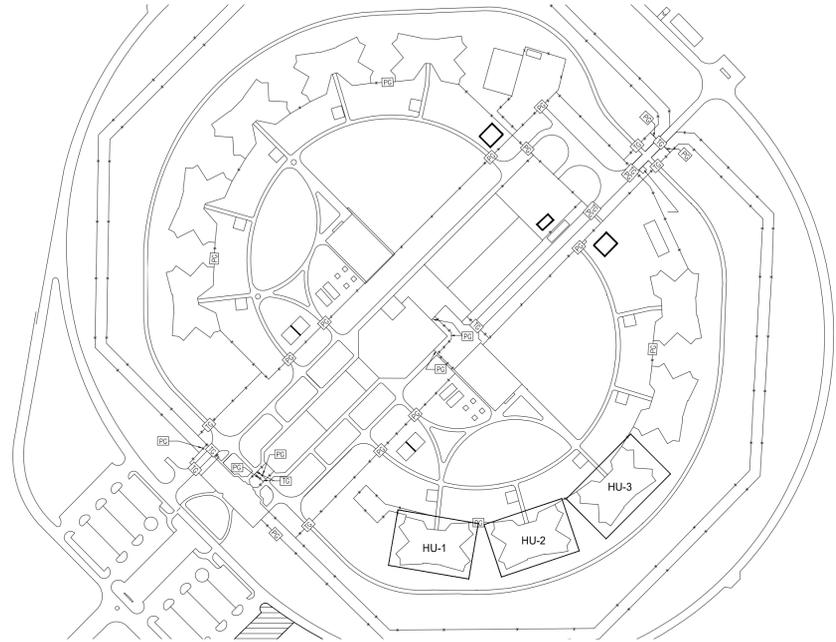
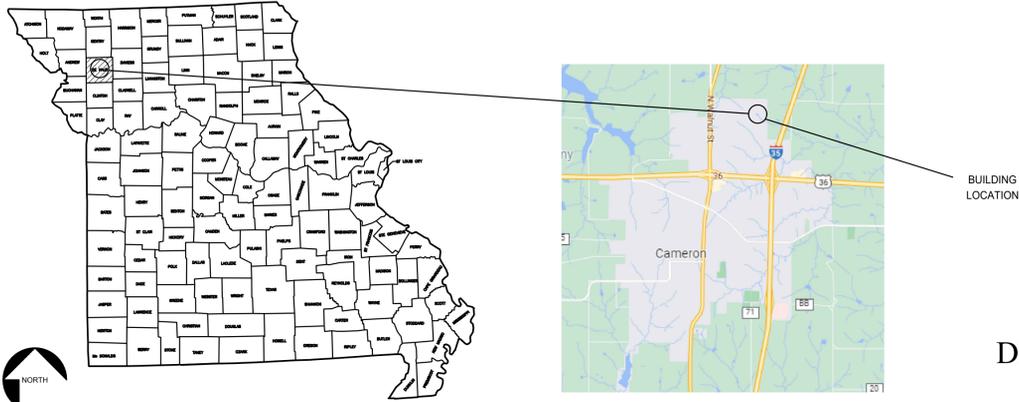


HVAC IMPROVEMENTS, HOUSING UNITS 1-2-3 WESTERN MISSOURI CORRECTIONAL CENTER CAMERON, MO

SITE LOCATION

SHEET INDEX:

- G-001 COVER SHEET
- M-000 MECHANICAL SITE PLAN BUILDING HU-1 (ALT. 1), HU-2 & HU-3
- M-100 MECHANICAL DEMOLITION PLANS BUILDING HU-1 (ALTERNATE #1), HU-2 & HU-3
- M-101 ENLARGED MECHANICAL DEMOLITION PLANS BUILDING HU-1 (ALTERANTE #1), HU-2 & HU-3
- M-200 MECHANICAL PLANS BUILDING HU-1(ALTERNATE #1), HU-2 & HU-3
- M-300 MECHANICAL DETAILS
- M-301 MECHANICAL DETAILS
- M-302 MECH SCHEDULES, GENERAL NOTES & SYMB.
- E-000 ELECTRICAL SITE PLAN BUILDING HU-1 (ALT. #1), HU-2 & HU-3
- E-100 ELECTRICAL DEMOLITION PLANS BUILDING HU-1(ALT. #1), HU-2 & HU-3
- E-101 ENLARGED ELECTRICAL DEMOLITION PLANS BUILDING HU-1(ALT. #1), HU-2 & HU-3
- E-200 ELECTRICAL PLANS BUILDING HU-1(ALT. #1), HU-2 & HU-3
- E-300 ELECTRICAL DETAILS



DESIGNER: LANKFORD FENDLER + ASSOCIATES
ALEX MALYAROV
ALEXM@LANKFORDFENDLER.COM
816-221-1411

PROJECT NUMBER: C2302-01
SITE NUMBER: 7011
ASSET NUMBER: 9327011018
9327011019
9327011020

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR
DEPARTMENT OF CORRECTIONS

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION





OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

HVAC IMPROVMENTS,
HOUSING UNITS 1-2-3

WESTERN MO
CORRECTIONAL CENTER
609 East Pence Road
Cameron, MO 64429

PROJECT # C2302-01
SITE # 7011
ASSET # 9327011018
9327011019
9327011020

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 12/21/2023

SHEET TITLE:

**MECHANICAL
SITE PLAN
BUILDING HU-1
(ALT. 1), HU-2 &
HU-3**

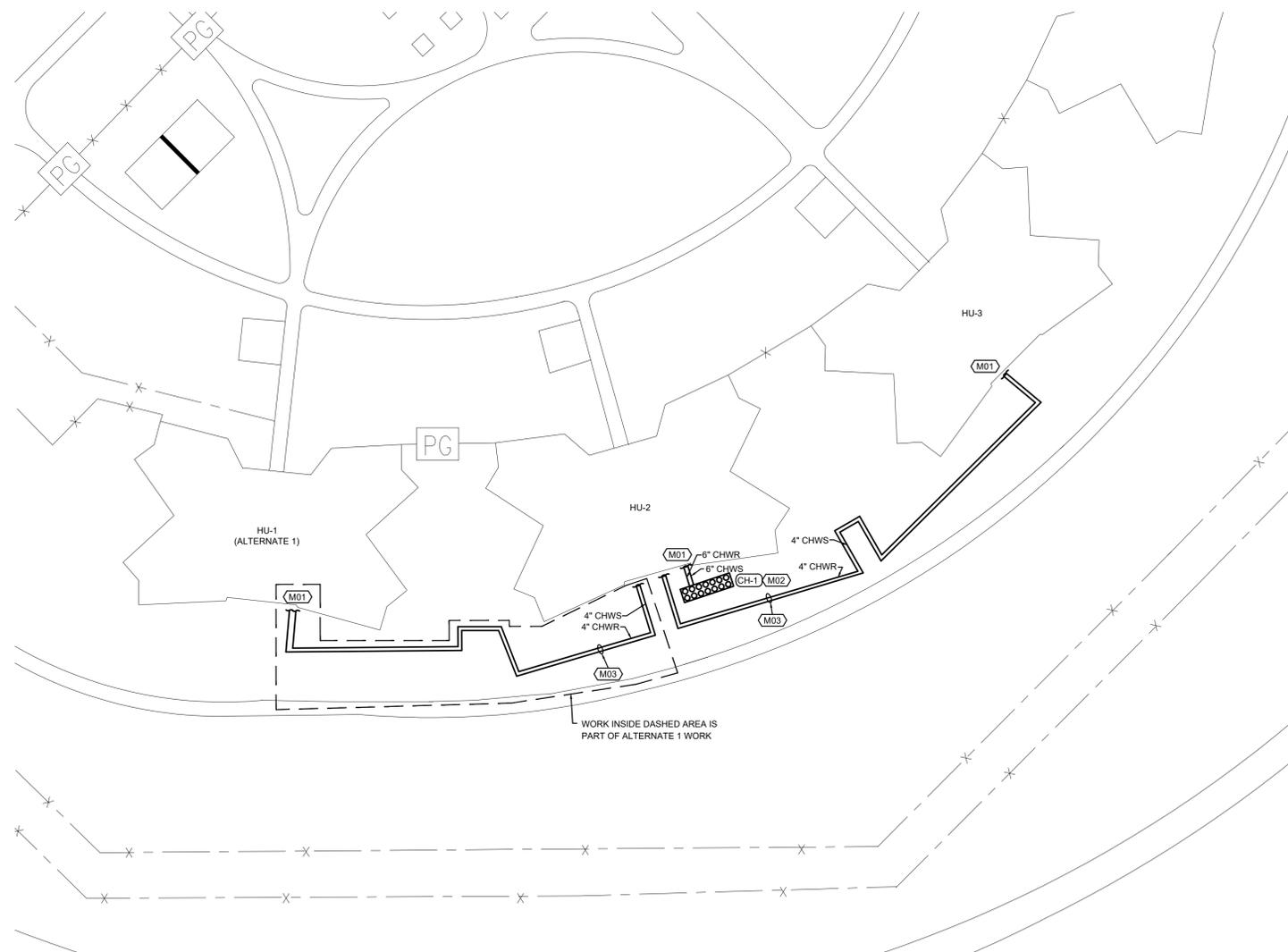
SHEET NUMBER:

M-000

2 OF 13 SHEETS
12/21/2023

FLOOR PLAN NOTES

1. REFER TO SHEET M-200 FOR PIPE CONTINUATION.
2. REFER TO SHEET M-200 FOR ADDITIONAL INFORMATION.
3. ROUTE PIPING UTILIZING THE SAME ROUTE AS EXISTING HEATINGHOT WATER PIPING. SUPPORT PIPING ON THE SIDE OF EXISTING CONCRETE SUPPORT PADS. REFER TO LATERAL PIPE BRACE DETAIL ON SHEET M-301.



SITE PLAN-MECHANICAL
SCALE: 1"=40'-0"



+ associates

1730 Walnut Street, Kansas City, Missouri 64108
1915 Frederick Avenue, St. Joseph, Missouri 64501
Phone: 816.221.1411 | Fax: 816.221.1429
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C04 No. 2006001100

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HVAC IMPROVEMENTS,
HOUSING UNITS 1-2-3

WESTERN MO
CORRECTIONAL CENTER
609 East Pence Road
Cameron, MO 64429

PROJECT # C2302-01
SITE # 7011
ASSET # 9327011018
9327011019
9327011020

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 12/21/2023

SHEET TITLE:

**MECHANICAL
DEMOLITION
PLANS BUILDING
HU-1 (ALTERNATE
#1), HU-2 & HU-3**

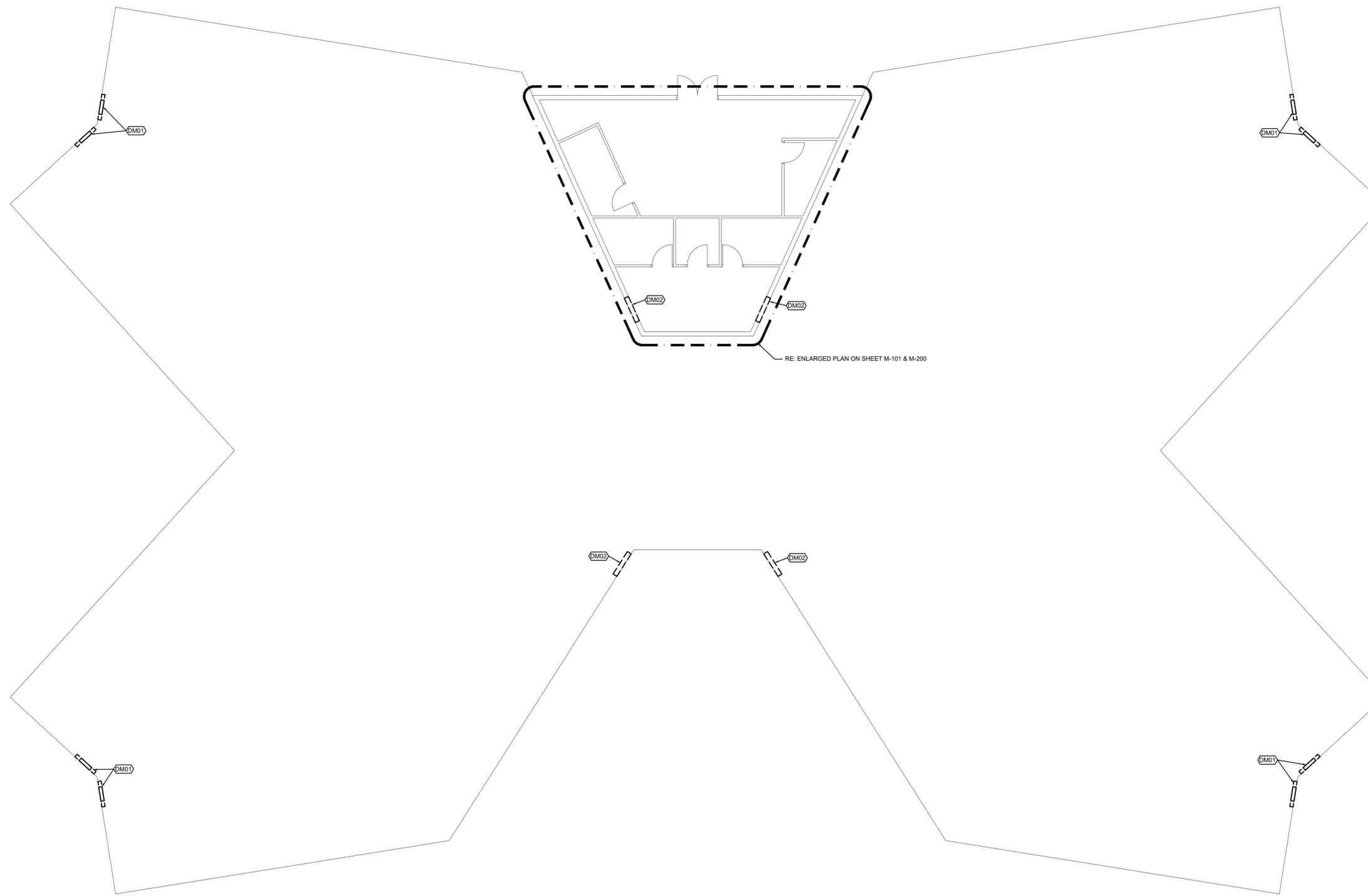
SHEET NUMBER:

M-100

3 OF 13 SHEETS
12/21/2023

FLOOR PLAN NOTES

1. REMOVE ELECTRIC OPERATED DAMPER AND CAP AND SEAL OPENING AIR AND WATER TIGHT WITH INSULATED METAL CLAD PANEL. RE: LOUVER SEAL DETAIL ON SHEET M-300.
2. REMOVE FAN AND ALL ASSOCIATED DUCTWORK AND CAP AND SEAL OPENING AIR AND WATER TIGHT WITH INSULATED METAL CLAD PANEL. RE: LOUVER SEAL DETAIL ON SHEET M-300.



HU-1 (ALT. #1), HU-2, HU-3 FLOOR PLAN-MECHANICAL DEMOLITION



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



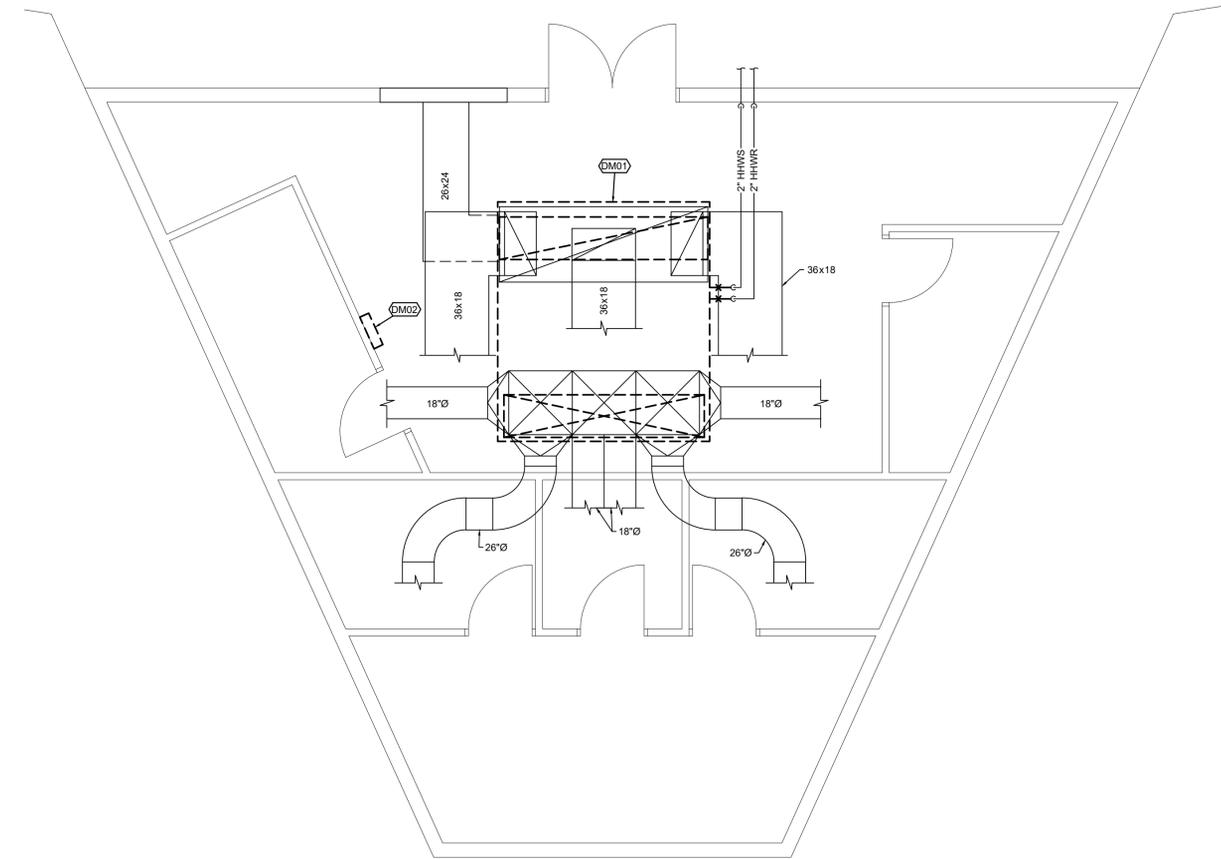
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FLOOR PLAN NOTES

1. REMOVE EXISTING MULTI-ZONE AIR HANDLING UNIT, WIRING, AND CONTROLS. DISCONNECT SUPPLY AIR DUCT, RETURN AIR DUCT, OUTSIDE AIR DUCT, AND HOT WATER PIPING AND ASSOCIATED VALVES ASSOCIATED WITH AIR HANDLING UNIT. PREPARE FOR FUTURE INSTALLATION.
2. REMOVE EXISTING VARIABLE FREQUENCY DRIVE.

COORDINATE ALL EXISTING BAS CONTROLS WORK WITH COREY SCHEPERS WITH C&C GROUP AT 913-530-7369, EMAIL Cscheppers@c-cgroup.com. MECHANICAL CONTRACTOR'S BASE BID MUST INCLUDE ALL WORK DONE FOR HU 2 & HU 3 BY C&C GROUP.

PLEASE NOTE: HU 1 WORK PERFORMED BY C&C GROUP IS TO BE INCLUDED IN ALTERNATE 1.



HU-1 (ALTERNATE #1), HU-2, HU-3 ENLARGED FLOOR PLAN-MECHANICAL DEMOLITION
SCALE: 1/4"=1'-0"

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HVAC IMPROVEMENTS,
HOUSING UNITS 1-2-3

WESTERN MO
CORRECTIONAL CENTER
609 East Pence Road
Cameron, MO 64429

PROJECT # C2302-01
SITE # 7011
ASSET # 9327011018
9327011019
9327011020

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 12/21/2023

SHEET TITLE:
ENLARGED
MECHANICAL
DEMOLITION PLANS
BUILDING
HU-1 (ALTERNATE #1),
HU-2 & HU-3

SHEET NUMBER:

M-101



1730 Walnut Street, Kansas City, Missouri 64108
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HVAC IMPROVEMENTS,
HOUSING UNITS 1-2-3

WESTERN MO
CORRECTIONAL CENTER
609 East Pence Road
Cameron, MO 64429

PROJECT # C2302-01
SITE # 7011
ASSET # 9327011018
9327011019
9327011020

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 12/21/2023

SHEET TITLE:

MECHANICAL
PLANS BUILDING
HU-1(ALTERNATE
#1), HU-2 & HU-3

SHEET NUMBER:

M-200

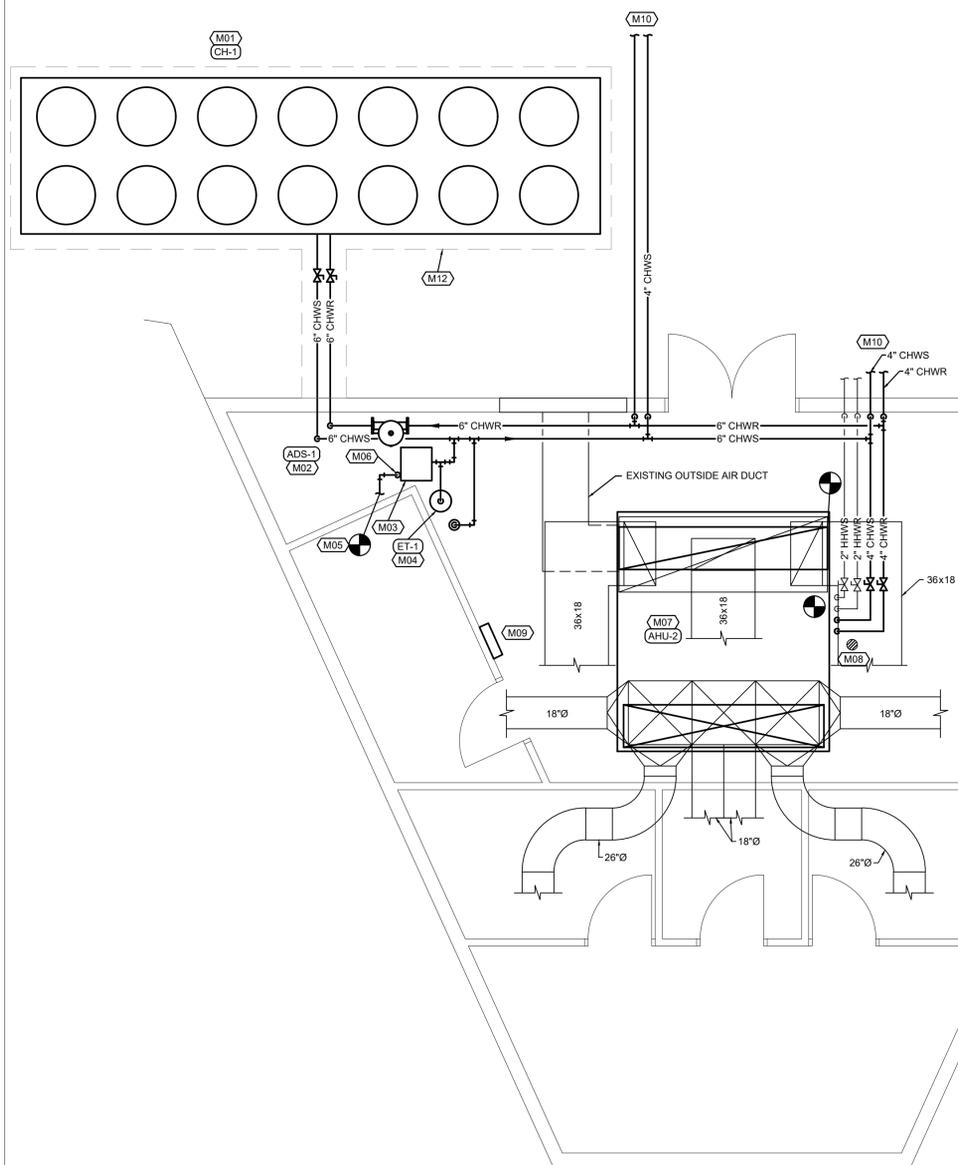
5 OF 13 SHEETS
12/21/2023

FLOOR PLAN NOTES

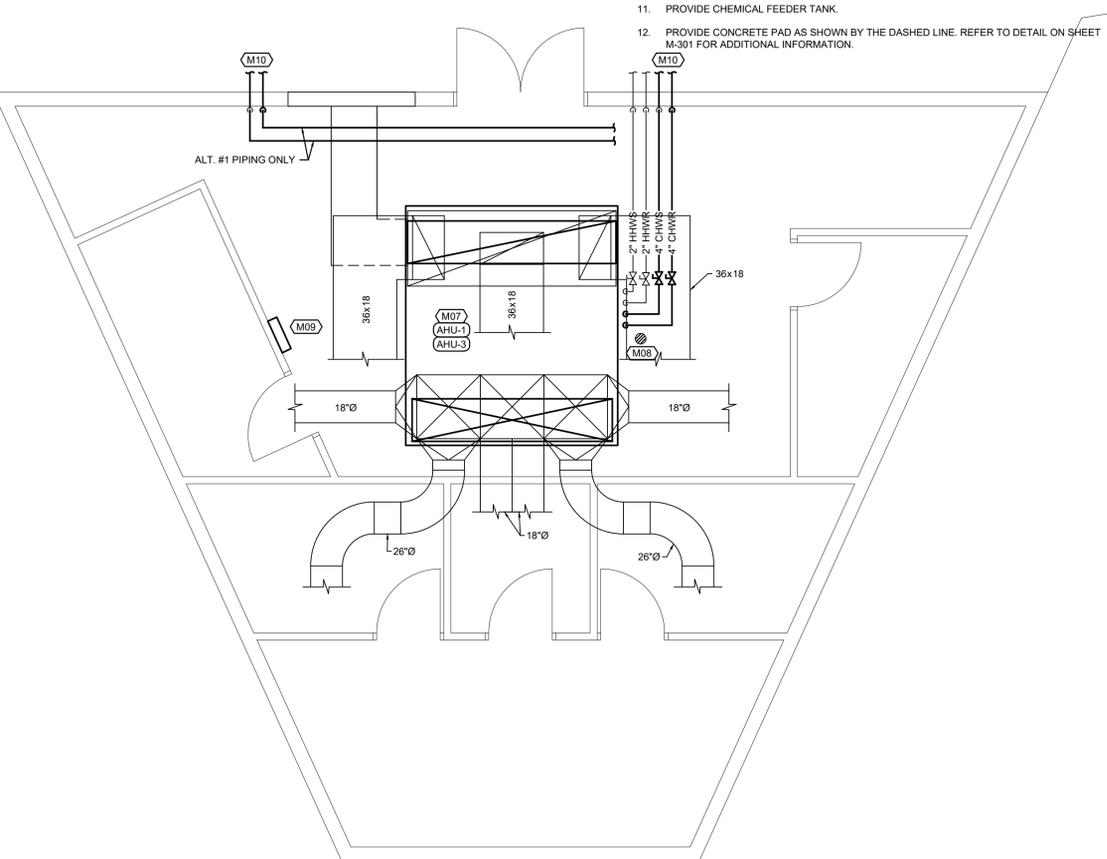
1. PROVIDE AIR COOLED CHILLER INSTALLED ON NEW 6" HOUSEKEEPING PADS. INSTALL CHILLERS ON NEOPRENE ISOLATORS. INSTALL FLOW SWITCHES DOWNSTREAM OF THE HEAT EXCHANGER INSTALLED PER CHILLER MANUFACTURER'S RECOMMENDATIONS. WIRE FLOW SWITCH IN SERIES WITH THE WATER PUMP INTERLOCK. REFER TO SPECIFICATION SECTION 230923 AND CHILLER PLANT PIPING DIAGRAM ON SHEET M-300 FOR ADDITIONAL INFORMATION.
2. PROVIDE AIR DIRT SEPARATOR FLANGED INTO PIPE. THE BALL VALVE LOCATED ON THE BOTTOM OF THE UNIT IS USED FOR DEBRIS PURGE AND SHALL NOT HAVE A PIPING CONNECTION. A CONTAINER SHOULD BE USED TO CATCH ANY DEBRIS.
3. PROVIDE 50 GALLON GLYCOL FEED TANK INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE NEW BASE MOUNTED EXPANSION TANK INSTALLED ON EXISTING CHILLER HOUSEKEEPING PAD.
5. CONNECT NEW 3/4" MAKE-UP WATER PIPING TO EXISTING MAKE-UP WATER PIPING. FIELD VERIFY EXACT LOCATION.
6. PROVIDE WOODFORD MODEL 67 HOSE BIBB FOR MANUAL FILL OF GLYCOL FEED TANK. OTHER HOSE BIBB ACCEPTABLE MANUFACTURER'S ARE PRIER, ZURN, AND WATTS.
7. PROVIDE MULTI-ZONE AIR HANDLING UNIT. CONNECT EXISTING SUPPLY AIR, RETURN AIR, AND OUTSIDE AIR DUCT TO UNIT. BALANCE TO SCHEDULED AIRFLOW. MOUNT UNIT ON EXISTING HOUSEKEEPING PAD. EXTEND CONCRETE PAD IF NEEDED. INTERLOCK AIR HANDLING UNIT WITH EXISTING C&C CONTROLS BUILDING AUTOMATION SYSTEM AND EXISTING DAMPERS.
8. EXTEND CONDENSATE LINE TO EXISTING FLOOR DRAIN.
9. PROVIDE MANUFACTURER REMOTE MOUNTED VFD DRIVE FOR AIR HANDLING UNIT.
10. REFER TO SHEET M-000 FOR PIPE CONTINUATION.
11. PROVIDE CHEMICAL FEEDER TANK.
12. PROVIDE CONCRETE PAD AS SHOWN BY THE DASHED LINE. REFER TO DETAIL ON SHEET M-301 FOR ADDITIONAL INFORMATION.

COORDINATE ALL EXISTING BAS CONTROLS WORK WITH COREY SCHEPERS WITH C&C GROUP AT 913-530-7369. EMAIL: Cscheppers@c-cgroup.com. MECHANICAL CONTRACTOR'S BID MUST INCLUDE ALL WORK DONE BY C&C GROUP.

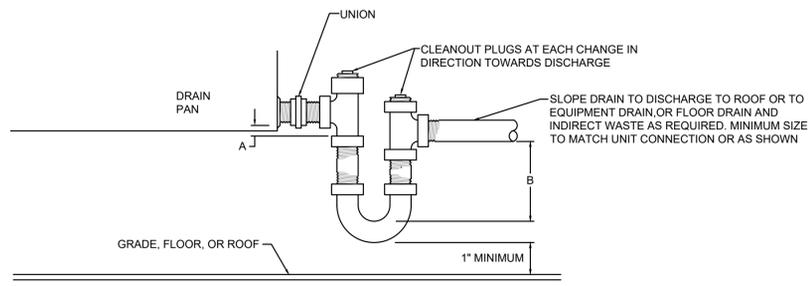
PLEASE NOTE: HU 1 WORK PERFORMED BY C&C GROUP IS TO BE INCLUDED IN ALTERNATE 1.



HU-2 ENLARGED FLOOR PLAN-MECHANICAL
SCALE: 1/4"=1'-0"



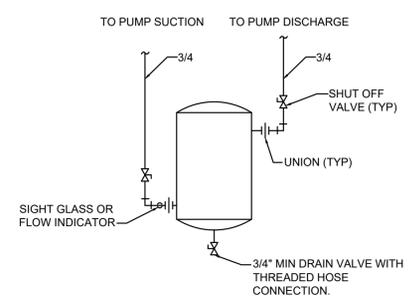
HU-1 (ALT. #1), HU-3 ENLARGED FLOOR PLAN-MECHANICAL
SCALE: 1/4"=1'-0"



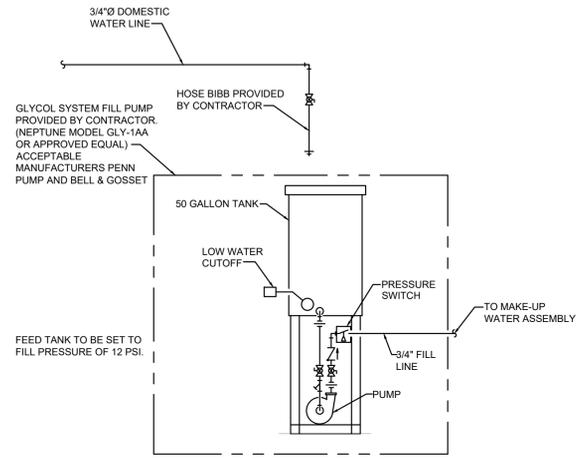
DIM. 'A'	DIM. 'A'	DIM. 'B'
BLOW THRU COIL	1"	FAN DISCHARGE STATIC PRESSURE + 1"
DRAW THRU COIL	FAN SUCTION STATIC PRESSURE + 1"	2-1/2"

NOTE: MINIMUM 'A' OR 'B' DIMENSION SHALL BE NOT LESS THAN 1".

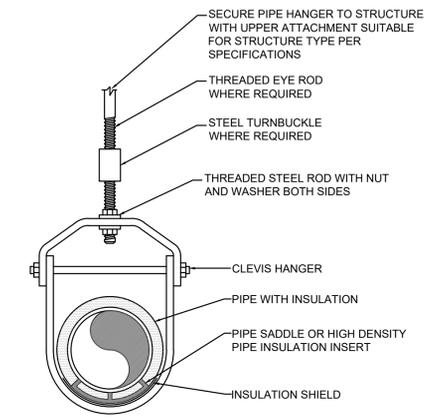
1 HVAC CONDENSATE TRAP DETAIL
NO SCALE



2 CHEMICAL POT FEEDER DETAIL
NO SCALE

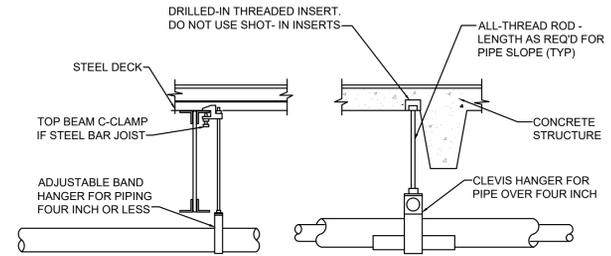


3 GLYCOL SYSTEM FILL PUMP PACKAGE SCHEMATIC
NO SCALE



4 INSULATED CLEVIS PIPE HANGER DETAIL
NO SCALE

PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES. SLOPE ALL WATER PIPING SLIGHTLY TOWARD DRAINABLE LOCATIONS. HANGER SPACING FOR PIPE SIZE: COPPER: 4"=12' 3"=11' 2-1/2"=10' 2"=9' 1-1/2"=8' 1-1/4"=7' 1"=6' 3/4"=6' 1/2"=5'. CAST IRON: 10" AND ONE NEAR ALL JOINTS. STEEL: 4"=14' 3"=12' 2-1/2"=11' 2"=10' 1-1/2"=9' 1"=7' 3/4"=6' 1/2"=5'. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. CHAINS AND PERFORATED STRAP IRON AND STEEL ARE NOT ACCEPTABLE. DO NOT SUSPEND PIPE FROM JOIST BRACING MEMBERS. REFER TO 230529 SPECS FOR FURTHER INFORMATION.

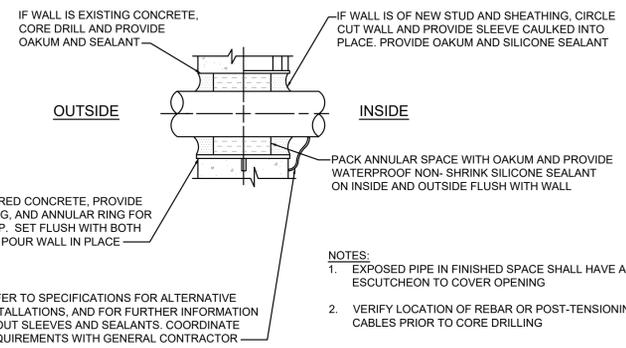


PROVIDE COPPER OR NON-METALLIC COATING WHERE HANGERS CONTACT BARE COPPER PIPE

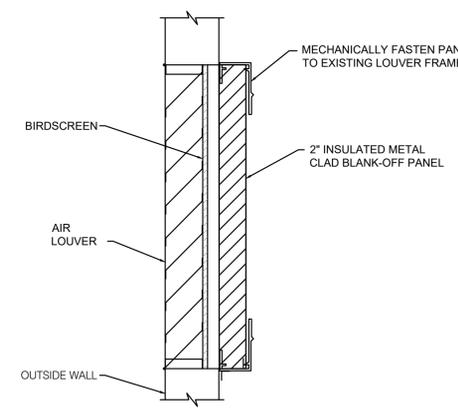
DO NOT HANG PIPE LARGER THAN 4" FROM BOTTOM OF JOISTS, AND HANG ONLY AT PANEL POINT.

PROVIDE GALVANIZED STEEL SHIELD FOR ALL INSULATED PIPE 1" AND LARGER. VERIFY INSULATION THICKNESS WHEN SIZING HANGERS. DO NOT SUSPEND OTHER ITEMS FROM PIPE

5 PIPE HANGER DETAIL
NO SCALE

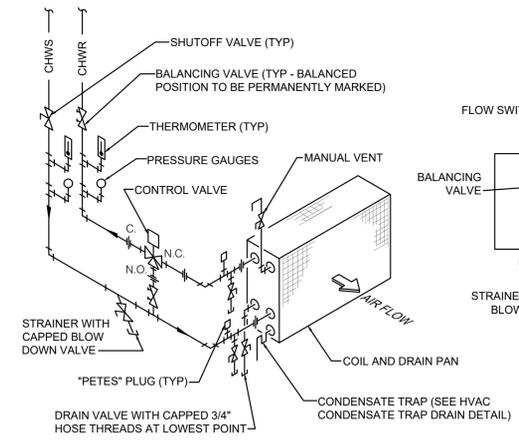


6 EXTERIOR WALL PIPE PENETRATION DETAIL
NO SCALE

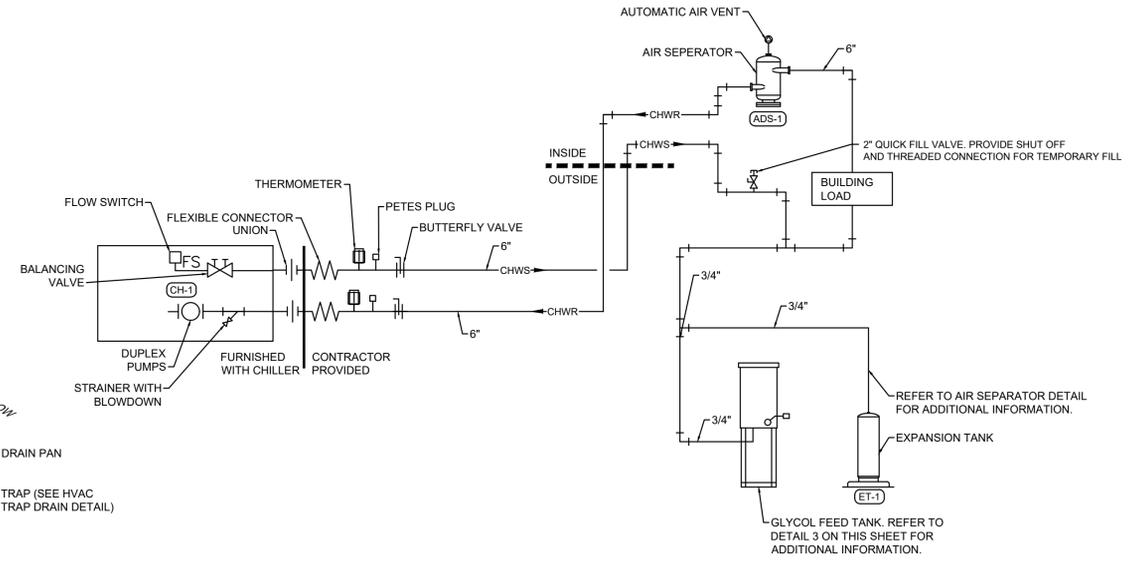


7 LOUVER SEAL DETAIL
NO SCALE

- NOTES
1. PROVIDE DIELECTRIC UNIONS OR FLANGES WHERE PIPING AND APPENDAGE MATERIALS DIFFER.
 2. INSTALL CONTROL VALVE BETWEEN UNIONS OR FLANGES AS REQUIRED.
 3. INSTALL CONCENTRIC REDUCERS BOTH SIDES OF CONTROL AND BALANCE VALVE IF REQUIRED.
 4. WHEN TAPPED INTO TOP OF MAINS, PROVIDE AIR VENT.
 5. UNION SHALL BE PLACED SO COIL CAN BE REMOVED WITHOUT RELOCATION OR REMOVAL OF PIPING.
 6. FOR MULTIPLE COILS PROVIDE SHUT-OFF VALVES ON SUPPLY AND RETURN LINES TO EACH COIL SECTION. INSTALL PIPING, UNIONS AND/OR FLANGED CONNECTIONS SO THAT COIL CAN BE REMOVED WITHOUT DISTURBING PIPING.
 7. INSTALL UNIONS FOR PIPING 2" & SMALLER AND FLANGED CONNECTIONS FOR PIPING 2 1/2" & LARGER. PROVIDE 3/4" DRAIN VALVE WITH HOSE CONNECTION FOR ALL COILS OVER 6 SF FACE AREA.

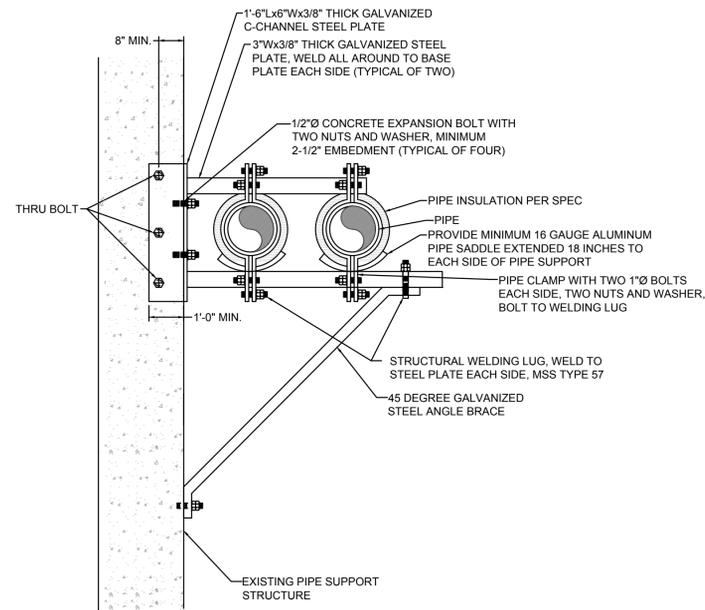


8 AHU CHW COIL PIPING DETAIL
NO SCALE

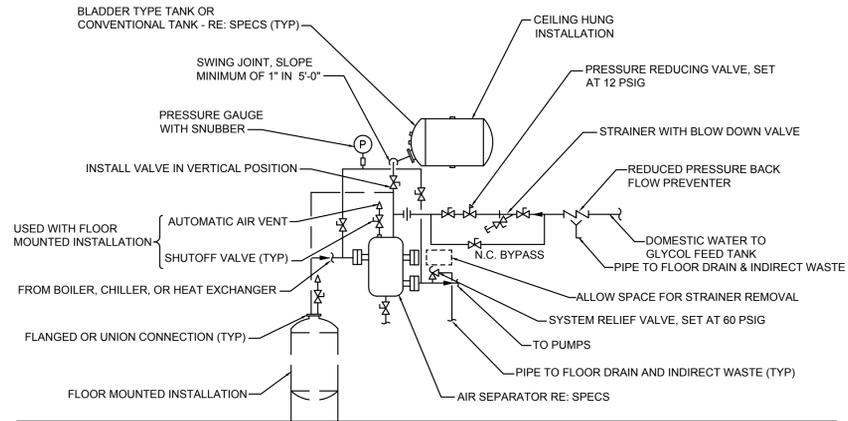


9 CHILLED WATER PIPING SCHEMATIC
NO SCALE

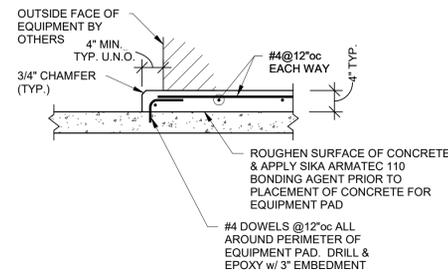




1 LATERAL EXTERIOR PIPE BRACE DETAIL
NO SCALE

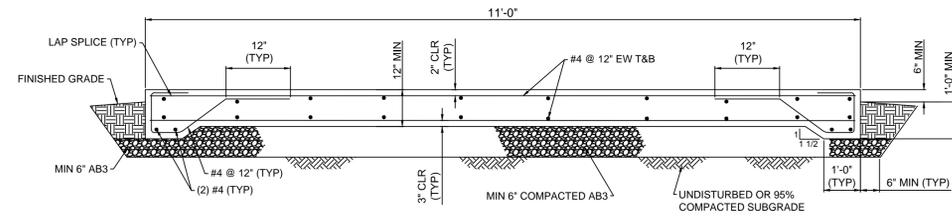


2 COMPRESSION TANK WITH AIR SEPARATOR PIPING DETAIL
NO SCALE

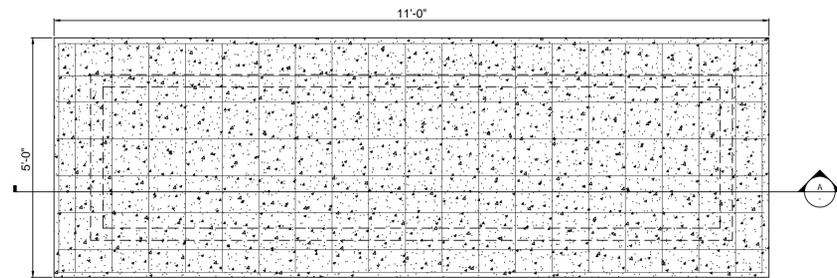


EQUIPMENT PAD

3 INTERIOR CONCRETE PAD DETAIL
NO SCALE



CONCRETE PAD
NOT TO SCALE



CONCRETE PAD SECTION A
NOT TO SCALE

4 EXTERIOR EQUIPMENT CONCRETE PAD DETAIL
NO SCALE



GENERAL NOTES (TYPICAL ALL SHEETS)

- MECHANICAL CONTRACTOR IS RESPONSIBLE TO SEE THAT INSTALLATION WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.
- ALL EXISTING DUCTWORK SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REROUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.
- CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECT'S AND/OR BUILDING OWNER REQUIREMENTS.
- COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.
- ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.
- ALL REMOVED DEVICES THAT ARE BEING REUSED FOR NEW CONSTRUCTION SHALL BE CLEANED OF ALL DIRT AND STORED ON SITE.
- MECHANICAL CONTRACTOR SHALL AIR BALANCE ALL GRILLES TO CFMS SHOWN ON PLANS.
- INSTALL ELASTOMERIC JOINT SEALER AROUND ALL DUCTS, PIPES, ETC. PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL TEMPERATURE CONTROL WORK WITH BUILDING OWNER.
- REPLACE EXISTING THERMOSTATS/SENSORS WITH NEW. THERMOSTAT COVERS SHALL BE WHITE IN COLOR UNLESS OTHERWISE NOTED. THERMOSTATS/SENSORS SHALL BE INSTALLED AND CALIBRATED PRIOR TO TEST AND BALANCE. INTEGRATE NEW DIGITAL THERMOSTATS/SENSORS INTO THE EXISTING BUILDING ENERGY MANAGEMENT SYSTEM AS REQUIRED.
- AT CONCLUSION OF PROJECT, CONTRACTOR SHALL PROVIDE THE FOLLOWING DOCUMENTATION TO OWNER'S REPRESENTATIVE FOR EQUIPMENT MANUFACTURER'S STANDARD AND EXTENDED WARRANTY REGISTRATION: INSTALLING CONTRACTOR COMPANY INFORMATION, DEALER'S INFORMATION, EQUIPMENT MANUFACTURER, PURCHASE DATE, INSTALLATION DATE, EQUIPMENT SERIAL NUMBERS AND EQUIPMENT MODEL NUMBERS. PROVIDE ALL EQUIPMENT OPERATIONS AND MAINTENANCE MANUALS.
- COORDINATE ALL EXISTING BAS CONTROLS WORK WITH COREY SCHEPERS WITH C&C GROUP AT 913-530-7369, EMAIL: Ccschepers@c-cgroup.com. MECHANICAL CONTRACTOR BID MUST INCLUDE ALL WORK DONE BY C&C GROUP.
- HOUSING UNIT (HU-1) IS PART OF ALTERNATE #1 WORK. PROVIDE SEPARATE PRICING.

CHILLER SCHEDULE (AIR COOLED)

MARK NO.	MANUFACTURER	MODEL	COMPRESSOR TYPE	NO. OF COMPRESSOR	NOMINAL TONS	ACTUAL TONS	CHILLED WATER SYSTEM					ELECTRICAL					NOTES			
							WATER TEMP.		FLOW (GPM)	GLYCOL CONCENTRATION	FOULING FACTOR	MAX PRESS. DROP (FT. H ₂ O)	REFRIGERANT	EER	IPLV	AMBIENT °F		VOLT	Ø	HZ
							ENTERING °F	LEAVING °F												
CH-1	DAIKIN	AGZ241E	SCROLL	6	240	223.2	55	45	573	0.30	0.0010	13.60	R410A	9.96	17.31	100.00	480	3	60	1,2,3,4,5,6

NOTES:

- PROVIDE WITH UNIT MOUNTED CONTROL PANEL, DISCONNECT SWITCH, ACROSS THE LINE STARTER AND SINGLE POINT POWER CONNECTION.
- PROVIDE WITH DUAL PUMP PACKAGE WITH VARIABLE PRIMARY PACKAGE WITH A TOTAL OF 70 FT. OF HEAD PRESSURE LOSS.
- PROVIDE WITH REPLACABLE FILTER DRYER WITH DISCHARGE & LIQUID VALVES.
- PROVIDE ELECTRONIC EXPANSION VALVE.
- PROVIDE PIPING PACKAGE THAT INCLUDES SUCTION & DISCHARGE VALVE, STRAINER LINE REACTOR, PRESSURE GAUGES.
- ALTERNATE MANUFACTURERS ARE TRANE AND YORK.

MULTI-ZONE AIR HANDLING UNIT SCHEDULE

MARK NO.	MANUFACTURER	MODEL	ARRANGEMENT	AIRFLOW CFM	MIN VENT AIRFLOW CFM	SUPPLY FAN (HP)	SUPPLY FAN S.P. (IN.W.G.)	NO. ZONES	DISCHARGE DIRECTION	COOLING COIL										HEATING COIL				ELECTRICAL				NOTES		
										E.D.B. (°F)	E.W.B. (°F)	L.D.B. (°F)	L.W.B. (°F)	E.W.T. (°F)	L.W.T. (°F)	TOTAL MBH	SENS. MBH	FLOW (GPM)	E.D.B. (°F)	L.D.B. (°F)	E.W.T. (°F)	L.W.T. (°F)	TOTAL MBH	FLOW (GPM)	SUPPLY FAN					
																									VOLT	Ø	MCA		MOCP	ALL HZ
AHU-1,2,3	DAIKIN	CAH02GVAM	NOTE 1	20,000	5,600	5.0	2.0	6	VERTICAL	80	67.0	54.3	54	45	55	800.78	563.12	173.6	51.8	89.5	198	160.5	782	782	208	3	68	70	60	1,2,3,4,5,6

NOTES:

- UNIT CONFIGURATION, IN DIRECTION OF AIRFLOW, SHALL BE AS FOLLOWS: AIR FILTER SECTION, RETURN/OUTSIDE AIR PLENUM, SUPPLY FAN SECTION, CHILLED WATER, AND HOT WATER MULTIZONE SECTION.
- UNIT SHALL BE PROVIDED WITH FACTORY WIRED AND REMOTE INSTALLED VARIABLE FREQUENCY DRIVES AND DISCONNECT SWITCH.
- UNIT SHALL BE FURNISHED IN SPLIT SECTIONS WITH NO SECTION LARGER THAN 48" WIDE.
- CONTROLS SHALL BE FIELD INSTALLED.
- PROVIDE WITH MERV 8 PLEATED PRE-FILTERS AND MERV 13 PLEATED FINAL-FILTERS.
- ALTERNATE MANUFACTURERS ARE TRANE AND YORK.

COORDINATE WATER TREATMENT WORK DURING BIDDING WITH ROGER SMITH AT WALTER LOUIS FLUID TECHNOLOGIES (EMAIL: ROGER@WALTERLOUIS.COM) PHONE#: 217-653-7538

AIR DIRT SEPARATOR SCHEDULE

MARK NO.	MANUFACTURER	MODEL	FLOW (GPM)	PRESS DROP (FT. H ₂ O)	BRANCH PIPE SIZE (IN.)	NOTES
ADS-1	TACO	4906AD-125	521	1.75	6	1,2,3,4

NOTES:

- PROVIDE WITH REMOVABLE HEAD, AUTOMATIC AIR VENT, MANUAL BLOW-DOWN VALVE, NEODYMIUM MAGNET ASSEMBLY, AND INTEGRAL STRAINER.
- PROVIDE WITH REMOVABLE HEAD AND FLANGED CONNECTIONS.
- PROVIDE WITH ASME CERTIFICATION.
- ALTERNATE MANUFACTURERS ARE BELL & GOSSET AND SPROTHERM.

EXPANSION TANK SCHEDULE

MARK NO.	MANUFACTURER	MODEL	FLUID SERVED	TANK STYLE	ACCEPTANCE VOLUME (GAL.)	NOTES
ET-1	TACO	CA-90	WATER	VERTICAL	23	1,2

NOTES:

- ASME CARBON STEEL PRESSURE VESSEL WITH FDA APPROVED BUTYL BLADDER, STAINLESS STEEL CONNECTIONS, PRECHARGED TO 35 PSIG.
- ALTERNATE MANUFACTURERS ARE GRUNDOS AND BELL & GOSSET.

MECHANICAL SYMBOLS

	EXISTING DUCTWORK TO BE REMOVED
	EXISTING EQUIPMENT TO BE REMOVED
	EXISTING DUCTWORK TO REMAIN
	NEW DUCTWORK
	SUPPLY DUCT
	RETURN DUCT
	EXHAUST DUCT
	THERMOSTAT, MOUNT TOP AT 48" AFF.
	MANUAL VOLUME DAMPER
	SUPPLY DUCT DOWN
	SUPPLY DUCT UP
	RETURN DUCT DOWN
	RETURN DUCT UP
	HEATING HOT WATER SUPPLY
	HEATING HOT WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	CONDENSATE DRAIN
	HOUSING UNIT
	EQUIPMENT TYPE AND DESIGNATION
	MARK NO. SUPPLY (S_) RETURN (R_) EXHAUST (E_) CFM
	CONNECT TO EXISTING
	DUCT MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR
	BALANCE VALVE
	CHECK VALVE
	CONTROL VALVE - ELECTRIC
	CONTROL VALVE - PNEUMATIC
	PRESSURE REDUCING VALVE
	SHUT OFF VALVE
	STRAINER WITH BLOW DOWN VALVE
	THREE WAY VALVE
	THREE WAY VALVE - ELECTRIC
	PIPE DROP/PIPE RISE
	BOTTOM OUTLET TEE
	TOP OUTLET TEE
	STEAM TRAP ASSEMBLY
	IN-LINE PUMP
	UNION
	FLANGE CONNECTION
	PIPE FLEXIBLE CONNECTOR
	PIPE ANCHOR
	MOMENT GUIDE
	STRAINER
	MATERIAL PER AMBIENT
	THERMOMETER
	PRESSURE GAUGE
	PRESSURE AND TEMPERATURE TAP

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HVAC IMPROVEMENTS,
HOUSING UNITS 1-2-3

WESTERN MO
CORRECTIONAL CENTER
609 East Pence Road
Cameron, MO 64429

PROJECT # C2302-01
SITE # 7011
ASSET # 9327011018
9327011019
9327011020

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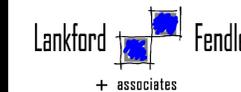
SHEET TITLE:

MECH
SCHEDULES,
GENERAL NOTES
& SYMB.

SHEET NUMBER:

M-302

8 OF 13 SHEETS
12/21/2023



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SHEET TITLE:

ELECTRICAL SITE
PLAN BUILDING
HU-1 (ALT. #1), HU-2
& HU-3

SHEET NUMBER:

E-000

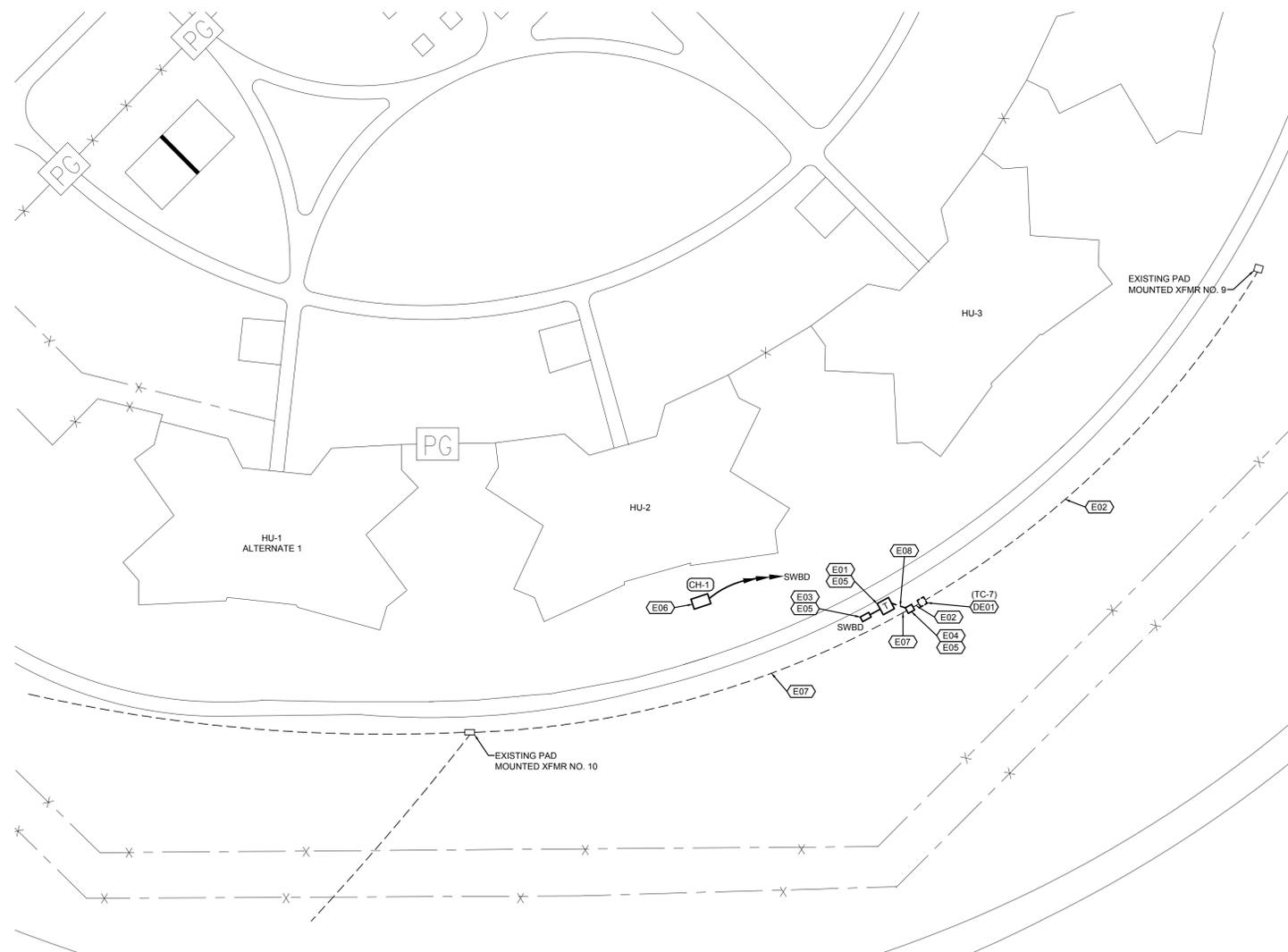
9 OF 13 SHEETS
12/21/2023

DE## FLOOR PLAN NOTES

1. DE-ENERGIZE AND REMOVE EXISTING MEDIUM VOLTAGE TERMINAL CABINET (TC-7) TO FACILITATE INSTALLATION OF NEW PAD MOUNTED / SWITCH. MAINTAIN EXISTING CONDUCTORS TO RECONNECT TO PAD MOUNTED / SWITCH. COORDINATE POWER SHUT DOWN WITH OWNER TO MINIMIZE ANY DISRUPTION TO CAMPUS WIDE ELECTRICAL DISTRIBUTION SYSTEM.

E## FLOOR PLAN NOTES

1. PROVIDE PAD MOUNTED TRANSFORMER. PROVIDE PREFABRICATED CONCRETE BASE COORDINATED WITH TRANSFORMER MANUFACTURER REQUIREMENTS. REFER TO ONE LINE DIAGRAM ON SHEET E300 FOR ADDITIONAL INFORMATION. FIELD VERIFY EXISTING MEDIUM VOLTAGE SIZE AND CONDITION AND PROVIDE ANY ACCESSORIES AS REQUIRED FOR PROPER TERMINATION.
2. REMOVE EXISTING MEDIUM VOLTAGE FEEDER AND REPLACE WITH NEW MEDIUM VOLTAGE FEEDER MATCHING EXISTING AS REQUIRED TO FACILITATE NEW EQUIPMENT INSTALLATION. NEW FEEDER WILL BE LONGER AS NEW EQUIPMENT MOVED WEST. FIELD VERIFY EXISTING EQUIPMENT AND FEEDERS PRIOR TO BID.
3. PROVIDE NEMA 3R PADMOUNTED SWITCHBOARD. REFER TO ONE LINE DIAGRAM ON SHEET E300 - PROVIDE NEW CONCRETE PAD
4. PROVIDE PAD MOUNTED SWITCH TO THE WEST OF EXISTING SECTIONALIZER. PROVIDE PREFABRICATED CONCRETE BASE IN ACCORDANCE WITH PAD MOUNTED SWITCH MANUFACTURER REQUIREMENTS. INSTALL PAD MOUNTED SWITCH TO WEST OF EXISTING SECTIONALIZER SUCH THAT EXISTING MEDIUM VOLTAGE FEEDER MAY BE UTILIZED AND RECONNECTED TO NEW EQUIPMENT.
5. INCLUDE ALL NECESSARY LABOR AND MATERIAL TO ROUGH GRADE A LEVEL EQUIPMENT AREA. INSTALL GRAVEL BASE AND CONCRETE EQUIPMENT PADS AS REQUIRED.
6. REFER TO EQUIPMENT CONNECTION SCHEDULE ON SHEET E300 FOR ADDITIONAL INFORMATION.
7. EXISTING MEDIUM VOLTAGE FEEDER TO BE UTILIZED AND MODIFIED FOR CONNECTION TO NEW PAD MOUNT SWITCHGEAR.
8. PROVIDE NEW MEDIUM VOLTAGE FEEDER FROM PAD MOUNTED SWITCH TO PAD MOUNTED TRANSFORMER AS REQUIRED.

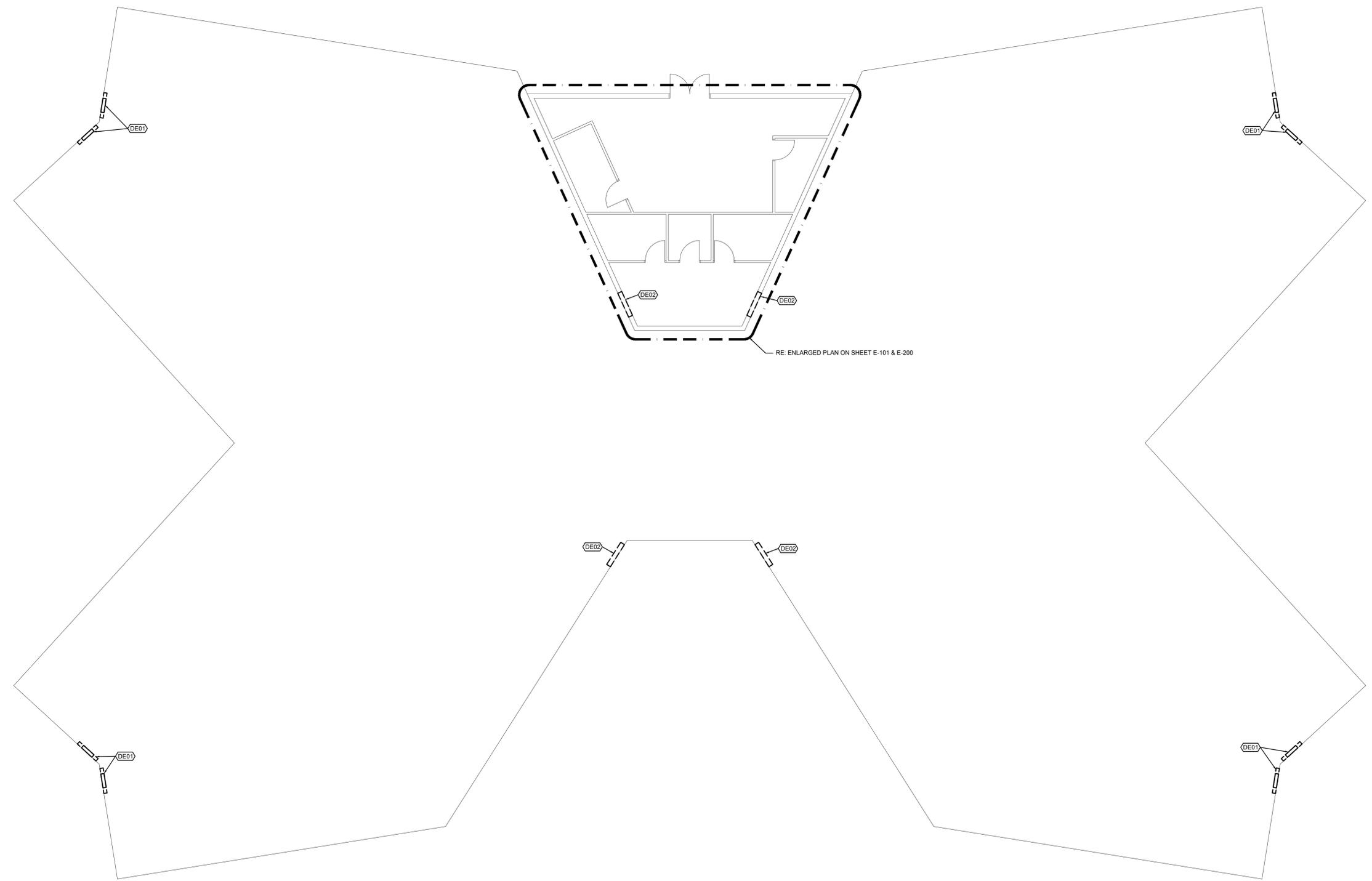


SITE PLAN-ELECTRICAL
SCALE: 1"=40'-0"



FLOOR PLAN NOTES

1. DE-ENERGIZE POWER TO DAMPER AND REMOVE EXISTING EQUIPMENT AND ASSOCIATED CIRCUIT BACK TO SOURCE.
2. DE-ENERGIZE POWER TO FAN AND REMOVE EXISTING EQUIPMENT AND ASSOCIATED CIRCUIT BACK TO SOURCE.



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SHEET TITLE:
**ELECTRICAL
DEMOLITION
PLANS BUILDING
HU-1(ALT. #1),
HU-2 & HU-3**

SHEET NUMBER:

E-100

10 OF 13 SHEETS
12/21/2023

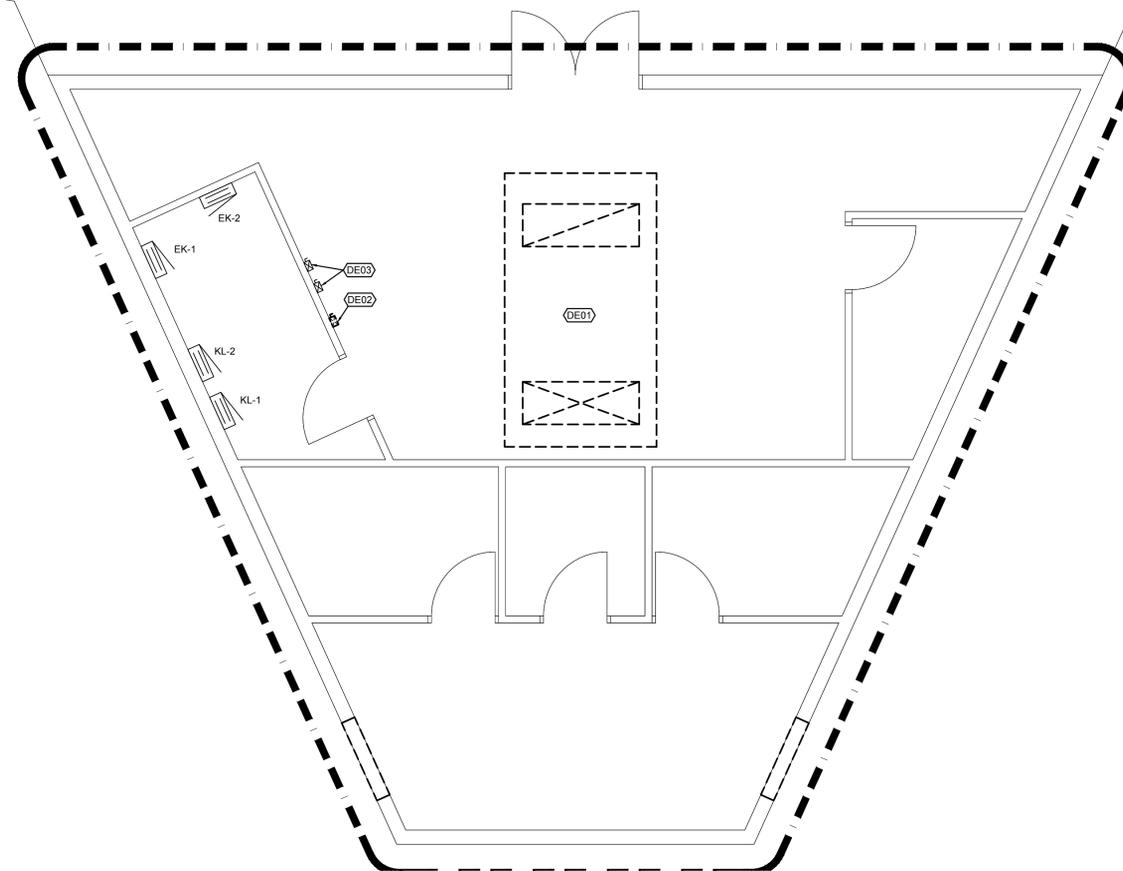
 **HU-1 (ALT. #1), HU-2, HU-3 FLOOR PLAN-ELECTRICAL DEMOLITION**
SCALE: 1/8"=1'-0"



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DE## FLOOR PLAN NOTES

1. DE-ENERGIZE AND REMOVE EXISTING ELECTRICAL CONNECTIONS TO THE AHU.
2. DE-ENERGIZE AND REMOVE EXISTING AHU VFD. EXISTING BRANCH CIRCUIT TO REMAIN. PREPARE TO RECONNECT TO NEW AHU VFD.
3. EXISTING DISCONNECT AND CONTACTOR TO REMAIN.



HU-1 (ALT. #1), HU-2, HU-3 FLOOR PLAN-ELECTRICAL DEMOLITION
SCALE: 1/4"=1'-0"

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SHEET TITLE:
ENLARGED
ELECTRICAL
DEMOLITION PLANS
BUILDING
HU-1(ALT.#1), HU-2 &
HU-3

SHEET NUMBER:

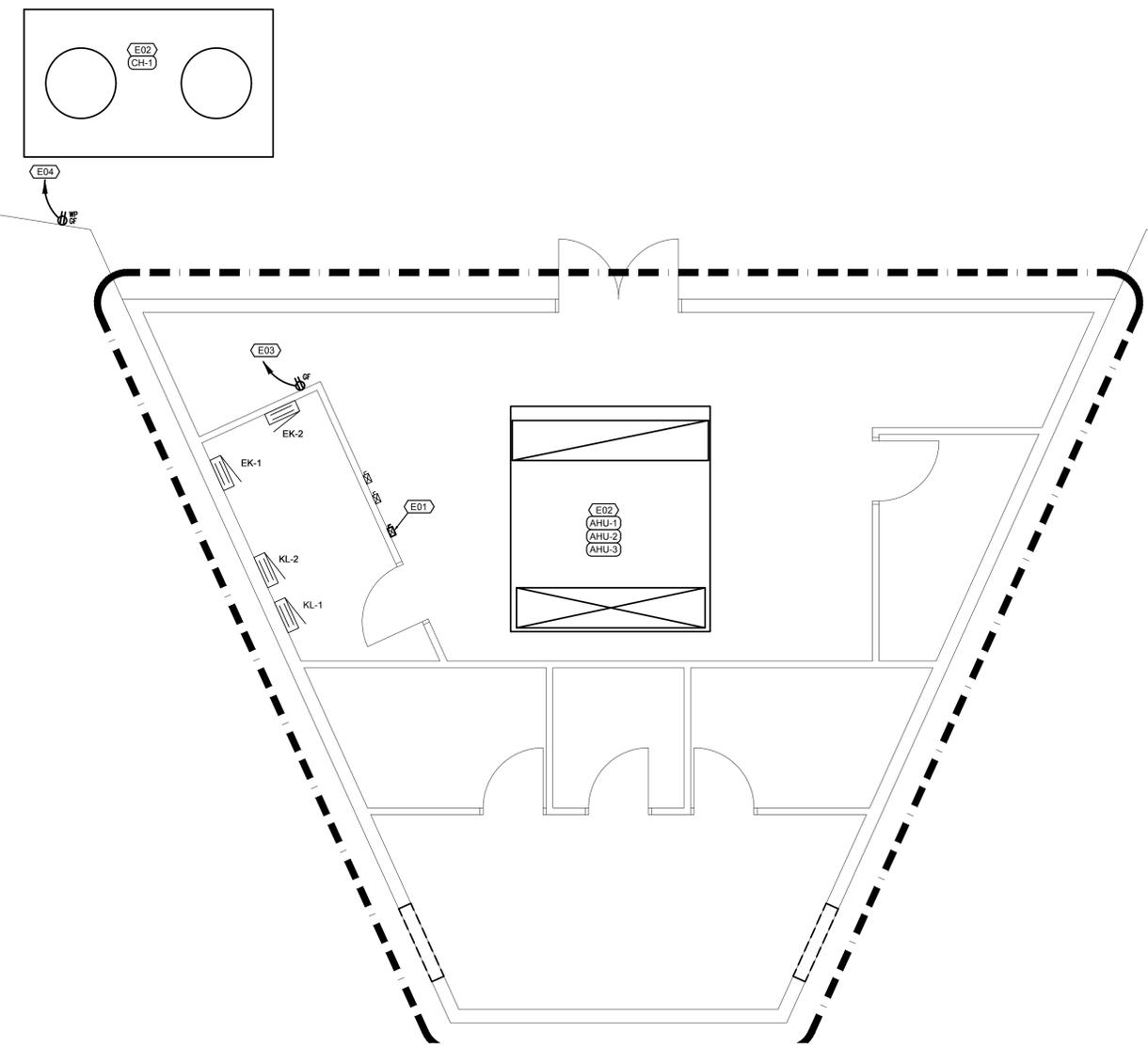
E-101



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FLOOR PLAN NOTES

1. INSTALL NEW VFD IN SAME LOCATION UTILIZE EXISTING ELECTRICAL BRANCH CIRCUIT CONDUCTORS. PROVIDE NEW POWER CONNECTION FROM VFD TO NEW AHU.
2. REFER TO EQUIPMENT CONNECTION SCHEDULE ON SHEET E-300 FOR ADDITIONAL INFORMATION.
3. PROVIDE POWER FOR GLYCOL FEED TANK AS REQUIRED. CONNECT TO NEAREST AVAILABLE 120V, 20A SPARE CIRCUIT.
4. CONNECT TO NEAREST AVAILABLE 120V, 20A RECEPTACLE CIRCUIT.



HU-1 (ALT. #1), HU-2, HU-3 FLOOR PLAN-ELECTRICAL
SCALE: 1/4"=1'-0"

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SHEET TITLE:
**ELECTRICAL
PLANS BUILDING
HU-1(ALT. #1),
HU-2 & HU-3**

SHEET NUMBER:

E-200

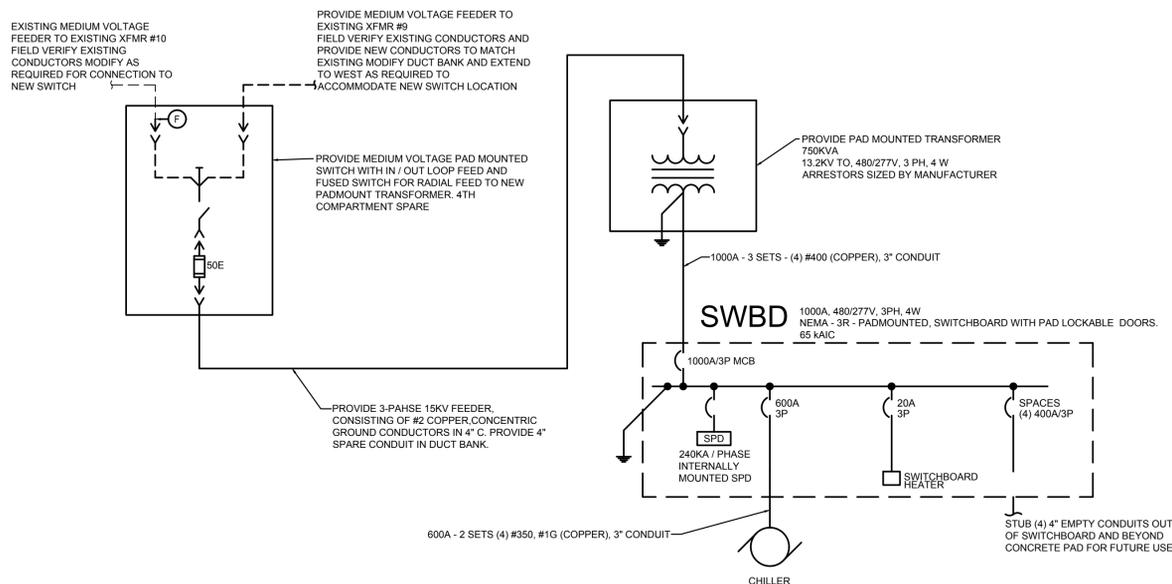


GENERAL NOTES (TYPICAL ALL SHEETS)

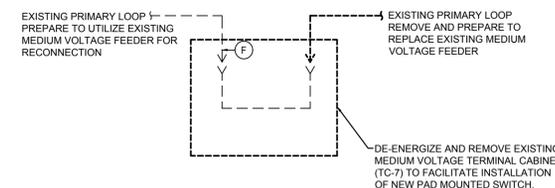
- ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND LOCALLY DISPOSED OF BY THE CONTRACTOR.
- PROVIDE UPDATED, TYPEWRITTEN PANELBOARD DIRECTORY FOR EACH PANELBOARD WHICH CIRCUITS HAVE BEEN ADDED TO OR MODIFIED.
- CONTRACTOR TO REFERENCE BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100AMPS.
- COORDINATE INSTALLATION REQUIREMENTS AND SCHEDULING OF ALL SYSTEM POWER OUTAGES WITH OWNER.
- CONDUIT SHALL BE USED FOR CONDUCTORS WHERE REQUIRED BY N.E.C.
- CONTRACTOR SHALL CALCULATE VOLTAGE DROP AND SIZE WIRE ACCORDINGLY. PER N.E.C.
- PROVIDE HOUSE KEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.

ELECTRICAL SYMBOLS

- BRANCH CIRCUIT CONCEALED IN CEILING OR WALL. ARROWS INDICATE HOMERUNS TO PANEL. ALL CONDUCTORS ARE MINIMUM NO.12 UNLESS NOTED OTHERWISE.
- PHASE CONDUCTORS
- NEUTRAL CONDUCTOR
- SWITCH-LESS AND/OR TRAVELER GROUND CONDUCTOR
- LP1-10 PANEL - BREAKER NUMBER (IDENTIFICATION)
- 1/3, 1/3/5 INDICATES XX= 2-POLE C.B., XX/X = 3-POLE C.B.
- HOMERUN INDICATED LIKE THIS INDICATED THREE SEPARATE CIRCUITS: 1-PHASE, 1-NEUTRAL, 1-GROUND WIRE. MINIMUM NO.12 WIRE UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
- CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SLAB.
- GROUNDING CONDUCTOR NO.12 WIRE EXCEPT AS NOTED
- MOTOR
- DISTRIBUTION PANEL (SURFACE OR FLOOR MOUNTED).
- SURFACE MOUNTED EQUIPMENT, TYPE AS INDICATED ON DRAWINGS
- FLUSH MOUNTED EQUIPMENT, TYPE AS INDICATED ON DRAWINGS
- CONDUIT UP
- CONDUIT DOWN
- CONDUIT STUBBED THRU WALL WITH BUSHINGS ON BOTH ENDS. SIZE AS NOTED ON PLANS.
- EMPTY CONDUIT STUB-UP INSIDE WALL TO ABOVE ACCESSIBLE CEILING WITH BUSHING ON THE END. SIZE AS NOTED ON DRAWINGS.
- GROUND
- POWER CONNECTION POINT
-
-
-
- MECHANICAL EQUIPMENT CALL OUT BUBBLE
- ELECTRICAL EQUIPMENT PROVIDED BY AND INSTALLED BY E.C.
- +4'-0" HEIGHT TO TOP OF THE OUTLET BOX ABOVE FINISHED FLOOR
- AFF ABOVE FINISH FLOOR
- ETR EXISTING TO REMAIN
- FA FIRE ALARM



1 NEW WORK PARTIAL ONE LINE DIAGRAM
NOT TO SCALE

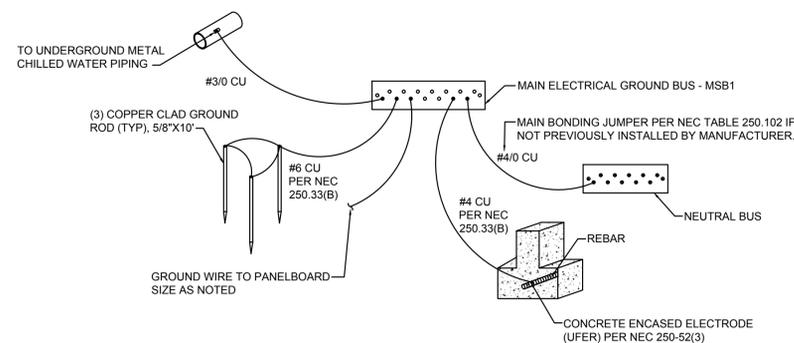


2 EXISTING PARTIAL ONE LINE DIAGRAM
NOT TO SCALE

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART *

OVERCURRENT PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2 WIRE + GND. CONDUIT SIZE	SINGLE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 4 WIRE + GND. CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1"	1-1/4"
70	4 AWG	8 AWG	1"	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"	1-1/2"

- * = UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- * = UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND FEEDERS TO BE PROVIDED WITH A NEUTRAL WIRE.
- * = ALL CONDUCTORS SIZED ON THE POWER RISER DIAGRAM OR IN BRANCH CIRCUIT CONDUCTOR TABLE ARE BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.



3 SWBD MAIN SERVICE ENTRANCE GROUNDING DETAIL
NO SCALE

EQUIPMENT CONNECTION SCHEDULE												FEEDER SIZE	EQUIPMENT BEING FEED FROM PANEL	NOTES	REVISION
UNIT ID (PLAN MARKING)	SIZE HP	KW	A	VOLTS	PH	SIZE	VOLTAGE RATING	NUMBER OF POLES	NEMA TYPE	MOC (NOTE 2)	NOTE 1				
CH	1	--	--	559	480	3	--	--	--	600	23/23/26	(2 SETS) 3" C, 4-#350 & 1-#2 G	SWBD	3	
AHU	1	25	--	74.8	208	3	--	--	--	125	23/26/26	2" C, 4-#2 & 1-#6 G	VFD	4	
AHU	2	25	--	74.8	208	3	--	--	--	125	23/26/26	2" C, 4-#2 & 1-#6 G	VFD	4	
AHU	3	25	--	74.8	208	3	--	--	--	125	23/26/26	2" C, 4-#2 & 1-#6 G	VFD	4	

GENERAL NOTE:
A DISCONNECTS SHALL BE "HP" HORSE POWER RATED WHERE APPLICABLE.

- NOTES:
- X/Y/Z
X=FURNISHED BY DIVISION (23 or 26)
Y=INSTALLED BY DIVISION (23 or 26)
Z=CONNECTED BY DIVISION (23 or 26)
 - MAXIMUM OVERCURRENT PROTECTION FUSE OR HACR CIRCUIT BREAKER PER MANUFACTURE'S LABEL
 - EQUIPMENT FURNISHED WITH SINGLE POINT POWER CONNECTION TO INTEGRAL EQUIPMENT DISCONNECT.
 - COMBINATION VFD / DISCONNECT FURNISHED BY DIV 23. EXTEND AND CONNECT TO EXISTING BRANCH CIRCUIT FEEDING PREVIOUS AHU/VFD AND MAKE ELECTRICAL CONNECTION FROM VFD TO NEW AHU.

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SHEET TITLE:

ELECTRICAL
DETAILS

SHEET NUMBER:

E-300

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12/21/2023