

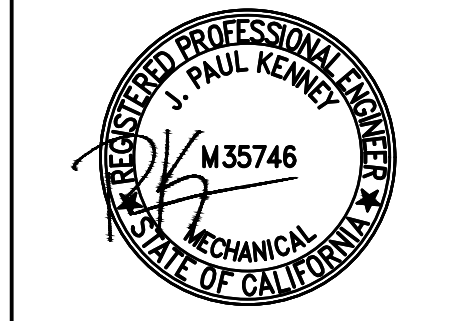
LEGEND	
SYMBOLS	DESCRIPTION
X1 X2	DIFFUSER, GRILLE, REGISTER OR LOUVER TAG X1 = TYPE, X2 = CFM
	POSITIVE PRESSURE (AIR GOES OUT) DIFFUSER OR REGISTER, 4-WAY AIR PATTERN (UNLESS OTHERWISE NOTED)
	NEGATIVE PRESSURE (AIR GOES IN) GRILLE
	POSITIVE PRESSURE AIRFLOW (TYP. SUPPLY)
	NEGATIVE PRESSURE AIRFLOW (TYP. RETURN/EXHAUST)
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER (MVD)
	BACKDRAFT DAMPER (BDD)
	VERTICAL (TYP. WALL) FIRE DAMPER
	VERTICAL (TYP. WALL) COMBINATION FIRE/SMOKE DAMPER
	HORIZONTAL (TYP. FLOOR/CEILING) FIRE DAMPER
	HORIZONTAL (TYP. FLOOR/CEILING) COMBINATION FIRE/SMOKE DAMPER
	THERMOSTAT
	HUMIDISTAT
	REMOTE TEMPERATURE SENSOR
	INTERNALLY LINED DUCT
	DUCT UP
	DUCT DOWN
	SUPPLY DUCT
	EQUIPMENT TYPE EQUIPMENT NUMBER, WHERE A LETTER IS USED, THERE ARE MULTIPLE INSTANCES.

ABBREVIATIONS			
ABB	DESCRIPTION	ABB	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	M	MOTOR
BDD	BACKDRAFT DAMPER	MA	MAKE-UP AIR
AHU	AIR HANDLING UNIT	MAU	MAKE-UP AIR UNIT
CO2	CARBON DIOXIDE	MAV	MANUAL AIR VENT
CU	CONDENSING UNIT	MBH	1,000 BTU PER HR
D	CONDENSATE DRAIN	MFCU	MINI FAN COIL UNIT
DB	DRY BULB	MHP	MINI HEAT PUMP
DH	DEHUMIDIFIER	MVD	MANUAL VOLUME DAMPER
EA	EXHAUST AIR	NC	NORMALLY CLOSED
EAT	ENTERING AIR TEMPERATURE	NO	NORMALLY OPEN
EDH	ELECTRIC DUCT HEATER	OA	OUTSIDE AIR
EF	EXHAUST FAN	OBD	OPPOSED BLADE DAMPER
ESP	EXTERNAL STATIC PRESSURE	PIU	POWER INDUCTION UNIT
EW1	ELECTRIC WALL HEATER	RA	RETURN AIR
F	DEGREES FAHRENHEIT	RH	RELIEF HOOD
FCU	FAN COIL UNIT	RTU	ROOFTOP UNIT
FD	FIRE DAMPER	SA	SUPPLY AIR
FSD	COMBINATION FIRE/SMOKE DAMPER	SP	STATIC PRESSURE
FURN	FURNACE	U.N.O	UNLESS NOTED OTHERWISE
H	HUMIDISTAT	UC	UNDER CUT DOOR
IH	INTAKE HOOD	VAV	VARIABLE AIR VOLUME
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LWT	LEAVING WATER TEMPERATURE	WL	WALL LOUVER

SPECIFICATIONS	
<b>EXISTING CONDITIONS:</b>	
CONTRACTOR SHALL VISIT THE SITE AND UNDERSTAND JOB CONDITIONS BEFORE SUBMITTING A PROPOSAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND SIZES OF ALL EXISTING UTILITY SERVICES PRIOR TO SUBMITTING HIS PROPOSAL. NO CONSIDERATION WILL BE GIVEN TO CLAIMS FOR EXTRA COST ARISING FROM CONTRACTOR'S FAILURE TO BE FULLY COGNIZANT OF JOB OR SITE CONDITIONS EXISTING AT TIME OF ACCEPTANCE OF BID.	
ACTIVE SERVICES: WHEN ENCOUNTERED IN WORK, PROTECT, BRACE, SUPPORT EXISTING ACTIVE SEWERS, GAS AND OTHER SERVICES REQUIRED FOR PROPER EXECUTION OF WORK. IF EXISTING ACTIVE SERVICES ARE ENCOUNTERED THAT REQUIRE RELOCATION, RELOCATE AS APPROVED. DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES THAT ARE TO REMAIN.	
INACTIVE SERVICES: WHEN ENCOUNTERED IN WORK, REMOVE, CAP OR PLUG INACTIVE SERVICES, AS INDICATED.	
INTERRUPTION OF SERVICES: WHERE WORK MAKES TEMPORARY SHUT-DOWNS OF SERVICES UNAVOIDABLE, SHUT DOWN AT NIGHT, OR AT SUCH TIMES AS APPROVED BY OWNER, WHICH WILL CAUSE LEAST INTERFERENCE WITH ESTABLISHED OPERATING ROUTINE. ARRANGE WORK TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING TIME ACTUALLY REQUIRED TO MAKE NECESSARY CONNECTION TO EXISTING WORK.	
WHERE EXISTING WALLS, CEILINGS, FLOORS, ETC., ARE CUT OR OTHERWISE DAMAGED DURING CONSTRUCTION, REPAIR ALL SURFACES TO THEIR ORIGINAL CONDITION.	
<b>SHOP DRAWINGS:</b>	
SUBMIT SHOP DRAWINGS FOR REVIEW. PDF FILES PREFERRED. SHOP DRAWINGS SHALL BE BOUND INTO VOLUMES (FILES), WITH EACH VOLUME (FILE) CONTAINING ONE COPY OF ALL SHOP DRAWINGS. ALL SHOP DRAWINGS SHALL BE SUBMITTED SIMULTANEOUSLY; NO SHOP DRAWINGS WILL BE CHECKED UNTIL ALL HAVE BEEN SUBMITTED.	
SUBMITTALS SHALL BE SUPPORTED BY DESCRIPTIVE MATERIAL, SUCH AS CATALOG CUTS, DIAGRAMS, PERFORMANCE CURVES AND CHARTS PUBLISHED BY THE MANUFACTURER, TO SHOW CONFORMANCE TO SPECIFICATION AND DRAWING REQUIREMENTS; MODEL NUMBERS ALONE WILL NOT BE ACCEPTABLE. ALL LITERATURE SHALL CLEARLY INDICATE THE SPECIFIED MODEL NUMBER, DIMENSIONS, ARRANGEMENT, RATING AND CHARACTERISTICS OF THE PROPOSED EQUIPMENT. CAPACITIES AND RATINGS SHALL BE BASED ON CONDITIONS INDICATED OR SPECIFIED HEREIN. ANY DEVIATIONS FROM SPECIFIED EQUIPMENT (PARTICULARLY THOSE WHICH REQUIRE COORDINATION WITH OTHER TRADES) SHALL BE CLEARLY NOTED IN A CONCISE LIST ON A SEPARATE SHEET.	
<b>TEST AND BALANCE:</b>	
TEST AND BALANCE (TAB) CONTRACTOR SHALL HOLD A CURRENT NATIONAL BALANCING COUNCIL (NBC) CERTIFICATION AND POSSESS ACCURATE AND CALIBRATED INSTRUMENTS. TAB WORK AND REPORTS SHALL BE PER NBC PRACTICAL STANDARDS, PROCEDURES AND FORMS. ACCEPTABLE ALTERNATIVE TAB FIRM CERTIFICATIONS/PROCEDURES: NEBB, AABC, OR TABB.	
PRIOR TO COMMENCEMENT OF THE TAB WORK, THE MECHANICAL SYSTEMS ARE TO BE STARTED AND FULLY FUNCTIONING. A CHECKLIST PRIOR TAB WORK IS TO BE SENT TO THE INSTALLING CONTRACTOR AND RETURNED ATTESTING TO THE READINESS OF THE SYSTEMS FOR BALANCING.	
PREFERRED TAB FIRM: P-TAB.COM	
<b>GUARANTEE:</b>	
GUARANTEE THAT EACH PIECE OF APPARATUS SHALL BE OF THE CUSTOMARY STANDARD AND QUALITY FURNISHED BY THE DESIGNED MANUFACTURER FOR THAT CATALOG NUMBER.	
GUARANTEE THAT THE AIR SYSTEMS SHALL OPERATE WITHOUT AERODYNAMIC NOISE GENERATED FROM THE FAULTY INSTALLATION OF DUCT WORK OR ANY COMPONENT OF THE AIR DISTRIBUTION SYSTEM.	
GUARANTEE THAT ALL SYSTEMS AND COMPONENTS SHALL BE PROVIDED WITH A ONE YEAR WARRANTY FROM THE TIME OF DATE OF SUBSTANTIAL COMPLETION. THE WARRANTY SHALL COVER ALL MATERIALS AND WORKMANSHIP. DURING THIS WARRANTY PERIOD, ALL DEFECTS IN MATERIALS AND WORKMANSHIP SHALL BE CORRECTED BY REPAIR OR REPLACEMENT WITHOUT INCURRING ADDITIONS TO THE CONTRACT.	
<b>GENERAL NOTES:</b>	
REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT.	
ALL DUCT DIMENSIONS INDICATED IN THESE DOCUMENTS ARE INSIDE-CLEAR DIMENSIONS.	
PORTIONS OF DUCTWORK OR PIPING VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK. PAINT BLACK BEHIND ALL GRILLES.	
ALL WIRING IN THE CEILING PLENUM SHALL BE PLENUM RATED CABLE.	
MOUNTING FRAME OF CEILING MOUNTED AIR DISTRIBUTION DEVICES SHALL BE COMPATIBLE WITH CEILING TYPE. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE.	
ALL FIRE SEPARATIONS MUST BE PROTECTED WHEN APPLICABLE.	
PROVIDE NEW FILTERS (MERV 7 OR BETTER PER OWNER) FOR ALL APPLICABLE HVAC EQUIPMENT AT THE END OF CONSTRUCTION.	
ALL MATERIAL IN PLENUM MUST MEET FIRE AND SMOKE SPREAD AS REQUIRED BY NFPA 90A.	
ALL ROOF PENETRATIONS TO BE 12" APART AND AT LEAST 12" AWAY FROM CURBS, WALLS, AND DRAIN SUMPS TO PROVIDE ROOFING CONTRACTOR WITH SUFFICIENT ACCESS FOR FLASHING EACH ROOF PENETRATION.	
SUBSTITUTIONS MUST BE APPROVED IN WRITING BY ARCHITECT PRIOR TO BID SUBMISSION.	
CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS AND SHALL BE FAMILIAR WITH THE SCOPE AND REQUIREMENTS OF THIS PROJECT. ANY DISCREPANCIES OR LACK OF CLARITY IN THE DOCUMENTS SHALL BE IDENTIFIED TO THE ARCHITECT OR ENGINEER PRIOR TO THE SUBMISSION OF PRICING BIDS. WITH A SUBMITTED BID, CONTRACTOR IS ACCEPTING THESE DOCUMENTS AS SUFFICIENT DEFINITION OF THE SCOPE OF WORK, AND ANY ADDITIONAL COSTS BASED ON UNCLEARITY OF CONTRACT DOCUMENTS WILL NOT BE CONSIDERED.	
THE CONTRACTOR SHALL REFERENCE THE FULL SET OF CONSTRUCTION DOCUMENTS DURING PRICING AND CONSTRUCTION FOR COORDINATION BETWEEN DISCIPLINES RELATIVE TO THE MECHANICAL SCOPE.	
<b>GREASE DUCT SYSTEM:</b>	
GREASE EXHAUST DUCTWORK SHALL BE FACTORY FABRICATED EQUAL TO SELKIRK METALBESTOS ZEROCLEAR MODEL IPS-23. INSTALL DUCTWORK IN ACCORDANCE WITH UL 1978 AND UL 2221 INSTALLATION INSTRUCTIONS. COMPLETE SYSTEM, FROM HOOD OUTLETS TO FAN INLET SHALL, INCLUDE TRANSITIONS TO HOOD OUTLETS, ADJUSTABLE PIPE LENGTHS, SUPPORT PLATES, GUIDE RINGS, ACCESS DOORS, AND THRU WALL FIRE STOP PENETRATIONS. MODEL IPS-G1 OR MODEL G MAY BE USED WHERE CLEARANCES PERMIT.	
VOLUNTARY ALTERNATE GREASE DUCT AND WRAP SYSTEM:	
INSTALL CARBON STEEL OF MINIMUM 1/8 GAUGE OR STAINLESS STEEL MINIMUM 1/8 GAGE IN STRICT ACCORDANCE WITH NFPA-96. THE ENTIRE DUCT SYSTEM, FROM HOOD OUTLETS TO FAN INLET, SHALL BE WRAPPED WITH ASTM-B144 CERTIFIED DUCT WRAP FOR ZERO CLEARANCE TO COMBUSTIBLES. FOLLOW DUCT WRAP MANUFACTURERS INSTRUCTIONS FOR INSTALLATION AND THROUGH WALL PENETRATIONS.	

SPECIFICATIONS	
<b>DUCTWORK AND ACCESSORIES:</b>	
INDUSTRY STANDARDS: COMPLY WITH SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION) HVAC DUCT CONSTRUCTION STANDARDS, RECOMMENDATIONS FOR FABRICATION, GAUGES, CONSTRUCTION AND DETAILS, AND INSTALLATION PROCEDURES, EXCEPT AS OTHERWISE INDICATED.	
COMPLY WITH ASHRAE (AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS) FUNDAMENTALS HANDBOOK RECOMMENDATIONS, EXCEPT AS OTHERWISE INDICATED.	
DUCTWORK METAL AND GAUGES: EXCEPT AS OTHERWISE INDICATED, FABRICATE DUCTWORK FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A527. LOCKFORMING QUALITY, WITH ASTM A525 690 ZINC COATING, MILL PHOSPHATIZED. GAUGES TO COMPLY WITH SMACNA STANDARDS.	
DUCT SEALANT: NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT (TYPE APPLICABLE FOR THE FABRICATION/INSTALLATION DETAIL) AS COMPOUNDED AND RECOMMENDED BY THE MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK.	
DUCTWORK SUPPORT MATERIALS: EXCEPT AS OTHERWISE INDICATED, PROVIDE UPPER ATTACHMENT, HANGERS OF GALVANIZED STEEL STRAPS, OR STEEL RODS AND LOWER ATTACHMENT FOR SUPPORT OF DUCTWORK. HANGING/SUPPORT SYSTEMS SHALL BE IN ACCORDANCE WITH SMACNA REQUIREMENTS.	
EXPOSED DUCTWORK SHALL BE DOUBLE-WALL SPIRAL PIPE WITH PAINT GRIP UNLESS OTHERWISE NOTED OR SUBSTITUTION APPROVED BY OWNER.	
VOLUNTARY ALTERNATE EXPOSED DUCTWORK SHALL BE SINGLE-WALL SPIRAL PIPE UNLESS OTHERWISE NOTED OR SUBSTITUTION APPROVED BY OWNER. ALL EXPOSED DUCTWORK SHALL BE LINED IN LIEU OF WRAPPED. DUCT LINER THERMAL RESISTANCE SHALL MEET THE MINIMUM VALUES SPECIFIED IN PARAGRAPH DUCT INSULATION BELOW.	
DUCTWORK LOCATED OUTSIDE OF THE BUILDING ENVELOPE SHALL BE THERMADUCT PRODUCTS OR COVERED WITH 3M VENTURECLAD JACKETING, OR EQUAL PRODUCT, AND SEALED WEATHER-TIGHT.	
<b>DUCT INSULATION:</b>	
R-G SUPPLY, OUTSIDE AND RETURN AIR DUCT INSULATION IN CONDITIONED AND UNCONDITIONED SPACES	
R-8 SUPPLY AND RETURN AIR DUCT INSULATION OUTSIDE THE BUILDING	
R-8 INSULATION BETWEEN DUCTS AND THE BUILDING EXTERIOR WHEN DUCTS ARE PART OF A BUILDING ASSEMBLY	
<b>DIFFUSERS, GRILLES, &amp; REGISTERS:</b>	
EGGCRATE GRILLE:	
RETURN GRILLES SHALL BE TITUS MODEL 50F FOR THE SIZES AND MOUNTING TYPES AS SHOWN ON THE PLANS AND OUTLET SCHEDULE. RETURN GRILLES MUST PROVIDE A FREE AREA OF AT LEAST 90%. OUTER BORDERS SHALL BE CONSTRUCTED OF HEAVY EXTRUDED ALUMINUM WITH A THICKNESS OF 0.040-0.050 INCH AND SHALL HAVE COUNTERSUNK SCREW HOLES FOR A NEAT APPEARANCE. BORDER WIDTH SHALL BE 1/4 INCHES ON ALL SIDES AND SHALL BE INTERLOCKED AT THE FOUR CORNERS AND MECHANICALLY STAKED TO FORM A RIGID FRAME. CHOICE OF THREE SIZES OF ALUMINUM GRID: 1/2 X 1/2 X 1/2 INCH, 1/2 X 1/2 X 1 INCH, OR 1 X 1 X 1 INCH SHALL BE AVAILABLE.	
OPTIONAL OPPOSED-BLADE VOLUME DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL OR ALUMINUM. DAMPER MUST BE OPERABLE FROM THE FACE OF THE GRILLE.	
<b>PLAQUE DIFFUSERS:</b>	
ARCHITECTURAL SQUARE PANEL CEILING DIFFUSERS SHALL BE OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE. THE FACE PANEL IS REMOVABLE BY MEANS OF FOUR HANGER BRACKETS. THE EXPOSED SURFACE OF THE FACE PANEL SHALL BE SMOOTH, FLAT, AND FREE OF VISIBLE FASTENERS.	
THE BACK OF THE FACE PANEL SHALL HAVE AN AERODYNAMICALLY SHAPED, ROLLED EDGE TO ENSURE A TIGHT HORIZONTAL DISCHARGE PATTERN. CEILING DIFFUSERS WITH A 24 X 24-INCH FULL FACE SHALL HAVE NO LESS THAN AN 1/8 X 1/8-INCH FACE PANEL SIZE. CEILING DIFFUSERS WITH A 12 X 12-INCH FULL FACE SHALL HAVE NO LESS THAN A 9 X 9-INCH FACE PANEL SIZE.	
THE BACKPAN SHALL BE ONE PIECE PRECISION DIE-STAMPED AND SHALL INCLUDE AN INTEGRALLY DRAWN INLET. THE DIFFUSER NECK SHALL HAVE A MINIMUM OF 1/4-INCH DEPTH AVAILABLE FOR DUCT CONNECTION.	
THE FINISH SHALL BE #26 WHITE. THE FINISH SHALL BE AN ANODIC ACRYLIC PAINT, BAKED AT 315°F FOR 30 MINUTES. THE PENCIL HARDNESS MUST BE HB TO H.	
THE PAINT MUST PASS A 100-HOUR ASTM B117 CORROSIVE ENVIRONMENTS SALT SPRAY TEST WITHOUT CREPAGE, BLISTERING OR DETERIORATION OF FILM. THE PAINT MUST PASS A 250-HOUR ASTM D870 WATER IMMERSION TEST. THE PAINT MUST ALSO PASS THE ASTM D2794 REVERSE IMPACT CRACKING TEST WITH A 50-INCH POUND FORCE APPLIED.	
OPTIONAL ROUND DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL. DAMPER MUST BE OPERABLE FROM THE FACE OF THE DIFFUSER. OPTIONAL DIRECTIONAL BLOW CLIPS SHALL BE AVAILABLE TO RESTRICT THE DISCHARGE AIR IN CERTAIN DIRECTIONS.	
OPTIONAL MOLDED INSULATION BLANKET SHALL BE AVAILABLE. THE INSULATION WILL BE R-6, FOIL-BACKED, AND PROVIDE AN ADDITIONAL 1-INCH GAP AROUND THE NECK TO INSTALL INSULATED FLEX DUCT.	
THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE SQUARE PANEL DIFFUSER. THE DIFFUSER SHALL BE TESTED IN ACCORDANCE WITH ANSI/ASHRAE STANDARD 70-1991.	

SPECIFICATIONS	
<b>HEAT PUMP:</b>	
EQUIPMENT: FACTORY ASSEMBLED, SINGLE PIECE, AIR-COOLED HEAT PUMP UNIT. CONTAINED WITHIN THE UNIT ENCLOSURE IS ALL FACTORY WIRING, PIPING, CONTROLS, COMPRESSOR, REFRIGERANT CHARGE, AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START-UP.	
UNIT CABINET WILL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED, AND COATED WITH A POWDER COAT PAINT.	
CONDENSER FAN WILL BE DIRECT-DRIVE PROPELLER TYPE, DISCHARGING AIR UPWARD. CONDENSER FAN MOTORS WILL BE TOTALLY ENCLOSED, 1-PHASE TYPE WITH CLASS B INSULATION AND PERMANENTLY LUBRICATED BEARINGS. SHAFTS WILL BE CORROSION RESISTANT. FAN BLADES WILL BE STATICALLY AND DYNAMICALLY BALANCED. CONDENSER FAN OPENINGS WILL BE EQUIPPED WITH STEEL WIRE SAFETY GUARDS.	
COMPRESSOR WILL BE HERMETICALLY SEALED. COMPRESSOR WILL BE MOUNTED ON RUBBER VIBRATION ISOLATORS.	
CONDENSER COIL WILL BE AIR COOLED. COIL WILL BE CONSTRUCTED OF ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBES WHICH ARE THEN CLEANED, DEHYDRATED, AND SEALED.	
REFRIGERATION CIRCUIT COMPONENTS WILL INCLUDE LIQUID-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, VAPOR-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, SYSTEM REFRIGERANT CHARGE, POE COMPRESSOR OIL, ACCUMULATOR, AND REVERSING VALVE.	
SEE SCHEDULE FOR LIST OF ACCEPTABLE MANUFACTURERS.	
<b>FAN COIL UNIT:</b>	
GENERAL: EXCEPT AS OTHERWISE INDICATED, PROVIDE FAN COIL UNIT MANUFACTURER'S STANDARD MATERIALS AND COMPONENTS AS INDICATED BY PUBLISHED PRODUCT INFORMATION, DESIGNED AND CONSTRUCTED AS RECOMMENDED BY MANUFACTURER, AND AS REQUIRED FOR A COMPLETE INSTALLATION.	
COOLING COILS: EXCEPT AS OTHERWISE INDICATED, PROVIDE MANUFACTURER'S STANDARD COIL OF INDICATED TYPE AND RATED FOR INDICATED CAPACITY. COPPER TUBE COILS, MECHANICALLY EXPANDED INTO ALUMINUM PLATE FINS; RATED AT 250 PSIG AND LEAK TESTED AT 350 PSIG MIN. AIR PRESSURE. PROVIDE MANUAL AIR VENTS.	
ELECTRIC HEATING COILS SHALL BE AN OPEN GRID TYPE WITH FACTORY INSTALLED HIGH LIMIT CONTROL. HEATER SHALL BE FULLY ACCEPTABLE THROUGH THE DISCHARGE GRILLE OPENINGS.	
THE FAN SHALL BE A CENTRIFUGAL, FORWARD CURVED, DOUBLE WIDTH, DOUBLE INLET, DIRECT DRIVE TYPE. BALANCED STATICALLY AND DYNAMICALLY, AND OF INDICATED CAPACITY.	
MOTORS SHALL BE OF INDICATED CAPACITY, 3 SPEED, PERMANENT SPLIT CAPACITOR, INSTALLED FOR EASY REMOVAL. PROVIDE MOTORS WITH AUTOMATIC-RESET AND INTEGRAL THERMAL OVERLOAD PROTECTION. MOTORS SHALL BE CAPABLE OF OPERATING AT TEMPERATURES INDICATED ON DRAWINGS WITHOUT OVERLOADING. MOTOR SHALL BE CAPABLE OF FIELD OILING AS REQUIRED.	
CABINETS: CABINETS SHALL BE FABRICATED OF 1/8 GAUGE STEEL AND HAVE BAKED ENAMEL FINISH. ALL SURFACES IN CONTACT WITH AIR STREAM SHALL BE INSULATED WITH HALF INCH THICK, 1-1/2 POUND DENSITY, MATT FACED, GLASS FIBER INSULATION.	
THE FILTER SHALL BE ONE INCH THICK, THROWAWAY GLASS FIBER TYPE.	
THE DRAIN PAN SHALL BE REMOVABLE AND HAVE SELF EXTINGUISHER THREE (3) POUND DENSITY CELLULAR POLYSTYRENE PLASTIC LINER, THE DRAIN PAN SHALL EXTEND UNDER THE ENTIRE COIL SECTION.	
THERMOSTAT SHALL BE 7-DAY PROGRAMMABLE TYPE.	
SEE SCHEDULE FOR LIST OF ACCEPTABLE MANUFACTURERS.	
<b>MECHANICAL SCOPE OF WORK NOTES</b>	
1.) INSTALLATION OF NEW SPLIT SYSTEMS, MAKEUP AIR UNIT, AND ALL ASSOCIATED DUCTWORK, DAMPERS AND GRILLES.	
2.) INSTALLATION OF NEW KITCHEN HOODS, EXHAUST FANS, AND MAKEUP AIR UNIT, AND ALL ASSOCIATED DUCTWORK, PIPING, AND FITTINGS.	
ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND SHALL BE EQUAL IN QUALITY, TYPE, CAPACITY EFFICIENCY AND ACCESSORIES TO THE EQUIPMENT NOTED ON THE DRAWINGS. ADJUSTMENTS TO CONSTRUCTION AND ACCESSORIES ON SUBSTITUTED EQUIPMENT MAY BE REQUIRED TO ACHIEVE THIS EQUALITY, AND SHALL BE INCLUDED AT NO EXTRA COST TO THE OWNER. MAKE ANY CHANGES IN DUCTWORK, PIPING, FRAMING, ETC., AS REQUIRED TO ACCOMMODATE SUBSTITUTED EQUIPMENT.	



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550



PROFICIENT ENGINEERING  
3150 Hickory Bridge Road  
Norcross, Georgia 30071  
404.330.9798

**FOR  
CONSTRUCTION**

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

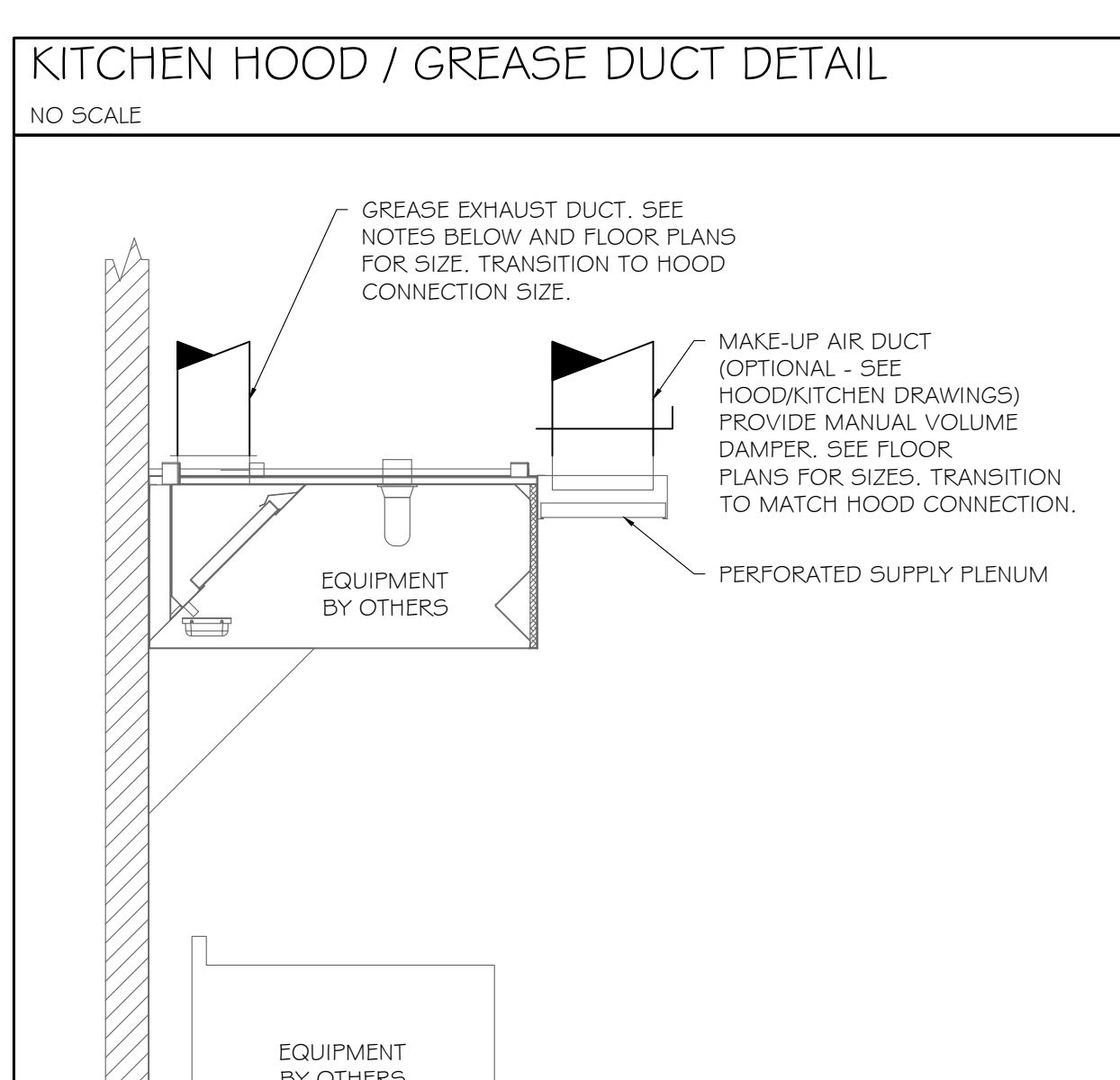
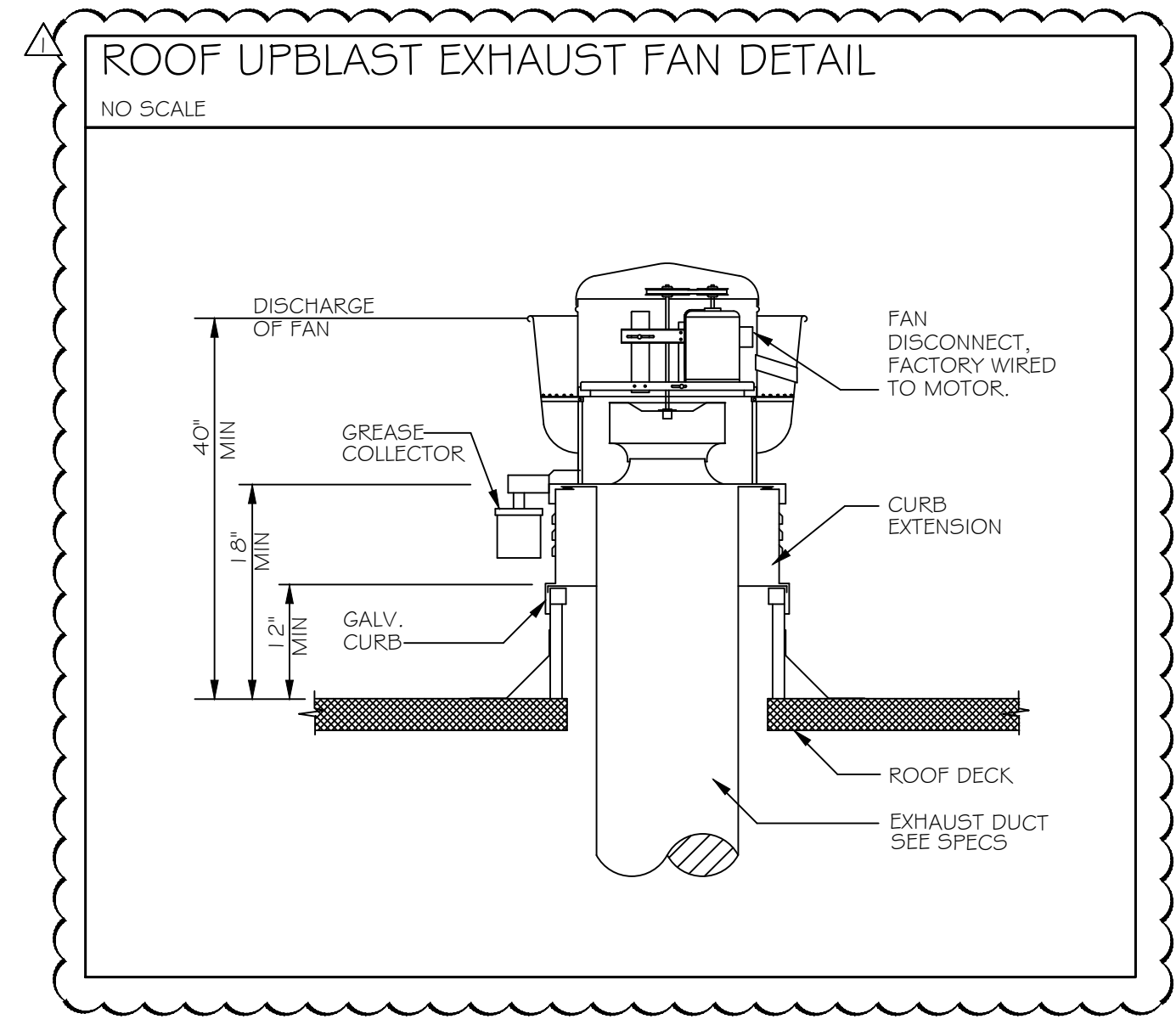
DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
GENERAL

SHEET NUMBER:

MOOI

05.15.25



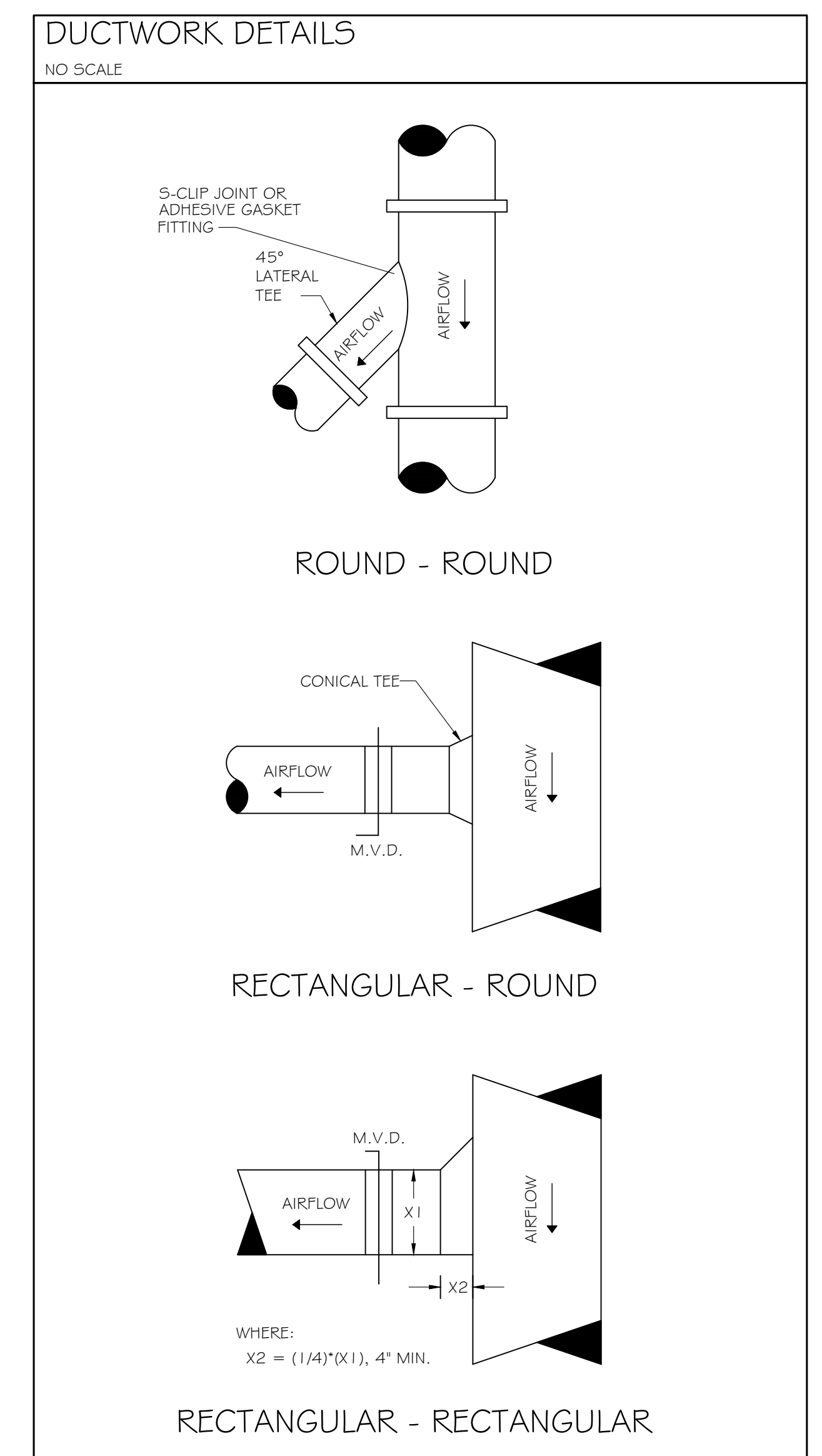
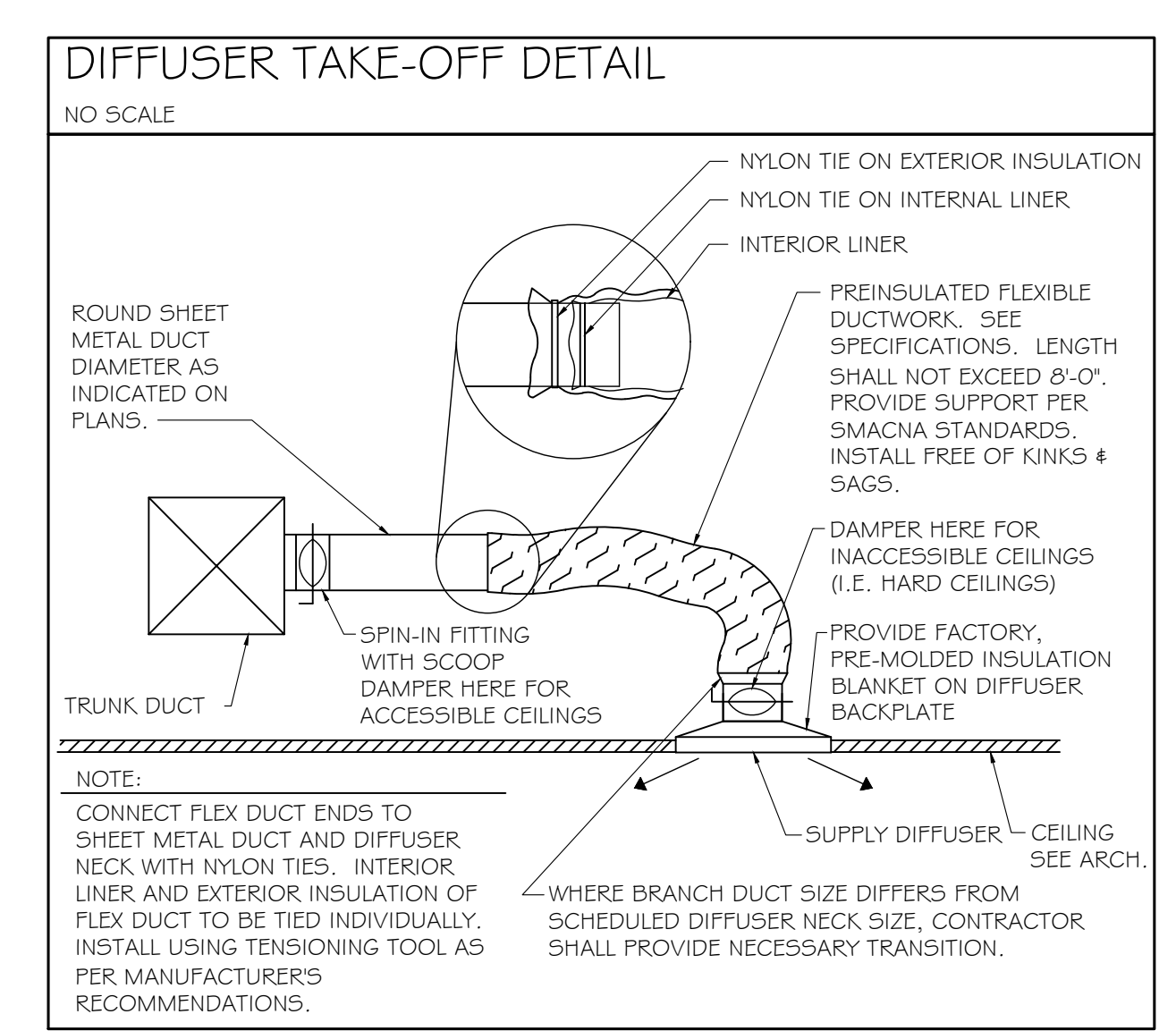
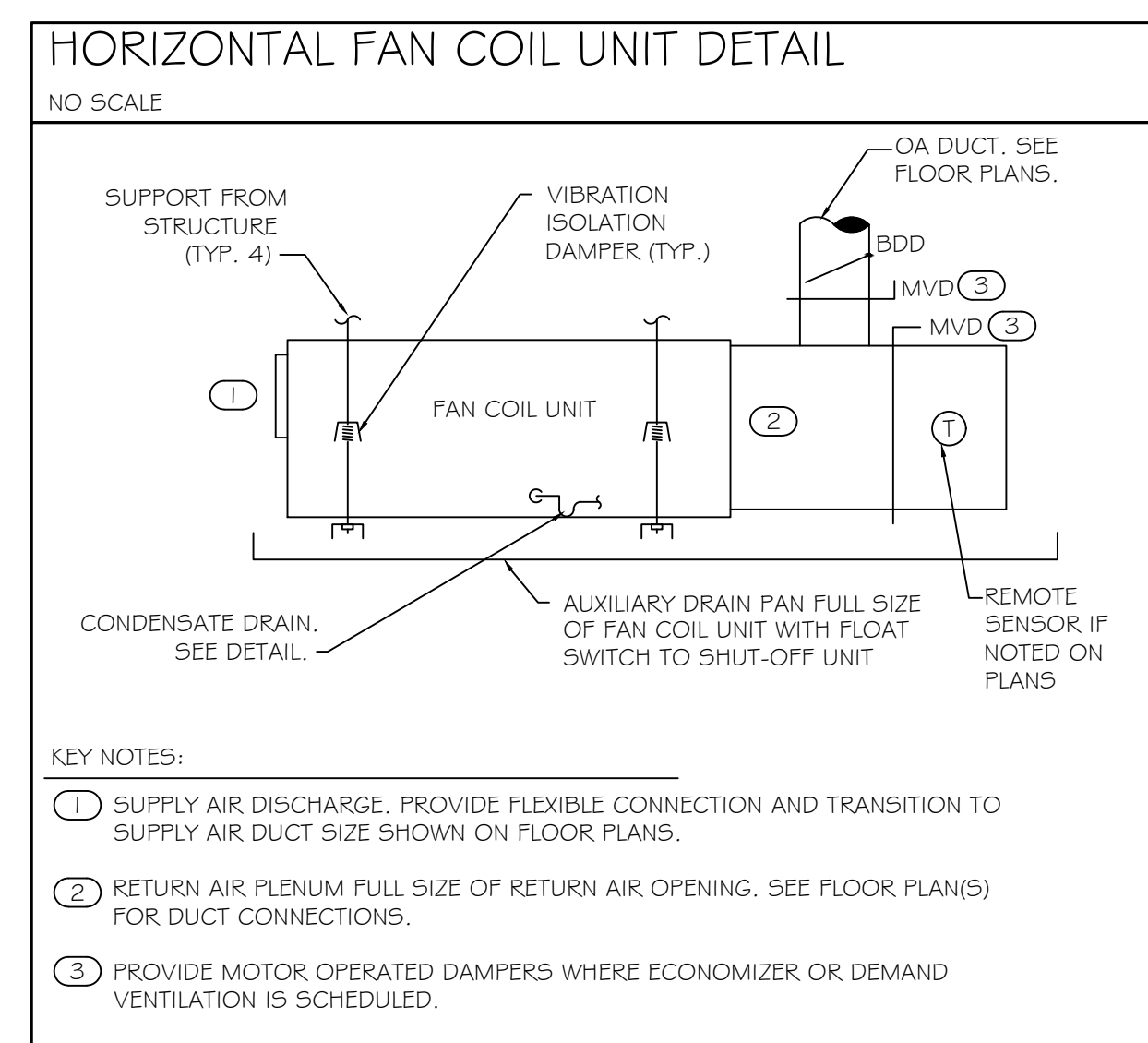
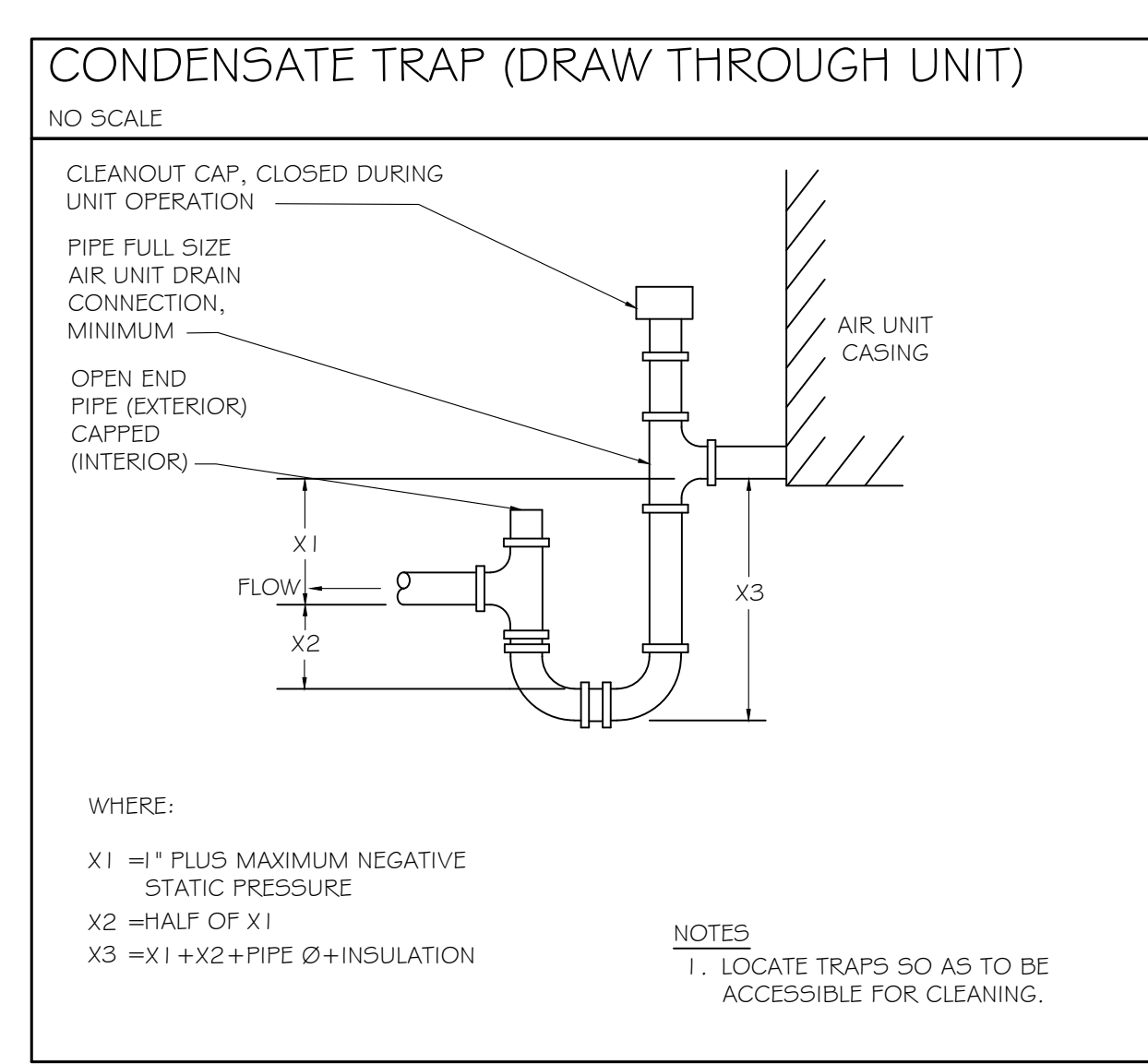
NOTES:

INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH NFPA-96.

IF A PERFORATED SUPPLY PLENUM IS NOT PROVIDED AND MAKE-UP AIR IS INTRODUCED INSIDE THE HOOD EXHAUST CANOPY, A FIRE DAMPER SHALL BE PROVIDED AT THE HOOD MAKE-UP AIR DUCT CONNECTION.

GREASE DUCT SYSTEM:  
GREASE EXHAUST DUCTWORK SHALL BE FACTORY FABRICATED EQUAL TO SELKIRK METALBESTOS ZEROCLEAR MODEL IPS-Z3. INSTALL DUCTWORK IN ACCORDANCE WITH UL 197B AND UL 2221 INSTALLATION INSTRUCTIONS. COMPLETE SYSTEM, FROM HOOD OUTLETS TO FAN INLET SHALL, INCLUDE TRANSITIONS TO HOOD OUTLETS, ADJUSTABLE PIPE LENGTHS, SUPPORT PLATES, GUIDE RINGS, ACCESS DOORS, AND THRU WALL FIRE STOP PENETRATIONS. MODEL IPS-C1 OR MODEL G MAY BE USED WHERE CLEARANCES PERMIT.

VOLUNTARY ALTERNATE GREASE DUCT AND WRAP SYSTEM:  
INSTALL CARBON STEEL OF MINIMUM 1/8 GAUGE OR STAINLESS STEEL MINIMUM 1/8 GAGE IN STRICT ACCORDANCE WITH NFPA-96. THE ENTIRE DUCT SYSTEM, FROM HOOD OUTLETS TO FAN INLET, SHALL BE WRAPPED WITH ASTM-814 CERTIFIED DUCT WRAP FOR ZERO CLEARANCE TO COMBUSTIBLES. FOLLOW DUCT WRAP MANUFACTURERS INSTRUCTIONS FOR INSTALLATION AND THROUGH WALL PENETRATIONS.



### RESTAURANT HVAC CONTROL STRATEGY

NO SCALE

ROOF TOP UNIT(S) / SPLIT SYSTEM(S):

OCCUPIED SETTINGS:  
FAN: ON (NOT AUTO)  
COOLING SET POINT: 75°F  
HEATING SET POINT: 68°F

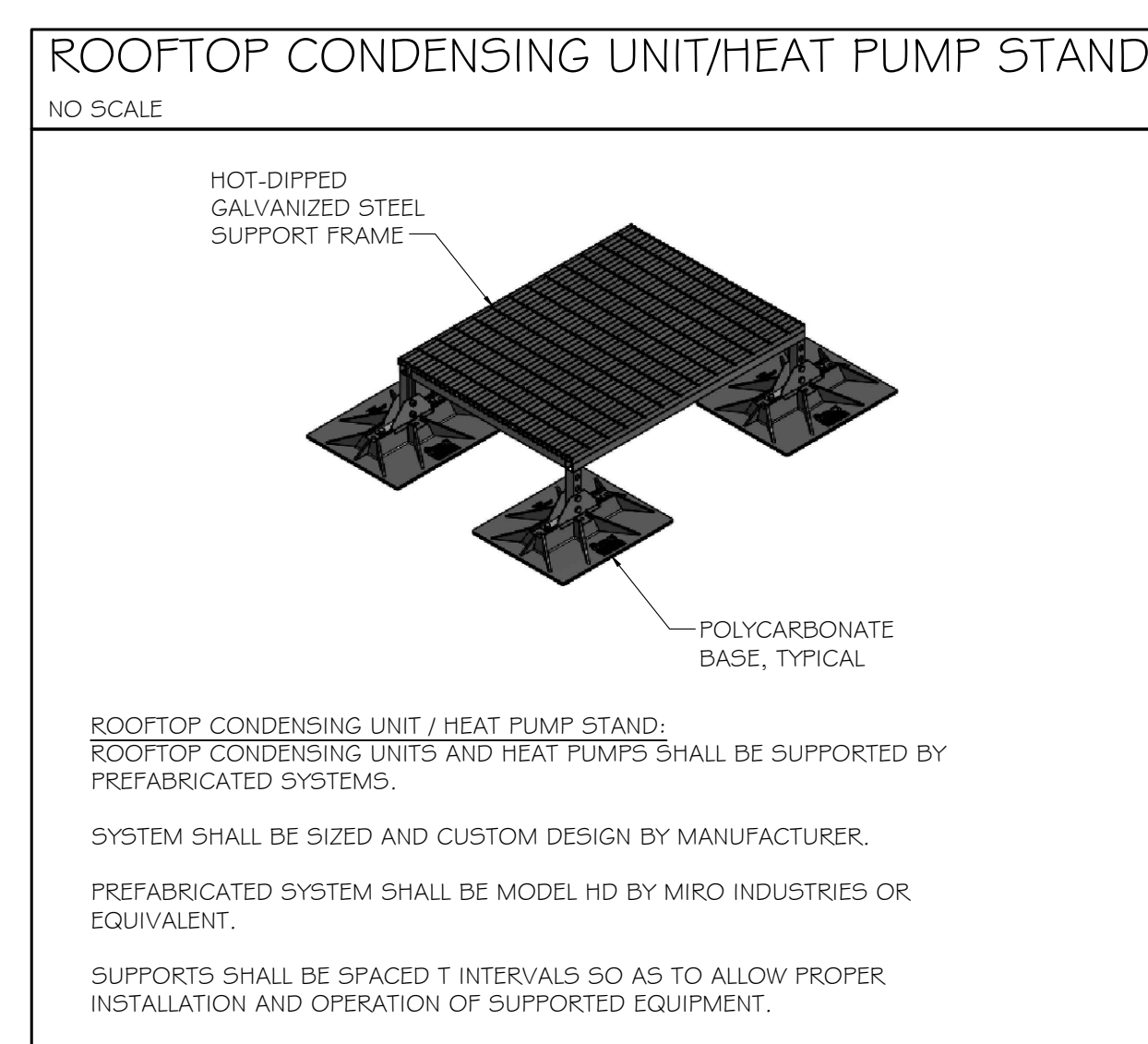
UNOCCUPIED SETTINGS:  
FAN: AUTO  
COOLING SET-BACK: 85°F  
HEATING SET-BACK: 60°F

- CONTRACTOR SHALL CONFIRM SET POINT, OCCUPIED HOURS AND SET-BACK TEMPS WITH OWNER.

KITCHEN HOOD SYSTEM:

WHEN OCCUPIED, GREASE EXHAUST FAN(S) AND MAKE-UP AIR UNIT(S) SHOULD BE ON.

WHEN UNOCCUPIED, GREASE EXHAUST FAN(S) AND MAKE-UP AIR UNIT(S) SHOULD BE OFF.



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DRAWN BY: SL  
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ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
DETAILS

SHEET NUMBER:

M002

05.15.25

AIR BALANCE SCHEDULE					
MARK	SERVICE	EXHAUST (CFM)	OUTSIDE AIR (CFM)	FRESH AIR (CFM)	FRESH AIR (%)
KEF-1	HOODS #1,2	3850			
KEF-2	HOOD #3	812			
MUA-1	HOODS #1,2,3		3730		
FCU-1	KITCHEN		360		
KITCHEN ZONE TOTALS		4,662	4,090	-572	-12%
FCU-2	DINING		380		
FCU-3	DINING		390		
DINING ZONE TOTALS		0	770	770	N/A
BUILDING TOTALS		4,662	4,860	198	4%

SPLIT DIRECT EXPANSION (DX) EQUIPMENT																												
MARK	SERVES	TOTAL SA (CFM)	OA (CFM)	ESP (IN WG)	MOTOR (HP)	AUXILIARY HEATER (KW @ 208V)	WEIGHT (LBS)	BASIS OF DESIGN	INDOOR UNIT		OUTDOOR UNIT		COMBINED COOLING CAPACITIES				REMARKS											
									MIN. SEER2	MIN. HSPF2	WEIGHT (LBS)	REFRIG. CHARGE (LBS)	BASIS OF DESIGN	NOMINAL TONNAGE (TONS)	COOLING													
									TOTAL (MBH)	SENS (MBH)	LAT (MBH)	ENT TDB (°F)	ENT TWB (°F)	LVG TDB (°F)	LVG TWB (°F)	1	2	3	4	5	6	7	8					
FCU-1 / HP-1	KITCHEN	1,990	360	0.50	3/4 ECM	11.3	211.0	FJ5AN-60	14.5	7.5	234.0	8.7	275CA560	5.0	58.5	48.3	10.2	78.4	66.0	55.0	56.0	X	X	X	X	X	X	X
FCU-2 / HP-2	DINING	1,600	380	0.50	3/4 ECM	7.5	183.0	FJ5AN-48	15.0	7.5	232.0	10.5	275CA548	4.0	50.1	40.5	9.6	79.5	66.6	55.0	56.0	X	X	X	X	X	X	X
FCU-3 / HP-3	DINING	1,600	390	0.50	3/4 ECM	7.5	183.0	FJ5AN-48	15.0	7.5	232.0	10.5	275CA548	4.0	50.5	40.7	9.8	79.6	66.6	55.0	56.0	X	X	X	X	X	X	X

NOTES (APPLY TO ALL):

A. SEE ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS.

B. SUBMITTED UNIT CAPACITIES SHOULD BE WITHIN +/- 10% OF SCHEDULED CAPACITIES.

C. BASIS OF DESIGN: CARRIER. REFER TO SPECIFICATIONS. ACCEPTABLE ALTERNATES: JCI/YORK, TRANE, DAIKIN/MCQUAY, LENNOX.

D. ALL EVAPORATORS AND COOLING COILS LOCATED ABOVE LOWEST LEVEL FINISHED FLOOR SHALL BE INSTALLED WITH AN AUXILIARY CONDENSATE DRAIN PAN UNDER THE UNIT. PROVIDE AN ELECTRONIC WATER LEVEL DETECTOR WIRED TO SHUT DOWN THE UNIT UPON DETECTION OF WATER IN THE AUXILIARY DRAIN PAN.

E. AS AN ALTERNATIVE TO THE AUXILIARY CONDENSATE DRAIN PAN, AN ELECTRONIC WATER LEVEL DETECTOR WIRED TO SHUT DOWN THE UNIT UPON DETECTION OF WATER MAY BE INSTALLED IN THE PRIMARY DRAIN LINE, OVERFLOW DRAIN LINE OR EQUIPMENT-SUPPLIED DRAIN PAN. WATER LEVEL DETECTOR SHALL BE LOCATED AT A POINT HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE OVERFLOW RIM OF SUCH PAN.

F. R-454B REFRIGERANT

REMARKS (APPLY AS SCHEDULED):

1. PROGRAMMABLE THERMOSTAT.

2. LOW AMBIENT PACKAGE.

3. DISPOSABLE FILTER.

4. ANTI-SHORT CYCLE TIMER.

5. INDOOR FAN DELAY KIT.

6. DISCONNECT SWITCH PROVIDED BY ELECTRICAL SUBCONTRACTOR AT BOTH THE INDOOR AND OUTDOOR UNIT. REFER TO THE ELECTRICAL DOCUMENTS.

7. MOUNT OUTDOOR HEAT PUMP ON ROOF. REFER TO DETAILS.

8. AIRSIDE ENTHALPY ECONOMIZER KIT WITH MOTORIZED RETURN AND OUTDOOR AIR DAMPERS.

VENTILATION SCHEDULE (PER ASHRAE 62.1)												
Zone FCU/HP-2 Ventilation												
System Primary Airflow:	1,600 CFM	Average Outdoor Air Fraction:	0.235	Occupant Diversity:	1	Zone Air Distribution Effectiveness:	0.8	Primary Air Fraction to Zone:	1	Secondary Air Fraction to Zone:	1	
Vps	Xs	D	Ez	Ep	Er							
Uncorrected Air Intake:	376 CFM	System Ventilation Efficiency:	1	Min. Outside Air Required:	376 CFM	Fraction of Supply Air to Zone from Outside Zone:	1	Fraction of Supply Air to Zone from Fully Mixed Primary Air:	1	Fraction of Outdoor Air to Zone from Outside Zone:	1	
Vou	Ev	Vot	0.235	Fa	Fb	Fc						
Room Information												
Room	Room Type	People Outdoor Air			Area Outdoor Air			Breathing Zone Outside Airflow	Zone Outdoor Airflow	Zone Discharge Airflow	Discharge Outdoor Air Fraction	Zone Ventilation Efficiency
		Rate (CFM/person)	People Pz	Total (CFM) Rp*Pz	Rate (CFM/ft2)	Area (ft2) Az	Total (CFM) Ra*Az	(CFM) Vbz	(CFM) Voz	(CFM) Vdz	Zd	Evz
DINING 1	Food-Dining Rooms	7.5	30	225	0.18	417	76	301	376	1600	0.235	1

DIFFUSER, GRILLE, AND REGISTER SCHEDULE					
CALLOUT	DESCRIPTION	FACE SIZE (IN)	INLET SIZE (IN)	NOISE CRITERIA @ MAX CFM	MODEL
RC2424	EGGCRATE GRILLE	24x24	24x24	25	TITUS 50F
SCFC2424	EGGCRATE GRILLE	24x24	24x24	25	TITUS 50F
SCL10	LOUVERED FACE SUPPLY	24x24	10Ø	25	TITUS TMS
SCPOG	SUPPLY CEILING PLAQUE DIFFUSER	24x24	6Ø	25	TITUS OMNI
SCPO8	SUPPLY CEILING PLAQUE DIFFUSER	24x24	8Ø	25	TITUS OMNI
SCP12	SUPPLY CEILING PLAQUE DIFFUSER	24x24	12Ø	25	TITUS OMNI

A. AIR DEVICE (I.E. DIFFUSERS, REGISTERS AND GRILLES) COLOR SELECTION SHALL BE MADE BY ARCHITECT. CONTRACTOR SHALL SUBMIT COLOR/FINISH CHARTS FOR ARCHITECTURAL REVIEW AND SELECTION.

B. THE CONTRACTOR SHALL COORDINATE AIR DEVICE FRAME AND/OR SUSPENSION TYPE WITH THE ARCHITECTURAL REFLECTED CEILING PLAN.

VENTILATION SCHEDULE (PER ASHRAE 62.1)												
Zone FCU/HP-1 Ventilation												
System Primary Airflow:	1,990 CFM	Average Outdoor Air Fraction:	0.159	Occupant Diversity:	1	Zone Air Distribution Effectiveness:	0.8	Primary Air Fraction to Zone:	1	Secondary Air Fraction to Zone:	1	
Vps	Xs	D	Ez	Ep	Er							
Uncorrected Air Intake:	316 CFM	System Ventilation Efficiency:	0.89	Min. Outside Air Required:	355 CFM	Fraction of Supply Air to Zone from Outside Zone:	1	Fraction of Supply Air to Zone from Fully Mixed Primary Air:	1	Fraction of Outdoor Air to Zone from Outside Zone:	1	
Vou	Ev	Vot	0.178	Fa	Fb	Fc						
Room Information												
Room	Room Type	People Outdoor Air			Area Outdoor Air			Breathing Zone Outside Airflow	Zone Outdoor Airflow	Zone Discharge Airflow	Discharge Outdoor Air Fraction	Zone Ventilation Efficiency
		Rate (CFM/person)	People Pz	Total (CFM) Rp*Pz	Rate (CFM/ft2)	Area (ft2) Az	Total (CFM) Ra*Az	(CFM) Vbz	(CFM) Voz	(CFM) Vdz	Zd	Evz
BACK KITCHEN	Food-Preparation	7.5	5	38	0.12	228	28	66	83	307	0.27	0.89
HALLWAY 1	General-Corridors	0	0	0	0.06	104	7	7	9	51	0.176	1
KITCHEN - COOKING 1	Food-Cooking	7.5	2	15	0.12	96.9	12	27	34	472	0.072	1.11
KITCHEN - COOKING 2	Food-Cooking	7.5	2	15	0.12	64.5	8	23	29	329	0.0881	1.09
KITCHEN - PREP	Food-Preparation	7.5	6	45	0.12	251	31	76	95	476	0.2	0.979
SERVICE AREA	Food-Preparation	7.5	4	30	0.12	196	24	54	68	356	0.191	0.987

VENTILATION SCHEDULE (PER ASHRAE 62.1)												
Zone FCU/HP-3 Ventilation												
System Primary Airflow:	1,600 CFM	Average Outdoor Air Fraction:	0.243	Occupant Diversity:	1	Zone Air Distribution Effectiveness:	0.8	Primary Air Fraction to Zone:	1	Secondary Air Fraction to Zone:	1	
Vps	Xs	D	Ez	Ep	Er							
Uncorrected Air Intake:	389 CFM	System Ventilation Efficiency:	1	Min. Outside Air Required:	389 CFM	Fraction of Supply Air to Zone from Outside Zone:	1	Fraction of Supply Air to Zone from Fully Mixed Primary Air:	1	Fraction of Outdoor Air to Zone from Outside Zone:	1	
Vou	Ev	Vot	0.243	Fa	Fb	Fc						
Room Information												
Room	Room Type	People Outdoor Air			Area Outdoor Air			Breathing Zone Outside Airflow	Zone Outdoor Airflow	Zone Discharge Airflow	Discharge Outdoor Air Fraction	Zone Ventilation Efficiency
		Rate (CFM/person)	People Pz	Total (CFM) Rp*Pz	Rate (CFM/ft2)	Area (ft2) Az	Total (CFM) Ra*Az	(CFM) Vbz	(CFM) Voz	(CFM) Vdz	Zd	Evz
DINING 2	Food-Dining Rooms	7.5	31	233	0.18	432	78	311	389	1600	0.243	1



SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
 3130 Wilcomb Bridge Road  
 Norcross, Georgia 30071  
 404.330.9798

FOR CONSTRUCTION

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

7/24/2025 PERMIT RESUBMISSION 1

SHEET NAME:  
 SCHEDULES

SHEET NUMBER:

M003

05.15.25

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**A. GENERAL INFORMATION**

01 Project Location (city)	Livermore	04 Total Conditioned Floor Area	1790
02 Climate Zone	12	05 Total Unconditioned Floor Area	0
03 Occupancy Types Within Project:		06 # of Stories (habitable Above Grade)	1

• Restaurant

**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) for alterations.

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

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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, 140.4(i), 170.2(c)	Pumps 140.4(i), 170.2(c)	Fan/Economizers 140.4(c), 170.2(c)	System Controls 110.2, 120.2, 140.4(i), 170.2(c)	Ventilation 120.1, 160.2	Terminal Box Controls 140.4(i), 170.2(c)	Distribution 120.3, 140.4(i), 160.2, 160.3	Cooling Towers 110.2(i)(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 with Exceptional Conditions

Mandatory Measures Compliance (See Table Q for Details) COMPLIES

**D. EXCEPTIONAL CONDITIONS**

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form. The permit applicant has indicated on Table J that ventilation calculations have been attached or included elsewhere on the plans.

**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	Space Type	Utilizing Recovered Heat	
FCU/HP-1	1	Single zone	All Other Occupancies	<input type="checkbox"/>	

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**F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)**

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	Space Type	Utilizing Recovered Heat	
FCU/HP-2,3	2	Single zone	All Other Occupancies	<input type="checkbox"/>	

**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(i) and 170.2(c)(3a)	Equipment Type per Tables 110.2 and 170.2(c)(1)	Smallest Size Available <sup>1</sup> 140.4(i) and 170.2(c)(1)	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Design Efficiency
FCU/HP-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	56	56	38	48	60	60	48
FCU/HP-2,3	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	48	48	26	36	48	48	36

**Footnotes:**  
<sup>1</sup> 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(i) and 170.2(c)(1). Healthcare facilities are exempt.  
<sup>2</sup> It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.  
<sup>3</sup> If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.  
<sup>4</sup> Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(i) 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
FCU/HP-1	<65,000	HSPF	8.2	8.2	SEER	14	14	

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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
FCU/HP-2,3	<65,000	HSPF	8.2	8.2	SEER	14	14	

**G. PUMPS**

This section does not apply to this project.

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**H. FAN SYSTEMS & AIR ECONOMIZERS**

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(i), 140.4(i), 140.4(i), 170.2(c)(1), 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	FCU-1	Quant	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Allowance (watt/cfm)	1,990	Site Elevation	495	Economizer	Differential Enthalpy
01	02	03	04	05	06	07	08	09	10	11					

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (wg)	Component Allowance (watt/cfm)	Fan Allowance (watt/cfm)	Design Electrical Input Power Method	Motor Nameplate Horsepower	Fan Electrical Input Power (kW)
FCU-1	Supply	1	Electric heat	100	0.046	0.046	Manufacturer provided			0.75
Supply Fan Base Allowance (watt/cfm)			Exhaust/Return/Relief/Transfer Fan Base Allowance (watt/cfm)			Fan System Allowance (kW)		Fan System Electrical Input Power (kW)		0.75

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**H. FAN SYSTEMS & AIR ECONOMIZERS**

System Name	FCU-2,3	Quant	2	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Allowance (watt/cfm)	1,990	Site Elevation	495	Economizer	Differential Enthalpy
01	02	03	04	05	06	07	08	09	10	11					

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (wg)	Component Allowance (watt/cfm)	Fan Allowance (watt/cfm)	Design Electrical Input Power Method	Motor Nameplate Horsepower	Fan Electrical Input Power (kW)
FCU-2,3	Supply	1	Electric heat	100	0.046	0.046	Manufacturer provided			0.75
Supply Fan Base Allowance (watt/cfm)			Exhaust/Return/Relief/Transfer Fan Base Allowance (watt/cfm)			Fan System Allowance (kW)		Fan System Electrical Input Power (kW)		0.75

**Footnotes:**  
<sup>1</sup> Fan systems serving spaces with design background noise goals below NC35  
<sup>2</sup> Low-turbulence 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 50 percent of the design wattage or static airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.  
<sup>3</sup> Fan system allowance includes fan system base allowance.  
<sup>4</sup> Fan pressure loss can only be counted once per fan system.  
<sup>5</sup> Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.  
<sup>6</sup> Computer room economizers must meet requirements of 140.9(i) and will be documented on the NCCC-PRC-E document.

**H. EXHAUST AIR HEAT RECOVERY 140.4(i), 170.2(c)(4D)**

01	02	03	04	05	06	07	08	09	10	11
----	----	----	----	----	----	----	----	----	----	----

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**H. EXHAUST AIR HEAT RECOVERY 140.4(i), 170.2(c)(4D)**

Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(i) & 170.2(c)(4D)	Exhaust Air Heat Recovery 140.4(i) & 170.2(c)(4D)	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass
FCU-1	1	1,990	360	18	18	NA: Total airflow exhausted and relieved within 20ft <75% per Exception 6 to 140.4(i)	140.4(i) & 170.2(c)(4D)	NA: Single Zone	DR Titat per 110.12	NA: Auto-closing doors
FCU-2,3	1	1,990	390	20	20	NA: Total airflow exhausted and relieved within 20ft <75% per Exception 6 to 140.4(i)	140.4(i) & 170.2(c)(4D)	NA: Single Zone	DR Titat per 110.12	NA: Auto-closing doors

**Fan Energy Index (FEI)**

01	02	03
Name or Item Tag	FEI Exception	FEI
FCU-1	Embedded Fan <SHP or <4.1kW	
FCU-2,3	Embedded Fan <SHP or <4.1kW	

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**I. SYSTEM CONTROLS**

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(i) and (ii), 170.2(c)(4D) 170.2(c)(4E) or requirements in 141.0(b)(2) & 180.2(b) for altered space conditioning systems.

01	02	03	04	05	06	07	08	09	10
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats 110.2(b) & (c)(1), 120.2(a) 160.3(a)(4) & 180.2(b)(2)	Shut-Off Controls 120.2(a)(2) & 160.3(a)(2)	Isolation Zone Controls 120.2(a)(2) & 160.3(a)(2)	Demand Response 110.12 (20.2)(b) & 160.3(a)(2)	Supply Air Temp. Reset 140.4(i) & 170.2(c)(4D)	Window Interlocks per 140.4(i) & 170.2(c)(4D)	Direct Digital Control (DDC) per 120.2
FCU-1,2,3	Single zone	<= 25,000 ft²	Setback < DR Titat per 110.12	NA: 7 day per 120.2(a)(2)	NA: Single Zone	DR Titat per 110.12	NA: Single Zone	NA: Auto-closing doors	NA: Single Zone

**Footnotes:**  
<sup>1</sup> Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

**J. VENTILATION AND INDOOR AIR QUALITY**

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1, 120.2(c)(38) 140.4(j) and 140.4(i) for all nonresidential and hotel/motel and 141.0(b)(2) & 180.2(b) for altered space conditioning systems. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflow may be shown on the plans or the calculations can be presented in a spreadsheet.

01	02	03
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
<input type="checkbox"/>	<input type="checkbox"/>	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
<input type="checkbox"/>	<input type="checkbox"/>	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)(2).

**K. TERMINAL BOX CONTROLS**

This section does not apply to this project.

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**L. DISTRIBUTION (DUCTWORK and PIPING)**

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

**Duct Leakage Testing**

01	02	03
<input type="checkbox"/>	<input type="checkbox"/>	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

The answers to the questions below apply to the following duct systems: SUPPLY AIR

11	12	13	14	15	16	17	18	19	20	21	22	23
No	Yes	Yes	No	No	No	Yes	No	No	No	R-6	No	No
The scope of the project includes only duct systems serving healthcare facilities												
Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.												
The space conditioning system serves less than 5,000 ft² of conditioned floor area.												
The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system.												
The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.												
The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.												
All ductwork and plenums with pressure class ratings shall be constructed to Seal Class A												
All ductwork is an extension of an existing duct system												
Ductwork serving individual dwelling unit												
< 25 ft of new or replacement space conditioning ducts installed												
Duct Insulation R-value												
Ductwork Existing To Remain												
Duct System Connected To Altered Space Conditioning System												

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Report Version: 2022.0.000 Compliance ID: 28848-0425-0002  
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STATE OF CALIFORNIA  
**Mechanical Systems**  
CALIFORNIA ENERGY COMMISSION  
NCCC-MCH-4  
Page 10 of 12

Project Name: Slice House Livermore CA  
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**M. COOLING TOWERS**

This section does not apply to this project.

**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/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>

Form/Title

NRCA-MCH-01-E - Must be submitted for all buildings

**O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**

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/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>

Form/Title

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.

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 an existing duct system, permit applicant should move this form to "Yes".

NRCA-MCH-05-A - Air Economizer Controls

NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance

FCU-1,2,3  
FCU-1; FCU-2,3  
FCU/HP-1; FCU/HP-2,3

**P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION**

There are no NRCV forms required for this project.

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STATE OF CALIFORNIA  
**Mechanical Systems**  
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Project Name: Slice House Livermore CA  
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**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	MO4

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STATE OF CALIFORNIA  
**Mechanical Systems**  
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NCCC-MCH-4  
Page 12 of 12

Project Name: Slice House Livermore CA  
Report Page: (Page 12 of 12)  
Date Prepared: 2025-04-11 13:50:27

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Sean Lightsey  
Company: Procent Engineering  
Address: 3150 Wilcoxon Bridge Rd  
City/State/Zip: Norcross, GA 30071  
Phone: 404.330.9798

Signature Date: 2025-07-24  
City/State/Zip: Norcross, GA 30071  
Phone: 404.330.9798

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 16 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- 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 of the California Code of Regulations.
- 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.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available to the building permit issuer 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 building permit issuer requires for the building permit application.

Responsible Designer Name: J. Paul Kenney  
Company: Procent Engineering  
Address: 3150 Wilcoxon Bridge Rd  
City/State/Zip: Norcross, GA 30071  
Phone: 404.330.9798

Signature Date: 2025-07-24  
City/State/Zip: Norcross, GA 30071  
Phone: 404.330.9798

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SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcoxon Bridge Road  
Norcross, Georgia 30071  
404.330.9798

FOR  
CONSTRUCTION

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
TITLE 24 -  
MECHANICAL

SHEET NUMBER:  
MO04

05.15.25

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: Slice House Livermore CA Report Page: (Page 1 of 6)  
 Project Address: 2025-04-11T16:54:30-04:00 Date Prepared: 2025-04-11 13:54:35

**A. GENERAL INFORMATION**

01	Project Location (City)	Livermore	04	Total Conditioned Floor Area	1790
02	Climate Zone	12	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

• Restaurant

**B. PROJECT SCOPE**  
 This table includes process systems that are within the scope of the permit application and are demonstrating compliance with mandatory requirements in 120.6 / 160.7 or prescriptive requirements in 140.9.  
 My project consists of: (check all that apply):

<input type="checkbox"/>	Refrigerated Spaces <3,000 ft <sup>2</sup> Total (no Title 24, P16 requirements)	<input type="checkbox"/>	Escalator & Moving Walkway Speed Controls (mandatory 120.6(g))
<input type="checkbox"/>	Refrigerated Spaces >=3,000 ft <sup>2</sup> Total (mandatory 120.6(a))	<input type="checkbox"/>	Computer Rooms (mandatory 120.6(j) and prescriptive 140.9(a)) <sup>1</sup>
<input type="checkbox"/>	Food/Beverage Stores >8,000 ft <sup>2</sup> cfa (mandatory 120.6(b))	<input checked="" type="checkbox"/>	Commercial Kitchen Ventilation/Exhaust (prescriptive 140.9(b)) <sup>1</sup>
<input type="checkbox"/>	Enclosed Parking Garage Exhaust >=10,000 cfm (mandatory 120.6(c))	<input type="checkbox"/>	Laboratory Exhaust/Factory Exhaust & Fume Hood (prescriptive 140.9(c)) <sup>1</sup>
<input type="checkbox"/>	Newly Installed Process Boilers (mandatory 120.6(d))	<input type="checkbox"/>	Pool/Spa (mandatory 110.4 / 160.7)
<input type="checkbox"/>	Compressed Air Systems Combined HP >= 25 (mandatory 120.6(e))	<input type="checkbox"/>	Controlled Environment Horticulture (mandatory 120.6(h))
<input type="checkbox"/>	Elevator Lighting & Ventilation Controls (mandatory 120.6(f) / 160.7)	<input type="checkbox"/>	New Steam Traps (mandatory 120.6(i))

<sup>1</sup> FOOTNOTES: These building features can comply using the performance method. If using the performance method for these features, compliance should be demonstrated on the NRCC-PRC-E.

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STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
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 Project Name: Slice House Livermore CA Report Page: (Page 2 of 6)  
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**C. COMPLIANCE RESULTS**  
 Results in this table are automatically calculated from data input and calculations in Tables F through R. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Refrigerated Warehouse / Space (See Table F)	Commercial Refrigeration 120.6(b) (See Table G)	Parking Garage Exhaust 120.6(c) (See Table H)	Process Boilers 120.6(d) (See Table I)	Compressed Air Systems 120.6(e) (See Table J)	Elevators 120.6(f) / 160.7 (See Table K)	Escalators & Moving Walkways 120.6(g) (See Table L)	Computer Rooms 140.9(a) (See Table M)	Commercial Kitchens 140.9(b) (See Table N)	Laboratory/Factory Exhaust 140.9(c) (See Table O)	Controlled Environment Horticulture 120.6(h) (See Table P)	Steam Traps 120.6(i) (See Table Q)	Pool/Spa 160.7 (See Table R)	Compliance Results
								Yes					COMPLIES

**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. REFRIGERATED WAREHOUSES/SPACES**  
 This section does not apply to this project.

**G. COMMERCIAL REFRIGERATION**  
 This section does not apply to this project.

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STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: Slice House Livermore CA Report Page: (Page 3 of 6)  
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**H. ENCLOSED PARKING GARAGE EXHAUST**  
 This section does not apply to this project.

**I. PROCESS BOILER**  
 This section does not apply to this project.

**J. COMPRESSED AIR SYSTEMS**  
 This section does not apply to this project.

**K. ELEVATOR LIGHTING AND VENTILATION**  
 This section does not apply to this project.

**L. ESCALATORS AND MOVING WALKWAYS SPEED CONTROLS**  
 This section does not apply to this project.

**M. COMPUTER ROOM SYSTEM SUMMARY**  
 This section does not apply to this project.

**N. COMMERCIAL KITCHEN EXHAUST AND VENTILATION**  
 This table contains all new and replacement hoods being installed within the scope of the permit application. Table N is used to demonstrate compliance with prescriptive requirements found in 140.9(b).  
**Kitchen Ventilation 140.9(b)2**

01	<input type="checkbox"/>	Existing kitchen hoods not being replaced as part of an addition or alteration (do not need to meet requirements)
----	--------------------------	---

**Requirements**

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STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: Slice House Livermore CA Report Page: (Page 4 of 6)  
 Project Address: 2025-04-11T16:54:30-04:00 Date Prepared: 2025-04-11 13:54:35

**N. COMMERCIAL KITCHEN EXHAUST AND VENTILATION**

02	Replacement Air to Hood Compliance Method 140.9(b)1A Not providing replacement air directly to the hood(s)
03	Mechanically cooled or heated makeup air delivered to any space with a kitchen hood is designed per 140.9(b)2A to not exceed the greater of: The supply flow required to meet the space heating and cooling load
04	Location that is supplying transfer air:
05	The kitchen/ dining facility has a total Type I and Type II kitchen hood exhaust airflow > 5000 cfm and is designed to have one of the following per 140.9(b)2B: NA: Not a kitchen/ dining facility having a total Type I and Type II kitchen hood exhaust airflow rate > 5,000 cfm

**Kitchen Exhaust: Airflow Rate 140.9(b)1B**

01	02	03	04	05	06	07	08
Name or Item Tag	Hood Type <sup>1</sup>	Hood Style	Compliance Method per 140.9(b)1B	Equipment Duty	Design Hood Exhaust Rate CFM	Max Hood Exhaust Rate Allowed CFM	
HOOD-1	Type I				2383		
HOOD-2	Type I				1467		
HOOD-3	Type II				812		

<sup>1</sup> FOOTNOTES: Type II hoods do not have a max hood exhaust air rate per 140.9(b)1B

**O. LABORATORY AND FACTORY EXHAUST AND FUME HOODS**  
 This section does not apply to this project.

**P. CONTROLLED ENVIRONMENT HORTICULTURE**  
 This section does not apply to this project.

**Q. STEAM TRAPS IN INDUSTRIAL FACILITIES**  
 This section does not apply to this project.

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STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
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**R. Pool & Spas**  
 This section does not apply to this project.

**S. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION**  
 Selections have been made based on information provided in this document. If any selections have been changed by permit applicant, an explanation should be included 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/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>

Form/Title  
 NRCC-PRC-01-E - Covered Process

**T. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**  
 Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/itbc/4/gettcp/providers.html>

Form/Title  
 NRCA-PRC-02-F Kitchen Exhaust Systems/Spaces To Be Field Verified  
 KITCHEN

Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 288488-0425-0003 Schema Version: rev 20220101 Report Generated: 2025-04-11 13:54:35

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Process Systems**  
**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: Slice House Livermore CA Report Page: (Page 6 of 6)  
 Project Address: 2025-04-11T16:54:30-04:00 Date Prepared: 2025-04-11 13:54:35

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

Documentation Author Name: Sean Lipinski  
 Signature Date: 2025-07-24  
 Address: 3150 Holcomb Bridge Rd  
 City/State/Cp: Norcross, GA 30071  
 Phone: 404.330.9798

**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: J. Paul Kenney  
 Signature Date: 2025-07-24  
 Address: 3150 Holcomb Bridge Rd  
 City/State/Cp: Norcross, GA 30071  
 License: M35746  
 Phone: 404.330.9798

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SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
 3150 Holcomb Bridge Road  
 Norcross, Georgia 30071  
 404.330.9798

FOR CONSTRUCTION

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
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5/15/2025	PERMIT
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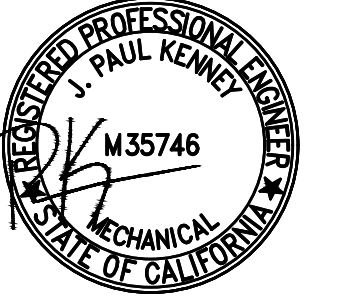
7/24/2025	PERMIT RESUBMISSION 1
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SHEET NAME:  
 TITLE 24 - KITCHEN HOOD

SHEET NUMBER:

M005

05.15.25



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcomb Bridge Road  
Norcross, Georgia 30071  
404.330.9798

FOR  
CONSTRUCTION

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
FLOOR PLAN

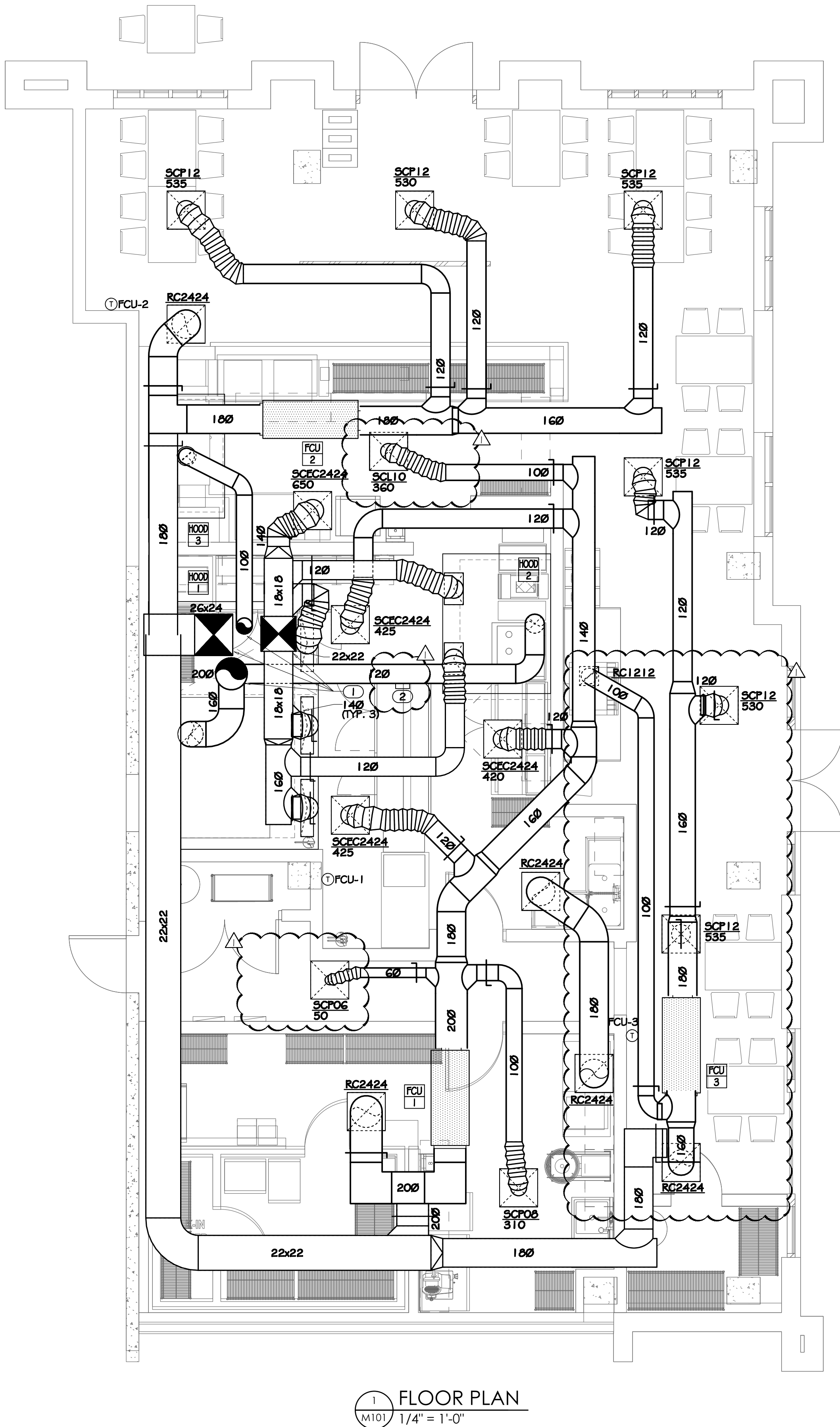
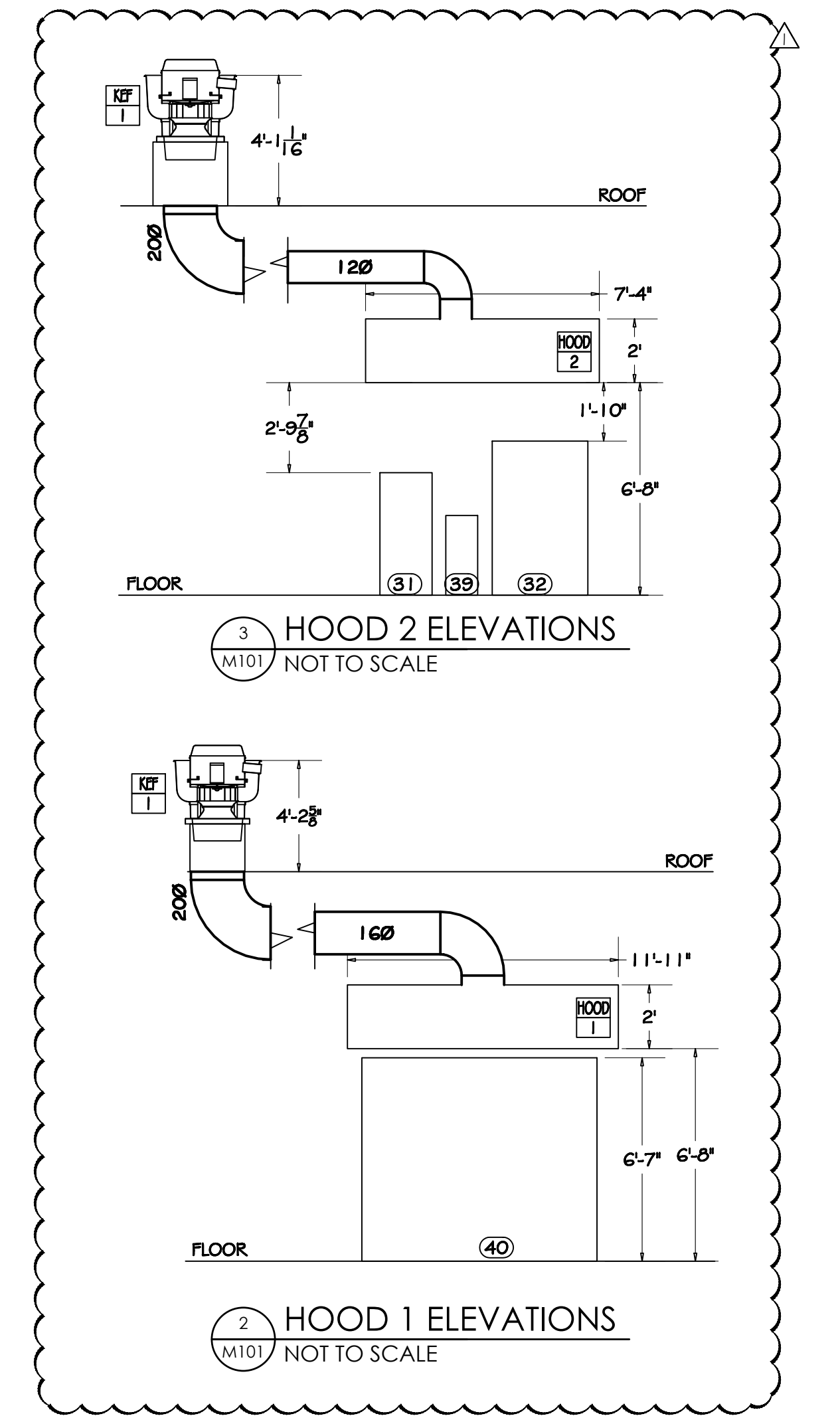
SHEET NUMBER:

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05.15.25

- GENERAL NOTES**
- A. EACH SUPPLY DIFFUSER/REGISTER RUNOUT SHALL BE PROVIDED WITH A VOLUME DAMPER. REFER TO THE DIFFUSER TAKE-OFF DETAIL FOR ADDITIONAL INFORMATION.
  - B. DRAWINGS ARE DIAGRAMMATIC ONLY; FINAL ROUTING OF DUCTWORK AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC. SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO THE OWNER.
  - C. DEMOLISH AND REMOVE FROM SITE EXISTING ELECTRIC UNIT HEATERS.
  - D. ALL EXHAUST AIR PENETRATIONS TO BE LOCATED MINIMUM 3' FROM OPERABLE OPENINGS AND MINIMUM 1'0" FROM MECHANICAL OUTSIDE AIR INTAKES.
  - E. ALL GREASE EXHAUST DUCTS SHALL BE INSTALLED WITH A MINIMUM 2 PERCENT SLOPE ON HORIZONTAL RUNS UP TO 75 FEET AND A MINIMUM 5 PERCENT SLOPE ON HORIZONTAL RUNS GREATER THAN 75 FEET. FACTORY-BUILT GREASE DUCTS SHALL BE PERMITTED TO BE INSTALLED AT A LESSER SLOPE IN ACCORDANCE WITH THE LISTING AND THE MANUFACTURER'S INSTRUCTIONS.
  - F. TRAP AND ROUTE 1" INSULATED CONDENSATE DISPOSAL LINE FROM EACH FAN COIL UNIT TO NEAREST FLOOR DRAIN.

- KEYNOTES**
- ① DUCT UP TO EQUIPMENT ON ROOF ROUTE UP THROUGH BASE BUILDING SHAFT.
  - ② GREASE DUCT CLEANOUT.



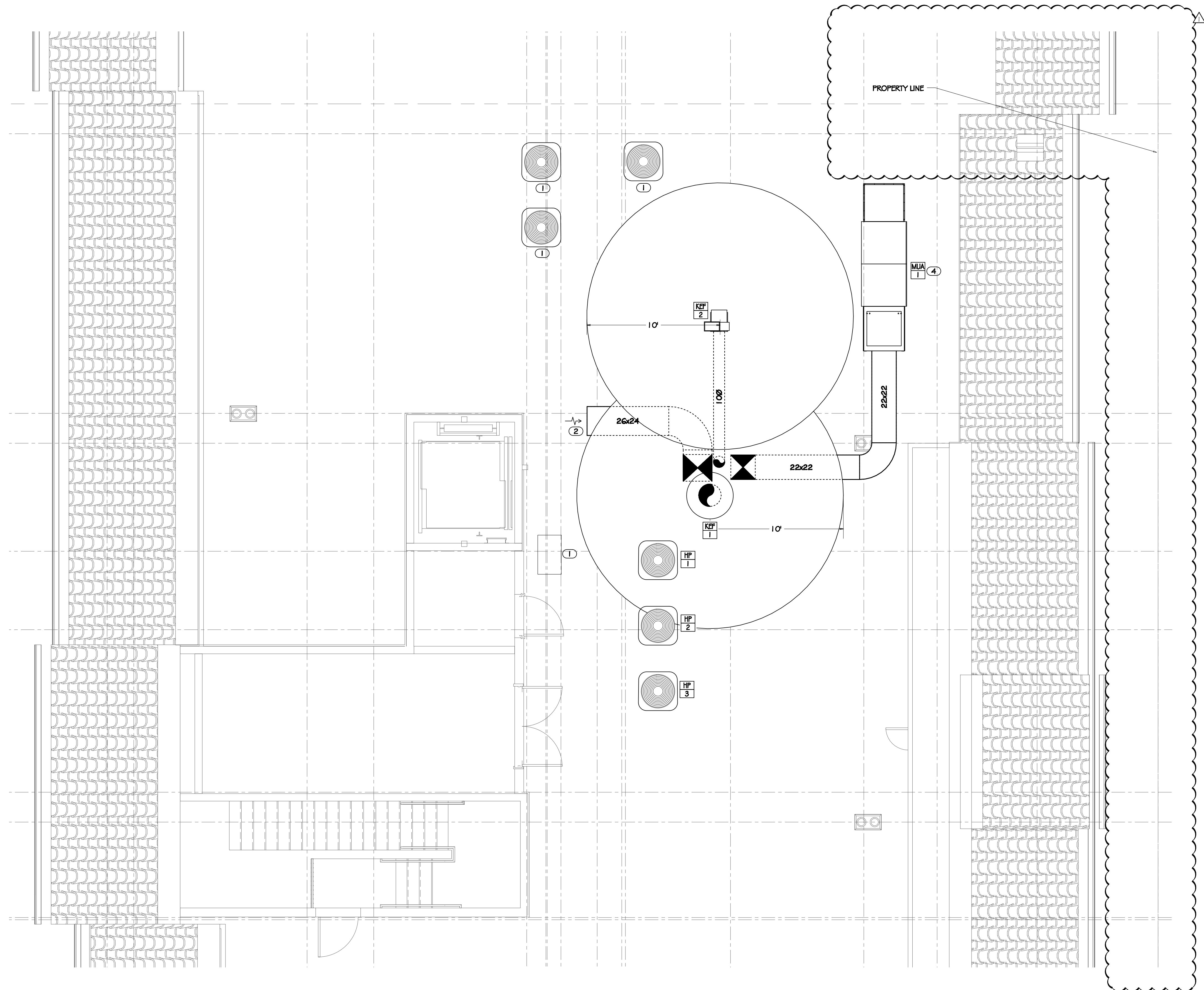
① FLOOR PLAN  
1/4" = 1'-0"

**GENERAL NOTES**

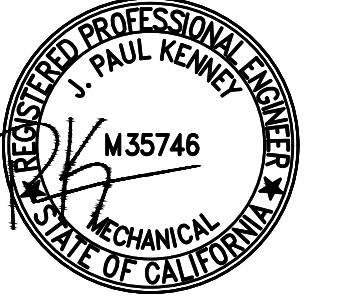
- A. DRAWINGS ARE DIAGRAMMATIC ONLY; FINAL ROUTING OF DUCTWORK AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC. SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO THE OWNER.
- B. ALL EXHAUST AIR PENETRATIONS TO BE LOCATED MINIMUM 3' FROM OPERABLE OPENINGS AND MINIMUM 10' FROM MECHANICAL OUTSIDE AIR INTAKES.
- C. ALL GREASE EXHAUST DUCTS SHALL BE INSTALLED WITH A MINIMUM 2 PERCENT SLOPE ON HORIZONTAL RUNS UP TO 75 FEET AND A MINIMUM 8 PERCENT SLOPE ON HORIZONTAL RUNS GREATER THAN 75 FEET. FACTORY-BUILT GREASE DUCTS SHALL BE PERMITTED TO BE INSTALLED AT A LESSER SLOPE IN ACCORDANCE WITH THE LISTING AND THE MANUFACTURERS INSTRUCTIONS.
- D. CONTRACTOR TO FIELD VERIFY AND CONFIRM ALL ROOF MOUNTED EQUIPMENT LOCATIONS WITH THE LANDLORD PRIOR TO BIDDING AND INSTALLATION.
- E. FOR ANY ALTERATION, REPAIR, OR REPLACEMENT OF THE EXISTING ROOF ASSEMBLY, CONTRACTOR TO INSTALL A FIRE-RETARDANT ROOF COVERING THAT IS AT LEAST CLASS B PER LIVERMORE MUNICIPAL CODE 15.02.130. CONTRACTOR TO COORDINATE ALL ROOF REPAIRS WITH THE LANDLORD PRIOR TO CONSTRUCTION OR INSTALLATION.

**KEYNOTES**

- ① EXISTING MECHANICAL EQUIPMENT NOT IN SCOPE.
- ② OFFSET OUTSIDE AIR DUCT ON ROOF AS SHOWN. PROVIDE WEATHER RESISTANT JACKET EQUIVALENT TO 3M VENTURECLAD. PROVIDE WEATHERHOOD AND WIRE MESH SCREEN AT OPEN END OF DUCT.
- ③ EXISTING UNIT TO BE RELOCATED BY OTHERS AND ANY REDESIGN OR REINSTALLATION OF THE EXISTING UNIT AND/OR EXISTING DUCTWORK TO BE BY OTHERS.
- ④ MOUNT ON MINIMUM 1" DEFLECTION SPRING VIBRATION ISOLATION RAILS. PROVIDE 1/2" THICK NEOPRENE PAD BETWEEN AIR HANDLER AND WOOD STRUCTURE FOR VIBRATION ISOLATION. NEOPRENE PAD SHALL COVER THE TOP OF THE AIR HANDLER.



① ROOF PLAN  
M102 1/4" = 1'-0"



**SLICE HOUSE**  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcomb Bridge Road  
Norcross, Georgia 30071  
404.330.9798

**FOR CONSTRUCTION**

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
ROOF PLAN

SHEET NUMBER:

**M102**

05.15.25

**GENERAL NOTE**

KITCHEN HOOD PACKAGE PROVIDED FOR REFERENCE ONLY. KITCHEN EQUIPMENT PROVIDER IS PROVIDING KITCHEN HOOD PACKAGE. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION AND ALL INTERCONNECTING DUCTWORK.

**HOOD INFORMATION - JOB#7464092**

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)				TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG		
										WIDTH	LENG	HEIGHT	DIA			CFM	VEL	SP
1	33 - Pizza	7824 ND-2-PSP-F	CAPTIVEAIRE	11' 11"	450 DEG	I	MEDIUM	200	2383	4'	16'	2383	1707	-0.809'	1906	430 SS WHERE EXPOSED	ALONE	ALONE
2	33 - Range	5424 ND-2-PSP-F	CAPTIVEAIRE	7' 4"	600 DEG	I	HEAVY	200	1467	4'	12"	1467	1868	-0.680'	1174	430 SS WHERE EXPOSED	ALONE	ALONE
3	59 - Conveyer Pizza	4824 VHB	CAPTIVEAIRE	6' 6"	700 DEG	II	N/A	125	812	4'	12"	812	1034	-0.085'	0	430 SS 100%	ALONE	ALONE

**HOOD INFORMATION**

HOOD NO	TAG	TYPE	FILTER(S)			LIGHT(S)			UTILITY CABINET(S)			FIRE SYSTEM PIPING	HOOD HANGING WEIGHT				
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE			TYPE	SIZE	MODEL #	QUANTITY
1	33 - Pizza	CAPTRATE SOLD FILTER	8	20"	16'	85% SEE FILTER SPEC	3	RECESSED ROUND	NO	RIGHT	12"x78"x24"	TANK F/S	4.0/4.0/4.0	DCV-2111	1 LIGHT 1 FAN	YES	1152 LBS
2	33 - Range	CAPTRATE SOLD FILTER	5	20"	16'	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							YES	400 LBS
3	59 - Conveyer Pizza						0									NO	197 LBS

**HOOD OPTIONS**

HOOD NO	TAG	OPTION
1	33 - Pizza	LEFT END STANDOFF (FINISHED) 1' WIDE 78" LONG INSULATED. BACK STANDOFF (FLAT) 15" WIDE 156" LONG. RIGHT QUARTER END PANEL 36" TOP WIDTH, 0" BOTTOM WIDTH, 36" HIGH 430 SS. BALANCE DAMPERS.
2	33 - Range	BALANCE DAMPERS. RISER SENSOR INSTALL 6IN PLEN.

**CLEARANCE TO COMBUSTIBLES**

HOODS #	SURFACE	*CLEARANCE
1	TOP	18"
	FRONT	0"
	BACK	18"
	LEFT	0"
2	TOP	18"
	FRONT	0"
	BACK	18"
	LEFT	18"

**PERFORATED SUPPLY PLENUM(S)**

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG	DIA	CFM	SP
1	33 - Pizza	Front	156"	14"	6"	MUA	8"	36"		635	0.180"
						MUA	8"	36"		635	0.180"
2	33 - Range	Front	88"	14"	6"	MUA	12"	20"		587	0.185"
						MUA	12"	20"		587	0.185"

**EXHAUST FAN INFORMATION - JOB#7464092**

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	KEF-1	1	USB24DD-RM	CAPTIVEAIRE	3950	2.000	1021	TEFC,PREMIUM	5.000	2.4370	3	208	15.6	1276 FPM	811	20.4
2	KEF-2	1	USB11DD-RM	CAPTIVEAIRE	812	0.650	1435	TEAO-ECM	0.500	0.1830	1	115	6.3	866 FPM	182	7.7

**MUA FAN INFORMATION - JOB#7464092**

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	EVAP FLOW RATE (GAL/HR)	EVAP COOLER ENTERING DB TEMP	EVAP COOLER LEAVING WB TEMP	EVAP COOLER ENTERING DB TEMP	EVAP COOLER LEAVING WB TEMP	WEIGHT (LBS)	SDNES
3	MAU-1	1	A2-D.250-20D	20MF-2-MDD	A2-D.250	2000	3730	0.500	1575	TEFC,PREMIUM	3.000	2.0970	3	230	8.5	11.7A	20A	5.28	95.0°F	66.0°F	75.0°F	66.0°F	1104	15.6

**GAS FIRED MAKE-UP AIR UNIT(S)**

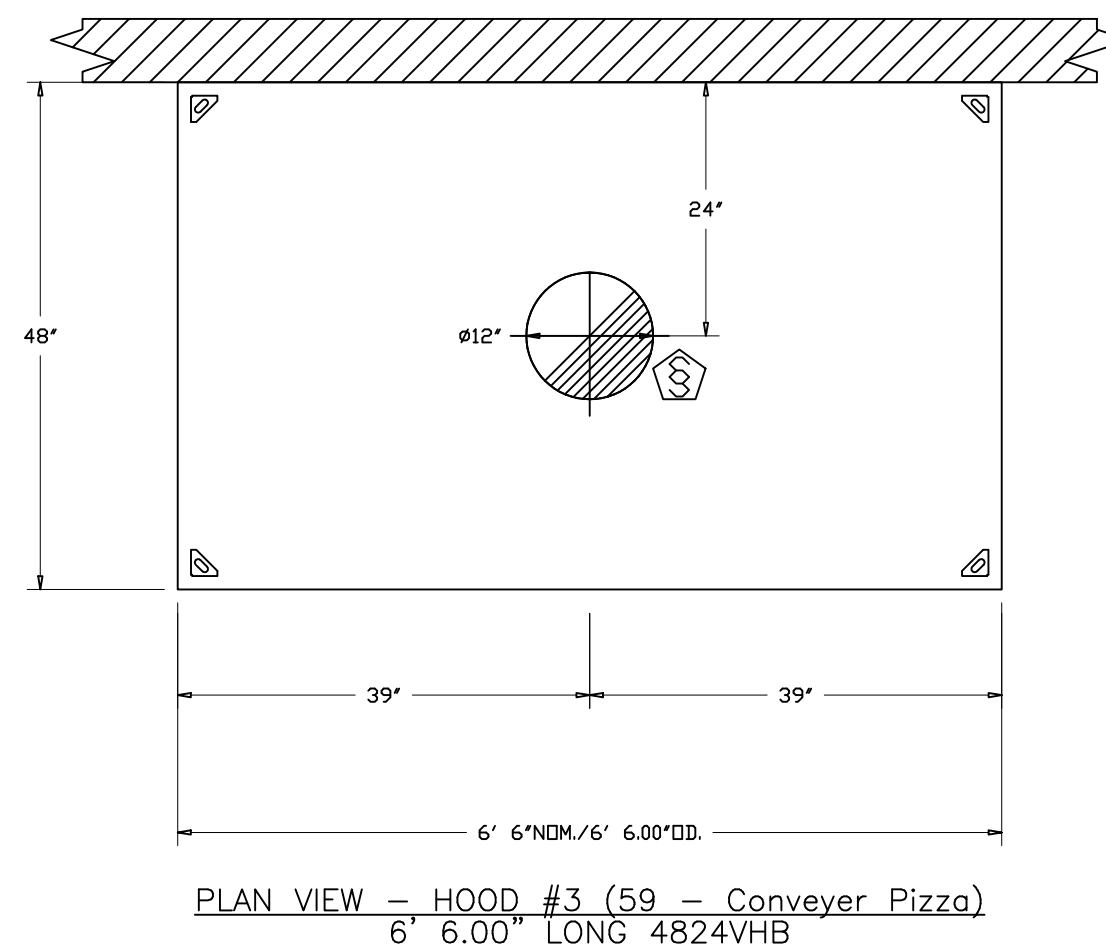
FAN UNIT NO	TAG	INPUT BTUS	OUTPUT BTUS	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
3	MAU-1	171651	157919	42°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

**FAN OPTIONS**

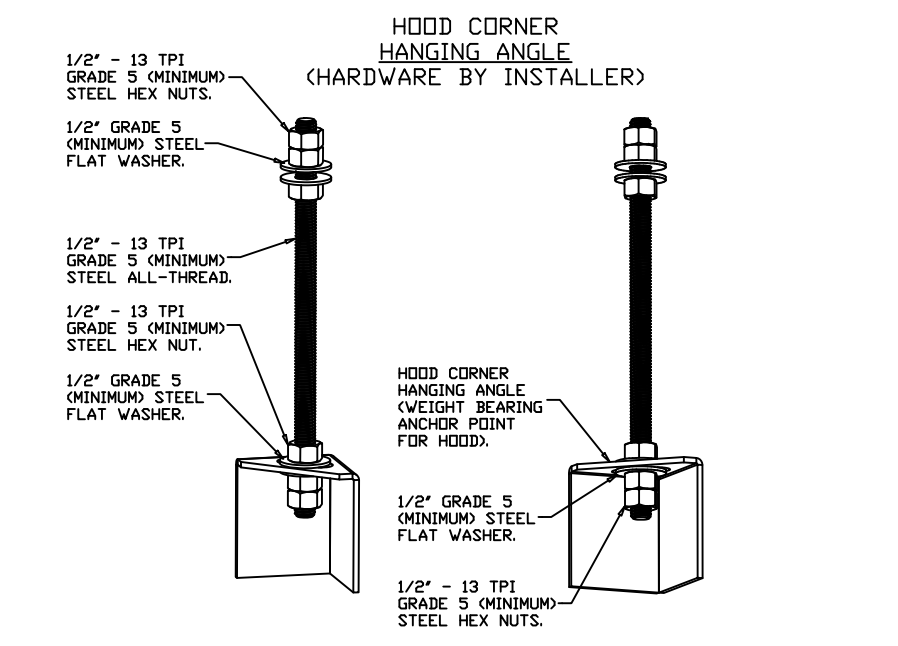
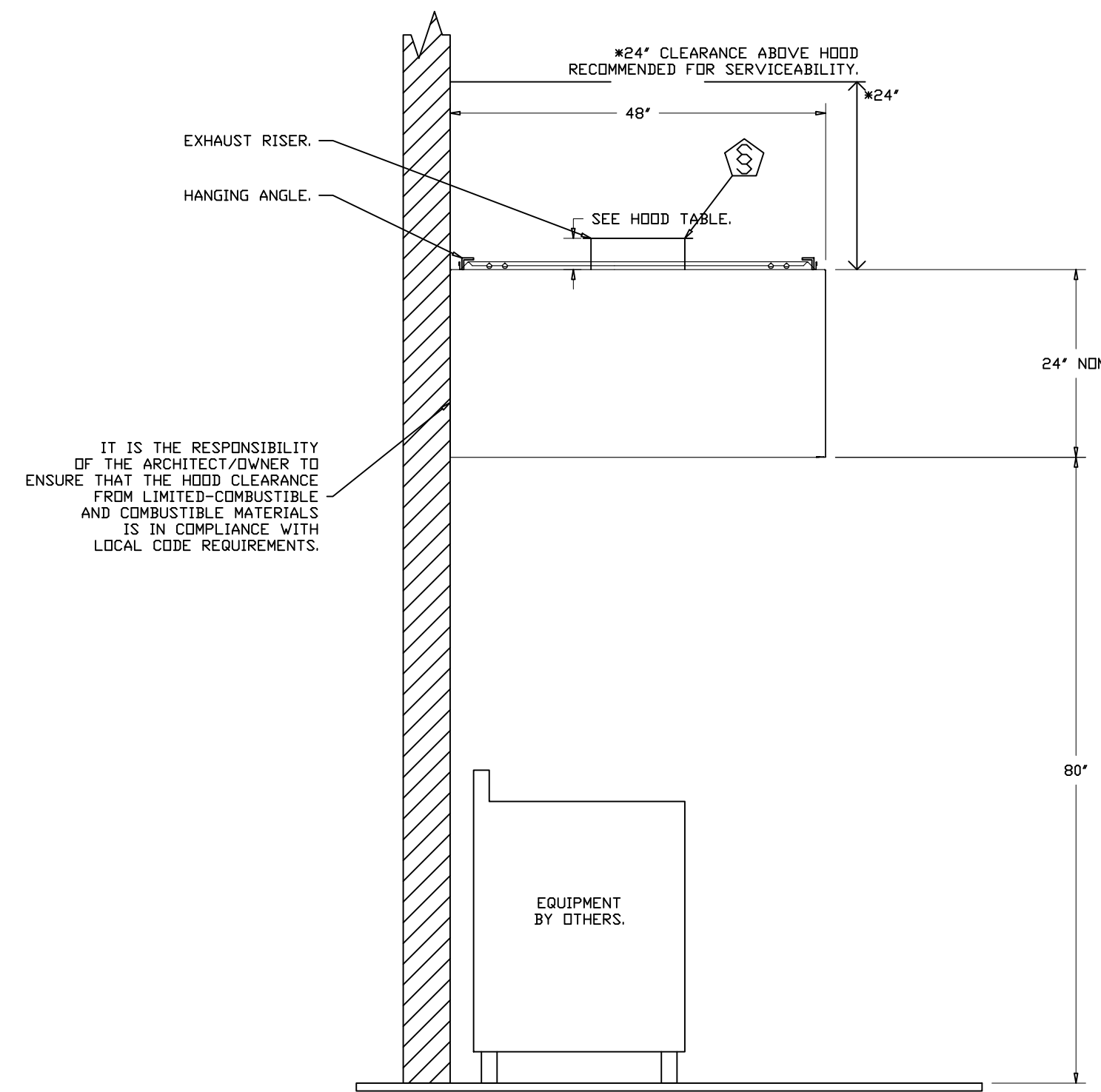
FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF-1	1	B124 - INLET SERVICE DUCT CONNECTION USED TO CONNECT TO STANDARD 24" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	UTILITY SET GREASE CUP
		1	B124 - 24" DISCHARGE EXTENSION
		1	B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	B124 - INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT
		1	3 YEAR EXTENDED MOTOR WARRANTY
2	KEF-2	1	B111 - INLET SERVICE DUCT CONNECTION USED TO CONNECT TO STANDARD 12" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	B111 - 24" DISCHARGE EXTENSION
		1	B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	B111 - INLET CONNECTION STANDARD 12" FLANGED GREASE DUCT
		1	3 YEAR EXTENDED MOTOR WARRANTY
		1	BLUE RUBBER VIBRATION ISOLATORS FOR BI UTILITY SETS (SET OF 6)
3	MAU-1	1	ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCD), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
		1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE)
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS IA RATING
		1	IBT/MUA EVAP INTERLOCK
		1	3 YEAR EXTENDED MOTOR WARRANTY
		1	FREEZE PROTECTION DRAIN KIT FOR IBT/MUA WITH EVAPORATIVE COOLERS
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
1	MAU-1	1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
		1	2 YEAR PARTS WARRANTY
		1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET

**CURB ASSEMBLIES**

NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
3	# 3	MAU-1	100 LBS	CURB	31.000"W X 79.000"L X 20.000"H INSULATED.
	# 3			RAIL	4.000"W X 4.000"L X 36.000"H.
	# 3			RAIL	4.000"W X 4.000"L X 36.000"H.



NOTE: SEE SHEET M2.09 FOR FAN INFORMATION



FOR QUESTIONS, CALL THE Los Angeles Office REGION 81 PHONE: (310) 876 - 8505 EMAIL: reg81@captiveaire.com

**REVISIONS**

NO	DESCRIPTION	DATE

**CAPTIVEAIRE**

Los Angeles Office  
1910 14th St Suite 214, Santa Monica, CA 90404 PHONE: (310) 876 - 8505 FAX: 0197475889 EMAIL: reg81@captiveaire.com

SLICE HOUSE  
1938 First Street,  
Livermore, CA, 94550

DATE: 4/10/2025  
DWG# 7464092  
DRAWN BY: brian81  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 1



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcomb Bridge Road  
Norcross, Georgia 30071  
404.330.9798

**FOR CONSTRUCTION**

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
KITCHEN HOOD PACKAGE

SHEET NUMBER:  
M201

05.15.25

**GENERAL NOTE**

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**Captrate Grease-Stop Solo Filter**

**Filter Detail CAPTRATE**

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)  
 SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED  
 TOTAL DUCT AREA=144 X CFM(4)  
 DUCT LENGTH= TOTAL DUCT AREA  
 DUCT DEPTH

**CALCULATIONS UTILIZED**

- NFPA #96
- B.O.C.A. #23-16
- L.C.C.A. 34418
- SBOC PST & ESI NO. 83137
- E.T.L. LISTED 3054804-001
- LOS ANGELES 1997800
- ETL IS LISTED TO ILC STANDARDS

**BUILDING CODES**

GREASE CUP WILL BE SUPPORTED BY TWO STUDS ON THE INSIDE WALL OF THE HOOD. THE GREASE WILL DRAIN THROUGH A CONCEALED GREASE TROUGH AND INTO THIS REMOVABLE/CLEANABLE CUP.

**1/2 Pint Grease Cup Detail**

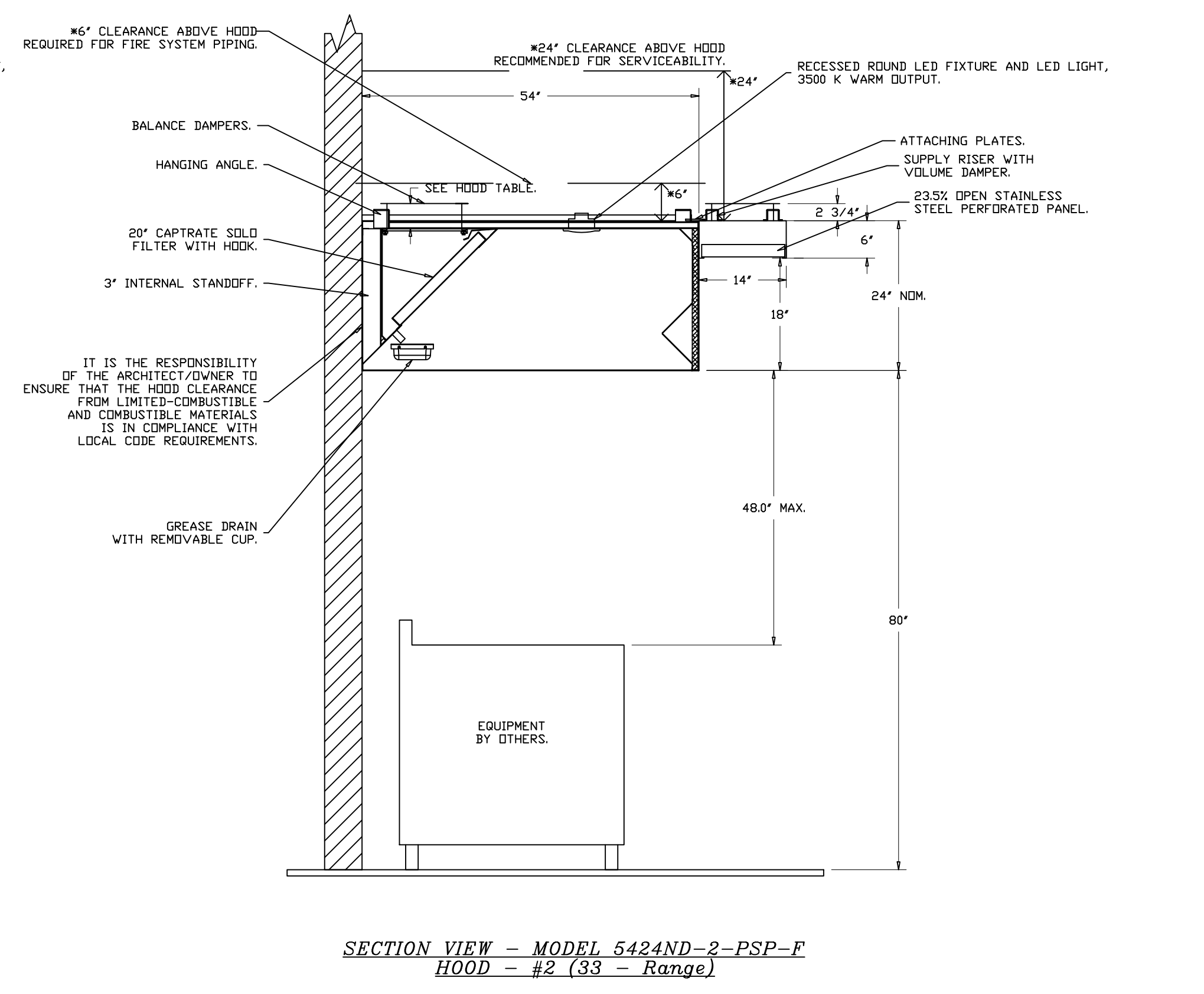
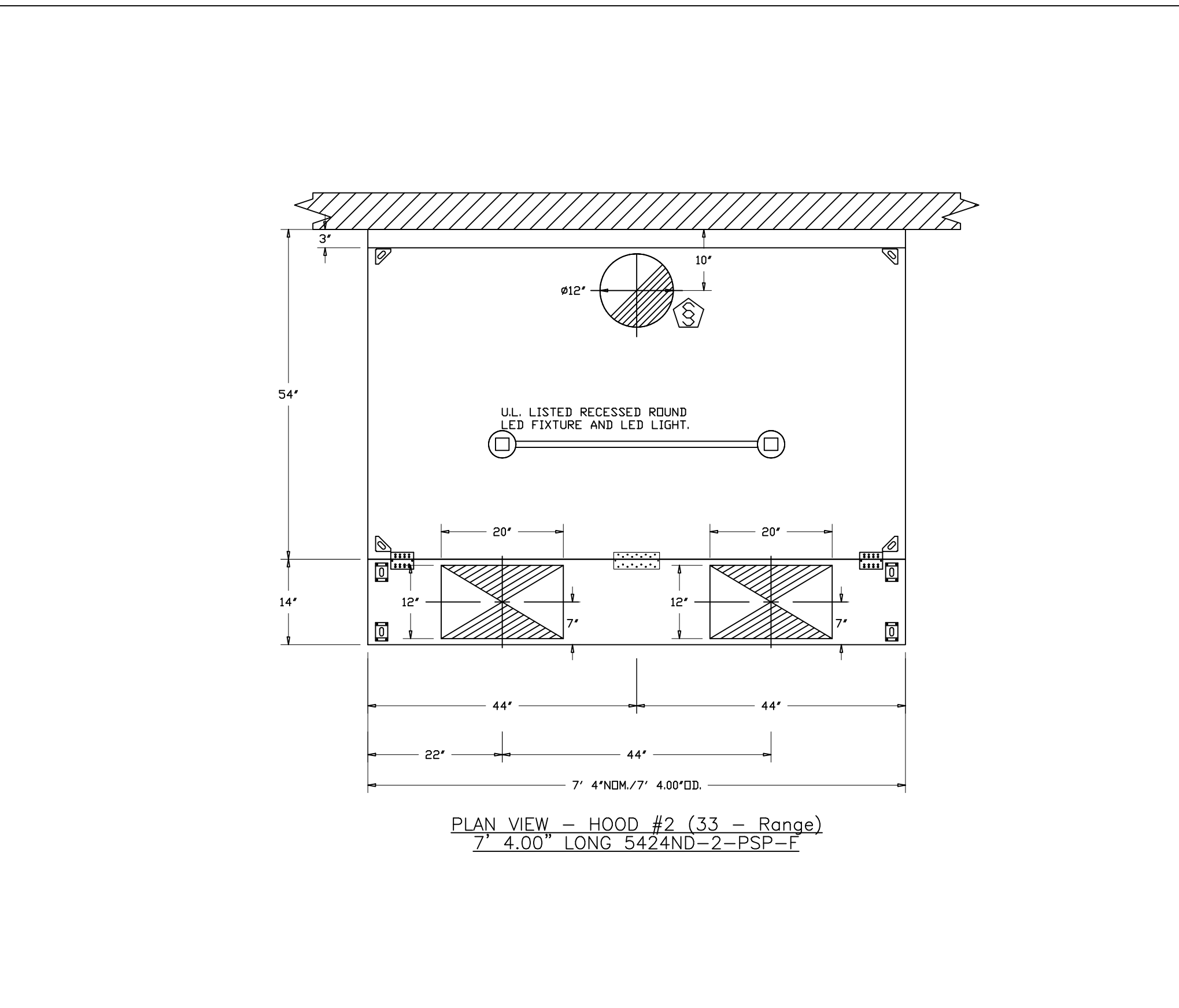
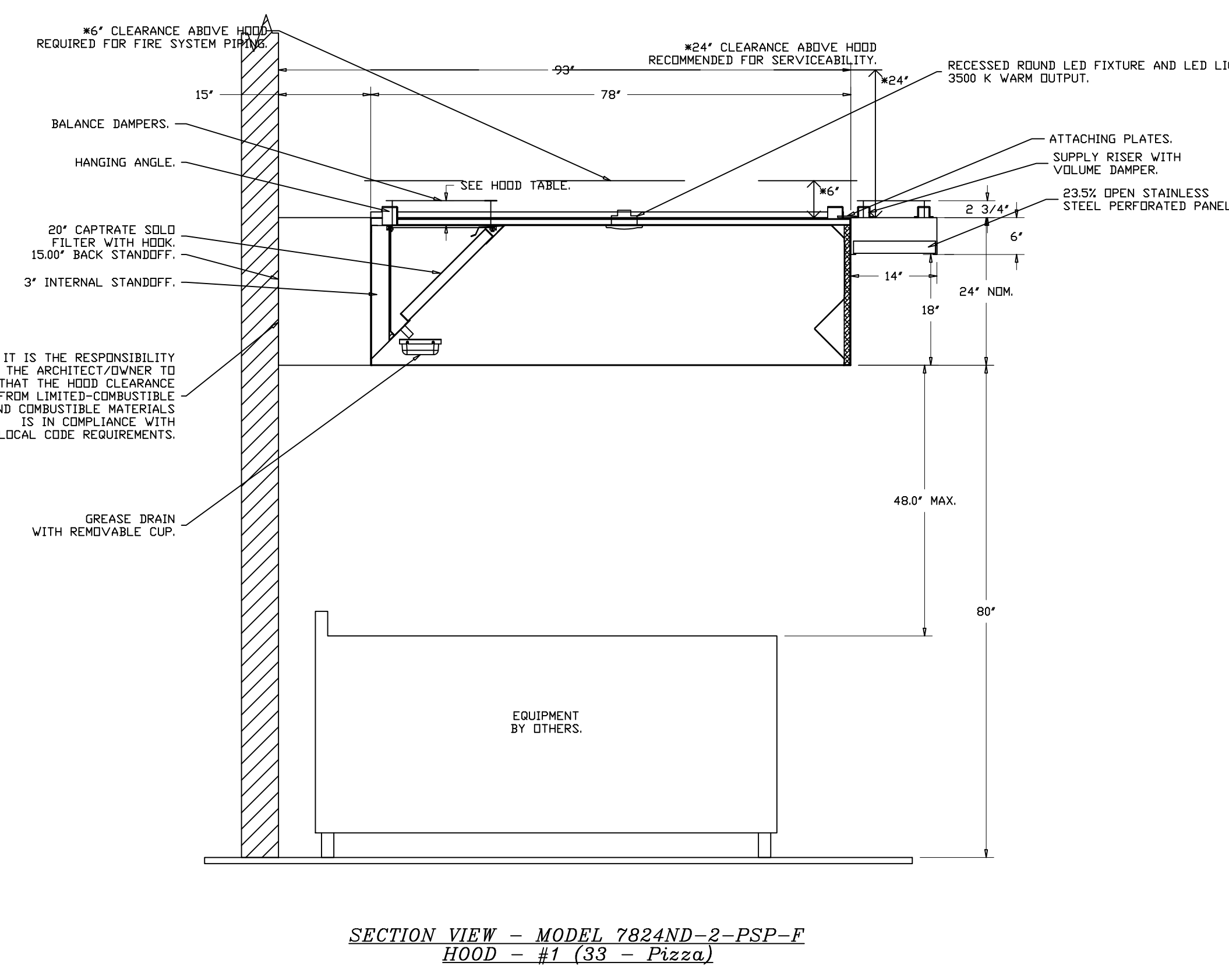
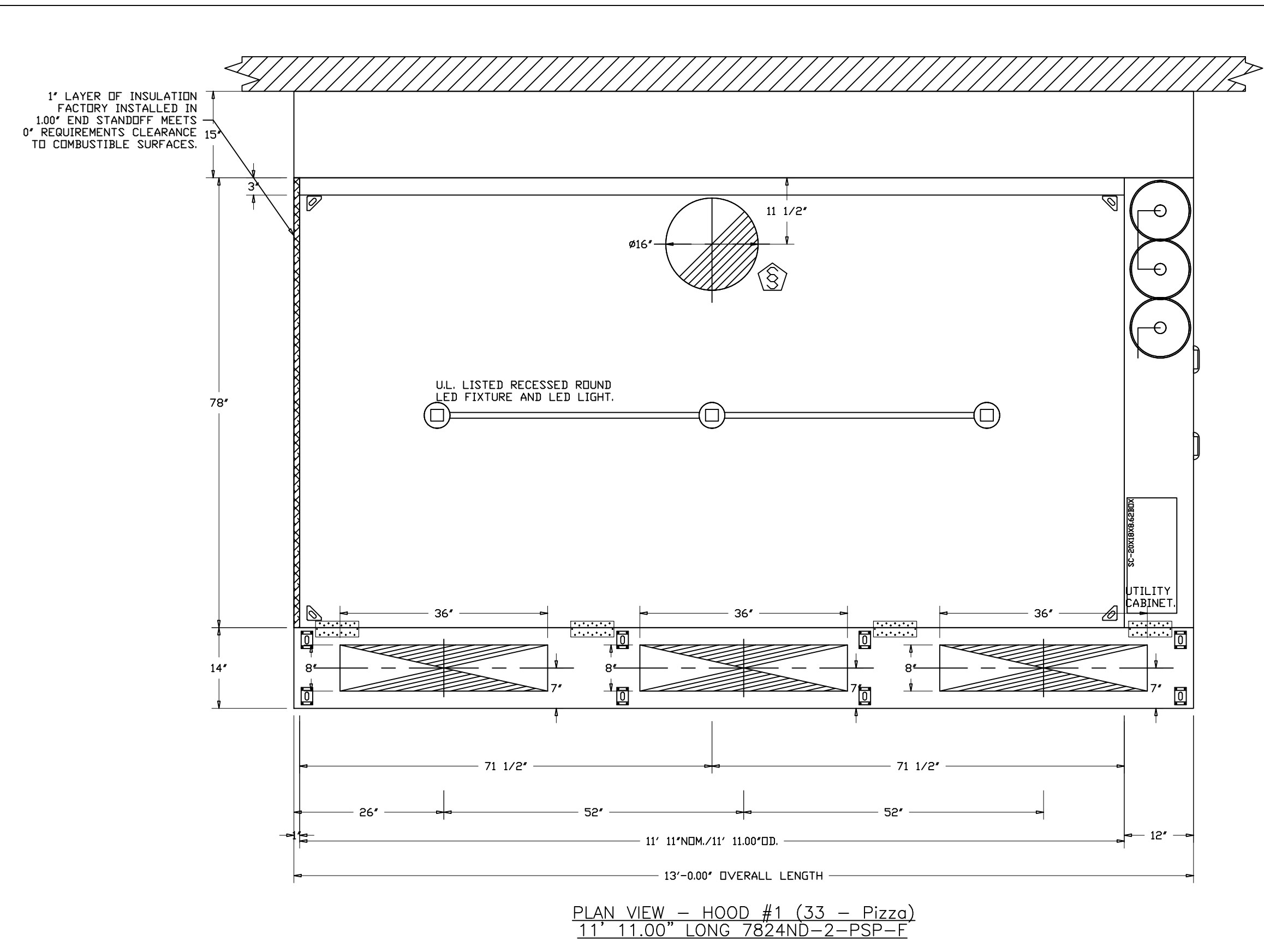
HOOD CORNER HANGING ANGLE OVERLAP BY INSTALLER. NOTE: SEE INSTALLATION MANUAL FOR MORE INFORMATION.

**ND-2 HANGING ANGLE DETAIL**

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

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

HANGING ANGLE LOCATIONS



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE**

Los Angeles Office  
 1910 14th St Suite 214, Santa Monica, CA 90404 PHONE: (310) 376-8866 FAX: 310 4776889 EMAIL: info@captiveair.com

**SLICE HOUSE**  
 1938 First Street,  
 Livermore, CA, 94550

DATE: 4/10/2025  
 DWG #: 7464092  
 DRAWN BY: brian81  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 2

**REGISTERED PROFESSIONAL ENGINEER**  
 J. PAUL KENNEY  
 M35746  
 MECHANICAL  
 STATE OF CALIFORNIA

**SLICE HOUSE**  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

**FOR CONSTRUCTION**

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

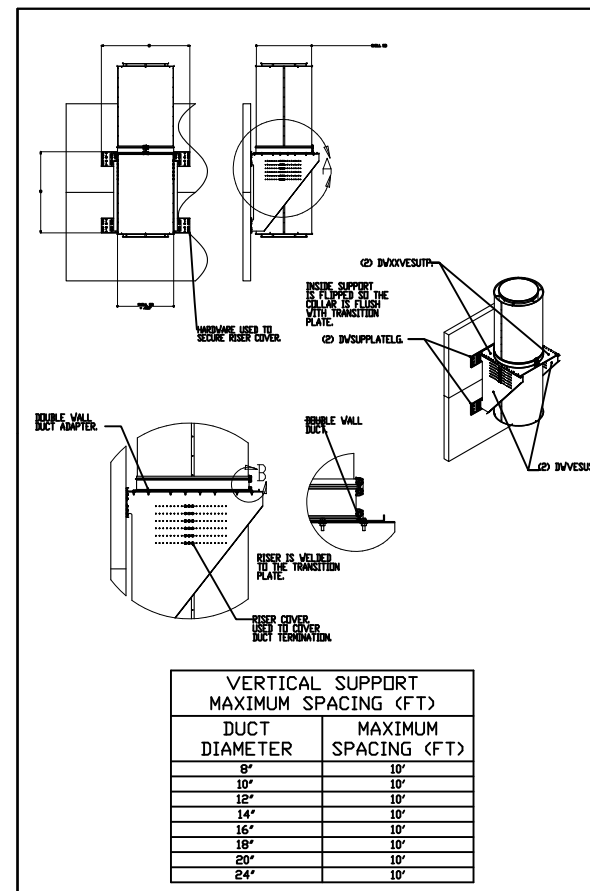
SHEET NAME:  
 KITCHEN HOOD PACKAGE

SHEET NUMBER:  
 M202

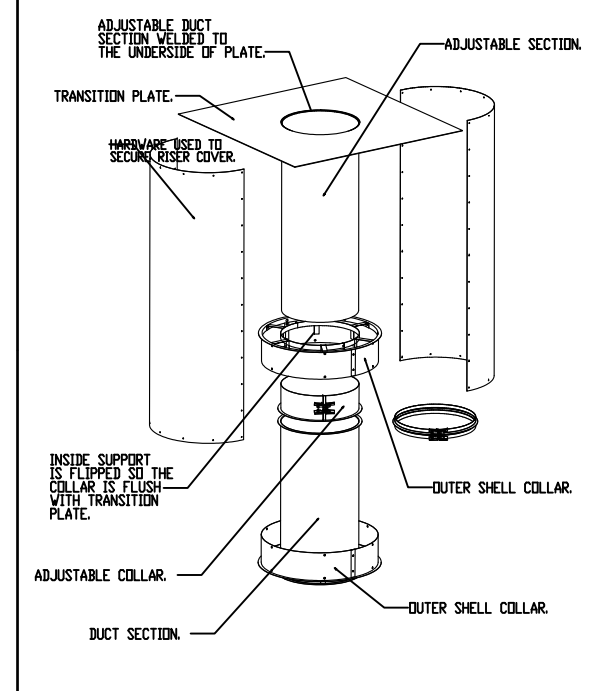
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**GENERAL NOTE**

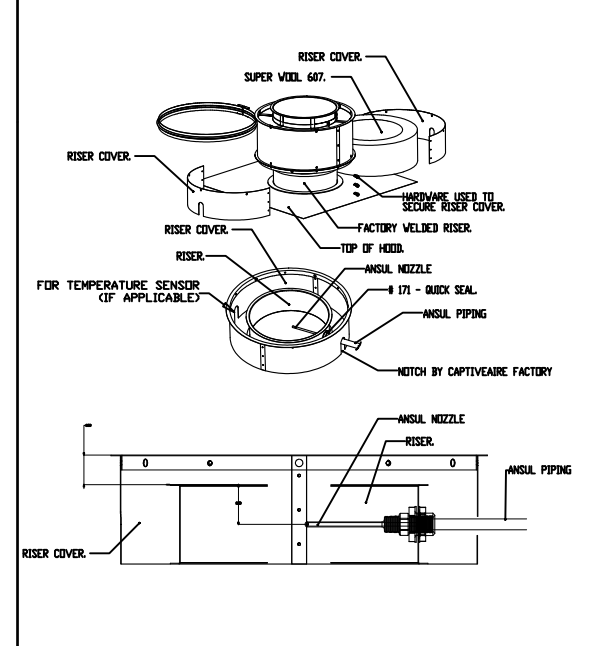
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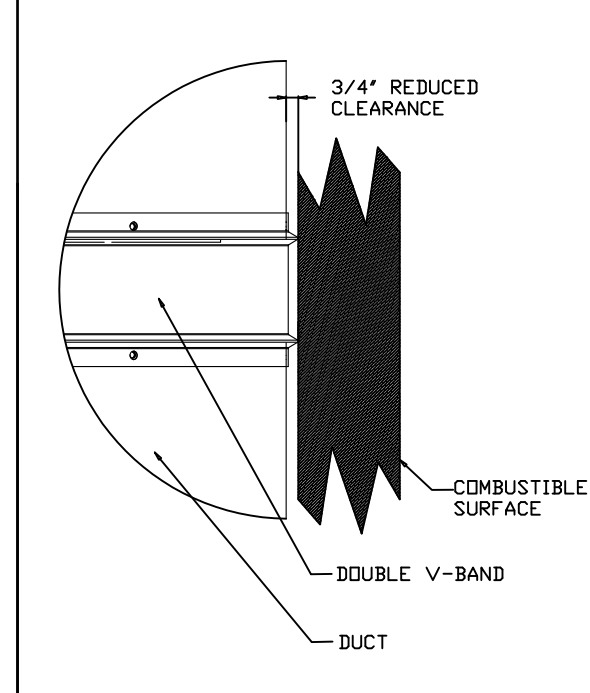
**DUCT SUPPORT ASSEMBLY**



**TRANSITION PLATE DETAIL**



**OUTER DUCT BAND DETAIL**



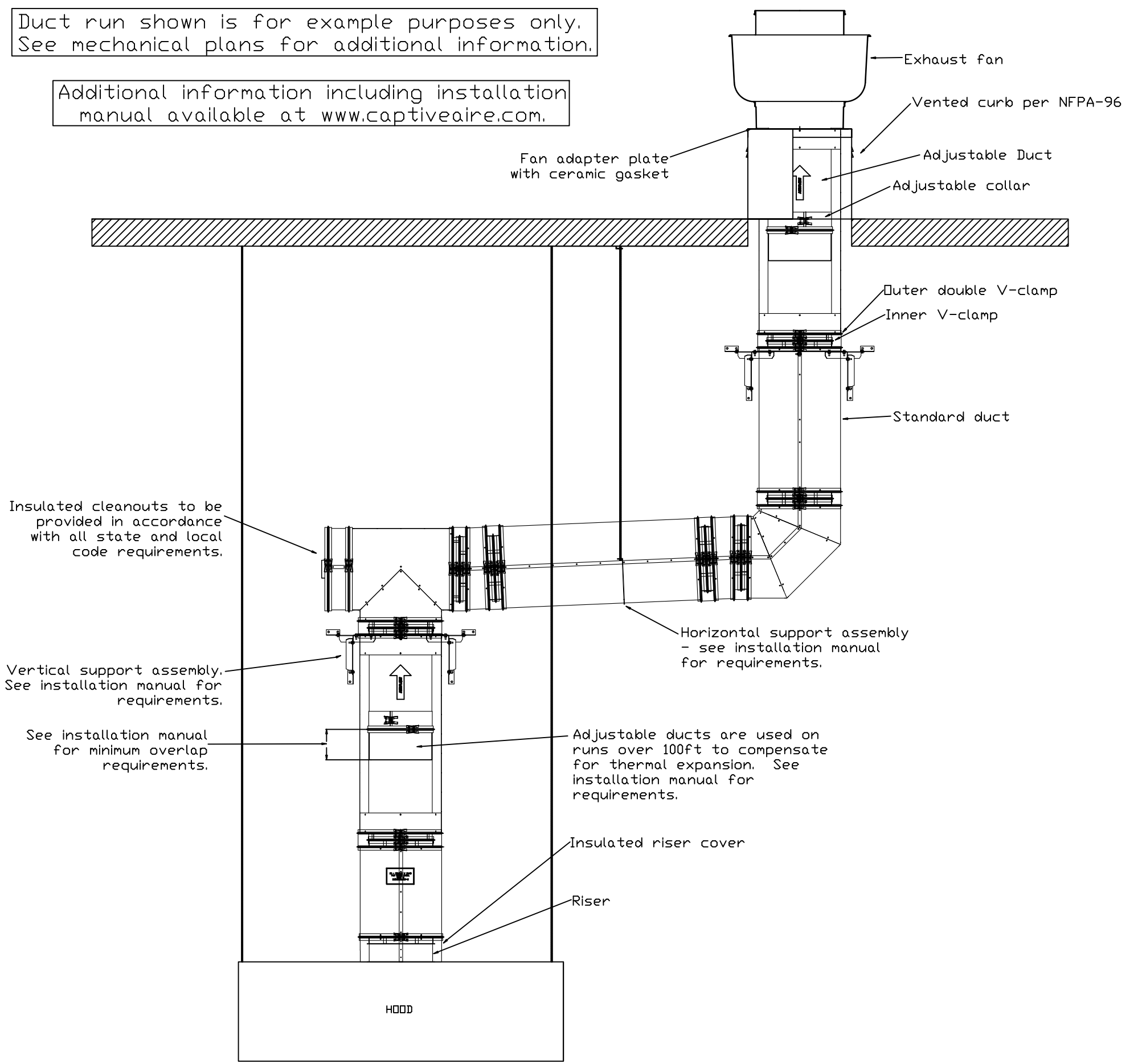
**REDUCED CLEARANCE DETAIL**

- DUCT RUN TO BE FIELD VERIFIED. PARTS SUBJECT TO CHANGE.
- DUCT RUNS TO HAVE CLEANOUTS EVERY 10' AND EVERY CHANGE OF DIRECTION UNLESS SPECIFIED OTHERWISE.
- VERTICAL HANGING SUPPORTS TO BE EVERY 10'. HORIZONTAL SUPPORTS TO BE EVERY 7' FOR INNER DUCT DIA 8" TO 18" AND EVERY 5' FOR INNER DUCT DIA 18" TO 24".
- ADJUSTABLE DUCT OVERLAP TO BE NO LESS THAN 6" UNLESS INNER DIAMETER IS 8" (4" OVERLAP) OR 10" (5" OVERLAP).
- 3/4" CLEARANCE TO COMBUSTIBLES IS FROM OUTER SHELL. V-BAND IS LISTED TO BE AGAINST SURFACE.

**DUCTWORK NOTES**

Duct run shown is for example purposes only. See mechanical plans for additional information.

Additional information including installation manual available at [www.captiveaire.com](http://www.captiveaire.com).



**DOUBLE WALL FACTORY BUILT DUCTWORK**

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (ft)
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'

TYPE	VERTICAL		
	WALL SUPPORT (ft)	CURB SUPPORT (ft)	FLOOR SUPPORT (ft)
2R & 2R HT	20'	24'	24'
3R	10'	24'	24'
3Z	10'	24'	24'

**SINGLE WALL FACTORY BUILT DUCTWORK**

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

DUCT DIAMETER	HORIZONTAL SUPPORT (ft)	VERTICAL WALL SUPPORT (ft)	VERTICAL CURB SUPPORT (ft)
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'

**GREASE DUCT 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 IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 LISTED DOUBLE WALL GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 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

The Double Wall Ductwork Series has been certified by ITS. This certification mark indicates that the product has been tested to and has met the minimum requirements of a widely recognized (consensus) U.S. Product safety standard, that the manufacturing site has been audited, and that the applicant has agreed to a program of periodic factory follow-up inspections to verify continued performance.

Models DW-2R and DW-3R are ETL Listed under file number 1000082319SAT-006 EEV and comply with UL1978 and UL2221 Standards.

Model DW-3Z is ETL Listed under file number 1000082319SAT-006 EEV and complies with UL1978, UL2221 and CAN/ULC-S144 Standards.

**DOUBLE WALL GREASE DUCT WRITTEN SPECIFICATION**

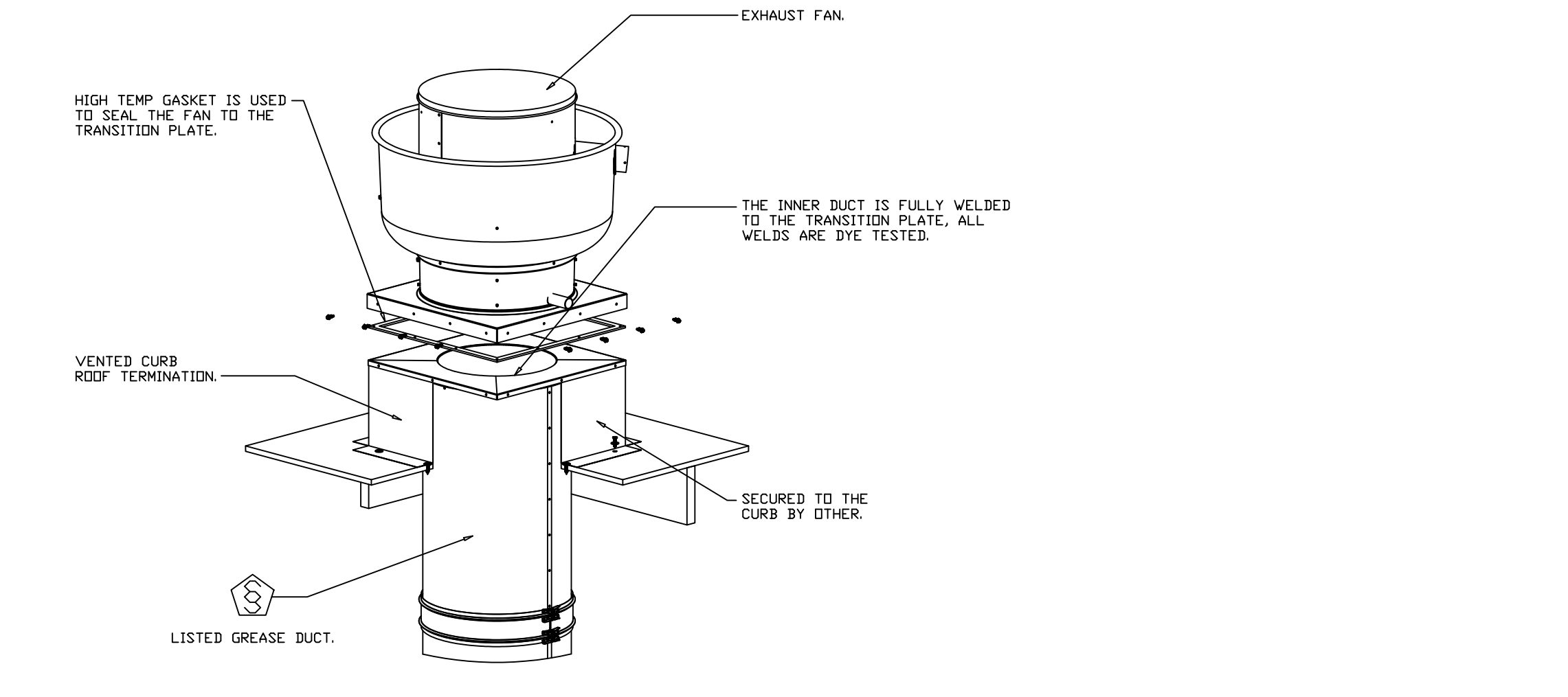
Furnish double wall, factory built grease duct for use with Type I kitchen hoods, which conforms to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 and UL-2221 for venting air and grease vapors from commercial cooking operation. Models DW-2R, 3R and 3Z are used for grease duct applications when installed in accordance with these instructions and National Fire Protection Association "NFPA 96", Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Double wall grease ducts are listed for a continuous internal temperature of 500 degrees F and intermittent temperatures of 2000 degrees F.

The duct sections shall be constructed of an inner duct wall and an outer wall with insulation in between. The inner duct wall shall be constructed of .036 inch thick, 430 type stainless steel and be available in diameters 8" through 24". The outer wall shall be constructed of stainless steel at a minimum of .024 inch thickness. The duct, based on model number, shall include layers of Super Wool 607 Plus insulation between the inner and outer wall. Grease duct joints shall be held together by means of formed V clamps and sealed with 3M Fire Barrier 2000+. The duct wall assembly shall be tested and listed at 3/4" or zero inch clearance, according to classifications.

**Classifications and Clearances**

UL 2221: Standard for Fire Resistive Grease Duct Enclosure Assemblies. Chapter 7 of this standard references a test labeled Internal Fire Test. Section 7.1.1 references two installation conditions, Condition A and Condition B. Condition A represents all installation condition except for installation within non-ventilated combustible enclosures. Condition B represents installation within a non-ventilated combustible enclosure.

Model DW-2R is classified under UL2221 (Test of Fire Resistive Duct Enclosure Assemblies) as an alternate to 2-Hr. fire resistive shaft enclosures with a reduced clearance to combustibles (sizes 8" to 16" diameter). Model 2R is listed in accordance with the requirements for duct enclosure Condition B.



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVEAIRE**

Los Angeles Office  
 1810 14th St Suite 214, Santa Monica, CA 90404 PHONE: (310) 378-8805 FAX: 310 4779689 EMAIL: [log@captivaire.com](mailto:log@captivaire.com)  
[www.captiveaire.com](http://www.captiveaire.com)

SLICE HOUSE  
 1938 First Street,  
 Livermore, CA, 94550

DATE: 4/10/2025  
 DW#: 7464092  
 DRAWN BY: brian81  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 3



SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
 3150 Wilcomb Bridge Road  
 Norcross, Georgia 30071  
 404.330.9798

**FOR CONSTRUCTION**

DRAWN BY: SL  
 CHECKED BY: PK

**ISSUE / REVISIONS:**

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
 KITCHEN HOOD PACKAGE

SHEET NUMBER:

**M203**

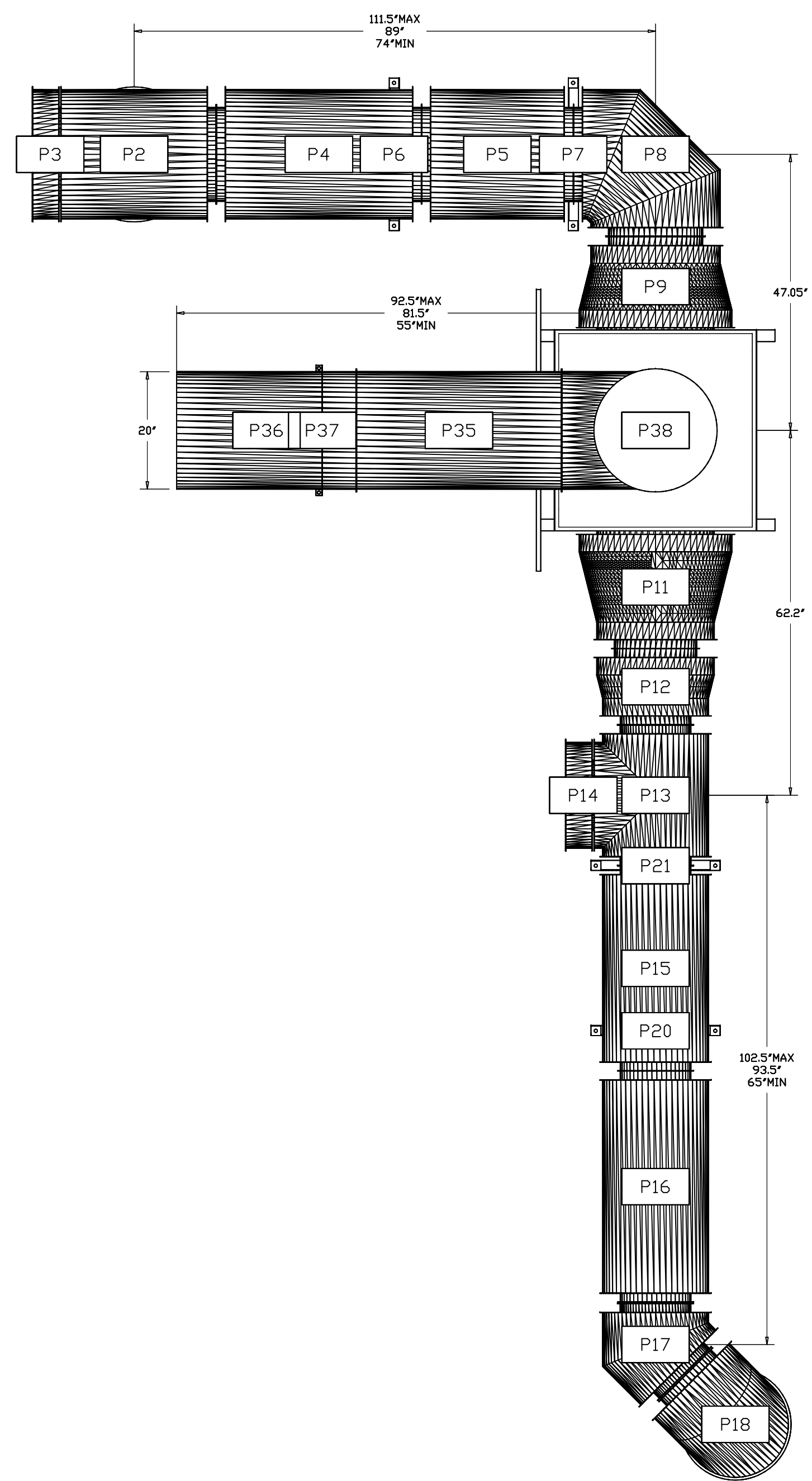
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DUCTWORK #1 PARTS - JOB#7464092 DOUBLE WALL										
TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
H1-E1	DW22DWRISER-3Z-S	2383					-0.8085	10.62	0.00	1 DOUBLE WALL RISER COVER - USED DN 16" INNER RISER, 4' LONG - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
H2-E1	DW18DWRISER-3Z-S	1467					-0.6795	8.59	0.00	1 DOUBLE WALL RISER COVER - USED DN 12" INNER RISER, 4' LONG - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
P1	DW161DWT-3Z-S	2383					-0.0042	19.43	1706.70	1 DOUBLE WALL DUCT - 16" INNER DUCT, 11' LONG - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P2	ASSEMBLED W/P3	2383		1			-0.1308	57.92	1706.70	1 DOUBLE WALL DUCT - 16" INNER TEE DUCT - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P3	ASSEMBLED W/P2 D=S							24.60		1 DOUBLE WALL DUCT - 16" INNER ACCESS DOOR & 22" ACCESS DOOR COVER WITH CLAMPS - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P4	DW1635DWT-3Z-S	2383					-0.0133	63.66	1706.70	1 DOUBLE WALL DUCT - 16" INNER TEE DUCT, 35" LONG - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P5	DW1647DWAJD-3Z-S	2383					-0.0098	121.14	1706.70	1 DOUBLE WALL ADJUSTABLE DUCT - 16" INNER DUCT - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 48.5' / ADJUSTMENT = 30.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P6	DW2226SADKIT							8.80		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P7	DW2226SADKIT							8.80		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P8	DW1690DWASY-3Z-S	2383					-0.1221	48.21	1706.70	1 DOUBLE WALL DUCT - 16" INNER 90 DUCT - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P9	DW1620DWRNDADPEC3ASY17-3Z-S	2383					-0.0293	42.78	1706.70	1 DOUBLE WALL DUCT ECCENTRIC - 16" X 20" RNDRND ADAPTER - 17" TALL - 3 LAYERS ZERO CLEARANCE - 22" X 26" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P10	DW20DWTEASY-3Z-S	3850		1			-0.4901	78.37	1764.71	1 DOUBLE WALL DUCT - 20" INNER TEE DUCT - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P11	DW1420DWRNDADPEC3ASY21-3Z-S	1467					-0.0649	52.03	1372.29	1 DOUBLE WALL DUCT ECCENTRIC - 14" X 20" RNDRND ADAPTER - 21" TALL - 3 LAYERS ZERO CLEARANCE - 20" X 26" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P12	DW1214DWRNDADPEC3ASY13-3Z-S	1467					-0.0145	23.60	1867.84	1 DOUBLE WALL DUCT ECCENTRIC - 12" X 14" RNDRND ADAPTER - 13" TALL - 3 LAYERS ZERO CLEARANCE - 18" X 20" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P13	ASSEMBLED W/P14	1467		1			-0.0145	40.14	1867.84	1 DOUBLE WALL DUCT - 12" INNER TEE DUCT - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P14	ASSEMBLED W/P13 D=T							17.08		1 DOUBLE WALL DUCT - 12" INNER ACCESS DOOR & 18" ACCESS DOOR COVER WITH CLAMPS - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P15	DW1235DWT-3Z-S	1467					-0.0212	50.35	1867.84	1 DOUBLE WALL DUCT - 12" INNER TEE DUCT, 35" LONG - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P16	DW1247DWAJD-3Z-S	1467					-0.0239	98.31	1867.84	1 DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 48.5' / ADJUSTMENT = 30.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P17	DW1245DWASY-3Z-S	1467					-0.1288	19.81	1867.84	1 DOUBLE WALL DUCT - 12" INNER 45 DUCT - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P18	DW1290DWASY-3Z-S	1467					-0.1675	32.93	1867.84	1 DOUBLE WALL DUCT - 12" INNER 90 DUCT - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P19	DW1211DWT-3Z-S	1467					-0.0067	15.58	1867.84	1 DOUBLE WALL DUCT - 12" INNER DUCT, 11' LONG - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P20	DW1822SADKIT							7.25		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 18" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1822SAD, & HARDWARE BAG 4.
P21	DW1822SADKIT							7.25		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 18" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1822SAD, & HARDWARE BAG 4.
P22	DW2047DWT-3Z-S	3850					-0.0114	103.73	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P23	DW2047DWT-3Z-S	3850					-0.0114	103.73	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P24	DW2047DWT-3Z-S	3850					-0.0114	103.73	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P25	DW2047DWT-3Z-S	3850					-0.0114	103.73	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P26	DW2047DWT-3Z-S	3850					-0.0114	103.73	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P27	DW2035DWT-3Z-S	3850					-0.0085	77.15	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 35" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P28	DW2047DWAJD-3Z-S	3850					-0.0065	144.57	1764.71	1 DOUBLE WALL ADJUSTABLE DUCT - 20" INNER DUCT - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 48.5' / ADJUSTMENT = 30.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P29	DW26DWVESU							119.34		1 DOUBLE WALL DUCT VERTICAL SUPPORT KIT, 26" SHELL, FOR REDUCED AND ZERO CLEARANCE. PARTS ARE ZINC COATED. HARDWARE KIT #7 FOR ASSEMBLY. MOUNTING HARDWARE SOLD SEPARATELY PER WALL CONSTRUCTION.
P30	ASSEMBLED W/P31	3850					-0.011	101.22	1764.71	1 DOUBLE WALL DUCT - 20" INNER DUCT, 45.5" LONG - 3 LAYERS ZERO CLEARANCE - 26" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P31	ASSEMBLED W/P30 D=B,P32 D=T	3850						21.88	1764.71	1 DUCT TO CURB TRANSITION DOWN TURN, 31-1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. NON-STANDARD PART. NOT FOR USE WITH EXHAUST FANS.
P32	ASSEMBLED W/P31	3850					-0.001	3.21	1764.71	1 SINGLE WALL DUCT 20" DIAMETER, 4' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P33	DW2018AJDKIT	3850					-0.0021	16.46	1764.71	1 SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P34	ASSEMBLED W/P38	3850		1			-0.101	26.16	1764.71	1 SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P35	DW2035LT	3850					-0.0085	23.51	1764.71	1 SINGLE WALL DUCT 20" DIAMETER, 35" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
SYSTEM AT P35							-1.8111	0.00		
P36	DW2048AJDKIT	3850					-0.0074	37.95	1764.71	1 SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 47.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
SYSTEM AT P36							-1.8111	0.00		
P37	DW20SUBRASY							3.58		1 DUCT SUPPORT BRACKET KIT, 20" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P38	ASSEMBLED W/P34 D=S							6.59		1 DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 20" DUCT USE 21" DOOR. STAINLESS STEEL.
RC1	DW22DWRISER-3Z-S							10.62		1 DOUBLE WALL RISER COVER - USED DN 16" INNER RISER, 4' LONG - 3 LAYERS ZERO CLEARANCE - 22" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
RC2	DW18DWRISER-3Z-S							8.59		1 DOUBLE WALL RISER COVER - USED DN 12" INNER RISER, 4' LONG - 3 LAYERS ZERO CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
	3M-2000PLUS							0.80	9	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW12DWCLASY-3Z-S							5.90	4	DUCT - 12" DUCT - 18" DOUBLE "V" CLAMP - 3Z INSULATION & SINGLE "V" CLAMP INCLUDED - ZERO CLEARANCE.
	DW14DWCLASY-3Z-S							6.54	1	DUCT - 14" DUCT - 20" DOUBLE "V" CLAMP - 3Z INSULATION & SINGLE "V" CLAMP INCLUDED - ZERO CLEARANCE.
	DW16DWCLASY-3Z-S							7.20	3	DUCT - 16" DUCT - 22" DOUBLE "V" CLAMP - 3Z INSULATION & SINGLE "V" CLAMP INCLUDED - ZERO CLEARANCE.
	DW20CLASY							1.41	6	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
	DW20DWCLASY-3Z-S						8.50		8	DUCT - 20" DUCT - 26" DOUBLE "V" CLAMP - 3Z INSULATION & SINGLE "V" CLAMP INCLUDED - ZERO CLEARANCE.
TOTAL WEIGHT							2112.13			

DUCTWORK #1 TOP VIEW



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE**

Los Angeles Office  
1610 4th St Suite 214, Santa Monica, CA, 90404 PHONE: (310) 878-8666 FAX: (310) 4747689 EMAIL: info@captivemechanical.com www.captivemechanical.com

SLICE HOUSE  
1938 First Street,  
Livermore, CA, 94550

DATE: 4/10/2025  
DWG.#: 7464092  
DRAWN BY: brian81  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 4



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

FOR CONSTRUCTION

DRAWN BY: SL	CHECKED BY: PK
ISSUE / REVISIONS:	
DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
KITCHEN HOOD PACKAGE

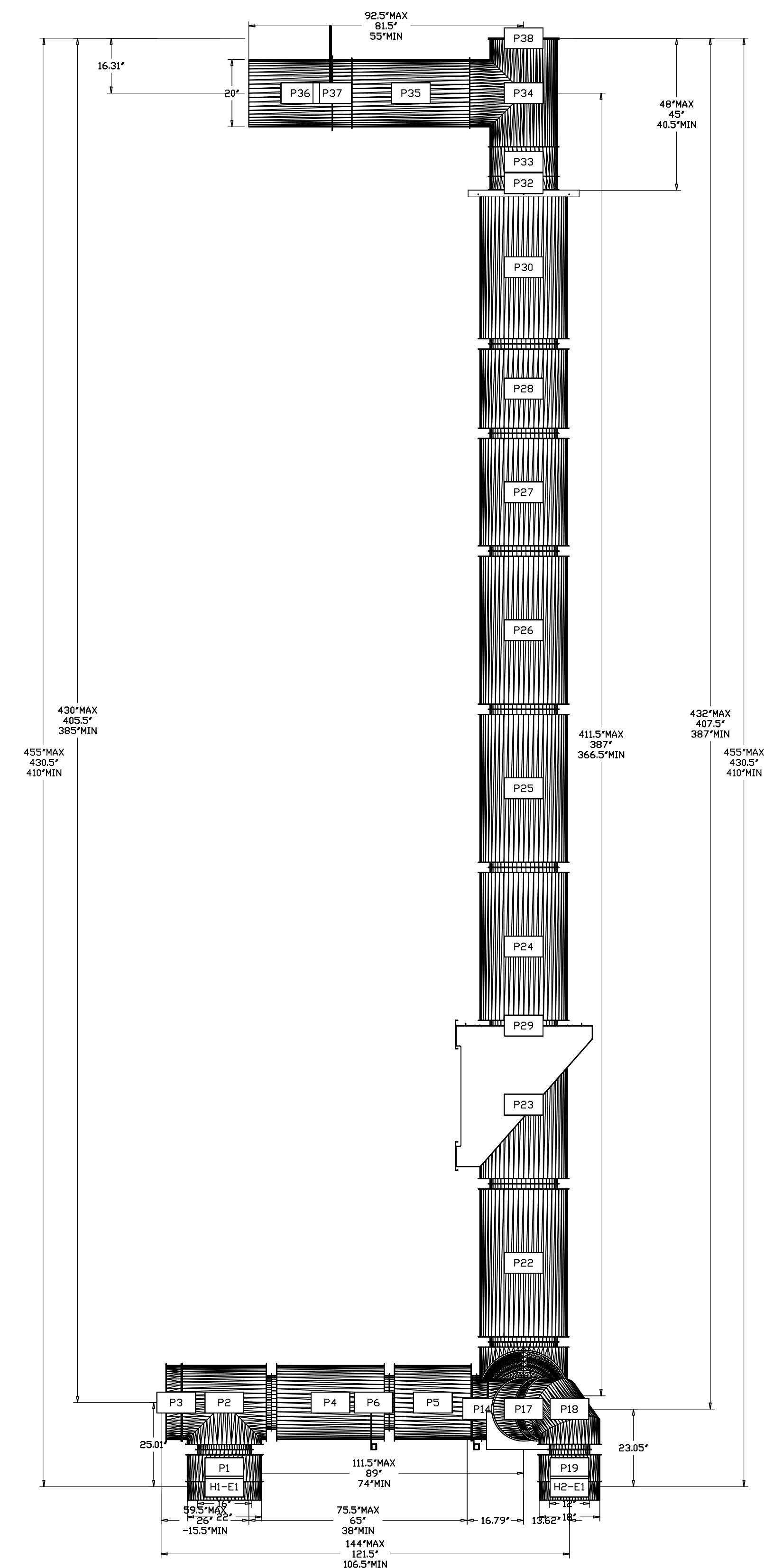
SHEET NUMBER:  
M204

05.15.25

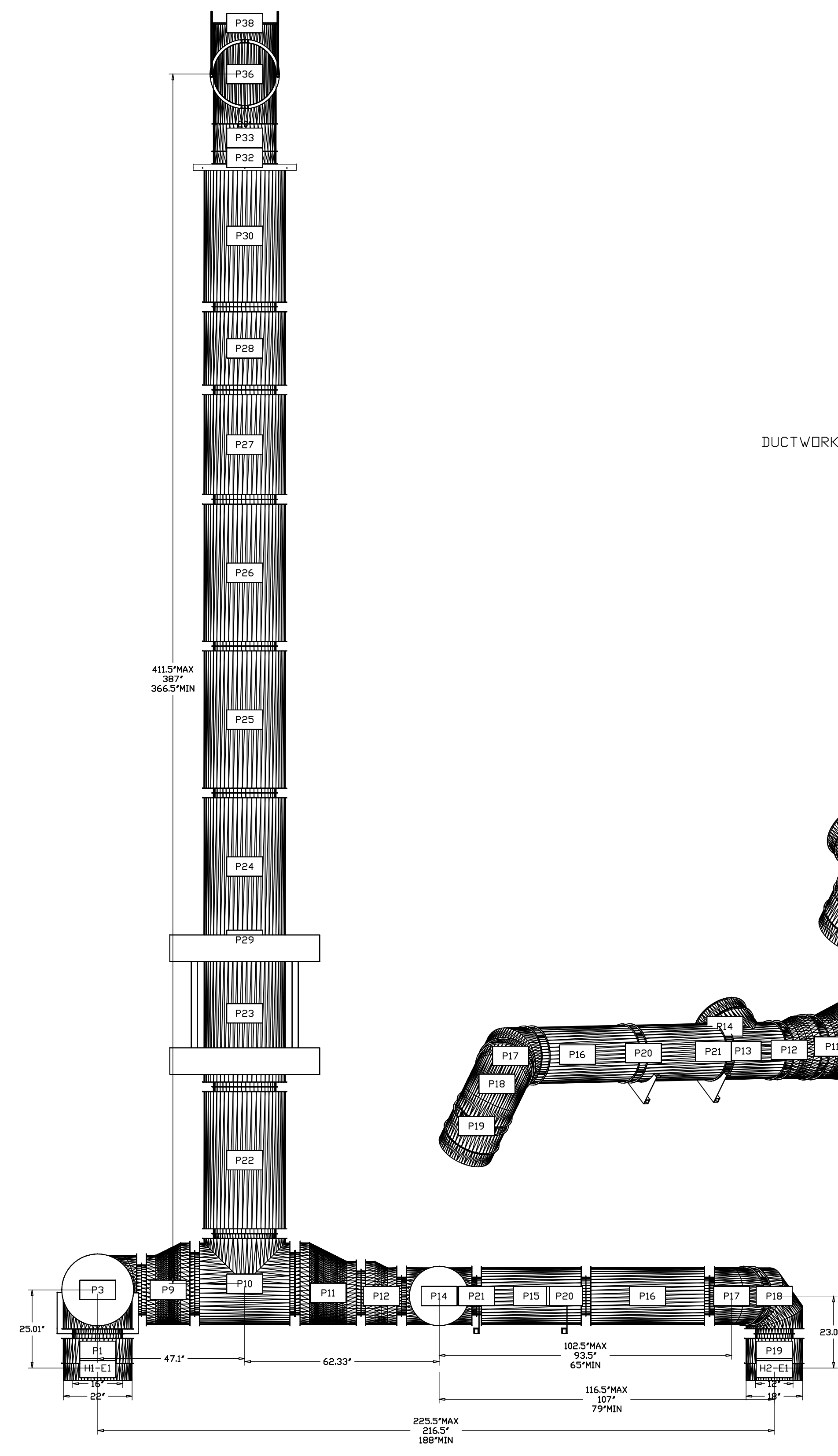
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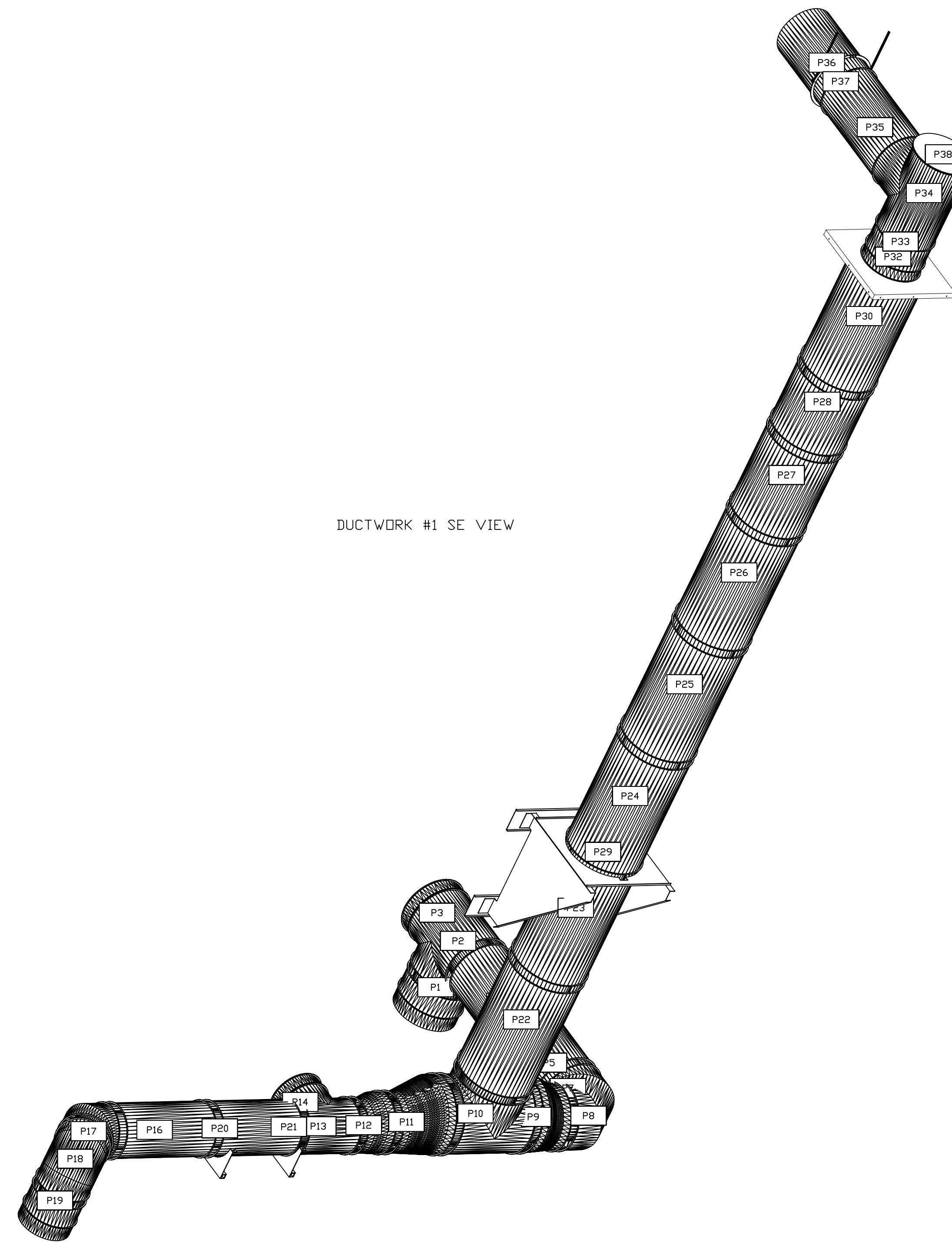
DUCTWORK #1 FRONT VIEW



DUCTWORK #1 SIDE VIEW



DUCTWORK #1 SE VIEW



REVISIONS	
DESCRIPTION	DATE

**CAPTIVE**  
 www.captiveair.com  
 Los Angeles Office  
 1010 14th St Suite 214, Santa Monica, CA 90404 PHONE: (310) 676-8805 FAX: 919775630 EMAIL: rsgf@captiveair.com

SLICE HOUSE  
 1938 First Street,  
 Livermore, CA, 94550

DATE: 4/10/2025

DWG.#:  
 7464092

DRAWN BY:  
 brian81

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

MASTER DRAWING

SHEET NO.  
 5



SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550



FOR CONSTRUCTION

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
 KITCHEN HOOD PACKAGE

SHEET NUMBER:

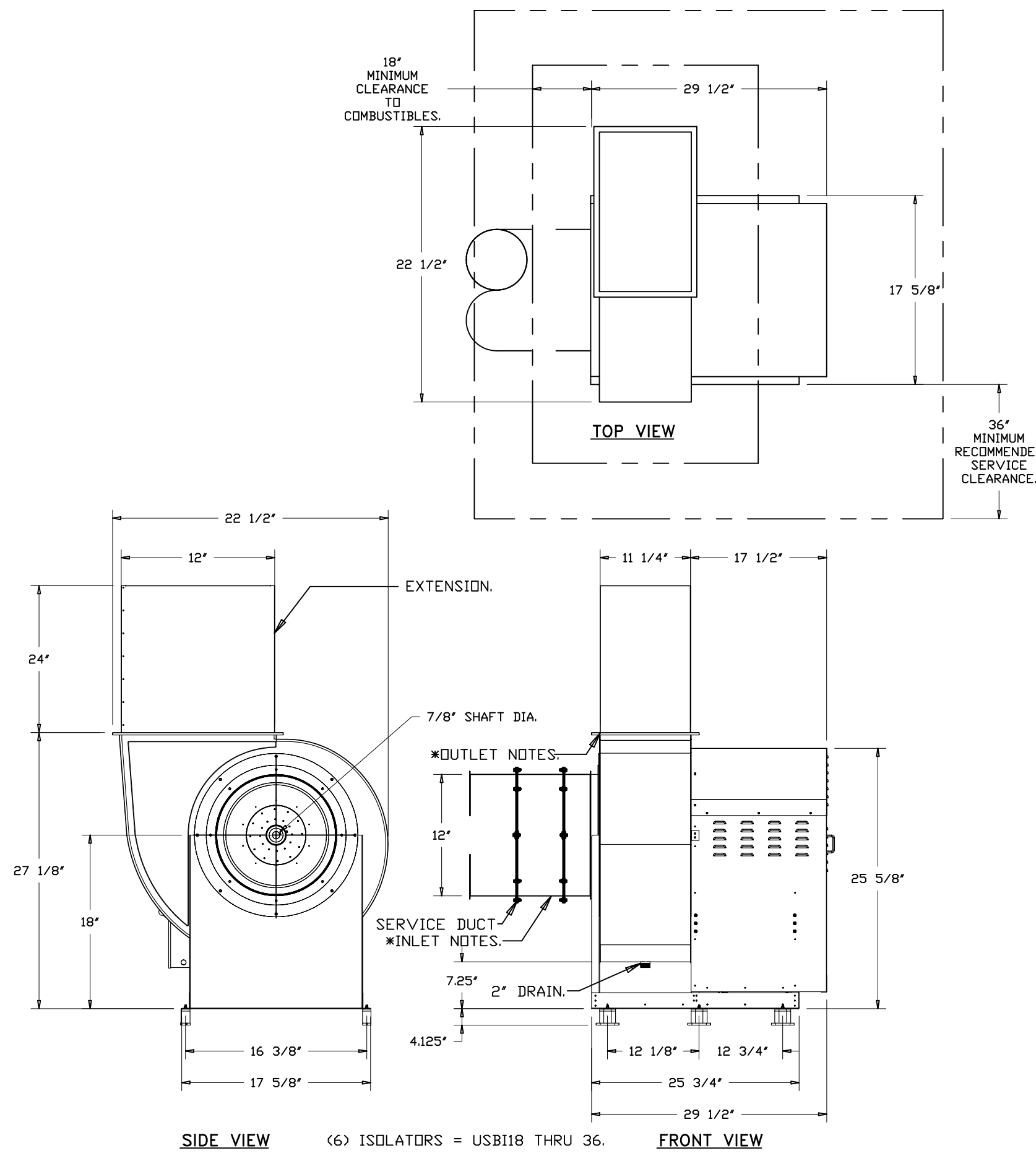
M205

05.15.25

**GENERAL NOTE**

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FAN #2\_USB11DD-RM - EXHAUST FAN (KEF-2)



**FEATURES:**

- ROOF MOUNTED FANS.
- UL705.
- UL752 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

**OPTIONS**

- B11 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 12" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER.
- B11 - 24" DISCHARGE EXTENSION.
- B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- B11 - INLET CONNECTION STANDARD 12" FLANGED GREASE DUCT.
- 3 YEAR EXTENDED MOTOR WARRANTY.
- BLUE RUBBER VIBRATION ISOLATORS FOR BI UTILITY SETS (SET OF 6).
- ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCD), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.

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

UNIT PLAN VIEW CORNER WEIGHTS:  
 40 LBS

33 LBS

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

64 LBS

46 LBS

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

**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE**  
 www.captivefans.com  
 8 Adair Court, Burlingame, CA 94010 PHONE: (415) 988-2200 FAX: 9162726940 EMAIL: nrg1@captivefans.com

SLICE HOUSE - Livermore, CA rev2  
 1938 First Street,  
 Livermore, CA, 94550

DATE: 7/29/2025  
 DWS# 7521231  
 DRAWN BY: T.Thai  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO.  
 2



SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
 3150 Wilcomb Bridge Road  
 Norcross, Georgia 30071  
 404.330.9798

FOR CONSTRUCTION

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
 KITCHEN HOOD PACKAGE

SHEET NUMBER:

M206

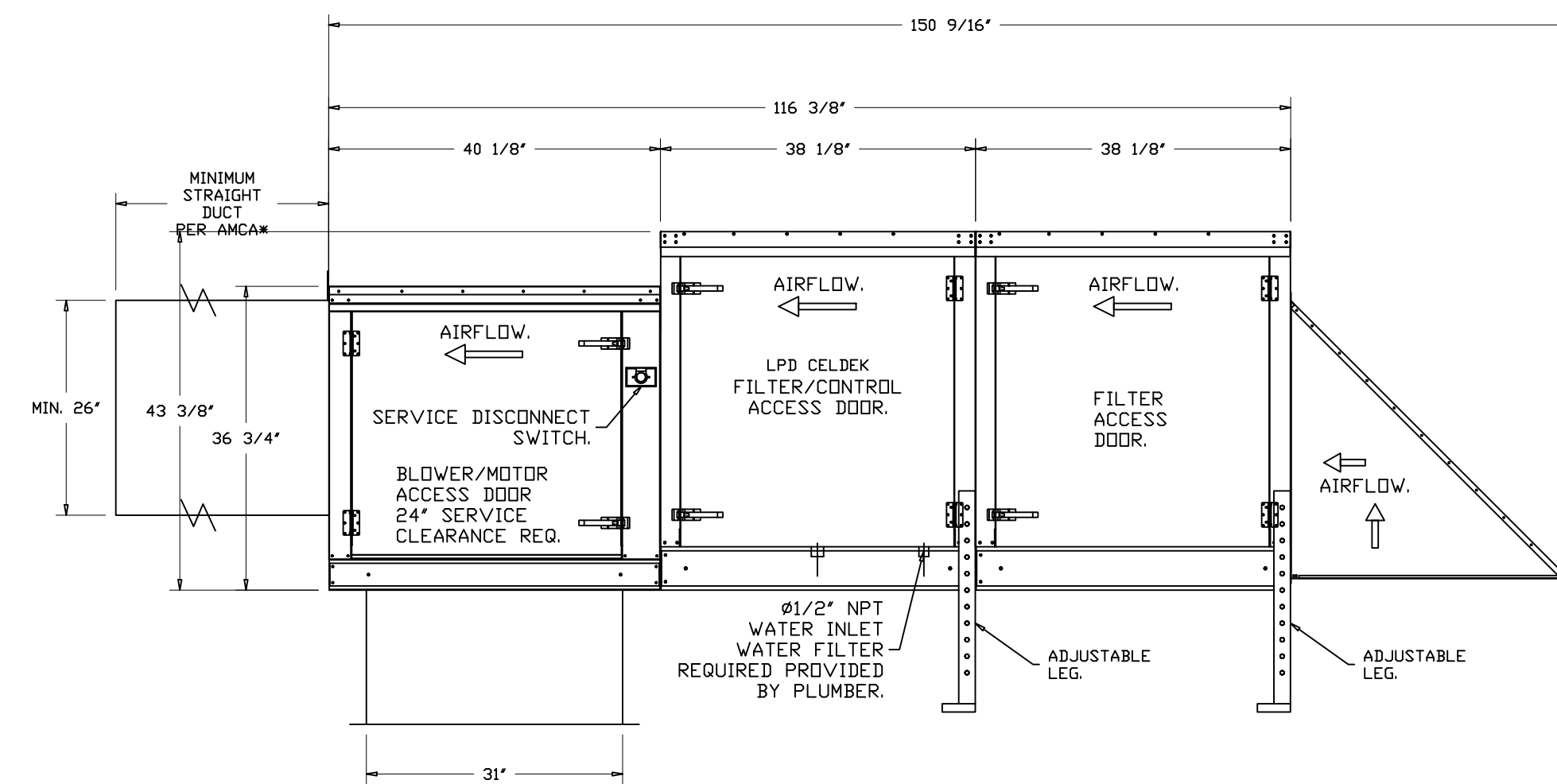
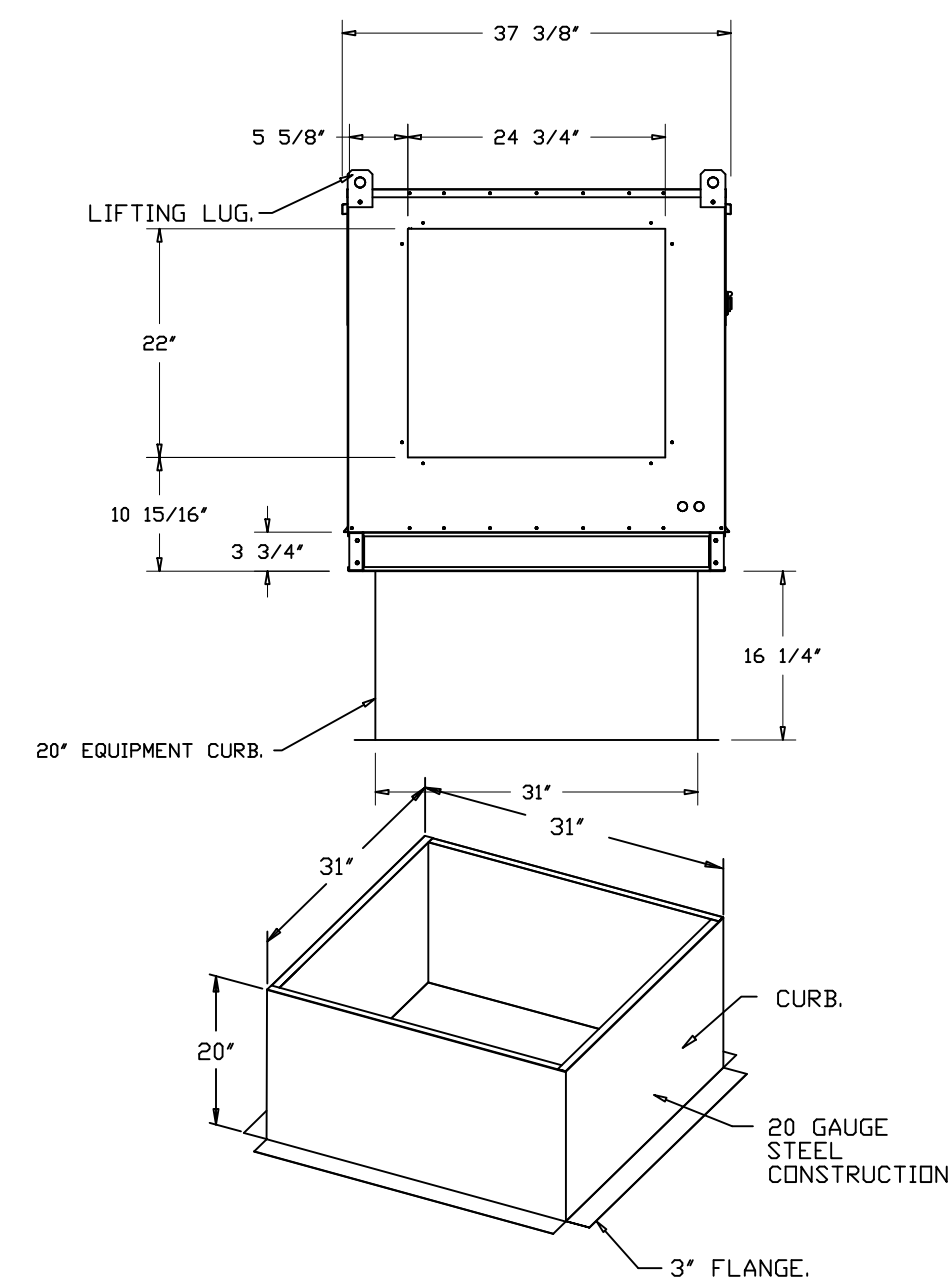
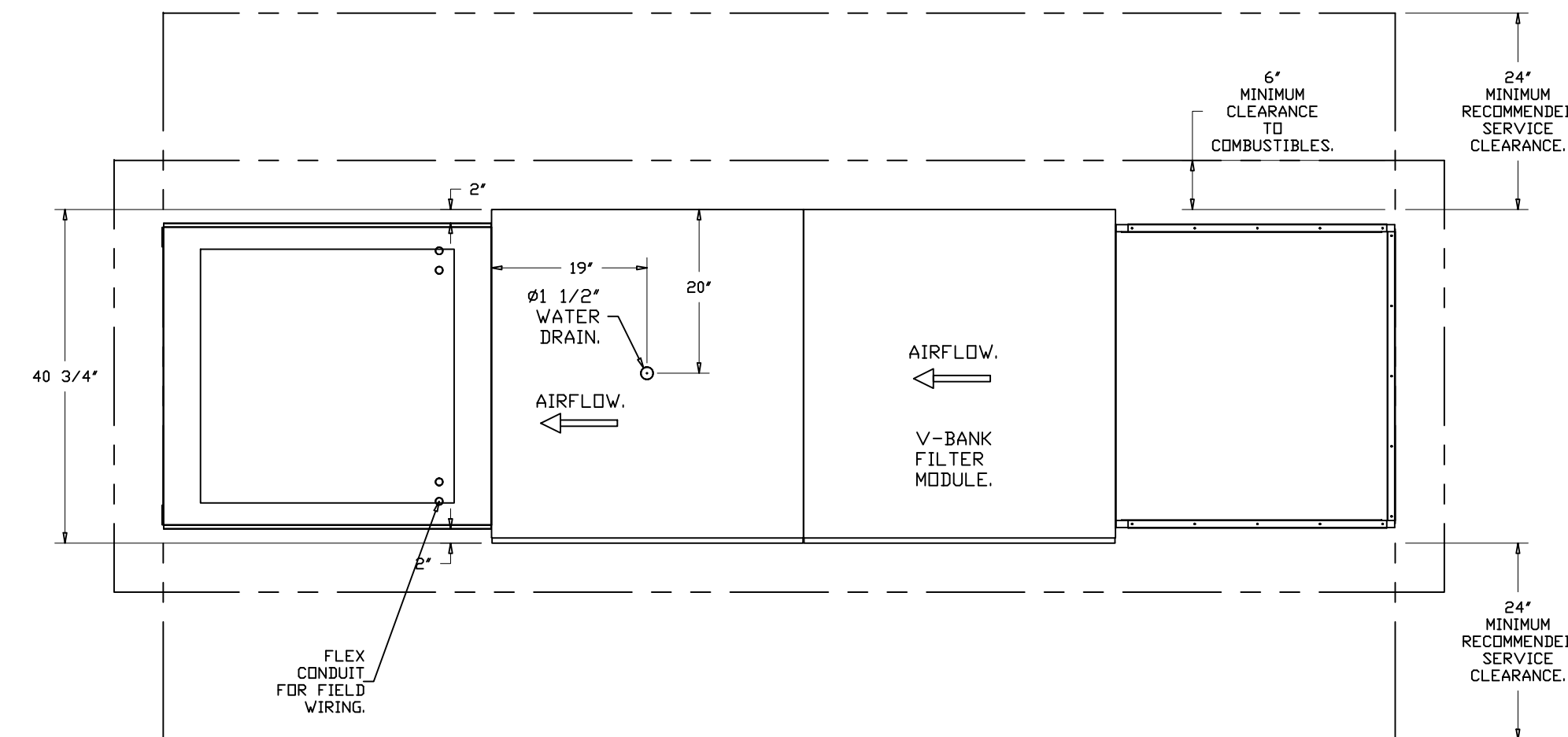
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GENERAL NOTE

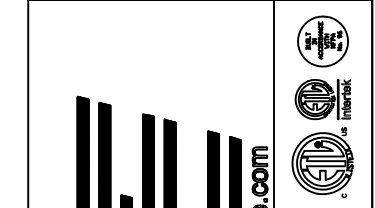
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- FAN #3 AP-20D - SUPPLY FAN (MAU-1)
- UNTEMPERED SUPPLY UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN IN SIZE #2 HOUSING.
  - EVAP COOLER (LPD CELDEKO) & V-BANK WITH 2" TA-13 FILTERS-OUTDOOR.
  - SIDE DISCHARGE - AIR FLOW RIGHT -> LEFT.
  - 120V WIRING CONNECTION TO ENERGIZE EVAPORATIVE COOLERS FROM UNTEMPERED SUPPLY FANS.
  - SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
  - MOUNT LOAD REACTOR IN FAN.
  - HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/EVAP SECTION).
  - 2 YEAR PARTS WARRANTY.

\*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 200. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROTT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROTT/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 26" x 26".



REVISIONS	
DESCRIPTION	DATE



www.captivehood.com

**CAPTIVE**

Central CA

8 Adam Court, Burlingame, CA, 94010 PHONE: (415) 866-2200 FAX: 916272940 EMAIL: rkgf@captivehood.com

SLICE HOUSE - Livermore, CA rev2

1938 First Street,  
Livermore, CA, 94550

DATE: 7/29/2025  
DWG.#: 7521231  
DRAWN BY: T.Thai  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO.  
3



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcomb Bridge Road  
Norcross, Georgia 30071  
404.330.9798

FOR CONSTRUCTION

DRAWN BY: SL  
CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME:  
KITCHEN HOOD PACKAGE

SHEET NUMBER:

M207

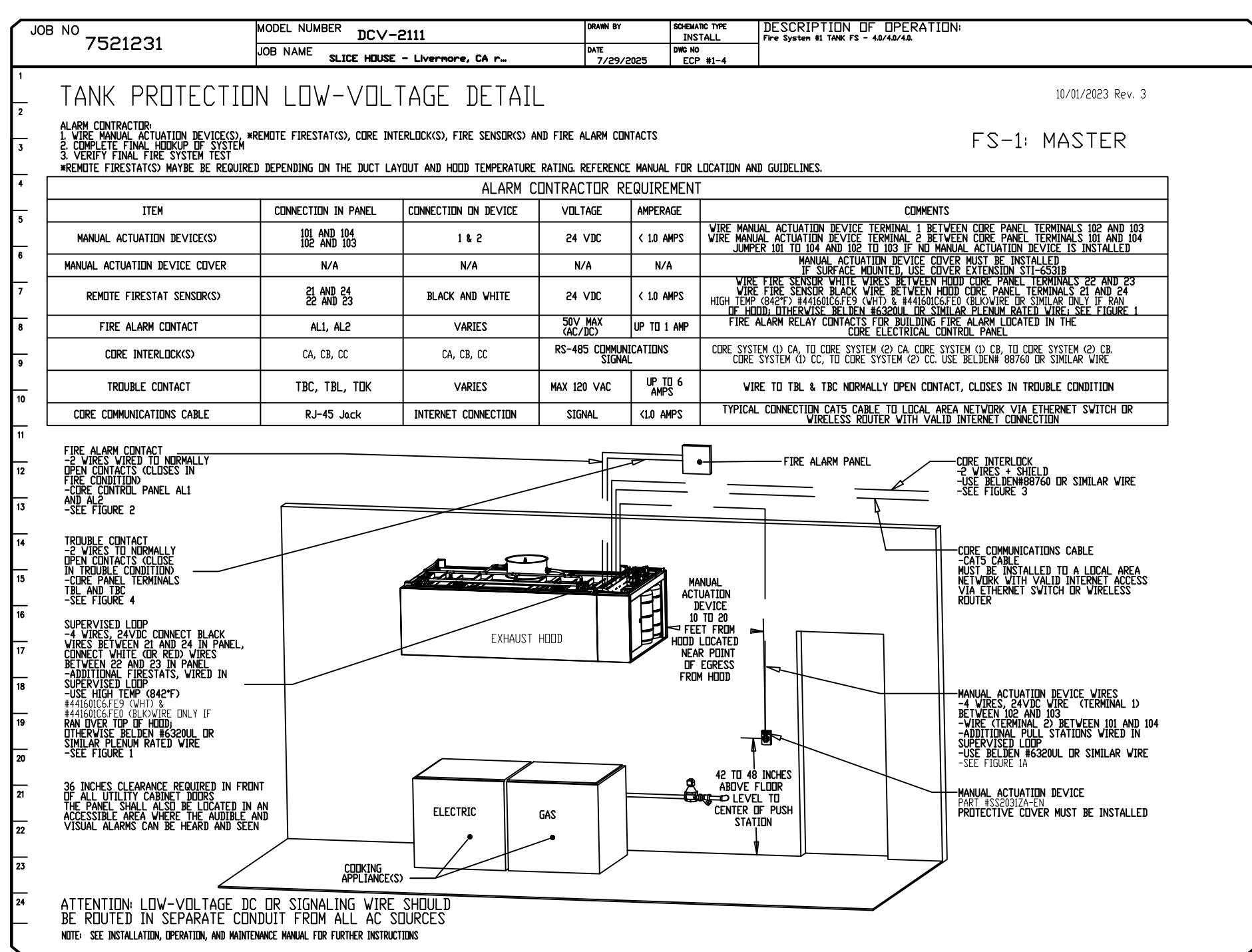
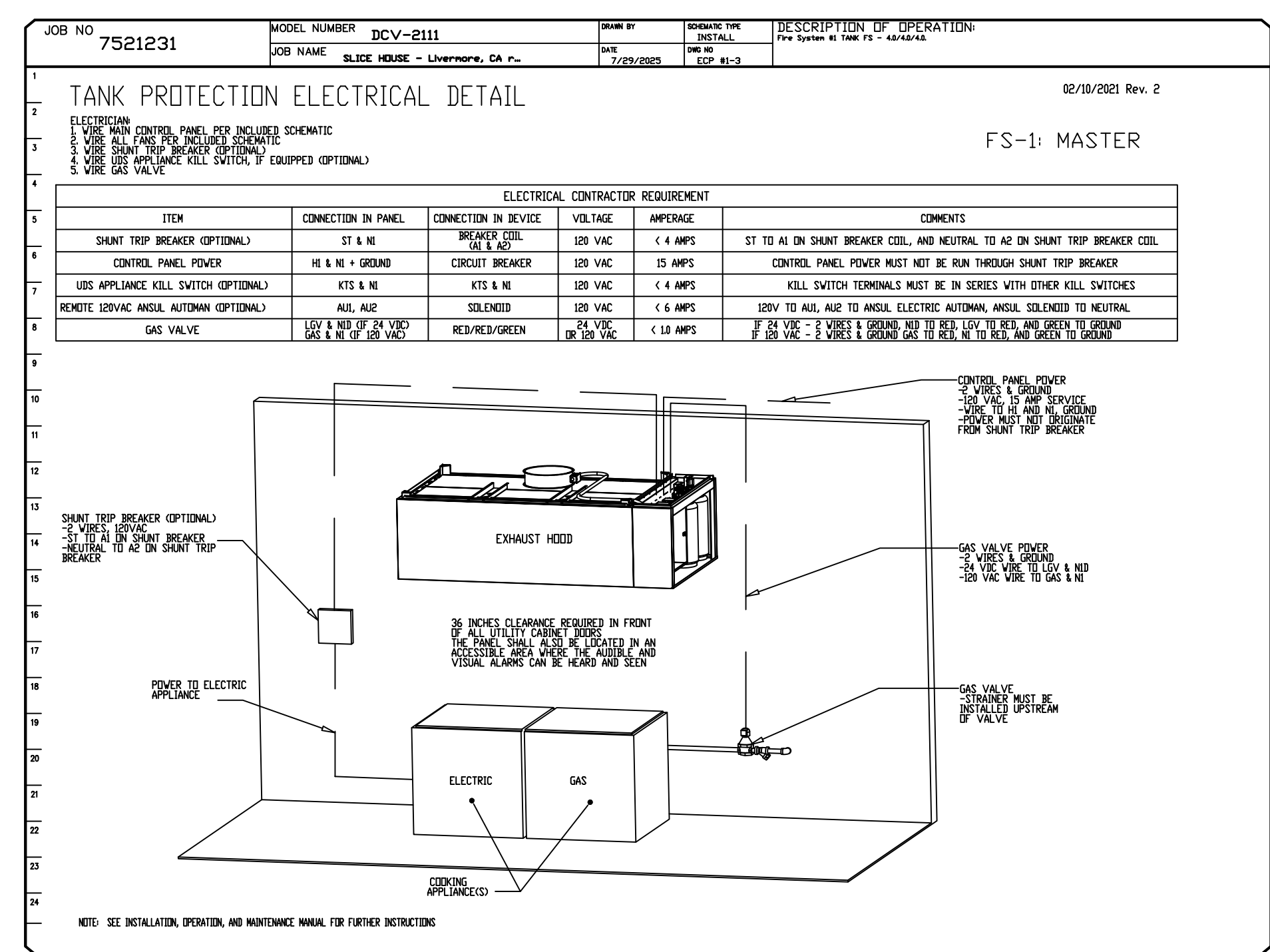
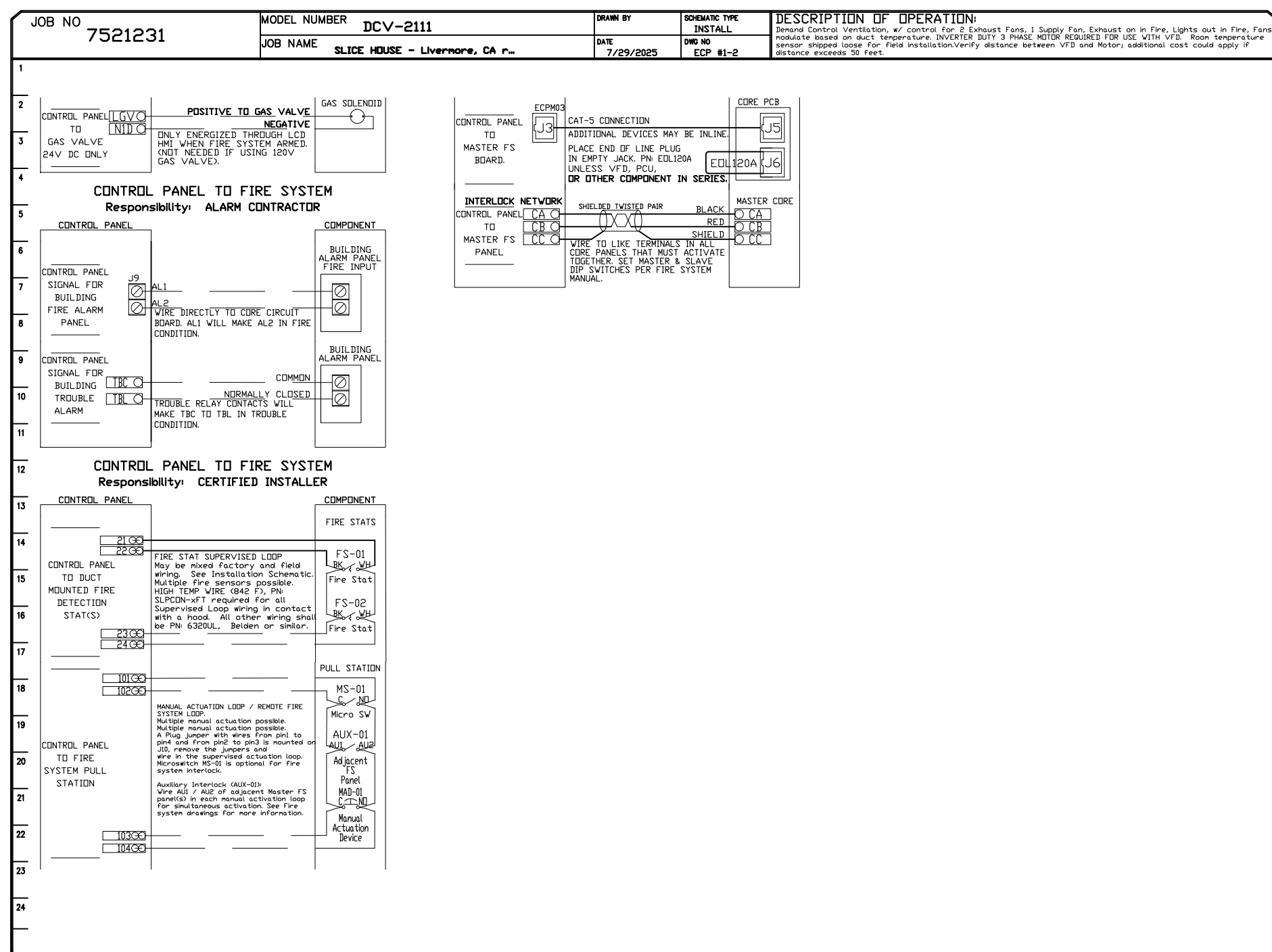
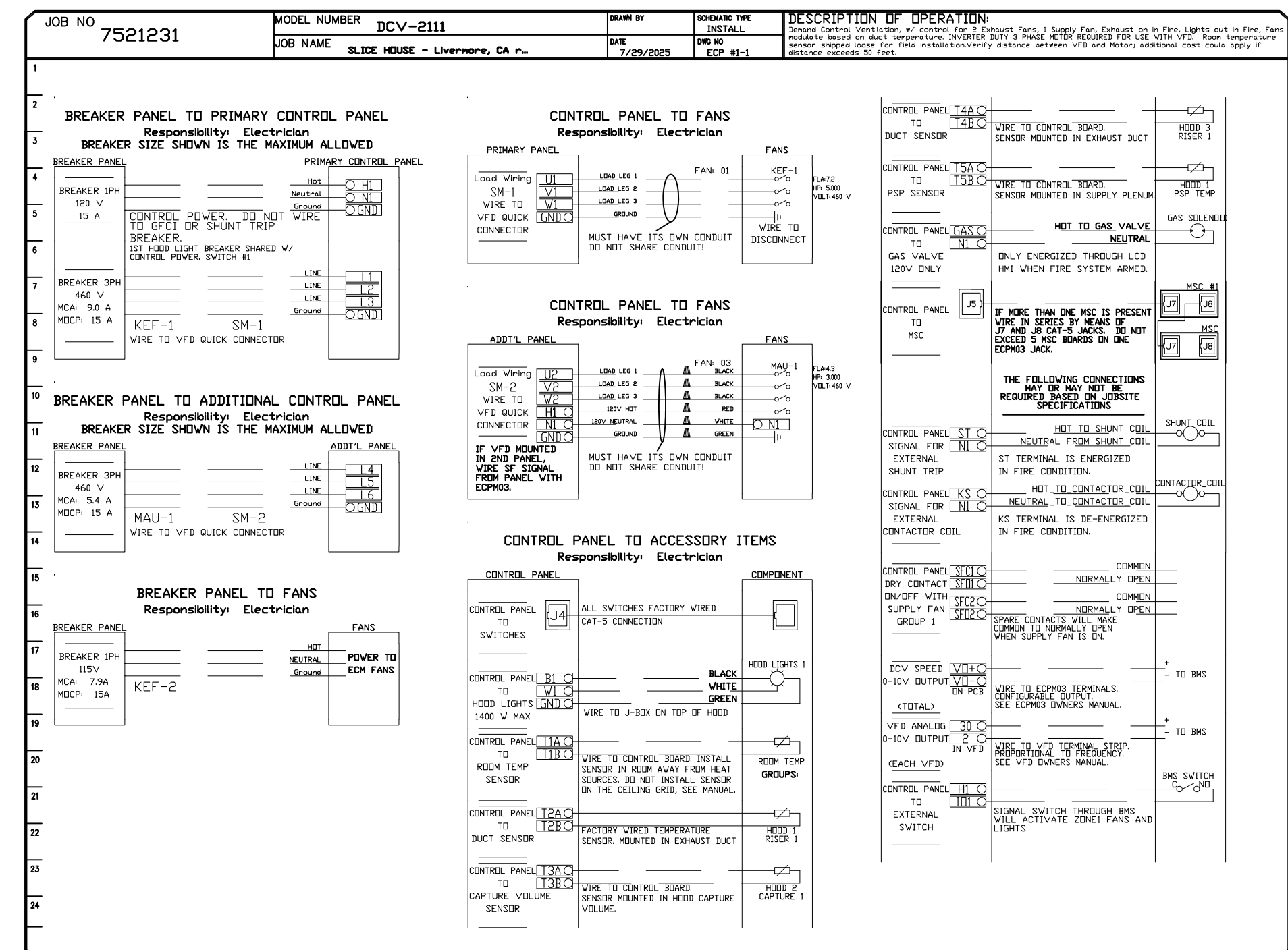
05.15.25

**GENERAL NOTE**

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**ELECTRICAL PACKAGE - JOB#7521231**

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	HP	VOLTS	FLA	
1		DCV-2111	UTILITY CABINET RIGHT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	KEF-1	EXHAUST	3	5,000	460	7.2
				HOOD # 1	1 FAN		MAU-1	SUPPLY	3	3,000	460	4.3



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE**

Central CA

9 Admin Court, Buellington, CA, 94910 PHONE: (415) 866-2200 FAX: (415) 866-2200 EMAIL: info@captivewire.com

SLICE HOUSE - Livermore, CA rev2

1938 First Street, Livermore, CA, 94550

DATE: 7/29/2025

DWG# 7521231

DRAWN BY: T.Thai

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

MASTER DRAWING

SHEET NO. 4



SLICE HOUSE  
 1948 FIRST STREET  
 LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
 3150 Wilcomb Bridge Road  
 Norcross, Georgia 30071  
 404.330.9798

**FOR CONSTRUCTION**

DRAWN BY: SL  
 CHECKED BY: PK

ISSUE / REVISIONS:

DATE	DESCRIPTION
5/15/2025	PERMIT
7/24/2025	PERMIT RESUBMISSION 1

SHEET NAME: KITCHEN HOOD PACKAGE

SHEET NUMBER: M208

05.15.25

**GENERAL NOTE**

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**EXHAUST FAN INFORMATION - JOB#7521231**

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	KEF-1	1	DUR240HFA	CAPTIVEAIRE	3850	2.250	1070	DDP, PREMIUM	5.000	3.1040	3	460	7.2	875 FPM	309	24.3
2	KEF-2	1	USB11DD-RM	CAPTIVEAIRE	812	0.650	1435	TEAD-ECM	0.500	0.1830	1	115	6.3	866 FPM	182	7.7

**MUA FAN INFORMATION - JOB#7521231**

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOLT	FLA	MCA	MDCP	EVAP FLOW RATE (Gal/Hr)	EVAP COOLER ENTERING DB TEMP	EVAP COOLER ENTERING WB TEMP	EVAP COOLER LEAVING DB TEMP	EVAP COOLER LEAVING WB TEMP	WEIGHT (LBS)	SDNES
3	MAU-1	1	A2-20D	20MF-2-MDD	A2	1500	3730	0.750	1519	DDP, PREMIUM	3.000	1.8290	3	460	4.3	5.4A	15A	5.28	95.0°F	66.0°F	75.0°F	66.0°F	819	19.3

**FAN ACCESSORIES**

FAN UNIT NO.	TAG	EXHAUST				SUPPLY		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF-1	YES						
2	KEF-2							
3	MAU-1				YES			

**CURB ASSEMBLIES**

NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	71 LBS	CURB	31.500"W X 31.500"L X 20.000"H VENTED HINGED 16 GAUGE.
3	# 3	MAU-1	55 LBS	CURB	31.000"W X 31.000"L X 20.000"H.
	# 3			RAIL	4.000"W X 4.000"L X 36.000"H.
	# 3			RAIL	4.000"W X 4.000"L X 36.000"H.

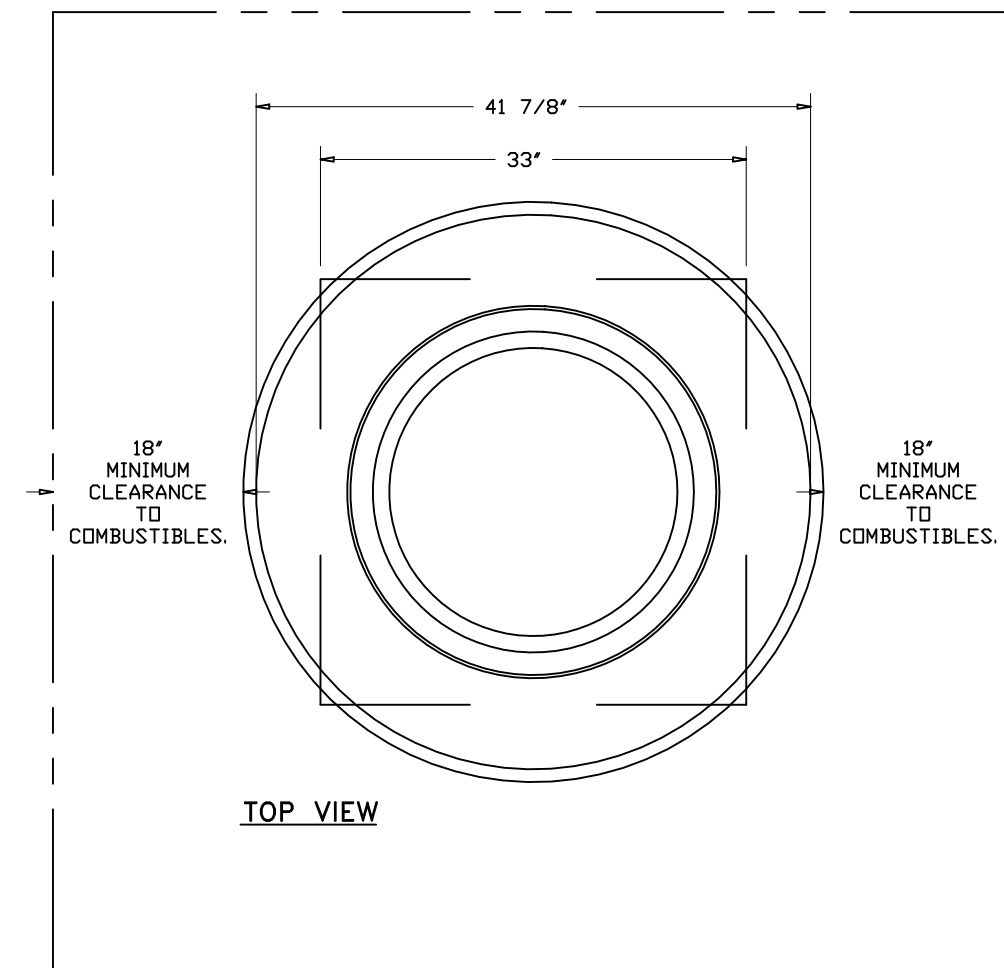
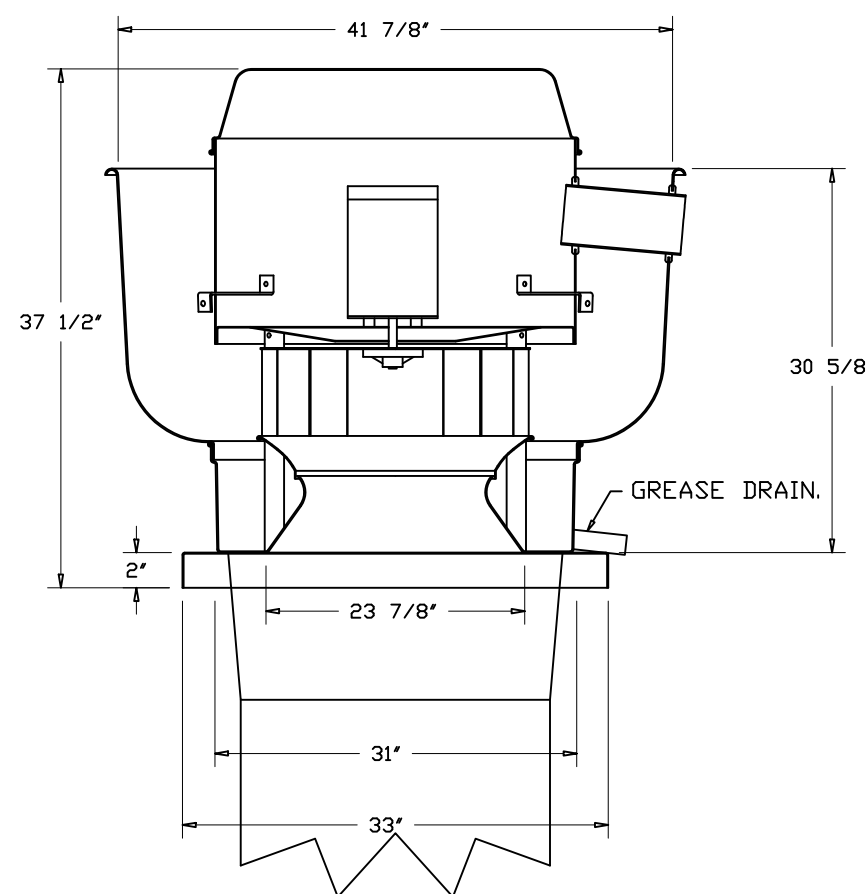
**FAN SOUND DATA**

FAN UNIT NO.	TAG	MOTOR	SOUND DATA				OCTAVE BAND SOUND DATA							
			LWA	SDNES @ 5 FT	DBA @ 5 FT	DISTANCE (FT)	63 HZ	125 HZ	250 HZ	500 HZ	1 KHZ	2 KHZ	4 KHZ	8 KHZ
1	KEF-1	EXHAUST	85.5	24.296413413600767	74	5	79	87.3	92.3	80.1	75	72.4	68.1	63.8
2	KEF-2	EXHAUST	68.9	7.683200536004506	57.4	5	68.1	73.4	70.9	67.3	63.1	57.8	51.9	45.9
3	MAU-1	SUPPLY	82.2	19.326115838112482	70.7	5	77.7	85.3	80.3	80.5	76.6	73.4	70.4	66.7

**FAN OPTIONS**

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	KEF-1	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR240HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	LOAD REACTOR MOUNTED IN FAN
2	KEF-2	1	2 YEAR PARTS WARRANTY
		1	BI11 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 12" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	BI11 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	BI11 - INLET CONNECTION STANDARD 12" FLANGED GREASE DUCT
		1	3 YEAR EXTENDED MOTOR WARRANTY
		1	BLUE RUBBER VIBRATION ISOLATORS FOR BI UTILITY SETS (SET OF 6)
3	MAU-1	1	ECM WIRING PACKAGE - EXHAUST - MODBUS CONTRL -MSC- (TELCD), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
		1	EVAPORATIVE COOLER WIRING HARNESS
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY
		1	LOAD REACTOR MOUNTED IN FAN
		1	2 YEAR PARTS WARRANTY

FAN #1 DUR240HFA - EXHAUST FAN (KEF-1)



**FEATURES:**

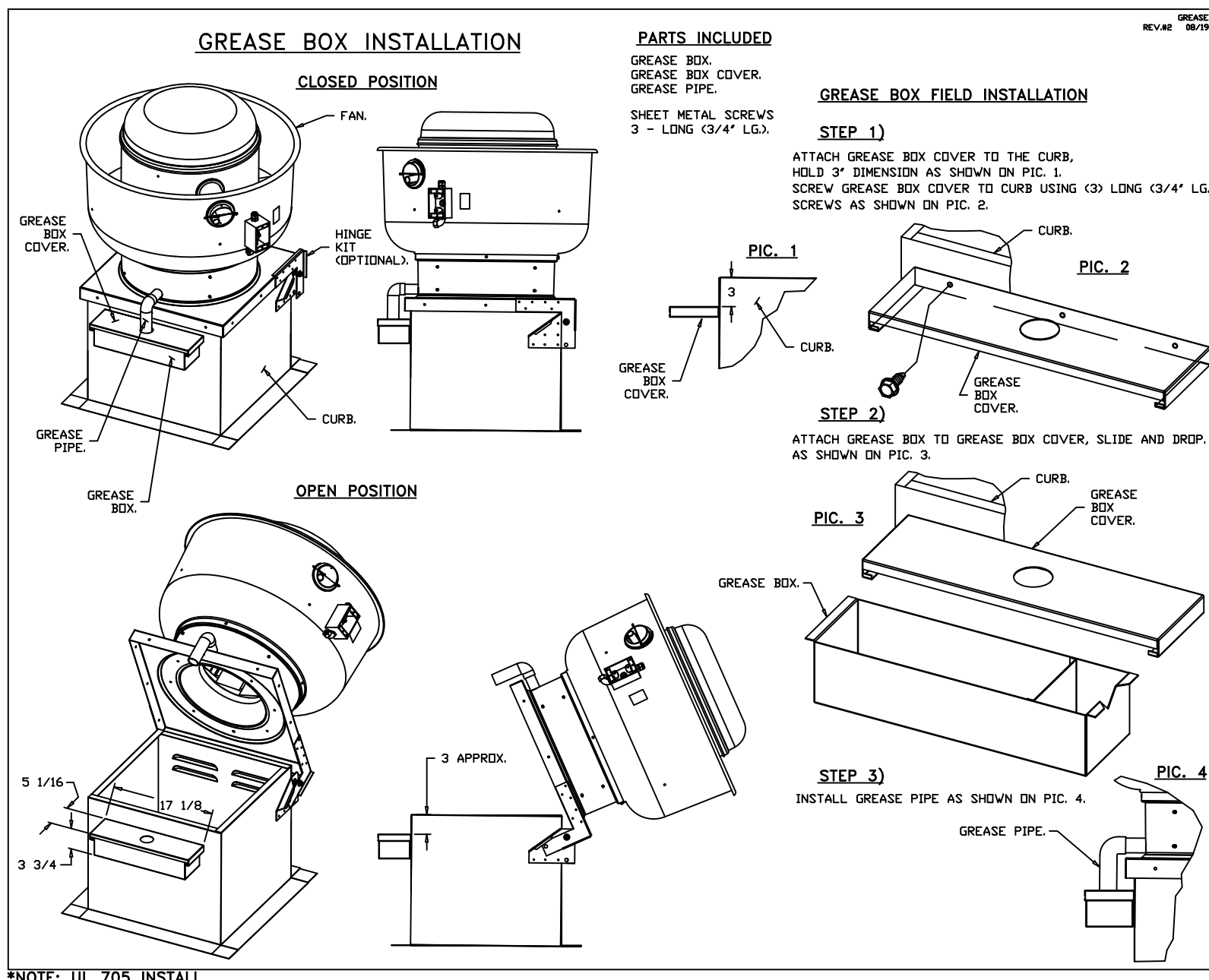
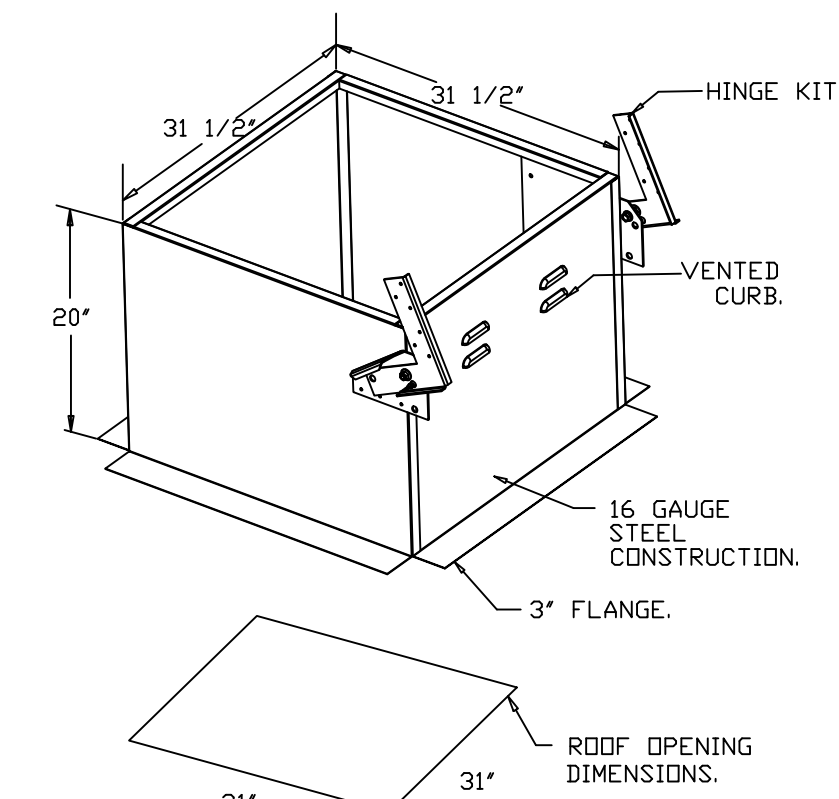
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-3645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

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

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

**OPTIONS**

- GREASE BOX
- FAN BASE CERAMIC SEAL - DU/DR240HFA - INSTALLED AT PLANT - FOR GREASE DUCTS.
- LOAD REACTOR MOUNTED IN FAN.
- 2 YEAR PARTS WARRANTY.



REVISIONS	DESCRIPTION	DATE



**CAPTIVE**  
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SLICE HOUSE - Livermore, CA rev2  
1938 First Street,  
Livermore, CA, 94550

DATE: 7/29/2025

DWG.#: 7521231

DRAWN BY: T.Thai

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

MASTER DRAWING

SHEET NO. 1



SLICE HOUSE  
1948 FIRST STREET  
LIVERMORE, CA 94550

PROFICIENT ENGINEERING  
3150 Wilcomb Bridge Road  
Norcross, Georgia 30071  
404.330.9798

FOR CONSTRUCTION

DRAWN BY: SL

CHECKED BY: PK

ISSUE / REVISIONS:

DATE DESCRIPTION

5/15/2025 PERMIT

7/24/2025 PERMIT RESUBMISSION 1

SHEET NAME:  
KITCHEN HOOD PACKAGE

SHEET NUMBER:

M209

05.15.25

