

16010 BASIC ELECTRICAL REQUIREMENTS

MATERIAL SUBSTITUTIONS: MATERIALS, EQUIPMENT AND SPECIALTY ITEMS SHOWN THESE DRAWINGS AND SPECIFICATIONS ARE SPECIFIED AROUND A LIST OF BRAND NAMES KNOWN AND PERFORMANCE PROVEN TO THE ENGINEER...

SUBMITTALS: SUBMIT 8 COPIES OF BROCHURES, CATALOG CUTS, TECHNICAL DATA OR DRAWINGS OF ALL EQUIPMENT OR MATERIALS. SHOP DRAWINGS SHALL STATE CAPACITIES, PHYSICAL DIMENSIONS AND WEIGHTS AS WELL AS FULLY DESCRIBE ALL OPTIONS AND APPURTENANCES NECESSARY TO DEMONSTRATE THAT THE EQUIPMENT MEETS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS...

PERMITS AND INSPECTORS: THE CONTRACTOR SHALL OBTAIN AND FURNISH ALL NECESSARY PERMITS AND INSPECTION CERTIFICATES FOR ALL MATERIAL AND LABOR FURNISHED BY HIM. THE COST OF PERMITS, CERTIFICATES AND ALL FEES REQUIRED IN CONNECTION WITH THE INSTALLATION SHALL BE BORNE BY THE CONTRACTOR...

DRAWINGS: THE CONTRACTOR SHALL HAVE A COMPLETE SET OF DRAWINGS ON THE SITE AT ALL TIMES. THESE CONTRACT DRAWINGS FOR ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, ETC. AND THE APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND MATERIALS...

STANDARDS OF MATERIALS AND WORKMANSHIP: ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), THE CURRENTLY ENFORCED EDITION, AND ALL FEDERAL, STATE LOCAL AND MUNICIPAL ORDINANCES. ALL MATERIALS SHALL BE NEW, COMPLETE WITH MANUFACTURERS GUARANTEE OR WARRANTY...

EXISTING CONDITIONS: THIS CONTRACTOR SHALL EXAMINE THE EXISTING PROJECT SITE AND FAMILIARIZE HIMSELF WITH THE CONDITIONS AS THEY EXIST, OR THAT WILL IN ANY MANNER AFFECT HIS WORK UNDER THIS CONTRACT. ALL CONDITIONS SHALL BE CONSIDERED IN THE PREPARATION OF BIDS.

INTERRUPTION OF UTILITIES: THIS CONTRACTOR SHALL MAKE ALL CHANGES IN SERVICES SO AS TO PROVIDE A MINIMUM OF INTERFERENCE WITH THE OPERATION OF THE BUILDING. WHEN CHANGES REQUIRE A SHUTDOWN OF BUILDING SERVICES, THIS CONTRACTOR SHALL NOTIFY THE OWNER NOT LESS THAN 24 HOURS IN ADVANCE AND COORDINATE THE INTERRUPTION WITH THE OWNER.

DAMAGES: THIS CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF OTHER TRADES OR TO THE FACILITY AND ITS CONTENTS CAUSED BY EQUIPMENT INSTALLED BY HIM.

CLEAN-UP: THIS CONTRACTOR SHALL KEEP THE PREMISES CLEAN OF ALL DEBRIS CAUSED BY HIS WORK. AT THE CONCLUSION OF CONSTRUCTION, THE SITE SHALL BE THOROUGHLY CLEANED OF ALL RUBBLE, DEBRIS AND UNUSED MATERIALS.

FINAL ACCEPTANCE: WHEN THE CONTRACTOR HAS DETERMINED THAT THE SITE IS READY FOR OCCUPANCY, HE SHALL REQUEST THAT THE ENGINEER MAKE A FINAL INSPECTION. THE ENGINEER WILL COMPLETE THE INSPECTION AND ISSUE A CERTIFICATE OF SUBSTANTIAL COMPLETION AND FINAL PUNCH LIST OF WORK TO BE CORRECTED AND/OR COMPLETED. WHEN THE PUNCH LIST WORK IS COMPLETED, THE CONTRACTOR SHALL REQUEST THAT THE ENGINEER MAKE A FINAL REVIEW OF THE WORK...

CLOSEOUT: THIS CONTRACTOR SHALL PROVIDE ALL DOCUMENTS, AFFIDAVITS, GUARANTEES AND TRAINING REQUIRED FOR PROJECT CLOSEOUT INCLUDING THE FOLLOWING: OPERATING AND MAINTENANCE MANUALS, RECORD "AS BUILT" DOCUMENTS, GUARANTEES AND WARRANTIES, TRAINING OF THE OWNER'S REPRESENTATIVE, EXTRA MATERIALS WITH RECEIPTS.

16050 BASIC ELECTRICAL MATERIALS AND METHODS

EXCAVATIONS: THIS CONTRACTOR SHALL PROVIDE ALL EXCAVATION, TRENCHING AND BACKFILLING REQUIRED FOR ELECTRICAL UTILITIES, VAULTS AND EQUIPMENT. PROVIDE SHORING AND BRACING AS REQUIRED FOR THE STABILITY OF THE EXCAVATION OR TRENCH. COMPLY WITH LOCAL CODES.

SUPPORTS: THIS CONTRACTOR SHALL PROVIDE MISCELLANEOUS LUMBER AND METAL FRAMING FOR THE SUPPORT OF ELECTRICAL MATERIALS AND EQUIPMENT. PROVIDE WOOD OR METAL RODS, NAILERS, BLOCKING, FASTENERS AND ANCHORAGE AS REQUIRED. MATERIALS SHALL BE OF COMPARABLE QUALITY AND TYPE USED FOR THE GENERAL CONSTRUCTION IN THE AREA WHERE INSTALLED.

PROVIDE JOINT SEALERS FOR SEALING AROUND ALL MATERIALS AND EQUIPMENT. JOINT SEALANT SHALL BE MILDEW-RESISTANT, AND SHALL BE INSTALLED ON SUBSTRATES AS RECOMMENDED BY THE SEALANT MANUFACTURER.

PROVIDE UL LISTED FIRESTOP SYSTEMS FOR PENETRATIONS THROUGH FIRE/SMOKE RESISTANCE RATED ASSEMBLIES. FIRESTOP SYSTEMS SHALL BE LISTED AND TESTED IN ACCORDANCE WITH ASTM E-814 AND UL1479.

ACCESS DOORS: PROVIDE FACTORY FABRICATED AND ASSEMBLED STEEL ACCESS DOORS AND FRAMES IN WALLS, CEILING AND FLOORS AS REQUIRED FOR ACCESS TO ELECTRICAL MATERIALS AND EQUIPMENT.

ROOF ACCESSORIES: CONDUIT ROOF PENETRATIONS SHALL BE PROVIDED WITH PREFABRICATED PIPE PORTALS. PENETRATIONS SHALL BE COMPATIBLE WITH AND SUITABLE FOR THE ROOF MATERIALS. PROVIDE EPDM RUBBER SEAL CAP TO ACCOMMODATE PIPE SIZES LISTED ON THE DRAWING.

CABLE TIES: CABLE TIES SHALL BE FUNGUS-INERT, SELF EXTINGUISHING, ONE PIECE, SELF-LOCKING NYLON CABLE TIES WITH 50 LBS. MINIMUM TENSILE STRENGTH.

HOUSEKEEPING PADS: ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT INSTALLED IN MECHANICAL ROOMS, BOILER ROOMS, ELECTRICAL ROOMS, PENTHOUSES, AND/OR EXTERIOR TO THE BUILDING SHALL BE FURNISHED WITH A HOUSEKEEPING PAD. EACH PAD SHALL BE REINFORCED CONCRETE, 4 INCHES HIGH AND SHALL EXTEND 4 INCHES BEYOND ALL ACCESSIBLE LOCATIONS OF THE EQUIPMENT FOOTPRINT.

MISCELLANEOUS LUMBER AND BACKBOARDS: ALL PLYWOOD BACKING AND MISCELLANEOUS LUMBER SHALL BE FIRE RETARDANT TREATED.

16110 RACEWAYS

GENERAL: ALL POWER WIRING FOR OVER 24 VOLTS, AND DESIGNATED SYSTEMS WIRING SHALL BE ROUTED IN AN APPROVED RACEWAY. ALL WIRING AND CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED SPACES EXCEPT WHERE SURFACE WIREWAYS ARE NOTED. CONDUIT MAY BE ROUTED EXPOSED IN MECHANICAL, ELECTRICAL, PENTHOUSES, JANITOR ROOMS AND IN SIMILAR AREAS.

OUTDOORS: USE THE FOLLOWING WIRING METHODS: RIGID METAL CONDUIT (GRC), INTERMEDIATE METAL CONDUIT (IMC), RIGID NONMETALLIC CONDUIT (RNC) (WHERE NOT EXPOSED TO DAMAGE), ALL ELBOWS AND RISERS SHALL BE GRC OR IMC.

INDOORS: USE THE FOLLOWING WIRING METHODS: RIGID METAL CONDUIT (GRC), RIGID ALUMINUM CONDUIT (NOT IN EARTH OR CONCRETE), ELECTRICAL METALLIC TUBING (EMT) (NOT IN EARTH OR CONCRETE), RIGID NONMETALLIC CONDUIT (RNC) (WHERE NOT EXPOSED TO DAMAGE AND IN NON-PLENUM SPACES), ELECTRICAL NON-METALLIC TUBING (ENT) (CONCEALED LOCATIONS AND NON-PLENUM SPACES ONLY), WIREWAYS AND SURFACE RACEWAYS (WHERE INDICATED).

SIZES: THE MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH.

FITTINGS: PROVIDE CONDUIT BODIES OF THE TYPES, SHAPES AND SIZES AS REQUIRED BY THE INSTALLATION AND THE NEC. USE METALLIC BODIES WITH STEEL CONDUIT, ALUMINUM WITH ALUMINUM CONDUIT AND PLASTIC WITH PLASTIC CONDUIT, RIGID CONDUITS (GRC AND IMC) SHALL BE JOINED WITH THREADED COUPLERS. EMT SHALL BE JOINED WITH CONNECTORS OF STEEL OR MALLEABLE IRON AND SHALL BE OF THE COMPRESSION OR SET SCREW TYPE. INDENTOR, FRICTION AND DIE-CAST METAL CONNECTORS WILL NOT BE PERMITTED. PROVIDE INSULATED BUSHINGS AT ALL ENTRANCES TO PANELBOARDS, STARTERS, PULL BOXES, ETC.

VIBRATING EQUIPMENT: CONNECT TO VIBRATING EQUIPMENT AND HYDRAULIC, PNEUMATIC OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

16120 WIRES AND CABLES

GENERAL: PROVIDE WIRE AND CABLE WITH 600 VOLT INSULATION RATED FOR 90°C IN WET AND DRY LOCATIONS. MINIMUM SIZE BRANCH CONDUCTORS SHALL BE #12 AWG.

CONDUCTOR MATERIAL: WIRES AND CABLE ARE TO BE COPPER CONDUCTOR UNLESS OTHERWISE INDICATED.

CONDUCTORS: PROVIDE SOLID CONDUCTORS FOR POWER AND LIGHTING CIRCUITS #10 AWG AND SMALLER. PROVIDE STRANDED CONDUCTORS FOR SIZES #8 AWG AND LARGER.

INSULATION: PROVIDE THW-2, THHN OR THWN FOR ALL CONDUCTOR INSULATION. (NOTE THAT CONDUIT SIZE SHOWN ON THESE DRAWINGS IS BASED ON THHN INSULATION. LARGER CONDUIT MAY BE REQUIRED FOR OTHER INSULATIONS.)

120 VOLT CIRCUITS: THE MINIMUM CONDUCTOR SIZE FOR 120 VOLT BRANCH CIRCUITS SHALL BE #10 AWG FOR CIRCUITS LESS THAN 100 FEET TO THE CIRCUIT CENTER. AND #8 AWG OVER 100 FEET UNLESS NOTED TO BE LARGER.

277 VOLT CIRCUITS: THE MINIMUM CONDUCTOR SIZE FOR 277 VOLT BRANCH CIRCUITS SHALL BE #12 AWG FOR CIRCUITS LESS THAN 125 FEET TO THE CIRCUIT CENTER. #10 AWG UP TO 225 FEET. AND #8 AWG UP TO 350 FEET.

16125 MC CABLE

GENERAL: METAL-CLAD CABLE (MC) SHALL BE PERMITTED WHEREVER EMT OR ENT CONDUIT AND WIRING ARE PERMITTED FOR BRANCH CIRCUIT WORK. IT SHALL BE PERMITTED IN DRY LOCATIONS ONLY AND SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG (REFER TO WIRES AND CABLES FOR BRANCH CIRCUIT MINIMUM CONDUCTOR SIZES). IT WILL NOT BE PERMITTED FOR BRANCH CIRCUIT HOME RUNS OR FEEDERS.

MC CABLE: MC CABLE SHALL BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 334. MC CABLE SHALL ALSO INCLUDE NEC TYPES CS (COPPER SHEATH) OR ALS (ALUMINUM SHEATH). MC CABLE MAY BE USED WITH CONDUCTOR SIZE #12 AND LARGER. ALL MC CABLE SHALL INCLUDE A SEPARATE, GREEN GROUNDING.

16135 BOXES, CABINETS, ENCLOSURES AND FITTINGS

GENERAL: PROVIDE OUTLET AND DEVICE BOXES, PULL AND JUNCTION BOXES, CABINETS, HINGED DOOR ENCLOSURES AND BOXES AND FITTINGS FOR HAZARDOUS LOCATIONS AS INDICATED ON THESE DRAWINGS, AS REQUIRED BY THE NEC OR AS REQUIRED BY THE INSTALLATION.

OUTLET, DEVICE AND SMALL WIRING BOXES: PROVIDE METAL BOXES ON METAL RACEWAYS AND NON-METALLIC BOXES ON NON-METALLIC RACEWAYS. BOXES SHALL BE OF THE TYPE, SHAPE, SIZE AND DEPTH TO SUIT EACH LOCATION AND APPLICATION. BOXES SHALL INCLUDE STAMPED KNOCKOUTS, THREADED SCREW HOLES AND APPROPRIATE ACCESSORIES SUCH AS MOUNTING BRACKETS AND STRAPS, CABLE CLAMPS, GROUNDING TERMINALS, EXTERIOR RINGS AND FIXTURE STUDS.

PULL AND JUNCTION BOXES: PULL AND JUNCTION BOXES SHALL HAVE SCREWED OR BELTED COVERS AND SHALL BE OF THE SIZE AND SHAPE TO SUITE THE APPLICATION.

CABINETS: CABINETS SHALL CONSIST OF A BOX AND A FRONT WITH AN ONE PIECE FRAME AND A HINGED DOOR. PROVIDE A FRONT WITH APPROXIMATELY 3/4 INCH OVERLAP ON ALL EDGES FOR FLUSH CABINETS AND THE SAME SIZE AS THE BOX FOR SURFACE CABINETS.

HINGED DOOR ENCLOSURES: ENCLOSURES WITH HINGED DOORS SHALL HAVE HANDS WHICH ARE HINGED DIRECTLY TO THE BOX AND REMOVABLE WITH APPROXIMATELY 3/4 INCH FLANGE AROUND ALL EDGES, SHAPED TO COVER THE BOX.

NON-METALLIC ENCLOSURES: MOLDED NON-METALLIC ENCLOSURES SHALL BE FIBERGLASS REINFORCED HIGH IMPACT STRENGTH POLYESTER WITH BOLT OR SCREW SECURED HINGED DOOR(S) AND SOLID NEOPRENE GASKETS.

NEMA 1 CONSTRUCTION: PROVIDE THE FOLLOWING: STEEL BOXES, HOT-DIPPED GALVANIZED STEEL BOXES.

NEMA 3 AND 3R CONSTRUCTION: PROVIDE THE FOLLOWING: STEEL BOXES, HOT-DIPPED GALVANIZED STEEL BOXES.

NEMA 4 CONSTRUCTION: PROVIDE THE FOLLOWING WITH WATER TIGHT GASKETING: STEEL BOXES, HOT-DIPPED GALVANIZED STEEL BOXES, CAST-IRON BOXES, CAST-ALUMINUM BOXES.

NEMA 4X CONSTRUCTION: PROVIDE A CORROSION RESISTANT ENCLOSURE WITH WATER TIGHT GASKETING: STAINLESS STEEL BOXES, CAST NON-METALLIC BOXES.

NEMA 12 CONSTRUCTION: PROVIDE THE FOLLOWING WITH WATER TIGHT AND OIL TIGHT GASKETING: STEEL BOXES, HOT-DIPPED GALVANIZED STEEL BOXES.

ACCESSORIES: PROVIDE DOOR HANDLES, LATCHES, KEY LOCKS, DRIP GUARDS, MOUNTING PANELS, DOOR STOPS, PADLOCK HASPS AND OTHER ACCESSORIES AS REQUIRED. ALL BOXES, CABINETS AND ENCLOSURES WHICH ARE NOT SECURED BY SCREWS OR BOLTS SHALL HAVE PROVISIONS FOR LOCKING OR PAD LOCKING THE DOOR OR COVER.

16142 ELECTRICAL CONNECTIONS FOR EQUIPMENT

GENERAL: THIS CONTRACTOR SHALL EXTEND THE ELECTRICAL POWER WIRING TO EACH PIECE OF EQUIPMENT INDICATED ON THESE DRAWINGS AND SCHEDULES. THIS SHALL INCLUDE WIRING AND RACEWAY TO THE TERMINALS OF THE EQUIPMENT OR PLUG RECEPTACLE AS REQUIRED.

EQUIPMENT: MOTOR STARTERS, DISCONNECT SWITCHES, JUNCTION BOXES, WHICH ARE NOT AN INTEGRAL PART OF THE EQUIPMENT FURNISHED BY OTHER TRADES OR THE OWNER SHALL BE PROVIDED AS A PART OF THIS WORK.

16195 ELECTRICAL IDENTIFICATION

GENERAL: PROVIDE IDENTIFICATION OF ELECTRICAL MATERIALS, EQUIPMENT AND INSTALLATIONS. PROVIDE EQUIPMENT LABELS, WARNING AND CAUTION SIGNS, OPERATING INSTRUCTION SIGNS AND IDENTIFYING LABELS FOR THE FOLLOWING: BURIED ELECTRICAL LINE WARNINGS, MAIN SERVICE DISCONNECT SWITCHES, TRANSFER SWITCHES AND GENERATORS, SWITCHGEAR, SWITCHBOARD AND MOTOR CONTROL CENTERS, PANELBOARDS, DISCONNECTS AND MOTOR STARTERS, CONTACTORS AND RELAYS, TIMECLOCKS, TRANSFORMERS, POWER FACTOR CAPACITOR BANKS OR SYSTEMS, CABINETS AND ENCLOSURES, CONTROL AND ALARM PANELS.

UNDERGROUND LINES: PROVIDE A PERMANENT, BRIGHT-COLORED, CONTINUOUSLY-PRINTED, PLASTIC TAPE SUITABLE FOR DIRECT BURIAL. SERVICES NOT LESS THAN 6 INCHES WIDE BY 4 MILS THICK. PRINTED LEGEND SHALL BE INDICATIVE OF GENERAL TYPE OF UNDERGROUND LINE BELOW.

WIRE/CABLE MARKERS: PROVIDE VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND, CABLE/CONDUCTOR MARKERS WITH PREPRINTED NUMBERS AND LETTERS.

ENGRAVED PLASTIC LAMINATE: PROVIDE ENGRAVED PLASTIC LAMINATED LABELS, SIGNS AND INSTRUCTION PLATES OF STOCK MELAMINE PLASTIC. ENGRAVED LEGENDS SHALL BE WHITE LETTERS ON BLACK FACE. PROVIDE 1/16 INCH THICK FOR SIGNS UP TO 20 SQUARE INCHES OR 8 INCHES IN LENGTH AND 1/8 INCH THICK FOR LARGER SIGNS.

MYLAR LABELS: PROVIDE A MACHINE LETTERED LABEL ON 1/2 INCH MYLAR TAPE. LETTERING SHALL BE 3/8 INCHES (36 POINT) HIGH WHITE LETTERS ON BLACK BACKGROUND.

INTERIOR SIGNS: PROVIDE ALUMINUM SIGNS WITH BAKED ENAMEL WARNINGS AND CAUTIONS IN COLORS, LEGEND AND SIZE APPROPRIATE.

EXTERIOR SIGNS: PROVIDE WEATHER-RESISTANT, NONFADING, PREPRINTED CELLULOSE ACETATE BUTYRATE SIGNS WITH 20 GAUGE, GALVANIZED STEEL BACKING IN COLORS, LEGEND AND SIZE AS APPROPRIATE. PROVIDE A 1/4 INCH GROMMET IN EACH CORNER FOR MOUNTING.

CONDUCTOR COLOR CODES: PROVIDE COLOR CODING FOR SECONDARY SERVICE, FEEDER AND BRANCH CIRCUIT CONDUCTORS THROUGHOUT THE PROJECT SECONDARY ELECTRICAL SYSTEM AS FOLLOWS:

Table with 3 columns: PHASE, 208Y/120 VOLTS, 480Y/277 VOLTS. Rows include A (BLACK, YELLOW), B (RED, BROWN), C (BLUE, ORANGE), NEUTRAL (WHITE, GRAY*), GROUND (GREEN, GREEN).

*MAY BE THREE CONTINUOUS STRIPS ON OTHER THAN GREEN INSULATED CONDUCTOR.

WHERE ACCESSIBLE, EACH UNGROUNDED CONDUCTOR OF A MULTIWIRE BRANCH CIRCUIT SHALL BE IDENTIFIED BY PHASE AND WHERE MORE THAN ONE NOMINAL VOLTAGE EXISTS IN THE FACILITY, BY SYSTEM.

16143 WIRING DEVICES

GENERAL: PROVIDE WIRING DEVICES OF THE TYPE, CHARACTERISTICS, GRADES, COLORS AND ELECTRICAL RATINGS FOR EACH APPLICATION INDICATED ON THE DRAWINGS.

MANUFACTURERS: COOPER, HUBBELL, INC., LEVITON, LUTRON.

GRADE: SWITCHES AND RECEPTACLES SHALL BE SPECIFICATION GRADE.

COLOR: GENERAL PURPOSE SWITCHES AND RECEPTACLES SHALL BE WHITE IN COLOR. DEVICES CONNECTED TO EMERGENCY CIRCUITS SHALL BE RED IN COLOR. SPECIAL PURPOSE OUTLETS (DEVICES OTHER THAN 15A OR 20A RATED) SHALL BE BLACK IN COLOR. ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.

SWITCHES: AC SWITCHES SHALL BE QUIET OPERATING AND RATED AT 20 AMPERES 120/277 VOLTS. SWITCHES USED AS MOTOR DISCONNECTS SHALL BE MOTOR RATED AT 1 HORSEPOWER FOR 120 VOLTS, SINGLE-PHASE CIRCUITS.

RECEPTACLES: ALL RECEPTACLES SHALL BE GROUNDING TYPE. GENERAL PURPOSE DUPLEX RECEPTACLES SHALL BE RATED AT 15 AMPERES, INDIVIDUALLY CIRCUITED DUPLEX RECEPTACLES SHALL BE RATED AT 20 AMPERES.

COVERPLATES: COVERPLATES SHALL BE OF THE APPROPRIATE TYPE AND SIZE TO ACCOMMODATE THE DEVICES. COVERPLATES SHALL BE HIGH-IMPACT RESISTANT, SMOOTH NYLON MID-SIZE, MAR-PROOF MATERIAL AND SHALL MATCH THE COLOR OF THE GENERAL PURPOSE SWITCHES AND RECEPTACLES. WEATHERPROOF COVERPLATES SHALL BE PROVIDED FOR ALL EXTERIOR RECEPTACLES AND SWITCHES OR WHERE INDICATED IN THESE DRAWINGS. WET LOCATION COVERPLATES SHALL BE LISTED AS "SUITABLE FOR WET LOCATIONS WHILE IN USE" AND SHALL HAVE A CLEAR COVER WHICH CLOSES WITH A CORD SET PLUGGED INTO THE RECEPTACLE.

TVSS RECEPTACLES: PROVIDE DUPLEX SURGE SUPPRESSION PROTECTED RECEPTACLES WHERE SHOWN ON THESE DRAWINGS. UNITS SHALL COMPLY WITH UL STANDARD UL1449 AND SHALL BE SUITABLE FOR ANSI/IEEE C62.41 CATEGORIES A AND B.

DIMMER SWITCHES: INCANDESCENT LAMP DIMMERS SHALL BE 120 VOLT, LINEAR SLIDE WITH OFF POSITION AT THE BOTTOM AND COLOR TO MATCH GENERAL PURPOSE DEVICES. DIMMER SHALL BE RATED 600 WATTS UNLESS OTHERWISE NOTED OR REQUIRED BY THE APPLICATION. FLUORESCENT LAMP DIMMERS AND BALLASTS SHALL HAVE A DIMMING RANGE OF 100 PERCENT TO 1 PERCENT FOR LARGE LAMPS AND 100 PERCENT TO 5 PERCENT FOR COMPACT T4 AND T5 LAMPS.

16170 CIRCUIT AND MOTOR DISCONNECTS

GENERAL: PROVIDE CIRCUIT AND MOTOR DISCONNECT SWITCHES IN TYPES, SIZES, DUTIES, FEATURES, RATINGS AND ENCLOSURES AS INDICATED OR AS REQUIRED BY THE NEC OR BY THE APPLICATION. PROVIDE NEMA 1 ENCLOSURES FOR INDOOR SWITCHES AND NEMA 3R ENCLOSURES WITH RAINTIGHT HUBS FOR EXTERIOR SWITCHES. FOR MOTORS AND MOTOR STARTER DISCONNECTS, PROVIDE UNITS WITH HORSEPOWER RATINGS SUITABLE FOR THE LOAD.

MANUFACTURERS: APPLETON, CROUSE-HINDS CO., CUTLER-HAMMER, GENERAL ELECTRIC, SIEMENS ENERGY & AUTOMATION, INC.

NON-FUSIBLE SWITCHES: PROVIDE HEAVY DUTY SWITCHES OF THE CLASS AND CURRENT RATINGS INDICATED OR REQUIRED.

FUSIBLE SWITCHES: PROVIDE HEAVY DUTY SWITCHES WITH FUSES OF THE CLASSES AND CURRENT RATINGS INDICATED OR REQUIRED. PROVIDE UL SERVICE ENTRANCE LABEL WHERE USED AS MAIN SERVICE DISCONNECT.

GROUNDING: PROVIDE EQUIPMENT GROUNDING CONNECTIONS FOR DISCONNECT SWITCH ENCLOSURES AND GROUND IN ACCORDANCE WITH NEC AND AS STATED HEREIN.

16452 GROUNDING

GENERAL: THIS CONTRACTOR SHALL SOLIDLY GROUND ALL ELECTRICAL SYSTEMS AND EQUIPMENT. THE ELECTRICAL SYSTEM GROUND SHALL CONFORM TO THE SPECIFICATIONS AND TO THE DRAWINGS, BUT IN NO CASE SHALL IT BE LESS THAN THE REQUIREMENTS OF THE NEC.

MAIN BONDING JUMPER: THE SERVICE ENTRANCE AND EACH SEPARATELY DERIVED SYSTEM SHALL HAVE A MAIN BONDING JUMPER BETWEEN THE GROUNDED CIRCUIT CONDUCTOR (NEUTRAL) AND THE EQUIPMENT GROUNDING CONDUCTOR (GREEN WIRE) LOCATED WITHIN THE MAIN SERVICE DISCONNECT EQUIPMENT AND IN THE TRANSFORMER OR THE FIRST DISCONNECT OF EACH SEPARATELY DERIVED SYSTEM.

GROUNDING ELECTRODE SYSTEM: THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE CONDUCTOR AND GROUNDING ELECTRODES FOR THE SERVICE ENTRANCE AND FOR EACH SEPARATELY DERIVED ALTERNATING CURRENT SYSTEM.

THE GROUNDING ELECTRODE CONDUCTOR SHALL CONNECT THE MAIN BONDING JUMPER AND THE EQUIPMENT GROUNDING SYSTEM TO THE GROUNDING ELECTRODES. THE CONDUCTOR SHALL BE SIZED ACCORDING TO THE TABLE IN ARTICLE 250 OF THE NEC UNLESS THESE DRAWINGS REQUIRE A LARGER SIZE. THE CONDUCTOR SHALL BE NOTED EXPOSED IN NON-METALLIC CONDUIT, EXCEPT THAT #6 AWG SHALL BE INSTALLED IN RIGID CONDUIT AND BONDED TO EACH END.

PROVIDE A MINIMUM OF TWO DIFFERENT GROUNDING ELECTRODES. ELECTRODES SHALL INCLUDE ALL OF THE FOLLOWING WHEREVER AVAILABLE: THE INCOMING DOMESTIC WATER SERVICE (SPRINKLER WATER LINES SHALL NOT BE USED); THE METAL FRAME OF THE BUILDING; AN ELECTRODE ENCASED BY AT LEAST TWO INCHES OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF AN UNDERGROUND FOOTING OR FOUNDATION, CONSISTING OF 50 FEET OF BARE SOLID COPPER CONDUCTOR #4 AWG OR LARGER AT A DEPTH OF AT LEAST 42 INCHES BELOW GRADE; AND WHERE THESE ELECTRODES CANNOT BE PROVIDED, A SUFFICIENT NUMBER OF COPPER SOLID GROUND RODS, 5/8 INCH DIAMETER BY 10 FEET LONG, SHALL BE DRIVEN AT THE LOWEST POINT OF EXCAVATION TO PROVIDE A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS. A BONDING JUMPER SHALL BE INSTALLED AROUND THE WATER METER AND SHALL BE THE SAME SIZE AS THE GROUNDING ELECTRODE CONDUCTOR.

EQUIPMENT GROUNDING SYSTEM: THE EQUIPMENT GROUNDING SYSTEM SHALL GROUND ALL ELECTRICAL EQUIPMENT, METALLIC RACEWAYS, ENCLOSURES AND ALL NONCURRENT-CARRYING PARTS OF ELECTRICAL EQUIPMENT, SOUND EQUIPMENT, ALARM SYSTEM EQUIPMENT, MECHANICAL EQUIPMENT AND OTHER BUILDING SYSTEM EQUIPMENT WHICH USES ELECTRICITY OR WHICH COULD BECOME ENERGIZED UNDER FAULT CONDITIONS. AN EQUIPMENT GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH THE NEC TABLE IN ARTICLE 250 SHALL BE PROVIDED IN ALL CONDUIT, RACEWAY, CABLE TRAY, ETC. ALL EQUIPMENT SHALL BE GROUNDED WITH AN EQUIPMENT GROUNDING CONDUCTOR CABLE (GREEN OR GREEN WITH YELLOW TRACER).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE RUN IN THE SAME CONDUIT AND RACEWAY AS THE CURRENT CARRYING CONDUCTORS WITHOUT EXCEPTION.

STEEL (MAGNETIC) CONDUIT USED FOR MECHANICAL PROTECTION OF A GROUNDING CONDUCTOR SHALL BE SECURELY BONDED TO THAT CONDUCTOR AT EACH END.

16470 PANELBOARDS

GENERAL: PANELBOARD CONSTRUCTION MAY BE USED FOR ALL OVERCURRENT DISTRIBUTION AND BRANCH CIRCUIT EQUIPMENT OF THE FOLLOWING SIZES: SINGLE-SECTION WITH MAIN BUS OF 1200A OR LESS, MULTI-SECTION WITH A MAIN BUS OF 600A OR LESS.

MANUFACTURERS: CUTLER-HAMMER, SQUARE D, SIEMENS ENERGY & AUTOMATION.

CONSTRUCTION: PANELBOARDS SHALL HAVE GALVANIZED SHEET STEEL CABINETS. THE MINIMUM SIZE SHALL BE 20 INCHES WIDE BY 5-3/4 INCHES DEEP. FRONTS ON SURFACE MOUNTED PANELBOARDS ARE TO BE FRONT HINGED TO BOX TYPE. RECESSED PANEL FRONTS SHALL HAVE ADJUSTABLE TRIM CLAMPS AND DOORS WITH FLUSH LOCKS AND KEYS, AND CONCEALED PIANO DOOR HINGES. EQUIPMENT WITH AN INTERIOR CIRCUIT DIRECTORY FRAME, CARD AND CLEAR PLASTIC COVER. PROVIDE A BAKED GRAY ENAMEL FINISH OVER A RUST INHIBITOR COATING. ENCLOSURES AND FRONT SHALL BE DESIGNED FOR SURFACE OR RECESS (OVERLAPPING FRONT) INSTALLATION.

AIC: PROVIDE A MINIMUM AMPS INTERRUPTING CAPACITY OF 10,000 AIC AT 208V AND 14,000 AIC AT 480V OR GREATER WHERE INDICATED. FUSIBLE EQUIPMENT SHALL BE RATED 100,000 AIC.

BUSING: PROVIDE PANELBOARDS WITH COPPER OR TIN PLATED ALUMINUM BUSES MULTI-SECTION PANELS SHALL BE PROVIDED WITH SUB-FEED LUGS FOR CONNECTION OF ALL SUB-SECTIONS. PROVIDE A GROUND BUS IN EACH SECTION, AND PROVIDE A 100 PERCENT RATED NEUTRAL BUS IN EVERY PANELBOARD.

SERVICE ENTRANCE: PROVIDE A UL SERVICE ENTRANCE LABEL FOR ALL PANELBOARDS SERVED BY A TRANSFORMER OF SEPARATELY DERIVED ELECTRICAL SYSTEM.

LIGHTING AND APPLIANCE PANELBOARDS: PROVIDE DEAD-FRONT SAFETY TYPE LIGHTING AND APPLIANCE PANELBOARDS AS INDICATED. EQUIPMENT WITH BOLT-IN TYPE MOLDED CASE CIRCUIT BREAKERS, PANELBOARDS RATED UP TO 225A SHALL BE CAPABLE OF EXCEPTING A 3P-100A CIRCUIT BREAKER AT ANY POSITION. WHERE ANY CIRCUIT BREAKER LARGER THAN 3P-100A IS REQUIRED, PROVIDE A POWER DISTRIBUTION PANELBOARD. ALL LIGHTING AND APPLIANCE PANELBOARDS SHALL HAVE DOORS.

POWER DISTRIBUTION PANELBOARDS: PROVIDE DEAD-FRONT SAFETY TYPE POWER DISTRIBUTION PANELBOARDS AS INDICATED. EQUIPMENT WITH BOLT-IN CIRCUIT BREAKERS OR FUSIBLE SWITCHES AS INDICATED. POWER DISTRIBUTION PANELBOARDS RATED 400A OR HIGHER SHALL ACCEPT 3P-150A (MINIMUM) CIRCUIT BREAKERS AT ANY POSITION UNLESS LARGER BREAKERS OR FUSIBLE SWITCHES ARE INDICATED. PROVIDE OVERALL DOORS FOR PANELBOARDS CONTAINING CIRCUIT BREAKERS AND WHERE INDICATED FOR PANELBOARDS CONTAINING FUSIBLE SWITCHES. WHERE PANELBOARDS ARE INSTALLED OUTDOORS, PROVIDE NEMA 3R WEATHERPROOF EXTERIOR DOORS, GASKETING MATERIALS AND A DRIP HOOD OVER THE TOP.

MOLDED CASE BREAKERS: PROVIDE FACTORY-ASSEMBLED MOLDED CASE CIRCUIT BREAKERS OF THE FRAME SIZES, AMPERES, POLES AND VOLTAGE AS INDICATED. BREAKERS SHALL HAVE PERMANENT THERMAL AND INSTANTANEOUS MAGNETIC TRIPS IN EACH POLE. CONSTRUCT WITH OVERCENTER, TRIP-FREE TOGGLE-TYPE OPERATING MECHANISMS WITH QUICK-MAKE, QUICK-BREAK ACTION AND POSITIVE HANDLE TRIP INDICATION. WHERE MULTIPLE POLE BREAKERS ARE INDICATED, PROVIDE WITH A COMMON TRIP SUCH THAT OVERLOAD ON ONE POLE WILL TRIP ALL POLES SIMULTANEOUSLY.

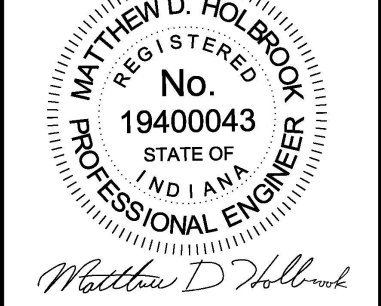
FUSIBLE SWITCHES: PROVIDE GROUP MOUNTED FUSIBLE SWITCH ASSEMBLIES RATED FOR 30 TO 600 AMPERES AS INDICATED. SWITCHES SHALL BE 3-POLE, QUICK-MAKE, QUICK-BREAK TYPES OPERATED BY EXTERNAL HANDLES WHICH CAN BE PADLOCKED IN THE "ON" AND "OFF" POSITIONS.

SERIES RATINGS: ALL SERIES RATED COMPONENTS SHALL BE CLEARLY MARKED WITH A LABEL INDICATING THE DEVICE IS INSTALLED IN ACCORDANCE WITH PRESCRIBED UL RECOGNIZED SERIES CONNECTED CIRCUIT BREAKER COMBINATIONS.

MATTHEW HOLBROOK, P.E. 6180 CAFFOLLTON AVENUE INDIANAPOLIS IN 46220 E-MAIL KEVIN.HOLBROOK@STONECREEK.COM

Certified By:

Approved 10-15-2024



Scale: AS NOTED, Date: 3.6.2024, Drawn By: KC, Checked By: MH.

STONE CREEK DINING COMPANY, Shiloh's Corner, 1464 West Stones Crossing Road, Greenwood, Indiana 46143.

Revisions: REVISION 2 10.2.2024

Drawing Name: ELECTRICAL SPECIFICATIONS, Drawing Number: E000

PANEL "P1"		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#12	KEF-1L	3	997	20/3		2401	4	MUA-1	#10
		5	997	20/3		2401	6		
		7	792	20/3		1429	8		
#12	KEF-1R	9	792	20/3		1429	10	MUA-1 CONDENSER #1	#12
		11	792	20/3		1429	12		
		13	792	20/3		2089	14		
#12	KEF-2L	15	792	20/3		2089	16	MUA-1 CONDENSER #2	#10
		17	792	20/3		2089	18		
		19	792	20/3		1573	20		
#12	KEF-2R	21	792	20/3		1573	22	MUA-2	#12
		23	792	20/3		1573	24		
#12	EF-DISH	25	275	20/2		1429	26		
		27	275	20/2		1429	28	MUA-2 CONDENSER #1	#12
	SPARE	29		20/1		1429	30		
	SPARE	31		30/3		2089	32		
	SPARE	33				2089	34	MUA-2 CONDENSER #2	#10
	SPARE	35				2089	36		
	SPARE	37		20/1			38	SPARE	
	SPARE	39					40	SPARE	
	SPARE	41					42	SPARE	

PANEL "P1" (TUB 2)		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#12	REFRIGERATOR	43	540	20/1		869	44	OVEN	#12
	SHUNT FOR ABOVE	45				869	46		
#12	REFRIGERATED BASE	47	528	20/1			48	SHUNT FOR ABOVE shunt	
	SHUNT FOR ABOVE shunt	49		30/3		3266	50		
#12	REFRIGERATED STAND	51	312			3266	52	KETTLE	#10
	SHUNT FOR ABOVE shunt	53				3266	54		
#12	BOILER	55	444	20/1			56	SHUNT FOR ABOVE shunt	
	SHUNT FOR ABOVE shunt	57				1080	58	GEN RECPT	#12
#12	OVEN	59	869	20/2			60	SHUNT FOR ABOVE	#12
#12		61	869				62	SPARE	#12
	SHUNT FOR ABOVE shunt	63		20/1			64	SPARE	#12
	SPARE	65					66	SPARE	
		67	8660	75/3		648	68	SLICER	#12
		69	8660			1080	70	GEN RECPT	#12
#4	DISH MACHINE	71	8660				72	SPARE	#12
	SHUNT FOR ABOVE shunt	73		20/3		336	74		
#12	FIRE SUPPRESSION	75	250	20/1		336	76	MIXER	#12
	SHUNT FOR BELOW shunt	77				336	78		
		79	6651	60/3		250	80	FIRE SUPPRESSION	#12
#6	DISH BOOSTER HTR	81	6651			250	82	EXHAUST HOOD LTS	#12
		83	6651				84	SPARE	

** INDICATES PANEL LOCKS

PHASE A: 37191 WATTS	BALANCE 10.74%
PHASE B: 37412 WATTS	
PHASE C: 34693 WATTS	
TOTAL 109,296 WATTS	

CONNECTED 109,296 W.	DEMAND 106,961 W.
303.6 A.	296.9 A.

PANEL "P2" (TUB-1)		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#4	RTU-1	3	7565	80/3		627	2	BANQUET CONDENSER	#12
		5	7565			539	6	BANQUET EVAPORATER	#12
		7	5403	60/3		539	8		
#6	RTU-2	9	5403	20/2		1661	10	COOLER COND	#12
		11	5403			1661	12		
		13	4683	50/3		539	14	COOLER EVAP	#12
#8	RTU-3	15	4683	20/2		539	16		
		17	4683			1254	18	FREEZER COND	#12
		19	7565	80/3		1254	20		
#4	RTU-4	21	7565	20/2		1078	22	FREEZER EVAP	#12
		23	7565			1078	24		
		25	4683	50/3			26	SPARE	
#8	RTU-5	27	4683				28	SPARE	
		29	4683				30	SPARE	
		31	7565	80/3			32	SPARE	
#4	RTU-6	33	7565	20/1			34	SPARE	
		35	7565				36	SPARE	
	SPARE	37		20/1			38	SPARE	
	SPARE	39					40	SPARE	
	SPARE	41					42	SPARE	

PANEL "P2" (TUB-2)		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#12	REACH-IN REFRIG	43	336	20/1		264	44	REACH-IN REFRIG	#12
#12	ICE CREAM FREEZER	45	396			468	46	PIZZA REFRIG	#12
#12	FREEZER	47	1342			468	48	PIZZA REFRIG	#12
#12	FOOD WARMER	49	1200				50	SPARE	
#12	MICROWAVE	51	1560				52	SPARE	
#12	SODA DISPENSER	53	360			468	54	PIZZA REFRIG	#12
	SPARE	55					56	SPARE	
	SPARE	57					58	SPARE	
#12	KITCHEN GEN RECPT	59	540				60	SPARE	
#12	REFRIGERATOR	61	240			1080	62	PRINT RECPT	#12
#12	SODA SYSTEM	63	240			540	64	PRINT RECPT	#12
	SPARE	65				720	66	POS RECPT	#12
	SPARE	67				720	68	POS RECPT	#12
	SPARE	69				420	70	BACK BAR COOLER	#12
#12	WARMING DRAWER	71	750			420	72	BACK BAR COOLER	#12
#12	COLD WELL	73	804				74	SPARE	
#12	SALAD DISPENSER	75	360			840	76	WINE COOLER	#12
#12	REFRIGERATOR	77	780			840	78	WINE COOLER	#12
	SPARE	79		30/1		3240	80	GLASS WASHER	#10
	SPARE	81		20/1			82	SPARE	
	SPARE	83					84	SPARE	

** INDICATES PANEL LOCKS

PHASE A: 48307 WATTS	BALANCE 38.81%
PHASE B: 46193 WATTS	
PHASE C: 48684 WATTS	
TOTAL 143184 WATTS	

CONNECTED 143,184 W.	DEMAND 137,518 W.
397.7 A.	381.7 A.

PANEL "P3" (TUB-1)		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#12	EXTERIOR-EMERG	1	250	20/1		580	2	EXTERIOR LTG	#12
#12	EXIT-EMERG	3	125			125	4	EXTERIOR LTG	#12
#12	ENTRY LTG	5	150			180	6	EXTERIOR LTG	#12
#12	STEP LTS	7	597				8	SPARE	
#12	DINING LTG	9	638				10	SPARE	
#12	LINEAR LTG	11	250				12	SPARE	
#12	DINING SCONCE LTG	13	246			720	14	OFFICE RECPT	#12
#12	DINING PENDANTS LTG	15	102			720	16	OFFICE RECPT	#12
#12	DINING PENDANT LTG	17	120			360	18	BAR TV	#12
#12	RESTROOMS LTG	19	156			1260	20	DINING RECPT	#12
#12	PRIVATE DINING LTG	21	270			1080	22	DINING RECPT	#12
#12	CEILING FANS	23	400			360	24	DINING TV	#12
#12	WINE ROOM LTG	25	125			720	26	DINING POS	#12
#12	KITCHEN LTG	27	1740			360	28	RESTROOM GFCI	#12
#12	PERGOLA LTG	29	115			360	30	RECEPTION RECPT	#12
#12	CEILING FANS	31	400			720	32	MEZZANINE RECPT	#12
#12	MEZZANINE LTG	33	345			360	34	MEZZANINE POS	#12
#12	MEZZANINE LTG	35	240			150	36	WDW SHADE SOUTH	#12
	SPARE	37				150	38	WDW SHADE SOUTH	#12
	SPARE	39				150	40	WDW SHADE WEST	#12
	RESET RECPT	41	540			150	42	WDW SHADE WEST	#12

PANEL "P3" (TUB-2)		AIC RATED: 40,000		LUGS		400 AMP			
120/208 VOLT 3 PHASE 4 WIRE				MAIN BREAKER		400 AMP			
WIRE SIZE	USE	CKT. NO.	LOAD KVA	BKR SIZE	A B C	LOAD KVA	CKT. NO.	USE	WIRE SIZE
#8	PATIO HTR	43	3174	40/2		360	44	WATER HTRS	#12
		45	3174			180	46	WATER SOFTNER	#12
#8	PATIO HTR	47	3174	40/2		180	48	GEN RECPT	#10
		49	3174			720	50	WP-GFCI	#12
#8	PATIO HTR	51	3174	40/2		250	52	FIREPLACE	#12
		53	3174			250	54	FIREPLACE	#12
#8	PATIO HTR	55	3174	40/2		180	56	PERGOLA LOUVERS	#12
		57	3174			180	58	RECIRC PUMP	#12
#8	PATIO HTR	59	3174	40/2		360	60	IT DED	#12
		61	3174			360	62	IT DED	#12
#8	PATIO HTR	63	3174	40/2		3120	64	HEAT LAMP	#10
		65	3174			3120	66	HEAT LAMP	#10
#8	PATIO HTR	67	3174	40/2		3120	68	HEAT LAMP	#10
		69	3174			70	SPARE		
#8	PATIO HTR	71	3174	40/2			72	SPARE	
		73	3174				74	SPARE	
#8	PATIO HTR	75	3174	40/2			76	SPARE	
		77	3174				78	SPARE	
#12	WINE COOLER	79	110	20/2			80	SPARE	
		81	110				82	SPARE	
#12	BB-1	83	1692	20/1			84	SPARE	

** INDICATES PANEL LOCKS

PHASE A: 29818 WATTS	BALANCE 7.15%
PHASE B: 28899 WATTS	
PHASE C: 28021 WATTS	
TOTAL 86738 WATTS	

CONNECTED 86,738 W.	DEMAND 88,971 W.
240.9 A.	247.0 A.

MATTHEW HOLBROOK, P.E.
 680 CARROLLTON AVENUE
 INDIANAPOLIS 46220
 E-MAIL KEVIN@COCONUTINC.COM

Certified By:
 Approved 10-15-2024
 REGISTERED PROFESSIONAL ENGINEER
 No. 19400043
 STATE OF INDIANA
 Matthew D. Holbrook

Scale: AS NOTED
 Date: 3.6.2024
 Drawn By: KC
 Checked By: MH

STONE CREEK DINING COMPANY
 Shiloh's Corner
 1464 West Stones Crossing Road
 Greenwood, Indiana 46143

Revisions:
 REVISION 2 10.2.2024

Drawing Name:
 ELECTRICAL
 PANEL SCHEDULES
 Drawing Number:
E100

PERMIT SET 6.12.2024

ELECTRICAL NOTES

REMOVE ALL EXISTING LIGHTING FIXTURES, SWITCHES, JUNCTION BOXES, CONDUIT, WIRING, ETC., NOT REQUIRED FOR REUSE.

THE ELECTRICAL SERVICE TO THE SPACE SHALL BE VERIFIED IN FIELD FOR PROPER SIZE, ETC. CONFIRM SIZE AND VOLTAGE CHARACTERISTICS OF EXISTING SERVICE TO THE SITE. BASE BID SHALL INCLUDE ANY ADDITIONAL CONDUIT AND WIRING AND CONNECTIONS OF THE ELECTRICAL EQUIPMENT, ETC.

FURNISH AND INSTALL NEW SERVICE DISTRIBUTION EQUIPMENT INCLUDING THE MAIN DISTRIBUTION CABINET, METERS AND DISCONNECT SWITCHES AS SHOWN. VERIFY AND CHANGE AS REQUIRED TO ADEQUATELY PROTECT THE FEEDER TO THE SPACE. IF ANY ISSUES ARISE WITH REGARD TO REUSE OF SERVICE AND EQUIPMENT, CONTACT ARCHITECT AND/OR ENGINEER PRIOR TO BID FOR DISPOSITION. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY AND VIEW ALL EXISTING CONDITIONS BEFORE SUBMITTING A PROPOSAL FOR THE WORK AS DESCRIBED AND SHOWN. EXTRAS WILL NOT BE PERMITTED FOR FAILURE TO MAKE THIS VISIT.

THE INTENT OF THE WORK WITH REGARD TO ELECTRICAL DISTRIBUTION AS INDICATED ON THE DRAWINGS IS AS FOLLOWS:

- A. ALL EXISTING ELECTRICAL EQUIPMENT NOT CURRENTLY BEING USED TO FEED ANYTHING AND NOT REQUIRED AS PART OF THIS REMODEL SHALL BE REMOVED.
- B. EXISTING ELECTRICAL EQUIPMENT CURRENTLY BEING USED TO FEED LIGHTING, EQUIPMENT, ETC., SHALL BE REUSED. A DETAILED FIELD INSPECTION OF THE EXISTING EQUIPMENT SHALL BE INCLUDED IN THE BASE BID TO DETERMINE ITS CONDITION AND COSTS TO PERFORM MAINTENANCE SERVICE. INSPECTION SHALL INCLUDE THE FOLLOWING:
 - 1. CHECK ENTIRE INSTALLATION FOR CODE COMPLIANT CLEARANCES. MODIFY INSTALLATION AND EQUIPMENT LOCATION AS REQUIRED.
 - 2. CHECK CONDUITS FOR PROPER INSTALLATION, I.E. TIGHT CONNECTIONS, PROPER FITTINGS, RUSTING, CREASING, BENDING, ETC. REPAIR OR REPLACE AS REQUIRED.
 - 3. CHECK FOR BARE WIRING. COVER OR REPLACE AS REQUIRED.
 - 4. CHECK FOR PROPER GROUNDING OF SYSTEM AND EQUIPMENT. CORRECT AS REQUIRED.
 - 5. CHECK FOR CIRCUIT OVERLOADING AND/OR TRIPPING. REPLACE BREAKERS AND/OR FUSES AS REQUIRED. REDISTRIBUTE CIRCUITING OF EQUIPMENT AND/OR LIGHTING AS REQUIRED.
 - 6. REPAIR ANY RUSTED AREAS ON EQUIPMENT CASINGS. REPAINT AS REQUIRED.
 - 7. VERIFY THE SIZES OF THE EQUIPMENT IN FIELD AS SHOWN AND CALLED FOR - IF EQUIPMENT IS NOT SIZED AS REQUIRED, CONTACT THE ARCHITECT/ENGINEER.

AN ALTERNATE PROPOSAL SHALL BE SUBMITTED TO REPLACE ANY AND/OR ALL EXISTING EQUIPMENT, IF THE EQUIPMENT IS DETERMINED TO BE IN NEED OF REPLACEMENT AFTER THE INSPECTION AT THE JOB SITE. ALTERNATE PROPOSAL SHALL BE COMPLETE.

ELECTRICAL EQUIPMENT IS EXISTING BY LANDLORD.

FURNISH AND INSTALL TYPEWRITTEN PANEL DIRECTORIES AS SHOWN.

CIRCUITS SHALL BE CONNECTED TO THE PANELS AND ARRANGED TO COMPLY WITH THE NUMBERS SHOWN ON THE DRAWINGS. UNUSED CIRCUITS SHALL BE UTILIZED AS SPARES.

FURNISH AND INSTALL NEW TIME CLOCK.

PROVIDE ADEQUATE TEMPORARY POWER AND LIGHTING.

THE FIVE (3) ROOFTOP A.C UNITS, NEW MAKE-UP AIR UNIT AND ONE EXHAUST FAN SHALL BE INSTALLED BY MECHANICAL CONTRACTOR AS SHOWN AND CALLED FOR. THE ELECTRICAL CONTRACTOR SHALL CONNECT THE UNITS AFTER THEY HAVE BEEN SET IN PLACE. VERIFY TOTAL LENGTH OF CONDUIT AND WIRING REQUIRED IN FIELD PRIOR TO BID.

TIME CLOCK AND OTHER MISCELLANEOUS ELECTRICAL COMPONENTS SHALL NOT BE INSTALLED ON THE TELEPHONE TERMINAL BOARD.

MAINTAIN ALL REQUIRED CLEARANCES AT ALL ELECTRICAL EQUIPMENT AND COMPLY WITH N.E.C. ARTICLE 110.

A COMPLETE FIRE ALARM SYSTEM SHALL BE INSTALLED. COORDINATE REQUIREMENTS WITH LANDLORD AS REQUIRED.

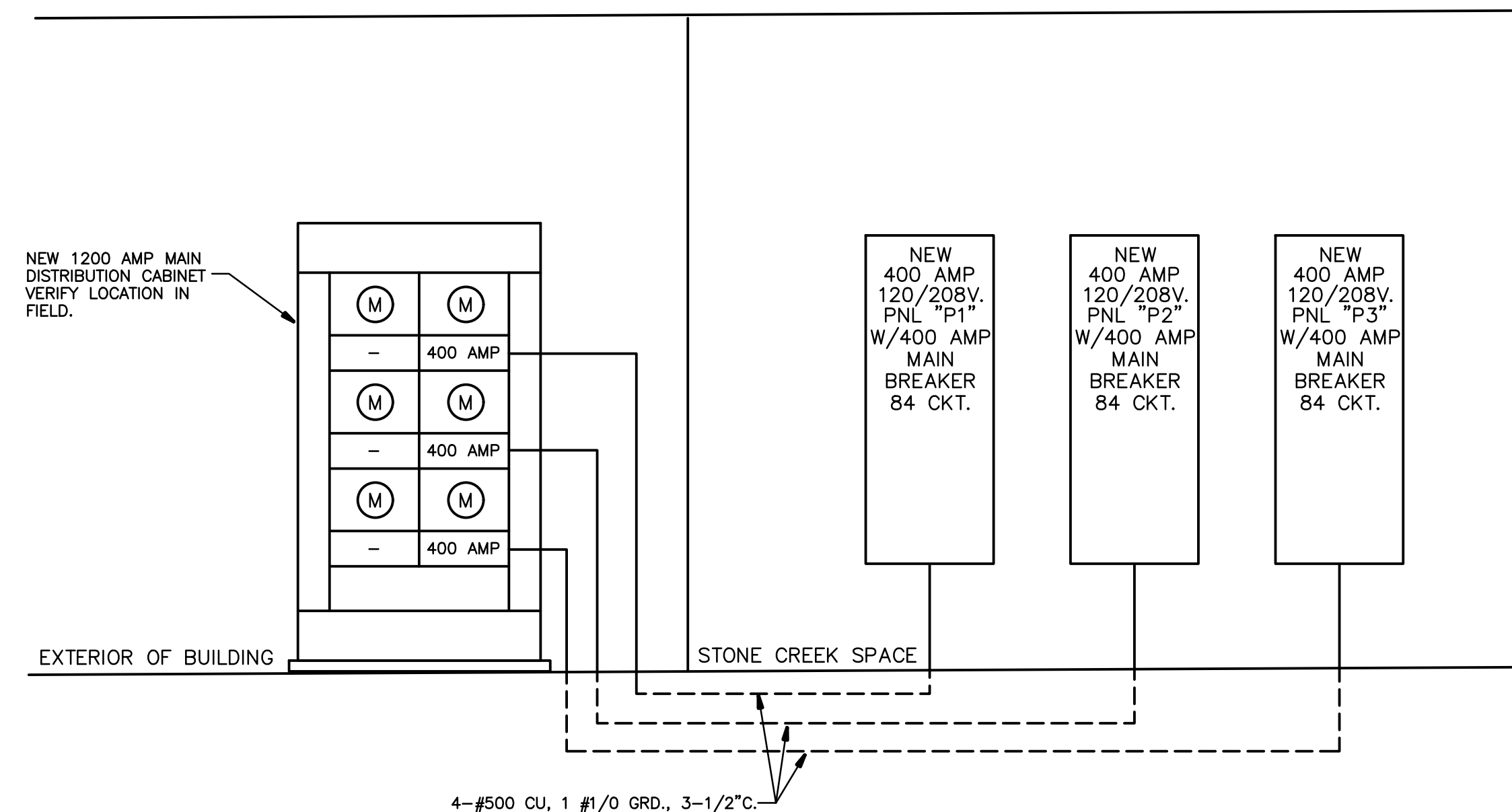
TEMPERATURE CONTROL EXCLUDED FROM ELECTRICAL CONTRACT.

CONTRACTOR SHALL NOTIFY THE ARCHITECT AND/OR ENGINEER OF ERRORS, OMISSIONS OR DISCREPANCIES BEFORE CONSTRUCTION OR FABRICATION OF AFFECTED WORK, OR, FAILING SUCH NOTICE, SHALL BE RESPONSIBLE FOR CORRECTING SAME WITHOUT COST TO TENANT, ARCHITECT OR ENGINEER.

WORK SHALL INCLUDE START UP OF ALL SYSTEMS. PROVIDE ONE YEAR LABOR WARRANTY ON ENTIRE INSTALLATION AND ONE YEAR PARTS WARRANTY ON ALL EQUIPMENT SUPPLIED BY SUB-CONTRACTOR. FURNISH ALL MANUALS, MAINTENANCE INSTRUCTIONS, AND WARRANTIES TO CONTRACTOR.

MOUNT SWITCHES 4'-0" ABOVE FLOOR UNLESS OTHERWISE NOTED.

ALL CONDUITS FOR USE BY OTHERS SHALL BE CONTINUOUS, CONTAIN PULL STRINGS, AND HAVE PULL BOXES AS NECESSARY.



RISER DIAGRAM NOTES

- 1. OBTAIN AVAILABLE FAULT CURRENT RATING AND PROVIDE PROTECTION FOR MAIN CIRCUIT BREAKER AND ALL BRANCH DEVICES.
- 2. MAINTAIN ALL REQUIRED CLEARANCES PER ARTICLE 110-26 NEC
- 3. COPPER OR ALUMINUM IS ACCEPTABLE FOR SERVICE RUNS. VERIFY IN FIELD.

**POWER RISER DIAGRAM
NOT TO SCALE**

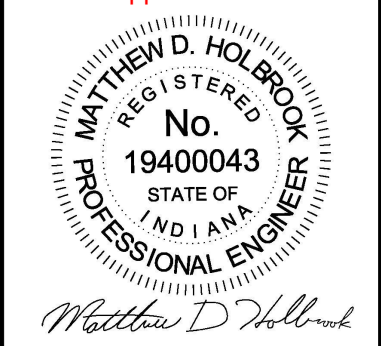
ELECTRICAL NOTES:

- 1. SEAL AROUND ALL ELECTRICAL PENETRATIONS OF FIRE RATED WALLS PER NEC 300.21.
- 2. ALL RECEPTACLE LOADS ARE BASED ON 180 WATTS FOR DUPLEX DEVICES AND 360 WATTS FOR QUAD DEVICES.
- 3. ALL PANEL LOCK DEVICES MUST BE U.L. LABELED-LISTED.
- 4. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE SUITABLE FOR INSTALLATION AND USE IN CONFORMITY WITH NEC 110.3(A)(1).
- 5. CONNECT ALL GROUNDING SYSTEMS, PHONE, TV, AND SECURITY. LOW VOLTAGE IS BY ELECTRICAL CONTRACTOR AND SHALL CONSIST OF ONE CAT-5 AND ONE RG6 TO EACH SALON ROOM FOR FUTURE USE.
- 6. EMERGENCY/EXIT/NL LIGHTING SHALL BE CONNECTED TO REGULAR LIGHTING CIRCUIT AND WIRING AHEAD OF ANY LOCAL SWITCHING AS REQUIRED PER NEC 700.12(F).
- 7. ALL ELECTRICAL WORK MUST COMPLY WITH CURRENT NEC.

MATTHEW HOLBROOK, P.E.
6830 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL KEVIN@COCONUTSLLC.COM

Certified By:

Approved 10-15-2024



Scale:	AS NOTED
Date:	3.6.2024
Drawn By:	KC
Checked By:	MH

STONE CREEK DINING COMPANY
Shiloh's Corner
1464 West Stones Crossing Road
Greenwood, Indiana 46143

Revisions:
2 REVISION 2 10.2.2024

Drawing Name:
ELECTRICAL
ONE-LINE DIAGRAM
Drawing Number:
E101

GENERAL NOTES:

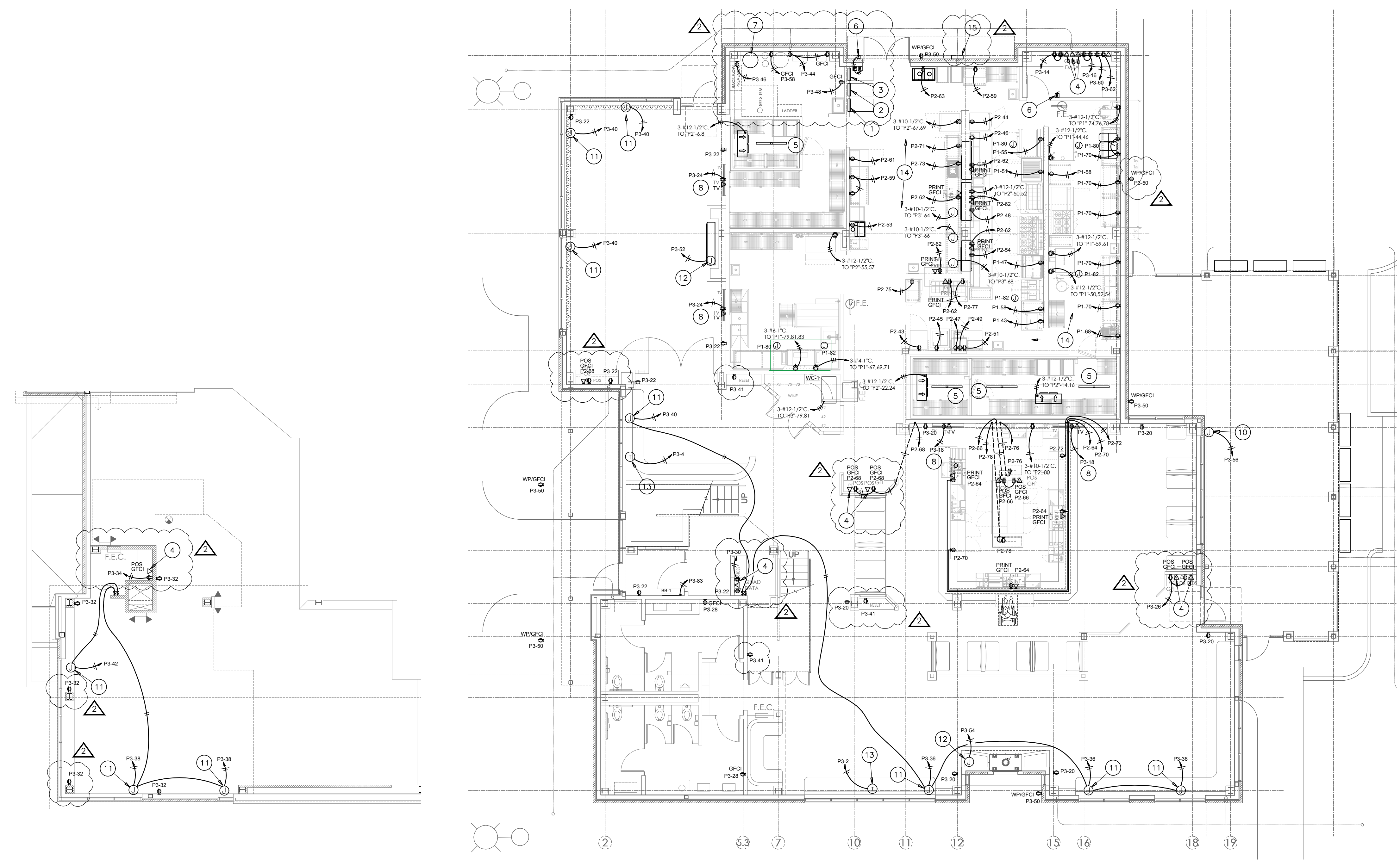
1. T.V. JACKS TO BE CAT6, ALL OTHERS TO BE CAT5E.
2. TERMINATION AT JACKS BY CONTRACTOR. LEAVE LONG IN OFFICE. FINAL PUNCH DOWN AND PATCH PANEL BY OWNER.

PLAN NOTES:

- 1 NEW PANEL P1. VERIFY LOCATION IN FIELD. CONTRACTOR SHALL MAINTAIN CLEARANCES PER NEC. PANEL SHALL BE SQUARE D 84 CKT. OR EQUIVALENT.
- 2 NEW PANEL P2. VERIFY LOCATION IN FIELD. CONTRACTOR SHALL MAINTAIN CLEARANCES PER NEC. PANEL SHALL BE SQUARE D 84 CKT. OR EQUIVALENT.
- 3 NEW PANEL P3. VERIFY LOCATION IN FIELD. CONTRACTOR SHALL MAINTAIN CLEARANCES PER NEC. PANEL SHALL BE SQUARE D 84 CKT. OR EQUIVALENT.
- 4 RUN 3/4" CONDUIT WITH PULL-STRING BACK TO OFFICE FOR TIE IN TO COMMUNICATION SYSTEM. COORDINATE WITH OWNER.
- 5 COOLER LIGHTS PROVIDED BY KEC AND INSTALLED BY ELECTRICAL CONTRACTOR.
- 6 FURNISH AND INSTALL DOOR BELL COMPLETE WITH CHIME UNIT IN KITCHEN. COORDINATE TYPE WITH OWNER.
- 7 BULK CO2 LOCATION. VERIFY IN FIELD.
- 8 REFER TO INTERIOR ELEVATION DRAWINGS FOR T.V. RECEPTACLE/DATA HEIGHT ROUGH-IN.
- 9 PROVIDE OUTLET ABOVE COOLER FOR GLYCOL UNIT. COORDINATE LOCATION WITH OWNER.
- 10 FURNISH AND INSTALL J-BOX FOR SMART PERGOLA LOUVERS. COORDINATE LOCATION AND HEIGHT WITH SMART PERGOLA.
- 11 FURNISH AND INSTALL J-BOX AND SWITCH FOR WINDOW SHADES. COORDINATE HEIGHT AND LOCATION IN FIELD AND WITH OWNER.
- 12 FURNISH AND INSTALL J-BOX FOR FIREPLACE. COORDINATE LOCATION WITH FIREPLACE MANUFACTURER.
- 13 FURNISH AND INSTALL J-BOX FOR SIGN POWER. VERIFY LOCATION OF J-BOX IN FIELD AND WITH OWNER.
- 14 ELECTRICAL CONTRACTOR SHALL REFER TO KITCHEN DRAWING K3 FOR EXACT KITCHEN EQUIPMENT REQUIREMENTS AND ELECTRICAL DEVICE TYPE.
- 15 NEW 1200 AMP MDP LOCATION. VERIFY IN FIELD.

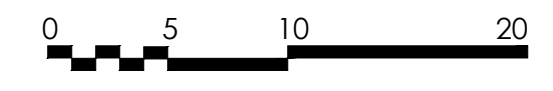
ELECTRICAL SYMBOLS LEGEND	
	NEW DATA CONNECTION FOR TV. COORDINATE CONNECTION WITH FINAL DESIGN
	NEW CATS DATA CONNECTION FOR P.O.S. TERMINAL. COORDINATE CONNECTION WITH FINAL DESIGN.
	NEW CATS DATA CONNECTION FOR PRINTER. COORDINATE CONNECTION WITH FINAL DESIGN.
	DATA LINE
	DUPLEX RECEPTACLE
	QUADPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE
	CAMERA

ELECTRICAL EQUIPMENT SPECIFICATIONS	
PANELS: SQUARE D TYPE NODDCU RECESSED MOUNTED COPPER BUS, BOLTED CIRCUIT BREAKER PANELBOARD, 120/208 VOLT, 3PH., 4 WIRE OR EQUIVALENT. DOUBLE TUB TIME CLOCK: COORDINATE WITH ELECTRICAL CONTRACTOR	
DUPLEX RECEPTACLES: HUBBELL #5262-WHI. UNLESS OTHERWISE NOTED.	
DUPLEX RECEPTACLES: HUBBELL #5262-BL. UNLESS OTHERWISE NOTED.	
QUAD RECEPTACLE: TWO (2) HUBBELL #5262-WHI DUPLEX RECEPTACLES IN COMMON JUNCTION BOX WITH 4 GANG COVER PLATE UNLESS OTHERWISE NOTED.	
ISOLATED GROUND RECEPTACLES: HUBBELL #6-5262-WHI UNLESS OTHERWISE NOTED.	
ISOLATED GROUND QUAD RECEPTACLES: TWO (2) HUBBELL #6-5262-WHI DUPLEX RECEPTACLES IN COMMON JUNCTION BOX WITH 4 GANG COVER PLATE UNLESS OTHERWISE NOTED.	
GROUND FAULT RECEPTACLE: HUBBELL #6F-5252-WA UNLESS OTHERWISE NOTED.	
SINGLE POLE SWITCHES: HUBBELL #HBL-1221-WHI.	



MEZZANINE
2 ELECTRICAL POWER PLAN
 SCALE: 1/8" = 1'-0"

1 ELECTRICAL POWER PLAN
 SCALE: 1/8" = 1'-0"



MATTHEW HOLBROOK, P.E.
 6130 CARROLLTON AVENUE
 INDIANAPOLIS IN 46220
 E-MAIL: KEVIN@KCCONCONSULTINGINC.NET

Certified By:
Approved 10-15-2024

 Matthew D. Holbrook

Scale: AS NOTED
 Date: 3.6.2024
 Drawn By: KC
 Checked By: MH

STONE CREEK DINING COMPANY
 Shiloh's Corner
 1464 West Stones Crossing Road
 Greenwood, Indiana 46143

Revisions:
 1 REVISION 2 10.2.2024

Drawing Name:
 ELECTRICAL POWER PLAN
 Drawing Number:

PERMIT SET 6.12.2024

E200

PATIO HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	TYPE	LOCATION	WATTS	KW	AMPS	VOLTAGE	PHASE	REMARKS
HT1	INFRATECH	CD6028SS	CEILING MOUNTED	PATIO	6,000	-	28.85	208	1	1

NOTES:
1. FURNISH WITH 24VAC; 60 HZ FIELD SUPPLIED NEC CLASS 2 TRANSFORMER, 24V CONTROL

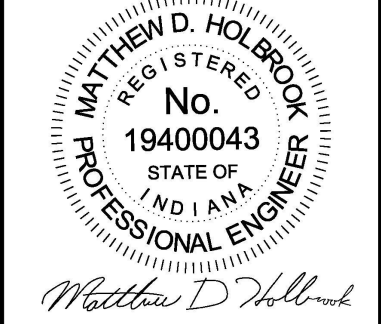
GENERAL NOTES:

1. REFER TO SHEET A400 FOR FIXTURE LEGEND AND GENERAL REFLECTED CEILING NOTES.

MATTHEW HOLBROOK, P.E.
6130 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL: KEVIN@KCCONCONSULTINGINC.NET

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Matthew D. Holbrook

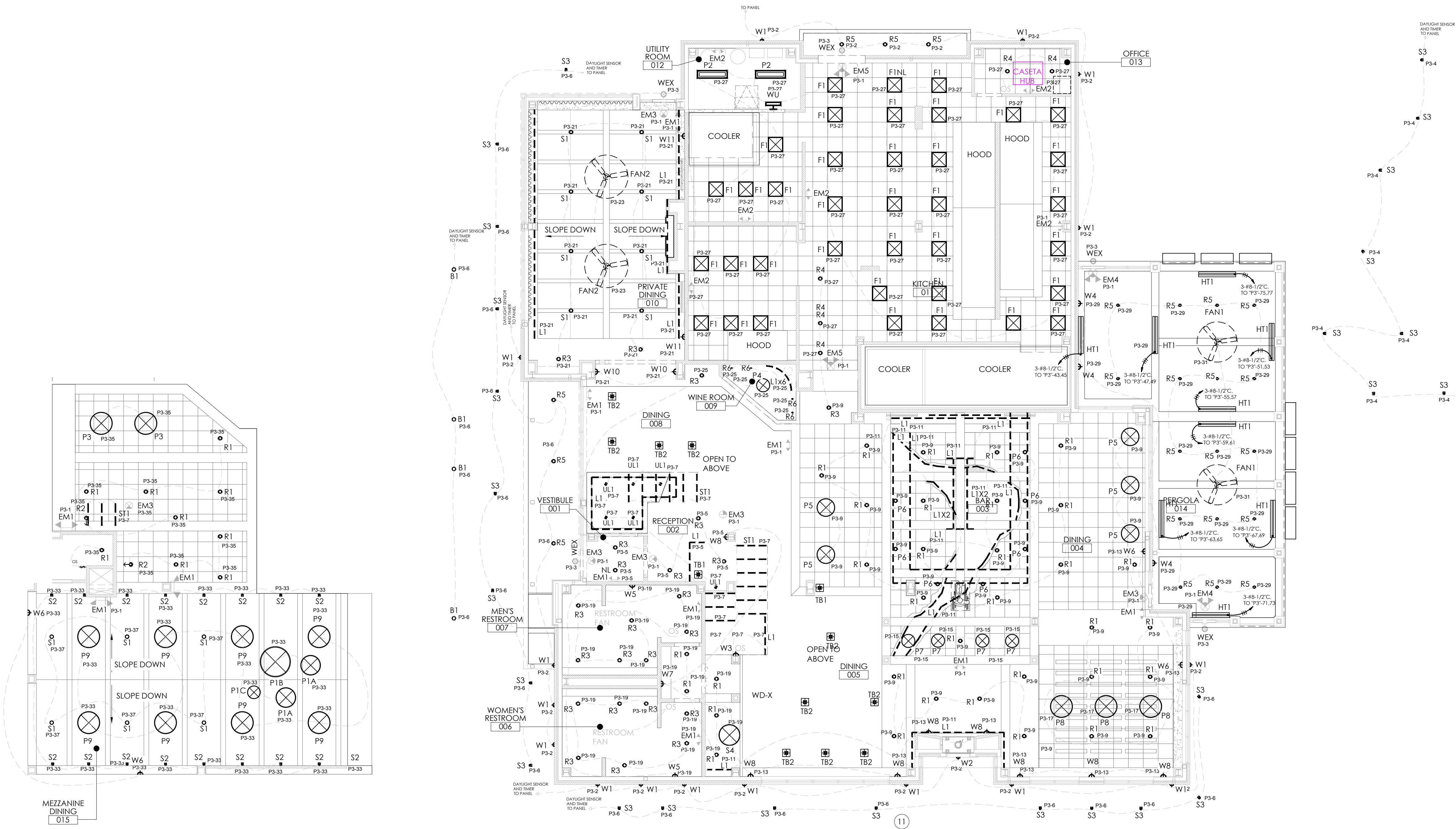
Scale: AS NOTED
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Revisions:
REVISION 2 10.2.2024

Drawing Name:
ELECTRICAL LIGHTING PLAN
Drawing Number:

E300

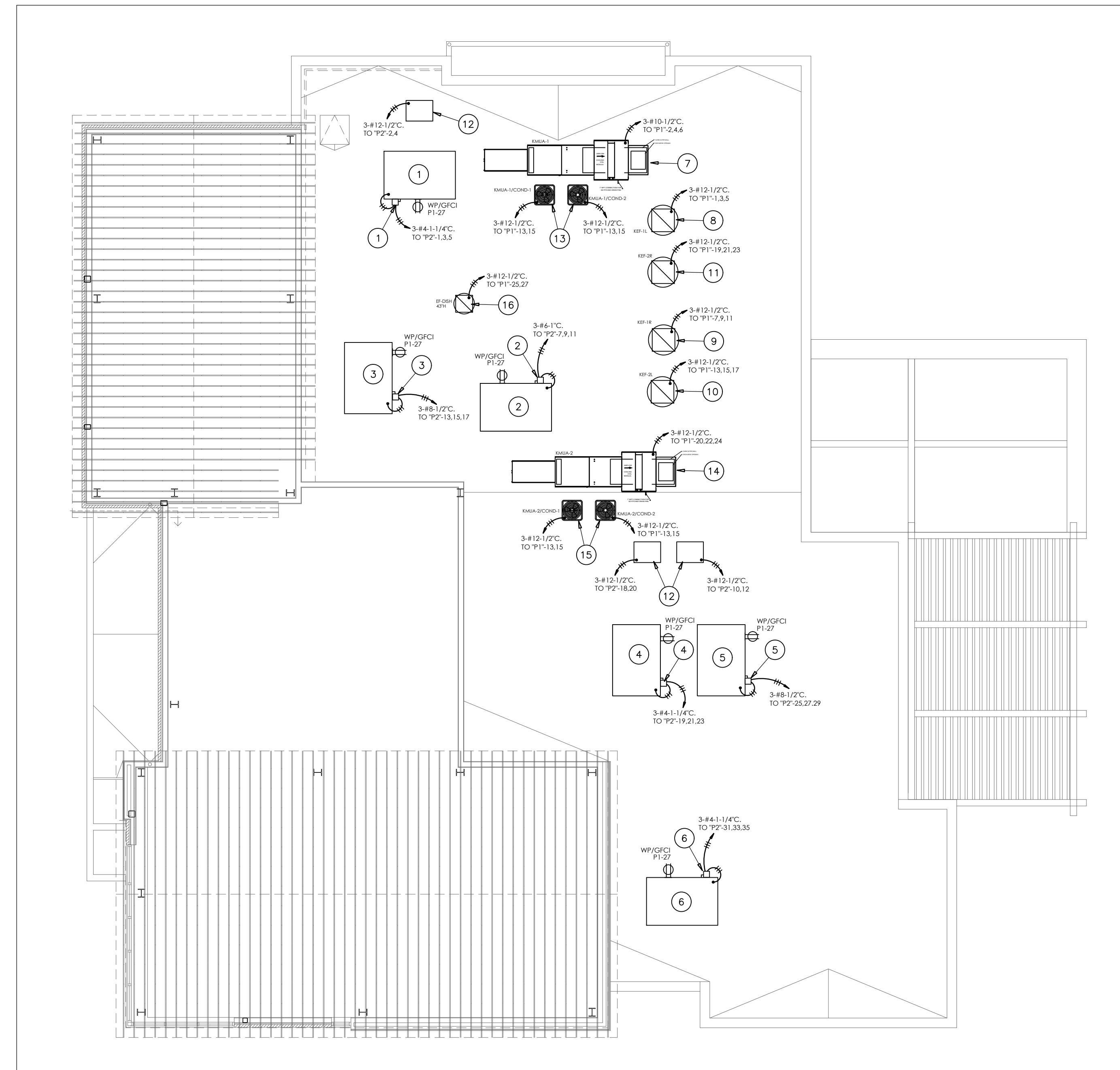


2 MEZZANINE REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

1 ELECTRICAL LIGHTING PLAN
SCALE: 1/8" = 1'-0"



PERMIT SET 6.12.2024

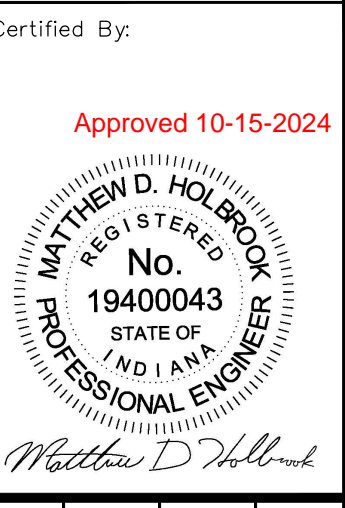


1 ELECTRICAL EQUIPMENT ROOF POWER PLAN
 SCALE: 1/8"=1'-0"

PLAN NOTES:

- 1 NEW RTU #1 ON ROOF. FURNISH AND INSTALL NEW 100 AMP DISCONNECT SWITCH WITH 80 AMP FUSES MINIMUM AT UNIT. VERIFY LOCATION IN FIELD.
- 2 NEW RTU #2 ON ROOF. FURNISH AND INSTALL NEW 60 AMP DISCONNECT SWITCH WITH 60 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 3 NEW RTU #3 ON ROOF. FURNISH AND INSTALL NEW 60 AMP DISCONNECT SWITCH WITH 50 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 4 NEW RTU #4 ON ROOF. FURNISH AND INSTALL NEW 100 AMP DISCONNECT SWITCH WITH 80 AMP FUSES MINIMUM AT UNIT. VERIFY LOCATION IN FIELD.
- 5 NEW RTU #5 ON ROOF. FURNISH AND INSTALL NEW 60 AMP DISCONNECT SWITCH WITH 50 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 6 NEW RTU #6 ON ROOF. FURNISH AND INSTALL NEW 100 AMP DISCONNECT SWITCH WITH 80 AMP FUSES MINIMUM AT UNIT. VERIFY LOCATION IN FIELD.
- 7 NEW KMUA #1 ON ROOF. FURNISH AND INSTALL NEW 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 8 NEW KEF-1L ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT FAN. VERIFY LOCATION IN FIELD.
- 9 NEW KEF-1R ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT FAN. VERIFY LOCATION IN FIELD.
- 10 NEW KEF-2L ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT FAN. VERIFY LOCATION IN FIELD.
- 11 NEW KEF-2R ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT FAN. VERIFY LOCATION IN FIELD.
- 12 NEW COOLER/FREEZER CONDENSER UNIT ON ROOF. CONTRACTOR SHALL SET NEW CONDENSER PER KITCHEN EQUIPMENT CONTRACTOR. VERIFY EXACT LOCATION IN FIELD.
- 13 MAKE-UP AIR UNIT CONDENSER UNIT KMUA-1/COND-1 ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 30 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 14 NEW KMUA #2 ON ROOF. FURNISH AND INSTALL NEW 30 AMP DISCONNECT SWITCH WITH 20 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 15 MAKE-UP AIR UNIT CONDENSER UNIT KMUA-1/COND-2 ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 30 AMP FUSES AT UNIT. VERIFY LOCATION IN FIELD.
- 16 NEW KEF-DISH ON ROOF. FURNISH AND INSTALL 30 AMP DISCONNECT SWITCH WITH 15 AMP FUSES AT FAN. VERIFY LOCATION IN FIELD.

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 6130 CARROLLTON AVENUE
 INDIANAPOLIS IN 46220
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Drawing Name:
 ELECTRICAL EQUIPMENT
 ROOF POWER PLAN
 Drawing Number:

MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS

ALL WORK HOURS FOR THIS PROJECT SHALL BE COORDINATED WITH THE FACILITY AS TO NOT INTERFERE WITH THE DAILY OPERATION OF ANY DEPARTMENT.

ALL WORK FOR THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE STATE AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.

THE CONTRACTOR SHALL:

REVIEW THE CONTRACT DOCUMENTS OF ALL TRADES TO FULLY INFORM HIMSELF OF THE SCOPE OF THE WORK REQUIRED FOR THIS PROJECT.
ARRANGE TO VISIT THE PROJECT SITE BEFORE SUBMITTING HIS BID ON THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR HIS OWN INTERPRETATION ON EXISTING CONDITIONS AND LIMITATIONS.

PROVIDE AND INSTALL ACCESS PANELS AND DOORS AS MAY BE REQUIRED TO ALLOW PROPER ACCESS TO HIS WORK.

PERFORM SELECTIVE DEMOLITION AS INDICATED AND AS REQUIRED TO INSTALL NEW SYSTEMS. THE OWNER SHALL BE GIVEN THE OPTION TO RETAIN REMOVED MATERIALS AND/OR EQUIPMENT. REMOVE ALL RUBBISH AND WASTE FROM THE PROJECT SITE AS IT IS GENERATED.

MAINTAIN A PROPER SEPARATION BETWEEN THE WORK AREA AND THE OCCUPIED AREAS.

MAINTAIN A NEGATIVE ROOM PRESSURE WITH RESPECT TO ADJACENT AREAS REMAINING IN USE. CONTINUE ALL DUST TO CONSTRUCTION AREA, PROVIDE FILTER MEDIA ON RETURN OPENINGS. COMPLY WITH SMACNA IAQ GUIDELINES AND HAVE THE CONTRACTORS COORDINATE WITH THE OWNER.

PROVIDE ALL CUTTING, PATCHING AND REFINISHING OF SURFACES TO THEIR ORIGINAL CONDITION AS NECESSARY FOR THE INSTALLATION OF HIS WORK. CUTTING OF STRUCTURAL MEMBERS SHALL NOT PROCEED WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER.

PROVIDE ALL NEW SYSTEMS AND COMPONENTS UNLESS SPECIFICALLY NOTED TO THE CONTRARY ON THE SHEETS.

OBTAIN AND PAY FOR (AS A PART OF THE QUOTED PRICE FOR THE WORK) ALL NECESSARY PERMITS, LICENSES AND FEES.

GUARANTEE ALL NEW MATERIALS, EQUIPMENT AND INSTALLATION FOR A PERIOD OF ONE YEAR, BEGINNING WITH THE DATE OF PROJECT SUBSTANTIAL COMPLETION. EQUIPMENT MANUFACTURERS WARRANTIES SHALL BE EXTENDED AS NECESSARY TO FULFILL THIS REQUIREMENT AND MAY BE EXTENDED BEYOND ONE YEAR AS NOTED.

COORDINATE THE INSTALLATION OF HIS WORK WITH THE WORK OF ALL OTHER TRADES. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO INDICATE ALL OFFSETS AND FITTINGS THAT MAY BE REQUIRED TO COMPLETE THE PROPER INSTALLATION OF ALL SYSTEMS SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE FINAL COORDINATION OF THE INSTALLATION DETAILS OF HIS SYSTEMS.

THE CONTRACTOR SHALL KEEP AN ACCURATE RECORD (UP-TO-DATE WORKING SET OF DRAWINGS) OF ALL DEVIATIONS FROM WORK AS SHOWN ON THE CONTRACT DRAWINGS ON A SET OF PRINTS RESERVED FOR SUCH RECORD, AND UPON COMPLETION OF WORK, SHALL SUBMIT THE RECORD "AS BUILT" DOCUMENTS TO THE ENGINEER FOR REVIEW. DEVIATIONS ON THE RECORD "AS BUILT" DOCUMENTS SHALL BE CLEARLY MARKED IN CONTRASTING RED PENCIL OR PEN.

THE CONTRACTOR SHALL MAKE ALL CHANGES IN SERVICES SO AS TO PROVIDE A MINIMUM OF INTERFERENCE WITH THE OPERATION OF THE BUILDING. WHEN CHANGES REQUIRE A SHUTDOWN OF BUILDING SERVICES, THE CONTRACTOR SHALL NOTIFY THE OWNER NOT LESS THAN 72 HOURS IN ADVANCE AND COORDINATE THE INTERRUPTION WITH THE OWNER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF OTHER TRADES OR TO THE FACILITY AND ITS CONTENTS CAUSED BY WORK PERFORMED BY HIM.

THE CONTRACTOR SHALL KEEP THE PREMISES CLEAN (DAILY) OF ALL DEBRIS CAUSED BY HIS WORK. AT THE CONCLUSION OF CONSTRUCTION, THE SITE SHALL BE THOROUGHLY CLEANED OF ALL RUBBLE, DEBRIS AND UNUSED MATERIALS.

WHEN THE CONTRACTOR HAS DETERMINED THAT THE SITE IS READY FOR OCCUPANCY, HE SHALL REQUEST THAT THE ENGINEER MAKE A FINAL INSPECTION. THE ENGINEER WILL CONDUCT THE INSPECTION AND ISSUE A CERTIFICATE OF SUBSTANTIAL COMPLETION AND FINAL PUNCH LIST OF WORK TO BE CORRECTED AND/OR COMPLETED. WHEN THE PUNCH LIST WORK IS COMPLETED, THE CONTRACTOR SHALL REQUEST THAT THE ENGINEER MAKE A FINAL REVIEW OF THE WORK. THE ENGINEER WILL MAKE ONE FINAL INSPECTION AND ONE FINAL REVIEW OF THE PROJECT. ADDITIONAL TRIPS TO REINSPECT WORK WHICH WAS NOT COMPLETED OR READY FOR INSPECTION WILL BE AT THE CONTRACTORS EXPENSE.

THIS CONTRACTOR SHALL PROVIDE, TO THE OWNER ALL DOCUMENTS, AFFIDAVITS, GUARANTEES AND TRAINING REQUIRED FOR PROJECT CLOSEOUT INCLUDING THE FOLLOWING:

**RECORD "AS BUILT" DOCUMENTS
GUARANTEES AND WARRANTIES
EXTRA MATERIALS WITH RECEIPTS
OPERATING AND MAINTENANCE MANUALS**

BASIC MATERIALS AND METHODS

MARK ALL NEW PIPING SYSTEMS WITH "SETMARK" LABELS (SETON CORPORATION) OR STENCILED LETTERING ON A PAINTED BACKGROUND. PIPING SHALL BE MARKED ON EACH SIDE OF EACH WALL PENETRATION AND AT 20 FEET INTERVALS WITHIN A ROOM. SYSTEM ABBREVIATIONS AND COLORS SHALL BE AS APPROVED BY THE OWNER BEFORE INSTALLATION. MAINTAIN EXISTING PIPE PAINTING SCHEMES (SUBMIT TO ENGINEER).

TAG ALL NEW VALVES (WITH THE EXCEPTION OF VALVES AT HVAC TERMINAL UNITS, CHECK VALVES, AND PLUMBING FIXTURES) WITH A BRASS TAG ATTACHED TO THE VALVE WITH A NYLON DRAW BAND. VALVE IDENTIFICATION SYSTEM SHALL BE AS APPROVED BY THE ENGINEER BEFORE INSTALLATION. PROVIDE A REDUCED SCALE PLAN TO THE OWNER INDICATING THE LOCATION OF EACH VALVE, SIZE, ETC. (INCLUDE EXISTING VALVES WHERE APPROPRIATE TO THE NEW SYSTEMS).

PROVIDE JOINT SEALERS FOR SEALING AROUND ALL MATERIALS AND EQUIPMENT. JOINT SEALANT SHALL BE MILDWEAR-RESISTANT, AND SHALL BE INSTALLED ON SUBSTRATES AS RECOMMENDED BY THE SEALANT MANUFACTURER.

PROVIDE UL LISTED FIRESTOP SYSTEMS FOR PENETRATIONS THROUGH FIRE-SMOKE RESISTANCE RATED ASSEMBLIES. FIRE STOP SYSTEMS SHALL BE LISTED AND TESTED IN ACCORDANCE WITH ASTM E-814 AND UL 1479.

INSULATION

ALL SUPPLY AND RETURN AIR DUCTS ARE TO BE INSULATED WITH 2" THICK FIBERGLASS WITH FSK FACING, 1 POUND PER CUBIC FOOT DENSITY. WELD IMPALING PINS TO BOTTOM OF DUCTS SO INSULATION AT 12" CENTERS IN ALL DIRECTIONS. SECURE INSULATION TO THESE PINS WITH APPROPRIATE FASTENERS.

ALL SUPPLY, RETURN AND OUTDOOR AIR DUCTS/SPLENIMS IN EQUIPMENT ROOMS AND WHERE DUCTWORK IS EXPOSED SHALL BE INSULATED WITH 2" THICK #6 DENSITY RIGID FIBERGLASS, OR 2" THICK SEMI-RIGID FIBERGLAS FOR ROUND AND FLAT OVAL DUCTWORK.

SHEET METAL

ALL NEW DUCTWORK SHALL BE GALVANIZED SHEET STEEL CONFORMING TO ANSIASTM A 57, LOCK FORMING QUALITY AND ANSIASTM A 525, G90 ZINC COATING.

ALL JOINTS SHALL BE AS MANUFACTURED BY DUCTMATE AND SHALL BE SEALED WITH NON HARDENING, NON MIGRATING MASTIC OR LIQUID ELASTIC SEALANT (APPLICABLE FOR DUCTMATE TYPE JOINTS) AS COMPOUNDED AND RECOMMENDED BY MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK.

PROVIDE SMOOTH TRANSITIONS BETWEEN DUCT SIZES AND TO AND FROM DUCT MOUNTED EQUIPMENT. EXPANSION ANGLE SHALL BE 10" (MAXIMUM), CONTRACTION ANGLE SHALL BE 20" (MAXIMUM), BOTH MEASURED FROM THE CENTER LINE OF THE DUCT.

INSTALL A BALANCE DAMPER AT EACH DUCT BRANCH TAKEOFF ON EACH DUCT SYSTEM (EXCEPT VARIABLE AIR VOLUME SYSTEMS, UPSTREAM OF TERMINAL BOXES). PROVIDE LOCKING QUADRANT WITH EXTENDED SHAFT AS NECESSARY FOR DUCT INSULATION.

CONSTRUCT ALL NEW DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS FOR LOW PRESSURE DUCTWORK FOR DUCTWORK SUBJECTED TO VELOCITIES OF 2500 FPM OR LESS AND OPERATING PRESSURE OF 1/2" WATER COLUMN OR LESS.

CONSTRUCT ALL NEW DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS FOR HIGH PRESSURE DUCTWORK FOR DUCTWORK SUBJECTED TO VELOCITIES GREATER THAN 2500 FPM OR OPERATING PRESSURE GREATER THAN 1/2" WATER COLUMN.

SUPPORT NEW DUCTS FROM EXISTING STRUCTURE WITH BEAM CLAMPS, THREADED RODS AND UNISTRUT AT INTERVALS RECOMMENDED BY SMACNA.

REFER TO THE DRAWINGS FOR ACCEPTABLE DUCT FITTINGS. WHERE TURNING VANES ARE USED THEY SHALL BE DOUBLE WALL, AIRFOIL SHAPED AND SHALL BE SECURELY ATTACHED TO THE DUCT. INSULATION ON FLEXIBLE DUCT SHALL BE USED AT THE FINAL CONNECTION TO SUPPLY DIFFUSERS. FLEXIBLE DUCT SHALL BE LIMITED TO MAXIMUM LENGTH OF 5'-0" AND A TOTAL OF 90 DEGREES IN TURNS (AT EACH LOCATION).

TEST AND BALANCE

PROVIDE A TABULATED FORM INDICATING EACH DESIGN AIR AND WATER FLOW AND EACH BALANCED AIR AND WATER FLOW.

OBTAIN THE SERVICES OF AN INDEPENDENT TEST AND BALANCE AGENCY THAT SPECIALIZES IN AND WHOSE BUSINESS IS LIMITED TO THE TESTING AND BALANCING OF AIR CONDITIONING SYSTEMS. THE AGENCY SELECTED SHALL BE FULLY CERTIFIED BY THE ABC OR THE NEBB AND SHALL HAVE AT LEAST ONE MEMBER OF THE AGENCY QUALIFIED AS A CERTIFIED TEST AND BALANCE ENGINEER WHO HAS BEEN ISSUED THIS CERTIFICATION BY THE NATIONAL EXAMINING BOARD.

TEST AND ADJUST SUPPLY, RETURN, AND EXHAUST FANS TO DESIGN REQUIREMENTS. ALL TESTING OF SUPPLY AND RETURN SYSTEMS SHALL BE WITH FILTERS LOADED. FILTER LOADING TO BE SIMULATED BY PARTIAL BLANKING OF FILTER BANK OR OTHER MEANS TO CREATE A STATIC PRESSURE DROP EQUAL TO THE ACTUAL FINAL FILTER DROP FOR EACH TYPE OF FILTER. ADJUST SHEAVES AND BELTS AS REQUIRED TO OBTAIN DESIGN AIR QUANTITIES. ONCE THE PROPER BALANCE POINT IS DETERMINED, PROVIDE THE MECHANICAL CONTRACTOR WITH SELECTIONS AND ANY OTHER PERTINENT INFORMATION TO ALLOW THE PURCHASE OF A SET OF FIXED PITCH SHEAVES AND BELTS. INSTALLATION OF THE NEW BELTS AND SHEAVES SHALL BE BY THE TEST AND BALANCE CONTRACTOR.

TEST AND RECORD MOTOR ELECTRICAL CHARACTERISTICS, R.P.M., SERVICE FACTOR, MEASURED VOLTAGE, FULL LOAD AMPERES AND CONNECTED LOAD AMPERAGE. CHECK AND RECORD STARTER HEATER(S) SIZES AND RATINGS, REPLACING BELT SIZES, ETC.

MAKE PITOT TUBE TRAVERSE (MINIMUM OF 16 POINT) OF MAIN SUPPLY, RETURN AND EXHAUST DUCTS AND OBTAIN DESIGN CFM AT FANS. SEAL ALL TEST HOLES WITH SUITABLE HOLE PLUGS TEST AND RECORD SYSTEM STATIC PRESSURE, SUCTION, AND DISCHARGE. TEST AND ADJUST SYSTEM FOR DESIGN CFM OUTSIDE AIR. TEST AND RECORD ENTERING AIR TEMPERATURES (D.B. HEATING AND COOLING). TEST AND RECORD LEAVING AIR TEMPERATURES, (D.B. HEATING AND COOLING). ADJUST ALL MAIN SUPPLY, RETURN AND EXHAUST AIR DUCTS TO PROPER DESIGN CFM. ADJUST ALL ZONES TO PROPER DESIGN CFM. SUPPLY, RETURN AND EXHAUST. TEST AND ADJUST EACH DIFFUSER, GRILLE, AND REGISTER TO WITHIN +/- 10% OF DESIGN REQUIREMENTS. EACH GRILLE, DIFFUSER, AND REGISTER SHALL BE IDENTIFIED AS TO LOCATION AND AREA. SIZE, TYPE AND FLOW FACTOR AND MANUFACTURER OF DIFFUSERS, GRILLES, REGISTERS, AND ALL TESTING EQUIPMENT SHALL BE IDENTIFIED AND LISTED. READING AND TESTS OF DIFFUSERS, GRILLES AND REGISTERS SHALL INCLUDE REQUIRED CFM VELOCITY AND TEST RESULTANT VELOCITY, REQUIRED CFM AND TEST RESULTANT CFM AFTER ADJUSTMENT. A COMPLETE AIR BALANCE MUST BE ACCOMPLISHED BEFORE BEGINNING THE WATER SYSTEM TEST AND BALANCE. OPEN ALL VALVES TO FULL OPEN POSITION. CLOSE COIL BYPASS STOP VALVES. SET MIXING VALVES TO FULL COIL FLOW. SET ALL TEMPERATURE CONTROLS SO ALL COLLS ARE CALLING FOR FULL COOLING OR FULL HEATING AS REQUIRED.

EXHAUST FANS - IN-LINE FANS

DUCT MOUNTED FANS SHALL BE OF CENTRIFUGAL BELT DRIVEN IN-LINE TYPE. THE FAN HOUSING SHALL BE OF THE SQUARE DESIGN CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL AND SHALL INCLUDE SQUARE DUCT MOUNTING COLLARS.

FAN CONSTRUCTION SHALL INCLUDE TWO REMOVABLE ACCESS PANELS LOCATED PERPENDICULAR TO THE MOTOR MOUNTING PANEL. THE ACCESS PANELS MUST BE OF SUFFICIENT SIZE TO PERMIT EASY ACCESS TO ALL INTERIOR COMPONENTS.

THE FAN WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, CONSTRUCTED OF ALUMINUM AND SHALL INCLUDE A WHEEL COME CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES. WHEELS SHALL BE STATIC AND DYNAMICALLY BALANCED.

MOTORS SHALL BE HEAVY DUTY BALL BEARING TYPE, CAREFULLY MATCHED TO THE FAN LOAD AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. MOTORS AND DRIVES SHALL BE MOUNTED OUT OF THE AIRSTREAM.

PRECISION GROUND AND POLISHED FAN SHAFTS SHALL BE MOUNTED IN PERMANENTLY SEALED, LUBRICATED PELLOW BLOCK BALL BEARINGS. BEARINGS SHALL BE SELECTED FOR A MINIMUM L10 LIFE IN EXCESS OF 100,000 HOURS AT MAXIMUM CATALOGED OPERATING SPEED.

DRIVES SHALL BE SIZED FOR A MINIMUM OF 150% OF DRIVEN HORSEPOWER. PULLEYS SHALL BE OF THE FULLY MACHINED CAST IRON TYPE, KEYS AND SECURELY ATTACHED TO THE WHEEL AND MOTOR SHAFTS.

MOTOR PULLEYS SHALL BE ADJUSTABLE FOR SYSTEM BALANCING.

ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR BOTH SOUND AND AIR PERFORMANCE.

EACH FAN SHALL BEAR A PERMANENTLY AFFIXED MANUFACTURERS NAMEPLATE CONTAINING THE MODEL NUMBER AND INDIVIDUAL SERIAL NUMBER FOR FUTURE IDENTIFICATION.

MANUFACTURER, SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE EXHAUST FANS OF ONE OF THE FOLLOWING: COOK CO., GREENHECK FAN CORP., OR TWIN CITY.

SINGLE-WALL ROUND DUCTS AND FITTINGS

GENERAL FABRICATION REQUIREMENTS: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 3, "ROUND, OVAL AND FLEXIBLE DUCT," BASED ON INDICATED STATIC-PRESSURE CLASS UNLESS OTHERWISE INDICATED.

MANUFACTURERS, SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

- MCGILL AIRFLOW LLC
- SEMCO INCORPORATED
- SPIRAL MANUFACTURING CO., INC.

TRANSVERSE JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-2, "TRANSVERSE JOINTS - ROUND DUCT" FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS, AND OTHER PROVISIONS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

LONGITUDINAL SEAMS: SELECT SEAM TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-2, "SEAMS - ROUND DUCT AND LONGITUDINAL SEAMS," FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

- FABRICATE ROUND DUCTS LARGER THAN 90 INCHES IN DIAMETER WITH BUTT-WELDED LONGITUDINAL SEAMS.
- FABRICATE FLAT-OVAL DUCTS LARGER THAN 72 INCHES IN WIDTH (MAJOR DIMENSION) WITH BUTT-WELDED LONGITUDINAL SEAMS.

TEES AND LATERALS: SELECT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-4, "90 DEGREE TEES AND LATERALS," AND FIGURE 3-5, "CONICAL TEES," FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS, AND OTHER PROVISIONS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

HVAC DUCT SEALANTS AND GASKETS

GENERAL SEALANT AND GASKET REQUIREMENTS: SURFACE-BURNING CHARACTERISTICS FOR SEALANTS AND GASKETS SHALL BE A MAXIMUM FLAME-SPREAD INDEX OF 25 AND A MAXIMUM SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO UL723, CERTIFIED BY AN NRTL.

WATER-BASED JOINT AND SEAM SEALANT:

1. APPLICATION METHOD: BRUSH ON
2. SOLIDS CONTENT: MINIMUM 65%
3. SHORE A HARDNESS: MINIMUM 20
4. WATER RESISTANT
5. MOLD AND MILDEW RESISTANT
6. VOC: MAXIMUM 75 g/L (LESS WATER)
7. MAXIMUM STATIC-PRESSURE CLASS: 10-INCH WG, POSITIVE AND NEGATIVE.
8. SERVICE: INDOOR OR OUTDOOR.
9. SUBSTRATE: COMPATIBLE WITH GALVANIZED SHEET STEEL (BOTH PVC COATED AND BARE), STAINLESS STEEL, OR ALUMINUM SHEETS.

FLANGED JOINT SEALANT: COMPLY WITH ASTM C 920

1. GENERAL: SINGLE-COMPONENT, ACID-CURING, SILICONE, ELASTOMERIC.
2. TYPE: S
3. GRADE: NS
4. CLASS: 25
5. USE: O
6. FOR INDOOR APPLICATIONS, USE SEALANT THAT HAS A VOC CONTENT OF 250 g/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

FLANGE GASKETS: BUTYL RUBBER, NEOPRENE, OR EPDM POLYMER WITH POLYISOBUTYLENE PLASTICIZER, 1/8 INCH THICK OF WIDTH TO MATCH ANGLE CONNECTION.

ROUND DUCT JOINT O-RING SEALS:

1. SEAL SHALL PROVIDE MAXIMUM LEAKAGE CLASS OF 3 CFM/100 SQ. FT. AT 1-INCH WG AND SHALL BE RATED FOR 10-INCH WG STATIC-PRESSURE CLASS, POSITIVE OR NEGATIVE.
2. EPDM O-RING TO SEAL IN CONCAVE BEAD IN COUPLING OR FITTING SPOOT.
3. DOUBLE-LIPPED, EPDM O-RING SEAL, MECHANICALLY FASTENED TO FACTORY-FABRICATED COUPLINGS AND FITTING SPOIGTS.

HANGERS AND SUPPORTS

HANGER RODS FOR NON-CORROSIVE ENVIRONMENTS: CADMIUM-PLATED STEEL RODS AND NUTS.

HANGER RODS FOR CORROSIVE ENVIRONMENTS: ELECTROGALVANIZED, ALL-THREAD RODS OR GALVANIZED RODS WITH THREADS PAINTED WITH ZINC-CHROMATE PRIMER AFTER INSTALLATION.

STRAP AND ROD SIZES: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1, "RECTANGULAR DUCT HANGERS MINIMUM SIZE," AND TABLE 5-2, "MINIMUM HANGER SIZES FOR ROUND DUCT."

TRAPEZE AND RISER SUPPORTS:

1. SUPPORTS FOR GALVANIZED-STEEL DUCTS: GALVANIZED-STEEL SHAPES AND PLATES.
2. SUPPORTS FOR STAINLESS-STEEL DUCTS: STAINLESS-STEEL SHAPES AND PLATES.
3. SUPPORTS FOR ALUMINUM DUCTS: ALUMINUM OR GALVANIZED STEEL COATED WITH ZINC CHROMATE.

INSTALLATION OF EXPOSED DUCTWORK

PROTECT DUCTS EXPOSED IN FINISHED SPACES FROM BEING DENTED, SCRATCHED, OR DAMAGED.

TRIM DUCT SEALANTS FLUSH WITH METAL. CREATE A SMOOTH AND UNIFORM BEAD. DON NOT USE TWO-PART TAPE SEALING SYSTEM.

GRIND WELDS TO PROVIDE SMOOTH SURFACE FREE OF BURRS, SHARP EDGES, AND WELD SPATTER. WHEN WELDING STAINLESS STEEL WITH A NO. 3 OR 4 FINISH, GRIND THE WELDS FLUSH, POLISH THE EXPOSED WELDS, AND TREAT THE WELDS TO REMOVE DISCOLORATION CAUSED BY WELDING.

MAINTAIN CONSISTENCY, SYMMETRY, AND UNIFORMITY IN THE ARRANGEMENT AND FABRICATION OF FITTINGS, HANGERS AND SUPPORTS, DUCT ACCESSORIES, AND AIR OUTLETS. USE DRIVE-UP SHOWS, EXCEPT IN MECHANICAL ROOMS.

REPAIR OR REPLACE DAMAGED SECTIONS AND FINISHED WORK THAT DOES NOT COMPLY WITH THESE REQUIREMENTS.

DUCT SEALING

SEAL DUCTS FOR DUCT STATIC-PRESSURE, SEAL CLASSES, AND LEAKAGE CLASSES SPECIFIC IN "DUCT SCHEDULE" ARTICLE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

SEAL DUCTS TO THE FOLLOWING SEAL CLASSES ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE":

1. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
2. OUTDOOR, SUPPLY-AIR DUCTS: SEAL CLASS A.
3. OUTDOOR, EXHAUST DUCTS: SEAL CLASS C.
4. OUTDOOR, RETURN-AIR DUCTS: SEAL CLASS C.
5. UNCONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES 2-INCH WG AND LOWER: SEAL CLASS A.
6. UNCONDITIONED SPACE, EXHAUST DUCTS: SEAL CLASS C.
7. UNCONDITIONED SPACE, RETURN-AIR DUCTS: SEAL CLASS B.
8. CONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES 2-INCH WG AND LOWER: SEAL CLASS C.
9. CONDITIONED SPACE, SUPPLY-AIR DUCTS IN PRESSURE CLASSES HIGHER THAN 2-INCH WG: SEAL CLASS B.
10. CONDITIONED SPACE, EXHAUST DUCTS: SEAL CLASS B.
11. CONDITIONED SPACE, RETURN-AIR DUCTS: SEAL CLASS C.

HANGER AND SUPPORT INSTALLATION

COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 5, "HANGERS AND SUPPORTS."

BUILDING ATTACHMENTS: CONCRETE INSERTS OR STRUCTURAL-STEEL FASTENERS APPROPRIATE FOR CONSTRUCTION MATERIALS TO WHICH HANGERS ARE BEING ATTACHED.

1. WHERE PRACTICAL, INSTALL CONCRETE INSERTS BEFORE PLACING CONCRETE.
2. INSTALL POWDER-ACTUATED CONCRETE FASTENERS AFTER CONCRETE IS PLACED AND COMPLETELY CURED.
3. USE POWDER-ACTUATED CONCRETE FASTENERS FOR STANDARD-WEIGHT AGGREGATE CONCRETES OR FOR SLABS MORE THAN 4 INCHES THICK.
4. DO NOT USE POWDER-ACTUATED CONCRETE FASTENERS FOR LIGHTWEIGHT-AGGREGATE CONCRETES OR FOR SLABS LESS THAN 4 INCHES THICK.
5. DO NOT USE POWDER-ACTUATED CONCRETE FASTENERS FOR SEISMIC RESTRAINTS.

HANGER SPACING: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1, "RECTANGULAR DUCT HANGERS MINIMUM SIZE," AND TABLE 5-2, "MINIMUM HANGER SIZES FOR ROUND DUCT," FOR MAXIMUM HANGER SPACING; INSTALL HANGERS AND SUPPORTS WITHIN 24 INCHES OF EACH ELBOW AND WITHIN 48 INCHES OF EACH BRANCH INTERSECTION. EXTEND STRAP SUPPORTS DOWN BOTH SIDES OF DUCTS AND TURN UNDER BOTTOM AT LEAST 1 INCH. SECURE HANGER TO SIDES AND BOTTOM OF DUCTS WITH SHEET METAL SCREWS.

HANGERS EXPOSED TO VIEW: THREADED ROD AND ANGLE OR CHANNEL SUPPORTS.

SUPPORT VERTICAL DUCTS WITH STEEL ANGLES OR CHANNEL SECURED TO THE SIDES OF THE DUCT WITH WELDS, BOLTS, SHEET METAL SCREWS, OR BLIND RIVETS. SUPPORT AT EACH FLOOR AND AT A MAXIMUM INTERVALS OF 16 FEET.

INSTALL UPPER ATTACHMENTS TO STRUCTURES. SELECT AND SIZE UPPER ATTACHMENTS WITH PULL-OUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.

AVOID PENETRATIONS OF DUCTS. PROVIDE AIRTIGHT RUBBER GROMETS AND UNAVOIDABLE PENETRATIONS OF HANGER RODS.

TEMPERATURE CONTROLS

FURNISH AND INSTALL ALL CONTROLS, THERMOSTATS, SENSORS, CONTROL PANELS, AND ACTUATORS TO COMPLETE THE DESCRIBED WORK. ACCEPTABLE MANUFACTURERS ARE: EASY I/O, DISTECH & HONEYWELL NIAGARA.

SINGLE ZONE CONSTANT VOLUME RTU; OCCUPIED MODE-COOLING

1. DURING OCCUPIED MODES, THE RTU OPERATES TO MAINTAIN A CONSTANT DISCHARGE AIR TEMPERATURE (ADJUSTABLE).
2. FAN RUNS CONTINUOUSLY, AND THE OUTSIDE AIR DAMPER IS OPEN TO ITS MINIMUM POSITION.
3. IF THE OUTSIDE AIR IS NOT SUITABLE FOR FREE COOLING, THEN THE DX COOLING IS ENABLED TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.
4. IF THE OUTSIDE AIR IS SUITABLE FOR FREE COOLING, THEN THE OUTSIDE AIR DAMPER IS MODULATED OPEN AS THE FIRST MEANS OF COOLING (ECONOMIZER OPERATION).
5. IF DISCHARGE AIR TEMPERATURE SETPOINT CANNOT BE ATTAINED BY ECONOMIZER OPERATION ALONE, THEN THE DX COOLING IS ENABLED TO OPERATE AS WELL.

OCCUPIED MODE-HEATING

1. DURING OCCUPIED MODES, THE RTU OPERATES TO MAINTAIN A CONSTANT DISCHARGE AIR TEMPERATURE (ADJUSTABLE).
2. FAN RUNS CONTINUOUSLY, AND THE OUTSIDE AIR DAMPER IS OPEN TO ITS MINIMUM POSITION.
3. HEAT IS MODULATED TO OBTAIN DISCHARGE AIR TEMPERATURE SETPOINT.

UNOCCUPIED MODE

1. THE RTU OPERATES (AS REQUIRED) TO MAINTAIN THE SPACE TEMPERATURE BETWEEN UNOCCUPIED HEATING AND COOLING SETPOINT.
2. IF THE SPACE TEMPERATURE STRAYS OUT OF THIS RANGE, THEN THE FAN TURNS ON, AND THE UNIT HEATS OR COOLS AS NECESSARY IN ORDER TO BRING THE SPACE TEMPERATURE BACK INTO THE RANGE DEFINED BY THE UNOCCUPIED MODE SETPOINTS.
3. OUTSIDE AIR DAMPER AND EXHAUST DAMPER WILL BE CLOSED.
4. RETURN AIR DAMPER WILL BE OPEN.

MINIMUM OUTSIDE AIR CONTROL/DEMAND CONTROL VENTILATION

1. MINIMUM LOW O/A SETPOINT: THE MINIMUM O/A SHALL BE SET TO MAKE-UP FOR ANY EXHAUST IN THE AREA OR BUILDING SERVED TO PREVENT BUILDING FROM BEING NEGATIVE IN PRESSURE.
2. MINIMUM HIGH O/A SETPOINT: THE HIGH MINIMUM SETPOINT SHOULD BE THE MAXIMUM AMOUNT OF OUTSIDE AIR NEEDED TO PROPERLY VENTILATE THE SPACE.
3. THE MINIMUM OUTSIDE AIR SHALL MODULATE BETWEEN THE LOW MINIMUM SETPOINT AND THE HIGH MINIMUM SETPOINT BASED ON CO2 LEVELS TO MAINTAIN CO2 LEVELS BELOW 900 PPM SETPOINT (ADJUSTABLE) IN THE RTU COMMON RETURN AIR DUCT.

RTU DUCT SMOKE DETECTORS:

COORDINATE OPERATION OF DUCT SMOKE DETECTORS WITH THE WORK OF THE ELECTRICAL CONTRACTOR. THE TEMPERATURE CONTROLS CONTRACTOR (TCC) SHALL WIRE THE AIR HANDLING UNIT DUCT SMOKE DETECTORS TO SHUT DOWN AIR HANDLING UNITS UPON DETECTION OF SMOKE. THE ELECTRICAL CONTRACTOR (EC) WILL PROVIDE AND POWER THE DUCT SMOKE DETECTORS. THE EC, WITH THE ASSISTANCE OF THE SHEET METAL CONTRACTOR, WILL INSTALL THE DUCT SMOKE DETECTORS.

EXHAUST FAN CONTROL: CURRENT SENSING SWITCH SHALL BE INSTALLED AT EACH EXHAUST FAN TO VERIFY EXHAUST FAN OPERATION. THE CURRENT SENSING SWITCH, THROUGH FIELD CONTROL PANELS, SHALL ALARM TO AND BE MONITORED FROM THE ENERGY MANAGEMENT SYSTEM. EXHAUST FAN SHALL OPERATE CONTINUOUSLY, BUT SHALL BE CONNECTED TO THE DDC BACKNET SYSTEM FOR START/STOP CONTROL.

MINIMUM OUTSIDE AIR CONTROL/DEMAND CONTROL VENTILATION

1. MINIMUM LOW O/A SETPOINT: THE MINIMUM O/A SHALL BE SET TO MAKE-UP FOR ANY EXHAUST IN THE AREA OR BUILDING SERVED TO PREVENT BUILDING FROM BEING NEGATIVE IN PRESSURE.
2. MINIMUM HIGH O/A SETPOINT: THE HIGH MINIMUM SETPOINT SHOULD BE THE MAXIMUM AMOUNT OF OUTSIDE AIR NEEDED TO PROPERLY VENTILATE THE SPACE.
3. THE MINIMUM OUTSIDE AIR SHALL MODULATE BETWEEN THE LOW MINIMUM SETPOINT AND THE HIGH MINIMUM SETPOINT BASED ON CO2 LEVELS TO MAINTAIN CO2 LEVELS BELOW 900 PPM SETPOINT (ADJUSTABLE) IN THE RTU COMMON RETURN AIR DUCT.

MATTHEW HOLBROOK, P.E.
6850 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL: KEVIN@HOLBROOKNET

Certified By:

Approved 10-15-2024

MATTHEW D. HOLBROOK, REGISTERED PROFESSIONAL ENGINEER
No. 19400043
STATE OF INDIANA
MATTHEW D. HOLBROOK
Matthew D. Holbrook

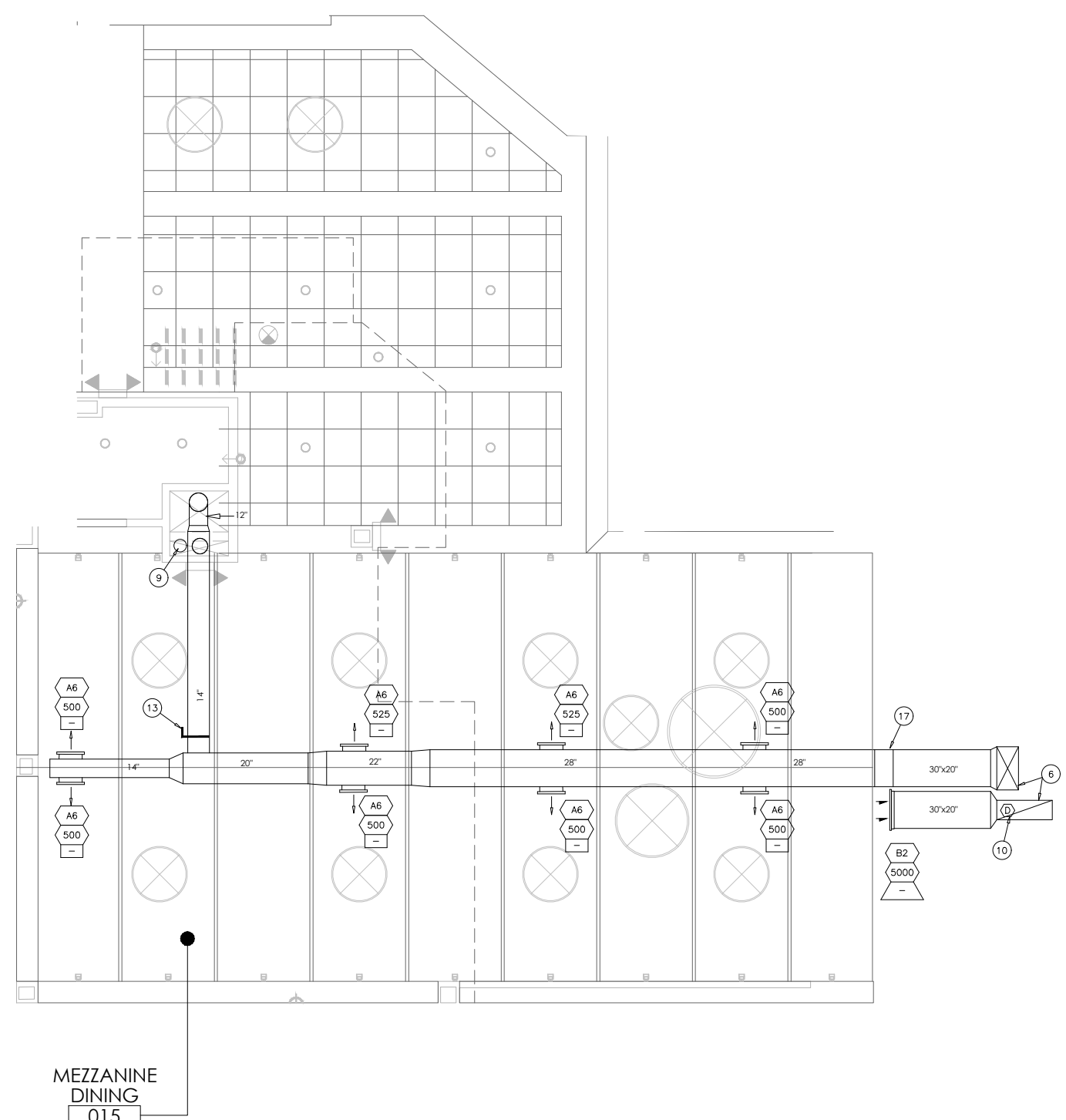
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1464 West Stones Crossing Road
Greenwood, Indiana 46143

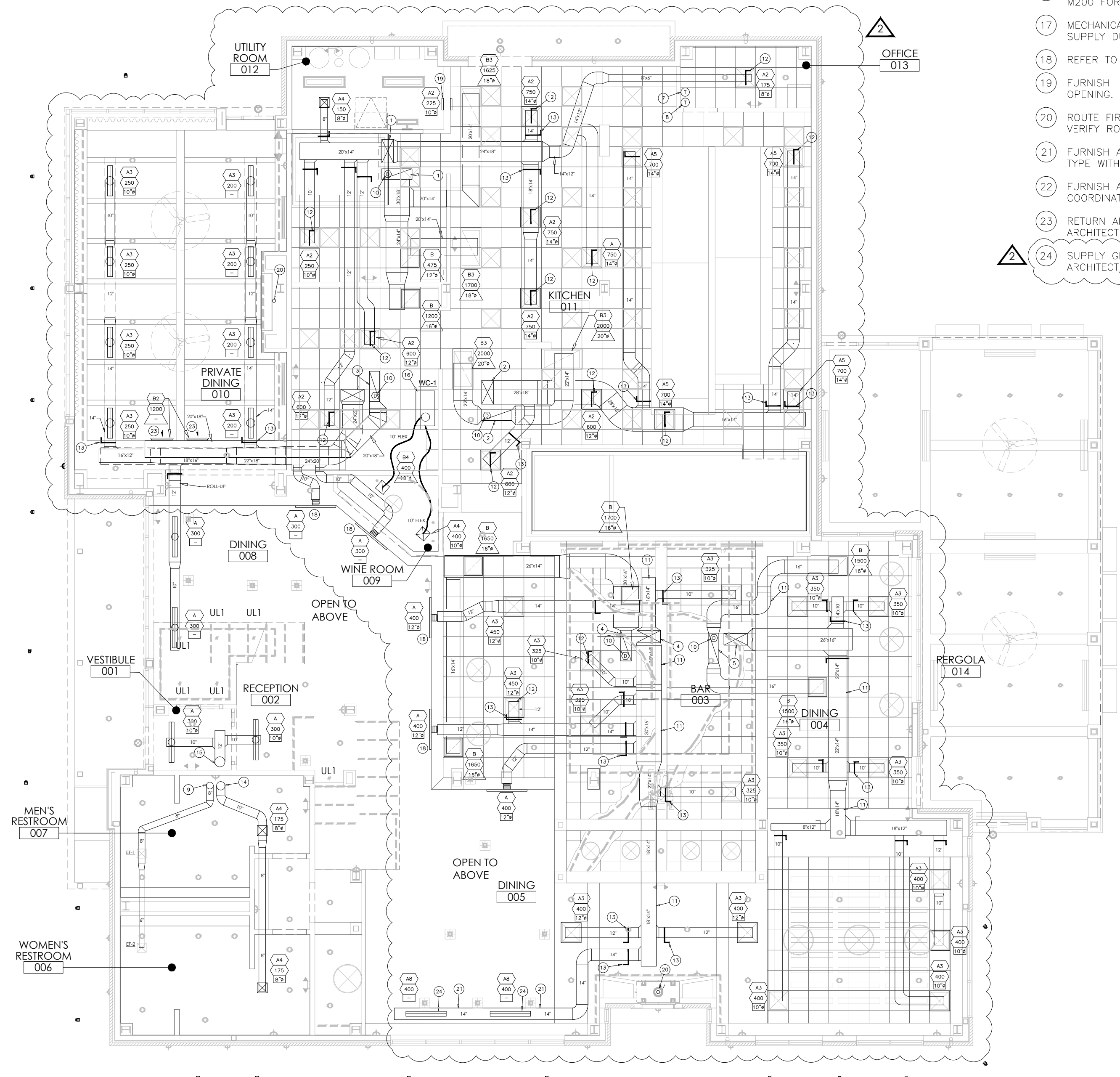
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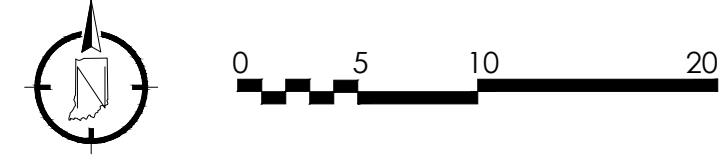
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2 MEZZANINE-MECHANICAL PLAN
SCALE: 1/8"=1'-0"



1 FIRST FLOOR-MECHANICAL PLAN
SCALE: 1/8"=1'-0"



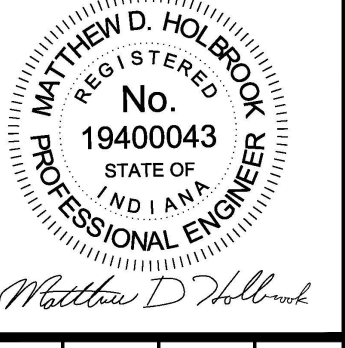
PLAN NOTES:

- 1 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #1 ON ROOF. BALANCE SUPPLY AIR TO 5000 CFM AND OUTSIDE AIR TO 750 CFM.
- 2 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #2 ON ROOF. BALANCE SUPPLY AIR TO 4000 CFM AND OUTSIDE AIR TO 600 CFM.
- 3 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #3 ON ROOF. BALANCE SUPPLY AIR TO 3000 CFM AND OUTSIDE AIR TO 600 CFM.
- 4 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #4 ON ROOF. BALANCE SUPPLY AIR TO 5000 CFM AND OUTSIDE AIR TO 1000 CFM.
- 5 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #5 ON ROOF. BALANCE SUPPLY AIR TO 3000 CFM AND OUTSIDE AIR TO 600 CFM.
- 6 NEW SUPPLY AND RETURN AIR DOWN FROM RTU #4 ON ROOF. BALANCE SUPPLY AIR TO 5000 CFM AND OUTSIDE AIR TO 1000 CFM.
- 7 KITCHEN A.C. UNIT CONTROLS BEHIND OFFICE DOOR. COORDINATE LOCATION WITH OWNER. VERIFY SENSOR LOCATION WITH OWNER. TYPICAL FOR 2.
- 8 DINING A.C. UNIT CONTROLS BEHIND OFFICE DOOR. COORDINATE LOCATION WITH OWNER. VERIFY SENSOR LOCATIONS WITH OWNER. TYPICAL FOR 4.
- 9 8"Ø TOILET EXHAUST DUCT. RUN UP THROUGH CHASE TO RELIEF HOOD ON ROOF. HOOD SHALL BE 10'-0" FROM ANY INTAKE.
- 10 FURNISH AND INSTALL SMOKE DETECTOR IN SUPPLY DUCT AS REQUIRED. THE UNIT SHALL SHUT DOWN UPON ACTIVATION.
- 11 DUCT SHALL BE KEPT TIGHT TO DECK.
- 12 MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL VOLUME DAMPER AT DIFFUSER AS REQUIRED.
- 13 MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL VOLUME DAMPER AT TRUNKLINE TAKE-OFF.
- 14 10"Ø SUPPLY DUCT DOWN IN CHASE FROM RTU #6 ON ROOF. VERIFY ROUTING IN FILED.
- 15 12"Ø SUPPLY DUCT DOWN IN CHASE FROM RTU #6 ON ROOF. VERIFY ROUTING IN FILED.
- 16 FURNISH AND INSTALL WINE COOLER UNIT ABOVE KITCHEN. SEE SHEET M200 FOR SPECIFICATIONS.
- 17 MECHANICAL CONTRACTOR SHALL ROLL SUPPLY DUCT UP. BOTTOM OF SUPPLY DUCT SHALL BE 11'-0" ABOVE MEZZANINE FLOOR.
- 18 REFER TO INTERIOR ELEVATIONS FOR INSTALL HEIGHT.
- 19 FURNISH AND INSTALL TRANSFER GRILL ON BOTH SIDES ABOVE DOOR OPENING.
- 20 ROUTE FIREPLACE EXHAUST UP THRU ROOF WITH APPROVED VENT CAP. VERIFY ROUTING IN FIELD. FIREPLACE IS DIRECT VENT TYPE.
- 21 FURNISH AND INSTALL WALL MOUNTED DUCT HANGER. COORDINATE TYPE WITH ARCHITECT.
- 22 FURNISH AND INSTALL DECORATIVE RETURN GRILL HIGH ON WALL. COORDINATE TYPE AND HEIGHT WITH ARCHITECT.
- 23 RETURN AIR REGISTER SHALL BE DECORATIVE. COORDINATE TYPE WITH ARCHITECT PRIOR TO ORDERING.
- 24 SUPPLY GRILL SHALL BE MOUNTED ON DUCT. VERIFY TYPE WITH ARCHITECT/OWNER PRIOR TO ORDERING.

MATTHEW HOLBROOK, P.E.
6130 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL KEVIN@KDCCONSULTINGINC.NET

Certified By:

Approved 10-15-2024



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STONE CREEK DINING COMPANY

Shiloh's Corner
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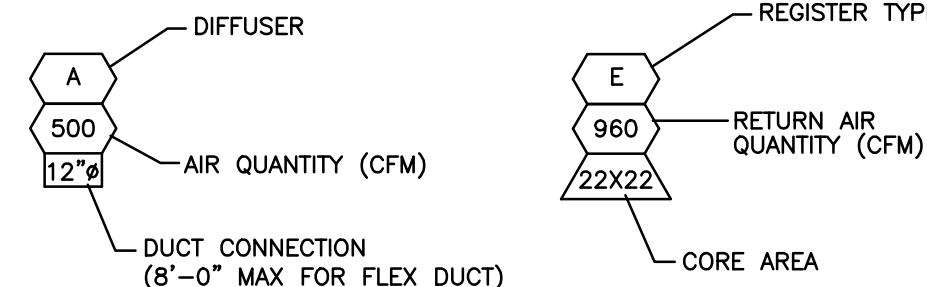
M100

MARK	MFR. AND MODEL NO.	NOMINAL TONS	SA CFM	OSA CFM	COOLING CAPACITY			HEATING CAPACITY			ELECTRICAL										REMARKS
					SENSIBLE (BTUH)	TOTAL (BTUH)	EER/SEER	INPUT BTUH	OUTPUT BTUH	VOLT	PH.	EVAP. FAN FLA/HP	COMPRESSORS QTY.	CONDENSER FAN RLA	FAN HP	FLA	MIN. CIRCUIT AMPS	APPROX. OPER. WT. (LBS.)			
RTU #1	ICP COMMERCIAL RGV150HE3A0AAA	12.5	5000	750	118.5	151.5	-	180	146	208	3	-	2	15.6	110	2	-	1.5	63	1430	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD
RTU #2	ICP COMMERCIAL RGV120HE3A0AAA	10.0	4000	600	96.2	125.8	-	224	181	208	3	-	2	15.6	110	2	-	1.5	45	946	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD
RTU #3	ICP COMMERCIAL RGV090HE2A0AAA	7.5	3000	600	66.02	90.47	15.0	180	148	208	3	-	2	13.1	123	2	-	1.5	39	852	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD
RTU #4	ICP COMMERCIAL RGV150HE3A0AAA	12.5	5000	1000	118.5	151.5	-	180	146	208	3	-	2	15.6	110	2	-	1.5	63	1430	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD
RTU #5	ICP COMMERCIAL RGV090HE2A0AAA	7.5	3000	600	66.02	90.47	15.0	180	148	208	3	-	2	13.1	123	2	-	1.5	39	852	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD
RTU #6	ICP COMMERCIAL RGV150HE3A0AAA	12.5	5000	1000	118.5	151.5	-	180	146	208	3	-	2	15.6	110	2	-	1.5	63	1430	COMPLETE WITH TEMPERATURE ECONOMIZER WITH BAROMETRIC RELIEF AND LOUVERED HAIL GUARD

DIFFUSER/REGISTER SCHEDULE

MARK	SERVICE	TYPE	MODULE/FACE SIZE	BACKPAN	MFR. & MOD. NO.	BORDER TYPE	PATTERN	NOTES	COMMENTS
A	SUPPLY	LINEAR	-	-	TITUS FL-20	TYPE 66	-	-	4' LENGTH, 2-SLOT @ 1"
A2	SUPPLY	SQUARE	24" X 24"	18" X 18"	TITUS TMSA	3 - LAY-IN	4-WAY	2,4	OR EQUIVALENT
A3	SUPPLY	SQUARE	24" X 24"	18" X 18"	TITUS OMNI	3 - LAY-IN	4-WAY	2,4	OR EQUIVALENT
A4	SUPPLY	SQUARE	12" X 12"	9" X 9"	TITUS OMNI	3 - LAY-IN	4-WAY	2,4	OR EQUIVALENT
A5	SUPPLY	SQUARE	24" X 24"	18" X 18"	TITUS PAR	3 - LAY-IN	4-WAY	2,4	OR EQUIVALENT
A6	SUPPLY	ROUND DUCT	-	-	TITUS S300FS	-	-	4	OR EQUIVALENT
A7	SUPPLY	LINEAR	-	-	TITUS FL-20	TYPE 66	-	-	3' LENGTH, 2-SLOT @ 1"
A8	SUPPLY	SPIRAL CURVED	-	-	ADVANCED MECHANICAL SUPPLY	-	-	-	DUCT MOUNTED-OR EQUIVALENT
B	RETURN	SQUARE	24" X 24"	SEE PLAN	TITUS 50F	3 - LAY-IN	-	5,10	OR EQUIVALENT
B2	RETURN	RECTANGLE	24" X 18"	SEE PLAN	TITUS 271FS	-	-	-	OR EQUIVALENT-SHALL BE DECORATIVE
B3	RETURN	RECTANGLE	48" X 24"	SEE PLAN	TITUS 50F	3 - LAY-IN	-	5,10	OR EQUIVALENT
B4	RETURN	SQUARE	12" X 12"	SEE PLAN	TITUS 50F	3 - LAY-IN	-	5,10	OR EQUIVALENT

- NOTES:
- PROVIDE WITH AG-35-AA OPPOSED BLADE VOLUME DAMPER (RECT. 272RS & 23RL)
 - PROVIDE WITH MODEL EG EQUALIZING GRID
 - PROVIDE WITH MODEL AG-95 OPPOSED BLADE VOLUME DAMPER (SQUARE)
 - PROVIDE WITH MODEL AG-75 OPPOSED BLADE VOLUME DAMPER (ROUND)
 - PROVIDE WITH TRM PLASTER FRAME
 - PROVIDE WITH RUSKIN MODEL CFD FIRE DAMPER
 - PROVIDE WITH TITUS MODEL MPI37 INSULATED PLENUM (DO NOT SUPPLY FOR BLANK SECTIONS)
 - PROVIDE PREFAB PLASTER FRAME FOR MOUNTING
 - PROVIDE WITH MODEL AG-15-AA VOLUME DAMPER (RETURN RECT. 50F)
 - PROVIDE WITH MODEL DB OPTIONAL DIRECTIONAL BLOW CLIPS



EXHAUST FAN SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	CFM	PRESSURE DROP INCHES WC.	DRIVE	WATTS/HP	RPM	VOLTAGE	CONTROL	NOTES
EF-1	FANTECH OR EQUIVALENT	PRO PLUS #98506	150	0.25	DIRECT	25W./4A.	1,167	120	②	①
EF-2	FANTECH OR EQUIVALENT	PRO PLUS #98506	150	0.25	DIRECT	25W./4A.	1,167	120	②	①
HOOD-1	GREENHECK OR EQUIVALENT	GRSR-8	-	-	-	-	-	-	-	③

- NOTES:
- COMPLETE FAN WITH INTEGRAL BACKDRAFT DAMPER.
 - CONTROLLED VIA WALL OCCUPANCY SWITCH IN RESTROOM.
 - COMPLETE WITH BUILT-IN FLANGE FOR CURBLESS INSTALL.

WINE COOLER UNIT

UNIT NO.	MANUFACTURER	MODEL	CFM	PRESSURE DROP INCHES WC.	WEIGHT	MCA	RPM	VOLTAGE	REMARKS
WC-1	MAGIC AIRE	DVB04	400	0.25	-	1.0 A.	1100	208/1	

- NOTES:
- FURNISH WITH LOW AMBIENT CONTROLS TO -10 DEG F.
 - FURNISH WITH STAINLESS STEEL DRAIN PAN.
 - UNIT SHALL BE BUILT WITH PHENOLIC COIL SPECIAL COATING.
 - CONTRACTOR SHALL SPECIFY, FURNISH, AND INSTALL CONDENSING UNIT BASED ON COIL CAPACITY. VERIFY PRIOR TO INSTALL.
 - CONTRACTOR SHALL SPECIFY, FURNISH, AND INSTALL TXV VALVE.

MECHANICAL NOTES

REMOVE ALL EQUIPMENT, DUCTWORK, PIPING, DIFFUSERS, ETC., PRESENTLY IN THE SPACE AND NOT REQUIRED FOR THE NEW INSTALLATION.

INSTALL NEW PLUMBING FIXTURES AS REQUIRED. CONNECT WATER, WASTE AND VENT PIPING TO THE NEAREST EXISTING PIPING IN THE SPACE AND EXTEND TO NEW FIXTURE LOCATIONS AS REQUIRED. CAP ALL STUBS NOT REQUIRED FOR THIS INSTALLATION.

EXACT LOCATION OF THE EXISTING PIPING AND LENGTH OF NEW PIPING REQUIRED SHALL BE VERIFIED IN FIELD PRIOR TO BID. ALL PIPING NECESSARY FOR A COMPLETE INSTALLATION AND CONNECTION TO THE EXISTING PIPING SHALL BE INCLUDED IN THE BASE BID.

THE FLOOR SHALL BE CUT AND PATCHED AS REQUIRED TO INSTALL NEW WASTE PIPING.

FURNISH AND INSTALL TWO NEW TOILET EXHAUST REGISTERS IN THE TOILET ROOMS. EXTEND NEW TOILET EXHAUST DUCTWORK FROM NEW FIXTURES UP TO TOILET EXHAUST FAN ON ROOF AS REQUIRED. FIELD VERIFY THE EXACT LOCATION OF THE FAN IN THE FIELD. BASE BID SHALL INCLUDE ALL DUCTWORK AND CONNECTION NECESSARY FOR A COMPLETE INSTALLATION.

THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW HVAC EQUIPMENT AS SHOWN AND CALLED FOR. VERIFY EQUIPMENT PRIOR TO BID.

COORDINATE ALL STRUCTURE MODIFICATIONS WITH LANDLORD. ENGAGE A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER TO CERTIFY ALL STRUCTURAL MODIFICATIONS.

FURNISH AND INSTALL NEW DIFFUSERS AND REGISTERS AS SHOWN AND SPECIFIED. CONNECT NEW DUCT EXTENSIONS TO NEW DUCT AS REQUIRED TO FEED NEW DIFFUSERS. FURNISH AND INSTALL SPLITTER VOLUME DAMPERS AT ALL NEW BRANCH TAKEOFFS.

NEW DUCTS SHALL BE SIZED AT 0.08" S.P. PER 100 FT., WITH A MAXIMUM VELOCITY OF 1,400 FPM.

SUBMIT "AS-BUILT" DRAWINGS OF REVISED DUCTWORK SHOWING SIZES AND AIR QUANTITIES AFTER WORK HAS BEEN COMPLETED.

FIRE STOP AND SEAL ALL PENETRATIONS IN ACCORDANCE WITH LANDLORD AND BUILDING OFFICIAL REQUIREMENTS.

INSTALL NEW FILTERS ON OPENING DAY. PROVIDE THREE ADDITIONAL PREVENTIVE MAINTENANCE VISITS AT 3,6, AND 9 MONTHS FOLLOWING OPENING. REPORT ANY ITEMS EFFECTING PERFORMANCE OF UNITS TO BEBE CONSTRUCTION DEPARTMENT.

FURNISH AND INSTALL ALL DUCTWORK IN COMPLIANCE WITH THE LATEST ASHRAE AND SMACNA STANDARDS REGARDING LOW PRESSURE DUCTWORK.

PROVIDE SHUT OFF VALVES IN THE SUPPLY PIPING TO EACH FIXTURE. FURNISH AND INSTALL AN ACCESSIBLE SERVICE VALVE ON ALL BRANCH PIPING, CHAMBER SHOCK ABSORBERS, AND PRESSURE REGULATOR AS REQUIRED.

TEMPERATURE CONTROLS, INCLUDING WIRING, SHALL BE PART OF THE MECHANICAL CONTRACT. ALL CONTROL WIRING SHALL BE INSTALLED IN CONDUIT.

DUCT INSULATION SHALL BE IN STRICT ACCORDANCE WITH UMC TABLE 10-1. MINIMUM VALUES SHALL BE AS LISTED:

AIR CONDITIONING, R-6.3 OUTDOORS (3"), R-2.1 INDOORS (1")

HEATING: R-2.1 OUTDOORS (1"), R-2.1 INDOORS (1")

ALL DUCTS SHALL BE SUPPORTED PER THE MINIMUM REQUIREMENTS OF UMC TABLE 6-E AND SHALL BE BRACED AND GUYED TO PREVENT LATERAL OR HORIZONTAL SWING. THE USE OF SEISMIC RESTRAINT GUIDELINES PER SMACNA IS ALSO APPLICABLE. INSTALLATION OF ALL DUCTWORK SHALL BE IN STRICT ACCORDANCE WITH UMC SECTION 603.

SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CEILING GRID, LIGHT FIXTURES, ETC.

MECHANICAL EQUIPMENT SPECIFICATIONS

TRANSFER GRILLES: TITUS MODEL 271-RS ON BOTH WALL FACES. COMPLETE WITH FIRE DAMPER (IF REQUIRED) AND SHEET METAL WALL SLEEVE.

SUPPLY AND RETURN AIR DUCTWORK:

RIGID: GALVANIZED ROUND DUCT, PAINTED TO MATCH, IN ACCORDANCE WITH ASHRAE AND SMACNA REQUIREMENTS.

RIGID: GALVANIZED SHEET METAL, IN ACCORDANCE WITH ASHRAE AND SMACNA REQUIREMENTS FOR LOW PRESSURE DUCTWORK.

FLEXIBLE: WIREMOLD TYPE WC OR EQUAL FLEXIBLE CLASS 1 AIR DUCT, METALIZED POLYESTER FILM LAMINATED ON STEEL WIRE REINFORCING, WITH 1.5" THICK, 0.6 LB DENSITY FIBERGLASS INSULATION AND FIRE RETARDENT REINFORCED VAPOR BARRIER (HI-VINYL) AND SHALL MEET NFPA 90A AND UL STANDARD 181.

INSULATION: SUPPLY AND OUTSIDE AIR DUCTWORK: 1" THICK 1/2 LB. DENSITY FIBERGLASS, WITH VAPOR BARRIER JACKET INTERNALLY LINED-DUAL WALL. DIMENSIONS SHOWN ON THE DRAWINGS ARE INSIDE DIMENSIONS.

MATTHEW HOLBROOK, P.E.
6180 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL KEVIN@COCONUTINC.NET

Certified By:

Approved 10-15-2024

MATTHEW D. HOLBROOK
REGISTERED
No. 19400043
STATE OF INDIANA
PROFESSIONAL ENGINEER

Scale: AS NOTED
Date: 3.6.2024
Drawn By: KC
Checked By: MH

STONE CREEK DINING COMPANY

Shiloh's Corner
1464 West Stones Crossing Road
Greenwood, Indiana 46143

Revisions:

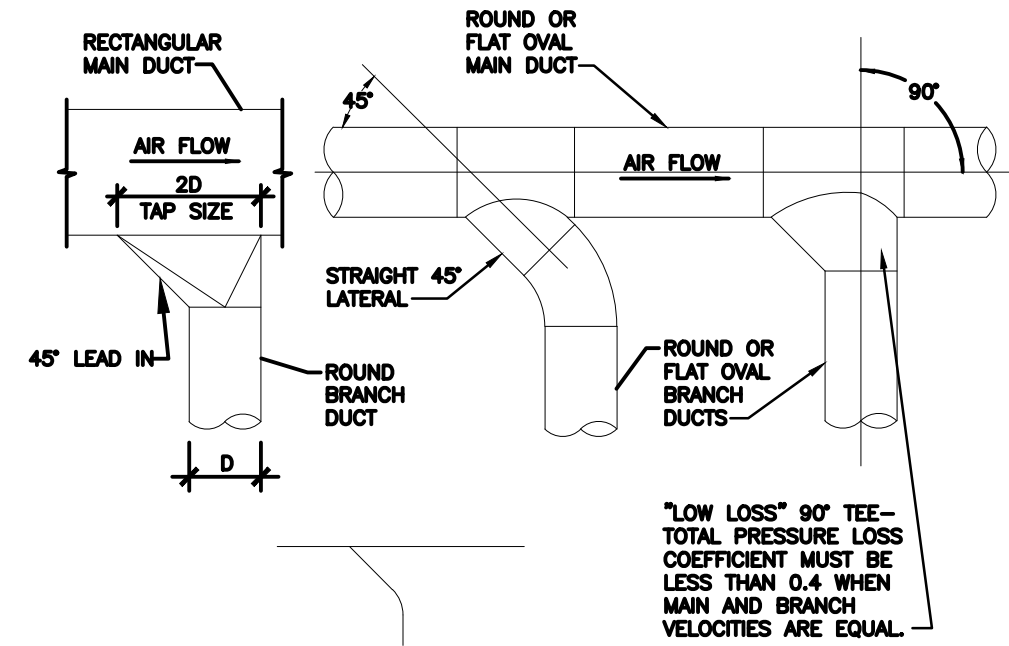
② REVISION 2 10.2.2024

Drawing Name:
MECHANICAL
SCHEDULES & NOTES

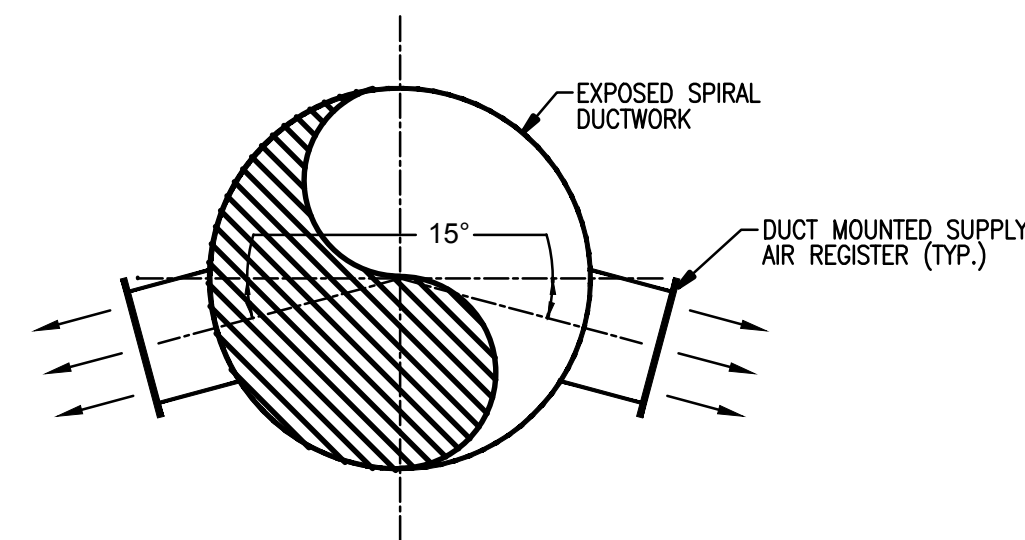
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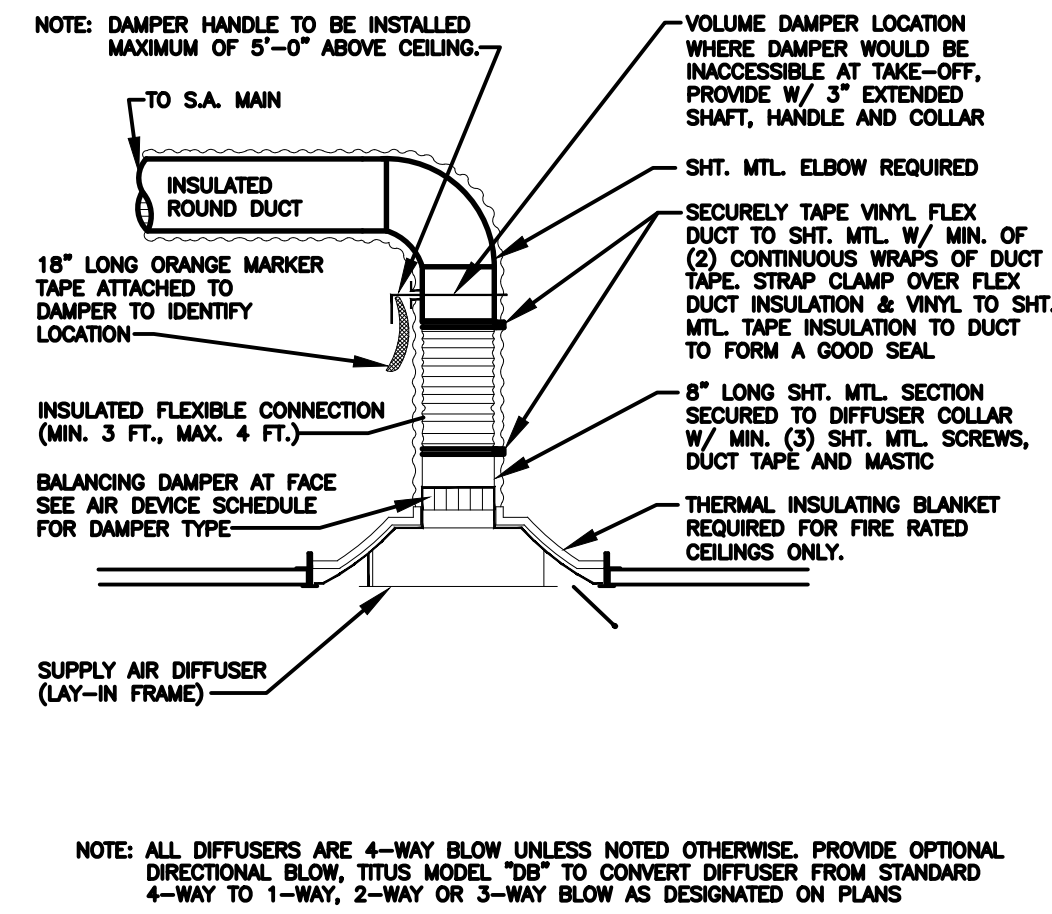
PERMIT SET 6.12.2024



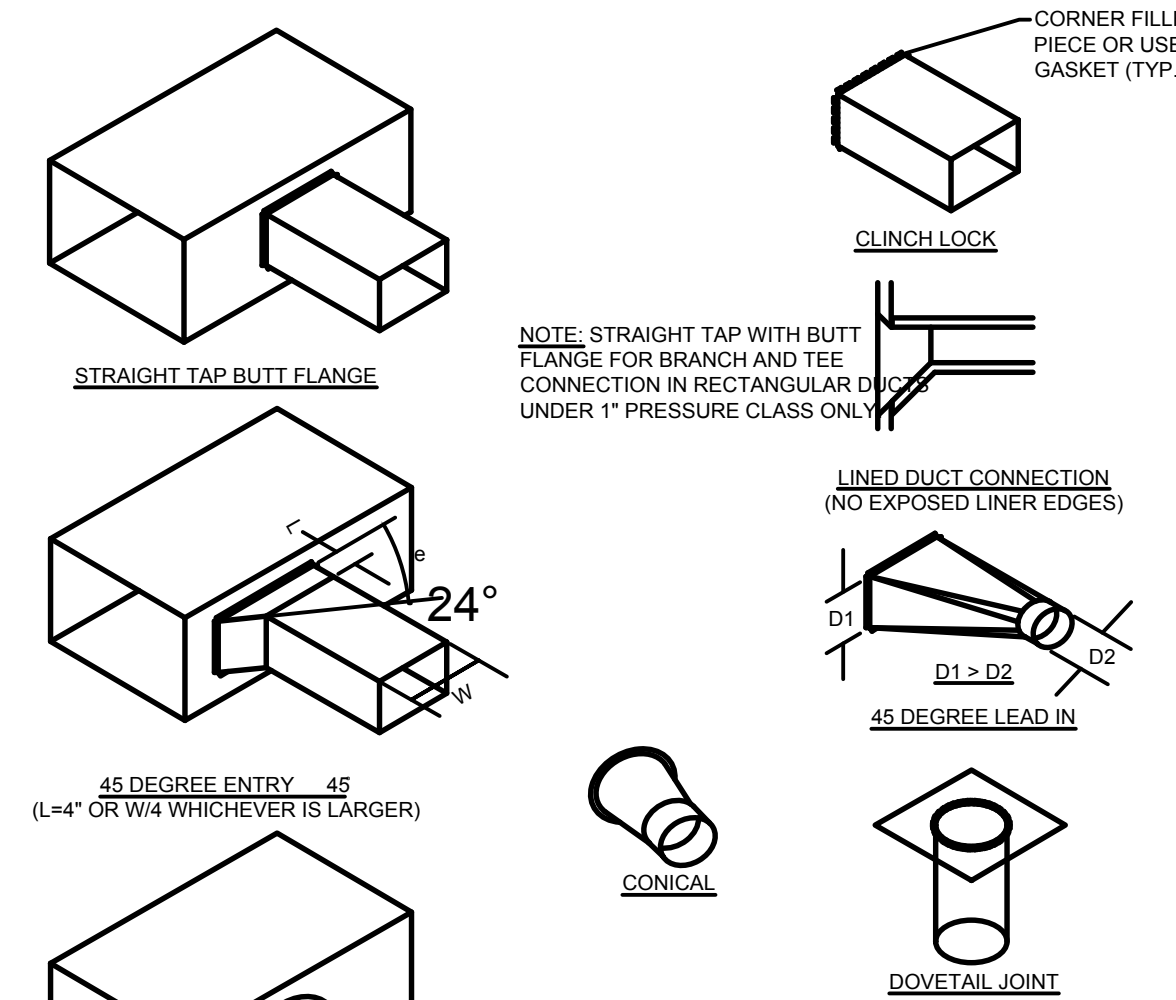
TYPICAL DUCT CONNECTIONS



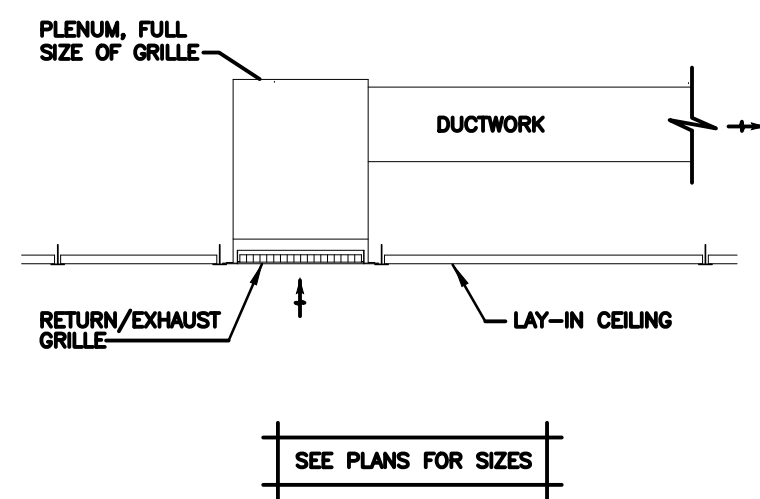
EXPOSED DUCTWORK SUPPLY AIR REGISTER INSTALLATION DETAIL



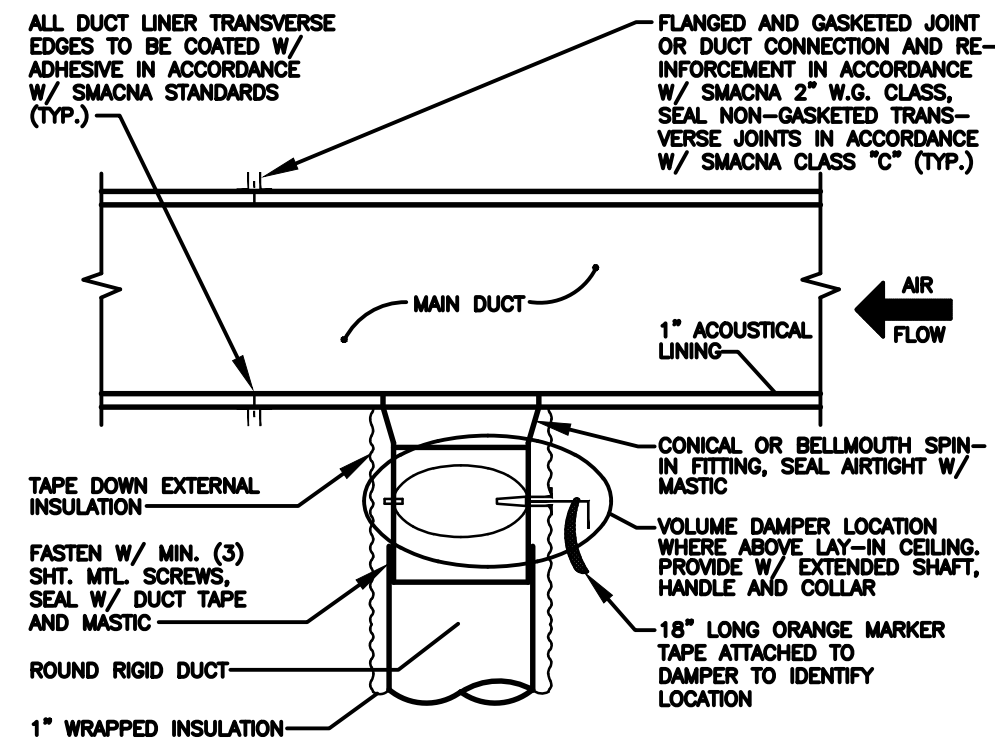
24"X24" & 20"X20" DIFFUSER MOUNTING DETAIL



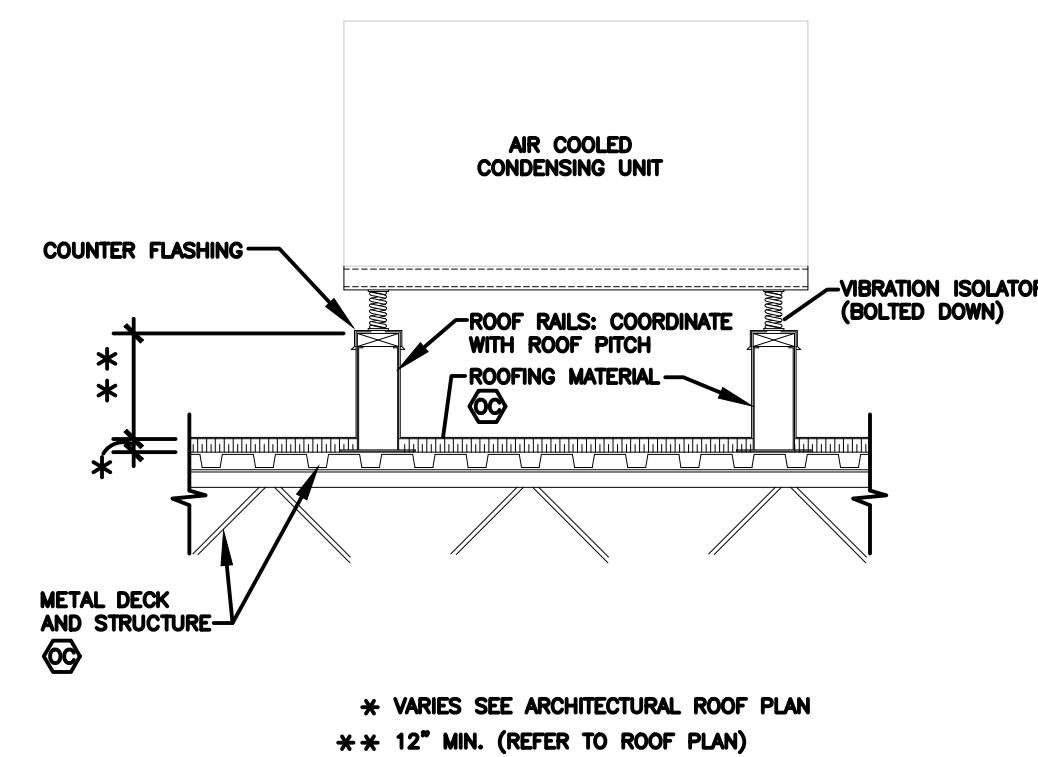
BRANCH CONNECTIONS DETAIL



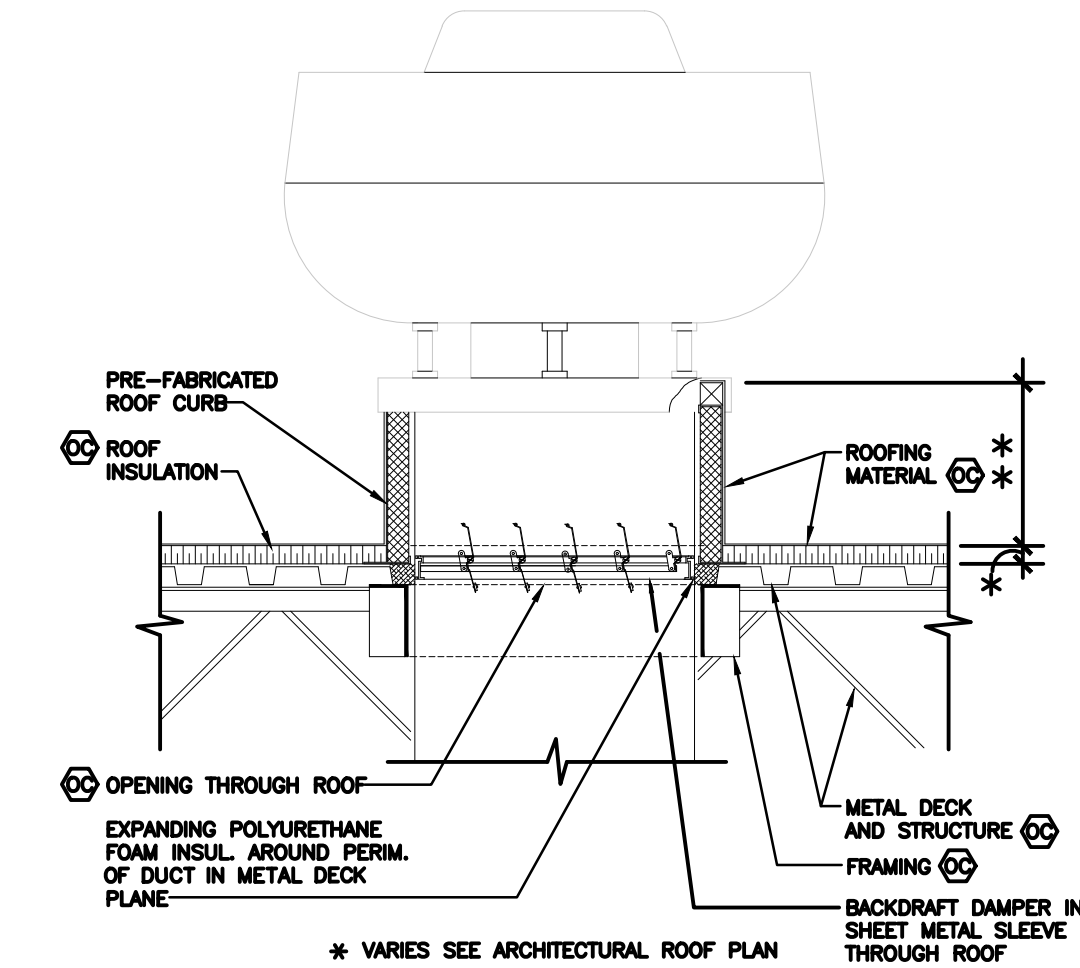
RETURN/EXHAUST GRILLE CONNECTION DETAIL



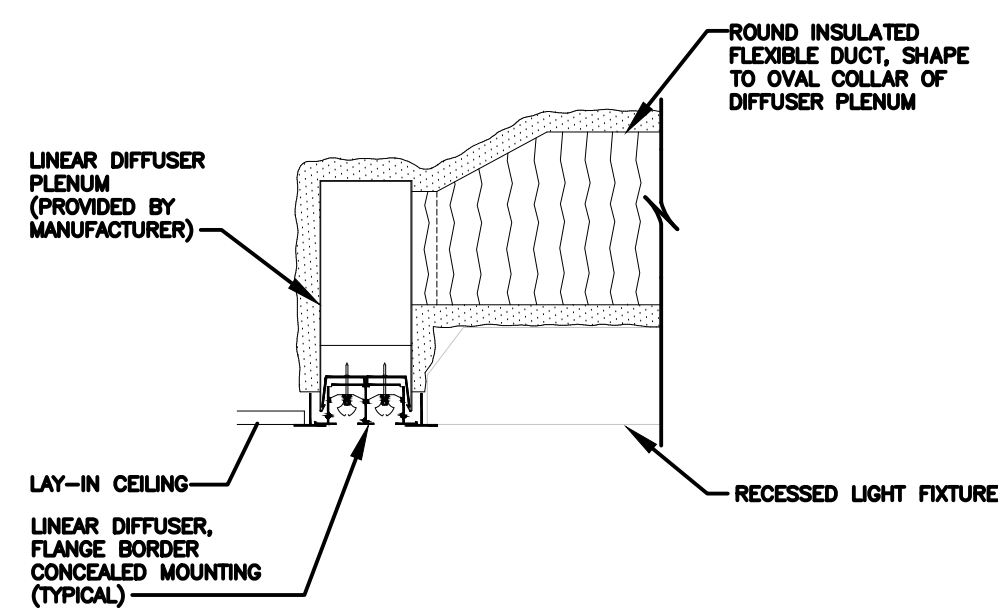
TYPICAL ROUND DUCT TAP DETAIL



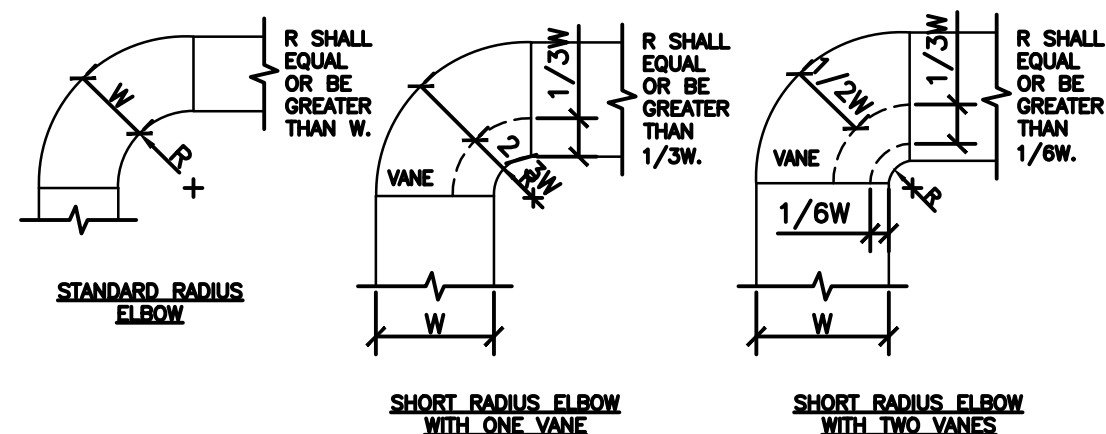
RAIL MOUNTED EQUIPMENT DETAIL



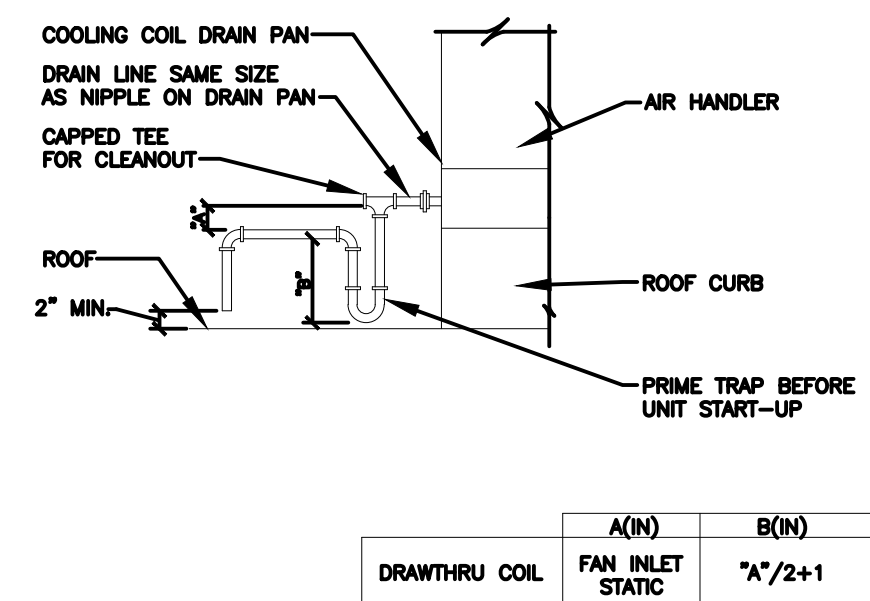
ROOF MOUNTED FAN DETAIL



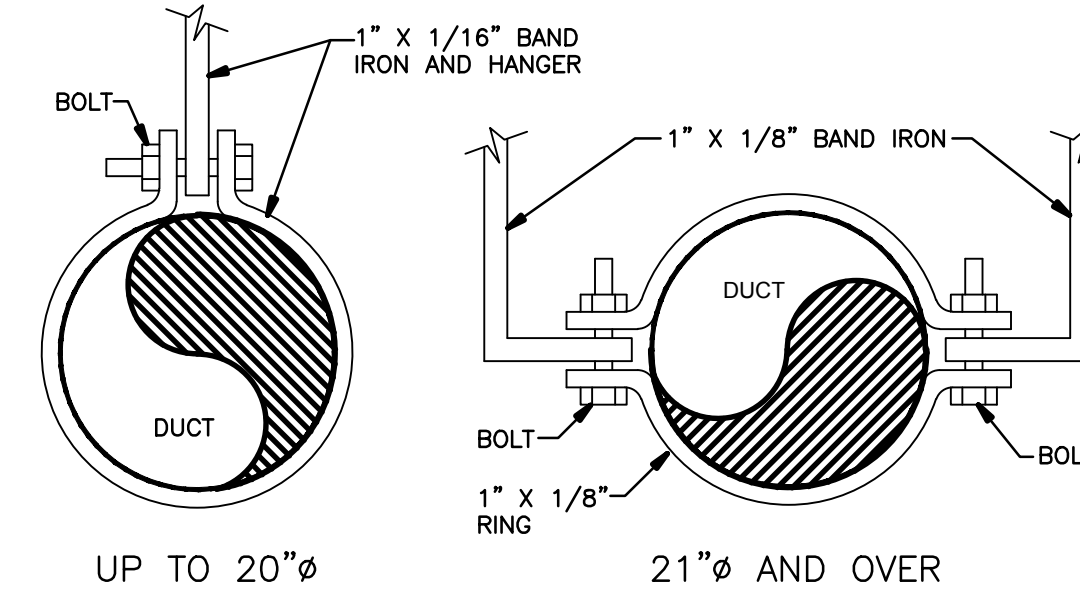
LINEAR DIFFUSER DETAIL



DUCTWORK RADIUS ELBOW DETAIL



CONDENSATION DRAIN TRAP DETAIL



ROUND DUCT HANGING DETAIL

MATTHEW HOLBROOK, P.E.
6830 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL: KEVIN@COCONSULTINGINC.NET

Certified By:
MATTHEW D. HOLBROOK
REGISTERED PROFESSIONAL ENGINEER
No. 19400043
STATE OF INDIANA
Professional Engineer
Matthew D. Holbrook

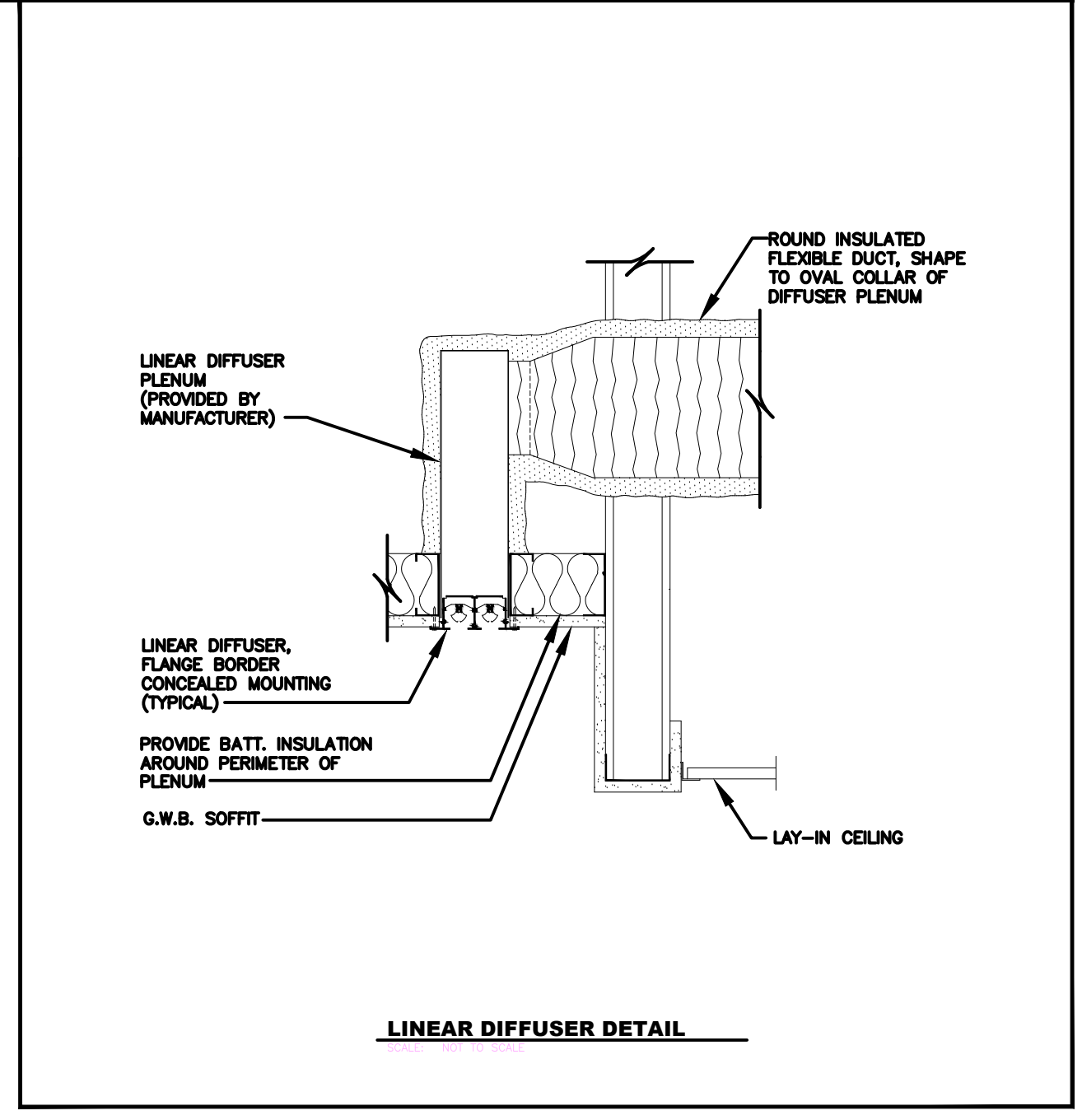
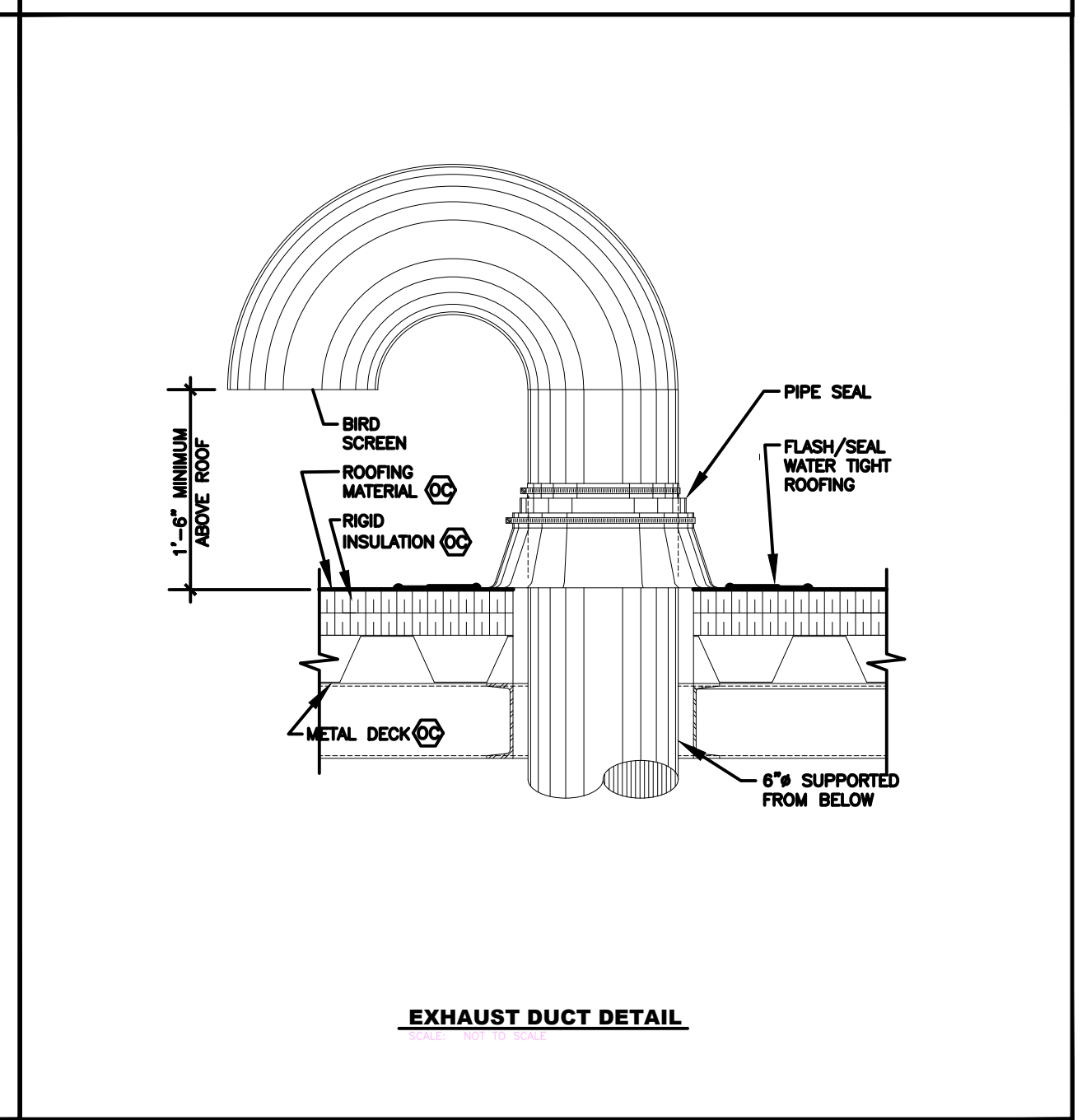
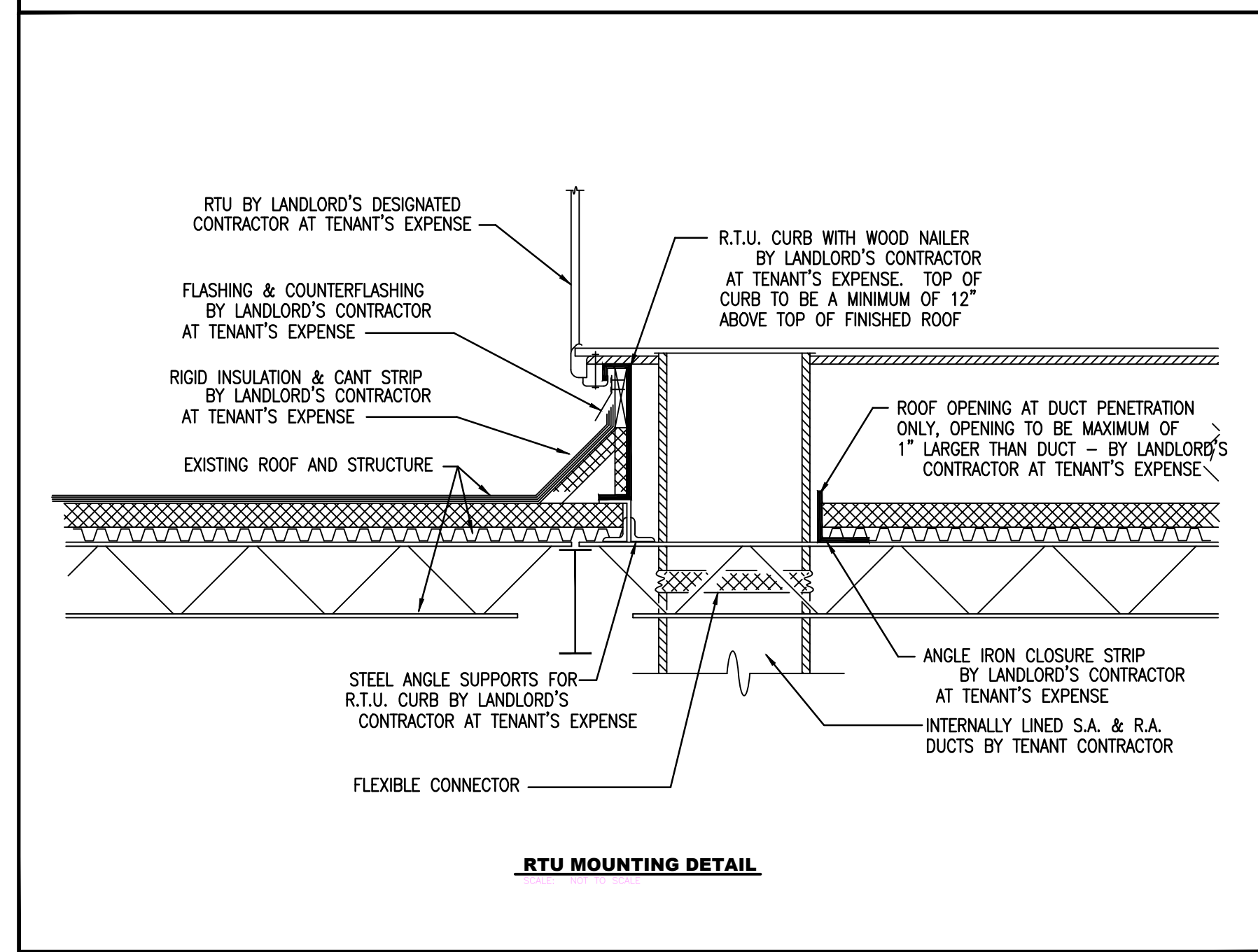
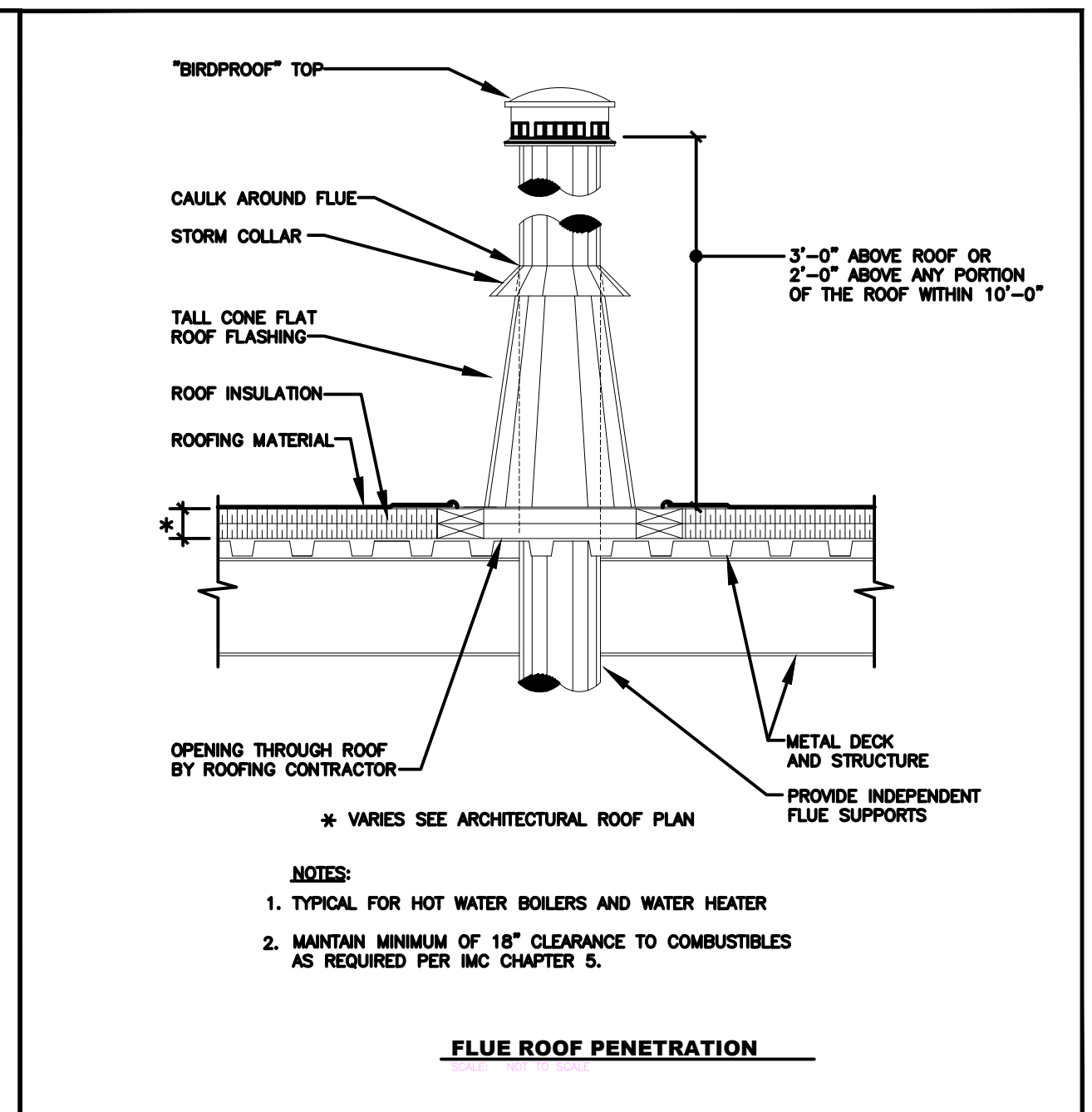
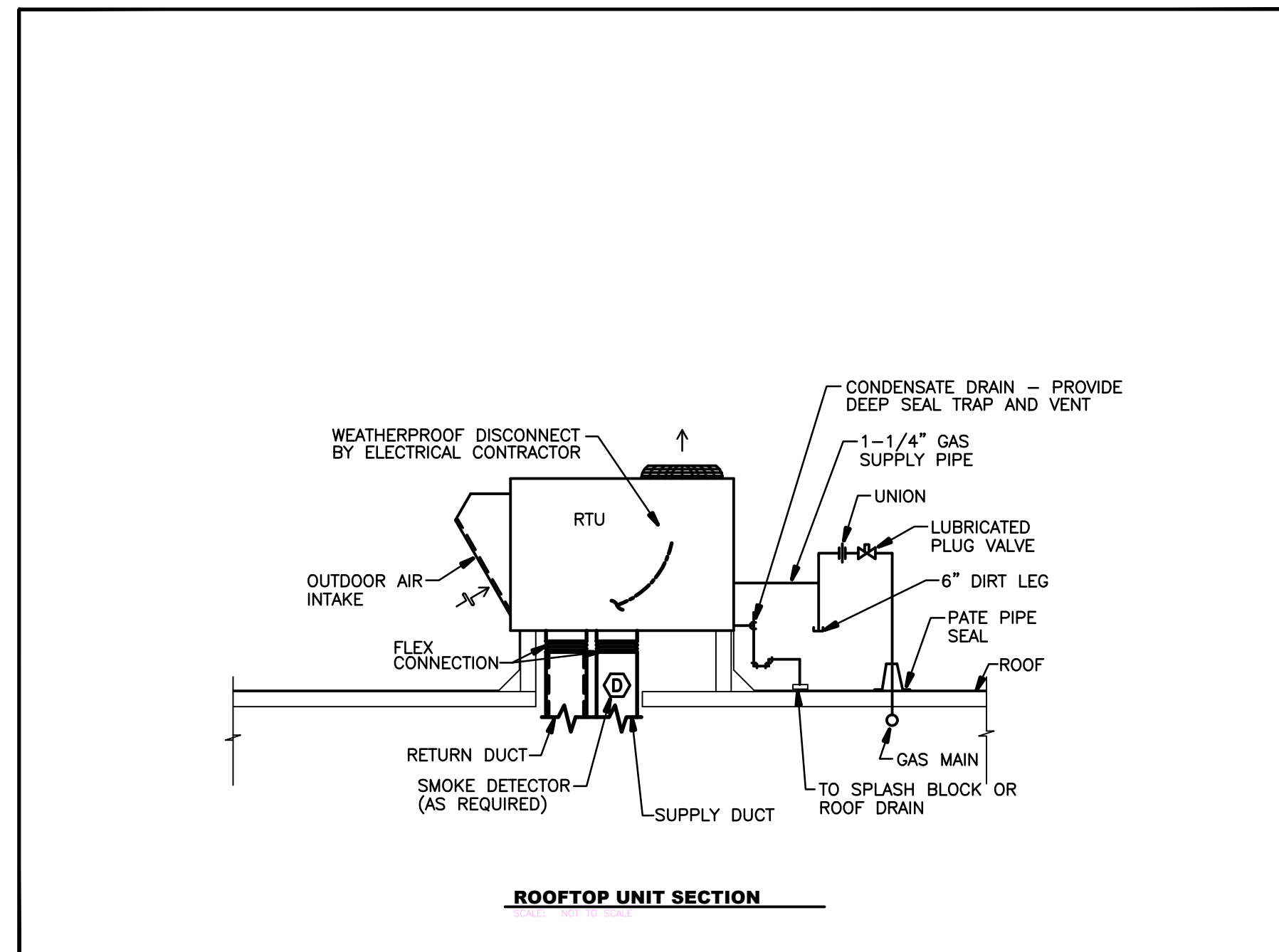
Scale: AS NOTED
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Drawn By: KC
Checked By: MH

STONE CREEK DINING COMPANY
Shiloh's Corner
1464 West Stones Crossing Road
Greenwood, Indiana 46143

Revisions:
REVISION 2 10.2.2024

Drawing Name:
MECHANICAL DETAILS

Drawing Number:
M400



STONE CREEK DINING COMPANY
 Shiloh's Corner
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 Greenwood, Indiana 46143

MATTHEW HOLBROOK, P.E.
 6830 CARROLLTON AVENUE
 INDIANAPOLIS IN 46220
 E-MAIL: KEVIN@COCONSULTINGINC.NET

Certified By:
 Approved 10-15-2024

REGISTERED PROFESSIONAL ENGINEER
 No. 19400043
 STATE OF INDIANA
 Matthew D. Holbrook

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 Drawing Number: M401

PLUMBING EQUIPMENT SPECIFICATIONS

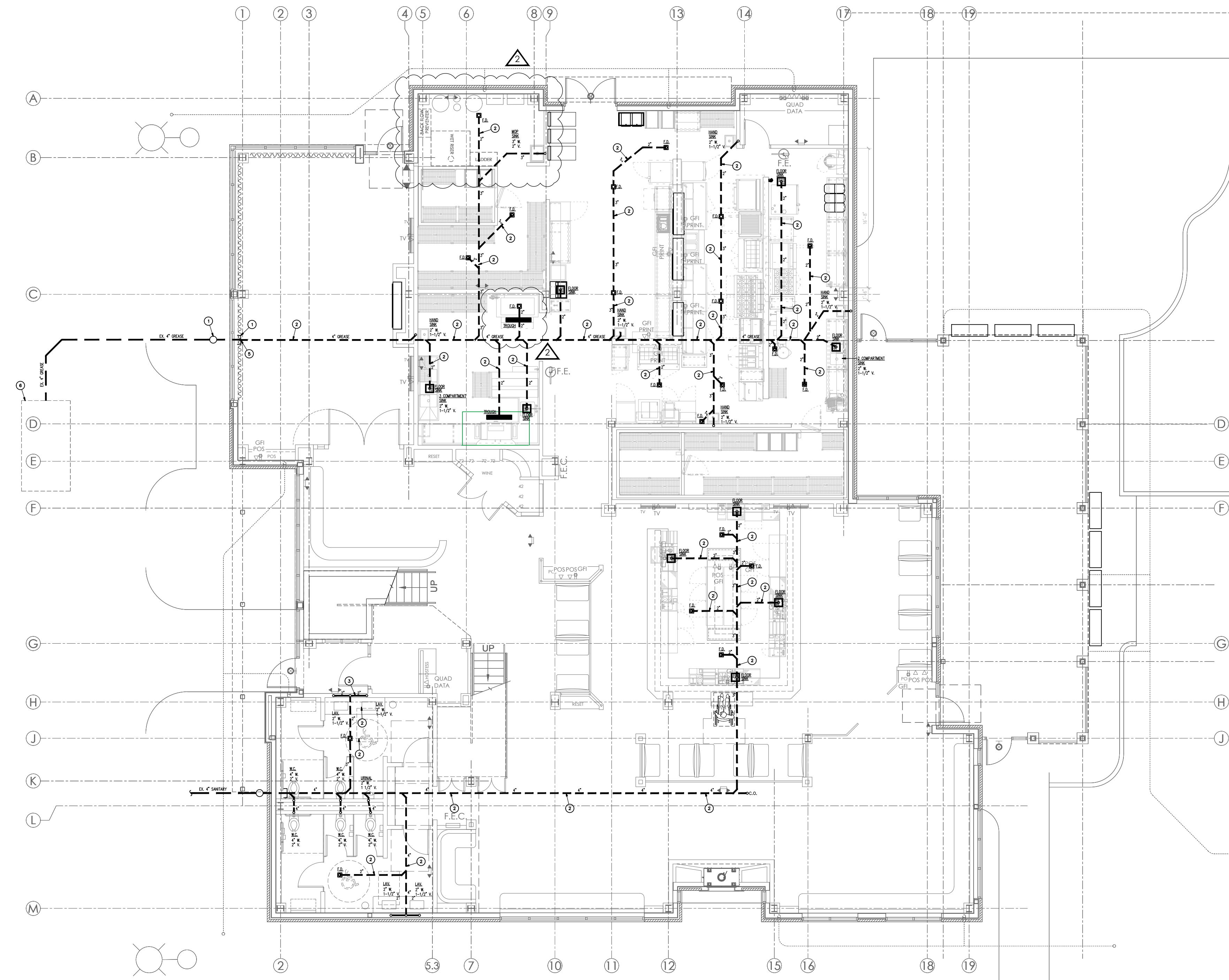
LAVATORIES: COORDINATE WITH ARCHITECT, SHEET A1.2.
 LAVATORY FAUCETS: COORDINATE WITH ARCHITECT, SHEET A1.2.
 LAVATORY GRID STRAINERS: COORDINATE WITH ARCHITECT, SHEET A1.2.
 WATER CLOSETS: COORDINATE WITH ARCHITECT, SHEET A1.2.
 WATER HEATER WH-1: NAVIEN #NPE-240S INSTA-HOT, DIRECT VENT
 WATER HEATER WH-2: NAVIEN #NPE-240S INSTA-HOT, DIRECT VENT
 HOT WATER EXPANSION TANK: AMTROL #AST-5, 2.1 GALLONS VOLUME.
 FLOOR DRAIN: ZURN #ZB-456-1, WITH DEEP SEAL INTEGRAL TRAP, FLOOR LEVEL CLEANOUT, POLISHED BRONZE STRAINER AND CLAMPING RING.
 TRAP PRIMER: ZURN #Z-1022-DU2.
 CLEANOUT: ZURN #ZB-1400-3, WITH SQUARE POLISHED BRONZE COVER.
 GREASE INTERCEPTOR: EXISTING TO REMAIN (CONTRACTOR SHALL VERIFY)
 CIRCULATION PUMP: BY PLUMBING CONTRACTOR.
 WATER SOFTNER: KINETICO #CP-210.
 FLOOR TROUGH: CONTRACTOR SHALL PROVIDE AND INSTALL. COORDINATE TYPE WITH OWNER.

PLUMBING NOTES

PIPING MATERIALS:
 DOMESTIC COLD WATER: TYPE L HARD TEMPER COPPER WITH SOLDER FITTINGS USING SILVER SOLDERED (LEAD-FREE). PROVIDE DI-ELECTRIC FITTINGS CONNECTIONS BETWEEN DISSIMILAR PIPING. BELOW GROUND SHALL BE TYPE K AND BE IN CONFORMANCE WITH ASTM B88-48.
 WASTE & VENT: SHALL BE PVC AS REQUIRED.
 CONDENSATE PIPING: TYPE K HARD TEMPER COPPER WITH WROUGHT SWEAT FITTINGS.
 PIPE INSULATION:
 DOMESTIC WATER: 1/2" THICK, 3/4 LB. DENSITY FIBERGLASS WITH VAPOR BARRIER JACKET AND PLENUM RATED. ALL JOINTS SHALL BE INSULATED AND SEALED WITH VAPOR BARRIER CEMENT. ALL INSULATION, VAPOR BARRIERS, PREMOLDED FITTING COVERS, SHALL HAVE FIRE RATINGS THAT COMPLY WITH CODE REQUIREMENTS.

PLAN NOTES:

- 1 EXISTING C.O./STUB
- 2 SANITARY AND GREASE PIPING SHALL BE RAN IN SLAB.
- 3 SANITARY AND GREASE PIPING SHALL BE RAN IN WALL.
- 4 EXTEND 3' VENT PIPING THROUGH ROOF WITH APPROVED CAP.
- 5 CONNECT TO EXISTING GREASE STUB.
- 6 EXISTING 1000 GALLON GREASE INTERCEPTOR TO REMAIN.



1 PLUMBING PLAN-WASTE
 SCALE: 1/8"=1'-0"

MATTHEW HOLBROOK, P.E.
 6130 CARROLLTON AVENUE
 INDIANAPOLIS IN 46220
 E-MAIL: KEVIN@KCCONSTRUCTINGINC.NET

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 Approved 10-15-2024
 REGISTERED PROFESSIONAL ENGINEER
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Scale: AS NOTED
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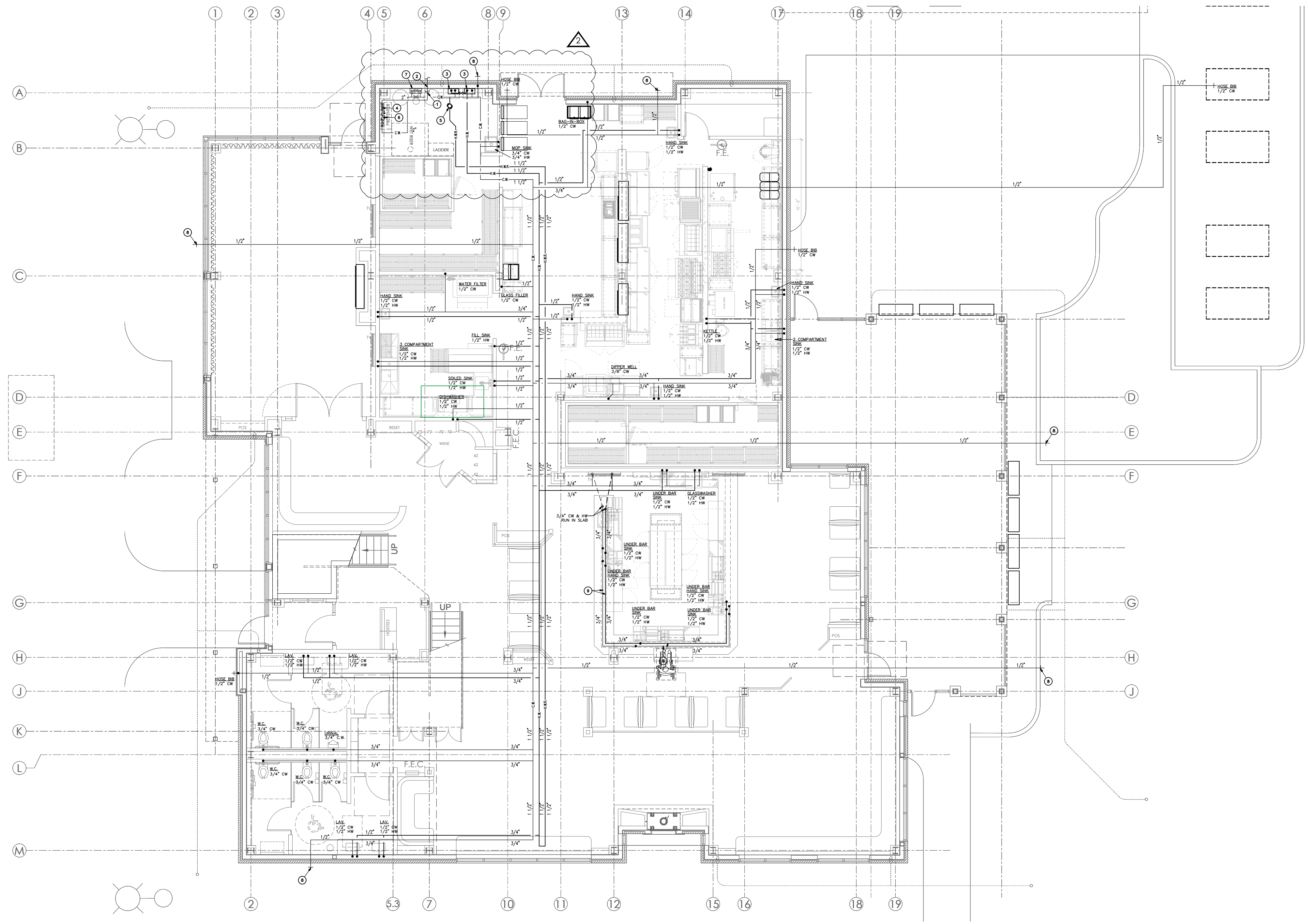
STONE CREEK DINING COMPANY
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Revisions:
 2 REVISION 2 10.2.2024

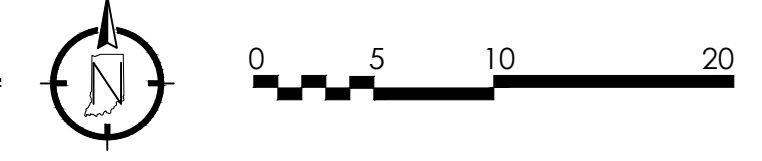
Drawing Name:
 PLUMBING PLAN
 WASTE
 Drawing Number:

PLAN NOTES:

- 1 EXTEND AND CONNECT TO EXISTING COLD WATER STUB-OUT AS REQUIRED. VERIFY LOCATION IN FIELD.
- 2 EXISTING 2" COLD WATER TIE-IN. VERIFY EXACT LOCATION IN FIELD.
- 3 EXTEND AND CONNECT TO WATER HEATERS. VERIFY LOCATION IN FIELD.
- 4 FURNISH AND INSTALL NEW MAIN SHUT-OFF VALVE.
- 5 FURNISH AND INSTALL HOT WATER RECIRCULATION PUMP.
- 6 NEW 2" BACKFLOW PREVENTER. CONTRACTOR SHALL VERIFY LOCATION IN FIELD.
- 7 NEW WATER SOFTENER.
- 8 PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER FOR CONNECTION OF IRRIGATION SYSTEM. CONTRACTOR SHALL FURNISH AND INSTALL ALL PROPER PIPING, FITTINGS, ETC. FOR COMPLETE OPERATION.
- 9 RUN PIPING IN BAR WALL.



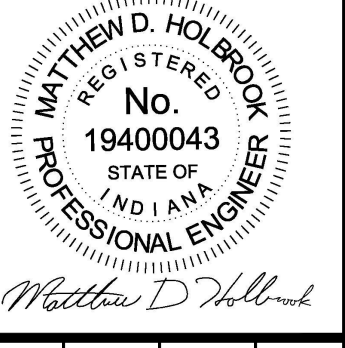
1 PLUMBING PLAN-WATER
SCALE: 1/8"=1'-0"



MATTHEW HOLBROOK, P.E.
6130 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL: KEVIN@KCCONCONSULTINGINC.NET

Certified By:

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STONE CREEK DINING COMPANY

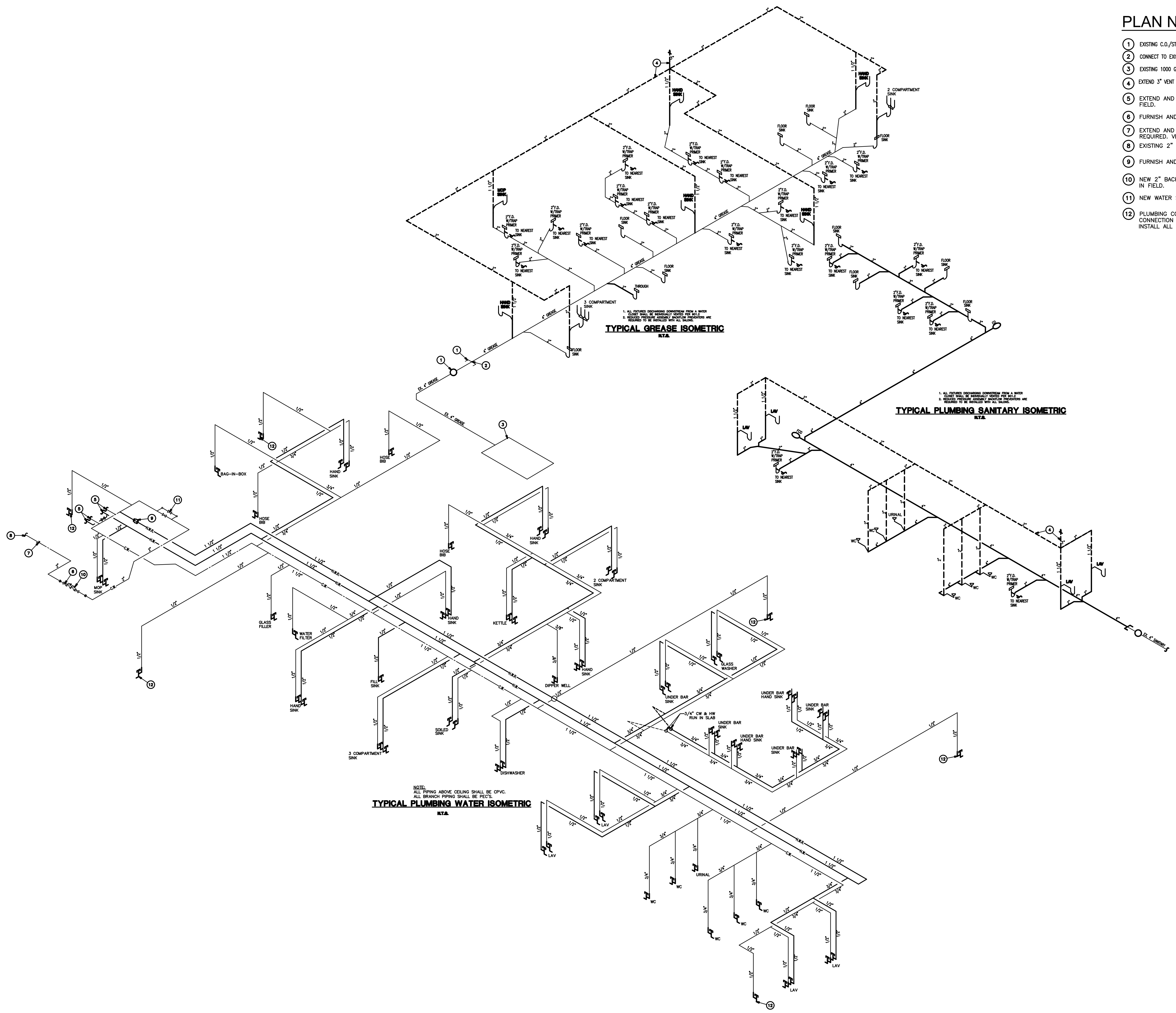
Shiloh's Corner
1464 West Stones Crossing Road
Greenwood, Indiana 46143

Revisions:
2 REVISION 2 10.2.2024

Drawing Name:
PLUMBING PLAN-WATER

Drawing Number:
P200

PERMIT SET 6.12.2024



PLAN NOTES:

- 1 EXISTING C.O./STUB
- 2 CONNECT TO EXISTING GREASE STUB.
- 3 EXISTING 1000 GALLON GREASE INTERCEPTOR TO REMAIN.
- 4 EXTEND 3" VENT PIPING THROUGH ROOF WITH APPROVED CAP.
- 5 EXTEND AND CONNECT TO WATER HEATERS. VERIFY LOCATION IN FIELD.
- 6 FURNISH AND INSTALL NEW MAIN SHUT-OFF VALVE.
- 7 EXTEND AND CONNECT TO EXISTING COLD WATER STUB-OUT AS REQUIRED. VERIFY LOCATION IN FIELD.
- 8 EXISTING 2" COLD WATER TIE-IN. VERIFY EXACT LOCATION
- 9 FURNISH AND INSTALL HOT WATER RECIRCULATION PUMP.
- 10 NEW 2" BACKFLOW PREVENTER. CONTRACTOR SHALL VERIFY LOCATION IN FIELD.
- 11 NEW WATER SOFTENER.
- 12 PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER FOR CONNECTION OF IRRIGATION SYSTEM. CONTRACTOR SHALL FURNISH AND INSTALL ALL PROPER PIPING, FITTINGS, ETC. FOR COMPLETE OPERATION.

TYPICAL GREASE ISOMETRIC
N.T.A.

TYPICAL PLUMBING SANITARY ISOMETRIC
N.T.A.

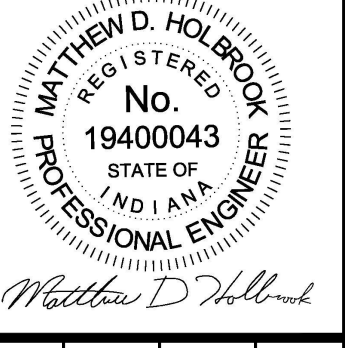
TYPICAL PLUMBING WATER ISOMETRIC
N.T.A.

NOTE:
ALL PIPING ABOVE CEILING SHALL BE CPVC.
ALL BRANCH PIPING SHALL BE PEX-3.

MATTHEW HOLBROOK, P.E.
6830 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
E-MAIL: KEVIN@COCONUTINC.COM

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STONE CREEK DINING COMPANY

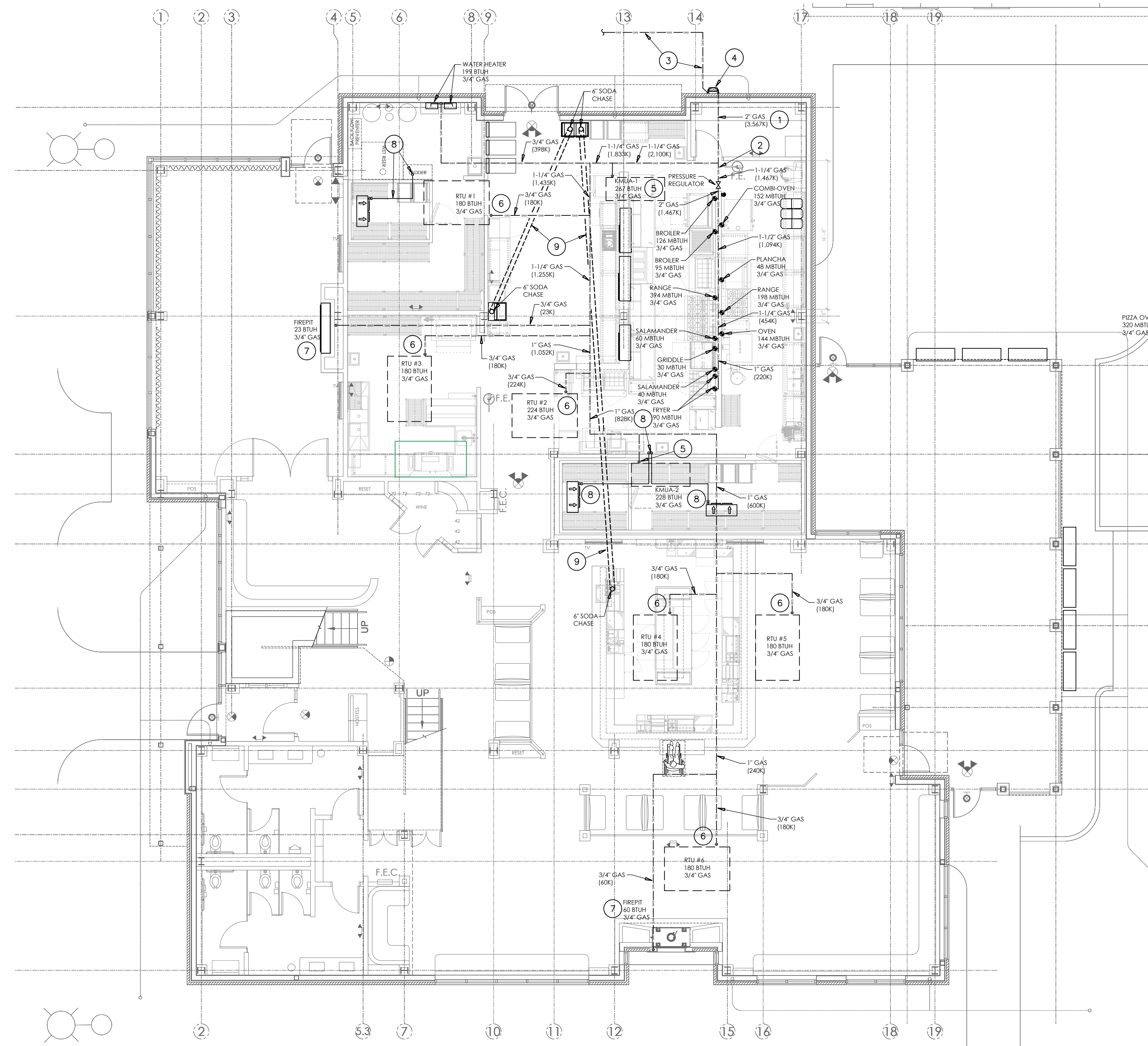
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Greenwood, Indiana 46143

Revisions:

2	REVISION 2 10.2.2024
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Drawing Name:
PLUMBING RISERS

Drawing Number:
P300



1 PLUMBING PIPING PLAN
SCALE: 1/8"=1'-0"



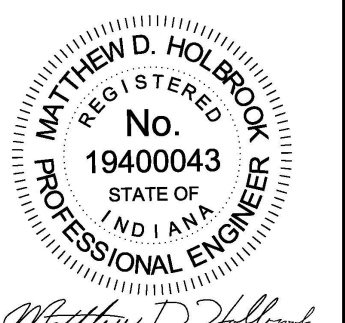
PLAN NOTES:

- 1 GAS PIPING SIZE BASED ON TOTAL LENGTH OF 175'-0" AND 2PSI PRESSURE TO EXISTING GAS METER (3,567K TOTAL)- VERIFY DISTANCE OF PIPING AND AVAILABLE PRESSURE PRIOR TO BID AND REQUEST PIPING SIZE REVISIONS TO SUIT THE EXISTING CONDITIONS. SIZED PER NFPA 54 (NATIONAL FUEL GAS CODE) TABLE 6.2(c). CONTRACTOR SHALL FURNISH AND INSTALL PRESSURE REGULATOR AT BEGINNING OF KITCHEN LINE AND OTHER EQUIPMENT REQUIRING LOW PRESSURE TO ACCOMMODATE 7"-11" W.C.
- 2 ROUTE GAS PIPE TO FEED KITCHEN EQUIPMENT AS REQUIRED.
- 3 EXISTING INCOMING GAS PIPING LOCATION. VERIFY SIZE IN FIELD PRIOR TO BID.
- 4 FURNISH AND INSTALL NEW GAS METER IF NON EXIST. VERIFY EXACT LOCATION IN FIELD AND FIELD VERIFY EXISTING INCOMING GAS LOCATION.
- 5 ROUTE GAS PIPING UP THROUGH ROOF TO MAKE-UP AIR UNIT ON THE ROOF AS REQUIRED. VERIFY ROUTING IN FIELD. PROVIDE GAS COCK/SHUTOFF/PRESSURE REGULATOR AND SEDIMENT TRAP.
- 6 ROUTE GAS PIPING UP THROUGH ROOF TO RTU ON THE ROOF AS REQUIRED. VERIFY ROUTING IN FIELD. PROVIDE GAS COCK/SHUTOFF/PRESSURE REGULATOR AND SEDIMENT TRAP FOR EACH RTU.
- 7 ROUTE GAS PIPING TO FIRE PIT. VERIFY ROUTING IN FIELD. PROVIDE GAS COCK/SHUTOFF/PRESSURE REGULATOR AND SEDIMENT TRAP.
- 8 RUN 3/4" DRAIN FROM EVAPORATORS DOWN TO FLOOR DRAIN. PROVIDE A 2" AIR GAP ABOVE FLOOR DRAIN.
- 9 6" PIPE(S) SHALL BE RAN IN SLAB FOR SODA LINES FROM BAG-N-BOX TO SODA STATIONS AS REQUIRED. COORDINATE LOCATION IN FIELD AND WITH OWNER. ALL TURNS SHALL BE LONG SWEEP 90 DEGREE TURNS.

MATTHEW HOLBROOK, P.E.
6130 CARROLLTON AVENUE
INDIANAPOLIS IN 46220
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Drawing Number:

P400