ADDENDUM NO. 2

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

Modify HVAC System
Missouri Supreme Court Building
Jefferson City, MO
PROJECT NO.: O2010-01

Bid Opening Date: 1:30 PM, April 20, 2023 (UNCHANGED)

Bidders are hereby informed that the construction Plans and/or Specifications are modified as follows:

SPECIFICATION CHANGES:

(none)

DRAWING CHANGES:

1. SHEET G002 – See revised Sheet G002 (attached)

   A. ADD General Notes 5-9 as follows:

      5. The facility will move FF&E as required to facilitate construction activity. Contractor shall provide written notice at least 2 weeks in advance of required FF&E relocation.

      6. The existing steel framework for the third level ceiling shall not be used to support equipment or other materials within the attic on a permanent basis. The Contractor shall be responsible for determining the adequacy of the existing third level ceiling assembly for supporting any temporary loads induced on this system during the construction process.

      7. At the time of project bidding, a separate project related to the building fire alarm system is in progress (O2008-01, Upgrade Fire Alarm System). The Contractor for this project shall coordinate with the contractors associated with the fire alarm project as necessary to facilitate the successful completion of both projects. A partial list of contact information for various project team members associated with the fire alarm project is provided to help facilitate coordination.

         a. General Contractor: Kaiser Electric, Tim Otto, 573-556-6188
         b. Fire Alarm System Vendor: Tech Electronics, John Pile, 314-730-4224
         c. Painting & Plaster: RetroPros, Inc., Brad Bruce, 913-562-7707

      8. A limited amount of space exists for construction staging in the immediate vicinity of the building. See Detail 2 on this sheet for available area. The use of the construction staging area shall be coordinated with the facility and may not be available for the entire construction period.

      9. Roof protection shall be installed prior to any work on the roof and shall remain in place throughout the entire construction period. Roof protection shall be provided in all areas of construction activity on the roof including pedestrian

traffic. At a minimum, roof protection shall consist of 2" closed cell rigid foam board placed directly on the existing roof and covered with ½" thick weather resistant plywood. Maintain positive roof drainage with the arrangement of the roof protection. Any damage to the existing roof as a result of this project shall be repaired by a licensed roofer in accordance with the roof warranty at no cost to the Owner.

B. ADD Detail 2 showing the available construction staging area.

2. SHEET S201

A. ADD Note 2 as follows:

2. Splice of beams will be considered upon request. If splices are requested, the connection will be designed by Klingner structural engineer. The new connection may have bolts that stick up through the beam top flange, in which case shim plates may need to be added on top of the beam to prevent AHU curb from bearing on these bolts.

3. Sheet M501 – See revised Sheet M501 (attached)

A. CHANGE Detail 5: Control valve shall be two-way. Move circulation pump to bypass. Add temperature sensors on chilled water supply and return piping to match Fresh Air Unit Controls Diagram.

B. CHANGE Detail 6: Heating control valve shall be two-way.

4. Sheet M502 – See revised Sheet M502 (attached)

A. CHANGE Detail 1: Heating control valves shall be two-way.

5. Sheet M801 – See revised Sheet M801 (attached)

A. CHANGE Detail 2: Revise control valve and cooling coil circulation pump (CCP-1). Revise Run Around Coil control valve. Revise sequence of operations for the cooling coil circulation pump (CCP-1) and run around coil valve 1 (RWV-1).

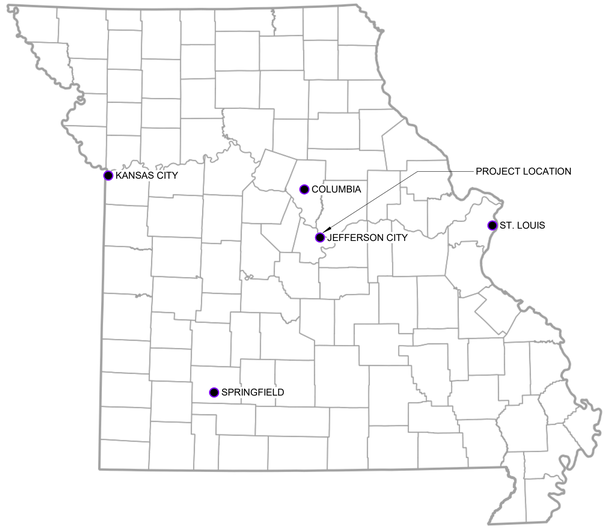
GENERAL COMMENTS:

(none)

ATTACHMENTS:

1. Sheet G002 (revised)
2. Sheet M501 (revised)
3. Sheet M502 (revised)
4. Sheet M801 (revised)

END ADDENDUM NO. 2



1 PROJECT LOCATION MAP
NTS

ABBREVIATIONS

A/E	ARCHITECT/ENGINEER	MAX	MAXIMUM
ACP	ACOUSTIC CEILING PANEL	MDF	MEDIUM DENSITY FIBERBOARD
ADA	AMERICANS WITH DISABILITIES ACT	MEP	MECHANICAL ELECTRICAL PLUMBING
AFF	ABOVE FINISHED FLOOR	MFGR	MANUFACTURER
AHJ	AUTHORITY HAVING JURISDICTION	MIN	MINIMUM
ALT	ALTERNATE	MINS	MINUTES
ALUM	ALUMINUM	MIL	MILLIMETERS
ANOD	ANODIZED	MO	MASONRY OPENING
APPROX	APPROXIMATE(LY)		
ARCH	ARCHITECT/ARCHITECTURAL	NIC	NOT IN CONTRACT
AVG	AVERAGE	NO	NUMBER
		NOM	NOMINAL
BLDG	BUILDING	NTS	NOT TO SCALE
BO	BOTTOM OF		
BOD	BASIS OF DESIGN	OC	ON CENTER
BOF	BOTTOM OF FOOTING	OCC	OCCUPANCY
BTW	BETWEEN	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
		OH	OPPOSITE HAND
CG	CORNER GUARD	OPNG	OPENING
CJ	CONSTRUCTION JOINT/CONTROL JOINT	OPP	OPPOSITE
CL	CENTERLINE	OVHD	OVERHEAD
CLG	CEILING		
CLR	CLEAR	PCC	PORTLAND CEMENT CONCRETE
CMU	CONCRETE MASONRY UNIT	PLAM	PLASTIC LAMINATE
COL	COLUMN(S)	PLY	PLYWOOD
CONC	CONCRETE	PNT	PAINT
CONFIG	CONFIGURATION	POLYISO	POLYISOCYANURATE
CONST	CONSTRUCTION	PREF	PREFINISHED
CONT	CONTINUOUS	PREFAB	PREFABRICATED
CONTR	CONTRACTOR	PT	PRESSURE TREATED
COORD	COORDINATE		
CORR	CORRIDOR	QTY	QUANTITY
CPT	CARPET/CARPET TILE		
CT	CERAMIC TILE	RAD	RADIUS
CTR	CENTER(S)	RCP	REFLECTED CEILING PLAN
		RD	ROOF DRAIN
DF	DRINKING FOUNTAIN	REINF	REINFORCE(D), REINFORCING
DIA	DIAMETER	REQ	REQUIRED
DIM	DIMENSION	RES	RESILIENT WALL BASE
DR	DOOR	REV	REVISION(S), REVISE(D)
DRWR	DRAWER	RM	ROOM
DS	DOWNSPOUT	RO	ROUGH OPENING
DTL	DETAIL	RTU	ROOFTOP UNIT
DWG	DRAWING		
		SAT	SUSPENDED ACOUSTICAL TILE
EA	EACH	SCH	SCHEDULE
EJ	EXPANSION JOINT	SCWD	SOLID CORE WOOD DOOR
EL	ELEVATION	SF	SQUARE FEET
EQ	EQUAL	SGL	SINGLE
ESA	EXPOSED STRUCTURE ABOVE	SHGC	SOLAR HEAT GAIN COEFFICIENT
EST	ESTIMATE(D)	SHT	SHEET
EXIST	EXISTING	SIM	SIMILAR
EXPAN	EXPANSION	SEAL	SEALER, SEALANT
EXT	EXTERIOR	SPEC	SPECIFICATION(S)
		SS	SOLID SURFACE
FBO	FURNISHED BY OWNER	SSTL	STAINLESS STEEL
FD	FLOOR DRAIN	STD	STANDARD
FDC	FIRE DEPARTMENT CONNECTION	STL	STEEL
FDN	FOUNDATION	STOR	STORAGE
FE	FIRE EXTINGUISHER	STRUCT	STRUCTURE(AL)
FEC	FIRE EXTINGUISHER CABINET		
FF	FINISHED FLOOR	T&G	TONGUE & GROOVE
FFE	FURNITURE FIXTURES & EQUIPMENT	TBD	TO BE DETERMINED
FIN	FINISHED	TBR	TO BE REMOVED
FLR	FLOOR(ING)	TERM	TERMINATION
FRP	FIBERGLASS REINFORCED PLASTIC	TG	TEMPERED GLASS
FTG	FOOTING	THK	THICK
		THRU	THROUGH
GA	GAUGE	TIG	TEMPERED INSULATING GLASS
GALV	GALVANIZED	TLT	TOILET ROOM
GC	GENERAL CONTRACTOR	TO	TOP OF
GEN	GENERAL	TPO	THERMOPLASTIC POLYOLEFIN
GWB	GYPSUM WALL BOARD	TYP	TYPICAL
GYP	GYPSUM		
		UNO	UNLESS NOTED OTHERWISE
HM	HOLLOW METAL		
HORIZ	HORIZONTAL	VCT	VINYL COMPOSITION TILE
HR	HOUR	VERT	VERTICAL
HVAC	HEATING VENTILATION & AIR CONDITIONING	VEST	VESTIBULE
		VIF	VERIFY IN FIELD
IG	INSULATING GLAZING		
		WC	WATER CLOSET
INT	INTERIOR	WD	WOOD
JAN	JANITOR	WG	WIRE GLASS
JNT	JOINT	WRB	WEATHER RESISTIVE BARRIER
JST	JOIST	WWF	WELDED WIRE FABRIC
LF	LINEAR FEET		

NOTATION AND SYMBOL DESIGNATIONS

0 View Name
1/8" = 1'-0"
VIEW INDICATOR

1 / A101
DETAIL INDICATOR

1 / A101
SECTION INDICATOR

1 / A101
EXTERIOR ELEVATION INDICATOR

A101 1
INTERIOR ELEVATION INDICATOR

℄
CENTER LINE

ROOM NAME
A101
150 SF
ROOM INDICATOR

101
DOOR INDICATOR

1t
WALL TYPE INDICATOR

1t
WINDOW TYPE INDICATOR

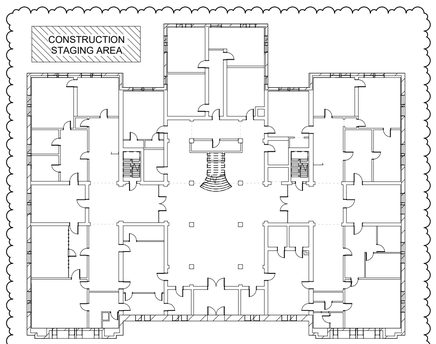
?
NOTE INDICATOR

0
BUILDING GRID INDICATOR

GENERAL NOTES:

1. THE CONTRACTOR(S) SHALL FIELD VERIFY EXISTING DIMENSIONS AND CONDITIONS AND TELL THE ENGINEER OF ANY DISCREPANCIES AND INTERFERENCES ENCOUNTERED PRIOR TO STARTING WORK AFFECTED THEREBY.
2. THE CONTRACTOR(S) SHALL COMPLY WITH THE LATEST EDITION OF APPLICABLE CODES AND STANDARDS INCLUDING BUT NOT LIMITED TO:
   - THE AMERICANS WITH DISABILITIES ACT (ADAAG)
   - INTERNATIONAL BUILDING CODE (IBC)
   - NATIONAL ELECTRIC CODE (NEC)
   - INTERNATIONAL MECHANICAL CODE (IMC)
   - INTERNATIONAL PLUMBING CODE (IPC)
   - LIFE SAFETY CODE (NFPA 101)
   - ASHRAE STANDARD 90.1
   - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
   - AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
   - AMERICAN CONCRETE INSTITUTE (ACI)
   - SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION (SMACNA)
3. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR OSHA COMPLIANCE AND JOB SITE SAFETY.
4. CONTRACTOR SHALL PROTECT EXISTING FINISHES AND OTHER BUILDING COMPONENTS FROM DAMAGE. ANY SURFACES AND/OR COMPONENTS DAMAGED DURING THE CONSTRUCTION PROJECTS SHALL BE RETURNED TO PRE-PROJECT CONDITIONS AND/OR MADE TO MATCH ADJACENT MATERIALS.

A2
5. THE FACILITY WILL MOVE FF&E AS REQUIRED TO FACILITATE CONSTRUCTION ACTIVITY. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE AT LEAST 2 WEEKS IN ADVANCE OF REQUIRED FF&E RELOCATION.
6. THE EXISTING STEEL FRAMEWORK FOR THE THIRD LEVEL CEILING SHALL NOT BE USED TO SUPPORT EQUIPMENT OR OTHER MATERIALS WITHIN THE ATTIC ON A PERMANENT BASIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ADEQUACY OF THE EXISTING THIRD LEVEL CEILING ASSEMBLY FOR SUPPORTING ANY TEMPORARY LOADS INDUCED ON THIS SYTSEM DURING THE CONTRUCTION PROCESS.
7. AT THE TIME OF PROJECT BIDDING, A SPEARATE PROJECT RELATED TO THE BUIDLING FIRE ALARM SYSTEM IS IN PROGRESS (O2008-01, UPGRADE FIRE ALARM SYSTEM). THE CONTRACTOR FOR THIS PROJECT SHALL COORDINATE WITH THE CONTRACTORS ASSOCIATED WITH THE FIRE ALARM PROJECT AS NECESSARY TO FACILITATE THE SUCCESSFUL COMPLETION OF BOTH PROJECTS. A PARTIAL LIST OF CONTACT INFORMATION FOR VARIOUS PROJECT TEAM MEMBERS ASSOCIATED WITH THE FIRE ALARM PROJECT IS PROVIDED TO HELP FACILITATE COORDINATION.
   A. GENERAL CONTRACTOR: KAISER ELECTRIC, TIM OTTO, 573-556-6188
   B. FIRE ALARM SYSTEM VENDOR: TECH ELECTRONICS, JOHN PILE, 314-730-4224
   C. PAINTING & PLASTER: RETROPROS, INC. BRAD BRUCE, 913-562-7707
8. A LIMITED AMOUNT OF SPACE EXISTS FOR CONSTRUCTION STAGING IN THE IMMEDIATE VICINITY OF THE BUILDING. SEE DETAIL 2 ON THIS SHEET FOR AVAILABLE AREA. THE USE OF THE CONSTRUCTION STAGING AREA SHALL BE COORDINATED WITH THE FACILIATY AND MAY NOT BE AVAILABLE FOR THE ENTIRE CONSTRUCTION PERIOD.
9. ROOF PROTECTION SHALL BE INSTALLED PRIOR TO ANY WORK ON THE ROOF AND SHALL REMAIN IN PLACE THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. ROOF PROTECTION SHALL BE PROVIDED IN ALL AREAS OF CONSTRUCTION ACTIVITY ON THE ROOF INCLUDING PEDESTRIAN TRAFFIC. AT A MINIMUM, ROOF PROTECTION SHALL CONSIST OF 2" CLOSED CELL RIGID FOAM BOARD PLACED DIRECTLY ON THE EXISTING ROOF AND COVERED WITH 1/2" THICK WEATER RESISTANT PLYWOOD. MAINTAIN POSITIVE ROOF DRAINAGE WITH THE ARRANGEMENT OF THE ROOF PROTECTION. ANY DAMAGE TO THE EXISTING ROOF AS A RESULT OF THIS PROEJCT SHALL BE REPAIRED BY A LICENSED ROOFER IN ACCORDANCE WITH THE ROOF WARRANTY AT NO COST TO THE OWNER.



2 CONSTRUCTION STAGING PLAN
1" = 30'-0"

SHEET INDEX

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
MICHAEL J. FRIES
NUMBER
2017015806
12-2-2022
REGISTERED
EXP. 12/31/2023

MICHAEL J. FRIES - ARCHITECT
MO #2017015806

KLINGNER & ASSOCIATES, P.C. • Engineers • Architects • Surveyors
Columbia, Missouri
907 East Ash Street
573.355.5988
www.klingner.com
Quincy, IL Galesburg, IL
Burlington, IA Pella, IA Hannibal, MO
KLINGNER & ASSOCIATES, P.C. - ARCHITECTURE
MISSOURI STATE CERTIFICATE OF AUTHORITY #2001010108

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MODIFY HVAC SYSTEM

MISSOURI SUPREME COURT BUILDING

207 W. HIGH STREET
JEFFERSON CITY, MO 65101

PROJECT # O2010-01
SITE # 1001
ASSET # 3101001056

REVISION: ADDENDUM #2
DATE: 4/13/2023
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE:12/02/2022

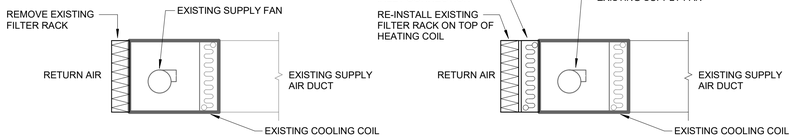
CAD DWG FILE: G002
DRAWING BY: SRWB
CHECKED BY: JJN
DESIGNED BY: ALD

SHEET TITLE:

GENERAL NOTES & SHEET INDEX

SHEET NUMBER:

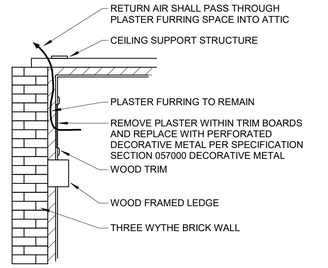
G002



SCHEMATIC AHU DEMOLITION DETAIL

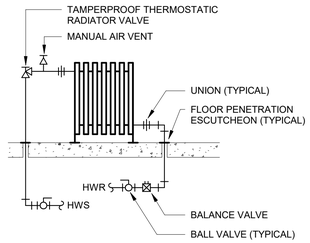
SCHEMATIC AHU NEW WORK DETAIL

1 SCHEMATIC BLOWER COIL (BC-1 & 4 & AHU-L & K) HEATING COIL INSTALLATION
NTS



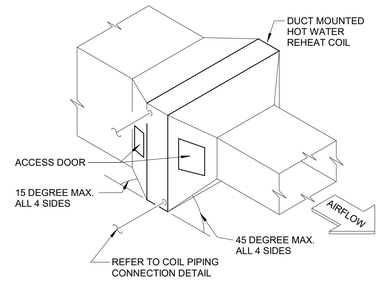
REFER TO ARCHITECTURAL PLANS FOR ELEVATION VIEW

2 LIBRARY RETURN AIR GRILLE INSTALLATION DETAIL
NTS

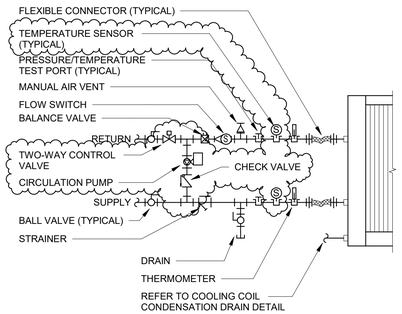


NOTES:
1. ALL PIPING EXPOSED IN THE VESTIBULE SHALL BE BLACK IRON AND PAINTED TO MATCH RADIATOR.

3 RADIATOR CONNECTION DETAIL (HYDRONIC)
NTS

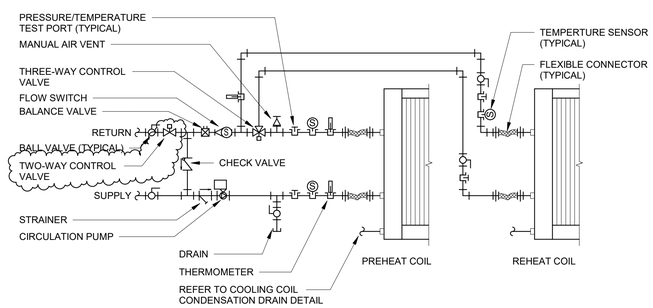


4 HOT WATER COIL-DUCT MOUNTED
NTS



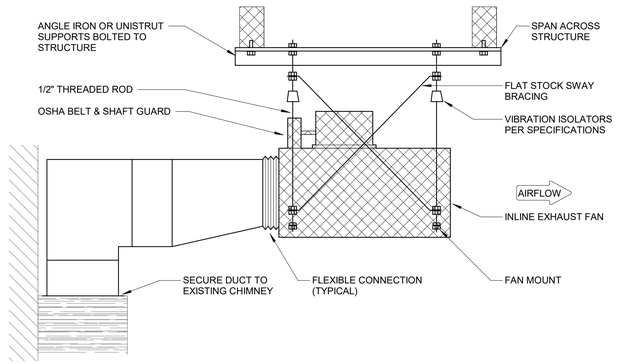
NOTES:
1. REFER TO SPECIFCATIONS FOR PIPE MATERIAL AND VALVE AND ACCESSORIES REQUIREMENTS.

5 FAU-1 COOLING COIL COIL CONNECTION DETAIL
NTS

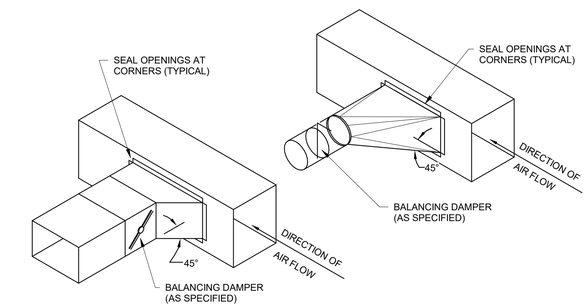


NOTES:
1. REFER TO SPECIFCATIONS FOR PIPE MATERIAL AND VALVE AND ACCESSORIES REQUIREMENTS.

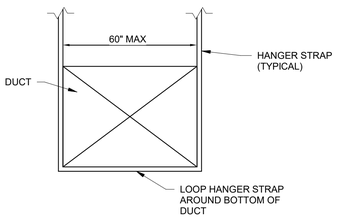
6 FRESH AIR UNIT HEATING COIL CONNECTION DETAIL
NTS



7 RETURN FAN (INLINE_SUSPENDED)
NTS

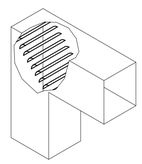


8 BRANCH DUCT CONNECTION DETAIL (TYPICAL)
NTS



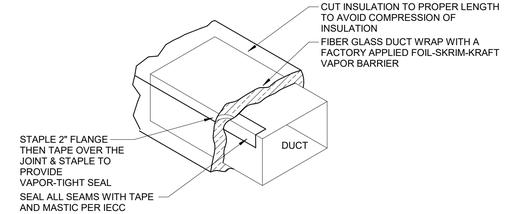
NOTE:
CONTRACTOR SHALL VERIFY ALL LOAD LIMITS ON HANGER AND WEIGHTS OF DUCT TO ASSURE ALLOWABLE LOAD LIMITS ARE NOT EXCEEDED.

9 STRAP HANGER DETAIL
NTS

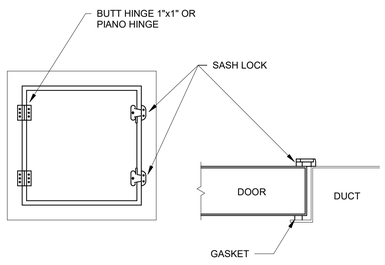


NOTE:
1. ALL DUCT 90° ELBOWS SHALL BE RADIUS ELBOWS (1.5 * DEPTH) UNLESS CLEARANCES REQUIRE A SQUARE RADIUS.
2. ALL SQUARE RADIUS ELBOWS SHALL INCLUDE TURNING VANES PER SPECIFICATIONS.

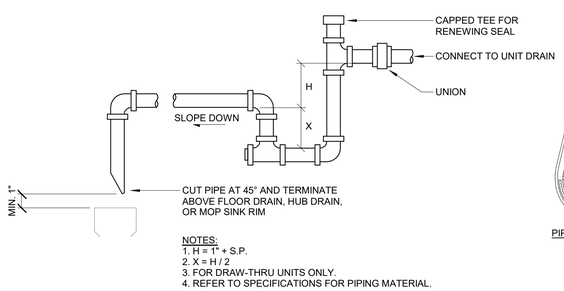
10 TURNING VANE DETAIL
NTS



11 DUCT WRAP DETAIL
NTS

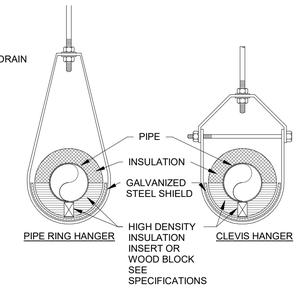


12 DUCT ACCESS DOOR DETAIL
NTS



NOTES:
1. H = 1" + S.P.
2. X = H / 2
3. FOR DRAW-THRU UNITS ONLY.
4. REFER TO SPECIFICATIONS FOR PIPING MATERIAL.

13 COOLING COIL CONDENSATION DRAIN DETAIL
NTS



14 INSULATED PIPE AT HANGER DETAIL
NTS

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

ANTHONY LOUIS DIEWOLD NUMBER PE-2016000028 3-02-2022 STATE OF MISSOURI PROFESSIONAL ENGINEER

ANTHONY L. DIEWOLD - ENGINEER
PE-2016000028

KLINGNER & ASSOCIATES, P.C. Engineers • Architects • Surveyors
Columbia, Missouri 907 East Ash Street 573.355.5988
www.klingner.com Quincy, IL Galesburg, IL Burlington, IA Peoria, IA Hannibal, MO
KLINGNER & ASSOCIATES, P.C. - ENGINEERING
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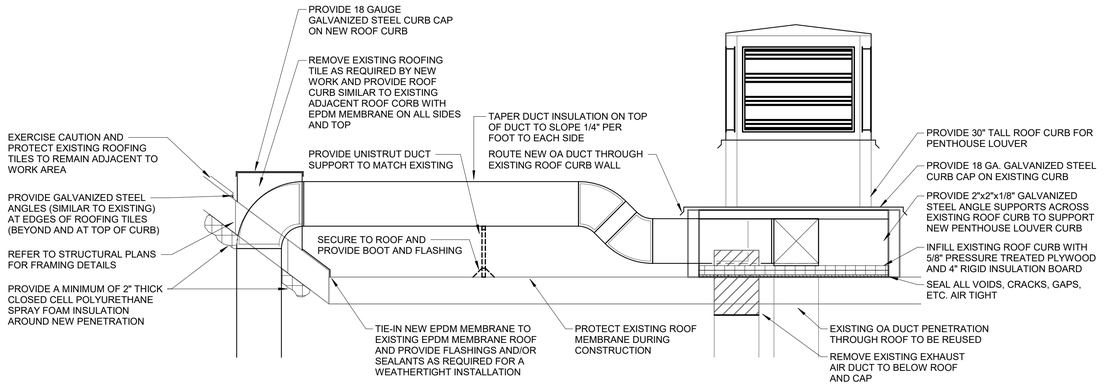
REVISION:
DATE:
ISSUE DATE:09/28/2022

CAD DWG FILE: M501
DRAWING BY: ALD
CHECKED BY: ALD
DESIGNED BY: ALD

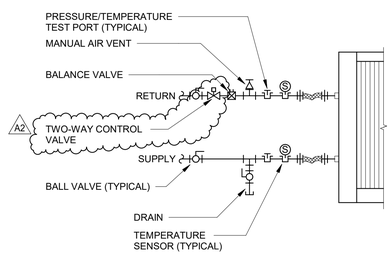
SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M501

28 OF 40 SHEETS
DECEMBER 2, 2022

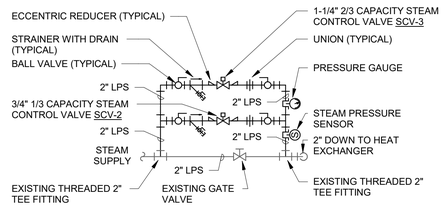


3 PENTHOUSE LOUVER DETAIL
NTS



NOTES:
1. REFER TO SPECIFCATIONS FOR PIPE MATERIAL AND VALVE AND ACCESSORIES REQUIREMENTS.

1 HEATING COIL CONNECTION DETAIL
NTS



NOTES:
1. REFER TO SPECIFCATIONS FOR PIPE MATERIAL AND VALVE AND ACCESSORIES REQUIREMENTS.
2. EXISTING STEAM TO HOT WATER HEAT EXCHANGER MAXIMUM CAPACITY IS 1,550 MBH AT 155 GPM AND 20°F DELTA T WITH 15 PSIG STEAM SUPPLY PRESSURE.

2 HEAT EXCHANGER STEAM CONTROL VALVE DETAIL
NTS

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
ANTHONY LOUIS DIEWOLD
NUMBER PE-2016000028
2-02-2022
PROFESSIONAL ENGINEER

ANTHONY L. DIEWOLD - ENGINEER
PE-2016000028

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
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207 W. HIGH STREET
JEFFERSON CITY, MO 65101

PROJECT # O2010-01
SITE # 1001
ASSET # 3101001056

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SHEET TITLE:
MECHANICAL DETAILS

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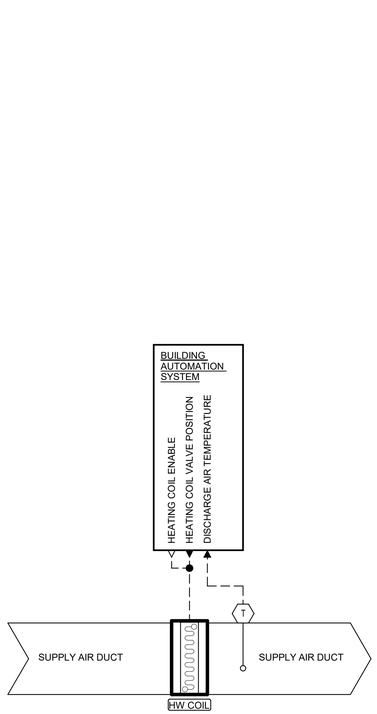
M502

29 OF 40 SHEETS
DECEMBER 2, 2022



DUCT MOUNTED HYDRONIC HEATING COIL DDC CONTROL SUMMARY						
CONTROL POINT	LOCAL DISPLAY	BAS DISPLAY	ADJUSTABLE	TREND	ALARM	COMMENTS
HEATING COIL ENABLE		●				
HEATING COIL VALVE POSITION		●				
ENTERING AIR TEMPERATURE		●				
DISCHARGE AIR TEMPERATURE		●	●		●	

DUCT MOUNTED HYDRONIC HEATING COIL SEQUENCE OF OPERATION

A. CENTRAL BAS SYSTEM CONTROL

1. THE BAS SHALL ENABLE AND MODULATE THE HEATING COIL HYDRONIC CONTROL VALVES WHEN HOT WATER HEAT IS AVAILABLE.

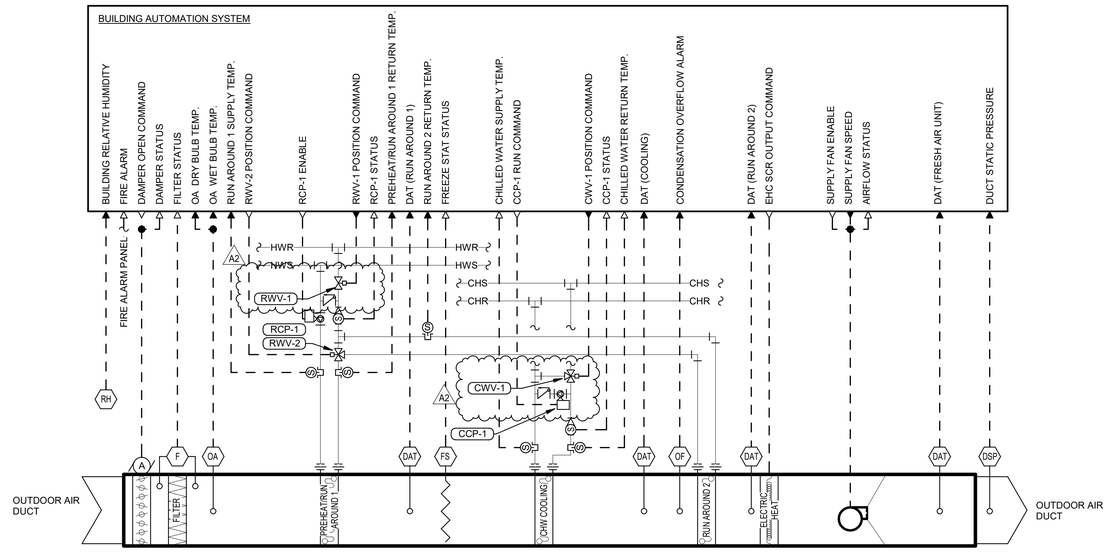
2. SAFETY SHUTDOWNS/ALARM GENERATION:
   a. BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF ALL OF THE COMPONENTS COMPRISING THE HVAC SYSTEM.

   b. AN AHU GENERAL ALARM SHALL BE GENERATED IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN +/-5°F (ADJUSTABLE BETWEEN 2°F AND 10°F) FROM SETPOINT FOR MORE THAN FIVE MINUTES (ADJUSTABLE BETWEEN 1 AND 20 MINUTES)

3. DISCHARGE AIR TEMPERATURE SETPOINTS
   a. THE DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE 85°F (ADJUSTABLE +/-10°F).

4. THE MODULATING 3-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE DURING HEATING MODE.

1 DUCT MOUNTED HYDRONIC HEATING COIL CONTROLS DIAGRAM
NTS



FRESH AIR UNIT DDC CONTROL SUMMARY																
#	CONTROL POINT	LOCAL DISPLAY	BAS DISPLAY	TREND	ALARM			REMARKS	#	CONTROL POINT	LOCAL DISPLAY	BAS DISPLAY	TREND	ALARM			REMARKS
1	FIRE ALARM STATUS	●			●			1	18	COOLING COIL OUTPUT COMMAND	●		●				
2	DAMPER OPEN COMMAND	●							19	COOLING COIL STATUS	●			●			
3	DAMPER STATUS	●			●				20	COOLING COIL FREEZE STATUS	●			●			
4	FILTER STATUS	●			●				21	DAT (COOLING)	●		●				
5	OUTDOOR AIR DRY BULB TEMP.	●		●					22	CONDENSATION DRAIN OVERFLOW	●			●			
6	OUTDOOR AIR WET BULB TEMP.	●		●					23	RUN AROUND 2 FREEZE STATUS	●			●			
7	PREHEAT/RUN AROUND 1 SUPPLY TEMP.	●		●					24	DAT (RUN AROUND 2)	●		●				
8	RUN AROUND VALVE 2 POSITION	●		●					25	ELECTRIC HEAT OUTPUT COMMAND	●		●				
9	RUN AROUND CIRC. PUMP ENABLE	●		●					26	ELECTRIC HEAT STAGE 1 STATUS	●		●	●			
10	PREHEAT/RUN AROUND VALVE 1 POSITION	●							27	ELECTRIC HEAT STAGE 2 STATUS	●		●	●			
11	RUN AROUND FLOW STATUS	●			●				28	ELECTRIC HEAT STAGE 3 STATUS	●		●	●			
12	PREHEAT/RUN AROUND 1 RETURN TEMP.	●		●					29	ELECTRIC HEAT STAGE 4 STATUS	●		●	●			
13	DAT (RUN AROUND 1)	●		●					30	SUPPLY FAN ENABLE	●						
14	AIR FREEZE STATUS	●			●				31	SUPPLY FAN SPEED	●		●				
15	CHILLED WATER SUPPLY TEMP.	●		●					32	FAN STATUS	●			●			
16	CHILLED WATER RETURN TEMP.	●		●					33	UNIT DISCHARGE AIR TEMPERATURE	●		●				
17	COOLING COIL PUMP ENABLE	●		●					34	DUCT STATIC PRESSURE	●		●				2

1. COORDINATE WITH FIRE ALARM CONTRACTOR.
2. SETPOINT TO BE DETERMINED BY TAB CONTRACTOR.

FRESH AIR UNIT SEQUENCE OF OPERATION

1. SAFETY ALARMS & WARNINGS GENERATION:

A. DURING A FIRE ALARM ACTIVE SIGNAL FROM THE FIRE ALARM CONTROL PANEL THE UNIT SHALL BE DISABLED (OUTSIDE AIR DAMPER SHALL CLOSE, VALVES RWV-1 AND RWV-2 TO HEATING POSITION, CWV-1 TO CIRCULATING POSITION, AND SUPPLY FAN SHALL BE DEACTIVATED). WHEN THE FIRE ALARM SYSTEM RETURNS TO NORMAL THE UNIT SHALL RETURN TO OPERATION AUTOMATICALLY ACCORDING TO THE FOLLOWING SEQUENCE OF OPERATION.

B. UNDER ANY OF THE FAULT CONDITIONS LISTED BELOW THE FOLLOWING SHALL OCCUR:
   1. THE FAU SHALL BE DISABLED (OUTSIDE AIR DAMPER SHALL CLOSE, VALVE RWV-1 SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 50°F (ADJ. 45°F-55°F), VALVE RWV-2 SHALL CLOSE TO PREVENT FLOW TO RUNAROUND COIL 2, VALVE CWV-1 SHALL CLOSE TO PREVENT CHILLED WATER FLOW TO THE COOLING COIL, AND THE SUPPLY FAN SHALL BE DEACTIVATED).
   2. THE ALARM SHALL BE SENT TO THE OPERATOR.
   3. A MANUAL RESET SHALL BE REQUIRED TO CLEAR THE ALARM AND RETURN THE UNIT TO OPERATION.

C. FAULT CONDITIONS:
   1. DAMPER ALARM: IF A PROOF OF DAMPER OPEN IS NOT RECEIVED WITHIN ONE (1) MINUTE OF THE COMMAND TO OPEN THE OUTDOOR AIR INTAKE DAMPER.
   2. AIRFLOW ALARM: IF A PROOF OF FLOW IS NOT RECEIVED WITHIN FIVE (5) MINUTES OF SUPPLY FAN ACTIVATION.
   3. FREEZE ALARMS:
      A. IF THE FREEZE STAT OBSERVES AN AIR TEMPERATURE OF 40°F OR LESS (ADJUSTABLE BETWEEN 32°F AND 45°F).
      B. IF THE RETURN WATER TEMPERATURE FROM THE PREHEAT/RUN AROUND 1 COIL, CHW COOLING COIL, OR RUN AROUND COIL 2 FALLS BELOW 38°F (ADJUSTABLE BETWEEN 35°F AND 40°F).
   4. CONDENSATION DRAIN OVERFLOW ALARM: IF THE THE OVERFLOW SENSOR SENSES WATER AN ALARM SHALL BE SENT TO THE OPERATOR.

D. UNDER ANY OF THE WARNING CONDITIONS LISTED BELOW THE FOLLOWING SHALL OCCUR:
   1. A WARNING SHALL BE SENT TO THE OPERATOR ONCE EVERY 24 HOURS UNTIL THE CONDITION HAS BEEN CLEARED.
   2. ALL OTHER FRESH AIR UNIT OPERATIONS MAY CONTINUE TO OPERATE.

E. WARNING CONDITIONS:
   1. DIRTY FILTER: IF THE DIFFERENTIAL PRESSURE ACROSS THE FILTER EXCEEDS 0.5 IN.W.C. (ADJ. 0.5 IN.W.C.-1.0 IN.W.C.) GREATER THAN CLEAN FILTER SETPOINT (DETERMINED BY BALANCING CONTRACTOR).
   2. COOLING WARNING: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN +/-5°F (ADJ. 2°F-10° F) FROM SETPOINT FOR MORE THAN FIVE (5) MINUTES (ADJ. 1-20 MINUTES).
   3. HEATING WARNING: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN +/-5°F (ADJ 2°F-10°F).
   4. HEATING CIRCULATION PUMP WARNING: IF PROOF OF FLOW (FLOW SWITCH) IS NOT RECEIVED WITHIN ONE (1) MINUTE OF THE COMMAND TO RUN.

2. OCCUPANCY MODE:
   A. OCCUPANCY MODE SHALL BE DETERMINED BY THE OWNER'S BUILDING OPERATING HOURS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER.

3. OUTSIDE AIR DAMPER POSITION:
   A. THE OUTSIDE AIR DAMPER SHALL BE OPEN CONTINUOUSLY DURING OCCUPIED MODE UNLESS AN ALARM IS ACTIVE.

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4. RUN AROUND COIL CIRCULATION PUMP (RCP-1).
   A. THE RUN AROUND COIL CIRCULATION PUMP (RCP-1) SHALL OPERATE CONTINUOUSLY AT ALL TIMES.

5. COOLING COIL CIRCULATION PUMP (CCP-1).
   A. THE COOLING COIL CIRCULATION PUMP (CCP-1) SHALL RUN CONTINUOUSLY WHEN THE CHILLED WATER RETURN TEMPERATURE IS BELOW 50°F (ADJ. 45°-50°F).

6. SUPPLY FAN:
   A. IF THE OUTSIDE AIR DAMPER POSITION IS CONFIRMED OPEN, THE SUPPLY FAN SHALL BE ENABLED.
   B. SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED MODE TO MAINTAIN STATIC PRESSURE SETPOINT (SET BY BALANCING CONTRACTOR).

7. THE DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE DETERMINED ACCORDING TO THE FOLLOWING:
   A. COOLING/DEHUMIDIFICATION MODE:
      1. IF THE OUTDOOR AIR TEMPERATURE IS ABOVE 55°F (ADJ. 55°F-60°F) COOLING MODE SHALL BE ENABLED.
      2. VALVE RWV-1 SHALL BE IN CLOSED POSITION. A2
      3. THE COOLING COIL CONTROL VALVE (CWV-1) SHALL MODULATE TO MAINTAIN A COOLING COIL DISCHARGE AIR TEMPERATURE OF 55°F.
         A. THE RUN AROUND VALVE (RWV-2) SHALL ALLOW FLOW TO RUN AROUND COIL 2 AND THE RUN AROUND LOOP CIRCULATION PUMP (RCP-1) SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 60°F (RESET BETWEEN 60°F AND 75°F TO MAINTAIN LOBBY TEMPERATURE SETPOINT).
         B. IF THE RUN AROUND LOOP CIRCULATION PUMP IS AT 100% AND DISCHARGE AIR TEMPERATURE DOES NOT MEET SETPOINT WITHIN 3 MINUTES (ADJUSTABLE), THE ELECTRIC HEATING COIL SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE AS NOTED ABOVE.

   C. HOT WATER HEATING MODE:
      1. IF THE OUTDOOR AIR TEMPERATURE IS LESS THAN 55°F (ADJ. 50°F-55°F) THE SYSTEM SHALL BE IN HEATING MODE.
      2. THE RUNAROUND LOOP CONTROL VALVE (RWV-2) SHALL BE CLOSED TO PREVENT FLOW THROUGH RUNAROUND COIL 2.
      3. THE HEATING COIL CONTROL VALVE (RWV-1) SHALL MODULATE TO MAINTAIN A UNIT DISCHARGE AIR TEMPERATURE SETPOINT OF 55°F (RESET BETWEEN 55 AND 75 TO MAINTAIN LOBBY TEMPERATURE SETPOINT).
      4. IF THE UNIT DISCHARGE AIR TEMPERATURE SETPOINT IS NOT MET WITHIN 2 MINUTES (ADJ. 1-10 MIN.) ELECTRIC HEAT SHALL BE ENABLED.
         A. THE ELECTRIC HEATING COIL SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT PER HOT WATER HEATING MODE.

2 FRESH AIR UNIT CONTROLS DIAGRAM
NTS

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
ANTHONY LOUIS DIEWOLD
NUMBER PE-2016000028
PROFESSIONAL ENGINEER
2-02-2022

ANTHONY L. DIEWOLD - ENGINEER
PE-2016000028

KLINGNER & ASSOCIATES, P.C.
Engineers • Architects • Surveyors
Columbia, Missouri
907 East Ash Street
573.355.5988
www.klingner.com
Quincy, IL Galesburg, IL
Burlington, IA Palmyra, MO Hannibal, MO
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MISSOURI STATE CERTIFICATE OF AUTHORITY #000866

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MODIFY HVAC SYSTEM

MISSOURI SUPREME COURT BUILDING

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DESIGNED BY: ALD

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TEMPERATURE CONTROL DETAILS

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M801

33 OF 40 SHEETS
DECEMBER 2, 2022