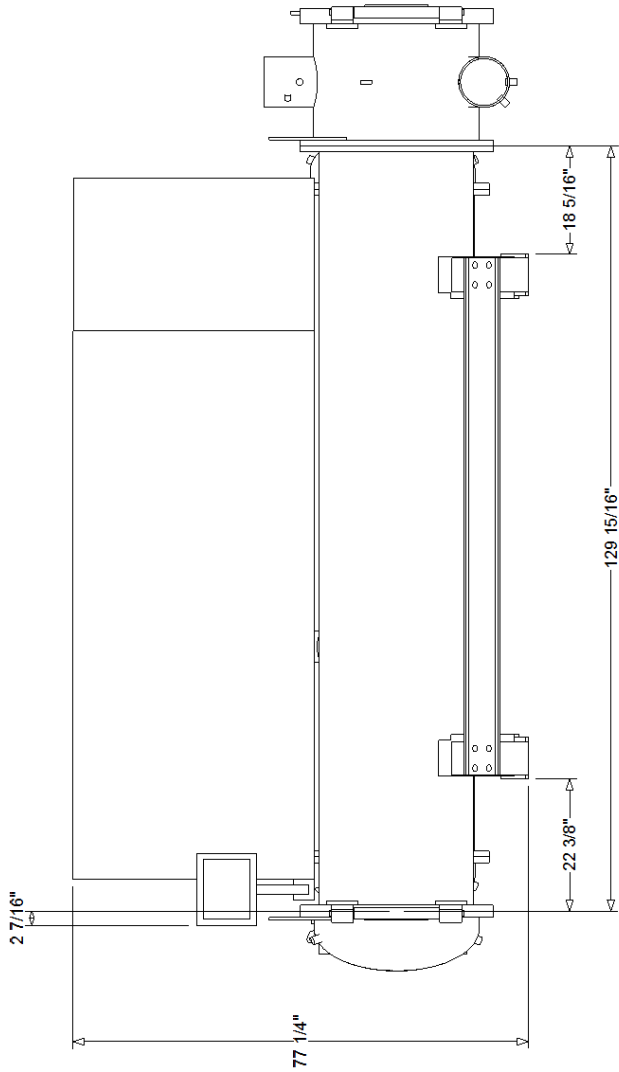
SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	8"	VICTALIC	IN BOTTOM OUT TOP
CONDENSER	8"	VICTALIC	IN BOTTOM OUT TOP



Job Name: IU Health Downtown Medical
Campus Central Utility
Prepared For:
Sales Office:

Unit Tag: HRC-1, HRC-2, HRC-3, HRC-4, HRC-5
Quantity: 5

Model HDWA
Nominal tons 400



FRONT VIEW

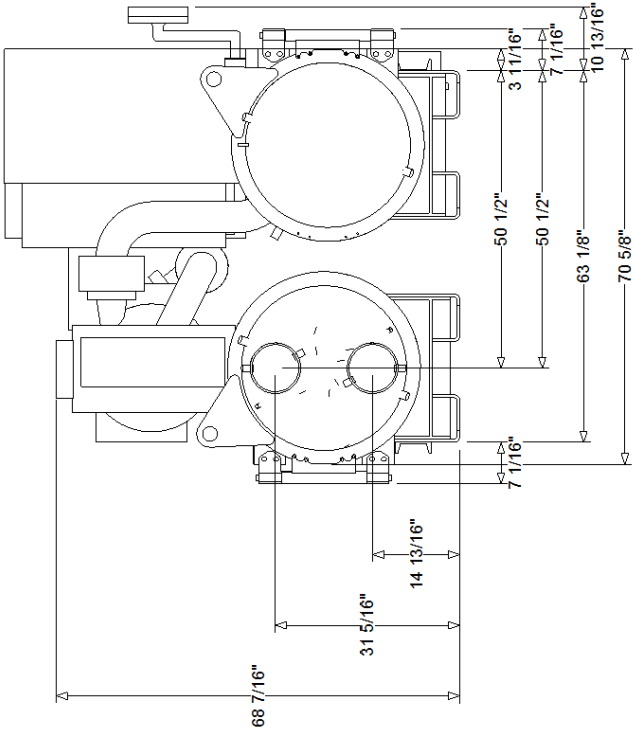
CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR CONDENSER	8" 8"	VICTALIC VICTALIC	IN BOTTOM OUT TOP IN BOTTOM OUT TOP



Model HDWA
Nominal tons 400



LEFT SIDE VIEW

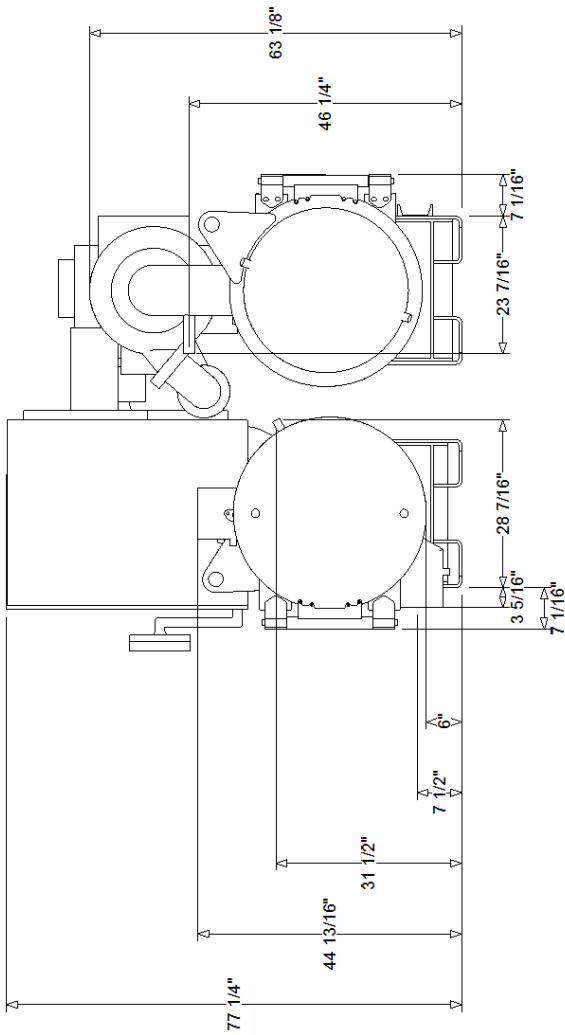
CUSTOMER NOTES:

GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/16"$.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR	8"	VICTALIC	IN BOTTOM OUT TOP
CONDENSER	8"	VICTALIC	IN BOTTOM OUT TOP



Model HDWA
Nominal tons 400



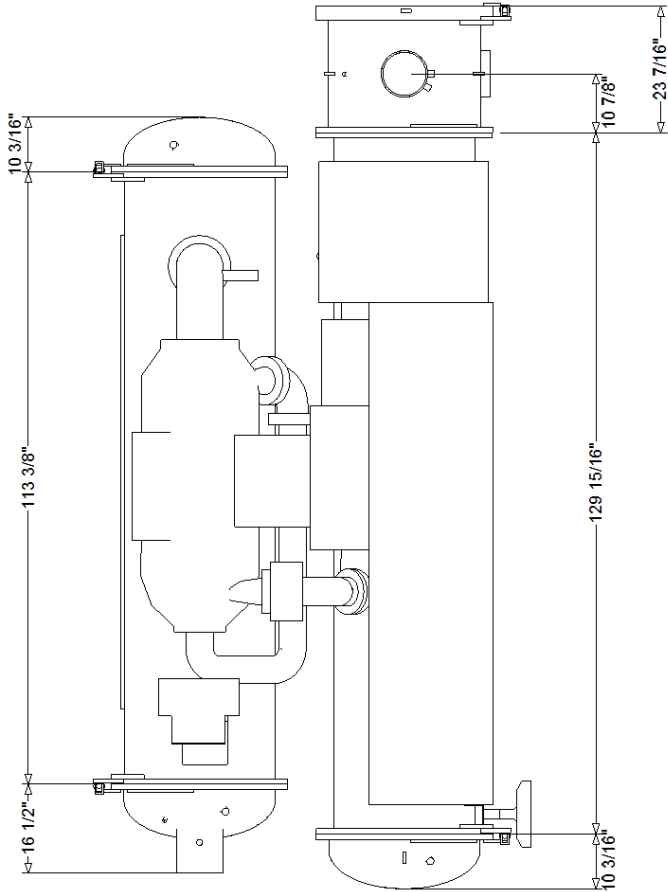
RIGHT SIDE VIEW

CUSTOMER NOTES:

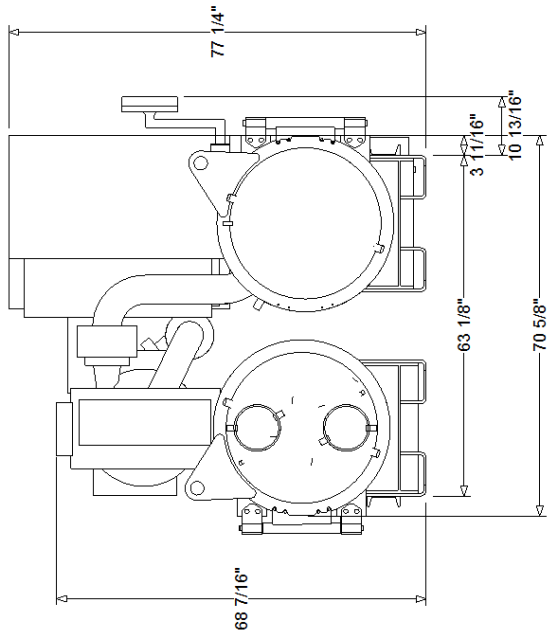
GRAPHICS ON SUBMITTAL ARE SIMPLIFIED TO SHOW MAJOR ENVELOPE COMPONENTS.
UNIT STRUCTURE AND SUBCOMPONENTS MAY BE REMOVED FOR CLARITY.

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $\pm 1/2"$.
WATER BOX DRAIN AND VENT LOCATIONS ARE SHOWN ON THE WATER BOX END PLATES.

SHELL TYPE	CONN DIA	CONN TYPE	FLOW DIRECTION
EVAPORATOR CONDENSER	8" 8"	VICTALIC VICTALIC	IN BOTTOM OUT TOP IN BOTTOM OUT TOP



TOP VIEW



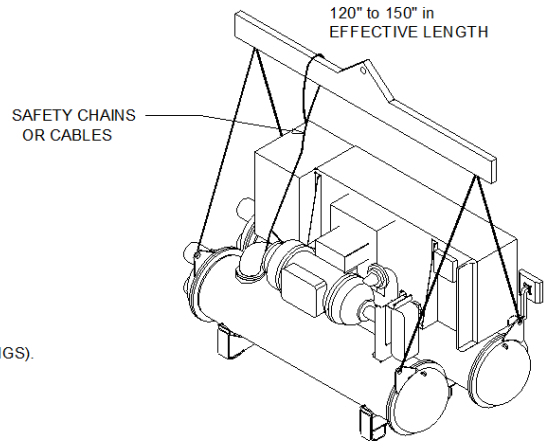
LEFT SIDE VIEW

SHIPPING WEIGHT **	13,713.0 lb
OPERATING WEIGHT	16,351.0 lb
COMPRESSOR SIZE	400
EVAPORATOR SIZE	040A
EVAPORATOR WATERPASS	2
EVAPORATOR WATERBOX ARRANGEMENT	LELE
CONDENSER SIZE	040A
CONDENSER WATERPASS	2
CONDENSER WATERBOX ARRANGEMENT	RFRT

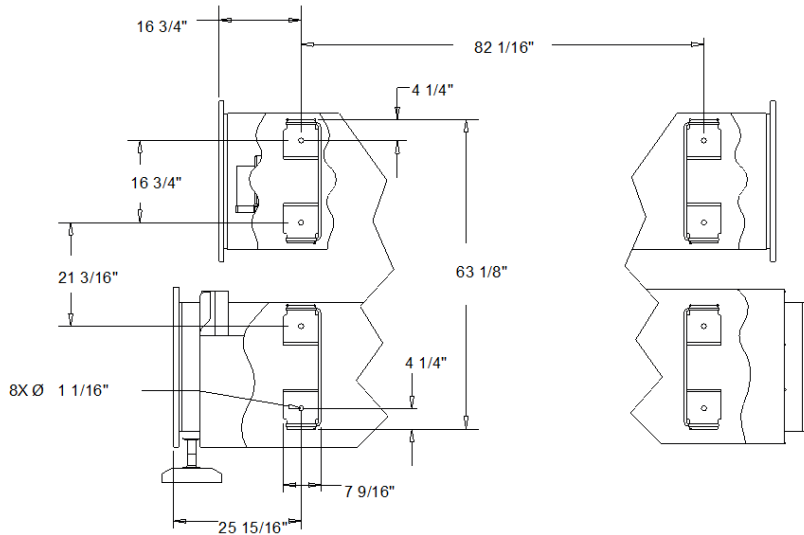
* ALL PUBLISHED WEIGHTS ACCURATE TO +/- 10 %
 ** SHIPPING WEIGHT INCLUDES REFRIGERANT. IF ORDERED WITHOUT, CONSULT PRODUCT SUPPORT FOR DRY SHIP WEIGHT.

WARNING

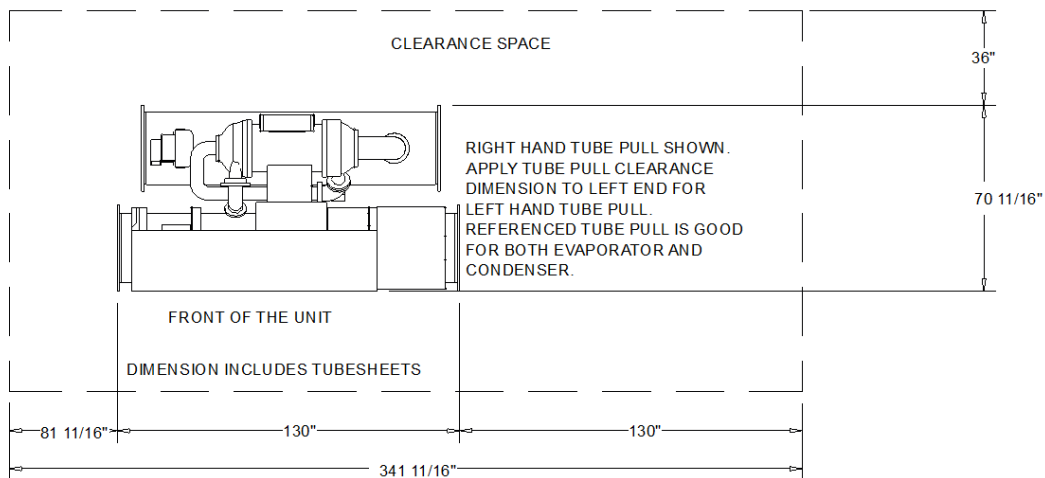
- HEAVY OBJECTS!**
DO NOT USE CABLES (CHAINS OR SLINGS) EXCEPT AS SHOWN. EACH OF THE CABLES (CHAINS OR SLINGS) USED TO LIFT THE UNIT MUST BE CAPABLE OF SUPPORTING THE ENTIRE WEIGHT OF THE UNIT. LIFTING CABLES (CHAINS OR SLINGS) MAY NOT BE OF THE SAME LENGTH. ADJUST AS NECESSARY FOR EVEN LEVEL SINGLE POINT LIFT. OTHER LIFTING ARRANGEMENTS MAY CAUSE EQUIPMENT OR PROPERTY-ONLY DAMAGE. FAILURE TO PROPERLY LIFT UNIT MAY RESULT IN DEATH OR SERIOUS INJURY. SEE DETAILS BELOW.
- IMPROPER UNIT LIFT!**
TEST LIFT UNIT APPROXIMATELY 12 INCHES TO VERIFY PROPER CENTER OF GRAVITY LIFT POINT. TO AVOID DROPPING OF UNIT, REPOSITION LIFTING POINT IF UNIT IS NOT LEVEL. FAILURE TO PROPERLY LIFT UNIT COULD RESULT IN DEATH OR SERIOUS INJURY OR POSSIBLE EQUIPMENT OR PROPERTY-ONLY DAMAGE.
- ATTACH SAFETY CHAIN OR CABLE AS SHOWN WITHOUT TENSION, NOT AS A LIFTING CHAIN OR CABLE, BUT TO PREVENT THE UNIT FROM ROLLING.
- DO NOT FORKLIFT THE UNIT TO MOVE OR LIFT.
- ONLY USE IDENTIFIED LIFTING HOLES PROVIDED ON CHILLER TO ATTACH CABLES (CHAINS OR SLINGS).
- 36" (900 MM) RECOMMENDED CLEARANCE ABOVE HIGHEST POINT OF COMPRESSOR.
- FOLLOW NEC SECTION 110 AND OTHER APPLICABLE LOCAL CODES FOR CLEARANCES IN FRONT OF ELECTRICAL ENCLOSURES.
- SPECIFIC SHIPPING AND OPERATING WEIGHTS OF THE SUBMITTED CHILLER ARE PROVIDED IF THE CENTRIFUGAL CHILLER SELECTION WAS ENTERED IN TOPSS. CONTACT YOUR LOCAL TRANE SALES ENGINEER IF THIS DATA IS REQUIRED.



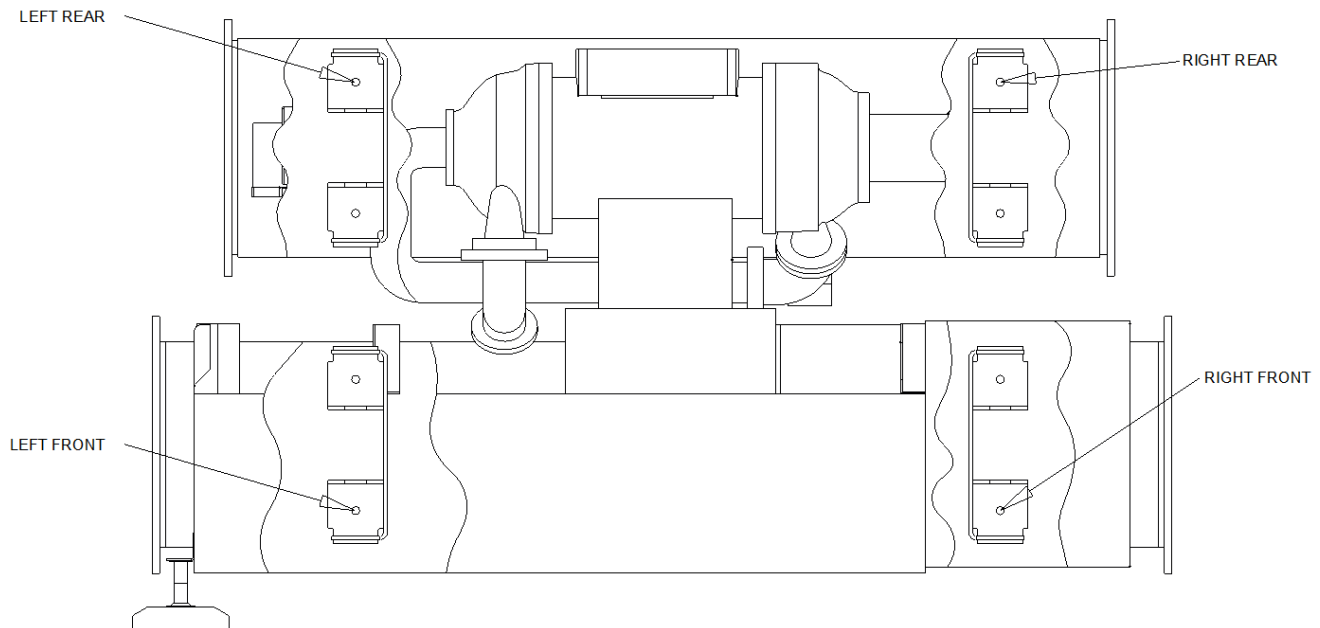
(SEE NOTE 8 ABOVE)	
MAXIMUM SHIPPING	13,713.0 lb
MAXIMUM OPERATING	16,351.0 lb



HOLE DETAILS
TOP VIEW



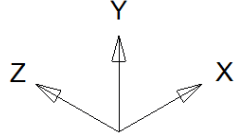
WEIGHTS AND CENTER OF GRAVITY

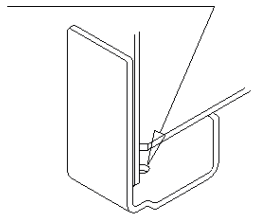


COMPONENT	WEIGHT*
COMPRESSOR WEIGHT	2,735.0 lb
MOTOR WEIGHT	327.0 lb
DRIVE WEIGHT	2,365.0 lb
SUCTION ELBOW WEIGHT	111.0 lb
ECONOMIZER WEIGHT	187.0 lb
EVAPORATOR WEIGHT	2,801.0 lb
EVAPORATOR WATERBOXES WEIGHT	398.0 lb
CONDENSER WEIGHT	3,184.0 lb
CONDENSER WATERBOXES WEIGHT	807.0 lb
MISCELLANEOUS WEIGHT	385.0 lb

UNIT CENTER OF GRAVITY	
CG X (DIMENSION TOWARDS FRONT)	30.000 in
CG Y (HEIGHT DIMENSION FROM FLOOR)	34.000 in
CG Z (DIMENSION FROM RIGHT TO LEFT)	41.000 in

RIGHT FRONT MOUNTING HOLE
BOTTOM OF THIS HOLE IS 0,0,0 POINT
FOR CENTER OF GRAVITY DIMENSIONS





WEIGHTS	
SHIPPING **	OPERATING
13,713.0 lb	16,351.0 lb

NAMEPLATE PRODUCT DESCRIPTION:

MODL	HDWA	VOLT	460	PTON	300.00 tons	NTON	400
EVTM	TMCU	CDTM	TECU	CPKW	441	IMP1	7.874
IMP2	6.850	CDBS	C	EVSZ	040A	EVBS	B
						CDSZ	040A

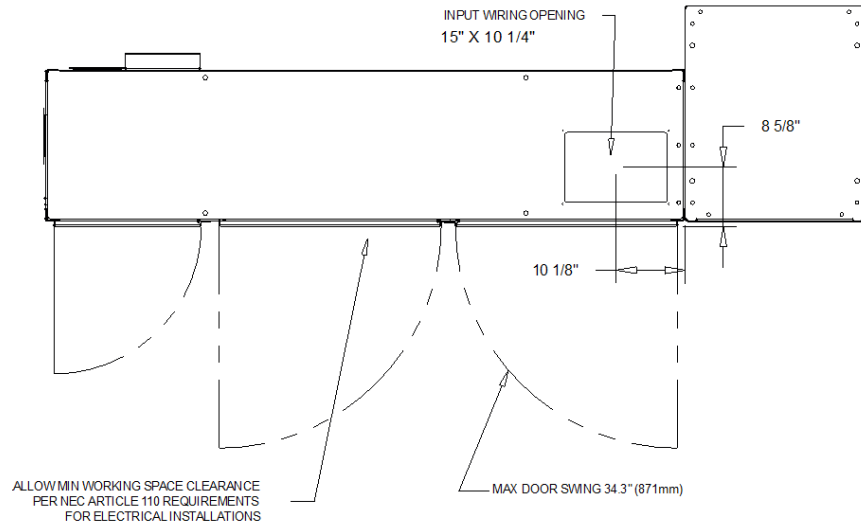
* ALL PUBLISHED WEIGHTS ACCURATE TO +/- 10 %

** SHIPPING WEIGHT INCLUDES REFRIGERANT. IF ORDERED WITHOUT, CONSULT PRODUCT SUPPORT FOR DRY SHIP WEIGHT.

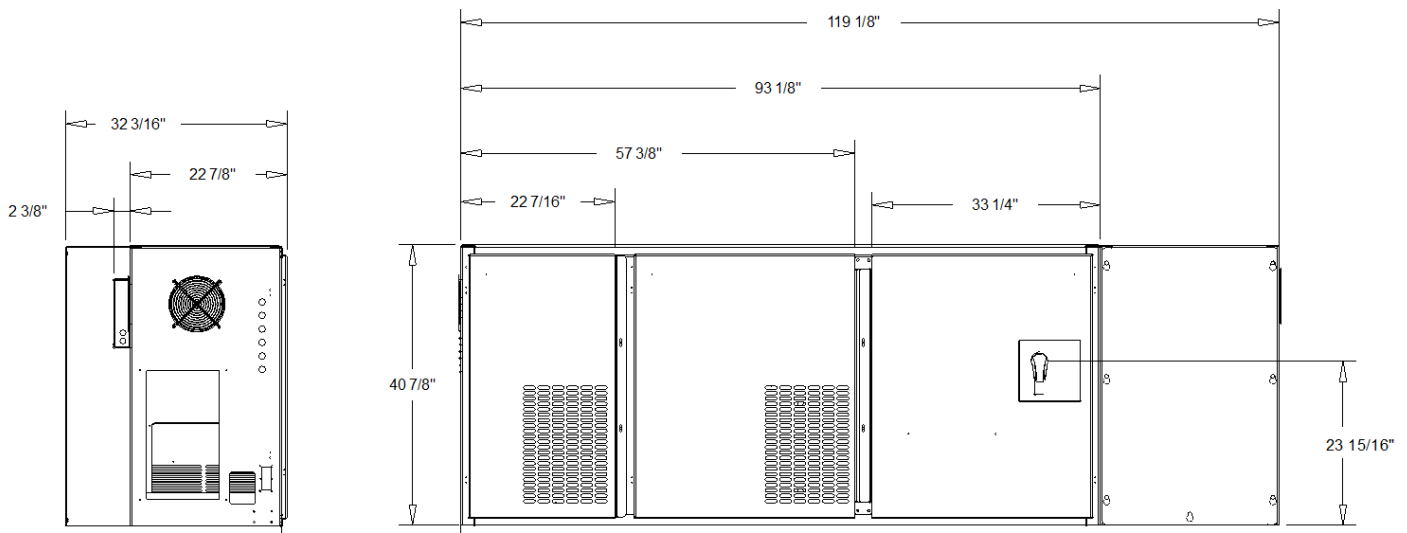
ADAPTIVE FREQUENCY DRIVE

MAX RLA	BREAKER AIC AMPS	SHORT CIRCUIT WITHSTAND RATINGS (RMS SYMETRICAL AMPS)	LINE CONNECTION LUGS ADAPTIVE FREQUENCY DRIVE	TOTAL DRIVE WEIGHT MINUS SHIPPING PALLET
439	65000	65000	(2) 3/0-250 MCM	2,365.0 lb

THE NON-FUSED DISCONNECT OR CIRCUIT BREAKER IS DESIGNED FOR USE AS A SERVICE DISCONNECT ONLY.



TOP VIEW



LEFT SIDE
ELEVATION

FRONT ELEVATION

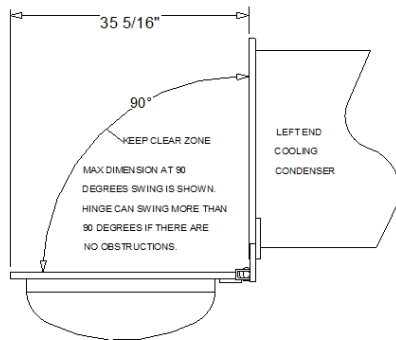
HINGE SWING DETAIL DRAWING

ALL VIEWS ON THIS PAGE ARE TOP VIEWS

DO NOT INSTALL PIPING OR ANY NON-REMOVABLE HARDWARE IN FRONT OF HINGED
WATERBOXES/COVERS OR ANY ATTACHED BRACKETS AND HINGES

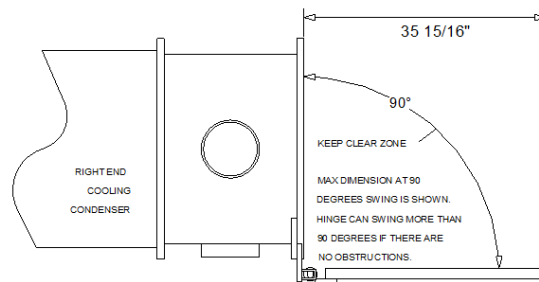
LEFT END OF COOLING CONDENSER

LEFT HAND RETURN BOX AND HINGE SWING



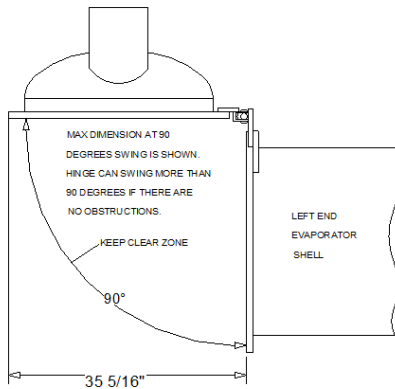
RIGHT END OF COOLING CONDENSER

RIGHT HAND MARINE WATERBOX AND HINGE SWING



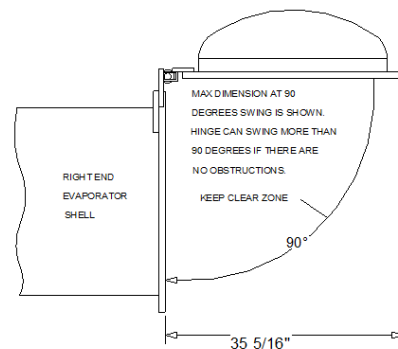
LEFT END OF EVAPORATOR

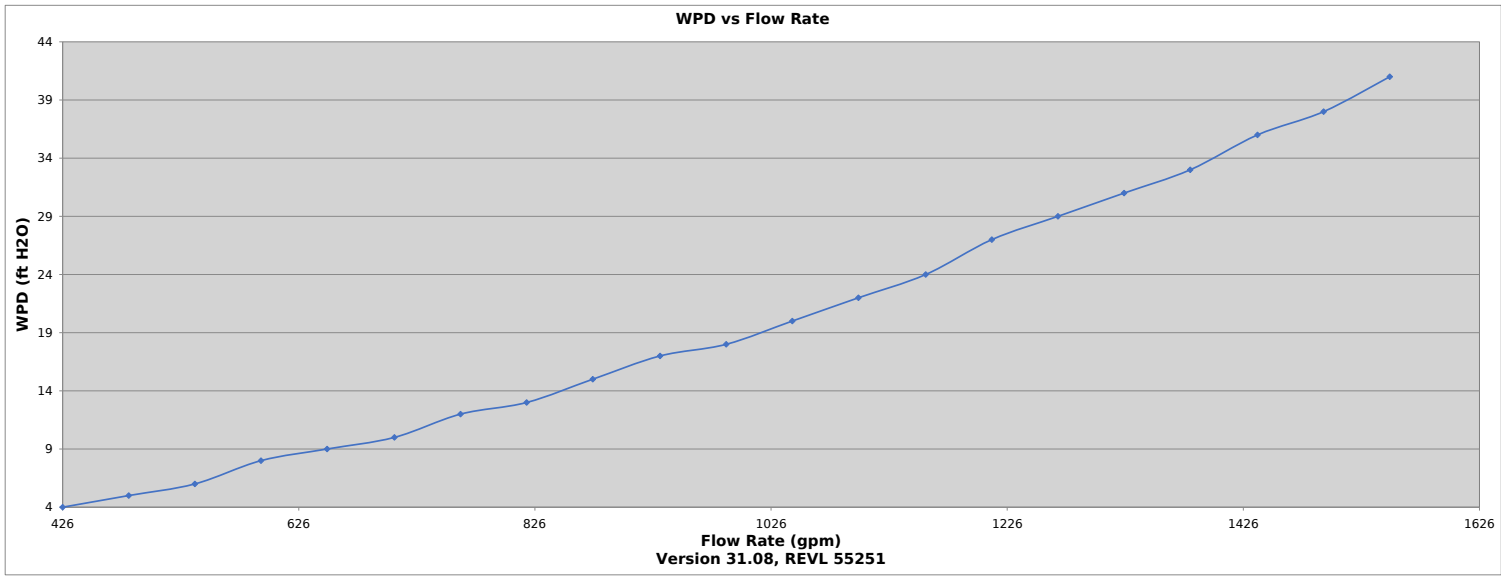
LEFT HAND NMAR WATERBOX AND HINGE SWING



RIGHT END OF EVAPORATOR

RIGHT HAND RETURN BOX AND HINGE SWING





Flow Rate Table

Flow Rate (gpm)	WPD (ft H2O)
426	4
482	5
538	6
594	8
650	9
707	10
763	12
819	13
875	15
932	17
988	18
1044	20
1100	22
1157	24
1213	27
1269	29
1325	31
1381	33
1438	36
1494	38
1550	41

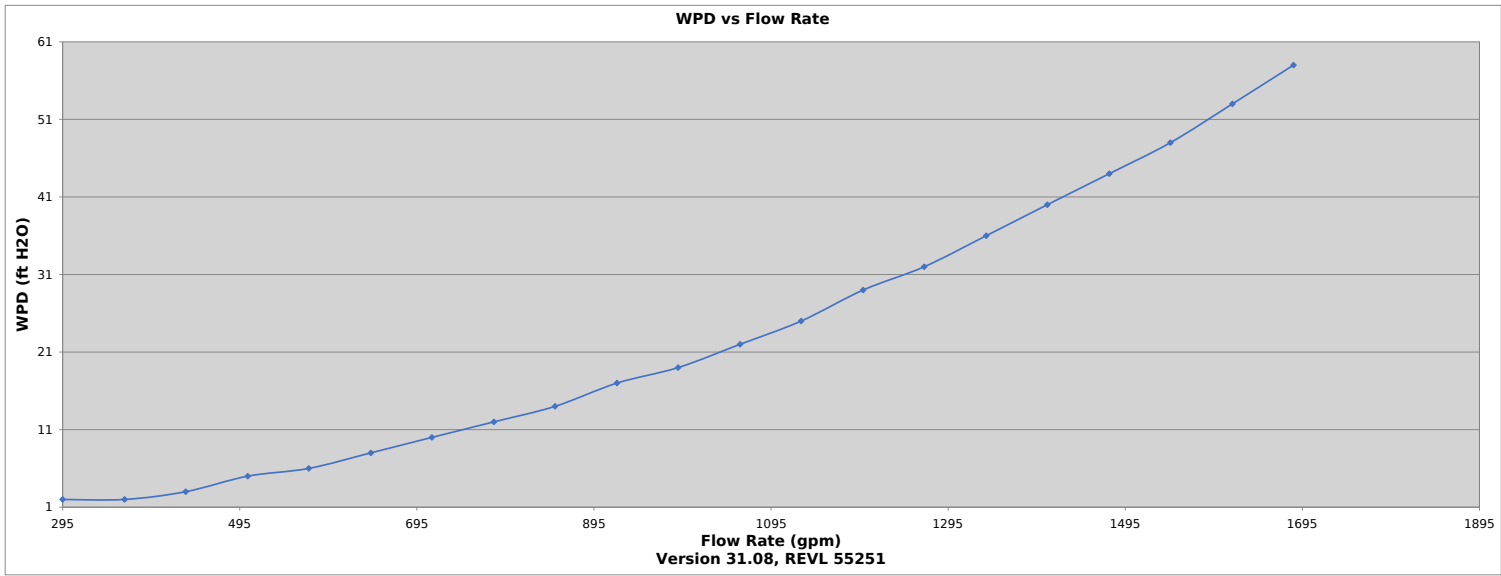
Unit Configuration

SRTY-UAFD	EVWP- 2	TTOL- NA
MODL-HDWA	EVFP-TDFS	ASTT- NO
SEIS-IBC	EVVF- NO	ASKT-NONE
TYPE-SNGL	HGEV-HGBT	OPMM-KWTN
LQDD- NO	CDSZ-040A	INSL-YES
LQDP- NO	TSTY-STD	GBAS-YES
NTON-400	CTSP-CCWT	TRMM-BCNT
IVLT-460	CDBS- C	CRFG-R513
IHRZ- 60	CDTM-TECU	RLDV-SPLD
VOLT-460	CDTC-283	THRM-2TMS
HRTZ- 60	CDTH- 28	ACOU-NO
RCTP-YES	CDWP- 2	
CPKW-441	CDFP-TDFS	
FRAM- T1	HGCD-HGBT	
DSOP- NO	EXEV-400	
EVSZ-040A	RCRQ-NONE	
ETSP-ECWT	AH13-COMP	
EVBS- B	AH16-COMP	
EVTM-TMCU	ARCL-CERT	
EVTC-280	FTST-YES	
EVTH- 25	TEST-NONE	



Agility Evaporator WPD Curve

Pressure Drop Curve



Flow Rate Table

Flow Rate (gpm)	WPD (ft H2O)
295	2
365	2
434	3
504	5
573	6
643	8
712	10
782	12
851	14
921	17
990	19
1060	22
1129	25
1199	29
1268	32
1338	36
1407	40
1477	44
1546	48
1616	53
1685	58

Unit Configuration

SRTY-UAFD	EVWP- 2	TTOL- NA
MODL-HDWA	EVFP-TDFS	ASTT- NO
SEIS-IBC	EVVF- NO	ASKT-NONE
TYPE-SNGL	HGEV-HGBT	OPMM-KWTN
LQDD- NO	CDSZ-040A	INSL-YES
LQDP- NO	TSTY-STD	GBAS-YES
NTON-400	CTSP-CCWT	TRMM-BCNT
IVLT-460	CDBS- C	CRFG-R513
IHRZ- 60	CDTM-TECU	RLDV-SPLD
VOLT-460	CDTC-283	THRM-2TMS
HRTZ- 60	CDTH- 28	ACOU-NO
RCTP-YES	CDWP- 2	
CPKW-441	CDFP-TDFS	
FRAM- T1	HGCD-HGBT	
DSOP- NO	EXEV-400	
EVSZ-040A	RCRQ-NONE	
ETSP-ECWT	AH13-COMP	
EVBS- B	AH16-COMP	
EVTM-TMCU	ARCL-CERT	
EVTC-280	FTST-YES	
EVTH- 25	TEST-NONE	

Mechanical Specifications - Centrifugal Chiller Water-Cooled Agility**Item: A1 Qty: 5 Tag(s): HRC-1, HRC-2, HRC-3, HRC-4, HRC-5****General**

The chiller is completely factory-packaged including the compressor, motor, evaporator, condenser, unit controller, economizer, and all interconnecting chiller piping and wiring. A control power transformer is standard and supplies all the auxiliary power needs for chiller mounted devices. The adaptiview frequency drive (AFD) is integral to the chiller as standard.

Compressor-Motor

Direct drive multiple-stage compressor, single-stage capacity control guide vanes. Dynamically balanced shrouded aluminum alloy impellers. Refrigerant cooled, hermetically sealed, two-pole motor. Two magnetic bearings support the rotating assembly. Fully integrated magnetic bearing controller.

Evaporator-Condenser

Shells are carbon steel plate. Evaporator and condenser include relief devices per ASME Section VIII, Div.1 / ASHRAE 15 Safety Code. Carbon steel tube sheets are drilled, reamed and grooved to accommodate tubes. Tubes are individually replaceable externally finned seamless copper. Tubes are mechanically expanded into tube sheets. A multiple orifice control system maintains proper refrigerant flow. Condenser baffle prevents direct impingement of compressor discharge gas upon the tubes. Refrigerant side of the assembled unit is tested at both pressure (300.00 psi condenser / 200.00 psi evaporator leak test) and vacuum. Water side is hydrostatically tested at one and one-half times design working pressure; but not less than 225.00 psi.

Trane reserves the right to implement chiller technology enhancements that will reduce the chiller's refrigerant charge, with no impact on chiller performance. Changes may be reflected in the chillers nameplate refrigerant charge and the quantity of refrigerant charge shipped in the unit or to the jobsite, depending upon the final date of equipment manufacture.

Water Boxes

Drains and vents - Water boxes typically have 3/4-inch NPTI vents and drain connections provided. Evaporators and condensers have one vent and one drain. If grooved connections are offered, the design is based on Style 77.

Economizer

A thermal economizer with no moving parts provides power saving capability.

Evaporator Proof of Flow - Thermal Dispersion

A factory provided, field installed thermal dispersion type proof of flow switch (IFM) is provided. The thermal dispersion controller is mounted in the chiller control panel. The piping probe and wiring is shipped loose for field installation in the ship with components box. Follow the installation instructions in the chiller installation manual. Reference specific IFM installation manual (PART- SVN223*-EN) notes shipped with your rupture guard or contact local Trane sales office.

Condenser Proof of Flow - Thermal Dispersion

A factory provided, field installed thermal dispersion type proof of flow switch (IFM) is provided. The thermal dispersion controller is mounted in the chiller control panel. The piping probe and wiring is shipped loose for field installation in the ship with components box. Follow the installation instructions in the chiller installation manual. Reference specific IFM installation manual (PART- SVN223*-EN) notes shipped with your rupture guard or contact local Trane sales office.

AdaptiView Control Panel

The Tracer (TM) AdaptiView is a microprocessor-based chiller control system that provides complete stand alone system control and monitoring for the water cooled Agility (TM). It is a factory mounted package including a full complement of controls to safely and efficiently operate the Agility chiller, including interface to the starter, and comprehensive motor protection. Inlet and outlet water (fluid) temperature sensors are located in the evaporator and condenser water box connections as standard.

The display is a touch sensitive 12 1/8" diagonal color liquid crystal display (LCD) that uses color graphics and animation to ensure ease of use. The touch sensitive interface allows the operator to view the chiller graphically and receive a status indication via subsystem animations. The operator can navigate easily between the primary chiller subsystems including: compressor, evaporator, condenser, and motor.

For each subsystem, you can view status and detailed operating parameters. In addition, alarms, reports, trending, and settings can all be accessed quickly from the main screen. The display is mounted on a flexible "arm" that allows extensive height and viewing angle variations.

The panel supports an extensive list of languages including the default English. The data can be set to be viewed in inch pounds IP or metric units SI. Class 1 control panel voltage (30-115V) is clearly labeled. Class 2 input voltage (30V max) is also labeled.

Operating Data Including:

- *operating hours
- *number of starts
- *chilled water setpoint
- *evaporator and condenser water flow status
- *evaporator entering and leaving water temperatures
- *evaporator saturated refrigerant temperatures
- *evaporator approach temperatures
- *evaporator refrigerant pressure
- *condenser entering and leaving water temperatures
- *condenser saturated refrigerant temperatures
- *condenser approach temperatures
- *condenser refrigerant pressure
- *AFD average motor current %RLA
- *motor winding temperatures
- *AFD output power

The AdaptiView also contains the following dedicated reports:

Evaporator, Condenser, Compressor Motor, and ASHRAE. Each report is comprised of a detailed listing of operational data relative to that chiller subsystem.

Control Functions Including:

- *leaving chilled water temperature
- *percent demand limit
- *chiller water reset (based on return water temperature)
- *front panel control type
- *setpoint source
- *differential to start
- *differential to stop

Status Data Including:

- *waiting to start
- *running
- *run limit
- *run inhibit (adaptive)
- *auto
- *preparing shutdown
- *shutting down
- *stopped

Safeties Including:

Automatic safety shutdown for:

- *low chilled water temperature
- *low evaporator refrigerant pressure
- *high condenser refrigerant pressure
- *evaporator and condenser flow status
- *high motor temperature
- *AFD function faults
- *critical temperature and pressure sensor faults
- *AFD motor current overload

The devices are of a latching trip out type requiring manual reset. Non-latching safety trip outs for operating conditions external to the chiller automatically permits unit to resume normal operation when condition is corrected.

Surge protection - avoids surge by changing operating conditions through speed and inlet guide vane adjustments. Head relief through lowering cooling tower water temperature can be requested. If not corrected within 7 minutes, chiller is shut down.

Enhanced Adaptive Control(TM) - built in intelligence to keep the chiller on line (safely making maximum tons) while simultaneously preventing chiller damage/failure. During any chiller limiting mode of operation, the control panel enunciates the condition via a relay output.

Trending

The controller provides 10 standard graphs for trending multiple parameters. The operator can add an additional 6 customer graphs if desired. On any one custom graph, the operator can choose to trend up to 10 unique parameters from a more comprehensive list. Two Y axes are available for any graph to facilitate readability.

Diagnostics

AdaptiView includes comprehensive diagnostic monitoring. All active diagnostics are available, and up to 20 historic diagnostics are communicated to the operator via the 12 1/8" LCD display with graphic navigation system. Each diagnostic is time and date stamped.

Service Tool

A PC-based service tool called Tracer TU, connected to the chiller via USB port, is available for additional cost and displays the last 100 diagnostics, indicating the time, date of occurrence, and system parameters at the time of the diagnostic. The service tool provides advanced troubleshooting and access to sophisticated configuration settings not needed during operation of the chiller.

Security

The AdaptiView can be set to prevent unauthorized access to the chiller settings. The operator can choose to secure the operating settings with a password. Data and reports can still be accessed once the settings are locked out.

The memory for the AdaptiView is non-volatile type, so if power is lost, operating settings are retained. A life time battery is standard, which is used only to support the clock function for the chiller.

Chilled and Condenser Water Pump Relays

Chilled water and condenser water pump relays are provided and it is recommended that they be used for pump control.

Hardwire BAS Interface includes:

Chilled Water Setpoint input - provides for setpoint adjustment of control point from multiple sources

Current Limit Setpoint input - provides for setpoint adjustment of control point from multiple sources

Percent RLA Output - provides %RLA output

Condenser Pressure Output - a hardwire output signal of condenser pressure or differential pressure between the evaporator and condenser

Operating Status

The following hardwire binary outputs are available:

Compressor running relay

Alarm relay - manual reset

Alarm relay - auto reset

Head relief request relay

Maximum capacity relay

AFD interrupt failure

Paint

All Agility(TM) painted surfaces are coated with a primer and an air-dry beige primer-finisher prior to shipment.

Isolation

All units ship with neoprene isolator pads as standard. Enough pads are provided to cover the area under the chiller supports.

Shipment

All units are of hermetic design, leak tested, factory charged with refrigerant, or charged to 5.00 psi dry nitrogen and shipped as a single factory assembled package. The entire chiller is shrink wrapped for protection.

International Building Code IBC 2018 Seismic

Certified Seismic Design Levels

* SDS Limit = 2.0 for units installed above grade ($z/h > 0$)

* SDS Limit = 2.27 for units installed at grade ($z/h = 0$)

* $I_p = 1.5$

* Not available with spring isolators

Customer supplied anchor plates are required to comply with certification

See VMA-50102-01C at <https://ibcapproval.com> for certification details

AFD Design Features:

*NEMA 1 ventilated enclosure with hinged, locking door is tested to a short circuit rating of 65,000 Amps. It includes a padlock-able door-mounted circuit breaker/shunt trip with AIC rating of 65,000 Amps. The circuit breaker is interlocked with the enclosure door. The entire package is UL/CUL listed.

*Simple modular construction

*The drive is rated for maximum 480/60/3 input power, +/-10%, or as an option 600/60/3

*Displacement power factor of 0.98 at full load and 0.96 at part load.

*Minimum efficiency of 97% at rated load

*Full motor voltage (460/480 +/- 10%) is applied regardless of the input voltage

*Soft-start; linear acceleration; coast to stop

*Adjustable output frequency from 100 to 308 hertz

*All control circuit voltages are physically and electrically isolated from power circuit voltage

*150% instantaneous torque available for improved surge control

*Output line-to-line and line-to-ground short circuit protection

*Optional harmonic attenuation - integrated passive control of the building AC power assures low line-generated harmonics back to the user's power grid. The AFD has less than or equal to 5% current total demand distortion (TDD) as measured at the AFD. This is based on an electrical system with voltage distortion less than 1.5%

Required Installer Responsibilities

The following are considered functions normally required of the equipment installer.

-Install unit on a foundation with flat support surfaces level within 1/16" and of sufficient length to support concentrated loading. (Spring isolators should be considered whenever chiller installation is planned for an upper story location).

-Place isolation pads provided by the chiller manufacturer under the unit. When spring isolators are chosen, no pads are provided.

-Install unit per applicable Trane Installation Manual.

-Complete all water and electrical connections.

-Where specified, provide and install valves in water piping upstream and downstream of the evaporator and condenser water boxes as means of isolating shells for maintenance and to balance and trim system.

-Furnish and install a flow switch or equivalent device in both the chilled water and condenser water piping properly interlocked to insure that the unit can operate only when waterflow is established.

-Furnish and install taps for thermometers and pressure gauges in water piping adjacent to inlet and outlet connections of both evaporator and condenser.

-Furnish and install drain valves to each water box.

-Install vent cocks on each water box.

- Furnish and install strainers upstream of chiller evaporator and condenser bundles to protect tubes from potential damage caused by debris in the circulating water. Note: Failure to install strainers in all water piping entering the chiller could result in tube plugging conditions that could damage unit components. If the circulating pumps are immediately upstream of the chiller bundles, then the strainer can be installed immediately ahead of the pumps. If the circulating pumps are downstream of the chiller bundles, then the strainers should be installed immediately ahead of the chiller bundles.
- Furnish sufficient refrigerant of 25 lb. per machine and dry nitrogen of 50.0 lb. per machine for pressure testing under manufacturer's supervision.
- Start-up unit under supervision of qualified Trane field engineer.
- Where specified, insulate evaporator and any other portions of the machine required to prevent sweating under normal operating conditions.
- Water connection piping must not transfer forces to the chiller. Because of cumulative tolerances in manufacture and field installation, pre-piping of water connections closer than 36" is not recommended. Any problems associated with pre-piping of water connections closer than 36" to the chiller are the responsibility of the installing contractor.
- Furnish and install vent lines for evaporator and condenser relief devices venting to atmosphere per ASHRAE 15 and unit installation manual.

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Centrifugal Chiller Water-Cooled Agility

Item	Tag(s)	Qty	Description	Model Number
A1	HRC-1, HRC-2, HRC-3, HRC-4, HRC-5	5	Centrifugal Chiller Water-Cooled Agility	HDWA040

Field Installed Option Description	Part/Ordering Number
Thermal dispersion flow switch (IFM) - Field Installed	
Thermal dispersion flow switch (IFM) - Field Installed	
Accessory: 2 Thermometers, 10 inch (254 mm) standard well	

SHOP DRAWING REVIEW

Date: 2/2/2023
Project: IUH CUP
Client Project No.:
Applied Project No.: 21-154
Spec Section: Cooling Towers Bid package
01H- (01B)
Reviewed By: DAN SHURINA

☒ FURNISH AS SUBMITTED ☐ FURNISH AS CORRECTED
☐ REVISE AND ☐ REJECTED ☐ REVIEWED
RESUBMIT

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications and applicable laws, codes and regulations. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

APPLIED ENGINEERING SERVICES

Date: 2/2/2023

By: Dan Shurina

COMMENTS

Submittal to:

Tesco, LLC
9955 Crosspoint Boulevard, Suite 100
Indianapolis, IN 46256
Attention: Kris Bowen
kbowen@tesco-solutions.com

Project:

IU Health/Methodist Hospital Dock
1901 N. Senate Ave.
Indianapolis, IN 46202

Engineer:

Applied Engineering Services Inc
Indianapolis, IN

Opportunity / Quote No. (Ver): FRANK HAAG_211104_142201668 / JACOB BLYSTONE_221219_131943904 (1)
Rep Quote No.:

January 23, 2023

TOWER MODEL	PERFORMANCE CONDITIONS	MOTOR DATA	TOWER DIMENSIONS	WEIGHTS
Quantity of (1) Marley NC Class model ✓ NC8422YAN factory assembled 6-Cell crossflow cooling tower	Per 6-cell tower: ✓ 36,000 gpm 95.0 °F Hot Water 85.0 °F Cold Water 78.0 °F Entering WB	NEMA 125 HP 1 speed / 1 wind 3 phase / 60 Hz / 230/460v 1.15sf / TEFC 1800 RPM Premium Efficiency Inverter duty nameplated External shaft grounding ring per motor <i>Site Voltage; 480</i>	Each cell: (without options) Length 22' - 4 3/4" Width 29' - 6" Height 27' - 0 1/16" Per 6-cell tower: (with options) Length 140' - 7 5/8" Width 33' - 6" Height 27' - 0 1/16"	Per cell: Shipping: 44,008 lb Operating: 103,530 lb Per 6-cell tower: Shipping: 264,046 lb Operating: 621,178 lb Heaviest Lift: 8,622 lb

Quantities shown below are per tower.

Base Tower Construction/Equipment:

- ✓ Galvanized Steel casing.
- ✓ Galvanized Steel structure.
- ✓ Stainless Steel (per SS Grade) collection basin.
- ✓ Stainless Steel (per SS Grade) distribution basin.
All stainless steel is series 300.
- ✓ Low Sound fan with aluminum blades.
- ✓ Marley designed Geareducer® with 5-year warranty.
15 mil PVC film fill with integral louvers and drift eliminators designed and manufactured by Marley.
Published sound data is independently verified by a CTI licensed test agency.
CTI certification per STD-201.
- ✓ Factory Mutual Approval
For multi-cell towers Purchaser must ensure that the number of cells includes consideration of cell outage due to fire damage, mechanical failure and preventive maintenance such that sufficient cooling capacity is available to enable normal business and manufacturing operations to continue throughout the year.
59 in fan cylinder extension.

Collection Basin Connections and Accessories:

- ✓ All flanges are to Class 125 ANSI B16.1 standard.
All threads are to American Standard Pipe Taper Thread.
- ✓ (6) 24 in (610 mm) diameter bottom outlet(s) with trash screen(s) and anti-vortex plate(s).
- ✓ 18 in (457 mm) diameter hole and bolt circle(s) for equalization, Two per Cell
- ✓ 4 in (102 mm) diameter combination drain and overflow in each cell
- ✓ (6) Water level, Marley Ultrasonic sensors with 30 ft (9.1 m) sensor cord, 4-20mA output for direct connection to a BMS. Requires simple setup programming in the field.
- ✓ (6) Motorized Ball 2 in (50.8 mm) diameter valve(s) for makeup
- ✓ 60 kW per cell 480/3 volt/phase electric immersion heater for freeze protection of the collection basin during cold weather system shutdown
- ✓ Integrated into control system
- ✓ Heater system circuit breaker
- ✓ Heater system disconnect switch

Distribution Basin Inlet and Accessories:

- ✓ (1) self-balancing 18 in (457mm) diameter PVC bottom inlet connection per cell.
- ✓ All internal piping is PVC. External piping is PVC.
Variable flow nozzles.

Maintenance & Maintenance Access Features:

- ✓ Tower is designed in accordance with OSHA safety standards.
- ✓ This quotation includes features that will allow safe access on the fan deck while the fan is still operating.
- ✓ External lube line with dipstick
- ✓ Low oil level switch, Marley Ultrasonic DC sensor + AC interface relay box, with 50 ft (15.2 m) sensor cord
- ✓ Full face galvanized steel horizontally mounted air inlet screens for easy access to collection basin
Convenient access to the collection basin and plenum area is provided via a large access door located on each endwall
- ✓ Stainless Steel (per SS Grade) plenum walkway in each cell
- ✓ Internal mechanical equipment access platform in each cell
- ✓ Fan deck extension
- ✓ Easy fitting perimeter guardrail, kneerail & toeboard
- ✓ (2) Cased face ladders
- ✓ Self-closing safety gate(s) included at the top of the access ladders

Control Systems:

- ✓ (1) IMI 685B Electronic sw box + remote accelerometer w/ 30' cord vibration cutoff switch per cell
Field installed Single Point Power Connection panel NEMA 3R stainless steel enclosure
Collection basin heater control integrated in control panel

Chemical Delivery System:

None

Tower Specials:

- ✓ Oil Level Sight Glass. located sight glass inside the tower near the Oil Level Switch.
- ✓ Mechanical removal option. HDG structural frame assembly and a trolley. Includes a chain hoist w/ 115V power and 12 in. control pigtail.
- ✓ The anchor spacing between Cells 2-3 and 4-5 is 7 ft – 2 in with full fan deck walkways. In the center of the fan deck walkways, provide an opening with guardrails that is 4 ft-2 in x 5 ft-6 in.
- ✓ Sweeper piping - 2 independent sweeper piping systems in each cell (each serving a fill cube module with piping, inlet and outlet connections). Factory installed, 20 psi.
- ✓ Narrow the fan deck extensions on Cells 1 and 6 to be 18 in wide to ensure proper clearance when lowering mechanicals off sidewalls.
- ✓ 2) The anchor bolt spacing between Cells 1-2, 3-4, and 5-6 is 18" Provide a fan deck walkway at this spacing for full access.
- ✓ 4) The gantry system needs to have a total height of 14 ft. This is taken from the fan deck to the tallest point of the gantry system.
- ✓ 5) The sweeper inlet and outlet connections of each cell need to be aligned from Face B to Face D. Reference the markups in Quote Attachments for details (add my sketch below to QTC Quote Attachments for designer to work from).
- ✓ Ensure gantry overhang on Cells 1 and 6 is 54 inches past the cased face

Control Specials:

- ✓ Heater Special ABH circuit and larger SPPC enclosure for (6) SPPC panels (MG).

Field Installed Equipment:

The field installed portion of the equipment will require estimated approximately 700.0 man-hours of installation time after the tower arrives at the jobsite (based on USA experienced crew). The price to install these components is NOT included in the total price.

Please advise if the drawing type you need has not been supplied. These are the available drawing types:

- PDF 2D documents - These documents display the tower geometry with dimensions, notes and annotations.
- DWG 2D AutoCAD layouts – This 2D layout is a full-scale electronic representation of the tower to insert into your own AutoCAD layout. The .dwg contains no text so should be accompanied by the PDF files.
- JT 3D solid model files - These lightweight 3D solids may be used by solid model programs such as NX (Unigraphics), I-DEAS, Solid Edge, Catia, Pro/Engineer, and Autodesk Inventor 2009, among others. A free JT viewer can be found at www.jt2go.com. JT is not compatible with Revit; however, the JT file can be converted to DWG using Autodesk Inventor and then imported into Revit. This results in a heavy Revit file thus not suitable for all applications.
- Revit – Configuration specific Revit files are not yet available. However, a lightweight Revit part family showing the basic tower may be downloaded from our website. Go to <http://spxcooling.com/revit>.

COOLING TOWER SUBMITTAL

Drawings & Data

<i>Transmittal Code</i>	<i>Approval Code</i>	<i>No. of Copies</i>	<i>Drawing Number /Rev/Date</i>	<i>Description</i>

Transmittal Codes:

E = Enclosed Herewith
S = Sent Separately
F = Sent via Fax
O = Other

Other Codes:

P = Print
R = Reproducible
D = Reduced Copy

Approval Codes:

SFA = Approval Document. Equipment is held for Approval and Release.
AFC = Certified Document. Equipment has been Approved for Construction.
Changes made after this point may result in price adds and/or delays.
INF = Information Document. Submitted for Information only.
RFA = Corrected Document. Re-submitted for Approval and Release
OTH = Other

Estimated Shipment Lead-Time After Drawing Approval: 125 business days

Lead times are estimates and are subject to change at time of release

January 23, 2023

For: SPX Cooling Tech, LLC

By: Keller-Rivest Cooling Towers

Frank Haag

NC[®] EVEREST[®]

Factory-Assembled Crossflow Cooling Tower

Designed for HVAC and Industrial Applications

MARLEY[®] 



Marley NC Everest

MODULAR CROSSFLOW COOLING TOWER FOR HVAC AND INDUSTRIAL APPLICATIONS

INDEPENDENTLY-VERIFIED SOUND

The NC Everest Cooling Tower's sound level is independently verified, per CTI ATC-128, by a third-party certified acoustical engineer and CTI-licensed test agent.

CERTIFIED THERMAL PERFORMANCE

The NC Everest Cooling Tower is certified by the Cooling Technology Institute to meet thermal performance as specified.



FM APPROVED OPTION FOR MULTI-CELL APPLICATIONS

The NC Everest Cooling Tower is FM approved for use without a fire protection system in multi-cell applications to allow more affordable operation insurance.



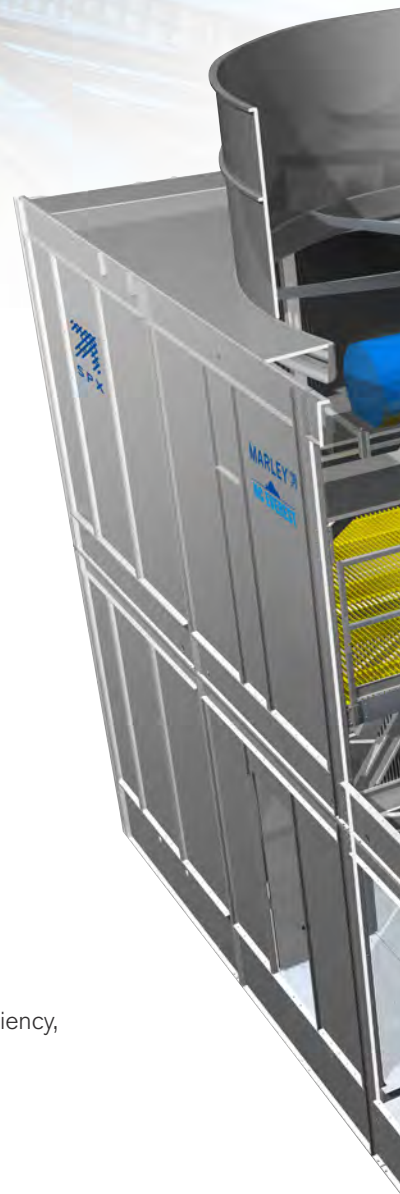
ROBUST DESIGN AND MATERIALS

Built with industrial-grade materials and engineered to withstand the demands of HVAC and industrial applications, the NC Everest Cooling Tower features:

- Heavy-gauge steel structure, galvanized or stainless steel
- 5-year mechanical component warranty
- Rugged genuine Marley Geareducer® gear drive
- Energy-efficient PVC heat exchange fill media
- Integral louvers and drift eliminators for better water management
- Motor outside airstream (MOA) availability

HIGHEST VALUE

- The NC Everest Cooling Tower provides epic advantages, with unmatched cooling capacity, energy efficiency, fewer components and lower maintenance costs.



NC Everest – A Remarkable New Cooling Tower with 50% More Cooling Capacity Using Up to 35% Less Fan Power*

SPX Cooling Technologies embarked on a mission to design a cooling tower like no other in the world. The result, the Marley NC Everest Cooling Tower, provides epic **customer advantages, including 50% greater cooling capacity, higher energy savings, fewer components and lower maintenance costs.** Compared to other factory-assembled cooling towers, the NC Everest Cooling Tower takes cooling to a higher level:

50% MORE COOLING CAPACITY

Gain up to 50% more cooling capacity per cell and get the highest performance available in a factory-assembled cooling tower.*

HIGHER ENERGY SAVINGS

The NC Everest Cooling Tower uses up to 35% less fan power/ton of cooling* to achieve higher energy savings.

GREATER INSTALLATION SAVINGS

The NC Everest Cooling Tower's ambitious design minimizes piping and electrical connections to reduce installation costs.*

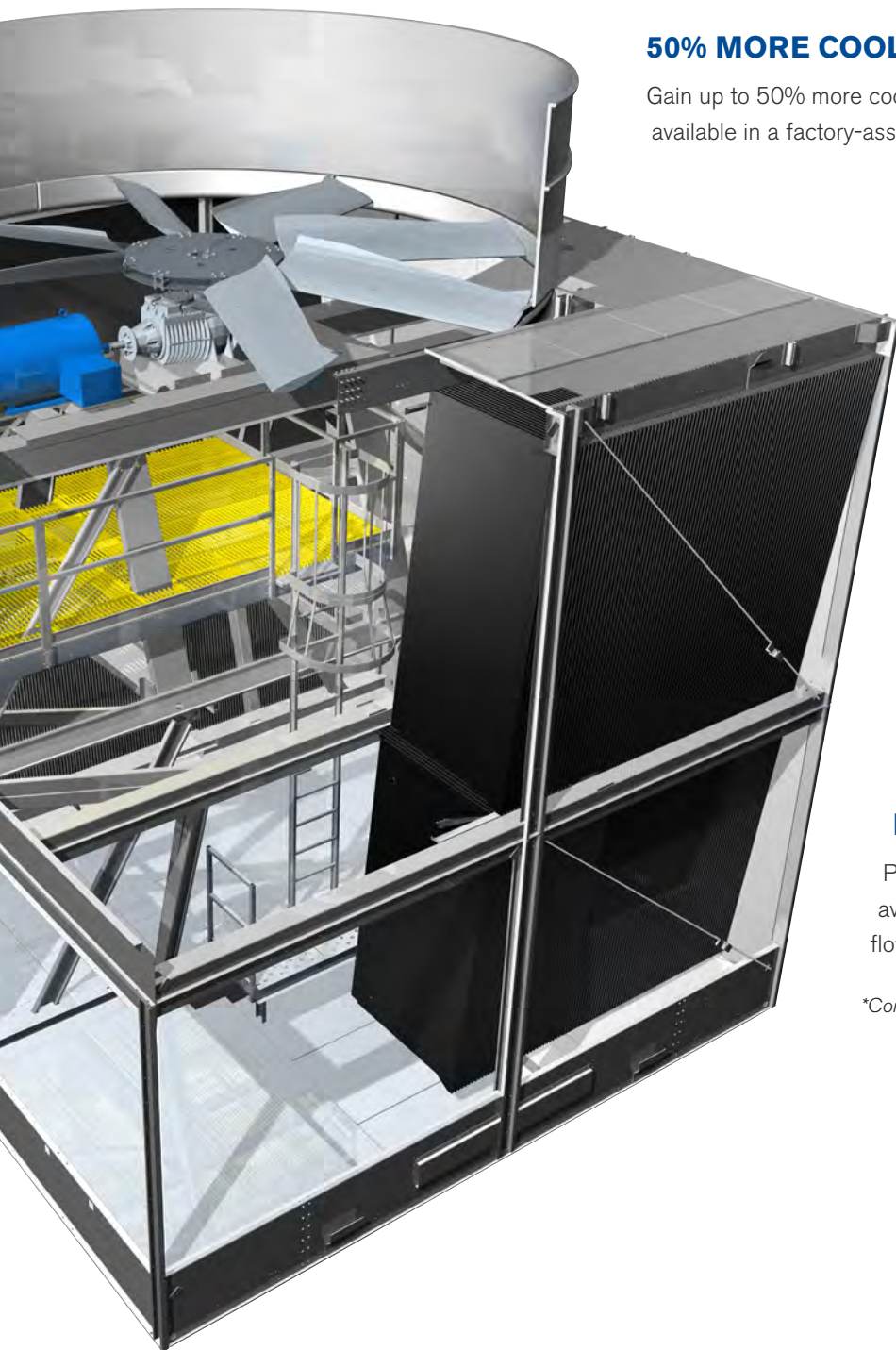
UNRIVALED ACCESS

7-foot high doors and interior service decks make inspections and maintenance easier and safer.

LOWER DRIFT RATE

Patented MarKey® Drift Eliminators achieve the lowest available drift rate, down to 0.0005% of circulating water flow, so less water escapes the tower.*

**Compared to other single-cell, factory-assembled cooling towers.*



MARLEY NC EVEREST COOLING TOWER PARAMETERS

Model	8422
Cooling Capacity	1311–2189 tons (5763 – 9623 kW)
Dimensions	L 22'-5 W 29'-6 H 27'-1 (L 6.8m W 9m H 8.3m)
Maximum Flow Rate	7746 gpm (1759 m ³ /hr)
Inlet Water Temperature	Up to 160°F (70°C)
Snow Load	60 psf (290 kg/m ²) standard
Wind Load	50 psf (240 kg/m ²) standard
Sound Level	As low as 50 dBA
Drift Rate	Per industry standard, as low as 0.0005% of circulating water flow

ADDITIONAL MARLEY NC COOLING TOWER PUBLICATIONS

For additional information about the Marley NC Cooling Tower, access these publications at spxcooling.com



Marley NC Steel
Cooling Tower
Brochure



Marley NC Steel
Cooling Tower
Engineering Data



Marley NC Cooling
Tower Specifications

SPX COOLING TECHNOLOGIES, INC.

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OVERLAND PARK, KS 66213 USA
913 664 7400 | spxcooling@spx.com
spxcooling.com

NCE-HVAC-18A | ISSUED 11/2018

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In the interest of technological progress, all products are subject to design
and/or material change without notice.

**CoolSpec™ Version 7.3.12**

Product Data: 7/7/2022 (Current)

7/10/2022 8:25:49 PM

Job Information**Selected by**Keller-Rivest
6866 Hillsdale Court
Indianapolis, IN 46250 USJohnny Man
Tel 3177166175
jman@keller-rivest.com**Cooling Tower Definition**

Manufacturer	Marley	Fan Motor Speed	1800 rpm
Product	NC Steel	Required Fan Motor Output per cell *	110.1 BHp
Model	NC8422YAN6	Required Fan Motor Output total *	660.7 BHp
Cells	6	Fan Motor Capacity per cell	125.0 Hp
CTI Certified	Yes	Fan Motor Output per cell	125.0 BHp
Fan	19 ft, 8 Blades, Low Sound	Fan Motor Output total	750.0 BHp
Fan Speed	202 rpm, 12057 fpm	Air Flow per cell	552900 cfm
Fans per cell	1	Air Flow total	3317400 cfm
Fill Type	MX75	Static Lift	23 ft
		Distribution Head Loss	0 ft
		ASHRAE 90.1 Performance	59.2 gpm/Hp

Model Group Standard Low Sound (A)

* Required Fan Motor Output assumes VFD operation

Conditions

Tower Water Flow	36000 gpm	Air Density In	0.07094 lb/ft³
Hot Water Temperature	95.00 °F	Air Density Out	0.07094 lb/ft³
Range	10.00 °F	Humidity Ratio In	0.01712
Cold Water Temperature	85.00 °F	Humidity Ratio Out	0.03067
Approach	7.00 °F	Wet-Bulb Temp. Out	89.49 °F
Wet-Bulb Temperature	78.00 °F	Estimated Evaporation	370 gpm
Relative Humidity	50 %	Total Heat Rejection	179370000 Btu/h
Capacity	104.0 %		

- This selection satisfies your design conditions.

Weights & Dimensions

	Per Cell	Total
Shipping Weight	40700 lb	244400 lb
Heaviest Section	8300 lb	
Max Operating Weight	100200 lb	601500 lb
Width	29' - 6"	29' - 6"
Length	22' - 5"	135' - 11 ½"
Height	26' - 11 ¾"	

Minimum Enclosure Clearance

Clearance required on air inlet sides of tower without altering performance. Assumes no air from below tower.

Solid Wall	22 ft
50 % Open Wall	15 ft

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file 8422_ALN.dxf

Cold Weather Operation**Heater Sizing** (to prevent freezing in the collection basin during periods of shutdown)

Heater kW/Cell	36.0	30.0	24.0	18.0	15.0
Ambient Temperature °F	6.01	12.28	18.55	24.82	27.95

SPX COOLING TECHNOLOGIES, INC. | 913 664 7400 | spxcooling@spx.com | spxcooling.com

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CERTIFICATE OF INDEPENDENT SOUND VALIDATION

SPX[®]



MARLEY[®]

SPX Cooling Technologies, Inc. | 7401 West 129 Street | Overland Park, KS 66213 | 913 664 7400 | spxcooling.com

MARLEY NC[®] COOLING TOWER

This document certifies that published sound data for the Marley NC Cooling Tower line has been independently verified, and complies with CTI ATC-128, Test Code for Measurement of Sound for Water-Cooling Towers.

Sound testing was conducted on various Marley NC models and configurations by an independent CTI-licensed sound test agency using calibrated Type 1 precision sound test instruments per the test standards. Sound pressure levels were recorded in the acoustic near-field and far-field locations as specified in the CTI ATC-128 test procedure for Sound Measurements for Small Towers. Testing and analysis was conducted by an INCE board certified member, and licensed Professional Engineer in Acoustical Engineering, from Tenor Engineering Group.

Tenor Engineering Group is an industry leader in acoustical engineering. CTTA is a licensed sound test agency.



Member

LICENSED CTI SOUND TESTING BY:

Erik Miller-Klein

Erik Miller-Klein, P.E.

Tenor Engineering Group

Tenor

www.tenor-eng.com

Nicholas Stich

Nicholas Stich

Cooling Tower Test Associates



Job Information

Selected by

Keller-Rivest
6866 Hillsdale Court
Indianapolis, IN 46250 US

Johnny Man
Tel 3177166175
jman@keller-rivest.com

95.7% Speed will achieve 100% Thermal Load

Cooling Tower Definition

Manufacturer	Marley	Fan Speed (95.7 %)	193 rpm
Product	NC Steel	Fan Tip Speed (95.7 %)	11542 fpm
Model	NC8422YAN6	Fan Motor Speed (95.7 %)	1723 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	110.1 BHp
Fans per cell	1	Fan Motor Output total	110.1 BHp

Model Group Standard Low Sound (A)

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)

Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	80	88	87	81	74	71	59	58	83
5.00 ft	Cased Face SPL	88	80	73	69	61	57	50	45	71
5.00 ft	Fan Discharge SPL	90	91	86	84	79	78	72	68	86
50.00 ft	Air Inlet Face SPL	79	76	76	72	65	62	52	44	73
50.00 ft	Cased Face SPL	83	74	69	62	54	51	44	30	65
50.00 ft	Fan Discharge SPL	85	84	78	73	68	69	64	59	77
	Tower PWL	118	116	111	106	101	101	95	91	109

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

Sound Power Impacts Per CTI Code Revision

<https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/>

Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

<https://spxcooling.com/library/understanding-and-evaluating-cooling-tower-sound-levels-among-manufacturers/>

Job Information

Selected by

Keller-Rivest
6866 Hillsdale Court
Indianapolis, IN 46250 US

Johnny Man
Tel 3177166175
jman@keller-rivest.com

Cooling Tower Definition

Manufacturer	Marley	Fan Speed (90.0 %)	182 rpm
Product	NC Steel	Fan Tip Speed (90.0 %)	10852 fpm
Model	NC8422YAN6	Fan Motor Speed (90.0 %)	1620 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	92.1 BHp
Fans per cell	1	Fan Motor Output total	92.1 BHp
Model Group	Standard Low Sound (A)		

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)
Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	78	87	85	80	73	70	59	58	81
5.00 ft	Cased Face SPL	86	79	72	68	60	56	50	45	70
5.00 ft	Fan Discharge SPL	89	90	85	83	77	77	71	67	85
50.00 ft	Air Inlet Face SPL	77	75	75	71	63	60	51	44	72
50.00 ft	Cased Face SPL	82	72	67	60	53	50	43	30	64
50.00 ft	Fan Discharge SPL	84	82	77	72	67	68	63	58	75
	Tower PWL	117	114	110	105	99	99	94	89	108

Notes

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- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

Sound Power Impacts Per CTI Code Revision

<https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/>

Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

<https://spxcooling.com/library/understanding-and-evaluating-cooling-tower-sound-levels-among-manufacturers/>

Job Information

Selected by

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6866 Hillsdale Court
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Tel 3177166175
jman@keller-rivest.com

Cooling Tower Definition

Manufacturer	Marley	Fan Speed (80.0 %)	162 rpm
Product	NC Steel	Fan Tip Speed (80.0 %)	9645.9 fpm
Model	NC8422YAN6	Fan Motor Speed (80.0 %)	1440 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	65.7 BHp
Fans per cell	1	Fan Motor Output total	65.7 BHp
Model Group	Standard Low Sound (A)		

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)
Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	76	84	83	77	70	68	58	58	79
5.00 ft	Cased Face SPL	84	76	70	65	59	55	49	43	68
5.00 ft	Fan Discharge SPL	86	87	83	80	75	74	69	64	82
50.00 ft	Air Inlet Face SPL	75	72	72	68	61	58	49	44	69
50.00 ft	Cased Face SPL	79	70	65	58	52	48	41	30	61
50.00 ft	Fan Discharge SPL	82	80	75	70	65	65	60	55	73
	Tower PWL	114	112	107	102	97	97	92	87	105

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

Sound Power Impacts Per CTI Code Revision

<https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/>

Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

<https://spxcooling.com/library/understanding-and-evaluating-cooling-tower-sound-levels-among-manufacturers/>

Job Information

Selected by

Keller-Rivest
6866 Hillsdale Court
Indianapolis, IN 46250 US

Johnny Man
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jman@keller-rivest.com

Cooling Tower Definition

Manufacturer	Marley	Fan Speed (70.0 %)	141 rpm
Product	NC Steel	Fan Tip Speed (70.0 %)	8440.2 fpm
Model	NC8422YAN6	Fan Motor Speed (70.0 %)	1260 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	45.0 BHp
Fans per cell	1	Fan Motor Output total	45.0 BHp

Model Group Standard Low Sound (A)

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)

Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	73	82	80	74	68	66	58	58	76
5.00 ft	Cased Face SPL	81	73	67	63	58	54	48	42	65
5.00 ft	Fan Discharge SPL	84	84	80	77	72	71	66	62	79
50.00 ft	Air Inlet Face SPL	72	69	69	65	58	55	48	44	66
50.00 ft	Cased Face SPL	76	67	62	55	50	46	39	30	59
50.00 ft	Fan Discharge SPL	79	77	72	67	62	62	58	53	70
	Tower PWL	111	109	104	99	94	94	90	85	102

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

Sound Power Impacts Per CTI Code Revision

<https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/>

Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

<https://spxcooling.com/library/understanding-and-evaluating-cooling-tower-sound-levels-among-manufacturers/>

Job Information

Selected by

Keller-Rivest
6866 Hillsdale Court
Indianapolis, IN 46250 US

Johnny Man
Tel 3177166175
jman@keller-rivest.com

Cooling Tower Definition

Manufacturer	Marley	Fan Speed (60.0 %)	121 rpm
Product	NC Steel	Fan Tip Speed (60.0 %)	7234.5 fpm
Model	NC8422YAN6	Fan Motor Speed (60.0 %)	1080 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	29.3 BHp
Fans per cell	1	Fan Motor Output total	29.3 BHp

Model Group Standard Low Sound (A)

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)

Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	70	78	77	71	66	63	58	58	73
5.00 ft	Cased Face SPL	78	70	63	60	57	53	47	42	63
5.00 ft	Fan Discharge SPL	81	81	77	74	69	68	64	59	76
50.00 ft	Air Inlet Face SPL	69	66	66	62	55	52	47	44	63
50.00 ft	Cased Face SPL	73	64	59	52	49	45	37	30	56
50.00 ft	Fan Discharge SPL	76	74	69	64	59	59	56	50	67
	Tower PWL	108	106	101	96	91	91	87	82	100

Notes

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- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

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Sound Power Impacts Per CTI Code Revision

<https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/>

Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

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Job Information

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Cooling Tower Definition

Manufacturer	Marley	Fan Speed (50.0 %)	101 rpm
Product	NC Steel	Fan Tip Speed (50.0 %)	6028.7 fpm
Model	NC8422YAN6	Fan Motor Speed (50.0 %)	900 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	17.9 BHp
Fans per cell	1	Fan Motor Output total	17.9 BHp

Model Group Standard Low Sound (A)

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)

Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	66	74	73	68	64	62	58	58	71
5.00 ft	Cased Face SPL	74	66	60	58	57	53	47	42	61
5.00 ft	Fan Discharge SPL	77	78	74	71	66	65	62	57	73
50.00 ft	Air Inlet Face SPL	65	62	62	58	52	50	46	44	60
50.00 ft	Cased Face SPL	69	61	55	49	49	45	36	30	54
50.00 ft	Fan Discharge SPL	72	71	66	60	56	56	54	48	64
	Tower PWL	105	102	98	93	89	88	86	80	97

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

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Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

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Job Information

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Cooling Tower Definition

Manufacturer	Marley	Fan Speed (40.0 %)	81 rpm
Product	NC Steel	Fan Tip Speed (40.0 %)	4823 fpm
Model	NC8422YAN6	Fan Motor Speed (40.0 %)	720 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	10.0 BHp
Fans per cell	1	Fan Motor Output total	10.0 BHp
Model Group	Standard Low Sound (A)		

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)
Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	62	70	68	65	63	61	58	58	69
5.00 ft	Cased Face SPL	69	62	55	56	57	53	47	41	60
5.00 ft	Fan Discharge SPL	74	74	72	67	64	63	61	55	71
50.00 ft	Air Inlet Face SPL	61	58	58	54	49	48	45	44	56
50.00 ft	Cased Face SPL	65	57	52	46	48	44	35	30	52
50.00 ft	Fan Discharge SPL	69	67	64	57	54	53	53	47	62
	Tower PWL	101	99	96	89	86	86	85	79	94

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

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Job Information

Selected by

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Cooling Tower Definition

Manufacturer	Marley	Fan Speed (30.0 %)	61 rpm
Product	NC Steel	Fan Tip Speed (30.0 %)	3617.2 fpm
Model	NC8422YAN6	Fan Motor Speed (30.0 %)	540 rpm
Cells	1	Fan Motor Capacity per cell	125.0 Hp
Fan	19.00 ft, 8 Blades, Low Sound	Fan Motor Output per cell	5.0 BHp
Fans per cell	1	Fan Motor Output total	5.0 BHp
Model Group	Standard Low Sound (A)		

Sound » Independently Verified

1 - Cell sound data for an unobstructed environment.

Sound Pressure Level (SPL) expressed in dB (re: 20x10⁻⁶ Pa)
Sound Power Level (PWL) expressed in dB (re: 1x10⁻¹² watts)

Distance	Location	Octave Band Center Frequency (Hz)								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5.00 ft	Air Inlet Face SPL	58	64	62	62	63	60	58	58	67
5.00 ft	Cased Face SPL	64	58	51	55	57	53	47	41	60
5.00 ft	Fan Discharge SPL	71	72	70	65	63	61	61	55	69
50.00 ft	Air Inlet Face SPL	58	55	52	49	47	47	45	44	54
50.00 ft	Cased Face SPL	62	55	49	44	48	44	35	30	51
50.00 ft	Fan Discharge SPL	66	65	62	55	53	52	52	46	60
	Tower PWL	98	96	94	87	85	84	84	78	92

Notes

- Sound levels have been independently verified by a CTI-licensed sound test agency to ensure validity and reliability of the published values.
- Measurement and analysis of the sound levels were conducted by a certified Professional Engineer in Acoustical Engineering.
- Sound pressure levels were measured and recorded on various models in the acoustic near-field and far-field locations using ANSI S1.4 Type 1 precision instrumentation.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

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Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers

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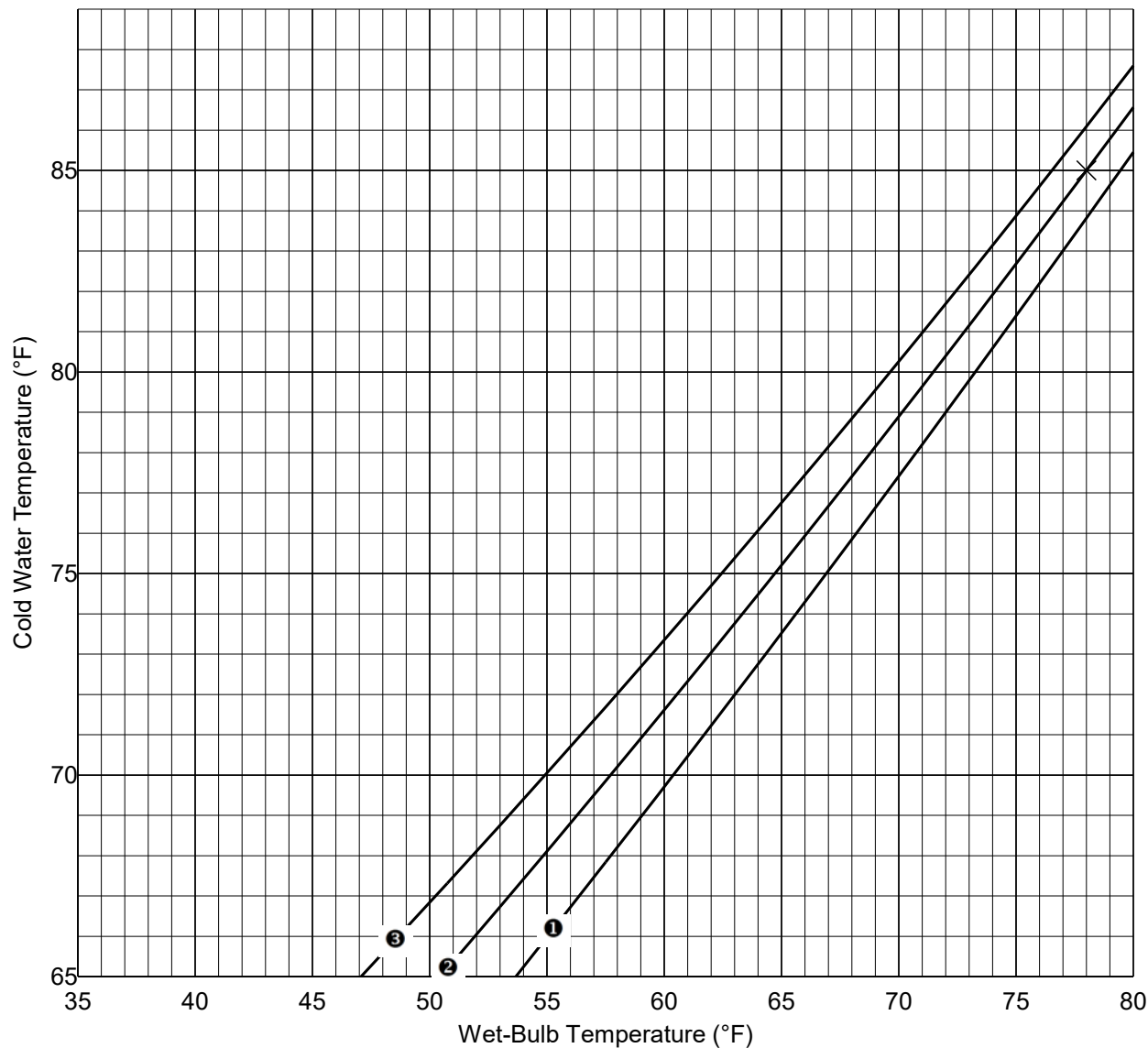
Job Information

Selected by

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jman@keller-rivest.com

Manufacturer	Marley
Product	NC Steel
Model	NC8422YAN6
Cells	6
Fan	19.00 ft, 8 Blades , Low Sound
Fans per cell	1
Fan Motor Capacity per cell	125.0 Hp



Design Conditions

Tower Water Flow	36000 gpm
Hot Water Temperature	95.00 °F
Cold Water Temperature	85.00 °F
Wet-Bulb Temperature	78.00 °F

Curve Conditions

Tower Water Flow (100.0 %)	36000 gpm
Fan Speed (100.0 %)	202 rpm
Fan Motor Speed (100.0 %)	1800 rpm
Fan Motor Output per cell	125.0 BHp
Fan Motor Output total	750.0 BHp

Legend

- ① 8 °F Range
- ② 10 °F Range
- ③ 12 °F Range
- × Design Point

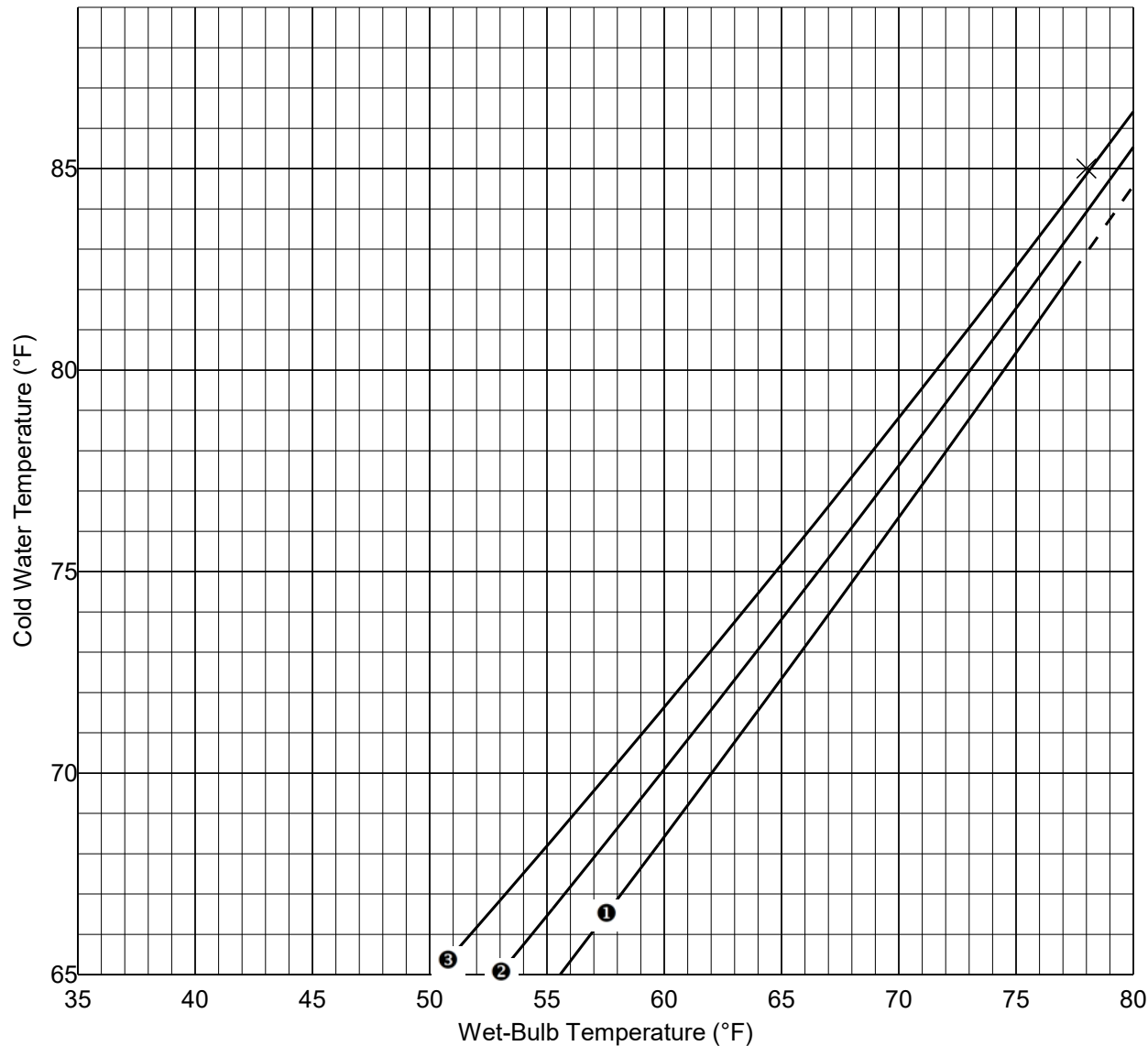
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Johnny Man
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Manufacturer	Marley
Product	NC Steel
Model	NC8422YAN6
Cells	6
Fan	19.00 ft, 8 Blades , Low Sound
Fans per cell	1
Fan Motor Capacity per cell	125.0 Hp



Design Conditions

Tower Water Flow	36000 gpm
Hot Water Temperature	95.00 °F
Cold Water Temperature	85.00 °F
Wet-Bulb Temperature	78.00 °F

Curve Conditions

Tower Water Flow (90.0 %)	32400 gpm
Fan Speed (100.0 %)	202 rpm
Fan Motor Speed (100.0 %)	1800 rpm
Fan Motor Output per cell	125.0 BHp
Fan Motor Output total	750.0 BHp

Legend

- 1 8 °F Range
- 2 10 °F Range
- 3 12 °F Range
- X Design Point

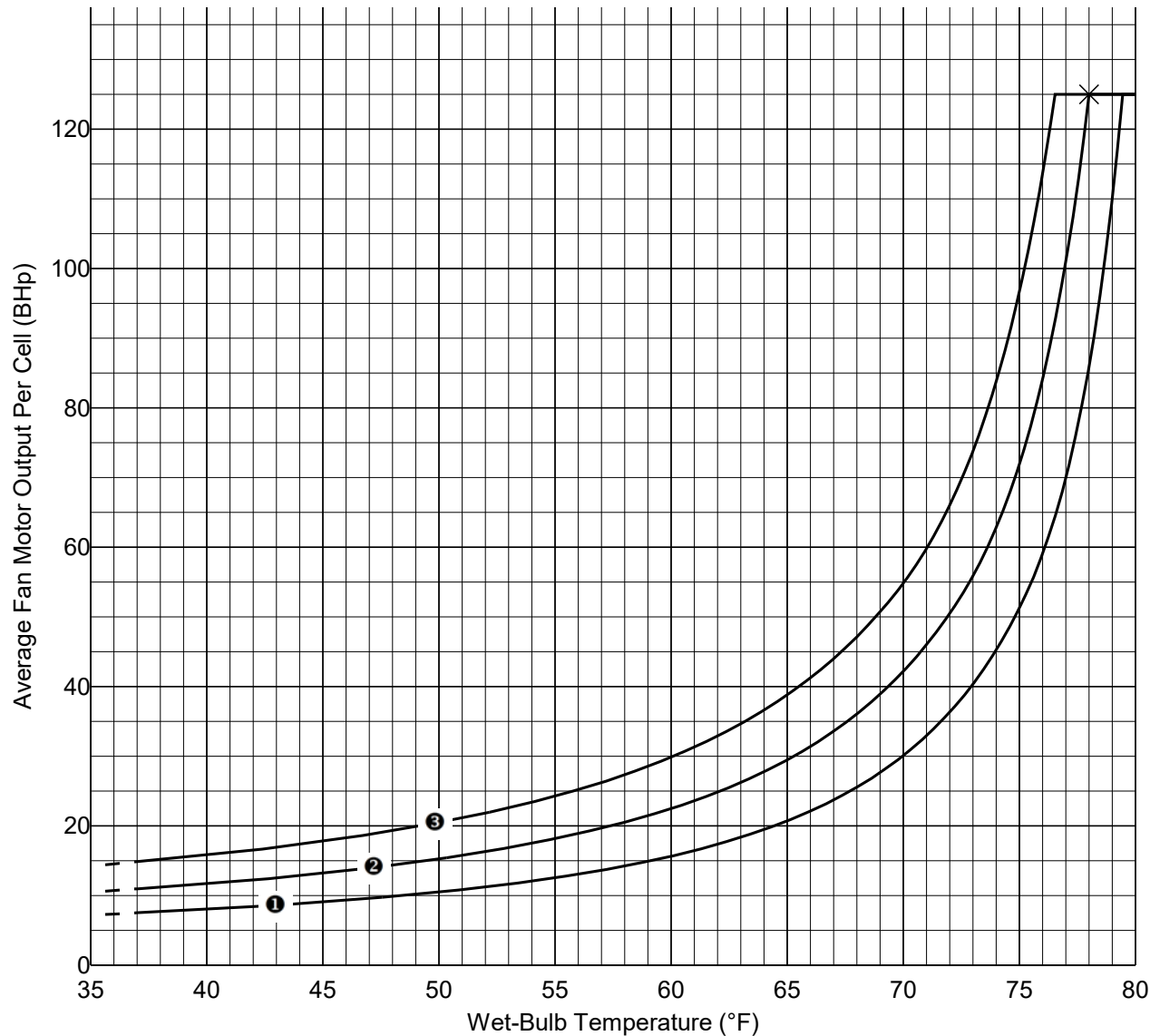
Job Information

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Johnny Man
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jman@keller-rivest.com

Manufacturer	Marley
Product	NC Steel
Model	NC8422YAN6
Cells	6
Fan	19.00 ft, 8 Blades , Low Sound
Fans per cell	1
Fan Motor Capacity per cell	125.0 Hp



Design Conditions

Tower Water Flow	36000 gpm
Hot Water Temperature	95.00 °F
Cold Water Temperature	85.00 °F
Wet-Bulb Temperature	78.00 °F

Curve Conditions

Tower Water Flow (100.0 %)	36000 gpm
Cold Water Set Point	85.00 °F
Fan Operation	Variable-Speed

Legend

- ① 8 °F Range
- ② 10 °F Range
- ③ 12 °F Range
- X Design Point

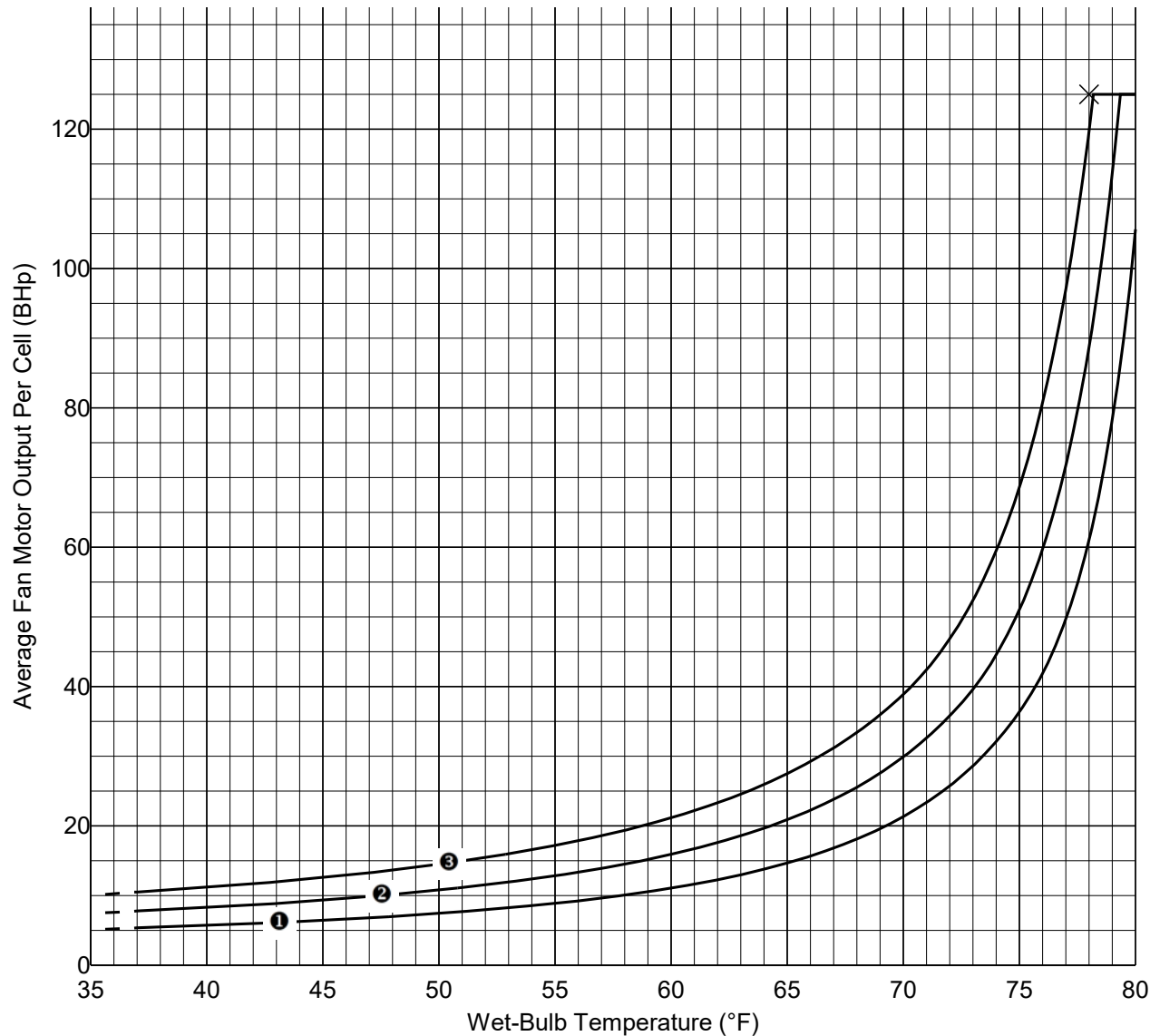
Job Information

Selected by

Keller-Rivest
6866 Hillside Court
Indianapolis, IN 46250 US

Johnny Man
Tel 3177166175
jman@keller-rivest.com

Manufacturer	Marley
Product	NC Steel
Model	NC8422YAN6
Cells	6
Fan	19.00 ft, 8 Blades , Low Sound
Fans per cell	1
Fan Motor Capacity per cell	125.0 Hp



Design Conditions

Tower Water Flow	36000 gpm
Hot Water Temperature	95.00 °F
Cold Water Temperature	85.00 °F
Wet-Bulb Temperature	78.00 °F

Curve Conditions

Tower Water Flow (90.0 %)	32400 gpm
Cold Water Set Point	85.00 °F
Fan Operation	Variable-Speed

Legend

- ① 8 °F Range
- ② 10 °F Range
- ③ 12 °F Range
- × Design Point



No.:

Date: 06-JAN-2016

DATA SHEET

Three-phase induction motor - Squirrel cage rotor

Customer :
Product line : W22 NEMA Premium - Ball Bearings

Frame : 444/5T
Output : 125 HP
Frequency : 60 Hz
Poles : 4
Full load speed : 1780
Slip : 1.11 %
Voltage : 208-230/460 V
Rated current : 307-278/139 A
Locked rotor current : 1810/904 A
Locked rotor current (I_L/I_n) : 6.5
No-load current : 80.0/40.0 A
Full load torque : 364 lb.ft
Locked rotor torque : 200 %
Breakdown torque : 230 %
Design : B
Insulation class : F
Temperature rise : 80 K
Locked rotor time : 27 s (hot)
Service factor : 1.15
Duty cycle : S1
Ambient temperature : -20°C - +40°C
Altitude : 1000
Degree of Protection : IP55
Approximate weight : 1590 lb
Moment of inertia : 57.163 sq.ft.lb
Noise level : 73 dB(A)

	D.E.	N.D.E.
Bearings	6319 C3	6316 C3
Regreasing interval	8000 h	10000 h
Grease amount	45 g	34 g

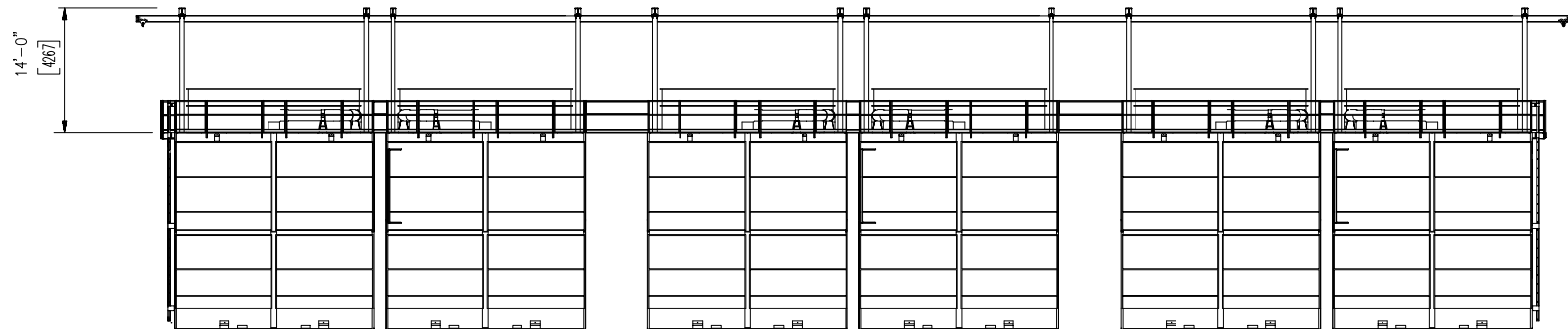
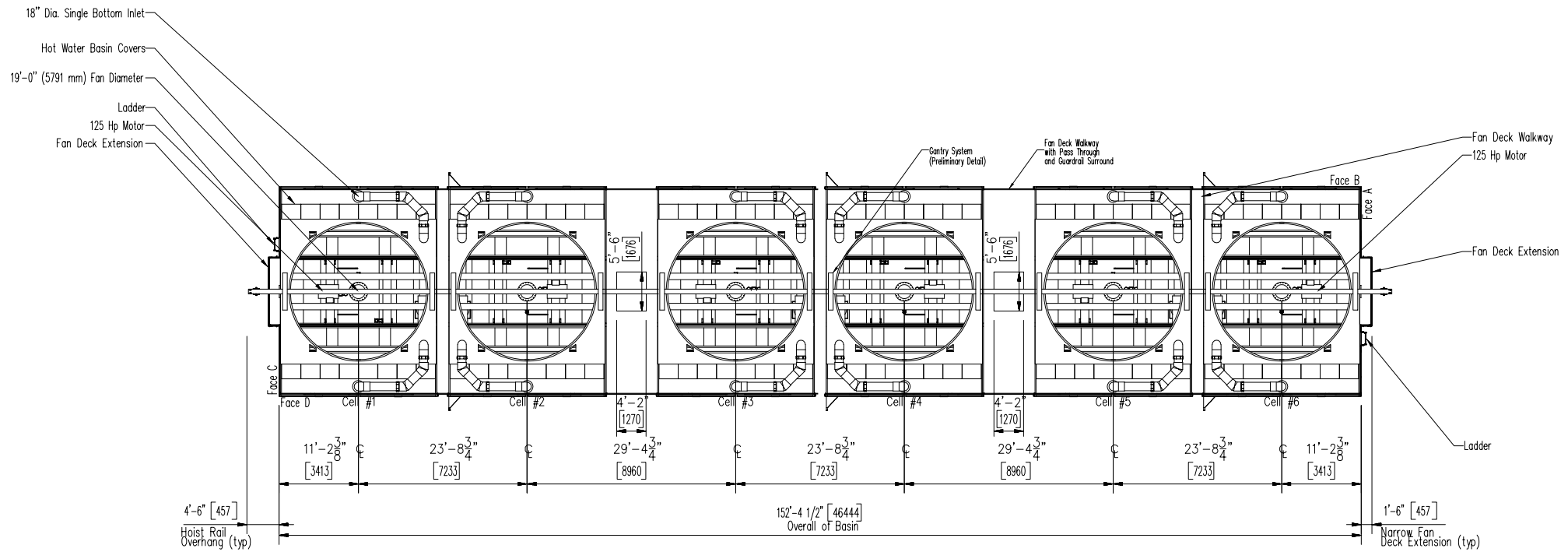
Load	Power factor	Efficiency (%)
100%	0.85	95.4
75%	0.82	95.4
50%	0.74	95.0

Notes:

Typical Motor Data Sheet

Performed by

Checked



NOTES

1. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
2. The units of measure are in IP (SI) units unless otherwise noted.
3. See Schematic Cased Elevation and Notes drawing for additional notes.

NC8422YAN6BGF – Schematic Plan and Louver Elevation
IU Health Base Bid 1 – 6 Cell Tower
Indianapolis, IN, United States

MARLEY

ORDER

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Johnny Man_220709_113546222 V1

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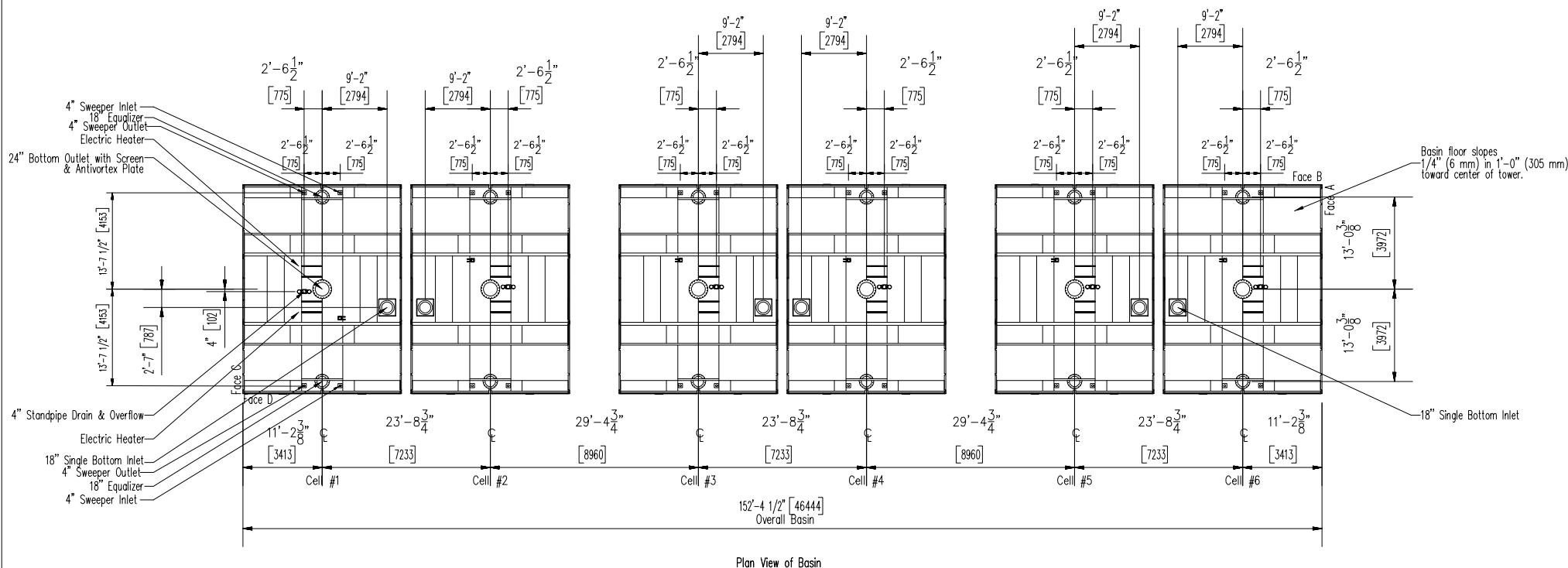
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DATE
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SYS

DRAWING NUMBER
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NOTES

1. Flanged connections conform to Class 125 ANSI B16.1 specification. The bolt holes straddle the centerlines.
2. All piping supports are by others. Do NOT support outlet piping from the tower.
3. The collection basin piping accessories shown on this drawing are furnished by SPX CT. This includes a full faced gasket. Flat faced flange, fasteners and seal washers attachment to the outlet and equalizer are supplied by others. The use of a flange other than a flat faced flange will damage the collection basin floor.
4. The diameter of the bottom outlet equalizer option is based on a SPX CT standard using 20 percent of a tower's outlet design flow and a head differential between two adjacent towers of 1" (25 mm).
5. The standpipe overflow is to be field installed by others.
6. The design operating loads shown in the table on the Grillage Details drawing are based upon the volume of water in the collection basin at shutdown. The shutdown water level has been sized to accommodate the maximum allowable flow rates. The actual operating load is variable, and is dependent upon the design flow rate per cell. Design loads are all based upon the recommended operating water level. Operating levels in excess of that recommended can result in loads exceeding values stated. Consult a SPX CT representative for greater detail on this or any other subject.
7. The electric water level probes are cut to length and assembled with the probe holder, stilling chamber, and support in the factory. This sub-assembly is field installed by others to the factory installed support clip.
8. The electric water level relay box and it's wiring is field installed by others. Customer's installation should meet the requirements of the latest National Electrical Code as well as applicable local codes.
9. All standard electric water level control components are UL or CSA listed.
10. An electric water level with a single relay system is one solid state relay. A multi-relay system is two or more solid state relays connected to a terminal strip.
11. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
12. The units of measure are in IP (SI) units unless otherwise noted.

NC8422YAN6BGF – Piping Plan
IU Health Base Bid 1 – 6 Cell Tower
Indianapolis, IN, United States

MARLEY

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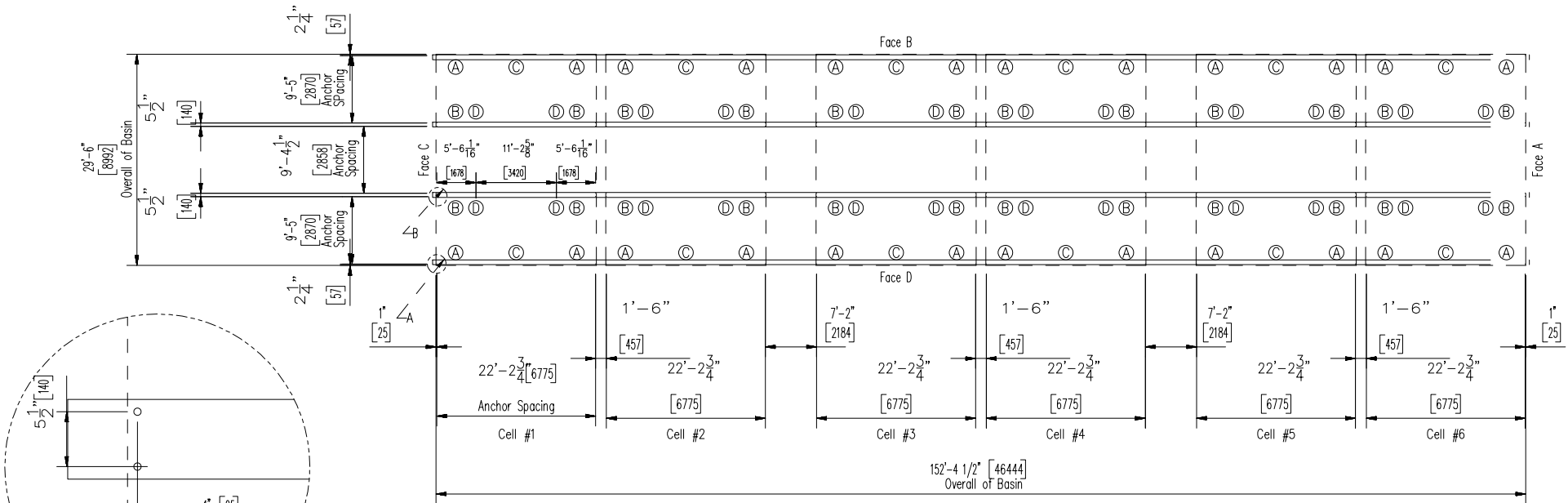
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Shipping Weight		Design Operating Loads						Wind Load Reaction						Seismic Load Reaction					
per Tower	Heaviest Lift	per Tower	per Cell	at A	at B	at C	at D	Vert. at A	Vert. at B	Vert. at C	Vert. at D	Horz. at A	Horz. at B	Vert. at A	Vert. at B	Vert. at C	Vert. at D	Horz. at A	Horz. at B
264630 lb (120034 kg)	8622 lb (3911 kg)	621762 lb (282026 kg)	103627 lb (47004 kg)	5425 lb (2461 kg)	8455 lb (3835 kg)	13626 lb (6181 kg)	13526 lb (6135 kg)	106.8 x P lb (9.92 x P kgf)	220.02 x P lb (20.44 x P kgf)	86.92 x P lb (8.08 x P kgf)	43.59 x P lb (4.05 x P kgf)	70.17 x P lb (6.52 x P kgf)	142.98 x P lb (13.28 x P kgf)	22687 x G lb (10291 x G kgf)	22828 x G lb (10355 x G kgf)	12102 x G lb (5489 x G kgf)	5565 x G lb (2524 x G kgf)	13143 x G lb (5962 x G kgf)	22023 x G lb (9989 x G kgf)

(12) 3/4" ASTM A307 or M20, Grade 4.6 anchor bolts are required per cell. These anchor bolts are capable of resisting 50 psf (2394 N/m²) wind load or 0 G seismic load applied to the tower. Wind and Seismic capacities are un-factored loads as determined by ASCE7-10. Determination of the site specific design wind and seismic loads are by others.



NOTES

1. SUPPORTING STEEL: The supporting steel is to be designed, constructed and furnished by the customer. It shall include customer supplied anchor bolts to suit the general dimensions of this drawing and of the Outlet Piping Plan drawing. The top surface of the supporting steel must be framed flush and level. The differential settlement of columns shall be limited to 1/8" (3 mm) at the anchor bolts in order to assure that the cooling tower is level and plumb.
2. DESIGN OPERATING LOADS: The design operating loads shown in the above table are based upon the volume of water in the collection basin at shutdown. The shutdown water level has been sized to accommodate the maximum allowable flow rates. The design loads are shown for your use as a quick reference. The actual operating load is variable, and dependent upon the design flow rate per cell. Design loads are all based upon the recommended operating water level. Operating levels in excess of that recommended will result in loads exceeding the values stated. Consult a SPX CT representative for greater detail on this or any other subject.
3. WIND & SEISMIC LOADS: Reactions shown are the result of the wind/seismic load being applied perpendicular to the face of the tower structure. Loads are additive to the operating loads. Wind reactions can be calculated by multiplying by P, which is the wind pressure in psf for Imperial units and kgf/m² for metric units. Seismic reactions can be calculated by design G.
4. SHIPPING WEIGHTS AND MAXIMUM OPERATING LOADS: Values shown in table include the optional equipment weights.
5. VIBRATION ISOLATORS: The towers may be supported on vibration isolators. The isolators must be placed UNDER the supporting steel beams and not between the support beams and the tower.
6. PIER SUPPORTS: The tower may be supported from piers at each Reaction location as an alternate. A pier should be at least 8" (203 mm) x 8" (203 mm).
7. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
8. The units of measure are in IP (SI) units unless otherwise noted.

NC8422YAN6BGF – Supporting Steel Plan and Details
IU Health Base Bid 1 – 6 Cell Tower
Indianapolis, IN, United States

MARLEY

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DRAWN BY
Johnny Man_220709_113546222 V1

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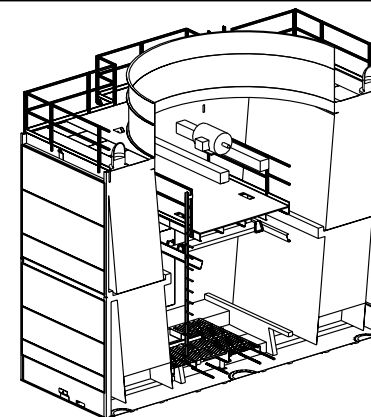
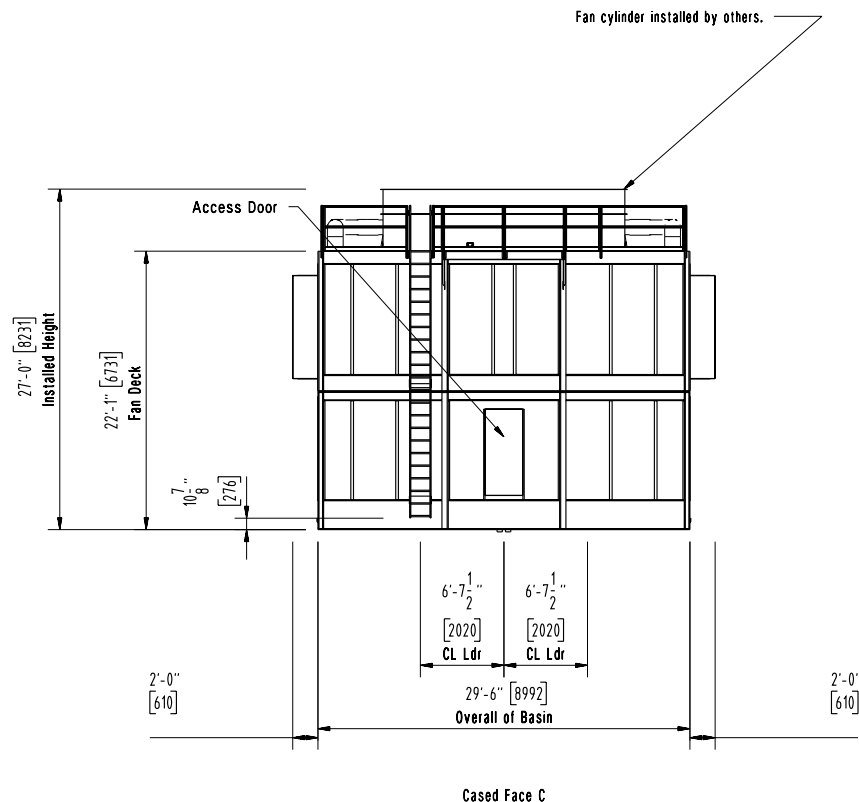
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Interior View

NOTES

1. The fan motor must be locked out and inoperable before entering the tower. This warning has been placed on the access door.
2. The internal inlet piping, including flat face flange gaskets, which starts at the face of the inlet connection is provided by SPX CT. The piping external to the tower and its supports are provided by others. The external piping may not be supported from the tower.
3. The external inlet piping at the top of the tower is provided by SPX CT and installed in the field by others. This piping can be an obstacle to personnel on top of the tower. The installation detail drawings are included in the Literature Package shipped with the tower.
4. Multi-cell towers should include provisions to balance flow between cells.
5. The internal vertical riser will apply an additional vertical operating load of 1490 lb (676 kg) at the bottom inlet flange attachment to the external piping which is supported by others.
6. To ensure maximum thermal performance the cooling tower must be installed level and plumb. Both of the air inlet faces must have adequate air supply. If obstructions exist, consult your SPX CT representative.
7. Contact your SPX CT sales engineer for the required pump head for this inlet arrangement.
8. Flanged connections conform to Class 125 ANSI B16.1 specification. The bolt holes straddle the centerlines.
9. Hoisting clips are provided for ease of unloading and positioning. For overhead lifts or where additional safety precautions are prudent, add slings beneath the tower. Adequate space has been provided for removal of the shackles and the 2 1/2" (64 mm) long pins from the hoist clips between the modules. If the pin used is longer than 2 1/2" (64 mm), the module may be slid into it's final position by using come-alongs at the base of the unit, after removal of shackle pins. See Hoisting Details drawing.
10. Construction of the ladder and guardrail: The guardrail is fabricated from galvanized structural tubing. Top rail, middle rail and posts are 1 1/2" (38 mm) square tube 1/8" (3 mm) thick. Toeboards are 12 gauge heavy mill galvanized steel. The ladder is aluminum 3" (76 mm) x 1 1/8" (29 mm) I-beam side rails and 1 1/4" (32 mm) serrated rungs.
11. The ladder and guardrail are field installed by others. The tower is shop modified to accept this option. The clips and hardware are provided by SPX CT for the field installation. The installation detail drawings are included in the literature package shipped with the tower.
12. The Fan Deck Extension is field assembled by others. The tower is shop modified and all attaching clips and fasteners are provided by SPX CT. Assembly details are included in the Literature Package shipped with the tower.
13. The Plenum Walkway consists of 11 gauge steel supports and 16 gauge steel walkway panels. The elevation of the Plenum Walkway is above the overflow water level of the collection basin. The distance from the top of the Plenum Walkway to the fan is 18'-9 1/2" (5727 mm).
14. The Interior Mechanical Equipment Platform consists of the Plenum Walkway plus an elevated platform for access to the mechanical equipment. A ladder is provided from the Plenum Walkway to the elevated platform along with a handrail system for the elevated platform.
15. The distance from the elevated platform to the fan exceeds 7'-0 1/2" (2146 mm).
16. Single inlet options (side or bottom inlet) - This piping can be an obstacle to personnel on top of the tower.
17. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
18. The units of measure are in IP (SI) units unless otherwise noted.

NC8422YAN6BGF – Schematic Cased Elevation and Notes
IU Health Base Bid 1 – No ADP
Indianapolis, IN, United States

MARLEY

ORDER 0

DRAWN BY
JOHNNY MAN.221209_083755603 V1

CHECKED
QTC

REV BY
REV CHK

DATE
12/18/22

APPROVED
SYS

DRAWING NUMBER
JM838735M

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LLC+u+bms

ULTRASONIC WATER LEVEL SENSOR

engineering data
and specifications



MARLEY 

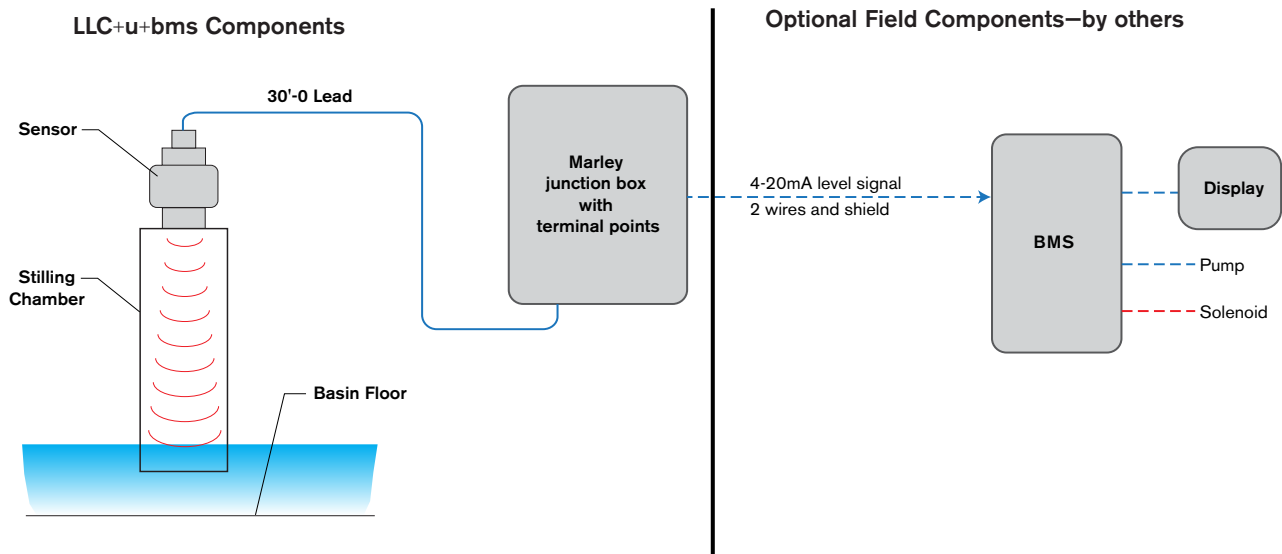
LLC-u ULTRASONIC WATER LEVEL CONTROLS

The Marley LLC+u+bms sensor is used to monitor water level in the cold water basin of a cooling tower cell using a non-contact ultrasonic sensor mounted on a stilling chamber. The sensor provides a 4-20mA continuous signal back to a BMS where alarming and controls are provided by the BMS.

SEQUENCE OF OPERATION

The BMS provides 24 VDC to power the 2-wire 4-20mA sensor loop. As water level rises and lowers so does the 4-20mA output signal in proportion to water level. The BMS reads the 4-20mA signal from the sensor and scales the signal to a water level readout within the BMS. The BMS is responsible for all alarming, cutoffs and makeup solenoid power and control.

SYSTEM DIAGRAM



NOTE

- 1 All wiring entering and exiting the control panel should be located at the bottom of the enclosure.
- 2 Prevent condensation from forming inside the control panel enclosure. Seal the inside of the conduit at the enclosure forming a vapor barrier. A vapor barrier may be created in the field using expanding foam or silicone injected in to the conduit after wiring connections have been made.
- 3 The ultrasonic sensor is provided with 30 feet of wire and a NEMA 4X fiberglass junction box with terminal strips.
- 4 Extension wire is available for extending the distance from the Marley junction box to the BMS.

ULTRASONIC SENSOR

Non-contact type sensor
 30'-0 (9m) cable integrated and molded into the sensor, flying leads on opposite end terminated to a junction box
 Range: 49" (1.25m) longer ranges available
 Accuracy: 0.125" (3mm)
 Resolution: 0.019" (0.5mm)
 Dead band: 2" (50mm)
 Beam width: 2" (50mm)
 Configuration: WebCal™ PC, Windows®, USB 2.0
 Memory: Non-volatile
 Supply voltage: 24 VDC (loop)
 Consumption: 0.5W
 Loop resist: 400Ω max
 Signal output: 4-20 mA, two-wire
 Signal invert: 4-20 mA or 20-4mA
 Loop fail-safe: 4 mA, 20 mA, 21 mA, 22 mA or hold last
 Process temp.: 20° to 140°F (-7° to 60°C)
 Temp. comp.: Automatic
 Ambient temperature: -31° to 140°F (-35° to 60°C)
 Pressure: MWP = 30 PSI (2 bar)
 Sensor enclosure rating: Type 6P, encapsulated, corrosion resistant and submersible
 Enclosure material: Polycarbonate
 Strain relief material: Santoprene
 Trans. material: PVDF
 Cable jacket material: Polyurethane
 Cable type: 4-conductor, shielded
 Cable length: 48" (1.2m)
 Process mount: 1" NPT (1" G)
 Mount gasket: Viton®
 Classification: General purpose
 Compliance: CE, RoHS
 Approvals: cFMus

JUNCTION BOX

NEMA 4X (IP56) fiberglass enclosure 6"x 6"x 5"D
 (15.2 x 15.2 x 13.7cm)
 Terminal strip

COMMUNICATIONS

4-20mA output for continuous water level reading at BMS
 BMS to provide 24 VDC loop power for sensor

STILLING CHAMBER

A stilling chamber is required for calming the water for an accurate reading and holding the ultrasonic sensor
 Material: steel or PVC

OPTIONS

Extension wiring to extend from junction box to BMS or other equipment
 Available lengths: 100', 150' and 200' (30.5, 46 and 61m)

Voltage Ratings

- Q What are the available voltage ratings?
- A BMS to power the 2-wire loop with 24VDC .5 watts.

Junction Box Enclosure

- Q Where is a typical mounting location?
- A Anywhere near the tower is fine limited by the length of the lead for the ultrasonic sensor. The enclosure is NEMA 4X fiberglass suitable for outdoor installation. Always route the conduit into the bottom of the enclosure and provide a drip line. The inside of the conduits entering the junction box should be sealed preventing vapor and condensation from entering the junction box enclosure.
- Q Why does the junction box enclosure have latches?
- A The latches secure the lid to the gasket providing a water tight seal.
- Q Are knock outs provided?
- A No.
- Q Are other enclosure options available?
- A Yes as a special – NEMA 3R 304 stainless steel.

Stilling Chamber

- Q How is the ultrasonic sensor mounted?
- A A stilling chamber is required to calm the water and provide a support for the ultrasonic sensor above the water surface. Typical location for the stilling chamber is inside the cooling tower. The stilling chamber material is either steel or PVC depending on the cooling tower model.

Controller

- Q Is a controller furnished with this system?
- A No – The controller would be the customers BMS or PLC.

Ultrasonic Sensor

- Q Is the sensor furnished with wire?
- A Yes – 30' is standard.
- Q Can sensor leads be extended?
- A Yes – Starting from the terminal points inside the junction box use #18 gauge 2 wire plus shield stranded copper conductor.
- Q Are longer sensor leads available from the factory?
- A No – But extra wiring for adding extension leads from junction box to other equipment is available in 100', 150' and 200' lengths.
- Q Can leads be cut to length?
- A Yes – or coil and secure excessive length.
- Q Is just the sensor replaceable?
- A No – the lead attaches to the ultrasonic sensor as an integrated molded connection.
- Q Does the sensor require maintenance?
- A No.
- Q Does the sensor lead need to be in conduit?
- A The wire is rated for outdoor use (check local codes).

Assembly Standards

The assembly is built to the following industrial control panel standards:

UL 508A CUL 508A NFPA 70 (NEC)

SPX COOLING TECHNOLOGIES, INC.

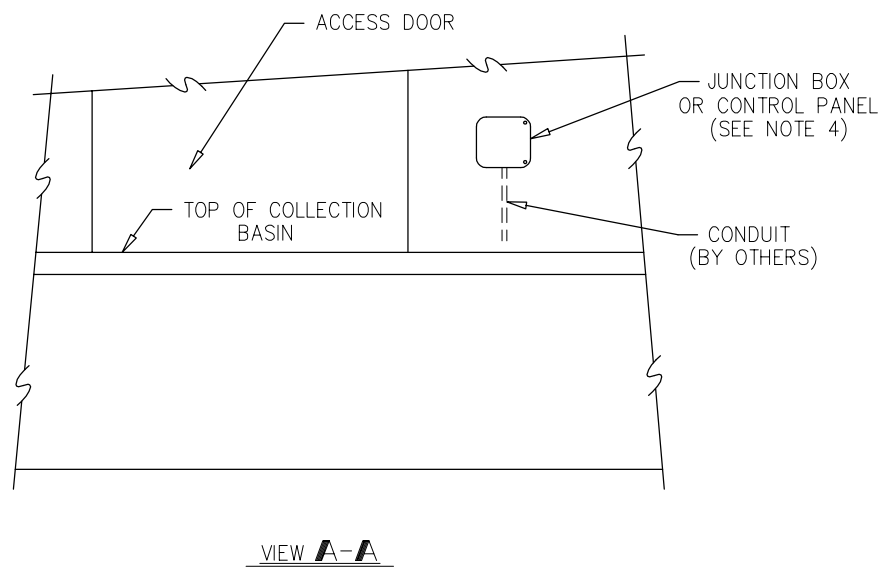
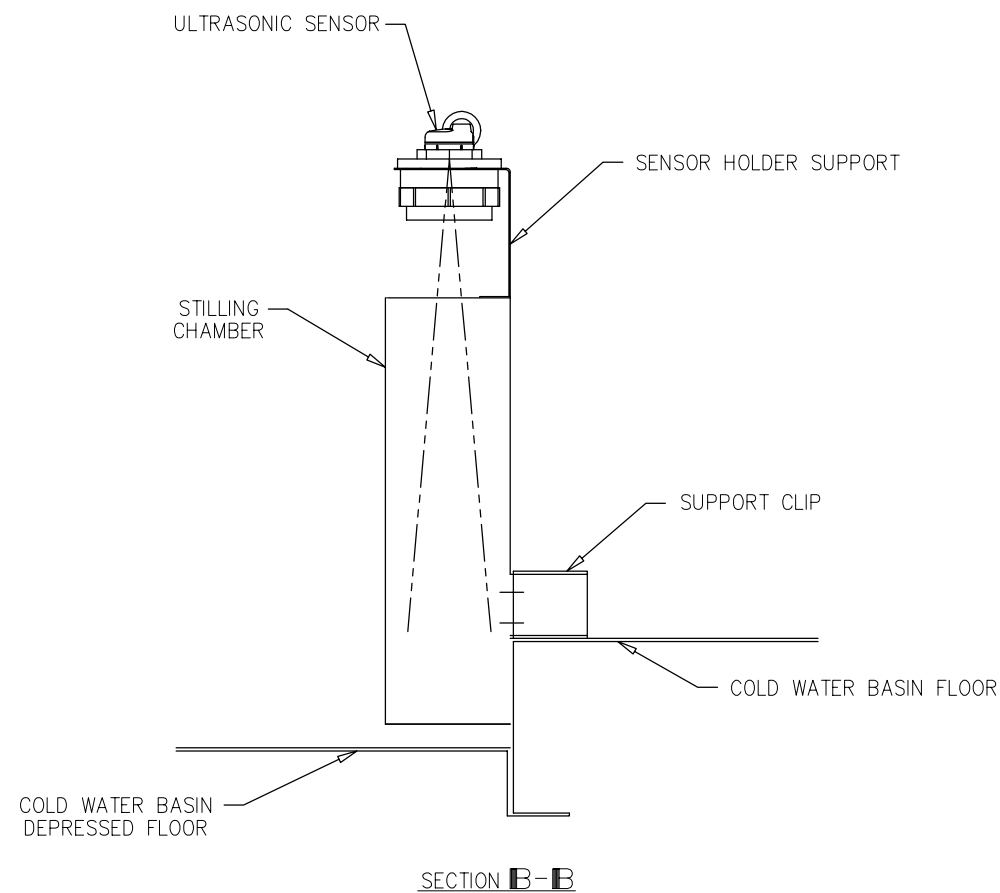
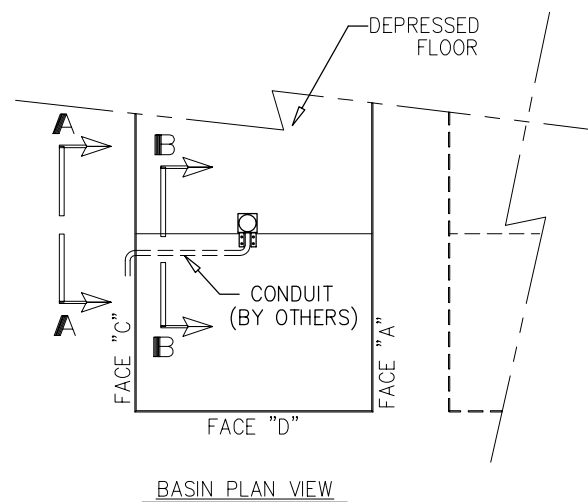
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spxcooling.com

TECH-LLCu-BMS-18 | ISSUED 3/2018

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In the interest of technological progress, all products are subject to design and/or material change without notice.






GENERAL NOTES

1. LOCATION OF ULTRASONIC SENSOR ASSEMBLY WILL VARY DEPENDING ON OUTLET PIPING PLAN, LOCATION OF BASIN HEATERS OR OTHER TOWER OPTIONS.
2. WHEN THE LLC+u +bms ULTRASONIC SENSOR ONLY IS SUPPLIED, WITHOUT THE MARLEY CONTROL PANEL, THE SENSOR ARRIVES SCALED WITH MANUFACTURES STANDARD SETTING OF 0 TO 49 INCHES FROM ABOVE BASIN FLOOR. ACTUAL HEIGHT FROM FLOOR TO SENSOR IS LESS THAN 49 INCHES SO THE SENSOR OUTPUT WOULD BE SCALED BY THE CONTROLS CONTRACTOR IN THEIR BMS REPRESENTING THE ACTUAL HEIGHT BETWEEN BASIN FLOOR AND SENSOR.

WHEN A MARLEY LLC+u PACKAGE IS SUPPLIED, THE PLC PERFORMS THE SCALLING AUTOMATICALLY BASED ON FIELD PROGRAMMING INPUTS. USING THE DISPLAY IN THE MARLEY CONTROL PANEL PROGRAM SENSOR HEIGHT AND ALL OTHER HEIGHTS FOR HCO, HA, MU-ON, MU-OFF, LA AND LCO LEVELS.
3. TWO PACKAGES ARE AVAILABLE PENDING PRODUCT SELECTION. LLC+u+bms SENSOR ONLY SELECTION INCLUDES SENSOR WITH 30-FOOT SINGLE SHEATH CABLE AND JUNCTION BOX. LLC+u STAND-ALONE PACKAGE INCLUDES SENSOR WITH 30 FOOT SINGLE SHEATH CABLE AND CONTROL PANEL.
4. THE JUNCTION BOX OR CONTROL PANEL MAY BE FIELD INSTALLED ON OR AT THE TOWER. LONGER SENSOR WIRES ARE AVAILABLE OR WIRES MAY BE SPLICED IN THE FIELD.

DRAWN BY M. Geng	DRAWN DATE 24.11.2017	LLC+u OR LLC+u+bms ULTRASONIC SENSOR SERIES NC, MHF & AV TOWER					
CHECKED BY BEM	CHECKED DATE						
RELEASED BY BEM	RELEASED DATE	ECM NUMBER	ORDER NUMBER	FORMAT	PLOT 12"=1'	DRAWING NUMBER Z1063075	REV.

ABH

BASIN HEATER CONTROLS PACKAGE

engineering data
and specifications



MARLEY®

ABH-ADVANCED BASIN HEATER CONTROLS

The Marley ABH basin heater package controls the ON and OFF operation of the basin heater device providing freeze protection in the cold water collection basin of a cooling tower. The stand-alone control package includes a main circuit breaker disconnect that feeds a contactor providing power for the heater element or steam solenoid valve.

The solid-state temperature controller is programmed to monitor water temperature in the cold water basin and control the heater element or steam valve. The controller has a two line display for PV (process variable) and SV (setpoint variable) values. The value shown on the PV line is water temperature in the basin being monitored by the temperature sensor and the value shown on the SV line is the set point.

A RTD (resistant temperature device) monitors water temperature in the basin for the temperature controller. The Marley RTD sensor includes a low water cutout circuit preventing the control from energizing if the sensor is not submerged in water. Standard sensor lead length is 30 feet (9 meters) while longer leads are available. The factory lead may be lengthened in the field or a sensor with extra-long lead may be ordered. Maximum distance is 200 feet (61 meters) as tested. An alarm contact will close when the temperature approaches a freezing condition for indication back to a BMS (building management system).

SEQUENCE OF OPERATION

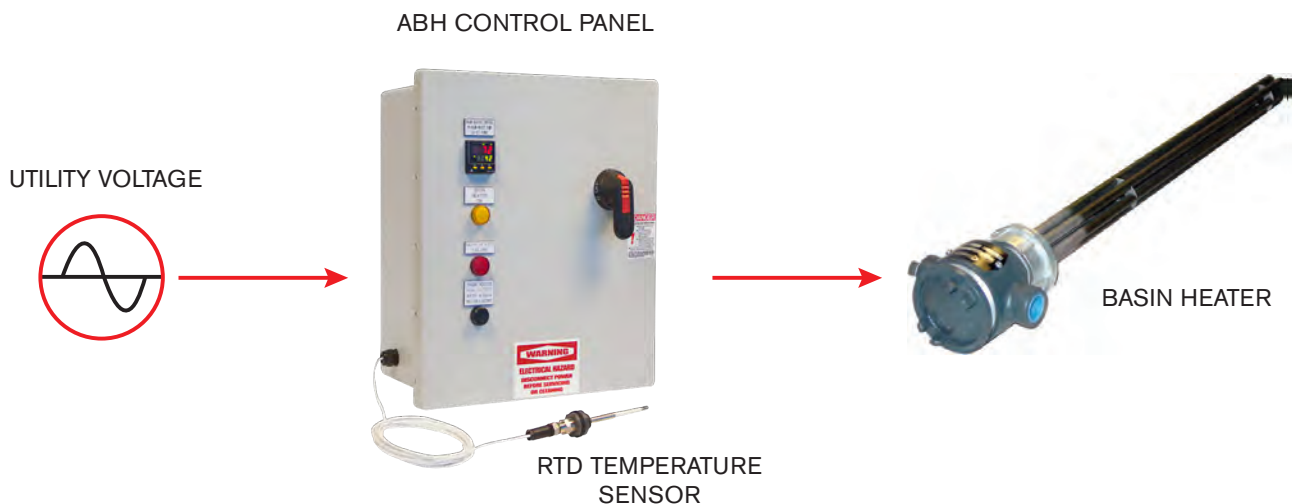
Utility power applied to the main disconnect provides all required power to the internal and external circuits including the basin heater element. The main disconnect provides a means to isolate the incoming utility voltage.

The temperature controller monitors water temperature in the cold water basin of the cooling tower via the RTD providing ON and OFF operation of the basin heater element. A set point temperature resides in the controller factory programmed at 42°F (5.5°C) with an operating band width of 5°F (2.8°C). When the temperature drops to 40°F (4.4°C) the controller energizes the power contactor to the ON position energizing the basin heater element. The controller de-energizes the power contactor OFF at 45°F (7.2°F). An alarm contact closes if temperature in the cold water basin is 35°F (1.7°C) or less.

The Marley RTD provides dual functions, temperature and low water cutout safety circuit. The low water cutout circuit will not allow the heater to energize unless the sensor is submerged in water. The sensor is located about one inch higher than the heater element assuring the heater element is covered with water before energizing.

The basin heater element may be provided with a TCO (thermal cut out) safety device which acts as a one time thermal fuse. If the heater element reaches an overheated condition the TCO opens the safety circuit of the ABH circuit de-energizing the power contactor. This is a one-time thermal fuse and is field replaceable.

SYSTEM DIAGRAM



NOTE

- 1 Prevent condensation from forming inside the enclosure. Seal the inside of the conduit at the enclosure forming a vapor barrier. A vapor barrier may be created in the field using expanding foam injected into the conduit after wiring connections have been made.
- 2 When using multiple heater elements, wire the heaters in parallel and route three wires and ground to the ABH control panel.
- 3 Heater element may have a two-wire thermal cutout. These two wires may be run in same conduit as the power wiring. Follow local electrical codes.

CONTROL PANEL DETAILS

NEMA 4X fiberglass outdoor enclosure with hinged lid and snap type latches

Main thermal magnetic molded case circuit breaker with operating handle

Handle provisions for lock out-tag out padlocks

Class 1 industrial CPT (control power transformer) with primary and secondary fusing

Solid-state temperature controller with dual display and adjustable set points

Low water conductivity cutout safety circuit

Freezing water low temperature alarm contact

Push-to-test button to check if basin heater element is functional

Basin heater ON pilot light

Basin heater FAILED pilot light with dry contact output status

Low water cutout protection for the heater element

User terminal strip for status and RTD terminations

Anti-condensation heater

Low temperature alarm contact wired to used terminal strip

RTD PT-100 temperature sensor with long lead voltage drop compensation

30 foot plug on lead for temperature sensor is standard

Built to UL508A industrial control panel standards

5,000 amp short circuit rating

Remote heater testing ability via customer's dry contact closure

COMMUNICATIONS

- 1 – N.O. dry alarm contact closes at 35° F
- 1 – N.O. dry contact closes when the power contactor closes
- 1 – N.O. dry contact closes for basin heater ON confirmation
- 1 – N.O. dry contact closes for basin heater failure confirmation

REMOTE PROVISIONS

Heater element operation may be remotely checked via dry contact closure

Second set point may be selected via remote dry contact closure

Run enable via remote dry contact closure

SETTINGS

Adjustable 42°F (5.5°C) set point
ON at 40° (4.5°C), OFF at 45° (7.2°C)

Adjustable freezing alarm contact at 35°F (1.7°C)

OPTIONS

4-20mA output representing basin water temperature (optional plug in module)

65,000 amp short circuit rating (fused disconnect in lieu of CB)

Provisions for customer fieldbus communications module such as BACnet (increases enclosure size)

Other specials are considered on a job by job basis

Voltage Ratings

- Q What are the available voltage ratings?
- A 575V, 480V, 240V, 208V, and 380V 50/60Hz. Contact SPX for other voltage options.

Enclosure

- Q Where is a typical mounting location?
- A Anywhere near the tower is fine limited by the length of the lead for the temperature sensor. The enclosure is suitable for outdoor installation. Always route the conduit into the bottom of the enclosure and provide a drip line. The conduits entering the control panel should be sealed preventing vapor and condensation from entering the enclosure.
- Q Why does the enclosure have latches?
- A The latches secure the lid to the gasket providing a water tight seal.
- Q Are knock outs provided?
- A No.
- Q Are other enclosure options available?
- A Yes – NEMA 3R 304 stainless steel.
- Q Is a U.L. listed explosion proof design available?
- A Yes – meets Class 1 Division 2 Group D. Heater element must also be rated accordingly.

Temperature Sensor

- Q Is the temperature sensor furnished with wire?
- A Yes – 30 feet is standard.
- Q Can sensor leads be extended?
- A Yes – use #18 gauge 5 wire stranded copper conductor plus a shield.
- Q Are longer sensor leads available from the factory?
- A Yes – 30 foot leads are standard and leads are available in 100', 150' and 200' lengths.
- Q Can leads be cut to length?
- A Yes.
- Q Are sensor leads replaceable?
- A Yes – the lead attaches to the sensor with a plug and screw connector.
- Q Does the sensor require maintenance?
- A Yes – the sensor should be cleaned during normal maintenance inspections.
- Q Does the sensor lead need to be in conduit?
- A The wire is rated for outdoor use (check local codes).
- Q Is a low water cutout circuit required?
- A Yes – the temperature sensor is a combination probe with an integral low water cutout circuit already built into it therefore no additional wiring or components required.
- Q How is the sensor mounted?
- A Typical location is through the side wall of the cold water basin near the heater element and pump suction area. Bulkhead compression fittings are supplied with the sensor.

Main Disconnect

- Q Is a MOCP (maximum over current protection) device required to protect the ABH control panel?
- A No – the ABH control panel includes a main circuit breaker disconnect with integral overload and short circuit protection. If the optional 65,000 amp short circuit current rating is selected a fused disconnect will be furnished in lieu of breaker.
- Q Is a lockout tagout provision provided?
- A Yes.
- Q Can the main disconnect be locked out in the OFF position?
- A Yes – the handle includes an integral piece which pulls out and accepts multiple padlocks.

Temperature Controller

- Q Is the controller solid state?
- A Yes.
- Q Is the controller factory programmed?
- A Yes - set point 42°F (5.5°C).
- Q Is the controller programmable in the field?
- A Yes.
- Q Can the set point temperature be locked out with a security code?
- A Yes.
- Q Does the display show water temperature?
- A Yes.
- Q Does the display show set point temperature?
- A Yes.
- Q Is a 4-20mA water temperature signal available?
- A Yes – as an option.

Pilot Lights

- Q Are pilot lights LED type?
- A Yes.

Wiring

- Q How are heater elements wired back to the ABH control panel?
- A A cooling tower cell may be furnished with 1, 2, 3 or 4 heater elements depending on amount of heat needed. The heater elements should be wired in parallel and 3 wires plus ground brought back to the ABH control panel.
- Q What is the purpose of the two white wires labeled C1 and C2 located in the conduit head of the heater element?
- A This is a secondary safety circuit in case the heater element overheats. These two wires should be wired back to terminal points C1 and C2 in the ABH control panel and may be run in the same conduit as the power feed. Use wire insulation rated for the feeder voltage. If C1 and C2 are not electrically connected the ABH panel will not operate.

Integration

- Q Can the ABH design be integrated into other Marley control panels?
- A Yes – the Marley AIO control panel uses the ABH platform.

Assembly Standards

The assembly is built to the following industrial control panel standards:

UL 508A CUL 508A NFPA 70 (NEC)

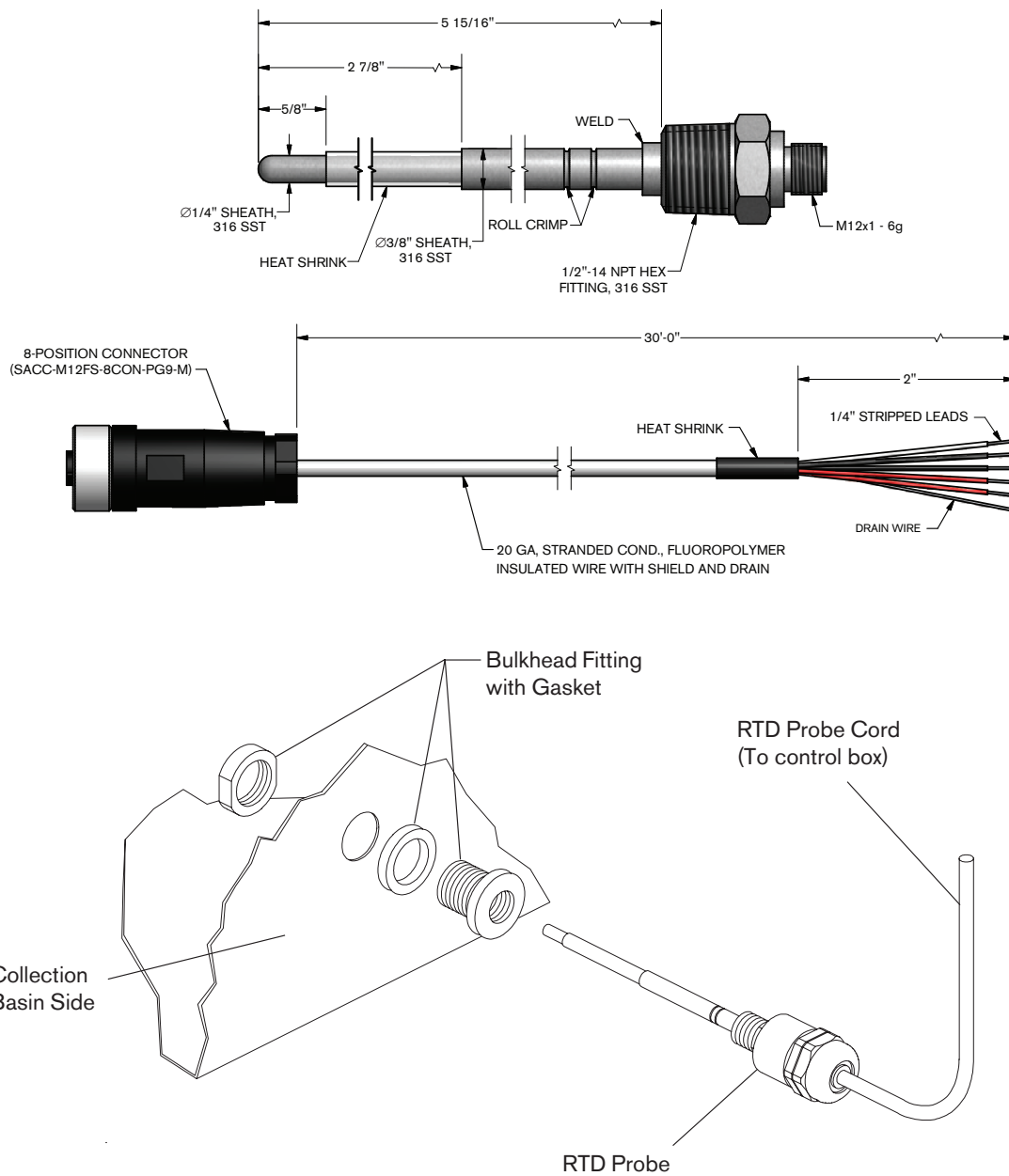
3 phase heater element system						
			Total number of heater elements per control panel			
			1	2	3	4
kW	Volts	Amp draw	Main circuit breaker size in amps			
3	208	8	15	20	30	50
4.5	208	13	20	30	50	60
6	208	17	25	40	60	80
7.5	208	21	25	50	70	100
9	208	25	30	60	80	125
12	208	33	40	80	125	150
15	208	42	50	90	150	175
18	208	50	60	125	175	225
3	240	7	15	20	30	40
4.5	240	11	15	30	40	50
6	240	14	20	40	50	70
7.5	240	18	25	40	60	80
9	240	22	30	50	80	100
12	240	29	40	70	100	125
15	240	36	50	80	125	175
18	240	43	50	100	150	200
3	380	5	15	15	20	30
4.5	380	7	15	20	30	40
6	380	10	15	25	40	50
7.5	380	12	15	30	50	60
9	380	14	20	40	50	70
12	380	19	25	50	70	90
15	380	23	30	60	80	100
18	380	28	40	70	100	125
3	480	4	15	15	20	20
4.5	480	5	15	15	20	30
6	480	7	15	20	30	40
7.5	480	9	15	30	40	50
9	480	11	15	30	40	50
12	480	14	20	40	50	70
15	480	18	25	50	60	80
18	480	22	30	50	80	100
3	575	4	15	15	20	20
4.5	575	5	15	15	20	30
6	575	7	15	20	30	40
7.5	575	8	15	20	30	40
9	575	10	15	30	40	50
12	575	13	20	40	50	60
18	575	18	25	50	70	80

3 phase heater element system		
kW	Volts	Amp draw
3	208	8
4.5	208	13
6	208	17
7.5	208	21
9	208	25
12	208	33
15	208	42
18	208	50
3	240	7
4.5	240	11
6	240	14
7.5	240	18
9	240	22
12	240	29
15	240	36
18	240	43
3	380	5
4.5	380	7
6	380	10
7.5	380	12
9	380	14
12	380	19
15	380	23
18	380	28
3	480	4
4.5	480	5
6	480	7
7.5	480	9
9	480	11
12	480	14
15	480	18
18	480	22
3	575	4
4.5	575	5
6	575	7
7.5	575	8
9	575	10
12	575	13
15	575	15
18	575	18

1 phase heater element system		
kW	Volts	Amp draw
3	120	25
4.5	120	38
3	208	14
4.5	208	22
6	208	29
7.5	208	36
3	220	14
4.5	220	21
6	220	28
7.5	220	34
9	220	41
3	240	13
4.5	240	19
6	240	25
7.5	240	31
9	240	38
4.5	480	9
6	480	13
7.5	480	16
9	480	19
12	480	25



Marley RTD Sensor Type PT-100 with bulkhead fitting.



ABH basin heater

ENGINEERING DATA

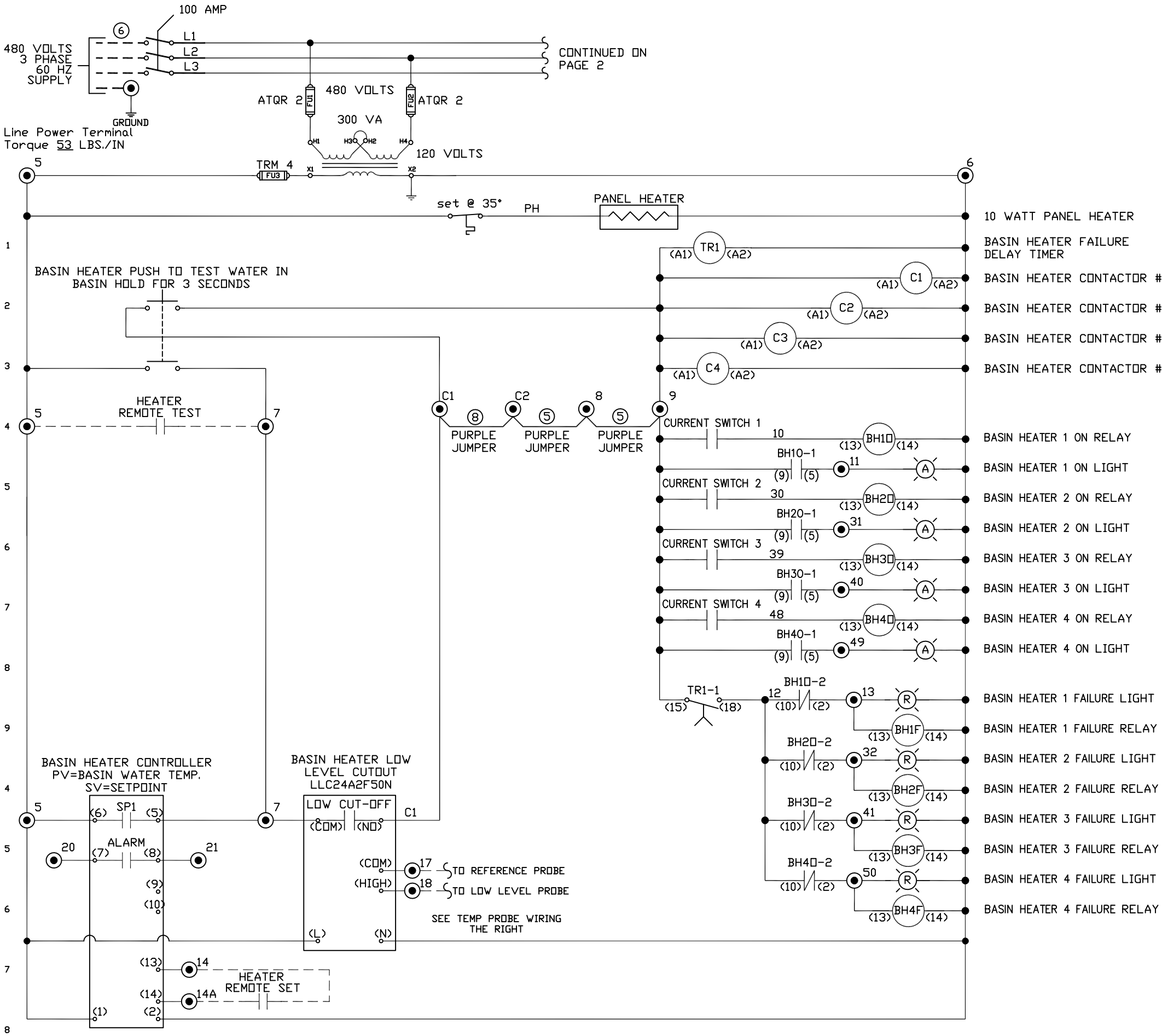
SPX COOLING TECHNOLOGIES, INC.

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913 664 7400 | spxcooling@spx.com
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TECH-ABH-19 | ISSUED 6/2018

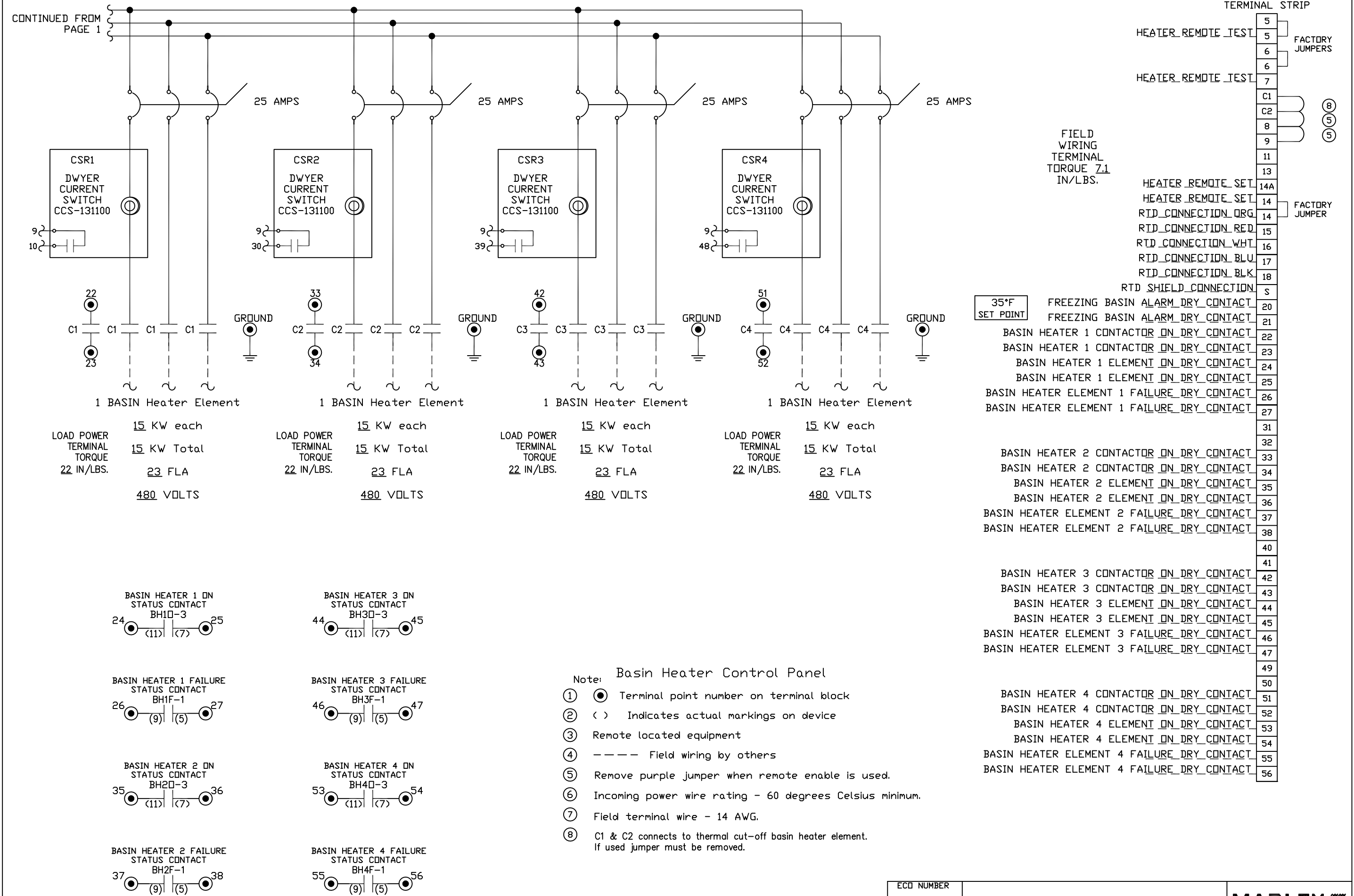
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ECO NUMBER		MARLEY ABH PANEL					MARLEY 		
REV. BY	CHECKED								
REV. DATE	DRAWN BY PT	DATE 12/19/22	CHECKED	APPROVED	ORDER NUMBER 	PAGE 1 of 2	DRAWING NUMBER 	REV	

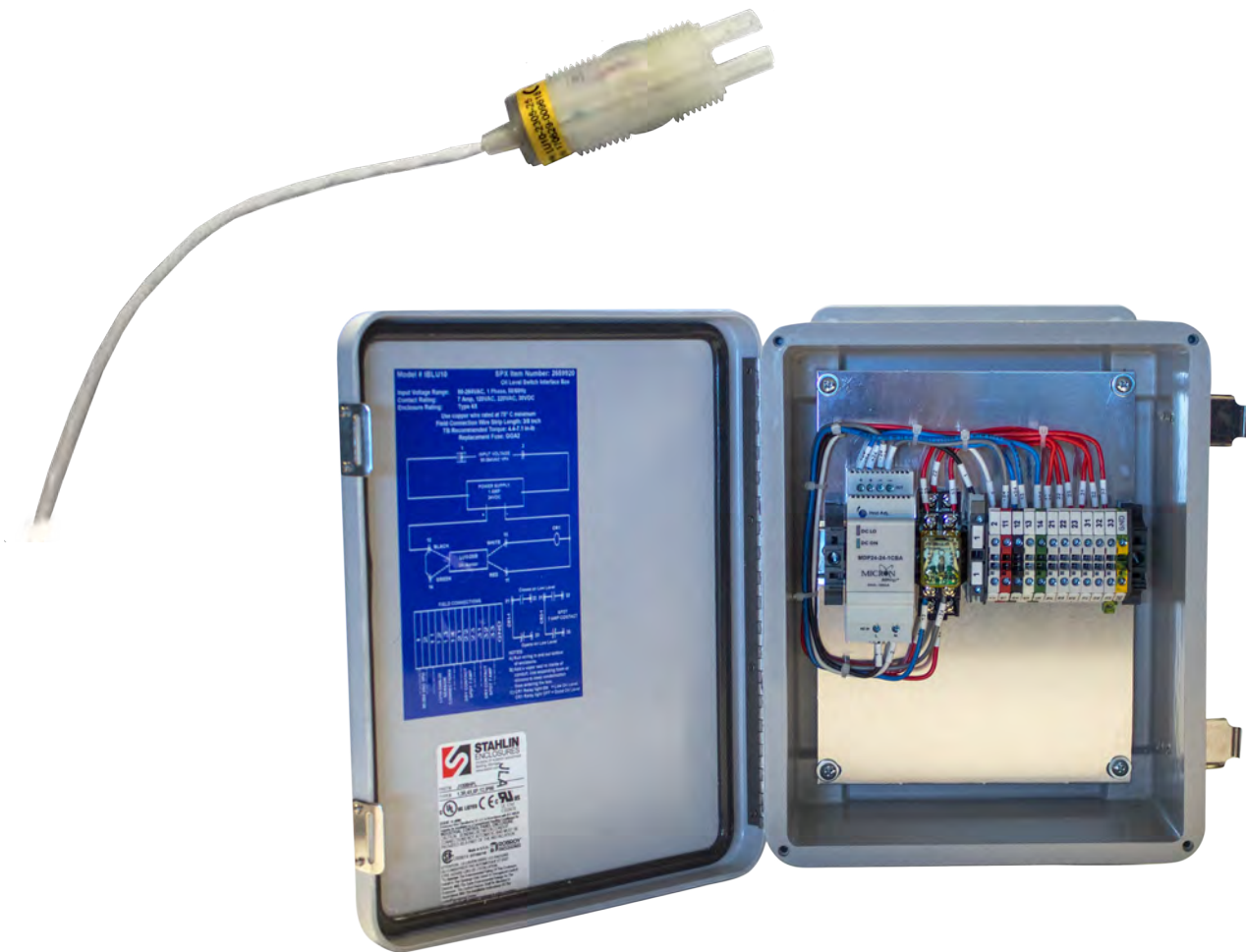


- Note: Basin Heater Control Panel
- ① ● Terminal point number on terminal block
 - ② () Indicates actual markings on device
 - ③ Remote located equipment
 - ④ - - - - Field wiring by others
 - ⑤ Remove purple jumper when remote enable is used.
 - ⑥ Incoming power wire rating - 60 degrees Celsius minimum.
 - ⑦ Field terminal wire - 14 AWG.
 - ⑧ C1 & C2 connects to thermal cut-off basin heater element. If used jumper must be removed.

OLS+u

ULTRASONIC OIL LEVEL SWITCH CONTROLS

engineering data
and specifications



MARLEY®

OLS+u ULTRASONIC OIL LEVEL CONTROLS

The Marley OLS ultrasonic switch controls package is used to monitor and alarm a low oil level condition in the cooling tower gearbox via an oil immersed set of probes using ultrasonic sound wave technology. The OLS+u is a set point switch changing a relay state upon a low oil level condition.

The switch is factory mounted in the oil level piping, its height in relation to the gearbox is set at the factory so field calibration is not required. A sliding bracket, provided for height adjustments, allows the tower installer to make final adjustments if required.

SEQUENCE OF OPERATION

AC utility power applied to the AC to DC interface box provides DC power to the oil level sensing switch. 2 Form C relay contacts are provided in the interface box that change state if the oil in the gearbox drops to a low condition. The relay contacts complete the customers alarm circuit back to the BMS, warning the operator of a low oil level condition. Typically, this operational sequence is not used to shut off the tower but to provide notification to the tower operator.

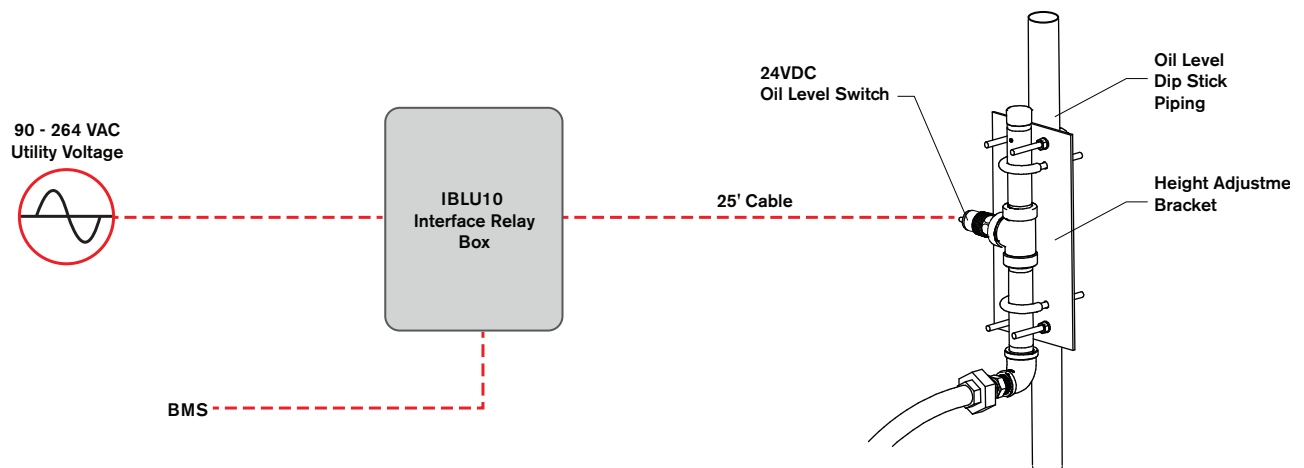
Once oil level returns to a normal level, relay contacts revert to a normal non-alarm condition.

During startup and commissioning, the relay inside the interface box has an integrated pilot light that activates when oil level is low.

OLS+u CONTROLS PACKAGE

- Factory installed oil piping with height adjustment bracket.
- Factory installed ultrasonic oil level DC switch with 25' cable (50' available for large cooling towers).
- NEMA 4X fiberglass AC to DC interface relay box field mounted outside of the cooling tower.

SYSTEM DIAGRAM



IBLU10 INTERFACE BOX

- NEMA 4X fiberglass enclosure 10"H x 8"W x 5"D
- Swing and latch door
- 2 Form C 7 Amp Relay output contacts
- User terminal strip

Requires 7 amp 90-264 VAC single phase 60/50 cycle supply source.

The assembly is built to the following industrial control panel standards: UL 508A CUL 508A NFPA 70 (NEC)

Note: Not rated for hazardous location applications.

Note:

- 1 All wiring entering and exiting the interface box should be located at the bottom of the enclosure.
- 2 Prevent condensation from forming inside the interface box enclosure. Seal the inside of the conduit at the enclosure forming a vapor barrier. A vapor barrier may be created in the field using expanding foam or silicone injected in to the conduit after wiring connections have been made.



OLS ULTRASONIC SWITCH – FLOWLINE® LU10 2305

- Contact type switch
- 25'-0 cable integrated into the switch and flying leads on opposite end (50' lead available for larger cooling towers)
- Fitting for mounting switch to oil piping
- Classification: Intrinsically safe
- Certificate: CSA, LR 79236
- Compliance: CE
- Approvals: Class I, Groups A, B, C and D; Class II, Group E, F and G; Class III
- Parameters: $V_{max} = 32V$, $I_{max} = 300mA$, $P_{max} = 1.3W$, $C_i = 0\mu F$, $L_i = \mu H$

Note: A special controller is required for hazardous locations.

FREQUENTLY ASKED QUESTIONS

Interface Box Enclosure

- Q** Where is a typical mounting location?
- A** Anywhere near the tower is fine limited by the length of the lead for the oil switch. The enclosure is suitable for outdoor installation. Always route the conduit into the bottom of the enclosure and provide a drip line. The conduits entering the control panel should be sealed preventing vapor and condensation from entering the enclosure.
- Q** Why does the enclosure have latches?
- A** The latches secure the lid to the gasket providing a water tight seal.
- Q** Are knock outs provided?
- A** No.

Ultrasonic Switch

- Q** Is the switch furnished with wire?
- A** Yes – 25' is standard. 50' lead is available for larger cooling towers.
- Q** Can switch leads be extended?
- A** Yes – use #18 gauge 4 wire stranded copper conductor plus a shield from junction box.
- Q** Can leads be cut to length?
- A** Yes – but suggest keeping extra length coiled for easy removal.
- Q** Are switch leads replaceable?
- A** No – the lead attaches to the ultrasonic switch as an integrated molded connection.
- Q** Does the switch require maintenance?
- A** No.
- Q** Does the switch lead need to be in conduit?
- A** The wire is rated for outdoor use (check local codes).
- Q** Is the controller solid state?
- A** Yes.
- Q** Is the controller factory calibrated for height?
- A** Yes – The switch can also be field adjusted.
- Q** Should the switch be used to shut off the VFD or starter?
- A** No – The switch should be used to complete an alarm system for the cooling tower operator not as a shut-down circuit.

Wiring

- Q** How is the ultrasonic switch wired back to the interface box?
- A** The switch cable is rated for outdoor use. Follow local codes to determine if cable should be placed in conduit.

Integration

- Q** Can the OLS+u be connected to a BMS system?
- A** Yes – via dry relay contacts.

SPX COOLING TECHNOLOGIES, INC.

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TECH-OLSU-19 | ISSUED 06/2019

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IMI 685B vibration switch

INSTALLATION - OPERATION

Z1120322 ISSUED 6/2020

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.



overview

The 685B Series electronic vibration switch is designed to monitor vibration levels and trip an alert when a specified limit is exceeded. A second onboard relay trips an alarm that can be used to shut down a piece of equipment or act as a secondary alert level. An onboard accelerometer with precision electronics insures reliability and accuracy.

Typical System Schematic



Note: Seal inside of conduit at the vibration switch box creating a vapor barrier against condensing water entering the vibration switch enclosure

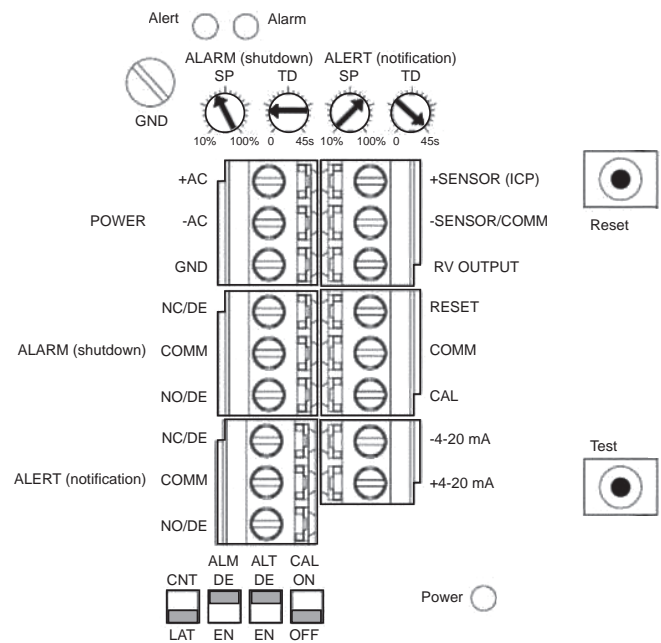
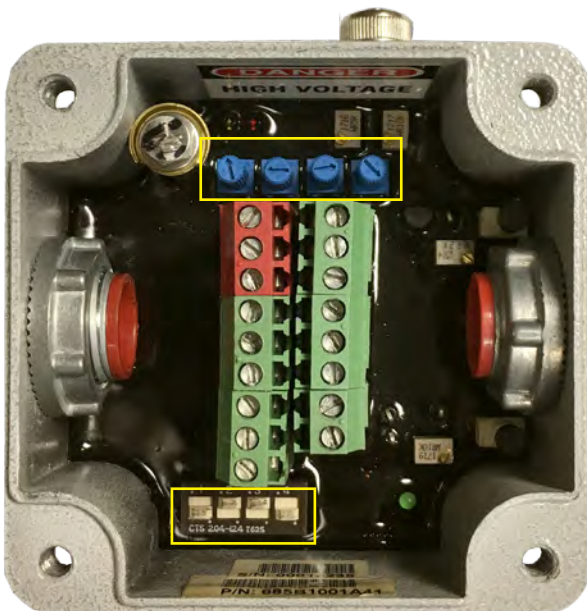
calibration settings

Note

Vibration switch settings need to be made in the field. Refer to illustrations below for recommended settings.

Alarm (shutdown) at
.7 in/sec with
3 sec time delay

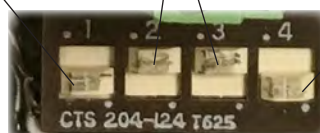
Alert (notification)
at .6 in/sec with
45 sec time delay



DOWN position
(Relay Latch)

UP position
(Default Relay Stage)






DOWN position
(Calibration)
Do Not Change



IMI 685B vibration switch

USER MANUAL

Specifications

Part Number	Description	Enclosure Rating	Connections	Standards	Model
2456599	Vibration Switch with internal accelerometer	NEMA 4X/IP68 painted aluminum	Conduit hubs	 	685B
2456778	Vibration Switch for use with external accelerometer	NEMA 4X/IP68 painted aluminum	Conduit hubs		685B
2600296	Accelerometer	NEMA 4X/IP68 stainless steel	30' (9m) cord with watertight molded connection at accelerometer and flying ends at opposite end		603C
2706949	Accelerometer	NEMA 4X/IP68 stainless steel	50' (15m) cord with watertight molded connection at accelerometer and flying ends at opposite end		603C

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SECTION 4- PROJECT REQUIREMENTS

1. **SAFETY**

Safety is a top priority. All Subcontractors will be subject to the safety policies contained within the Contract Documents. Upon award, Subcontractors will be required to submit a site-specific safety plan for approval prior to starting work on site. Subcontractors are to familiarize themselves with the Weddle Bros. Building Group, LLC Corporate Safety Policy, IU Health Mandatory Contractor Orientation Requirements and IU Health Construction Safety documents- located in the Appendix to the Specifications.

Pay special attention to the requirements for on-site workers and the mandatory COVID vaccination and flu shot policies.

2. **QUALITY CONTROL**

The highest level of **quality** is expected at all phases of construction.

Weddle will develop a project-specific quality control plan that will be followed through the project. Full participation by all parties is required.

A moisture control plan will be developed for this project.

Subcontractor will be responsible for all mock ups or testing requirements listed in the documents.

3. **XBE PARTICIPATION**

IU Health exercises an intentional commitment to diversity, equity, and inclusion. Each bidder is to contain 30% spend for goods or services of companies that hold designations of MBE, WBE, or VBE. These entities are to be identified on the Bid Form at the time of bid. Accepting certifying bodies for the XBE entities include IDOA- State of Indiana, OMWBD- City of Indianapolis, Mid-States (NMSDC), and WBENC. Monthly reporting will be required as part of the pay app process.

4. **DIVERSE WORKER GOALS**

The project has a goal of utilizing 17% People of Color and 5% Women within the workforce.

5. **LOCAL PARTICIPATION UTILIZATION**

The project has a goal to meet or exceed **50%** participation from local businesses. Local businesses are defined as Indiana companies.

6. **BIM COORDINATION**

This project will require BIM Coordination. Weddle will lead the coordination. Subcontractors are to include provisions in their bid to model work performed within their scope. Subcontractors are to review the IU Health's BIM Guidelines & Standards- which are included in the Appendix to the Specifications. The project specific BIM Execution Plan is currently being finalized and will be issued via Addendum.

7. WARRANTY

The **Warranty** period is 2 years from the date of Substantial Completion regardless of when items are installed or made operational.

8. PROJECT LABOR AGREEMENTS

There is not a **PLA** associated with this project.

9. BONDS

Payment and Performance Bonds will be asked for as an add alternate for each Bid Package. **Bid Bonds** are not required.

10. LEED

The project intends to achieve a **LEED Silver** certification. All Subcontractors are required to participate and fulfill obligations defined in the specifications relating to the LEED program and scorecard.

11. INSURANCE

This project falls under an **Owner-Controlled Insurance Program (OCIP)**. All Subcontractors are to be familiar with the requirements of the OCIP program and exclude the appropriate insurance premium costs from their bid.

12. PROJECT MANAGEMENT SOFTWARE

The project will utilize **Procore** as the project management software. Access will be provided to each Subcontractor for free.

13. PARKING

Parking will be provided. It is currently slated to be to the south of the project site in a parking lot under the I-65 overpass.

14. HOISTING

Each Subcontractor will be responsible for their own **hoisting**. Provisions are to be included in all bids if hoisting or rigging is required.

15. TAX EXEMPT STATUS

The project is **tax exempt**. A ST-105 General Sales Tax Exemption Certificate Form will be provided with Subcontracts.

SECTION 5- PRELIMINARY SCHEDULE

All Subcontractors shall review the following schedule as part of the Project Documents. While the schedule is a draft, feedback on fabrication or installation durations during the bid period is encouraged.









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	C3030	Form Supported CIP Deck, Reinforce, Place	20	20	16-Nov-23	15-Dec-23	135																																																					
	C3040	Waterproofing Tunnel Deck	20	20	11-Dec-23	09-Jan-24	455																																																					
	C3050	Cure Tunnel CIP Deck	28	28	16-Dec-23	12-Jan-24	194																																																					
	C3060	Backfill Over Tunnel Top & to Road Subgrade	15	15	15-Jan-24	02-Feb-24	452																																																					
	C3070	Install Road Base & Asphalt 13th Street	15	15	05-Feb-24	23-Feb-24	452																																																					
	C3080	Open 13th Street to Traffic	0	0	26-Feb-24		452																																																					
	CUP STRUCTURE / SHELL		405	405	16-Aug-23	20-Mar-25	47																																																					
	C1360	Install Building Retention System	40	40	16-Aug-23	11-Oct-23	4																																																					
	C1370	Install Rammed Aggregate Piers	25	25	12-Oct-23	15-Nov-23	4																																																					
	C1400	Excavate for Fire Reservoir	5	5	02-Nov-23	08-Nov-23	6																																																					
	C1410	Form & Pour - Floor - Fire Reservoir	10	10	09-Nov-23	22-Nov-23	6																																																					
	C1040	Install Building Foundations / UG Utilities	30	30	16-Nov-23	02-Jan-24	4																																																					
	C3115	Form & Pour - Walls - Fire Reservoir	20	20	27-Nov-23	22-Dec-23	6																																																					
	C3125	Waterproof / Backfill - Fire Reservoir	5	5	03-Jan-24	09-Jan-24	6																																																					
	C1120	Slab on Grade	20	20	12-Jan-24	08-Feb-24	4																																																					
	C1150	Erect Structural Steel / Detail	30	30	09-Feb-24	21-Mar-24	4																																																					
	C1200	Slab on Metal Deck	10	10	22-Mar-24	04-Apr-24	9																																																					
	C1230	Install Roofing	20	20	22-Mar-24	18-Apr-24	18																																																					
	C1240	Set Precast / Detail	15	15	22-Mar-24	11-Apr-24	13																																																					
	C1290	Install Install Masonry / Top-out GWB	65	65	22-Mar-24	21-Jun-24	4																																																					
	C1210	Install Equipment Pads	15	15	05-Apr-24	25-Apr-24	75																																																					
	C1260	Install Exterior Windows / Glazing	20	20	12-Apr-24	09-May-24	185																																																					
	C1270	Install Exterior Doors	10	10	12-Apr-24	25-Apr-24	13																																																					
	C1280	Install Louvers	15	15	12-Apr-24	02-May-24	95																																																					
	C1250	Building Substantially Enclosed	0	0		25-Apr-24	13																																																					

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 Remaining Level of Effort  Summary
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining Work
  Milestone

IU HEALTH CENTRAL UTILITY PLANT 012523
All Activities

PAGE 15 of 23

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 Remaining Level of Effort  Summary
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining Work
  Milestone

IU HEALTH CENTRAL UTILITY PLANT 012523
All Activities

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 Remaining Level of Effort  Summary
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining Work
  Milestone

IU HEALTH CENTRAL UTILITY PLANT 012523
All Activities

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SECTION 6- SAMPLE SUBCONTRACT DOCUMENTS

- 1. Weddle Bros. Building Group, LLC Sample Subcontract Agreement – attached**

The Exhibits listed below outline the standard makeup of a Weddle Bros. Building Group, LLC subcontract.

- 2. Exhibit A- Insurance Requirements**
 - a. This exhibit will be issued outlining the requirements of insurance coverages required for the project along with OCIP requirements.**
- 3. Exhibit B- Subcontractor's Representations**
- 4. Exhibit C- Enumeration of Contract Documents**
- 5. Exhibit D- General Inclusions to the Contract**
- 6. Exhibit E- Specific Inclusions to the Contract**
 - a. This exhibit will outline the specific inclusions of the contract and will primarily be based on the Bid Package documents. Notes from scope review meetings and final negotiations will also be included. Subcontractor quotes will not be attached to the Subcontract for any reason.**



SUBCONTRACT NO. _____

WEDDLE JOB NO. _____

CONSTRUCTION SUBCONTRACT

THIS AGREEMENT, made and entered into as of this XXth day of XXXX, 20XX, by and between WEDDLE BROS. BUILDING GROUP, LLC, an Indiana Limited Liability Company of Bloomington, Indiana ("WEDDLE") and Name of Subcontractor, and Address, hereinafter called the "Subcontractor"

WITNESSETH:

WHEREAS, WEDDLE has heretofore, on the Date of our contract w/Owner, entered into a contract (hereinafter called the "Prime Contract") with Owner Name (hereinafter called the "Principal") for work generally described and referred to herein as the "Project". The "Project" basically comprises the following (Name of Project)

The work required of Subcontractor is described generally in item 2 and is herein after referred to as the "Work";

and

WHEREAS, the Subcontractor has read and is familiar with: (a) each and every part and provision of the Prime Contract and all other documents and written materials considered a part of the contract documents of the Prime Contract as that term is defined in the Prime Contract, and (b) the respective rights, powers, benefits, and liabilities of WEDDLE and the Principal there under:

NOW, THEREFORE, in consideration of the premises and the mutual covenants herein contained, the parties agree as follows:

1. **THE CONTRACT DOCUMENTS.** The "Contract Documents" (as that term is herein used) consist of: the general and supplemental conditions of the Prime Contract between WEDDLE and the Principal, the plans and specifications prepared for the project, including all modifications made in such plans and specifications prior to the date of this subcontract, all details necessary to complete the drawings, and this subcontract. The Contract Documents are to be construed together so that all of the work called for or indicated anywhere therein, relating to the Subcontractor's work, is to be done by the Subcontractor. When the Contract Documents provide for the exercise of authority by an architect, engineer, contracting officer or other agency, the Subcontractor shall be subject to such authority by instructions issued through WEDDLE.

2. **WORK REQUIRED.** The Subcontractor shall perform and furnish and promptly pay for, all labor, materials, tools, supplies, transportation, fuel, power, machinery, equipment, facilities, services, and other items of value as shown and described in, and in strict accordance with the Contract Documents for the construction and completion of the following portions of the Prime Contract, hereinafter described as the "Work":

See Attached Exhibits D & E

3. **COMPLIANCE WITH CONTRACT DOCUMENTS.** The Subcontractor's work shall be executed and completed wholly in accordance with the Contract Documents. The Subcontractor is bound to WEDDLE by the terms of the Contract Documents and assumes toward WEDDLE, with respect to the Subcontractor's work, all of the obligations and responsibilities that WEDDLE, by the Contract Documents, has assumed toward the Principal. In other words, Subcontractor is obligated to WEDDLE to the same extent as WEDDLE is obligated to the Principal under the terms of the contract documents; however, the provisions of this Subcontract Agreement, as between WEDDLE and Subcontractor, shall control and take precedence over conflicting provisions of other contract obligations which are incorporated herein by reference.

4. **MATERIALS AND WORKMANSHIP.** Unless otherwise specifically provided for in other parts of the Contract Documents, all workmanship, equipment, materials, and articles incorporated in the work covered by this subcontract are to be of the best grade of their respective kinds for the purpose. The Subcontractor shall furnish to WEDDLE for its approval the name of the manufacturer of the machinery and of the mechanical and other equipment which it contemplates incorporating in the work, together with performance capacities, and other pertinent information. When required by the specifications, or when called for by the Principal or WEDDLE, the Subcontractor shall furnish to WEDDLE in advance for approval full information concerning the materials or articles which it contemplates incorporating in the work. Samples of material shall be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval shall be at the risk of subsequent rejection. Items to be presented for approval shall be presented by the Subcontractor timely so as not to delay the work.

The Subcontractor shall prepare and submit to WEDDLE, on a timely basis, such shop drawings as may be necessary to describe completely the details and construction of the Work. Approval of such shop drawings shall not relieve the Subcontractor of its obligation to perform the Work in strict accordance with the Plans, Specifications, and Additional Provisions hereof and the other Contract Documents, nor of its responsibility to take such measurements as will insure the proper matching and fitting of the Work covered by this Agreement with contiguous Work performed by others.

Should the proper and accurate performance of the Work hereunder depend upon proper and accurate performance of other Work not covered by this Agreement, the Subcontractor shall carefully examine such other Work, determine whether it is in fit, ready, and suitable condition for the proper and accurate performance of the work hereunder, use all means necessary to discover any defects in such other Work, and before proceeding with the Work hereunder, report promptly any such improper conditions and defects to WEDDLE, in writing and allow WEDDLE a reasonable time to have such improper conditions and defects remedied.

The Subcontractor hereby guarantees the Work to the full extent provided in the Plans, Specifications, General Conditions, Special Conditions and other Contract Documents.

The Subcontractor shall remove, replace and/or repair, at its own expense and at the convenience of the Principal, any faulty, defective or improper work, materials or equipment discovered within one (1) year from the date of the acceptance of the Project as a whole by the Architect and the Principal or for such longer period as may be provided in the Plans, Specifications, General Conditions, Special Conditions or other Contract Documents. This obligation of the Subcontractor shall include the payment for all costs and expenses necessary to correct, remove, replace and/or repair the Work and any other work or property which may be damaged in correcting, removing, replacing or repairing the Work.

5. TIME OF PERFORMANCE. WEDDLE's contract sets forth that the project shall be commenced on or before (This dates are the same for all subcontracts on job, it is the date job begins & date Job ends) Month, day, year, and shall be completed on or before Month, Day, Year.

6. CONTRACT PRICE AND PAYMENTS. In consideration of its undertakings hereunder and of the faithful and full performance of this subcontract (subject to modifications for changes therein, extras added and omissions made, or any of the same) the Subcontractor shall receive the sum of Write Dollar Amount in Words and 00/100 Dollars (Numerals).

(a) Progress payments, less retention of Ten percent (10%) shall be made to the Subcontractor for Work, satisfactorily performed in accordance the Subcontract documents, within ten (10) days after WEDDLE has received payment from the Principal for the work done by the Subcontractor and for which Subcontractor has requested a progress payment. Payment by PRINCIPAL to WEDDLE for the subcontractor's work requested in a progress payment is a condition precedent of WEDDLE's obligation to pay Subcontractor for the work requested in a progress payment. Final payment of the balance due on the Subcontracted Sum shall be made to Subcontractor upon the same conditions stated herein for progress payments.

(b) Notwithstanding any other provisions hereof, none of the foregoing payments shall, at the option of WEDDLE, be due or payable unless and until the Subcontractor shall have submitted to WEDDLE evidence satisfactory to WEDDLE that the Subcontractor has fully paid for all labor, materials, and other things or services of value in respect of the estimate of work performed by the Subcontractor on which such payment is based.

(c) Upon final completion and final acceptance of all work required hereunder, the balance of the amount due the Subcontractor will be paid as set forth above and after WEDDLE has been furnished with a release, if requested by WEDDLE, of all claims of all parties who have furnished labor, materials, tools, supplies, transportation, fuel, machinery, equipment, facilities, services or other items of value for the performance of the work, and of all liens of any kind or nature against any property of WEDDLE or the Principal or against any funds payable by the Principal or WEDDLE under the Prime Contractor under this subcontract.

(d) No payment made, except the final payment, shall be evidence of the performance of the Subcontractor's work, either wholly or in part, and no payment shall be construed to be an acceptance of defective work or improper materials.

7. PAYMENT USE RESTRICTION No payment received by subcontractor shall be used to satisfy or secure any indebtedness other than owed by the subcontractor to a person furnishing labor or materials for use in performing subcontractor work on project identified by this agreement. Subcontractor shall notify in writing all persons furnishing labor and materials or equipment for this job that payments received by said person from subcontractor must be applied to the invoices for work, materials, or equipment on this job and shall not be applied by said person furnishing labor, materials, or equipment to other jobs involving said subcontractor and said third person. Subcontractors shall provide this notice at the time of initiating contract for labor, materials, and equipment for the job and send a copy of said notice to WEDDLE. WEDDLE shall have the right, at all times, to contact the subcontractors' subcontractors and suppliers of material and/or equipment to ensure that they have received written notification of application of proceeds or that the same are being paid by the subcontractors for labor, materials, or equipment furnished for use in performing subcontractor's work on the job which is the subject of this agreement.

8. DIRECT PAYMENTS BY WEDDLE. Subcontractor is responsible solely for determining, prior to any payments by subcontractor, that subcontractor's subcontractor (if further subcontracting of the Work is permitted) or materialmen or suppliers to subcontractor or anyone employed by subcontractor to do a part of the Work have been paid in full for all labor and/or materials and supplies. WEDDLE reserves unto itself, at its sole option and election, to pay directly for any unpaid claim for labor, material, or supplies furnished to subcontractor or to anyone employed by subcontractor for the Work. The contract price due and owing to Subcontractor shall be reduced in amounts corresponding to such direct payments by WEDDLE. The reservation of this right to WEDDLE does not relieve Subcontractor from being responsible solely for any and all unpaid labor, material, supply, rental, and service bills incurred by or on behalf of subcontractor in the performance of the Work to be completed by Subcontractor. The Subcontractor agrees that monies received for the performance of its Work under this subcontract shall be held by it in trust for payment of all labor and material required of the Subcontractor under its subcontract obligations and said monies shall not be diverted to satisfy obligations of the Subcontractor on other contracts.

9. **INSURANCE AND PERMITS.** The Subcontractor shall obtain and pay for all policies of insurance, guarantees, and all performance or material and labor bonds, and shall give all notices and obtain all permits and inspections required by the Contract Documents or by law or municipal ordinances and pay all charges incident to any of the foregoing, and shall do all things necessary to complete the Subcontractor's work to the entire satisfaction of WEDDLE and the Principal. The Subcontractor shall effect and maintain such unemployment and workmen's compensation, public liability, protective liability, automotive liability, fire, and extended coverage insurance, and such other insurance as WEDDLE and or Specifications may specify and as will furnish reasonable protection against claims which may arise from operations under this Subcontract whether such operations be by the Subcontractor or others whose services are engaged by the Subcontractor or anyone directly or indirectly employed by any of them. Insurance requirements shall be in accordance with Exhibit A to this subcontract. Prior to commencement of work hereunder, certificates of insurance, in duplicate, including contractual liability insurance, shall be filed with WEDDLE, and provisions shall be made therein for 30 days advance written notice by mail to WEDDLE of changes in or cancellations of any such insurance. The Subcontractor shall be required to furnish Products/Completed Operations Insurance for at least 2 year(s) after the completion of project.

10. **INSPECTIONS.** Principal and WEDDLE shall have the right to make such inspections and tests as are reasonable during the progress of the work and the Subcontractor shall provide sufficient, safe, and proper facilities at all times for such inspections by Principal and/or WEDDLE or WEDDLE's authorized employees or agents, and the Subcontractor shall, within twenty four hours after receiving notice from WEDDLE to that effect, proceed to remove from the job site all work or material condemned or rejected by WEDDLE, whether worked or un-worked and shall at the Subcontractor's expense take down and remove all portions of the Subcontractor's work which WEDDLE shall, by notice, condemn or reject any unsound, improper, or in any way failing to conform to the Contract Documents, and the Subcontractor shall at once, at its expense, make good all work so condemned or rejected and all property damaged or destroyed by such removal.

11. **PROGRESS OF WORK.** Time is of the essence of this agreement. The Subcontractor agrees to commence and to complete the Subcontractor's work within the time set forth in paragraph 5, and to do the Subcontractor's work at such times and in such quantities as in the judgment of WEDDLE are required for the best possible progress of the construction of the job and the Subcontractor shall so conduct the Subcontractor's work as to facilitate, and so as not to interfere with or delay, the work of WEDDLE, any other subcontractor, or any other contractor employed on the job. The Subcontractor shall maintain close contact with the job at all times and the Subcontractor shall be wholly responsible for the installation in the job of the Subcontractor's work in the proper sequence and at the proper time. The Subcontractor agrees to commence immediately on any part of the Subcontractor's work when notified to do so by WEDDLE. In case the commencement, prosecution, or completion of the Subcontractor's work shall be delayed, or be about to be delayed, because of strikes, fires, earthquakes, cyclones, casualties of like nature, or causes wholly beyond the control of the Subcontractor, Subcontractor shall have the same rights and responsibilities, including but not limited to written notice provisions and time requirements as WEDDLE has to Principal as set forth in the Contract Documents. Subcontractor shall be responsible for any liquidated damages assessed by the Owner to WEDDLE under the terms of the Prime Contract should the Subcontractor be responsible, in whole or in part, for any delay in the project.

12. **SUPERVISION.** The Subcontractor shall keep a competent foreman or superintendent on its work at all times during progress of the work, with authority to act for the Subcontractor.

13. **CHANGES.** Additions, omissions, or alterations to or in the Subcontractor's work may be ordered by WEDDLE, without invalidating this agreement at any time prior to the completion of the Subcontractor's work, but no such changes shall be made except by a written order, signed by WEDDLE, in which the addition to or deduction from the subcontract sum, together with additional time, if any, for the performance thereof, shall be stated, if the same have been determined by the Principal in respect of the work or portion of the work covered by the subcontract. If such addition to or deduction from the contract sum or the additional time allowance have not been determined by the Principal at the time such change is ordered in the work hereunder, the Subcontractor shall proceed with the work under WEDDLE's instructions and the amount of such price change and time allowance shall correspond with those allowed and fixed by the Principal to WEDDLE in respect of the Subcontractor's work or portion of the work. No claims for extra work shall be made unless written agreement therefore is made prior to the execution of such extra work by the Subcontractor. If the Subcontractor's work is based upon estimated quantities and payment therefore is to be made at unit prices, the Subcontractor shall assume all risks as to the increase or decrease of such quantities. Payment to the Subcontractor shall be based on the quantities of such work allowed to WEDDLE by the Principal.

14. **PROTECTION, HEATING, HOISTING, POWER, LIGHTING AND WATER.** All protection, heating, hoisting, power, lighting, and water required or desired by the Subcontractor for the execution of the Subcontractor's work shall be provided wholly by the Subcontractor and at its expense unless specific provisions to the contrary are made in this agreement, provisions to the contrary elsewhere in the Contract Documents notwithstanding. The Subcontractor shall be solely answerable for the safe, proper, and lawful construction, maintenance, and use of all hoists, scaffolds, ways and tools used by the Subcontractor, its employees, agents, subcontractors, suppliers, and materialmen and their employees.

15. **SUBCONTRACTS.** No part of this Subcontract shall be sublet nor shall it be assigned without first securing the express written approval of WEDDLE and WEDDLE shall not be obligated to consent to any such subletting or assignment.

16. **CLEAN-UP.** The Subcontractor shall practice good housekeeping and at all times keep the premises free from accumulations of waste material or rubbish caused by its employees or work. At the completion of its work, the Subcontractor shall remove from the premises all its rubbish, implements, and surplus materials and shall leave its work "broom clean" or its equivalent. In the event the Subcontractor fails to perform any of the requirements of this Article to WEDDLE'S satisfaction, WEDDLE shall have the right to perform and complete the cleanup itself, or through others and charge any cost to the Subcontractor.

17. **SUBCONTRACTOR'S EMPLOYEES.** All employees of the Subcontractor shall be skilled in their trades. Any employee of the Subcontractor may be refused admittance to the site or may be requested to leave the site at any time by WEDDLE, and WEDDLE shall not be required to have or to state any reason for such action. In the event that any employee or employees of the Subcontractor are so barred from the job, the Subcontractor shall immediately replace such employee or employees with employees satisfactory to WEDDLE. Subcontractor is responsible solely for establishing and verifying the eligibility to work in the United States and the identity of all persons employed by Subcontractor, for any purpose.

18. **EMPLOYMENT, PAYMENTS, SOCIAL SECURITY, AND TAXES.** Subcontractor shall comply with all legal and contract requirements regarding employment and payment of labor employed by Subcontractor under this subcontract, including those relating to rates of pay, overtime hours, conditions of work and nondiscrimination and equal opportunity policies and orders. Subcontractor will make all required payroll transcripts and compliance reports. Social security insurance payments shall be made by the Subcontractor with respect to the Subcontractor's employees as required by the social security acts of the United States and the State in which the job is located. Provisions of this paragraph shall apply to any amendment to such laws which may subsequently be enacted. This obligation for Subcontractors to comply with all legal and contract requirements regarding employment shall include the payment of any pension benefits, health and/or welfare benefits, medical and hospitalization payments, and withholding taxes applicable or required for its employees.

If any personal property delivered or used under this subcontract be determined to be taxable under sales, use, excise, or other taxes applicable to the sale or delivery of personal property, the Subcontractor shall be subject to and liable for any levy therefore provided by law without any recourse against WEDDLE. If any such payment is not made by the Subcontractor, said tax may be paid by WEDDLE with right of reimbursement from the Subcontractor or the right to withhold from payments under this Subcontract the amount of any tax so paid.

19. **COMPLIANCE-SAFETY CODES AND REGULATIONS - RESPONSIBILITY FOR ACCIDENTS.** The Subcontractor agrees that the prevention of accidents to its workmen and other workmen engaged upon or in the vicinity of the Work is its responsibility. The Subcontractor shall comply with all Federal, State, Municipal and local laws, ordinances, rules, regulations, codes, standards, orders, notices and requirements concerning safety as shall be applicable to the Work including, among others, the Federal Occupational Safety and Health Act of 1970, as amended, any State Occupational Safety and Health Act provisions or regulations, and all standards, rules, regulations, and orders which have been or shall be adopted or issued there under, and with the safety standards established during the progress of the Work by WEDDLE and/or Principal. When so requested or ordered, the Subcontractor shall stop any part of the Work which WEDDLE deems unsafe until corrective measures satisfactory to WEDDLE have been taken, and the Subcontractor agrees that it shall not have or make any claim for damages growing out of such stoppages. Should the Subcontractor neglect to take such corrective measures, WEDDLE may do so at the cost and expense of the Subcontractor and may deduct the cost thereof from any payments due to the Subcontractor. Unsafe practices by others shall in no way relieve the Subcontractor of its responsibility to prevent accidents and to follow all applicable health and safety standards.

The issuance of safety bulletins or requirements by WEDDLE shall not be interpreted or construed to the effect that WEDDLE has voluntarily or gratuitously assumed any duty to Subcontractor, its employees, servants, agents, or representatives for safety related matters even though Subcontractor and its employees must abide by any and all safety requirements issued by WEDDLE. The issuance of safety requirements by WEDDLE does not limit the primary responsibility of the Subcontractor.

Subcontractor shall comply with all requirements of any state or federal "Right to Know Law" including, but not limited to, (1) Subcontractor shall provide WEDDLE a copy of all Material Safety Data sheets (MSDS) for each hazardous chemical and have a copy of same available for employees. (2) Shall provide required training of its employees. (3) Submit a copy of its Written Hazard Communication Program to WEDDLE. (4) Properly label all containers of hazardous chemicals that are brought on the job site or used in the performance of this contract. Failure to comply with the foregoing requirements will be considered a material breach of this contract. The failure of WEDDLE to enforce at any time any of the provisions of this Order, or to require at any time performance by Subcontractor of any of the provisions hereof, shall be in no way construed to be a waiver, not in any way affect the validity of this Order or any part thereof or the right of WEDDLE to thereafter enforce each and every provision.

The Subcontractor shall indemnify WEDDLE for any fines issued to WEDDLE by any Governmental Agency caused by Subcontractor's failure to comply with this article.

20. **LIENS.** In the event that any lien or claim for unpaid labor, materials, rent, services, or supplies shall be made or placed upon the Project by any of the subcontractor's subcontractors or materialmen, suppliers, laborers, or others for labor, material, supplies, rents or other items furnished. WEDDLE shall have the right to deduct or withhold from any monies owed Subcontractor under this agreement in a sum or sums sufficient as necessary to protect against or pay any claim for labor or material filed by Subcontractor or anyone supplying labor or material to Subcontractor or others hired or retained by Subcontractor to furnish material, labor, or supplies to Subcontractor for the Work. Subcontractor shall be liable for and agrees to indemnify and hold forever harmless WEDDLE and the Principal, their successors and assigns, from the payment of any sum of money whatsoever (including attorney fees and expenses) on account of any laborers, mechanics, materialmen, or any other lien against the Principal's property or property of any other person or entity related to Subcontractor's performance of the Work. Subcontractor must furnish at the time of periodic payments and/or the final payment as required by Weddle, partial lien waivers or final lien waivers from Subcontractor and from all subcontractors to Subcontractor or materialmen, suppliers, renters, or equippers of either. Subcontractor shall notify its subcontractors, if allowed, or materialmen and others acting on its behalf of this provision.

If Subcontractor files a mechanic's lien or asserts any claim against the Project Real Estate and such lien or claim is determined to be void or without merit, then Subcontractor agrees to indemnify and hold WEDDLE harmless for all costs and damages that WEDDLE incurs as a result of such mechanic's lien or claim (including attorneys' fees).

21. **INDEMNIFICATION.** Subcontractor knowingly and willingly agrees to indemnify, defend, and hold forever harmless WEDDLE, the Principal and its affiliates, and their respective successors, assigns, employees, servants, and agents ("Indemnified Parties") from and against all claims, suits, and actions of any character, name and description, liability (including contractual liability and vicarious liability for Subcontractor), judgments, costs and expenses including attorney fees, asserted by or on behalf of any person, including but not limited to Subcontractor, its employees, servants or agents, by reason of, arising out of, or connected with any injuries or damages received or sustained by any person, persons, or property, which are caused in part or in whole by any act, omission, neglect or misconduct of the Subcontractor, its employees, agents, servants, independent contractors, or representatives and/or from any act, omission, neglect or misconduct of any Indemnified Party, except where an Indemnified Party is solely negligent.. Subcontractor knowingly and willingly agrees to indemnify, defend, and hold forever harmless WEDDLE, its affiliates, assigns, servants, and agents from and against all claims, suits, and actions of any character, name and description, liability (including contractual liability and vicarious liability for Subcontractor), judgments, costs and expenses including attorney fees, asserted by the Principal against WEDDLE which is caused in part or in whole by any act, omission, neglect or misconduct of the Subcontractor, its employees,

agents, servants, independent contractors, or representatives and/or from any act, omission, neglect or misconduct of any Indemnified Party, except where Weddle is solely negligent. The intent of this indemnification provision is to the effect that the Subcontractor shall indemnify the Indemnified Parties to the fullest extent permitted by law against any liability, cost or expense arising out of the performance of this subcontract.

22. **ATTORNEYS' FEES.** In the event of any litigation between WEDDLE and Subcontractor that arises out of relates to this Agreement or the Project, the "prevailing party" in such litigation shall also recover its attorneys' fees incurred in such litigation. For the purposes of this paragraph, the term "prevailing party" shall mean the party that recovers all or substantially all of the relief requested in its pleadings that are incurred up to the time there is a final judgment in the litigation that is not subject to any further appeal.

23. **VENUE.** In the event of any litigation that is initially filed by WEDDLE or Subcontractor and which arises out of relates to this Agreement or the Project, the parties agree that the exclusive and only venue for any such litigation is the Circuit Courts of Monroe County, Indiana.

24. **DAMAGES TO SUBCONTRACTOR'S WORK.** Damages to the Subcontractor's work, resulting from acts of God, fire, public enemy, civil commotion, vandalism, acts of omission or commission by any person, firm, or corporation, or from any other cause, shall be made good by the Subcontractor. WEDDLE shall have no obligation to protect or defend the Subcontractor's work.

25. **PATENT RIGHTS.** Royalties and costs arising from patents, without exception, are agreed to be included in the subcontract sum. Whenever the Subcontractor is required by the Contract Documents or desires to use any design, device, material, or process covered by letter patent or copyright, the right for such use shall be provided for by suitable legal agreement with the patentee or owner, and a copy of such agreement shall be filed with WEDDLE. However, whether or not such agreement is made or filed as so required, the Subcontractor and its surety in all cases shall indemnify and save harmless WEDDLE and the Principal from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, and shall indemnify the aforesaid parties for any costs, expenses, and damages, including attorney fees, which they may be obliged to pay by reason of any alleged infringement.

26. **TERMINATION OF SUBCONTRACT.** If the Subcontractor becomes insolvent, or if a petition in bankruptcy be filed by or against it, or if it should make a general assignment for the benefit of creditors, or if a receiver should be asked or appointed for it, or if it should refuse or fail to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to its subcontractors or for any material, labor, transportation, supplies, fuel, use of equipment or any other items of its cost of the performance of its work hereunder, or fails to observe and comply with laws, regulations, ordinances, or the instructions of WEDDLE or otherwise be guilty of any violation of any provision of the subcontract or should the Subcontractor at any time refuse to start the Subcontractor's work promptly, or fail in any respect to prosecute the work with promptness and diligence, or if the Subcontractor shall fail in the performance of any of the agreements herein contained, WEDDLE may, after twenty-four hours' written notice to the Subcontractor, provide any such labor or materials, or other items, and deduct the cost thereof from any money then due or thereafter to become due to the Subcontractor under this subcontract; and at its option WEDDLE may terminate the employment of the Subcontractor for said work and terminate this subcontract and may enter upon the premises and take possession for the purpose of completing the Subcontractor's work, of all materials, equipment, tools, and appliances on the job site, and contract with or employ any other person or persons to finish the work; and in any such case of termination of the subcontract, the Subcontractor shall not be entitled to receive any further payment under this subcontract until the said work shall be wholly finished, at which time, if the unpaid balance of the amount to be paid under this subcontract shall exceed the expenses incurred by WEDDLE in finishing the work and all other charges, expense, or damage, such excess shall be paid by WEDDLE to the Subcontractor, but if such expense and damage shall exceed such unpaid balance, the Subcontractor shall pay the difference to WEDDLE. The foregoing provisions of this paragraph shall not be exclusive of, but shall be in addition to, any other rights or remedies that WEDDLE may have in any such instance.

27. **TERMINATION OF PRIME CONTRACT.** The right to terminate the Prime Contract for any cause has been reserved by the Principal. In the event of termination of the Prime Contract by the Principal, WEDDLE shall give notice to the Subcontractor to immediately discontinue the work, the placing of orders for materials, supplies, and facilities, and to take steps to procure cancellation of all existing orders or contracts upon terms satisfactory to the Principal. Settlement of the amount due under this subcontract shall be on the basis of full payment for such portion of the work actually completed, plus the actual cost of materials delivered or fabricated up to the date of termination, as determined by the Principal, no allowance being made for anticipated profit on the portion of the work not completed.

28. **WAIVERS.** None of the provisions of this subcontract shall be held to have been waived by WEDDLE by reason of any act whatsoever or in any manner whatsoever other than by an express written waiver signed by the proper officers of WEDDLE.

29. **APPLICABLE LAW.** This subcontract is to be construed as an INDIANA contract, and shall be governed by the law of that state.

30. **LABOR AGREEMENTS.** WEDDLE is signatory to the uniform local Building Construction Agreements, for various craft to be employed on this work. The Subcontractor, by accepting this subcontract, agrees to be bound by all the terms and conditions of such agreements.

31. **EXHIBITS.** Attached hereto are Exhibit A Insurance and Bonding Requirements; Exhibit B – General Subcontractor Information Disclosure Statement; Exhibit C – Enumeration of Contract Documents, Exhibit D – General Inclusions to the Contract and Exhibit E – Specific Inclusions to the Contract. All Exhibits and the terms and conditions of these Exhibits and the answers provided therein shall become a part of the Subcontract as if set out herein in full.

32. **LEGAL DATE AND EFFECT OF CONTRACT.** The subcontract becomes legal and binding upon the signatures of both parties The subcontract shall be binding upon the successors in interest, personal representatives, and legal representatives of each party hereto. The officers of either party hereby state affirmatively that they each have the full power and authority of their organization to enter into this Subcontract Agreement. The provisions of this subcontract take precedent over any and all proposals, correspondence, negotiations, and oral agreements made prior to the date hereof. This subcontract shall not and cannot be assigned without the express written consent of WEDDLE.

33. **EQUAL EMPLOYMENTS OPPORTUNITY/AFFIRMATIVE ACTION.** Unless otherwise exempt, Contractor agrees that it shall comply with the requirements of Executive Order 11246, Section 503 of the Rehabilitation Act of 1973, Section 502 of the Vietnam Era Veterans Readjustment Assistance Act of 1974, and Executive Order 11625. and all applicable rules and regulations promulgated there under and, specifically, the provisions of 41 C.F.R. sections 60-1.4, 60-741.4, 60-350.4 and 1-1310.2 respectively.

Contractor further agrees that it shall comply with all other requirements applicable to the Principal relating to equal employment opportunity and any other matters as the Principal shall from time to time be required by any governmental authority, agency or instrumentality, whether by contract or otherwise, to cause Contractor to comply with.

34. **HEADINGS.** The headings of sections and subsections of the contract are for convenience of reference only and shall not constitute, or affect the meaning, construction or effect of, any provision hereof.

<u>GENERAL CONTRACTOR</u>		<u>SUBCONTRACTOR</u>	
WEDDLE BROS. BUILDING GROUP, LLC		SUBCONTRACTOR NAME	
By	_____	By	_____
	Signature		Signature
	_____		_____
	Michael A. Hemmerling		Name Printed
	Name Printed		
	_____		_____
	Vice President		Title
	Title		
Attest	_____	Attest	_____
	Signature		Signature
	_____		_____
	Put PM Name		Name Printed
	Name Printed		
	_____		_____
	Project Manager		Title
	Title		