

MECHANICAL SYMBOLS LIST

	EQUIPMENT SYMBOL
AIR DEVICES	
	CEILING DIFFUSER SUPPLY
	CEILING DIFFUSER RETURN
DUCT ACCESSORIES	
	BACKDRAFT DAMPER
	VOLUME DAMPER W/ ACCESS DOOR
CONTROLS AND SENSORS	
	THERMOSTAT
	HUMIDISTAT
	TEMPERATURE SENSOR
	HUMIDITY-SENSOR
	MANUAL PUSH BUTTON
DUCTWORK	
	AIR DUCT W/ 1.5" ACOUSTICAL LINING
	FLEXIBLE DUCT
	FLEXIBLE CONNECTION
	RECTANGULAR DUCT (WIDTH X DEPTH)
	SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
	RETURN AIR RECTANGULAR DUCT CROSS SECTION
	ROUND DUCT (DIAMETER)
	ROUND DUCT CROSS SECTION

ABBREVIATIONS

RTU	ROOF TOP UNIT
MAU	MAKE-UP AIR UNIT
AL	ACOUSTIC LINING
BD	BACKDRAFT DAMPER
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
CFM	CUBIC FEET OF AIR PER MINUTE
DN	DOWN
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST AIR TERMINAL
FC	FLEXIBLE CONNECTION
EF	GENERAL EXHAUST FAN
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
RG	RETRUN AIR TERMINAL
SG	SUPPLY AIR TERMINAL
TEF	TOILET EXHAUST FAN
VD	VOLUME DAMPER
KEF	KITCHEN EXHAUST FAN

MECHANICAL DRAWING LIST

M0.1	MECHANICAL GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS
M0.2	MECHANICAL SPECIFICATIONS
M1.1	MECHANICAL FLOOR PLAN
M1.2	MECHANICAL ROOF PLAN
M3.0	MECHANICAL DETAILS (1 OF 2)
M3.1	MECHANICAL DETAILS (2 OF 2)
M4.0	MECHANICAL SCHEDULES
H1.1	HOOD DETAILS (1 OF 4)
H1.2	HOOD DETAILS (2 OF 4)
H1.3	HOOD DETAILS (3 OF 4)
H1.4	HOOD DETAILS (4 OF 4)

CODE COMPLIANCE

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECTS:

- 2015 INTERNATIONAL BUILDING CODE.
- 2015 INTERNATIONAL MECHANICAL CODE
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE
- 2015 INTERNATIONAL PLUMBING CODE
- 2020 NATIONAL ELECTRICAL CODE

MILLBROOK BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF INTERNATIONAL BUILDING CODE 2015 AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

- THE CONTRACTOR SHALL ENGAGE THE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
- THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
- TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE INTERNATIONAL MECHANICAL CODE 2015:
 - VENTILATION SYSTEM BALANCING MC- 403.3.1.5
- THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
 - DUCT CONSTRUCTION AND INSTALLATION-2015 IMC- 601.
 - AIR INTAKES, EXHAUSTS AND RELIEF -2015 IMC- 401.5.
 - AIR FILTER-2015 IMC - 605.
 - SMOKE DETECTORS AND FIRE AND SMOKE DAMPERS 2015 IMC - 606 & 607 RESPECTIVELY.
 - GAS FIRED EQUIPMENT - 2015 INTERNATIONAL FUEL AND GAS CODE.
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
- A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2015 IMC 401.
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
- A FINAL REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT. THE REPORT SHALL BE ORGANIZED WITH MECHANICAL SYSTEM AND SERVICE HOT WATER SYSTEM FINDINGS IN SEPARATE SECTIONS TO ALLOW INDEPENDENT REVIEW.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.

GENERAL NOTES

- CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
- 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 IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
- SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK, CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
- PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
- SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
- WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
- REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
- 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.
- UNLESS OTHERWISE SPECIFICALLY 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.
- MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY. PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE.

GENERAL HVAC NOTES

GENERAL:

- 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.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- 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.
- 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.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- 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.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- LOCATE ALL TEMPERATURE, 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.
- 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.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- 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.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
- 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.
- LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
- ALL CONDENSATE DRAIN LINES FROM EACH ROOF TOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN OR GUTTER OR DOWN SPOUT PROVIDED THAT DOWNSPOUT DOES NOT DISCHARGE ONTO PAVEMENT. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.
- REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.

SCOPE OF WORK

SCOPE OF WORK

- THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S) DESIGN, DETAIL DRAWINGS, NOTES, RFI'S, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS 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.
- 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 OF 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 PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

HVAC DUCTWORK - SHEET METAL

- CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.
- CONTRACTOR TO CHECK AND CORRECT ANY AND ALL DEFICIENCIES IN EXISTING DUCTS. ALL NEW DUCTWORK WILL COMPLY WITH THE LATEST SMACNA GUIDELINES AND CONFORM WITH REQUIREMENTS OF THE LATEST HANDBOOKS PUBLISHED BY ASHRAE.
- PROVIDE VOLUME DAMPER AT EACH TAP TO MAIN DUCT AND WHERE NECESSARY TO PROPERLY BALANCE SYSTEM.
- SUPPLY AND RETURN DUCTWORK 10' FROM ALL HVAC UNITS SHALL BE LINED WITH 1.5" ACOUSTICAL LINING.
- RE-INSULATE ALL DUCTWORK AND PIPING IN WHICH INSULATION HAS BEEN REMOVED OR DAMAGED WITH INSULATION EQUAL TO THE EXISTING INSULATION.
- CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY SUPPLY DIFFUSERS AND RETURN AIR REGISTERS WHERE INDICATED ON THE DRAWING. COORDINATE LOCATION OF DIFFUSERS AND REGISTERS WITH REFLECTED CEILING PLAN.
- IN CORRIDORS WHERE CEILING SPEAKERS AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE FIXTURES.
- UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 4'-0" (CENTER LINE) ABOVE THE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
- ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.
- ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
- PROVIDE ALL 90-DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUSTS SHALL BE OF UN-VANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1-1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
- COORDINATE DIFFUSER, REGISTER, AND GRILL LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
- LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVING.
- PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF NEEDED.
- RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FT.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE ACCESS DOORS IN DUCTWORK FOR THE OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.
- ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
- SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.

SHEET HISTORY SCHEDULE

ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT

BARBERITOS

MECHANICAL GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS

M0.1

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.

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.
1.2 SUBMITTALS
A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.
1.3 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.

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.
5. PROCO PRODUCTS, 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 2 - PRODUCTS
2.1 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.
2.2 FLOOR PLATES
A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.
PART 3 - EXECUTION
3.1 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.
3.2 FIELD QUALITY CONTROL
A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.

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 ASCE/SEI 7.
1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
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. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL
C. 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 HVAC PIPING AND EQUIPMENT

- PART 1 - GENERAL
1.1 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

PART-2 PRODUCTS

- 1.1 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:
B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. HILTI, INC.
5. ISOLATION TECHNOLOGY, INC.
6. KINETICS NOISE CONTROL.
7. LOOS & CO.; CABLEWARE DIVISION.
8. MASON INDUSTRIES.
9. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
10. UNISTRUT; TYCO INTERNATIONAL, LTD.
END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

- 1.1 SUMMARY
A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

- 1. AIR SYSTEMS: 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. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.
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. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.
D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.
E. THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.
G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.
H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.
I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.
J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.
END OF SECTION 230593

SECTION 230713 - DUCT INSULATION

- 1.1 QUALITY ASSURANCE
SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS; ACCORDING TO ASTM E 84.
1.2 FIELD QUALITY CONTROL
A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.
1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE;
A. CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL, SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:
B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS: UNCONDITIONED SPACES WITHIN BUILDING: R-5 WITHIN BUILDING ENVELOPE ASSEMBLY: R-8 OUTSIDE OF BUILDING: R-8
1.4 ITEMS NOT INSULATED:
1. FIBROUS-GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE ANDASHRAE/IESNA 90.1.
3. FACTORY-INSULATED FLEXIBLE DUCTS.
4. FACTORY-INSULATED PLENUMS AND CASINGS.
5. FLEXIBLE CONNECTORS.
6. VIBRATION-CONTROL DEVICES.
7. FACTORY-INSULATED ACCESS PANELS AND DOORS.
8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

- 1.5 PRODUCTS
A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:
1. JOHNS-MANVILLE
2. OWENS-CORNING

- 1.6 ACOUSTICAL TREATMENT
1. WHERE SHOWN ON THE DRAWINGS, 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.
END OF SECTION 230713

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. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.
B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
1. DUCTWORK SHALL BE TRANSVERSELY JOINTED BY CONNECTING SEAMS OF COMPACTION ANGLES, FORMED FROM 1-1/2"x1-1/2"x1/8" GALVANIZED ANGLES, TACK-WELDED OR RIVETED TO THE DUCT. THE ANGLE FRAME SHALL BE CONTINUOUSLY FLANGED UP INTO UPRIGHT OF ANGLE AND EACH CORNER SHALL BE FILLED IN AND GROUND SMOOTH. JOINTS SHALL BE GASKETED WITH 1/8" THICK REINFORCED GASKET, OVERLAPPED AT CORNERS, GASKET SIMILAR TO 3M-1202 OR APPROVED EQUAL.
2. RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.
3. HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 8' CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.
4. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
5. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWG A5.2.
6. ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.
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:
USG MAX. SIDE INCHES TRANSVERSE JOINTS AND BRACING
22 UP TO 12 S SLIP, DRIVE SLIP, ONE INCH POCKET LOCK ON 8 FOOT CENTERS
22 13 TO 24 1"x1"x1/8" ANGLES ON 4 FOOT CENTERS
20 25 TO 35 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 OF RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.
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.
2. STAINLESS-STEEL SHEETS.
3. ALUMINUM SHEETS.
4. FACTORY-APPLIED ANTI-MICROBIAL COATING.
D. DUCT LINER:
1. FIBROUS GLASS, TYPE I, FLEXIBLE.
a. WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.
2. FLEXIBLE ELASTOMERIC.
3. NATURAL FIBER.
E. SEALANT MATERIALS:
1. TWO-PART TAPE SEALING SYSTEM.
2. WATER-BASED JOINT AND SEAM SEALANT.
3. SOLVENT-BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.
6. 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.

- 1. AIR-HANDLING UNITS.
2. COILS AND RELATED COMPONENTS.
3. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
4. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
5. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

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

SECTION 233713 - DIFFUSERS AND GRILLES

- 1.1 PRODUCTS
A. DIFFUSERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.
B. MANUFACTURERS: TITUS
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
a. CARNES.
b. HART & COOLEY INC.
c. KRUEGER.
d. METALAIR, INC.
e. NAILOR INDUSTRIES INC.
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

THERMOSTATIC CONTROLS:

- A. 503.2.4.1 THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.
EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:
1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.
B. 503.2.4.1.1 HEAT PUMP SUPPLEMENTARY HEAT
HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTARY HEAT OPERATION WHEN THE HEAT PUMP CAN MEET THE HEATING LOAD.
C. 503.2.4.2 SETPOINT OVERLAP RESTRICTION
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
EXCEPTIONS: THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
D. 503.2.4.3 OFF-HOUR CONTROLS (MANDATORY) EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.
EXCEPTIONS:
1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.

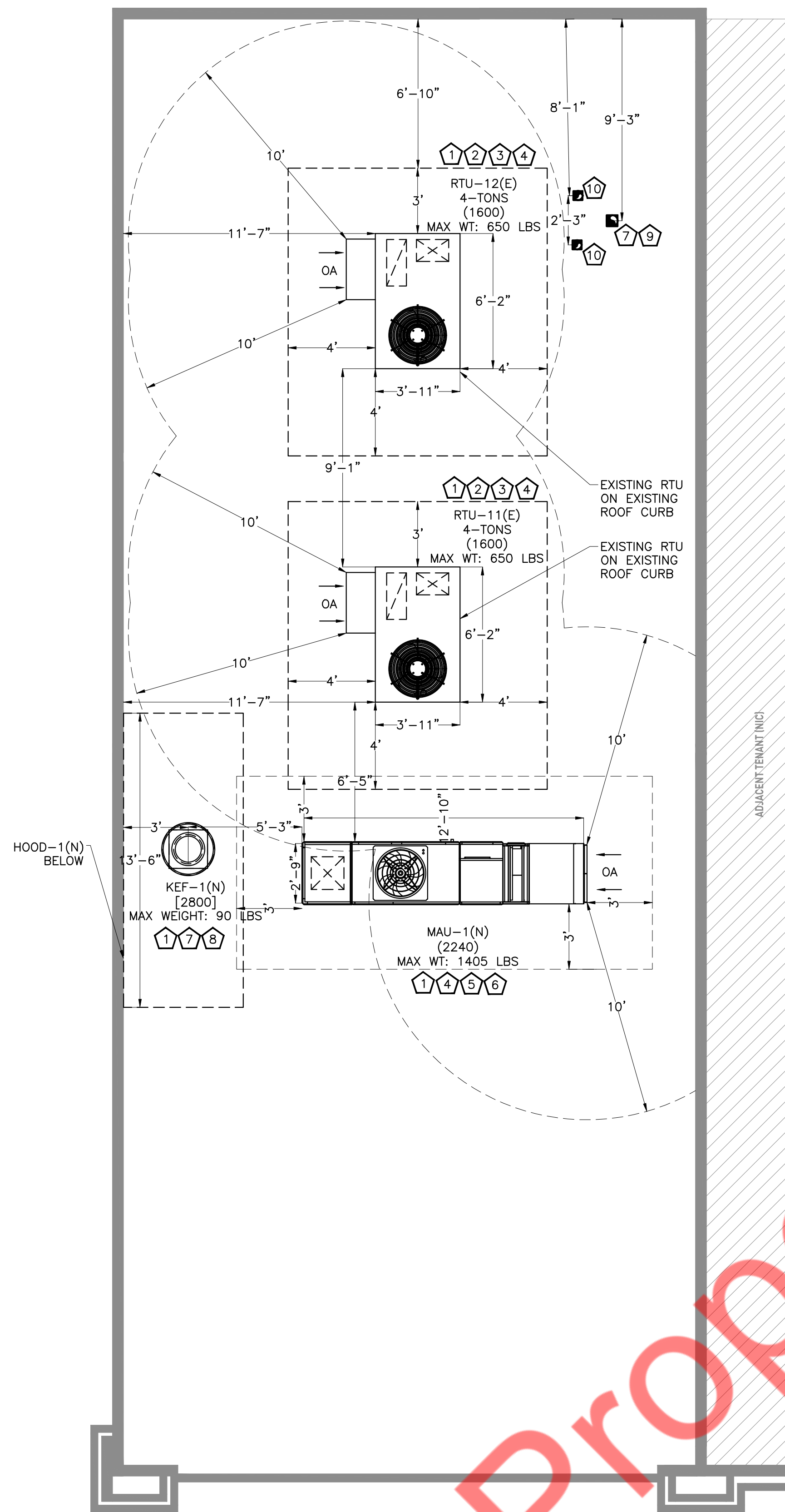
- E. 503.2.4.3.1 THERMOSTATIC SETBACK CAPABILITIES
THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).
F. 503.2.4.3.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES.
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

SHEET HISTORY SCHEDULE table with columns for sheet number, description, and date.

ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT BARBERITOS

MECHANICAL SPECIFICATIONS MO.2



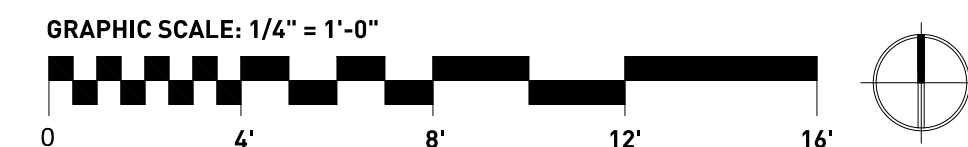
MECHANICAL GENERAL NOTES

- COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
- EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
- TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO GENERAL CONTRACTOR AND OWNER.
- ALL RTU WEIGHTS ARE INCLUDING ROOF CURBS AND/OR ADAPTORS.
- M.C TO COORDINATE INSTALLATION OF WATER HEATER EXHAUST FLUE WITH PLUMBING CONTRACTOR.
- ALL ROOF PENETRATIONS SHALL BE COORDINATED WITH AND CONSTRUCTED BY LANDLORD ROOFING CONTRACTOR.

MECHANICAL ROOF PLAN KEY NOTES:

- COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL ENGINEER/DRAWINGS.
- PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCT CONNECTIONS FOR RTU-11(E) & RTU-12(E). 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. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
- CONDENSATE DRAIN FROM RTU-11(E) & RTU-12(E) SHALL BE CONVEYED TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF NOT LESS THAN 1/8" UNIT VERTICAL IN 12 UNITS HORIZONTAL (1% SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE A NUISANCE.
- CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE SHOULD BE AT LEAST 10' AWAY FROM THE OUTSIDE AIR INTAKE OPENING OF MECHANICAL UNIT.
- ROUTE CONDENSATE DRAIN FROM MAU-1(N) ON THE ROOF TO THE NEAREST DRAIN POINT. CONNECT TO A DRAIN LINE VIA AIR GAP IN AN APPROVED MANNER.
- PROVIDE ROOF CURB, FLEXIBLE CONNECTION ON THE SUPPLY DUCT CONNECTION TRANSITION TO DUCT SIZE INDICATED FOR MAKE-UP AIR UNIT. ACOUSTICALLY LINE THE FIRST 10'-0" SUPPLY MAIN DUCT.
- EXHAUST TERMINATION TO BE 10 FT. AWAY FROM ANY OUTDOOR INTAKE OPENING.
- ROOF MOUNTED KITCHEN EXHAUST FAN AND FAN CURB. COORDINATE INSTALLATION OF FAN WITH LANDLORD AND EXISTING CONDITIONS TO ENSURE THAT EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10 FT. HORIZONTALLY FROM AIR INTAKE SOURCE.
- TERMINATE #6" TOILET EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK & WIRE-MESH. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
- #3"x#5" COMMON VENTING SYSTEM TERMINATION FOR COMBUSTION AIR INTAKE AND EXHAUST AIR VENT. INSTALL AND TERMINATE AS PER MANUFACTURER'S RECOMMENDATIONS.

1 MECHANICAL ROOF PLAN
M1.2 SCALE: 1/4" = 1'-0"



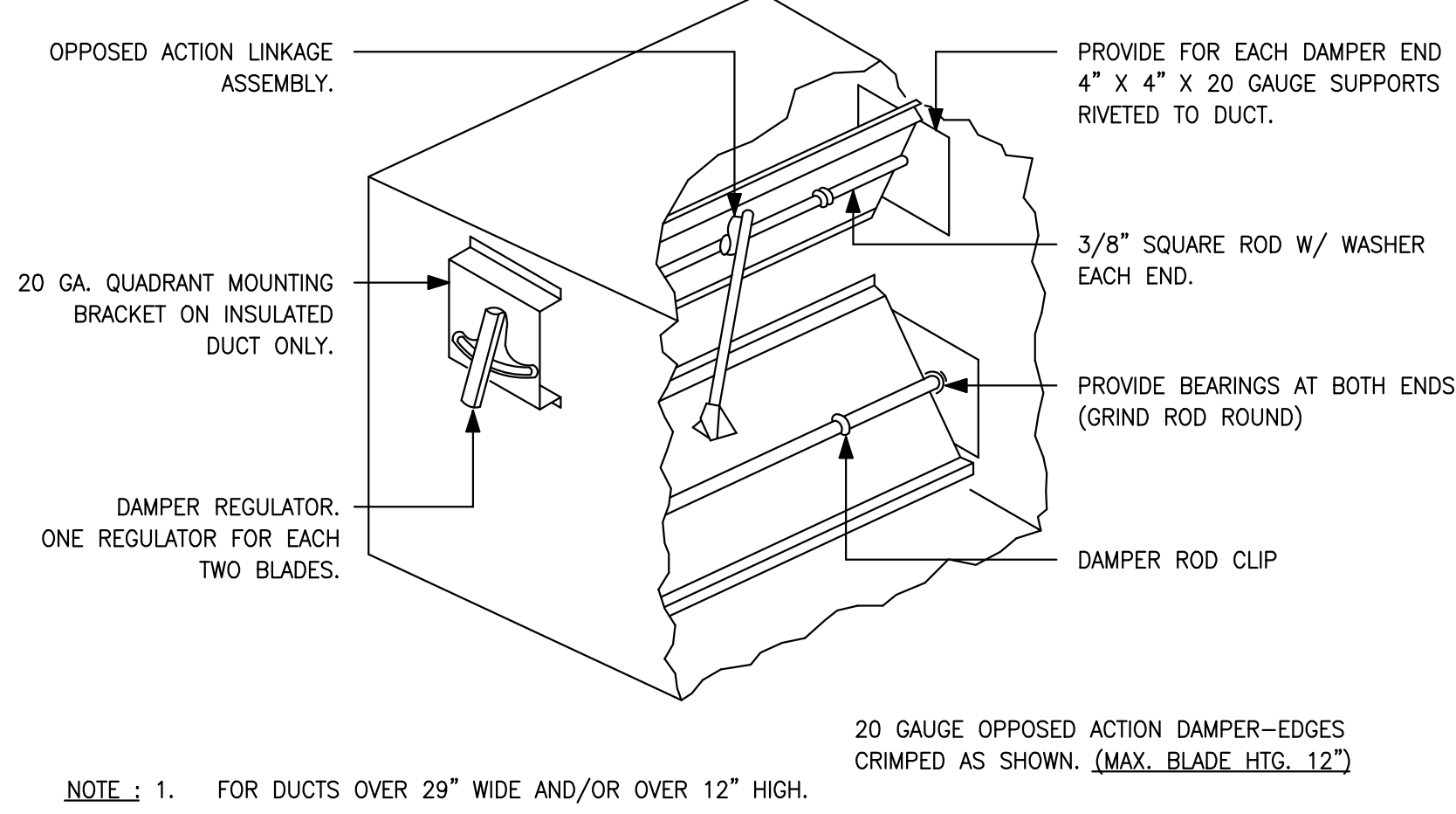
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NO.	DATE	DESCRIPTION

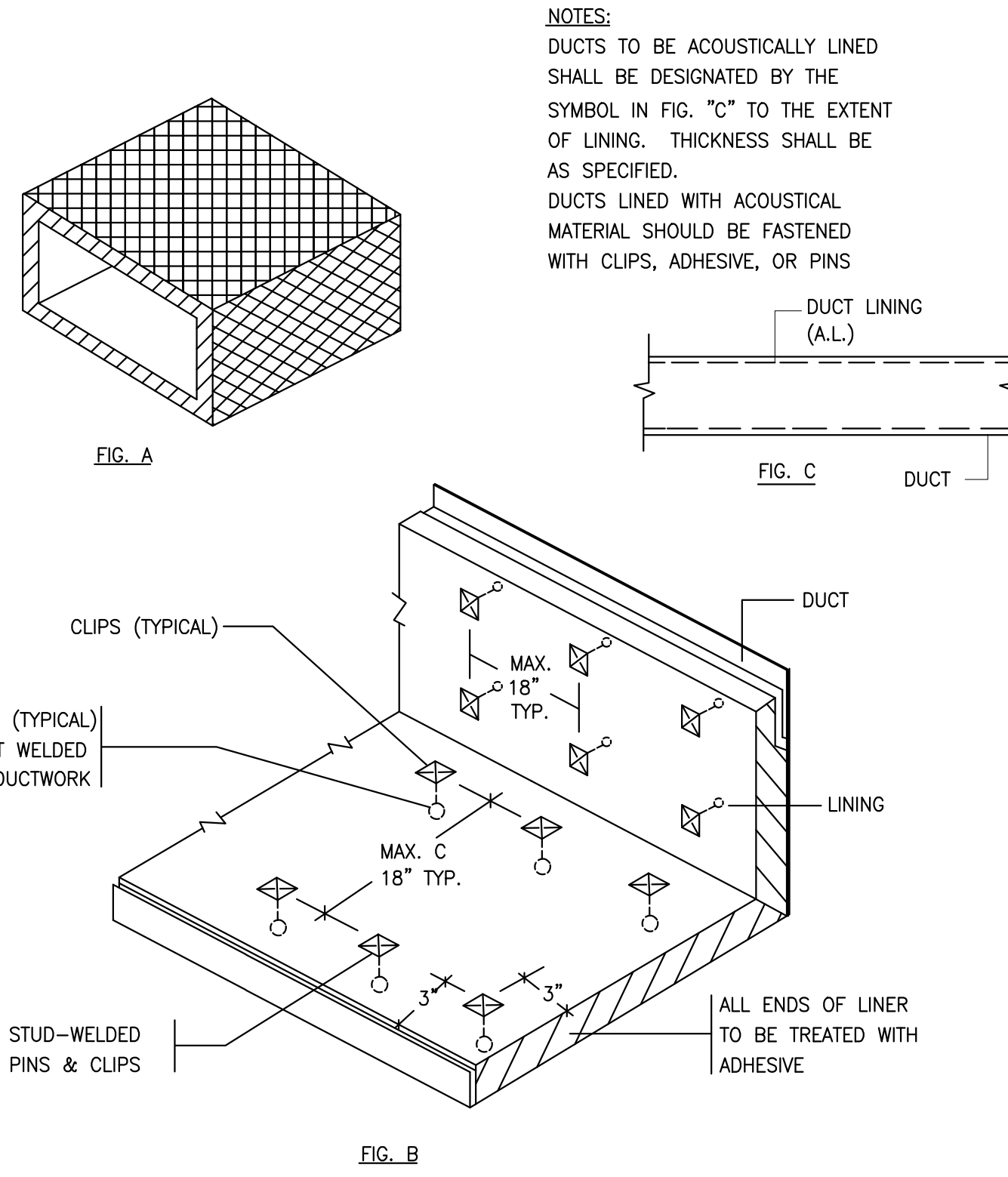
ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT
BARBERITOS

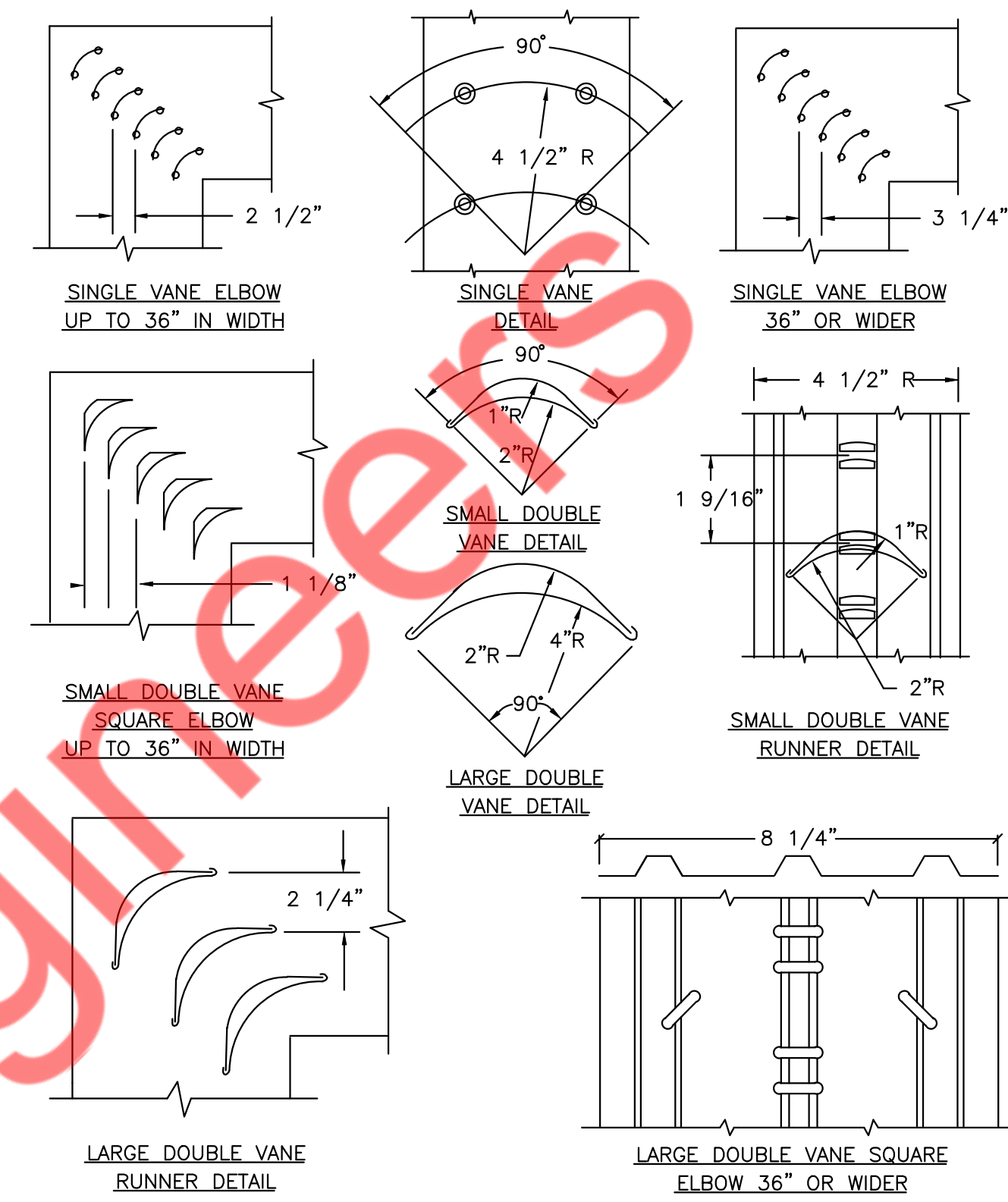
MECHANICAL ROOF PLAN
M1.2



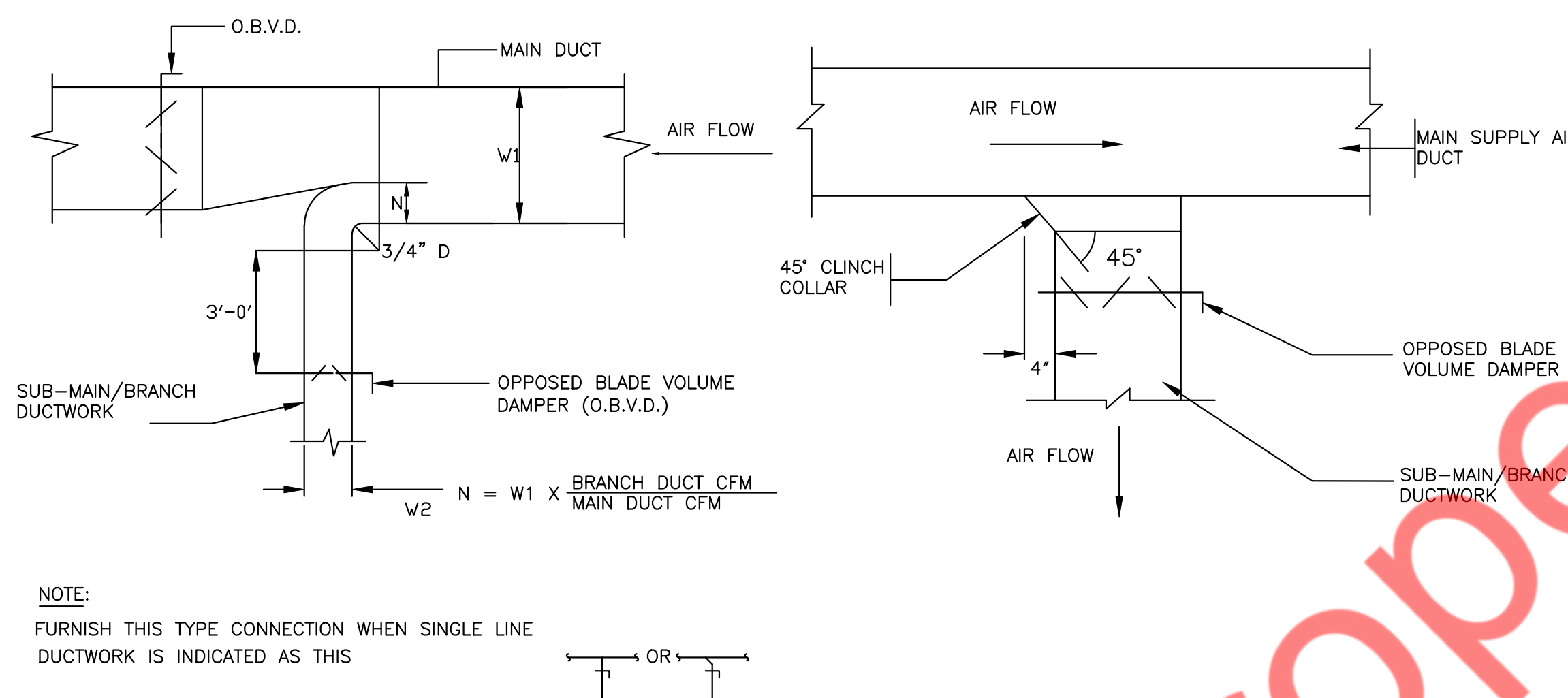
1 LOW PRESSURE BALANCING DAMPER
M3.0 N.T.S



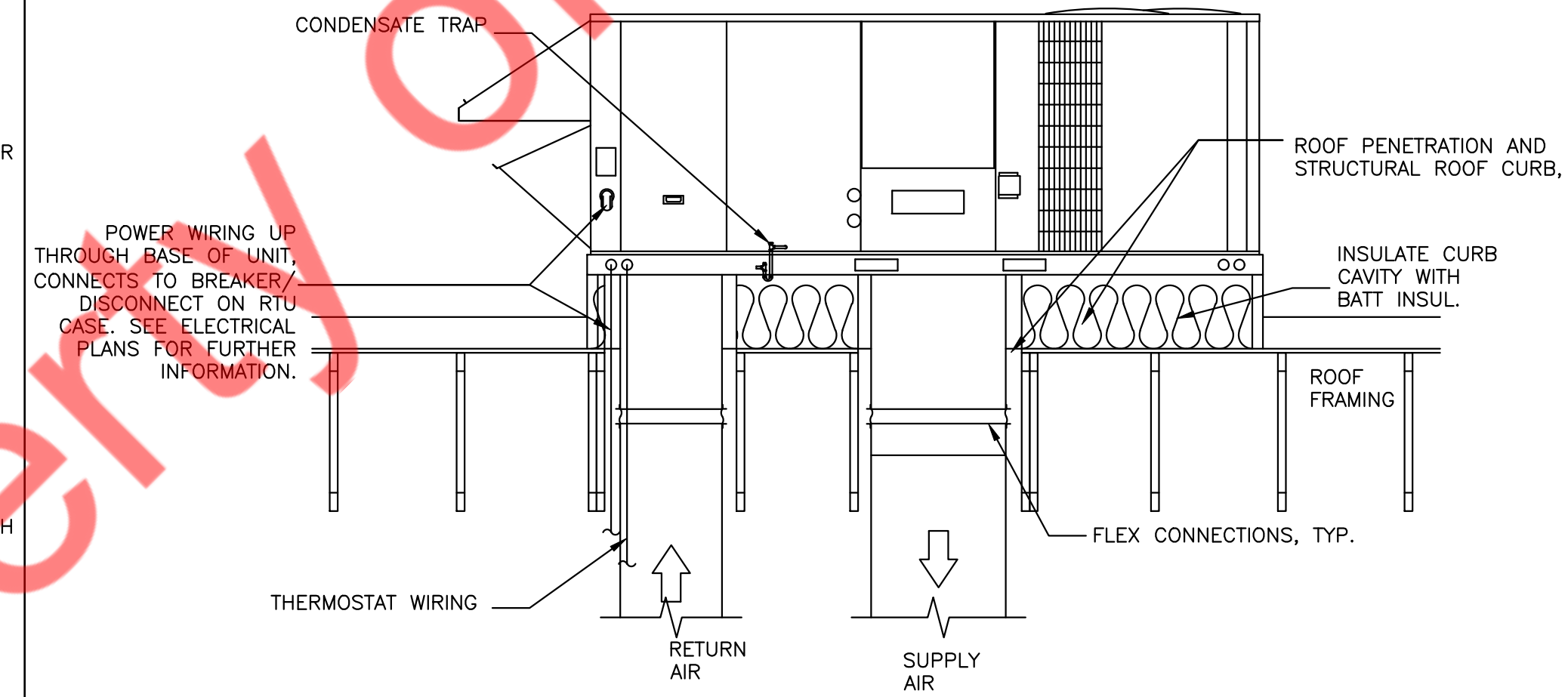
2 ACOUSTICAL TREATMENT DUCT LINING
M3.0 N.T.S



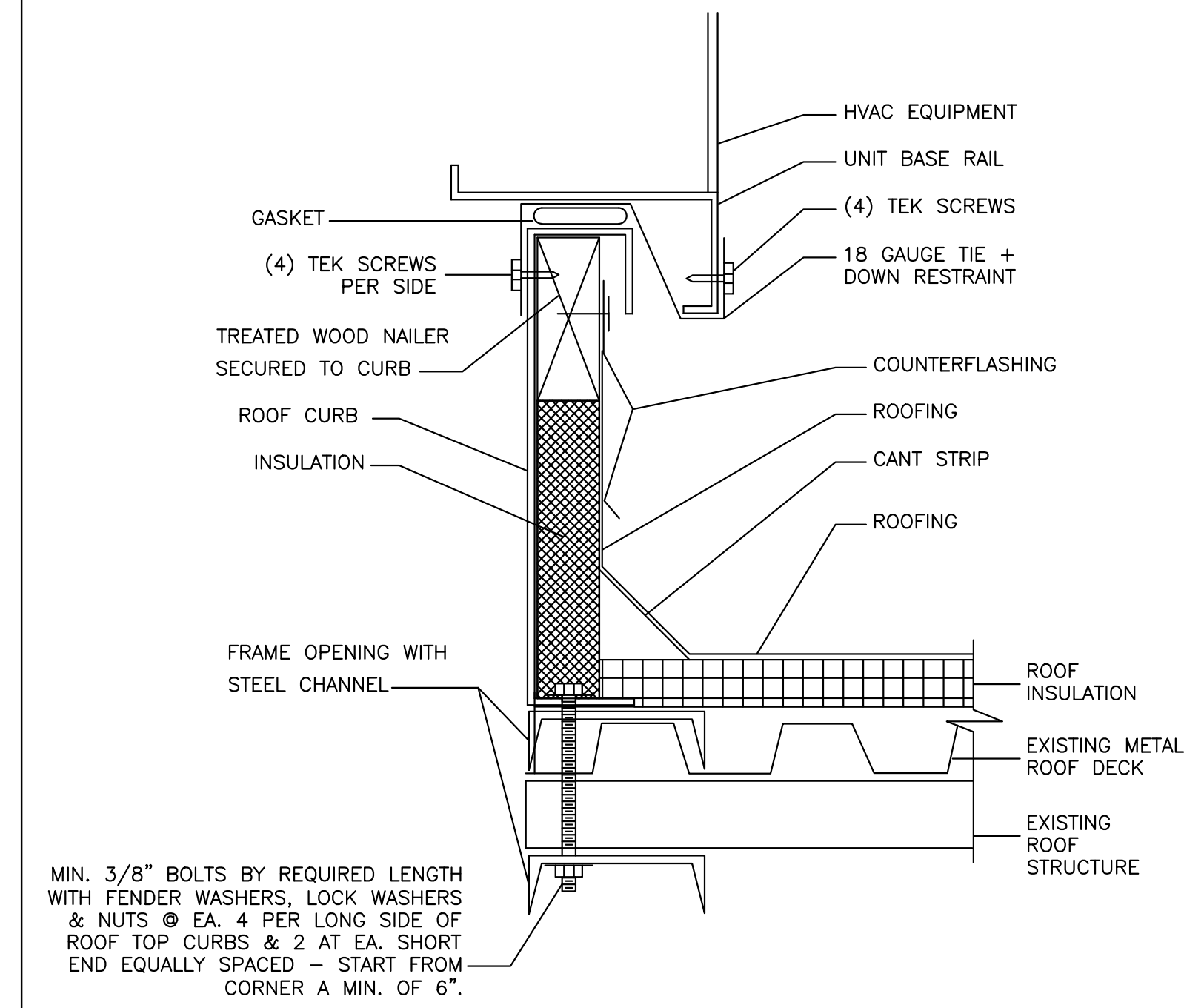
3 LOW VELOCITY DUCTWORK ELBOWS
M3.0 N.T.S



4 SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
M3.0 N.T.S



5 TYPICAL ROOF TOP UNIT DETAILS
M3.0 N.T.S



6 ROOF-TOPO UNIT CURB DETAIL
M3.0 N.T.S

SHEET HISTORY SCHEDULE

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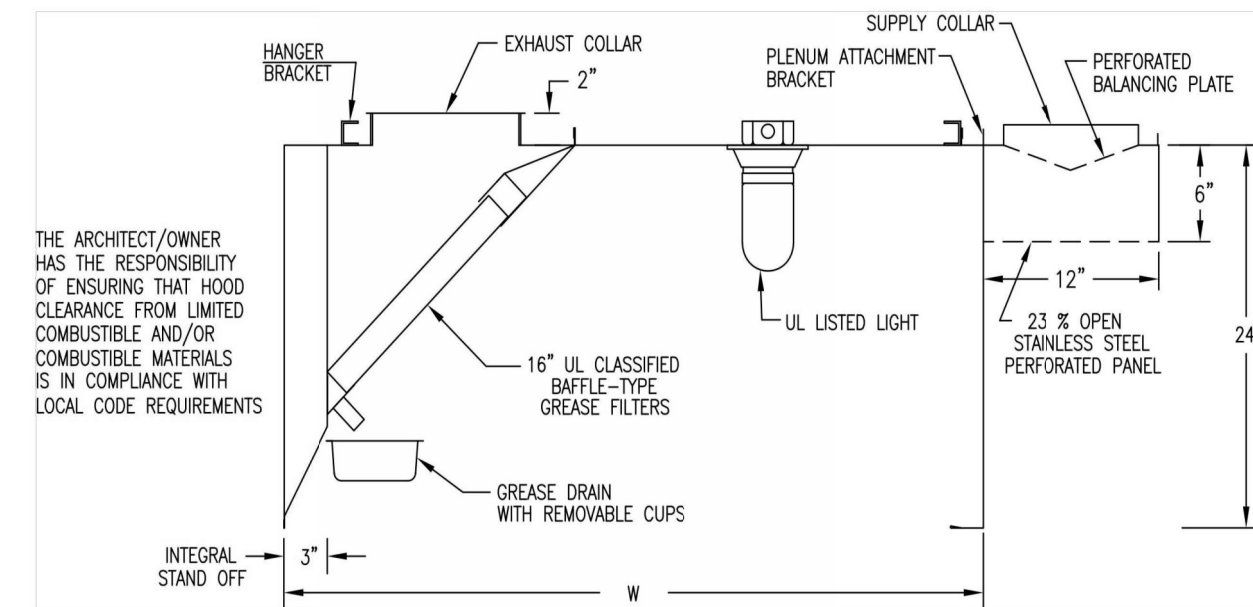
INTERIOR BUILT-OUT

BARBERITOS

MECHANICAL DETAILS
(1 OF 2)

M3.0

Model: EO-FPSP
 (EXHAUST ONLY-FRONT PERFORATED SUPPLY PLENUM)



Manufactured in Accordance with NFPA-96, IMC, and NSF Listed Standard 2. ETL-ANSI/UL710 Report # 541477.

HOOD SIZE & CONFIGURATION

HOOD 1
 L x W x H
 12' 6" x 54" x 24" WALL STYLE - HOOD IS 1 SECTION, STAND ALONE

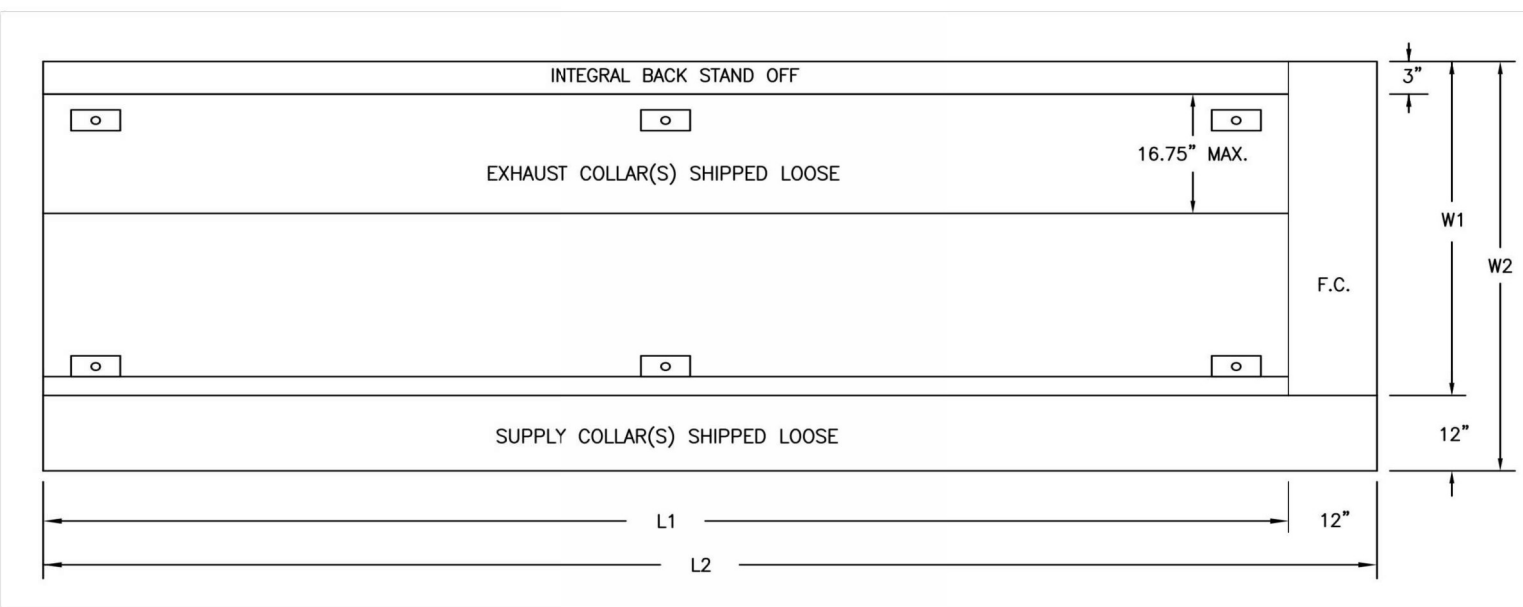
MATERIAL	FILTERS	LIGHTS
430 STAINLESS STEEL Where Exposed	Stainless Steel Baffle Filte	3 Prewired Incandescent Light(s)

- SECTION 1** 12' 6" x 54" x 24"
 WEIGHT: 649lbs 600 Degree ETL Label (Conforms to ANSI/UL-710)
 HEAT SENSOR HOOD MOUNTED (NO CHARGE)
 COLLARS (See Plan View for Size & Location)
 13' 6" x 12" x 0" FPSP (Front Perforated Supply Plenum)
 NEED TALL S/S Ceiling Enclosure
 162X78 S/S Back Wall Splash Panel
 Hood Mounted Ansul/Amerex System Field Installed (Fire Cabin)
 Stainless Steel Baffle Filters

CFM REQUIREMENT:
 EXHAUST: 2800 CFMS @ .500 S.P.
 NOTE: S.P. Calculations Include Hood, Filters, and up to 8' of Straight Exhaust Duct.
 SUPPLY: 2240 CFMS @ .125 S.P.
 NOTE: S.P. Calculations Include Hood and up to 20' of Straight Supply Duct.

NOTES:

Model: EO-FPSP
 (EXHAUST ONLY-FRONT PERFORATED SUPPLY PLENUM)

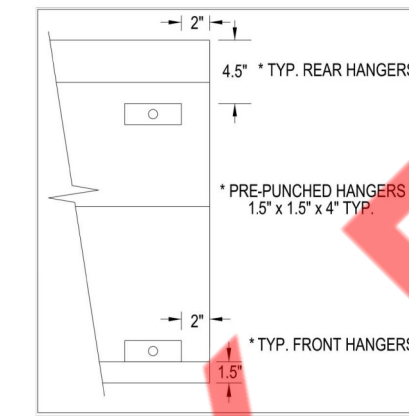


HOOD SIZE & CONFIGURATION

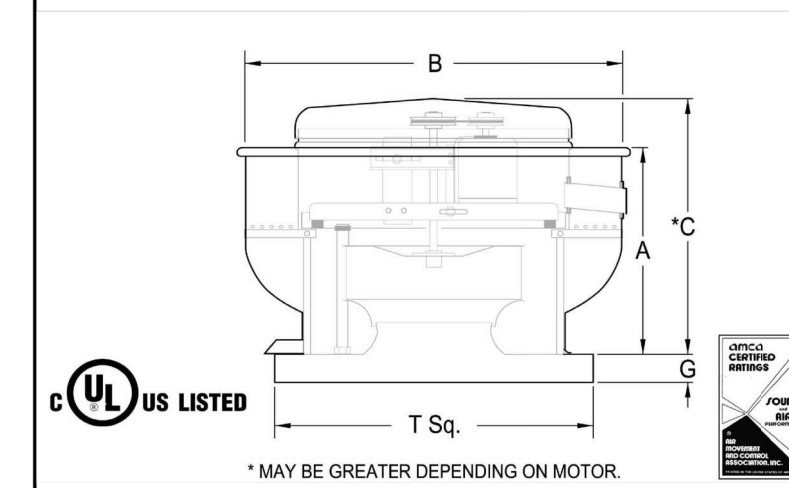
HOOD 1 12' 6" x 54" x 24" WALL STYLE - HOOD IS 1 SECTION, STAND ALONE

DIMENSION DATA
 L1 - 12' 6" L2 - 13' 6"
 W1 - 54" W2 - 66"

- SECTION 1** 12' 6" x 54" x 24"
 2 - 11X11 - Exhaust Collars Shipped Loose
 2 - 24X10 - Supply Collars Shipped Loose



NOTES:



STANDARD FEATURES: All Aluminum Housing • Backward Inclined Wheel • Top Cap with Stainless Steel Fasteners • One Piece Wind Band Continuously Welded to the Curb Cap • Prepunched Mounting Holes • Drain Trough • Internal Conduit Chase • Lifting Points • Permanently Lubricated Ball Bearings Motors • Static Resistant Belts • Adjustable Pitch Drives • Bearings Rated at 500,000 Hour Average Life • Motors Matched to Fan Load Mounted Out of Airstream • NEMA-1 Disconnect Switch • UL/cUL 762 Listed "Power Ventilators for Rest. Exn. Applications"

MODEL	FAN DIMENSIONAL DATA						CURB SIZE	
	A	B	C	G	T SQ.	H	I	
160	19-3/8"	28-7/8"	29-3/4"	1-3/4"	22"	21"	21"	

QUAN	MODEL	CFMS	S.P.	H.P.	VOLTAGE	PHASE	AMPS	WEIGHT
1	XCUBE-160-10	2800	.875	1	208	3	4.60	87

- OPTIONS**
 Grease Trough for Exhaust Fan
 Hinged Base Kit for Exhaust Fan
 21X21X24 Sloped Roof Curb Need Slope

Property of NY Engineering

SHEET HISTORY SCHEDULE	

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INTERIOR BUILT-OUT
BARBERITOS

 HOOD DETAILS
 (1 OF 4)
H1.1



Printed Date: 10/21/2025
 Job: 454997
 Mark: MUA-1
 Model: XDGX-P116-H12-D1-5

XDGX-P116-H12-D1-5 Unit Performance

Design Conditions					
Elevation (ft)	Summer		Winter (°F)	Supply (CFM)	Outdoor Air (CFM)
	DB (°F)	WB (°F)			
203	96.2	79.7	23.7	2,240	2,240

Unit Specifications					
Qty	Weight (lb)	Cooling Type	Heating Type	Unit Installation	Unit ETL Listing
1	1,318 (+/- 5%)	Packaged DX	Direct Gas-Fired	Outdoor/Indoor	ANSI Z83.4 / CSA 3.7

Configuration				
Unit Orientation	Unit Configuration	Outdoor Air Intake	Return Air Intake	Supply Air Discharge
Horizontal	Constant Volume 100% OA	End	-	Bottom

Cooling Specifications							
Type	Refrigerant	Capacity (MBH)		Lead Compressor Type	EER	Performance (DB/WB)	
		Total	Sensible			EAT (°F)	LAT (°F)
Packaged DX	R-454b	68.3	54.2	StandardScroll	14.6	96.2 / 79.7	72.2 / 72.2

Heating Specifications								
Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	Natural	12	5	305.8	281.4	116.3	23.7	140.0

Air Performance									
Type	Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Fan			
						Qty	Type	Size (in.)	Drive-Type
Supply	2,240	0.25	1.083	1474	0.64	1	Plenum	16	Direct-Drive

Motor Specifications					
Motor	Qty	Size (HP)	Enclosure	Efficiency	RPM
Supply Fan Motor	1	3/4 hp	ODP	NEMA Premium	1200

Electrical Specifications				
Power Supply	Rating (V/C/P)	MCA (A)	MOP (A)	SCCR
Unit	208/60/3	30.5	45.0	5kA



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CONSTRUCTION FEATURES AND ACCESSORIES

Unit	Accessories	
Unit Installation - Outdoor	Factory Installed, Lockable, NEMA 3R Disconnect	
Unit Construction - Double Wall	Weatherhood - Aluminum Mesh filtered	
Wall Insulation - 1in. fiberglass - Tempering on	Supply Air Filters, N/A	
Base Insulation - 1in. fiberglass - entire unit base pan	Outdoor Air Inlet Damper	
Paneled Bottom - Sheet metal liner for base insulation	Supply Air Outlet Damper	
Corrosion Resistant Fasteners	Return Air Damper	
Access and Connections - Right side when facing intake	Diffuser	
Service Access - Hinged access doors	Roof Curb - GPI	
Unit Finish - G90 Galvanized	Combination Curb	
Finish Color	Electrofin Coil Coating	
Supply Fan - Direct-drive, backward-curved plenum	Fan Bearing Extended Lube Lines	
Supply Fan and Motor Vibration Isolation - Neoprene	Inlet Damper Module	
Controls		
Unit Controls - Microprocessor	Spare Belts	
Remote Panel	Spare Filters	
BMS Communication - Monitoring and control	Motor with Shaft Grounding	
BMS Protocol	Service Outlet	
Temperature Control - Discharge control	Service Lights	
Supply Fan VFD - VFD by factory	Gas Heating Accessories	
Supply Fan Control - Constant Volume	Pilot Ignition	Std
Unoccupied Mode (Night Setback)	Flame Sensing - Flame rod	X
Recirculation Control	Flame Safeguard Display	Std
Control Accessories		Agency Approval - ETL
Touchscreen Mounting	FM Compliant	X
Heating Inlet Air Sensor	High Gas Pressure Switch	X
Cooling Inlet Air Sensor	Low Gas Pressure Switch	X
Dirty Filter Switch	Visual Indication Valves	X
Fire Stat Type III (Ships loose)	Proof of Closure Valve	X
120V/24V Smoke Detector (Ships loose)	External Gas Pressure Regulator (Ships loose)	X
External Cooling Lockout Relay	Carbon Dioxide Sensor (Ships loose)	X
Freeze Protection (Supply Air Low Limit)	Warranty Options	
Auxiliary Supply Starter Contacts	Unit Warranty - 18 months (std.)	X
Auxiliary Exhaust Starter Contacts	5 Year Compressor Warranty	X
Airflow Proving Monitoring Contact	5 Year Burner Warranty	X
	10 Year Burner Warranty	X

Standard Option Std
 Not Included Not Incl
 Included Incl



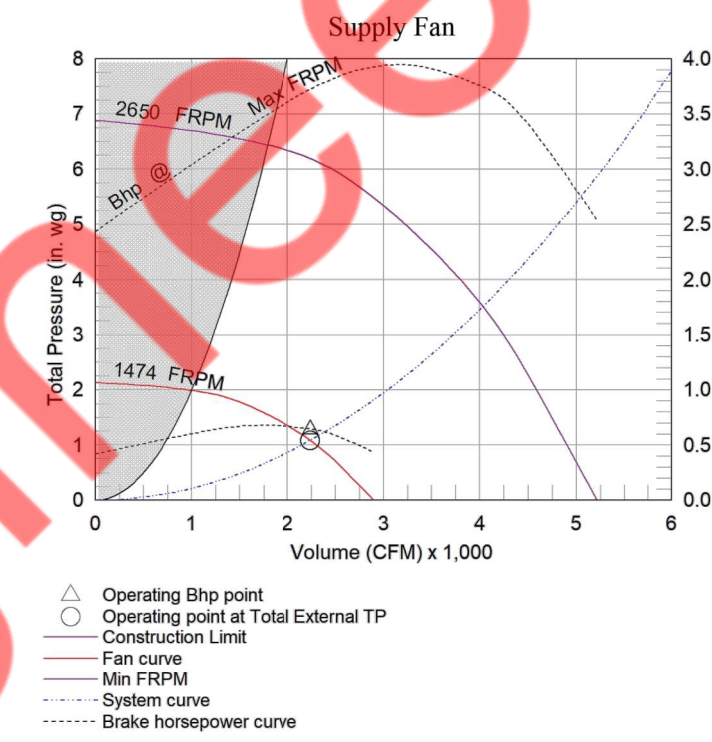
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Fan Charts And Performance

Supply Fan Performance									
Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Motor Qty	Motor Size (HP)	Fan Qty	Fan Type	Drive-Type
2,240	0.25	1.083	1474	0.64	1	0.75	1	Plenum	Direct

Pressure Drop (in. wg)					
Diffuser	Weatherhood	Filter	Damper	Cooling	Heating
-	0.062	-	-	0.187	0.625
				External	Total
				0.25	1.083

Sound Performance in Accordance with AMCA						
Sound Power by Octave Band						
250	500	1000	2000	4000	8000	L _{wa}
62.5	125	250	500	1000	2000	74
Sound Pressure Level						
70	70	70	70	70	70	63
						Sones
						11.1



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Cooling Specifications

Cooling Performance							
Type	Refrigerant	Capacity (MBH)		Lead Compressor Type	EER	Performance (DB/WB)	
		Total	Sensible			EAT (°F)	LAT (°F)
Packaged DX	R-454b	68.3	54.2	StandardScroll	14.6	96.2 / 79.7	72.2 / 72.2

Coil Information						
PDX Coil Model	Fins Per Inch	Rows Deep	Suction Temp. (°F)	Face Velocity (ft/min)	Refrigerant Velocity (ft/min)	
DX38S02S10-30x30-RH	10	2	55.8	358	1,408	

Unit Details	
Refrigerant charges provided by the factory are approximate and may require field adjustment	Thermal expansion valve
Refrigeration components serviceable without affecting airflow	Refrigerant low pressure switch (auto reset)
Hermetic scroll type compressor(s)	Refrigerant high pressure switch (manual reset)
Compressor(s) mounted on neoprene vibration isolation	Service/charging valves
Crankcase heater on compressor(s)	Low sound, direct drive condensing fans
Liquid-line filter drier	Insulated, double sloped, stainless steel drain pan
Moisture-indicating sight glass	Copper tube, aluminum fin coil construction

Notes:
 Packaged DX cooling performance values are subject to change in the December 4.49 update.



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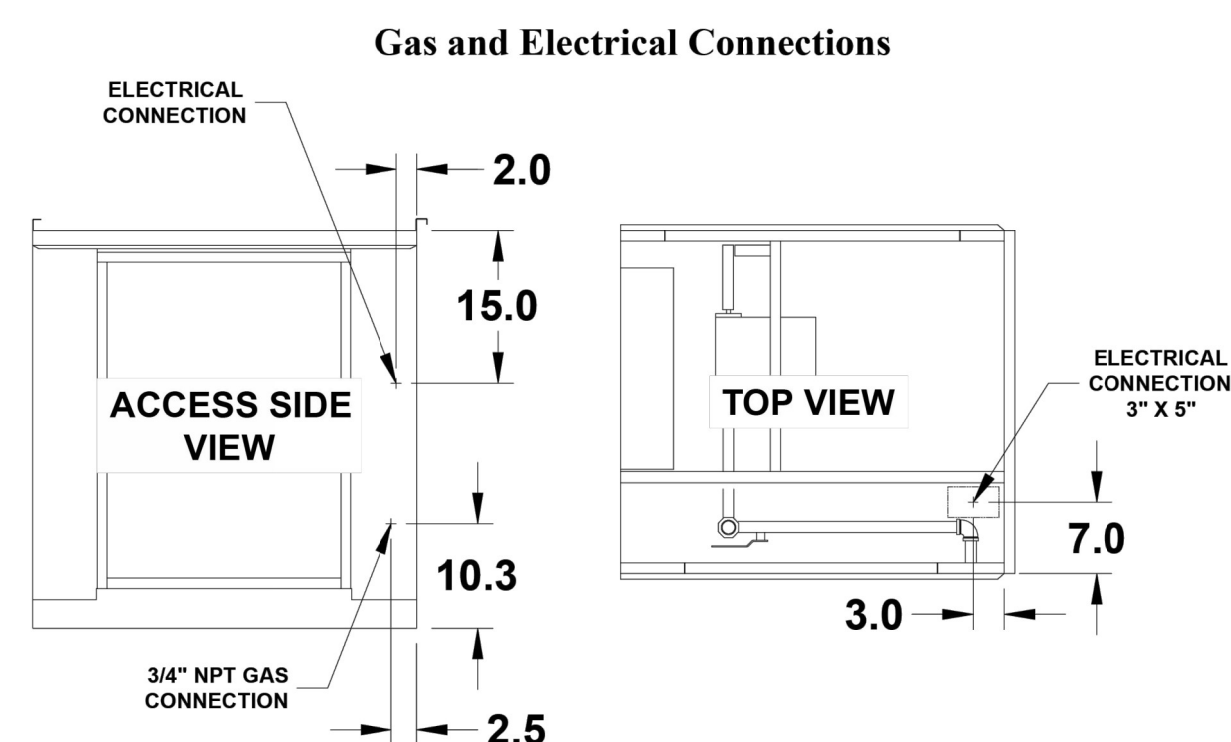
Heating Specifications

Heating Performance								
Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	Natural	12	5	305.8	281.4	116.3	23.7	140.0

Gas Train Details							
Redundant Main Valves	Electronic Modulating Valve	Pilot Valve	Internal Regulator	Visual Indication Valve	Proof of Closure Valve	Gas Pressure Switch(es)	External Regulator
Std	Std	Std	Std	-	-	-	-

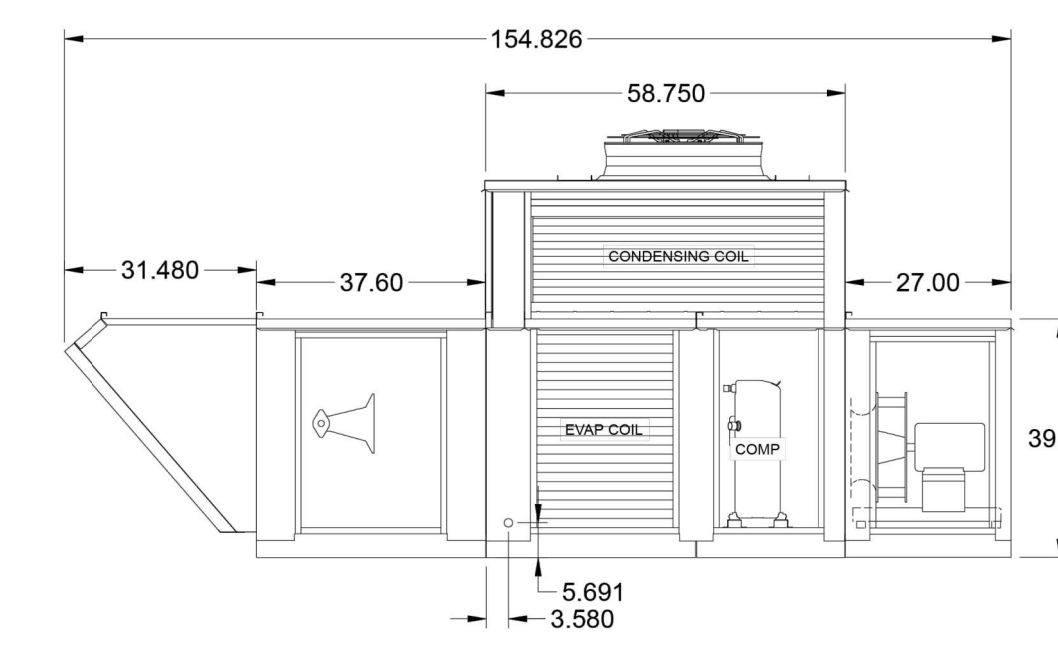
Additional Heating Information							
ETL Approved	FM Compliant	Temperature Control	Flame Sensing	Ignition Control	CO2 Sensor	Flame Safeguard Display	
Std	Yes	Discharge	Flame Rod	Economy Pilot	-	-	-

Unit Details	
92% thermal efficiency	10 second pre-purge sequence
Cast aluminum burner manifold with stainless steel mixing plates	Low fire start
Electronic modulation burner control	



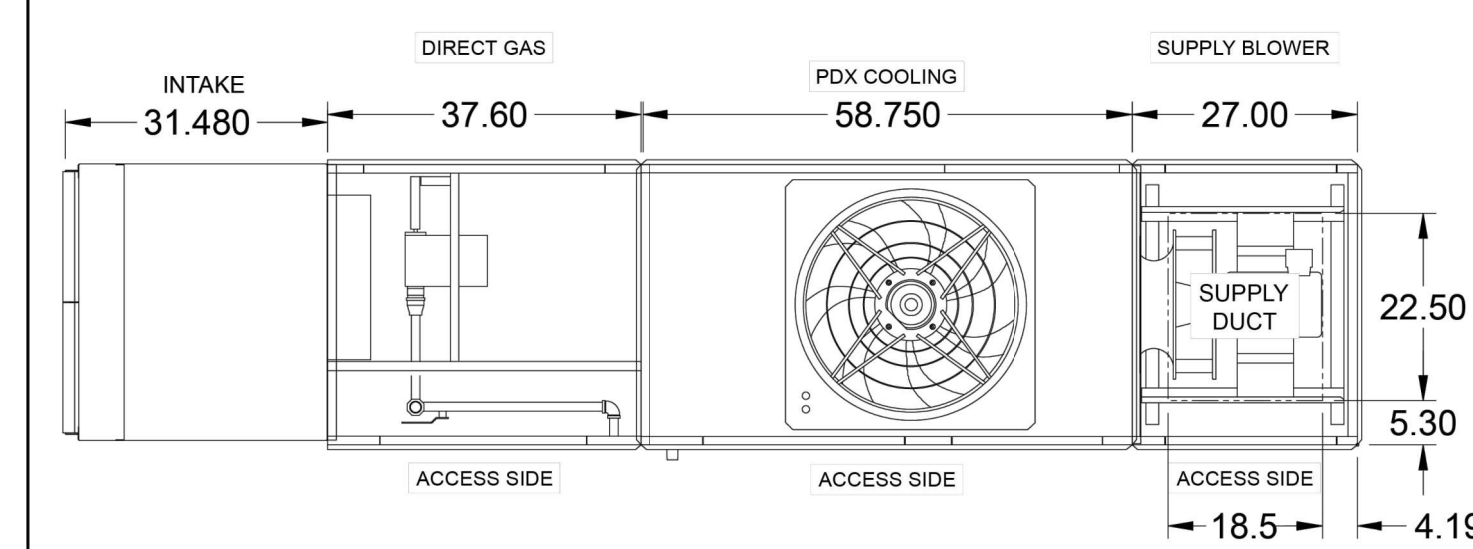
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ELEVATION VIEW



Notes - Elevation View
 Standard configuration for unit access is on the right-hand side, when looking into the unit intake in the direction of airflow.
 Order of unit sections is from intake of unit to discharge of unit.
 Sections included on this unit: Weatherhood Section, Heating Section, Cooling Section, Blower Section
 Insulation: Double Wall, from Burner Section through end of unit.

PLAN VIEW



Notes - Plan View
 Standard configuration for unit access is on the right-hand side, when looking into the unit intake in the direction of airflow.

SHEET HISTORY SCHEDULE

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INTERIOR BUILT-OUT

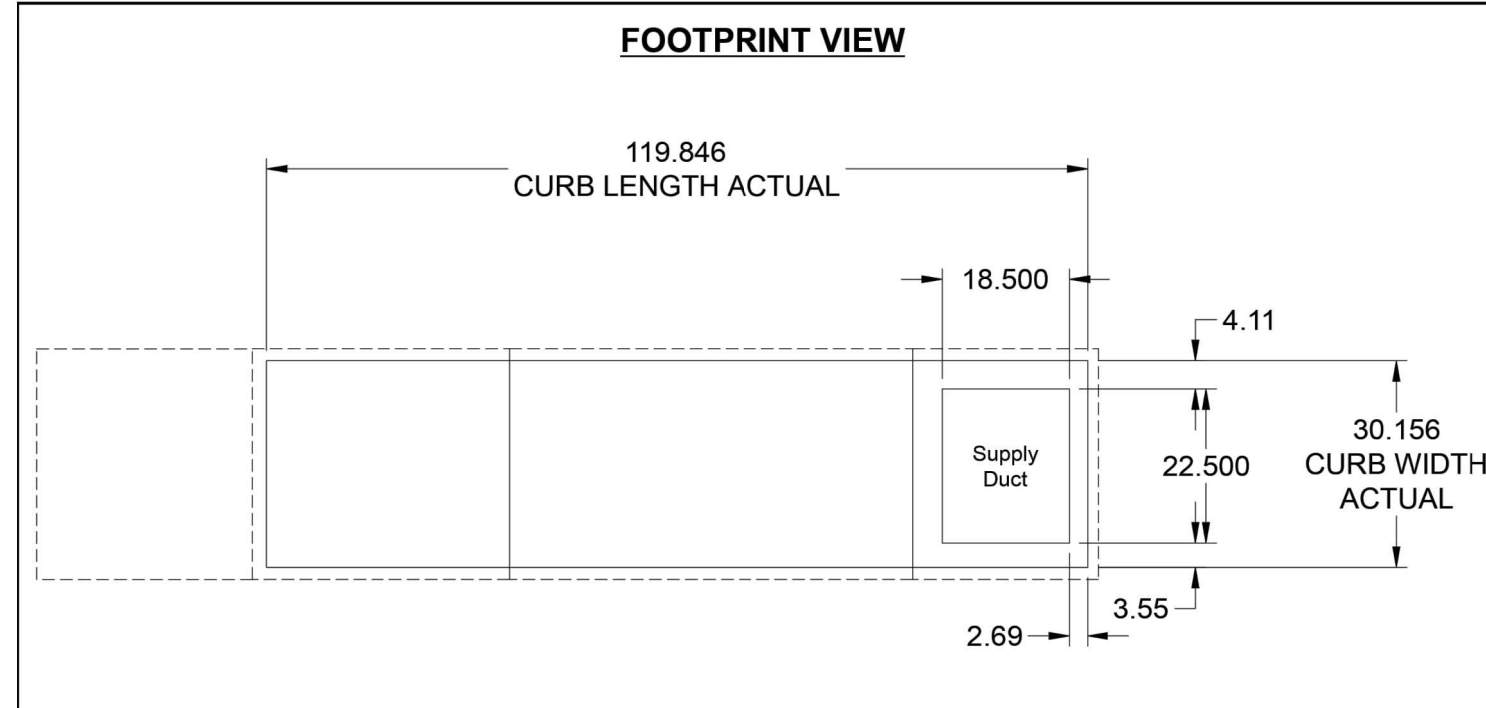
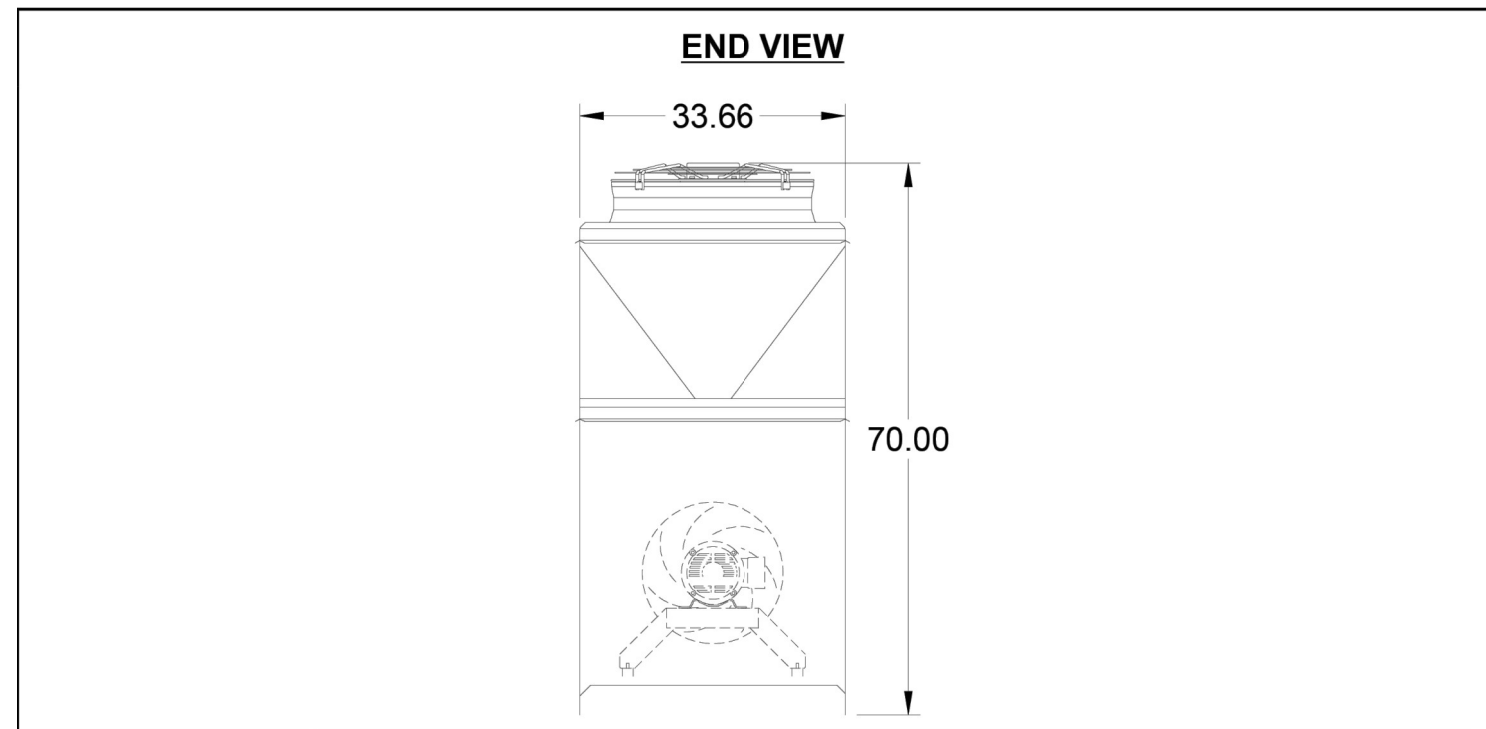
BARBERITOS

HOOD DETAILS
 (2 OF 4)

H1.2



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Notes - Footprint View
Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.
Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb. For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.
The weatherhood and filter sections of the make-up air unit extend beyond the curb. This is by design, to prevent water infiltration.



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Clearance Specifications

Recommended Minimum Combustible Clearances	Clearance Specifications			
	Floor (in.)	Top (in.)	Sides (in.)	Ends (in.)
Insulated Units	0	0	0	0
Non-Insulated Units	0	6	6	6

Notes - Combustible Clearances
Clearance to combustibles is defined as the minimum distance required between the heating source and the adjacent combustible surfaces to ensure the adjacent surface's temperature does not exceed 90 F above the ambient temperature.

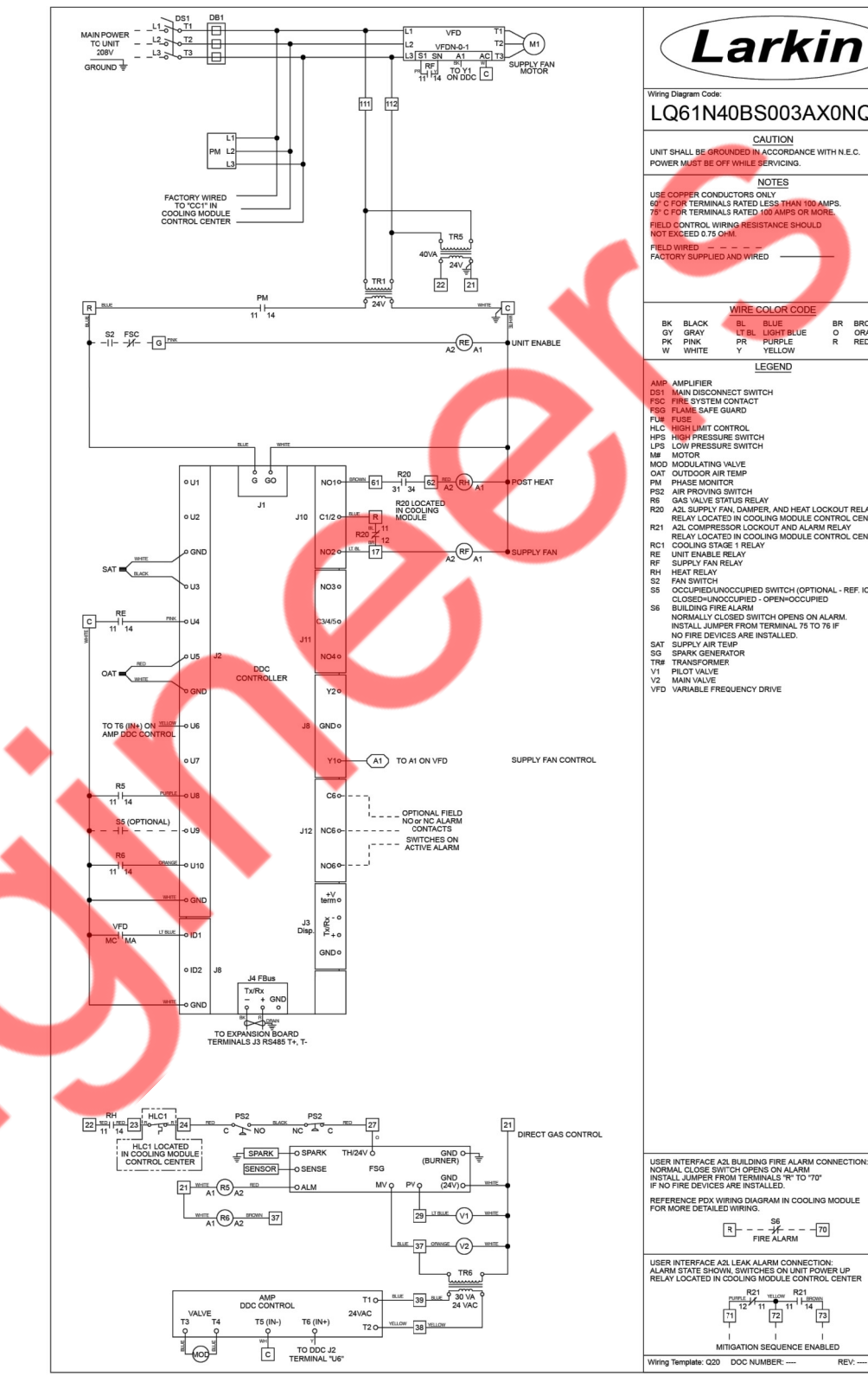
Recommended Minimum Service Clearances	
Housing 32 and less (in.)	Housing 35 and higher (in.)
42 on the controls side of the unit	48 on the controls side of the unit

Notes - Service Clearances
To ensure ample space for component removal (evaporative cooling media, coils, filters, etc.), service clearances should be 6 in. wider than the width of the module itself.
Reference the PDX Service Clearance guidelines (PDX IOM)



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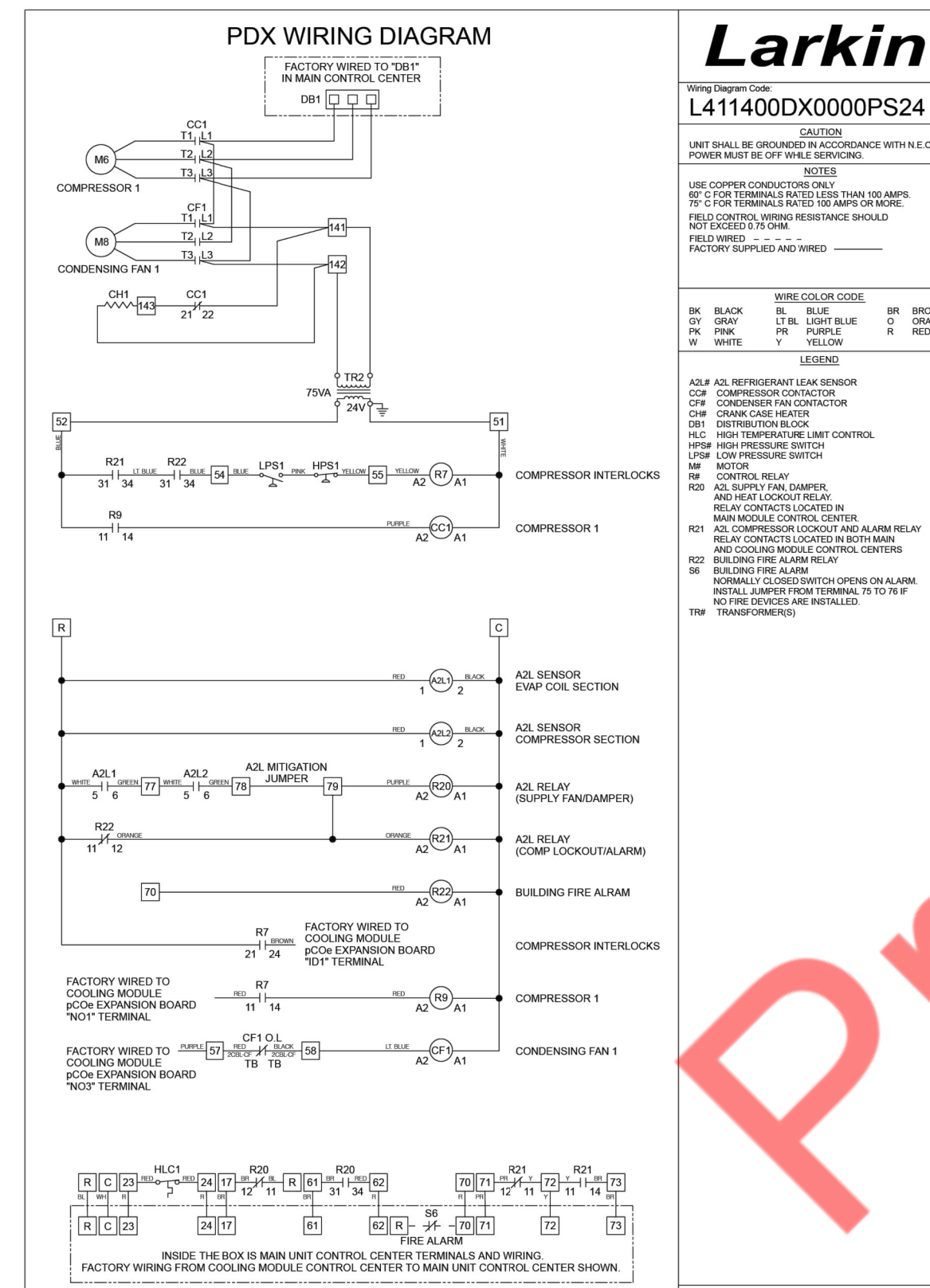
Wiring Diagram



Manufacturer reserves the right to change, modify, or improve this product at any time



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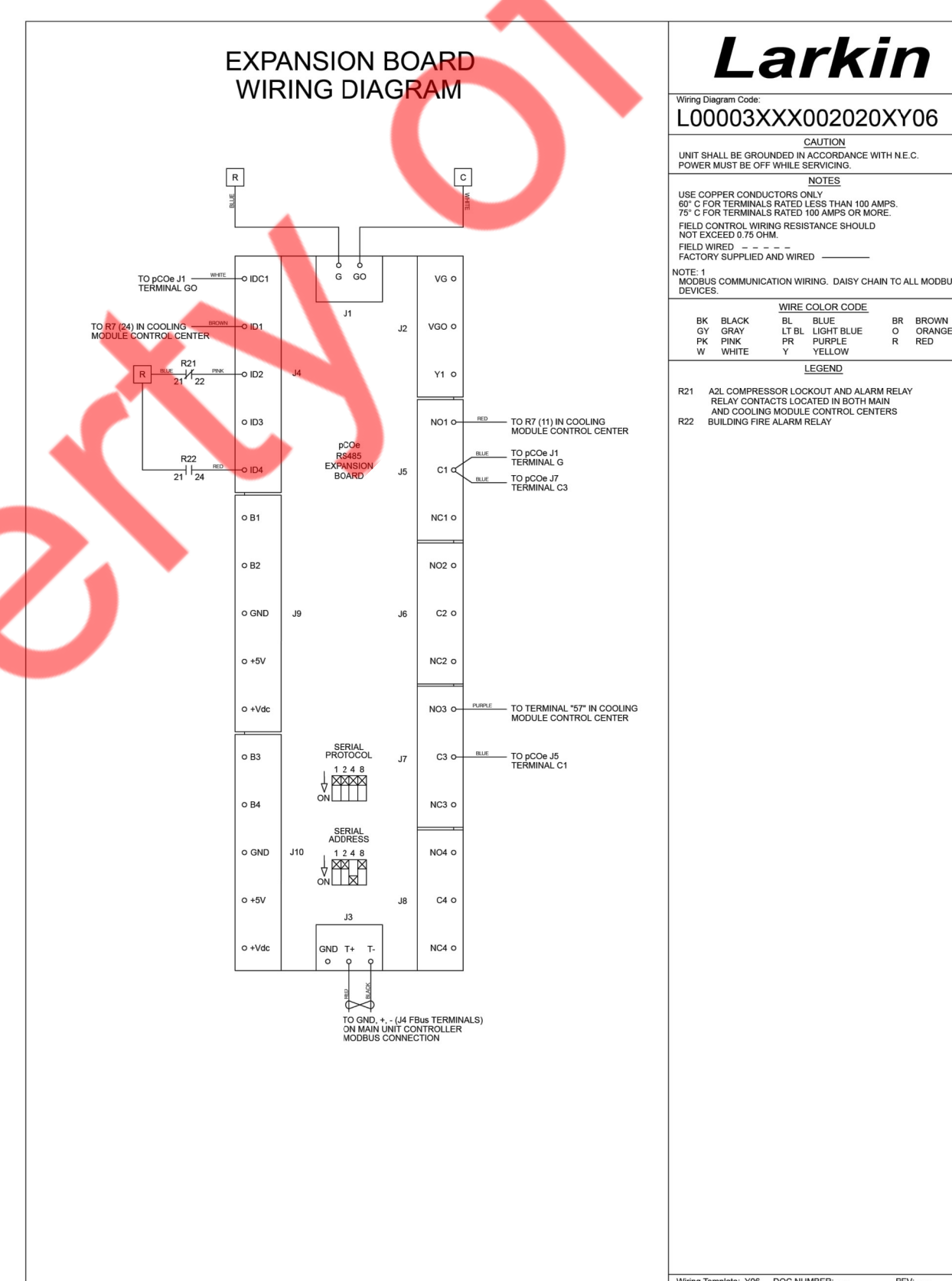


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EXPANSION BOARD WIRING DIAGRAM



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SEQUENCE OF OPERATIONS

Unit Controls

The unit shall be provided from the factory with:

- 24VAC Transformer
- Phase Monitor

Microprocessor Controller

The microprocessor control shall be factory programmed, mounted, wired and tested. Controller shall have a lighted LCD display and keypad for changing set points and monitoring unit operation. The controller shall be equipped with the following sensors:

- Outdoor air temperature sensor
- Supply discharge temperature sensor
- Building pressure transducer (shipped loose for field mounting and wiring)

Unit Start Command

A contact closure or jumper wire must be field wired between terminals R and G to enable the unit. When terminal G is energized the unit shall operate as described below. When terminal G is de-energized the unit is disabled.

Internal Time Clock (Schedule)

The microprocessor controller is equipped with an internal 7-day programmable time clock, allowing the user to add up to seven different occupancy schedules.

Occupied/Unoccupied Modes

The microprocessor controller offers the following modes for determining occupancy:

- The internal time clock
- A remote contact (see wiring diagram for details)

The unit can be temporarily overridden to the occupied mode via a dry contact or the keypad display. After the override time has expired (1 hr, adj) the unit will return to the scheduled occupied/unoccupied mode.

Occupied Mode Unit Start-Up Sequence

- Unit enable input must be closed (contact closure between R and G).
- Initial delay, microprocessor controller initialization sequence.
- Supply fan starts after adj. delay.
- Tempering operation begins (see modes below).

Supply Fan Sequence (Occupied)

The unit has been provided with a factory mounted variable frequency drive (VFD). The variable frequency drive shall control the supply fan speed as indicated by the following sequence:

Constant Volume:
The VFD shall be programmed from the factory for a constant supply fan speed. This is to be adjusted for air balancing only and is not to be modulated.

Heating Control

The heating will be locked out when the outside air is above the heating lockout set point (65 F adj.). When enabled heating will be controlled as follows:

Direct Gas Fired Heating

The microprocessor controller will modulate the direct gas burner to maintain the active supply temperature set point.

Cooling Control

The cooling will be locked out when the outside air is below the cooling lockout set point (80 F adj.). When enabled cooling will be controlled as follows

SHEET HISTORY SCHEDULE

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INTERIOR BUILT-OUT

BARBERITOS

HOOD DETAILS
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H1.3



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Packaged DX Cooling (Standard Scroll)

The controller will stage the cooling to maintain the active supply temperature set point.

- The packaged DX system contains a single stage of cooling.

Supply Temperature Set Point Control (Occupied)

The active supply temperature set point shall be adjusted (field selectable):

- Locally at the controller.

Unoccupied Mode (Disabled)

- Supply Fan Is OFF

Supply Air Low Limit

If the supply air temperature drops below 35 F (adj.) for 300 seconds (adj.), the controller will de-energize the unit and generate an alarm.

Alarm Management

The microprocessor controller will monitor the unit status for alarm conditions. Upon detecting an alarm, the controller will record the alarm description, time, date, available temperatures, and unit status for user review. A digital output is reserved for remote alarm indication.

Possible Alarms Include:

- Global Alarm**
Indication that one or more alarms are present.
- Outdoor Air Inlet Temperature Sensor Alarm**
Outdoor Air Inlet Temperature Sensor Alarm: Failure of the outdoor air inlet temperature sensor.
- Supply Air Discharge Temperature Sensor Alarm**
Failure of the supply air discharge temperature sensor. Unit is shut down.
- Supply Air Low Limit Alarm**
Supply air has fallen below 35 F (adj.) for 300 seconds (adj.). Unit is shut down.
- Direct Gas Burner Alarm**
Indicates an ignition controller flame failure alarm. Requires manual reset at the unit.
- Refrigerant Pressure Alarm**
Indicates a high or low refrigerant pressure switch in the packaged DX system has tripped.
- Supply Fan Alarm**
Indicates the supply fan failed to prove for a 30 second (adj.) period.
- Building Pressure Sensor Alarm**
Failure of the building pressure sensor.



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 Model: XDGX-P116-H12-D1-5

Warranty Statement for Make-Up Air

Unit Warranty

Larkin warrants the equipment to be free from defects in material and workmanship for a period of 18 months from the date of shipment. Initial startup must be completed within six months of the shipment date, and a startup report must be submitted to Larkin.

DG Burner Extended Warranty

The warranty does not include items deemed as consumable components, including, but not limited to: Igniters, Spark rods, Spark generator, Flame rods, Flame wires, UV eye components, and associated components.

Note: Rust, discoloration of the burner material and cracks or holes smaller than .75 in. is not qualification for a defective burner.

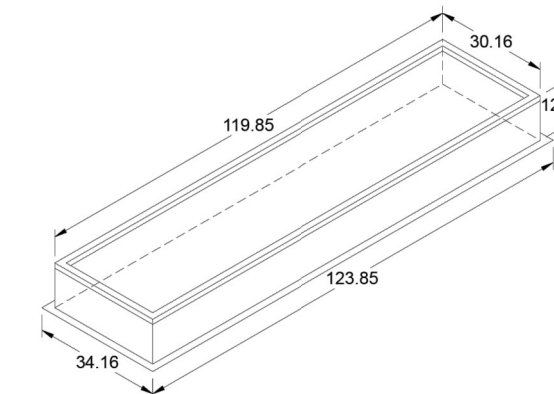
Warranty Notes

Any component which proves defective during the warranty period will be repaired or replaced at Larkin's sole option when returned to our factory, transportation prepaid. All warranties do not include labor costs associated with troubleshooting, removal, or installation. Larkin will not be liable for any consequential, punitive, or incidental damages resulting from use, repair, or operation of any Larkin product. These warranties are exclusive and are in lieu of all other warranties, whether written, oral, or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose. No person (including any agent or salesperson) has authority to expand Seller's obligation beyond the terms of this warranty, or to state that the performance of the product is other than that published by Seller.

As a result of our commitment to continuous improvement, Larkin reserves the right to change specifications without notice.



Printed Date: 10/21/2025
 Job: 454997
 Mark: MUA-1
 Model: GPI



Model: GPI

Roof Curb

Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. - Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label No Preference
	1	GPI-31.656 x 121.346	Nominal	1.5	88	No	No Preference

Dimensions

Curb Height (in.)	Nominal		Actual		Flange	
	Outside Width (in.)	Outside Length (in.)	Outside Width (in.)	Outside Length (in.)	Width (in.)	Length (in.)
12	31.656	121.346	30.156	119.846	34.156	123.846

Accessories

Material	Security Bars		Insulation (in.)		Insulation R Value
	No	Liner No	No	1	
Galvanized	No	No	No	1	R4.3

SHEET HISTORY SCHEDULE

No.	Date	Description

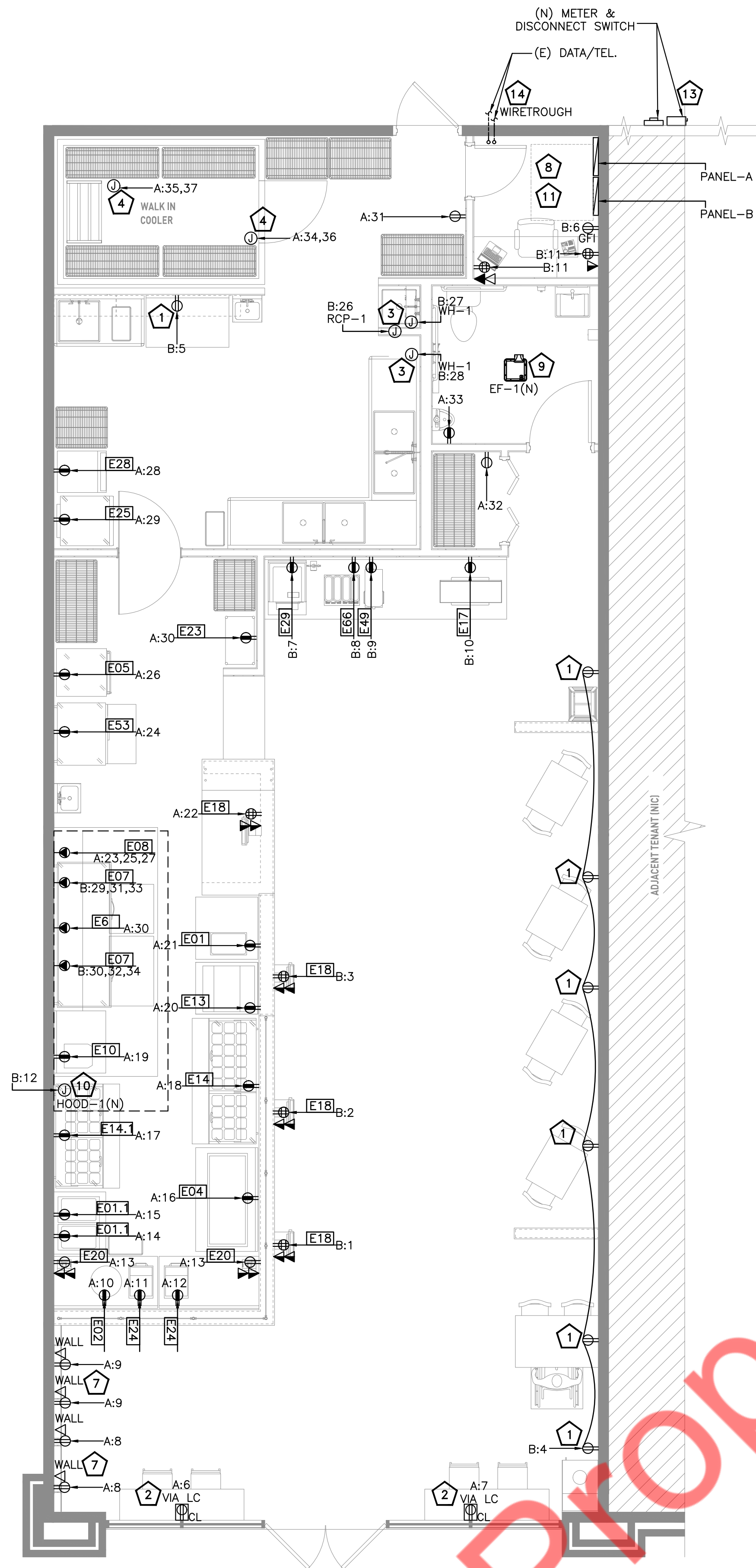
ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT

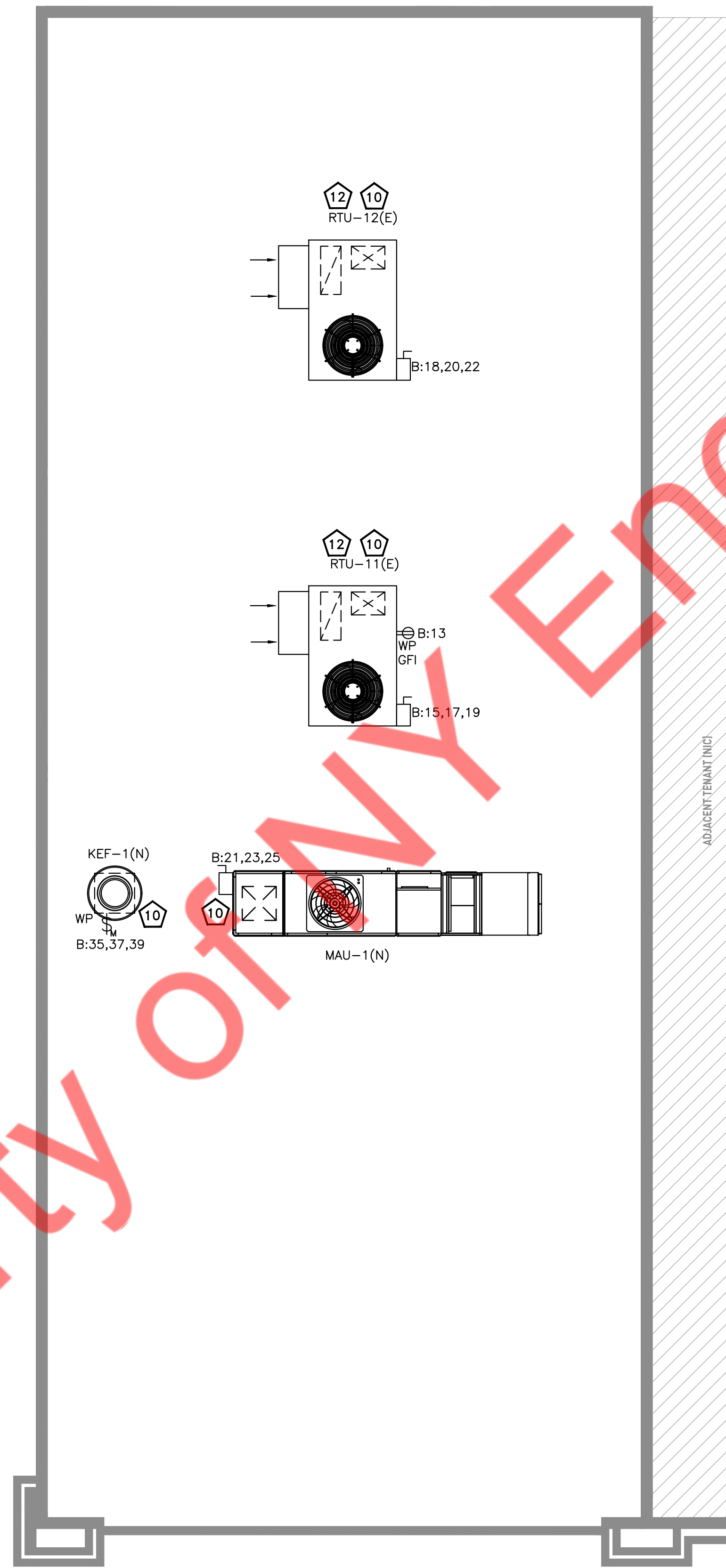
BARBERITOS

HOOD DETAILS
(4 OF 4)

H1.4



1 ELECTRICAL POWER PLAN
E1.1 SCALE: 1/4" = 1'-0"



2 ELECTRICAL ROOF POWER PLAN
E1.1 SCALE: 1/4" = 1'-0"

KITCHEN EQUIPMENT GENERAL NOTES

- A. NEMA X-XX DESIGNATES NEMA PLUG TYPE AND AMPERAGE.
- B. VERIFY ALL INSTALLATION REQUIREMENTS WITH FOOD SERVICE CONSULTANT AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN.
- C. VERIFY ALL MCA AND MOCP REQUIREMENTS WITH SUBMITTED AND APPROVED EQUIPMENT PRIOR TO ELECTRICAL ROUGH-IN.
- D. VERIFY NEMA RECEPTACLE CONFIGURATIONS WITH EQUIPMENT VENDOR PRIOR TO ELECTRICAL ROUGH-IN.
- E. CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL CONDUIT, WIRE, SUPPORT SYSTEM, DISCONNECTS, AND OUTLETS TO ALLOW FOR A COMPLETE CODE COMPLIANT KITCHEN INSTALLATION.
- F. ALL ELECTRICAL EQUIPMENT LOCATED ON WALLS OF PRODUCTION KITCHEN AREAS SHALL BE A MINIMUM OF 48" AFF UNLESS NOTED OTHERWISE. ALL ELECTRICAL EQUIPMENT LOCATED ABOVE COUNTERS OF KITCHEN AREAS SHALL BE 6" ABOVE COUNTER UNLESS NOTED OTHERWISE. ALL ELECTRICAL EQUIPMENT LOCATED BELOW COUNTERS AND WITHIN CASEWORK OF KITCHEN AREAS SHALL BE 6" BELOW THE TOP OF COUNTERS UNLESS NOTED OTHERWISE.
- G. ALL RECEPTACLES IN KITCHEN AREA SHALL BE GFCI PROTECTED. E.C. SHALL PROVIDE AND INSTALL GFCI CIRCUIT BREAKERS FOR ALL CIRCUITS FEEDING KITCHEN EQUIPMENT REQUIRING GFCI PROTECTION THAT ARE INACCESSIBLE, BEFORE OR AFTER APPLIANCE HAS BEEN INSTALLED, IF RECEPTACLE DOESNT PROVIDE GFCI PROTECTION. NEC 210.8 AND 422.5(A).
- H. LOCATIONS OF DISCONNECTS FOR EACH PIECE OF EQUIPMENT MAY NOT BE SHOWN ON PLANS. IF DISCONNECT FOR EQUIPMENT IS NOT SHOWN, CONTRACTOR TO FIELD COORDINATE LOCATION IN ACCORDANCE WITH CODE.
- I. CONTRACTOR SHALL LIMIT THE AMOUNT OF EXPOSED CONDUIT. ANY EXPOSED CONDUIT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT OR RIGID GALVANIZED STEEL CONDUIT.
- J. COORDINATE EXACT LOCATION OF ALL REMOTE CONDENSING UNITS WITH HVAC AND FOOD SERVICE DRAWINGS.
- K. FUSED DISCONNECTS SHALL HAVE FUSES SIZED AS LISTED ON EQUIPMENT NAMEPLATE, OTHERWISE MATCH UPSTREAM OVERCURRENT DEVICE IF NO MAXIMUM OVER CURRENT SIZE LISTED ON EQUIPMENT, UNLESS NOTED OTHERWISE.

ROOF POWER PLAN GENERAL NOTES

1. ALL THE ELECTRICAL ELEMENTS, VIZ., CONDUITS, WIRING, AND DISCONNECT SWITCHES, SHALL BE RATED FOR EXTERIOR USE.
2. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER TO BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
3. GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFI BREAKER IN THE PANEL FOR THE INDICATED CIRCUIT IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE.
4. A 125-VOLT, SINGLE-PHASE, 15- OR 20-AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION WITHIN 7.5 M (25 FT) OF THE EQUIPMENT AS SPECIFIED IN 210.63(A) AND (B) AS PER NEC 210.63.

POWER & ROOF PLAN KEYED NOTES: #

1. E.C. SHALL COORDINATE THE POWER REQUIREMENT WITH MANUFACTURER FOR ADDITIONAL CONVENIENCE. OUTLET AT STANDARD HEIGHT AND VERIFY EXACT LOCATION WITH ARCHITECT.
2. PROVIDE RECEPTACLES WITHIN 18" ABOVE THE TOP OF THE SHOW WINDOW. RECEPTACLES ARE TO BE CONTROLLED BY L.C..
3. E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
4. E.C. TO COORDINATE EXACT POWER REQUIREMENT AND CONNECTION TYPE WITH WALK IN BOX MANUFACTURER AND MAKE POWER PROVISION ACCORDINGLY.
5. NOT USED.
6. NOT USED.
7. E.C. TO COORDINATE EXACT POWER REQUIREMENT FOR TV AND MANUFACTURER AND MAKE POWER PROVISION ACCORDINGLY.
8. E.C. SHALL COORDINATE WITH THE ARCHITECT/LANDLORD FOR THE EXACT LOCATION OF THE NEW PANEL FOR THE PROJECT SPACE IN THE FIELD. ALSO ENSURE CLEAR WORKING AND DEDICATED SPACE HAVE BEEN PROVIDED PER CODE.
9. INTERLOCK NEW MECHANICAL UNIT EF-1(N) WITH NEAREST LIGHTING CIRCUIT AND KEF-1(N) WITH KITCHEN HOOD TO OPERATE IN CONJUNCTION WITH RESPECTIVE CONTROL SYSTEMS..
10. E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE MECHANICAL UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
11. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE LANDLORD IN FIELD & VERIFY EXACT LOCATION, RATING, VOLTAGE, PHASE & OPERABLE CONDITION IN THE FIELD. BASE BID ACCORDINGLY. ELECTRICAL CONTRACTOR SHALL MAINTAIN CLEARANCE FOR ELECTRICAL PANEL PER NEC 110.26 (A) (1). REFER TO SHEET E4.0 ELECTRICAL RISER DIAGRAM FOR MORE INFORMATION.
12. HVAC UNITS TO BE PROVIDED AND INSTALLED BY LANDLORD. E.C. TO COORDINATE ELECTRICAL CONNECTION REQUIREMENTS WITH ARCHITECT/OWNER. IF ELECTRICAL CONNECTION IS WITHIN TENANT SCOPE, REFER TO CIRCUITS ASSIGNED TO HVAC UNITS ON PLAN.
13. CONTRACTOR TO VERIFY EXACT LOCATIONS OF METER AND DISCONNECT. ENSURE ALL EQUIPMENT ARE PROPERLY SIZED AS SPECIFIED ON PLANS.
14. E.C. TO VERIFY LOCATION OF CONDUIT STUB-UPS FOR DATA AND TELEPHONE. COORDINATE WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.

SHEET HISTORY SCHEDULE

NO.	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

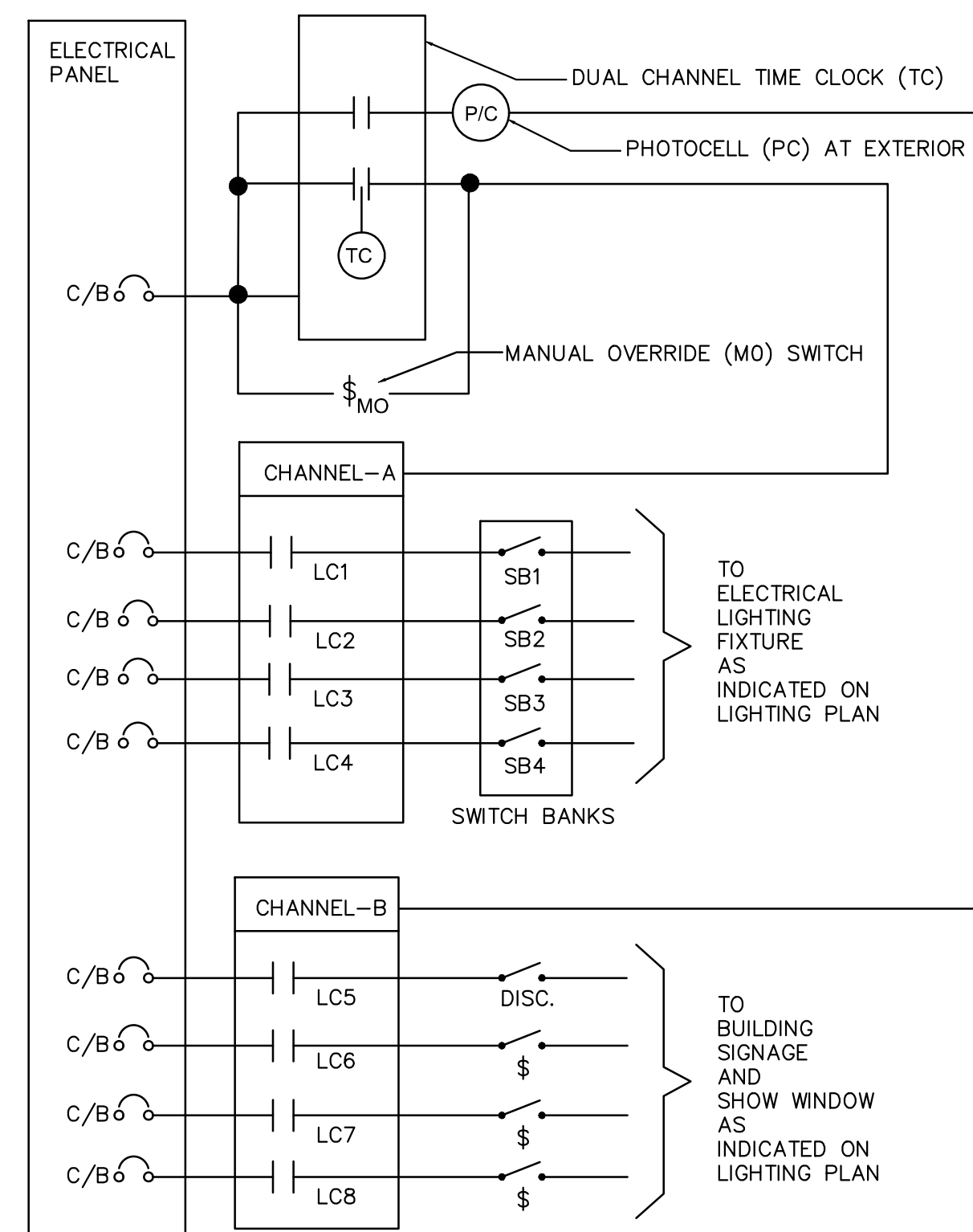
INTERIOR BUILT-OUT

BARBERITOS

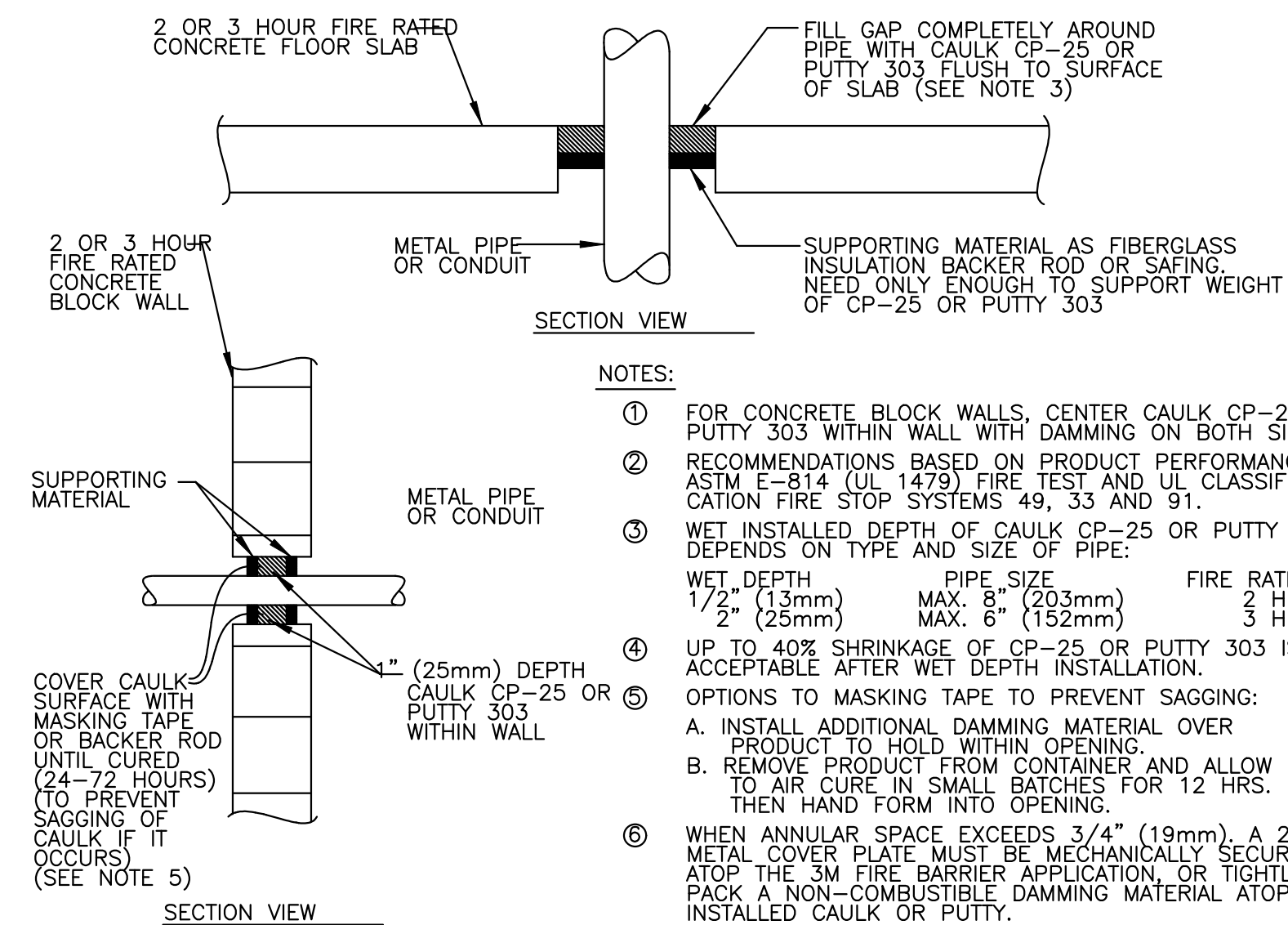
ELECTRICAL FLOOR & ROOF POWER PLAN

E1.1

DIAGRAM BELOW INDICATES THE GENERAL ARRANGEMENT OF THE CONTACTOR PANEL.
SEE ELECTRICAL LIGHTING PLAN FOR CIRCUIT AND CONTROL DETAILS.
CONTRACTOR SHALL SELECT THE QUANTITY OF THE CONTACTORS AS REQUIRED.



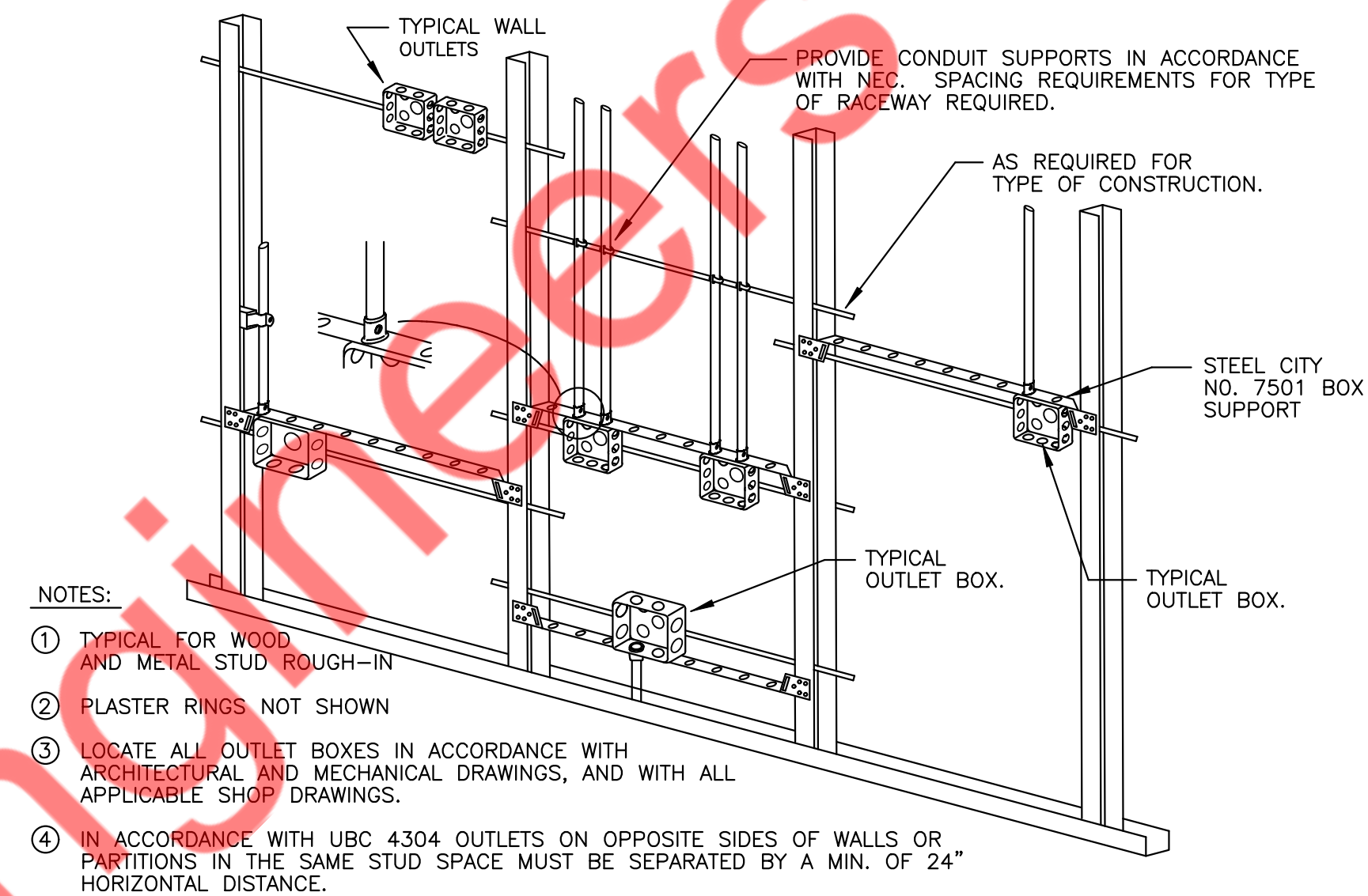
1 LIGHTING CONTACTOR DETAIL (TYPICAL)
E3.0 N.T.S



- NOTES:
- FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
 - RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
 - 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. 5" (203mm)	2 HRS.
1/2" (25mm)	MAX. 6" (152mm)	3 HRS.
 - UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
 - 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.
 - 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
E3.0 N.T.S



- NOTES:
- TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
 - PLASTER RINGS NOT SHOWN
 - LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
 - IN ACCORDANCE WITH UBC 4304 OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

3 DETAIL TYPICAL ROUGH-IN REQUIREMENTS
E3.0 N.T.S

SHEET HISTORY SCHEDULE

NO.	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT
BARBERITOS

ELECTRICAL DETAILS
E3.0

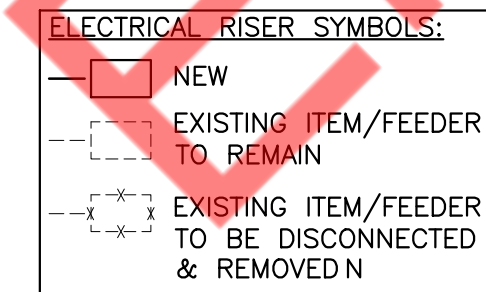
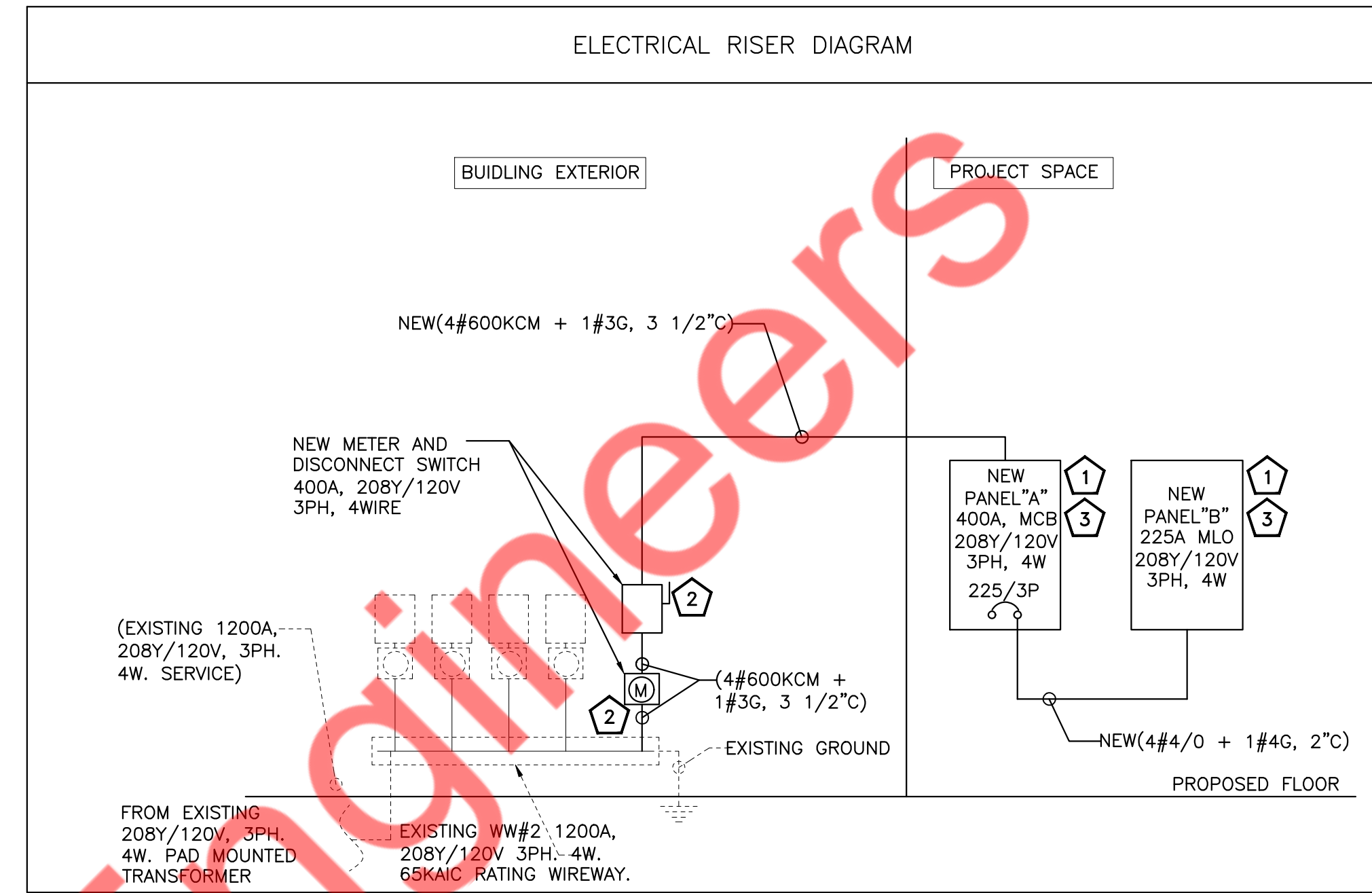
BARBARITO'S MILLBROOK														
PANEL:	A	(NEW)											MOUNTING:	SURFACE
208Y/120V	VOLTS		3	PHASE	AIC RATING (in kA)				DEMAND LOAD	107.84		PANEL LOCATION:	MANAGER ROOM	
400	AMPS	MAIN CIRCUIT BREAKER	4	WIRE	NEMA RATING				DEMAND CURRENT	299.69		FED FROM:	METER VIA DISCONNECT SWITCH	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20/1P	EXTERIOR SIGN	L	1.20	RWC	2.10			RWC	0.90	L	INTERIOR LIGHTING	20/1P	2
3	20/1P	INTERIOR LIGHTING	L	0.90	RWC		1.40		RWC	0.50	L	LIGHTING CONTACTOR	20/1P	4
5	20/1P	WALK-IN COOLER LIGHTING	L	0.10	RWC			1.50	RWC	1.40	L	SHOW WINDOW RECEPT	20/1P	6
7	20/1P	SHOW WINDOW RECEPT	L	1.40	RWC	1.76			RWC	0.36	R	MENUBOARD RECEPTACLE	20/1P	8
9	20/1P	MENUBOARD RECEPTACLE	R	0.36	RWC		1.91		RWC	1.55	E	E02_RICE COOKER	20/1P	10
11	20/1P	E24_STEAMER / TORTILLA PRESS	E	1.80	RWC			3.60	RWC	1.80	E	E24_STEAMER / TORTILLA PRESS	20/1P	12
13	20/1P	E01_PRINTER	O	0.36	RWC	1.36			RWC	1.00	E	E01.1 FOOD WARMER	20/1P	14
15	20/1P	E01_FOOD WARMER	E	0.70	RWC		3.10		RWC	2.40	E	E04_HOT WELL, 4-PANS CAP.	30/1P	16
17	20/1P	E14.1_MEGA TOP SANDWICH	E	0.53	RWC			1.21	RWC	0.68	E	E14_MEGA TOP SANDWICH	20/1P	18
19	20/1P	E10_INDUCTION COOKER	E	1.80	RWC	2.80			RWC	1.00	E	E13_CHIP WARMER	20/1P	20
21	20/1P	E01_FOOD WARMER	E	0.70	RWC		1.42		RWC	0.72	O	E18_POS SYSTEM	20/1P	22
23			E	4.67				4.91	RWC	0.24	E	E53_REFRIGERATOR, WORKTOP	20/1P	24
25	50/3P	E08_FRYER	E	4.67	RWC	6.67			RWC	2.00	E	E05_HOT HOLDING CABINET	30/1P	26
27			E	4.67			6.59		RWC	1.92	E	E28_NUGGET ICE MACHINE	20/1P	28
29	20/1P	E25_REACH-IN FREEZER	E	0.53	RWC			1.37	RWC	0.84	E	E06_REFRIGERATED CHEF BASE	20/1P	30
31	20/1P	BAG & BOX MACHINE	E	0.18	RWC	0.36			RWC	0.18	R	CLOSET RECEPTACLE	20/1P	32
33	20/1P	RESTROOM RECEPTACLE	R	0.18	RWC		0.93		RWC	0.75	E	WALK-IN EVAPORATOR	20/2P	34
35	30/2P	WALK-IN COOLER CONDENSERR	H	2.18	RWC			2.93	RWC	0.75	E			36
37			H	2.18		25.66					X			38
39	20/1P	SPARE								23.48	X	TO PANEL-B	225/3P	40
41	20/1P	SPARE								23.48	X			42
						40.71	38.83	39.00						

BARBARITO'S MILLBROOK														
PANEL:	B	(NEW)											MOUNTING:	SURFACE
208Y/120V	VOLTS		3	PHASE	AIC RATING (in kA)				DEMAND LOAD	70.45		PANEL LOCATION:	MANAGER ROOM	
225	AMPS	MAIN LUG ONLY	4	WIRE	NEMA RATING				DEMAND CURRENT	195.79		FED FROM:	PANEL-A	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20/1P	E18_POS SYSTEM	O	0.72	RWC	1.44			RWC	0.72	O	E18_POS SYSTEM	20/1P	2
3	20/1P	E18_POS SYSTEM	O	0.72	RWC		1.80		RWC	1.08	R	GENERAL RECEPTACLE	20/1P	4
5	20/1P	GENERAL RECEPTACLE	R	0.36	RWC			0.86	RWC	0.50	E	PANEL SERVICE RECEPTACLE	20/1P	6
7	20/1P	E29_NUGGET ICE MAKER	E	1.92	RWC	2.94			RWC	1.02	E	E66_BEVERAGE DISPENSER	20/1P	8
9	20/1P	E49_ICED TEA BREWER	E	1.68	RWC		2.64		RWC	0.96	E	E17_REFRIGERATED COLD PAN	20/1P	10
11	20/1P	MANAGER ROOM RECEPTACLE	R	1.08	RWC			1.58	RWC	0.50	E	CAS HOOD SYSTEM	20/1P	12
13	20/1P	ROOFTOP SERVICE RECEPTACLE	R	0.18	RWC	0.18						SPARE	20/1P	14
15			H	5.15			5.15					SPARE	20/1P	16
17	50/3P	RTU-11 (E)	H	5.15	RWC			10.30		5.15	H			18
19			H	5.15		10.30			RWC	5.15	H	RTU-12 (E)	50/3P	20
21			H	3.65			8.80			5.15	H			22
23	45/3P	MAU-1(N)	H	3.65	RWC			3.65				SPARE	20/1P	24
25			H	3.65		4.15			RWC	0.50	M	RCP-1	20/1P	26
27	20/1P	WH-1	O	0.20	RWC		0.40		RWC	0.20	O	WH-1	20/1P	28
29			E	4.20				8.40		4.20	E			30
31	45/3P	36" COUNTER TOP GRIDDLE	E	4.20	RWC	8.40			RWC	4.20	E	36" COUNTER TOP GRIDDLE	45/3P	32
33			E	4.20				8.40		4.20	E			34
35			M	0.55				0.55				SPARE	20/1P	36
37	20/3P	KEF-1 (N)	M	0.55	RWC	0.55						SPARE	20/1P	38
39			M	0.55			0.55					SPACE		40
41		SPACE						0.00				SPACE		42
						27.96	27.74	25.34						

KITCHEN EQUIPMENT POWER SCHEDULE									
1. PROVIDE SO CORD DROP WITH STRAIN RELIEF. REFER TO ELECTRICAL POWER PLAN.									
2. FURNISHED WITH CONTROL BOX. CONNECT ALL COMPONENTS.									
3. PROVIDE WP DISCONNECT SWITCH. VERIFY RATING WITH ACTUAL EQUIPMENT.									
TAG	EQUIPMENT DESCRIPTION	VOLT	PHASE	LOAD (VA)	WIRE - CONDUIT SIZE	CONNECTION	PANEL	CIRCUIT NO.	REMARKS
E01	FOOD WARMER, COUNTER TOP	120	1	700	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	15	
E01.1	FOOD WARMER, DROP-IN	120	1	1000	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	14	
E02	RICE COOKER	120	1	1550	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	10	
E03	10X7" WALK-IN COOLER	120	1	1500	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	34	1
E04	HOT WELL, 4-PANS CAP	120	1	2400	2#10 + 1#10G, 3/4" C	NEMA L5-30	A	16	
E05	HOT HOLDING CABINET	120	1	2000	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	26	
E06	84" 4 DRAWER REFRIDGERATOR CHEF BASE	115	1	750	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	30	
E07	36" COUNTER TOP GRIDDLE	208	3	12234	3#8 + 1#10G, 3/4" C	NEMA 5-50	B	29,31,33	
E07	36" COUNTER TOP GRIDDLE	208	3	12234	3#8 + 1#10G, 3/4" C	NEMA 5-50	B	30,32,34	
E08	FRYER	208	3	14000	3#8 + 1#10G, 3/4" C	NEMA 5-50	A	23,25,27	
E10	INDUCTION COOKER	120	1	1800	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	19	
E13	CHIP WARMER	120	1	1000	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	20	
E14	MEGA TOP SANDWICH	115	1	680	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	18	
E14.1	MEGA TOP SANDWICH	115	1	782	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	17	
E17	REFRIDGERATED COLD PAN	115	1	960	2#12 + 1#12G, 3/4" C	NEMA 5-20	B	10	
E18	POS SYSTEM	115	1	360	2#12 + 1#12G, 3/4" C	NEMA 5-15	B	1,2,3	
E20	PRINTER	115	1	180	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	13	
E24	STEAMER / TORTILLA PRESS	120	1	1800	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	11	
E25	REACH-IN FREEZER	115	1	530	2#12 + 1#12G, 3/4" C	NEMA 5-15	A	29	
E28	NUGGET ICE MACHINE	115	1	1140	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	28	
E29	MUGGET ICE MAKER	115	1	1920	2#12 + 1#12G, 3/4" C	NEMA 5-20	B	7	
E49	ICE TEA BREWER	120	1	1680	2#12 + 1#12G, 3/4" C	NEMA 5-20	B	9	
E53	REFRIDGERATOR, WORKTOP	115	1	240	2#12 + 1#12G, 3/4" C	NEMA 5-20	A	24	
E63	CAS HOOD SYSTEM	120					B	12,14,16	
E66	BEVRAGE DISPENSER	120	1	1020	(2)#12 & (1)#12G, IN 3/4" C	NEMA 5-20	B	8	
1. CONTACTOR TO COORDINATE WITH MANUFACTURER FOR EXACT POWER REQUIREMENTS AND CONNECTION TYPE OF THE EQUIPMENT AND PROVIDE ACCORDINGLY.									
E.C. TO PROVIDE SHUNT TRIP BREAKERS WHEREVER THEY ARE REQUIRED.									

PANEL SCHEDULE ABBREVIATIONS AND NOTES	
TAG	DESCRIPTION
L	LIGHTING
R	RECEPTACLE
H	HVAC
E	ELECTRICAL EQUIPMENT
M	LARGEST MOTOR
O	OTHER
N	NON COINCIDENT
X	LINKED CELL
*	VERIFY/COORDINATE IN FIELD
RWC	REFER TO THE WIRING CHART FOR WIRE SIZE
RF	REFER RISER FOR FEEDER SIZE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
NBEP	NEW BREAKER IN THE EXISTING PANEL
HACR	HEAT AIR CONDITIONING AND REFRIGERATION
PAN	PROVIDE ADDITIONAL WIRE FOR NEUTRAL
LO	LOCKOUT BREAKER
STB	SHUNT TRIP BREAKER
SB	SPLIT BREAKER
ETR	EXISTING TO REMAIN
SAE	SAME AS EXISTING
VIF	VERIFY IN FIELD
LC	WIRE THROUGH LIGHTING CONTACTOR
NCL	NON COINCIDENT LOAD
DFB	DUAL FUNCTION BREAKER (AFCI+GFCI)
CB	COMBINATION BREAKER (S/P)

BRANCH CIRCUIT WIRING CHART	
BREAKER	BRANCH CIRCUIT SIZE
15/1P	2#12 + 1#12G, 3/4" C
20/1P	2#12 + 1#12G, 3/4" C
15/2P	2#12 + 1#12G, 3/4" C
20/2P	2#12 + 1#12G, 3/4" C
25/2P	2#10 + 1#10G, 3/4" C
30/2P	2#10 + 1#10G, 3/4" C
35/2P	2#8 + 1#10G, 3/4" C
40/2P	2#8 + 1#10G, 3/4" C
45/2P	2#8 + 1#10G, 3/4" C
50/2P	2#8 + 1#10G, 3/4" C
15/3P	3#12 + 1#12G, 3/4" C
20/3P	3#12 + 1#12G, 3/4" C
25/3P	3#10 + 1#10G, 3/4" C
30/3P	3#10 + 1#10G, 3/4" C
35/3P	3#8 + 1#10G, 3/4" C
40/3P	3#8 + 1#10G, 3/4" C
45/3P	3#8 + 1#10G, 3/4" C
50/3P	3#8 + 1#10G, 3/4" C
60/3P	3#6 + 1#10G, 3/4" C
70/3P	3#4 + 1#8G, 1" C
80/3P	3#4 + 1#8G, 1" C
90/3P	3#3 + 1#8G, 1" C
100/3P	3#3 + 1#8G, 1" C



- RISER GENERAL NOTE:**
- E.C. SHALL COORDINATE WITH UTILITY FOR THE AVAILABLE FAULT CURRENT AND VERIFY AIC RATING OF THE EXISTING DEVICES IN FIELD ACCORDINGLY.
 - ENSURE THE COMBINED VOLTAGE DROP OF THE FEEDER AND BRANCH CIRCUIT SHALL NOT EXCEED 5% PER CODE.
 - ADDITION OR ALTERATION TO THE EXISTING SYSTEM SHALL NOT BE DONE WITHOUT THE WRITTEN CONSENT OF THE OWNER.
 - VERIFY/COORDINATE THE EXACT POWER DISTRIBUTION AND SCOPE OF WORK WITH THE LANDLORD/OWNER BEFORE BID.
 - E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.
 - THE VOLTAGE AND FREQUENCY FLUCTUATION IN THE ELECTRICAL UTILITY SERVICE AT THE SERVICE ENTRY SHALL NOT BE MORE THAN +/- 5% AND +/- 1%, RESPECTIVELY. PROVIDE THE REGULATORS IF SUCH A CASE IS OBSERVED.
 - PROVIDE GEC AND EGC AS PER 250.66 & 250.122, RESPECTIVELY, AS NEEDED. PROVIDE SEPARATE GROUND CONDUCTORS IN ALL CONDUITS.

- RISER DIAGRAM KEYED WORK NOTES**
- E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION OF THE PANELS IN THE FIELD. ALSO, ENSURE CLEAR WORKING AND DEDICATED SPACE AS PER NEC 110.26.
 - E.C. TO VERIFY THE AVAILABILITY OF THE EXISTING METER AND FUSE DISCONNECT DEDICATED TO THE PROJECT SPACE. VERIFY THE LOCATION, RATING, AND OPERABLE CONDITION IN THE FIELD. OTHERWISE, PROVIDE NEW AS INDICATE ON ABOVE RISER DIAGRAM. INFORM EOR OF ANY DISCREPANCY BEFORE THE BID.
 - E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE NEW ELECTRICAL EQUIPMENT IN THE FIELD.

- PANEL SCHEDULE GENERAL NOTE**
- CONTRACTOR SHALL VERIFY BREAKER AND BRANCH CIRCUIT REQUIREMENTS FOR THE EQUIPMENT IN THE FIELD.
 - THE ELECTRICAL LOAD IS BALANCED WITHIN 10% FOR ALL 3 PHASES.
 - THE VOLTAGE DROP FOR THE BRANCH CIRCUIT SHALL NOT EXCEED 3%.
 - GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFCI BREAKER IN THE PANEL FOR THE INDICATED CIRCUIT IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT READILY ACCESSIBLE.
 - PROVIDE BREAKER LOCKING DEVICES IN THE PANELS, WHERE EVER REQUIRED BY CODE. INCLUDING BUT NOT LIMITED TO EMERGENCY LIGHTING, FIRE ALARM CIRCUITS,

PLUMBING SYMBOLS LIST

— SAN —	SANITARY SEWER (UNDERFLOOR)
— SAN —	SANITARY SEWER (ABOVE FLOOR)
— EX-SAN —	EXISTING SANITARY SEWER (UNDER FLOOR)
— GSAN —	GREASE SANITARY SEWER (UNDER FLOOR)
— EX-GSAN —	EXISTING GREASE SANITARY SEWER (UNDER FLOOR)
— VENT —	VENT PIPING
— COLD —	COLD WATER PIPING
— HOT —	HOT WATER PIPING
— RETURN —	HOT WATER RETURN PIPING
— P-TRAP —	P-TRAP
— PIPE UP —	PIPE UP
— PIPE DROP —	PIPE DROP
— CLEANOUT —	CLEANOUT
— SHUT OFF VALVE —	SHUT OFF VALVE
— GAS PLUG VALVE —	GAS PLUG VALVE
— POINT OF CONNECTION —	POINT OF CONNECTION

PLUMBING ABBREVIATIONS

CO	CLEANOUT
FCO	FLOOR CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
S	SOIL
V	VENT
W	WASTE
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
EX.	EXISTING
FD	FLOOR DRAIN
BFP	BACK FLOW PREVENTER
WH	WATER HEATER
ET	EXPANSION TANK

PLUMBING DRAWING LIST

P0.1	PLUMBING NOTES, SYMBOLS, ABBREVIATIONS & SPECIFICATIONS
P1.0	PLUMBING FLOOR PLAN
P3.0	PLUMBING DETAILS
P4.0	PLUMBING SCHEDULES
P5.0	PLUMBING RISERS

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 INTERNATIONAL PLUMBING CODE 2015
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
- RODENT PROOFING AS PER PC 304.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 312, PC 604, PC 701, PC 903, PC 1102.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708.
- DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312.

PLUMBING SPECIFICATION

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

1.01 SCOPE

A. 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.

B. 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.

C. 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.

D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.

E. 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.

F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.

G. 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.

H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.

I. 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.

J. 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.

K. 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

A. 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
- GREASE INTERCEPTOR
- MIXING VALVES
- ALL SCHEDULED PLUMBING EQUIPMENT

B. 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.

C. 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.

D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DRAWINGS 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.

E. SUBMITTAL PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.

F. 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.

G. 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.

H. 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

A. 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.

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

1.04 DEFINITIONS

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

B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

C. PROVIDE: TO FURNISH AND INSTALL.

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

1.05 DRAWINGS

A. 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.

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

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

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

E. 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.

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

1.06 PRODUCTS

A. SANITARY AND VENT PIPING:

- ABOVE GRADE PIPING SHALL BE HUBLESS CAST IRON PIPE 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.
- PVC OR OTHER COMBUSTIBLE PLASTIC PIPING SHALL NOT BE INSTALLED IN CEILING PLENUM SPACES.
- 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, OR CPVC AS PER ASTM D2846, ASTM F441, ASTM F442 AND CSA B137.6 STANDARDS.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS, OR CPVC AS PER ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, CSA B137.6 STANDARDS
- 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 SUPPLIES FOR DOMESTIC WATER.
- AS PER IECC 2009 EDITION, SECTION 504.2, WATER HEATING EQUIPMENT AND HOT WATER STORAGE TANKS SHALL MEET THE REQUIREMENTS OF TABLE 504.2. THE EFFICIENCY SHALL BE VERIFIED THROUGH DATA FURNISHED BY THE MANUFACTURER OR THROUGH CERTIFICATION UNDER AN APPROVED CERTIFICATION PROGRAM.
- AS PER IECC 2009 EDITION, SECTION 503.2.8, ALL PIPING SERVING AS PART OF A HEATING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH TABLE 503.2.8

MINIMUM PIPE INSULATION (THICKNESS IN INCHES)		
FLUID	NOMINAL PIPE DIAMETER	
HOT WATER	<1.5"	>1.5"
	1-1/2"	2"

8. AS PER IECC 2009 EDITION, SECTION 504.6, AUTOMATIC-CIRCULATING HOT WATER SYSTEM PUMPS OR HEAT TRACE SHALL BE ARRANGED TO BE CONVENIENTLY TURNED OFF AUTOMATICALLY OR MANUALLY WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION.

9. SEAL ALL JOINTS BETWEEN SEGMENTS OF INSULATION.

10. PROVIDE SHIELDS BETWEEN HANGERS AND INSULATION.

C. GAS PIPING:

- GAS PIPING SHALL BE SIZED IN ACCORDANCE WITH PIPE SIZING TABLES OR SIZING EQUATIONS IN ACCORDANCE WITH SECTION 402.4.
- METALLIC PIPE SHALL COMPLY WITH SECTIONS 403.4.1 THROUGH 403.4.4.
- PIPING SYSTEM INSTALLATION SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.
- AS PER INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.6, UNDERGROUND PIPING WHERE INSTALLED BELOW GRADE THROUGH THE OUTER FOUNDATION OR BASEMENT WALL OF A BUILDING, SHALL BE ENCASED IN A PROTECTED TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH BETWEEN THE GAS PIPING AND THE SLEEVE SHALL BE SEALED.

5. PIPING INSTALLED UNDERGROUND BENEATH BUILDINGS IS PROHIBITED EXCEPT WHERE THE PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE DESIGNED TO WITHSTAND THE SUPERIMPOSED LOADS. THE CONDUIT SHALL BE PROTECTED FROM CORROSION IN ACCORDANCE WITH SECTION 404.11 AND SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 404.11.1 OR 404.11.2 OF INTERNATIONAL FUEL GAS CODE 2018

6. AS PER INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.12; UNDERGROUND PIPING SYSTEMS SHALL BE INSTALLED A MINIMUM DEPTH OF 12 INCHES BELOW GRADE.

7. THE GAS PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE TO WITHSTAND THE SUPERIMPOSED LOADS. SHUTOFF VALVES SHALL BE LOCATED IN PLACES SO AS TO PROVIDE ACCESS FOR OPERATION AND SHALL BE INSTALLED SO AS TO BE PROTECTED FROM DAMAGE.

D. HOT WATER RE-CIRCULATING PUMP

- IN-LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
- 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 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.
- 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.
- 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.

E. 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.
- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

F. 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 FLOWSOMETER-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.

G. SLEEVES AND ESCUTCHEONS:

- SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAG GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USE THERMAL FIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.
- PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.
- PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

H. DRAINAGE ACCESSORIES

- GENERAL:
 - INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
 - SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.
- DEVICES:
 - CLEANOUT & CLEANOUT PLUG
 - THREADED PIPE FITTING OR CAST IRON FERRULE WITH TIGHT CLEANOUT PLUG
 - PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.
 - LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI-SEIZE LUBRICANT BEFORE FINAL INSTALLATION.
 - CLEANOUT WALL PLATE
 - IT SHOULD BE ROUND, STAINLESS STEEL OR POLISHED CHROME PLATED BRONZE COVER PLATE WITH STAINLESS STEEL VANDAL RESISTANT FASTENER TO SECURE TO CLEANOUT PLUG.
 - CLEANOUT DECK PLATE
 - IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY, ROD END, POLISHED NICKEL BRASS SCORATED TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.

I. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.

J. VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES.

K. 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.

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

M. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. REMOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.

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

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

P. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

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

R. 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.

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

T. 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.

U. 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.

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

W. 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.

X. PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLOWSOMETER VALVES AND QUICK-CLOSING VALVES.

Y. UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP-PRIMING DEVICE.

Z. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.

AA. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN ALL PLUMBING V.T.R.S. AND ALL OUTDOOR AIR INTAKES. OFFSET VENT STACKS AND STACK VENTS IF AND AS REQUIRED BELOW ROOF TO MAINTAIN SUCH CLEARANCE. CLEARANCE SUCH AS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED SEISMIC SUPPORTS.

2. INSTALLATION

2.01 GENERAL

A. 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.

B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECTS.

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

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

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

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

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

H. 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.

I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.

J. 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.

K. 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.

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

2.02 ABOVE GRADE

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

B. 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.

C. 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

A. 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.

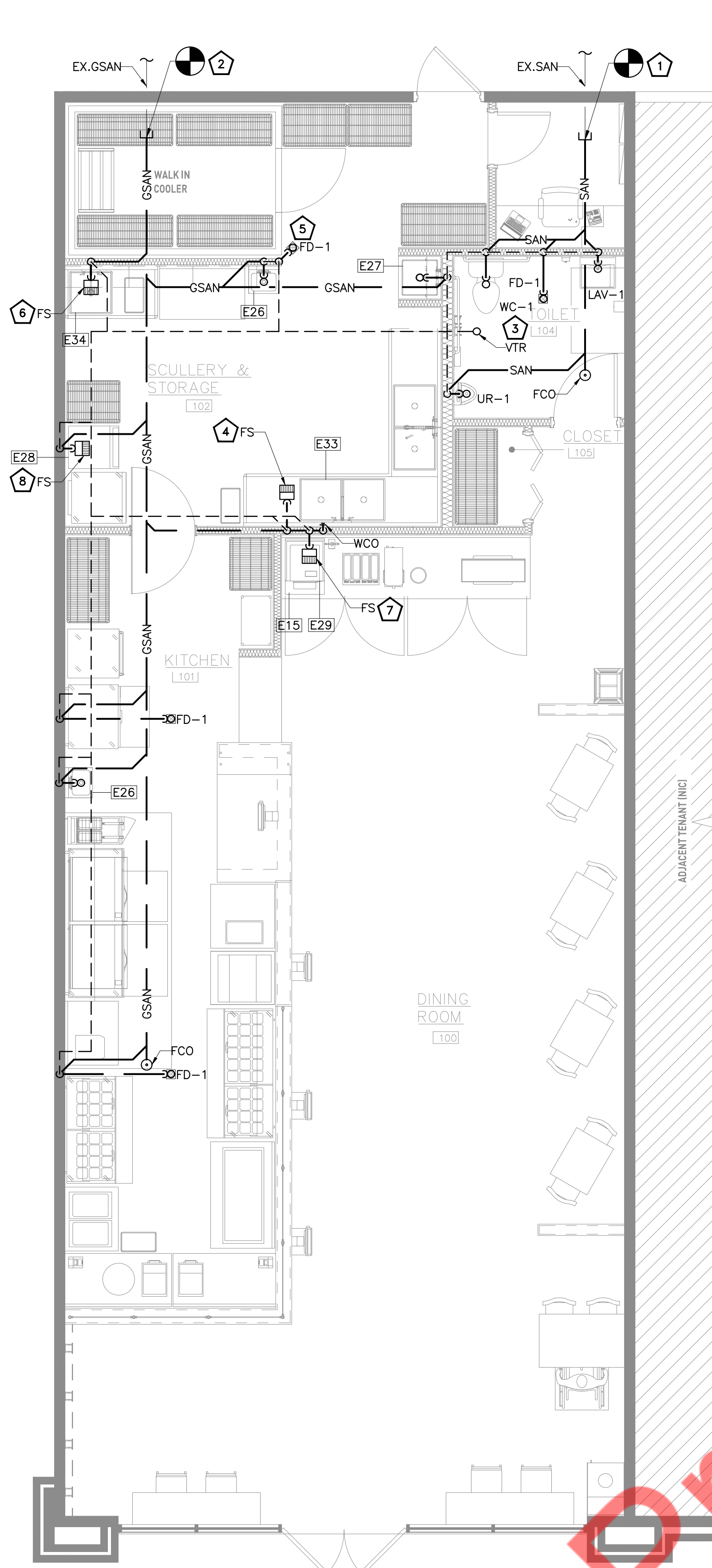
B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.

C. 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.

D. 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.

E. 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 OR THESE TESTS THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.

F. 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.

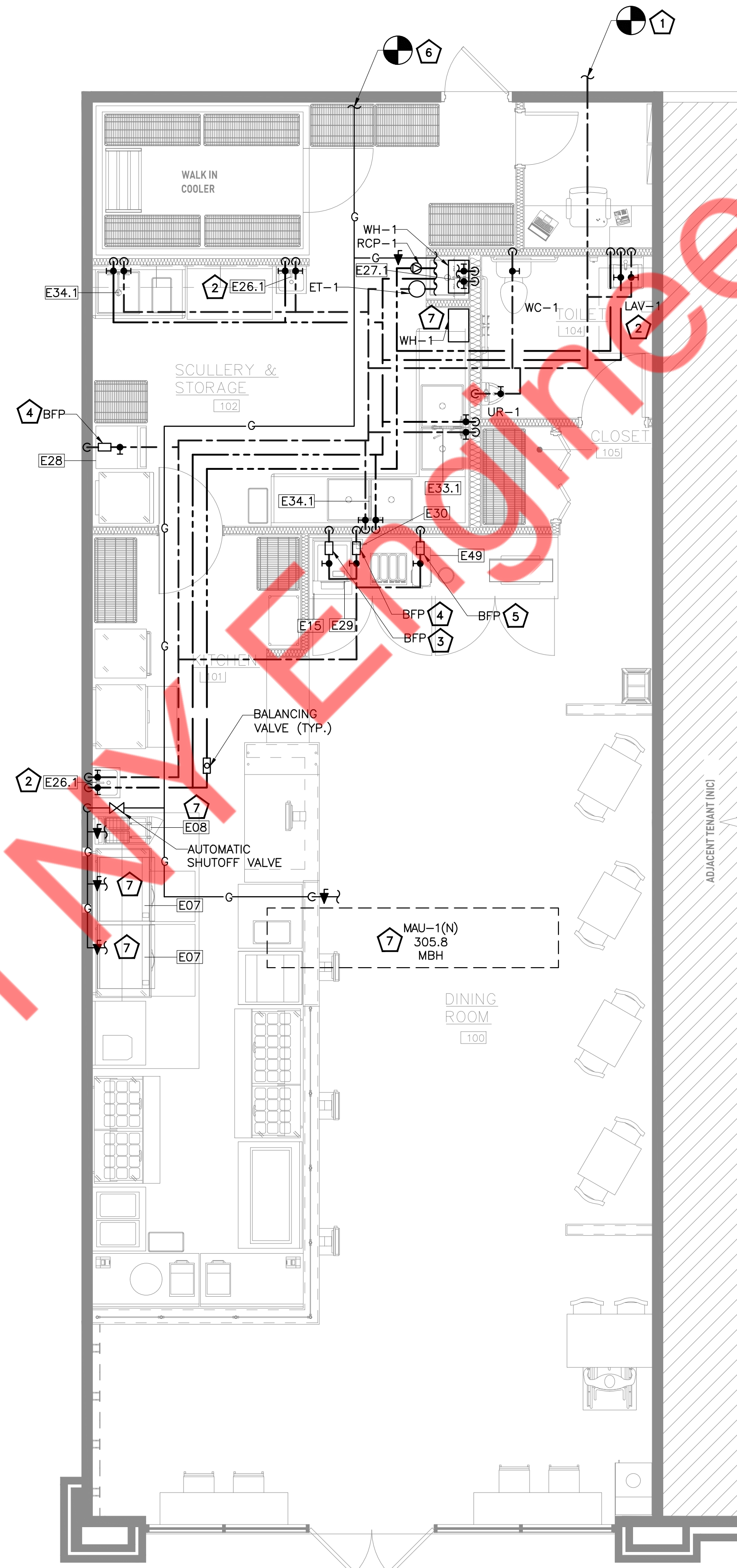


GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
2. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.

SANITARY KEYED NOTES:

1. CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY LINE IN SPACE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY PIPING SIZE, ROUTING AND INVERT. UPGRADE/REPLACE IF REQUIRED.
2. CONNECT NEW 4" GREASE SANITARY WASTE PIPING TO EXISTING GREASE INTERCEPTOR IN SPACE. CONTRACTOR TO FIELD VERIFY EXISTING GREASE SANITARY PIPE SIZE, ROUTING AND INVERT. UPGRADE/REPLACE IF REQUIRED.
3. PROVIDE NEW 3" VTR. CONTRACTOR TO FIELD VERIFY THE VTR EXACT LOCATION.
4. INDIRECT WASTE FROM 4 COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.
5. INDIRECT WASTE FROM CONDENSATE DRAIN PIPE FROM WALK IN COOLER EVAPORATOR DISCHARGE TO FLOOR DRAIN WITH APPROVED AIR GAP.
6. INDIRECT WASTE FROM 1 COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.
7. INDIRECT WASTE FROM ICE MACHINE AND SODA MACHINE TO FLOOR SINK WITH APPROVED AIR GAP.
8. INDIRECT WASTE FROM ICE MACHINE TO FLOOR SINK WITH APPROVED AIR GAP.



GENERAL NOTES:

1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2009 INTERNATIONAL ENERGY CONSERVATION CODE REFER SHEET P0.1).
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
4. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.
5. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.

WATER AND GAS KEYED NOTES:

1. CONNECT NEW 1-1/4" CW LINE TO EXISTING CW LINE IN SPACE WITH EXISTING BFP AND EXISTING WATER METER. CONTRACTOR TO FIELD VERIFY EXISTING WATER METER, BFP AND EXISTING WATER LINE CONDITION, LOCATION AND SIZE. UPGRADE IF REQUIRED.
2. PROVIDE A TEMPERING VALVE FOR HAND SINK AND LAVATORY. POWER HYDROGUARD SERIES LFLM495, ASSE. 1070 OR EQUAL. SET TEMPERATURE TO A MAXIMUM OF 110° F.
3. PROVIDE WATTS SD-3 (ASSE 1022) OR APPROVED EQUAL, BACKFLOW PREVENTER FOR ICE CARBONATED DISPENSER.
4. PROVIDE WATTS LF7 (ASSE 1024) OR APPROVED EQUAL, BACKFLOW PREVENTER FOR ICE MACHINE WITH WATER FILTRATION SYSTEM.
5. PROVIDE WATTS 9D (ASSE 1012) OR APPROVED EQUAL, BACKFLOW PREVENTER FOR ICED TEA BREWER.
6. CONNECT NEW 2" GAS LINE TO EXISTING GAS METER. CONTRACTOR TO FIELD VERIFY EXISTING GAS METER CAPACITY IS EQUAL TO OR GREATER THAN 988.8 MBH. UPGRADE GAS METER IF REQUIRED. COORDINATE ALL WORK WITH UTILITY COMPANY AND LANDLORD.
7. CONTRACTOR TO FIELD VERIFY AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR KITCHEN EQUIPMENT, MECHANICAL EQUIPMENT AND GAS WATER HEATER.

2 SANITARY AND VENT FLOOR PLAN
SCALE: 1/4" = 1'-0"

1 DOMESTIC WATER AND GAS FLOOR PLAN
SCALE: 1/4" = 1'-0"

Property of M Engineers

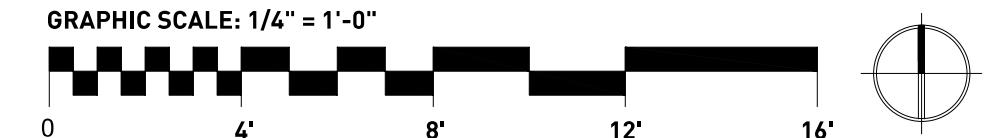
SHEET HISTORY SCHEDULE	

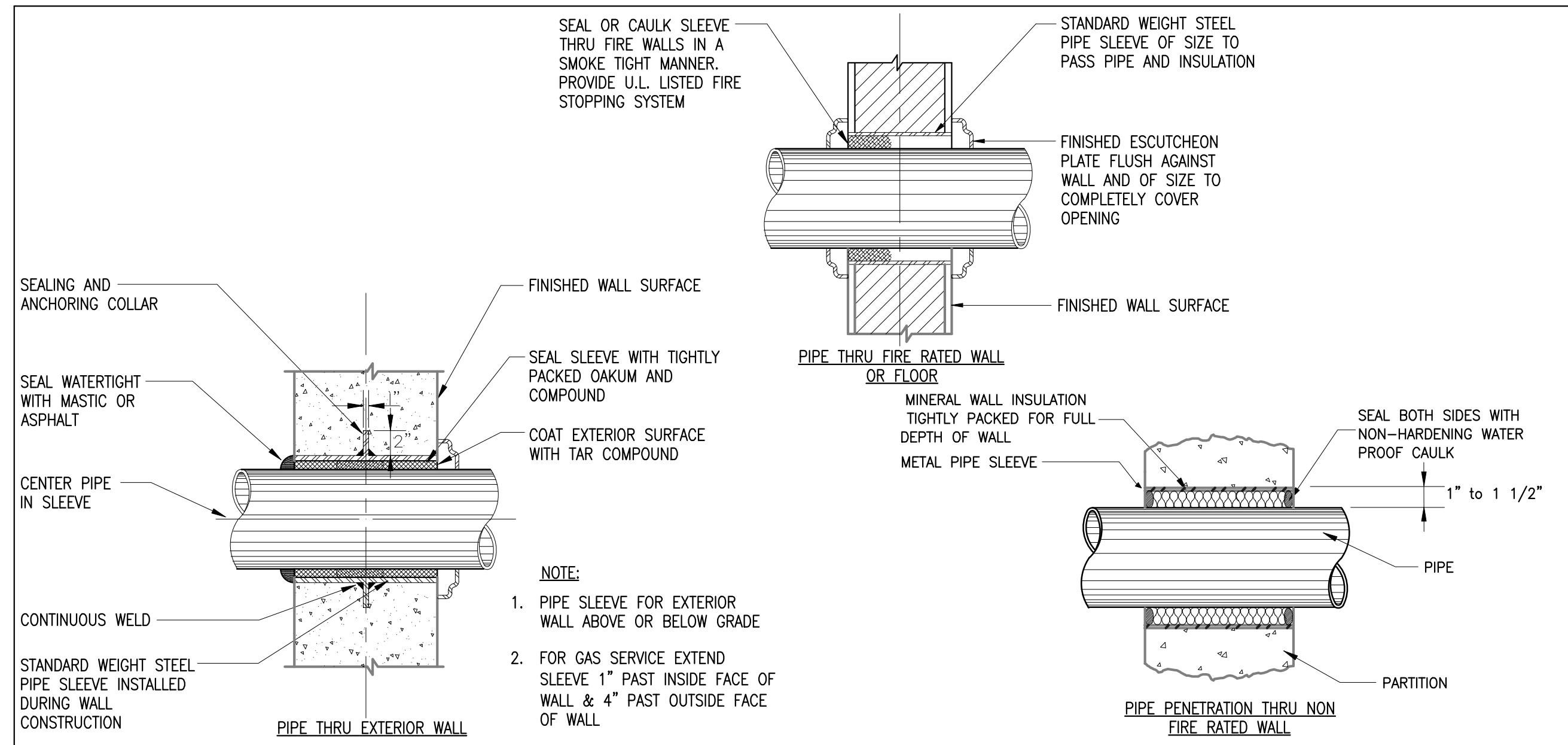
ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT
BARBERITOS

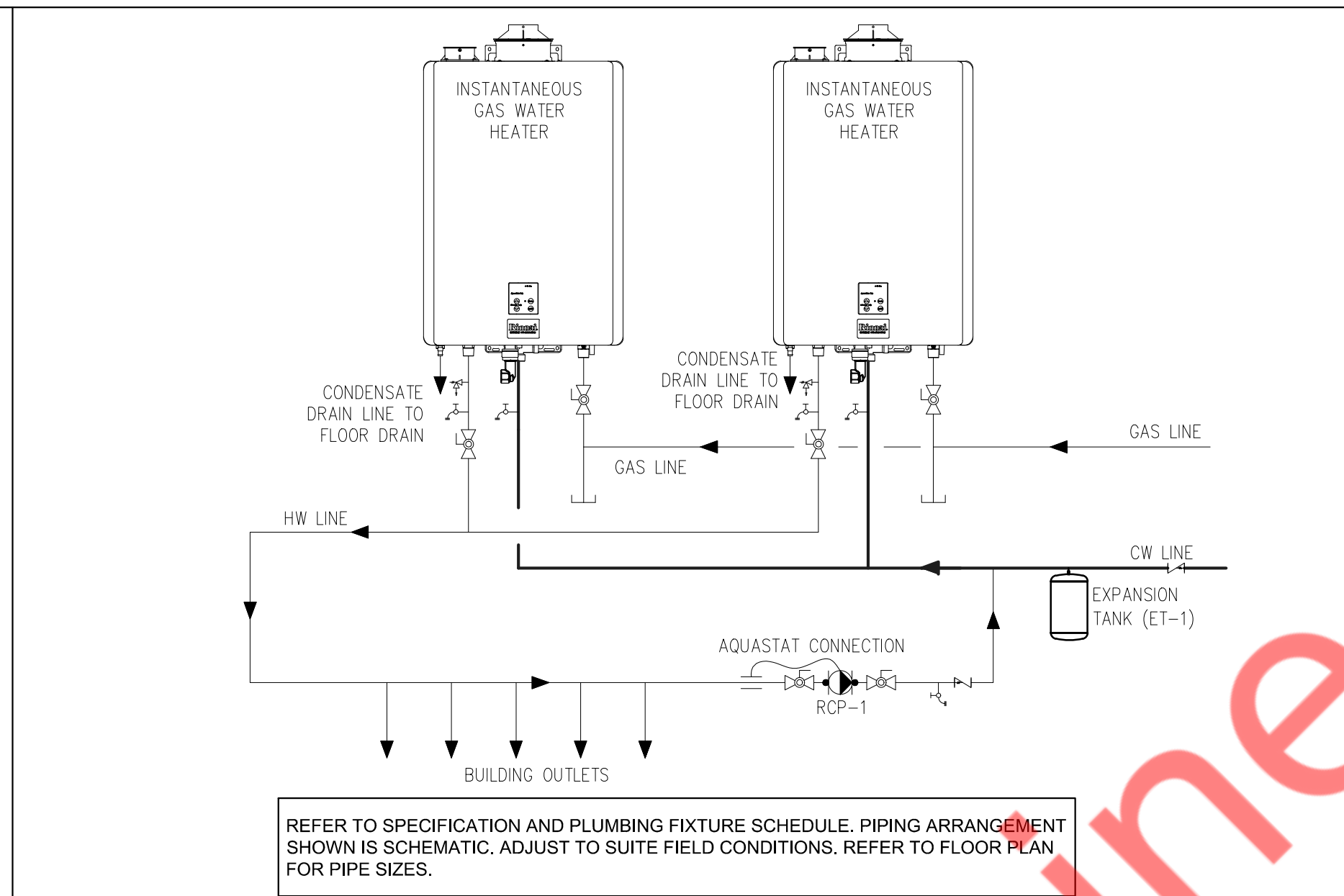
PLUMBING FLOOR PLANS

P1.0

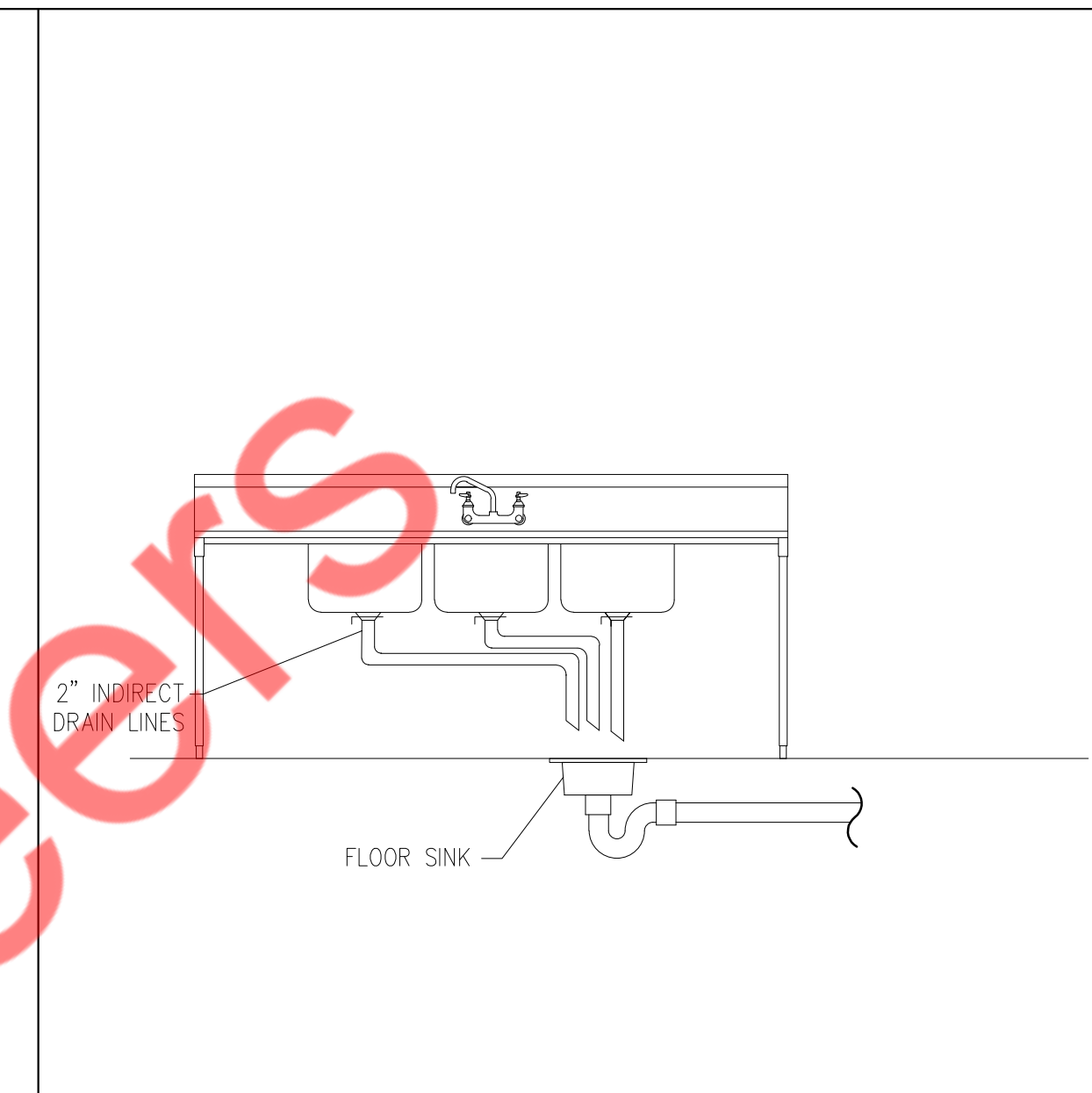




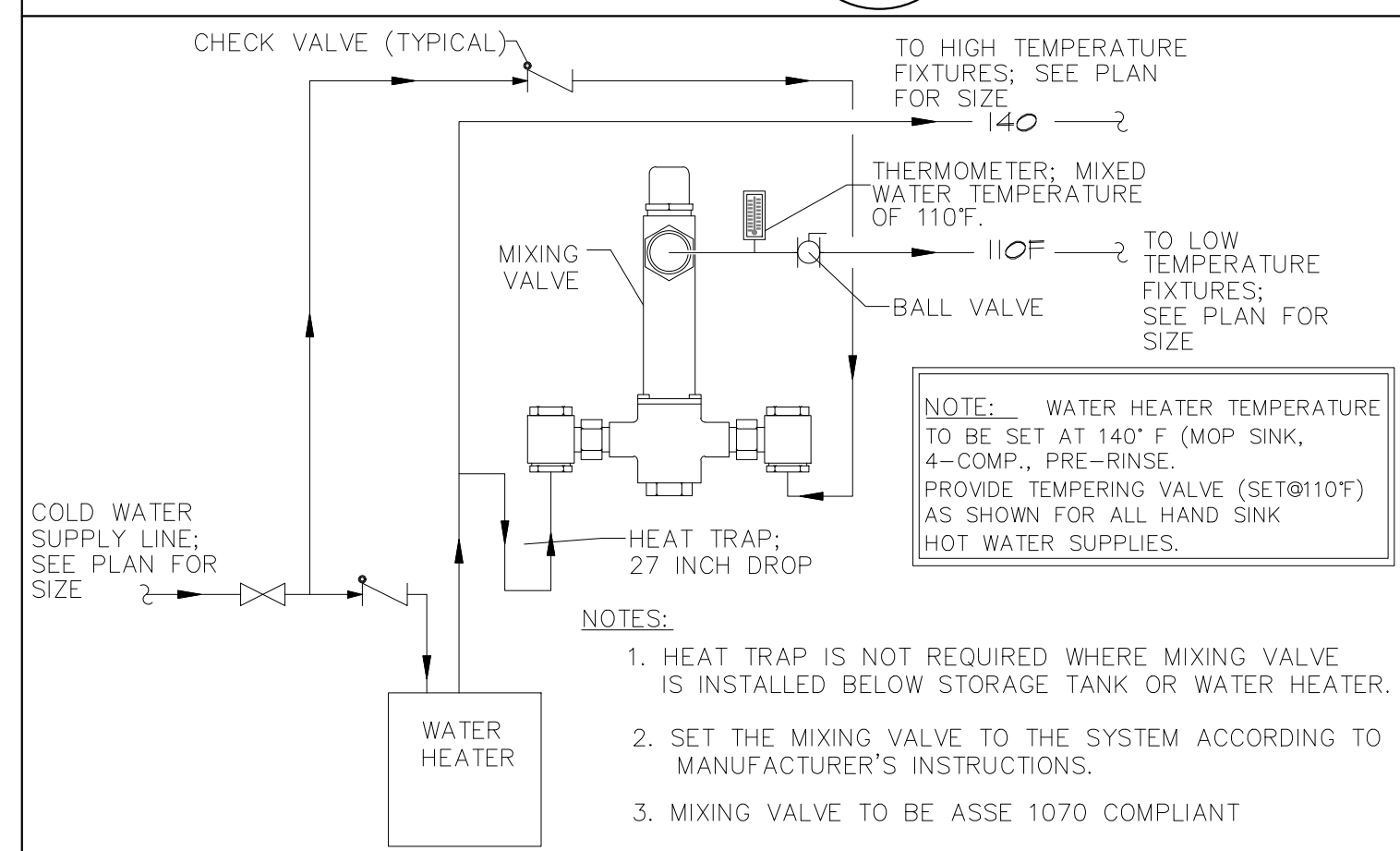
1 PIPE SLEEVE THRU WALL SECTION
P3.0 N.T.S



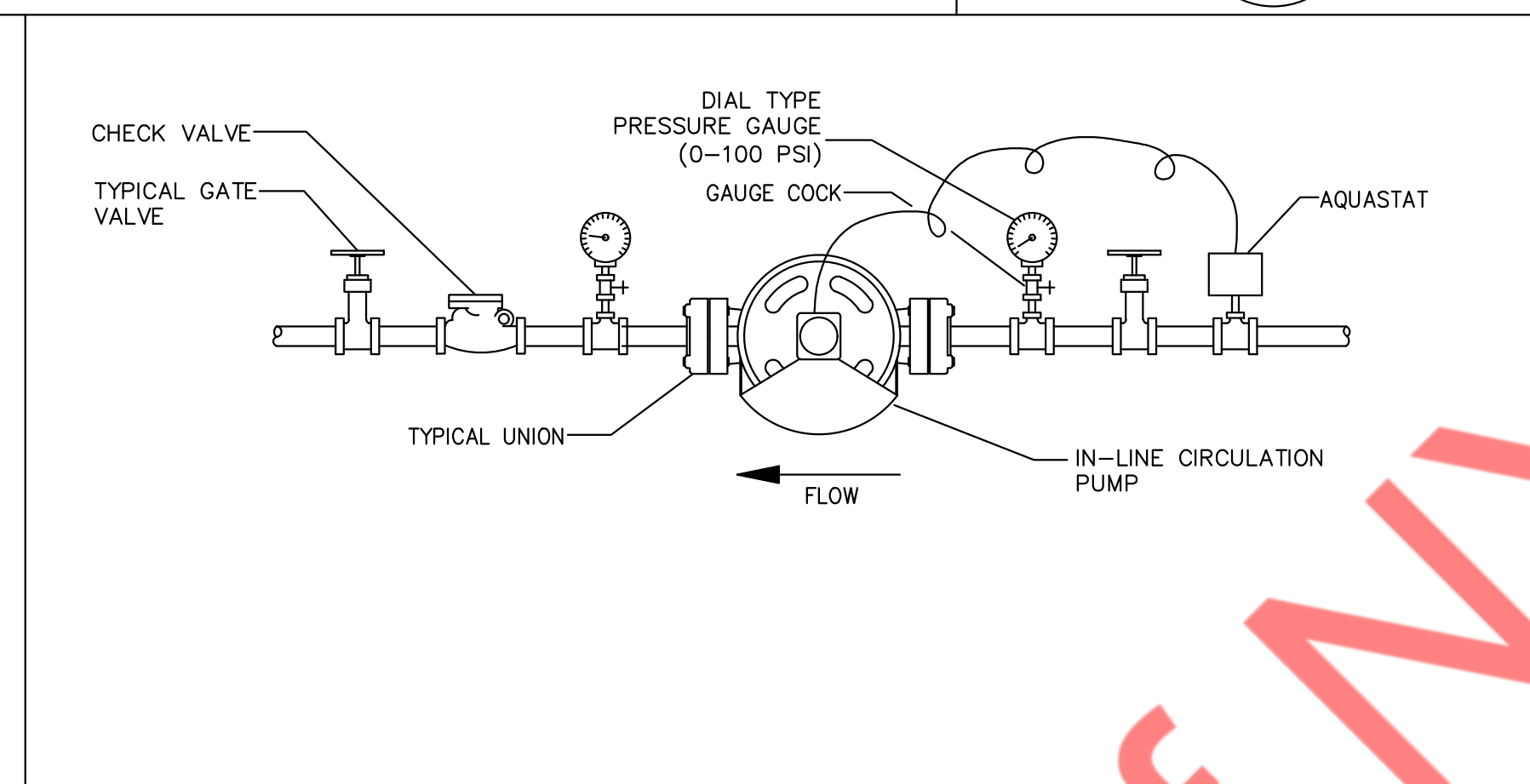
2 TANKLESS GAS WATER HEATER DETAILS
P3.0 N.T.S



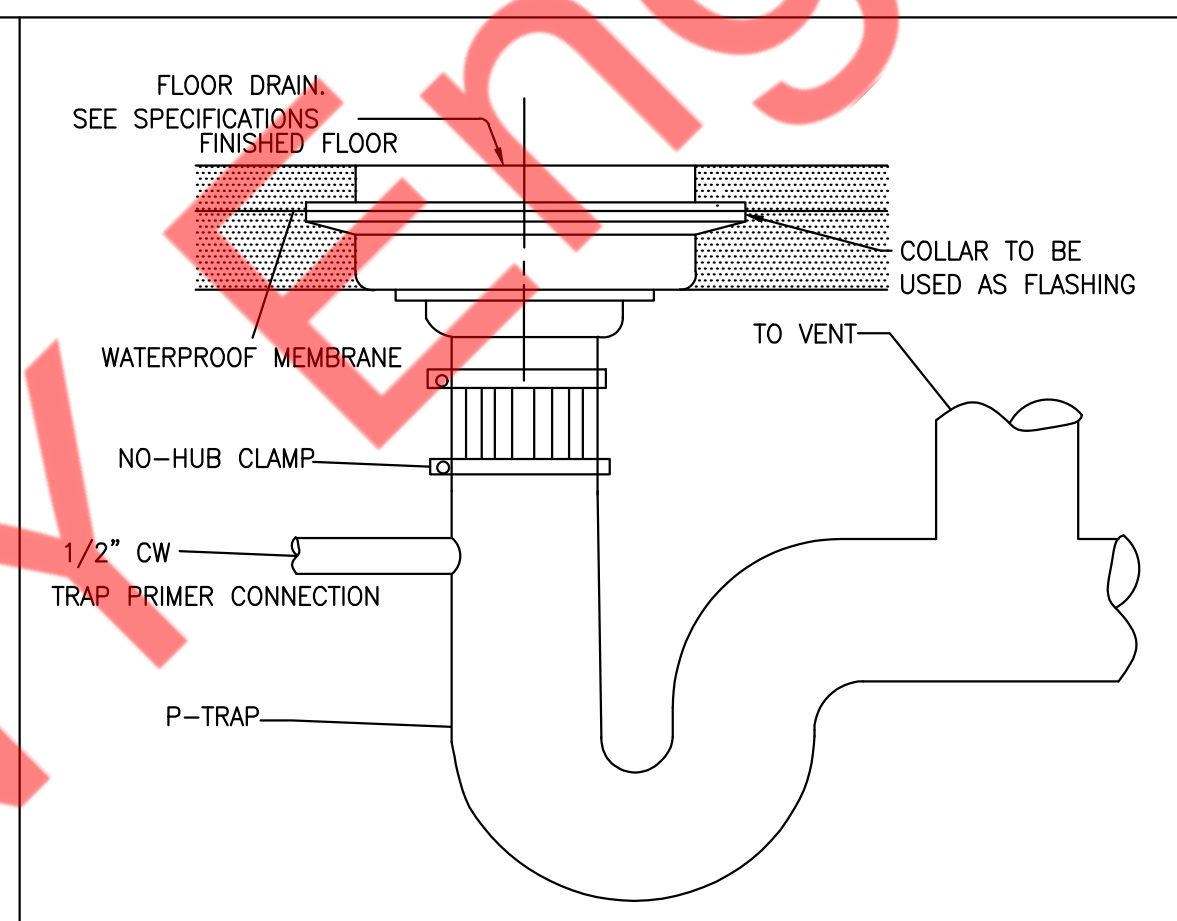
3 3 COMPARTMENT SINK DETAIL
P3.0 N.T.S



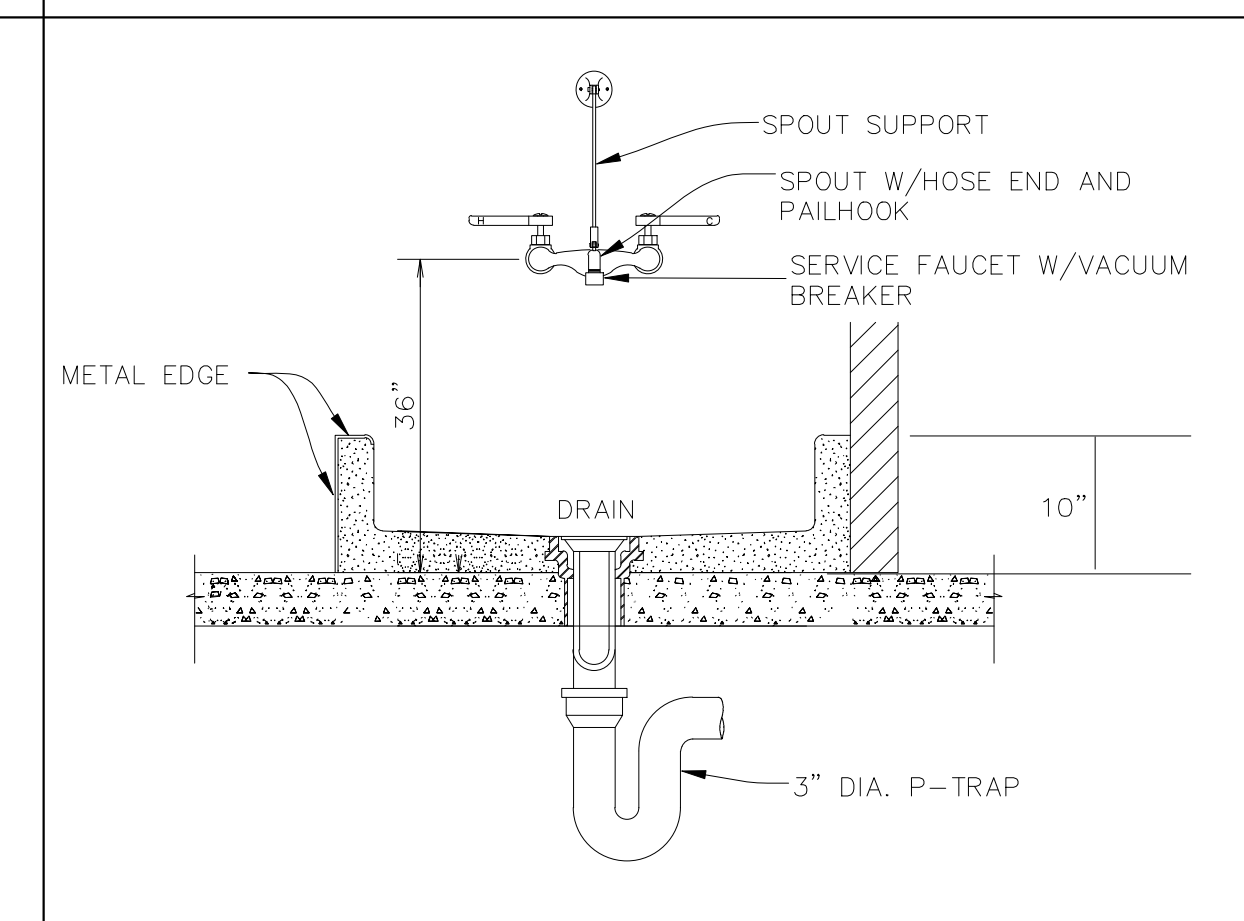
4 TEMPERED WATER VALVE DETAIL
P3.0 N.T.S



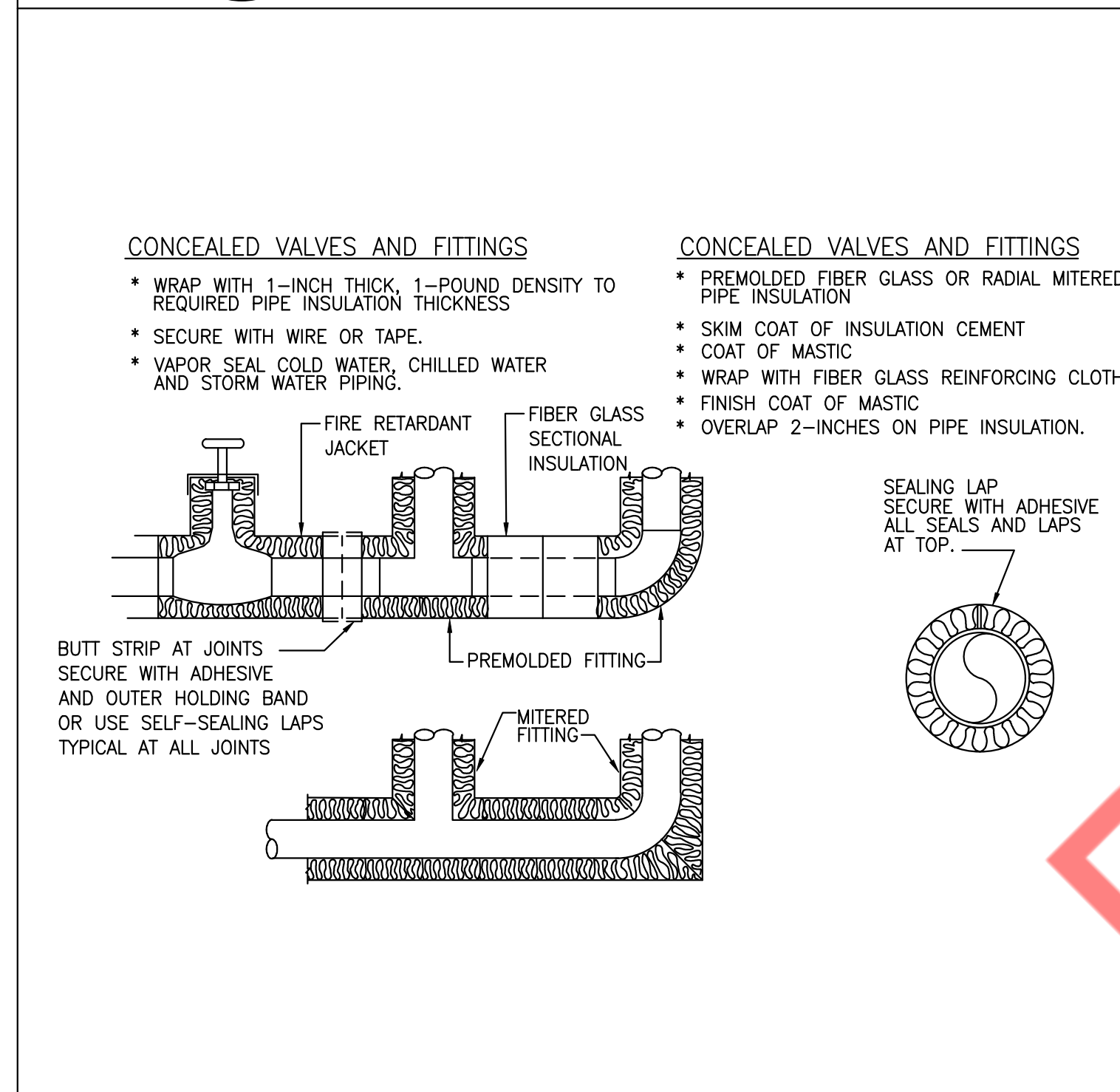
5 INLINE RECIRCULATING PUMP DETAIL
P3.0 N.T.S



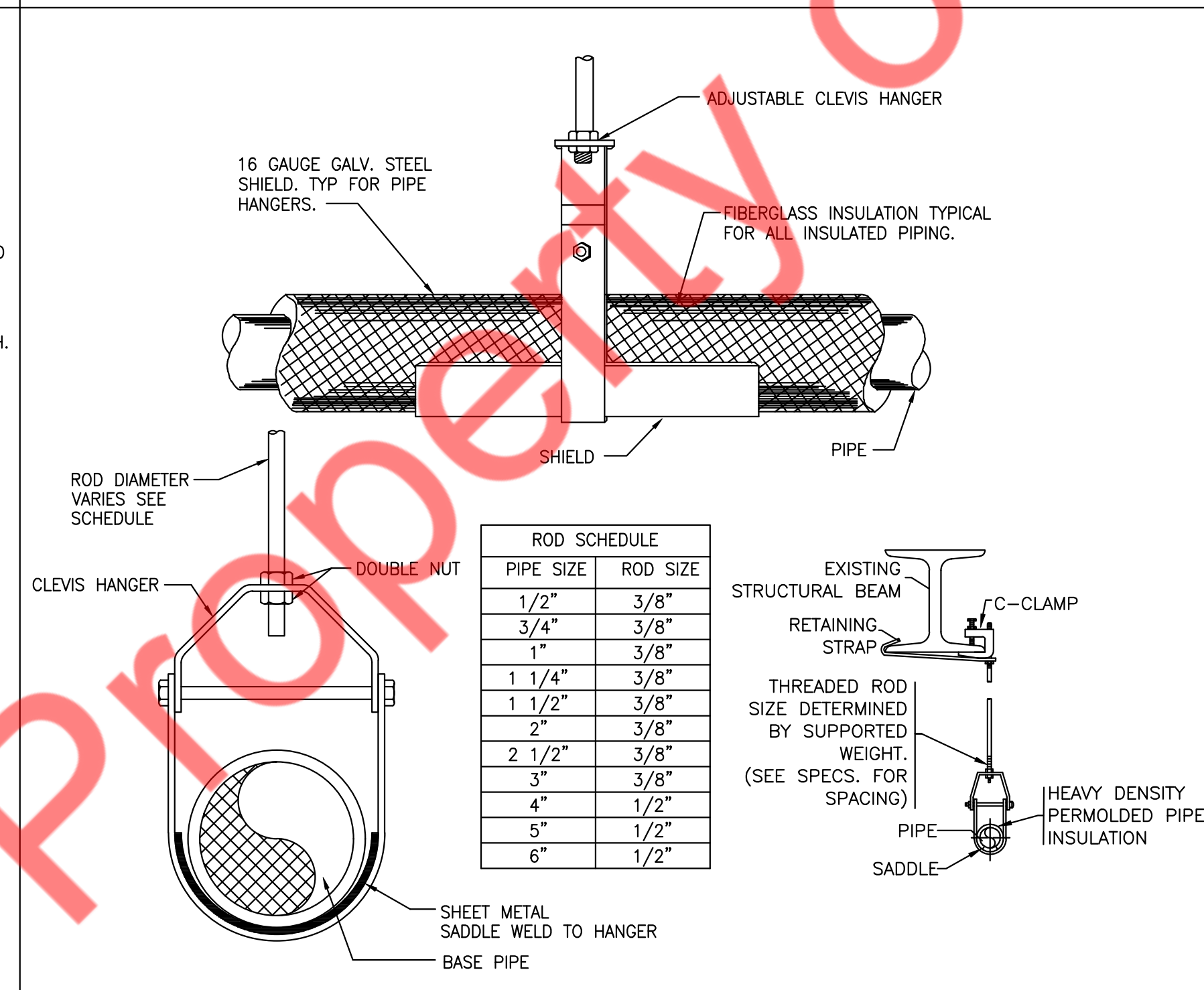
6 FLOOR DRAIN DETAIL
P3.0 N.T.S



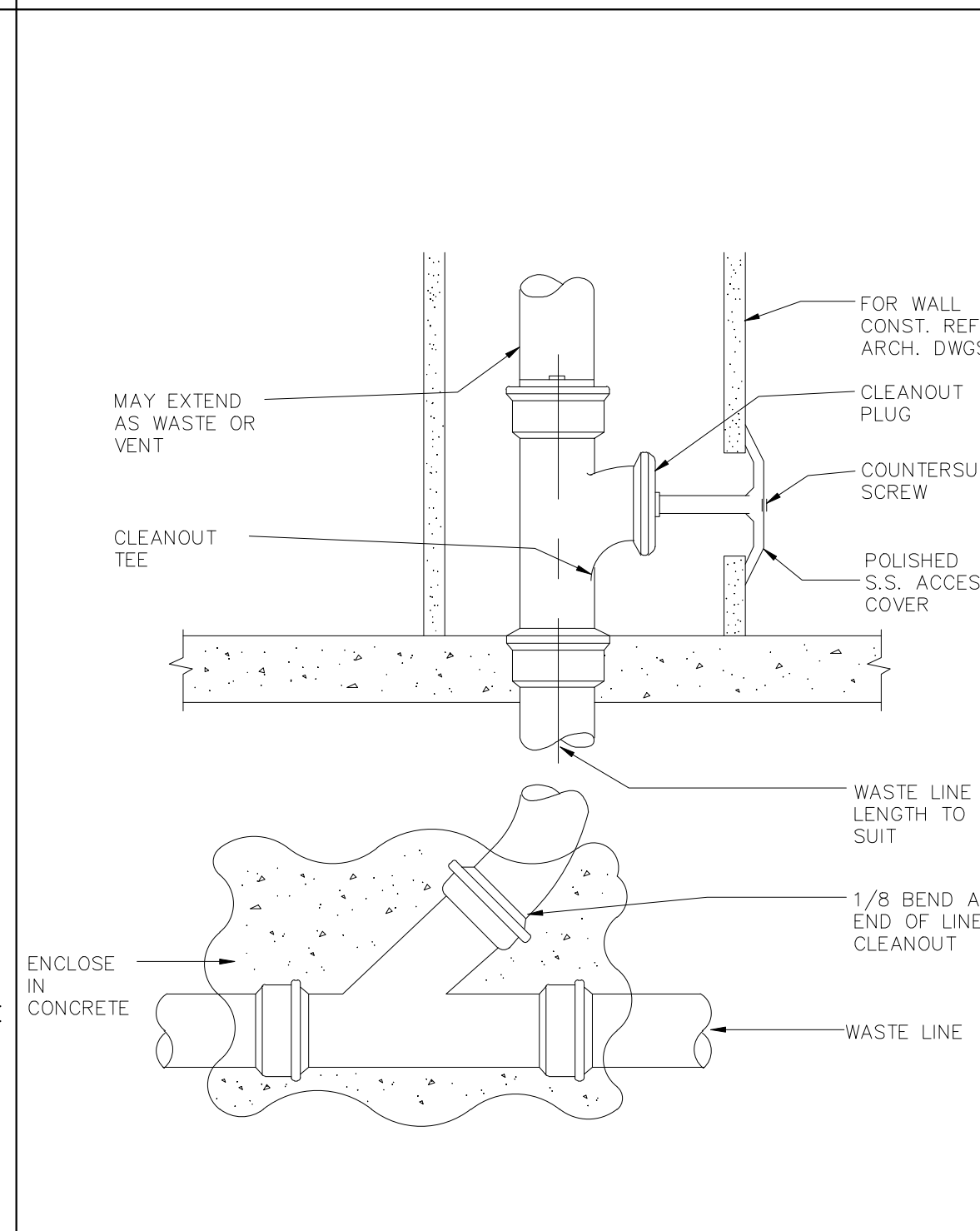
7 MOP SINK DETAIL
P3.0 N.T.S



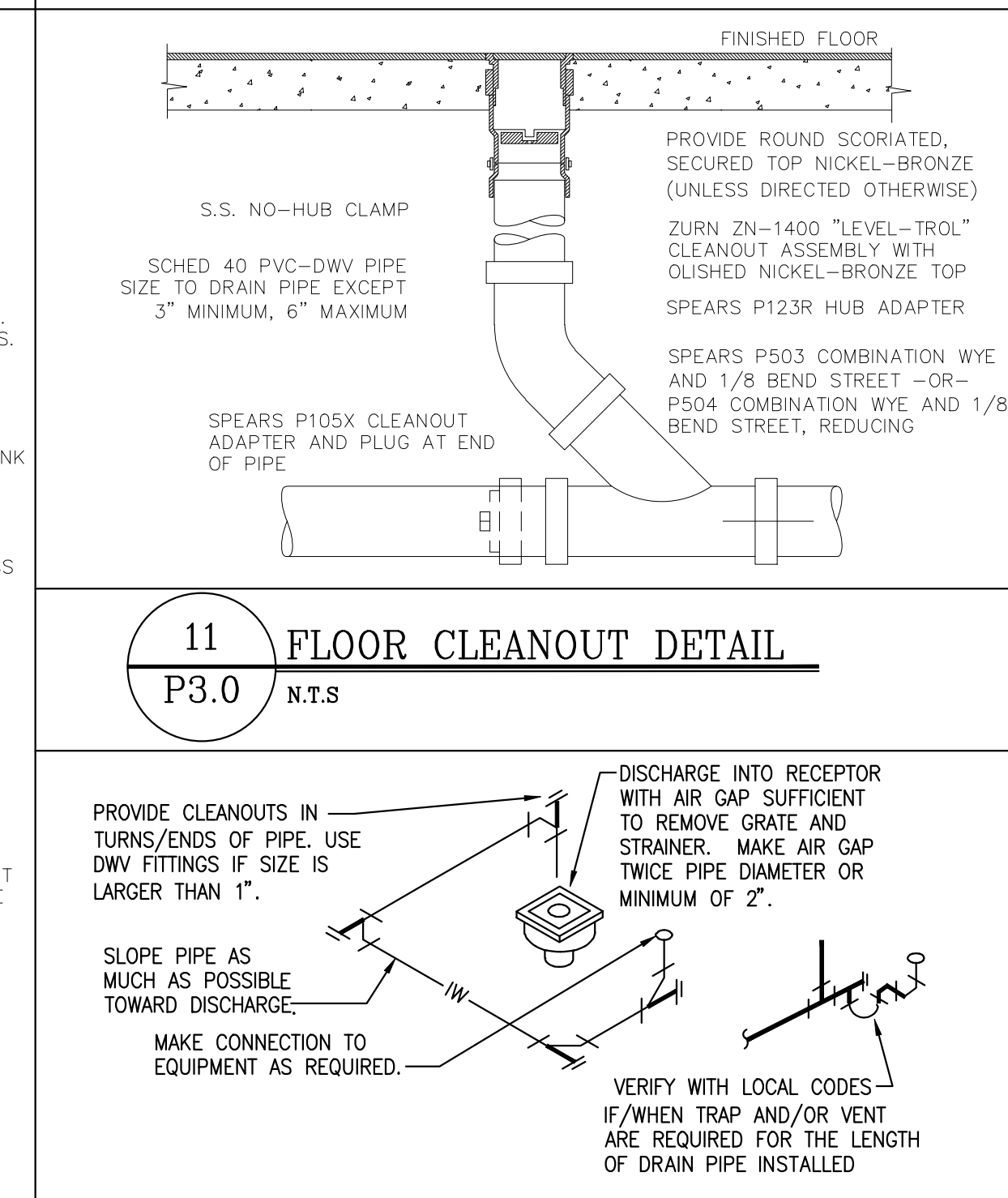
8 INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS
P3.0 N.T.S



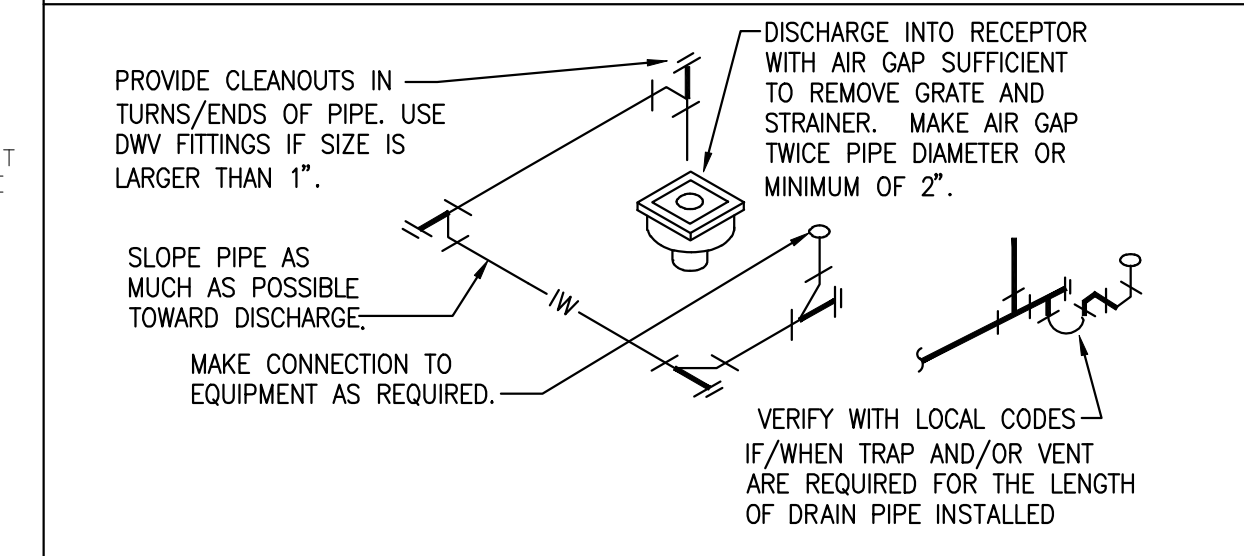
9 HANGER DETAIL
P3.0 N.T.S



10 WALL CLEAN OUT DETAIL
P3.0 N.T.S



11 FLOOR CLEANOUT DETAIL
P3.0 N.T.S



12 INDIRECT WASTE CONNECTION DETAIL
P3.0 N.T.S

SHEET HISTORY SCHEDULE

NO.	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT
BARBERITOS

PLUMBING DETAILS
P3.0

PLUMBING FIXTURE SCHEDULE												
FIXTURE	QTY.	EQUIPMENT CATEGORY	MANUFACTURER	MODEL	TRAP	SOIL/WASTE		VENT	CW	HW	THERMOSTATIC MIXING VALVE	REMARKS
						DIRECT	INDIRECT					
WC-1	1	WATER CLOSET	-	-	-	4"	-	2"	3/4"	-	-	FLUSH TANK
LAV-1	1	LAVATORY	-	-	1-1/2"	1-1/2"	-	1-1/2"	-	-	-	P-TRAP
LAV-1	1	LAVATORY FAUCET	-	-	-	-	-	-	1/2"	1/2"	PROVIDE	-
UR-1	1	URINAL	-	-	1-1/2"	2"	-	1-1/2"	3/4"	-	-	-
E15	1	SODA/BEV.DISPENSER	-	-	-	-	1"	-	-	3/4"	-	INDIRECT DRAIN TO FLOOR SINK
E26	2	HAND SINK	JOHN BOOS	PBHS-W-1410-1-S SLR-X	1-1/2"	2"	-	1-1/2"	-	-	-	P-TRAP
E26.1	2	HAND SINK FAUCET	JOHN BOOS	PBF-4-S-LF-X	-	-	-	1/2"	1/2"	PROVIDE	-	-
E27	1	MOP SINK	JOHN BOOS	-	3"	3"	-	2"	-	-	-	-
E27.1	1	MOP SINK FAUCET	JOHN BOOS	PBF-SS-6-X	-	-	-	3/4"	3/4"	-	-	-
E28	1	ICE MACHINE	SCOTSMAN	UN324A-1	-	-	3/4"	-	1/2"	-	-	INDIRECT DRAIN TO FLOOR SINK
E29	1	ICE MAKER	SCOTSMAN	NS0622A-1	-	-	1/2"	-	1/2"	-	-	INDIRECT DRAIN TO FLOOR SINK
E30	1	WATER FILTER SYSTEM FOR ICE MACHINE	SCOTSMAN	AP1-P	-	-	-	-	3/4"	-	-	INDIRECT DRAIN TO FLOOR SINK
E33	1	4 COMPARTMENT CORNER SINK	TBD	TBD	-	-	2"	-	-	-	-	INDIRECT DRAIN TO FLOOR SINK
E33.1	1	PRE-RINSE FAUCET	T&S BRASS	B-0133-01-CR	-	-	-	3/4"	3/4"	-	-	-
E34	1	1 COMP SINK	JOHN BOOS	1B244-1D24R	2"	-	2"	-	-	-	-	INDIRECT DRAIN TO FLOOR SINK
E34.1	2	WALL/SPLASH MOUNT FAUCET	T&S BRASS	B-0133-01-CR	-	-	-	3/4"	3/4"	-	-	-
E49	1	ICED TEA BREWER	BUNN	52000.0301	-	-	-	1/2"	-	-	-	-
FD	3	FLOOR DRAIN	-	-	3"	3"	-	2"	-	-	-	P-TRAP
FS	4	FLOOR SINK	-	-	3"	3"	-	2"	-	-	-	P-TRAP

WATER CALCULATION									
FIXTURE	QTY.	EQUIPMENT CATEGORY	UNITS PER FIXTURE			TOTAL			
			CW	HW	TOTAL	CW	HW	TOTAL	
WC-1	1	WATER CLOSET	5	-	5	5	-	5	
LAV-1	1	LAVATORY & FAUCET	1.5	1.5	2	1.5	1.5	2	
UR-1	1	URINAL	5	-	5	5	-	5	
E15	1	SODA/BEV. DISPENSER	0.5	-	0.5	0.5	-	0.5	
E26.1	2	HAND SINK	0.5	0.5	0.7	1	1	1.4	
E27.1	1	MOP SINK & FAUCET	2.25	2.25	3	2.25	2.25	3	
E28	1	ICE MACHINE	0.5	-	0.5	0.5	-	0.5	
E29	1	ICE MAKER	0.5	-	0.5	0.5	-	0.5	
E33.1	1	PRE RINSE ADD ON FAUCET	3	3	4	3	3	4	
E34.1	2	WALL/SPLASH MOUNT FAUCET	3	3	4	6	6	8	
E49	1	ICED TEA BREWER	0.5	-	0.5	0.5	-	0.5	
TOTAL FIXTURE UNITS			25.75	12.75	30.4				
TOTAL FIXTURE UNITS -30.4 = 23.3 GPM									

WSFU VALUES AS PER 2015 IPC, APPENDIX E, SECTION E103, TABLE E103.3(2)
AND THE WATER DEMAND IS BASED ON 2015 IPC, APPENDIX E, SECTION E102,
TABLE E103.3(3) FOR 23.3 GPM CALCULATED PIPE SIZE IS 1/2"

GAS FIRED TANKLESS WATER HEATER SCHEDULE								
TAG	QUANTITY	FUEL	MFR.	MODEL	FUEL INPUT (BTU/HR)	GPM RECOV. @ 80°F	DIMENSION	ACCESSORIES / REMARKS
WH-1	2	GAS	RINNAI	CX199i	199,000	4.8	18.5"W X 25.8"H X 11.4"D	INSTALL AS PER MANUFACTURER'S INSTALLATION GUIDELINES. PROVIDE REQUIRED CLEARANCE AND ACCESSORIES FOR SATISFACTORY WORK. PROVIDE EXPANSION TANK.

EXPANSION TANK SCHEDULE						
TAG	LOCATION	SERVICE	TANK CAPACITY (GALLONS)	MANUFACTURER & MODEL	DIMENSION (DIA X HEIGHT)	NO. OF EXPANSION TANK
ET-1	REFER FLOOR PLANS	HW	4.4	THERM-X-TROL ST-12	11"X15"	1

RECIRCULATING PUMP SCHEDULE						
ITEM	QUANTITY	GPM	TOTAL HEAD(FT)	MOTOR HP	MANUFACTURER & MODEL NO	REMARK
RCP-1	1	2	10	0.03	GRUNDFOS UP 15-10 B5	PROVIDE AQUASTAT AND TIMER KIT FOR CONTROL

BACKFLOW PREVENTION SCHEDULE			
EQUIPMENT	TAG	MODEL	ASSE
SODA DISPENSER	DCVA	WATTS SD-3	1022
ICE MACHINE	DCVA	WATTS LF7	1024
TEA BREWER	DCVA	WATTS 9D	1012

SHEET HISTORY SCHEDULE	

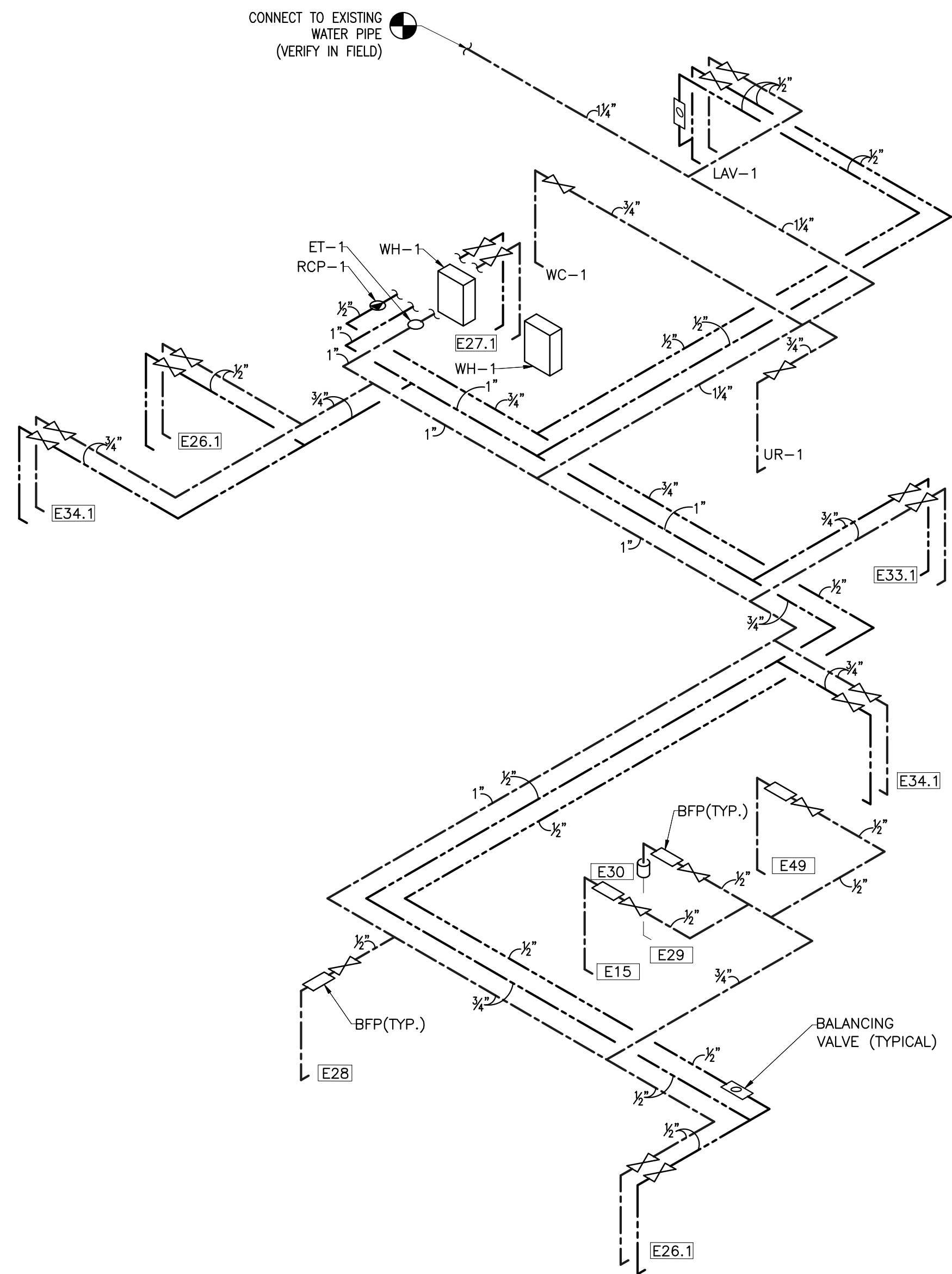
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INTERIOR BUILT-OUT

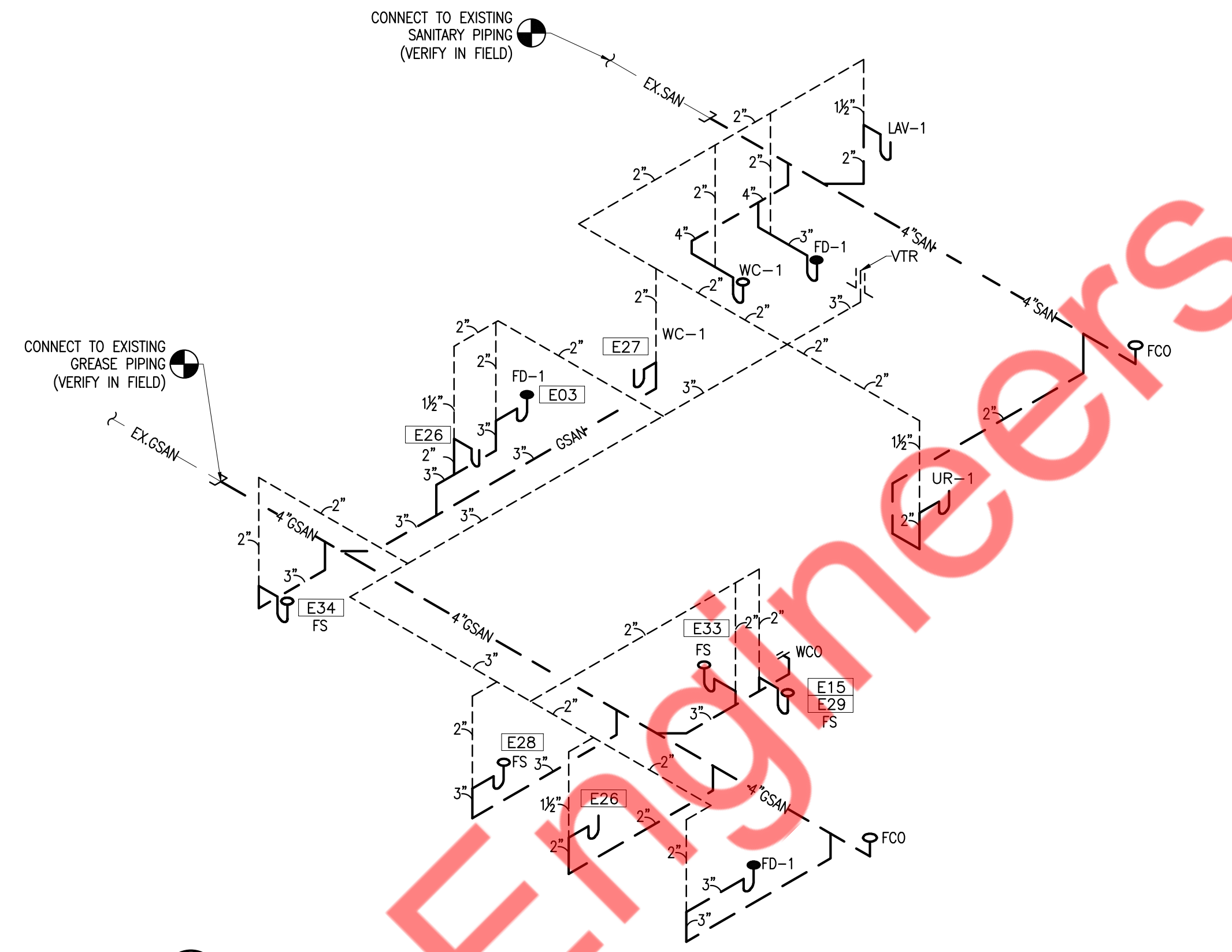
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PLUMBING SCHEDULES

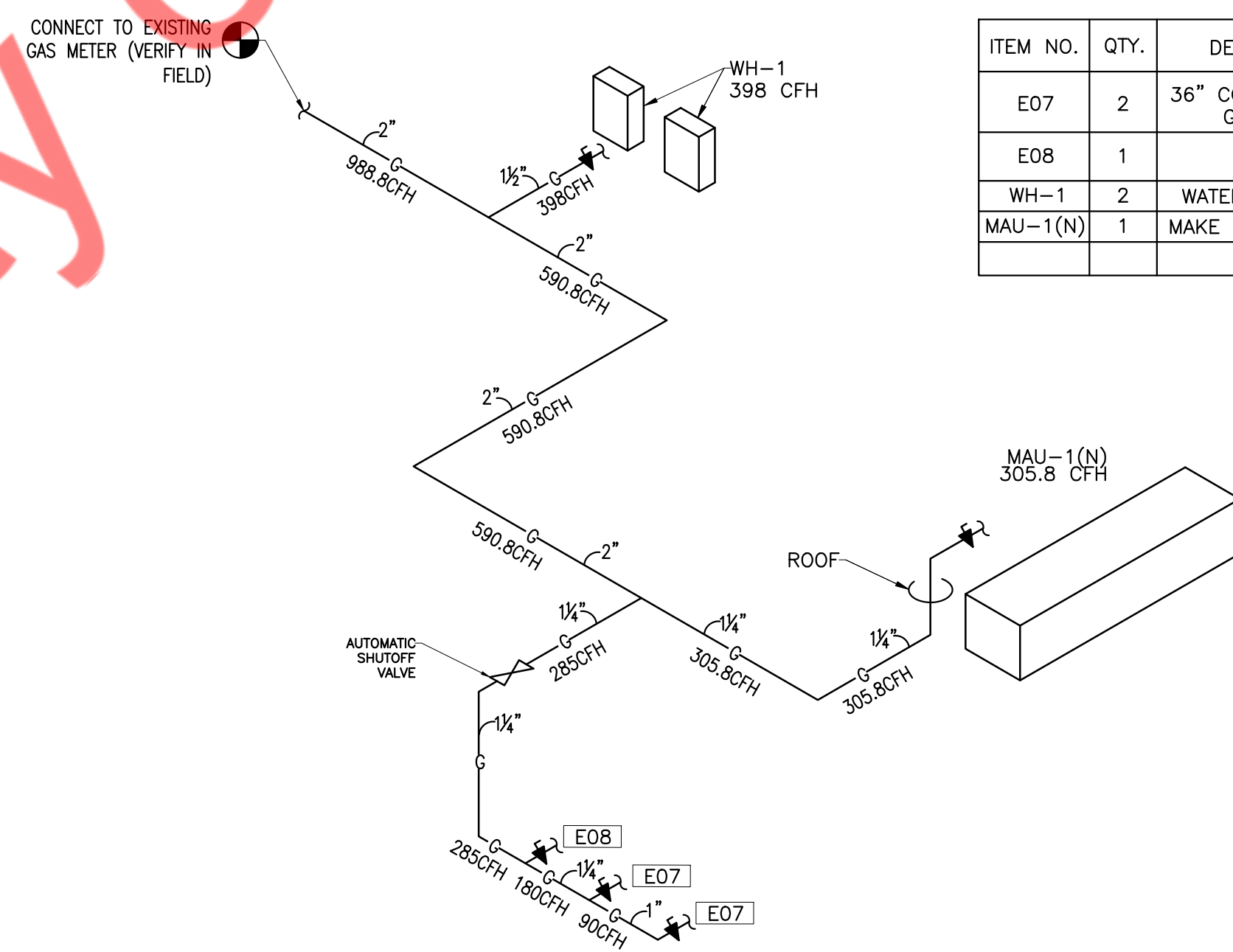
P4.0



1 PLUMBING WATER RISER
SCALE: N.T.S.



3 PLUMBING SANITARY RISER
SCALE: N.T.S.



2 PLUMBING GAS RISER
SCALE: N.T.S.

PIPE SIZE(IN)	GAS LOAD(CFH)
3/4"	92
1"	173
1 1/4"	355
1 1/2"	532
2"	1020
2 1/2"	1630

GAS PIPE SIZING PER INTERNATIONAL FUEL GAS CODE 2015	
INLET PRESSURE- LESS THAN 2 PSI	
SPECIFIC GRAVITY- 0.6	
PRESSURE DROP 0.5" WC	
EQUIVALENT LENGTH OF PIPE =	
90 FEET + FITTINGS (+40%) = 125 FEET	

- GAS NOTE:**
1. PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION. PROVIDE GAS PRESSURE REGULATOR FOR ALL GAS EQUIPMENT IF REQUIRED.
 2. CONTRACTOR SHALL VERIFY ACTUAL GAS PRESSURE AND LONGEST LENGTH OF RUN TO FARTHEST APPLIANCE PRIOR TO INSTALLATION AND NOTIFY ENGINEER IF CONDITION DIFFER THAN SHOWN ON THIS PLAN.

ITEM NO.	QTY.	DESCRIPTION	MANUFACTURER	MODEL	SIZE	BTU/HR.	TOTAL BTU/HR.
E07	2	36" COUNTER TOP GRIDDLE	IMPERIAL	ITG-36	3/4"	90,000	180,000
E08	1	FRYER	IMPERIAL	IFS-40	3/4"	105,000	105,000
WH-1	2	WATER HEATER	RINNAI	CX199i	3/4"	199,000	398,000
MAU-1(N)	1	MAKE UP AIR UNIT	LARKIN	XDGX-P116-H12-D1-5	3/4"	305,800	305,800
						TOTAL	988,800

SHEET HISTORY SCHEDULE

NO.	DATE	DESCRIPTION

ISSUE DATE: 11/20/2025

INTERIOR BUILT-OUT

BARBERITOS

PLUMBING RISERS

P5.0