

GREEN BUILDING NOTES

- 5.410.4 TESTING AND ADJUSTING OF NEW SYSTEMS INSTALLED TO SERVE AN ADDITION OR ALTERATION SUBJECT TO SECTION 5.410.4 SHALL BE REQUIRED.
- 5.504.1 TEMPORARY VENTILATION.
IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MERV OF 8, BASED ON ASHRAE 52.2-1999, OR AN AVERAGE EFFICIENCY OF 30% BASED ON ASHRAE 52.1-1192. REPLACE ALL FILTER IMMEDIATELY PRIOR TO OCCUPANCY.
- 5.504.3 AT THE TIME OF ROUGH INSTALLATION OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL START-UP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCTS AND OTHER RELATED AIR DISTRIBUTION COMPONENT EQUIPMENT SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM.
- 5.504.4.1 ADHESIVES, SEALANTS, AND CAULKS USED IN THE PROJECT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS:
- ADHESIVES, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLES 5.504.1 AND 5.504.2.
 - AEROSOL ADHESIVES AND SMALLER UNIT SIZES OF ADHESIVES AND SEALANT OR CAULKING COMPOUNDS (IN UNITS OF PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN ONE POUND AND DO NOT CONSIST OF MORE THAN 16 FLUID OUNCES) SHALL COMPLY WITH STATEWIDE VOC STANDARDS AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING WITH SECTION 94507.0
- 5.504.5.3 IN MECHANICAL VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MERV 13.
- 5.506.1 MECHANICAL VENTILATION SHALL BE CALCULATED PER SECTION 120.1 OF THE CALIFORNIA ENERGY CODE, OR THE APPLICABLE LOCAL CODE, WHICHEVER IS MORE STRINGENT, AND DIVISION 1, CHAPTER 4 OF CCR, TITLE 8.
- 5.506.2 FOR BUILDINGS EQUIPPED WITH DEMAND CONTROL VENTILATION, CO2 SENSORS AND VENTILATION CONTROLS SHALL BE SPECIFIED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CALIFORNIA ENERGY CODE, SECTION 120(C).
- 5.508 HVAC, REFRIGERATION, AND FIRE-SUPPRESSION EQUIPMENT SHALL NOT CONTAIN CFCs OR HALON.

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HVAC GENERAL NOTES

- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMIT FEES, INSPECTIONS, AND LICENSES REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- CONTRACTOR MUST BE REGISTERED, HAVE NECESSARY LICENSES, OBTAIN NECESSARY PERMITS, AND HAVE CONSENT FROM ALL GOVERNMENTAL AGENCIES TO CARRY OUT THE WORK OF THE CONTRACT.
- ALL WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT SMACNA STANDARDS, CURRENT ASHRAE GUIDELINES, AND ALL APPLICABLE STATE AND LOCAL BUILDING CODES.
- CONTRACTOR SHALL REMOVE AND HAUL AWAY FROM THE PREMISES ALL UNUSED MATERIALS AND DEBRIS RESULTING FROM THE PERFORMANCE OF THE CONTRACT AND SHALL BEAR THE COST OF DISPOSAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF WALLS, ROOF, AND FLOORS, INCLUDING SAW CUTTING AND CORE DRILLING. ANY CUTTING AND DRILLING REQUIRED OF STRUCTURAL ELEMENTS THAT IS NOT SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE OWNERS REPRESENTATIVES ATTENTION PRIOR TO PERFORMING THE WORK. CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS AND SIZES OF SUCH A CUTTING AND DRILLING FOR APPROVAL. CONTRACTOR SHALL COORDINATE ALL WORK PERFORMED BY OTHERS WITH GENERAL CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE PRIOR TO SUBMITTING THEIR BID AND TO HAVE EXAMINED AND FAMILIARIZED THEMSELVES WITH THE SITE CONDITIONS. THEY SHALL COMPARE THE DRAWINGS AND SPECIFICATIONS WITH THE RESULTS OF THEIR EXAMINATION OF THE SITE AND CONFIRM THAT ALL REQUIREMENTS FOR COMPLETE H.V.A.C. MAY BE FULFILLED. NO EXTRA PAYMENTS WILL BE ALLOWED TO THE H.V.A.C. CONTRACTOR DUE TO UNFAMILIARITY WITH THE SITE CONDITIONS.
- CONTRACTOR SHALL SUBMIT BID BASED ON THE DRAWINGS, AND PROVIDE ALTERNATE BID FOR VALUE-ENGINEERED COST SAVINGS. CONTRACTOR SHALL EVALUATE DUCT CONSTRUCTION FOR AIR DISTRIBUTION MAIN TRUNKS AND PROVIDE VALUE-ENGINEERED ALTERNATE FOR COST SAVINGS TO THE OWNER.
- THE TENANT RESERVES THE RIGHT TO ACCEPT AND/OR REJECT ANY OR ALL BIDS.
- TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE MATERIALS BEFORE, DURING, AND AFTER INSTALLATION. IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
- AS BUILT DRAWINGS SHOWING DIMENSIONS AND LOCATIONS OF PIPES, DUCTS, AND EQUIPMENT SHALL BE SUBMITTED TO THE ARCHITECT, ENGINEER, TENANT, AND OWNER AT CONCLUSION OF CONSTRUCTION.
- THE ARCHITECT/ENGINEER SHALL HAVE THE RIGHT TO ACCEPT AND/OR REJECT MATERIALS, EQUIPMENT, AND/OR WORKMANSHIP, AND SHALL APPROVE ONLY WHEN THE CONTRACTOR HAS COMPLIED WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO ORDERING OR INSTALLING EQUIPMENT OR MATERIALS. SHOP DRAWINGS SHALL CLEARLY IDENTIFY SUBSTITUTIONS ON EQUIPMENT AND MATERIALS, AND SHALL CLEARLY IDENTIFY ALL PERTINENT DATA TO SUBSTANTIATE THE EQUALITY OF THE PRODUCT. THIS CONTRACTOR SHALL SUBMIT TO-SCALE DUCTWORK SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- WORKMANSHIP SHALL BE OF THE BEST QUALITY AND ONLY COMPETENT MECHANICS, SKILLED IN THEIR RESPECTIVE TRADES, SHALL BE EMPLOYED.
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH ALL OTHER TRADES. THIS INCLUDES COORDINATING THE LOCATION AND SIZE OF ALL OPENINGS, LOCATIONS OF EQUIPMENT, PADS, AND CHANGES IN ELEVATION OF DUCTWORK, PIPING, AND OTHER EQUIPMENT.
- ALL MECHANICAL TRIM/FINISHES SHALL BE COLORED AS PER ARCHITECT REQUIREMENTS. CONTRACTOR SHALL VERIFY COLOR REQUIREMENTS WITH THE ARCHITECT PRIOR TO ORDERING AIR INLETS/OUTLETS, WALL LOUVERS, AND THERMOSTATS.
- COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ROOM ELEVATIONS.
- FIELD-BUILT SLEEPERS OR PLATFORMS FOR ROOF-MOUNTED EQUIPMENT, ROOF PENETRATIONS, CUTTING, AND PATCHING BY GENERAL CONTRACTOR.
- LINE VOLTAGE WIRING, CONDUIT, DISCONNECT SWITCHES, AND FINAL TERMINATIONS BY ELECTRICAL CONTRACTOR. LOW VOLTAGE WIRING, CONDUIT, AND FINAL TERMINATIONS BY MECHANICAL CONTRACTOR.
- ALL LINE VOLTAGE CONTROLS INCLUDING STARTERS, RELAYS, CONTACTORS, TRANSFORMERS, ETC. SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- CONDENSATE DRAIN AND GAS PIPING SHALL BE BY PLUMBING CONTRACTOR.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS AND CONTROL DEVICES FOR THE COMPLETE INSTALLATIONS OF AN AUTOMATIC TEMPERATURE CONTROL SYSTEM.
- CONTRACTOR SHALL INSTALL ROOFTOP EQUIPMENT AT A MINIMUM OF 10 FEET FROM ANY EDGE OF THE BUILDING WHEN PARAPET WALLS ARE LOWER THAN 42" ABOVE ROOF DECK. WHERE SUCH INSTALLATION IS NOT POSSIBLE, CONTRACTOR SHALL PROVIDE A 42" HIGH SAFETY RAIL.
- ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- ALL NEW H.V.A.C. EQUIPMENT, DUCTWORK, PIPING, VALVES, AND CONTROL COMPONENTS SHALL BE PLACED AND LABELED WITH A PERMANENT LAMINATED PLASTIC LABEL. SUBMIT LABELING TO ENGINEER FOR APPROVAL AS A FORMAL SUBMITTAL.
- CONNECT MAIN DUCT TO AIR CONDITIONING UNIT WITH WEATHERPROOF FLEXIBLE CONNECTION. PROVIDE SUN SHIELD OVER ENTIRE FLEXIBLE CONNECTION IF EXPOSED TO WEATHER. FLEXIBLE CONNECTIONS SHALL BE 12" IN LENGTH.
- CONTRACTOR SHALL FURNISH TO TENANT AND PLACE INTO STORAGE FOR TENANT ONE COMPLETE SET OF REPLACEMENT FILTERS AND DRIVE BELTS FOR ALL NEW H.V.A.C. EQUIPMENT ON THIS PROJECT.
- FURNISH AND INSTALL FIRE, SMOKE, OR COMBINATION FIRE/SMOKE DAMPERS WHERE SHOWN ON PLANS OR AS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL COORDINATE WITH FIRE-RATED CEILING AREAS AND WALLS AS INDICATED ON ARCHITECTURAL DRAWINGS AND LOCAL CODE REQUIREMENTS. THIS NOTE SHALL TAKE PRECEDENCE OVER ANY OMISSIONS ON THE DRAWINGS.
- CONTRACTOR SHALL FURNISH AND INSTALL DUCT ACCESS DOORS AND CEILING ACCESS PANELS AT LOCATIONS AS NECESSARY TO SERVICE DAMPERS TO PROVIDE MAINTENANCE FOR EQUIPMENT. ALL CEILING ACCESS PANEL LOCATIONS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL PROVIDE & INSTALL DUCT MOUNTED SMOKE DETECTORS IN AIR DISTRIBUTION SYSTEMS WHERE AIRFLOW IS GREATER THAN 2000 CFM. MECHANICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR TO SHUT DOWN FAN, AND ELECTRICAL/FIRE ALARM CONTRACTOR SHALL WIRE IT TO THE FIRE ALARM SYSTEM FOR SUPERVISION AND SHUTDOWN.
- CONTRACTOR SHALL FURNISH AND INSTALL SUPPORTS, HANGERS, UPPER & LOWER ATTACHMENTS, AND ANCHORS REQUIRED TO INSTALL ALL MATERIALS AND EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT. DUCTWORK AND PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK. UPPER ATTACHMENTS FOR HANGING DUCT SHALL BE SUPPORTED FROM BEAMS, JOISTS OR SUPPLEMENTARY STRUCTURAL MEMBERS PROVIDED BY MECHANICAL CONTRACTOR.
- PROVIDE TURNING VANES AT ALL MITERED ELBOWS, OPPOSED BLADE BALANCING DAMPERS WITH LOCKING QUADRANTS AT BRANCH DUCTS, VOLUME DAMPERS, SPLITTER DAMPERS, AND ANY OTHER APPLICABLE DEVICES NECESSARY FOR MINIMUM DUCT RESISTANCE AND PROPER AIR BALANCING. ALL DAMPERS OR SPLITTERS SHALL BE SUFFICIENTLY STIFFENED TO PREVENT NOISE OR VIBRATION AND SHALL BE FITTED WITH AN ACCESSIBLY-LOCATED ADJUSTER.
- CONTRACTOR SHALL FURNISH AND INSTALL DAMPERS, LINKAGES, AND ACTUATORS REQUIRED FOR AIR FLOW CONTROL SYSTEM. DAMPERS SHALL BE OPPOSED BLADE WITH RUBBER GASKETS. ACTUATORS SHALL BE "BELIMO" NO-LINKAGE TYPE OR "HONEYWELL" WITH LINKAGE. ACTUATOR MOTORS SHALL BE 24 VOLT WITH SPRING RETURN AND MANUAL OVERRIDE FOR EMERGENCY.
- ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHALL BE INSULATED OR LINED AS SHOWN ON DRAWINGS. ALL DUCTWORK EXPOSED ON ROOF SHALL BE INTERNALLY LINED UNLESS OTHERWISE INDICATED OR SPECIFIED.
- ALL SUPPLY AND RETURN AIR DUCTWORK CONCEALED ABOVE CEILINGS SHALL BE INSULATED AND WRAPPED WITH TWO INCH FIBERGLASS INSULATION WITH FOIL FACED VAPOR BARRIER. REFRIGERANT SUCTION PIPING SHALL BE INSULATED WITH ARMAFLEX AND JACKETED WHEN EXPOSED TO THE OUTDOORS. CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH ARMAFLEX.
- CONTRACTOR TO PROVIDE 1" ACOUSTICAL FIBERGLASS DUCT LINER FOR APPROXIMATELY 10'-0" FROM UNITS ON BOTH SUPPLY AND RETURN DUCTS.
- ROUND AND RECTANGULAR DUCTWORK ARE INTERCHANGEABLE TO AVOID OBSTRUCTIONS IF CROSS-SECTIONAL AREAS ARE EQUIVALENT. CONTRACTOR IS TO VERIFY THE EXACT AVAILABLE CEILING SPACE AND INTERCHANGE THE DUCT SIZE TO FIT THE CEILING SPACE WITHOUT ADDITIONAL COST.
- INSTALL VOLUME CONTROL DAMPERS AT EACH SUPPLY DIFFUSER AND WHERE NECESSARY TO CONTROL AIR FLOW IN THE DUCT SYSTEMS.
- EXHAUST TERMINATIONS SHALL BE MINIMUM 10'-0" AWAY FROM OR 3'-0" ABOVE ANY FRESH AIR INTAKE, OPERABLE WINDOWS, AND DOORS, AND MINIMUM 10'-0" ABOVE GRADE.
- PROVIDE BACKDRAFT DAMPER FOR ALL EXHAUST AIR INLETS UNLESS OTHERWISE NOTED PER CODE.
- PROVIDE ALL FRESH AIR INTAKES AND EXHAUST OUTLETS WITH HOOD WITH 1/4" GALVANIZED MESH SCREENS.
- ALL CEILING DIFFUSERS ARE 4-WAY UNLESS OTHERWISE NOTED. DIFFUSERS AND REGISTERS SHALL BE TITUS, KRUEGER, ADP, METALAIR, ANEMOSTAT OR EQUAL.
- ALL EXPOSED MATERIALS WITHIN A RETURN AIR PLENUM SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- CONTRACTOR IS RESPONSIBLE FOR SIZING REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS, FIELD MEASURED TOTAL EQUIVALENT LENGTHS, AND VERTICAL LIFTS, AND PROVIDE ALL NECESSARY COMPONENTS.
- ALL MATERIALS AND EQUIPMENT PROVIDED AND/OR INSTALLED UNDER THIS CONTRACTOR SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF BENEFICIAL OCCUPANCY. ANY DEFECTS IN MATERIALS AND/OR WORKMANSHIP OCCURRING DURING TIME PERIOD SHALL BE REPAIRED OR REPLACED BY THIS CONTRACTOR AT NO COST TO THE OWNER. WARRANTY FOR COMPRESSORS SHALL BE (5) YEARS, AND WARRANTY FOR HEAT EXCHANGERS SHALL BE (10) YEARS.
- CONTRACTOR SHALL SUBMIT A COMPLETE BALANCE REPORT FOR APPROVAL. THE REPORT SHALL INCLUDE THE REQUIREMENTS DESCRIBED IN THE TEST AND BALANCE SPECIFICATION SECTION. CONTRACTOR SHALL FURNISH SEPARATE BALANCE REPORTS FOR GENERAL H.V.A.C. SYSTEMS AND KITCHEN EXHAUST/MAKEUP AIR SYSTEMS, IF APPLICABLE. THERE SHOULD BE NO OUTSTANDING ITEMS ON THE REPORTS PRIOR TO CITY FINAL INSPECTION.
- ALL WORK SHALL CONFORM TO THE 2022 CALIFORNIA MECHANICAL CODE WITH LOCAL AMENDMENTS TO 2022 LOS ANGELES MECHANICAL CODE, AND ALL OTHER APPLICABLE CODES AND REGULATIONS.
- AFTER COMPLETION OF WORK, TESTS ON THE HVAC SYSTEMS, INCLUDING A DUCT LEAKAGE TEST, AND AN AIR BALANCE PERFORMANCE TEST SHALL BE PERFORMED IN ACCORDANCE WITH AN APPROVED METHOD PER CMC 314.1.

DAMPER CONTROL

DAMPERS FOR OUTDOOR AIR SUPPLY AND EXHAUST SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE OR DURING BUILDING WARM-UP, COOL-DOWN, AND SETBACK. OPERATION OF DAMPERS SHALL BE ALLOWED DURING VENTILATION PREPURGE ONE HOUR BEFORE EXPECTED OCCUPANCY AND FOR UNOCCUPIED PERIOD PRE-COOLING DURING THE COOLING SEASON.

EXISTING CONDITIONS/SCOPE NOTES

CONTRACTOR SHALL CLOSELY INSPECT AND VERIFY ALL EXISTING CONDITIONS AND INCLUDE IN BID ALL WORK REQUIRED TO DELIVER DESIGN INTENT. COORDINATE ALL ROOF-TO-SPACE PENETRATIONS WITH LANDLORD AND REQUEST ADDITIONAL SHELL INFORMATION FROM LANDLORD AS NECESSARY. NO CHANGE ORDER WILL BE ALLOWED.

LEGEND

SYMBOL & ABBREVIATION	DESCRIPTION
DEPT	DEPARTMENT
DET	DETAIL
DH	DUCT HEATER
DIA	DIAMETER
DISC	DISCONNECT
DISCH	DISCHARGE
DMPR	DAMPER
DP	DEW POINT
DR	DRAIN
DWG	DRAWING
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
ECU	EVAPORATIVE COOLING UNIT
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
(E)	EXISTING
EFF	EFFICIENCY
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EH	ELECTRIC HEATER
EWT	ENTERING WATER TEMPERATURE
EXCH	EXCHANGER
EXH	EXHAUST
EXIST	EXISTING
EXT	EXTERIOR
FC	FAN COIL UNIT
FD	FIRE DAMPER
FLEX	FLEXIBLE
FLR	FLOOR
FLTR	FILTER
FPM	FEET PER MINUTE
FSD	FIRE SMOKE DAMPER
FURN, FAU	FURNACE AIR UNIT
GA	GAGE/GAUGE
GC	GENERAL CONTRACTOR
HP	HEAT PUMP
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
ID	INSIDE DIAMETER
IN WC	INCHES, WATER COLUMN
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MCA	MINIMUM CIRCUIT AMPACITY
MFR	MANUFACTURER
MECH	MECHANICAL
MOCP	MAXIMUM OVERCURRENT PROTECTION
(N)	NEW
NA	NOT APPLICABLE
NC	NOISE CRITERIA, NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA/OA	OUTSIDE AIR
OB	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
P	PUMP
PD	PRESSURE DROP
POC	POINT OF CONNECTION
PSI	POUNDS PER SQUARE INCH
RH	RELATIVE HUMIDITY
RM	ROOM
RPM	REVOLUTION PER MINUTE
RTU	ROOF TOP UNIT
SENS	SENSIBLE
SF	SAFETY FACTOR
SMK	SMOKE
TEMP	TEMPERATURE
TONS	TONS OF REFRIGERATION
TSTAT	THERMOSTAT
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WB	WET BULB TEMPERATURE
WT	WEIGHT

LEGEND

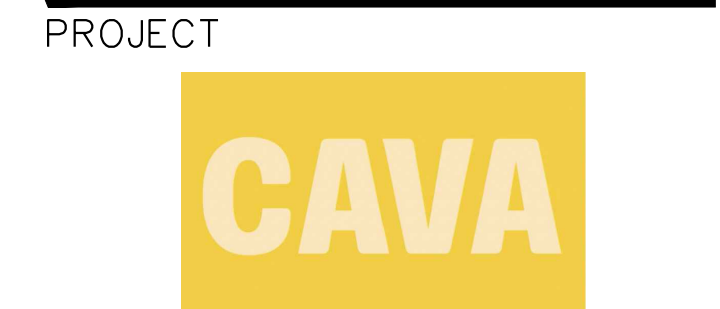
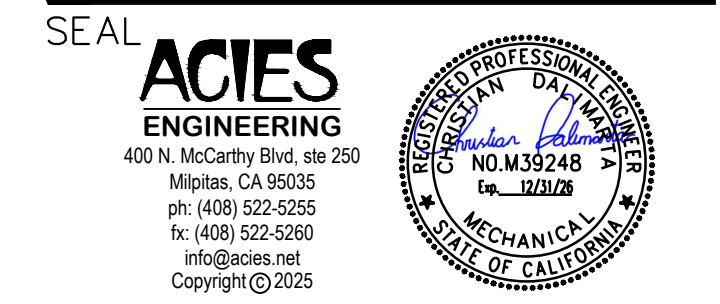
SYMBOL & ABBREVIATION	DESCRIPTION
SAS/UP	SUPPLY AIR (RISE/DROP)
RAVRET	RETURN AIR DUCT (RISE/DROP)
EA/EXH	EXHAUST AIR DUCT (RISE/DROP)
CD/SR	CEILING DIFFUSER/SUPPLY REGISTER (ARROWHEAD REPRESENTS NUMBER OF THROW) (4-WAY TYPICAL IF NO ARROWS)
RR/RG	RETURN REGISTER/GRILLE
ER/EG	EXHAUST REGISTER/GRILLE
	RECTANGULAR DUCT ELBOW WITH TURNING VANES
FC	FLEXIBLE CONNECTION
MVD	MANUAL VOLUME DAMPER
FD	FIRE DAMPER
(L)	DUCT LINING (1" THICK UNLESS OTHERWISE NOTED)
	SINGLE LINE DUCT BRANCH TAKE-OFF
	DUCT TRANSITION (RECTANGULAR TO ROUND)
FLEX	FLEXIBLE DUCT
T-STAT	PROGRAMMABLE THERMOSTAT
	TEMPERATURE SENSOR
SD	DUCT SMOKE DETECTOR
FD	FIRE DAMPER
FSD	COMBINATION FIRE/SMOKE DAMPER
ZD	ZONE DAMPER
CD	CONDENSATE DRAIN
DIA	DIAMETER
DL	DOOR LOUVER
UC	DOOR UNDERCUT (3/4" MINIMUM)
POC	POINT OF CONNECTION
	FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
	FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
	FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
SD-1 100	(SD-SUPPLY DIFFUSER, RD-RETURN DIFFUSER, E-EXHAUST) AIR QUANTITY IN CFM
AC 1	MECHANICAL EQUIPMENT DESIGNATION DESIGNATED NUMBER
A/C, AC, ACU	AIR CONDITIONING UNIT
ADD	ADDITION
AFF	ABOVE FINISHED FLOOR
AFS	AIR FLOW SENSOR
AHU	AIR HANDLER UNIT
ALT	ALTERNATE
AMB	AMBIENT
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS PANEL
AS	AIR SEPARATOR
AV	AIR VENT
BAPR	BAROMETRIC PRESSURE
BARO	BAROMETER
BDD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTER
BFV	BACK FLOW VALVE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLR	BOILER
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
CAV	CONSTANT AIR VOLUME
CD	CONDENSATE DRAIN
CLG	CEILING
CONN.	CONNECT/CONNECTION
CONT.	CONTINUATION
CONTR	CONTRACTOR
CFM	CUBIC FEET PER MINUTE
CKT	CIRCUIT
COEFF	COEFFICIENT
COND	CONDENSER, CONDENSING
COP	COEFFICIENT OF PERFORMANCE (HEATING)
CU	CONDENSING UNIT
dB	DECIBEL
DB	DRY BULB TEMPERATURE
DCV	DEMAND CONTROLLED VENTILATION
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE



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DATE DESCRIPTION

DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
12/16/24	CONSTRUCTION SET- REVISED
02/28/25	CONSTRUCTION SET- REVISED

AHJ STAMP APPROVAL

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MECHANICAL LEGEND, NOTES, AND ABBREVIATIONS

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 Project No.: 240214
 QA/QC: MV/CD
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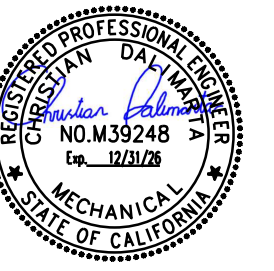
M0.1

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PROJECT



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DATE DESCRIPTION

08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
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MECHANICAL SCHEDULES

Date Modified: 24/11/26
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PACKAGED HEAT PUMP ROOFTOP UNIT SCHEDULE

EQUIP. TAG	MANUFACTURER & MODEL	AREA SERVED	LOCATION	INDOOR FAN				COOLING							HEATING					ELECTRICAL			WEIGHT (LBS)	REMARKS
				SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	ESP (in. H2O)	MOTOR (HP)	NOMINAL CAPACITY (TONS)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EER / IEER	ENTERING AIR TEMPERATURE (°Fdb/°Fwb)	LEAVING AIR TEMPERATURE (°Fdb/°Fwb)	AMBIENT AIR TEMPERATURE (°F)	HEATING OUTPUT (MBH)	AUX ELECTRIC HEATING (KW)	COP (HIGH STAGE)	ENTERING AIR TEMPERATURE (°F)	LEAVING AIR TEMPERATURE (°F)	V/ph/Hz	MCA	MOCOP		
RTU-1	TRANE WHJ150A3	KITCHEN AREA	ROOF	4000	400	1.0	2.90	12.5	135	97	12.3 / 17.8	75 / 63	54 / 53	100	168	18	3.8	67	105	208/3/60	119	125	2300	1-9
RTU-2	TRANE WHC102H3	DINING	ROOF	3100	600	1.0	2.75	8.5	93	78	12.0 / 16.0	75 / 63	54 / 53	100	100	9	3.4	67	105	208/3/60	69	80	1300	1,2,4-9

1. NEW DOWNFLOW DISCHARGE CONFIGURATION, HIGH EFFICIENCY PACKAGED HEAT PUMP ROOFTOP UNIT. PROVIDE WITH NEW 14" HIGH ROOF CURB.
 2. PROVIDE WITH LOW LEAK DRY BULB ECONOMIZER WITH FDD CONTROL, AND BAROMETRIC RELIEF.
 3. PROVIDE POWER EXHAUST WITH SEPARATE POWER. 'MICROMETL' PCE-PR20DCA-D-2L2, 208V/3PH, 2HP, 7.6 FLA, 9.5 MCA, 12.4 MOCOP.
 4. FACTORY MOUNTED DISCONNECT SWITCH TO BE INSTALLED BY ELECTRICAL CONTRACTOR.
 5. FACTORY MOUNTED POWERED CONVENIENCE OUTLET.
 6. PROVIDE A MIN. 2" MERV-13 FILTER. REPLACE FILTER AFTER CONSTRUCTION PRIOR TO FINAL.
 7. PROVIDE SMOKE DETECTOR IN SUPPLY AIR DUCT TO SHUT DOWN UNIT UPON SMOKE DETECTION.
 8. PROVIDE WITH T-24 COMPLIANT THERMOSTAT.
 9. PROVIDE CONDENSATE OVERFLOW SWITCH.

MAKE UP AIR UNIT SCHEDULE

EQUIP. TAG	MANUFACTURER & MODEL	SERVICE	LOCATION	AIR FLOW (CFM)	STATIC PRESSURE (in H2O)	MOTOR HP	COOLING				HEAT PUMP			ELECTRICAL			ELECTRIC HEAT					WEIGHT (lbs)	REMARKS
							TOTAL MBH	SENS MBH	IEER	LVG AIR TEMP DB / WB (°F)	ENT / LVG TEMP (°F)	MAX TEMP RISE (°F)	COP	ELECTRICAL SERVICE (V/ph/Hz)	MCA	MOCOP	AUX. ELECTRIC HTG (KW)	ELECTRICAL SERVICE (V/ph/Hz)	AMPS	MCA	MOCOP		
MUA-1	ECON-AIR EARTU1-E.152-15-5T-MPU	H-1	ROOF	1976	0.75	2	64	41.2	17.9	73.4 / 65.8	45 / 67	22	3.5	208/3/60	27.2	30	10	208/3/60	36.1	45.2	50	1266	1-14

1. NEW DOWNFLOW DISCHARGE MAKE-UP AIR UNIT WITH 5 TON MODULATING COOLING OPTION WITH HEAT PUMP.
 2. 20" HIGH ROOF CURB.
 3. INTERLOCK WITH KEF-1.
 4. MAKE-UP AIR UNIT TO SHUT DOWN UPON RELEASE OF HOOD FIRE SUPPRESSION SYSTEM.
 5. FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
 6. PROVIDE DISCONNECT SWITCH.
 7. MOTORIZED BACK DRAFT DAMPER.
 8. FIXED 100% OA INTAKE CONTROL.
 9. PROVIDE MERV-13 FILTERS.
 10. SEPARATE POWER CONNECTION FOR MAIN UNIT & ELECTRIC HEATER.
 11. FREEZE/STAT.
 12. R410A REFRIGERANT.
 13. INSTALL PER MANUFACTURER'S RECOMMENDATION.
 14. REFER TO M6.6 - M6.8 FOR ADDTL INFORMATION.

AIR BALANCE SCHEDULE

	RTU-1	RTU-2	KEF-1	EF-1	EF-2	MUA-1	TOTAL
OUTSIDE AIR FLOW (CFM)	400	600	0	0	0	1976	2976
RETURN AIR FLOW (CFM)	3700	2500	0	0	0	0	6200
SUPPLY AIR FLOW (CFM)	4000	3100	0	0	0	1976	9076
EXHAUST AIR FLOW (CFM)	0	0	2381	120	120	0	2621
BUILDING PRESSURE (CFM)	400	600	-2381	-120	-120	1976	355
RESULTING BUILDING PRESSURIZATION (CFM)							355

KITCHEN HOOD SCHEDULE

EQUIP. TAG	MANUFACTURER & MODEL	SERVICE	EXHAUST CFM	VELOCITY (FPM)	TYPE	SUPPLY CFM	DIMENSIONS			WEIGHT (LBS)	REMARKS
							LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)		
H-1	CAPTIVEAIRE 6030 ND-2-ACPSP-F	KITCHEN	2381	1705	1	1976	127	60	30	1173	1,2,3

1. NEW KITCHEN HOOD. INSTALL PER MANUFACTURER'S INSTRUCTIONS. REFER TO SHEET M6.3 TO M6.12 FOR ADDTL INFORMATION.
 2. AUTOMATIC FIRE EXTINGUISHING SYSTEM IN COMPLIANCE WITH UL300, FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF RESTAURANT COOKING EQUIPMENT. SEE SHEET M6.5 FOR ADDTL INFORMATION.
 3. VERIFY THAT KEF-1 IS APPROPRIATELY INTERLOCKED WITH THE ANSUL SYSTEM FOR FIRE PROTECTION TO ENSURE PROPER OPERATION DURING FIRE EVENTS.

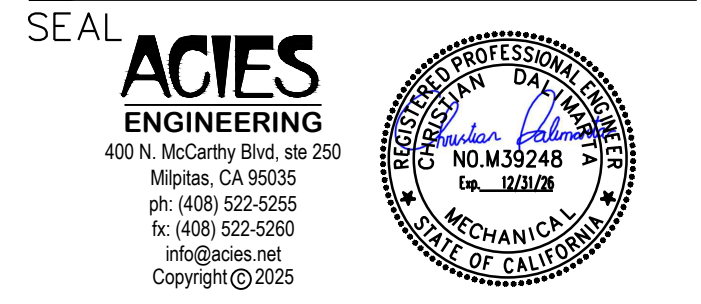
KITCHEN EXHAUST FAN SCHEDULE

EQUIP. TAG	MANUFACTURER & MODEL	SERVICE	LOCATION	AIR FLOW (CFM)	EXT. STATIC PRESSURE (in wg)	MOTOR SIZE (HP)	RPM	SONES	ELECTRICAL SERVICE (V/ph/Hz)	FLA	WEIGHT (LBS)	REMARKS
KEF-1	CAPTIVEAIRE DU180HFA	H-1	ROOF	2381	1.75	2	1297	17.8	208/3/60	7.3	246	1-7

1. NEW UPBLAST FAN. PROVIDE NEW VENTED, 20" HIGH ROOF CURB AND PROVIDE GREASE CUP.
 2. EXHAUST FAN HEAT BAFFLE.
 3. NEMA 3R DISCONNECT SWITCH BY E.C.
 4. DIRECT DRIVE MOTOR, VARIABLE SPEED CONTROL.
 5. GREASE BOX & FAN BASE CERAMIC SEAL.
 6. INTERLOCK WITH KITCHEN ANSUL SYSTEM.
 7. PROVIDE FAN WITH ENVIROMATIC VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM.

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PROJECT



CAVA Azusa CA

806 E Alostia Ave
 Azusa, CA 91702

AIR DISTRIBUTION SCHEDULE										
DIFFUSER TAG	TYPE	FACE SIZE	NECK SIZE	MOUNTING	BORDER TYPE	MAX NOISE CRITERIA LEVEL	MANUFACTURER/ MODEL	REMARKS		
SD-1	PERFORATED DIFFUSER	24"x24"	SEE PLAN	CEILING	LAY-IN	25	TITUS PAS	1,2,5,7		
SD-2	SQUARE PLAQUE FACE	12"x12"	6"Ø	CEILING	SURFACE	25	TITUS OMNI	1,3,5,6		
SD-3	LINEAR DIFFUSER	48"x4.75"	8"Ø	CEILING	SURFACE	25	TITUS FL-20-22	1,8		
SD-4	SUPPLY GRILLE	18"x8"	16"x6"	CEILING	SURFACE	25	TITUS S300FS	9,10		
SD-5	SQUARE PLAQUE FACE	24"x24"	SEE PLAN	CEILING	SURFACE	25	TITUS OMNI	1,3,5,6		
RG-1	RETURN GRILLE	24"x24"	22"x22"	CEILING	LAY-IN	25	TITUS 350RL	1,2		
RG-2	RETURN GRILLE	32"x22"	30"x20"	CEILING	SURFACE	25	TITUS 350FS	1,4		

1. WHITE FINISH.	6. INCLUDE WITH BALANCING DAMPER IN NECK.
2. MANUAL VOLUME DAMPER.	7. WITH NO INTERNAL DEFLECTOR.
3. PROVIDE RAPID FRAME MOUNT IN HARD LID CEILING AREAS.	8. 1 SLOT, 2" SLOT WIDTH.
4. WITH OPPOSED BLADE DAMPER.	9. COORDINATE PAINT COLOR (PT-106) WITH ARCHITECTURAL SHEETS.
5. SUPPLY DIFFUSER TO BE INSULATED VIA FACTORY SYSTEM.	10. AIR SCOOP BALANCING DAMPER.

EXHAUST FAN SCHEDULE											
EQUIP. TAG	MANUFACTURER & MODEL	SERVICE	LOCATION	AIR FLOW (CFM)	TOTAL STATIC PRESSURE (in H2O)	FAN SPEED (RPM)	MOTOR SIZE (WATTS)	SOUND (SONES)	ELECTRICAL SERVICE (V/phi/Hz)	OPERATING WEIGHT (lbs)	REMARKS
EF-1	GREENHECK SP-150	RESTROOM	CEILING	120	0.5	886	171	2.5	115/1/60	15	1-6
EF-2	GREENHECK SP-150	RESTROOM	CEILING	120	0.5	886	171	2.5	115/1/60	15	1-6

1. CEILING MOUNTED EXHAUST FAN.	4. SPEED CONTROLLER.
2. DISCONNECT SWITCH PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.	5. FLEXIBLE DUCT CONNECTION.
3. BACKDRAFT DAMPER.	6. FAN SHALL OPERATE ON RESTROOM OCCUPANCY SENSOR. FAN SHALL TURN OFF 1 MINUTE AFTER RESTROOM IS UNOCCUPIED FOR INTERMITTENT OPERATION.

AIR CURTAIN SCHEDULE													
EQUIP. TAG	MANUFACTURER & MODEL	SERVICE	CFM	MAX VELOCITY AT NOZZLE (FPM)	MOTOR HP	CONTROL	MOUNTING HEIGHT	LENGTH	ELECTRICAL SERVICE (V/phi/Hz)	MCA	MOCP	WEIGHT (lbs)	REMARKS
AC-1	BERNER ALC08-1048A	EXIT REAR DOOR	1036	3600	1/5	ON/OFF	-	4'-0"	115/1/60	3.4	15	50	1-7
AC-2	BERNER DTU03-2026A	DRIVER THROUGH WINDOW	200	2800	1 @ 1/12 1 @ 1/20	ON/OFF	-	2'-2"	115/1/60	2.2	15	25	1,4,5,7
AC-3	BERNER AE08-E-1072A	FRONT ENTRANCE DOOR	2252	2300	1/5	ON/OFF	-	6'-0"	115/1/60	4.4	15	95	1,3-8

1. NEW UNHEATED AIR CURTAIN.	4. FILTER.	7. WALL MOUNTING BRACKET.
2. DECORATIVE REAR ADAPTOR.	5. COORDINATE FINISH COLOR WITH ARCHITECT.	8. FINISH TO MATCH STOREFRONT.
3. DOOR LIMIT SWITCH.	6. LOAD CENTER BOX KIT WITH MAGNETIC REED DOOR SWITCH CONTROL.	

REQUIRED OUTSIDE AIR VENTILATION RATES (2022 CMC)																		
CAVA - Azusa, CA																		
Zone & Area	Occupancy Category	Area	2022 CMC, TABLE 402.1							2022 CEC, TABLE 120.1-A		2022 CEC, 120.1.b.2.B					Ventilation Air Required (CFM)	Ventilation Air Provided CFM
			Occupants per 1000 SF	Actual No. of Occupants	Ventilation Air (CFM/SF)	Ventilation Air (CFM/PERSON)	Total CFM	Ventilation System Efficiency	Required Ventilation CFM	Ventilation Air (CFM/SF)	Required Ventilation CFM	CBC Occupancy Load (SF/OCC)	No. of Occupants	1/2 of CBC Occupants	Ventilation Air (CFM/PERSON)	Required Ventilation CFM		
Dining Area	Restaurant Dining Rooms	935	70	36	0.18	7.5	439	80%	549	0.15	141	15	36	18	15	270	549	
Restrooms	-	240	0	0	0	0	80%	0	0.15	36	100	3	2	15	30	36		
RTU-2 (Dining Area)	Total	1175		36			439		549		177		20		300	549	600	
Kitchen	Kitchen (cooking)	486	20	4	0.12	7.5	89	80%	112	0.15	73	200	3	2	15	30	112	
BOH	Kitchen	500	20	4	0.12	7.5	90	80%	113	0.15	75	200	3	2	15	30	113	
Office	Office Space	47	5	1	0.06	5	8	80%	10	0.15	8	100	1	1	15	15	15	
RTU-1 (Kitchen Area)	Total	1033		9			187		235		156		5		75	235	400	

DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
12/16/24	CONSTRUCTION SET- REVISED
02/28/25	CONSTRUCTION SET- REVISED

AHJ STAMP APPROVAL

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MECHANICAL SCHEDULES

Date Modified: 24/11/26
 Date Created: 24/05/28
 Scale: NOT TO SCALE
 Project No.: 240214
 QA/QC: MV/CD
 CAD File:

MECHANICAL SPECIFICATION (CONTINUED)

C. HEATING AND COOLING DUCTWORK LOCATED ON THE ROOF
 C.1. INSULATE WITH RIGID BOARD INSULATION WITH A MINIMUM R VALUE OF R-8 AS REQUIRED PER CODE. COAT EXTERIOR OF INSULATION WITH PERFORATED SHEET METAL LINER, SUITABLE FOR VELOCITIES FROM 1500 TO 4000 FPM, IN COMPLIANCE W/ UL723 AND UL181.

C.2. WHERE INTERNAL INSULATION IS APPLIED, DUCT AND PLENUM SIZES AS SHOWN ON THE DRAWINGS SHALL BE INSIDE CLEAR DIMENSIONS.

D. SOFT FLEXIBLE DUCT

D.1. FOIL FACED FIBERGLASS, OWENS CORNING TYPE 75 OR EQUAL, FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPMENT RATING OF NOT MORE THAN 50 UNLESS SHOWN OTHERWISE. ALL INSULATION SHALL BE EXTERNAL TO DUCTWORK.

E. DUCT LINER
 E.1. FOR EXTERIOR DUCTS: FIBERGLASS WITH FIRE RATED BLACK COATING, OWENS CORNING AEROFLEX TYPE 150.
 E.2. FOR OTHER LOCATIONS SHOWN ON DRAWINGS: AEROFLEX TYPE 150, AS ABOVE, EXCEPT 1 INCH THICK. FLAME SPREAD RATING OF NOT MORE THAN 25 AND SMOKE DEVELOPED RATING OF NOT MORE THAN 50.
 E.3. AN EPA-APPROVED BIOCIDES IN THE AIRSTREAM COATING ENABLES OWENS-CORNING DUCT LINERS TO RESIST FUNGAL OR BACTERIAL GROWTH WHEN SUBJECTED TO MICROBIAL ATTACK DESCRIBED IN ASTM C 865 AND STANDARD PRACTICES ASTM G 21 (FUNGUS TEST) AND G 22 (BACTERIA TEST).

4.05 TEMPERATURE CONTROL SYSTEM

F. ALL UNITARY HEATING OR COOLING SYSTEMS, INCLUDING HEAT PUMPS, NOT CONTROLLED BY A CENTRAL ENERGY MANAGEMENT CONTROL SYSTEM (EMCS) SHALL HAVE A SETBACK PROGRAMMABLE THERMOSTAT.
 F.1. SETBACK CAPABILITIES: ALL THERMOSTATS SHALL HAVE A CLOCK MECHANISM THAT ALLOWS THE BUILDING OCCUPANT TO PROGRAM THE TEMPERATURE SETPOINTS FOR AT LEAST FOUR PERIODS WITHIN 24 HOURS.

G. HEAT PUMPS WITH SUPPLEMENTARY ELECTRIC RESISTANCE HEATERS SHALL HAVE CONTROLS:
 G.1. THAT PREVENT SUPPLEMENTARY HEATER OPERATION WHEN THE HEATING LOAD CAN BE MET BY THE HEAT PUMP ALONE; AND
 G.2. IN WHICH THE CUT-ON TEMPERATURE FOR COMPRESSION HEATING IS HIGHER THAN THE CUT-ON TEMPERATURE FOR SUPPLEMENTARY HEATING, AND THE CUT-OFF TEMPERATURE FOR COMPRESSION HEATING IS HIGHER THAN THE CUT-OFF TEMPERATURE FOR SUPPLEMENTARY HEATING.

CONTRACTOR SHALL POST IN THE OCCUPIED SPACE TYPEWRITTEN INSTRUCTIONS ON OPERATION OF ALL CONTROLS.

4.06 SEISMIC RESTRAINTS AND BRACING

A. ALL HVAC EQUIPMENT, DUCTWORK, PIPING AND WIRING CONDUITS SHALL BE INSTALLED TO MEET THE LATERAL BRACING REQUIREMENTS FOR THE APPLICABLE SEISMIC ZONE. PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH SEISMIC HAZARD LEVEL (SHL) A OF THE "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS" DATED 2009, AS PUBLISHED BY S.M.A.C.N.A. AND ALSO IN ACCORDANCE WITH APPLICABLE LOCAL BUILDING CODES.
 B. ALL ROOFTOP EQUIPMENT SHALL HAVE PROPER ANCHORING AND RESTRAINT SYSTEMS AND SHALL BE SECURED TO A ROOF CURB, EQUIPMENT PAD, OR OTHER STRUCTURAL MEMBER TO PREVENT LATERAL, VERTICAL, OR OVERTURNING MOVEMENT WITHOUT SACRIFICING ANY RESILIENT VIBRATION ISOLATION REQUIREMENTS.

4.07 TESTING AND BALANCING (SEE ALSO, SECTION 15990)

BALANCING OF THE AIR CONDITIONING SYSTEM WILL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCING AGENCY. THE MECHANICAL CONTRACTOR SHALL COOPERATE WITH THE SELECTED TEST AND BALANCE AGENCY IN THE FOLLOWING MANNER:
 A. PROVIDE SUFFICIENT TIME BEFORE FINAL COMPLETION DATE SO THAT TEST AND BALANCING CAN BE ACCOMPLISHED.
 B. PROVIDE IMMEDIATE LABOR AND TOOLS TO MAKE CORRECTIONS WHEN REQUIRED WITHOUT UNDUE DELAY. INSTALL BALANCING DAMPERS AS REQUIRED BY TEST AND BALANCE AGENCY.
 C. THE CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.
 D. TESTING AND BALANCING AGENCY SHALL BE KEPT INFORMED OF ANY MAJOR CHANGES MADE TO SYSTEM DURING CONSTRUCTION AND SHALL BE PROVIDED WITH COMPLETE AS-BUILT DRAWINGS.
 E. THE MECHANICAL CONTRACTOR SHALL INCLUDE THE COSTS OF DAMPERS, PULLEY AND BELT CHANGES IN HIS CONTRACT.

4.08 SPECIAL CONDITIONS

A. AIR CONDITIONING EQUIPMENT ON ROOF: THE EXACT EQUIPMENT LOCATIONS ON THE ROOF SHALL BE FIELD VERIFIED BY CONTRACTOR. THE INTENT OF THE DESIGN IS TO UTILIZE A MANUFACTURER-SUPPLIED ROOF CURB THAT WOULD SUPPORT THE NEW EQUIPMENT.
 B. CONTRACTOR SHALL CONFORM TO MANUFACTURER'S PUBLISHED INSTALLATION AND ASSEMBLY GUIDE. INSTALLATION SHALL CONFORM TO STRUCTURAL ENGINEER'S REQUIREMENTS.
 C. STRUCTURAL SUPPORT FOR THE AIR CONDITIONING UNIT: THE OWNER SHALL ENGAGE A LICENSED STRUCTURAL ENGINEER TO DESIGN THE STRUCTURAL SUPPORT FOR THE AIR CONDITIONING UNIT ON THE ROOF. THE MECHANICAL CONTRACTOR IS TO COORDINATE ALL WORK WITH THE STRUCTURAL ENGINEER.
 D. ALL REQUIRED PENETRATIONS OF EXISTING ROOFING SYSTEM SHALL BE MADE BY LANDLORD'S ROOFING CONTRACTOR AT OWNER'S EXPENSE AFTER NOTIFICATION TO LANDLORD FOR APPROVAL.

END OF SECTION

TESTING, ADJUSTING, & BALANCING SPECIFICATION

SECTION 159900 - TESTING, ADJUSTING AND BALANCING

1.00 - GENERAL

1.01 DESCRIPTION

THE TESTING AND BALANCING WORK WILL BE PERFORMED UNDER A SEPARATE CONTRACT FROM THE HVAC WORK. THE WORK DESCRIBED IN THIS SECTION SHALL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCE AGENCY, SPECIALIZING IN TESTING AND BALANCING OF HVAC SYSTEMS AND SHALL BE A MEMBER OF AABC, NEBB, OR APPROVED EQUAL ORGANIZATION.

1.02 SCOPE OF WORK

A. TEST, ADJUST, AND BALANCE HOT, CHILLED, AND CONDENSER WATER SYSTEMS, AIR MOVING EQUIPMENT, AND AIR SUPPLY, RETURN, AND EXHAUST SYSTEMS AS HEREIN SPECIFIED.
 B. EACH PIECE OF AIR CONDITIONING AND HEATING EQUIPMENT AND THE AIR DISTRIBUTIONS SYSTEMS SHALL BE TESTED AND ADJUSTED TO INSURE PROPER FUNCTIONING OF ALL CONTROL, PROPER DISTRIBUTION OF AIR, MAINTENANCE OF TEMPERATURE, ELIMINATION OF DRAFTS, NOISE AND VIBRATION, AND LEFT IN FIRST CLASS OPERATING CONDITION. THE AIR SYSTEM SHALL BE READJUSTED IF REQUIRED FOR COMFORT OF EACH ROOM.
 C. THE MECHANICAL CONTRACTOR WILL MAKE ANY CHANGES IN THE PULLEYS, BELTS, DAMPERS, VANES, Baffles AND OTHER BALANCING DEVICES REQUIRED FOR CORRECT BALANCE OF SYSTEM AS RECOMMENDED BY T&B AGENCY AND TO THE SATISFACTION OF THE OWNER.

1.03 SUBMITTALS

A. PROVIDE (1) HARD COPY & (1) SOFT COPY OF TEST AND BALANCE REPORT TO THE OWNER FOR REVIEW AND APPROVAL. LETTER SIZE, 3-RING BINDER MANUAL COMPLETE WITH INDEX PAGE AND INDEXING TABS. THE REPORT SHALL INCLUDE A SET OF REDUCED DRAWINGS WITH AIR OUTLETS AND EQUIPMENT IDENTIFIED TO CORRESPOND WITH THE MECHANICAL PLANS.
 B. THE CERTIFIED TAB REPORTS SHALL INCLUDE INSTRUMENT TYPE AND MAKE, SERIAL NUMBER, DATES OF USE, AND DATES OF CALIBRATION. INSTRUMENTS USED FOR TESTING AND BALANCING MUST HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX (6) MONTHS AND CHECKED FOR ACCURACY PRIOR TO START OF WORK.

2.00 EXECUTION

2.01 EXAMINATION

A. EXAMINE THE CONTRACT DOCUMENTS TO BECOME FAMILIAR WITH PROJECT REQUIREMENTS AND TO DISCOVER CONDITIONS IN SYSTEMS' DESIGNS THAT MAY PRECLUDE PROPER TAB OF SYSTEMS AND EQUIPMENT.
 B. EXAMINE SYSTEMS FOR INSTALLED BALANCING DEVICES, SUCH AS TEST PORTS, GAGE COCKS, THERMOMETER WELLS, FLOW-CONTROL DEVICES, BALANCING VALVES AND FITTINGS, AND MANUAL VOLUME DAMPERS. VERIFY THAT LOCATIONS OF THESE BALANCING DEVICES ARE ACCESSIBLE.
 C. EXAMINE THE APPROVED SUBMITTALS FOR HVAC SYSTEMS AND EQUIPMENT.
 D. EXAMINE EQUIPMENT PERFORMANCE DATA INCLUDING FAN AND PUMP CURVES.
 E. EXAMINE SYSTEM AND EQUIPMENT INSTALLATIONS AND VERIFY THAT FIELD QUALITY-CONTROL TESTING, CLEANING, AND ADJUSTING SPECIFIED IN INDIVIDUAL SECTIONS HAVE BEEN PERFORMED.
 F. EXAMINE HVAC EQUIPMENT AND FILTERS AND VERIFY THAT BEARINGS ARE GREASED, BELTS ARE ALIGNED AND TIGHT, AND EQUIPMENT WITH FUNCTIONING CONTROLS IS READY FOR OPERATION.
 G. EXAMINE TERMINAL UNITS SUCH AS VARIABLE-AIR-VOLUME BOXES, AND VERIFY THAT THEY ARE ACCESSIBLE AND THEIR CONTROLS ARE CONNECTED AND FUNCTIONING.
 H. EXAMINE STRAINERS. VERIFY THAT STARTUP SCREENS ARE REPLACED BY PERMANENT SCREENS WITH INDICATED PERFORATIONS.
 I. EXAMINE SYSTEM PUMPS TO ENSURE ABSENCE OF ENTRAINED AIR IN THE SUCTION PIPING.
 J. EXAMINE OPERATING SAFETY INTERLOCKS AND CONTROLS ON HVAC EQUIPMENT.
 K. REPORT DEFICIENCIES DISCOVERED BEFORE AND DURING PERFORMANCE OF TAB PROCEDURES.
 L. OBSERVE AND RECORD SYSTEM REACTIONS TO CHANGES IN CONDITIONS. RECORD DEFAULT SET POINTS IF DIFFERENT FROM INDICATED VALUES.

2.02 PREPARATION

A. PREPARE A TAB PLAN THAT INCLUDES STRATEGIES AND STEP-BY-STEP PROCEDURES.
 B. COMPLETE SYSTEM-READINESS CHECKS AND PREPARE REPORTS. VERIFY THE FOLLOWING:
 B.1. PERMANENT ELECTRICAL-POWER WIRING IS COMPLETE.
 B.2. HYDRONIC SYSTEMS ARE FILLED, CLEAN, AND FREE OF AIR.
 B.3. AUTOMATIC TEMPERATURE-CONTROL SYSTEMS ARE OPERATIONAL.
 B.4. EQUIPMENT AND DUCT ACCESS DOORS ARE SECURELY CLOSED.
 B.5. BALANCE, SMOKE, AND FIRE DAMPERS ARE OPEN.
 B.6. ISOLATING AND BALANCING VALVES ARE OPEN AND CONTROL VALVES ARE OPERATIONAL.
 B.7. CEILINGS ARE INSTALLED IN CRITICAL AREAS WHERE AIR-PATTERN ADJUSTMENTS ARE REQUIRED AND ACCESS TO BALANCING DEVICES IS PROVIDED.
 B.8. WINDOWS AND DOORS CAN BE CLOSED SO INDICATED CONDITIONS FOR SYSTEM OPERATIONS CAN BE MET.

2.03 GENERAL PROCEDURES

A. PREPARE TEST REPORTS FOR BOTH FANS AND OUTLETS. OBTAIN MANUFACTURER'S OUTLET FACTORS AND RECOMMENDED TESTING PROCEDURES. CROSSCHECK THE SUMMATION OF REQUIRED OUTLET VOLUMES WITH REQUIRED FAN VOLUMES.
 B. FOR VARIABLE-AIR-VOLUME SYSTEMS, DEVELOP A PLAN TO SIMULATE DIVERSITY.
 C. DETERMINE THE BEST LOCATIONS IN MAIN AND BRANCH DUCTS FOR ACCURATE DUCT-AIRFLOW MEASUREMENTS.

D. CHECK AIRFLOW PATTERNS FROM THE OUTDOOR-AIR LOUVERS AND DAMPERS AND THE RETURN- AND EXHAUST-AIR DAMPERS THROUGH THE SUPPLY-FAN DISCHARGE AND MIXING DAMPERS.
 E. LOCATE START-STOP AND DISCONNECT SWITCHES, ELECTRICAL INTERLOCKS, AND MOTOR STARTERS.
 F. VERIFY THAT MOTOR STARTERS ARE EQUIPPED WITH PROPERLY SIZED THERMAL PROTECTION.
 G. CHECK DAMPERS FOR PROPER POSITION TO ACHIEVE DESIRED AIRFLOW PATH.
 H. CHECK FOR AIRFLOW BLOCKAGES.
 I. CHECK CONDENSATE DRAINS FOR PROPER CONNECTIONS AND FUNCTIONING.
 J. CHECK FOR PROPER SEALING OF AIR-HANDLING-UNIT COMPONENTS.
 K. VERIFY THAT THE AIR DUCT SYSTEMS ARE SEALED.
 L. PERFORM THE FOLLOWING MINIMUM TEST AND BALANCE:
 L.1. TEST AND ADJUST SUPPLY, RETURN, AND EXHAUST FANS TO DESIGN REQUIREMENTS.
 L.2. CHANGE SHEAVES AND BELTS AS REQUIRED TO OBTAIN DESIGN AIR QUANTITIES.
 L.3. TEST AND RECORD MOTOR ELECTRICAL CHARACTERISTICS, RPM, SERVICE FACTOR, MEASURE VOLTAGE, FULL LOAD AMPERES AND CONNECTED LOAD AMPERAGE. CHECK AND RECORD STARTER HEATERS SIZES AND RATING, REPLACEMENT BELTS SIZES, ETC.
 L.4. MAKE PITOT TUBE TRAVERSE (MINIMUM OF 16 POINT) OF MAIN SUPPLY DUCTS AND OBTAIN DESIGN CFM AT FANS. SEAL ALL TEST HOLES WITH SUITABLE HOLE PLUGS.
 L.5. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION, AND DISCHARGE.
 L.6. TEST AND ADJUST SYSTEM FOR DESIGN CFM RECIRCULATED AIR.
 L.7. TEST AND ADJUST SYSTEM FOR DESIGN CFM OUTSIDE AIR.
 L.8. TEST AND RECORD ENTERING AIR TEMPERATURES. (D.B. HEATING AND COOLING)
 L.9. TEST AND RECORD ENTERING AIR TEMPERATURES. (W.B. COOLING)
 L.10. TEST AND RECORD LEAVING AIR TEMPERATURES. (D.B. COOLING)
 L.11. TEST AND RECORD LEAVING AIR TEMPERATURES. (W.B. COOLING)
 L.12. ADJUST ALL MAIN SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.
 L.13. ADJUST ALL ZONES TO PROPER DESIGN CFM, SUPPLY, AND RETURN.
 L.14. TEST AND ADJUST EACH DIFFUSER, GRILLES, AND REGISTER TO WITHIN 10% OF DESIGN REQUIREMENTS.
 L.15. EACH GRILLE, DIFFUSER, AND REGISTER SHALL BE IDENTIFIED AS TO LOCATION AND AREA, SIZE, TYPE, FLOW FACTOR, AND MANUFACTURER OF DIFFUSERS, GRILLES, REGISTERS, AND ALL TESTED EQUIPMENT SHALL BE IDENTIFIED AND LISTED.
 L.16. READINGS AND TESTS OF DIFFUSERS, GRILLES, AND REGISTERS SHALL INCLUDE REQUIRED FPM VELOCITY AND TEST RESULTANT VELOCITY, REQUIRED CFM AND TEST RESULTANT CFM AFTER ADJUSTMENTS.
 L.17. IN COOPERATION WITH THE TEMPERATURE CONTROL CONTRACTORS REPRESENTATIVE, SETTING ADJUSTMENTS OF AUTOMATICALLY OPERATED DAMPERS TO OPERATE AS SPECIFIED, INDICATED, AND/OR NOTED. THE BALANCE AGENCY SHALL CHECK ALL CONTROLS FOR PROPER CALIBRATIONS AND LIST ALL CONTROLS REQUIRING ADJUSTMENT BY THE TEMPERATURE CONTROL CONTRACTOR.
 L.18. ALL DIFFUSERS, GRILLES, AND REGISTERS SHALL BE ADJUSTED TO MINIMIZE DRAFTS IN ALL AREAS.
 M. ALL EQUIPMENT SHALL BE IDENTIFIED BY EQUIPMENT SERVICE TAG, MANUFACTURER, MODEL NUMBER, AND SERIAL NUMBER, MOTOR HORSEPOWER, MOTOR NAMEPLATE VOLTAGE, MOTOR RPM, ACTUAL AND DESIGN STATIC PRESSURE, ACTUAL OUTLET VELOCITY, ACTUAL CFM, DESIGN CFM.
 N. EACH AIR OUTLET SHALL BE TAGGED AND IDENTIFIED WITH MANUFACTURER, MODEL NUMBER, SIZE, VELOCITY, CORRECTION FACTOR, ACTUAL CFM, DESIGN CFM.
 O. TRAVERSE READING OF MAIN SUPPLY, RETURN AND OUTSIDE AIR DUCTS TO ESTABLISH TOTAL AIRFLOW QUANTITIES.
 P. TEST AND RECORD TEMPERATURES FROM MAIN SUPPLY AIR TRUNK, MIXED AIR DURING THE FULL HEATING AND FULL COOLING CYCLE AND ECONOMIZER CYCLE.

2.04 DEFICIENCIES IN SYSTEM

BALANCING CONTRACTOR SHALL REPORT IN WRITING TO THE OWNER ANY DISCREPANCIES ON ITEMS NOT INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS, ALL DEFICIENCIES IN HVAC SYSTEM, AND OTHER DEFICIENCIES. THE OWNER WILL REIMBURSE THE BALANCING CONTRACTOR IF ADDITIONAL WORK IS REQUIRED FOR HIS/HER PHASE OF WORK.

2.05 WARRANTY

THE TEST AND BALANCE AGENCY SHALL INCLUDE AN EXTENDED WARRANTY OF 90 DAYS, AFTER COMPLETION OF WORK, DURING WHICH TIME THE OWNER, AT THEIR DISCRETION, MAY REQUEST A RE-CHECK OR RESETTING OF ANY OUTLET, SUPPLY AIR FAN, OR EXHAUST FAN AS LISTED IN TEST REPORT.

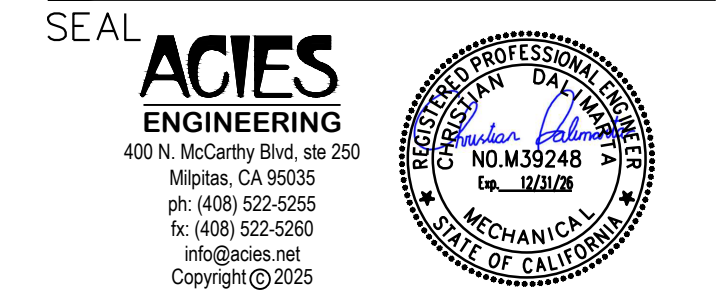
END OF SECTION



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PROJECT



CAVA Azusa CA
 806 E Alosto Ave
 Azusa, CA 91702

DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
1 11/07/24	BLDG & HEALTH PC COMMENT
2 11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
3 12/16/24	CONSTRUCTION SET- REVISED
4 02/28/25	CONSTRUCTION SET- REVISED

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MECHANICAL SPECIFICATIONS

Date Modified: 24/11/26
 Date Created: 24/05/28
 Scale: NOT TO SCALE
 Project No.: 240214
 QA/QC: MV/CD
 CAD File:

M0.5



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 (408)522-5255



PROJECT



CAVA Azusa CA
 806 E Alosta Ave
 Azusa, CA 91702

DATE DESCRIPTION

08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
12/16/24	CONSTRUCTION SET- REVISED
02/28/25	CONSTRUCTION SET- REVISED

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 Project No.: 240214
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 CAD File:

M0.6

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION
Mechanical Systems NRCC-MCH-E
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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
 Dry System Equipment Sizing (Includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available ¹ : 140.4(a) and 170.2(c)1	Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
RTU-1 KITCHEN AREA	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	91.08	128	0	101.59	101	27.65	84.06
RTU-2 DINING	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	51.94	73	0	78.34	71	51.05	82.64

¹ FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)1. Healthcare facilities are exempt.
² It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
³ If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
⁴ Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
RTU-1 KITCHEN AREA	>>135,000 and <240,000		COP	3.2	3.8	EER IEER	10.6 13.5	12.2 16.7

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU-2 DINING	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,100	Site Elevation	605	Economizer	Differential Enthalpy
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g.)	Component Allowance	Fan Allowance (watt/cfm)	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)					
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		719		Manufacturer provided		1.76					
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		431									
			Hydronic/DX cooling coil or heat pump coil	100		431									
			Economizer Return Damper	100		143									
			Supply Fan System	100		431									
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW) ³		2.15		Fan System Electrical Output (kW)					

¹ FOOTNOTES: Fans serving spaces with design background noise goals below NC35
² Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
³ Fan system allowance includes fan system base allowance.
⁴ Filter pressure loss can only be counted once per fan system.
⁵ Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
⁶ Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document.

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 Report Version: 2022.0.000 Schema Version: rev 20220101
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C. COMPLIANCE RESULTS
 Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01	02	03	04	05	06	07	08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	Pumps 140.4(k), 170.2(c)4i	Fans/Economizers 140.4(c), 140.4(e), 170.2(c)	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	Ventilation 120.1, 160.2	Terminal Box Controls 140.4(i), 170.2(c)4b	Distribution 120.3, 140.4(j), 160.2, 160.3	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	(See Table M)	COMPLIES
Yes	AND	AND	Yes	AND	Yes	AND	Yes	AND

D. EXCEPTIONAL CONDITIONS
 This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
 This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
 Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
RTU-1 KITCHEN AREA	1	Single zone	Alteration		<input type="checkbox"/>
RTU-2 DINING	1	Single zone	Alteration		<input type="checkbox"/>

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H. FAN SYSTEMS & AIR ECONOMIZERS
 This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	RTU-1 KITCHEN AREA	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	4,000	Site Elevation	605	Economizer	Differential Enthalpy
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g.)	Component Allowance	Fan Allowance (watt/cfm)	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)					
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		928		Manufacturer provided		1.87					
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		556									
			Hydronic/DX cooling coil or heat pump coil	100		556									
			Economizer Return Damper	100		184									
			Supply Fan System	100		556									
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW) ³		2.78		Fan System Electrical Output (kW)					

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 CERTIFICATE OF COMPLIANCE (Page 1 of 15)
 Project Name: CAVA Mezze Grille - Azusa Report Page: 7/19/2024
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A. GENERAL INFORMATION

01	02	03	04	05	06
Project Location (city)	Azusa	Total Conditioned Floor Area	2208		
Climate Zone	9	Total Unconditioned Floor Area	0		
Occupancy Types Within Project:		# of Stories (Habitable Above Grade)	1		
Support Areas All Other Occupancies					

B. PROJECT SCOPE
 This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
<input checked="" type="checkbox"/> Heating Air System	<input type="checkbox"/> Water Economizer	<input checked="" type="checkbox"/> Air Economizer
<input checked="" type="checkbox"/> Cooling Air System	<input type="checkbox"/> Pumps	<input type="checkbox"/> Electric Resistance Heat
Mechanical Controls	<input type="checkbox"/> System Piping	<input checked="" type="checkbox"/> Fan Systems
<input checked="" type="checkbox"/> Mechanical Controls (existing to remain, altered or new)	<input type="checkbox"/> Cooling Towers	<input checked="" type="checkbox"/> Ductwork (existing to remain, altered or new)
	<input type="checkbox"/> Chillers	<input checked="" type="checkbox"/> Ventilation
	<input type="checkbox"/> Boilers	<input type="checkbox"/> Zonal Systems/ Terminal Boxes

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
 Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
RTU-2 DINING	>>=65,000 and <135,000		COP	3.4	3.5	EER IEER	11 14.1	12 17.6

G. PUMPS
 This section does not apply to this project.

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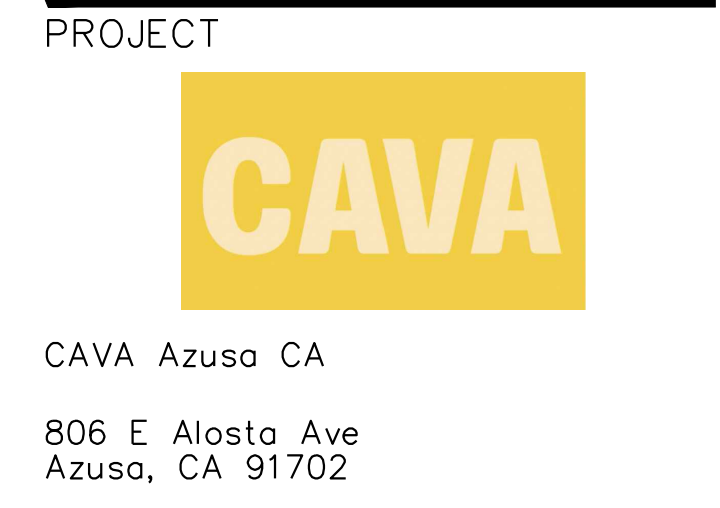
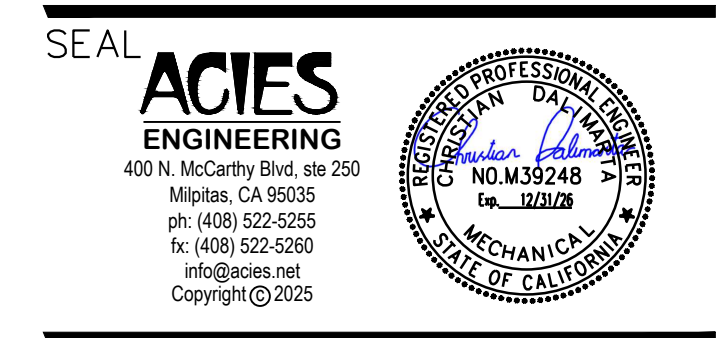


Table with 2 columns: DATE, DESCRIPTION. Includes dates like 08/02/24, 08/05/24, 08/28/24, 09/13/24, 11/07/24, 11/26/24, 12/16/24, 02/28/25 and descriptions like LL PERMIT SET, CITY PERMIT SET, BID SET, BLDG & HEALTH PC COMMENT, CONSTRUCTION SET, CONSTRUCTION SET- REVISED.

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MECHANICAL COMPLIANCE

Date Modified: 24/11/26
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Scale: NOT TO SCALE
Project No.: 240214
QA/QC: MV
CAD File:

M0.7

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 7 of 15). Includes table H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4D and table I. SYSTEM CONTROLS.

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 8 of 15). Includes table J. VENTILATION AND INDOOR AIR QUALITY.

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 9 of 15). Includes table J. VENTILATION AND INDOOR AIR QUALITY.

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 10 of 15). Includes table K. TERMINAL BOX CONTROLS and table L. DISTRIBUTION (DUCTWORK and PIPING).

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 11 of 15). Includes table L. DISTRIBUTION (DUCTWORK and PIPING).

Mechanical Systems CERTIFICATE OF COMPLIANCE. Project Name: CAVA Mezze Grille - Azusa. Report Page: (Page 12 of 15). Includes table L. DISTRIBUTION (DUCTWORK and PIPING) and table M. COOLING TOWERS.

CONSULTANT:

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 Milpitas, CA 95035
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PROJECT



CAVA Azusa CA
 806 E Alosta Ave
 Azusa, CA 91702

DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
12/16/24	CONSTRUCTION SET- REVISED
02/28/25	CONSTRUCTION SET- REVISED

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 Project No.: 240214
 QA/QC: MV/QC
 CAD File:

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STATE OF CALIFORNIA
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CERTIFICATE OF COMPLIANCE NRCC-MCH-E
 Project Name: CAVA Mezze Grille - Azusa Report Page: (Page 13 of 15)
 Date Prepared: 7/19/2024

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
 Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-01-E - Must be submitted for all buildings	
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	CARRIER 50GC-M14; CARRIER 50GCM09;
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	CARRIER 50GCM09;
NRCA-MCH-05-A - Air Economizer Controls	CARRIER 50GC-M14; CARRIER 50GCM09;
NRCA-MCH-11-A Automatic Demand Shed Controls	CARRIER 50GC-M14; CARRIER 50GCM09;
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	CARRIER 50GC-M14; CARRIER 50GCM09;
NRCA-MCH-16-A Supply Air Temperature Reset Controls	CARRIER 50GC-M14; CARRIER 50GCM09;
NRCA-MCH-18-A Energy Management Control Systems	CARRIER 50GC-M14; CARRIER 50GCM09;

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P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION
 There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION
 This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01	02
Compliance with Mandatory Measures documented through MCH	Yes
Mandatory Measures Note Block	Plan sheet or construction document location M-Sheets

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 Project Name: CAVA Mezze Grille - Azusa Report Page: (Page 15 of 15)
 Project Address: 806 E Alosta Ave Date Prepared: 7/19/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Christian Dalimarta Documentation Author Signature: *Christian Dalimarta*
 Company: ACIES Engineering Signature Date: 2024-07-19
 Address: 400 N. McCarthy Blvd., Ste. 250 CEA/ HERS Certification Identification (if applicable): M39248
 City/State/Zip: Milpitas CA 95035 Phone: 408.522.5255

RESPONSIBLE PERSON'S DECLARATION STATEMENT
 I certify the following under penalty of perjury, under the laws of the State of California:
 1. The information provided on this Certificate of Compliance is true and correct.
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Christian Dalimarta Responsible Designer Signature: *Christian Dalimarta*
 Company: ACIES Engineering Date Signed: 2024-07-19
 Address: 400 N. McCarthy Blvd., Ste. 250 License: M39248
 City/State/Zip: Milpitas CA 95035 Phone: 408.522.5255

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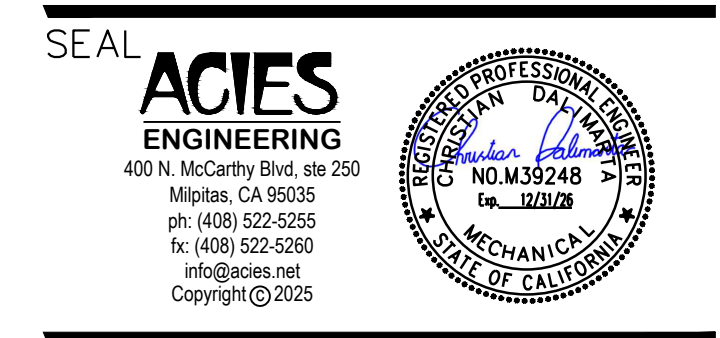


Table with 2 columns: DATE, DESCRIPTION. Includes permit and construction dates from 08/02/24 to 02/28/25.

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Process Systems Certificate of Compliance (Page 1 of 6). Includes general information table and project scope details.

Process Systems Certificate of Compliance (Page 2 of 6). Includes compliance results table and exceptional conditions.

Process Systems Certificate of Compliance (Page 3 of 6). Includes sections H through M regarding parking exhaust, boiler, air systems, etc.

Process Systems Certificate of Compliance (Page 4 of 6). Includes commercial kitchen exhaust and ventilation details.

Process Systems Certificate of Compliance (Page 5 of 6). Includes pool/spa and required certificates of installation.

Process Systems Certificate of Compliance (Page 6 of 6). Includes documentation author's and responsible person's declarations.

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DEMOLITION NOTES

- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR SITE INVESTIGATION PRIOR TO COMMENCEMENT OF WORK. SHALL INFORM ARCHITECT OF ANY DISCREPANCY.
- MECHANICAL CONTRACTOR IS RESPONSIBLE TO HAUL AWAY REMOVED EQUIPMENT/DUCT FROM PREMISES.
- REFER TO ELECTRICAL CONTRACTOR FOR SAFE-OFF AND DISCONNECT ALL MECHANICAL EQUIPMENT BEFORE DEMOLITION WORKS.



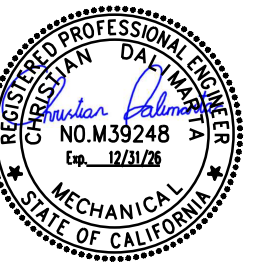
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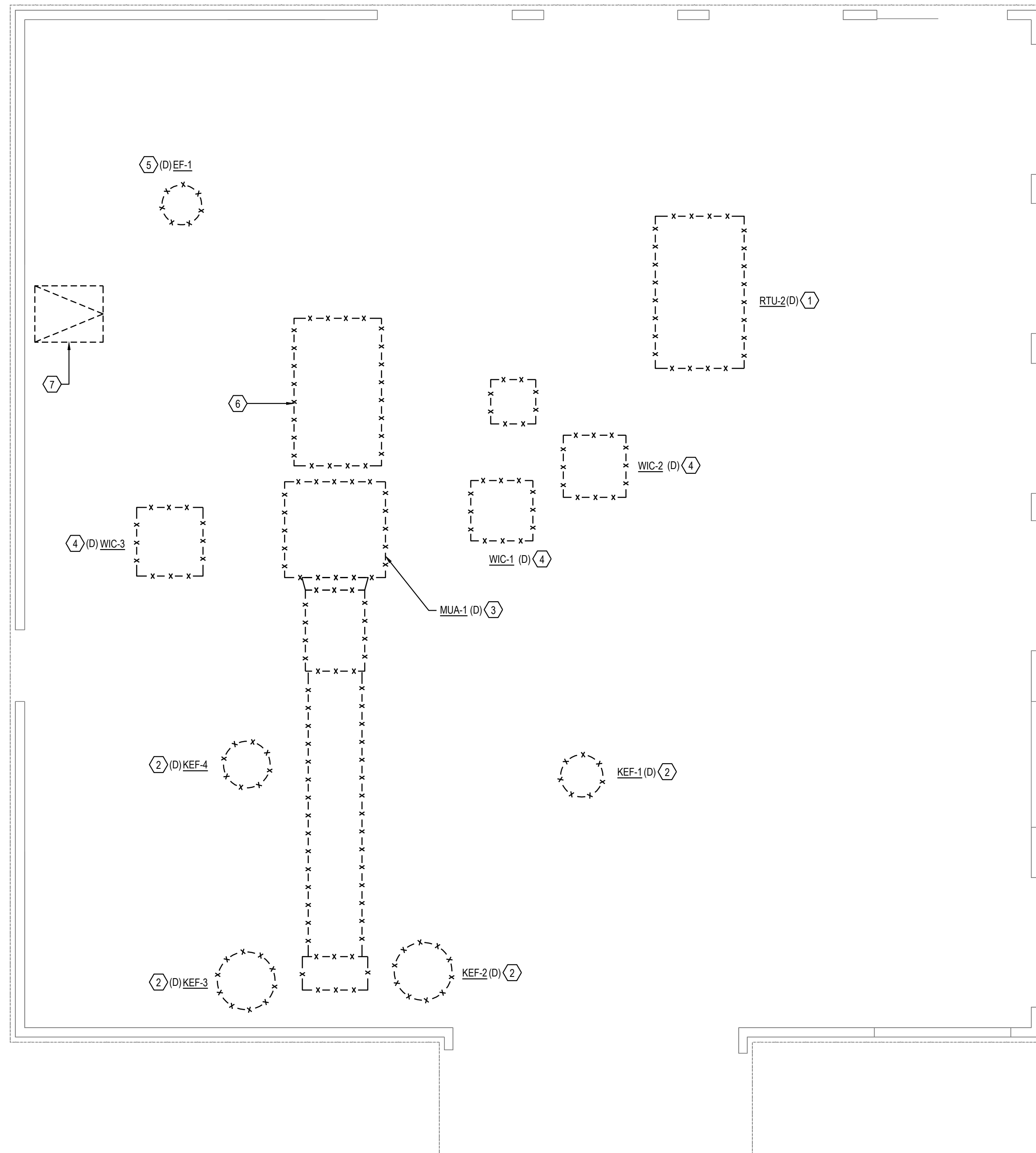


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KEY NOTES

- EXISTING ROOF-TOP UNIT TO BE DEMOLISHED.
- EXISTING KITCHEN EXHAUST FAN TO BE DEMOLISHED.
- EXISTING MAKE UP AIR UNIT INCLUDING ASSOCIATED DUCTWORK TO BE DEMOLISHED.
- EXISTING WALK-IN COOLER REFRIGERATION CONDENSER TO BE DEMOLISHED.
- EXISTING EXHAUST FAN TO BE DEMOLISHED.
- EXISTING RTU CURB TO BE DEMOLISHED.
- EXISTING ROOF HATCH TO BE RELOCATED. REFER TO ARCHITECTURAL DWGS FOR ADD'L INFO.



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3	12/16/24	CONSTRUCTION SET- REVISED
4	02/28/25	CONSTRUCTION SET- REVISED

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MECHANICAL DEMOLITION ROOF PLAN

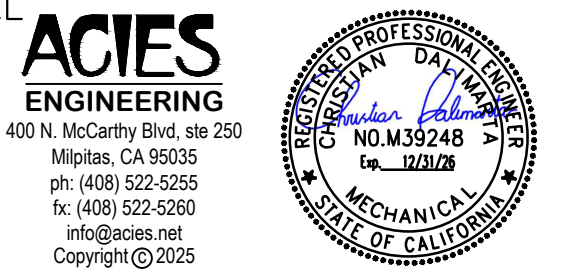
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MECHANICAL FLOOR PLAN

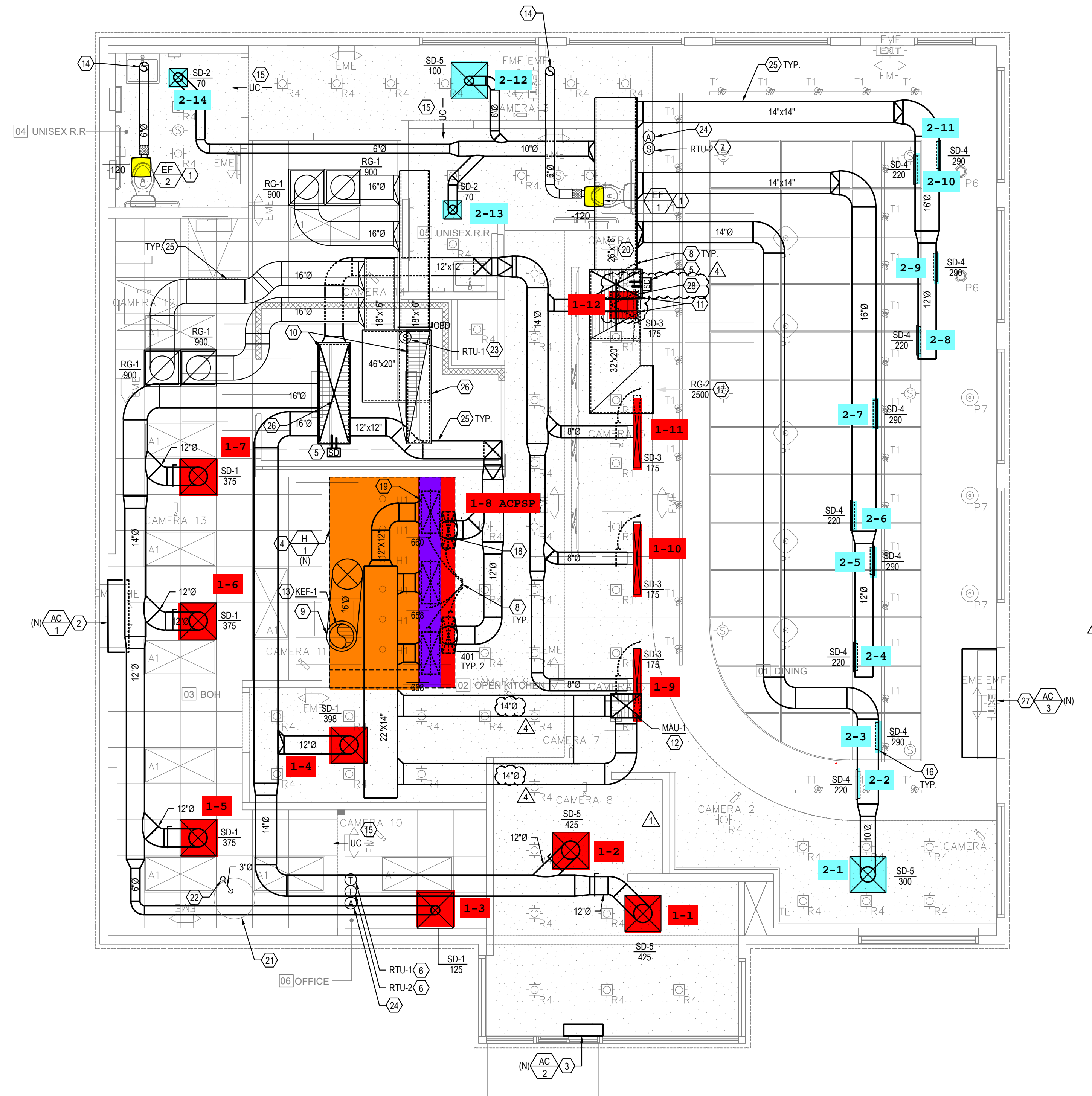
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GENERAL NOTES

- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR SITE INVESTIGATION PRIOR COMMENCEMENT OF WORK, AND SHALL INFORM ARCHITECT OF ANY DISCREPANCY.
- COORDINATE DUCT ROUTING WITH EXISTING PIPING, CONDUITS AND STRUCTURAL MEMBERS. OFFSET AS REQUIRED.
- MECHANICAL CONTRACTOR MUST VERIFY ALL CLEARANCES AND DIMENSIONS IN FIELD.
- PROVIDE 1" ACOUSTICAL FIBERGLASS DUCT LINER ON BOTH SUPPLY AND RETURN AIR DUCTS FOR MIN. 10'-0" FROM UNITS.
- INSTALL MANUAL VOLUME DAMPERS AT ALL BRANCH DUCT CONNECTIONS TO OUTLETS.
- ENVIRONMENTAL EXHAUST OUTLETS TO BE MIN. 10 FEET AWAY FROM ANY OUTSIDE AIR INTAKE, 3 FEET AWAY FROM BLDG OPENINGS, AND 3 FEET FROM PROPERTY LINE.
- DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS.
- MECHANICAL CONTRACTOR TO SUBSTITUTE ROUND DUCT TO RECTANGULAR DUCT WITH THE SAME PRESSURE DROP TO ACCOMMODATE SPACING CONFLICT IN THE FIELD, IF ANY.
- CONTRACTOR SHALL PERFORM AIR BALANCING ONCE HVAC SYSTEM HAS BEEN COMPLETED.
- PROVIDE GREASE DUCT WITH ACCESS PANEL AT EVERY ELBOW AND TURN.
- AS PER CMC 507.4, WHERE ENCLOSURES ARE NOT REQUIRED, HOODS, GREASE REMOVAL DEVICES, EXHAUST FANS, AND DUCTS SHALL HAVE A CLEARANCE OF NOT LESS THAN 18 INCHES TO COMBUSTIBLE MATERIAL, 3 INCHES TO LIMITED-COMBUSTIBLE MATERIAL, AND 0 INCHES TO NONCOMBUSTIBLE MATERIAL.
- SLOPE THE GREASE DUCT AT 1/4" PER LINEAR FOOT TOWARD THE HOOD. PROVIDE GREASE DUCT WITH ACCESS PANEL FOR CLEANING AT EVERY BEND OR TURN AT EACH 12' HORIZONTAL RUN.
- PRIOR TO USE OR CONCEALMENT, A GREASE DUCT LEAKAGE TEST SHALL BE PERFORMED TO VERIFY THE WELDED SEAMS AND JOINTS ARE LIQUID TIGHT. THE TEST SHALL BE A WATER TEST, A LIGHT TEST, OR AN APPROVED EQUIVALENT TEST. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR PERFORMING THE TEST. 2022 CMC 510.5.6 & 511.2.2.1.
- PROVIDE FIRE CAULKING FOR ALL PIPE PENETRATION THRU RATED WALLS.
- KITCHEN EXHAUST DUCT ENCLOSURES SHALL BE AT LEAST 1 HR FIRE-RATED FROM THE POINT OF CEILING PENETRATION. THE DUCT ENCLOSURE SHALL BE SEALED AROUND THE DUCT AT THE POINT OF PENETRATION.
- DO NOT PENETRATE KITCHEN EXHAUST HOODS OR DUCTWORKS WITH ANY TYPE OF FASTENING ASSEMBLY (I.E. SCREWS, RIVETS).
- IF NOT PAINTED, ALL DUCTWORKS SHALL HAVE GASKET SEAL.
- EXPOSED DUCTWORK IN THE DINING SHALL BE MADE OF ELECTRO-GALVANIZED STEEL (PAINTLOCK). SEE MECHANICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- GC TO PROVIDE ACCESS PANELS IN HARD LID CEILINGS FOR ACCESS TO DUCT MOUNTED SMOKE DETECTORS, SENSOR, BALANCING DAMPERS, ETC. LOCATION OF ACCESS PANEL TO BE CENTERED IN LINE WITH LIGHT FIXTURES AND DIFFUSERS. COORDINATE ACCESS PANEL LOCATIONS WITH ARCHITECTURAL SHEETS.
- VERIFY THAT THE FIRE-EXTINGUISHING SYSTEM IS INTERLOCKED WITH THE ELECTRICAL SUPPLY OR FUEL, ENSURING THAT THE EQUIPMENT UNDER THE HOOD IS AUTOMATICALLY SHUT OFF WHEN THE SYSTEM IS ACTUATED.

KEY NOTES

- NEW CEILING MOUNTED EXHAUST FAN WITH FLEX CONNECTOR.
- NEW WALL MOUNTED AIR CURTAIN ABOVE EXIT REAR DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- NEW WALL MOUNTED AIR CURTAIN ABOVE DRIVER THROUGH WINDOW. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. VERIFY EXACT LOCATION WITH GC AND OWNER.
- NEW KITCHEN HOOD. REFER TO M6.3 TO 6.12 FOR ADDTL INFORMATION.
- SUPPLY AIR DUCT SMOKE DETECTOR TO SHUT DOWN UNIT UPON SMOKE DETECTION.
- NEW LED TOUCHSCREEN 24" PROGRAMMABLE THERMOSTAT WITH CONTROLS LOCKED BY CODE MOUNTED AT 48" AFF. COORDINATE EXACT LOCATION WITH OWNER.
- NEW REMOTE TEMPERATURE AVERAGING SENSOR MOUNTED AT 48" AFF. WIRE BACK TO THERMOSTAT AT MANAGER'S DESK. COORDINATE EXACT LOCATION WITH OWNER.
- REMOTE BALANCING DAMPER. TYPICAL FOR BALANCING DAMPERS IN HARD CEILING APPLICATIONS.
- INSTALL OWNER FURNISHED UL-221 LISTED DOUBLE-WALL GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL DW-3R OR 3Z ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL. FROM HOOD COLLAR EXHAUST FAN ON ROOF. INSTALL EXHAUST DUCT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE CLEANOUTS AT EVERY CHANGE IN DIRECTION IN THE DUCT AND/OR EVERY 10 FEET WITH MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEAN-OUT. COORDINATE ROUTING OF DUCTWORK WITH OWNER'S CAPTIVEAIRE REPRESENTATIVE.
- 66"x20" SA & 74"x15" RA DUCTS FROM RTU-1 WITH 1" ACOUSTICAL LINING. SEAL WEATHER TIGHT.
- 33"x18" SA & RA DUCTS FROM RTU-2 WITH 1" ACOUSTICAL LINING. SEAL WEATHER TIGHT.
- 20"x16" SA DUCT FROM MUA-1. SEAL WEATHER TIGHT.
- 16"0" KITCHEN EA DUCT UTR TO KEF-1.
- 6"0" EA DUCT UTR. SEAL WEATHER TIGHT.
- MIN. 1" UNDERCUT DOOR.
- MOUNT REGISTER AT 15° ANGLE ON SIDE OF DUCT. ADJUST DIFFUSER BLADES TO 45° PATTERN. BALANCE AIR SCOOP TO CFM INDICATED.
- INSTALL RETURN AIR GRILLE AS HIGH AS POSSIBLE.
- CONNECT 12" SA DUCT TO 24"x8" HOOD SA PLENUM. PROVIDE BALANCING DAMPER. TYP. 2. REFER TO CAPTIVEAIRE DWGS FOR ADDTL INFO.
- CONNECT 12"x12" MUA DUCT TO 28"x12" HOOD SA PLENUM. PROVIDE BALANCING DAMPER. TYP. 3. REFER TO CAPTIVEAIRE FOR ADDTL INFO.
- MOUNT DUCT TIGHT TO BOTTOM OF STRUCTURE.
- GAS WATER HEATER, GWH-1. SHOWN FOR REFERENCE ONLY. REFER TO PLUMBING DWGS FOR ADDTL INFO.
- PROVIDE 3" PVC VENT AND AIR INTAKE PIPES UTR FOR THE GAS WATER HEATER WITH CONCENTRIC TERMINATION.
- REMOTE TEMPERATURE SENSOR FOR RTU-1 MOUNTED WITHIN RETURN DUCT. WIRE BACK TO THERMOSTAT AT MANAGER'S DESK.
- PROVIDE AUDIOVISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET FOR SMOKE DETECTOR MOUNTED AT 48" AFF. ALIGN ANNUNCIATOR WITH THERMOSTAT WHERE APPLICABLE.
- DUCT THROUGH OPEN WEB TRUSS. TYP.
- TRANSITION RA DUCT TO 46"x20" IN RISER.
- NEW WALL MOUNTED AIR CURTAIN ABOVE FRONT ENTRANCE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 18"x18" CEILING ACCESS PANEL. CONTRACTOR TO VERIFY IN FIELD THE INSTALLATION OF DUCT SMOKE DETECTOR TO ENSURE ACCESSIBILITY.

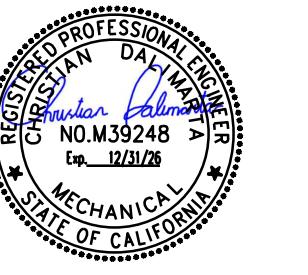


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MECHANICAL ROOF PLAN

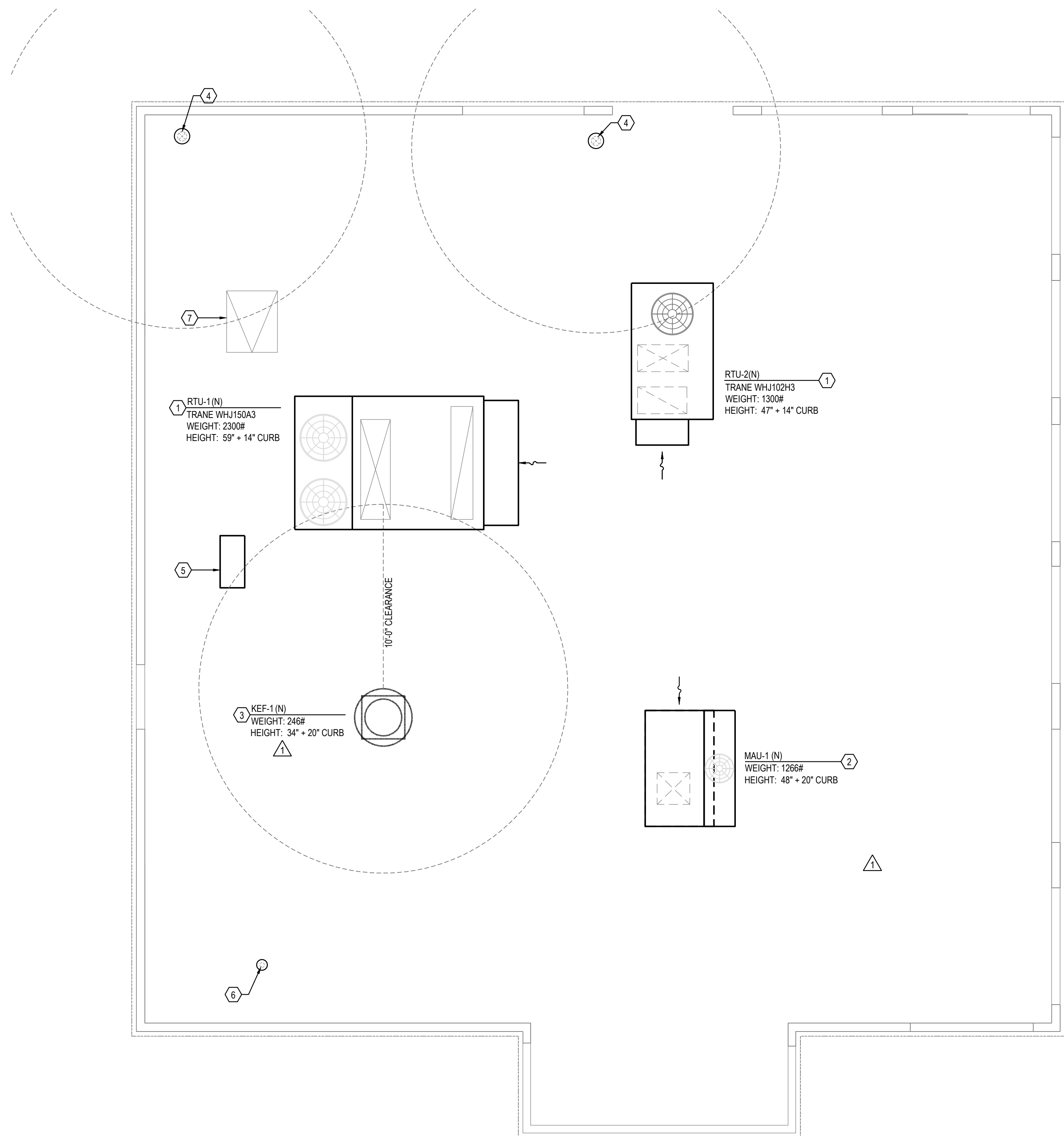
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GENERAL NOTES

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- COORDINATE DUCT ROUTING WITH EXISTING PIPING, CONDUITS AND STRUCTURAL MEMBERS. OFFSET AS REQUIRED.
- MECHANICAL CONTRACTOR MUST VERIFY ALL CLEARANCES AND DIMENSIONS IN FIELD.
- EXHAUST OUTLETS SERVING GREASE DUCT SYSTEMS TERMINATING ABOVE THE ROOF SURFACE SHALL TERMINATE 10 FEET FROM PROPERTY LINE, 10 FEET FROM AIR INTAKE OPENINGS, 10 FEET FROM ADJACENT BUILDINGS, 3 FEET ABOVE ANY AIR INTAKE WITHIN 3 FEET HORIZONTAL DISTANCE, 5 FEET HORIZONTALLY FROM COMBUSTIBLE STRUCTURE. BASE OF FAN SHALL BE 40 INCHES ABOVE ROOF SURFACE.
- DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS.
- MECHANICAL CONTRACTOR TO SUBSTITUTE ROUND DUCT TO RECTANGULAR DUCT WITH THE SAME PRESSURE DROP TO ACCOMMODATE SPACING CONFLICT IN THE FIELD, IF ANY.
- PROVIDE GREASE DUCT WITH ACCESS PANEL AT EVERY ELBOW AND TURN.
- AS PER CMC 507.4, WHERE ENCLOSURES ARE NOT REQUIRED, HOODS, GREASE REMOVAL DEVICES, EXHAUST FANS, AND DUCTS SHALL HAVE A CLEARANCE OF NOT LESS THAN 18 INCHES TO COMBUSTIBLE MATERIAL, 3 INCHES TO LIMITED-COMBUSTIBLE MATERIAL, AND 0 INCHES TO NONCOMBUSTIBLE MATERIAL.
- SLOPE THE GREASE DUCT AT 1/4" PER LINEAR FOOT TOWARD THE HOOD. PROVIDE GREASE DUCT WITH ACCESS PANEL FOR CLEANING AT EVERY BEND OR TURN AT EACH 12' HORIZONTAL RUN.
- PRIOR TO USE OR CONCEALMENT, A GREASE DUCT LEAKAGE TEST SHALL BE PERFORMED TO VERIFY THE WELDED SEAMS AND JOINTS ARE LIQUID TIGHT. THE TEST SHALL BE A WATER TEST, A LIGHT TEST, OR AN APPROVED EQUIVALENT TEST. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR PERFORMING THE TEST. 2022 CMC 510.5.6 & 511.2.2.1
- ALL CUTTING AND PATCHING OF ROOF IS TO BE BY G.C.
- DO NOT PENETRATE KITCHEN EXHAUST HOODS OR DUCTWORK WITH ANY TYPE OF FASTENING ASSEMBLY (I.E. SCREWS, RIVETS).
- IF NOT PAINTED, ALL DUCTWORK SHALL HAVE GASKET A SEAL.
- ENVIRONMENTAL EXHAUST OUTLETS SHALL TERMINATE NOT LESS THAN 3 FEET FROM PROPERTY LINE, 3 FEET FROM OPENINGS INTO THE BUILDING, 10 FEET FROM A FORCED AIR INLET, AND SHALL NOT DISCHARGE ONTO A PUBLIC WALKWAY.

KEY NOTES

- NEW PACKAGED HEAT PUMP ROOFTOP UNIT WITH ROOF CURB.
- NEW DOWNFLOW DISCHARGE, CURB MOUNTED MAKE UP AIR UNIT. MAINTAIN RECOMMENDED SERVICE CLEARANCE ALL AROUND UNIT.
- NEW KITCHEN EXHAUST FAN MOUNTED ON CURB. EXHAUST TERMINATION TO BE MIN. 40" HIGH FROM ROOF SURFACE AND SHALL MAINTAIN 10'-0" MIN. CLEARANCE FROM ANY AIR INTAKE.
- 6"Ø EA DUCT DN THROUGH ROOF. TERMINATE WITH ROOF CAP. MAINTAIN 10'-0" CLEARANCE FROM ANY OUTSIDE AIR INTAKE.
- INSTALL WALK-IN COOLER CONDENSER ON ROOF PER MANUFACTURER'S RECOMMENDATION.
- 3"Ø VENT AND AIR INTAKE PIPE WITH CONCENTRIC TERMINATION DTR TO GAS WATER HEATER. TERMINATION SHALL NOT BE LESS THAN 3 FEET FROM A PROPERTY LINE, 10 FEET FROM AN AIR INLET, AND 3 FEET FROM OPENINGS INTO THE BUILDING.
- NEW ROOF HATCH LOCATION. SHOWN FOR REFERENCE ONLY. REFER TO ARCHITECTURAL DWGS. FOR ADDTL INFO.



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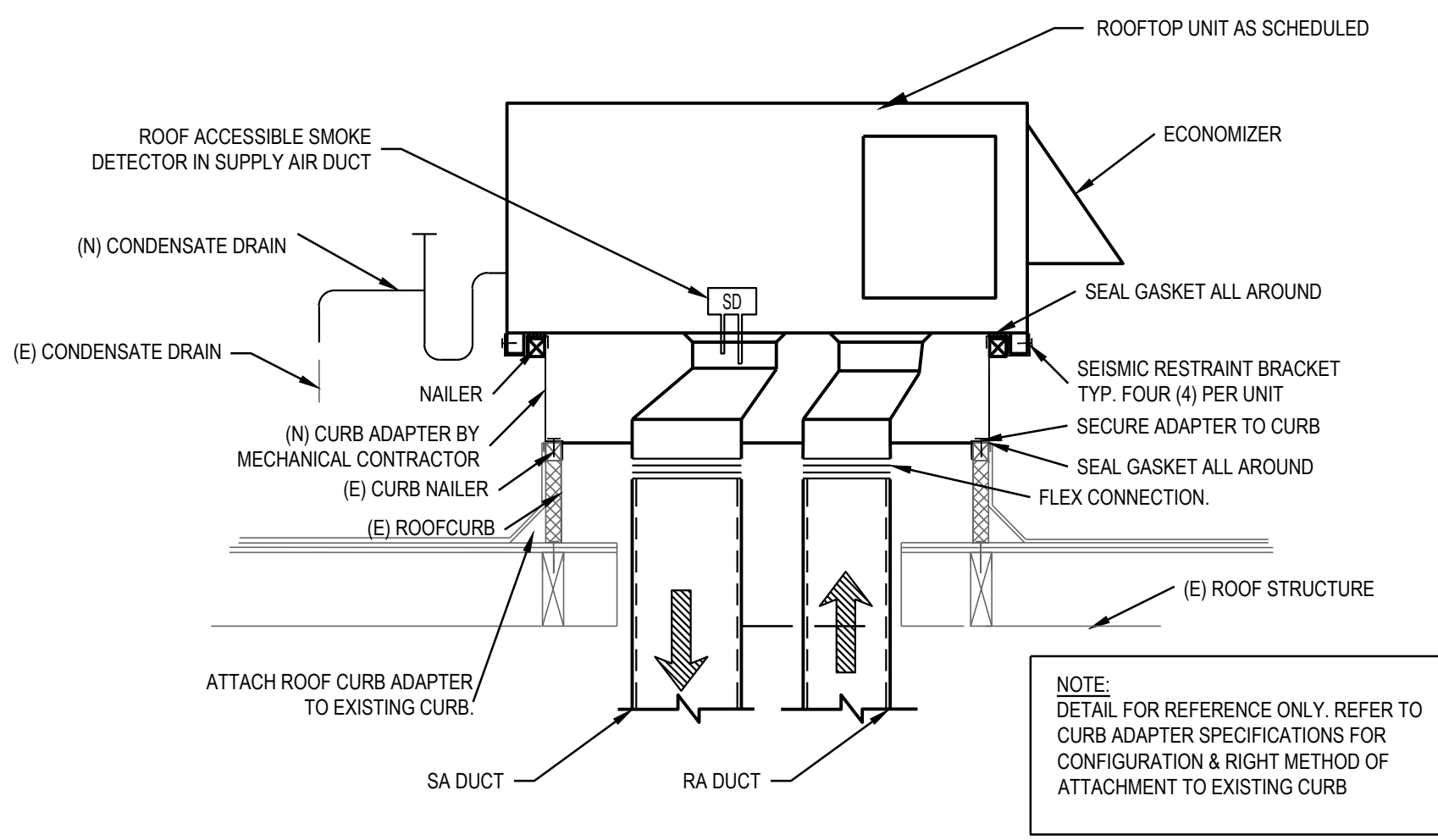
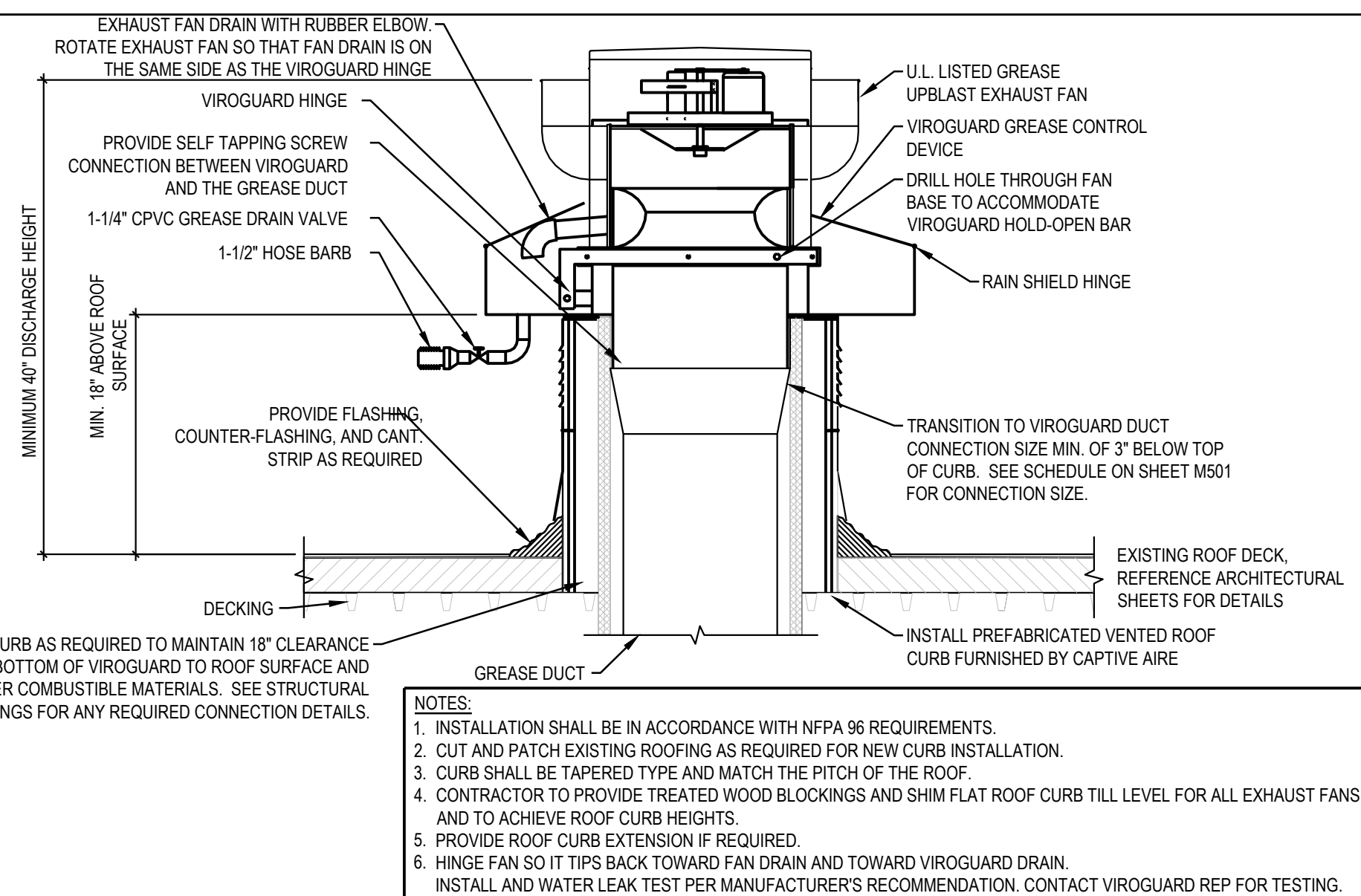
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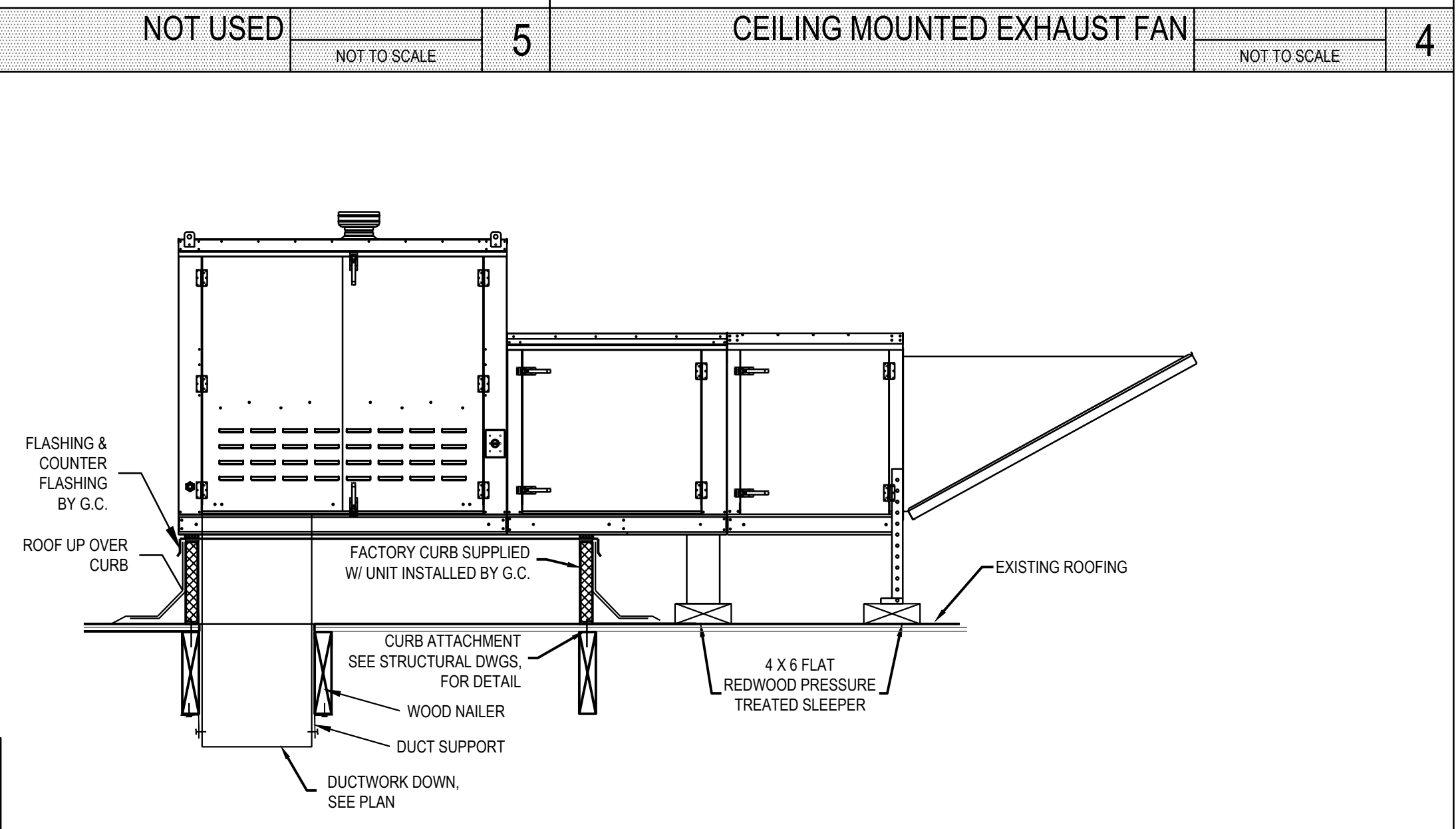
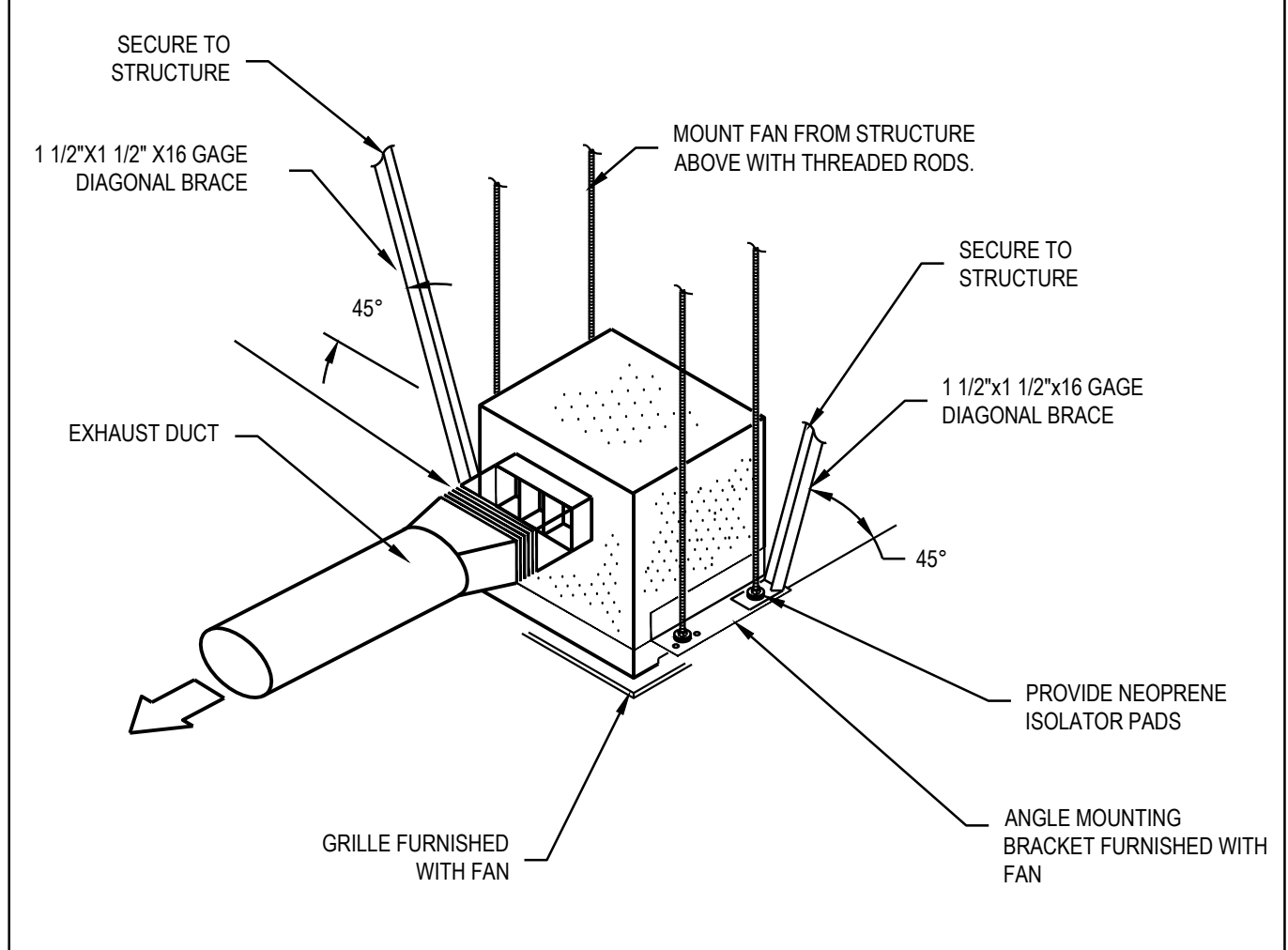
MECHANICAL DETAILS

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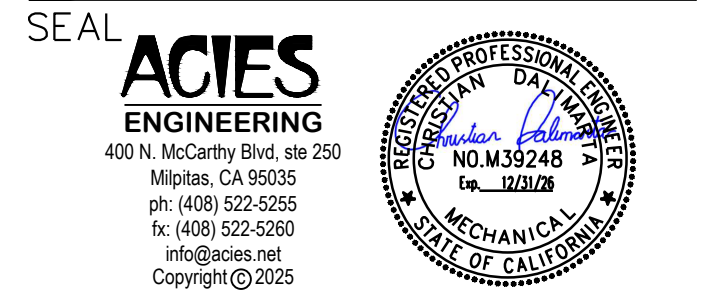
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NOT USED	NOT TO SCALE	5	CEILING MOUNTED EXHAUST FAN	NOT TO SCALE	4	KITCHEN TYPE I HOOD ELEVATION	3/8" = 1'-0"	6
			MAKE UP AIR UNIT	NOT TO SCALE	7			

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MECHANICAL DETAILS

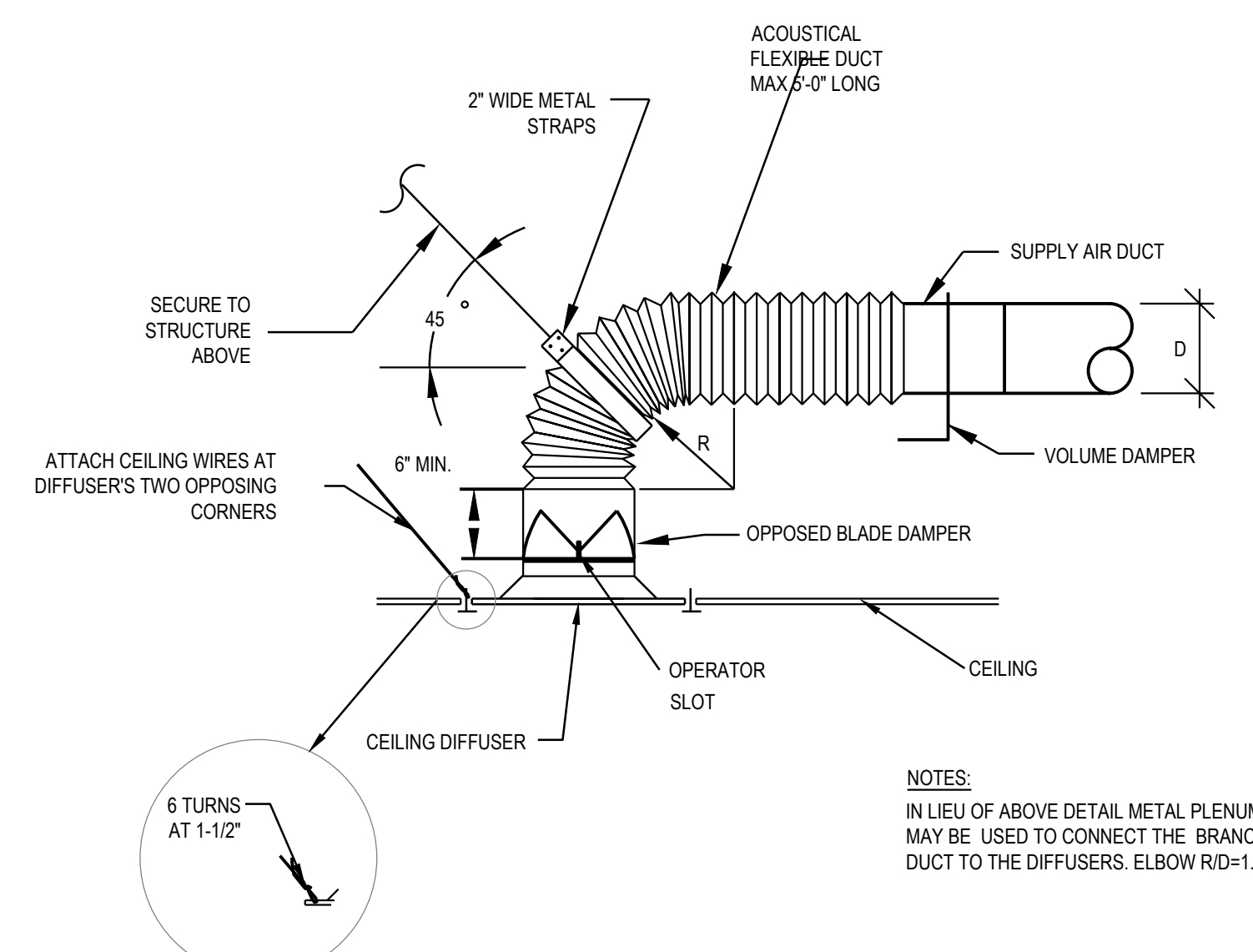
- INSTALLATION NOTES**
- ALL DUCTS SHALL BE CONSTRUCTED AND ERECTED IN A NEAT AND WORKMANLIKE MANNER.
 - DUCTS SHALL BE CONSTRUCTED OF THE WEIGHTS, GAGES AND MATERIAL SHOWN IN THE SCHEDULE ON THESE DRAWINGS.
 - THE DIMENSION SHOWN FOR ALL DUCTS SHOWN IN PLAN GIVE THE WIDTH FIRST AND THEN THE HEIGHT.
 - DUCT RISERS SHOULD BE SUPPORTED BY ANGLES AT EVERY FLOOR.
 - AIR TURN SHALL BE INSTALLED IN ALL ABRUPT ELBOWS TO PREVENT TURBULENCE.
 - DUCTS SHALL BE SECURELY ATTACHED TO THE BUILDING CONSTRUCTION IN AN APPROVED MANNER.
 - DIVERGING TRANSITION PIECES SHALL BE MADE AS GRADUAL AS POSSIBLE.
 - INSTALL FIRE DAMPERS IN ACCORDANCE WITH UL 555.
 - ACCESS PANELS SHOULD BE PLACED BEFORE AND/OR AFTER EQUIPMENT INSTALLED IN THE DUCT.
 - DUCT AREA SHOULD NOT BE DECREASED MORE THAN 10 PERCENT WHEN OBSTRUCTIONS CANNOT BE AVOIDED, AND THEN A STREAMLINED FITTING SHOULD BE USED.
 - FLEXIBLE FABRIC CONNECTIONS (OR EQUAL) SHOULD BE USED ON BOTH INLETS AND OUTLETS OF ALL FANS AND AIR HANDLING UNITS.
 - JOINTS AND SEAMS OF SUPPLY DUCTS SHALL BE FASTENED SECURELY AND MADE AIR TIGHT.

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M6.2

SEQUENCE OF OPERATION

- A. PROVIDE STAND ALONE OR APPLICATION SPECIFIC CONTROLLERS AS REQUIRED TO PERFORM THE FOLLOWING SEQUENCES OF OPERATIONS.**
- B. PACKAGED ROOFTOP UNITS**
- UNIT SHALL CONSIST OF SUPPLY AIR FAN, FILTERS, DX COOLING COIL, GAS-FIRED HEAT SECTION, AND A 7-DAY PROGRAMMABLE THERMOSTAT.
 - PROVIDE AN OVERRIDE SWITCH TO OPERATE THE UNIT DURING UNOCCUPIED HOURS. THIS SWITCH SHALL BE PART OF THE PROGRAMMABLE THERMOSTAT. OVERRIDE SWITCH ALLOWS THE UNIT TO OPERATE FOR TWO HOURS (ADJUSTABLE).
 - OCCUPIED MODE: BASED ON THE ROOFTOP UNIT'S HOURS OF OCCUPANCY, START THE UNIT AT THE BEGINNING OF OCCUPANCY AND SHUT DOWN THE UNIT AT THE END OF OCCUPANCY (NOTE: OUTSIDE AIR DAMPER WITHIN THE RTU SHALL OPEN AND THEN THE RTU SHALL START). THE UNIT SHALL START EARLIER AS DETERMINED BY THE PROGRAM FOR EARLY WARM-UP OR COOL DOWN. ON A SYSTEM STARTUP, THE RTU FAN SHALL START AND RUN CONTINUOUSLY AND THE INTERNAL FACTORY CONTROLS SHALL BE ENABLED. BASED ON THE SPACE TEMPERATURE SENSOR, THE UNIT SHALL CYCLE THE HEATING/COOLING TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
 - ECONOMIZER MODE: WHEN ENTHALPY OF OA IS BELOW 28 BTU/LB. ECONOMIZER MODE SHALL BE ENABLED. ECONOMIZER MODE SHALL LINEARLY MODULATE OUTDOOR AIR CFM FROM MINIMUM OA CFM TO 100% BASED ON ENTHALPY READINGS.
 - HUMIDITY CONTROL (WHEN NEEDED BASED ON CLIMATE): UPON DETECTION OF RELATIVE HUMIDITY ABOVE 55%, THE UNIT SHALL CYCLE INTO DEHUMIDIFICATION MODE IF NOT ALREADY IN COOLING.
 - UNOCCUPIED MODE: THE RTU INTERNAL OA DAMPERS SHALL REMAINED CLOSED WHEN THE BUILDING IS NOT OCCUPIED. THE RTU SHALL STOP HEATING/COOLING AND THE FAN SHALL STOP. IF THE SPACE TEMPERATURE FALLS BELOW 60 DEGREE F (ADJUSTABLE), THE UNIT SHALL START AND HEAT UNTIL THE SPACE TEMPERATURE IS 64 DEGREE F (ADJUSTABLE) AND THEN SHUTDOWN. IF THE SPACE TEMPERATURE RISES ABOVE 85 DEGREE F (ADJUSTABLE), THE UNIT SHALL START AND COOL UNTIL THE SPACE TEMPERATURE IS 80 DEGREE F (ADJUSTABLE) AND THEN SHUTDOWN.
 - UPON DETECTION OF SMOKE BY UNIT SMOKE DETECTOR BOTH RTUS SHALL SHUT DOWN AND AN ALARM SHALL BE SENT TO THE FIRE ALARM CONTROL PANEL (WHERE APPLICABLE). LOCAL REMOTE ANNUNCIATORS SHALL ALSO BE ACTIVATED.
- C. KITCHEN HOOD EXHAUST FAN (KEF-1)**
- THE KITCHEN HOOD EXHAUST FAN SHALL BE ENABLED WHEN ANY COOKING APPLIANCE LOCATED UNDER ITS RESPECTIVE HOOD, IS IN USE.
- D. MAKE UP AIR UNIT**
- THE MAKE UP AIR UNIT SHALL BE ENABLED WHEN THE KITCHEN HOOD EXHAUST FAN (KEF-1) IS ENERGIZED, THE INTERNAL MOTORIZED DAMPER WITHIN WITH MAU-1 SHALL OPEN AND THE FAN SHALL RUN. IF OA IS LESS THAN 65° (ADJ.), THE MAU-1 GAS-FIRED HEAT SECTION SHALL BE ENABLED TO MAINTAIN A MINIMUM OF 65°.
 - WHEN KEF-1 IS OFF, MAU-1 SHALL BE DE-ENERGIZED AND THE INTERNAL MOTORIZED DAMPED SHALL CLOSE.
- E. ANSUL SYSTEM ACTIVATION**
- UPON ACTIVATION OF ANSUL SYSTEM, SHUT DOWN MAU-1, RTU-1 AND RTU-2. PROVIDE RELAYS CONTACTS, INTERLOCKS, TRANSFORMERS AND ALL ASSOCIATED WIRING TO ACCOMPLISH SEQUENCE. MAU-1 IS ALREADY PREWIRED TO SHUT DOWN IN HOOD CONTROL PANEL. MECHANICAL CONTRACTOR SHALL INTERLOCK RTU-1 AND RTU-2 TO ALSO SHUT DOWN.



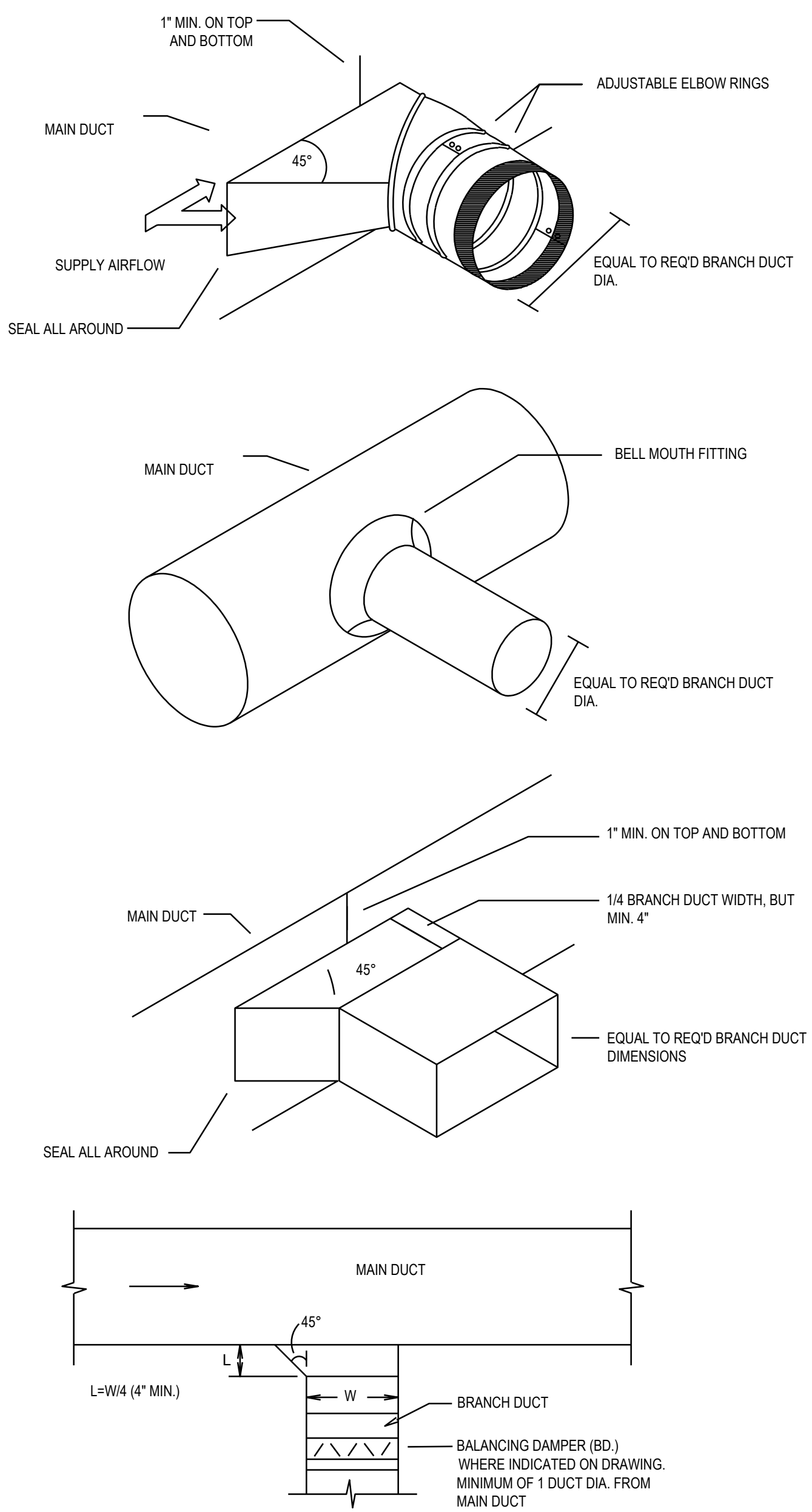
DIFFUSER MOUNTING DETAIL NOT TO SCALE 1

DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESSES

MAXIMUM SIZE (INCHES)	RECTANGULAR DUCTS	
	STEEL (MINIMUM THICKNESS, NOMINAL)	ALUMINUM (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.022 INCH (26 GAGE, GALV.)	0.020 INCH (NO. 24 B&S GAGE)
13 THROUGH 30	0.028 INCH (24 GAGE, GALV.)	0.025 INCH (NO. 22 B&S GAGE)
31 THROUGH 54	0.034 INCH (22 GAGE, GALV.)	0.032 INCH (NO. 20 B&S GAGE)
55 THROUGH 84	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (NO. 18 B&S GAGE)
OVER 84	0.052 INCH (18 GAGE, GALV.)	0.051 INCH (NO. 16 B&S GAGE)

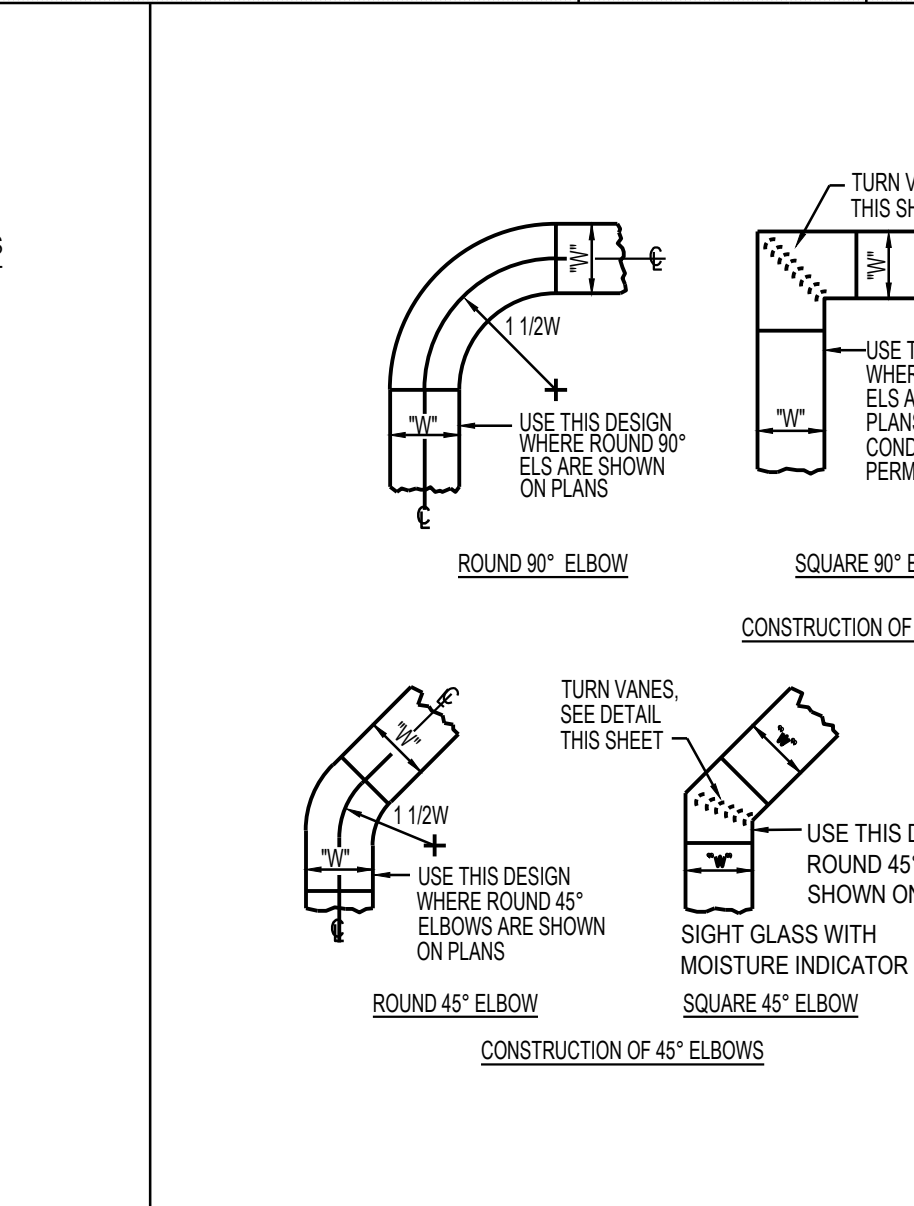
MAXIMUM SIZE (INCHES)	ROUND DUCTS		
	SPIRAL SEAM DUCT STEEL (MINIMUM THICKNESS, NOMINAL)	LONGITUDINAL SEAM DUCT STEEL (MINIMUM THICKNESS, NOMINAL)	FITTINGS STEEL (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.019 INCH (28 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)
13 THROUGH 18	0.022 INCH (26 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)
19 THROUGH 28	0.028 INCH (24 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)
29 THROUGH 36	0.034 INCH (22 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)
37 THROUGH 52	0.040 INCH (20 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)

SHEET METAL DUCT GAGES NOT TO SCALE 2



DUCT BRANCH DETAIL NOT TO SCALE 4

SEQUENCE OF OPERATION



DUCT SUPPORTS NOT TO SCALE 6

DUCT CONSTRUCTION DETAIL

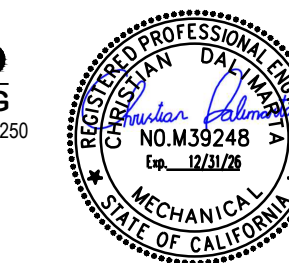
NOT TO SCALE 5

CONSULTANT:

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PROJECT



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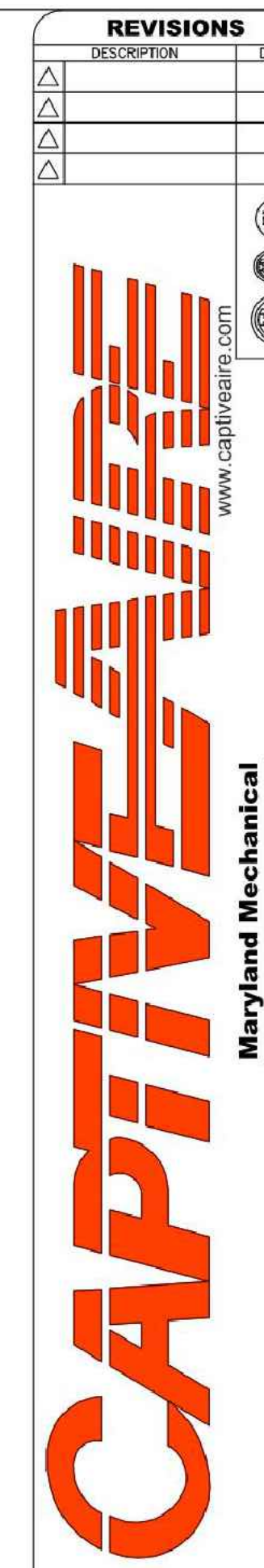
DATE	DESCRIPTION
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Date Modified: 24/11/26
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Maryland Mechanical
 8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988-0881 FAX: 9192279501 EMAIL: reg76@captiveaire.com

CAVA - Azusa, CA_R3
 806 East Alosta Avenue,
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DATE: 10/28/2024
 DWG.#: 7129051
 DRAWN BY: ABS-76
 SCALE: NTS
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FOR QUESTIONS, CALL THE Maryland Mechanical REGION 76
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PATENT NUMBERS
 AC-PSP (UNITED STATES) - US PATENT 7963830 B2
 AC-PSP WALL (CANADA) - CA PATENT 2820509
 AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOOD INFORMATION - JOB#7129051

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)				MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG				
										WIDTH	LENG	HEIGHT	DIA				CFM	VEL	SP	END TO END	RDW
1		6030 ND-2-ACPS-P	CAPTIVEAIRE	10' 7"	600 DEG	I	HEAVY	225	2381			4'	16'	2381	1705	-0.825'	1976	802	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT		
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	TYPE	SIZE			ELECTRICAL MODEL #	SWITCHES QUANTITY
1		CAPTRATE SOLID FILTER	7	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO	LEFT	12"x60"x30"	TANK FS	4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	1173 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 10.00' HIGH FRONT, RIGHT. RIGHT END STANDOFF (FINISHED) 1' WIDE 60' LONG INSULATED. LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS. RIGHT WALL AS END PANEL.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	PDS	LENGTH	WIDTH	HEIGHT	RISER(S)					
						TYPE	WIDTH	LENG	DIA	CFM	SP
1		Front	140"	24"	6"	MUA	12"	28"		658	0.165"
						MUA	12"	28"		658	0.165"
						MUA	12"	28"		658	0.165"
						AC	8"	24"		401	0.094"
						AC	8"	24"		401	0.094"

GREASE DUCT & CHIMNEY SPECIFICATIONS:
 PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURERS INSTALLATION GUIDE.
 PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURERS LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE
 HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

VERIFY CEILING HEIGHT
 _____' - _____"
 HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

CUSTOMER APPROVAL TO MANUFACTURE:

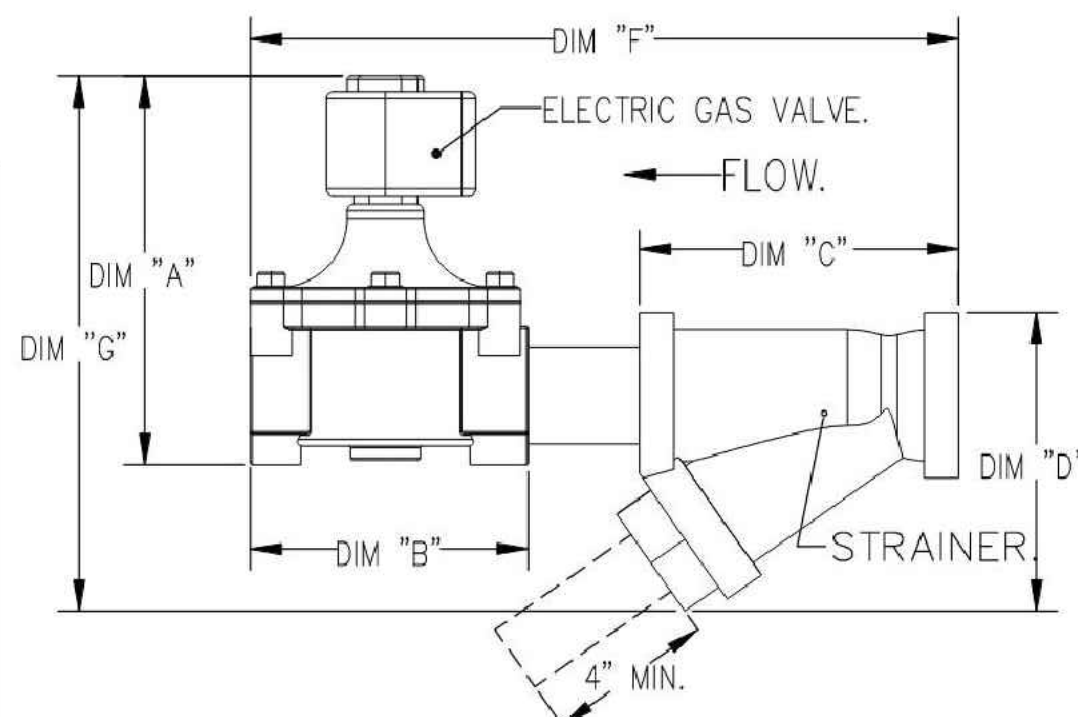
APPROVED AS NOTED
 APPROVED WITH NO EXCEPTION TAKEN
 REVISE AND RESUBMIT
 SIGNATURE _____
 YOUR TITLE _____ DATE _____

GAS VALVES AND STRAINERS														
GAS VALVE SIZING					GAS VALVE DIMENSIONS									
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 "E"	DIM "G"	INSTALLATION	PART NUMBERS
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	GAS VALVE PART NUMBER: 8214280 STRAINER PART NUMBER: 4417K68 GAS VALVE/STRAINER KIT (SC)EGVA2

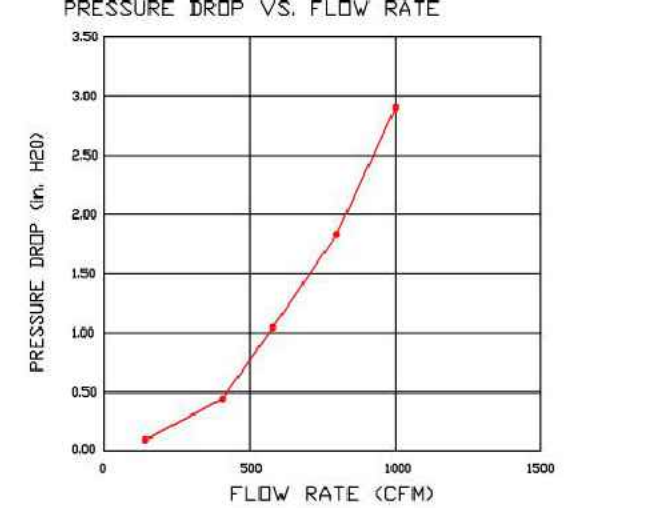
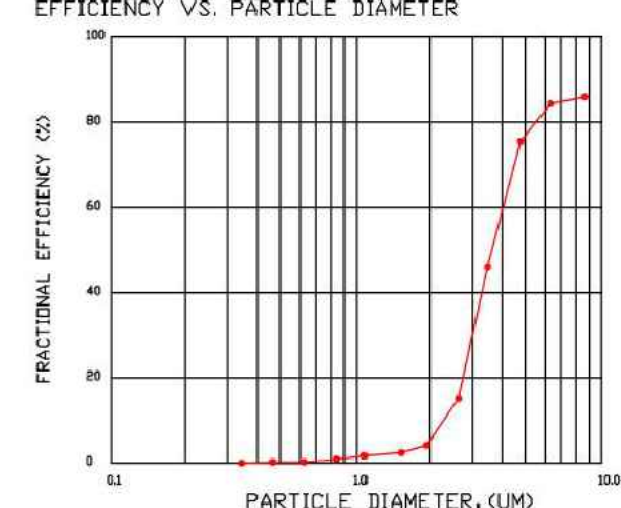
ELECTRIC GAS VALVES ONLY:
 3/4"-2" 120VAC GAS VALVES CAN BE MOUNTED WITH THE SOLENOID IN ANY POSITION ABOVE HORIZONTAL.
 2 1/2"-3" 120VAC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.
 24VDC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.

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^{0.85}
 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)^{0.85}



SPECIFICATION: CAPTRATE® GREASE-STOP® SOLID FILTER
 THE CAPTRATE GREASE-STOP SOLID FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.
 FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).
 UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.
 GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.
 THE CAPTRATE GREASE-STOP SOLID WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.
 EFFICIENCY VS. PARTICLE DIAMETER



CAPTIVEAIRE FILTERS ARE BUILT IN COMPLIANCE WITH:
 NFPA #56.
 NSF STANDARD #2.
 UL STANDARD #1046.
 INT. MECH. CODE (IMC).
 ULC-S649.



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CAPTIVE
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CAVA - Azusa, CA_R3
 806 East Alosta Avenue,
 Azusa, CA, 91702

DATE: 10/28/2024
 DWG.#: 7129051
 DRAWN BY: ABS-76
 SCALE: NTS
MASTER DRAWING
SHEET NO.
 3

FIRE SYSTEM INFORMATION - JOB#7129051

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0	40	37	FIRE CABINET LEFT	LEFT, HOOD 1

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
		0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 12-F28021-32144-0T-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO. CLOSE ON TEMP RISE AT 360°F. (A0034310).	1	0
		0 - 0 - 32-0002 QUICK SEAL - 1/2" (UL).	1	0
		0 - 0 - 4429K193 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	2	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	1	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5' BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	8	0
		0 - 0 - 9055455PC PRO PRESS 1/2" PRESS X PRESS 90 ELBOW LD.	6	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2" PRESS TEE LD.	7	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	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.	1	0
		0 - 0 - B1145 3/8" BLACK IRON 90 ELL.	3	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	6	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	2	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	8	0
		16 - 16 - DL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	8	0
		26 - 26 - QSA-3/8 QUICK SEAL - 3/8" (UL).	8	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT, RED COLOR.	1	0

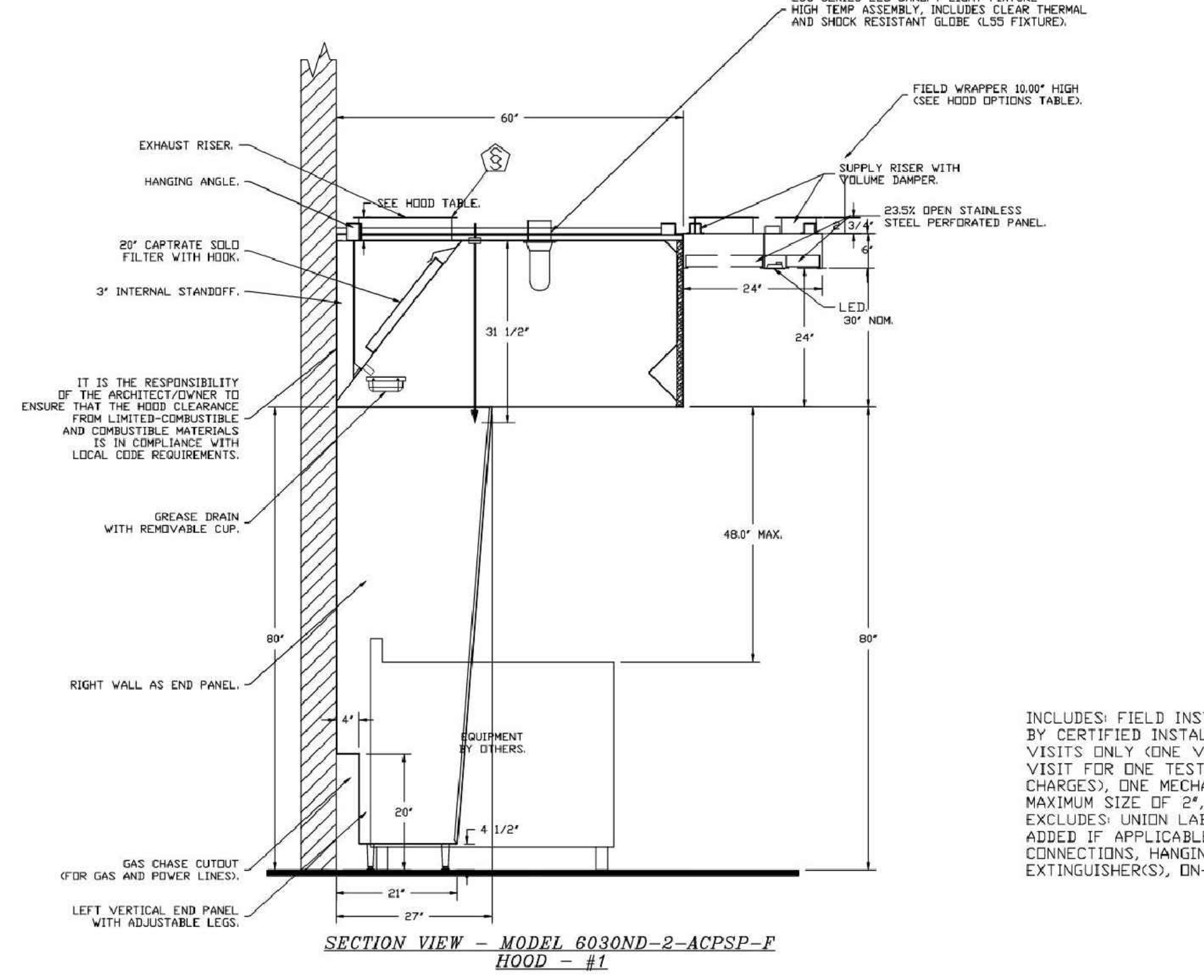
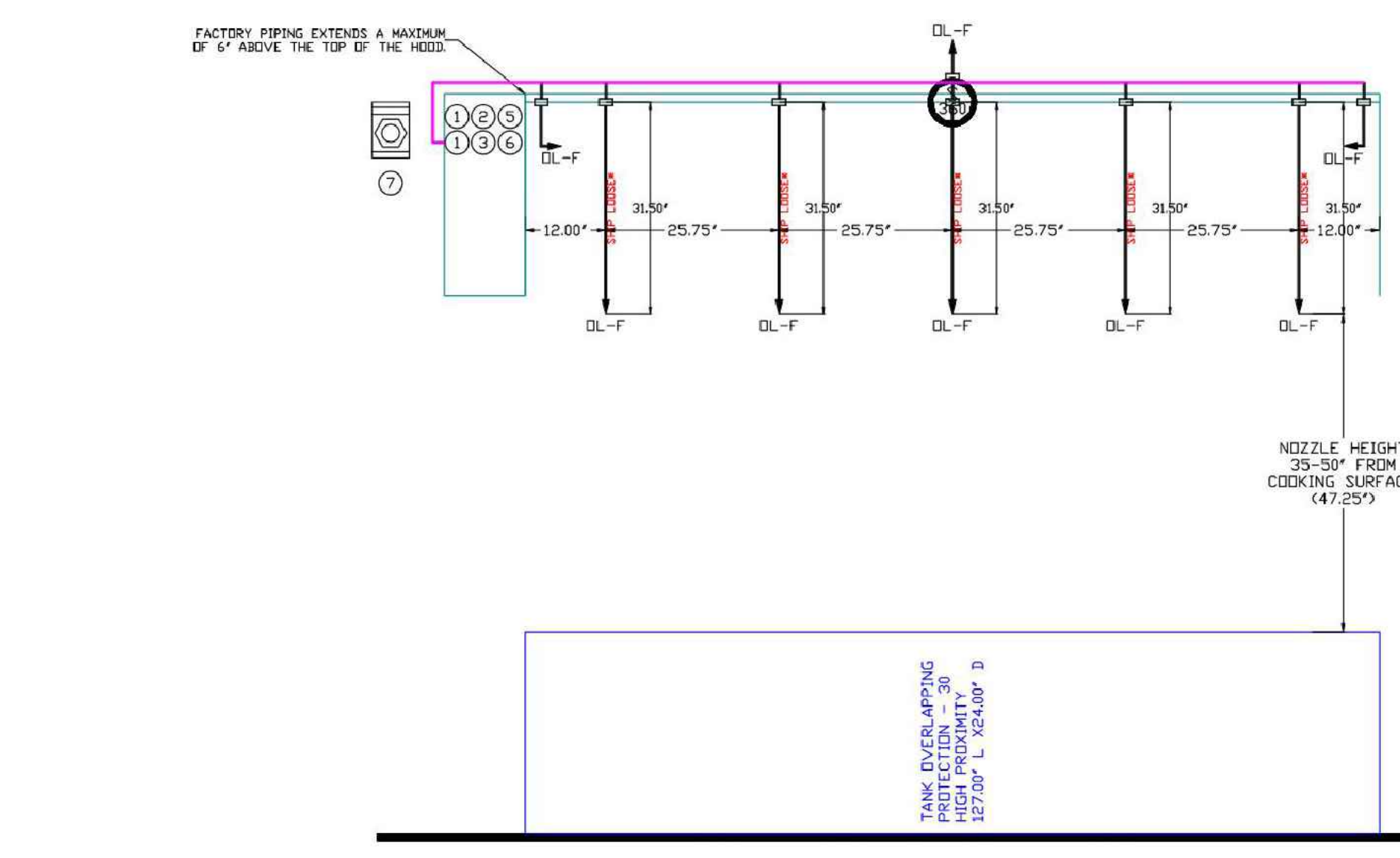
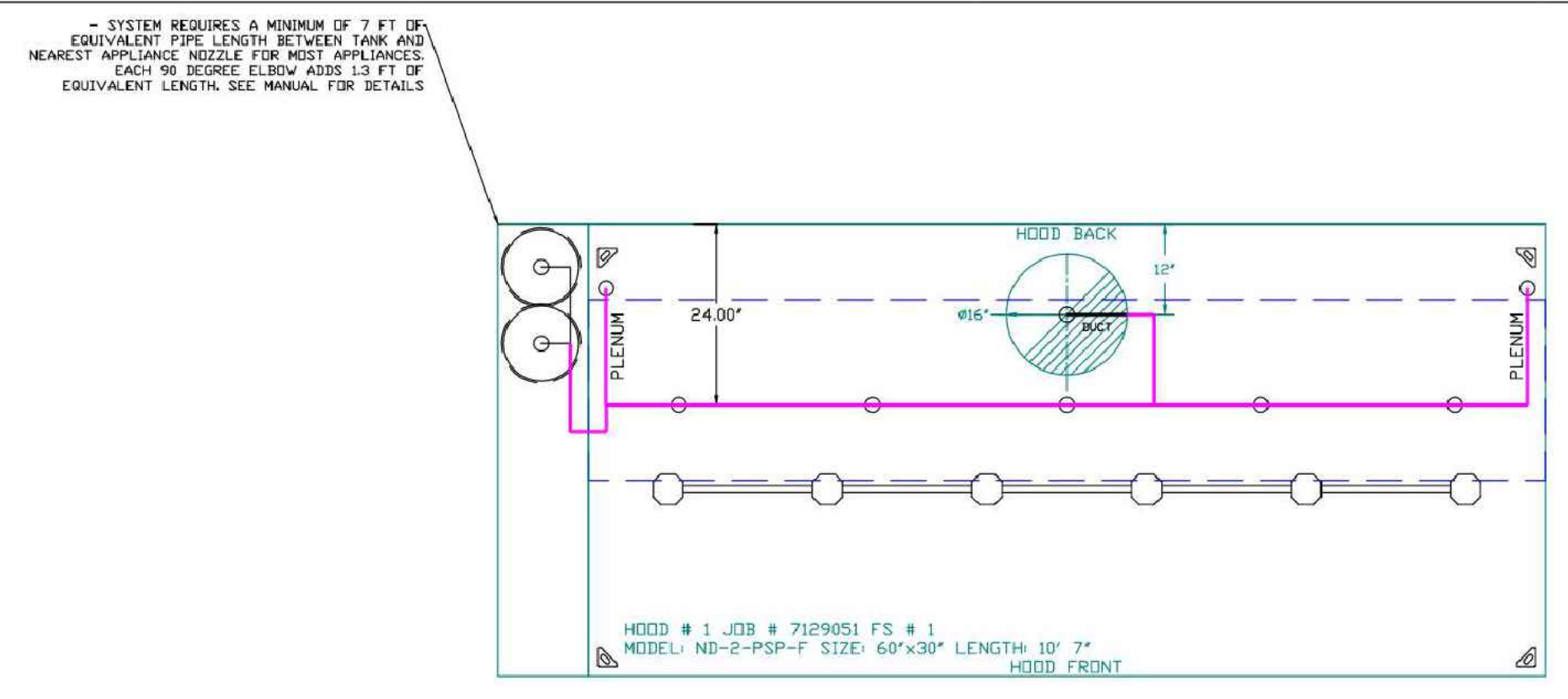
NOTES
 - FIELD PIPE DROPS AS SHOWN
 - PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
 - FIELD INSTALLED DROP; FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
 - SHIP LOOSE DROP; FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED 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.
 - DL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 7129051.
 JOB NAME: CAVA - AZUSA, CA_R3.
 SYSTEM SIZE: TANK-SP-2 DESIGN FP: 37. MAXIMUM FP: 40.
 HOOD # 1 10' 7.00" LONG X 60" WIDE X 30" HIGH.
 RISER # 1 SIZE: 16" DIA.
 HOOD # 1 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.

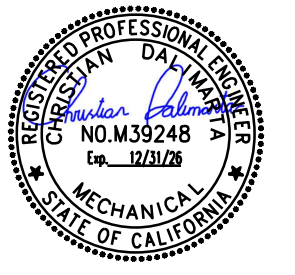
AGENT DISTRIBUTION PIPING LIMITATIONS

PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

- LEGEND - FIRE CABINET TANK SYSTEM**
- 4 GALLON TANK.
 - PRIMARY ACTUATOR RELEASE.
 - SECONDARY ACTUATOR RELEASE.
 - PRESSURE SUPERVISION SWITCH.
 - PRIMARY HOSE ASSEMBLY.
 - SECONDARY HOSE ASSEMBLY.
 - REMOTE MANUAL ACTUATION DEVICE.



INCLUDES: FIELD INSTALLATION AND HOOKUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE, TWO SITE VISITS ONLY (ONE VISIT TO SET PULL STATION & SYSTEM HOOKUP AND ONE VISIT FOR ONE TEST); ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES); ONE MECHANICAL OR ELECTRICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 2". PERMIT, AND SYSTEM TEST.
 EXCLUDES: UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED IF APPLICABLE); GAS VALVE INSTALLATION, ELECTRICAL HOOKUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.



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 SHEET NO. 4

EXHAUST FAN INFORMATION - JOB#7129051

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SDNES
1		1	DUI80HFA	CAPTIVEAIRE	2381	1.750	1297	TEFC,PREMIUM	2.000	1.4550	3	208	7.3	550 FPM	212	17.8

DOAS/RTU FAN SCHEDULE - JOB#7129051

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	MCA	MDCP	ELECTRICAL INFORMATION				COOLING INFORMATION				ELECTRIC HEAT INFORMATION				HEAT PUMP INFORMATION		NOTES									
																DB	WB	DB	WB	DB	WB	DP	TOTAL	SENS.	IEER	ISMRE	DSGN. KW'S	MAX. KW'S	VOLTS		AMPS	MCA	MDCP	TEMP RISE	ENTERING TEMP	MAX TEMP RISE	DISCHARGE TEMP	CDP	
2		1	EARTUI-E.152-15-5T-MPU	ECON-AIR	15P-1	0	1976	1976	1163	0.750	2.00	3	208	27.2A	30A		93.7°F	74.9°F	93.7°F	74.9°F	73.4°F	65.8°F	62.1°F	64.0 MBH	41.2 MBH	17.9	6.1	10	15	208	36.1	45.2	50	16 °F	45.0°F	22.0°F	67.0°F	3.5	1,2,3,4,5,6,7,8,9,10,11,12,13

NOTES:

- INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
- DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
- INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
- REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
- EC MOTOR CONDENSING FANS
- ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
- SUCTION LINE ACCUMULATOR
- FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY
- AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
- SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
- 1" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-4.3 INSULATION-MINIMUM 24GA EXTERIOR W/ 18GA BASE
- DOWN DISCHARGE/NO RETURN
- SEPARATE POWER CONNECTION FOR MAIN UNIT & ELECTRIC HEATER

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1		1	GREASE BDX
		1	EXHAUST FAN HEAT BAFFLE
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	VFD MOUNTING BRACKET FOR DU/DR 180 - 200
		1	LOAD REACTOR MOUNTED IN FAN
2		1	2 YEAR PARTS WARRANTY
		1	SEPARATE ELECTRIC HEAT CONNECTION - RTU. 750VA TRANSFORMER USED FOR CONTROLS. TWO PRIMARY CONNECTIONS REQUIRED FOR RTU WITH ELECTRIC HEAT. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, *MA*, OR *E2* PREWIRE OPTION MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	CONSTRUCTION MODE - MODIFIES START-UP SETTINGS TO ALLOW TEMPERING A BUILDING STILL UNDER CONSTRUCTION
		1	2" MERV 13 FILTERS FOR RTU1 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU1 (QTY. 4)
		1	TOTAL CFM MONITORING
		1	RTU1 DOWN DISCHARGE ELECTRIC HEAT, 10-45KW
		1	RTU1 FIXED 100% DA INTAKE CONTROL
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	FREEZE STAT
		1	INTAKE FIRESTAT SET TO 135°F
		1	RTU1 NO RETURN - 100% DA - MPU
		1	RTU1 CURB DUCT HANGER
		1	5 TON MODULATING COOLING OPTION WITH HEAT PUMP, 208/230V, R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, DL ECM CONDENSING FAN
	1	NO REHEAT	
	1	UNIT MOUNTED VFD CONFIGURED FOR DCV	
	1	LOAD REACTOR MOUNTED IN FAN	
	1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT	
	1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET	

FAN ACCESSORIES

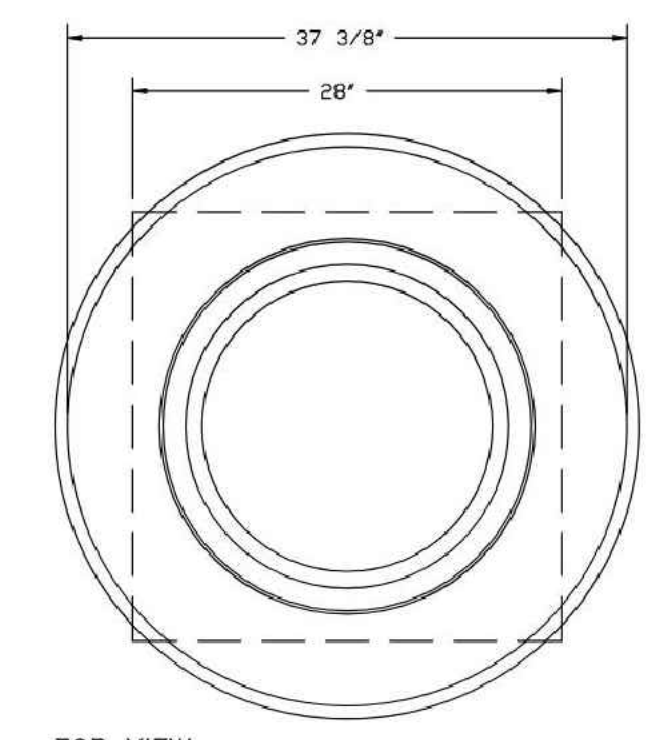
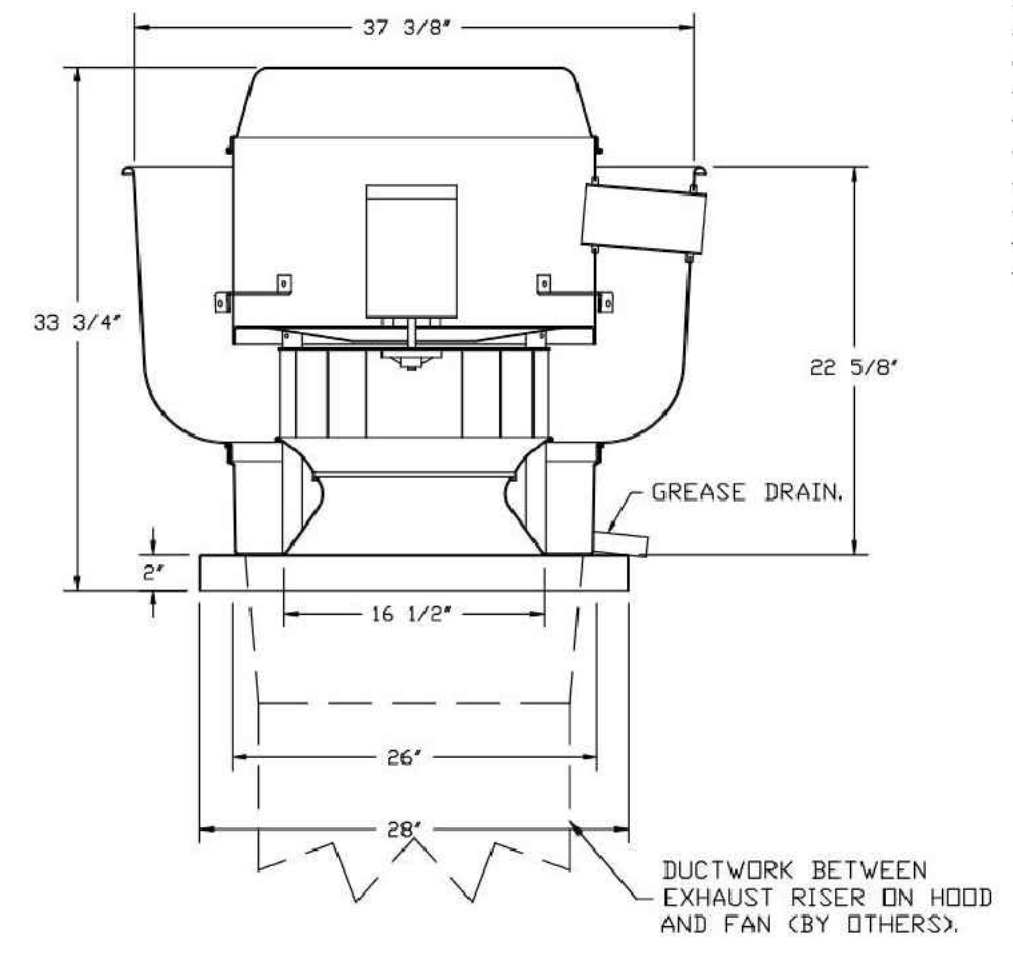
FAN UNIT NO	TAG	EXHAUST				SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT	
1		YES							

CURB ASSEMBLIES

NO	DN FAN	WEIGHT	ITEM	SIZE
1	# 1	34 LBS	CURB	26.500"W X 26.500"L X 26.000"H VENTED HINGED.
2	# 2	103 LBS	CURB	41.000"W X 71.000"L X 20.000"H INSULATED.

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

FAN #1 DUI80HFA - EXHAUST FAN



TOP VIEW

FEATURES:

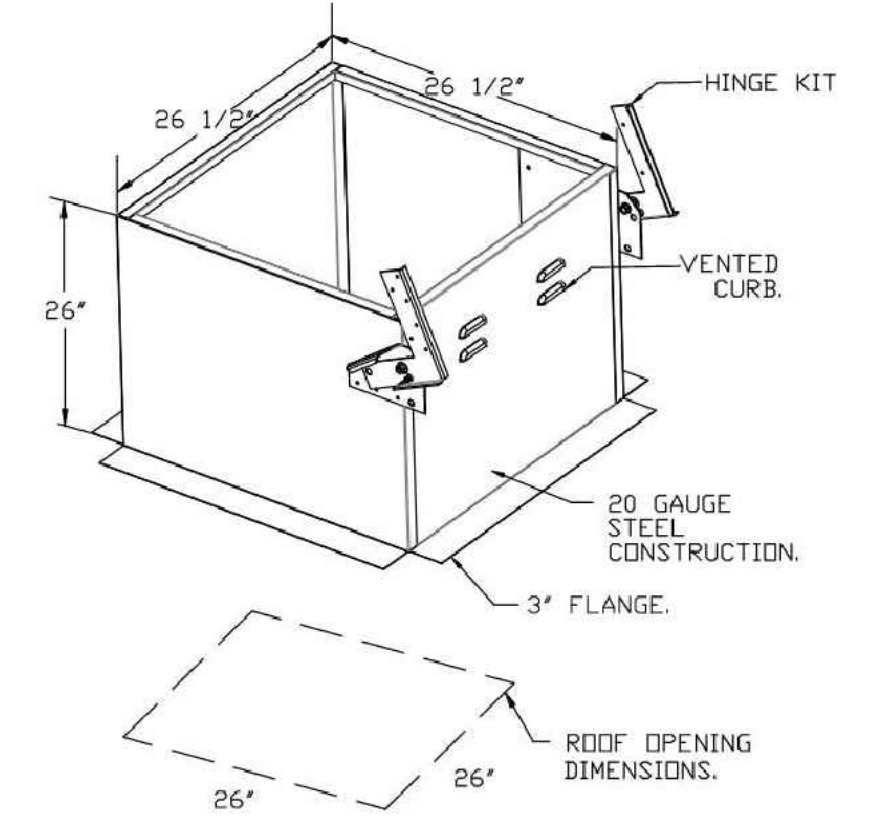
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND UL-C-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT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

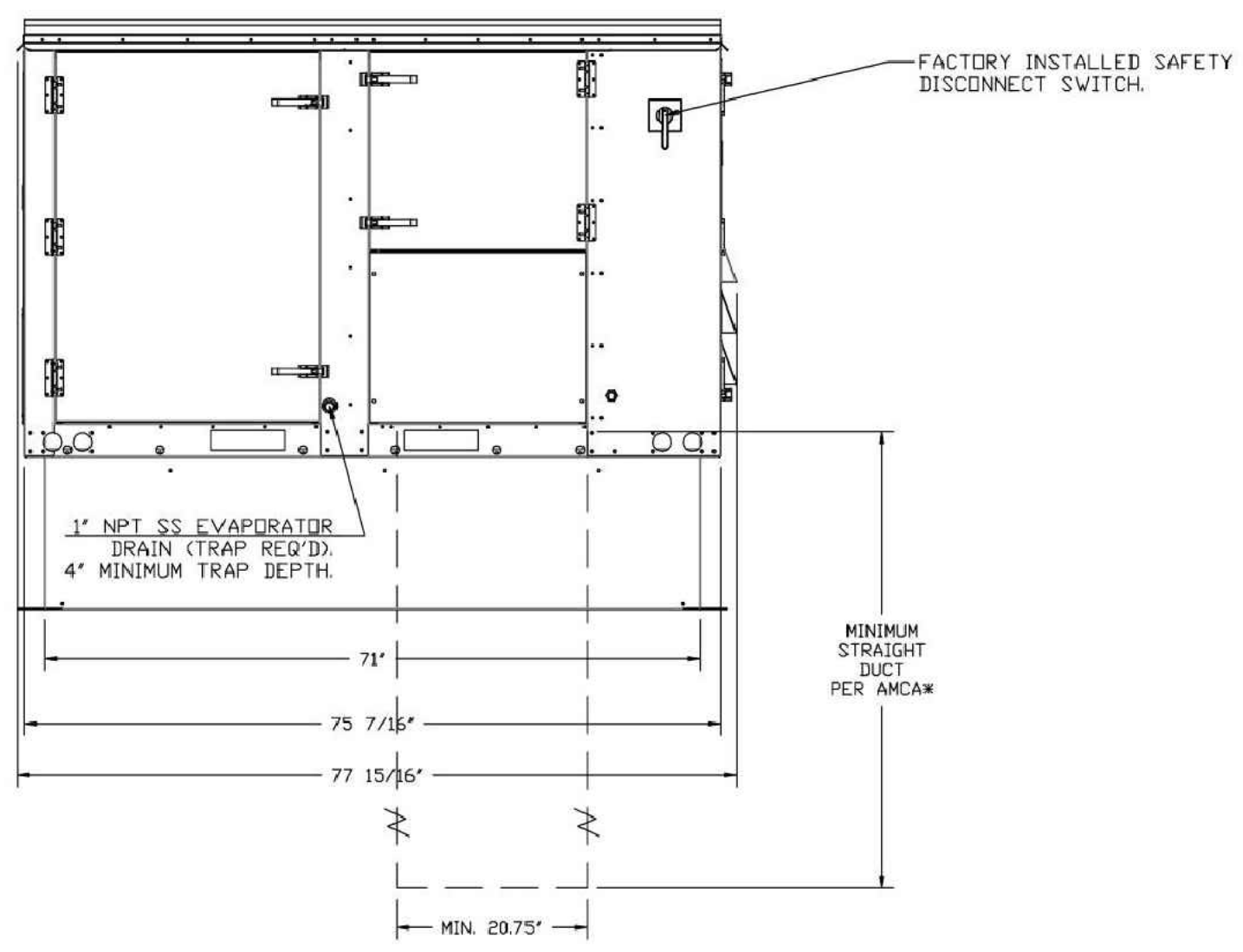
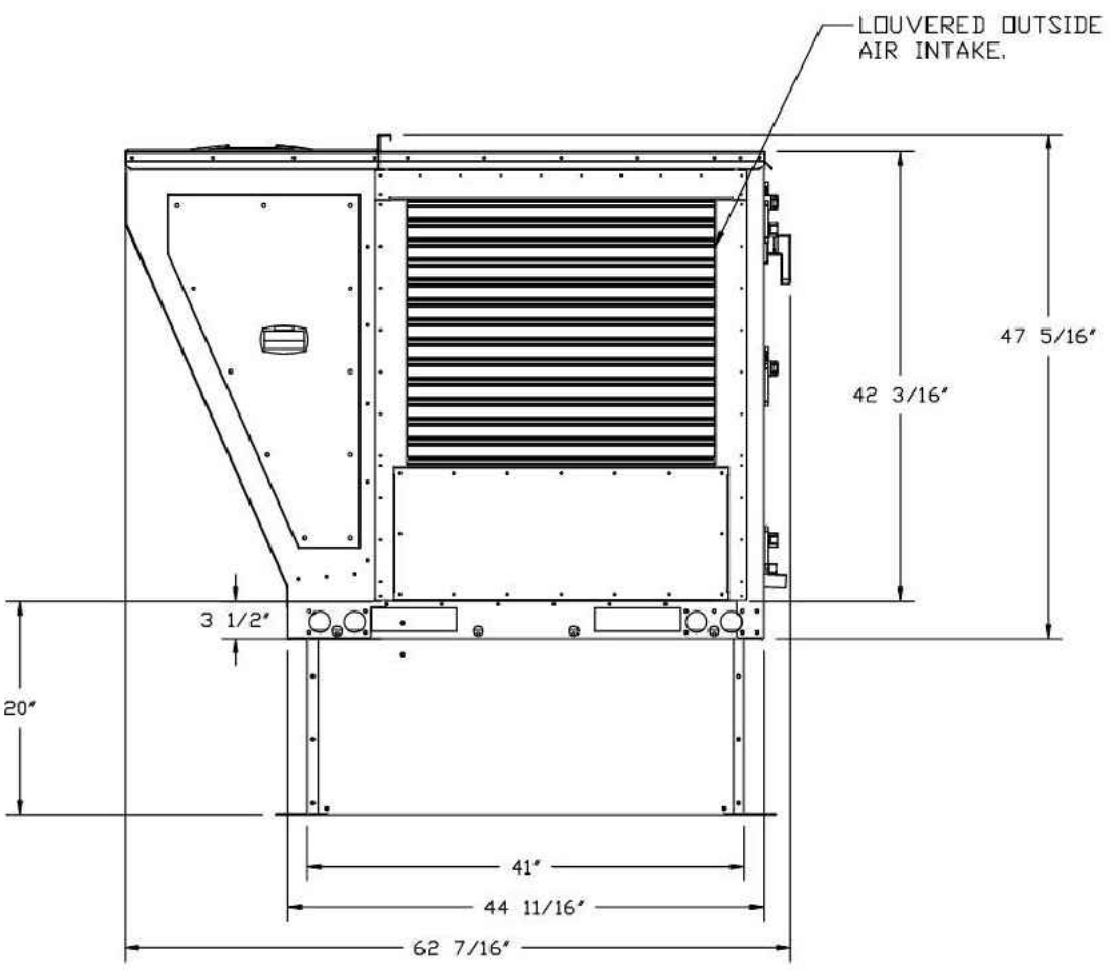
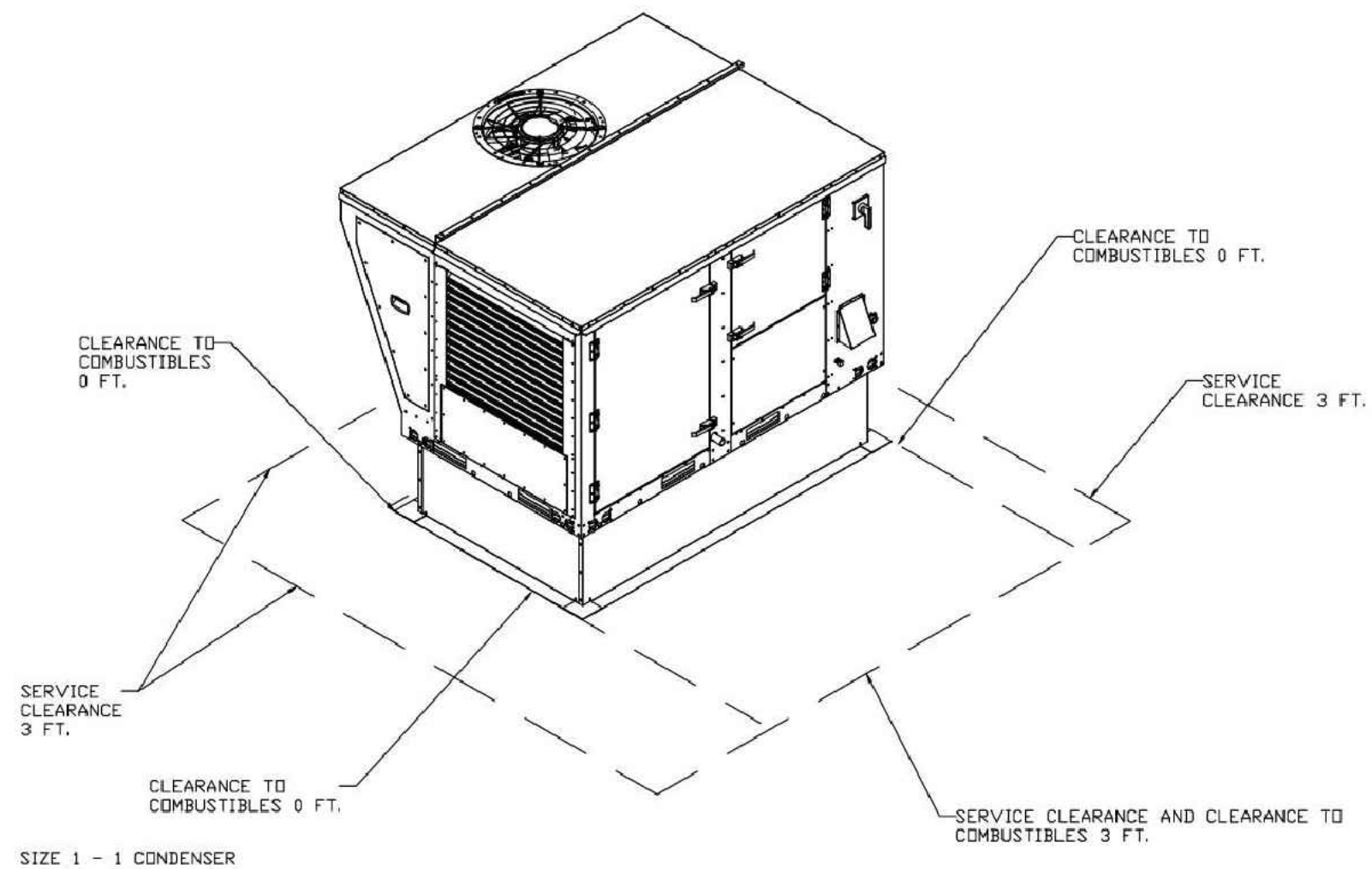
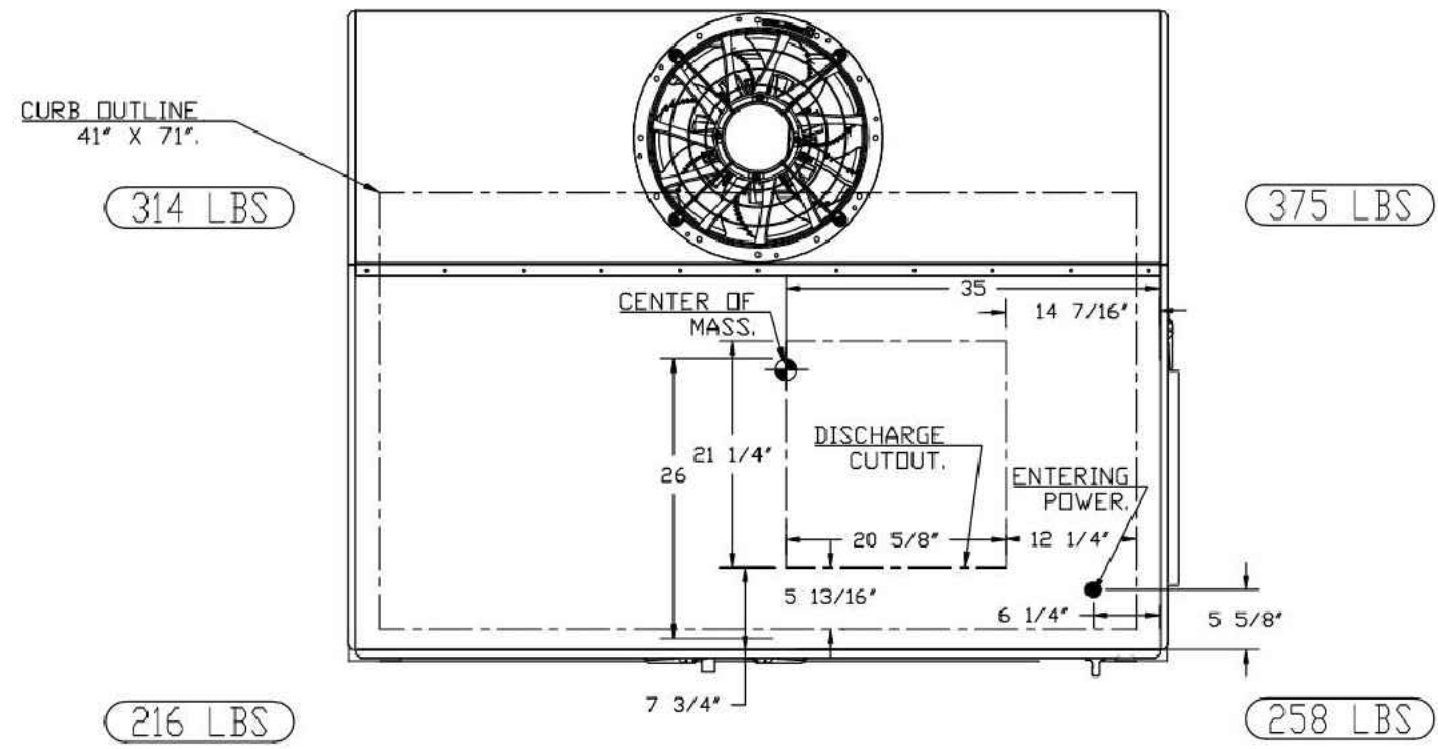
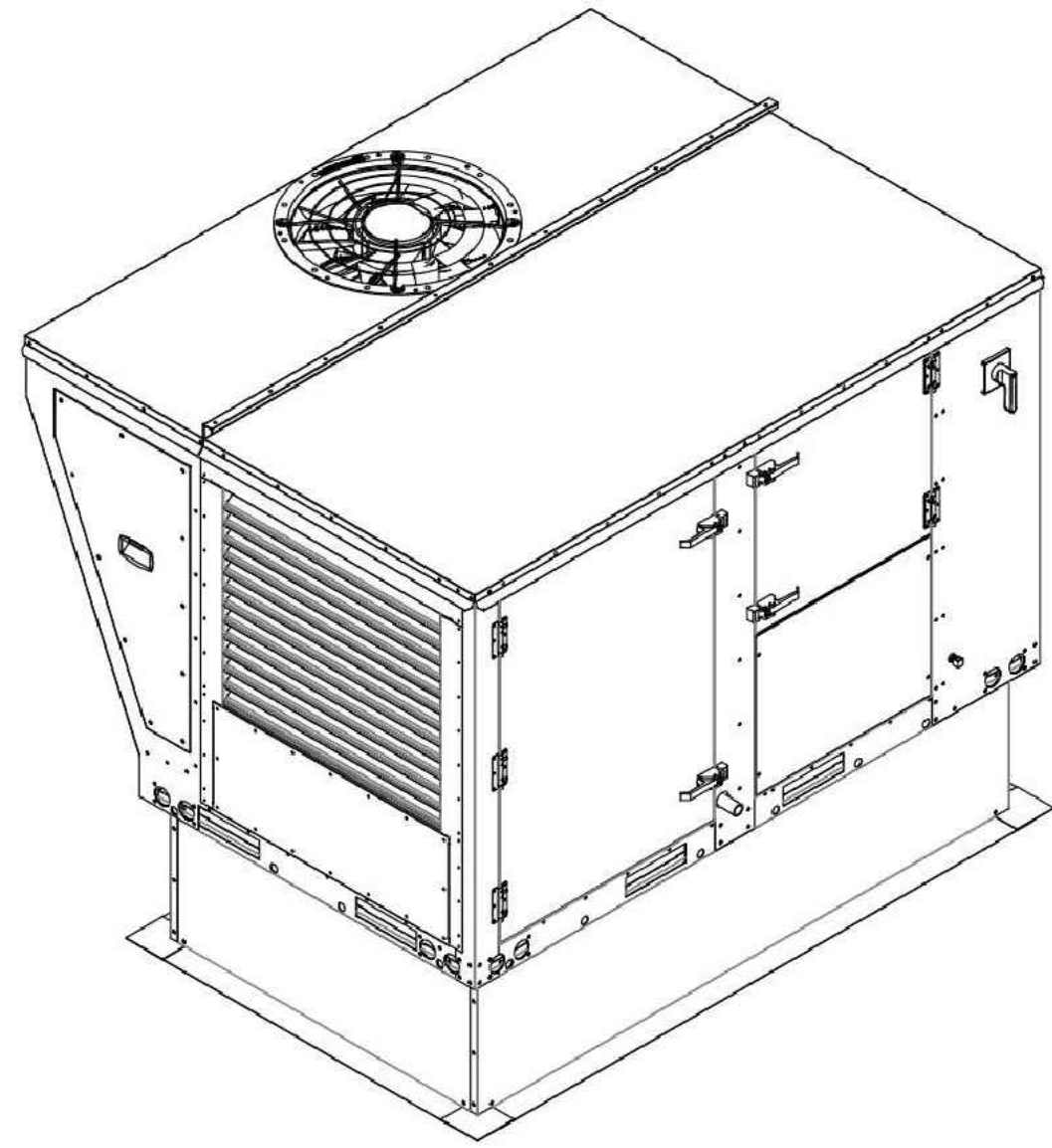
OPTIONS

- GREASE BDX.
- EXHAUST FAN HEAT BAFFLE.
- UNIT MOUNTED VFD FOR USE WITH ECPM03.
- VFD MOUNTING BRACKET FOR DU/DR 180 - 200.
- LOAD REACTOR MOUNTED IN FAN.
- 2 YEAR PARTS WARRANTY.

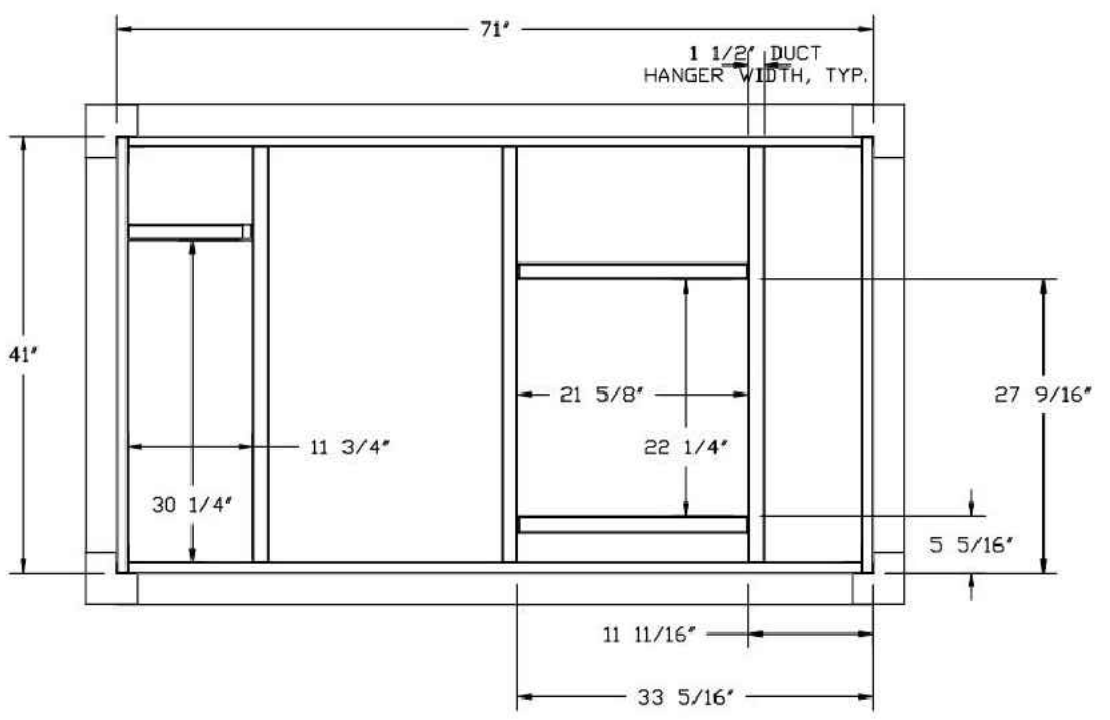
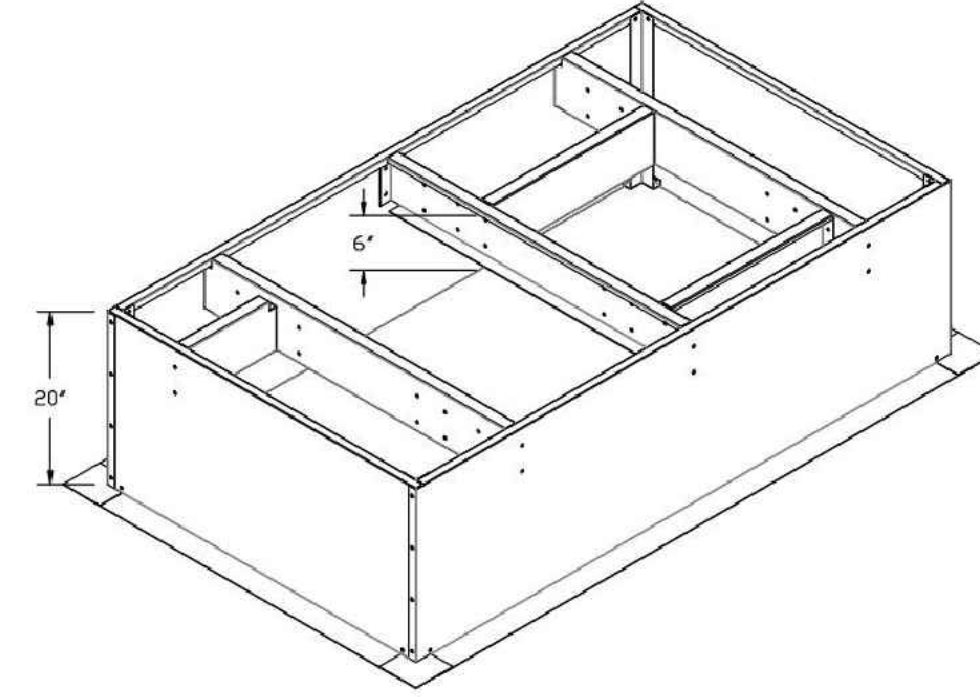
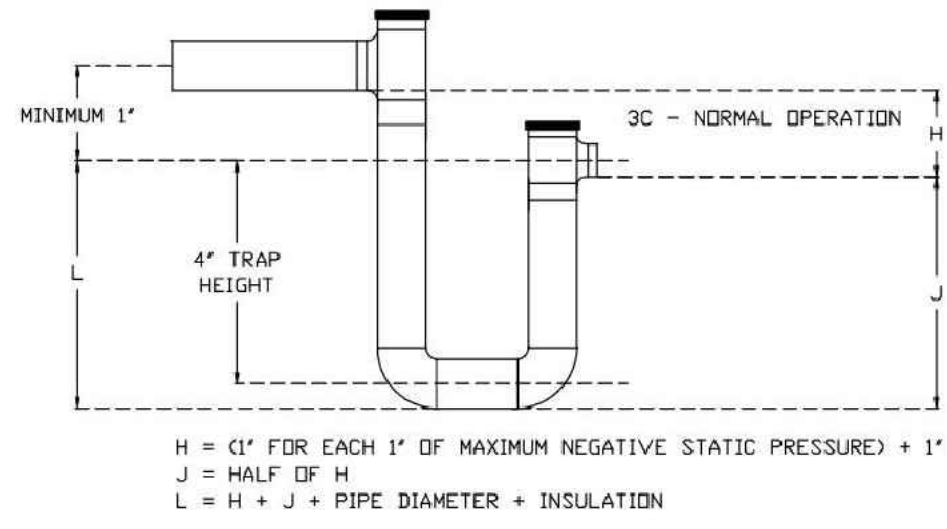
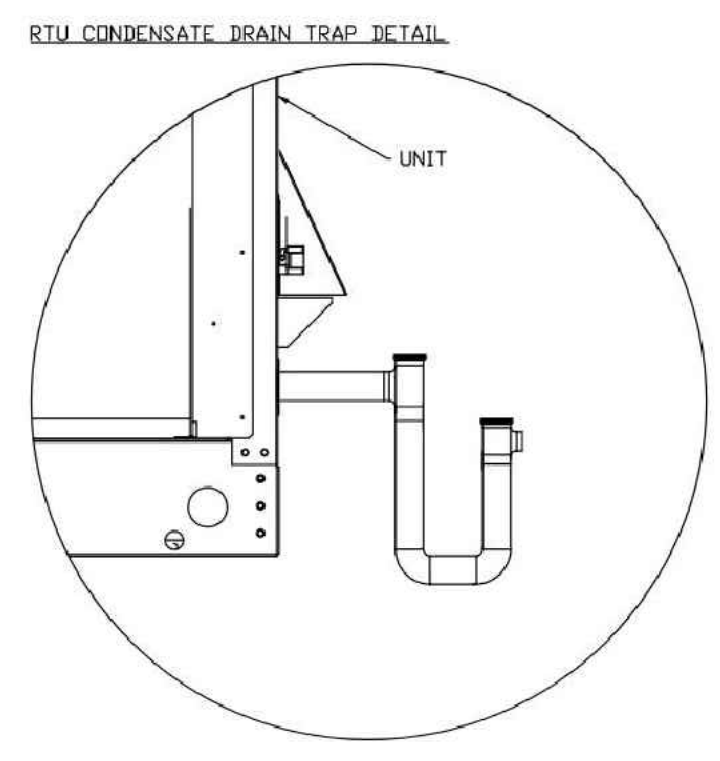


FAN #2 EARTU1-E.152-15-5T-MPU - HEATER

- NOTES:
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
 -  DENOTES CORNER WEIGHT.
 - ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
 - CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
 - EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.



*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 20.75" x 21.5".



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DESCRIPTION	DATE

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PROJECT

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DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
2 11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
3 12/16/24	CONSTRUCTION SET- REVISED
4 02/28/25	CONSTRUCTION SET- REVISED

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AIR DIFFUSION SUPPLY DUCT SPECIFICATIONS:
 PROVIDE AIR DIFFUSION SUPPLY DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL DW-S0(HC), DW-S90(HC), & DW-S180(HC). THREE DISTINCT HOLE PATTERN OPTIONS TO COVER A VARIETY OF CEILING HEIGHTS. NO ADDITIONAL DIFFUSERS REQUIRED, AS THE DUCT ITSELF PROVIDES AIR DIFFUSION. MADE OF HIGH QUALITY STAINLESS STEEL DESIGNED TO LAST 20+ YEARS. HIGH INDUCTION SUPPLY DUCT IS CONSTRUCTED USING 24 GAUGE, 430 SS - 5' THRU 24'. HIGH INDUCTION SUPPLY DUCT IS CONSTRUCTED USING 20 GAUGE, 430 SS - 26' THRU 36'. QUICK ONSITE ASSEMBLY USING EPDM GASKETS & UNIVERSAL V-BANDS. DOUBLE WALL SUPPLY DUCT AVAILABLE FOR INTERIOR AND EXTERIOR SPACES, EITHER CONDITIONED OR UNCONDITIONED. DOUBLE WALL SUPPLY DUCT AVAILABLE IN DW-1S, DW-2S, & DW-3S TO MEET SPECIFIC REGIONAL "R" VALUE REQUIREMENTS.

Insulation R-Value Recommendations		
Supply Duct Type	Minimum R-value	Space Type
Single Wall - S & -HC	N/A	Conditioned Space Only
Double Wall - 1S	R-4	Unconditioned Interior Space Only
Double Wall - 2S	R-8	Unconditioned Space Climate Zones 1-4
Double Wall - 3S	R-12	Unconditioned Space Climate Zones 5-8

DOUBLE WALL SUPPLY DUCT IS INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL. AIR DIFFUSION SUPPLY DUCT COMPLIES WITH SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS) BEST PRACTICES. POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE, SEE NFPA 13, TABLE 8.12.5.1.1.

GREASE DUCT & CHIMNEY SPECIFICATIONS:
 PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE. PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.
 IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CUSTOMER APPROVAL TO MANUFACTURE:

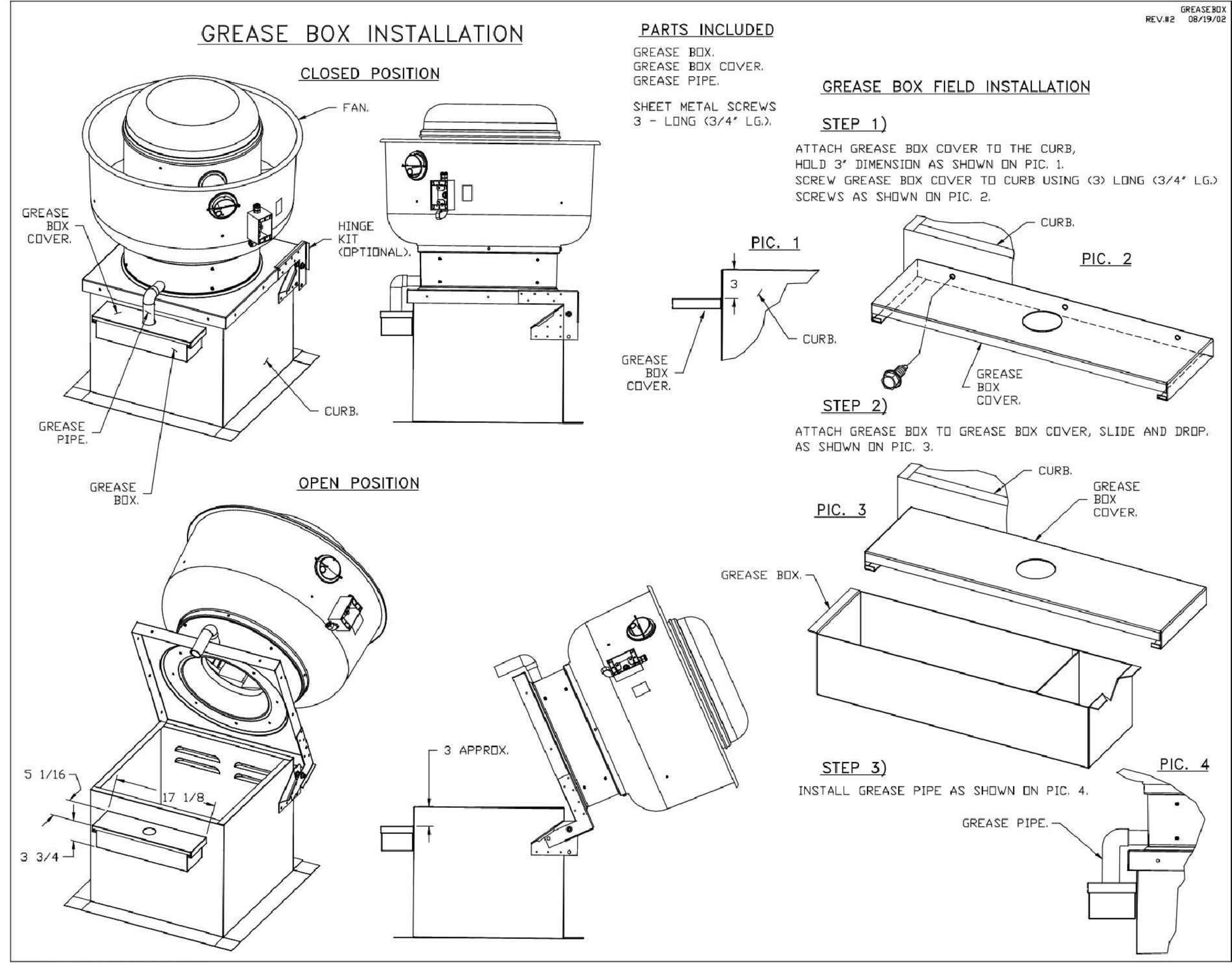
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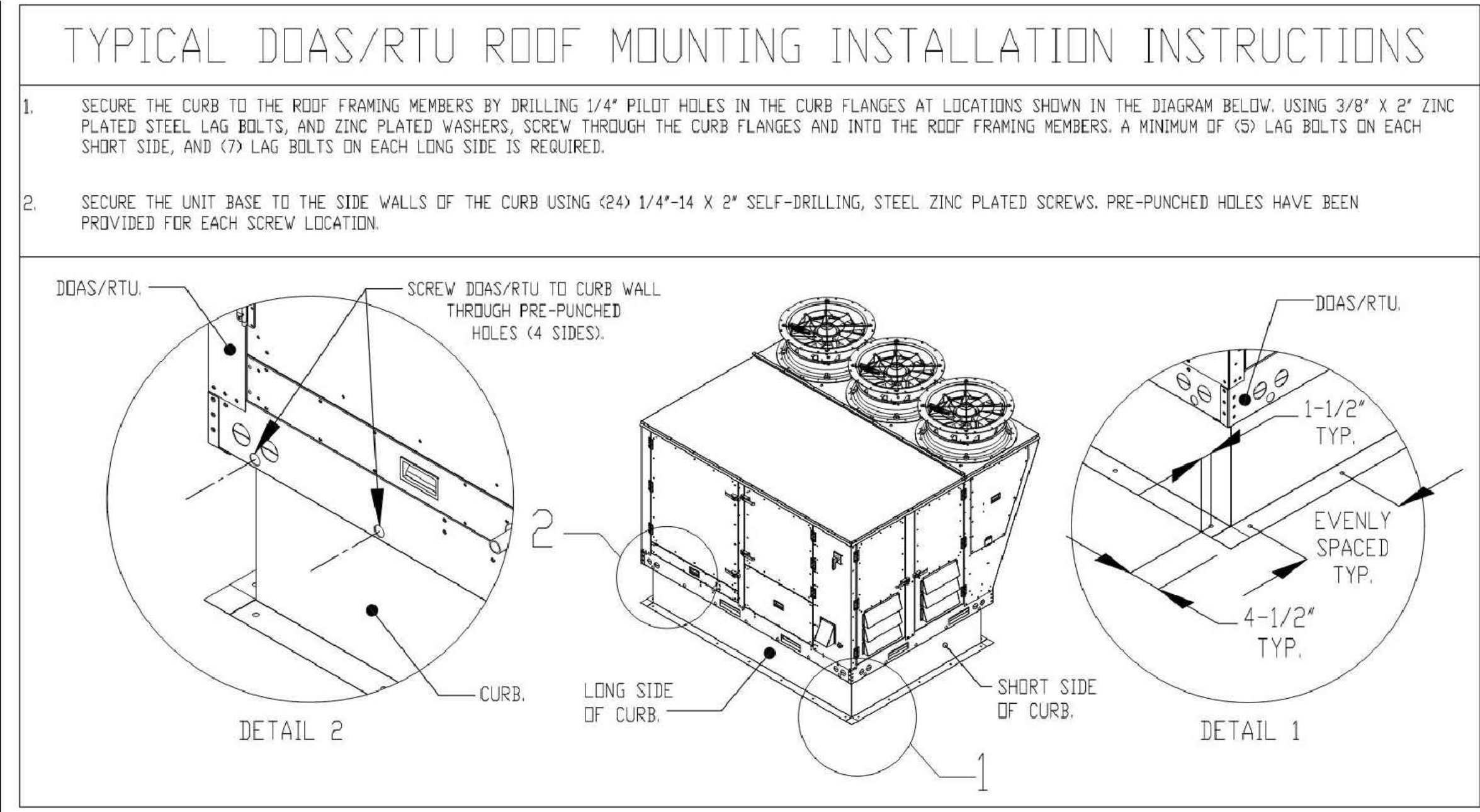
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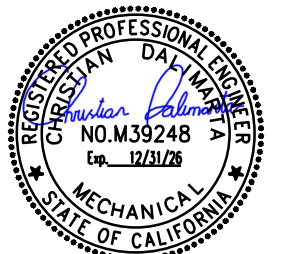
SIGNATURE _____ DATE _____

YOUR TITLE _____



*NOTE: UL 705 INSTALL.





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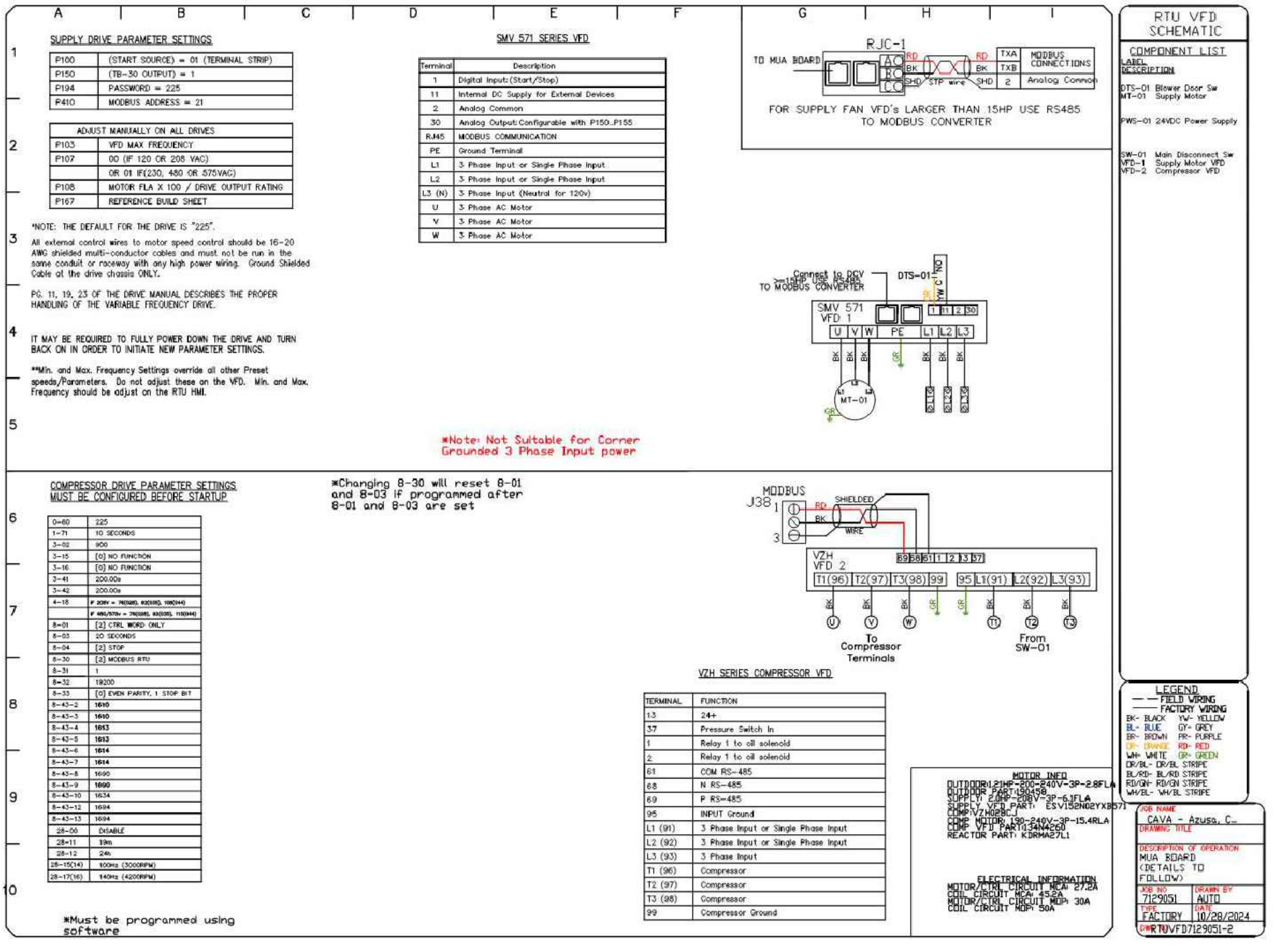
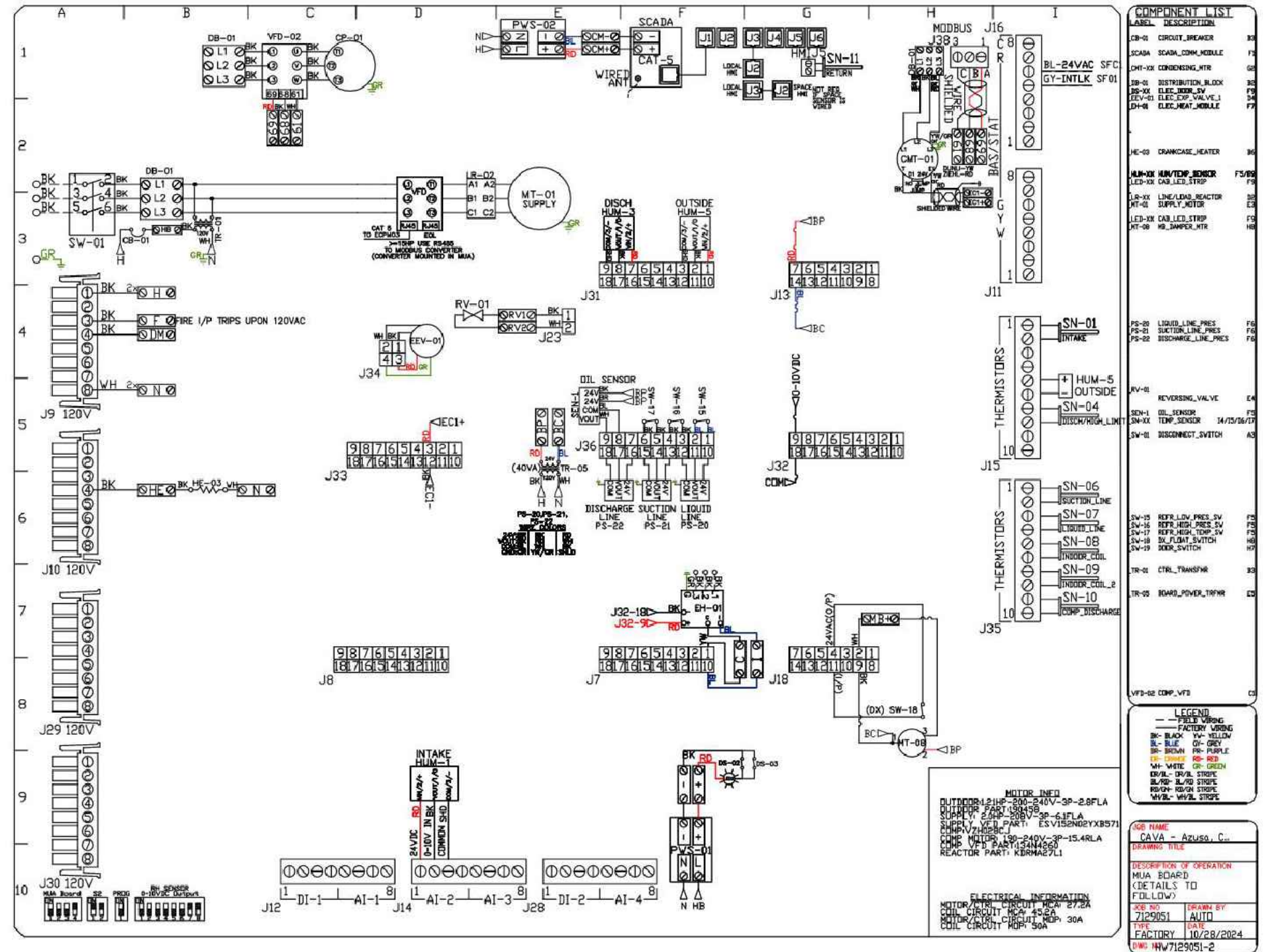
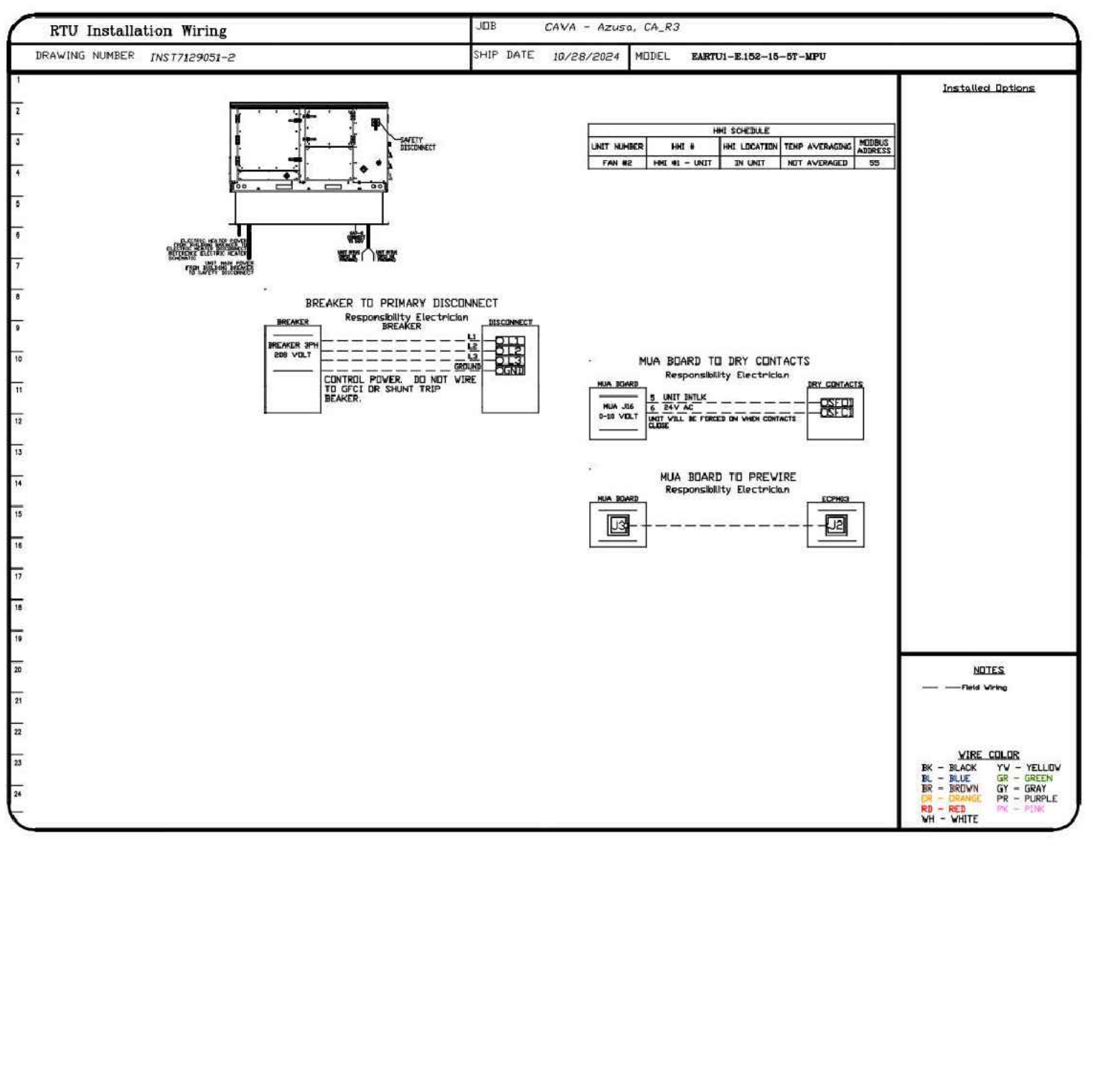
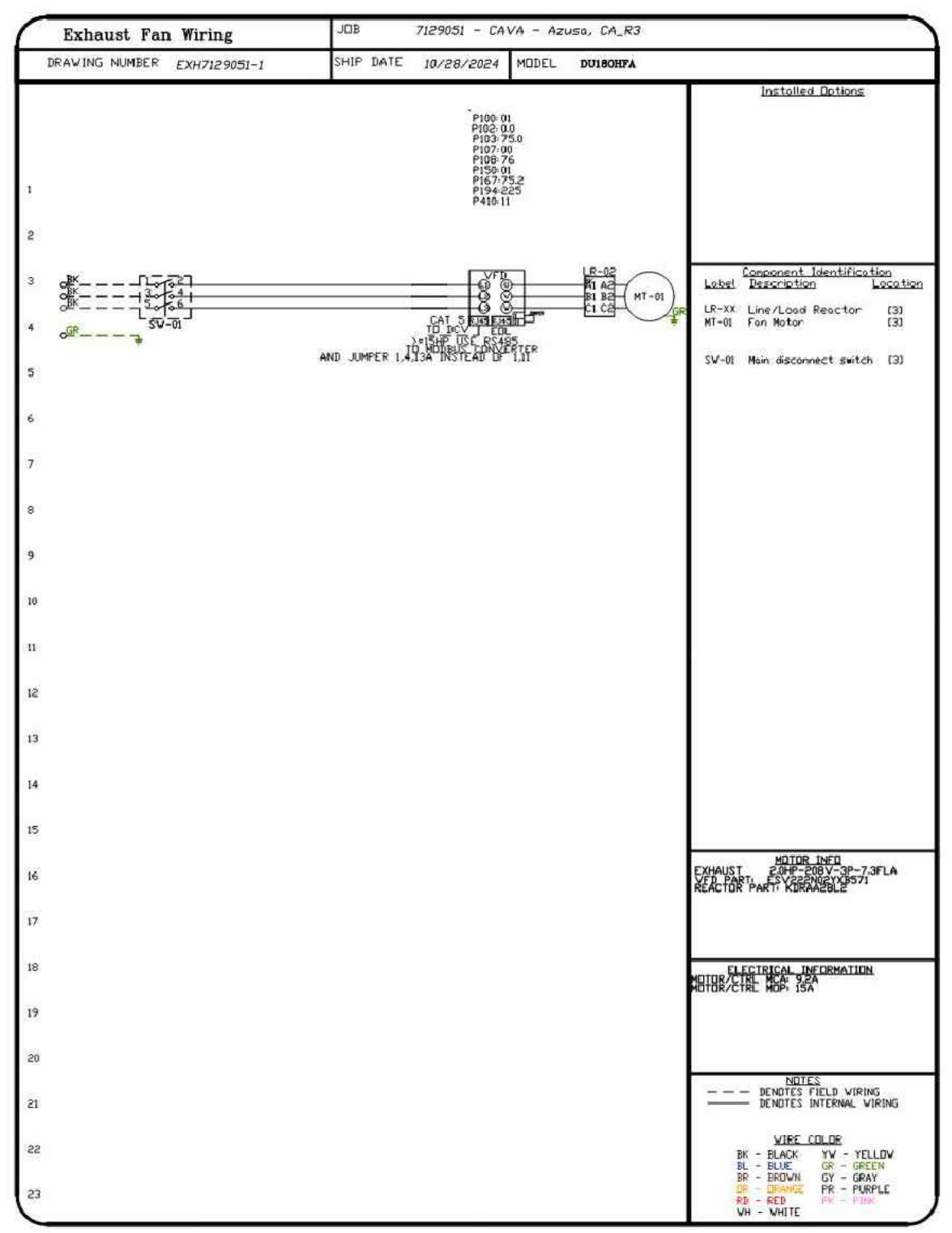
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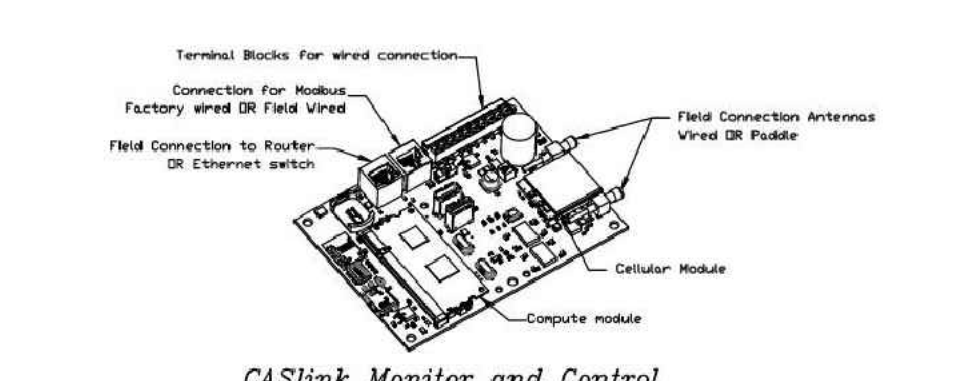
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ELECTRICAL PACKAGE - JOB#7129051

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	#	AMP	VOLTS	FLA
1		DCV-1111	UTILITY CABINET LEFT	UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	EXHAUST	3	2,000	208	7.3
				HOOD # 1	1 FAN		SUPPLY	3	2,000	208	6.1

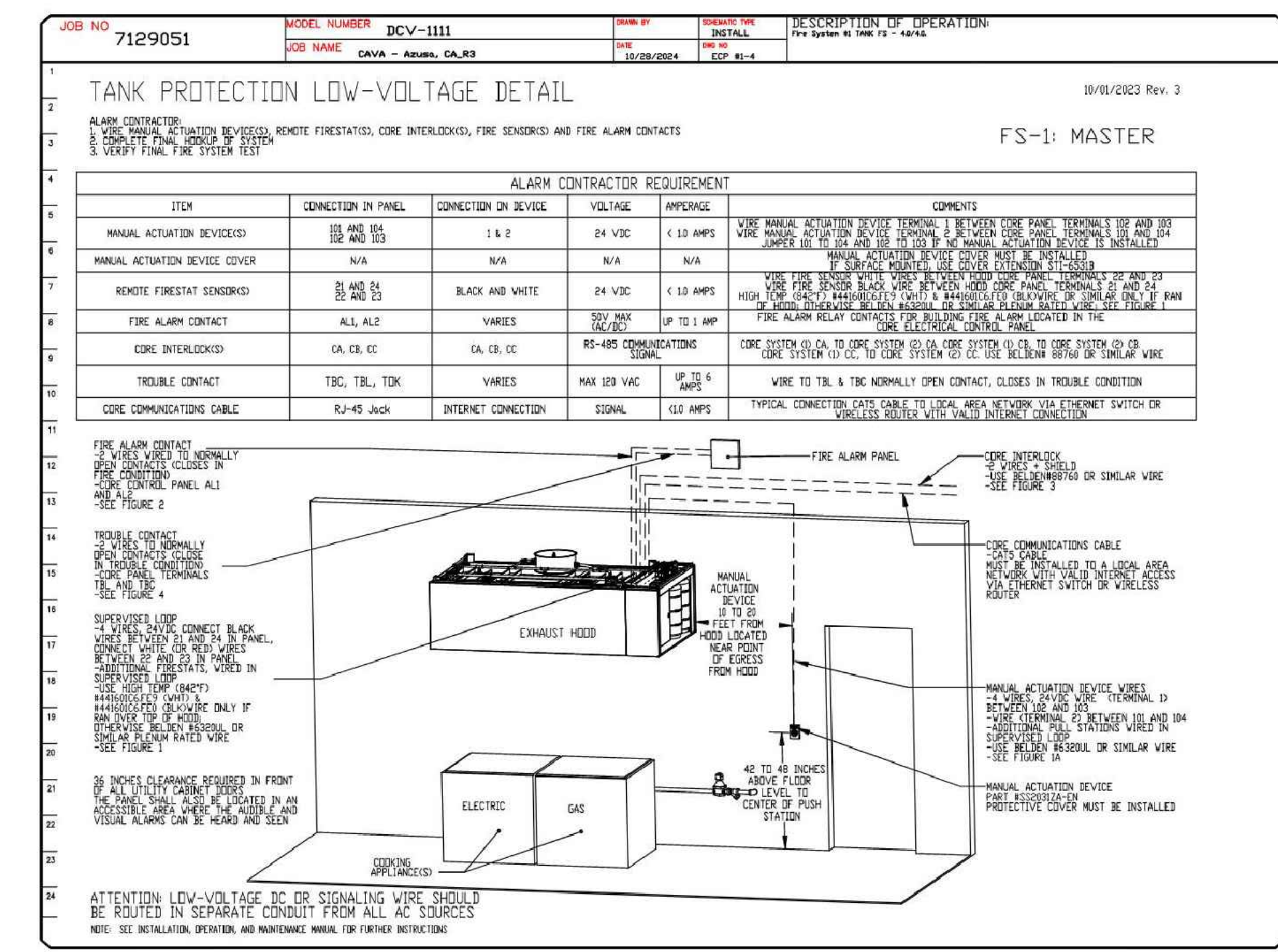
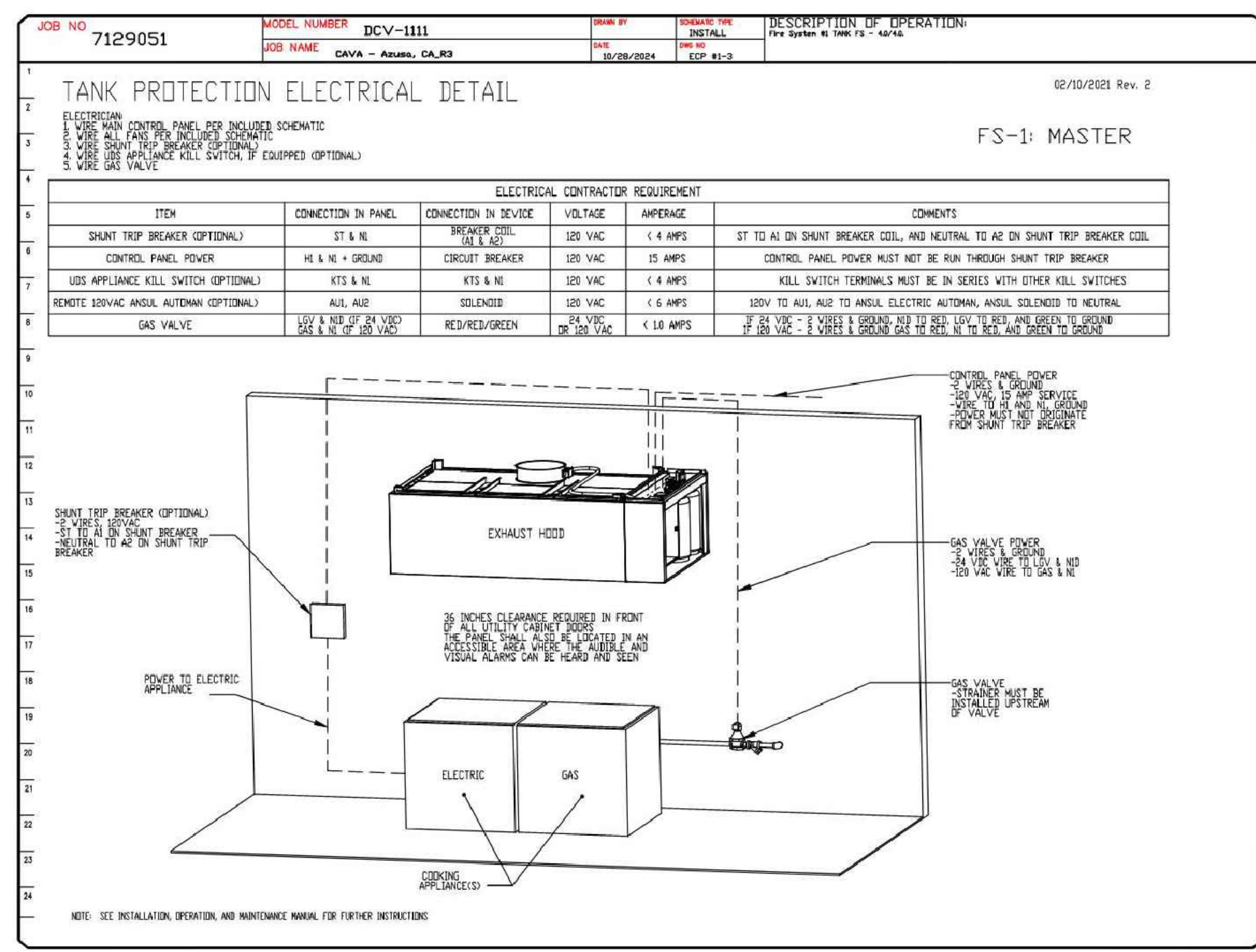
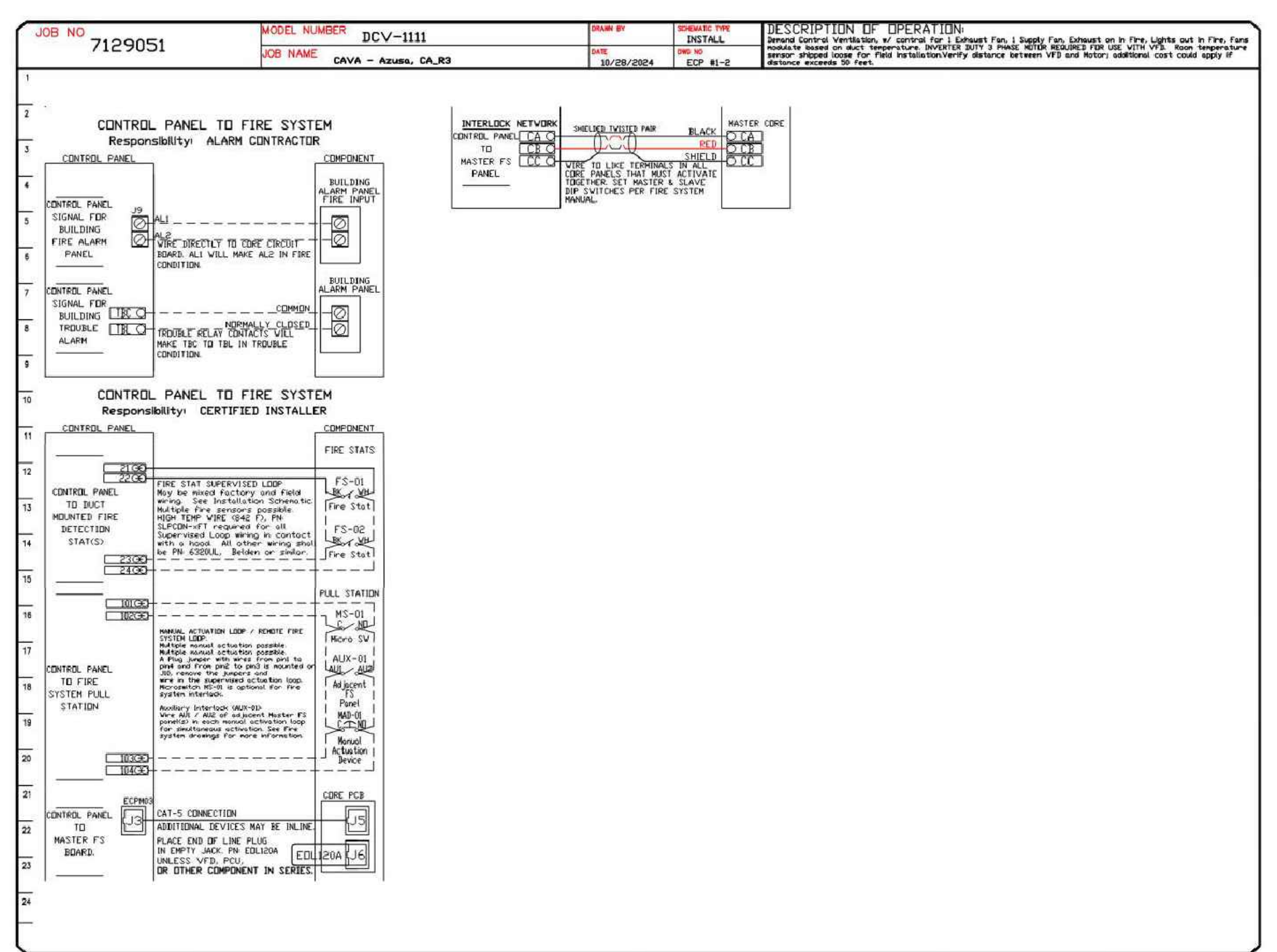
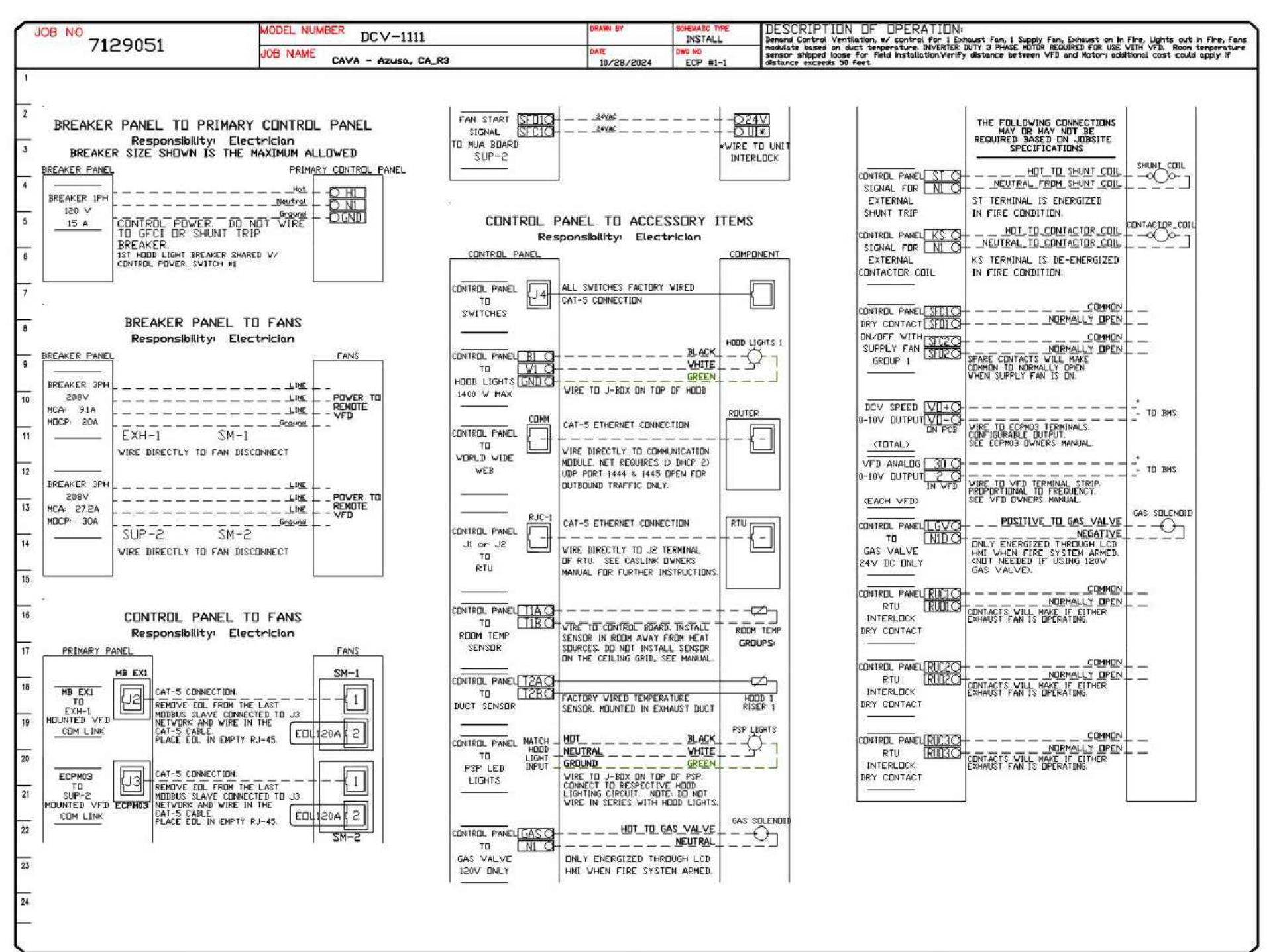


CASlink Monitor and Control

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 Package	Function	DCV Packages	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR	Duct Temperature(s)	MONITOR
WGA Discharge Temperature	MONITOR	WGA Discharge Temperature	MONITOR
Blowdown RTU Discharge Temperature	MONITOR	Blowdown RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Controlled Fan(s)	MONITOR
Fan Amperage	MONITOR	Fan Amperage	MONITOR
Fan Phase	MONITOR	Fan Status	MONITOR
VFD Faults	MONITOR	VFD Faults	MONITOR
Controller Faults	MONITOR	PCV Motor Clap Percentages	MONITOR
Fan Faults	MONITOR	Fan Condition	MONITOR
Fan Status	MONITOR	COSE Fire System	MONITOR
PCV Faults	MONITOR	Building Pressure	MONITOR
PCV Motor Clap Percentages	MONITOR	Fan Status(s)	MONITOR & CONTROL
Fan Status	MONITOR	Alarms Status(s)	MONITOR & CONTROL
Fire Condition	MONITOR	Wash Status	MONITOR & CONTROL
COSE Fire System	MONITOR		
Building Pressure	MONITOR		
Prep Time Status	MONITOR & CONTROL		
Fase Status	MONITOR & CONTROL		
Alarms Status	MONITOR & CONTROL		
Wash Status	MONITOR & CONTROL		

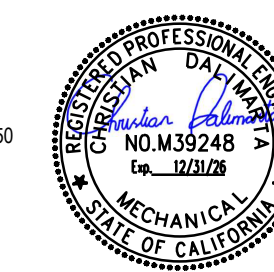


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PROJECT



CAVA Azusa CA

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REVISIONS

DATE	DESCRIPTION
08/02/24	LL PERMIT SET
08/05/24	CITY PERMIT SET
08/28/24	CITY PERMIT SET
09/13/24	BID SET
11/07/24	BLDG & HEALTH PC COMMENT
11/26/24	BLDG PC COMMENT
11/26/24	CONSTRUCTION SET
12/16/24	CONSTRUCTION SET- REVISED
02/28/25	CONSTRUCTION SET- REVISED

AHJ STAMP APPROVAL

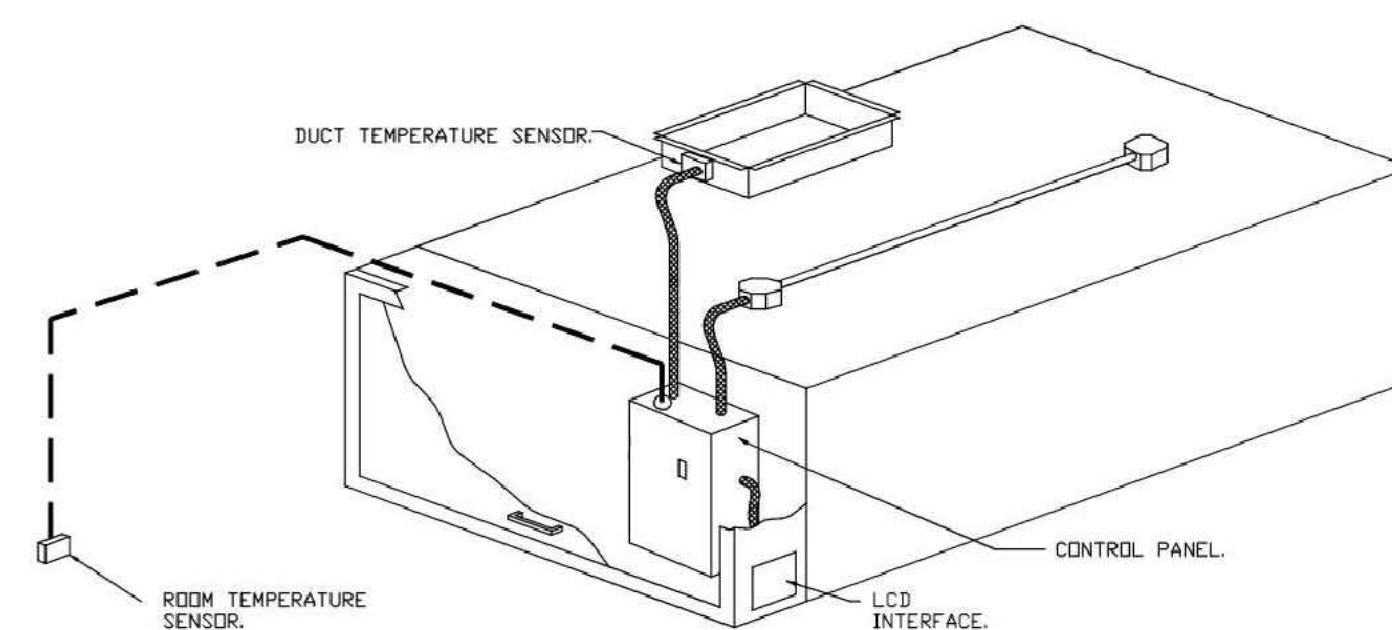
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MECHANICAL DETAILS

Date Modified: 24/11/26
 Date Created: 24/05/28
 Scale: SEE PLAN
 Project No.: 240214
 QA/QC: MV/CD
 CAD File:

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 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.

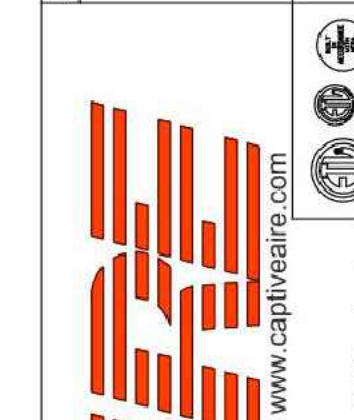
SYSTEM DESIGN VERIFICATION (SDV)

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
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DATE: 10/28/2024
 DWG.#: 7129051
 DRAWN BY: ABS-76
 SCALE: NTS
MASTER DRAWING

SHEET NO.
 10

HANGERS AND SUPPORTS			
MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
CAST-IRON HUBLESS	SHIELDED COUPLING	EVERY OTHER JOINT, UNLESS OVER 4 FEET THEN SUPPORT EACH JOINT	BASE AND EACH FLOOR, NOT TO EXCEED 15 FEET
COPPER & COPPER ALLOY	SOLDERED, BRAZED, THREADED, OR MECHANICAL	3/4 INCH AND SMALLER, 5 FEET 1 INCH TO 2 INCHES, 6 FEET 2-1/2 INCHES AND LARGER, 10 FEET	EACH FLOOR, NOT TO EXCEED 10 FEET
STEEL PIPE FOR GAS	THREADED UP TO 3/2" WELDED 4" OR LARGER	3/4 INCH AND 1 INCH, 5 FEET 1-1/4 INCHES AND LARGER, 10 FEET	1/2 INCH, 6 FEET; 3/4 INCH AND 1 INCH, 8 FEET; 1-1/4 INCHES EVERY FLOOR LEVEL
SCHEDULE 40 PVC AND ABS DWV	SOLVENT CEMENTED	ALL SIZES, 4 FEET; ALLOW FOR EXPANSION EVERY 30 FEET	BASE AND EACH FLOOR; PROVIDE MID-STORY GUIDES; PROVIDE FOR EXPANSION EVERY 30 FEET

PIPING INSULATION SCHEDULE					
PIPE SIZE:	< 1"	1" - 1 1/2"	1 1/2" - 4"	4" TO < 8"	8" & LARGER
INSULATION THICKNESS	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
ALL INSULATION SHALL BE WITH R VALUES OF 4.0 TO 4.6. BASED ON TABLE 120.3-A BUILDING ENERGY EFFICIENCY STANDARDS					

SHEET INDEX	
DWG NO.	DRAWING TITLE
P0.1	PLUMBING LEGEND, GENERAL NOTES AND SHEET INDEX
P0.2	PLUMBING FIXTURE SCHEDULE
P0.3	PLUMBING CALCULATIONS
P0.4	PLUMBING SPECIFICATIONS
P0.5	PLUMBING T-24 FORM
P0.6	PLUMBING T-24 FORM
P2.0	PLUMBING SANITARY SEWER AND VENT PLAN
P2.1	PLUMBING DOMESTIC WATER PLAN
P2.2	PLUMBING GAS PLAN
P3.0	PLUMBING ISOMETRIC DIAGRAMS
P4.0	PLUMBING DETAILS
P4.1	PLUMBING DETAILS

LEGEND		
SYMBOL	ABBREVIATION	DESCRIPTION
—	CW	COLD WATER PIPING
—	HW	HOT WATER PIPING
—	HWR	HOT WATER RECIRCULATION PIPING
—	S OR W	SOIL OR WASTE PIPING BELOW GRADE
—	S OR V	SOIL OR WASTE PIPING ABOVE GRADE
—	V	VENT PIPING
—	CD	CONDENSATE DRAIN PIPING
—	ID	INDIRECT DRAIN PIPING
—	FW	FILTERED WATER
—	SODA	SODA CONDUIT
—	WHA	WATER HAMMER ARRESTOR
—	P.O.C.	POINT-OF-CONNECTION
—		CAPPED
— —		UNION
—○—	UP	PIPE UP
—∩—	DN	PIPE DOWN
—∩—	DN	PIPE TEE DOWN
— —		SHUT-OFF VALVE
— —	CV	CHECK VALVE
— —	RED	REDUCER
—○—	PUMP	
—○—	FCO/GCO	FLOOR CLEANOUT OR GRADE CLEANOUT
— —	CO/WCO	WALL CLEANOUT
— —	BLIND PLUG	REMOVABLE PLUG FOR CONDENSATE PIPING
— —		GAS COCK WITH UNION
— —	PRV	PRESSURE REDUCING VALVE
— —	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
— —	AFF	ABOVE FINISHED FLOOR
— —	BFF	BELOW FINISHED FLOOR
— —	BG	BELOW GROUND
— —	(E)	EXISTING
— —	(N)	NEW
— —	NTS	NOT TO SCALE
— —	IE	INVERT ELEVATION
— —	V.I.F.	VERIFY IN FIELD
— —	(F)	FUTURE
— —	FU	FIXTURE UNIT

MATERIAL SPECIFICATIONS											
SERVICES		CAST IRON NO-HUB	GALV. STEEL SCH 40	BLACK STEEL SCH 40	TYPE L COPPER	TYPE K COPPER	TYPE M COPPER	ABS DWV SCH 40	PVC DWV SCH 40	POLYETHYLENE (PE) YELLOW PIPE	REMARKS
COLD WATER	ABOVE GROUND				•	•					(5)
	BELOW GROUND										(2)
HOT WATER	ABOVE GROUND				•						(4)(5)
	BELOW GROUND					•					(4)
WASTE	ABOVE GROUND	•									(1)(5)
	BELOW GROUND	•									(1)(2)
VENT	ABOVE GROUND	•									(1)(2)
	BELOW GROUND	•									(3)(5)
NATURAL GAS	INDOOR	•									(3)
	OUTDOOR ABOVE GROUND / ROOF	•									(3)
CONDENSATE DRAIN	OUTDOOR BELOW GROUND								•		(6)
	INDOOR						•				(4)(5)(7)
	OUTDOOR						•				(7)(8)

(1) FIELD VERIFY IF ABS DWV PLASTIC IS ALLOWED BY LOCAL AHJ PRIOR TO SUBSTITUTION. PLUMBER SHALL NOT INSTALL PLASTIC PIPING WITHOUT PRIOR APPROVAL FROM THE LOCAL AHJ.
 (2) PROTECT UNDERGROUND PIPING WITH APPROVED POLY WRAP OR PVC 10 MIL PIPE TAPE, EXCEPT FOR PLASTIC PIPING.
 (3) COATED WITH YELLOW ANTI-RUST PAINT.
 (4) INSULATED.
 (5) FOR PLENUM RETURN ONLY, ALL PIPING WITHIN PLENUM TO BE FIRE RATED APPROVED INSULATION.
 (6) PROVIDE WITH 12 GAGE TRACER WIRE WRAP AROUND PE PIPING, TRACER WIRE SHALL BE EXTENDED ABOVE THE RISER TRANSITION FITTINGS AT BOTH ENDS OF PE PIPING.
 (7) FIELD VERIFY IF PVC DWV PLASTIC IS ALLOWED BY LOCAL AHJ PRIOR TO SUBSTITUTION. PLUMBER SHALL NOT INSTALL PLASTIC PIPING WITHOUT PRIOR APPROVAL FROM THE LOCAL AHJ.
 (8) OUTDOOR PLASTIC PIPING SHALL BE PROPERLY WRAP WITH APPROVED 10 MIL TAPE OR COAT WITH APPROVED UV-RESISTANT MATERIALS TO PROTECT THE PIPING FROM UV LIGHT DEGRADATION.

GENERAL NOTES	
1.	PLUMBING CONTRACT DRAWINGS ARE IN PART DIAGRAMMATIC, COVERING THE SCOPE OF WORK AND GENERAL ARRANGEMENT OF THE EQUIPMENT, PIPING, ETC., AND THE APPROXIMATE SIZE OF EQUIPMENT AND MATERIALS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THE PLUMBING WORK. PLUMBING CONTRACTOR SHALL CONSULT GENERAL, SPRINKLER, HEATING/VENTILATING/AIR CONDITIONING CONTRACT AND ELECTRICAL DRAWINGS TO BE FAMILIARIZED WITH THE WORK AND TO VERIFY THE SPACES IN WHICH THE PLUMBING WORK WILL BE INSTALLED.
2.	BECAUSE OF THE NATURE AND SCALE OF THE DRAWINGS, CERTAIN BASIC PLUMBING ITEMS SUCH AS UNIONS, FITTINGS, ELBOWS, ETC., MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED BY OTHER SECTIONS OF THE SPECIFICATIONS, OR WHERE THEY ARE REQUIRED BY THE NATURE OF THE WORK OR BY CODES AND REGULATIONS, THEY SHALL BE FURNISHED AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER. THE DRAWINGS INDICATE GENERAL LOCATIONS OF PIPING, EQUIPMENT, DUCTWORK AND SIMILAR. THE EXACT LOCATION TO BE DETERMINED BY THE CONTRACTOR TO BEST FIT THE LAYOUT OF THE JOB.
3.	ALL EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, AND CHEMICAL OR MECHANICAL INJURY OR THEFT. PLUMBING FIXTURES SHALL BE COVERED WITH HEAVY PAPER COVERINGS AFTER INSTALLATION AND SHALL BE THOROUGHLY CLEANED AFTER COMPLETION OF THE PROJECT.
4.	ALL MATERIALS SUCH AS VALVES, FITTINGS, PIPING, EQUIPMENT, PUMPS, COILS, ETC., SHALL BE PROPERLY PROTECTED, AND ALL PIPING OPENINGS SHALL BE TEMPORARILY CLOSED BY THE CONTRACTOR FOR THE WORK UNDER HIS CHARGE, ON A DAILY BASIS, AT THE END OF EACH WORKING DAY, SO AS TO PREVENT OBSTRUCTION AND DAMAGE. THE ABOVE REQUIREMENTS ARE MANDATORY.
5.	THE CONTRACTOR SHALL SEE THAT ALL MATERIALS, INSTALLATION AND WORKMANSHIP IS PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF ALL APPLICABLE CODES, LAWS, OR ORDINANCES OF THE STATE OF CALIFORNIA, AND LOS ANGELES COUNTY AND LOCAL CODES, CITY OF AZUSA LAWS OR ORDINANCES, INCLUDING ALL STATE OR LOCAL BOARD OF HEALTH, FEDERAL AND STATE ENVIRONMENTAL PROTECTION REGULATIONS, STATE ENERGY CODES AND UTILITY REGULATORY AGENCIES.
6.	ALL WORK SHALL BE FURTHER PERFORMED IN ACCORDANCE WITH THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE PLUMBING AND BUILDING CODES, NATIONAL ELECTRICAL CODE, THE OCCUPATIONAL SAFETY AND HEALTH ACT, THE AMERICAN GAS ASSOCIATION, AND ALL SUCH OTHER SPECIFIC CODES AS MAY BE REFERRED TO IN THE INDIVIDUAL SECTIONS OF THE SPECIFICATIONS.
7.	PIPE SIZES SHOWN ON THE DRAWINGS ARE THE MINIMUM SIZES ALLOWED REGARDLESS OF THE CODE MINIMUM, EXCEPT WHEN THE CODE MINIMUM SIZE IS LARGER THAN THAT SHOWN.
8.	THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONTRACT PRINTS ON THE CONSTRUCTION SITE AT ALL TIMES, ON WHICH HE SHALL ACCURATELY RECORD THE ACTUAL INSTALLATION OF ALL PLUMBING WORK, AS WORK PROGRESSES. MARK CHANGES MADE WHETHER RESULTING FROM JOB CONDITIONS, ADDENDA, FORMAL CHANGE ORDERS OR OTHER INSTRUCTIONS ISSUED BY THE ENGINEER.
9.	THE PLUMBING CONTRACTOR SHALL INDICATE PROGRESS BY COLORING IN VARIOUS PIPES, FIXTURES, AND ASSOCIATED APPURTENANCES EXACTLY AS THEY ARE ERECTED AND INSTALLED.
10.	MARK ALL PIPE SIZES AND LOCATIONS DURING CONSTRUCTION. ALSO, MARK LOCATIONS OF ALL VALVES AND VARIOUS EQUIPMENT, APPARATUS, AND ASSOCIATED APPURTENANCES AS ERECTED WEEKLY DURING CONSTRUCTION.
11.	AT THE COMPLETION OF THE JOB THESE PRINTS, INCORPORATING CHANGES, ADDENDA AND ADDED DATA NOTED ON MARKED-UP PRINTS, INCLUDING DIMENSIONED LOCATIONS OF UNDERGROUND PIPING BEYOND LIMITS OF BUILDING, SHALL BE SUBMITTED TO THE ENGINEER FOR FINAL REVIEW AND COMMENT. THE PRINTS WILL BE RETURNED WITH APPROPRIATE COMMENTS AND RECOMMENDATIONS. THESE CORRECTED PRINTS TOGETHER WITH CORRELATED PRINTS INDICATING ALL THE REVISIONS, ADDITIONS AND DELETIONS OF WORK, SHALL FORM THE BASIS FOR PREPARING A SET OF RECORD DRAWINGS.
12.	WHERE PIPING, AND OTHER PLUMBING APPURTENANCES PASS THROUGH FIRE PARTITIONS, FIRE WALLS, OR FLOORS, INSTALL A FIRE-STOP THAT PROVIDES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE AND GASES. FIRE-STOP MATERIAL SHALL BE UL APPROVED, PACKED TIGHT AND COMPLETELY FILL CLEARANCES BETWEEN RACEWAYS AND OPENINGS. FLOOR, EXTERIOR WALL, AND ROOF SEALS SHALL ALSO BE MADE WATERTIGHT AS APPROVED BY THE ADMINISTRATIVE AUTHORITY.
13.	ARRANGE AND INSTALL PIPING APPROXIMATELY AS INDICATED, STRAIGHT, PLUMB AND AS DIRECT AS POSSIBLE. FORM RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS. KEEP PIPES CLOSE TO WALLS, PARTITIONS AND CEILINGS. OFFSETTING ONLY WHERE NECESSARY TO FOLLOW WALLS AND AVOID INTERFERENCE WITH OTHER MECHANICAL ITEMS. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER; SPACE THEM AT A DISTANCE TO PERMIT ACCESS FOR SERVICING VALVES.
14.	GRADE DRAINAGE AT UNIFORM SLOPE OF NOT LESS THAN 1/4" PER FOOT TOWARD THE POINT OF DISPOSAL. WHEN APPROVED BY ADMINISTRATIVE AUTHORITY, PIPE SIZE 4" AND LARGER MAY HAVE A SLOPE OF NOT LESS THAN 1/8" PER FOOT.
15.	WHERE CHANGES IN PIPE SIZES OCCUR, USE ONLY REDUCING FITTINGS.
16.	FOR DRAINAGE PIPING CHANGES IN DIRECTION, USE LONG SWEEP WHERE POSSIBLE. OTHERWISE, SHORT SWEEP 1/4 BENDS, OR COMBINATION WYE AND 1/8 BENDS; USE SANITARY TEE BRANCHES ONLY FOR HORIZONTAL BRANCHES DISCHARGING TO STACKS.
17.	INSTALL SECTIONALIZING VALVES AND ON EACH BRANCH LINE TO MULTI-FIXTURE GROUPS. LOCATE VALVES IN A READILY ACCESSIBLE LOCATION. DO NOT CONCEAL. DO NOT LOCATE VALVE SYSTEMS BELOW HORIZONTAL UNLESS INDICATED ON PLANS. LOCATE ANGLE STOP VALVES BELOW THE SINK OR WATER CLOSET.
18.	PROVIDE PIPING AND FIXTURE TRAPS. CONNECT TO FIXTURES AND OTHER EQUIPMENT INDICATED OR SPECIFIED AS REQUIRING SOIL, WASTE, DRAIN AND VENT FACILITIES.
19.	LAY ALL PIPING TRUE TO LINE AND GRADE. FIT ENDS TOGETHER, MATCH SO THAT SEWER OR DRAIN WILL HAVE SMOOTH AND UNIFORM INSERT. FOLLOW LOCATIONS AND ELEVATIONS AT SITE. AS THE PIPE LAYING PROGRESSES, CLEAR PIPE INTERIOR OF CEMENT, DIRT, AND OTHER FOREIGN MATERIALS. DURING WORK STOPPAGE PERIODS, PROVIDE EFFECTIVE PLUGS OR COVERS FOR OPEN ENDS OF PIPE AND DRAINS.
20.	PROVIDE CLEANOUTS WHERE INDICATED AND AT INTERVALS OF 100' OR AS REQUIRED BY LOCAL PLUMBING CODE AND WHERE REQUIRED AT CHANGES OF DIRECTIONS OF SOIL AND WASTE STACKS. INSTALL CLEANOUTS SO AS TO BE ACCESSIBLE FOR EASY REMOVAL AND TO PROVIDE CLEARANCE FOR RODDING. CLEANOUTS SHALL BE THE SAME SIZE AS PIPE SERVED EXCEPT THAT NO CLEANOUT NEED BE LARGER THAN FOUR INCHES.
21.	EXTEND VENT PIPES 12 INCHES ABOVE ROOF AND 10FT MINIMUM AWAY FROM ANY FRESH AIR INTAKES AND AT LEAST 24 INCHES AWAY FROM A PARAPET WALL.
22.	SANITARY VENT PIPING SHALL BE GRADED SO THAT THE AIRFLOW TO THE OUTSIDE WILL BE CONTINUOUSLY UPWARD.
24.	VENTS: PROVIDE FLASHING FOR STACKS PASSING THROUGH ROOF. MAKE WATER-TIGHT AT ROOF WITH 4LB. SHEET LEAD; EXTEND INTO ROOFING FELTS AT LEAST 24" FROM PIPES. EXTEND LEAD COLLAR UP AROUND OUTSIDE AND TURN DOWN INSIDE VENTS AT THE TOP. DO NOT LOCATE VENT THROUGH ROOF LESS THAN 24 INCHES FROM A PARAPET WALL.
25.	ALL PLUMBING FIXTURES AND PIPING ARE TO BE LISTED BY AN APPROVED LISTING AND TESTING AGENCY AND PROPERLY LABELED.
26.	COORDINATE ALL LOCATIONS, SIZES, AND ELEVATIONS OF ALL SLEEVES THROUGH WALLS, BEAMS, SLABS AND FOOTING WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS. ALL PIPES SLEEVING THROUGH FOOTINGS SHALL HAVE A SLEEVE DIAMETER OF TWO PIPE SIZES OVER THE PIPE PASSING THROUGH THE FOOTING. NO PIPE TO BE PLACED THROUGH FOOTING UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
27.	ALL PIPES SHALL BE PROTECTED AT THE POINT THEY CROSS BUILDING EXPANSION JOINT, EITHER WITH AN EXPANSION FITTINGS OR IN ANOTHER MANNER ACCEPTABLE TO THE ENGINEER.
28.	FAUCET CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 POUNDS.
29.	PENETRATION OF FLOOR/CEILING ASSEMBLIES AND ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE RATING SHALL BE PROTECTED IN ACCORDANCE WITH THE BUILDING CODE.
30.	WHERE WATER PRESSURE WITHIN A BUILDING EXCEEDS 80 PSI, AN APPROVED WATER-PRESSURE REDUCING VALVE CONFORMING TO ASSE 1003 WITH STRAINER SHALL BE INSTALLED TO REDUCE THE PRESSURE IN THE BUILDING WATER DISTRIBUTION PIPING TO 80 PSI STATIC OR LESS.
31.	DISINFECTATION OF POTABLE WATER SYSTEM SHALL COMPLY WITH THE LOCAL AND THE 2022 CALIFORNIA PLUMBING CODE.
32.	PROPER ACCESS MUST BE PROVIDED FOR THE TESTING AND MAINTENANCE OF THE BACKFLOW PREVENTER.
33.	ALL OVERHEAD PIPING SHALL MAINTAIN AT LEAST 5'-0" CLEARANCE IN FRONT OF THE HVAC SUPPLY AND RETURN OPENINGS.
34.	PLASTIC PIPES ARE NOT PERMITTED TO BE INSTALLED WITHIN THE AIR PLENUM SPACE.
35.	ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
36.	IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
37.	PRIOR OF WORK, THE GENERAL CONTRACTOR AND PLUMBER SHALL PERFORM SCOPING AND THOROUGH INVESTIGATION OF EXISTING SANITARY SEWER SYSTEM TO DETERMINE THE EXACT CONDITION OF PIPING, INVERT ELEVATION AND ROUTING. THE GENERAL CONTRACTOR SHALL SUBMIT A SKETCH OR REPORT TO THE ARCHITECT AND ENGINEER.
38.	NO PLUMBING PIPING SHALL BE DIRECTLY EMBEDDED IN CONCRETE OR MASONRY.
39.	ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.




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SEAL

PROJECT



CAVA Azusa CA

806 E Alosto Ave
Azusa, CA 91702

△	DATE	DESCRIPTION
	08/02/24	LL PERMIT SET
	08/05/24	CITY PERMIT SET
	08/28/24	CITY PERMIT SET
	09/13/24	BID SET
1	11/07/24	BLDG & HEALTH PC COMMENT
2	11/26/24	BLDG PC COMMENT
	11/26/24	CONSTRUCTION SET
3	12/16/24	CONSTRUCTION SET- REVISED
4	02/28/25	CONSTRUCTION SET- REVISED

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PLUMBING LEGEND,
GENERAL NOTES AND
SHEET INDEX

Date Modified: 24/11/26
Date Created: 24/05/28
Scale: NOT TO SCALE
Project No.: 240214
QA/QC: SA
CAD File:

P0.1

KITCHEN EQUIPMENT BY KITCHEN CONSULTANT (SHOWN FOR REFERENCE ONLY)

FIXT. ID	DESCRIPTION	MANUFACTURER	MODEL	ROUGH-IN					REMARKS
				W	V	CW	HW	G	
K-1	MOP SINK W/ FAUCET	HYDROLOGIC ELKAY	B940C	3"	2"	1/2"	1/2"	-	PROVIDE FAUCET WITH VACUUM BREAKER. FLOW RATE: 4.0 GPM. 24" X 24" X 10" MOP SINK BASIN.
K-3	WALK-IN COOLER	-	-	3/4"CD	-	-	-	-	CONDENSATE DRAIN FOR COOLER EVAPORATOR COIL TO INDIRECTLY TERMINATE TO HAND SINK (K-26) TAILPIECE.
K-5	HAND SINK	KROWNE	HS-30L	1-1/2"	2"	1/2"	1/2"	-	FAUCET MAX FLOW 0.5 GPM, PROVIDE 0.5 GPM AERATOR IF REQUIRED.
K-14	WAREWASHER	ECOLAB	E-ULT	2" ID	-	-	1/2"	-	UNDERCOUNTER, LOW TEMPERATURE DISHWASHER. INDIRECT DRAIN TO FLOOR SINK. MUST BE 'ENERGY-STAR' CERTIFIED.
K-17	4-COMPARTMENT SINK w/ (2)FAUCETS	CUSTOM FABRICATION DORMONT MANUFACTURING	KFSMRYBAF-124 LFF-WST8-S12S-R	2" ID	2"	(2)1/2"	(2)1/2"	-	INDIRECT DRAIN CONNECTION TO FLOOR SINK. PROVIDE WITH LEVER WASTE DRAIN FOR EACH BOWL. FAUCET MAX FLOW 1.5 GPM, PROVIDE 1.5 GPM AERATOR IF REQUIRED. PRE-RINSE SPRAY VALVE MAX FLOW 1.2 GPM.
K-19	DROP-IN SINK & FAUCET	CUSTOM FABRICATION DORMONT MANUFACTURING	LFF-DST4-G06S-R	2" ID	-	1/2"	1/2"	-	INDIRECT DRAIN TO FLOOR SINK. PROVIDE WITH LEVER WASTE DRAIN. FAUCET SELECTED BY OWNER / ARCHITECT. MAX FLOW 1.5 GPM, PROVIDE 1.5 GPM AERATOR IF REQUIRED.
K-22	CARBONATOR	BY VENDOR	-	VFY	-	1/2"	-	-	INDIRECT DRAIN TO FLOOR SINK IF REQUIRED. PROVIDE WITH WATER FILTER (K-67) AND BACKFLOW PREVENTION DEVICE (BFP-1)
K-23	WATER FILTER	3M	-	-	-	1/2"	-	-	ICE MACHINE WATER FILTRATION.
K-25	ICE MAKER w/ ICE BIN	HOSHIZAKI	F-801MAJ-C & BIN B-300SF	(2)3/4" ID	-	1/2"	-	-	SEPARATE INDIRECT DRAIN TO FLOOR SINK. PROVIDE WITH WATER FILTER (K-23) AND BACKFLOW PREVENTION DEVICE (BFP-2)
K-26	HAND SINK & FAUCET	CUSTOM FABRICATION DORMONT MANUFACTURING	CG-CTR26 LFF-DST4-G06S-R	2"	2"	1/2"	1/2"	-	FAUCET MAX FLOW 0.5 GPM, PROVIDE 0.5 GPM AERATOR IF REQUIRED.
K-31	PREP TABLE w/ SINK & FAUCET	CUSTOM FABRICATION DORMONT MANUFACTURING	LFF-WST8-S12S-R	2" ID	-	1/2"	1/2"	-	INDIRECT DRAIN TO FLOOR SINK. PROVIDE WITH LEVER WASTE DRAIN. MAX FLOW 1.5 GPM, PROVIDE 1.5 GPM AERATOR IF REQUIRED.
K-44	RANGE	EMPURA	EMHP4-HD	-	-	-	-	3/4"	GAS LOAD: 150,000 BTU.
K-45	GRIDDLE	GARLAND	GTG636-GT36M	-	-	-	-	3/4"	GAS LOAD: 84,000 BTU.
K-46	FRYER	EMPURA	EGF-45/55	-	-	-	-	3/4"	GAS LOAD: 120,000 BTU.
K-66	ICE DISPENSER w/ BEVERAGE HEADS	BY VENDOR	-	3/4" ID	-	1/2"	-	-	INDIRECT DRAIN TO FLOOR SINK. PROVIDE WITH WATER FILTER (K-67) AND WATTS SD-2 DUAL CHECK BACKFLOW PREVENTION DEVICE ASSE 1012 COMPLIANT.
K-67	WATER FILTER	3M	HF160-CLS-3M	-	-	1/2"	-	-	ICE DISPENSER WATER FILTRATION.
K-88	TABLE w/ DRIP THROUGH	SPARKS FABRICATION	CG-BEV68-WAL	1/2" ID	-	-	-	-	INDIRECT DRAIN TO FLOOR SINK.
K-73	WATER DISPENSER	T&S	5GF-12P	-	-	1/2"	-	-	PROVIDE WITH WATER FILTER (K-67) AND WATTS SD-2 DUAL CHECK BACKFLOW PREVENTION DEVICE ASSE 1012 COMPLIANT.
K-80	COLD WELL	WELLS	RCP-300	1" ID	-	-	-	-	INDIRECT DRAIN TO FLOOR SINK.
K-82	COLD WELL	WELLS	RCP-400	1" ID	-	-	-	-	INDIRECT DRAIN TO FLOOR SINK.
K-HS	HAND SINK & FAUCET	-	-	2"	2"	1/2"	1/2"	-	SELECTED BY OTHERS. FAUCET MAX FLOW 0.5 GPM, PROVIDE 0.5 GPM AERATOR IF REQUIRED.

RESTROOM PLUMBING FIXTURE SCHEDULE (BY ARCHITECT / OWNER)

FIXT. ID	DESCRIPTION	MANUFACTURER	MODEL	ROUGH-IN					REMARKS
				W	V	CW	HW	G	
P-1	WATER CLOSET (FLUSH TANK)	KOHLER	HIGHLINE K-3999-T	4"	2"	3/4"	-	-	FLOOR MOUNT, ELONGATED, WHITE, 1.28 GPF, SUPPLY WITH STOP. LEFT-HAND CHROME TRIP LEVER, WITH OLSONITE 99C WHITE OPEN FRONT SEAT LESS COVER
P-7 P-8	LAVATORY w/ FAUCET	KOHLER	BRENHAM-K-1997-1N-K-7514	2"	2"	1/2"	1/2"	-	SELECTED BY ARCHITECT / OWNER. FAUCET SHALL BE SELF-CLOSING OR SELF-CLOSING METERING FAUCET, MAX FLOW 0.2 GPM PER CYCLE. PROVIDE THERMOSTATIC MIXING VALVE (MV-1) BELOW LAVATORY. SET OUTLET TEMPERATURE AT 110°F.

LAPC 94.610.4.1.1, 2, 3

NO MORE THAN 0.6 GALLONS OF COLD WATER WILL BE DISCHARGED FROM ANY GIVEN FIXTURE BEFORE HOT WATER IS EXPELLED. DISTANCES MEASURED FROM THE HOT WATER RETURN TO THE FIXTURES ARE AS FOLLOWS:

PIPE SIZE	INNER DIAMETER	MAX. DISTANCE TO FIXTURE
1/2"	0.545"	49'-6"
3/4"	0.785"	23'-10"
1"	1.025"	14'-0"

LAPC 94.610.4.1.2 WE COMPLY WITH RECIRCULATION SYSTEM.
LAPC 94.610.4.1.3 NOT APPLICABLE, WE ARE COMMERCIAL SPACE, NOT RESIDENTIAL.

LADBS NOTES

- ALL FIXTURES, EQUIPMENT, PIPING, AND MATERIALS SHALL BE LISTED. (LAPC 103.2.1; LAPC 301.2)
- ALL PLUMBING FIXTURES SHALL MEET THE FLOW REQUIREMENTS SPECIFIED IN THE LOS ANGELES PLUMBING CODE. (LAPC 401.3)
- ALL FAUCETS IN PUBLIC RESTROOMS SHALL BE SELF-CLOSING OR SELF-CLOSING METERING FAUCETS. (LAPC 407.2.2)
- PUBLIC LAVATORIES SHALL HAVE CONTROLS TO LIMIT THE WATER TEMPERATURE TO 110°F. (TITLE 24, PART 6 110.3(C)3)
- WATER PIPE AND FITTINGS WITH A LEAD CONTENT WHICH EXCEEDS 0.25% SHALL BE PROHIBITED IN SYSTEMS CONVEYING POTABLE WATER. (LAPC 604.2; HEALTH & SAFETY CODE 116875)

PLUMBING FIXTURE SCHEDULE

FIXT. ID	DESCRIPTION	MANUFACTURER	MODEL	ROUGH-IN					REMARKS
				W	V	CW	HW	G	
GW-1	GAS WATER HEATER	AO SMITH	BTH-150(A)	-	-	1-1/2"	1-1/2"	3/4"	COMMERCIAL GAS HIGH EFFICIENCY WATER HEATER. 150,000 BTU/HR GAS INPUT, 100 GALLONS STORAGE TANK. 223 GPH @ 80°F. COMPLIES WITH BAAQMD LOW NOX REQUIREMENTS. SET OUTLET TEMPERATURE TO 120°F.
RCP-1	HOT WATER RECIRCULATING PUMP	GRUNDFOS	UP15-18B7-TLC	-	-	-	3/4"	-	5 GPM @ 10 FT/HD. 115V, 1PH, 0.77 AMPS, 85 WATTS, 1/25 HP. WITH TIME CLOCK AND AQUASTAT. COMES WITH 6FT POWER CORD. BRONZE CONSTRUCTION. MOUNT IN A VERTICAL POSITION ONLY. COORDINATE TIMER WITH THE CLIENT
ET-1	EXPANSION TANK	AMTROL	ST-12	-	-	3/4"	-	-	4.4 GALL TANK VOLUME. MAX. OPERATING PRESSURE 150PSI, MAX. OPERATING TEMPERATURE 200°F. 11" DIAMETER x 15" HIGH, 3/4" NPTM CONNECTION
MV-1	MIXING VALVE	WATTS	LFUSG-B	-	-	1/2"	1/2"	-	POINT OF USE MIXING VALVE. MOUNT IN ACCESSIBLE LOCATION BELOW LAVATORY SET OUTLET TEMPERATURE AT 110°F.
WHA	WATER HAMMER ARRESTOR	JAY R SMITH	5200 SERIES	-	-	SAME AS PIPE SIZE	-	-	SEE WATER HAMMER ARRESTER SIZING TABLE FOR CORRECT MODEL AND FIXTURE UNIT COUNT. THE PISTON UNIT IS SEAMLESS, FACTORY CHANGED AND IS MAINTENANCE FREE AND DOES NOT REQUIRE ACCESS PANELS.
FCO	FLOOR CLEANOUT	ZURN	ZN-1400	SAME AS PIPE SIZE	-	-	-	-	SAME AS PIPE SIZE. BRONZE COVER.
WCO	WALL CLEANOUT	ZURN	ZN-1468	SAME AS PIPE SIZE	-	-	-	-	SAME AS PIPE SIZE. POLISHED BRONZE
FS-1	FLOOR SINK	GSW	FS-1263	3"	2"	-	-	-	WHITE PORCELAIN ENAMELED CAST IRON FLOOR DRAIN SINK. 3" DRAIN CONNECTION, 12" X 12" X 6" DIMENSIONS.
FD-1	FLOOR DRAIN	ZURN	Z-415S	3"	2"	-	-	-	NICKEL BRONZE STRAINER. CAST IRON, NO-HUB, WITH 1/2" TRAP PRIMER CONNECTION. PROVIDE WIDE FLANGED FOR EPOXY FLOORING.
TP-1	TRAP PRIMER	PPP INC.	PR-500	-	-	1/2"	-	-	PROVIDE 12"x12" WALL ACCESS PANEL.
BFP-1	BACKFLOW PREVENTER	APOLLO	4NLF-334-44	-	-	3/4"	-	-	BACKFLOW PREVENTER FOR CARBONATOR & WATER DISPENSER. ASSE 1024 DUAL CHECK VALVE.
BFP-2	BACKFLOW PREVENTER	WATTS	LF007QT	-	-	3/4"	-	-	BACKFLOW PREVENTER FOR ICE MAKER & ICE DISPENSER. LEAD FREE DOUBLE CHECK VALVE ASSEMBLY.
GI-1	GREASE INTERCEPTOR	SCHIER	GB-1500	4" IN 4" OUT	2"	-	-	-	1,500 GALLONS, 10,061 LBS CAPACITY GRAVITY GREASE INTERCEPTOR. SEE P0.3 FOR CALCULATIONS PROVIDE WITH HEAVY DUTY TRAFFIC RATED COVERS. FLOW CONTROL NOT REQUIRED. INSTALL PER MANUFACTURER INSTRUCTIONS AND LOCAL AHJ RULES.

LA DBS
DEPARTMENT OF BUILDING AND SAFETY

PLUMBING FIXTURE FLOW RATES FORM GRN 17

Non-Residential Occupancies
2020 Los Angeles Green Building Code
(Incorporate this form into the plans)

SECTION 5.303.2 WATER REDUCTION FIXTURE FLOW RATES

FIXTURE TYPE	MAXIMUM ALLOWABLE FLOW RATE
Showerheads	1.8 gpm @ 80 psi
Lavatory faucets, residential	1.2 gpm @ 60 psi ^{1,3}
Lavatory Faucets, nonresidential	0.4 gpm @ 60 psi ^{1,3}
Kitchen faucets	1.5 gpm @ 60 psi ^{2,4,5}
Wash fountains	1.8 gpm for every 20 in. of rim space @60 psi
Metering faucets	0.2 gallons/cycle
Metering faucets for wash fountains	0.2 gpm for every 20 in. of rim space @ 60 psi
Gravity tank type water closets	1.28 gallons/flush ⁶
Flushometer tank water closets	1.28 gallons/flush ⁶
Flushometer valve water closets	1.28 gallons/flush ⁶
Urinals	0.125 gallons/flush
Clothes Washers	ENERGY-STAR certified
Dishwashers	ENERGY-STAR certified

¹ Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.
² Kitchen faucets may temporarily increase flow above the maximum rate, but not above 2.2gpm @ 60psi and must default to a maximum flow rate of 1.8 gpm @ 60psi.
³ Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.
⁴ Kitchen faucets with a maximum 1.8 gpm flow rate may be installed in buildings that have water closets with a maximum flush rate of 1.06 gallons/flush installed throughout.
⁵ This requirement does not apply to faucets in commercial kitchens.
⁶ Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
 Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.
 Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

WATER HAMMER ARRESTER SIZING

PDI SYMBOL MODEL #	A	B	C	D	E	F
5205	5210	5220	5230	5240	5250	
FIXTURE UNIT RATING	1-11	12-32	33-60	61-113	114-154	155-330

FIGURE NUMBERS ARE THOSE OF JAY R SMITH HYDROTROL SERIES

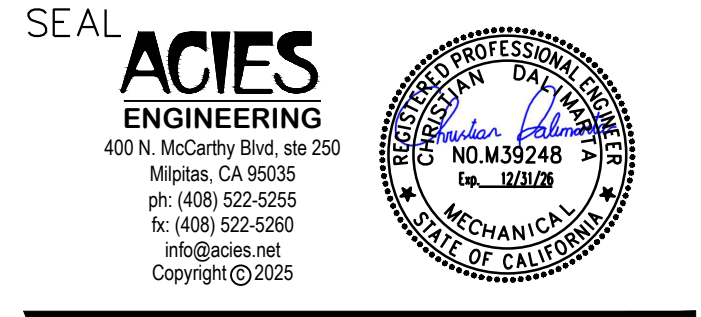


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