REPLACE HVAC SYSTEM
SCOTT JOPLIN HOUSE STATE HISTORIC SITE-
ROSEBUD CAFE
St. Louis, Missouri

OWNER: STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

DEPARTMENT OF
NATURAL RESOURCES
STATE PARKS

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

DESIGNER: CASE Engineering Inc.

PROJECT NUMBER: X220101

SITE NUMBER: 5227
FACILITY NUMBER: 7815227003

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STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
DARRELL R. CASE
NUMBER PE-23302
PROFESSIONAL ENGINEER
06/13/2023

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
Historic Preservation
State Parks &
Natural Resources

REPLACE HVAC SYSTEM

SCOTT JOPLIN HOUSE
STATE HISTORIC SITE -
ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

REVISION:
DATE:
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DATE:
ISSUE DATE: 06/13/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

ME0.0

1 OF 14 SHEETS
06/13/2023

1. <u>GENERAL</u>
   - A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, AND ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL BE PART OF THESE SPECIFICATIONS.
   - B. "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE.
   - C. "FURNISH" AS USED HEREIN MEANS TO PURCHASE AND DELIVER TO THE PROJECT SITE IN UNDAMAGED CONDITION. WHERE APPLICABLE, SUBMIT FOR REVIEW AND APPROVAL AND COORDINATE WITH THE CONTRACT DOCUMENTS.
   - D. "INSTALL" AS USED HEREIN MEANS TO STORE AND PROTECT FROM DAMAGE, INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS, AND MAKE ALL CONNECTIONS COMPLETE.
   - E. THE TERM "CONTRACTOR" AS USED HEREIN MEANS ANY CONTRACTOR OR SUBCONTRACTOR CONTRACTED TO PERFORM WORK INCLUDED IN AND DEFINED BY THIS SECTION.
   - F. MECHANICAL WORK SHALL BE PROVIDED IN STRICT COMPLIANCE WITH THE 2018 MECHANICAL CODE WITH AMENDMENTS, AND ALL APPLICABLE LOCAL ORDINANCES, STATE LAWS AND FEDERAL LAWS.

2. <u>PRIOR TO BIDDING:</u>
   - A. THOROUGHLY REVIEW THE BID INSTRUCTIONS INCLUDING ALL CIVIL, ARCHITECTURAL, STRUCTURAL, AND MEPFP CONSTRUCTION DOCUMENTS. OBTAIN AND THOROUGHLY EXAMINE THE MANUFACTURERS' WRITTEN INSTALLATION INSTRUCTIONS, DETAILS, AND REQUIREMENTS FOR THE SCHEDULED AND SPECIFIED EQUIPMENT AND MATERIALS. FOR AMBIGUOUS, CONTRADICTORY, OR CONFLICTING ITEMS WITHIN THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL REQUEST CLARIFICATION IN A WRITTEN "REQUEST FOR INFORMATION" (RFI), AT LEAST FIVE (5) WORKING DAYS PRIOR TO BID DATE. RFI-RELATED WORK NOT CLARIFIED PRIOR TO BID SHALL BE PROVIDED PER THE ARCHITECT (ENGINEER) IN STRICT ACCORDANCE WITH THE MOST STRINGENT MATERIALS, EQUIPMENT, AND SCOPE OF WORK.
   - B. EXISTING CONDITIONS: THE CONTRACT DOCUMENTS ARE BASED ON INFORMATION PROVIDED TO CASE ENGINEERING AT THE TIME OF DESIGN. THIS CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO: EXISTING HVAC SYSTEM LOCATIONS, EXISTING DUCT AND PIPING LAYOUTS, CLEARANCES, ETC. REPORT IN WRITING ANY DISCREPANCIES TO THE ARCHITECT (ENGINEER) AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO BID. DISCREPANCIES NOT CLARIFIED PRIOR TO BID SHALL BE PROVIDED PER THE ARCHITECT (ENGINEER) IN STRICT ACCORDANCE WITH THE MOST STRINGENT MATERIALS, EQUIPMENT, AND SCOPE OF WORK.
   - C. IF THE CONTRACTOR BELIEVES THE DRAWINGS AND SPECIFICATIONS CONFLICT WITH CODE REQUIREMENTS, IMMEDIATELY NOTIFY THE ARCHITECT (ENGINEER) IN WRITING.
   - D. NO ALLOWANCES WILL BE MADE DUE TO CONTRACTOR'S UNFAMILIARITY WITH THE CONSTRUCTION DOCUMENTS OR FOR THE FAILURE OF THE CONTRACTOR TO OBTAIN CLARIFICATIONS PRIOR TO BID.
   - E. VISIT THE JOB SITE AND THOROUGHLY INVESTIGATE CONDITIONS. THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.
   - F. REFER TO APPLICABLE CODES CITED IN CONSTRUCTION DOCUMENTS, EXAMINE GOVERNING STATE AND LOCAL CODES, AND LOCAL REGULATIONS AND ORDINANCES, AND PROVIDE ALL EQUIPMENT AND INSTALLATION IN STRICT ACCORDANCE WITH SAME.
   - G. REFER TO CONSTRUCTION DOCUMENTS FOR SCHEDULED AND SPECIFIED MATERIALS AND EQUIPMENT. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS AND DETAILS.

3. <u>BIDDING</u>
   - A. SUBMISSION OF A BID ACKNOWLEDGES THAT THE CONTRACTOR HAS REVIEWED THE BID INSTRUCTIONS, HAS VISITED THE SITE, EXAMINED ALL CONSTRUCTION DOCUMENTS, AND AGREES TO ALL ITEMS AND CONDITIONS WITHIN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR'S BID SHALL INCLUDE ALL MECHANICAL WORK IN THE CONSTRUCTION DOCUMENTS, INCLUDING MECHANICAL WORK RELATED TO EQUIPMENT FURNISHED/PROVIDED BY OTHERS.

4. <u>PERMITS</u>
   - A. SECURE AND PAY FOR ALL PERMITS, LICENSES, AND INSPECTIONS REQUIRED BY THE AHJ FOR THIS WORK.

5. <u>UTILITIES</u>
   - A. THE UTILITY INFORMATION NOTED AND SPECIFIED IN THE CONSTRUCTION DOCUMENTS ARE THE DESIGN STANDARD AND AS ACCURATE AS COULD BE SECURED BUT IS NOT GUARANTEED. PRIOR TO INSTALLING ANY UTILITY-RELATED WORK, THIS CONTRACTOR SHALL CONTACT THE LOCAL UTILITY – IN WRITING – TO COORDINATE AND CONFIRM THE SERVICE AND CONNECTION REQUIREMENTS WITH THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL REQUEST THE UTILITY SERVICE AND CONNECTION IN AMPLE TIME TO MEET THE CONSTRUCTION SCHEDULE. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE ACTUAL UTILITY SERVICE CONNECTION SHALL BE SUBMITTED WITHOUT DELAY TO THE ARCHITECT (ENGINEER) IN WRITING, AS A "REQUEST FOR INFORMATION" (RFI). RFI-SUBJECT UTILITY WORK MUST BE RESOLVED WITH THE ARCHITECT (ENGINEER) PRIOR TO INSTALLATION. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND ALL COSTS FOR WORK NOT COORDINATED WITH THE UTILITY AND NOT SUBMITTED TO THE ARCHITECT (ENGINEER) FOR RESOLUTION.

6. <u>SCHEDULING</u>
   - A. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION, AS SCHEDULED BY THE GC. PROVIDE COMPLETE INFORMATION AND FULL COOPERATION WITH OTHER CONTRACTORS AND TRADES, AS REQUIRED FOR THE TIMELY COMPLETION AND COORDINATION OF THE COMPLETE PROJECT.
   - B. PROVIDE ALL TESTS AND INSPECTIONS REQUIRED BY AHJ.
   - C. PROVIDE A SIGNED CERTIFICATE OF INSPECTION AT THE PROJECT COMPLETION.

7. <u>SCOPE</u>
   - D. PROVIDE PERMIT(S), INSPECTIONS, FINAL CERTIFICATE(S) OF INSPECTION BY AHJ, PERMIT AND INSPECTION FEES, AND ALL MATERIALS, EQUIPMENT, RIGGING, AND LABOR NECESSARY FOR A COMPLETE AND FULLY OPERATING HVAC SYSTEM.
   - E. STRUCTURAL ENGINEERING FOR THE SUPPORT AND MOUNTING OF THE SCHEDULED AND SPECIFIED MATERIALS AND EQUIPMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. THE MECHANICAL CONSTRUCTION DOCUMENTS DO NOT INCLUDE STRUCTURAL ENGINEERING FOR SUPPORT OF MECHANICAL EQUIPMENT, APPLIANCES, OR SYSTEMS.
   - F. THROUGHOUT CONSTRUCTION, THIS CONTRACTOR'S WORK SHALL INCLUDE ONGOING COORDINATION OF THIS WORK WITH THE CONSTRUCTION DOCUMENTS, THE WORK OF ALL OTHER TRADES, AND WITH UTILITY SERVICE(S) AND UTILITY CONNECTION(S). FOR AMBIGUOUS, CONTRADICTORY, OR CONFLICTING ITEMS WITHIN THE CONSTRUCTION DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE ACTUAL UTILITY SERVICE AND CONNECTION REQUIREMENTS, THE CONTRACTOR SHALL REQUEST CLARIFICATION IN A WRITTEN "REQUEST FOR INFORMATION" (RFI). RFI SHALL BE ISSUED WITHOUT DELAY AND PRIOR TO PROCEEDING WITH ANY RFI-SUBJECT WORK. RFI NOT CLARIFIED PRIOR TO BID SHALL BE PROVIDED PER THE ARCHITECT (ENGINEER) IN STRICT ACCORDANCE WITH THE MOST STRINGENT MATERIALS, EQUIPMENT, AND SCOPE OF WORK, AT NO ADDITIONAL COST TO THE OWNER.
   - G. PROVIDE HOISTING FOR ALL MATERIALS AND EQUIPMENT FURNISHED AND/OR INSTALLED, IN ACCORDANCE WITH ALL CITY, STATE AND FEDERAL RULES AND REGULATIONS.
   - H. INSTALL ALL WORK AND EQUIPMENT RIGID, DEAD LEVEL, PLUMB, AND TRUE-TO-LINE. UNLESS NOTED OTHERWISE, SUPPORT AND MOUNTING OF EQUIPMENT, DUCT, PIPING, ETC., ARE THIS CONTRACTOR'S MEANS AND METHODS. THE CONTRACTOR SHALL UNDERSTAND THE SPECIFIED AND SCHEDULED EQUIPMENT AND MATERIALS AND MEANS AND METHODS OF INSTALLATION. THIS CONTRACTOR SHALL PROVIDE ALL ACCESSORIES REQUIRED FOR PROPER SUPPORT WHETHER SHOWN ON THE DRAWINGS OR NOT. IF SUPPORTS ARE REQUIRED, CONTRACTOR SHALL SUBMIT DRAWINGS TO THE ARCHITECT FOR APPROVAL.
   - I. PROVIDE ACCESSORY MOUNTING HARDWARE INCLUDING BUT NOT LIMITED TO STRUCTURAL STEEL, STRUT SYSTEMS, ALL THREAD RODS, AND BRACES, AS REQUIRED TO MOUNT EQUIPMENT. PROVIDE STEEL SHAPES AND FRAMES TO SUPPORT EQUIPMENT WHERE NEEDED. ALL SYSTEMS SHALL BE SUPPORTED INDEPENDENT OF AND ISOLATED FROM EQUIPMENT VIBRATION.
   - J. PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' PRINTED INSTALLATION AND MAINTENANCE LITERATURE. COMPONENTS REQUIRING PERIODIC MAINTENANCE OR ADJUSTMENTS SHALL BE INSTALLED AS TO PERMIT ACCESS WITHOUT DAMAGE TO STRUCTURE, FINISHES, OR OTHER EQUIPMENT.
   - K. PROVIDE ALL LABOR, EQUIPMENT AND MATERIAL REQUIRED FOR THE REINSTALLATION AND RE-SUPPORT OF EXISTING SERVICES (DUCTWORK, ELECTRICAL CONDUIT, PIPING, EXISTING EQUIPMENT, ETC.) DISTURBED BY THE INSTALLATION OF NEW WORK UNDER THIS CONTRACT, INCLUDING THE WORK OF OTHER TRADES.
   - L. DEMOLITION: REFER TO THE DEMOLITION DRAWINGS FOR THE GENERAL SCOPE OF DEMOLITION. THIS CONTRACTOR SHALL DISCONNECT AND CAREFULLY REMOVE ALL EXISTING HVAC EQUIPMENT LOCATED IN DEMOLISHED AREAS INCLUDING ROOF, PLENUMS, CEILINGS, WALLS, AND FLOORS. U.N.O., DISCONNECT AND REMOVE EXISTING HVAC SYSTEMS COMPLETE, INCLUDING EQUIPMENT, CURBS, DUCTS, INSULATION, AIR DEVICES, AND PIPING LOCATED IN THESE AREAS. ALL HVAC SYSTEM COMPONENTS INCLUDING AIR TERMINAL UNITS, FANS, MOTORS, CONTROL DEVICES AND SENSORS, DAMPERS, ACTUATORS, HANGERS, RESTRAINTS, MOUNTING HARDWARE, ETC., SHALL BE REMOVED AND LEGALLY DISPOSED OF BY THIS CONTRACTOR.
   - M. UNLESS NOTED OTHERWISE, ABANDONMENT IN PLACE (AIP) IS NOT ACCEPTABLE. UNUSED EQUIPMENT, DUCT, PIPING, AND OTHER COMPONENTS WITHIN OR SERVING THIS SPACE MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. ENDS OF SYSTEMS BEYOND GENERAL SCOPE OF DEMOLITION MAY BE ABANDONED ONLY WITH WRITTEN APPROVAL OF ARCHITECT (ENGINEER). WHERE THESE ABANDONED ENDS TERMINATE, TRIM CLEANLY AND PROPERLY CAP OR SEAL IN AN APPROVED MANNER, LEAVING TERMINATION SAFE AND SECURE BEHIND NEW FINISHES. MAINTAIN SYSTEM CONTINUITY TO HVAC SYSTEMS SERVING AREAS BEYOND GENERAL DEMOLITION, AS NEEDED. THIS INCLUDES BUT IS NOT LIMITED TO REMOVAL, MODIFICATION AND/OR REINSTALLATION OF EQUIPMENT, AS NEEDED. COMPLETION OF THIS PROJECT SHALL INCLUDE RETURNING THESE ADJACENT AREAS TO FULLY FUNCTIONING OPERATION.
   - N. CONTRACTOR SHALL PROVIDE DAILY CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH GENERATED BY THIS WORK.
   - O. AS-BUILT DRAWINGS: DURING CONSTRUCTION, AS WORK PROCEEDS, MAINTAIN AS-BUILT MARK-UPS OF ACTUAL INSTALLATION. AT CONSTRUCTION COMPLETION AND PRIOR TO TURNOVER TO OWNER , PROVIDE FINAL MARK-UPS IN PDF AND DWG FORMAT TO ARCHITECT AND ENGINEER.
   - P. PROVIDE FINAL CONNECTIONS TO EQUIPMENT FURNISHED/PROVIDED BY OTHERS, AS NOTED.
   - Q. DO NOT ROUTE ANY PIPING OR DUCTWORK ABOVE ELECTRICAL PANELS.
   - R. UNLESS NOTED OTHERWISE, ALL DUCT AND PIPE SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS, BEAMS, OR COLUMNS. PIPE SHALL BE RUN AS DIRECT AS POSSIBLE – AVOID UNNECESSARY OFFSETS AND MAXIMIZE HEADROOM.
   - S. PRIOR TO ORDERING EQUIPMENT, THIS CONTRACTOR SHALL PROVIDE FINAL COORDINATION OF ELECTRICAL POWER REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.
   - T. CONTRACTOR SHALL MAINTAIN ACTIVITIES WITHIN AREA APPROVED BY OWNER OR CONTRACTOR. CONTRACTOR'S ACTIVITIES SHALL NOT INTERFERE WITH THE OWNER'S OPERATIONS, EXCEPT AS APPROVED.
   - U. EXCEPT THOSE COORDINATED AND APPROVED BY THE CONTRACTOR, CONTINUITY OF ALL BUILDING SERVICES AND UTILITIES SERVING BUILDING FACILITIES SHALL BE MAINTAINED UNINTERRUPTED AT NO ADDITIONAL COST. PROVIDE ALL NECESSARY CROSS CONNECTIONS AND TEMPORARY CONNECTIONS REQUIRED TO PERFORM THE CONSTRUCTION, AS DETERMINED BY THE CONTRACTOR, AND NEEDED TO MAINTAIN CONTINUITY OF THE BUILDING SERVICE(S). THIS CONTRACTOR SHALL SCHEDULE WORK SUCH THAT ANY AND ALL CONNECTIONS, AND/OR REARRANGEMENT OF EXISTING EQUIPMENT, PIPING, ETC., SHALL ASSURE FULL RESUMPTION OF SERVICE(S) AT THE CONTRACTOR'S DESIGNATED TIME.

8. <u>CODE REQUIREMENTS</u>
   - A. ALL WORK SHALL COMPLY WITH THE CONSTRUCTION DOCUMENTS OR, AS DIRECTED BY THE ARCHITECT (ENGINEER), AND SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS OF THE AHJ, WHETHER SO SHOWN OR NOT. CONTRACTOR SHALL BE FAMILIAR WITH PROVISIONS OF ALL APPLICABLE CODES AND SHALL ENSURE THE WORK COMPLIES WITH ALL LOCAL, STATE AND FEDERAL CODES, TRADE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. IF CONTRACTOR BELIEVES THE DRAWINGS AND/OR SPECIFICATIONS CONFLICT WITH CODE REQUIREMENTS, IMMEDIATELY NOTIFY THE CONTRACTOR. IN WRITING. DO NOT INSTALL WORK NOT COMPLYING WITH CODE REQUIREMENTS. IN CASE OF CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. AS A MINIMUM STANDARD, CONTRACTOR SHALL SATISFY CODE REQUIREMENTS. ALL MODIFICATIONS REQUIRED BY AHJ SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. BEFORE COMMENCING WORK NOT SHOWN IN DOCUMENTS BUT REQUIRED TO ACHIEVE FULL COMPLIANCE WITH CODES, CONTRACTOR SHALL NOTIFY ARCHITECT (ENGINEER).

9. <u>CUTTING & PATCHING</u>
   - A. CORE-DRILL OR SAW-CUT EXISTING FLOORS, WALLS, ROOF, ETC., AS REQUIRED FOR EQUIPMENT, PIPE, OR DUCTWORK. PRIOR TO CUTTING, PERFORM NON-DESTRUCTIVE TESTING TO VERIFY LOCATION OF PIPING, CONDUIT, AND STRUCTURAL COMPONENTS. NOTIFY ARCHITECT (ENGINEER) OF ANY DISCREPANCIES. PATCH SURROUNDING AREAS FLUSH WITH ADJACENT SURFACE AND READY TO RECEIVE FINISH. PATCH AND REPAIR ROOF TO MATCH EXISTING ROOFING. ALL ROOF WORK SHALL MEET WARRANTY REQUIREMENTS OF EXISTING ROOFING. COORDINATE REQUIRED OPENINGS AND PENETRATIONS WITH THE GC AND OTHER TRADES. (OPENINGS IN FOUNDATIONS, FLOORS, WALLS, CEILINGS, AND ROOF SHALL BE BUILT INTO THE STRUCTURE WITH SLEEVES, CURBS, ETC.)

10. <u>FIRE STOPPING</u>
   - A. PROVIDE FIRE STOPPING FOR PENETRATIONS OF DUCT, PIPING, AND OTHER MECHANICAL EQUIPMENT THROUGH FIRE-RATED VERTICAL BARRIERS (WALLS AND PARTITIONS), HORIZONTAL BARRIERS (FLOOR/CEILING ASSEMBLIES), AND VERTICAL SERVICE SHAFT WALLS AND PARTITIONS. FIRESTOP SYSTEM INSTALLATION MUST MEET REQUIREMENTS OF ASTM E 814 OR UL 1479 TESTED ASSEMBLIES THAT PROVIDE A FIRE RATING EQUAL TO OR GREATER THAN THAT OF CONSTRUCTION BEING PENETRATED. INSTALL IN STRICT ACCORDANCE WITH UL FIRE RESISTANCE DIRECTORY, AHJ, AND MANUFACTURER'S SPECIFIED REQUIREMENTS. ONLY TESTED FIRESTOP SYSTEMS BY "3M", "HILTI", OR EQUAL SHALL BE USED. REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY RATING.

11. <u>MATERIALS AND WORKMANSHIP</u>
   - A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE NEW U.N.O., FREE OF DEFECTS, AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS, AND INDEPENDENTLY TESTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY – UNDERWRITERS LABORATORIES (UL) OR INTERTEK (ETL). ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY U.N.O.
   - B. ALL MATERIALS WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723. ALL MATERIALS INSTALLED IN PLENUM SPACES SHALL BE LISTED AND LABELED FOR SUCH APPLICATION.
   - C. ALL WORK SHALL BE SUPERVISED BY THE INSTALLING CONTRACTOR'S COMPETENT AND SKILLED FOREMAN. ALL WORK SHALL BE PERFORMED BY COMPETENT AND SKILLED WORKERS, WITH ALL TRADE AND MANUFACTURER REQUIRED TRAINING, AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE BEST QUALITY STANDARDS OF THE TRADE AND IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES AND STANDARDS, INCLUDING APPLICABLE OSHA REGULATIONS. PROPERLY PROTECT WORK DURING CONSTRUCTION. AT CONSTRUCTION COMPLETION, THOROUGHLY CLEAN WORK AND REMOVE ALL DEBRIS FROM THE PREMISES.

12. <u>PROTECTION OF WORK AND PROPERTY</u>
   - A. PROTECT ALL WORK FROM DAMAGE AND PROTECT THE OWNER'S PROPERTY FROM DIRT, DAMAGE, OR LOSS ARISING FROM CONTRACTOR WORK.
   - B. COMPLY WITH OSHA REQUIREMENTS AND TAKE ALL NECESSARY PRECAUTIONS FOR EMPLOYEE SAFETY.
   - C. PROTECT ALL OPEN PIPING, DUCT, AND EQUIPMENT, EXISTING AND NEW FROM CONSTRUCTION DIRT AND DUST. COVER, CAP, OR PLUG OPEN ENDS OF PIPING AND DUCT. KEEP EQUIPMENT CLOSED OR COVER AND SEAL EQUIPMENT OPENINGS. ANY MECHANICAL SYSTEMS, NEW AND/OR EXISTING OPERATED DURING CONSTRUCTION SHALL BE PROTECTED BY COVERING EACH RETURN AIR DUCT OPENING WITH MERV 8 FILTERS AND INSTALLING MERV 8 FILTER(S) IN EQUIPMENT FILTER RACK. PRIOR TO TESTING AND BALANCING, REMOVE FILTERS FROM FILTER RACKS AND INSTALL NEW MERV 8 FILTERS.
   - D. AT COMPLETION OF WORK, PRIOR TO EQUIPMENT START-UP, REMOVE COVERS, CAPS, OR PLUGS ON DUCT AND PIPING.

13. <u>DAMAGE BY LEAKS</u>
   - A. THIS CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL DAMAGES TO THE PROPERTY (GROUNDS, WALKS, ROADS, BUILDING COMPONENTS, FINISHES, PIPING SYSTEMS, ELECTRICAL SYSTEMS, HVAC SYSTEMS, AND THEIR EQUIPMENT AND CONTENT) CAUSED BY LEAKS IN THE SYSTEMS BEING INSTALLED OR HAVING BEEN INSTALLED AS PART OF THIS WORK. ALL REPAIRS WILL BE MADE AT THIS CONTRACTOR'S EXPENSE.

14. <u>DRAWINGS AND SPECIFICATIONS</u>
   - A. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL LOCATIONS OF DUCTS, PIPES, AND EQUIPMENT AND THE METHODS OF CONNECTING AND CONTROL. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONDITIONS AND THE WORK OF OTHER TRADES PERMIT. THE DRAWINGS ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR ALL OFFSETS, TRANSITIONS, OR FITTINGS REQUIRED FOR A COMPLETE SYSTEM NOR IS IT IMPLIED THAT ALL CONFLICTS BETWEEN BUILDING ELEMENTS AND/OR OTHER TRADES ARE INDICATED. DO NOT SCALE DRAWINGS. EXAMINE FIELD CONDITIONS AND SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF DOORS, WINDOWS, LIGHTS, ETC.
   - B. THE DRAWINGS AND SPECIFICATIONS ARE MUTUALLY COMPLEMENTARY, AND ANY WORK REQUIRED BY ONE BUT NOT BY THE OTHER SHALL BE REQUIRED BY BOTH.
   - C. PRIOR TO INSTALLING EQUIPMENT, DUCT, OR PIPE COORDINATE PROPOSED LOCATIONS WITH EACH TRADE/DISCIPLINE AND CONTRACTOR. EXAMINE EACH DISCIPLINE'S DRAWINGS FOR CONSTRUCTION DETAILS, CEILING HEIGHTS, REQUIRED CLEARANCES, AND SPACE CONSTRAINTS. PROVIDE SYSTEMS INSTALLATION BASED ON THIS EXAMINATION AND COORDINATION. IMMEDIATELY REPORT INSTALLATION CONFLICTS IN WRITING TO THE CONTRACTOR. RESOLVE ALL CONFLICTS WITH CONTRACTOR AND OTHER TRADES PRIOR TO PROCEEDING. INSTALLING CONTRACTOR IS FULLY RESPONSIBLE FOR CORRECT INTERPRETATION AND APPLICATION OF ALL SIZES AND DIMENSIONS.
   - D. SIGNIFICANT DEVIATIONS OR CHANGES FROM THE DRAWINGS, WHICH ARE REQUIRED TO ACCOMPLISH THE INTENT OF THE CONTRACT DOCUMENTS MUST BE REVIEWED AND APPROVED BY THE ARCHITECT (ENGINEER) BEFORE PROCEEDING. IF THE CONTRACTOR BELIEVES CHANGES TO THE CONTRACT DRAWINGS ARE NECESSARY, SHOP DRAWINGS WITH WRITTEN DESCRIPTIONS OF THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE ARCHITECT (ENGINEER) FOR APPROVAL.
   - E. ALL PIPE, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED WATERPROOF. PROVIDE ALL FLASHING FOR PIPE AND DUCTWORK PENETRATING BUILDING ENVELOPE. PROVIDE DUCT AND/OR PIPE SLEEVES AT WALL PENETRATIONS. SEAL ANNULAR SPACE WEATHER TIGHT.

15. <u>CONTROLS</u>
   - A. PROVIDE COMPLETE EQUIPMENT CONTROLS, INCLUSIVE OF ALL COMPONENTS, VOLTAGES, PROGRAMMING, WIRING ETC. FOR COMPLETE AND OPERATIONAL SYSTEMS. MOUNT THERMOSTATS AND SWITCHES 4'-0" ABOVE FINISHED FLOOR. MOUNT OTHER SENSORS PER MANUFACTURER'S IOM. PRIOR TO MOUNTING, COORDINATE THERMOSTAT LOCATION(S) WITH FINAL FIXTURES AND EQUIPMENT. DO NOT MOUNT THERMOSTATS IN DIRECT SUNLIGHT, IN DISCHARGE OF SUPPLY GRILLE(S), NEAR HEAT PRODUCING APPLIANCES OR EQUIPMENT, ON WALLS WITH INTERNAL HEAT SOURCES (DUCT OR PIPING), OR ON EXTERIOR WALLS. IF EXTERIOR WALL MOUNTING IS NECESSARY, PROVIDE INSULATED MOUNTING BASE. WHERE THERMOSTAT LOCATION IS SUBJECT TO DAMAGE, PROVIDE LOCKABLE HIGH-IMPACT GUARD.

16. <u>PIPING</u>
   - A. IN FINISHED AREAS, ALL PIPING SHALL BE CONCEALED UNLESS NOTED OTHERWISE.
   - B. SEE PIPE SCHEDULE FOR PIPE MATERIALS AND PIPE INSULATION.
   - C. DO NOT INSTALL PVC PIPING IN PLENUM AREAS.
   - D. STEEL GAS PIPING ON BUILDING EXTERIOR SHALL BE PAINTED WITH TWO (2) COATS OF RUST INHIBITING PAINT. COLOR PER OWNER OR TO MATCH BUILDING STANDARD.
   - E. PAINT PIPE TO MATCH OWNER'S OR BUILDING STANDARD.
   - F. PROVIDE PIPE LABELS AND FLOW DIRECTION PER BUILDING OR FACILITY'S STANDARD OR AS SCHEDULED. ORIENT ALL MARKERS SO AS TO BE VISIBLE FROM FLOOR LEVEL. AT A MINIMUM PIPE LABELS AND FLOW DIRECTION MARKERS SHALL BE LOCATED:
     - AT LEAST ONCE IN EACH ROOM
     - AT EQUIPMENT CONNECTIONS
     - AT ACCESS DOORS
     - AT BRANCH MAINS
     - ON ALL ACCESSIBLE PIPE A MAXIMUM OF 25' BETWEEN MARKERS.
   - G. BRANCH TAKE-OFFS SHALL BE MADE WITH SWING CONNECTIONS AS REQUIRED TO AVOID STRESS AT THESE POINTS.
   - H. DO NOT INSTALL ANY PIPING ABOVE ELECTRICAL PANELS AND/OR TRANSFORMERS.
   - I. INSTALL AND SIZE REFRIGERANT PIPE IN STRICT ACCORDANCE WITH EQUIPMENT/APPLIANCE MANUFACTURER'S IOM. DO NOT INSTALL REFRIGERANT PIPE BELOW GROUND. REFRIGERANT PIPE INSTALLED ON BUILDING EXTERIOR SHALL BE ROUTED TO MINIMIZE EXTERIOR EXPOSURE. INSULATE REFRIGERANT PIPE PER MANUFACTURER'S IOM. PROVIDE INSULATION EXPOSED TO AMBIENT CONDITIONS WITH A CONTINUOUS 30 MIL PVC JACKET.
   - J. ROUTE PIPE THROUGH ROOF WITH ALUMINUM PIPE HOOD, PATE CURB MODEL "PHA-2" WITH 14" TALL MODEL "PC-2" CURB. SEAL PIPE THROUGH CURB WEATHER-TIGHT.
   - K. PRIOR TO INSTALLING EQUIPMENT/APPLIANCES, CAREFULLY CONSIDER FALL REQUIREMENTS OF CONDENSATE DRAIN PIPE. PROVIDE MINIMUM 1/8" / FOOT SLOPE. EXTEND CONDENSATE DRAIN PIPE TO AN APPROVED RECEPTOR AND TERMINATE VIA AN INDIRECT CONNECTION.
   - L. ALL HOLES REQUIRED THROUGH EXISTING FLOORS AND MASONRY WALLS SHALL BE CORE DRILLED.

17. <u>DUCT MOUNTED SMOKE DETECTORS</u>
   - A. RETURN AIR DUCT MOUNTED SMOKE DETECTORS SHALL BE PROVIDED BY CONTRACTOR. AND UPON DETECTING SMOKE, SHALL SHUT DOWN PROTECTED AIR SYSTEM.

18. <u>SHOP DRAWINGS</u>
   - A. SUBMIT SHOP DRAWINGS ON SCHEDULED AND NOTED EQUIPMENT AND MATERIALS. PRIOR TO SUBMITTAL, EACH SHOP DRAWING SHALL BE REVIEWED BY THE CONTRACTOR TO ASSURE THAT THE PROPOSED EQUIPMENT IS CLEARLY MARKED, HIGHLIGHTED, AND NOTED. ALL DIMENSIONS, QUANTITIES, CONNECTIONS, CAPACITATES AND ACCESSORIES SHALL BE CLEARLY SHOWN IN CONFORMANCE WITH THE CONTRACT DOCUMENTS, AND SHALL BE MARKED OR STAMPED TO CONFIRM THAT SUCH REVIEW WAS MADE AND COMPLIANCE WAS CONFIRMED. SHOP DRAWING SUBMITTED WITHOUT BEING MARKED, HIGHLIGHTED, AND NOTED WILL BE REJECTED WITHOUT REVIEW.
   - B. PROVIDE ADEQUATE TIME FOR SUBMITTAL REVIEW AND CORRECTIONS, IF ANY, TO PREVENT CONSTRUCTION DELAY. DO NOT PERFORM ANY PORTION OF WORK WHICH REQUIRES APPROVED SUBMITTALS UNTIL THE RESPECTIVE SUBMITTALS HAVE BEEN APPROVED BY THE ENGINEER.
   - C. REVIEW OF SHOP DRAWINGS BY THE OWNER, OWNER'S AGENT, ARCHITECT, OR ENGINEER IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBILITY FOR COMPLYING WITH ALL TERMS OF THE CONTRACT DOCUMENTS AND FOR PERFORMANCE OF ALL EQUIPMENT AND MATERIALS PURCHASED, FOR QUANTITIES, PROPER FIT, AND OTHER DIMENSIONAL REQUIREMENTS.

19. <u>DUCTWORK</u>
   - A. REFER TO MECHANICAL DRAWINGS FOR CLARIFICATION OF DUCT DIMENSIONS. PROVIDE ALL DUCTWORK IN STRICT ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) "HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE", LATEST EDITION. U.N.O. ALL RIGID DUCTWORK SHALL BE GALVANIZED SHEET METAL. ALL EXPOSED DUCTWORK SHALL HAVE A MILL-PHOSPHATIZED FINISH FOR PAINT ADHESION. EXPOSED ROUND DUCT SHALL BE SPIRAL SEAM TYPE. NO FIBERGLASS DUCTBOARD WILL BE ALLOWED.
   - B. PROVIDE TURNING VANES AT ALL CHANGES IN DIRECTION.
   - C. UNLESS NOTED OTHERWISE, EACH DUCTED AIR DEVICE SHALL BE PROVIDED WITH A VOLUME DAMPER, WHETHER SHOWN ON THE PLANS OR NOT. PROVIDE A VOLUME DAMPER AT EACH BRANCH DUCT SERVING AN AIR DEVICE AND/OR AS SHOWN, DETAILED, AND SPECIFIED. WHERE A DUCT MOUNTED VOLUME DAMPER WOULD BE INACCESSIBLE, PROVIDE A VOLUME DAMPER IN THE AIR DEVICE GRILLE NECK OR A DAMPER WITH REMOTE CABLE CONTROL. PROVIDE EACH ROUND BRANCH DUCT TAKE-OFF FROM MAIN DUCT WITH SPIN-IN FITTING AND VOLUME BALANCING DAMPER. VOLUME DAMPERS SHALL BE YOUNG REGULATOR MODEL 5020R LOCKING QUADRANT VOLUME DAMPER WITH 2" HANDLE STANDOFF FOR INSULATION THICKNESS.
   - D. ALL FLEXIBLE DUCT SHALL BE THERMAFLEX TYPE MKE, MAXIMUM 7'-0" LONG. FLEXDUCT SHALL BE INSTALLED IN ACCESSIBLE CONCEALED SPACES ONLY, FULLY STRETCHED OUT AND WITHOUT SAGS OR KINKS. CONNECTIONS TO FITTINGS AND AIR DEVICES SHALL BE MADE WITH TWO (2) BAND CLAMPS. BAND CLAMP THE INNER LINER TIGHT TO FITTING OR AIR DEVICE, THEN THE INSULATION AND VAPOR-PROOF JACKET SHALL BE CLAMPED TIGHT. FLEX DUCT INSTALLATION ABOVE INACCESSIBLE CEILINGS IS UNACCEPTABLE.
   - E. REMOVE UNUSED SECTIONS OF DUCTWORK AS DESIGNATED. UNUSED OPENINGS IN EXISTING DUCT SHALL BE SEALED WITH GALVANIZED SHEET METAL OF THE SAME GAUGE AS THE DUCT. INSULATE AND/OR LINE WITH INSULATION TO MATCH EXISTING. SEAL GALVANIZED SHEET METAL CAP TO EXISTING DUCT WITH APPROVED MASTIC. EXISTING DUCT INSULATION AND/OR INSULATION SCRIM DAMAGED BY THIS WORK SHALL BE REPAIRED. SEAL ALL INSULATION SEAMS AND JOINTS.
   - F.

20. <u>DUCT SEALING</u>
   - A. IN CONDITIONED AREAS, SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT, WITH VOC CONTENT NO GREATER THAN 250G/L AND RECOMMENDED BY THE MANUFACTURER FOR SEALING SHEET METAL DUCT. SEAL ALL JOINTS, SPIN-IN FITTINGS, AND FASTENING SCREWS WITH MASTIC. HVAC SYSTEM LEAKAGE SHALL NOT EXCEED 5% OF DESIGN FLOW. DUCT TAPE IS NOT ALLOWED.
   - B. IN UNCONDITIONED AREAS (INCLUDING BUT NOT LIMITED TO EXTERIOR OF BUILDING, ATTIC, CRAWL SPACES, ETC.): SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH CARLISLE'S "HARDCAST FOIL-SEALANT DUCT SEALING SYSTEM" – NO EXCEPTIONS. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE INITIAL SEALANT OF HARDCAST'S IRON-GRIP 601, SPRAY-SEAL, OR VERSA-GRIP 181 LIQUID MASTIC SEALANT. AFTER SEALANT HAS CURED COMPLETELY, OVERLAY THE MASTIC WITH 4" WIDE STRIP OF AFT-701 ROLLED SEALANT. SEAL ALL JOINTS, SPIN-IN FITTINGS, AND FASTENERS. HVAC SYSTEM LEAKAGE SHALL NOT EXCEED 5% OF DESIGN FLOW.

21. <u>DUCT INSULATION</u>
   - A. SEE MECHANICAL DRAWINGS.

22. <u>EQUIPMENT</u>
   - A. INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION AND OPERATIONS MANUAL AND IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS.
   - B. U.N.O. PROVIDE ALL MOTORIZED EQUIPMENT WITH VIBRATION ISOLATION MOUNTING AND FLEXIBLE DUCT AND FLEXIBLE PIPE CONNECTIONS.
   - C. LABEL ALL EQUIPMENT WITH ID TAGS, LETTERING SHALL BE 1" HIGH BLACK ON WHITE BACKGROUND. ID TAGS IN PLENUM SPACES SHALL BE PLENUM RATED. EQUIPMENT NOT PLENUM MOUNTED SHALL BE LABELED WITH ENGRAVED PHENOLIC RESIN NAMEPLATES ADHERED TO UNIT CABINET WITH RTV SILICONE. LETTERING SHALL BE 1" HIGH BLACK ON WHITE BACKGROUND.
   - D. ALL EQUIPMENT, DUCT, PIPE, ETC. MOUNTED FROM BOLTED CONNECTIONS SHALL HAVE DOUBLE NUTS AT ATTACHMENT TO STRUCTURE AND HANGER, NO EXCEPTIONS.

23. <u>FIRE AND FIRE-SMOKE DAMPERS</u>
   - A. PROVIDE FIRE DAMPERS AND/OR FIRE SMOKE DAMPERS AT DUCT PENETRATIONS OF RATED ASSEMBLIES AND AS REQUIRED BY AHJ. REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY RATINGS. INSTALL DAMPERS IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILS AND MAINTAIN MANUFACTURER'S DETAILS ONSITE FOR AHJ REVIEW. PROVIDE ACCESS PANELS OF ADEQUATE SIZE TO FACILITATE SERVICE ACCESS OF DAMPER. IN LIEU OF ACCESS PANELS, A REMOVABLE DUCT SECTION IS ACCEPTABLE.

24. <u>OUTDOOR AIR INTAKES</u>
   - A. PROVIDE A MINIMUM 15'-0" (10'-0") HORIZONTAL CLEARANCE BETWEEN MECHANICAL EQUIPMENT OUTDOOR AIR INTAKES AND EXHAUST FAN DISCHARGES, COMBUSTION EXHAUST, PLUMBING VENTS, AND ANY OTHER HAZARDOUS OR NOXIOUS CONTAMINANT.

25. <u>AIR FILTERS</u>
   - A. PROVIDE THREE (3) SETS OF NEW MERV 8 DISPOSABLE AIR FILTERS, PER THE FOLLOWING: FOR HVAC SYSTEMS OPERATED DURING CONSTRUCTION, PROVIDE FILTERS IN EQUIPMENT AND ON RETURN AIR DUCT OPENINGS TO PROTECT DUCT FROM DIRT; IN HVAC EQUIPMENT PRIOR TO AIR TESTING, ADJUSTING, AND BALANCING; AND AT PROJECT COMPLETION – ONE (1) SPARE SET FOR HVAC EQUIPMENT.

26. <u>SEISMIC RESTRAINT</u>
   - A. PROVIDE SEISMIC RESTRAINT OF SYSTEMS AND EQUIPMENT IN STRICT ACCORDANCE WITH THE BUILDING CODE. SUBMIT ALL REQUIRED DETAILS TO AE FOR REVIEW AND APPROVAL. IF REQUIRED BY AE, PROVIDE ENGINEERED SEISMIC-RESTRAINT DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE. SUBMIT COPIES INCLUDING CALCULATIONS AND DETAILS, AS REQUIRED BY AE TO ARCHITECT (ENGINEER) AND TO AE FOR REVIEW AND APPROVAL.

27. <u>COMPLETION OF WORK</u>
   - A. UPON COMPLETION OF WORK, INSPECT INSTALLATION OF ALL EQUIPMENT AND SYSTEMS. OPEN ALL ACCESS COVERS ON EQUIPMENT. REMOVE ALL SURPLUS MATERIALS AND DEBRIS AND PROPERLY DISPOSE OF SAME.

28. <u>TESTING, ADJUSTING, & BALANCING</u>
   - A. PRIOR TO EQUIPMENT START-UP, REMOVE COVERS, CAPS, OR PLUGS ON DUCT AND PIPING.
   - B. UPON COMPLETION OF WORK, MC SHALL PROVIDE HVAC TESTING:
     - a. AFTER INSTALLING EQUIPMENT AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
     - b. INSPECT FOR AND REMOVE SHIPPING BOLTS, BLOCKS, AND TIE-DOWN STRAPS.
     - c. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION, BELT TENSION, DAMPER FUNCTION, COOLING FUNCTION, HEATING FUNCTION, AND UNIT OPERATION.
     - d. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
     - e. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST AS SPECIFIED ABOVE.
     - f. SUBMIT TESTING REPORT TO ARCHITECT (ENGINEER).
   - C. UPON COMPLETION OF WORK, PROVIDE AN HVAC TESTING, ADJUSTING, AND BALANCING REPORT PERFORMED BY AN INDEPENDENT CONTRACTOR CERTIFIED BY AABC, NEBB, OR TABB. BALANCE SYSTEMS WITHIN 10% OF DESIGN FLOW. TAB SHALL BE PERFORMED IN STRICT ACCORDANCE WITH SMACNA'S "TAB PROCEDURAL GUIDE", LATEST EDITION. MC SHALL BE PRESENT DURING TAB SHOULD ANY CORRECTIONS BE REQUIRED. (EXISTING HVAC SYSTEMS: PRIOR TO START OF WORK, TEST AND RECORD FLOW OF EXISTING DEVICES AND SYSTEMS. AT COMPLETION OF WORK ADJUST FLOW TO NEW DEVICES, AS INDICATED ON DRAWINGS. RESTORE EXISTING DEVICES NOT IN SCOPE OF WORK TO ORIGINAL VOLUMETRIC FLOW RATES.)

29. <u>CLOSEOUT – AT CONSTRUCTION COMPLETION AND PRIOR TO TURNOVER TO OWNER (TENANT):</u>
   - D. PROVIDE FINAL MARK-UPS IN PDF (DWG) FORMAT TO ARCHITECT AND ENGINEER.
   - E. PROVIDE A SIGNED CERTIFICATE OF INSPECTION AT THE PROJECT COMPLETION.
   - F. PROVIDE THE OWNER WITH A BOUND OWNER'S MANUAL. THE MANUAL SHALL CONSIST OF A THREE-RING LOOSE-LEAF BINDER CONTAINING ALL PRINTED MATERIAL FOR INSTALLED EQUIPMENT INCLUDING BUT NOT LIMITED TO: WARRANTY INFORMATION, SERVICE AND CLEANING INSTRUCTIONS, NOTICES TO OWNER, OPERATING MANUALS, AND MAINTENANCE INSTRUCTIONS.
   - G. TRAIN THE OWNER IN THE THERMOSTATS FUNCTIONS AND OPERATING THE EQUIPMENT USING THE THERMOSTATS. CONTRACTOR SHALL PROGRAM THE THERMOSTATS PER THE OWNER'S TIME SCHEDULES AND SETPOINTS.

30. <u>WARRANTY</u>
   - CG. ON ALL WORK INCLUDED IN THIS CONTRACT, PROVIDE ONE (1) YEAR UNCONDITIONAL WRITTEN WARRANTY FOR LABOR, EQUIPMENT, AND MATERIALS TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR, AT NO COST TO OWNER, BEGINNING ON DATE OF ACCEPTANCE BY OWNER.
   - CH. WITHIN THE WARRANTY PERIOD, DURING THE OPPOSITE SEASON (HEATING/COOLING) FROM THAT IN WHICH THE INITIAL ADJUSTMENTS WERE MADE, THIS CONTRACTOR SHALL MAKE AN INSPECTION OF THE INSTALLED BUILDING SYSTEMS. AT THIS INSPECTION, WITH SYSTEMS OPERATING, THIS CONTRACTOR SHALL MAKE ANY NECESSARY MODIFICATIONS TO THE INITIAL ADJUSTMENTS REQUIRED TO PRODUCE OPTIMUM OPERATION OF THE SYSTEM COMPONENTS, TO PRODUCE THE PROPER CONDITIONS IN EACH SPACE.

   - CI. -- END OF SPECIFICATIONS --

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARRELL R. CASE
NUMBER PE-23303
PROFESSIONAL ENGINEER
06/13/2023

CASE Engineering Inc.
796 Merus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF Historic Preservation State Parks & Natural Resources

REPLACE HVAC SYSTEM

SCOTT JOPLIN HOUSE STATE HISTORIC SITE - ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

REVISION: ____
DATE: ____
REVISION: ____
DATE: ____
REVISION: ____
DATE: ____
ISSUE DATE: 06/13/2023

CAD DWG FILE: ____
DRAWN BY: ____
CHECKED BY: ____
DESIGNED BY: ____

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

ME0.1

ELECTRICAL SPECIFICATIONS

1. COMPLIANCE WITH CODES

   A. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE, OSHA REQUIREMENTS, AND ALL REGULATIONS, LAWS, AND ORDINANCES WHICH MAY BE APPLICABLE. ALL ELECTRICAL MATERIAL SHALL BE LISTED BY UL (UNDERWRITER'S LABORATORIES, INC.). IN CASE OF A CONFLICT OF CODES, THE MORE STRINGENT SHALL APPLY.

2. PERMITS, LICENSES, AND INSPECTION FEES

   A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND INSPECTION FEES REQUIRED FOR THE ELECTRICAL INSTALLATION SHOWN ON THE DRAWINGS.

3. GUARANTEE

   A. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE ELECTRICAL SYSTEM FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY THE OWNER AND SHALL MAKE ALL REQUIRED REPAIRS AND REPLACEMENTS AND RENDER FREE SERVICES, LABOR, AND MATERIALS DURING THIS GUARANTEE PERIOD.

4. QUALITY OF INSTALLATION

   A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER AND SHALL FIT THE SPACE PROVIDED.

5. START-UP AND TESTING

   A. THE ELECTRICAL SYSTEM SHALL BE TESTED AND FOUND FREE FROM DEFECTS (PRIOR TO UNATTENDED OPERATION) UPON COMPLETION OF THE INSTALLATION.

6. AS-BUILT DRAWINGS

   A. THE CONTRACTOR SHALL SUBMIT ONE SET OF AS-BUILT DRAWING MARK-UPS TO THE ENGINEER AT THE COMPLETION OF THE PROJECT. THESE MARK-UPS SHALL BE UTILIZED TO UPDATE THE AUTOCAD FILES.

7. MATERIAL

   A. ALL EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL BE NEW AND SHALL BE OF THE LATEST, STANDARD CATALOG PRODUCTS. WHERE TWO OR MORE ITEMS OF THE SAME KIND ARE REQUIRED, THEY SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

8. CUTTING AND PATCHING

   A. ALL CUTTING THAT MAY BE NECESSARY FOR THE INSTALLATION OF THE WORK AND ANY REQUIRED PATCHING THAT RESULTS THEREFROM SHALL BE PERFORMED BY THE PROPER TRADE INVOLVED AND SHALL BE INCLUDED AS PART OF THE CONTRACTOR'S WORK. COLUMNS, BEAMS, GIRDERS, OR JOISTS SHALL NOT BE CUT.

9. GROUNDING

   A. GROUND ALL ELECTRICAL SYSTEMS COMPLETELY AND EFFECTIVELY, AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AND AS STATED HEREINAFTER.

10. SEISMIC MOUNTING

   A. THE ENTIRE INSTALLATION OF THIS PROJECT SHALL CONFORM TO SECTION 1610 "EARTHQUAKE LOADS" OF THE 2009 INTERNATIONAL BUILDING CODE.

   B. PROVIDE SEISMIC BRACING AT 10'-0" ON CENTERS FOR ALL CONDUITS 2-1/2" AND LARGER THAT ARE SUSPENDED 18" OR MORE BELOW THE SLAB.

11. GENERAL

   A. THE CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER.

   B. THE CONTRACTOR SHALL VISIT THE SITE OF WORK PRIOR TO SUBMITTING A PROPOSAL AND SHALL FULLY ACQUAINT HIMSELF WITH ALL CONDITIONS AT THE SITE.

   C. THE CONTRACTOR SHALL PROVIDE NEW PANELBOARD CIRCUIT DIRECTORIES TO REFLECT ALL CHANGES MADE TO EXISTING BRANCH CIRCUITS.

12. PANELBOARDS

   A. PROVIDE PANELBOARDS EQUAL TO SQUARE D TYPE NQOD, SURFACE MOUNTED ON THE WALL. EQUAL EQUIPMENT AS MANUFACTURED BY (SIEMENS), CUTLER-HAMMER, WESTINGHOUSE, OR GENERAL ELECTRIC (EATON) SHALL BE ACCEPTABLE.

   B. THE PANELBOARDS SHALL BE FULLY RATED 120/208 OR 277/480 VOLTS, 3 PHASE, 4 WIRE, AND SHALL HAVE COPPER BUS. THE BOLT-ON CIRCUIT BREAKERS SHALL BE EQUAL TO SQUARE D TYPE QOB.

   C. PROVIDE A TYPEWRITTEN CIRCUIT SCHEDULE INSIDE EACH PANELBOARD DOOR. THE ROOM NUMBERS SHOWN ON THE DRAWINGS ARE NOT NECESSARILY THE PERMANENT ROOM NUMBERS. OBTAIN THE PERMANENT ROOM NAMES AND NUMBERS FROM THE OWNER AND USE THEM IN THE CIRCUIT SCHEDULE(S).

13. SAFETY SWITCHES

   A. PROVIDE SAFETY SWITCHES THAT ARE SINGLE-THROW WITH NON-TEASIBLE POSITIVE QUICK-MAKE, QUICK-BREAK CONTACT MECHANISM, FUSIBLE OR NON-FUSIBLE AS INDICATED, DUAL HORSEPOWER RATED, DEAD-FRONT, AND FRONT ACCESSIBLE. THE SWITCH HANDLE SHALL PHYSICALLY INDICATE THE "ON" AND "OFF" POSITIONS, AND SHALL BE CAPABLE OF BEING PADLOCKED IN EITHER POSITION.

   B. THE SAFETY SWITCHES SHALL BE HEAVY DUTY RATED AS MANUFACTURED BY SQUARE D, (SIEMENS), CUTLER-HAMMER, WESTINGHOUSE, OR GENERAL ELECTRIC (EATON).

14. RACEWAYS

   A. ALL CONDUIT BELOW +10'-0" A.F.F, SHALL BE IMC TYPE. ALL CONDUIT ABOVE +10'-0"A.F.F., EMT IS ACCEPTABLE. ALL PVC CONDUITS LOCATED BELOW PAVED AREAS SHALL BE INSTALLED BELOW 24" OF GRAVEL.

   B. FLEXIBLE METALLIC CONDUIT SHALL ONLY BE PROVIDED FOR FINAL FLEXIBLE CONNECTING TO LIGHT FIXTURES AND FOR FINAL CONNECTION TO VIBRATING EQUIPMENT. PROVIDE "SEALTITE" IN DAMP OR WET AREAS.

   C. ALL CONDUITS SHALL BE INSTALLED IN A FIRST CLASS MANNER, RUN PARALLEL OR AT RIGHT ANGLES TO WALLS, BEAMS, OR COLUMNS. NO "SHORT-CUT" DIAGONAL METHOD WILL BE ALLOWED. PROVIDE EXPANSION FITTINGS WHERE CONDUITS PASS THROUGH STRUCTURAL EXPANSION JOINTS.

15. OUTLET BOXES, PULL BOXES, AND CONDUIT FITTINGS

   A. PROVIDE OUTLET BOXES, PULL BOXES, AND CONDUIT FITTINGS EQUAL TO THE APPLETON ELECTRIC COMPANY MODELS LISTED BELOW. STEEL CITY, NATIONAL, AND RACO ARE ALSO ACCEPTABLE.
   LIGHTING BOXES (CONCEALED) - #40-3/4
   LIGHTING BOXES (CONCRETE) - #OCR SERIES
   LIGHTING BOXES (EXPOSED) - #4S-3/4 OR 40-3/4
   SWITCH, RECEPTACLE, TELEPHONE, DICTATION, AND JUNCTION BOXES (FLUSH) - #4S-3/4 OR #225 WHERE SEPARATE EXTENSION OR PLASTER RING CANNOT BE UTILIZED.

16. CONDUCTORS

   A. ALL FEEDER CONDUCTOR 100 AMPS AND LARGER SHALL BE ALUMINUM.

   B. PROVIDE TYPE THHN OR THWN STRANDED COPPER CONDUCTORS. MINIMUM SIZE SHALL BE NO. 12 AWG UNLESS OTHERWISE NOTED.

17. LIGHT FIXTURES

   A. LIGHTING EQUIPMENT IS SHOWN ON THE FIXTURE SCHEDULE ON THE DRAWINGS TO ESTABLISH GENERAL REQUIREMENTS AND MINIMUM QUALITY.

   B. LIGHT FIXTURES SHALL BE EQUIPPED WITH PROPER ACCESSORIES, LENSES, LOUVERS, REFLECTORS, SHIELDS, HANGERS, CLIPS, FRAMES, LAMPS, LED DRIVERS, AND OTHER ESSENTIALS FOR PROPER INSTALLATION IN OR UPON WALLS, CEILINGS, OR OTHER CONSTRUCTION FEATURES, AND SHALL BE PROPERLY PAINTED FOR PROTECTION AND PRESERVATION APPROPRIATE TO THE PLACE INSTALLED.

   C. ALL LIGHT FIXTURES SHALL BE UL APPROVED AND SHALL BEAR IBEW LABELS. BALLASTS FOR FLUORESCENT FIXTURES SHALL BE HIGH EFFICIENCY ELECTRONIC TYPE (LESS THAN 10% HARMONICS) AS MANUFACTURED BY MOTOROLA OR APPROVED EQUAL. LAMPS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, PHILIPS, OR OSRAM SYLVANIA.

18. WIRING DEVICES

   A. WIRING DEVICES (SWITCHES AND RECEPTACLES) SHALL BE UL LISTED. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE, RATED 20 AMPERES. COLOR SHALL BE SELECTED BY THE OWNER. PROVIDE SMOOTH NYLON PLASTIC COVER PLATES.

   B. SINGLE POLE LIGHT SWITCHES SHALL BE EQUAL TO HUBBELL #1221-I. DUPLEX RECEPTACLES SHALL BE EQUAL TO HUBBELL #5352-I.

19. DEMOLITION

   A. THE OWNER INTENDS TO MAKE CONTINUED USE OF EXISTING FACILITIES. UTILITIES AND SERVICES TO EXISTING FACILITIES SHALL NOT BE INTERRUPTED WITHOUT THE OWNER'S APPROVAL AS TO THE TIME AND DURATION. THE CONTRACTOR SHALL SO ORGANIZE HIS WORK AS TO CAUSE A MINIMUM OF INTERFERENCE WITH THE NORMAL ROUTINE ACTIVITIES OF THE FACILITIES.

   B. THE CONTRACTOR SHALL REMOVE, CAP, AND/OR RELOCATE EQUIPMENT, OUTLETS, CONDUIT, WIRE, ETC., AS SHOWN OR NOTED ON THE DRAWINGS, AND AS MAY BECOME NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.

   C. ALL LIGHT FIXTURES, SWITCHES, RECEPTACLES, SPECIAL OUTLETS, ETC., WHICH ARE SHOWN WITH DOTTED LINE SYMBOLS ON THE PLANS SHALL BE REMOVED AND THE HOLES PATCHED UNLESS OTHERWISE NOTED.

   D. ALL CONDUIT FOR ABANDONED CIRCUITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.

   E. WIRING FOR EXISTING CIRCUITS WHICH MUST BE REROUTED, OR WHICH ARE PARTIALLY ABANDONED, SHALL BE RECONNECTED TO SERVE THE REMAINING OUTLETS ON THE CIRCUIT.

   F. ALL WIRING FOR A CIRCUIT WHICH IS TO BE ABANDONED SHALL BE REMOVED BACK TO THE PANEL WHICH SUPPLIED THE CIRCUIT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER AND SHALL TURN OVER TO THE OWNER ALL REMOVED ELECTRICAL EQUIPMENT THAT THE OWNER DESIGNATES. ALL OTHER EQUIPMENT THAT IS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE JOB SITE.

   G. ALL EXISTING WIRE AND CABLES ABOVE THE EXISTING CEILING THAT MUST REMAIN TO SERVE OTHER AREAS OF THE BUILDING SHALL BE RE-SUPPORTED A MAXIMUM OF 4'-6" ON CENTERS. ALL OTHER EXISTING WIRE AND CABLES ABOVE THE EXISTING CEILING OF THIS SPACE SHALL BE REMOVED BY THE CONTRACTOR.

20. SHOP DRAWINGS

   A. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO RELEASE OF ORDER FOR THE FOLLOWING:
   1) LIGHT FIXTURES
   2) WIRING DEVICES
   3) PANELBOARDS

21. EQUIPMENT LABELING

   A. PROVIDE AN ENGRAVED NAMEPLATE AT EACH PANEL, DISCONNECT SWITCH, STARTER AND TRANSFORMER.

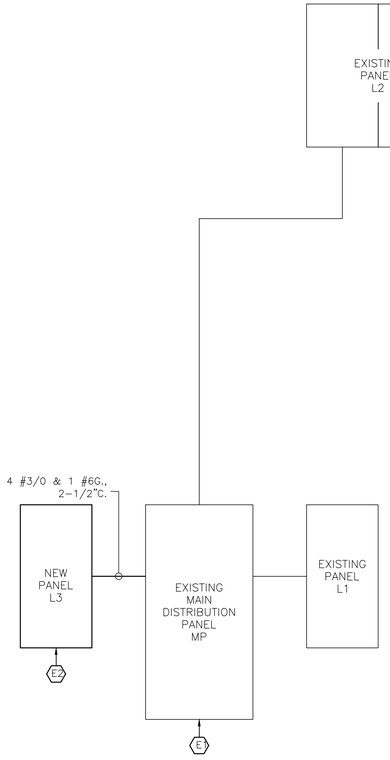
   B. LABEL SHALL IDENTIFY THE EQUIPMENT ITEM AND THE DESIGNATION OF THE POWER SUPPLY SOURCE.

   C. NAMEPLATE SHALL BE SECURED TO EQUIPMENT WITH MECHANICAL FASTENERS.

22. POWER SYSTEM STUDY

   A. PERFORM A POWER SYSTEM STUDY TO DETERMINE SHORT CIRCUIT VALUES, SELECTIVE COORDINATION OF OVER CURRENT DEVICES AND ARC FLASH HAZARD RATINGS.

   B. LABEL NEW PANELS TO IDENTIFY AVAILABLE FAULT CURRENT AND ARC FLASH HAZARD RATINGS.



ELECTRICAL KEYED NOTES

(E) PROVIDE NEW 200 AMP, FUSES IN EXISTING 200 AMP SWITCH SPARE AND FEED NEW PANEL L3.

(E2) PROVIDE NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 200 AMP PANEL L3 AND FEED FROM EXISTING MAIN DISTRIBUTION PANEL MP.

1 ME0.2 EXISTING ONE LINE RISER DIAGRAM

SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARRELL R. CASE
NUMBER PE-23302
PROFESSIONAL ENGINEER

06/13/2023

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF
Historic Preservation
State Parks &
Natural Resources

REPLACE HVAC SYSTEM

SCOTT JOPLIN HOUSE
STATE HISTORIC SITE -
ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 06/13/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

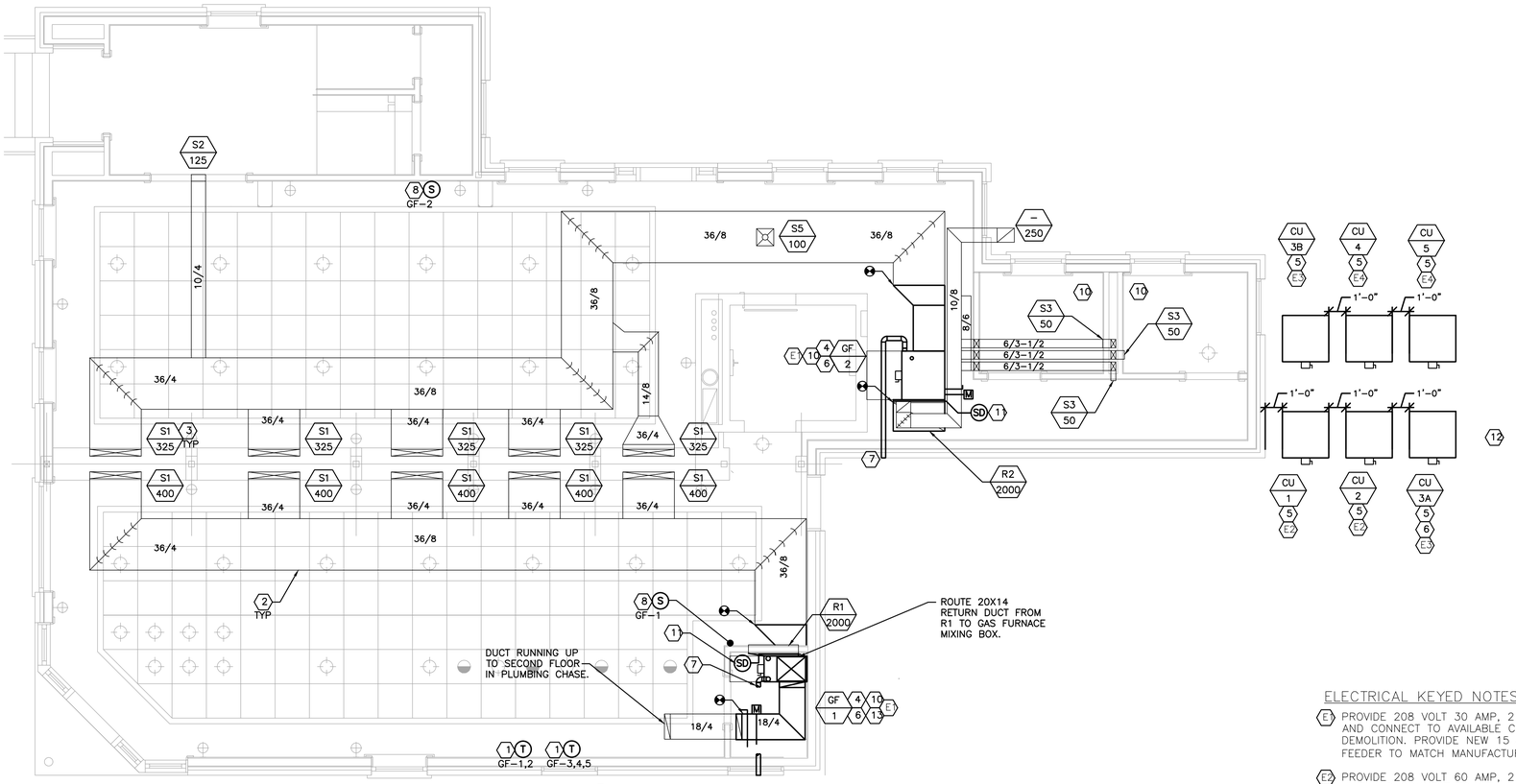
SHEET TITLE:

ELECTRICAL SPECIFICATIONS

SHEET NUMBER:

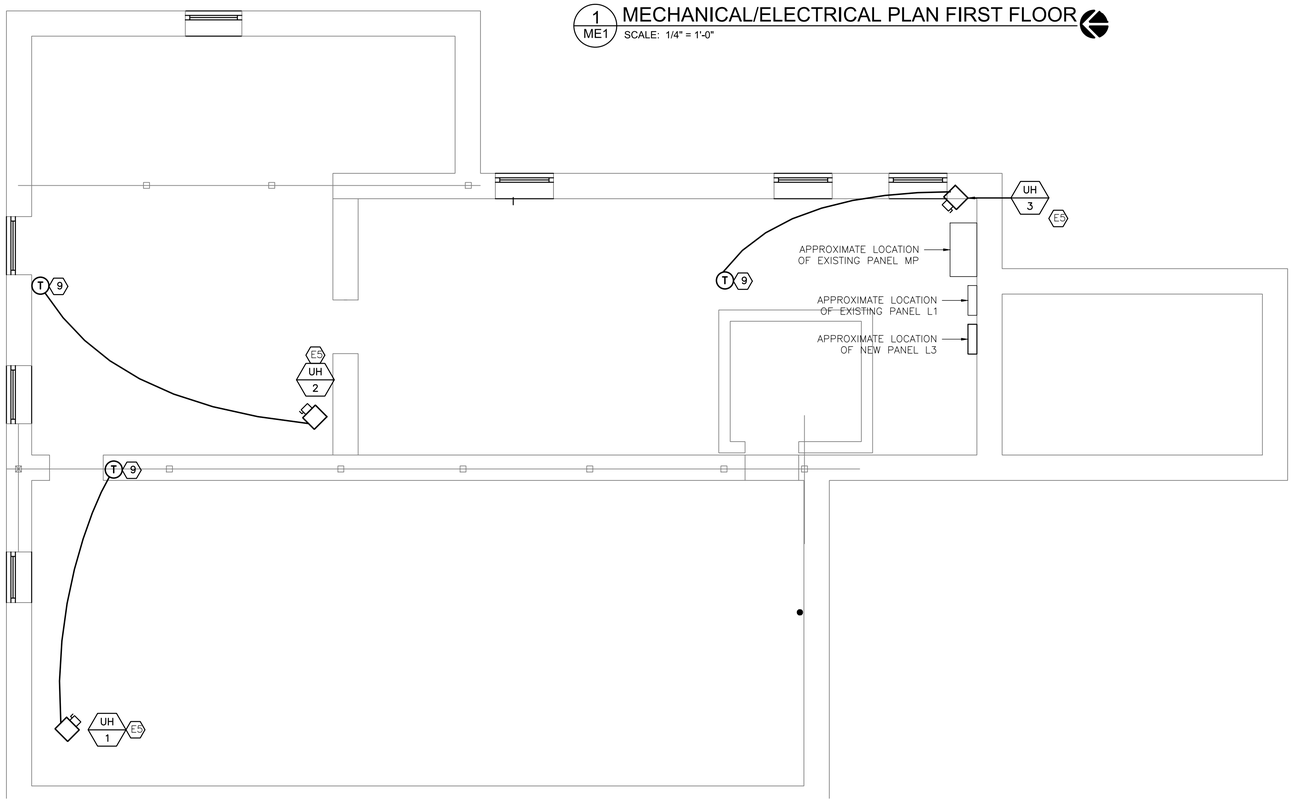
ME0.2

3 OF 14 SHEETS
06/13/2023



1 ME1 MECHANICAL/ELECTRICAL PLAN FIRST FLOOR

SCALE: 1/4" = 1'-0"



MECHANICAL SYMBOLS LEGEND	
T	THERMOSTAT
S	TEMPERATURE SENSOR
SD	SMOKE DETECTOR
	FLEXIBLE DUCT
	VOLUME DAMPER
FD	FIRE DAMPER
	CEILING SUPPLY AIR DIFFUSER
	CEILING RETURN AIR GRILLE
	SIDEWALL AIR DIFFUSER OR GRILLE
	NEW DUCTWORK
	EXISTING DUCTWORK
D	CONDENSATE DRAIN
G	GAS PIPING
	CONNECTION OF NEW TO EXISTING
	CHECK VALVE
	GAS COCK
	UNION
	PRESSURE GAUGE
	STRAINER
AFF	ABOVE FINISHED FLOOR
S1 / 100	AIR DEVICE # / CFM — S – SUPPLY, R – RETURN, E – EXHAUST

ELECTRICAL KEYED NOTES

E1 PROVIDE 208 VOLT 30 AMP, 2 POLE DISCONNECT FOR NEW GAS FURNACE AND CONNECT TO AVAILABLE CIRCUITS IN PANEL L1 MADE SPARE BY DEMOLITION. PROVIDE NEW 15 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

E2 PROVIDE 208 VOLT 60 AMP, 2 POLE DISCONNECT FOR NEW CONDENSING UNIT AND CONNECT TO NEW PANEL L3. PROVIDE NEW 50 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

E3 PROVIDE 208 VOLT, 60 AMP, 2 POLE DISCONNECT FOR NEW CONDENSING UNIT AND CONNECT TO NEW PANEL L3. PROVIDE NEW 40 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

E4 PROVIDE 208 VOLT, 30 AMP, 2 POLE DISCONNECT FOR NEW CONDENSING UNIT AND CONNECT TO NEW PANEL L3. PROVIDE NEW 20 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

E5 PROVIDE 208 VOLT, 60 AMP, 2 DISCONNECT FOR NEW UNIT HEATER AND CONNECT TO AVAILABLE SPARE CIRCUITS IN PANEL L1. PROVIDE NEW 35 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

MECHANICAL KEYED NOTES

1. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT AND RELATED WIRING TO CONTROL AIR HANDLER UNIT. MOUNT 48" A.F.F. PROVIDE LOCKABLE COVER.
2. EXISTING GALVANIZED STEEL DUCTWORK TO REMAIN. DUCTWORK TO BE CLEANED TO LIKE NEW CONDITION. CONTRACTOR SHALL INSPECT DUCTWORK AND PATCH AND SEAL ALL UNUSED OPENINGS AIRTIGHT WITH INSULATED PATCHES.
3. EXISTING AIR DEVICES TO REMAIN. CLEAN TO LIKE NEW CONDITION AND REBALANCE TO CFM SHOWN.
4. PROVIDE NEW GAS FURNACE (GF-1,2) IN LOCATION OF EXISTING FAN COIL UNIT.
5. PROVIDE NEW CONDENSING UNIT (CU-1,2) VERIFY EXACT LOCATION IN FIELD WITH STATE OF MISSOURI REPRESENTATIVE. PROVIDE NEW CONCRETE PAD FOR MOUNTING OF CONDENSING UNITS.
6. CONNECT UNITS TO EXISTING OUTSIDE AIR DUCTS. PROVIDE NEW MANUAL AND MOTORIZED AIR DAMPERS AT OUTDOOR AIR DUCT AND BALANCE TO CFM SHOWN.
7. ROUTE FURNACE FLUE AND COMBUSTION TO LOCATION SHOWN. CONNECT TO FLUE HORIZONTAL VENT KIT, MODEL# SP20286.
8. PROVIDE WALL MOUNTED REMOTE ZONE TEMPERATURE SENSOR AND WIRE TO RESPECTIVE PROGRAMMABLE THERMOSTAT. COORDINATE PLACEMENT WITH DECOR AND EQUIPMENT. FIELD VERIFY WITH STATE OF MISSOURI REPRESENTATIVE FOR THE FINAL LOCATION PRIOR TO INSTALLATION.
9. PROVIDE ELECTRIC UNIT HEATERS (UH-1,2,3), AS SCHEDULED. PROVIDE WITH THERMOSTAT.
10. EXISTING EXHAUST FAN, TO REMAIN. CLEAN TO LIKE NEW CONDITION AND REBALANCE TO 75 CFM.
11. PROVIDE DUCT MOUNTED SMOKE DETECTORS, IN RA DUCT. SMOKE DETECTORS SHALL BE INTERLOCKED TO DE-ENERGIZE UNIT UPON DETECTION OF SMOKE. POWER WIRING BY CONTRACTOR, COORDINATE WITH ELECTRICAL DRAWINGS/ CONTRACTOR.
12. LEAVE SPACE FOR WATER MAIN RUNNING THROUGH CONDENSING UNIT LOCATIONS.
13. SET GAS FURNACE AT MINIMUM 12" OFF OF GROUND.

STATE OF MISSOURI
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STATE OF MISSOURI DARRELL R. CASE NUMBER PE-23302 PROFESSIONAL ENGINEER
06/13/2023

CASE Engineering Inc.
796 Merus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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REPLACE HVAC SYSTEM

SCOTT JOPLIN HOUSE
STATE HISTORIC SITE -
ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

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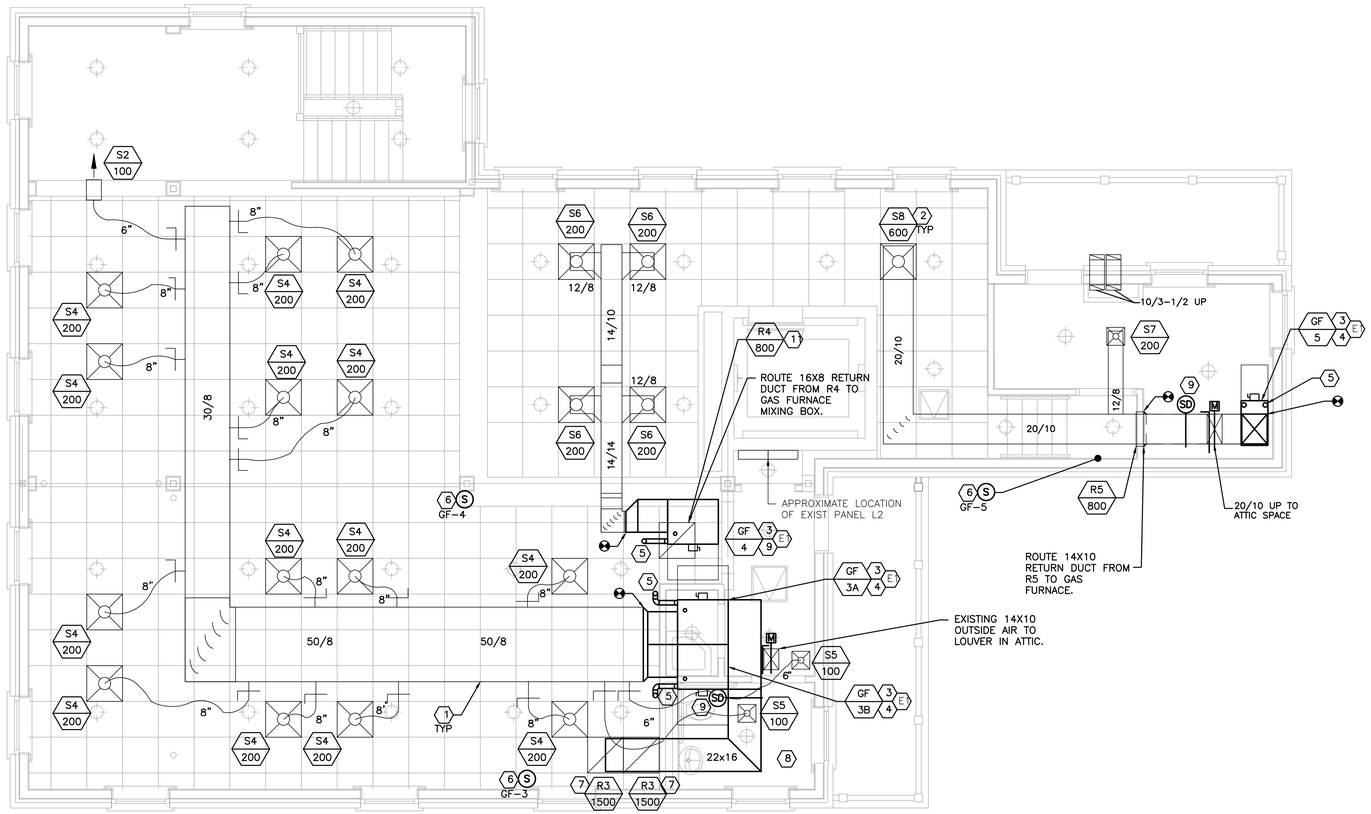
SHEET TITLE:
MECHANICAL PLAN 1ST FLOOR

SHEET NUMBER:
ME1.1

4 OF 14 SHEETS
06/13/2023



1 ME1.2 MECHANICAL/ELECTRICAL PLAN SECOND FLOOR

SCALE: 1/4" = 1'-0"

ELECTRICAL KEYED NOTES

(E) PROVIDE 208 VOLT, 30 AMP, 2 POLE DISCONNECT FOR NEW GAS FURNACE AND CONNECT TO AVAILABLE CIRCUITS IN PANEL L2 MADE SPARE BY DEMOLITION. PROVIDE NEW 15 AMP, 2 POLE CIRCUIT BREAKER AND FEEDER TO MATCH MANUFACTURER'S RECOMMENDED MOCP.

MECHANICAL KEYED NOTES

(1) EXISTING GALVANIZED STEEL DUCTWORK TO REMAIN. DUCTWORK TO BE CLEANED TO LIKE NEW CONDITION. CONTRACTOR SHALL INSPECT DUCTWORK AND PATCH AND SEAL ALL UNUSED OPENINGS AIRTIGHT WITH INSULATED PATCHES.

(2) EXISTING AIR DEVICES TO REMAIN. CLEAN TO LIKE NEW CONDITION AND REBALANCE TO CFM SHOWN.

(3) PROVIDE NEW GAS FURNACE (GF-3,4,5) IN LOCATION OF EXISTING FAN COIL UNIT.

(4) CONNECT UNITS TO EXISTING OUTSIDE AIR DUCTS. PROVIDE NEW MANUAL AND MOTORIZED AIR DAMPERS AT OUTDOOR AIR DUCT AND BALANCE TO CFM SHOWN.

(5) ROUTE FURNACE FLUE AND COMBUSTION TO LOCATION SHOWN. CONNECT TO FLUE VERTICAL VENT KIT, MODEL# SP20245.

(6) PROVIDE WALL MOUNTED REMOTE ZONE TEMPERATURE SENSOR AND WIRE TO RESPECTIVE PROGRAMMABLE THERMOSTAT. COORDINATE PLACEMENT WITH DECOR AND EQUIPMENT. FIELD VERIFY WITH STATE OF MISSOURI REPRESENTATIVE FOR THE FINAL LOCATION PRIOR TO INSTALLATION.

(7) RELOCATE EXISTING RETURN DIFFUSERS AND CONNECT TO RETURN DUCTWORK. SYSTEM TO BE CONVERTED TO FULLY DUCTED SYSTEMS.

(8) EXISTING EXHAUST FAN, TO REMAIN. CLEAN TO LIKE NEW CONDITION AND REBALANCE TO 75 CFM.

(9) PROVIDE DUCT MOUNTED SMOKE DETECTORS, IN RA DUCT. SMOKE DETECTORS SHALL BE INTERLOCKED TO DE-ENERGIZE UNIT UPON DETECTION OF SMOKE. POWER WIRING BY CONTRACTOR, COORDINATE WITH ELECTRICAL DRAWINGS/ CONTRACTOR.

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St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
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DRAWN BY:
CHECKED BY:
DESIGNED BY:

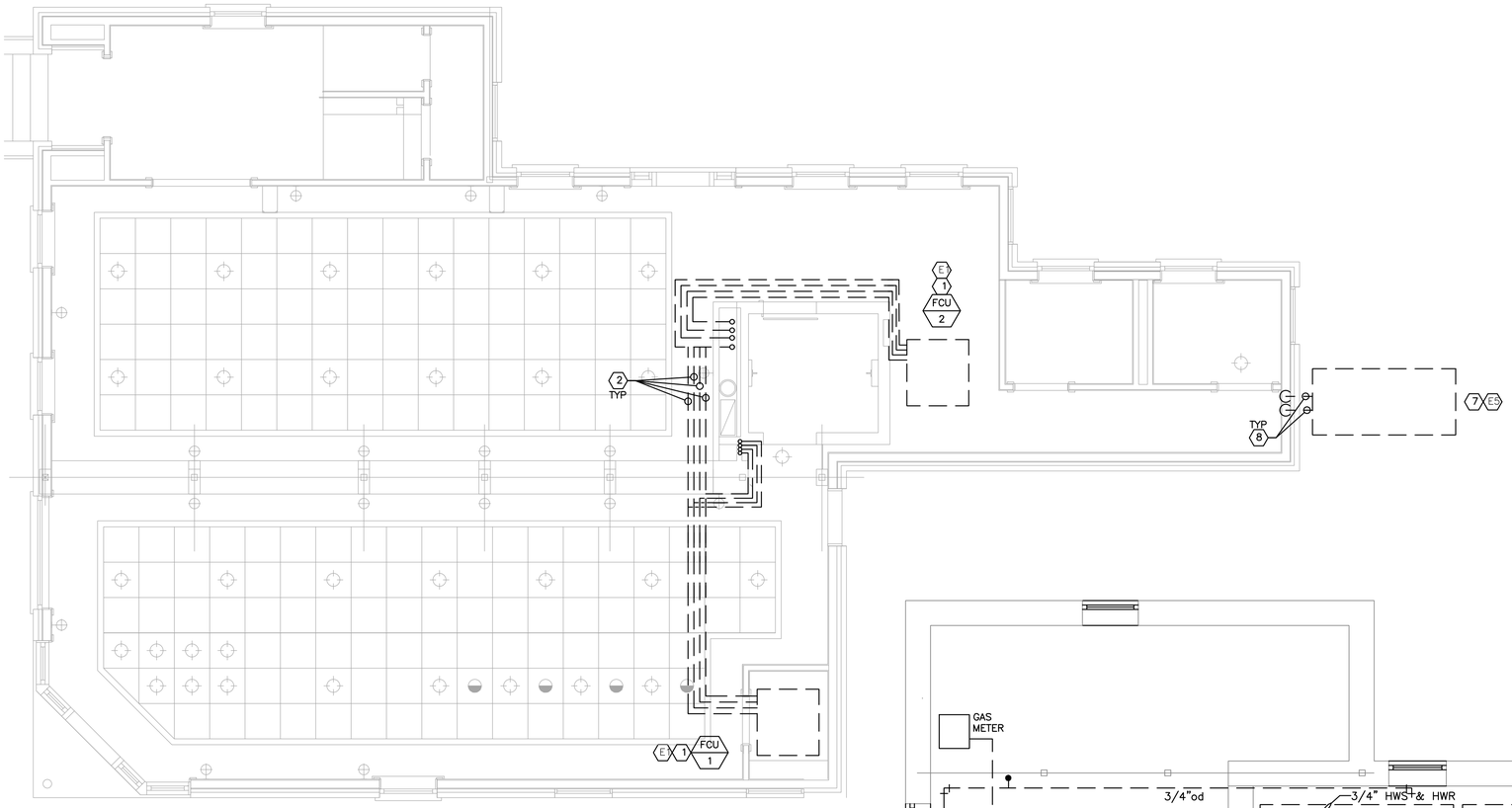
SHEET TITLE:

MECHANICAL PLAN 2ND FLOOR

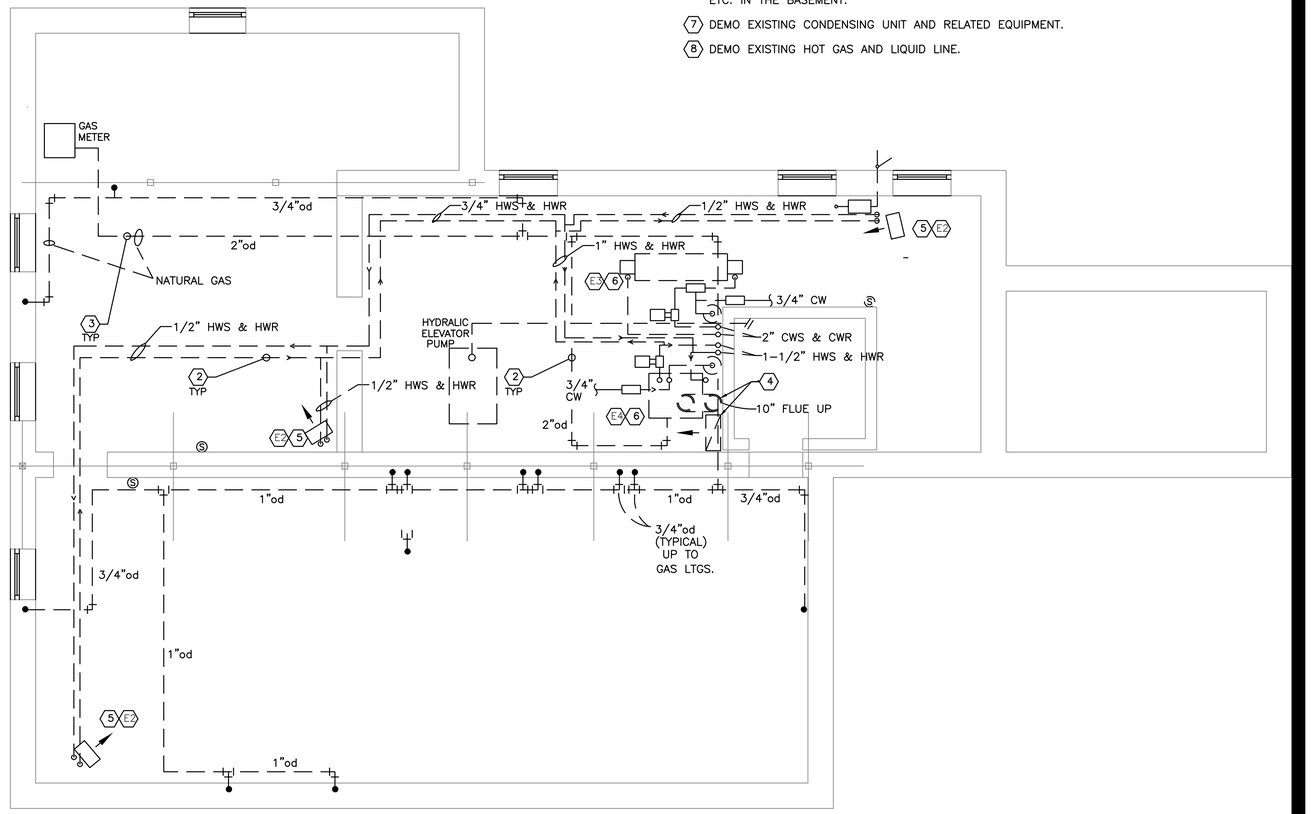
SHEET NUMBER:

ME1.2

5 OF 14 SHEETS
06/13/2023



1 DME1.1 MECHANICAL DEMO PLAN FIRST FLOOR
SCALE: 1/4" = 1'-0"



2 DME1.1 MECHANICAL DEMO PLAN BASEMENT
SCALE: 1/4" = 1'-0"

ELECTRICAL KEYED NOTES

E-1 EXISTING FAN COIL UNIT SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

E-2 EXISTING HOT WATER UNIT HEATER SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

E-3 EXISTING CHILLER AND ASSOCIATED CHILLED WATER PUMP SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

E-4 EXISTING BOILER AND HOT WATER PUMP SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

E-5 EXISTING CONDENSING UNIT SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

MECHANICAL KEYED NOTES

1 DEMO EXISTING FAN COIL UNITS AND ALL ASSOCIATED PIPING, WIRING, AND CONTROLS.

2 DEMO EXISTING CHILLED AND HOT WATER PIPING IN SPACE. CHILLER AND HOT WATER PIPING TO BE REMOVED IN ITS ENTIRETY.

3 DEMO EXISTING GAS PIPE IN SPACE BACK TO GAS METER.

4 CAP EXHAUSTING COMBUSTION AIR INTAKE AND EXHAUST AT ROOF AND SEAL WATER TIGHT .

5 DEMO EXISTING HOT WATER UNIT HEATERS IN BASEMENT.

6 DEMO EXISTING CHILLER/ BOILER PUMPS AND RELATED PIPING, CONTROLS, ETC. IN THE BASEMENT.

7 DEMO EXISTING CONDENSING UNIT AND RELATED EQUIPMENT.

8 DEMO EXISTING HOT GAS AND LIQUID LINE.

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STATE OF MISSOURI
DARRELL R. CASE
NUMBER PE-23302
PROFESSIONAL ENGINEER
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CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

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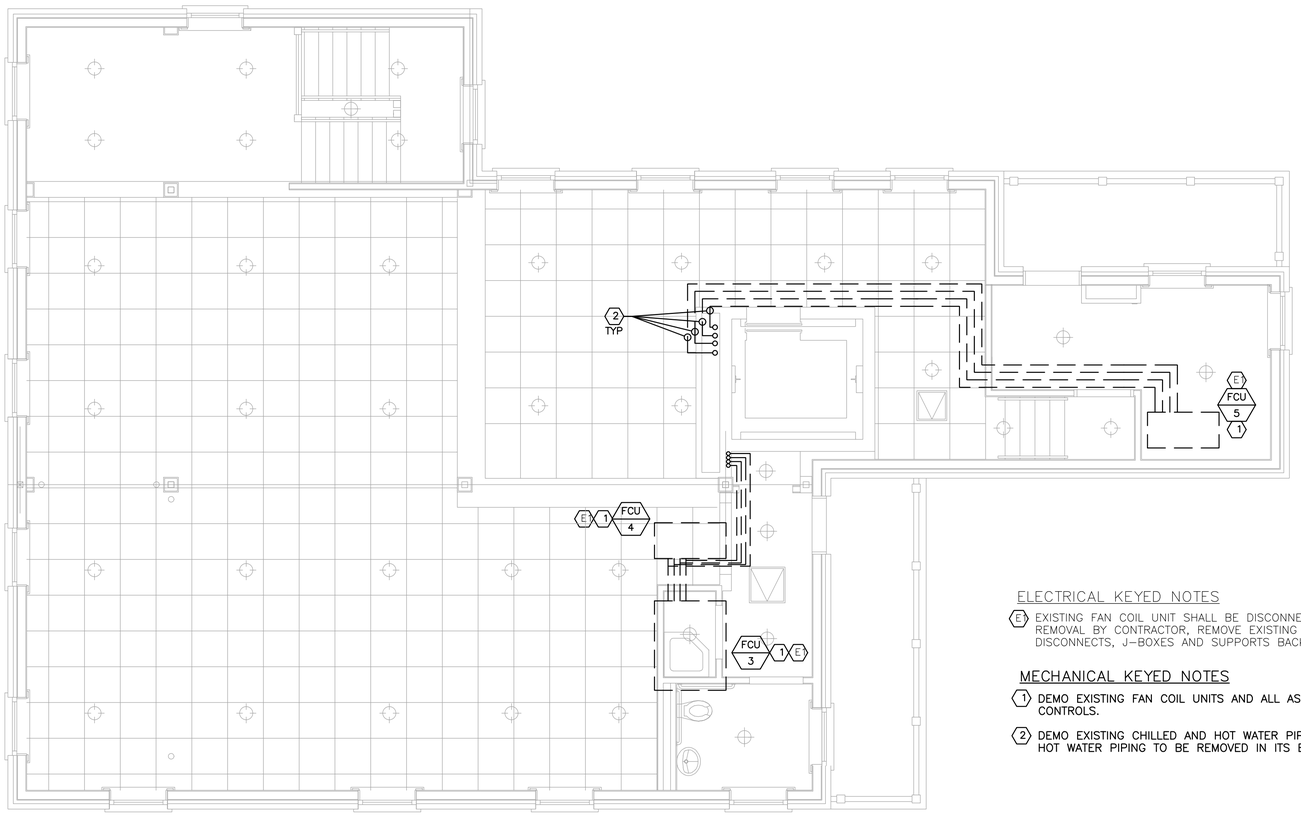
MECHANICAL/ ELECTRICAL DEMO PLAN 1 ST FLOOR

SHEET NUMBER:
DME1.1

6 OF 14 SHEETS
06/13/2023



ELECTRICAL KEYED NOTES

(E) EXISTING FAN COIL UNIT SHALL BE DISCONNECTED AND MADE SAFE FOR REMOVAL BY CONTRACTOR, REMOVE EXISTING CONDUCTORS, CONDUIT, DISCONNECTS, J-BOXES AND SUPPORTS BACK TO PANEL.

MECHANICAL KEYED NOTES

(1) DEMO EXISTING FAN COIL UNITS AND ALL ASSOCIATED PIPING, WIRING, AND CONTROLS.

(2) DEMO EXISTING CHILLED AND HOT WATER PIPING IN SPACE. CHILLER AND HOT WATER PIPING TO BE REMOVED IN ITS ENTIRETY.

1 DME1.2 MECHANICAL DEMO PLAN SECOND FLOOR
SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
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GOVERNOR

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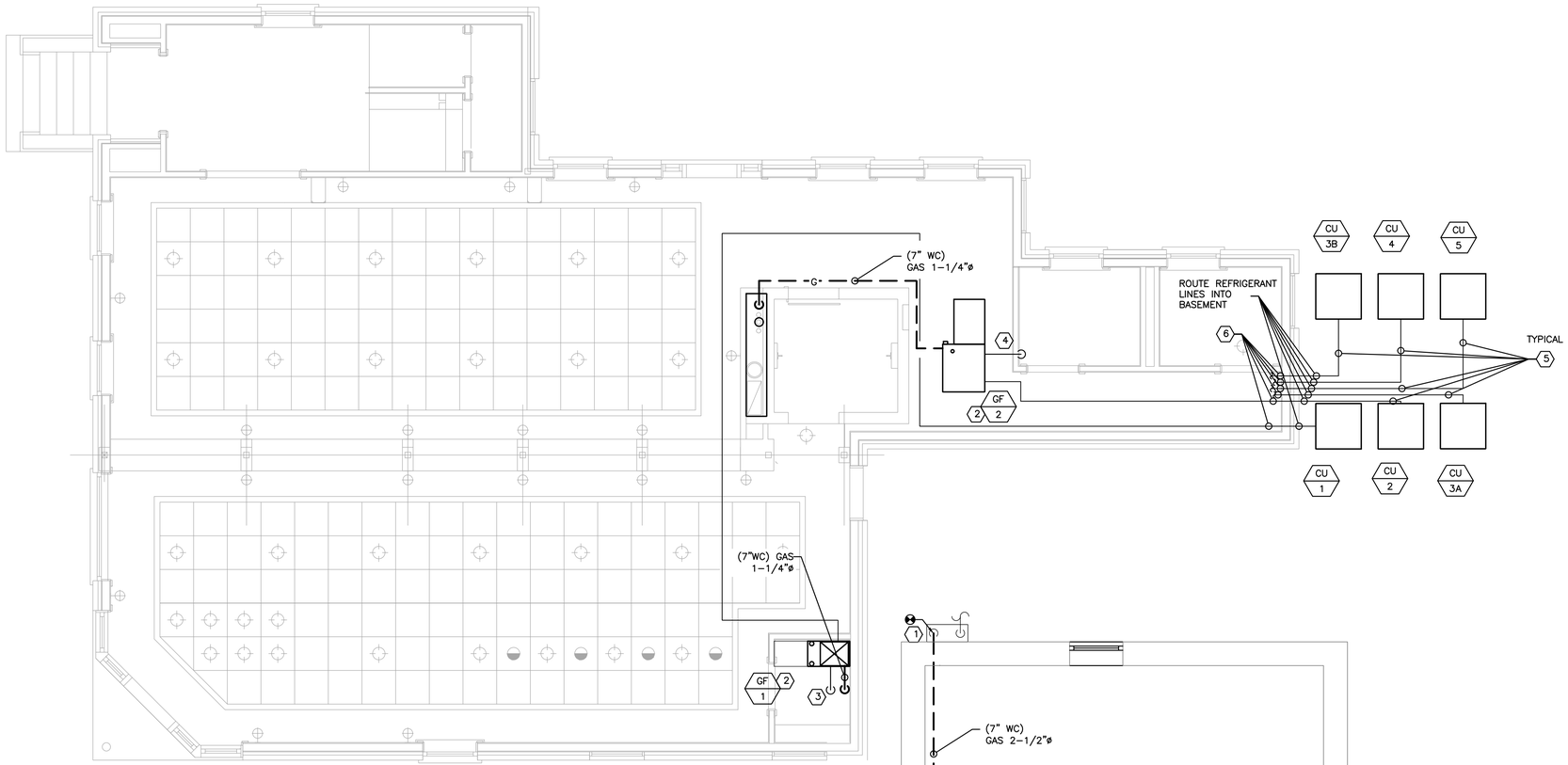
SHEET TITLE:
MECHANICAL/ ELECTRICAL DEMO PLAN 2ND FLOOR

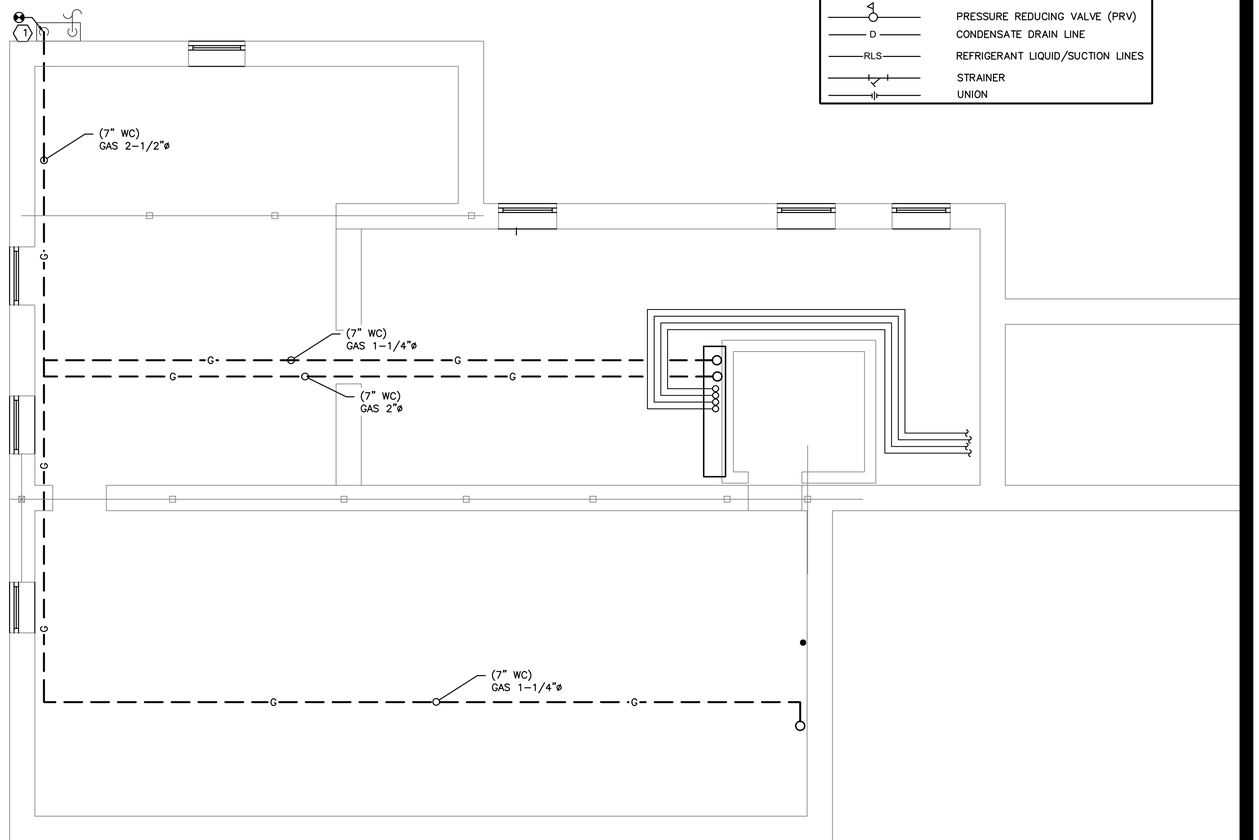
SHEET NUMBER:

DME1.2

7 OF 14 SHEETS
06/13/2023



1 ME1.1 MECHANICAL PIPE PLAN FIRST FLOOR
SCALE: 1/4" = 1'-0"



2 ME1.1 MECHANICAL PIPE PLAN BASEMENT
SCALE: 1/4" = 1'-0"

MECHANICAL KEYED NOTES

1. ROUTE GAS LINE TO CONNECT TO EXISTING GAS METER. SIZES SHOWN ARE FOR 7"WC DELIVERY PRESSURE AND PIPING. NEW TOTAL GAS LOAD, 504 MBH. COORDINATE WITH GAS COMPANY TO VERIFY IF NEW METER IS REQUIRED FOR ADDITIONAL GAS LOAD. CONFIRM EXISTING SEISMIC GAS VALVE TO REMAIN. IF NOT EXISTING, PROVIDE NEW PER DETAIL.
2. ROUTE GAS PIPING TO FURNACE. PROVIDE GAS COCK AND UNION PRIOR TO CONNECTION TO EQUIPMENT. SEE EQUIPMENT CONNECTION DETAIL.
3. ROUTE CONDENSATE PIPING TO DRAIN INDIRECTLY TO MOP SINK, SLOPE 2%. INSULATE WITH 1" ARMAFLEX INSULATION. PIPING TO BE FULL SIZE OF DRAIN.
4. ROUTE CONDENSATE PIPING TO DRAIN INDIRECTLY LAVATORY, SLOPE 2%. INSULATE WITH 1" ARMAFLEX INSULATION. PIPING TO BE FULL SIZE OF DRAIN.
5. ROUTE REFRIGERANT LINES IN FIELD TO REMOTE CONDENSER (CU-1,2,3A,3B,4,5), INSULATE WITH 1" ARMAFLEX. SIZE AND INSTALL ALL PIPING PER MANUFACTURER'S GUIDELINES FOR TOTAL LENGTH AND EQUIPMENT VERTICAL SEPARATION. COORDINATE EXACT REFRIGERANT ROUTE AND UNIT LOCATIONS WITH STATE OF MISSOURI REPRESENTATIVE PRIOR TO ANY WORK. CONTACT THE ENGINEER IMMEDIATELY, IF ANY DISCREPANCIES ARE DISCOVERED.
6. TYPICAL, PROVIDE PIPE SLEEVE AT WALL, SEAL ANNULAR SPACE WEATHER TIGHT.

GAS LOAD SUMMARY			
SYSTEM	DESIGNATION	EQUIPMENT	MBH
BUILDING HEAT	GF-1	GAS FURNACE	84
	GF-2	GAS FURNACE	84
	GF-3A	GAS FURNACE	112
	GF-3B	GAS FURNACE	112
	GF-4	GAS FURNACE	56
	GF-5	GAS FURNACE	56
TOTAL NATURAL GAS CONNECTED LOAD			
GAS METER REQUIREMENTS	MBH CAPACITY		504
	TOTAL DEVELOPED LENGTH INCLUDING EQUIVALENT PIPE LENGTH FOR FITTING AND VALVE FRICTION LOSSES TO GAS METER.		321 FT X 1.2= 390 FT
	CONSULT GAS UTILITY COMPANY FOR REGULATOR RATING		

MECHANICAL PIPING LEGEND	
	PIPING
	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE REMOVED
	FLOW MARKER
A	COMPRESSED AIR PIPE
C	AC CONDENSATE DRAIN PIPE
CA	COMBUSTION AIR PIPE, (SEALED COMBUSTION UNIT)
G	NATURAL GAS PIPE
LPG	LIQUIFIED PROPANE GAS PIPE
RL/S	REFRIGERANT PIPE
	REFRIGERANT PIPE
HGR	REFRIGERANT PIPE, HOT GAS REHEAT
VE	VENT EXHAUST PIPE, (SEALED COMBUSTION UNIT)
	HOT WATER SUPPLY (HWS)
	HOT WATER RETURN (HWR)
CWS	CONDENSER WATER SUPPLY (CWS)
CWR	CONDENSER WATER RETURN (CWR)
	PIPE SYMBOLS
	TRANSITION IN PIPE SIZE
	90° ELBOW DOWN
	90° TEE DOWN
	90° ELBOW UP
	90° TEE UP
DN UP	CHANGE IN ELEVATION, DIRECTION OF FLOW
	PIPE TRAP
	PIPE DOWN THROUGH ROOF
	AUTOMATIC SHUT OFF VALVE, GAS
	BALL VALVE
	GATE VALVE (GV)
	PLUG VALVE
	PRESSURE REDUCING VALVE (PRV)
D	CONDENSATE DRAIN LINE
RLS	REFRIGERANT LIQUID/SUCTION LINES
	STRAINER
	UNION

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796 Meras Court
St. Louis, MO 63026
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F 636.349.1730
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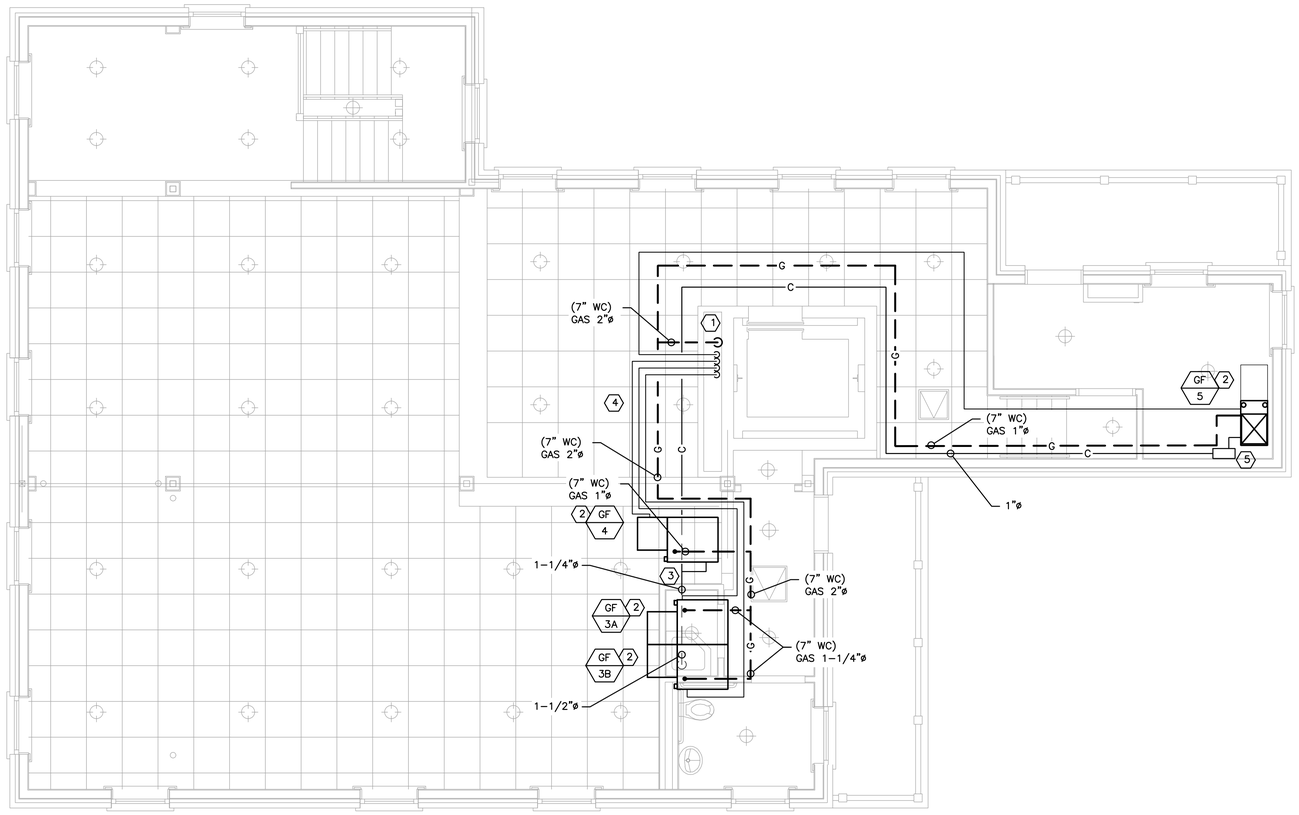
SHEET TITLE:
MECHANICAL PIPING PLAN 1ST FLOOR

SHEET NUMBER:
M2.1

8 OF 14 SHEETS
06/13/2023



1 M1 GAS PIPE PLAN SECOND FLOOR

SCALE: 1/4" = 1'-0"

MECHANICAL KEYED NOTES

1. ROUTE GAS LINE TO CONNECT TO EXISTING GAS METER. SIZES SHOWN ARE FOR 7"WC DELIVERY PRESSURE AND PIPING. NEW TOTAL GAS LOAD, 504 MBH. COORDINATE WITH GAS COMPANY TO VERIFY IF NEW METER IS REQUIRED FOR ADDITIONAL GAS LOAD. CONFIRM EXISTING SEISMIC GAS VALVE TO REMAIN. IF NOT EXISTING, PROVIDE NEW PER DETAIL.
2. ROUTE GAS PIPING TO FURNACE. PROVIDE GAS COCK AND UNION PRIOR TO CONNECTION TO EQUIPMENT. SEE EQUIPMENT CONNECTION DETAIL.
3. ROUTE CONDENSATE PIPING TO DRAIN INDIRECTLY TO MOP SINK, SLOPE 2%. INSULATE WITH 1" ARMAFLEX INSULATION. PIPING TO BE FULL SIZE OF DRAIN.
4. ROUTE REFRIGERANT LINES IN FIELD TO REMOTE CONDENSER (CU-1,2,3A,3B,4,5), INSULATE WITH 1" ARMAFLEX. SIZE AND INSTALL ALL PIPING PER MANUFACTURER'S GUIDELINES FOR TOTAL LENGTH AND EQUIPMENT VERTICAL SEPARATION. COORDINATE EXACT REFRIGERANT ROUTE AND UNIT LOCATIONS WITH STATE OF MISSOURI REPRESENTATIVE PRIOR TO ANY WORK. CONTACT THE ENGINEER IMMEDIATELY, IF ANY DISCREPANCIES ARE DISCOVERED.
5. PROVIDE CONDENSATE PUMP FOR CONDENSATE.

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MECHANICAL PIPING PLAN
2ND FLOOR

SHEET NUMBER:
M2.2

9 OF 14 SHEETS
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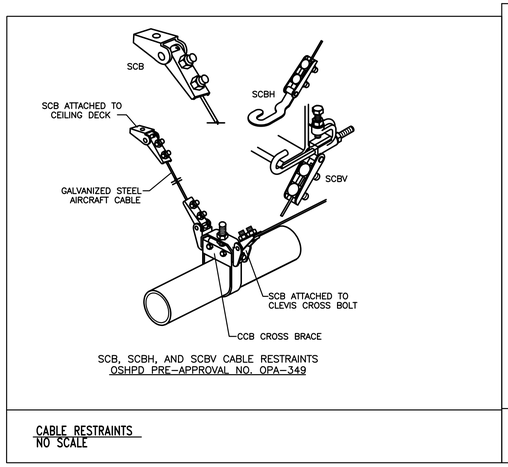
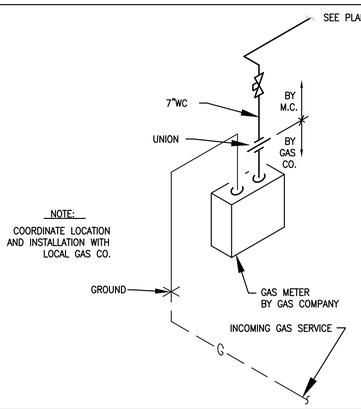
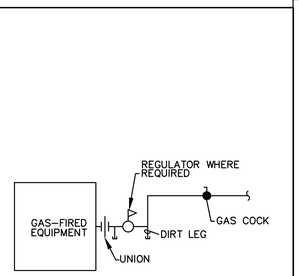


SCB, SCBH, AND SCBV CABLE RESTRAINTS
OSHPD PRE-APPROVAL NO. OPA-349

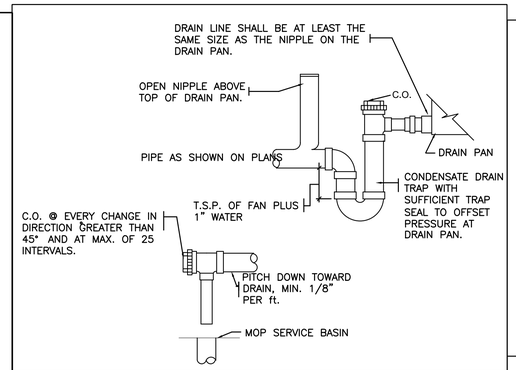
CABLE RESTRAINTS
NO SCALE



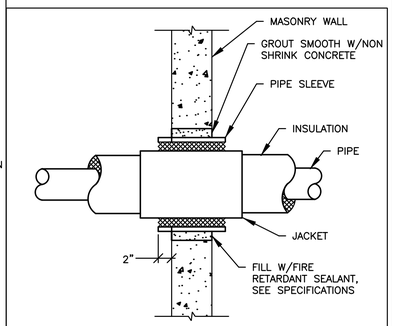
GAS PIPING DETAIL
NO SCALE



GAS-FIRED EQUIPMENT GAS PIPING DETAIL
SCALE: NONE



CONDENSATE DRAIN TRAP DETAIL
NO SCALE



PIPING THROUGH MASONRY WALL
NO SCALE

GAS FURNACE UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	SUPPLY CFM	O.A. CFM	EXT. SP.	COOLING TONS	COOLING MBH TTL/SEN	GAS HEAT MBH IN/OUT	SUPPLY FAN HP	ELECTRICAL MCA/MOCP	ELECTRICAL V/PH	WEIGHT LBS	REMARKS
GF-1	RHEEM	R92TA0851521MSA	2000	260	0.8	5.0	59.2/44.5	84.0/82.0	–	8.5/15	208/1	250	1,2,3,4,5,6,10
GF-2	RHEEM	R92TA0851521MSA	2000	260	0.8	5.0	59.2/44.5	84.0/82.0	–	8.5/15	208/1	250	1,2,3,4,5,6,10
GF-3A	RHEEM	R92TA1151524MSA	1550	100	0.5	4.0	49/37.6	112/108	–	8.7/15	208/1	152	1,2,3,4,5,8,9,10
GF-3B	RHEEM	R92TA1151524MSA	1550	100	0.5	4.0	49/37.6	112/108	–	8.7/15	208/1	152	1,2,3,4,5,8,9,10
GF-4	RHEEM	R92TA0601317MSA	800	135	0.5	2.0	24/17.5	56.0/54.0	–	5.5/15	208/1	170	1,2,3,4,5,7,10
GF-5	RHEEM	R92TA0601317MSA	800	135	0.5	2.0	24/17.5	56.0/54.0	–	5.5/15	208/1	170	1,2,3,4,5,7,10

1. REMOTE CONDENSING UNIT MOUNTED ON GRADE. COORDINATE EXACT LOCATION IN FIELD WITH FACILITY MANAGER.
2. PROVIDE AIR FILTER RACK TO PERMIT SERVICE OF FILTER, INSTALL MERV 8 FILTERS.
3. VERIFY ALL ELECTRICAL INFORMATION WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING.
4. PROVIDE WITH FACTORY MIXING BOX, FULL SIZE UNIT R.A. CONNECTION.
5. CONTRACTOR SHALL PROVIDE: TWO (2) CHANGES OF THE FILTERS DURING CONSTRUCTION, ONE PRIOR TO TESTING AND BALANCING AND ONE AT TURNOVER TO OWNER. PRIOR TO TESTING AND BALANCING OF THE AIR SYSTEM, VACUUM CLEAN AIR SIDE OF COILS, INSIDE OF GF CASING AND FAN.
6. PROVIDE WITH RHEEM RCF6024STAM COOLING COIL.
7. PROVIDE WITH RHEEM RCF2417HTA COOLING COIL.
8. PROVIDE WITH RHEEM RCF4824HTA COOLING COIL.
9. PROVIDE WITH RHEEM TWINING KIT.
10. PROVIDE WITH RHEEM 2C/2H THERMOSTAT.

CONDENSING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	COOLING TONS	COOLING CAPACITY MBH	COOLING CAPACITY AMB °F	COOLING CAPACITY REF. TYPE.	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL VOLT/PHASE	WEIGHT LBS	REMARKS
CU-1	RHEEM	RA1660AJ1NA	5.0	59.2	95	410a	34	50	208/1	290	1,2
CU-2	RHEEM	RA1660AJ1NA	5.0	59.2	95	410a	34	50	208/1	290	1,2
CU-3A	RHEEM	RA1648AJ1NA	4.0	49.0	95	410a	25	40	208/1	262	1,2
CU-3B	RHEEM	RA1648AJ1NA	4.0	49.0	95	410a	25	40	208/1	262	1,2
CU-4	RHEEM	RA1624AJ1NA	2.0	24.0	95	410a	14	20	208/1	170	1,2
CU-5	RHEEM	RA1624AJ1NA	2.0	24.0	95	410a	14	20	208/1	170	1,2

1. PROVIDE CONDENSING ON GRADE IN LOCATION AS DIRECTED BY FACILITY MANAGER. INSTALL CONDENSING UNIT, SIZE AND ROUTE REFRIGERANT LINES IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. VERIFY ELECTRICAL INFORMATION WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING.

EXISTING AIR DEVICE SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	MATL.	NECK SIZE	FRAME TYPE	PANEL SIZE	REMARKS
S1	TITUS	SG-300RS	ST	–	–	36"x4"	1,2
S2	TITUS	SG-300RS	ST	–	–	10"x4"	1,2
S3	TITUS	SG-300RS	ST	–	–	6"x4"	1,2
S4	TITUS	PAS-3	ST	–	–	24"x24"	1,2
S5	TITUS	PAS-1	ST	–	–	12"x12"	1,2
S6	TITUS	PAS-3	ST	–	–	24"x24"	1,2
S7	TITUS	PAS-1	ST	–	–	12"x12"	1,2
S8	TITUS	PAS-3	ST	–	–	24"x24"	1,2
R1	TITUS	SG-350R	ST	–	–	36"x30"	1,2
R2	TITUS	33RFL	ST	–	–	36"x20"	1,2
R3	TITUS	PAR-3	ST	–	–	24"x24"	1,2
R4	TITUS	PAR-3	ST	–	–	24"x24"	1,2
R5	TITUS	23RFL	ST	–	–	24"x20"	1,2
–	TITUS	8F	ST	–	–	12"x10"	1,2

1. REBALANCE TO CFM SHOWN ON PLANS.
2. CLEAN TO LIKE NEW CONDITION.

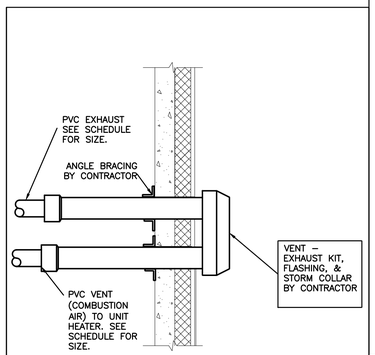
DIFFUSER NECK SIZE SCHEDULE

NECK SIZE	CFM
6"ø	0 – 100
8"ø	110 – 250
10"ø	260 – 400
12"ø	410 – 600
14"ø	610 – 1000
16"ø	1010 – 1400

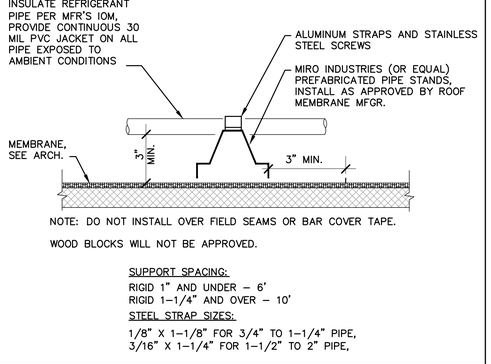
ELECTRIC HEATER SCHEDULE

MARK	MFR. / MODEL #	CFM	KW	AMPS	VOLTS / PHASE	FLA	MOCP	FAN H.P.	WEIGHT	ACCESSORIES / NOTES
UH-1	REZNOR / EGW-05	300	3.0	24.4	208/1	–	35	0.02	20 LBS.	1,2,3,4,5,6,7
UH-2	REZNOR / EGW-05	300	3.0	24.4	208/1	–	35	0.02	20 LBS.	1,2,3,4,5,6,7
UH-3	REZNOR / EGW-05	300	3.0	24.4	208/1	–	35	0.02	20 LBS.	1,2,3,4,5,6,7

ACCESSORIES / NOTES:
1. INSTALL BOTTOM OF UNIT AT 8'-0" A.F.F.
2. FACTORY INSTALLED POWER DISCONNECT SWITCH.
3. MANUFACTURER'S THERMOSTAT. SUSPEND ON CONDUIT NEAR THE INTAKE SIDE OF THE UNIT WITH MIN. 6" STAND-OFF. SET AT 50 DEG. F (ADJ.).
4. ALL POWER WIRING IS BY THE ELECTRICAL CONTRACTOR. REFER TO THE ELECTRICAL DRAWINGS FOR CLARIFICATION.
5. FACTORY INSTALLED MODEL IC-11 SINGLE POLE INTERNAL THERMOSTAT SET AT 50 DEG. F.
6. FACTORY INSTALLED MODEL BA-14 3-POLE POWER DISCONNECT SWITCH.
7. MANUFACTURER'S STANDARD MOUNTING BRACKET.



CONCENTRIC VENT THRU WALL
NO SCALE

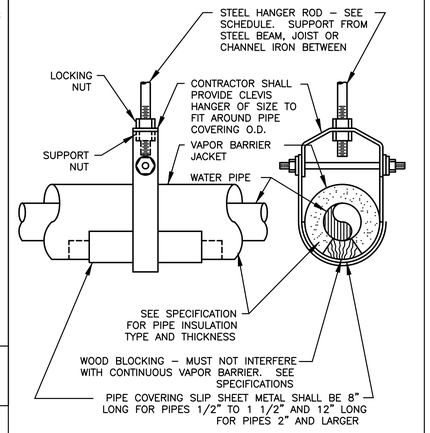


NOTE: DO NOT INSTALL OVER FIELD SEAMS OR BAR COVER TAPE.

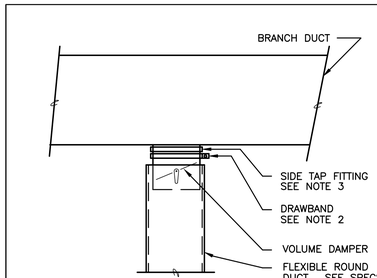
WOOD BLOCKS WILL NOT BE APPROVED.

SUPPORT SPACING:
RIGID 1" AND UNDER – 6'
RIGID 1-1/4" AND OVER – 10'
STEEL STRAP SIZES:
1/8" X 1-1/8" FOR 3/4" TO 1-1/4" PIPE,
3/16" X 1-1/4" FOR 1-1/2" TO 2" PIPE,

GROUND PIPE SUPPORT DETAIL
NO SCALE

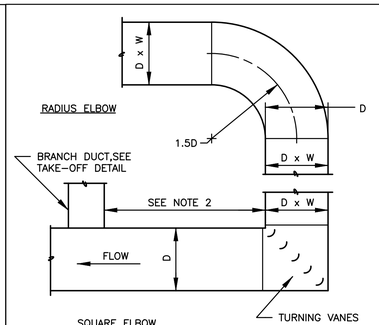


PIPE COVERING PROTECTOR DETAIL
NO SCALE



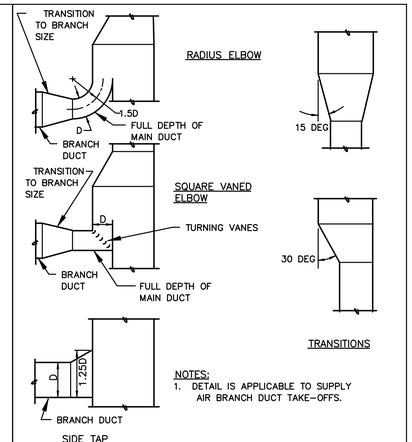
NOTES:
1. THIS DETAIL IS APPLICABLE FOR FLEXIBLE ROUND DUCT TAKE-OFFS FROM BRANCH DUCTS TO DIFFUSERS.
2. FLEXIBLE DUCT INSULATION SHALL TERMINATE AT SIDE OF BRANCH DUCT SO NO UNINSULATED METAL PARTS ARE EXPOSED.
3. SIDE TAP FITTING SHALL BE FLEX MASTER U.S.A, INC. OR APPROVED EQUAL, NUMBER FLD WITH DAMPER.

FLEXIBLE DUCT CONNECTION TO BRANCH
NO SCALE



NOTES:
1. UNLESS SPECIFICALLY NOTED OTHERWISE, DETAIL APPLIES TO ALL SUPPLY, ALL EXHAUST, AND ALL RETURN AIR ELBOWS.
2. BRANCH DUCT TAKE-OFFS MUST BE A MINIMUM OF 4D DOWNSTREAM OF EITHER TYPE OF ELBOW, AND NOT LESS THAN 3D UPSTREAM.

DUCT ELBOW
NO SCALE



NOTES:
1. DETAIL IS APPLICABLE TO SUPPLY AIR BRANCH DUCT TAKE-OFFS.

BRANCH DUCT TAKEOFFS AND TRANSITIONS
NO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI DARRELL R. CASE NUMBER PE-23307 PROFESSIONAL ENGINEER
06/13/2023

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF Historic Preservation State Parks & Natural Resources

REPLACE HVAC SYSTEM

SCOTT JOPLIN HOUSE
STATE HISTORIC SITE - ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

REVISION: DATE:
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ISSUE DATE: 06/13/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
MECHANICAL SCHEDULES/ DETAILS

SHEET NUMBER:
M3.1

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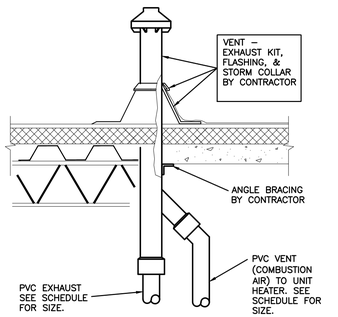
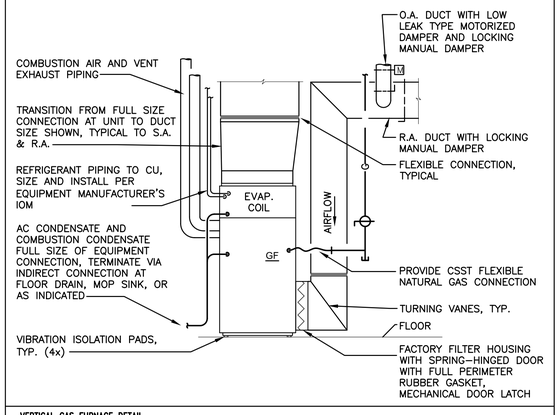
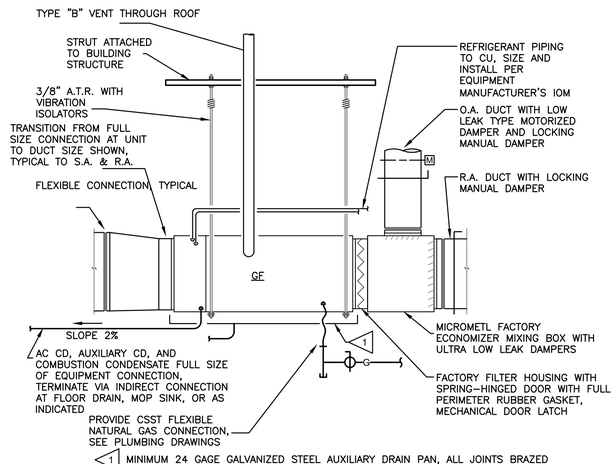
06/13/2023



CONCENTRIC VENT THRU ROOF
NO SCALE



VERTICAL GAS FURNACE DETAIL
NO SCALE



HORIZONTAL GAS FURNACE DETAIL
NO SCALE

ADD ALTERNATE: VRF MINI SPLIT SYSTEM

UNDER THE ADD ALTERNATE, THE FOLLOWING SHALL BE PROVIDED.
1. VRF MINI SPLIT SYSTEM AS SCHEDULED AND SPECIFIED.
2. SEE PIPING/WIRING DIAGRAM FOR INSTALLATION.
3. ALTERNATE SHALL INCLUDE ALL ACCESSORIES REQUIRED FOR FULL INSTILLATION.
4. EXISTING EQUIPMENT TO BE REMOVED AS SHOWN ON DEMO PLANS.

VR FAN COIL UNIT SCHEDULE

MANUFACTURER: MITSUBISHI			COOLING	HEATING	SUPPLY FAN		ELECTRICAL		
			TTL/SENS		PEAK	E.S.P.			
MARK	EQUIPMENT	MODEL NO.	MBH	MBH	CFM	IN.W.G.	V/PH/HZ	MCA/MOCP	REMARKS
SYSTEM: HP–1									
DFC 1–1	FAN COIL	TPEFYP054	54.0/38.0	59.9	1410	0.6	208/1/60	4.38/15	1,2
SYSTEM: HP–2									
DFC 2–1	FAN COIL	TPEFYP054	54.0/38.0	59.9	1410	0.6	208/1/60	4.38/15	1,2
SYSTEM: HP–3A									
DFC 3A–1	FAN COIL	TPEFYP048	42.5/31.3	51.4	1300	0.6	208/1/60	4.38/15	1,2
SYSTEM: HP–3B									
DFC 3B–1	FAN COIL	TPEFYP048	42.5/31.3	51.4	1300	0.6	208/1/60	4.38/15	1,2
SYSTEM: HP–4									
DFC 4–1	FAN COIL	TPEADA024	22.7/15.8	24.2	740	0.6	208/1/60	–	1,2,3
SYSTEM: HP–5									
DFC 5–1	FAN COIL	TPEFYP048	42.5/31.3	51.4	1300	0.6	208/1/60	–	1,2,3

1. SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, SYSTEM CONTROLLERS, AND INTEGRATION DEVICES.

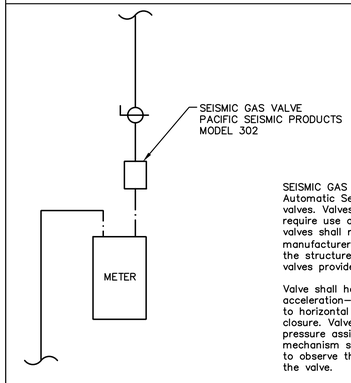
BC CONTROLLER NOTE:

2. INCLUDE DIAMONDBACK BALL VALVES BV–SERIES, 700PSIG WORKING PRESSURE, FULL PORT, 410A RATED.
3. UNIT IS POWERED BY THE OUTDOOR UNIT.

TRANE VRF HEAT PUMP UNIT SCHEDULE

			NOMINAL COOLING	NOMINAL HEATING				COOLING OUTDOOR	HEATING OUTDOOR	SOUND PRESSURE	ELECTRICAL			
MARK	MODEL NO.	MODULES	MBH	MBH	SEER	EER	COP @ 47°F	TEMP DB(°F)	TEMP DB(°F)	dBA	V/PH/HZ	MCA	MOCP	REMARKS
HP–1	TUMYP060	P60	56.8	63.3	18.9	12.2	4.17	95.0	40.0	–	208/1/60	36	45.0	1
HP–2	TUMYP060	P60	56.8	63.3	18.9	12.2	4.17	95.0	40.0	–	208/1/60	36	45.0	1
HP–3	NTXMSH48	P48	42.5	51.4	19.75	12.2	3.65	95.0	40.0	–	208/1/60	36	40.0	1
HP–4	NTXMSH48	P48	42.5	51.4	19.75	12.2	3.65	95.0	40.0	–	208/1/60	36	40.0	1
HP–5	TRUZH024	–	22.7	24.2	16.6	–	10.4 HSPF	95.0	40.0	–	208/1/60	17	27.0	1
HP–6	TRUZH024	–	22.7	24.2	16.6	–	10.4 HSPF	95.0	40.0	–	208/1/60	17	27.0	1

1. HEAT PUMPS TO BE INSTALLED PER MANUFACTURERS IOM.

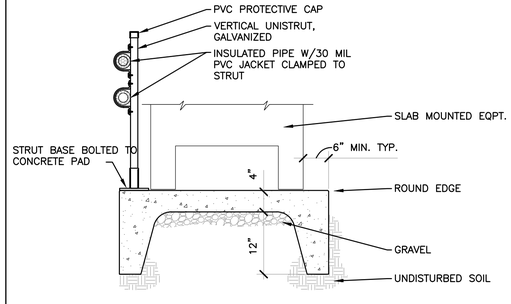


SEISMIC GAS VALVE SPEC
Automatic Seismic Gas Valves shall be earthquake sensitive gas shut–off valves. Valves shall close in the event of an earthquake. Valves shall not require use any source of internal or external electrical power. Once closed, valves shall remain closed until manually reset. Valves shall be mounted per manufacturer's recommendations and downstream of the gas meter outside the structure. Seismic gas valves do not replace manual upstream shut–off valves provided in the gas service line.

Valve shall have a swing check valve arrangement with an acceleration–sensitive triggering mechanism. The trip mechanism shall react to horizontal motion of an earthquake activating the valve and initiating closure. Valve shall be spring assisted causing the flapper to close and gas pressure assists in holding the valve disc in the closed position. The trip mechanism shall be factory set and sealed. A sight glass shall be provided to observe the Open or Closed indicator and the trip mechanism status of the valve.

Valves shall be UL listed and certified to comply with ASCE 25–97 and ANSI Z21.70.

SEISMIC GAS VALVE DETAIL
NO SCALE



EQUIPMENT CONCRETE PAD DETAIL
NO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI DARRELL R. CASE NUMBER PE-23307 PROFESSIONAL ENGINEER
06/13/2023

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

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REPLACE HVAC SYSTEM

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MECHANICAL SCHEDULES/ DETAILS

SHEET NUMBER:
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06/13/2023

DIAGRAM SYMBOL LEGEND	
DISPLAY	DESCRIPTION
—//—	POWER WIRE
———	CONTROL WIRE
———	REF. PIPE

CONT.No		PAGE	

CITY MULTI

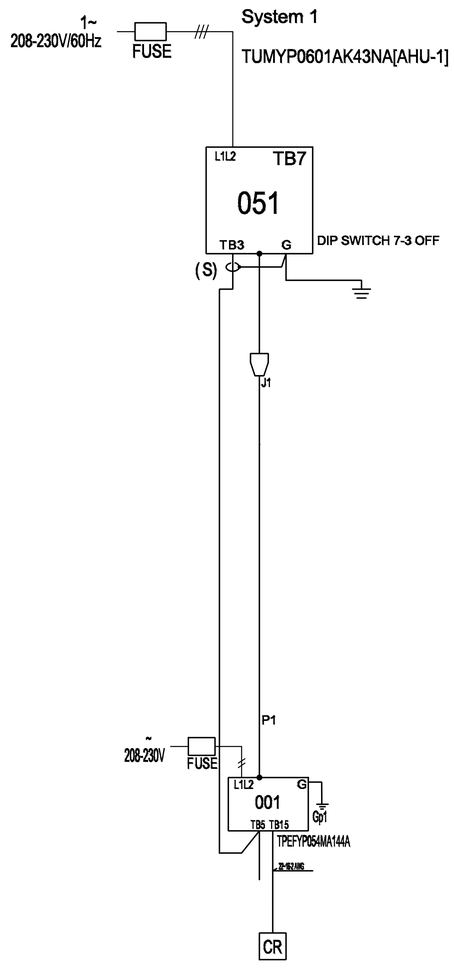
SYSTEM SCHEMATIC DWG.

This drawing is schematic in nature. Final routing of piping & wiring shall be determined by the installing contractor and/or designer of record

Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.

1.25mm²(16 AWG) : 1.25mm²(16 AWG) or more. 0.75mm²(20 AWG) : between 0.5mm²(24 AWG) and 0.75mm²(20 AWG).

PIPING AND CONTROLS	
SYMBOL	BRANCH PIPE MODEL NAME
J1	Reducer
SYMBOL	LIQUID PIPE/GAS PIPE SIZE
P1	3/8 / 3/4
P2	3/8 / 5/8
SYMBOL	MODEL NUMBER
CR	TAC-YT53CRAU-J



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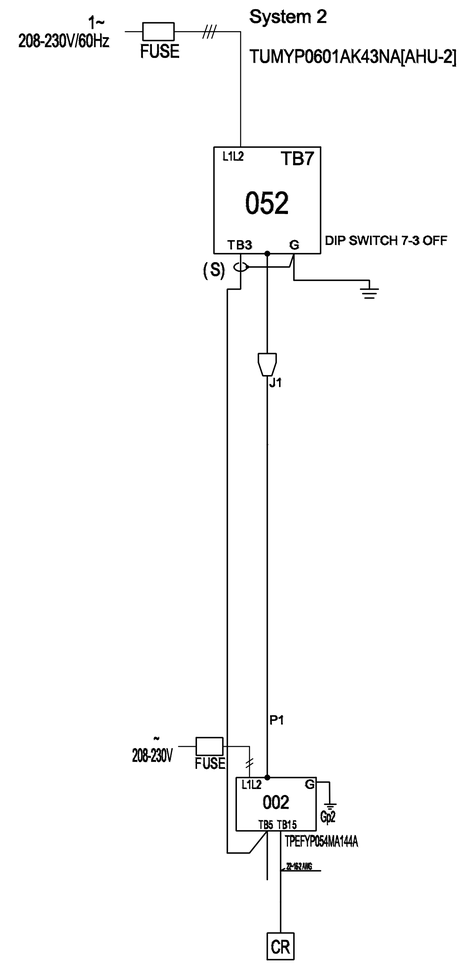

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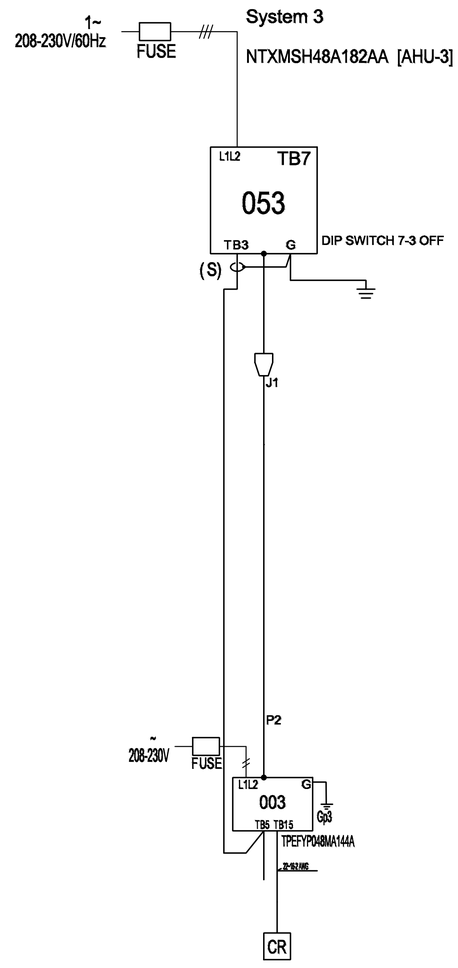

HP-3

Diamond System Builder

sw: 4.4.2.24
db: 4.4.2.18

10/17/2022
2:49 PM

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI DARRELL R. CASE NUMBER PE-23303 PROFESSIONAL ENGINEER

06/13/2023

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

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ROSEBUD CAFE

2658 DELMAR BLVD
ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

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DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:

MECHANICAL SCHEDULES/ DETAILS

SHEET NUMBER:

M3.3

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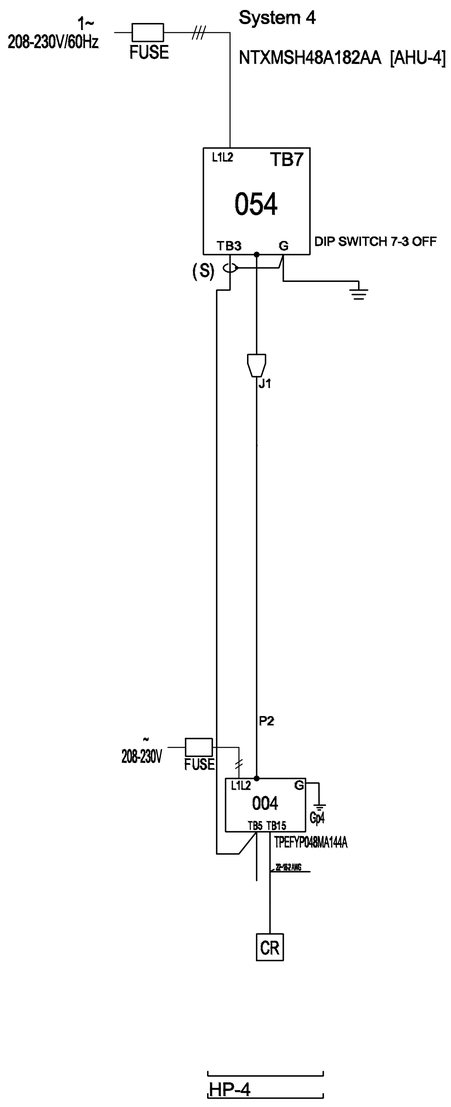
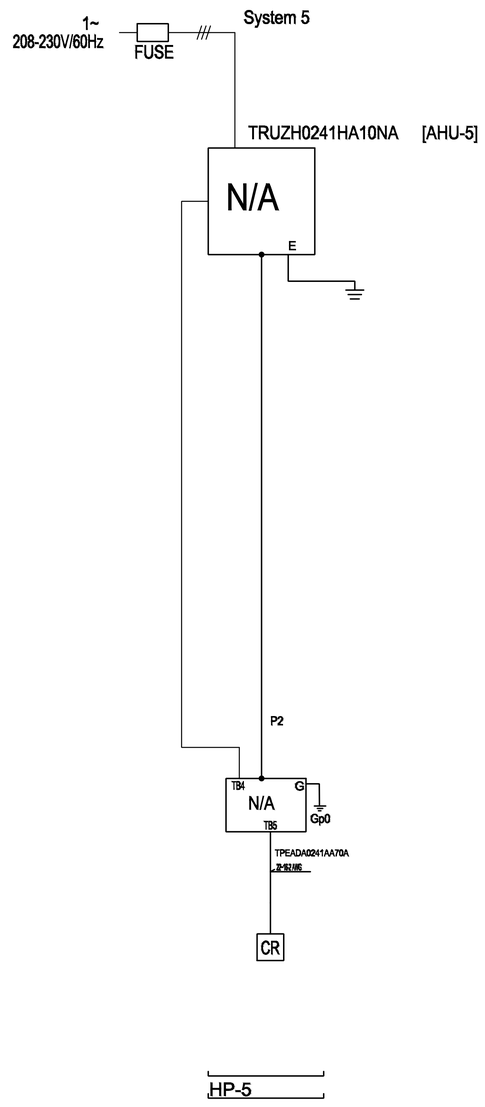
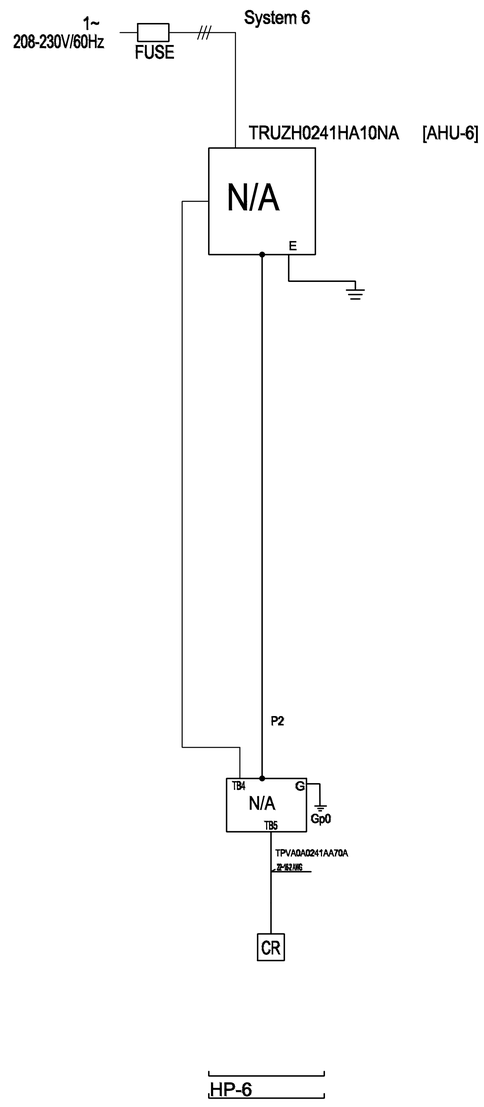
06/13/2023



HP-4



HP-5



HP-6

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

DARRELL R. CASE
NUMBER PE-23307
PROFESSIONAL ENGINEER
STATE OF MISSOURI
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CASE Engineering Inc.
796 Menus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
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ST. LOUIS, MO

PROJECT # X220101
SITE # 5227
FACILITY # 7815227003

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 06/13/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:

MECHANICAL SCHEDULES/ DETAILS

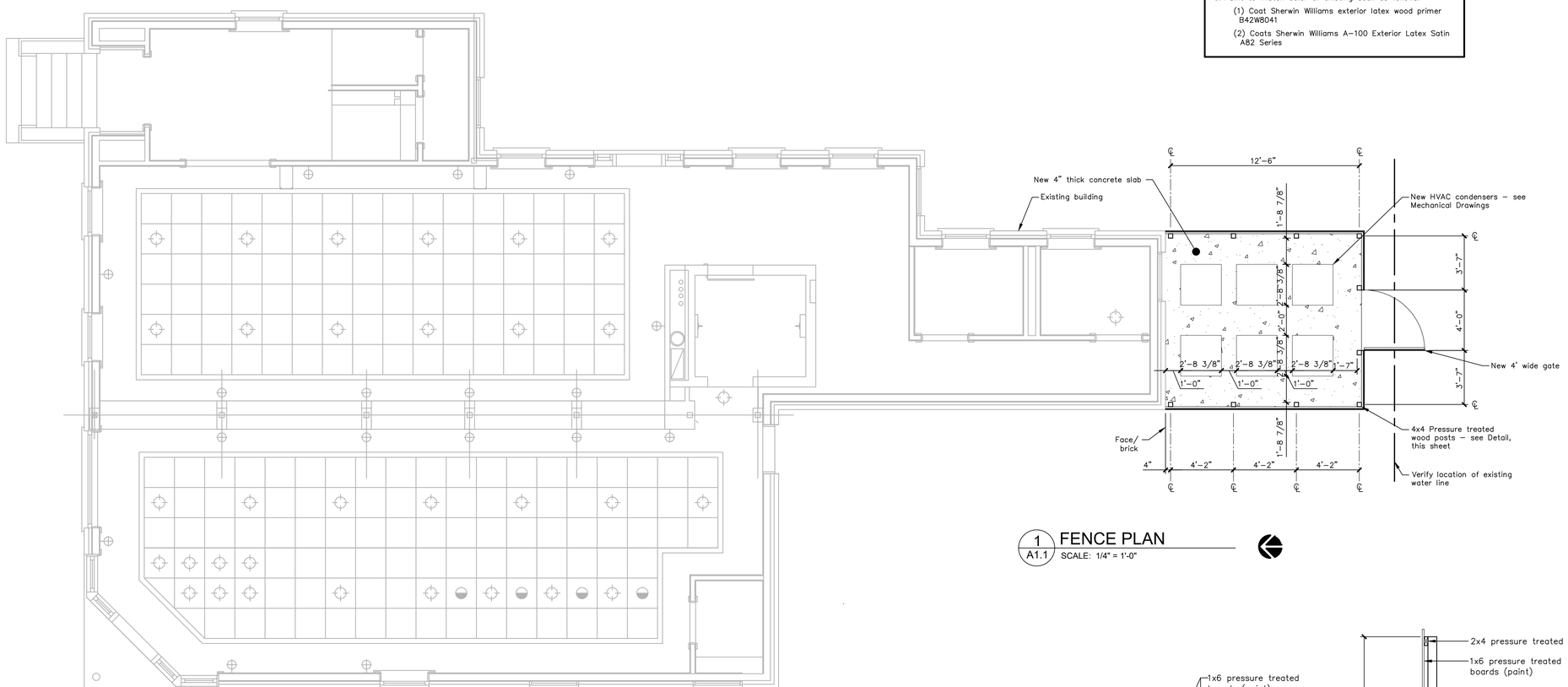
SHEET NUMBER:

M3.4

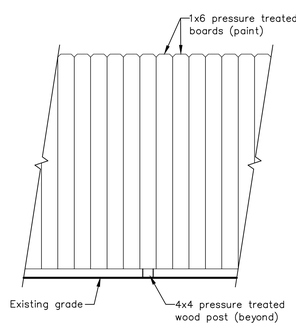
13 OF 14 SHEETS
06/13/2023

FENCE NOTES

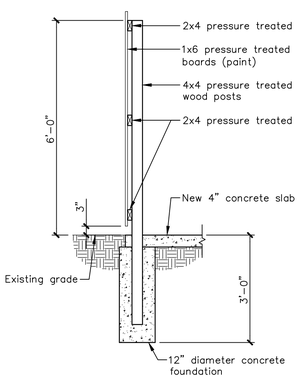
1. All dimensional lumber to be preservative treated in accordance with AWPA C2.
2. Wood to be #2 grade, 19% moisture content.
3. Anchors to be non–corrosive, hot–dipped galvanized and suitable for exterior exposure.
4. Nailing to be in accordance with Table 2304.10.1, 2018 IBC.
5. Framing to be in accordance with "National Forest Products Manual for Wood Frame Construction".
6. Paint to match color of existing deck as follows:
   (1) Coat Sherwin Williams exterior latex wood primer B42W8041
   (2) Coats Sherwin Williams A–100 Exterior Latex Satin A82 Series



1 A1.1 FENCE PLAN
SCALE: 1/4" = 1'-0"



TYPICAL ELEVATION
1/2" = 1'–0"



FENCE POST DETAIL
1/2" = 1'–0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
JOSEPH ANDREW MCGOWAN
NUMBER A-6973
REGISTERED ARCHITECT
6-12-23

Joseph A. McGowan,
Architect MO# A–6973

CASE Engineering Inc.
796 Menas Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. 001498

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF
Historic Preservation
State Parks &
Natural Resources

PROJECT TITLE
REPLACE HVAC SYSTEM

ROSEBUD
CAFE

St. Louis

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14 OF 14 SHEETS
06/13/2023