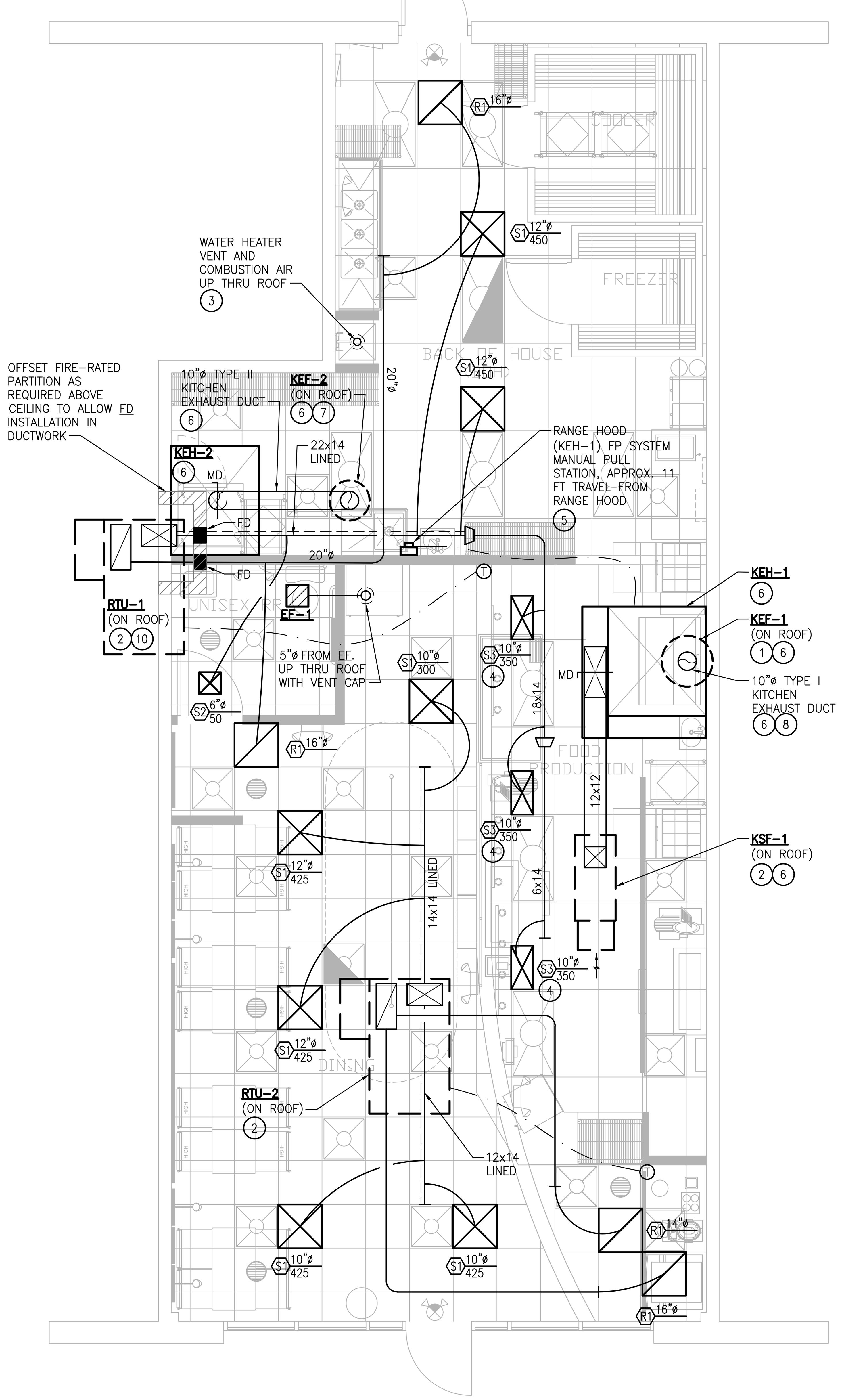

1
H1.1
HVAC FLOOR PLAN
SCALE: 1/4"=1'-0"

PACKAGED ROOFTOP AIR CONDITIONING UNITS

MARK	NOM TONS	SEER2/EER2	# STAGES	SUPPLY FAN		OA CFM	GAS HEAT		ELEC		WEIGHT (LBS)	BASIS OF DESIGN		REMARKS
				CFM	ESP (W.G.)		MBH	EFF	V/PH	DISC BY		MANUFACTURER	MODEL	
RTU-1,2	5	13.4/11.4	1	2,000	0.8	330	110	80%	208/3	E.C.	850	CARRIER	48FEEB06	(1)(2)(3)(4)(5)

(1) UL AND CGA LISTED NAT GAS HEATING FURNACE AND DX COOLING UNIT; HEAVY GAUGE STEEL CABINET, BAKED ENAMEL FINISH; SEAMLESS TOP; REMOVABLE ACCESS PANELS; FWD CURVED, EVAPORATOR FAN W/ADJ BELT DRIVE; ALUMINUM STEEL HEAT EXCHANGER W/INDUCED DRAFT BLOWER AND SPARK PILOT IGNITION; ALUMINUM FIN/COPPER TUBE EVAPORATOR COIL WITH FREEZESTAT; FILTER RACK WITH 1" PLEATED MEDIA MERV-8 FILTERS; SCROLL COMPRESSOR WITH VIBRATION ISOLATION MOUNTING; THERMOSTATIC EXPANSION VALVE; ALUMINUM FIN/COPPER TUBE CONDENSER COIL W/HAIL GUARD; DIRECT DRIVE PROPELLER TYPE CONDENSER FAN; EXTERNAL SERVICE VALVES; REFRIGERANT FILTER DRYER; CRANKCASE HEATER; COMPRESSOR START ASSIST; SHORT CYCLE, THERMAL AND HI/LO PRESSURE COMPRESSOR OVERLOAD PROTECTION; CONTROL VOLTAGE TRANSFORMER; LOW AMBIENT KIT FOR COOLING OPERATION DOWN TO 0°F; SINGLE POINT ELECTRICAL CONNECTION; R-454B.

(2) 7-DAY PROGRAMMABLE, AUTOMATIC CHANGEOVER COMBINATION THERMOSTAT AND HUMIDISTAT WITH SETPOINT OVERLAP PROTECTION, 5°F DEADBAND, SETBACK CONTROL WITH 4 OCCUPIED/UNOCCUPIED EVENTS PER DAY (75°F COOL/70°F HEAT OCCUPIED, 85°F COOL/55°F HEAT UNOCCUPIED), SYSTEM AUTO/COOL/OFF CONTROL, AND 2-HOUR PROGRAM OVERRIDE. OPTIMUM START CONTROL; 24 HR BATTERY BACK-UP; DEHUMIDIFICATION CYCLE CONTROL.

(3) 100% OA ECONOMIZER WITH CLASS I SEALS, ENTHALPY CONTROL, HIGH LIMIT SHUT-OFF, FAULT DETECTION AND DIAGNOSTICS, AND BAROMETRIC RELIEF.

(4) MANUFACTURER'S ROOF CURB.

(5) **HOT GAS REHEAT AND HOT LIQUID COOLING DEHUMIDIFICATION SYSTEM. EQUAL TO CARRIER "HUMIDIMIZER".**

DIFFUSERS, REGISTERS, AND GRILLES

MARK	TYPE	MOUNTING	NECK DAMPER	MAX NC	MAX ΔP	SIZE		MAT'L	FINISH	BASIS		REMARKS
						NECK	FRAME			MFGR	MODEL	
S1	4-WAY LOUVERED DIFFUSER	LAY-IN	N	30	0.1"	PER PLANS	24x24	ALUMINUM	(3)	TITUS	TMS-AA	
S2	4-WAY LOUVERED DIFFUSER	SURFACE	Y	30	0.1"	PER PLANS	12x12	ALUMINUM	(3)	TITUS	TDC-AA	
S3	DBL-DEFLECTION REGISTER	LAY-IN	Y	30	0.1"	22x10	23.5x11.5	ALUMINUM	(3)	TITUS	272FS	(1)(2)
R1	FILTER LOUVERED GRILLE	LAY-IN	N	30	0.05"	20x20	24x24	ALUMINUM	(3)	TITUS	3FF	(4)

(1) INSTALL IN LAY-IN CEILING.

(2) PROVIDE 12"H PLENUM WITH ROUND NECK FOR FLEX DUCT CONNECTION.

(3) AIR DEVICE COLOR SHALL MATCH COLOR OF CEILING SYSTEM IN WHICH INSTALLED. CONTRACTOR SHALL COORDINATE.

(4) LOUVERED GRILLE WITH REMOVABLE FACE/CORE. WITH FOUR QUARTER-TURN FASTENERS AND NO HINGE.

FANS

MARK	TYPE	SERVICE	CFM	ESP (W.G)	MOTOR	ELEC (60 HZ)		MAX SONES	BASIS OF DESIGN		REMARKS
						V/PH	DISC BY		MANUFACTURER	MODEL	
EF-1	CEILING-MTD	RESTROOM	50	0.25	6.1 W	120/1	MC	0.6	GREENHECK	SP-80-VG	(1)

(1) DIRECT DRIVE, GALVANIZED STEEL FORWARD CURVED FAN, ECM MOTOR; LOW SOUND CONSTRUCTION: HEAVY GAUGE CABINET INTERNALLY LINED WITH 1/2" ACOUSTICAL LINER; CEILING GRILLE; BACKDRAFT DAMPER; ELECTRICAL DISCONNECT. VARIABLE SPEED CONTROLLER; INTERLOCK WITH LIGHTS

OUTDOOR AIR REQUIREMENTS (2018 NC MECH CODE)

SPACE TYPE	AREA (Az)	PEOPLE-RELATED OA			AREA-RELATED OA		MIN BREATHING ZONE OA, Vb (Pz x Rp) + (Az x Ra)
		# OCC (Pz)	CFM/OCC (Rp)	CFM (Pz x Rp)	CFM/SF (Ra)	CFM (Az x Ra)	
DINING	512	20	7.5	150	0.18	92	242
SERVICE COUNTER AND PREP AREA	755	5	7.5	38	0.18	136	174
RESTROOM	58	–	–	–	0.06	3	3
SUB-TOTAL (Vb)							419
ZONE AIR DISTRIBUTION EFFECTIVENESS (Ez)							0.8
MINIMUM ZONE OUTDOOR AIR REQUIRED (Voz/Ez)							524
ACTUAL OUTDOOR AIR PROVIDED							660

AIR BALANCE

	OA CFM	EXH CFM
RTU-1,2	660	–
KEH-1	750	1,000
KEH-2	–	400
TOTAL	+1,410	–1,400

FINAL TEST AND BALANCE SHALL PROVIDE FOR SLIGHT OVERALL POSITIVE PRESSURE. RESTROOM EXHAUST FANS ARE CONSIDERED INCIDENTAL (INTERLOCKED WITH LIGHTS) AND ARE IGNORED.

CONTRACTOR FIELD VERIFICATION

THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REFLECT EXACT FIELD CONDITIONS OR CONSTRAINTS. WHILE REASONABLE EFFORTS HAVE BEEN MADE TO VERIFY THE EXISTING CONDITIONS, THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THE EXISTING CONDITIONS SHOWN ON THESE PLANS.

THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING THE EXACT LOCATION, MANUFACTURER, MODEL NUMBER, SERIAL NUMBER, AND UTILITY REQUIREMENTS FOR ALL HVAC EQUIPMENT SERVING THIS SPACE. ANY DISCREPANCIES BETWEEN THESE PLANS AND THE ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER FOR RESOLUTION PRIOR TO BID. ALL COSTS TO MODIFY THE INSTALLATION TO ACCOMMODATE FIELD CONDITIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

LANDLORD SCOPE

THE FOLLOWING ITEMS ARE BY THE LANDLORD. THIS LIST IS FOR REFERENCE ONLY, THE CONTRACTOR SHALL COORDINATE EXACT SCOPE OF LANDLORD WORK WITH FRANCHISEE AND WITH LANDLORD PRIOR TO BID.

- SPACE PROVIDED AS-IS

GENERAL NOTES:

1. PROVIDE MINIMUM 10'-0" HORIZONTAL SEPARATION BETWEEN OA INTAKES AND TERMINATIONS OF ALL CONTAMINANT SOURCES (EXHAUST SYSTEMS, PLUMBING VENTS, OR GAS VENTS) WHERE POSSIBLE. CLEARANCE MAY BE REDUCED TO 5'-0" PROVIDED THE OA INTAKE IS NOT LESS THAN 3'-0" BELOW THE CONTAMINANT SOURCE IN ACCORDANCE WITH IMC. FIELD VERIFY LOCATIONS OF EXISTING OA AND EXH/VENT TERMINATIONS, INCLUDING THOSE OF ADJACENT TENANTS, AND ADJUST JERSEY MIKE'S SUBS' INSTALLATION AS REQUIRED TO COMPLY.
2. THERMOSTATS IN KITCHEN AREAS SHALL BE MOUNTED MINIMUM 6" ABOVE BACKSPLASH ELEVATION. THERMOSTATS IN DINING ROOM (NOT ADJUSTABLE BY THE PUBLIC) SHALL BE MOUNTED 84" AFF OR AS DIRECTED BY THE OWNER. COORDINATE LOCATION AND MOUNTING HEIGHT OF ALL OTHER THERMOSTATS WITH OWNER.
3. PROVIDE FIRE WRAP FOR TYPE I GREASE EXHAUST DUCT, FROM HOOD CONNECTION TO TERMINATION POINT, IF PARTITION BEHIND HOOD IS FRAMED WITH WOOD OR OTHER COMBUSTIBLE CONSTRUCTION – GENERAL CONTRACTOR SHALL FIELD VERIFY.
4. THE CONTRACTOR MAY, AT THEIR OPTION, SUBSTITUTE ROUND DUCT FOR RECTANGULAR DUCT AND RECTANGULAR DUCT FOR ROUND DUCT. DUCT SUBSTITUTIONS SHALL PROVIDE EQUIVALENT (SAME OR LOWER) VELOCITY AND PRESSURE DROP. FOR INTERNALLY LINED DUCTWORK THE NET FREE AREA OF THE SUBSTITUTED DUCT SHALL BE EQUIVALENT TO THE NET FREE AREA OF THE DESIGN.
5. PROVIDE GUARDS OR FALL ARREST/RESTRAINT ANCHORAGE PER MECHANICAL CODE WHERE REQUIRED.
6. PROVIDE STRUCTURAL SUPPORT FOR ALL EQUIPMENT, GUARDS, FALL ARREST/RESTRAINT ANCHORAGE AND ALL OTHER CONNECTIONS TO BUILDING STRUCTURE AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL NECESSARY STRUCTURAL ENGINEERING FOR ANY ADDITIONAL SUPPORTS, FRAMING, AND OTHER STRUCTURAL IMPROVEMENTS REQUIRED BY THE INSTALLATION.

KEYED NOTES:

(1) KEF-1 DISCHARGE SHALL BE MIN. 40 INCHES ABOVE THE FLAT ROOF SURFACE, MINIMUM 10 FEET HORIZONTALLY FROM OR 3 FEET ABOVE ANY OA INTAKES (INCLUDING THOSE OF ADJACENT TENANTS/BUILDINGS – FIELD VERIFY), MINIMUM 10 FEET HORIZONTALLY FROM VERTICAL WALLS PROJECTING MORE THAN 40 INCHES ABOVE THE ROOF, AND SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

(2) OA INTAKE SHALL BE MIN 10'-0" FROM KITCHEN HOOD EXHAUST, RESTROOM EXHAUST, GAS VENT (FLUE), OR PLUMBING VENT TERMINATION, INCLUDING THOSE OF ADJACENT TENANTS (CONTRACTOR TO FIELD VERIFY).

(3) VENT AND COMBUSTION AIR PIPING, TERMINATE WITH CONCENTRIC VENTING KIT – MATERIALS, SIZING AND INSTALLATION SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

(4) **DIFFUSER SHALL BE ADJUSTABLE, DOUBLE DEFLECTION TYPE AS SCHEDULED–NO EXCEPTIONS.** ADJUST REAR BLADES (PARALLEL TO LONG DIMENSION) FOR VERTICAL, DOWNWARD THROW. ADJUST FRONT BLADES (PARALLEL TO SHORT DIMENSION) 2-WAYS, EACH HALF OF BLADES AT 45° FROM VERTICAL. TEST KITCHEN HOOD PERFORMANCE WITH ALL SYSTEMS ON AND AFTER ALL AIR DEVICES ARE ADJUSTED AND BALANCED – ADJUST DIFFUSER THROWS IF REQUIRED TO AVOID INTERFERENCE WITH HOOD'S CAPTURE AND CONTAINMENT PERFORMANCE, AND TO AVOID DISCHARGING AIR DIRECTLY ONTO THERMOSTATS, AND AVOID NUISANCE DRAFTS (OWNERS SATISFACTION).

(5) MANUAL PULL STATION SHALL BE LOCATED MINIMUM 10FT, MAXIMUM 20FT FROM RANGE HOOD ALONG THE PATH OF EGRESS. INSTALLATION SHALL BE PER IBC. COORDINATE FINAL LOCATION WITH OWNER AND AHJ.

(6) HOOD SYSTEM INSTALLATION AND PERFORMANCE SHALL BE TESTED AND CERTIFIED BY A LICENSED INSTALLER OR AN APPROVED THIRD PARTY AGENCY.

(7) KEF-2 DISCHARGE SHALL BE MIN. 30 INCHES ABOVE THE FLAT ROOF SURFACE, MINIMUM 10 FEET FROM ANY OA INTAKES OR BUILDING OPENINGS (INCLUDING THOSE OF ADJACENT TENANTS/BUILDINGS – FIELD VERIFY), MINIMUM 30 INCHES HORIZONTALLY FROM VERTICAL WALLS PROJECTING ABOVE THE ROOF, AND SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

(8) 10"X10" RECTANGULAR DUCT MAY BE USED IN LIEU OF 10" DIAMETER ROUND DUCT.

(9) PROVIDE SECTORIZING BAFFLE IN NECK OF DIFFUSER TO BLOCK AIRFLOW IN QUADRANT FACING HOOD.

(10) NEW ROOFTOP UNIT TO REPLACE EXISTING. PROVIDE NEW CURB OR CURB ADAPTER AS REQUIRED.

TESTING, ADJUSTING AND BALANCING

1. PROVIDE CERTIFIED TESTING, ADJUSTING, AND BALANCING (TAB) REPORT FOR ALL MECHANICAL CONSTRUCTION SERVING AREAS UNDER THIS SCOPE OF WORK. TAB SHALL BE PERFORMED BY NEBB OR AABC CERTIFIED AGENT, USING PROCEDURES COMPLYING WITH CERTIFYING AUTHORITY. SUBMIT FINAL REPORT TO ENGINEER FOR REVIEW AND APPROVAL.
2. REPORT SHALL INCLUDE NAME, CONTACT INFORMATION, AND PROOF OF CERTIFICATION FOR TAB AGENT.
3. FINAL BALANCE ALL QUANTITIES TO WITHIN +/–5% OF DESIGN. ADJUST FAN SPEED TO LOWEST POSSIBLE.
4. KITCHEN HOODS SHALL BE BALANCED BY TESTING AGENCY CERTIFIED BY HOOD MANUFACTURER.
5. ADJUST THROW PATTERN OF ALL SUPPLY AIR DEVICES WITHIN 10FT OF KITCHEN HOODS AND ALL SUPPLY AIR DEVICES BEHIND SERVICE COUNTER TO AVOID INTERFERENCE WITH HOOD OPERATION AND TO ELIMINATE NUISANCE DRAFTS. PROVIDE BAFFLES IN AIR DEVICE NECK OR BEHIND FACE AS REQUIRED FOR DIFFUSERS WITHOUT ADJUSTABLE LOUVERS. FINAL SETTINGS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
6. AT A MINIMUM, THE FOLLOWING SHALL BE CERTIFIED IN THE REPORT (DESIGN QUANTITIES AND FINAL, BALANCED QUANTITIES):
   - 6.1. MANUFACTURER, MODEL #, AND SERIAL # OF ALL EXISTING AND NEW EQUIPMENT.
   - 6.2. ELECTRICAL CHARACTERISTICS OF ALL EXISTING AND NEW EQUIPMENT.
   - 6.3. AIR CONDITIONING SYSTEM PERFORMANCE: UNIT SUPPLY AIR FLOW, UNIT OUTSIDE AIR FLOW, FAN INLET AND DISCHARGE PRESSURES, UNIT INLET AND DISCHARGE PRESSURES, FAN SPEED AND AMP DRAW, COOLING AND HEATING COIL ENTERING AND LEAVING TEMPERATURES (DRY BULB AND WET BULB), OUTSIDE AIR TEMPERATURE (DRY BULB AND WET BULB).
   - 6.4. KITCHEN EXHAUST SYSTEM PERFORMANCE: EXHAUST AIRFLOW, FAN INLET AND DISCHARGE PRESSURE, FAN SPEED AND AMP DRAW.
   - 6.5. KITCHEN MAKE-UP AIR SYSTEM PERFORMANCE: AIRFLOW, FAN INLET AND DISCHARGE PRESSURE, HEAT EXCHANGER INLET AND DISCHARGE TEMPERATURES.
   - 6.6. AIR DISTRIBUTION: AIRFLOWS AT EACH AIR DEVICE, CONFIRMATION OF DIRECTIONAL ADJUSTMENT OF SUPPLY DIFFUSER PATTERN CONTROLLERS WHERE NOTED ON PLANS.
   - 6.7. DESCRIPTION OF ANY PROBLEMS NOTED DURING BALANCING.

THE CONTENTS OF THIS DRAWING WILL REMAIN THE PROPERTY OF THOMAS F. TEDROW, AIA. IT'S CONTENTS, INCLUDING ALL INFORMATION, SHALL NOT BE REPRODUCED USING ANY MEANS WITHOUT EXPRESSED WRITTEN CONSENT AND/OR PERMISSION FROM THOMAS F. TEDROW, AIA

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JERSEY MIKE'S SUBS
1912 STAR DRIVE
LIBERTY, MO 64068

STATE OF MISSOURI
KEITH MIKULKA
NUMBER
PE-2013027943
PROFESSIONAL ENGINEER
02/18/25
ARCHITECT/ENGINEER STAMP

REV. NO.	DATE	DESCRIPTION

PROJECT NO: JMMO-211
DRAWN BY: TD
CHECKED BY: KM
ISSUE DATE:

HVAC FLOOR PLAN

H1.1

HOOD TABLES

FOR QUESTIONS, CALL THE
Maryland Office
REGION 32
PHONE: (800) 988 – 0881
EMAIL: reg32@captiveaire.com

HOOD INFORMATION – JOB#7290581

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW	SWITCHES QUANTITY	LOCATION
1	RIGHT UC 75% MAU	5424 ND–2–PSP–F	CAPTIVEAIRE	5' 0"	450 DEG	I	MEDIUM	200	1000			4"	10"	1000	1833	–0.363"	750	430 SS WHERE EXPOSED	ALONE	ALONE		
2	4' HOOD	6024 VHB–ND	CAPTIVEAIRE	4' 0"	700 DEG	II	N/A	100	400			4"	10"	400	733	–0.040"	0	430 SS 100%	ALONE	ALONE	1 FAN	FRONT RIGHT FACE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	RIGHT UC 75% MAU	SS BAFFLE WITH HANDLES	3	16"	16"	30%	3	L55 SERIES E26	NO	RIGHT	12"x54"x24"	TANK FS	4.0	SC–111110MA	1 LIGHT 1 FAN	YES	558 LBS
2	4' HOOD						0									NO	219 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	RIGHT UC 75% MAU	FIELD WRAPPER 16.00" HIGH FRONT, LEFT, RIGHT.
		BACKSPLASH 42.00" HIGH X 36.00" LONG 430 SS HORIZONTAL.
		BACKSPLASH 80.00" HIGH X 36.00" LONG 430 SS VERTICAL.
		BACKSPLASH 80.00" HIGH X 36.00" LONG 430 SS VERTICAL.
		BACKSPLASH 80.00" HIGH X 36.00" LONG 430 SS VERTICAL.
		BACKSPLASH 42.00" HIGH X 36.00" LONG 430 SS HORIZONTAL.
		BACKSPLASH 42.00" HIGH X 36.00" LONG 430 SS HORIZONTAL.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		INSULATION FOR BACK OF HOOD.
		RISER SENSOR INSTALL 6IN PLEN.
2	4' HOOD	FIELD WRAPPER 12.00" HIGH FRONT, LEFT, RIGHT.
		BACKSPLASH 84.00" HIGH X 48.00" LONG 430 SS VERTICAL.
		RIGHT SIDESPLASH 84.00" HIGH X 60.00" LONG 430 SS VERTICAL.

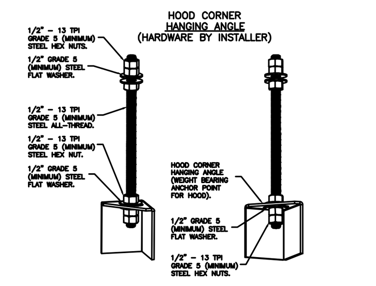
CLEARANCE TO COMBUSTIBLES

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

– *0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
– HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.

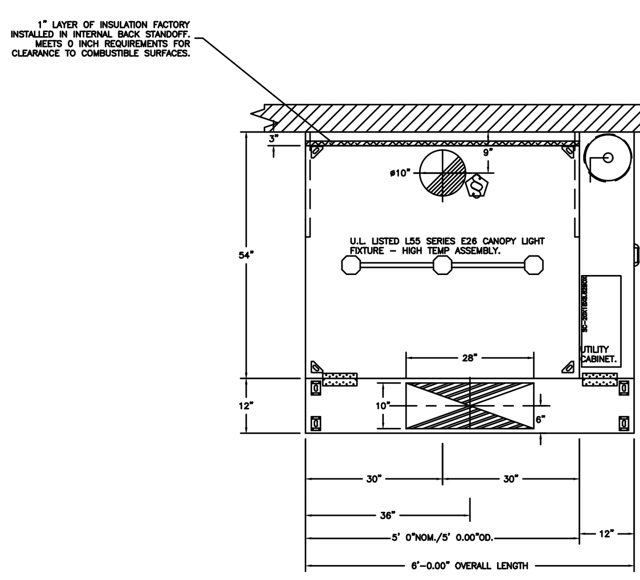
PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	RIGHT UC 75% MAU	Front	72"	12"	6"	MUA	10"	28"		750	0.204"

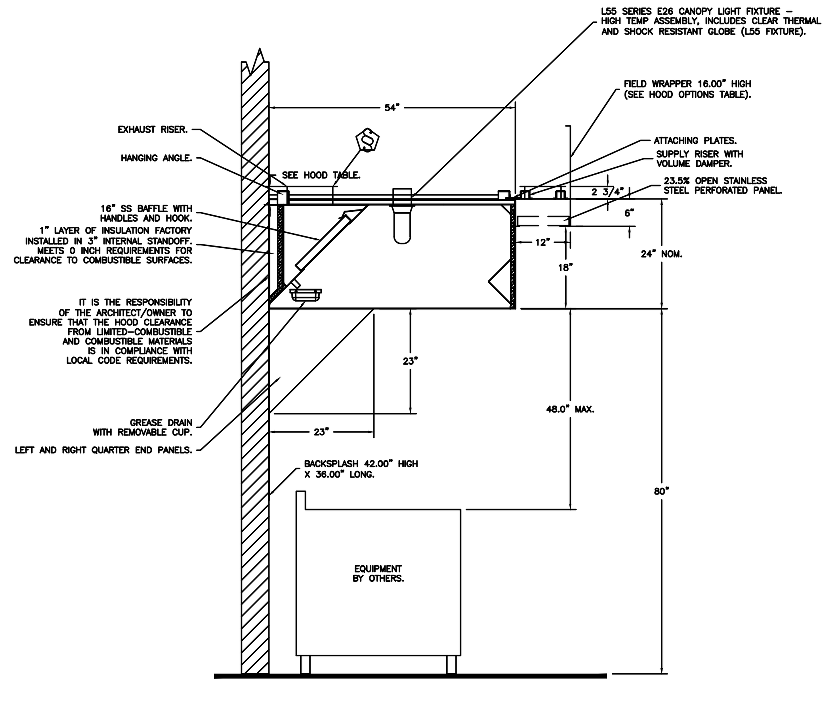


ASSEMBLY INSTRUCTIONS

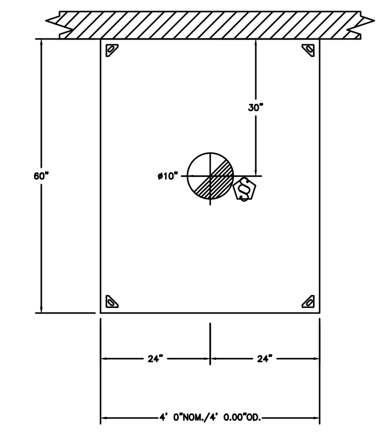
HANGING ANGLE MUST BE SUPPORTED WITH 1/2" – 13 TPI GRADE 5 (MINIMUM) ALL–THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" – 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT–LBS.



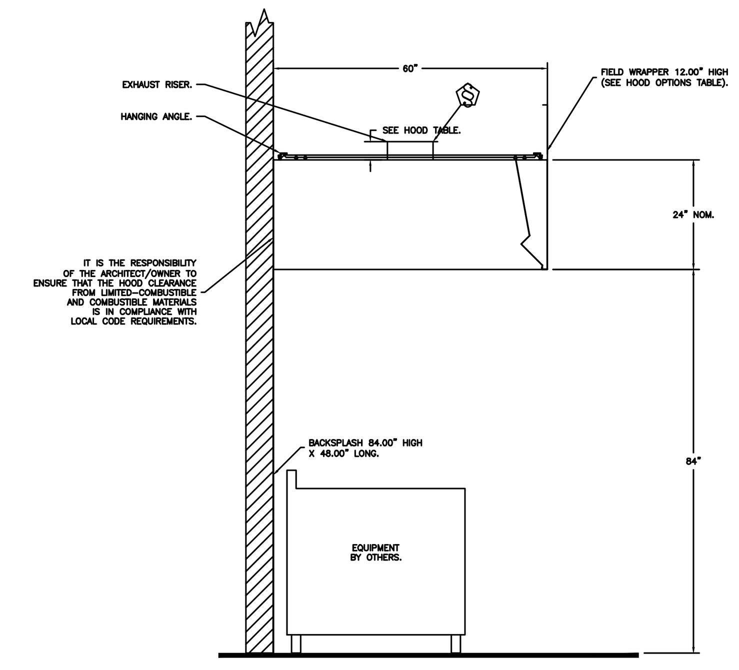
PLAN VIEW – HOOD #1 (RIGHT UC 75% MAU)
5' 0.00" LONG 5424ND–2–PSP–F



SECTION VIEW – MODEL 5424ND–2–PSP–F
HOOD – #1 (RIGHT UC 75% MAU)

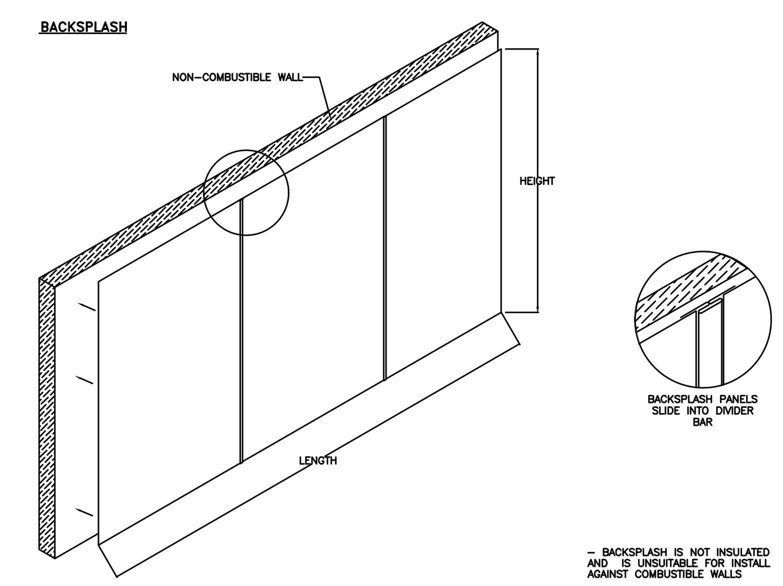


PLAN VIEW – HOOD #2 (4' HOOD)
4' 0.00" LONG 6024VHB–ND



SECTION VIEW – MODEL 6024VHB–ND
HOOD – #2 (4' HOOD)

BACKSPLASH



– BACKSPLASH IS NOT INSULATED AND IS UNSUITABLE FOR INSTALL AGAINST COMBUSTIBLE WALLS

KEH–1 FIRE PROTECTION DETAILS

FIRE SYSTEM INFORMATION – JOB#7290581

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0	20	18	FIRE CABINET RIGHT	RIGHT, HOOD 1

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

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

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

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

JOB #: 7290581.
JOB NAME: JERSEY MIKE'S SUBS – LIBERTY, MO.

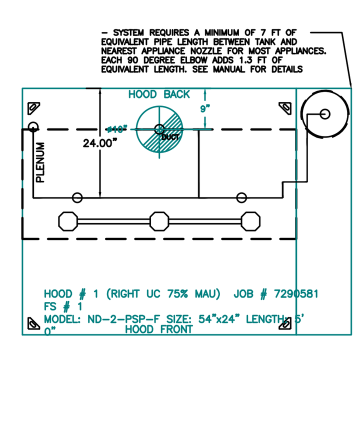
SYSTEM SIZE: TANK–SP–1 DESIGN FP: 18. MAXIMUM FP: 20.
HOOD # 1 5' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 10" DIA.
HOOD # 1 METAL BLOW–OFF CAPS INCLUDED.

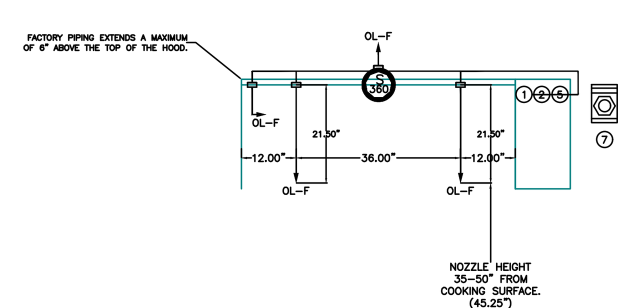
– HEAVY–DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
– MEDIUM TO LIGHT–DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

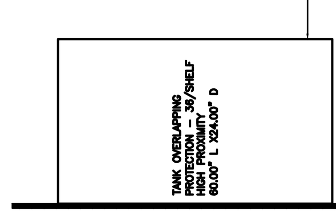
AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

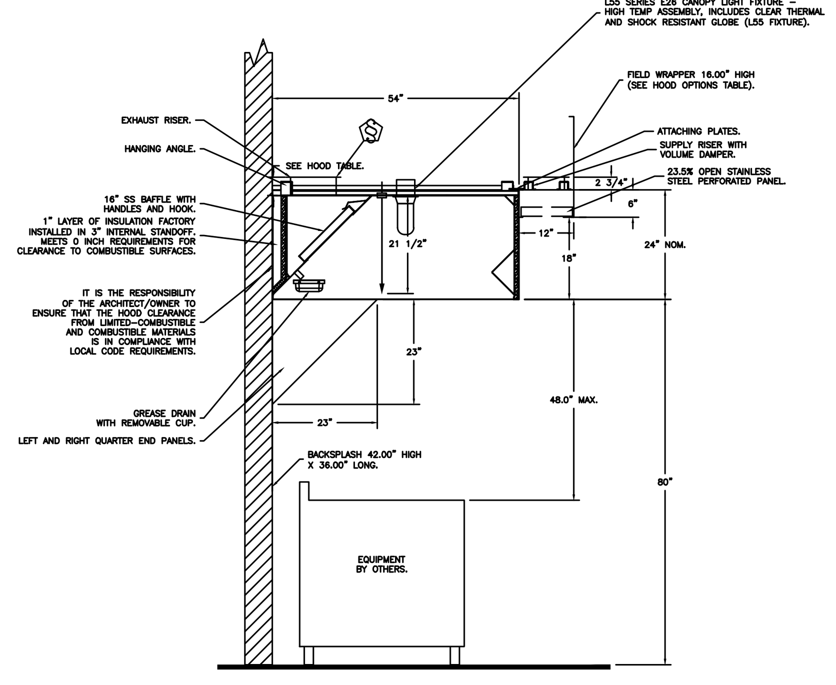
LEGEND – FIRE CABINET TANK SYSTEM

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









SECTION VIEW – MODEL 5424ND–2–PSP–F
HOOD – #1

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER – PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 – 0 – TANK FIRE SUPPRESSION POST–DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 – 0 – TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 – 0 – 12–F28021–32144–OT–360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F. (A0034310).	1	0
		0 – 0 – 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	1	0
		0 – 0 – 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
		0 – 0 – 79525 1/2" 90 PRO–PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	1	0
		0 – 0 – 79580 1/2" X 1/2" PRO–PRESS TEE X 1/2' NPT FEMALE CONNECTION, VIEGA.	1	0
		0 – 0 – 87–300001–001 TANK – PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87–300030–001 PRIMARY ACTUATOR KIT (PAK) – ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87–300033–001 DIN CONNECTOR, CANFIELD PART #5J560–201–EU0A, TANK FIRE SUPPRESSION, SUBMINATURE SOLENOID CONNECTION (CED VENDOR 30377).	1	0
		0 – 0 – 87–300152–001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	4	0
		0 – 0 – 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	2	0
		0 – 0 – A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 – 0 – A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	1	0
		0 – 0 – DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – TANK STRAP TANK STRAP – USED FOR TANK FIRE SUPPRESSION.	3	0
		0 – 0 – TFS–UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – WK–283952–000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	1	0
		34 – 34 – A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0

FAN TABLES

EXHAUST FAN INFORMATION – JOB#7290581

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	GRIDDLE EF	1	DU50HFA	CAPTIVEAIRE	1000	1.000	1471	TEAO–ECM	0.500	0.3540	1	115	6.3	380 FPM	79	15
3	60" DEEP BREAD OVEN	1	DU12HFA	CAPTIVEAIRE	400	0.300	1481	TEAO–ECM	0.250	0.0970	1	115	2.9	284 FPM	55	8.2

MUA FAN INFORMATION – JOB#7290581

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	WEIGHT (LBS)	SONES
2	HEAT DOWN	1	D76	G7D	D.6	600	750	0.400	1473	TEAO–ECM	1.000	0.2710	1	115	11.6	16.6A	25A	305	14.5

GAS FIRED MAKE–UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
2	HEAT DOWN	49024	45102	59°F	7 IN. W.C. – 14 IN. W.C.	NATURAL

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	GRIDDLE EF	1	GREASE BOX
		1	ECM WIRING PACKAGE – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	FAN BASE CERAMIC SEAL – DU/DR50HFA – SHIP LOOSE – FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
2	HEAT DOWN	1	INLET PRESSURE GAUGE, 0–35"
		1	MANIFOLD PRESSURE GAUGE, –5 TO 15" WC
		1	MOTORIZED INTAKE DAMPER (D76)
		1	FREEZESTAT
		1	ECM WIRING PACKAGE–SUPPLY – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CW ROTATION
		1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI–ROTATION BRACKET
3	60" DEEP BREAD OVEN	1	I 12–BDD DAMPER
		1	ECM WIRING PACKAGE – MANUAL OR 0–10VDC REFERENCE SPEED CONTROL –RTC– (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

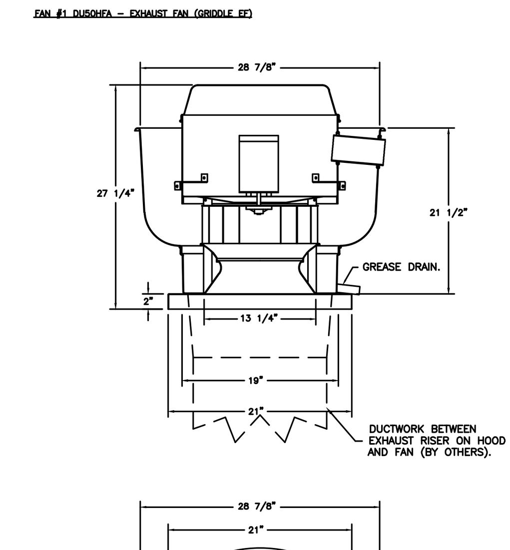
FAN UNIT NO	TAG	EXHAUST GREASE CUP	EXHAUST GRAVITY DAMPER	EXHAUST WALL MOUNT	SUPPLY SIDE DISCHARGE	SUPPLY GRAVITY DAMPER	SUPPLY MOTORIZED DAMPER	SUPPLY WALL MOUNT
1	GRIDDLE EF	YES						
2	HEAT DOWN						YES	
3	60" DEEP BREAD OVEN		YES					

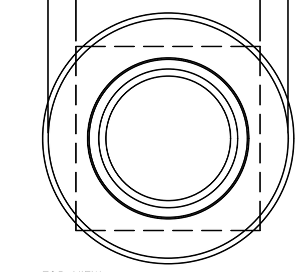
CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	GRIDDLE EF	38 LBS	CURB	19.500"W X 19.500"L X 26.000"H VENTED HINGED.
2	# 2	HEAT DOWN	50 LBS	CURB	19.500"W X 52.000"L X 20.000"H INSULATED.
3	# 3	60" DEEP BREAD OVEN	31 LBS	CURB	17.500"W X 17.500"L X 26.000"H.

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

FAN #1 DU50HFA – EXHAUST FAN (GRIDDLE EF)





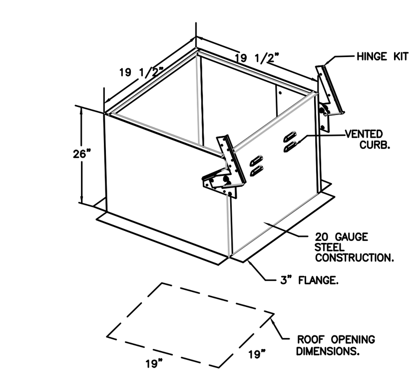
TOP VIEW

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

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

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

OPTIONS
– GREASE BOX.
– ECM WIRING PACKAGE – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
– FAN BASE CERAMIC SEAL – DU/DR50HFA – SHIP LOOSE – FOR GREASE DUCTS.
– 2 YEAR PARTS WARRANTY.



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Maryland Office
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www.captiveaire.com

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JERSEY MIKE'S SUBS
1912 STAR DRIVE
LIBERTY, MO 64068

STATE OF MISSOURI
KEITH MIKULKA
NUMBER PE-2013027943
PROFESSIONAL ENGINEER
02/18/25
ARCHITECT/ENGINEER STAMP

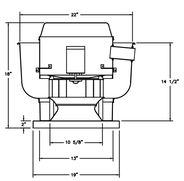
REV. NO.	DATE	DESCRIPTION

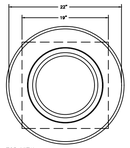
PROJECT NO: JMMO-211
DRAWN BY: TD
CHECKED BY: KM
ISSUE DATE:

HOOD AND FAN DETAILS-1

H2.1

FAN #3 DU12HFA – EXHAUST FAN ONT DEEP BREAD OVEN)





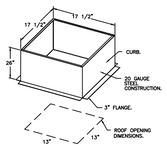
TOP VIEW

FEATURES:

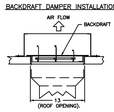
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- NEMA 3R SAFETY DISCONNECT SWITCH.

OPTIONS

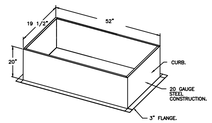
- 4 130-DEG DAMPER.
- ECM WIRING PACKAGE — MANUAL OR INTERNAL REFERENCE SPEED CONTROL.
- INTERNAL DISCONNECT SWITCH POTENTIAL
- 2 YEAR PARTS WARRANTY.

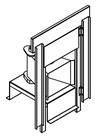


BACKDRAFT DAMPER INSTALLATION



OPTIONS:
– FULL BOTTOM CORNERS.





DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

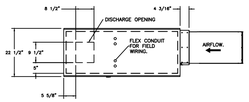
DIRECT FIRED PROFILE PLATE SPECIFICATIONS:

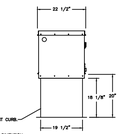
DESCRIPTION:
–PROFILE PLATE BURNERS SHALL HAVE PATENTED (US PATENT NO.) US6626238D, SELF–ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING (E=PRODUCT) LEVELS TO A MAXIMUM OF 100 PPM OF CARBON MONOXIDE (CO) AND 20 PPM OF NITROGEN OXIDES (NOX) AT ALL FIRING RATES. WHEN USED IN CONJUNCTION WITH THE BURNER MANUFACTURER'S PROPRIETARY MIXING ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

OPERATION:
–THE PROFILE PLATE BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FINISH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL OF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

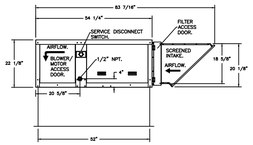
CERTIFICATIONS:
–THE PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE CF UNITS ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS AND CSA 3.7 (NON–RECIRCULATING OF HEATERS) AND ANSI Z83.18 (RECIRCULATING OF HEATERS).

GENERAL CONSTRUCTION:
–PROFILE PLATES SHALL BE FORMED FROM 304 GALVANIZED STEEL.
–PROFILE PLATES SHALL BE WELDED TO THE TUBE.
–PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
–DESIGN SHALL INCORPORATE PROPERLY FUNCTIONING, PERMANENTLY MOUNTED SPRING HINGES.
–SPRING HINGES SHALL BE MADE FROM PLATED STEEL.



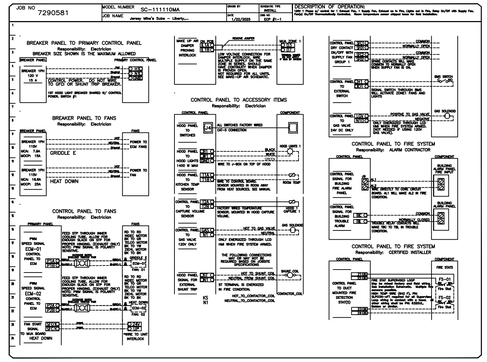


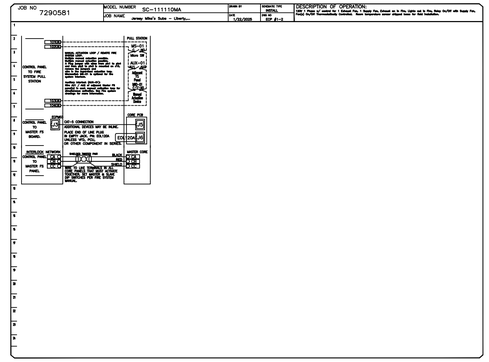
ROOF OPENING 2" SMALLER THAN CURB DIMENSION.



ELECTRICAL PACKAGE – JOB#7290581

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		FAN TAG	TYPE	#	HP	VOLT	FLA
1		SC–111110MA	UTILITY CABINET RIGHT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY	GREASE ET	EXHAUST	1	0.000	115	6.3
				HOOD # 1 –	1 FAN		HEAT DOWN	SUPPLY	1	0.000	115	11.4
2		Switches		FACE MOUNT RIGHT SIDE OF HOOD	1 FAN							
				HOOD # 3 –								





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Ray Group Consulting Engineers, Inc.
1827 Powers Ferry Road
Building 20, Suite 100
Atlanta, Georgia 30339
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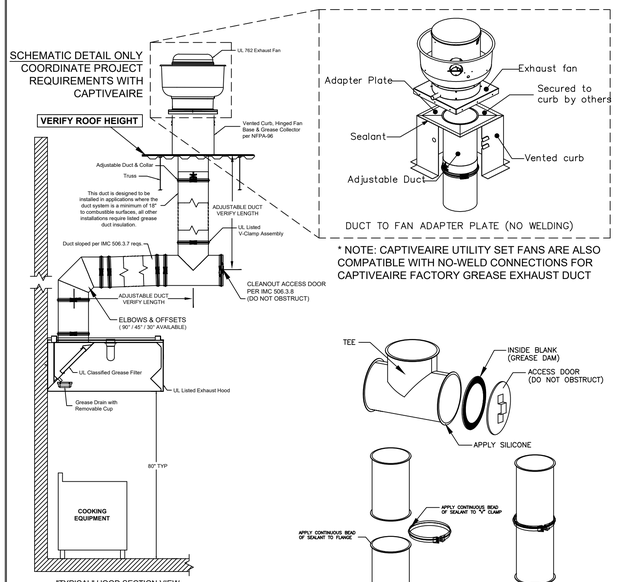
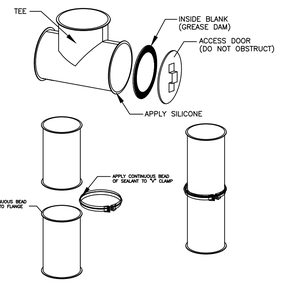
GREASE EXHAUST DUCT DETAILS

> CaptiveAire Grease Exhaust Duct is UL Listed and requires no field welding
> Complies with IMC and NFPA96 requirements
> Double-wall pre-insulated ductwork is also available



"TYPICAL" HOOD SECTION VIEW
DRAWING NOT TO SCALE

* NOTE: CAPTIVEAIRE UTILITY SET FANS ARE ALSO COMPATIBLE WITH NO-WELD CONNECTIONS FOR CAPTIVEAIRE FACTORY GREASE EXHAUST DUCT



GREASE DUCT SPECIFICATION

Furnish single-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 for venting air and grease vapors from commercial cooking operations as described in NFPA-96.

The duct wall shall be constructed of .036 thick type 430 stainless steel and be available in diameters 8" through 24". All supports, fan adapters, hood connections, fittings and expansion joints required to install grease duct shall be included.

Roof penetrations shall comply with listed clearance to combustibles, see *"Clearance to Combustibles"* guide for details. The grease duct will terminate at the fan adapter plate, will be fully welded to the fan adapter plate and the fan adapter plate will be fastened to the curb using as suitably sized fastener provided by others; see page 12 of the *"Installation, Operation and Maintenance Manual"* for details.

Grease duct joints shall be held together by means of formed vee clamps and sealed with *3M Fire Barrier 2000+*. Screws used to secure the vee clamps shall be of the hex-head type with flanged stops and tapered "lead in" threads for easy starting. Nuts shall be retained by means of a free-floating cage to allow easy alignment.

Single-Wall Grease Duct shall be installed in accordance with the manufacturer's *"Installation, Operation and Maintenance Manual"*, ETL listing and state and local codes. Grease duct installed outside of the building shall be protected against accidental damage or vandalism.
Support vertically installed grease duct from the building structure using rigid structural supports. Anchor supports to the structure by welding or bolting steel expansion anchors or concrete inserts. Support horizontally installed grease duct from the building structure using above method or use *Duct Make, Wire Rope & Clutchers*, part numbers WADD & CLDD. 1/2" Threaded rod and saddles may also be used for the support of horizontal grease duct.
Fans shall be supported independently from the grease duct sections. Protect grease duct from twisting or movement caused by fan torque or vibration.

CLEARANCE TO COMBUSTIBLES			
DIAMETER	COMBUSTIBLES	LIMITED COMBUSTIBLES	NON COMBUSTIBLES
8" – 24"	6"	3"	0"

HORIZONTAL CLEANOUT MAXIMUM SPACING	
DUCT DIAMETER	MAXIMUM SPACING
8" – 24"	10'

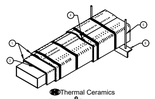
HORIZONTAL SUPPORT MAXIMUM SPACING (FT)	
DUCT DIAMETER	MAXIMUM SPACING (FT)
8" – 24"	10'

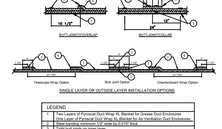
VERTICAL CLEANOUT MAXIMUM SPACING	
DUCT DIAMETER	MAXIMUM SPACING
8" – 24"	ONE PER FLOOR

VERTICAL SUPPORT MAXIMUM SPACING (FT)	
DUCT DIAMETER	MAXIMUM SPACING (FT)
8" – 24"	10'

CONTACT CAPTIVEAIRE FOR A CUSTOMIZED DUCT SUBMITTAL
EMAIL: reg32@captiveaire.com
PHONE: (800) 988-0881

DUCT INSULATION DETAIL (IF REQUIRED)





LEGEND	
1	First Layers of Pyrosocal Duct Wrap XL Blanket for Grease Duct Enclosure
2	Outer Layer of Pyrosocal Duct Wrap XL Blanket for Air Ventilation Duct Enclosure
3	Wire banding wherever the seam has been sealed
4	Min. 1" overlap on vertical seams
5	Min. 3" overlap on horizontal and between adjacent blanket on outside layer
6	Min. 3/4" diameter staples
7	Min. 1-1/2" x 1-1/2" x 1/8" angle or SMACNA Equivalent for Grease Duct Enclosure
8	Min. 1-1/2" x 1-1/2" x 1/8" angle or SMACNA Equivalent for Air Ventilation Duct Enclosure
9	Optional 3" Pyrosocal Duct Wrap XL collar

Thermal Ceramics
Pyrosocal® Duct Wrap XL
Commercial Kitchen Grease Duct Enclosure System
Air Ventilation Duct Enclosure System
1 or 2 Hour Shaft Alternative / Zero Clearance to Combustibles

CAPTIVEAIRE
Maryland Office
8100 Boone Boulevard, Suite 700, Bethesda, MD 20814 PHONE: (800) 988–0881 FAX: 8102270001 EMAIL: reg32@captiveaire.com
Jersey Mike's Subs – Liberty, MO
LIBERTY, MO, 64068
DATE: 1/22/2025
DWG.#: 7290581
DRAWN BY: BT–32
SCALE: 3/4" = 1'–0"
MASTER DRAWING

SHEET NO. 7

JERSEY MIKE'S SUBS
1912 STAR DRIVE
LIBERTY, MO 64068

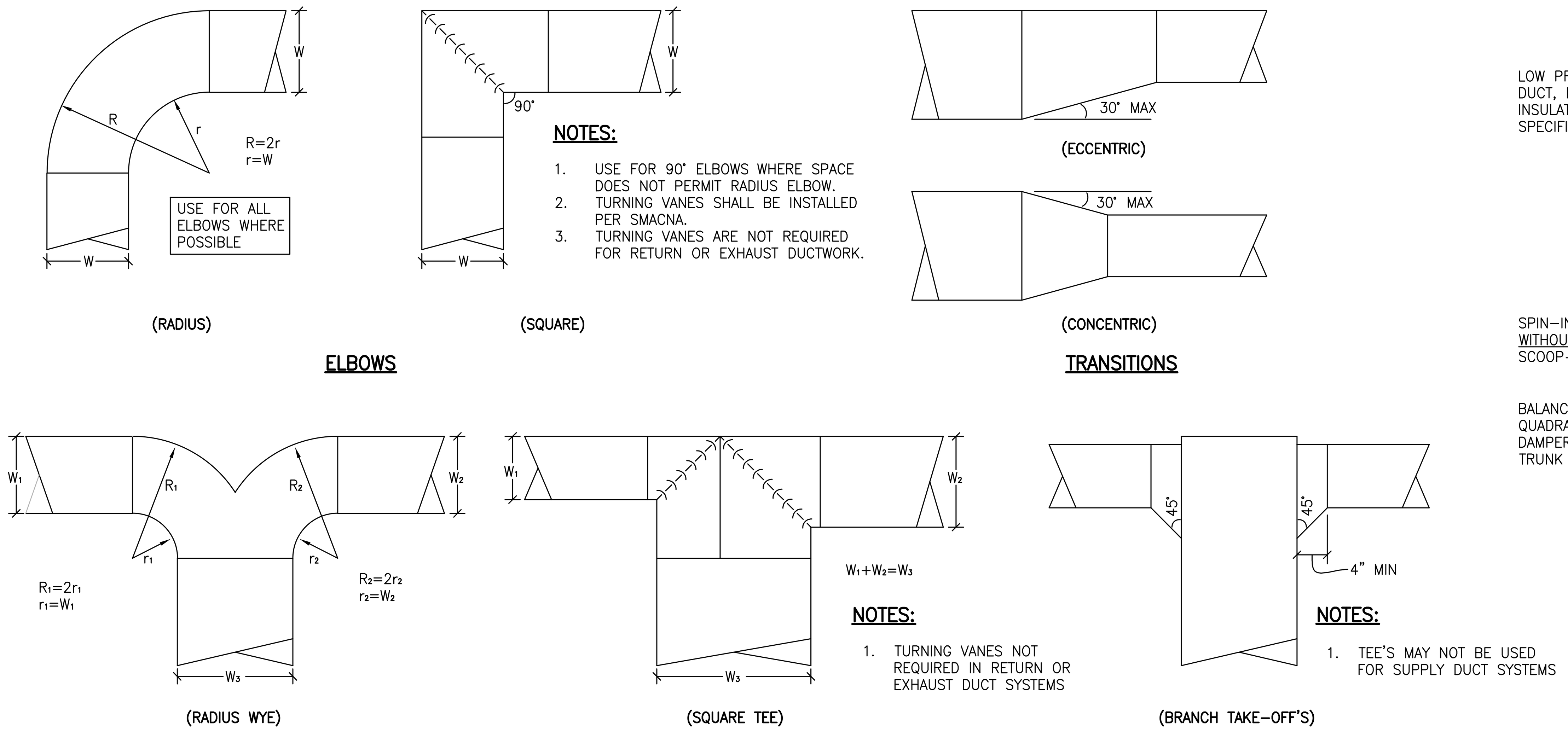
STATE OF MISSOURI
MATTHEW DAVID KIMMERLY
PE-2009023943
PROFESSIONAL ENGINEER
02/18/25
ARCHITECT/ENGINEER STAMP

REV. NO.	DATE	DESCRIPTION

PROJECT NO: JIMMO-211
DRAWN BY: TD
CHECKED BY: KM
ISSUE DATE:

HOOD AND FAN DETAILS-2

H2.2

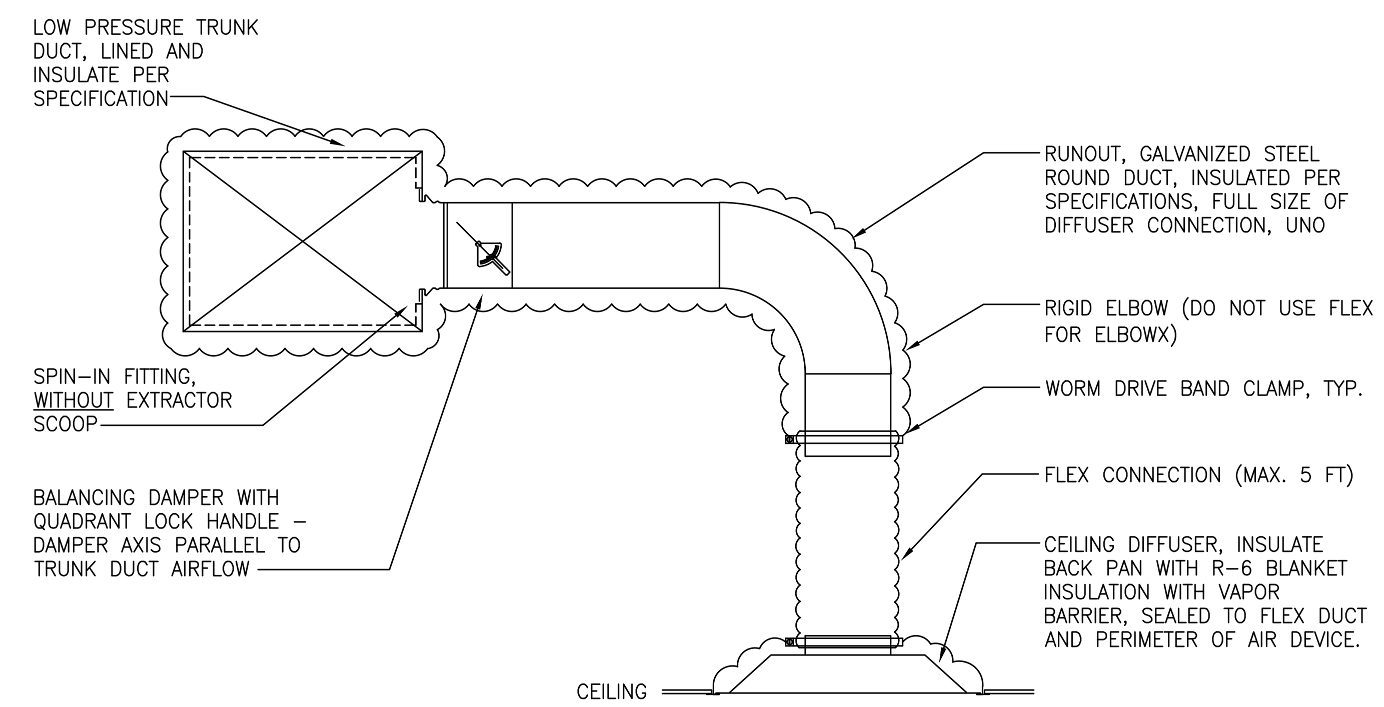


NOTES:

1. DETAILS ARE FOR GENERAL HVAC DUCTWORK ONLY, TYPE I KITCHEN EXHAUST DUCTWORK SHALL BE FABRICATED AND INSTALLED PER NFPA 96 AND CODE.

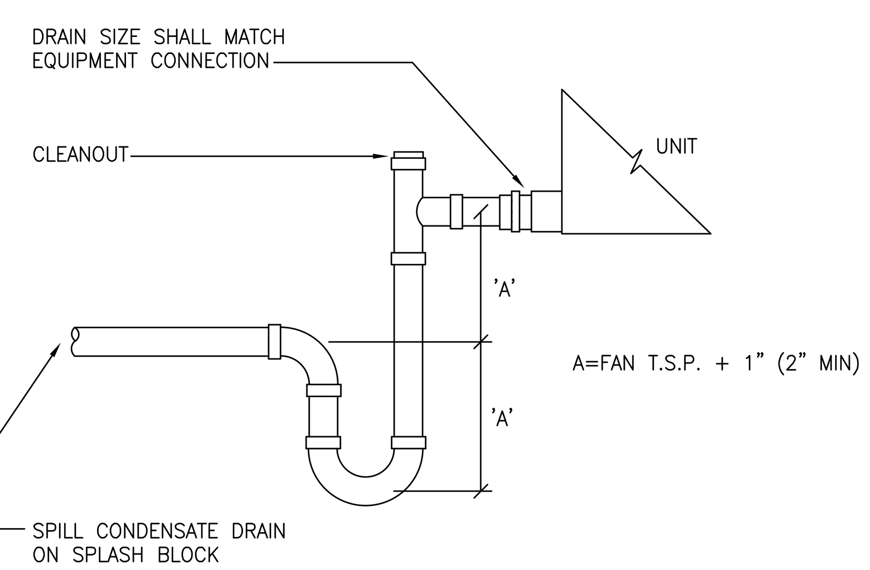
1 / H3.1 GENERAL DUCTWORK DETAILS

SCALE: NONE



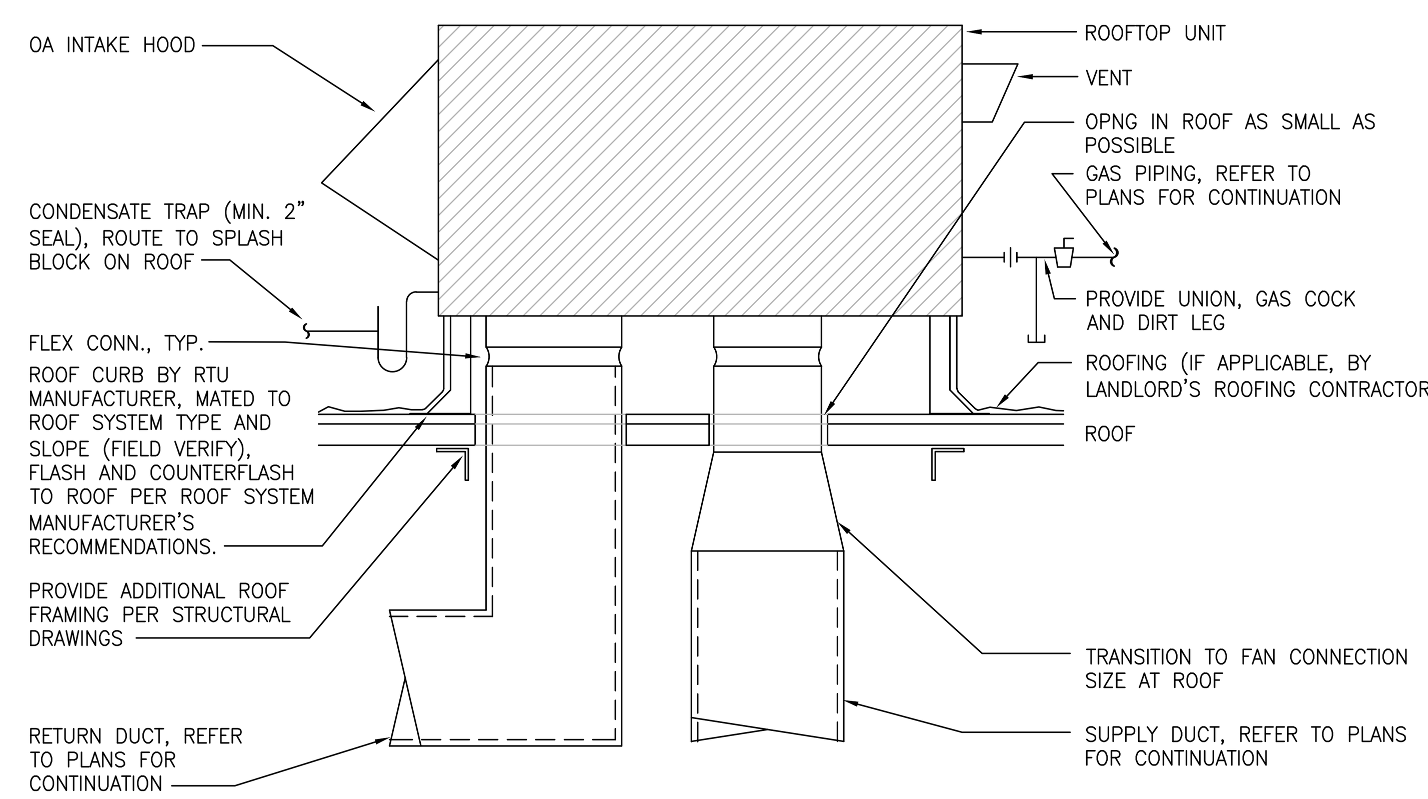
2 / H3.1 AIR DEVICE CONNECTION

SCALE: NONE



3 / H3.1 CONDENSATE DRAIN

SCALE: NONE



NOTES:

1 SECURE RTU TO CURB PER MANUFACTURER'S RECOMMENDATIONS.

2 RTU OA INTAKE SHALL BE MINIMUM 10'-0" FROM ANY EXHAUST FAN DISCHARGE, PLUMBING VENT, ETC.

4 / H3.1 ROOFTOP UNIT

SCALE: NONE

HVAC LEGEND

SYMBOL	DESCRIPTION
	EXISTING MECHANICAL CONSTRUCTION (CROSS HATCHED = TO BE REMOVED)
	CONNECTION TO EXISTING CONSTRUCTION
2-(A) 8"ø / 200	AIR DEVICE TAG
	SUPPLY AIR DEVICE
	RETURN / EXHAUST AIR DEVICE
20x12	DUCTWORK, SIZED AS SPECIFIED (LINED WHERE NOTED/SPECIFIED)
	FLEXIBLE DUCT OR CONNECTOR
20x12	DUCTWORK, SIZED AS SPECIFIED (LINED WHERE NOTED/SPECIFED)
R	DUCT OFFSET: (R)ISE, (D)ROP – ARROW SHOWS DIRECTION OF OFFSET.
	FD = FIRE DAMPER FSD = FIRE/SMOKE DAMPER
	FD = FIRE DAMPER FSD = FIRE/SMOKE DAMPER
	MD = MANUAL DAMPER MOD = MOTOR-OPERATED DAMPER
	MOTOR-OPERATED DAMPER
T	(T)HERMOSTAT, (H)UMIDISTAT

HVAC ABBREVIATIONS

ABBREV.	DEFINITION	ABBREV.	DEFINITION
A/C	ABOVE CEILING	L&S	LOUVER AND SCREEN
AD	ACCESS DOOR	LAHJ	LOCAL AUTHORITY HAVING JURISDICTION
AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
B/F	BELOW FLOOR	MD	MANUAL DAMPER
B/G	BELOW GRADE	MECH	MECHANICAL
BB	BASE BUILDING	MFGR	MANUFACTURER
BD	BACKDRAFT DAMPER	MOD	MOTOR-OPERATED DAMPER
BLDG	BUILDING	MTD	MOUNTED
CD	CONDENSATE DRAIN	N/A	NOT APPLICABLE
CF(H/M)	CUBIC FEET PER (HOUR / MINUTE)	NC	NOISE CRITERIA
CLG	CEILING	NIC	NOT IN CONTRACT
CONC	CONCRETE	NOM	NOMINAL
CONN	CONNECT(ION)	OA	OUTSIDE AIR
CONT	CONTINUATION	OC	ON CENTERS
DIA	DIAMETER	OPNG	OPENING
DIV 15/16	DIVISION 15000 (MECH) / 16000 (ELEC)	PLBG	PLUMBING
DN	DOWN	RA	RETURN AIR
EA	EACH or EXHAUST AIR	SA	SUPPLY AIR
ELEC	ELECTRICAL	SF	SQUARE FEET
EXH	EXHAUST	SQ	SQUARE
EXIST	EXISTING	TBD	TO BE DETERMINED
FA	FREE AREA	THRU	THROUGH
FACP	FIRE ALARM CONTROL PANEL	T'STAT	THERMOSTAT
FD	FIRE DAMPER	TYP	TYPICAL
FLEX	FLEXIBLE	UNO	UNLESS NOTED OTHERWISE
FLR	FLOOR	WC	WATER COLUMN
FP	FIRE PROTECTION	WG	WATER GAUGE
FSD	COMBINATION FIRE AND SMOKE DAMPER	XFER	TRANSFER

HVAC GENERAL NOTES

1. WORK SHALL BE INSTALLED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH THE APPLICABLE BUILDING CODES AND STANDARDS ADOPTED BY THE AUTHORITY HAVING JURISDICTION AND ALL APPLICABLE LOCAL ORDINANCES.

2. CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., AND PAY ALL INCIDENTAL FEES, AS REQUIRED TO OBTAIN A PERMIT AND A PERMANENT CERTIFICATE OF OCCUPANCY.

3. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS. CONFLICTS WHICH ARISE DUE TO LACK OF PROPER COORDINATION SHALL BE CORRECTED AT THE CONTRACTOR'S COST.

4. DESIGN INDICATED IS SCHEMATIC AND MAY NOT REFLECT ALL CONSTRAINTS IMPOSED BY ACTUAL PROJECT CONDITIONS. CONTRACTOR SHALL VISIT SITE AND REVIEW CONSTRUCTION DOCUMENTS (INCLUDING ALL TRADES) TO FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BID. CONTRACTOR'S BID SHALL INCLUDE ANY AND ALL COSTS REQUIRED TO REWORK THE DESIGN TO FIT WITHIN THE PHYSICAL CONSTRAINTS WHILE ACHIEVING THE OVERALL DESIGN INTENT.

5. THE BASIS-OF-DESIGN PRODUCTS WERE USED TO DETERMINE DIMENSIONS, INSTALLATION AND ACCESS CLEARANCES, SUPPORTS, ELECTRICAL SERVICE, CONNECTION ARRANGEMENTS, ETC. WHERE ALTERNATE PRODUCTS ARE PROVIDED, IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL REQUIREMENTS AND RECTIFY ANY CONFLICTS AT THE CONTRACTOR'S COST.

6. ALL WORK SHALL BE INSTALLED TO AVOID CONFLICT WITH ELECTRICAL EQUIPMENT "DEDICATED SPACE" AS REQUIRED BY NEC AND LOCAL ORDINANCES. COORDINATE LOCATIONS OF ALL ELECTRICAL GEAR (DISTRIBUTION PANELS, TRANSFORMERS, SWITCHGEAR, ETC.) WITH ELECTRICAL CONTRACTOR PRIOR TO FABRICATION AND INSTALLATION.

7. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL EQUIPMENT AND DEVICES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING.

8. ALL MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO ORDERING. CONTRACTOR ASSUMES LIABILITY AND COSTS FOR ANY PRODUCT WHICH IS ORDERED PRIOR TO RECEIPT OF APPROVED SUBMITTALS.

9. ALL MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. ADDITIONAL WARRANTY SHALL APPLY WHERE SPECIFIED.

10. EQUIPMENT START-UP AND COMMISSIONING SHALL BE PERFORMED BY FACTORY-AUTHORIZED AGENTS ONLY. SUBMIT WRITTEN START-UP PROCEDURES TO OWNER FOR APPROVAL PRIOR TO PERFORMANCE OF START-UP ACTIVITIES. FINAL REPORTS SHALL BE APPROVED BY OWNER.

11. ALL PENETRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES SHALL BE FIRE STOPPED WITH UL-LISTED SYSTEM APPROVED FOR THE APPLICATION.

12. FLASH AND SEAL ALL PENETRATIONS OF BUILDING EXTERIOR, WALLS AND ROOF WITH APPROVED SEALANT.

13. ALL EQUIPMENT SHALL BE NEW EXCEPT FOR EQUIPMENT SPECIFICALLY NOTED AS EXISTING TO REMAIN. CONTRACTOR SHALL TEST EXISTING EQUIPMENT FOR PROPER OPERATION AND REPORT CONDITION TO OWNER. ALL UNREPORTED EQUIPMENT IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED IF NOT FUNCTIONAL AT THE DATE OF BENEFICIAL OCCUPANCY. NEW EQUIPMENT SHALL BE UL OR ETL LISTED AND LABELED. GAS-FIRED EQUIPMENT SHALL ALSO BE AGA OR CSA LISTED AND LABELED. INSTALL ALL EQUIPMENT PER THESE DOCUMENTS, MANUFACTURER'S RECOMMENDATIONS, AND CODE REQUIREMENTS FOR SPECIFIC APPLICATION.

14. EXCEPT WHERE SPECIFIED OTHERWISE, MECHANICAL CONTRACTOR SHALL PROVIDE STARTERS AND ELECTRICAL DISCONNECTS FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

15. PROVIDE PERMANENT LABELS FOR ALL EQUIPMENT, CONTROLS, AND PIPING.

16. GENERAL DUCTWORK (SUPPLY, RETURN, OUTSIDE AIR, RESTROOM EXHAUST, TYPE II KITCHEN EXHAUST) SHALL BE G90 GALVANIZED STEEL, LOCK-FORMING QUALITY, FABRICATED AND INSTALLED PER SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" AND CODE. DUCTWORK SHALL BE RATED FOR 1"WG, AND SEALED TO CLASS A SEAL USING UL-181A OR 181B WATER-BASED MASTIC. **DUCT SIZES SHOWN ARE NET FREE AREA DIMENSIONS, ADJUST SHEETMETAL SIZES FOR DUCT LINER AS REQUIRED**. INSULATE ALL CONCEALED METAL GENERAL DUCTWORK WITH 2", R-8 FIBERGLASS DUCT WRAP EXCEPT WHERE OTHERWISE SPECIFIED. PROVIDE 1", 1.5 PCF ACOUSTICAL FIBERGLASS DUCT LINER AT SUPPLY AND RETURN DUCTWORK FROM EQUIPMENT CONNECTION THRU FIRST 15 FEET OF DUCTWORK. DUCT LINER SHALL HAVE NEOPRENE COATING WITH ANTIMICROBIAL TREATMENT ON AIR SIDE.

17. TYPE I KITCHEN HOOD (GREASE) EXHAUST DUCTWORK MAY BE CONTRACTOR-FABRICATED PER CODE OR FACTORY LISTED GREASE DUCT. THE ENTIRE DUCT SYSTEM FROM THE HOOD CONNECTION TO THE FAN CONNECTION SHALL BE OF ONE TYPE.

    A. CONTRACTOR FABRICATED TYPE I EXHAUST DUCTWORK: CARBON STEEL, MIN 16 GA, WITH LIQUID-TIGHT ALL-WELDED JOINTS AND SEAMS, FABRICATED AND INSTALLED PER NFPA 96 AND MECHANICAL CODE; ALL ELBOWS SHALL BE SMOOTH RADIUS WITH INSIDE RADIUS EQUAL TO THE DUCT WIDTH (MITRED ELBOWS ARE NOT ACCEPTABLE); SLOPE MIN 1" PER FOOT TOWARD HOOD; WHERE LOW POINTS ARE REQUIRED IN HORIZONTAL RUNS, PROVIDE CODE-COMPLIANT RESERVOIR WITH GREASE DRAINS AT ALL LOW POINTS – ROUTE TO KITCHEN GREASE DRAINAGE SYSTEM; DUCT SHALL BE CONSTRUCTED TO PREVENT ACCUMULATION OF GREASE OR OBSTRUCTION FROM PROPER DRAINAGE – NO BOLTS, RIVETS, FLANGES, ETC., MAY PROTRUDE INTO DUCT; PROVIDE ACCESS DOORS FOR CLEANING AND INSPECTION OF DUCT SYSTEM AS REQUIRED BY THE LAHJ – ACCESS DOORS SHALL BE UL LISTED FOR TYPE I KITCHEN EXHAUST SERVICE.

    B. FACTORY LISTED TYPE I EXHAUST DUCTWORK: LISTED AND LABELED TO UL 1978 AND UL 2221; LISTED FOR 3/4" CLEARANCE TO COMBUSTIBLES AND ZERO CLEARANCE TO NON-COMBUSTIBLES; DOUBLE WALL CONSTRUCTION WITH 0.036" THICK 403 STAINLESS STEEL INNER DUCT AND 0.024" THICK STAINLESS STEEL OUTER WALL; DUCT JOINTS SECURED WITH V CLAMPS AND SEALED WITH 3M FIRE BARRIER 2000+ SEALANT; FABRICATED AND INSTALLED PER NFPA 96 AND CODE; -1"W.G PRESSURE CLASS; DUCT SHALL BE CONSTRUCTED TO PREVENT ACCUMULATION OF GREASE OR OBSTRUCTION FROM PROPER DRAINAGE – NO BOLTS, RIVETS, FLANGES, ETC., MAY PROTRUDE INTO DUCT; PROVIDE ACCESS DOORS FOR CLEANING AND INSPECTION OF DUCT SYSTEM WHERE REQUIRED; ALL JOINTS AND SEAMS LIQUID TIGHT; LISTED FOR 500°F CONTINUOUS SERVICE AND INTERMITTENT EXPOSURE TO 2,000°F; ENTIRE DUCT SYSTEM SHALL BE CONSTRUCTED FROM A SINGLE MANUFACTURER'S SYSTEM AND SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. SEE HOOD DRAWINGS FOR ADDITIONAL SPECIFICATIONS.

    C. WHERE REQUIRED, INSULATE ALL TYPE I EXHAUST DUCT FROM HOOD CONNECTION TO ROOF PENETRATION WITH UL LISTED GREASE DUCT FIRE WRAP PROVIDING 2 HOUR FIRE RATING AND ZERO CLEARANCE TO COMBUSTIBLES. SEE HOOD DRAWINGS FOR ADDITIONAL SPECIFICATIONS.

18. FLEXIBLE DUCT SHALL BE UL 181 CLASS 1, STEEL WIRE HELIX WITH REINFORCED INNER LAYER, R-6 FIBERGLASS INSULATION, AND FOIL-FACED OUTER VAPOR BARRIER.

19. EXCEPT WHERE NOTED OTHERWISE, EACH SUPPLY AIR DEVICE SHALL HAVE MANUAL BALANCING DAMPER AT TAKE-OFF CONNECTION TO SUPPLY TRUNK DUCT.

20. AIR DEVICES SHALL BE AS NOTED OR SCHEDULED. COORDINATE BORDER AND MOUNTING WITH SURFACE IN WHICH INSTALLED, REFER TO ARCHITECTURAL DRAWINGS. AIR DEVICES IN FINISHED SPACES SHALL BE FREE OF VISIBLE FASTENERS. COLOR AND FINISH SHALL BE APPROVED BY THE ARCHITECT.

21. PROVIDE UL 555 FIRE DAMPERS (UL 555S COMBINATION FIRE/SMOKE DAMPERS) AT ALL AIR DISTRIBUTION SYSTEM PENETRATIONS OF FIRE RATED (FIRE AND SMOKE RATED) ASSEMBLIES.

22. SUPPORT EQUIPMENT DIRECTLY FROM BUILDING STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE VIBRATION ISOLATION FOR ALL EQUIPMENT WITH ROTATING PARTS.

23. TEST EQUIPMENT, ECONOMIZERS, AND CONTROLS FOR PROPER OPERATION, CALIBRATION AND ADJUSTMENT. PROVIDE REPORT TO OWNER.

24. PROVIDE COMPLETE AS-BUILT DRAWINGS FOR ALL HVAC SYSTEMS AND AND O&M MANUALS FOR ALL EQUIPMENT TO OWNER WITHIN 90 DAYS OF SYSTEM ACCEPTANCE. AS-BUILT DRAWINGS SHALL NOT BEAR THE NAME OR SEAL OF THE ARCHITECT OR ENGINEER.

THE CONTENTS OF THIS DRAWING WILL REMAIN THE PROPERTY OF THOMAS F. TEDROW, AIA. IT'S CONTENTS, INCLUDING ALL INFORMATION, SHALL NOT BE REPRODUCED USING ANY MEANS WITHOUT EXPRESSED WRITTEN CONSENT AND/OR PERMISSION FROM THOMAS F. TEDROW, AIA

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REV. NO.	DATE	DESCRIPTION

PROJECT NO: JMMO-211
DRAWN BY: TD
CHECKED BY: KM
ISSUE DATE:

HVAC DETAILS

H3.1