INDEX PAGE

KITCHEN VENTILATION SYSTEM

Avalon Theater and Lounge

2473 S Kinnickinnic Ave

Milwaukee, WI

INDEX

-GENERAL PLAN VIEW

-GENERAL SECTION VIEW

-EXHAUST HOOD SECTION VIEW

-EXHAUST HOOD PLAN VIEW

-HOOD AND FAN INFORMATION TABLES

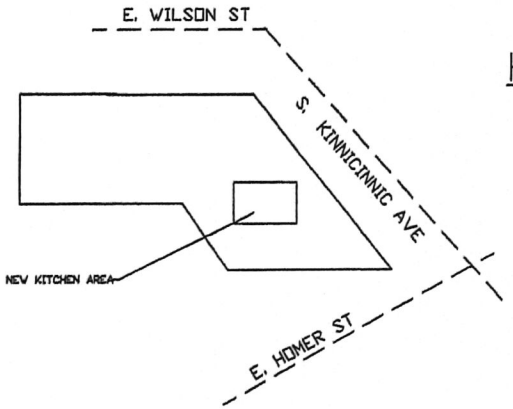
-GENERAL CONSTRUCTION SPECS AND NOTES

-EXHAUST FAN DIMENSIONS/FEATURES

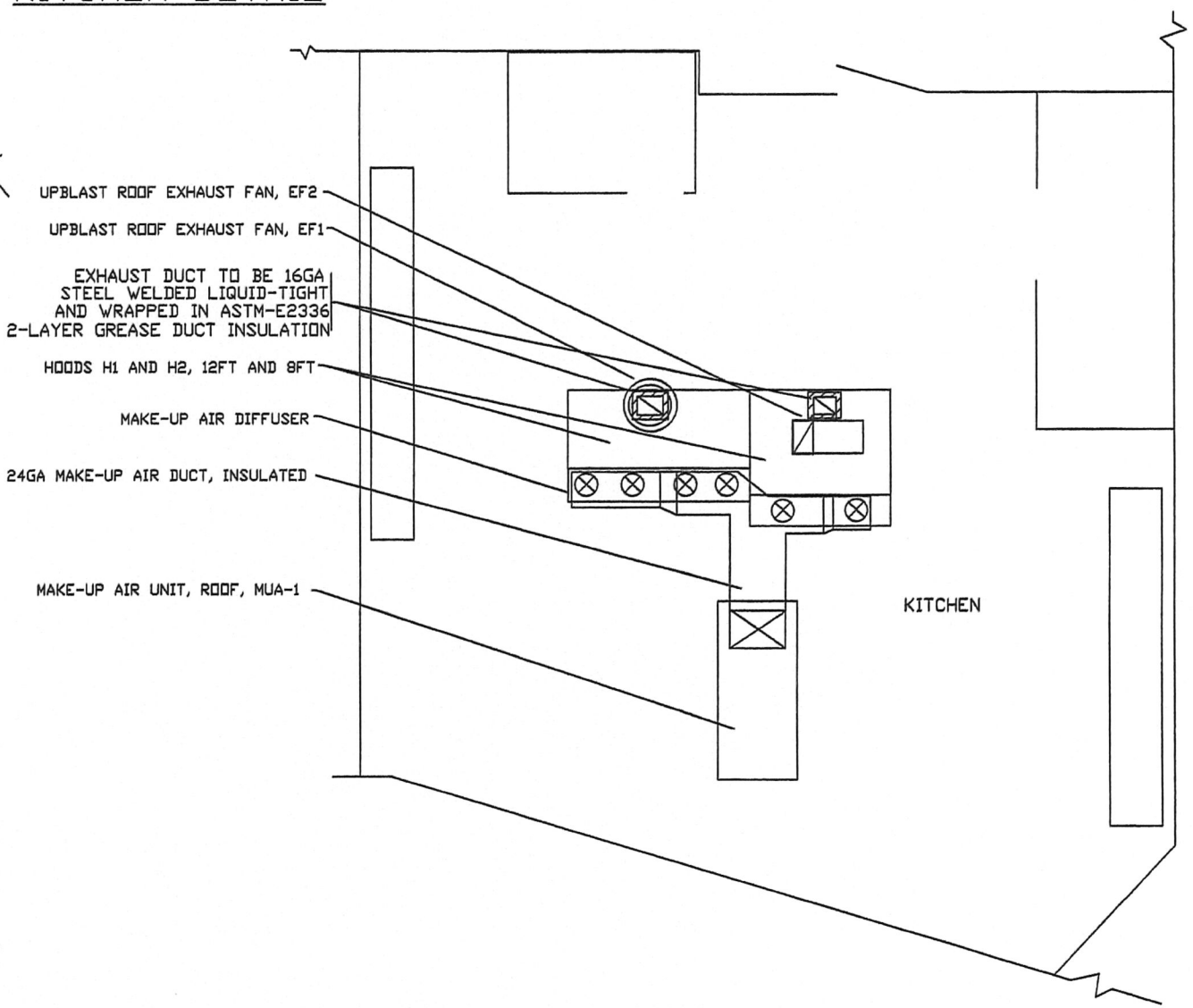
WALTERS SHEET METAL

JOB	AVALON		
LOCATION			
DATE		JOB #	
DWG #		DRAWN BY	
REV.		SCALE	NOT TO SCALE

GENERAL PLAN VIEW



KITCHEN DETAIL



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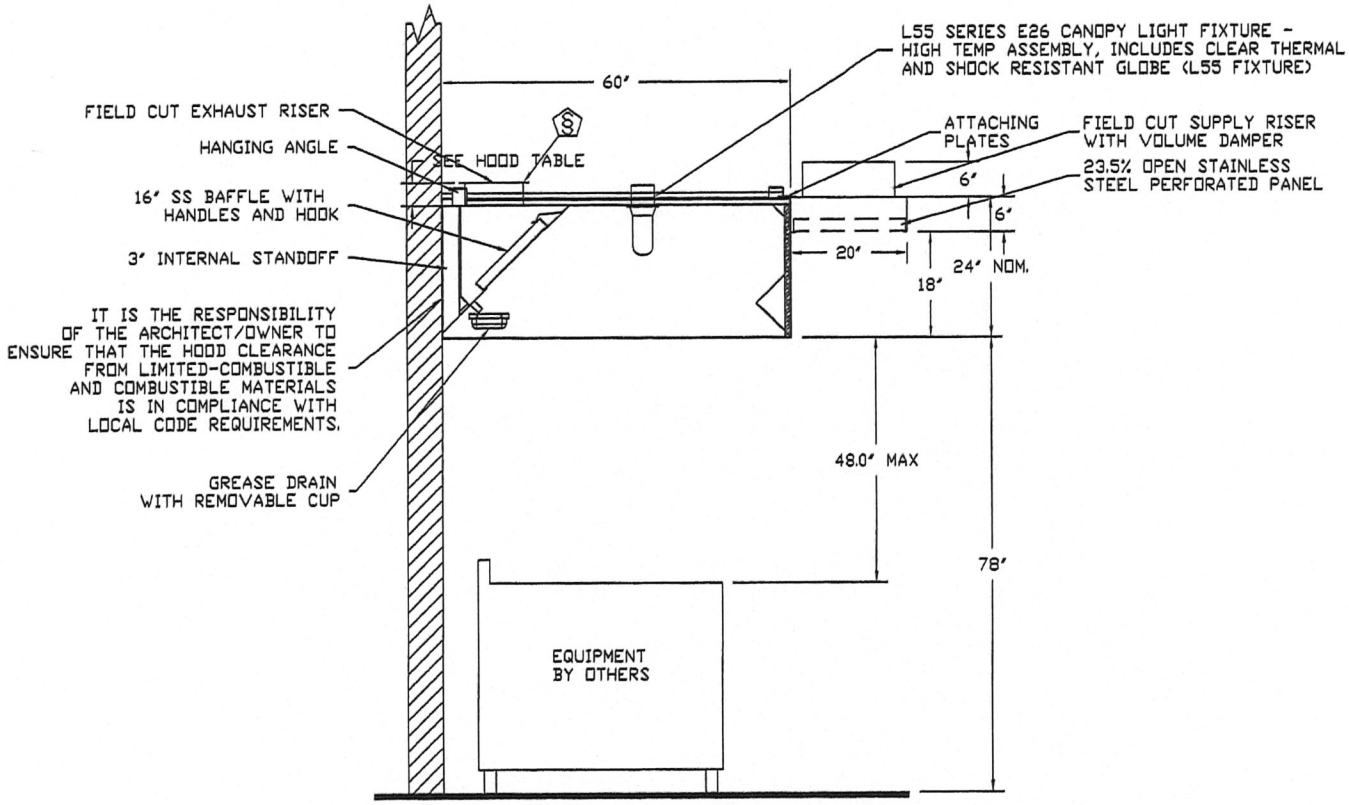
THE EXHAUST DISCHARGE AND THE MAKE-UP AIR INTAKE ARE A MIN OF 10 FEET APART AND A MIN OF 10 FEET FROM ALL OTHER INTAKES AND PROP. LINES.

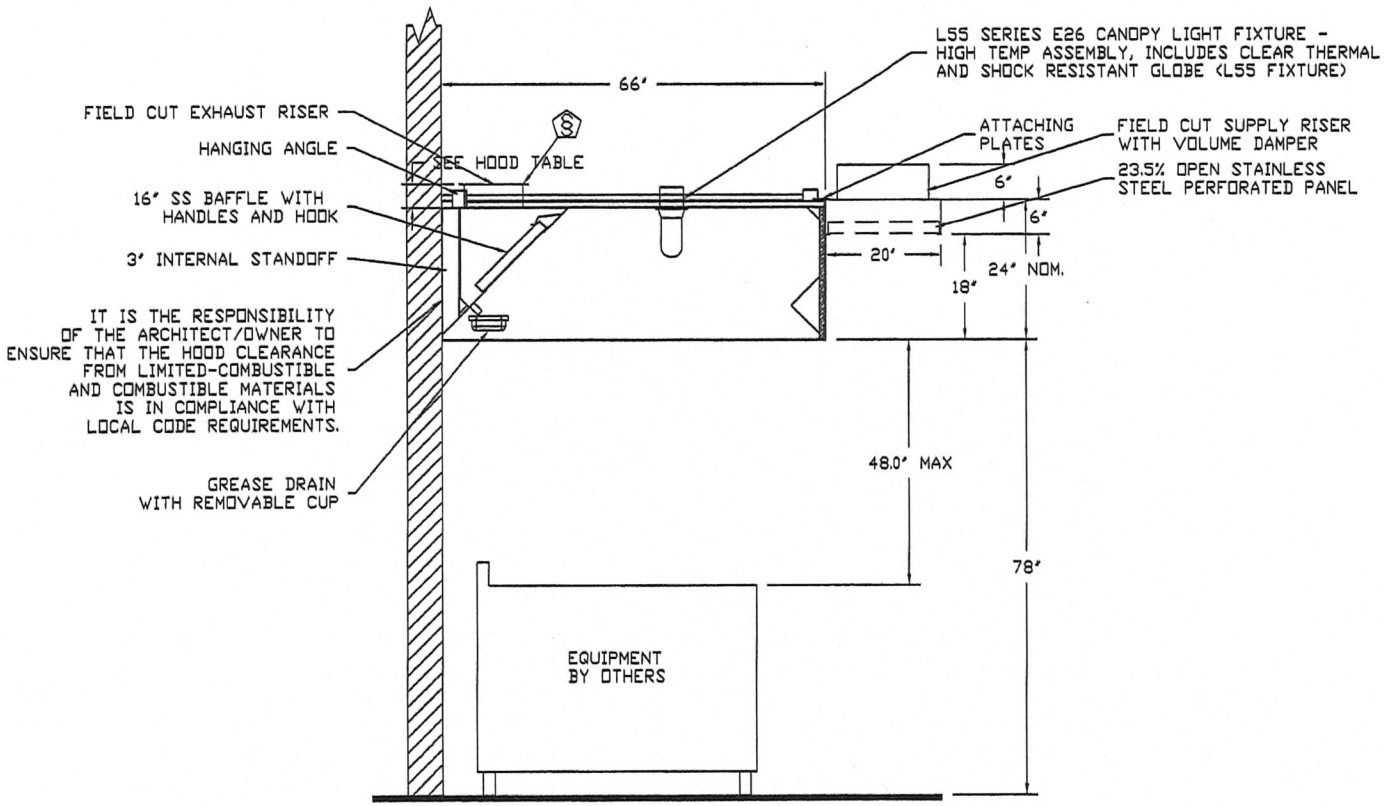
WALTERS SHEET METAL

JOB Avalon	
LOCATION	
DATE	JOB #
DWG #	DRAWN BY
REV.	SCALE NOT TO SCALE



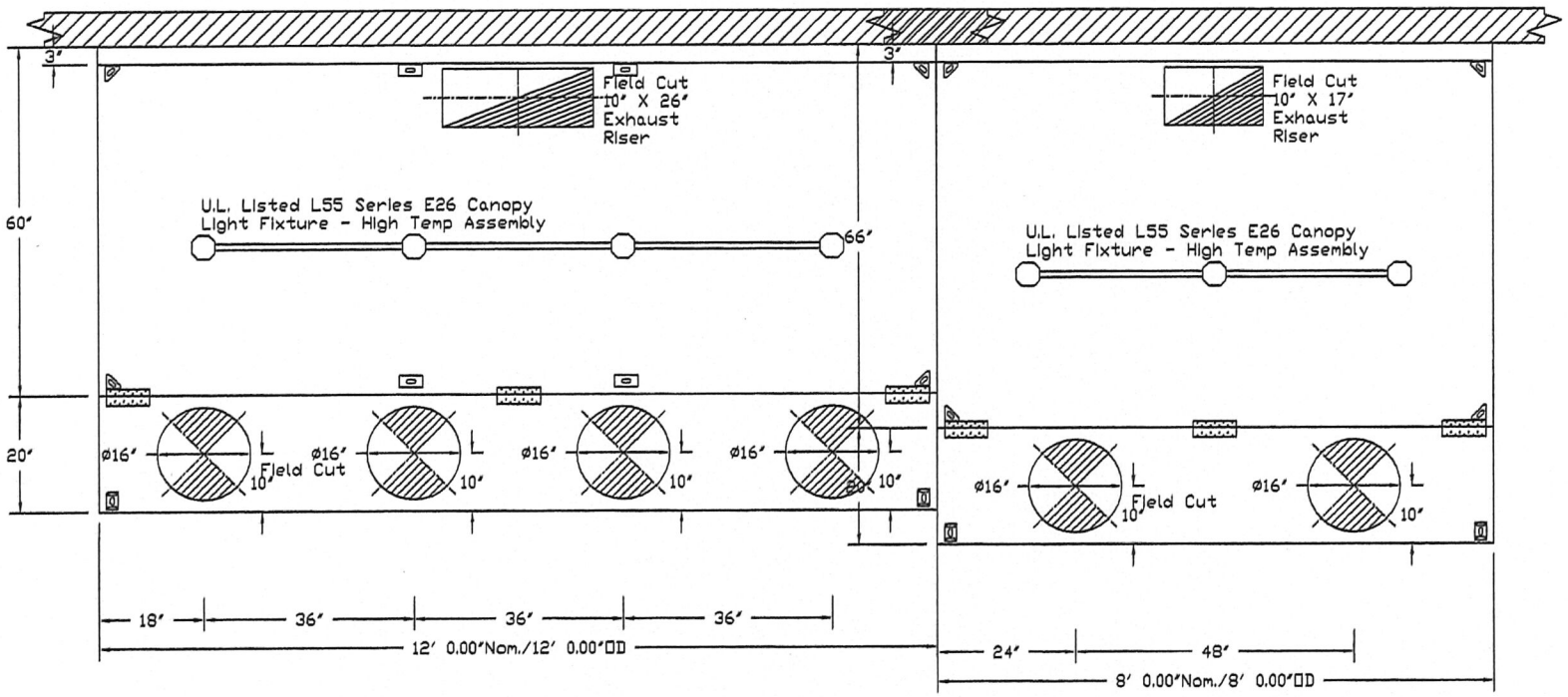
SECTION VIEW – MODEL 6024ND-2-PSP-F
HOOD – #1 (H1 Left)

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	*JOB #* 3019618
DWG # 2	*DRAWN BY* jfw
REV.	*SCALE* 3/8" = 1'-0"



SECTION VIEW – MODEL 6624ND-2-PSP-F
HOOD – #2 (H2 Right)

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	*JOB #* 3019618
DWG # 3	*DRAWN BY* jfw
REV.	*SCALE* 3/8" = 1'-0"



PLAN VIEW – Hood #1 (H1 Left)
12' 0.00" LONG 6024ND-2-PSP-F

NOTE: Additional hanging angles provided for hoods 12' and longer.

PLAN VIEW – Hood #2 (H2 Right)
8' 0.00" LONG 6624ND-2-PSP-F

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	JOB # 3019618
DWG # 4	DRAWN BY jfw
REV.	SCALE 3/8" = 1'-0"

HOOD INFORMATION – Job#3019618

HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	EXHAUST PLENUM							TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG.	
					TOTAL EXH. CFM	RISER(S)								END TO END	ROW
						WIDTH	LENG.	HEIGHT	DIA.	CFM	VEL.	S.P.			
1	H1 Left	6024 ND-2-PSP-F	12' 0.00"	600 Deg.	2750	10"	26"	4"		2750	1523	-0.521"	2425	430 SS Where Exposed	ALONE	ALONE
2	H2 Right	6624 ND-2-PSP-F	8' 0.00"	450 Deg.	1800	10"	17"	4"		1800	1525	-0.436"	1625	430 SS Where Exposed	ALONE	ALONE

HOOD INFORMATION

HOOD NO.	TAG	FILTER(S)					LIGHT(S)			UTILITY CABINET(S)						FIRE SYSTEM PIPING	HOOD HANGING WGHT
		TYPE	QTY.	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY.	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM		ELECTRICAL	SWITCHES		
												TYPE	SIZE	MODEL #	QUANTITY		
1	H1 Left	SS Baffle with Handles	9	16"	16"	30%	4	L55 Series E26	NO							NO	548 LBS
2	H2 Right	SS Baffle with Handles	5	16"	16"	30%	3	L55 Series E26	NO							NO	400 LBS

PERFORATED SUPPLY PLENUM(S)

HOOD NO.	TAG	POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG.	DIA.	CFM	S.P.
1	H1 Left	Front	144"	20"	6"	MUA			16"	606	0.236"
						MUA			16"	606	0.236"
						MUA			16"	606	0.236"
						MUA			16"	606	0.236"
2	H2 Right	Front	96"	20"	6"	MUA			16"	812	0.409"
						MUA			16"	812	0.409"

CAPTIVEAIRE

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	JOB # 3019618
DWG # 1	DRAWN BY jfw
REV.	SCALE 3/8" = 1'-0"

EXHAUST HOOD NOTES

EXHAUST RATE IS SIZED IN ACCORDANCE WITH IMC-2009 SEC. 507.1
WHICH ALLOWS SIZING THROUGH THE HOODS' UL-710 LISTING AND LABELING.
EACH EXHAUST HOOD IS UNDERWRITERS LABORATORIES (UL) LISTED AND LABELED.
EXHAUST RATE IS SIZED TO MEET OR EXCEED THE U.L. TESTING AND LISTING LEVELS.

THE MODEL ND-2 IS UL LISTED FOR AN EXHAUST RATE OF
200 CFM/LINEAR FOOT OF HOOD.

TOTAL HOOD LENGTHS = 12ft left + 8ft right = 20FT TOTAL
20FT X 200 CFM/FT = 4000 CFM.. ACTUAL EXHAUST = 4550 CFM

MAKE-UP AIR AIR IS SUPPLIED BACK INTO KITCHEN AREA
THROUGH HOOD MOUNTED PERFORATED PLENUM AND CEILING DIFFUSERS..
DIRECT FIRED MAKE-UP AIR UNITS PROVIDED TO TEMPER AIR TO A MIN. OF 70 DEG. F.
SEE SUPPLY UNIT NOTES.

FIRE SYSTEM BY OTHERS.

EVIDENCE OF APPROVAL TO BE AVAILABLE AT JOBSITE.

AIR BALANCE

- EXHAUST FAN #1 = (2750) CFM
- EXHAUST FAN 2 = (1800) CFM
+ MAKE-UP AIR 1 = 4550 CFM

= BALANCE = 0 CFM

SUPPLY UNIT NOTES

MAKE-UP AIR IS PROVIDED THROUGH 2 CAPTIVE-AIR
MODEL A2-D500-G15 DIRECT FIRED MAKE-UP AIR UNIT.

UNIT IS ETL/UL. LISTED AND LABELED. (UL795) FILE #MH15054
MIN TEMP RISE OF 90 DEGREES.
MIN BTU OUT = 4550 CFM X 90 DEGREES X 1.08 = 442,260 BTUH.
UNIT 1 OUTPUT = 4550 CFM AND 442,260 BTUH.

FLAME SAFETY, AIR FLOW, HIGH TEMP
SAFETY DEVICES INCLUDED.
DISCHARGE DUCTSTAT PROVIDED.

UNIT INTERLOCK WITH EXHAUST
FANS BY JOBSITE ELECTRICIAN.

AIR INTAKE IS A MINIMUM OF
10'-0" FROM ALL EXHAUSTS.

DUCT SPECS

EXHAUST TO BE 16GA BLACK
IRON WITH ALL SEAMS AND JOINTS LIQUID TIGHT.
ASTM E-2336 2-LAYER UL-LISTED GREASE DUCT
INSULATION PROVIDED WHERE WITH 18" OF COMBUSIBLES.

HIGH TEMP. GASKETED CLEAN-OUTS PROVIDED AT EACH
CHANGE IN DUCT DIRECTION PER IMC-2009.

INTERIOR SUPPLY DUCT TO BE GALVANIZED AND FLEX.
R8 WRAP INSULATION PROVIDED IN UNHEATED SPACES.
EXTERIOR DUCT TO BE 26GA GALVANIZED WITH 2" FOIL-LINED
DUCT BOARD LINER WITH EXTERIOR WEATHERPROOF SEALANT

WALTERS SHEET METAL

JOB Avalon	
LOCATION	
DATE	JOB #
DWG #	DRAWN BY
REV.	SCALE NOT TO SCALE

EXHAUST FAN INFORMATION – Job#3019618

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	ø	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS.)	SONES
1	EF1	NCA16FA	2750	0.750	967	1.000	0.6860	3	208	3.4		148	12.6
2	EF2	USBI15BD-RM	1800	1.000	1316	1.000	0.6390	3	208	3.4	1371 FPM	268	12.9

MUA FAN INFORMATION – Job#3019618

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	DESIGN CFM	ESP.	RPM	H.P.	B.H.P.	ø	VOLT	FLA	WEIGHT (LBS.)	SONES	BURNER EFFICIENCY(%)
3	MUA-1	A2-D.500-G15	G15-PB	A2-D.500	4550	0.500	973	3.000	2.7460	3	208	8.7	804	17.5	92

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO.	TAG	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
3	MUA-1	480717	442260	90 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1	EF1	1 - Grease Box
2	EF2	1 - BI15 - 24" Discharge Extension.
		1 - BI - Discharge Orientation Vertical Upper Left - CW Inlet Side.
		1 - Utility Set Grease Cup
		1 - BI15 - Inlet Ring Used To Connect Non-Factory Duct.
3	MUA-1	1 - AC Interlock Relay - 24VAC Coil
		1 - Motorized Backdraft Damper for A2-D Housing
		1 - Low Fire Start
		1 - Inlet Pressure Gauge, 0-35"
		1 - Manifold Pressure Gauge, -5 to 15" wc

FAN ACCESSORIES

FAN UNIT NO.	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	EF1	YES						
2	EF2	YES						
3	MUA-1						YES	

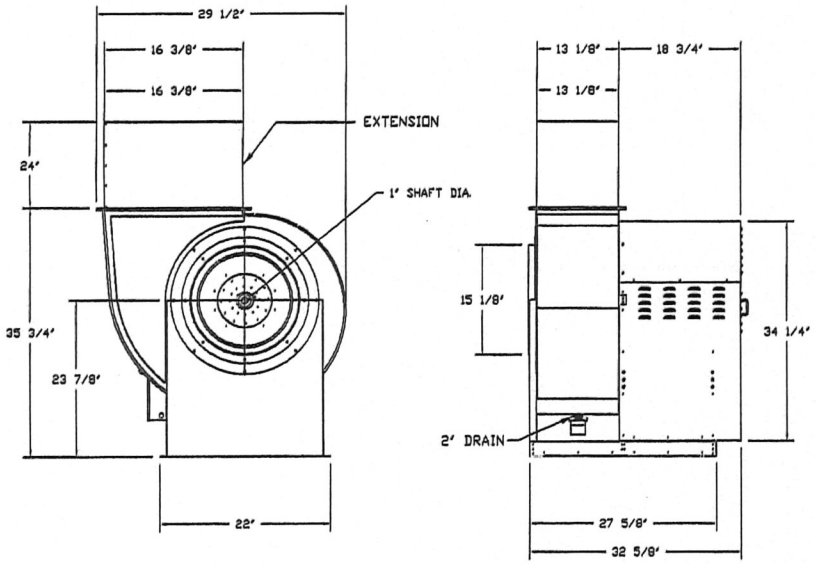
CURB ASSEMBLIES

NO.	ON FAN	WEIGHT	ITEM	SIZE
3	# 3	76 LBS	Curb	31.000"W x 79.000"L x 20.000"H Insulated

CAPTIVE-AIRE

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	JOB # 3019618
DWG # 5	DRAWN BY jfw
REV.	SCALE 3/8" = 1'-0"

FAN #2 USBI15BD-RM - EXHAUST FAN (EF2)



FEATURES:

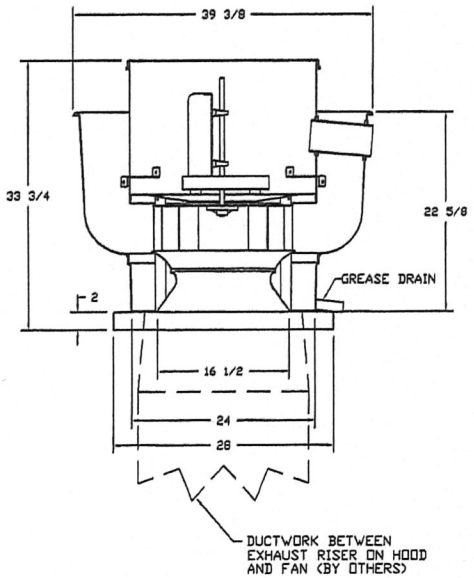
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705
- UL762
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C)
- HIGH HEAT OPERATION BELT DRIVE 350°F (176°C)
- HEAT SLINGER
- GREASE CLASSIFICATION TESTING
- 2" DRAIN
- MOTOR WEATHER COVER
- FULLY SEALED SCROLL HOUSING
- SCROLL ACCESS DOOR
- FLANGE 1 1/4" - 11 THRU 20.
- FLANGE 2" - 24 THRU 36.

OPTIONS

BI15 - 24" DISCHARGE EXTENSION.
BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
UTILITY SET GREASE CUP
BI15 - INLET RING USED TO CONNECT NON-FACTORY DUCT.

NORMAL TEMPERATURE TEST BELT 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.

FAN #1 NCA16FA - EXHAUST FAN (EF1)



FEATURES:

- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762
- AMCA SOUND AND AIR CERTIFIED
- WIRING FROM MOTOR TO DISCONNECT SWITCH
- WEATHERPROOF DISCONNECT
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

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

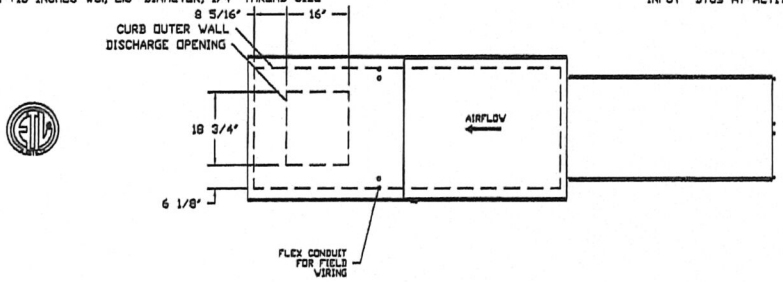
GREASE BOX

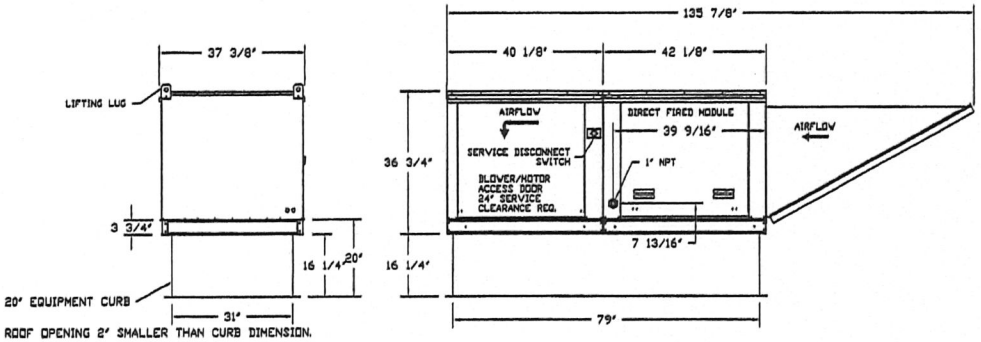
JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	JOB # 3019618
DWG # 6	DRAWN BY jfw
REV.	SCALE 3/8" = 1'-0"

FAN #3 A2-D.500-G15 - HEATER (MUA-1)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15" BLOWER
2. INTAKE HOOD WITH EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. COOLING INTERLOCK RELAY. 24VAC COIL. 120V CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
5. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER AND UNTEMPERED UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED
6. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
7. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
8. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = -10°F. TEMP. RISE = 90°F.
BTUs CALCULATED OFF STANDARD AIR DENSITY
OUTPUT BTUs AT ALTITUDE OF 0.0 ft. = 442260
INPUT BTUs AT ALTITUDE OF 0.0 ft. = 480717





ROOF OPENING 2" SMALLER THAN CURB DIMENSION.

JOB Avalon Atmospheric Theater & Lounge	
LOCATION MILWAUKEE, WI, 53207	
DATE 6/22/2017	JOB # 3019618
DWG # 7	DRAWN BY jfw
REV.	SCALE 1/4" = 1'-0"

Notes for State Plans, P1

IMC 507.2.1.1 - System is designed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors within the kitchen hood.

IMC 506.3.10 - Grease ducts to be completely covered on all sides with a material classified and labeled as grease duct wraps meeting ASTM E 2336.

IMC/SPS 364.0313(1) - System to be balanced upon installation. The person or agency responsible for balancing of the ventilating system shall document in writing the amount of outdoor air being provided and distributed for the building occupants, exhausts, and any other specialty ventilation. The document shall be retained at the site and shall be made available to the department upon request.

IMC 306.5/IFGC 306.5 - Permanent access for equipment installed on roofs or elevated structures with equipment located at a height exceeding 16 ft. Permanent ladders used to provide required access shall meet the requirements of this section. Access shall not require climbing over obstructions greater than 30 inches, or walking on roofs having a slope greater than 4/12.

IBC 904.11 - Ansul R-102 Fire Suppression System provided for hoods with manual activation with activation device located at or near a means of egress from the cooking area a minimum of 10 ft and a maximum of 20 ft from the kitchen exhaust system. The manual activation device shall be located a minimum of 42 inches and a maximum of 48 inches above the floor and identify the hazard protected. The maximum activation force for the manual activation shall not exceed 40 lbs, with maximum movement of 14" to actuate the fire suppression system. All of the above items are exempted if the sprinkler system is automatic. The activation of the fire suppression system shall automatically shut down the fuel and electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.

IFGC 401/SPS 365.0400 - All gas piping installations shall comply with NFPA 54-2009, National Fuel Gas Code.

IMC 506.3.2/SPS 364.0506(2) -Provide type I kitchen exhaust ducts leading from hoods with liquid tight joints, seams and penetrations unless a listed exception is met.

WALTERS	JOB	
	LOCATION	
	DATE	JOB #
	DWG # 1	DRAWN BY
	REV.	SCALE NOT TO SCALE

Notes for State Plans, P2

IMC 506.3.7 - Provide type I commercial kitchen exhaust systems with a minimum slope of 1/4 unit vertical in 12 units horizontal toward the hood or an approved grease reservoir. Where horizontal ducts exceed 75 feet in length, the slope must have a minimum slope of 1 unit vertical in 12 units horizontal.

IMC 506.3.8 & 9 - Duct clean-out openings for commercial kitchen grease exhaust ducts of size and locations as required by this code section. Additionally, a cleanout shall be provided for both the inlet side and outlet side of any inline fan. Such cleanouts are to be located within 3 ft of the fan duct connections.

IECC 403.2.2/IECC 503.2.7/IMC 603.9 - Ductwork shall be sealed at all joints, transverse and longitudinal seams and connections in ductwork using listed products as referenced in the code. The referenced ductwork includes all supply, exhaust and return ducts. This is applicable to all ductwork other than that used as part of the kitchen hood exhaust duct.

IMC 506.3.11 - Grease duct fire resistive access openings provided with approved signage with the wording "Access Panel. Do Not Obstruct".

IMC 506.3.12.1 - Provide a type I kitchen exhaust outlet, which terminates above the roof, with a discharge a minimum of 40" above the roof surface

IMC 506.5.3 - Upblast fans associated with Type I commercial kitchen hoods shall be hinged and supplied with a flexible weather proof electrical cable to permit inspection and cleaning. The ductwork shall extend a minimum of 18" above the roof surfaces.

IMC 507.12 & 13 - All type I and II commercial kitchen hoods shall overhang or extend a horizontal distance of not less then a 6" beyond the edge of the cooking surface on all open sides

IBC 906/IFC 904.11.5 - Provide portable K-Rated fire extinguishers within 30 ft travel distance of commercial type cooking equipment

IMC/SPS 364.0313(3) - All operating manuals concerning the HVAC equipment and its maintenance shall be presented to the owner and shall be made available to a Department representative upon request

IECC 403.1.1 & 503.2.4.3 - Provide mechanical HVAC systems with automatic setback or shutdown controls.

IBC 1101.2/ANSI A117.1-308.2 & 3 - Mechanical system controls shall be located a maximum of 48 inches, and a minimum of 15 inches above the finished floor, immaterial of whether or not the floor space allows a forward approach by a wheel chair or if the clear floor space allows a parallel approach.

WALTERS	JOB	
	LOCATION	
	DATE	JOB #
	DWG # 1	DRAWN BY
	REV.	SCALE NOT TO SCALE