University of Kentucky
Procurement Services

INVITATION FOR BIDS

CCK-2671.0-1-25
Pav A Replace Chillers
2671.0
ADDENDUM # 2
12/2/2024

IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY 12/06/2024 @ 3:00 P.M. LEXINGTON, KY TIME

Bidder must acknowledge receipt of this and any addendum as stated in the Invitation for Bids.

ITEM #1: Refer to the Mechanical Specifications

- Refer to attached specification 230200. This specification supersedes previous version complete., 2iii).

ITEM #2: Refer to attached M2.0

A. Updated phasing plan
B. Updated installation details
C. Updated equipment specification
D. Updated piping connections and details

ITEM #3: Refer to the attached contractor bid question log and responses

OFFICIAL APPROVAL
UNIVERSITY OF KENTUCKY

Brian Schwegman

Brian Schwegman / Contracting Officer / (859) 257-9102

SIGNATURE

_____

_____

Typed or Printed Name

University of Kentucky
Procurement Services
322 Peterson Service Building
Lexington, KY 40506-0005

An Equal Opportunity University

SECTION 230200

HVAC EQUIPMENT AND HYDRONIC SPECIALTIES

1. GENERAL

A. The Contractor's attention is directed to the General and Special Conditions, General Conditions-Mechanical and to all other Contract Documents as they apply to this branch of the work. Attention is also directed to all other sections of the Contract Documents which affect the work of this section and which are hereby made a part of the work specified herein.

B. The Contractor shall provide in complete working order the following heating, ventilation and air conditioning equipment located as indicated and installed, connected and placed in operation in strict accordance with the manufacturer's recommendations. All equipment shall be factory painted and, where applicable, factory insulated and shall, where such standards exist, bear the label of the Underwriters Laboratory.

C. Each subcontractor shall be responsible for their own completion of System Verification Checklists/Manufacturer’s Checklist.

D. Factory startup is required for all HVAC equipment. In general, as part of the verification process, equipment suppliers shall perform start-up by their factory authorized technicians and shall complete and submit start-up reports/checklists. This shall include air handling units, boilers, chillers, cooling towers, VFDs, etc.

E. All HVAC equipment shall comply with the latest provisions of ASHRAE Standard 90 and/or International Energy Conservation Code 2012, whichever is more stringent.

F. Installation of all heating, ventilating and air conditioning systems shall be performed by a master HVAC contractor licensed in the state the work will be performed.

G. Note to Suppliers and Manufacturers Representative furnishing proposals for equipment for the project:

(1) Review the Controls Section of these Specifications (if applicable) to determine controls to be furnished by the equipment manufacturer, if any. The Contractor shall provide all controls with equipment unless specifically listed otherwise.

(2) Review the section of these specifications entitle: SHOP DRAWINGS, DESCRIPTIVE LITERATURE, MAINTENANCE MANUALS, PARTS LISTS, SPECIAL KEYS, TOOLS, ETC., and provide all documents called for therein.

(3) Ensure that the equipment which you propose to furnish may be installed, connected, placed in operation and easily maintained at the location and in the space allocated for it.

(4) Determine from the Bid Documents the date of completion of this project and ensure that equipment delivery schedules can be met so as to allow this completion date to be met.

(5) Where manufacturers’ temperature controls are specified, they shall be in full compliance with International Mechanical Code Section 606 including automatic smoke shut down provisions.

(6) Provide factory start-up on site by a factory representative (not a third-party contractor) for all HVAC equipment, including pumps, VFDS, boilers, chillers, etc. Submit factory start-up reports to the Engineer.

(7) Provide training to the Owner by a factory representative for each type of equipment. Training shall be a minimum of eight (8) hours on site and the Engineer shall be notified one (1) week in advance of the training. Training shall only occur when the systems are complete and 100% functional. All training shall be video taped.

(8) Review the Section on Motor Starters and Electrical Requirements for Mechanical Equipment.

(9) Requirements for motors controlled by variable frequency drives:

a. All motors shall be inverter duty rated.

b. Motors less than 100 HP in size shall be furnished with shaft grounding kit, Aegis SGR Bearing Protection Ring or equal. One shaft grounding ring and related hardware shall be provided on drive end or non-drive end of motor per manufacturer's instructions. These shall be factory mounted and installed on the exterior of the motor to allow for visual inspection. Ground motor frame per manufacturer's instructions. Install kit in strict accordance with manufacturer's instructions.

(10) All condensate producing equipment shall be provided with a condensate trap as recommended by the equipment manufacturer and a condensate overflow switch.

(11) Provide low ambient and all required controls and accessories on all HVAC equipment to ensure they can provide cooling during the winter season.

(12) All outdoor HVAC equipment shall be provided with hail guards.

(13) Provide a complete air tight enclosure with opening door that seals air tight for all filters on air moving equipment.

(14) All equipment shall be furnished for a single point electrical connection unless specifically excluded as a requirement.

2. EQUIPMENT

A. VARIABLE SPEED **SCROLL** AIR COOLED CHILLER

(1) General

a. Units shall be leak and pressure tested at 450 psig high side, 300 psig low side, then evacuated and charged. Chiller shall be factory tested to confirm operation prior to shipment. Ship units with a full operating charge of oil and refrigerant.

b. Unit panels, structural elements and control boxes shall be constructed of 12 gage galvanized steel and mounted on a welded structural steel base. Unit panels and control boxes shall be finished with a baked-on powder paint, and the structural base with an air-dry paint.

(2) Evaporator

a. The evaporator shall be tube-in-shell heat exchanger design with internally finned copper tubes roller expanded into the tube sheet. The evaporator shall be designed, tested and stamped in accordance with ASME for a refrigerant side working pressure of 300 psig. The evaporator shall be designed for a water side working pressure of 215 psig.

b. Each shell shall include a vent, a drain and fittings for temperature control sensors and be insulated with 3/4" Armaflex II or equal insulation (K=0.26). Internal heat tape with thermostat shall be provided to protect the evaporator from freezing at ambient temperatures down to -20°F.

(3) Condenser and Fan

a. Air cooled condenser coils shall have aluminum fins mechanically bonded to internally finned seamless copper tubing. The condenser coil shall have an integral sub-cooling circuit and also provide oil cooling for the compressor bearing and injection oil. Condensers shall be factory proof and leak tested at 500 psig.

b. Low Sound Fans: Shall be dynamically and statically balanced, direct drive, corrosion resistant glass fiber reinforced composite blades molded into low noise, full airfoil cross section, providing vertical air discharge from extended orifices. Guards of heavy gauge, PVC (polyvinyl chloride) coated steel.

c. Direct drive vertical discharge condenser fans shall be dynamically balanced. Provide condenser fan motors with permanently lubricated ball bearings and internal thermal overload protection. Unit shall start and operate down to 40°F. ambient.

(4) Compressor and Lube Oil System

a. Compressors shall be direct drive, **hermetic, scroll type,** including: muffler, temperature actuated ‘off-cycle’ crankcase heater, rain-tight terminal box, discharge shut-off service valve, and precision machined cast iron housing. Design working pressure of entire compressor, suction to discharge, shall be 450 PSIG (31 bar). Compressor shall be U.L. Recognized.

b. Refrigerant suction gas cooled accessible hermetic compressor motor, full suction gas flow through 0.006” maximum mesh screen, with inherent internal thermal overload protection and external current overload on all three phases.

c. External oil separators with no moving parts, 450 PSIG design working pressure, and UL listing. Refrigerant system differential pressure shall provide oil flow through service replaceable, 0.5 micron, full flow cartridge type oil filter internal to compressor. Filter bypass, less restrictive media, or oil pump not acceptable.

d. Compressors shall start at minimum load. Capacity control range from 100% to **15%** of chiller full load. Provide Microprocessor control to command compressor capacity to balance compressor capacity with cooling load.

e. **Vibration isolation mounts for all compressors**

f. **Refrigerant flow through the compressor with 100% suction cooled motor.**

g. **Oil level sight glass**

h. **Compressor motor overloads of capable of monitoring compressor motor current. Provide reverse rotation, phase-loss and phase-imbalance.**

(5) Refrigeration Circuits

a. Each unit shall have two independent refrigerant circuits, with **multiple scroll** compressors per circuit. Each refrigerant circuit shall include a compressor discharge service valve, liquid line shutoff valve, removable core filter drier, liquid line sight glass with moisture indicator, charging port and an electronic expansion valve. Provide fully modulating compressors and electronic expansion valves to allow variable capacity modulation over the entire operating range.

(6) Unit Controls

a. All unit controls shall be housed in a weather tight enclosure with removable plates to allow for connection of power wiring and remote interlocks. All controls, including sensors, shall be factory mounted and tested prior to shipment. All cataloged units shall be UL listed.

b. Microcomputer controls shall provide all control functions including start-up and shut down, leaving chilled water temperature control, compressor and electronic expansion valve modulation, fan sequencing, anti-recycle logic, automatic lead/lag compressor starting and load limiting.

c. The unit control module shall automatically take action to avoid unit shutdown due to abnormal operating conditions associated with low refrigerant temperature, high condensing temperature and motor current overload. Should the abnormal operating condition continue until a protective limit is violated, the unit shall shut down.

d. Unit protective functions shall include loss of chilled water flow, evaporator freezing, loss of refrigerant, low refrigerant pressure, high refrigerant pressure, reverse rotation compressor starting and running over current, phase loss, phase imbalance, phase reversal, high motor winding temperature, high refrigerant discharge temperature and loss of oil flow.

e. A menu driven digital display shall indicate over 20 operating data points including chilled water set point, current limit set point, leaving chilled water temperature, evaporator and condenser refrigerant pressures and temperatures. Over 60 diagnostic checks shall be made and displayed when a problem is detected.

f. BACnet compatible control card.

g. **Remote troubleshooting and diagnostics.**

1) 24/7 monitoring of critical control panel-generated diagnostic codes by monitoring available operation, safety, cycling, and warning codes by the manufacturer's UL-certified central station alarm monitoring and operations center. The center's operators shall have the capability to notify the manufacturer's local branch of these faults during normal

working hours, and to dispatch on-call technicians during non-working hours, and to capture these events in the manufacturer's electronic service management system.

2) The system shall continuously record all available points on change of value, to ensure accurate reproduction of actual measured values, and allow building owner's and the manufacturer's local, regional and national personnel to access operating data through a PC or mobile device.

3) The system shall use advanced algorithms to continuously compare chiller performance against key design specifications and detect potential performance issues.

4) A daily assessment of critical system functions shall be performed using these algorithms. The system shall allow the building owner's and manufacturer's local, regional and national personnel to run reports on the operating parameters collected by the system using these algorithms.

5) The system shall have the capability to securely record the data points from a network that is independent from the chiller's building automation system.

h. **Manufacturer shall provide a cellular modem or other gateway device owned by the manufacturer, or Customer will supply a network connection suitable to establish a remote connection with Customer's applicable equipment to permit the manufacturer to perform first-year and extended warranty services as well as, if Customer retains chiller manufacturer to do so, other services, including troubleshooting, quarterly health reports, remote diagnostic and monitoring and aftermarket services.**

1) Provide the following services:
- **(a) (3) Centralized remote inspections and reports**
- **(b) Use the remote chiller monitoring system to review control panel for proper operation and recorded fault histories**
- **(c) Use the remote chiller monitoring system to record and log all operating parameters**
- **(d) Generate and review appropriate chiller reports from the remote chiller monitoring system dashboard**
- **(e) Present and review the remote chiller monitoring system dashboard reports and the remote chiller monitoring system operating data with appropriate customer representative**

(7) Electrical

a. Single Point Power Connection. Voltage shall be 480/3/60.

b. SCCR: 10kA

(8) Accessories

a. Deluxe Control Package - Provide digital cycle counter and hour meter for each compressor, under/over voltage protection, remote alarm and compressor run indication contacts and a % volts display.

b. Provide Control Power Transformer to eliminate the need to run separate 115-volt control power to the unit. A control power transformer shall be factory installed and wired.

c. Provide chiller with integral disconnect and provide fuses per manufacturer's recommendations.

(9) Selection

a. Refer to the equipment schedule for the furnished equipment.

H. HYDRONIC SPECIALTIES

(1) Manufacturers

Subject to compliance with the specified and scheduled requirements the following manufacturers will be considered, but not limited to:

Hoffman
Amtrol/Thrush
Armstrong/Aurora
Bell & Gossett
Patterson
Taco
Victaulic
Wheatley

(2) Flexible Connections

Provide at the inlet and discharge side of each base mounted pump, at each connection to major equipment requiring vibration isolation and where shown on plans, a flexible connector, Metraflex Metrasphere or Engineer approved equal. Flexible connectors shall be of the flexible neoprene and nylon or EPDM and suitable for 225 PSI working pressure and 230°F temperature. Couplings shall be installed per the manufacturer's recommendations, in close proximity to the source of the vibration.

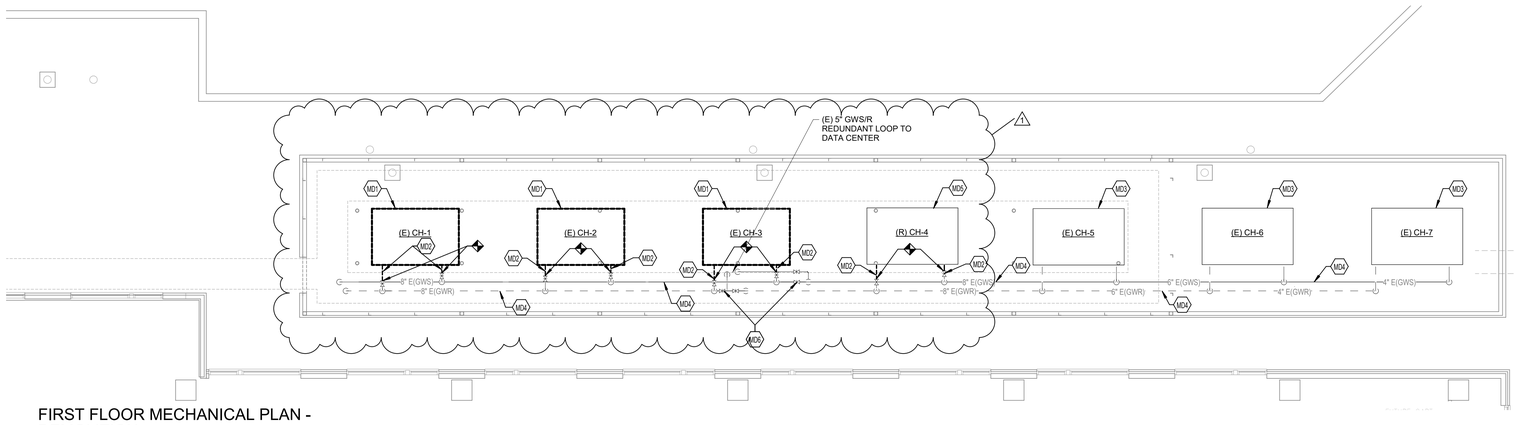
(3) Manual Air Vents

Provide, where shown on the plans, at each rise in piping and where required a manual air vent.

2. FACTORY START-UP REPORTS

A. Provide factory start-up on site by a factory representative (not a third-party contractor) for all HVAC equipment, including rooftop units. Submit factory start-up reports to the Engineer. The Mechanical Contractor and the Controls Contractor shall have a representative on site to correct all deficiencies noted by the factory representative. For each deficiency noted, documentation of corrective action taken shall be submitted to Engineer.

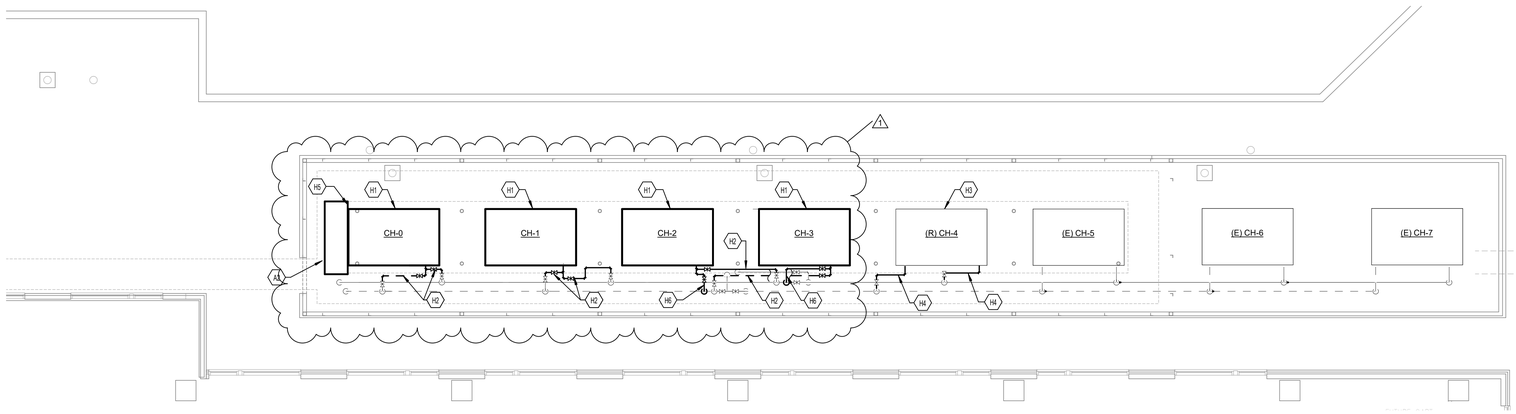
END OF SECTION 230200



FIRST FLOOR MECHANICAL PLAN - DEMOLITION

1 SCALE: 1/8" = 1'-0"

0 2' 4' 8' 16' 24' 32'



FIRST FLOOR MECHANICAL PLAN - NEW WORK

2 SCALE: 1/8" = 1'-0"

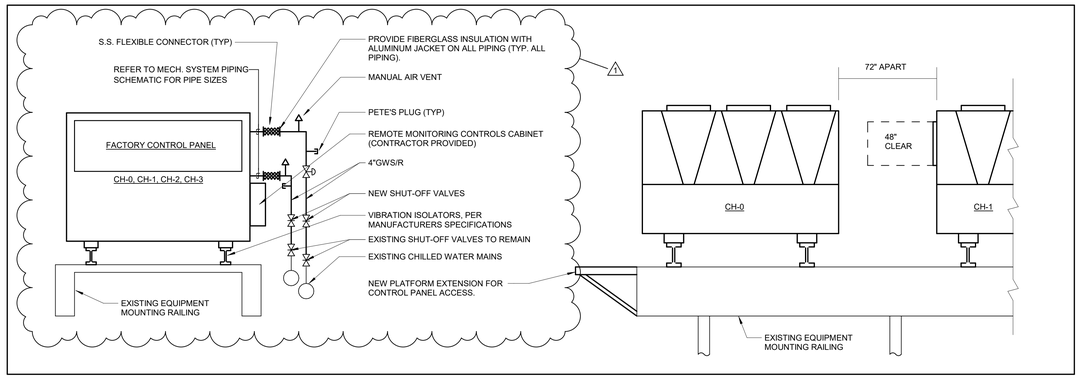
0 2' 4' 8' 16' 24' 32'

CHILLER - AIR COOLED SCHEDULE

MARK	TYPE	MANUFACTURER	MODEL #	SERVICE	DIMENSIONS (IN) LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	FLUID TYPE	COOLING CAPACITY (MBH)	IPLV	STARTER	EWT (°F)	LWT (°F)	GPM	FLUID PD (FT HD)	FOULING FACTOR	NO OF COMPRESSORS	REFRIGERANT	VOLTAGE	PHASE	MCA	MOCP	REMARKS
CH-0	SCROLL	YORK	YLAA0101HJ46XFB	PAV A - IMAGING AND DATA CENTER	143	88	94	5410	30% GLYCOL	1173.2	17.79	Yes	54	44	234	9.37	0.0001	5	R454B	460 V	3	100 A	300	ALL
CH-1	SCROLL	YORK	YLAA0101HJ46XFB	PAV A - IMAGING AND DATA CENTER	143	88	94	5410	30% GLYCOL	1173.2	17.79	Yes	54	44	234	9.37	0.0001	5	R454B	460 V	3	100 A	300	ALL
CH-2	SCROLL	YORK	YLAA0101HJ46XFB	PAV A - IMAGING AND DATA CENTER	143	88	94	5410	30% GLYCOL	1173.2	17.79	Yes	54	44	234	9.37	0.0001	5	R454B	460 V	3	100 A	300	ALL
CH-3	SCROLL	YORK	YLAA0101HJ46XFB	PAV A - IMAGING AND DATA CENTER	143	88	94	5410	30% GLYCOL	1173.2	17.79	Yes	54	44	234	9.37	0.0001	5	R454B	460 V	3	100 A	300	ALL

NOTES:

1. PROVIDE SINGLE POINT CONNECTION.
2. PROVIDE WITH MS/TP CONTROLS CARD
3. LOW SOUND FANS WITH VSD
4. LOW AMBIENT COOLING KIT
5. PROPOLYENE GLYCOL
6. CHILLER EQUIPMENT SHALL HAVE REMOTE DIAGNOSTIC MONITORING



CHILLER INSTALLATION DETAIL

3 SCALE: NONE

PHASING PLAN

1. THE PROJECT REPLACES THREE (3) EXISTING CHILLERS AND ADDS AN EIGHTH.
2. WHEN THIS CONTRACTOR IS AWARDED THE PROJECT, (E) CH-1, (E) CH-2 AND (E) CH-3 WILL PROVIDE COOLING TO PAV A KITCHEN FREEZER/COOLER CONDENSERS, PAV A ELEVATOR MACHINE ROOM FANCOILS AND PAV A DIAGNOSTIC IMAGING EQUIPMENT. (E) CH-4, (E) CH-5, (E) CH-6 AND (E) CH-7 WILL PROVIDE COOLING TO HALF OF THE PAV A DATA CENTER. THESE GROUPS OF CHILLERS WILL BE SEPARATED AND OPERATE INDEPENENTLY BY TWO MANUAL ISOLATION VALVES. REFER TO TAGGED NOTE MD6 FOR ADDITIONAL INFORMATION.
3. (E) CH-4 CAN BE RELOCATED WITHOUT REQUIRING A COOLING OUTAGE TO THE DATA CENTER. CONTRACTOR SHALL COORDINATE WITH OWNER ON SCHEDULE OF WORK AND ISOLATE CHILLER WITH BRANCH SHUT-OFF VALVES. COOLING DEMAND CAN BE MET WITH 3 REMAINING OPERATIONAL CHILLERS (E) CH-5, (E) CH-6 AND (E) CH-7.
4. ONCE (E) CH-4 HAS BEEN RELOCATED AND IS FUNCTIONAL, (E) CH-3 CAN BE DEMOLISHED. (E) CH-1 AND (E) CH-2 SHALL REMAIN OPERATIONAL.
5. CH-3 SHALL BE INSTALLED COMPLETE PRIOR TO SUBSEQUENT DEMOLITION AND INSTALLATION. DEMOLITION AND INSTALLATION OF EQUIPMENT SHALL BE PHASED SUCH THAT AT NO TIME WILL LESS THAN TWO (2) CHILLERS OF THE GROUP (E) CH-1, (E) CH-2 AND CH-3 BE OPERABLE.
6. NEW 4" BRANCH PIPES SHALL BE INSTALLED BY HOT TAP PROCESS TO CONNECT TO CH-3. DRAINING THE MAIN CHILLED WATER PIPES ARE NOT POSSIBLE. HOT TAP FOR EACH PIPE SHALL BE BEFORE THE SYSTEM SEPARATING ISOLATION VALVES
7. CH-0, CH-1 AND CH-2 SHALL UTILIZE EXISTING EQUIPMENT BRANCHES. EXISTING BRANCH VALVES SHALL BE CLOSED TO ISOLATE THE EQUIPMENT AND COOLING PLANT SHALL REMAIN FUNCTIONAL AT ALL TIMES.

BID ALTERNATE #1

1. PROVIDE ON BID FORM, COST FOR BASIS OF DESIGN CHILLER EQUIPMENT

RESPONSIBILITY MATRIX

SCOPE OF WORK	MC	EC	CC	FMCE
DEMOLISH EXISTING CHILLERS AND PIPING	X			
FURNISH AND INSTALL NEW CHILLERS AND PIPING	X			
DEMOLISH EXISTING ELECTRICAL CIRCUITS INCLUDING CONDUCTORS AND CONDUITS		X		
FURNISH NEW ELECTRICAL CIRCUITS INCLUDING CONDUCTORS AND CONDUITS		X		
DISCONNECT AND RECONNECT EXISTING CONTROLS. UPDATE EXISTING FIRMWARE ON RELOCATED AND NEW CHILLER			X	
CONNECT FUTURE CHILLER CONTROLS TO EQUIPMENT			X	
PROGRAMMING, ALARMS AND GRAPHICS INTEGRATION			X	
PROVIDE ALL REQUIRED ENGINEERING SUPPORT FOR SEAMLESS INTEGRATION OF NEW CHILLERS TO EXISTING REMOTE MONITORING SYSTEM	X			

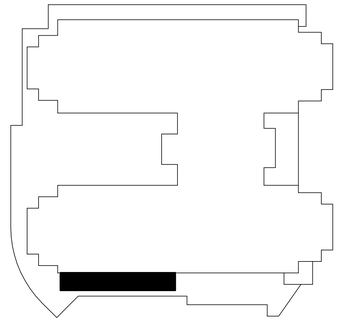
TAGGED NOTES

(##)

- A2 MECHANICAL CONTRACTOR TO PROVIDE EXTENSION TO EXISTING CHILLER MOUNTING RAIL SYSTEM. PLATFORM SHALL BE DELEGATED DESIGN AND INSTALLED BY STEEL ERECTOR. GALVANIZED STEEL TO MATCH EXISTING. EXISTING ROOF SHALL NOT BE DISTURBED. EXTENSION SHALL NOT OCCUPY ENTIRE SPACE BETWEEN EXISTING RAILS AND SCREEN WALL. PLATFORM SHALL BE 30" WIDE AND MATCH WIDTH OF EXISTING RAILS.
- H1 PROVIDE NEW CHILLER. MOUNT ON EXISTING EQUIPMENT RAILS WITH SPRING ISOLATORS PER THE MANUFACTURER'S RECOMMENDATION. MAINTAIN ALL NEW AND EXISTING EQUIPMENT CLEARANCES WHEN LOCATING.
- H2 CONNECT NEW CHILLED WATER PIPING FROM NEW CHILLER TO EXISTING CHILLED WATER BRANCH PIPES FROM DEMOLISHED CHILLER.
- H3 EXISTING SALVAGED CHILLER TO BE RELOCATED TO THIS APPROXIMATE LOCATION. MAINTAIN SIX FEET FROM ADJACENT EXISTING CHILLER.
- H4 EXTEND CHILLED WATER PIPING AND RECONNECT TO RELOCATED CHILLER.
- H5 PROVIDE PLATFORM EXTENSION FOR STANDING ROOM FOR CONTROL PANEL ACCESS.
- H6 PROVIDE NEW 4" HOT TAP OF EXISTING CHILLED WATER MAINS. HOT TAPS SHALL BE UPSTREAM OF SYSTEM ISOLATION VALVES FOR BOTH SUPPLY AND RETURN.
- MD1 REMOVE ENTIRE CHILLER INCLUDING CONTROLS, WIRING, PIPING CONNECTIONS AND ALL ASSOCIATED APPURTENANCES. PREPARE EQUIPMENT RAILING FOR FUTURE EQUIPMENT MOUNTING.
- MD2 DEMOLISH EXISTING 4" BRANCH PIPING BALANCING VALVES, CONTROL VALVES AND ALL RELATED EQUIPMENT FROM CHILLER BACK TO EXISTING VALVE. VALVE TO REMAIN. PREPARE FOR NEW PIPING CONNECTIONS.
- MD3 EXISTING CHILLER TO REMAIN
- MD4 CHILLED WATER PIPING MAINS TO REMAIN.
- MD5 EXISTING CHILLER TO BE SALVAGED AND REINSTALLED IN NEW LOCATION IN NEW WORK PHASE. CONTRACTOR RESPONSIBLE FOR DISCONNECTING AND RECONNECTING CHILLER, AND ENSURING ITS OPERATION AFTER RELOCATION.
- MD6 MANUAL ISOLATION VALVE. VALVE ISOLATES CHILLER PLANT BETWEEN CHILLER GROUPS SERVING DATA CENTER AND IMAGING/KITCHEN/IDF ROOMS. VALVES SHALL REMAIN CLOSED DURING CONSTRUCTION.

GENERAL NOTES

A. ALL UTILITY OUTAGES FOR THIS PROJECT SHALL BE PERFORMED OVERNIGHT OR ON WEEKENDS. NOTIFY OWNER OF ALL SHUTDOWNS 2 WEEKS IN ADVANCE.



KEYPLAN

NORTH

BID DOCUMENTS

STATE OF KENTUCKY — ROBERT S JOHNSON — 27666 — LICENSED PROFESSIONAL ENGINEER

REVISIONS		
NO:	DESCRIPTION:	DATE:
1	ADDENDUM #2	12/2/24

UNIVERSITY OF KENTUCKY
Facilities Management - Medical Center

PAVILION A PROCESS CHILLER REPLACEMENT

SCALE:	BLDG. NAME:	DRAWN BY:	PROJ #
AS NOTED	CHANDLER HOSP - PAV A	RSJ	2671
DATE:	BLDG #	PROJ. MGR.	
10-02-2024	293	MANNING	

SHEET # M2.0

CCK#2671.0-1-25					
Question and Response Log					
Question Deadline					
#	Date	From	Question	Responder	Response
1	11/18/2024	HMC	What sizes are the existing main & branch lines?	CMTA	Refer to revised drawings included in addendum
2	11/18/2024	HMC	Will Chillers be removed and replaced all at once or separate days/lifts?	CMTA	Refer to phasing plan on drawings included in addednum
3	11/18/2024	HMC	Will we need to supply additional glycol for refill?	CMTA	Yes, the contractor is responsibel for providing glycol for any refilling required.
4	11/18/2024	HMC	Can all work be performed during regular working hours or will we need include work for after hours?	UK FPM	Regular working hours
5	11/18/2024	HMC	Aside from the *Form of Proposal* & the *Bid Bond* , will any other documents need to be included on the day of the bid?	Purchasing	Any Signed Addemdums need included with proposal.
6	11/19/2024	Finney	What size are the chilled water mains shown on Drawing M2.0?	CMTA	Refer to revised drawings included in addendum
7	11/19/2024	Finney	Can the chilled water mains shown on drawing m2.0 be shut off, isolated or drained to facilitate tie-ins without effecting normal operations?	CMTA	Refer to revised drawings included in addendum
8	11/19/2024	Finney	What size are the branch lines going to the new and relocated chillers?	CMTA	Refer to revised drawings included in addendum
9	11/19/2024	Finney	What is the budget for this project?	Purchasing	$650,000
10	11/19/2024	Finney	What are the crane insurance requirements for the project?	UK FPM	See section 41.2.1 of the Special Conditions.
11	11/19/2024	Finney	Who is responsible for recovering/refilling glycol for chilled water?	CMTA	the contractor
12	11/19/2024	Finney	Who has the bond for the roof?	UK FPM	No roof work necessary. If any damage is done, contact UK FPM immediately.
13	11/20/2024	Lagco	Print M 2.00. Please provide the chilled water pipe sizes for the existing mains and the new piping serving the chillers.	CMTA	Refer to revised drawings included in addendum
14	11/20/2024	Lagco	Special Conditions Article 21 mentions a Johnson Controls Fire Alarm allowance. Can you please provide the allowance amount?	UK FPM	Allowance listed as "N/A". No fire alarm allowance will be needed.
15	11/20/2024	Lagco	Can you please provide the type of the refrigerant that is used in the existing chillers that are demolished?	CMTA	R410A
16	11/21/2024	TJ Dyer	1. It is our understanding the existing Chilled Water Supply and Return pipes contain a glycol solution.		
			a. The schedule for the chillers states “Fluid Type” is “WATER”.		
			i. Please confirm if these units are to be glycol rated or not.	CMTA	Refer to revised drawings included in addendum
			i. Please provide a specification confirming the type and % of glycol required for this system.	CMTA	Refer to revised drawings included in addendum
17	11/21/2024	TJ Dyer	2. It is our understanding the existing mains cannot be shut down as they are “mission critical”.	CMTA	Refer to phasing plan on drawings included in addednum
			a. The demo drawing states “DEMOLISH PIPING CONNECTIONS FROM CHILLER BACK TO MAIN PIPING. PATCH AND REPAIR INSULATION TO MATCH EXISTING, PREPARE FOR NEW PIPING CONNECTIONS.”	CMTA	Refer to revised drawings included in addendum
			b. The new install drawings state “CONNECT NEW CHILLED WATER PIPING FROM NEW CHILLER TO EXISTING CHILLED WATER MAINS.” This, along with the drawing diagrams imply we are to make new connections to the existing mains for each of the chillers (exception would be the relocated chiller).	CMTA	Refer to revised drawings included in addendum
			c. Since the existing mains cannot be isolated, is the intention to blind flange the existing taps at the isolation valves and do hot taps for each of the new tap locations? Please confirm the intent.	CMTA	Refer to revised drawings included in addendum
18	11/21/2024	TJ Dyer	3. It is our understanding this work will need to be phased as not all chillers can be taken offline at one time.	CMTA	Refer to phasing plan on drawings included in addednum
			a. How many chillers can be taken offline at one time?	CMTA	Refer to phaing plan on drawings included in addendum

19	11/21/2024	TJ Dyer	4. No line sizes are listed on the drawings.	CMTA	Refer to revised drawings included in addendum
			a. Please provide line sizes for existing mains and chiller connections.	CMTA	Refer to revised drawings included in addendum
20	11/21/2024	TJ Dyer	5. What is the intent for the chillers being removed?	CMTA	Chillers are to be demolished and properly disposed.
			a. Are these going to be salvaged by UK, or do we need to remove refrigerant and dispose of these units.	CMTA	Demolished chillers are to be properly desposed of by the contractor
21	11/21/2024	TJ Dyer	6. Are there any heat tracing requirements for this work?	CMTA	no heat trace requirements
22	11/21/2024	TJ Dyer	7. Specification Section 20 13 00 PIPE, PIPE FITTINGS AND PIPE SUPPORT states:		
			i. Hydronic Piping 2” and smaller to be black iron or soldered copper		
			i. 2-1/2” and larger is to be welded sched 40 black iron.		
			i. Option to utilize grooved on piping 2” and larger		
			b. These do not meet the standard UK specifications of 5” and down is to be copper and 6” and up is to be STD weight Black Iron piping.		
			c. Please confirm this specification is correct and to be followed for this work.	CMTA	Branch piping shall be schedule 40 carbon steel with welded fittings
	12/2/2024	HMC	**Please detail where the electrical room is in relation to the chillers as the drawings do not make this clear.**	CMTA	Refer to drawing E2.0, view #3 Basement Power Plan. Room number A0B200 is where all electrical panels are located.