Replace HVAC, Multiple Assets
Fulton Treatment Center
Fulton, Missouri

Midwest
Engineering & Design
WWW.MOENGINEERING.COM
COLUMBIA, MO
573 875-0045

MECHANICAL, ELECTRICAL AND PLUMBING DESIGN

OWNER:	STATE OF MISSOURI MICHAEL L. KEHOE, GOVERNOR DEPARTMENT OF SOCIAL SERVICES
PROJECT MANAGEMENT:	OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DESIGNER:	MIDWEST ENGINEERING AND DESIGN 3100 BROWN STATION RD, SUITE C COLUMBIA, MISSOURI 65202

PROJECT NUMBER:	H2404-01
SITE NUMBER:	7708
ASSET NUMBER:	8877708002 - HOUSING UNIT "A" 8877708003 - HOUSING UNIT "B" 8877708004 - HOUSING UNIT "C"

SHEET NUMBER:

G-001

1 OF 16 SHEETS
05-05-2025

SHEET INDEX

GENERAL CONSTRUCTION NOTES

1 THESE DRAWINGS SHALL NOT BE SCALED. REFER TO DIMENSIONS INDICATED OR WHERE NO DIMENSIONS ARE GIVEN, CONTRACTOR SHALL VERIFY THE ACTUAL SIZE AND LOCATION THROUGH FIELD VERIFICATION. THE EXISTING CONDITIONS SHOWN ON THESE DRAWINGS WERE DERIVED FROM OBSERVATIONS AND MEASUREMENTS TAKEN DURING SITE VISITS AND FROM ARCHIVE INFORMATION PROVIDED BY THE OWNER AND MAY NOT BE TOTALLY ACCURATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ANY CRITICAL DIMENSIONS PRIOR TO BIDDING AND/OR FABRICATION AND INSTALLATION OF THE WORK.

2 IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR TO REVIEW THE DRAWINGS TO ASSURE COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW ALL CONTRACT DOCUMENTS FOR APPLICABLE ITEMS OF WORK SHALL NOT RELIEVE THE RESPONSIBLE PARTY FROM PERFORMING ALL WORK REQUIRED BY THE CONTRACT DOCUMENTS.

3 COORDINATION – THE GENERAL CONTRACTOR SHALL COORDINATE REQUIREMENTS OF ALL TRADES TO ALLOW FOR TIMELY INCLUSION IN THE WORK SO AS NOT TO DELAY THE WORK OR THE WORK OF ANY SUBCONTRACTOR.

4 PRECAUTIONS – CONTRACTOR SHALL IMMEDIATELY REPORT ANY UNFORESEEN STRUCTURAL CONDITIONS WHICH COULD RESULT IN DAMAGE TO THE STRUCTURE OR INJURY TO ITS OCCUPANTS REPORT ANY SUCH CONDITION IMMEDIATELY TO THE OWNER AND ENGINEER. TAKE PRECAUTIONS NECESSARY TO PROPERLY SUPPORT THE STRUCTURE AND PROTECT THE OCCUPANTS.

5 SITE USAGE – USE OF THE SITE FOR ANY CONSTRUCTION STAGING OR OTHER OPERATIONS SHALL BE COORDINATED WITH THE OWNER AND CONSTRUCTION ADMINISTRATOR. THE CONTRACTOR'S OPERATIONS SHALL NOT OBSTRUCT OR ADVERSELY AFFECT ANY PUBLIC OR OWNER AREAS.

6 EXIT ACCESS – MAINTAIN FREE, SAFE, AND APPROVED MEANS OF EGRESS IN AND OUT OF PROJECT LOCATION AND EXISTING OCCUPIED BUILDINGS IN ACCORDANCE WITH REQUIREMENTS OF APPLICABLE REGULATORY AGENCIES.

7 GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING RED LINE "AS–BUILT" DRAWINGS AT THE END OF THE PROJECT ALONG WITH ALL OPERATING MANUALS OF NEW SYSTEMS INSTALLED.

8 FULTON POWER COMPANY TO BE INVOLVED IN ELECTRICAL SERVICE SHUT DOWN AND POWER UP. ELC TO COORDINATE WITH CITY OF FULTON POWER COMPANY (MICAH HARRIS 573 592–3170) AND WITH OWNER OF ANY AND ALL POWER OUTAGES.

9 THIS PROJECT SHALL BE PHASED SUCH THAT ONLY ONE HOUSING UNIT WILL BE UNDER CONSTRUCTION AND/OR DEMOLITION AT A TIME UNLESS SPECIFICALLY APPROVED BY THE OWNER.

FULTON TREATMENT CENTER

1 FULTON TREATMENT CENTER VICINITY MAP
SCALE: NONE

EXPECTED CONSTRUCTION TRAILER LOCATION

2 FULTON TREATMENT CENTER LOCATION MAP
SCALE: NONE

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
JAMES L. DOVE
NUMBER PE-2002018644
PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-G.dwg
DRAWN BY: JJS
CHECKED BY: JLD
DESIGNED BY: JJS

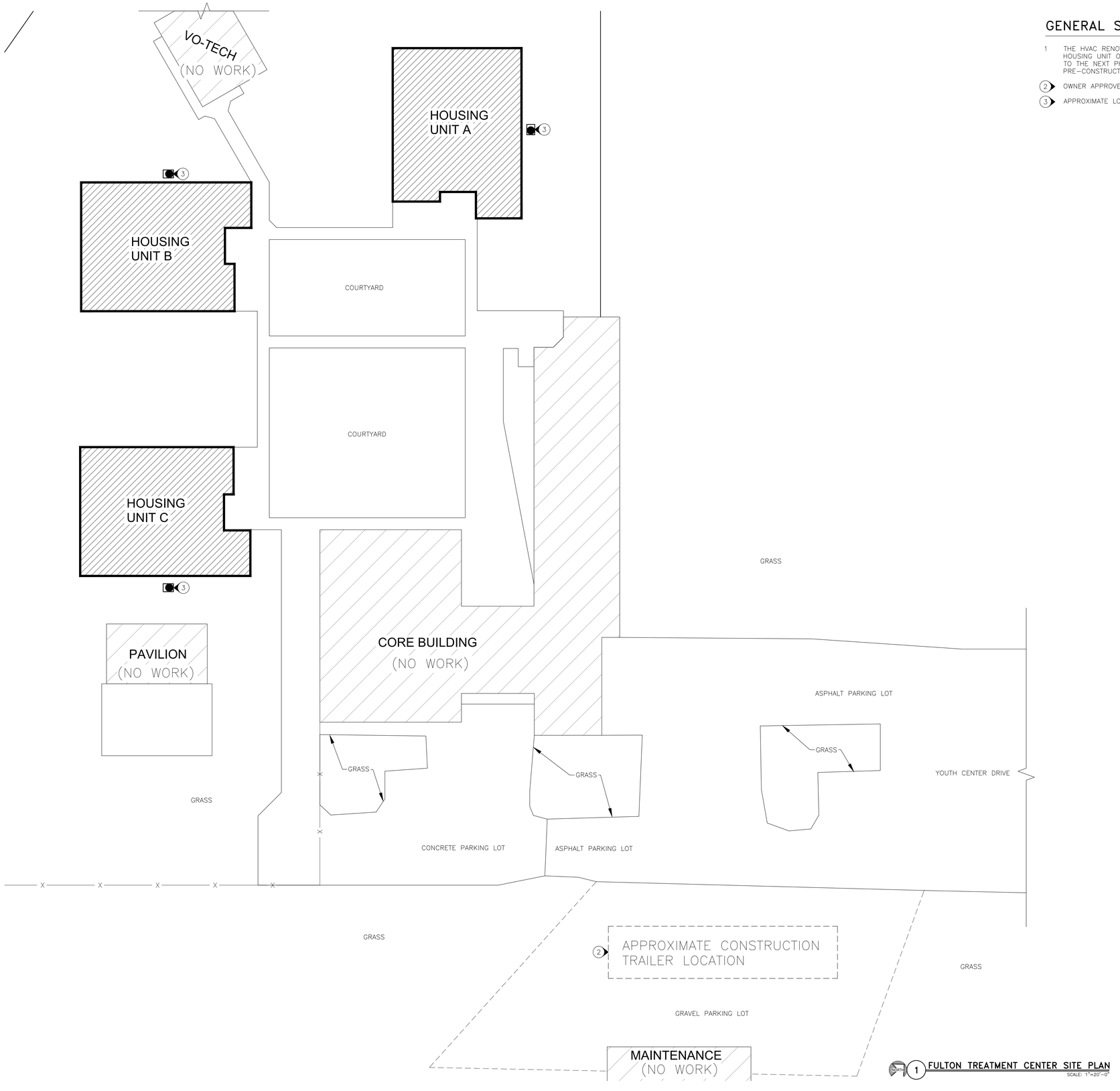
SHEET TITLE:

GENERAL NOTES, DRAWING INDEX, AND LOCATION MAP

SHEET NUMBER:

G-002

2 OF 16 SHEETS
05/05/2025



1 FULTON TREATMENT CENTER SITE PLAN
SCALE: 1"=20'-0"

GENERAL SITE NOTES

(N) INDICATES KEYED NOTES

1 THE HVAC RENOVATION OF EACH HOUSING UNIT IS EXPECTED TO BE BROKEN OUT INTO PHASES. EACH HOUSING UNIT OR PHASE SHALL BE COMPLETED THROUGH SUBSTANTIAL COMPLETION, PRIOR TO MOVING ON TO THE NEXT PHASE. THE PROJECT PHASING SHALL BE COVERED IN MORE DETAIL DURING THE PRE-BID AND PRE-CONSTRUCTION MEETINGS.

(2) OWNER APPROVED CONSTRUCTION TRAILER LOCATION. VERIFY EXACT LOCATION WITH OWNER.

(3) APPROXIMATE LOCATION ON NEW CONDENSER UNIT. SEE MECHANICAL PLAN SHEETS FOR EXACT LOCATION.

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HVAC REPLACEMENT

FULTON TREATMENT CENTER
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PROJECT # H2404-01
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ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-G.dwg
DRAWN BY: JJS
CHECKED BY: JLD
DESIGNED BY: JJS

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

G-003

3 OF 16 SHEETS
05/05/2025

PROJECT SCOPE SUMMARY

THIS PROJECT CONSISTS OF REPLACING THE COMPLETE HVAC SYSTEMS IN THE THREE HOUSING UNITS (A,B & C). SCOPE WILL INCLUDE NEW HVAC EQUIPMENT, CONTROLS, RELATED ELECTRICAL & DEMOLITION. THE EXISTING SUPPLY AIR DUCT AND RETURN AIR PLENUM SYSTEM WILL BE CLEANED, MODIFIED AS SHOWN & REUSED. ALL AIR DEVICES (SUPPLY DIFFUSERS, RETURN GRILLS & EXHAUST GRILLS) WILL BE REPLACED. THERE IS INCIDENTAL CEILING DEMOLITION, MODIFICATION & REFINISHING AS REQUIRED TO INSTALL NEW AIR DEVICES & AS REQUIRED TO ACCESS AREA ABOVE CEILING TO INSTALL NEW DUCT WORK AND MODIFY EXISTING DUCT WORK. THIS PROJECT DOES NOT MODIFY THE EXISTING FIRE SPRINKLER SYSTEM. THERE IS MINOR PLUMBING MODIFICATION FOR MUW TO THE HYDRONIC HEATING LOOP.

GENERAL PROJECT NOTES

1 REPAIR ANY DAMAGED LAWN AND/OR LANDSCAPING AS REQUIRED.

2 SEE SITE PLAN FOR CONSTRUCTION TRAILER AND STAGING AREAS ON SHEET G003.

3 THIS IS A SECURE SITE. ALL ACCESS IS TO COMPLY WITH THE OWNER'S REQUIREMENTS.

4 THE HOUSING UNITS WILL REMAIN OCCUPIED DURING CONSTRUCTION. THE RESIDENTS ATTEND CLASSES & EAT THEIR MEALS IN THE MAIN ADMIN BUILDING DURING THE WEEKDAYS. CONTRACTOR TO COORDINATE WITH THE STATE PROJECT MANAGER. SEE GENERAL CONSTRUCTION NOTES ON G002 FOR CONSTRUCTION PHASING.

5 TEMPORARY HEATING, COOLING & VENTILATION WILL BE REQUIRED. CONTRACTOR TO INCLUDE IN HIS BID THE COST OF PROVIDING TEMPORARY HEATING, COOLING & VENTILATION SYSTEM INCLUDING TEMPORARY POWER. THE METHOD AND MEANS CHOSEN IS LEFT UP TO THE CONTRACTOR. THE SYSTEM PROVIDED MUST MAINTAIN REASONABLE COMFORT THROUGHOUT THE PROJECT.

6 CEILING SPACE HAS LIMITED ACCESS. SUSPENDED CEILING SYSTEM WILL NOT SUPPORT A WORKER'S WEIGHT.

GENERAL HVAC CONSTRUCTION NOTES

1 FABRICATION, INSTALLATION AND TESTING OF ALL HVAC SYSTEMS SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) 2024, IBC 2021, ALL STATE AND LOCAL CODES, AND ALL MANUFACTURER INSTALLATION GUIDELINES & RECOMMENDATIONS.

2 ALL METALLIC AND FLEXIBLE DUCTS SHALL BE CONSTRUCTED, INSTALLED & SUPPORTED AS SPECIFIED IN THE IMC AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS 2021.

3 DUCT SIZES MAY BE MARKED ALONG THE LENGTH OF RUNS ON THE PLAN. IF THE DUCT SIZE CHANGES THE CONTRACTOR SHALL SELECT THE SUITABLE TRANSITION TO SATISFY THE CONNECTION. DUCT LAYOUT DRAWN FOR DESIGN INTENT AND CLARITY. MINIMIZE THE NUMBER OF TURNS AND FITTINGS IN DUCT WHERE EVER POSSIBLE WHILE MAINTAINING THE INTENDED DESIGN.

4 ALL DUCTWORK INDICATED WITH TWO DIMENSION <WxD> INDICATES RECTANGULAR DUCT. ALL <Dø> INDICATES ROUND DUCT. DIMENSIONS ARE INCHES MEASURED INSIDE. THE FIRST NUMBER IS THE SIDE SHOWN OR TOUCHED WITH THE ARROW HEAD.

5 ALL SUPPLY AIR & OUTSIDE AIR DUCTS WITHIN THE SPACE ABOVE THE CEILING & IN MECHANICAL ROOM SHALL BE INSULATED TO R6 MINIMUM EXTERNAL WRAP OR INSULATION BOARD W/ VAPOUR BARRIER. INSULATION SHALL MEET THE ASTM E-84 FLAME/SMOKE SPREAD INDEX. SEE SPECIFICATIONS.

6 PROVIDE STANDARD TURNING VANES OR CURVED ELBOW WITH SQUARE THROAT ON RECTANGULAR DUCTS IN BULLHEAD TEES AND ELBOWS GREATER THAN 45° UNLESS OTHERWISE MARKED. ALL CHANGES IN DUCT DIRECTION INDICATED WITH RADIUS FITTING SHALL MAINTAIN A CENTERLINE TURNING RADIUS OF 1.5 (MINIMUM) X DUCT DIAMETER.

7 FLEXIBLE DUCT SHALL BE LIMITED TO 7 FEET MAXIMUM LENGTH, UNLESS OTHERWISE INDICATED, BE REASONABLY WELL EXTENDED & SUPPORTED TO MINIMIZE PRESSURE DROP. FLEXIBLE DUCT SHALL NOT BE USED IN CHANGE OF DIRECTION OF MORE THAN 45 DEGREES, UNLESS OTHERWISE INDICATED OR APPROVED.

8 THE EXISTING SA & EA DUCT SYSTEMS INCLUDE BALANCE DAMPERS. THE ADJUSTMENT DEVICES ARE IN THE CEILING WITH COVER PLATES. THESE WILL BE USED TO BALANCE THE SYSTEMS TO THE SPECIFIED AIR FLOWS. THE RETURN AIR SYSTEM WILL BE BALANCED WITH DAMPERS AT EACH RETURN GRILL.

9 AN INDEPENDENT CERTIFIED BALANCING CONTRACTOR SHALL BALANCE THE AIR AND HYDRONIC SYSTEMS TO THE VALUES SPECIFIED AND SUBMIT A BALANCE REPORT. SEE SPECIFICATIONS.

10 PROVIDE SUITABLE SUPPORTS & VIBRATION ISOLATORS COMPLYING WITH SMACNA CONSTRUCTION STANDARDS & IMC, FOR STABILITY OF ALL HVAC EQUIPMENT AND DUCT.

11 PROVIDE VIBRATION ISOLATION DEVICES WHERE SHOWN & AT ALL EQUIPMENT WITH MOTORS AND/OR EQUIPMENT THAT MAY BE SUBJECT TO VIBRATION

12 COORDINATE LOCATION AND PLACEMENT OF ALL EQUIPMENT, DUCTS AND DEVICES WITH OTHER TRADES AND BUILDING STRUCTURE.

13 ALL DUCT TO BE GALVANIZED STEEL CONSTRUCTION UNLESS OTHERWISE NOTED.

14 ALL UNITS PRODUCING 2000 CFM OR GREATER TO HAVE DUCT SMOKE DETECTOR IN RETURN SYSTEM.

15 IT IS INTENDED THAT NOTHING IN THIS PROJECT REQUIRES ANY MODIFICATION TO OR RELOCATING OF FIRE SPRINKLER SYSTEM PIPING, SPRINKLER HEADS, CONTROLS, ETC. CONTRACTOR TO NOTIFY OWNER AND ENGINEER PROMPTLY BEFORE BIDDING IF THIS CAN NOT BE ACCOMPLISHED.

16 ALL DIMENSIONS & CONFIGURATION OF EXISTING DUCT WORK IS BASED ON EXISTING CONSTRUCTION DOCUMENTS AND LIMITED FIELD OBSERVATIONS. CONTRACTOR TO VERIFY & INFORM THE OWNER AND/OR ENGINEER IF SIGNIFICANT DISCREPANCIES ARE FOUND.

17 CONTRACTOR TO PROVIDE NEW HOUSEKEEPING PADS AS REQ'D FOR ALL HVAC EQUIPMENT AS SHOWN & AS REQ'D TO KEEP EQUIPMENT ABOVE FLOOR OR GRADE.

18 CONTRACTOR TO PAINT EXISTING/NEW GAS PIPE FROM POINT OF ENTRANCE INTO THE BUILDING TO EQUIPMENT WITH A HIGH PERFORMANCE PROTECTIVE ENAMEL GLOSS SAFETY YELLOW OIL-BASED INTERIOR/EXTERIOR PAINT.

HYDRONIC CONSTRUCTION NOTES

1 CONTRACTOR SHALL INSTALL ALL FITTINGS, PIPE AND OTHER HYDRONIC EQUIPMENT AS SPECIFIED & AS REQ'D FOR A COMPLETE OPERATING SYSTEM. ALL WORK TO COMPLY W/ IMC. SEE NOTE 1 ABOVE. HYDRONIC SYSTEM IS PART OF HVAC SYSTEM.

2 PROVIDE CONDENSATE DRAIN PIPES PER MANUFACTURER REQUIREMENTS FOR EACH AHU (AIR HANDLING UNIT), CONDENSING BOILER & ANY OTHER EQUIPMENT REQUIRING CONDENSATE DRAIN.

3 ANY COPPER PIPE CONNECTION TO STEEL OR OTHER DISSIMILAR METAL SHALL REQUIRE A DIELECTRIC UNION. PROTECT COPPER PIPE AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS, AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPE IS CARRIED ON IRON TRAPEZE HANGERS WITH OTHER PIPES, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL, SUCH AS EPDM RUBBER, TO PREVENT CONTACT WITH DISSIMILAR METALS.

4 CONTRACTOR SHALL PROVIDE NEW HEATING DEMONIZED-WATER WITH 50 PERCENT (BY VOLUME) INHIBITED PROPYLENE-GLYCOL HEAT TRANSFER FLUID EQUAL TO DOWFROST FLUID.

5 CONTRACTOR SHALL PRESSURE AND LEAK TEST THE COMPLETE HYDRONIC LOOP ACCORDING TO THE INTERNATIONAL MECHANICAL CODE. CONTRACTOR SHALL PROVIDE PRESSURE TEST REPORT.

6 CONTRACTOR TO PROVIDE NEW HOUSEKEEPING PADS AS REQ'D FOR ALL BOILERS AND HVAC EQUIPMENT AS SHOWN. AND AS REQUIRED TO KEEP EQUIPMENT ABOVE FLOOR OR GRADE.

7 REFRIGERANT PIPE TO BE COPPER PIPE (ASTM B42 & ASTM B43) AND/OR COPPER TUBE TYPE K (ASTM B280 OR ASTM B819).

8 HYDRONIC HEATING WATER PIPE TO BE ONE OF THE FOLLOWING:
COPPER PIPE (ASTM B42; ASTM B43; ASTM B302)
COPPER TUBE TYPE K (ASTM B75; ASTM B88; ASTM B135; ASTM B251)
IRON PIPE (AWWA C115/A21.15; AWWA C151/A21.51)
STEEL PIPE (ASTM A53; ASTM A106)
CROSS LINK POLYETHYLENE PRESSURE PIPE-PEX-AL-PEX (ASTM F1281; CSA CAN/CSA-B-137.10)

9 PIPE INSULATION:
HYDRONIC HEATING WATER PIPE AND ALL DEVICES TO BE INSULATED WITH JACKETED FIBERGLASS 1-1/2" MIN THK. JACKET TO BE PVC, ALUMINUM OR STAINLESS STEEL. PROVIDE APPROPRIATE MATCHING, FORMED INSULATION & JACKETS AT ALL FITTINGS AND PIPE SPECIALTIES, SEE SPECS.

HVAC SYSTEM CONTROLS NOTES

THE EXISTING CONTROLS PANEL & CONTROLS SYSTEM IS PROVIDED BY C&C GROUP – 2414 HYDE PARK RD JEFFERSON CITY, MO 65109. MODIFY TO PROVIDE THE SPECIFIED CONTROL SEQUENCE FOR THE NEW HVAC SYSTEM. MECHANICAL CONTRACTOR TO COORDINATE WITH CONTROLS CONTRACTOR AND INCLUDE C&C GROUPS PRICE IN THE BID.

CONTACT INFORMATION IS: BRIAN SCHEPERS – C&C GROUP – 573 632-4247 – BSCHEPERS@C-CGROUP.COM

CONTROLS CONTRACTOR TO SIZE & PROVIDE ACTUATORS FOR RA, RLA & OA CONTROL DAMPERS.

CONTROLS CONTRACTOR TO SIZE & PROVIDE MODULATING THREE WAY HEATING COIL CONTROL VALVE.

CONTROLS SEQUENCE

THE HOUSING UNITS ARE OCCUPIED CONTINUOUSLY. THERE WILL BE A LIGHT OCCUPANCY AND FULL OCCUPANCY SCHEDULE FOR THE BATH/SHOWER ROOM EXHAUST FAN AS FOLLOWS. ALL SET POINTS & SCHEDULES ARE ADJUSTABLE UNLESS OTHERWISE NOTED.

WEEK DAY FULL OCCUPANCY SHALL BE FROM 6:00AM TO 7:00AM AND 4:00PM TO 8:00PM. ALL OTHER WEEKDAY TIMES WILL BE LIGHT OCCUPANCY.

WEEKEND & HOLIDAY FULL OCCUPANCY SHALL BE FROM 6:00AM TO 8:00PM. THE REMAINDER WILL BE LIGHT OCCUPANCY.

HVAC SYSTEM
THIS IS A SINGLE ZONE, (2) SPEED, CONSTANT VOLUME, HEAT PUMP WITH HYDRONIC BACKUP HEATING BOILER AND DX COOLING.

THE SUPPLY FAN SHALL RUN AT FULL SPEED DURING COOLING. IT SHALL RUN AT LOW SPEED DURING HEATING UNLESS MORE AIR IS NEEDED TO SATISFY SPACE TEMPERATURE SET POINT IN WHICH CASE IT WILL SWITCH TO HIGH SPEED.

THERMOSTAT
A THERMOSTAT IS LOCATED IN THE OFFICE CONTROLLING SPACE TEMPERATURE. A NEW REMOTE SENSOR SHALL BE LOCATED IN THE DAY ROOM. SET POINT, SCHEDULES ETC ARE CONTROLLED FROM THE REMOTE BAS.

COOLING MODE
SUPPLY AND RETURN FAN SHALL RUN CONTINUOUSLY. THE CONDENSER UNIT AND COIL CONTROL VALVES SHALL BE CYCLED AND CONTROLLED BY IT'S FACTORY PROVIDED CONTROLLER TO SATISFY THE SPACE TEMPERATURE COOLING SET POINT. THE COOLING SET POINT SHALL BE RAISED TO 76°F (ADJ) DURING THE NIGHT.

ECONOMIZER CYCLE
THE RELIEF AIR, OUTSIDE AIR & RETURN AIR DAMPERS SHALL MODULATE TO MAINTAIN THE RETURN AIR SET POINT AS DEFINED BY THE DRY BULB ECONOMIZER CYCLE TO PROVIDE FREE COOLING WHEN THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE RETURN AIR AND THERE IS A CALL FOR COOLING.

DEMAND CONTROL VENTILATION
THE MINIMUM OUTSIDE AIR QUANTITY SHALL BE ADJUSTED BY THE CO2 SENSOR MOUNTED IN THE RETURN AIR DUCT TO MAINTAIN A MAX CO2 OF 900 PPM (ADJ) BUT SHALL NOT DROP BELOW THAT REQUIRED BY THE TOTAL EXHAUST AIR (EXF1 PLUS EXF2) AS DEFINED BY THE EXHAUST FAN OCCUPANCY SCHEDULE.

HEATING – HEAT PUMP
SUPPLY AND RETURN FAN SHALL RUN CONTINUOUSLY. THE HEAT PUMP SHALL BE CONTROLLED TO MAINTAIN THE SPACE TEMPERATURE SET POINT. THE HEATING SET POINT SHALL BE LOWERED DURING THE NIGHT (10:00PM TO 5:30AM) TO 70°F (ADJ). THE SET POINT SHALL BE 75°F DURING THE DAY. THE HEAT PUMP WILL STOP OPERATING AT 40°F OAT (ADJ).

HYDRONIC HEATING SYSTEM
THE BOILER, PUMP AND GAS VALVE WILL BE ENERGIZED WHEN THE HEAT PUMP REACHES IT'S LIMIT AS SENSED BY THE OUTDOOR TEMPERATURE SENSOR. THE BOILER SHALL BE CONTROLLED TO MAINTAIN THE SUPPLY WATER TEMPERATURE DEFINED BY A SET BACK SCHEDULE 180°F @ OAT 15°F AND BELOW TO 120°F MIN @ OAT OF 50° AND ABOVE. ALL POINTS ADJ. THE THREE-WAY HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT.

OFFICE TOILET EXHAUST FAN (EXF2) SHALL RUN CONTINUOUSLY.

BATH/SHOWER ROOM EXHAUST FAN
EXF1 SHALL BE TWO SPEED & SHALL BE ON LOW SPEED (150 CFM) FOR LIGHT OCCUPANCY & HIGH SPEED (410 CFM) FOR FULL OCCUPANCY.

ANTICIPATED CONTROL POINTS LIST

A FINAL POINTS LIST WILL BE GENERATED BY THE C&C GROUP DURING BIDDING. THE FOLLOWING IS THE ANTICIPATED LIST.

Supply Fan Start/Stop	DO
Supply Fan Status	DI
Return Air Temp	AI
Supply Air Temp	AI
Mixed Air Temp	AI
Economizer Dampers	AO
DX Cooling	DO (Per Stage)
HW Valve	AO
HW Pump Start/Stop	DO
HW Pump Status	DI
Boiler Enable	DO
Boiler Status	DI
Boiler Alarm	DI
Boiler Setpoint	AO
Fire Alarm Shutdown	DI (May not be required)
Space Temperature	Thermostat
Exhaust Fan Hi	DO
Exhaust Fan Low	DO
Exhaust Fan	DO
Return Air	CO2

HYDRONIC WATER TREATMENT

1 WATER TREATMENT SYSTEM: THE WINNING CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING WALTER LOUIS FLUID TECHNOLOGIES AS THE WATER TREATMENT CONTRACTOR AND INCLUDE ALL COSTS ASSOCIATED WITH INSTALLATION, EQUIPMENT, LABOR AND CHEMICALS ASSOCIATED WITH PROVIDING A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED ON THESE DOCUMENTS AND SPECIFICATIONS.

CONTACT INFORMATION: WALTER LOUIS FLUID TECHNOLOGIES, SALES@WALTERLOUIS.COM PH (217)-223-2017

HYDRONIC PIPE LEGEND

	PIPE REDUCER
	PIPE CONCENTRIC REDUCER
	PIPE ELBOW UP
	PIPE ELBOW DOWN
	PIPE ELBOW
	PIPE TEE UP
	PIPE TEE DOWN
	PIPE TEE
	PIPE TEE & ELBOW UP
	PIPE TEE & ELBOW DOWN
	FLEXIBLE PIPE CONNECTOR
	EXPANSION JOINT OR LOOP
	BALL VALVE
	GATE VALVE
	GLOBE VALVE
	3 WAY VALVE
M	MOTORIZED 3 WAY VALVE
M	MOTORIZED 2 WAY VALVE
M	MOTORIZED BALL VALVE
	CHECK VALVE
	STRAINER
	BALANCE VALVE
AV	AIR VENT
AAV	AUTOMATIC AIR VENT
	BALANCE DAMPER

PIPE ABBREVIATIONS

RFG	REFRIGERANT PIPE
CDP	CONDENSATE DRAIN PIPE
MUW	MAKE UP WATER
HHWS	HYDRONIC HEATING WATER SUPPLY
HHWR	HYDRONIC HEATING WATER RETURN
CW	DOMESTIC COLD WATER – PLUMBING
HW	DOMESTIC HOT WATER – PLUMBING
HWR	DOMESTIC HOT WATER RECIRC – PLUMBING

HVAC LEGEND

T AHU-1	THERMOSTAT WITH EQUIPMENT LABEL
R	REMOTE TEMERATURE SENSOR
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILL
	EXHAUST AIR GRILLE
	SUPPLY AIR DUCT (AXIAL VIEW)
	RA, OA, OR RLA, DUCT (AXIAL VIEW)
	EXHAUST AIR DUCT (AXIAL VIEW)
S1:ø 50	AIR DEVICE: TYPE, SIZE (INCHES)/CFM
AA N	EQUIPMENT TAG
T	THERMOSTAT
	DIRECTION OF FLOW
N LNNN	DETAIL REFERENCE, NUMBER/SHEET
	BALANCE DAMPER RECTANGULAR DUCT
	BALANCE DAMPER ROUND DUCT
CO2	CO2 SENSOR
SD	SMOKE DETECTOR DUCT MOUNTED

AIR ABBREVIATIONS

SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
OA	OUTSIDE AIR
RLA	RELIEF AIR
VA	VENTILATION AIR
(E)	EXISTING DUCT OR EQUIPMENT

EQUIPMENT ABBREVIATIONS

AHU	AIR HANDLER UNIT
CUH	CONDENSER/HEAT PUMP UNIT
CU	CONDENSER UNIT
EXF	EXHAUST FAN
RF	RETURN AIR FAN
B	BOILER
EXT	EXPANSION TANK
CPF	CHEMICAL POT FEEDER
(E)	EXISTING DUCT OR EQUIPMENT

AIR DEVICE ABBREVIATIONS

S	SUPPLY DIFFUSER OR GRILL
R	RETURN GRILL
E	EXHAUST GRILL
TG	TRANSFER GRILL
RH	RELIEF AIR HOOD
L	LOUVER
(E)	EXISTING DUCT OR EQUIPMENT

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI · JAMES L. DOVE · NUMBER PE-2002018644 · PROFESSIONAL ENGINEER
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CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

SHEET TITLE:

MECHANICAL RENOVATION NOTES AND LEGEND

SHEET NUMBER:

M-001

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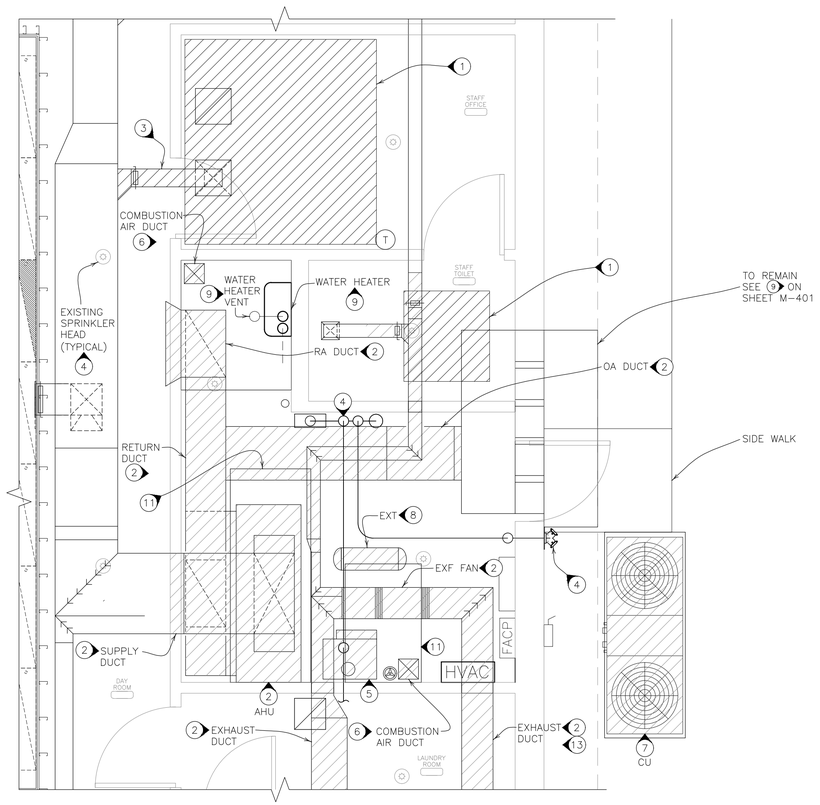
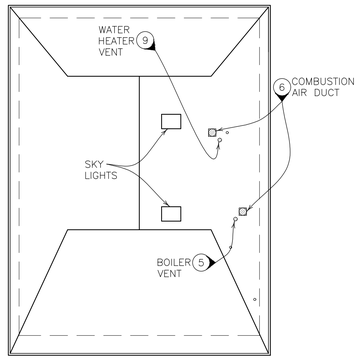
05/05/2025



3 DEMOLITION MECH ROOM – HOUSING UNIT A & B – C IS MIRROR IMAGE
SCALE: 3/8"=1'-0"



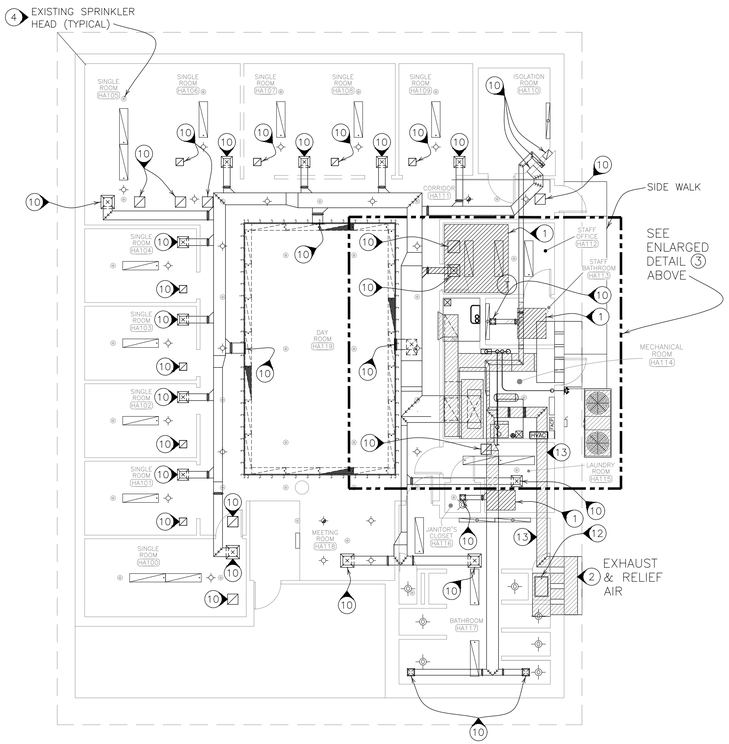
4 ROOF DEMOLITION HU A & B. C IS MIRROR IMAGE
SCALE: 1/16"=1'-0"

GENERAL DEMOLITION NOTES

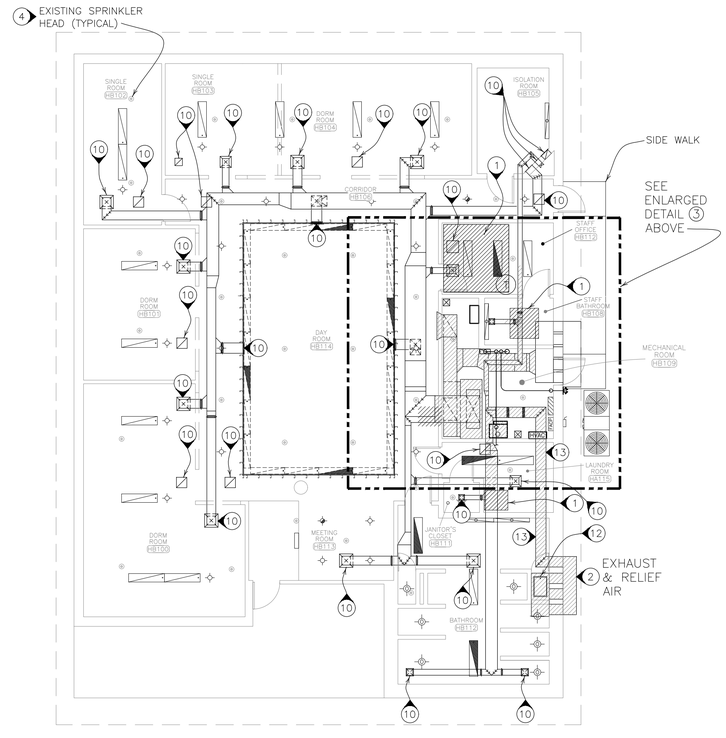
1. INFORMATION SHOWN ON DEMOLITION DRAWINGS & PLANS ARE FROM FIELD TAKE-OFF AND ORIGINAL DRAWINGS. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY PRIOR TO BIDDING AND/OR CONSTRUCTION.
2. AREA & CONFIGURATION OF REMOVED CEILING SHOWN IS A SUGGESTED CONFIGURATION DESIGNED TO MINIMIZE DISRUPTION TO EXISTING LIGHTS, SPRINKLER HEADS, OTHER CEILING MOUNTED EQUIPMENT & CEILING GRID SUPPORTING SYSTEM. ACTUAL CEILING REMOVED MAY BE DIFFERENT AND SHALL BE DETERMINED BY THE HVAC CONTRACTOR.
3. COVER ALL OPENINGS INTO THE BUILDING FROM THE WORK AREA. INSURE DEBRIS IS REMOVED FROM THE CONSTRUCTION AND DEMOLITION AREA AND AIR BORN DEBRIS IS NOT ALLOWED TO TRAVEL TO THE REMAINDER OF THE BUILDING. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLISHED MATERIAL AND EQUIPMENT.
4. REMOVE ALL UNUSED DUCTWORK AND AIR DEVICES EXCEPT AS NOTED.

KEYED DEMOLITION NOTES

1. SUGGESTED CEILING TO BE REMOVED TO ALLOW INSTALLATION OF NEW DUCT AND MODIFICATIONS.
2. EQUIPMENT & DUCT WORK TO BE REMOVED.
3. REMOVE BRANCH SA DUCT. SEE HVAC RENOVATION DWGS FOR NEW DUCT.
4. FIRE SPRINKLER SYSTEM TO REMAIN.
5. REMOVE BOILER, BOILER VENT, HYDRONIC HEATING PIPE, PUMP, VALVES, CHEMICAL POT FEEDER, ETC.
6. REMOVE COMBUSTION AIR DUCT, DAMPER AND CONTROLS. PROVIDE WEATHER TIGHT ROOF CLOSURE AS REQUIRED. MATCH EXISTING ROOF CONSTRUCTION.
7. REMOVE CONDENSER UNIT, PAD, & REFRIGERANT PIPING.
8. REMOVE EXPANSION TANK, WATER SUPPLY & ASSOCIATED PIPING.
9. WATER HEATER TO REMAIN. VENT SYSTEM TO BE REPLACED.
10. REMOVE EXISTING SUPPLY DIFFUSER, RETURN GRILLE OR EXHAUST GRILLE. REUSE PLASTER FRAME IF PRACTICAL.
11. REMOVE EXISTING EQUIP. PADS AT BOILER AND AHU OR MODIFY AS REQ'D FOR NEW EQUIP.
12. EXISTING ACCESS HATCH IN CEILING.
13. A PORTION OF THIS DUCT CAN BE LEFT ABANDONED IN PLACE. CONTRACTOR TO REMOVE AS MUCH AS POSSIBLE WITHOUT ADDITION CEILING DEMOLITION.



NORTH 1 DEMOLITION FLOOR PLAN – HOUSING UNIT A
SCALE: 1/8"=1'-0"



NORTH 2 DEMOLITION FLOOR PLAN – HOUSING UNIT B. HOUSING UNIT C IS MIRROR IMAGE
SCALE: 1/8"=1'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

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JAMES L. DOVE
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05-05-2025

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OFFICE OF ADMINISTRATION
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DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

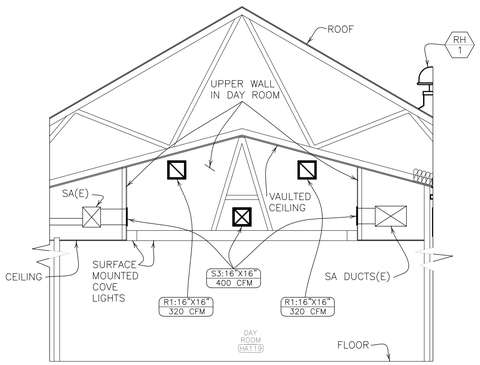
SHEET TITLE:

MECHANICAL DEMOLITION PLAN

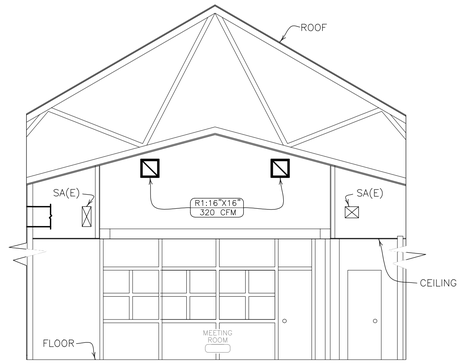
SHEET NUMBER:

MDP-101

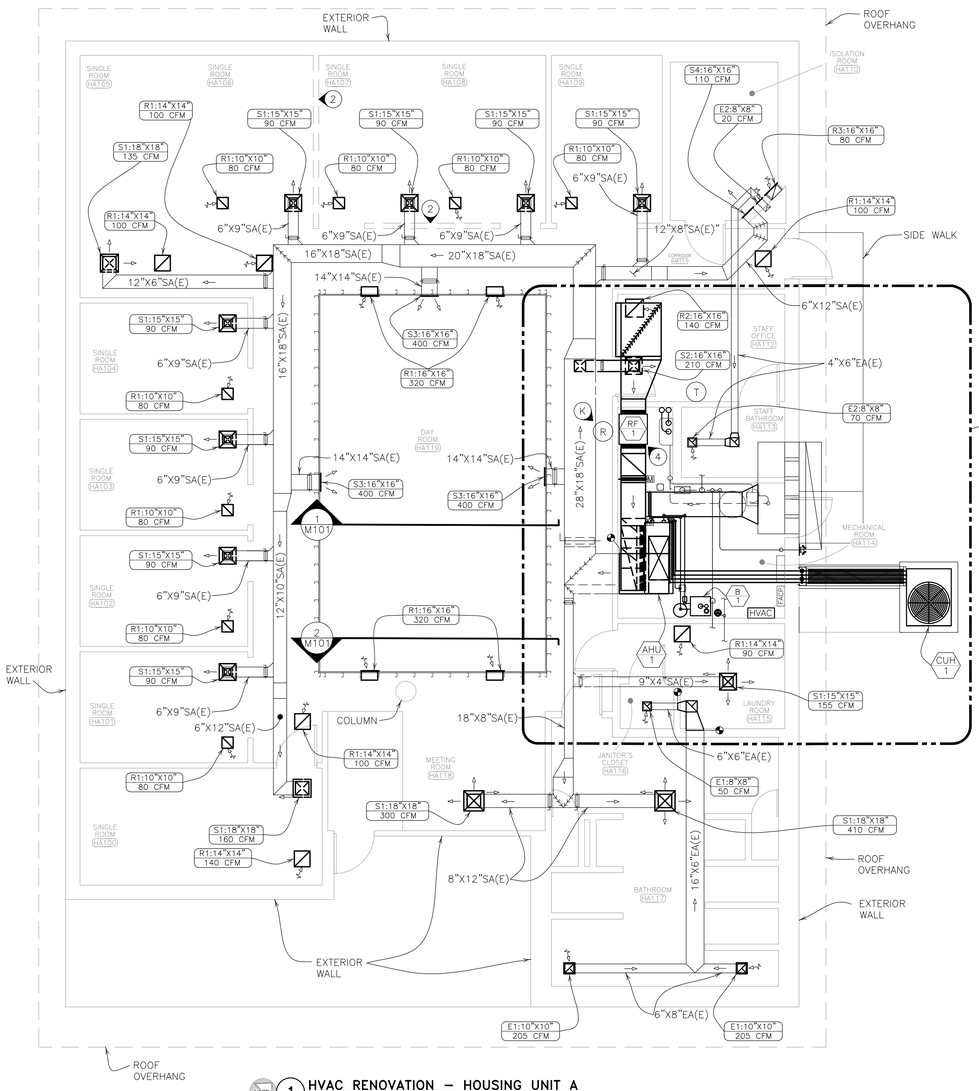
5 OF 16 SHEETS
05/05/2025



1 M101 **ELEVATION LOOKING NORTH–HOUSING UNIT A**
SCALE: 3/16"=1'–0"

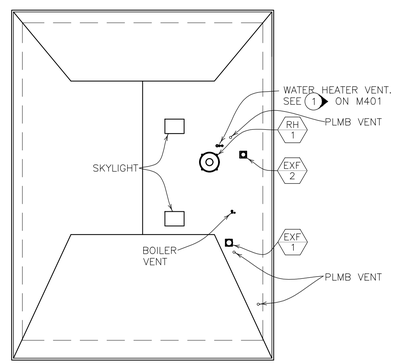


2 M101 **ELEVATION LOOKING SOUTH–HOUSING UNIT A**
SCALE: 3/16"=1'–0"

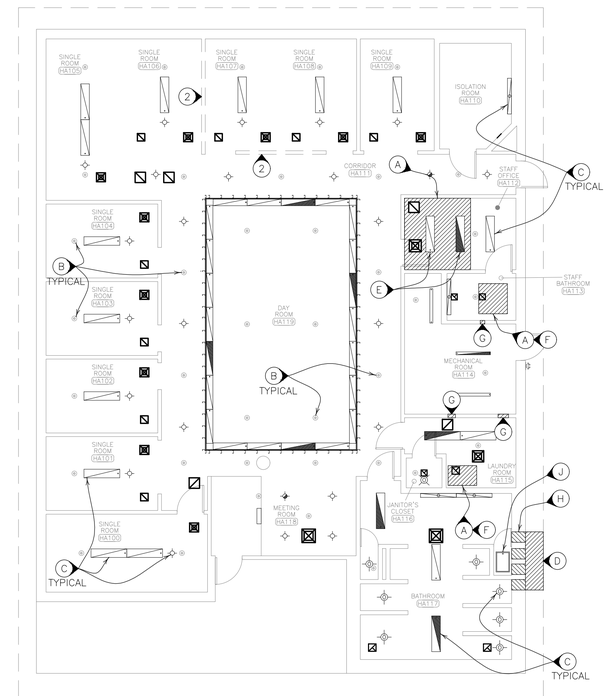


SEE ENLARGED MECHANICAL ROOM PLAN DET 1 SHEET M–401

1 **HVAC RENOVATION – HOUSING UNIT A**
SCALE: 3/16"=1'–0"



2 **ROOF PLAN – HOUSING UNIT A**
SCALE: 1/16"=1'–0"



3 **CEILING & SOFFIT & WALL WORK– HOUSING UNIT A**
KEYED NOTES ON SHEET M–001
SCALE: 1/8"=1'–0"

HVAC NOTES

(N) INDICATES KEYED NOTES

1. ALL EXISTING AIR DEVICES ARE REPLACED IN THIS PROJECT. NEW DEVICE FACE SIZES ARE SIZED TO MATCH EXISTING. CONTRACTOR TO VERIFY. NECK SIZE MAY VERY. PROVIDE TRANSITION AS REQ'D. RE–USE EXISTING PLASTER FRAMES IF PRACTICAL & PROVIDED THEY ARE IN GOOD CONDITION –OR– REPLACE.
2. LOW HALF WALL DOES NOT EXTEND TO THE CEILING.
3. ALL EXISTING DUCT SIZES SHOWN ARE BASED ON EXISTING CONSTRUCTION DOCUMENTS & LIMITED FIELD OBSERVATIONS. CONTRACTOR TO VERIFY.
4. PROVIDE FIRE DAMPER AT RATED ASSEMBLY PENETRATION. SEE DETAIL (13) ON M–501.
5. CONTRACTOR TO REPAIR & REPLACE DAMAGED SUPPLY DUCT INSULATION AS REQUIRED.
6. CONTRACTOR TO CLEAN RETURN AIR PLENUM INCLUDING, BUT NOT LIMITED TO, TOP OF CEILING, EXTERIOR SURFACES OF SUPPLY & EXHAUST DUCT, OF ALL ACCUMULATED DUST & DEBRIS.
7. CONTRACTOR TO VERIFY THAT EXISTING RETURN AIR PLENUM IS SEALED TO THE EXTERIOR & SCISSORS TRUSS ATTIC SPACE AS REQUIRED, TO PROVIDE FUNCTIONAL RETURN AIR PLENUM WITH NO LEAKS. CONTRACTOR TO INCLUDE IN THEIR BID ANY REPAIR REQUIRED TO ACHIEVE A SEALED RETURN AIR PLENUM.

CEILING RENOVATION NOTES

(N) INDICATES KEYED NOTES

- (A) INSTALL NEW 5/8" X GYP BOARD CEILING SYSTEM TO MATCH EXISTING IN ALL AREAS WHERE CEILING HAS BEEN REMOVED OR REINSTALL SECTION THAT WAS REMOVED. PLASTER & SAND ALL SEAMS AS REQ'D TO ACHIEVE A FLAT SMOOTH CEILING. REPAIR OR REPLACE CEILING SUPPORT SYSTEM AS REQ'D. FINISH TO MATCH EXISTING. APPLY 2 COATS OF PRIMER TO NEW GYP BOARD & PLASTERED AREAS. APPLY 2 COATS WHITE CEILING PAINT OVER ENTIRE CEILING, IN ALL ROOMS AFFECTED.
- (B) EXISTING FIRE SPRINKLER HEADS TO REMAIN. THESE SHOULD NOT BE DISTURBED IN THIS PROJECT.
- (C) EXISTING LIGHT FIXTURES TO REMAIN. IT IS ANTICIPATED THAT MOST OF THE LIGHT FIXTURES WILL NOT BE DISTURBED. COORDINATE WITH ELECTRICAL CONTRACTOR IF ANY ADDITIONAL LIGHT FIXTURES NEED TO BE REMOVED AND REINSTALLED.
- (D) INSTALL OVERHANG SOFFIT TO FILL AREA WHERE EXHAUST & RELIEF AIR LOUVER IS REMOVED. CONSTRUCTION & FINISH TO MATCH EXISTING. FILL OPENINGS WHERE RELIEF DAMPER IS REMOVED SUCH THAT RETURN AIR CEILING PLENUM IS SEALED. MATCH ADJACENT CONSTRUCTION. SEE NOTE 7.
- (E) REMOVE & REINSTALL LIGHT FIXTURE AS REQ'D. SEE ELECTRICAL DRAWINGS.
- (F) PROVIDE ACCESS METAL HATCH (18"X18" MIN) IN CEILING SIZED AS REQ'D. FOR FIRE DAMPER ACCESS.
- (G) PATCH MECH ROOM WALL WHERE EXHAUST DUCT WAS REMOVED. MATCH EXISTING WALL CONSTRUCTION, RATING & FINISH.
- (H) FILL OPENINGS IN WALL WHERE RELIEF DAMPER IS REMOVED SUCH THAT RETURN AIR CEILING PLENUM IS SEALED. MATCH ADJACENT CONSTRUCTION. SEE NOTE 7.
- (J) EXISTING ACCESS HATCH IN CEILING.
- (K) INSTALL NEW WALL MOUNTED REMOTE TEMPERATURE SENSOR IN DAY ROOM. INTERCONNECT WITH EXISTING T–STAT AND EXISTING BAS SYSTEM.

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ASSET# 8877708002 UNIT A
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ASSET# 8877708004 UNIT C

REVISION:
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ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

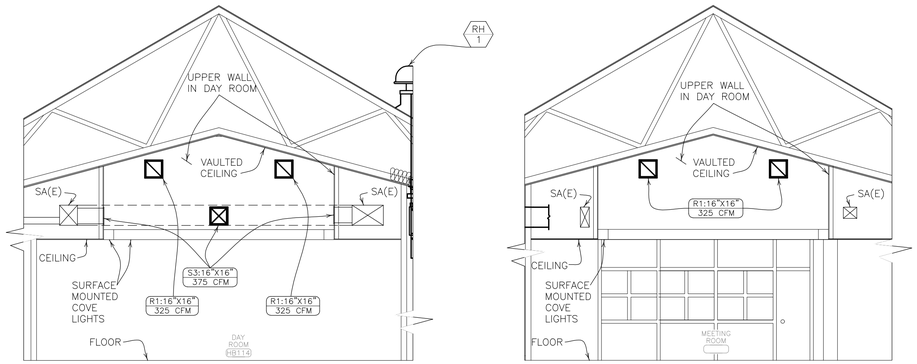
SHEET TITLE:

MECHANICAL RENOVATION PLAN - UNIT A

SHEET NUMBER:

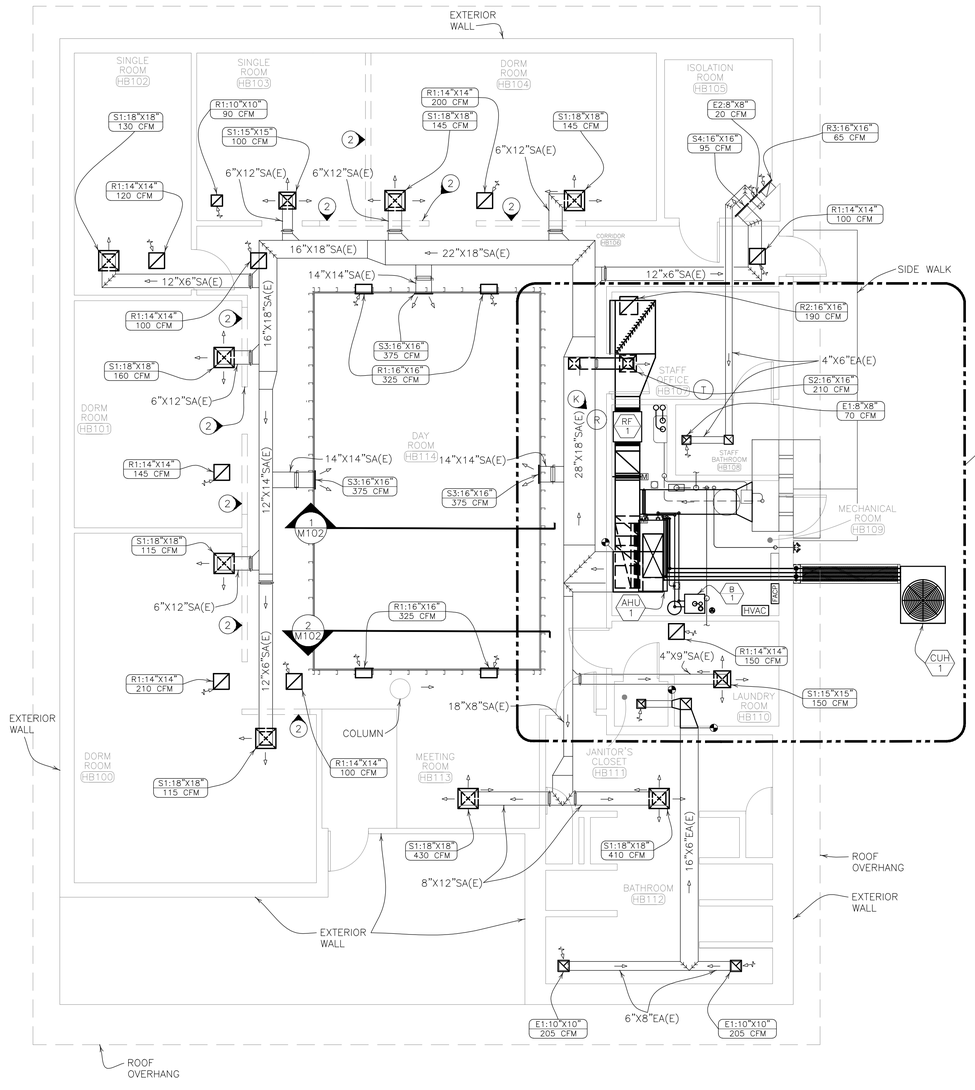
M-101

6 OF 16 SHEETS
05/05/2025



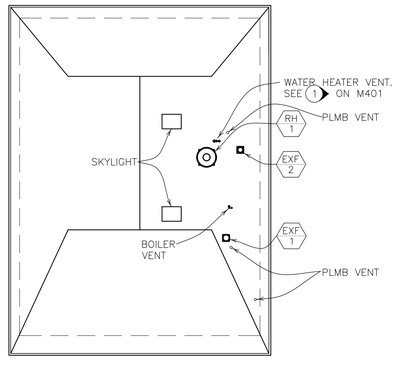
1 M102 **ELEVATION LOOKING SOUTH–HOUSING UNIT B**
SCALE: 3/16"=1'-0"

2 M102 **ELEVATION LOOKING NORTH–HOUSING UNIT B**
SCALE: 3/16"=1'-0"

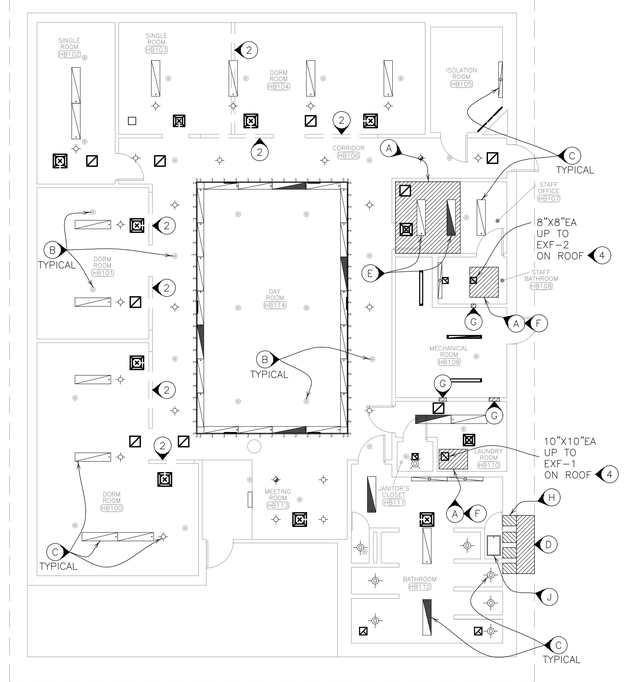


SEE ENLARGED MECHANICAL ROOM PLAN DET (1) SHEET M–401

NORTH 1 **HVAC RENOVATION – HOUSING UNIT B**
SCALE: 3/16"=1'-0"



NORTH 2 **ROOF PLAN – HOUSING UNIT B**
SCALE: 1/16"=1'-0"



NORTH 3 **CEILING SOFFIT & WALL WORK– HOUSING UNIT B**
SCALE: 1/8"=1'-0"

HVAC NOTES

(N) INDICATES KEYED NOTES

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5. CONTRACTOR TO REPAIR & REPLACE DAMAGED SUPPLY DUCT INSULATION AS REQUIRED.
6. CONTRACTOR TO CLEAN RETURN AIR PLENUM INCLUDING, BUT NOT LIMITED TO, TOP OF CEILING, EXTERIOR SURFACES OF SUPPLY & EXHAUST DUCT, OF ALL ACCUMULATED DUST & DEBRIS.
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CEILING RENOVATION NOTES

(N) INDICATES KEYED NOTES

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(E) REMOVE & REINSTALL LIGHT FIXTURE AS REQ'D. SEE ELECTRICAL DRAWINGS.

(F) PROVIDE ACCESS METAL HATCH (18"X18" MIN) IN CEILING SIZED AS REQ'D. FOR FIRE DAMPER ACCESS.

(G) PATCH MECH ROOM WALL WHERE EXHAUST DUCT WAS REMOVED. MATCH EXISTING WALL CONSTRUCTION, RATING & FINISH.

(H) FILL OPENINGS IN WALL WHERE RELIEF DAMPER IS REMOVED SUCH THAT RETURN AIR CEILING PLENUM IS SEALED. MATCH ADJACENT CONSTRUCTION. SEE NOTE 7.

(J) EXISTING ACCESS HATCH IN CEILING.

(K) INSTALL NEW WALL MOUNTED REMOTE TEMPERATURE SENSOR IN DAY ROOM. INTERCONNECT WITH EXISTING T–STAT AND EXISTING BAS SYSTEM.

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HVAC REPLACEMENT

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FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
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REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

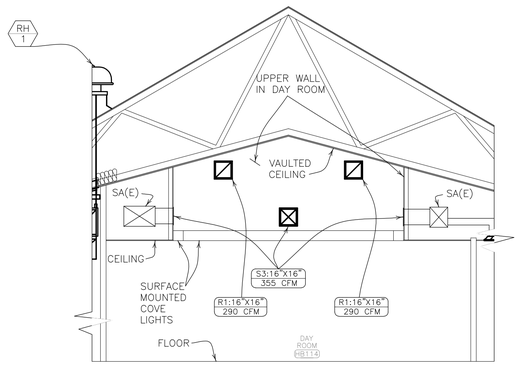
SHEET TITLE:

MECHANICAL RENOVATION PLAN - UNIT B

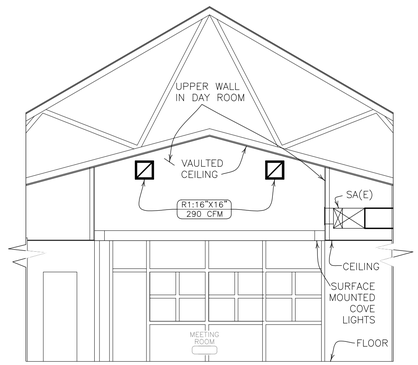
SHEET NUMBER:

M-102

7 OF 16 SHEETS
05/05/2025

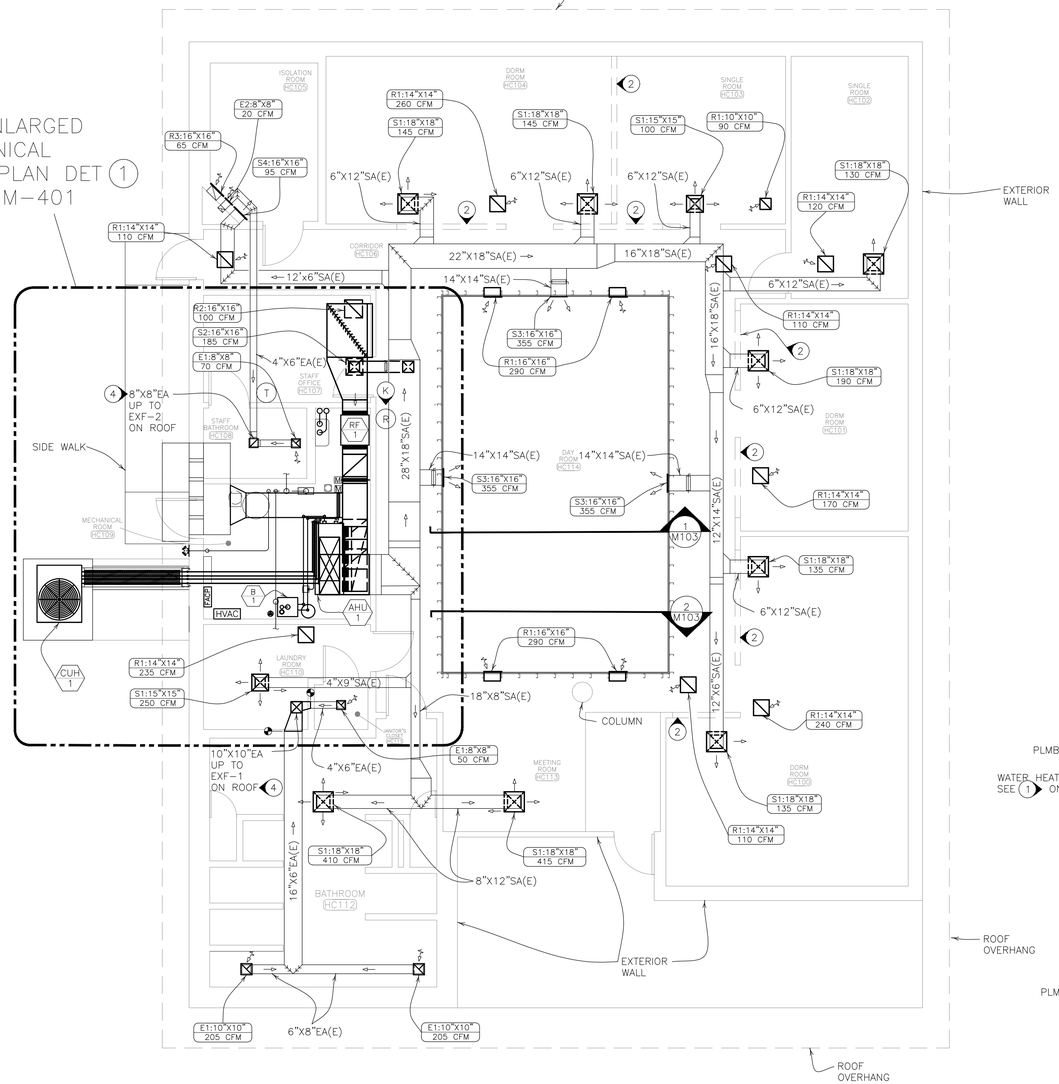


1 M103 **ELEVATION LOOKING SOUTH–HOUSING UNIT C**
SCALE: 3/16"=1'–0"

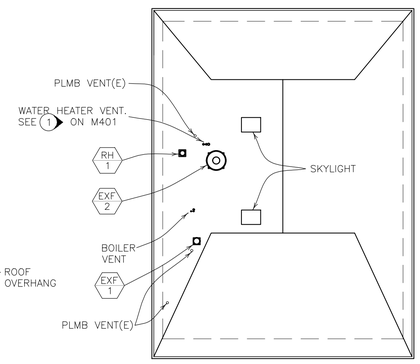


2 M103 **ELEVATION LOOKING NORTH–HOUSING UNIT C**
SCALE: 3/16"=1'–0"

SEE ENLARGED MECHANICAL ROOM PLAN DET 1 SHEET M–401



1 **HVAC RENOVATION – HOUSING UNIT C**
SCALE: 3/16"=1'–0"



2 **ROOF PLAN – HOUSING UNIT C**
SCALE: 3/16"=1'–0"

HVAC NOTES

(N) INDICATES KEYED NOTES

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CEILING RENOVATION NOTES

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(A) INSTALL NEW 5/8" X GYP BOARD CEILING SYSTEM TO MATCH EXISTING IN ALL AREAS WHERE CEILING HAS BEEN REMOVED OR REINSTALL SECTION THAT WAS REMOVED. PLASTER & SAND ALL SEAMS AS REQ'D TO ACHIEVE A FLAT SMOOTH CEILING. REPAIR OR REPLACE CEILING SUPPORT SYSTEM AS REQ'D. FINISH TO MATCH EXISTING. APPLY 2 COATS OF PRIMER TO NEW GYP BOARD & PLASTERED AREAS. APPLY 2 COATS WHITE CEILING PAINT OVER ENTIRE CEILING, IN ALL ROOMS AFFECTED.

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(G) PATCH MECH ROOM WALL WHERE EXHAUST DUCT WAS REMOVED. MATCH EXISTING WALL CONSTRUCTION, RATING & FINISH.

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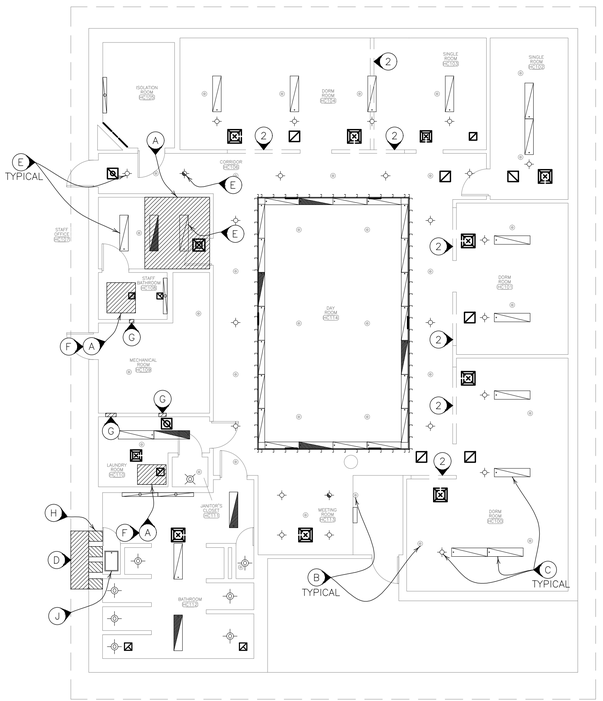
(K) INSTALL NEW WALL MOUNTED REMOTE TEMPERATURE SENSOR IN DAY ROOM. INTERCONNECT WITH EXISTING T–STAT AND EXISTING BAS SYSTEM.



3 **CEILING SOFFIT & WALL WORK– HOUSING UNIT C**
SCALE: 1/8"=1'–0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI JAMES L. DOVE NUMBER PE-2002018644 PROFESSIONAL ENGINEER
05-05-2025

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REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

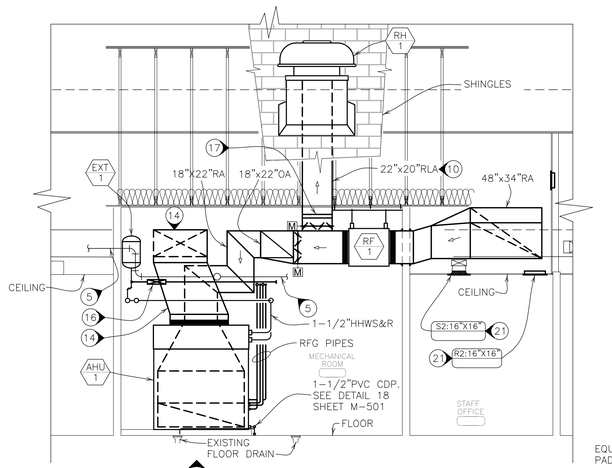
SHEET TITLE:

MECHANICAL RENOVATION PLAN - UNIT C

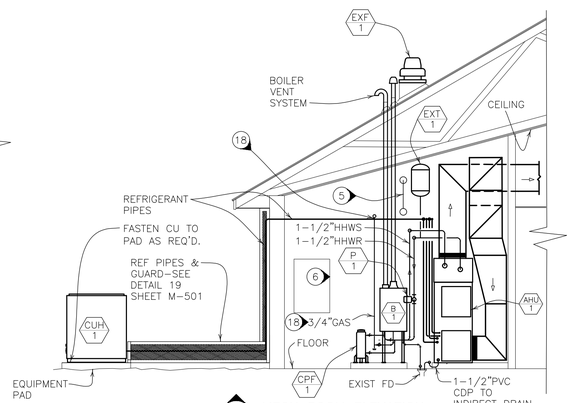
SHEET NUMBER:

M-103

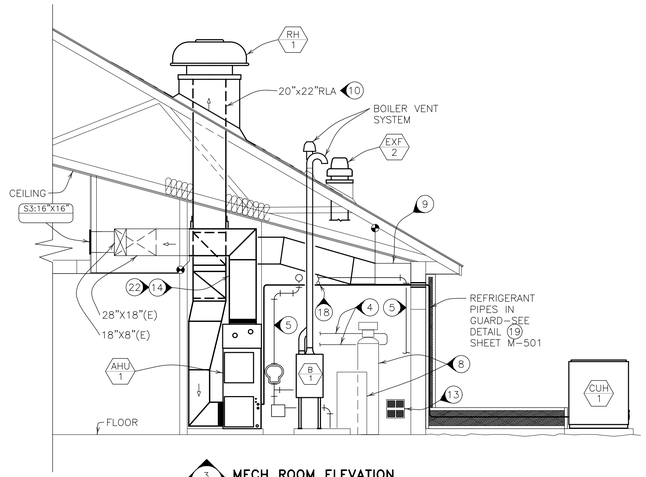
8 OF 16 SHEETS
05/05/2025



1 M401 **MECH ROOM ELEVATION**
SCALE: 1/4"=1'-0"



2 M401 **MECH ROOM ELEVATION**
SCALE: 1/4"=1'-0"

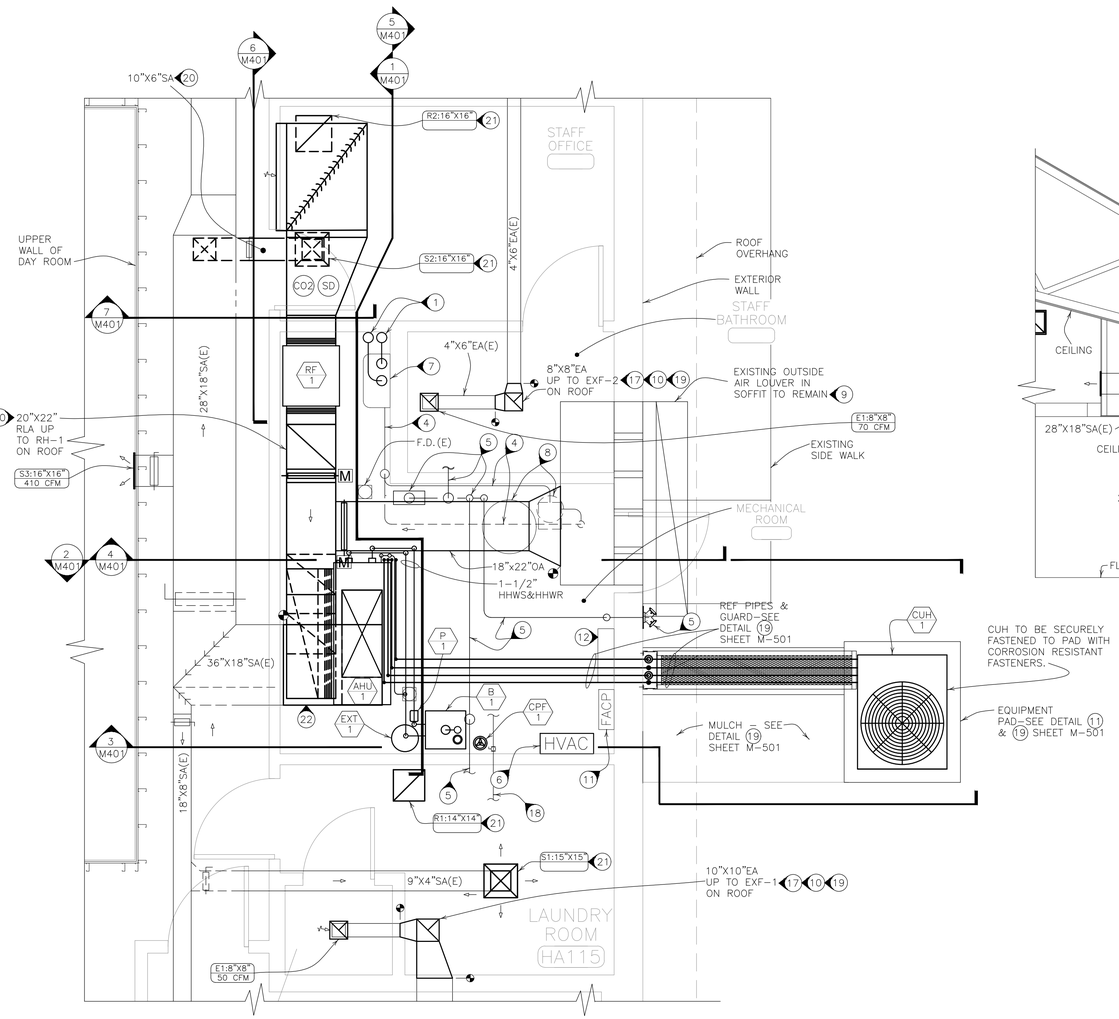


3 M401 **MECH ROOM ELEVATION**
SCALE: 1/4"=1'-0"

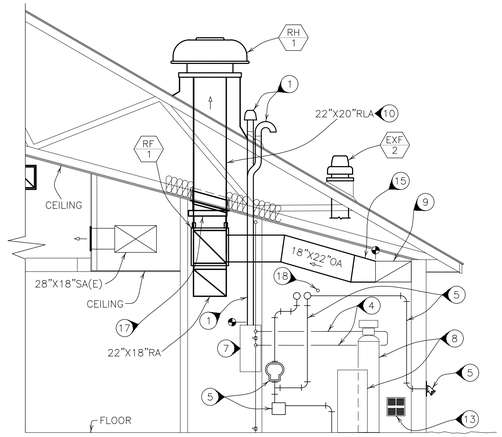
NOTES

(N) INDICATES KEYED NOTES

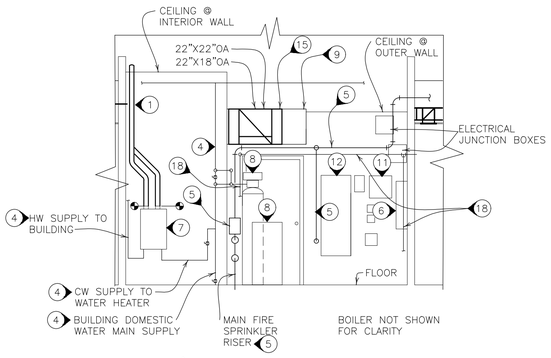
1. PROVIDE NEW PVC COMBUSTION AIR & VENT PIPE UP THROUGH ROOF FOR EXISTING WATER HEATER. COMPLY WITH ALL APPLICABLE CODES & MFR'S RECOMMENDATIONS.
2. ALL EXISTING AIR DEVICES ARE REPLACED IN THIS PROJECT. NEW DEVICE FACE SIZES ARE SIZED TO MATCH EXISTING. CONTRACTOR TO VERIFY. NECK SIZE MAY VERY. PROVIDE TRANSITION AS REQ'D.
3. EXISTING SUPPLY AIR DUCT. SIZE INDICATED IS FROM EXISTING CONSTRUCTION DOCUMENTS. CONTRACTOR TO VERIFY.
4. EXISTING DOMESTIC WATER PIPES TO REMAIN.
5. EXISTING FIRE SPRINKLER SYSTEM TO REMAIN.
6. EXISTING HVAC CONTROLS CABINET TO REMAIN. CONTROLS TO BE MODIFIED AS INDICATED IN CONTROL SEQUENCE. SEE M-001
7. EXISTING DOMESTIC WATER HEATER TO REMAIN.
8. EXISTING WATER SOFTENER SYSTEM TO REMAIN.
9. EXISTING OUTDOOR AIR LOUVER, PLENUM & DUCT SYSTEM TO REMAIN & REUSED AS INDICATED. CONTRACTOR TO VERIFY CONDITION & ACCEPTABILITY OF EXISTING EQUIPMENT & MODIFY AS REQUIRED. TO PROVIDE FULLY FUNCTIONAL SYSTEM.
10. RELIEF DUCT & EXHAUST DUCTS TO PASS BETWEEN EXISTING TRUSSES (24" ON CENTERS). DO NOT CUT TRUSS MEMBERS.
11. EXISTING FIRE PROTECTION SYSTEM PANEL TO REMAIN.
12. EXISTING ELECT PANEL. SEE ELEC DWGS.
13. ELECTRIC WALL MOUNT UNIT HEATER TO REMAIN.
14. SUPPLY DUCT TO BE SIZED TO MATCH AIR HANDLER DISCHARGE AND EXISTING MAIN SUPPLY DUCT (36"X18" PER CONSTRUCTION DOCUMENTS. CONTRACTOR TO VERIFY). PROVIDE TRANSITIONS AS REQ'D.
15. TRANSITION FROM EXISTING OUTSIDE AIR PLENUM TO 22"X18" OA DUCT. CONTRACTOR TO VERIFY SIZES REQUIRED.
16. EXTEND MAKE UP WATER AS REQ'D TO EXPANSION TANK PIPING AS SHOWN. PROVIDE NEW RPBP, VALVES, & OTHER PIPING DEVICES. SEE EXPANSION TANK INSTALLATION DETAIL 3 SHEET M-501.
17. PROVIDE FIRE DAMPER AT RATED ASSEMBLY PENETRATION. SEE DETAIL 13 ON M-501.
18. EXISTING NATURAL GAS PIPE. EXTEND AS REQ'D TO FEED NEW BOILER. SEE DET 7 ON M-501.
19. PROVIDE TRANSITION FITTINGS AS REQUIRED TO FEED NEW RISER TO EXF.
20. TIE NEW SA TO BOTTOM OF 28"X18"SA(E). PROVIDE BALANCE DAMPER W/ADJUSTMENT DEVICE TO MATCH EXISTING. FEED OFFICE SUPPLY DIFFUSER.
21. SEE M101, M102, OR M103 FOR CFM VALUES.
22. SUPPLY DUCT TO BE LINED W/ .5" OR .75" DUCT LINER FROM AHU DISCHARGE TO CONNECTION TO EXISTING SUPPLY DUCT FOR NOISE CONTROL.
23. RETURN AIR DUCT TO BE LINED W/ .5" OR .75" DUCT LINER FROM RETURN AIR INLET TRANSITION FITTING TO RETURN AIR FAN INLET FOR NOISE CONTROL.



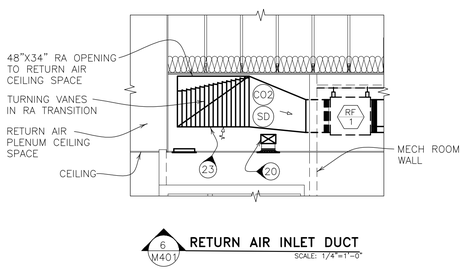
1 **PLAN OF MECH ROOM-UNIT A & B. UNIT C IS MIRROR IMAGE**
SCALE: 3/8"=1'-0"



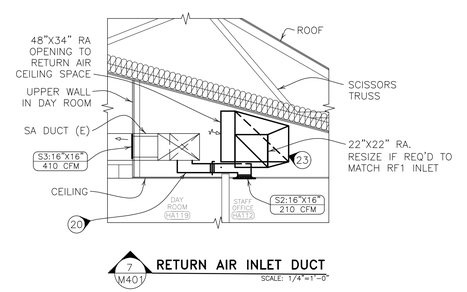
4 M401 **MECH ROOM ELEVATION**
SCALE: 1/4"=1'-0"



5 M401 **MECH ROOM ELEVATION**
SCALE: 1/4"=1'-0"



6 M401 **RETURN AIR INLET DUCT**
SCALE: 1/4"=1'-0"



7 M401 **RETURN AIR INLET DUCT**
SCALE: 1/4"=1'-0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI JAMES L. DOVE NUMBER PE-2002018644 PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

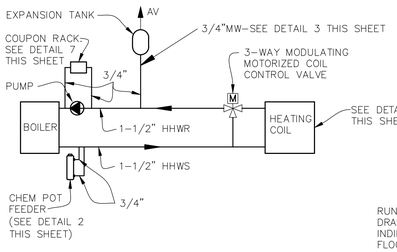
SHEET TITLE:

ENLARGED HVAC VIEWS

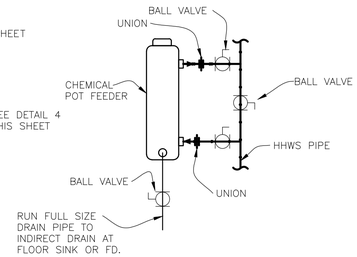
SHEET NUMBER:

M-401

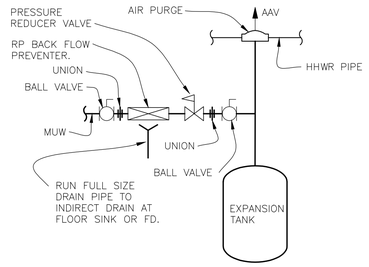
9 OF 16 SHEETS
05/05/2025



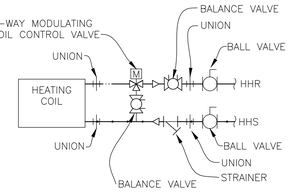
1 HYDRONIC HEATING PIPING SCHEMATIC
NO SCALE



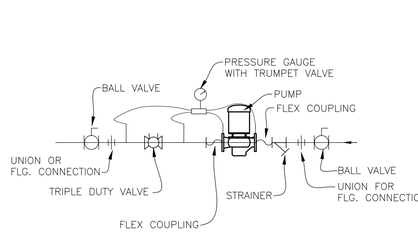
2 CHEMICAL POT FEEDER INSTALLATION DETAIL
SCALE: NONE



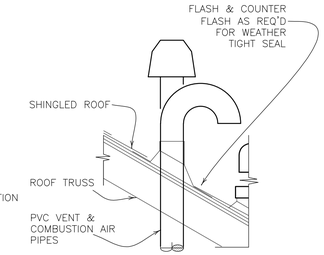
3 MUW & EXPANSION TANK INSTALLATION DETAIL
SCALE: NONE



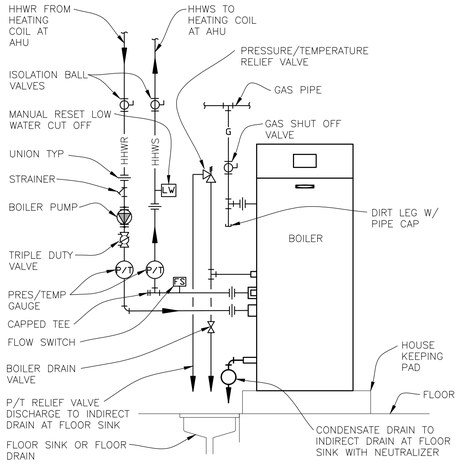
4 HYDRONIC HEATING COIL PIPING DIAGRAM
N.T.S.



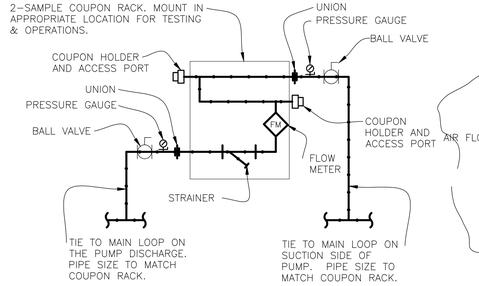
5 PUMP PIPING DIAGRAM DETAIL
N.T.S.



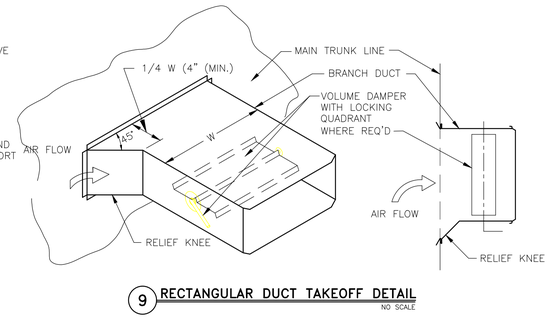
6 VENT PIPE DETAIL
SCALE: 3/16"=1'-0"



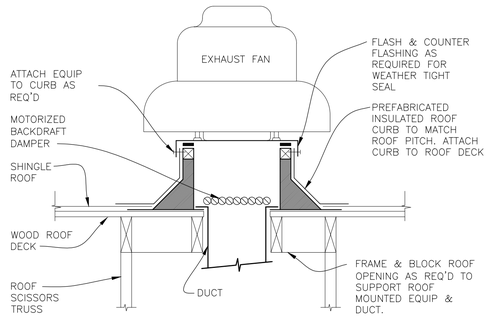
7 BOILER INSTALLATION DETAIL
SCALE: NONE



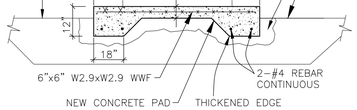
8 COUPON RACK INSTALLATION DETAIL
SCALE: NONE



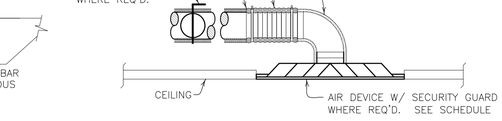
9 RECTANGULAR DUCT TAKEOFF DETAIL
NO SCALE



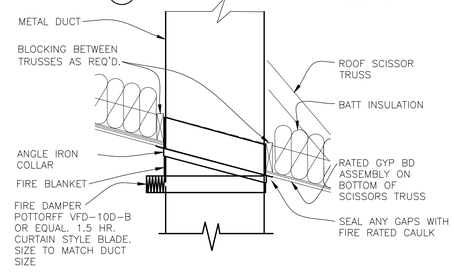
10 ROOF MOUNTED EXHAUST FAN DETAIL
SCALE: NONE



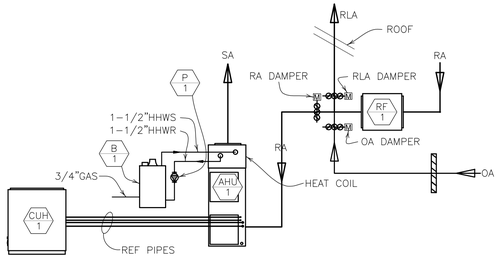
11 EXTERIOR EQUIPMENT PAD DETAIL
SCALE: NONE



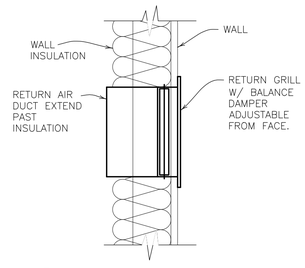
12 BRANCH DUCT & AIR DEVICE
NO SCALE



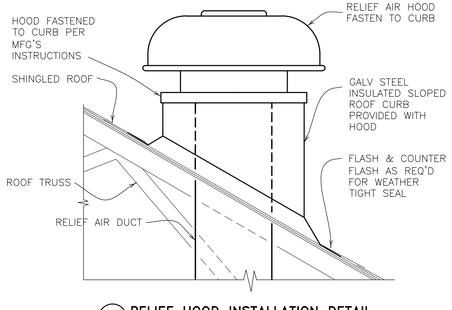
13 FIRE DAMPER INSTALLATION DETAIL
SCALE: NONE



14 HVAC SYSTEM SCHEMATIC
NTS



15 WALL MOUNT RETURN GRILL
NTS



16 RELIEF HOOD INSTALLATION DETAIL
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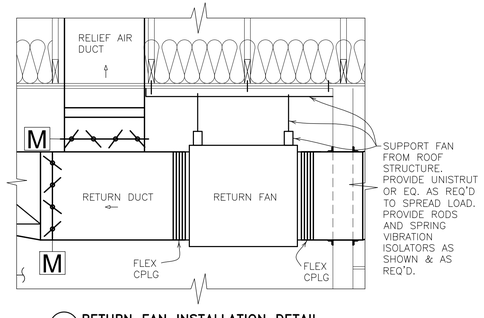

17 RETURN FAN INSTALLATION DETAIL
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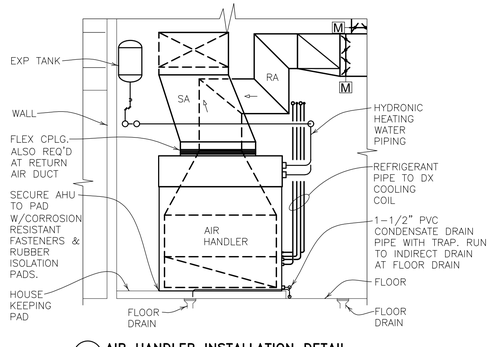

18 AIR HANDLER INSTALLATION DETAIL
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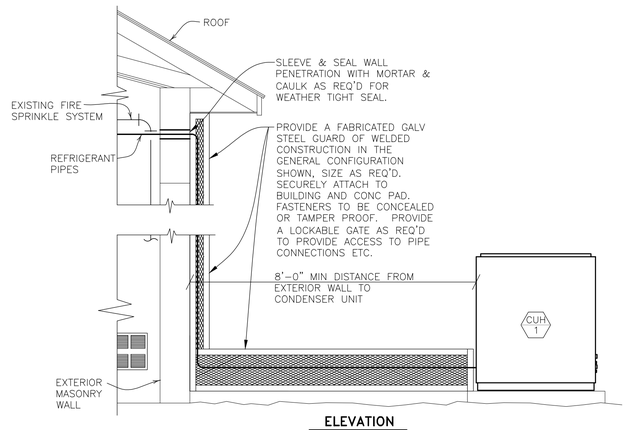
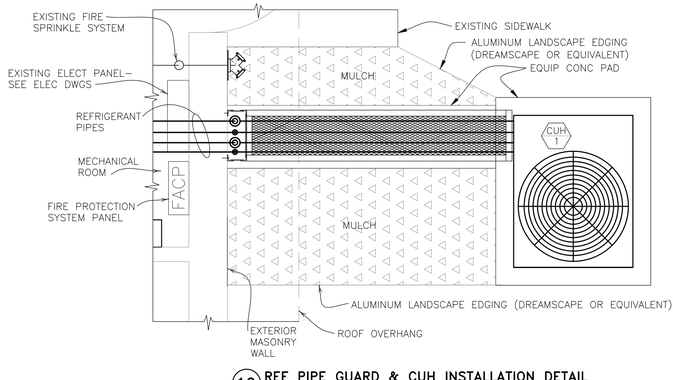


ELEVATION



19 REF PIPE GUARD & CUH INSTALLATION DETAIL
SCALE: NONE

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

JAMES L. DOVE
NUMBER PE-2002018644
PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

SHEET TITLE:
MECHANICAL HVAC DETAILS

SHEET NUMBER:
M-501

10 OF 16 SHEETS
05/05/2025

AIR HANDLER UNIT SCHEDULE

MARK	TYPE	SERVES	MFG	MODEL	NOMINAL CAPACITY (TONS)	OUTSIDE AIR MIN (CFM)	SUPPLY FAN					SUPPLY FAN MOTOR		COOLING COIL										HEAT PUMP										AUXILIARY HEATING COIL (MIN REQ'D PER LOADS)									FILTERS		UNIT ELECTRICAL				NOTES
							TYPE	DRIVE	CFM	EXT STATIC PRESSURE ("wg)	RPM	VOLTS/PHS/HRZ	H.P	TYPE	ROWS	FACE VELOCITY (fpm)	FACE AREA (ft^2)	FIN SPACING (fins/ft)	CAPACITY TOTAL (MBH)	CAPACITY SEN (MBH)	EAT (db/wb)	LAT (db/wb)	IEER	EER	HEAT PUMP CAP (MBH)	GROSS HEATING CAP (MBH)	HEATING DELTA T (°F)	EAT (°F)	LAT (°F)	WINTER OUTDOOR AMBIENT DB (°F)	COP (HIGH TEMP)	COP (LOW TEMP)	TYPE	CAPACITY (MBH)	EAT (°F)	LAT (°F)	CFM	FLUID	GPM	P D (ft H2O)	EWT (°F)	W Δt (°F)	MERV	TYPE	VOLTS/PHS /HRZ	MCA	MOCP	
AHU 1	UNITARY SPLIT SYSTEM INDOOR	HOUSING UNITS A, B & C	TRANE	TWE120K3BAA	10	850	DRAW THRU	VFD	3400	1.25	1114	208-230/3/60	3.00	DX	4	316	11.18	168	126.8	93.3	80/67	55.92/55.24	14	11.2	113.89	102.46	30.68	70.00	100.68	47.00	3.40	2.25	HYDRONIC 2 ROW	110.0	52.8	86.4	3400	50% GLYCOL	12.0	0.13	180	20	13	2" PLEATED	208/3/60	13.00	20	1,2,3

NOTES	
1	IEER, EER & COP VALUES ARE FOR MATCHED SYSTEM PERFORMANCE.
2	PART LOAD COMBINED EFFICIENCY (IEER) TO MEET OR EXCEED US DOE 2023 MINIMUM COOLING STANDARD.
3	HYDRONIC HEATING COIL ACCESSORY UNIT - BAYWATR029

FAN SCHEDULE

MARK	TYPE	SERVES	MFG	MODEL	FAN				MOTOR				NOTES
					DRIVE	CFM	S.P. ("H2O)	RPM	VOLTS/PHS /HRZ	TYPE	RPM	H.P	
RF1	CENTRIFUGAL SQUARE INLINE	AHU-1	LOREAN COOK	165SQN17D (VF)	DIRECT DRIVE	2770	0.4	1171	120/1/60	OPEN-EC	1725	1	6
EXF1	CENTRIFUGAL ROOF MOUNT DOWNBLAST	TOILET SHOWER	LORAN COOK	90C17DEC	DIRECT DRIVE	460	0.25	1232	120/1/60	OPEN-EC	1725	1/6	1,2,3,4,5
EXF2	CENTRIFUGAL ROOF MOUNT DOWNBLAST	TOILET & HOLDING	LORAN COOK	70C17DH (VF)	DIRECT DRIVE	90	0.15	996	120/1/60	TENV-EC	1725	1/20	1,2,3,4,5

NOTES	
1	MOTORIZED BACK DRAFT DAMPER
2	FAN SPEED CONTROL FOR BALANCE
3	NEMA 1 DISCONECT PRE-WIRED
4	INSULATED SLOPING ROOF CURB
5	BIRD SCREEN
6	SPRING TYPE VIBRATION ISOLATORS

CONDENSER/HEAT PUMP UNIT SCHEDULE

MARK	TYPE	SERVES	MFG	MODEL	COOLING CAPACITY								CONDENSER FANS			UNIT - ELECTRICAL			NOTES
					NOMINAL CAPACITY (TONS)	DESIGN OUTDOOR db/wb (°F)	COMPRESSOR TYPE	COMPRESSOR QTY	DX CIRCUITS	STAGES	REFRIGERANT	EER/IEER	QTY	DRIVE	FLA/EACH	VOLT/PHS/HRZ	MCA (AMPS)	MOCP (AMPS)	
CUH 1	DX COOLING / HEAT PUMP	AHU-1	TRANE	TWA120K3DAA	10	95/76	HERMETIC SCROLL	2	2	2	R-454B	11.2/15.5	2	DIRECT	4.30	208/3/60	39	50	1, 2,3

NOTES	
1	PROVIDE WITH HAIL GUARDS OR HAIL STOP NETTING
2	EFFICIENCY IS FOR THE COMBINATION OF CU & AHU SYSTEM
3	PART LOAD COMBINED EFFICIENCY (IEER) TO MEET OR EXCEED US DOE 2023 MINIMUM COOLING STANDARD.

AIR DEVICE SCHEDULE

MARK	DEVICE	MFG	MODEL	STYLE	MATL	COLOR	NOTES
S1	SUPPLY DIFFUSER	TITUS	SG-TDC	CEILING DIFFUSER, MIN SECURITY	STL	WHITE	2,4,5
S2	SUPPLY DIFFUSER	TITUS	PAS	CEILING DIFFUSER	STL	WHITE	4,5
S3	SUPPLY DIFFUSER	TITUS	300RLHD	WALL DIFFUSER, MIN SECURITY	STL	WHITE	2,4,5
S4	SUPPLY DIFFUSER	TITUS	SG-PR	WALL SUPPLY MAX SECURITY	STL	WHITE	2,4,5
R1	RETURN GRILL	TITUS	SG-LFF	RETURN GRILL, MIN SECURITY	STL	WHITE	1,2,3,5
R2	RETURN GRILL	TITUS	PAR	RETURN GRILL	STL	WHITE	1,2,3,5
E1	EXHAUST GRILL	TITUS	SG-LFF	EXHAUST GRILL, MIN SECURITY	STL	WHITE	2,3,5
E2	EXHAUST GRILL	TITUS	SG-LFO	EXHAUST GRILL, MIN SECURITY	STL	WHITE	2,3,5
RH1	RELIEF HOOD	LOREN COOK	PR-30	RELIEF AIR HOOD - 2350 CFM @ 0.10" WG	ALUM	–	

NOTES:	
1	SG-15 BALANCE DAMPER ADJUSTABLE FROM FACE
2	TAMPER PROOF FASTENERS
3	SEE DEVICE CALL OUTS FOR FACE SIZE
4	SEE AIR FLOW ARROS PLANS FOR REQUIRED PATTERNS
5	PROVIDE PLASTER FRAME IF EXISTING CANNOT BE USED

EXPANSION TANK SCHEDULE

MARK	MFG	MODEL	TYPE	SERVES	CHARGE (PSI)	CAPCITY (GAL)
EXT 1	AMTROL	AX-10-DD	BLADDER	HEATING LOOP	15	1

NOTES	

BOILER SCHEDULE

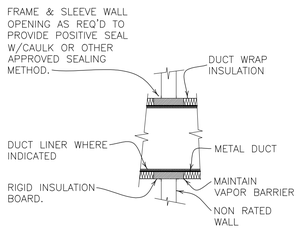
MARK	MFG	MODEL	TYPE	INPUT (MBH)	MIN INPUT (MBH)	DOE HEATING CAP (MBH)	AHRI NET RATING (MBH)	EFF (%)	MAX WORKING PRESSURE (PSI)	MAX WORKING TEMP (°F)	PRESSURE RELIEF VALVE SETTING (PSI)	MIN WORKING PRESSURE (PSI)	INLET WATER TEMP (°F)	OUTLET WATER TEMP (°F)	GPM	BOILER PRESSURE DROP (FT)	NOTES
B-1	VELOCITY BOILER WORKS	PHTM2120H	CONDENSING, DIRECT VENT, STAINLESS STEEL, GAS FIRED, HOT WATER, WATER TUBE	120	13.6	112	97	95	160	210	50	14.5	160	180	12		1,2,3,4,5

NOTES	
1	INSTALLATION TO COMPLY WITH ALL APPLICABLE CODES AND MANUFACTURER'S INSTRUCTIONS & RECOMMENDATIONS.
2	50% ETHELYN GLYCOL WATER SOLUTION
3	PROVIDE CONDENSATE NEUTRALIZER
4	PROVIDE MANUAL RESET LOW WATER CUT OFF
5	PROVIDE BOILER STAND

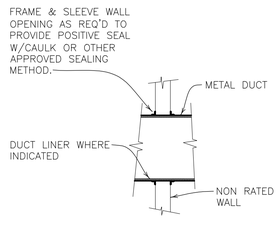
PUMP SCHEDULE

MARK	TYPE	SERVES	MFG	SERIES	MODEL	PUMP PERFORMANCE							MOTOR			NOTES
						GPM	P.D. (FT H2O)	PUMP EFFICIENCY (%)	NPSHr (ft H2O)	FLUID	FLANGE SIZE	IMPELLER SIZE (in)	VOLTS/PHS	H.P	RPM	
P 1	BOOSTER - INLINE HORIZONTAL	BOILER	BELL & GOSSETT	PL	PL-30	12	11	–	–	50% ETH GLYCOL	1-1/2"	–	120V/1PHS	1/12	2650	1,4,5,6

NOTES	
1	BOLTED FLANGE CONNECTION
2	BRONZE FITTED
3	STANDARD SEAL
4	PERMANENTLY LUBRICATED
5	TRUMPET VALVE & PRESSURE GAUGE SYSTEM BY FLOW CONDITION
6	TRIPEL DUTY VALVE AT PUMP DISCHARGE



1 WALL DUCT PENETRATION DETAIL
NO SCALE



2 WALL DUCT PENETRATION DETAIL
NO SCALE

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

JAMES L. DOVE
NUMBER PE-2002018644
PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-M.dwg
DRAWN BY: GGF
CHECKED BY: JLD
DESIGNED BY: GGF

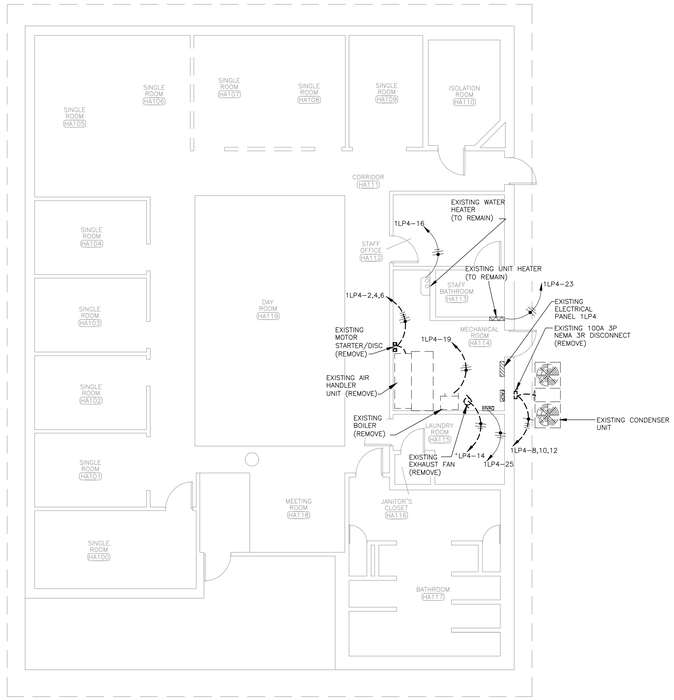
SHEET TITLE:

MECHANICAL HVAC SCHEDULES

SHEET NUMBER:

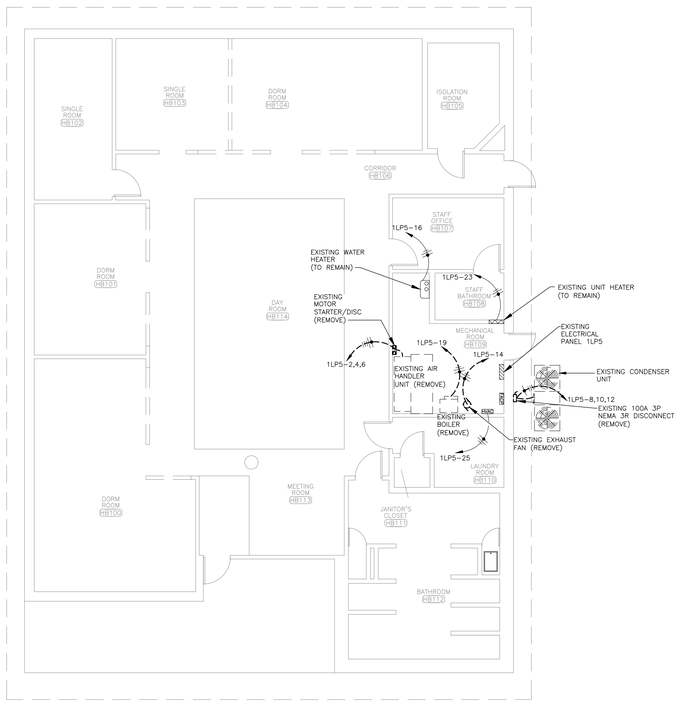
M-601

11 OF 16 SHEETS
05/05/2025



1 HOUSING UNIT A ELECTRICAL POWER DEMOLITION PLAN

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



2 HOUSING UNIT B ELECTRICAL POWER DEMOLITION PLAN

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

3 HOUSING UNIT C ELECTRICAL POWER DEMOLITION PLAN

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

ELECTRICAL LEGEND

	EXHAUST FAN (TO BE REMOVED)
	MOTOR STARTER/DISC (TO BE REMOVED)
	DISCONNECT SWITCH (TO BE REMOVED)
	UNIT HEATER (TO REMAIN)
	MECHANICAL EQUIPMENT (TO REMAIN)
	MECHANICAL EQUIPMENT (TO BE REMOVED)
FACP	FIRE ALARM CONTROL PANEL (TO REMAIN)
HVAC	HVAC CONTROL PANEL (TO BE REWIRED)
	SURFACE MOUNTED PANELBOARD (TO REMAIN)
	ELECTRICAL WIRE (TO REMAIN)
	ELECTRICAL WIRE (TO BE REMOVED)
	HOME RUN–SHORT STROKES INDICATE PHASE OR SWITCHED WIRES, LONG STROKE INDICATE NEUTRAL, LONG WITH DOT INDICATE GROUND

DEMOLITION NOTES

(N) INDICATES KEYED NOTES

1 ALL EXISTING MECHANICAL EQUIPMENT, (AIR HANDLERS, CONDENSING UNITS, EXHAUST FANS, AND BOILERS) ARE TO BE REMOVED. EXISTING DISCONNECTS ARE TO BE REMOVED AND OR REPLACED. EXISTING WIRE, CONDUIT, BREAKERS AND CONTROL WIRING CAN BE REUSED IF APPROPRIATELY SIZED PER RENOVATION PLANS. ANY UNUSED WIRE AND CONDUIT IS TO BE DISCONNECTED AND REMOVED IN ITS ENTIRETY. THE ELECTRICAL CONTRACTOR (ELC) SHALL COORDINATE WITH MECHANICAL CONTRACTOR FOR DEMOLITION OF EQUIPMENT AND THE SCHEDULING OF THE DISCONNECTS.

2 CIRCUITING SHOWN ON THE PLAN IS FROM EXISTING DRAWINGS AND MINOR FIELD OBSERVATIONS AND MAY NOT BE ACCURATE OR COMPLETE. ELC TO FIELD VERIFY ALL CIRCUITING PRIOR TO START OF WORK. ANY DISCREPANCIES ARE TO BE CORRECTED IN THE PANEL SCHEDULES AND ON THE RED–LINE DRAWINGS. ALL UPDATED SCHEDULES SHALL BE TYPED AND PLACED IN A PROTECTIVE SLEEVE INSIDE PANEL DOOR.

3 ELC TO FURNISH AS–BUILT DRAWINGS FOR THE ELECTRICAL SYSTEMS WITHIN 90 DAYS OF SUBSTANTIAL COMPLETION.

4 SEE RENOVATION SHEETS FOR MECHANICAL ROOM LIGHTING UPGRADES.

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MISSOURI DEPARTMENT
OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
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ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-E.dwg
DRAWN BY: JJS/MDS
CHECKED BY: JLD
DESIGNED BY: JJS/MDS

SHEET TITLE:

ELECTRICAL POWER DEMOLITION PLAN

SHEET NUMBER:

E-101

12 OF 16 SHEETS
05/05/2025

LIGHTING FIXTURE SCHEDULE

		FIXTURE DATA					LAMP DATA		
	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	MTG (1)	VOLTS / VA	LAMP QTY	WATTS / TYPE (2)	REMARK
(5)	A	ACHIEVA WRAP SELECTABLE	METALUX COOPER	4AWS–L3C3–UNV Y–TOGGLE–10 CABLE KIT	AC	120 / 47	1	47W LED	HANG AT ELEVATION TO MISS HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.
(5)	AX	ACHIEVA WRAP EMERG. SELECTABLE	METALUX COOPER	4AWS–L3C3–UNV–EL14W Y–TOGGLE–10 CABLE KIT	AC	120 / 47	–	47W LED	HANG AT ELEVATION TO MISS HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.

NOTE: (1) MOUNTING STYLE
AC – AIRCRAFT CABLE; C – COVE; CH – CHAIN HUNG; G – GROUND; P – POLE; PM – PENDANT MOUNT; R – RECESSED; S – SURFACE; SC – SURFACE CEILING; ST – STEM; W – WALL; U – UNIVERSAL; –

NOTE: (2) LAMP TYPE
CF – COMPACT FLUORESCENT; FL – FLUORESCENT; H – HALOGEN; PS – PULSE START; MH – METAL HALIDE; MV – MERCURY VAPOR; HPS – HIGH PRESSURE SODIUM; IN – INCANDESCENT; LED – LIGHT EMITTING DIODE; T – TUNGSTEN; XEN – XENON; –; –

SUPPLY THIS FIXTURE OR APPROVED EQUAL.

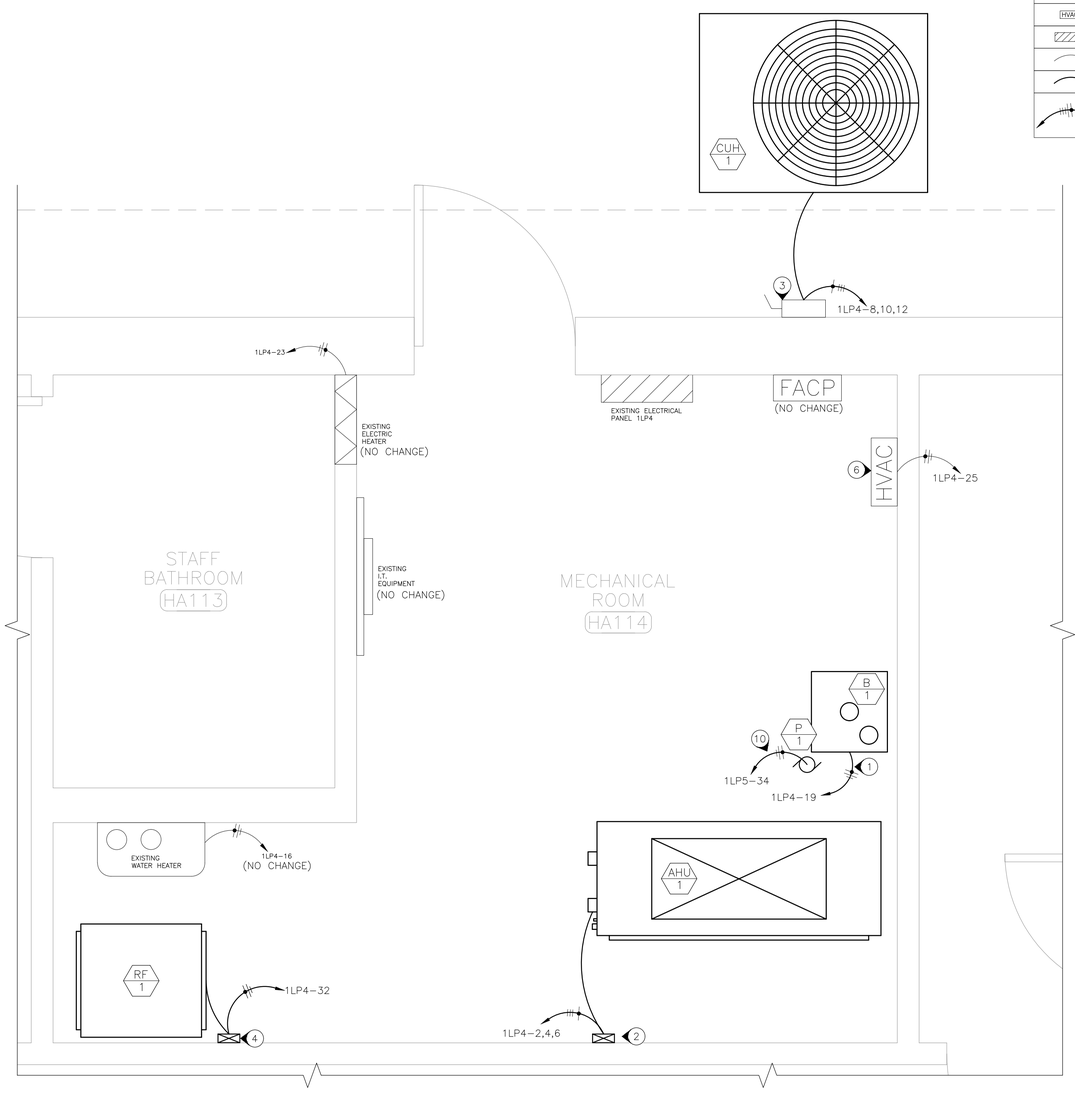
ELECTRICAL LEGEND

	EXISTING LIGHT FIXTURE (TO REMAIN)
	EXISTING LIGHT FIXTURE (TO BE REMOVED)
	NEW SUSPENDED LED LIGHT FIXTURE
	NEW COVE LED LIGHT FIXTURE
	EMERGENCY LED LIGHT FIXTURE
S_1 S_3 S_4	SWITCHES–SINGLE POLE, 3 WAY, 4 WAY STANDARD MOUNTING HEIGHT 48" AFF
	NEW EXHAUST FAN
	NEW MOTOR STARTER
	DISCONNECT SWITCH
	EXISTING UNIT HEATER
	EXISTING MECHANICAL EQUIPMENT
	NEW MECHANICAL EQUIPMENT
FACP	EXISTING FIRE ALARM CONTROL PANEL
HVAC	EXISTING HVAC CONTROL PANEL
	EXISTING SURFACE MOUNTED PANELBOARD
	EXISTING ELECTRICAL WIRE
	NEW ELECTRICAL WIRE
	HOME RUN–SHORT STROKES INDICATE PHASE OR SWITCHED WIRES, LONG STROKE INDICATE NEUTRAL, LONG WITH DOT INDICATE GROUND

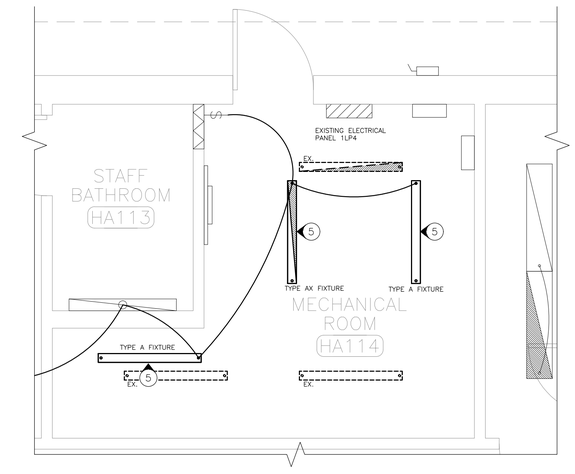
NOTES

(N) INDICATES KEYED NOTES

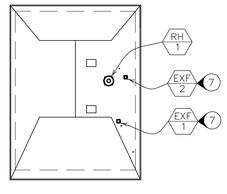
1. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING BOILER CIRCUIT. CIRCUIT BREAKER WILL SERVE AS EQUIPMENT DISCONNECT.
2. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER–SIZE NEMA 0 FOR THE 3HP MOTOR IN THE AIR HANDLER. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED AHU–1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. ELC TO RUN (4) #12 CU THHN IN (1) 1/2" CONDUIT AND UTILIZE EXISTING CIRCUIT AND BREAKER.
3. ELC TO INSTALL FACTORY PROVIDED 60A, 3P, NEMA 3R, NON–FUSED DISCONNECT ON WALL. CHANGE EXISTING 80A, 3P BREAKER IN EXISTING ELECTRICAL PANEL 1LP4–8,10,12 TO A NEW 50A, 3P BREAKER AND RETURN EXISTING 80A BREAKER TO OWNER. RUN (3) #6 CU THHN AND (1) #10 CU THWN GND IN (1) 1" CONDUIT.
4. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER–SIZE NEMA 00 FOR THE 1HP MOTOR OF THE FAN. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED RF–1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING EXHAUST FAN CIRCUIT.
5. THE (3) EXISTING LIGHTS IN MECHANICAL ROOM ARE TO BE REMOVED. ONCE ALL NEW MECHANICAL WORK IS COMPLETED, ELC TO PROVIDE AND INSTALL (3) NEW LIGHTS PER FIXTURE SCHEDULE OR EQUAL. LIGHTS ARE TO BE PLACED TO AVOID NEW MECHANICAL WORK AND MAXIMIZE LIGHT OUTPUT. EXISTING CIRCUITING AND SWITCHING TO REMAIN. EXTEND ALL WIRE AND CONDUIT AS NEEDED.
6. PROVIDE NEW HVAC CONTROL WIRING TO EXISTING DEVICE. COORDINATE WITH MECHANICAL.
7. ELC TO COORDINATE WITH MECHANICAL CONTRACTOR TO CONNECT FACTORY PROVIDED; FAN SPEED CONTROL, NEMA 1 DISCONNECT AND MOTORIZED DAMPER FOR BOTH EXF–1 AND EXF–2.
8. IF ANY MECHANICAL, PLUMBING OR ELECTRICAL EQUIPMENT SPECIFIED IN THE DRAWINGS IS SUBSTITUTED BY A CONTRACTOR, THAT CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE EQUIPMENT'S ELECTRICAL PROTECTION PER THE MANUFACTURER'S NAMEPLATE, AND THE CURRENT NEC, ALONG WITH ALL EXPENSES INCURRED DUE TO SAID SUBSTITUTION. THE CONTRACTOR WHO IS PROVIDING THE SUBSTITUTION SHALL COORDINATE WITH ALL DISCIPLINES AFFECTED BY THIS CHANGE.
9. ELC IS TO SUPPLY AND INSTALL ALL CONDUIT AND ALL LINE VOLTAGE WIRING. COORDINATE WITH MECHANICAL CONTRACTOR TO RUN ALL CONDUIT AND WALL BOXES FOR MECHANICAL SYSTEM LOW VOLTAGE WIRING COORDINATE WITH OTHER DISCIPLINES TO RUN CONDUIT AND WALL BOXES FOR OTHER LOW VOLTAGE WIRING. ELC SHALL PROVIDE A SINGLE GANG HANDY BOX MOUNTED VERTICALLY AND A 1/2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE FOR ALL THERMOSTATS AND ROOM SENSORS IF NEEDED. INSTALL AT 60 INCHES ABOVE FINISH FLOOR AT LOCATIONS SHOWN WITH A "T" IN A CIRCLE OR AN "RS" IN A CIRCLE ON MECHANICAL DRAWINGS. COORDINATE WITH THE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR. COORDINATE WITH CNC GROUP AND MECHANICAL CONTRACTOR FOR RECONNECTING HVAC CONTROLS.
10. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT FROM PANEL TO BOILER CIRCULATION PUMP. PROVIDE NEW 20A/1P BREAKER IN THE PANEL. CIRCUIT BREAKER WILL SERVE AS EQUIPMENT DISCONNECT. COORDINATE WITH MECHANICAL.
11. EXISTING LIGHT FIXTURES IN THESE AREAS MAY NEED TO BE TEMPORARILY REMOVED AND PLACED BACK IN ORIGINAL LOCATION AS PART OF THE CEILING MODIFICATIONS FOR HVAC RENOVATION. IF REMOVED CLEAN EACH REMOVED FIXTURE. COORDINATE WITH MECHANICAL DRAWINGS AND WITH GENERAL CONTRACTOR'S CEILING MODIFICATIONS.



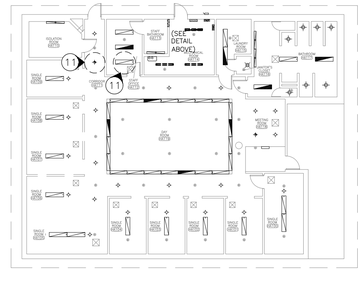
1 ENLARGED MECHANICAL ROOM ELECTRICAL POWER RENOVATION PLAN – UNIT A
SCALE: 3/4"=1'–0"



2 MECHANICAL ROOM ELECTRICAL LIGHTING PLAN – UNIT A
SCALE: 3/8"=1'–0"



3 UNIT A ROOF DETAIL
SCALE: 1/32"=1'–0"



4 EXISTING ELECTRICAL LIGHTING PLAN
SCALE: 1/16"=1'–0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI JAMES L. DOVE NUMBER PE-2002018644 PROFESSIONAL ENGINEER
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OFFICE OF ADMINISTRATION
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MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

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PROJECT # H2404-01
SITE# 7708
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REVISION:
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ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-E.dwg
DRAWN BY: JJS/MDS
CHECKED BY: JLD
DESIGNED BY: JJS/MDS

SHEET TITLE:
ELECTRICAL RENOVATION PLAN - UNIT A

SHEET NUMBER:
E-102

13 OF 16 SHEETS
05/05/2025

LIGHTING FIXTURE SCHEDULE

	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	MTG (1)	VOLTS / VA	LAMP QTY	WATTS / TYPE (2)	REMARK
(5)	A	ACHIEVA WRAP SELECTABLE	METALUX COOPER	4AWS-L3C3-UNV Y-TOGGLE-10 CABLE KIT	AC	120 / 47	1	47W LED	HANG AT ELEVATION TO MISS HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.
(5)	AX	ACHIEVA WRAP EMERG. SELECTABLE	METALUX COOPER	4AWS-L3C3-UNV-EL14W Y-TOGGLE-10 CABLE KIT	AC	120 / 47	–	47W LED	HANG AT ELEVATION TO MISS HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.

NOTE: (1) MOUNTING STYLE — AC - AIRCRAFT CABLE; C - COVE; CH - CHAIN HUNG; G - GROUND; P - POLE; PM - PENDANT MOUNT; R - RECESSED; S - SURFACE; SC - SURFACE CEILING; ST - STEM; W - WALL; U - UNIVERSAL; –

NOTE: (2) LAMP TYPE — CF - COMPACT FLUORESCENT; FL - FLUORESCENT; H - HALOGEN; PS - PULSE START; MH - METAL HALIDE; MV - MERCURY VAPOR; HPS - HIGH PRESSURE SODIUM; IN - INCANDESCENT; LED - LIGHT EMITTING DIODE; T - TUNGSTEN; XEN - XENON; –; –

SUPPLY THIS FIXTURE OR APPROVED EQUAL.

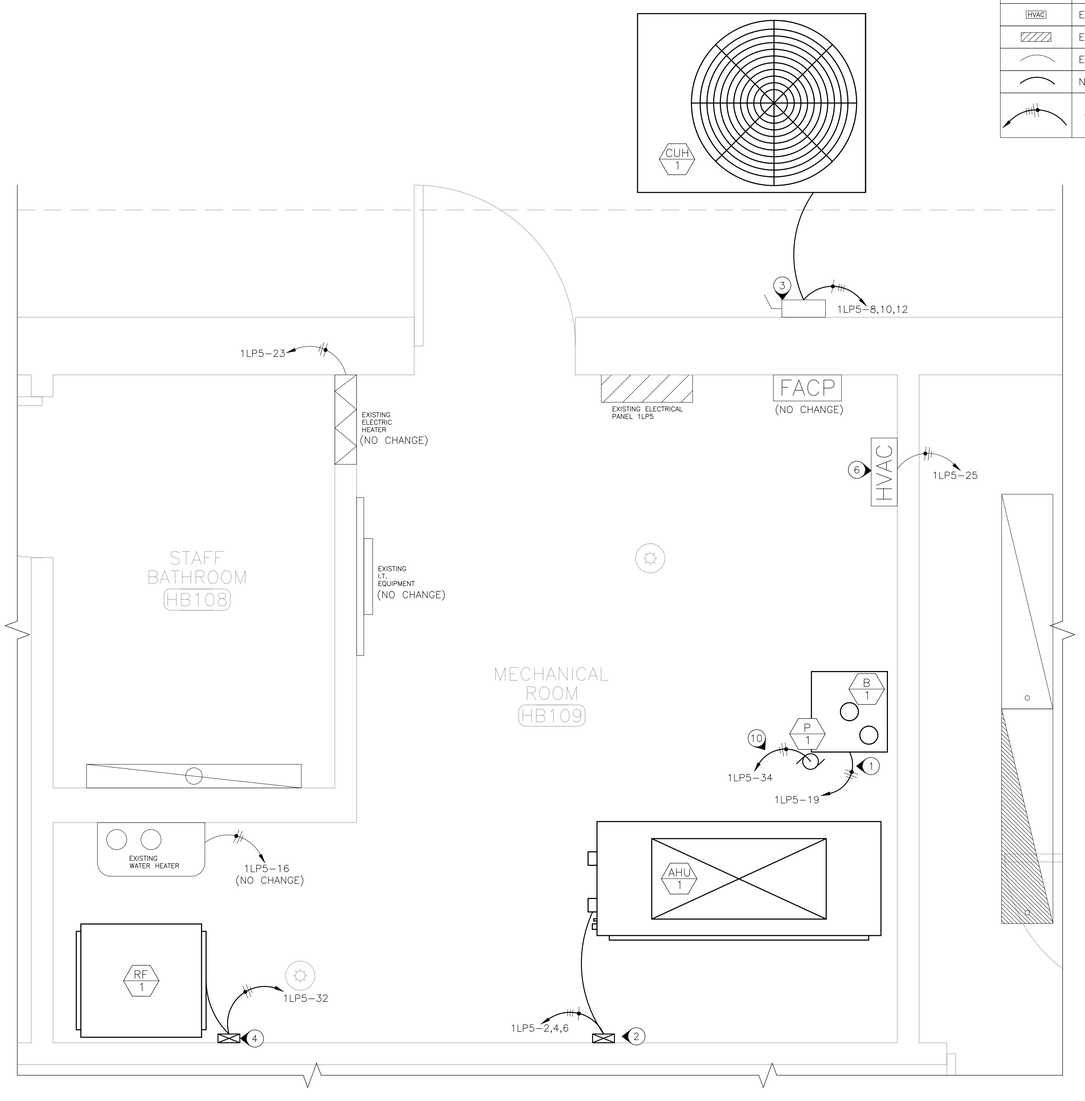
ELECTRICAL LEGEND

	EXISTING LIGHT FIXTURE (TO REMAIN)
	EXISTING LIGHT FIXTURE (TO BE REMOVED)
	NEW SUSPENDED LED LIGHT FIXTURE
	NEW COVE LED LIGHT FIXTURE
	EMERGENCY LED LIGHT FIXTURE
	SWITCHES-SINGLE POLE, 3 WAY, 4 WAY STANDARD MOUNTING HEIGHT 48" AFF
	NEW EXHAUST FAN
	NEW MOTOR STARTER
	DISCONNECT SWITCH
	EXISTING UNIT HEATER
	EXISTING MECHANICAL EQUIPMENT
	NEW MECHANICAL EQUIPMENT
FACP	EXISTING FIRE ALARM CONTROL PANEL
HVAC	EXISTING HVAC CONTROL PANEL
	EXISTING SURFACE MOUNTED PANELBOARD
	EXISTING ELECTRICAL WIRE
	NEW ELECTRICAL WIRE
	HOME RUN-SHORT STROKES INDICATE PHASE OR SWITCHED WIRES, LONG STROKE INDICATE NEUTRAL, LONG WITH DOT INDICATE GROUND

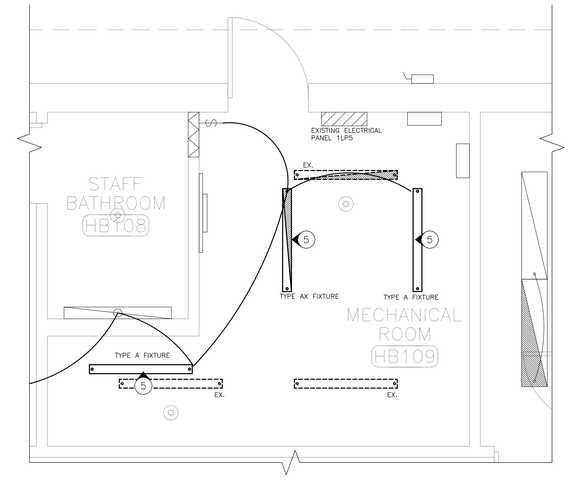
NOTES

(N) INDICATES KEYED NOTES

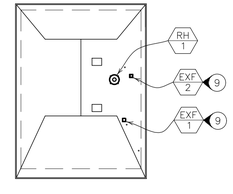
1. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING BOILER CIRCUIT. CIRCUIT BREAKER TO SERVE AS EQUIPMENT DISCONNECT.
2. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER-SIZE NEMA 0 FOR THE 3HP MOTOR IN THE AIR HANDLER. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED AHU-1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. ELC TO RUN (4) #12 CU THHN IN (1) 1/2" CONDUIT AND UTILIZE EXISTING CIRCUIT AND BREAKER.
3. ELC TO INSTALL FACTORY PROVIDED 60A, 3P, NEMA 3R, NON-FUSED DISCONNECT ON WALL. CHANGE EXISTING 80A, 3P BREAKER IN EXISTING ELECTRICAL PANEL 1LP4-8,10,12 TO A NEW 50A, 3P BREAKER AND RETURN EXISTING 80A BREAKER TO OWNER. RUN (3) #6 CU THHN AND (1) #10 CU THWN GND IN (1) 1" CONDUIT.
4. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER-SIZE NEMA 00 FOR THE 1HP MOTOR OF THE FAN. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED RF-1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING EXHAUST FAN CIRCUIT.
5. THE EXISTING LIGHTS IN MECHANICAL ROOM ARE TO BE REPLACED. ONCE ALL NEW MECHANICAL WORK IS COMPLETED, ELC TO PROVIDE AND INSTALL (3) NEW LIGHTS PER FIXTURE SCHEDULE OR EQUAL. LIGHTS ARE TO BE PLACED TO AVOID NEW MECHANICAL WORK AND MAXIMIZE LIGHT OUTPUT. EXISTING CIRCUITING AND SWITCHING TO REMAIN. EXTEND ALL WIRE AND CONDUIT AS NEEDED.
6. PROVIDE NEW HVAC CONTROL WIRING TO EXISTING DEVICE. COORDINATE WITH MECHANICAL.
7. IF ANY MECHANICAL, PLUMBING OR ELECTRICAL EQUIPMENT SPECIFIED IN THE DRAWINGS IS SUBSTITUTED BY A CONTRACTOR, THAT CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE EQUIPMENT'S ELECTRICAL PROTECTION PER THE MANUFACTURER'S NAMEPLATE, AND THE CURRENT NEC, ALONG WITH ALL EXPENSES INCURRED DUE TO SAID SUBSTITUTION. THE CONTRACTOR WHO IS PROVIDING THE SUBSTITUTION SHALL COORDINATE WITH ALL DISCIPLINES AFFECTED BY THIS CHANGE.
8. ELC IS TO SUPPLY AND INSTALL ALL CONDUIT AND ALL LINE VOLTAGE WIRING. COORDINATE WITH MECHANICAL CONTRACTOR TO RUN ALL CONDUIT AND WALL BOXES FOR MECHANICAL SYSTEM LOW VOLTAGE WIRING TO INCLUDE SOLENOID VALVES. COORDINATE WITH OTHER DISCIPLINES TO RUN CONDUIT AND WALL BOXES FOR OTHER LOW VOLTAGE WIRING. ELC SHALL PROVIDE A SINGLE GANG HANDY BOX MOUNTED VERTICALLY AND A 1/2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE FOR ALL THERMOSTATS AND ROOM SENSORS. INSTALL AT 60 INCHES ABOVE FINISH FLOOR AT LOCATIONS SHOWN WITH A "T" IN A CIRCLE OR AN "RS" IN A CIRCLE ON MECHANICAL DRAWINGS. COORDINATE WITH THE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR.
9. ELC TO COORDINATE WITH MECHANICAL CONTRACTOR TO CONNECT FACTORY PROVIDED; FAN SPEED CONTROL, NEMA 1 DISCONNECT AND MOTORIZED DAMPER FOR BOTH EXF-1 AND EXF-2.
10. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT FROM PANEL TO BOILER CIRCULATION PUMP. PROVIDE NEW 20A/1P BREAKER IN THE PANEL. CIRCUIT BREAKER WILL SERVE AS EQUIPMENT DISCONNECT. COORDINATE WITH MECHANICAL.
11. EXISTING LIGHT FIXTURES IN THESE AREAS MAY NEED TO BE TEMPORARILY REMOVED AND PLACED BACK IN ORIGINAL LOCATION AS PART OF THE CEILING MODIFICATIONS FOR HVAC RENOVATION. IF REMOVED CLEAN EACH REMOVED FIXTURE. COORDINATE WITH MECHANICAL DRAWINGS AND WITH GENERAL CONTRACTOR'S CEILING MODIFICATIONS.



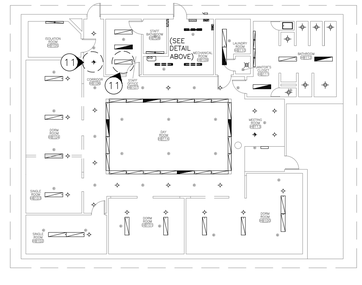
1 ENLARGED MECHANICAL ROOM ELECTRICAL POWER RENOVATION PLAN – UNIT B
SCALE: 3/4"=1'-0"



2 MECHANICAL ROOM ELECTRICAL LIGHTING PLAN – UNIT B
SCALE: 3/8"=1'-0"



3 ROOF DETAIL – UNIT B
SCALE: 1/32"=1'-0"



4 EXISTING LIGHT FIXTURE PLAN
SCALE: 1/16"=1'-0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI JAMES L. DOVE NUMBER PE-2002018644 PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-E.dwg
DRAWN BY: JJS/MDS
CHECKED BY: JLD
DESIGNED BY: JJS/MDS

SHEET TITLE:
ELECTRICAL RENOVATION PLAN - UNIT B

SHEET NUMBER:
E-103

14 OF 16 SHEETS
05/05/2025

LIGHTING FIXTURE SCHEDULE

	FIXTURE DATA						LAMP DATA		
	TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	MTG (1)	VOLTS VA	LAMP QTY	WATTS TYPE (2)	REMARK
(5)	A	ACHIEVA WRAP SELECTABLE	METALUX COOPER	4AWS-L3C3-UNV Y-TOGGLE-10 CABLE KIT	AC	120 47	1	47W LED	HANG AT ELEVATION TO AVOID HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.
(5)	AX	ACHIEVA WRAP EMERG. SELECTABLE	METALUX COOPER	4AWS-L3C3-UNV-EL14W Y-TOGGLE-10 CABLE KIT	AC	120 47	–	47W LED	HANG AT ELEVATION TO AVOID HVAC EQUIPMENT AND MAXIMIZE LIGHT OUTPUT.

NOTE: (1) MOUNTING STYLE	AC - AIRCRAFT CABLE	G - GROUND	R - RECESSED	ST - STEM	-
	C - COVE	P - POLE	S - SURFACE	W - WALL	-
	CH - CHAIN HUNG	PM - PENDANT MOUNT	SC - SURFACE CEILING	U - UNIVERSAL	-
NOTE: (2) LAMP TYPE	CF - COMPACT FLUORESCENT	PS - PULSE START	HPS - HIGH PRESSURE SODIUM	T - TUNGSTEN	-
	FL - FLUORESCENT	MH - METAL HALIDE	IN - INCANDESCENT	XEN - XENON	-
	H - HALOGEN	MV - MERCURY VAPOR	LED - LIGHT EMITTING DIODE	-	-

SUPPLY THIS FIXTURE OR APPROVED EQUAL.

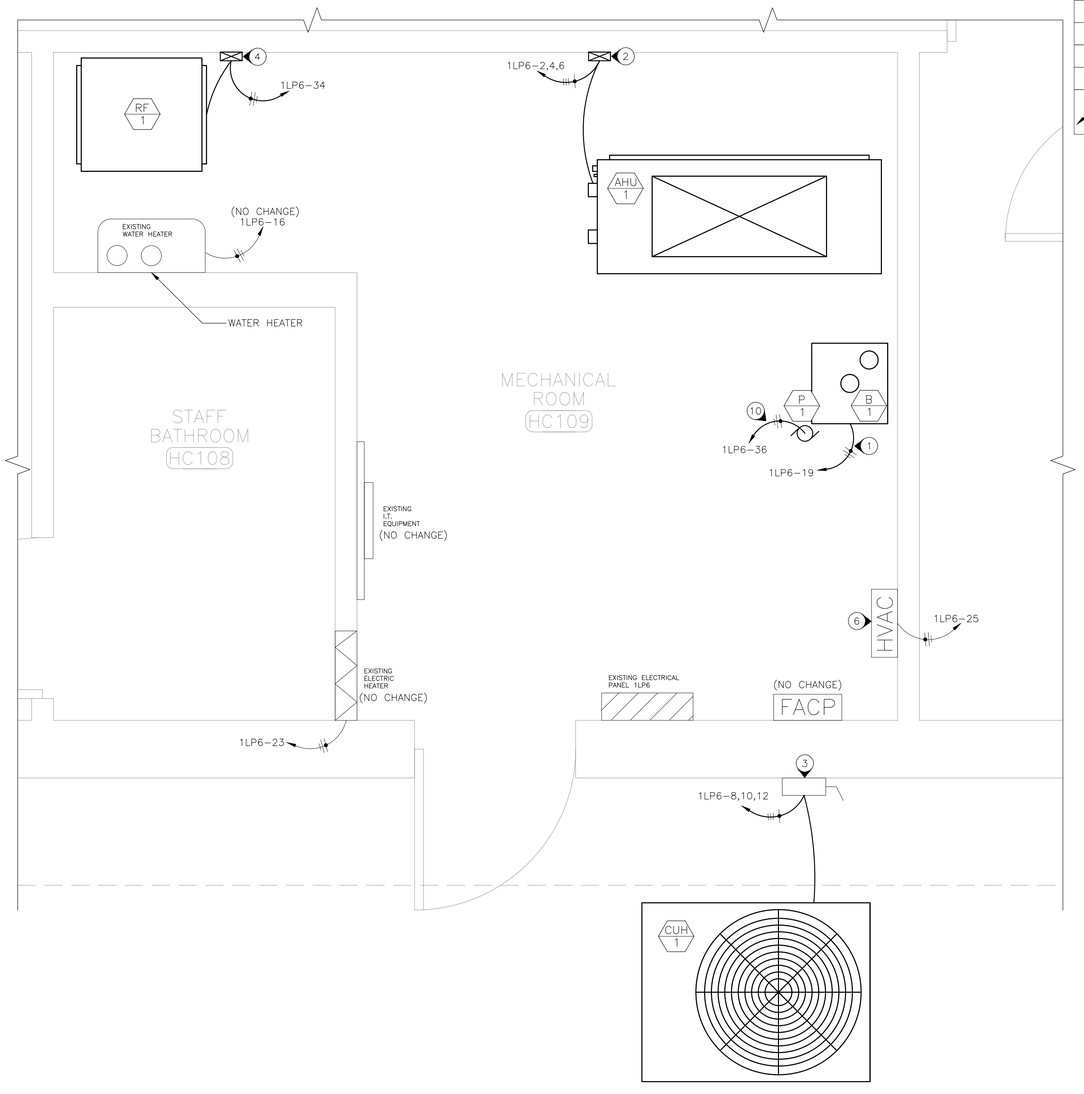
ELECTRICAL LEGEND

	EXISTING LIGHT FIXTURE (TO REMAIN)
	EXISTING LIGHT FIXTURE (TO BE REMOVED)
	NEW SUSPENDED LED LIGHT FIXTURE
	NEW COVE LED LIGHT FIXTURE
	EMERGENCY LED LIGHT FIXTURE
S_1 S_3 S_4	SWITCHES-SINGLE POLE, 3 WAY, 4 WAY STANDARD MOUNTING HEIGHT 48" AFF
	NEW EXHAUST FAN
	NEW MOTOR STARTER
	DISCONNECT SWITCH
	EXISTING UNIT HEATER
	EXISTING MECHANICAL EQUIPMENT
	NEW MECHANICAL EQUIPMENT
FACP	EXISTING FIRE ALARM CONTROL PANEL
HVAC	EXISTING HVAC CONTROL PANEL
	EXISTING SURFACE MOUNTED PANELBOARD
	EXISTING ELECTRICAL WIRE
	NEW ELECTRICAL WIRE
	HOME RUN-SHORT STROKES INDICATE PHASE OR SWITCHED WIRES, LONG STROKE INDICATE NEUTRAL, LONG WITH DOT INDICATE GROUND

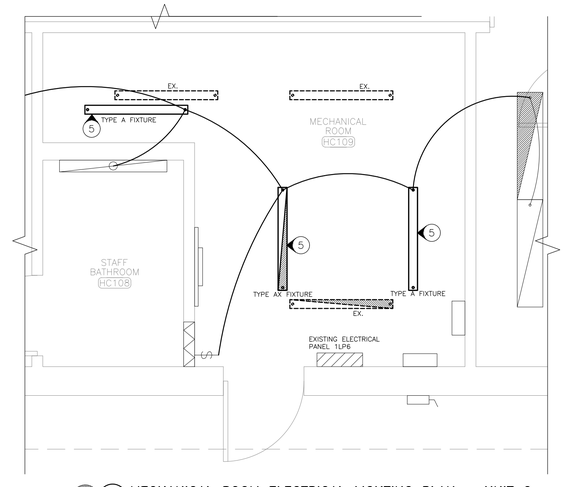
NOTES

(N) INDICATES KEYED NOTES

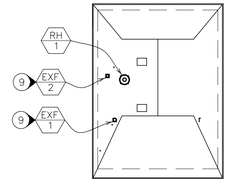
1. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING BOILER CIRCUIT. CIRCUIT BREAKER WILL SERVE AS EQUIPMENT DISCONNECT.
2. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER-SIZE NEMA 0 FOR THE 3HP MOTOR IN THE AIR HANDLER. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED AHU-1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. ELC TO RUN (4) #12 CU THHN IN (1) 1/2" CONDUIT AND UTILIZE EXISTING CIRCUIT AND BREAKER.
3. ELC TO INSTALL FACTORY PROVIDED 60A, 3P, NEMA 3R, NON-FUSED DISCONNECT ON WALL. CHANGE EXISTING 80A, 3P BREAKER IN EXISTING ELECTRICAL PANEL 1LP4-8,10,12 TO A NEW 50A, 3P BREAKER AND RETURN EXISTING 80A BREAKER TO OWNER. RUN (3) #6 CU THHN AND (1) #10 CU THWN GND IN (1) 1" CONDUIT.
4. ELC TO PROVIDE AND INSTALL (1) HOA MOTOR STARTER-SIZE NEMA 00 FOR THE 1HP MOTOR OF THE FAN. COORDINATE LOCATION ON WALL WITH OWNER AND EQUIPMENT SUPPLIED. STARTER TO BE APPROPRIATELY SIZED PER PROVIDED RF-1. STARTER TO HAVE 24V CONNECTIONS FOR HVAC CONTROL SIGNAL AND SHALL BE SCHNEIDER ELECTRIC OR EQUAL. COORDINATE WITH MECHANICAL FOR CONTROL SIGNAL WIRING. RUN (3) #12 CU THHN IN (1) 1/2" EMT. UTILIZE EXISTING EXHAUST FAN CIRCUIT.
5. THE EXISTING LIGHTS IN MECHANICAL ROOM ARE TO BE REMOVED. ONCE ALL NEW MECHANICAL WORK IS COMPLETED, ELC TO PROVIDE AND INSTALL (3) NEW LIGHTS PER FIXTURE SCHEDULE OR EQUAL. LIGHTS ARE TO BE PLACED TO AVOID NEW MECHANICAL WORK AND MAXIMIZE LIGHT OUTPUT. EXISTING CIRCUITING AND SWITCHING TO REMAIN. EXTEND ALL WIRE AND CONDUIT AS NEEDED.
6. PROVIDE NEW HVAC CONTROL WIRING TO EXISTING DEVICE. COORDINATE WITH MECHANICAL.
7. IF ANY MECHANICAL, PLUMBING OR ELECTRICAL EQUIPMENT SPECIFIED IN THE DRAWINGS IS SUBSTITUTED BY A CONTRACTOR, THAT CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE EQUIPMENT'S ELECTRICAL PROTECTION PER THE MANUFACTURER'S NAMEPLATE, AND THE CURRENT NEC, ALONG WITH ALL EXPENSES INCURRED DUE TO SAID SUBSTITUTION. THE CONTRACTOR WHO IS PROVIDING THE SUBSTITUTION SHALL COORDINATE WITH ALL DISCIPLINES AFFECTED BY THIS CHANGE.
8. ELC IS TO SUPPLY AND INSTALL ALL CONDUIT AND ALL LINE VOLTAGE WIRING. COORDINATE WITH MECHANICAL CONTRACTOR TO RUN ALL CONDUIT AND WALL BOXES FOR MECHANICAL SYSTEM LOW VOLTAGE WIRING TO INCLUDE SOLENOID VALVES. COORDINATE WITH OTHER DISCIPLINES TO RUN CONDUIT AND WALL BOXES FOR OTHER LOW VOLTAGE WIRING. ELC SHALL PROVIDE A SINGLE GANG HANDY BOX MOUNTED VERTICALLY AND A 1/2" EMT CONDUIT UP TO ACCESSIBLE CEILING SPACE FOR ALL THERMOSTATS AND ROOM SENSORS. INSTALL AT 60 INCHES ABOVE FINISH FLOOR AT LOCATIONS SHOWN WITH A "T" IN A CIRCLE OR AN "RS" IN A CIRCLE ON MECHANICAL DRAWINGS. COORDINATE WITH THE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR.
9. ELC TO COORDINATE WITH MECHANICAL CONTRACTOR TO CONNECT FACTORY PROVIDED; FAN SPEED CONTROL, NEMA 1 DISCONNECT AND MOTORIZED DAMPER FOR BOTH EXF-1 AND EXF-2.
10. ELC TO RUN (3) #12 CU THHN IN (1) 1/2" EMT FROM PANEL TO BOILER CIRCULATION PUMP. PROVIDE NEW 20A/1P BREAKER IN THE PANEL. CIRCUIT BREAKER WILL SERVE AS EQUIPMENT DISCONNECT. COORDINATE WITH MECHANICAL.
11. EXISTING LIGHT FIXTURES IN THESE AREAS MAY NEED TO BE TEMPORARILY REMOVED AND PLACED BACK IN ORIGINAL LOCATION AS PART OF THE CEILING MODIFICATIONS FOR HVAC RENOVATION. IF REMOVED CLEAN EACH REMOVED FIXTURE. COORDINATE WITH MECHANICAL DRAWINGS AND WITH GENERAL CONTRACTOR'S CEILING MODIFICATIONS.



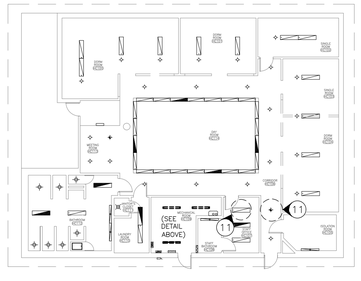
1 ENLARGED MECHANICAL ROOM ELECTRICAL POWER RENOVATION PLAN – UNIT C
SCALE: 3/4"=1'-0"



2 MECHANICAL ROOM ELECTRICAL LIGHTING PLAN – UNIT C
SCALE: 3/8"=1'-0"



3 ROOF DETAIL – UNIT C
SCALE: 1/32"=1'-0"



4 EXISTING LIGHT FIXTURE PLAN
SCALE: 1/16"=1'-0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI JAMES L. DOVE NUMBER PE-2002018644 PROFESSIONAL ENGINEER
05-05-2025

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HVAC REPLACEMENT

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1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-E.dwg
DRAWN BY: MDS
CHECKED BY: JLD
DESIGNED BY: MDS

SHEET TITLE:

ELECTRICAL RENOVATION PLAN - UNIT C

SHEET NUMBER:

E-104

15 OF 16 SHEETS
05/05/2025

EXISTING PANEL WITH LOADS FROM RECEIVED INFO

PANEL DESIGNATION: **1LP4**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING A MECHANICAL ROOM HA114**								TOTAL VOLTAMPS THIS PANEL			43755	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			121	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HA112-HA114		20A/1P	900			1 2	1130						
HA111, HA112, HA109		20A/1P		720		3 4		1130		20A/3P		AHU-3	
HA105-HA108		20A/1P			540	5 6			1130				
HA117, HA115 RES. BTHRM GFI		20A/1P	540			7 8	6960						
WASHER ROOM HA115		20A/1P		1800		9 10		6960		80A/3P		CU-3	
DRYER ROOM HA115		20A/1P			1080	11 12			6960				
HA118, EWC		20A/1P	780			13 14	300			20A/1P		EF-4	
HA100, HA119		20A/1P		720		15 16		260		20A/1P		WH-1	
HA100-HA104		20A/1P			900	17 18			1500	20A/1P		HA118, HA119 - DAY ROOM LIGHTS	
BOILER B-4		20A/1P	600			19 20	600			20A/1P		HA118 - DAY ROOM LIGHTS	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-1		20A/1P			1000	23 24			1100	20A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	200			25 26	1140			20A/1P		HA112-HA117 - RR/LNDRY RM LTS	
CARBON MONOXIDE		20A/1P		100		27 28		625		20A/1P		CANOPY	
SPARE		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32						BLANK	
				1100		33 34						BLANK	
BLANK						35 36						BLANK	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			4120				10130				PHASE A	14250	
				4640				9855			PHASE B	14495	
					3520				11490		PHASE C	15010	

EXISTING PANEL WITH LOADS FROM RECEIVED INFO AND NEW LOAD INFORMATION SHOWN WITH BOLD TEXT

PANEL DESIGNATION: **1LP4**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING A MECHANICAL ROOM HA114**								TOTAL VOLTAMPS THIS PANEL			38735	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			108	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HA112-HA114		20A/1P	900			1 2	**1300**				**#12**		
HA111, HA112, HA109		20A/1P		720		3 4		**1300**		20A/3P	**#12**	**AHU-1 (AIR HANDLING UNIT)**	
HA105-HA108		20A/1P			540	5 6			**1300**		**#12**		
HA117, HA115 (SOMETHING)		20A/1P	540			7 8	**4474**				**#6**		
WASHER ROOM HA115		20A/1P		1800		9 10		**4474**		**50A/3P**	**#6**	**CUH-1**	
DRYER ROOM HA115		20A/1P			1080	11 12			**4474**		**#6**		
HA118, EWC		20A/1P	780			13 14	**568**			20A/1P	**#12**	**EXF-1, EXF-2 (EXHAUST FANS)**	
HA100, HA119		20A/1P		720		15 16		260		20A/1P		WH-1	
HA100-HA104		20A/1P			900	17 18			1500	20A/1P		HA118, HA119 - DAY ROOM LIGHTS	
BOILER B-1	**#12**	20A/1P	**600**			19 20	600			20A/1P		HA118	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-1		20A/1P			1000	23 24			1100	20A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	**300**			25 26	1140			20A/1P		HA112-HA117 STAFF RR/LIGHTS	
CARBON MONOXIDE		20A/1P		100		27 28		625		20A/1P		CANOPY	
UNKNOWN		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32	**1392**			**20A/1P**	**#12**	**RF-1 (RETURN AIR FAN)**	
				1100		33 34		**168**		**20A/1P**	**#12**	**P-1 (IN-LINE BOOSTER PUMP)**	
BLANK						35 36						BLANK	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			4220				9474				PHASE A	13694	
				4640				7707			PHASE B	12347	
					3520				9174		PHASE C	12694	

1 EXISTING ELECTRICAL PANEL SCHEDULE – UNIT A
SCALE: NONE

EXISTING PANEL WITH LOADS FROM RECEIVED INFO

PANEL DESIGNATION: **1LP5**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING B MECHANICAL ROOM HB109**								TOTAL VOLTAMPS THIS PANEL			43575	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			121	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HB107		20A/1P	540			1 2	1130						
HB104, HB106-HB109		20A/1P		900		3 4		1130		20A/3P		AHU-1	
HB102-HB104		20A/1P			900	5 6			1130				
HB110, HB112		20A/1P	540			7 8	6960						
WASHER ROOM HB110		20A/1P		1800		9 10		6960		80A/3P		CU-1	
DRYER ROOM HB110		20A/1P			1080	11 12			6960				
HB114, EWC		20A/1P	760			13 14	300			20A/1P		EF-2	
HB100, HB113		20A/1P		720		15 16		260		20A/1P		WH-1	
HB100, HB101		20A/1P			720	17 18			540	20A/1P		HB114, HB113	
BOILER B-2		20A/1P	600			19 20	1500			20A/1P		HB114	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-2		20A/1P			1000	23 24			1100	15A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	200			25 26	1140			20A/1P		HB107-HB112 STAFF RR/LIGHTS	
UNKNOWN		20A/1P				27 28		625		20A/1P		CANOPY	
UNKNOWN		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32						BLANK	
				1100		33 34						BLANK	
BLANK						35 36						BLANK	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			3740				11030				PHASE A	14770	
				4720				9855			PHASE B	14575	
					3700				10530		PHASE C	14230	

EXISTING PANEL WITH LOADS FROM RECEIVED INFO AND NEW LOAD INFORMATION SHOWN WITH BOLD TEXT

PANEL DESIGNATION: **1LP5**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING B MECHANICAL ROOM HB109**								TOTAL VOLTAMPS THIS PANEL			38555	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			107	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HB107		20A/1P	540			1 2	**1300**				**#12**		
HB104, HB106-HB109		20A/1P		900		3 4		**1300**		20A/3P	**#12**	**AHU-1 (AIR HANDLING UNIT)**	
HB102-HB104		20A/1P			900	5 6			**1300**		**#12**		
HB110, HB112		20A/1P	540			7 8	**4474**				**#6**		
WASHER ROOM HB110		20A/1P		1800		9 10		**4474**		**50A/3P**	**#6**	**CUH-1**	
DRYER ROOM HB110		20A/1P			1080	11 12			**4474**		**#6**		
HB114, EWC		20A/1P	760			13 14	**568**			20A/1P	**#12**	**EXF-1, EXF-2 (EXHAUST FANS)**	
HB100, HB113		20A/1P		720		15 16		260		20A/1P		WH-1	
HB100, HB101		20A/1P			720	17 18			540	20A/1P		HB114, HB113	
B-1 (BOILER)	**#12**	20A/1P	**600**			19 20	1500			20A/1P		HB114	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-2		20A/1P			1000	23 24			1100	15A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	**300**			25 26	1140			20A/1P		HB107-HB112 STAFF RR/LIGHTS	
UNKNOWN		20A/1P				27 28		625		20A/1P		CANOPY	
UNKNOWN		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32	**1392**			**20A/1P**	**#12**	**RF-1 (RETURN AIR FAN)**	
				1100		33 34		**168**		**20A/1P**	**#12**	**P-1 (IN-LINE BOOSTER PUMP)**	
BLANK						35 36						BLANK	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			3840				10374				PHASE A	14214	
				4720				7707			PHASE B	12427	
					3700				8214		PHASE C	11914	

2 EXISTING ELECTRIC PANEL SCHEDULE – UNIT B
SCALE: NONE

EXISTING PANEL WITH LOADS FROM RECEIVED INFO

PANEL DESIGNATION: **1LP6**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING C MECHANICAL ROOM HC109**								TOTAL VOLTAMPS THIS PANEL			43575	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			121	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HC107		20A/1P	540			1 2	1130						
HC104, HC106-HC109		20A/1P		900		3 4		1130		20A/3P		AHU-2	
HC102-HC104		20A/1P			900	5 6			1130				
HC110, HC112		20A/1P	540			7 8	6960						
WASHER ROOM HC110		20A/1P		1800		9 10		6960		80A/3P		CU-2	
DRYER ROOM HC110		20A/1P			1080	11 12			6960				
HC114, EWC		20A/1P	760			13 14	300			20A/1P		EF-3	
HC100, HC113		20A/1P		720		15 16		260		20A/1P		WH-1	
HC100, HC101		20A/1P			720	17 18			540	20A/1P		HC114, HC113 DAY ROOM LTS.	
BOILER B-3		20A/1P	600			19 20	1500			20A/1P		HC114	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-3		20A/1P			1000	23 24			1100	15A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	200			25 26	1140			20A/1P		HC107-HC112 STAFF RR/LIGHTS	
SPARE		20A/1P				27 28		625		20A/1P		CANOPY	
SPARE		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32				20A/1P		PAVILLION	
				1100		33 34						BLANK	
BLANK						35 36						BLANK	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			3740				11030				PHASE A	14770	
				4720				9855			PHASE B	14575	
					3700				10530		PHASE C	14230	

EXISTING PANEL WITH LOADS FROM RECEIVED INFO AND NEW LOAD INFORMATION SHOWN WITH BOLD TEXT

PANEL DESIGNATION: **1LP6**													
VOLTAGE: **208 3PHASE 4WIRE**	PANEL LOCATION: **BUILDING C MECHANICAL ROOM HC109**								TOTAL VOLTAMPS THIS PANEL			38555	
MAINS: **200 A** X CB _ MLO	MOUNTING: _ FLUSH X SURFACE		PANEL SPACES: **42**						TOTAL CONNECTED LOAD (AMPS)			107	
	CONNECTED LOAD				CKT.	CONNECTED LOAD							
CIRCUIT DESIGNATION	WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION	
HC107		20A/1P	540			1 2	**1300**				**#12**		
HC104, HC106-HC109		20A/1P		900		3 4		**1300**		20A/3P	**#12**	**AHU-1 (AIR HANDLING UNIT)**	
HC102-HC104		20A/1P			900	5 6			**1300**		**#12**		
HC110, HC112		20A/1P	540			7 8	**4474**				**#6**		
WASHER ROOM HC110		20A/1P		1800		9 10		**4474**		**50A/3P**	**#6**	**CUH-1**	
DRYER ROOM HC110		20A/1P			1080	11 12			**4474**		**#6**		
HC114, EWC		20A/1P	760			13 14	**568**			20A/1P	**#12**	**EXF-1, EXF-2 (EXHAUST FANS)**	
HC100, HC113		20A/1P		720		15 16		260		20A/1P		WH-1	
HC100, HC101		20A/1P			720	17 18			540	20A/1P		HC114, HC113 DAY ROOM LTS.	
B-1 (BOILER)	**#12**	20A/1P	**600**			19 20	1500			20A/1P		HC114	
SPS & CM (FIRE ALARM BELL)		20A/1P		200		21 22		880		20A/1P		DORMS - FLUOR	
UH-3		20A/1P			1000	23 24			1100	15A/1P		DORMS - INCAND	
HVAC CONTROL CIRCUIT		20A/1P	**300**			25 26	1140			20A/1P		HC107-HC112 STAFF RR/LIGHTS	
UNKNOWN		20A/1P				27 28		625		20A/1P		CANOPY	
UNKNOWN		20A/1P				29 30			800	20A/1P		COMPRESSOR (FIRE SYSTEM)	
DRYER		30A/2P	1100			31 32				20A/1P		PAVILLION	
				1100		33 34		**1392**		**20A/1P**	**#12**	**RF-1 (RETURN AIR FAN)**	
BLANK						35 36			**168**	**20A/1P**	**#12**	**P-1 (IN-LINE BOOSTER PUMP)**	
BLANK						37 38						BLANK	
BLANK						39 40						BLANK	
BLANK						41 42						BLANK	
			3840				8982				PHASE A	12822	
				4720				8931			PHASE B	13651	
					3700				8382		PHASE C	12082	

3 EXISTING ELECTRIC PANEL SCHEDULE – UNIT C
SCALE: NONE

NOTES

(N) INDICATES KEYED NOTES

1 EXISTING ELECTRICAL PANEL INFORMATION IS FROM DRAWINGS PROVIDED AND HAVE NOT BEEN FIELD VERIFIED.

2 EXISTING PANELS WITH UPDATED CIRCUIT INFORMATION IS PER EQUIPMENT SHOWN ON MECHANICAL SHEETS. VALUES ARE SHOWN ON PANEL WITH NEW INFORMATION SHOWN IN BOLD TYPE. PROVIDE AND INSTALL NEW BREAKERS AS SHOWN IN BOLD TYPE. PROVIDE A NEW TYPED PANEL SCHEDULE FOR EACH PANEL.

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MIKE KEHOE,
GOVERNOR

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JAMES L. DOVE
NUMBER PE-2002018644
PROFESSIONAL ENGINEER
05-05-2025

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI DEPARTMENT OF SOCIAL SERVICES - YOUTH SERVICES

HVAC REPLACEMENT

FULTON TREATMENT CENTER
1650 HIGHWAY O
FULTON, MISSOURI 65251

PROJECT # H2404-01
SITE# 7708
ASSET# 8877708002 UNIT A
ASSET# 8877708003 UNIT B
ASSET# 8877708004 UNIT C

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 05/05/2025

CAD DWG FILE: FTC-E.dwg
DRAWN BY: MDS
CHECKED BY: JLD
DESIGNED BY: MDS

SHEET TITLE:

ELECTRICAL PANEL SCHEDULES

SHEET NUMBER:

E-601

16 OF 16 SHEETS
05/05/2025