

MECHANICAL SYMBOLS LIST		MECHANICAL ABBREVIATIONS		BUILDING DEPARTMENT NOTES		GENERAL NOTES		GENERAL HVAC NOTES					
	ROOF TOP UNIT		CEILING MOUNTED FAN		ROOF MOUNTED FAN	<p>ALL WORK SHALL COMPLY WITH 2018 KENTUCKY BUILDING CODE WHICH FOLLOWS APPLICABLE SECTIONS OF THE 2015 INTERNATIONAL BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.</p> <ol style="list-style-type: none"> 1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS. 2. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2015 IBC REQUIREMENTS AS OUTLINED IN SECTION [IBC 1704]. 3. 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. 4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD: <ul style="list-style-type: none"> A. STANDARDS OF HEATING - 2015 IMC - 309.1 B. DUCT CONSTRUCTION AND INSTALLATION - 2015 IMC - 603 C. AIR INTAKES, EXHAUSTS AND RELIEF - 2015 IMC - 401.5 D. AIR FILTERS - 2015 IMC - 603 E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS - 2015 IMC - 606 F. GAS FIRED EQUIPMENT - 2015 FUEL GAS CODE. 5. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2015 IMC - 401 6. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT. 7. 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 - 403.3. 8. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION. 9. 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. 10. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183. 11. 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 - 403.3. HVAC SYSTEM SHALL BE BALANCED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS AS REQUIRED. 12. HVAC AND SERVICE WATER HEATING CONTROLS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENT, EQUIPMENT AND SYSTEM ARE CALIBRATED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATION. 13. AIR BALANCING REPORT SHOULD BE PROVIDED IN ACCORDANCE WITH 2015 IMC 403.3.15. 14. ALL HVAC SYSTEMS AND HVAC DUCTWORK INSTALLATION SHALL COMPLY NFPA 90 AND 72 AND NC FIRE CODES. 		<p>1. 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.</p> <p>2. 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.</p> <p>3. 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.</p> <p>4. 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.</p> <p>5. 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" OF THE WAGES PAID.</p> <p>6. 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.</p> <p>7. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL MAKE ALLOWANCE IN PRICING FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE OTHER TRADES IS REQUIRED.</p> <p>8. 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.</p> <p>9. 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.</p> <p>10. 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).</p> <p>11. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.</p> <p>12. 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.</p> <p>13. 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.</p> <p>14. 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.</p> <p>15. 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.</p> <p>16. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.</p> <p>17. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE.</p> <p>18. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.</p> <p>19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.</p> <p>20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.</p> <p>21. SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.</p> <p>22. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.</p> <p>23. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.</p> <p>24. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.</p> <p>25. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.</p> <p>DEFINITIONS:</p> <ul style="list-style-type: none"> 1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED. 2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES. 3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES. 		<p>1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.</p> <p>2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.</p> <p>3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.</p> <p>4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBTRACTED, 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.</p> <p>5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.</p> <p>6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.</p> <p>7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.</p> <p>8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.</p> <p>9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.</p> <p>10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.</p> <p>11. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.</p> <p>12. 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.</p> <p>13. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.</p> <p>14. 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.</p> <p>15. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.</p> <p>16. ALL EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.</p> <p>17. 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.</p> <p>18. ALL ROOF-MOUNTED EQUIPMENT CURBS/STEEL RAILS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.</p> <p>19. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.</p> <p>20. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.</p> <p>21. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.</p> <p>22. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.</p>			
								<p>THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SOLE PROPERTY OF THE NY ENGINEERS, AND SHALL NOT BE USED IN ANY WAY, WHATSOEVER, WITHOUT THE WRITTEN PERMISSION OF THE NY ENGINEERS. IT SHALL BE RETURNED TO THE NY ENGINEERS UPON DEMAND.</p> <p>COPYRIGHT 2025 ALL RIGHTS RESERVED</p> <p>NY ENGINEERS 382 NE 191st Street Suite 49674 MIAMI, FL 33179 (786) 788-0295 ny-engineers.com</p> <p>09-11-2025 ISSUED FOR PERMIT</p> <p>REVISIONS:</p> <table border="1"> <tr> <td>NO.</td> <td>DATE</td> <td>DESCRIPTION</td> <td>BY</td> </tr> </table> <p>FRANCHISEE NAME:</p> <p>PROJECT NAME: 1310 MARCO'S PIZZA INTERIOR UP-FIT</p> <p>SHEET TITLE:</p> <p>MECHANICAL SYMBOL, ABBREVIATION & NOTES</p> <p>PROJECT NUMBER 25-086</p> <p>DATE 09-05-2025</p> <p>SHEET NO.</p>		NO.	DATE	DESCRIPTION	BY
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Proprietary

SPECIFICATIONS

SECTION 0001 - NOTICE TO BIDDERS

1.1 BIDDERS REPRESENTATIONS
 A. THE BIDDER BY MAKING A BID REPRESENTS THAT:
 B. 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.
 C. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
 D. 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.
 E. 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.
 F. 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 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 SHUTDOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUTDOWNS ARE TO BE KEPT TO A MINIMUM.
 END OF SECTION 0001

SECTION 0101 - QUALITY OF WORK

1.1 WORKMANSHIP
 A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
 B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
 C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.
 1.2 CODE COMPLIANCE
 A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.
 END OF SECTION 0101

SECTION 0102 - REQUIRED DOCUMENTS

1.1 SHOP DRAWINGS
 A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.
 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 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 OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.
 1.4 EQUIPMENT OPERATING INSTRUCTIONS
 A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
 B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.
 C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.
 END OF SECTION 0102

SECTION 078413-PENETRATION FIRE-STOPPING

1.1 QUALITY ASSURANCE
 A. INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.
 B. FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL
 1.2 PENETRATION FIRESTOPPING
 A. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.
 B. PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479.
 C. PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.
 D. W-RATINGS: PER UL 1479.
 1.3 INSTALLATION
 A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.
 1.5 FIELD QUALITY CONTROL
 A. INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174.
 1.6 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE:
 A. WHERE UL-CERTIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.
 B. FOR THE FOLLOWING SYSTEMS: METALLIC AND NON-METALLIC PIPES, CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED PIPES, GROUPINGS OF PENETRANTS, USE ONE OR MORE OF THE FOLLOWING MATERIALS:
 a. LATEX SEALANT
 b. SILICONE SEALANT
 c. MORTAR
 d. SILICONE FOAM
 e. PILLOWS/BAGS
 f. INTUMESCENT WRAP STRIPS
 1.6 MANUFACTURERS
 A. HILTI CONSTRUCTION CHEMICAL, INC
 B. 3M FIRE PROTECTION PRODUCTS
 END OF SECTION 078413

SECTION 230517 - SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

1.1 SLEEVE-SEAL SYSTEMS
 A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANULAR SPACE BETWEEN PIPING AND SLEEVE.
 1. SEALING ELEMENTS: EPDM RUBBER OR NBR.
 2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
 3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.
 B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 1. ADVANCE PRODUCTS & SYSTEMS, INC.
 2. CALPICO, INC.
 3. METRAFLEX COMPANY (THE).
 4. PIPELINE SEAL AND INSULATOR, INC.
 1.2 SLEEVE-SEAL FITTINGS
 A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.
 1.3 GROUT
 A. NON-SHRINK, FACTORY PACKAGED.
 1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE
 A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:
 1. INTERIOR PARTITIONS:
 a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.
 b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.
 END OF SECTION 230517

SECTION 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.
 2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND
 3. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.
 1.2 SUBMITTALS
 A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER
 1.3 QUALITY ASSURANCE
 A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL."

SECTION 078413-PENETRATION FIRE-STOPPING

1.4 COMPONENTS
 A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
 B. FIBERGLASS PIPE HANGERS: CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
 D. METAL FRAMING SYSTEMS: FMFA 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 TYP EQUIPMENT SUPPORTS.
 END OF SECTION 230529

SECTION 230548 - VIBRATION CONTROLS FOR PIPING AND HVAC EQUIPMENT

PART 1 - GENERAL
 1.1 PERFORMANCE REQUIREMENTS
 A. SEISMIC-RESTRAINT LOADING:
 1. SITE CLASS AS DEFINED IN THE IBC: A, B
 2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: I, II, III
 a. COMPONENT IMPORTANCE FACTOR: 1.0
 b. COMPONENT RESPONSE MODIFICATION FACTOR: 2.5
 c. COMPONENT AMPLIFICATION FACTOR: 2.5
 3. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%
 4. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: 8%
 1.2 COMPONENTS
 A. VIBRATION ISOLATORS:
 1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
 2. MOUNTS: DOUBLE-DEFLECTION TYPE.
 3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
 4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
 5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
 6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
 7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
 8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
 9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
 10. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
 11. RESILIENT PIPE GUIDES.
 B. AIR-MOUNTING SYSTEMS:
 1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.
 2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.
 3. 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. INERTIAL BASE: FACTORY- FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

1.3 FIELD QUALITY CONTROL
 A. TESTING: BY EITHER OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.
 PART-2 PRODUCTS
 1.4 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES
 A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 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. COOPER B-LINE, INC., A DIVISION OF COOPER INDUSTRIES.
 5. HILT, INC.
 6. ISOLATION TECHNOLOGY, INC.
 7. KINETICS NOISE CONTROL.
 END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY
 A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:
 1. MOTORS.
 2. CONDENSING UNITS.
 3. AIR SYSTEM: CONSTANT VOLUME
 A. THE CONTRACTOR SHALL PROCUER 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 HYDROSTATIC 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 HYDROSTATIC 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 233713 - DIFFUSERS, REGISTERS, AND GRILLES

1.1 PRODUCTS
 A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.

B. MANUFACTURERS: PRICE
 1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
 a. HART & COOLEY INC.
 b. KRUEGER.
 c. METALAIR, INC.
 d. RUSKIN

C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.
 D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

SECTION 233113 - METAL DUCTS

1.1 CONSTRUCTION
 A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 1 INCH WG PRESSURE, SEAL CLASS "A".
 B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
 1. CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH. USE SLEEVES AND DRIVE OR FLANGED AND BOLTED CONSTRUCTION WHEN FABRICATING RECTANGULAR DUCTS. USE SMALL LOCK SEAM CONSTRUCTION WHEN FABRICATING ROUND, SPIRAL DUCTWORK. SHEET METAL SCREWS MAY BE USED ON DUCT HANGERS, TRANSVERSE JOINTS AND OTHER SMACNA APPROVED LOCATIONS IF THE SCREW DOES NOT EXTEND MORE THAN 1/2 INCH INTO THE DUCT.

2. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL, SHEET, METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY-COATED (GALVANIZED) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METAL COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANE'S ALL 90° ELBOWS.

3. USE ELBOWS AND TEES WITH A CENTER LINE RADIUS TO WIDTH OR DIAMETER RATIO OF 1.5 WHEREVER SPACE PERMITS. WHEN A SHORTER RADIUS MUST BE USED DUE TO LIMITED SPACE, INSTALL SINGLE, WALL SHEET, METAL, SPLITTER VANE'S IN ACCORDANCE WITH SMACNA PUBLICATIONS, TYPE RE 3. WHERE SPACE WILL NOT ALLOW AND THE C VALUE OF THE RADIUS ELBOW, AS GIVEN IN SMACNA PUBLICATIONS, EXCEEDS 0.31, USE RECTANGULAR ELBOWS WITH TURNING VANE'S AS SPECIFIED IN SECTION 23 33 00. SQUARE THROAT-RADIUS HEEL ELBOWS WILL NOT BE ACCEPTABLE. STRAIGHT TAPS OR BULLHEAD TEES ARE NOT ACCEPTABLE.

4. WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANE'S IN ACCORDANCE WITH SECTION 23 33 00.
 5. PROVIDE EXPANDED TAKE-OFFS OR 45 DEGREE ENTRY FITTINGS FOR BRANCH DUCT CONNECTIONS WITH BRANCH DUCTWORK AIRFLOW VELOCITIES GREATER THAN 700 FPM. SQUARE EDGE 90-DEGREE TAKE-OFF FITTINGS OR STRAIGHT TAPS WILL NOT BE ACCEPTED.

6. BUTTON PUNCH SNAP-LOCK CONSTRUCTION WILL NOT BE ACCEPTED ON ALUMINUM DUCTWORK.
 C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

SUPPORT SCHEDULE - DUCTWORK

USG MAX SIDE INCHES TRANSVERSE JOINT AND BRACING
 22 UP TO 12 S SLIP, DRIVE, ONE INCH POCKET ON 8 FOOT
 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. MATERIAL:
 1) TYPE D-1: MINIMUM 1-LB DENSITY FIBERGLASS BLANKET, MAXIMUM 0.28 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FOIL-SKIM-KRAFT FACING SIMILAR TO MANVILLE MICROLITE.

2) TYPE D-2: 3 LB. FIBERGLASS BOARD. THE MAXIMUM K FACTOR SHALL BE 0.23 AT 75 DEG F MEAN TEMPERATURE WITH A MINIMUM DENSITY OF 3 LB. THE INSULATION SHALL BE PROVIDED WITH A FACTORY-APPLIED ALL PURPOSE OR ALL SERVICE FACING. THE INSULATION SHALL BE EQUAL TO MANVILLE TYPE 814 SPIN-GLAS AP.

3) TYPE D-3: MINIMUM 6 LB FIBERGLASS BOARD. MAXIMUM 0.22 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY APPLIED ALL PURPOSE OR ALL SERVICE FACING. SIMILAR TO MANVILLE 817 SPIN-GLAS AP

E. FINISH:

1) TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.

2) TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM .31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.

3) TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.

4) TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.

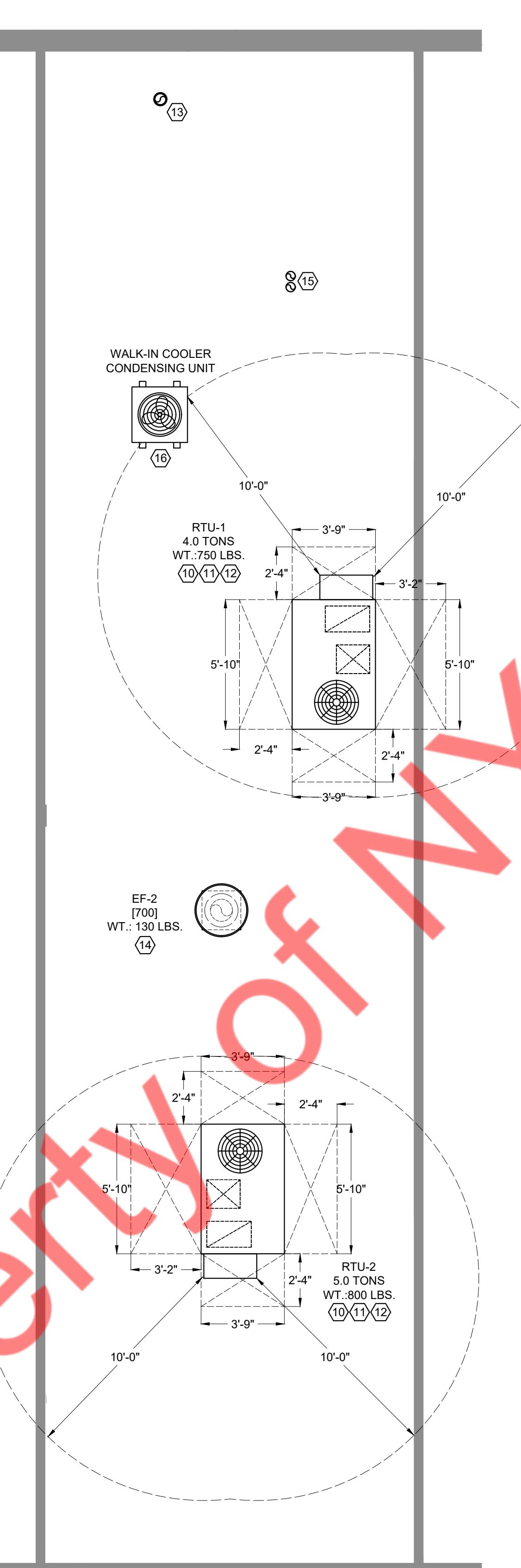
F. INSTALLATION:

GENERAL NOTES:

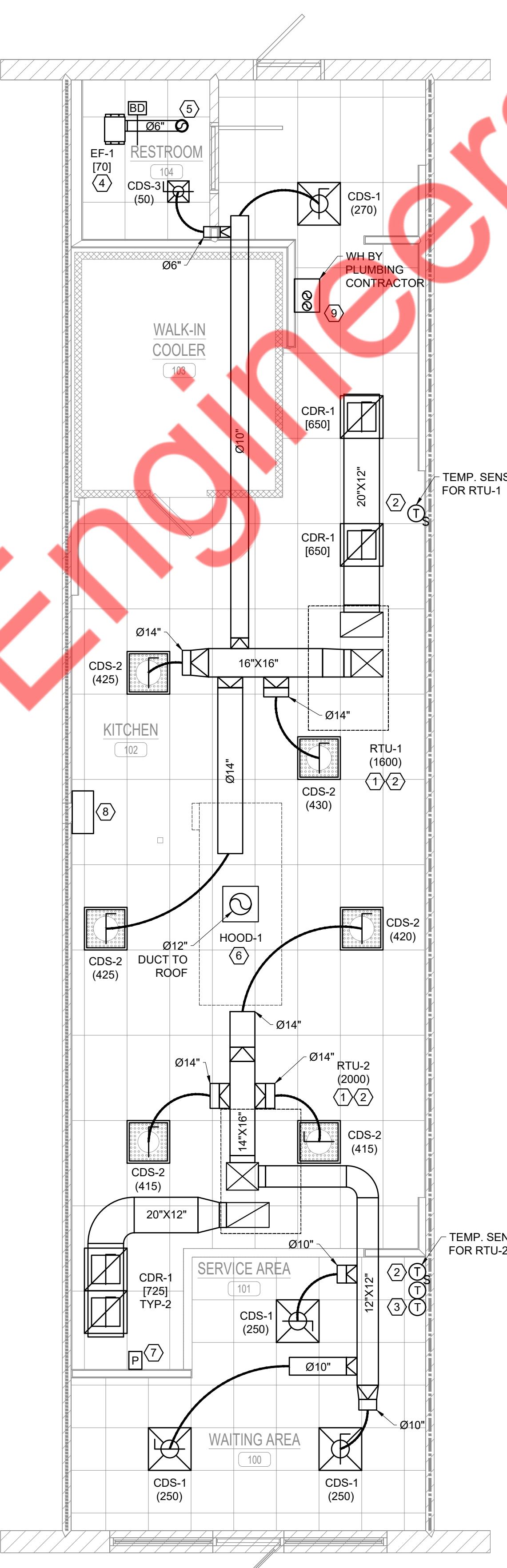
- A. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- B. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- C. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- D. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
- F. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- G. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- H. ALL FLEX DUCT SHALL BE TESTED IN ACCORDANCE WITH UL 181, AND DUCT SHALL BE LISTED AND LABELED AS CLASS 1. MAXIMUM LENGTH TO BE 14'-0" PER DROP OR PER LOCAL CODE.
- I. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- J. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- K. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- L. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN $\pm 10\%$ OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- M. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- N. PROVIDE VOLUME DAMPER IN ACCESSIBLE CEILING AND PROVIDE CORD OPERATED DAMPER IN INACCESSIBLE CEILING.
- O. FLEXIBLE CONNECTION SHALL BE INSTALLED BETWEEN EQUIPMENT AND CONNECTING DUCTWORK.
- P. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND LL ROOFING CONTRACTOR. PROVIDE NEW OPENING IF REQUIRED AND CLOSE USED OPENINGS.
- Q. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS AND SITE BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- R. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- S. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- T. MAINTAIN ALL CODE AND MANUFACTURERS RECOMMENDED CLEARANCE AROUND ALL ROOF EQUIPMENT.
- U. ALL ROOF PENETRATION AND MEMBRANE ROOF REPAIRS ARE TO BE ACCOMPLISHED BY THE LANDLORD'S ROOFING CONTRACTOR FOR WARRANTY PURPOSES.
- V. ROOF REPAIR UNIT PRICES SHOULD BE SUBMITTED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- W. CONTRACTOR SHALL ENSURE THAT ALL NEW ROOFTOP MOUNTED EQUIPMENT IS INSTALLED WITHIN ANY EXISTING REINFORCED STRUCTURAL AREAS OR ZONE THAT ARE DESIGNATED FOR FUTURE MECHANICAL EQUIPMENT. COORDINATE WITH ALL EXISTING STRUCTURAL CONDITIONS PRIOR TO BEGINNING ANY WORK. GENERAL CONTRACTOR NEEDS TO COORDINATE WITH STRUCTURAL ENGINEER/ARCHITECT FOR ADDITIONAL BRACING OR SUPPORTS FOR NEW UNITS.
- X. CONTRACTOR TO COORDINATE WITH STRUCTURAL ENGINEER AND ADD BLOCKING TO ENSURE PROPER LOAD DISTRIBUTION ON EXISTING TRUSSES.

KEYED NOTES:

1. EXTEND FULL SIZE SUPPLY AND RETURN DUCTWORK FROM ROOFTOP UNIT TO SPACE, EXTEND AS SHOWN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
2. PROVIDE REMOTE SENSOR LOCATED 68" ABOVE FINISHED FLOOR NEAR LOCATION INDICATED. SEAL WALL OPENINGS WITH CAULK. COORDINATE LOCATION ON SITE WITH GENERAL CONTRACTOR AND EQUIPMENT. AVOID LOCATING NEAR OR ABOVE SOURCES OF HEAT.
3. PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT. MOUNT ON WALL AT 48" A.F.F. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER.
4. CEILING MOUNTED EXHAUST FAN. FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
5. $\varnothing 6"$ TOILET EXHAUST DUCT UP TO ROOF.
6. INSTALL TYPE-I HOOD AS PER MANUFACTURE RECOMMENDATION. RUN SHEET METAL DUCT FROM CONNECTION ON HOOD TO EF-2. OFFSET AND TRANSITION AT CONNECTIONS IF NEEDED. VERIFY DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION. USE FACTORY MANUFACTURED PIPE AND FITTINGS ONLY. VERIFY LOCATION ON SITE WITH MOST RECENT KITCHEN PLANS. DUCT SHALL BE SLOPED 1/4" UNIT VERTICAL IN 12" UNIT HORIZONTAL TOWARDS HOOD.
7. PULL STATION FURNISHED AND INSTALLED BY HOOD FIRE SUPPRESSION CONTRACTOR MOUNTED @48" A.F.F. PROVIDE FINAL CABLING AND CONNECTION TO HOOD FIRE SUPPRESSION CABINET AND MECHANICAL GAS VALVE. COORDINATE EXACT LOCATION AND HEIGHT WITH ARCHITECT AND AHU PRIOR TO ROUGH-IN.
8. HOOD CONTROL PANEL AND FIRE SUPPRESSION SYSTEM FURNISHED BY HOOD SUPPLIER AND INSTALLED ON WALL BY HVAC CONTRACTOR. HOOD FIRE SUPPRESSION SYSTEM FURNISHED AND INSTALLED BY LICENSED FIRE SUPPRESSION CONTRACTOR. F.S. CONTRACTOR TO SUBMIT PLAN AND OBTAIN APPROVAL UNDER SEPARATE PERMIT APPLICATION PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR TO COORDINATE & CONFIRM FINAL LOCATION OF CONTROL & FIRE SUPPRESSION PANEL ON FIELD.
9. $2 \times 5'0"$ VENT FOR COMBUSTION AIR INTAKE/EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF. TERMINATE AS PER MANUFACTURER RECOMMENDATION. ROUTE PIPING WITH MINIMAL AMOUNT OF BEND AND LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURER'S REQUIREMENT.
10. PROVIDE NEW ROOF TOP UNIT. PROVIDE FLEXIBLE CONNECTOR ON SUPPLY AND RETURN AIR DUCT CONNECTIONS. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULE. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENTAGE OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF RTU ON SITE.
11. CONDENSATE DRAIN FROM RTU SHALL BE CONVEYED TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF DISCHARGE OF NOT LESS THAN THE 1/8TH 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.
12. ALL OUTSIDE AIR INTAKES ON THE ROOF SHALL BE MINIMUM 10 FT. AWAY FROM ANY EXHAUST SOURCE.
13. $\varnothing 6"$ EXHAUST AIR DUCT FROM FIRST FLOOR TERMINATE WITH GOOSENECK AND BIRD SCREEN. MAINTAIN MINIMUM 10'-0" DISTANCE FROM ANY OUTSIDE AIR INTAKE SOURCE.
14. CONTRACTOR TO INSTALL NEW EXHAUST FAN AS PER MANUFACTURER'S RECOMMENDATION. EXHAUST FAN AND ROOF CURB PROVIDED BY THE KITCHEN EQUIPMENT SUPPLIER AND INSTALLED MECHANICAL CONTRACTOR. COORDINATE THE INSTALLATION OF ANY NEW STRUCTURAL SUPPORT AS REQUIRED. CONNECT EXHAUST DUCT FROM BELOW. MAINTAIN MIN 10'-0" DISTANCE FROM ANY OUTSIDE AIR INTAKE SOURCE ON ROOF.
15. $2 \times 5'0"$ VENT FOR COMBUSTION AIR INTAKE/EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF. TERMINATE AS PER MANUFACTURER RECOMMENDATION. MAINTAIN MINIMUM 10' DISTANCE FROM MECHANICAL AIR INTAKE.
16. WALK-IN COOLER CONDENSING UNIT TO BE INSTALLED ON ROOF OVER WALK-IN COOLER. COOLER PROVIDED BY OWNER, INSTALLED BY MECHANICAL CONTRACTOR.



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



2 MECHANICAL FLOOR PLAN
SCALE: 1/4"=1'-0"

KITCHEN EXHAUST NOTES:

- A. PROVIDE CLEAN OUT AT ALL ELBOWS AND BOTTOM OF RISER AND EVERY 15 FEET HORIZONTAL KITCHEN EXHAUST DUCT.
- B. COMMERCIAL KITCHEN GREASE DUCTS SHALL BE DESIGNED FOR THE TYPE-1 OF COOKING APPLIANCE AND HOOD SERVED.
- C. PROVIDE FACTORY BUILT COMMERCIAL GREASE DUCT LISTED AND LABELED WITH UL-1978. IF NOT THEN KITCHEN EXHAUST DUCT SHALL BE CONSTRUCTED OF 0.0575-INCH NO.16 GAUGE STEEL OR 0.0405-INCH NO. 18 STAINLESS STEEL.
- D. JOINTS, SEAMS AND PENETRATIONS OF GREASE DUCTS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD OR BRAZE MADE IN THE EXTERNAL SURFACE IF THE DUCT SYSTEMS.
- E. DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN FOR SIDE-INLET UTILITY FANS APPROVED FLEXIBLE CONNECTIONS MAY BE PROVIDED.
- F. A VIBRATION ISOLATION CONNECTOR FOR CONNECTING A DUCT TO A FAN SHALL CONSIST OF NON-COMBUSTIBLE PACKING IN A METAL SLEEVE JOIN OF APPROVED DESIGN OR SHALL BE A COATED-FABRIC FLEXIBLE DUCT CONNECTOR LISTED AND LABELED FOR THE APPLICATION. VIBRATION ISOLATION CONNECTORS SHALL BE INSTALLED ONLY AT THE CONNECTION OF A DUCT TO A FAN INLET OR OUTLET.
- G. GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NON-COMBUSTIBLE MATERIAL SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY AND SEISMIC LOADS WITHIN THE STREET LIMITATIONS. BOLTS, SCREWS, RIVETS AND OTHER MECHANICAL FASTENERS SHALL NOT PENETRATE DUCT WALLS.
- H. THE CLEANCOUTS FOR HORIZONTAL GREASE DUCT SHALL BE LOCATED ON THE SIDE OF THE DUCT WITH THE OPENING NOT LESS THAN 1.5" ABOVE THE BOTTOM OF THE DUCT AND NOT LESS THAN 1" BELOW THE TOP OF THE DUCT.
- I. GREASE DUCT SHALL BE PERMITTED TO BE ENCLOSED IN ACCORDANCE WITH APPLICABLE BUILDING CODE REQUIREMENT FOR SHAFT CONSTRUCTION. SUCH GREASE DUCT SYSTEM AND EXHAUST EQUIPMENT SHALL HAVE A CLEARANCE TO COMBUSTIBLE CONSTRUCTION NOT LESS THAN 18 INCHES AND SHALL HAVE A CLEARANCE TO NON-COMBUSTIBLE CONSTRUCTION AND GYPSUM WALLBOARD ATTACHED TO NON-COMBUSTIBLE STRUCTURES OF NOT LESS THAN 6 INCHES.
- J. PROVIDE 2 LAYERS OF 1.5" FIRE WRAP AROUND KITCHEN EXHAUST GREASE DUCTS.
- K. PROVIDE MANUAL PULL STATION IN EGRESS PATH IN CASE OF EMERGENCY FOR SHUTTING OFF HOOD AND FANS.

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MIAMI, FL 33179
(786) 788-0295
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09-11-2025 ISSUED FOR PERMIT
REVISIONS:

NO. DATE DESCRIPTION BY

FRANCHISEE NAME:

PROJECT NAME: 1310
MARCO'S PIZZA

SHEET TITLE:

MECHANICAL FLOOR
AND ROOF PLAN

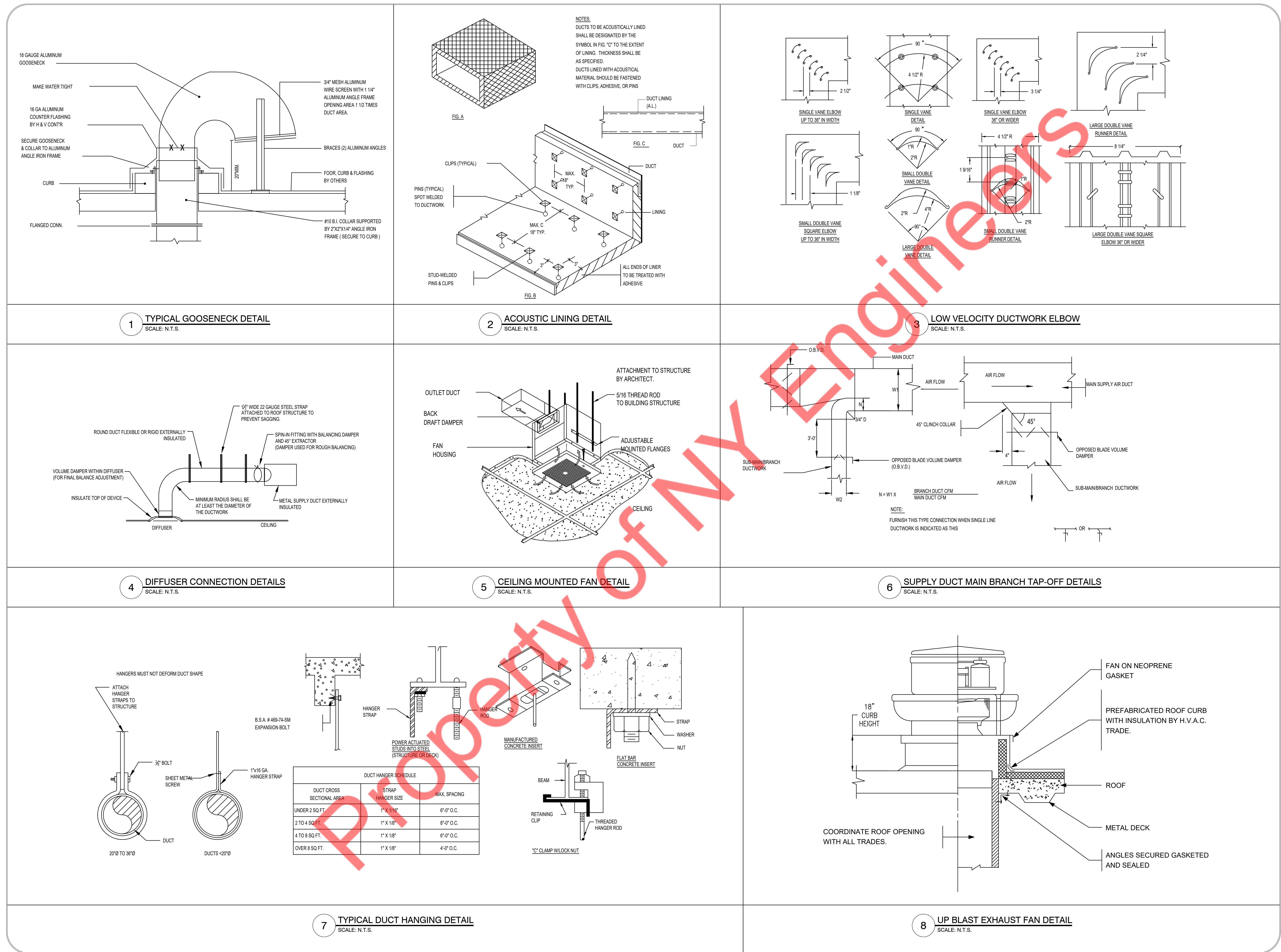
PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

M-1.0

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FRANCHISEE NAME:

PROJECT NAME: 1310
MARCO's PIZZA INTERIOR UP-FIT

SHEET TITLE:

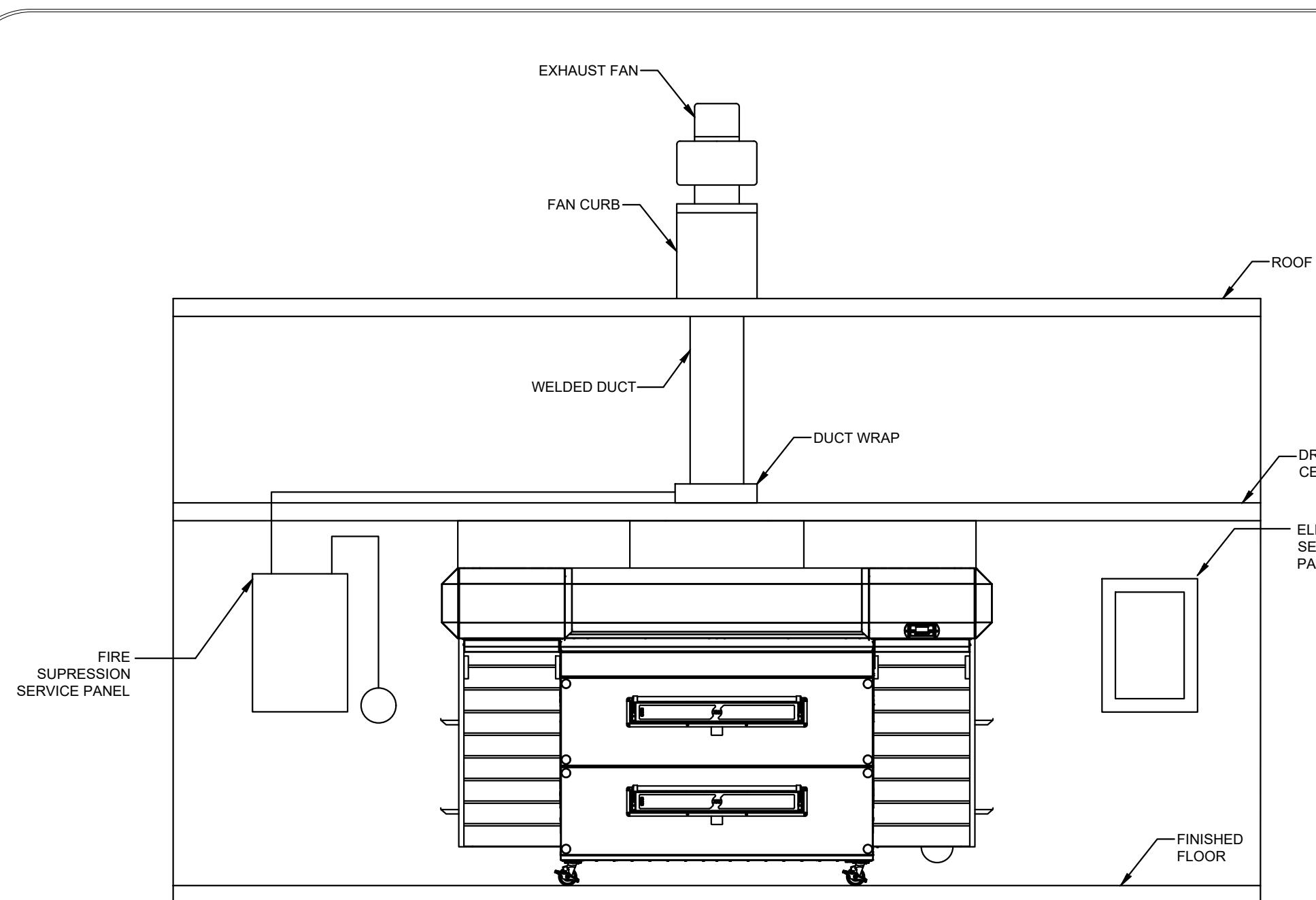
MECHANICAL DETAILS

PROJECT NUMBER 25-086

DATE 09-05-2025

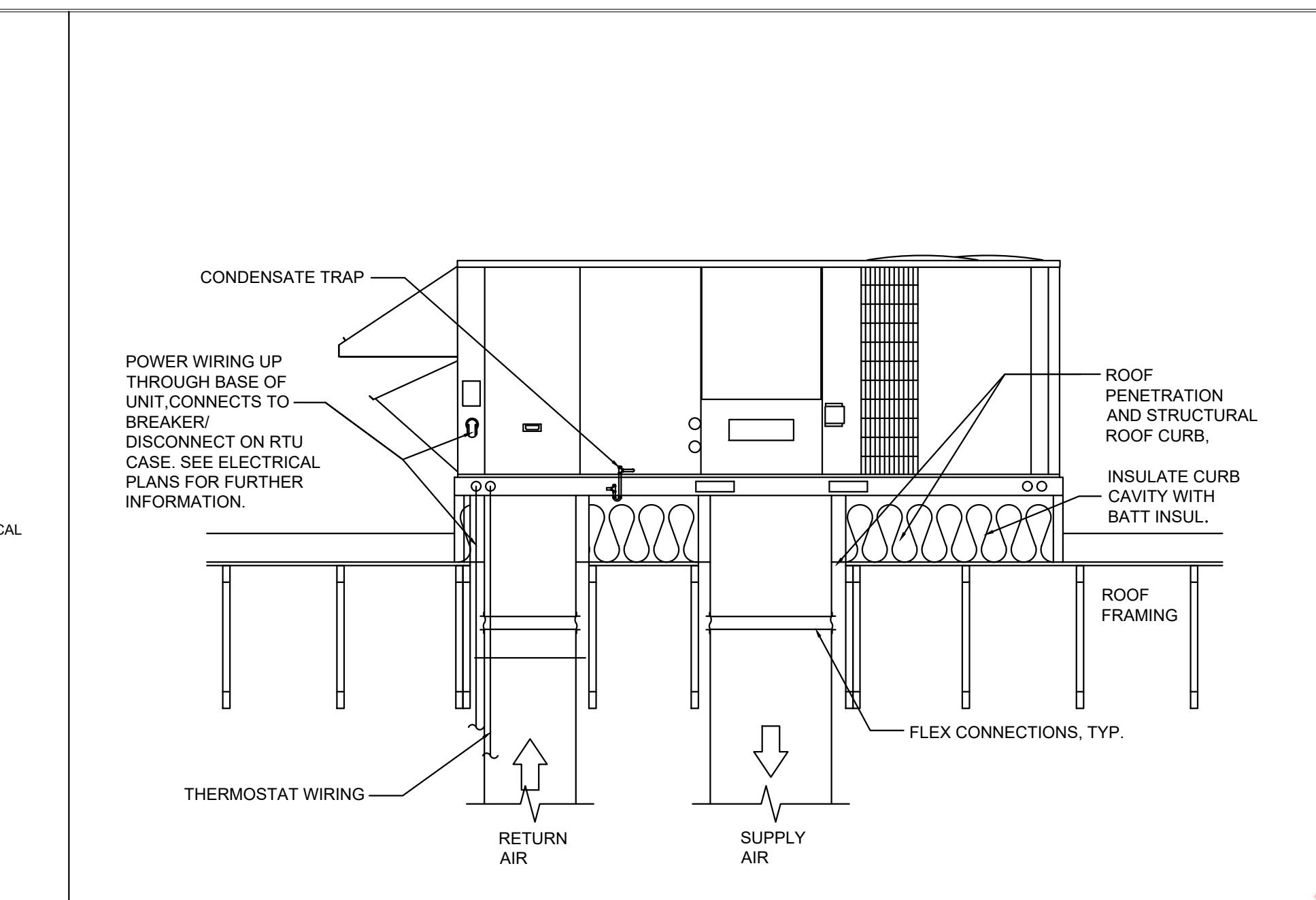
SHEET NO.

M-2.0



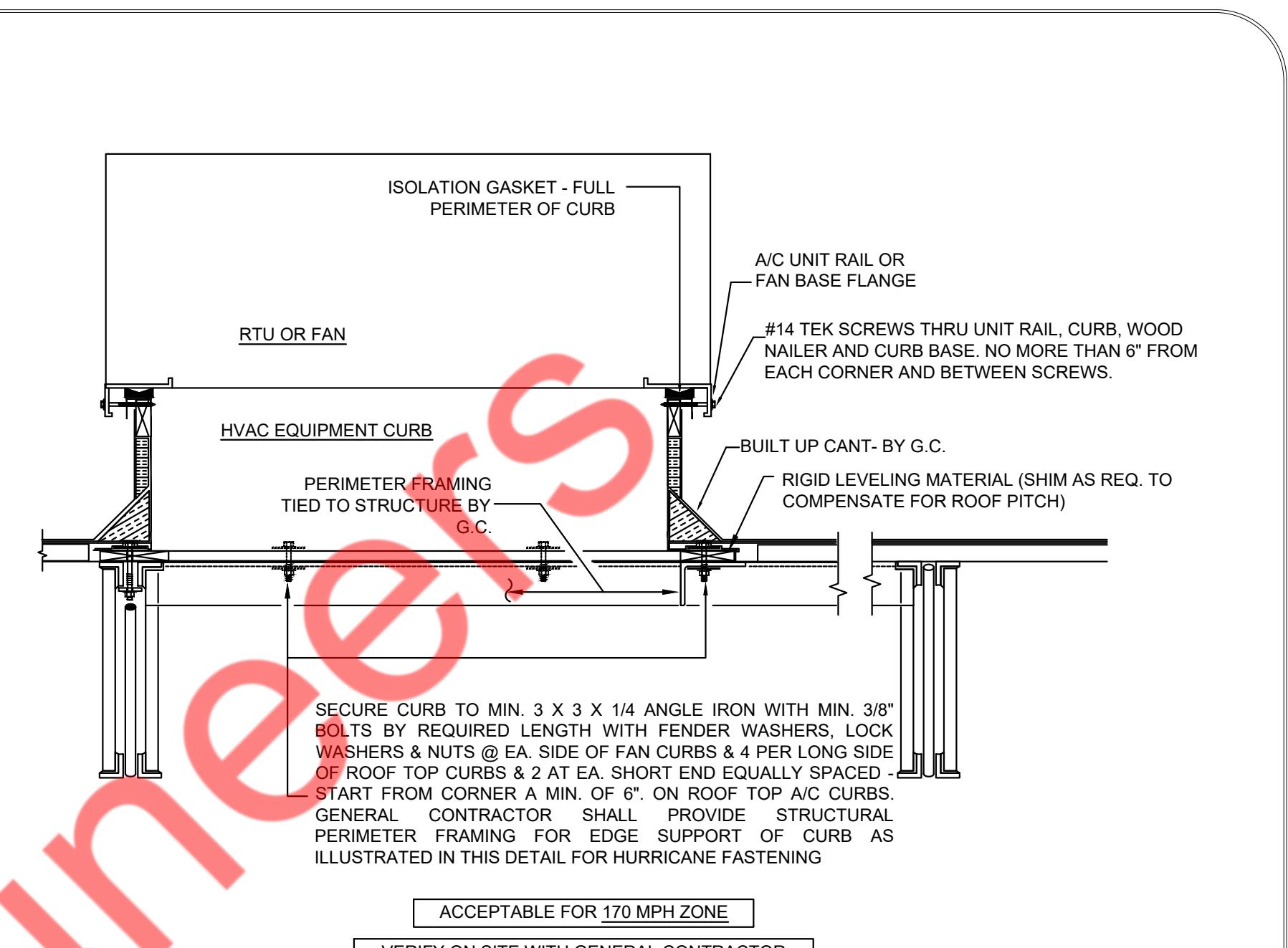
1 OVEN/HOOD DETAILS

SCALE: N.T.S.



2 RTU SCHEMATIC

SCALE: N.T.S.



3 TYPICAL RTU INSTALLATION DETAIL

SCALE: N.T.S.

ROOF TOP UNIT SCHEDULE																		
UNIT ID	MANUFACTURER	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN DATA			COOLING DATA			HEATING CAPACITY			ELECTRICAL DATA			NOTES	
					TOTAL CFM	OUTSIDE AIR CFM	E.S.P. (IN. W.G.)	TOTAL MBH	SENSIBLE MBH	AMBIENT DB (F)	ENTERING DB / WB(F)	GAS INPUT	GAS OUTPUT	VOLTS / Hz	PHASE	MCA(A)	MOCP(A)	
RTU-1	TRANE OR EQUIVALENT	YSK048A3S0L OR EQUIVALENT	SEE PLAN	4.0	1600	300	1.0	47.70	34.12	95	80/67	80	64.8	208-230/60	3	31	45	14.0 / 12.0, 13.4 / 11.0, 80%, 750, 1-16
RTU-2	TRANE OR EQUIVALENT	YSK060A3S0M OR EQUIVALENT	SEE PLAN	5.0	2000	550	1.0	58.48	43.68	95	80/67	100	81	208-230/60	3	33	45	14.0 / 12.0, 13.4 / 11.0, 80%, 800, 1-16

NOTES FOR NEW RTU:-

1. ALL EQUIPMENT MUST BE STANDARD EFFICIENCY.
2. ELECTRICAL CONNECTION TO BE SINGLE POINT AND TO BE THROUGH THE BOTTOM OF THE UNIT.
3. PROVIDE DISCONNECT SWITCH AND AN UNPOWERED GFCI RECEPTACLE.
4. 14" ROOF CURB - CONTRACTOR SHALL FIELD INSULATE. SHIP ASAP AHEAD OF THE UNIT.
5. CONDENSATE DRAIN WITH 2" DEEP VENTED TRAP DISCHARGE TO SPLASH BLOCK ON ROOF.
6. CABINET WITH 1/2" FIBERGLASS INSULATION.
7. PROVIDE 8-WIRE, 24 VAC, AUTOMATIC CHANGEOVER, 2-STAGE HEAT / COOL, REMOTELY PROGRAMMABLE THERMOSTAT.
8. REMOTE SENSORS SHALL BE PROVIDED IN SPACE WIRED BACK TO PROGRAMMABLE, 24 HOUR, 7 DAY, THERMOSTATS.
9. ANTI SHORT CYCLE TIMER.
10. THROWAWAY 2" FILTERS (MERV 8).
11. WHERE REQUIRED, PROVIDE LOW AMBIENT COOLING CAPABILITY DOWN TO 0 DEGREES F.
12. PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.
13. REFRIGERANT R454B SHALL BE PROVIDED.
14. PROVIDE REFRIGERANT LEAK DETECTION SENSOR WITHIN UNIT.
15. ENTHALPY ECONOMIZER FOR UNIT MORE THAN 33 MBH WITH BAROMETRIC RELIEF / 25% MANUAL OUTSIDE AIR DAMPER ASSEMBLY WITH HOOD. PROVIDE FDD.
16. PROVIDE TWO-POSITION OUTSIDE AIR DAMPER. ADJUST AS PER SCHEDULE.

AIR TERMINAL SCHEDULE		BASIS OF DESIGN: PRICE		
TAG	TYPE	DIMENSION(IN)	MODEL NO.	MAX NC dBA
CDS-1	SUPPLY	24X24	SPD	20
CDS-2	SUPPLY	24X24	PDN	20
CDS-3	SUPPLY	12X12	SPD	20
CDR-1	RETURN	24X24	PDPR	20

NOTES FOR DIFFUSERS

1. ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.
2. COORDINATE COLOR/FINISH WITH ARCHITECT.

FOR ROUND DIFFUSER NECK SIZE	FOR SQUARE DIFFUSER NECK SIZE
6" DIA: 0-100 CFM	6"X6": 0 - 115 CFM
8" DIA: 101-175 CFM	8"X8": 116 - 220 CFM
10" DIA: 176-275 CFM	10"X10": 221 - 350 CFM
12" DIA: 276-395 CFM	12"X12": 351 - 520 CFM
14" DIA: 396-535 CFM	14"X14": 521 - 730 CFM
15" DIA: 536-750 CFM	16"X16": 731 - 940 CFM
	18"X18": 840 - 1035 CFM
	20"X20": 1036 - 1285 CFM
	22"X22": 1286 - 1570 CFM

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MECHANICAL DETAILS & SCHEDULE

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VENTILATION CALCULATIONS												
ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE /1000sq.ft AS PER KMC 2015	NUMBER OF PEOPLE AS PER KMC 2015	FINAL PEOPLE NO.	CFM/PERSON	CFM/SQ.FT.	REQ. OSA	PROVIDED OSA	EXHAUST CFM/SQ.FT./Fixture	EXHAUST CFM	selected EXHAUST	
WAITING & SERVICE AREA	185	15	3	4	7.5	0.12	55	850	0	0	0	
KITCHEN	610	0	0	4	0	0	0		0.7	427	700	
BOH	145	0	0	2	0	0	0		0	0	0	
RESTROOM	45	0	0	0	0	0	0		0	70	70	
TOTAL	985		3	10			55	850		497	770	

EDGE OVENs

EDGE-EEH-23

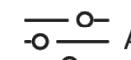
EDGE CLOSE CAPTURE LOW CFM EXTRACTION HOOD

Introducing the EDGE EEE-23 hood, exclusively crafted for the EDGE conveyor oven model line. The EEE-23 hood is meticulously engineered to efficiently capture smoke and grease-laden vapors. Consequently, the EEE-23 hood boasts the lowest extraction CFM among all the hoods available for the EDGE oven model line.

 **DRAMATICALLY LOWER CFM RATES**
The innovative EDGE close capture hood requires fewer CFMs to effectively capture, contain, and extract grease-laden vapors, surpassing rival conveyor oven manufacturers' hood systems by up to 40% in efficiency.

 **LOWER MUA REQUIREMENTS & COSTS**
The annual cost of heating or cooling one CFM of Make Up Air (MUA) is estimated to range from \$1 - \$3. Our market-leading CFM reductions can save you thousands of dollars annually compared to traditional hood models.

 **COOLER KITCHEN ENVIRONMENT**
By optimizing the capture process, we have significantly reduced the heat and thermal impact on the surrounding environment, leading to improved HVAC efficiency and reduced energy consumption. Not only will this result in a more comfortable working environment for your staff, but it will also contribute to a cleaner and healthier kitchen.

 **AUTOMATED FAN SPEED ADJUSTMENT**
Why waste money on excessive exhaust when you can have an extraction hood that adjusts to your needs? Our innovative hood system features an optional automatic fan speed adjustment, ensuring that the CFM rate is optimized based on the number of ovens in use. Not only that, but it also dynamically adjusts the make-up air CFM rate accordingly.



HOOD OPTIONS

PRE-PLUMBED FIRE SUPPRESSION
Our integrated hood fire suppression system is available for every model. It comes pre-installed at the factory with the necessary nozzles and fusible links included.

HOOD VALANCE
The EDGE close capture hoods can be ordered with an easy-to-install hood-to-ceiling valance. Crafted from stainless steel, this sleek valance conceals ducting, hanging rods, and wiring, creating a seamless look between the hood and the ceiling.

MULTI-SPEED CONTROL SYSTEM - EEC-23-A
Our innovative hood system features an optional automatic fan speed adjustment, ensuring that the CFM rate for both exhaust and make-up air or HVAC is optimized based on the number of ovens in use.

EXTENDED LEGS & BRACES
Suggested for use with double stacked ovens placed beneath an EDGE close-capture hood, the extended legs and braces elevate the oven's height to that of a triple oven, providing a future-proof option if you decide to incorporate a third deck.

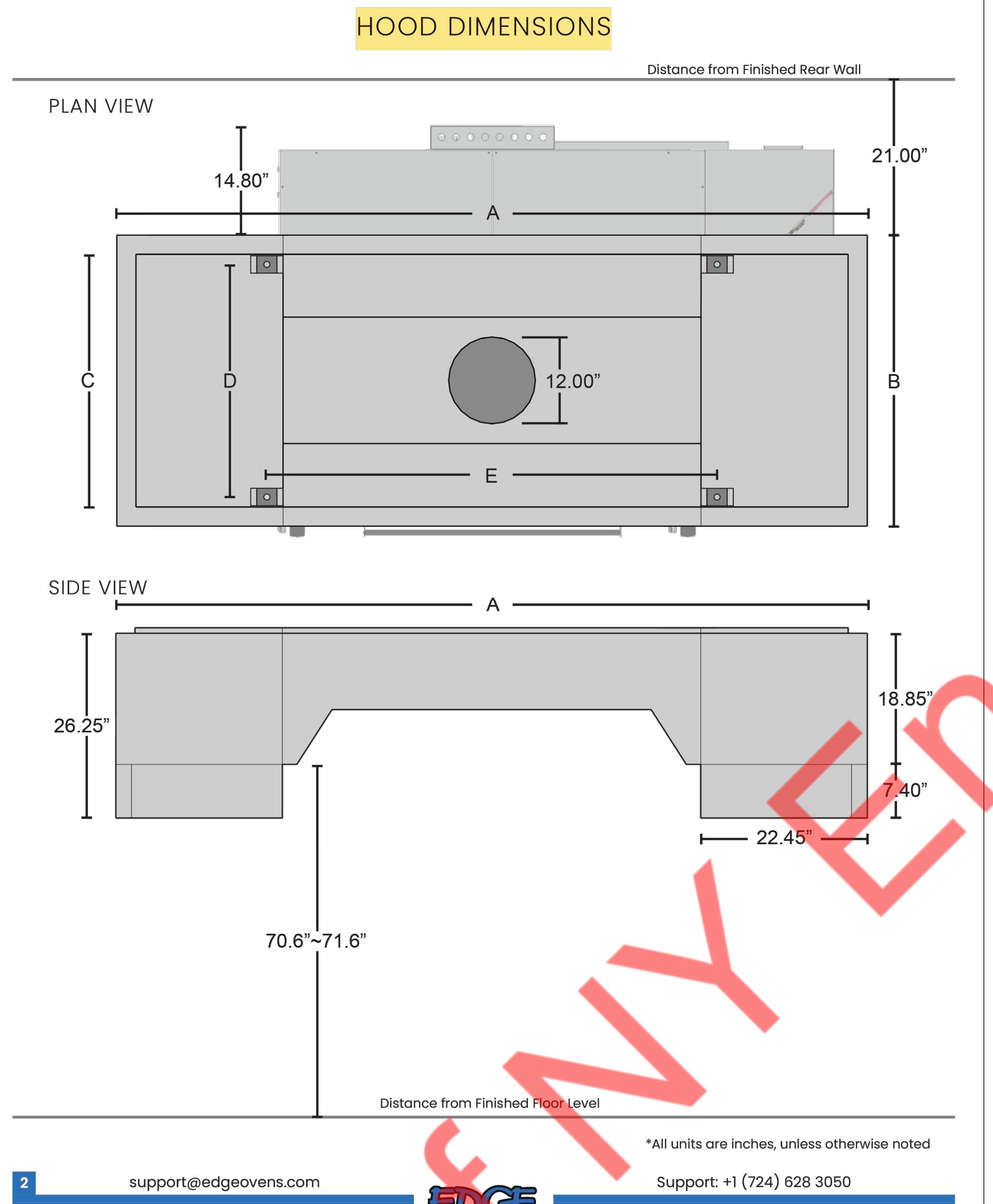
support@edgeovens.com



Support: +1 (724) 628 3050



1



HOOD DIMENSIONS

Hood Model	Hood Length	Hood Depth	Hood Capture Width	Mounting Distance (Front to Back)	Mounting Distance (Left to Right)
A	B	C	D	E	
EDGE-EEH-23-1830	75.57"	26.33"	22.00"	20.92"	24.75"
EDGE-EEH-23-2440	85.32"	32.33"	28.00"	26.00"	34.50"
EDGE-EEH-23-3240	85.32"	40.33"	36.00"	34.00"	34.50"
EDGE-EEH-23-2460	103.82"	32.33"	28.00"	26.00"	53.00"
EDGE-EEH-23-3260	103.82"	40.33"	36.00"	34.00"	53.00"
EDGE-EEH-23-3860	103.82"	46.33"	42.00"	40.00"	53.00"
EDGE-EEH-23-4460	103.82"	52.33"	48.00"	46.00"	53.00"
EDGE-EEH-23-3270	113.83"	40.33"	36.00"	34.00"	63.00"
EDGE-EEH-23-3870	113.83"	46.33"	42.00"	40.00"	63.00"

HOOD EXTRACTION SPECIFICATIONS

Hood Model	Capture (Linear ft)	Minimum FPM (Linear ft)			Minimum CFM (Cubic ft)		
		Single	Double	Triple	Single	Double	Triple
EDGE-EEH-23-1830	3.67	50	100	120	184	367	440
EDGE-EEH-23-2440	4.67	50	100	120	234	467	560
EDGE-EEH-23-3240	6.00	50	100	120	300	600	720
EDGE-EEH-23-2460	4.67	50	100	120	234	467	560
EDGE-EEH-23-3260	6.00	50	100	120	300	600	720
EDGE-EEH-23-3860	7.00	50	100	120	350	700	840
EDGE-EEH-23-4460	8.00	50	100	120	400	800	960
EDGE-EEH-23-3270	6.00	50	100	120	300	600	720
EDGE-EEH-23-3870	7.00	50	100	120	350	700	840

*Please refer to the EDGE-EEH I&O manual for detailed and complete information.

2 support@edgeovens.com 3 support@edgeovens.com

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HOOD DETAILS

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DATE 09-05-2025

SHEET NO.

M-3.0

SHEET 6 OF 6

SWITCHES AND CONTROLS	
\$a	20A SPST SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
\$D	DIMMER SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
\$OS	WALL OCCUPANCY SENSOR SWITCH
[P]	PULL STATION
[S]	SWITCH BANK
\$T	TIME SWITCH
\$SD	THREE WAY DIMMER SWITCH

POWER AND TELECOMMUNICATION	
[J]	JUNCTION BOX
[R]	DUPLEX RECEPTACLE, +18" AFF OR AS NOTED.
[S]	SPECIAL RECEPTACLE
[Q]	QUAD RECEPTACLE
[V]	TYPICAL DATA/COMM OUTLET DOUBLE GANG OUTLET BOX WITH SINGLE GANG MUD RING. ROUTE 3/4 INCH CONDUIT TO ABOVE CEILING SPACE. PROVIDE PULL STRING. COMMUNICATIONS CONTRACTOR TO PROVIDE FACE PLATE, WIRING, AND FINAL CONNECTIONS.

MOTORS AND CONTROLS	
[M]	MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
[A]	30A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
[B]	60A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
[C]	100A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
[D]	200A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
\$M	MANUAL MOTOR SWITCH

APPLICABLE CODES	
A.	2018 KENTUCKY BUILDING CODE (2015 INTERNATIONAL BUILDING CODE).
B.	2015 KENTUCKY BUILDING CODE (2015 INTERNATIONAL MECHANICAL CODE).
C.	KENTUCKY STATE PLUMBING CODE (CHAPTER 20 KENTUCKY ADMINISTRATIVE REGULATION).
D.	2015 KENTUCKY FIRE CODE.
E.	NATIONAL ELECTRICAL CODE 2017 (NFPA 70, 2017)
F.	2012 KENTUCKY COMMERCIAL ENERGY CONSERVATION CODE (2012 INTERNATIONAL ENERGY CONSERVATION CODE).
G.	NATIONAL FUEL GAS CODE 2012 (NFPA 54, 2012)

WIRING SYSTEMS	
EXISTING	
NEW	

ANNOTATION	
+24"	INDICATES MOUNTING HEIGHT CENTER LINE TO FINISHED FLOOR.
#	KEYED NOTE REFERENCE
E-1.0	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM

POWER DISTRIBUTION	
	DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.

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

ELECTRICAL ABBREVIATIONS

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

GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC), THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ), AND ALL APPLICABLE LOCAL CODES, LAWS, AND REGULATIONS.
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEVED AND SEALED WATERPROOF.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES, SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OR INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT. EQUIPMENT VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE $\frac{3}{4}$ ", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED AS THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED/CAELED IN FINISHED AREAS, AND ALL COVERS TO FULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLUMED CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
24. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
25. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
26. LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
27. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

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

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

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SHEET TITLE:
ELECTRICAL SYMBOL LIST, ABBREVIATION AND GENERAL NOTES

PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

E-0.1

SHEET 1 OF 9

ELECTRICAL SPECIFICATION

1. GENERAL:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

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

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

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

C. QUALITY ASSURANCE

1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

3) CURRENT CHARACTERISTICS:

a. DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

4) HEIGHTS OF OUTLETS:

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

- RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
- WALL SWITCHES: 4 FT-0 IN.
- WALL FIXTURES: 7 FT-0 IN.
- MOTOR CONTROLLERS: 5 FT-0 IN.
- CLOCKS: 7 FT 6 IN

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

D. PRODUCT DELIVERY, STORAGE AND HANDLING

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTAINANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

E. MATERIALS

1) NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

- SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
- MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
- CLIP FORM NAILS FLUSH WITH INSERTS.
- MAXIMUM LOADING 75 PERCENT OF RATING.

b. SUPPORTS: FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

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

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

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

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, AND FEES NECESSARY FOR A COMPLETE AND SAFE INSTALLATION, IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (WITH LOCAL ADOPTIONS) ALL APPLICABLE INDUSTRY STANDARDS, NATIONAL AND LOCAL CODES, AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

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

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

REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

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

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

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

4. SHOP DRAWINGS

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

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

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

2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

4) PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).

5) RACEWAYS

6) WIRE AND CABLE

7) WALL SWITCHES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES.

12) TRANSFORMER.

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

5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

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

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

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

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

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNUIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE, QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

D. SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

7. FUSES:

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

B. MOTOR CIRCUITS - ALL INDIVIDUAL MOTOR CIRCUITS WITH FULLLOAD AMPERE RATINGS (FLA) OF 400 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP) SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

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

ELECTRICAL SPECIFICATION (CONT.)

D. INSTALLATION

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

H. IDENTIFICATION

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

I. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS

SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

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

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

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

M. MATERIALS

1) RACEWAYS:

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

2) FITTINGS AND ACCESSORIES:

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

3) BOXES:

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

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

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

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

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

EMPTY RACEWAYS OVER 10 FT LONG. PROVIDE FISH OR PULL WIRE.

GALVANIZED OR NYLON ROPE.

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

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

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

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

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

O. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NEC 2017 ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

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

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

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

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

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

10. WIRE AND CABLE:

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

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLEING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 250 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

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

D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IEC6A STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED. FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED, TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

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

F. COLOR CODING SHALL BE AS FOLLOWS:

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

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

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

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

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

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

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

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

11. WIRING DEVICES:

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

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

C. STRAIGHT BLADE RECEPTACLES SHALL BE RESIDENTIAL GRADE DUPLEX CONVENIENCE 120 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

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

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

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

E. COLORS: COORDINATE COLORS WITH ARCHITECT.

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

12. LIGHTING FIXTURES:

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

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

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

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

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

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

G. EXIT SIGNS SHALL BE PRECISE DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE LOCAL AHJ APPROVED. AC POWERED WITH STANDARD UL LISTED 3-HOUR RUN TIME OR AS REQUIRED. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. TELEPHONE CONDUIT SYSTEM:

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

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

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

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

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

14. PANELBOARDS:

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

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

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

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

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

LIGHTING FIXTURE SCHEDULE						
TYPE	DESCRIPTION	VOLTAGE	LIGHT SOURCE	CCT	FIXTURE WATTS	MANUFACTURER / MODEL NUMBER
INTERIOR						
LT6	2X2 FLAT PANEL (3750 LUMEN)	120V	LED	3,500K	30 VA	HALCO LIGHTING TECHNOLOGIES #90519-FPL-22-LS-CS-UNV
LT7	2X4 FLAT PANEL (4565 LUMEN)	120V	LED	3,500K	35 VA	HALCO LIGHTING TECHNOLOGIES #90520-FPL-24-LS-CS-UNV
EMERGENCY						
EM1	EMERGENCY DUAL-HEAD FIXTURE WITH BATTERY BACK UP	120V	LED	-	2 VA	LITHONIA-LED-EU2C
EX	THERMOPLASTIC LED EXIT SIGN COMBO WITH HEADS, AND HIGH OUTPUT BATTERY	120V	LED	-	4 VA	LITHONIA-LED-ECRGHOSQM6
ER	2-LAMP WATERPROOF REMOTE HEAD POWERED BY "EX" SIGN	6V	LED	-	2 VA	LITHONIA-LED-ERE-GY-T-WP-SQ
GENERAL NOTES:						
1.	BATTERY PACKS FOR ALL EXIT, NIGHT LIGHT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF PROVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES.					
2.	E.C. SHALL COORDINATE EXACT MAKE/MODEL, COLOR, FINISH & LOC OF LIGHTING FIXTURES WITH ARCHITECT/OWNER IN FIELD.					
3.	FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.					
4.	LINE VOLTAGE DRIVERS MAY BE SUBSTITUTED FOR "UNIVERSAL" OR "MULTI-VOLTAGE" DRIVERS.					
5.	ALL FIXTURES SHALL BE UL OR ETL LISTED.					

LIGHTING PLAN KEYED NOTES: #

1. WIRE ALL EMERGENCY, NIGHT LIGHT AND EXIT LIGHT TO THE NEAREST CIRCUIT AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION.
2. E.C. SHALL COORDINATE LOCATION & MAKE / MODEL OF TIME CLOCK & LIGHTING CONTRACTORS WITH ARCHITECT / OWNER IN FIELD. SEE DETAIL-3 THIS SHEET FOR ADDITIONAL INFORMATION.
3. PROVIDED LIGHTING CONTROL SWITCH BANK, SEE SWITCH BANK DETAIL BELOW. ELECTRICAL CONTRACTOR TO VERIFY SWITCH BANK WILL FIT WITHIN SPECIFIED AREA AND STACK MULTIPLE SWITCH BANKS AT THIS LOCATION IF A SINGLE SWITCH BANK WILL NOT FIT WITHIN THE SPECIFIED REGION.
4. E.C. TO COORDINATE EXACT MAKE/MODEL OF WALL MOUNTED OCCUPANCY SENSOR WITH ARCHITECT/OWNER IN COORDINATION WITH EQUIPMENT MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
5. PROVIDE DIGITAL IN-WALL TIMER SWITCH, PROGRAMMABLE 7 DAY CONTROL. LITHIUM BATTERY BACKUP FOR TIMEKEEPING. MANUAL OVERRIDE CONTROL FOR MAXIMUM 2 HOURS. EQUAL TO INTERMATIC ST01 SERIES. ADJUST TO ON/OFF SCHEDULE DIRECTED BY AUTHORIZED REPRESENTATIVE FOR TENANT.
6. SWITCH FOR CONTROL OF "STORE FRONT SIGN" OUTLET. E.C. TO COORDINATE EXACT LOCATION & MAKE/MODEL OF SWITCH WITH ARCHITECT/OWNER IN COORDINATION WITH DEVICE MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
7. DENOTES LIGHTING FOR WALK-IN COOLER TO BE PURCHASED BY MANUFACTURER. ELECTRICAL CONTRACTOR TO PROVIDE FINAL CONNECTIONS TO LIGHTING IN WALK-IN COOLER. COORDINATE EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER PRIOR TO ANY ROUGH-IN WORK.
8. EXTERIOR SIGNS CONTROLLED VIA PHOTOCELL. E.C. SHALL COORDINATE EXACT MAKE/MODEL OF PHOTOCELL WITH EQUIPMENT MANUFACTURER. E.C. SHALL ADJUST PHOTOCELL QUANTITIES AS RECOMMENDED BY MANUFACTURER. BASE BID ACCORDINGLY.
9. DENOTES CAMERA TO BE PURCHASED BY SECURITY CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE EXACT MOUNTING LOCATION AND REQUIREMENTS WITH SECURITY CONTRACTOR/TENANT PRIOR TO ANY ROUGH-IN WORK. BASE BID ACCORDINGLY.
10. INTERLOCK EF-1 WITH RTU-1. E.C. SHALL COORDINATE WITH MECHANICAL DRAWING FOR THE EXACT REQUIREMENT.

LIGHTING PLAN GENERAL NOTES:

1. CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
2. ALL EXTERIOR LIGHTS AND SIGNS SHALL BE CONTROLLED VIA PHOTOCELL AND/OR TIME CLOCK. THE ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE ALL LIGHTING CONTROLS IN COMPLIANCE WITH THE 2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
3. REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
4. FINAL CONDUIT/ABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
5. LAY-IN TYPE FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE INDEPENDENT FROM THE CEILING SYSTEM AND BE CLIPPED TO THE GRID WITH EARTHQUAKE/HURRICANE CLIPS.
6. ALL SWITCHES QUANTITIES, LOCATION AND MOUNTING DETAILS SHALL BE COORDINATED WITH ARCHITECT/OWNER IN THE FIELD.

2 SWITCH BANK DETAIL N.T.S.

\$ ^{T1} B:2 DIGITAL IN WALL TIMER SWITCH (TS1)	\$ ^D _a B:2 SERVICE & WAITING AREA (TYPE-A)	\$ ^{T2} B:4 DIGITAL IN WALL TIMER SWITCH (TS2)	\$ ^{3D} _b B:4 KITCHEN AREA (TYPE-B)	\$ ^{3D} _c B:4 KITCHEN AREA (TYPE-B)	\$ _d A:6 STORE FRONT SIGNS
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DIMMER SWITCH SHALL BE:
LEVITON #P710-DLZ

TIMER SWITCH SHALL BE:
INTERMATIC #ST01

NOTE: E.C. SHALL COORDINATE EXACT MAKE/MODEL/COLOR OF DIMMER & TIMER SWITCH AND COVER PLATES WITH ARCHITECT/OWNER IN FIELD.

3 LIGHTING CONTROL LEGEND N.T.S.

3-WAY 0-10V DIMMER SWITCH LEVITON CATALOG #P710-DLZ

WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR HUBBELL CONTROL SOLUTIONS CATALOG #OSSMT-GAW

4 TIME CLOCK DETAIL N.T.S.

MAIN ELECTRICAL PANEL

SINGLE CHANNEL TIME CLOCK

PHOTOCELL AND TIMECLOCK CONTROL FOR EXTERIOR SIGNS (FRONT)

5 LIGHTING MOUNTING DETAIL N.T.S.

RECESSED LUMINARIES (TYPICAL)

13MM(1/2") FMC TO JUNCTION BOX

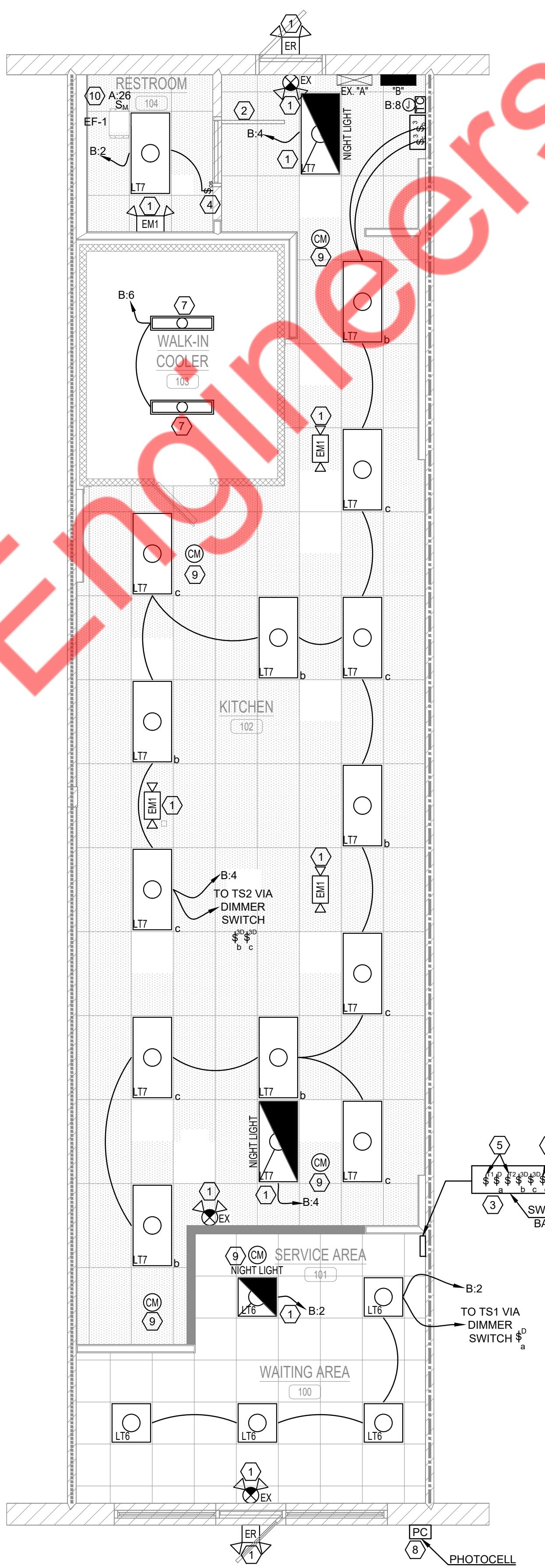
6 TIMER SWITCH CONTROL DETAIL N.T.S.

DIGITAL IN WALL TIMING SWITCH (KEYED NOTE 5)

DIGITAL IN WALL TIMING SWITCH (KEYED NOTE 5)

TO SERVICE & WAITING AREA LIGHTS

TO KITCHEN AREA LIGHTS



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

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LIGHTING FLOOR PLAN

PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

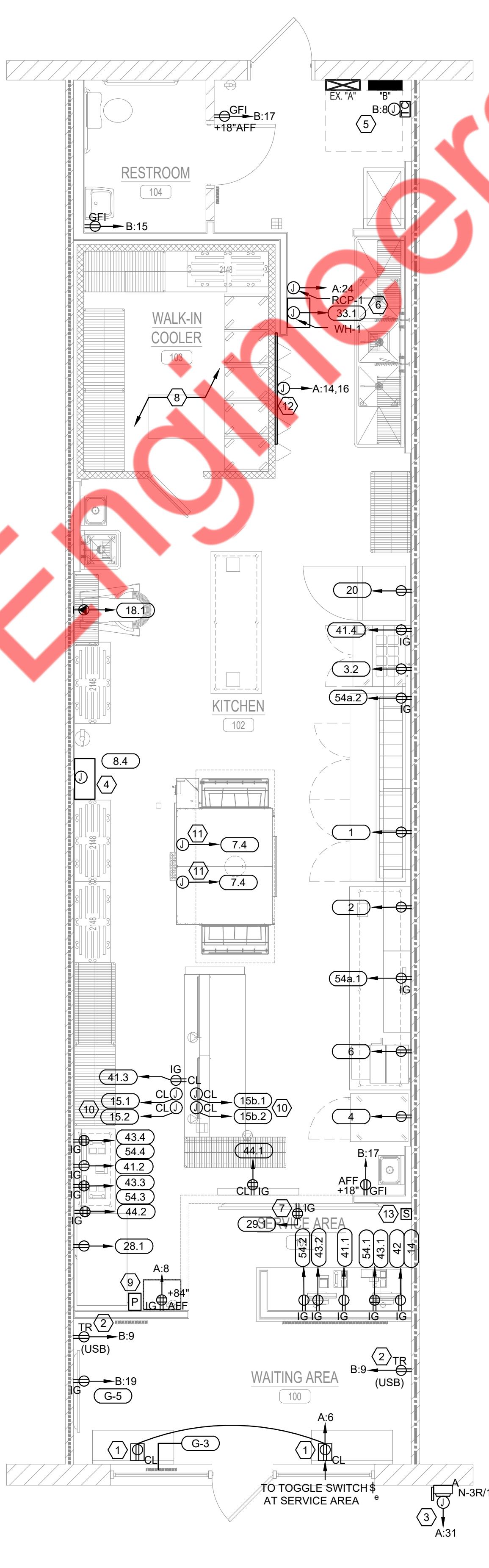
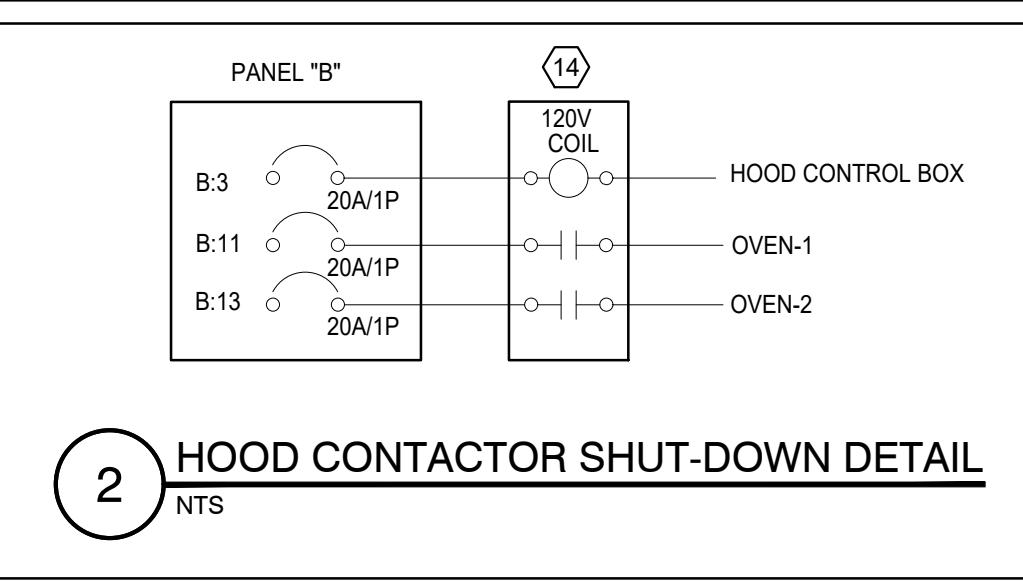
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KITCHEN EQUIPMENT WIRING SCHEDULE							
ITEM	DESCRIPTION	PANEL-CKT#	CB#POLES	VOLTAGE/PH	WIRE-CONDUIT	ELECTRICAL CONNECTION	NOTES
1	REFRIGERATOR, PIZZA PREP	B:5	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R EATON TR780W RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 44" AFF TO CENTER OF BOX.
2	SCALE PORTION DIGITAL	B:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 44" AFF TO CENTER OF BOX.
32	REFRIGERATOR, SANDWICH/SALAD PREP.	B:7	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R EATON TR780W RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 50" AFF TO CENTER OF BOX.
4	DISPLAY CASE, REFRIGERATED	A:25	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 82 1/4" AFF TO CENTER OF BOX.
6	DOUGH ROLLER	A:27	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 44" AFF TO CENTER OF BOX.
7.4	OVEN, CONVEYOR	B:11	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 11 AND DETAIL-4 ON SHEET E-3.0	SEE KEYED NOTE 11 AND DETAIL BELOW
7.4	OVEN, CONVEYOR	B:13	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 11 AND DETAIL-4 ON SHEET E-3.0	SEE KEYED NOTE 11 AND DETAIL BELOW
8.4	HOOD SYSTEM - TYPE 1 (HOOD CONTROLLER)	B:3	20A/1P	120V/1PH	(2) #12 #12G-3/4"	-	SEE KEYED NOTE 11 AND DETAIL BELOW
14	SAFE	B:20	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
15.1	WARMER, FOOD OVERHEAD	B:10	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 10 AND DETAIL-5 ON SHEET E-3.0	SEE KEYED NOTE 10 AND DETAIL BELOW
15.2	WARMER, FOOD OVERHEAD	B:12	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 10 AND DETAIL-5 ON SHEET E-3.0	SEE KEYED NOTE 10 AND DETAIL BELOW
15b.1	WARMER, FOOD OVERHEAD	B:14	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 10 AND DETAIL-5 ON SHEET E-3.0	SEE KEYED NOTE 10 AND DETAIL BELOW
15b.2	WARMER, FOOD OVERHEAD	B:16	20A/1P	120V/1PH	(2) #12 #12G-3/4"	SEE KEYED NOTE 10 AND DETAIL-5 ON SHEET E-3.0	SEE KEYED NOTE 10 AND DETAIL BELOW
18.1	MIXER, PIZZA	A:7.9,11	20A/3P	208V/3PH	(3) #12 #12G-3/4"	PROVIDE NEMA L15-30P RECEPTACLE, PLUG, AND CORD.	MOUNT RECEPTACLE 36" AFF TO CENTER OF BOX.
20	FREEZER	A:35	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 48" AFF TO CENTER OF BOX.
28.1	DISPLAY CASE, REFRIGERATED	A:23	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 48" AFF TO CENTER OF BOX.
29.1	DIGITAL MENU BOARD SYSTEM	A:29	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	SEE KEYED NOTE 7
33.1	TANKLESS WATER HEATER (WH-1.2)	A:22	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE JUNCTION BOX TO MATCH PROVIDED CORD WITH PLUG	SEE KEYED NOTE 6
41.1	RECEIPT PRINTER	A:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
41.2	RECEIPT PRINTER	A:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 48" AFF TO CENTER OF BOX.
41.3	RECEIPT PRINTER	A:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	CEILING MOUNTED.
41.4	RECEIPT PRINTER	B:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 50" AFF TO CENTER OF BOX.
42	REPORT PRINTER	B:20	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
43.1	PHONE	B:20	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
43.2	PHONE	A:10	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
43.3	PHONE	A:10	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
43.4	PHONE	A:12	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 48" AFF TO CENTER OF BOX.
44.1	TV - WALL MOUNTED	A:33	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 96" AFF TO CENTER OF BOX.
44.2	TV - WALL MOUNTED	A:33	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 96" AFF TO CENTER OF BOX.
54.1	POS / COMPUTER	B:20	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
54.2	POS / COMPUTER	A:10	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
54.3	POS / COMPUTER	A:10	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 24" AFF TO CENTER OF BOX.
54.4	POS / COMPUTER	A:12	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 48" AFF TO CENTER OF BOX.
54a.1	BUMP SCREEN	B:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 96" AFF TO CENTER OF BOX.
54a.2	BUMP SCREEN	B:18	20A/1P	120V/1PH	(2) #12 #12G-3/4"	PROVIDE NEMA 5-15R RECEPTACLE TO MATCH PROVIDED CORD WITH PLUG	MOUNT RECEPTACLE 96" AFF TO CENTER OF BOX.

NOTE: COORDINATE ALL MOUNTING HEIGHTS WITH OWNER PRIOR TO INSTALL.

POWER PLAN GENERAL NOTES:	
A.	COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ABOVE CEILING WITH MECHANICAL CONTRACTOR.
B.	E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN. E.C. COORDINATE LOCATION OF DISCONNECT SWITCH WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
C.	REFER TO DWG. E-0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E-0.2 AND E-0.3 FOR ADDITIONAL SPECIFICATIONS.
D.	FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
E.	CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.
F.	ALL WIRING TO BE #12AWG WITH #12AWG GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED OR REQUIRED.
G.	ALL 120-VOLT THROUGH 250-VOLT RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS LOCATED IN KITCHEN, DRIVE-THRU, AND FOOD PREP AREAS SHALL BE GFCI PROTECTION PER NEC 210.8.
H.	VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
I.	DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS OR INSTANCES OF DETAILS ARE REFERENCES ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
J.	ALL 120V, 1P 15 & 20 AMP RECEPTACLES IN THE KITCHEN AREA SHALL BE GFCI TYPE AND MOUNTED IN A READILY ACCESSIBLE LOCATION. READILY ACCESSIBLE IS DEFINED AS NOT HAVING TO MOVE ANY EQUIPMENT IN ORDER TO RESET OR TEST THE GFCI RECEPTACLE.
K.	VERIFY ALL PLUG CONFIGURATIONS AND MOUNTING HEIGHTS OF ALL KITCHEN EQUIPMENT OUTLET BOXES WITH FOOD SERVICE EQUIPMENT CONTRACTOR BEFORE INSTALLATION OF CONDUIT AND WIRING.
L.	ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS OF WALK-IN COOLER BEFORE PURCHASING BREAKER, CONDUIT, AND WIRING.
M.	ELECTRICAL CONTRACTOR SHALL NOT PENETRATE ROOF OF WALK-IN COOLER.
N.	WHERE PORTIONS OF A RACEWAY ARE SUBJECT TO DIFFERENT TEMPERATURES, AND WHERE CONDENSATION IS KNOWN TO BE A PROBLEM, AS IN COOLER AND FREEZER APPLICATIONS OR WHERE PASSING FROM WARM TO COLD AREAS, ELECTRICAL CONTRACTOR TO FILL THE RACEWAY WITH AN APPROVED MATERIAL TO PREVENT CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY.
O.	ELECTRICAL CONTRACTOR TO COORDINATE WITH OWNER REGARDING EXTERIOR SIGNAGE VOLTAGE/AMPACITY REQUIREMENTS BEFORE PURCHASING AND INSTALLING CONDUIT, WIRE AND CIRCUIT BREAKERS. COORDINATE CONTROL OF SIGNAGE WITH OWNER/TENANT.
P.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL DISCONNECT SWITCHES, RECEPTACLES, CONCEALED WIRING, ETC. TO KITCHEN EQUIPMENT AS REQUIRED. THE ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE ALL CORDS, FITTINGS, BOXES, CORD GRIPS, PLUGS, CABLES, ETC. ON EQUIPMENT REQUIRING SUCH ITEMS.

PIZZA OVEN/EXHAUST HOOD NOTES:	
1.	ELECTRICAL CONTRACTOR TO COORDINATE WITH HOOD & OVEN INSTALLATION CONTRACTOR FOR ALL ELECTRICAL REQUIREMENTS.
2.	208/120V POWER CIRCUITS ARE INDICATED FOR OVEN & HOOD ON THESE DRAWINGS. REFER TO INSTALLATION SHOP DRAWINGS FOR REQUIRED LOW VOLTAGE CIRCUITS.
3.	ELECTRICAL CONTRACTOR TO WIRE ALL OVEN/HOOD COMPONENTS & INTERCONNECTION WIRING TO MAKE A COMPLETE WORKING & CODE COMPLIANT OVEN & HOOD.
4.	OVENS SHALL DE-ENERGIZE IN THE EVENT THE ANULS FIRE SYSTEM IS ACTIVATED & HORN/STROBE ALARM TO BE INITIATED. EXHAUST FAN TO REMAIN ENERGIZED.

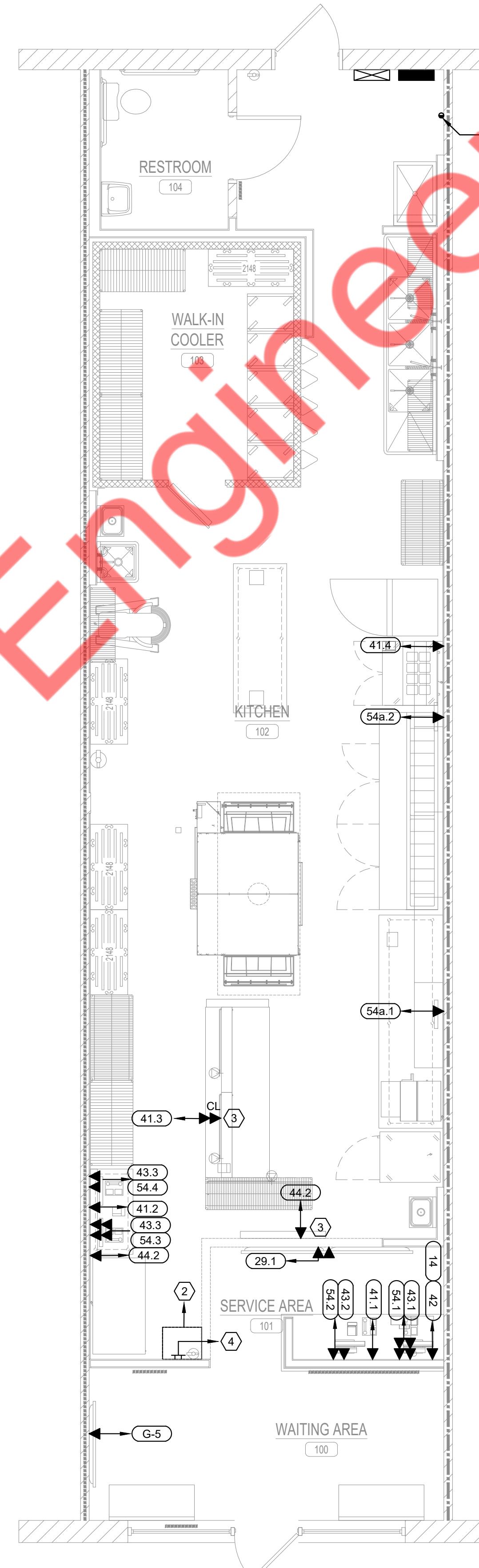


LOW VOLTAGE SYSTEM PLAN GENERAL NOTES:		
A. VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.		
B. TELEPHONE AND DATA WIRING TERMINATIONS ARE TO BE PROVIDED AND INSTALLED BY LOW VOLTAGE CONTRACTOR.		
C. ALL DATA CABLING SHALL BE PLUMED RATED CAT6.		
D. SUPPORT ALL CABLES WHETHER THEY ARE BUNDLED OR INDIVIDUAL.		
E. THERE SHALL BE NO CABLING LYING ON THE CEILING, CEILING GRID, CONDUIT, WATER PIPES, OR DUCT WORK. NO CABLES TIED TO OR SUPPORTED FROM CEILING GRID SUPPORTS ELECTRICAL CONDUIT, WATER PIPES, OR DUCT WORK.		
F. ALL DATA LINES TO USE CAT6 RJ-45 CONNECTORS COMPATIBLE WITH 568B WIRING AND MUST BE LABELED ON BOTH ENDS. USE SINGLE 48 PORT PATCH PANEL, OR (2) 24 PORT PATCH PANELS. COORDINATE LABELING WITH MARCOS VENDOR.		
G. ALL CABLES SHOULD BE TERMINATED AT THE PATCH PANEL ON THE NETWORK CABINET/RACK AND WHEREVER EACH EQUIPMENT IS LOCATED THROUGHOUT THE STORE.		
H. PATCH CABLES TO BE NEATLY INSTALLED IN NETWORK CABINET USING LENGTH APPROPRIATE CABLES AND WIRE MINDERS WHEN NEEDED.		

DATA WIRING SCHEDULE		
ITEM	DESCRIPTION	MOUNTING HEIGHT
29	MENU BOARD AND ILLUMINATED LOGO	+99" AFF
41.1	RECEIPT PRINTER	+24" AFF
41.2	RECEIPT PRINTER	+48" AFF
41.3	RECEIPT PRINTER	CEILING MOUNTED.
41.4	RECEIPT PRINTER	+50" AFF
42	REPORT PRINTER	+24" AFF
43.1	PHONE	+24" AFF
43.2	PHONE	+24" AFF
43.3	PHONE	+48" AFF
43.4	PHONE	+48" AFF
44.1	TV - WALL MOUNTED	+96" AFF
44.2	TV - WALL MOUNTED	+96" AFF
54.1	POS / COMPUTER	+24" AFF
54.2	POS / COMPUTER	+24" AFF
54.3	POS / COMPUTER	+24" AFF
54.4	POS / COMPUTER	+48" AFF
54.5	BUMP SCREEN	+96" AFF
54.6	BUMP SCREEN	+96" AFF
G-5	TV	+99" AFF

SYSTEMS PLAN KEYED NOTES: #	
1.	DENOTES APPROXIMATE LOCATION OF EXISTING 2" CONDUIT, WITH PULL STRING STUBBED UP INTO TENANT SPACE OVERHEAD. ELECTRICAL CONTRACTOR TO INTERCEPT CONDUIT AND ROUTE NEW CONDUIT TO SERVER CABINET. ELECTRICAL CONTRACTOR TO VERIFY EXISTING STUB-UP CONDUIT SIZE WITH FIELD CONDITIONS PRIOR TO PURCHASING AND INSTALLING.
2.	DENOTES NAVEPOINT 12U WALL MOUNT SERVER CABINET NETWORK RACK ENCLOSURE WITH AT LEAST ONE COOLING FAN, LOCKING GLASS DOOR AND ONE 48 PORT PATCH PANEL. TRENDNET #TC-P48C6 OR COMPARABLE UL RATED PATCH PANEL. MOUNT ENCLOSURE TO 2'X2' PLYWOOD. COAT ALL SIX SIDES WITH FIRE RETARDANT PAINT.
3.	DENOTES CEILING MOUNTED DATA OUTLET. COORDINATE FINAL LOCATION OF OUTLET AFTER CUT TABLE IS IN PLACE.
4.	PROVIDE TELEPHONE GROUNDING BUS IN KITCHEN. GROUND BAR TO BE 1/4"X4"X1/8" 98% CONDUCTIVE COPPER INSTALLED ON 600 VOLT PORCELAIN INSULATOR MOUNTED AT 84" AFF. CONNECT TO BUILDING GROUNDING SYSTEM.

CABLE SPECIFICATIONS	
A.	6 CABLE RUNS PER POS STATION (POS, EMV, PHONE, PRINTER, 2 EXTRA FOR REDUNDANCY) 4 STATIONS MIN 24 CABLES.
B.	CABLES FOR CAMERA SYSTEM - 4 CABLES.
C.	CABLES FOR BUMPS/KITCHEN MONITORS - MIN 3 CABLES (2 EXTRA CABLES CAN BE ADDED FOR REDUNDANCY).
D.	CABLES FOR MENU BOARDS - MIN 3 CABLES (1 EXTRA CABLE CAN BE ADDED FOR REDUNDANCY).
E.	CABLES FOR KITCHEN PRINTERS (SALAD, CUT, DRIVER STATION) - MIN 3 CABLES (1 EXTRA CABLE CAN BE ADDED FOR REDUNDANCY).
F.	(OPTIONAL) ALARM SYSTEM AND OTHER MEDIA (4).



1 LOW VOLTAGE SYSTEM PLAN

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

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PROJECT NAME: 1310
 MARCO'S PIZZA

SHEET TITLE:

LOW VOLTAGE
SYSTEM PLAN

PROJECT NUMBER 25-086

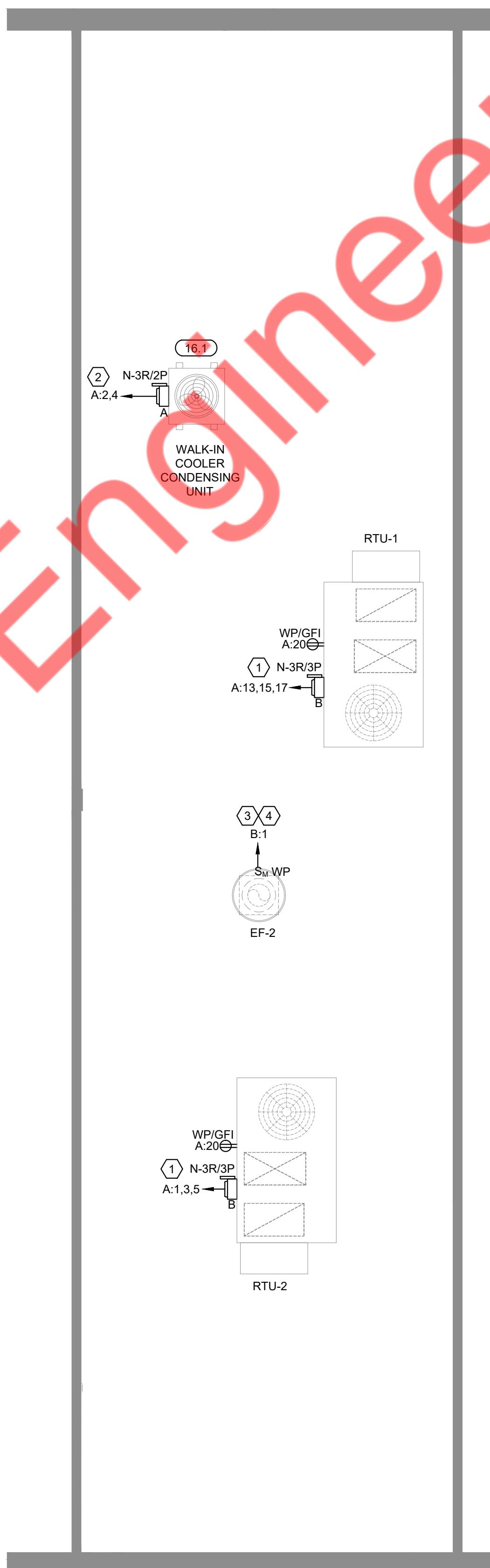
DATE 09-05-2025

SHEET NO.

E-2.1

ROOF POWER PLAN GENERAL NOTES:	
1.	ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS OF WALK-IN COOLER BEFORE PURCHASING BREAKER, CONDUIT, AND WIRING.
2.	ELECTRICAL CONTRACTOR SHALL NOT PENETRATE ROOF OF WALK-IN COOLER.
3.	WHERE PORTIONS OF A RACEWAY ARE SUBJECT TO DIFFERENT TEMPERATURES, AND WHERE CONDENSATION IS KNOWN TO BE A PROBLEM, AS IN COOLER AND FREEZER APPLICATIONS OR WHERE PASSING FROM WARM TO COLD AREAS, ELECTRICAL CONTRACTOR TO FILL THE RACEWAY WITH AN APPROVED MATERIAL TO PREVENT CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY.
4.	"FWE" ADJACENT TO DEVICE DENOTES FURNISHED WITH EQUIPMENT.
5.	ELECTRICAL CONTRACTOR TO VERIFY EXACT ELECTRICAL REQUIREMENTS WITH NAMEPLATE DATA ON PRIOR TO PURCHASING & INSTALLING WIRING AND CONDUIT.

ROOF POWER PLAN KEYED NOTES: #	
1.	E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED COORDINATE LOCATION OF DISCONNECT WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
2.	PROVIDE 20A/2P CIRCUIT FOR WALK-IN COOLER CONDENSER. E.C. SHALL COORDINATE WITH EQUIPMENT MANUFACTURER FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS IN FIELD.
3.	EF-2 SHALL BE CONTROLLED BY HOOD CONTROLS ALSO SHALL BE INTERLOCKED WITH RTU-1 & RTU-2. COORDINATE EXACT LOCATION AND CONTROLS WITH MECHANICAL CONTRACTOR AS PER THE MECHANICAL DRAWINGS.
4.	EXHAUST FANS FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. E.C. SHALL COORDINATE WITH MECHANICAL CONTRACTOR FOR SWITCHING & CONTROLS AND PROVIDE ALL NECESSARY WIRING REQUIRED.



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

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 MARCO'S PIZZA

SHEET TITLE:

ROOF POWER
PLAN

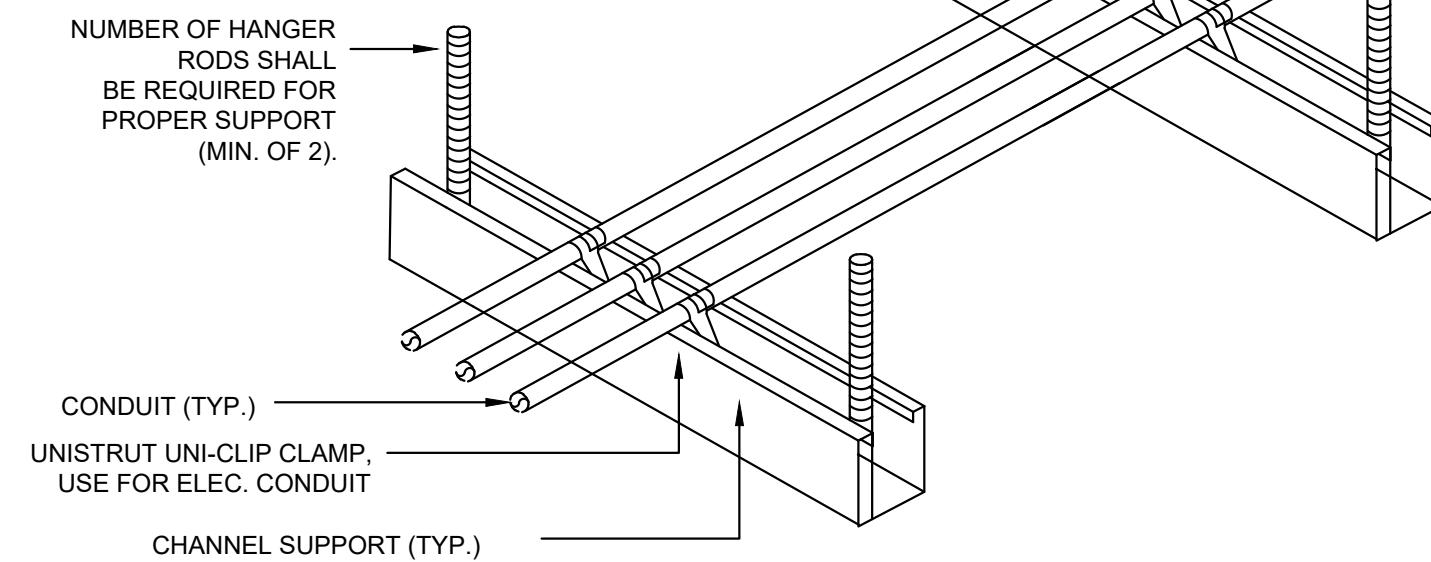
PROJECT NUMBER 25-086

DATE 09-05-2025

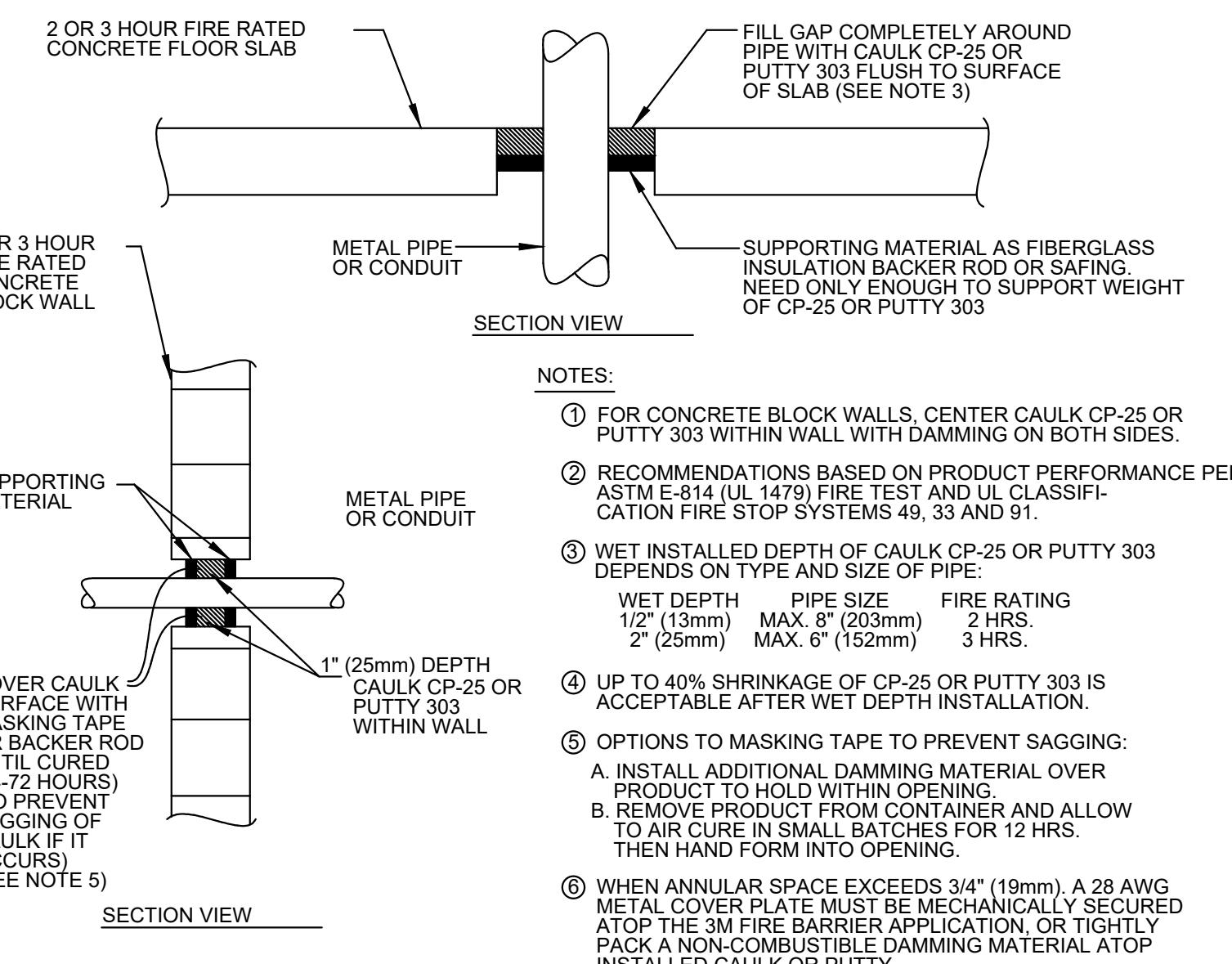
SHEET NO.

E-2.2

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



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

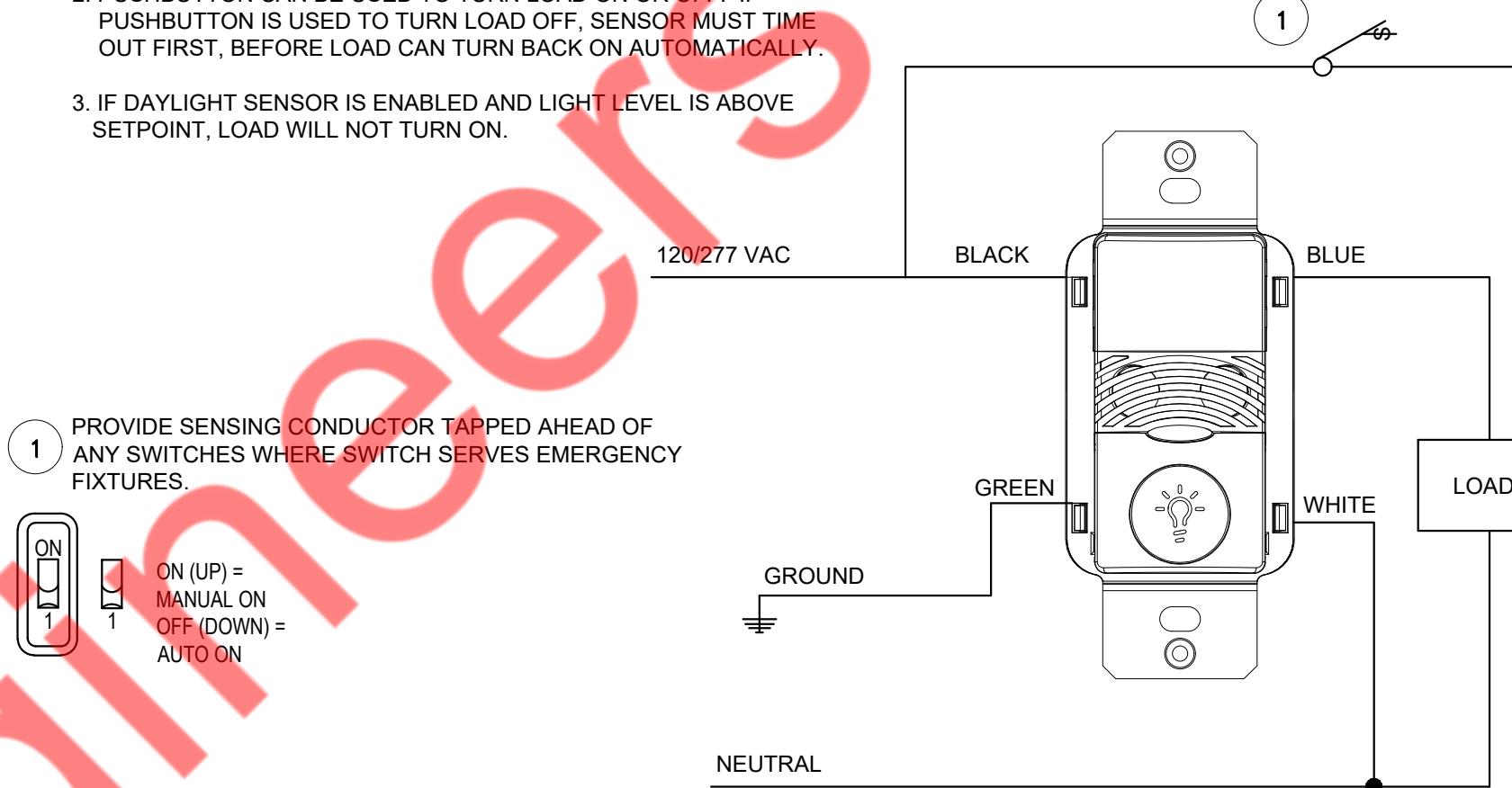


NOTES:
① FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
② RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
③ WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE.
WET DEPTH PIPE SIZE FIRE RATING
1/2" (13mm) MAX. 8" (203mm) 2 HRS.
2" (50mm) MAX. 6" (152mm) 3 HRS.
④ UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
⑤ OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO SOFTEN IN SMALL BOTTLES FOR 12 HRS. THEN HAND FORM INTO OPENING.
⑥ WHEN ANNUAL 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.

MANUAL MODE OPERATION:
1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.



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FRANCHISEE NAME:

PROJECT NAME: 1310
 INTERIOR UP-FIT

SHEET TITLE:

ELECTRICAL DETAILS

PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

E-3.0

PANEL: A (EX)							MOUNTING: SURFACE										
120/208 VOLTS,		3 PHASE,		4 WIRE			LOCATION: BOH										
MAIN CB		NA		MLO: 225A			BUS: EXISTING		FED FROM: EXISTING ELECTRICAL SERVICE								
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD		LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)	A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD		TRIP AMPS	CKT NO.
1				H	3.96		4.53				2#12, #12G, 3/4" C	0.57	H	COOLER CONDENSER (16.1)		2P-20	2
3	3P-45**	RTU-2		H	3.96	3#8, #10G, 3/4" C		4.53			2#12, #12G, 3/4" C	0.57	H				4
5				H	3.96						2#12, #12G, 3/4" C	1.20	L	STORE FRONT SIGN		20	6
7				E	1.44		1.80				2#12, #12G, 3/4" C	0.36	R	DATA RACK		20**	8
9	3P-20*	MIXER (18.1)		E	1.44	3#12, #12G, 3/4" C		1.94			2#12, #12G, 3/4" C	0.50	R	RECEPTACLE-POS(54.2),(54.3) & PHONE (43.2),(43.3)		20**	10
11				E	1.44			1.94			2#12, #12G, 3/4" C	0.50	R	RECEPTACLE-POS(54.4) & PHONE (43.4)		20**	12
13				H	3.72		4.22				2#12, #12G, 3/4" C	0.50	E	WIREMOLD (CAR TROOPER)		2P-20	14
15	3P-45**	RTU-1		H	3.72	3#8, #10G, 3/4" C		4.22			2#12, #12G, 3/4" C	0.50	E				16
17				H	3.72			4.22			2#12, #12G, 3/4" C	0.50	R	RECEPTACLE RECEP PRINTER (41.1),(41.2),(41.3)		20	18
19							0.36				2#12, #12G, 3/4" C	0.36	R	HVAC RECEPTACLE		20	20
21	2P-20	SPARE						0.96			2#12, #12G, 3/4" C	0.96	O	WH-1 (33.1)		20	22
23	20*	RECEPTACLE DISPLAY CASE REFRIGERATOR (28.1)		E	0.98	2#12, #12G, 3/4" C			1.31		2#12, #12G, 3/4" C	0.33	M	RCP-1		20	24
25	20*	RECEPTACLE DISPLAY CASE (4)		E	0.93	2#12, #12G, 3/4" C	0.97				2#12, #12G, 3/4" C	0.04	M	EF-1		20	26
27	20*	RECEPTACLE DOUGH ROLLER (6)		E	0.82	2#12, #12G, 3/4" C		0.82						SPARE		20	28
29	20	MENUBOARD (29.1)		R	0.36	2#12, #12G, 3/4" C			0.36					SPARE		20	30
31	20	FRONT BUILDING SIGNAGE		L	1.20	2#12, #12G, 3/4" C	1.20							SPARE		20	32
33	20	RECEPTACLE TV WALL MOUNTED (44.1) (44.2)		R	0.72	2#12, #12G, 3/4" C		0.72						SPARE		20	34
35	20	RECEPTACLE FREEZER (20)		E	0.28	2#12, #12G, 3/4" C			0.28					SPARE		20	36
37	20	SPARE						0.00						SPARE		20	38
39	20	SPARE						0.00						SPARE		20	40
41	2P-30	SPARE					4.18							4.18	O	44	
43		SPARE						4.70						4.70	O	46	
45	2P-30	SPARE							3.52					3.52	O	48	
TOTAL CONNECTED LOAD (KVA)							17.26	17.89	16.80								

PANEL: B (NEW)							MOUNTING: SURFACE										
120/208 VOLTS,		3 PHASE,		4 WIRE			LOCATION: BOH										
MAIN CB		NA		MLO: 125A			BUS: 125A		FED FROM: EXISTING PANEL A								
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD		LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)	A	B	C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD		TRIP AMPS	CKT NO.
1	20	EF-2		M	0.91	2#12, #12G, 3/4" C	1.10				2#12, #12G, 3/4" C	0.19	L	LIGHTING-SERVICE, WAITING AREA AND RESTROOM		20	2
3	20	HOOD CONTROL BOX (8.4) (1)		O	1.44	2#12, #12G, 3/4" C		2.06			2#12, #12G, 3/4" C	0.62	L	LIGHTING-KITCHEN AREA		20	4
5	20*	RECEPTACLE REFRIGERATOR PIZZA PREP (1)		E	0.64	2#12, #12G, 3/4" C			0.84		2#12, #12G, 3/4" C	0.20	L	WALK-IN COOLER LIGHT		20	6
7	20*	RECEPTACLE-REFRIGERATOR (3.2)		E	0.28	2#12, #12G, 3/4" C	0.58				2#12, #12G, 3/4" C	0.30	O	TIMECLOCK		20	8
9	20	RECEPTACLE WAITING AREA		R	0.36	2#12, #12G, 3/4" C		1.41			2#12, #12G, 3/4" C	1.05	E	WARMER OVERHEAD (15.1)		20	10
11	20	OVEN, CONVEYER (7.4) (1)		E	1.02	2#12, #12G, 3/4" C			1.82		2#12, #12G, 3/4" C	0.80	E	WARMER OVERHEAD (15.2)		20	12
13	20	OVEN, CONVEYER (7.4)		E	1.02	2#12, #12G, 3/4" C	1.82				2#12, #12G, 3/4" C	0.80	E	WARMER OVERHEAD (15b.1)		20	14
15	20	RECEPTACLE-RESTROOM		R	0.18	2#12, #12G, 3/4" C		1.23			2#12, #12G, 3/4" C	1.05	E	WARMER OVERHEAD (15b.2)		20	16
17	20	RECEPTACLE-KITCHEN AREA		R	0.36	2#12, #12G, 3/4" C			0.86		2#12, #12G, 3/4" C	0.50	R	RECEPTACLE-BUMP SCREENS (54a.1,54a.2), SCALE (2), RECEPT PRINTER (41.4)		20	18
19	20	55" TV		R	0.18	2#12, #12G, 3/4" C	0.68				2#12, #12G, 3/4" C	0.50	R	RECEPTACLE-REPORT PRINTER 42, SAFE 14, POS (54.1), PHONE (43.1)		20	20
21	20	SPARE						0.00						SPARE		20	22
23	20	SPARE						0.00						SPARE		20	24
25	20																

PLUMBING SYMBOL LIST	
— SAN	SANITARY SEWER (ABOVE FLOOR)
— SAN	SANITARY SEWER (UNDERGROUND)
— GSAN	GREASE WASTE (UNDERGROUND)
— FW	FILTER WATER PIPING
— V	VENT PIPING
— CW	COLD WATER PIPING
— HW	HOT WATER PIPING
— HWR	HOT WATER RETURN PIPING
— O	P-TRAP
— O	PIPE UP
— O	PIPE DROP
— O	CLEANOUT
— II	PLUGGED OUTLET/CLEANOUT
●	SHUT-OFF VALVE
●	POINT OF CONNECTION
□	BALANCING VALVE
●	RE-CIRCULATING PUMP

PLUMBING ABBREVIATIONS	
CO	CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
RCP	RE-CIRCULATING PUMP
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
GSAN	GREASE WASTE
GCO	GRADE CLEANOUT
WH	WATER HEATER
ET	EXPANSION TANK
FS	FLOOR SINK

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

BUILDING DEPARTMENT PLUMBING NOTES	
1.	ALL PLUMBING SYSTEMS (SANITARY WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 KENTUCKY ADMINISTRATIVE REGULATIONS (KAR).
2.	INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 815 KAR 20:090.
3.	PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER CHAPTER 20 SECTION 815 KAR 20:090.
4.	TRENCHING, EXCAVATION AND BACKFILL AS PER CHAPTER 20 SECTION 815 KAR 20:130.
5.	MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 815 KAR 20:020, 20:030, 20:120.
6.	DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER CHAPTER 20 SECTION 815 KAR 20:090, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 SECTION 815 KAR 20:090.
7.	VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 SECTION 815 KAR 20:060, 20:090.
8.	WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 SECTION 815 KAR 20:120.
9.	THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 SECTION 815 KAR 20:080.
10.	VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 20 SECTION 815 KAR 20:090.
11.	INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH CHAPTER 20 SECTION 815 KAR 20:150.
12.	GAS PIPING SHALL BE INSTALLED AS PER 2012 NATIONAL FUEL & GAS CODE (NFPA 54, 2012).

APPLICABLE CODES	
A.	2018 KENTUCKY BUILDING CODE (2015 IBC)
B.	2015 KENTUCKY MECHANICAL CODE (2015 IMC)
C.	KENTUCKY STATE PLUMBING CODE (CHAPTER 20 KENTUCKY ADMINISTRATIVE REGULATION)
D.	2017 NATIONAL ELECTRICAL CODE (NFPA 70, 2017)
E.	2012 KENTUCKY COMMERCIAL ENERGY CONSERVATION CODE (2012 IECC)
F.	2012 NATIONAL FUEL AND GAS CODE (NFPA 54, 2012)

PLUMBING SPECIFICATIONS	
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 UTILITIES 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.
1.	PIPE AND FITTINGS
2.	VALVES
3.	HANGERS AND SUPPORTS
4.	PLUMBING PIPING LAYOUT
5.	TESTS
6.	PLUMBING FIXTURES
7.	WATER HEATERS & ACCESSORIES
8.	MIXING VALVES
9.	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 DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
E.	SUBMIT 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.

PLUMBING SPECIFICATIONS	
1.05	DEFINITIONS
A.	FURNISH TO PURCHASE, PROCUER, 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.
1.06	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.	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.
G.	IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.
H.	REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.
I.	VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.
J.	IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
K.	PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.
L.	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.
M.	ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.
N.	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.
O.	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.
P.	AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.
Q.	INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS, WHERE PIPES ARE TO BE INSULATED. THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.
2.	INSTALLATION
2.01	GENERAL
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 RESPECT.
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 PIPE.
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 WORK 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 SERVICES 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 REPRESENT

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

B. GAS TANKLESS WATER HEATER (WH-1)

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

C. HOT WATER RE-CIRCULATING PUMP

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

GAS PIPING NOTES:

1. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE 2012 NATIONAL GAS CODE (NFPA 54, 2012).
2. GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES SCRIBED IN NFPA NO 54. ANY OTHER TEST AS REQUIRED BY THE LOCAL GAS INSPECTION DEPARTMENT OR GAS COMPANY SHALL ALSO BE PERFORMED.
3. MINIMUM GAS PIPING SIZING SHALL BE 3/4".
4. GAS PIPING COLOR/LABELS:
EXTERIOR:
A. LABEL ALL GAS PIPING "GAS/PRESSURE ON PIPE AT 5'-0" CENTERS.
B. COLOR: ON ROOF PAINT WITH TWO COATS OF YELLOW ENAMEL, ON VERTICAL WALLS PAINT TO MATCH WALL COLOR.
INTERIOR:
A. LABEL ALL GAS PIPING "GAS/PRESSURE", SPACING AND COLOR PER ANSI/ASME A13.1 CODE REQUIREMENTS.
5. GAS PIPING SUPPORTS:
EXTERIOR:
A. PIPING ROUTED ON ROOF SHALL BE STRAPPED TO MANUFACTURED SUPPORTS "QUICK-BLOCK" OR EQUAL. GAS SUPPORTS SPACED PER NFPA 54 7.2.5.
INTERIOR:
A. PIPING TO BE SUPPORTED BY CLEVIS HANGERS W/ THREADED ROD OR UNI-STRUT SYSTEM. GAS SUPPORTS SPACED PER NFPA 54 7.2.5.2.
6. GAS VALVES SHALL BE ANSI/CSA APPROVED, 125 PSI RATED, 2 PIECE, FULL PORT, BALL VALVES W/BRASS BODY AND BALL. PROVIDE W/ LEVER HANDLE.
7. PROVIDE UNIONS, FLANGES OR COUPLINGS AT CONNECTION TO ALL VALVES AND EQUIPMENT. DO NOT USE DIRECT WELDED OR THREADED CONNECTIONS TO VALVES, EQUIPMENT OR OTHER APPARATUS.
8. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
9. PROVIDE DIRT LEG, GAS VALVE AND GAS REGULATOR AT EACH PIECE OF EQUIPMENT INSTALLED IN ACCESSIBLE LOCATION WITHIN 36" OF EQUIPMENT. USE VENT-LESS REGULATORS INDOORS WHEN POSSIBLE. ROUTE VENTED REGULATOR VENTS TO EXTERIOR.

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

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09-11-2025 ISSUED FOR PERMIT

REVISIONS:

NO.	DATE	DESCRIPTION	BY
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FRANCHISEE NAME:

PROJECT NAME: 1310
 MARCO'S PIZZA

SHEET TITLE: PLUMBING SPECIFICATIONS

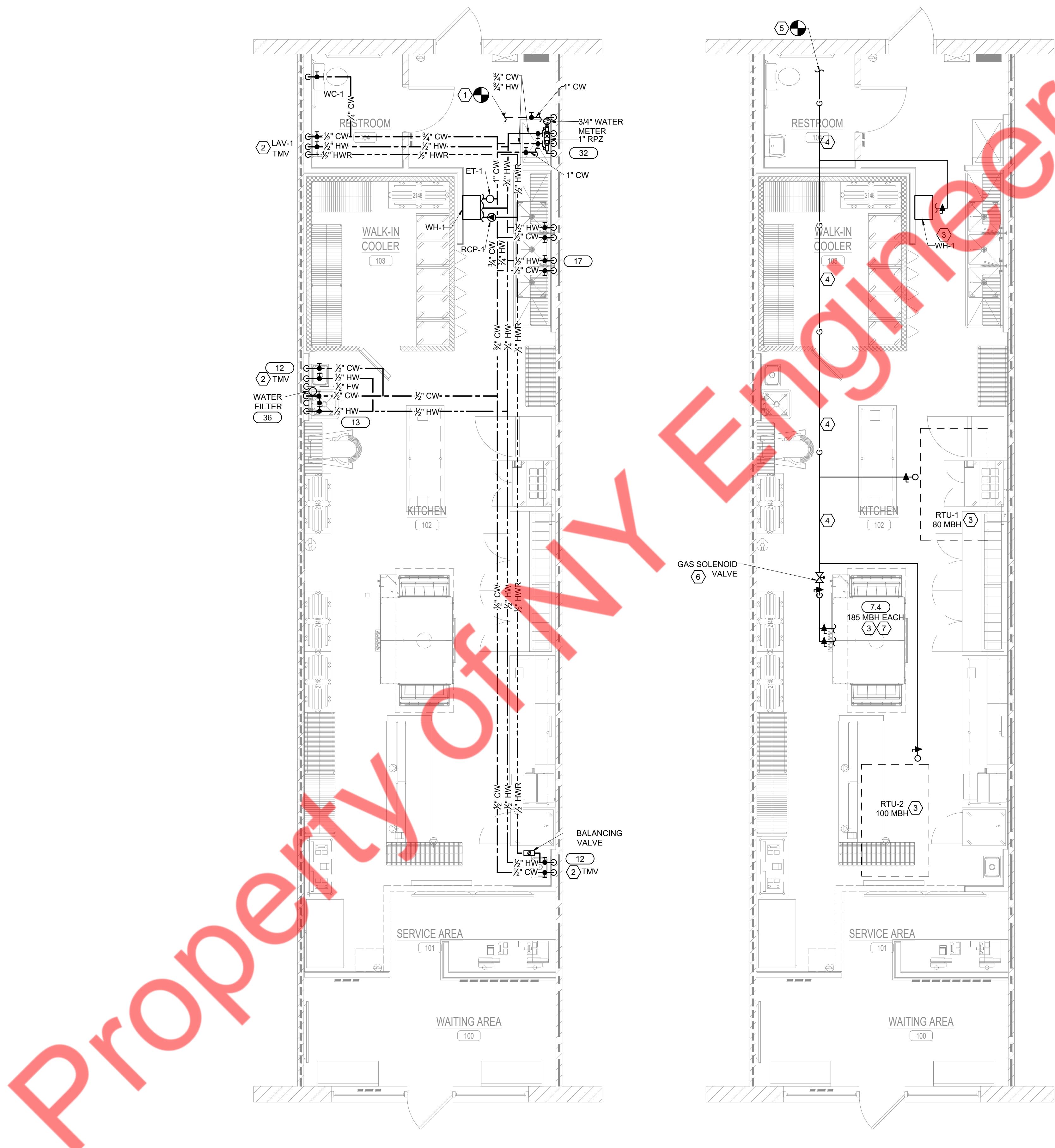
PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

P-0.2

SHEET 2 OF 6



PLUMBING KEY NOTES:						
1.	EXTEND AND CONNECT NEW 1" CW PIPING TO EXISTING CW PIPING IN SPACE WITH NEW RPZ AND NEW WATER METER. CONTRACTOR TO FIELD VERIFY THE EXACT TIE IN LOCATION, SIZE AND PRESSURE OF EXISTING CW PIPING.					
2.	PROVIDE AN ASSE 1070 TEMPERATURE MIXING VALVE FOR LAVATORY AND HAND SINK SET TEMPERATURE TO A MAXIMUM OF 110°F.					
3.	CONTRACTOR TO MAKE SURE THAT ADEQUATE INLET PRESSURE PROVIDED FOR GAS FIRED RTU-1, RTU-2, WH-1 & OVENS.					
4.	GAS PIPING RUNNING THROUGH CEILING, SHOWN ON PLAN FOR REFERENCE.					
5.	CONNECT NEW 2" GAS PIPING TO THE NEW GAS METER HAVING MINIMUM 850 MBH CAPACITY FOR THE SPACE. CONTRACTOR TO FIELD VERIFY THE EXACT SIZE, LOCATION AND PRESSURE AND CAPACITY OF NEW GAS METER AND SERVICE. UPGRADE IF REQUIRED.					
6.	PLUMBING CONTRACTOR SHALL INSTALL GAS SOLENOID VALVE (NO) ABOVE CEILING. TIE VALVE INTO HOOD FIRE SUPPRESSION SYSTEM. VALVE SHALL CLOSE UPON HOOD SUPPRESSION ACTIVATION. PROVIDE MANUAL RESET.					
7.	PROVIDE MINIMUM 2" GAS LINE TO OVENS.					

TANKLESS WATER HEATER CALCULATIONS				
SR. NO.	FIXTURE	QUANTITY	FLOW RATE (GPM)	
			PER FIXTURE	TOTAL
01	3 COMPARTMENT SINK	2	1	2.0
02	HAND SINK	2	0.5	1.0
03	MOP SINK	1	1.5	1.5
04	LAVATORY	1	0.5	0.5
05	1 COMPARTMENT SINK	1	1	1
TOTAL FLOW RATE (GPM)			6.0	

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NO. DATE DESCRIPTION BY

FRANCHISEE NAME:

PROJECT NAME: 1310
 MARCO'S PIZZA

SHEET TITLE:
PLUMBING
WATER AND
GAS FLOOR
PLAN

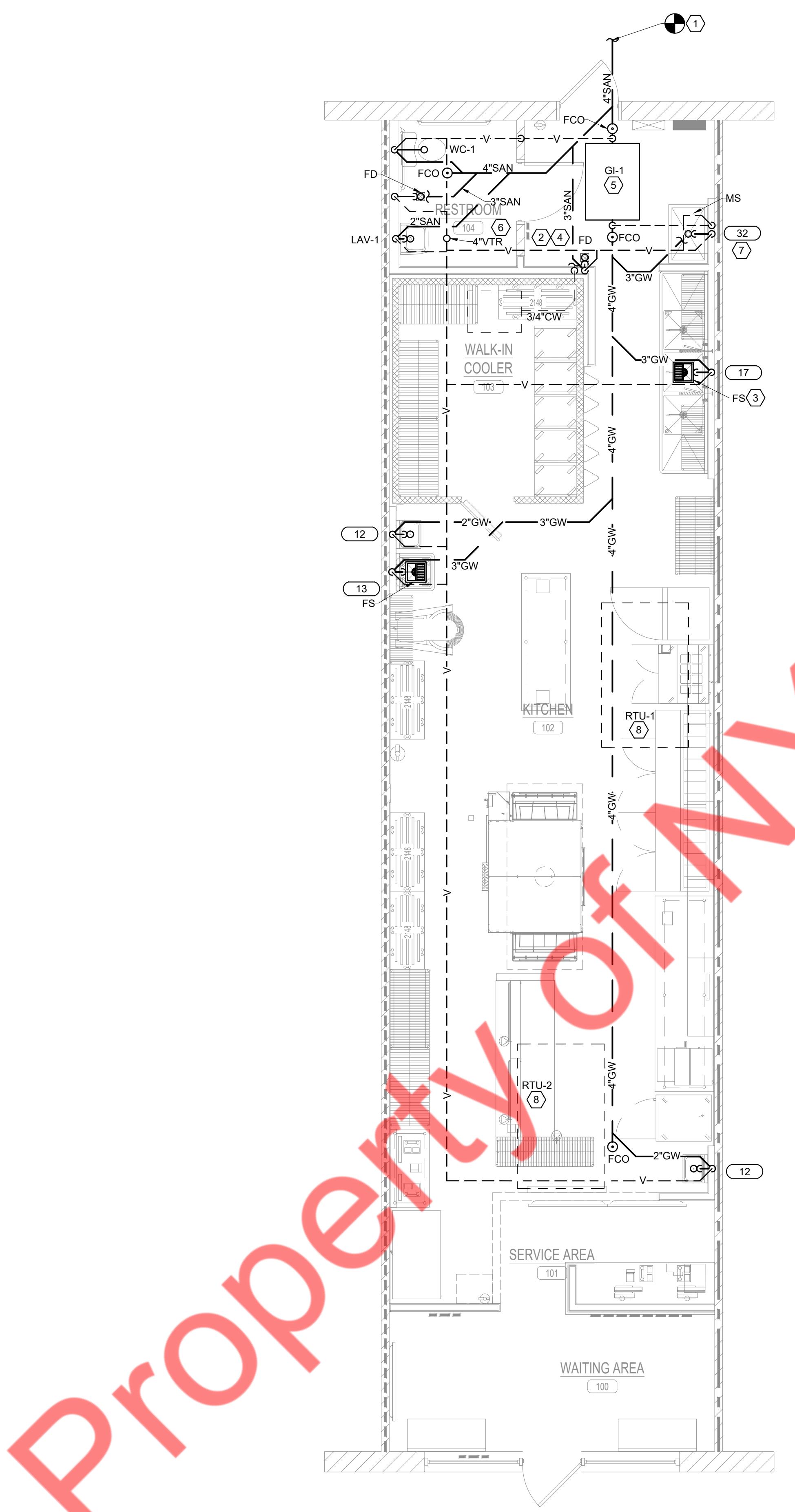
PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

P-1

SHEET 3 OF 6



1 PLUMBING SANITARY FLOOR PLAN
SCALE: 1/4" = 1'-0"

PLUMBING KEY NOTES:	
1.	EXTEND AND CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY PIPING IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, ROUTING, DIRECTION OF FLOW AND INVERT OF EXISTING SANITARY PIPING ON SITE.
2.	ROUTE INDIRECT DRAIN FROM WATER HEATER TO FLOOR DRAIN WITH APPROVED AIR GAP.
3.	ROUTE INDIRECT DRAIN FROM THREE COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.
4.	ROUTE CONDENSATE DRAIN LINE FROM COOLER TO FLOOR DRAIN WITH APPROVED AIR GAP.
5.	INDOOR RECESSED GREASE INTERCEPTOR SCHIER GB-75 OR SIMILAR. CONTRACTOR TO INSTALL GI-1 AS PER MANUFACTURER'S INSTRUCTIONS AND LOCAL GUIDELINES. COORDINATE WITH LANDLORD FOR FINAL LOCATION.
6.	NEW 4" VTR. CONTRACTOR TO MAINTAIN 10 FEET OF DISTANCE AWAY FROM ANY OUTSIDE AIR INTAKE.
7.	ROUTE INDIRECT DRAIN FROM BACKFLOW PREVENTER TO MOP SINK WITH APPROVED AIR GAP.
8.	CONDENSATE DRAIN: NEW INDIRECT CONDENSATE DRAIN FROM RTU-1 AND RTU-2 TO THE NEAREST PLUMBING FIXTURE (MOP SINK/LAV). CONDENSATE PIPING SHALL REMAIN MAINTAIN A SLOPE OF NOT LESS THAN 1%. CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE A NUISANCE.

GREASE TRAP SIZING CALCULATIONS (GI-1):							
SR.NO	FIXTURE	QUANTITY	DIMENSIONS			VOLUME CU. IN. / GALLONS	% USAGE 1 MIN 2 MIN GPM GPM
			LENGTH	WIDTH	DEPTH		
1	3 COMPARTMENT SINK	1	24	24	14	24,192 105	0.75 78.75 39.37
2	HAND SINK	2	10	14	5	1,400	6.06 0.75 4.54 2.27
3	MOP SINK	1	24	36	10	8,640	37.40 0.75 28.05 14.02
4	1 COMPARTMENT SINK	1	18	18	14	4,536	19.63 0.75 14.72 7.37
						TOTAL GPM	126.04 63.03
						REQUIRED GREASE INTERCEPTOR MODEL FOR MARCO'S PIZZA	SCHIER GB-75

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REVISIONS:

NO. DATE DESCRIPTION BY

FRANCHISEE NAME:

PROJECT NAME: 1310
Marco's PIZZA
INTERIOR UP-FIT

SHEET TITLE:
PLUMBING
SANITARY
FLOOR PLAN

PROJECT NUMBER 25-086

DATE 09-05-2025

SHEET NO.

P-1 1

PLUMBING FIXTURE SCHEDULE

TAG	Fixture Type	HW	CW	VENT	Waste	Description		Remark
WC-1	BARRIER-FREE WATER CLOSET, TANK-TYPE	—	3/4"	2"	4"	WATER CLOSET SHALL BE EQUAL TO AMERICAN STANDARD MODEL # 2467.100, WHITE, VITREOUS CHINA, ELONGATED BOWL, TANK TYPE, 1.1 GPF, FLOOR MOUNTED, BOTTOM OUTLET, 12" ROUGH-IN. SEAT SHALL BE EQUAL TO CHURCH MODEL #9500SSCT, ELONGATED WHITE OPEN FRONT SEAT LESS COVER. WATER CLOSET SHALL BE PROVIDED WITH CHROME PLATED SUPPLY WITH LOOSE KEY STOP EQUAL TO MCGUIRE #172.	Fixture rim to finished floor mounting height shall be 17". Locate flush lever on wide side of stall	
LAV-1	BARRIER-FREE LAVATORY, WALL HUNG	1/2"	1/2"	1-1/2"	2"	LAVATORY SHALL BE EQUAL TO AMERICAN STANDARD "LUCERNE" MODEL #0356.012.020, VITREOUS CHINA, WALL HUNG, THREE HOLE PUNCH, 4" CENTERS, CONCEALED WALL HANGER. PROVIDE FAUCET EQUAL TO AMERICAN STANDARD MODEL # 2275.503 CENTERSET FAUCET WITH LEVER HANDLES, 0.5 GPM AERATOR. PROVIDE LAVATORY COMPLETE WITH GRID DRAIN, PREWRAPPED INSULATED, CAST BRASS, OFFSET TAILPIECE AND P-TRAP WITH CLEANOUT (EQUAL TO MCGUIRE #PW2150WC) AND CHROME PLATED SUPPLIES (EQUAL TO MCGUIRE #175).		
32	MOP SINK	3/4"	3/4"	2"	3"	SINK SHALL BE EQUAL TO FLORESTONE MODEL #90, 36"X36"X12", PRECAST TERRAZZO WITH 6" DROP FRONT. PROVIDE FAUCET EQUAL TO DELTA MODEL #2879, INTEGRAL STOPS, VACUUM BREAKER, PAIL HOOK, THREADED SPOUT, AND LEVER HANDLES. PROVIDE SINK COMPLETE WITH MOP HANGER, HOSE WITH BRACKET, AND P-TRAP.	Provide check valve stops on HW & CW supplies with access door above faucet.	
FD	FLOOR DRAIN	—	—	2"	4"	FLOOR DRAIN SHALL BE EQUAL TO ZURN MODEL #ZS4-15 TYPE "B" 6" SQUARE POLISHED BRONZE STRAINER, SEDIMENT BUCKET, VANDAL PROOF & TRAP PRIMER CONNECTION, DEEP SEAL P-TRAP.	Provide trap guard connection as required.	
FS	FLOOR SINK	—	—	2"	3"	FLOOR SINK SHALL BE EQUAL TO ZURN MODEL #FD2376-T, 3" GRATE. PROVIDE FLOOR SINK WITH P-TRAP.	Provide trap primer connection as required.	
FCO	FLOOR CLEANOUT	—	—	—	—	FLOOR CLEANOUT SHALL BE EQUAL TO ZURN MODEL #ZS-1400-VP, CLEANOUT.	GAS/WATER TIGHT ABS PLUG	
WCO	WALL CLEANOUT	—	—	—	—	FLOOR CLEANOUT SHALL BE EQUAL TO ZURN MODEL #ZS-1468, ACCESS COVER AND PLUG.	GAS/WATER TIGHT ABS PLUG	
TP	TRAP PRIMER	—	—	—	—	TRAP PRIMER SHALL BE EQUAL TO ZURN MODEL #Z1021 WATER SAVER, P-TRAP PRIMER.	GAS/WATER TIGHT ABS PLUG	

THERMOSTATIC MIXING VALVE SCHEDULE

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

PLUMBING PIPE MATERIAL SCHEDULE

PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
SANITARY DRAINAGE & VENT (ABOVE GRADE)	SAN OR V	SCH.40 PVC/ CAST IRON / COPPER
SANITARY DRAINAGE & VENT (BELOW GRADE)	SAN OR V	SCH.40 PVC/ CAST IRON / COPPER
POTABLE WATER (ABOVE GRADE)	CW, HW OR HWR	TYPE I, HARD DRAWN COPPER PIPE AND FITTINGS (CPVC PIPING AND FITTINGS OR PEX PIPING AND FITTINGS ALLOWED IF AHJ AND LANDLORD PERMITS).
POTABLE WATER - 2" & SMALLER (BELOW GRADE)	CW, HW OR HWR	TYPE K, SOFT ANNEALED COPPER

*ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS, WATER DISTRIBUTION PIPING SYSTEMS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF KENTUCKY STATE PLUMBING CODE. PVC ONLY WHERE ALLOWABLE PER LOCAL AHJ. PVC SHALL NOT BE USED WHERE EXPOSED IN RETURN AIR PLenum, OR WHERE WATER TEMPS EXCEED 140°F

FOOD SERVICE PLUMBING SCHEDULE

TAG	Fixture Type	HW	CW	VENT	Waste	Gas MBH	REMARK	
							MANUFACTURER	MODEL NUMBER
7.4	OVEN, DOUBLE	—	—	—	—	370	2 UNITS (DOUBLE)	
17	SINK, 3 COMPARTMENT	1/2"	1/2"	2"	FS - INDIRECT			
12	HAND SINK	1/2"	1/2"	1-1/2"	2" - DIRECT		2 UNITS. PROVIDE MIXING VALVE MV-1	
32	MOP SINK	3/4"	3/4"	2"	3" - DIRECT			
13	SINK, 1 COMPARTMENT	1/2"	1/2"	2"	FS - INDIRECT			

PLUMBING EQUIPMENT NOTES:

- IT SHALL BE THE PLUMBING CONTRACTORS RESPONSIBILITY TO MAKE ALL FINAL CONNECTIONS FROM KITCHEN/BAR EQUIPMENT TO THE PLUMBING AS SHOWN ON THIS PLAN.
- THE PLUMBING CONNECTION SCHEDULE ON THIS PLAN RELATES REQUIRED CONNECTIONS TO INDIVIDUAL EQUIPMENT ONLY.
- PLUMBING CONTRACTOR SHALL REFER TO "KITCHEN EQUIPMENT COMPANY" CUT SHEETS FOR ALL ROUTING OF FINAL CONNECTIONS TO EQUIPMENT AND EXACT ROUGH-IN LOCATIONS.
- PLUMBING CONTRACTOR SHALL MOUNT ALL FLOOR SINKS WITH FINISHED FLOOR ELEVATION.
- ALL FLOOR DRAINS ARE WASHED BY HOSE BIBBS LOCATED IN BATHROOMS AND KITCHEN.

EXPANSION TANK SCHEDULE

TAG	DESCRIPTION	VOLUME (GALLONS)	DIAMETER (INCHES)	HEIGHT (INCHES)	SELECTION BASED ON		REMARKS
					MANUFACTURER	MODEL NUMBER	
ET-1	BLADDER TYPE	2.0	8"	14"	AMTROL	ST-5C-DD	NOTE 1

NOTES:

1. INSTALL EXPANSION TANK ON IN-COMING COLD WATER PER MANUFACTURERS REQUIREMENTS.

INSTANTANEOUS GAS WATER HEATER SCHEDULE

TAG	UNIT TOTAL	STORAGE GALLONS	FLOW RATE (GPM @ RISE)	INPUT MBH	MANUFACTURER & MODEL NO.	REMARKS	
						MANUFACTURER	MODEL NUMBER
WH-1	1	0	6.5 GPM @ 90°F	300	NORITZ NCC300		

GAS LOAD REQUIREMENTS

TAG	DESCRIPTION	QTY	INPUT MBH	TOTAL CPH	CAPACITY		SELECTION BASED ON	REMARKS/OPTIONS
					WATER (GAL)	GREASE (LBS)	SOLIDS (CU/FT)	OIL (GAL)
RTU-1	ROOF TOP UNIT - 1	1	80	80				
RTU-2	ROOF TOP UNIT - 2	1	100	100				
OVEN	PIZZA OVEN	2	185	370				
WH-1	WATER HEATER	1	300	300				
	TOTAL		850					

GAS PIPE SIZING

PIPE SIZE (INCHES)		CAPACITY (MBH)	
1/2"		44	
3/4"		92	
1"		173	
1-1/4"		355	
1-1/2"		532	
2"		1,020	

2012 NATIONAL FUEL GAS CODE (NFGA 54, 2012), TABLE 6.2.1(b) SCHEDULE 40
METALLIC PIPE.
TOTAL GAS INPUT : 850 MBH
INLET PRESSURE : LESS THAN 2 PSI
PRESSURE DROP : 0.5 INWC
FITTINGS FACTOR : 40%
TOTAL EQUIVALENT LENGTH : 125 FT

