

GENERAL HVAC NOTES

1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
11. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT. OF, ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS).
12. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
13. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
14. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
15. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
16. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
17. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
18. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
19. ALL ROOF-MOUNTED EQUIPMENT CURBS/STEEL RAILS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
20. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
21. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
22. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.
23. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.

SPECIFICATIONS

SECTION 0001 - NOTICE TO BIDDERS

1.1 BIDDERS REPRESENTATIONS

- A. THE BIDDER BY MAKING A BID REPRESENTS THAT:
THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.
- B. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
- C. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.
- D. SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.
- E. THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.

1.2 EXISTING CONDITIONS AND COORDINATION

- A. THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.
- B. THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.

1.3 RESPONSIBILITIES

- A. THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
- B. THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.
- C. THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.

END OF SECTION 0001

SECTION 0101 - QUALITY OF WORK

1.1 WORKMANSHIP

- A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
- C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.

1.2 CODE COMPLIANCE

- A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

SECTION 0102 -REQUIRED DOCUMENTS

1.1 SHOP DRAWINGS

- A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.
- B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 1. ADVANCE PRODUCTS & SYSTEMS, INC.
 2. CALPICO, INC.
 3. METRAFLEX COMPANY (THE).
 4. PIPELINE SEAL AND INSULATOR, INC.

1.2 RECORD DRAWINGS

- A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.

1.4 EQUIPMENT OPERATING INSTRUCTIONS

- A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
- B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.
- C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

SECTION 078413-PENETRATION FIRE-STOPPING

1.1 QUALITY ASSURANCE

- A. INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.
- B. FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL.

1.2 PENETRATION FIRESTOPPING

- A. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.
- B. PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479.
- C. PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.
- D. W-RATINGS: PER UL 1479.

1.3 INSTALLATION

- A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.

1.4 FIELD QUALITY CONTROL

- A. INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174.
- B. THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

FOR THE FOLLOWING SYSTEMS:

METALLIC AND NON-METALLIC PIPES, CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED PIPES, GROUPINGS OF PENETRANTS, USE ON OR MORE THE FOLLOWING MATERIALS:

- a. LATEX SEALANT
- b. SILICONE SEALANT
- c. INTUMESCENT PUTTY
- d. MORTAR
- e. SILICONE FOAM
- f. PILLOWS/BAGS
- g. INTUMESCENT WRAP STRIPS
- h. INTUMESCENT COMPOSITE SHEET

1.6 MANUFACTURERS

- A. HILTI CONSTRUCTION CHEMICAL, INC
- B. TREMCO INC.
- C. 3M FIRE PROTECTION PRODUCTS

END OF SECTION 078413

SECTION 230517 - SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

1.1 SLEEVE-SEAL SYSTEMS

- A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE.

1. SEALING ELEMENTS: EPDM RUBBER OR NBR.
2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.

- B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. ADVANCE PRODUCTS & SYSTEMS, INC.
2. CALPICO, INC.
3. METRAFLEX COMPANY (THE).
4. PIPELINE SEAL AND INSULATOR, INC.

1.2 SLEEVE-SEAL FITTINGS

- A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.

1.3 GROUT

- A. NON-SHRINK FACTORY PACKAGED.

1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE

- A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:
 1. INTERIOR PARTITIONS:
 - a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.
 - b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.

END OF SECTION 230517

SECTION 230518 - ESCUTCHEONS FOR HVAC PIPING

PART 1 - PRODUCTS

1.1 ESCUTCHEONS

- A. ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED AND ROUGH-BRASS FINISH AND SETSCREW FASTENER.
- B. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN, BOX-SHAPED BRASS WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.
- C. ONE-PIECE, STAMPED-STEEL TYPE: WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

1.2 FLOOR PLATES

- A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.

PART 2 - EXECUTION

2.1 INSTALLATION

- A. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.
- B. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

1. ESCUTCHEONS FOR NEW PIPING

- a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.
- b. INSULATED PIPING: ONE-PIECE, STAMPED-STEEL TYPE.
- c. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.
- d. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.

2.2 FIELD QUALITY CONTROL

- A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.

END OF SECTION 230518

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS

- A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
- B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ACSE/SEI 7.
 1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
 2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND
 3. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

1.2 SUBMITTALS

- A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER

1.3 QUALITY ASSURANCE

- A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL"

1.4 COMPONENTS

- A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
- B. FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
- D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER
- E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE
- F. THERMAL-HANGER SHIELD INSERTS:
- G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS
- H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE
- I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 - VIBRATION CONTROLS FOR PIPING AND HVAC EQUIPMENT

PART 1 - GENERAL

1.1 PERFORMANCE REQUIREMENTS

- A. SEISMIC-RESTRAINT LOADING:
 1. SITE CLASS AS DEFINED IN THE IBC: A, B
 2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: III III
 - a. COMPONENT IMPORTANCE FACTOR: 1.0
 - b. COMPONENT RESPONSE MODIFICATION FACTOR: 2.5
 - c. COMPONENT AMPLIFICATION FACTOR: 2.5.
3. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%
4. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: 8%

1.2 COMPONENTS

- A. VIBRATION ISOLATORS:

1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
2. MOUNTS: DOUBLE-DEFLECTION TYPE.
3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
10. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
11. RESILIENT PIPE GUIDES.

- B. AIR-MOUNTING SYSTEMS:

1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.
 2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.
- C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL, WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.

- D. VIBRATION ISOLATION EQUIPMENT BASES:

1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

1.3 FIELD QUALITY CONTROL

- A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

PART-2 PRODUCTS

1.4 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES

- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 1. ACE MOUNTINGS CO., INC.
 2. AMBER/BOOTH COMPANY, INC.
 3. CALIFORNIA DYNAMICS CORPORATION.
 4. COOPER B-LINE, INC.; A DIVISION OF COOPER INDUSTRIES.
 5. HILTI, INC.
 6. ISOLATION TECHNOLOGY, INC.
 7. KINETICS NOISE CONTROL.
 8. LOOS & CO.; CABLEWARE DIVISION.
 9. MASON INDUSTRIES.
 10. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
 11. UNISTRUT; TYCO INTERNATIONAL, LTD.
 12. VIBRATION ELIMINATOR CO., INC.
 13. VIBRATION ISOLATION.
 14. VIBRATION MOUNTINGS & CONTROLS, INC.

END OF SECTION 230548

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REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**MECHANICAL
SPECIFICATIONS
(1 OF 2)**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

M-0.2

SHEET 2 OF 7

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

SPECIFICATIONS

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

- 1.1 SUMMARY
A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:
1. MOTORS.
2. CONDENSING UNITS.
3. AIR SYSTEM: CONSTANT VOLUME
1.2 QUALITY ASSURANCE
A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS.
1.3 EXECUTION
A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE.

SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

- 1.1 PRODUCTS
A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS.
B. MANUFACTURERS: TITUS (OMNI)
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
a. HART & COOLEY INC.
b. KRUEGER.
c. METALAIRE, INC.
d. RUSKIN
C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.
D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

SECTION 233113 - METAL DUCTS

- 1.1 CONSTRUCTION
A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS.
B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
1. CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH.
2. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY COATED (GALVANNEALED) BY HOT DIP PROCESS.
3. USE ELBOWS AND TEES WITH A CENTER LINE RADIUS TO WIDTH OR DIAMETER RATIO OF 1.5 WHEREVER SPACE PERMITS.
4. WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES IN ACCORDANCE WITH SECTION 23 33 00.
5. PROVIDE EXPANDED TAKE-OFFS OR 45 DEGREE ENTRY FITTINGS FOR BRANCH DUCT CONNECTIONS WITH BRANCH DUCTWORK AIRFLOW VELOCITIES GREATER THAN 700 FPM.
6. BUTT PUNCH SNAP-LOCK CONSTRUCTION WILL NOT BE ACCEPTED ON ALUMINUM DUCTWORK.
C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

Table with columns: USG, MAX SIDE INCHES, TRANSVERSE JOINT AND BRACING. Rows include UP TO 12, 13 TO 24, 25 TO 35 with corresponding S SLIP, DRIVE, ONE INCH POCKET ON 8 FOOT, 1"x1"x1/8" ANGLES ON 4 FOOT CENTERS, 1"x1"x1/8" ANGLES ON 2 FOOT CENTERS.

D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:

- 1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.
E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS
F. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.

- 1.2 MATERIALS
A. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.
B. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.
C. SHEET METAL MATERIALS:

- 1. GALVANIZED SHEET STEEL.
1. STAINLESS-STEEL SHEETS.
2. ALUMINUM SHEETS.
3. FACTORY-APPLIED ANTI-MICROBIAL COATING.

- D. DUCT LINER:
1. FIBROUS GLASS, TYPE I, FLEXIBLE WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.
2. FLEXIBLE ELASTOMERIC.
3. NATURAL FIBER.

- E. SEALANT MATERIALS:
3. TWO-PART TAPE SEALING SYSTEM
4. WATER-BASED JOINT AND SEAM SEALANT.
5. SOLVENT-BASED JOINT AND SEAM SEALANT.
6. FLANGED JOINT SEALANT.
7. FLANGE GASKETS.
8. ROUND DUCT JOINT O-RING SEALS.

- 1.3 DUCT CLEANING
A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.
B. CLEAN THE FOLLOWING ITEMS:
1. AIR OUTLETS AND INLETS.
2. SUPPLY, RETURN, AND EXHAUST FANS.
3. AIR-HANDLING UNITS.
4. COILS AND RELATED COMPONENTS.
5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

- 1.4 DUCT SCHEDULE
A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:
1. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.

END OF SECTION 233113

SECTION 230713 - DUCT INSULATION

INSULATION - GENERAL REQUIREMENTS

- A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS.
B. DEFINITIONS:
1) EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILING OR OPENING ACCESS PANELS.
2) CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.
3) OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.

DUCTWORK INSULATION

- A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

Table with columns: SERVICE, LOCATION, R-VALUE, TYPE, FINISH. Rows include SUPPLY/RETURN CONCEALED R-6 D-1 VAPORSEAL, SUPPLY/RETURN EXPOSED R-8 D-1 VAPORSEAL, INTAKE ALL R-8 D-1 VAPORSEAL, SUPPLY EXTERIOR R-8 D-1 VAPORSEAL.

- B. REINSULATE ALL DUCTWORK AND PIPING WHICH IS EXISTING TO REMAIN AND WAS DAMAGED DURING CONSTRUCTION OR SHOWN OR REQUIRED TO BE RELOCATED.
C. NON-INSULATED DUCTWORK:
1) WHERE SOUND LINING IS OF MINIMUM THICKNESS SPECIFIED FOR INSULATION.
2) AIR CONDITIONING RETURN AIR DUCTWORK EXPOSED IN AIR CONDITIONED SPACES AND INSTALLED IN HUNG CEILING WHERE SPACE IMMEDIATELY ABOVE AND BELOW ARE BOTH AIR CONDITIONED MATERIAL.

- D. MATERIAL:
1) TYPE D-1: MINIMUM 1-LB DENSITY FIBERGLASS BLANKET, MAXIMUM 0.28 K-FACTOR AT 75 ADEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FOIL-SKRIM-KRAFT FACING SIMILAR TO MANVILLE MICROLITE.
2) TYPE D-2: 3 LB. FIBERGLASS BOARD. THE MAXIMUM K FACTOR SHALL BE 0.23 AT 75 DEG F MEAN TEMPERATURE WITH A MINIMUM DENSITY OF 3 LB. THE INSULATION SHALL BE PROVIDED WITH A FACTORY-APPLIED ALL PURPOSE OR ALL SERVICE FACING. THE INSULATION SHALL BE EQUAL TO MANVILLE TYPE 814 SPIN-GLAS AP.
3) TYPE D-3: MINIMUM 6 LB FIBERGLASS BOARD. MAXIMUM 0.22 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY APPLIED ALL PURPOSE OR ALL SERVICE FACING. SIMILAR TO MANVILLE 817 SPIN-GLAS AP

- E. FINISH:
1) TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.
2) TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.
3) TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.
4) TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.

- F. INSTALLATION:
a. FIBERGLASS BLANKET: 2 IN. LAP STRIPS AT ALL SEAMS. SECURE BOTTOM OF ALL DUCTS OVER 24 IN. WIDE WITH MIN 2 ROWS OF WELD PINS 12 IN. ON CENTER. SECURE ALL SEAMS WITH FOIL VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE.
b. FIBERGLASS BOARD: SEAL JOINTS AND BREAKS IN FACING WITH 3 IN. WIDE TAPE TO MATCH FACING AND ADHERE WITH VAPOR SEAL ADHESIVE. APPLY 5 IN. WIDE TAPE AT CORNERS, WELD PINS ON TOP, SIDES AND BOTTOM.

- G. ACOUSTICAL TREATMENT
ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.

PIPING INSULATION

- A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

PIPING INSULATION SCHEDULE

Table with columns: SERVICE, SIZETHICKNESS, MATERIAL FINISH. Rows include REFRIGERANT PIPING 1.5" P-6, CONDENSATE DRAIN 1" P-6.

- B. PIPING, VALVES AND FITTINGS TO BE INSULATED:

- 1) PROTECTIVE COVERINGS SHALL BE INSTALLED ON AREAS OF INSULATION THAT ARE EXPOSED TO WEATHER OR SUBJECT TO MECHANICAL DAMAGE. THE PROTECTIVE COVERING SHALL BE:
a. ARMA-CHEK SILVER® MULTI-LAYER LAMINATE OF ALUMINUM COATED WITH A UV PROTECTIVE FILM AND BACKED WITH A FLEXIBLE PVC FILM. THE MATERIAL SHOULD BE ADHERED WITH ARMAFLEX 520 ADHESIVE OR EQUIVALENT, AND ALL JOINS AND SEAMS SECURED WITH ARMA-CHEK SILVER TAPE®. INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS.
OR
b. HIGH DENSITY RUBBER CLADDING OF THE ARMA-CHEK R® TYPE BONDED USING AN APPROPRIATE FULL CONTACT ADHESIVE WITH A MINIMUM 50 MM OVERLAP AT ALL BUTT JOINTS AND LONGITUDINAL SEAMS. A WEATHER-PROOF MASTIC SEALANT SHALL BE APPLIED OVER ALL SEAMS AND JOINTS. ALL MATERIAL SHALL BE OVERLAPPED AND STAGGERED IN SUCH A WAY AS TO ENSURE A WATERSHED IS ALWAYS PROVIDED. INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS. ALL EXCESS ADHESIVE VISIBLE ON THE SURFACE OF THE COMPLETED ASSEMBLY SHALL BE REMOVED USING AN APPROPRIATE CLEANING MATERIAL.

- c. METAL CLADDING, COMPRISED OF COATED SHEET METAL, WITH ALL EXTERNAL JOINTS AND FIXING MADE WEATHER-PROOF WITH SILICONE SEALANT.
d.
C. MATERIAL:

- 1) TYPE P-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.24 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FIRE-RETARDANT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 ASJ.
2) TYPE P-3: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS FITTING, MAXIMUM 0.23 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO EPOLUX HAMFAB MOLDED FITTINGS.
3) TYPE P-4: MINIMUM 1 LB DENSITY FIBERGLASS FITTING INSERTS, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO MANVILLE HI-LO TEMP INSULATION INSERTS.
4) TYPE P-6: MINIMUM 6 LB MOLDED FOAMED PLASTIC. MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE. MAXIMUM 0.17 PERMEANCE. SIMILAR TO ARMSTRONG ARMAFLEX II.

- D. FINISH:
1) TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.
2) TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.
3) TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.
4) TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

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REVISIONS:

Table with columns: NO., DATE, DESCRIPTION, BY.

PROJECT NAME:

Beans & Brews COFFEE HOUSE INTERIOR ALTERATION

SHEET TITLE:

MECHANICAL SPECIFICATIONS (2 OF 2)

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

M-0.3

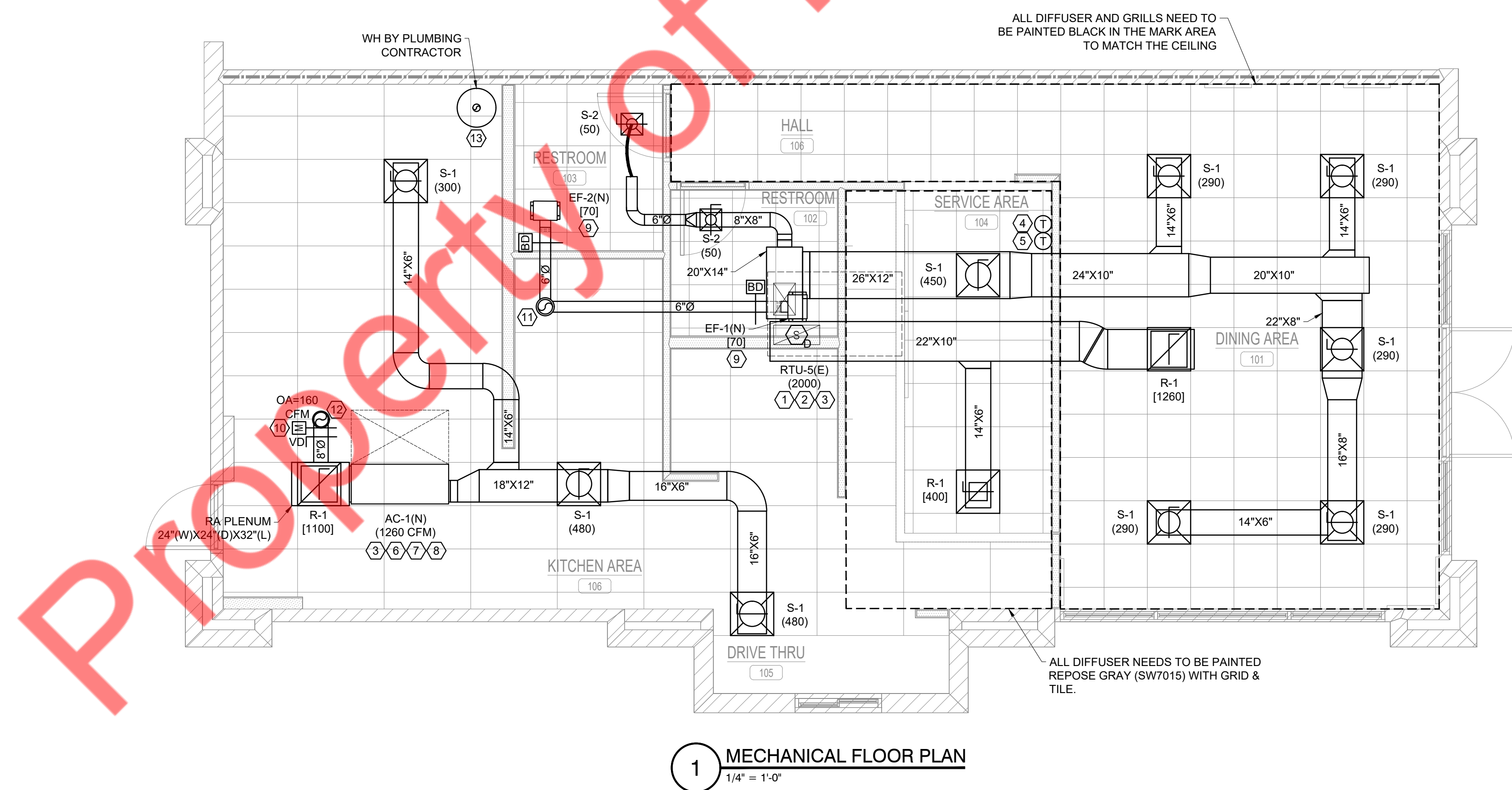
SHEET 3 OF 7

KEYED NOTES: (#)

1. EXTEND FULL SIZE SUPPLY AND RETURN DUCTWORK FROM EXISTING ROOFTOP UNIT TO SPACE, EXTEND AS SHOWN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE.
2. EXISTING SMOKE DETECTOR TO REMAIN AND REUSED. IF NOT FOUND OR NOT REUSABLE, PROVIDE SMOKE DETECTOR IN SUPPLY DUCT TO SHUT DOWN CORRESPONDING UNIT UNDER ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER NRC SMOKE DETECTOR SHALL BE SYSTEM SENSOR MODEL DH100ACDCLP
3. PROVIDE REMOTE TEMP SENSOR MOUNTED IN RETURN DUCT AND WIRE BACK TO T-STAT.
4. RELOCATE THE EXISTING THERMOSTAT AT SHOWN LOCATION. IF NOT REUSABLE, PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT. MOUNT ON WALL AT 48" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER.
5. PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT. MOUNT ON WALL AT 48" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER.
6. CONNECT 1" CD FROM AC TO NEAREST PLUMBING DRAIN WITH AIR GAP FITTING. INSTALL CONDENSATE DRAIN WITH 1% SLOPE TOWARD SINK. PROVIDE CONDENSATE PUMP AS/IF REQUIRED. SEE PLUMBING PLANS FOR REFERENCE.
7. PROVIDE AN AUXILIARY DRAIN PAN WITH WATER LEAKAGE SENSOR IN ORDER TO SHUT-OFF THE UNIT IN CASE OF WATER LEAKAGE. THE PAN SHALL HAVE A DEPTH OF NOT LESS THAN 1.5 INCHES. SHALL BE NOT LESS THAN 3 INCHES LARGER THAN THE UNIT, OR THE COIL DIMENSIONS IN WIDTH AND LENGTH AND SHALL BE CONSTRUCTED OF CORROSION-RESISTANT MATERIAL. METALLIC PANS SHALL HAVE A THICKNESS OF NOT LESS THAN 0.0236 INCH (NO. 24 GAGE) FOR GALVANIZED SHEET METAL PANS, 0.0179 INCH (NO. 26 GAGE) FOR STAINLESS STEEL PANS, OR 0.0320 INCH (NO. 20 GAGE) FOR ALUMINUM PANS. NON-METALLIC PANS SHALL HAVE A THICKNESS OF NOT LESS THAN 0.0625 INCH.
8. INSTALL REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNIT AS PER MANUFACTURERS RECOMMENDATIONS. PROVIDE INSULATION TO REF PIPING AS PER ENERGY CONSERVATION CODE. NOTIFY THE ENGINEER OF ANY DISCREPANCY BEFORE COMMENCING BID.
9. CEILING MOUNTED EXHAUST FAN. FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
10. INTERLOCK MD WITH RESPECTIVE UNITS.
11. Ø8" TOILET EXHAUST DUCT UP TO ROOF.
12. Ø8" OUTSIDE AIR DUCT UP TO ROOF.
13. Ø4" EXHAUST VENT FROM GAS-FIRED EQUIPMENT TO ROOF TERMINATION KIT. ROUTE PIPING WITH MINIMAL AMOUNT OF BEND AND LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURERS REQUIREMENTS. INTAKE WILL BE DRAWN FROM THE SURROUNDING AREA.

GENERAL NOTES:

- A. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- B. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- C. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- D. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND/OR INSTALLATION.
- F. EACH UNIT GENERATING CONDENSATE SHALL BE PROVIDED WITH A CONDENSATE DRAIN WITH EXTERNAL, 4" DEEP P-TRAP EXTEND DRAIN TO A ROOF MOUNTED SPLASH PAD OR AN ACCEPTABLE LOCATION REQUIRED BY CODE.
- G. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- H. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- I. UNLESS OTHERWISE NOTED, ALL SUPPLY TAKEOFFS SHALL HAVE A MANUAL VOLUME CONTROL DAMPER.
- J. ALL FLEX DUCT SHALL BE TESTED IN ACCORDANCE WITH UL 181. AND DUCT SHALL BE LISTED AND LABELED AS CLASS 1. MAXIMUM LENGTH TO BE 5'-0" PER DROP OR PER LOCAL CODE.
- K. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- L. THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTACTOR PANEL.
- M. PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT RETURN DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED IN THE OFFICE NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
- N. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- O. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- P. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- Q. PROVIDE FIRE OR FIRE-SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- R. PROVIDE VOLUME DAMPER IN ACCESSIBLE CEILING AND PROVIDE CORD OPERATED DAMPER IN INACCESSIBLE CEILING.
- S. FLEXIBLE CONNECTION SHALL BE INSTALLED BETWEEN EQUIPMENT AND CONNECTING DUCTWORK.



1 MECHANICAL FLOOR PLAN
1/4" = 1'-0"

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NO.	DATE	DESCRIPTION	BY
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PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

MECHANICAL FLOOR PLAN

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

M-1.0

SHEET 4 OF 7

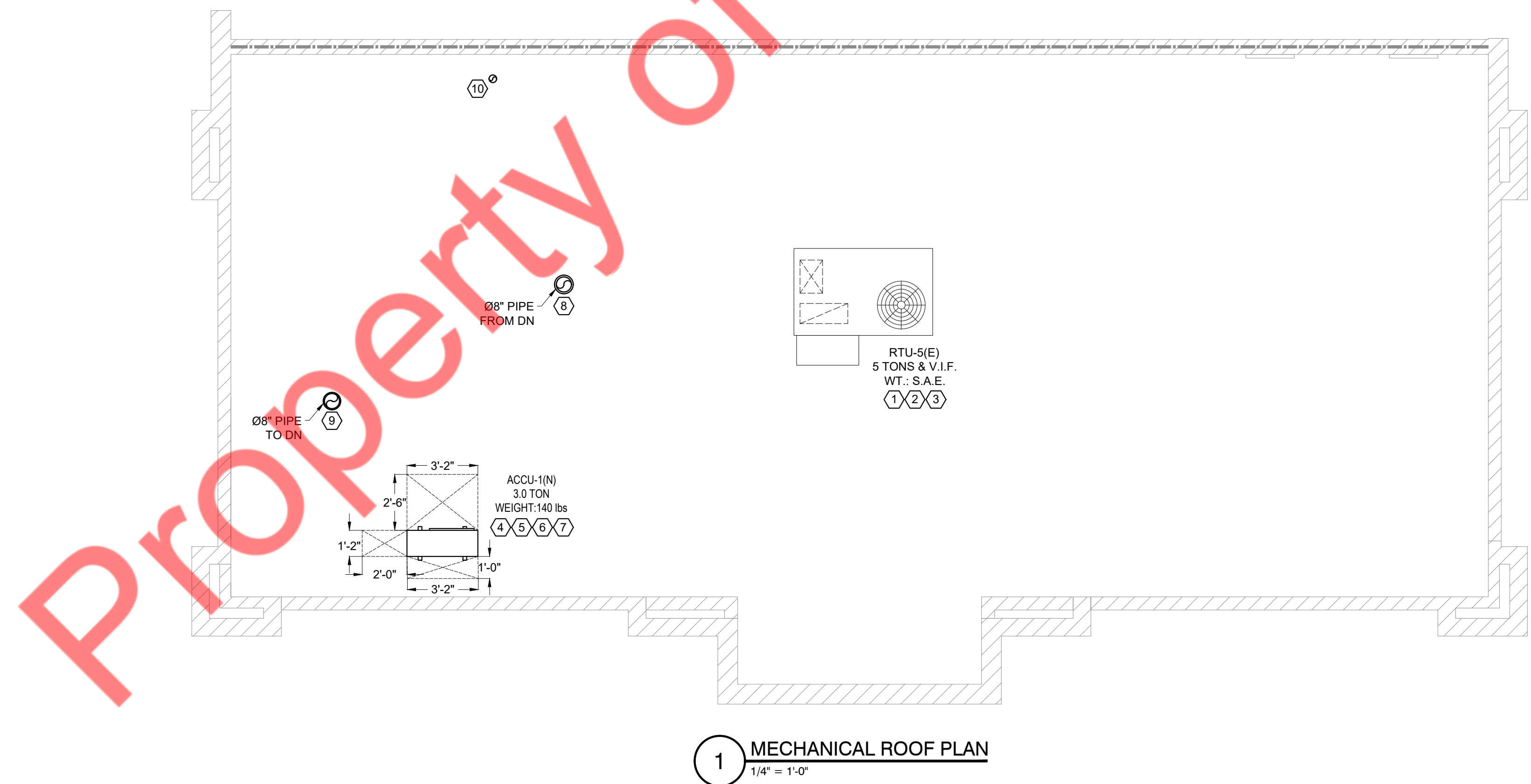
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KEYED NOTES: (#)

1. EXISTING MECHANICAL ROOFTOP UNIT TO REMAIN ALONG WITH ALL ACCESSORIES. CLEAN AND REFURBISH TO LIKE NEW CONDITION. REPAIR/REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE FULLY FUNCTIONING. VERIFY PRIOR TO BID. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR.
2. CONDENSATE DRAIN TO BE REMAIN AS IT IS FOR EXISTING RTU. CONTRACTOR TO FLUSH THE EXISTING DRAIN. CONTRACTOR TO CLEAN/REPAIR/REPLACE DRAIN IF FOUND DAMAGED.
3. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING RTU.
4. PROVIDE STRUCTURAL SUPPORTS AS REQUIRED. COORDINATE WITH STRUCTURAL ENGINEER.
5. INSTALL OUTDOOR CONDENSING UNITS ON THE ROOF WITH ALL REQUIRED ACCESSORIES. COORDINATE EXACT LOCATION IN FIELD. COORDINATE FINAL LOCATION WITH OWNER/LANDLORD.
6. INSTALL REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNIT AS PER MANUFACTURERS RECOMMENDATIONS. PROVIDE INSULATION TO REF PIPING AS PER ENERGY CONSERVATION CODE. NOTIFY THE ENGINEER OF ANY DISCREPANCY BEFORE COMMENCING BID.
7. COORDINATE WITH BASE BUILDING ENGINEER FOR PIPE ROUTING AND RISER LOCATION.
8. 08" EXHAUST AIR DUCT FROM FIRST FLOOR TERMINATE WITH GOOSENECK AND BIRD SCREEN. MAINTAIN MINIMUM 10'-0" DISTANCE FROM ANY OUTSIDE AIR INTAKE SOURCE.
9. 08" OUTSIDE AIR DUCT FROM FIRST FLOOR TERMINATE WITH GOOSENECK AND BIRD SCREEN. MAINTAIN MINIMUM 10'-0" DISTANCE FROM ANY EXHAUST SOURCE.
10. 04" EXHAUST VENT FROM GAS FIRED EQUIPMENT TO ROOF TERMINATION KIT. ROUTE PIPING WITH MINIMAL AMOUNT OF BEND AND LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURERS REQUIREMENT.

MECHANICAL GENERAL NOTES:

- A. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND LL ROOFING CONTRACTOR. PROVIDE NEW OPENING IF REQUIRED AND CLOSE USED OPENINGS.
- B. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS AND SITE BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- C. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- D. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- E. COORDINATE ALL EQUIPMENT WITH STRUCTURAL DRAWING.
- F. MAINTAIN ALL CODE AND MANUFACTURERS RECOMMENDED CLEARANCE AROUND ALL ROOF EQUIPMENT.
- G. ALL ROOF PENETRATION AND MEMBRANE ROOF REPAIRS ARE TO BE ACCOMPLISHED BY THE LANDLORD'S ROOFING CONTRACTOR FOR WARRANTY PURPOSES.
- H. ROOF REPAIR UNIT PRICES SHOULD BE SUBMITTED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- I. CONTRACTOR SHALL ENSURE THAT ALL NEW ROOFTOP MOUNTED EQUIPMENT IS INSTALLED WITHIN ANY EXISTING REINFORCED STRUCTURAL AREAS OR ZONE THAT ARE DESIGNATED FOR FUTURE MECHANICAL EQUIPMENT. COORDINATE WITH ALL EXISTING STRUCTURAL CONDITIONS PRIOR TO BEGINNING ANY WORK. GENERAL CONTRACTOR NEEDS TO COORDINATE WITH STRUCTURAL ENGINEER/ARCHITECT FOR ADDITIONAL BRACING OR SUPPORTS FOR NEW UNITS.
- J. CONTRACTOR TO COORDINATE WITH STRUCTURAL ENGINEER AND ADD BLOCKING TO ENSURE PROPER LOAD DISTRIBUTION ON EXISTING TRUSSES.



1 MECHANICAL ROOF PLAN
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PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
MECHANICAL ROOF PLAN

PROJECT NUMBER 25-005

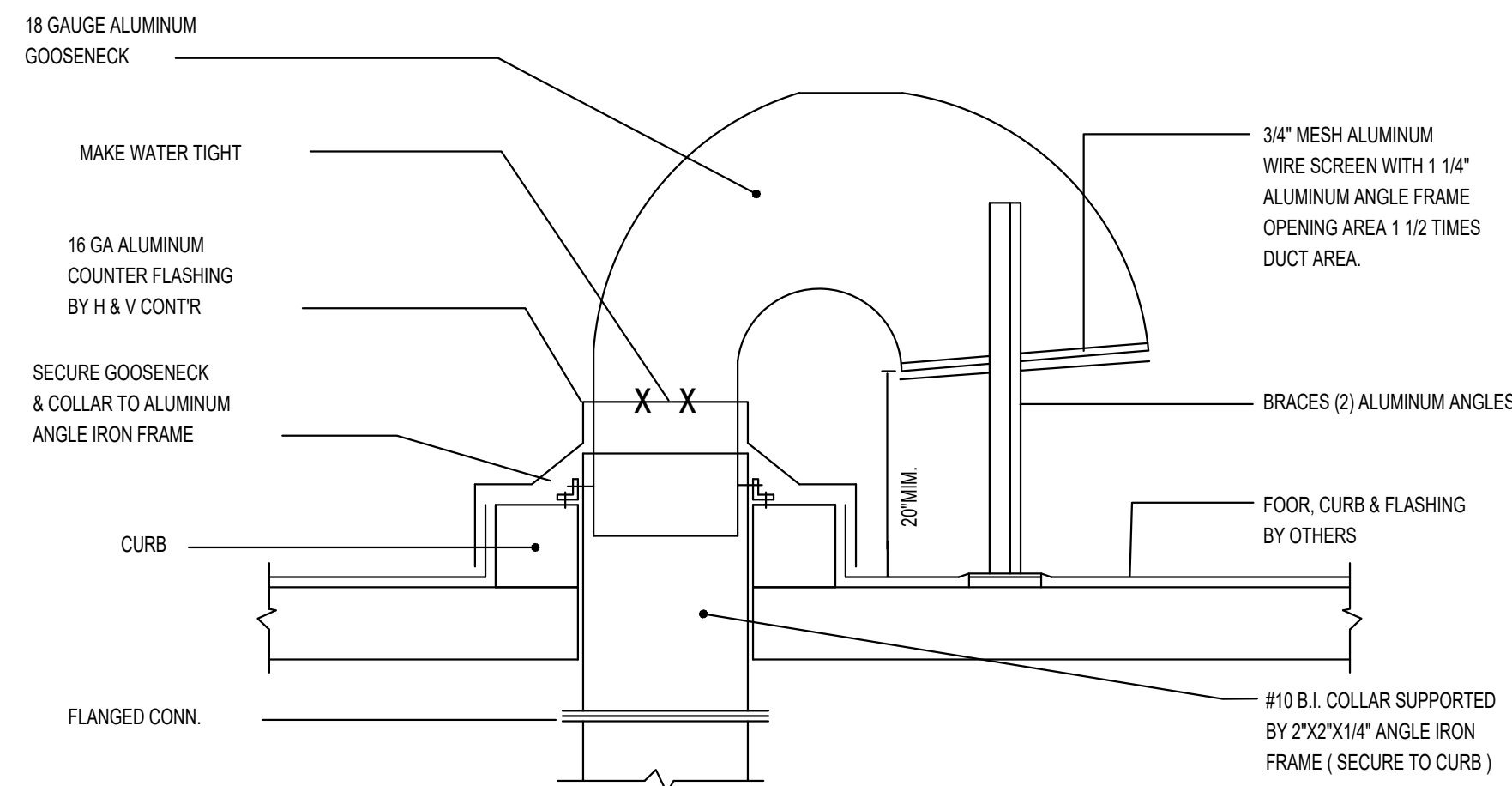
DATE 02-10-2025

SHEET NO.

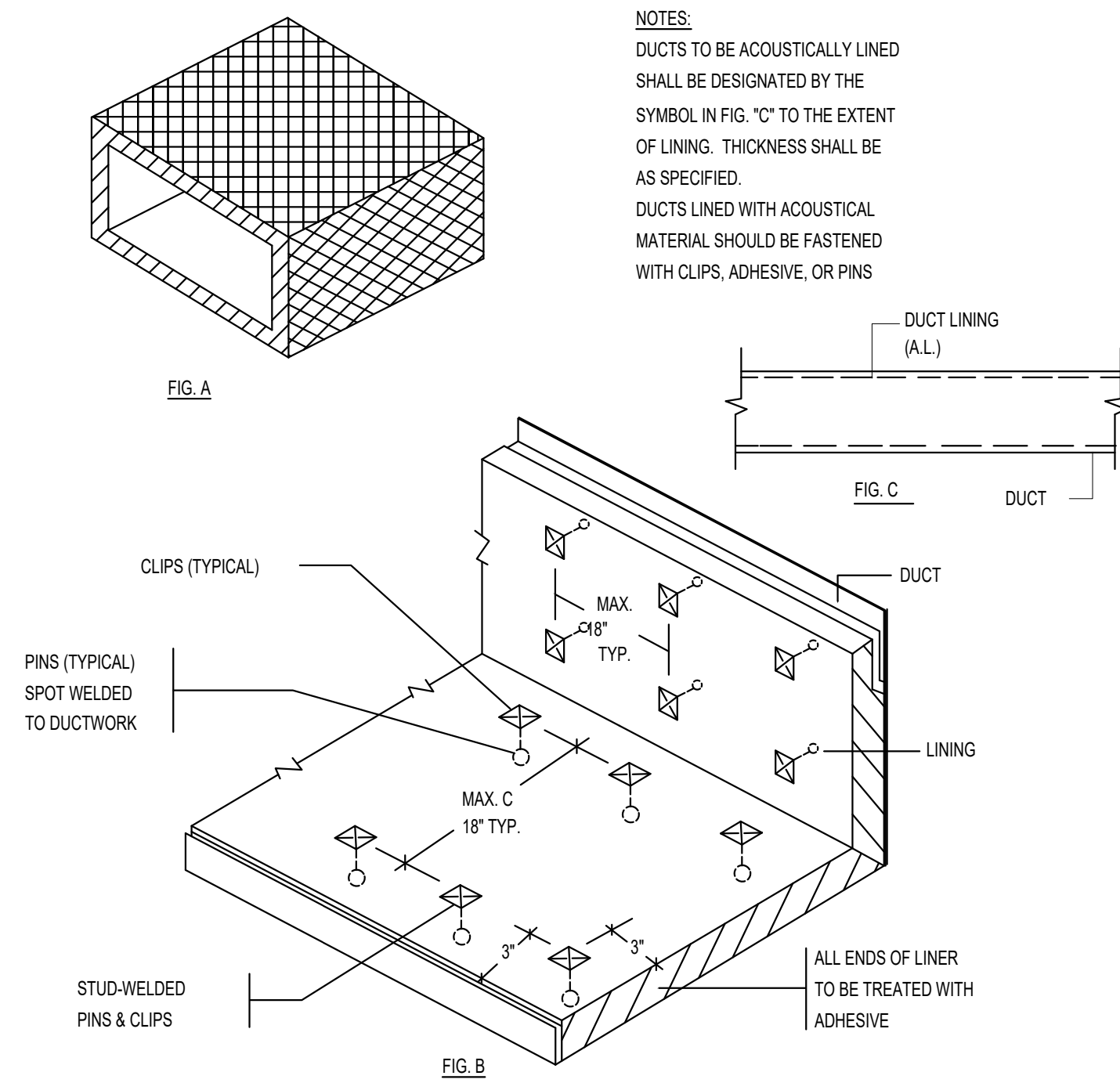
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SHEET 5 OF 7

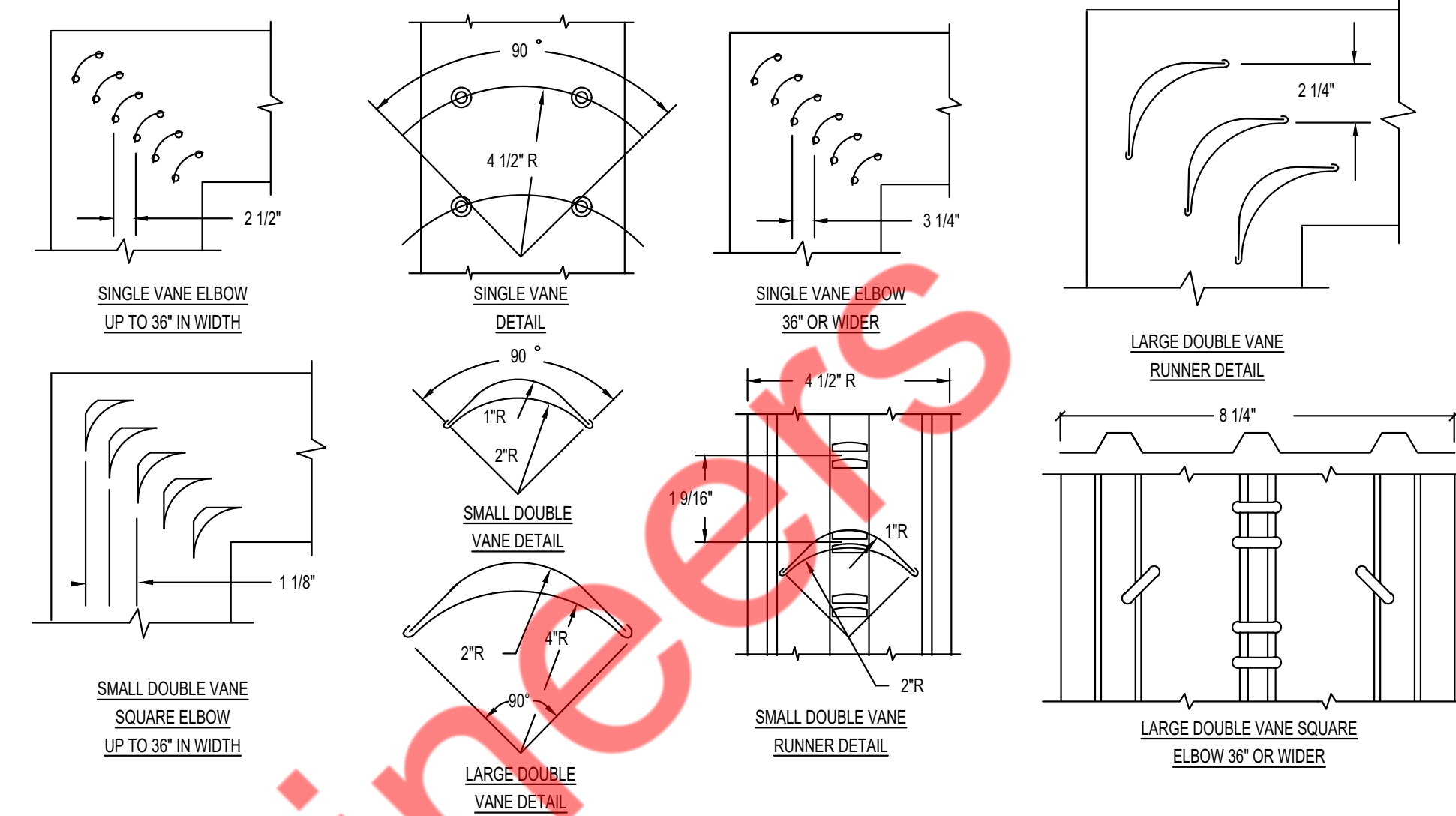
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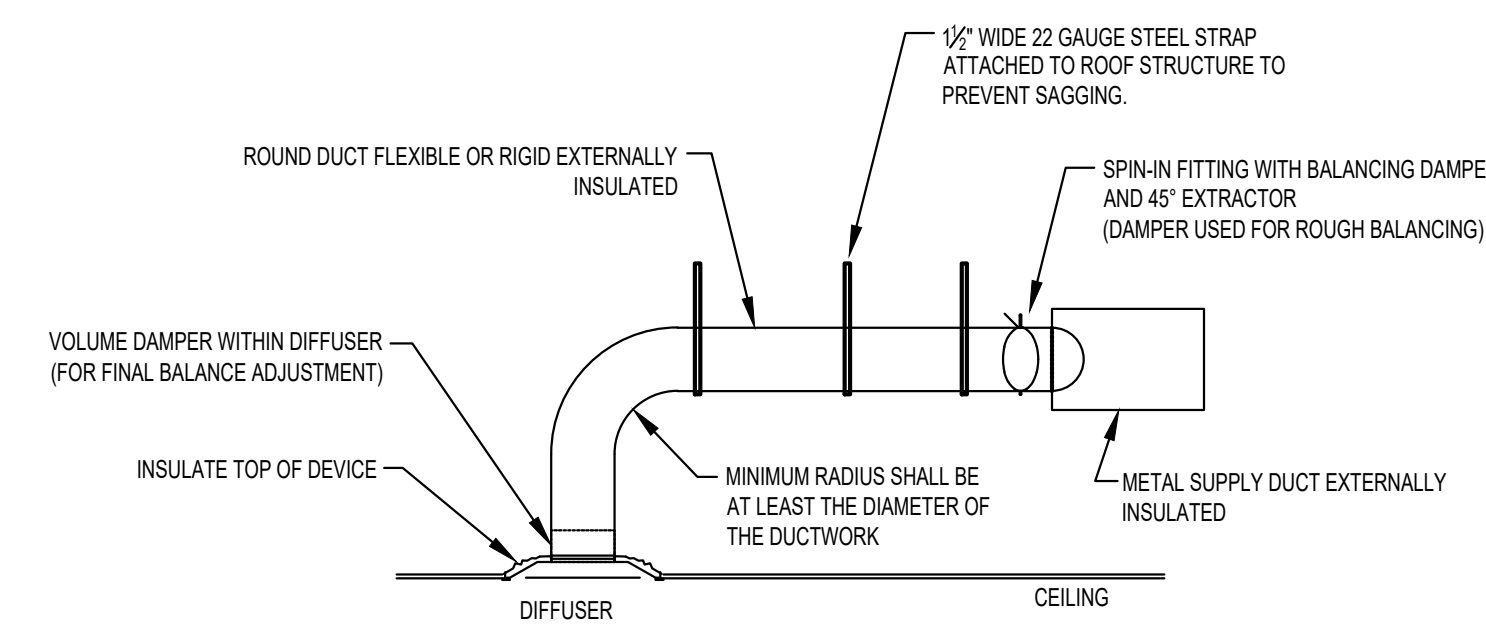
1 TYPICAL GOOSENECK DETAIL
SCALE: N.T.S.



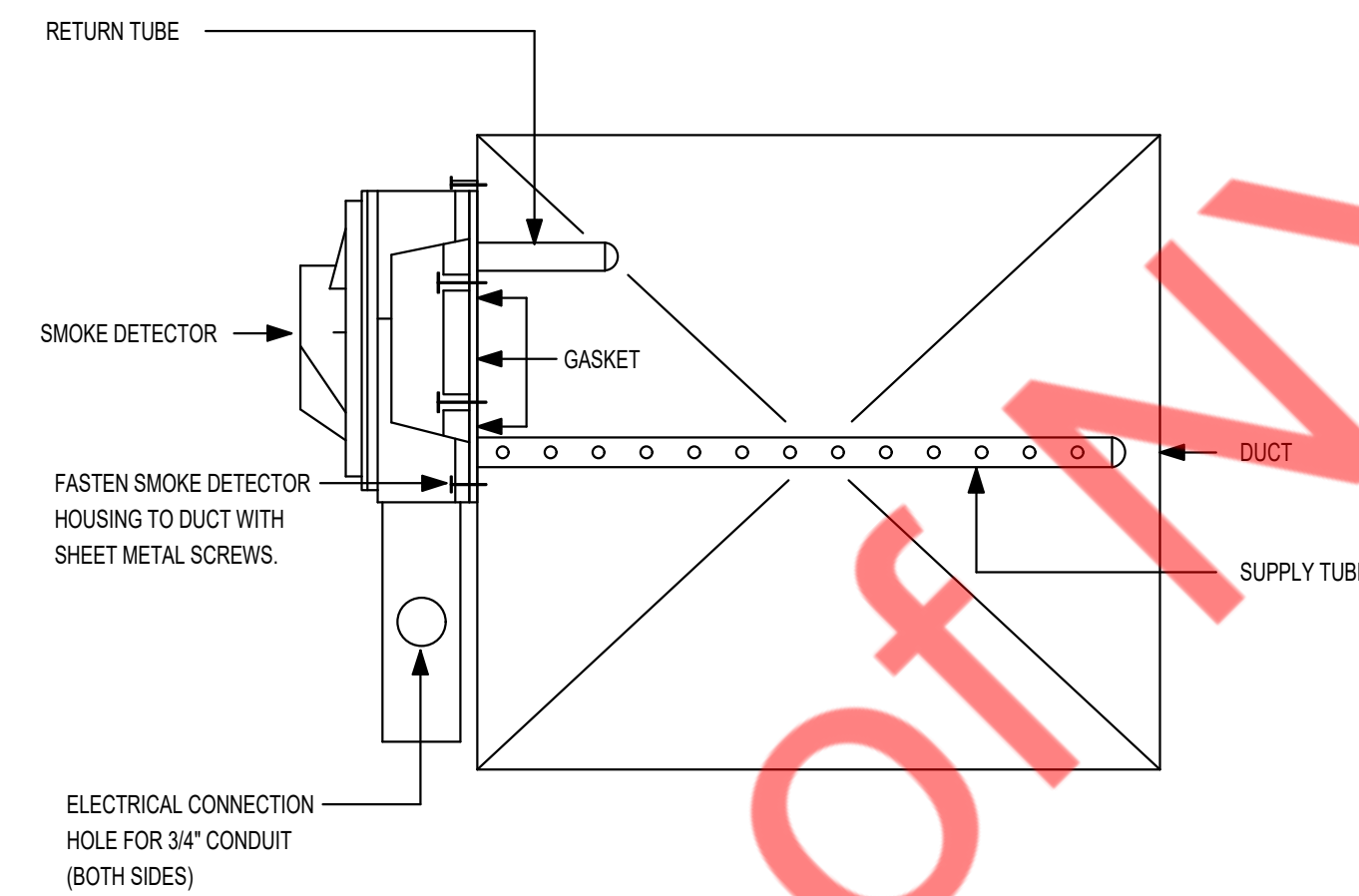
2 ACOUSTIC LINING DETAIL
SCALE: N.T.S.



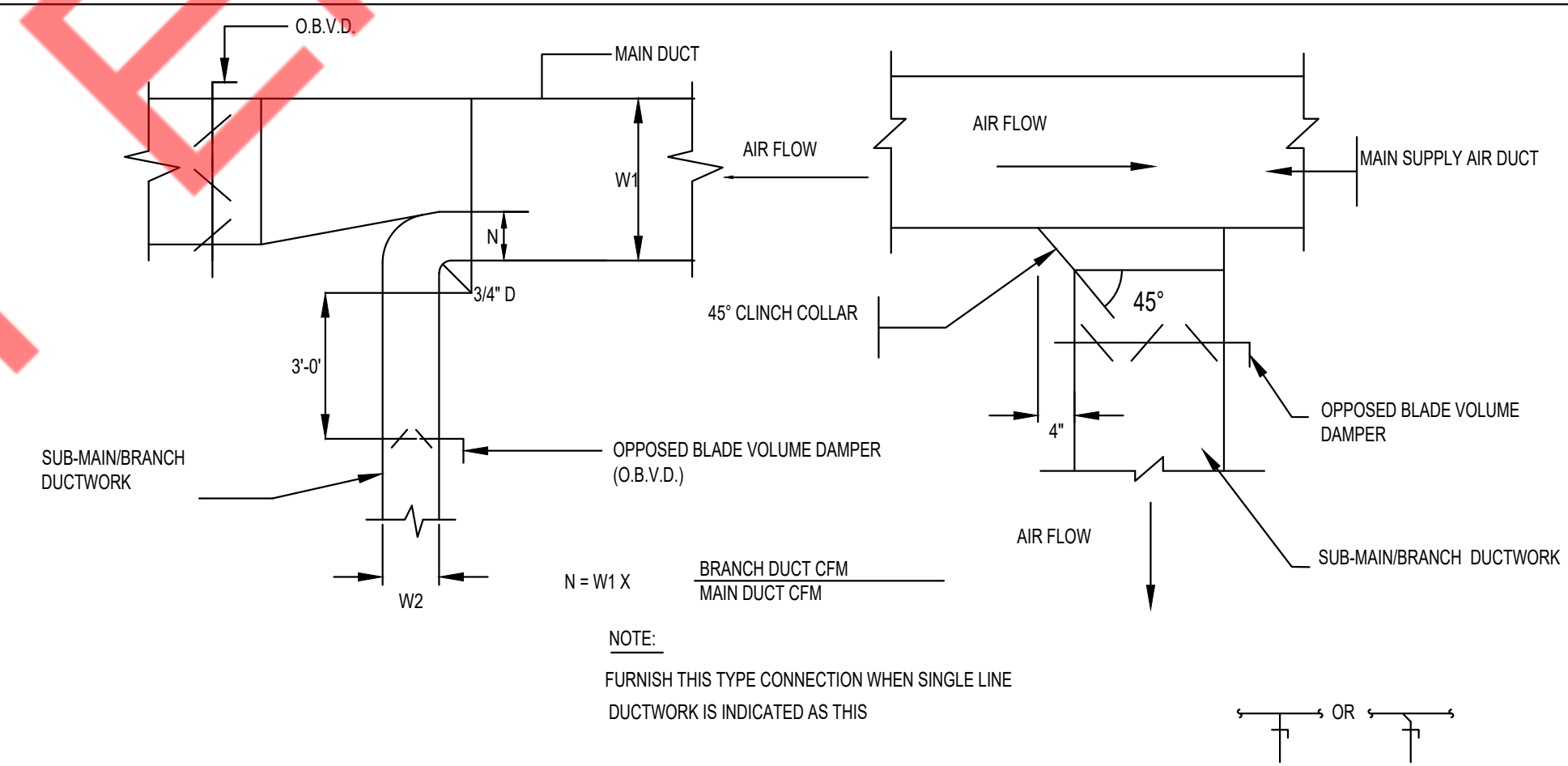
3 LOW VELOCITY DUCTWORK ELBOW
SCALE: N.T.S.



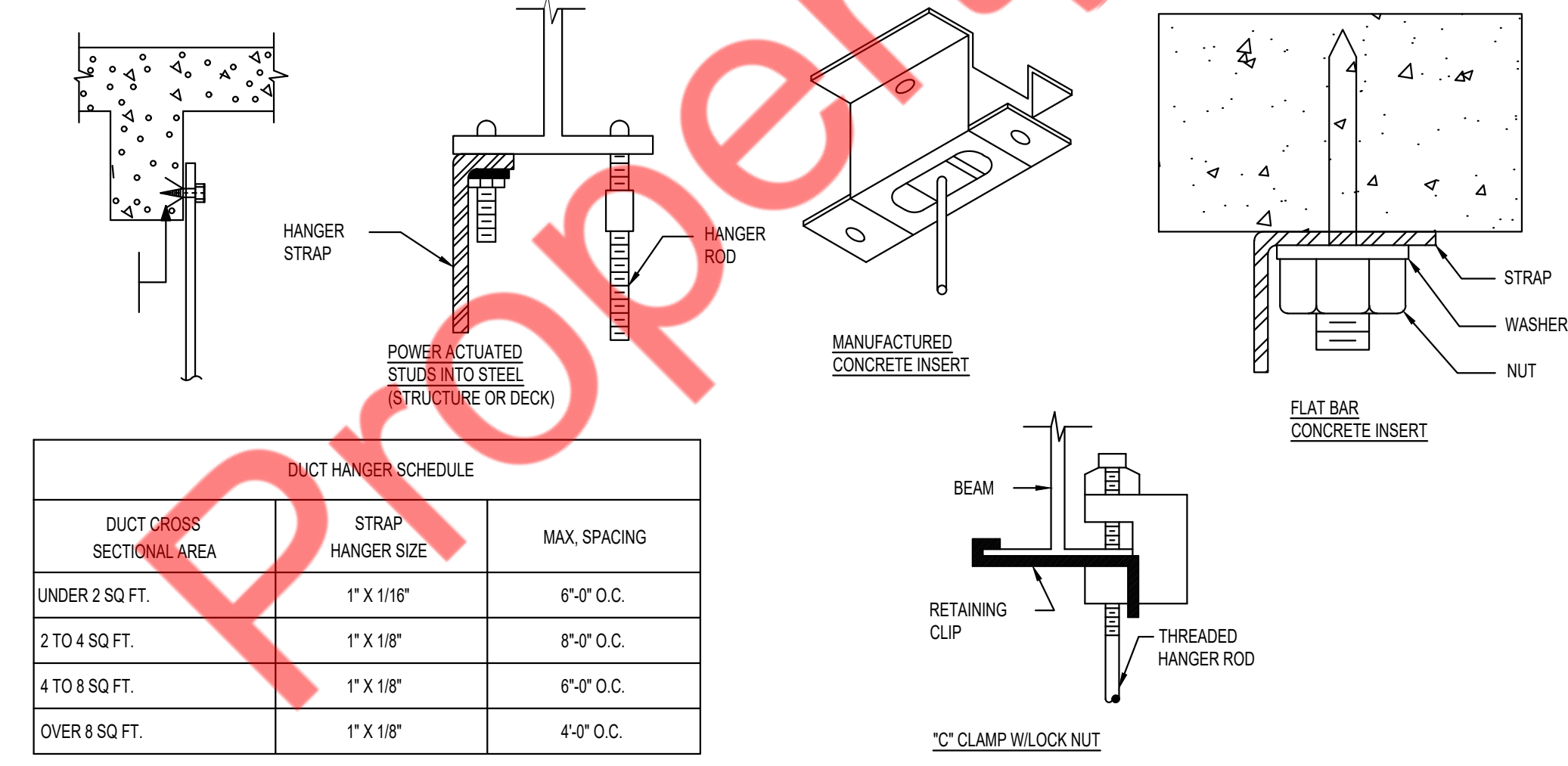
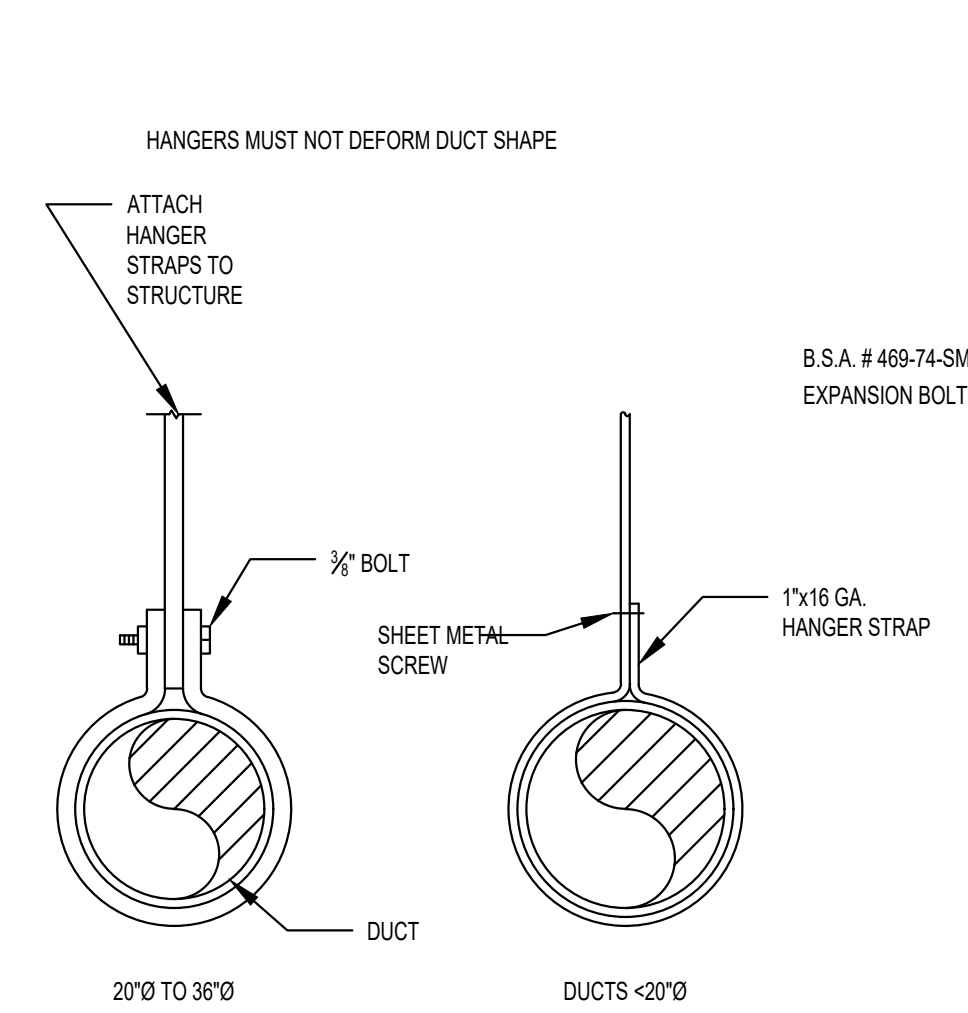
4 DIFFUSER CONNECTION DETAILS
SCALE: N.T.S.



5 SMOKE DETECTOR DETAIL
SCALE: N.T.S.

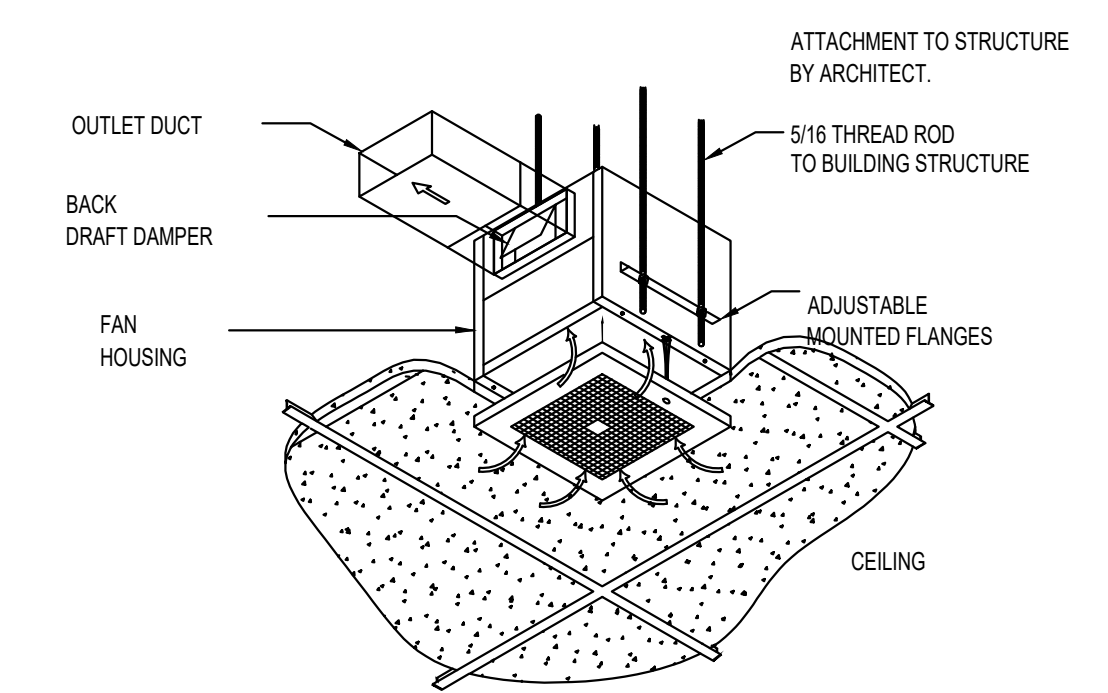


6 SUPPLY DUCT MAIN BRANCH TAP-OFF DETAILS
SCALE: N.T.S.



DUCT HANGER SCHEDULE		
DUCT CROSS SECTIONAL AREA	STRAP HANGER SIZE	MAX. SPACING
UNDER 2 SQ. FT.	1" X 1/16"	6'-0" O.C.
2 TO 4 SQ. FT.	1" X 1/8"	8'-0" O.C.
4 TO 8 SQ. FT.	1" X 1/8"	6'-0" O.C.
OVER 8 SQ. FT.	1" X 1/8"	4'-0" O.C.

7 TYPICAL DUCT HANGING DETAIL
SCALE: N.T.S.



8 CEILING MOUNTED FAN DETAIL
SCALE: N.T.S.

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04-01-2025 -- ISSUED FOR PERMIT

REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

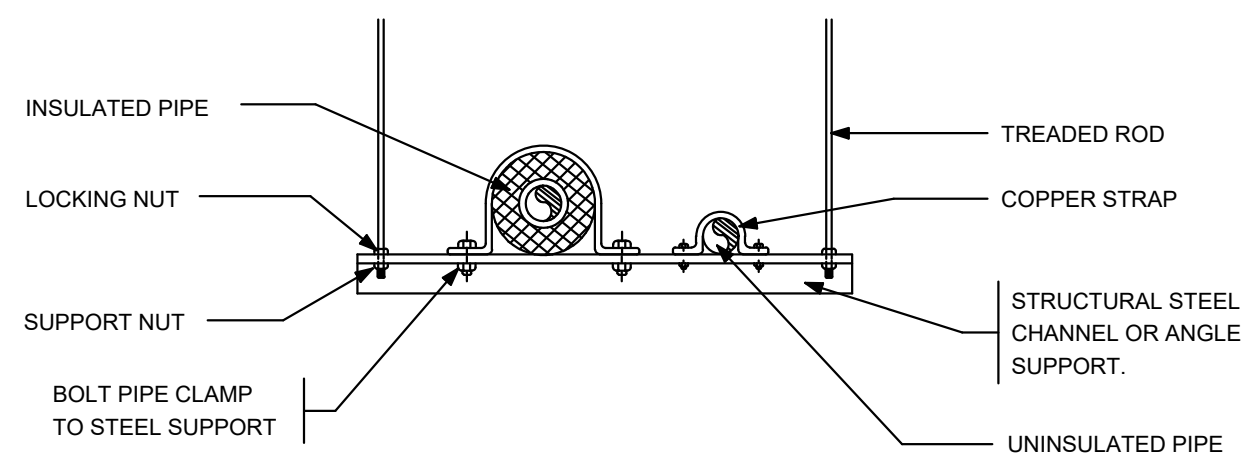
**MECHANICAL
DETAILS**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

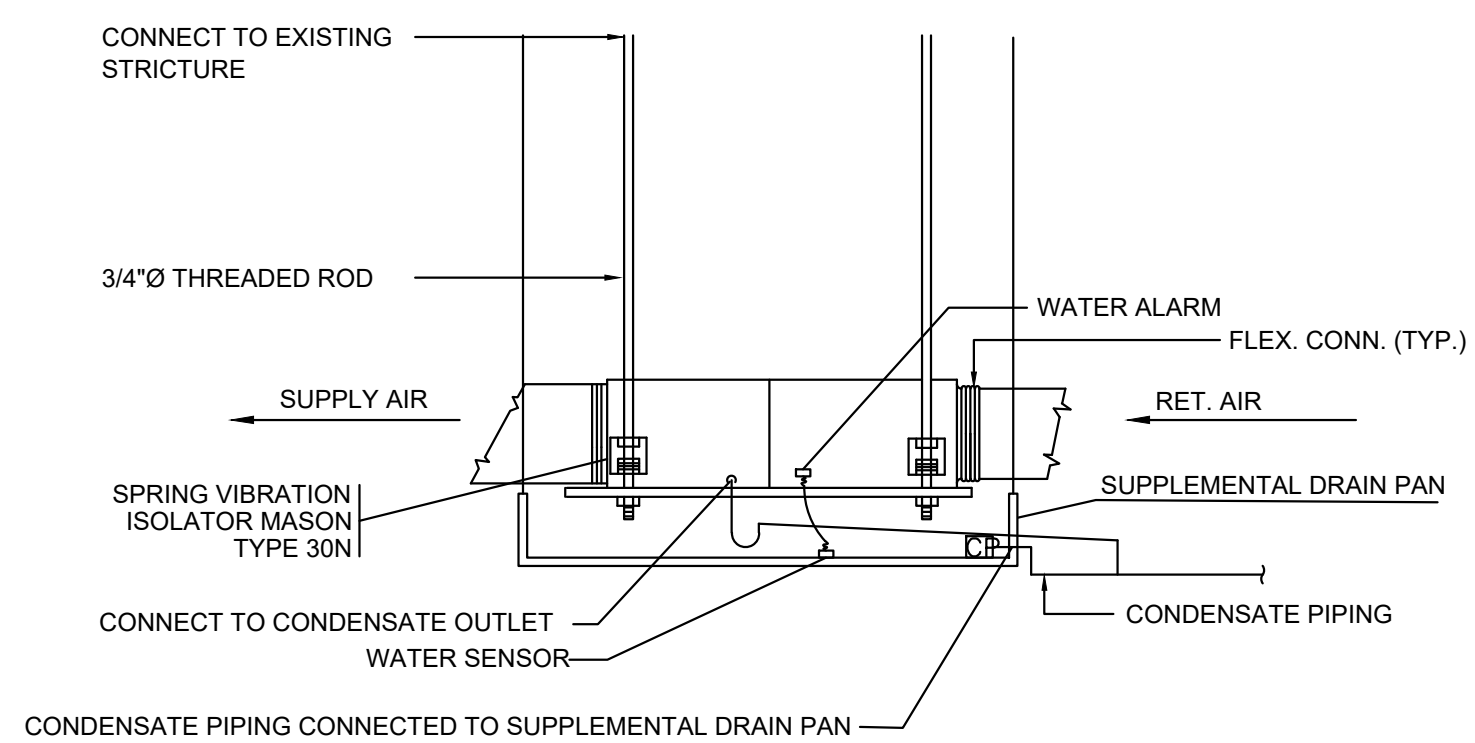
M-2.0



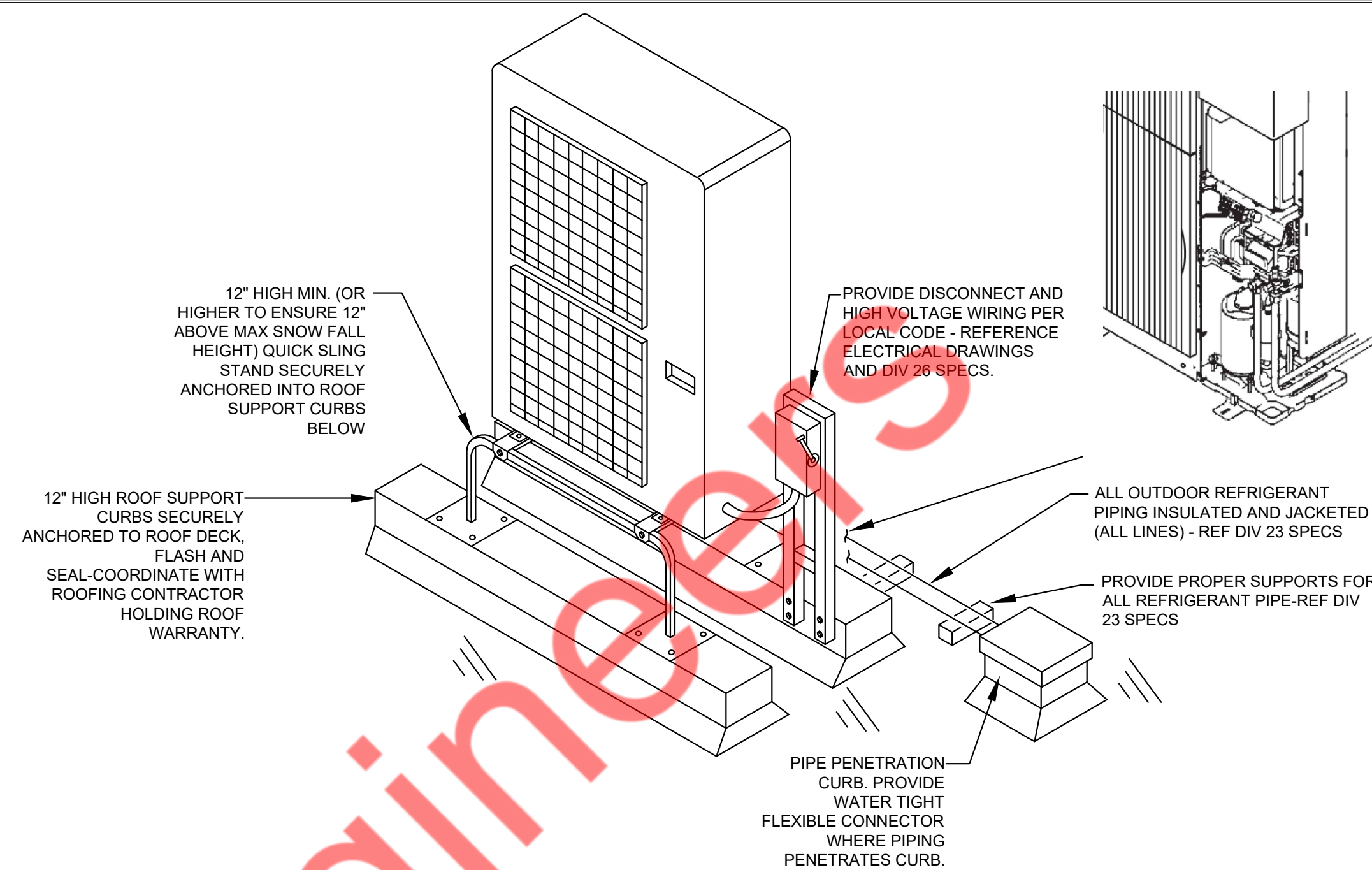
TYPICAL TRAPEZE HANGER SUPPORT

PIPE HANGER ROD AND SPACING SCHEDULE							
NOMINAL PIPE OR TUBE SIZE - INCHES	5/8	3/4	7/8	1	1 1/2	2	2 1/2
HANGER ROD SIZES INCHES	3/8	3/8	3/8	3/8	3/8	3/8	3/8
MAX. SPACING BETWEEN PIPE SUPPORTS - FEET	-	6	-	7	9	10	11
MAX. SPACING BETWEEN CU. TUBE SUPPORTS-FT.	6	6	6	6	8	9	10

NOTES: TRAPEZE HANGER SPACING SHALL BE BASED ON SPACING OF SMALLEST PIPE ON TRAPEZE. TRAPEZE SHALL BE DESIGNED WITH A FACTOR OF SAFETY OF 5 FOR CENTER OF SPAN CONCENTRATED LOAD.



2 TYPICAL AC UNIT INSTALLATION DETAIL
SCALE: N.T.S.



3 TYPICAL OUTDOOR UNIT INSTALLATION DETAILS
SCALE: N.T.S.

1 METHOD OF HANGING REFRIGERANT PIPING
SCALE: N.T.S.

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ROOF TOP UNIT SCHEDULE

UNIT ID	MANUFACTURER	EFFICIENCY	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN			HEATING CAPACITY (MBH)		COOLING				ELECTRICAL				OPERATING WEIGHT (LBS)	NOTES			
						TOTAL CFM	OUTSIDE AIR CFM	EXTERNAL STATIC PRESSURE (IN. W.G.)	INPUT	OUTPUT	TOTAL MBH	SENSIBLE MBH	AMBIENT DB (°F)	ENTERING DB / WB (°F)	VOLTS	PHASE	MCA(A)	MOCP(A)			EER	IEER	COP
RTU-5(E)	CARRIER & V.I.F.	STANDARD	48FCEA06 & V.I.F.	SEE ON PLAN	5 & V.I.F.	2000 & V.I.F.	340	0.6	110	88	60 & V.I.F.	S.A.E.	S.A.E.	S.A.E.	208	3	31 & V.I.F.	45 & V.I.F.	S.A.E.	S.A.E.	S.A.E.	900 & V.I.F.	1-8

- NOTES FOR EXISTING RTU:-
- EXISTING RTUs WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
 - S.A.E. : SAME AS EXISTING, V.I.F.: VERIFY IN FIELD
 - CONTRACTOR TO FIELD VERIFY IF ALL RTUs ARE WORKING AT THEIR 100% RATED CAPACITY. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNIT ON SITE.
 - IF REQUIRED, PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSOR COMPATIBLE WITH EXISTING RTU. CO-ORDINATE FINAL LOCATION OF T-SENSOR WITH ARCHITECT/OWNER.
 - CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON EXISTING RTU TO MATCH VALUES MENTIONED IN ABOVE TABLES.
 - REPLACE FILTERS, IF REQUIRED.
 - CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS, WIRE SIZES, BREAKER, DISCONNECT ETC. PRIOR TO ORDERING AND BID.

AC UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	LOCATION	AREA SERVED	TYPE	CAP. (TON)	COOLING MBH	HEATING MBH	TOTAL CFM	OUTDOOR CFM	MAX E.S.P. (IN. W.C.)	ELECTRICAL DATA			DIMENSIONS (LXWXD) (INCH)	PIPE SIZE (INCH)			WEIGHT (LBS.)
												PH/VOLT/Hz	MCA (A)	MOCP (A)		LIQ.	SUCTION	DRAIN (ID)	
															LIQ.				
AC-1(N)	DAIKIN OR EQUIVALENT	DFVE36CP1300 OR EQUIVALENT	SEE ON PLAN	SEE PLAN	MULTI-POSITION	3	28.8	34.6	1260	160	0.8	1/208-230/60	6.5	15	54X21X21	3/8"	7/8"	3/4"	140

- NOTES:-
- SUPPLY AIR CFM BASED ON HIGH SPEED.
 - REFRIGERANT R32 SHALL BE PROVIDED.
 - PROVIDE MOUNTING BRACKETS AND ALL ASSOCIATED ACCESSORIES.
 - ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
 - CEILING MOUNTED UNIT TO BE PROVIDED WITH THE APPROPRIATE FBM FILTER BOXES.
 - INDOOR UNIT ACCESS PANEL FIELD-PROVIDED.
 - CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.
 - ALL AC UNIT TO BE INCLUDED SECONDARY DRAIN PANS AS WELL AS WATER BUG SENSORS TO SHUT DOWN THE CORRESPONDING EQUIPMENT AND NOTIFY IN EVENT OF A WATER LEAKAGE.
 - ALL AC UNIT TO BE INSTALLED WITH VIBRATION ISOLATION (RESILIENTLY SUPPORTED) TO MINIMIZE SOUND AND VIBRATION INTO THE SPACE.

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL NO.	LOCATION	INDOOR UNIT SERVED	CAP. (TON)	COOLING MBH	HEATING MBH	ELECTRICAL DATA			PIPE SIZE (INCH)		DIMENSIONS (HXWXD) (IN.)	WEIGHT (LBS)	EER2/SEER2	HSPF2
								PH/VOLT/Hz	MCA (A)	MOCP (A)	LIQ.	SUCTION				
													LIQ.	SUCTION		
ACCU-1(N)	DAIKIN OR EQUIVALENT	DH6VSA3610AA OR EQUIVALENT	SEE PLAN	AC-1(N)	3	28.8	34.6	1/208-230/60	22.4	25	3/8"	7/8"	28X37X14	140	9.0/16.6	8.5

- NOTES:-
- UNIT SHALL HAVE TEN YEAR EXTENDED WARRANTY FOR COMPRESSORS/PARTS.
 - PROVIDE LOW AMBIENT CONTROL FOR CONDENSING UNIT OPERATION DOWN TO -4°F.
 - PROVIDE COMPRESSOR CYCLE PROTECTOR.
 - STEEL RAILS SUPPORT TO BE PROVIDED BY MECHANICAL CONTRACTOR.
 - CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.

VENTILATION CALCULATION

ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER IMC 2021	NUMBER OF PEOPLE AS PER IMC 2021	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER IMC 2021		REQ. OA (CFM)	PROVIDED OA (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT)	TOTAL EXHAUST (CFM)	PROVIDED EXHAUST (CFM)
						CFM/PEOPLE	CFM/SQ.FT					
DINING AREA	454.7	70	32	20	20	7.5	0.18	232	500	-	-	-
SERVICE AREA	197	20	4	0	4	7.5	0.12	54		-	-	-
HALLWAY	84.6	0	0	0	0	0	0.06	5		-	-	-
KITCHEN AREA	529	20	11	0	12	7.5	0.12	153		-	-	-
RESTROOM-1	53.1	0	0	0	0	0	0	0		70	70	70
RESTROOM-2	53.4	0	0	0	0	0	0	0		70	70	70
TOTAL	1371.8	-	46	20	36	-	TOTAL	444		500	TOTAL	-

AIR BALANCE

UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR(CFM)
RTU-5(E)	SEE PLAN	2000	340	1660	0
AC-1(N)	SEE PLAN	1260	160	1100	0
EF-1(N)	SEE PLAN	0	0	0	70
EF-2 (N)	SEE PLAN	0	0	0	70
TOTAL:		3260	500	2760	140
BUILDING PRESSURE:			360	POSITIVE	

NOTES:
1. CONTRACTOR TO ADJUST MOTORIZED DAMPER ON FRESH AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.

SCHEDULE OF GRILLES/DIFFUSER

TAG	TYPE	MODEL NO.	DIMENSION(IN)	MOUNTING	FRAME TYPE	MAX NC dBA
S-1	SUPPLY	OMNI	24X24	SAT / HARD CEILING	LAY IN	20
S-2	SUPPLY	OMNI	12X12	SAT / HARD CEILING	LAY IN	20
R-1	RETURN	5OFF	24X24	SAT / HARD CEILING	LAY IN	20

- NOTES FOR DIFFUSERS
- ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.
 - COORDINATE COLOR/FINISH WITH ARCHITECT.
- FOR ROUND NECK DIFFUSERS:
FOR ROUND DIFFUSER NECK SIZE
- | | |
|----------------------|---------------------------|
| 6" DIA: 0-100 CFM | 6"X6" : 0 - 115 CFM |
| 8" DIA: 101-175 CFM | 8"X8" : 116 - 220 CFM |
| 10" DIA: 176-275 CFM | 10"X10" : 221 - 350 CFM |
| 12" DIA: 276-395 CFM | 12"X12" : 351 - 520 CFM |
| 14" DIA: 396-535 CFM | 14"X14" : 521 - 730 CFM |
| 15" DIA:536-750 CFM | 16"X16" : 731 - 840 CFM |
| | 18"X18" : 840 - 1035 CFM |
| | 20"X20" : 1036 - 1285 CFM |
| | 22"X22" : 1286 - 1570 CFM |

FAN SCHEDULE

UNIT ID	MANUFACTURER	CFM	ESP(IN W.G.)	HP	VOLTS/PH	FLA(A)	WEIGHT (LBS)	MODEL	NOTES
EF-1(N)	GREENHECK	70	0.5	-	115/1	1.5	24	SP-A390-VG	1,2,3
EF-2(N)	GREENHECK	70	0.5	-	115/1	1.5	24	SP-A390-VG	1,2,3

- NOTES:
1. PROVIDE GRAVITY BACKDRAFT DAMPER.
4. INSTALL AS PER MANUFACTURER RECOMMENDATION.
3. INTERLOCK WITH RTU-5(E).

04-01-2025 -- ISSUED FOR PERMIT

REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**MECHANICAL
DETAILS &
SCHEDULE**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

M-2.1

SHEET 7 OF 7

PLUMBING SYMBOL LIST

— SAN —	SANITARY SEWER (ABOVE FLOOR)
— SAN —	SANITARY SEWER (UNDERGROUND)
— EX.SAN —	EXISTING SANITARY SEWER (UNDERGROUND)
— GW —	GREASE WASTE (UNDERGROUND)
— FW —	FILTER WATER PIPING
— — — — —	VENT PIPING
— — — — —	COLD WATER PIPING
— — — — —	HOT WATER PIPING
— — — — —	EXISTING COLD WATER PIPING
— — — — —	EXISTING HOT WATER PIPING
— — — — —	HOT WATER RETURN PIPING
— — — — —	P-TRAP
— — — — —	PIPE UP
— — — — —	PIPE DROP
— — — — —	CLEANOUT
— — — — —	PLUGGED OUTLET/CLEANOUT
— — — — —	SHUT-OFF VALVE
— — — — —	POINT OF CONNECTION
— — — — —	ANGLE VALVE
— — — — —	RECIRCULATION PUMP
— — — — —	BALANCING VALVE

PLUMBING ABBREVIATIONS

CO	CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
N.I.C.	NOT IN SCOPE
AAV	AIR ADMITTANCE VALVE
GW	GREASE WASTE
RO	REVERSE OSMOSIS
GCO	GRADE CLEANOUT

PLUMBING DRAWING LIST

P-0.1	PLUMBING NOTES, SYMBOLS, ABBREVIATIONS & SPECIFICATIONS
P-0.2	PLUMBING SPECIFICATIONS
P-1.0	PLUMBING WATER & GAS FLOOR PLAN
P-1.1	PLUMBING SANITARY FLOOR PLAN
P-2.0	PLUMBING DETAILS
P-3.0	PLUMBING SCHEDULE & RISER DIAGRAMS

BUILDING DEPARTMENT PLUMBING NOTES

- ALL PLUMBING SYSTEMS (SANITARY WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE.
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE SECTION 704.
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER 2021 INTERNATIONAL PLUMBING CODE SECTION 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER 2021 INTERNATIONAL PLUMBING CODE SECTION 306.
- RODENT PROOFING AS PER 2021 INTERNATIONAL PLUMBING CODE 304.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2012 INTERNATIONAL PLUMBING CODE SECTION PC 303, 605, 702, AND 902.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER 2021 INTERNATIONAL PLUMBING CODE SECTION 1002 AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE SECTION 308.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE CHAPTE 6 SECTION 601-603, 604, 605, 606, 607, 608, 610.
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE CHAPTE 7 SECTION 701, 704, 705, 706, 707, 708, 711.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE CHAPTER 9 SECTIONS 917.
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH 2021 INTERNATIONAL PLUMBING CODE SECTION 312.

APPLICABLE CODES

- 2021 INTERNATIONAL BUILDING CODE
- 2021 INTERNATIONAL MECHANICAL CODE
- 2021 INTERNATIONAL PLUMBING CODE
- 2021 INTERNATIONAL FIRE CODE
- 2021 NATIONAL ELECTRICAL CODE
- 2021 INTERNATIONAL ENERGY CONSERVATION CODE.

PLUMBING SPECIFICATIONS

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

1.01 SCOPE

- PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
- OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
- THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
- IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
- ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
- COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.

- MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.

- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.

- THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

1.02 SUBMITTALS

- SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.

- PIPE AND FITTINGS
- VALVES
- HANGERS AND SUPPORTS
- PLUMBING PIPING LAYOUT
- TESTS
- PLUMBING FIXTURES
- WATER HEATERS & ACCESSORIES
- MIXING VALVES
- ALL SCHEDULED PLUMBING EQUIPMENT

- SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.

- THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.

- REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.

- SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.

- SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.

- FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.

- RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

1.03 SUBSTITUTIONS

- ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.

- THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

1.05 DEFINITIONS

- FURNISH TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.

- INSTALL: TO ERRECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

- PROVIDE: TO FURNISH AND INSTALL.

- PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.

1.06 DRAWINGS

- THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.

- PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

- REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.

- REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

- VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

- LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

1.07 PRODUCTS

A. SANITARY AND VENT PIPING:

- ABOVE GRADE PIPING SHALL BE HUB AND SPIGOT CAST IRON PIPE AS PER ASTM A74 WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM 4 BANDS PER COUPLING.
- SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.

- ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

B. DOMESTIC WATER PIPING:

- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER OR COPPER ALLOY.
- JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
- THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
- COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
- ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH 2021 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.4 TABLE C403.2.10.

MINIMUM PIPE INSULATION THICKNESS				
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)	
	CONDUCTIVITY BTU·IN./ (H·FT ² ·°F)	MEAN RATING TEMPERATURE, °F	< 1	1 to ≥ 8
141-200	0.25-0.29	125	1.5	2
109-140	0.21-0.28	100	1.0	1.5
40-60	0.21-0.27	75	0.5	1.0

- WATER DISTRIBUTION SYSTEM AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE C404.7, HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. GRAVITY AND THERMO-SYPHON CIRCULATION SYSTEMS SHALL BE PROHIBITED. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NOT A DEMAND FOR HOT WATER.

- THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
 - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
- HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.5.1. THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE C404.5.1.

NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1½"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

C. HANGERS AND SUPPORTS:

- HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
- SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
- PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

D. VALVES:

- PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4". PROVIDE GATE VALVES, PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
- ALL FIXTURES WITH THE EXCEPTION OF FLUSHMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
- ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
- ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
- ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
- PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

- INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.
- INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.

- IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.

- REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

- VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

- IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.

- PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.

- PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

- ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

- ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

- WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

- AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

- INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

2. INSTALLATION

2.01 GENERAL

- ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.

- EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECT.

- EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.

- COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.

- REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.

- REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.

- COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.
- NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.

- PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.

- THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.

- WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

2.02 ABOVE GRADE

- INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES.

- ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE, MAINTAIN GRADIENT, SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN DOMESTIC WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES AND ALL LOW POINTS IN PIPING.

- USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

3. TESTING

- AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.

- TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.

- THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING. EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS, FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.

- THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.

- ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.

- WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING WORK.

- ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.

- ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND THE OWNER'S REPRESENTATIVE.

- ALL EQUIPMENT WILL BE FACTORY TESTED.

- CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.

- REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

- TESTING REQUIREMENTS
 - TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125 PSIG.
 - HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES.
 - TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
 - THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.

- REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.

- THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

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4. WARRANTY
 A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

E. ELECTRIC WATER HEATER

1. TANK SHALL 50 GALLON CAPACITY AND SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH EXTRUDED HIGH DENSITY ANODE.
2. ALL INTERNAL SURFACES OF THE HEATER EXPOSED TO WATER SHALL BE GLASS-LINED WITH AN ALKALINE BORO SILICATE COMPOSITION THAT HAS BEEN FUSED-TO-STEEL BY FIRING AT A TEMPERATURE RANGE OF 1400°F TO 1600°F.
3. ELECTRIC HEATING ELEMENTS SHALL BE LOW WATT DENSITY GOLDENROD 1" SCREW-IN TYPE.
4. EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT-OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

F. HOT WATER RE-CIRCULATING PUMP

1. IN-LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
2. THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON-OVERLOADING AT ANY POINT ON PUMP CURVE.
3. DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE DRIP-PROOF, SLEEVE-BEARING, QUIET OPERATING, RUBBER-MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
4. INSTALL IN-LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN-LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.

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REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:

Beans & Brews
 COFFEE HOUSE
 INTERIOR ALTERATION

SHEET TITLE:

**PLUMBING
 SPECIFICATIONS**

PROJECT NUMBER 25-005

DATE 02-10-2025

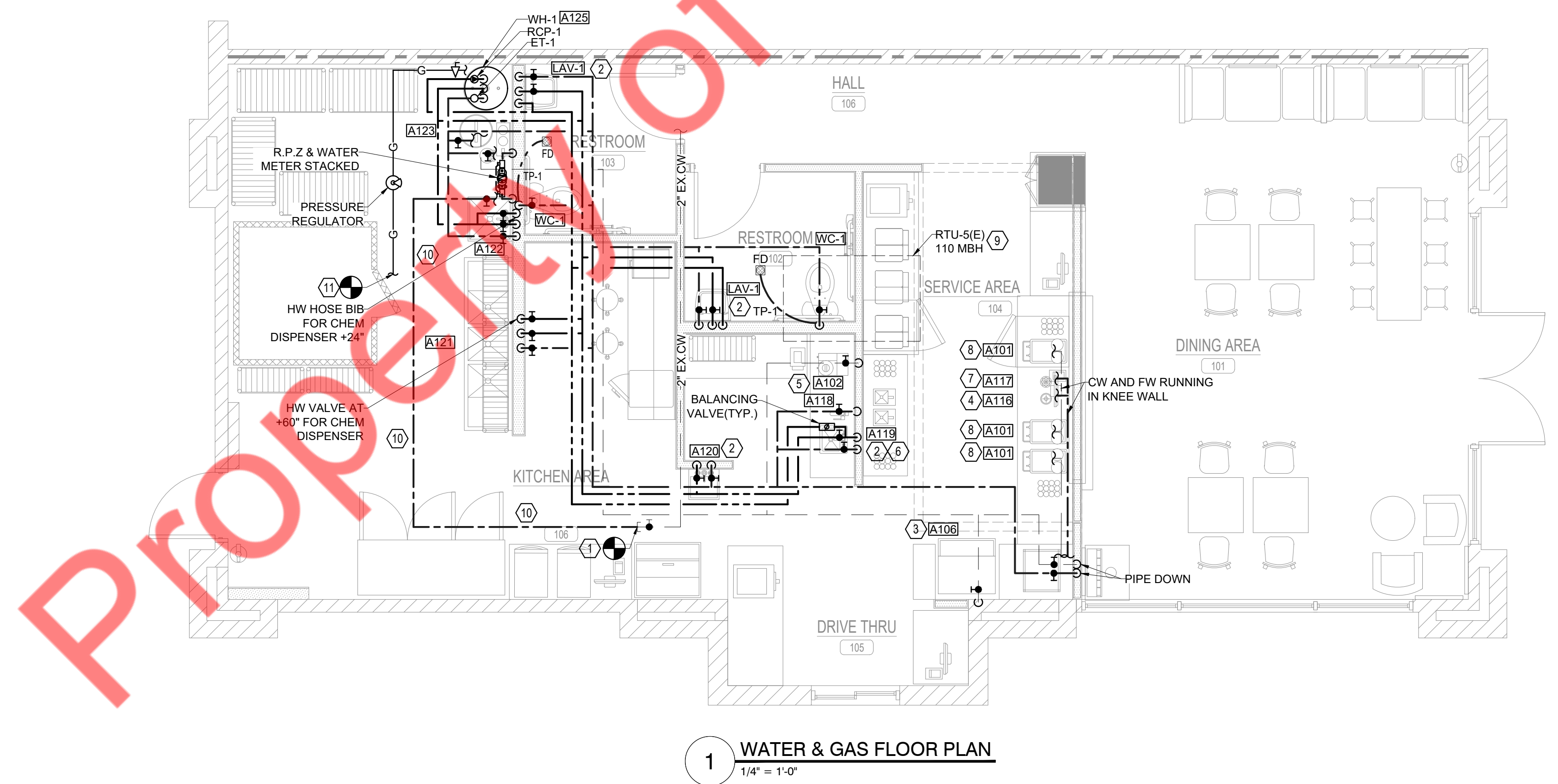
SHEET NO.

P-0.2

- WATER GENERAL NOTES:
1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE.
 2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
 3. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
 4. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
 5. WATER HEATER DRAIN SPILLS TO THE FLOOR DRAIN.

- GAS GENERAL NOTES:
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS.
 2. GAS PIPING TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
 3. VERIFY ALL EQUIPMENT BTU'S PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TO 2021 INTERNATIONAL FUEL GAS CODE TABLE 402.4(2).

- WATER KEY NOTES: (#)
1. CONNECT NEW 1" CW PIPING TO THE EXISTING COLD WATER LINE IN SPACE WITH NEW WATER METER AND NEW BACKFLOW PREVENTER. CONTRACTOR TO FIELD VERIFY THE SIZE, ROUTING AND LOCATION OF EXISTING CW LINE.
 2. PROVIDE A TEMPERATURE MIXING VALVE FOR LAVATORY, HAND SINK AND DUMP SINK. SET TEMPERATURE TO A MAXIMUM OF 110°F.
 3. ICE MACHINE - PROVIDE 1/2" RO WATER WITH BFP-1 AT 84" A.F.F..
 4. SPOON DIPPER WELL - PROVIDE 1/2" CW CONNECTION.
 5. COFFEE BREWER - PROVIDE 1/2" FW CONNECTION. PROVIDE BFP-1.
 6. DUMP SINK - PROVIDE 1/2" CW AND HW CONNECTIONS TO FAUCET.
 7. CUP RINSER - PROVIDE 1/2" CW CONNECTION.
 8. ESPRESSO MACHINE - PROVIDE 1/2" RO WATER TO 3/8" CONN. AT 24" A.F.F. PROVIDE BFP-1.
 9. EXISTING MECHANICAL UNIT RTU-5(E) TO REMAIN WITH EXISTING GAS CONNECTION AND ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING GAS PIPING AND REPLACE IF REQUIRED.
 10. NO TAP OFF BEFORE RPZ.
 11. CONNECT NEW 3/4" GAS PIPING TO EXISTING GAS PIPING IN AREA. CONTRACTOR TO FIELD VERIFY THE SIZE, ROUTING AND LOCATION OF EXISTING GAS PIPING.



1 WATER & GAS FLOOR PLAN
1/4" = 1'-0"

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REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
**PLUMBING
WATER & GAS
FLOOR PLAN**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

P-1.0

SHEET 3 OF 6

GREASE TRAP (GI-1) SIZING CALCULATIONS				
SR. NO.	FIXTURE	QUANTITY	DFU	TOTAL DFUS
1	FLOOR SINK	4	5	20
2	MOP SINK	1	5	5
3	FLOOR DRAIN	3	5	15
4	HAND SINK	1	2	2
TOTAL				42

AS PER 2021 INTERNATIONAL PLUMBING CODE, (TABLE 1014.3.6) FOR 42 DFUS, MINIMUM OF 1250 GALLONS GREASE INTERCEPTOR IS REQUIRED.

- SANITARY GENERAL NOTES:**
- CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
 - REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
 - THE VENT SHALL RISE 6 INCHES VERTICALLY ABOVE THE FLOOD RIM LEVEL OF THE FIXTURE BEING VENTED BEFORE OFFSETTING HORIZONTALLY OR VERTICALLY DOWNWARD BEFORE CONNECTING TO THE OUTSIDE VENT TERMINAL.

- SANITARY AND VENT KEY NOTES: (#)**
- CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING 4" SANITARY PIPE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING AND INVERT OF EXISTING PIPE ON SITE.
 - CONNECT NEW 4" GREASE WASTE PIPING TO EXISTING GREASE 4" WASTE PIPE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING AND INVERT OF EXISTING PIPE ON SITE.
 - ROUTE INDIRECT CONDENSATE DRAIN FROM WATER HEATER TO VERTICAL DRAIN WITH APPROVED AIR GAP.
 - ROUTE INDIRECT DRAIN FROM RPZ & WATER SOFTENER TO VERTICAL DRAIN WITH APPROVED AIR GAP.
 - ROUTE INDIRECT DRAIN FROM ESPRESSO MACHINE, SPOON DIPPERWELL & CUP RINSER TO FLOOR SINK WITH APPROVED AIR GAP.
 - ROUTE INDIRECT DRAIN FROM ICE MACHINE TO FLOOR SINK WITH APPROVED AIR GAP.
 - ROUTE INDIRECT DRAIN FROM COFFEE BREWER AND DUMP SINK TO FLOOR SINK WITH APPROVED AIR GAP.
 - ROUTE INDIRECT DRAIN FROM 3-COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.

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 INTERIOR ALTERATION

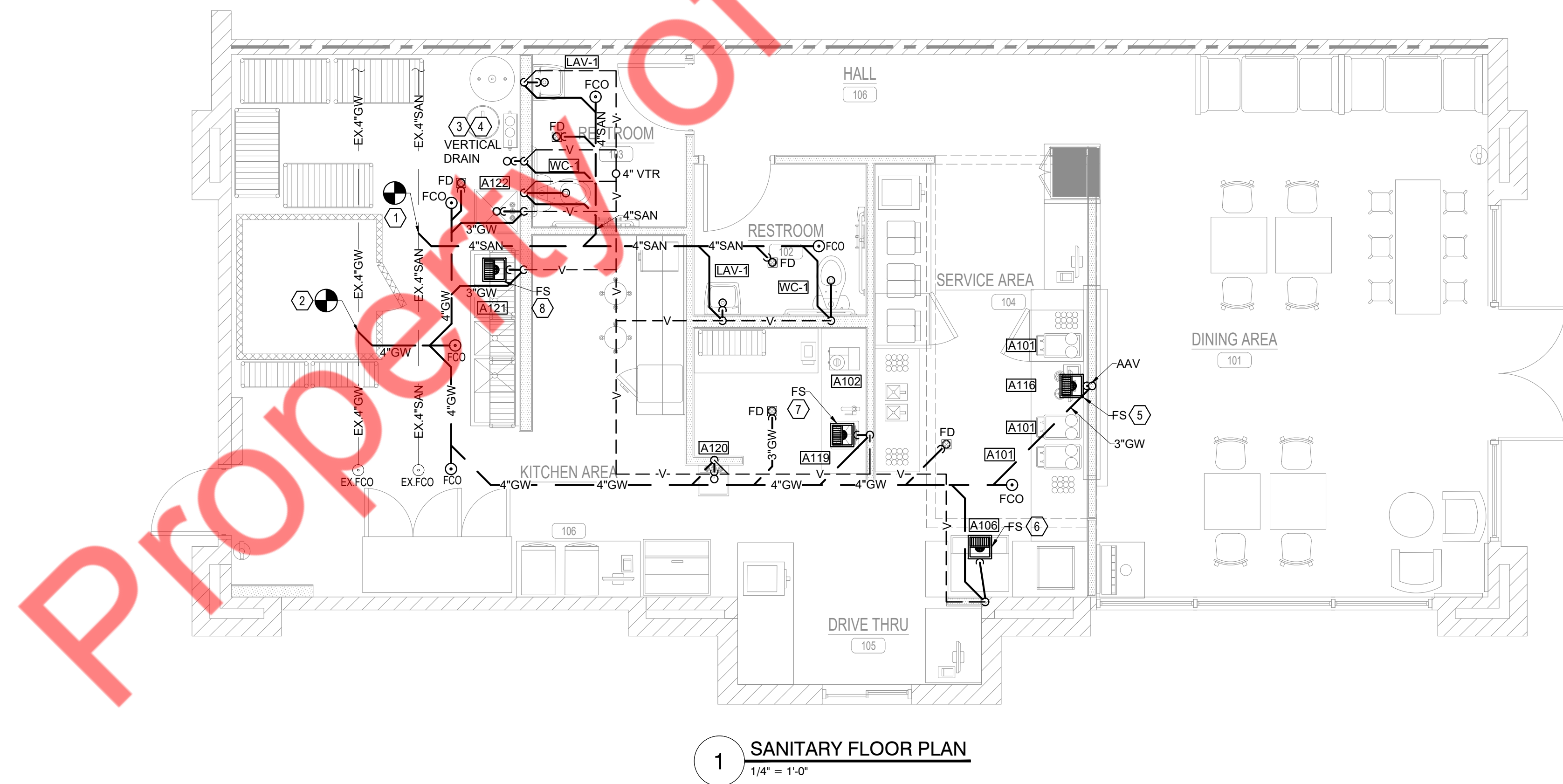
SHEET TITLE:
**PLUMBING
 SANITARY
 FLOOR PLAN**

PROJECT NUMBER 25-005

DATE 02-10-2025

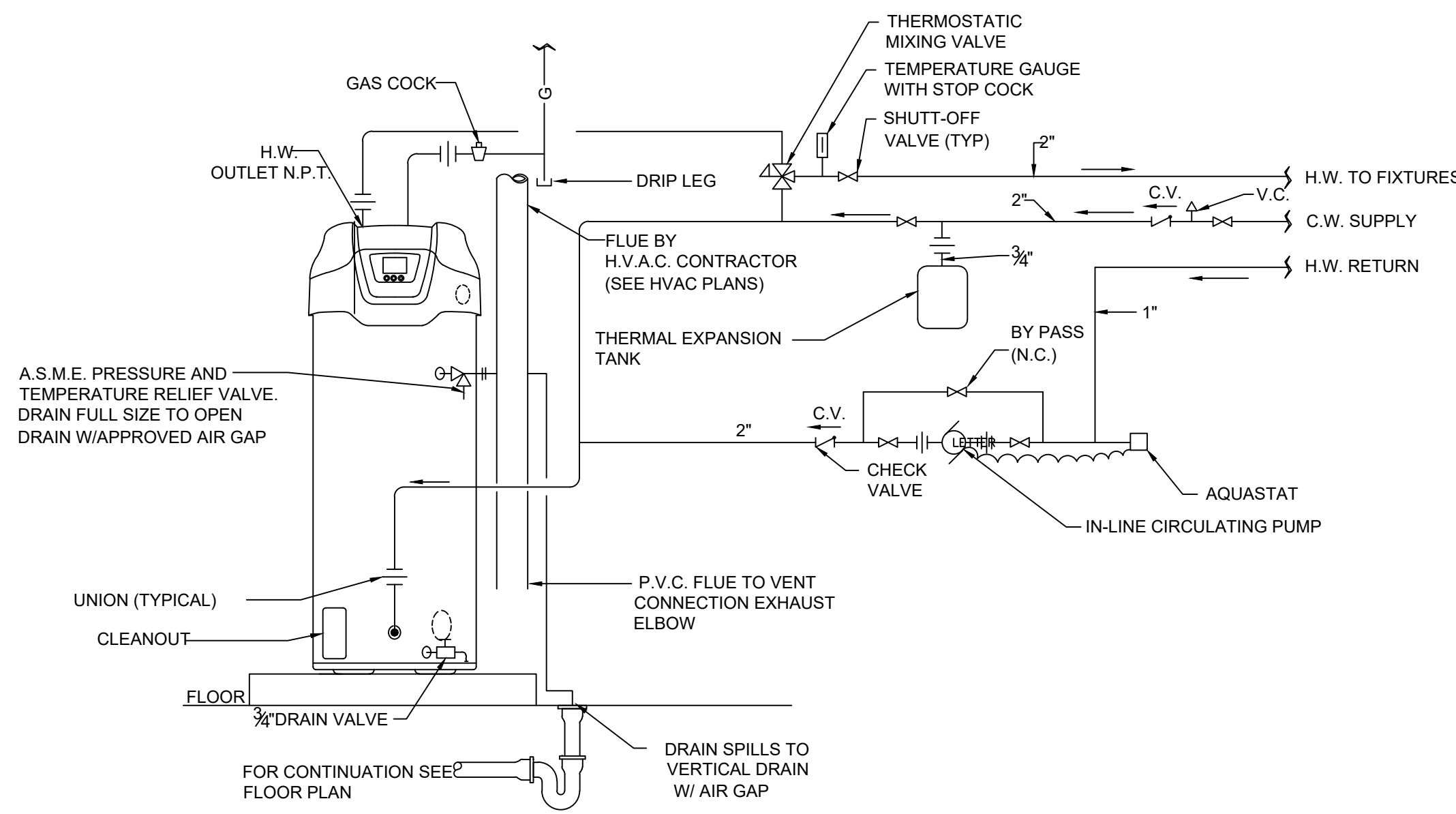
SHEET NO.

P-1.1

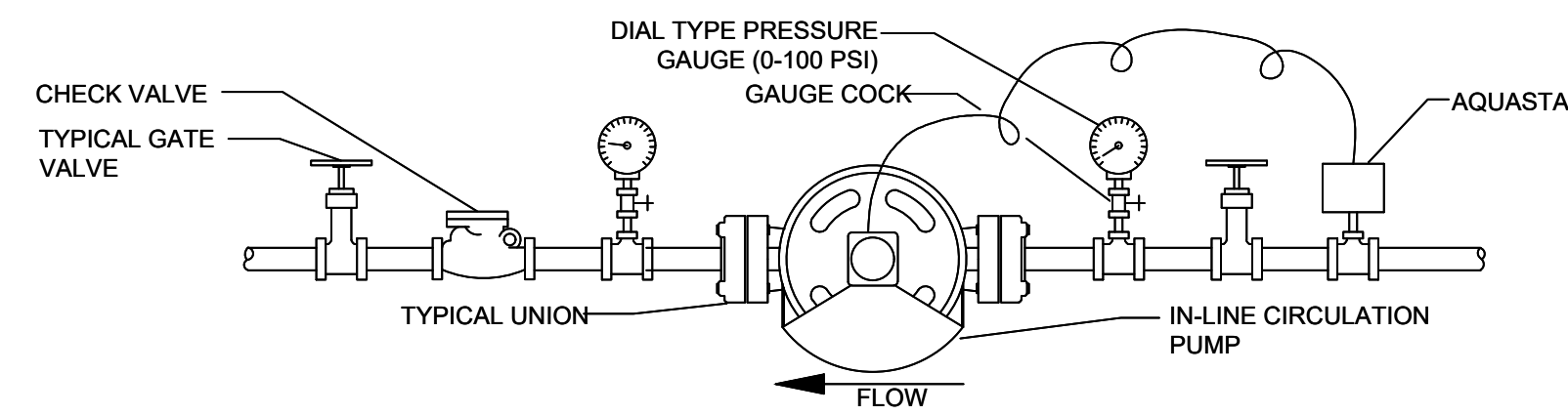


1 SANITARY FLOOR PLAN
 1/4" = 1'-0"

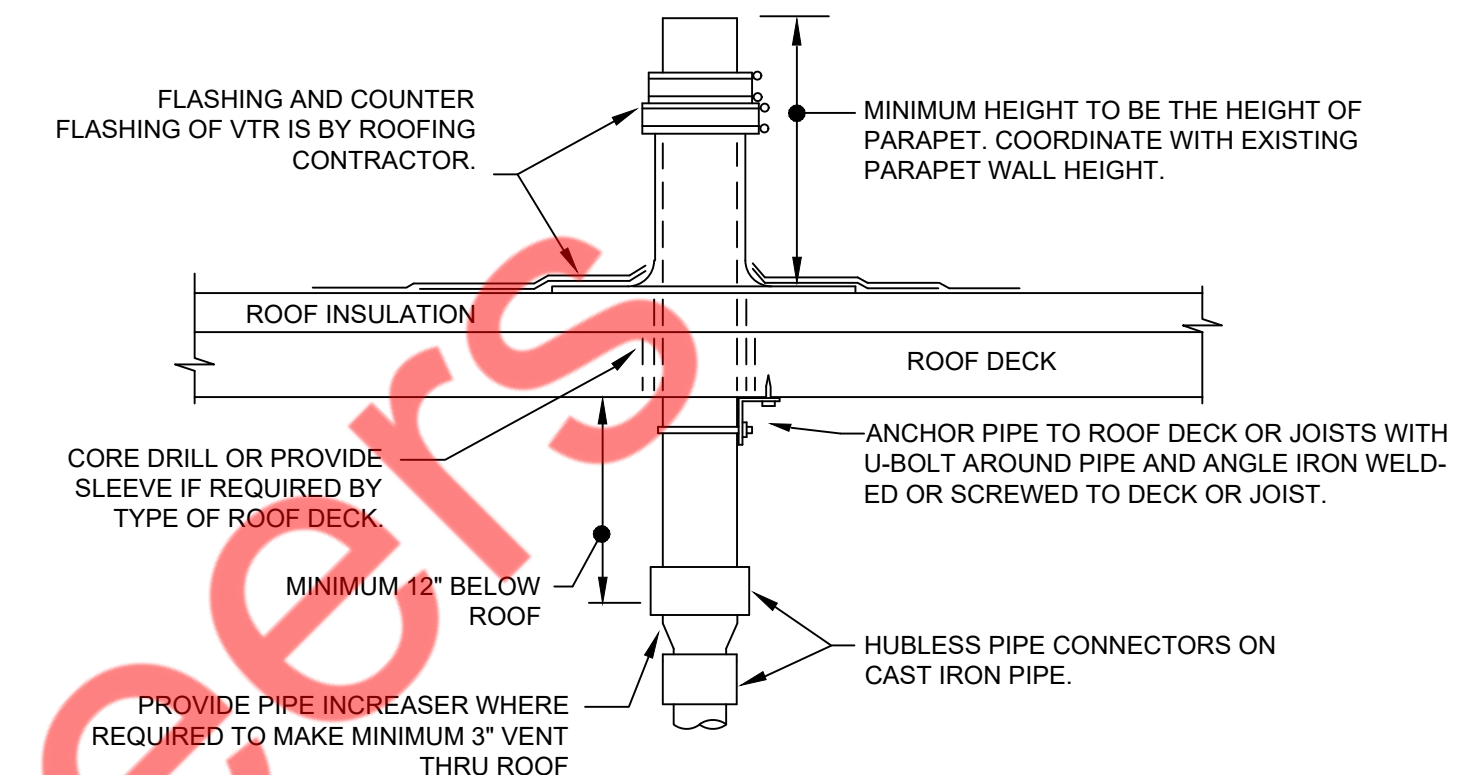
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1 WATER HEATER DETAIL
SCALE: N.T.S.

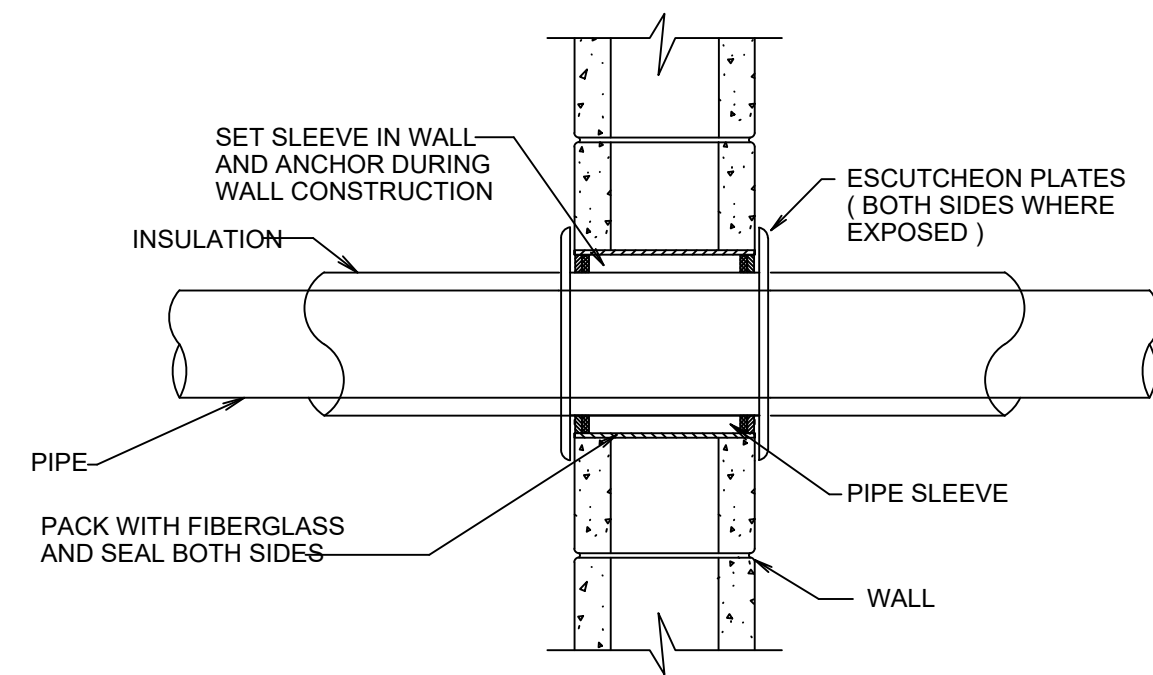


2 IN-LINE RETICULATING PUMP DETAIL
SCALE: N.T.S.

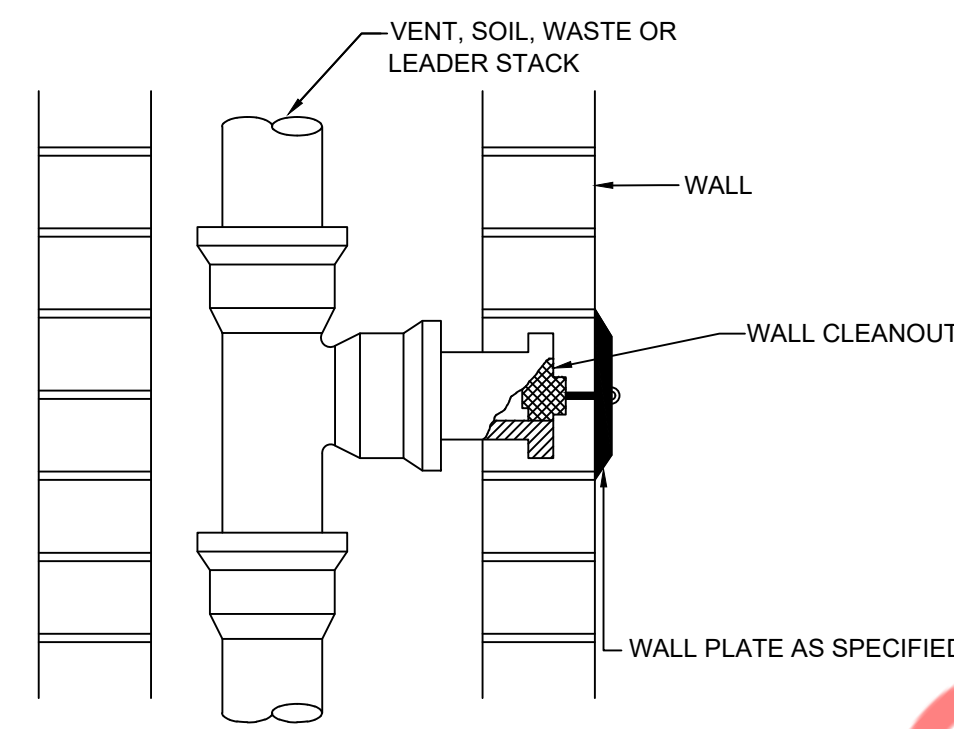


COMMENTS:
1. REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VTR MINIMUM THREE FEET FROM PROPERTY LINE, OR TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, OR ONE FOOT FROM ANY VERTICAL SURFACE. LOCATE VTR MINIMUM 18" FROM PARAPET, EXPANSION JOINT, EQUIPMENT CURB, ETC. OFFSET IN CEILING SPACE WHERE REQUIRED TO MEET THESE CONDITIONS.

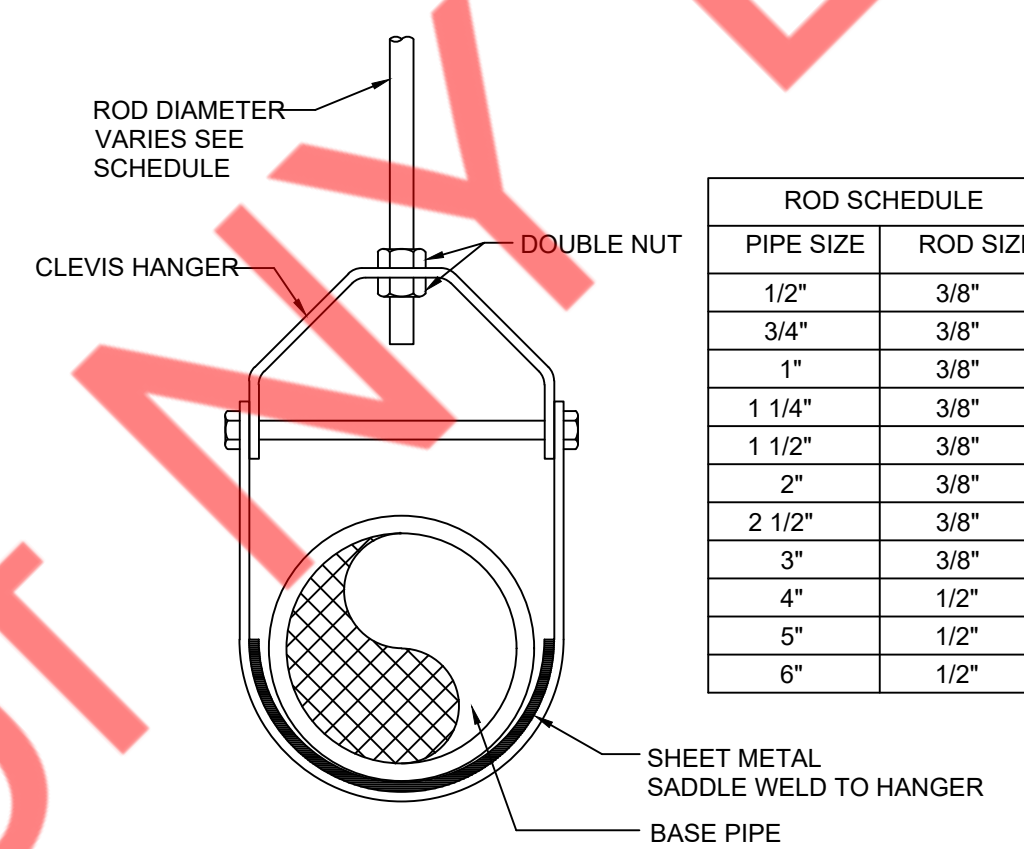
3 VENT THRU ROOF DETAIL
SCALE: N.T.S.



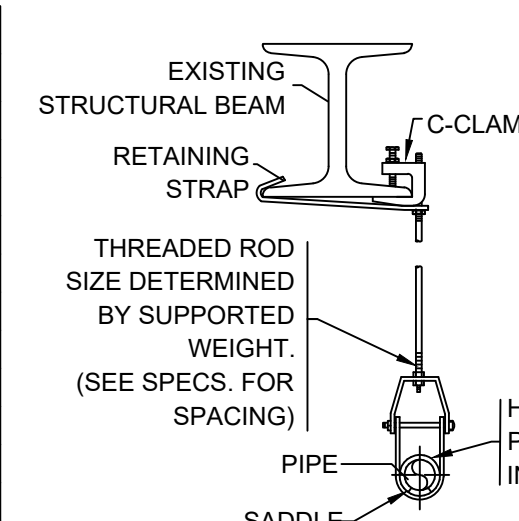
4 PIPE SLEEVE THRU WALL SECTION
SCALE: N.T.S.



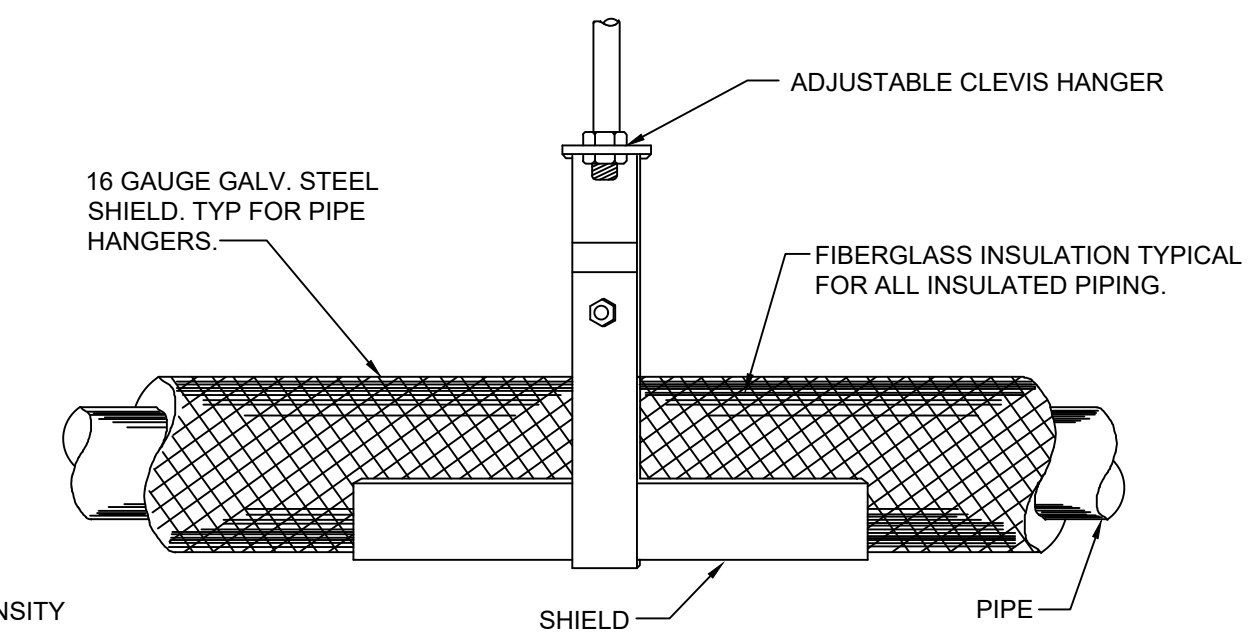
5 WALL CLEANOUT DETAIL
SCALE: N.T.S.



ROD SCHEDULE	
PIPE SIZE	ROD SIZE
1/2"	3/8"
3/4"	3/8"
1"	3/8"
1 1/4"	3/8"
1 1/2"	3/8"
2"	3/8"
2 1/2"	3/8"
3"	3/8"
4"	1/2"
5"	1/2"
6"	1/2"



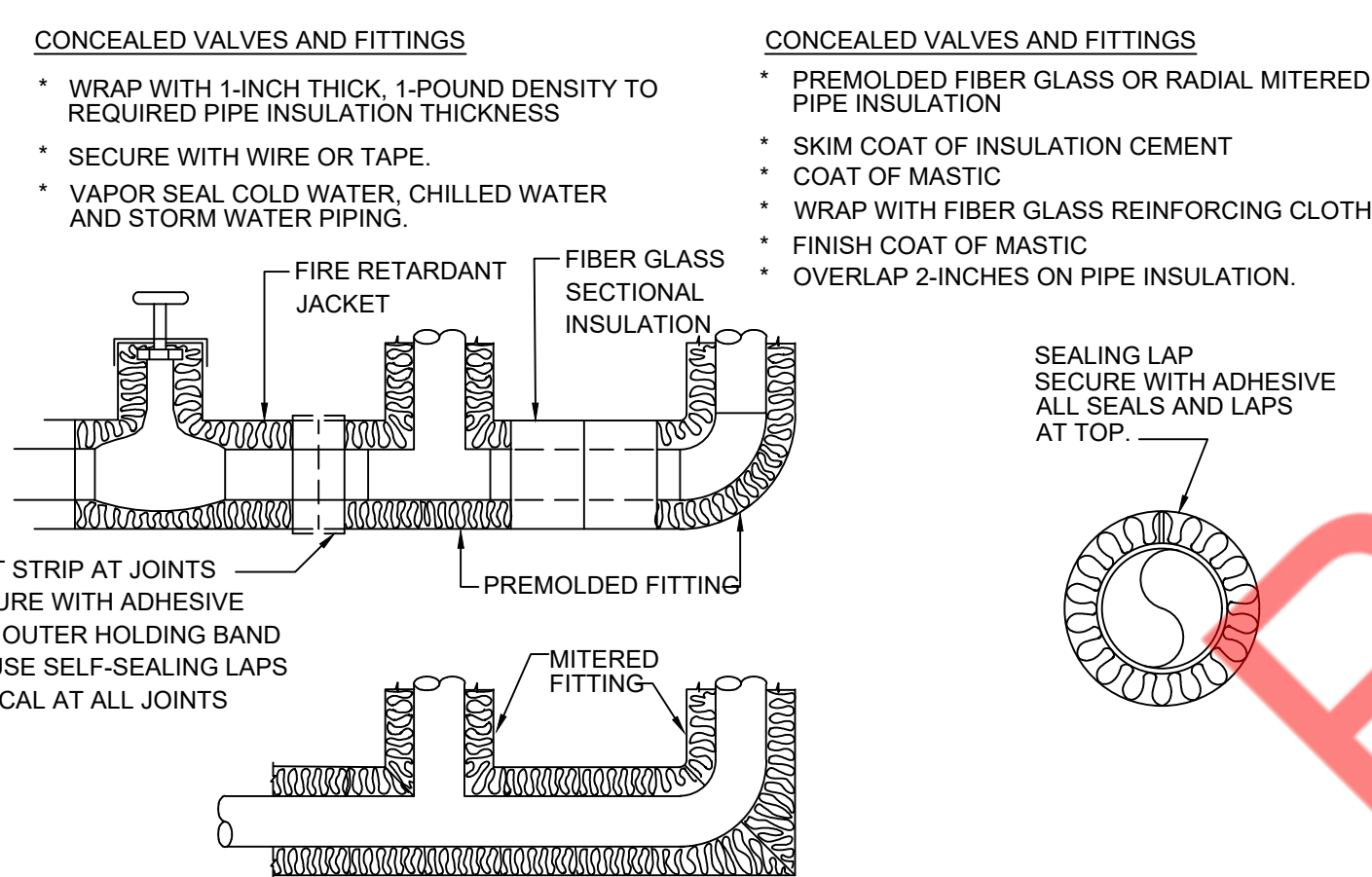
6 HANGER DETAIL
SCALE: N.T.S.



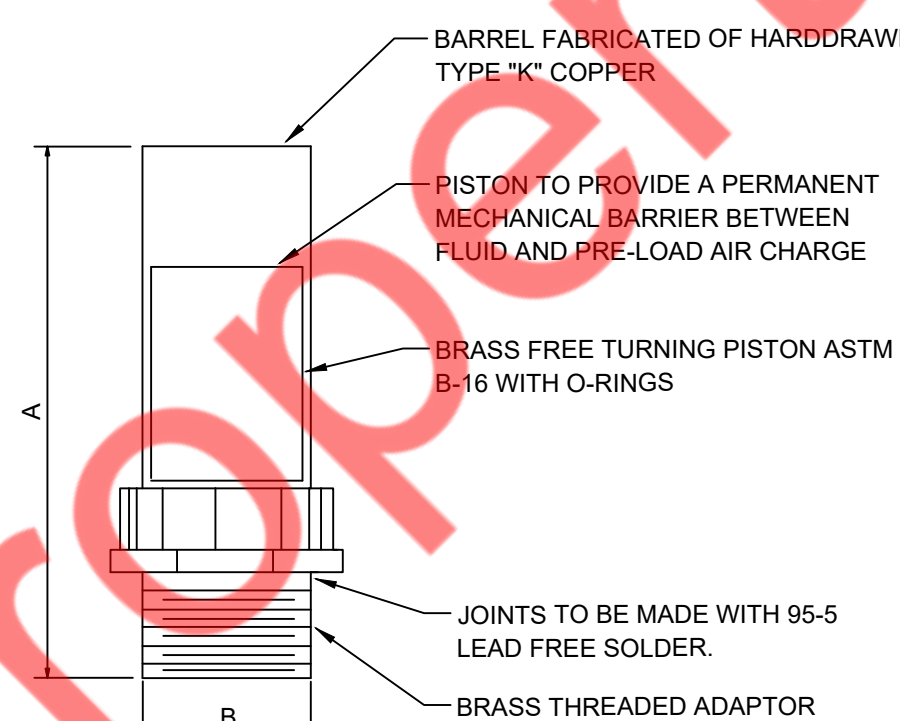
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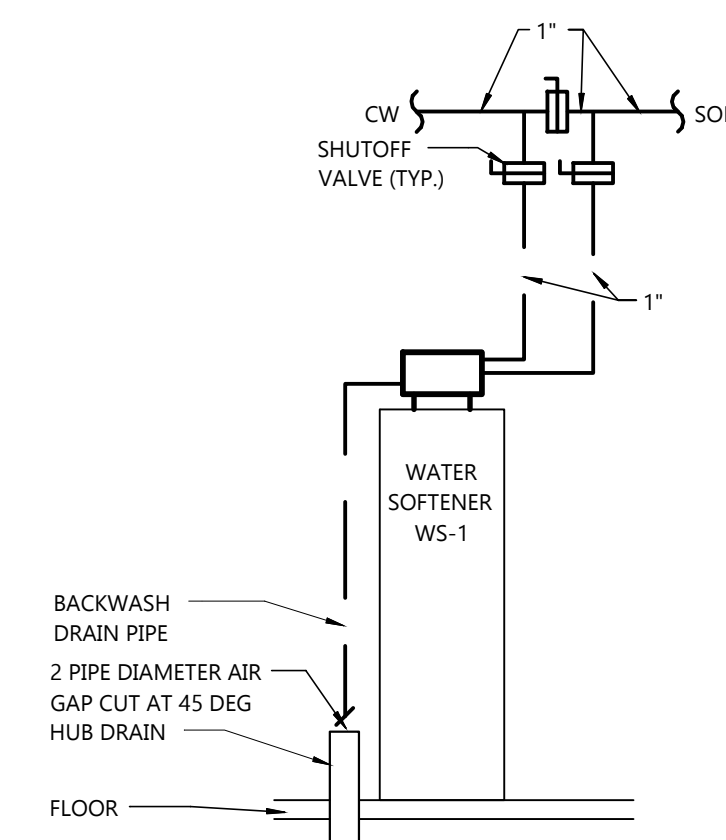
7 INSULATION FOR EXPOSED AND CONCEALED LOCATIONS
SCALE: N.T.S.



PIPE SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

NOTE: LOCATE ONE FOR EACH BANK OF FLUSHMETER FIXTURES AT LAST FIXTURE PROVIDE A STAINLESS STEEL ACCESS DOOR FOR EACH SUFFICIENT IN SIZE TO ALLOW REPLACEMENT OF ARRESTOR AT A FUTURE DATE.

8 WATER HAMMER ARRESTOR DETAIL
SCALE: N.T.S.



9 WATER SOFTENER DETAIL
SCALE: N.T.S.

PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**PLUMBING
DETAILS**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

P-2.0

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PLUMBING FIXTURE SCHEDULE						
MARK	ITEM	HW	CW	FW	WASTE	DESCRIPTION
WC-1	WATER CLOSET	--	3/4"	--	4"	KOHLER K-3999. TWO PIECE ELONGATED TOILET, 1.28 GPF.
LAV-1	LAVATORY	1/2"	1/2"	--	2"	WALL HUNG TOTO LT307.4, 21" X 18". FAUCET: AM. STD. 7755305.002(Z)
FD	FLOOR DRAIN	--	--	--	LINE SIZE	ZURN #ZS-415 TYPE "S"
FS	FLOOR SINK	--	--	--	3"	ZURN #Z-1900-2
AAV	AIR ADMITTANCE VALVE	--	--	--	--	ZURN DSR-40/1
FCO	CLEANOUT	--	--	--	LINE SIZE	JAY R. SMITH, 4020 SERIES W/ROUND, POLISHED BRONZE TOP.
A-101	ESPRESSO MACHINE	--	1/2"	3/4"		FRANKE EVOLUTION S700
A-102	COFFEE BREWER	--	1/2"	3/4"		FETCO CBS-51H-15 (C51056)
A-106	ICE MACHINE	--	1/2"	3/4"		SCOTSMAN C0630MQ-32
A-116	SPOON DIPPER WELL	--	1/2"	3/4"		T&S BRASS B-2282-01
A-117	CUP RINSER	--	1/2"	1/2"		MICRO MATIC MM-5821
A-119	DUMP SINK	1/2"	1/2"	--	2"	ELKAY DSEP1515C
A-120	WALL MOUNT HAND SINK	1/2"	1/2"	--	2"	REGENCY 60017PT
A-121	TRI-SINK	3/4"	3/4"	--	3/4"	JOHN BOOS E3S8-18-14T18-X
A-122	MOP SINK	3/4"	3/4"	--	3"	E.L. MUSTEE 63CM
A-123	WATER SOFTENER	--	3/4"	--	3/4"	PACIFIC WATER SPACE SAVER A960C-32
A-125	WATER HEATER	1"	1"	--	3/4"	RHEEM PROG50-38N RH60

RECIRCULATION PUMP SCHEDULE										
TAG	DESCRIPTION	TYPE	CAPACITY		ELECTRICAL DATA			SELECTION BASED ON		REMARKS/OPTIONS
			GPM	HEAD (FT.)	HP	V	PH	HZ	MANUFACTURER	
RCP-1	HOT WATER RECIRC. PUMP	IN-LINE	2.5	7	1/12	120	1	60	BELL & GOSSETT PL-30-B	NOTE 1.2
OPTIONS (ALL RCP UNITS)			OPTIONS (ALL SUMP UNITS)			ADDITIONAL OPTIONS (UNITS AS NOTED)				
<ul style="list-style-type: none"> AQUA-STAT & NIGHT TIMER FLANGED PUMP BALANCING VALVE & CHECK VALVE MAINTENANCE BALL VALVES ON BOTH SIDES OF PUMP 			<ul style="list-style-type: none"> 30"X30"X30" BASIN BY G.C. DISCHARGE CHECK VALVE DISCHARGE BALL VALVE 			A: OIL-MINDER ALARM/CONTROL SYSTEM				
NOTES:										
1. SET AQUA-STAT WITH SET POINT 10 DEGREES BELOW SYSTEM SUPPLY TEMP.										
2. INSTALL RECIRCULATION PUMP PER MANUFACTURERS REQUIREMENTS.										

GAS PIPE SIZING	
<ul style="list-style-type: none"> TABLE: 2021 INTERNATIONAL FUEL GAS CODE TABLE 402.4(5) TOTAL GAS INPUT: 38 MBH INLET PRESSURE: 2 PSI PRESSURE DROP: 1 PSI FITTINGS FACTOR: 40% TOTAL EQUIVALENT LENGTH: 20 LNFT 	
PIPE SIZE (INCHES)	CAPACITY (CFH)
1/2	1,070
3/4	2,150

EXPANSION TANK SCHEDULE							
TAG	DESCRIPTION	VOLUME (GALLONS)	DIAMETER (INCHES)	HEIGHT (INCHES)	SELECTION BASED ON		REMARKS
					MANUFACTURER	MODEL NUMBER	
ET-1	BLADDER TYPE	2.0	8"	12 1/2"	AMTROL	ST-5C-DD	NOTE 1
NOTES:							
1. INSTALL EXPANSION TANK ON IN-COMING COLD WATER PER MANUFACTURERS REQUIREMENTS.							

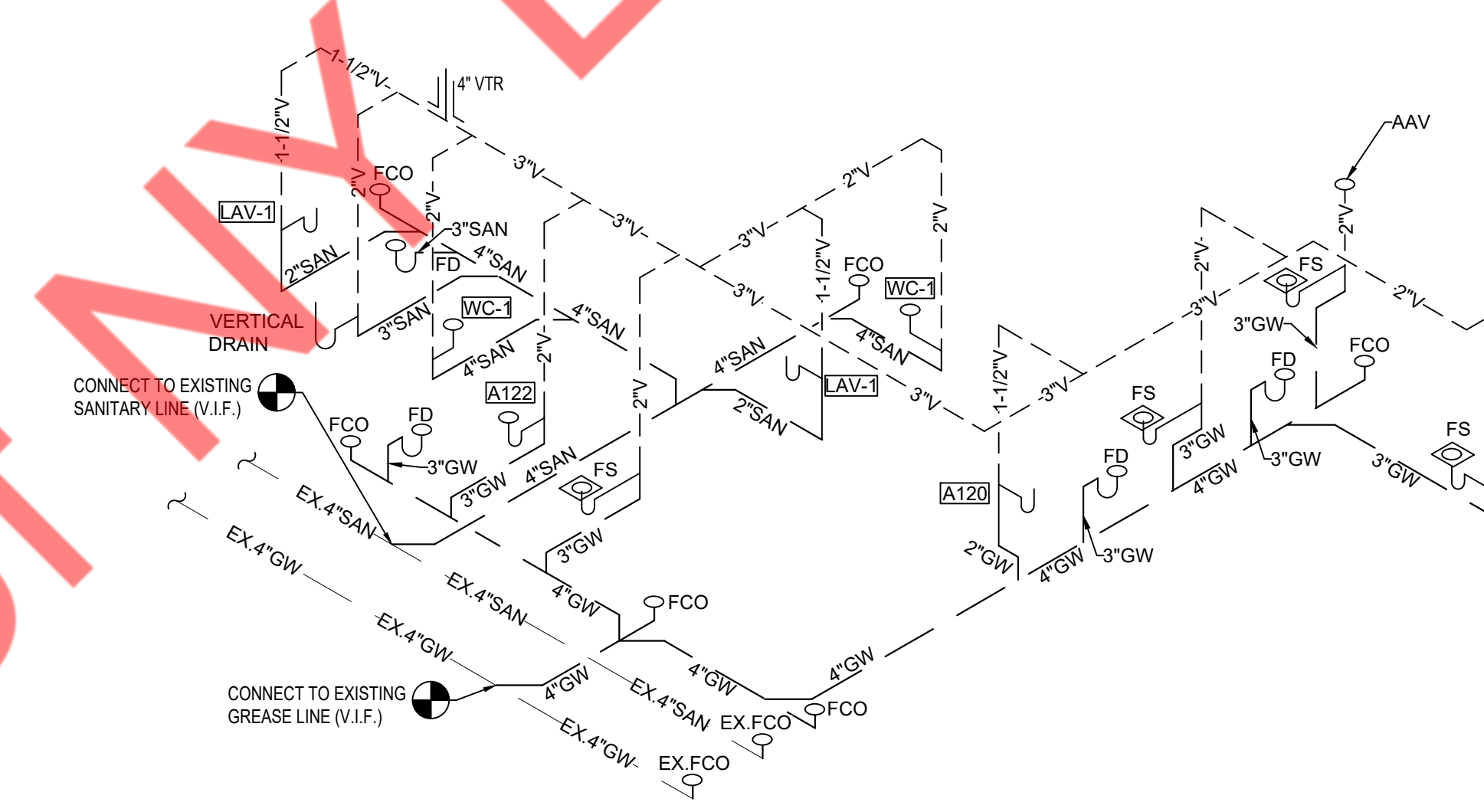
GAS PIPE SIZING	
<ul style="list-style-type: none"> TABLE: 2021 INTERNATIONAL FUEL GAS CODE TABLE 402.4(2) TOTAL GAS INPUT: 38 MBH INLET PRESSURE: LESS THAN 2 PSI PRESSURE DROP: 0.5 INWC FITTINGS FACTOR: 40% TOTAL EQUIVALENT LENGTH: 20 LNFT 	
PIPE SIZE (INCHES)	CAPACITY (CFH)
1/2	81
3/4	170
1	320
1-1/4	657

THERMOSTATIC MIXING VALVE SCHEDULE							
TAG	DESCRIPTION	MAXIMUM GPM	MINIMUM GPM	PRESSURE LOSS	SELECTION BASED ON		REMARKS/OPTIONS
					MANUFACTURER	MODEL NUMBER	
TMV	THERMOSTATIC MIXING VALVE	3.5	0.25	5	LEONARD	270-LF	NOTE 1. A
OPTIONS (ALL UNITS)			ADDITIONAL OPTIONS (UNITS AS NOTED)				
<ul style="list-style-type: none"> LEAD FREE NSF APPROVED PROVIDE T-STAT ON TEMPERED LINE 			A: ASSE 1070 APPROVED, SET @110°F. 1/2" INLET, 1/2" OUTLET, MOUNT BELOW FIXTURE.				
NOTES:							
1. INSTALL MIXING VALVE PER MANUFACTURERS REQUIREMENTS. PROVIDE ALL PIPING AND VALVES PER O&M MANUAL.							

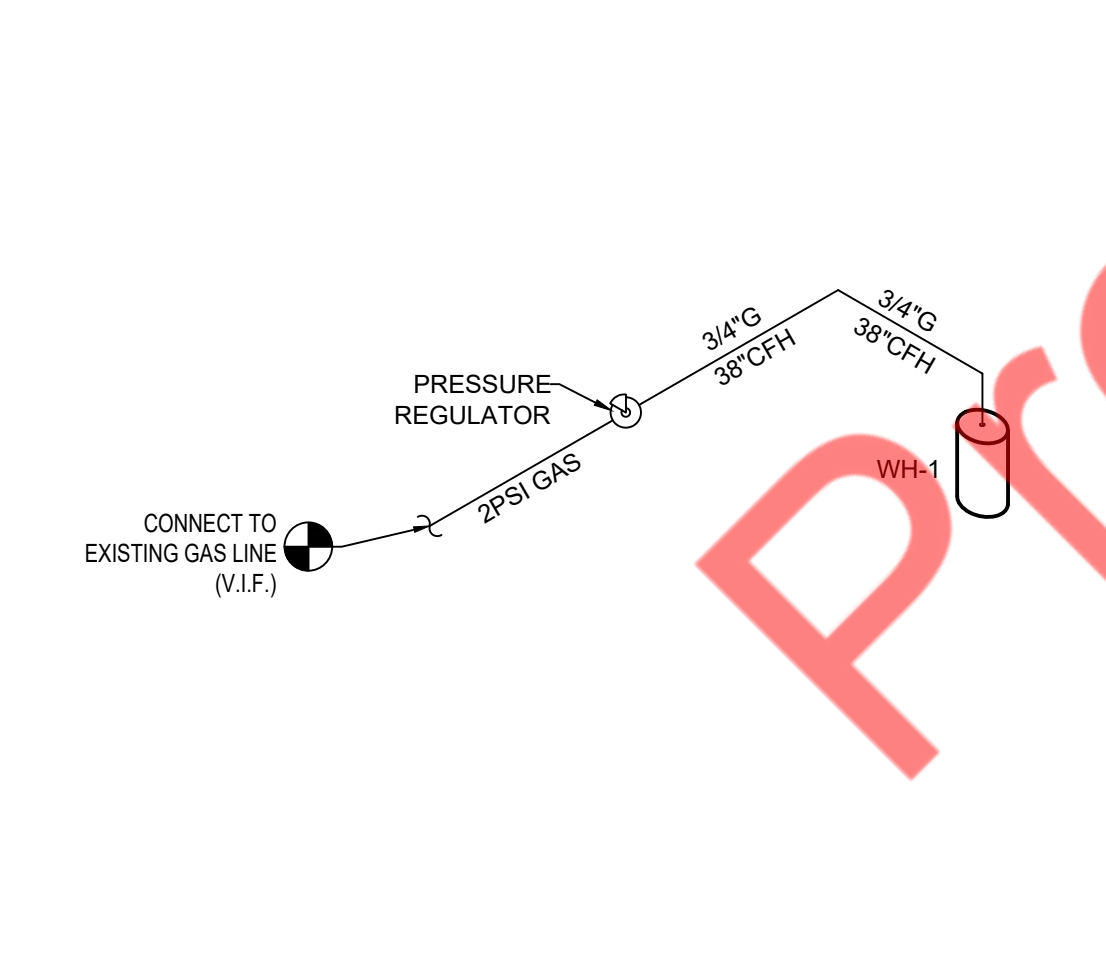
PLUMBING PIPE MATERIAL SCHEDULE		
PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
SANITARY DRAINAGE & VENT (ABOVE GRADE)	SAN OR V	SCH.40 PVC / CAST IRON / COPPER
SANITARY DRAINAGE & VENT (BELOW GRADE)	SAN OR V	SCH.40 PVC / CAST IRON / COPPER
POTABLE WATER (ABOVE GRADE)	CW, HW OR HWR	TYPE L HARD-DRAWN COPPER PIPE AND FITTINGS (CPVC PIPING AND FITTINGS OR PEX PIPING AND FITTINGS ALLOWED IF AHJ AND LANDLORD PERMITS).
POTABLE WATER - 2" & SMALLER (BELOW GRADE)	CW, HW OR HWR	TYPE K SOFT ANNEALED COPPER
*ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS, WATER DISTRIBUTION PIPING SYSTEMS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 INTERNATIONAL PLUMBING CODE. PVC ONLY WHERE ALLOWABLE PER LOCAL AHJ. PVC SHALL NOT BE USED WHERE EXPOSED IN RETURN AIR PLENUM, OR WHERE WATER TEMPS EXCEED 140°F		

GAS STORAGE WATER HEATER SCHEDULE							
DESIGNATION	INPUT	STORAGE GALLONS	RECOVERY CAP. (GPM @ RISE)	HEATER DIAMETER	HEATER HEIGHT	MANUFACTURER	MODEL NUMBER
WH-1	38,000 B.T.U.	50	38.4 GPH @ 90°F	20.5"	61.25"	RHEEM	RROG-38N RH60

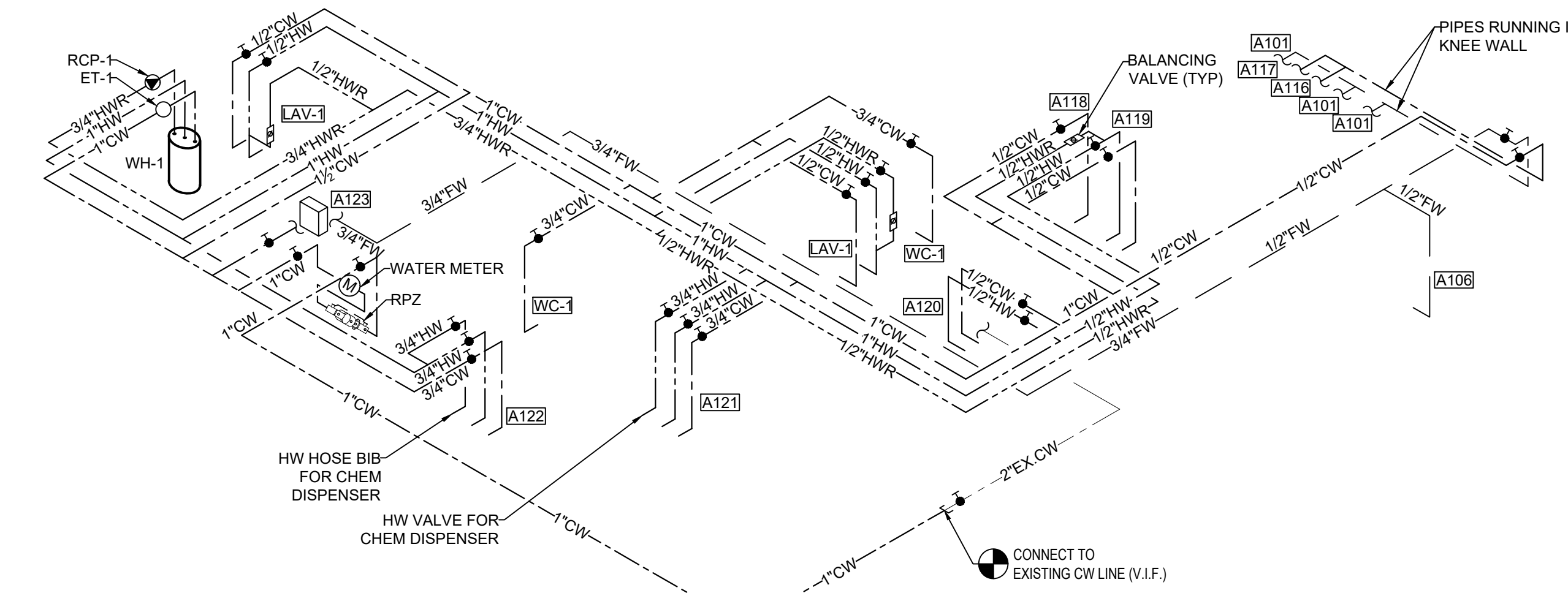
BACKFLOW PREVENTOR SCHEDULE			
LOCATION	TAG	MODEL	ASSE
MAIN WATER SUPPLY	RPZ	WATTS LF009M2-QT	1013
ICE MACHINE & ESPRESSO MACHINE	BFP-1	WATTS SD-3	1022
NOTE: VERIFY BACKFLOW VALVE REQUIREMENTS AND APPROVAL FOR ALL EQUIPMENT WITH AUTHORITIES HAVING JURISDICTION PRIOR TO INSTALLATION.			



1 SANITARY AND VENT RISER DIAGRAM
N.T.S.



3 GAS RISER DIAGRAM
N.T.S.



2 WATER RISER DIAGRAM
N.T.S.

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REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
PLUMBING SCHEDULE AND RISER DIAGRAMS

PROJECT NUMBER 25-005









DATE 02-10-2025

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
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SHEET 6 OF 6




SWITCHES AND CONTROLS

	20A SPST SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
	DIMMER SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
	THREE WAY SWITCH
	WALL OCCUPANCY SENSOR SWITCH
	DIMMER SWITCH
	OVERRIDE SWITCH
	DUCT SMOKE DETECTOR
	DAY LIGHT SENSOR

WIRING SYSTEMS

	EXISTING
	NEW

ANNOTATION

	INDICATES MOUNTING HEIGHT CENTER LINE TO FINISHED FLOOR.
	KEYED NOTE REFERENCE
	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM










POWER DISTRIBUTION

	DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.
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


ELECTRICAL DRAWING LIST

E-0.1	ELECTRICAL SYMBOL LIST, ABBREVIATIONS AND GENERAL NOTES
E-0.2	ELECTRICAL SPECIFICATIONS (1 OF 2)
E-0.3	ELECTRICAL SPECIFICATIONS (2 OF 2)
E-1.0	LIGHTING FLOOR PLAN
E-2.0	POWER FLOOR PLAN
E-2.1	SYSTEMS FLOOR PLAN
E-2.2	ROOF POWER PLAN
E-3.0	ELECTRICAL DETAILS
E-4.0	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES

POWER AND TELECOMMUNICATION

	JUNCTION BOX
	DUPLEX RECEPTACLE, +18" AFF OR AS NOTED.
	SPECIAL RECEPTACLE
	QUAD RECEPTACLE
	DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER
	GFI DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER
	QUAD RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER
	CEILING MOUNTED QUAD RECEPTACLE & DATA OUTLET
	DATA OUTLET, 1" C. STUB INTO ACCESSIBLE SPACE

MOTORS AND CONTROLS

	MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
	30A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	60A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	100A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	200A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	MANUAL MOTOR SWITCH

ELECTRICAL ABBREVIATIONS

A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AUTO	AUTOMATIC	ER	EXISTING TO BE RELOCATED
AWG	AMERICAN WIRE GAUGE	ETR	EXISTING TO REMAIN
C	CONDUIT	EW	ELECTRIFIED WORKSTATION FURNITURE
C/B, CB	CIRCUIT BREAKER	EWH	ELECTRIC WATER HEATER
CKT	CIRCUIT	FA	FIRE ALARM
CLG	CEILING	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
COMM	COMMUNICATION	FDR	FEEDER
CT	CURRENT TRANSFORMER	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
CU	COPPER	FIXT	FIXTURE
°C	DEGREE CELSIUS	FL	FLOOR
°F	DEGREE FAHRENHEIT	FLUOR	FLUORESCENT
DIA	DIAMETER	G	GROUND
DISC	DISCONNECT	GFI	GROUND FAULT INTERRUPTER
DN	DOWN	GP	GENERAL PURPOSE
DWG	DRAWING	HC	HUNG CEILING
JB	JUNCTION BOX	HP	HORSEPOWER
KCMIL	ONE THOUSAND CIRCULAR MILS	HW	HOW WATER HEATER
KV	KILOVOLT	HZ	HERTZ
KVA	KILOVOLT-AMPERES	IC	INTERRUPTING CAPACITY
KW	KILOWATTS	PP	POWER PANEL
LP	LIGHTING PANEL	PVC	POLYVINYL CHLORIDE
LTG	LIGHTING	PWR	POWER
MAX	MAXIMUM	R	REMOVE
MC	MOTOR CONTROLLER	RE	RELOCATED EXISTING
MCB	MAIN CIRCUIT BREAKER	REC	RECEPTACLE
MER	MECHANICAL EQUIPMENT ROOM	RR	REMOVE & RELOCATE
MIN	MINIMUM	SECT	SECTION
MLO	MAIN LUGS ONLY	SPDT	SINGLE POLE DOUBLE THROW
MTD	MOUNTED	SPST	SINGLE POLE SINGLE THROW
N	NEUTRAL	SPEC	SPECIFICATION
NE	NEW DEVICE TO REPLACE EXISTING	SW	SWITCH
NIC	NOT IN CONTRACT	SWBD	SWITCHBOARD
NL	NIGHT LIGHT	SYM	SYMMETRICAL
NTS	NOT TO SCALE	SYS	SYSTEMS
OC	ON CENTER	TELE	TELEPHONE
P	POLES	TEMP	TEMPERATURE
PB	PULLBOX	TXF	TOILET EXHAUST FAN
PC	PERSONAL COMPUTER	TYP	TYPICAL
Ø	PHASE	UON	UNLESS OTHERWISE NOTED
PNL	PANEL	V	VOLT/VOLTAGE
W	WATT	VA	VOLT AMPERE
W	WIRE	VFD	VARIABLE FREQUENCY DRIVE
WH	WALL HEATER	WP	WEATHER PROOF
E	EXISTING	XFMR	TRANSFORMER
TC	TIME CLOCK	IG	ISOLATED GROUND
		TR	TAMPER RESISTANCE

GENERAL NOTES

(APPLY TO ALL "E" DRAWINGS)

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE 2020, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- FIRE STOP** ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK), NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
- VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS. ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT. EQUIPMENT VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
- CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN/TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
- ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
- OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
- COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
- COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
- LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
- NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE NY ENGINEER, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE NY ENGINEER. IT SHALL BE RETURNED TO THE ARCHITECT UPON DEMAND.

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REVISIONS:

NO.	DATE	DESCRIPTION	BY
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PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**ELECTRICAL
SYMBOL LIST,
ABBREVIATION
AND GENERAL
NOTES**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-0.1

SHEET 1 OF 9

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

ELECTRICAL SPECIFICATION

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS, COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTANANCE AND REPAIR, MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.

F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER, ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED, MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

H. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

J. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS, WHEN SO DIRECTED. HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

- "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
- "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
- "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
- "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES
- "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

- "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

C. QUALITY ASSURANCE

- QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
- GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.
- CURRENT CHARACTERISTICS:
 - DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.
- HEIGHTS OF OUTLETS:
 - FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:
 - RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
 - WALL SWITCHES: 4 FT-0 IN.
 - WALL FIXTURES: 7 FT-0 IN.
 - MOTOR CONTROLLERS: 5 FT-0 IN.
 - CLOCKS: 7 FT 6 IN
 - EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, OR MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

D. PRODUCT DELIVERY, STORAGE AND HANDLING

- MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
- ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

E. MATERIALS

- NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.
- CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.
- INSERTS AND SUPPORTS:
 - INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
 - SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
 - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
 - CLIP FORM NAILS FLUSH WITH INSERTS.
 - MAXIMUM LOADING 75 PERCENT OF RATING.
 - SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
 - GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
 - WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE, DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE NATIONAL ELECTRICAL CODE 2020 WITH LOCAL ADOPTIONS, AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR

REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FIELD DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE, SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

4. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

- PROJECT NAME AND LOCATION
- NAME OF ARCHITECT AND ENGINEER
- ITEM IDENTIFICATION
- APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

- SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
- SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

- SAFETY/DISCONNECT SWITCHES
- FUSES
- CIRCUIT BREAKERS
- PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
- RACEWAYS
- WIRE AND CABLE
- WALL SWITCHES
- INSERTION RECEPTACLES
- MOMENTARY CONTACT SWITCHES
- TIME SWITCHES
- LIGHTING FIXTURES.
- TRANSFORMER.

E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE. CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER A BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

- PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.
- ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.
- DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE- QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMB. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

7. FUSES:

A. CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP/SP 250V)/LPS-RK (AMP/SP (600V) OR LPJ (AMP/SP (600V) UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

B. MOTOR CIRCUITS - ALL INDIVIDUAL MOTOR CIRCUITS WITH FULLLOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP/SP 250V)/LPS-RK (AMP/SP (600V) OR LPJ (AMP) SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

- 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.
- 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM.

8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. THREE PHASE, 4 OR 5 WIRE, COPPER BUS BARS, WITH 2, 3, OR 4 WIRE BRANCHES, AS NOTED. CAPACITY OF PANEL AND CIRCUITS, AS NOTED BELOW. PANELBOARD TO HAVE GROUND BUS SAME SIZE AS PHASE BUSES.

B. CABINETS: CODE GAUGE GALVANIZED SHEET STEEL PRIMED AND PAINTED WITH TRIM AND DOOR. TYPE AS NOTED, LAP AND RIVET CORNERS OR FORM AS APPROVED.

C. TRIM: ONE PIECE FULL FINISH PRIMED AND PAINTED SHEET STEEL TRIM SHALL BE MOUNTED WITH A CONTINUOUS PIANO HINGE CONFIGURED IN SUCH A MANNER THAT IT SHALL BE POSSIBLE TO GAIN FULL ACCESS TO CIRCUIT BREAKERS AND WIRING GUTTERS WITHOUT REMOVING THE TRIM. PROVIDE A MULTI-PIN CYLINDER LOCK (YALE, CORBIN OR EQUAL) TO LATCH THE TRIM. KEYS SHALL BE MILLED.

D. HARDWARE: MULTI-PIN, CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS SHALL BE KEYPED ALIKE. DOOR OVER 48" HIGH SHALL BE EQUIPPED WITH A CHROME PLATED VAULT HANDLE, BUILT-IN LOCK AND 3-POINT CATCH FASTENING DOOR AT TOP, BOTTOM AND CENTER.

E. HINGES: CONCEALED, CONTINUOUS PIANO HINGE AS DESCRIBED ABOVE.

F. DIRECTORY HOLDER: MEAL FRAME WITH NONBREAKABLE TRANSPARENT COVER AND DIRECTORY CARD. ENTRIES TO BE TYPEWRITTEN BY ELECTRICAL CONTRACTOR. PROVIDE AN ENGRAVED LAMINATED NAMEPLATE ADJACENT TO EACH BRANCH BREAKER. MOUNT WITH SELF TAPPING MACHINE SCREWS.

G. FURNISH MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING NOT PERMITTED. SECURE LUGS TO BUS BY STUD BOLTS.

H. PANELBOARD CONSTRUCTION FOR BOLTED TYPE BREAKERS. MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, RMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. INDIVIDUAL CIRCUIT BREAKERS SHALL HAVE MINIMUM 100A FRAME, TRIPS SIZED AS SHOW ON THE PLANS.

I. MINIMUM GUTTER SPACES: PANELS WITH 225 AMPERE MAINS, 5-3/4" MINIMUM, 400 AMPERES AND OVER, MINIMUM GUTTERS 8". FOR PANELS WITH THROUGH FEEDERS, INCREASE GUTTER WIDTH BY 2" MINIMUM AND PROVIDE A SHEET STEEL BARRIER BETWEEN THE PANEL, GUTTER AND THE THROUGH FEEDER PORTION OF THE BACK BOX. BRANCH CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WHEN SHOWN ON DRAWINGS.

J. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

9. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD-LOCKABLE.

C. PANELBOARD SHALL BE CONSTRUCTED OF CODE-GAUGE STEEL, GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

F. DISCONNECTS

- DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.
- SWITCHING MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE. MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.
- SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.
- SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

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REVISIONS:

NO.	DATE	DESCRIPTION	BY
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PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**ELECTRICAL
SPECIFICATIONS
(1 OF 2)**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-0.2

SHEET 2 OF 9

ELECTRICAL SPECIFICATION (CONT.)

D. INSTALLATION

- 1) DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

H. IDENTIFICATION

- 1) PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.
- 2) NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF-TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF 1/4" HIGH WHITE LETTERING.

I. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

J. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

M. MATERIALS

1) RACEWAYS:

- a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
- b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.
- c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.
- d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
- e. SURFACE METAL RACEWAY: SIZE AS NOTED, BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

2) FITTINGS AND ACCESSORIES:

- a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.
- b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.
- c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.
- d. BUSHINGS: METALLIC INSULATED TYPE.

3) BOXES:

- a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER, OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
- b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

N. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR, PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED, WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE,

GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS. CRC-COLD GALVANIZED, EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

O. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

P. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIER BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

Q. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

R. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

S. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

10. WIRE AND CABLE:

A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

E. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY, HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE BX.

F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:	277/480 VOLT SYSTEM:
BLACK FOR A PHASE	BROWN FOR A PHASE
RED FOR B PHASE	ORANGE FOR C PHASE
BLUE FOR C PHASE	YELLOW FOR C PHASE

1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

G. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE. WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

I. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

K. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

11. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

C. STRAIGHT BLADE RECEPTACLES SHALL BE RESIDENTIAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

1) SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT.

D. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

E. COLORS: COORDINATE COLORS WITH ARCHITECT.

F. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

12. LIGHTING FIXTURES:

A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH, TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL-1 ELECTRONIC DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

F. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

G. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. TELEPHONE CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.

F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

14. PANELBOARDS:

A. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.

B. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM GUTTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.

C. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.

D. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

E. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.

F. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

G. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

H. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

I. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.

J. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL, DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

K. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

L. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.

M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

15. INTERCOM CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

C. OUTLETS SHALL BE:

1) WALL: 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

D. PROVIDE FISH WIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

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REVISIONS:

NO.	DATE	DESCRIPTION	BY
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PROJECT NAME:

Beans & Brews

COFFEE HOUSE

INTERIOR ALTERATION

SHEET TITLE:

ELECTRICAL SPECIFICATIONS (2 OF 2)

PROJECT NUMBER 25-005

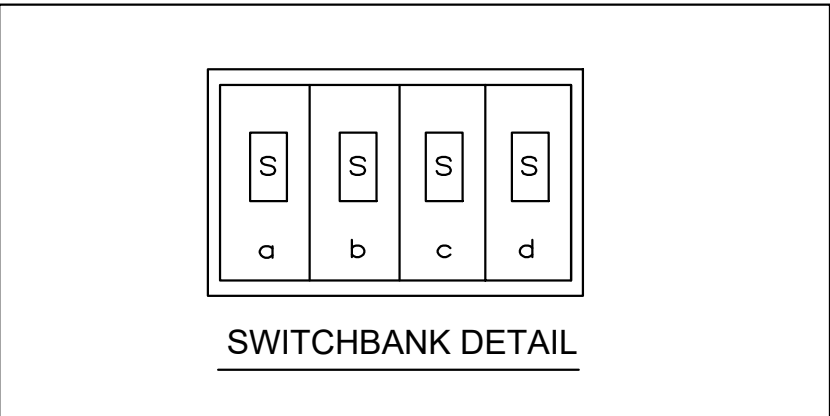
DATE 02-10-2025

SHEET NO.

E-0.3

SHEET 3 OF 9

- LIGHTING PLAN GENERAL NOTES:**
- CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
 - ALL EMERGENCY AND EXIT LIGHT FIXTURES SHALL BE CONNECTED AHEAD OF SWITCHED LIGHTING CIRCUIT.
 - ALL EXTERIOR LIGHTS/ SIGNS SHALL BE CONTROLLED VIA PHOTOCELL/TIME-CLOCK. E.C. SHALL PROVIDE ALL THE LIGHTING CONTROL COMPLYING WITH ENERGY CONSERVATION CODE 2021 AND LOCAL AHJ REQUIREMENTS.
 - REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
 - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
 - THE LIGHTING FIXTURE CATALOG NUMBERS ARE TO IDENTIFY THE SERIES OF LIGHTING FIXTURE ONLY. PROVIDE ALL FIELD FABRICATION, MOUNTING HARDWARE, ACCESSORIES AND OPTIONS REQUIRED TO ADAPT TO THE CONDITIONS AND MEET THE INTENT OF THE FIXTURE DESCRIPTION.
 - LAY-IN TYPE FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE INDEPENDENT FROM THE CEILING SYSTEM AND BE CLIPPED TO THE GRID WITH EARTHQUAKE/HURRICANE CLIPS.
 - ALL BATTERY UNITS IN EXIT AND EMERGENCY EGRESS LIGHT FIXTURES SHALL BE CONNECTED FOR UNSWITCHED OPERATION. UON.
 - ALL SWITCHES QUANTITIES, LOCATION AND MOUNTING DETAILS SHALL BE COORDINATED WITH ARCHITECT/OWNER IN THE FIELD.



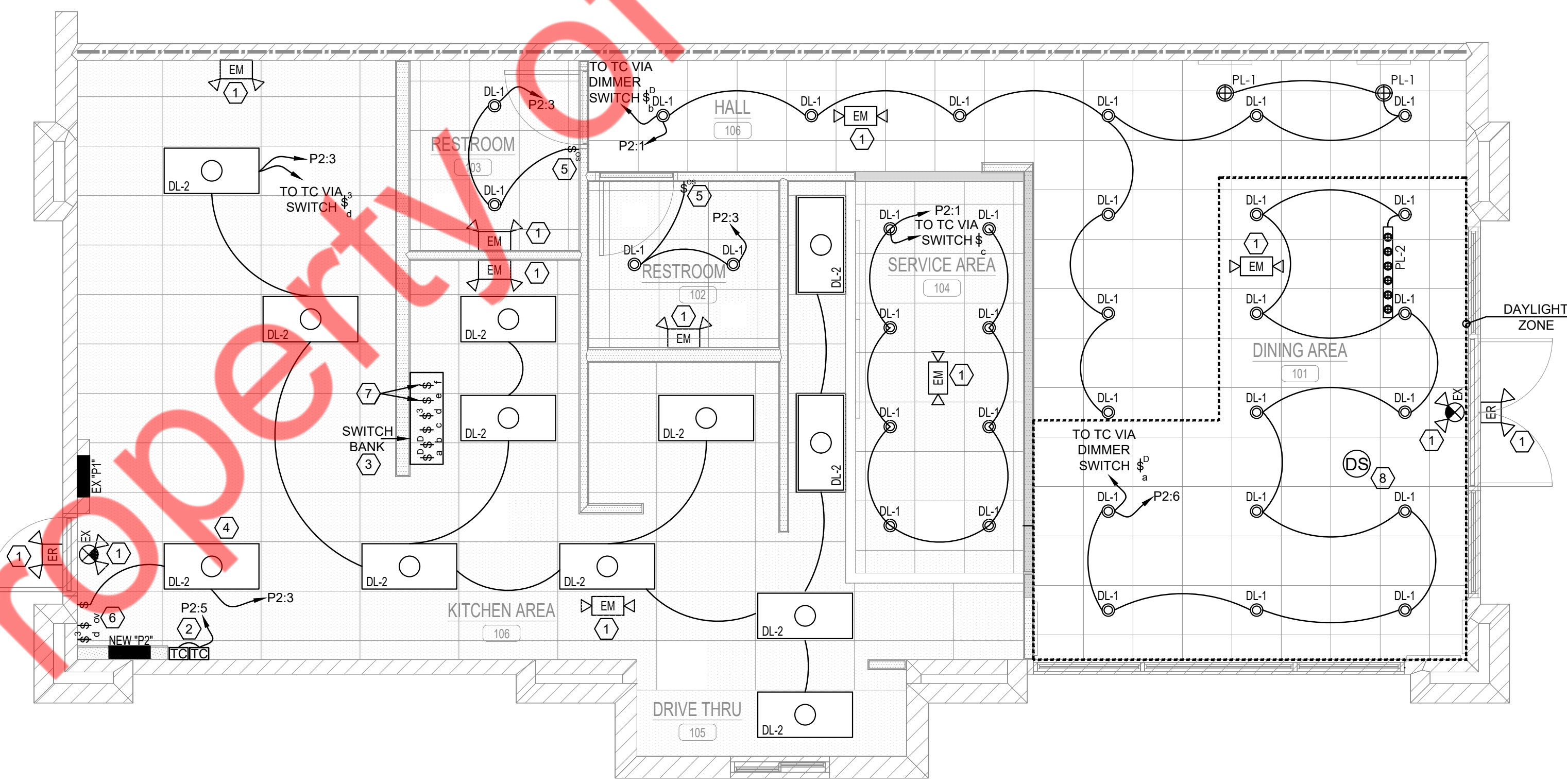
INDICATES PANEL NAME INDICATES CIRCUIT NO.
 B a

2 SWITCH BANK DETAILS
 NTS

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	VOLTAGE	LIGHT SOURCE	CCT	FIXTURE WATTS	MANUFACTURER / MODEL NUMBER	REMARKS
INTERIOR							
DL-1	6" ROUND RECESSED OPEN DOWNLIGHT - 0-10V DIMMABLE - SEMI SPECULAR - BLACK PAINTED FLANGE	120V	LED	4,000K	18 VA	LITHONIA / LDN6 40/15 L06 AR LSS TRBL MVOLT GZ10	
DL-2	2X4 LED FLAT PANEL - 0-10V DIMMABLE - WHITE HOUSING	120V	LED	4,000K	50 VA	LITHONIA / EPANL 2X4 6000LM 80CRI 40K MN10 ZT MVOLT	
PL-1	PENDANT LIGHT	120V	LED	-	60 VA (MAX)	HANNE A000707616	
PL-2	PENDANT LIGHT	120V	LED	-	60 VA (MAX)	HANNE A000707616	
EMERGENCY							
EM	WALL BATTERY EMERGENCY LIGHT - WHITE HOUSING - SELF-DIAGNOSTICS	120V	LED	-	5 VA	LITHONIA / ELM4L LTP SDRT	
EX	SINGLE FACE POLYCARBONATE EXIT - W/ BATTERY - GREEN LETTERS - SELF-DIAGNOSTICS - EMERGENCY HEADS	120V	LED	-	5 VA	LITHONIA / LHQM LED G SD	
ER	EMERGENCY REMOTE HEADS	120V	LED	-	LED	TBD	

- GENERAL NOTES:**
- BATTERY PACKS FOR ALL EXIT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF PROVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES.
 - E.C. SHALL COORDINATE EXACT MAKE/MODEL, COLOR, FINISH & CCT OF LIGHTING FIXTURES WITH ARCHITECT/OWNER IN FIELD.
 - FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.
 - LINE VOLTAGE DRIVERS MAY BE SUBSTITUTED FOR "UNIVERSAL" OR "MULTI-VOLTAGE" DRIVERS.
 - ALL LIGHT FIXTURE POLES SHALL BE RATED FOR WIND ZONE SITE IS LOCATED IN OR 100 MPH WINDS WHICHEVER IS GREATER.
 - ALL FIXTURES SHALL BE UL OR ETL LISTED.
 - ALL FIXTURES IN DIRECT CONTACT WITH INSULATION SHALL BE IC RATED OR INSULATION SHALL BE KEPT A MINIMUM OF 3" FROM ALL SIDES OF FIXTURES.
- LED REQUIREMENTS:**
- ALL LED FIXTURES SHALL HAVE A MINIMUM 80 PERCENT COLOR RENDERING INDEX UNLESS NOTED OTHERWISE.
 - PROVIDE DIMMABLE DRIVERS FOR ALL FIXTURE TYPES SHOWN TO BE "DIMMABLE".
 - CONTRACTOR SHALL VERIFY WITH THEIR SUPPLIER(S) THAT ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
 - ALL LED FIXTURES SHALL HAVE MINIMUM 50,000 L70.

- LIGHTING PLAN KEYED NOTES:**
- WIRE ALL EMERGENCY AND EXIT LIGHT TO THE NEAREST CIRCUIT AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION.
 - E.C. SHALL CO-ORDINATE LOCATION OF TIME CLOCK & LIGHTING CONTRACTORS WITH ARCHITECT/OWNER. SEE DETAIL-4 & 5 ON E-3.0 SHEET FOR ADDITIONAL INFORMATION.
 - SWITCHBANK, E.C. TO COORDINATE EXACT LOCATION, QUANTITIES & MAKE/MODEL OF DIMMER/MANUAL SWITCHES WITH ARCHITECT/OWNER IN COORDINATION WITH DEVICE MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
 - LIGHT FIXTURE NEAR ELECTRICAL PANEL SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPILED AS PER NEC 110.26(D).
 - E.C. TO COORDINATE EXACT MAKE/MODEL OF WALL MOUNTED OCCUPANCY SENSOR WITH ARCHITECT/OWNER IN COORDINATION WITH EQUIPMENT MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
 - MANUAL OVERRIDE SWITCH FOR TIME CLOCK. FINAL LOCATION SHALL BE COORDINATED WITH OWNER BEFORE COMMENCEMENT OF WORK.
 - SWITCH FOR CONTROL OF "OPEN" SIGN OUTLET. E.C. TO COORDINATE EXACT LOCATION MAKE/MODEL OF SWITCH WITH ARCHITECT/OWNER IN COORDINATION WITH DEVICE MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
 - LIGHTING IN THIS AREA SHALL BE CONTROLLED VIA DAY LIGHT SENSOR. E.C. SHALL COORDINATE EXACT MAKE/MODEL OF DAYLIGHT SENSOR WITH ARCHITECT/OWNER IN FIELD. BASE BID ACCORDINGLY.



1 LIGHTING FLOOR PLAN
 1/4" = 1'-0"

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04-01-2025 -- ISSUED FOR PERMIT

REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
 COFFEE HOUSE
 INTERIOR ALTERATION

SHEET TITLE:
LIGHTING FLOOR PLAN

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-1.0

SHEET 4 OF 9

PROPERTY OF NY ENGINEERS

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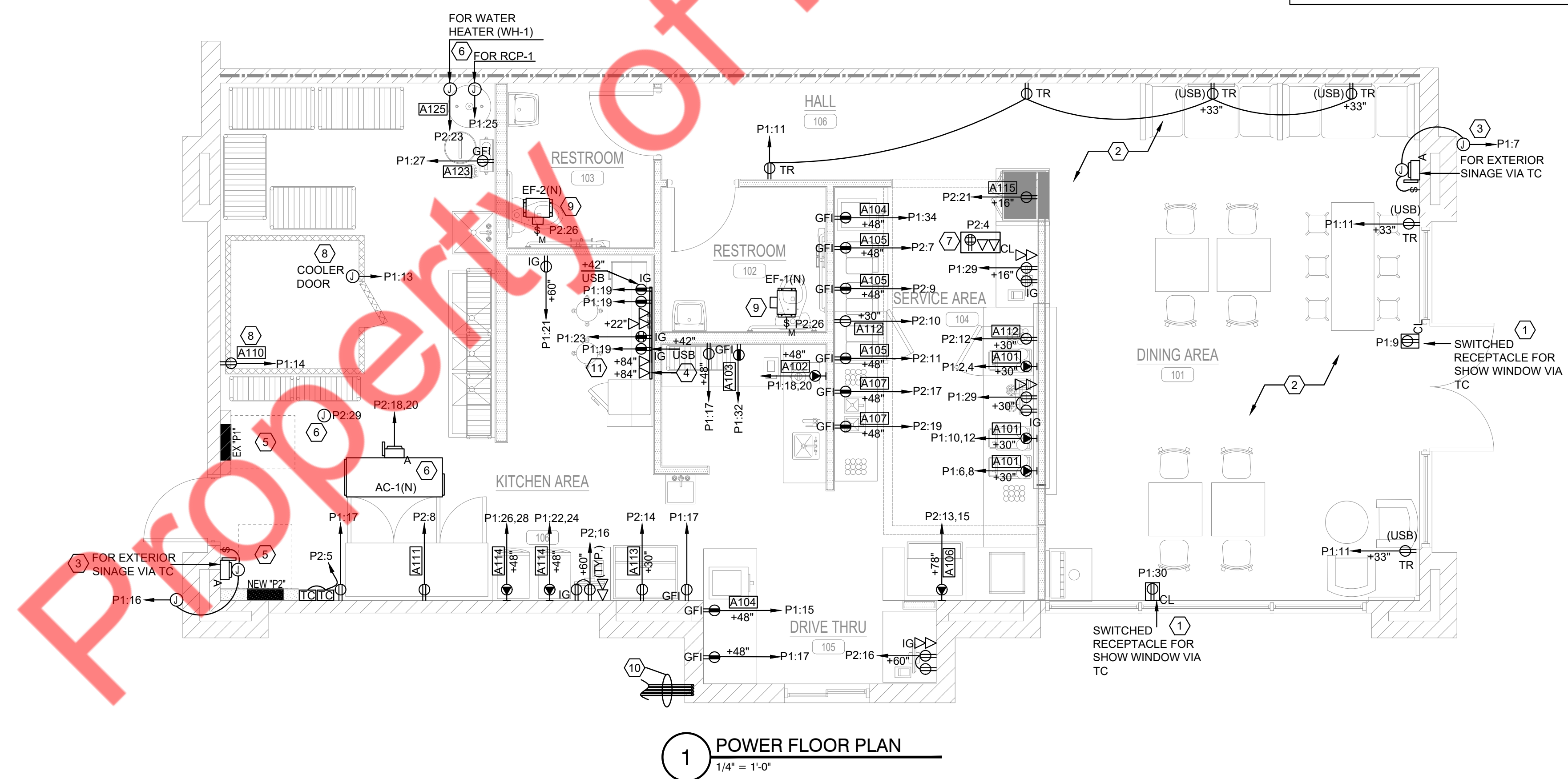
KITCHEN EQUIPMENT SCHEDULE					
ITEM NUMBER	EQUIPMENT DESCRIPTION	VOLTAGE	PHASE	AMPS	NEMA
A101	ESPRESSO MACHINE	208V	SINGLE	24	L6-30P
A102	COFFEE BREWER	208V	SINGLE	34	14-50P
A103	COFFEE GRINDER	120V	SINGLE	11	5-15P
A104	FROZEN BEVERAGE FREEZER	115V	SINGLE	16	5-20P
A105	DOUBLE BOWL BUBBLER	120V	SINGLE	6	5-15P
A106	ICE MACHINE	208V	SINGLE	11	6-20P
A107	BLENDER	120V	SINGLE	15	5-15P
A110	WALK-IN COOLER	115V	SINGLE	6.9	5-15P
A111	THREE DOOR FREEZER	115V	SINGLE	14	5-15P
A112	UNDER COUNTER REFRIGERATOR	115V	SINGLE	2	5-15P
A113	SANDWICH PREP REFRIGERATOR	115V	SINGLE	3	5-15P
A114	RAPID COOK OVEN	208V	SINGLE	30	6-30P
A115	PASTRY CASE	115V	SINGLE	0.40	5-15P
A123	WATER SOFTNER	120V	SINGLE	0.18	5-15P
A125	WATER HEATER	120V	SINGLE	-	-

NOTE:

- E.C. SHALL VERIFY EXACT POWER & OUTLET REQUIREMENT FOR KITCHEN EQUIPMENT WITH THE EQUIPMENT CUT-SHEETS IN COORDINATION WITH EQUIPMENT MANUFACTURER PRIOR TO PURCHASE & BID.
- THE HEIGHT AND EXACT LOCATION OF ROUGH-INS SHALL BE COORDINATED IN THE FIELD WITH KITCHEN EQUIPMENT MANUFACTURER AND ARCHITECT.

- POWER PLAN KEYED NOTES:**
- E.C. TO INSTALL SHOW WINDOW RECEPTACLES AS PER NEC 210.62. COORDINATE EXACT LOCATION OF OUTLET IN FIELD WITH ARCHITECT/OWNER BEFORE COMMENCEMENT OF ANY WORK.
 - ALL RECEPTACLES IN THIS AREA SHALL BE TAMPER RESISTANCE AS PER NEC 406.12.
 - PROVIDE JUNCTION BOX WITH LOCAL TOGGLE SWITCH DISCONNECT LOCATED ABOVE ACCESSIBLE CEILING AND ASSOCIATED 120V, 10, 20 AMP CIRCUIT(S) FOR SIGNAGE. FIELD VERIFY EXACT ROUGH-IN LOCATION. CIRCUIT THRU TIMECLOCK CONTROLLED RELAY FOR AUTOMATIC ON/OFF CONTROL OF LIGHTING.
 - TELEPHONE BOARD, SEE DETAIL-6 ON SHEET E-3.0 FOR MORE INFORMATION.
 - E.C. SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE AND WORKING SPACE FOR ELECTRICAL PANEL SHALL BE AS PER NEC 2020 SECTION 110.26(A).
 - ELECTRICAL POWER PROVISION FOR MECHANICAL/PLUMBING EQUIPMENT. E.C. SHALL COORDINATE EXACT POWER AND ELECTRICAL OUTLET/DISCONNECT REQUIREMENT FOR MECHANICAL/PLUMBING EQUIPMENT WITH EQUIPMENT MANUFACTURER IN COORDINATION WITH ARCHITECT/OWNER IN THE FIELD PRIOR TO ROUGH-IN.
 - E.C. SHALL COORDINATE EXACT LOCATION/MOUNTING DETAILS OF ELECTRICAL DATA OUTLET FOR MENUBOARD IN FIELD WITH ARCHITECT/OWNER. BASE BID ACCORDINGLY.
 - VERIFY WALK-IN COOLER ELECTRICAL REQUIREMENT IN THE FIELD. ADJUST ELECTRICAL CONNECTIONS PER MANUFACTURER'S DOCUMENTATION AS REQUIRED.
 - INTERLOCK EF-1 & EF-2 WITH RTU-5(E). E.C. SHALL COORDINATE WITH MECHANICAL DRAWING FOR THE EXACT REQUIREMENT.
 - PROVIDED BY BUILDING SHELL G.C., E.C. TO VERIFY EXACT CONDUIT STUB LOCATIONS WITH ARCHITECT/LANDLORD PRIOR TO ROUGH-IN.
 - E.C. SHALL COORDINATE EXACT LOCATION OF ELECTRICAL DATA OUTLET AS PER THE ARCHITECTURAL ELEVATION IN FIELD. MAKE POWER/DATA PROVISION ACCORDINGLY.

- POWER PLAN GENERAL NOTES:**
- COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ABOVE CEILING WITH MECHANICAL CONTRACTOR.
 - E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN. E.C. COORDINATE LOCATION OF DISCONNECT SWITCH WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
 - REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
 - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
 - CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.
 - ALL WIRING TO BE #12AWG WITH #12AWG GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED OR REQUIRED.
 - ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS LOCATED IN KITCHEN, DRIVE-THRU, AND FOOD PREP AREAS SHALL BE GFCI PROTECTION PER NEC 210.8B.
 - VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
 - DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCES ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
 - ALL CONDUITS TO ISLAND CABINETRY AND TABLES SHALL BE UNDERGROUND.
 - SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.



1 POWER FLOOR PLAN
1/4" = 1'-0"

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REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
POWER FLOOR PLAN

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-2.0

SHEET 5 OF 9

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ACTUAL CONDITIONS, CONSTRUCTION AND/OR USE THEREOF. THIS DRAWING IS TO CONVEY DESIGN INTENTIONS AND/OR CODE COMPLIANCE ONLY. USE OF THESE DRAWINGS IMPLIES AGREEMENT WITH THESE CONDITIONS. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS.

SYSTEMS PLAN KEYED NOTES: (#)

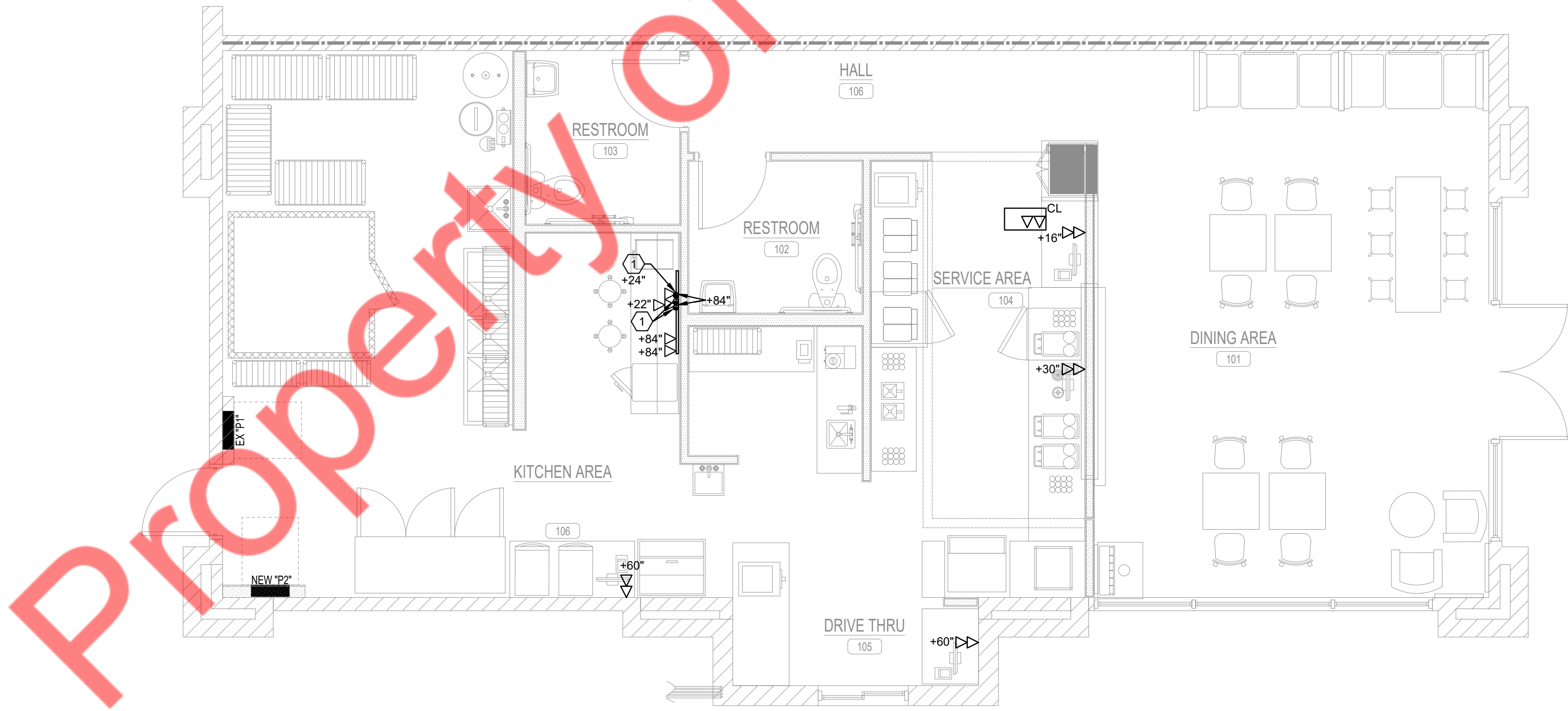
1. PROVIDE DOUBLE GANG MUD RING FOR DATA CABLE ROUTING.

SYSTEM PLAN GENERAL NOTES:

A. VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.

B. DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCES ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.

C. ALL CONDUITS TO ISLAND CABINETRY AND TABLES SHALL BE UNDERGROUND.



1 SYSTEMS FLOOR PLAN
1/4" = 1'-0"

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PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
SYSTEMS FLOOR PLAN

PROJECT NUMBER 25-005

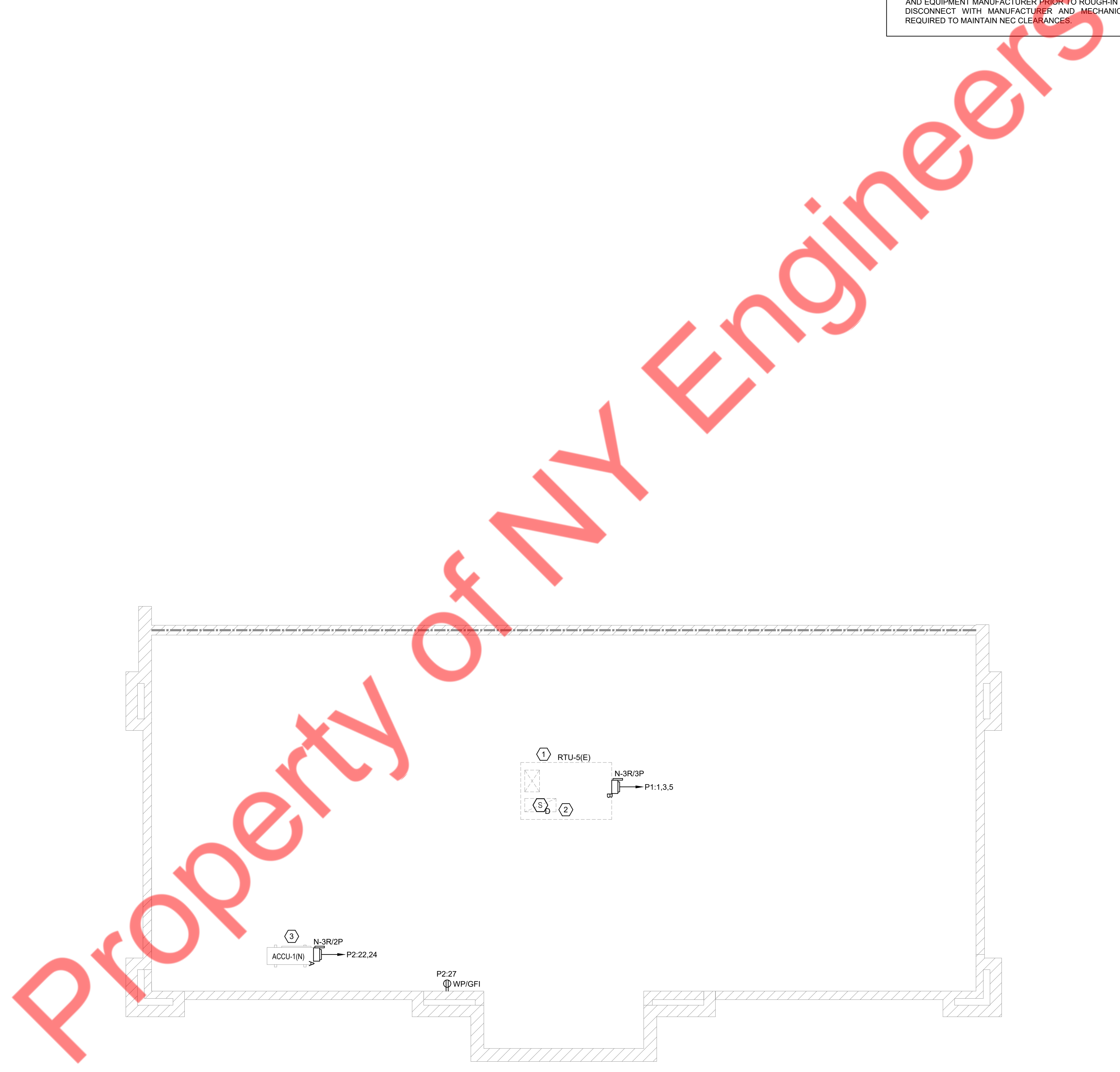
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SHEET NO.

E-2.1

SHEET 6 OF 9

- ROOF POWER PLAN KEYED NOTES: (#)
1. E.C. SHALL VERIFY AVAILABILITY OF EXISTING DISCONNECTING MEANS AND CIRCUIT IN FIELD. IF UNAVAILABLE PROVIDE NEW AS SHOWN ON THE PLAN. E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE NEW IF REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
 2. DUCT-MOUNTED SMOKE DETECTOR PROVIDED BY ELECTRICAL CONTRACTOR (E.C.), INSTALLED BY MECHANICAL CONTRACTOR. WIRED BY E.C. TO SHUT UNIT DOWN UPON DETECTION OF SMOKE IN AIRSTREAM. FIELD COORDINATE ALL WORK INVOLVED FOR EXACT CONTROL OF THE SAME.
 3. E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.



1 ROOF POWER PLAN
1/4" = 1'-0"

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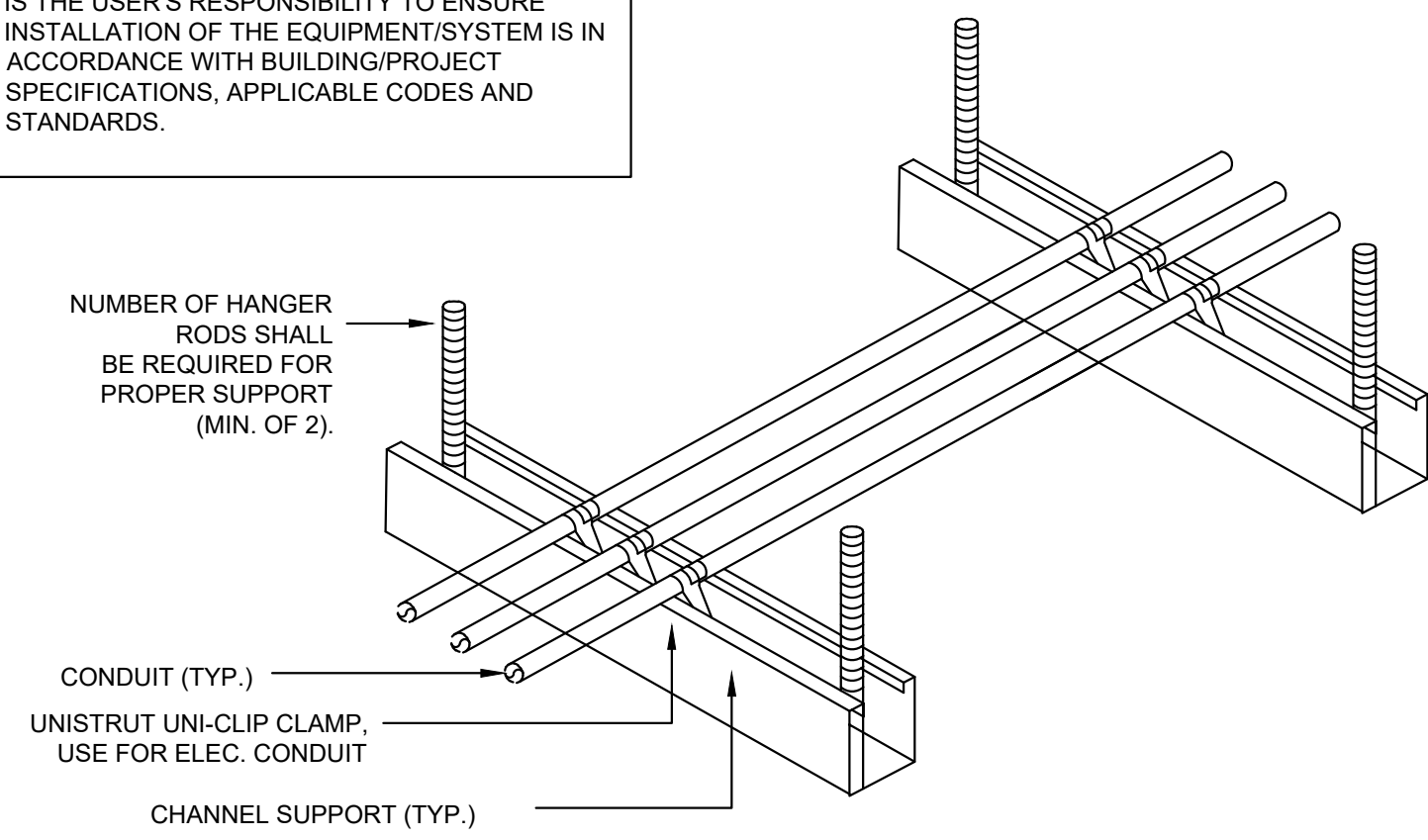
PROJECT NAME:
Beans & Brews
 COFFEE HOUSE
 INTERIOR ALTERATION

SHEET TITLE:
ROOF POWER PLAN

PROJECT NUMBER 25-005
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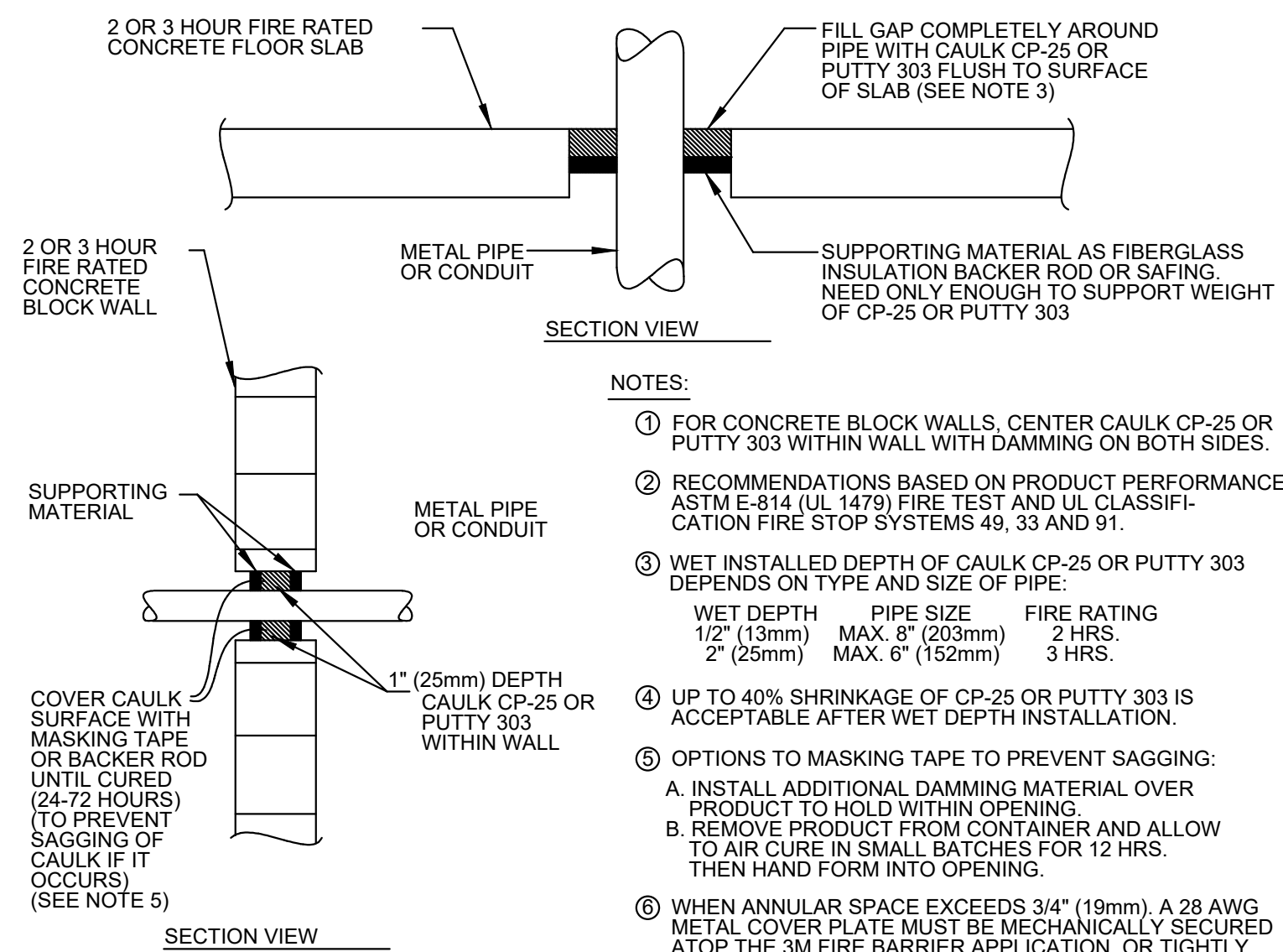
E-2.2

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL
DETAILS REQUIRED FOR CONSTRUCTION.
APPROPRIATE MODIFICATION MAY BE
REQUIRED TO ENSURE SUITABILITY OF THESE
DRAWINGS FOR THE SPECIFIC APPLICATION. IT
IS THE USER'S RESPONSIBILITY TO ENSURE
INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN
ACCORDANCE WITH BUILDING/PROJECT
SPECIFICATIONS, APPLICABLE CODES AND
STANDARDS.



- NOTES:
1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
 2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
 3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
 4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

1 CONDUIT SUPPORT DETAIL
NTS



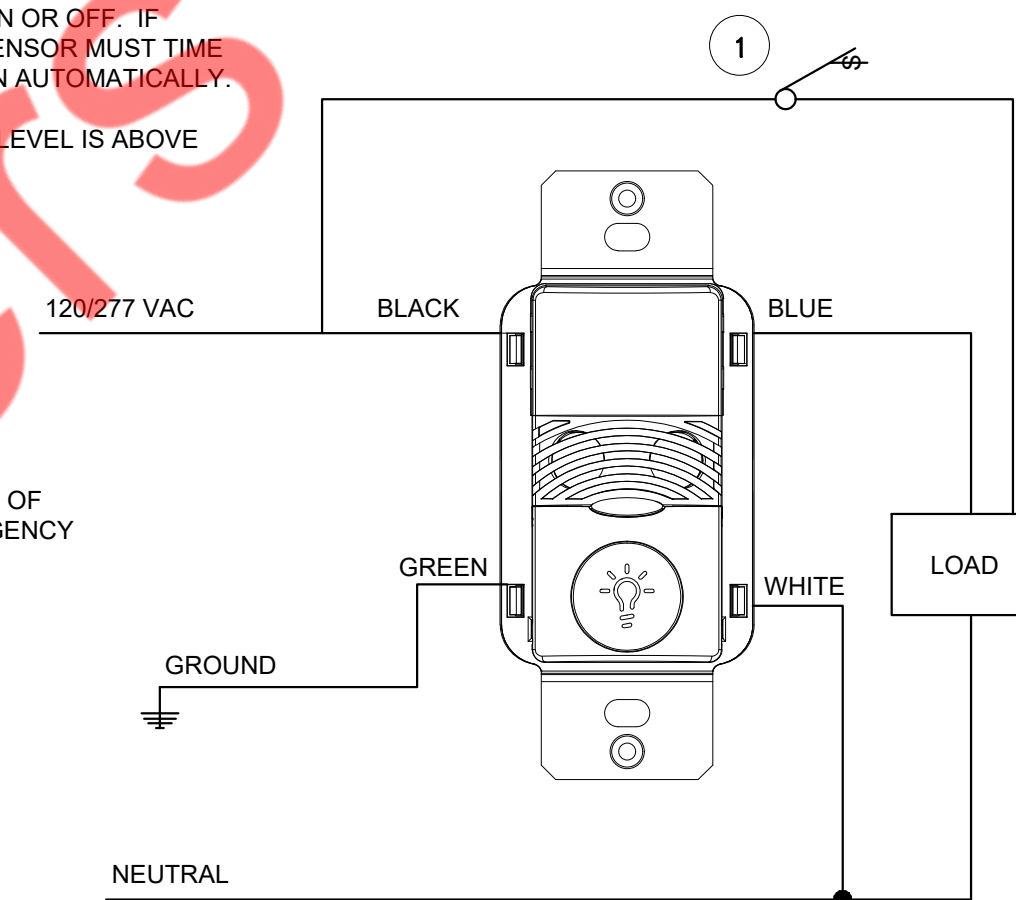
- NOTES:
1. FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
 2. RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
 3. WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:
WET DEPTH PIPE SIZE FIRE RATING
1/2" (13mm) MAX. 6" (203mm) 2 HRS.
2" (25mm) MAX. 6" (152mm) 3 HRS.
 4. UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
 5. OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
 6. WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm), A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.

2 FIRE STOP DETAIL
NTS

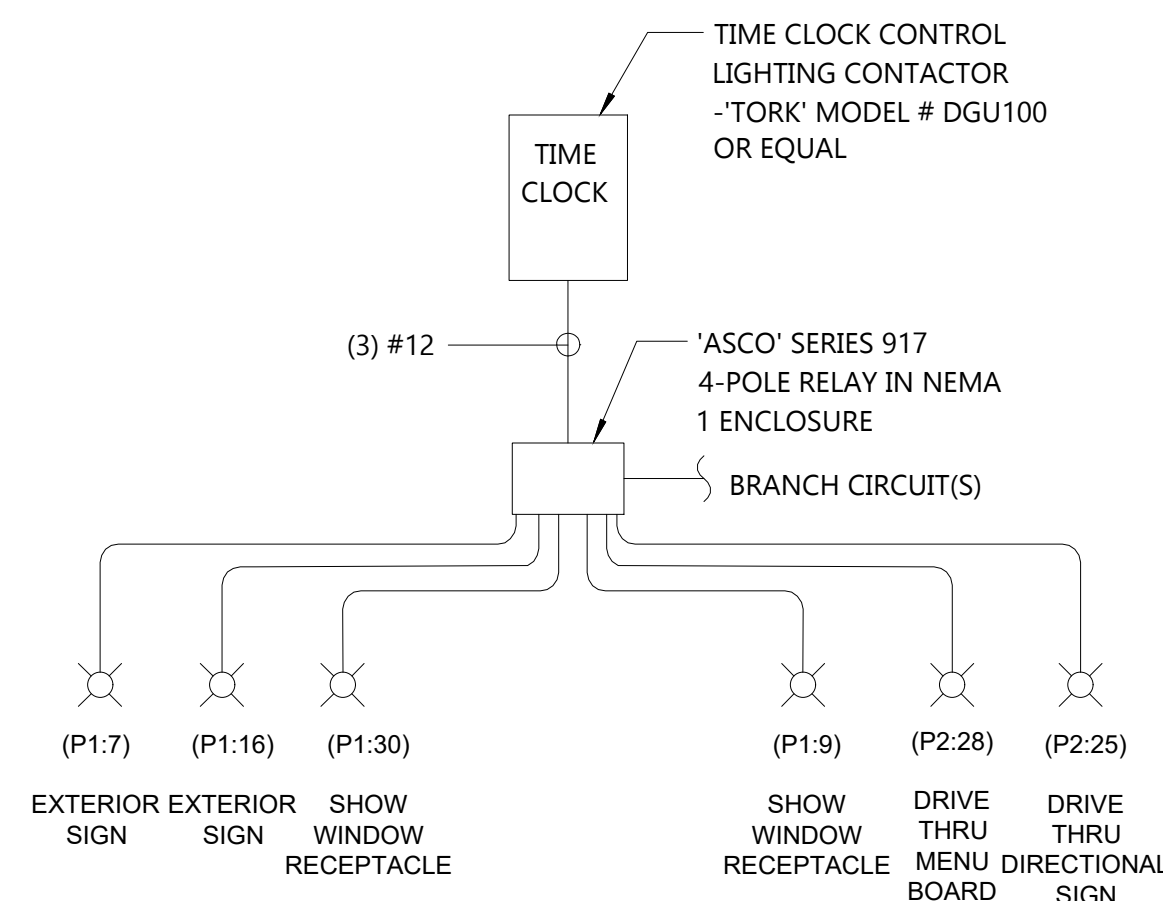
- MANUAL MODE OPERATION:
1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
 2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
 3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.
- AUTOMATIC MODE OPERATION:
1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
 2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
 3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:
ONW-D-1001-MV-N OR EQUAL

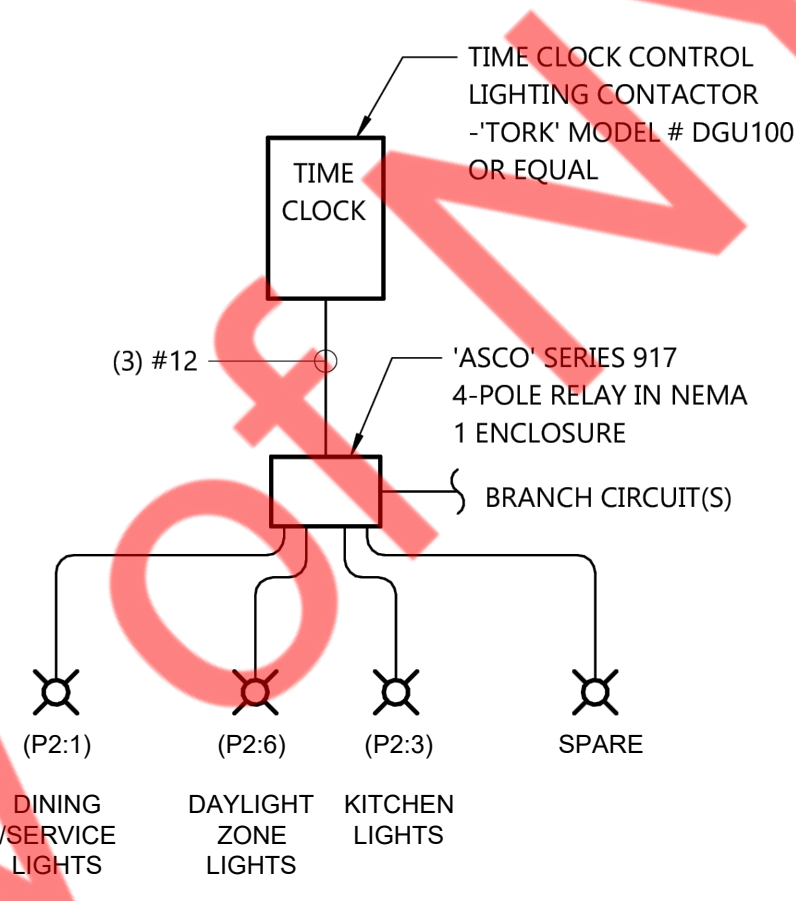
1. PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.



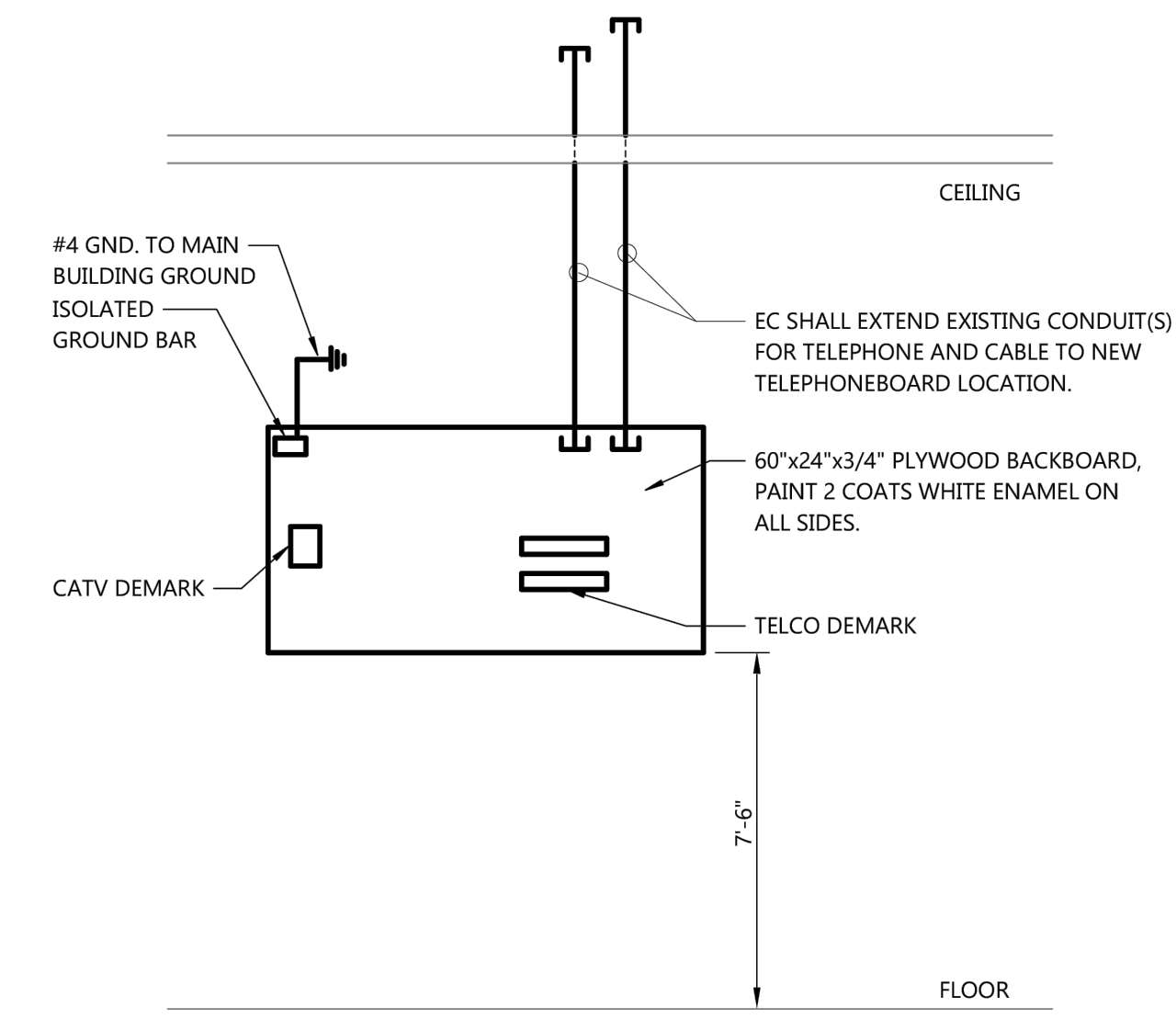
3 WALL SWITCH SENSOR
NTS



4 EXTERIOR LIGHTING CONTROL DETAIL
NTS



5 INTERIOR LIGHTING CONTROL DETAIL
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6 TELEPHONE BOARD DETAIL
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04-01-2025 -- ISSUED FOR PERMIT

REVISIONS:

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:

Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:

**ELECTRICAL
DETAILS**

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-3.0

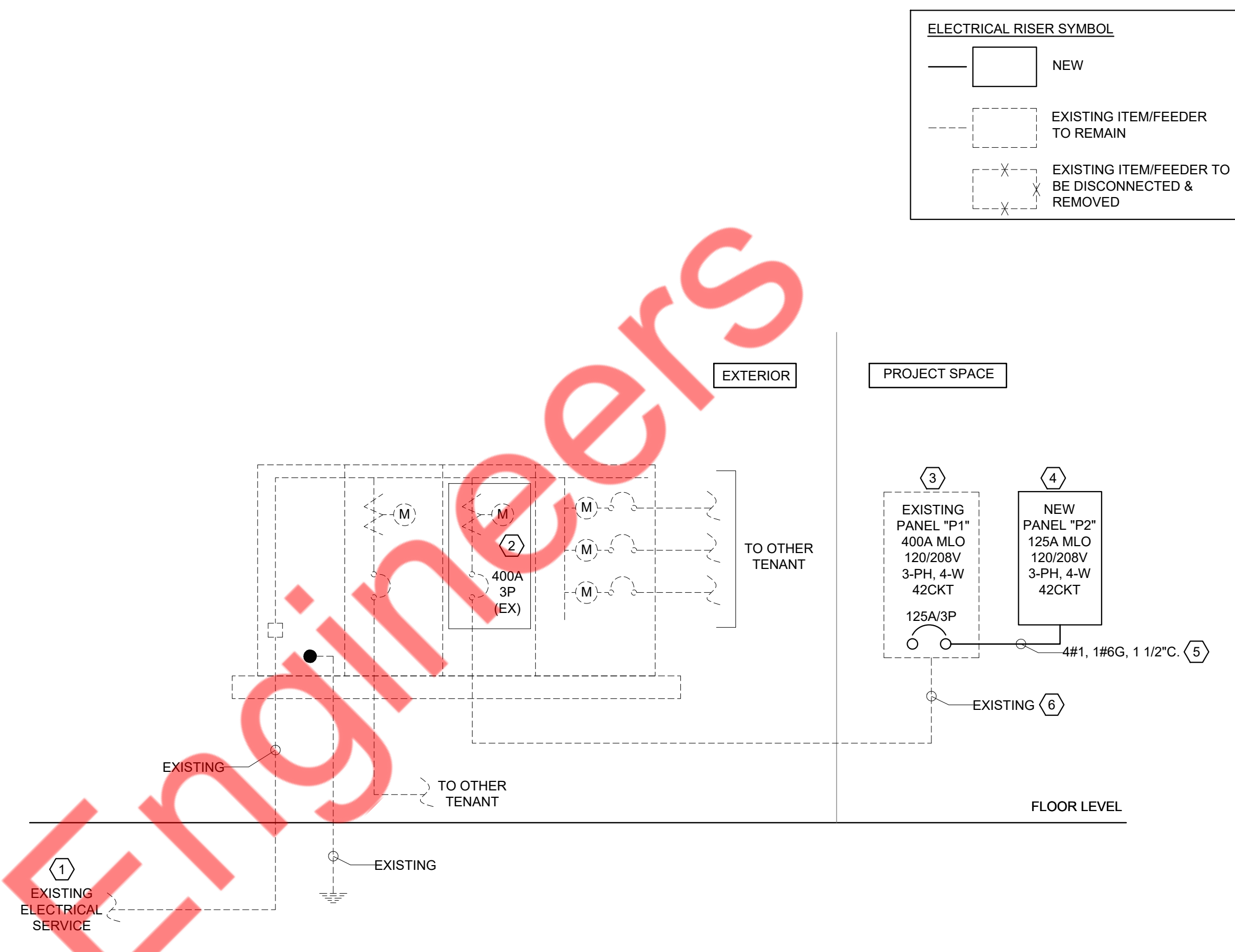
SHEET 8 OF 9

PANEL: P1 (EXISTING)													MOUNTING: RECESSED	
120/208		VOLTS,		3 PHASE,		4 WIRE		LOCATION: KITCHEN AREA						
MAIN CB		NA		MLO: 400A		BUS: EXISTING		FED FROM: EXISTING ELECTRICAL SERVICE						
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1			H	3.72		6.22			2#10, #10G, 3/4"C	2.50	E	#A101_ESPRESSO MACHINE	2P-30*	2
3	3P-4S	RTU-5	H	3.72	3#8, #10G, 3/4"C		6.22				E			4
5			H	3.72			6.22		2#10, #10G, 3/4"C	2.50	E	#A101_ESPRESSO MACHINE	2P-30*	6
7	20	EXTERIOR SIGNAGE	L	1.20	2#12, #12G, 3/4"C	3.70			2#10, #10G, 3/4"C	2.50	E	#A101_ESPRESSO MACHINE	2P-30*	8
9	20	SHOW WINDOW RECEPTACLE	R	1.00	2#12, #12G, 3/4"C		3.50		2#10, #10G, 3/4"C	2.50	E	#A101_ESPRESSO MACHINE	2P-30*	10
11	20	DINING AREA RECEPTACLE	R	1.08	2#12, #12G, 3/4"C			3.58	2#10, #10G, 3/4"C	2.50	E	#A101_ESPRESSO MACHINE	2P-30*	12
13	20	WALK IN COOLER DOOR.	H	0.11	2#12, #12G, 3/4"C	0.50			2#10, #10G, 3/4"C	0.40	E	#A110_WALK-IN COOLER	20	14
15	20	#A104_FROZEN BEVERAGE FREEZER	E	1.84	2#12, #12G, 3/4"C		3.04		2#12, #12G, 3/4"C	1.20	L	EXTERIOR SIGNAGE	20	16
17	20	KITCHEN & SERVICE AREA CONVENIENCE RECEPTACLE	R	0.72	2#12, #12G, 3/4"C			4.24	3#8, #10G, 3/4"C	3.52	E	#A102_COFFEE BREWER	2P-40*	18
19	20	OFFICE RECEPTACLE	R	0.90	2#12, #12G, 3/4"C	4.42				3.52	E		20	20
21	20	HEADSET CHARGING BASE RECEPTACLE	R	0.18	2#12, #12G, 3/4"C		3.30		2#10, #10G, 3/4"C	3.12	E	#A114_RAPID COOK OVEN	2P-30*	22
23	20	TELEPHONE BOARD RECEPTACLE	R	0.36	2#12, #12G, 3/4"C			3.48		3.12	E		24	24
25	20	RECIRCULATING PUMP (RCP-1)	M	0.10	2#12, #12G, 3/4"C	3.22			2#10, #10G, 3/4"C	3.12	E	#A114_RAPID COOK OVEN	2P-30*	26
27	20	#A123_WATER SOFTNER	E	0.18	2#12, #12G, 3/4"C		3.30			3.12	E		28	28
29	20	#A126 & #A128_POS MONITOR & RECEIPT PRINTER	R	0.72	2#12, #12G, 3/4"C			1.72	2#12, #12G, 3/4"C	1.00	R	SHOW WINDOW RECEPTACLE	20	30
31	20	SPARE				1.30			2#12, #12G, 3/4"C	1.30	E	#A103_COFFEE GRINDER	20	32
33	20	SPARE					1.84		2#12, #12G, 3/4"C	1.84	E	#A104_FROZEN BEVERAGE FREEZER	20	34
35	20	SPARE						0.00				SPARE	20	36
37			O	8.56		8.56						SPARE	20	38
39	3P-125**	PANEL P2	O	7.54	4#1, #6G, 1 1/2"C		7.54					SPARE	20	40
41			O	6.75			6.75					SPARE	20	42
TOTAL CONNECTED LOAD (KVA)						27.91	28.74	25.98						

PANEL: P2 (NEW)													MOUNTING: RECESSED	
120/208		VOLTS,		3 PHASE,		4 WIRE		LOCATION: KITCHEN AREA						
MAIN CB		NA		MLO: 125A		BUS: 125A		FED FROM: EXISTING PANEL "P1"						
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	HALL & SERVICE AREA LIGHTING	L	0.43	2#12, #12G, 3/4"C	0.61			2#12, #12G, 3/4"C	0.18	R	ROOF RECEPTACLE	20	2
3	20	KITCHEN AREA & RESTROOM LIGHTING	L	0.67	2#12, #12G, 3/4"C		1.03		2#12, #12G, 3/4"C	0.36	R	MENUBOARD RECEPTACLE	20	4
5	20	TIME CLOCK	L	0.50	2#12, #12G, 3/4"C			0.78	2#12, #12G, 3/4"C	0.28	L	DAYLIGHT ZONES LIGHTS	20	6
7	20	#A105_DOUBLE BOWL BUBBLER	E	0.66	2#12, #12G, 3/4"C	2.27			2#12, #12G, 3/4"C	1.61	E	#A111_THREE DOOR FREEZER	20*	8
9	20	#A105_DOUBLE BOWL BUBBLER	E	0.66	2#12, #12G, 3/4"C		0.89		2#12, #12G, 3/4"C	0.23	E	#A112_UNDER COUNTER REFRIGERATOR	20*	10
11	20	#A105_DOUBLE BOWL BUBBLER	E	0.66	2#12, #12G, 3/4"C			0.89	2#12, #12G, 3/4"C	0.23	E	#A112_UNDER COUNTER REFRIGERATOR	20*	12
13			E	1.14		1.66			2#12, #12G, 3/4"C	0.52	E	#A113_SANDWICH PREP REFRIGERATOR	20*	14
15	2P-15*	#A106_IJCE MACHINE	E	1.14	2#12, #12G, 3/4"C		1.86		2#12, #12G, 3/4"C	0.72	R	#A126 & #A127_KITCHEN ORDER MONITOR & RECEIPT PRINTER	20	16
17	20	#A107_BLENDER	E	1.80	2#12, #12G, 3/4"C		2.48		2#12, #12G, 3/4"C	0.68	H	AC-1(N)	2P-15	18
19	20	#A107_BLENDER	E	1.80	2#12, #12G, 3/4"C	2.48				0.68			20	20
21	20*	#A115_PASTRY CASE	E	0.05	2#12, #12G, 3/4"C	2.38			2#10, #10G, 3/4"C	2.33	H	ACCU-1(N)	2P-25	22
23	20	#A125_WATER HEATER (WH-1)	O	0.18	2#12, #12G, 3/4"C		2.51			2.33			24	24
25	20	DRIVE THRU DIRECTINAL SIGN	O	1.20	2#12, #12G, 3/4"C	1.55			2#12, #12G, 3/4"C	0.35	M	EF-1(N) & EF-2(N)	20	26
27	20	ROOF RECEPTACLES	R	0.18	2#12, #12G, 3/4"C	1.38			2#12, #12G, 3/4"C	1.20	O	DRIVE THRU MENU BOARD	20	28
29	20	MOTORISED DAMPERS	M	0.10	2#12, #12G, 3/4"C		0.10					SPARE	20	30
31	20	SPARE				0.00						SPARE	20	32
33	20	SPARE					0.00					SPARE	20	34
35	20	SPARE						0.00				SPARE	20	36
37	20	SPARE				0.00						SPARE	20	38
39	20	SPARE					0.00					SPARE	20	40
41	20	SPARE						0.00				SPARE	20	42
TOTAL CONNECTED LOAD (KVA)						8.56	7.54	6.75						

PANEL SCHEDULE GENERAL NOTES:	ELECTRICAL PANEL SCHEDULE ABBREVIATIONS:
<ol style="list-style-type: none"> E.C. SHALL COORDINATE EXACT POWER AND ELECTRICAL OUTLET/DISCONNECT REQUIREMENT FOR MECHANICAL/PLUMBING EQUIPMENT WITH EQUIPMENT MANUFACTURER IN COORDINATION WITH ARCHITECT/OWNER IN THE FIELD PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY. E.C. SHALL COORDINATE WITH ALL EQUIPMENT MANUFACTURER/SUPPLIER/ARCHITECT/ OWNER FOR THE EXACT ELECTRICAL REQUIREMENTS AND ACCORDINGLY PROVIDE THE BREAKER, CABLE AND CONDUIT ACCORDINGLY. BASE BID ACCORDINGLY. CONTRACTOR SHALL COORDINATE WITH ARCHITECT/OWNER/LV CONSULTANT FOR POWER AND ELECTRICAL REQUIREMENTS FOR THE LOW VOLTAGE AND SECURITY SYSTEM IN FIELD AND ACCORDINGLY PROVIDE THE ELECTRICAL CONNECTIONS/CIRCUITS FROM SPARE CIRCUITS FOR LOW VOLTAGE SYSTEM PER REQUIREMENTS. BASE BID ACCORDINGLY. 	<ul style="list-style-type: none"> (E) EXISTING (N) NEW MLO MAIN LUG ONLY L LIGHTING R RECEPTACLE H HVAC M MOTOR E EQUIPMENT O OTHER * NEW GFCI BREAKER ** NEW BREAKER

1 ELECTRICAL PANEL SCHEDULE
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- RISER DIAGRAM KEYED NOTES:**
- EXISTING ELECTRICAL SERVICE FROM THE UTILITY COMPANY TO REMAIN AS IS. E.C. SHALL COORDINATE WITH OWNER/UTILITY COMPANY FOR EXACT POWER DISTRIBUTION. INFORM THE ENGINEER ON RECORD FOR ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.
 - EXISTING ELECTRICAL METER & BREAKER OF 400A, 120/208V, 3-PH, 4-W FOR THE PROJECT SPACE SHALL REMAIN AS IS. E.C. SHALL VERIFY EXACT LOCATION & OPERABLE CONDITION OF EXISTING METER & BREAKER IN FIELD WITH ARCHITECT/LANDLORD. REPLACE WITH NEW IF FOUND INOPERABLE. INFORM THE ENGINEER ON RECORD FOR ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.
 - EXISTING 400A (MLO), 120/208V, 3-PH, 4-W ELECTRICAL PANEL "P1" TO REMAIN. THE ELECTRICAL CONTRACTOR (E.C.) IS REQUIRED TO FIELD VERIFY THE EXACT SIZE, LOCATION AND OPERABLE CONDITION OF THE PANEL. IF THE PANEL IS FOUND TO BE INOPERABLE, IT MUST BE REPLACED. INFORM ENGINEER ON RECORD IN CASE OF ANY DISCREPANCY FOUND WITH SITE CONDITION. BASE BID ACCORDINGLY.
 - NEW 125A (MLO), 120/208V, 3-PH, 4-W ELECTRICAL PANEL "P2" FOR THE SPACE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF NEW ELECTRICAL PANEL "P2" IN FIELD.
 - E.C. TO FIELD VERIFY THE EXACT LENGTH OF THE CABLE AND CHECK THE VOLTAGE DROP IS UNDER LIMIT PER NEC BEFORE INSTALLATION.
 - EXISTING ELECTRICAL FEEDER SHALL REMAIN. E.C. TO VERIFY OPERABLE CONDITION OF FEEDER IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

- RISER DIAGRAM GENERAL NOTES:**
- ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C. TO VERIFY EXACT POWER DISTRIBUTION & OPERABLE CONDITION OF EXISTING DEVICES/EQUIPMENTS IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY. VERIFY SCOPE OF WORK WITH OWNER/LANDLORD PRIOR TO BID.
 - E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.
 - E.C. TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.

2 ELECTRICAL RISER DIAGRAM
NTS

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NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
Beans & Brews
COFFEE HOUSE
INTERIOR ALTERATION

SHEET TITLE:
ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES

PROJECT NUMBER 25-005

DATE 02-10-2025

SHEET NO.

E-4.0