

910 NW BLUE PARKWAY, LEE'S SUMMIT, MO 64086

A. TENANT FINISH

B. ALL CONSTRUCTION FOR THIS PROJECT SHALL BE PERFORMED UNDER THE PROVISIONS OF FOLLOWING LIST OF CODES, AS AMENDED BY THE CITY OF LEES SUMMIT, MISSOURI:

- B.1. 2010 International Building Code
- B.2. 2010 International Plumbing Code
- B.3. 2010 International Mechanical Code
- B.4. 2010 International Fuel Gas Code
- B.5. 2010 International Residential Code
- B.6. 2010 International Fire Code
- B.7. 2017 National Electrical Code
- B.8. ICC/ANSI A117.1-2017, Accessible and Usable Buildings and Facilities

C. Use, Occupancy Classification, and Type of Construction:

- C.1. Tenant Use: Exercise Studio
- C.2. Tenant Occupancy Classification: A3 (unchanged)
- C.3. Building Type of Construction: IIB

D. Tenant Square Foot: 2,195.4 SF occupied, 2,343 SF gross

E. Fire Protection Systems:

- E.1. Automatic Sprinkler Systems: Provided.
- E.2. Fire Alarm and Detection Systems: Provided.

F. Tenant Occupant Load (see plan): 27 Occupants

1. MAINTAIN ACCESS TO EXISTING WALKWAYS, CORRIDORS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT WALKWAYS, CORRIDORS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM TENANT.
2. DEFINITIONS:
 - 2.1. REMOVE AND DISCARD: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE.
 - 2.2. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND TURN OVER TO TENANT UNDAMAGED.
 - 2.3. RELOCATE: DETACH ITEMS FROM EXISTING CONSTRUCTION, MOVE ITEMS INTACT AND UNDAMAGED, AND REINSTALL THEM WHERE INDICATED.
 - 2.4. REPAIR TO REMAIN: REPAIR THE CONSTRUCTION THAT DOES NOT NEED TO BE REMOVED, BUT ARE TO REMAIN IN PLACE AND BE UNDAMAGED.
 - 2.5. REMOVE AND RECLAIM: DETACH ITEMS FROM EXISTING CONSTRUCTION. AT CONTRACTORS OPTION ITEM MAY BE REUSED AS PART OF NEW WORK. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INVENTORY ITEMS TO DETERMINE IF ITEMS WILL FUNCTION AND APPEAR LIKE THE NEW ITEMS SPECIFIED AND CALLED OUT IN THESE DOCUMENTS. IF ITEMS ARE REUSED, CONTRACTOR IS TO CLEAN, REPAIR, OR OTHERWISE BRING ITEMS TO LIKE NEW CONDITION. MODIFY REUSED ITEMS AS REQUIRED AND SUPPLEMENT WITH MATERIALS, AND INCIDENTALS NECESSARY TO EXECUTE A COMPLETE WORKMANLIKE JOB. IF CONTRACTOR CHOOSES TO NOT REUSE ITEM, LEGALLY DISPOSE OF ITEM OFF-SITE AND REPLACE WITH NEW TO MATCH EXISTING.
 - 2.6. PROVIDE: THE MEANING OF THE WORD "PROVIDED" INCLUDES, BUT IS NOT LIMITED TO, FURNISHED, DELIVERED, INSTALLED, FINISHED, MADE FULLY OPERABLE AND COMPLETE, UNLESS SPECIFICALLY NOTED OTHERWISE. ALL WORK DESCRIBED IN THESE DOCUMENTS IS TO BE PROVIDED BY THE CONTRACTOR.
3. CONTRACTOR IS TO INCLUDE AS PART OF HIS SCOPE ALL CUTTING AND PATCHING REQUIRED THROUGHOUT THE COURSE OF CONSTRUCTION OF THE SITE AND THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL COORDINATE THE CUTTING AND PATCHING OF EXISTING CONSTRUCTION NECESSARY TO PERMIT INSTALLATION OR PERFORMANCE OF THE WORK INDICATED IN THESE CONSTRUCTION DOCUMENTS. SAW-CUT CONC. SLAB AS REQUIRED FOR UTILITIES, FOR EQUIPMENT AND SINKS. VERIFY ROUGH AND TRENCH DEPTH IN FIELD; PATCH BACK WITH MATCHING SLAB THICKNESS OVER SAME MATERIAL, COMPACT UNDERLYING MATERIALS TO MEET BEST PRACTICES. DOVEL NEW TO EXISTING WITH 14 REBAR AT 30" OC.
4. WHERE WALLS, CASEWORK, FINISHES, EQUIPMENT OR OTHER ITEMS AND CONSTRUCTIONS HAVE BEEN REMOVED EXPOSING UNDERLYING WALL AND/OR FLOOR SURFACES, SUCH SURFACES ARE TO BE PATCHED AND REPAIRED AS REQUIRED TO ACCEPT NEW FINISHES. ALL HOLES, DAMAGES, DEFECTS, ETC. IN EXISTING SURFACES ARE TO BE PATCHED TO MATCH EXISTING CONDITIONS.
5. EXISTING CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED UPON BASE BUILDING OR OTHER CONSTRUCTION DOCUMENTS MADE AVAILABLE TO THE DESIGNER BY THE BUILDING MANAGEMENT. ALL AS-BUILT ARCHITECTURAL CONDITIONS HAVE NOT BEEN FIELD VERIFIED AND MAY VARY FROM THOSE SHOWN.
6. PRIOR TO BID: FIELD VERIFY ALL EXISTING CONSTRUCTION TO REMAIN AND INCLUDE COSTS FOR REPAIR AND RECONSTRUCTION OF ALL EXISTING CONSTRUCTION TO REMAIN SO THAT IT MEETS THE AESTHETIC AND FUNCTIONAL STANDARD OF QUALITY FOR NEW CONSTRUCTION. BLEND AND MATCH EXISTING CONSTRUCTION WITH NEW CONSTRUCTION. PRIOR TO BID, ADVISE TENANT OF ANY CONDITIONS WHICH CANNOT BE REPAIRED OR RECONDITIONED, BLENDED AND MATCHED. NOTE CONTRACT DOCUMENT REQUIREMENTS FOR EXISTING CONSTRUCTION AND INCLUDE COSTS FOR THIS WORK IN BID PROPOSAL.
7. THE GENERAL CONTRACTOR SHALL, IN THE BIDDING PROCESS, REQUIRE THAT MECHANICAL AND ELECTRICAL SUBCONTRACTORS MAKE A THOROUGH FIELD INSPECTION OF AS-BUILT CONDITIONS OF EXISTING SYSTEMS. AFTER SUCH FIELD VERIFICATION HAS BEEN COMPLETED, THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PROVIDE IN THEIR BIDS, ANY MODIFICATIONS TO THE EXISTING SYSTEMS WHICH MAY BE REQUIRED TO ACCOMMODATE THE PROPOSED REQUIREMENTS FOR THIS TENANT. IF A DETERMINATION OF SUCH MODIFICATIONS CANNOT BE MADE, THE GENERAL CONTRACTOR SHALL NOTIFY THE TENANT, AND AT THE DIRECTION OF THE TENANT, PROVIDE AN AGREED UPON ALLOWANCE TO COVER SUCH WORK.
8. COMMENCING WORK BY A CONTRACTOR OR SUBCONTRACTOR CONSTITUTES ACCEPTANCE OF THE TENANT'S DESIGN AND CONDITIONS AND SURFACES PRIOR TO PROCEEDING WITH THE WORK. PREPARE EXISTING AND NEW UNDERLYING CONDITIONS AND SUBSTRATE TO COMPLY WITH THE CONTRACT DOCUMENTS, INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATION.
9. FIELD VERIFY ALL ROUGH OPENINGS AND WALL WIDTHS PRIOR TO ORDERING OR FABRICATION OF MATERIALS.
10. DIMENSIONS ARE NOMINAL AND TO THE FACE OF PARTITIONS.
11. CLEAN-UP OF RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND NEW WORK SHALL BE COLLECTED REGULARLY FROM PROJECT SITE AND LEGALLY DISPOSED.
12. ALL WEATHER EXPOSED SURFACES SHALL HAVE A WEATHER RESISTIVE BARRIER TO PROTECT THE INTERIOR WALL COVERING AND EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM WEATHERPROOF.
13. BUILDING ADDRESS NUMBERS SHALL BE PROVIDED AND PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. IN MULTI-TENANT COMMERCIAL BUILDINGS WHERE TENANTS HAVE MULTIPLE ENTRANCES LOCATED ON DIFFERENT SIDES OF THE BUILDING EACH DOOR SHALL BE ADDRESSED. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS OR ALPHABET LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES (102 MM) HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH (12.7 MM).
14. CONTRACTORS ARE RESPONSIBLE FOR ALL MATERIALS AND QUANTITIES SHOWN IN THESE DRAWINGS GRAPHICALLY AS WELL AS THOSE CALLED FOR BY NOTE.
15. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE PROPOSED WORK AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
16. THE TENANT OR THE TENANT'S DESIGNATED REPRESENTATIVE WILL PROVIDE SERVICES IN CONNECTION WITH ADMINISTRATION OF THE CONTRACT.
17. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE GOVERNING AGENCIES HAVING JURISDICTION.
18. THE CONTRACTOR MUST TAKE ADEQUATE CARE TO PROTECT ALL AREAS OF THE BUILDING WHERE THE WORK OF THIS PROJECT IS LOCATED AS WELL AS THE AREAS ADJACENT TO THE AREA OF THE WORK OF THIS PROJECT SO AS TO PREVENT DAMAGE TO LIFE OR PROPERTY AS A RESULT OF THIS CONSTRUCTION PROJECT.
19. ONLY MATERIALS THAT ARE NEW, UNUSED, FREE FROM DEFECTS, AND THE BEST OF THEIR RESPECTIVE KINDS SHALL BE USED. THE BASIS OF QUALITY
20. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES INCLUDING THOSE OF THE TENANT WHO MAY BE ENGAGED UNDER A SEPARATE CONTRACT.
21. INSTALL ALL WORK IN SUCH A MANNER AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND/OR REPAIRS.
22. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF THE TENANT BEFORE BEING TURNED OVER FOR USE.
23. A COPY OF THE LATEST SET OF CONSTRUCTION DOCUMENTS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES.
24. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL KEEP ACCURATE RECORDS OF ANY MODIFICATION OR DEVIATIONS FROM THE CONTRACT DRAWINGS.
25. PROJECT CLOSE OUT DOCUMENTS SHALL BE PROVIDED TO THE TENANT. INCLUDE AS-BUILT DRAWINGS, WARRANTY/MAINTENANCE MANUALS AND TESTING AND SUPERVISION AS REQUIRED. PRESERVE ALL PRINTED INSTRUCTIONS AND WARRANTIES THAT ARE PROVIDED WITH EQUIPMENT OR MATERIALS USED, AND DELIVER SAID PRINTED MATTER TO THE TENANT AT THE TIME OF SUBSTANTIAL COMPLETION. IF REQUESTED BY THE TENANT, INSTRUCT THE MANAGEMENT IN THE PROPER USE AND MAINTENANCE OF ALL ITEMS OF WORK PROVIDED.
26. PROVIDE WORK IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT. PROVIDE ANY MISCELLANEOUS ITEMS OR MATERIALS NOT SPECIFICALLY NOTED, BUT REQUIRED FOR PROPER INSTALLATION OF THE WORK.
27. ALL WORK SHALL BE WARRANTED BY THE CONTRACTOR TO BE SATISFACTORY, IN MATERIALS AND WORKMANSHIP, FOR A MINIMUM PERIOD OF ON (1) YEAR, OR FOR THE PERIOD OF WARRANTY CUSTOMARY, SPECIFIED FOR, THE TRADE, CRAFT OR PRODUCT, WHICHEVER IS LONGER.
28. SUBMIT REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS IN WRITING, ACCOMPANIED BY THE ALTERNATIVE PRODUCT INFORMATION, TO THE TENANT. SUBSTITUTIONS MAY BE CONSIDERED ONLY IF THEY DO NOT SACRIFICE QUALITY, APPEARANCE AND FUNCTION. ACCEPTANCE OF SUBSTITUTIONS IS AT THE SOLE DISCRETION OF THE TENANT.

BUSINESS LOAD =
395.1 sf @ 150 sf/P
= 2.64 Occupants

ACCESSORY LOAD =
269 sf @ 300 sf/P
= 0.90 Occupants

EXERCISE LOAD =
1530.1 sf @ 50 sf/P
= 30.61 Occupants

TOTAL =
34.15
= 35 Occupants

WARD ROAD

PROJECT LOCATION

NW BLUE PARKWAY



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SUMMIT FAIR**

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REV#	DATE	DESCRIPTION

Issue Date: 6-16-25
Project #: 25009

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A2



A4

MECHANICAL/PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL, AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNHARMED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOF AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PARTS LISTING WARRANTIES, ETC., SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.
3. MANUFACTURERS:
- A. MANUFACTURERS, MODEL NUMBERS, ETC., INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. MOTORS:
- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.
5. TESTING, BALANCING, AND CLEANING:
- A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
- B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
- C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSIG, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- D. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED INDEPENDENT BALANCING PERSONNEL, WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL (IAABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- 1) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
- 2) WITHIN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS, ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.
- E. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED. IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION, SAMPLES OF WATER IN THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
6. PLUMBING:
- A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
- B. ALL EXPOSED WASTE PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
- C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 90-DEGREE INTERVALS IN STRAIGHT RUNS.
- D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
- E. CLEANOUTS:
- 1) VINYL TILE FLOOR: JR. SMITH #4140, OR EQUAL.
- 2) QUARRY TILE FLOOR: JR. SMITH #4020, OR EQUAL.
- 3) CARPETED FLOOR: JR. SMITH #4020-Y, OR EQUAL.
- 4) UNFINISHED FLOOR: JR. SMITH #4020, OR EQUAL.
- 5) WALL: JR. SMITH #4472, OR EQUAL, 2" ABOVE THE FLOOR.
- F. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.
- G. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
- 1) INSTALL 1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
- 2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
7. PIPING:
- A. DOMESTIC COLD AND HOT:
- 1) TYPE 1 HARD DRAWN COPPER TUBING, ASTM B-88.
- 2) WROUGHT COPPER SOLDERED FITTINGS, ASTM B165 ALLOY C12200, ANSI B16.22, MSS SP-104.
- 3) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS, ASME B16.22, ASME B16.51, OR ASME B16.18. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO APMO PS-117 OR ASME B16.51.
- 4) PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F855 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-403.
- 5) PEX-A AND PEX-B MEETING ANSISIN581 AND ANSISIN5372 STANDARDS FOR POTABLE WATER SAFETY AND LEAD-FREE STANDARDS AND MUST BE MARKED WITH "PW-G," "NSF-61-G" OR OTHER NSF-APPROVED MARKING, ASTM 2223 FOR USE WITH CHLORINATED WATER.
- 6) PEX MECHANICAL, CRIMP/INSERT OR EXPANSION FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. INCREASE PEX PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS.
- 3) VALVES:
- a) TO BE INSTALLED ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE.
- b) TO BE INSTALLED ON THE WATER SUPPLY SIDE TO EACH APPLIANCE OR MECHANICAL EQUIPMENT.
- c) TYPES:
1. GATE VALVE: JOMAR T5-301G OR EQUAL. LEAD-FREE NSF 61, ANSI B1.20.1.
2. GLOBE VALVE: JOMAR T5G OR EQUAL.
3. BALL VALVE: JOMAR JP100PP OR EQUAL COMPACT LEAD FREE BRASS BALL VALVE. UL628, CSA 337-12.4 337-192, FM, CALIFORNIA CODE 481953, NSF61, ANSIS 61 APPROVED.
4. BALL VALVE: JOMAR T-100E OR EQUAL. UL628, FM, CSA, NSF 61-G, MSS SP-119.
- B. LEAD CONTENT OF WATER SUPPLY PIPE AND FITTINGS:
- 1) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN .01% LEAD CONTENT.
- 2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITTINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING PURPOSES SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.025% OR LESS.
- C. SANITARY SEWER AND VENTS:
- (UNDERGROUND, INTERIOR TO THE BUILDING.)
- 1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS, INCLUDING MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2685, SCHEDULE 40. ABS SOCKET FITTINGS: ASTM D 2681, MADE TO ASTM D 3311. DRAIN, WASTE, AND VENT PATTERNS: SOLVENT CEMENT: ASTM D 2226.
- 2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS, INCLUDING MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2685, DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2685, MADE TO ASTM D 3311. DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 666, SOLVENT CEMENT: ASTM D 2564.
- 3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
- 4) HUB AND SPOUT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPOUT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 14.
- D. SANITARY SEWER AND VENTS:
- (ABOVE GROUND, INTERIOR TO THE BUILDING.)
- 1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS, INCLUDING MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2681, SCHEDULE 40. CELLULAR-CORE ABS PIPE: ASTM F 681, SCHEDULE 40. ABS SOCKET FITTINGS: ASTM D 2681, MADE TO ASTM D 3311. DRAIN, WASTE, AND VENT PATTERNS: SOLVENT CEMENT: ASTM D 2226.
- 2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS, INCLUDING MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2685, DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM F 881, SCHEDULE 40. WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2685, MADE TO ASTM D 3311. DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 666, SOLVENT CEMENT: ASTM D 2564.
- 3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
- 4) HUB AND SPOUT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPOUT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 14.

MECHANICAL/PLUMBING SPECIFICATIONS (CONTINUED)

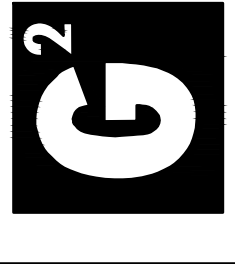
- E. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
- F. SLEEVES:
- 1) PROVIDE SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
- 2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE RATING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
- 3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL, COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
- 4) PROTECTOR AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, CASTLE IRON AND GALVANIZED STEEL, SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR CONER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIVE SOIL. SHEATHING USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN .008 AND THE SHEATHING SHALL BE MADE OF PLASTIC, ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEF ANCHOR, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.
- 5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
- 6) PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.
- G. INSULATION AND DUCT LINING:
- A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
- B. PIPE INSULATION: ABOVE GRADE:
- 1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER IN-H"°FT-H" OR LESS.
- 2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASU JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON REMOVED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 3) FLEXIBLE CLOSED CELL ELASTOMER THERMAL INSULATION, UNLESS OTHERWISE SPECIFIED, SHALL BE PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMISTRONG AP ARMARFLEX OR ARMARFLEX 2000.
- 4) FOR NON-CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
- 5) FOR CIRCULATING SYSTEMS, ALL HOT WATER PIPING IN THE CIRCULATION LOOP MUST BE INSULATED AS SPECIFIED BELOW.
- 6) INSULATION SCHEDULE:
- a) DOMESTIC COLD WATER 1/2"
- C. DUCTWORK: ACUSTICAL INSULATION:
- 1) DUCT LINING: 1) 1/2" THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
- a) DUCT LINING SCHEDULE:
- (1) RECTANGULAR SUPPLY DUCT 1/2" - THROUGHOUT THE FIRST 10 FEET OF DUCT.
- (2) RETURN AIR DUCT 1/2" - THROUGHOUT THE FIRST 10 FEET OF DUCT.
- D. DUCTWORK: THERMAL INSULATION:
- 1) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- a) DUCT COVERING SCHEDULE: MINIMUM R-6 (WHERE LOCATED ABOVE CEILING)
- (1) ROUND SUPPLY DUCT 2"
- 2) EXPOSED SPIRAL DUCT - NO INSULATION REQUIRED.
9. DUCTWORK:
- A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 653, LOOKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 653, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
- B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING.
- C. DUCTWORK: METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION FOR A 2-INCH WATER GAUGE STATIC PRESSURE.
- 1) RECTANGULAR DUCT:
- a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 15 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VAINES.
- b) RETURN AIR ACUSTICAL ELBOWS AND SOUND BOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
- c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
- 2) ROUND AND OVAL SPIRAL SEAM DUCT:
- a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION, UNLESS SPECIFICALLY DETAILD OTHERWISE.
- b) USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS, WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
- c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
- d) AS AN OPTION, PROVIDE FACTORY-FABRICATED DUCT AND FITTINGS, UNLESS OTHERWISE INDICATED.
- e) FABRICATED DUCT AND FITTINGS:
- (1) ELBOWS: ONE-PIECE CONSTRUCTION FOR 90 DEGREES AND 45 DEGREE ELBOW 14" AND SMALLER. PROVIDE MULTIPLE GORE CONSTRUCTION FOR LARGER DIAMETERS WITH STANDING SEAM CIRCUMFERENTIAL JOINT.
- (2) DIVIDED FLOW FITTINGS: 90 DEGREE TEES, CONSTRUCTED WITH SADDLE TAP SPOT WELDED AND BONDED TO DUCT FITTING BODY.
- d) ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS, UNLESS OTHERWISE INDICATED.
- E. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES, ALLOWANCE FOR DUCT LINER HAS BEEN MADE WHERE APPLICABLE.
- D. INSTALLATION OF METAL DUCTWORK:
- 1) GENERAL: ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES WHICH WILL ACHIEVE AIR-TIGHT SYSTEMS (MAXIMUM 5% LEAKAGE), WITH NO OBJECTIONABLE NOISE, AND CAPABLE OF PERFORMING INDICATED SERVICE. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY WITH INTERNAL SURFACES SMOOTH. SUPPORT DUCTS RIGIDLY WITH SUITABLE STRAPS, BRACES, HANGERS AND ANCHORS IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION. DUCT HANGERS SHALL BE OF THE TYPE WHICH WILL HOLD DUCTS TRUE TO SHAPE AND TO PREVENT BUCKLING. SUPPORT VERTICAL DUCTS AT EVERY FLOOR.
- 2) AUXILIARY STEEL: PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
- 3) ROUTING: LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAM, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN SHORTEST ROUTE WHICH DOES NOT OBSTRUCT USABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING, WHEREVER POSSIBLE IN FINISHED AND OCCUPIED SPACES, CONCEAL DUCTWORK FROM VIEW, BY LOCATING IN MECHANICAL SHAFTS, HOLLOW WALL CONSTRUCTION OR ABOVE SUSPENDED CEILINGS. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, EXCEPT AS SPECIFICALLY SHOWN. COORDINATE LAYOUT WITH SUSPENDED CEILING AND LIGHTING LAYOUTS AND SIMILAR FINISHED WORK.
- 4) DO NOT ROUTE DUCTWORK THROUGH ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES, UNLESS INDICATED OTHERWISE.
- 5) PENETRATIONS:
- a) WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAGE AS DUCT. OVERLAP OPENINGS ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.
- b) WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
- 6) COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES, DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS, AND OTHER ASSOCIATED WORK OF THE DUCTWORK SYSTEM.
- 7) INSTALLATION: INSTALL METAL DUCTWORK IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION.
- F. EQUIPMENT CONNECTIONS:
- 1) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY. PROVIDE ACCESS DOORS AS REQUIRED.
- G. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OR, BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW.
- 1) UNCONDITIONED SPACES CLASS B CLASS A CLASS C
- 2) CONDITIONED SPACES CLASS C CLASS B CLASS A
- SUPPLY < 2" W.C. SUPPLY > 2" W.C. EXHAUST/DRYER RETURN
10. EXHAUST FANS:
- A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EACH ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, OVERLOADED PROTECTION, PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

MECHANICAL/PLUMBING SPECIFICATIONS (CONTINUED)

11. CONTROL WIRING:
- A. ELECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM, SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS.
- B. INSTALL CONTROL WIRING WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED, INSTALL IN NEAT WORKMANLIKE MANNER, SECURELY FASTENED. INSTALL IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS.
- 1) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE.
- 2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREE F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER ALL.
- 3) INSTALL ELECTRIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.025 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER ALL.
- 4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRIC CONDUIT.
- 5) ALL WIRING IN AREAS USED AS AIR PLenums SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEST OR COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLenums, WHERE ACCEPTABLE BY LOCAL CODES.
- 6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL CODES.
- C. THERMOSTATIC CONTROLS TO HAVE A 1°F DEADBAND AND SETPOINT OVERLAP RESTRICTIONS.
- 1) TEMPERATURE CONTROLS SETBACK TO BE 55°F (HEAT) AND 65°F (COOL), 2-HOUR OCCUPANT OVERRIDE, 16-HOUR BACKUP.
12. REMODELING WORK:
- A. DEMOLITION, DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR RE-MAIN.
- B. EQUIPMENT TO BE SALVAGED:
- 1) DISCONNECT AND REMOVE EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER, OR STORAGE.
- 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
- E. LOCATE, IDENTIFY, AND PROTECT MECHANICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS, WHERE MECHANICAL SERVICES ARE LOCATED IN A WALL, ETC. TO BE DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
- F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA, AND CAP PIPE.
- G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT. REMOVE MATERIALS ABOVE ACCESSIBLE CEILING, DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING.
- H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE.



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REV#	DATE	DESCRIPTION

REV#	DATE	DESCRIPTION

Issue Date: 6-17-25
Project #: 25009

MECHANICAL/PLUMBING
SPECIFICATIONS

MPO

BC PROJECT #: 25468 FO/FS
MISSOURI PE COA #2009003629

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	NEW SUPPLY DIFFUSER
	NEW RETURN AIR GRILLE
	EXHAUST GRILLE/FAN
	REMOTE TEMPERATURE SENSOR
	THERMOSTAT, MOUNTED AT 48" AFF
	HUMIDISTAT, MOUNTED AT 48" AFF
	CO2 SENSOR, MOUNTED AT 48" AFF
	DUCT-MOUNTED SMOKE DETECTOR
	NEW DUCTWORK
32"x14"	SIZE OF RECTANGULAR DUCT
6"Ø	SIZE OF ROUND DUCT
	FLEXIBLE DUCTWORK
	FLEXIBLE CONNECTION TO FAN
	FLOOR PLAN NOTE DESIGNATION
S.A.	SUPPLY AIR
R.A.	RETURN AIR
EXH.	EXHAUST AIR
	TRANSITION IN DUCT SIZE
	ELBOW WITH TURNING VANES
	MANUAL VOLUME DAMPER
	SUPPLY AIR DUCT UP/DOWN
	RETURN AIR DUCT UP/DOWN
	EXHAUST AIR DUCT UP/DOWN
	CHANGE IN ELEVATION UP (U) DOWN (D) IN DIRECTION OF FLOW
RTU-1	SCHEDULED MECHANICAL EQUIPMENT
	EXIST'G DUCT TO REMAIN
	EXIST'G DUCT TO BE REMOVED
	EXISTING FLEXIBLE DUCTWORK
32"x14"E	SIZE OF EXISTING DUCT

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
5. DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE AN ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
6. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
7. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
8. ALL MECHANICAL SYSTEMS SHALL BE BALANCED BY A CERTIFIED BALANCING CONTRACTOR. REFER TO SPECIFICATIONS FOR DETAILS.

EXHAUST FAN SCHEDULE										
MARK	MFR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	CONTROLS	NOTES
						VOLT/Ø/HZ	PWR			
EF-1	COOK	GC-146	100	0.1	900	120/1/60	36 W	CEILING EXH.	THERMOSTAT	1

[illegible]

- 1 SUPPORT FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- 2 CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
- 3 MAINTAIN 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES.
- 4 RELOCATE EXISTING THERMOSTAT, HUMIDISTAT, AND CO2 SENSOR FOR EX RTU-2 TO NEW LOCATION AS SHOWN. INSTALL AT 48" AFF.
- 5 CONNECT NEW DRYER EXHAUST TO EXISTING 4" DRYER EXHAUST DUCT AS REQUIRED.
- 6 DEMOLISH EXISTING SUPPLY DIFFUSERS FOR EX RTU-2 AND EXTEND EXISTING SUPPLY DUCTWORK AS REQUIRED. FIELD VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY DUCTWORK.
- 7 OPEN END OF RETURN DUCTWORK TURNED UP TO STRUCTURE WITH MINIMUM 12" CLEARANCE TO DECK. PROVIDE AND INSTALL BIRD SCREEN ON OPEN R. DUCT.
- 8 CONNECT NEW RETURN DUCTWORK TO EXISTING RTU RETURN DROP WITH FLEX CONNECTORS AS REQUIRED.
- 9 EXISTING RESTROOM TO REMAIN.
- 10 EXISTING DUCTWORK/DIFFUSERS/GRILLES TO REMAIN. CLEAN DIFFUSERS/GRILLES AS REQUIRED FOR REUSE.
- 11 EXISTING DIFFUSER TO REMAIN. REBALANCE TO NEW CFM AS SHOWN ON PLAN. CLEAN AS REQUIRED FOR REUSE.
- 12 VERIFY PROPER EXISTING CONTROLS FOR EX RTU-2 DEMAND CONTROL VENTILATION. OUTDOOR AIR DAMPER TO OPERATE FROM MINIMUM REQUIRED 100 CFM TO 1290 CFM BASED ON OCCUPANT LOAD. REFER TO OA CALCS ON THIS SHEET.
- 13 CONNECT NEW 8" SUPPLY AIR TO EXISTING SUPPLY DUCT AS REQUIRED.
- 14 HIGH-LOW RETURN AIR GRILLES - COLD PLUNGE SIDE GRILLE LOCATED AT 12" AFF. CENTRAL AREA SIDE LOCATED AT 8" AFF.
- 15 INSTALL NEW SD-1 TO MATCH INSTALLATION HEIGHT OF EXISTING ROUND SD DIFFUSERS.
- 16 REMOVE EXISTING INSULATION FROM EXISTING RTU-2 DUCTWORK THAT IS NOW TO BE EXPOSED IN THE EXERCISE ROOM.
- 17 RELOCATE EXISTING THERMOSTAT FOR EX RTU-1 TO NEW LOCATION AS SHOWN. INSTALL AT 48" AFF.
- 18 VERIFY EXISTING SMOKE DETECTOR IN RETURN DUCTWORK OF EX RTU-2. PROVIDE AND INSTALL IF NONE FOUND TO BE EXISTING.
- 19 DEMOLISH EXISTING RETURN DUCTWORK AND GRILLES FOR EX RTU-2 AS SHOWN AND AS REQUIRED.
- 20 EXISTING 100 CFM EXHAUST FAN TO RUN CONTINUOUSLY VIA TIME CLOCK DURING OCCUPIED HOURS. COORDINATE WITH ELECTRICAL.
- 21 REBALANCE OUTDOOR AIR DAMPER FOR EX RTU-1 TO MINIMUM 200 CFM CFM AS REQUIRED. REFER TO OUTDOOR AIR CALCULATIONS ON THIS SHEET.

OUTDOOR AIR CALCULATIONS										
UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)	
EX RTU-1	300	Main entry area	10	5	0.06		33	0.8	41	
	400	Health rooms	10	20	0.06		104	0.8	130	
	100	Corridors	0	0	0.06		6	0.8	8	
								Total	179	
UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Minimum DCV breathing zone outdoor airflow (Vbz)	Maximum DCV breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Maximum DCV Zone outdoor airflow (cfm)	Minimum DCV Zone outdoor airflow (cfm)
EX RTU-2	1200	Health club/aerobics room	40	20	0.06	72.0	1032	0.8	1290	100

BC PROJECT #:	25468	FO/FS
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REV#	DATE	DESCRIPTION					
Issue Date:			6-17-25				
Project #:			25009				

PLUMBING GENERAL NOTES:

- INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
- REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- SAWCUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO MATCH EXISTING.
- NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- CONTRACTOR TO TEST WATER PRESSURE ON SITE AND PROVIDE PRESSURE REDUCING VALVE ON WATER SERVICE IF PRESSURE IS OVER 80 PSI.

PLUMBING SYMBOLS

	SOIL AND WASTE PIPING BELOW FLOOR/GRADE
	SOIL AND WASTE PIPING ABOVE FLOOR/GRADE
	SANITARY VENT PIPING ABOVE GRADE
	SANITARY VENT PIPING BELOW GRADE
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	PIPING TURNING DOWN
	PIPING TURNING UP
	TEE TOP CONNECTION
	UNION
	BACKFLOW PREVENTER
	FLOOR DRAIN
	FLOOR CLEAN OUT
	WALL CLEAN OUT
	GRADE CLEAN OUT
	VALVE
	BALANCING VALVE
	SOLENOID VALVE
	PRESSURE REGULATOR
	CHECK VALVE
	CONNECT TO EXISTING

PIPE HANGER SCHEDULE		
PIPE MATERIAL	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER
ABS (All sizes)	4'	3/8"
PVC (All Sizes)	4'	3/8"
CPVC, 1 inch and smaller	3'	1/2"
CPVC, 1-1/4 inches and larger	4'	1/2"
Cast Iron (All Sizes)	5'	5/8"
Cast Iron (All Sizes) with 10 foot length of pipe	10'	5/8"
Copper Tube, 1-1/4 inches and smaller	6'	1/2"
Copper Tube, 1-1/2 inches and larger	10'	1/2"
Steel, 3 inches and smaller	12'	1/2"
Steel, 4 inches and larger	12'	5/8"
Pex, 1" and below without support channel	32"	3/8"
Pex, 1-1/4" and above without support channel	48"	3/8"
Pex 3/4" and below with support channel	6'	3/8"
Pex 1" and above with support channel	8'	3/8"

PEX PIPING REQUIREMENTS

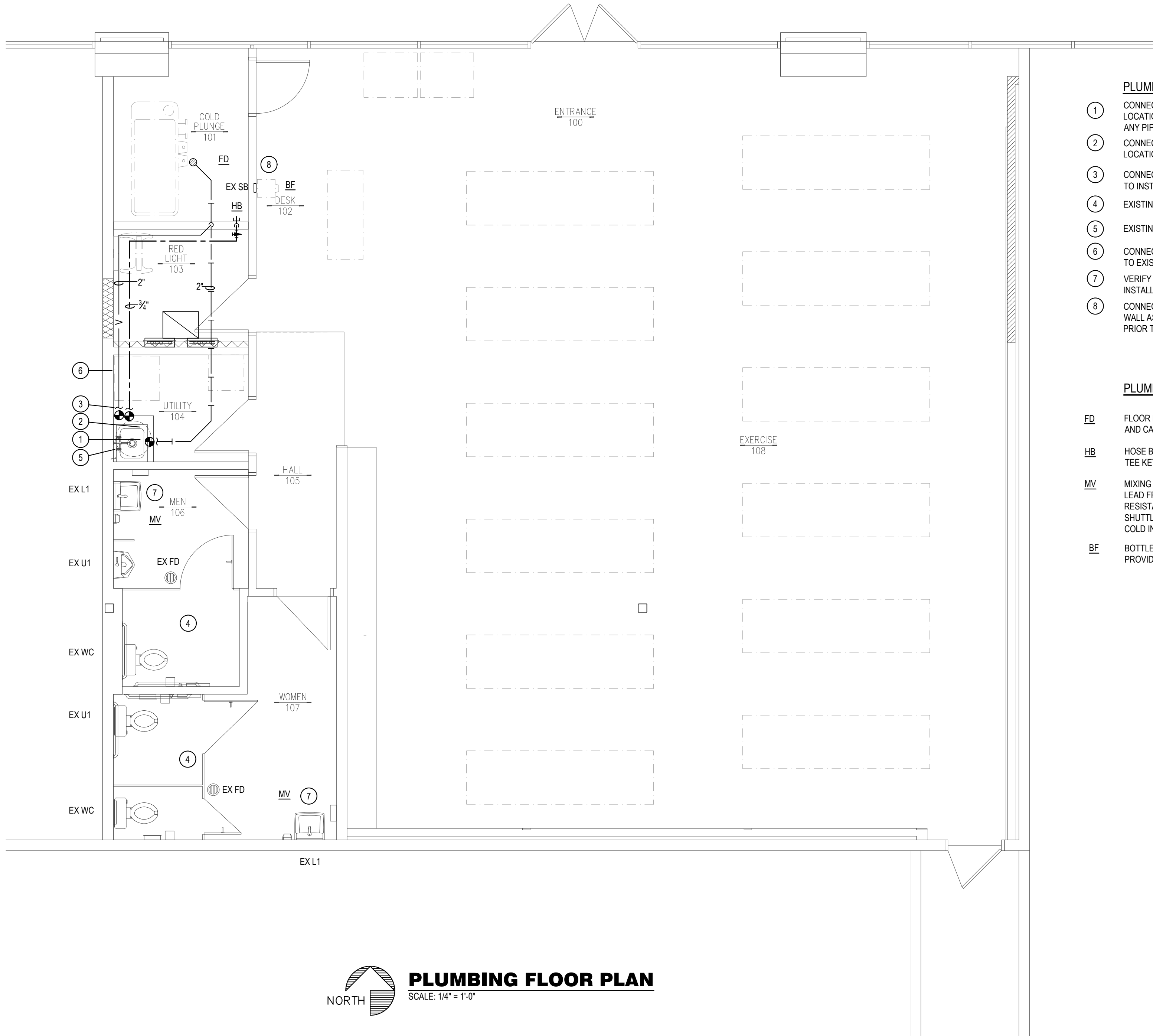
PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. IF PEX PIPING IS USED, INCREASE PEX PIPING ONE SIZE ABOVE LISTED SIZES AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER.

PLUMBING FIXTURE BRANCH PIPING SCHEDULE				
FIXTURE	WASTE	VENT	CW	HW
FLOOR DRAIN	2"	2"	--	--
HOSE BIBB	-	-	3/4"	-



PLUMBING FLOOR PLAN

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



PLUMBING PLAN NOTES:

- CONNECT WASTE TO EXISTING SANITARY SEWER AS REQUIRED. VERIFY EXACT LOCATION, DIRECTION OF FLOW AND ELEVATION PRIOR TO INSTALLATION OF ANY PIPING.
- CONNECT CW TO EXISTING DOMESTIC CW AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING.
- CONNECT VENT TO EXISTING VENT AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING.
- EXISTING RESTROOM TO REMAIN.
- EXISTING MOP BASIN/WATER HEATER TO REMAIN. VERIFY IN PROPER WORKING ORDER.
- CONNECT CW, HW, AND WASTE FOR NEW TENANT-PROVIDED WASHING MACHINE TO EXISTING WASHER BOX AS REQUIRED.
- VERIFY IF EXISTING MIXING VALVE IS PRESENT FOR LAVATORY. PROVIDE AND INSTALL MV IF NONE FOUND TO BE EXISTING.
- CONNECT BOTTLE FILLER TO EXISTING CW SUPPLY BOX AND WASTE STUB-OUT IN WALL AS REQUIRED PER MANUFACTURER'S INSTRUCTIONS. VERIFY LOCATION PRIOR TO INSTALLATION.

PLUMBING FIXTURE SCHEDULE:

- FD** FLOOR DRAIN: SIOUX CHIEF, #842, PVC FLOOR DRAIN WITH ADJUSTABLE TOP AND CAST BRASS STRAINER. PROVIDE TRAP SEAL DEVICE.
- HB** HOSE BIBB: WOODFORD, #24, 3/4" HOSE NOZZLE OUTLET, BRASS FINISH, TEE KEY OPERATED, INTEGRAL VACUUM BREAKER.
- MV** MIXING VALVE: WATTS, #LFUSG-B, THERMOSTATIC CONTROLLED MIXING VALVE, LEAD FREE BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP (VANDAL RESISTANT), COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH BRASS SHUTTLE, STAINLESSSTEEL SPRINGS, INTEGRAL CHECK VALVES ON HOT AND COLD INLETS. (SET TO 110°F). ASSE 1070 LISTED.
- BF** BOTTLE FILLER: PROVIDED BY OWNER, INSTALLED BY PLUMBING CONTRACTOR. PROVIDE P-TRAP, CHROME PLATED RISER.

BC PROJECT #: 25468 FO/FS
MISSOURI PE COA #2009003629

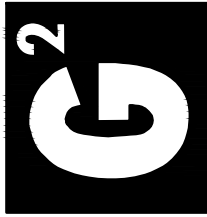
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6/17/25



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REV# DATE DESCRIPTION

Issue Date: 6-17-25
Project #: 25009

PLUMBING FLOOR
PLAN

P1

ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
- H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.
- I. CONTRACTOR SHALL PROMPTLY CALL ENGINEERS ATTENTION TO ANY APPARENT CONTRADICTIONS, AMBIGUITIES, ERRORS, DISCREPANCIES, OR OMISSIONS IN THE PLANS OR SPECIFICATIONS.
2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR S RING BINDER.
3. MANUFACTURERS:
- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSIDRED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. TESTING, AND BALANCING:
- A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.
- B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.
- C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.
5. RACEWAYS:
- A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.
- B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.
- C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH. SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.
- D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
6. CONDUCTORS:
- A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.
- B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 AWG, 600 VOLT.
- C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THHN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.
- D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THHN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
- E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.
- F. ALUMINUM SERVICE WIRE MAY BE USED FOR SERVICE ENTRANCE CONDUCTORS AND/OR PANEL FEEDERS ONLY. ALL OTHER WIRING SHALL BE COPPER CONDUCTORS AS HEREINBEFORE SPECIFIED.
- G. ALUMINUM CONDUCTORS SHALL BE TYPE XHHW-2, ALCAN, "STABILLOY" TYPE ALLOY CONDUCTORS UTILIZING "AA-8030" ALUMINUM ALLOY. CONDUCTORS SHALL BE UL LISTED.
- H. ALL ALUMINUM CONDUCTORS SHALL BE TERMINATED IN CONNECTIONS OR LUGS WHICH ARE DUAL RATED (ALCU OR ALCOU) AND ARE LISTED BY UL FOR USE WITH ALUMINUM OR COPPER CONDUCTORS AND SHALL BE SIZED TO ACCEPT ALUMINUM CONDUCTORS OF THE SAME CAPACITY SPECIFIED.
- I. WHEN MULTIPLE VOLTAGE SYSTEMS ARE PRESENT IN A BUILDING THE FOLLOWING COLOR CODING SHALL BE FOLLOWED FOR FEEDERS AND BRANCH CIRCUITS PER NEC 210.5(C)(1) & 215.12(C):
- a) FOR 120, 208 OR 240V SYSTEMS:
PHASE A - BLACK WIRE
PHASE B - RED WIRE
PHASE C - BLUE WIRE
NEUTRAL - WHITE WIRE
GROUND - GREEN, GREEN WITH A YELLOW STRIPE, OR BARE WIRE.
- b) FOR 277 OR 480V SYSTEMS:
PHASE A - BROWN WIRE
PHASE B - ORANGE WIRE
PHASE C - YELLOW WIRE
NEUTRAL - GRAY WIRE
GROUND - GREEN, GREEN WITH A YELLOW STRIPE, OR BARE WIRE.
7. MC CABLE:
- A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (BARE AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90° FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83. THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OR ALUMINUM OR GALVANIZED STEEL.
- B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1669 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEGS. C FOR DRY LOCATIONS AND 75 DEGS. C FOR WET LOCATIONS.
8. WIRING DEVICES:
- A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 30 AMPS, WITH THERMOPLASTIC COVER PLATES.
- 1) SINGLE POLE: HUBBELL #CS1221-X, OR EQUAL.
- 2) THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
- 3) AS SPECIFIED ON PLANS.
- B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CRS352-X, OR EQUAL.
- C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-X. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CRS352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED WEATHER-RESISTANT HUBBELL #GFT202-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1010HMXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.
9. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.
9. BOXES:
- A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.
- B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.

ELECTRICAL SPECIFICATIONS (CONTINUED)

10. PANELBOARDS:
- A. PANELBOARDS ARE EXISTING AND SHALL BE REUSED. PROVIDE ADDITIONAL BREAKERS AS REQUIRED TO CONNECT CIRCUITS AS SHOWN ON THE DRAWINGS. ADDITIONAL BREAKERS SHALL BE THERMAL MAGNETIC, QUICK-BREAK BOLT ON CIRCUIT BREAKERS WITH ONE HANDLE FOR SINGLE OR MULTI-POLE RATINGS AND SHALL BE COMPATIBLE WITH EXISTING PANELS.
- B. COMPLETE EXISTING DIRECTORY AS REQUIRED TO IDENTIFY NEW CIRCUIT, LISTING LOAD SERVED AND OTHER PERTINENT DATA.
11. DISCONNECTS:
- A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.
- B. INDOOR SWITCHES SHALL BE NEMA 1 AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.
12. FUSES:
- A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING UL CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 80 AMPERES.
- B. ALL OTHER FUSES SHALL BE UL CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.
13. LIGHT FIXTURES:
- A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.
- B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.
- C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.
14. SLEEVES:
- A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.
- B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
- C. ROOF: PROTECT OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
15. GROUNDING:
- A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
- B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.41(A)(4).
16. REMODELING WORK:
- A. DEMOLITION, DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- B. EQUIPMENT TO BE SALVAGED:
- 1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
- 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
- E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
- 1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.
- 2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED BELOW THE FLOOR OR ABOVE THE CEILING SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.
- 3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE ARCHITECT.
- 4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.
- 5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE REMOVED.
- 6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND NOTIFY THE OWNER WHO WILL REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT REMAIN.
- 7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL, CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.
- 8) CONDUIT SHALL BE CONCEALED WITHIN THE EXISTING BUILDING CONSTRUCTION WHEREVER POSSIBLE, EXCEPT WHERE OTHERWISE INDICATED.
- 9) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE ABANDONED.
17. PENETRATIONS OF FIRE RATED ASSEMBLIES:
- A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.
- B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY + OR EQUAL.
- C. CONDUITS, SLEEVES AND OTHER THROUGH-PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE PROTECTED WITH LISTED FIRE CAULKING OR OTHER APPROVED UL SYSTEM DESIGNED FOR THE ASSEMBLY TYPE(S) AND CONSTRUCTION METHOD(S) USED.

ELECTRICAL SYMBOLS LIST	
CIRCUITING & NOTES	
+46"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
WP	WEATHERPROOF ENCLOSURE ON DEVICE
WR	WEATHERPROOF RESISTANT DEVICE
IG	ISOLATED GROUND DEVICE
EM	EMERGENCY BATTERY BACKUP
TR	TAMPER RESISTANT OUTLET
USB	COOPER # TRUSBPD4C20-X OR EQUAL DUPLEX RECEPTACLE WITH (1) USB-A AND (1) USB-C CHARGING PORTS. PROVIDE 2-1/8" DEEP BACK BOX.
(TIE)	PARTIAL HOMERUN. REFER TO PLANS FOR ADDITIONAL DEVICES CONNECTED TO THIS CIRCUIT.
	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	CONDUIT ROUTED UNDER FLOOR/GRADE
LIGHTING	
	EMERGENCY TWIN HEAD LIGHT FIXTURE
	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
	STRIP FIXTURE WITH TYPE DESIGNATION
	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DEVICES	
	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	HALF-CONTROLLED RECEPTACLE, HUBBELL #HBL5362C1-X OR EQUAL. CONTROLLED DEVICE SHALL BE PERMANENTLY MARKED "CONTROLLED" AT FACTORY.
	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
	PANEL BOARD, TOP OF BOX 6'-0" AFF
	JUNCTION BOX
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC STARTER
	MOTOR WITH DESIGNATION
	FLOOR BOX
CONTROLS	
S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S _P	SINGLE POLE WALL SWITCH WITH PILOT LIGHT, TOP OF BOX AT 48" AFF
S _K	SINGLE POLE WALL SWITCH, KEY OPERATED, TOP OF BOX AT 48" AFF
S ₂	TWO POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S ₃	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S _D	DIMMER SWITCH, TOP OF BOX AT 48" AFF
S _M	MANUAL MOTOR STARTER WITH OVERLOADS
OCCUPANCY SENSORS	
1. DUAL TECHNOLOGY ULTRASONIC CEILING SENSORS SHALL BE MOUNTED 6' FROM SUPPLY/EXHAUST AIR DIFFUSERS.	
2. LOW VOLTAGE CEILING SENSORS SHALL BE PROVIDED WITH 6' SLACK CONDUCTOR COILED AT SENSOR.	
S _O	WALL MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR, ACUTY SENSORSWITCH #WSX-PDT-SA OR EQUAL, TOP OF BOX AT 48" AFF. SENSORS SHALL BE PROGRAMMED FOR MANUAL-ON OPERATION.
S _{DO}	WALL MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR WITH 0-10V DIMMING, ACUTY SENSORSWITCH #WSX-PDT-D-SA OR EQUAL, TOP OF BOX AT 48" AFF, VERIFY DIMMER COMPATIBILITY
	DUAL TECHNOLOGY CEILING MOUNT OCCUPANCY SENSORS, ACUTY nLIGHT #NCM-PDT-10-RJB OR EQUAL
	OCCUPANCY SENSOR POWER PACK, ACUTY nLIGHT #NPP16 OR EQUAL, PROVIDE LOW VOLTAGE WIRING TO OCCUPANCY SENSORS AND MOMENTARY SWITCHES
S _{LV}	MOMENTARY SWITCH, ACUTY nLIGHT #NPDMA-X OR EQUAL
COMMUNICATIONS	
	DATA/TELEPHONE OUTLET WITH MINIMUM 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
	FLAT SCREEN TELEVISION - PROVIDE AND INSTALL ONE (1) HUBBELL #RR1510X RECESSED TAMPER-RESISTANT DUPLEX RECEPTACLE WITH COVERPLATE AND ONE (1) HUBBELL #HBL260 TWO GANG LARGE CAPACITY WALL BOX (UP TO 2" KNOCKOUT) W/ MUD RING AND COVERPLATE FOR DATA. PROVIDE 2"X WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR DATA CABLES. MOUNT BOX AT 5'-6" AFF UNLESS NOTED OTHERWISE (VERIFY)
FIRE ALARM - FIRE ALARM SYSTEM IS EXISTING TO REMAIN. PROVIDE ADDITIONAL COMPATIBLE DEVICES AND CONNECT TO EXISTING SYSTEM AS REQUIRED.	
	FIRE ALARM AUDIBLE/VISUAL COMBINATION SIGNAL, CENTERLINE AT 6'-8" AFF
MISCELLANEOUS	
	COMBINATION POWER AND DATA FLOORBOX

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. WHERE CONDUIT IS SHOWN UNDER FLOOR, VERIFY IF FLOOR IS STRUCTURAL SLAB OR SLAB ON GRADE. IF STRUCTURAL SLAB, CORE DRILL PENETRATION, AND ROUTE CONDUIT IN SPACE BELOW. IF SLAB ON GRADE, SAW CUT EXISTING FLOOR. SLAB AS REQUIRED FOR INSTALLATION OF UNDER FLOOR CONDUIT. NO STRUCTURAL ELEMENTS SHALL BE CORE DRILLED OR SAW CUT. WHEN SAW CUTTING, PATCH FLOOR TO MATCH EXISTING SURFACE AS REQUIRED.
3. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
4. ALL EXPOSED RACEWAYS SHALL BE IN EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
5. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
6. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
8. ALL ELECTRICAL DEVICES ARE EXISTING AND TO REMAIN UNLESS NOTED. OTHERWISE OR CONFLICT WITH NEW CONSTRUCTION. MAINTAIN PROPER OPERATION OF ALL EXISTING ELECTRICAL.
9. ALL MATERIALS EXPOSED 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 E 84.
10. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
11. PLANS INDICATE MINIMUM WIRE SIZES PER NEC. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
12. PROVIDE LOW VOLTAGE WIRING BETWEEN ALL 0-10V DIMMING DRIVERS CONTROLLED BY 0-10V DIMMERS PER MANUFACTURER'S INSTRUCTIONS.
13. WHEREVER POSSIBLE, CONDUIT SHALL BE RUN CONCEALED WITHIN WALLS, CEILINGS, SOFFITS, ETC. SURFACE MOUNTED CONDUIT IN FINISHED SPACES MUST BE APPROVED BY THE ENGINEER OR ARCHITECT PRIOR TO INSTALLATION. EXTERIOR CONDUIT SHALL NOT BE RUN EXPOSED IN PUBLICLY VISIBLE AREAS WITHOUT APPROVAL OF THE ARCHITECT OR ENGINEER.



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REV# DATE DESCRIPTION

Issue Date: 6-17-25
Project #: 25009

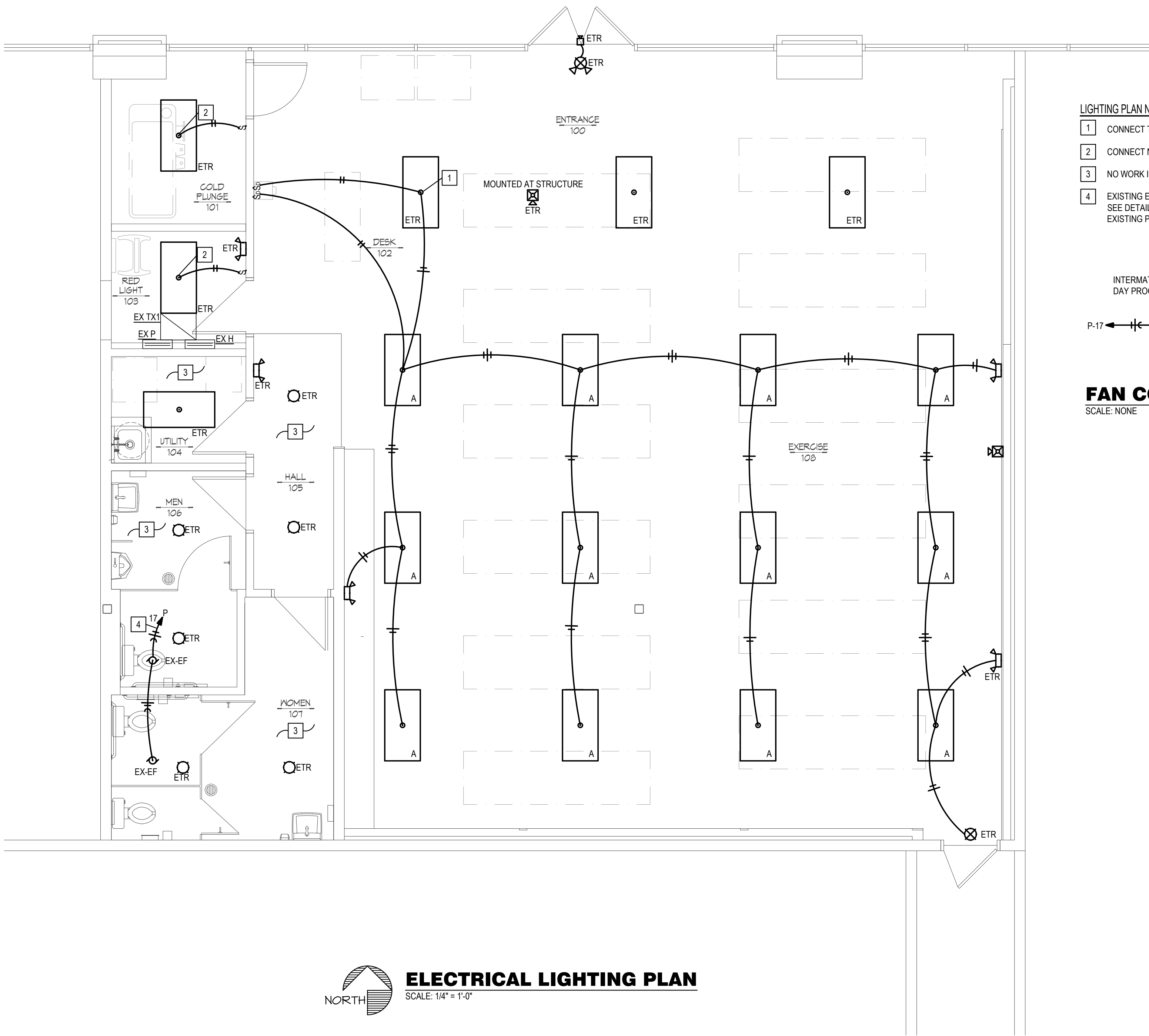
ELECTRICAL
SPECIFICATIONS

E0

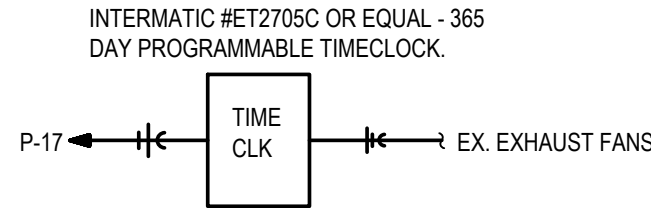
BC PROJECT #: 25468 FO/FS
MISSOURI PE COA #2009003629

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LIGHT FIXTURE SCHEDULE				
MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION
A	MATCH EXISTING SUSPENDED 2X4 LED FIXTURE	120 40	LED	SUSPENDED 2X4 LED LIGHT FIXTURE TO MATCH EXISTING IN SPACE
ETR	EXISTING LIGHT TO REMAIN	120	VARIES	EXISTING LIGHT TO REMAIN, CLEAN AND RELAMP(AS REQUIRED). VERIFY PROPER OPERATION
EL	MATCH EXISTING EMERGENCY LIGHT	120 1	INCL	WALL MOUNTED EMERGENCY LIGHT TO MATCH EXISTING IN SPACE
NOTES:				



- LIGHTING PLAN NOTES:
- 1 CONNECT TO EXISTING LIGHTING CIRCUIT WITH #12 AWG IN 3/4" C.
 - 2 CONNECT NEW SWITCH TO EXISTING LIGHT.
 - 3 NO WORK IN THIS AREA.
 - 4 EXISTING EXHAUST FANS TO BE RE-ROUTED THRU TIMECLOCK. SEE DETAIL, THIS SHEET. MOUNT TIMECLOCK ADJACENT TO EXISTING PANELS.

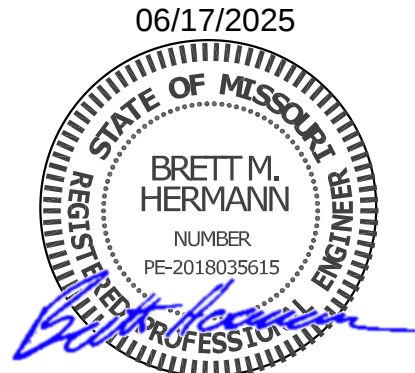


FAN CONTROL DETAIL
SCALE: NONE

ELECTRICAL LIGHTING PLAN
SCALE: 1/4" = 1'-0"
NORTH

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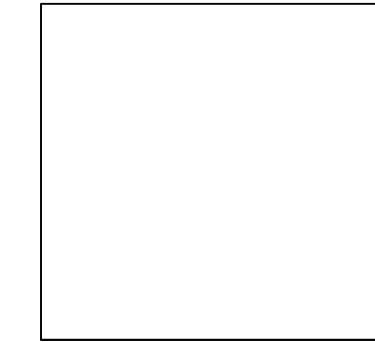
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REV/#	DATE	DESCRIPTION

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ELECTRICAL LIGHTING PLAN

E1

EXIST PANEL : P		VOLTS: 120/208V			PH: 3Ø		WIRE: 4W		LOCATION:		RED LIGHT RM		MOUNTING: SURFACE		
BUS: 125A		MAIN: 100A MCB										FEEDER: SEE RISER DIAGRAM			
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1	EX DRYER [EX] [GF]	30	2	10	2,496			360			12	1	20	EX RTU WP RCP TS [EX]	2
3					2,496				360		12	1	20	EX (2) BATH GF RCP TS [EX]	6
5	EX WASHER [EX] [GF]	20	1	12			1,000			180	12	1	20	SIGN RCP TS [EX]	6
7	EX DRYER FAN [EX]	20	1	12	100			800			12	1	20	FANS [EX]	8
9	EX MODEM [EX]	20	1	12		180						1	20	SPARE [EX]	10
11	SPARE [EX]	20	1							180	12	1	20	EX BATH HALL (1) RCP TS [EX]	12
13	SPARE [EX]	20	1					360			12	1	20	EX (2) PANEL ROOM RCP TS [EX]	14
15	NEW RECEPTION DESK [EX]	20	1	12		360			500		12	1	20	EX DUCT DET. OR [EX]	16
17	EXISTING EF'S [EX]	20	1	12			100			360	12	1	20	EX PHONE 4-PLEX [EX]	18
19	SPARE [EX]	20	1					800			12	1	20	EX. FLOWATER REFILL STATION [EX]	20
21	SPARE [EX]	20	1						500		12	1	20	EX. DRINKING FOUNTAIN [EX]	22
23	SPARE [EX]	20	1									1	20	SPARE [EX]	24
25	EX EMERGENCY CIRCUIT [EX]	20	1	12	500							1	20	SPARE [EX]	26
27	LIGHTING [EX]	20	1	12		921						1	20	SPARE [EX]	28
29	EX TIMECLOCK FEED [EX]	20	1	12			200			180	12	1	20	PROJECTOR RCP TS [EX]	30
31	SPARE [EX]	20	1					1,500				2	20	EX WATER HEATER [EX]	32
33	EX SIGNAGE (1) OUTSIDE [EX]	20	1	12		1,200			1,500						34
35	SPARE [EX]	20	1							1,000	12	1	20	FRIDGE RCP TS [EX]	36
37	EF-1 [EX]	20	1	12	50							1	20	SPARE [EX]	38
39	SPARE [EX]	20	1									1	20	SPARE [EX]	40
41	COLD PLUNGE [GF]	20	1	12			1,000			1,600	12	1	20	RED LIGHT [EX]	42
NOTES:					3,146	5,157	2,300	3,820	2,860	3,500					
[EX] EXISTING BRKR [GF] GFCI BRKR 6mA					6,966		8,017		5,899						
TOTAL CONNECTED LOAD:														20,783 VA	
NEC DEMAND LOAD:														22,238 VA	
DEMAND AMPS @ 208 VOLT / 3Ø:														61.73 A	



- 1 NO WORK IN THIS AREA.
- 2 MOUNT RECEPTACLE HORIZONTAL ON FRAMED CURB BELOW WINDOW.
- 3 PROVIDE FLUSH MOUNTED FLOOR BOX WITH QUAD RECEPTACLE AND DATA PROVISIONS. ROUTE CONDUIT/WIRE UNDER SLAB TO/ABOVE NEAREST FULL HEIGHT WALL AS INDICATED. SAW CUT FLOOR AND PATCH TO MATCH EXISTING.
- 4 MOUNT RECEPTACLE AT CEILING FOR PROJECTOR. VERIFY EXACT LOCATION WITH TENANT.
- 5 EXISTING FAN TO BE RELOCATED. MOUNT AT BOTTOM OF TRUSSES.
- 6 PROVIDE NEW FAN, MATCH EXISTING FANS.
- 7 RECEPTACLE MOUNTED HIGH ON WALL FOR SIGN. VERIFY LOCATION WITH TENANT.
- 8 WATER FOUNTAIN AND REFILL STATION ARE EXISTING TO REMAIN.



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

	REV#	DATE	DESCRIPTION
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E2

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