SYMBOL LEGEND - DUCTWORK

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

SYMBOL	DESCRIPTION
	RECTANGULAR SUPPLY DUCT UP
	RECTANGULAR SUPPLY DUCT DOWN
	RECTANGULAR RETURN DUCT UP
	RECTANGULAR RETURN DUCT DOWN
	RECTANGULAR EXHAUST DUCT UP
	RECTANGULAR EXHAUST DUCT DOWN
	ROUND SUPPLY DUCT UP
	ROUND SUPPLY DUCT DOWN
	ROUND RETURN DUCT UP
	ROUND RETURN DUCT DOWN
	ROUND EXHAUST DUCT UP
	ROUND EXHAUST DUCT DOWN
	SPIRAL ROUND DUCT
	DUCT INSULATION
	DUCT LINING
	90° RECTANGULAR ELBOW WITH TURNING VANES
	DUCT SIZE OR SHAPE TRANSITION
	DUCT TO BE DEMOLISHED

SYMBOL LEGEND - MECH

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

SYMBOL	DESCRIPTION
	SQUARE OR RECTANGULAR SUPPLY DIFFUSER
	SQUARE OR RECTANGULAR RETURN DIFFUSER
	SQUARE OR RECTANGULAR EXHAUST DIFFUSER
	ROUND DIFFUSER
	LINEAR SLOT GRILLE OR DIFFUSER
	FLEXIBLE DUCT
	SIDEWALL GRILLE OR REGISTER
	DUCT HIGH EFFICIENCY TAKE OFF WITH BALANCING DAMPER
	BALANCING DAMPER
	FIRE DAMPER
	FIRE / SMOKE COMBINATION DAMPER
T S H	THERMOSTAT - SENSOR - HUMIDISTAT

SYMBOL LEGEND - MISC

REFERENCE LINES AND SYMBOLS

SYMBOL	DESCRIPTION
- ---	VIEW OR DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE VIEW OR DETAIL IS SHOWN.
- ---	ELEVATION OR SECTION INDICATOR: # INDICATES VIEW NUMBER, SHEET INDICATES DRAWING SHEET WHERE VIEW IS SHOWN.
NAME	ROOM / SPACE INDICATOR
#	KEYNOTE INDICATOR
#	REVISION INDICATOR
XX-##	PLUMBING FIXTURE INDICATOR
XX-##	EQUIPMENT INDICATOR
TAG CFM	REGISTER, GRILLE, OR DIFFUSER INDICATOR
OR	BREAKLINE
MATCH LINE SEE XX/XXX	MATCHLINE INDICATOR
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE
	NEW CONNECTION TO EXISTING
	POINT OF DEMOLITION

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AC	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DP	DEPTH, DEEP, OR DROP IN PRESSURE
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY)
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
RA	RETURN AIR
RECIRC	RECIRCULATE (-ER, -ED, -ING)
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SH	SENSIBLE HEAT
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	SANITARY SEWER, SOIL, WASTE
STD	STANDARD
TA	TRANSFER AIR
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
TOT	TOTAL
TSTAT	THERMOSTAT
TYP	TYPICAL
V	VOLT, VOLTAGE OR VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VTR	VENT THROUGH ROOF
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WTR	WATER

MECHANICAL GENERAL NOTES

1. THE MECHANICAL DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT, & EXTENT OF THE MECHANICAL SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS, OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE & OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT.
2. MAJOR DEVIATIONS SUCH AS CHANGES IN SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.
3. THE DRAWINGS & SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER & SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE & NOT THE OTHER BEING FURNISHED & INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH DOCUMENTS.
4. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, & ALL OTHER APPLICABLE CITY, COUNTY, STATE, & FEDERAL CODES & REGULATIONS IN EFFECT.
5. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO ALL CODES, RULES, REGULATIONS, & REQUIREMENTS OF THE BUILDING OWNER.
6. ALL MECHANICAL COMPONENTS AND EQUIPMENT SHALL BE INSTALLED TO CONFORM WITH ANY APPLICABLE LOCAL SEISMIC REQUIREMENTS.
7. PRIOR TO FABRICATION & INSTALLATION OF ANY MECHANICAL COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
8. VERIFY ALL REQUIRED SERVICE CONNECTIONS, INCLUDING ELECTRICAL CHARACTERISTICS, FOR ALL EQUIPMENT PRIOR TO ORDERING OR FABRICATING MECHANICAL EQUIPMENT AND COMPONENTS.
9. THE SPACE ABOVE CEILINGS IS LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED &/OR INSTALLED. ANY CONFLICTS &/OR CHANGES FOUND DURING INSTALLATION THAT RESULTS FROM THE LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL MECHANICAL INFORMATION IS NOT SHOWN ON THE MECHANICAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW & USE, WHERE APROPRIATE, ALL THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. ALL EQUIPMENT SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURAL MEMBERS. STRUCTURAL ELEMENTS SHOWN IN DETAILS MAY OR MAY NOT PERTAIN TO ANY PORTION OF THE BUILDING. COORDINATE ALL MOUNTING REQUIREMENTS WITH ARCHITECTURAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS.
13. ALL MECHANICAL COMPONENTS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURER RECOMMENDATIONS.
14. ALL SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER. AIR INLETS & OUTLETS OF SIMILAR TYPES SHALL BE OF THE SAME MANUFACTURER.
15. ANY PART OF THE MECHANICAL INSTALLATION THAT FAILS, IS DEEMED UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EQUIPMENT CHECK-IN, SAFEKEEPING, & DAMAGE.
16. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS & GRILLES.
17. CONTRACTOR SHALL OPERATE INSTALLED &/OR MODIFIED SYSTEMS & DEMONSTRATE ALL ASPECTS OF THE SYSTEM TO THE ENGINEER &/OR OWNER TO PROVE ALL ASSOCIATED SYSTEMS ARE OPERATIONAL.
18. DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAWINGS AT THE PROJECT SITE. ALL CHANGES OR DEVIATIONS IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, & ACCESSORIES SHALL BE RECORDED. THESE REDLINED DRAWINGS SHALL BE GIVEN TO THE ARCHITECT / ENGINEER AFTER THE FINAL INSPECTION IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

MECHANICAL SHEET INDEX

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Reviewed for Code Compliance
10/07/2024
CONSULTANT

OWNER:
SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056

PROJECT:
CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

#	ISSUE DATE	DESCRIPTION
	06/17/2024	
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

MECHANICAL COVER SHEET

PROJECT # 20.170
DRAWN BY: DFT
CHECKED BY: SSJ

SHEET # RME001

MECHANICAL SPECIFICATIONS

FLOOR, WALL AND CEILING PLATES:
BRASS MATERIAL, CHROME PLATED FINISH. SIZE SUFFICIENT TO COVER ALL PIPE OPENINGS THROUGH WALL, FLOOR OR CEILING. SET SCREW SPRING TO SECURE PIPE.

PIPE AND PIPE FITTINGS:
GENERAL: RUN ALL PIPING PARALLEL OR PERPENDICULAR TO THE BUILDING STRUCTURE AND SUPPORT IT SUFFICIENTLY TO PREVENT SAGGING. INSTALL ALL PIPING WHERE POSSIBLE SO AS TO VENT AND DRAIN. SUPPORT ALL PIPING INDEPENDENTLY SO THAT ITS WEIGHT IS NOT CARRIED BY THE EQUIPMENT. INSTALL UNIONS IN ALL NON-FLANGED PIPE CONNECTIONS TO APPARATUS AND APPURTENANCES REQUIRING REMOVAL FOR SERVICING, SO LOCATED THAT PIPING MAY BE DISCONNECTED WITHOUT DISTURBING THE GENERAL SYSTEM. PROVIDE DIELECTRIC COUPLINGS, UNIONS OR FLANGES BETWEEN STEEL AND COPPER PIPE OR TUBING. SCREWED JOINTS: SHALL BEVE THE PIPE ENDS REAMED, DOPE OR TAPE APPLIED TO MALE THREADS ONLY, WITH THE EXCEPTION OF BRASS TO BRASS JOINTS WHICH SHALL BE MADE WITH TEFLON TAPE ONLY. AFTER JOINTING, NO MORE THAN 2 THREADS SHALL REMAIN EXPOSED. WELDED JOINTS: BY THE "AARC-WELDING" PROCESS: PORT OPENINGS OF FITTINGS MUST MATCH THE INSIDE DIAMETER OF THE PIPE TO WHICH THEY ARE WELDED. MAKE ALL TURNS WITH FULL RADIUS WELDING ELBOWS AND TEES WITH WELDING TEES. REDUCING FITTINGS MUST BE USED FOR SIZE REDUCTION. SOLDER TYPE JOINTS: WITH 95/5 TIN/ANTIMONY OR "STAY SAFE" LEAD-FREE SOLDER ON WROUGHT COPPER FITTINGS, APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. JOINTS IN COPPER TUBE 2-1/2" AND LARGER SHALL BE MADE WITH HEAT APPLIED UNIFORMLY AROUND THE ENTIRE CIRCUMFERENCE OF THE TUBE AND FITTINGS BY A MULTIFLAME TORCH. UNDERGROUND JOINTS SHALL BE BRAZED. NO-HUB CAST IRON PIPE: CONFORM WITH UNIFORM STATE PLUMBING CODE AND CAST IRON SOIL PIPE INSTITUTE RECOMMENDATIONS.

VALVES:
INSTALL VALVES ON EACH SIDE OF ALL EQUIPMENT AND WHERE SHOWN ON DRAWINGS. FULL SIZE OF PIPE UNLESS OTHERWISE INDICATED. PROVIDE NEAT APPEARANCE AND EASY GROUPING WITH ALL PARTS EASILY ACCESSIBLE. VALVE STEMS SHALL BE INSTALLED IN HORIZONTAL OR UPRIGHT POSITION.

FLOOR, WALL AND CEILING PLATES:
INSTALL ON ALL EXPOSED PIPES PASSING THROUGH FLOORS, WALLS OR CEILINGS.

PIPE SLEEVES:
LAYOUT WORK IN ADVANCE OF POURING CONCRETE AND FURNISH AND SET SLEEVES NECESSARY TO COMPLETE THE WORK. FLOOR SLEEVES: PROVIDE SLEEVE ON PIPES PASSING THROUGH CONCRETE FLOORS. EXTEND SLEEVE ONE INCH ABOVE FINISHED FLOOR. CAULK ALL PIPES PASSING THROUGH FLOOR WITH OAKUM AND MORTAR.

INSULATED PIPE:
SUPPORTED BY RING HANGERS, THE RINGS SHALL PASS FREELY AROUND THE INSULATION. PROTECT THE INSULATION AT POINT OF CONTACT WITH THE RING HANGER OR TRAPEZE BAR BY MEANS OF PIPE SADDLES.

PIPE HANGERS AND SUPPORTS:
PIPE HANGER SIZE 2" AND SMALLER: ADJUSTABLE MALLEABLE IRON, SPLIT RING HANGER, BLACK, U.L. LISTED. FEE AND MASON NO. 199 OR FIGURE 239. PIPE HANGER LARGER THAN SIZE 2-1/2": ADJUSTABLE STEEL CLEVIS TYPE HANGER, BLACK, U.L. LISTED. FEE AND MASON NO. 239 OR 103. PIPE HANGERS IN CONTACT WITH COPPER TUBE SHALL BE COPPER PLATED. INSULATION PROTECTION SHIELD: GALVANIZED STEEL, 18 GAUGE MINIMUM LENGTH 12". FEE AND MASON #81 OR SIMILAR PRODUCT FABRICATED BY CONTRACTOR.

GENERAL:
PROVIDE ADJUSTABLE HANGERS ON ALL PIPES, COMPLETE WITH ADJUSTERS, SWIVELS, RODS, ETC. SIZE HANGERS TO CLEAR INSULATION AND GUIDES. ON HOT LINES WHERE EXPANSION AND CONTRACTION OCCURS, PROVIDE SWIVEL JOINT AT TOP OR BOTTOM OF HANGER ROD. PROVIDE HANGER WITHIN THREE FEET OF ALL CHANGES IN DIRECTION. BRANCHES FIVE (5) FEET OR LONGER SHALL HAVE SEPARATE HANGERS.

PLUMBERS' TAPE: NOT PERMITTED AS PIPE HANGERS.

HANGER SPACING:

PIPE SPACING:

COPPER TUBING 1-1/4" AND SMALLER	5 FEET HORIZONTAL	10 FEET VERTICAL
COPPER TUBING 1-1/2" AND LARGER	10 FEET HORIZONTAL	10 FEET VERTICAL
STEEL PIPE 1" AND SMALLER	7 FEET HORIZONTAL	10 FEET VERTICAL
STEEL PIPE 1-1/4" AND LARGER	10 FEET HORIZONTAL	15 FEET VERTICAL
PEX - ALL SIZES	32 INCHES	10 FEET VERTICAL

CAST IRON SOIL PIPE - AT EACH JOINT AND AT INTERVALS NOT TO EXCEED FIVE (5) FEET.

HANGER RODS:

PIPE SIZES	ROD SIZES
1/2" TO 2"	3/8"
2-1/2" TO 3"	1/2"
4" AND LARGER	5/8"

ALL HANGER RODS SHALL BE PROVIDED WITH DOUBLE NUTS AND THE NUTS SHALL BE LOCKED.

GRADING OF PIPE:
DOMESTIC HOT AND COLD WATER PIPING SHALL BE GRADED TO DRAIN COMPLETELY. INSTALL DRAIN AT ALL LOW POINTS. WASTE AND SOIL PIPING SHALL GRADE DOWNWARD IN THE DIRECTION OF FLOW AT THE RATE OF 1/4" PER FOOT.

PIPE AND EQUIPMENT IDENTIFICATION:
PIPE IDENTIFICATION: IN ALL ACCESSIBLE AREAS, INCLUDING ABOVE REMOVABLE CEILINGS IN EQUIPMENT ROOMS. IN EQUIPMENT ROOMS A DIRECTIONAL FLOW ARROW AND A STENCILED NAME IDENTIFYING THE PIPE CONTENTS SHALL BE PAINTED ON THE PIPE ADJACENT TO EACH VALVE. EACH BRANCH OR TAKEOFF, EACH POINT AT WHICH PIPES LEAVE OR ENTER A WALL, EVERY MAJOR CHANGE OF DIRECTION OF A PIPE, AND AT 20 FT. 2 LB GAS PIPING SHALL BE LABELED EVERY FOOT, ALL OTHER GAS PIPING SHALL BE LABELED EVERY 6'. INTERVALS ON LONG CONTINUOUS RUNS. STENCIL LETTERS AND FLOW ARROWS SHALL BE 1/2, 7/8 OR 1-3/4 INCH IN HEIGHT, DEPENDING ON THE SIZE OF THE PIPE OR EQUIPMENT. IN ALL CASES, THE LARGEST SIZE PRACTICAL SHALL BE USED. STAPLE LABELS TO INSULATION WHERE APPLICABLE. COVER ALL LABELS WITH CLEAR LACQUER OR CLEAR TAPE TO PREVENT PEELING.

ABBREVIATIONS FOR IDENTIFICATION SHALL COMPLY WITH, BUT NOT BE LIMITED TO, THE FOLLOWING:
DOMESTIC COLD WATER - DCW
DOMESTIC HOT WATER - DHW
DOMESTIC HOT WATER CIRCULATING - DHWR
DRAIN - D
NATURAL GAS - NG

MECHANICAL SPECIFICATIONS

VALVE IDENTIFICATION:
ALL VALVES, REGARDLESS OF SIZE, SHALL BE IDENTIFIED WITH BRASS TAGS OF 0.51" THICKNESS, 1" BY 3" OR LARGER WITH 1/8" HIGH STAMPED LETTERS. THE TAG SHALL BE ATTACHED TO VALVES WITH RUSTPROOF KEY CHAINS. INFORMATION ON TAG SHALL INCLUDE FUNCTION OF VALVE AND ANY OTHER PERTINENT DATA. ABBREVIATIONS AS SHOWN SHALL BE USED, AS APPLICABLE. EQUIPMENT IDENTIFICATION: ALL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, FAN-COIL UNITS, AIR HANDLING UNITS, EXHAUST FANS, PUMPS, HEAT EXCHANGER, EXPANSION TANK AND AIR SEPARATION TANK SHALL BE IDENTIFIED WITH SIGNS MADE OF LAMINATED PLASTIC WITH 1/8" OR LARGER ENGRAVED LETTERS. SIGNS SHALL BE SECURELY ATTACHED BY RUSTPROOF SCREWS OR SOME OTHER PERMANENT MEANS. INFORMATION ON SIGN SHALL INCLUDE NAME OF EQUIPMENT, RATING, MAINTENANCE INSTRUCTIONS, AND OTHER IMPORTANT DATA. THE MECHANICAL AND ELECTRICAL SCHEDULE SYMBOLS SHALL ALSO APPEAR ON IDENTIFICATION TAGS.

SECTION 15250 - INSULATION

RELATED DOCUMENTS:
THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND GENERAL REQUIREMENTS (IF ANY) APPLY TO THE WORK SPECIFIED IN THIS SECTION.

DESCRIPTION OF WORK:
THE WORK UNDER THIS SECTION INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION AND SERVICES INCLUDED IN THE

FOLLOWING INSULATION CLASSIFICATIONS:
**PIPES OF ALL TYPES TO BE INSULATED ACCORDING TO IECC2015.
DOMESTIC HOT WATER PIPING
DOMESTIC COLD WATER PIPING
ABOVE GRADE RAIN WATER PIPING
THERMAL DUCT WRAPPING

QUALIFICATION OF WORKMEN:
USE SUFFICIENT JOURNEYMEN INSULATORS AND SUPERVISORS IN THE EXECUTION OF THIS PORTION OF THE WORK TO INSURE PROPER AND ADEQUATE INSTALLATION OF INSULATION THROUGHOUT.

COMPLIANCE WITH SPECIFICATION:
WHENEVER REQUIRED DURING PROGRESS OF THE WORK, FURNISH PROOF ACCEPTABLE TO THE OWNER THAT ITEMS INSTALLED EQUAL OR EXCEED ALL REQUIREMENTS SPECIFIED FOR THIS WORK.

PRODUCT HANDLING:
PROTECTION: USE ALL MEANS NECESSARY TO PROTECT INSULATION MATERIALS BEFORE, DURING AND AFTER INSTALLATION.
REPLACEMENT: IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY.

FIRE HAZARD CLASSIFICATION FOR ALL INSULATION:
ALL INSULATION SHALL HAVE SURFACE BURNING CHARACTERISTICS RATINGS AS TESTED BY ASTM E84, UL723 OR NFPA 255 NOT EXCEEDING: FLAME SPREAD 25 AND SMOKE DEVELOPED 50. COMPOSITE SHALL INCLUDE INSULATION, JACKETING AND ADHESIVES USED TO SECURE JACKETING OR FACING. ALL ACCESSORY ITEMS, SUCH AS PVC JACKETING AND FITTINGS, ADHESIVES, MASTIC, CEMENT, TAPE AND CLOTH, SHALL HAVE THE SAME COMPONENT RATINGS AS SPECIFIED ABOVE. PIPING INSULATION SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF U.L. "PIPE AND EQUIPMENT COVERING R5583 400 8.15". ACCEPTABLE

MANUFACTURERS:
OWENS-CORNING, JOHNS MANVILLE, PPG, KNAUF, OR CERTAIN-TEED.

PIPE INSULATION:
FIBERGLASS SECTIONAL PIPE INSULATION: SEE PIPE INSULATION SCHEDULE THIS SHEET. MINIMUM DENSITY OF 2 LBS. PER CUBIC FOOT. JACKETED WITH WHITE VAPOR BARRIER LAMINATED OF ALUMINUM FOIL AND WHITE KRAFT REINFORCED WITH GLASS FIBER STRANDS. JACKET SHALL HAVE FACTORY APPLIED SELF-SEALING LAP.

FLUSHING AND CLEANING UPON COMPLETION OF TESTING, FLUSH ALL DOMESTIC WATER PIPING UNTIL WATER SHOWS NO DISCOLOTATION. CLEAN ALL VALVES, STAINERS, ETC. AFTER FLUSHING AND CLEANING, DISINFECT PIPE BY THE USE OF CHLORINE OR CHLORINE COMPOUNDS IN AMOUNTS TO PRODICE A COCENTRATION OF 50 PARTS PER MILLION, AT THE END OF 24 HOURS, FLUSH ALL PIPING UNTIL CHLORINE RESIDUAL IS LESS THAN 2 PARTS PER MILLION, IN ADDITION TO THE ABOVE REQIREMENTS PROVIDE ANY ADDITIONAL SYSTEM CLEANING AND DISINFECTING AS REQUIRED BY STATE OR LOCAL CODES.

FIBERGLASS SECTION PIPE INSULATION: APPLY INSULATION TO PIPE AND SEAL WITH SELF-SEALING LAP. USE SELF-SEALING BUTT STRIPS TO SEAL BUTT JOINTS. EXCEPTION: INSULATION NOT REQUIRED OVER UNIONS, AND VALVEBODIES ON DOMESTIC HOT WATER.FITTINGS FOR PIPE SIZES SMALLER THAN 2-1/2" SHALL BE INSULATED AND FINISHED WITH HYDRAULIC SETTING INSULATING CEMENT TO A THICKNESS EQUAL TO THE ADJOINING PIPE INSULATION. FITTINGS FOR PIPE SIZES 2-1/2" AND LARGER SHALL BE INSULATED WITH SEGMENTS OF THE MOLDED INSULATION SECURELY WIRED IN PLACE AND FINISHED WITH A COST OF HYDRAULIC SETTING INSULATING CEMENT. ALL FITTINGS, REGARDLESS OF PIPE SIZE, SHALL BE FINISHED WITH 4 OUNCE CANVAS AND COATED WITH CHILDREN'S WHITE CP-50A "CHIL-SEAL". THIS SEALANT SHALL CONFORM TO NFPA STANDARD 90A, NFPA FIRE CODE 220 (B) AND SHALL MEET FIRE HAZARD REQUIREMENTS OF GSA AND MIL-A-3316B, CLASS 1, GRADE A/B. INSTALLATION OF

AIR TESTING AND BALANCING:
GC TO HIRE NEBB CERTIFIED THIRD PARTY TEST AND BALANCE (TAB) CONTRACTOR. TAB CONTRACTOR SHALL ADJUST SHEAVES, BELTS, DAMPERS, ETC AS NECESSARY TO BALANCE SYSTEM TO AIRFLOWS REQUIRED AT LOWEST POSSIBLE SPEEDS. TAB CONTRACTOR SHALL VERIFY THE OUTSIDE AIR AT EACH RTU IS AS SCHEDULED. FOLLOW PROCEDURES AS LAID FORTH IN THE CURRENT VERSION OF "PROCEDURAL STANDARDS FOR TESTING ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS" BY NEBB. PROVIDE REPORT ON NEBB FORMS.

MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS

RELATED DOCUMENTS:
THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL CONDITIONS AND GENERAL REQUIREMENTS APPLY TO THE WORK SPECIFIED IN THIS SECTION. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF CONSTRUCTION SHOP DRAWINGS FOR SUBMITTALS TO THE OWNER PRIOR TO START OF CONSTRUCTION. THESE DRAWINGS SHALL INCLUDE: SINGLE LINE DUCT DRAWINGS, SINGLE LINE PIPING DRAWINGS, ALL PIPE AND DUCT SIZES, EQUIPMENT CAPACITY AND EXISTING CONDITIONS. NO WORK SHALL BEGIN UNTIL THESE DRAWINGS HAVE BEEN REVIEWED.

CODES, RULES AND REGULATIONS:
ALL WORK AND MATERIALS SHALL CONFORM TO ALL APPLICABLE LOCAL AND STATE CODES, LAWS AND REGULATIONS AND ALL UTILITY COMPANY REGULATIONS. WHENEVER INDICATED MATERIAL, WORKMANSHIP, ARRANGEMENT OR CONSTRUCTION IS OF HIGHER QUALITY OR CAPACITY THAN THAT REQUIRED BY THE ABOVE CODES, THE DRAWINGS AND/OR SPECIFICATION SHALL GOVERN. SHOULD THERE BE ANY DIRECT CONFLICT BETWEEN THE STATE OF LOCAL CODES, LAWS OR REGULATIONS AND THE DRAWINGS AND/OR SPECIFICATIONS, THE CODES, LAWS OR REGULATIONS SHALL GOVERN. CONTRACTOR SHALL VERIFY ALL LOCAL SEISMIC REQUIREMENT AND PROVIDE (IF REQUIRED) SEISMIC ENGINEERING FOR EQUIPMENT, PIPING, DUCTWORK, HANGERS, SUPPORTS, ETC. REQUIRED BY LOCAL CODES AND AUTHORITIES HAVE JURISDICTION.

STANDARDS:
HEREINAFTER ARE LISTED STANDARDS WITH WHICH THE CONTRACTOR OR HIS SUBCONTRACTOR SHOULD BE FAMILIAR WITH, IN ORDER TO PERFORM THE NECESSARY WORK.
1. 2021 INTERNATIONAL BUILDING CODE
2. 2021 INTERNATIONAL FIRE CODE
3. 2021 INTERNATIONAL MECHANICAL CODE
4. 2021 INTERNATIONAL PLUMBING CODE
5. 2021 INTERNATIONAL ENERGY CONSERVATION CODE
6. 2021 INTERNATIONAL FUEL GAS CODE
7. SMACNA DUCT CONSTRUCTION STANDARD, METAL AND FLEXIBLE.
8. SMACNA FIRE DAMPER GUIDE FOR AIR HANDLING SYSTEMS.
9. SMACNA MANUAL FOR BALANCING AND ADJUSTING OF AIR DISTRIBUTION SYSTEMS.
10. LIFE SAFETY CODES.
11. NFPA 90A INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS.
12. NFPA 90B INSTALLATION OF WARM AIR HEATING SYSTEMS.
13. NFPA #91 INSTALLATION OF BLOWER AND EXHAUST SYSTEMS.

EXAMINATION OF SITE:
ALL BIDDERS SHALL EXAMINE THE SITE AND COMPARE IT WITH THE DRAWINGS AND SPECIFICATIONS AND FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING ANY PROPOSAL. NO EXTRA CHARGES WILL BE ALLOWED FOR WORK PERFORMED BY THE CONTRACTOR DUE TO HIS FAILURE TO BECOME FAMILIAR WITH ALL OF THE EXISTING CONDITIONS PERTAINING TO THIS PROJECT.

WORKING DRAWINGS AND MEASUREMENTS:
THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING BUILDING CONDITIONS AND THE OTHER TRADES DRAWINGS. THE DRAWINGS SHALL NOT BE SCALED FOR ROUGHING-IN MEASUREMENTS NOR BE USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, THE CONTRACTOR SHALL TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE DRAWINGS. SHOP DRAWINGS OF VARIOUS SUBCONTRACTORS SHALL BE COORDINATED TO ELIMINATE ALL INTERFERENCE'S AND TO PROVIDE SUFFICIENT SPACE FOR THE INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

APPROVALS FOR SUBSTITUTION OF EQUIPMENT & MATERIALS:
ACCEPTABLE EQUIPMENT AND MATERIAL MANUFACTURERS ARE SHOWN ON THE DRAWINGS AND/OR LISTED BY NAME IN THESE SPECIFICATIONS. IF NOT SHOWN OR LISTED, WRITTEN ACCEPTANCE FOR THE MANUFACTURER IS REQUIRED BY THE ARCHITECT AND/OR THE ENGINEER BEFORE USING SUCH MANUFACTURERS EQUIPMENT AND/OR MATERIALS FOR BIDDING. ACCEPTANCE WILL NORMALLY BE GIVEN IN DULY ISSUED ADDENDA TO THIS PROJECT.

EQUIPMENT SUBMITTALS, PRODUCT DATA AND SAMPLES:
UNLESS OTHERWISE APPROVED, ALL MECHANICAL SUBMITTALS SHALL BE PROVIDED AT ONE TIME. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMIT TO THE ENGINEER AND OWNER AS ELECTRONIC SUBMITTAL PACKAGE. EACH ITEM SUBMITTED SHALL BE CLEARLY REFERENCED BY SECTION, PAGE AND PARAGRAPH TO THE APPLICABLE PORTION OF THIS SPECIFICATION. WHERE EQUIPMENT IS DESIGNATED BY NUMBER OR SYMBOL ON THE DRAWINGS, THE SUBMITTALS SHALL ALSO SHOW THIS NUMBER OR SYMBOL. ALL SPECIFIED FEATURES AND PERFORMANCE DATA MUST BE SPECIFICALLY NOTED ON THE SUBMITTAL. THE CONTRACTOR SHALL CHECK SHOP DRAWINGS FOR SPACE REQUIREMENTS AND CONFORMANCE WITH THE SPECIFICATIONS AND SHALL MARK HIS CORRECTIONS AND APPROVAL ON ALL SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEERS. IN THE SUBMITTAL OR SHOP DRAWING REVIEW, WHEN SOME ERRORS ARE DETECTED BUT OTHERS OVERLOOKED, THIS DOES NOT GRANT THE CONTRACTOR PERMISSION TO PROCEED IN ERROR. REGARDLESS OF ANY INFORMATION OUTLINED IN THE SUBMITTALS OR SHOP DRAWINGS, THE REQUIREMENTS OF THE SPECIFICATIONS MUST BE FOLLOWED AND ARE NOT WAVED OR SUPERSEDED IN ANY WAY BY THE SUBMITTALS OR SHOP DRAWING REVIEW.

ACCESS AND CAPACITY:
THE ACCESS TO EQUIPMENT SHOWN ON THE DRAWINGS IS THE MINIMUM ACCEPTABLE SPACE REQUIREMENTS. NO EQUIPMENT WILL BE CONSIDERED WHICH REDUCES OR RESTRICTS ACCESSIBILITY. ACCESS FOR REMOVAL OF AIR FILTERS SHALL BE PROVIDED. ANY PIPES OR AIR DUCTS WHICH IMPAIR ACCESS TO AND REMOVAL OF THE AIR FILTERS SHALL BE REMOVED AND REINSTALLED IN A SATISFACTORY LOCATION WITHOUT ANY CHARGE TO THE OWNER. ALL EQUIPMENT SHALL GIVE THE SPECIFIED CAPACITY AND PERFORMANCE AT THE JOB SITE ELEVATION. MANUFACTURER'S STANDARD RATINGS SHALL BE ADJUSTED ACCORDINGLY. ALL CAPACITIES AND PERFORMANCES ARE FOR JOB SITE CONDITIONS. CAPACITIES SHOWN FOR EQUIPMENT IN THE SPECIFICATIONS AND ON THE DRAWING ARE THE MINIMAL ACCEPTABLE. NO EQUIPMENT WILL BE CONSIDERED AS AN ALTERNATIVE WHICH HAS CAPACITIES OR PERFORMANCE LESS THAN THAT OF DESIGN EQUIPMENT.

PERMITS AND FEES:
ARRANGE AND PAY FOR PERMITS, FEES, SERVICE CHARGES AND INSPECTIONS BY GOVERNING AUTHORITIES AND BY UTILITIES.

DUCT OPENINGS AND EQUIPMENT RECESSES:
DUCT CHASES, OPENINGS AND EQUIPMENT RECESSES SHALL BE PROVIDED BY OTHERS ONLY IF SHOWN ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. ALL OPENINGS FOR THE MECHANICAL WORK, EXCEPT WHERE DRAWINGS AND SPECIFICATIONS INDICATE OTHERWISE, SHALL BE PROVIDED AS WORK OF THIS SECTION. WHETHER CHASES, RECESSES, AND OPENINGS ARE PROVIDED AS WORK OF THIS SECTION OR BY OTHERS, THIS SUBCONTRACTOR SHALL SUPERVISE THEIR CONSTRUCTION AND BE RESPONSIBLE FOR THE CORRECT SIZE AND LOCATION, EVEN THOUGH DETAILED AND DIMENSIONED ON THE DRAWINGS. THIS SUBCONTRACTOR SHALL PAY FOR ALL NECESSARY CUTTING, REPAIRING AND FINISHING, IF ANY ARE LEFT OUT OR INCORRECTLY MADE.

SEALING:
SPACES BETWEEN CONDUIT, OR DUCT AND SLEEVE THROUGH WALL OR FLOOR SHALL BE COMPLETELY STUFFED WITH 1 LB. PER CUBIC FOOT FIBERGLASS INSULATION TO CLOSE ALL INTERSTICES. SPACES TOO SMALL TO BE STUFFED SHALL BE CAULKED WITH OIL BASED CAULKING COMPOUND. AFTER STUFFING, ALL OPENINGS TO BE THOROUGHLY TAPED WITH HEAVY PLASTIC OR BUTYL DUCT TAPE TO PREVENT SOUND PASSAGE. ALL SPACES BETWEEN PIPES AND/OR DUCTS AND SLEEVES THROUGH FIRE WALLS, FIRE PARTITIONS, FLOORS, AND CEILINGS SHALL BE CAULKED WITH ONE INCH FILL OF 3M "FIRE BARRIER". CAULKING MUST BE ON BOTH SIDES OF FIRE RATED UNIT.

MECHANICAL SPECIFICATIONS

CLAIMS FOR EXTRA COST:
IF CONTRACTOR CLAIMS ANY INSTRUCTIONS GIVEN HIM INVOLVE EXTRA COST, HE SHALL SO NOTIFY ARCHITECT WITHIN A REASONABLE TIME OF RECEIPT OF SUCH INSTRUCTIONS AND BEFORE PROCEEDING WITH THE WORK CALLED FOR THEREIN. NO SUCH WORK SHALL BE DONE AND NO PAYMENT MADE THEREFOR WITHOUT A WRITTEN CHANGE ORDER COVERING SUCH WORK FROM ARCHITECT AND OWNER. THE CONTRACTOR'S PROPOSAL FOR CHANGES IN THE WORK SHALL INCLUDE A COMPLETE ITEMIZATION OF THE PROPOSED WORK, INDICATING SEPARATELY: (A) QUANTITIES OF MATERIALS, (B) UNIT COSTS, (C) LABOR CHARGES, AND (D) CONTRACTOR'S PROFIT AND OVERHEAD, (E) EXTENSION OF TIME IF REQUIRED. A COMPLETE BREAKDOWN OF COSTS IS MANDATORY. CONTRACTOR'S PROFIT AND OVERHEAD SHALL NOT EXCEED 10% OF THE TOTAL DIRECT COSTS.

COOPERATION WITH OTHER TRADES:
REFER TO OTHER DRAWINGS AND PARTS OF THIS SPECIFICATION COVERING WORK OF OTHER TRADES WHICH IS CARRIED ON IN CONJUNCTION WITH THE MECHANICAL WORK SUCH THAT ALL WORK CAN PROCEED WITHOUT INTERFERENCE RESULTING FROM LACK OF COORDINATION. PROPERLY SIZE AND LOCATE ALL CHASES, SLEEVES, EQUIPMENT BASES, AND ACCESSES. PROVIDE ACCURATE WIRING DIAGRAMS TO THE ELECTRICAL CONTRACTOR FOR ALL EQUIPMENT FURNISHED UNDER THIS DIVISION.

MANUFACTURER'S INSTRUCTIONS:
THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTALLATION INSTRUCTIONS EXPLICITLY IN THE INSTALLATION OF ALL ITEMS OF MECHANICAL EQUIPMENT. IN THE EVENT THE MANUFACTURER'S INSTRUCTIONS CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS, THE ENGINEER SHALL BE SO NOTIFIED IN WRITING AND A RESOLUTION WILL BE MADE.

MATERIALS AND EQUIPMENT:
ALL MATERIALS AND PRODUCTS USED FOR CONSTRUCTION SHALL BE NEW, AND OF THE BEST GRADE AND THE LATEST PRODUCTS AS LISTED IN PRINTED CATALOG DATA. ALL ARTICLES OF A KIND SHALL BE THE STANDARD PRODUCT OF SINGLE MANUFACTURER. PRODUCTS OR EQUIPMENT OF ANY OF THE MANUFACTURERS CITED HEREIN MAY BE USED OR ANY OF THE PRODUCTS APPROVED BY ADDENDA. HOWEVER, WHERE LISTS OF PRODUCTS ARE CITED HEREIN, THE ONE FIRST LISTED IS THE DESIGN EQUIPMENT USED IN DRAWINGS AND SCHEDULES TO ESTABLISH SIZE, QUALITY, FUNCTION AND CAPACITY STANDARDS. IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ACCESS, ELECTRICAL REQUIREMENTS, VALUING, PIPING AND CONTROL REQUIREMENTS OF THE ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN PIPING, VALUING, ELECTRICAL WORK, ETC., OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE AS WORK OF THIS DIVISION.

OBSERVATION:
ALL WORK AND MATERIALS SUBJECT TO REVIEW AT ANY AND ALL TIMES BY ARCHITECT AND/OR OWNERS REPRESENTATIVE. CONTRACTOR SHALL NOTIFY THE ARCHITECT A MINIMUM OF TWO DAYS PRIOR TO TESTING ANY PIPING SYSTEM WHICH MUST BE WITNESSED AND APPROVED BEFORE IT IS COVERED UP OR ENCLOSED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THAT THE WORK WILL STAND THE TEST PRESCRIBED BEFORE GIVING THE NOTIFICATION. IF AN AUTHORIZED OBSERVER FINDS ANY MATERIAL OR WORK NOT CONFORMING TO THESE SPECIFICATIONS, WITHIN THREE DAYS AFTER BEING NOTIFIED, REMOVE FROM PREMISES. IF MATERIAL HAS BEEN INSTALLED, ENTIRE EXPENSE OF REMOVING AND REPLACING SHALL BE BORNE BY CONTRACTOR.

SUPERVISION AND WORKMANSHIP:
FURNISH THE SERVICES OF AN EXPERIENCED FOREMAN WHO SHALL BE IN CHARGE OF THE ERECTION OF THE MECHANICAL AND/OR PLUMBING SYSTEMS, TOGETHER WITH ALL NECESSARY MECHANICS AND LABORERS REQUIRED TO PROPERLY UNLOAD, TRANSFER, ERECT, CONNECT UP, ADJUST, START, OPERATE AND TEST THE SYSTEM. HE SHALL GIVE FULL INSTRUCTIONS TO THE OWNER'S REPRESENTATIVES AS TO THE OPERATION AND MAINTENANCE OF ALL FIXTURES, APPARATUS AND WORK INSTALLED UNDER HIS SUPERVISION. HE SHALL VERIFY ALL CONDITIONS ON THE JOB SITE AND LAYOUT ALL WORK ACCORDINGLY. ALL WORKMANSHIP SHALL BE OF FIRST QUALITY. NONE BUT COMPETENT MECHANICS SHALL BE EMPLOYED IN THE WORK. SHODDY WORKMANSHIP WILL BE CAUSE FOR REJECTION AND REPLACEMENT OF INSTALLED WORK WITHOUT ADDITIONAL COST TO THE OWNER.

MECHANICAL SPECIFICATIONS

FIRE PROTECTION:

THIS CONTRACTOR SHALL ENGAGE A FIRE PROTECTION DESIGN BUILD CONTRACTOR TO MODIFY THE EXISTING WET PIPE FIRE SPRINKLER SYSTEM. DESIGNER SHALL BE NICET LEVEL III TECHNICIAN. WORKING PLANS AND CALCULATIONS SHALL BE PREPARED ACCORDING TO NFPA 13, AND BE APPROVED BY AUTHORITIES HAVING JURISDICTION, INCLUDING HYDRAULIC CALCULATIONS IF APPLICABLE.

INSTALLER'S RESPONSIBILITIES INCLUDE DESIGNING, FABRICATING, AND INSTALLING SPRINKLER SYSTEMS AND PROVIDING PROFESSIONAL ENGINEERING SERVICES NEEDED TO ASSUME ENGINEERING RESPONSIBILITY. BASE CALCULATIONS ON RESULTS OF FIRE-HYDRANT FLOW TEST.

GENERAL CONDITIONS
COORDINATE WITH ALL OTHER DISCIPLINES PRIOR TO FABRICATING, INSTALLING, OR ORDERING ANY PRODUCT.

DO NOT INTERRUPT SPRINKLER SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED BY OWNER AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY SPRINKLER SERVICE. PERMISSION TO DISRUPT SERVICE MUST BE ACQUIRED IN WRITING 2 DAYS IN ADVANCE OF ANY SHUTDOWN.

WORKING PRESSURE TO BE 175 PSIG.

PROVIDE 10 PERCENT MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE

SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS SHALL BE LIGHT HAZARD IN DINING AREA AND ORDINARY HAZARD II IN KITCHEN AREA.

INSTALLATION
INSTALL SPRINKLERS IN SUSPENDED CEILINGS IN CENTER OF ACOUSTICAL CEILING PANELS. INSTALL SPRINKLERS INTO FLEXIBLE, SPRINKLER HOSE FITTINGS AND INSTALL HOSE INTO BRACKET ON CEILING GRID.

USE SPRINKLER TYPES FOR THE FOLLOWING APPLICATIONS:
1. ROOMS WITHOUT CEILINGS: UPRIGHT SPRINKLERS.
2. ROOMS WITH SUSPENDED CEILINGS: RECESSED SPRINKLERS.
3. WALL MOUNTING: SIDEWALL SPRINKLERS.
4. SPACES SUBJECT TO FREEZING: UPRIGHT, PENDENT, DRY SPRINKLERS; AND SIDEWALL, DRY SPRINKLERS AS DIRECTED BY ARCHITECT.
5. SPECIAL APPLICATIONS: QUICK-RESPONSE SPRINKLERS IN ALL LOCATIONS

PROVIDE SPRINKLER TYPES WITH FINISHES INDICATED.
1. CONCEALED SPRINKLERS: ROUGH BRASS, WITH FACTORY-PAINTED WHITE COVER PLATE.
2. FLUSH SPRINKLERS: BRIGHT CHROME, WITH PAINTED WHITE THREADED RECESSED ESCUTCHEON.
3. RECESSED SPRINKLERS: BRIGHT CHROME, WITH BRIGHT CHROME THREADED RECESSED ESCUTCHEON.
4. RESIDENTIAL SPRINKLERS: DULL CHROME.
5. UPRIGHT PENDENT AND SIDEWALL SPRINKLERS: CHROME PLATED IN FINISHED SPACES EXPOSED TO VIEW; ROUGH BRONZE IN UNFINISHED SPACES NOT EXPOSED TO VIEW; WAX COATED WHERE EXPOSED TO ACIDS, CHEMICALS, OR OTHER CORROSIVE FUMES.

TESTING, INSPECTIONS, AND REPORTS
PROVIDE THE FOLLOWING TESTS AND INSPECTIONS:
1. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEMS AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
2. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
3. FLUSH, TEST, AND INSPECT SPRINKLER SYSTEMS ACCORDING TO NFPA 13, "SYSTEMS ACCEPTANCE" CHAPTER.
4. ENERGIZE CIRCUITS TO ELECTRICAL EQUIPMENT AND DEVICES.
5. COORDINATE WITH FIRE-ALARM TESTS. OPERATE AS REQUIRED.
6. VERIFY THAT EQUIPMENT HOSE THREADS ARE SAME AS LOCAL FIRE-DEPARTMENT EQUIPMENT.

SPRINKLER PIPING SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

PREPARE TEST AND INSPECTION REPORTS. FURNISH TEST RESULTS AND INSPECTION REPORTS TO ENGINEER FOR REVIEW.

MECHANICAL SPECIFICATIONS

EXCAVATION AND BACK FILL:
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL EXCAVATION, TRENCHING, AND BACK FILLING FOR HIS UNDERGROUND PIPING. BOTTOMS OF TRENCHES SHALL BE TAMPER HARD AND FOR SOIL AND WASTE PIPING SHALL BE GRADED TO SECURE UNIFORM FALL OF 1/4" PER FOOT, UNLESS OTHERWISE NOTED. STONES OF ONE (1) INCH OR GREATER IN ANY DIMENSIONS SHALL BE REMOVED TO AVOID POINT OF BEARING. BELL HOLES FOR SEWER PIPE SHALL BE EXCAVATED SO THAT PIPE WILL REST ON SOLID GROUND FOR ITS ENTIRE LENGTH. GRADING SHALL BE DONE ON SOLID GROUND FOR ITS ENTIRE LENGTH. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO THE TRENCH, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED SO THAT THE STABILITY OF THE BOTTOM AND SIDES OF THE TRENCH IS MAINTAINED. AFTER PIPELINES HAVE BEEN TESTED, INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE, AND PRIOR TO BACK FILLING, THE EXCAVATION SHALL BE CLEANED OF ALL KINDS OF RUBBISH AND BACK FILL MATERIALS CLEANED FREE OF TRASH. BACK FILL SHALL BE PLACED IN 6" LAYERS (LOOSE THICKNESS) FOR COMPACTION BY HAND OPERATED MACHINE COMPACTORS, AND 8" LAYERS FOR OTHER THAN HAND OPERATED MACHINES. EACH LAYER SHALL BE COMPACTED, BY SUITABLE EQUIPMENT TO A DENSITY OF NOT LESS THAN 95% AS DETERMINED BY THE MODIFIED AASHO TEST T-180. BACK FILL MATERIAL TO 12" ABOVE THE PIPE SHALL NOT HAVE STONES LARGER THAN 3/4" IN ANY DIRECTION AND OF A MOISTURE CONTENT THAT WILL FACILITATE COMPACTION. BEDDING OF ALL UNDERGROUND PIPE SHALL BE FOUR INCHES OF CLEAN SAND. SEWER AND CULINARY WATER PIPES SHALL BE LAID IN SEPARATE TRENCHES, EXCEPT WHERE OTHERWISE NOTED. THE MECHANICAL CONTRACTOR SHALL PROVIDE ADEQUATE SHORING TO SAFEGUARD WORKERS FROM CAVE-INS, FOR ALL EXCAVATIONS IN ACCORDANCE WITH OSHA REQUIREMENTS.

PROTECTION AGAINST WEATHER AND STORING OF MATERIALS:
WORK WILL NOT BE PERMITTED UNDER ANY CONDITIONS UNSUITED TO PROPER EXECUTION, SAFETY,AND PERFORMANCE.ALL EQUIPMENT AND MATERIALS SHALL BE PROPERLY STORED AND PROTECTED AGAINST MOISTURE, DUST, OR WIND. USE COVERINGS OR OTHER PROTECTION ON ALL ITEMS WHICH MAY BE DAMAGED, RUSTED OR HAVE THEIR PERFORMANCE IMPAIRED BY ADVERSE WEATHER OR MOISTURE AND DUST CONDITIONS.

CUTTING AND PATCHING:
NO CUTTING OR DRILLING IN STRUCTURAL MEMBERS SHALL BE DONE WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. THE WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE, AND WHEN CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, DEALINGS, OR OTHER SURFACES IS NECESSARY FOR THE PROPER INSTALLATION, SUPPORT OR ANCHORAGE OF THE PIPING, DUCT OR OTHER MECHANICAL WORK, THIS WORK SHALL BE CAREFULLY DONE, AND ANY DAMAGE TO BUILDING, PIPING, OR EQUIPMENT SHALL BE REPAIRED BY PROFESSIONAL GYPSUM BOARD FINISHERS, MASONS, CONCRETE WORKERS, ETC., AND ALL SUCH WORK BEING PAID FOR AS WORK OF THIS DIVISION. ALL CUTTING OF MASONRY AND OR CONCRETE SHALL BE DONE BY CORE DRILLING AND MASONRY SAWING. ALL REQUIRED CUTTING AND PATCHING OF STREETS, SIDEWALKS, AND CURBS AND GUTTERS FOR THE INSTALLATION OF THE UTILITY SERVICE PIPES SHONW UNDER THE SCOPE OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR. ALL STREETS, SIDEWALKS, AND CURBS AND GUTTERS SHALL BE PATCHED BY THIS CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITIES.

ELECTRICAL WIRING:
MOTOR STARTERS AND DISCONNECT SWITCHES, UNLESS SPECIFIED TO BE PART OF THIS MECHANICAL PACKAGED EQUIPMENT, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL POWER WIRING TO MOTORS AND PACKAGED MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL AUTOMATIC TEMPERATURE CONTROL WIRING (LINE VOLTAGE OR LOW VOLTAGE) REQUIRED TO COMPLETE THE TEMPERATURE CONTROL SYSTEM (BY INTERCONNECTION OF TIME CLOCKS, LOW TEMPERATURE PROTECTION THERMOSTATS, E.P. SWITCHES, P.E. SWITCHES, STARTING SWITCHES, PACKAGED MECHANICAL EQUIPMENT AND LIKE DEVICES AND EQUIPMENT) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. INSTALLATION SHALL CONFORM TO ALL LOCAL CODES AND NATIONAL ELECTRICAL CODE. ALL WIRING LOCATED IN RETURN AIR DUCTS OR IN RETURN AIR PLENUMS SHALL BE RUN IN CONDUIT. BEFORE ORDERING ANY EQUIPMENT, THE MECHANICAL CONTRACTOR SHALL VERIFY WITH ELECTRICAL CONTRACTORS ALL MOTOR CHARACTERISTICS, PHASE AND VOLTAGE. ANY ELECTRICAL CHANGES OR ADDITIONS REQUIRED BY SUBSTITUTION OF MECHANICAL EQUIPMENT SHALL BE THE COMPLETE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

COMPLETION REQUIREMENTS:
UPON COMPLETION OF THE WORK AND ADJUSTMENT OF ALL EQUIPMENT, ALL SYSTEMS SHALL BE TESTED BY THE CONTRACTOR TO DEMONSTRATE TO THE ENGINEER'S AND OWNER'S REPRESENTATIVES THAT ALL EQUIPMENT FURNISHED AND INSTALLED, OR CONNECTED UNDER THE PROVISIONS OF THESE SPECIFICATIONS, FUNCTION MECHANICALLY IN THE MANNER REQUIRED.

ADJUSTMENTS, OPERATION, ETC.:
ADJUST ALL CONTROLS FOR PROPER OPERATION. ADJUST ALL REGULATORS, FAUCETS, ETC. OPEN AND CLOSE ALL SHUTOFF AND CONTROL VALVES SEVERAL TIMES TO INSURE TIGHT GLANDS. FURNISH THE SERVICES OF A QUALIFIED MAN FOR A PERIOD OF NOT LESS THAN THREE DAYS AT A TIME, APPROVED BY THE OWNER, TO INSTRUCT THE MAINTENANCE PERSONNEL, CORRECT ANY DEFECTS OR DEFICIENCIES, AND DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER AND OWNER, THAT THE ENTIRE SYSTEM IS OPERATING IN A SATISFACTORY MANNER AND COMPLIES WITH ALL REQUIREMENTS OF ANY OTHER TRADES OR CONTRACTORS THAT MAY BE REQUIRED TO COMPLETE THE WORK. COMPLETE THIS OPERATION TEST PRIOR TO REQUEST FOR FINAL INSPECTION. SUBMIT WRITTEN VERIFICATION OF COMPLIANCE FROM THE OWNER'S REPRESENTATIVE.

CLEANING:
AFTER ALL TESTS AND ADJUSTMENTS HAVE BEEN MADE AND ALL SYSTEMS PRONOUNCED SATISFACTORY FOR PERMANENT OPERATION, THIS CONTRACTOR SHALL CLEAN ALL EXPOSED DUCTWORK, INSULATED MEMBERS, FIXTURES AND EQUIPMENT INSTALLED UNDER THIS SECTION AND LEAVE READY FOR PAINTING. HE SHALL REFINISH ANY DAMAGED FINISH, AND LEAVE EVERYTHING IN PROPER WORKING ORDER.

RECORD DRAWINGS:
RECORD DRAWINGS FOR ALL SYSTEMS AND SECTIONS OF THIS DIVISION SHALL BE FURNISHED AS WORK OF THIS SECTION. RECORD DRAWING REDLINES SHALL BE ACCURATELY AND NEATLY MARKED, SHOWING ALL CHANGES FROM SCHEMATICS. RECORD DRAWINGS SHALL BE REVIEWED WITH THE DESIGN TEAM AT LEAST ONCE A MONTH AND SHALL BE SUBMITTED AT TIME OF FINAL INSPECTION AND BE CHECKED FOR ACCURACY.

GUARANTEE:
BY THE ACCEPTANCE OF ANY CONTRACT AWARD FOR THE WORK HEREIN DESCRIBED OR SHOWN ON THE DRAWINGS, THE CONTRACTOR ASSUMES THE FULL RESPONSIBILITY IMPOSED BY THE GUARANTEE AS SET FORTH HEREIN, AND SHALL PROTECT HIMSELF THROUGH PROPER GUARANTEES FROM EQUIPMENT VENDORS AND FROM SUBCONTRACTORS AS THEIR INTERESTS MAY APPEAR. THE GUARANTEE SO ASSUMED BY THE CONTRACTOR AND AS WORK OF THIS SECTION IS AS FOLLOWS:
1. THAT THE ENTIRE MECHANICAL SYSTEM, INCLUDING PLUMBING, AIR CONDITIONING, HEATING AND VENTILATION SYSTEMS SHALL BE QUIET IN OPERATION.
2. THAT THE CIRCULATION OF WATER AND AIR SHALL BE COMPLETE AND EVEN.
3. THAT HE SHALL MAKE, PROMPTLY UPON NOTICE FROM THE OWNER AND FREE OF CHARGE, ANY REPAIRS NECESSARY DUE TO DEFECTIVE MATERIALS OR WORKMANSHIP THAT MAY OCCUR DURING A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. AIR CONDITIONING COMPRESSORS SHALL BE GUARANTEED FOR FIVE YEARS.
4. THAT ALL SPECIALTIES, MECHANICAL AND PATENT DEVICES INCORPORATED IN THESE SYSTEMS, SHALL BE ADJUSTED IN A MANNER THAT EACH SHALL DEVELOP ITS MAXIMUM EFFICIENCY IN THE OPERATION OF THE SYSTEMS.

MECHANICAL SPECIFICATIONS

BASIC MATERIALS AND METHODS

RELATED DOCUMENTS:
THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND GENERAL REQUIREMENTS, APPLY TO THE WORK SPECIFIED IN THIS SECTION.

DESCRIPTION OF WORK:
THE WORK UNDER THIS SECTION INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, AND SERVICES INCLUDED IN THE FOLLOWING BASIC MATERIALS AND METHODS CLASSIFICATION:
PIPING MATERIALS
PIPING FITTINGS
VALVES
STRAINERS
UNIONS
PIPE SLEEVES
CONCRETE INSERTS
FLOOR, WALL AND CEILING PLATES
PIPE HANGERS AND SUPPORTS
V-BELT DRIVES
MOTORS
JOINTS AND CONNECTIONS
PIPE INSTALLATION
GRADING OF PIPE

PIPING MATERIALS:
FOREIGN MADE MATERIALS: ALL PIPE, PIPE FITTINGS AND ACCESSORIES USED ON THIS PROJECT SHALL BE MANUFACTURED IN THE UNITED STATES. THE USE OF FOREIGN MADE MATERIALS WILL NOT BE ALLOWED. NATURAL GAS PIPING - STEEL PIPE: SIZE 4" AND SMALLER, SCHEDULE 40 OR SCHEDULE 80, BLACK OR GALVANIZED, CONFORMING TO A53 GRADE A. DWV PIPING – DWV ABS PIPE ROOF DRAIN PIPING – PVC PIPE ASTM D2265 OR ASTM D3034 DOMESTIC WATER PIPING - PEX PIPING MEETING PEX PIPING INSTALLATION REQUIREMENTS AND MEETING LOCAL CODES. PIPING TO BE COLOR CODED AND LABELED ACCORDING TO PLAN GENERAL NOTES. COPPER REFRIGERANT TUBE: TYPE "L" HARD DRAWN, DEGREASED, SCALED-AT-THE-MILL, CLEANED AND SEALED AT THE MILL.

PIPE FITTINGS:
IN STEEL PIPE: 2" AND SMALLER, SCREWED MALLEABLE IRON, CLASS 150 LB., CONFORMING TO ANSI-B26.3, EITHER BLACK OR GALVANIZED. 2-1/2" AND LARGER, SCHEDULE 40 WROUGHT STEEL WELDING FITTINGS CONFORMING TO ANSI-B16.28. 2-1/2" AND SMALLER, SCREWED, COATED CAST IRON DRAINAGE TYPE CONFORMING TO ANSI-B16.12. IN CAST IRON PIPE: SERVICE WEIGHT, COATED CAST IRON, HUB LESS TYPE CONFORMING TO ANSI-112.5.1. IN COPPER TUBE: WROUGHT COPPER SWEAT TYPE CONFORMING TO ANSI-26.22. ALL ELBOWS SHALL BE LONG RADIUS.

VALVES:
GENERAL: VALVES MANUFACTURED BY APOLLO, JENKINS, KENNEDY, POWELL, WALWORTH, CRANE, NBC, STOCKHOLM, HAMMOND, OR UNREMEMBERED ARE APPROVED. ALL VALVES SHALL BE BY THE SAME MANUFACTURER. BALL VALVES: IN COPPER TUBE: BRONZE BODY, SOLDERED ENDS, 150 PSI W.P., LEVER HANDLE WITH STOPS, BRONZE STEM AND BALL, TEFLON SEAT. VALVE SEAT REPLACEABLE WITHOUT DISTURBING PIPING, NIBCO S-590. IN STEEL PIPES: BRONZE BODY, SCREWED ENDS, 150 PSI. W.P., LEVER HANDLE WITH STOPS, BRONZE STEM AND BALL, TEFLON SEAT. VALVE SEAT REPLACEABLE WITHOUT DISTURBING PIPING, NIBCO T- 590. GAS COCKS: ONE INCH SMALLER WALWORTH #597, 1-1/4" SIZE AND LARGER WALWORTH 655. PROVIDE WRENCHES. CHECK VALVES: IN COPPER TUBE: SWEAT TYPE BRONZE BODY, WITH RENEWABLE DISCS, 125 PSI W.P. NIBCO S-413-B. IN STEEL PIPE: SCREWED BRONZE BODY, WITH RENEWABLE DISCS, 125 PSI W.P. NIBCO T-413-B. BALANCING VALVES: 3" AND SMALLER, SCREWED CAST BRONZE BODY WITH BRONZE DISC, METER CONNECTIONS WITH BUILT-IN CHECK VALVES AND INTERNAL SEALS. BELL AND GOSSETT MODEL "CB", OR ARMSTRONG. BALANCING VALVES SHALL BE PROVIDED WITH HANSON QUICK CONNECTS AND SHUTOFF VALVES. WATER SELF-FILL (P.R.) VALVE: HEATING WATER SELF-FILL, 3/4" BRASS BODY, ALL WORKING PARTS BRASS, DIAPHRAGM OPERATED, WITH ANTI-SYPHON CHECK VALVE AND INLET STRAINER, SET AT 12 PSI. MODEL B-7 BELL AND GOSSETT, OR EQUIVALENT BY TACO OR THRUSH. TEMPERATURE AND PRESSURE RELIEF VALVE: FOR WATER HEATER; A.S.M.E. RATED AND AUTOMATIC RESEATING, 3/4" BRONZE BODY, WITH TEST LEVER, SET AT 200 DEGREES F. AND 100 PSI, IN CONFORMANCE WITH USA STANDARD Z21.22. WATTS MODEL 40L OR EQUIVALENT BY MC DONNELL-MILLER OR CASH. GAUGE COCKS: CRANE #712 BRONZE COCK. MANUAL AIR VENTS: CRANE #88 NEEDLE VALVE, 3/8" SIZE, ON ALL HIGH POINTS OF PIPING SYSTEMS. ANTI-SYPHON OR BACK PRESSURE VALVE: VALVE SHALL BE REDUCED PRESSURE BACK-FLOW PREVENTOR TYPE WITH MAXIMUM WORKING PRESSURE OF 125 PSI. BRONZE BODY, BRONZE FITTINGS, STAINLESS STEEL SPRINGS, DOUBLE NEOPRENE COATED COTTON DUCT DIAPHRAGM AND NEOPRENE VALVE DISCS. VALVE CONSISTS OF TWO CHECK VALVES BETWEEN WHICH IS MOUNTED A DOUBLE PORTED BALANCED RELIEF VALVE OPERATING INDEPENDENTLY OF LINE PRESSURE, GATE VALVES UP AND DOWNSTREAM OF BASIC UNIT, PIPE UNIONS, AND TEST COCKS. BEECO MODEL "FRP", FEBCO OR WATTS. WATER PRESSURE REDUCING VALVES: SCREWED ALL BRONZE BODY, RENEWABLE STAINLESS STEEL SEAT, SINGLE SEAT, RUBBER DISC, HIGH TEMPERATURE RESISTING DIAPHRAGM, GOOD FOR 300 PSI INLET PRESSURE, WITH SCREWED STRAINER. WATTS 2" MODEL 223S. SET REGULATOR FOR 50 PSI REDUCED PRESSURE UNLESS OTHERWISE NOTED ON THE PLANS.

STRAINERS:
Y-PATTERN: 125 PSI WORKING PRESSURE. BODY MATERIAL TO MATCH PIPE MATERIAL. MONEL OR BRASS STRAINER WITH MINIMUM SCREENING AREA 500% GREATER THAN PIPE.
SIZES 2" AND SMALLER: SCREWED CONNECTION. SIZES 2-1/2" AND LARGER: FLANGED CONNECTION. CRANE, SARCO, DUNHAM-BUSH, MCALEAR, ARMSTRONG, STRONG STOCKHAM, HOFFMAN.

UNIONS:
IN STEEL PIPE: SCREWED 150 LBS. MALLEABLE IRON, BRASS TO IRON SEAT, GROUND JOINT. BLACK OR GALVANIZED TO MATCH PIPE. IN COPPER TUBE: 150 LBS. WROUGHT COPPER, BRASS TO COPPER SEAT, GROUND JOINT, SWEAT TYPE, NIBCO MODEL 633.
INSULATING UNIONS: 250 PSI WORKING PRESSURE, PIPE ENDS AND MATERIAL TO MATCH PIPE, ELECTRIC CURRENT BELOW 1% OF GALVANIC CURRENT, GASKDT MATERIAL RECOMMENDED BY MANUFACTURER, EPCO OR WALTER VALLET.

PIPE SLEEVES:
MINIMUM 20 GAUGE GALVANIZED STEEL IN CONCRETE, 18 GAUGE IN ALL OTHER CONSTRUCTION. 1/2" CLEARANCE AROUND PIPE OR INSULATION.

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CONSULTANT:

Reviewed for Code Compliance
10/07/2024

SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056
OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	

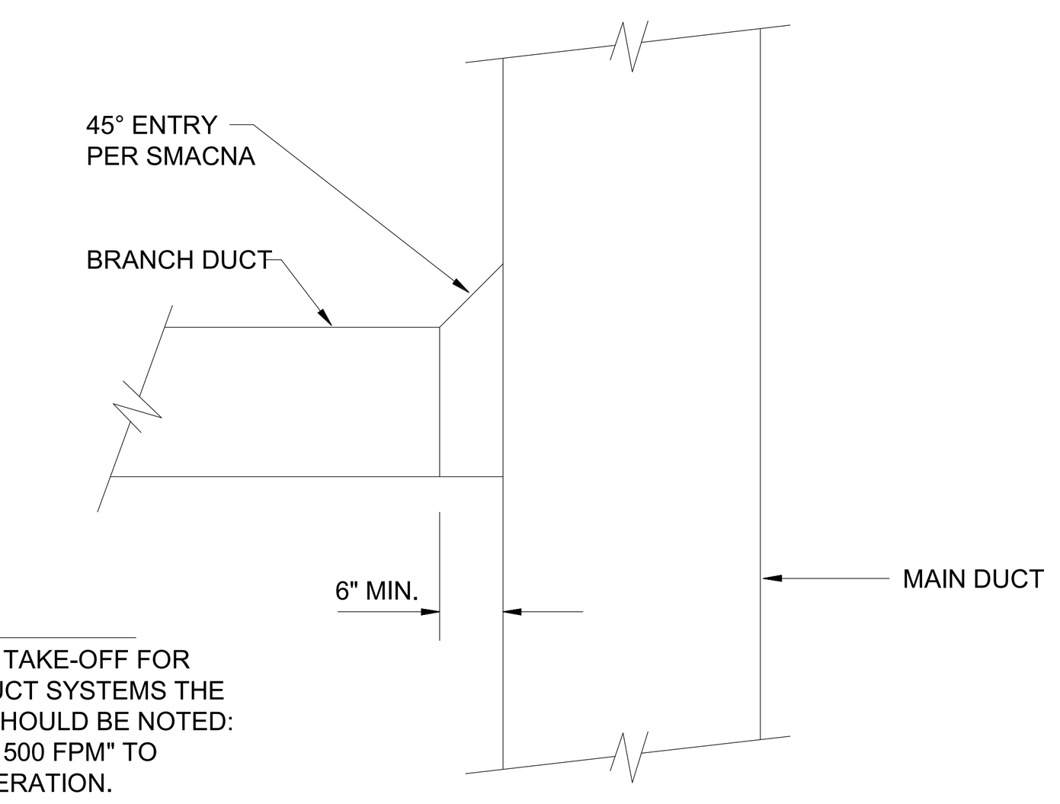
#	REV. DATE	DESCRIPTION
1	09/10/24	Owner Revisions

PERMIT SET

MECHANICAL SPECIFICATIONS

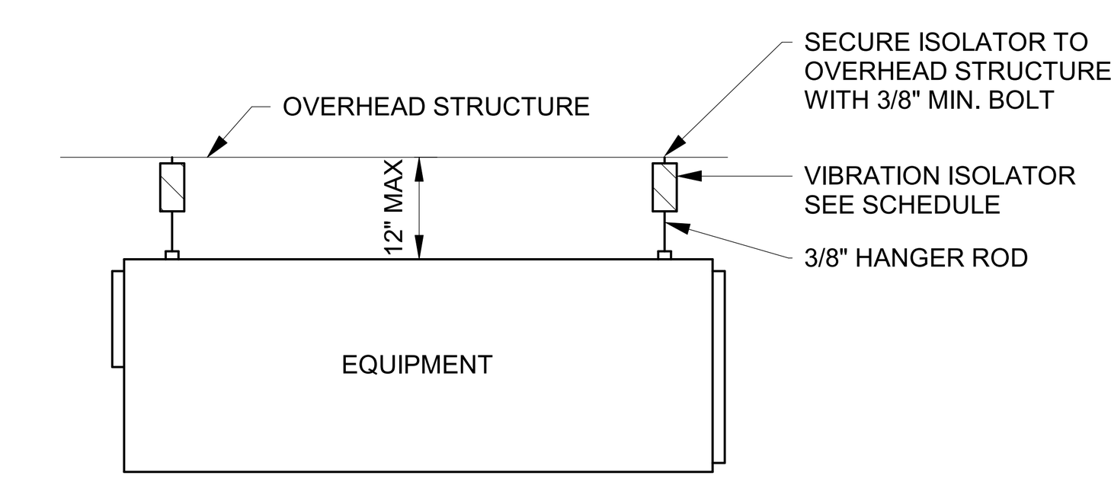
PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ

SHEET #
RME002

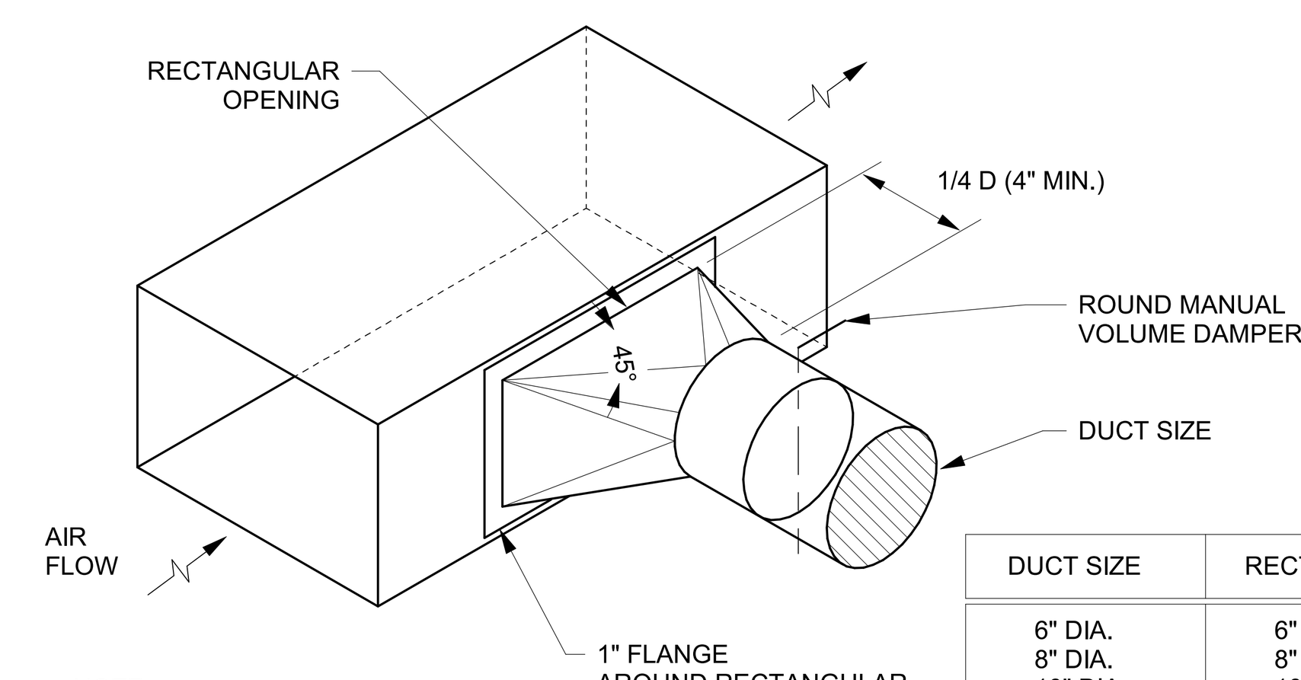


NOTE:
WHEN USING THIS TAKE-OFF FOR HIGH VELOCITY DUCT SYSTEMS THE ENTRY OPENING SHOULD BE NOTED: "NOT TO EXCEED 1500 FPM" TO AVOID NOISE GENERATION.

8 TYPICAL DUCT TAKEOFF DETAIL
SCALE: NTS



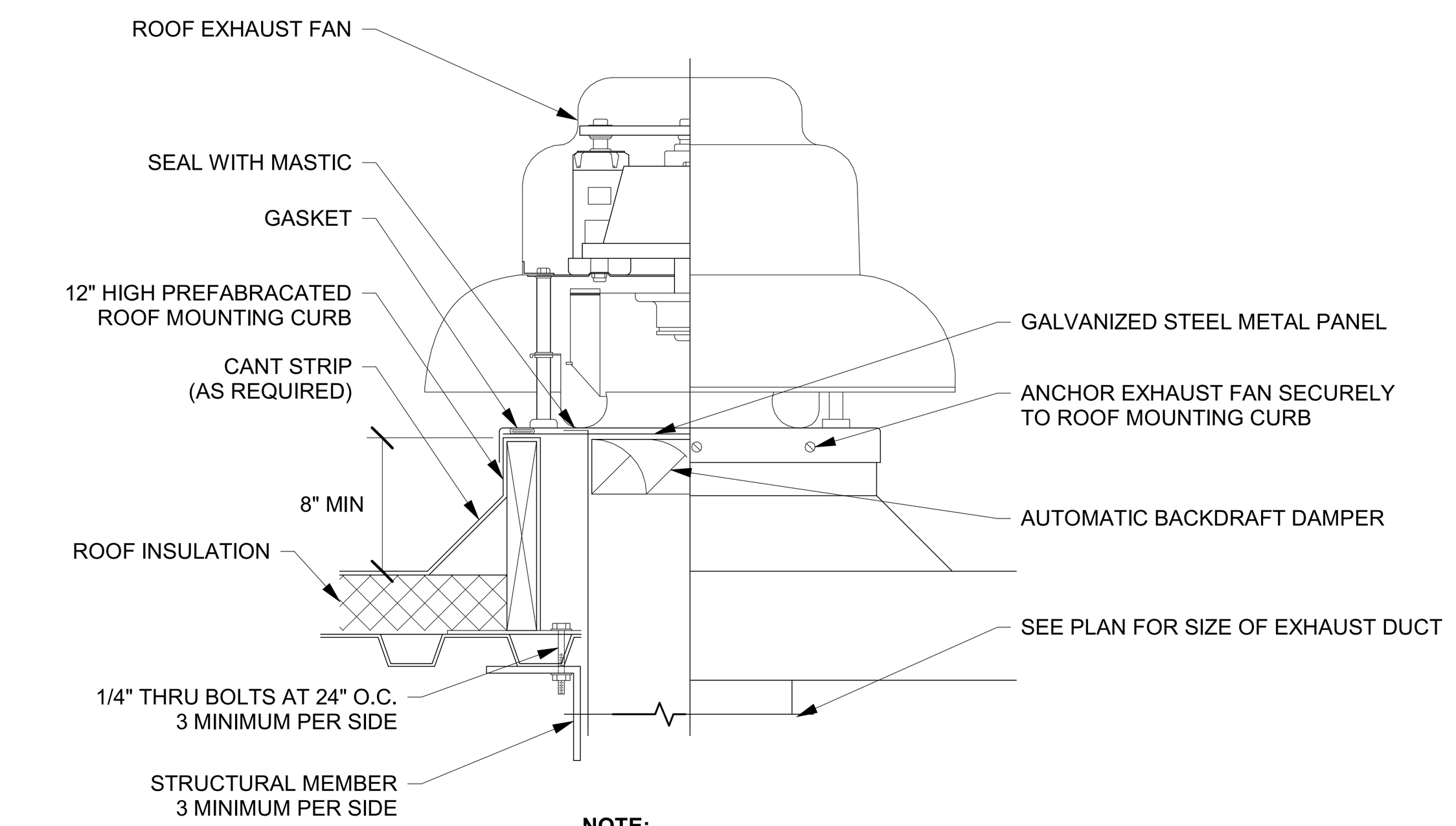
4 VIBRATION ISOLATOR - SUSPENDED
SCALE: NTS



NOTE:
CONSTRUCT FITTING PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE FIGURE 2-6.

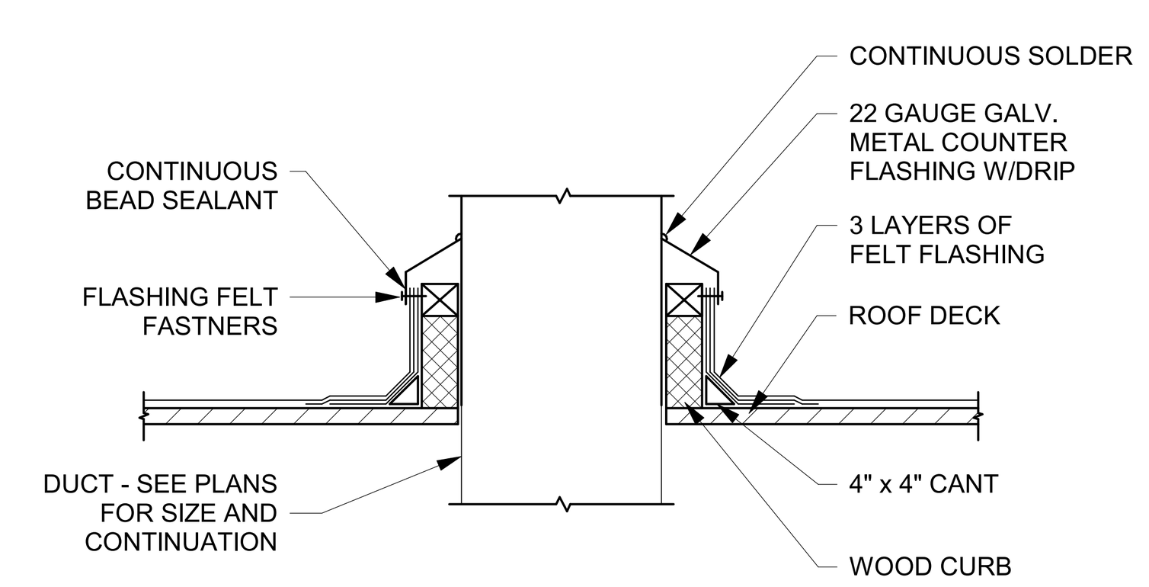
DUCT SIZE	RECT. OPNG.
6" DIA.	6" X 9"
8" DIA.	8" X 12"
10" DIA.	10" X 14"
12" DIA.	12" X 16"
14" DIA.	14" X 18"

7 DUCT HIGH EFFICIENCY TAKE-OFF
SCALE: NTS



NOTE:
1. SEE ARCHITECTURAL DRAWINGS FOR ROOFING AND FLASHING DETAIL

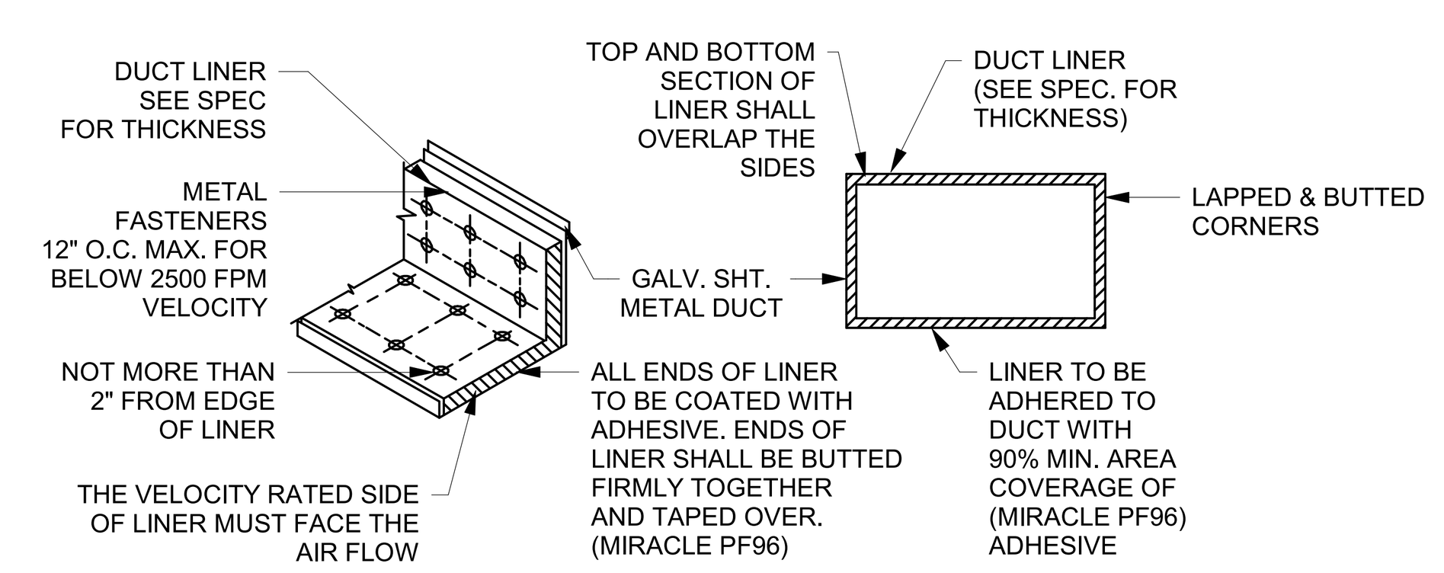
3 ROOF EXHAUST FAN
SCALE: NTS



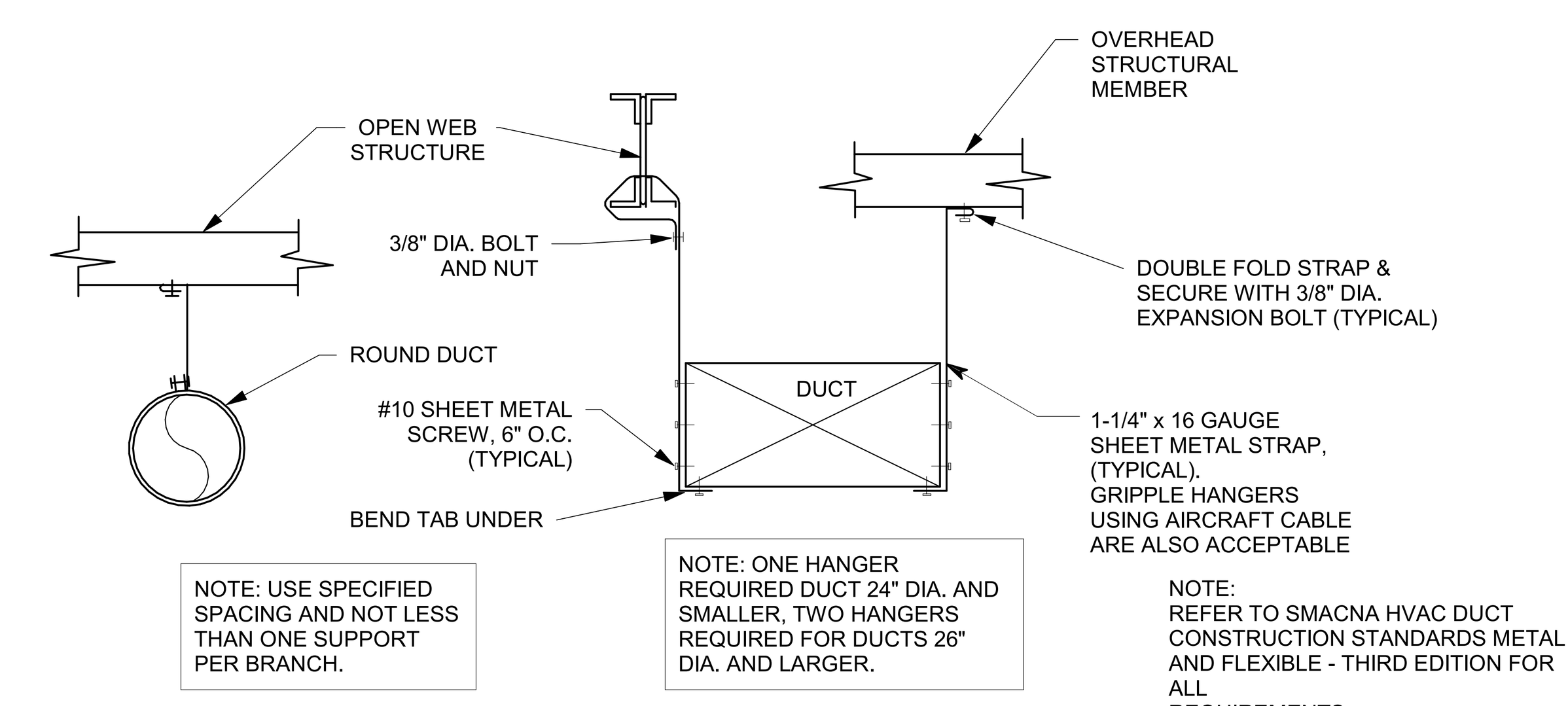
NOTE:
ROOF STRUCTURE SHOWN IS GENERIC. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL PLANS.

10 DUCT FLASHING DETAIL
SCALE: NTS

METAL FASTENERS:
OMARK INSUL-PINS, DURA DYNE FASTENERS OR GRIP NAILS. GRIP NAILS SHALL BE INSTALLED BY "GRIP NAIL AIR HAMMER" OR BY AUTOMATIC FASTENER EQUIP.



6 DUCT LINER
SCALE: NTS

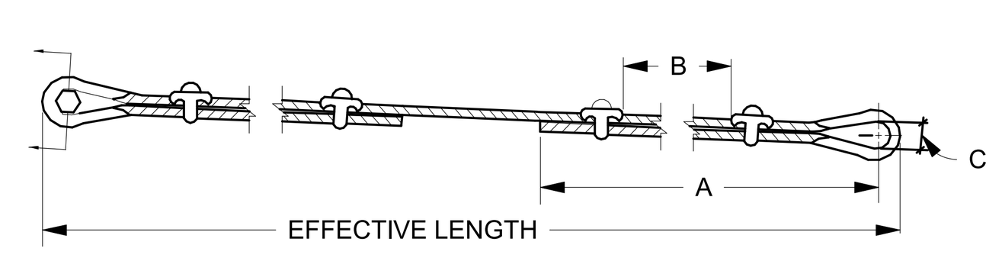


NOTE: USE SPECIFIED SPACING AND NOT LESS THAN ONE SUPPORT PER BRANCH.

NOTE: ONE HANGER REQUIRED DUCT 24" DIA. AND SMALLER. TWO HANGERS REQUIRED FOR DUCTS 26" DIA. AND LARGER.

NOTE:
REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE - THIRD EDITION FOR ALL REQUIREMENTS

2 DUCT HANGER
SCALE: NTS



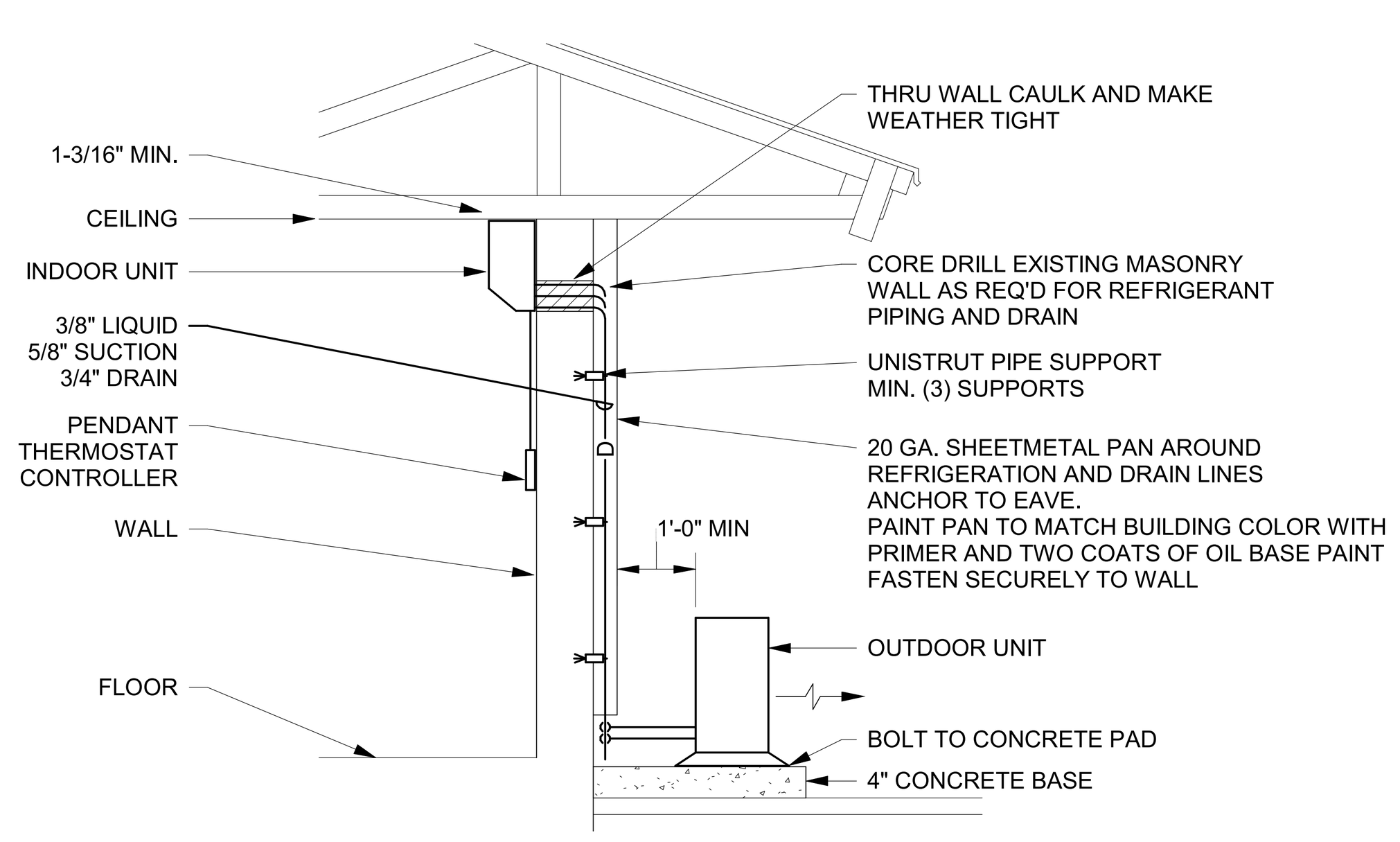
NOTES:

1. CABLES, THIMBLES, CABLE CLIPS, GROMMETS, FLAT WASHERS AND NEOPRENE WASHERS ARE TO BE FURNISHED BY RESTRAINT MANUFACTURER. ALL OTHER HARDWARE TO BE PROVIDED BY CONTRACTOR.
2. CABLE CLIPS MUST BE ORIENTED AS SHOWN WITH SHORT END OF CABLE ON THE CURVED PART OF THE CLIP.
3. CABLE CLIPS (SAME SIZE AS CABLE) MUST BE ORIENTED AS SHOWN WITH SHORT END OF CABLE ON THE CURVED PART OF THE CLIP.
4. ENTIRE RESTRAINT SYSTEM SHALL BE AMBER BOOTH OR EQUAL.

CABLE SCHEDULE

CABLE DIA.	CABLE DESIGN	A	B	C	BOLT SIZE	ALLOWABLE LOAD (lbf)	BREAKING STRENGTH (lbf)
1/8"	7X19 GALV.	5-1/4"	1-5/8"	5/8"	3/8"	660	2000
3/16"	7X19 GALV.	5-3/4"	1-7/8"	5/8"	3/8"	1400	4200
1/4"	7X19 GALV.	6-3/4"	2-3/8"	11/16"	3/8"	2330	7000
5/16"	7X19 GALV.	7-3/8"	2-5/8"	13/16"	5/8"	3260	9800
3/8"	7X19 GALV.	8-7/8"	3-1/4"	1"	5/8"	4800	14400
7/16"	6X19 IWRC	17"	3-5/8"	1"	5/8"	5920	17800
1/2"	6X19 IWRC	18"	3-7/8"	1-1/8"	3/4"	7660	23000

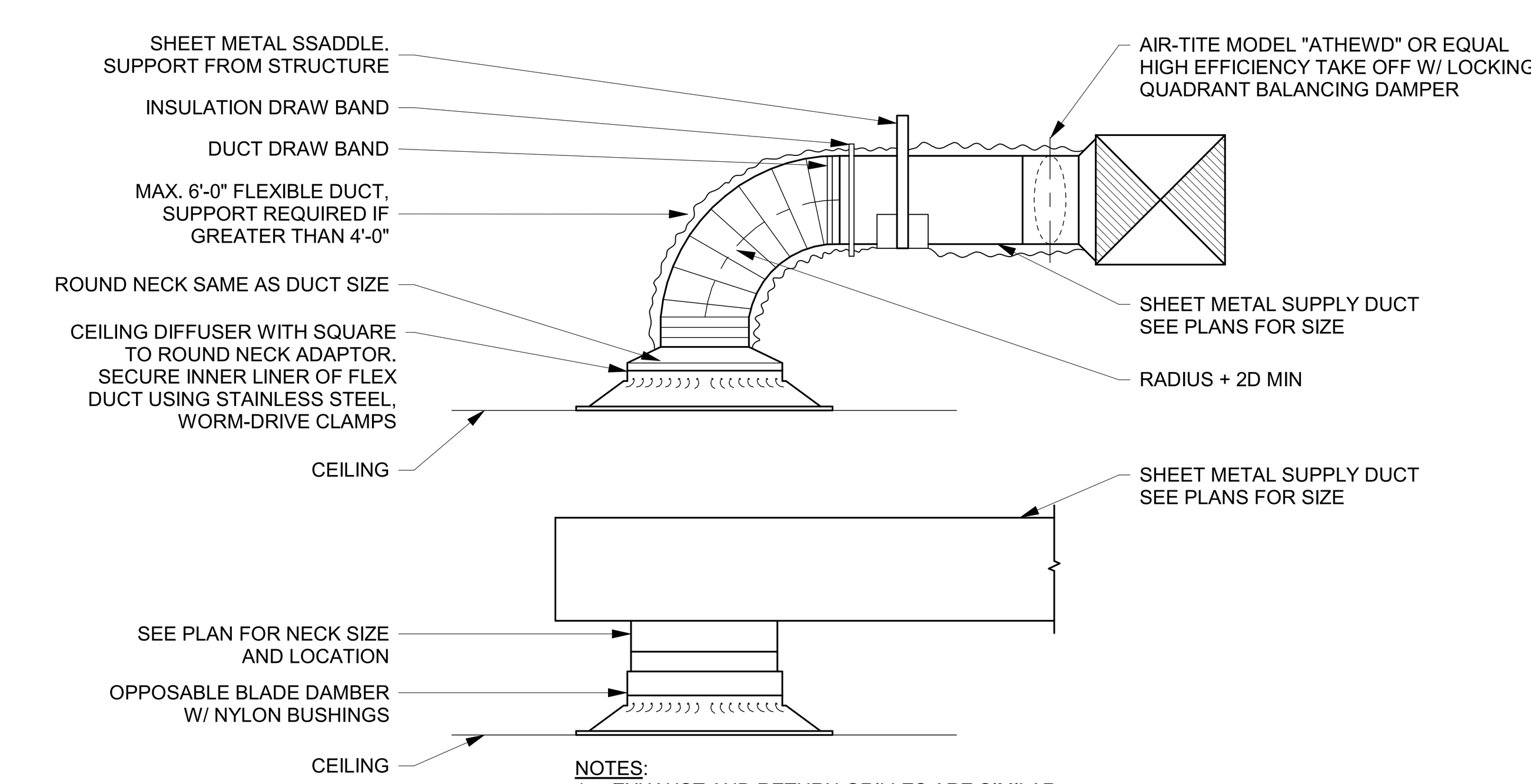
9 CABLE CONSTRUCTION
SCALE: NTS



NOTE:
FLOOR, CEILING, ROOF, AND WALL STRUCTURE SHOWN IS GENERIC. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL PLANS.

ADD WEATHERPROOF BOOT AT ANY AND ALL LINESET PENETRATIONS OF BUILDING ENVELOPE.

5 AIR CONDITIONING UNIT DETAIL
SCALE: NTS



NOTES:
1. EXHAUST AND RETURN GRILLES ARE SIMILAR.
2. BOTTOM TAKE-OFF METHOD IS ONLY ALLOWED IF DIFFUSER IS DIRECTLY BELOW DUCT AND DISTANCE BETWEEN DIFFUSER AND BOTTOM OF CONNECTING DUCT IS LESS THAN DIAMETER OF RUNOUT.
3. COORDINATE CEILING STRUCTURE WITH ARCHITECTURAL PLANS.

1 CEILING DIFFUSER DETAIL WITH DUCTING
SCALE: NTS

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PROJECT:

ISSUE DATE	DESCRIPTION
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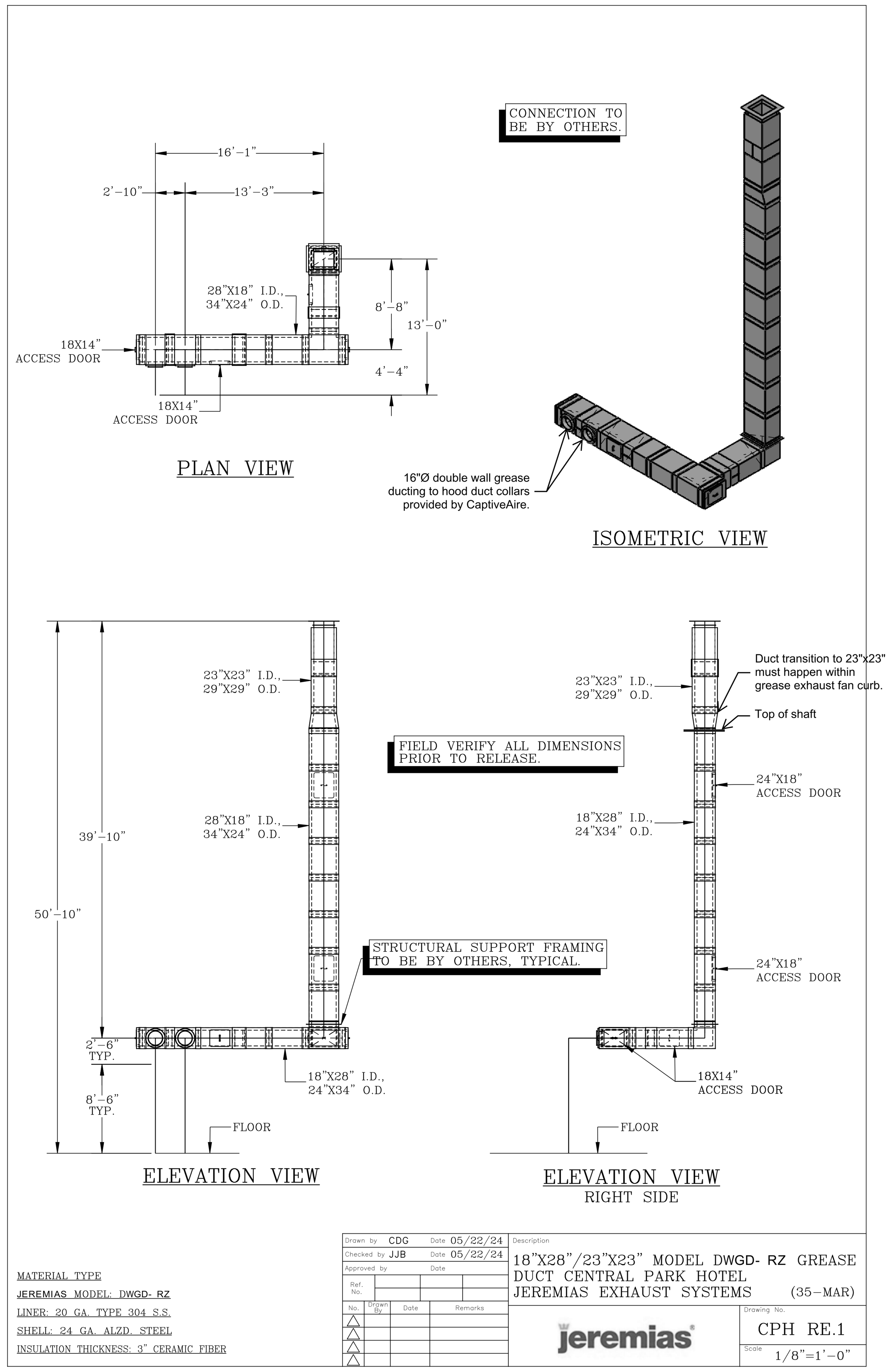
#	REV. DATE	DESCRIPTION
1	09/10/24	Owner Revisions

PERMIT SET

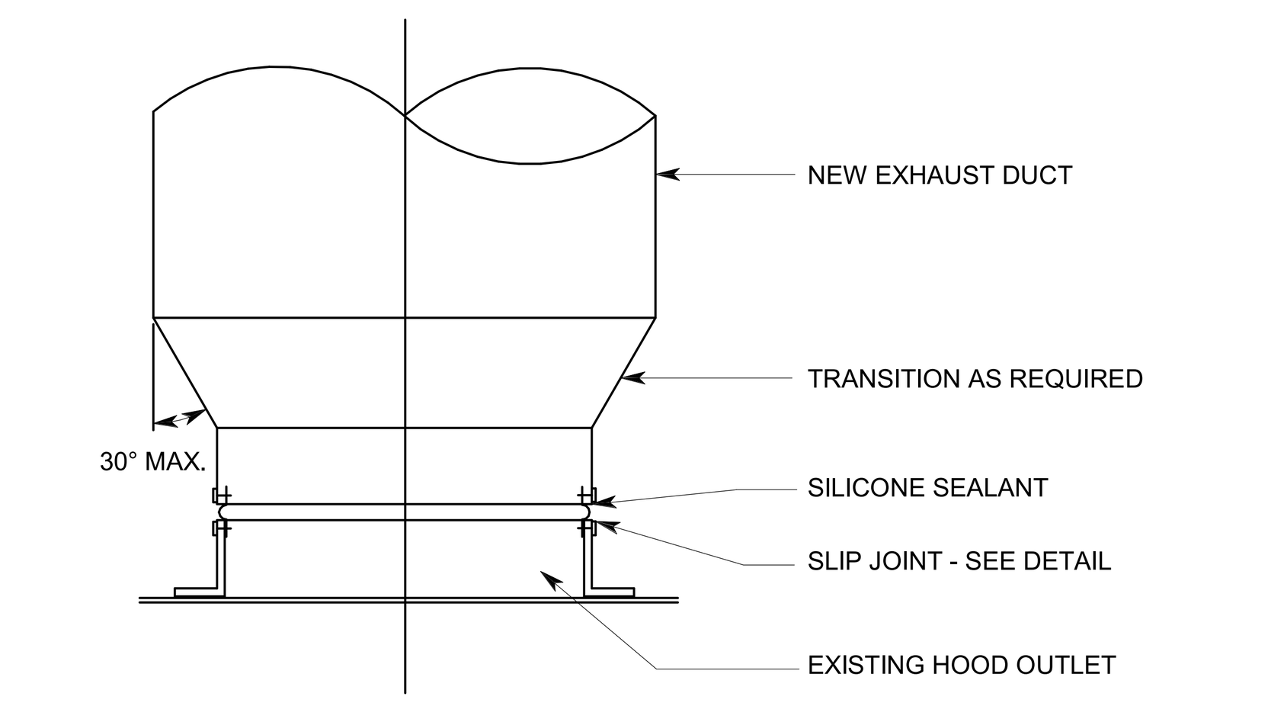
MECHANICAL DETAILS

PROJECT #: 2210
DRAWN BY: SHT
CHECKED BY: SSJ

SHEET #: RME501

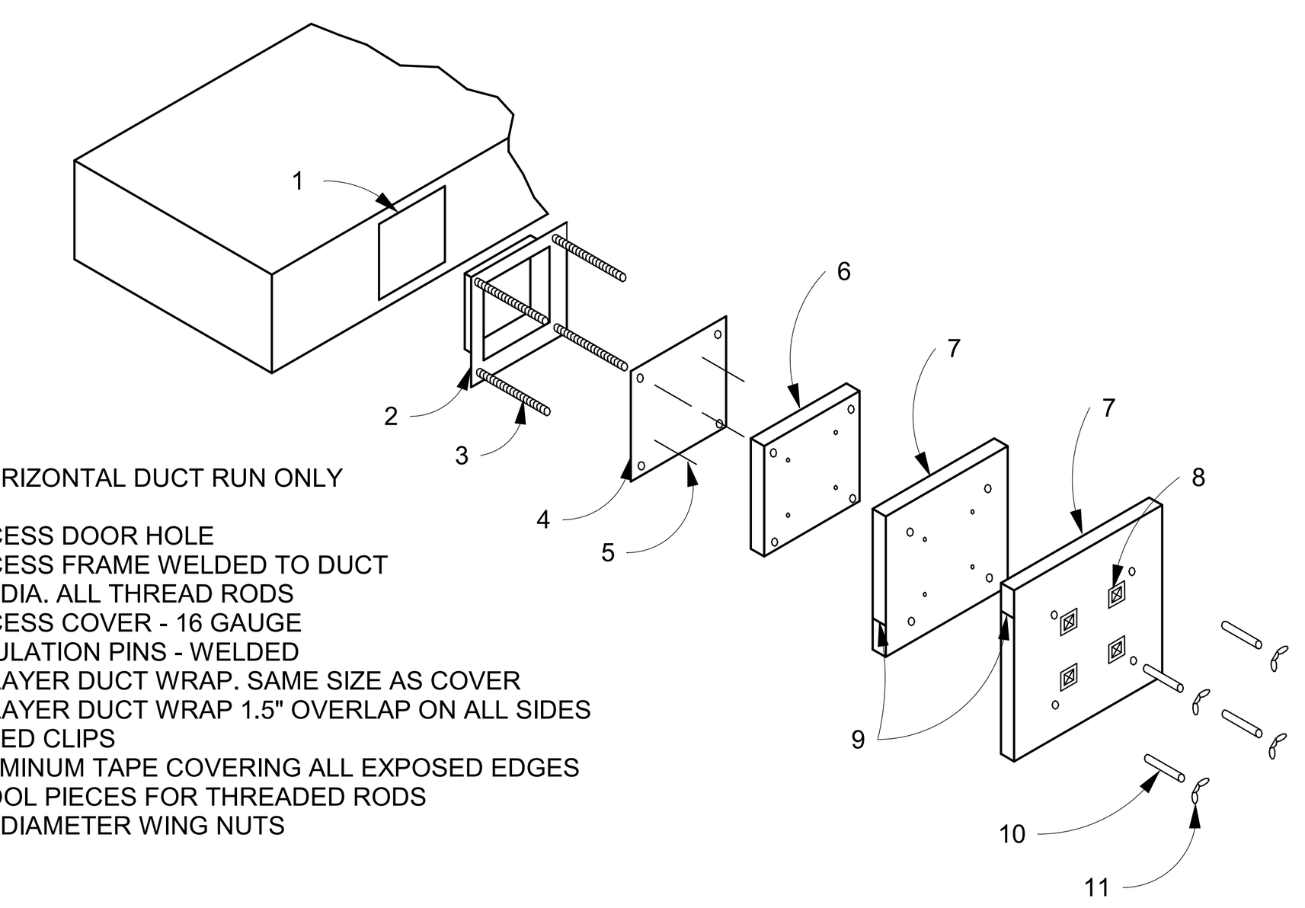


GREASE DUCT LAYOUT BY JEREMIAS
(also reference shaft section view on sheet MH101)



3 HOOD CONNECTION DETAIL

SCALE: NTS

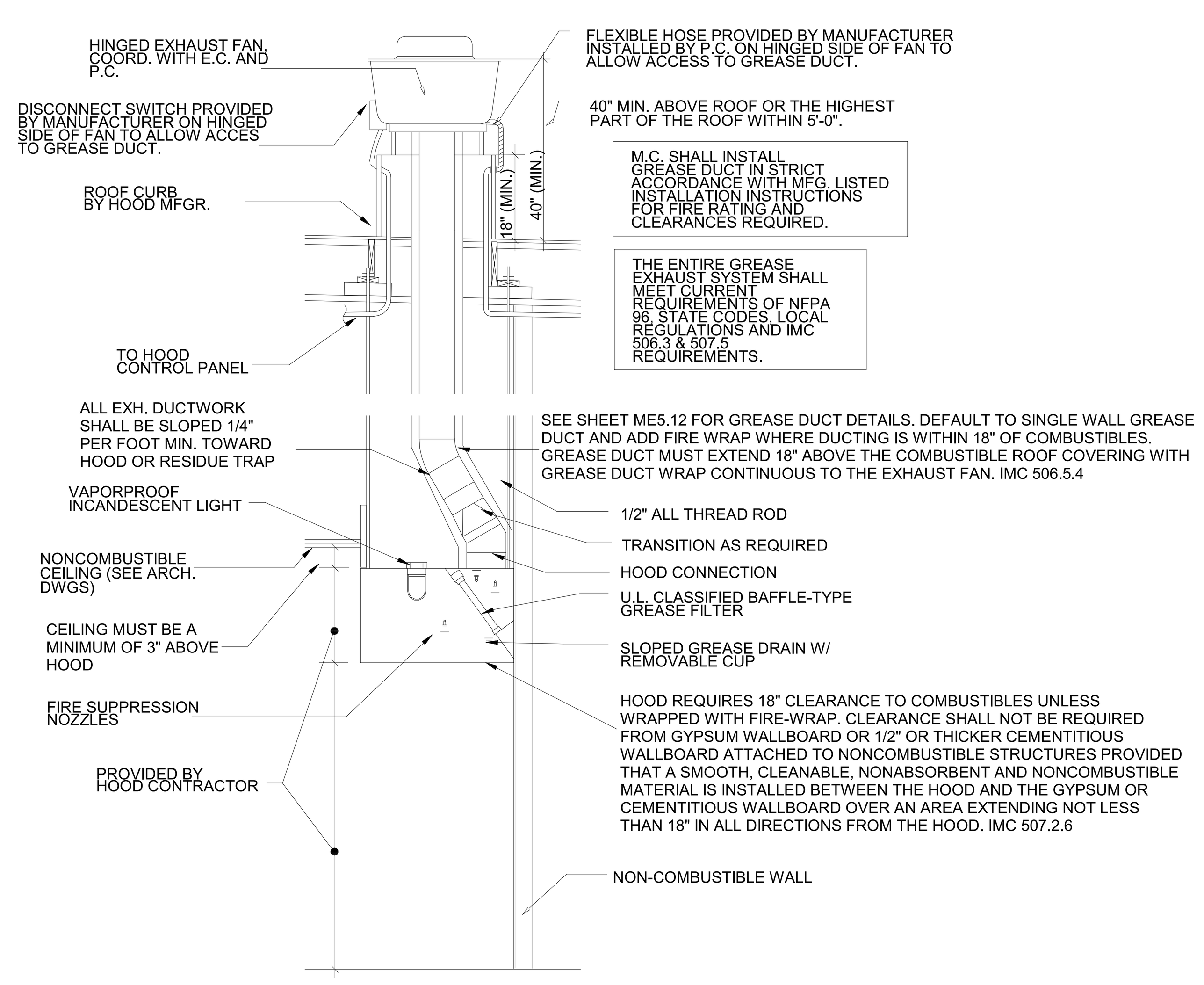


NOTES:
FOR HORIZONTAL DUCT RUN ONLY

1. ACCESS DOOR HOLE
2. ACCESS FRAME WELDED TO DUCT
3. 1/4" DIA. ALL THREAD RODS
4. ACCESS COVER - 16 GAUGE
5. INSULATION PINS - WELDED
6. (1) LAYER DUCT WRAP, SAME SIZE AS COVER
7. (1) LAYER DUCT WRAP 1.5" OVERLAP ON ALL SIDES
8. SPEED CLIPS
9. ALUMINUM TAPE COVERING ALL EXPOSED EDGES
10. SPOOL PIECES FOR THREADED RODS
11. 1/4" DIAMETER WING NUTS

2 GREASE DUCT ACCESS DOOR DETAIL

SCALE: NTS



(TYPE I)

NOTE:
1) REQUIREMENTS SHOWN ARE FOR A TYPE "1" HOOD IN A SINGLE STORY BUILDING WITH NON-RATED ROOF ASSEMBLY.
2) HOOD SHALL BE LISTED BY NATIONAL AGENCY.
3) CLEAN-OUTS SHALL BE PROVIDED IN GREASE EXHAUST DUCT AT ALL CHANGES IN DIRECTION. THE CLEAN-OUT PANEL SHALL BE MADE OF THE SAME MATERIAL AND THICKNESS AS THE DUCT. THE C.O. PANEL SHALL HAVE A GASKET OR SEALANT THAT IS RATED FOR 1500°F MIN. AND SHALL BE GREASE TIGHT. FASTENERS USED TO SECURE THE C.O. PANELS, SUCH AS WELDED STUDS, LATCHES, OR WING NUTS SHALL BE CARBON STEEL AND SHALL NOT PENETRATE DUCT WALLS.
4) G.C. SHALL PROVIDE FIRE RATED ACCESS PANEL AT THE DUCT ENCLOSURE TO ACCESS DUCT CLEANOUTS. A SIGN SHALL BE PLACED ON ALL FIRE SHIELDING ACCESS PANELS STATING-"ACCESS PANEL-DO NOT OBSTRUCT".

1 TYP. TYPE 1 GREASE HOOD AND DUCT DETAIL

SCALE: NTS

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Reviewed for Code Compliance
10/07/2024

OWNER:
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5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056

PROJECT:
CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

ISSUE DATE	DESCRIPTION
06/17/2024	
REV. DATE	DESCRIPTION
09/10/24	Owner Revisions

PERMIT SET

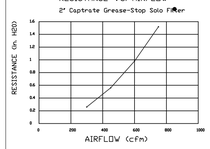
MECHANICAL DETAILS

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ

SHEET #
RME502

9/9/2024 2:10:46 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt

Captrate
Grease-Stop Solo Filter



Filter Detail

CAPTRATE®

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

TOTAL DUCT AREA=144 X $\frac{\text{CFM}}{\text{FPM(*)}}$

DUCT LENGTH= $\frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$

*CAPTIVE-AIRE VENTILATOR DUCT SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1600-1800 FPM AND A SUPPLY VELOCITY OF 1000 FPM. PLEASE CONSULT FACTORY FOR MAXIMUM ALLOWABLE DUCT SIZES

CALCULATIONS UTILIZED

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH

- NFPA #96
- ETL SANITATION
- E.T.L. LISTED 3054804-001
- ETL IS LISTED TO ULC STANDARDS
- NSF

NFPA®

Intertek

BUILDING CODES

Grease Cup will be supported by 2 studs on the inside wall of the hood The grease will drain through a concealed grease trough and into this removable cup.

1/2 Pint Grease Cup Detail

ND-2 HANGING ANGLE DETAIL

HANGING ANGLES WILL BE LOCATED IN THE FOLLOWING LOCATIONS FOR WALL CANOPIES

HOOD STYLE		DIM FROM REAR	DIM FROM FRONT (24" High Hood)	DIM FROM FRONT (30" High Hood)
Wall	Exhaust Only	4.166"	2.25"	2.25"
	With MUA		2.25"	2.25"
Back Shelf	Exhaust Only	4.166"	2.25"	2.25"
	With MUA		2.25"	2.25"
Condensate		2.25"	2.25"	

HANGING ANGLE LOCATIONS

FOR QUESTIONS, CALL THE
Utah Office
REGION 87
PHONE: (801) 878 - 3677
EMAIL: reg87@captiveaire.com

PATENT NUMBERS

EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2520435 C.

HOOD INFORMATION - JOB#6744566

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1		6024 ND-2	CAPTIVEAIRE	12' 5"	600 DEG	I	HEAVY	175	2173			4"	16"	2173	1556	-0.653"	430 SS WHERE EXPOSED	ALONE	ALONE
2		6024 ND-2	CAPTIVEAIRE	12' 5"	600 DEG	I	HEAVY	175	2173			4"	16"	2173	1556	-0.653"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1		CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO	RIGHT	12"x60"x24"	TANK FS	4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	931 LBS
2		CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO	LEFT	12"x60"x24"	TANK FS	4.0/4.0			YES	903 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		LEFT END STANDOFF (FINISHED) 1" WIDE 60" LONG INSULATED.
		RISER SENSOR INSTALL 6IN PLEN.
		RIGHT WIDE VERTICAL END PANEL 42" TOP WIDTH, 36" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		LEFT WALL AS END PANEL.
2		RIGHT END STANDOFF (FINISHED) 1" WIDE 60" LONG INSULATED.
		STRUCTURAL FRONT PANEL.
		RISER SENSOR INSTALL 6IN PLEN.
		LEFT WIDE VERTICAL END PANEL 42" TOP WIDTH, 36" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		RIGHT WALL AS END PANEL.

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVE-AIRE

Utah Office
2698 S. Redwood Rd., Suite S, West Valley, UT. 84119 PHONE: (801) 878 - 3677 FAX: 9192275953 EMAIL: reg87@captiveaire.com
www.captiveaire.com

Steamboat Springs Restaurant TI
Steamboat Springs, CO, 80477

DATE: 6/12/2024

DWG.#: 6744566

DRAWN BY: EH

SCALE: 3/4" = 1'-0"

MASTER DRAWING

THE RICHARDSON DESIGN PARTNERSHIP, L.L.C.
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COLORADO LICENSED
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10/07/2024
CONSULTANT

SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056
OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

#	ISSUE DATE	DESCRIPTION
	06/17/2024	
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

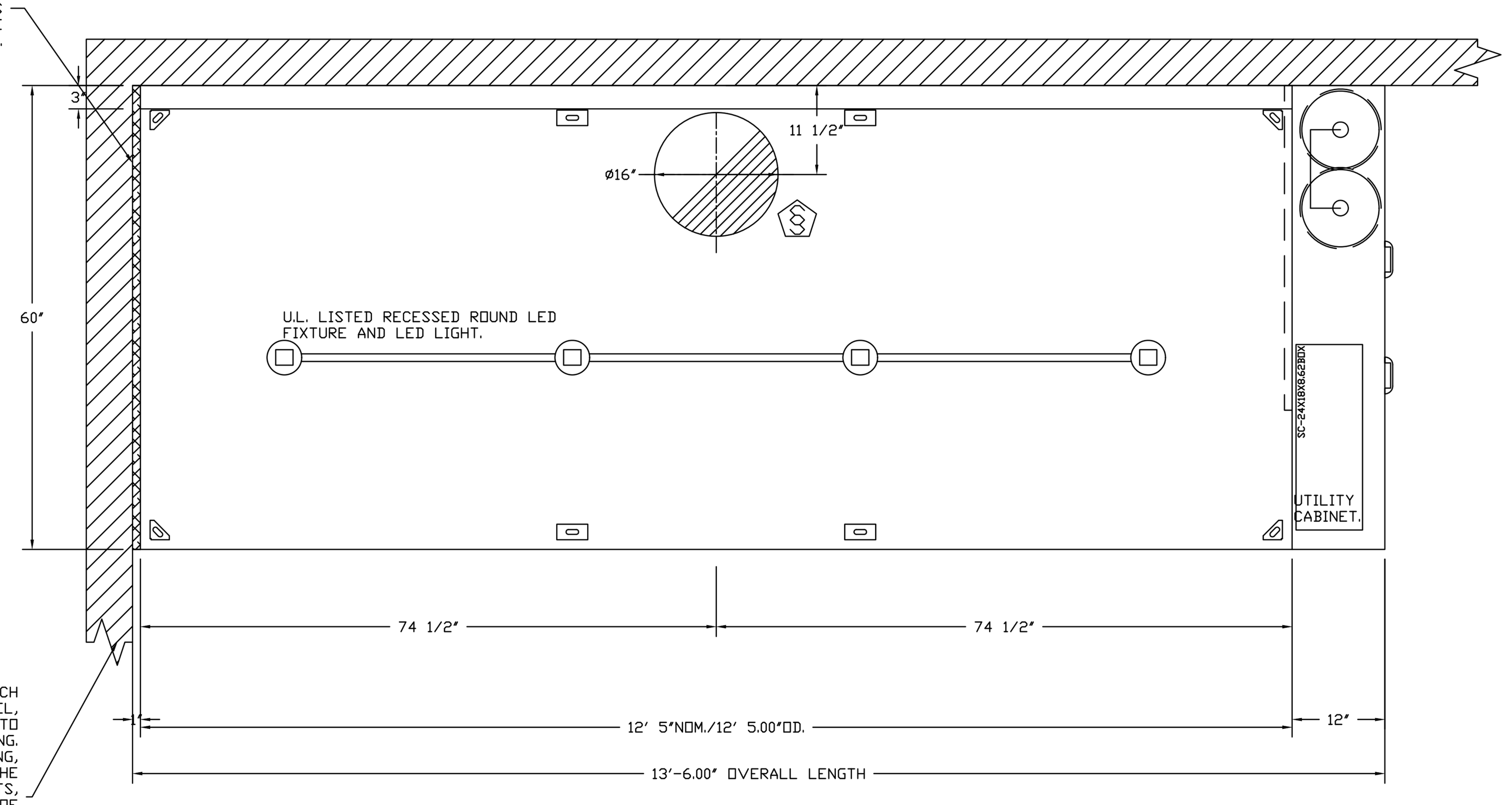
MECHANICAL KITCHEN EQUIPMENT

PROJECT #: 20170
DRAWN BY: DFT
CHECKED BY: SSJ

SHEET #
RME503

9/9/2024 2:10:47 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/220357-Steamboat Springs Restaurant.rvt

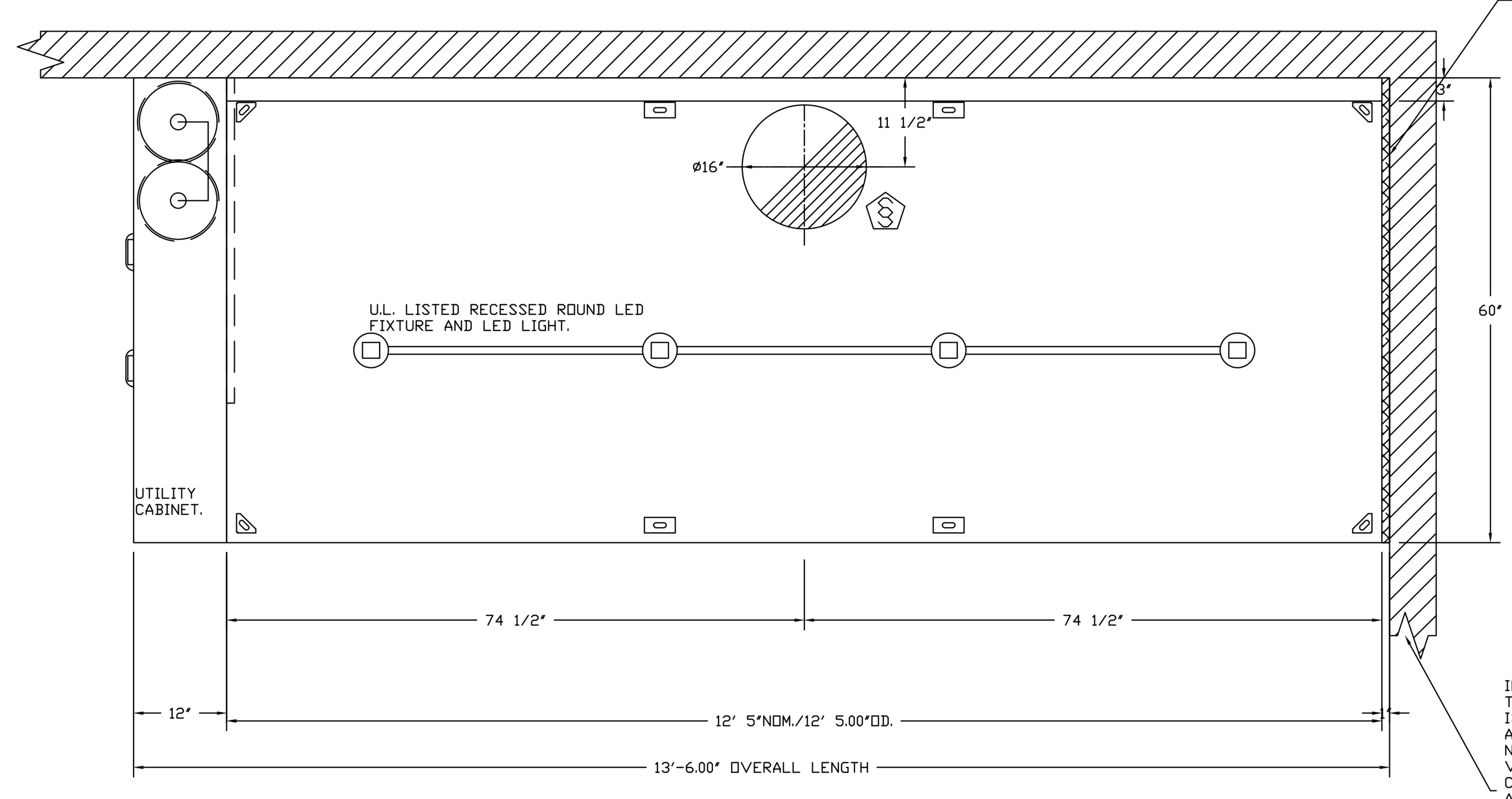
1" LAYER OF INSULATION FACTORY INSTALLED IN 1.00" END STANDOFF MEETS 0" REQUIREMENTS CLEARANCE TO COMBUSTIBLE SURFACES.



INSTALLER MUST CONFIRM HOOD IS INSTALLED SUCH THAT THE SPECIFIED WALL, ACTING AS AN END PANEL, IS MATED TIGHT TO THE CORRECT END OF HOOD TO ACHIEVE A REDUCED MINIMUM EXHAUST CFM LISTING. NON-COMPLIANCE WILL NULLIFY THE ETL LISTING, VOID THE MANUFACTURER'S WARRANTY, AND HOLD THE CONTRACTOR LIABLE FOR ANY AND ALL LOSSES, COSTS, AND EXPENSES RELATED TO THE NON-CONFORMANCE OF THE MANUFACTURER'S SPECIFIED INSTRUCTION. THE WALL ACTING AS AN END PANEL MUST EXTEND NO LESS THAN 20" FROM THE INTERSECTING WALL ON WHICH HOOD IS MOUNTED AND MUST EXTEND NO LESS THAN 20" UNDER BOTTOM OF HOOD TO BE ELIGIBLE FOR REDUCED MINIMUM EXHAUST CFM LISTING.

PLAN VIEW – HOOD #1
12' 5.00" LONG 6024ND-2
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

1" LAYER OF INSULATION FACTORY INSTALLED IN 1.00" END STANDOFF MEETS 0" REQUIREMENTS CLEARANCE TO COMBUSTIBLE SURFACES.



PLAN VIEW – HOOD #2
12' 5.00" LONG 6024ND-2
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

INSTALLER MUST CONFIRM HOOD IS INSTALLED SUCH THAT THE SPECIFIED WALL, ACTING AS AN END PANEL, IS MATED TIGHT TO THE CORRECT END OF HOOD TO ACHIEVE A REDUCED MINIMUM EXHAUST CFM LISTING. NON-COMPLIANCE WILL NULLIFY THE ETL LISTING, VOID THE MANUFACTURER'S WARRANTY, AND HOLD THE CONTRACTOR LIABLE FOR ANY AND ALL LOSSES, COSTS, AND EXPENSES RELATED TO THE NON-CONFORMANCE OF THE MANUFACTURER'S SPECIFIED INSTRUCTION. THE WALL ACTING AS AN END PANEL MUST EXTEND NO LESS THAN 20" FROM THE INTERSECTING WALL ON WHICH HOOD IS MOUNTED AND MUST EXTEND NO LESS THAN 20" UNDER BOTTOM OF HOOD TO BE ELIGIBLE FOR REDUCED MINIMUM EXHAUST CFM LISTING.

REVISIONS

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CAPTIVEAIRE
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Utah Office
2698 S. Redwood Rd., Suite S, West Valley, UT, 84119 PHONE: (801) 878 - 3677 FAX: 9192275953 EMAIL: reg87@captiveaire.com

Steamboat Springs Restaurant TI
Steamboat Springs, CO, 80477

DATE: 6/12/2024
DWG.#: 6744566
DRAWN BY: EH
SCALE: 3/4" = 1'-0"
MASTER DRAWING

THE RICHARDSON DESIGN PARTNERSHIP, L.L.C.
510 South 600 East
Salt Lake City, Utah 84102
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COLORADO LICENSED BENJAMIN J. SCHLUP 47199 9-09-2024 PROFESSIONAL ENGINEER

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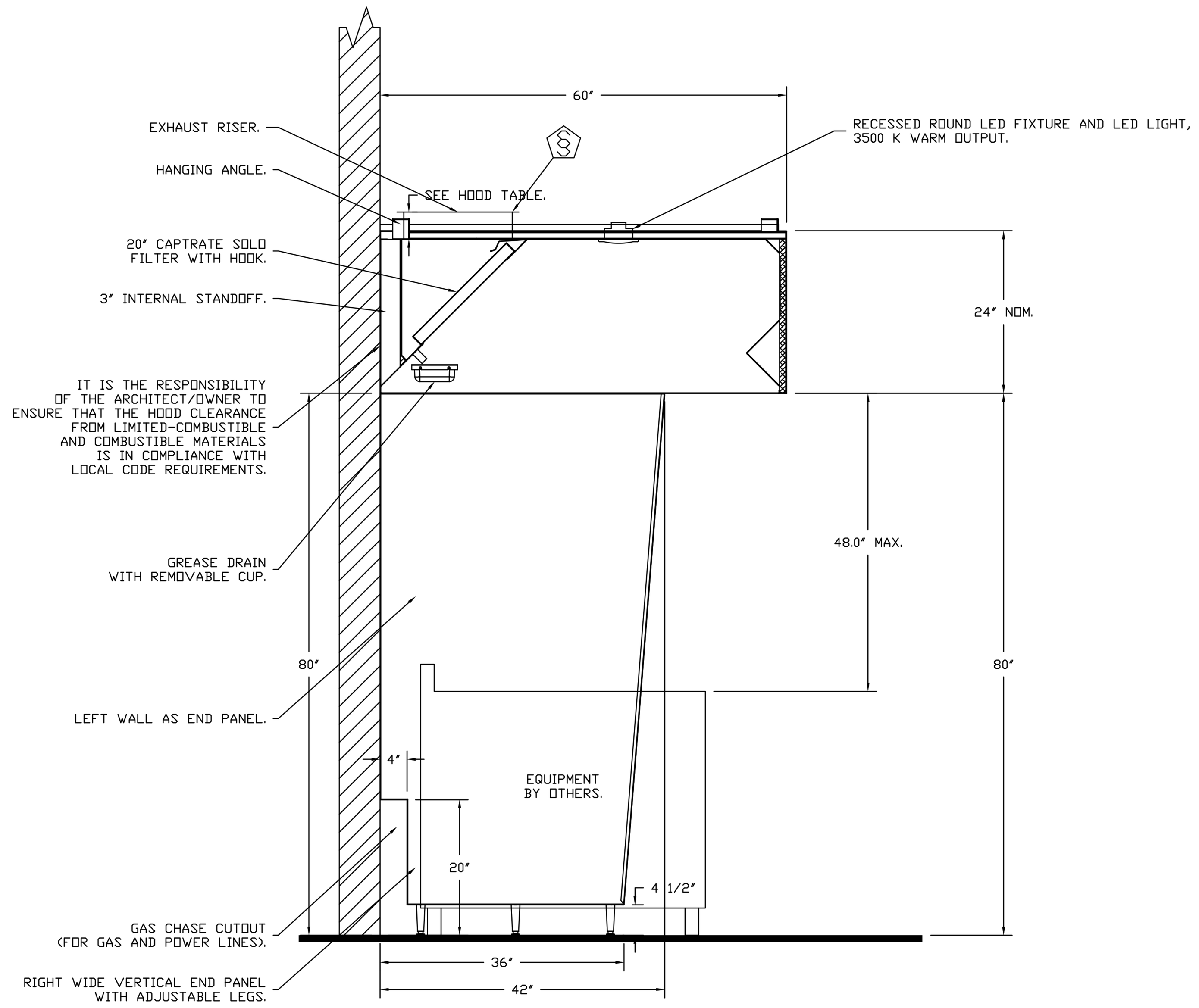
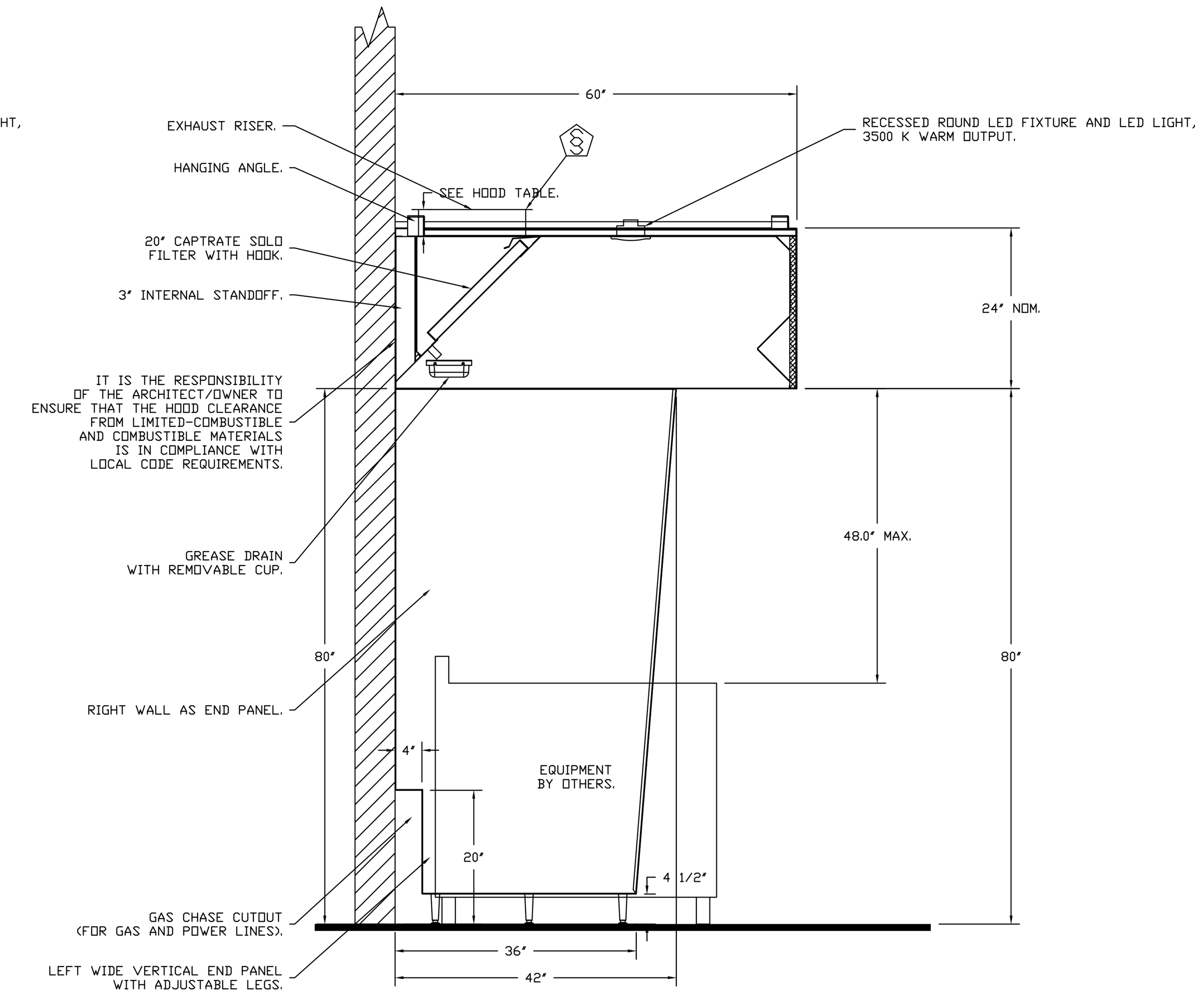


SECTION VIEW – MODEL 6024ND-2
HOOD – #1



SECTION VIEW – MODEL 6024ND-2
HOOD – #2

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SECTION VIEW – MODEL 6024ND-2
HOOD – #2

SECTION VIEW – MODEL 6024ND-2
HOOD – #1

	GAS VALVES AND STRAINERS																
	GAS VALVE SIZING							GAS VALVE DIMENSIONS						INSTALLATION	PART NUMBERS		
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1→	ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	2,940,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-16"	15-5/8"	13-15/16"	HORIZONTAL	8214280	4417K68	(SC)EGVA2

ELECTRIC GAS VALVES ONLY:
3/4"-2" 120VAC GAS VALVES CAN BE MOUNTED WITH THE SOLENOID IN ANY POSITION ABOVE HORIZONTAL.
2 1/2"-3" 120VAC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.
24VDC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$.

NOTES
- FIELD PIPE DROPS AS SHOWN PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 6744566.
JOB NAME: STEAMBOAT SPRINGS RESTAURANT TI.

SYSTEM SIZE: TANK-SP-2 WITH REMOTE TANK-SP-2 DESIGN FP: 64. MAXIMUM FP: 80.
HOOD # 1 12' 5.00" LONG x 60" WIDE x 24" HIGH.
RISER # 1 SIZE: 16" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 12' 5.00" LONG x 60" WIDE x 24" HIGH.
RISER # 1 SIZE: 16" DIA.
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND – FIRE CABINET TANK SYSTEM

1	4 GALLON TANK.
2	PRIMARY ACTUATOR RELEASE.
3	SECONDARY ACTUATOR RELEASE.
4	PRESSURE SUPERVISION SWITCH.
5	PRIMARY HOSE ASSEMBLY.
6	SECONDARY HOSE ASSEMBLY.
7	REMOTE MANUAL ACTUATION DEVICE.

FIRE SYSTEM INFORMATION – JOB#6744566

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0	40	64	FIRE CABINET RIGHT	RIGHT, HOOD 1
			4.0/4.0	40		FIRE CABINET LEFT	LEFT, HOOD 2

GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	CAPTIVEAIRE SYSTEMS

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F. (A0034310).	2	0
		0 - 0 - 32-00002 QUIK SEAL - 1/2" (UL).	2	0
		0 - 0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	4	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	2	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	4	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	4	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	16	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	12	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	12	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	8	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	2	0
		0 - 0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	2	0
		0 - 0 - BI145 3/8" BLACK IRON 90 ELL.	6	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - SLPCON-03FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 2' GAP. KIT CONTAINS 5 FEET OF BLACK MG WIRE, 5 FEET OF TAN MG WIRE, 3 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 - 0 - SLPCON-15FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 14' GAP OR BACK TO BACK HOODS. KIT CONTAINS 17 FEET OF BLACK MG WIRE, 17 FEET OF TAN MG WIRE, 15 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	2	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	12	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	4	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	14	0
		16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	14	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	14	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	2	0

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BUILT IN ACCORDANCE WITH NFPA No. 96
Intertek

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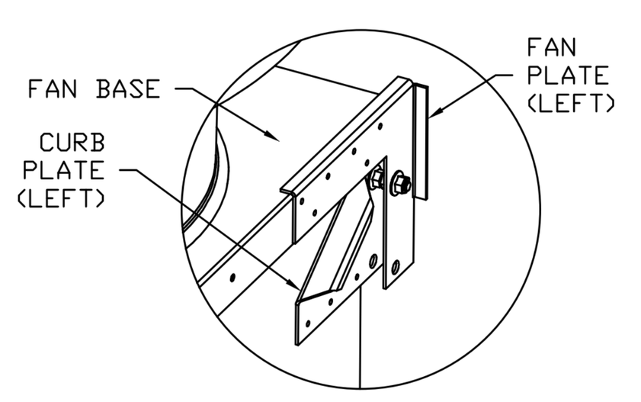
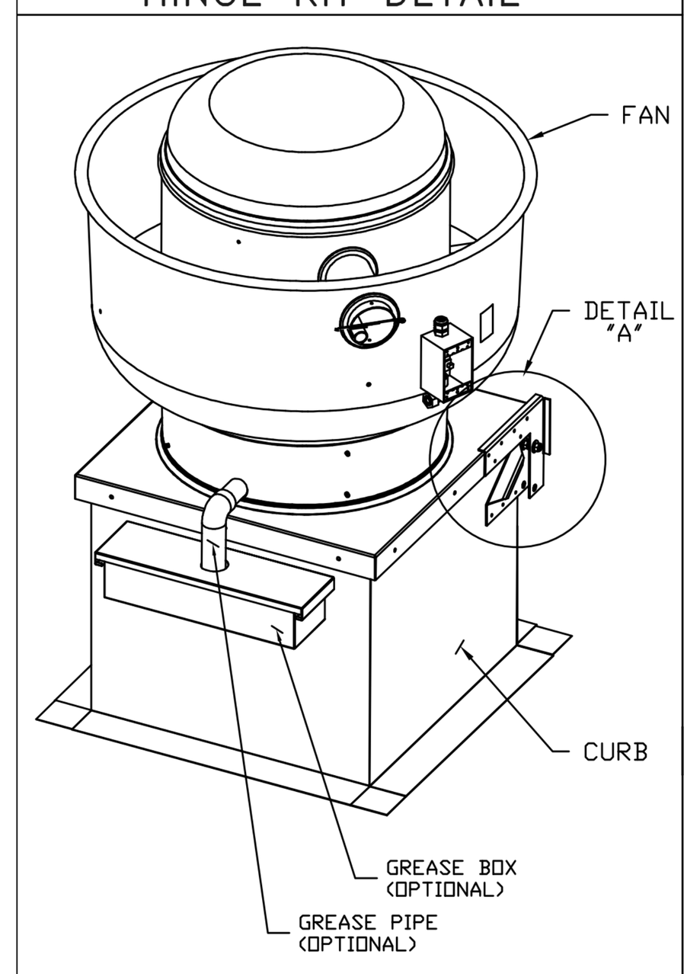
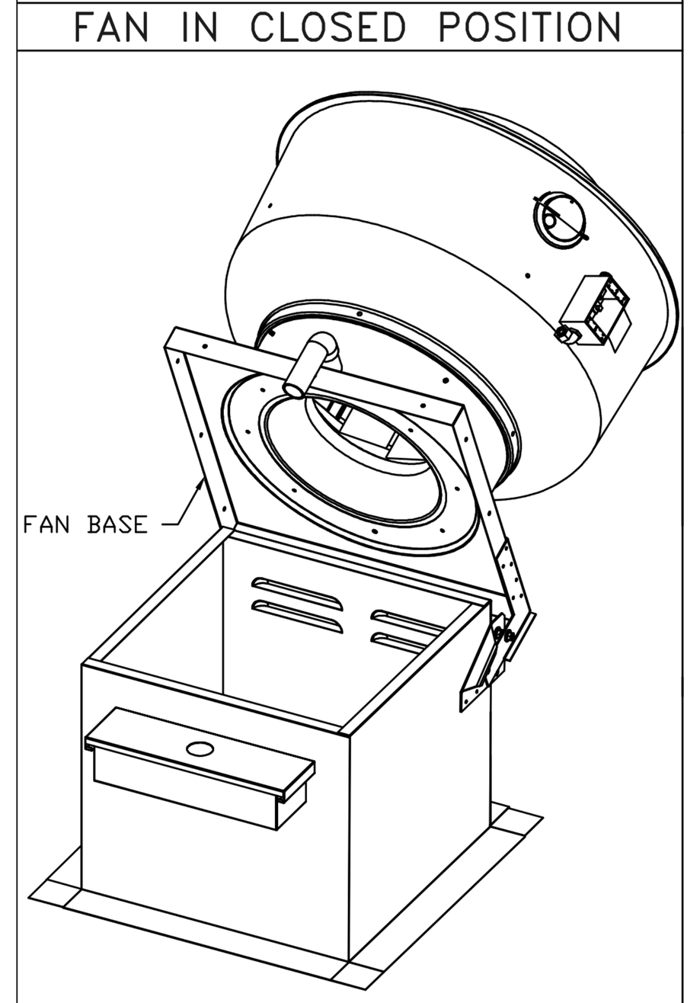


HINGE KIT DETAIL

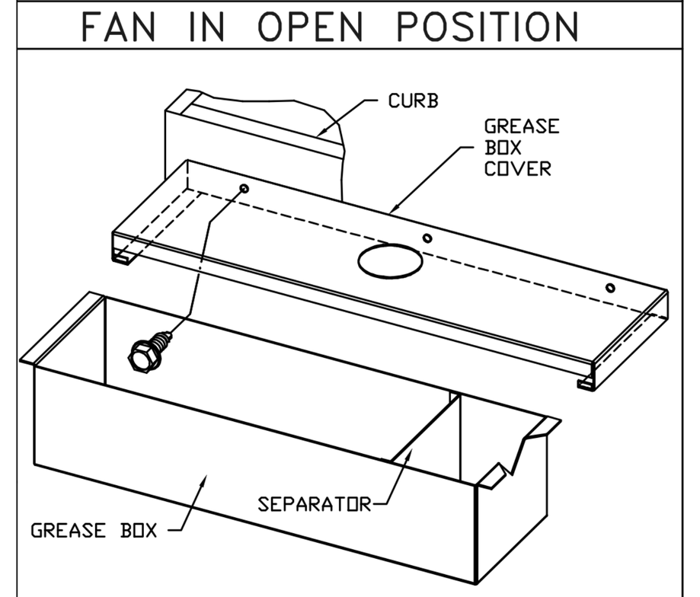


FAN IN CLOSED POSITION



ATTENTION: INSTALLER SHOULD SUPPLY ENOUGH ELECTRICAL CORD TO LET FAN MAKE COMPLETE SWING.

FAN IN OPEN POSITION



ATTACH GREASE BOX COVER TO THE CURB 3" BELOW TOP EDGE OF CURB.
USING (3) LONG (3/4" LG.) SCREWS AS SHOWN.
INSTALL GREASE PIPE AS SHOWN.

GREASE PIPE

GREASE BOX INSTALLATION

1. A PRE-WIRED ELECTRICAL CONTROL PACKAGE SHALL BE PROVIDED TO OPERATE THE HOOD LIGHTS AND FANS.
2. PACKAGE SHALL CONSIST OF SWITCH PANEL WITH LIGHT SWITHCH(ES) AND RED-LIGHTED FAN SWITCH(ES), STARTER/OVERLOAD ASSEMBLY FOR EACH FAN(OPTIONAL), NUMBERED INPUT/OUTPUT TERMINAL STRIPS, AND A TERMINAL FOR DOUBLE-DUAL FIRE SYSTEM MICROSWITCH CONNECTION.
3. ONE RELAY IS WIRED TO MICROSWITCH (IN FIRE SYSTEM) FOR SUPPLY FAN SHUTDOWN AND OTHER RELAY FOR ADDITIONAL FIRE SYSTEM ACTIVATED DRY CONTACTS.
4. ELECTRICAL CONDUIT DROPS FROM THE FAN(S) SHALL BE CONNECTED TO THE NUMBERED TERMINAL STRIP. CONDUIT BETWEEN THE PRE-WIRE PACKAGE AND FAN(S) SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR.

ELECTRICAL PACKAGE NOTES

EXHAUST FAN INFORMATION – JOB#6744566

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	EF-1R	1	DU240HFA	CAPTIVEAIRE	4346	2.000	1126	ODP,PREMIUM	5.000	3.0180	3	208	15.2	988 FPM	358	28.3
3	DISH EF-2R	1	USBI11DD-RM	CAPTIVEAIRE	600	0.500	1255	TEAO-ECM	0.500	0.0990	1	115	6.3	640 FPM	192	5.8

**INTERLOCK CONDENSATE EXHAUST FAN (EF-2R - DISH) WITH DISHWASHER OPERATION. EXHAUST FAN TO TURN ON AND REMAIN ON WHILE DISHWASHER IS IN OPERATION. PROVIDE 5 MINUTE RUN TIME DELAY

DOAS/RTU FAN SCHEDULE – JOB#6744566

FAN UNIT NO	TAG	QTY	FAN INFORMATION: DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	ELECTRICAL INFORMATION: HP	PHASE	VOLT	MCA	MOCP	COOLING INFORMATION: OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	LEAVING AIR DP	CAPACITY TOTAL	CAPACITY SENS.	IEER	ISMRE	REHEAT INFORMATION: DISCHARGE DB	DISCHARGE WB	CAPACITY DESIRED	CAPACITY MAX	MOISTURE REMOVAL RATE	GAS HEAT INFORMATION: GAS TYPE	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	NOTES
2	KMAU	1	CAS-HVAC3-I.500-24-12.5T	CAPTIVEAIRE	24MF-3-RTU	611	5046	5657	2434	1.000	5.00	3	208	69.8A	80A	84.0°F	55.0°F	82.6°F	56.2°F	51.2°F	44.4°F	38.9°F	154.0 MBH	154.0 MBH	21.3	4.1	90.0°F	58.7°F	190.6 MBH	0.4 MBH	0 LBS/HR	NATURAL	391040	316742	60°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15

NOTES:
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 15:1 TURNDOWN WITH NG AND 12:1 TURNDOWN WITH LP
12. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FULLY MODULATING HOT GAS REHEAT
14. 15 DEGREE LOW AMBIENT OPERATION
15. SIDE DISCHARGE/SIDE RETURN

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-1R	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR240HFA - SHIP LOOSE - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
2	KMAU	1	INLET PRESSURE GAUGE, 0-35"
		1	TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	SPECIAL ORIFICES FOR IF HEATERS ABOVE 2,000'
		1	12.5 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	OCCUPIED SCHEDULING
		1	RTU3 CURB DUCT HANGER
		1	24VAC FIRE INPUT
		1	DUCT MOUNTED SMOKE DETECTOR - SHIPS LOOSE
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	RTU3 SIDE RETURN
		1	RTU3 SIDE DISCHARGE
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		1	CONTROL PANEL ENCLOSURE HEATER 100W - RECOMMENDED FOR WINTER DESIGN TEMPERATURES LESS THAN 0°F
		1	RTU HEATED FURNACE CONDENSATE DRAIN KIT. REQUIRED FOR WINTER DESIGN TEMP OF 0 DEGREES F AND LOWER
		1	HIGH TURNDOWN OPTION FOR DOAS UNITS
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES
		1	UNIT MOUNTED VFD CONFIGURED FOR DCV
		1	IBT ONLY REHEAT
		1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)
3	DISH EF-2R	1	BI11 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 12" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	BI11 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	BI11 - INLET CONNECTION STANDARD 12" FLANGED GREASE DUCT
		1	ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCW ROTATION
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - BI11 THRU BI15 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE
		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST: GREASE CUP	EXHAUST: GRAVITY DAMPER	EXHAUST: WALL MOUNT	SUPPLY: SIDE DISCHARGE	SUPPLY: GRAVITY DAMPER	SUPPLY: MOTORIZED DAMPER	SUPPLY: WALL MOUNT
1	EF-1R	YES						
3	DISH							

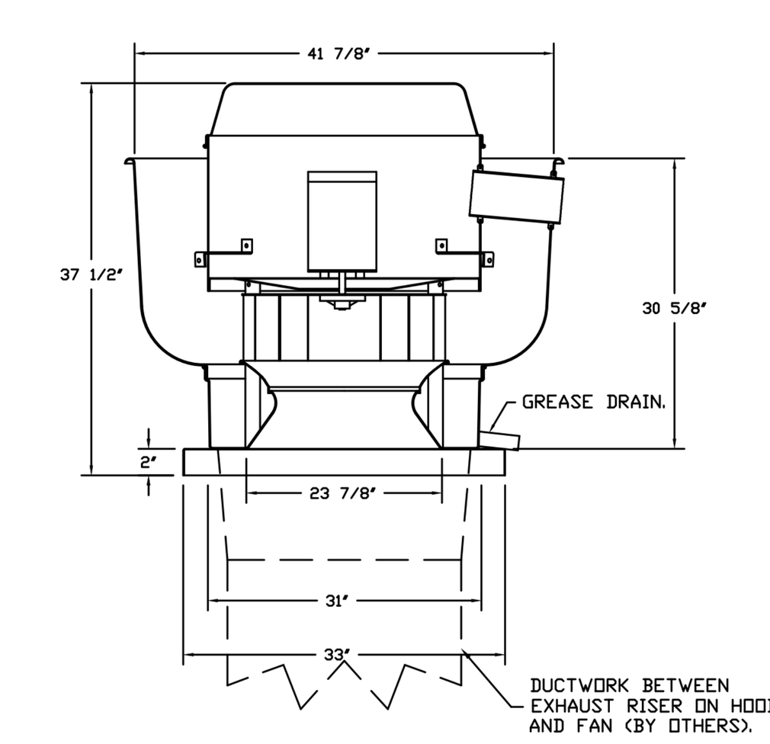
EF-2R

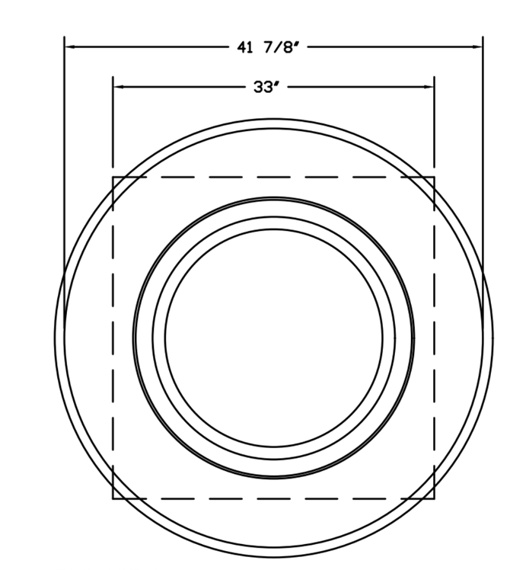
CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1		48 LBS	CURB	31.500"W X 31.500"L X 24.000"H VENTED HINGED.
2	# 2		130 LBS	CURB	59.500"W X 91.000"L X 20.000"H INSULATED.
3	# 3	DISH	36 LBS	RAIL	4.000"W X 36.000"L X 12.000"H COMES AS A SET OF 2.

HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #2	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #2	HMI #2 - SPACE HMI # 1		AVERAGED	56

FAN #1 DU240HFA – EXHAUST FAN





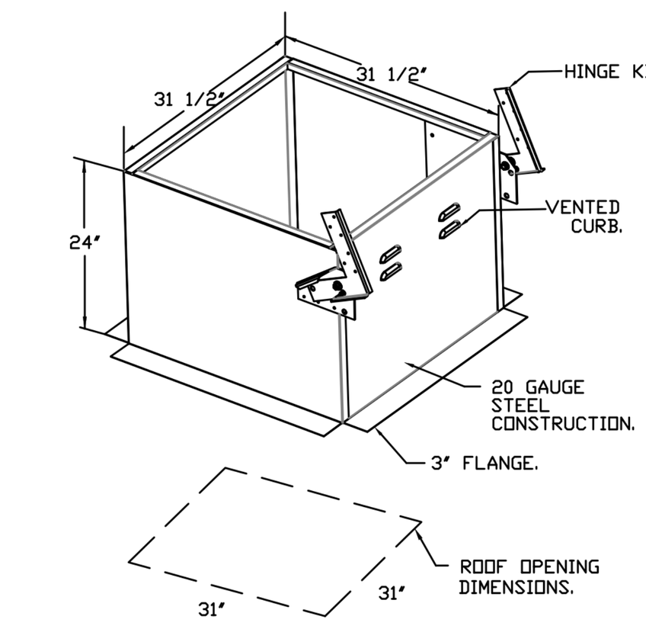
TOP VIEW

FEATURES:
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

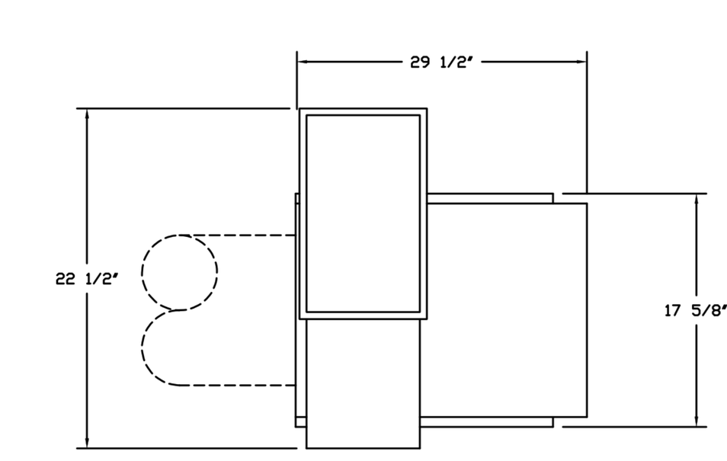
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS
- GREASE BOX.
- FAN BASE CERAMIC SEAL - DU/DR240HFA - SHIP LOOSE - FOR GREASE DUCTS.
- 2 YEAR PARTS WARRANTY.

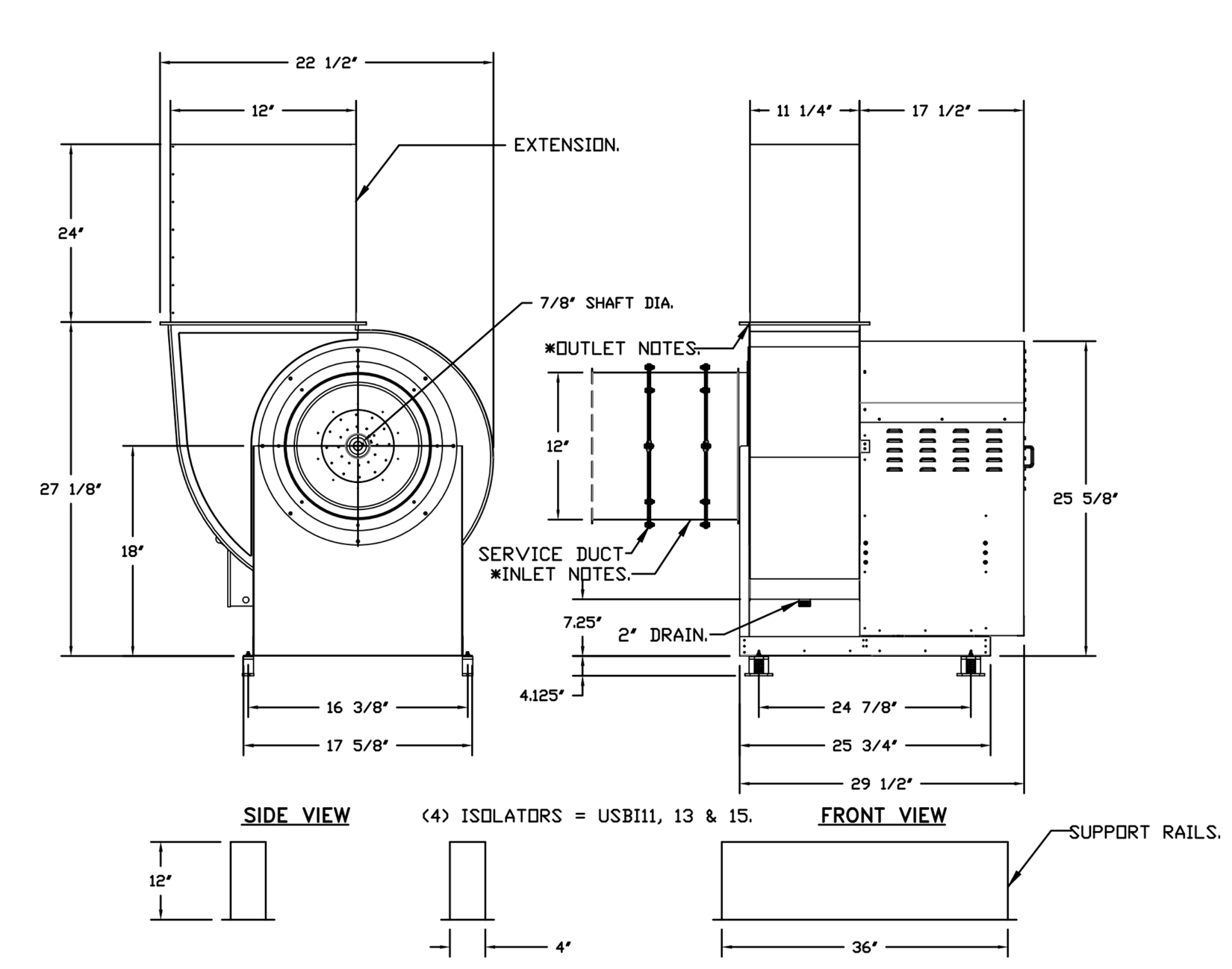


FAN #3 USBI11DD-RM – EXHAUST FAN (DISH)

(EF-2R)

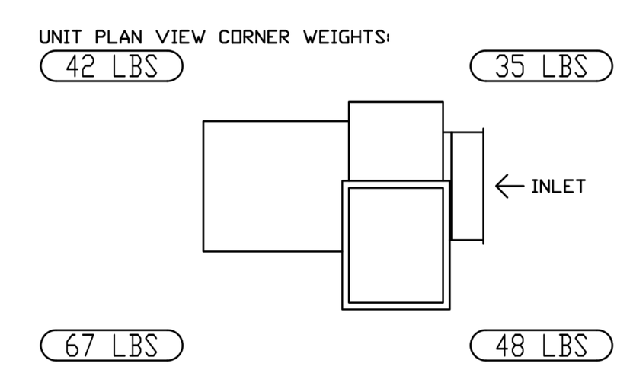


TOP VIEW



* INLET/OUTLET NOTES:
LENGTH OF THE STRAIGHT DUCT ON THE INLET AND OUTLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

UNIT PLAN VIEW CORNER WEIGHTS:



CORNER WEIGHTS ARE CALCULATED BASED ON VERTICAL DISCHARGE. SUPPORT DUCT PROPERLY BEFORE FAN TO ENSURE CORNER WEIGHTS ARE NOT AFFECTED.

NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 350°F (176°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

FEATURES:
- ROOF MOUNTED FANS.
- UL705.
- UL762 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

OPTIONS
- BI11 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 12" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER.
- BI11 - 24" DISCHARGE EXTENSION.
- BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- BI11 - INLET CONNECTION STANDARD 12" FLANGED GREASE DUCT.
- ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCW ROTATION.
- UTILITY SET - SPRING VIBRATION ISOLATORS - BI11 THRU BI15 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE.
- 2 YEAR PARTS WARRANTY.

REVISIONS

	DESCRIPTION	DATE
△		
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△		
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Steamboat Springs Restaurant TI
Steamboat Springs, CO, 80477

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SCALE: 1/2" = 1'-0"
MASTER DRAWING

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10/07/2024

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Steamboat Springs, CO
PROJECT:

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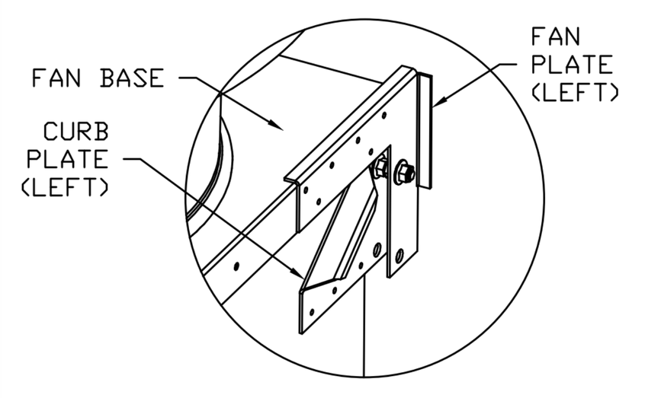
PERMIT SET

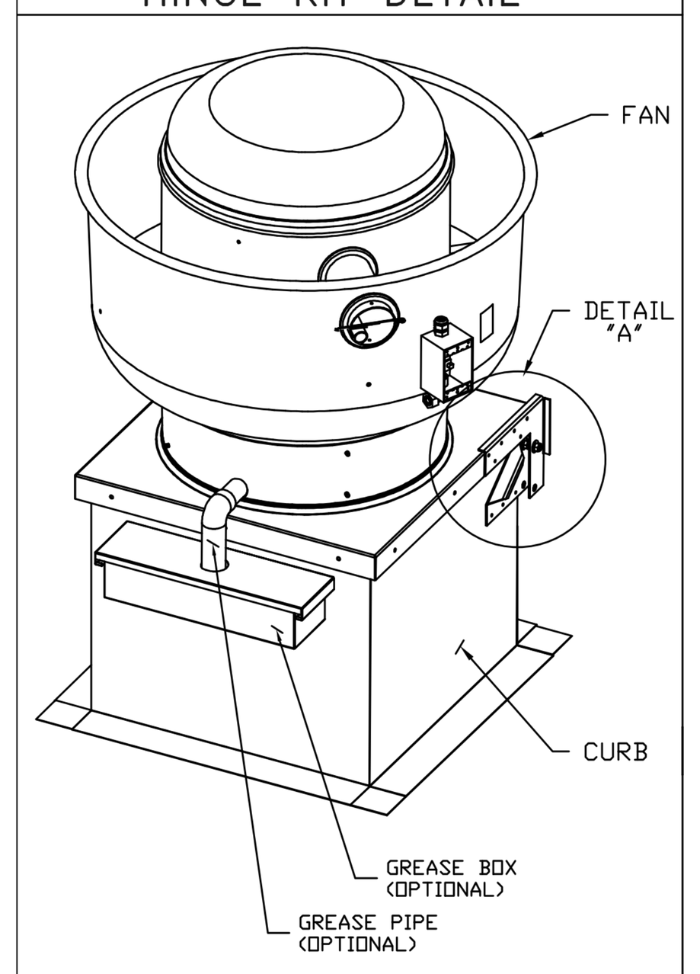
MECHANICAL KITCHEN EQUIPMENT

PROJECT #: 2210
DRAWN BY: SHT
CHECKED BY: SSJ

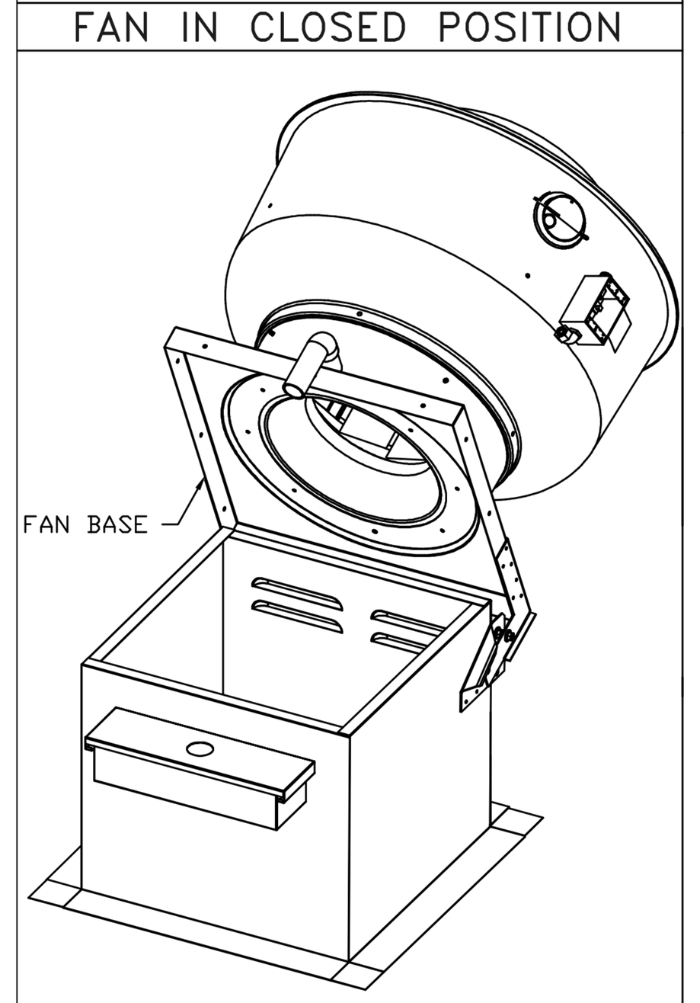
SHEET #: RME507



HINGE KIT DETAIL

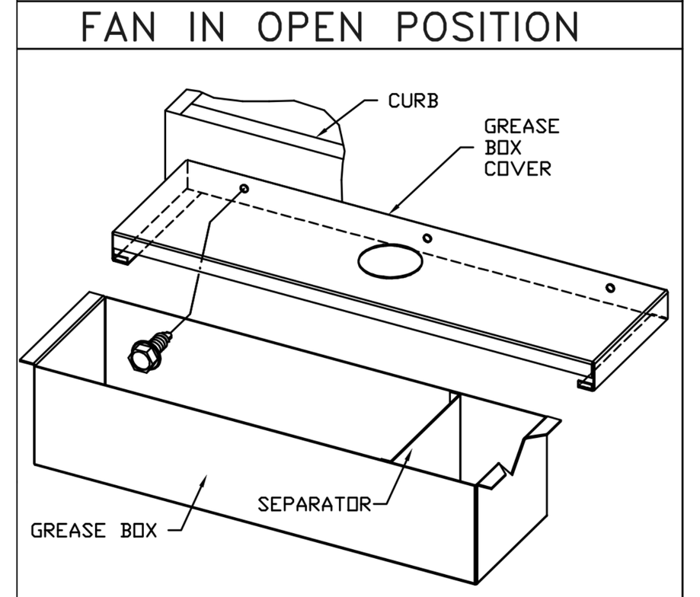


FAN IN CLOSED POSITION

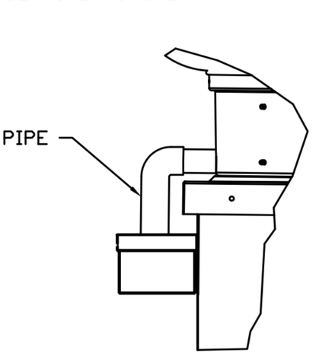


ATTENTION: INSTALLER SHOULD SUPPLY ENOUGH ELECTRICAL CORD TO LET FAN MAKE COMPLETE SWING.

FAN IN OPEN POSITION



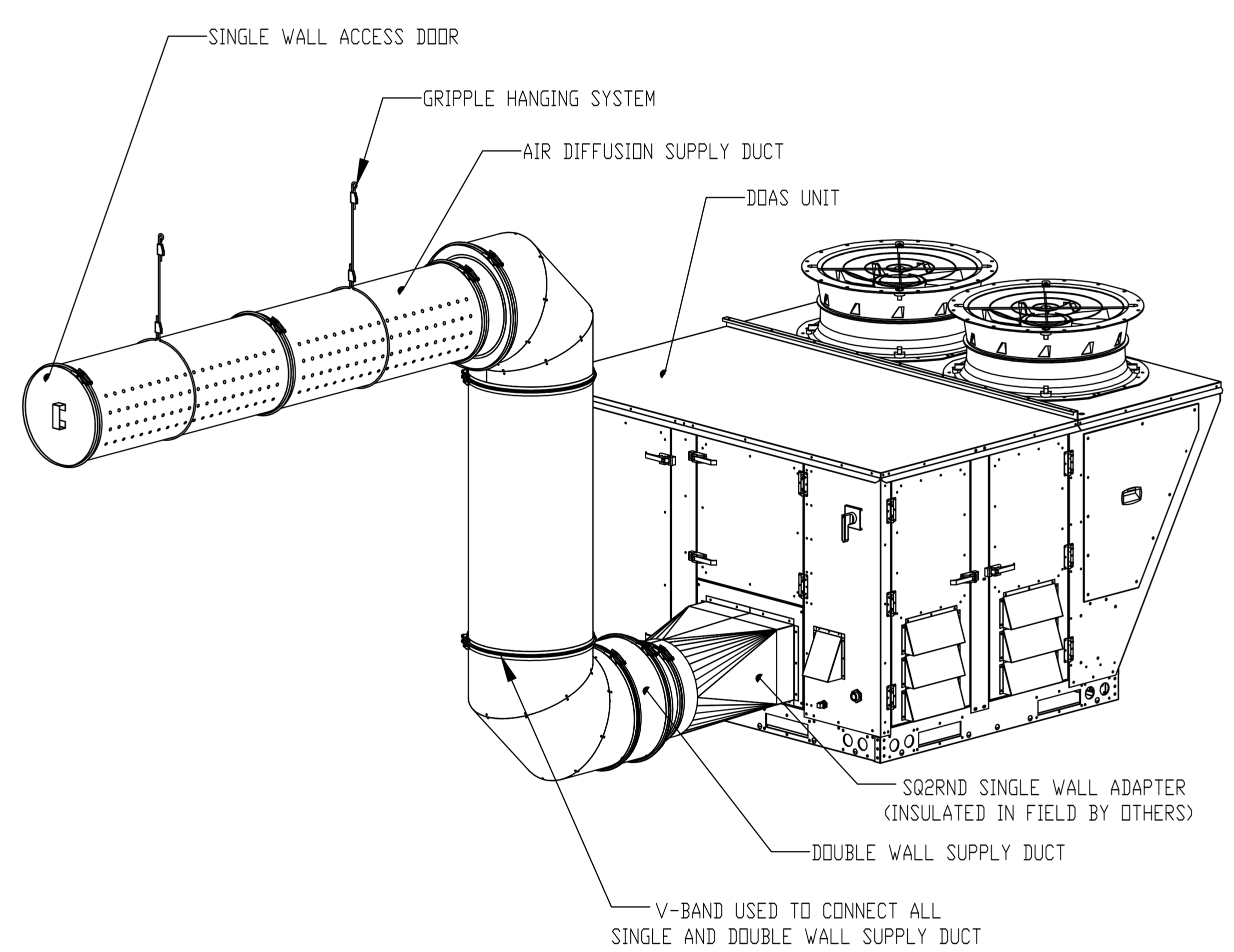
ATTACH GREASE BOX COVER TO THE CURB 3" BELOW TOP EDGE OF CURB.
USING (3) LONG (3/4" LG.) SCREWS AS SHOWN.
INSTALL GREASE PIPE AS SHOWN.

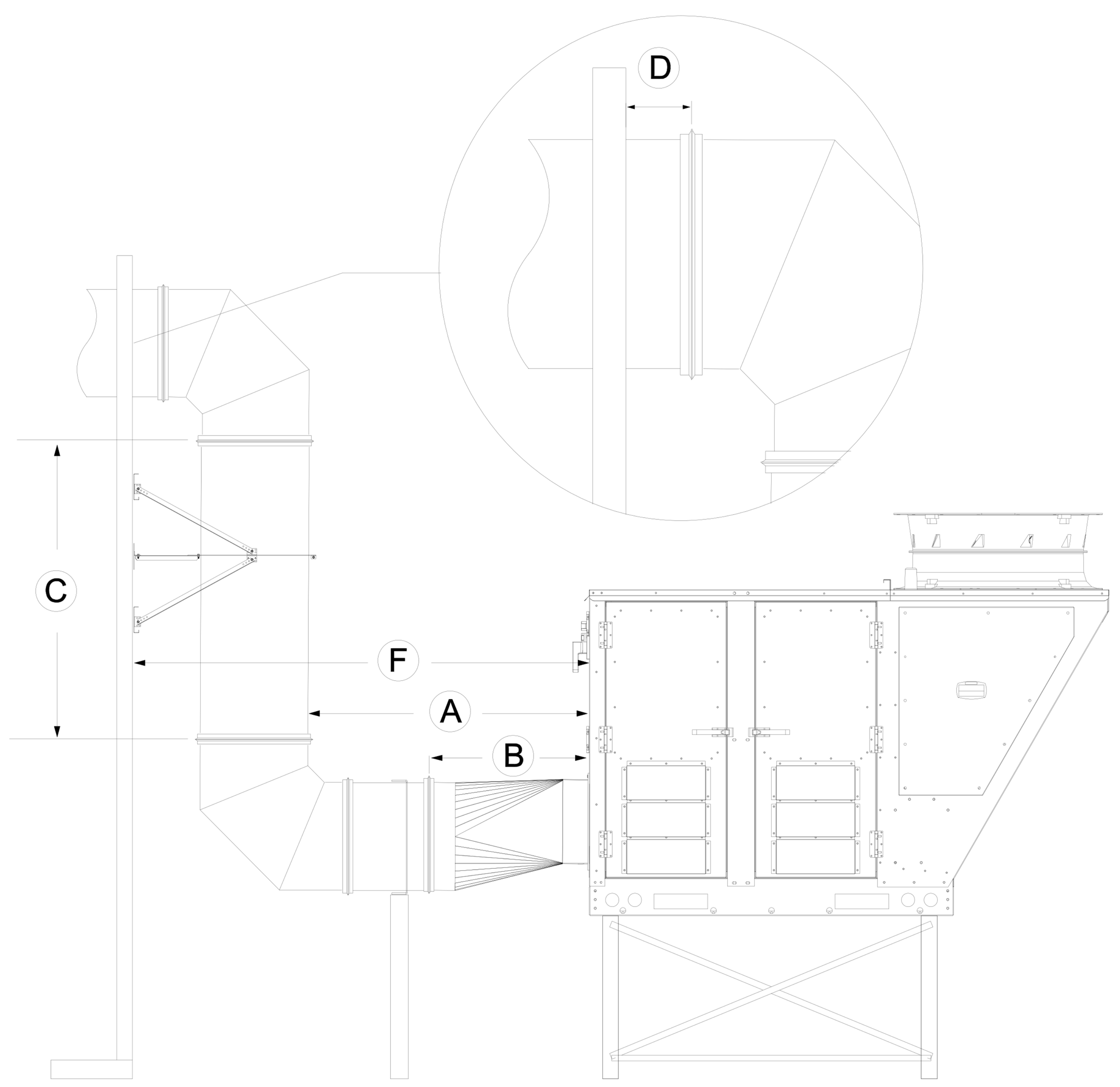


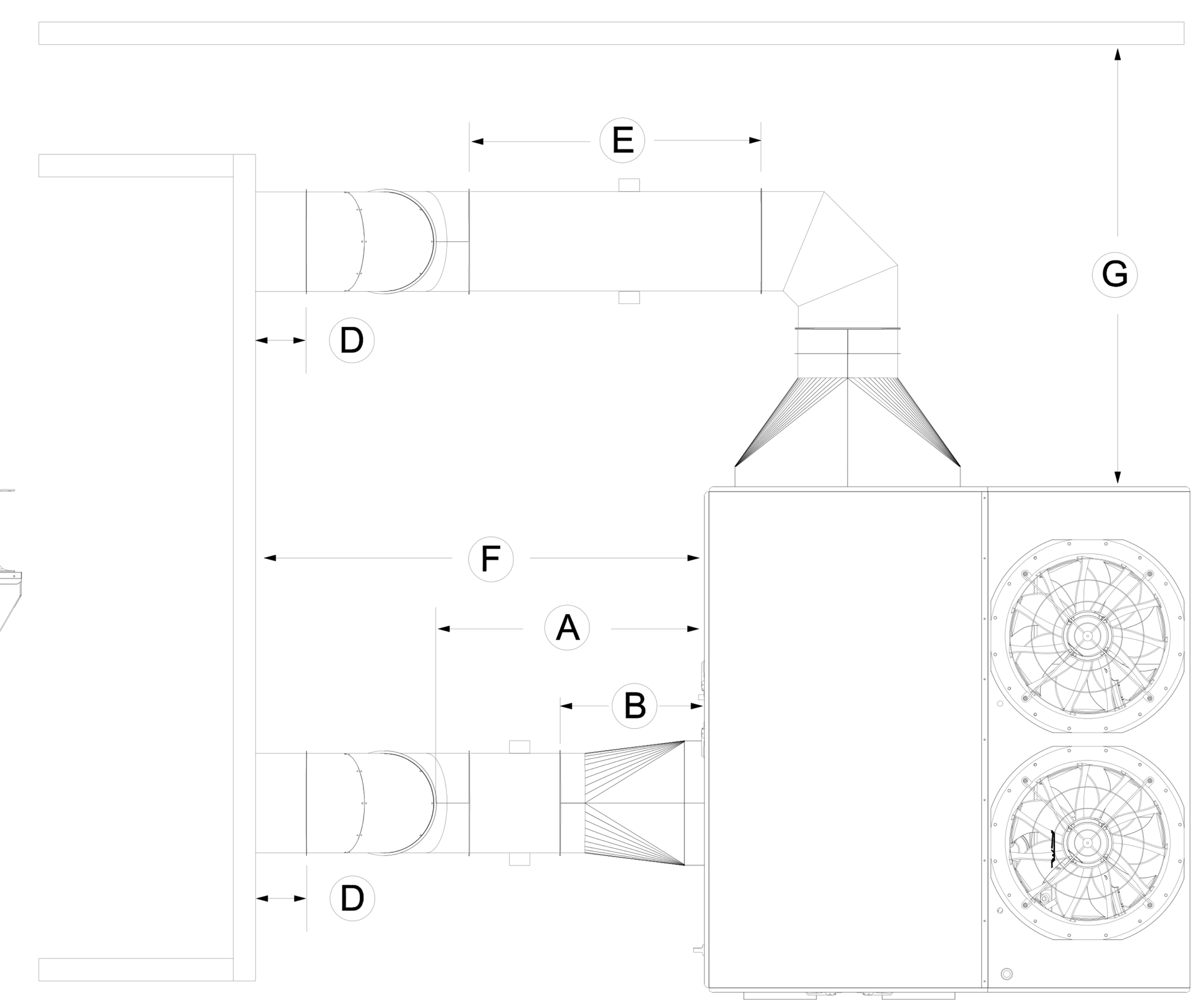
GREASE BOX INSTALLATION

1. A PRE-WIRED ELECTRICAL CONTROL PACKAGE SHALL BE PROVIDED TO OPERATE THE HOOD LIGHTS AND FANS.
2. PACKAGE SHALL CONSIST OF SWITCH PANEL WITH LIGHT SWITHCH(ES) AND RED-LIGHTED FAN SWITCH(ES), STARTER/OVERLOAD ASSEMBLY FOR EACH FAN(OPTIONAL), NUMBERED INPUT/OUTPUT TERMINAL STRIPS, AND A TERMINAL FOR DOUBLE-DUAL FIRE SYSTEM MICROSWITCH CONNECTION.
3. ONE RELAY IS WIRED TO MICROSWITCH (IN FIRE SYSTEM) FOR SUPPLY FAN SHUTDOWN AND OTHER RELAY FOR ADDITIONAL FIRE SYSTEM ACTIVATED DRY CONTACTS.
4. ELECTRICAL CONDUIT DROPS FROM THE FAN(S) SHALL BE CONNECTED TO THE NUMBERED TERMINAL STRIP. CONDUIT BETWEEN THE PRE-WIRE PACKAGE AND FAN(S) SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR.

ELECTRICAL PACKAGE NOTES







Side Discharge Requirements

Unit Size	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G
Size 3	2'-1 1/2"	2'-0"	10'-0"	0'-4"	15' SW / 8' DW	5'-10"	5'-10"

REVISIONS

DESCRIPTION	DATE:

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Steamboat Springs Restaurant TI
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SCALE: 1/2" = 1'-0"
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PERMIT SET

MECHANICAL KITCHEN EQUIPMENT

RME508

SHEET #

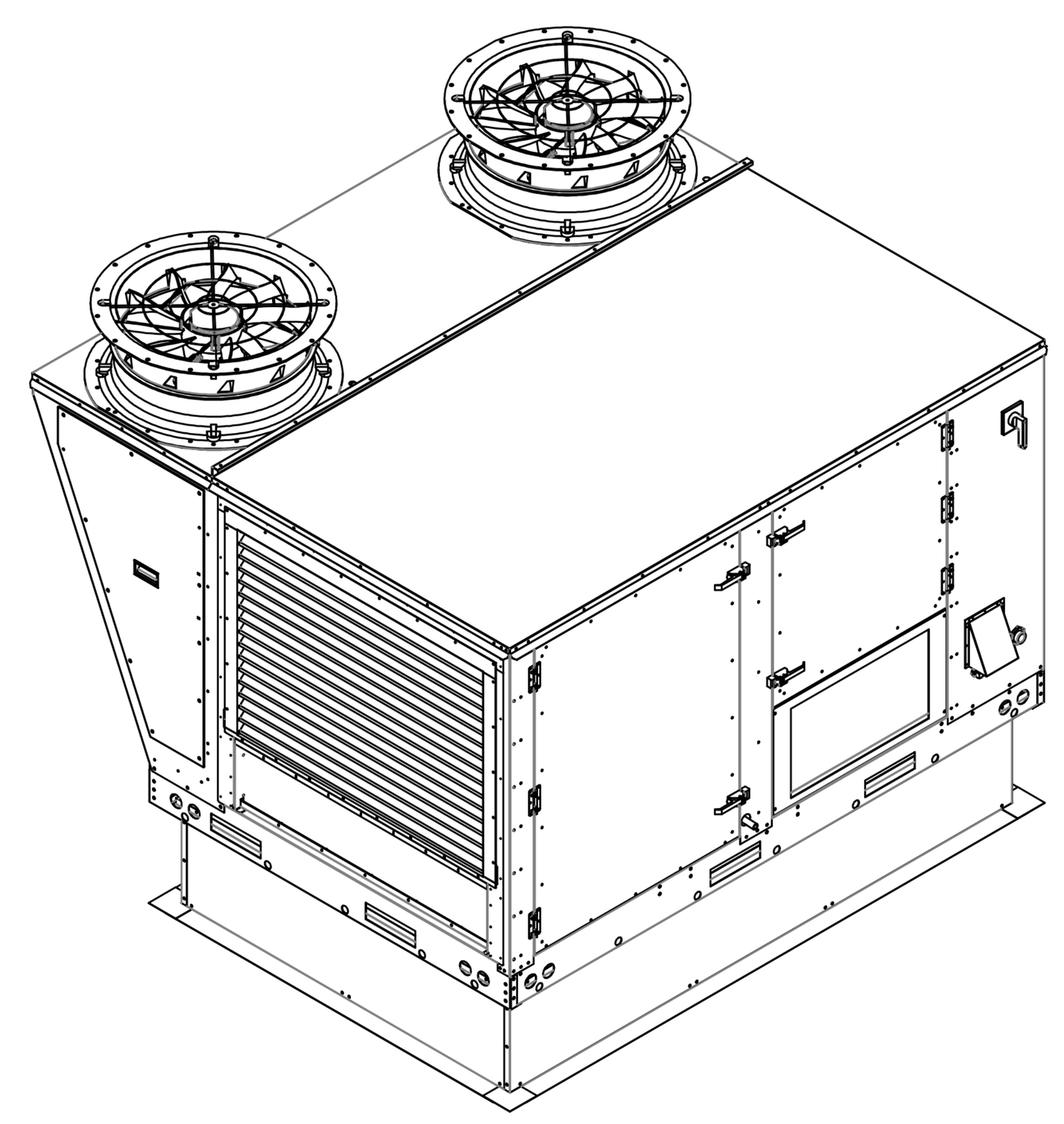
PROJECT #: 22170
DRAWN BY: SHT
CHECKED BY: SSJ

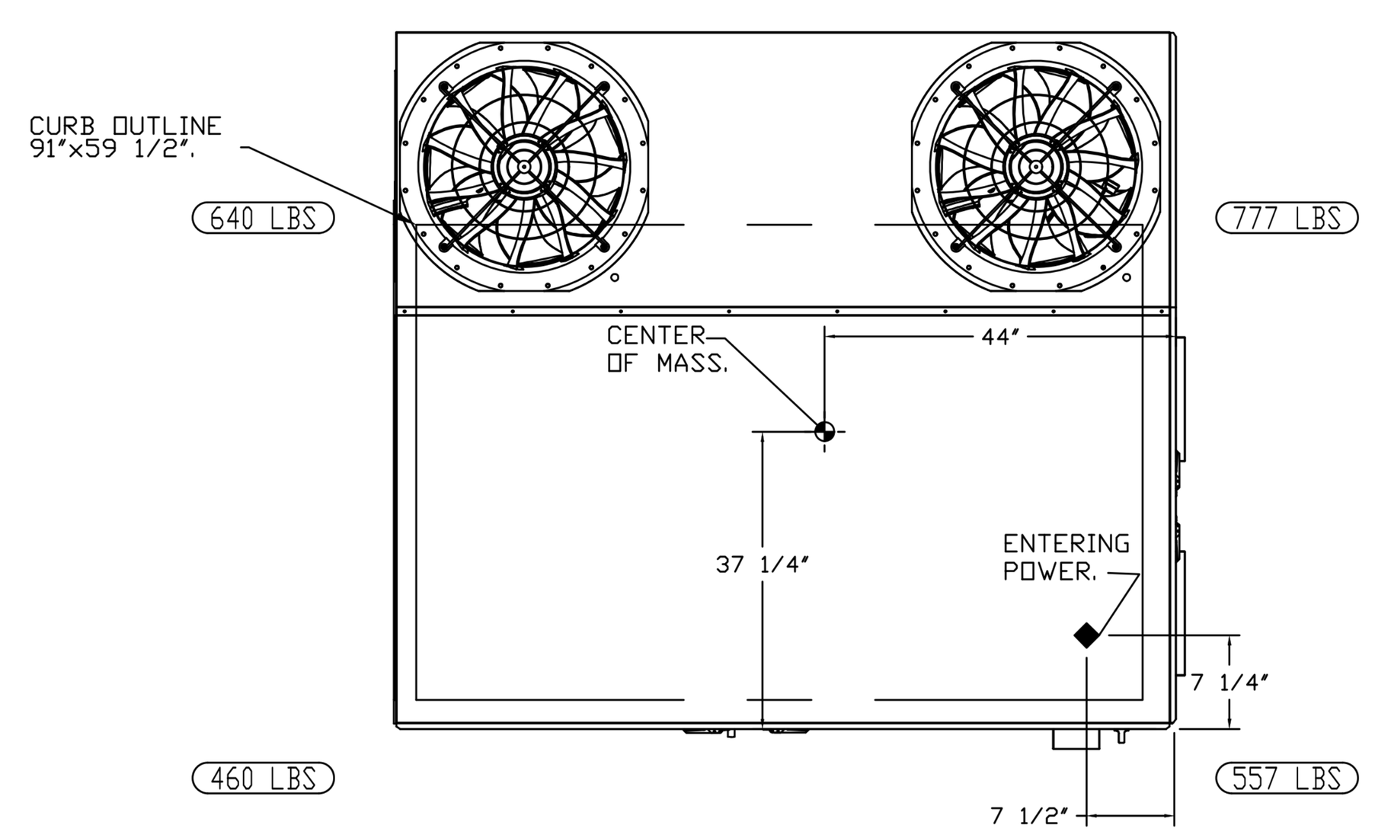
9/9/2024 2:10:51 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt

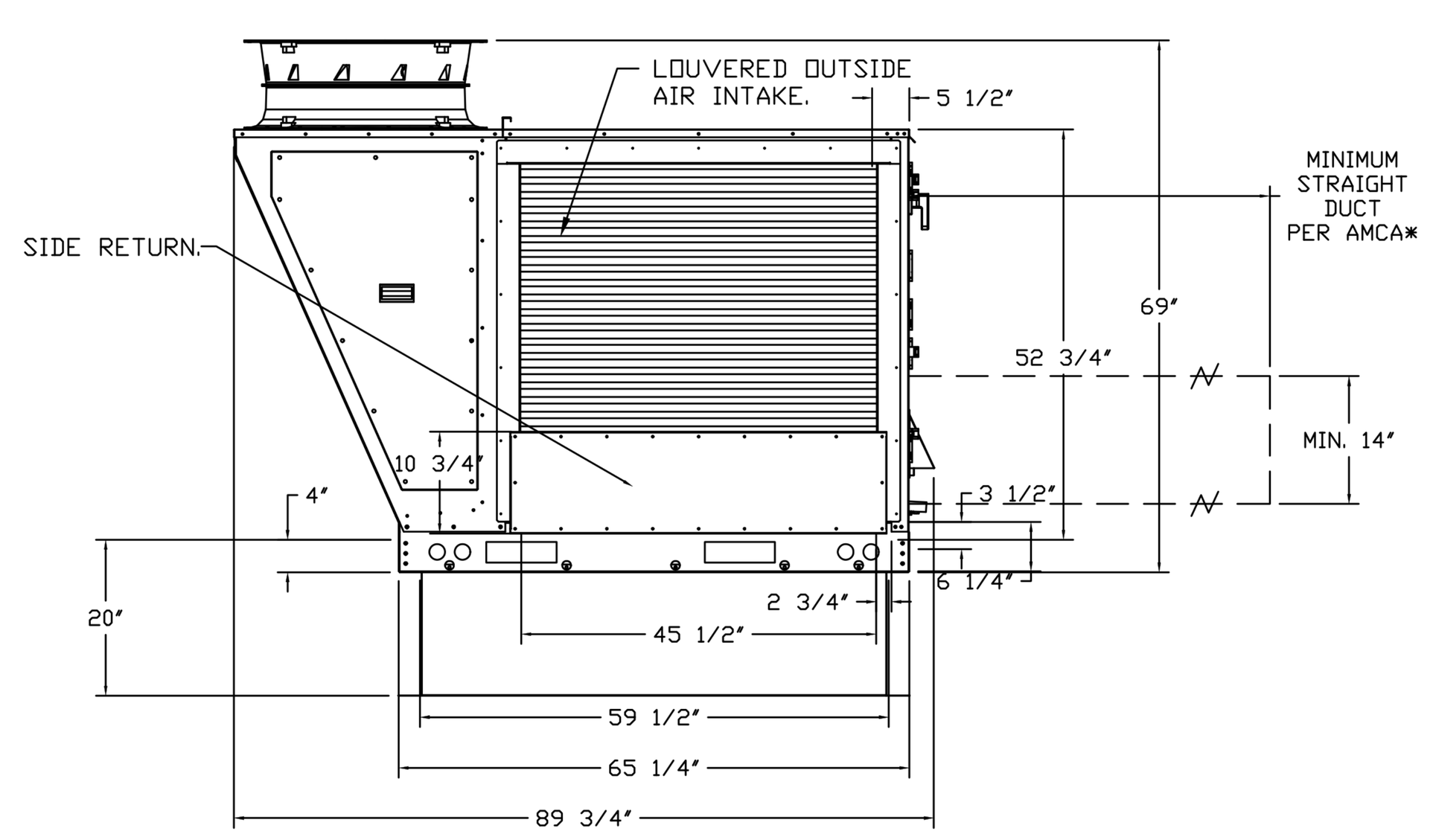
FAN #2 CAS-HVAC3-I.500-24MF-12.5T - HEATER

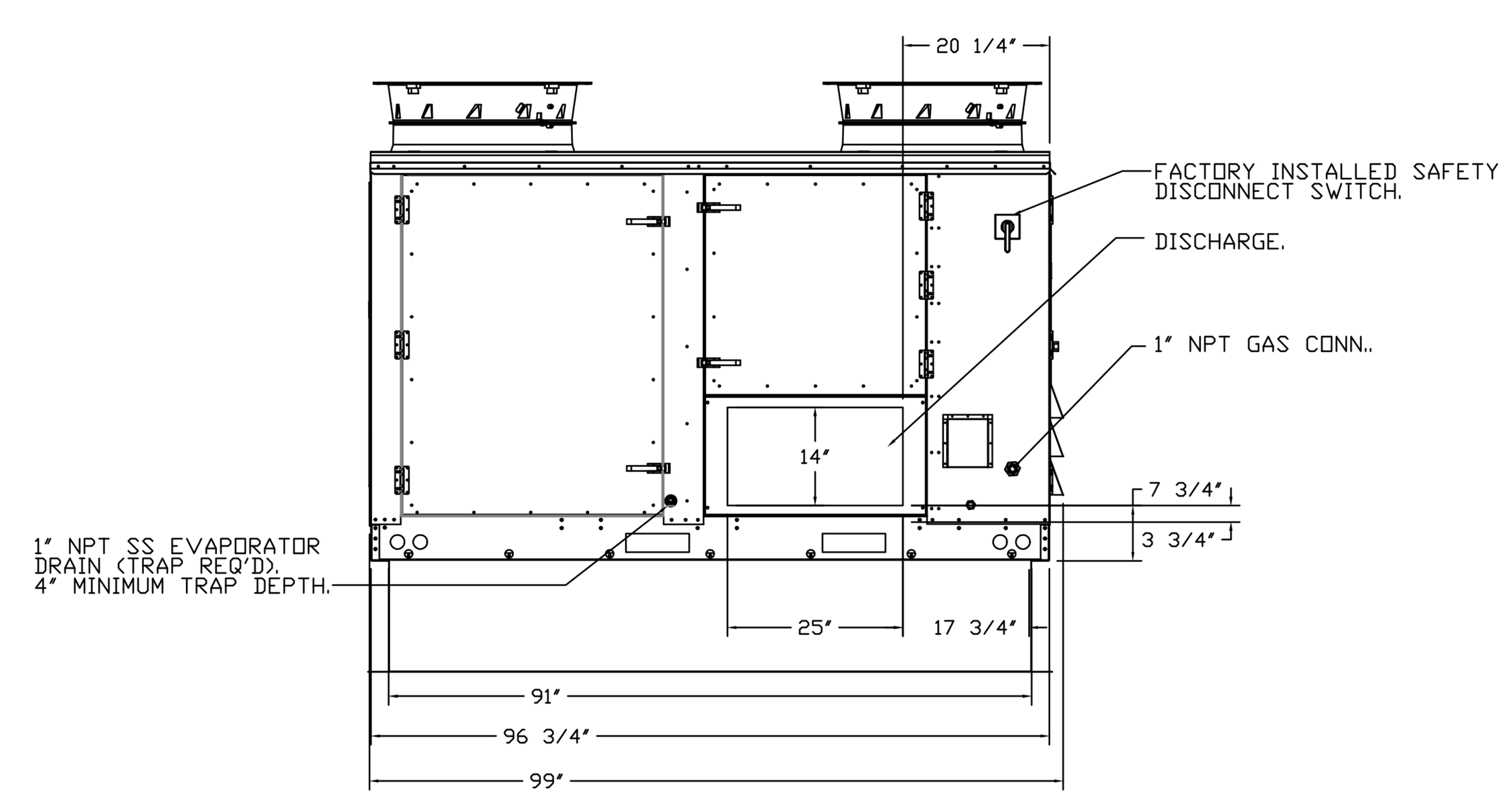
NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. (   ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

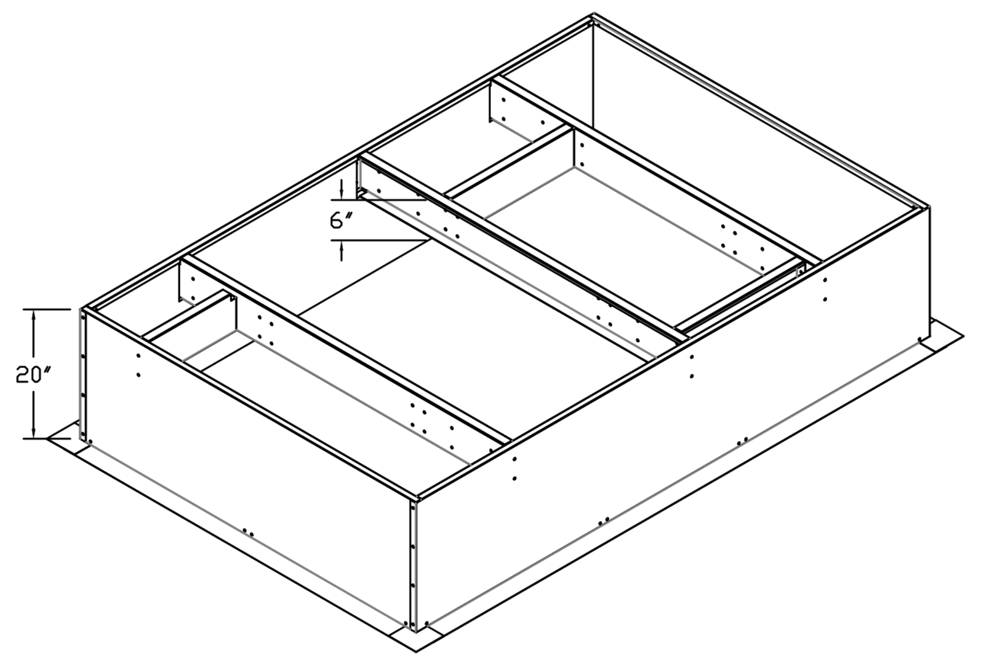
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 25" x 14".

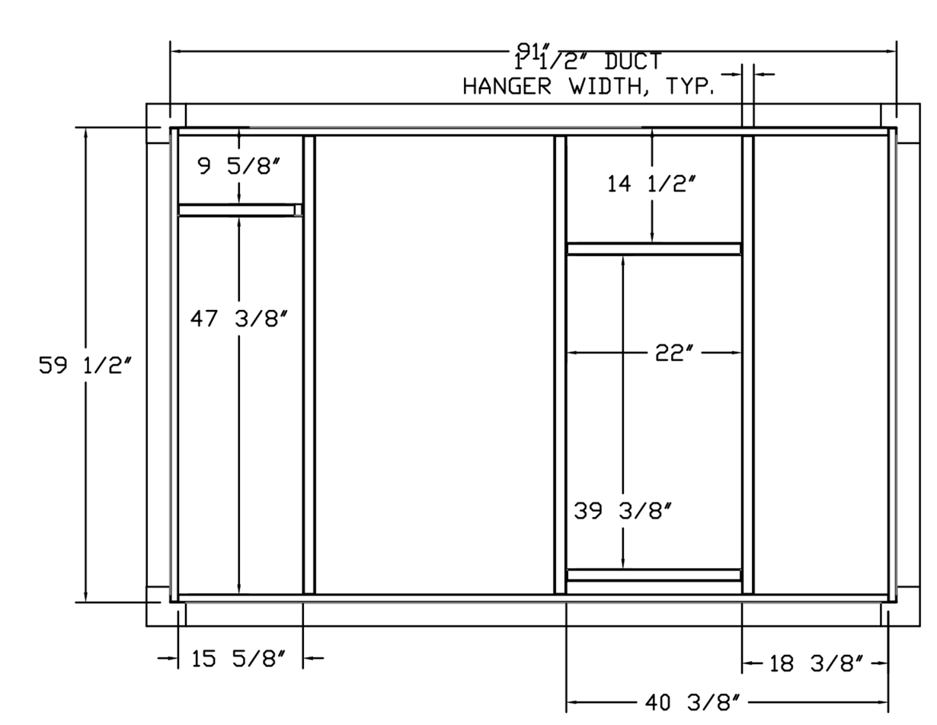








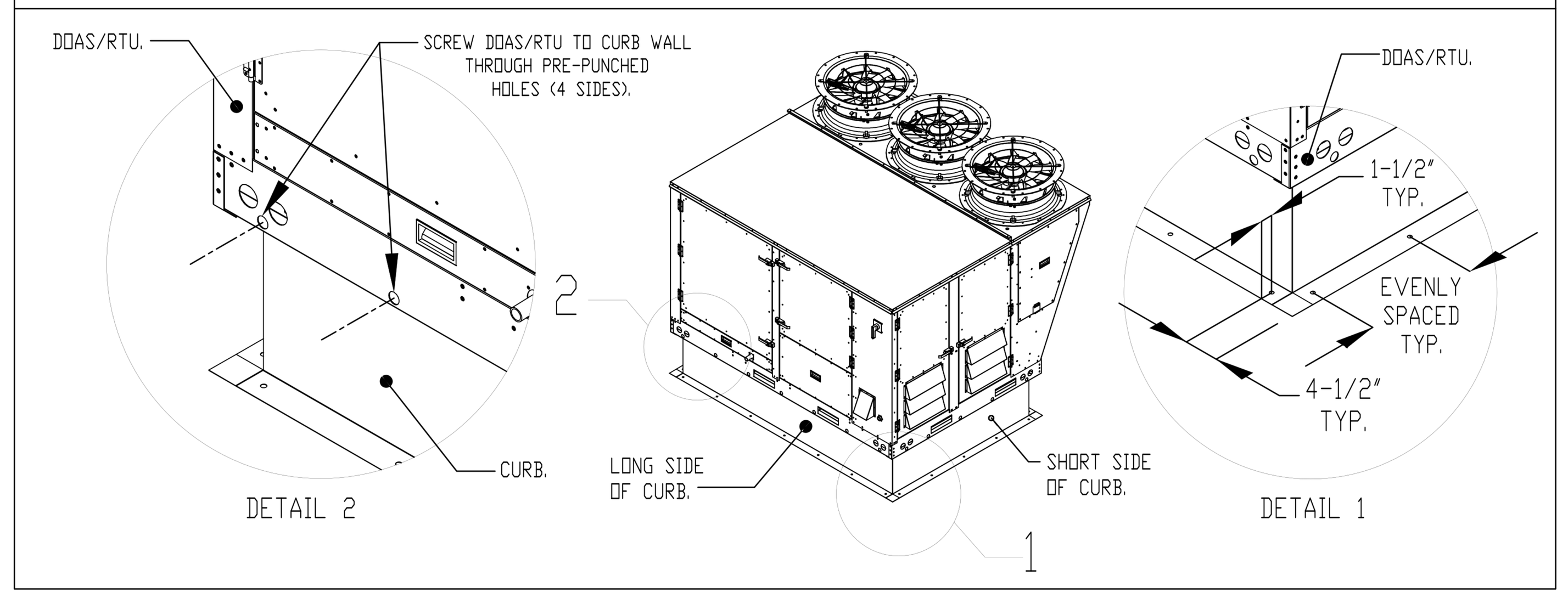


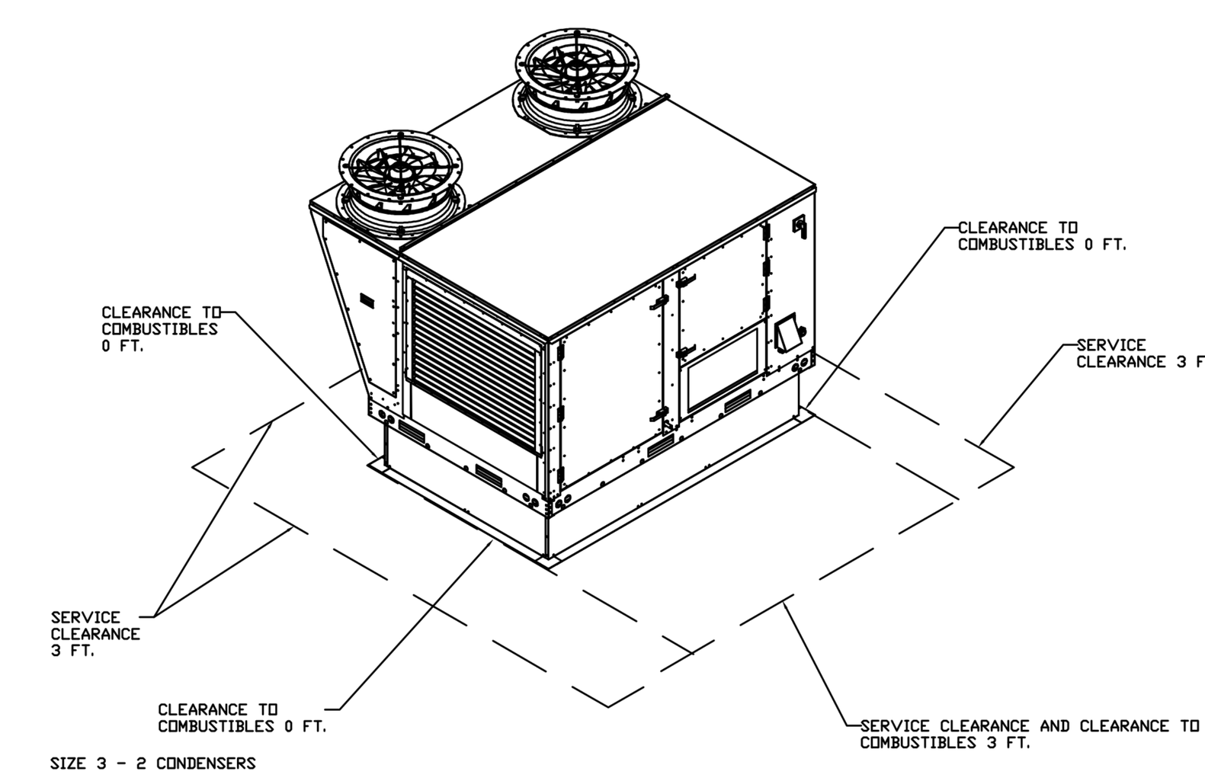


TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW. USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.

2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.





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PERMIT SET

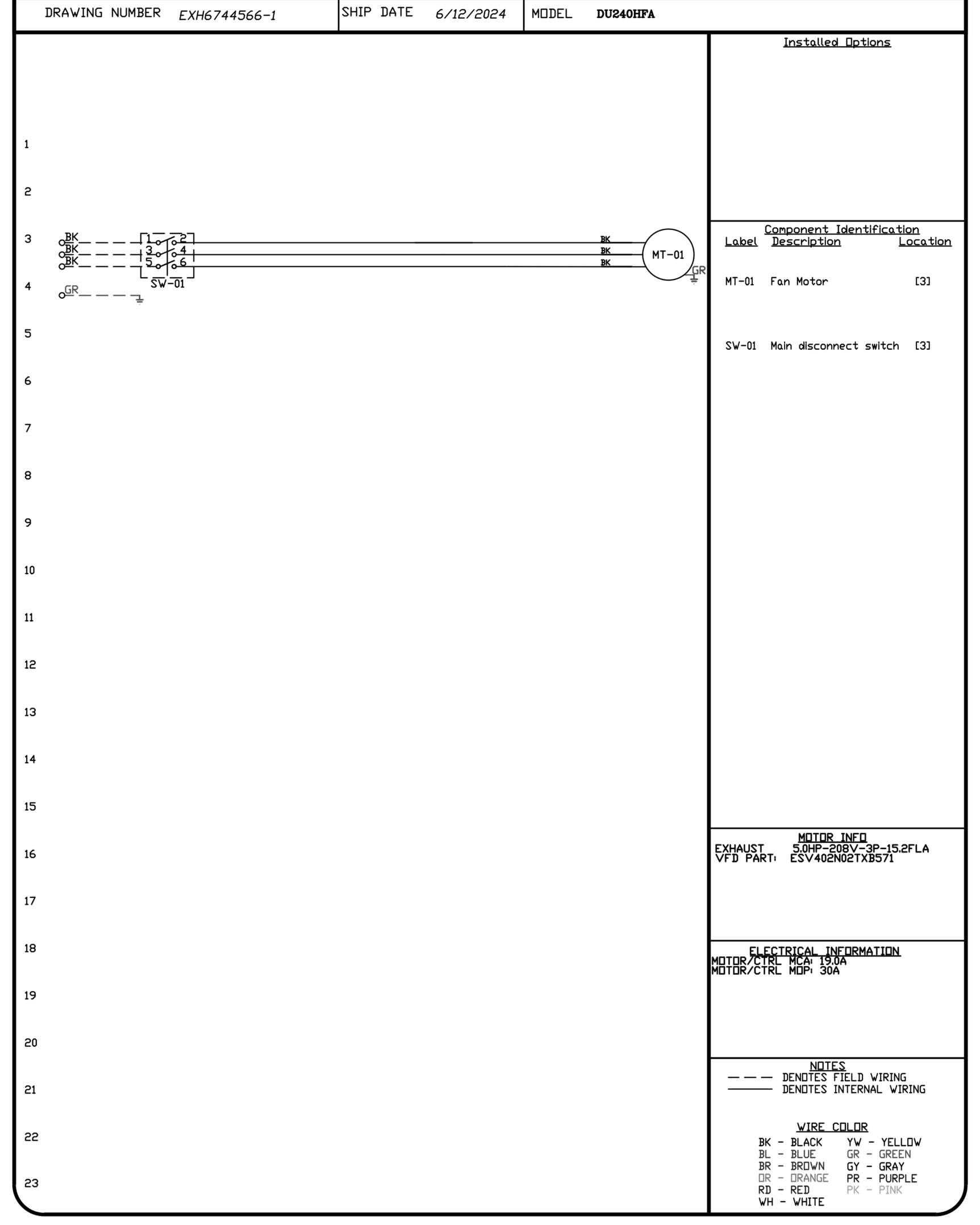
MECHANICAL KITCHEN EQUIPMENT

RME509
SHEET #
PROJECT #: 22170
DRAWN BY: DHT
CHECKED BY: SSJ

Exhaust Fan Wiring

JOB 6744566 - Steamboat Springs Restaurant

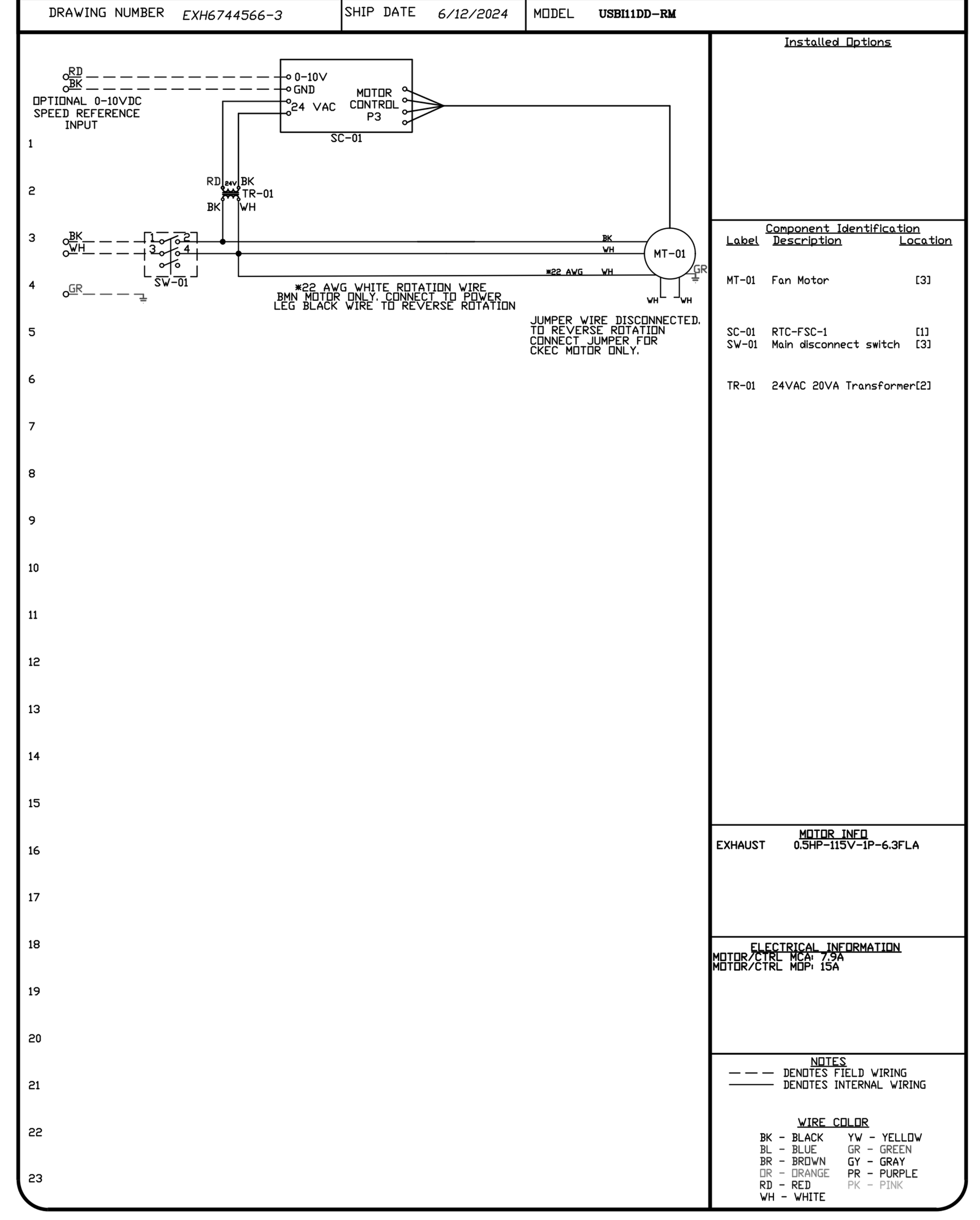
DRAWING NUMBER EXH6744566-1 · SHIP DATE 6/12/2024



Exhaust Fan Wiring

JOB 6744566 - Steamboat Springs Restaurant

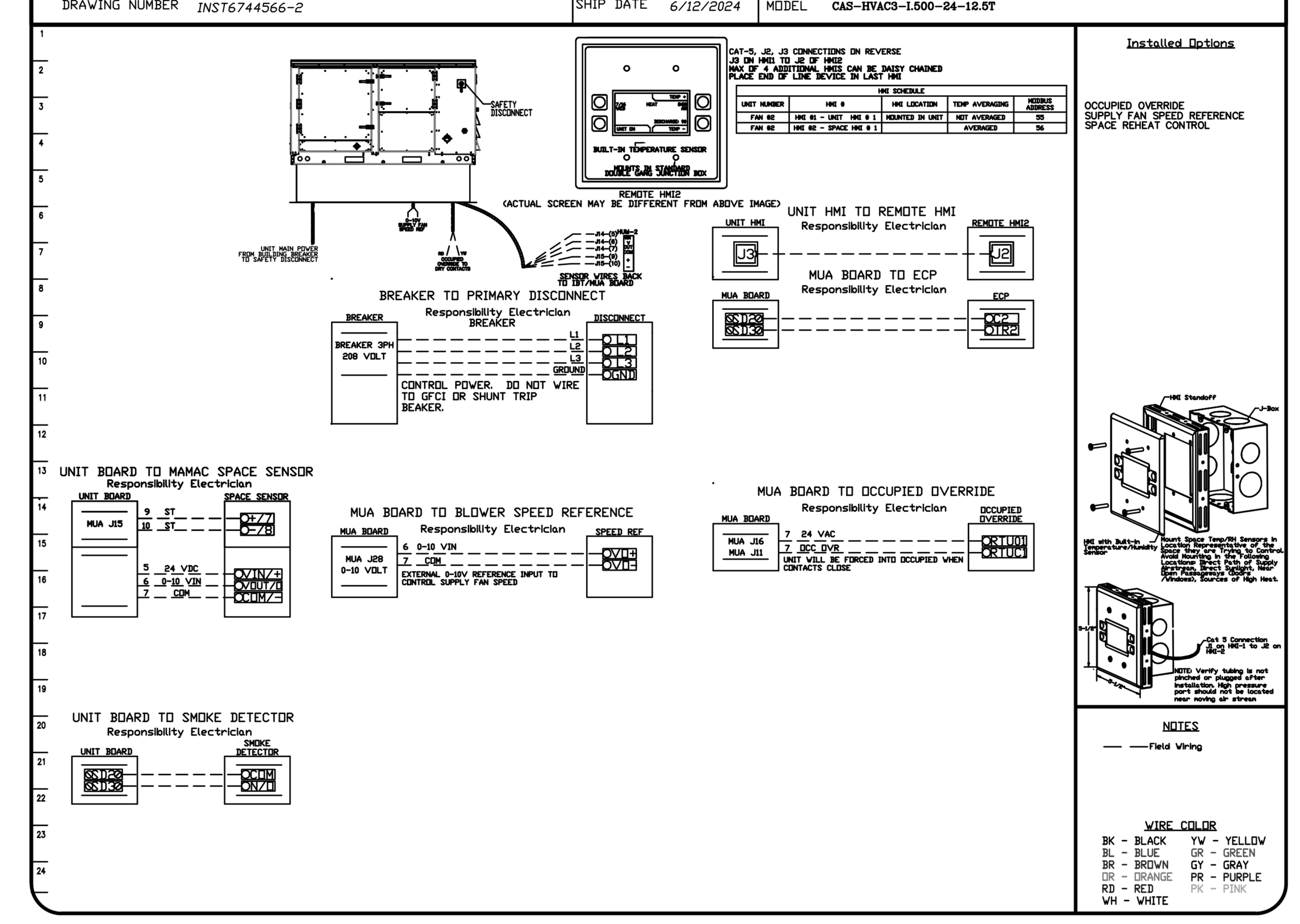
DRAWING NUMBER EXH6744566-3 · SHIP DATE 6/12/2024

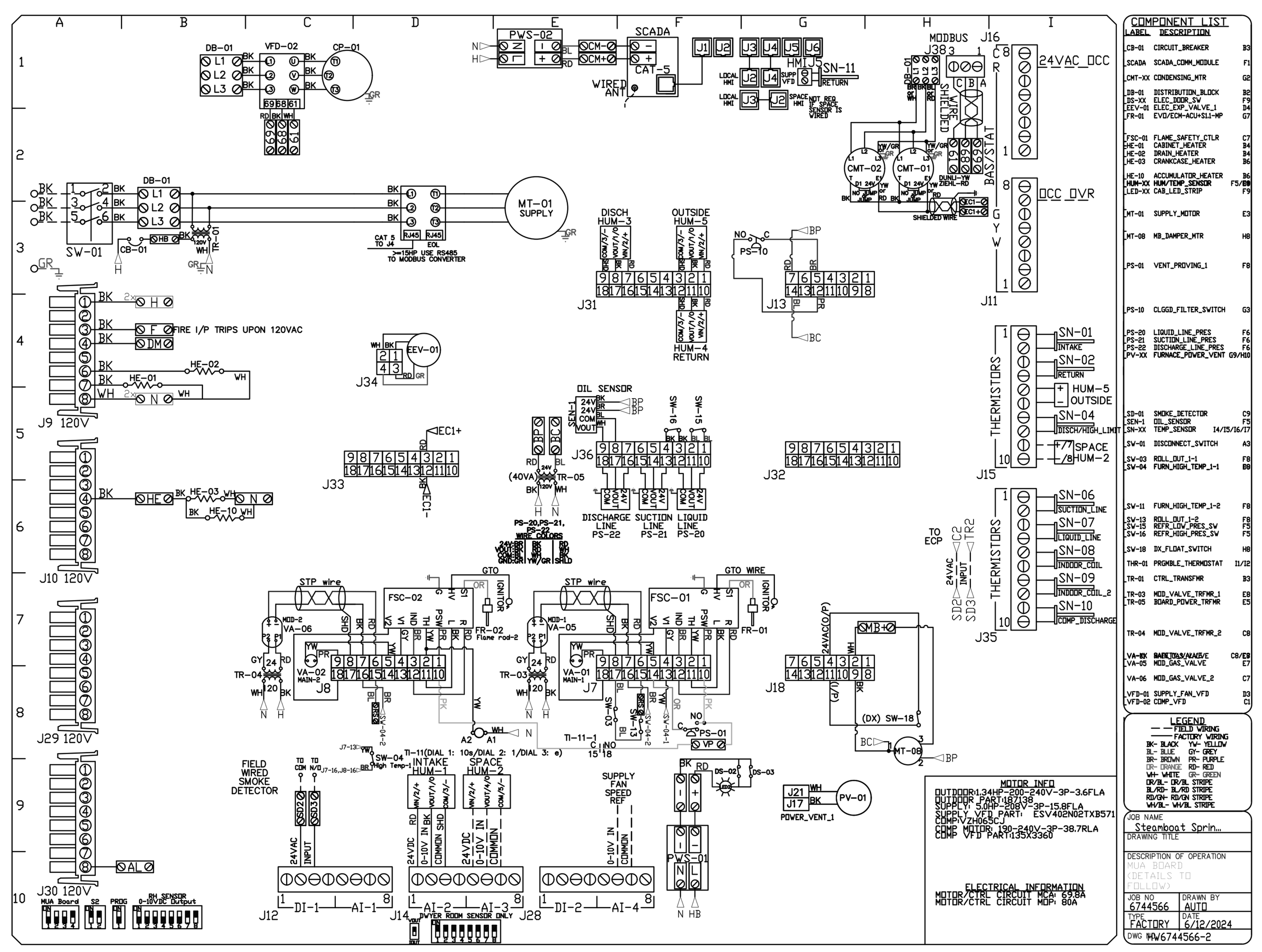


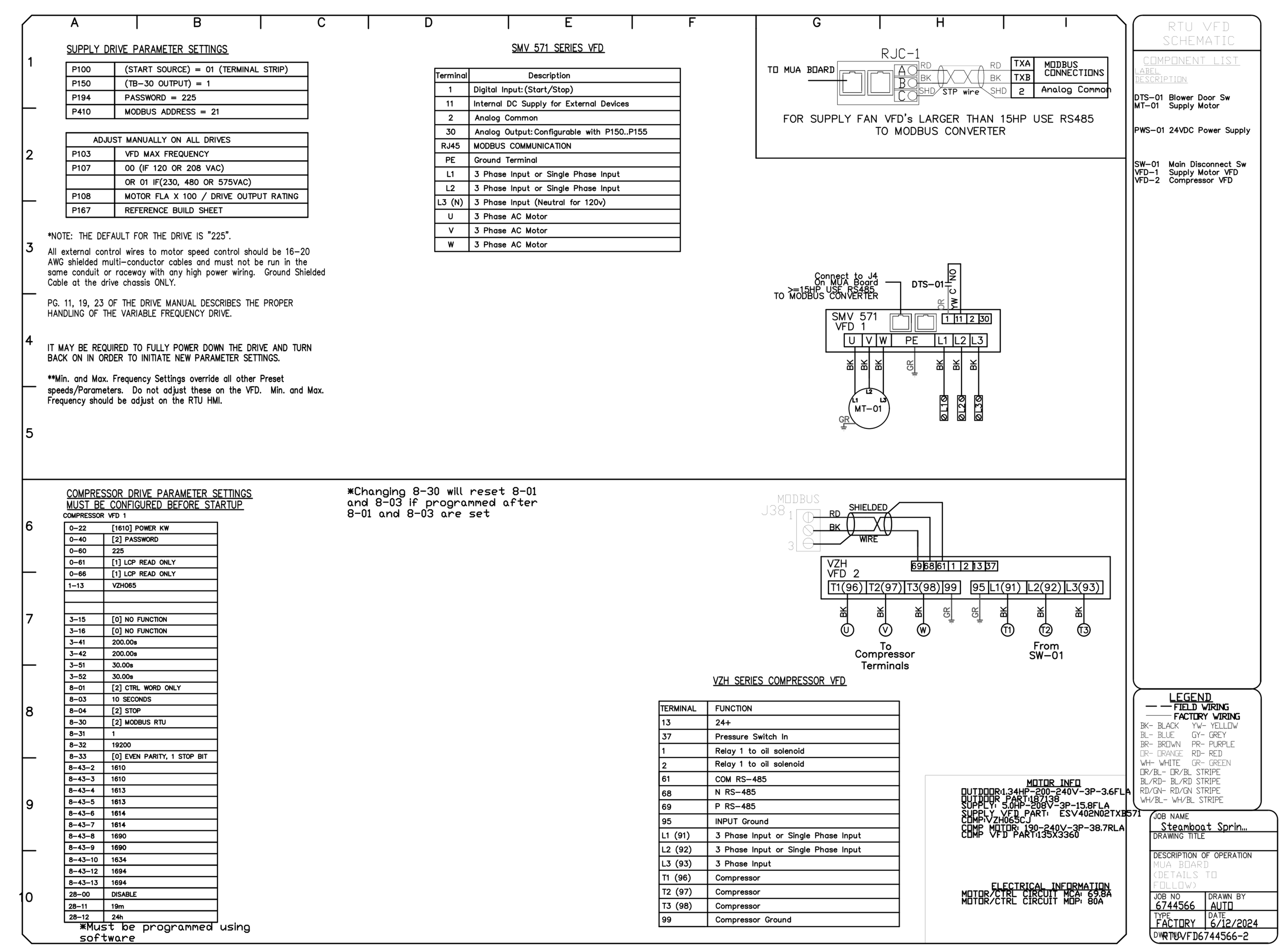
RTU Installation Wiring

JOB Steamboat Springs Restaurant TI

DRAWING NUMBER INS6744566-2 · SHIP DATE 6/12/2024







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9-09-2024

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Reviewed for Code Compliance
10/07/2024

CONSULTANT:

SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056

OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	

#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

MECHANICAL KITCHEN EQUIPMENT

RME510

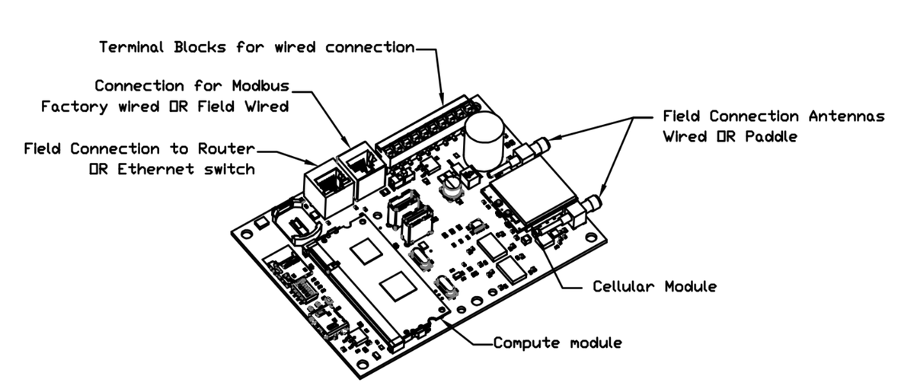
SHEET #

PROJECT #: 23170 · DRAWN BY: DHT · CHECKED BY: SSJ

9/9/2024 2:10:52 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt

ELECTRICAL PACKAGE – JOB#6744566

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	ϕ	HP	VOLT	FLA
1		DCV-1111	UTILITY CABINET RIGHT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EXHAUST	3	5.000	208	15.2
				HOOD # 1	1 FAN		SUPPLY	3	5.000	208	15.8



CASlink Monitor and Control

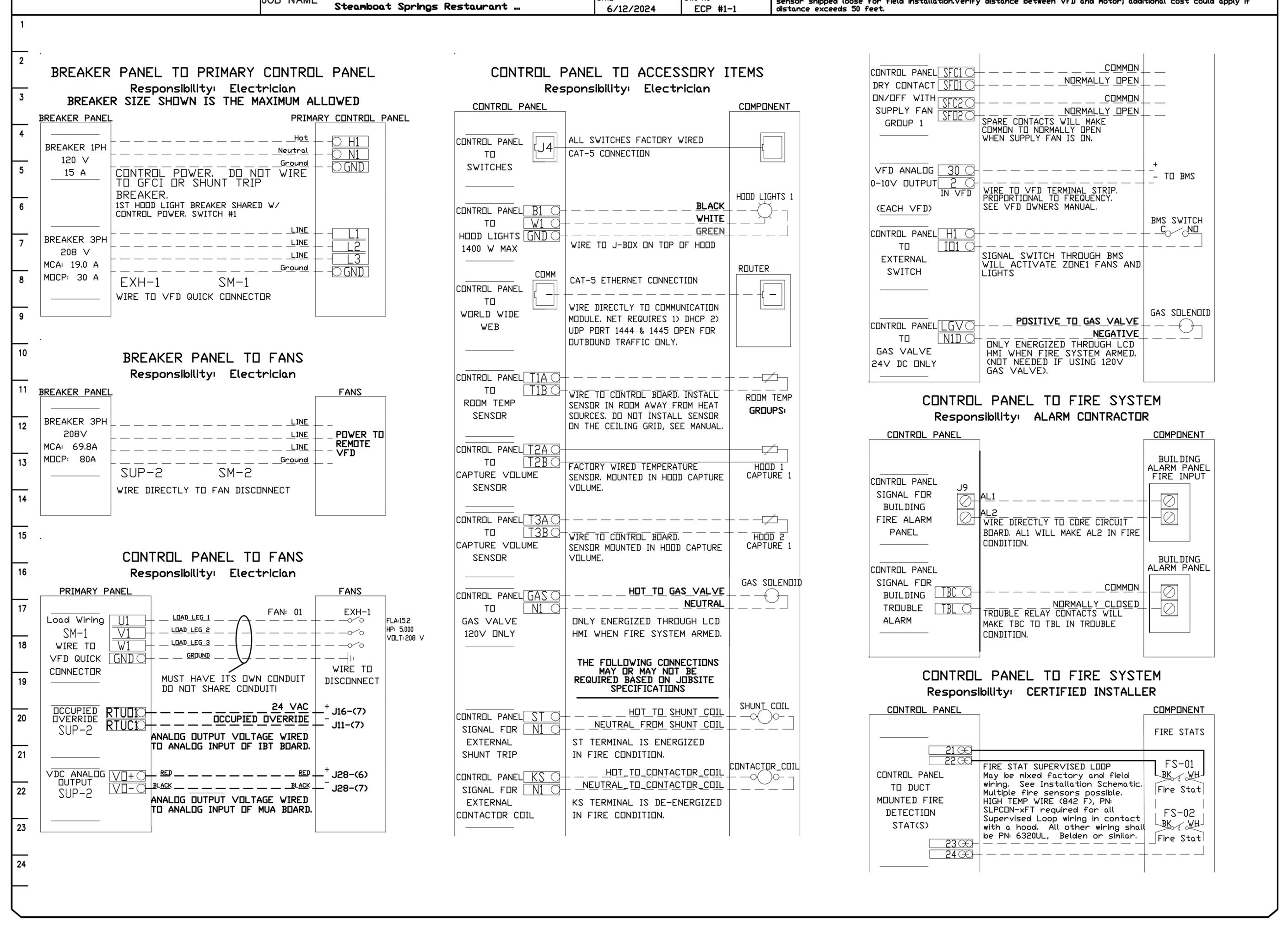
- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

MONITORING AND CONTROL POINTS LIST

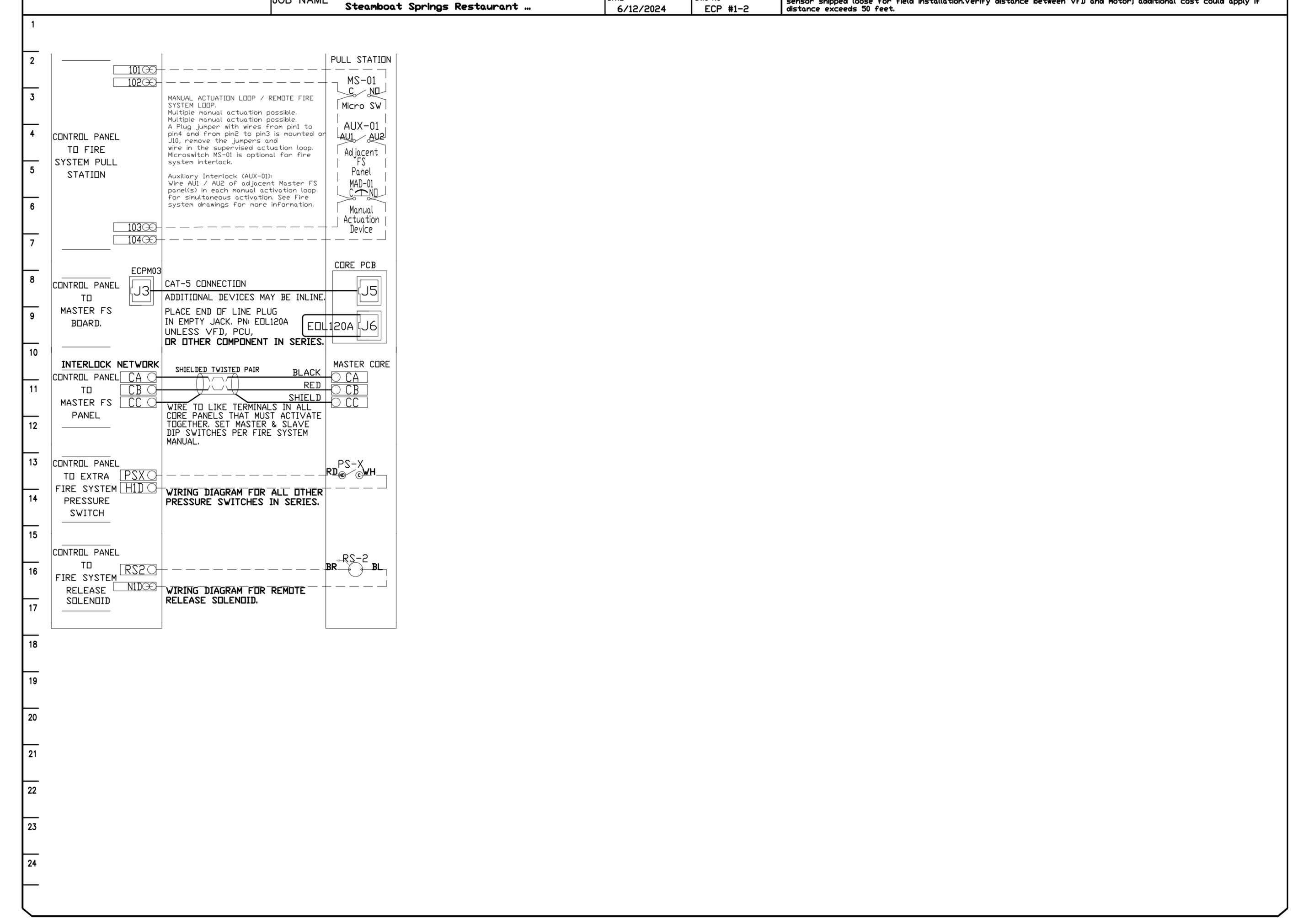
DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

SC Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA DIscharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

JOB NO 6744566 | MODEL NUMBER DCV-1111 | JOB NAME Steamboat Springs Restaurant ... | DATE 6/12/2024 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-1 | DESCRIPTION OF OPERATION:



JOB NO 6744566 | MODEL NUMBER DCV-1111 | JOB NAME Steamboat Springs Restaurant ... | DATE 6/12/2024 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-2 | DESCRIPTION OF OPERATION:



JOB NO 6744566 | MODEL NUMBER DCV-1111 | JOB NAME Steamboat Springs Restaurant ... | DATE 6/12/2024 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-3 | DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0 / Remote - 4.0/4.0.

TANK PROTECTION ELECTRICAL DETAIL

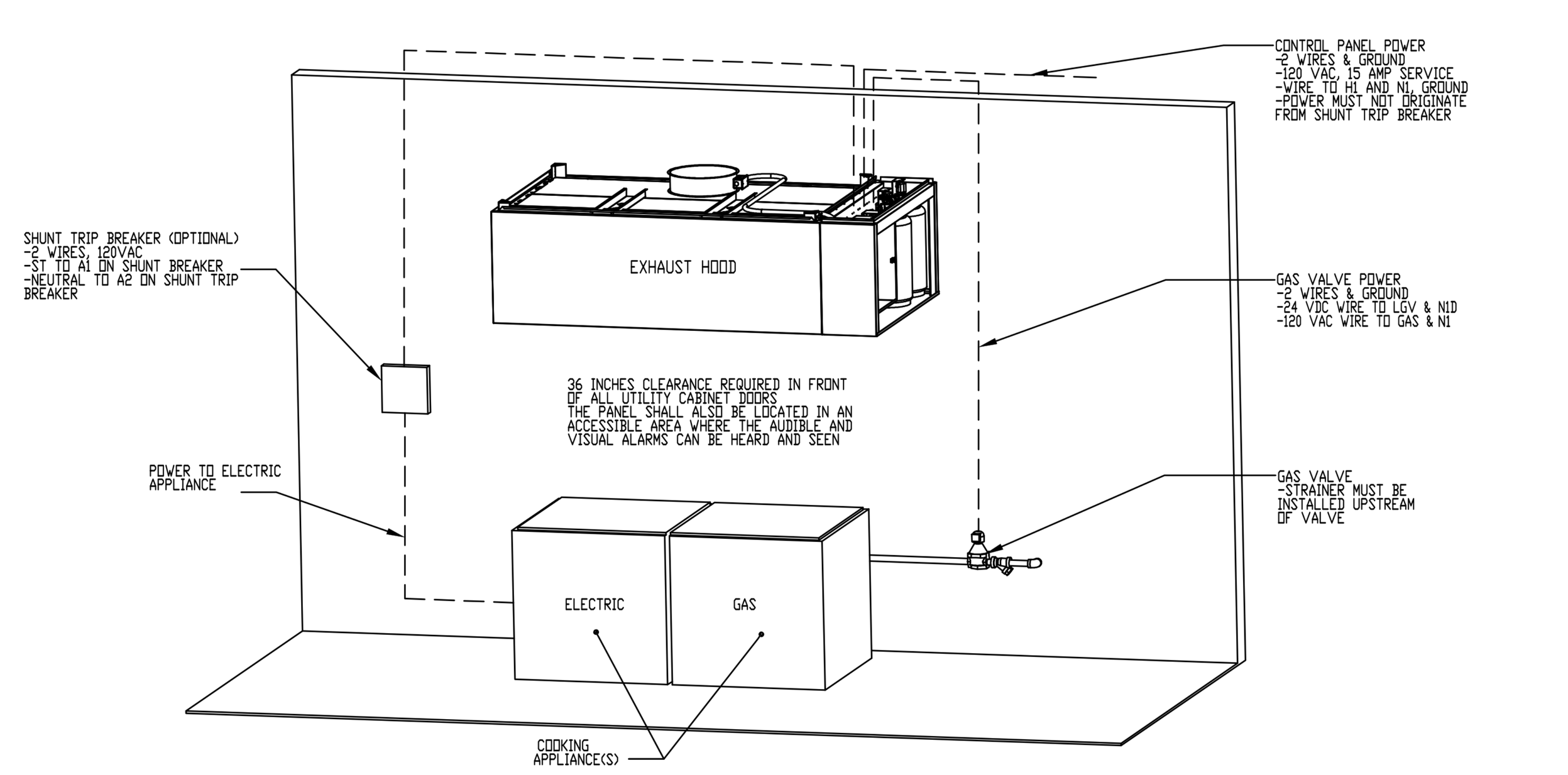
02/10/2021 Rev. 2

FS-1: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	LGV & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, LGV TO RED, AND GREEN TO GROUND; IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 6744566 | MODEL NUMBER DCV-1111 | JOB NAME Steamboat Springs Restaurant ... | DATE 6/12/2024 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-4 | DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0 / Remote - 4.0/4.0.

TANK PROTECTION LOW-VOLTAGE DETAIL

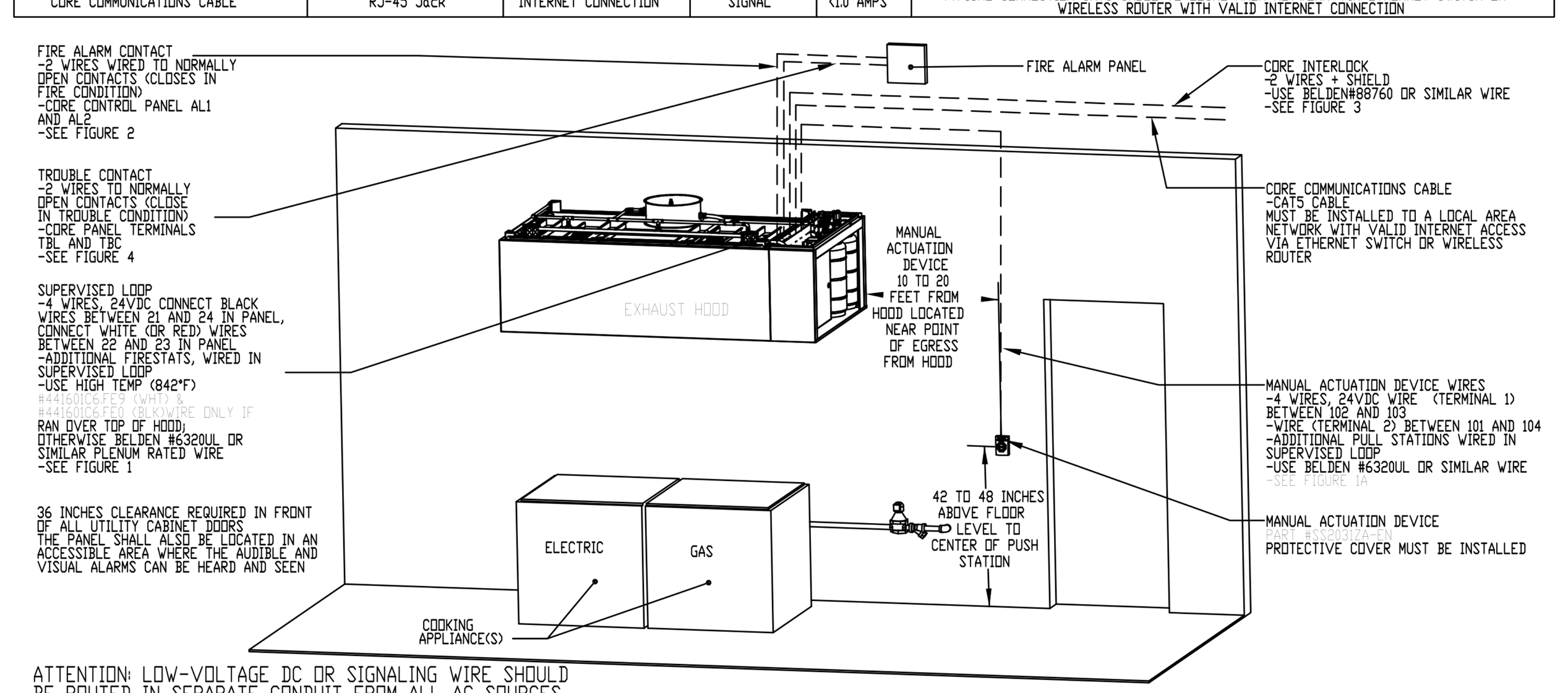
10/01/2023 Rev. 3

FS-1: MASTER

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

ALARM CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #441601C6.FE9 (WHT) & #441601C6.FE0 (BLK)WIRE OR SIMILAR ONLY IF RAN OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	CA, CB, CC	CA, CB, CC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) CA, TO CORE SYSTEM (2) CA, CORE SYSTEM (1) CB, TO CORE SYSTEM (2) CB. CORE SYSTEM (1) CC, TO CORE SYSTEM (2) CC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

REVISIONS

DESCRIPTION	DATE

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www.captiveaire.com

Steamboat Springs Restaurant TI
Steamboat Springs, CO, 80477

DATE: 6/12/2024

DWG.#: 6744566

DRAWN BY: EH

SCALE: 3/4" = 1'-0"

MASTER DRAWING

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ISSUE DATE	DESCRIPTION
06/17/2024	

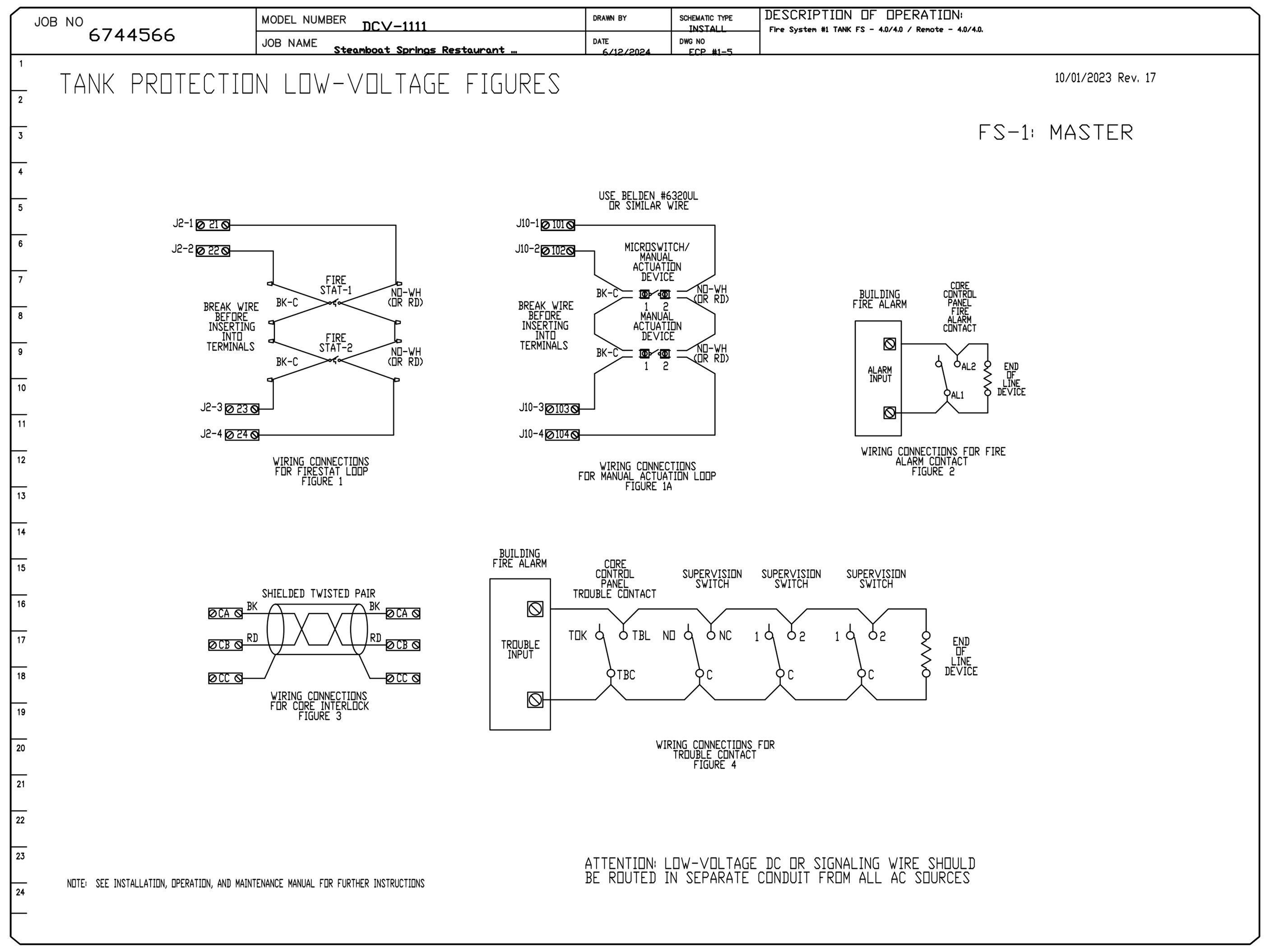
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

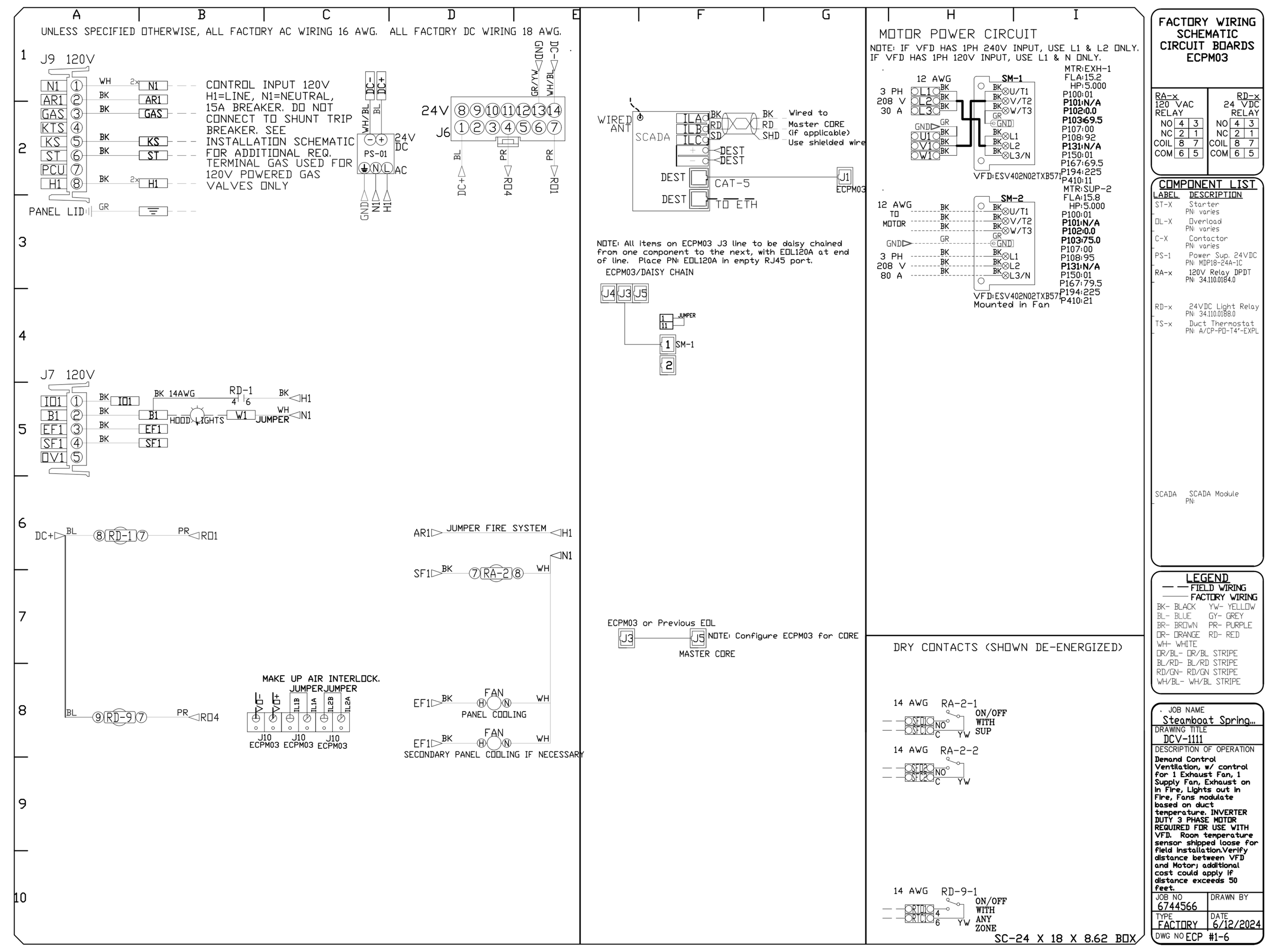
PERMIT SET

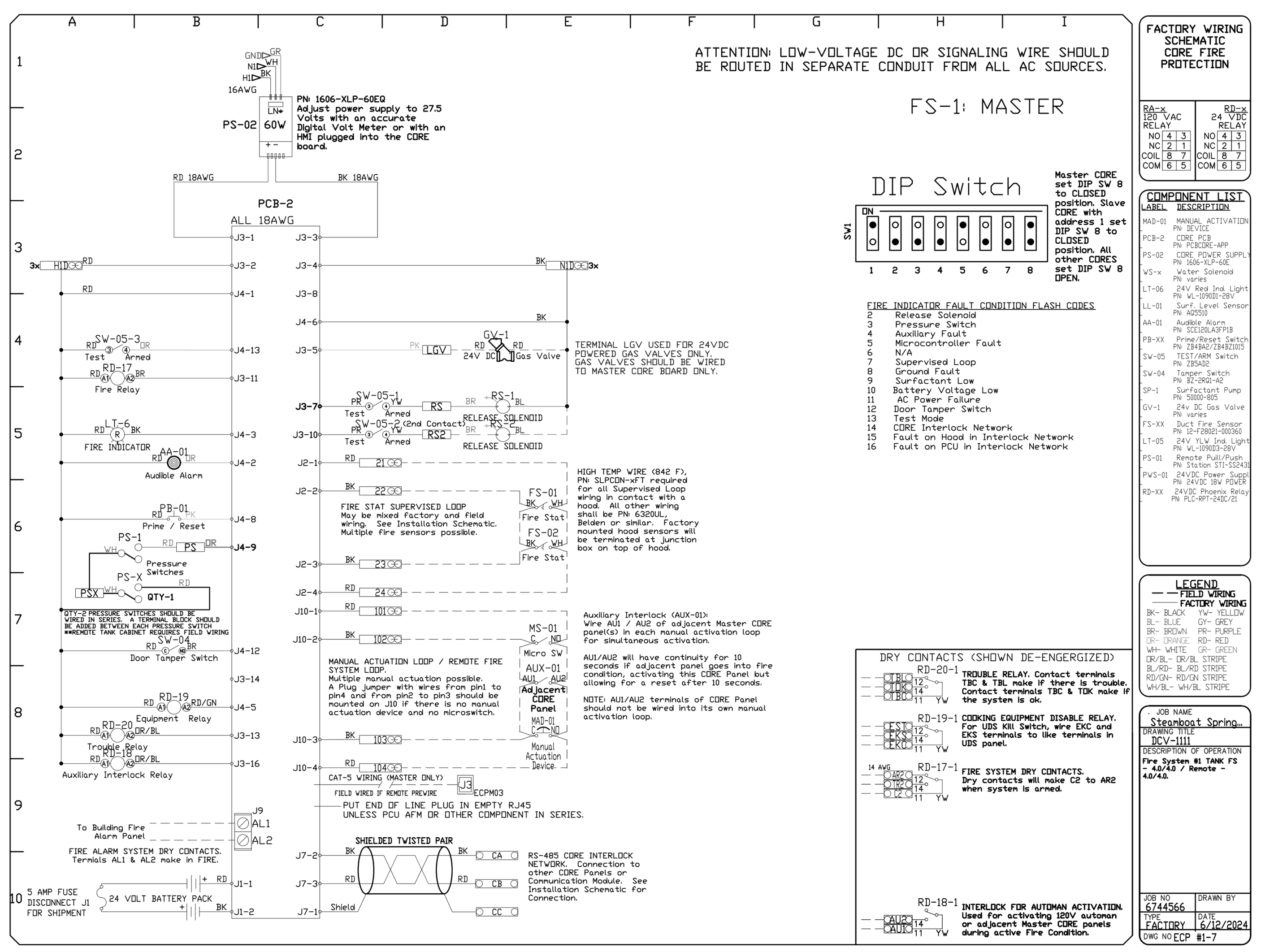
MECHANICAL KITCHEN EQUIPMENT

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ

SHEET #
RME511







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Steamboat Springs Restaurant TI

Steamboat Springs, CO, 80477

DATE: 6/12/2024

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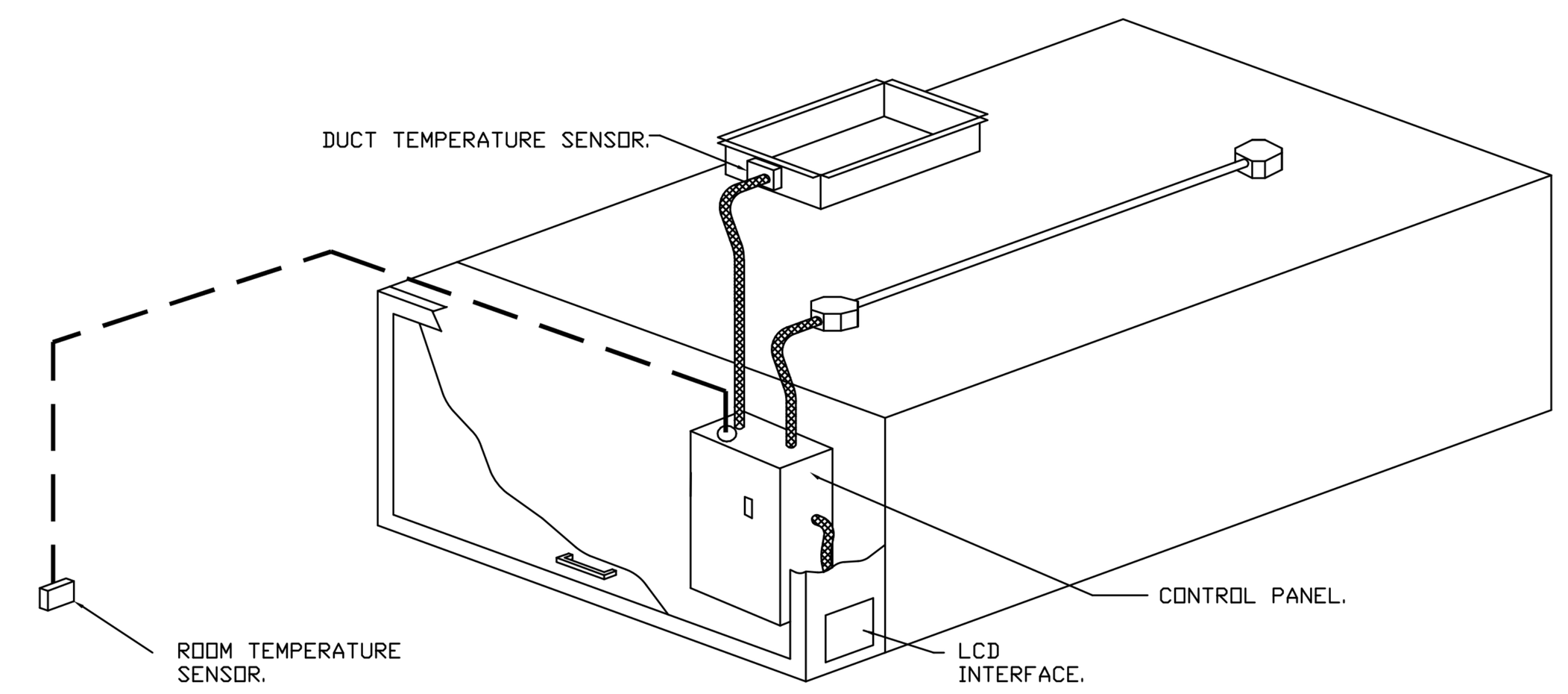
MECHANICAL KITCHEN EQUIPMENT

PROJECT #: 22170
DRAWN BY: SHT
CHECKED BY: SSJ

SHEET #: RME512

DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

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MECHANICAL KITCHEN EQUIPMENT

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ
SHEET #: RME513

9/9/2024 2:10:54 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt

EXISTING HEAT PUMP UNIT SCHEDULE (BY SHELL - PROVIDED FOR REFERENCE)

LABEL	INDOOR UNIT SERVED	AREA SERVED	HEAT PUMP CAPACITY (BTUH)	REFRIGERANT TYPE	ELECTRICAL: VOLTS	PHASE	Hz	MCA (EACH)	MOCP (EACH)	BASE PAN HEATER (Y / N)	EMERG POWER	DISCONNECT PROVIDED BY (MECH/ ELEC)	SOUND RATING	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
(E)HP-12	F-12	RESTAURANT	60,000	R-410A	208	1	60	35	40	YES	NO	ELEC	62	225	Lennox	VPC060H4M-3P	ALL
(E)HP-13	F-13	RESTAURANT	60,000	R-410A	208	1	60	35	40	YES	NO	ELEC	62	225	Lennox	VPC060H4M-3P	ALL

1. EXISTING - PROVIDED AND INSTALLED AS PART OF SHELL DESIGN/CONSTRUCTION.

EXISTING FAN COIL UNIT SCHEDULE (BY SHELL - SHOWN FOR REFERENCE)

LABEL	TYPE	SERVES	COOLING: TOTAL CAPACITY (BTUH)	AIRFLOW (CFM)	ESP (IN-WC)	SUPPLY FAN ELECTRICAL: VOLTS	PHASE	Hz	MCA	MOCP	kW	VOLTAGE	PHASE	AMPS	SUPPLY FAN ELECTRICAL: EMERG POWER	DISCONNECT PROVIDED BY (MECH/ ELEC)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
(E)FC-12	HORIZONTAL	RESTAURANT	54,000	2,000	0.6	208	1	60	7	15	7.5	208	1	36	NO	ELEC	170	LENNOX	VVCB060H4-3P	ALL
(E)FC-13	HORIZONTAL	RESTAURANT	54,000	2,000	0.6	208	1	60	7	15	7.5	208	1	36	NO	ELEC	170	LENNOX	VVCB060H4-3P	ALL

1. EXISTING - PROVIDED AND INSTALLED AS PART OF SHELL DESIGN/CONSTRUCTION.

NEW HEAT PUMP UNIT SCHEDULE

ACCEPTABLE MANUFACTURERS:
CARRIER
TRANE/MITSUBISHI
LENNOX
DAIKIN
LG

REMARKS:
(1) PROVIDE WITH HAIL GUARDS.
(2) PROVIDE WITH NEOPRENE PADS AT ALL MOUNTING CONNECTION POINTS.
(3) PROVIDE REFRIGERANT PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS. "ACR" COPPER ONLY.
(4) COORDINATE REFRIGERANT CHARGE AND PIPING SIZES WITH EQUIVALENT LINE LENGTH TO MINIMIZE PRESSURE DROP AND CAPACITY LOSS.
(5) PROVIDE AIREX TITAN BOOT OR EQUAL AT ANY REFRIGERANT LINE PENETRATIONS INTO BUILDING ENVELOPE.
(6) PROVIDE CRANKCASE HEATER, LOW AMBIENT CONTROLS, AND TAMPER PROOF PORT CAPS.
(7) BUILT IN BASE PAN HEATER
(8) PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.

SCHEDULE KEY
PLUMB = DIVISION 22
MECH = DIVISION 23
ELEC = DIVISION 26
MNFR = MANUFACTURER

LABEL	INDOOR UNIT SERVED	AREA SERVED	EER (SEER)	HSPF	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	COP AT 5°F	REFRIGERANT TYPE	ELECTRICAL: VOLTS	PHASE	Hz	MCA (EACH)	MOCP (EACH)	BASE PAN HEATER (Y / N)	EMERG POWER	DISCONNECT PROVIDED BY (MECH/ ELEC)	SOUND RATING	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
HP-1R	FC-1R	RESTAURANT	11.7 (17.7)	9.2	36,000	40,000	1.8	R-410A	208	1	60	25	30	YES	NO	ELEC	62	225	Lennox	VPC036H4M-3P	ALL

TYPE II HOOD SCHEDULE

LABEL	MODEL	MANUFACTURER	LENGTH	DESIGN CFM/FT	TOTAL EXH CFM
H-3	CHP336	HALIFAX	3' - 0"	200	600

NEW FAN COIL UNIT SCHEDULE

ACCEPTABLE MANUFACTURERS:
TRANE/MITSUBISHI
CARRIER
LENNOX
DAIKIN
LG

REMARKS:
(1) ELECTRICAL MCA AND MOCP INCLUDE BOTH BLOWER MOTOR AND SUPPLEMENTAL ELECTRIC HEAT. SINGLE POINT POWER.
(2) PROVIDE WITH FILTER RACK, NEUTRALIZATION KIT, AND CONDENSATE PUMP.
(3) PROVIDE WITH INDOOR COIL TO MATCH AIRFLOW.
(4) PROVIDE WITH LENNOX MODEL V0STAT51 OR EQUAL. POWERED BY FAN COIL UNIT. MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL NECESSARY WIRING BETWEEN FAN COIL UNIT & THERMOSTAT.
(5) PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.
(6) PROVIDE SECONDARY DRAIN PAN. PROVIDE WATER LEVEL ALARM (DIVERSITECH WS-1 WET SWITCH OR EQUAL) IN DRAIN PAN TO SHUT OFF UNIT WHEN HIGH WATER LEVEL IS DETECTED.

SCHEDULE KEY:
PLUMB = DIVISION 22
MECH = DIVISION 23
ELEC = DIVISION 26
MNFR = MANUFACTURER

LABEL	TYPE	SERVES	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	AIRFLOW (CFM)	ESP (IN-WC)	BLOWER MOTOR FLA	SUPPLEMENTAL ELECTRIC HEAT: kW	SUPPLEMENTAL ELECTRIC HEAT: BTUH	VOLTAGE	PHASE	MCA	MOCP	EMERGENCY POWER	DISCONNECT PROVIDED BY (MECH/ ELEC)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
FC-1R	HORIZONTAL	RESTAURANT	36,000	40,000	1,200	0.6	4.2	7.5	19,200	208	1	39.3	40	NO	ELEC	175	LENNOX	VVCB036H4-3P	ALL

*FOR <u>TYPE I HOOD (H-1 & H-2)</u> SCHEDULES, OPTIONS AND ACCESSORIES, SEE CAPTIVEAIRE PLANS ON SHEETS ME503, ME504 ME505, & ME506.

*FOR <u>GREASE EXHAUST FAN (EF-1R)</u> SCHEDULES, OPTIONS AND ACCESSORIES, SEE CAPTIVEAIRE PLANS ON SHEET ME507.

*FOR <u>CONDENSATE EXHAUST FAN (EF-2R)</u> SCHEDULES, OPTIONS AND ACCESSORIES, SEE CAPTIVEAIRE PLANS ON SHEET ME507.

*FOR <u>MAKEUP AIR UNIT (KMAU-1)</u> SCHEDULES, OPTIONS AND ACCESSORIES, SEE CAPTIVEAIRE PLANS ON SHEETS ME507, ME508 & ME509.

HEATER SCHEDULE (ELECTRIC)

ACCEPTABLE MANUFACTURERS:
MODINE
REZNOR
QMARK
MARLEY

REMARKS:
(1) PROVIDE WITH FINGER PROOF FAN GUARD.
(2) RECESSED WALL MOUNTED.
(3) PROVIDE WITH INTEGRAL THERMOSTAT.

SCHEDULE KEY:
PLUMB = DIVISION 22
MECH = DIVISION 23
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MNFR = MANUFACTURER

LABEL	TYPE	HEATING CAPACITY (WATTS)	STAGES	ELECTRICAL: VOLTS	PHASE	Hz	MCA	DISCONNECT PROVIDED BY (MECH/ ELEC)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
CUH	RECESSED, WALL MOUNTED	4000	2	208	3	60	11.1	ELEC	25	Marley Engineered Products (QMARK)	AWH44083F	1-3

REGISTER - GRILLE- DIFFUSER SCHEDULE

ACCEPTABLE MANUFACTURERS:
KRUEGER
TUTTLE & BAILEY
TITUS
PRICE

REMARKS:
(1) REGISTERS AND GRILLES SHALL BE TESTED IN ACCORDANCE WITH ANSI/ASHRAE STD 70. NC VALUES ARE BASED ON OCTAVE BAND SOUND POWER LEVELS MINUS A ROOM ABSORPTION OF 10 dB, RE 10(-12) WATTS.
(2) PROVIDE WITH MOUNTING FRAME BASED ON CEILING TYPE. REFERENCE ARCHITECTURAL REFLECT CEILING PLAN FOR CEILING TYPES.
(3) COORDINATE EXACT COLOR SELECTION WITH OWNER AND ARCHITECT. ALL MAIN LEVEL RGD'S IN AMENITY SPACES REQUIRE COLOR APPROVAL BY ARCHITECT PRIOR TO ORDERING.
(4) PROVIDE WITH AIR-SCOOP FOR BALANCING

LABEL	TYPE	MAX AIRFLOW (CFM)	FACE SIZE	NECK SIZE	BLOW PATTERN	PD (IN-WC)	THROW(S) (FT)	MAX NC	MANUFACTURER	MODEL	REMARKS
R-1	RETURN GRILLE - SIDEWALL	2000	24" X 24"	18" X 18"	N/A	0.100	N/A	30	PRICE INDUSTRIES	535	1-3
R-2	RETURN GRILLE - CEILING - LAY-IN	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30	PRICE INDUSTRIES	535	1-3
R-3	RETURN GRILLE - DUCT MOUNTED	1946	36" X 12"	36" X 12"	N/A	0.031	N/A	30	PRICE INDUSTRIES	SDGR	1-3
S-1	SUPPLY DIFFUSER - CEILING - LAY-IN	545	24" X 24"	10" Ø	4-WAY	0.122	5-8-12	30	PRICE INDUSTRIES	SCD	1-3
S-2	SUPPLY DIFFUSER - SIDEWALL	850	14" X 12"	14" X 12"	ADJUSTABLE	0.100	23-28-40	30	METALAIRE	H4004S-AF-1	1-3
S-3	SUPPLY DIFFUSER - DUCT MOUNTED	500	16" X 6"	16" X 6"	ADJUSTABLE	0.050	10-14-19	30	PRICE INDUSTRIES	SDG	1-4
S-4	SUPPLY DIFFUSER - CEILING - LAY-IN	785	24" X 24"	12" Ø	4-WAY	0.142	7-10-15	30	PRICE INDUSTRIES	SCD	1-3
S-5	SUPPLY DIFFUSER - CEILING - LAY-IN	415	24" X 24"	8" Ø	4-WAY	0.146	5-7-11	30	PRICE INDUSTRIES	SCD	1-3
S-6	SUPPLY DIFFUSER - CEILING - LAY-IN	850	24" X 24"	14"	DOWN	0.050	N/A	30	PRICE INDUSTRIES	PDDR	1-3
S-7	SQUARE CONE DIFFUSER	140	12" X 12"	4" Ø	4-WAY	0.215	5-6-9	30	PRICE INDUSTRIES	SCD	1-3

<u>**KMAU-1 SEQUENCE OF OPERATIONS**</u>

OVERVIEW: THIS UNIT IS MEANT TO PROVIDE GENERAL AIR CONDITIONING (HEATING AND COOLING) FOR THE KITCHEN AREA, AS WELL AS VENTILATION FOR THE WHOLE RESTAURANT SPACE (KITCHEN AND DINING AREAS).

FAN SEQUENCE: DURING BUSINESS HOURS (OR IF HOOD HEAT SENSORS ARE TRIGGERED ON OUTSIDE OF BUSINESS HOURS), THIS MAU SHALL TURN ON TO FULL DESIGN AIRFLOW WITH 5,046 CFM OF OUTSIDE AIR AND 611 CFM OF RETURN AIR. OUTSIDE OF BUSINESS HOURS (AND WHEN HOOD HEAT SENSORS ARE TRIGGERED OFF) KMAU-1 FAN SHALL ADJUST TO 2,250 CFM TOTAL AIRFLOW WITH 20% OUTSIDE AIRFLOW (450 CFM) AND 80% RETURN AIRFLOW (1,800 CFM). DX COOLING AND GAS HEATING SYSTEMS TO MODULATE TO MAINTAIN SET TEMPERATURE IN SPACE (WALL THERMOSTAT AND TEMPERATURE SENSOR IN SPACE). IN HEATING MODE KMAU-1 MUST MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE OF 85°F AND A MAXIMUM DISCHARGE AIR TEMPERATURE OF 95°F. IN COOLING MODE, KMAU-1 MUST MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE OF 50°F AND A MAXIMUM DISCHARGE AIR TEMPERATURE OF 60°F

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR STATUS.

<u>**EF-1R SEQUENCE OF OPERATIONS**</u>

EF-1R SHALL BE INTERLOCKED WITH KMAU-1 AND RUN CONTINUOUSLY DURING BUSINESS HOURS, OR IF HEAT SENSORS IN HOOD ARE TRIGGERED ON.

<u>**DH-1 SEQUENCE OF OPERATIONS**</u>

DUCT HEATER SHALL BE SINGLE STAGE OPERATION AND SHALL TURN ON WHEN ALL OF THE FOLLOWING CONDITIONS ARE MET:
1. OUTDOOR AMBIENT AIR TEMPERATURE IS BEOW 30°F.
2. KMAU-1 AIRFLOW IS ON AT DESIGN AIRFLOW OF ~5,000 CFM.
3. KMAU-1 IS IN HEATING MODE.

DUCT HEATER SCHEDULE (GAS FIRED)

ACCEPTABLE MANUFACTURERS:
MODINE
REZNOR
DETROIT RADIANT
STERLING

REMARKS:
(1) PROVIDE WITH STAINLESS STEEL HEAT EXCHANGER, STAINLESS STEEL BURNERS, AND DRAIN FLANGE.
(2) PROVIDE WITH HIGH ALTITUDE KIT.
(3) DUCT HEATER TO TURN ON WHEN ALL OF THE FOLLOWING ARE TRUE: (1) AMBIENT TEMPERATURE DROPS BELOW 30°F, (2) KMAU-1 AIRLFLOW IS ON AT DESIGNED ~5,000 CFM, (3) KMAU-1 IS IN HEATING MODE.
(4) CONTRACTOR MUST REMOVE FINGER BAFFLES FOR HIGH AIRFLOW SCENARIO.

SCHEDULE KEY:
PLUMB = DIVISION 22
MECH = DIVISION 23
ELEC = DIVISION 26
MNFR = MANUFACTURER

LABEL	TYPE	DIMENSIONS	HEATING CAPACITY: AIRFLOW (CFM)	AIR PRESSURE DROP (IN. W.C.)	HEATING CAPACITY: INPUT (BTUH)	OUTPUT (BTUH)	STAGES	AIR TEMP RISE (°F)	VENTING TYPE	ELECTRICAL: VOLTS	PHASE	Hz	FLA	EMERG POWER	DISCONNECT PROVIDED BY (MECH/ ELEC)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
DH-1	GAS-FIRED DUCT HEATER	26" X 41-1/4" X 35-1/4"	5,657	0.35	250,000	200,000	1	33	GRAVITY	120	1	60	0.2	NO	ELEC	276	REZNOR	X-250	ALL

MINIMUM PIPE INSULATION THICKNESS FOR WATER AND REFRIGERANT

FIELD OPERATING TEMP RANGE (F)	INSULATION CONDUCTIVITY: CONDUCTIVITY BTU*IN/(H*T^2*F)	MEAN RAITING TEMPERATURE, F	INSULATION THICKNESS (INCHES) BASED ON NOMINAL PIPE SIZE: LESS THAN 1" DIA.	1"-1 1/2" DIA.	1 1/2"-4" DIA	4"-8" DIA.	8" DIA. AND ABOVE
>350	0.32-0.34	250	4.5	5.0	5.0	5.0	5.0
251-350	0.29-0.32	200	3.0	4.0	4.5	4.5	4.5
201-250	0.27-0.30	150	2.5	2.5	2.5	3.0	3.0
141-200	0.25-0.29	125	1.5	1.5	2.0	2.0	2.0
105-140	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.27-0.30	75	0.5	0.5	1.0	1.0	1.0
<40	0.20-0.26	50	0.5	1.0	1.0	1.0	1.5

MINIMUM OUTSIDE AIR CALCS PER IMC

ROOM	SQ FT	TOTAL PEOPLE	OA CFM/PERSON	TOTAL OA CFM FOR PEOPLE	OA / SQ FT	OA FOR SQ FT	SUM OF PEOPLE AND SQ FT OA	EZ FACTOR	TOTAL	O.A. PROVIDED
RESTAURANT DINING	1,497	136	7.5	1,020	0.18	270	1,290	0.80	1,613	1,700
KITCHEN	1,392	15	7.5	113	0.12	167	280		350	3,350
						TOTAL OA REQUIRED			1,963	5,050

MINIMUM EXHAUST AIR CALCS PER IMC

ROOM	SQ FT	EXHAUST CFM / SQ FT	EXHAUST / UNIT	UNITS	TOTAL REQUIRED EXHAUST CFM	EXHAUST PROVIDED
RESTROOMS	120	-	50	2	100	170
KITCHEN	1,392	0.7	-	-	975	1,600
			TOTAL EXHAUST REQUIRED		1,075	1,770

NEGATIVE BALANCE (EXHAUST - MAKEUP AIR)

AIR BALANCE CALCS - KITCHEN AREA

EQUIPMENT	SUPPLY CFM	OA CFM	EXHAUST AIR CFM
KMAU-1	3,350	3,350	
EF-1R			4,350
EF-2R			600
TOTALS	**3,350**	**3,350**	**4,950**

NEGATIVE 1,600 CFM

AIR BALANCE CALCS - DINING AND BAR AREAS

EQUIPMENT	SUPPLY CFM	OA CFM	EXHAUST AIR CFM
FC-1R	1,200		
KMAU-1	1,700	1,700	
(E) EF-2 (Restroom 1)			50
(E) EF-2 (Restroom 2)			50
(E) FC-12	2,000		
(E) FC-13	2,000		
TOTALS	**6,900**	**1,700**	**100**

POSITIVE 1,600 CFM

BUILDING TOTAL: **BALANCED (O)**

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Reviewed for Code Compliance
10/07/2024

CONSULTANT:

OWNER:
SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056

PROJECT:
CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

ISSUE DATE	DESCRIPTION
06/17/2024	

#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

MECHANICAL SCHEDULES

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ
SHEET #
RME601

GENERAL SHEET NOTES

1. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
2. ALL LOW PRESSURE RECTANGULAR DUCTWORK TO BE LINED WITH INSULATION WITH AN R-VALUE OF R-6. ALL LOW PRESSURE ROUND DUCTWORK TO BE WRAPPED WITH INSULATION WITH AN R-VALUE OF R-6.
3. CONTRACTOR SHALL USE SMACNA DUCT CONSTRUCTION STANDARDS FOR SHEET METAL DUCTS. ALL DUCTWORK (UNLESS OTHERWISE NOTED ON FLOOR PLANS) SHALL BE CONSTRUCTED OF 1.5" W.C. SEAL CLASS "A".
4. ALL EXPOSED DUCTWORK TO BE SPIRAL ROUND OR FLAT OVAL WITH CLEAR SILICON DUCT SEALANT. DUCT TO BE FREE OF ANY COATINGS OR FILMS TO ALLOW FOR PAINTING.
5. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
6. FLEXIBLE DUCT MAY BE USED AT FINAL TERMINATION OF DUCT TO DIFFUSER OR GRILLE. MAXIMUM FLEXIBLE DUCT LENGTH IS 5'-0". PROVIDE DUCT SUPPORTS EVERY 3 FEET. FLEX DUCT SHALL NOT BE COMPRESSED OR KINKED BY ANY OBJECTS SUCH AS STRUCTURE, PIPING, ETC.
7. PROVIDE FLEX DUCT ELBOW (FLEX FLOW ELBOW BY THERMAFLEX, FLEX RIGHT ELBOW BY FLEXMASTER, SMART FLOW ELBOW BY HART AND COOLEY, OR EQUAL) AT ALL CEILING MOUNTED DIFFUSER CONNECTIONS. NOT FOR USE WHERE ABOVE CEILING SPACE IS USED AS RETURN PLENUM.
8. GRILLES AND DUCTWORK ARE SIZED INDEPENDENTLY. THE NECK SIZE OF GRILLES MAY NOT MATCH THE ASSOCIATED DUCT SIZE. PROVIDE TRANSITION TO GRILLES AS NECESSARY.
9. PROVIDE BALANCING DAMPER WITH LOCKING QUADRANT IN EACH DUCT BRANCH OF SUPPLY AND EXHAUST DUCTWORK.
10. PROVIDE REMOTE CABLE OPERATED DAMPER SYSTEM FOR ALL DUCTWORK ABOVE HARD LID CEILINGS OR WHERE DAMPER IS INACCESSIBLE OR PROVDE OPPOSED BLADE DAMPER WITH NYLON BUSHINGS AT GRILLE.

GENERAL SHEET NOTES

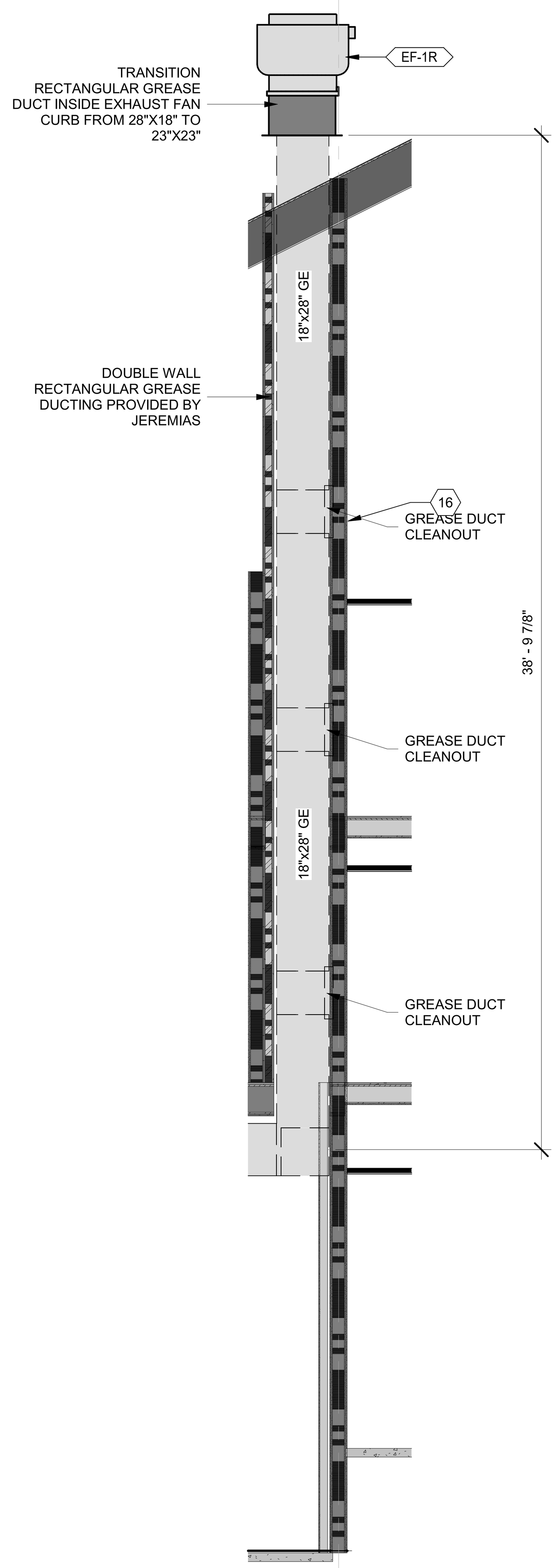
11. PROVIDE ACCESS DOORS FOR ALL SERVICEABLE EQUIPMENT OR VALVES ABOVE HARD LID CEILINGS OR IN WALLS. ALL ACCESS PANELS ARE TO BE PAINTED TO MATCH ADJACENT SURFACES.
12. GREASE DUCT SERVING TYPE I HOODS SHALL BE 16 GAGE STEEL DUCT (OR LISTED AND LABELED FACTORY-BUILT COMMERCIAL KITCHEN GREASE DUCT) WITH TWO LAYERS OF FIRE WRAP TO PROVIDE ZERO INCH CLEARANCE TO COMBUSTIBLE. DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. GREASE DUCT REQUIRES AN ADDITIONAL 6" FROM DIMENSION SHOWN. FIELD VERIFY CLEARANCES PRIOR TO ORDERING. PROVIDE DUCT CLEANOUTS NO MORE THAN 20 FT APART AND NO MORE THAN 10 FT FROM ANY CHANGE IN DIRECTION GREATER THAN 45°. A FIRE RATED CHASE OR FACTORY BUILT UL 1978 APPROVED GREASE DUCT ARE APPROVED SUBSTITUTES TO GREASE DUCT. GREASE DUCT TO SLOPE 1/4" PER FOOT. PRIOR TO CONCEALMENT OF ANY PORTION OF THE GREASE DUCT PERFORM A LEAKAGE TEST AND A LIGHT TEST PER IMC 506.3.2.5. PRIOR TO CONCEALMENT AN INSPECTION OF THE GREASE DUCT WRAP IS REQUIRED WITH A BUILDING DEPARTMENT WITNESS PRESENT.
13. GC TO HIRE NEBB OR AABC CERTIFIED THIRD PARTY TEST AND BALANCE (TAB) CONTRACTOR. TAB CONTRACTOR SHALL ADJUST SHEAVES, BELTS, DAMPERS, ETC AS NECESSARY TO BALANCE SYSTEM TO AIRFLOWS REQUIRED AT LOWEST POSSIBLE SPEEDS. TAB CONTRACTOR SHALL VERIFY THE OUTSIDE AIR AT EACH RTU IS AS SCHEDULED. FOLLOW PROCEDURES AS LAID FORTH IN THE CURRENT VERSION OF "PROCEDURAL STANDARDS FOR TESTING ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS" BY NEBB. PROVIDE REPORT ON NEBB FORMS TO ENGINEER FOR REVIEW.

GENERAL SHEET NOTES

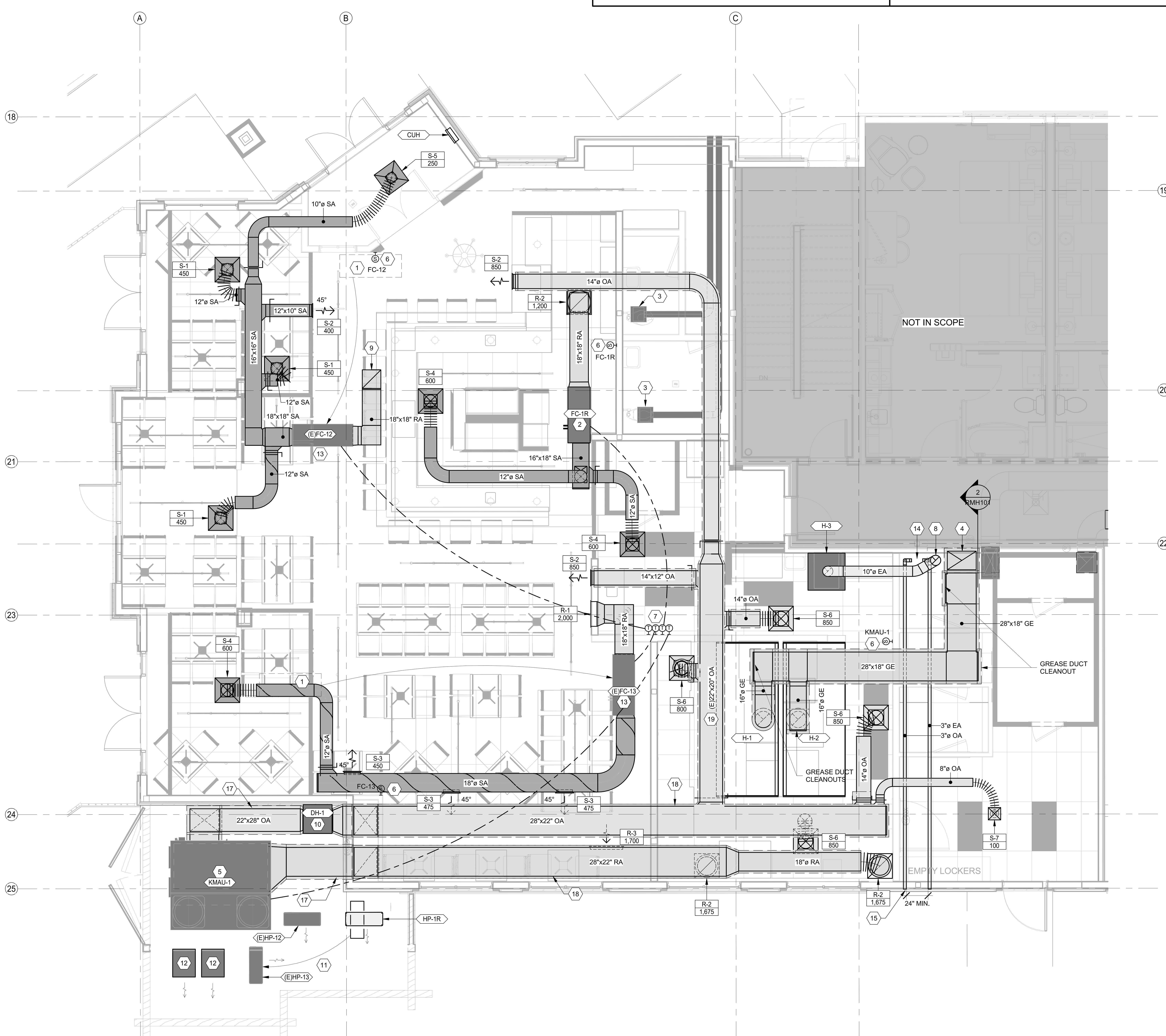
14. THIS CONTRACTOR SHALL ENGAGE A FIRE PROTECTION DESIGN BUILD CONTRACTOR TO MODIFY THE EXISTING FIRE SPRINKLER SYSTEM. DESIGNER SHALL BE NICET LEVEL III TECHNICIAN. WORKING PLANS AND CALCULATIONS SHALL BE PREPARED ACCORDING TO NFPA 13, AND BE APPROVED BY AUTHORITIES HAVING JURISDICTION, INCLUDING HYDRAULIC CALCULATIONS IF APPLICABLE.
15. PROVIDE NEW QUICK RESPONSE FIRE SPRINKLER HEADS IN ALL AREAS OF WORK. SPRINKLER HEADS TO BE ON FLEXIBLE BRAIDED STAINLESS DROPS. SPRINKLER HEAD TO BE CENTER IN HALF OF TILE.
16. COORDINATE EXACT THERMOSTAT LOCATIONS WITH FURNITURE AND OWNER. FAILURE TO DO SO MAY REQUIRE MOVING THERMOSTATS AT CONTRACTORS COST.
17. CONTRACTOR SHALL FIELD VERIFY EXISTING FIELD CONDITIONS PRIOR TO ORDERING OR FABRICATING. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
18. PROVIDE FACTORY AUTHORIZED STARTUP OF ALL EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.
19. GENERAL CONTRACTOR SHALL HIRE A 3RD PARTY COMMISSIONING AGENT TO COMMISSION NEW HVAC EQUIPMENT. COMMISSIONING AGENT SHALL BE LICENSED MECHANICAL ENGINEER. COMMISSIONING AGENT TO PROVIDE COMMISSIONING PLAN LISTING EQUIPMENT AND TEST TO BE PERFORMED TO ENGINEER FOR REVIEW. COMMISSIONING AGENT SHALL PROVIDE REPORT STATING ANY SYSTEM DEFICIENCIES AND LISTING ANY DEFERRED TESTS.
20. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING SYSTEM BALANCING REPORT, FINAL COMMISSIONING REPORT AND MAINTENANCE PROCEDURES.
21. PIPING AND DUCTWORK SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING AND DUCTWORK WITHIN 12" FROM SUPPORTING STRUCTURE.
22. WHERE JURISDICTION REQUIRES, CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT AND SUPPORT ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
23. PROVIDE PROTECTIVE SHIELD PLATES AT THE TOP PLATES AND BOTTOM PLATES, EXTENDING AT LEAST 2" BELOW THE TOP PLATE AND 2" ABOVE THE BOTTOM PLATE FOR ANY DUCT WORK OR PIPING WITHIN 1-1/4" FROM THE FACE OF THE STUD.
24. HVAC DUCTS WITH A DISTRIBUTED WEIGHT GREATER THAN 20LBS/FT, OR THAT HAVE CROSS SECTIONAL AREA 6 SQ FT OR GREATER REQUIRE SEISMIC RESTRAINT. IN ADDITION, DUCT CONVEYING HAZARDOUS MATERIAL, PIPES (OTHER THAN NATURAL GAS, MEDICAL GAS, STEAM OR HIGH PRESSURE HOT WATER PIPING) THAT ARE 3" DIAMETER TRADE SIZE OR GREATER THAT ARE SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRE SEISMIC RESTRAINTS. PIPES WITH A DIAMETER OF 3" TRADE SIZE OR GREATER SUSPENDED LESS THAN 12" FROM SUPPORT THAT EXCEED A TOTAL LOAD SUPPORTED BY A ANY SINGLE VERTICAL ROD IN EXCESS OF 100 POUNDS REQUIRE SEISMIC RESTRAINT (ALL OTHER DUCTWORK AND PIPING IS EXEMPT FROM SEISMIC BRACING). CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH DUCTS & PIPES, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY SEISMIC BRACING ENGINEER

SHEET KEYNOTES

1	RELOCATE FAN COIL FROM LOCATION SHOWN ON SHELL PLANS.
2	NEW FAN COIL ABOVE CEILING. PROVIDE SERVICE CLEARANCES PER MANUFACTURER REQUIREMENTS.
3	EXISTING RESTROOM EXHAUST FANS AND DUCTING PER SHELL PLANS.
4	GREASE DUCTING UP THROUGH SHAFT TO ROOFTOP EXHAUST FAN. CONTINUATION ON VIEW #2 ON THIS SHEET AND ON SHEET MH102. RECTANGULAR GREASE DUCTING IS DOUBLE WALL GREASE DUCT DESIGNED AND PROVIDED BY JEREMIAS (MODEL DWGD-RZ). INSTALL CLEANOUTS PER CODE AND SLOPE HORIZONTAL DUCTING AT A MINIMUM OF 1/4" PER FOOT. PROVIDE CLEANOUTS IN LOCATIONS SHOWN IN LEVEL 1 CEILING SPACE. ALSO PROVIDE GREASE DUCT CLEANOUTS AT EACH LEVEL ON THE VERTICAL GREASE DUCTING, WITH RATED ACCESS PANELS IN SHAFT WALL FOR ACCESS TO CLEANOUTS (SEE ARCHITECTURAL PLANS).
5	'KMAU-1' IS SHOWN ON SHELL PLANS AS A PLACEHOLDER, BUT SCHEDULED ON THESE TENANT IMPROVEMENT PLANS. MECHANICAL CONTRACTOR TO INSTALL AS PART OF TENANT IMPROVEMENT.
6	PROVIDE TEMPERATURE SENSOR FOR FAN COIL AT 7'-0" AFF. COORDINATE PLACEMENT WITH OWNER. ALL SENSORS IN CUSTOMER VIEW TO MATCH COLOR OF MOUNTING SURFACE/WALL.
7	INSTALL THERMOSTATS IN BACK OF HOUSE. COORDINATE EXACT LOCATION WITH OWNER. TEMPERATURE SENSOR TO BE INSTALLED IN AREA SERVED BY ASSOCIATED EQUIPMENT. LABEL EACH THERMOSTAT WITH AREA SERVED AND FAN COIL NUMBER.
8	STAINLESS STEEL SINGLE WALL DUCTING FROM CONDENSATE HOOD UP THROUGH SHAFT TO ROOFTOP EXHAUST FAN. SLOPE DUCTING AT 1/4" PER FOOT TOWARDS HOOD. DUCTING MUST BE LIQUID TIGHT. INSTALL IN COMPLIANCE WITH IMC SECTION 506.4
9	ENSURE UPTURNED RETURN AIR DUCT TERMINATES A MINIMUM OF 6" BELOW THE STRUCTURE ABOVE TO MAINTAIN PROPER AIRFLOW.
10	INSTALL DUCT HEATER UP HIGH IN-LINE WITH DUCTING. CONTRACTOR TO PROVIDE/INSTALL MOUNTING SUPPORT FOR DUCT HEATER.
11	RELOCATE HEAT PUMP "HP-13" FROM LOCATION SHOWN ON SHELL PLANS. MAINTAIN MANUFACTURER REQUIRED CLEARANCES FOR ALL CONDENSERS.
12	WALK-IN COOLER/FREEZER CONDENSER. THIS EQUIPMENT IS SPECIFIED ON THE KITCHEN EQUIPMENT PLANS.
13	INSTALL FAN COIL UP HIGH UNDER STRUCTURE. MAINTAIN MANUFACTURER REQUIRED SERVICE CLEARANCES.
14	ROUTE WATER HEATER VENTS (EXHAUST AIR AND COMBUSTION AIR DUCTS) ABOVE CEILING AND TERMINATE THROUGH EXTERIOR SIDEWALL. FOLLOW ALL MANUFACTURER VENTING INSTRUCTIONS AND MAINTAIN REQUIRED CLEARANCES FROM OPERABLE BUILDING OPENINGS. 12" MINIMUM CLEARANCE FROM OPERABLE BUILDING OPENINGS.
15	MAINTAIN 24" MINIMUM CLEARANCE BETWEEN EXHUAST VENT TERMINAL AND AIR INTAKE TERMINAL
16	ARCHITECTURAL WALL ACCESS PANEL BY ARCHITECT.
17	EXTERIOR KMAU DUCTING TO BE LINED WITH 3"-4" OWENS-CORNING AEROFLEX DUCT LINER WITH A MINIMUM INSULATION VALUE OF R-12. SHEET METAL DUCT MUST BE SEALED AND WEATHEPROOF – ALL JOINTS MUST BE WATERTIGHT. DUCT DIMENSIONS SHOWN HERE ARE INSIDE CLEAR DIMENSIONS.
18	INTERIOR KMAU DUCTING TO BE LINED WITH 1.5" OWENS CORNING AEROFLEX DUCT LINER WITH A MINIMUM INSULATION VALUE OF R-6. DUCT DIMENSIONS SHOWN HERE ARE INSIDE CLEAR DIMENSIONS.
19	RUN DUCT TIGHT AGAINST STRUCTURE.



2 GREASE DUCT SHAFT
SCALE: 1/4" = 1'-0"



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

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Reviewed for Code Compliance
10/07/2024

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HOUSTON, TX 77056
OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	

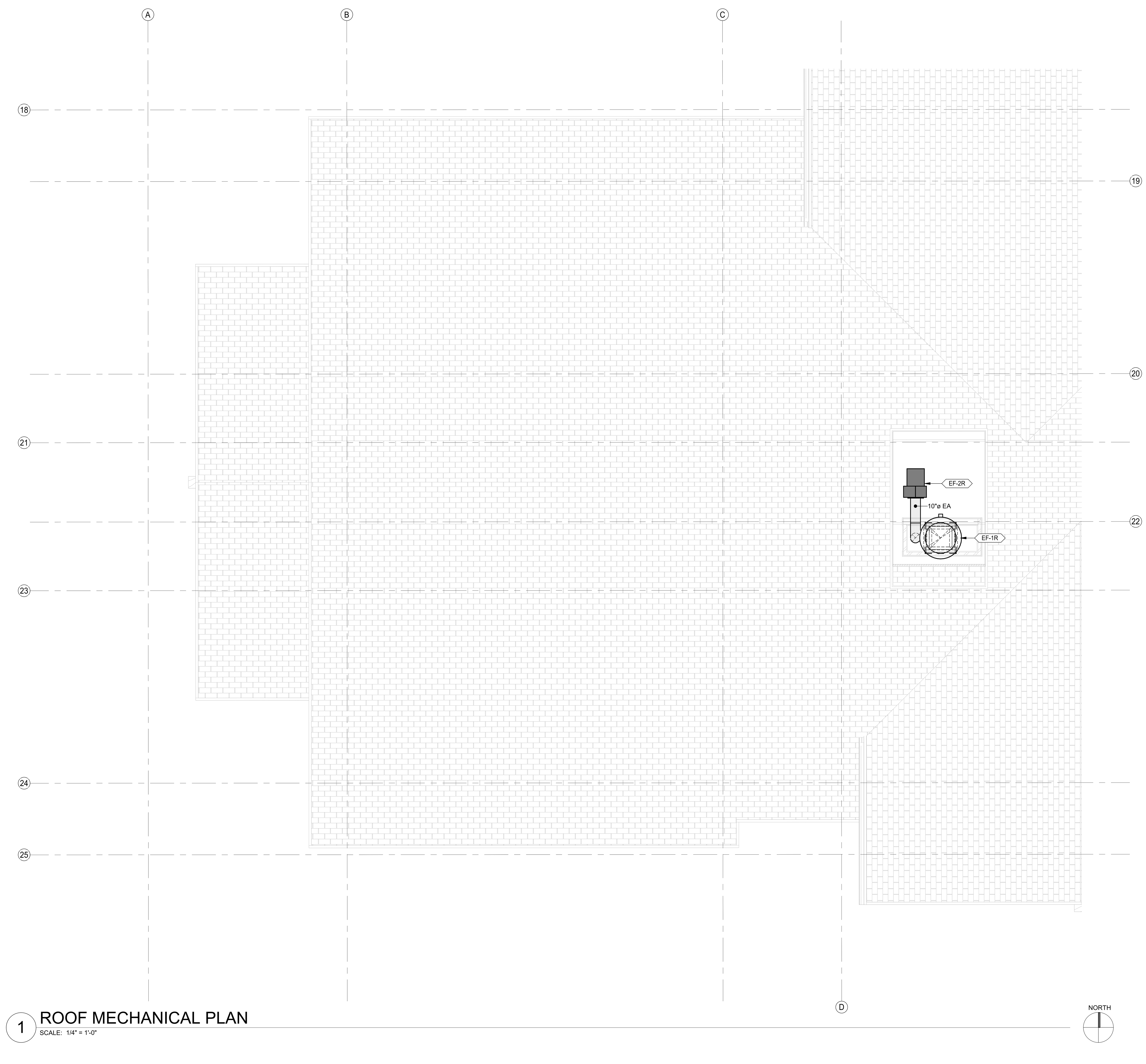
#	REV. DATE	DESCRIPTION
1	09/10/24	Owner Revisions

PERMIT SET

LEVEL 1 MECHANICAL PLAN

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ
SHEET #
RMH101

9/9/2024 2:10:59 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt



1 ROOF MECHANICAL PLAN

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

GENERAL SHEET NOTES

1. MAINTAIN ALL EXHAUSTS AND VENTS A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
2. ROOF TOP EQUIPMENT CONDENSATE PIPING SHALL BE ROUTED TO ROOF DRAINS AND TERMINATED WITH AN AIR GAP. SUPPORT PIPING PER SPECS.
3. MECHANICAL CONTRACTOR TO COORDINATE ALL CURBING AND ROOF PENETRATIONS WITH GENERAL CONTRACTOR.
4. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
5. ALL LOW PRESSURE RECTANGULAR DUCTWORK TO BE LINED WITH INSULATION WITH AN R-VALUE OF R-6. ALL LOW PRESSURE ROUND DUCTWORK TO BE WRAPPED WITH INSULATION WITH AN R-VALUE OF R-6.
6. CONTRACTOR SHALL USE SMACNA DUCT CONSTRUCTION STANDARDS FOR SHEET METAL DUCTS. ALL DUCTWORK (UNLESS OTHERWISE NOTED ON FLOOR PLANS) SHALL BE CONSTRUCTED OF 1.5" W.C. SEAL CLASS "A".
7. ALL EXPOSED DUCTWORK TO BE SPIRAL ROUND OR FLAT OVAL WITH CLEAR SILICON DUCT SEALANT. DUCT TO BE FREE OF ANY COATINGS OR FILMS TO ALLOW FOR PAINTING.
8. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
9. FLEXIBLE DUCT MAY BE USED AT FINAL TERMINATION OF DUCT TO DIFFUSER OR GRILLE. MAXIMUM FLEXIBLE DUCT LENGTH IS 5'-0". PROVIDE DUCT SUPPORTS EVERY 3 FEET. FLEX DUCT SHALL NOT BE COMPRESSED OR KINKED BY ANY OBJECTS SUCH AS STRUCTURE, PIPING, ETC.
10. PROVIDE FLEX DUCT ELBOW (FLEX FLOW ELBOW BY THERMAFLEX, FLEX RIGHT ELBOW BY FLEXMASTER, SMART FLOW ELBOW BY HART AND COOLEY, OR EQUAL) AT ALL CEILING MOUNTED DIFFUSER CONNECTIONS. NOT FOR USE WHERE ABOVE CEILING SPACE IS USED AS RETURN PLENUM.
11. GRILLES AND DUCTWORK ARE SIZED INDEPENDENTLY. THE NECK SIZE OF GRILLES MAY NOT MATCH THE ASSOCIATED DUCT SIZE. PROVIDE TRANSITION TO GRILLES AS NECESSARY.
12. PROVIDE BALANCING DAMPER WITH LOCKING QUADRANT IN EACH DUCT BRANCH OF SUPPLY AND EXHAUST DUCTWORK.
13. PROVIDE REMOTE CABLE OPERATED DAMPER SYSTEM FOR ALL DUCTWORK ABOVE HARD LID CEILINGS OR WHERE DAMPER IS INACCESSIBLE OR PROVIDE OPPOSED BLADE DAMPER WITH NYLON BUSHINGS AT GRILLE.
14. PROVIDE ACCESS DOORS FOR ALL SERVICEABLE EQUIPMENT OR VALVES ABOVE HARD LID CEILINGS OR IN WALLS. ALL ACCESS PANELS ARE TO BE PAINTED TO MATCH ADJACENT SURFACES.
15. GREASE DUCT SERVING TYPE I HOODS SHALL BE 16 GAGE STEEL DUCT (OR LISTED AND LABELED FACTORY-BUILT COMMERCIAL KITCHEN GREASE DUCT) WITH TWO LAYERS OF FIRE WRAP TO PROVIDE ZERO INCH CLEARANCE TO COMBUSTIBLE. DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. GREASE DUCT REQUIRES AN ADDITIONAL 6" FROM DIMENSION SHOWN. FIELD VERIFY CLEARANCES PRIOR TO ORDERING. PROVIDE DUCT CLEANOUTS NO MORE THAN 20 FT APART AND NO MORE THAN 10 FT FROM ANY CHANGE IN DIRECTION GREATER THAN 45°. A FIRE RATED CHASE OR FACTORY BUILT UL 1978 APPROVED GREASE DUCT ARE APPROVED SUBSTITUTES TO GREASE DUCT. GREASE DUCT TO SLOPE 1/4" PER FOOT. PRIOR TO CONCEALMENT OF ANY PORTION OF THE GREASE DUCT PERFORM A LEAKAGE TEST AND A LIGHT TEST PER IMC 506.3.2.5. PRIOR TO CONCEALMENT AN INSPECTION OF THE GREASE DUCT WRAP IS REQUIRED WITH A BUILDING DEPARTMENT WITNESS PRESENT.
16. GC TO HIRE NEBB OR AABC CERTIFIED THIRD PARTY TEST AND BALANCE (TAB) CONTRACTOR. TAB CONTRACTOR SHALL ADJUST SHEAVES, BELTS, DAMPERS, ETC AS NECESSARY TO BALANCE SYSTEM TO AIRFLOWS REQUIRED AT LOWEST POSSIBLE SPEEDS. TAB CONTRACTOR SHALL VERIFY THE OUTSIDE AIR AT EACH RTU IS AS SCHEDULED. FOLLOW PROCEDURES AS LAID FORTH IN THE CURRENT VERSION OF "PROCEDURAL STANDARDS FOR TESTING ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS" BY NEBB. PROVIDE REPORT ON NEBB FORMS TO ENGINEER FOR REVIEW.
17. THIS CONTRACTOR SHALL ENGAGE A FIRE PROTECTION DESIGN BUILD CONTRACTOR TO MODIFY THE EXISTING FIRE SPRINKLER SYSTEM. DESIGNER SHALL BE NICET LEVEL III TECHNICIAN. WORKING PLANS AND CALCULATIONS SHALL BE PREPARED ACCORDING TO NFPA 13, AND BE APPROVED BY AUTHORITIES HAVING JURISDICTION, INCLUDING HYDRAULIC CALCULATIONS IF APPLICABLE.
18. PROVIDE NEW QUICK RESPONSE FIRE SPRINKLER HEADS IN ALL AREAS OF WORK. SPRINKLER HEADS TO BE ON FLEXIBLE BRAIDED STAINLESS DROPS. SPRINKLER HEAD TO BE CENTER IN HALF OF TILE.
19. COORDINATE EXACT THERMOSTAT LOCATIONS WITH FURNITURE AND OWNER. FAILURE TO DO SO MAY REQUIRE MOVING THERMOSTATS AT CONTRACTORS COST.
20. CONTRACTOR SHALL FIELD VERIFY EXISTING FIELD CONDITIONS PRIOR TO ORDERING OR FABRICATING. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
21. PROVIDE FACTORY AUTHORIZED STARTUP OF ALL EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.
22. GENERAL CONTRACTOR SHALL HIRE A 3RD PARTY COMMISSIONING AGENT TO COMMISSION NEW HVAC EQUIPMENT. COMMISSIONING AGENT SHALL BE LICENSED MECHANICAL ENGINEER. COMMISSIONING AGENT TO PROVIDE COMMISSIONING PLAN LISTING EQUIPMENT AND TEST TO BE PERFORMED TO ENGINEER FOR REVIEW. COMMISSIONING AGENT SHALL PROVIDE REPORT STATING ANY SYSTEM DEFICIENCIES AND LISTING ANY DEFERRED TESTS.
23. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING SYSTEM BALANCING REPORT, FINAL COMMISSIONING REPORT AND MAINTENANCE PROCEDURES.
24. PIPING AND DUCTWORK SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING AND DUCTWORK WITHIN 12" FROM SUPPORTING STRUCTURE.
25. WHERE JURISDICTION REQUIRES, CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT AND SUPPORT ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
26. PROVIDE PROTECTIVE SHIELD PLATES AT THE TOP PLATES AND BOTTOM PLATES, EXTENDING AT LEAST 2" BELOW THE TOP PLATE AND 2" ABOVE THE BOTTOM PLATE FOR ANY DUCT WORK OR PIPING WITHIN 1-1/4" FROM THE FACE OF THE STUD.

SHEET KEYNOTES

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PERMIT SET

ROOF MECHANICAL PLAN

PROJECT #: 22-170
DRAWN BY: CHT
CHECKED BY: SSJ

SHEET #: RMH102

SYMBOL LEGEND - MISC

REFERENCE LINES AND SYMBOLS

SYMBOL	DESCRIPTION
	VIEW OR DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE VIEW OR DETAIL IS SHOWN.
	ELEVATION OR SECTION INDICATOR: # INDICATES VIEW NUMBER, SHEET INDICATES DRAWING SHEET WHERE VIEW IS SHOWN.
NAME ###	ROOM / SPACE INDICATOR
#	KEYNOTE INDICATOR
#	REVISION INDICATOR
XX-##	PLUMBING FIXTURE INDICATOR
XX-##	EQUIPMENT INDICATOR
TAG CFM	REGISTER, GRILLE, OR DIFFUSER INDICATOR
OR	BREAKLINE
MATCH LINE SEE XX/XXX	MATCHLINE INDICATOR
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE
	NEW CONNECTION TO EXISTING
	POINT OF DEMOLITION

SYMBOL LEGEND - PIPING

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

SYMBOL	DESCRIPTION
	HOSE BIBB / WALL HYDRANT
	CLEANOUT TO GRADE
	FLOOR CLEANOUT
	WALL CLEANOUT
	FLOOR DRAIN
	FLOOR SINK

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

PIPING LEGEND

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

ABBREVIATION	DESCRIPTION
——160——	160°F HOT WATER
----160R----	160°F HOT WATER RETURN / CIRCULATION
—— -CWV- ——	COMBINATION WASTE AND VENT
——CD——	CONDENSATE DRAIN
—-—DCW—-—	DOMESTIC COLD WATER
—--DHWR--—	DOMESTIC HOT WATER RECIRCULATION
——DI——	DEIONIZED WATER
—-—DSW—-—	DOMESTIC SOFT WATER
——FP——	FIRE PROTECTION
——FW——	FILTERED WATER
—— —GW— ——	GREASE WASTE
—— —IF— ——	INHIBITOR FILTERED WATER
——IW——	IRRIGATION WATER
——LPG——	LIQUID PROPANE GAS
——NG——	NATURAL GAS
——RW——	RAINWATER / STORM DRAIN
—-—SCW—-—	DOMESTIC SOFT COLD WATER
—--SHW--—	DOMESTIC SOFT HOT WATER
——SRW——	SECONDARY RAINWATER / STORM DRAIN
—— —SS— ——	SANITARY SEWER
— — — —V— — — —	VENT

SYMBOL LEGEND - PIPING

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

SYMBOL	DESCRIPTION
	SHUT OFF VALVE
	GATE VALVE
	CHECK VALVE
	AUTOMATIC 2-WAY VALVE
	AUTOMATIC 3-WAY VALVE
	GLOBE VALVE
	BALL VALVE
	RELIEF VALVE
	PRESSURE REDUCING VALVE
	SOLENOID VALVE
	BALANCING OR PLUG COCK
	FLOW SETTER
	EXPANSION VALVE
	GAS COCK
MAV	MANUAL AIR VENT
	STRAINER
	GAUGE COCK
	PRESSURE GAUGE
	THERMOMETER
	PIPE REDUCER
	90 DEGREE ELBOW UP
	90 DEGREE ELBOW DOWN
	90 DEGREE TEE UP
	90 DEGREE TEE DOWN
	PIPE UNION
	PIPE CAP
	PIPE ANCHOR

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AC	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DP	DEPTH, DEEP, OR DROP IN PRESSURE
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY)
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
RA	RETURN AIR
RECIRC	RECIRCULATE (-ER, -ED, -ING)
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SH	SENSIBLE HEAT
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	SANITARY SEWER, SOIL, WASTE
STD	STANDARD
TA	TRANSFER AIR
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
TOT	TOTAL
TSTAT	THERMOSTAT
TYP	TYPICAL
V	VOLT, VOLTAGE OR VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VTR	VENT THROUGH ROOF
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WTR	WATER

PLUMBING GENERAL NOTES

1. THE PLUMBING DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE PLUMBING SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.
2. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.
3. THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT.
4. THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS OF THE BUILDING OWNER.
5. PRIOR TO FABRICATION AND INSTALLATION OF ANY PLUMBING COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
6. ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE, WHERE APPROPRIATE, ALL THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. ANY PART OF THE PLUMBING INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
9. PROVIDE PROPER PROVISIONS FOR EXPANSION, CONTRACTION, OR MOVEMENT OF ALL PIPING.
10. PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALL OR FLOOR TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENT.
11. ALL PIPING SHALL BE SUPPORT WITH CLEVIS HANGERS (MSS TYPE 1). PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.
12. PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.
13. PROVIDE SWAY BRACING FOR ALL PIPING 4” AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.
14. ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER OR PLASTIC COATED.
15. COPPER PIPING SHALL NOT COME IN CONTACT WITH FIRE TREATED LUMBER. PROVIDE ½” THICK SLIP-ON CLOSED CELL INSULATION WHERE COPPER PIPING IS ADJACENT TO FIRE TREATED LUMBER. CLOSED CELL INSULATION SHALL EXTEND A MINIMUM OF 1-1/2” PAST LUMBER.
16. ALL EXPOSED PIPING SHALL BE INSTALLED IN A NEATLY ARRANGED MANNER PARALLEL TO THE BUILDING STRUCTURE.
17. ALL EXPOSED DOMESTIC WATER PIPE IN OCCUPIED SPACES SHALL BE POLISHED CHROME PLATED OR COPPER.
18. ALL EXPOSED DRAINAGE PIPING IN OCCUPIED SPACES INCLUDING TRAPS UNDER SINKS SHALL BE POLISHED CHROME PLATED.
19. DRAWINGS SHOW GENERAL ARRANGEMENT OF THE DRAIN WASTE AND VENT SYSTEM WITH THE REQUIRED CLEANOUTS. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL CLEANOUTS AS REQUIRED BY THE PLUMBING CODE.
20. ALL SANITARY DRAINAGE SYSTEM PIPING 3” AND LARGER SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8” PER FOOT.
21. ALL SANITARY DRAINAGE SYSTEM PIPING SMALLER THAN 3” SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/4” PER FOOT.
22. SLOPE VENT SYSTEM TOWARDS DRAINAGE SYSTEM.
23. SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
24. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE JOB SITE ELEVATION.
25. FIXTURE AND EQUIPMENT MODEL NUMBERS SHOWN IN PLUMBING FIXTURE SCHEDULE AND PLUMBING EQUIPMENT SCHEDULE ARE SHOWN TO ESTABLISH THE TYPE OF PRODUCT THAT SHALL BE USED. THE SELECTED PRODUCT SHALL MEET THE SCHEDULED PERFORMANCE DATA SHOWN ON THE SCHEDULE EVEN IF A DIFFERENT MODEL IS SUPPLIED THAT IS DIFFERENT THAN THAT SCHEDULED.
26. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER’S INSTALLATION INSTRUCTIONS. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS, VALVES AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
27. SEE “PLUMBING FIXTURE SCHEDULE” FOR INDIVIDUAL TRAPS, WASTE, VENT, AND DOMESTIC WATER PIPING FOR INDIVIDUAL FIXTURES.
28. ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED TESTING AGENCY.
29. FIXTURES, EQUIPMENT AND PIPING INSTALLATION SHALL MEET NSF STANDARDS.

PLUMBING SHEET INDEX

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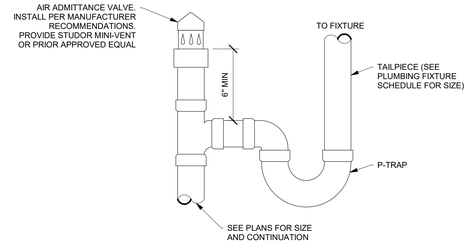
PLUMBING COVER SHEET

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ

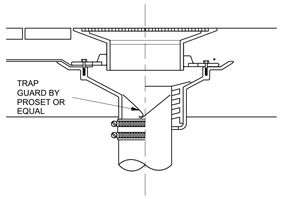
SHEET # RPE001

9/9/2024 2:11:00 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/230357-Steamboat Springs Restaurant.rvt



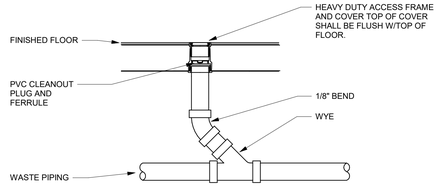
9 AIR ADMITTANCE VALVE DETAIL

SCALE: NTS



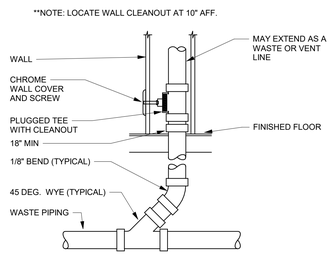
8 FLOOR DRAIN

SCALE: NTS



7 FLOOR CLEANOUT

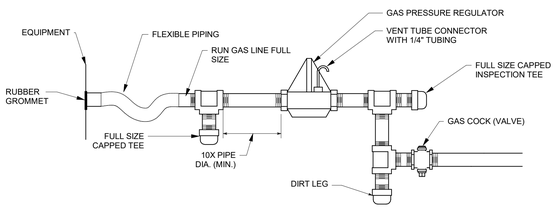
SCALE: NTS



6 WALL CLEANOUT

SCALE: NTS

VENT LINE SIZING	
FUEL LINE SIZE (NOMINAL INCHES)	VENT LINE SIZE (NOMINAL INCHES)
UP TO 1 1/2"	3/4"
2"	1"
2 1/2"	1 1/4"
3"	1 1/4"



10 EQUIPMENT GAS PIPING WITH REGULATOR

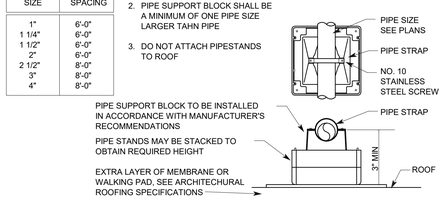
SCALE: NTS

ROOF PIPE SUPPORT SCHEDULE	
PIPE SIZE	MAXIMUM SPACING
1"	6'-0"
1 1/4"	6'-0"
1 1/2"	6'-0"
2"	6'-0"
2 1/2"	8'-0"
3"	8'-0"
4"	8'-0"

NOTES:

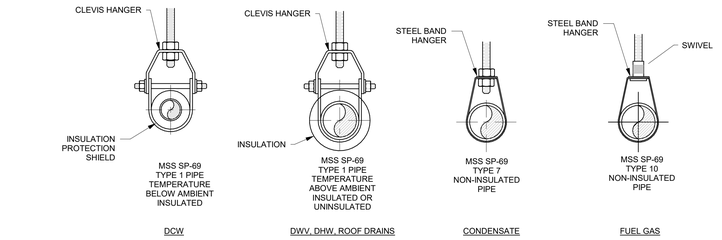
1. SUPPORTED PIPE AT ALL ELBOWS AND AT SPACING SPECIFIED.
2. PIPE SUPPORT BLOCK SHALL BE A MINIMUM OF ONE PIPE SIZE LARGER TAHN PIPE
3. DO NOT ATTACH PIPESTANDS TO ROOF

MIRO INDUSTRIES, INC.
170 WEST COTTAGE AVE
SANDY, UTAH 84070
(801) 566-3680



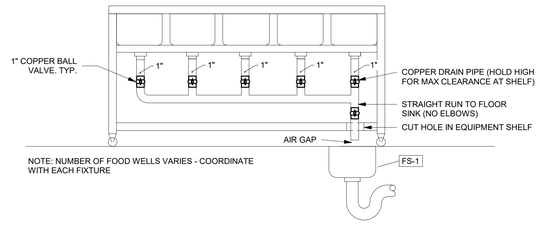
5 ROOF PIPING SUPPORT

SCALE: NTS



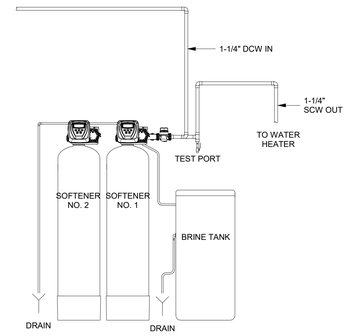
4 PIPE HANGERS

SCALE: NTS



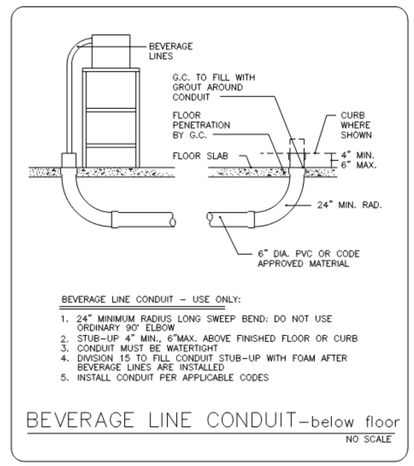
3 HOT FOOD WELL WASTE PIPING DETAIL

SCALE: NTS



2 WATER SOFTENER PIPING DETAIL

SCALE: NTS



1 BEVERAGE LINE CONDUIT DETAIL

SCALE: NTS

THE RICHARDSON DESIGN PARTNERSHIP, L.L.C.
510 South 600 East
Salt Lake City, Utah 84102
P: 801.355.6888
F: 801.355.6880

COLORADO LICENSED
BENJAMIN J. SCHUG
47199
9-09-2024
PROFESSIONAL ENGINEER

SPECTRUM ENGINEERS
324 S. State St., Suite 400
Salt Lake City, UT 84111
800-678-7077
801-328-5151
fax: 801-328-5155
www.spectrum-engineers.com

Reviewed for Code Compliance
10/07/2024
CONSULTANT

OWNER:
SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056

PROJECT:
CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

ISSUE DATE	DESCRIPTION
06/17/2024	

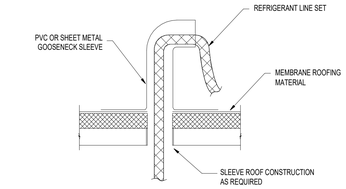
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

PLUMBING DETAILS

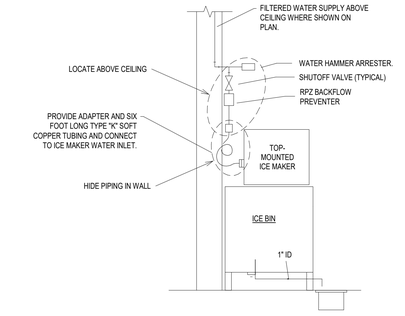
PROJECT #: 23.170
DRAWN BY: DAT
CHECKED BY: SSJ
SHEET #
RPE501

9/9/2024 2:11:01 PM
Autodesk Docs://23-170 SHS - Steamboat Springs CO/230537-Steamboat Springs Restaurant.rvt



4 LINE-SET PENETRATION DETAIL

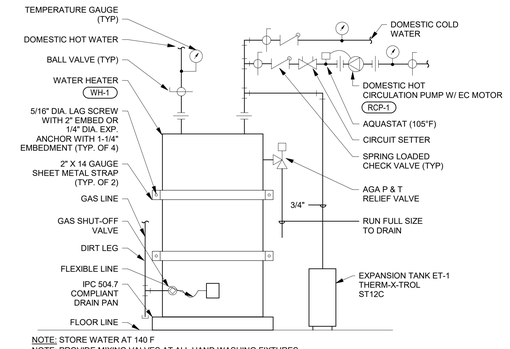
SCALE: NTS



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS PROVIDE CONNECTIONS AS RECOMMENDED BY EQUIPMENT MANUFACTURER.

3 ICE MACHINE DETAIL

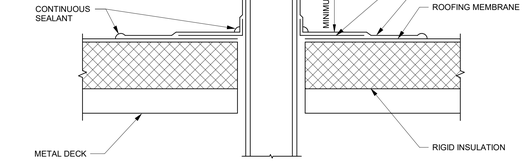
SCALE: NTS



NOTE: STORE WATER AT 140 F
NOTE: PROVIDE MIXING VALVES AT ALL HAND WASHING FIXTURES
NOTE: PROVIDE THERMOSTATICALLY BALANCED HOT WATER RECIRCULATION VALVES AT INDICATED LOCATIONS
NOTE: RECIRCULATION PUMP CONTROL TO AUTOMATICALLY OPERATE THE PUMP PER IECC 404.6.1

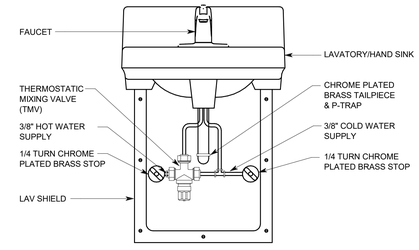
6 WATER HEATER WITH RECIRC

SCALE: NTS



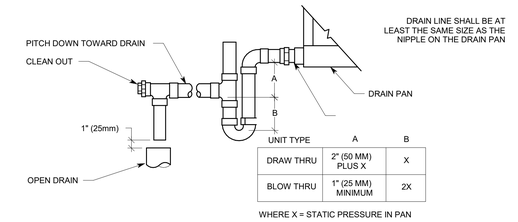
2 VENT THRU ROOF DETAIL

SCALE: NTS



5 HAND SINK W/MIXING VALVE

SCALE: NTS



UNIT TYPE	A	B
DRAW THRU	2" (50 MM) PLUS X	X
BLOW THRU	1" (25 MM) MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

1 RTU CONDENSATE TRAP DETAIL

SCALE: NTS

THE RICHARDSON DESIGN PARTNERSHIP, L.L.C.
510 South 600 East
Salt Lake City, Utah 84102
P: 801.355.6868
F: 801.355.6880

COLORADO LICENSED
BENJAMIN J. SCHUG
47199
9-09-2024
PROFESSIONAL ENGINEER

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324 S. State St., Suite 400
Salt Lake City, UT 84111
800-678-7077
801-328-5151
fax: 801-328-5155
www.spectrum-engineers.com

Reviewed for Code Compliance
10/07/2024
CONSULTANT:

SERAC CAPITAL PARTNERS, LLC
5051 WESTHEIMER RD. SUITE 1750
HOUSTON, TX 77056
OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	

# REV. DATE	DESCRIPTION
09/10/24	Owner Revisions

PERMIT SET

PLUMBING DETAILS

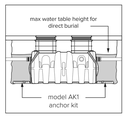
PROJECT # 20-170
DRAWN BY: DT
CHECKED BY: SSJ

SHEET #
RPE502

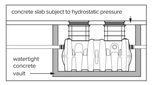
9/9/2024 2:11:01 PM
Autodesk Docs://22-170 SHS - Steamboat Springs CO/22035D Steamboat Springs Restaurant.rvt

Secure Cover Adapters
Cover adapters must be secured to base units in above grade installations with increased twist pressure conditions. Use cover adapter tie-down kit model ATDI.

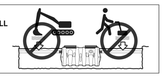
High Water Table Installations
Interceptors and risers are not designed to withstand water table height in excess of the top of the unit when buried (see figure). If it is possible for this to occur, install the interceptor and risers in a water-tight concrete vault or backfill with concrete or flowable fill (wet concrete and flowable backfill should be poured in stages to avoid crushing the interceptor). At risk areas include but are not limited to tidal surge areas, floodplains and areas that receive storm water. Great Basin™ models that are direct buried in high water table scenarios must be installed with an anchor kit. Model GB-250 uses model AK1 anchor kit.



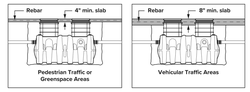
Hydrostatic/ Pressure Slabs
When installed under a hydrostatic slab (slab designed to withstand upward lift, usually caused by hydrostatic pressure) interceptor must be enclosed in a watertight concrete vault.



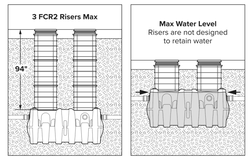
DO NOT COMPACT BACKFILL MECHANICALLY
Compact by hand only



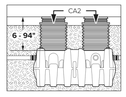
Below Grade Installation Slab Requirements
A concrete slab to finished grade with rebar is required when installing interceptor below grade.



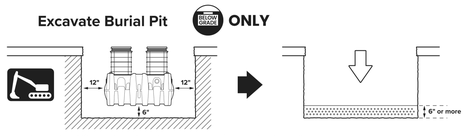
Installations with Risers



Corrugated Riser Pipe Requirements
Riser adapter model CA2 must be used when installing interceptors using 24" diameter corrugated pipe as a riser. This will adequately embed the cover adapter in the concrete slab, preventing cover/cover adapter failure under traffic rated loads.



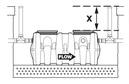
Excavate Burial Pit ONLY



Excavate hole at least 12" larger than interceptor on all sides and 6" deeper than tank bottom. Lay a level bed of well-packed, crushed aggregate (approximately 3/4" size rock or sand, with no fines) in the base of hole.

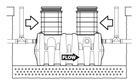
The GB-250 is ready for burial depth of 44" from finished grade to bottom of tank (or 13-1/2" to centerline of inlet). Deeper burials will require extending the cover adapters and possibly adding risers.

Measure dimension X to determine riser height needed.



Riser Height Needed	Risers Required
0" - 4"	None (use adapter)
>4" - 34"	FCR2 (x2)
>34" - 64"	FCR2 (x4)
>64" - 94"	FCR2 (x6)

Install risers if required

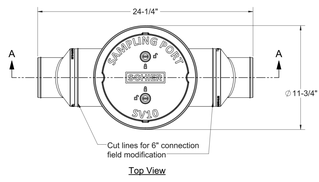


See instructions included with FCR2.

NOTES
1. 4" plain end inlet/outlet
2. Field modifiable to 6" plain end inlet/outlet
3. Unit weight - 9 lbs.
4. Maximum operating temperature: 150º F continuous
5. Offset connections
6. 2 rolls of 33" x 2" butyl mastic tape provided for sealing build-your-own riser joints

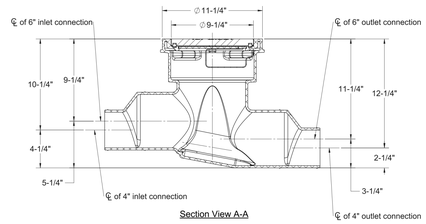
ENGINEER SPECIFICATION GUIDE
Schier Sewer Viewer™ sampling port model # SV10 shall be lifetime guaranteed and madein USA of seamless, rotationally-molded polyethylene. Sampling port shall be furnished for above or below grade installation. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

ACCESSORIES:
- Field Cut Risers for extending cover to grade

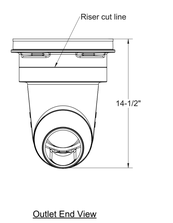


Top View

Iso View



Section View A-A



Outlet End View

SPECIFICATION SHEET					
MODEL NUMBER: SV10	**PART NUMBER:** 8065-001-01				
	DESCRIPTION: SV10 SEWER VIEWER SAMPLING PORT, 4" CONNECTIONS (FIELD MODIFIABLE TO 6"), POLYETHELENE COVER				
	DWG BY: B.BROWN	**DATE:** 6/6/2022	**REV:** -	**ECO:** -	

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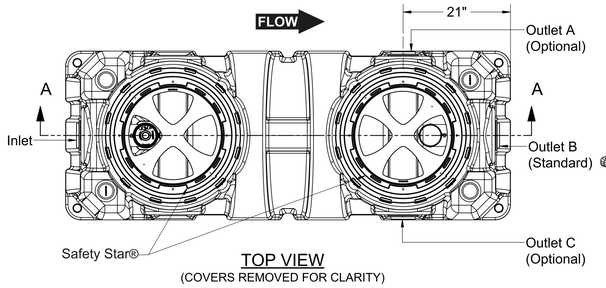
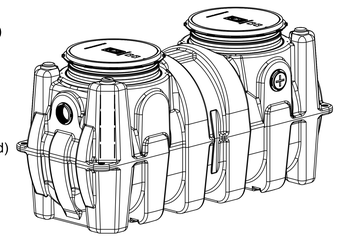
SCHIER
6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

SPECIFICATIONS

Notes:
1. 4" FPT inlet/outlet with 4" plain end adapters, single inlet and triple outlet.
2. Unit weight - w/ cast iron covers: 376 lbs. (For wet weight add 2,310 lbs.)
3. Maximum operating temperature: 150º F continuous
4. Capacities - Liquid: 277 gal.; Grease: 1,895 lbs. (260 gal.) @100GPM Grease: 1,196 lbs. (164 gal.) @200GPM Solids: 69 gal.
5. This unit does not require flow control for 100 GPM applications. Built-in flow control is provided for 200 GPM applications. For series installations, only install flow control on the first unit in the series if necessary.
6. For gravity drainage applications only.
7. Do not use for pressure applications.
8. Cover placement allows full access to tank for proper maintenance.
9. Vent not required unless per local code.
10. Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
11. Integral air relief / Anti-siphon / Sampling access.
12. Adjustable cover adapters provide up to 4" of additional height.
13. Designed for below-grade, above-grade, indoor or outdoor installations.
14. Safety Star®, access restrictor built into each cover adapter, prevents accidental entry to tanks (450 lb rating).



TOP VIEW
(COVERS REMOVED FOR CLARITY)



ISOMETRIC VIEW

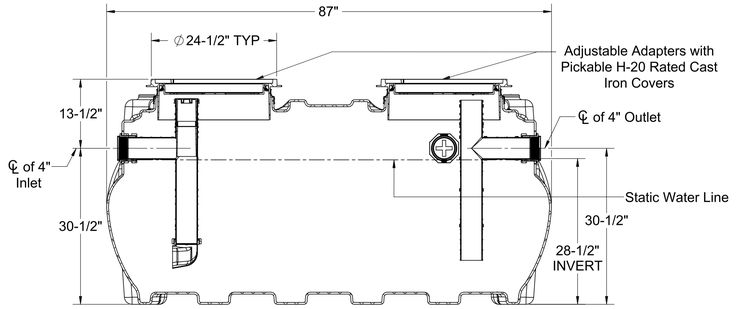
ENGINEER SPECIFICATION GUIDE

Schier Great Basin™ grease interceptor model # GB-250 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene with minimum 3/8" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapters, Safety Star® access restrictor built into each cover adapter, built-in flow control (for 200 GPM only) and three outlet options. Interceptor shall be certified to ASME A112.14.3 (Type D for 100 GPM, type C for 200 GPM) and CSA B481.1. Interceptor flow rate shall be 100 GPM or 200 GPM. Interceptor grease capacity shall be 1,895 lbs. @ 100 GPM or 1,196 lbs. @ 200 GPM. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

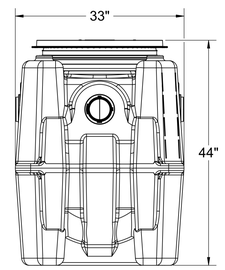
CERTIFIED PERFORMANCE

Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control



SECTION A-A



END VIEW

SPECIFICATION SHEET					
MODEL NUMBER: GB-250	**PART NUMBER:** 4055-007-02				
	DESCRIPTION: GB-250 GREASE INTERCEPTOR 100 GPM / 200 GPM, 4" INLET/OUTLET, H-20 RATED CAST IRON COVERS				
	DWG BY: C.SINCLAIR	**DATE:** 5/4/2022	**REV:** -	**ECO:** -	

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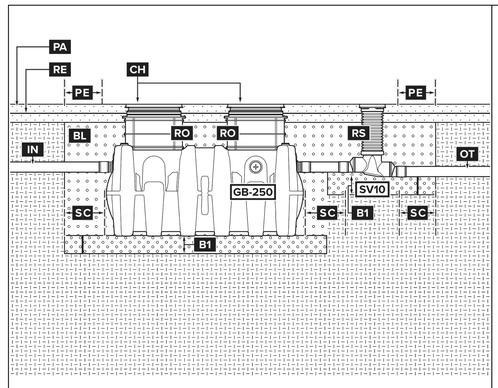
SCHIER
6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

**FOR THE FULL INSTALLATION DETAILS, REFER TO THE MANUFACTURER INSTALLATION DOCUMENTS.

NOTE: GREASE INTERCEPTOR LOCATION IS SHOWN ON SHELL CIVIL PLANS. GREASE INTERCEPTOR SIZING REQUIREMENTS ARE SHOWN ON THESE PLANS.



B1 6" minimum compacted base (clean aggregate 3/4" in size or smaller)
BL Backfill (clean aggregate 3/4" in size or smaller) - DO NOT COMPACT BACKFILL MECHANICALLY
CH H-20 load rated cast iron cover
IN 4" diameter inlet pipe
OT 4" diameter outlet pipe
PA Minimum 8" thick concrete pad with rebar required for vehicular traffic. Concrete to be 28 day compressive strength to 4,000 PSI.
PE Pad to extend 18" minimum beyond edge of tank on all sides.
RE No. 4 rebar, grade 60 steel
RO FCR2 field cut riser to grade
RS FCR10 field cut riser to grade
SC 12" clear all sides

DETAIL Steamboat Springs - Restaurant T.I. #2 — **Outdoors, Below Grade**

GB-250 GREASE INTERCEPTOR 100 GPM / 200 GPM, 4" PLAIN/FPT CONNECTIONS, H-20 RATED PICKABLE CAST IRON COVERS
SV10 SEWER VIEWER SAMPLING PORT, 4" CONNECTIONS (FIELD MODIFIABLE TO 6"), POLYETHELENE COVER

Disclaimer: this Detail represents manufacturer directed guidance regarding the grease interceptor system. The contents of this document are not a substitute for local jurisdiction requirements and plumbing code standards. Please follow all local ordinances when installing.

SCHIER
LIFETIME GUARANTEED
GREASE INTERCEPTORS
schierproducts.com

THE RICHARDSON DESIGN PARTNERSHIP, L.L.C.
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Reviewed for Code Compliance
10/07/2024
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HOUSTON, TX 77056
OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	
# REV. DATE	DESCRIPTION
09/10/24	Owner Revisions

PERMIT SET

GREASE INTERCEPTOR DETAILS

PROJECT # 20-178
DRAWN BY: DT
CHECKED BY: SSJ

SHEET # RPE503

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MINIMUM PIPE INSULATION THICKNESS FOR WATER AND REFRIGERANT

FIELD OPERATING TEMP RANGE (F)	INSULATION CONDUCTIVITY: CONDUCTIVITY BTU*IN/(H*T^2*F)	INSULATION CONDUCTIVITY: MEAN RAITING TEMPERATURE, F	INSULATION THICKNESS (INCHES) BASED ON NOMINAL PIPE SIZE: LESS THAN 1" DIA.	1"-1 1/2" DIA.	1 1/2"-4" DIA	4"-8" DIA.	8" DIA. AND ABOVE
>350	0.32-0.34	250	4.5	5.0	5.0	5.0	5.0
251-350	0.29-0.32	200	3.0	4.0	4.5	4.5	4.5
201-250	0.27-0.30	150	2.5	2.5	2.5	3.0	3.0
141-200	0.25-0.29	125	1.5	1.5	2.0	2.0	2.0
105-140	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.27-0.30	75	0.5	0.5	1.0	1.0	1.0
<40	0.20-0.26	50	0.5	1.0	1.0	1.0	1.5

VALVE SCHEDULE

SERVICE	VALVE TYPE	PIPE SIZE	DESCRIPTION
DOMESTIC WATER SERVICE	BALL VALVE	2" & SMALLER	COPPER ALLOY, 2-PIECE, STANDARD PORT, CHROME PLATED BALL, TFE SEAT, LEVER HANDLE, 400 PSIG WOG, MSS SP-110, SOLDERED OR THREADED END
	CHECK VALVE	2" & SMALLER	BRONZE BODY, SPRING TYPE, TFE SEAT, BRONZE DISC, SOLDERED OR THREADED ENDS, MSS SP-80
	UNION	2" & SMALLER	ASTM B16.39, CLASS 150, MALLEABE IRON, HEXAGONAL STOCK BODY, BRONZE-TO-BRONZE SEAT
NATURAL GAS	BALL VALVE	2" & SMALLER	COPPER ALLOY, 2-PIECE, STANDARD PORT, CHROME PLATED BALL, TFE SEAT, LEVER HANDLE, 400 PSIG WOG, MSS SP-110, AGA APPROVED, ASME B26.33, THREADED END
	UNION	2" & SMALLER	ASTM B16.39, CLASS 150, MALLEABEL IRON, HEXAGONAL STOCK BODY, BRONZE-TO-BRONZE SEAT

GAS PRESSURE REGULATOR SCHEDULE

ACCEPTABLE MANUFACTURERS:
PIETRO FIORENTINI
MAXITROL

REMARKS:
(1) 3.0 PSIG INLET PRESSURE, 1,000 BTU PER C.F.
(2) 4 OZ (7" W.C.) OUTLET PRESSURE
(3) DIE CAST ALIMINUM BODY, NITRILE DIAPHRAGM
(4) NPT THREADED INLET & OUTLET
(5) BALL CHECK AUTOMATIC VENT LIMITING DEVICE

SYMBOL	LOCATION	MANUFACTURER	MODEL NUMBER	REGULATOR SIZE (INCHES)	CAPACITY (CFH)	NOTES
GPR	INDOOR / OUTDOOR	PF REGULATOR	F30051	1/2	**928**	ALL
			F30052	3/4	**1155**	
			F30053	1	**1501**	
			F3013	1-1/4	**7894**	

WATER HAMMER ARRESTER SCHEDULE

ACCEPTABLE MANUFACTURERS:
SIOUX CHIEF "HYDRA-ARRESTER"
MIFAB "MWH"
PPP "SC"
WATTS LF02
J.R. SMITH 50XX

REMARKS:
(1) ANSI / ASSE 1010 LISTED
(2) LEAD FREE CONSTRUCTION
(3) COPPER TUBE BODY; POLY PISTON, EDPM O-RING
(4) MIP THREADED INLET

SYMBOL	INLET SIZE (INCHES)	PDI SYMBOL	CAPACITY (DFU)	BASIS OF DESIGN MANUFACTURER & MODEL
WHA-A	1/2	A	1-11	SIOUX CHIEF 652-A
WHA-B	3/4	B	12-32	SIOUX CHIEF 653-B
WHA-C	1	C	22-60	SIOUX CHIEF 654-C
WHA-D	1	D	61-113	SIOUX CHEIF 655-D
WHA-E	1	E	114-154	SIOUX CHIEF 656-E
WHA-F	1	F	155-330	SIOUX CHIEF 657-F

GREASE INTERCEPTOR CALCULATIONS

Reference No. 66835 Project Name: Steamboat Springs - Restaurant T.I. #2

Step 1: Flow rate to grease interceptor

Fixture flow rate: (cu in / 231) = gal x 0.75 / 2 min = 2 min flow rate

NAME	TYPE	DIMENSIONS	QTY	CU IN	FLOW RATE	TOTAL DFUs
Bar Sink One Bowl	Bar Sink One Bowl	14" x 14" x 14"	2	5,488	8.9 GPM	4
Dishwasher	Dishwasher (Door Type)	35 gal.	1	8,085	17.5 GPM	3
Dishwasher	Dishwasher (Undercounter)	11 gal.	1	2,541	5.5 GPM	3
Floor Drain	Floor Drain	N/A	5	N/A	0 GPM	10
Floor Sink (Coffee Station)	Floor Sink	N/A	1	N/A	0.5 GPM	2
Floor Sink (soda gun drains)	Floor Sink	N/A	2	N/A	1 GPM	4
FS (Tilt skillet & combi oven)	Floor Sink	N/A	1	N/A	7.5 GPM	2
HOTEL - 3 Comp Sink	3 Compartment Sink	21" x 21" x 14" (3)	1	18,522	30.07 GPM	6
HOTEL - Floor Sink	Floor Sink	N/A	2	N/A	2 GPM	4
Mop Basin	Mop Basin	24" x 24" x 10"	1	5,760	9.35 GPM	3
Pre-Rinse Sink One Bowl	Pre-Rinse Sink One Bowl	20" x 20" x 5"	1	2,000	3.25 GPM	2
Prep Sink Two Bowls	Prep Sink Two Bowls	21" x 21" x 14" (2)	2	24,696	40.1 GPM	4
Warming Table (with drain)	Warming Table (with drain)	N/A	1	N/A	0.5 GPM	1
Total					**126.17 GPM**	48

Flow rate used to size interceptor (less of fixture or pipe size)
Pipe size (4 in):
Pipe Size flow rate per Manning's Formula **75 GPM**

Step 2: Grease Production

Number of Seats x 4 turns per seat x Grease Production Value x Days between pump-out = Grease output

Number of seats in facility: 136
Grease production value: 0.035 lbs per serving (Bar and Grille: High / No flatware)
Days between pump-outs: 90 days

136 x 4 x 0.035 x 90 = 1713.6 lbs of FOG

SCHIER MODEL	
GB-250	**Description:** GREASE INTERCEPTOR 100 GPM / 200 GPM, 4" PLAIN/FPT CONNECTIONS, H-20 RATED PICKABLE CAST IRON COVERS **Dimensions:** Length: 87", Width: 33", Height: 44" **Flow Rate/Grease Capacity:** 100 GPM / 1895 lbs **Liquid Capacity:** 277 gal

Specification Note: This Great Basin model has been sized to the flow rate and grease production requirements of the application and may not be substituted by liquid capacity alone. Any substitution requests must be approved by the specifying engineer and the authority having jurisdiction.

Please contact support@schierproducts.com for technical and procurement support for the specified Great Basin model.

*SIZING PER "STANDARD SPECIFICATIONS FOR WATER AND WASTEWATER UTILITIES" DOCUMENT PROVIDED BY THE CITY OF STEAMBOAT SPRINGS.
**SEE SHELL CIVIL PLANS FOR LOCATION OF GREASE INTERCEPTOR AND GREASE WASTE PIPING TO BUILDING.

SANITARY SEWER DEMAND

EQUIPMENT	MINIMUM TRAP AND TRAP ARM	QUANTITY	INDIVIDUAL DRAINAGE FIXTURE UNIT	TOTAL DRAINAGE FIXTURE UNITS
WATER CLOSET, FLUSH VALVE (PUBLIC 1.6 GPF)	4"	2	4.0	8.00
LAVATORY	1-1/4"	2	1.0	2.00
FLOOR DRAIN (EMERGENCY)	2"	3	0.0	0.00
FLOOR SINK	2"	3	2.0	6.00
HAND WASHING SINK	1-1/2"	4	2.0	8.00
GREASE WASTE	4"	1	48.0	48.00
			TOTAL (DFU):	72.00
BASIS FOR DESIGN:				
2021 INTERNATIONAL PLUMBING CODE CHAPTER 7, TABLE 710.1(1) - PIPE SIZE:				4"

WATER HEATER (GAS)

ACCEPTABLE MANUFACTURERS:
LOCHINVAR
AO SMITH
BRADFORD WHITE
RHEEM
STATE
BOCK

REMARKS:
(1) PROVIDE WITH CONCENTRIC VENT KIT.
(2) PROVIDE WITH EXPANSION TANK THERM-X-TROL ST-12.
(3) PROVIDE WITH UPPER AND LOWER SEISMIC STRAPS WITH TWO 5/16" LAG SCREWS HAVING 2" OF EMBED AT EACH CONNECTION LOCATION.

LABEL	LOCATION	TANK SIZE (GAL)	RECOVERY GPH @ 100° ΔT	FIRST HOUR RATING (GAL.)	GAS INPUT (BTUH)	EFFICIENCY	ELECTRICAL: VOLTS	PHASE	Hz	MCA	OPERATING WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
WH-2	MECH ROOM	75	115	168	100,000	96	120	1	60	5.0	1008	A.O. Smith	BTXL-100	ALL

RECIRCULATION PUMP SCHEDULE

LABEL	MANUFACTURER & MODEL NUMBER	PUMP TYPE	SYSTEM SERVED	LIQUID TYPE	GPM	FT. HD.	TEMP RANGE (F)	V/PH/HZ	WATTS	AMPS	REMARKS
RCP-1	BELL & GOSSETT ECOCIRC 20-18	CIRCULATOR, INLINE	SOFTENED DHW	WATER	1	3	36-203	115/1/60	60	.5	1-5

1. PROVIDE WITH 6 FT CORD WITH PLUG. OUTLET PROVIDED ON ELECTRICAL PLANS.
2. BALANCE DOMESTIC HOT WATER RECIRCULATING LINE. PROVIDE BALANCING VALVE. PROVIDE P&T PORT ON INLET AND DISCHARGE OF PUMP. PROVIDE BALANCE REPORT TO ENGINEER.
3. PROVIDE WITH BRONZE, PLASTIC, OR STAINLESS STEEL IMPELLER AND STAINLESS STEEL BODY.
4. ACCEPTABLE MANUFACTURERS: BELL & GOSSETT, ARMSTRONG, TACO, GRUNDFOS OR PRIOR APPROVED EQUAL.
5. RUN IN CONSTANT PRESSURE MODE IN CONJUNCTION WITH CALEFFI MODEL 116 THERMAL BALANCING VALVES TO ALLOW PUMP TO RUN AT LOWER SPEED WHEN HOT WATER IS RUNNING.
   A. CONTRACTOR TO INCLUDE CALEFFI 116 THERMAL BALANCING VALVES IN SUBMITTAL TO ENGINEER. NO SUBSTITUTIONS ALLOWED.
   B. PUMP MUST BE CAPABLE OF RUNNING IN CONSTANT PRESSURE MODE.

PLUMBING FIXTURE SCHEDULE

REFER TO PLUMBING SPECIFICATIONS FOR COMPLETE FIXTURE COMPONENTS

LABEL	DESCRIPTION	WASTE	VENT	CW	HW	MANUFACTURER	MODEL	REMARKS
AIR	AIR ADMITTANCE VALVE	0"	1 1/2"	0"	0"	OATEY	39016	
FD-1	FLOOR DRAIN	2"	1 1/2"	0"	0"	FIXTURE: ZURN TRAP SEAL: RECTORSEAL	FIXTURE: Z415-BZ1 TRAP SEAL: SURESEAL	TRAP SEAL TO MATCH FD SIZE, PRO-SET OR APPROVED EQUAL.
FS-1	FLOOR SINK	2"	1 1/2"	0"	0"	ZURN	ZN1900-2NH-2	12" X 12". PROVIDE DOME STRAINER AND HALF GRATE COVER.
FS-2	FLOOR SINK	3"	1 1/2"	0"	0"	REGENCY	600FS1818SS	18" X 18". PROVIDE DOME AND HALF GRATE COVER ON ALL FLOOR SINKS. PROVIDE TRAP GUARD, PRO-SET OR APPROVED EQUAL.
HB-1	FREEZE-PROOF EXTERIOR HOSE BIB	0"	0"	3/4"	0"	ZURN	Z1305	
HB-2	CHEMICAL HOSE BIB	0"	0"	3/4"	3/4"	WOODFORD	MODEL 24	PROVIDE WITH INTERGRAL VACUUM BREAKER. LEAD FREE.
LAV-A	WALL MOUNTED LAVATORY (ACCESSIBLE)	1 1/4"	1 1/2"	1/2"	1/2"	FIXTURE: KOHLER FAUCET: KOHLER INSULATION: TRUEBRO TMV: WEBSTONE	FIXTURE: K-2035-1 FAUCET: K013461 INSULATION: LAVGUARD 2 TMV: H-77211W-TG	MOUNT AT ADA HEIGHT. PROVIDE ADA FAUCET. PROVIDE WITH UNIVERSAL WALL CARRIER WITH CONCEALED CARRIER ARMS. SET TMV AT 100° F.
MOP	SERVICE SINK	3"	1 1/2"	3/4"	0"	FIXTURE: MUSTEE FAUCET:KOHLER	FIXTURE: 63M FAUCET: K-8907	PROVIDE HOSE AND HOSE HOLDER, MOP HANGER, BUMPER AND WALL GUARDS
WC-A	FLOOR MOUNT FLUSH VALVE WATER CLOSET (ACCESSIBLE)	4"	2"	1 1/2"	0"	FIXTURE: KOHLER FLUSH VALVE: ZURN SEAT: BEMIS	FIXTURE: K-96057-SSL FLUSH VALVE: ZER6000-CP-WS1 SEAT: 1955CTJ	PROVIDE WITH "NO-SLAM" TOILET SEAT.

WATER SOFTENER SCHEDULE

ACCEPTABLE MANUFACTURERS:
CULLIGAN
CRUSADER
MARLO
WATTS

REMARKS:
1. REQUIRES 120V OUTLET WITHIN 12'
2. PROVIDED AND INSTALLED BY CONTRACTOR

LABEL	MANUFACTURER & MODEL NUMBER	FLOW RATES: CONTINUOUS FLOW (GPM)	PEAK FLOW (GPM)	RESIN TANK: COUNT	DIMENSIONS (EA)	WEIGHT (LBS)	TANK CAPACITY	BRINE TANK: COUNT	DIMENSIONS (EA)	SALT CAPACITY (LBS)	OPERATING WEIGHT (LBS)	REMARKS
WS-1	PACIFIC WATER A952TA-60-2441	23	31	2	12" X 52"	340 LBS	60,000 GRAIN	1	24"x41"	670 LBS	1,400	ALL

WATER FILTER SCHEDULE

LABEL	EQUIPMENT SERVED	WATER LINE SIZE	VOLUME (GRAIN)	FLOW (GPM)	MANUFACTURER	MODEL	PRIMARY FILTER	SECONDARY FILTER	REMARKS
WF-1	POST-MIX	3/4"	50,000	5	ECOLAB	ECOLAB SINGLE HEAD FILTER (9320-2266)	ECO-T010 (9320-2198)	N/A	
WF-2	COFFEE	1/2"	50,000	5	ECOLAB	ECOLAB SINGLE HEAD FILTER (9320-2266)	ECO-T010 (9320-2198)	N/A	
WF-3	ICE MAKER	1/2"	75,000	7	ECOLAB	ECOLAB SINGLE HEAD FILTER (9320-2266)	ECO-T014S (9320-2258)	N/A	
WF-4	COMBI-OVEN	1/2"	50,000	5	ECOLAB	ECOLAB TWIN HEAD (9320-2267)	IO14 - 14" (9320-2261) - 9,000 grain	ECO-T010S (9320-2256)	REQUIRES H+ ION EXCHANGE

DOMESTIC WATER DEMAND

EQUIPMENT	TYPE OF SUPPLY CONTROL	QUANTITY	**COLD** WATER SUPPLY FIXTURE UNITS PER FIXTURE (WSFU)	**HOT** WATER SUPPLY FIXTURE UNITS PER FIXTURE (WSFU)	**TOTAL** WATER SUPPLY FIXTURE UNITS PER FIXTURE (WSFU)	TOTAL WATER SUPPLY FIXTURE UNITS (WSFU)
LAVATORY	FAUCET	2	0.75	0.75	1.00	2.00
WATER CLOSET (1.28 GPF)	FLUSH VALVE	2	6.00	0	6.00	12.00
BAR SINK	FAUCET	3	1.50	1.50	2.00	6.00
VEGETABLE SINK	FAUCET	2	1.50	1.50	2.00	4.00
SERVICE SINK	FAUCET	1	2.25	2.25	3.00	3.00
BEVERAGE DISPENSER	VALVE	3	0.5	0	0.5	1.50
HOSE BIBB	VALVE	1	2.50	0	2.50	2.50
ADDITIONAL HOSE BIBB	VALVE	1	1.50	1.50	2.00	2.00
OTHER KITCHEN FAUCETS	FAUCET	3	1.50	1.50	2.00	6.00
			TOTAL COLD (WSFU)	TOTAL HOT (WSFU)		
			33.25	17.25		
					TOTAL (WSFU):	39.0
2021 INTERNATIONAL PLUMBING CODE - TABLE E103.3(3) ESTIMATED PEAK DEMAND (GPM):						26.3
PIPE SIZE (COLD WATER SUPPLY TO BUILDING):						1-1/4"
2021 INTERNATIONAL PLUMBING CODE - FIGURE E103.3(5) PIPE FRICTION (PSI / 100 FT): PIPE VELOCITY (FEET / SECOND):						4.0 5.0

NATURAL GAS REQUIREMENTS

EQUIPMENT	QUANTITY	SEA LEVEL FUEL GAS INPUT CAPACITY (BTUH)	JOB SITE FUEL GAS REQUIREMENTS (CFH)	TOTAL FUEL GAS CAPACITY (CFH)	BRANCH PIPE SIZES - EACH PIECE OF EQUIP. (INCHES): 3 PSI @ 500 FT.	4 OZ @ 10 FT.
SOUTHBOUND DOUBLE OVEN	1	108,000	108	108	½"	½"
VULCAN RANGE	1	215,000	215	215	½"	¾"
GARLAND RANGE	1	358,000	358	358	¾"	¾"
TILTING SKILLET	1	125,000	125	125	½"	½"
VULCAN FRYER	2	120,000	120	240	½"	½"
COMBI OVEN	1	83,500	83.5	83.5	½"	½"
PATIO HEATER	5	50,000	50	250	½"	½"
WATER HEATER	1	100,000	100	100	½"	½"
KMAU	1	391,000	391	391	¾"	1"
GAS DUCT HEATER	1	250,000	250	250	½"	¾"
TOTAL		2,120,500	----	2,120.5	1 ¼"	

BASIS OF DESIGN	
2018 INTERNATIONAL FUEL GAS CODE	
HEAT CONTENT OF GAS (BTUH/CU. FT):	1,000.0
GAS PRESSURE AT METER (PSI):	3
DISTANCE FROM GAS METER TO MOST REMOTE GAS REG. (FEET):	500.0
DISTANCE FROM GAS PRES. REG. TO APPLIANCE (FEET):	10.0

NOTES:

(1) PROVIDE GAS SHUT-OFF VALVE AT EACH PIECE OF EQUIPMENT. INSTALL GAS PRESSURE REGULATOR (ROUGHLY 10 FT FROM EQUIPMENT) PRIOR TO FINAL CONNECTIONS. ADJUST FINAL PRESSURE TO EQUIPMENT PER MANUFACTURER SPECIFICATIONS.

NOTE: KITCHEN EQUIPMENT SHOULD COME WITH PRESSURE REGULATOR FROM MANUFACTURER.

PIPE SIZE	MAX CFH AT 500 FT, @ 3 PSI DELIVERY PRESSURE, WITH 2 PSI PRESSURE DROP
½"	283
¾"	593
1"	1,120
1 ¼"	2,290

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PLUMBING SCHEDULES

PROJECT #: 22-170
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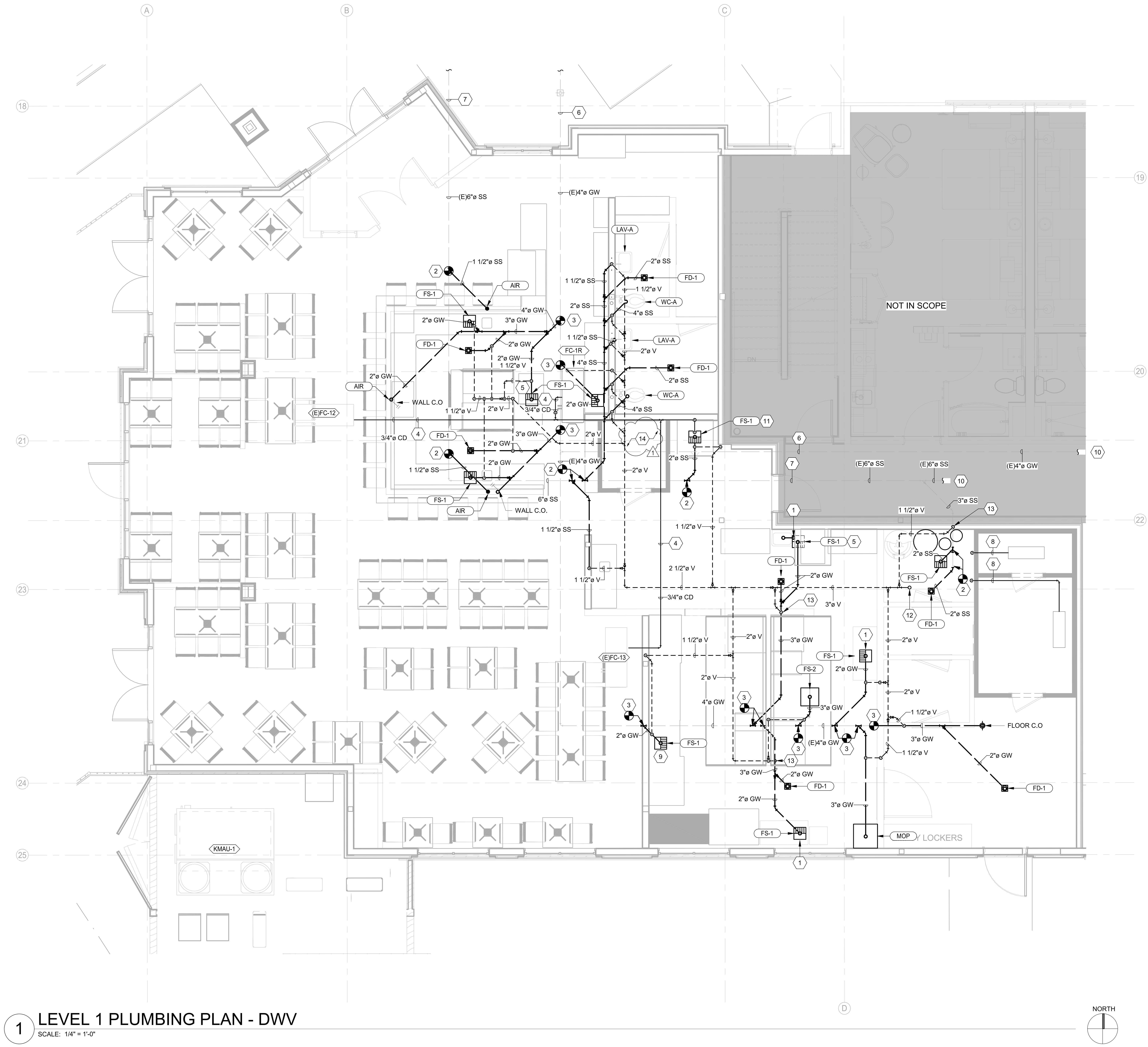

1 LEVEL 1 PLUMBING PLAN - DWV
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

1. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH KITCHEN EQUIPMENT, ELECTRICAL, ARCHITECTURAL AND BUILDING STRUCTURE.
2. DISSIMILAR METAL PIPING CONNECTIONS SHALL HAVE DIELECTRIC ISOLATORS.
3. ALL PLUMBING PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) TO BE LOCATED IN BUILDING ENVELOPE AND TO BE FULLY INSULATED, INCLUDING ANY ROOF DRAIN BOWLS.
4. THE CONTRACTOR SHALL FIELD VERIFY EXISTING FIELD CONDITIONS PRIOR TO ORDERING OR FABRICATING. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
5. TEST WASTE AND VENT PIPING FOR LEAKAGE. AFTER PLUMBING FIXTURES HAVE BEEN SET AND TRAPS FILLED WITH WATER, TEST CONNECTIONS AND PROVE THEY ARE GASTIGHT AND WATERTIGHT. PLUG VENT-STACK OPENINGS ON ROOF AND BUILDING DRAINS WHERE THEY LEAVE BUILDING. FOR CAST IRON, INTRODUCE AIR INTO PIPING SYSTEM EQUAL TO PRESSURE OF 1-INCH WG. USE U-TUBE OR MANOMETER INSERTED IN TRAP OF WATER CLOSET TO MEASURE THIS PRESSURE. AIR PRESSURE MUST REMAIN CONSTANT WITHOUT INTRODUCING ADDITIONAL AIR THROUGHOUT PERIOD OF INSPECTION. FOR PLASTIC PIPING PERFORM WATER TEST WITH NO LESS THAN 10' OF HEAD OF WATER. INSPECT PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.
6. FLOOR SINKS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. WHERE POSSIBLE INSTALL FLOOR SINKS TIGHT TO WALLS.
7. ALL EMERGENCY FLOOR SINKS / FLOOR DRAINS ARE TO HAVE PROVENT - TRAP GUARDS (WHERE APPROVED BY AHJ). ANY DRAIN THAT IS USED TO COLLECT CONDENSATESHALL NOT REQUIRE TRAP PROTECTION.
8. PLUMBING CONTRACTOR SHALL ROUTE INDIRECT DRAINS FROM KITCHEN EQUIPMENT TO NEAREST FLOOR SINK. TERMINATE WITH AN AIR GAP.
9. ALL INDIRECT WASTE PIPING THAT EXCEED 30" IN DEVELOPED LENGTH MEASURED HORIZONTALLY OR 54" IN TOTAL DEVELOPED LENGTH SHALL BE TRAPPED.
10. PAINT ANY EXPOSED CAST IRON PIPING.
11. PLUMBING CONTRACTOR SHALL COORDINATE FIXTURE CONNECTION ELEVATIONS WITH KITCHEN EQUIPMENT PLANS.
12. ANY PIPING WHICH PENETRATES A COUNTER TOP SHALL BE ROUTED THROUGH A STAINLESS STEEL GROMMET WHICH IS TO BE ADHERED TO THE COUNTER TOP WITH A CLEAR, NON-SHRINKING, MILDEW RESISTANT SILICONE.
13. ALL ACCESS COVERS IN RESTROOMS TO BE LOCATED BENEATH SINKS OR ADJACENT TO TOILETS, HIDDEN FROM VIEW WHERE POSSIBLE. ANY ACCESS COVERS OUTSIDE OF THESE REQUIREMENTS SHALL BE STAINLESS STEEL.
14. COORDINATE ANY NECESSARY SAW CUTTING, BACKFILL, AND NEW CONCRETE WITH GENERAL.
15. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
16. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
17. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
18. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.
19. PLUMBING PIPING SCHEDULE:
    1. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
       *EXPOSED WASTE PIPING IN KITCHENS TO BE EPOXY COATED CAST IRON OR STAINLESS STEEL
    2. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT
20. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING, AND MAINTENANCE PROCEDURES.
21. HVAC DUCTS WITH A DISTRIBUTED WEIGHT GREATER THAN 20LBS/FT, OR THAT HAVE CROSS SECTIONAL AREA 6 SQ FT OR GREATER REQUIRE SEISMIC RESTRAINT. IN ADDITION, DUCT CONVEYING HAZARDOUS MATERIAL, PIPES (OTHER THAN NATURAL GAS, MEDICAL GAS, STEAM OR HIGH PRESSURE HOT WATER PIPING) THAT ARE 3" DIAMETER TRADE SIZE OR GREATER THAT ARE SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRE SEISMIC RESTRAINTS. PIPES WITH A DIAMETER OF 3" TRADE SIZE OR GREATER SUSPENDED LESS THAN 12" FROM SUPPORT THAT EXCEED A TOTAL LOAD SUPPORTED BY A ANY SINGLE VERTICAL ROD IN EXCESS OF 100 POUNDS REQUIRE SEISMIC RESTRAINT (ALL OTHER DUCTWORK AND PIPING IS EXEMPT FROM SEISMIC BRACING). CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH DUCTS & PIPES, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY SEISMIC BRACING ENGINEER.

SHEET KEYNOTES

1	TERMINATE WASTE LINE FOR KITCHEN SINK INDIRECTLY AT FLOOR SINK WITH 2" AIR GAP
2	CONNECT NEW SANITARY SEWER TO EXISTING SANITARY SEWER
3	CONNECT NEW GREASE WASTE TO EXISTING GREASE WASTE
4	ROUTE 3/4" COPPER CONDENSATE LINE FROM HVAC FAN COIL TO FLOOR SINK. DRAIN PIPE INDIRECTLY AT FLOOR SINK WITH AIR GAP. PROVIDE/INSTALL CONDENSATE PUMP AS NECESSARY.
5	PROVIDE PVC INDIRECT DRAIN PIPE FROM DISHWASHER TO FLOOR SINK. VERIFY IF DISHWASHER IS BEING PROVIDED WITH NEW DRAIN WATER TEMPERING SYSTEM. IF NOT, PROVIDE AND INSTALL NEW DRAIN WATER TEMPERING SYSTEM (DRANE KOOLER OR EQUAL). CONNECT PVC DRAIN PIPE FROM DISHWASHER TO DRANE KOOLER TO REDUCE WASTE DISCHARGE TEMPERATURE TO BELOW 140°F. TERMINATE DRAIN PIPE WITH 2" AIR GAP ABOVE FLOOR SINK.
6	EXISTING 4" GREASE WASTE INTO TENANT SPACE. GREASE WASTE DRAINS TO GB-250 HYDRO-MECHANICAL GREASE INTERCEPTOR. SEE CIVIL PLANS FOR LOCATION OF GREASE INTERCEPTOR.
7	EXISTING 6" SANITARY SEWER THROUGH TENANT SPACE PER SHELL PLANS. FIELD VERIFY EXACT PIPE ROUTING
8	PROVIDE 3/4" COPPER CONDENSATE DRAIN PIPING FROM WALK-IN COOLER FAN COIL TO FLOOR SINK. COORDINATE FAN COIL LOCATION WITH WALK-IN COOLER MANUFACTURER (LOCATION SHOWN HERE IS NOT ACCURATE-SHOWN FOR REFERENCE ONLY).
9	HARD PIPE COPPER DRAIN LINE FROM HOT FOOD WELL TO FLOOR SINK. TERMINATE INDIRECTLY WITH 1" AIR GAP
10	UNDERGROUND WASTE PIPING CONTINUES TO REST OF HOTEL.
11	ROUTE COPPER DRAIN PIPE FROM ICE MACHINE TO FLOOR SINK. TERMINATE WITH APPROVED AIR GAP.
12	3" VENT THROUGH ROOF UP THROUGH PLUMBING CHASE ON LEVELS ABOVE TO ROOF.
13	COMMON VENT PER IPC SECTION 911.
14	ROUTE DRAIN FROM BEER COOLER FAN COIL TO FLOOR SINK UNDER ICE MACHINE.

1

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Reviewed for Code Compliance
10/07/2024

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OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO
PROJECT:

#	ISSUE DATE	DESCRIPTION
	06/17/2024	
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

LEVEL 1 PLUMBING PLAN - DWV

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ
SHEET #
RPL101

GENERAL SHEET NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
2. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH KITCHEN EQUIPMENT, ELECTRICAL, ARCHITECTURAL AND BUILDING STRUCTURE.
3. DISSIMILAR METAL PIPING CONNECTIONS SHALL HAVE DIELECTRIC ISOLATORS.
4. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. PRESSURE TEST: CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 120 PSIG FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. PROVIDE RESULTS IN WRITTEN REPORT TO ENGINEER UPON COMPLETION. CLEAN AND DISINFECT: FLUSH PIPING SYSTEM, FILL SYSTEM WITH WATER/CHLORINE SOLUTION WITH AT LEAST 50 PPM OF CHLORINE FOR 24 HOURS. THOROUGHLY FLUSH SYSTEM. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. PROVIDE REPORT TO ENGINEER STATING PROCEDURE FOLLOWED AND SIGNATURES OF GC AND THAT OF PERSONS PERFORMING PROCEDURE.
5. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
6. ALL PLUMBING PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) TO BE LOCATED IN BUILDING ENVELOPE AND TO BE FULLY INSULATED, INCLUDING ANY ROOF DRAIN BOWLS.

GENERAL SHEET NOTES

7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. PROVIDE BALANCE REPORT OF DOMESTIC WATER RECIRCULATING SYSTEM TO ENGINEER. PROVIDE P&T PORTS AND PRESSURE GAUGES ON EACH SIDE OF RECIRCULATING PUMP. PROVIDE THERMOMETER ON DISCHARGE SIDE OF PUMP.
9. THE CONTRACTOR SHALL FIELD VERIFY EXISTING FIELD CONDITIONS PRIOR TO ORDERING OR FABRICATING. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
10. COORDINATE ANY NECESSARY SAW CUTTING, BACKFILL, AND NEW CONCRETE WITH GENERAL.
11. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT. AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
12. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
13. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.

GENERAL SHEET NOTES

14. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.
15. PLUMBING CONTRACTOR SHALL COORDINATE FIXTURE CONNECTION ELEVATIONS WITH KITCHEN EQUIPMENT PLANS.
16. PIPE ROUTING AS SHOWN ON DRAWINGS IS DIAGRAMMATIC AND IS NOT TO BE SCALED. WHERE ALTERNATE ROUTING, OFFSETS AND TRANSITIONS ARE REQUIRED FOR COORDINATION OF WORK, THIS CONTRACTOR SHALL MAKE CHANGES WITHOUT ADDITIONAL COSTS.
17. WATER LINES FOR CARBONATED DRINK DISPENSING SHALL HAVE STAINLESS STEEL RPZ BACKFLOW PROTECTION.
18. ALL TUBING / PIPING FOR DRINK DISPENSING EQUIPMENT SHALL BE NSF STAMPED.
19. PROVIDE HOT / COLD WATER CHECK VALVES FOR ALL MOP SINKS, 3-COMPARTMENT SINKS, PREP SINKS, AND ANY SINK WITH AN OVERHEAD SPRAYER.
20. ANY PIPING WHICH PENETRATES A COUNTER TOP SHALL BE ROUTED THROUGH A STAINLESS STEEL GROMMET WHICH IS TO BE ADHERED TO THE COUNTER TOP WITH A CLEAR, NON-SHRINKING, MILDEW RESISTANT SILICONE.
21. MAIN DOMESTIC WATER PIPE ROUTING SHALL BE ABOVE CEILING. WHERE DROPS OCCUR, PIPES SHALL BE CONCEALED INSIDE WALLS.
22. INSPECTION AND PERMIT BY STATE OR COUNTY HEALTH DEPARTMENT IS REQUIRED FOR CHEMICAL DISPENSER STATIONS.
23. ALL ACCESS COVERS IN RESTROOMS TO BE LOCATED BENEATH SINKS OR ADJACENT TO TOILETS, HIDDEN FROM VIEW WHERE POSSIBLE. ANY ACCESS COVERS OUTSIDE OF THESE REQUIREMENTS SHALL BE STAINLESS STEEL.
24. PLUMBING PIPING SCHEDULE:
    1. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    2. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
25. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING, AND MAINTENANCE PROCEDURES.
26. HVAC DUCTS WITH A DISTRIBUTED WEIGHT GREATER THAN 20LBS/FT, OR THAT HAVE CROSS SECTIONAL AREA 6 SQ FT OR GREATER REQUIRE SEISMIC RESTRAINT. IN ADDITION, DUCT CONVEYING HAZARDOUS MATERIAL, PIPES (OTHER THAN NATURAL GAS, MEDICAL GAS, STEAM OR HIGH PRESSURE HOT WATER PIPING) THAT ARE 3" DIAMETER TRADE SIZE OR GREATER THAT ARE SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRE SEISMIC RESTRAINTS. PIPES WITH A DIAMETER OF 3" TRADE SIZE OR GREATER SUSPENDED LESS THAN 12" FROM SUPPORT THAT EXCEED A TOTAL LOAD SUPPORTED BY A ANY SINGLE VERTICAL ROD IN EXCESS OF 100 POUNDS REQUIRE SEISMIC RESTRAINT (ALL OTHER DUCTWORK AND PIPING IS EXEMPT FROM SEISMIC BRACING). CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH DUCTS & PIPES, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY SEISMIC BRACING ENGINEER.

SHEET KEYNOTES

1 CONNECT NEW DCW PIPING TO EXISTING DCW STUB OUT PROVIDED BY SHELL. PROVIDE NEW 1" SUB-METER ON MAIN WATERLINE ABOVE CEILING WITH ELECTRONIC REMOTE READER. LOCATE REMOTE READER IN ACCESSIBLE LOCATION. ALL PIPE BRANCHES FOR RESTAURANT TO BE AFTER SUB-METER.

2 EXISTING DOMESTIC COLD WATER TO RESTAURANT TENANT SPACE PER SHELL PLANS

3 PROVIDE CALEFFI 116 THERMOSETTER WHERE HOT WATER RECIRCULATION PIPING CONNECTS TO HOT WATER PIPING. ESTIMATED FLOW OF 0.5 GPM. INSTALL IN ACCESSIBLE LOCATION (WITH 6" X 6" ACCESS COVER IF BEHIND WALL).

4 DROP 1/2" DCW/SHW DOWN WALL. STUB OUT AT 24" AFF. PROVIDE/INSTALL ASSE 1070 APPROVED THERMOSTATIC MIXING VALVE (WATTS LFMVV OR EQUAL). LAVATORY HOT WATER BRANCH LINE TO BE 2 FEET MAXIMUM FROM HOT WATER LOOP. FOR FINAL CONNECTIONS, USE DROP EAR AND COPPER SWEEP STUB OUT AT WALL WITH BRAIDED HOSES TO LAVATORY. SET HOT WATER TEMPERATURE TO 105°F.

5 1" HOT WATER PIPING DOWN IN WALL TO ~4' AFF. THEN ROUTED BACK UP IN WALL AS SHOWN. THE INTENT IS TO KEEP THE HOT WATER BRANCH FOR THE LAVATORY TO 2 FEET OR LESS IN LENGTH TO COMPLY WITH IECC TABLE C404.5.1.

6 DROP 1/2" DCW / SHW DOWN WALL TO SINK. COORDINATE ROUGH-IN HEIGHT WITH SPECIFIED SINK AND FAUCET.

7 DROP 1/2" DCW/SHW DOWN WALL. STUB OUT AT 24" AFF. PROVIDE/INSTALL MIXING VALVE (100°F - 140°F) ON HOT WATER AND FINAL CONNECTIONS TO SINK FAUCET. SET HOT WATER TEMPERATURE TO 110°F.

8 DROP 1/2" DCW / SHW DOWN WALL TO SINK AT BAR COUNTER. PROVIDE/INSTALL MIXING VALVE (100°F - 140°F) ON HOT WATER AND FINAL CONNECTIONS TO SINK FAUCET. SET HOT WATER TEMPERATURE TO 110°F.

9 1/2" DOMESTIC COLD WATER TO WATER FILTER FOR COFFEE BREWER. INSTALL ISOLATION VALVE AND DOUBLE CHECK VALVE PRIOR TO FILTER CONNECTION. PROVIDE FINAL CONNECTIONS FROM WATER FILTER UP THROUGH COUNTER TO COFFEE BREWER.

10 DROP 1/2" FILTERED WATER LINE TO ICE MACHINE. PROVIDE ISOLATION VALVE, DOUBLE CHECK VALVE (OR RPZ BACKFLOW PREVENTER IF REQUIRED BY JURISDICTION), AND PRV (20-80 PSI) ON WATER LINE BEHIND ICE MACHINE IN ACCESSIBLE LOCATION. SEE DETAIL ON SHEET PE501 FOR ICE MACHINE CONNECTION DETAIL.

11 DEDICATED HOSE BIB FOR CHEMICAL DISPENSER AT 36" AFF. INSTALL RPZ BACKFLOW PREVENTER (WATTS LF009 OR EQUAL - LEAD FREE) ON THIS WATER SUPPLY BRANCH TO HOSE BIB. ROUTE FULL SIZED DRAIN FROM RPZ TO INDIRECT DRAIN AT MOP SINK.

12 1-1/4" DOMESTIC COLD WATER LINE TO WATER SOFTENER. INSTALL FULL-SIZE BYPASS (AND SHUTOFF VALVE) IF WATER SOFTENER DOES NOT HAVE AN INTEGRAL BYPASS VALVE. 1-1/4" SOFT COLD WATER FROM WATER SOFTENER TO WATER HEATER.

13 1/2" FILTERED COLD WATER STUB OUT FOR COMBI OVEN. INSTALL ISOLATION VALVE AND DOUBLE CHECK VALVE ON WATER LINE PRIOR TO FINAL EQUIPMENT CONNECTIONS.

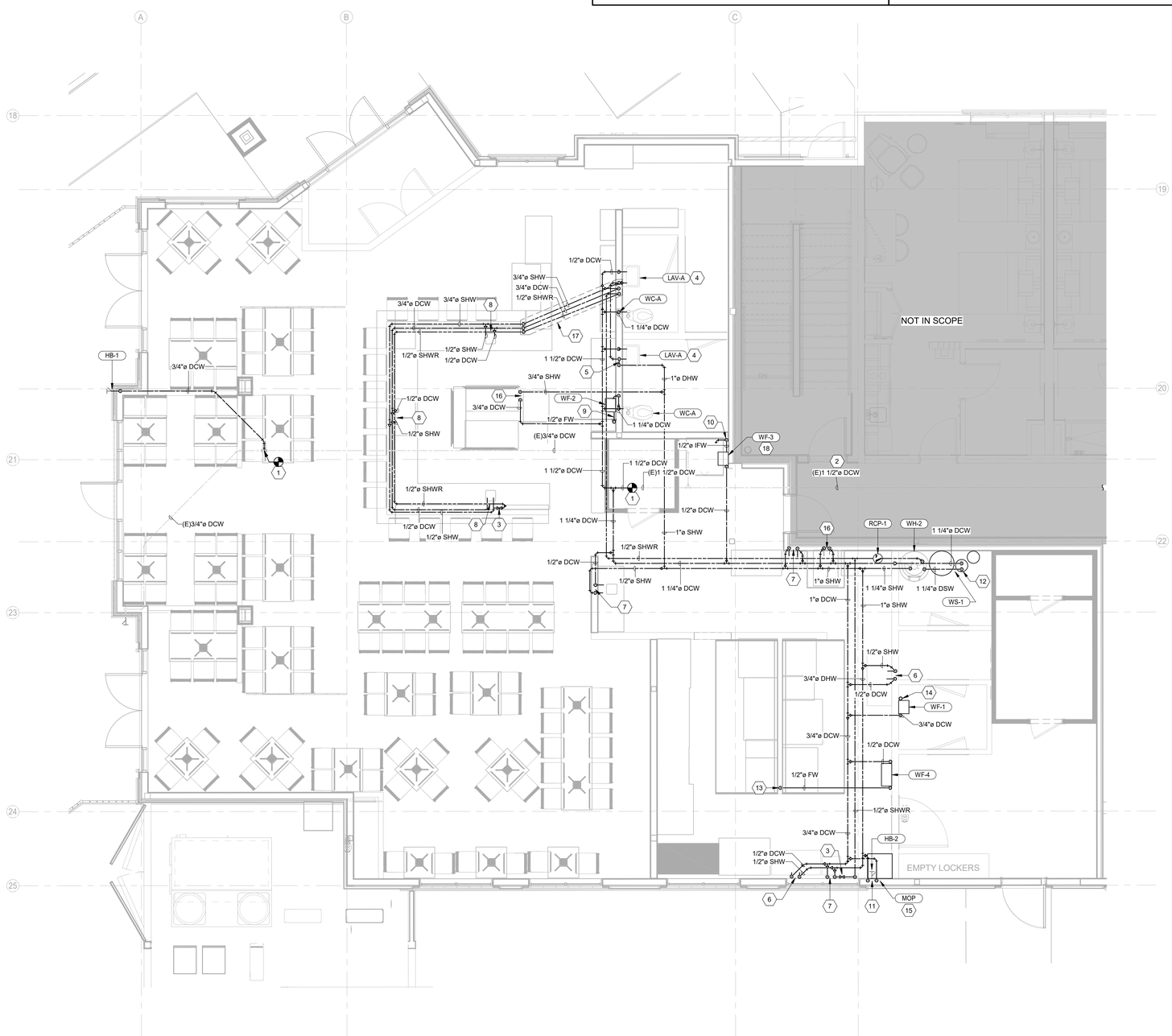
14 3/4" FILTERED COLD WATER TO CARBONATOR. INSTALL SHUTOFF VALVE AND STAINLESS STEEL RPZ BACKFLOW PREVENTER (WATTS SS009 OR EQUAL). ALL PIPING DOWNSTREAM OF RPZ TO BE PEX (WITH STAINLESS STEEL FITTINGS) OR BRAIDED VINYL TUBING. COPPER IS NOT ALLOWED DOWNSTREAM OF RPZ FOR CARBONATOR. TERMINATE PIPING WITH 3/8" COMPRESSION FITTING, CONNECTION TO BE MADE AT 8'-0" AFF BY COKE VENDOR. COKE VENTER TO RUN LINE FROM CARBONATOR TO COKE MACHINE. (BOTH CARBONATED AND NONCARBONATED).

15 DROP 1/2" COLD WATER AND 1/2" HOT WATER TO MOP SINK. STUB OUT AT 36" AFF FOR MOP SINK FAUCET.

16 DROP 3/4" COLD WATER AND 3/4" HOT WATER TO DISHWASHER. STUB OUT AT 24" FOR CONNECTION TO DISHWASHER AND DRAIN WATER TEMPERING KIT. SET DRAIN WATER TEMPERATURE TO 140°F.

17 ROUTE WATER PIPING UNDERGROUND TO BAR COUNTER.

18 INSTALL WATER FILTER UP HIGH ON WALL, JUST BELOW CEILING.



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

NORTH

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10/07/2024
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1760 Central Park Dr.
Steamboat Springs, CO

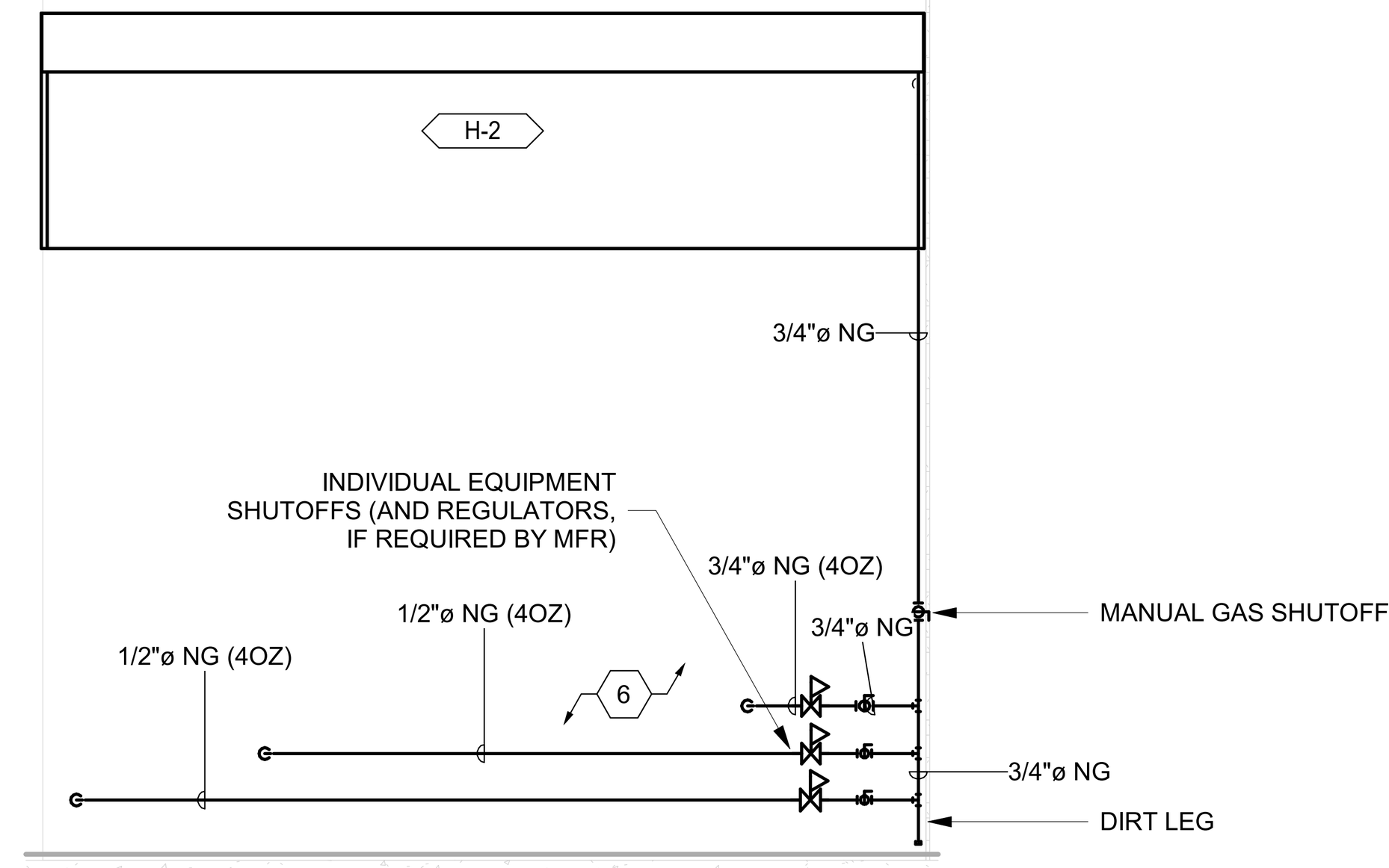
#	ISSUE DATE	DESCRIPTION
	06/17/2024	
#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

LEVEL 1 PLUMBING PLAN - WATER

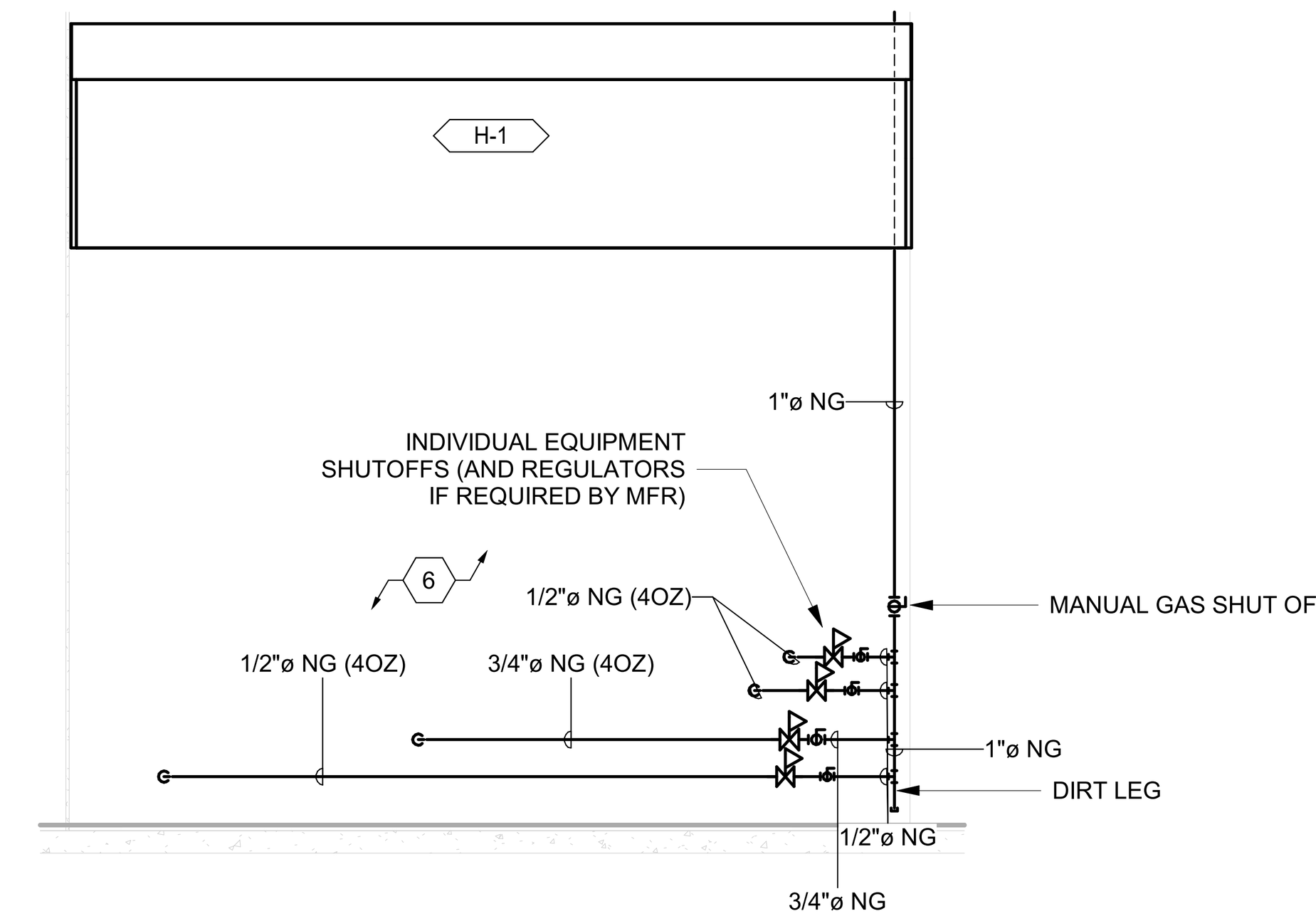
PROJECT # 20.170
DRAWN BY: DFT
CHECKED BY: SSI

SHEET # RPL102



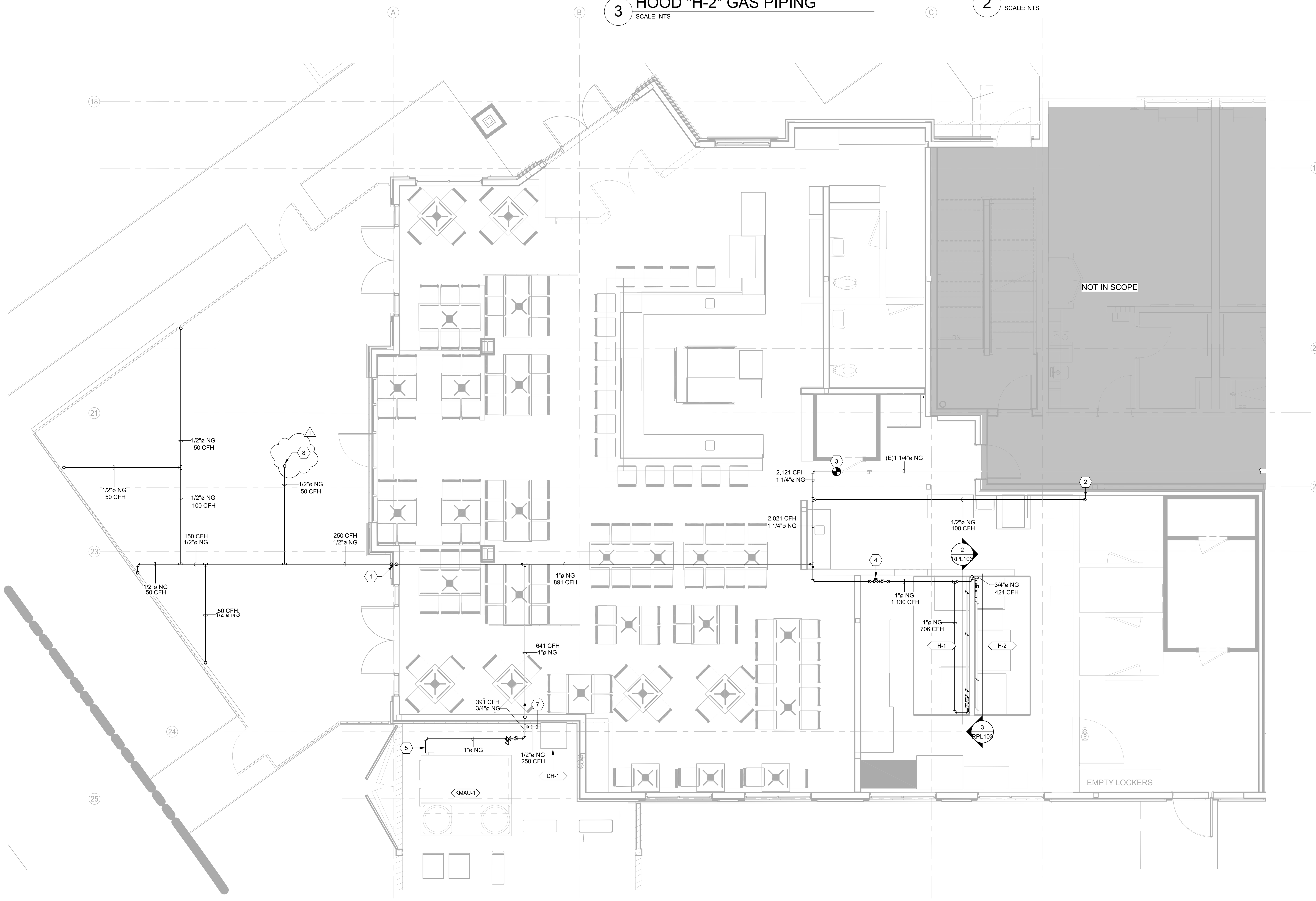
3 HOOD "H-2" GAS PIPING

SCALE: NTS



2 HOOD "H-1" GAS PIPING

SCALE: NTS



1 LEVEL 1 PLUMBING PLAN - GAS

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

GENERAL SHEET NOTES

1. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH KITCHEN EQUIPMENT, ELECTRICAL, ARCHITECTURAL AND BUILDING STRUCTURE.
2. DISSIMILAR METAL PIPING CONNECTIONS SHALL HAVE DIELECTRIC ISOLATORS.
3. ALL GAS PIPING ON ROOF TO BE ON ROLLER PIPE SUPPORT. PROVIDE RUBBER BASE OR EXTRA LAYER OF MEMBRANE UNDER EACH PIPE SUPPORT. ALL PIPE SUPPORTS TO BE A MAXIMUM OF 10' ON CENTER.
4. RUN ALL GAS PIPING ABOVE CEILING INSIDE TRUSS WEBBING.
5. ALL NATURAL GAS PIPING 2-1/2" AND OVER OR 5 PSI OR GREATER TO BE WELDED.
6. PROVIDE A MARINE TOPSIDE BLACK PAINT (DTM ACRYLIC, COLOR P-6) ON ALL NEW GAS PIPING.
7. INSTALL GAS REGULATORS APPROXIMATELY 10' UPSTREAM OF EQUIPMENT CONNECTION.
8. ALL GAS PRESSURE REGULATORS ARE TO BE VENTED TO THE OUTSIDE OF THE BUILDING BY THE MECHANICAL CONTRACTOR OR PROVIDE / INSTALL VENTLESS REGULATORS IF ALLOWED BY THE LOCAL JURISDICTION. NONE OF THE VENT PIPING OFF THE REGULATORS ARE SHOWN ON THE PLANS. IF VENTED REGULATORS ARE REQUIRED, SIZE VENTS PER MANUFACTURERS RECOMMENDATION FOR THE GIVEN DISTANCE.
9. THE CONTRACTOR SHALL FIELD VERIFY EXISTING FIELD CONDITIONS PRIOR TO ORDERING OR FABRICATING. ADDITIONAL COST WILL NOT BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS.
10. COORDINATE ANY NECESSARY SAW CUTTING, BACKFILL, AND NEW CONCRETE WITH GENERAL.
11. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
12. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
13. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
14. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.
15. PLUMBING PIPING SCHEDULE:
    1. NATURAL GAS PIPING 2" AND SMALLER = SCHEDULE 40 BLACK STEEL PIPE - THREADED
    2. NATURAL GAS PIPING 2-1/2" AND LARGER = SCHEDULE 40 BLACK STEEL PIPE - WELDED
    3. NATURAL GAS PIPING BELOW GRADE = POLYETHYLENE PIPE - FUSION WELDED
16. NATURAL GAS PIPING OVER 1" DIAMETER TRADE SIZE THAT IS SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRES SEISMIC RESTRAINT. CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH PIPES, AND SUBMIT AS A DEFERRED SUBMITTAL THE CALCULATIONS BY A LICENSED STRUCTURAL ENGINEER IN THE STATE WHICH WORK IS PERFORMED TO THE AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY ENGINEER.
17. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING, AND MAINTENANCE PROCEDURES.
18. NATURAL GAS PIPING OVER 1" DIAMETER TRADE SIZE THAT IS SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRES SEISMIC RESTRAINT. CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH PIPES, AND SUBMIT AS A DEFERRED SUBMITTAL THE CALCULATIONS BY A LICENSED STRUCTURAL ENGINEER IN THE STATE WHICH WORK IS PERFORMED TO THE AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY ENGINEER.
19. HVAC DUCTS WITH A DISTRIBUTED WEIGHT GREATER THAN 20LBS/FT, OR THAT HAVE CROSS SECTIONAL AREA 6 SQ FT OR GREATER REQUIRE SEISMIC RESTRAINT. IN ADDITION, DUCT CONVEYING HAZARDOUS MATERIAL, PIPES (OTHER THAN NATURAL GAS, MEDICAL GAS, STEAM OR HIGH PRESSURE HOT WATER PIPING) THAT ARE 3" DIAMETER TRADE SIZE OR GREATER THAT ARE SUSPENDED MORE THAN 12" FROM SUPPORTING STRUCTURE REQUIRE SEISMIC RESTRAINTS. PIPES WITH A DIAMETER OF 3" TRADE SIZE OR GREATER SUSPENDED LESS THAN 12" FROM SUPPORT THAT EXCEED A TOTAL LOAD SUPPORTED BY A ANY SINGLE VERTICAL ROD IN EXCESS OF 100 POUNDS REQUIRE SEISMIC RESTRAINT (ALL OTHER DUCTWORK AND PIPING IS EXEMPT FROM SEISMIC BRACING). CONTRACTOR SHALL BE RESPONSIBLE FOR SEISMICALLY RESTRAINING SUCH DUCTS & PIPES, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA BASED ON THE NONSTRUCTURAL SEISMIC BRACING NOTES, DRAWINGS AND DETAILS PROVIDED IN THE CONTRACT DOCUMENTS FOR REVIEW BY SEISMIC BRACING ENGINEER.

SHEET KEYNOTES

1	PROVIDE MECHANICAL TIMER AND EMERGENCY SHUTOFF SWITCH, AMERICAN FLAME E-STOP GAS TIMER OR EQUAL, MODEL ESTOP2-5H. TIMER AND SHUTOFF SWITCH SHALL BE MECHANICALLY OPERATED AND SHALL NOT REQUIRE AN ELECTRIFIED POWER SOURCE.
2	NATURAL GAS PIPING TO WATER HEATER. PIPING IS AT 3 PSI PRESSURE TO PRESSURE REGULATOR. INSTALL SHUTOFF VALVE AND PRESSURE REGULATOR (3 PSI TO 4 OZ) ABOVE CEILING. PIPING ON SECONDARY SIDE OF REGULATOR IS 4 OZ. BRANCH 1/2" GAS PIPE TO WATER HEATER.
3	EXISTING 1-1/4" GAS PIPE INTO TENANT SPACE. CONNECT NEW GAS PIPING TO EXISTING GAS STUB OUT ABOVE CEILING.
4	INSTALL AUTOMATIC ANSUL GAS SHUTOOF AND MANUAL SHUTOFF BELOW CEILING PER CAPTIVEAIRE KITCHEN PLANS PRIOR TO GAS COOKING EQUIPMENT AT HOODS
5	3/4" NATURAL GAS LINE TO KMAU. PIPING IS AT 3 PSI PRESSURE TO PRESSURE REGULATOR. INSTALL SHUTOFF VALVE AND PRESSURE REGULATOR (3 PSI TO 4 OZ). PIPING ON SECONDARY SIDE OF REGULATOR IS SIZE FOR 4 OZ PRESSURE.
6	PROVIDE SHUTOFF VALVE, PRESSURE REGULATOR (3 PSI TO 4 OZ), MOVEABLE GAS CONNECTOR KIT, QUICK DISCONNECT, AND ALL FINAL CONNECTIONS PER MANUFACTURER INSTALLATION INSTRUCTIONS FOR ALL GAS-FIRED EQUIPMENT.
7	1/2" NATURAL GAS LINE TO DUCT HEATER. PIPING IS AT 3 PSI PRESSURE TO PRESSURE REGULATOR. INSTALL SHUTOFF VALVE AND PRESSURE REGULATOR (3 PSI TO 4 OZ). PIPING ON SECONDARY SIDE OF REGULATOR IS 1/2" 4 OZ. GAS PIPING.
8	GAS LINE IS TO BE STUBBED INTO A CONCRETE ACCESS BOX. 1

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Reviewed for Code Compliance
10/07/2024

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OWNER:

CENTRAL PARK RESTAURANT T.I.
1760 Central Park Dr.
Steamboat Springs, CO

PROJECT:

ISSUE DATE	DESCRIPTION
06/17/2024	

#	REV. DATE	DESCRIPTION
	09/10/24	Owner Revisions

PERMIT SET

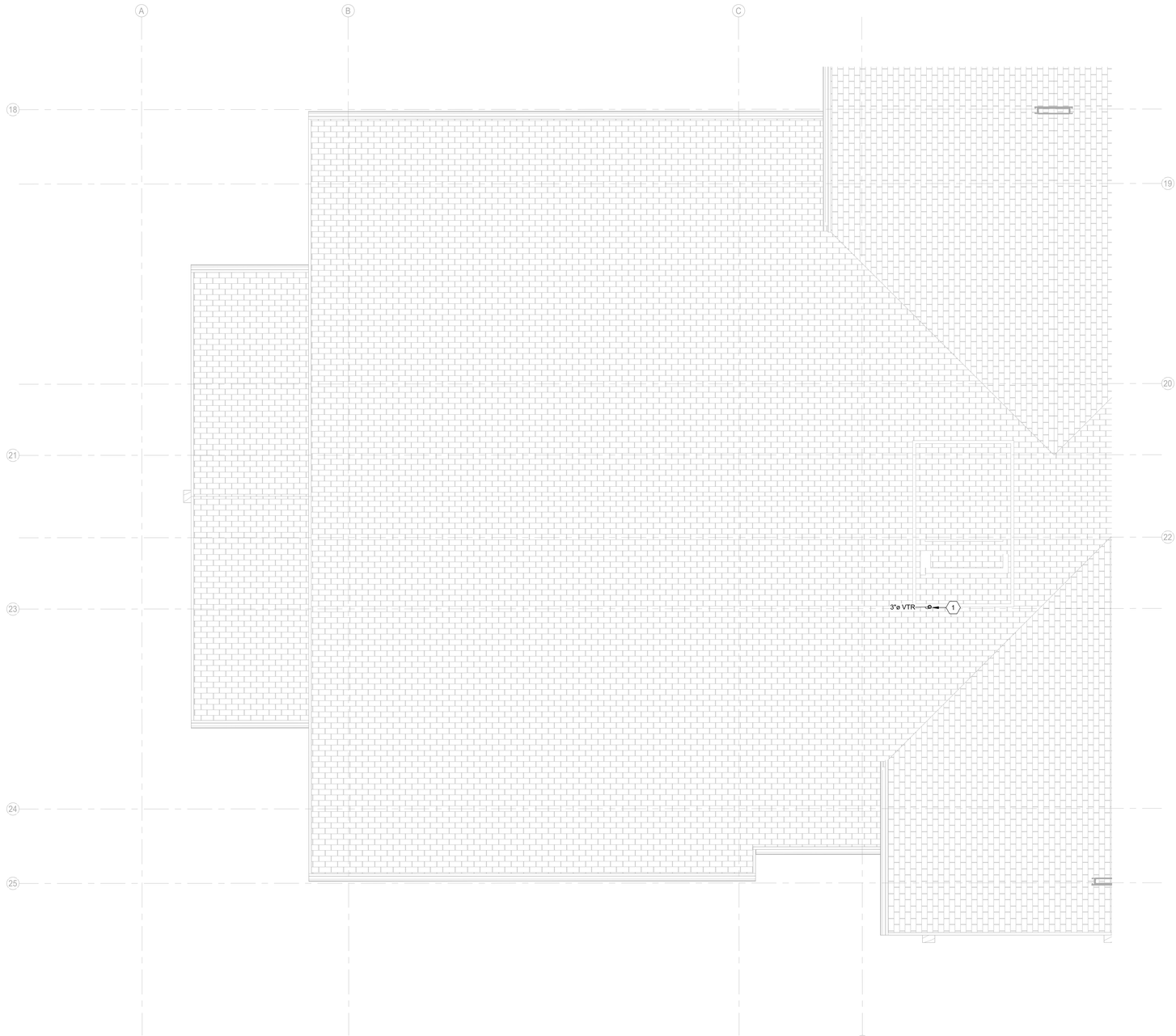
LEVEL 1 PLUMBING PLAN - GAS

PROJECT #: 22-170
DRAWN BY: GHT
CHECKED BY: SSJ

SHEET #
RPL103

SHEET KEYNOTES

1 COORDINATE WITH EXHAUST FAN DUCTING AND EXHAUST FAN LOCATIONS



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

NORTH

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ROOF PLUMBING PLAN

PROJECT # 2170
DRAWN BY GFT
CHECKED BY SSI

SHEET # RPL104