

HVAC ABBREVIATIONS

A	AMPS
AFF	ABOVE FINISHED FLOOR
AMB	AMBIENT
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
C.O.	CLEAN OUT
DIA	DIAMETER
(E)	EXISTING
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
TEF	TOILET EXHAUST FAN
(E)RTU	EXISTING ROOF TOP UNIT FAN
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
'F	DEGREE FAHRENHEIT
FLA	FULL LOAD AMPS
FBM	FEET PER MINUTE
FT	FOOT OR FEET
HP	HORSEPOWER
KW	KILOWATT
HZ	HERTZ
IN	INCH
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTU'S PER HOUR
MCA	MAXIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MOCF	MAXIMUM OVERCURRENT PROTECTION
(N)	NEW
N T S	NOT TO SCALE
OA	OUTSIDE AIR
PH	PHASE
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SHC	SENSIBLE HEAT CAPACITY
SQ. FT.	SQUARE FEET
T	THERMOSTAT
TA	TRANSFER AIR
UC	UNDERCUT
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
KEF	KITCHEN EXHAUST FAN

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HVAC GENERAL NOTES

- ALL DRAWINGS ARE CONCEPTUAL AND SCHEMATIC AND ARE INTENDED FOR USE AS A DESIGN/BUILD GUIDELINE. THE CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS AND ADJUSTING OR MODIFYING THE SPECIFIC ELEMENTS OF THEIR WORK AS REQUIRED TO MEET THE DESIGN INTENT. THE CONTRACTORS ARE RESPONSIBLE FOR THE FOLLOWING:
 - COORDINATION WITH OTHER TRADES.
 - PROVIDING ADDITIONAL DRAWINGS, CALCULATIONS AND OTHER DOCUMENTATION REQUIRED FOR THE BUILDING DEPARTMENT. THE MECHANICAL CONTRACTOR SHALL DOCUMENT THE INSTALLATION AND PROVIDE ALL TESTS REQUIRED TO SUBSTANTIATE CODE COMPLIANCE AS REQUIRED BY THE BUILDING DEPARTMENT AND LOCAL INSPECTOR. CONTRACTOR SHALL SUBMIT FINAL AS-BUILT DRAWINGS TO BUILDING DEPARTMENT FOR RECORD AT COMPLETION.
- MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE, NOT SHOWING EVERY ITEM IN EXACT LOCATION OR DETAIL. MEASUREMENTS AND LOCATIONS MUST BE FIELD VERIFIED AND COORDINATED WITH ARCHITECTURAL, HVAC, FIRE PROTECTION, STRUCTURAL, ELECTRICAL AND OTHER BUILDING DRAWINGS.
- CONTRACTOR TO INCLUDE IN BID ALL COSTS TO MAKE FIELD COORDINATION AND ADJUSTMENT TO DUCTWORK FOR FIT INTO EXISTING STRUCTURE. CONTRACTOR SHALL VERIFY AND FIELD COORDINATE FINAL LOCATION OF MECHANICAL EQUIPMENT.
- FURNISH ALL LABOR, MATERIALS, TOOLS, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE HEATING, VENTILATING, AIR CONDITIONING SYSTEM. INCLUDE ANY LABOR AND MATERIAL NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO PROVIDE A COMPLETE AND OPERATING SYSTEM. ALL WORK SHALL BE INSTALLED IN A PROFESSIONAL MANNER AND SHALL MEET ALL THE REQUIREMENTS OF THE STATE BUILDING CODE, CITY BUILDING CODE, SAFETY AND HEALTH CODES, NFPA CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. ALL COSTS FOR SAID REQUIREMENTS SHALL BE INCLUDED IN THIS CONTRACTORS BID PRICE.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS AND PERFORM ALL TESTS CALLED FOR OR REQUIRED AS A PART OF HIS WORK. FURNISHED APPROVED CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL TRADES, LANDLORD REQUIREMENTS, CEILING HEIGHTS AND EXISTING STRUCTURAL CONDITIONS PRIOR TO FABRICATION OF ANY DUCTWORK OR ORDERING OF ANY EQUIPMENT.
- ALL INSTALLATION OF THE MECHANICAL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATION AND CLEARANCE REQUIREMENTS.
- ALL HVAC WORK SHALL BE IN ACCORDANCE WITH NFPA 90A, 90B, 96, 94 AND NEC 101. LIFE SAFETY CODE.
- INSTALLATION SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES, AND WITH LATEST ASHRAE PUBLICATIONS. WORK SHALL BE NEAT AND WORKMANSHIP SHALL BE ACCEPTABLE TO BUILDING STANDARDS.
- CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE TEMPERATURE CONTROL SYSTEM TO INCLUDE: PANELS, MODULES, RELAYS, WIRING, THERMOSTATS, SENSORS, DAMPERS, ACTUATORS AND ALL MISCELLANEOUS ITEMS AS REQUIRED TO FULFILL THE DESIGN INTENT AS INDICATED ON THE PLANS AND IN THE CODED NOTES. THERMOSTATS AND SENSORS SHALL BE LOCATED GENERALLY AS SHOWN BUT THEIR EXACT LOCATION SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL MOUNTED WORK.
- DURING THE BIDDING PERIOD, EACH CONTRACTOR SHALL VISIT THE SITE TO DETERMINE CONDITIONS AFFECTING THE WORK. BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK REQUIRED CONDITIONS IN EVIDENCE THEREBY SHALL NOT BE JUSTIFICATION FOR ADDITIONAL COMPENSATION.
- THE EQUIPMENT SHALL BE LOCATED TO ALLOW FOR EASY ACCESS FOR SERVICING, ADJUSTING OR MAINTENANCE AND SPACE FOR REMOVAL OF INTERNAL ASSEMBLIES. PROVIDE MINIMUM CLEARANCES FOR ALL EQUIPMENT PER THE MANUFACTURERS RECOMMENDATIONS.
- PROVIDE ALL CONTROL EQUIPMENT, MOTOR STARTERS, RELAYS, LINE VOLTAGE CONTROLS, TRANSFORMERS, LOW VOLTAGE CONTROLS, AND DEVICES NECESSARY FOR THE COMPLETE OPERATION OF THE HEATING AND AIR CONDITIONING AND VENTILATING SYSTEM.
- ALL LOW VOLTAGE WIRING AND CONDUIT REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
- SMOKE DETECTORS WIRED BY DIVISION 16.
- PROVIDE ALL FANS AND ROOFTOP UNITS WITH RELAYS TO SHUT DOWN WHEN FIRE ALARM IS INITIATED. COORDINATE LOCATION WITH THE ELECTRICAL CONTRACTOR FOR THE FIRE ALARM WIRING.
- IN THE EVENT OF FAN SHUT DOWN, ALL DUCT MOUNTED DETECTORS SHALL REMAIN IN OPERATION.
- ALL WORK SHALL BE IN STRICT ACCORDANCE WITH STATE AND LOCAL CODES AND ORDINANCES AND THE NATIONAL ELECTRIC CODE.
- THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS PRIOR TO PURCHASING OR INSTALLING EQUIPMENT AND SYSTEMS INDICATED ON THE CONTRACT DOCUMENTS. PRIOR TO THE SUBMITTAL THE CONTRACTOR SHALL VERIFY THAT ADEQUATE SPACE EXIST FOR THE SUBMITTED EQUIPMENT. SHOP DRAWINGS MUST BE REVIEWED BY THE ENGINEER AND ARCHITECT.
- ALL THE BARE METAL SURFACES SHALL BE PRIMED AND PAINTED TO

- PREVENT ANY RUST, INCLUDING, BUT NOT LIMITED TO, ANGLE FRAMING, UNIT SUPPORTS, MOUNTING HARDWARE, ETC. ANY PAINTING OF DUCTWORK SHALL BE VERIFIED WITH ARCHITECT.
- CONTRACTOR TO PROVIDE TENANT WITH AS-BUILT DRAWINGS OF ALL CHANGES OR MODIFICATIONS MADE IN THE FIELD, TO THE ORIGINAL SET OF CONSTRUCTION DOCUMENTS, FOR TURN-OVER TO THE ARCHITECT/ENGINEER UPON COMPLETION OF THE PROJECT. PROVIDE ALL EQUIPMENT SHOP DRAWINGS, INFORMATION ON CONTROL DEVICES, CONTROL WIRING DIAGRAMS AND OTHER PERTINENT INFORMATION AT COMPLETION OF PROJECT.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE MECHANICAL EQUIPMENT COMPONENTS ARE INSTALLED AT LOCATIONS AND ELEVATIONS WHICH MAKE THEM READILY ACCESSIBLE FOR ROUTINE MAINTENANCE WITHOUT REQUIRING ANY EXTRAORDINARY MEASURES.
 - THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING ALL WARRANTIES ON EQUIPMENT WHICH HE INSTALLS. THIS INCLUDES ALL CONDENSERS, REFRIGERANT PIPES, AND OTHER ITEMS FURNISHED BY OTHERS AS WELL AS THOSE FURNISHED BY HIM.
 - FIELD VERIFY THE EXACT LOCATION OF ALL EQUIPMENT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION. INFORM OWNER OF ANY EQUIPMENT ITEMS THAT REQUIRE RELOCATION.
 - CONTRACTOR SHALL VERIFY THAT ALL EQUIPMENT, AS SHOWN ON THESE DRAWINGS, WILL NOT CONFLICT WITH ANY DRAINS, VENTS, MECH. PIPING OF ANY KIND, ELECTRICAL, ETC.
 - PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE CONNECTIONS TO ALL MOVING MACHINERY.
 - DUCT DIMENSIONS SHOWN ARE INSIDE NET DIMENSIONS, ADD TO SHEET METAL SIZE FOR INSULATION THICKNESS. HOLD DUCTWORK TIGHT TO UNDERSIDE OF STRUCTURE UNLESS OTHERWISE NOTED OR REQUIRED BY FIELD CONDITIONS. IT IS REQUIRED TO COORDINATE EXACT MOUNTING HEIGHT IN FIELD WITH SITE INVESTIGATION. SUPPLY RETURN, OUTSIDE AIR AND RELIEF AIR DUCTS SHALL BE SHEET METAL AND BE EXTERNALLY INSULATED WITH OWENS CORNING TYPE 150 2" THICK, FOIL FACED FIBROUS GLASS BLANKET INSULATION WITH A MIN R-6.4 VALUE, EQUAL IS APPROVED. INSULATION WRAP SHALL BE SEALED WITH FAB AND MASTIC.
 - ALL DUCTWORK SHALL MAINTAIN SYSTEM PRESSURE. THE AIR DISTRIBUTION COMPONENTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA REQUIREMENTS. TWO INCH PRESSURE CLASS.
 - DUCT INSULATION CLOSURE SYSTEM SHALL CONSIST OF GLASS FABRIC AND NON MIGRATING MASTIC, SEAL AIR TIGHT.
 - ALL FLEXIBLE DUCTS SHALL BE SUPPORTED EVERY 4'-0" WITH 2" WIDE GALVANIZE, STEEL BANDS. MINIMUM ONE PER EACH SECTION OF FLEXIBLE DUCT. MAXIMUM LENGTH OF FLEX DUCT SHALL BE 5'-0" LONG AND SHALL MEET INSTALLATION AND MATERIAL REQUIREMENTS OF LOCAL CODES.
 - NO FLEXIBLE DUCTS SHALL PASS THROUGH FIRE WALLS, OR BE CONNECTED TO ANY METAL DUCT WITH-IN 5'-0" FROM EITHER SIDE OF THE FIREWALL.
 - ALL BRANCH TAKE-OFFS SHALL BE PROVIDED WITH MANUAL BALANCING DAMPERS LOCATED ABOVE ACCESSIBLE CEILING AS CLOSE TO MAIN TRUNK AS POSSIBLE. WHEN AIR DEVICE IS NOT ACCESSIBLE PROVIDE DAMPER AT AIR DEVICE.
 - CONTRACTOR IS RESPONSIBLE FOR COORDINATING BOX-OUT LOCATIONS FOR ALL DRYWALL MOUNTED AIR DEVICES WITH GENERAL CONTRACTOR AND CEILING FRAMING. CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH LIGHTING LAYOUTS AS REQUIRED.
 - ALL DUCTWORK BEHIND RETURN AIR DEVICE PLENUMS SHALL BE PAINTED FLAT BLACK.
 - ALL SUPPLY DUCT BENDS FROM THE VERTICAL TO HORIZONTAL AND ANGLED TURNS OF DUCTWORK SHALL HAVE TURNING VANES INSTALLED.
 - PROVIDE SMOOTH TRANSITIONS AT EQUIPMENT AND AIR DEVICES TO MATCH CONNECTION SIZES. ALL DUCTWORK SHALL BE SHEET METAL FABRICATED IN ACCORDANCE WITH ASHRAE GUIDE AND SMACNA MANUAL LATEST EDITIONS.
 - THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT AIR BALANCING AGENCY SUBSEQUENT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE. THE T&B AGENCY CAN ONLY ACT AS HIS OWN REPORTING AGENCY IF SUITABLE INSTRUMENTS HERINAFTER REQUIRED ARE DEMONSTRATED TO BE PART OF HIS NORMAL PROCEDURE TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE. THE T&B AGENCY SHALL BE AABC OR NEBB CERTIFIED. CONTRACTOR SHALL PROVIDE LANDLORD WITH WATER AND AIR BALANCE REPORT.
 - IT SHALL BE THE RESPONSIBILITY OF THIS T&B AGENCY TO PROVIDE THE LOCAL BUILDING DEPARTMENT AND OWNER WITH PROPER TEST & BALANCE DATA ON AABC OR NEBB FORMS.
 - BUILDING AIR SYSTEMS SHALL BE BALANCED PER DATA INCLUDED ON THE DRAWINGS TO ACHIEVE RELATIVE AIR VOLUMES AS INDICATED ON THE DRAWINGS AND SCHEDULED HEREIN. REFER TO AIR FLOW DIAGRAM DETAIL.
 - ALL ROOFTOP EQUIPMENT TO BE SET LEVEL AND PLUMB.

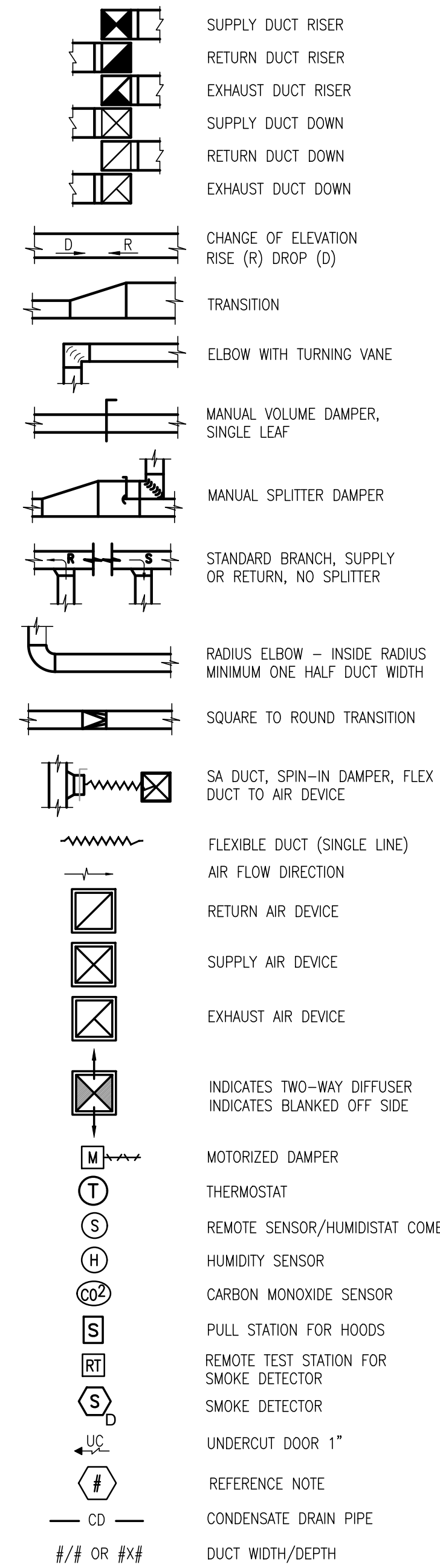
HOOD & GREASE EXHAUST DUCT NOTES

- EXHAUST HOODS SHALL BE CONSTRUCTED OF 16 GAUGE GALVANIZED OR 18 GA. STAINLESS STEEL WITH ALL EXTERNAL SEAMS AND JOINTS CONTINUOUSLY WELDED 100% LIQUID TIGHT. EXHAUST HOODS SHALL MEET OR EXCEED THE REQUIREMENTS OF NFPA 96, ALL LOCAL CODES AND SHALL BEAR THE NSF SEAL OF APPROVAL. SEE CAPTIVEARE HOOD DRAWING FOR INFORMATION.
- ALL LIGHTS USED IN THE HOODS SHALL BE U.L. LISTED FOR CANOPY HOOD USE AND OF THE INCANDESCENT TYPE AND SHALL BE WIRED TO COME ON THRU A SWITCH LOCATED ON THE HOOD FACE.
- THE EXHAUST HOODS SHALL HAVE ALL STAINLESS STEEL BAFFLE FILTERS AND SHALL HAVE A FIRE ACTUATED DAMPER IN THE MAKE-UP AIR COLLAR.
- THE EXHAUST HOODS SHALL HAVE PREPARED AUTOMATIC U.L. ANSUL FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF THE EXHAUST PLENUM & DUCT AND COOKING SURFACES. FIRE CONTROL CABINETS SHALL ALSO BE PROVIDED AS SHOWN AND SHALL HAVE MICRO SWITCHES FURNISHED AS REQUIRED FOR EQUIPMENT SHUT OFF. THERE SHALL BE A MANUAL PULL STATION NEAR THE EXIT DOOR AND MINIMUM OF 10'-0" FROM THE HOOD (MUST BE FLUSH MOUNTED, CONDUIT RUN IN THE WALL).
- THE SUPPLY FAN SWITCHES, 40 VA TRANSFORMERS, SUPPLY & EXHAUST FAN STARTERS, THERMAL OVERLOADS AND MECHANICAL GAS VALVE SHALL BE FURNISHED BY THE HOOD MANUFACTURER, AND SUPPLY FAN SWITCHES SHALL BE MOUNTED ON THE HOOD FACES. THE 40 VA TRANSFORMERS AND FAN STARTERS SHALL BE MOUNTED IN THE FIRE CONTROL CABINETS AND THE MECHANICAL GAS VALVE SHALL BE INSTALLED AS SHOWN ON THE PLUMBING DRAWINGS.
- ALL EXHAUST COLLARS AND EXHAUST DUCTWORK ARE SIZED TO MAINTAIN BETWEEN 1500 AND 2000 FPM EXHAUST AIR VELOCITY. ALL GREASE EXHAUST DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH NFPA 96. GREASE EXHAUST DUCTWORK SHALL HAVE ALL SEAMS, JOINTS AND PENETRATIONS CONTINUOUSLY WELDED LIQUID TIGHT.
- ALL HORIZONTAL RUNS OF GREASE EXHAUST DUCT SHALL SLOPE BACK TOWARD THE HOOD AT A SLOPE OF 1/4" PER FOOT. PROVIDE A RESIDUE TRAP AT THE BASE OF EACH VERTICAL RISER.
- PROVIDE U.L. LISTED CLEANOUTS IN GREASE EXHAUST DUCTWORK AT A MINIMUM OF 10'-0" INTERVALS, AT EACH CHANGE OF DIRECTION AND AT EACH RESIDUE TRAP.
- THE DISCHARGE OF THE GREASE EXHAUST FANS SHALL BE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
- ALL GREASE EXHAUST DUCTWORK SHALL HAVE STANDARD OR RADIUS ELBOWS.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WARRANTIES.
- THE FOLLOWING EQUIPMENT SHALL BE PURCHASED BY THE TENANT, PROVIDED THROUGH CAPTIVEARE SYSTEMS, AND INSTALLED BY CONTRACTOR. CONTRACTOR TO PROVIDE FINAL ELECTRICAL, PLUMBING AND MECHANICAL CONNECTIONS:
 - STAINLESS STEEL HOODS AS SPECIFIED ABOVE WITH FIRE PROTECTION SYSTEMS, CONTROLS, STARTERS, FIRE CONTROL CABINETS CLOSURE STRIP AND MECH. GAS VALVE.
 - ALL HOODS, HOOD SUPPLY AND EXHAUST FANS WITH ROOF CURBS. PROVIDE ALL HOOD EXHAUST FANS WITH GREASE GUARDS SUPPLIED BY CAPTIVEARE.
 - WIRING BETWEEN HOODS, FANS AND FIRE SYSTEM - INSTALLED BY GC.
- KITCHEN HOOD TEST AND BALANCE REPORT SHALL BE SUBMITTED TO BUILDING DEPARTMENT PRIOR TO FINAL INSPECTION.
- UPON ACTIVATION OF ANY FIRE EXTINGUISHING SYSTEM FOR A COOKING OPERATION, ALL SOURCES OF FUEL AND ELECTRIC POWER THAT PRODUCE HEAT TO ALL EQUIPMENT REQUIRING PROTECTION BY THAT SYSTEM SHALL AUTOMATICALLY SHUT OFF. ACTIVATION OF THE AUTOMATIC FIRE EXTINGUISHING SYSTEM MUST IMMEDIATELY SHUT OFF GAS AND ELECTRIC SUPPLY TO ALL APPLIANCES UNDER THE PROTECTED HOOD. THE PLUMBING CONTRACTOR SHALL PROVIDE A MASTER SOLENOID VALVE IN GAS LINE TO DISCONNECT ALL GAS APPLIANCES, MANUAL GAS AND ELECTRIC RESETS ARE REQUIRED.
- ALL REMOTE MANUAL OPERATING DEVICES SHALL BE IDENTIFIED AS THE "HAZARD PROTECTED" PROVIDE PLAQUE AND SIGN AS REQUIRED BY LOCAL JURISDICTION.
- ONE PLENUM NOZZLE SHALL BE PROVIDED FOR EVERY 10 FEET OF HOOD. REFER TO HOOD DRAWINGS FOR EXACT LOCATION.
- THE HOOD INSTALLING CONTRACTOR SHALL PROVIDE THE LATEST SYSTEM MANUAL AS PROVIDED BY THE MANUFACTURER TO VERIFY THE SYSTEM INSTALLATION.
- A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE FINAL APPROVAL OF THE INSTALLATION OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLIANCES. THE TEXT SHALL VERIFY THE RATE OF EXHAUST AIRFLOW REQUIRED BY CODE, MAKEUP AIR FLOW REQUIRED CODE AND PROPER OPERATION AS REQUIRED BY LOCAL CODE. THE PERMIT HOLDER SHALL THE NECESSARY TEST EQUIPMENT AND DEVICES REQUIRED.
- THE PERMIT HOLDER SHALL VERIFY CAPTURE AND CONTAINMENT PERFORMANCE OF THE EXHAUST SYSTEM. THIS FIELD TEST SHALL BE CONDUCTED WITH ALL APPLIANCES UNDER THE HOOD AT OPERATING TEMPERATURES, WITH ALL SOURCES OF OUTDOOR AIR PROVIDING MAKEUP AIR FOR THE HOOD OPERATING AND WITH ALL SOURCES OF RECIRCULATED AIR PROVIDING CONDITIONING FOR THE SPACE IN WHICH THE HOOD IS LOCATED OPERATING. CAPTURE AND CONTAINMENT SHALL BE VERIFIED VISUALLY BY OBSERVING SMOKE OR STEAM PRODUCED BY ACTUAL OR SIMULATED COOKING, SUCH AS WITH SMOKE CANDLES, SMOKE PUFFERS AND SIMILAR MEANS.

NOTE:

EACH HOOD SHALL BEAR THE FOLLOWING APPROVALS: NSF #1362, SBCCI #0469, U.L. CLASSIFICATION #91G6, NFPA #90A, 90B, 96-101

HVAC SYMBOLS LEGEND



FIELD VERIFY ALL CONDITIONS

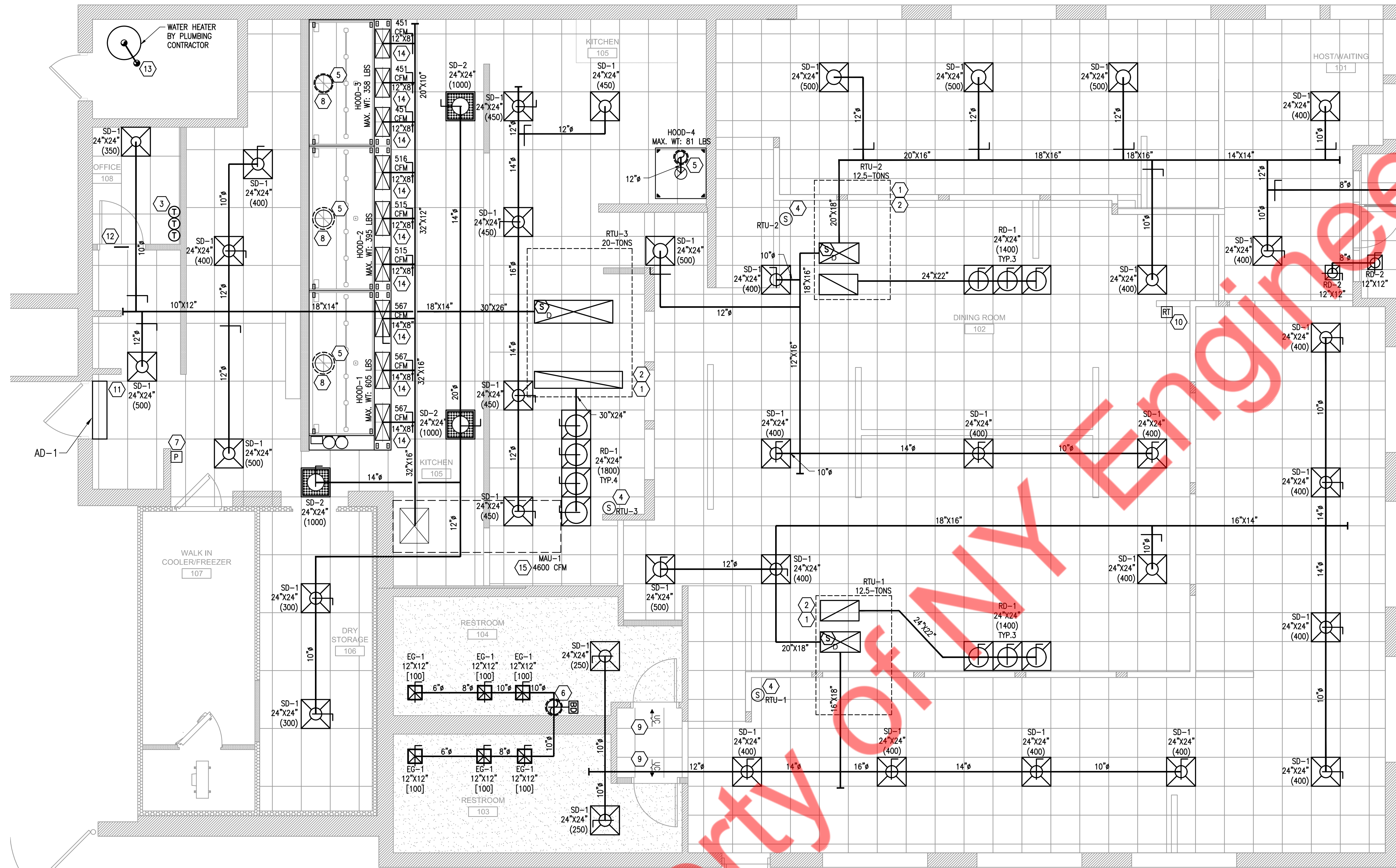
NOTE:

AS NOTED IN THE SPECIFICATIONS, ALL WIRING LAYOUTS, PIPING LAYOUTS AND DUCT LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONSTRUCTION AND STRUCTURE OF THE BUILDING AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD. EACH TRADE CONTRACTOR SHALL VERIFY WITH THE GENERAL CONTRACTOR THAT HE HAS THOROUGHLY REVIEWED AND COORDINATED ALL LOCATIONS AND ROUTINGS WITH ALL OTHER TRADES PRIOR TO FABRICATION OF CONDUITS, DUCTS, OR PIPING, AND START OF INSTALLATION OF SAME (INCLUDING SPRINKLER PIPING WHEN PRESENT ON JOB). ANY INSTALLATION OR CONSTRUCTION CONFLICTS WHICH OCCUR IN THE FIELD SHALL BE RESOLVED BY THE TRADE CONTRACTOR TO THE SATISFACTION OF THE OWNER AND ARCHITECT AND AT NO EXPENSE TO THE OWNER, ARCHITECT AND/OR GENERAL CONTRACTOR.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

ISSUED REVISIONS:	



KEYED NOTES

- EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM ROOFTOP UNITS TO SPACE. EXTEND AS SHOWN. TRANSITION AS REQUIRED. VERIFY ALL DUCT ROUTING PRIOR TO FABRICATION. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY & RETURN MAIN DUCTS.
- FIRE ALARM CONTRACTOR TO PROVIDE DUCT MOUNTED SMOKE DETECTORS AND WALL REMOTE TEST STATION FOR THE FIRE ALARM SYSTEM. THE MECHANICAL CONTRACTOR SHALL INSTALL THE SMOKE DETECTORS AND REMOTE TEST STATION. FIRE ALARM CONTRACTOR SHALL CONNECT TO A FIRE ALARM SYSTEM. THE ACTIVATION OF THE DUCT SMOKE DETECTOR SHALL ACTIVATE AN AUDIBLE/VISUAL ALARM AT A CONSTANTLY ATTENDED LOCATION. MECHANICAL AND ELECTRICAL CONTRACTOR SHALL TEST AND VERIFY THE SMOKE DETECTION SYSTEM WORKS PROPERLY AND MEETS ALL LOCAL AND STATE CODES. EXACT LOCATION OF REMOTE STATION SHALL BE FIELD VERIFIED. REMOTE TEST IS NOT REQUIRED WHERE THE SMOKE DETECTORS CAN BE TESTED FROM THE FIRE ALARM PANEL.
- CONTRACTOR SHALL PROVIDE A 7-DAY DIGITAL PROGRAMMABLE THERMOSTAT MOUNTED 48" AFF TO TOP OF DEVICE. MOUNT THERMOSTAT AT 46" IF ADA REQUIREMENTS APPLY. COORDINATE EXACT LOCATION WITH TENANT CONSTRUCTION MANAGER. THE ENTIRE CONTROL SYSTEM SHALL BE PROVIDED COMPLETE IN EVERY RESPECT BY THE MECHANICAL CONTRACTOR.
- PROVIDE REMOTE TEMPERATURE/HUMIDITY SENSORS ON WALL AS SHOWN AT 66" COORDINATE EXACT LOCATION WITH TENANT CONSTRUCTION MANAGER AND DO NOT MOUNT ON EXTERIOR WALL. THE ENTIRE CONTROL SYSTEM SHALL BE PROVIDED COMPLETE IN EVERY RESPECT BY THE MECHANICAL CONTRACTOR. REMOTE SENSORS TO BE CONNECTED TO 7-DAY PROGRAMMABLE THERMOSTAT. WIRE TO HVAC EQUIPMENT PER MANUFACTURER'S PRINTED INSTRUCTIONS.
- EXHAUST DUCT DOWN FROM KITCHEN EXHAUST FAN ON ROOF. TRANSITION AND OFFSET AS REQUIRED TO SIZE SHOWN ON PLAN. ROUTE DUCTWORK TO HOOD(S) EXHAUST OPENING AND TRANSITION AS REQUIRED. FIELD VERIFY ROUTING PRIOR TO BID AND FABRICATION. SEE HOOD DRAWING FOR HOOD OPENING SIZES.
- INTERLOCK RESTROOM/MOP SINK EXHAUST FAN WITH KITCHEN LIGHTS. EXHAUST FAN SHALL ENGAGE DURING KITCHEN OPERATIONAL HOURS. RESTROOM EXHAUST DUCT SHALL BE MINIMUM 26 GA. PROVIDE WITH INTEGRAL BIRD SCREEN, BACKDRAFT DAMPER, AND ACCESSORIES AS REQUIRED INCLUDING SPEED CONTROLLER CONCEALED AND ACCESSIBLE.
- A MANUAL ACTUATION DEVICE (PULL STATION) SHALL BE LOCATED AT OR NEAR A MEANS OF EGRESS FROM THE COOKING AREA A MINIMUM OF 10 FEET (3048 MM) AND A MAXIMUM OF 20 FEET (6096 MM) FROM THE KITCHEN EXHAUST SYSTEM. THE MANUAL ACTUATION DEVICE SHALL BE INSTALLED NOT MORE THAN 48 INCHES (1200 MM) NOR LESS THAN 42 INCHES (1067 MM) ABOVE THE FLOOR AND SHALL CLEARLY IDENTIFY THE HAZARD PROTECTED. THE MANUAL ACTUATION SHALL REQUIRE A MAXIMUM FORCE OF 40 POUNDS (178 N) AND A MAXIMUM MOVEMENT OF 14 INCHES (356 MM) TO ACTUATE THE FIRE SUPPRESSION SYSTEM.
- GREASE DUCT CLEANOUTS LOCATED ON HORIZONTAL SECTIONS OF DUCTS SHALL BE SPACED NOT MORE THAN 20 FEET APART. THE CLEANOUTS SHALL BE LOCATED ON THE SIDE OF THE DUCT WITH THE OPENING NOT LESS THAN 1.5 INCHES ABOVE THE BOTTOM OF THE DUCT, AND NOT LESS THAN 1 INCH BELOW THE TOP OF THE DUCT. MINIMUM OPENING SHALL 12/12 INCHES. CONTRACTOR SHALL VERIFY ALL REQUIREMENTS TO MEET LOCAL CODES PRIOR TO BID AND INSTALLATION.
- UNDERCUT DOOR 1" FOR AIR PASSAGE.
- PROVIDE REMOTE TEST STATION FOR SMOKE DETECTORS WITH AUDIBLE AND VISUAL ALARM WITH KEYED RESET. MOUNT TEST STATION 48 INCHES AFF. MOUNT AUDIBLE AND VISUAL ALARM IN CONSTANTLY ATTENDED LOCATION. CONSTANTLY ATTENDED LOCATION IS NOT REQUIRED WHERE DUCT SMOKE DETECTOR ACTIVATES THE BUILDING'S ALARM SYSTEM.
- HEATED AIR CURTAIN WALL MOUNTED DIRECTLY ABOVE THE BACK DOOR, ON THE INSIDE OF THE BUILDING, FLUSH TO THE WALL. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- PROVIDE 12"x6" DOOR GRILLE FOR AIR TRANSFER.
- PROVIDE CONCENTRIC VENT FOR WATER HEATER INTAKE & EXHAUST VENT. INSTALL PER MANUFACTURER'S INSTRUCTIONS. CONCENTRIC VENT SHALL BE LOCATED A MINIMUM OF 10' FROM ALL OUTDOOR INTAKES.
- PROVIDE BALANCING DAMPER IN MAKEUP AIR DUCT IN ADDITION TO DAMPER AT HOOD. PLACE UNTO DUCTWORK WHERE DAMPER CAN BE ACCESSED FOR BALANCING.
- NEW MAKEUP AIR UNIT IS PROVIDED. SUPPLY DUCT FROM THE ROOF. TRANSITION AS REQUIRED. FIELD VERIFY ALL DUCT ROUTING PRIOR TO FABRICATION. PROVIDE FLEX CONNECTION FOR VIBRATION INSULATION.

KITCHEN EXHAUST NOTES

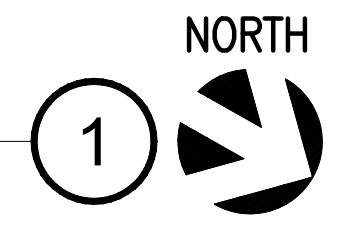
- ALL TYPE I GREASE DUCT SHALL BE WRAPPED WITH TWO LAYERS OF 3M™ FIRE BARRIER DUCT WRAP 615+ DUCT ENCLOSURE SYSTEM PROVIDING 2-HOUR FIRE RESISTANT PROTECTION. WRAP SHALL CONSIST OF 3" PERIMETER AND LONGITUDINAL OVERLAPS WITH ZERO CLEARANCE TO COMBUSTIBLES. DUCT WRAP SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 96 AND ICC-ES EVALUATION REPORT NO. ESR-1255. DUCT WRAP IS UL LISTED. DUCT WRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- MATERIAL - STEEL NOT LESS THAN 0.055 INCH (NO. 16 GAGE) IN THICKNESS, WITH JOINTS AND SEAMS MADE WITH A CONTINUOUS LIQUID-TIGHT WELD MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM.
- ALL TURNS IN KITCHEN EXHAUST DUCT SHALL BE ACHIEVED WITH THE USE OF A 1.5 RADIUS/WIDTH SMOOTH RADIUS ELBOW. REFERENCE DETAILS.
- HORIZONTAL DUCT SERVING TYPE I HOODS SHALL BE SLOPED NOT LESS THAN 2% TOWARD HOOD.
- A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE FINAL APPROVAL OF THE INSTALLATION OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLIANCES. THE TEST SHALL VERIFY THE RATE OF EXHAUST AIRFLOW, MAKEUP AIRFLOW, AND PROPER OPERATION AS SPECIFIED IN THE MECHANICAL CODE (INCLUDING CAPTURE AND CONTAINMENT TEST). THE PERMIT HOLDER SHALL FURNISH THE NECESSARY TEST EQUIPMENT AND DEVICES REQUIRED TO PERFORM THE TESTS. COORDINATE ALL TESTS WITH AHJ, INCLUDING FINAL REPORT/SUBMITTAL AND WITNESS REQUIREMENTS.
- SLOPE ALL HORIZONTAL GREASE DUCT 1" PER FOOT WHERE SPACE ALLOWS, BUT NOT LESS THAN 1/4" PER FOOT AS REQUIRED BY AHJ.
- CONTRACTOR TO PROVIDE AND INSTALL ALL CODE REQUIRED FIRE RATED ACCESS DOORS IN GREASE DUCTS AT ALL LOCATIONS REQUIRED BY CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- PROVIDE CLEANOUTS IN ALL KITCHEN EXHAUST DUCTWORK AT EVERY CHANGE OF DIRECTION AND AT EVERY 12' OF DUCT. PROVIDE ACCESS PANELS AT ALL GREASE DUCT CLEANOUTS. PROVIDE AS PER LOCAL CODE.
- COORDINATE HOOD INSTALLATION WITH HOOD PLANS. HOOD OPERATION, CAPTURE, SIZE AND ACCESSORIES ARE BASED ON EQUIPMENT AND CLEARANCES INDICATED IN PLANS. FIELD VERIFY AND COORDINATE HOODS WITH EQUIPMENT FURNISHED. COORDINATE HOOD CONNECTIONS WITH HOOD PLANS AND MANUFACTURER PRIOR TO FABRICATION.
- COORDINATE INTERLOCKS AND HOOD CONTROLS WITH HOOD PLANS AND HOOD MANUFACTURER PRIOR TO INSTALLATION.
- GREASE DUCT SYSTEMS SERVING A TYPE I HOOD SHALL HAVE A CLEARANCE TO COMBUSTIBLE CONSTRUCTION OF NOT LESS THAN 18 INCHES.

GENERAL NOTES

- PROVIDE ALL NEW DUCTWORK AS SHOWN. DUCT WORK ABOVE CEILING TO BE INSULATED ACCORDING TO 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
- FLEXIBLE AIR CONNECTORS SHALL BE TESTED IN ACCORDANCE WITH UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR CONNECTORS. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED IN LENGTH TO 14 FEET.
- TEST & BALANCE SYSTEM PRIOR TO CLOSEOUT OF PROJECT. PROVIDE A DETAILED REPORT TO OWNER, ARCHITECT, & ENGINEER.
- ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- PROVIDE FIRE OR FIRE-SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- 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.
- THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- PROVIDE CORD OPERATED DAMPERS FOR AIR TERMINALS MOUNTED IN INACCESSIBLE CEILINGS.
- PROVIDE DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:
R-6 SUPPLY & RETURN DUCT INSULATION IN UNCONDITIONED SPACES WITHIN BUILDING.
R-8 SUPPLY & RETURN DUCT INSULATION WITHIN BUILDING ENVELOPE ASSEMBLY.
R-8 SUPPLY & RETURN DUCT INSULATION OUTSIDE OF BUILDING.
- PROVIDE ACOUSTIC INSULATION ON MAIN SUPPLY AND RETURN DUCTS UP TO 10 FT. FROM HVAC UNIT.

MECHANICAL FLOOR PLAN

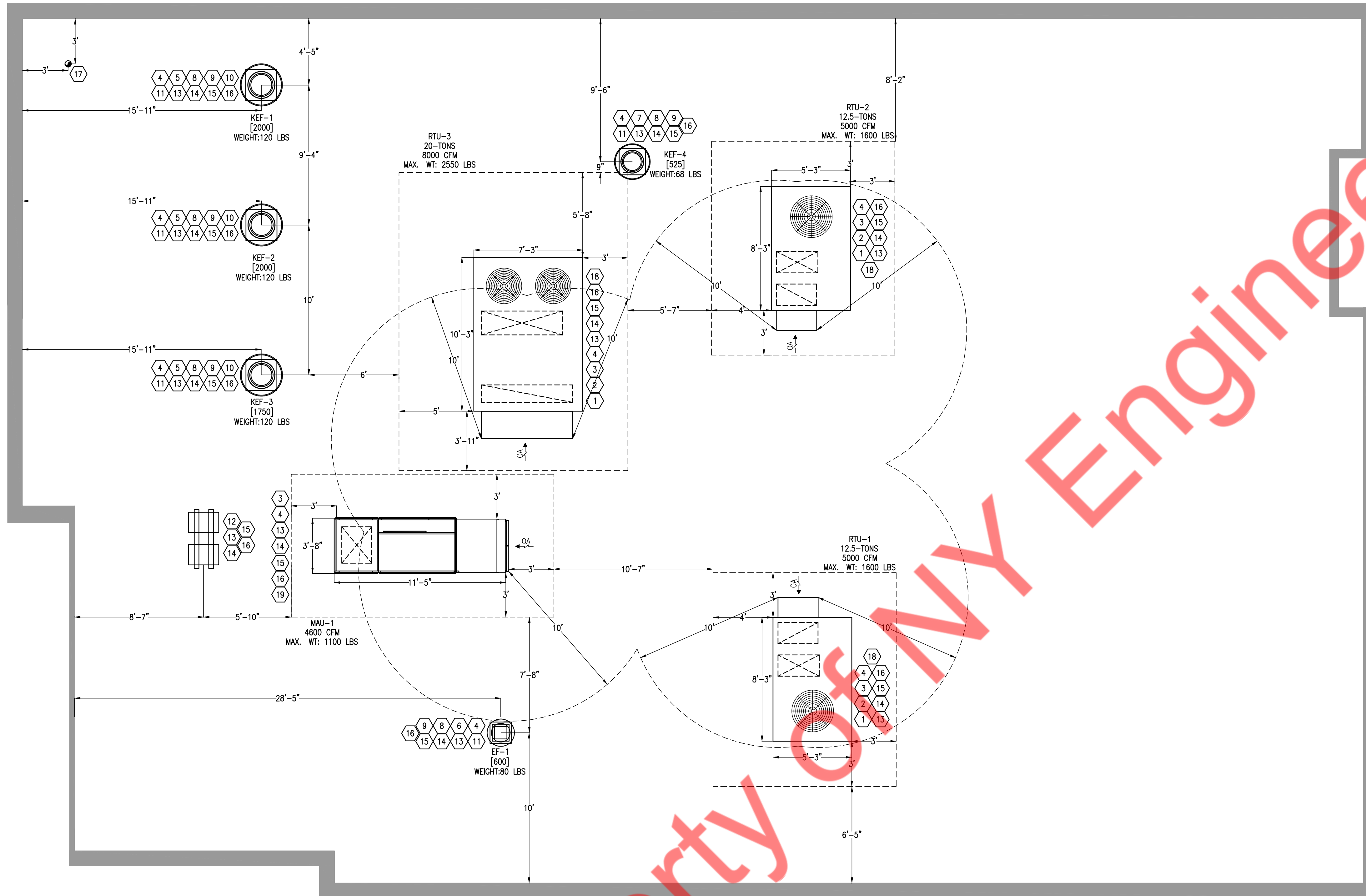
SCALE: 1/4"=1'-0"



ISSUED REVISIONS:	

Keke's Breakfast Cafe
MECHANICAL FLOOR PLAN

M-100



KEYED NOTES

- EXISTING CURB OPENING TO REMAIN. PROVIDE NEW ROOFTOP UNIT ON EXISTING ROOF CURB. PROVIDE REQUIRED CLEARANCE AND CURB ADAPTER. FIELD COORDINATE SIZE WITH MANUFACTURE REQUIREMENTS PRIOR TO BID.
- PROVIDE NEW ROOFTOP UNITS. PROVIDE FLEXIBLE CONNECTOR ON SUPPLY AND RETURN DUCT CONNECTIONS. SET OUTSIDE AIR AS INDICATED ON ROOF TOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN AIR DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
- MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL AQUAGUARD AG-3180E MICRO PAN SENSOR (OVERFLOW SWITCH) INSIDE ROOFTOP UNIT DRAIN PAN. ON DOWN-FLOW UNITS AND ALL OTHER COILS THAT DO NOT HAVE A SECONDARY DRAIN AND DO NOT HAVE A MEANS TO INSTALL AN AUXILIARY DRAIN PAN, A WATER-LEVEL MONITORING DEVICE SHALL BE INSTALLED INSIDE THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN BECOMES RESTRICTED. EXTERNALLY INSTALLED DEVICES AND DEVICES INSTALLED IN THE DRAIN LINE SHALL NOT BE PERMITTED. AQUAGUARD PH 888-708-6622.
- COORDINATE HVAC EQUIPMENT LOCATION AND OPENING IN THE ROOF WITH THE STRUCTURAL MEMBERS PRIOR TO CUTTING DECK.
- PROVIDE ALL NEW GREASE EXHAUST FANS WITH PRE-FABRICATED MINIMUM 20 INCH HIGH ROOF CURBS. PROVIDE 40" MINIMUM CLEARANCE TO ROOF SURFACE (SEE DETAIL ON HOOD SHEETS). PROVIDED BY CAPTIVARE INSTALLED BY GC.
- Ø12" EXHAUST UP FROM RESTROOMS/MOP SINK. PROVIDE BACKDRAFT DAMPER AND NEW ROOF CURB.
- Ø12" EXHAUST UP FROM DISHWASHER HOOD BELOW. PROVIDE WITH NEW ROOF CURB.
- PROVIDE TIE DOWNS OF THE FAN TO THE ROOF DECK OR SUPPORTING STRUCTURE. THE TIE DOWN POINTS HELP PROTECT AGAINST HIGH WINDLOADS.
- PROVIDE CAPTIVARE, OR EQUAL HINGED BASE KIT. LOCKABLE, HINGED CONNECTION BETWEEN THE FAN AND CURB. THIS ALLOWS EASY ACCESS TO THE WHEEL AND INLET OF THE FAN AS WELL AS THE INTERIOR DUCTWORK. THE KIT INCLUDES TWO HINGE PLATES, TWO LATCH PLATES, HINGE BOLTS, AIRCRAFT CABLE AND CLAMPS.
- PROVIDE GREASE TROUGH FOR COLLECTION OF GREASE. THE LID IS REMOVABLE FOR CLEANING. TO PROVIDE FOR MORE THOROUGH PERIODIC CLEANING, THE GREASE TROUGH SHOULD BE MOUNTED TO THE UNIT FOR EASY REMOVAL.
- MAINTAIN 10 FT. CLEARANCE FROM ANY FRESH AIR INTAKE. FIELD VERIFY EXACT REQUIREMENTS. PRIOR TO BID AND INSTALLATION. IF EXHAUST FAN FALLS WITHIN 10 FT. OF ANY FRESH AIR INTAKE, THE EXHAUST DISCHARGE OPENING SHALL BE EXTENDED BY MEANS OF A SHROUD ON ROUND FANS AND DUCTWORK ON UTILITY FANS, TO MEET THE 3'-0" VERTICAL CLEARANCE REQUIREMENTS. SHROUD CAN BE PROVIDED BY CAPTIVARE. FIELD VERIFY EXACT REQUIREMENTS PRIOR TO ORDERING, INSTALLATION AND BID., G.C. TO COORDINATE WITH CAPTIVARE.
- APPROXIMATE LOCATION OF REFRIGERATION EQUIPMENT CONDENSING UNIT. COORDINATE WITH FOOD SERVICE, ARCHITECTURAL AND ELECTRICAL DRAWINGS. PROVIDE RAILS FOR CONDENSING UNITS. COORDINATE RAIL SYSTEM WITH MANUFACTURERS REQUIREMENTS AND STRUCTURAL ENGINEERS. CONTRACTOR INSTALLING REMOTE CONDENSERS SHALL VERIFY EXACT SIZE OF CONDENSER STAND. SEE DETAIL ON M4.1.
- CONTRACTOR SHALL REVIEW ELECTRICAL POWER REQUIREMENTS FOR MECHANICAL EQUIPMENT THAT ARE SCHEDULED ON THE ELECTRICAL DRAWINGS AND VERIFY THAT THEY MATCH PRIOR TO ORDERING EQUIPMENT. DO NOT PURCHASE MOTORS OR ELECTRICAL EQUIPMENT UNTIL POWER CHARACTERISTICS AVAILABLE AT BUILDING HAVE BEEN CONFIRMED BY CONTRACTOR.
- INSTALLATION OF EQUIPMENT SHALL COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION AND CLEARANCE REQUIREMENTS TO ALLOW FOR INSPECTION, SERVICE, REPAIR OR REPLACEMENT.
- ALL NEW ROOF WORK SHALL BE DONE BY LANDLORDS ROOFING CONTRACTOR AT TENANTS EXPENSE. CONTRACTOR SHALL COORDINATE ALL NEW AND EXISTING ROOF WORK TO CONFORM TO LANDLORDS ROOFING STANDARDS AND PER LOCAL CODE REQUIREMENTS. FIELD VERIFY ALL ROOF WORK PRIOR TO BID.
- CONTRACTOR TO VERIFY EXISTING WEIGHT LIMITS AND STRUCTURAL CONDITION PRIOR TO SETTING NEW ROOFTOP EQUIPMENT. PROVIDE ADDITIONAL BRACING AND STRUCTURE AS REQUIRED TO MEET DUNNAGE OF NEW UNITS, (TYPICAL ALL UNITS). CONSULT TENANT'S CONSTRUCTION MANAGER IF THERE ARE ANY STRUCTURAL CONCERNS.
- CONCENTRIC VENT/COMBUSTION PIPING DOWN TO WATER HEATERS. CONTRACTOR TO VERIFY EXACT SIZE AND ROUTING. SLOPE 1/4 INCH PER FOOT BACK TOWARD WATER HEATER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. VERIFY ALL REQUIREMENTS PRIOR TO BID.
- CONDENSATE DRAIN FROM RTU-1, RTU-2 & RTU-3 SHALL BE CONVEYED TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF NOT LESS THAN 1/8 TH UNIT VERTICAL IN 12 UNITS HORIZONTAL (1% SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE NUISANCE.
- PROVIDE NEW MAKEUP AIR UNIT MAU-1 ON NEW PRE-FABRICATED MINIMUM 14 INCH HIGH INSULATED ROOF CURB. PROVIDE REQUIRED CLEARANCE. MAINTAIN MINIMUM HEIGHT OF 8" FROM ROOF SURFACE. FIELD COORDINATE SIZE WITH MANUFACTURER REQUIREMENTS PRIOR TO BID.

GENERAL NOTES

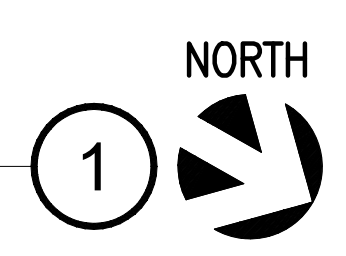
- COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
- EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED. VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED. NOTIFY ENGINEER IF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- PROVIDE ACOUSTIC INSULATION ON MAIN SUPPLY AND RETURN DUCTS UP TO 10 FT. FROM HVAC UNIT.
- EXISTING ROOF CURBS TO BE REUSED WHEREVER POSSIBLE. CONTRACTOR TO FILED VERIFY THE CONDITION OF EXISTING ROOF CURBS. REPLACE ROOF CURBS IF NOT IN A GOOD CONDITION.
- INSTALL NEW RTUS ON EXISTING ROOF CURBS WHEREVER POSSIBLE. USE CURB ADAPTER AS REQUIRED. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING UNITS.
- TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO GENERAL CONTRACTOR AND OWNER.
- ALL RTUS WEIGHTS ARE INCLUDING ROOF CURBS AND/OR ADAPTORS.
- PATCH THE EXISTING PENETRATIONS OF THE ROOF IF EXISTING PENETRATION IS NOT FEASIBLE/WORKABLE FOR NEW UNITS. COORDINATE WITH ROOFING AND MECHANICAL CONTRACTOR.
- IF EXISTING ROOF CURBS ARE DAMAGED OR NOT REUSABLE, REPLACE WITH NEW ROOF CURB REQUIRED AND REDO ROOFING. COORDINATE WITH ROOFING CONTRACTOR.
- G.C. TO PATCH & REPAIR EXTRA PENETRATION ON ROOF TO MATCH EXISTING IN ALL ASPECTS.

ISSUED REVISIONS:	

Keke's Breakfast Cafe
MECHANICAL ROOF PLAN

MECHANICAL ROOF PLAN

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



XXEW Type 1, X-Tractor (Spark Arrestor Incl.) Filter Single Wall - Exhaust Only Wall Canopy

Model	Hood Length (in.)	Width (in.)	Bottom Width (in.)	Height (in.)		Exhaust Volume (CFM)	Exhaust SP (in. w.g.)	Double Island
				Front	Back			
XXEW	344	54	54	24	24	5750	0.616	No

Selected Options & Accessories:

Option or Accessory	Description
Mounting Height	80 in. off Finished Floor.
Integral Air Space	Factory Mounted on Back - 3" wide 89 lbs
Non-Integral Air Space	Factory Mounted on Right - 1" wide Zero Clearance Unfinished End
Ceiling Enclosures	18 in. High on Left Front
Filter Type	Stainless Steel X-Tractor (Spark Arrestor Incl.) Filters 190 lbs
Backsplash Panel	80 in High 357 in Long 0 in Wide 298 lbs
Right Sidesplash	122 in High 72 in Long 0 in Wide 92 lbs

Material: 430 SS Where Exposed
UL Listing: UL 710 w/out Exhaust Fire Damper
Features:
 Performance Enhancing Lip (PEL)
 Standing Seam Construction for Superior Strength
 Stainless Steel Finish for Higher Corrosion Resistance
Hood End Conditions:
 Back Wall - Limited Combustible
 Right Full Wall - Full Combustible

Section Data:

Length (in.)	Volume (CFM)	Exhaust Rate (CFM/FT)	SP (in. wg)	Filter Qty 16" W	Filter Qty 20" W	Filter Ht. (in.)	Cooking Load	Light Qty	Light Type	Foot Candles	Drain Location	Hanging Weight (LBS)
120	2000	200	0.616	0	6	20	Heavy	6	Incandescent / CFL	50.71	Left/Right	603.43
120	2000	200	0.616	0	6	20	Heavy	6	Incandescent / CFL	50.71	Left/Right	395.65
104	1750	202	0.53	4	2	20	Heavy	5	Incandescent / CFL	48.31	Left/Right	357.19

Exhaust Collar Data:

Collar Num.	Collar Size (LxW) in. or Diameter (in.)	Pos. Off Left (in.)	Pos Off Back (in.)	Velocity (fpm)	Mounting Option
1	14	60	9	1871	Factory Mounted Exhaust Collar(s)
1	14	60	9	1871	Factory Mounted Exhaust Collar(s)
1	14	52	9	1637	Factory Mounted Exhaust Collar(s)

External Supply Plenum Data:

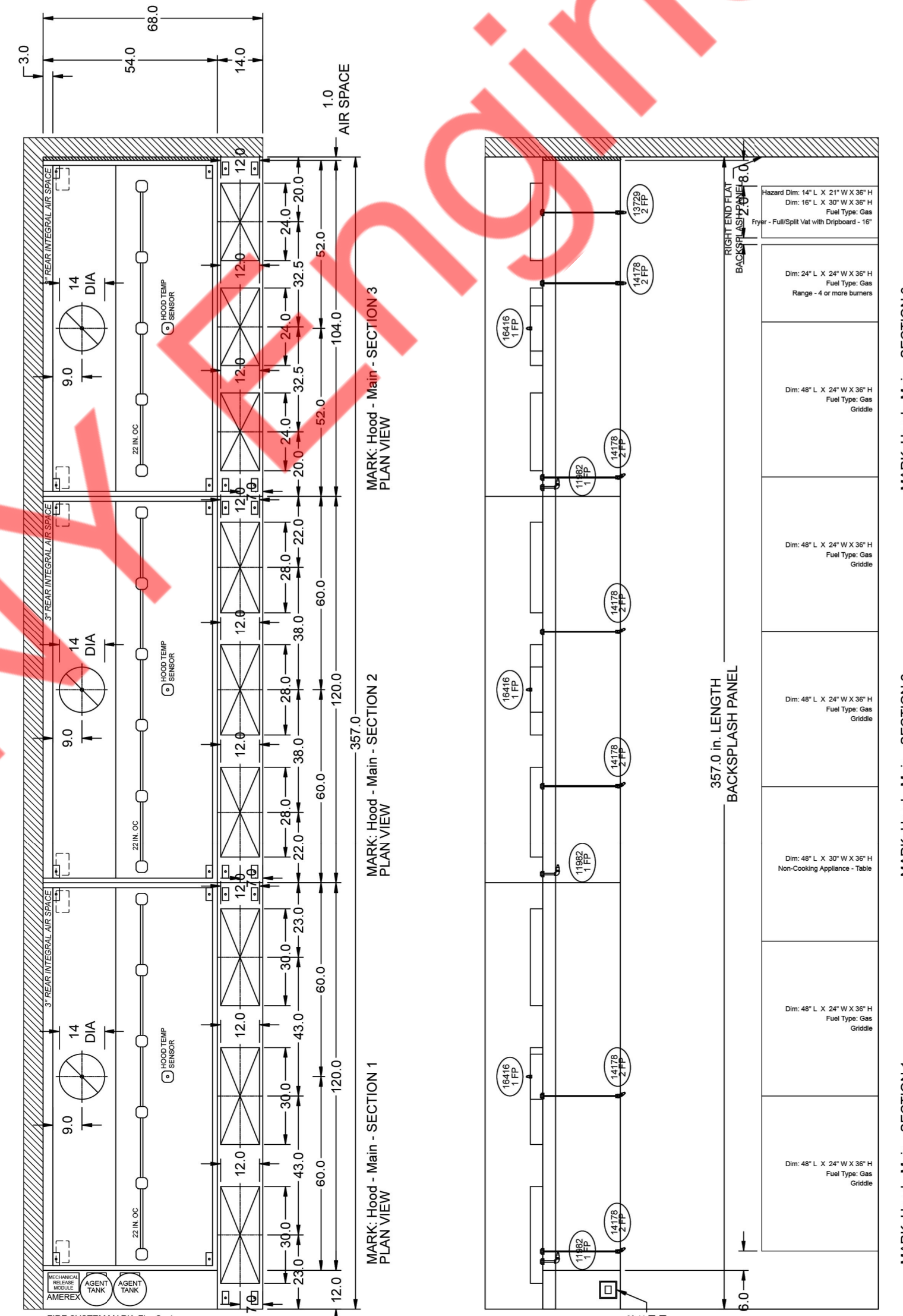
Plenum Num.	Side	Type	Supply: 4600 CFM			MUA: 4600 CFM			AC: 0 CFM		
			Length (in.)	Width (in.)	Height (in.)	Volume (CFM)	Weight (lbs)	SP (in. wg)	Insulated	MBD	LED Lights
1	Front	Air Curtain Supply (ASP)	132	14	4	1701	72	0.01	No	Yes	No
2	Front	Air Curtain Supply (ASP)	120	14	4	1546	68	0.01	No	Yes	No
3	Front	Air Curtain Supply (ASP)	105	14	4	1353	63	0.01	No	Yes	No

External Supply Collar Data:

Section Num.	Plenum Num.	Side	Collar Num.	Collar Shape	Collar Size (LxW) in. or Diameter (in.)	Pos. Off Left (in.)	Pos. Off Front (in.)	Velocity (fpm)	Mounting Option
1	1	Front	1	rectangular	30 x 12	23	7	227	Factory Mounted Supply Collar(s)
1	1	Front	2	rectangular	30 x 12	66	7	227	Factory Mounted Supply Collar(s)
1	1	Front	3	rectangular	30 x 12	109	7	227	Factory Mounted Supply Collar(s)
2	1	Front	1	rectangular	28 x 12	22	7	221	Factory Mounted Supply Collar(s)
2	1	Front	2	rectangular	28 x 12	60	7	221	Factory Mounted Supply Collar(s)
2	1	Front	3	rectangular	28 x 12	98	7	221	Factory Mounted Supply Collar(s)
3	1	Front	1	rectangular	24 x 12	20	7	226	Factory Mounted Supply Collar(s)
3	1	Front	2	rectangular	24 x 12	52.5	7	226	Factory Mounted Supply Collar(s)
3	1	Front	3	rectangular	24 x 12	85	7	226	Factory Mounted Supply Collar(s)

Utility Cabinet Data:

Description	Length (in.)	Width (in.)	Height (in.)	Weight (lbs)
Left Utility Cabinet	54	12	24	196.02



NOTE: All dimensions are in units of in.

ISSUED REVISIONS:

Keke's Breakfast Cafe
 HOOD DRAWINGS (1 OF 6)

Amerex KP Wet Chemical Fire Suppression System

Scope:
 Pre-Pipe With Parts and Factory Coordinated Installation

Hood Fire Suppression System

Detection Type	Mechanical
Coverage	Appliance Specific
Hood Mark(s) Connected	Hood - Main Hood - Main Hood - Main
Mounting Location	Utility cabinet on hood (see hood submittal for more visual detail)
System Size	7.5 Gallon
Flow Points	Maximum of 22 and 20 are utilized.

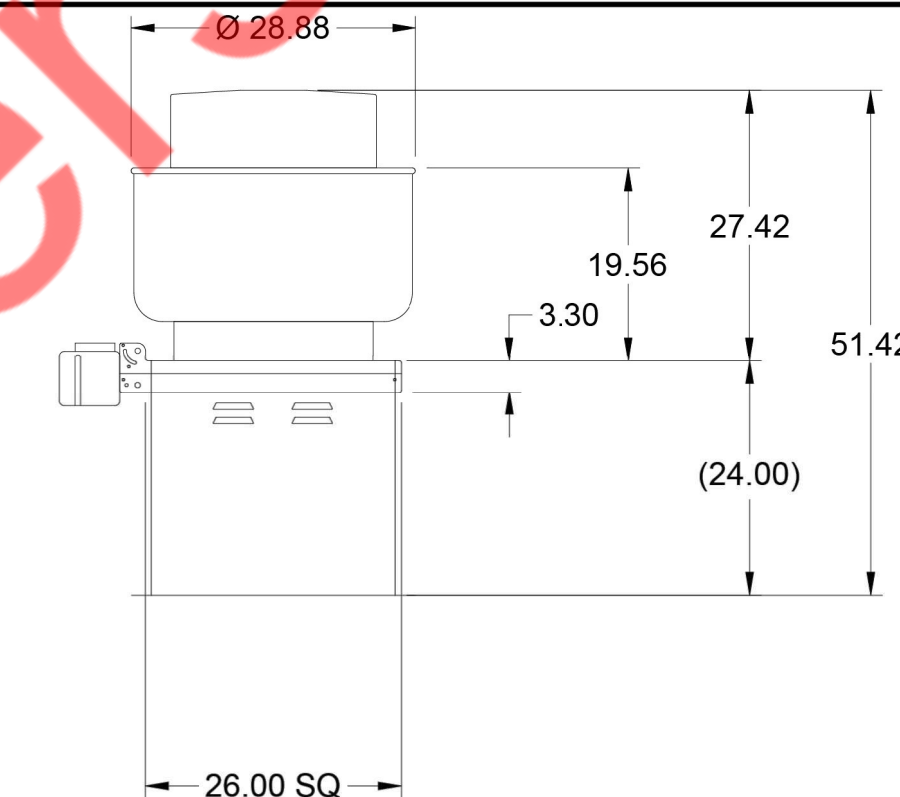
Options and Accessories for Hood Fire System Provided from Factory

Mechanical Release Module	QTY of 1
3.75 Gallon Agent Cylinder Assembly	QTY of 2
Gas Valve	2", mechanical
Manual Pull Stations	QTY of 1
Microswitch	QTY of 1
Alarm Initiating Switch	QTY of 0
Metal Blow Off Caps	Included

Important Notes

- The manner in which the parts included in the scope of this fire system are supplied may vary. They could be shipped from the fire suppression manufacturer, shipped loose with the hood, connected directly to the hood, or supplied directly to the installing distributor.
- Must maintain 8 inch clearance between top of hood and pipe connections for installation (includes piping and workspace clearance).
- The amount of supply pipe that should not be exceeded per system is 32 ft., which includes all pipe used along the length the hood, between hoods, and the pipe needed to connect to the tanks where they are mounted.
- Pull station locations must be a minimum of 10 ft. and a maximum of 20 ft. from the hoods and in the path of egress. They also must be 40-48 in. from the finished floor.
- Systems are pre-piped for a specific appliance line-up. If appliance types and sizes differ from what is shown on the hood submittal, this may result in a field re-pipe which is outside the scope defined here.

Model: XCUE-140-VG
 Direct Drive Upblast Centrifugal Roof Exhaust Fan



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	68
Weight w/ Acc's (lb)	86
Weight w/ Acc's and Curb (lb)	119
Standard Curb Cap Size (in.)	26 x 26
Roof Opening (in.)	22.5 x 22.5

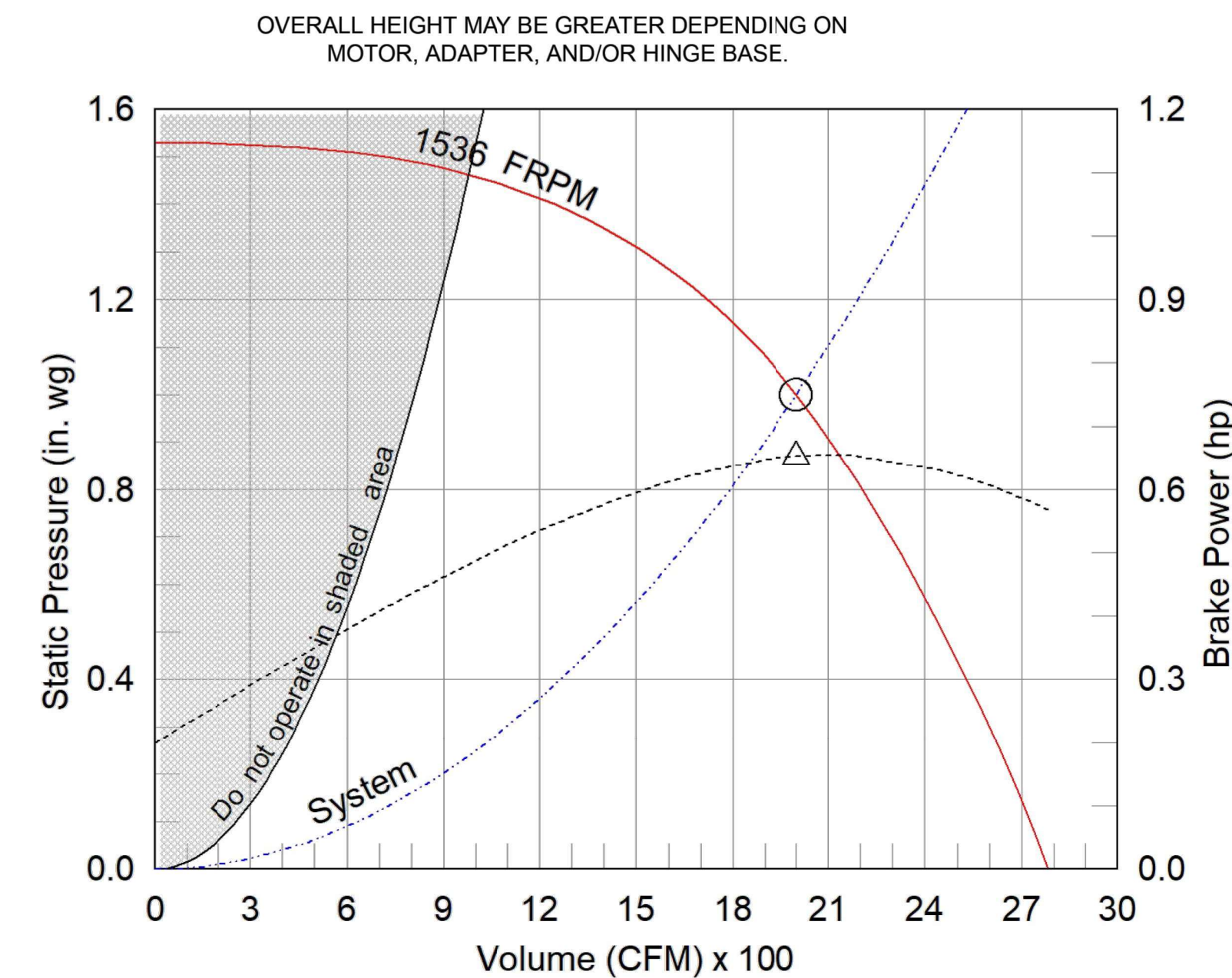
Performance	
Requested Volume (CFM)	2,000
Actual Volume (CFM)	2,000
Total External SP (in. wg)	1
Fan RPM	1536
Operating Power (hp)	0.65
Elevation (ft)	1,027
Airstream Temp.(F)	90
Air Density (lb/ft3)	0.070
Tip Speed (ft/min)	5,881
Static Eff. (%)	48

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	1,163

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	208/60/1
Enclosure	ODP
Motor RPM	1550
Efficiency Rating	High
Windings	1
FLA (Amps)	5.4
Min. Circuit Ampacity (MCA)	7
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

Sound Power by Octave Band

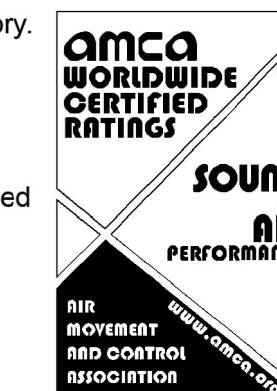
Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	72	68	81	75	66	58	59	57	76	65	12.5



△ Operating Bhp point
 ○ Operating point at Total External SP
 — Fan curve
 - - - System curve
 - - - Brake horsepower curve

Notes:

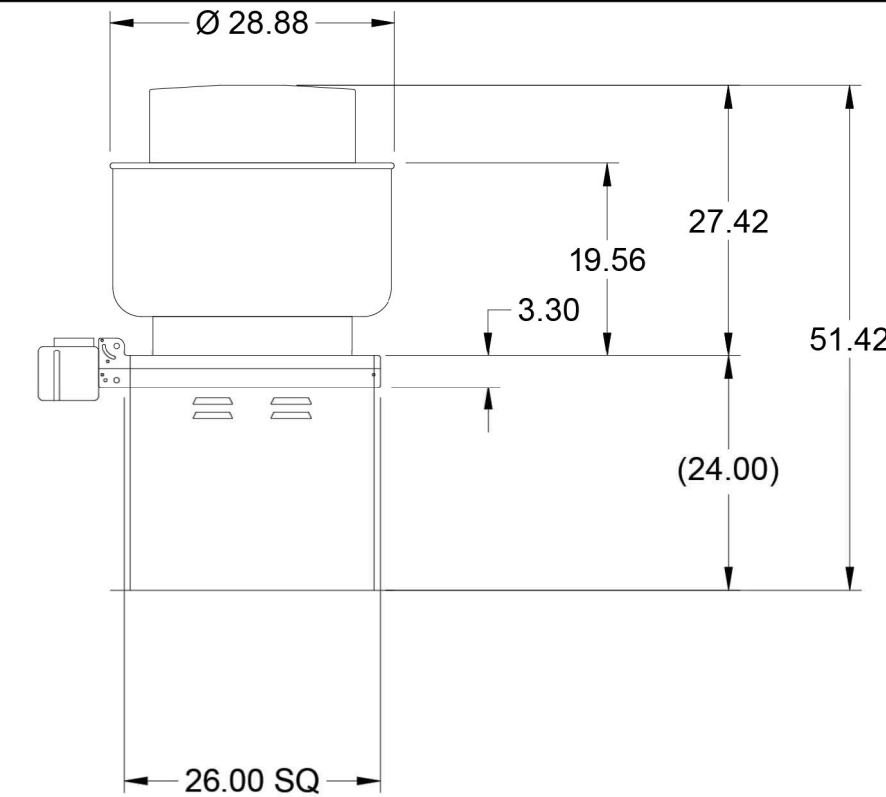
All dimensions shown are in units of in.
 *NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
 LwA - A weighted sound power level, based on ANSI S1.4
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft - dBA levels are not licensed by AMCA International
 Sones - calculated using ANSI/AMCA 301 at 5 ft



ISSUED REVISIONS:	

Keke's Breakfast Cafe
 HOOD DRAWINGS (2 OF 6)

Model: XCUE-140-VG
 Direct Drive Upblast Centrifugal Roof Exhaust Fan

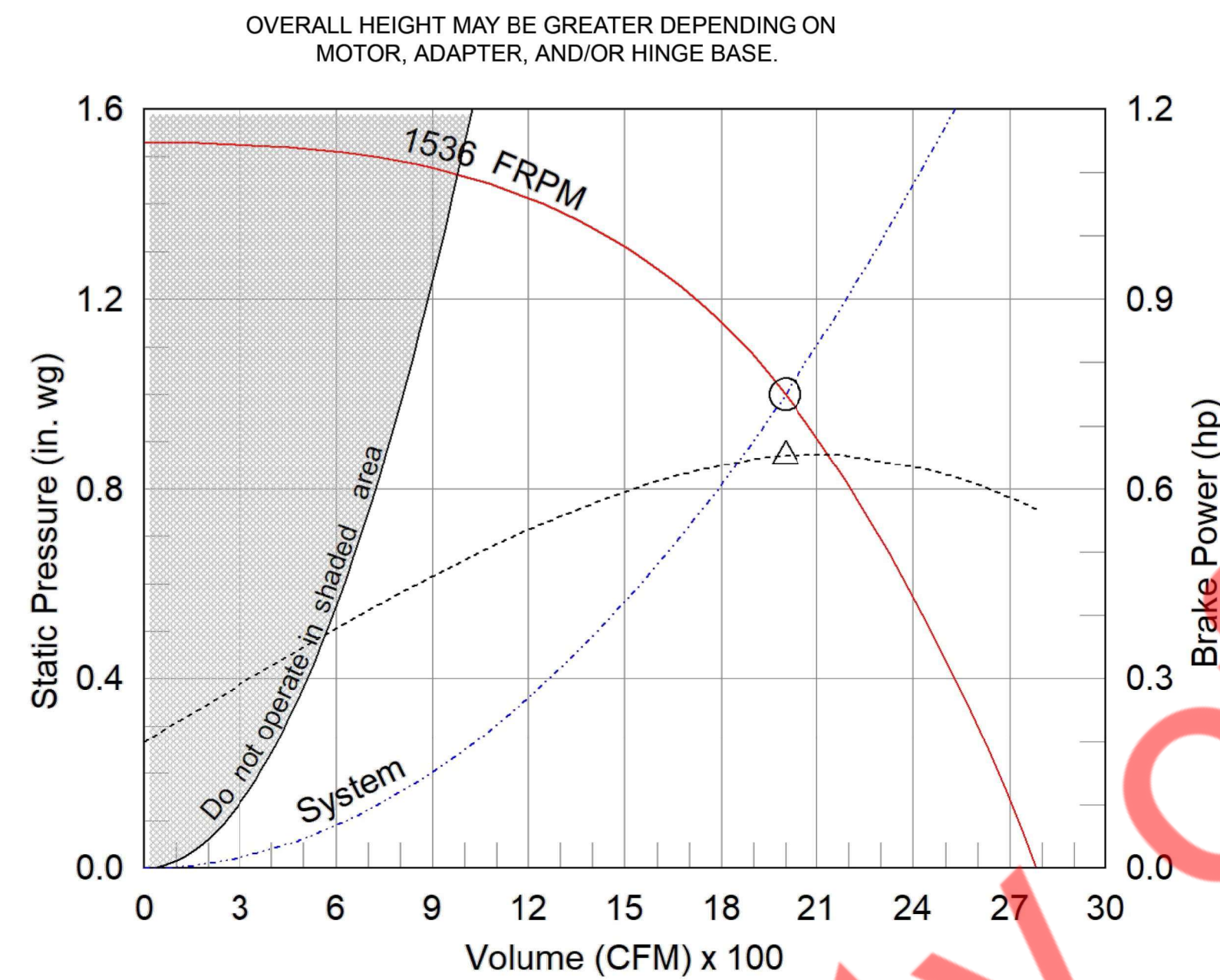


Dimensional	
Quantity	1
Weight w/o Acc's (lb)	68
Weight w/ Acc's (lb)	86
Weight w/ Acc's and Curb (lb)	119
Standard Curb Cap Size (in.)	26 x 26
Roof Opening (in.)	22.5 x 22.5

Performance	
Requested Volume (CFM)	2,000
Actual Volume (CFM)	2,000
Total External SP (in. wg)	1
Fan RPM	1536
Operating Power (hp)	0.65
Elevation (ft)	1,027
Airstream Temp.(F)	90
Air Density (lb/ft3)	0.070
Tip Speed (ft/min)	5,881
Static Eff. (%)	48

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	1,163

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	208/60/1
Enclosure	ODP
Motor RPM	1550
Efficiency Rating	High
Windings	1
FLA (Amps)	5.4
Min. Circuit Ampacity (MCA)	7
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



△ Operating Bhp point
 ○ Operating point at Total External SP
 — Fan curve
 - - - System curve
 - - - Brake horsepower curve

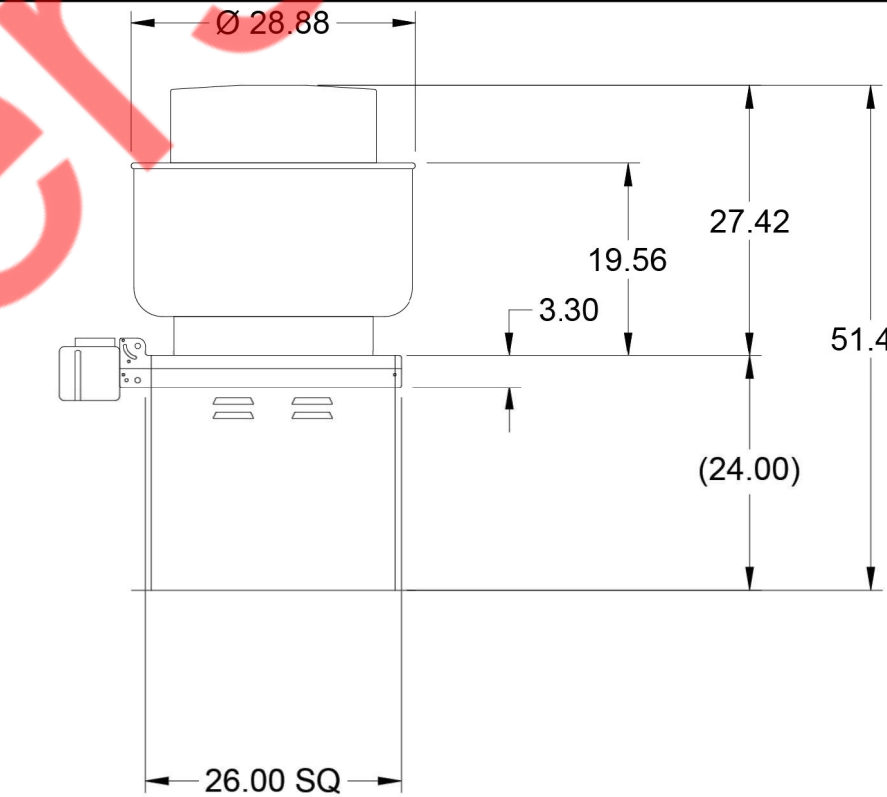
Notes:
 All dimensions shown are in units of in.
 *NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.
 MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
 LWA - A weighted sound power level, based on ANSI S1.4
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
 Sones - calculated using ANSI/AMCA 301 at 5 ft



Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	72	68	81	75	66	58	59	57	76	65	12.5

Model: XCUE-140-VG
 Direct Drive Upblast Centrifugal Roof Exhaust Fan

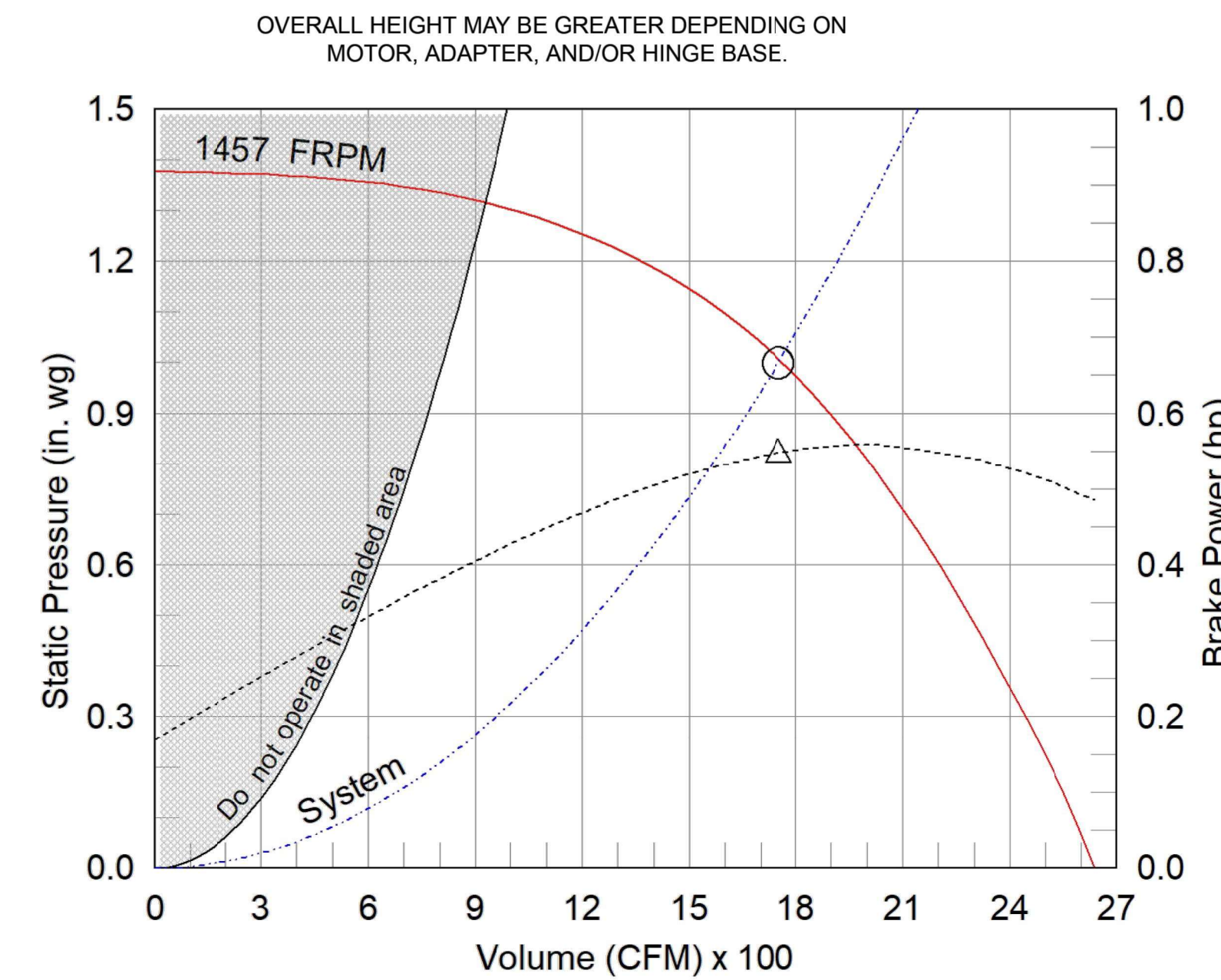


Dimensional	
Quantity	1
Weight w/o Acc's (lb)	68
Weight w/ Acc's (lb)	86
Weight w/ Acc's and Curb (lb)	119
Standard Curb Cap Size (in.)	26 x 26
Roof Opening (in.)	22.5 x 22.5

Performance	
Requested Volume (CFM)	1,750
Actual Volume (CFM)	1,750
Total External SP (in. wg)	1
Fan RPM	1457
Operating Power (hp)	0.55
Elevation (ft)	1,027
Airstream Temp.(F)	90
Air Density (lb/ft3)	0.070
Tip Speed (ft/min)	5,578
Static Eff. (%)	50

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	1,017

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	208/60/1
Enclosure	ODP
Motor RPM	1550
Efficiency Rating	High
Windings	1
FLA (Amps)	5.4
Min. Circuit Ampacity (MCA)	7
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



△ Operating Bhp point
 ○ Operating point at Total External SP
 — Fan curve
 - - - System curve
 - - - Brake horsepower curve

Notes:
 All dimensions shown are in units of in.
 *NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.
 MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
 LWA - A weighted sound power level, based on ANSI S1.4
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
 Sones - calculated using ANSI/AMCA 301 at 5 ft



Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	72	74	78	72	64	61	58	54	74	62	11.2

ISSUED REVISIONS:

Keke's Breakfast Cafe
 HOOD DRAWINGS (3 OF 6)

XDGX-P116-H22-MF
 Unit Performance

Design Conditions						
Elevation (ft)	Summer		Winter (°F)	Supply (CFM)	Outdoor Air (CFM)	Min Supply Airflow (CFM)
	DB (°F)	WB (°F)				
1,027	92.0	73.0	20.7	4,600	4,600	2,300

Unit Specifications					
Qty	Weight (lb)	Cooling Type	Heating Type	Unit Installation	Unit ETL Listing
1	945 (+/- 5%)	None	Direct Gas-Fired	Outdoor/Indoor	ANSI Z83.4 / CSA 3.7

Configuration				
Unit Orientation	Unit Configuration	Outdoor Air Intake	Return Air Intake	Supply Air Discharge
Horizontal	Variable Volume	End	-	Bottom

Heating Specifications								
Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	Natural	9	0.5	266.2	244.9	49.3	21.0	70.0

Air Performance									
Type	Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Fan			
						Qty	Type	Size (in.)	Drive-Type
Supply	4,600	0.75	1.512	1830	2.07	1	Mixed Flow	20	Direct-Drive

Motor Specifications					
Motor	Qty	Size (HP)	Enclosure	Efficiency	RPM
Supply Fan Motor	1	3	ODP	NEMA Premium	1725

Electrical Specifications				
Power Supply	Rating (V/C/P)	MCA (A)	MOP (A)	SCCR
Unit	208/60/3	13.9	20	5kA

Unit Details
 Unit will be sent from factory with a turndown capability of 50% of the design cfm. Please consult factory if further turndown is required.



Heating Specifications

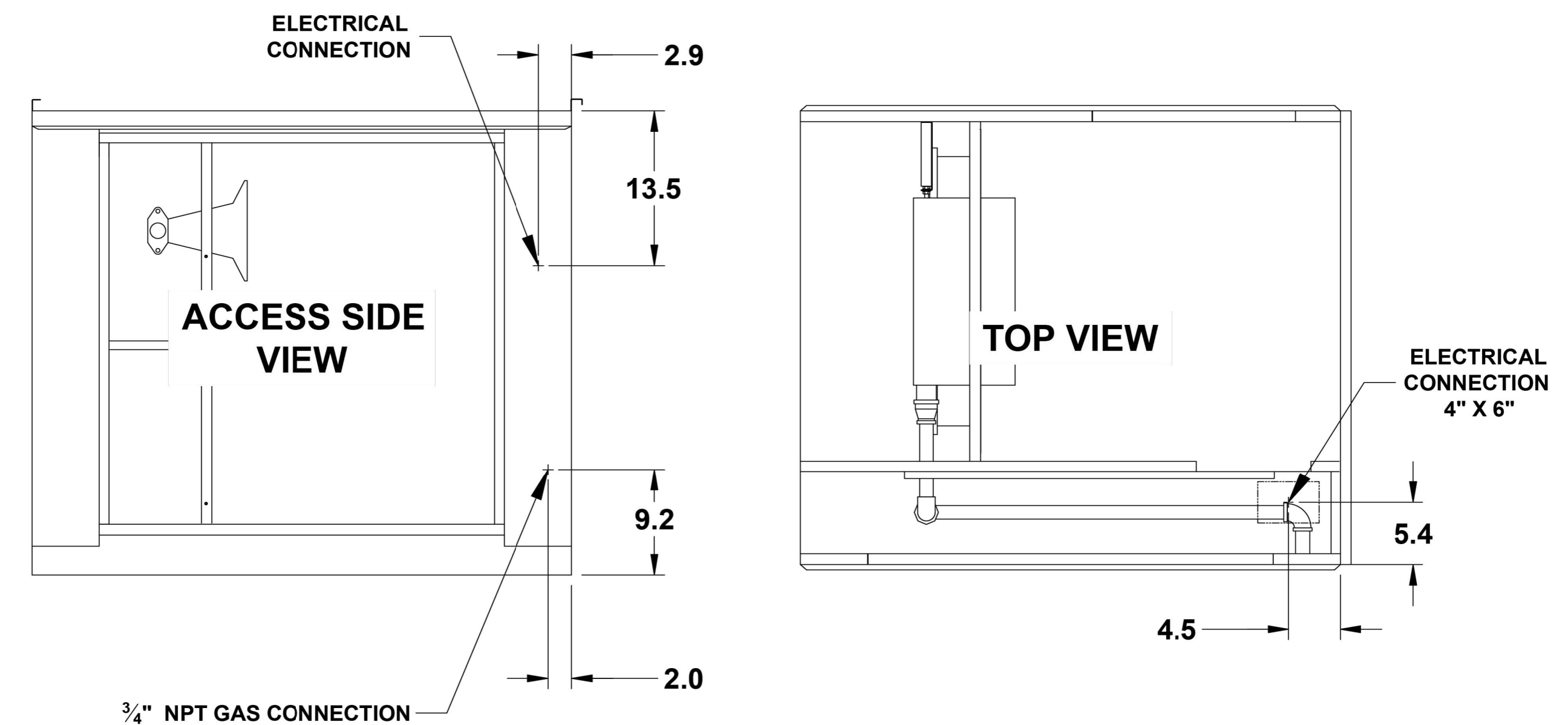
Heating Performance								
Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	Natural	9	0.5	266.2	244.9	49.3	21.0	70.0

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

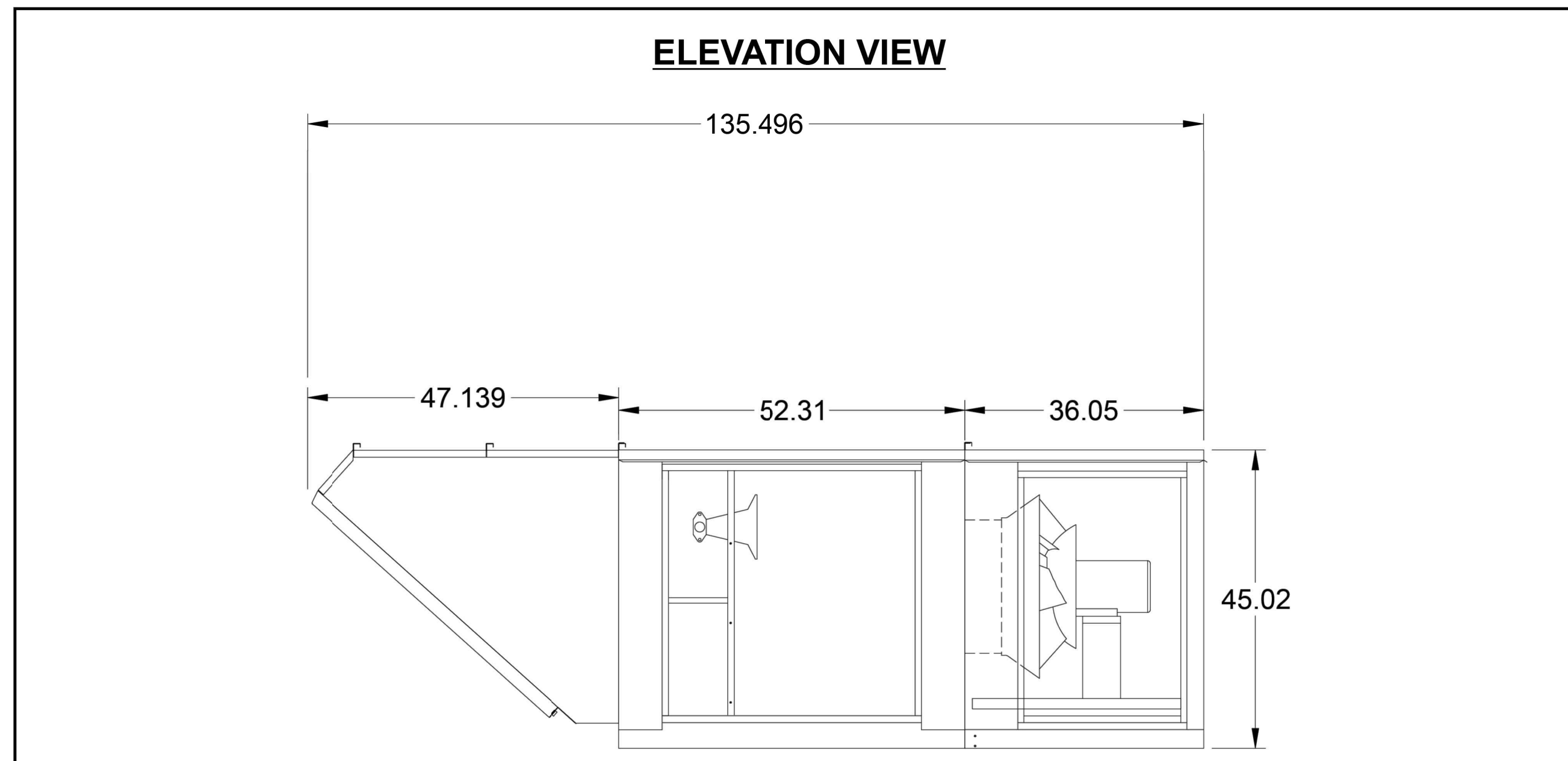
Additional Heating Information						
ETL Approved	FM Compliant	Temperature Control	Flame Sensing	Ignition Control	CO2 Sensor	Flame Safeguard Display
Std	Yes	Discharge	Flame Rod	Economy Pilot	-	-

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

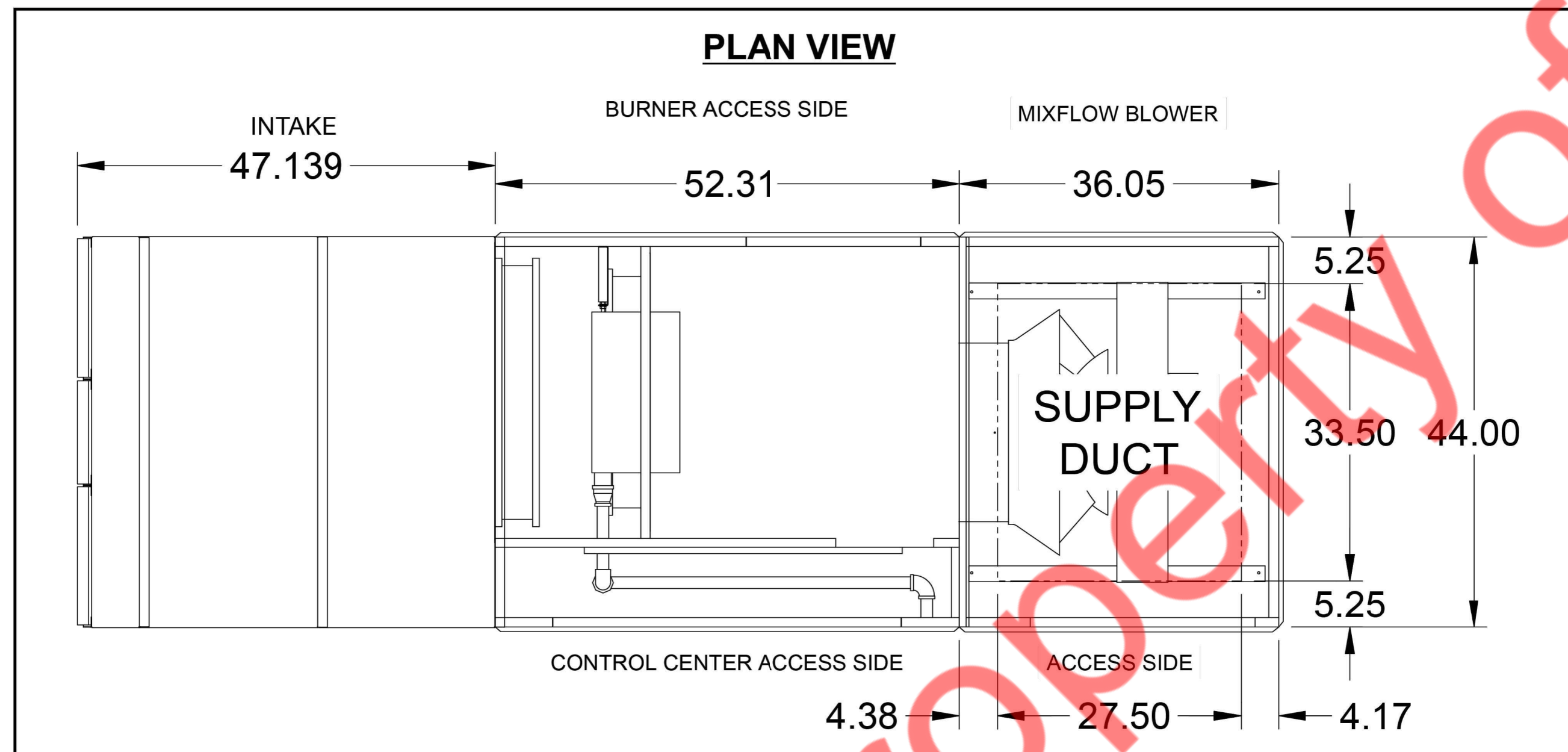
Gas and Electrical Connections



ISSUED REVISIONS:



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



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

XD1 Type 2, Heat and Condensate Hood

Model	Hood Length (in.)	Width (in.)	Height (in.)	Exhaust Volume (CFM)	Exhaust SP (in. w.g.)	Condensate Baffle	Gutter
XD1	42	42	24	525	0.271	No Baffle	Yes

Selected Options & Accessories:

Option or Accessory	Description
Mounting Height	80 in. off Finished Floor
Ceiling Enclosures	18 in. High on Front Right

Material: 300 Series SS 100% Construction (Hanger brackets - galvanized steel)

Features: Stainless Steel Finish for Higher Corrosion Resistance

Section Data:

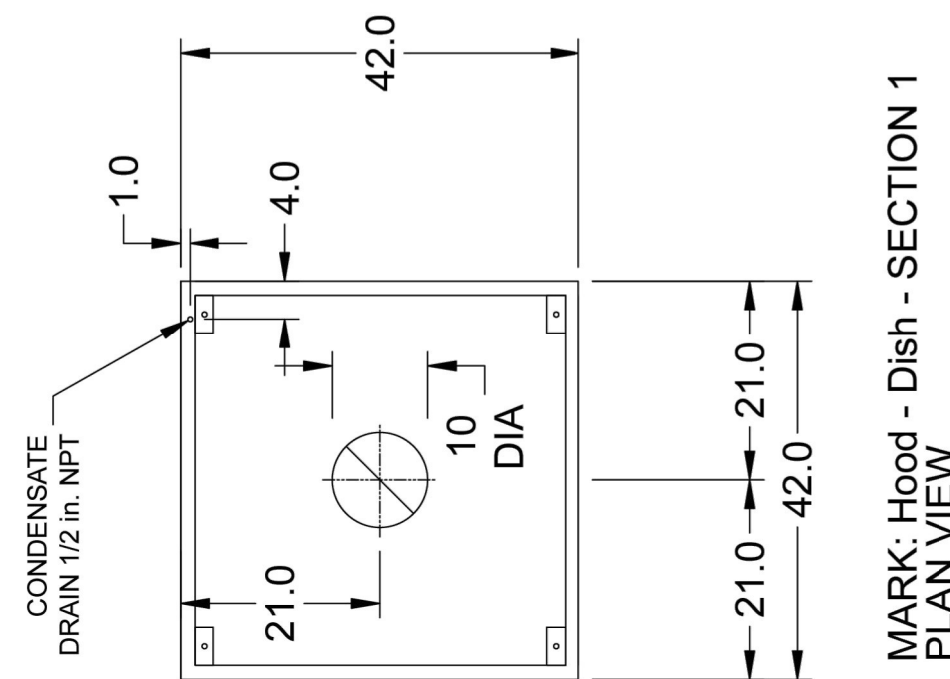
Section Num.	Length (in.)	Weight (LBS)	Volume (CFM)	SP(in. w.g.)	Drain	Light Qty	Light Type	Foot Candles
1	42.00	81.000	525.0	0.111	Right	0		na

Exhaust Collar Data:

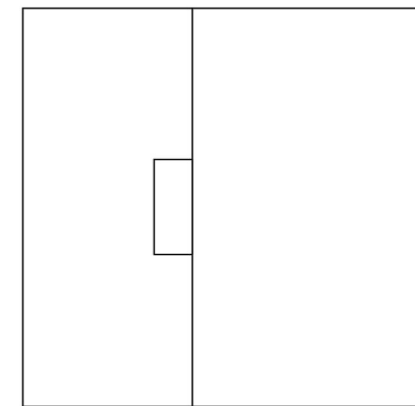
Section Num.	Collar Num.	Collar Size (LxW) in. or Diameter (in.)	Pos. Off Left (in.)	Pos. Off Back (in.)	Velocity (fpm)	Mounting Option
1	1	10	21	21	963	Factory Mounted Exhaust Collar(s)

ISSUED REVISIONS:

Keke's Breakfast Cafe
 HOOD DRAWINGS (5 OF 6)



MARK: Hood - Dish - SECTION 1
 PLAN VIEW



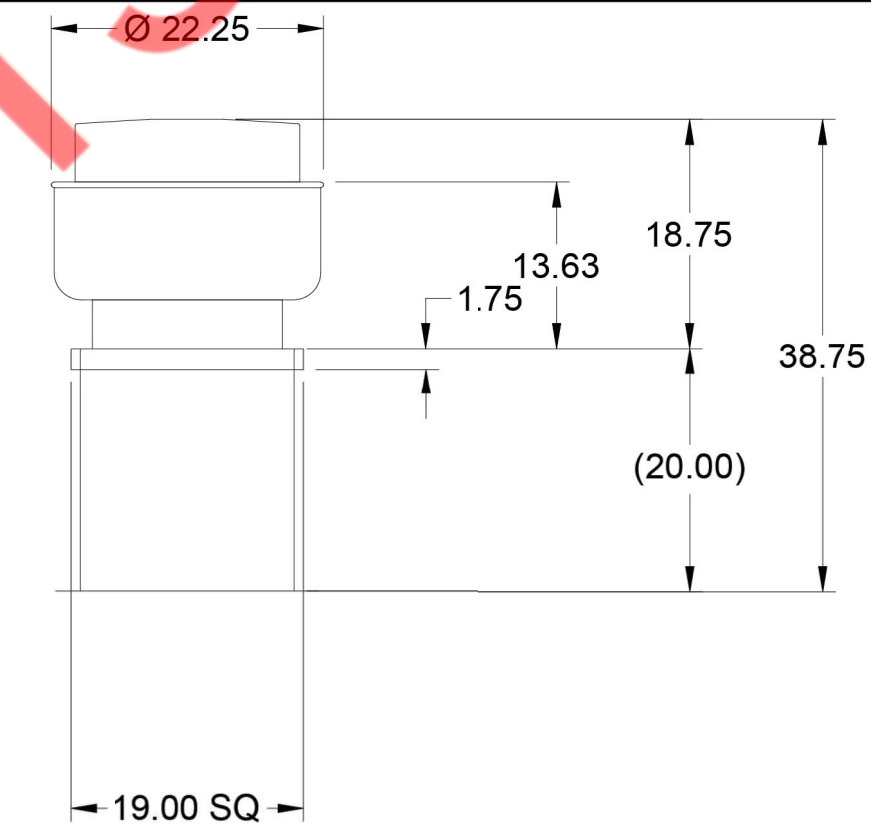
MARK: Hood - Dish - SECTION 1
 ELEVATION VIEW



NOTE: All dimensions are in units of in.



Model: XCUE-095-VG
 Direct Drive Upblast Centrifugal Roof Exhaust Fan



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	34
Weight w/ Acc's (lb)	37
Weight w/ Acc's and Curb (lb)	66
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	10 x 10
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	525
Actual Volume (CFM)	525
Total External SP (in. wg)	0.5
Fan RPM	1516
Operating Power (hp)	0.1
Elevation (ft)	1,027
Airstream Temp.(F)	90
Air Density (lb/ft3)	0.070
Tip Speed (ft/min)	4,317
Static Eff. (%)	41

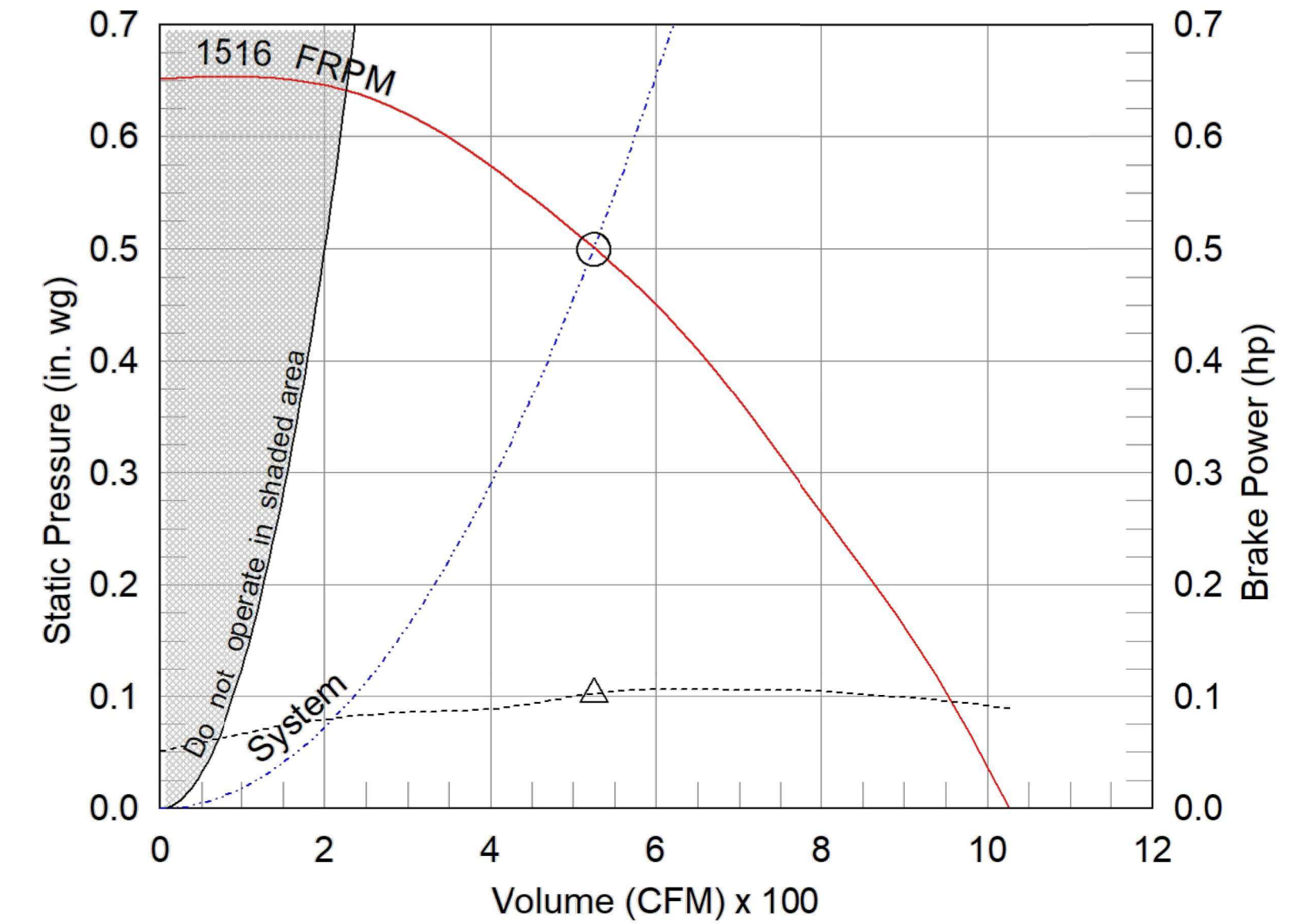
Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	453

Motor	
Motor Mounted	Yes
Size (hp)	1/6
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.3
Min. Circuit Ampacity (MCA)	3
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	74	73	72	64	55	57	52	32	67	56	7.7

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- Brake horsepower curve

Notes:

All dimensions shown are in units of in.
 *NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
 LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft - dBA levels are not licensed by AMCA International
 Sones - calculated using ANSI/AMCA 301 at 5 ft



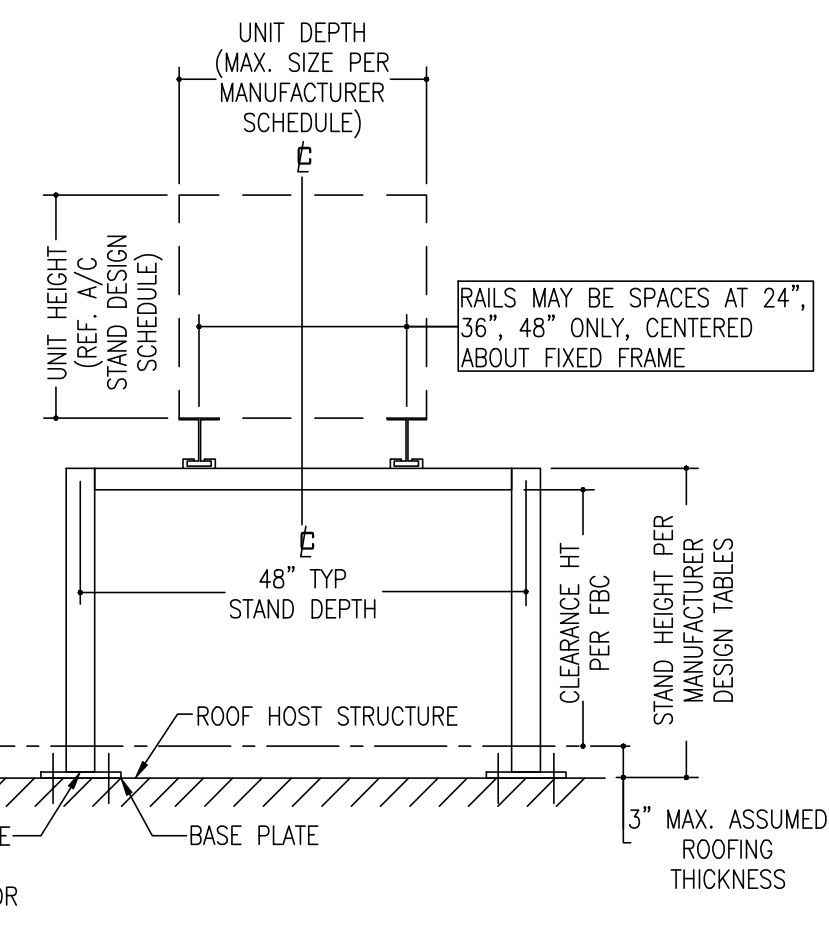
ISSUED REVISIONS:

STAND TO BE MANUFACTURED BY
PRECISION ALUMINUM PRODUCTS, INC.
1339 SW 1ST WAY
DEERFIELD BEACH, FL 33442
(954) 480-6919
SRF471@ATB.COM

"FIXED HD" STAND BY
PRECISION ALUMINUM
PRODUCTS, INC. INSTALL
PER MANUFACTURER
RECOMMENDATION.

VERIFY THE SIZE OF
EQUIPMENT FURNISHED
WITH THE APPROVED
SHOP DRAWINGS.

REFER TO FL PRODUCT APPROVAL
NUMBER #FL16921-R5



"FIXED" ASSEMBLY ELEVATION

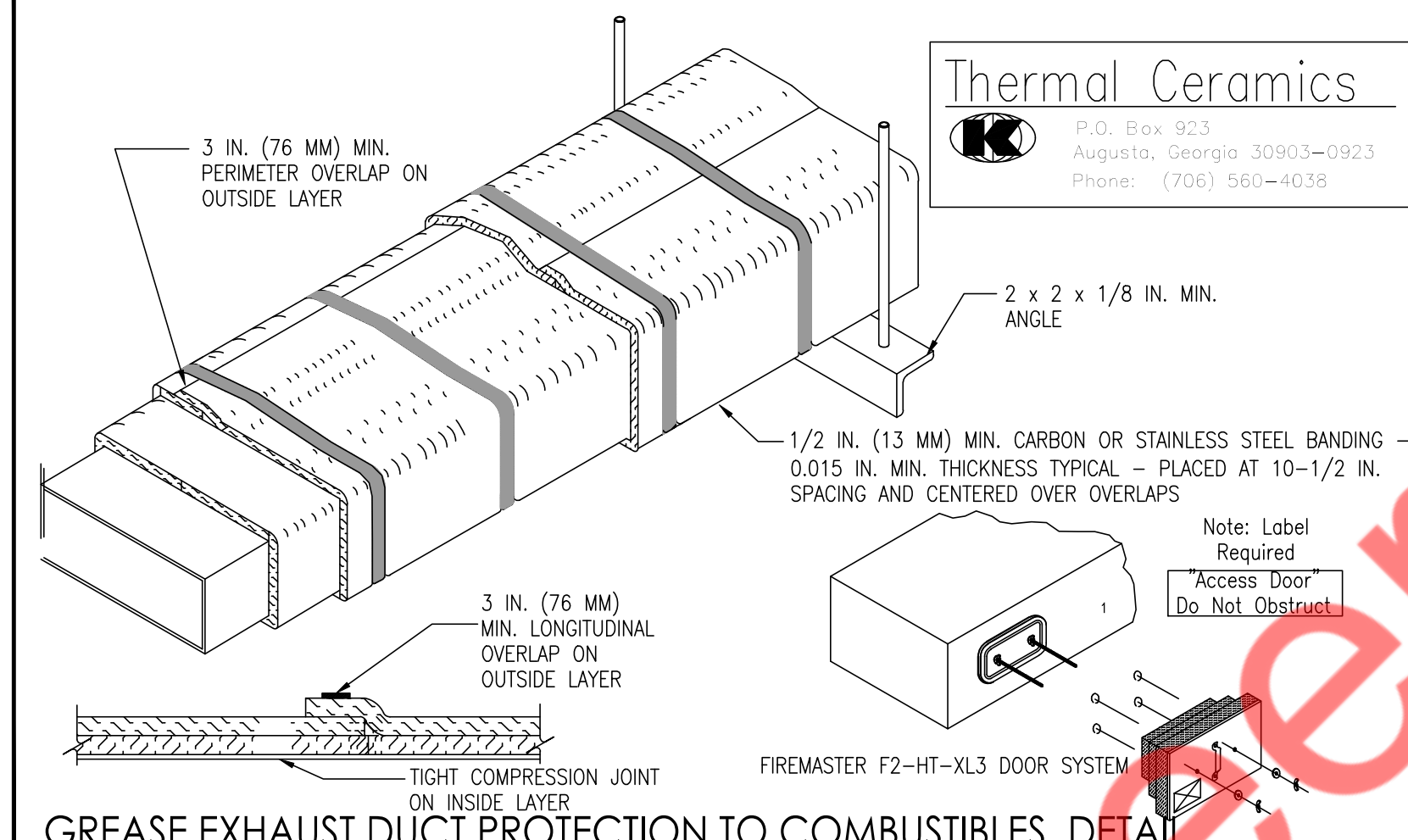
REFRIGERATION SYSTEM FRAMING SUPPORT

NTS

GENERAL NOTES:

1. THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE STRUCTURAL PROVISIONS OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023) & THE 2021 INTERNATIONAL BUILDING CODE FOR USE WITHIN AND OUTSIDE OF THE HIGH VELOCITY HURRICANE ZONE.
2. CONTRACTOR SHALL ENSURE THAT EACH INSTALLATION ASSEMBLY MEET MINIMUM CLEARANCE HEIGHT PER FBC SECTION 1510.10 FOR NON-HVHZ APPLICATION AND SECTION 1522 FOR HVHZ APPLICATIONS.
3. ALL FASTENERS TO BE #10 OR GREATER SAE GRADE 5, UNLESS NOTED OTHERWISE, CADMIUM PLATED OR OTHERWISE CORROSION RESISTANT MATERIAL AND SHALL COMPLY WITH ANY APPLICABLE FEDERAL, STATE, AND LOCAL CODES. PROVIDE (5) PITCHES MIN PAST THREAD PLANE.
4. ALL EXTRUDED MEMBERS SHALL BE ALUMINUM ALLOY TYPED 6061-T6 OR 6005-T5.
5. ALUMINUM WELDING SHALL BE PERFORMED IN ACCORDANCE WITH FBC SECTION 2003.8.1.4. WITH WELD FILLER ALLOYS MEETING ANSI/AWS A5.10 STANDARDS TO ACHIEVE ULTIMATE DESIGN STRENGTH IN ACCORDANCE WITH THE ALUMINUM DESIGN MANUAL, TABLE A.3.6 WELD FILLER: 5383 ELECTRODES. ALL ALUMINUM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TOLERANCE, QUALITY AND METHODS OF CONSTRUCTION AS SET FORTH IN FBC SECTION 2003.2 AND THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE-ALUMINUM. MINIMUM WELD IS 1/8" THROAT FULL PERMETER FILLET WELD UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR IS RESPONSIBLE TO INSULATE MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
7. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE PER MANUFACTURER RECOMMENDATION AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
8. AC STANDS SHALL BE LABELED CONTAINING: PRECISION ALUMINUM PRODUCTS, INC DEERFIELD BEACH, FL FLORIDA PRODUCT APPROVAL NUMBER

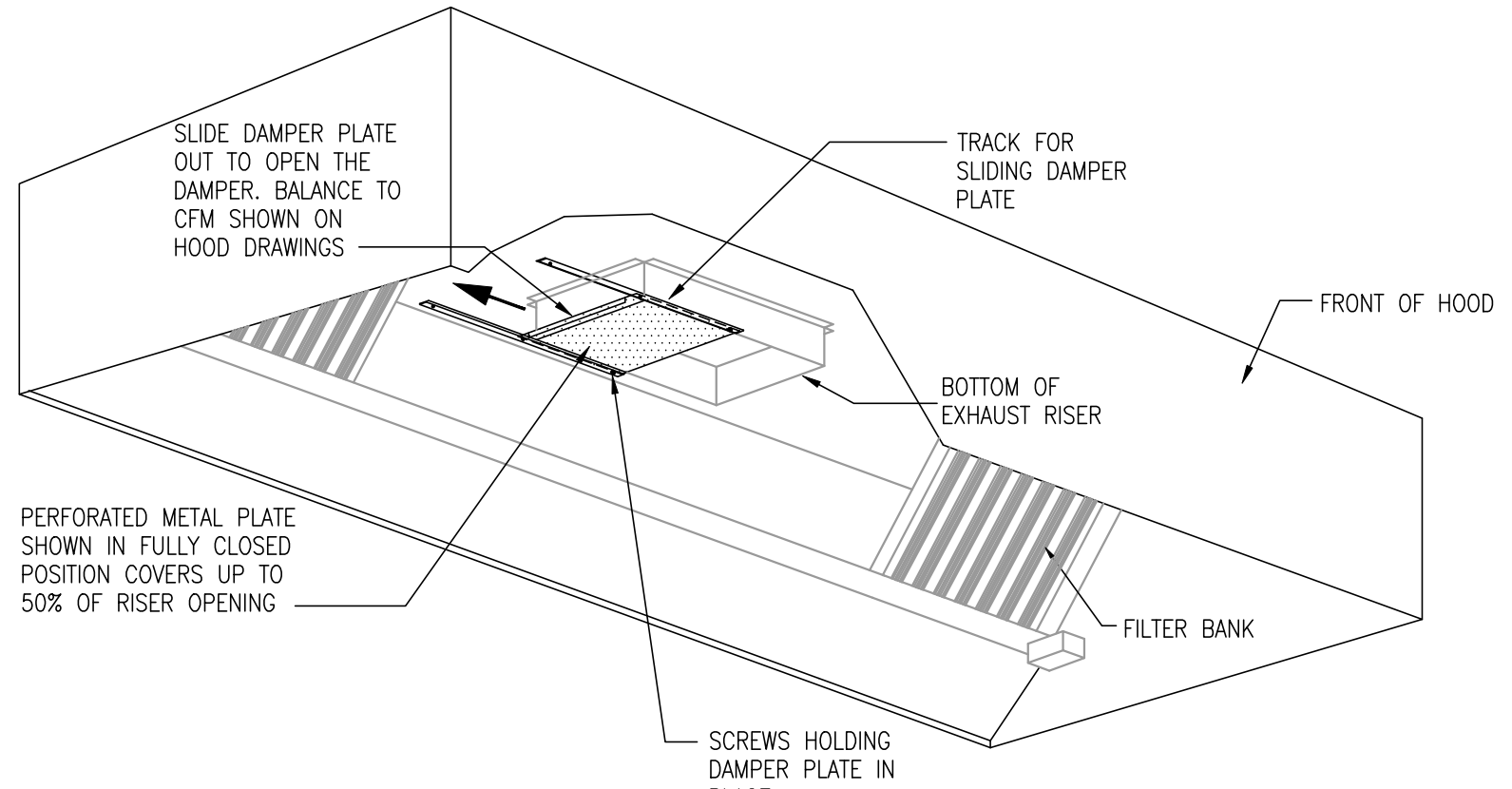
REFER TO MANUFACTURER DRAWINGS FOR COMPLETE SPECIFICATIONS AND REQUIREMENTS.



GREASE EXHAUST DUCT PROTECTION TO COMBUSTIBLES DETAIL

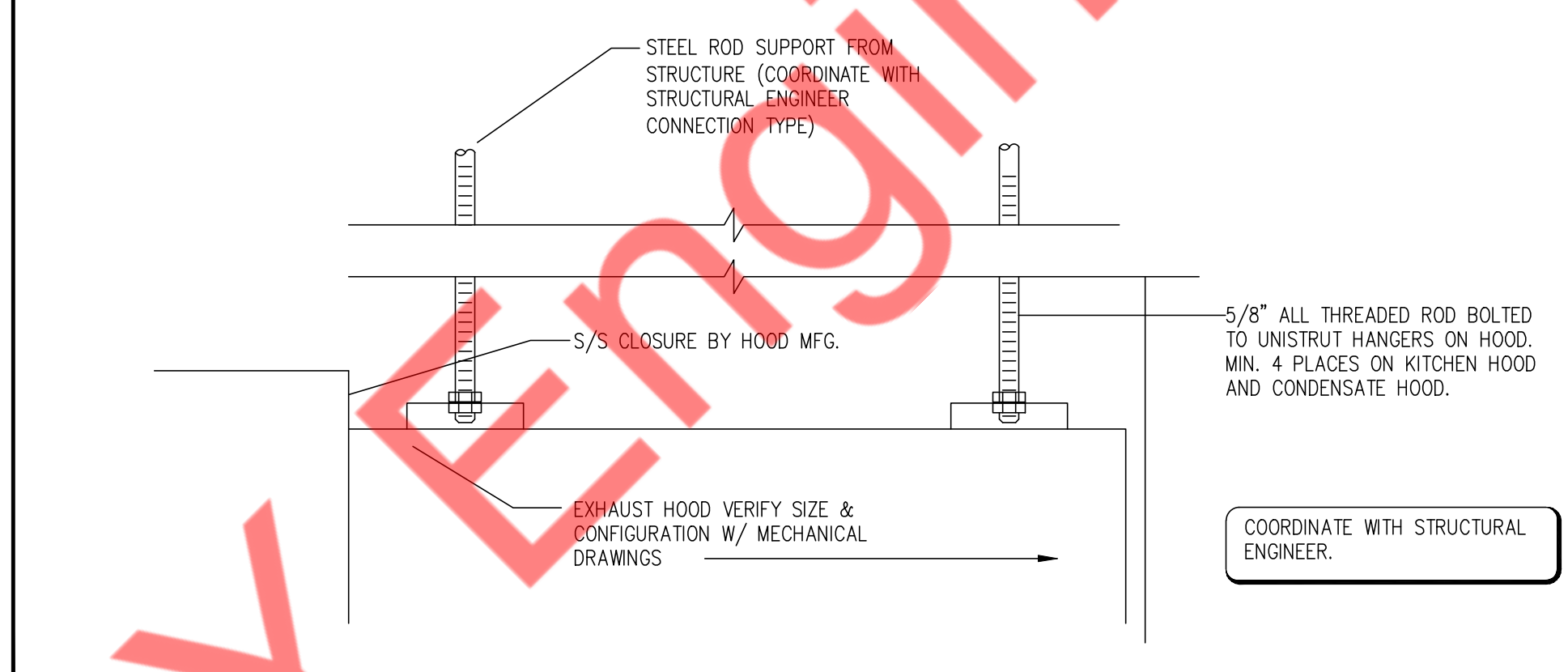
NTS

1. THERMAL CERAMICS FIREMASTER FASTWRAP XL OR PYROSCAT XL HAS BEEN TESTED IN ACCORDANCE WITH ASTM E2336 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND MEETS THE REQUIREMENTS FOR ONE OR TWO HOUR ENCLOSURES. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH EITHER ASTM E 814 OR UL 1479. ICC-ES APPROVAL PER REPORT ESR 2213 OR ESR 2832. UNDERWRITER'S LABORATORIES (UL) LISTINGS SHOW COMPLIANCE TO UL 1479 FOR THROUGH PENETRATION FIRESTOP SYSTEMS.
2. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON INSIDE LAYER AND 3 INCH MINIMUM OVERLAPS ON BOTH PERIMETER AND LONGITUDINAL OVERLAPS ON OUTSIDE LAYER.
3. GREASE EXHAUST DUCT RUNS FROM THE HOOD EXHAUST CONNECTION UP TO THE EXHAUST FAN ON THE ROOF WITH MINIMAL TURNS OR BENDS AND MAINTAINING MINIMUM 1/4 UNIT VERTICAL RISE PER 12 UNITS HORIZONTAL RUN. NFPA 96 COMPLIANT ACCESS DOORS LOCATED AS REQUIRED BY CODE.
4. THERMAL CERAMICS FIREMASTER ACCESS DOORS AS SPECIFIED IN ICC-ES BUILDING CODE REPORTS ESR 2213 OR ESR 2832.
5. ROOF MOUNTED EXHAUST FAN IS MOUNTED ON A HINGED BASE WHICH ALLOWS ACCESS TO THE DUCT FROM THE ROOF.
6. SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE AT LEAST A MINIMUM OF 3/8 IN. DIAMETER. USE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
7. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
8. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED ON THE DUCT FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.



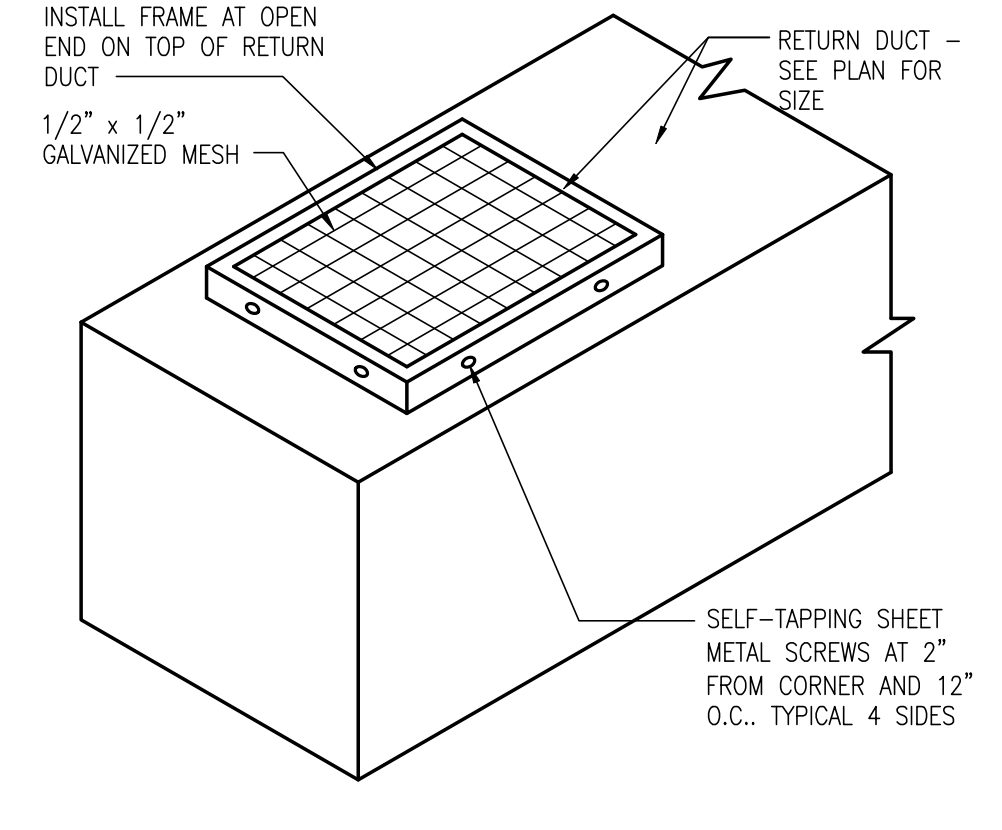
HOOD DAMPER PLATE BALANCING DAMPER DETAIL

NTS



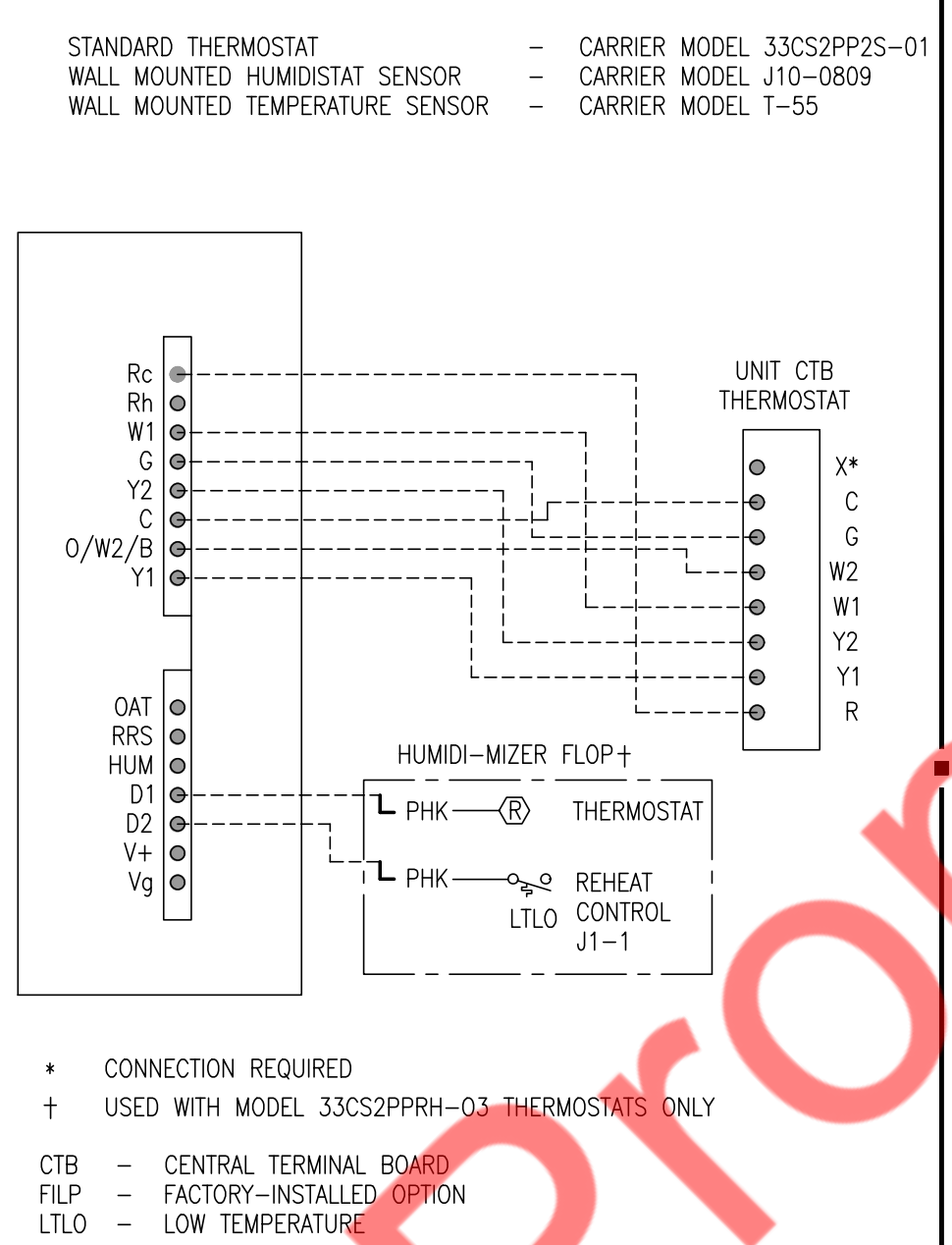
KITCHEN HOOD SUPPORT DETAIL

NTS



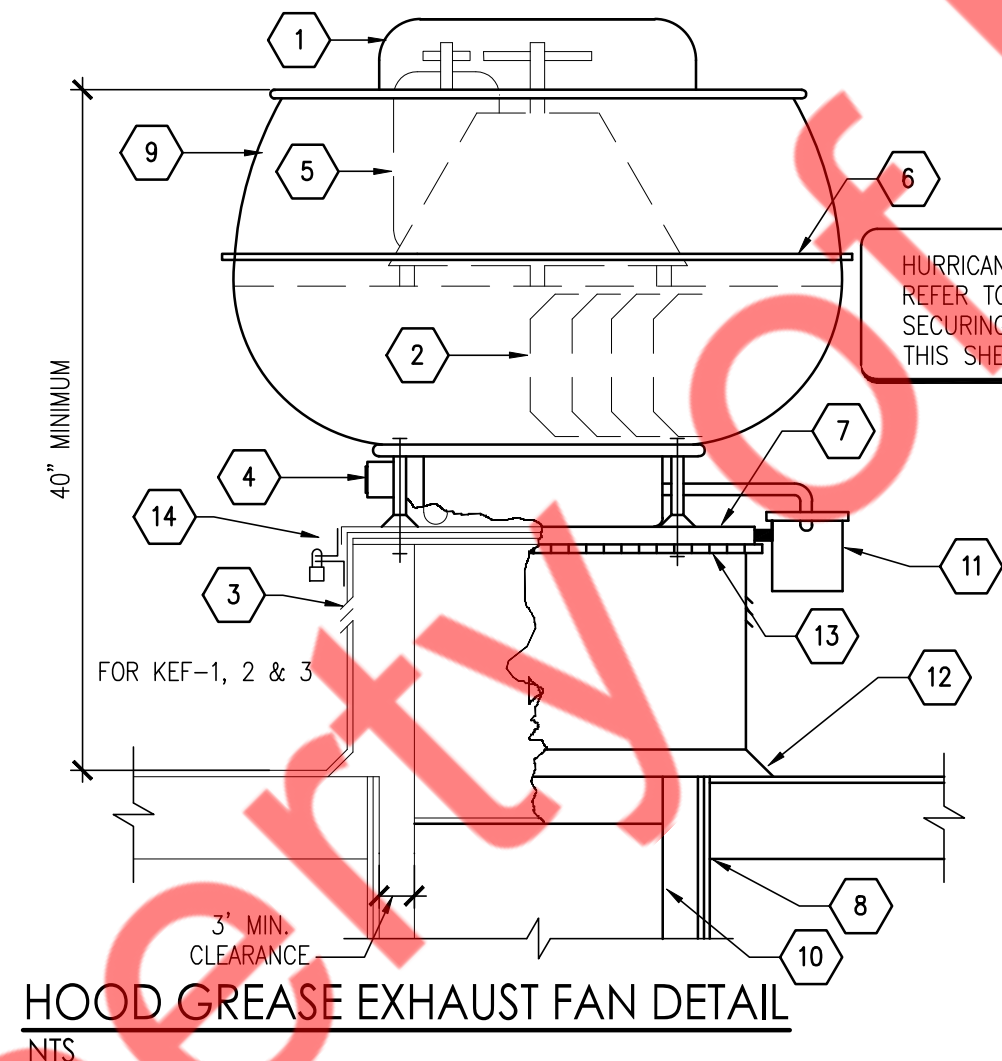
RETURN AIR TOP OF DUCT DETAIL

NTS



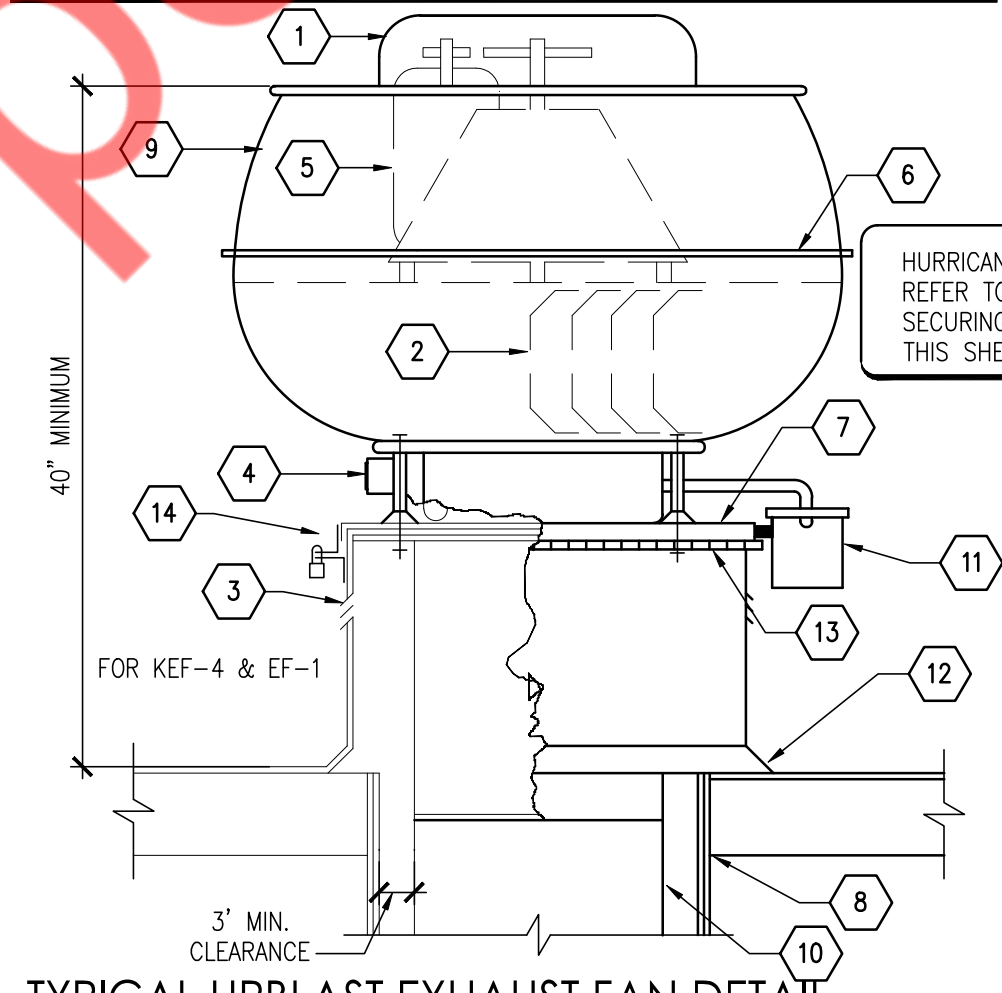
THERMOSTAT DIAGRAM DETAIL

NTS



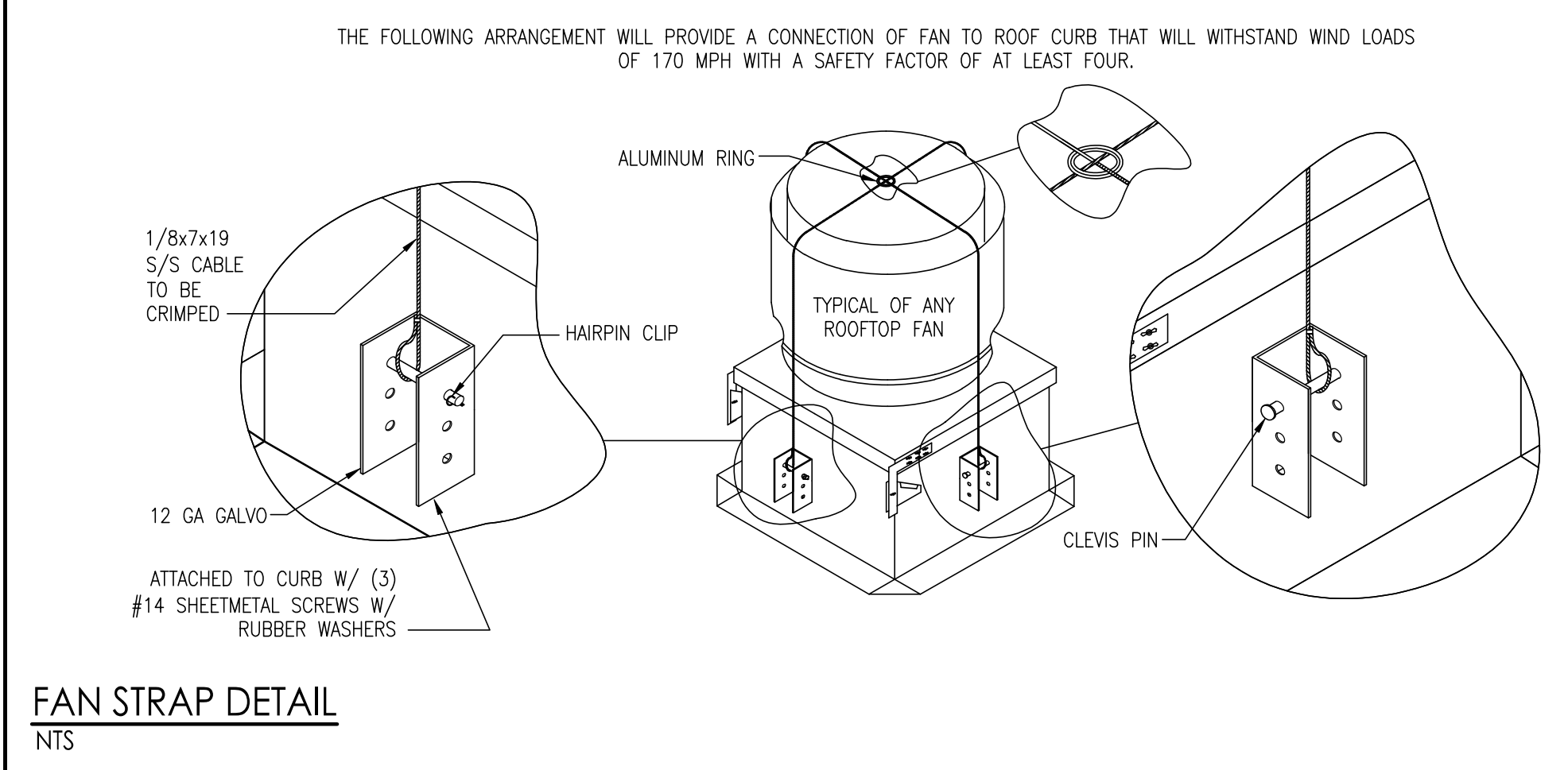
HOOD GREASE EXHAUST FAN DETAIL

NTS



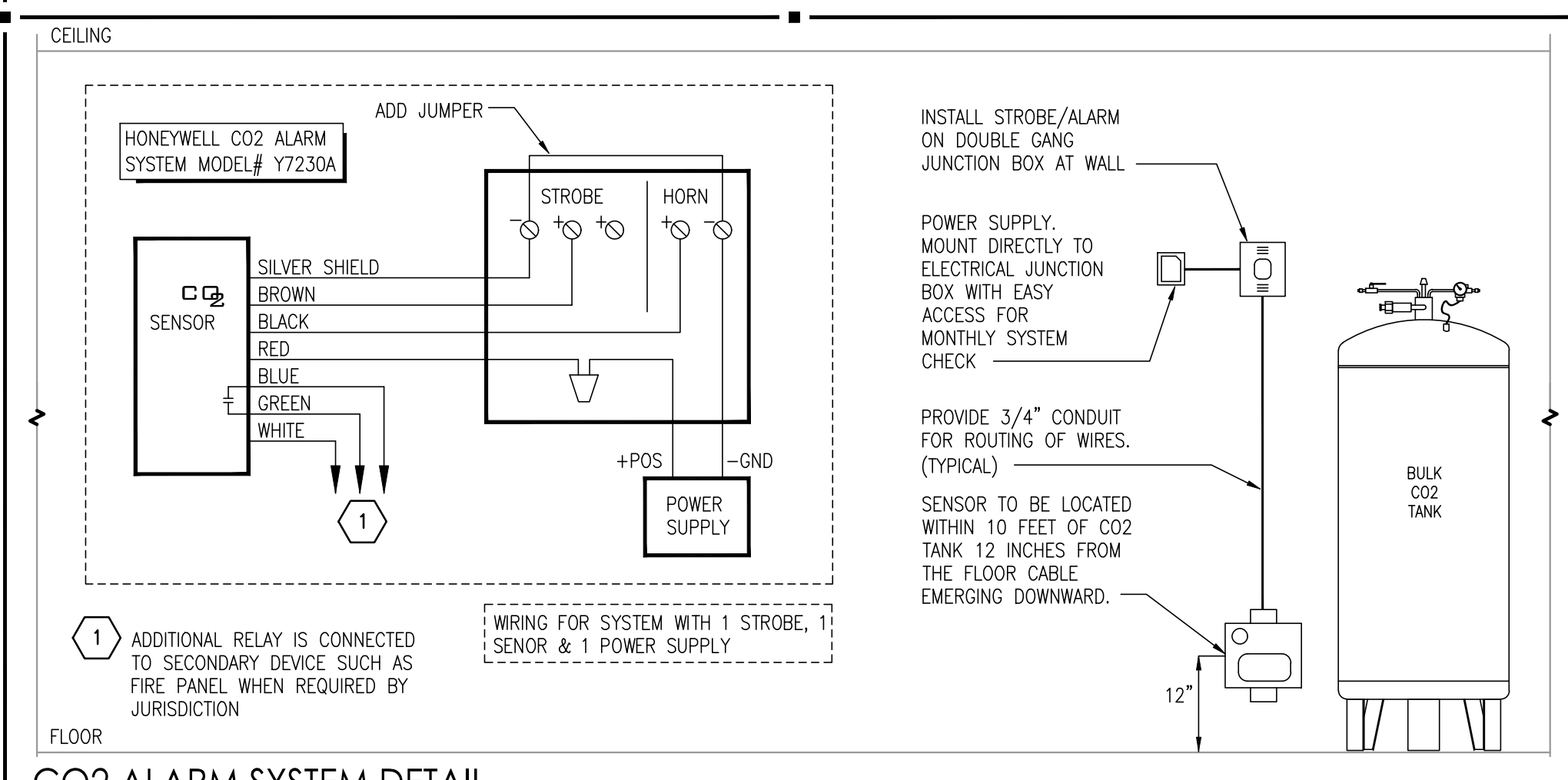
TYPICAL UPBLAST EXHAUST FAN DETAIL

NTS



FAN STRAP DETAIL

NTS



CO2 ALARM SYSTEM DETAIL

NTS

ISSUED REVISIONS:

Keke's Breakfast Cafe
MECHANICAL DETAILS (2 OF 2)

M-401

**CONTROL SEQUENCE OF OPERATIONS: RTU
(ELECTRIC/GAS HEAT)**

GAS HEATING ELECTRIC COOLING RTU SEQUENCE OF OPERATION

DAY CYCLE - COOLING

- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL BE IN MINIMUM POSITION.
- THERMOSTAT SHALL CYCLE COMPRESSOR(S) TO MAINTAIN ROOM SET TEMPERATURE.

DAY CYCLE - HEATING

- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL BE IN MINIMUM POSITION.
- THERMOSTAT SHALL CYCLE NATURAL GAS HEATER TO ACHIEVE ROOM SET TEMPERATURE.

DAY CYCLE - DEHUMIDIFICATION

- SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.
- MECHANICAL OUTSIDE AIR DAMPERS SHALL BE IN OPEN POSITION.
- RESTROOM EXHAUST FANS SHALL BE ENERGIZED.
- HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY.

ECONOMIZER

- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL MODULATE FROM MINIMUM TO 100% OUTSIDE AIR TO MAINTAIN ROOM SET TEMPERATURE.

MORNING WARM-UP

- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL BE IN CLOSED POSITION.
- THERMOSTAT SHALL CYCLE RTU TO REACH ROOM SET TEMPERATURE.
- WHEN SET TEMPERATURE IS REACHED COOLING OR HEATING CYCLE SHALL COMMENCE.

NIGHT SETBACK

- ALL HOODS AND EXHAUST FANS SHALL BE DE-ENERGIZED.
- OUTSIDE AIR DAMPER SHALL BE IN CLOSED POSITION.
- THERMOSTAT SHALL CYCLE EITHER COOLING OR HEATING AND SUPPLY AIR FAN TO MAINTAIN ROOM SET TEMPERATURE.

SMOKE DETECTOR

- WHEN SMOKE DETECTOR IS ACTIVATED SUPPLY AIR FAN SHALL SHUTDOWN.
- FIRE ALARM SHALL BE SIGNALLED.
- SUPPLY AIR FAN SHALL BE MANUALLY RESET.

THERMOSTAT SCHEDULE					
MARK	SERVICE LOCATION	OCCUPIED		UNOCCUPIED	
		COOLING	HEATING	COOLING	HEATING
RTU-1,2,3	SEE PLAN	78	68	80	60

NOTES:
1. CONTRACTOR SHALL COORDINATE EXACT OPERATIONAL TIMES WITH OWNER/MANAGER PRIOR TO PROGRAMMING.

BUILDING AIR BALANCE SCHEDULE		
MARK	OUTSIDE AIR	EXHAUST
EF-1	-	-600
KEF-1	-	-2000
KEF-2	-	-2000
KEF-3	-	-1750
KEF-4	-	-525
RTU-1	+800	-
RTU-2	+800	-
RTU-3	+800	-
MAU-1	+4600	-
TOTAL	7000	-6875
BUILDING POSITIVE AIR BALANCE:		125

AIR DISTRIBUTION SCHEDULE										
TAG	SERVICE	MANUFACTURER & MODEL NO.	NECK SIZE	FACE SIZE	FRAME TYPE	PATTERN	DAMPER	MATERIAL	FINISH	NOTES
SD-1	SUPPLY	TITUS / TMRA-AA	SEE PLAN	24"x24"	LAY IN	4-WAY	YES	ALUMINUM	WHITE	1,2,4,5,6
SD-2	SUPPLY	TITUS / PAS-AA	SEE PLAN	24"x24"	LAY IN	1-WAY	YES	ALUMINUM	WHITE	1,2,4,6
SD-3	SUPPLY	TITUS / TMRA-AA	SEE PLAN	12"x12"	LAY IN	4-WAY	YES	ALUMINUM	WHITE	1,2,4,5,6
RD-1	RETURN	TITUS / 50F-NT	SEE PLAN	24"x24"	LAY-IN	SEE PLAN	YES	ALUMINUM	WHITE	2,4,6
RD-2	RETURN	TITUS / 50F-NT	SEE PLAN	12"x12"	LAY-IN	SEE PLAN	YES	ALUMINUM	WHITE	2,4,6
EG-1	RETURN	TITUS / 350FL	SEE PLAN	12"x12"	SEE PLAN	SEE PLAN	YES	ALUMINUM	WHITE	2,4,6

NOTES:
1. PROVIDE WITH OPPOSED BLADE DAMPER AT AIR DEVICE.
2. MAX NC LEVEL 30.
3. PROVIDE SQUARE TO ROUND NECK ADAPTOR.
4. SEE ARCHITECTURAL DRAWINGS FOR COLOR AND FINISH.
5. PROVIDE 4-WAY AIR THROW PATTERN UNLESS OTHERWISE NOTED OR INDICATED.
6. PROVIDE INSULATED BACK ON ALL AIR DEVICES MIN. R6 MIN.

NOTE:
ALL BALANCING DAMPERS MUST BE ACCESSIBLE* CONTRACTOR TO FIELD COORDINATE PRIOR TO INSTALLATION.

VENTILATION SCHEDULE										
OCCUPANCY	AREA (SQFT)	(PEOPLE PER 1000 SQFT)	TOTAL PEOPLE	PEOPLE OUTDOOR RATE (CFM/PERSON)	PEOPLE REQUIRED VENTILATION (CFM)	AREA OUTDOOR AIRFLOW RATE (CFM/SQFT)	AREA REQUIRED VENTILATION (CFM)	TOTAL CFM (PEOPLE & AREA)	ZONE EFFECTIVENESS	TOTAL OA REQUIRED RTU-1,2&3
STORAGE	174	0	0	0	0	0.12	20.88	20.88	0.8	26
PREP/COOKLINE	720	20	10	7.5	75	0.12	86.4	161.4	0.8	202
SERVICE AREA	473	15	5	7.5	37.5	0.12	56.76	94.26	0.8	118
OFFICE	50	5	1	5.0	5	0.06	3.0	8	0.8	10
DINING	1600	70	50	7.5	375	0.18	288	663	0.8	829
WAITING	1122	50	50	7.5	375	0.18	201.96	576.96	0.8	721
SCULLERY	133	20	2	7.5	15	0.12	15.96	30.96	0.8	38.7
VESTIBULE	70	70	2	7.5	15	0.12	8.4	23.4	0.8	30
MEN'S RESTROOM	147	-	-	-	-	-	-	-	-	-
WOMEN'S RESTROOM	150	-	-	-	-	-	-	-	-	-
									REQ'D OA	1975
									PROVIDED OA	7000

OUTSIDE AIR CALCULATION BASED ON THE CURRENT 2018 MECHANICAL CODE VENTILATION REQUIREMENTS

EXHAUST FAN SCHEDULE											
TAG	MANUFACTURER/MODEL	AREA SERVED	LOCATION	CFM	EXTERNAL S.P.	MOTOR (HP)	FAN (RPM)	FLA	VOLTS/PHASE	WEIGHTS (LBS)	NOTES
KEF-1	ACCUREX / XCUE-140-VG	SEE PLAN	ROOF	2000	1.0	0.75	1536	5.4	208V/1PH	120	A-E
KEF-2	ACCUREX / XCUE-140-VG	SEE PLAN	ROOF	2000	1.0	0.75	1536	5.4	208V/1PH	120	A-E
KEF-3	ACCUREX / XCUE-140-VG	SEE PLAN	ROOF	1750	1.0	0.75	1457	5.4	208V/1PH	120	A-E
KEF-4	ACCUREX / XCUE-095-VG	SEE PLAN	ROOF	525	0.5	0.333	1516	2.3	115V/1PH	68	A-E
EF-1	GREENHECK/ G-090-VG	RESTROOMS/MOP SINK	ROOF	600	0.5	1/6	1593	2.6	115V/1PH	43	F,G

NOTES:
A. GREASE EXHAUST FAN AND ACCESSORIES TO BE FURNISHED THRU CAPTIVEAIRE, INSTALLED BY MECHANICAL CONTRACTOR.
B. PROVIDE WITH NON-VENTED ROOF CURB, HINGED BASE CHAIN AND HASP KIT AND BUILT-IN GREASE THROUGH DRAIN FITTING.
C. PROVIDE NEMA 3R DISCONNECT SWITCH.
D. PROVIDE WITH HOOD ON/OFF TOGGLE SWITCH. INTERLOCK TO CONTROL PANEL.
E. PROVIDE WITH FACTORY CURB. SEE HOOD DRAWINGS FOR MORE INFORMATION.
F. PROVIDE BACKDRAFT DAMPER AND STAINLESS STEEL BIRDSCREEN.
G. MECHANICAL CONTRACTOR TO PROVIDE RESTROOM EXHAUST FAN & WIRED SPEED CONTROLLER CONCEALED AND ACCESSIBLE.

AIR DOOR CURTAIN SCHEDULE											
TAG	MANUFACTURER/MODEL	LOCATION	NOZZLE WIDTH (IN.)	AVERAGE NOZZLE VELOCITY (FPM)	AIR VOLUME (CFM)	HEATING CAPACITY (KW)	TEMP. RISE (°F)	VOLTS/PHASE	AMPS	MOCF	WEIGHT (LBS)
AD-1	BERNER/ CHD10-1036E	BACK DOOR	36	1,928	1,687	6	11	208V/3P/60HZ	20.2	30	52

NOTES:
1. FACTORY INSTALLED FAN ON/OFF SWITCH MOUNTED ON UNIT.
2. FACTORY INSTALLED 3 SPEED SWITCH MOUNTED ON UNIT.
3. FACTORY PROVIDED DOOR SWITCH, INSTALLED BY MECHANICAL CONTRACTOR TO ENGAGE AIR CURTAIN WHEN THE DOOR IS OPENED AND SHUTS OFF WHEN THE DOOR IS CLOSED.

ROOFTOP UNIT (RTU) SCHEDULE (ELECTRIC COOLING/GAS HEAT)				
MARK	RTU-1	RTU-2	RTU-3	MAU-1
MANUFACTURER	TRANE	TRANE	TRANE	ACCUREX
MODEL NUMBER	YSK150A350H	YSK150A350H	YSK240A350H	XDGX-P1116-H22-MF
NOMINAL TONNAGE	12.5	12.5	20	-
AREA SERVED	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN
EER/IEER	10.8/14.0	10.8/14.0	9.8/13	-
INDOOR FAN C.F.M.	5000	5000	8000	4600
EXTERNAL STATIC PRESSURE	2.0"	2.0"	2.0"	1.5"
CONDENSER AMBIENT CONDITIONS				
TEMPERATURE °F	95	95	95	95
MINIMUM OUTDOOR AIR (CFM)	800	800	800	4600
PERCENTAGE OF OUTDOOR AIR	16%	16%	10%	100%
COOLING				
ENTERING AIR TEMP. DB. / WB. °F	80/67	80/67	80/67	80/67
TOTAL COOLING CAPACITY (MBH)	158.4	158.4	248.9	-
SENSIBLE COOLING CAPACITY (MBH)	121.4	121.4	186.5	-
HEATING				
HEATING INPUT (MBH)	250.0	250.0	400.0	266.2
HEATING OUTPUT (MBH)	202.5	202.5	324.0	244.9
THERMAL EFFICIENCY (%)	81%	81%	81%	91%
ELECTRICAL DATA (VERIFY WITH ELEC. PRIOR TO ORDERING UNITS)				
VOLTS / PHASE	208-230/3PH/60HZ	208-230/3PH/60HZ	208-230/3PH/60HZ	208/3PH/60HZ
SUPPLY FAN RPM	-	-	-	-
INDOOR FAN MOTOR - FLA	-	-	-	-
COMPRESSORS RLA	-	-	-	-
COMPRESSORS LRA	-	-	-	-
MINIMUM CIRCUIT AMPS	73	73	118	13.9
MAXIMUM OVERCURRENT PROTECTION (AMPS)	100	100	150	20
UNIT WEIGHT (LBS.)	1600	1600	2550	1100
UNIT OPTIONS:	1-13	1-13	1-13	SEE ACCUREX HOOD DRAWINGS
INCLUDED SYSTEM OPTIONS RTU				
1. REFERENCE ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS FOR COORDINATION. 2. PROVIDE NEW FULLY INSULATED CURB WITH SLOPE TO MATCH GROUND PITCH AS REQUIRED. 3. PROVIDE ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL. PROVIDE WITH CODE REQUIRED 4. ECONOMIZER FAULT DETECTION. 5. PROVIDE 2-STAGE COOLING COMPRESSOR ASSEMBLY. 6. PROVIDE GAS HEATING ASSEMBLY. 7. PROVIDE DEHUMIDIFICATION SYSTEM WITH FIELD INSTALLED TEMPERATURE/HUMIDITY THERMOSTAT. 8. PROVIDE CONDENSER COIL HAIL GUARDS. 9. PROVIDE 2" PLEATED DISPOSABLE MERV 8 MINIMUM FILTERS. 10. PROVIDE FACTORY INSTALLED DISCONNECT SWITCH AND NON-POWERED GFI RECEPTACLE. 11. PROVIDE 5 YEAR COMPRESSOR AND 10 YEAR HEAT EXCHANGER WARRANTIES. 12. PROVIDE DUCT SMOKE DETECTOR, RELAY, AND TEST INDICATOR DEVICES. COORDINATE REQUIREMENTS WITH ELECTRICAL CONTRACTOR. 13. VERIFY ELECTRICAL CHARACTERISTICS WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING UNIT.				
MAU NOTES				
1. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS & MAINTAIN ALL SERVICE CLEARANCES. 2. COORDINATE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNIT. 3. ELECTRICAL CONNECTION TO BE SINGLE POINT AND TO BE THROUGH THE BOTTOM OF THE UNIT. 4. PROVIDE FACTORY CURBS WITH WIND LOAD RATINGS. REFER TO DETAIL FOR UNIT INSTALLATION. 5. HEAT EXCHANGER SHALL HAVE A MINIMUM 10-YEAR PARTS WARRANTY. 6. UNITS SHALL COME WITH 1ST YEAR PARTS AND LABOR WARRANTY. 7. CONTRACTOR TO PROVIDE ONE SET OF ADDITIONAL FILTERS. 8. ALTERNATE MANUFACTURERS AND MODELS WILL BE REVIEWED. THERE MAY BE ARCHITECTURAL STRUCTURAL, AND ELECTRICAL CHANGES RESULTING FROM THE ALTERNATES. THE COST OF IMPLEMENTING AND ENGINEERING THESE CHANGES SHALL BE BORNE BY THE MECHANICAL SUBCONTRACTOR. 9. UNIT TO BE ENERGIZED WHEN HOOD FANS ARE ON.				
INCLUDED SYSTEM OPTIONS MAU'S				
1. REFER TO ACCUREX DRAWINGS FOR MAU OPTIONS.				
SYSTEM STANDARD FEATURES				
1. HIGH PRESSURE SWITCH (MANUAL RESET)				
BUILDING DEPARTMENT NOTE:				
1. ALL HVAC UNITS AND REQUIRE INTERLINKING FOR FAN SHUTDOWN UPON ACTIVATION OF SPRINKLER FLOW SWITCH OR GLOBAL ALARM. UNITS OVER 2000 CFM REQUIRE DUCT SMOKE DETECTION ON RETURN SIDE PER 2002 NFPA 90A. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL REQUIREMENTS PRIOR TO BID. 2. INTERLOCK ANSUL WITH KITCHEN ROOFTOP UNITS.				
* CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS, WIRE SIZES, BREAKERS, DISCONNECT, ETC. PRIOR TO ORDERING AND BID.				

HARD DUCT SIZE RUNOUT NO FLEX	
CFM	DIA
0-120	6"
125-240	8"
245-400	10"
405-650	12"
655-1000	14"

NOTE:
TYPE I HOODS SHALL BE DESIGNED AND INSTALLED TO AUTOMATICALLY ACTIVATE THE EXHAUST FAN WHENEVER COOKING OPERATIONS OCCUR. THE ACTIVATION OF THE EXHAUST FAN SHALL OCCUR THROUGH AN INTERLOCK WITH THE COOKING APPLIANCES, BY MEANS OF HEAT SENSORS OR BY MEANS OF OTHER APPROVED METHODS.

ISSUED REVISIONS:



COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code: 2015 IECC
 Project Title: Keke's Breakfast Cafe - Tucker
 Location: Atlanta, Georgia
 Climate Zone: 3a
 Project Type: Alteration

Construction Site: 4353 LAWRENCEVILLE HIGHWAY TUCKER, Georgia 30084
 Owner/Agent:
 Designer/Contractor: MICHAEL TOBIAS NY ENGINEERS 382 NE 191st STREET SUITE 49674 MIAMI, Florida 33179

Mechanical Systems List

Quantity System Type & Description

- 2 RTU-1& 2 (Single Zone):
 Heating: 1 each - Central Furnace, Gas, Capacity = 250 kBtu/h
 Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et
 Cooling: 1 each - Single Package DX Unit, Capacity = 158 kBtu/h, Air-Cooled Condenser, Air Economizer
 Proposed Efficiency = 10.80 EER, Required Efficiency = 10.80 EER
 Proposed Part Load Efficiency = 14.00 IEER, Required Part Load Efficiency = 12.20 IEER
- 1 RTU-3 (Single Zone):
 Heating: 1 each - Central Furnace, Gas, Capacity = 400 kBtu/h
 Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et
 Cooling: 1 each - Single Package DX Unit, Capacity = 248 kBtu/h, Air-Cooled Condenser, Air Economizer
 Proposed Efficiency = 9.80 EER, Required Efficiency = 9.80 EER
 Proposed Part Load Efficiency = 13.00 IEER, Required Part Load Efficiency = 11.40 IEER
- 1 MAU-1 (Single Zone):
 Heating: 1 each - Central Furnace, Gas, Capacity = 266 kBtu/h
 Proposed Efficiency = 91.00% Et, Required Efficiency: 80.00 % Et
- 1 WH-1:
 Gas Storage Water Heater, Capacity: 100 gallons, Input Rating: 199 kBtu/h w/ Circulation Pump
 Proposed Efficiency: 97.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

MICHAEL TOBIAS 08/08/25
 Name - Title Signature Date

Project Title: Keke's Breakfast Cafe - Tucker Report date: 08/08/25
 Page 1 of 8



COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COMcheck software
 Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C103.2 [PR3] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Keke's Breakfast Cafe - Tucker Report date: 08/08/25
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Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5, C403.2.4.6 [FO9] ³	Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Keke's Breakfast Cafe - Tucker Report date: 08/08/25
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ISSUED REVISIONS:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [F18] ³	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.2 [F127] ¹	HVAC systems and equipment capacity does not exceed calculated loads.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4.1 [F147] ³	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4.1.2 [F138] ³	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4.1.3 [F120] ³	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4.2 [F139] ³	Each zone equipped with setback controls using automatic time clock or programmable control system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4.2.1, C403.2.4.2.2 [F140] ³	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C404.3 [F111] ³	Heat traps installed on supply and discharge piping of non-circulating systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.4 [F125] ²	All piping insulated in accordance with section details and Table C403.2.10.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C404.6.1 [F112] ³	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.1 [F128] ¹	Commissioning plan developed by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.1 [F131] ¹	HVAC equipment has been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.2 [F110] ¹	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.3 [F132] ¹	Economizers have been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.4 [F129] ¹	Preliminary commissioning report completed and certified by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5.1 [F17] ³	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5.3 [F143] ¹	An air and/or hydronic system balancing report is provided for HVAC systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5.4 [F130] ¹	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

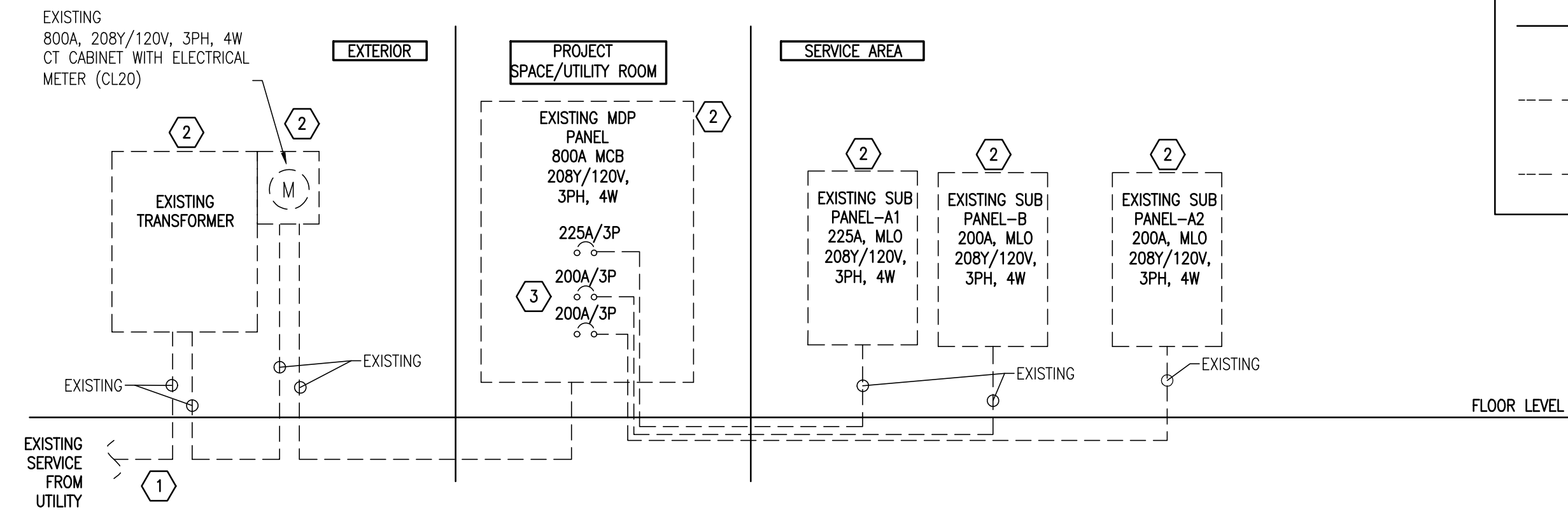
1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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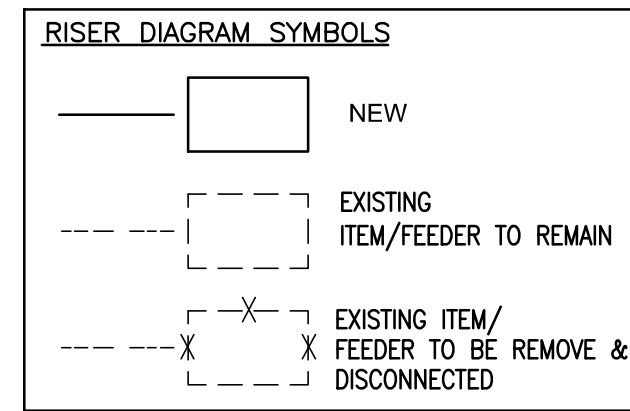
ISSUED REVISIONS:

MECHANICAL SPECIFICATION

<p>1. GENERAL INFORMATION</p>	<p>1.10.3. EXPOSED FINISHED MATERIALS AND EQUIPMENT SHALL BE CAREFULLY CLEANED AND WIPED TO REMOVE GREASE, SMUDGES, FINGERPRINTS, DUST AND OTHER SPOTS AND LEFT SMOOTH AND CLEAN.</p>	<p>1.13.5.2.10. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT. REQUIRED ROUTINE MAINTENANCE ACTIONS, CLEANING RECOMMENDATIONS SHALL BE CLEARLY IDENTIFIED.</p>	<p>COLUMN LINES.</p>	<p>IN DETAIL, OBTAIN MANUFACTURER'S RECOMMENDED INSTRUCTIONS, AND HAVE SUBMITTALS PREPARED BASED ON SPECIFIC EQUIPMENT AND MATERIAL PROPOSED FOR INSTALLATION.</p>
<p>1.1. PROVIDE ALL SUPPLIES, MATERIAL, LABOR, EQUIPMENT, AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION AND FULL OPERATION OF ALL MECHANICAL AND MECHANICAL RELATED WORK, INDICATED HEREINAFTER ON DRAWINGS AND SPECIFICATIONS, FOR A SAFE AND FULLY OPERATIONAL SYSTEM.</p>	<p>1.10.4. CLEAN THE EXTERIOR OF MECHANICAL COMPONENTS PRIOR TO ACCEPTANCE OF WORK.</p>	<p>1.13.5.2.11. A SCHEDULE FOR INSPECTING AND RECALIBRATING ALL CONTROLS.</p>	<p>4.5. DRAWING FORMAT FOR THIS PROJECT SHALL BE AUTOCAD 2010.</p>	<p>6.3.1. AN OFFICER OF THE CONTRACTING FIRM SHALL SIGN ALL SHOP DRAWINGS (CERTIFYING CONFORMANCE WITH PLANS AND SPECIFICATIONS) BEFORE SUBMITTING TO THE ARCHITECT OR RELEASING TO THE FIELD.</p>
<p>1.1.1. THE INSTALLED SYSTEM SHALL BE COMPLETE IN EVERY WAY AND FUNCTIONING ACCORDING TO THE DESIGN INTENT, WHETHER OR NOT ALL SUCH MATERIALS AND APPURTENANCES ARE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.</p>	<p>1.10.5. FOR ALL MATERIALS AND DEVICES REMOVED, THE CONTRACTOR SHALL DISPOSE OFF-SITE IN AN APPROVED MANNER. PROVIDE WRITTEN DOCUMENTATION FOR DISPOSAL OF ALL ITEMS.</p>	<p>1.13.5.2.12. A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SET POINTS.</p>	<p>4.6. ALL ITEMS MOUNTED IN OR BELOW THE CEILING, AND ALL ITEMS PENETRATING THE CEILING, SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. IF ANY ITEMS ARE NOT SHOWN ON THESE PLANS, OR ANY ITEMS NEED TO BE RELOCATED FOR COORDINATION PURPOSES, PREPARE A REFLECTED CEILING PLAN SUBMIT IT TO THE ARCHITECT FOR APPROVAL.</p>	<p>6.4. THE SUBMITTAL PROCESS SHALL NOT BE UTILIZED AS AN AVENUE TO SUBSTITUTE AFTER THE EXECUTION OF THE CONTRACT.</p>
<p>1.2. PERFORM ALL OPERATIONS INCLUDING EXCAVATION & BACKFILLING, SHORING, CUTTING, CHANNELING & CHASING, DE-WATERING, ETC. NECESSARY FOR INSTALLATION OF FULLY OPERATIONAL SYSTEM, WHETHER OR NOT SHOWN ON THE DRAWINGS.</p>	<p>1.11. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:</p>	<p>1.13.5.2.13. ALL MANUFACTURERS' DATA APPLICABLE TO THE INSTALLED EQUIPMENT SUCH AS INSTALLATION INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, OPERATING INSTRUCTIONS, ETC.</p>	<p>5. EXISTING CONDITIONS</p>	<p>6.4.1. SHOULD AN UNSPECIFIED OR UNEQUAL PRODUCT BE SUBMITTED, IT WILL BE REJECTED. IF A SECOND ATTEMPT AT SUBSTITUTION IS MADE DURING THE RE-SUBMITTAL OF THE SAME PRODUCT, THEN NO MORE REVIEWS OF THAT PRODUCT WILL BE PERFORMED WITHOUT DIRECT COMPENSATION TO THE ENGINEER BEING PAID FOR THE ADDITIONAL SERVICES REQUIRED FOR THE THIRD REVIEW AND ANY FURTHER REVIEWS.</p>
<p>1.3. DEFINITION OF TERMS</p>	<p>1.11.1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.</p>	<p>1.13.5.2.14. CONTROL DIAGRAMS INCLUDING AN EXPLANATION OF THE CONTROL SEQUENCE OF EACH SYSTEM INCLUDING NORMAL STARTING, OPERATION, SHUTDOWN, POWER FAIL RE-START, AND WINTER SHUTDOWN.</p>	<p>5.1. ATTENTION IS CALLED TO THE FACT THAT THE WORK IS TO BE PERFORMED WITHIN AN EXISTING, OPERATIONAL FACILITY.</p>	<p>6.5. IN ADDITION TO THE OTHER REQUIREMENTS IN PARAGRAPHS ABOVE, THE FOLLOWING APPLIES TO SUBMITTALS OF THIS DIVISION:</p>
<p>1.3.1. FURNISH - SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.</p>	<p>1.11.2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.</p>	<p>1.13.5.2.15. SCHEDULE OF MAINTENANCE AND INSPECTION THAT SHOULD BE PERFORMED BY OWNER, AND THOSE WHICH SHOULD BE PROVIDED BY AN OUTSIDE SERVICE.</p>	<p>5.2. THE FOLLOWING GENERAL PROVISIONS OF THE CONTRACT, INCLUDING THE GENERAL & SUPPLEMENTAL CONDITIONS AND GENERAL REQUIREMENTS, SHALL APPLY TO THE WORK IN THIS DRAWING AND SPECIFICATION SET.</p>	<p>6.5.1. DO NOT INSTALL OR ORDER MECHANICAL EQUIPMENT OR PROCEED WITH THE WORK UNTIL SUBMITTALS HAVE BEEN ACCEPTABLY REVIEWED BY THE OWNER'S REPRESENTATIVE AND STAMPED ACCORDINGLY. EQUIPMENT OR WORK WHICH IS ORDERED OR INSTALLED WITHOUT PRIOR APPROVED SUBMITTALS SHALL, AT THE ENGINEER'S DISCRETION, BE REMOVED AT NO COST TO THE OWNER. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO NEGLECT OF REQUIRED APPROVAL PROCESS.</p>
<p>1.3.2. INSTALL - OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.</p>	<p>1.11.3. FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, EQUIPMENT COMMISSIONING, CALIBRATIONS AND ECONOMIZER CONTROLS AND ADJUSTING BAROMETRIC RELIEF DAMPER.</p>	<p>1.13.5.2.16. COPY OF COMPLETED FIELD ACCEPTANCE TEST PROCEDURE, LOGS, AND ALL DOCUMENTATION ASSOCIATED WITH THE TEST.</p>	<p>5.2.1. VISIT THE SITE OF THE WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS, AND THOROUGHLY REVIEW ALL DRAWINGS, SPECIFICATIONS AND ADDENDA PRIOR TO BIDDING ON THIS WORK. NO EXTRA PAYMENTS TO THE CONTRACT AMOUNT WILL BE ALLOWED FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.</p>	<p>6.5.1. MAKE ALL MECHANICAL SUBMITTALS AT ONE TIME AND WITHIN FOURTEEN (14) CALENDAR DAYS OF OWNER'S "NOTICE TO PROCEED".</p>
<p>1.3.3. PROVIDE - FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.</p>	<p>1.11.4. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.</p>	<p>1.14. GUARANTEE ALL MECHANICAL SYSTEM EQUIPMENT, MATERIALS, AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND PROPERLY CORRECT LATENT DEFECTS ARISING DURING THIS PERIOD UPON NOTIFICATION BY THE OWNER'S REPRESENTATIVE WITHOUT ADDITIONAL COMPENSATION AND TO THE SATISFACTION OF THE ENGINEER AND OWNER'S REPRESENTATIVE.</p>	<p>5.2.2. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED FOR THE INSTALLATION OF WORK.</p>	<p>6.5.1. MAKE ALL MECHANICAL SUBMITTALS AT ONE TIME AND WITHIN FOURTEEN (14) CALENDAR DAYS OF OWNER'S "NOTICE TO PROCEED".</p>
<p>1.3.4. U.N.O. - UNLESS NOTED OTHERWISE.</p>	<p>1.11.5. MEASURABLE CRITERIA FOR PERFORMANCE.</p>	<p>1.15. ALL EQUIPMENT, ETC., SHALL BE NEW UNLESS OTHERWISE NOTED, AND AS SPECIFIED FREE OF DEFECTS. ALL MECHANICAL EQUIPMENT SHALL BE U.L. OR E.T.L. LISTED.</p>	<p>5.2.3. FIELD DIMENSIONS ARE REASONABLY ACCURATE AND SHOULD GOVERN IN SETTING OUT WORK.</p>	<p>6.5.2. SUBMIT A MINIMUM OF SIX (6) COMPLETE SETS TO OWNER'S REPRESENTATIVE. ONE SET SHALL REMAIN WITH THE OWNER'S REPRESENTATIVE, ONE SET SHALL BE DELIVERED TO THE OWNER AND THE OTHERS WILL BE RETURNED TO DISTRIBUTE AS REQUIRED.</p>
<p>1.3.5. M.S.D.S. - MATERIAL SAFETY DATA SHEET</p>	<p>1.11.5.1. A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS 'FINAL COMMISSIONING REPORT' SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT. THE REPORT SHALL INCLUDE THE FOLLOWING:</p>	<p>1.16. PROVIDE THUMB DRIVE TO THE OWNER REPRESENTATIVE WITH ALL THE ABOVE LISTED MATERIAL SEPERATED INTO DIRECTORIES TO MATCH CATALOGED INFORMATION.</p>	<p>5.2.4. WHERE DETAILED METHOD OF INSTALLATION IS NOT INDICATED OR WHERE VARIATIONS EXIST BETWEEN DESCRIBED WORK AND APPROVED PRACTICE, DIRECTION OF THE OWNERS REPRESENTATIVE ON JOB SITE SHALL BE FOLLOWED.</p>	<p>6.5.2. EACH SET SHALL BE BOUND AND INDEXED INTO GROUPS SUCH AS FIXTURES, PANELS, WIRING DEVICES, DISCONNECT SWITCHES, ETC.</p>
<p>1.3.6. CONTRACTOR - APPEARANCE ON DRAWINGS OR IN SPECIFICATIONS FOR MECHANICAL WORK SHALL REFER TO MECHANICAL SUB-CONTRACTOR.</p>	<p>1.11.5.2. RESULTS OF FUNCTIONAL PERFORMANCE TESTS.</p>	<p>2. CODES & PERMITS</p>	<p>5.3. CONTRACTOR SHALL VERIFY PROJECT CONDITIONS TO ENSURE THAT THE WORK WILL FIT INTO THE STRUCTURE IN THE MANNER INTENDED ON THE DRAWINGS.</p>	<p>6.5.3. MAKE EACH SET IDENTICAL.</p>
<p>1.3.7. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO RELOCATE - DISCONNECT ELECTRICAL FEEDER, MAKE SAFE (INCLUDING LOCK OUT/TAG OUT), STORE AND PROTECT DEVICE, REINSTALL, REWORK AND EXTEND CONDUIT & WIRE TO NEW LOCATION, RE-ENERGIZE AND TEST.</p>	<p>1.11.5.3. DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED.</p>	<p>2.1. ENTIRE INSTALLATION (INCLUDING EQUIPMENT, DEVICES, AND WIRING) SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 13, NFPA 70 & NFPA 101), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.), CURRENT BUILDING CODE, CURRENT ENERGY CONSERVATION CODE (I.E.C.C.), AND ALL LAWS & ORDINANCES APPLICABLE TO WORK AT THIS SITE. IN ADDITION, INSTALLATION SHALL MEET APPROVAL OF LOCAL INSPECTION AUTHORITY HAVING JURISDICTION. REFER TO COVER SHEET FOR LIST OF CURRENT APPLICABLE CODE EDITIONS.</p>	<p>5.3.1. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO FABRICATION OR PERFORMING ANY WORK IN THE AREA INVOLVING THE DIFFERENCES.</p>	<p>6.5.4. ALL SUBMITTALS SHALL BE ONLY ORIGINALS, COPIES OF CUT SHEETS ARE NOT ACCEPTABLE.</p>
<p>1.3.8. EQUAL AND EQUIVALENT - TO MEAN OF THE SAME QUALITY, SIZE, NUMBER, VALUE AND THE ITEMS ARE SIMILAR IN ALL RESPECTS.</p>	<p>1.11.5.4. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.</p>	<p>2.2. SECURE AND PAY ALL FEES ASSOCIATED WITH ALL PERMITS AND LICENSES REQUIRED FOR EXECUTION OF THE CONTRACT, ARRANGE FOR ALL INSPECTIONS REQUIRED BY CITY, COUNTY, STATE AND OTHER AUTHORITIES HAVING JURISDICTION, AND DELIVER CERTIFICATES OF APPROVAL TO THE ARCHITECT.</p>	<p>5.3.2. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS OR NOTES RELATING TO THE AREA.</p>	<p>6.5.5. SUBMITTAL DATA WILL BE PROVIDED AND REVIEWED IN PDF FORMAT ELECTRONICALLY VIA EMAIL.</p>
<p>1.3.8.1. THE FINAL DECISION OF ACCEPTANCE OF THESE ITEMS WILL BE MADE BY THE ENGINEER.</p>	<p>1.12. PROVIDE ALL LABOR, INSTRUMENTS, AND OTHER SERVICES REQUIRED FOR COMPLETE AND SATISFACTORY TEST AND ADJUSTMENT OF MECHANICAL SYSTEMS AND RELATED WORK.</p>	<p>2.3. A CERTIFICATE OF APPROVAL FOR WORK FROM INSPECTION AUTHORITY SHALL BE GIVEN TO THE OWNER BEFORE FINAL ACCEPTANCE WILL BE GIVEN BY OWNERS REPRESENTATIVE.</p>	<p>5.4. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND WORKMANLIKE MANNER.</p>	<p>6.5.6. SUBMITTAL WILL NOT BE ACCEPTED FOR REVIEW UNLESS THEY:</p>
<p>1.3.8.2. IT SHALL BE UNDERSTOOD THAT FOR ANY SPECIFIED ITEM ON THE DRAWINGS AND/OR IN THE SPECIFICATION, THIS TERM SHALL APPLY.</p>	<p>1.12.1. CHECK ALL MOTORS AND ROTATING EQUIPMENT FOR PROPER ROTATION.</p>	<p>2.4. THE CODE REQUIREMENTS ARE STRICTLY A MINIMUM AND SHALL BE MET WITHOUT INCURRING ADDITIONS TO THE CONTRACT. WHERE REQUIREMENTS OF THE DRAWINGS OR SPECIFICATIONS EXCEED THE CODE REQUIREMENTS, THE WORK SHALL BE PROVIDED IN ACCORDANCE WITH THESE DRAWINGS OR SPECIFICATIONS. IN THE EVENT OF CONFLICT OR AMBIGUITY BETWEEN THE VARIOUS CODES, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.</p>	<p>5.4.1. WHERE AN EXISTING STRUCTURE MUST BE CUT OR EXISTING UTILITIES INTERFERE, SUCH OBSTRUCTION SHALL BE BYPASSED, REMOVED, REPLACE OR RELOCATED, PATCH AND REPAIR.</p>	<p>6.5.7.1. COMPLY WITH THE REQUIREMENTS OF DIVISION 1.</p>
<p>1.4. ALL WORK SHALL BE PERFORMED UNDER THE PERSONAL SUPERVISION OF A PROJECT SUPERINTENDENT ON-SITE. MAINTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES DURING THE PROJECT.</p>	<p>1.12.2. CHECK ALL ELECTRICAL AND CONTROL WIRING, INTERLOCKS, ETC., RELATED TO MECHANICAL EQUIPMENT TO DETERMINE THAT ALL WIRING IS CORRECT.</p>	<p>2.5. REFER TO ARCHITECTURAL COVERSHEET FOR APPLICABLE CODE REFERENCES FOR THIS PROJECT.</p>	<p>5.4.2. WORK DISTURBED OR DAMAGED SHALL BE REPLACED OR REPAIR TO ITS PRIOR CONDITION.</p>	<p>6.5.7.2. INCLUDE COMPLETE INFORMATION PERTAINING TO ALL APPURTENANCE AND ACCESSORIES.</p>
<p>1.5. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SUITABLE FOR THE CONDITIONS AND DUTIES IMPOSED ON THEM AFTER INSTALLATION.</p>	<p>1.12.3. IMMEDIATELY REMEDIATE ALL EQUIPMENT PROVIDED UNDER THIS DIVISION THAT TESTS PROVE TO BE DEFECTIVE OR OPERATING IMPROPERLY AS A PART OF THIS CONTRACT.</p>	<p>3. SAFETY</p>	<p>5.5. PRIOR TO THE START OF ANY DEMOLITION OR CONSTRUCTION, CONTRACTOR SHALL REVIEW THE EXISTING SITE AND SECURE THE SERVICES OF A QUALIFIED, EPA CERTIFIED ASBESTOS ABATEMENT AGENCY IF NEEDED TO CHECK THE EXISTING INSULATION, ETC. FOR ASBESTOS. SHOULD ASBESTOS BE FOUND, DO NOT PROCEED WITH DEMOLITION OR CONSTRUCTION; NOTIFY THE ARCHITECT IN ANY CASE IN WRITING OF THE AGENCY'S FINDING.</p>	<p>6.5.7.3. ARE SUBMITTED AS COMPLETE PACKAGES WHICH PERTAIN TO ALL RELATED ITEMS IN DIVISION 23.</p>
<p>1.5.1. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BEAR THE SEAL OF UNDERWRITERS LABORATORIES INC. (UL), OR A SIMILAR CREDIBLE TESTING AGENCY, LABEL WHERE REGULARLY SUPPLIED.</p>	<p>1.13. CONTRACTOR AND VENDOR SHALL INSTRUCT THE OWNER'S TECHNICAL PERSONNEL ON ALL OWNER FURNISHED EQUIPMENT IN ACCORDANCE WITH SPECIFICATIONS.</p>	<p>3.1. THE CONTRACTOR SHALL MAINTAIN A SAFE WORK ENVIRONMENT AT ALL TIMES.</p>	<p>5.6. FOR RENOVATION PROJECTS - PROVIDE ALL DEMOLITION, PATCHING, SAW CUTTING, EXCAVATION, TRENCHING, SHORING, COMPACTING, DE-WATERING, ETC. REQUIRED FOR THE PROJECT, WHETHER OR NOT SHOWN ON THE DRAWINGS.</p>	<p>6.5.7.4. ARE PROPERLY MARKED WITH EQUIPMENT, SERVICE OR FUNCTION IDENTIFICATION AS RELATED TO THE PROJECT AND ARE MARKED WITH PERTINENT SPECIFICATION PARAGRAPH NUMBER.</p>
<p>1.5.2. CERTAIN MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.</p>	<p>1.13.1. INCLUDE IN THE CONTRACT PRICE A MINIMUM OF (2) HOURS OF OWNER TRAINING FOR THE NEW CONTROLS.</p>	<p>3.1.1. COMPLY WITH ALL O.S.H.A., N.I.O.S.H., D.O.T., STATE & LOCAL REQUIREMENTS REGARDING SAFE HANDLING, STORING, TRANSPORTING, AND DISPENSING OF CHEMICALS.</p>	<p>5.7. EXISTING SYSTEMS TO REMAIN - WHERE EXISTING SYSTEMS ARE INDICATED TO REMAIN, THEY SHALL BE ASSUMED TO BE IN GOOD WORKING ORDER REQUIRING NO WORK UNLESS SPECIFICALLY NOTED.</p>	<p>6.6. EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS SPECIFIED STANDARD OF QUALITY.</p>
<p>1.5.3. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, CONTRACTOR SHALL STATE IN BID WHICH MAKE THEY PROPOSE TO FURNISH. SHOP DRAWINGS SHALL BE SUBMITTED ON MATERIAL AND EQUIPMENT TO BE FURNISHED BY CONTRACTOR FOR ENGINEERS APPROVAL.</p>	<p>1.13.2. TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON START-UP & SHUT-DOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING & PREVENTATIVE MAINTENANCE SCHEDULE & PROCEDURES, AND OVERRIDE OF EQUIPMENT & CONTROLS IN THE EVENT OF SYSTEM FAILURE. REVIEW WITH THE OWNER'S PERSONNEL, THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.</p>	<p>3.1.2. MAINTAIN AND DISPLAY M.S.D.S. INFORMATION FOR ALL CHEMICAL PRODUCTS.</p>	<p>5.7.1. IF DURING THE CONSTRUCTION DEFICIENCIES ARE NOTED, THEN BRING THESE TO THE ATTENTION OF THE OWNER AND SEEK DIRECTION.</p>	<p>6.6.1. NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.</p>
<p>1.6. THIS APPROVAL TO BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.</p>	<p>1.13.3. CONTRACTOR SHALL PROVIDE OWNER WITH SUFFICIENT SETS OF OPERATIONS AND MAINTENANCE MANUALS OF CONTRACTOR FURNISHED EQUIPMENT FOR INCLUSION INTO THE OWNER'S OPERATIONS AND MAINTENANCE MANUALS AS REQUIRED BY THE SPECIFICATIONS.</p>	<p>3.1.3. PROVIDE ALL NECESSARY MEANS TO MAINTAIN SAFE WORKING CONDITIONS, INCLUDING VENTILATION FANS, FIRE EXTINGUISHERS, EYE PROTECTION, RESPIRATORS, PROTECTIVE CLOTHING, VENTILATION, ETC.</p>	<p>6. SHOP DRAWINGS, SUBMITTALS, AND SUBSTITUTIONS</p>	<p>6.6.2. ALL COSTS ARISING FROM A SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR MAKING THE SUBSTITUTION, INCLUDING VERIFICATION OF FIT AND ACCESS, FIELD-INSTALLED ACCESSORIES, SUPPORTS, ELECTRICAL REQUIREMENTS, AND REVISIONS TO DOCUMENTS (DESIGN COSTS).</p>
<p>1.7. ALL MATERIALS SHALL BE FABRICATED AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER.</p>	<p>1.13.4. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE O/M MANUALS ARE DELIVERED.</p>	<p>3.1.4. ALL EQUIPMENT AND MATERIALS USED TO IMPLEMENT THE WORK SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, INCLUDING ALL RECOMMENDED SAFETY PRECAUTIONS.</p>	<p>6.1. ENGINEER OF RECORD SHALL BE PROVIDED WITH SHOP DRAWINGS, COORDINATION DRAWINGS, AND MANUFACTURER'S DATA OF ANY CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT, PRIOR TO PURCHASE AND/OR FABRICATION, AND SHALL VERIFY, BY STAMPING AND SIGNING THE DATA AND DRAWINGS BEFORE RETURNING THEM TO THE CONTRACTOR, THAT THE ITEMS FURNISHED BY THE CONTRACTOR FIT THE SPACES AND DIMENSIONS DESCRIBED IN AND CONFORM TO THE SPIRIT AND INTENT OF THE CONTRACT DOCUMENTS.</p>	<p>6.6.3. THE LISTING OF A PARTICULAR MANUFACTURER AS AN "EQUAL" OR "ACCEPTABLE SUBSTITUTE" MANUFACTURER SHALL NOT BE MISCONSTRUED AS APPROVING NOR ALLOWING THE SUBSTITUTION OF THAT MANUFACTURER'S STANDARD PRODUCT IN PLACE OF THE BASIS DESIGN.</p>
<p>1.7.1. THE OWNER AND ENGINEER SHALL DETERMINE WHETHER WORKMANSHIP IS ACCEPTABLE. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO POOR WORKMANSHIP, COORDINATION DIFFICULTIES, OR INTERFERENCES BETWEEN INVOLVED TRADES.</p>	<p>1.13.5. O/M MANUALS SHALL INCLUDE CATALOG TECHNICAL DATA, RECOMMENDED SERVICE PROCEDURES, RECOMMENDED SERVICE INTERVALS, CALIBRATION INFORMATION, FACTORY TRAINING MANUALS, MAGNETIC MEDIA FOR SOFTWARE PROVIDED, AND RECOMMENDED SPARE PARTS.</p>	<p>3.1.5. MAINTAIN A PROPER FIRE WATCH FOR ALL OPERATIONS WHERE SPARKS, FLAMES, OR OTHER SOURCES OF FIRE ARE PRODUCED.</p>	<p>6.1.1. ENGINEER SHALL, WITHIN FIVE (5) WORKING DAYS OF RECEIPT OF SHOP DRAWINGS AND PRODUCT DATA, NOTIFY THE CONTRACTOR OF ANY DISCREPANCY OR INCOMPATIBILITY WITH THE CONTRACT DOCUMENTS, AND SHALL RETURN THE SHOP DRAWINGS TO THE CONTRACTOR APPROPRIATELY ANNOTATED.</p>	<p>6.6.4. NO CONSIDERATION WILL BE GIVEN TO A PRODUCT WHICH WOULD REQUIRE DIMENSIONAL, SPATIAL OR AESTHETIC CHANGES TO THE PROJECT. "ACCEPTABLE SUBSTITUTE" AND "EQUAL" MANUFACTURERS SHALL ONLY BID THOSE PRODUCTS WHICH EXACTLY MATCH THE SIZE AND OTHER CHARACTERISTIC OF THE SPECIFIED BASIS OF DESIGN.</p>
<p>1.7.2. PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE REPAIRED AND FINISHED BY EXPERIENCED WORKMEN.</p>	<p>1.13.5.1. PROVIDE (2) NEATLY BOUND (WITH TABBED SECTIONS) COPIES OF MAINTENANCE BOOKS, INSTRUCTION BOOKS, AND PARTS LIST PERTAINING TO ALL EQUIPMENT FURNISHED. SUBMIT TO THE OWNERS REPRESENTATIVE FOR APPROVAL. FINAL PAYMENT WILL NOT BE MADE UNTIL MAINTENANCE AND INSTRUCTION MANUALS ARE DELIVERED TO THE OWNERS REPRESENTATIVE.</p>	<p>4. INTENT OF DRAWINGS AND SPECIFICATIONS</p>	<p>6.2. REVIEW OF SUBMITTALS SHALL NOT BE CONSTRUED AS AUTHORIZING ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS UNLESS SUCH DEVIATIONS ARE CLEARLY IDENTIFIED AND SEPARATELY SUBMITTED IN THE FORM OF A LETTER THAT IS ENCLOSED WITH THE SUBMITTALS.</p>	<p>6.7.1. MANUFACTURER'S NAME, SERIES AND MODEL NUMBERS, AS NOTED OR SPECIFIED, ARE FOR THE PURPOSE OF DESCRIBING TYPE, CAPACITY, AND QUALITY OF EQUIPMENT, MATERIALS AND PRODUCTS TO BE USED.</p>
<p>1.7.3. COORDINATE AND SCHEDULE THE WORK WITH THE OWNER TO MINIMIZE DISRUPTIONS TO THE NORMAL OPERATIONS AT THE BUILDING.</p>	<p>1.13.5.2. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION:</p>	<p>4.1. THE IMPLIED AND STATED INTENT OF THE DRAWINGS & SPECIFICATIONS ARE TO ESTABLISH MINIMUM ACCEPTABLE STANDARDS FOR MATERIALS, EQUIPMENT, WORKMANSHIP, AND TO PROVIDE OPERABLE SYSTEMS THAT ARE COMPLETE IN EVERY RESPECT.</p>	<p>6.3. SUBMIT SHOP DRAWING CUT SHEETS AND TECHNICAL DATA ON THE FOLLOWING ITEMS: EQUIPMENT, DUCTWORK, PIPING, AIR DEVICES AND MOTOR STARTERS, TRANSFORMERS, AND ANY OTHER ITEM REQUIRED BY NOTES.</p>	<p>6.7.2. UNLESS "OR EQUAL" IS SPECIFICALLY STATED, BIDS SHALL BE BASED ONLY ON THE SPECIFIED "BASIS OF DESIGN" MANUFACTURER.</p>
<p>1.7.3.1. IF AFTER HOURS WORK IS REQUIRED ON THIS PROJECT INCLUDE IN THE CONTRACT PRICE THE COST OF AFTER-HOURS WORK AND TEMPORARY PROVISIONS TO MINIMIZE DOWN TIME AND TO MAINTAIN FACILITY IN OPERATING CONDITION. COORDINATE WITH THE OWNER TO DETERMINE THE EXTENT OF THESE REQUIREMENTS PRIOR TO BID.</p>	<p>1.13.5.2.1. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE.</p>	<p>4.2. ENGINEERING DRAWINGS ARE DIAGRAMMATIC, INTENDED TO SHOW GENERAL ARRANGEMENT AND SIZES OF SYSTEM COMPONENTS, AND SHALL NOT BE SCALED.</p>	<p>6.4. SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS, FIELD INSTALLATION DRAWINGS AND CERTIFICATIONS AS REQUIRED FOR COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. THE SUBMITTAL DATA SHALL PROVIDE AMPL, UNQUESTIONABLE COMPLIANCE WITH THE CONTRACT DOCUMENTS.</p>	<p>6.7.3. THE LISTING OF A PARTICULAR MANUFACTURER AS AN "EQUAL" OR "ACCEPTABLE SUBSTITUTE" MANUFACTURER SHALL NOT BE MISCONSTRUED AS APPROVING NOR ALLOWING THE SUBSTITUTION OF THAT MANUFACTURER'S STANDARD PRODUCT IN PLACE OF THE BASIS DESIGN.</p>
<p>1.8. RELATED WORK SPECIFIED ELSEWHERE:</p>	<p>1.13.5.2.2. COPIES OF GUARANTEES AND WARRANTIES OF ALL EQUIPMENT AND SYSTEMS.</p>	<p>4.2.1. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL GOVERN SPACE CONSTRAINTS, DIMENSIONS AND FINISHES.</p>	<p>6.4.1. SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS, FIELD INSTALLATION DRAWINGS AND CERTIFICATIONS AS REQUIRED FOR COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. THE SUBMITTAL DATA SHALL PROVIDE AMPL, UNQUESTIONABLE COMPLIANCE WITH THE CONTRACT DOCUMENTS.</p>	<p>6.7.4. NO CONSIDERATION WILL BE GIVEN TO A PRODUCT WHICH WOULD REQUIRE DIMENSIONAL, SPATIAL OR AESTHETIC CHANGES TO THE PROJECT. "ACCEPTABLE SUBSTITUTE" AND "EQUAL" MANUFACTURERS SHALL ONLY BID THOSE PRODUCTS WHICH EXACTLY MATCH THE SIZE AND OTHER CHARACTERISTIC OF THE SPECIFIED BASIS OF DESIGN.</p>
<p>1.8.1. ALL DIVISION 1 REQUIREMENT, AND ALL TERMS AND CONDITIONS OF CONTRACT.</p>	<p>1.13.5.2.3. WIRING DIAGRAMS</p>	<p>4.2.2. ALL OFFSETS AND FITTINGS THAT SHALL BE NECESSARY TO ACCOMPLISH A FINISHED INSTALLATION SHALL BE PROVIDED AT NO ADDITIONAL COST OR INCREASE THE CONTRACT.</p>	<p>6.5. SUBMIT PROPOSED CONTROL SYSTEM FOR REVIEW BY THE ENGINEER PRIOR TO EQUIPMENT PURCHASE OR FABRICATION. DO NOT PROCEED WITH THE WORK WITHOUT APPROVED SUBMITTALS.</p>	<p>6.7.5. ANY CHANGES TO OTHER DISCIPLINES AND TRADES OF WORK REQUIRED BY AN "OR EQUAL" OR "SUBSTITUTE" PRODUCT SHALL BE DULY CONSIDERED AND PRICED ACCORDINGLY PRIOR TO BIDDING OR PRICING.</p>
<p>1.8.2. REFER TO ELECTRICAL SPECIFICATION FOR ELECTRICAL WORK TO BE DONE IN CONJUNCTION WITH THE MECHANICAL WORK. CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT, WIRING, JUNCTION BOXES, ETC., REQUIRED FOR HVAC CONTROLS, UNLESS SPECIFICALLY NOTED OTHERWISE.</p>	<p>1.13.5.2.4. INSPECTION REPORTS & APPROVALS</p>	<p>4.2.3. WORK INTENDED, BUT HAVING MINOR DETAILS OBVIOUSLY OMITTED, SHALL BE PROVIDED COMPLETE AS A REQUIREMENT OF THIS CONTRACT.</p>	<p>6.6. WHERE QUALIFICATIONS AND/OR QUALITY ASSURANCE REQUIREMENTS ARE SPECIFIED, THE SUBMITTAL SHALL INCLUDE EVIDENCE THAT THE STATED REQUIREMENTS HAVE BEEN MET. INCLUDE QUALIFICATIONS AND CERTIFICATIONS OF PROPOSED TEST AND BALANCE SUBCONTRACTOR.</p>	<p>6.7.6. THE DECISION AS TO WHETHER OR NOT A PROPOSED SUBSTITUTE OR "EQUAL" PRODUCT IS ACTUALLY EQUAL TO THAT SPECIFIED SHALL REST SOLELY WITH THE ENGINEER.</p>
<p>1.8.3. ALL MECHANICAL EQUIPMENT AND WIRING PROVIDED UNDER DIVISION 23 SHALL COMPLY WITH THE ELECTRICAL SYSTEM CHARACTERISTICS INDICATED ON THE MECHANICAL DRAWINGS AND SPECIFIED DIVISION 26.</p>	<p>1.13.5.2.5. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.</p>	<p>4.2.4. LOCATIONS OF EQUIPMENT INDICATED ON PLANS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES.</p>	<p>6.7.7. REQUEST TO PROVIDE "EQUAL" PRODUCTS IN LIEU OF THOSE SPECIFIED SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO FINAL PRICING AND EXECUTION OF THE CONTRACT. NO CONSIDERATION WILL BE GIVEN TO SUBSTITUTE PRODUCTS AFTER FINAL PRICING AND EXECUTION OF THE CONTRACT.</p>	<p>6.7.8. ANY "OR EQUAL" PRODUCT OR PROPOSED PRODUCTION SUBSTATION WHICH WILL CAUSE A CHANGE IN THE APPEARANCE, DIMENSIONS OR DESIGN OF ANY PART OF THE BUILDING, IF STRUCTURE, MECHANICAL SYSTEM OR ANY OTHER ENGINEERED SYSTEM SHALL BE ACCOMPANIED BY A SCALED DRAWING AND WRITTEN DESCRIPTION OF THE REQUIRED CHANGES(S) FOR APPROVAL BY THE ARCHITECT.</p>
<p>1.8.4. ELECTRIC CONTROLS, CONTACTORS, STARTERS, PILOT LIGHTS, PUSH BUTTONS, ETC., SHALL BE PROVIDED COMPLETE AS PART OF THE MOTOR, HEATER OR OTHER EQUIPMENT WHICH IT OPERATES. ALL ELECTRICAL COMPONENTS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND DIVISION 26.</p>	<p>1.13.5.2.6. MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.</p>	<p>4.3. PROVIDE THE OWNER A COMPLETE SET OF RECORD DRAWINGS AT THE END OF THE PROJECT. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE RECORD DRAWINGS ARE DELIVERED.</p>	<p>6.8. IF DEEMED NECESSARY BY ARCHITECT, DESIGN CHANGES SHALL BE SIGNED AND SEAL BY A REGISTERED PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THIS STATE.</p>	<p>6.7.8.1. IF DEEMED NECESSARY BY ARCHITECT, DESIGN CHANGES SHALL BE SIGNED AND SEAL BY A REGISTERED PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THIS STATE.</p>
<p>1.9. WHERE EQUIPMENT SPECIFICATIONS INDICATE THAT A FACTORY-AUTHORIZED SERVICE ENGINEER OR TECHNICIAN SHALL OBSERVE INSTALLATION, TEST & ADJUST, OR START-UP OF EQUIPMENT, ETC., SUCH SERVICES WILL BE CONTRACTED BY OWNER AS PART OF THE EQUIPMENT PURCHASE.</p>				



ELECTRICAL DISTRIBUTION RISER DIAGRAM
NTS



GENERAL NOTES:

- ALL WORK SHOWN SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, ORDINANCES, ETC.
- SEE LIGHT FIXTURE SCHEDULE E-600 FOR INFORMATION.
- EXIT SIGNS AND EMERGENCY LIGHTS SHALL HAVE THEIR OWN SELF-CONTAINED 90 MINUTE BATTERY POWER SUPPLY WITH TEST LIGHT SWITCH. IF LOCAL CODE REQUIRES A DIRECT TAP BEFORE ANY CIRCUIT BREAKERS THEN INCORPORATE INTO THE FEEDER DIAGRAM.
- PROVIDE EMERGENCY LIGHTING TO MEET THE REQUIRED FOOT CANDLE LEVEL PER LOCAL CODE.
- LUMINAIRES INSTALLED IN CONTINUOUS ROWS SHALL BE GROUNDED WITH A CONDUCTOR ROUTED FROM LUMINAIRE TO LUMINAIRE, MOUNTED TO EACH WITH GROUNDING WITH LUG OR SCREW, ALIGNING CLIPS ARE NOT ACCEPTABLE. LUMINAIRE GROUNDING SHALL BE INSTALLED IN COMPLIANCE WITH NATIONAL ELECTRICAL CODE, ARTICLE 410-21.
- CEILING LIGHTS ARE TO BE WIRED TO THE BAR JOIST MEMBERS AT THE DIAGONAL CORNERS.
- COORDINATE LIGHTING FIXTURE LOCATION WITH SPRINKLER & MECHANICAL DRAWINGS.
- REFERENCE TO HEIGHT OF OUTLET OR RECEPTACLE SHALL BE MEASURED FROM FINISHED FLOOR TO CENTER OF OUTLET OR RECEPTACLE.
- ALL RECEPTACLES SHALL BE GROUNDING TYPE.
- ALL RECEPTACLES AND SWITCHES SHALL HAVE TWO (2) REVOLUTIONS OF ELECTRICAL TAPE (SCOTCH 33+) OVER ALL THE TERMINALS, TO PREVENT ACCIDENTAL CONTACT WITH THE JUNCTION BOX OR OUTLET BOX.
- CONDUIT SIZE TO BE PER NEC. PVC CONDUIT AND FITTINGS ARE ACCEPTABLE ONLY BELOW SUBBASE MATERIAL OF GROUND BEARING FLOOR SLABS WHERE SUCH USE IS ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
- CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT), RIGID STEEL (SIZE PER NEC), OR MC CABLE WHERE ALLOWED BY CODE. WHERE MC CABLE IS USED, PROPER SECUREMENT AND SUPPORT (AT INTERVALS NOT EXCEEDING 6') SHALL BE FOLLOWED PER NEC ART. 330.
- ELECTRICAL CONTRACTOR TO PROVIDE JUNCTION BOX AND CONDUIT STUB-UP ABOVE CEILING FOR ALL LOW VOLTAGE CABLING.
- DIMENSION IS FROM FINISHED WALL. SEE ARCHITECTURAL FOR WALL THICKNESS.
- FIELD COORDINATE EXACT LOCATION OF OUTLETS AS DETERMINED BY THE ACTUAL FURNITURE LAY OUT. VERIFY WITH FUTURE PLAN.
- COORDINATE WITH OTHER DISCIPLINES FOR ELECTRICAL REQUIREMENTS OF EQUIPMENT NOT SHOWN ON DETAILS (i.e. ROOF-TOP UNITS, UNIT HEATERS, FANS, ETC.).
- ELECTRICAL CONTRACTOR SHALL VERIFY IN FIELD ALL KITCHEN EQUIPMENT CONNECTIONS AND REQUIREMENTS PRIOR TO ROUGH-IN AND INSTALLATION OF DEVICES. VERIFY ALL DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH FOOD SERVICE CONTRACTOR. EC SHALL MAKE ADJUSTMENTS IN FIELD TO MATCH ACTUAL EQUIPMENT BEING INSTALLED, AS DIRECTED BY THE FOOD SERVICE CONTRACTOR.
- CONTRACTOR IS REQUIRED TO INSTALL STANDARD RECEPTACLES FOR CIRCUITS DEDICATED TO SPECIFIC EQUIPMENT. SUBJECT TO THE APPROVAL OF CODE ENFORCING AGENCY.
- ALL 120V, SINGLE PHASE 15 AMP AND 20 AMP RATED RECEPTACLES INSTALLED IN THE LOCATIONS SPECIFIED IN NEC ARTICLE 210.8(B) SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION.
- SERVICE CONDUCTORS ARE DESIGNED BASED ON THE SERVICE DISTANCE OF 100'. TO MEET THE 2% VOLTAGE DROP PER NEC. IF SERVICE CONDUCTOR IS BETWEEN:
100' TO 150' - EC SHALL INCREASE THE CONDUCTOR BY ONE SIZE(S) LARGER THAN DESIGN
150' TO 200' - EC SHALL INCREASE THE CONDUCTOR BY TWO SIZE(S) LARGER THAN DESIGN
200' TO 250' - EC SHALL INCREASE THE CONDUCTOR BY THREE SIZE(S) LARGER THAN DESIGN
- BRANCH CONDUCTORS ARE DESIGNED BASED ON A DISTANCE OF 100' TO MEET THE 3% VOLTAGE DROP PER NEC. IF BRANCH CONDUCTOR IS BETWEEN:
100 TO 150' - EC SHALL INCREASE THE CONDUCTOR BY ONE SIZE(S) LARGER THAN DESIGN
150 TO 200' - EC SHALL INCREASE THE CONDUCTOR BY TWO SIZE(S) LARGER THAN DESIGN
200 TO 250' - EC SHALL INCREASE THE CONDUCTOR BY THREE SIZE(S) LARGER THAN DESIGN
- ELECTRICAL CONTRACTOR MUST COMPLY WITH LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR REQUIREMENT OF EXTERIOR EMERGENCY EGRESS LIGHTING AND ADJUST BID TO INCORPORATE AS NEEDED.
- AMPERE INTERRUPTING CAPACITY (A.I.C.) OF PANELS AND SERVICE ENTRANCE EQUIPMENT IS BASED ON TYPICAL TRANSFORMER SPECIFICATIONS. CONTRACTOR SHALL FIELD VERIFY EXACT UTILITY A.I.C. RATING AND MAKE EQUIPMENT ADJUSTMENTS AS REQUIRED IN THE FIELD AT NO EXTRA COST TO OWNER. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY FIELD CHANGES BASED ON UTILITY EQUIPMENT DATA.

LEGEND (NOT ALL SYMBOLS ARE USED WITHIN THIS SET OF DRAWINGS)

- LIGHTING**
- SWITCH TYPE (SUPERSCRIT IN UPPERCASE)
 - 20A, 120V SPST WALL SWITCH (UON)
 - SWITCH TAG (SUBSCRIPT IN LOWERCASE)
 - EXIT LIGHT (HATCHING DENOTES FACE)
 - SURFACE MOUNTED OR RECESSED EMERGENCY LIGHTING FIXTURE
 - THREE WAY SWITCH
 - MOTOR RATED SWITCH
 - SWITCH (x) DENOTES CONTROL LABEL, (D) DENOTES DIMMER
 - OCCUPANCY SENSOR
 - WALL SWITCH, OCCUPANCY SENSOR COMBINATION
 - PHOTOCELL OR DAYLIGHT SENSOR
 - TIMELOCK
 - LIGHTING CONTACTOR
- POWER**
- SINGLE RECEPTACLE
 - DUPLEX RECEPTACLE
 - QUADRUPEX RECEPTACLE
 - CEILING MOUNTED RECEPTACLE
 - LINE THRU CENTER OF RECEPTACLE DENOTES ABOVE COUNTER
 - CENTER SHADING IN RECEPTACLE DENOTES ISOLATED GROUND
 - TOP SHADING IN RECEPTACLE DENOTES GFCI PROTECTED
 - SPECIAL PURPOSE RECEPTACLE (AS NOTED)
 - TELEPHONE OUTLET
 - DATA OUTLET
 - VOICE/DATA COMBINATION OUTLET
 - JUNCTION BOX
 - SYMBOL IN SQUARE DENOTES FLOORMOUNTED
 - MOTOR, FAN, PUMP OR AIR CONDITIONING UNIT
 - CABLE TV OUTLET
 - PANELBOARD
 - FUSED DISCONNECT SWITCH, RATING AS NOTED.
 - NON-FUSED DISCONNECT SWITCH, RATING AS NOTED.
- LOW VOLTAGE**
- TELEPHONE OUTLET
 - DATA OUTLET
 - VOICE/DATA COMBINATION OUTLET
 - SECURITY CAMERA, COORDINATE EXACT LOCATION WITH SECURITY VENDOR.
 - WIRELESS ACCESS POINT, PROVIDE CAT6 CABLE
- ANNOTATION**
- KEYED NOTE
 - EQUIPMENT TAG
 - CALLOUT: DETAIL NUMBER ON TOP, DRAWING NUMBER ON BOTTOM
 - DETAIL OR ELEVATION REFERENCE
 - CIRCUIT 1 IN PANEL A
- FIRE ALARM**
- FIRE ALARM PULL STATION NOM. 42? A.F.F. PER ADA
 - FIRE ALARM AUDIO/VISUAL STATION 80? A.F.F. PER ADA
 - FIRE ALARM VISUAL STATION 80? A.F.F. PER ADA
 - FIRE ALARM AUDIO STATION 80? A.F.F. PER ADA
 - REMOTE INDICATOR LIGHT/TEST SWITCH FOR DUCT SMOKE DETECTORS
 - DUCT SMOKE DETECTOR WITH REMOTE INDICATOR LIGHTS AND TEST SWITCH
 - SMOKE DETECTOR
 - FLOW SWITCH
 - TAMPER SWITCH
 - FIRE ALARM CONTROL PANEL
 - FIRE ALARM ANNUNCIATOR PANEL

ABBREVIATIONS

A	AMPERES
AF	AMPERE FRAME / AMP FUSE
AFF	ABOVE FINISHED FLOOR
AS	AMP SWITCH
A/C	AMPS INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
C/B, CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATION
CT	CURRENT TRANSFORMER
CU	COPPER
°C	DEGREE CELSIUS
CL	CURRENT LIMITER
DWG	DRAWING
DPSP	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW
E	EXISTING
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EOR	ENGINEER OF RECORD
°F	DEGREE FAHRENHEIT
FA	FIRE ALARM
G	GROUND
GFI	GROUND FAULT INTERRUPTER
GC	GENERAL CONTRACTOR
HD	HAND DRYER
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
IC	INTERRUPTING CAPACITY
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
LL	LAND LORD
LGT	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
N	NEUTRAL
NIC	NOT IN CONNECT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	REMOVE
RE	RELOCATED EXISTING
RR	REMOVE & RELOCATE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
TR	TAMPER RESISTANT
TYP	TYPICAL
USB	USB JACK
UON	UNLESS OTHERWISE NOTED
VA	VOLT AMPERE
VIF	VERIFY IN FIELD
WP	WEATHER PROOF
W	WIRE / WATT
XMER	TRANSFORMER

RISER DIAGRAM GENERAL NOTES:

- THE ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NEC, LOCAL CODES AND AHJ.
- THE EXACT POWER DISTRIBUTION AND SCOPE OF WORK WITH THE LANDLORD/OWNER BEFORE BID.
- ENSURE THE COMBINED VOLTAGE DROP OF THE FEEDER AND BRANCH CIRCUIT SHALL NOT EXCEED 5% PER CODE.
- ADDITION OR ALTERATION TO THE EXISTING SYSTEM SHALL NOT BE DONE WITHOUT THE WRITTEN CONSENT OF THE OWNER.
- THE PART OF RISER MARKED AS EXISTING IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY THE EXACT POWER DISTRIBUTION (INCLUDING RISER) IN THE FIELD. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY FOUND.
- VERIFY THE LOCATION, RATING, AND OPERABLE CONDITION OF ALL THE EXISTING DEVICES INTENDED TO BE REUSED. REPLACE IF FOUND INOPERABLE (WITHIN THE SCOPE OF WORK). BASE BID ACCORDINGLY.
- REUSE OF THE EXISTING EQUIPMENT IS SUBJECT TO THE VERIFICATION OF THE AVAILABILITY, LOCATION, RATING, OPERABLE CONDITION AND FAULT CURRENT IN THE FIELD. REPLACE THE EXISTING EQUIPMENT WITH A NEW ONE IF THE EXISTING EQUIPMENT CAN NOT BE REUSED DUE TO ANY OF THE REASONS MENTIONED EARLIER.

KEYED NOTES:

- EXISTING 800A, 208Y/120V, 3PH, 4W ELECTRICAL SERVICE FROM UTILITY FOR THE PROJECT SPACE TO REMAIN. VERIFY LOCATION, RATING, AND OPERABLE CONDITION IN THE FIELD. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY. BEFORE BID.
- E.C. SHALL VERIFY THE EXACT LOCATION, RATING, AND OPERABLE CONDITION OF EVERY EQUIPMENT MARKED EXISTING IN THE FIELD. INFORM THE ENGINEER OF RECORD OF ANY DISCREPANCY, BEFORE BIDDING.
- E.C. SHALL FIELD VERIFY RATING, AND OPERABLE CONDITION OF EXISTING BREAKERS IN THE FIELD. INFORM THE ENGINEER OF RECORD OF ANY DISCREPANCY, BEFORE BIDDING.

FIELD VERIFY ALL CONDITIONS

NOTES : ALL WIRING LAYOUTS, PIPING LAYOUTS AND DUCT LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONSTRUCTION AND STRUCTURE OF THE BUILDING AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD. EACH TRADE CONTRACTOR SHALL VERIFY WITH THE GENERAL CONTRACTOR THAT A THOROUGHLY REVIEWED AND COORDINATION OF ALL LOCATIONS AND ROUTINGS WITH ALL OTHER TRADES PRIOR TO FABRICATION OF CONDUITS, DUCTS, OR PIPING, AND START OF INSTALLATION OF SAME (INCLUDING SPRINKLER PIPING WHEN PRESENT ON JOB). ANY INSTALLATION OR CONSTRUCTION CONFLICTS WHICH OCCUR IN THE FIELD SHALL BE RESOLVED BY THE TRADE PROVIDER TO THE SATISFACTION OF THE OWNER AND/OR ARCHITECT AND AT NO EXPENSE TO THE OWNER, ARCHITECT AND/OR GENERAL CONTRACTOR.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN THE BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF ALL CODES, REGULATIONS, UTILITY REQUIREMENTS, LAWS AND ORDINANCES APPLICABLE TO THIS SITE AND SHALL INCLUDE IN THE BID THE COSTS FOR ALL WORK PROVIDED IN STRICT ACCORDANCE WITH THESE GOVERNING ITEMS, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER AND/OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT FOR DIRECTIONS.

ISSUED REVISIONS:

Keke's Breakfast Cafe
LEGEND, GENERAL NOTES & RISER

SHEET LIST

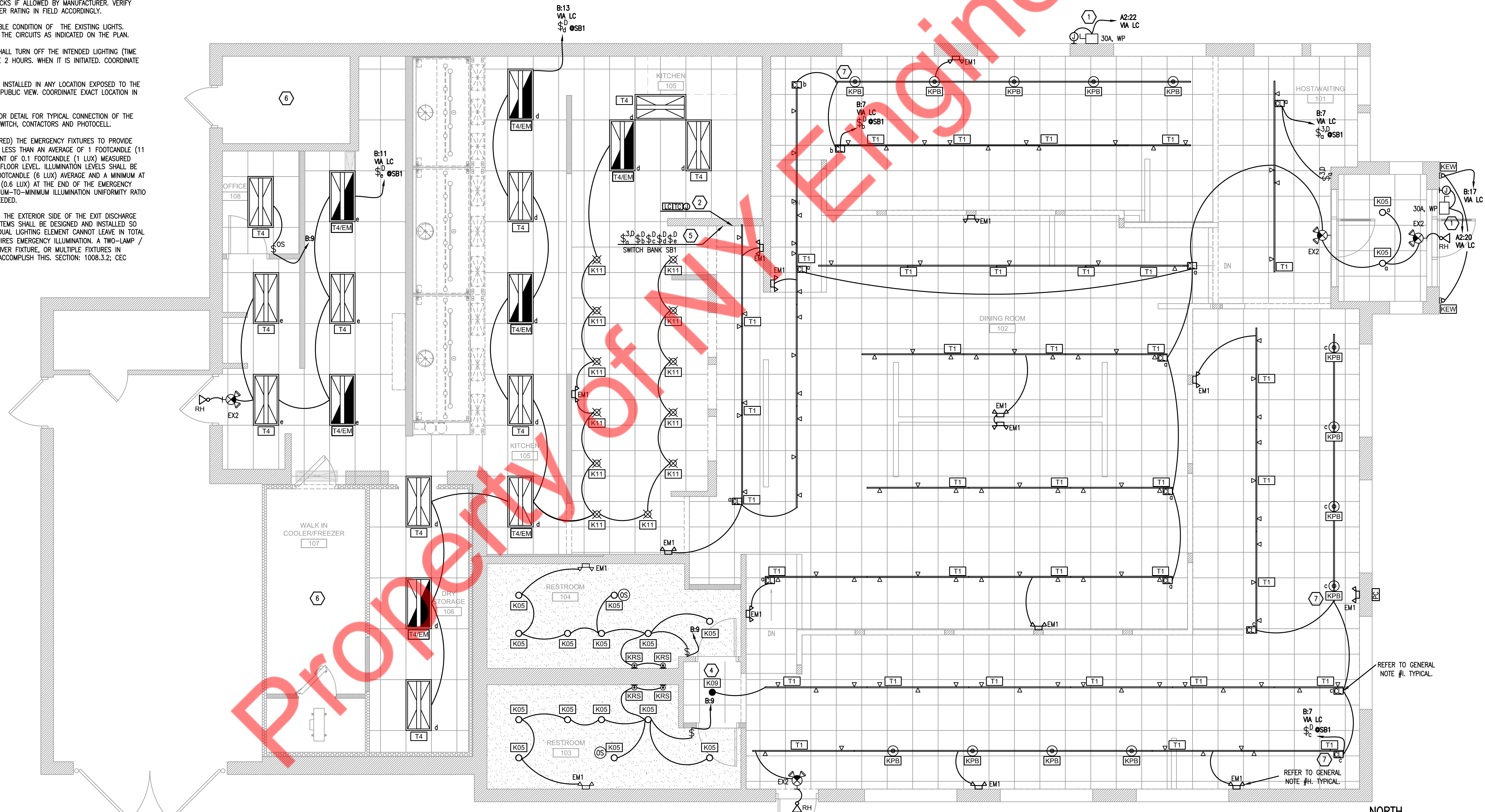
Sheet Number	Sheet Title
ELECTRICAL	
E-000	LEGEND, GENERAL NOTES & RISER
E-100	ELECTRICAL CEILING PLAN - LIGHTING
E-102	ELECTRICAL FLOOR PLAN - POWER
E-103	ELECTRICAL ROOF PLAN - POWER
E-104	ELECTRICAL FLOOR PLAN - SYSTEMS
E-500	ELECTRICAL KITCHEN POWER PLAN
E-501	ELECTRICAL DETAILS
E-600	ELECTRICAL PANEL SCHEDULES
E-700	ENERGY CALCULATIONS
E-800	ELECTRICAL SPECIFICATIONS SHEET 1 OF 4
E-801	ELECTRICAL SPECIFICATIONS SHEET 2 OF 4
E-802	ELECTRICAL SPECIFICATIONS SHEET 3 OF 4
E-803	ELECTRICAL SPECIFICATIONS SHEET 4 OF 4

POWER PLAN GENERAL NOTES:

- A. ALL LIGHT FIXTURES NOT ON THE OCCUPANCY SENSOR / OTHER AUTOMATIC CONTROL SHALL BE CONTROLLED BY TIMER-CONTROLLED LIGHTING CONTACTOR(S), UNLESS OTHERWISE NOTED.
- B. THE OCCUPANCY SENSOR, TIMERS, AND OTHER APPROVED LIGHTING CONTROLS SHALL MATCH THE CONTROL FUNCTION REQUIREMENT SPECIFIED IN THE IECC C405.2.
- C. PROVIDE LINE VOLTAGE (UNLESS SPECIFIED) LIGHTING CONTROLS AND, SENSORS, OR POWER PACK AS REQUIRED.
- D. THE OCCUPANCY SHALL BE SET TO TURN OFF THE LIGHTS WITHIN 20 MINUTES AFTER ALL OCCUPANTS LEAVE THE SPACE.
- E. THE TIME CLOCK (MINIMUM 2 CHANNEL) SHALL BE SET AS PER THE REQUIREMENT OF THE PROJECT SPACE.
- F. EMERGENCY LIGHT FIXTURES SHALL TURN ON DURING POWER FAILURE WHEREAS ALL EXIT SIGNS SHALL BE PERMANENTLY ON. E.C. TO WIRE THE FIXTURES ACCORDINGLY.
- G. THE EMERGENCY POWER SYSTEM SHALL PROVIDE POWER FOR NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR (BC 1008.3.4).
- H. CONNECT THE EMERGENCY LIGHTS, EXIT SIGNS TO HOT LEG OF THE NEAREST GENERAL LIGHTING CIRCUIT, AHEAD OF ALL SWITCHING AND CONTROL.
- I. PROVIDE MANUFACTURER-SPECIFIED CURRENT LIMITERS (TYP. 0.5A) FOR TRACK LIGHTING, WHERE MULTIPLE TRACK RUNS ARE GROUPED, A SINGLE CURRENT LIMITER MAY SERVE MULTIPLE TRACKS IF ALLOWED BY MANUFACTURER. VERIFY LOAD AND ADJUST CURRENT LIMITER RATING IN FIELD ACCORDINGLY.
- J. E.C. TO FIELD VERIFY THE OPERABLE CONDITION OF THE EXISTING LIGHTS. RELAMP IF REQUIRED. REWIRE TO THE CIRCUITS AS INDICATED ON THE PLAN.
- K. THE MANUAL OVERRIDE SWITCH SHALL TURN OFF THE INTENDED LIGHTING (TIME CLOCK AND CONTACTORS) BEFORE 2 HOURS, WHEN IT IS INITIATED, COORDINATE EXACT LOCATION ON THE PLAN.
- L. A PHOTOCELL SHALL BE LOCATED INSTALLED IN ANY LOCATION EXPOSED TO THE SUNLIGHT BUT CONCEALED FROM PUBLIC VIEW. COORDINATE EXACT LOCATION IN FIELD.
- M. REFER TO THE LIGHTING CONTACTOR DETAIL FOR TYPICAL CONNECTION OF THE TIME CLOCK, MANUAL OVERRIDE SWITCH, CONTACTORS AND PHOTOCELL.
- N. E.C. SHALL REARRANGE (IF REQUIRED) THE EMERGENCY FIXTURES TO PROVIDE INITIAL ILLUMINATION THAT IS NOT LESS THAN AN AVERAGE OF 1 FOOTCANDLE (11 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOTCANDLE (1 LUX) MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOTCANDLE (6 LUX) AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOTCANDLE (0.6 LUX) AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40 TO 1 SHALL NOT BE EXCEEDED.
- O. PROVIDE EMERGENCY LIGHTING ON THE EXTERIOR SIDE OF THE EXIT DISCHARGE DOORS. EMERGENCY LIGHTING SYSTEMS SHALL BE DESIGNED AND INSTALLED SO THAT THE FAILURE OF ANY INDIVIDUAL LIGHTING ELEMENT CANNOT LEAVE IN TOTAL DARKNESS ANY SPACE THAT REQUIRES EMERGENCY ILLUMINATION. A TWO-LAMP / TWO-LED (2-LAMP / 2-LED) DRIVER FIXTURE, OR MULTIPLE FIXTURES IN PROXIMITY TO EACH OTHER WILL ACCOMPLISH THIS. SECTION: 1008.3.2; CEC 700.16.

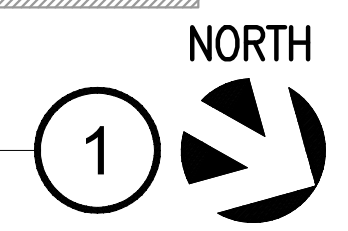
LIGHTING PLAN KEY NOTES:

- 1. CONTRACTOR SHALL PROVIDE JUNCTION BOX AND WP SAFETY SWITCH FOR BUILDING SIGN. COORDINATE EXACT LOCATION/REQUIREMENTS WITH SIGN INSTALLER.
- 2. E.C. SHALL COORDINATE THE EXACT LOCATION OF THE LIGHTING CONTACTOR AND TIME CLOCK IN FIELD WITH THE ARCHITECT/OWNER.
- 3. MANUAL CONTROL FOR LIGHTING FIXTURE IN UTILITY ROOM AS REQUIRED BY NEC. EC TO PROVIDE COMPLIANT SWITCH PER NEC 110.26(D).
- 4. CONTRACTOR SHALL COORDINATE AIMING OF TYPE K09 GIMBAL LIGHT WITH KEKE'S REPRESENTATIVE TO HIGHLIGHT ITEMS PER KEKE'S STYLE GUIDE.
- 5. E.C. SHALL COORDINATE THE EXACT LOCATION OF THE SWITCH BANK IN THE FIELD. ALL THE SWITCHES TAGGED AS (S # SB#) IN THE PLAN SHALL BE INSTALLED IN THE SWITCH BANK. REFER TO THE LIGHTING PLAN FOR THE NUMBER OF THE SWITCHES REQUIRED. REFER TO THE LIGHTING CONTACTOR CONNECTION DETAIL FOR MORE INFORMATION.
- 6. EXISTING LIGHTING FIXTURES IN THE AREA SHALL REMAIN ALONG WITH EXISTING CIRCUIT AND CONTROL. E.C. SHALL FIELD VERIFY THE OPERABLE CONDITION OF THE LIGHTING FIXTURE, THEIR CIRCUIT AND CONTROL. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- 7. TRACK LIGHTING (T1) SHALL BE FED THROUGH A CURRENT LIMITER (CL) IN ACCORDANCE WITH ENERGY CODE REQUIREMENTS. PROVIDE TRACK FEED ADAPTER AT DESIGNATED FEED POINT AS REQUIRED.



ELECTRICAL LIGHTING PLAN

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



ISSUED REVISIONS:	

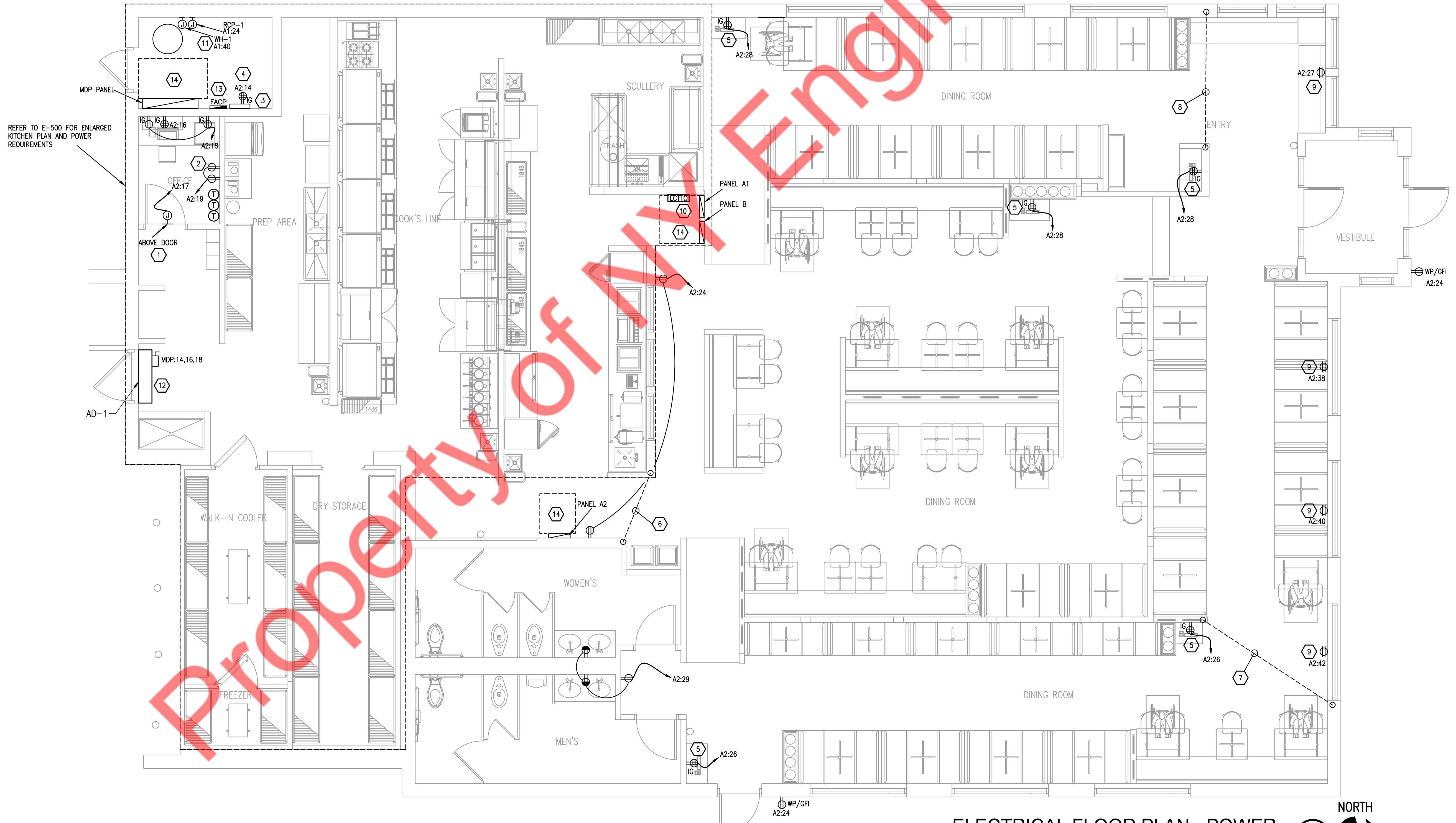
Keke's Breakfast Cafe
ELECTRICAL CEILING PLAN - LIGHTING

POWER PLAN GENERAL NOTES:

- A. POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATED WITH THE RESPECTIVE CONTRACTORS BEFORE BID.
- B. ELECTRICAL OUTLETS PLACED ON BOTH SIDES OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.
- C. ELECTRICAL OUTLETS AND DEVICES LOCATED IN DEMISING WALLS TO HAVE FIRE PUTY AROUND THE BOX TO MAINTAIN PARTITION FIRE RATING.
- D. ALL 125V-250V RECEPTACLES SUPPLIED BY SINGLE-PHASE CIRCUITS RATED 150V OR LESS TO GROUND, 50A OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150V OR LESS TO GROUND, 100A OR LESS INSTALLED IN THE LOCATIONS SPECIFIED IN NEC 210.8(B)(1) THROUGH (12) SHALL HAVE GFCI PROTECTION.
- E. GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED, E.C. SHALL PROVIDE A GFI RECEPTACLE DISCONNECT IN THE READILY ACCESSIBLE LOCATION. PROVIDE A GFI BREAKER IN THE PANEL IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE WHEN INSTALLED IN THE DESIRED LOCATION.
- F. WHEN WIRING TYPE AND INSULATION ARE NOT SPECIFIED IN THE DRAWING, THE CONTRACTOR SHALL PROVIDE ANY WIRING THAT IS APPROVED BY CODE AND SUITABLE FOR THE AREA OF USE. THE AREA INCLUDES BUT IS NOT LIMITED TO UNDERGROUND, OVERHEAD, WET LOCATION, PLANUM SPACE, SHAFTS, FIRE PUMP, EMERGENCY SYSTEM, OFFICES, AND HEALTH CARE FACILITIES.
- G. MINIMUM CONDUCTOR SIZE FOR 120V BRANCH CIRCUITS SHALL BE 12-AWG. FOR 120V BRANCH CIRCUITS WITH HOME-RUN OVER 100 LINEAR FEET, A MINIMUM WIRE SIZE OF 10-AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD. FOR 120V BRANCH CIRCUITS WITH HOME RUN OVER 150 LINEAR FEET, A MINIMUM OF 8-AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD.

POWER PLAN KEYED NOTES:

- 1. CONTRACTOR SHALL PROVIDE JUNCTION BOX AND 120V CIRCUIT ABOVE DOOR FOR SECURITY DOOR HARDWARE. COORDINATE INSTALLATION WITH KEKE'S REPRESENTATIVE AND MANUFACTURER'S RECOMMENDATION.
- 2. CONTRACTOR SHALL PROVIDE (2) DEDICATED DUPLEX RECEPTACLES FOR SYSTEMS DATA RACK. COORDINATE MOUNTING HEIGHT WITH EQUIPMENT IN FIELD.
- 3. REUSE QUAD RECEPTACLE FOR TELEDATA/TELEPHONE BACKBOARD (TTB). E.C. TO FIELD VERIFY THE OPERABLE CONDITION OF THE RECEPTACLE AND EXISTING CIRCUIT. PROVIDE NEW IF FOUND INOPERABLE.
- 4. CONTRACTOR SHALL PROVIDE GROUNDING BUS BAR WITH GROUNDING ELECTRODE CONNECTION FOR USE BY TELE/DATA TELEPHONE VENDORS.
- 5. CONTRACTOR SHALL PROVIDE ISOLATED GROUND RECEPTACLE FOR POINT-OF-SERVICE STATION. PROVIDE IDENTIFYING LABEL ON RECEPTACLE COVER AND IN PANEL SCHEDULE.
- 6. PROVIDE RIGID METAL CONDUIT IN WALL TO TRENCH, TRANSITION TO NON-METAL CONDUIT AND RUN IN NEWLY CREATED TRENCH/SLAB CUT. TRENCH DEPTH SHALL BE PER NEC REQUIREMENTS FOR 120V BRANCH CIRCUIT. EXTEND CONDUIT IN TRENCH TO CASEWORK AS SHOWN AND TURN UP INTO INTERIOR. RECEPTACLE SHALL BE RECESSED IN CASEWORK WITH NO VISIBLE CONDUIT OR JUNCTION BOX. CONTRACTOR SHALL RE-FILL/POUR TRENCH AND PATCH FLOOR TO "LIKE NEW" CONDITION FOLLOWING INSTALLATION OF CONDUIT. EMBEDDED CONDUIT SHALL BE SIZED PER PANEL SCHEDULE FOR CIRCUIT USED. SEE E4.1 FOR SLAB TRENCHING DETAIL.
- 7. PROVIDE RIGID METAL CONDUITS (1" FOR POWER & 2" TELE/DATA) IN WALL TO TRENCH, TRANSITION TO NON-METAL CONDUIT AND RUN IN NEWLY CREATED TRENCH/SLAB CUT. TRENCH DEPTH MINIMUM SHALL BE PER NEC REQUIREMENTS FOR 120V BRANCH CIRCUITS. EXTEND CONDUITS IN TRENCH TO CASEWORK AS SHOWN AND TURN UP INTO INTERIOR. POWER RECEPTACLES AND DATA OUTLETS SHALL BE SURFACED MOUNTED IN CASEWORK BELOW POS STATION. CONTRACTOR SHALL RE-FILL/POUR TRENCH AND PATCH FLOOR TO "LIKE NEW" CONDITION FOLLOWING INSTALLATION OF CONDUITS. SEE E4.1 FOR SLAB TRENCHING DETAIL.
- 8. EXTEND CONDUIT IN TRENCH TO CASEWORK AS SHOWN AND TURN UP INTO INTERIOR. RECEPTACLE SHALL BE RECESSED IN CASEWORK WITH NO VISIBLE CONDUIT OR JUNCTION BOX. CONTRACTOR SHALL RE-FILL/POUR TRENCH AND PATCH FLOOR TO "LIKE NEW" CONDITION FOLLOWING INSTALLATION OF CONDUIT. EMBEDDED CONDUIT SHALL BE SIZED PER PANEL SCHEDULE FOR CIRCUIT USED.
- 9. CONTRACTOR SHALL COORDINATE WITH ARCHITECT/OWNER FOR REQUIREMENT AND PROVIDE NEW RECESSED SHOW WINDOW RECEPTACLES IN CEILING. INSTALLATION AND LOAD SHALL BE IN ACCORDANCE WITH NEC ARTICLES 210.62 & 220.14.
- 10. CONTRACTOR SHALL INSTALL INTERIOR AND EXTERIOR LIGHTING TIME CLOCKS AND ASSOCIATED RELAYS ADJACENT TO PANEL 'B'. FIELD VERIFY INSTALLATION LOCATION.
- 11. E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
- 12. CONTRACTOR SHALL PROVIDE HARDWIRE CONNECTION TO AIR CURTAIN. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.
- 13. CONTRACTOR SHALL PROVIDE FIRE ALARM CONTROL PANEL AND INTEGRATE INTO FIRE ALARM SYSTEM PER MANUFACTURER'S REQUIREMENTS. SPECIFICATION OF EQUIPMENT SHALL BE PROVIDED VIA THIRD PARTY FIRE ALARM SPECIALIST DURING SUBMITTAL REVIEW.
- 14. E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION OF THE PANELS IN THE FIELD. ALSO, ENSURE CLEAR WORKING AND DEDICATED SPACE AS PER NEC 110.26.



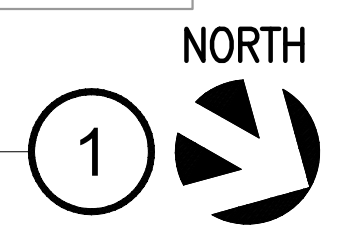
REFER TO E-500 FOR ENLARGED KITCHEN PLAN AND POWER REQUIREMENTS

ISSUED REVISIONS:	

Keke's Breakfast Cafe
ELECTRICAL FLOOR PLAN - POWER

ELECTRICAL FLOOR PLAN - POWER

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

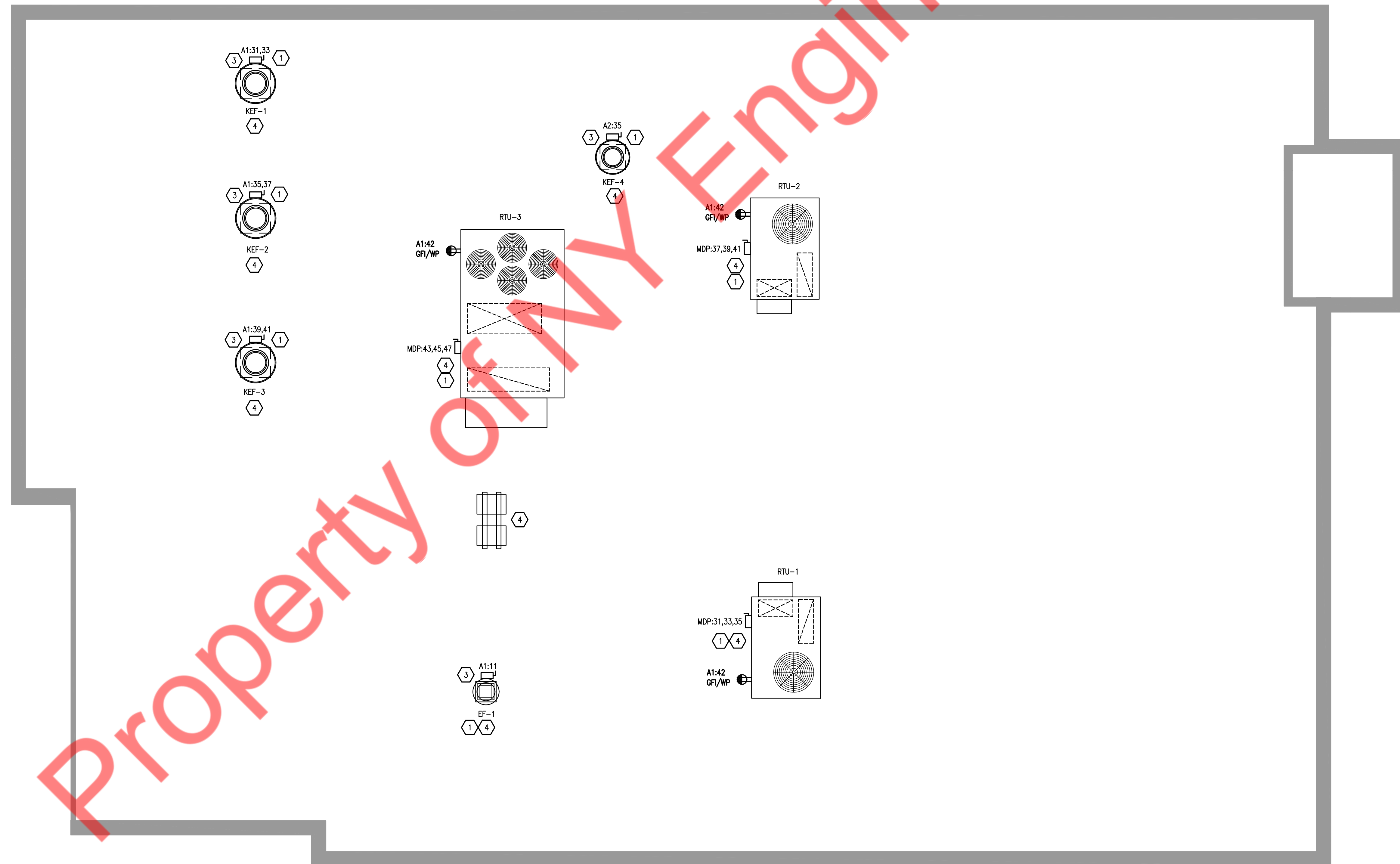


ROOF POWER PLAN KEYED NOTES:

1. DISCONNECT SAFETY SWITCH COMES INTEGRAL WITH HVAC ROOFTOP EQUIPMENT. COORDINATE HARDWIRE ELECTRICAL CONNECTION WITH MECHANICAL CONTRACTOR.
2. CONVENIENCE GFCI DUPLEX POWER RECEPTACLE COMES INTEGRAL WITH HVAC ROOFTOP EQUIPMENT. COORDINATE HARDWIRE ELECTRICAL CONNECTION WITH MECHANICAL CONTRACTOR.
3. PROVIDE 30A, HEAVY DUTY, NEMA 3R, NON-FUSED DISCONNECT SAFETY SWITCH FOR USE WITH HVAC EQUIPMENT. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.
4. EXISTING MECHANICAL UNIT TO REMAIN ALONG WITH EXISTING CIRCUIT AND CONTROL. E.C. SHALL FIELD VERIFY THE OPERABLE CONDITION OF THE CIRCUIT AND CONTROL. PROVIDE NEW IF THE EXISTING IS INOPERABLE. BASE BID ACCORDINGLY.

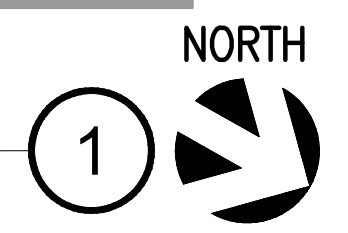
ROOF POWER PLAN GENERAL NOTES:

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



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



ISSUED REVISIONS:

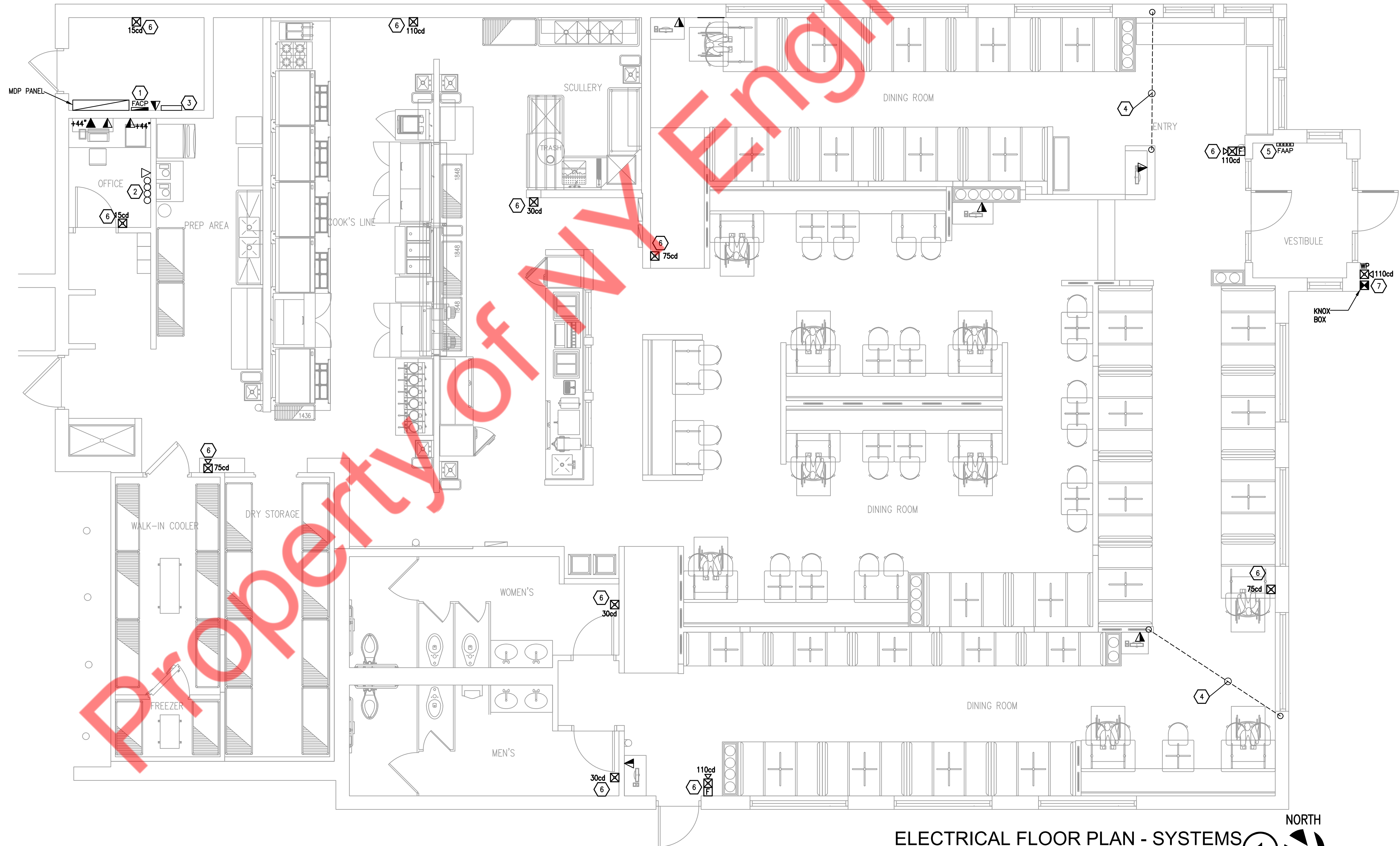
Keke's Breakfast Cafe
ELECTRICAL FLOOR PLAN - ROOF

POWER PLAN GENERAL NOTES:

- A. ALL LOW VOLTAGE WORK SHALL MEET ALL FEDERAL, STATE AND LOCAL CODES.
- B. INDICATION HERE OF TEL./COM IS FOR COORDINATION PURPOSES ONLY. COORDINATE ACTUAL LOCATIONS, QUANTITIES AND ADDITIONAL REQUIREMENTS WITH RESPECTIVE VENDORS.
- C. WHERE DATA OUTLETS ARE LOCATED IN SPACES WITH GYPSUM BOARD CEILING, CONTRACTOR TO EXTEND DATA CONDUIT TILL SPACES WITH SUSPENDED CEILING TILES AND TERMINATE CONDUIT AT ACCESSIBLE LOCATION.
- D. ALL DATA CABLES SHALL BE TERMINATED AT IT RACK IN CAT6 PATCH PANELS BY ELECTRICAL CONTRACTOR.
- E. DATA CABLES SHALL BE INSTALLED IN CONDUITS WHENEVER RUN CONCEALED IN WALLS, UNDER SLAB OR ABOVE GYPSUM BOARD CEILING. DATA CABLES SHALL BE PLENUM RATED WHENEVER RUN ABOVE SUSPENDED CEILING TILES IN PLENUM RATED SPACE.
- F. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE LABELS FOR ALL DATA CONDUITS AT BOTH ENDS.
- G. NO MORE THAN TWO (2) 90° BENDS IN ONE RUN FOR TELEPHONE & DATA SYSTEM. IF CONDUIT RUN REQUIRES MORE THAN TWO (2) 90° BENDS, PROVIDE A PULL BOX AFTER EACH SET OF TWO (2) 90° BENDS.
- H. LONG SWEEP ELBOWS SHALL BE USED FOR TELEPHONE AND DATA RACEWAYS.
- I. MINIMUM SIZE OF CONDUIT FOR TELEPHONE/DATA SYSTEM SHALL BE 1", UNLESS NOTED OTHERWISE.
- J. ALL EMPTY CONDUITS SHALL HAVE A PULL STRING WITH A MINIMUM 10' OF SLACK ON BOTH ENDS.
- K. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE LABELS FOR ALL SECURITY CONDUITS AT BOTH ENDS.

POWER PLAN KEYED NOTES:

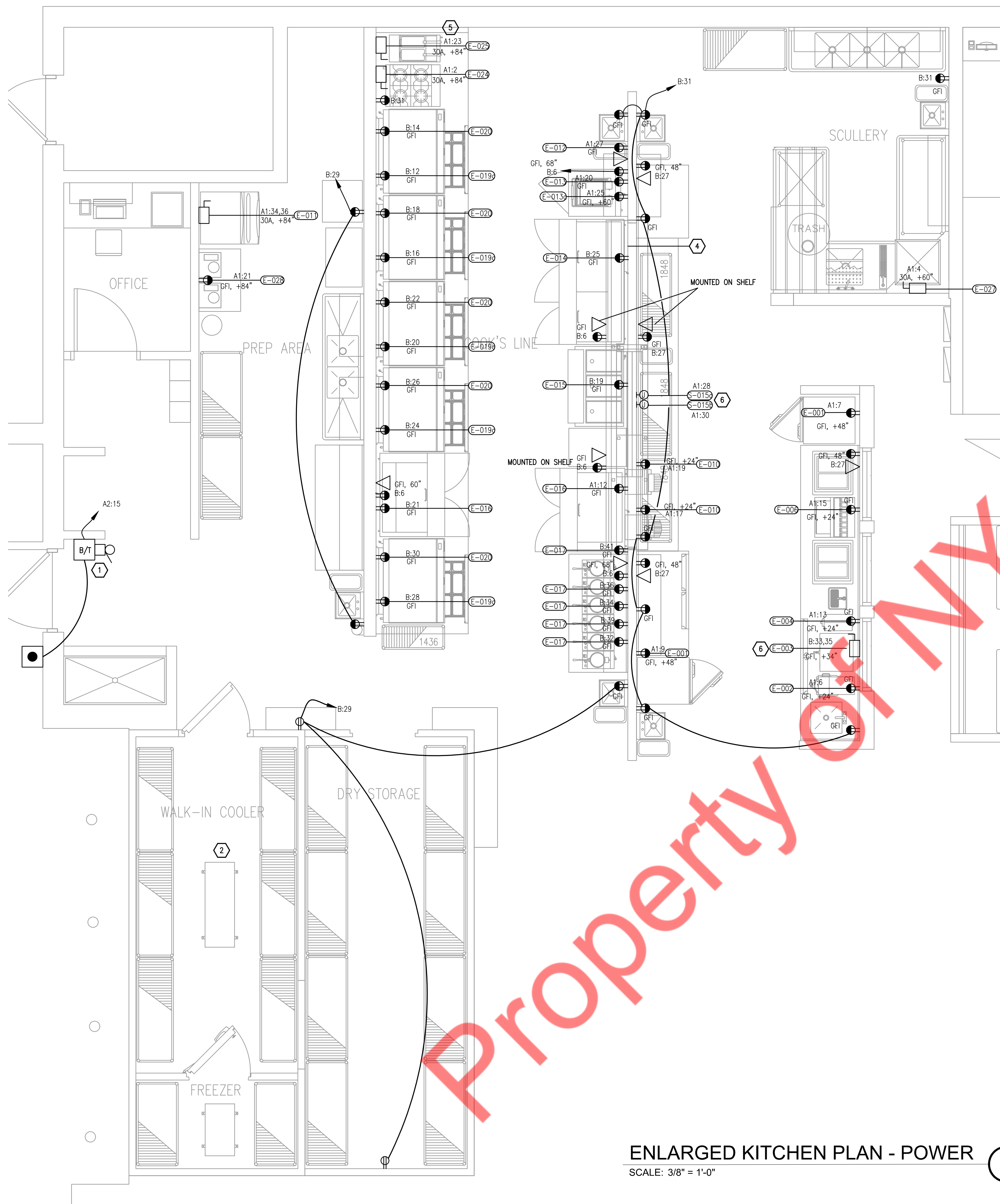
- 1. CONTRACTOR SHALL PROVIDE FIRE ALARM CONTROL PANEL AND INTEGRATE INTO FIRE ALARM SYSTEM PER MANUFACTURER'S REQUIREMENTS. SPECIFICATION OF EQUIPMENT SHALL BE PROVIDED VIA THIRD PARTY FIRE ALARM SPECIALIST DURING SUBMITTAL REVIEW.
- 2. CONTRACTOR SHALL PROVIDE (4) 2" CONDUIT W/ PULL STRING FROM SYSTEMS DATA RACK LOCATION TO ABOVE DROPPED CEILING. CONDUIT IS INTENDED FOR USE BY OTHERS. COORDINATE MOUNTING HEIGHT WITH EQUIPMENT IN FIELD.
- 3. REUSE DATA/TELEPHONE BACKBOARD (TTB). E.C. TO FIELD VERIFY THE OPERABLE CONDITION OF THE TTB. PROVIDE NEW 4 X 4 SHEET OF PLYWOOD TO SERVE AS DATA/TELEPHONE BACKBOARD (TTB) IF FOUND INOPERABLE. COORDINATE MOUNTING HEIGHT WITH EQUIPMENT IN FIELD.
- 4. PROVIDE RIGID METAL CONDUITS (1" FOR POWER & 1" TEL./DATA) IN WALL TO TRENCH, TRANSITION TO NON-METAL CONDUIT AND RUN IN NEWLY CREATED TRENCH/SLAB CUT. REFER TO ELECTRICAL POWER FLOOR PLAN FOR ADDITIONAL INFORMATION. SEE 6/E4.1 FOR SLAB TRENCHING DETAIL.
- 5. CONTRACTOR SHALL PROVIDE FIRE ALARM ANNUNCIATOR PANEL AND INTEGRATE INTO FIRE ALARM SYSTEM PER MANUFACTURER'S REQUIREMENTS. SPECIFICATION OF EQUIPMENT SHALL BE PROVIDED VIA THIRD PARTY FIRE ALARM SPECIALIST DURING SUBMITTAL REVIEW.
- 6. CONTRACTOR SHALL COORDINATE MODEL NUMBER, DECIBEL LEVEL, AND STROBE INTENSITY WITH THIRD PARTY FIRE ALARM DRAWING SET. SPECIFICATION OF EQUIPMENT SHALL BE PROVIDED VIA THIRD PARTY FIRE ALARM SPECIALIST DURING SUBMITTAL REVIEW.
- 7. KNOX BOX RAPID ACCESS SYSTEM FOR FIRE ALARM. COORDINATE EXACT LOCATION WITH LOCAL FIRE DEPARTMENT AND/OR AHJ.



ISSUED REVISIONS:	

Keke's Breakfast Cafe
ELECTRICAL FLOOR PLAN - SYSTEM

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



ENLARGED KITCHEN PLAN - POWER
 SCALE: 3/8" = 1'-0"
 NORTH

ELECTRICAL KITCHEN EQUIPMENT SCHEDULE										
ITEM NO.	QTY.	DESCRIPTION	MANUFACTURER / MODEL NO.	VOLTS	PHASE	AMPS	LOAD IN KVA	CONNECTION TYPE	APPL.	NOTES
E-001	2	SINGLE DOOR REFRIGERATOR	ATOSA / MHF8905GRL	120	1	2.1	0.252	NEMA 5-15P	48"	
E-002	1	TEA BREWER	BUNN-O-MATIC / TB3Q	120	1	14.4	1.728	NEMA 5-15P	48"	
E-003	1	COFFEE BREWER	BUNN-O-MATIC / TF DBC	120/240	1	27.5	3.3	DISCONNECT	48"	CORD NOT INCLUDED
E-004	1	COFFEE GRINDER	BUNN-O-MATIC / MHG	120	1	11	1.32	NEMA 5-15P	48"	
E-006	1	SODA DISPENSER UNIT	BY VENDOR	120	1	2	0.24	NEMA 5-15P	12"	
E-010	2	CONVEYOR TOASTER	WARING / CTS1000	120	1	15	1.8	NEMA 5-15P	24"	
E-011	1	ICE MACHINE W/ BIN	ATOSA / YR800-AP-261 W/BIN	208	1	7.5	1.56	DISCONNECT	84"	
E-012	1	WORK TOP FREEZER	ATOSA / MSF8412GR	120	1	1.8	0.216	NEMA 5-15P	18"	
E-013	1	PANINI PRESS	STAR / PGT14	120	1	15	1.8	NEMA 5-15P	18"	
E-013a	1	PANINI TIMER	PRINCE CASTLE / 740-188H	120	1	1	0.12	NEMA 5-15P	54"	
E-014	1	REFRIGERATED PREP	ATOSA / MSF8308GR	120	1	2.8	0.336	NEMA 5-15P	18"	
E-015	1	3 WELL STEAM TABLE	VOLRATH / 38003	120	1	12	1.44	NEMA 5-15P	18"	
E-016	2	REFRIGERATED PREP W/SHELF	ATOSA / MSF8306GR	120	1	2.3	0.276	NEMA 5-15P	18"	
E-017	5	WAFFLE IRON	STAR / SWBB	120	1	7.5	0.9	NEMA 5-15P	24"	
E-019C	5	FLAT GRIDDLE, 48"	ACCUTEMP / GGF1201A4850-T1	120	1	1	0.12	NEMA 5-15P	18"	
E-020	5	REFRIGERATED EQUIP STAND	ATOSA / MGF8450GR	120	1	2.3	0.276	NEMA 5-15P	18"	
E-024	3	EXHAUST HOOD, COOKLINE	CAPTIVE AIRE / NDSP	120	1	15	1.8	DISCONNECT	84"	SEE SHOP DRAWING
E-025	1	FIRE SUPPRESSION SYSTEM	CAPTIVE AIRE - ANSUL R102	120	1	2	0.24	DISCONNECT	84"	
E-027	1	DISHWASHER	ECC-LAB	120	1	23	2.76	DISCONNECT	60"	VERIFY WITH VENDOR
E-028	1	SODA SYSTEM CARBONATOR	BY VENDOR	120	1	7	0.84	NEMA 5-15P	84"	
E-033	1	WATER HEATER	BY PLUMBER - VERIFY SPEC	120	1	2	0.24	HARD WIRED	18"	SEE SHOP DRAWING
S-015a	1	PASS-THRU HEAT LAMPS	HATCO / GRA-48D3	120	1	13.4	1.608	HARD WIRED	-	
S-015b	1	PASS-THRU HEAT LAMPS	HATCO / GRA-72D3	120	1	21.5	2.58	HARD WIRED	-	

GENERAL NOTES:
 1. REFER TO THE PANEL SCHEDULE FOR CIRCUIT NUMBER INFORMATION.
 2. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR POWER AND CONNECTION REQUIREMENTS.
 3. CONTRACTOR TO COORDINATE WITH MANUFACTURER INSTALLATION MANUAL FOR ALL POWER AND COMMUNICATION CONNECTION REQUIREMENTS.
 4. ALL EQUIPMENT UNDER THE HOOD SHALL HAVE SHUNT TRIP BREAKER.
 5. FOR EQUIPMENT RATED OTHER THAN SERVICE VOLTAGE, SELECT EQUIPMENT @208V OR PROVIDE ADAPTER/TRANSFORMER AND COORDINATE WITH ARCHITECT.

EQUIPMENT SCHEDULE GENERAL NOTES:

- FOR EQUIPMENT RATED FOR OTHER THAN THE SERVICE VOLTAGE, THE CONTRACTOR SHALL EITHER PROVIDE EQUIVALENT EQUIPMENT AT SERVICE VOLTAGE (IN COORDINATION WITH OWNER/ARCHITECT) OR PROVIDE AN ADAPTER/TRANSFORMER FOR THAT EQUIPMENT.
- VERIFY ALL MCA, MOPP, CONNECTION TYPE, AND OTHER INSTALLATION REQUIREMENTS WITH FOOD SERVICE CONSULTANT AND EQUIPMENT MANUFACTURER BEFORE BID.
- LOCATIONS OF DISCONNECTS FOR EACH PIECE OF EQUIPMENT MAY NOT BE SHOWN ON PLANS. IF DISCONNECT FOR EQUIPMENT IS NOT SHOWN, THE CONTRACTOR TO FIELD COORDINATE LOCATION PER CODE.
- FUSED DISCONNECTS SHALL HAVE FUSES SIZED AS LISTED ON THE EQUIPMENT NAMEPLATE, OTHERWISE MATCH THE UPSTREAM OVER CURRENT DEVICE IF NO MAXIMUM OVER-CURRENT SIZE IS LISTED ON THE EQUIPMENT, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL CONDUITS, WIRE, SUPPORT SYSTEM, DISCONNECTS, AND OUTLETS TO ALLOW FOR A COMPLETE CODE-COMPLIANT KITCHEN INSTALLATION.

POWER PLAN KEYED NOTES:

- PROVIDE A DELIVERY BUZZER SYSTEM (THOMAS & BETTS) WITH TRANSFORMER, PUSH BUTTON, AND CHIME (EDWARDS #338-05). CONTRACTOR SHALL PROVIDE ALL J-BOXES, CONDUITS & WIRES TO COMPLETELY INSTALL THE SYSTEM.
- WALK-IN COOLER AND FREEZER TO REMAIN ALONG WITH EXISTING CIRCUIT AND CONTROL. E.C. SHALL FIELD VERIFY THE OPERABLE CONDITION OF THE EXISTING CIRCUITS AND CONTROL. PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- NOT USED.
- ELECTRICAL CONTRACTOR TO PROVIDE CONNECTION TO EQUIPMENT IN PASS SHELF ASSEMBLY AS SHOWN. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH VENDOR PRIOR TO BID. EC TO MAKE ALL FIELD CONNECTIONS AS REQUIRED. PROVIDE CONDUIT WITH PULL STRING FOR DATA CONNECTION.
- COORDINATE EXACT LOCATION AND REQUIREMENTS OF HOOD CONTROL PANEL, EXHAUST, AND MAKE-UP AIR FANS WITH OWNER AND HOOD PROVIDER PRIOR TO ROUGH-IN. COORDINATE HOOD CONNECTION LOCATIONS AND INTERCONNECTIONS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND HOOD PROVIDER PRIOR TO ROUGH-IN.
- E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS AND CONNECTION TYPE WITH EQUIPMENT VENDOR BEFORE BID.

ISSUED REVISIONS:

Keke's Breakfast Cafe
 ELECTRICAL KITCHEN POWER PLAN

PANEL: MDP (EXISTING)		-										MOUNTING: SURFACE	
208Y/120		-										PANEL LOCATION: UTILITY ROOM	
800A		-										FED FROM: MDP PANEL	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
					A	B	C						
1		SPACE			0.00							2	
3					0.00							4	
5							0.00					6	
7		SPACE			0.00							8	
9							0.00					10	
11							0.00					12	
13		SPACE			2.42			2.42	H			14	
15					2.42			2.42	H	AD-1		16	
17					2.42			2.42	H			18	
19					14.59			8.05	O			20	
21	225/3P	PANEL A1	O	6.55				8.05	O	PANEL B	200/3P	22	
23			O	6.55				8.05	O			24	
25			O	8.39	8.39		14.59					26	
27	200/3P	PANEL A2	O	8.39						SPARE	200/3P	28	
29			O	8.39								30	
31			H	7.68	7.68							32	
33	80/3P	RTU-1	H	7.68		7.68				SPARE	20/3P	34	
35			H	7.68			7.68					36	
37			H	7.68	10.56			2.88	H			38	
39	80/3P	RTU-2	H	7.68		10.56		2.88	H	WALK-N FREEZER CONDENSER	30/3P	40	
41			H	7.68			10.56	2.88	H			42	
43			H	12.23	14.16			1.92	H			44	
45	125/3P	RTU-3	H	12.23		14.16		1.92	H	WALK-N COOLER CONDENSER	20/3P	46	
47			H	12.23		14.16		1.92	H			48	
					57.80	57.80	57.80						

PANEL: A1 (EXISTING)		-										MOUNTING: SURFACE	
208Y/120		-										PANEL LOCATION: UTILITY ROOM	
225A		-										FED FROM: MDP PANEL	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
					A	B	C						
1		SPARE			1.80							2	
3	30/3P				2.76							4	
5							1.73					6	
7	20/1P	E-001 - SINGLE DOOR REFRIGERATOR	E	0.25								8	
9	20/1P	E-001 - SINGLE DOOR REFRIGERATOR	E	0.25								10	
11	20/1P	EF-1	M	0.32			0.60					12	
13	20/1P	E-004 - COFFEE GRINDER	E	1.32								14	
15	20/1P	E-006 - SODA DISPENSER UNIT	E	0.24			0.44					16	
17	20/1P	E-010 - CONVEYOR TOASTER	E	1.80			1.80					18	
19	20/1P	E-010 - CONVEYOR TOASTER	E	1.80			3.60					20	
21	20/1P	E-028 - SODA SYSTEM CARBONATOR	E	0.84			0.84					22	
23	20/1P	E-025 - FIRE SUPPRESSION SYSTEM	E	0.24			0.44					24	
25	20/1P	E-013a - PANINI TIMER	E	0.12			0.12					26	
27	20/1P	E-012 - WORK TOP FREEZER	E	0.22			1.82					28	
29	20/1P	SPARE					2.58					30	
31			M	0.54			0.54					32	
33	20/2P	KEF-1	M	0.54			1.32					34	
35			M	0.54			1.32					36	
37	20/2P	KEF-2	M	0.54			0.54					38	
39			M	0.54			0.74					40	
41	20/2P	KEF-3	M	0.54			1.06					42	
					8.37	8.18	9.53						

PANEL: A2 (EXISTING)		-										MOUNTING: SURFACE	
208Y/120		-										PANEL LOCATION: UTILITY ROOM	
200A		-										FED FROM: MDP PANEL	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
					A	B	C						
1		SPARE			0.00							2	
3	30/3P				0.00							4	
5							0.00					6	
7	20/2P	POLE LIGHTS	L	0.50								8	
9			L	0.50								10	
11	20/2P	POLE LIGHTS	L	0.50								12	
13			L	0.50								14	
15	20/1P	DOOR BELL	R	0.50			0.86					16	
17	20/1P	SECURITY DOOR HARDWARE	R	0.40			0.76					18	
19	20/1P	SYSTEM DATA RACK	R	0.36			1.56					20	
21	20/1P	SPARE					1.20					22	
23	20/1P	SPARE					1.08					24	
25	20/1P	SPARE					0.72					26	
27	20/1P	SHOW WINDOW RECEPT.	L	1.60			2.50					28	
29	20/1P	RESTROOM RECEPT.	R	0.52			1.72					30	
31							1.20					32	
33	40/2P	SPARE					1.20					34	
35	20/1P	KEF-4	M	0.49			0.49					36	
37			L	0.50			1.90					38	
39	20/2P	POLE LIGHTS	L	0.50			1.90					40	
41	20/1P	FACP	O	0.50			1.90					42	
					6.74	8.16	6.45						

PANEL: B (EXISTING)		-										MOUNTING: SURFACE	
208Y/120		-										PANEL LOCATION: UTILITY ROOM	
200A		-										FED FROM: MDP PANEL	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
					A	B	C						
1	20/2P	SPARE			0.00							2	
3							0.00					4	
5	20/1P	SPARE					0.90					6	
7	20/1P	DINING AREA LIGHTING	L	1.20			1.20					8	
9	20/1P	DINING AREA LIGHTING	L	1.14			1.14					10	
11	20/1P	RESTROOM/BOH LIGHTING	L	0.54			0.66					12	
13	20/1P	KITCHEN LIGHTING	L	0.65			0.93					14	
15	20/1P	TIMECLOCK	O	0.20			0.32					16	
17	20/1P	OUTDOOR LIGHTING	L	0.05			0.33					18	
19	20/1P	E-015 - 3 WELL STEAM TABLE	E	1.44			1.56					20	
21	20/1P	E-016 - REFRIGERATED PREP W/SHELF	E	0.28			0.55					22	
23	20/1P	SPARE					0.12					24	
25	20/1P	E-014 REFRIGERATED PREP	E	0.34			0.61					26	
27	20/1P	QUAD AND DATA RECEPT.	R	0.74			0.86					28	
29	20/1P	GENERAL RECEPTACLE	R	0.90			1.16					30	
31	20/1P	GENERAL RECEPTACLE	R	1.08			1.98					32	
33	35/2P	E-003 - COFFEE BREWER	E	1.65			2.55					34	
35			E	1.65			2.55					36	
37	20/1P	HOOD RELAY CONTROL	O	0.10			0.10					38	
39	20/1P	E-017 - WAFFLE IRON	E	0.90			0.90					40	
41	20/1P	E-017 - WAFFLE IRON	E	0.90			0.90					42	
					6.38	6.32	6.64						

TYPE	QTY.	DESCRIPTION	MFR	FIXTURE PART NUMBER	LAMP PART NUMBER	DIMMER	VOLTAGE	WATTAGE	NOTES
KPB	13	ARIA PENDANT USED AT PERIMETER BOOTHS, BURNISHED BRASS FINISH. 19" X 9.6" CLEAR SEEDED GLASS, WITH 12' OF BLACK CORD	NUVO	60-7017	SATCO #521351 TUBE LAMP T10 800L 3000K CLEAR	ELV	120V	8W	MUST BE ON DIMMER
KRS	4	RAHARI WALL SCNCE USED IN RESTROOMS, VINTAGE BRASS FINISH, CLEAR GLASS, 7" X 4.75" X 7"	NUVO	60-6857	SATCO #521351 MED BASE T10 800L 3000K	ELV	120V	8W	MUST BE ON DIMMER
KEW	4	EXTERIOR UP/DOWN WALL SCNCE, BLACK FINISH, 15" X 3.25" X 4"	NORA	NYUD-3L1345B	INTEGRAL 3000K LED	ELV	120V	8W	ADJUSTABLE KELVIN CCT: 2700K / 3000K / 4000K (SET TO 3000K)
K05	16	6" LED DOWNLIGHT 800 LUMEN 9 WATT 3000K 90CRI 3000K WHITE FINISH, NEW CONSTRUCTION IC HOUSING FUNCTION REQUIRED	SATCO	S11801/S9540	INTEGRAL 3000K LED	TRIAC	120V	9W	ADJUSTABLE KELVIN CCT: 2700K / 3000K / 4000K (SET TO 3000K)
K09	1	6" LED ADJUSTABLE DOWNLIGHT 800 LUMEN, 9WATT 3000K 90CRI WHITE FINISH, NEW CONSTRUCTION IC HOUSING FUNCTION REQUIRED. INTERCONNECTING LEADS.	SATCO	S11824/S9540	INTEGRAL 3000K LED	TRIAC	120V	9W	ADJUSTABLE KELVIN CCT: 2700K / 3000K / 4000K (SET TO 3000K)
K11	12	6" LED DOWNLIGHT	SATCO	S11646	INTEGRAL 3000K LED	-	120V	13.5W	1230 LUMEN 13.5 WATT 90CRI 3000K WHITE FINISH, NEW CONSTRUCTION LED ONLY DOWNLIGHT HOUSING FOR INTERIOR/EXTERIOR USE
T4	17	HIGH EFFICIENCY LED 2X4 6150 LUMEN GRID FLAT PANEL	RAB	EZPANHE2X4-40N/D10	4000K INTEGRAL LED	0-10V	120/277V	46W	-
T4/EM		2X4 EDGE-LIT PANEL W/ BATTERY BACKUP	RAB	EZPANHE 2X4 46N/D10/E2	4000K INTEGRAL LED	0-10V	120/277V	46W	-
T2	1	HIGH EFFICIENCY LED 2X2 4000 LUMEN GRID FLAT PANEL	RAB	EZPANHE2X2-40N/D10	4000K INTEGRAL LED	0-10V	120/277V	30W	-
T	108	MEDIUM BASE TRACK HEAD	NORA LIGHTING	11PAR30DIM/930FL40/SL 37186	LED	-	120	11W	WHITE TRACK HEADS
T1	-	FRONT OF HOUSE TRACKS	NORA LIGHTING	NT-304W/A-8 TRACK 1C		-			WHITE W/CAPS
EX2	4	THERMOPLASTIC EXIT SIGN W/ EM LIGHTPIPE	BEST LIGHTING PRODUCTS	CLPU 2 R W RC SDT	-	-	120/277V	7.5	-
RH	3	DIE-CAST EMERGENCY LIGHT REMOTE HEADS	BEST LIGHTING PRODUCTS	RHLED 1 SDT WP MV B	-	-	12V	-	-
EM1	15	THERMOPLASTIC EMERGENCY LIGHT	BEST LIGHTING PRODUCTS	RMR-16 S PLED	-	-	120/277V	5	-

BRANCH CIRCUIT WIRING CHART	
BREAKER	BRANCH CIRCUIT SIZE
15/1P	2#12 + 1#12G, 3/4"C
20/1P	2#12 + 1#12G, 3/4"C
30/1P	2#10 + 1#10G, 3/4"C
15/2P	2#12 + 1#12G, 3/4"C
20/2P	2#12 + 1#12G, 3/4"C
25/2P	2#10 + 1#10G, 3/4"C
30/2P	2#10 + 1#10G, 3/4"C
35/2P	2#8 + 1#10G, 3/4"C
40/2P	2#8 + 1#10G, 3/4"C
45/2P	2#8 + 1#10G, 3/4"C
15/3P	3#12 + 1#12G, 3/4"C
20/3P	3#12 + 1#12G, 3/4"C
25/3P	3#10 + 1#10G, 3/4"C
30/3P	3#10 + 1#10G, 3/4"C
35/3P	3#8 + 1#10G, 3/4"C
40/3P	3#8 + 1#10G, 3/4"C
45/3P	3#8 + 1#10G, 3/4"C
50/3P	3#8 + 1#10G, 3/4"C
60/3P	3#6 + 1#10G, 3/4"C
70/3P	3#4 + 1#8G, 1"C
80/3P	3#4 + 1#8G, 1"C
90/3P	3#3 + 1#8G, 1"C
100/3P	3#3 + 1#8G, 1"C
110/3P	3#1 + 1#6G, 1 1/4"C
125/3P	3#1 + 1#6G, 1 1/4"C
150/3P	3#1/0 + 1#6G, 1 1/4"C
175/3P	3#2/0 + 1#6G, 1 1/2"C
200/3P	3#3/0 + 1#6G, 1 1/2"C
225/3P	3#4/0 + 1#4G, 2"C
250/3P	4#250KCM + 1#4G, 2 1/2"C

PANEL SCHEDULE ABBREVIATIONS AND NOTES	
TAG	DESCRIPTION
L	LIGHTING
R	RECEPTACLE
H	HVAC
E	ELECTRICAL EQUIPMENT
M	LARGEST MOTOR
O	OTHER
N	NON COINCIDENT
X	LINKED CELL
*	VERIFY/COORDINATE IN FIELD
RWC	REFER TO THE WIRING CHART FOR WIRE SIZE
RRF	REFER RISER FOR FEEDER SIZE
GFI	GROUND FAULT CIRCUIT INTERRUPTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
NBEP	NEW BREAKER IN THE EXISTING

COMcheck Software Version COMcheckWeb
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2015 IECC
 Project Title: KEKE'S BREAKFAST CAFE - TUCKER, GA
 Project Type: Alteration

Construction Site: 4353 LAWRENCEVILLE HIGHWAY
 TUCKER, Georgia 30084
 Owner/Agent: Florida
 Designer/Contractor: MICHAEL TOBIAS
 NY ENGINEERS
 382 NE 191 st STREET SUITE 49674
 MIAMI, Florida 33179

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts
1-Dining: Family	5370	0.95	5102
Total Allowed Watts =			5102

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Wattage (C X D)	E
Dining: Family (5370 sq.ft.)				
LED: KRS: Other:	1	4	8	32
LED: KEW: Other:	1	2	8	16
LED: KOS: Other:	1	16	9	144
LED: K09: Other:	1	1	9	9
LED: T4: Other:	1	17	46	782
LED: KPB: Other:	1	13	8	104
LED: K11: Other:	1	12	14	162
LED: T2: Other:	1	1	30	30
Track Lighting: T: Wattage based on current limiting device capacity	0	0	1220	1220
Total Proposed Watts =			2499	

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

MICHAEL TOBIAS
 Name - Title Signature Date
 09/09/2025

COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COMcheck software
 Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4]¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.1 [EL15]²	Lighting controls installed to uniformly reduce the lighting load by at least 50%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.2.1 [EL18]²	Occupancy sensors installed in required spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.2.1, C405.2.2 [EL23]²	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.2.2 [EL22]²	Automatic controls to shut off all building lighting installed in all buildings.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.2.3 [EL16]²	Daylight zones provided with individual controls that control the lights independent of general area lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Sidelight zones on first floor in Group A-2 and M occupancies.
C405.2.3, C405.2.3.1, C405.2.3.2 [EL20]²	Primary sidelighted areas are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C405.2.3, C405.2.3.1, C405.2.3.3 [EL21]²	Enclosed spaces with daylight area under skylights and rooftop monitors are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C405.2.4 [EL4]¹	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.2.4 [EL8]¹	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.3 [EL6]¹	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [F117]³	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.4.1 [F118]¹	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
C408.2.5.1 [F116]¹	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.3 [F133]¹	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

ISSUED REVISIONS:

Keke's Breakfast Cafe
 ENERGY CALCULATIONS

<p>1. GENERAL INFORMATION</p> <p>1.1. PROVIDE ALL SUPPLIES, MATERIAL, LABOR, EQUIPMENT, AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION AND FULL OPERATION OF ALL ELECTRICAL AND ELECTRICAL RELATED WORK, INDICATED HEREINAFTER ON DRAWINGS AND SPECIFICATIONS, FOR A SAFE AND FULLY OPERATIONAL SYSTEM.</p> <p>1.1.1. THE INSTALLED SYSTEM SHALL BE COMPLETE IN EVERY WAY AND FUNCTIONING ACCORDING TO THE DESIGN INTENT, WHETHER OR NOT ALL SUCH MATERIALS AND APPURTENANCES ARE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.</p> <p>1.2. PERFORM ALL OPERATIONS INCLUDING EXCAVATION & BACKFILLING, SHORING, CUTTING, CHANNELING & CHASING, DE-WATERING, ETC. NECESSARY FOR INSTALLATION OF FULLY OPERATIONAL SYSTEM, WHETHER OR NOT SHOWN ON THE DRAWINGS.</p> <p>1.3. DEFINITION OF TERMS</p> <p>1.3.1. FURNISH - SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.</p> <p>1.3.2. INSTALL - OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.</p> <p>1.3.3. PROVIDE - FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.</p> <p>1.3.4. U.N.O. - UNLESS NOTED OTHERWISE.</p> <p>1.3.5. M.S.D.S. - MATERIAL SAFETY DATA SHEET</p> <p>1.3.6. CONTRACTOR - APPEARANCE ON DRAWINGS OR IN SPECIFICATIONS FOR ELECTRICAL WORK SHALL REFER TO ELECTRICAL SUB-CONTRACTOR.</p> <p>1.3.7. RELOCATE - DISCONNECT ELECTRICAL FEEDER, MAKE SAFE (INCLUDING LOCK OUT/TAG OUT), STORE AND PROTECT DEVICE, REINSTALL, REWORK AND EXTEND CONDUIT & WIRE TO NEW LOCATION, RE-ENERGIZE AND TEST.</p> <p>1.3.8. EQUAL AND EQUIVALENT - TO MEAN OF THE SAME QUALITY, SIZE, NUMBER, VALUE, DEGREE, INTENSITY AND THE ITEMS ARE SIMILAR IN ALL RESPECTS.</p> <p>1.3.8.1. THE FINAL DECISION OF ACCEPTANCE OF THESE ITEMS WILL BE MADE BY THE ENGINEER OF RECORD.</p> <p>1.3.8.2. IT SHALL BE UNDERSTOOD THAT FOR ANY SPECIFIED ITEM ON THE DRAWINGS AND/OR IN THE SPECIFICATION, THIS TERM SHALL APPLY.</p> <p>1.4. ALL WORK SHALL BE PERFORMED UNDER THE PERSONAL SUPERVISION OF A PROJECT SUPERINTENDENT ON-SITE. MAINTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES DURING THE PROJECT.</p> <p>1.5. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SUITABLE FOR THE CONDITIONS AND DUTIES IMPOSED ON THEM AFTER INSTALLATION.</p> <p>1.5.1. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BEAR THE SEAL OF UNDERWRITERS LABORATORIES INC. (UL), OR A SIMILAR CREDIBLE TESTING AGENCY, LABEL WHERE REGULARLY SUPPLIED.</p> <p>1.5.2. CERTAIN MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.</p> <p>1.5.3. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, CONTRACTOR SHALL STATE IN BID WHICH MAKE THEY PROPOSE TO FURNISH. SHOP DRAWINGS SHALL BE SUBMITTED ON MATERIAL AND EQUIPMENT TO BE FURNISHED BY CONTRACTOR FOR ENGINEER OF RECORD APPROVAL.</p> <p>1.5.3.1. THIS APPROVAL MUST BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.</p> <p>1.6. COORDINATE CONNECTION OF SECONDARY ELECTRICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.</p> <p>1.6.1. CONTRACTOR SHALL VERIFY TRANSFORMER LOCATION AND METERING SCHEME WITH LOCAL UTILITY CO.</p> <p>1.7. ALL MATERIALS SHALL BE FABRICATED AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER.</p> <p>1.7.1. THE OWNER AND ENGINEER SHALL DETERMINE WHETHER WORKMANSHIP IS ACCEPTABLE. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO POOR WORKMANSHIP, COORDINATION DIFFICULTIES, OR INTERFERENCES BETWEEN INVOLVED TRADES.</p> <p>1.7.2. PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE REPAIRED AND FINISHED BY EXPERIENCED WORKMEN.</p> <p>1.7.3. COORDINATE AND SCHEDULE THE WORK WITH THE OWNER TO MINIMIZE DISRUPTIONS TO THE NORMAL OPERATIONS AT THE BUILDING.</p> <p>1.7.3.1. AFTER-HOURS WORK IS REQUIRED ON THIS PROJECT.</p> <p>1.7.3.2. INCLUDE IN THE CONTRACT PRICE THE COST OF AFTER-HOURS WORK AND TEMPORARY PROVISIONS TO MINIMIZE DOWN TIME AND TO MAINTAIN THE FACILITY IN OPERATING CONDITION. COORDINATE WITH THE OWNER TO DETERMINE THE EXTENT OF THESE REQUIREMENTS PRIOR TO BID.</p> <p>1.8. RELATED WORK SPECIFIED ELSEWHERE:</p> <p>1.8.1. ALL DIVISION 1 REQUIREMENT, AND ALL TERMS AND CONDITIONS OF CONTRACT.</p> <p>1.8.2. REFER TO MECHANICAL SPECIFICATION FOR MECHANICAL WORK TO BE DONE IN CONJUNCTION WITH THE ELECTRICAL WORK. CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT, WIRING, JUNCTION BOXES, ETC., REQUIRED FOR HVAC CONTROLS, UNLESS SPECIFICALLY NOTED OTHERWISE.</p> <p>1.8.3. ALL ELECTRICAL EQUIPMENT AND WIRING PROVIDED UNDER DIVISION 23 SHALL COMPLY WITH THE ELECTRICAL SYSTEM CHARACTERISTICS INDICATED ON THE ELECTRICAL DRAWINGS AND SPECIFIED DIVISION 26.</p> <p>1.8.4. ELECTRIC CONTROLS, CONTACTORS, STARTERS, PILOT LIGHTS, PUSH BUTTONS, ETC., SHALL BE PROVIDED COMPLETE AS PART OF THE MOTOR, HEATER OR OTHER EQUIPMENT WHICH IT OPERATES. ALL ELECTRICAL COMPONENTS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND DIVISION 26.</p> <p>1.9. WHERE EQUIPMENT SPECIFICATIONS INDICATE THAT A FACTORY-AUTHORIZED SERVICE ENGINEER OR TECHNICIAN SHALL OBSERVE INSTALLATION, TEST & ADJUST, OR START-UP OF EQUIPMENT, ETC.; SUCH SERVICES WILL BE CONTRACTED BY OWNER AS PART OF THE EQUIPMENT PURCHASE.</p> <p>1.9.1. CONTRACTOR SHALL ARRANGE FOR, SCHEDULE, AND COORDINATE SUCH FIELD SERVICES AS WORK INCLUDED IN THE CONTRACT.</p> <p>1.9.2. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS NECESSARY TO SUPPORT ALL SUCH FACTORY REPRESENTATIVE'S FIELD SERVICES.</p> <p>1.10. REGULARLY DURING EACH WORKING DAY, REMOVE REFUSE AND DEBRIS ACCUMULATING FROM ELECTRICAL CONSTRUCTION AND LEAVE AREA CLEAN AT END OF THE WORK DAY.</p> <p>1.10.1. PRIOR TO ACCEPTANCE OF THIS WORK, LEAVE THE PREMISES "BROOM CLEAN" INsofar AS AFFECTED BY ELECTRICAL WORK.</p> <p>1.10.2. CLEAN ALL LIGHT FIXTURES, LAMPS AND LENSES PRIOR TO FINAL ACCEPTANCE.</p> <p>1.10.3. CLEAN THE INTERIOR OF EACH ELECTRICAL COMPONENT OF DIRT AND CONSTRUCTION DUST INCLUDING BUT NOT LIMITED TO PANELBOARDS, TRANSFORMERS, CONTROLLERS AND SWITCHES BEFORE ENERGIZING.</p> <p>1.10.4. EXPOSED FINISHED MATERIALS AND EQUIPMENT SHALL BE CAREFULLY CLEANED AND WIPED TO REMOVE GREASE, SMUDGES, FINGERPRINTS, DUST AND OTHER SPOTS AND LEFT SMOOTH AND CLEAN.</p> <p>1.10.5. CLEAN THE EXTERIOR OF ELECTRICAL COMPONENTS PRIOR TO ACCEPTANCE OF WORK.</p> <p>1.10.6. FOR ALL MATERIALS AND DEVICES REMOVED, THE CONTRACTOR SHALL DISPOSE OFF-SITE IN AN APPROVED MANNER. PROVIDE WRITTEN DOCUMENTATION FOR DISPOSAL OF ALL ITEMS.</p> <p>1.11. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:</p> <p>1.11.1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH</p>	<p>PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.</p> <p>1.11.2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.</p> <p>1.11.3. FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.</p> <p>1.11.4. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.</p> <p>1.11.5. MEASURABLE CRITERIA FOR PERFORMANCE.</p> <p>1.11.6. A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT. THE REPORT SHALL INCLUDE THE FOLLOWING:</p> <p>1.11.6.1. RESULTS OF FUNCTIONAL PERFORMANCE TESTS.</p> <p>1.11.6.2. DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED.</p> <p>1.11.6.3. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.</p> <p>1.11.6.4. EXCEPTION: DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION DUE TO CLIMATIC CONDITIONS.</p> <p>1.12. PROVIDE ALL LABOR, INSTRUMENTS, AND OTHER SERVICES REQUIRED FOR COMPLETE AND SATISFACTORY TEST AND ADJUSTMENT OF ELECTRICAL SYSTEMS AND RELATED WORK.</p> <p>1.12.1. CHECK ALL MOTORS AND ROTATING EQUIPMENT FOR PROPER ROTATION.</p> <p>1.12.2. TEST ALL FEEDERS WITH MEGGER TESTING EQUIPMENT PRIOR TO ENERGIZING TO ASSURE CODE RESISTANCE IS MET, (AND WITHOUT "SHORTS" OR "OPEN CIRCUITS").</p> <p>1.12.3. CHECK ALL FUSES AND OVERLOADS FOR PROPER SIZING. VERIFY FUSE LABELS ARE VISIBLE.</p> <p>1.12.4. CHECK ALL ELECTRICAL POWER AND CONTROL WIRING, INTERLOCKS, ETC., RELATED TO MECHANICAL EQUIPMENT TO DETERMINE THAT ALL WIRING IS CORRECT.</p> <p>1.12.5. IMMEDIATELY REMEDIATE ALL EQUIPMENT PROVIDED UNDER THIS DIVISION THAT TESTS PROVE TO BE DEFECTIVE OR OPERATING IMPROPERLY AS A PART OF THIS CONTRACT.</p> <p>1.13. CONTRACTOR AND VENDOR SHALL INSTRUCT THE OWNER'S TECHNICAL PERSONNEL ON ALL OWNER FURNISHED EQUIPMENT IN ACCORDANCE WITH SPECIFICATIONS.</p> <p>1.13.1. INCLUDE IN THE CONTRACT PRICE A MINIMUM OF (2) HOURS OF OWNER TRAINING FOR THE NEW CONTROLS.</p> <p>1.13.2. TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON START-UP & SHUT-DOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING & PREVENTATIVE MAINTENANCE SCHEDULE & PROCEDURES, AND OVERRIDE OF EQUIPMENT & CONTROLS IN THE EVENT OF SYSTEM FAILURE. REVIEW WITH THE OWNER'S PERSONNEL, THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.</p> <p>1.13.3. CONTRACTOR SHALL PROVIDE OWNER WITH SUFFICIENT SETS OF OPERATIONS AND MAINTENANCE MANUALS OF CONTRACTOR FURNISHED EQUIPMENT FOR INCLUSION INTO THE OWNER'S OPERATIONS AND MAINTENANCE MANUALS AS REQUIRED BY THE SPECIFICATIONS.</p> <p>1.13.4. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE O/M MANUALS ARE DELIVERED.</p> <p>1.13.5. O/M MANUALS SHALL INCLUDE CATALOG TECHNICAL DATA, RECOMMENDED SERVICE PROCEDURES, RECOMMENDED SERVICE INTERVALS, CALIBRATION INFORMATION, FACTORY TRAINING MANUALS, MAGNETIC MEDIA FOR SOFTWARE PROVIDED, AND RECOMMENDED SPARE PARTS.</p> <p>1.13.5.1. PROVIDE (2) NEATLY BOUND (WITH TABBED SECTIONS) COPIES OF MAINTENANCE BOOKS, INSTRUCTION BOOKS, AND PARTS LIST PERTAINING TO ALL EQUIPMENT FURNISHED. SUBMIT TO THE OWNERS REPRESENTATIVE FOR APPROVAL. FINAL PAYMENT WILL NOT BE MADE UNTIL MAINTENANCE AND INSTRUCTION MANUALS ARE DELIVERED TO THE OWNERS REPRESENTATIVE.</p> <p>1.13.5.1.1. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE.</p> <p>1.13.5.1.2. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY, 2-INCH, 3-RING VINYL-COVERED BINDERS WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION.</p> <p>1.13.5.2. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION:</p> <p>1.13.5.2.1. SPARE PARTS LIST</p> <p>1.13.5.2.2. COPIES OF GUARANTEES AND WARRANTIES OF ALL EQUIPMENT AND SYSTEMS.</p> <p>1.13.5.2.3. WIRING DIAGRAMS</p> <p>1.13.5.2.4. INSPECTION REPORTS & APPROVALS</p> <p>1.13.5.2.5. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.</p> <p>1.13.5.2.6. MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.</p> <p>1.13.5.2.7. CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBERS.</p> <p>1.13.5.2.8. NAME AND ADDRESS AND 24-HOUR PHONE NUMBER OF THE PERSONNEL RESPONSIBLE FOR SERVICING DURING THE WARRANTY PERIOD.</p> <p>1.13.5.2.9. SUBMITTAL DATA INDICATING ALL SELECTED OPTIONS FOR EACH PIECE OF LIGHTING EQUIPMENT AND LIGHTING CONTROLS.</p> <p>1.13.5.2.10. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF LIGHTING EQUIPMENT. REQUIRED ROUTINE MAINTENANCE ACTIONS, CLEANING AND RECOMMENDED RE-LAMPING SHALL BE CLEARLY IDENTIFIED.</p> <p>1.13.5.2.11. A SCHEDULE FOR INSPECTING AND RECALIBRATING ALL LIGHTING CONTROLS.</p> <p>1.13.5.2.12. A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SET POINTS.</p> <p>1.13.5.2.13. ALL MANUFACTURER'S DATA APPLICABLE TO THE INSTALLED EQUIPMENT SUCH AS INSTALLATION INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, OPERATING INSTRUCTIONS, ETC.</p> <p>1.13.5.2.14. CONTROL DIAGRAMS INCLUDING AN EXPLANATION OF THE CONTROL SEQUENCE OF EACH SYSTEM INCLUDING NORMAL STARTING, OPERATION, SHUTDOWN, POWER FAIL RE-START, AND WINTER SHUTDOWN.</p> <p>1.13.5.2.15. SCHEDULE OF MAINTENANCE AND INSPECTION THAT SHOULD BE PERFORMED BY OWNER, AND THOSE WHICH SHOULD BE PROVIDED BY AN OUTSIDE SERVICE.</p> <p>1.13.5.2.16. COPY OF COMPLETED FIELD ACCEPTANCE TEST PROCEDURE, LOGS, AND ALL DOCUMENTATION ASSOCIATED WITH THE TEST.</p> <p>1.14. GUARANTEE ALL ELECTRICAL SYSTEM EQUIPMENT, MATERIALS, AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND PROPERLY CORRECT LATENT DEFECTS ARISING DURING THIS PERIOD UPON NOTIFICATION BY THE OWNER'S REPRESENTATIVE WITHOUT ADDITIONAL COMPENSATION AND TO THE SATISFACTION OF THE ENGINEER AND OWNER'S REPRESENTATIVE.</p> <p>1.15. ALL EQUIPMENT, ETC., SHALL BE NEW UNLESS OTHERWISE NOTED, AND AS SPECIFIED FREE OF DEFECTS. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. OR E.T.L. LISTED.</p> <p>2. CODES & PERMITS</p> <p>2.1. ENTIRE INSTALLATION (INCLUDING EQUIPMENT, DEVICES, AND WIRING) SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), NATIONAL FIRE</p>	<p>PROTECTION ASSOCIATION (NFPA 70 & NFPA 101), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.), INTERNATIONAL BUILDING CODE (I.B.C.), INTERNATIONAL ENERGY CONSERVATION CODE (I.E.C.C.), AND ALL LAWS & ORDINANCES APPLICABLE TO WORK AT THIS SITE. IN ADDITION, INSTALLATION SHALL MEET APPROVAL OF LOCAL INSPECTION AUTHORITY HAVING JURISDICTION. REFER TO COVER SHEET FOR LIST OF CURRENT APPLICABLE CODE EDITIONS.</p> <p>2.2. SECURE AND PAY ALL FEES ASSOCIATED WITH ALL PERMITS AND LICENSES REQUIRED FOR EXECUTION OF THE CONTRACT. ARRANGE FOR ALL INSPECTIONS REQUIRED BY CITY, COUNTY, STATE AND OTHER AUTHORITIES HAVING JURISDICTION, AND DELIVER CERTIFICATES OF APPROVAL TO THE ARCHITECT.</p> <p>2.3. A CERTIFICATE OF APPROVAL FOR WORK FROM INSPECTION AUTHORITY SHALL BE GIVEN TO THE OWNER BEFORE FINAL ACCEPTANCE WILL BE GIVEN BY OWNERS REPRESENTATIVE.</p> <p>2.4. THE CODE REQUIREMENTS ARE STRICTLY A MINIMUM AND SHALL BE MET WITHOUT INCURRING ADDITIONS TO THE CONTRACT. WHERE REQUIREMENTS OF THE DRAWINGS OR SPECIFICATIONS EXCEED THE CODE REQUIREMENTS, THE WORK SHALL BE PROVIDED IN ACCORDANCE WITH THESE DRAWINGS OR SPECIFICATIONS. IN THE EVENT OF CONFLICT OR AMBIGUITY BETWEEN THE VARIOUS CODES, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.</p> <p>3. SAFETY</p> <p>3.1. THE CONTRACTOR SHALL MAINTAIN A SAFE WORK ENVIRONMENT AT ALL TIMES.</p> <p>3.1.1. COMPLY WITH ALL O.S.H.A., N.I.O.S.H., D.O.T., STATE & LOCAL REQUIREMENTS REGARDING SAFE HANDLING, STORING, TRANSPORTING, AND DISPENSING OF CHEMICALS.</p> <p>3.1.2. MAINTAIN AND DISPLAY M.S.D.S. INFORMATION FOR ALL CHEMICAL PRODUCTS.</p> <p>3.1.3. PROVIDE ALL NECESSARY MEANS TO MAINTAIN SAFE WORKING CONDITIONS, INCLUDING VENTILATION FANS, FIRE EXTINGUISHERS, EYE PROTECTION, RESPIRATORS, PROTECTIVE CLOTHING, VENTILATION, ETC.</p> <p>3.1.4. ALL EQUIPMENT AND MATERIALS USED TO IMPLEMENT THE WORK SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, INCLUDING ALL RECOMMENDED SAFETY PRECAUTIONS.</p> <p>3.1.5. MAINTAIN A PROPER FIRE WATCH FOR ALL OPERATIONS WHERE SPARKS, FLAMES, OR OTHER SOURCES OF FIRE ARE PRODUCED.</p> <p>3.1.6. FOR ALL MATERIALS CONTAINING SOLVENTS, MAINTAIN THE RECOMMENDED VENTILATION OF THE AREA TO PREVENT THE ACCUMULATION OF VAPORS WHICH POSE A HEALTH OR FIRE HAZARD.</p> <p>4. INTENT OF DRAWINGS AND SPECIFICATIONS</p> <p>4.1. THE IMPLIED AND STATED INTENT OF THE DRAWINGS & SPECIFICATIONS ARE TO ESTABLISH MINIMUM ACCEPTABLE STANDARDS FOR MATERIALS, EQUIPMENT, WORKMANSHIP, AND TO PROVIDE OPERABLE SYSTEMS THAT ARE COMPLETE IN EVERY RESPECT.</p> <p>4.2. ENGINEERING DRAWINGS ARE DIAGRAMMATIC, INTENDED TO SHOW GENERAL ARRANGEMENT AND SIZES OF SYSTEM COMPONENTS, AND SHALL NOT BE SCALED.</p> <p>4.2.1. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL GOVERN SPACE CONSTRAINTS, DIMENSIONS AND FINISHES.</p> <p>4.2.2. ALL OFFSETS AND FITTINGS THAT SHALL BE NECESSARY TO ACCOMPLISH A FINISHED INSTALLATION SHALL BE PROVIDED AT NO ADDITIONAL COST OR INCREASE THE CONTRACT.</p> <p>4.2.3. WORK INTENDED, BUT HAVING MINOR DETAILS OBVIOUSLY OMITTED, SHALL BE PROVIDED COMPLETE AS A REQUIREMENT OF THIS CONTRACT.</p> <p>4.2.4. LOCATIONS OF EQUIPMENT INDICATED ON PLANS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES.</p> <p>4.2.5. MAINTAIN MINIMUM SERVICE CLEARANCE AS REQUIRED BY THE EQUIPMENT MANUFACTURER AND N.E.C.</p> <p>4.3. PROVIDE THE OWNER A COMPLETE SET OF RECORD DRAWINGS AT THE END OF THE PROJECT. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE RECORD DRAWINGS ARE DELIVERED.</p> <p>4.4. THE RECORD DRAWINGS SHALL BE MACHINE DRAFTED, AND SHALL BE PROVIDED ON MAGNETIC MEDIA CAD FILES TO THE ARCHITECT WHICH REFLECT ALL CHANGES, DEVIATIONS AND REVISIONS MADE TO THE ORIGINAL DESIGN DOCUMENTS.</p> <p>4.5. LOCATIONS OF ALL UNDERGROUND PIPING AND UTILITIES SHALL BE CLEARLY SHOWN AND DIMENSIONED FROM PERMANENT REFERENCE POINTS SUCH AS BUILDING COLUMN LINES. DRAWING FORMAT FOR THIS PROJECT SHALL BE AUTOCAD.</p> <p>4.6. ALL ITEMS MOUNTED IN OR BELOW THE CEILING, AND ALL ITEMS PENETRATING THE CEILING, SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. IF ANY ITEMS ARE NOT SHOWN ON THESE PLANS, OR ANY ITEMS NEED TO BE RELOCATED FOR COORDINATION PURPOSES, PREPARE A REFLECTED CEILING PLAN SUBMIT IT TO THE ARCHITECT FOR APPROVAL.</p> <p>4.7.1.</p> <p>5. EXISTING CONDITIONS</p> <p>5.0.1. ATTENTION IS CALLED TO THE FACT THAT THE WORK IS TO BE PERFORMED WITHIN AN EXISTING, OPERATIONAL FACILITY.</p> <p>5.0.2. THE FOLLOWING GENERAL PROVISIONS OF THE CONTRACT, INCLUDING THE GENERAL & SUPPLEMENTAL CONDITIONS AND GENERAL REQUIREMENTS, SHALL APPLY TO THE WORK IN THIS DRAWING AND SPECIFICATION SET.</p> <p>5.0.3. VISIT THE SITE OF THE WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS, AND THOROUGHLY REVIEW ALL DRAWINGS, SPECIFICATIONS AND ADDENDA PRIOR TO BIDDING ON THIS WORK. NO EXTRA PAYMENTS TO THE CONTRACT AMOUNT WILL BE ALLOWED FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.</p> <p>5.0.4. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED FOR THE INSTALLATION OF WORK.</p> <p>5.0.5. FIELD DIMENSIONS ARE REASONABLY ACCURATE AND SHOULD GOVERN IN SETTING OUT WORK.</p> <p>5.0.6. WHERE DETAILED METHOD OF INSTALLATION IS NOT INDICATED OR WHERE VARIATIONS EXIST BETWEEN DESCRIBED WORK AND APPROVED PRACTICE, DIRECTION OF THE OWNERS REPRESENTATIVE ON JOB SITE SHALL BE FOLLOWED.</p> <p>5.0.7. CONTRACTOR SHALL VERIFY PROJECT CONDITIONS TO ENSURE THAT THE WORK WILL FIT INTO THE STRUCTURE IN THE MANNER INTENDED ON THE DRAWINGS.</p> <p>5.0.8. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO FABRICATION OR PERFORMING ANY WORK IN THE AREA INVOLVING THE DIFFERENCES.</p> <p>5.0.9. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS OR NOTES RELATING TO THE AREA.</p> <p>5.0.10. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND WORKMANLIKE MANNER.</p> <p>5.0.11. WHERE AN EXISTING STRUCTURE MUST BE CUT OR EXISTING UTILITIES INTERFERE, SUCH OBSTRUCTION SHALL BE BYPASSED, REMOVED, REPLACE OR RELOCATED, PATCH AND REPAIR. WORK DISTURBED OR DAMAGED SHALL BE REPLACED OR REPAIR TO ITS PRIOR CONDITION.</p> <p>5.0.12. PRIOR TO THE START OF ANY DEMOLITION OR CONSTRUCTION, CONTRACTOR SHALL REVIEW THE EXISTING SITE AND SECURE THE SERVICES OF A QUALIFIED, EPA CERTIFIED ASBESTOS ABATEMENT AGENCY IF NEEDED TO CHECK THE EXISTING INSULATION, ETC. FOR ASBESTOS. SHOULD ASBESTOS BE FOUND, DO NOT PROCEED WITH DEMOLITION OR CONSTRUCTION; NOTIFY THE ARCHITECT IN ANY CASE IN WRITING OF THE AGENCY'S FINDING.</p> <p>5.0.14. FOR RENOVATION PROJECTS - PROVIDE ALL DEMOLITION, PATCHING, SAW CUTTING, EXCAVATION, TRENCHING, SHORING, COMPACTING, DE-WATERING, ETC. REQUIRED FOR THE PROJECT, WHETHER OR NOT SHOWN ON THE DRAWINGS.</p> <p>5.0.15. INFORMATION WAS TAKEN FROM VARIOUS ARCHIVE DRAWINGS AND LIMITED FIELD OBSERVATION. FIELD VERIFICATION OF EXISTING CONDITIONS AND POINTS OF CONNECTIONS ARE REQUIRED.</p> <p>5.0.16. EXISTING SYSTEMS TO REMAIN - WHERE EXISTING SYSTEMS ARE INDICATED TO REMAIN, THEY SHALL BE ASSUMED TO BE IN GOOD WORKING ORDER REQUIRING NO WORK UNLESS SPECIFICALLY NOTED.</p>	<p>5.0.17. IF DURING THE CONSTRUCTION DEFICIENCIES ARE NOTED, THEN BRING THESE TO THE ATTENTION OF THE OWNER AND SEEK DIRECTION.</p> <p>6. SHOP DRAWINGS, SUBMITTALS, AND SUBSTITUTIONS</p> <p>6.1. ENGINEER OF RECORD SHALL BE PROVIDED WITH SHOP DRAWINGS, COORDINATION DRAWINGS, AND MANUFACTURER'S DATA OF ANY CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT, PRIOR TO PURCHASE AND/OR FABRICATION, AND SHALL VERIFY, BY STAMPING AND SIGNING THE DATA AND DRAWINGS BEFORE RETURNING THEM TO THE CONTRACTOR, THAT THE ITEMS FURNISHED BY THE CONTRACTOR FIT THE SPACES AND DIMENSIONS DESCRIBED IN AND CONFORM TO THE SPIRIT AND INTENT OF THE CONTRACT DOCUMENTS.</p> <p>6.1.1. ENGINEER OF RECORD SHALL, WITHIN FIVE (5) WORKING DAYS OF RECEIPT OF SHOP DRAWINGS AND PRODUCT DATA, NOTIFY THE CONTRACTOR OF ANY DISCREPANCY OR INCOMPATIBILITY WITH THE CONTRACT DOCUMENTS, AND SHALL RETURN THE SHOP DRAWINGS TO THE CONTRACTOR APPROPRIATELY ANNOTATED.</p> <p>6.1.2. REVIEW OF SUBMITTALS SHALL NOT BE CONSTRUED AS AUTHORIZING ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS UNLESS SUCH DEVIATIONS ARE CLEARLY IDENTIFIED AND SEPARATELY SUBMITTED IN THE FORM OF A LETTER THAT IS ENCLOSED WITH THE SUBMITTALS.</p> <p>6.1.3. SUBMIT SHOP DRAWING CUT SHEETS AND TECHNICAL DATA ON THE FOLLOWING ITEMS: LIGHTING EQUIPMENT, PANELBOARDS, WIRING DEVICES-SWITCHES AND RECEPTACLES, DISCONNECT SWITCHES/SAFETY SWITCHES, MOTOR STARTERS, TRANSFORMERS, AND ANY OTHER ITEM REQUIRED AS NOTED.</p> <p>6.1.4. SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS, FIELD INSTALLATION DRAWINGS AND CERTIFICATIONS AS REQUIRED FOR COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. THE SUBMITTAL DATA SHALL PROVIDE AMPLE, UNQUESTIONABLE COMPLIANCE WITH THE CONTRACT DOCUMENTS.</p> <p>6.1.5. SUBMIT PROPOSED CONTROL SYSTEM FOR REVIEW BY THE ENGINEER PRIOR TO EQUIPMENT PURCHASE OR FABRICATION. DO NOT PROCEED WITH THE WORK WITHOUT APPROVED SUBMITTALS.</p> <p>6.1.6. WHERE QUALIFICATIONS AND/OR QUALITY ASSURANCE REQUIREMENTS ARE SPECIFIED, THE SUBMITTAL SHALL INCLUDE EVIDENCE THAT THE STATED REQUIREMENTS HAVE BEEN MET. INCLUDE QUALIFICATIONS AND CERTIFICATIONS OF PROPOSED TEST AND BALANCE SUBCONTRACTOR.</p> <p>6.1.7. EQUIPMENT PERFORMANCE SHALL BE VERIFIED BY THE EQUIPMENT MANUFACTURER AS PART OF THE SUBMITTAL, PRIOR TO ORDERING.</p> <p>6.1.8. VERIFY EQUIPMENT VOLTAGE AND ELECTRICAL REQUIREMENTS OF THE EQUIPMENT WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.</p> <p>6.1.9. SHOP DRAWINGS FOR EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL WIRING CONNECTIONS SHALL INCLUDE A COMPLETE WIRING DIAGRAM.</p> <p>6.2. REFER TO THE CONDITIONS OF THE CONTRACT (GENERAL AND SUPPLEMENTARY WHEN INCLUDED AND OTHER DIVISIONS) REFERENCING SUBMITTALS FOR SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR SUBMITTAL DEFINITIONS, REQUIREMENTS AND PROCEDURES.</p> <p>6.2.1. IN ADDITION TO DIVISION 01, THE CONTRACTOR IS ADVISED TO REVIEW AND COMPLY WITH THE REQUIREMENTS ARTICULATED WITH IN EACH DIVISION AND WITHIN EACH SECTION OF THAT DIVISION.</p> <p>6.3. BEFORE PREPARING SUBMITTALS, STUDY ALL CONTRACTS DRAWINGS AND SPECIFICATIONS IN DETAIL, OBTAIN MANUFACTURER'S RECOMMENDED INSTRUCTIONS, AND HAVE SUBMITTALS PREPARED BASED ON SPECIFIC EQUIPMENT AND MATERIAL PROPOSED FOR INSTALLATION.</p> <p>6.3.1. AN OFFICER OF THE CONTRACTING FIRM SHALL SIGN ALL SHOP DRAWINGS (CERTIFYING CONFORMANCE WITH PLANS AND SPECIFICATIONS) BEFORE SUBMITTING TO THE ARCHITECT OR RELEASING TO THE FIELD.</p> <p>6.4. THE SUBMITTAL PROCESS SHALL NOT BE UTILIZED AS AN AVENUE TO SUBSTITUTE AFTER THE EXECUTION OF THE CONTRACT.</p> <p>6.4.1. SHOULD AN UNSPECIFIED OR UNEQUAL PRODUCT BE SUBMITTED, IT WILL BE REJECTED. IF A SECOND ATTEMPT AT SUBSTITUTION IS MADE DURING THE RE-SUBMITTAL OF THE SAME PRODUCT, THEN NO MORE REVIEWS OF THAT PRODUCT WILL BE PERFORMED WITHOUT DIRECT COMPENSATION TO THE ENGINEER BEING PAID FOR THE ADDITIONAL SERVICES REQUIRED FOR THE THIRD REVIEW AND ANY FURTHER REVIEWS.</p> <p>6.5. IN ADDITION TO THE OTHER REQUIREMENTS IN PARAGRAPHS ABOVE, THE FOLLOWING APPLIES TO SUBMITTALS OF THIS DIVISION:</p> <p>6.5.1. DO NOT INSTALL OR ORDER ELECTRICAL EQUIPMENT OR PROCEED WITH THE WORK UNTIL SUBMITTALS HAVE BEEN ACCEPTABLY REVIEWED BY THE OWNER'S REPRESENTATIVE AND STAMPED ACCORDINGLY. EQUIPMENT OR WORK WHICH IS ORDERED OR INSTALLED WITHOUT PRIOR APPROVED SUBMITTALS SHALL, AT THE ENGINEER'S DISCRETION, BE REMOVED AT NO COST TO THE OWNER. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO NEGLECT OF REQUIRED APPROVAL PROCESS.</p> <p>6.5.2. MAKE ALL ELECTRICAL SUBMITTALS AT ONE TIME AND WITHIN FOURTEEN (14) CALENDAR DAYS OF OWNER'S "NOTICE TO PROCEED".</p> <p>6.5.3. SUBMITTAL DATA WILL BE PROVIDED AND REVIEWED IN PDF FORMAT ELECTRONICALLY VIA EMAIL.</p> <p>6.5.4. SUBMITTAL DATA WILL NOT BE ACCEPTED FOR REVIEW UNLESS THEY:</p> <p>6.5.4.1. COMPLY WITH THE REQUIREMENTS OF DIVISION 1.</p> <p>6.5.4.2. INCLUDE COMPLETE INFORMATION PERTAINING TO ALL APPURTENANCE AND ACCESSORIES.</p> <p>6.5.4.3. ARE SUBMITTED AS COMPLETE PACKAGES WHICH PERTAIN TO ALL RELATED ITEMS IN DIVISION 26.</p> <p>6.5.4.4. ARE PROPERLY MARKED WITH EQUIPMENT, SERVICE OR FUNCTION IDENTIFICATION AS RELATED TO THE PROJECT AND ARE MARKED WITH PERTINENT SPECIFICATION PARAGRAPH NUMBER.</p> <p>6.5.5. IF ANY ITEM IN THE SUBMITTAL IS "NOT ACCEPTABLE" FOR ANY REASON, IT AUTOMATICALLY VOIDS THE ENTIRE SET, AND A RE-SUBMITTAL IS REQUIRED TO OBTAIN ACCEPTANCE OF ALL ITEMS.</p> <p>6.5.6. IN CASE OF DISCREPANCIES BETWEEN SETS OF SUBMITTALS, THE SET RETAINED BY THE OWNER'S REPRESENTATIVE SHALL HAVE PRECEDENCE.</p> <p>6.6. THE FOLLOWING REQUIREMENTS HELP TO IDENTIFY, TRACK AND KEEP THE PROJECT ORGANIZED FOR ALL PARTIES INVOLVED. THEY ARE NECESSARY TO ENSURE A TIMELY TURNAROUND AND AN APPROPRIATE TECHNICAL REVIEW. SUBMITTALS THAT DO NOT CONFORM TO THE ADMINISTRATIVE REQUIREMENTS ARE REJECTED AND RETURNED, WITHOUT TECHNICAL REVIEW.</p> <p>6.6.1. SUPPLY SUBMITTALS FOR EACH SECTION: SUBMITTALS SHALL BE SUPPLIED ON A SECTION-BY-SECTION AND TYPE-BY-TYPE BASIS. FOR EXAMPLE, INDEPENDENT PRODUCT DATA SUBMITTALS SHALL BE FURNISHED FOR EACH SECTION THAT REQUIRES PRODUCT DATA SUBMITTALS. INDEPENDENT SHOP DRAWING SUBMITTALS SHALL BE FURNISHED FOR EACH SECTION THAT REQUIRES SHOP DRAWINGS. SEPARATE PDF FILE PACKAGES SHALL BE SUPPLIED FOR EACH SECTION, FOR EACH SUBMITTAL TYPE. EACH PDF SHALL REPRESENT A SINGLE STANDALONE SUBMITTAL.</p> <p>6.6.2. INCLUDE A TRANSMITTAL: TRANSMITTALS SHALL ENUMERATE EACH SUBMITTAL FOR EACH SECTION OF EACH TYPE AND ITERATION.</p> <p>6.6.3. INCLUDE COVER SHEET/ TITLE PAGE: THE COVER SHEET SHALL INCLUDE THE INFORMATION IDENTIFIED IN THE CONTRACT DOCUMENTS. IT SHALL BE INCLUDED AS THE FIRST PAGE OF EACH ELECTRONIC AND/OR HARD COPY DOCUMENT-BASED SUBMITTAL.</p> <p>6.6.4. INCLUDE AN INDEX: THE INDEX SHALL ENUMERATE THE CONTENTS OF THE SUBMITTAL.</p> <p>6.6.5. INCLUDE CHECKLISTS: WHERE CHECKLISTS ARE INCLUDED WITH THE SPECIFICATIONS, COMPLETE AND INCLUDE THEM WITHIN THE APPROPRIATE SUBMITTAL.</p>
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ISSUED REVISIONS:

DIVISION 26 - ELECTRICAL SPECIFICATIONS (continuation)

6.6.6.	SUPPLY COMPLETE SUBMITTALS: COMPLETE SUBMITTALS OF EACH TYPE ARE REQUIRED. PARTIAL SUBMITTALS WILL BE REJECTED. WHERE A SECTION REQUIRES A PRODUCT DATA SUBMITTAL, ALL PRODUCT DATA FOR THAT SECTION SHALL BE SUPPLIED TOGETHER, AT ONE TIME, AS ONE COMPLETE SUBMITTAL. WHEN RE-SUBMITTAL IS REQUIRED (I.E. REVISE AND RESUBMIT) THE REVISED SUBMITTAL SHALL BE MORE COMPLETE, MORE ACCURATE, AND MORE CONTRACT-COMPLIANT THAN ITS REJECTED PREDECESSOR. THE SUBMITTAL NUMBER (FOR EACH SECTION AND TYPE) SHALL INCREMENT FOR EACH SUBSEQUENT SUBMITTAL (00 - ORIGINAL SUBMISSION, 01 - FIRST RESUBMISSION, 02 - SECOND RESUBMISSION, ETC.). RE-SUBMITTALS SHALL INCLUDE A COPY OF THE REVIEWER'S COMMENTS SUPPLIED WITH THE PRIOR SUBMITTAL REJECTION AND SHALL BE AMENDED WITH A DESCRIPTION OF THE SPECIFIC ACTION TAKEN TO COMPLY WITH THE REVIEWER'S COMMENTS. THE ABSENCE OF THIS ON RE-SUBMITTAL IS CAUSE FOR REJECTION.	SEPARATE, CLEAN, COPIES RESERVED FOR THE PURPOSE OF SHOWING A COMPLETE PICTURE OF THE WORK AS ACTUALLY INSTALLED.	7.14.2.2.	MAKE NAMEPLATES FROM WHITE ENGRAVING STOCK WITH BLACK LETTERS AND BLACK FOUR EDGE BEVEL.	HOLLOW PARTITIONS FOR REMODELING WORK. THIS APPLIES ONLY UNDER ALL OF THE FOLLOWING CIRCUMSTANCES AND CONDITIONS:
6.6.7.	IF EXPRESSLY PERMITTED BY THE OWNER AND THE TERMS OF THE CONTRACT, EDITABLE ELECTRONIC VERSIONS OF PUBLISHED TWO-DIMENSIONAL PLAN DRAWINGS MAY BE MADE AVAILABLE FOR THE CREATION OF SHOP AND AS-BUILT DRAWINGS.	7.6.1.	DRAWINGS SHALL ALSO SERVE AS WORK PROGRESS REPORT SHEETS AND THE ELECTRICAL CONTRACTOR SHALL MAKE ANY NOTATIONS, NEAT AND LEGIBLE THEREON DAILY AS WORK PROCEEDS.	7.14.2.3.	WORDING SHALL SUITABLY DESCRIBE ITEMS SUCH AS PANEL ID, SOURCE OVER CURRENT PROTECTION DEVICE, AND VOLTAGE.
6.6.8.	DUE TO THE PROPRIETARY NATURE OF INTERNAL DESIGN SYSTEMS, EDITABLE NATIVE-SOFTWARE VERSIONS OF SOME DRAWINGS, INCLUDING BUT NOT LIMITED TO SYSTEM DIAGRAMS AND DETAILS WILL NOT BE MADE AVAILABLE IN AN EDITABLE FORM. IN THESE CASES, ELECTRONIC VERSIONS OF THE DRAWINGS MAY BE MADE AVAILABLE ONLY IN PDF, JPG OR SIMILAR NON-EDITABLE ELECTRONIC FORM, AT THE SOLE DISCRETION OF THE DESIGN PROFESSIONAL.	7.6.2.	DRAWINGS SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES AND SHALL BE KEPT AT THE JOB AT A LOCATION DESIGNATED BY THE OWNERS REPRESENTATIVE.	7.14.2.4.	NAMEPLATES SHALL BE ATTACHED USING PROPER SIZE AND TYPE STAINLESS STEEL BOLTS, LOCK WASHERS AND NUTS. GLUE ON, TAPE ON, OR TAPE TYPE NAMEPLATES ARE NOT ACCEPTABLE FOR THE EQUIPMENT.
6.7.	EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS SPECIFIED STANDARD OF QUALITY.	7.6.3.	AT THE COMPLETION OF THE WORK, THESE RECORD DRAWINGS SHALL BE SIGNED BY THE ELECTRICAL CONTRACTOR, DATED AND RETURNED TO THE OWNERS REPRESENTATIVE. FINAL PAYMENT OF CONTRACT WILL NOT BE MADE UNTIL RECEIPT AND REVIEW OF SAID DRAWINGS.	7.14.2.5.	PROVIDE CIRCUIT NUMBERS (PANEL-#) ON EACH RECEPTACLE USING TAPE TYPE IDENTIFICATION AT EACH RECEPTACLE OR OTHERS WHERE IDENTIFIED.
6.7.1.	NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.	7.7.	PROVIDE ALL ROOF, WALL, AND FLOOR PENETRATIONS REQUIRED TO COMPLETE INSTALLATION AND REMOVAL OF WORK (MAINTAIN FIRE RATING OF EXISTING STRUCTURE).	7.14.2.6.	PROVIDE TEXT MATCHING TERMINOLOGY AND NUMBERING OF THE CONTRACT DOCUMENTS AND SHOP DRAWINGS.
6.7.2.	ALL COSTS ARISING FROM A SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR MAKING THE SUBSTITUTION, INCLUDING VERIFICATION OF FIT AND ACCESS, FIELD-INSTALLED ACCESSORIES, SUPPORTS, ELECTRICAL REQUIREMENTS, AND REVISIONS TO DOCUMENTS (DESIGN COSTS).	7.7.1.	ALL PENETRATIONS SHALL BE PATCHED AND FINISHED TO MATCH SURROUNDING SURFACES AND FINISHES.	7.14.2.7.	SECURE TO SUBSTRATE WITH FASTENERS, EXCEPT USE ADHESIVE WHERE FASTENERS SHOULD NOT OR CANNOT PENETRATE SUBSTRATE.
6.8.	WHERE MATERIAL OR EQUIPMENT IS IDENTIFIED BY PROPRIETARY NAME, MODEL NUMBER AND/OR MANUFACTURER, FURNISH THE NAMED ITEM OR EQUAL THEREOF. SUBSTITUTED ITEMS SHALL BE EQUAL OR BETTER IN QUALITY AND PERFORMANCE AND MUST BE SUITABLE FOR THE AVAILABLE SPACE, REQUIRED ARRANGEMENT AND APPLICATION.	7.7.2.	ALL EQUIPMENT OR PIPE PENETRATIONS THROUGH WALL, ROOF AND FLOORS SHALL BE SLEEVED AND SEALED SO AS TO BE WATER AND AIR TIGHT.	7.14.2.8.	ALL EQUIPMENT AND SYSTEM IDENTIFICATION NOMENCLATURE SHOWN ON DRAWINGS OR LISTED HEREIN IS SHOWN FOR GENERAL DESIGN AND INSTALLATION REFERENCE ONLY. THE ACTUAL NAMEPLATE, ETC. NOMENCLATURE FOR THIS PROJECT SHALL BE VERIFIED BY ELECTRICAL CONTRACTOR IN FIELD PRIOR TO FABRICATION AND WHERE APPLICABLE, SHALL BE AN EXTENSION OF EXISTING NOMENCLATURE USED ON THE SITE AS DETERMINED IN FIELD BY ELECTRICAL CONTRACTOR.
6.8.1.	MANUFACTURER'S NAME, SERIES AND MODEL NUMBERS, AS NOTED OR SPECIFIED, ARE FOR THE PURPOSE OF DESCRIBING TYPE, CAPACITY, AND QUALITY OF EQUIPMENT, MATERIALS AND PRODUCTS TO BE USED.	7.7.3.	ALL ROOF CUTS AND REPAIRS SHALL BE PERFORMED BY OWNER APPROVED ROOFING CONTRACTOR IN ORDER TO MAINTAIN ROOF WARRANTY.	7.14.3.	EQUIPMENT TO BE LABELED:
6.8.2.	UNLESS "OR EQUAL" IS SPECIFICALLY STATED, BIDS SHALL BE BASED ONLY ON THE SPECIFIED "BASIS OF DESIGN" MANUFACTURER.	7.8.	CUTTING OF HOLES THROUGH CONCRETE AND MASONRY SHALL BE BY DIAMOND CORE CONCRETE SAW.	7.14.4.	ALL ENCLOSURES FOR ALL ELECTRICAL EQUIPMENT FURNISHED OR INSTALLED UNDER DIVISIONS 26 AND 28
6.8.3.	THE LISTING OF A PARTICULAR MANUFACTURER AS AN "EQUAL" OR "ACCEPTABLE SUBSTITUTE," MANUFACTURER SHALL NOT BE MISCONSTRUED AS APPROVING NOR ALLOWING THE SUBSTITUTION OF THAT MANUFACTURER'S STANDARD PRODUCT IN PLACE OF THE BASIS OF DESIGN.	7.8.1.	PNEUMATIC HAMMER, IMPACT ELECTRIC AND HAND OR MANUAL HAMMER TYPE DRILLS WILL NOT BE ALLOWED, EXCEPT AS PERMITTED BY THE ARCHITECT WHERE REQUIRED BY LIMITED WORKING SPACE.	7.14.4.1.	REMOTE-CONTROLLED SWITCHES
6.8.4.	NO CONSIDERATION WILL BE GIVEN TO A PRODUCT WHICH WOULD REQUIRE DIMENSIONAL, SPATIAL OR AESTHETIC CHANGES TO THE PROJECT. "ACCEPTABLE SUBSTITUTE" AND "EQUAL" MANUFACTURERS SHALL ONLY BID THOSE PRODUCTS WHICH EXACTLY MATCH THE SIZE AND OTHER CHARACTERISTIC OF THE SPECIFIED BASIS OF DESIGN.	7.8.2.	LOCATE HOLES SUCH THAT THEY WILL NOT AFFECT STRUCTURAL SECTIONS SUCH AS RIBS OR BEAMS. HOLES SHALL BE LAID OUT WELL IN ADVANCE OF THE INSTALLATION. THESE LAYOUT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO DRILLING.	7.14.4.2.	DIMMER MODULES
6.8.5.	ANY CHANGES TO OTHER DISCIPLINES AND TRADES OF WORK REQUIRED BY AN "OR EQUAL" OR "SUBSTITUTE" PRODUCT SHALL BE DULY CONSIDERED AND PRICED ACCORDINGLY PRIOR TO BIDDING OR PRICING.	7.8.3.	PROVIDE ALL EXCAVATION AND TRENCHING TO THE CORRECT ELEVATIONS, FOR THE INSTALLATION OF ALL PIPING, MANHOLES, CATCH BASINS AND FOUNDATIONS INCLUDED UNDER THIS DIVISION OF THE WORK.	7.14.4.3.	CONTROL DEVICES VIA ENGRAVED WALL PLATES
6.8.6.	THE DECISION AS TO WHETHER OR NOT A PROPOSED SUBSTITUTE OR "EQUAL" PRODUCT IS ACTUALLY EQUAL TO THAT SPECIFIED SHALL REST SOLELY WITH THE ENGINEER.	7.9.	PROVIDE ALL EXCAVATION AND TRENCHING TO THE CORRECT ELEVATIONS, FOR THE INSTALLATION OF ALL PIPING, MANHOLES, CATCH BASINS AND FOUNDATIONS INCLUDED UNDER THIS DIVISION OF THE WORK.	7.14.4.4.	MISCELLANEOUS CONTROL STATIONS
6.8.7.	REQUEST TO PROVIDE "EQUAL" PRODUCTS IN LIEU OF THOSE SPECIFIED SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO FINAL PRICING AND EXECUTION OF THE CONTRACT. NO CONSIDERATION WILL BE GIVEN TO SUBSTITUTE PRODUCTS AFTER FINAL PRICING AND EXECUTION OF THE CONTRACT.	7.10.	PROVIDE ALL BACKFILL IN STRICT ACCORDANCE WITH THE EXCAVATION AND BACKFILL SECTION OF DIVISION 1 SPECIFICATIONS.	7.14.4.5.	ACCESS DOORS AND PANELS FOR CONCEALED ELECTRICAL ITEMS
6.8.8.	ANY "OR EQUAL" PRODUCT OR PROPOSED PRODUCTION SUBSTATION WHICH WILL CAUSE A CHANGE IN THE APPEARANCE, DIMENSIONS OR DESIGN OF ANY PART OF THE BUILDING, IF STRUCTURE, ELECTRICAL SYSTEM OR ANY OTHER ENGINEERED SYSTEM SHALL BE ACCOMPANIED BY A SCALED DRAWING AND WRITTEN DESCRIPTION OF THE REQUIRED CHANGES(S) FOR APPROVAL BY THE ARCHITECT.	7.10.1.	EXCAVATE PIPE TRENCH. HAND DIG IN ALL AREAS WHERE EXISTING UTILITIES EXIST. HAND TRIM EXCAVATION FOR ACCURATE PLACEMENT OF PIPE TO ELEVATIONS INDICATED.	7.14.4.6.	OTHER SIMILAR EQUIPMENT DESIGNATED BY OWNER'S REPRESENTATIVE, ARCHITECT OR ENGINEER IN FIELD.
6.8.9.	IF DEEMED NECESSARY BY ARCHITECT, DESIGN CHANGES SHALL BE SIGNED AND SEAL BY A REGISTERED PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THIS STATE.	7.10.1.1.	PROVIDE NECESSARY SHEETING AND SHORING TO COMPLY WITH O.S.H.A. REGULATIONS FOR SAFETY IN THE TRENCH.	7.15.	BEARINGS THAT REQUIRE LUBRICATION SHALL BE LUBRICATED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7.	INSTALLATION	7.10.1.2.	PLACE BEDDING MATERIAL AT TRENCH BOTTOM, LEVEL MATERIALS IN CONTINUOUS LAYER NOT EXCEEDING 6 INCHES COMPACTED DEPTH, COMPACT TO 95 PERCENT.	7.16.	ALL COILS SHALL BE THOROUGHLY CLEANED AND COMBED PRIOR TO FINAL INSPECTION.
7.1.	PROVIDE ALL EQUIPMENT FOR THIS CONTRACT NEATLY AND WITH WORKMANSHIP AS DEFINED BY N.E.C.A. "STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION", LEVEL AND PLUMB, AND SECURELY SUPPORTED.	7.10.2.1.	MAINTAIN OPTIMUM MOISTURE CONTENT OF BEDDING MATERIAL TO ATTAIN REQUIRED COMPACTION DENSITY.	7.17.	ARRANGE FOR CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR ELECTRICAL INSTALLATIONS.
7.1.1.	THE ENTIRE INSTALLATION, AND MANNER OF INSTALLATION SHALL MEET THE COMPLETE SATISFACTION OF THE OWNER'S REPRESENTATIVE OR IT SHALL BE REMOVED AND REWORKED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AS INCLUDED IN THE CONTRACT AMOUNT.	7.10.3.	BACKFILL MATERIAL SHALL BE CLEAN EARTH FILL COMPOSED OF SAND, SLIGHTLY SILTY SAND, SAND AND ROCK, CRUSHED ROCK, OR AN APPROVED COMBINATION THEREOF.	7.18.	COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT REQUIRING POSITIONING PRIOR TO CLOSING IN THE BUILDING.
7.2.	IF REQUIRED, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND NON-STRUCTURAL COMPONENTS THAT ARE PERMANENTLY ATTACHED TO STRUCTURES AND THEIR SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF EARTHQUAKE MOTIONS IN ACCORDANCE WITH ASCE 7-10, EXCLUDING CHAPTER 14 AND APPENDIX 11A.	7.10.3.1.	THE BACKFILL MATERIAL SHALL HAVE NO MORE THAN 12 PERCENT PASSING THE NUMBER 200 SIEVE UNLESS APPROVED BY THE OWNER AND AHJ.	7.19.	THE EXACT MOUNTING HEIGHT OF DEVICES SHALL BE DETERMINED IN THE FIELD WITH RELATION TO ARCHITECTURAL DETAILS AND EQUIPMENT BEING SERVED.
7.3.	IF REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF A SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR SEISMIC-RESISTING COMPONENT.	7.10.3.2.	WHEN TRENCHES ARE CUT IN PAVEMENTS OR AREAS TO BE PAVED, COMPACTION AS DETERMINED BY ASHTO SPECIFICATION T-180 (MODIFIED), SHALL BE NOT LESS THAN 98 PERCENT OF MAXIMUM DENSITY. ALL OTHER LOCATIONS SHALL BE 95 PERCENT.	7.20.	IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO COORDINATE OUTLET LOCATION WITH EQUIPMENT. OWNERS REPRESENTATIVE SHALL BE PERMITTED TO RELOCATE ANY OUTLET PRIOR TO INSTALLATION WITHIN A 15 FOOT LIMIT AT NO ADDITIONAL CHARGE IN CONTRACT PRICE.
7.4.	HANGERS AND BRACING FOR THE MECHANICAL SYSTEMS SHALL BE DESIGNED AND PROVIDED BY THE MECHANICAL CONTRACTOR.	7.10.3.3.	DENSITY TESTS FOR CONFORMANCE TO THE COMPACTION REQUIREMENTS SHALL BE MADE BY TESTING LABORATORY SELECTED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR. TESTS SHALL BE MADE EVERY 100 FEET OR LESS, MINIMUM TWO TESTS PER SITE. IF ANY TEST RESULTS ARE UNSATISFACTORY,	7.20.1.	ALL FASTENERS, HANGERS, AND METHODS OF HANGING EXPOSED WORK IN FINISHED AREAS SHALL BE SUBMITTED TO THE OWNERS REPRESENTATIVE FOR APPROVAL BEFORE INSTALLATION.
7.4.1.	REFER TO CONTRACTOR SHOP DRAWINGS FOR LOCATIONS OF EQUIPMENT AND HUNG MECHANICAL SYSTEMS.	7.10.3.4.	THE CONTRACTOR SHALL RE-EXCAVATE AND RE-COMPACT THE BACKFILL AT HIS EXPENSE UNTIL THE DESIRED COMPACTION IS OBTAINED.	7.20.2.	WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.
7.4.2.	THE MECHANICAL CONTRACTOR SHALL COORDINATE THE SUPPORT SYSTEMS AND DESIGN LOADS FOR HUNG MECHANICAL SYSTEMS WITH THE GENERAL CONTRACTOR AND OTHER TRADES THAT MAY BE IMPACTED.	7.10.4.	PAVEMENT OR ROADWAY SURFACES CUT OR DAMAGED SHALL BE REPLACED IN EQUAL OR BETTER CONDITION THAN THE ORIGINAL, INCLUDING STABILIZATION, BASE COURSE, SURFACE COURSE, CURB AND GUTTER, OR OTHER APPURTENANCES.	7.21.	INSTALL ELECTRICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
7.5.	CONTRACTOR SHALL CONSULT PLUMBING, HVAC, AND STRUCTURAL PLANS (WHERE APPLICABLE) IN ALL INSTANCES BEFORE INSTALLING WORK SO THAT WORK WILL NOT INTERFERE WITH THOSE BRANCHES.	7.10.4.1.	OPEN CUTS THROUGH ROADWAY SECTIONS SHALL BE REPAIRED USING NON-SHRINKABLE FILL MATERIAL AS APPROVED BY THE OWNER AND AHJ. THE MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL RECEIVE PRIOR APPROVAL FROM THE OWNER AND AHJ.	7.22.	INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
7.5.1.	IN THE EVENT OF A CONFLICT, CONTRACTOR SHALL REPORT TO THE OWNERS REPRESENTATIVE AT ONCE AND DO NO FURTHER WORK UNTIL A SATISFACTORY ARRANGEMENT IS DECIDED UPON.	7.10.4.2.	WHERE EXISTING PAVEMENT IS REMOVED, THE SURFACING SHALL BE MECHANICALLY SAW CUT PRIOR TO TRENCH EXCAVATION, LEAVING A UNIFORM AND STRAIGHT EDGE WITH MINIMUM DISTURBANCE TO THE REMAINING ADJACENT SURFACING.	7.23.	ALL NEW ELECTRICALLY RELATED WORK SHALL BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURAL MEMBERS. NEW ELECTRICAL RELATED WORK SHALL NOT BE SUPPORTED FROM DUCTWORK, DUCTWORK HANGER, CEILING SUPPORTS, EXISTING CONDUIT SUPPORT, ETC.
7.5.2.	ANY WORK DONE, OR EQUIPMENT PLACED IN POSITION, BY CONTRACTOR THAT CREATES A CONFLICT IN VIOLATION HEREOF, SHALL BE READJUSTED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE EXPENSE OF THE CONTRACTOR. THE DECISION OF THE OWNERS REPRESENTATIVE SHALL BE FINAL IN REGARD TO CHANGES DUE TO CONFLICTING CONDITIONS.	7.10.4.3.	THE WIDTH OF THE PAVEMENT REMOVAL SHALL BE THE MINIMAL NECESSARY TO ALLOW FOR INSTALLATION OF THE NEW UTILITIES.	7.24.	TOUCH-UP PAINTING: CLEAN FIELD WELDS AND ABRASSED AREAS OF SHOP PAINT. PAINT EXPOSED AREAS IMMEDIATELY AFTER ERECTING HANGERS AND SUPPORTS. USE SAME MATERIALS AS USED FOR SHOP PAINTING.
7.5.3.	CONTRACTOR SHALL COMPLETE WORK OR ANY PART THEREOF AT SUCH TIME AS MAY BE DESIGNATED BY THE OWNER, SO THAT IT CAN BE USED FOR TEMPORARY OR PERMANENT USE AND SUCH USE OF THE SYSTEM SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF SAME BY OWNER.	7.10.4.4.	IMMEDIATELY FOLLOWING BACK-FILLING AND COMPACTION, AN ASPHALT SURFACE SHALL BE APPLIED TO THE CUT AREAS. THIS SURFACING SHALL PROVIDE A SMOOTH TRAFFIC SURFACE WITH THE EXISTING ROADWAY.	7.25.	EQUIP WITH INTERIOR CIRCUIT DIRECTORY FRAME, AND CARD WITH CLEAR PLASTIC COVERING.
7.5.4.	VERIFY VOLTAGE AND ALL ELECTRICAL REQUIREMENTS OF MECHANICAL EQUIPMENT AND SYSTEMS WITH DIV. 23 CONTRACTOR PRIOR TO ORDERING.	7.10.4.5.	THE PAVING WORK SHALL BE GUARANTEED FREE FROM DEFECTS IN WORKMANSHIP, INCLUDING SETTLING, FOR TWO YEARS.	8.	RACEWAYS
7.5.5.	COORDINATION OF SPACE REQUIREMENTS WITH RESPECT TO DIVISION 23 SHALL BE PERFORMED SUCH THAT:	7.11.	ALL WIRING SHALL BE IN CONDUIT, THE USE OF E.N.T., BX, NM, ETC. OR PRE-MANUFACTURED CABLE ASSEMBLIES OR ALUMINUM WIRE WILL NOT BE PERMITTED.	8.1.	EXTENT OF RACEWAY WORK IS INDICATED DIAGRAMMATICALLY ON THE DRAWINGS OR IN THE SCHEDULES. CONTRACTOR SHALL ONLY PROVIDE TYPE REQUIRED FOR APPLICATION.
7.5.5.1.	NO EQUIPMENT, PIPING OR DUCTWORK, OTHER THAN ELECTRICAL, SHALL BE INSTALLED WITHIN 42 INCHES OF SWITCHBOARDS OR PANELBOARDS.	7.12.	VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH SHOP DRAWING SUBMITTALS, FIELD MEASUREMENTS, AND WITH REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED PRIOR TO ROUGH-IN.	8.2.	INSTALL ALL WIRING IN CONDUIT (EXCEPT WHERE NOTED UNDER WIRE AND CABLE) AND PROVIDE EMPTY CONDUIT FOR SPECIAL SYSTEMS DESCRIBED ELSEWHERE.
7.5.5.2.	NO PIPING OR DUCTWORK WHICH EVER OPERATES AT A TEMPERATURE IN EXCESS OF 120 DEGREES F.	7.12.1.	REFER TO EQUIPMENT SPECIFICATIONS AND DIMENSIONS SPECIFIED FOR ROUGH-IN REQUIREMENTS.	8.3.	ALL CONDUIT EMBEDDED IN CONCRETE SHALL BE 3/4" MINIMUM. ALL EXTERIOR UNDERGROUND CONDUIT SHALL BE 1" MINIMUM.
7.6.	TWO SETS OF ELECTRICAL DRAWINGS SHALL BE PROVIDED AS RECORD DRAWINGS WHICH SHALL BE	7.13.	PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF ELECTRICAL WORK.	8.4.	SUPPORT ALL CONDUIT NOT EMBEDDED IN CONCRETE OR MASONRY SO THAT STRAIN IS NOT TRANSMITTED TO OUTLET BOXES AND PULL BOXES, ETC. SUPPORTS TO BE SUFFICIENTLY RIGID TO PREVENT DISTORTION OF CONDUITS DURING WIRE PULLING.
		7.13.1.	PATCH EXISTING FINISHED AND DISTURBED NEW FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS & EXPERIENCED INSTALLERS. INSTALLERS' QUALIFICATIONS REFER TO THE MATERIALS AND METHODS REQUIRED OR THE SURFACE AND BUILDING COMPONENTS BEING PATCHED.	8.5.	WHEN SIZE IS NOT INDICATED ON PLANS, CONDUIT SHALL BE SIZED FOR CONDUCTORS IN ACCORDANCE WITH TABLES 3(A)(B)(C), CHAPTER 9 OF THE N.E.C.
		7.13.2.	NO ADDITIONAL COMPENSATION WILL BE AUTHORIZED FOR CUTTING AND PATCHING WORK THAT IS NECESSITATED BY ILL-TIMED, DEFECTIVE OR NON-CONFORMING INSTALLATIONS. ANY DAMAGE DONE BY THIS CONTRACTOR TO THE BUILDING DURING THE PROGRESS OF WORK SHALL BE MADE GOOD AT CONTRACTOR'S OWN EXPENSE.	8.6.	THE ROUTING AND METHOD OF INSTALLATION OF CONDUITS SHALL BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION SO AS NOT TO INTERFERE WITH OTHER EQUIPMENT INSTALLATIONS. COORDINATED INSTALLATION SHALL MEET THE COMPLETE SATISFACTION OF THE OWNER'S REPRESENTATIVE OR SHALL BE REINSTALLED AT NO COST TO THE OWNER.
		7.14.	EQUIPMENT IDENTIFICATION FOR ELECTRICAL SYSTEMS	8.7.	THE USE OF INTERMEDIATE METAL CONDUIT (IMC), ELECTRICAL NON-METALLIC TUBING (ENT), ARMORED CABLE (AC), METAL CLAD (MC), OR MANUFACTURED CABLE ASSEMBLIES SHALL NOT BE INCORPORATED INTO THE WORK, UNLESS NOTED OTHERWISE. SHOULD CONTRACTOR FAIL TO UTILIZE APPROVED RACEWAYS, OWNER'S REPRESENTATIVE CAN REQUEST THE REMOVAL AND REPLACEMENT OF ALREADY INSTALLED RACEWAY AT NO COST TO THE OWNER.
		7.14.1.	PROVIDE MANUFACTURER'S STANDARD SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS THICK BY 1-1/2" WIDE. WHERE APPLICABLE, INSTALL ON ALL CONCEALED RACEWAYS AT CONNECTION TO ALL JUNCTION BOXES, PULL BOXES, EQUIPMENT, WALL/FLOOR/ROOF PENETRATIONS, ETC. UNLESS OTHERWISE INDICATED OR REQUIRED BY GOVERNING REGULATIONS.	8.8.	USE ONLY THE TYPES OF RACEWAYS SPECIFIED HEREIN.
		7.14.1.1.	PROVIDE ORANGE TAPE WITH BLACK LETTERS.	8.8.1.	TYPES OF RACEWAYS SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:
		7.14.1.2.	PROVIDE CIRCUIT IDENTIFICATION BANDS FOR ALL CABLES AND CONDUCTORS. PROVIDE MANUFACTURERS STANDARD COLOR CODING FOR CABLE/CONDUCTOR JACKET AND/OR INSULATION FOR ALL CABLES AND CONDUCTORS OF ALL SYSTEMS.	8.8.1.1.	ELECTRICAL METALLIC TUBING (EMT); RIGID GALVANIZED STEEL (RGS); MINIMUM TRADE SIZE 3/4".
		7.14.1.3.	MATCH IDENTIFICATION WITH MARKING SYSTEM USED IN EXISTING SYSTEMS (WHERE APPLICABLE), SHOP DRAWINGS, CONTRACT DOCUMENTS, AND SIMILAR PREVIOUSLY ESTABLISHED IDENTIFICATION FOR ELECTRICAL WORK. PROVIDE ON ALL CONDUCTORS OF ALL SYSTEMS.	8.8.1.2.	FLEXIBLE METAL CONDUIT (FMC), MINIMUM TRADE SIZE 3/4".
		7.14.2.	PROVIDE ENGRAVED PLASTIC-LAMINATE SIGN ON MAJOR UNITS OF ELECTRICAL EQUIPMENT, INCLUDING PANELBOARDS, DISCONNECTS, STARTERS, CONTROL PANELS, ETC. EXCEPT AS OTHERWISE INDICATED.	8.8.1.3.	LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC), (SEALTIGHT) MINIMUM TRADE SIZE 3/4".
		7.14.2.1.	PROVIDE SINGLE LINE OF TEXT, 1/2" HIGH LETTERING, ON 1-1/2" HIGH SIGN (2" HIGH WHERE 2 LINES ARE REQUIRED).	8.8.1.4.	RIGID METAL CONDUIT (RMC), MINIMUM TRADE SIZE 3/4".
				8.8.1.5.	RIGID NONMETALLIC CONDUIT (PVC), SCHEDULE 40, MINIMUM TRADE SIZE 3/4".
				8.9.	TYPE MC (METAL-CLAD) CABLE: FORM FROM CONTINUOUS LENGTH OF SPIRALLY WOUND, INTERLOCKED ZINC-COATED OR GALVANIZED (INSIDE AND OUTSIDE) STRIP STEEL OR ALUMINUM JACKET, WITH STRANDED COPPER CONDUCTORS WITH 90 DEG. C THIN INSULATION SYSTEM.
				8.9.1.	PROVIDE FOR FINAL CONNECTIONS TO LIGHT FIXTURES THAT ARE INSTALLED IN ACCESSIBLE TILE CEILING SYSTEMS (LIMITED TO 6' MAXIMUM IN LENGTH AND LIMITED TO "WHIPS" FROM BUILDING ELECTRICAL SYSTEM JUNCTION BOXES DOWN TO LIGHT FIXTURES).
				8.9.1.1.	DO NOT INSTALL TYPE MC CABLE FROM FIXTURE TO FIXTURE UNLESS A SPECIAL PROPERLY LISTED AND LABELED U.L. APPROVED SYSTEM IS SPECIFICALLY INDICATED.
				8.9.2.	PROVIDE FOR NEW 15 AND 20 AMPERE BRANCH CIRCUIT DROPS TO OUTLETS IN EXISTING

ISSUED REVISIONS:

DIVISION 26 - ELECTRICAL SPECIFICATIONS (continuation)

9. HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- 9.1. PROVIDE SUPPORTS FOR MULTIPLE RACEWAYS CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, EQUIPMENT, CONNECTED SYSTEMS AND ASSOCIATED COMPONENTS/CONTENTS. PROVIDE SUPPORTS ADEQUATE IN TENSION, SHEAR, AND PULLOUT FORCE TO RESIST MAXIMUM LOADS CALCULATED OR IMPOSED FOR THIS PROJECT, WITH A MINIMUM STRUCTURAL SAFETY FACTOR OF FIVE TIMES THE APPLIED FORCE.
- 9.2. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO SUPERVISE THE INSTALLATION OF AND PAY FOR ALL ADDITIONAL MATERIAL, WOOD OR METAL, AND LABOR WHICH MAY BE REQUIRED TO SUPPORT ANY TYPE OF PERMANENT OR TEMPORARY ELECTRICAL APPARATUS EMPLOYED IN THE EXECUTION OF THE ELECTRICAL CONTRACTOR'S WORK.
- 9.3. PROVIDE SUPPORTS, ANCHORS, SLEEVES, AND SEALS FURNISHED AS PART OF FACTORY-FABRICATED EQUIPMENT AS REQUIRED.
 - 9.3.1. ALL CONDUIT SHALL BE SUPPORTED INDEPENDENTLY FROM ALL OTHER BUILDING SYSTEMS AND SHALL BE SUPPORTED DIRECTLY FROM STRUCTURAL COMPONENTS.
 - 9.3.2. ELECTRICALLY RELATED WORK SHALL NOT BE SUPPORTED FROM DUCTWORK, DUCTWORK HANGERS, CEILING SUPPORTS, EXISTING CONDUIT SUPPORTS, ETC.
- 9.4. ALL PARTS AND HARDWARE USED FOR SUPPORT OF EQUIPMENT, CONDUITS AND FITTINGS, SHALL BE GALVANIZED.
- 9.5. MULTIPLE RACEWAYS OR CABLES: INSTALL TRAPEZOID-TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED "KINDORF" CHANNELS, SIZED SO CAPACITY CAN BE INCREASED BY AT LEAST 50 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH TWO-BOLT CONDUIT CLAMPS, SINGLE-BOLT CONDUIT CLAMPS, OR SINGLE-BOLT CONDUIT CLAMPS USING SPRING FRICTION ACTION FOR RETENTION IN SUPPORT CHANNEL AS APPLICABLE.
- 9.6. CONDUIT SHALL BE SUPPORTED BY APPROVED STRAPS, FASTENERS AND HANGERS.
 - 9.6.1. HANGERS SHALL BE SUSPENDED FROM THREADED RODS.
 - 9.6.2. PERFORATED STRAPS WILL NOT BE ACCEPTABLE.
 - 9.6.3. FASTENERS SHALL BE LEAD EXPANSION SHIELDS IN BLOCK OR CONCRETE, TOGGLE BOLTS IN HOLLOW WALLS, MACHINE SCREWS ON METAL SURFACES AND WOOD SCREWS ON WOOD CONSTRUCTION.
 - 9.6.4. FASTEN PIPE STRAPS AND HANGERS TO CONCRETE USING INSERTS OR EXPANSION BOLTS AND TO HOLLOW MASONRY USING TOGGLE BOLTS. WOODEN PLUGS AND SHIELDS WILL NOT BE PERMITTED. ALL SUPPORTS IN BAR JOIST CONSTRUCTION SHALL BE ATTACHED TO THE TOP CORD OF THE JOISTS USING SUITABLE CLAMPS APPROVED FOR THE PURPOSE.
- 9.7. AT BUILDING EXPANSION JOINTS AND WHERE DEFLECTION IS EXPECTED, CONDUITS SHALL BE PROVIDED WITH EXPANSION FITTINGS WITH BONDING JUMPERS.
- 9.8. STRUCTURAL STEEL FOR FABRICATED SUPPORTS AND RESTRAINTS: ASTM A 36/A 36M, STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED.
- 9.9. USE OF SYNTHETIC OR PLASTIC "TIE-WRAPPS", "ZIP TIES", "WIRE LIES" AND SIMILAR PRODUCTS ARE NOT PERMITTED AS A PERMANENT MEANS OF ANCHORING, SECURING, SUPPORTING OR OTHERWISE INSTALLING ANY CABLES, CONDUCTORS, CONDUITS, RACEWAYS, DEVICES, EQUIPMENT OR OTHER ELECTRICAL WORK.
- 9.10. CUT, FIT, AND PLACE MISCELLANEOUS METAL FABRICATIONS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR ELECTRICAL MATERIALS AND EQUIPMENT.
- 9.11. PLACE AND SECURE ANCHORAGE DEVICES. USE SUPPORTED EQUIPMENT MANUFACTURER'S SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.
 - 9.11.1. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT.
 - 9.11.2. PROVIDE FEMALE EXPANSION ANCHORS, AND INSTALL STUDS AND NUTS AFTER EQUIPMENT IS POSITIONED.
 - 9.11.3. PROVIDE BUSHINGS FOR FLOOR/WALL-MOUNTED EQUIPMENT ANCHORS TO ALLOW FOR RESILIENT MEDIA BETWEEN ANCHOR BOLTS/STUDS AND MOUNTING HOLE IN CONCRETE.
- 9.12. CONCRETE INSERTS: STEEL OR MALLEABLE-IRON, SLOTTED SUPPORT SYSTEM UNITS SIMILAR TO MSS TYPE 18; COMPLYING WITH MFMA-4 OR MSS SP-58.
- 9.13. MECHANICAL-EXPANSION ANCHORS: INSERT-WEDGE-TYPE1 ZINC-COATED STEEL, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE WITH TENSION, SHEAR, AND PULLOUT CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS IN WHICH USED.
 - 9.13.1. WHERE SPECIFIED ON DRAWINGS AS A CORROSIVE AREA, EXPANSION ANCHORS SHALL BE STAINLESS STEEL. PROVIDE ANCHORS BY HILTI INC. OR EQUAL.
- 9.14. CLAMPS FOR ATTACHMENT TO STEEL STRUCTURAL ELEMENTS: MSS SP-58, TYPE SUITABLE FOR ATTACHED STRUCTURAL ELEMENT.
 - 9.14.1. THROUGH BOLTS: STRUCTURAL TYPE, HEX HEAD, AND HIGH STRENGTH. COMPLY WITH ASTM A 325.
 - 9.14.2. TOGGLE BOLTS: ALL-STEEL GALVANIZED SPRINGHEAD TYPE, 3/16" X 4".
 - 9.14.3. HANGER RODS: THREADED STEEL, GALVANIZED STEEL RODS; 1/2" DIAMETER MINIMUM.
 - 9.14.3.1. MINIMUM HANGER ROD SIZE FOR RACEWAY: MINIMUM ROD SIZE SHALL BE 1/4 INCH IN DIAMETER.
 - 9.14.4. CLEVIS HANGERS: GALVANIZED STEEL WITH 1/2" DIAMETER HOLE FOR ROUND STEEL ROD, GALVANIZED STEEL ROD REDUCING COUPLINGS, 112" X 5/8".
 - 9.14.5. GALVANIZED STEEL CLAMPS; 112" ROD SIZE
 - 9.14.7. GALVANIZED STEEL CLAMPS, 1-1/4" X 3/16" STOCK; 3/8" CROSS BOLT; FLANGE WIDTH 2". HEXAGON NUTS FOR 112" ROD SIZE;
 - 9.14.8. GALVANIZED STEEL LEAD EXPANSION ANCHORS, 1/2".
- 9.15. COORDINATE INSTALLATION OF ROOF CURBS, EQUIPMENT SUPPORTS, AND ROOF PENETRATIONS.
- 9.16. STEEL SLOTTED SUPPORT SYSTEMS COMPLY WITH MFMA-4, FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY.
 - 9.16.1. CONSTRUCT WITH 9116" DIA. HOLES, NOMINAL 2" O.C. ON TOP SURFACE, WITH STANDARD FACTORY FINISH, AND WITH THE ALL NECESSARY FITTINGS WHICH MATE AND MATCH WITH UCHANNEL.
 - 9.16.2. PROVIDE METALLIC COATINGS THAT ARE HOT-DIP GALVANIZED AFTER FABRICATION AND APPLIED ACCORDING TO MFMA-4.
 - 9.16.3. PROVIDE CHANNEL DIMENSIONS THAT ARE SELECTED FOR APPLICABLE LOAD CRITERIA.
 - 9.16.4. COMPLY WITH NECA 1 AND NECA 101 UNLESS REQUIREMENTS IN THIS OR OTHER SPECIFICATION SECTIONS ARE STRICTER.
- 9.17. FOR SUPPORTING RIGID METAL:
 - 9.17.1. RISER CLAMPS: GALVANIZED STEEL; WITH 2 BOLTS AND NUTS, AND 4" EARS.
 - 9.17.2. CLEVIS HANGERS: GALVANIZED STEEL WITH 1/2" DIAMETER HOLE FOR ROUND STEEL ROD.
 - 9.17.3. TWO-HOLE CONDUIT STRAPS: GALVANIZED STEEL; 3/4" STRAP WIDTH; AND 2-1/8" BETWEEN CENTER OF SCREW HOLES.
 - 9.17.4. OFFSET CONDUIT CLAMPS: GALVANIZED STEEL.
- 9.18. SUPPORT FOR CONDUCTORS IN VERTICAL CONDUIT: FACTORY-FABRICATED ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG OR PLUGS FOR NON-ARMORED ELECTRICAL CONDUCTORS OR CABLES IN RISER CONDUITS. PLUGS SHALL HAVE NUMBER, SIZE, AND SHAPE OF CONDUCTOR GRIPPING PIECES AS REQUIRED TO SUIT INDIVIDUAL CONDUCTORS OR CABLES SUPPORTED BODY SHALL BE MALLEABLE IRON.
- 9.19. MOUNTING TO WOOD:
 - 9.19.1. FASTEN WITH LAG SCREWS OR THROUGH-BOLTS.
 - 9.19.2. PROVIDE STANDARD GRADE, LIGHT-FRAMING-SIZE LUMBER OF ANY SPECIES. NUMBER 3

- 9.19.3. COMMON OR STANDARD GRADE BOARDS COMPLYING WITH WCLB OR AWPA RULES, OR NUMBER 3 BOARDS COMPLYING WITH SPIB RULES.
 - 9.19.4. LUMBER SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH AMWP LP-2, AND KILN DRIED TO A MOISTURE CONTENT OF NOT MORE THAN 19 PERCENT.
 - 9.19.5. PROVIDE MARINE GRADE PRODUCTS WHERE SUBJECT TO MOISTURE CONDITIONS.
 - 9.19.6. PROVIDE SIMPSON STRONG TIE (OR EQUAL) EXPANSION SCREW ANCHORS.
 - 9.19.7. CUT, FIT, AND PLACE WOOD GROUNDS, NAILERS, BLOCKING, AND ANCHORAGE ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR ELECTRICAL MATERIALS AND EQUIPMENT.
 - 9.19.8. SELECT FASTENER SIZES THAT WILL NOT PENETRATE MEMBERS WHERE OPPOSITE SIDE WILL BE EXPOSED TO VIEW OR WILL RECEIVE FINISH MATERIALS.
 - 9.19.9. MAKE TIGHT CONNECTIONS BETWEEN MEMBERS. INSTALL FASTENERS WITHOUT SPLITTING WOOD MEMBERS. ATTACH TO SUBSTRATES AS REQUIRED TO SUPPORT APPLIED LOADS.
 - 9.19.10. ATTACHMENTS TO WOOD STRUCTURAL MEMBERS: PROVIDE BOLTS INSTALLED THROUGH MEMBERS.
 - 9.20. MOUNTING TO NEW CONCRETE: PROVIDE CHANNEL-TYPE CONCRETE INSERTS AND BOLT TO INSERTS, OR PROVIDE EXPANSION ANCHORS FOR APPLICATIONS WHERE INSERTS ARE NOT PRACTICAL.
 - 9.21. MOUNTING TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS. INSTEAD OF EXPANSION ANCHORS, POWDER/GAS-ACTUATED DRIVEN THREADED STUDS PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN EXISTING STANDARD-WEIGHT CONCRETE 4 INCHES THICK OR GREATER. DO NOT USE FOR ANCHORAGE TO LIGHTWEIGHT-AGGREGATE CONCRETE OR FOR SLABS LESS THAN 4 INCHES THICK. DO NOT USE FOR WORK ANCHORED TO NEWLY INSTALLED CONCRETE. ONLY USE THIS METHOD WHERE OTHER METHODS CANNOT OR SHOULD NOT BE USED, AND ONLY AFTER RECEIVING CASE-BY-CASE PERMISSION FROM OWNER AND DESIGN PROFESSIONALS.
 - 9.22. HOLES FOR EXPANSION ANCHORS IN CONCRETE: DRILL AT LOCATIONS AND TO DEPTHS THAT AVOID REINFORCING BARS.
 - 9.23. MOUNTING TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY UNITS.
 - 9.24. MOUNTING TO STEEL: WELDED THREADED STUDS COMPLYING WITH AWS D11/D1 TM, WITH LOCK WASHERS AND NUTS, OR BEAM CLAMPS (MSS TYPE 19, 21, 23, 25, OR 27) COMPLYING WITH MSS SP-69, CLAMPED TO FLANGES OF BEAMS OR ON UPPER TRUSS CHORDS OF BAR JOISTS.
 - 9.25. MOUNTING TO LIGHT STEEL: SHEET METAL SCREWS.
 - 9.26. ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT CABINETS, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.
 - 9.27. FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES: WELDED OR BOLTED, STRUCTURAL-STEEL SHAPES, SHOP OR FIELD FABRICATED TO FIT DIMENSIONS OF SUPPORTED EQUIPMENT.
 - 9.28. ROOF DECKS: DO NOT SUSPEND OVERHEAD HANGERS, OR SUPPORT ANY OTHER OVERHEAD ELECTRICAL WORK, FROM ROOF DECKS.
 - 9.29. ACCESS DOORS.
 - 9.29.1. DO NOT USE ACCESS DOORS UNLESS SPECIAL PRIOR WRITTEN PERMISSION IS GRANTED FROM THE OWNER'S REPRESENTATIVE.
 - 9.29.2. INSTALL PULL BOXES, JUNCTION BOXES, ETC. IN AREAS WHICH ARE ACCESSIBLE AFTER COMPLETION OF CONSTRUCTION. DO NOT INSTALL PULL BOXES OR JUNCTION BOXES ABOVE GYPSUM BOARD OR SIMILAR INACCESSIBLE CEILING SYSTEMS.
 - 9.29.3. WHERE THERE IS NO OTHER RECURSE BUT TO PROVIDE AN ACCESS DOOR/PANEL, AND WHERE APPROVAL OF OWNER'S REPRESENTATIVE HAS BEEN OBTAINED, PROVIDE REQUIRED ACCESS DOORS/PANELS AS REQUIRED FOR A COMPLETE CODE-COMPLIANT ELECTRICAL INSTALLATION.
 - 9.29.4. PROVIDE ACCESS DOORS IN FIRE/SMOKE RATINGS THAT MEET OR EXCEED THE SURROUNDING SURFACE THAT IS BEING PENETRATED.
10. CONDUCTORS
- 10.1. BUILDING WIRE, UNLESS OTHERWISE INDICATED, SHALL BE 600 VOLT, TYPE THHN/THWN/THWN-2 INSULATION FOR INTERIOR USE AND EXTERIOR USE WITHIN CONDUIT. PROVIDE TYPE XHHW-2 INSULATION FOR ALL WIRING BELOW GRADE. CONDUCTORS SHALL BE SIZED AND RUN AS INDICATED.
 - 10.2. CONDUCTORS SHALL BE SOFT DRAWN COPPER OF NOT LESS THAN 98% CONDUCTIVITY.
 - 10.3. NO WIRE SMALLER THAN NUMBER TWELVE (#12) AWG SHALL BE USED UNLESS OTHERWISE INDICATED. USE OF #14 COLOR CODED WIRE WILL BE ALLOWED FOR CONTROL CIRCUITS ONLY.
 - 10.4. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND FROM TERMINAL BOARD TO POINT OF FINAL CONNECTION, AND NO SPLICE SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES.
 - 10.5. KEEP CONDUCTOR SPLICES TO MINIMUM.
 - 10.6. PULL CONDUCTORS SIMULTANEOUSLY WHERE MORE THAN ONE IS BEING INSTALLED IN SAME RACEWAY. USE U.L. LISTED PULLING COMPOUND OR LUBRICANT.
 - 10.7. WHERE NECESSARY INCREASE WIRE SIZES TO OFFSET VOLTAGE DROP AS/IF REQUIRED.
 - 10.8. ALL CONDUCTORS SHALL BE RATED FOR 90 DEG. C. MAXIMUM. PROVIDE WITH FULL PARTY SIZED GREEN INSULATED EQUIPMENT GROUND CONDUCTOR. PROVIDE COMPATIBLE STEEL FITTINGS WITH INTEGRAL RED PLASTIC INSULATED THROAT BUSHINGS. CABLES SHALL BE EQUALLY RATED WITH ALL COMPONENTS AND FITTINGS LISTED FOR GROUNDING AND COMPLIANT WITH THE FOLLOWING: UL STD.4 AND UL STD. 83;ANSI E119 AND E814; NFPA 70.
 - 10.9. INSULATION VALUE OF JOINTS SHALL BE 100%, IN EXCESS OF WIRE. PROVIDE ADEQUATE LENGTH OF CONDUCTORS WITHIN ELECTRICAL ENCLOSURES AND TRAIN THE CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS.
 - 10.10. BUNDLE MULTIPLE CONDUCTORS, WITH CONDUCTORS NO LARGER THAN 10 AWG CABLED IN INDIVIDUAL CIRCUITS.
 - 10.11. DO NOT USE ARMORED AC, BX, NM, OR ANY MANUFACTURED CABLE ASSEMBLY, UNLESS NOTED OTHERWISE.
 - 10.12. ALL WIRING SHALL BE IN CONDUIT, UNLESS NOTED OTHERWISE.
 - 10.13. COLOR CODING OF CONDUCTORS SHALL BE AS FOLLOWS FOR VOLTAGES WHEN PRESENT:
 - 10.13.1. 208Y/120V SYSTEMS:
 - PHASE A - BLACK
 - PHASE B - RED
 - PHASE C - BLUE
 - NEUTRAL - WHITE
 - GROUND - GREEN
 - 10.13.2. 480Y/277V SYSTEM:
 - PHASE A - YELLOW
 - PHASE B - BROWN
 - PHASE C - ORANGE
 - NEUTRAL - NATURAL GRAY
 - GROUND - GREEN
 - 10.14. AWG #10 AND SMALLER SHALL BE SOLID. AWG #8 AND LARGER SHALL BE STRANDED.
 - 10.15. MAINTAIN A UNIFORM ELEVATION FOR ALL CABLE RUNS WHEREVER POSSIBLE. ALL CABLES SHALL BE SUPPORTED/ANCHORED AT MAXIMUM 4 FOOT INTERVALS AND WITHIN 12 INCHES OF BOX OR OUTLET AND SHALL NOT SAG.
 - 10.16. INSTALL CABLES IN A MANNER THAT PREVENTS OVERHEATING.
 - 10.17. CABLES SHALL BE FASTENED DIRECTLY TO THE STRUCTURE USING FACTORY CLAMPS/CLIPS SPECIFICALLY DESIGNED FOR THE RESPECTIVE CABLE.
 - 10.18. WIRE CONNECTIONS

- 10.18.1. FOR EACH ELECTRICAL CONNECTION INDICATED, PROVIDE COMPLETE ASSEMBLY OF MATERIALS, INCLUDING BUT NOT LIMITED TO, PRESSURE CONNECTORS, TERMINALS (LUGS), ELECTRICAL INSULATING TAPE, HEAT-SHRINKABLE INSULATING TUBING, CABLE TIES, SOLDERLESS WIRE-NUTS, AND OTHER ITEMS AND ACCESSORIES AS NEEDED TO COMPLETE SPLICES AND TERMINATIONS OF TYPES INDICATED.
- 10.18.2. ALL FEEDER AND SUB-FEEDER WIRING CONNECTIONS SHALL BE MADE WITH COMPRESSION CONNECTORS BY SQUARE D OR ACCEPTABLE EQUIVALENT.
- 10.18.3. ALL BRANCH WIRING CONNECTIONS SHALL BE 3M SCOTCH LOCK CONNECTORS OR ACCEPTABLE EQUIVALENT.
- 10.18.4. WHERE CABLE CONNECTIONS REQUIRE INSULATION, SCOTCH #33, ELECTRICAL TAPE SHALL BE USED FOR WRAPPING.
- 10.18.5. THE CONDUCTORS TERMINATING AT EACH WIRED OUTLET SHALL BE LEFT NO LESS THAN 8" LONG AT THE IR OUTLET FITTINGS TO FACILITATE INSTALLMENT OF DEVICES OR LUMINAIRES.
- 10.18.6. MAKE TERMINATIONS SO THERE IS NO BARE CONDUCTOR AT THE TERMINAL.
- 10.19. GROUND AND BONDING CONDUCTORS FOR ELECTRICAL SYSTEMS
 - 10.19.1. ALL METALLIC CONDUIT, SURFACE RACEWAYS, WIREWAYS, SUPPORTS, CABINET AND EQUIPMENT SHALL BE GROUNDED.
 - 10.19.2. PROVIDE GROUNDING ELECTRODE CONDUCTORS FOR SERVICE ENTRANCES AND DERIVED SYSTEMS.
 - 10.19.3. PROVIDE ALL FEEDERS AND BRANCH CIRCUITS WITH INSULATED (GREEN COVERING) EQUIPMENT GROUNDING.
 - 10.19.4. DO NOT SHARE NEUTRALS WHEN AMONGST MULTIPLE BRANCH CIRCUITS OR WITH MULTI-WIRE BRANCH CIRCUITS.
 - 10.19.5. UNLESS SPECIFICALLY INDICATED OTHERWISE ON DRAWINGS, PROVIDE GROUNDED ("NEUTRAL") CONDUCTORS THAT ARE AT LEAST COMPARABLY-SIZED WITH CORRESPONDING PHASE CONDUCTORS FOR ALL APPLICATIONS.
- 10.20. NORMAL SYSTEM POWER FEEDERS AND BRANCH CIRCUITS SHALL BE INSTALLED IN SEPARATE RACEWAYS FROM EMERGENCY SYSTEM POWER. ALL WIRING FOR DIFFERENT POWER VOLTAGES SHALL BE INSTALLED IN RACEWAY SYSTEMS SEPARATE FROM EACH OTHER. ALL WIRING FOR THE VARIOUS ELECTRICAL SYSTEMS SHALL BE INSTALLED IN RACEWAY SYSTEMS SEPARATE FROM EACH OTHER.
 - 10.21. UNDER CARPET CABLES
 - 10.21.1. CONTRACTOR SHALL PROVIDE UNDER CARPET CABLE AND SERVICE FITTINGS WHERE CALLED FOR IN THE CONSTRUCTION DRAWINGS.
 - 10.21.2. SHOP DRAWINGS FROM THE MANUFACTURER SHALL INCLUDE THE FOLLOWING:
 - 10.21.2.1. INDICATE CABLE TYPES, ACCESSORIES, AND TRANSITION BOXES.
 - 10.21.2.2. INDICATE PROPOSED LAYERING OF CABLES, CABLE DIMENSIONS, AND INSTALLATION REQUIREMENTS.
 - 10.21.3. CABLE SHALL BE FACTORY LAMINATED AND COMPLY WITH NEMA UC 2. THREE PIECE ASSEMBLY SHALL INCLUDE BOTTOM SHIELD, CONDUCTOR ASSEMBLY, AND TOP SHIELD.
 - 10.21.3.1. BOTTOM SHIELD IS ABRASION RESISTANT, NONMETALLIC.
 - 10.21.3.2. TOP SHIELD IS COPPER OR COPPER ALLOY.
 - 10.21.4. PEDESTALS SHALL BE LOW PROFILE TYPE, TWO GANG WITH DUPLEX RECEPTACLES. TELE/DATA PEDESTALS SHALL BE LOW PROFILE TYPE, SINGLE GANG WITH COVER PLATE.
 - 10.21.5. PROVIDE INTERFACE TRANSITION UNIT, WITH JUNCTION BOX, FOR CONNECTING THREE, FOUR, OR FIVE CONDUCTOR, FLAT CONDUCTOR CABLE TO BUILDING WIRING SYSTEM.
 - 10.21.6. LIMIT TOTAL INSTALLED HEIGHT TO .09 INCH.
- 11. BOXES AND FITTINGS
 - 11.1. EXTENT OF ELECTRICAL BOX AND ASSOCIATED FITTING WORK IS GENERALLY INDICATED BY DRAWINGS AND SCHEDULES.
 - 11.2. PROVIDE BOXES AND FITTINGS FOR ALL WORK.
 - 11.3. GANG TYPE OUTLET BOXES SHALL NOT BE USED.
 - 11.4. THE OUTLET BOX LOCATIONS INDICATED ON DRAWINGS SHALL BE CONSIDERED APPROXIMATE, AND THEREFORE, IT SHALL BE INCUMBENT UPON CONTRACTOR TO STUDY THE GENERAL CONSTRUCTION WITH RELATION TO SPACES AND EQUIPMENT SURROUNDING EACH OUTLET.
 - 11.5. ALL OUTLET, SWITCH, AND JUNCTION BOXES SHALL BE MADE OF CODE COMPLIANT #12 GAUGE STEEL COMPLETE WITH RINGS AND REMOVABLE FRONT FASTENED SCREW COVER PLATES WITH COUNTER SINK HEAD SCREWS.
 - 11.6. OUTLET BOXES
 - 11.6.1. WHERE CONDUIT IS CONCEALED, BOXES SHALL NOT BE LESS THAN 4" SQUARE X 1-1/2" DEEP.
 - 11.6.2. CEILING: 4" SQUARE, 2-1/8" DEEP FOR EXPOSED OR FURRED WORK, 3" DEEP FOR BOXES POURED IN CONCRETE.
 - 11.6.2.1. PROVIDE CONCRETE POUR BOXES OF THE TYPE SPECIALLY DESIGNED FOR THE APPLICATION.
 - 11.6.2.2. PROVIDE PLASTER RINGS OR EXTENSION RINGS WHERE REQUIRED.
 - 11.6.2.3. PROVIDE DEEPER BOXES WHERE REQUIRED.
 - 11.6.3. WALL: 4" SQUARE, 2-1/8" DEEP BOXES.
 - 11.6.3.1. PROVIDE EXTENSION RINGS OR COVERS OF SUFFICIENT DEPTH TO BRING COVERS FLUSH WITH THE FINISHED SURFACE.
 - 11.6.4. MASONRY: FOR FLUSH MOUNTED BOXES IN EXPOSED MASONRY OR TILE.
 - 11.6.4.1. PROVIDE COVERS WITH SQUARE CORNERS ON THE RAISED PORTION AND WITH SUFFICIENT DEPTH TO TRIM OUT FLUSH WITH FINISHED SURFACE.
 - 11.6.5. OUTLET BOXES SHALL BE 4" OCTAGONAL FOR LIGHTING FIXTURES WITH APPROVED PLASTER RINGS AND PLATES.
 - 11.7. EXPOSED AND WET OR DAMP AREA AT EQUIPMENT, SUCH AS EXTERIOR, ROOFS OR KITCHENS WHEN PRESENT, PROVIDE FS OR FD BOXES WITH SUITABLE WEATHERPROOF COVERS.
 - 11.8. PROVIDE COVERS OF "IN USE" TYPE COVERS WHERE CORDS/PLUGS ARE INSTALLED AND MUST REMAIN AS "IN USE".
 - 11.9. PULL AND JUNCTION BOXES
 - 11.9.1. PROVIDE BOXES WHERE REQUIRED TO FACILITATE THE PULLING OF WIRES OR CABLES.
 - 11.9.2. BOXES SHALL BE IN ACCORDANCE WITH ARTICLE 370 OF N.E.C.
 - 11.10. ACCESSORIES
 - 11.10.1. PROVIDE CORROSION-RESISTANT KNOCKOUT CLOSURES, CONDUIT LOCKNUTS AND MALLEABLE IRON CONDUIT BUSHINGS, OFFSET CONNECTORS, OF TYPES AND SIZES, TO SUIT RESPECTIVE INSTALLATION REQUIREMENTS AND APPLICATIONS.
 - 11.11. INSTALLATION OF BOXES AND FITTINGS
 - 11.11.1. POSITION RECESSED OUTLET BOXES ACCURATELY TO ALLOW FOR SURFACE FINISH THICKNESS.
 - 11.11.2. FASTEN ELECTRICAL BOXES FIRMLY AND RIGIDLY TO SUBSTRATES OR STRUCTURAL SURFACES TO WHICH ATTACHED OR SOLDIY EMBED ELECTRICAL BOXES IN CONCRETE OR MASONRY.
 - 11.11.3. ALL BOXES SHALL BE EQUIPPED WITH PROPER COVERS TO BE FLUSH WITH FINISHED WALL SURFACE.
 - 11.11.4. WHERE OUTLET BOXES OCCUR IN BLOCK, CINDER, CONCRETE BLOCK, FACING TILE, OR OTHER MATERIAL WHERE SUCH MATERIALS FORM THE FINISHED WALL SURFACE, THE OPENING FOR THE BOX SHALL BE CUT NEATLY AND OF THE SIZE THAT THE COVER PLATE WILL COVER ALL PARTS OF THE OPENING.
 - 11.11.5. FOR SPECIAL APPLICATION, JUNCTION BOXES SHALL BE NOTED, DETAILED AND/OR SIZED ON THE DRAWINGS OR IN THE FIELD AS REQUIRED.
 - 11.12. LOCATIONS OF OUTLETS
 - 11.12.1. CONTRACTOR SHALL STUDY THE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR EXACT

- LOCATIONS COORDINATED WITH DOOR SWINGS, GLASS PARTITIONS, ETC. VERIFY ALL BOX/DEVICE MOUNTING HEIGHTS AND LOCATIONS IN FIELD WITH OWNERS REPRESENTATIVE. THE VARIOUS OUTLETS ARE TO BE LOCATED AT THE FOLLOWING HEIGHTS ABOVE FINISHED FLOOR TO THE CENTER LINE OF BOX, UNLESS NOTED OTHERWISE AT AN INDIVIDUAL OUTLET ON THE DRAWINGS, WHEN SCHEDULED, OR IN CASES WHERE USING CENTER OF BOX FOR MEASUREMENT WOULD RESULT IN A DEVICE HAVING AN OPERABLE COMPONENT HIGHER THAN 48 INCHES ABOVE FINISHED FLOOR, INSTALL BOXES LOWER AS NEEDED SO THAT UPPERMOST PART OF OPERABLE COMPONENT IS NO HIGHER THAN 48 INCHES. VERIFY ALL EQUIPMENT REQUIREMENTS BEFORE ROUGH-IN:
 - 11.12.1.1. WALL SWITCHES & PULL STATIONS (VERT. MTD.) 48"
 - 11.12.1.2. RECEPTACLES (VERT. MTD.) 18"
 - 11.12.1.3. TELEPHONE OUTLETS (DESK PHONE) 18"
 - 11.12.1.4. TELEPHONE OUTLETS (WALL PHONE) 48"
 - 11.12.1.5. DATA CABLE OUTLETS 18"
 - 11.12.1.6. OUTLETS ABOVE COUNTERS (HORZ. MTD.) 6" ABOVE BACK-SPLASH
 - 11.12.1.7. FIRE ALARM HORNS/STROBES 80" MIN TO 84" MAX TO TOP OF DEVICE
- 11.12.2. OUTLET MOUNTING HEIGHTS INDICATED ON THE DRAWINGS AT OUTLETS TAKE PRECEDENCE. REFER TO DRAWINGS FOR DETAILS OF OTHER EQUIPMENT MOUNTING HEIGHTS. MOUNTING HEIGHTS FOR FLUSH OUTLETS IN BLOCK WALLS MAY BE CHANGED FOR INSTALLATION. CONSULT OWNER'S REPRESENTATIVE IN FIELD PRIOR TO ANY SUCH INSTALLATION.
- 12. ELECTRICAL SYSTEM GROUNDING
 - 12.1. MAIN SERVICE GROUNDING SYSTEM SHALL CONSIST OF THREE BRANCHES.
 - 12.1.1. GROUNDING CONDUCTOR TO THE WATER PIPING SYSTEM WHICH SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 - 12.1.2. GROUNDING CONDUCTOR TO THE CONCRETE FOOTING REINFORCING/BUILDING REINFORCING STEEL.
 - 12.1.3. GROUNDING CONDUCTOR TO THE ELECTRODE GROUNDING SYSTEM (DRIVEN GROUND RODS) WHICH SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 - 12.2. GROUNDING CONDUCTOR SHALL BE BONDED AT BOTH ENDS TO THE CONDUIT IN WHICH IT IS INSTALLED.
 - 12.3. MAIN SERVICE GROUND TO THE WATER PIPING SYSTEM SHALL BE CONNECTED ON THE STREET SIDE OF THE WATER METER, OR ON A COLD WATER PIPE AS NEAR AS PRACTICABLE TO THE WATER SERVICE ENTRANCE TO THE BUILDING.
 - 12.4. BONDING JUMPERS SHALL BE PROVIDED WHERE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
 - 12.4.1. BOND ALL STRUCTURAL STEEL OF THE BUILDING TO THE MAIN SERVICE GROUND BUS.
 - 12.4.2. BOND THE NATURAL GAS SERVICE TO THE GROUND ELECTRODE SYSTEM.
 - 12.5. CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM CONSISTING OF DRIVEN GROUND RODS WITH INTERCONNECTING CABLES.
 - 12.5.1. GROUND RODS SHALL BE INSTALLED WITH TWO FEET OF COVER AND CABLES EXOTHERMICALLY WELDED.
 - 12.5.2. GROUND RODS SHALL BE 3/4" DIAMETER BY 10 FEET LONG COPPER CLAD STEEL, ONE PIECE, COPPERWELD #9450, OR APPROVED EQUAL.
 - 12.5.3. GROUND GRID CONDUCTORS SHALL BE #1/0 BARE DIRECT BURIED.
 - 12.5.4. GROUND SYSTEM SHALL BE SO CONSTRUCTED THAT THE RESISTANCE BETWEEN THE EQUIPMENT AND THE GROUND SHALL NOT EXCEED 25 OHMS.
 - 12.6. PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN ALL RACEWAYS AND CABLES SIZED IN ACCORDANCE WITH THE NEC.
- 13. WIRING DEVICES
 - 13.1. THE EXTENT OF WIRING DEVICE WORK IS INDICATED BY THE DRAWINGS AND SCHEDULES. COORDINATE PLATE COLORS WITH ARCHITECTURAL REQUIREMENTS.
 - 13.2. PROVIDE WIRING DEVICES WHICH ARE U.L. LISTED AND LABELED.
 - 13.3. ACCEPTABLE MANUFACTURERS
 - 13.3.1. HUBBELL CO.
 - 13.3.2. LEGRAND-PASS AND SEYMOUR.
 - 13.3.3. LEVITON MFG. CO.
 - 13.4. FABRICATED WIRING DEVICES
 - 13.4.1. SWITCHES SHALL BE SPECIFICATION GRADE, BACK & SIDE WIRED, RATED 20 AMP, 120/277 VOLT, 1 HP @ 120V, A.G. QUIET TYPE, HUBBELL #1221 - IVORY OR BROWN, COLOR AS DESCRIBED AND/OR SELECTED BY ARCHITECT TO MATCH FINISHES.
 - 13.4.1.1. SNAP SWITCHES
 - 13.4.1.1.1. COMPLY WITH NEMA WD 1 AND UL 20. SILENT MECHANICAL TYPE.
 - 13.4.1.1.2. THREE AND FOUR-WAY SWITCHES SHALL BE OF THE SAME MANUFACTURER AND GRADE.
 - 13.4.1.2. PILOT LIGHT SWITCHES, 20 A:
 - 13.4.1.2.1. SINGLE POLE, WITH NEON-LIGHTED HANDLE, ILLUMINATED WHEN SWITCH IS "ON."
 - 13.4.1.3. KEY-OPERATED SWITCHES, 120/277 V, 20 A
 - 13.4.1.3.1. SINGLE POLE, WITH FACTORY-SUPPLIED KEY IN LIEU OF SWITCH HANDLE.
 - 13.4.1.4. SINGLE-POLE, DOUBLE-THROW, MOMENTARY CONTACT, CENTER-OFF SWITCHES, 120/277 V, 20 A; FOR USE WITH MECHANICALLY HELD LIGHTING CONTACTORS.
 - 13.4.1.5. KEY-OPERATED, SINGLE-POLE, DOUBLE-THROW, MOMENTARY CONTACT, CENTER-OFF SWITCHES, 120/277 V, 20 A; FOR USE WITH MECHANICALLY HELD LIGHTING CONTACTORS, WITH FACTORY-SUPPLIED KEY IN LIEU OF SWITCH HANDLE.
 - 13.4.1.6. WALL-BOX DIMMERS
 - 13.4.1.6.1. DIMMER SWITCHES: MODULAR, FULL-WAVE, SOLID-STATE UNITS WITH INTEGRAL, QUIET ON-OFF SWITCHES, WITH AUDIBLE FREQUENCY AND EM/RFI SUPPRESSION FILTERS. CONTROL: CONTINUOUSLY ADJUSTABLE SLIDER, TOGGLE SWITCH, OR ROTARY KNOB; WITH SINGLE-POLE OR THREE-WAY SWITCHING. COMPLY WITH UL 1472.
 - 13.4.1.6.2. INCANDESCENT LAMP DIMMERS: 120 V; CONTROL SHALL FOLLOW SQUARE-LAW DIMMING CURVE. ON-OFF SWITCH POSITIONS SHALL BYPASS DIMMER MODULE. 600 W; DIMMERS SHALL REQUIRE NO DERATING WHEN GANGED WITH OTHER DEVICES. ILLUMINATED WHEN "OFF."
 - 13.4.1.7. FLUORESCENT LAMP DIMMER SWITCHES
 - 13.4.1.7.1. MODULAR; COMPATIBLE WITH DIMMER BALLASTS
 - 13.4.1.7.2. TRIM POTENTIOMETER TO ADJUST LOW-END DIMMING
 - 13.4.1.7.3. DIMMER-BALLAST COMBINATION CAPABLE OF CONSISTENT DIMMING WITH LOW END NOT GREATER THAN 20 PERCENT OF FULL BRIGHTNESS.
 - 13.4.2. FAN SPEED CONTROLS
 - 13.4.2.1. MODULAR, 120-V, FULL-WAVE, SOLID-STATE UNITS WITH INTEGRAL, QUIET ON-OFF SWITCHES AND AUDIBLE FREQUENCY AND EM/RFI FILTERS.
 - 13.4.2.1.1. COMPLY WITH UL 1917
 - 13.4.2.1.2. CONTINUOUSLY ADJUSTABLE SLIDER, TOGGLE SWITCH, OR ROTARY KNOB, 5 A OR 1.5 A.
 - 13.4.2.1.3. THREE-SPEED ADJUSTABLE SLIDER OR ROTARY KNOB, 1.5 A.
 - 13.4.3. OCCUPANCY SENSORS

ISSUED REVISIONS:

Keke's Breakfast Cafe
ELECTRICAL SPECIFICATIONS 3 OF 4

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ABBREVIATIONS	
FCO	ACCESS DOOR
WCO	ABOVE FINISHED FLOOR
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
AUTO	AUTOMATIC
BLDG	BUILDING
CD	CONDENSATE DRAIN
CLG	CEILING
CO	CLEAN-OUT
COND	CONDENSATE OR CONDENSER
CONT	CONTINUATION
CMU	CONCRETE MASONRY UNIT
CW	COLD WATER (CITY)
EL	ELEVATION
ELEC	ELECTRIC
°F	DEGREES FAHRENHEIT
ECO	EXTERIOR CLEANOUT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HW	HOT WATER
INV	INVERT ELEVATION
LBS	POUNDS
MIN	MINIMUM
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RM	ROOM
SAN	SANITARY
SPEC	SPECIFICATION
TEMP	TEMPERATURE
TYP	TYPICAL
V	VENT LINE
VTR	VENT THRU ROOF
WCO	WALL CLEANOUT

GENERAL NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FITTINGS AS REQUIRED BY ALL APPLICABLE CODES AND GOVERNING AUTHORITIES.
- CONTRACTOR SHALL VERIFY AND CORRECT AS REQUIRED TO MEET ALL CODES AND REGULATIONS ANY POSSIBLE DISCREPANCIES BETWEEN TYPE AND SIZE OF CONNECTION SPECIFIED IN PLUMBING FIXTURE SCHEDULE AND FIXTURES ACTUALLY INSTALLED ON THE SITE.
- ALL SANITARY WASTE PIPING SHALL HAVE A 1/8" PER FOOT SLOPE UNLESS OTHERWISE NOTED.
- VENT PIPING SHOWN ON FLOOR PLANS IS ONLY INDICATIVE EXCEPT FOR VTR LOCATIONS.
- VALVES AND FITTINGS SHALL BE OF SAME SIZE OF LINE ON WHICH THEY ARE LOCATED, UNLESS OTHERWISE INDICATED ON DRAWINGS.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES.
- CONTRACTOR SHALL FIELD VERIFY ALL GIVEN MEASUREMENTS PRIOR TO LAYING AND CONNECTING ALL SANITARY AND WASTE PIPING AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- AIR CHAMBERS SHALL NOT BE CONSIDERED AN EQUAL TO WATER ARRESTORS AS SPECIFIED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING AND WEATHERPROOFING INTEGRITY OF ALL PIPING AND PENETRATIONS.
- ALL WATER SUPPLY AND SANITARY LINES SHALL BE RUN AS CLOSE TO PLANS AS POSSIBLE WITH NO CHANGES IN SIZING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY SUPPORTING DEVICES FOR ALL FIXTURES INCLUDED IN CONTRACT OR HEREIN SPECIFIED OR OTHERWISE.
- CHANGES IN THE DIRECTION OF SANITARY PIPING SHALL NOT BE MADE WITH FITTINGS WHICH WILL CAUSE EXCESSIVE REDUCTION IN THE VELOCITY OF FLOW OR CREATE ANY OTHER ADVERSE EFFECT UNLESS PHYSICALLY IMPOSSIBLE (IE: USE OF SANITARY TEE IN A HORIZONTAL CONNECTION, USE OF A DOUBLE SANITARY TEE IN A VERTICAL STACK, IN GENERAL, USE OF SHORT-RADIUS FITTINGS FOR BRANCH TO HOUSE DRAIN OR STACK CONNECTION).
- ALL DRAINAGE PIPING SHALL BE MARKED WITH THE SEAL OF APPROVAL OF THE NATIONAL SANITATION FOUNDATION.
- PROVIDE ACCESS PANELS TO ALL VALVES WITHIN CHASES OR ABOVE UNACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF PLUMBING FIXTURE MOUNTING HEIGHTS, AND DIMENSIONS.
- CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF SANITARY WASTE TO WHICH NEW SEWER LINES ARE TO BE CONNECTED BEFORE INSTALLATION OF NEW SEWER LINE.
- CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS (INCLUDING PIPE ROUTING AND EQUIPMENT LOCATIONS) TO ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE INSTALLATION OR PURCHASING OF ANY PIPING AND/OR EQUIPMENT.
- CLEANOUTS SHALL BE PROVIDED AT THE LOCATIONS INDICATED AND A MINIMUM WHERE REQUIRED BY CODE. FLOOR CLEANOUTS SHALL BE A MINIMUM OF 4" AND SHALL BE COMPLETE WITH A FLUSH PLUG AND REMOVABLE SCORAIATED BRONZE FLOOR PLATE, PROVIDE CARPET BUTTONS IN CARPETED AREAS.

FIELD VERIFY ALL CONDITIONS

NOTE! AS NOTED IN THE SPECIFICATIONS, ALL WIRING LAYOUTS, PIPING LAYOUTS AND DUCT LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONSTRUCTION AND STRUCTURE OF THE BUILDING AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD. EACH TRADE CONTRACTOR SHALL VERIFY WITH THE GENERAL CONTRACTOR THAT HE HAS THOROUGHLY REVIEWED AND COORDINATED ALL LOCATIONS AND ROUTINGS WITH ALL OTHER TRADES PRIOR TO FABRICATION OF CONDUITS, DUCTS, OR PIPING, AND START OF INSTALLATION OF SAME (INCLUDING SPRINKLER PIPING WHEN PRESENT ON JOB). ANY INSTALLATION OR CONSTRUCTION CONFLICTS WHICH OCCUR IN THE FIELD SHALL BE RESOLVED BY THE TRADE CONTRACTOR TO THE SATISFACTION OF THE OWNER AND ARCHITECT AND AT NO EXPENSE TO THE OWNER, ARCHITECT AND/OR GENERAL CONTRACTOR.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

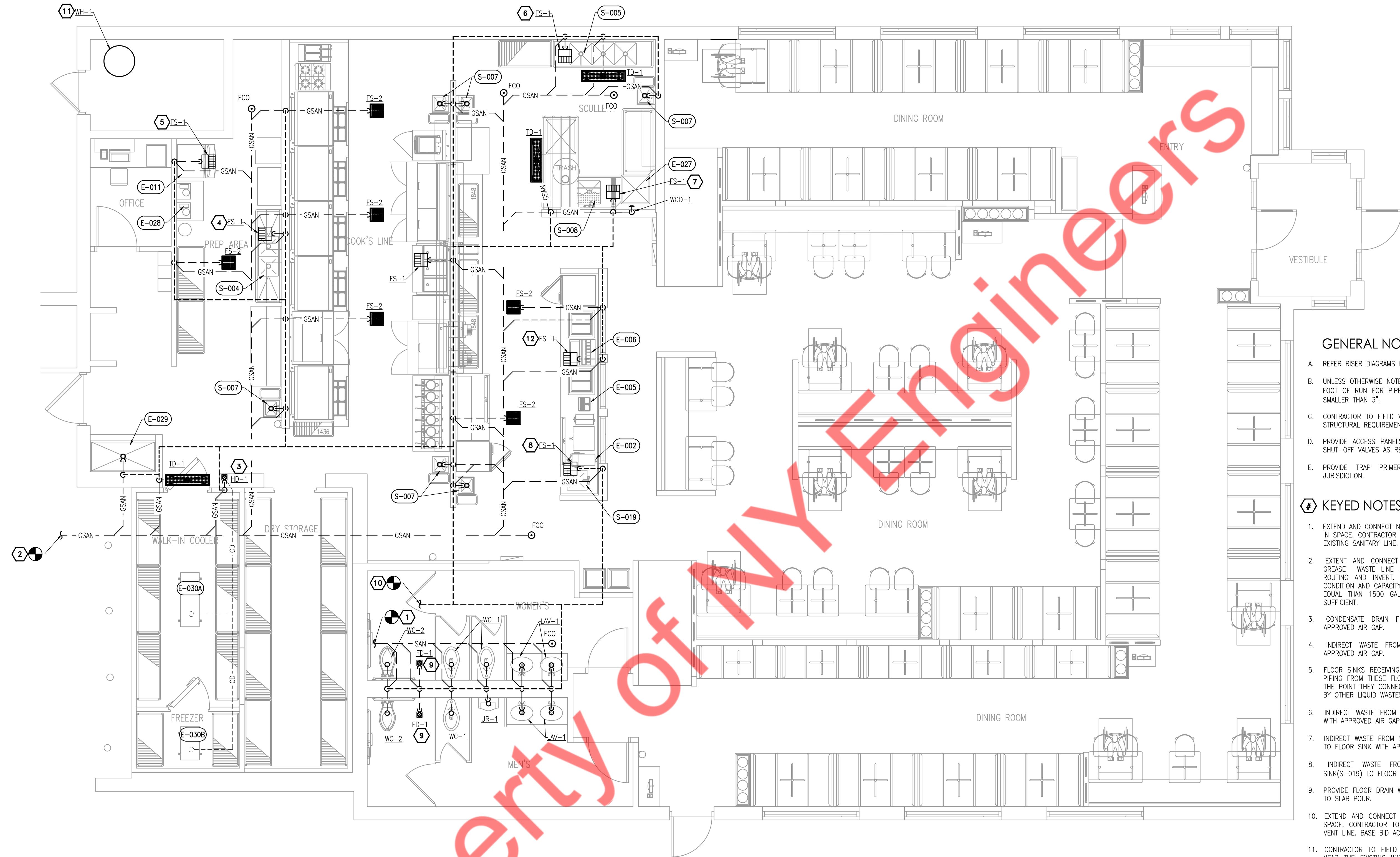
PLUMBING LEGEND

- DIRECTION OF FLOW IN PIPE
- PIPE UP
- PIPE DOWN
- GATE/BALL VALVE
- BALANCING VALVE
- GAS COCK VALVE
- UNION
- PRESSURE REDUCING VALVE
- CHECK VALVE
- HOSE END VALVE
- SANITARY SEWER (BELOW GRADE)
- DOMESTIC COLD WATER (CWS)
- DOMESTIC HOT WATER (HWS)
- DOMESTIC HOT WATER RETURN (HWR)
- DOMESTIC TEMPERED HOT WATER
- CONDENSATE DRAIN (BELOW GRADE)
- CONDENSATE DRAIN (ABOVE GRADE)
- GREASE SEWER (BELOW GRADE)
- SOFT COLD WATER
- VENT
- GAS LINE
- POINT OF CONNECTION NEW TO EXISTING
- HOSE BIB
- FLOOR SINK 1/2 GRATE
- FLOOR DRAIN
- TRENCH DRAIN
- FLOOR CLEANOUT
- HORIZONTAL CLEANOUT

Sheet List Table	
Sheet Number	Sheet Title
P-000	GENERAL NOTES AND LEGEND
P-100	PLUMBING SANITARY FLOOR PLAN
P-101	PLUMBING WATER SUPPLY FLOOR PLAN
P-102	PLUMBING GAS AND SODA PIPING PLAN
P-103	PLUMBING ROOF PLAN
P-500	PLUMBING DETAILS (01 OF 02)
P-501	PLUMBING DETAILS (02 OF 02)
P-600	PLUMBING SCHEDULES
P-601	PLUMBING RISERS (01 OF 02)
P-602	PLUMBING RISERS (02 OF 02)
P-700	PLUMBING SPECIFICATIONS (01 OF 02)
P-701	PLUMBING SPECIFICATIONS (02 OF 02)

ISSUED REVISIONS:

Keke's Breakfast Cafe
GENERAL NOTES & LEGENDS



GENERAL NOTES

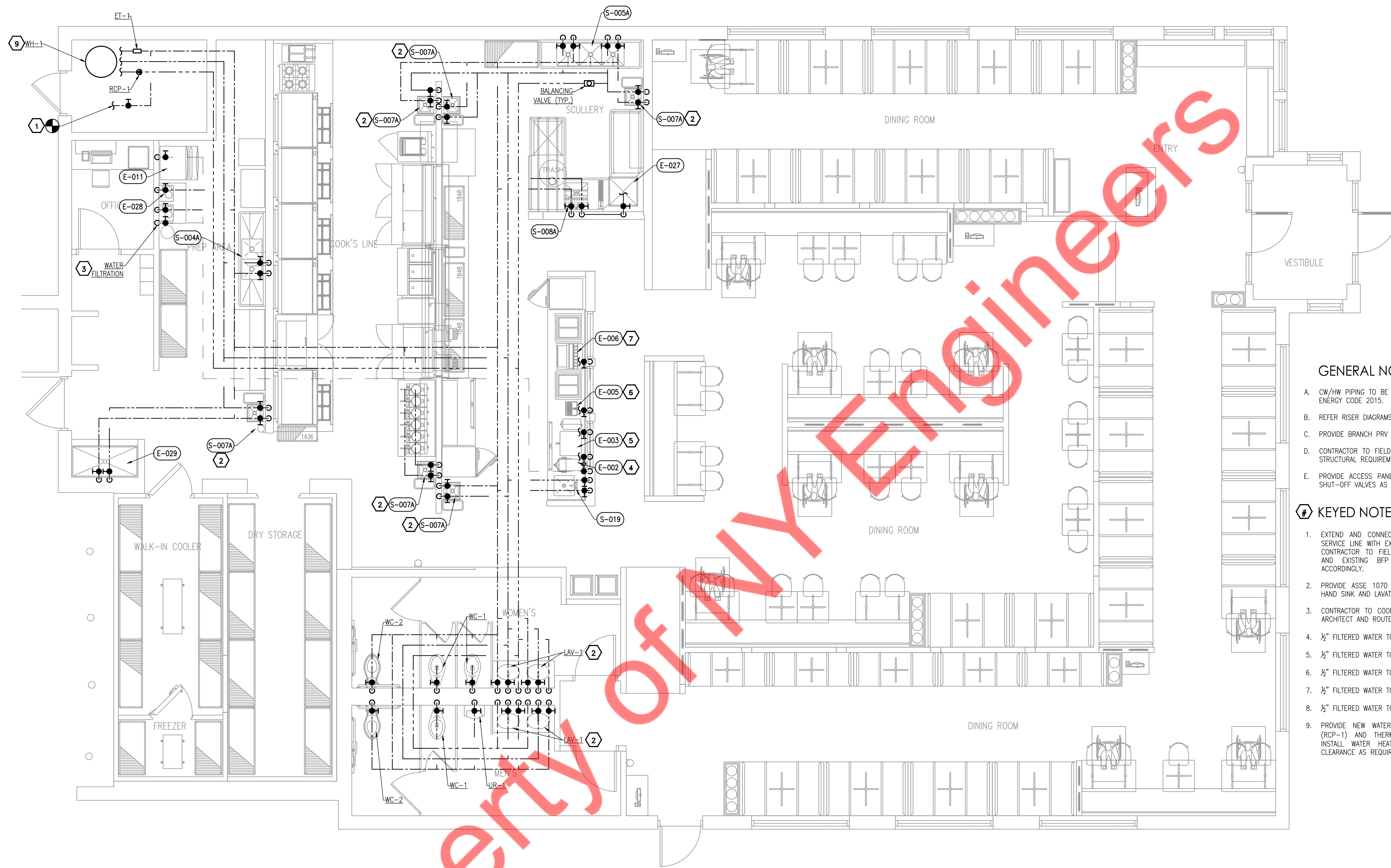
- A. REFER RISER DIAGRAMS FOR PIPE SIZING.
- B. UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM TO BE 1/8" PER FOOT OF RUN FOR PIPE 3" OR LARGER AND 1/4" PER FOOT FOR PIPE SMALLER THAN 3".
- C. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
- D. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.
- E. PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.

KEYED NOTES

- 1. EXTEND AND CONNECT NEW 4" SANITARY LINE TO EXISTING SANITARY LINE IN SPACE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING SANITARY LINE. BASE BID ACCORDINGLY.
- 2. EXTEND AND CONNECT NEW 4" GREASE WASTE PIPING TO EXISTING GREASE WASTE LINE IN SPACE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING AND INVERT. CONTRACTOR TO FIELD VERIFY THE LOCATION, CONDITION AND CAPACITY OF EXISTING GREASE INTERCEPTOR IS MORE OR EQUAL THAN 1500 GALLONS AND PROVIDE NEW IF EXISTING IS NOT SUFFICIENT.
- 3. CONDENSATE DRAIN FROM WALK-IN COOLER TO HUB DRAIN WITH APPROVED AIR GAP.
- 4. INDIRECT WASTE FROM PREP. SINK(S-004) TO FLOOR SINK WITH APPROVED AIR GAP.
- 5. FLOOR SINKS RECEIVING SODA WASTE SHALL BE ACID RESISTANT WASTE PIPING FROM THESE FLOOR SINKS SHALL BE ACID RESISTANT PIPING TO THE POINT THEY CONNECT WITH THE MAIN WASTE LINE AND ARE DILUTED BY OTHER LIQUID WASTES. TYPICAL.
- 6. INDIRECT WASTE FROM 3-COMPARTMENT SINK(S-005) TO FLOOR SINK WITH APPROVED AIR GAP.
- 7. INDIRECT WASTE FROM SOLID DISHTABLE(S-008) & DISHWASHER(E-027) TO FLOOR SINK WITH APPROVED AIR GAP.
- 8. INDIRECT WASTE FROM WATER FILLER(E-005) & UTILITY DUMP SINK(S-019) TO FLOOR SINK WITH APPROVED AIR GAP.
- 9. PROVIDE FLOOR DRAIN WITH TRAP SEAL. VERIFY ALLOWED BY AHJ PRIOR TO SLAB POUR.
- 10. EXTEND AND CONNECT NEW 3" VENT LINE TO EXISTING VENT LINE IN SPACE. CONTRACTOR TO FIELD VERIFY SIZE AND LOCATION OF EXISTING VENT LINE. BASE BID ACCORDINGLY.
- 11. CONTRACTOR TO FIELD VERIFY AVAILABILITY OF EXISTING FLOOR DRAIN NEAR THE EXISTING WATER HEATER AND CONFIRM WATER HEATER T&P DRAIN ROUTED INTO IT. PROVIDE NEW FLOOR DRAIN IF NOT EXISTING.
- 12. INDIRECT WASTE FROM WATER SODA DISPENSER UNIT(E-006) TO FLOOR SINK WITH APPROVED AIR GAP.

ISSUED REVISIONS:	

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



GENERAL NOTES

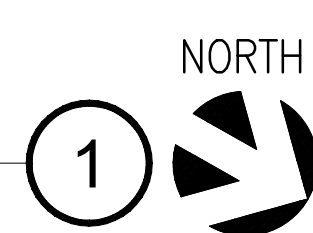
- A. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER INTERNATIONAL ENERGY CODE 2015.
- B. REFER RISER DIAGRAMS FOR PIPE SIZING.
- C. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
- D. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
- E. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.

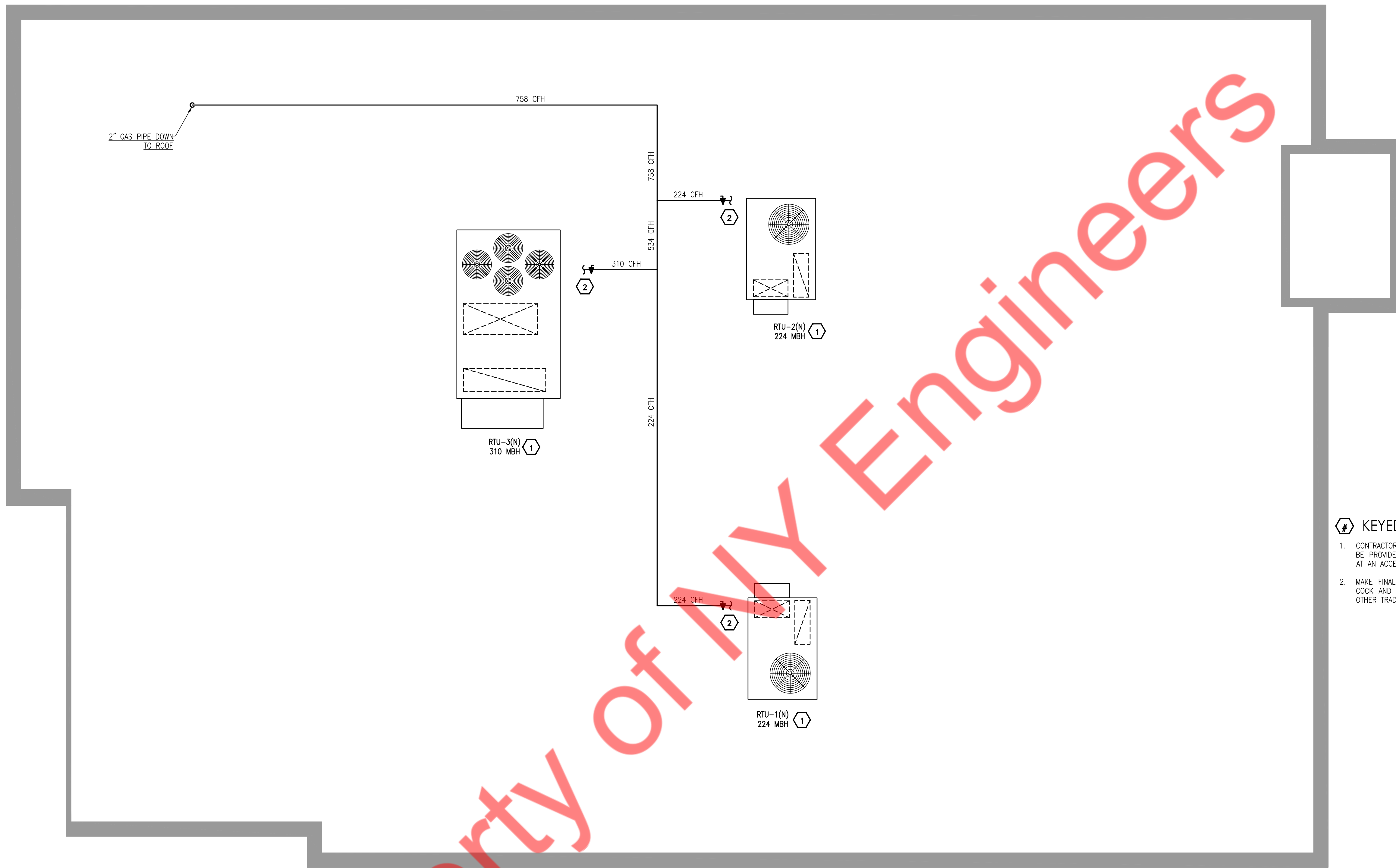
KEYED NOTES

1. EXTEND AND CONNECT NEW 2" CW PIPING TO THE EXISTING WATER SERVICE LINE WITH EXISTING WATER METER AND EXISTING BFP IN SPACE. CONTRACTOR TO FIELD VERIFY EXISTING PIPE, EXISTING WATER METER AND EXISTING BFP SIZE, LOCATION AND PRESSURE. BASE BID ACCORDINGLY.
2. PROVIDE ASSE 1070 OR SIMILAR THERMOSTATIC MIXING VALVE AT ALL HAND SINK AND LAVATORIES. SET AT 110°F MAXIMUM.
3. CONTRACTOR TO COORDINATE WATER FILTRATION SYSTEM LOCATION WITH ARCHITECT AND ROUTE PIPING ACCORDINGLY.
4. 1/2" FILTERED WATER TO TEA BEVERAGE(E-002).
5. 1/2" FILTERED WATER TO COFFEE BREWER(E-003).
6. 1/2" FILTERED WATER TO WATER FILLER(E-005).
7. 1/2" FILTERED WATER TO SODA DISPENSER UNIT(E-006).
8. 1/2" FILTERED WATER TO ICE MACHINE W/BIN(E-011).
9. PROVIDE NEW WATER HEATERS (WH-1) WITH RE-CIRCULATION PUMP (RCP-1) AND THERMAL EXPANSION TANK (ET-1). CONTRACTOR TO INSTALL WATER HEATER AS PER INSTALLATION GUIDELINE. PROVIDE CLEARANCE AS REQUIRED.

ISSUED REVISIONS:

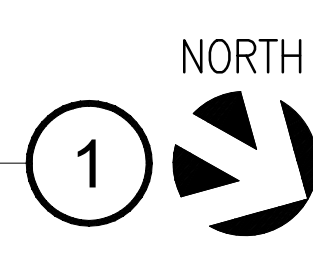
PLUMBING WATER FLOOR PLAN
SCALE: 1/4"=1'-0"





- KEYED NOTES**
1. CONTRACTOR TO MAKE SURE THAT SUFFICIENT GAS PRESSURE SHOULD BE PROVIDED TO GAS RTU. PROVIDE PRESSURE REGULATOR IF REQUIRED AT AN ACCESSIBLE LOCATION.
 2. MAKE FINAL CONNECTION TO HVAC EQUIPMENT ON ROOF. PROVIDE GAS COCK AND DIRT LEG. COORDINATE EXACT ROUTING OF GAS PIPING WITH OTHER TRADE PRIOR TO BID.

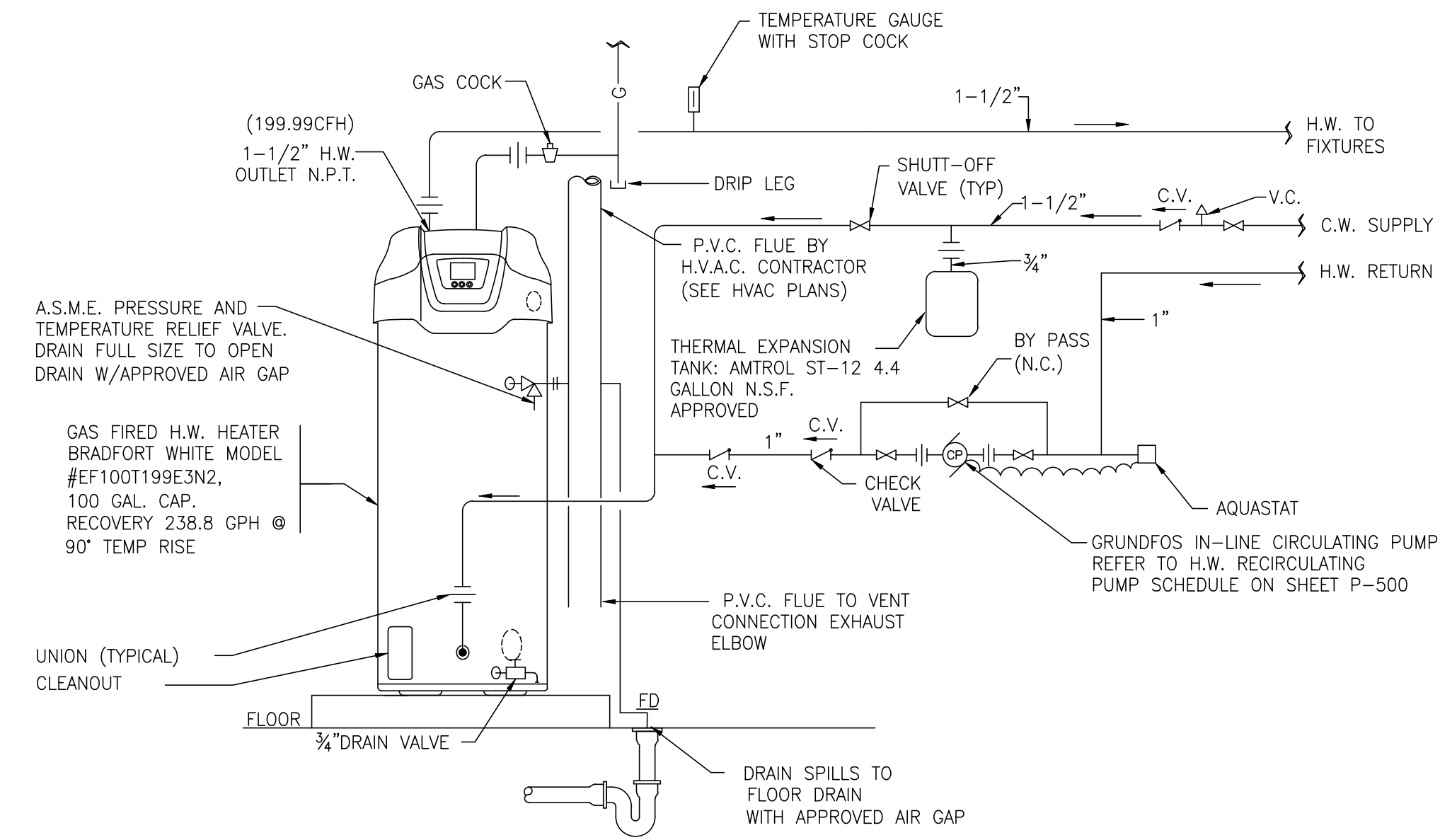
PLUMBING ROOF PLAN
 SCALE: 1/4"=1'-0"



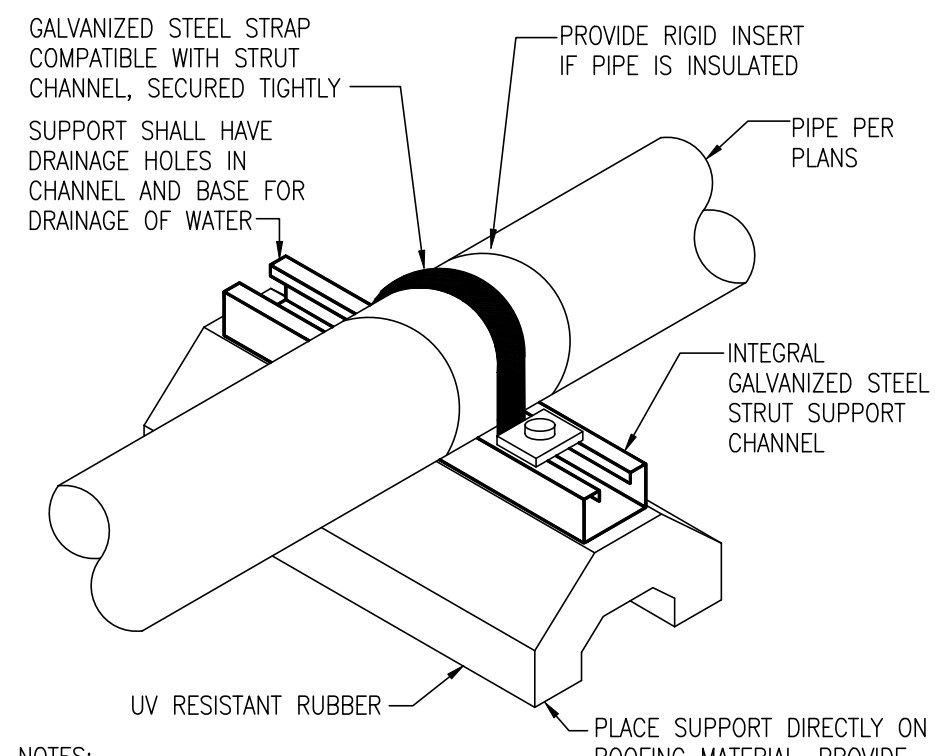
Property of MY Engineers

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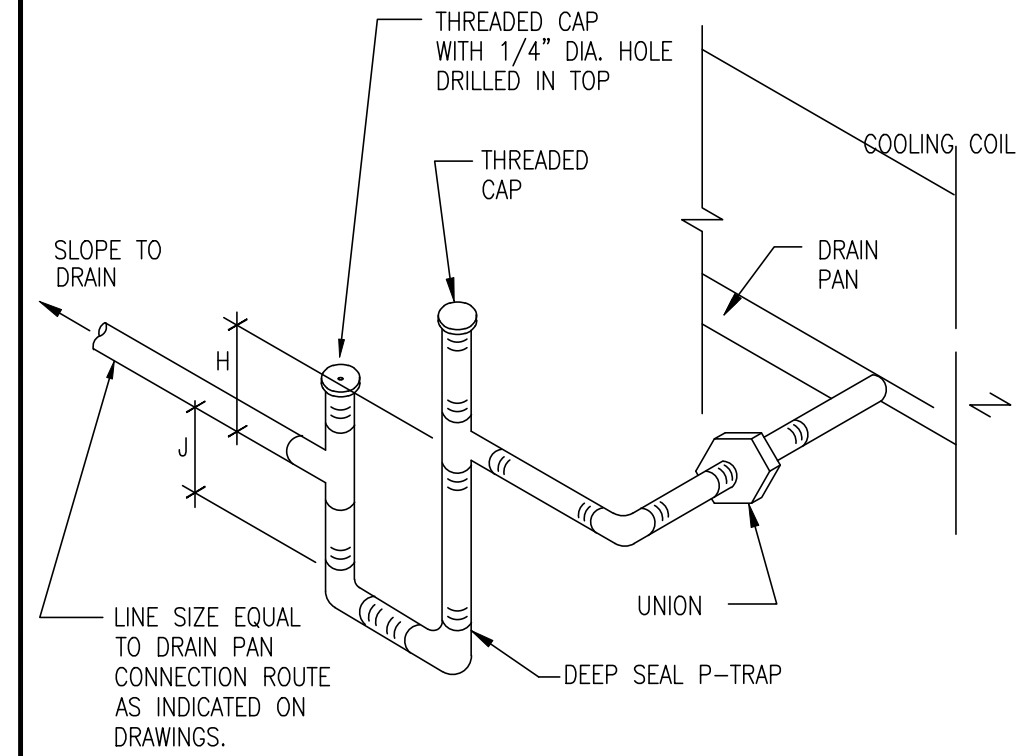
Keke's Breakfast Cafe
 PLUMBING ROOF PLAN



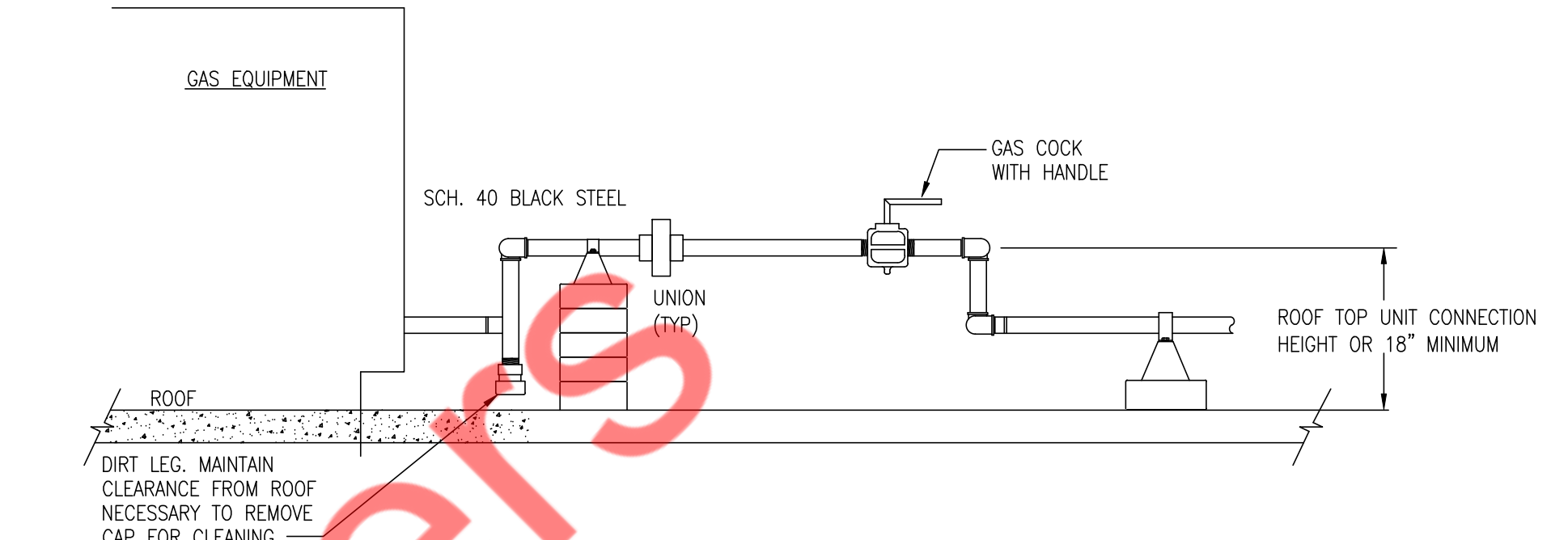
STORAGE GAS WATER HEATER FLOOR MOUNTED DETAILS
NTS



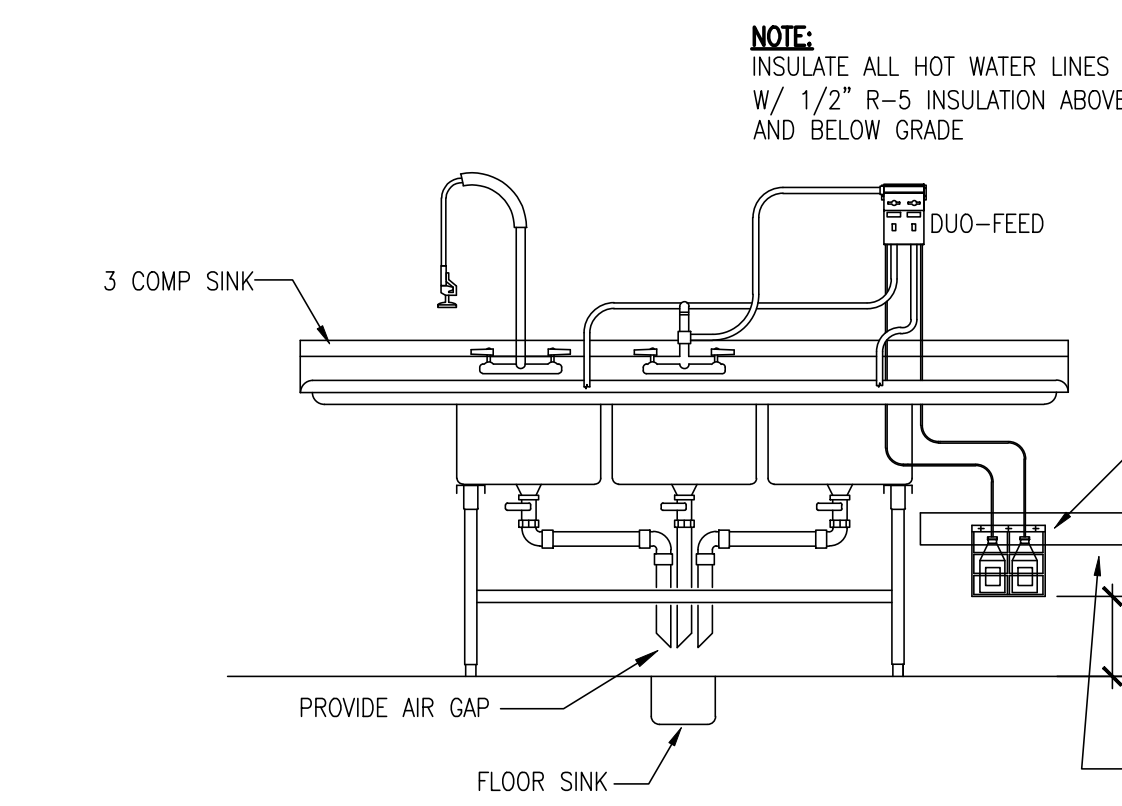
ROOF PIPE SUPPORT DETAIL
NTS



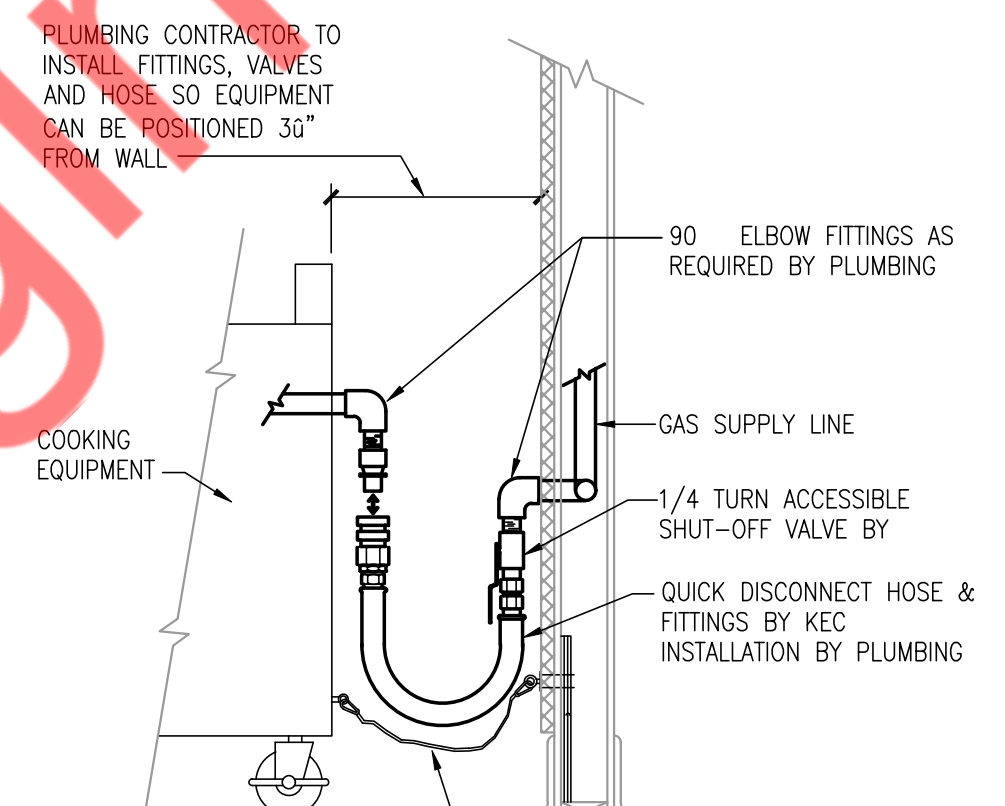
CONDENSATE P-TRAP DETAIL
NTS



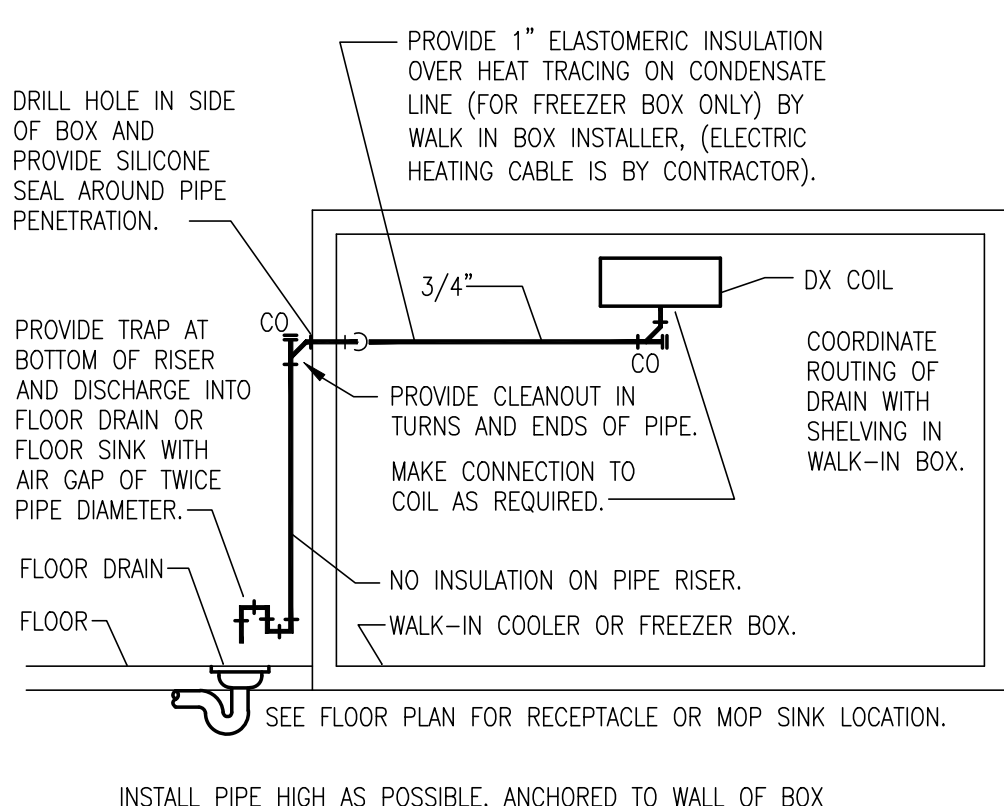
RTU/MAU GAS PIPE CONNECTION DETAIL
NTS



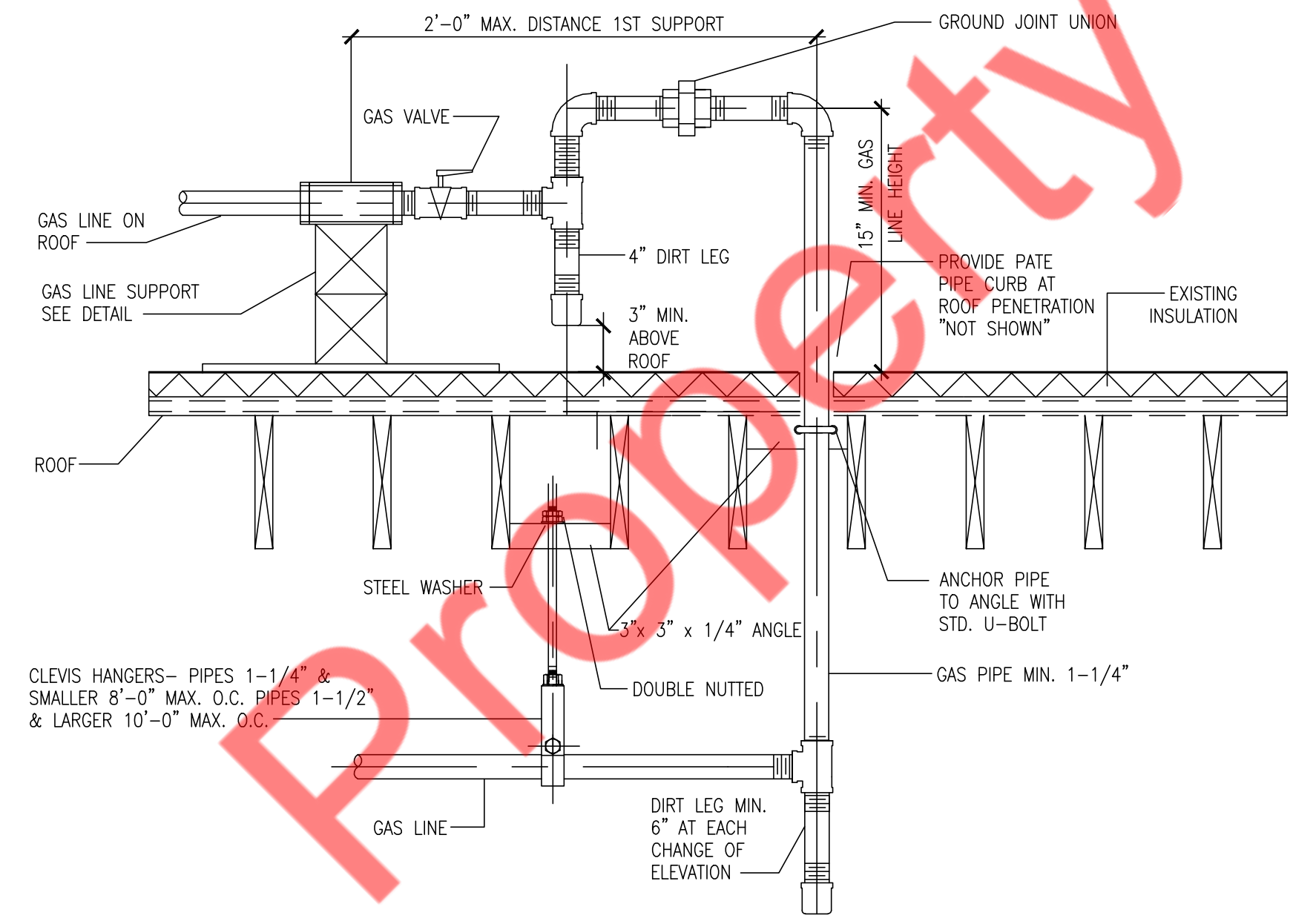
3-COMPARTMENT SINK DETAIL
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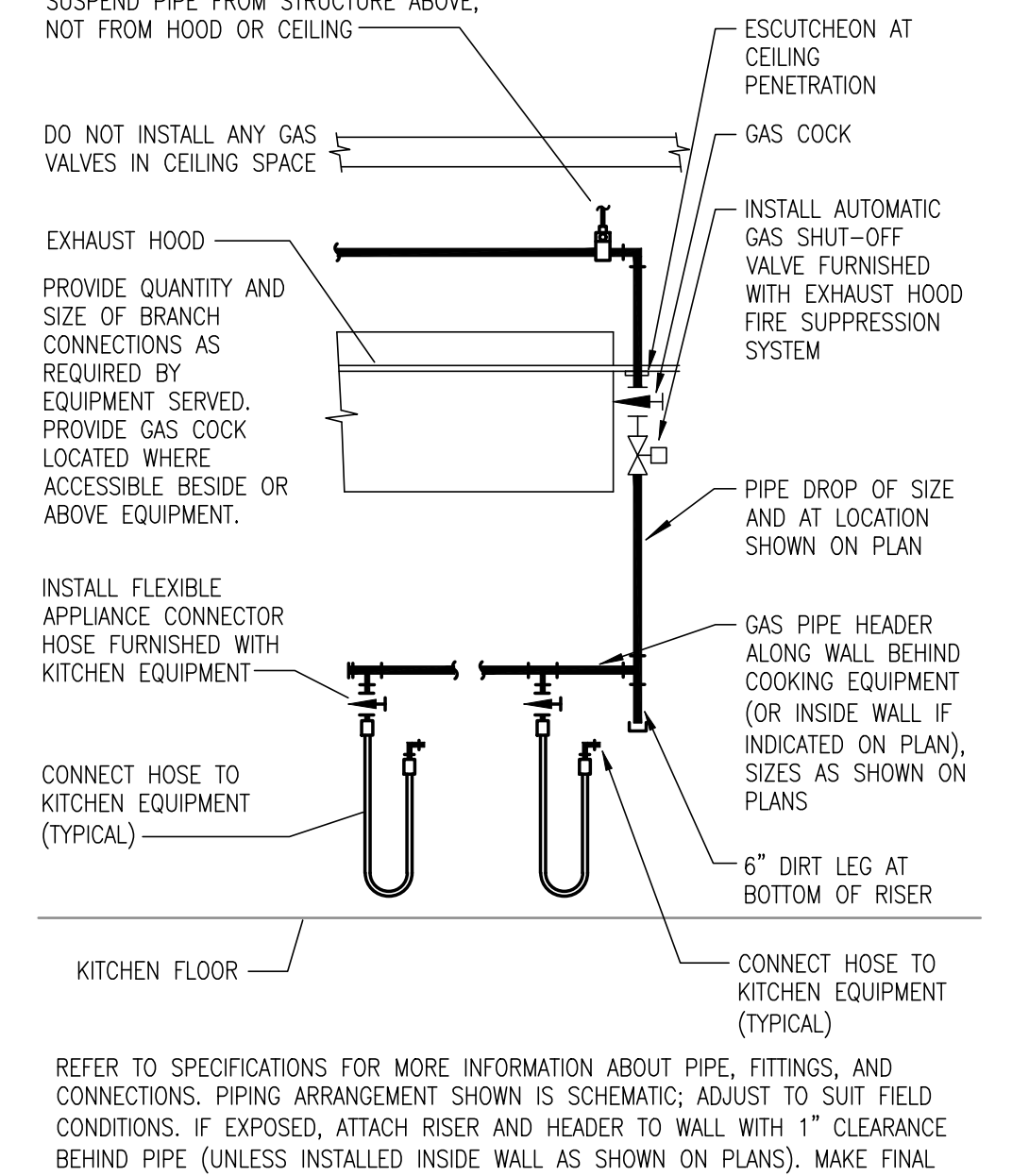
GAS QUICK DISCONNECT DETAIL
NTS



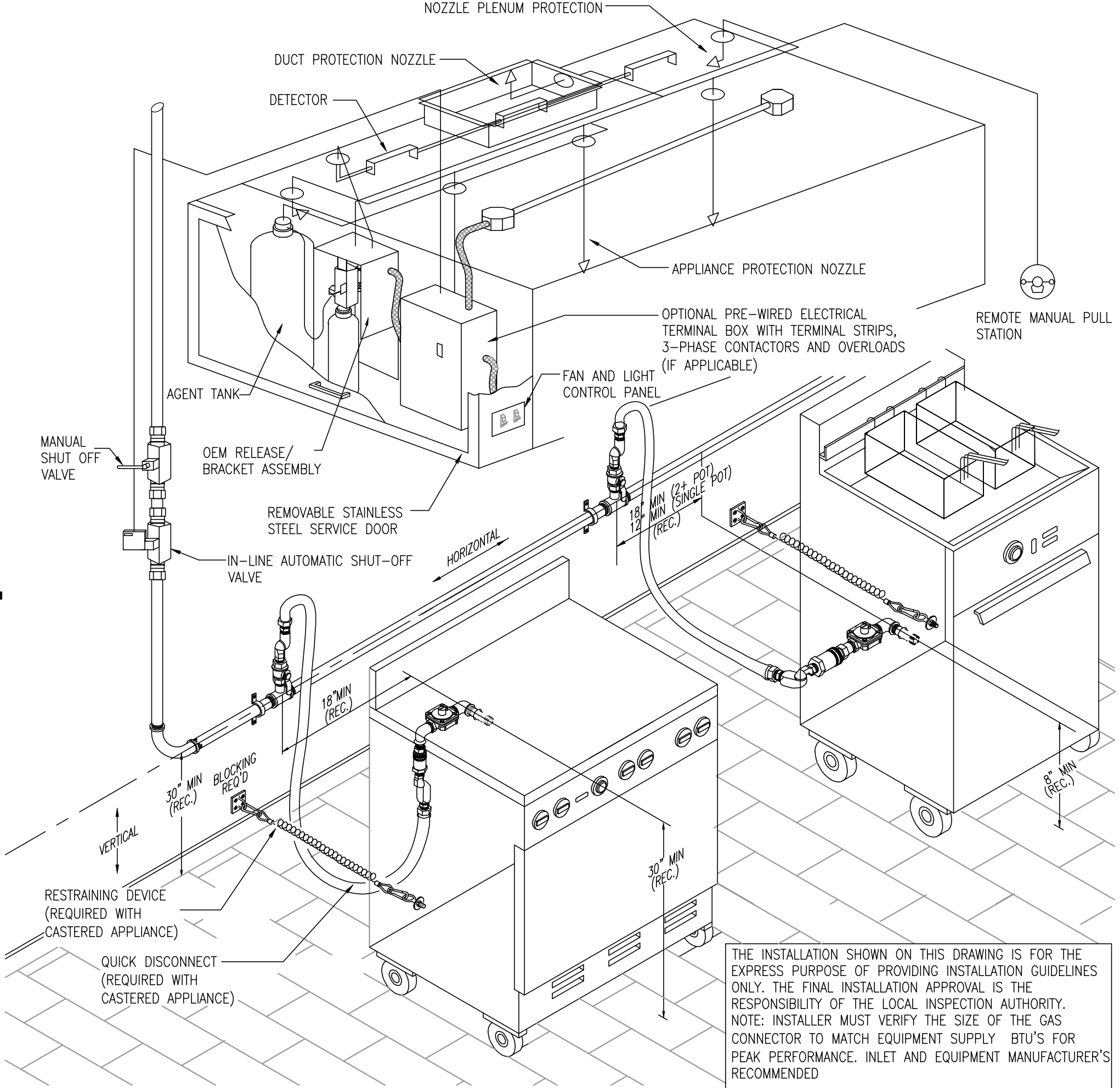
WALK-IN CONDENSATE DRAIN DETAIL
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GAS PIPE THROUGH ROOF DETAIL
NTS



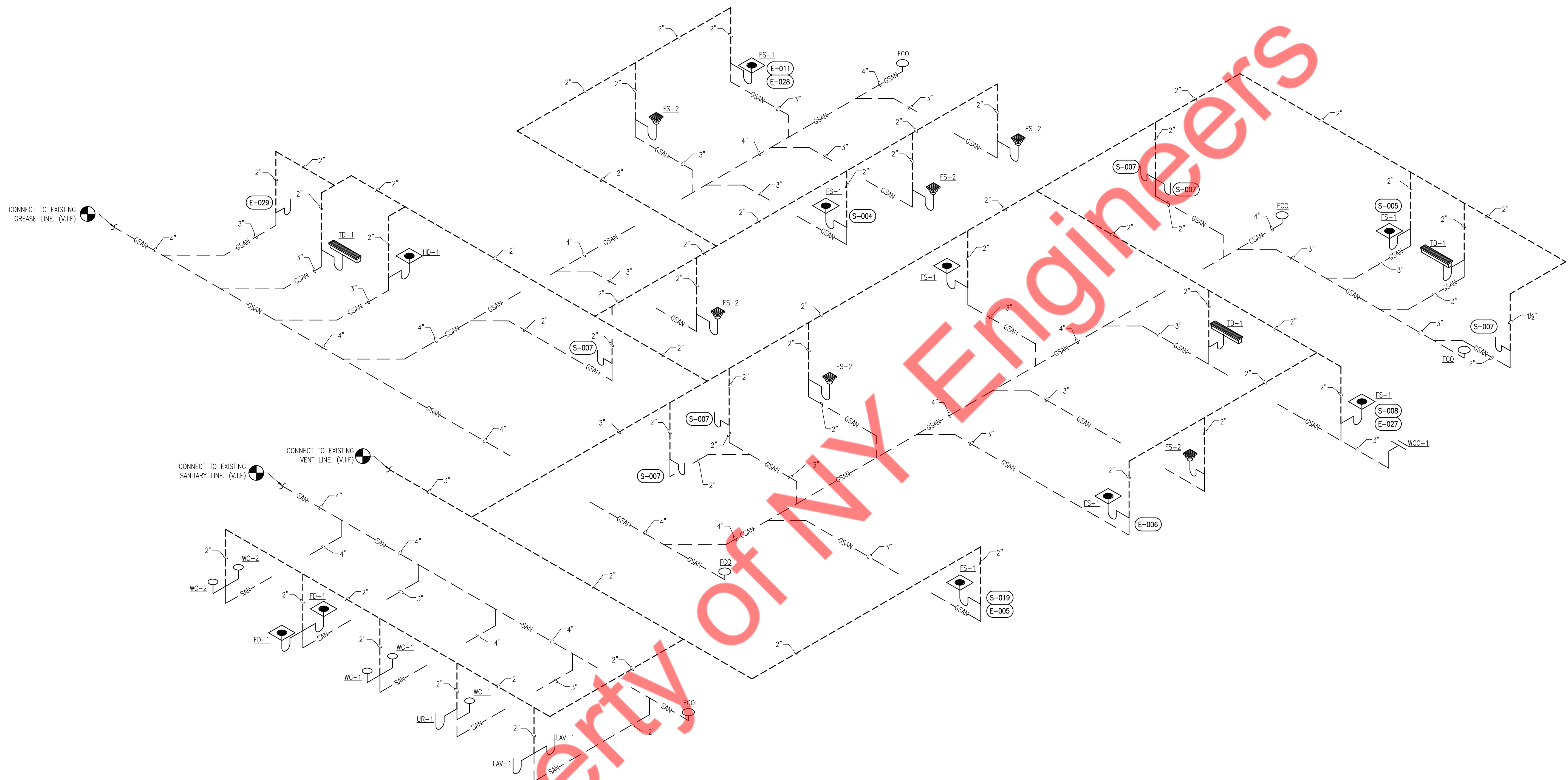
COOKING APPLIANCE GAS PIPE DETAIL
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TYPICAL GAS PIPE INSTALLATION DETAIL
NTS

ISSUED REVISIONS:

Keke's Breakfast Cafe
PLUMBING DETAILS (02 OF 02)



SANITARY, GREASE AND VENT RISER
NTS

ISSUED REVISIONS:	
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Keke's Breakfast Cafe
PLUMBING RISERS (01 OF 02)

PLUMBING SPECIFICATION

- 1. GENERAL INFORMATION
1.1. PROVIDE ALL SUPPLIES, MATERIAL, LABOR, EQUIPMENT, AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION AND FULL OPERATION OF ALL PLUMBING AND PLUMBING RELATED WORK...
1.1.1. THE INSTALLED SYSTEM SHALL BE COMPLETE IN EVERY WAY AND FUNCTIONING ACCORDING TO THE DESIGN INTENT...
1.2. PERFORM ALL OPERATIONS INCLUDING EXCAVATION & BACKFILLING, SHORING, CUTTING, CHANNELING & CHASING, DE-WATERING, ETC. NECESSARY FOR INSTALLATION OF FULLY OPERATIONAL SYSTEM...
1.3. DEFINITION OF TERMS
1.3.1. FURNISH - SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.
1.3.2. INSTALL - OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.
1.3.3. PROVIDE - FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
1.3.4. U.N.O. - UNLESS NOTED OTHERWISE.
1.3.5. M.S.D.S. - MATERIAL SAFETY DATA SHEET
1.3.6. CONTRACTOR - APPEARANCE ON DRAWINGS OR IN SPECIFICATIONS FOR PLUMBING WORK SHALL REFER TO PLUMBING SUB-CONTRACTOR.
1.3.7. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO RELOCATE - DISCONNECT ELECTRICAL FEEDER, MAKE SAFE (INCLUDING LOCK OUT/TAG OUT), STORE AND PROTECT DEVICE, REINSTALL, REWORK AND EXTEND CONDUIT & WIRE TO NEW LOCATION, RE-ENERGIZE AND TEST.
1.3.8. EQUAL AND EQUIVALENT - TO MEAN OF THE SAME QUALITY, SIZE, NUMBER, VALUE, DEGREE, INTENSITY AND THE ITEMS ARE SIMILAR IN ALL RESPECTS.
1.3.8.1. THE FINAL DECISION OF ACCEPTANCE OF THESE ITEMS WILL BE MADE BY THE ENGINEER.
1.3.8.2. IT SHALL BE UNDERSTOOD THAT FOR ANY SPECIFIED ITEM ON THE DRAWINGS AND/OR IN THE SPECIFICATION, THIS TERM SHALL APPLY.
1.4. ALL WORK SHALL BE PERFORMED UNDER THE PERSONAL SUPERVISION OF A PROJECT SUPERINTENDANT ON-SITE. MAINTAIN A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES DURING THE PROJECT.
1.5. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SUITABLE FOR THE CONDITIONS AND DUTIES IMPOSED ON THEM AFTER INSTALLATION.
1.5.1. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BEAR THE SEAL OF UNDERWRITERS LABORATORIES INC. (UL), OR A SIMILAR CREDIBLE TESTING AGENCY, LABEL WHERE REGULARLY SUPPLIED.
1.5.2. CERTAIN MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.
1.5.3. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, CONTRACTOR SHALL STATE IN BID WHICH MAKE THEY PROPOSE TO FURNISH. SHOP DRAWINGS SHALL BE SUBMITTED ON MATERIAL AND EQUIPMENT TO BE FURNISHED BY CONTRACTOR FOR ENGINEERS APPROVAL.
1.6. THIS APPROVAL TO BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.
1.7. ALL MATERIALS SHALL BE FABRICATED AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
1.7.1. THE OWNER AND ENGINEER SHALL DETERMINE WHETHER WORKMANSHIP IS ACCEPTABLE. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO POOR WORKMANSHIP, COORDINATION DIFFICULTIES, OR INTERFERENCES BETWEEN INVOLVED TRADES.
1.7.2. PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE REPAIRED AND FINISHED BY EXPERIENCED WORKMEN.
1.7.3. COORDINATE AND SCHEDULE THE WORK WITH THE OWNER TO MINIMIZE DISRUPTIONS TO THE NORMAL OPERATIONS AT THE BUILDING.
1.7.3.1. IF AFTER HOURS WORK IS REQUIRED ON THIS PROJECT INCLUDE IN THE CONTRACT PRICE THE COST OF AFTER-HOURS WORK AND TEMPORARY PROVISIONS TO MINIMIZE DOWN TIME AND TO MAINTAIN FACILITY IN OPERATING CONDITION. COORDINATE WITH THE OWNER TO DETERMINE THE EXTENT OF THESE REQUIREMENTS PRIOR TO BID.
1.8. RELATED WORK SPECIFIED ELSEWHERE:
1.8.1. ALL DIVISION 1 REQUIREMENT, AND ALL TERMS AND CONDITIONS OF CONTRACT.
1.8.2. REFER TO ELECTRICAL SPECIFICATION FOR ELECTRICAL WORK TO BE DONE IN CONJUNCTION WITH THE PLUMBING WORK. CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT, WIRING, JUNCTION BOXES, ETC., REQUIRED FOR PLUMBING CONTROLS, UNLESS SPECIFICALLY NOTED OTHERWISE.
1.8.3. ALL PLUMBING EQUIPMENT AND WIRING PROVIDED UNDER DIVISION 22 SHALL COMPLY WITH THE ELECTRICAL SYSTEM CHARACTERISTICS INDICATED ON THE PLUMBING DRAWINGS AND SPECIFIED DIVISION 26.
1.8.4. ELECTRIC CONTROLS, CONTACTORS, STARTERS, PILOT LIGHTS, PUSH BUTTONS, ETC., SHALL BE PROVIDED COMPLETE AS PART OF THE MOTOR, HEATER OR OTHER EQUIPMENT WHICH IT OPERATES. ALL ELECTRICAL COMPONENTS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND DIVISION 26.
1.9. WHERE EQUIPMENT SPECIFICATIONS INDICATE THAT A FACTORY-AUTHORIZED SERVICE ENGINEER OR TECHNICIAN SHALL OBSERVE INSTALLATION, TEST & ADJUST, OR START-UP OF EQUIPMENT, ETC.; SUCH SERVICES WILL BE CONTRACTED BY OWNER AS PART OF THE EQUIPMENT PURCHASE.
1.9.1. CONTRACTOR SHALL ARRANGE FOR, SCHEDULE, AND COORDINATE SUCH FIELD SERVICES AS WORK INCLUDED IN THE CONTRACT.
1.9.2. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS NECESSARY TO SUPPORT ALL SUCH FACTORY REPRESENTATIVE'S FIELD SERVICES.
1.10. REGULARLY DURING EACH WORKING DAY, REMOVE REFUSE AND DEBRIS ACCUMULATING FROM PLUMBING CONSTRUCTION AND LEAVE AREA CLEAN AT END OF THE WORK DAY.
1.10.1. PRIOR TO ACCEPTANCE OF THIS WORK, LEAVE THE PREMISES "BROOM CLEAN" INSOFAR AS AFFECTED BY PLUMBING WORK.
1.10.2. CLEAN THE INTERIOR OF EACH PLUMBING COMPONENT OF DIRT AND CONSTRUCTION DUST INCLUDING BUT NOT LIMITED TO CONTROLLER OR CABINETS.
1.10.3. EXPOSED FINISHED MATERIALS AND EQUIPMENT SHALL BE CAREFULLY CLEANED AND

- WIPE TO REMOVE GREASE, SMUDGES, FINGERPRINTS, DUST AND OTHER SPOTS AND LEFT SMOOTH AND CLEAN.
1.10.4. CLEAN THE EXTERIOR OF PLUMBING COMPONENTS PRIOR TO ACCEPTANCE OF WORK.
1.10.5. FOR ALL MATERIALS AND DEVICES REMOVED, THE CONTRACTOR SHALL DISPOSE OFF-SITE IN AN APPROVED MANNER. PROVIDE WRITTEN DOCUMENTATION FOR DISPOSAL OF ALL ITEMS.
1.11. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:
1.11.1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
1.11.2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
1.11.3. FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, PUMP AND FAN START UP, CALIBRATIONS AND CONTROLS.
1.11.4. NOTIFY THE ARCHITECT/ENGINEER/OWNER/ UNDERWRITER PRIOR TO PERFORMING THE TEST WHO, AT THEIR OPTION, MAY DESIRE TO WITNESS THE TEST. TEST SHALL BE SATISFACTORY TO THE ARCHITECT/ENGINEER/OWNER/UNDERWRITER OR AUTHORITIES HAVING JURISDICTION.
1.11.5. ABOVE AND BELOW GROUND PIPING: PERFORM A HYDROSTATIC TEST OF THE PIPING SYSTEM IN ACCORDANCE WITH THE CURRENT CODE REQUIREMENTS.
1.11.5.1 IF TEST PROVES UNSATISFACTORY, LEAKS SHALL BE REPAIRED AND A NEW TEST SHALL BE PERFORMED.
1.11.6. AFTER TESTING HAS BEEN COMPLETED, ALL VALVES SHALL BE LEFT IN THEIR RESPECTIVE NORMAL POSITIONS, AND THE OWNER AND HIS DULY APPOINTED REPRESENTATIVE SHALL BE INSTRUCTED IN THE CARE, OPERATION AND MAINTENANCE OF THE ENTIRE SYSTEM.
1.11.7. A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT. THE REPORT SHALL INCLUDE THE FOLLOWING:
1.11.7.1. RESULTS OF FUNCTIONAL PERFORMANCE TESTS.
1.11.7.2. DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED.
1.11.7.3. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.
1.12. PROVIDE ALL LABOR, INSTRUMENTS, AND OTHER SERVICES REQUIRED FOR COMPLETE AND SATISFACTORY TEST AND ADJUSTMENT OF PLUMBING SYSTEMS AND RELATED WORK.
1.12.1. CHECK ALL MOTORS AND ROTATING EQUIPMENT FOR PROPER ROTATION.
1.12.2. IMMEDIATELY REMEDIATE ALL EQUIPMENT PROVIDED UNDER THIS DIVISION THAT TESTS PROVE TO BE DEFECTIVE OR OPERATING IMPROPERLY AS A PART OF THIS CONTRACT.
1.13. CONTRACTOR AND VENDOR SHALL INSTRUCT THE OWNER'S TECHNICAL PERSONNEL ON ALL OWNER FURNISHED EQUIPMENT IN ACCORDANCE WITH SPECIFICATIONS.
1.13.1. INCLUDE IN THE CONTRACT PRICE A MINIMUM OF (2) HOURS OF OWNER TRAINING FOR THE NEW CONTROLS.
1.13.2. TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON START-UP & SHUT-DOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING & PREVENTATIVE MAINTENANCE SCHEDULE & PROCEDURES, AND OVERRIDE OF EQUIPMENT & CONTROLS IN THE EVENT OF SYSTEM FAILURE. REVIEW WITH THE OWNER'S PERSONNEL, THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.
1.13.3. CONTRACTOR SHALL PROVIDE OWNER WITH SUFFICIENT SETS OF OPERATIONS AND MAINTENANCE MANUALS OF CONTRACTOR FURNISHED EQUIPMENT FOR INCLUSION INTO THE OWNER'S OPERATIONS AND MAINTENANCE MANUALS AS REQUIRED BY THE SPECIFICATIONS.
1.13.4. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE O/M MANUALS ARE DELIVERED.
1.13.5. O/M MANUALS SHALL INCLUDE CATALOG TECHNICAL DATA, RECOMMENDED SERVICE PROCEDURES, RECOMMENDED SERVICE INTERVALS, CALIBRATION INFORMATION, FACTORY TRAINING MANUALS, MAGNETIC MEDIA FOR SOFTWARE PROVIDED, AND RECOMMENDED SPARE PARTS.
1.13.5.1. PROVIDE (2) NEATLY BOUND (WITH TABBED SECTIONS) COPIES OF MAINTENANCE BOOKS, INSTRUCTION BOOKS, AND PARTS LIST PERTAINING TO ALL EQUIPMENT FURNISHED. SUBMIT TO THE OWNERS REPRESENTATIVE FOR APPROVAL. FINAL PAYMENT WILL NOT BE MADE UNTIL MAINTENANCE AND INSTRUCTION MANUALS ARE DELIVERED TO THE OWNERS REPRESENTATIVE.
1.13.5.1.1. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE.
1.13.5.1.2. BIND PROPERLY INDEXED DATA IN INDIVIDUAL, HEAVY-DUTY, 2-INCH, 3-RING VINYL-COVERED BINDERS WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION.
1.13.5.2. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION:
1.13.5.2.1. SPARE PARTS LIST
1.13.5.2.2. COPIES OF GUARANTEES AND WARRANTIES OF ALL EQUIPMENT AND SYSTEMS.
1.13.5.2.3. WIRING DIAGRAMS
1.13.5.2.4. INSPECTION REPORTS & APPROVALS
1.13.5.2.5. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
1.13.5.2.6. MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
1.13.5.2.7. CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBERS.
1.13.5.2.8. NAME AND ADDRESS AND 24-HOUR PHONE NUMBER OF THE PERSONNEL RESPONSIBLE FOR SERVICING DURING THE WARRANTY PERIOD.
1.13.5.2.9. SUBMITTAL DATA INDICATING ALL SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT

- AND CONTROLS.
1.13.5.2.10. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT. REQUIRED ROUTINE MAINTENANCE ACTIONS AND CLEANING RECOMMENDATIONS SHALL BE CLEARLY IDENTIFIED.
1.13.5.2.11. A SCHEDULE FOR INSPECTING AND RECALIBRATING ALL CONTROLS.
1.13.5.2.12. A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SET POINTS.
1.13.5.2.13. ALL MANUFACTURERS' DATA APPLICABLE TO THE INSTALLED EQUIPMENT SUCH AS INSTALLATION INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, OPERATING INSTRUCTIONS, ETC.
1.13.5.2.14. CONTROL DIAGRAMS INCLUDING AN EXPLANATION OF THE CONTROL SEQUENCE OF EACH SYSTEM INCLUDING NORMAL STARTING, OPERATION, SHUTDOWN, POWER FAIL RE-START, AND WINTER SHUTDOWN.
1.13.5.2.15. SCHEDULE OF MAINTENANCE AND INSPECTION THAT SHOULD BE PERFORMED BY OWNER, AND THOSE WHICH SHOULD BE PROVIDED BY AN OUTSIDE SERVICE.
1.13.5.2.16. COPY OF COMPLETED FIELD ACCEPTANCE TEST PROCEDURE, LOGS, AND ALL DOCUMENTATION ASSOCIATED WITH THE TEST.
1.14. GUARANTEE ALL PLUMBING SYSTEM EQUIPMENT, MATERIALS, AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND PROPERLY CORRECT LATENT DEFECTS ARISING DURING THIS PERIOD UPON NOTIFICATION BY THE OWNER'S REPRESENTATIVE WITHOUT ADDITIONAL COMPENSATION AND TO THE SATISFACTION OF THE ENGINEER AND OWNER'S REPRESENTATIVE.
1.15. ALL EQUIPMENT, ETC., SHALL BE NEW UNLESS OTHERWISE NOTED, AND AS SPECIFIED FREE OF DEFECTS. ALL PLUMBING EQUIPMENT SHALL BE U.L. OR E.T.L. LISTED.
1.16. PROVIDE THUMB DRIVE TO THE OWNER REPRESENTATIVE WITH ALL THE ABOVE LISTED MATERIAL SEPERATED INTO DIRECTORIES TO MATCH CATALOGED INFORMATION.
2. CODES & PERMITS
2.1. ENTIRE INSTALLATION (INCLUDING EQUIPMENT, DEVICES, AND WIRING) SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 13, NFPA 70 & NFPA 101), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.), CURRENT BUILDING CODE, CURRENT ENERGY CONSERVATION CODE (I.E.C.C.), AND ALL LAWS & ORDINANCES APPLICABLE TO WORK AT THIS SITE. IN ADDITION, INSTALLATION SHALL MEET APPROVAL OF LOCAL INSPECTION AUTHORITY HAVING JURISDICTION. REFER TO COVER SHEET FOR LIST OF CURRENT APPLICABLE CODE EDITIONS.
2.2. SECURE AND PAY ALL FEES ASSOCIATED WITH ALL PERMITS AND LICENSES REQUIRED FOR EXECUTION OF THE CONTRACT. ARRANGE FOR ALL INSPECTIONS REQUIRED BY CITY, COUNTY, STATE AND OTHER AUTHORITIES HAVING JURISDICTION, AND DELIVER CERTIFICATES OF APPROVAL TO THE ARCHITECT.
2.3. A CERTIFICATE OF APPROVAL FOR WORK FROM INSPECTION AUTHORITY SHALL BE GIVEN TO THE OWNER BEFORE FINAL ACCEPTANCE WILL BE GIVEN BY OWNERS REPRESENTATIVE.
2.4. THE CODE REQUIREMENTS ARE STRICTLY A MINIMUM AND SHALL BE MET WITHOUT INCURRING ADDITIONS TO THE CONTRACT. WHERE REQUIREMENTS OF THE DRAWINGS OR SPECIFICATIONS EXCEED THE CODE REQUIREMENTS, THE WORK SHALL BE PROVIDED IN ACCORDANCE WITH THESE DRAWINGS OR SPECIFICATIONS. IN THE EVENT OF CONFLICT OR AMBIGUITY BETWEEN THE VARIOUS CODES, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
2.5. REFER TO ARCHITECTURAL COVERSHEET FOR APPLICABLE CODES REFERENCES FOR THIS PROJECT.
3. SAFETY
3.1. THE CONTRACTOR SHALL MAINTAIN A SAFE WORK ENVIRONMENT AT ALL TIMES.
3.1.1. COMPLY WITH ALL O.S.H.A., N.I.O.S.H., D.O.T., STATE & LOCAL REQUIREMENTS REGARDING SAFE HANDLING, STORING, TRANSPORTING, AND DISPENSING OF CHEMICALS.
3.1.2. MAINTAIN AND DISPLAY M.S.D.S. INFORMATION FOR ALL CHEMICAL PRODUCTS.
3.1.3. PROVIDE ALL NECESSARY MEANS TO MAINTAIN SAFE WORKING CONDITIONS, INCLUDING VENTILATION FANS, FIRE EXTINGUISHERS, EYE PROTECTION, RESPIRATORS, PROTECTIVE CLOTHING, VENTILATION, ETC.
3.1.4. ALL EQUIPMENT AND MATERIALS USED TO IMPLEMENT THE WORK SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, INCLUDING ALL RECOMMENDED SAFETY PRECAUTIONS.
3.1.5. MAINTAIN A PROPER FIRE WATCH FOR ALL OPERATIONS WHERE SPARKS, FLAMES, OR OTHER SOURCES OF FIRE ARE PRODUCED.
3.1.6. FOR ALL MATERIALS CONTAINING SOLVENTS, MAINTAIN THE RECOMMENDED VENTILATION OF THE AREA TO PREVENT THE ACCUMULATION OF VAPORS WHICH POSE A HEALTH OR FIRE HAZARD.
4. INTENT OF DRAWINGS AND SPECIFICATIONS
4.1. THE IMPLIED AND STATED INTENT OF THE DRAWINGS & SPECIFICATIONS ARE TO ESTABLISH MINIMUM ACCEPTABLE STANDARDS FOR MATERIALS, EQUIPMENT, WORKMANSHIP, AND TO PROVIDE OPERABLE SYSTEMS THAT ARE COMPLETE IN EVERY RESPECT.
4.2. ENGINEERING DRAWINGS ARE DIAGRAMMATIC, INTENDED TO SHOW GENERAL ARRANGEMENT AND SIZES OF SYSTEM COMPONENTS, AND SHALL NOT BE SCALED.
4.2.1. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL GOVERN SPACE CONSTRAINTS, DIMENSIONS AND FINISHES.
4.2.2. ALL OFFSETS AND FITTINGS THAT SHALL BE NECESSARY TO ACCOMPLISH A FINISHED INSTALLATION SHALL BE PROVIDED AT NO ADDITIONAL COST OR INCREASE THE CONTRACT.
4.2.3. WORK INTENDED, BUT HAVING MINOR DETAILS OBVIOUSLY OMITTED, SHALL BE PROVIDED COMPLETE AS A REQUIREMENT OF THIS CONTRACT.
4.2.4. LOCATIONS OF EQUIPMENT INDICATED ON PLANS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES.
4.2.5. MAINTAIN MINIMUM SERVICE CLEARANCE AS REQUIRED BY THE EQUIPMENT MANUFACTURER AND N.E.C.
4.3. PROVIDE THE OWNER A COMPLETE SET OF RECORD DRAWINGS AT THE END OF THE PROJECT. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE RECORD DRAWINGS ARE DELIVERED.
4.4. THE RECORD DRAWINGS SHALL BE MACHINE DRAFTED, AND SHALL BE PROVIDED BOTH ON REPRODUCIBLE VELLUMS AND MAGNETIC MEDIA CAD FILES TO THE ARCHITECT WHICH

- REFLECT ALL CHANGES, DEVIATIONS AND REVISIONS MADE TO THE ORIGINAL DESIGN DOCUMENTS. LOCATIONS OF ALL UNDERGROUND PIPING AND UTILITIES SHALL BE CLEARLY SHOWN AND DIMENSIONED FROM PERMANENT REFERENCE POINTS SUCH AS BUILDING COLUMN LINES.
4.5. DRAWING FORMAT FOR THIS PROJECT SHALL BE AUTOCAD 2010.
4.6. ALL ITEMS MOUNTED IN OR BELOW THE CEILING, AND ALL ITEMS PENETRATING THE CEILING, SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. IF ANY ITEMS ARE NOT SHOWN ON THESE PLANS, OR ANY ITEMS NEED TO BE RELOCATED FOR COORDINATION PURPOSES, PREPARE A REFLECTED CEILING PLAN SUBMIT IT TO THE ARCHITECT FOR APPROVAL.
5. EXISTING CONDITIONS
5.1. ATTENTION IS CALLED TO THE FACT THAT THE WORK IS TO BE PERFORMED WITHIN AN EXISTING, OPERATIONAL FACILITY.
5.2. THE FOLLOWING GENERAL PROVISIONS OF THE CONTRACT, INCLUDING THE GENERAL & SUPPLEMENTAL CONDITIONS AND GENERAL REQUIREMENTS, SHALL APPLY TO THE WORK IN THIS DRAWING AND SPECIFICATION SET.
5.2.1. VISIT THE SITE OF THE WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS, AND THOROUGHLY REVIEW ALL DRAWINGS, SPECIFICATIONS AND ADDENDA PRIOR TO BIDDING ON THIS WORK. NO EXTRA PAYMENTS TO THE CONTRACT AMOUNT WILL BE ALLOWED FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.
5.2.2. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED FOR THE INSTALLATION OF WORK.
5.2.3. FIELD DIMENSIONS ARE REASONABLY ACCURATE AND SHOULD GOVERN IN SETTING OUT WORK.
5.2.4. WHERE DETAILED METHOD OF INSTALLATION IS NOT INDICATED OR WHERE VARIATIONS EXIST BETWEEN DESCRIBED WORK AND APPROVED PRACTICE, DIRECTION OF THE OWNERS REPRESENTATIVE ON JOB SITE SHALL BE FOLLOWED.
5.3. CONTRACTOR SHALL VERIFY PROJECT CONDITIONS TO ENSURE THAT THE WORK WILL FIT INTO THE STRUCTURE IN THE MANNER INTENDED ON THE DRAWINGS.
5.3.1. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO FABRICATION OR PERFORMING ANY WORK IN THE AREA INVOLVING THE DIFFERENCES.
5.3.2. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS OR NOTES RELATING TO THE AREA.
5.4. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND WORKMANLIKE MANNER.
5.4.1. WHERE AN EXISTING STRUCTURE MUST BE CUT OR EXISTING UTILITIES INTERFERE, SUCH OBSTRUCTION SHALL BE BYPASSED, REMOVED, REPLACE OR RELOCATED, PATCH AND REPAIR.
5.4.2. WORK DISTURBED OR DAMAGED SHALL BE REPLACED OR REPAIR TO ITS PRIOR CONDITION.
5.5. PRIOR TO THE START OF ANY DEMOLITION OR CONSTRUCTION, CONTRACTOR SHALL REVIEW THE EXISTING SITE AND SECURE THE SERVICES OF A QUALIFIED, EPA CERTIFIED ASBESTOS ABATEMENT AGENCY IF NEEDED TO CHECK THE EXISTING INSULATION, ETC. FOR ASBESTOS. SHOULD ASBESTOS BE FOUND, DO NOT PROCEED WITH DEMOLITION OR CONSTRUCTION; NOTIFY THE ARCHITECT IN ANY CASE IN WRITING OF THE AGENCY'S FINDING.
5.6. FOR RENOVATION PROJECTS - PROVIDE ALL DEMOLITION, PATCHING, SAW CUTTING, EXCAVATION, TRENCHING, SHORING, COMPACTING, DE-WATERING, ETC. REQUIRED FOR THE PROJECT, WHETHER OR NOT SHOWN ON THE DRAWINGS.
5.6.1. INFORMATION WAS TAKEN FROM VARIOUS ARCHIVE DRAWINGS AND LIMITED FIELD OBSERVATION. FIELD VERIFICATION OF EXISTING CONDITIONS AND POINTS OF CONNECTIONS ARE REQUIRED.
5.7. EXISTING SYSTEMS TO REMAIN - WHERE EXISTING SYSTEMS ARE INDICATED TO REMAIN, THEY SHALL BE ASSUMED TO BE IN GOOD WORKING ORDER REQUIRING NO WORK UNLESS SPECIFICALLY NOTED.
5.7.1. IF DURING THE CONSTRUCTION DEFICIENCIES ARE NOTED, THEN BRING THESE TO THE ATTENTION OF THE OWNER AND SEEK DIRECTION.
6. SHOP DRAWINGS, SUBMITTALS, AND SUBSTITUTIONS
6.1. ENGINEER OF RECORD SHALL BE PROVIDED WITH SHOP DRAWINGS, COORDINATION DRAWINGS, AND MANUFACTURER'S DATA OF ANY CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT, PRIOR TO PURCHASE AND/OR FABRICATION, AND SHALL VERIFY, BY STAMPING AND SIGNING THE DATA AND DRAWINGS BEFORE RETURNING THEM TO THE CONTRACTOR, THAT THE ITEMS FURNISHED BY THE CONTRACTOR FIT THE SPACES AND DIMENSIONS DESCRIBED IN AND CONFORM TO THE SPIRIT AND INTENT OF THE CONTRACT DOCUMENTS.
6.1.1. ENGINEER SHALL, WITHIN FIVE (5) WORKING DAYS OF RECEIPT OF SHOP DRAWINGS AND PRODUCT DATA, NOTIFY THE CONTRACTOR OF ANY DISCREPANCY OR INCOMPATIBILITY WITH THE CONTRACT DOCUMENTS, AND SHALL RETURN THE SHOP DRAWINGS TO THE CONTRACTOR APPROPRIATELY ANNOTATED.
6.1.2. REVIEW OF SUBMITTALS SHALL NOT BE CONSTRUED AS AUTHORIZING ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS UNLESS SUCH DEVIATIONS ARE CLEARLY IDENTIFIED AND SEPARATELY SUBMITTED IN THE FORM OF A LETTER THAT IS ENCLOSED WITH THE SUBMITTALS.
6.1.3. SUBMIT SHOP DRAWING CUT SHEETS AND TECHNICAL DATA ON THE FOLLOWING ITEMS: EQUIPMENT, PIPING AND CONNECTION METHOD, SUPPORTS, SAFETY SWITCHES, AND ANY OTHER ITEM REQUIRED BY NOTES.
6.1.4. SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS, FIELD INSTALLATION DRAWINGS AND CERTIFICATIONS AS REQUIRED FOR COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. THE SUBMITTAL DATA SHALL PROVIDE AMPLE, UNQUESTIONABLE COMPLIANCE WITH THE CONTRACT DOCUMENTS.
6.1.5. SUBMIT PROPOSED CONTROL SYSTEM FOR REVIEW BY THE ENGINEER PRIOR TO EQUIPMENT PURCHASE OR FABRICATION. DO NOT PROCEED WITH THE WORK WITHOUT APPROVED SUBMITTALS.
6.1.6. WHERE QUALIFICATIONS AND/OR QUALITY ASSURANCE REQUIREMENTS ARE SPECIFIED, THE SUBMITTAL SHALL INCLUDE EVIDENCE THAT THE STATED REQUIREMENTS HAVE BEEN MET, INCLUDING QUALIFICATIONS AND CERTIFICATIONS OF PROPOSED TEST AND BALANCE SUBCONTRACTOR.
6.1.7. EQUIPMENT PERFORMANCE SHALL BE VERIFIED BY THE EQUIPMENT MANUFACTURER AS PART OF THE SUBMITTAL, PRIOR TO ORDERING. VERIFY EQUIPMENT VOLTAGE AND ELECTRICAL REQUIREMENTS OF THE EQUIPMENT WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT. SHOP DRAWINGS FOR EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL WIRING CONNECTIONS SHALL INCLUDE COMPLETE WIRING DIAGRAMS.
6.2. REFER TO THE CONDITIONS OF THE CONTRACT (GENERAL AND SUPPLEMENTARY WHEN INCLUDED AND OTHER DIVISIONS) REFERENCING SUBMITTALS FOR SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR SUBMITTAL DEFINITIONS, REQUIREMENTS AND PROCEDURES.

- BEFORE PREPARING SUBMITTALS, STUDY ALL CONTRACTS DRAWINGS AND SPECIFICATIONS IN DETAIL, OBTAIN MANUFACTURER'S RECOMMENDED INSTRUCTIONS, AND HAVE SUBMITTALS PREPARED BASED ON SPECIFIC EQUIPMENT AND MATERIAL PROPOSED FOR INSTALLATION.
6.3.1. AN OFFICER OF THE CONTRACTING FIRM SHALL SIGN ALL SHOP DRAWINGS (CERTIFYING CONFORMANCE WITH PLANS AND SPECIFICATIONS) BEFORE SUBMITTING TO THE ARCHITECT OR RELEASING TO THE FIELD.
6.4. THE SUBMITTAL PROCESS SHALL NOT BE UTILIZED AS AN AVENUE TO SUBSTITUTE AFTER THE EXECUTION OF THE CONTRACT.
6.4.1. SHOULD AN UNSPECIFIED OR UNEQUAL PRODUCT BE SUBMITTED, IT WILL BE REJECTED. IF A SECOND ATTEMPT AT SUBSTITUTION IS MADE DURING THE RE-SUBMITTAL OF THE SAME PRODUCT, THEN NO MORE REVIEWS OF THAT PRODUCT WILL BE PERFORMED WITHOUT DIRECT COMPENSATION TO THE ENGINEER BEING PAID FOR THE ADDITIONAL SERVICES REQUIRED FOR THE THIRD REVIEW AND ANY FURTHER REVIEWS.
6.5. IN ADDITION TO THE OTHER REQUIREMENTS IN PARAGRAPHS ABOVE, THE FOLLOWING APPLIES TO SUBMITTALS OF THIS DIVISION:
6.5.1. DO NOT INSTALL OR ORDER PLUMBING EQUIPMENT OR PROCEED WITH THE WORK UNTIL SUBMITTALS HAVE BEEN ACCEPTABLY REVIEWED BY THE OWNER'S REPRESENTATIVE AND STAMPED ACCORDINGLY. EQUIPMENT OR WORK WHICH IS ORDERED OR INSTALLED WITHOUT PRIOR APPROVED SUBMITTALS SHALL, AT THE ENGINEER'S DISCRETION, BE REMOVED AT NO COST TO THE OWNER. NO ALLOWANCES WILL BE MADE FOR REWORK OR DELAY DUE TO NEGLECT OF REQUIRED APPROVAL PROCESS.
6.5.1. MAKE ALL PLUMBING SUBMITTALS AT ONE TIME AND WITHIN FOURTEEN (14) CALENDAR DAYS OF OWNER'S "NOTICE TO PROCEED".
6.5.2. SUBMIT A MINIMUM OF SIX (6) COMPLETE SETS TO OWNER'S REPRESENTATIVE. ONE SET SHALL REMAIN WITH THE OWNER'S REPRESENTATIVE, ONE SET SHALL BE DELIVERED TO THE OWNER AND THE OTHERS WILL BE RETURNED TO DISTRIBUTE AS REQUIRED.
6.5.2. EACH SET SHALL BE BOUND AND INDEXED INTO GROUPS SUCH AS FIXTURES, PANELS, WIRING DEVICES, DISCONNECT SWITCHES, ETC.
6.5.3. MAKE EACH SET IDENTICAL.
6.5.4. ALL SUBMITTALS SHALL BE ONLY ORIGINALS, COPIES OF CUT SHEETS ARE NOT ACCEPTABLE.
6.5.5. SUBMITTAL DATA WILL BE PROVIDED AND REVIEWED IN PDF FORMAT ELECTRONICALLY VIA EMAIL.
6.5.6. SUBMITTAL WILL NOT BE ACCEPTED FOR REVIEW UNLESS THEY:
6.5.7.1. COMPLY WITH THE REQUIREMENTS OF DIVISION 1.
6.5.7.2. INCLUDE COMPLETE INFORMATION PERTAINING TO ALL APPURTENANCE AND ACCESSORIES.
6.5.7.3. ARE SUBMITTED AS COMPLETE PACKAGES WHICH PERTAIN TO ALL RELATED ITEMS IN DIVISION 22.
6.5.7.4. ARE PROPERLY MARKED WITH EQUIPMENT, SERVICE OR FUNCTION IDENTIFICATION AS RELATED TO THE PROJECT AND ARE MARKED WITH PERTINENT SPECIFICATION PARAGRAPH NUMBER.
6.5.8. IF ANY ITEM IN THE SUBMITTAL IS "NOT ACCEPTABLE" FOR ANY REASON, IT AUTOMATICALLY VOIDS THE ENTIRE SET, AND A RE-SUBMIT OF ALL IS REQUIRED TO OBTAIN ACCEPTANCE OF ALL ITEMS.
6.5.9. IN CASE OF DISCREPANCIES BETWEEN SETS OF SUBMITTALS, THE SET RETAINED BY THE OWNER'S REPRESENTATIVE SHALL HAVE PRECEDENCE.
6.6. EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS SPECIFIED STANDARD OF QUALITY.
6.6.1. NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.
6.6.2. ALL COSTS ARISING FROM A SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR MAKING THE SUBSTITUTION, INCLUDING VERIFICATION OF FIT AND ACCESS, FIELD-INSTALLED ACCESSORIES, SUPPORTS, ELECTRICAL REQUIREMENTS, AND REVISIONS TO DOCUMENTS (DESIGN COSTS).
6.7. WHERE MATERIAL OR EQUIPMENT IS IDENTIFIED BY PROPRIETARY NAME, MODEL NUMBER AND/OR MANUFACTURER, FURNISH THE NAMED ITEM OR EQUAL THEREOF. SUBSTITUTED ITEMS SHALL BE EQUAL OR BETTER IN QUALITY AND PERFORMANCE AND MUST BE SUITABLE FOR THE AVAILABLE SPACE, REQUIRED ARRANGEMENT AND APPLICATION.
6.7.1. MANUFACTURER'S NAME, SERIES AND MODEL NUMBERS, AS NOTED OR SPECIFIED, ARE FOR THE PURPOSE OF DESCRIBING TYPE, CAPACITY, AND QUALITY OF EQUIPMENT, MATERIALS AND PRODUCTS TO BE USED.
6.7.2. UNLESS "OR EQUAL" IS SPECIFICALLY STATED, BIDS SHALL BE BASED ONLY ON THE SPECIFIED "BASIS OF DESIGN" MANUFACTURER.
6.7.3. THE LISTING OF A PARTICULAR MANUFACTURER AS AN "EQUAL" OR "ACCEPTABLE SUBSTITUTE" MANUFACTURER SHALL NOT BE MISCONSTRUED AS APPROVING NOR ALLOWING THE SUBSTITUTION OF THAT MANUFACTURER'S STANDARD PRODUCT IN PLACE OF THE BASIS DESIGN.
6.7.4. NO CONSIDERATION WILL BE GIVEN TO A PRODUCT WHICH WOULD REQUIRE DIMENSIONAL, SPATIAL OR AESTHETIC CHANGES TO THE PROJECT. "ACCEPTABLE SUBSTITUTE" AND "EQUAL" MANUFACTURERS SHALL ONLY BID THOSE PRODUCTS WHICH EXACTLY MATCH THE SIZE AND OTHER CHARACTERISTIC OF THE SPECIFIED BASIS OF DESIGN.
6.7.5. ANY CHANGES TO OTHER DISCIPLINES AND TRADES OF WORK REQUIRED BY AN "OR EQUAL" OR "SUBSTITUTE" PRODUCT SHALL BE DULY CONSIDERED AND PRICED ACCORDINGLY PRIOR TO BIDDING OR PROICNG.
6.7.6. THE DECISION AS TO WHETHER OR NOT A PROPOSED SUBSTITUTE OR "EQUAL" PRODUCT IS ACTUALLY EQUAL TO THAT SPECIFIED SHALL REST SOLELY WITH THE ENGINEER.
6.7.7. REQUEST TO PROVIDE "EQUAL" PRODUCTS IN LIEU OF THOSE SPECIFIED SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO FINAL PRICING AND EXECUTION OF THE CONTRACT. NO CONSIDERATION WILL BE GIVEN TO SUBSTITUTE PRODUCTS AFTER FINAL PRICING AND EXECUTION OF THE CONTRACT.
6.7.8. ANY "OR EQUAL" PRODUCT OR PROPOSED PRODUCTION SUBSTITUTION WHICH WILL CAUSE A CHANGE IN THE APPEARANCE, DIMENSIONS OR DESIGN OF ANY PART OF THE BUILDING, IF STRUCTURE, PLUMBING SYSTEM OR ANY OTHER ENGINEERED SYSTEM SHALL BE ACCOMPANIED BY A SCALED DRAWING AND WRITTEN DESCRIPTION OF THE REQUIRED CHANGES(S) FOR APPROVAL BY THE ARCHITECT.
6.7.8.1. IF DEEMED NECESSARY BY ARCHITECT, DESIGN CHANGES SHALL BE SIGNED AND SEAL BY A REGISTERED PROFESSIONAL ENGINEER, CURRENTLY LICENSED IN THIS STATE.

ISSUED REVISIONS:
Table with 2 columns: Description, Date/Status

Keke's Breakfast Cafe
PLUMBING SPECIFICATIONS (01 OF 02)

7. INSTALLATION
- 7.1. PROVIDE ALL EQUIPMENT FOR THIS CONTRACT NEATLY AND WITH WORKMANSHIP AS DEFINED BY A.C.C.A. "STANDARD 5 PRACTICES FOR GOOD WORKMANSHIP IN MECHANICAL CONSTRUCTION", LEVEL AND PLUMB, AND SECURELY SUPPORTED.
- 7.1.1. THE ENTIRE INSTALLATION, AND MANNER OF INSTALLATION SHALL MEET THE COMPLETE SATISFACTION OF THE OWNER'S REPRESENTATIVE OR IT SHALL BE REMOVED AND REWORKED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AS INCLUDED IN THE CONTRACT AMOUNT.
- 7.2. CONTRACTOR SHALL CONSULT FIRE PROTECTION, HVAC, ELECTRICAL AND STRUCTURAL PLANS (WHERE APPLICABLE) IN ALL INSTANCES BEFORE INSTALLING WORK SO THAT WORK WILL NOT INTERFERE WITH THOSE BRANCHES.
- 7.2.1. IN THE EVENT OF A CONFLICT, CONTRACTOR SHALL REPORT TO THE OWNERS REPRESENTATIVE AT ONCE AND DO NO FURTHER WORK UNTIL A SATISFACTORY ARRANGEMENT IS DECIDED UPON.
- 7.2.2. ANY WORK DONE, OR EQUIPMENT PLACED IN POSITION, BY CONTRACTOR THAT CREATES A CONFLICT IN VIOLATION HEREOF, SHALL BE READJUSTED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE EXPENSE OF THE CONTRACTOR. THE DECISION OF THE OWNERS REPRESENTATIVE SHALL BE FINAL IN REGARD TO CHANGES DUE TO CONFLICTING CONDITIONS.
- 7.2.3. CONTRACTOR SHALL COMPLETE WORK OR ANY PART THEREOF AT SUCH TIME AS MAY BE DESIGNATED BY THE OWNER, SO THAT IT CAN BE USED FOR TEMPORARY OR PERMANENT USE AND SUCH USE OF THE SYSTEM SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF SAME BY OWNER.
- 7.2.4. VERIFY VOLTAGE AND ALL ELECTRICAL REQUIREMENTS OF PLUMBING EQUIPMENT AND SYSTEMS WITH DIV. 26 CONTRACTOR PRIOR TO ORDERING.
- 7.2.5. COORDINATION OF SPACE REQUIREMENTS WITH RESPECT TO DIVISION 22 SHALL BE PERFORMED SUCH THAT:
- 7.2.5.1. NO EQUIPMENT, PIPING OR DUCTWORK, OTHER THAN ELECTRICAL, SHALL BE INSTALLED WITHIN 42" OF SWITCHBOARDS OR PANELBOARDS.
- 7.3. TWO SETS OF PLUMBING DRAWINGS SHALL BE PROVIDED AS RECORD DRAWINGS WHICH SHALL BE SEPARATE, CLEAN, COPIES RESERVED FOR THE PURPOSE OF SHOWING A COMPLETE PICTURE OF THE WORK AS ACTUALLY INSTALLED.
- 7.3.1. DRAWINGS SHALL ALSO SERVE AS WORK PROGRESS REPORT SHEETS AND THE PLUMBING CONTRACTOR SHALL MAKE ANY NOTATIONS, NEAT AND LEGIBLE THEREON DAILY AS WORK PROCEEDS.
- 7.3.2. DRAWINGS SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES AND SHALL BE KEPT AT THE JOB AT A LOCATION DESIGNATED BY THE OWNERS REPRESENTATIVE.
- 7.3.3. AT THE COMPLETION OF THE WORK, THESE RECORD DRAWINGS SHALL BE SIGNED BY THE PLUMBING CONTRACTOR, DATED AND RETURNED TO THE OWNERS REPRESENTATIVE. FINAL PAYMENT OF CONTRACT WILL NOT BE MADE UNTIL RECEIPT AND REVIEW OF SAID DRAWINGS.
- 7.4. PROVIDE ALL ROOF, WALL AND FLOOR PENETRATIONS REQUIRED TO COMPLETE INSTALLATION AND REMOVAL OF WORK (MAINTAIN FIRE RATING OF EXISTING STRUCTURE).
- 7.4.1. ALL PENETRATIONS SHALL BE PATCHED AND FINISHED TO MATCH SURROUNDING SURFACES AND FINISHES.
- 7.4.2. ALL EQUIPMENT OR PIPE PENETRATIONS THROUGH WALL, ROOF AND FLOORS SHALL BE SLEEVED AND SEALED SO AS TO BE WATER AND AIR TIGHT.
- 7.4.3. ALL ROOF CUTS AND REPAIRS SHALL BE PERFORMED BY OWNER APPROVED ROOFING CONTRACTOR IN ORDER TO MAINTAIN ROOF WARRANTY.
- 7.5. CUTTING OF HOLES THROUGH CONCRETE AND MASONRY SHALL BE BY DIAMOND CORE CONCRETE SAW.
- 7.5.1. PNEUMATIC HAMMER, IMPACT ELECTRIC AND HAND OR MANUAL HAMMER TYPE DRILLS WILL NOT BE ALLOWED, EXCEPT AS PERMITTED BY THE ARCHITECT WHERE REQUIRED BY LIMITED WORKING SPACE.
- 7.5.2. LOCATE HOLES SUCH THAT THEY WILL NOT AFFECT STRUCTURAL SECTIONS SUCH AS RIBS OR BEAMS. HOLES SHALL BE LAD OUT WELL IN ADVANCE OF THE INSTALLATION. THESE LAYOUT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO DRILLING.
- 7.6. PROVIDE ALL EXCAVATION AND TRENCHING TO THE CORRECT ELEVATIONS, FOR THE INSTALLATION OF ALL PIPING, MANHOLES, CATCH BASINS AND FOUNDATIONS INCLUDED UNDER THIS DIVISION OF THE WORK.
- 7.7. PROVIDE ALL BACKFILL IN STRICT ACCORDANCE WITH THE EXCAVATION AND BACKFILL SECTION OF DIVISION 1 SPECIFICATIONS.
- 7.7.1. EXCAVATE PIPE TRENCH, HAND DIG IN ALL AREAS WHERE EXISTING UTILITIES EXIST. HAND TRIM EXCAVATION FOR ACCURATE PLACEMENT OF PIPE TO ELEVATIONS INDICATED.
- 7.7.1.1. PROVIDE NECESSARY SHEETING AND SHORING TO COMPLY WITH O.S.H.A. REGULATIONS FOR SAFETY IN THE TRENCH.
- 7.7.2. PLACE BEDDING MATERIAL AT TRENCH BOTTOM, LEVEL MATERIALS IN CONTINUOUS LAYER NOT EXCEEDING 6 INCHES COMPACTED DEPTH, COMPACT TO 95 PERCENT.
- 7.7.2.1. MAINTAIN OPTIMUM MOISTURE CONTENT OF BEDDING MATERIAL TO ATTAIN REQUIRED COMPACTION DENSITY.
- 7.7.3. BACKFILL MATERIAL SHALL BE CLEAN EARTH FILL COMPOSED OF SAND, SLIGHTLY SILTY SAND, SAND AND ROCK, CRUSHED ROCK, OR AN APPROVED COMBINATION THEREOF.
- 7.7.3.1. THE BACKFILL MATERIAL SHALL HAVE NO MORE THAN 12 PERCENT PASSING THE NUMBER 200 SIEVE UNLESS APPROVED BY THE OWNER AND AHJ.
- 7.7.3.2. WHEN TRENCHES ARE CUT IN PAVEMENTS OR AREAS TO BE PAVED, COMPACTION AS DETERMINED BY ASSHTO SPECIFICATION T-180 (MODIFIED), SHALL BE NOT LESS THAN 98 PERCENT OF MAXIMUM DENSITY. ALL OTHER LOCATIONS SHALL BE 95 PERCENT.
- 7.7.3.3. DENSITY TESTS FOR CONFORMANCE TO THE COMPACTION REQUIREMENTS SHALL BE MADE BY TESTING LABORATORY SELECTED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR. TESTS SHALL BE MADE EVERY 100 FEET OR LESS, MINIMUM TWO TESTS PER SITE. IF ANY TEST RESULTS ARE UNSATISFACTORY.
- 7.7.3.4. THE CONTRACTOR SHALL RE-EXCAVATE AND RE-COMPACT THE BACKFILL AT HIS EXPENSE UNTIL THE DESIRED COMPACTION IS OBTAINED.
- 7.7.4. PAVEMENT OR ROADWAY SURFACES CUT OR DAMAGED SHALL BE REPLACED IN EQUAL OR BETTER CONDITION THAN THE ORIGINAL, INCLUDING STABILIZATION, BASE COURSE, SURFACE COURSE, CURB AND GUTTER, OR OTHER APPURTENANCES.
- 7.7.4.1. OPEN CUTS THROUGH ROADWAY SECTIONS SHALL BE REPAIRED USING NON-SHRINKABLE FILL MATERIAL AS APPROVED BY THE OWNER AND AHJ. THE MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL RECEIVE PRIOR APPROVAL FROM THE OWNER AND AHJ.
- 7.7.4.2. WHERE EXISTING PAVEMENT IS REMOVED, THE SURFACING SHALL BE MECHANICALLY SAW CUT PRIOR TO TRENCH EXCAVATION, LEAVING A UNIFORM AND STRAIGHT EDGE WITH MINIMUM DISTURBANCE TO THE REMAINING ADJACENT SURFACING.

- 7.7.4.3. THE WIDTH OF THE PAVEMENT REMOVAL SHALL BE THE MINIMAL NECESSARY TO ALLOW FOR INSTALLATION OF THE NEW UTILITIES.
- 7.7.4.4. IMMEDIATELY FOLLOWING BACK-FILLING AND COMPACTION, AN ASPHALTIC SURFACE SHALL BE APPLIED TO THE CUT AREAS. THIS SURFACING SHALL PROVIDE A SMOOTH TRAFFIC SURFACE WITH THE EXISTING ROADWAY.
- 7.7.4.5. THE PAVING WORK SHALL BE GUARANTEED FROM DEFECTS IN WORKMANSHIP, INCLUDING SETTLING, FOR TWO YEARS.
- 7.8. ALL WIRING SHALL BE IN CONDUIT. THE USE OF E.N.T., BX, NM, ETC. OR PRE-MANUFACTURED CABLE ASSEMBLIES OR ALUMINUM WIRE WILL NOT BE PERMITTED.
- 7.9. VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH SHOP DRAWING SUBMITTALS, FIELD MEASUREMENTS, AND WITH REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED PRIOR TO ROUGH-IN.
- 7.9.1. REFER TO EQUIPMENT SPECIFICATIONS AND DIMENSIONS SPECIFIED FOR ROUGH-IN REQUIREMENTS.
- 7.10. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF PLUMBING WORK.
- 7.10.1. PATCH EXISTING FINISHED AND DISTURBED NEW FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS & EXPERIENCED INSTALLERS. INSTALLERS' QUALIFICATIONS REFER TO THE MATERIALS AND METHODS REQUIRED OR THE SURFACE AND BUILDING COMPONENTS BEING PATCHED.
- 7.10.2. NO ADDITIONAL COMPENSATION WILL BE AUTHORIZED FOR CUTTING AND PATCHING WORK THAT IS NECESSITATED BY ILL-TIMED, DEFECTIVE OR NON-CONFORMING INSTALLATIONS.
- 7.11. PROVIDE NAMEPLATES ON ALL ITEMS OF PLUMBING EQUIPMENT THAT HAS A CONTROL PANEL AND ALL ITEMS WHERE A SUBMITTAL WAS MADE, EXCEPT FOR PIPING.
- 7.11.1. MAKE NAMEPLATES FROM WHITE ENGRAVING STOCK WITH BLACK LETTERS AND BLACK FOUR EDGE BEVEL.
- 7.11.2. WORDING SHALL SUITABLY DESCRIBE ITEMS SUCH AS PANEL ID, SOURCE OCPD AND VOLTAGE.
- 7.11.3. NAMEPLATES SHALL BE ATTACHED USING PROPER SIZE AND TYPE STAINLESS STEEL BOLTS, LOCK WASHERS AND NUTS. GLUE ON, TAPE ON, OR TAPE TYPE NAMEPLATES ARE NOT ACCEPTABLE FOR THE EQUIPMENT.
- 7.12. BEARINGS THAT REQUIRE LUBRICATION SHALL BE LUBRICATED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 7.13. ARRANGE FOR CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR PLUMBING INSTALLATIONS.
- 7.14. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.
- 7.15. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF PLUMBING MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT REQUIRING POSITIONING PRIOR TO CLOSING IN THE BUILDING.
- 7.16. THE EXACT MOUNTING HEIGHT OF DEVICES SHALL BE DETERMINED IN THE FIELD WITH RELATION TO ARCHITECTURAL DETAILS AND EQUIPMENT BEING SERVED.
- 7.16.1. IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO COORDINATE OUTLET LOCATION WITH EQUIPMENT. OWNERS REPRESENTATIVE SHALL BE PERMITTED TO RELOCATE ANY OUTLET PRIOR TO INSTALLATION WITHIN A 15 FOOT LIMIT AT NO ADDITIONAL CHARGE IN CONTRACT PRICE.
- 7.16.2. ALL FASTENERS, HANGERS, AND METHODS OF HANGING EXPOSED WORK IN FINISHED AREAS SHALL BE SUBMITTED TO THE OWNERS REPRESENTATIVE FOR APPROVAL BEFORE INSTALLATION.
- 7.16.3. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.
- 7.17. INSTALL PLUMBING EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
- 7.18. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
8. NOT USED.
9. RESPONSIBILITY FOR LAYOUT OF PLUMBING SYSTEMS.
- 9.1. FURNISH AND INSTALL COMPLETE PLUMBING SYSTEM AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED WITHIN THESE SPECIFICATIONS. WORK SHALL INCLUDE BUT NOT BE LIMITED TO SELECTIVE DEMOLITION, THE FABRICATION AND/OR INSTALLATION OF THE SCHEDULED PLUMBING FIXTURES AND RELATED PIPING. THE COMPLETED PLUMBING SYSTEM SHALL MEET ALL APPLICABLE CODES AND STANDARDS.
- 9.2. ALL SOLDER OR BRAZE CONNECTIONS TO THE POTABLE WATER SYSTEM SHALL BE MADE WITH LEAD-FREE SOLDER.
- 9.3. PLUMBING DRAWINGS INDICATE FIXTURE TYPES, BUT NOT QUANTITIES. REFER TO PLUMBING PLANS AND ARCHITECTURAL PLANS TO DETERMINE REQUIRED NUMBER OF FIXTURES.
- 9.4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FIXTURE LOCATION AND FIXTURE HEIGHTS.
10. WATER SUPPLY SYSTEM, REFER TO TABLES LOCATED IN CONSTRUCTION DOCUMENTS FOR PIPING AND MATERIALS USED.
11. INSULATION
- 11.1. SHALL BE AS MANUFACTURED BY OWENS-CORNING, MANVILLE, PITTSBURGH CORNING, ARMSTRONG, OR APPROVED EQUAL. INSULATION SUNDRIES AND ADHESIVES SHALL BE AS MANUFACTURED BY BENJAMIN FOSTER, CHILDERS, VMASCO, OR APPROVED EQUAL.
- 11.2. ALL INSULATION SHALL BE SUITABLE FOR INSTALLATION IN A RETURN AIR PLENUM AND SHALL MEET THE CURRENT ENERGY CODE REQUIREMENTS.
- 11.3. ALL PIPE INSULATION SHALL BE SELECTED TO FIT SNUGLY AGAINST THE PIPING WITH NO VOIDS.
- 11.4. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ADEQUATE AND PROPER INSULATION AND MOISTURE-SEAL IN A MANNER THAT WILL PERMANENTLY PREVENT THE ACCUMULATION OF ANY OBJECTIONABLE MOISTURE ON THE EXTERIOR OF AIR-CONDITIONING UNITS, REFRIGERANT-PIPING, CONDENSATE DRAIN PIPING, AIR DUCTS OR OTHER PARTS OF THE SYSTEM.
- 11.5. CONTRACTOR SHALL CORRECT THE CAUSE OF ANY CONDENSATION AND FULLY REPAIR, WITHOUT COST TO THE OWNER, ANY DAMAGES TO BUILDING SURFACES, FURNISHINGS OR

- EQUIPMENT CAUSED BY CONDENSATION FROM THIS SYSTEM, FOR THE FULL PERIOD OF THE GUARANTEE.
12. BACKFLOW PREVENTERS.
- 12.1. PROVIDE BACKFLOW PREVENTERS WHERE SHOWN AND/OR WHERE REQUIRED. BACKFLOW PREVENTERS SHALL BE REDUCED PRESSURE PRINCIPLE TYPE U.N.O.
- 12.2. PROVIDE INDIRECT WASTE FITTING AT BACKFLOW PREVENTER AND EXTEND WASTE PIPING FULL SIZE TO DRAIN.
- 12.3. THERE SHALL NOT BE A BYPASS ARRANGEMENT OF ANY KIND AROUND A BACKFLOW PREVENTER.
- 12.4. PROVIDE BACKFLOW PREVENTERS FOR POTABLE WATER CONNECTIONS TO NON-POTABLE PROCESSES, INCLUDING BUT NOT LIMITED TO:
- 12.4.1. COFFEE MACHINES.
- 12.4.2. OTHER SIMILAR APPLICATIONS.
13. VACUUM BREAKERS.
- 13.1. PROVIDE VACUUM BREAKERS WHERE SHOWN AND/OR WHERE REQUIRED.
- 13.2. FOR HOT WATER, PROVIDE BACKFLOW PREVENTER IN LIEU OF VACUUM BREAKER.
- 13.3. PROVIDE VACUUM BREAKER FOR ALL FIXTURES WITH THREADED ENDS, INCLUDING BUT NOT LIMITED TO:
- 13.3.1. HOSE BIBBS.
- 13.3.2. HYDRANTS.
- 13.3.3. OTHER HOSE-END FIXTURES CONNECTED TO POTABLE WATER.
13. SUPPLIES AND STOPS.
- 13.1. PROVIDE POLISHED CHROME PLATED BRASS SUPPLIES AND ANGLE STOPS FOR ALL FIXTURES. PLASTIC SUPPLIES AND STOPS ARE NOT ACCEPTABLE. PROVIDE SHUT OFF VALVES FOR WATER SERVICE TO ALL EQUIPMENT, UPSTREAM OF FIXTURE STOPS.
14. WATER HAMMER ARRESTORS.
- 14.1. PROVIDE WATER HAMMER ARRESTORS WHERE SHOWN, OR AT EACH GROUP OF FIXTURES, AT ENDS OF PRINCIPAL PIPING RUNS, AND AS REQUIRED.
- 14.2. AIR CHAMBERS ARE NOT ACCEPTABLE.
- 14.3. SIZE WATER HAMMER ARRESTORS SHALL BE BASED ON FIXTURE UNITS OR TWO FIXTURE UNITS PER GPM, WHICHEVER IS GREATER.
- 14.4. WATER HAMMER ARRESTORS SHALL COMPLY WITH PDI WH-201, GAS CHARGED PISTON TYPE, AS MANUFACTURED BY SIOUX CHIEF, ZURN, JOSAM, OR WADE.
15. CHLORINATION
- 15.1. BEFORE BEING PLACED IN SERVICE, ALL WATER DISTRIBUTION SYSTEMS SHALL BE FLUSHED CLEAN AND DISINFECTED. THE METHOD TO BE FOLLOWED SHALL BE THAT PRESCRIBED BY THE HEALTH AUTHORITY OR WATER PURVEYOR HAVING JURISDICTION OR, IN THE ABSENCE OF A PRESCRIBED METHOD, USE THE FOLLOWING PROCEDURE:
- 15.2. THE PIPE SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT THE OUTLETS. THE SYSTEM SHALL BE FILLED WITH A WATER / CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE, VALVED OFF, AND ALLOWED TO STAND FOR (24) HOURS. ALTERNATELY, A SOLUTION OF 200 PARTS PER MILLION AND A STANDING TIME OF (3) HOURS MAY BE USED. FLUSH THE SYSTEM WITH CLEAN POTABLE WATER UNTIL THE CHLORINE IS PURGED FROM THE SYSTEM. REPEAT THE PROCEDURE WHERE BACTERIAL CONTAMINATION REMAINS PRESENT IN THE SYSTEM.
16. CONNECTIONS TO MISCELLANEOUS EQUIPMENT.
- 16.1. ROUGH-IN AND CONNECT WATER, WASTE, AND VENT TO COMPLETE THE INSTALLATION OF EQUIPMENT LISTED ON THE DRAWINGS.
- 16.2. PLUMBING FIXTURES SHALL BE PROVIDED COMPLETE AS SHOWN ON THE DRAWINGS WITH ALL REQUIRED SUPPLY, WASTE, SOIL, AND VENT CONNECTIONS, TOGETHER WITH ALL FITTINGS, SUPPORTS, FASTENING DEVICES, COCKS, VALVES, AND TRAPS.
- 16.3. ALL FIXTURES SHALL HAVE STOP VALVES ON ALL WATER CONNECTIONS.
- 16.4. ALL EXPOSED METAL TRIM ON ALL FIXTURES SHALL BE POLISHED CHROMIUM PLATED.
- 16.5. ALL EXPOSED PIPES EXTENDING FROM WALL SHALL HAVE CHROMIUM PLATED BRASS ESCUTCHEON MOUNTED AGAINST WALL.
- 16.6. THE PLUMBING FIXTURES SHALL BE ROUGHED-IN ACCORDANCE WITH MANUFACTURER'S ROUGH-IN INFORMATION.
- 16.7. PROVISIONS FOR MOUNTING WALL FIXTURES SHALL BE MADE WHILE THE WALL IS BEING BUILT.
17. DRAINAGE SYSTEM, REFER TO TABLES LOCATED IN CONSTRUCTION DOCUMENTS FOR PIPING AND MATERIALS USED.
- 17.1. TRAP AND VENT ALL FIXTURES U.N.O.
- 17.2. EXTEND VENTS THROUGH THE BUILDING EXTERIOR AS REQUIRED BY CODE.
- 17.3. PROVIDE POLISHED CHROME PLATED CAST BRASS GROUND JOINT SWIVEL (ADJUSTABLE TYPE) P-TRAP WITH CLEAN OUT PLUG FOR ALL FIXTURES TRAPPED ABOVE GRADE. TRAP SHALL HAVE PROVISION FOR DISASSEMBLY TO ALLOW STRAIGHT-THROUGH CLEAN-OUT OPERATIONS.
- 17.4. WHERE INDIRECT CONNECTIONS ARE SHOWN OR REQUIRED, PROVIDE MANUFACTURER'S STANDARD AIR GAP FITTING OR OTHER PROVISION TO MAINTAIN AIR GAP EQUAL TO MINIMUM TWICE THE DIAMETER OF THE DRAINING PIPE, BUT NOT LESS THAN 2 INCHES.
- 17.5. DRAIN, WASTE AND VENT PIPING LOCATED IN FIRE RATED WALL ASSEMBLIES AND RETURN AIR PLENUMS SHALL BE SERVICE-WEIGHT CAST IRON WITH SPIGOT FITTINGS.
- 17.6. STORM DRAINAGE REFER TO TABLES LOCATED IN CONSTRUCTION DOCUMENTS FOR PIPING AND MATERIALS USED.
- 17.7. BASE ELBOW AND FIRST THREE FEET OF THE BOTTOM OF THE STORM WATER RISER SHALL BE CAST IN CONCRETE AND ATTACHED TO THE BUILDING SLAB USING THREADED RODS. ALTERNATELY, USE ASPHALT COATED EXTRA HEAVY CAST IRON BASE ELBOW AND FIRST THREE FEET, THEN TRANSITION TO PVC.

18. INSULATION
- 18.1. SHALL BE AS MANUFACTURED BY OWENS-CORNING, MANVILLE, PITTSBURGH CORNING, ARMSTRONG, OR APPROVED EQUAL. INSULATION SUNDRIES AND ADHESIVES SHALL BE AS MANUFACTURED BY BENJAMIN FOSTER, CHILDERS, VMASCO, OR APPROVED EQUAL.
- 18.2. ALL INSULATION SHALL BE SUITABLE FOR INSTALLATION IN A RETURN AIR PLENUM AND SHALL MEET THE CURRENT ENERGY CODE REQUIREMENTS.
- 18.3. ALL PIPE INSULATION SHALL BE SELECTED TO FIT SNUGLY AGAINST THE PIPING WITH NO VOIDS.
- 18.4. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ADEQUATE AND PROPER INSULATION AND MOISTURE-SEAL IN A MANNER THAT WILL PERMANENTLY PREVENT THE ACCUMULATION OF ANY OBJECTIONABLE MOISTURE ON THE EXTERIOR OF AIR-CONDITIONING UNITS, REFRIGERANT-PIPING, CONDENSATE DRAIN PIPING, AIR DUCTS OR OTHER PARTS OF THE SYSTEM.
- 18.5. CONTRACTOR SHALL CORRECT THE CAUSE OF ANY CONDENSATION AND FULLY REPAIR, WITHOUT COST TO THE OWNER, ANY DAMAGES TO BUILDING SURFACES, FURNISHINGS OR EQUIPMENT CAUSED BY CONDENSATION FROM THIS SYSTEM, FOR THE FULL PERIOD OF THE GUARANTEE.
19. CLEAN OUTS
- 19.1. PROVIDE REQUIRED CLEANOUTS IN ALL DRAINAGE PIPING, WHETHER OR NOT SHOWN ON THE DRAWINGS. INCLUDE CLEAN-OUTS FOR THE FOLLOWING SYSTEMS:
- 19.1.1. SANITARY WASTE.
- 19.1.2. STORM DRAIN.
- 19.1.3. CONDENSATE DRAIN (A/C CLEAR WATER WASTE).
- 19.1.4. OTHER GRAVITY DRAINAGE SYSTEMS.
- 19.2. PROVIDE CLEANOUTS WHERE INDICATED ON DRAWINGS, AND WHERE REQUIRED, AT CHANGES IN DIRECTION, AT BASE OF DOWNSPOUTS AND AT BASE OF SOIL AND WASTE STACKS.
- 19.3. REQUIRED CLEANOUT SPACING.
- 19.4. MINIMUM 100 FOOT INTERVALS FOR ALL INDOOR AND OUTDOOR PIPING, SIZES 6 INCH AND SMALLER.
- 19.5. WHERE ONE OR MORE CHANGE OF DIRECTION GREATER THAN 45-DEGREES OCCURS WITHIN 40-FOOT OF DEVELOPED LENGTH OF PIPE THE FIRST CLEANOUT SHALL SERVE AS THE CLEANOUT FOR ALL CHANGES OF DIRECTION WITHIN 40-FOOT DOWNSTREAM FOR ALL INDOOR PIPING, ALL SIZES.
- 19.6. PROVIDE TWO-WAY CLEANOUT AT EACH SANITARY PIPING POINT OF BUILDING EXIT.
- 19.7. FOR INSTALLATION OF EXTERIOR CLEAN OUTS, CONSTRUCT MIN 12 IN. X 12 IN. X 4 IN. DEEP SQUARE CONCRETE CROWN WITH CHAMFERED EDGES, WITH TOP OF CROWN (2) IN. ABOVE GRADE.
- 19.8. CLEANOUTS WHICH WILL BE SUBJECTED TO VEHICULAR TRAFFIC LOADING AND ALL EXTERIOR CLEANOUTS SHALL BE PROTECTED WITH A TRAFFIC-DUTY SLEEVE, SEPARATE FROM THE CLEANOUT FERRULE, SUCH THAT THE VEHICLE LOAD SHALL NOT BEAR UPON THE CLEANOUT OR THE PIPING SYSTEM.
20. ABOVE AND UNDERGROUND PIPE SLOPE:
- 20.1. 2-1/2 INCH DIAMETER AND LESS SHALL BE INSTALLED WITH A FALL OF NOT LESS THAN 1/4 INCH PER FOOT.
- 20.2. 3 INCH DIAMETER OR LARGER SHALL BE INSTALLED WITH A FALL NOT LESS THAN 1/8 INCH PER FOOT.
- 20.3. A/C CONDENSATE DRAIN PIPING SHALL SLOPE AT MINIMUM 1/8 INCH PER FOOT, REGARDLESS OF SIZE.
- 20.4. GREASE WASTE SHALL SLOPE AT MINIMUM 1/8 INCH PER FOOT REGARDLESS OF SIZE.
21. FIXTURES REFER TO TABLES LOCATED IN CONSTRUCTION DOCUMENTS FOR MATERIALS USED.
- 21.1. FURNISH AS SCHEDULED ON THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS.
- 21.2. GENERAL REQUIREMENTS.
- 21.3. EXPOSED METAL TRIM ON ALL FIXTURES SHALL BE POLISHED CHROME PLATED.
- 21.4. HOSE BIBBS, HYDRANTS, AND FAUCETS WITH HOSE-END CONNECTIONS SHALL HAVE INTEGRAL VACUUM BREAKER.
- 21.5. PROVIDE FLOOR MOUNTED CARRIER FOR ALL WALL-HUNG FIXTURES, SUITABLE FOR SAFELY SUPPORTING A 250 LB. LOAD AT FIXTURE OUTSIDE EDGE.
- 21.6. FLOOR DRAINS AND FLOOR SINKS SHALL HAVE TRAP PRIMER CONNECTION, U.N.O. PROVIDE TRAP PRIMER VALVE AND ASSOCIATED U.G. COPPER TUBING TO EACH FLOOR DRAIN.
- 21.7. PROVIDE ADA APPROVED PADDED SEAMLESS WHITE SAFETY COVERS FOR WASTE AND SUPPLY PIPING OF HANDICAP FIXTURES.
- 21.8. PROVIDE OFFSET TALLPIECE FOR LAVATORIES.
- 21.9. PROVIDE ANTI-SCALD PRESSURE BALANCED TEMPERING VALVE FOR LAVATORIES AND SHOWER, UNLESS THE FIXTURE IS SERVED WITH TEMPERED (MIXED) SUPPLY WATER.
22. EXECUTION.
- 22.1. PLUMBING FIXTURES SHALL BE ROUGHED-IN ACCORDANCE WITH MANUFACTURERS ROUGH-IN INFORMATION. PROVISIONS FROM MOUNTING WALL FIXTURES SHALL BE MADE WHILE THE WALL IS BEING BUILT.
- 22.2. ALL EXPOSED METAL TRIM ON ALL FIXTURES SHALL BE POLISHED CHROME PLATED.
- 22.3. RUN PIPING CONCEALED WHERE POSSIBLE AND WITHIN WALLS FOR EQUIPMENT LOCATED AT WALLS.
- 22.4. PROVIDE ESCUTCHEONS AT ALL WALL PENETRATIONS, CHROME PLATED BRASS.
- 22.5. PROVIDE VENTS THROUGH ROOF WHERE SHOWN AND WHERE REQUIRED. COORDINATE WITH GENERAL CONTRACTOR FOR WATER PROOFING DETAILS, TO MAINTAIN WATERPROOF INTEGRITY OF ROOF SYSTEM.
- 22.6. INSTALLATION OF FLOOR DRAINS, CLEAN OUTS, ETC. IN EXISTING SLAB:
- 22.7. SAW CUT MIN. 18 IN. X 18 IN. SQUARE OPENING SO THAT ANCHOR FLANGES WILL BE SUPPORTED BY NEW CONCRETE. NEW CONCRETE TO FILL IN THE PATCH BY GENERAL CONTRACTOR.

ISSUED REVISIONS: