

2018 IMC 1103.1 LIMIT CALCULATIONS						
SPACE	REFRIGERANT CHARGE	REFRIGERANT	VOLUME	MAXIMUM ALLOWABLE CHARGE	REFRIGERANT PER OCCUPIED SPACE	EXCEEDS LIMIT?
110 COOLER	10.4 LBS	R-404A	850 FT3	=(31*850)/1000 = 26.3 LBS	=(10.4*1000)/850 = 12.2 LBS/1000 FT3	NO
ALL OTHER*	25.7 LBS	R-404A	20334 FT3	=(31*20334)/1000 = 630.3 LBS	=(186*1000)/29844 = 6.23 LBS/1000 FT3	NO

PER 2018 IMC TABLE 1103.1, REFRIGERANT R-404A IS ALLOWED AT A MAXIMUM DENSITY OF 31 LBS. PER 1000 CUBIC FEET. ALL AREAS REMAIN BELOW THIS LIMIT. NO ROOMS REQUIRE LEAK DETECTION EQUIPMENT.

*THIS REFERS TO ALL ROOMS DIRECTLY OUTSIDE OF WALK-IN COOLER THAT ARE ALL OPEN TO EACHOTHER. THIS INCLUDES 100 MAIN ENTRY, 101 DINING, 102 UTENSIL, 103 PASSAGE, 104 POS, 105 SERVING, 107 COOKING, AND 108 KITCHEN. BECAUSE ALL OF THESE ROOMS ARE OPEN TO EACHOTHER, THEY ARE CONSIDERED ONE SPACE FOR THIS CALCULATION.

GRILLS, REGISTERS, AND DIFFUSERS SCHEDULE

TAG	DESCRIPTION	FACE SIZE	MATERIAL	FINISH	MOUNTING	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		NOTES
								MANUFACTURER	MODEL	
BS1	BATHROOM AIR PURIFICATION UNIT	5.44" X 16"		STAINLESS STEEL	GYP CEILING	TUV	GC	RGF ENVIRONMENTAL GROUP	BRU ASSEMBLY	SEE ELECTRICAL SHEETS FOR CONNECTION INFORMATION
CD1	PERFORATED CEILING DIFFUSER	24" X 24"	ALUMINUM	WHITE	LAY-IN CEILING	GC	GC	NAILOR	4320A TYPE L	PROVIDE INTEGRAL OBD
CD2	PERFORATED CEILING DIFFUSER	24" X 12"	ALUMINUM	WHITE	LAY-IN CEILING	GC	GC	NAILOR	4320A TYPE L	PROVIDE INTEGRAL OBD, REMOVE 4-WAY DEFLECTORS
ER1	PERFORATED CEILING EXHAUST	12" X 12"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4330R TYPE S	PROVIDE INTEGRAL OBD
RG1	PERFORATED CEILING RETURN	48" X 24"	ALUMINUM	WHITE	LAY-IN CEILING	GC	GC	NAILOR	4330R TYPE L	
RG2	PERFORATED CEILING RETURN	48" X 24"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4330R TYPE S	
SR1	ADJUSTABLE TURBO NOZZLE	SEE NECK SIZE	ALUMINUM	WHITE	WALL	GC	GC	AIR CONCEPTS	ANR-14	PROVIDE WITH CONCEALED MOUNTING AND FACE-ACCESSIBLE OBD
SR2	DOUBLE DEFLECTION SUPPLY REGISTER	SEE NECK SIZE	ALUMINUM	WHITE	WALL	GC	GC	NAILOR	S10H	PROVIDE INTEGRAL OBD

VIROGUARD SCHEDULE

TAG	QUANTITY	DESCRIPTION	DUCT CONNECTION SIZE	FAN	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN MANUFACTURER
VG-1	1	VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM	18" X 18"	CAPTIVE-AIRE DU240HFA	TDC	GC	ENVIROMATIC

FAN SCHEDULE

TAG	DRIVE TYPE	EXHAUST FLOW [CFM]	E.S.P. [in. W.C.]	WEIGHT [lbs]	ELECTRICAL		FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
					MOTOR POWER	V/P/H			MANUFACTURER	MODEL	
EF-1	DIRECT	3200 CFM	1.20 IN-WG	400	3 HP	208/3/60	HS	GC	CAPTIVE-AIRE	DU240HFA	DIRECT DRIVE UL762 UPBLAST EXHAUST FAN FURNISHED WITH WEATHERPROOF DISCONNECT AND VENTED ROOF CURB.
EF-2	DIRECT	150 CFM	0.60 IN-WG	100	0.18 HP	120/1/60	HS	GC	CAPTIVE-AIRE	DR12HFA	DIRECT DRIVE DOWNBLAST RESTROOM EXHAUST FAN FURNISHED WITH INTEGRAL DISCONNECT, SPEED CONTROL, BACKDRAFT DAMPER, AND CURB.
EF-3	DIRECT	250 CFM	0.30 IN-WG	26	0.03HP	120/1/60	GC	GC	GREENHECK	CUE-070-D	EF-3 IS A ROOF MOUNTED EXHAUST FAN THAT IS CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED. UNIT TO SERVE CO2 STORAGE ROOM. EF-3 TO BE CONTROLLED BY SWITCH UNDER BREAK GLASS LABELED "VENTILATION SYSTEM EMERGENCY ON ONLY". EF-3 SHALL ALSO BE INTERLOCKED WITH CO2 DETECTION SYSTEM TO ACTIVATE WHEN CO2 IS DETECTED IN THE CARBONATION AREA. REFER TO DETAIL 9/M700 FOR MORE DET

MAKEUP AIR UNIT SCHEDULE

TAG	DESCRIPTION	AIRFLOW		HEATING CAPACITY				APPROXIMATE WEIGHT [lbs]	ELECTRICAL		FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
		SUPPLY FLOW [CFM]	E.S.P. [in. W.C.]	INPUT [MBH]	OUTPUT [MBH]	MAXIMUM TURNDOWN	EAT		MOTOR POWER	V/P/H			MANUFACTURER	MODEL	
MAU-1	MAKEUP AIR UNIT	1950	0.45	225	220	12.5:1	15 °F	650	2 HP	208/3/60	HS	GC	CAPTIVE-AIRE	A1-D.250-G10	FURNISHED WITH DISCONNECT, ROOF CURB, SCREEN INTAKE, AND WASHABLE ALUMINUM FILTERS

CONDENSING UNIT SCHEDULE

TAG	DESCRIPTION	NOMINAL CAPACITY [TONS]	NUMBER OF COMPRESSORS	NUMBER OF CIRCUITS	REFRIGERANT TYPE	REFRIGERANT CHARGE	WEIGHT	ELECTRICAL			FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
								MOCP	FLA	V/P/H			MANUFACTURER	MODEL	
CU-1	WALK-IN COOLER REMOTE CONDENSING UNIT	--	1	1	R-404A	10.4 lbs.	250	15 A	9 A	208/3/60	WCS	GC	HARFORD	PCL99MZOP-3	FURNISHED WITH WALK-IN COOLER
CU-2	ICE MAKER - REMOTE CONDENSER	--	0	1	R-404A	11.46 lbs.	100			120/1/60	KES	GC	HOSHIZAKI	URC-9F	FURNISHED WITH ICE MAKER
CU-3	PUIW ICE MAKER - REMOTE CONDENSER	--	0	1	R-404A	3.86 lbs.	100			120/1/60	KES	GC	HOSHIZAKI	URC-5F	FURNISHED WITH ICE MAKER

KITCHEN HOOD SCHEDULE

TAG	DESCRIPTION	MAX COOKING TEMP.	EXHAUST PLENUM						PERFORATED SUPPLY PLENUMS										NUMBER OF LIGHT FIXTURES	APPROX. WEIGHT [lbs]	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS	
			AIRFLOW [CFM]	SP [in. W.C.]	DUCT COLLARS			SP [in. W.C.]	SUPPLY PLENUM LENGTH	SUPPLY PLENUM WIDTH	MAU PLENUM			AC PLENUM		MANUFACTURER	MODEL									
					NO.	WIDTH	LENGTH				LENGTH	WIDTH	AIRFLOW [CFM]	NO.	WIDTH			LENGTH					AIRFLOW [CFM]	DUCT COLLARS NO.		DIAMETER
HD-1	TYPE I CANOPY HOOD WITH PERFORATED MAU AND AC SUPPLY PLENUMS	600°F	3200	0.86	2	10"	15"	14' - 3"	4' - 3"	0.2	15' - 3"	22"	1950	3	10"	28"	800	7	8"	10	1200	HS	GC	CAPTIVE-AIRE	5424 ND-2-ACPSP-F	MAT'L: 18 GA. TYPE 430 SS. PROVIDE WITH 16" TALL HE SS FILTERS, INTEGRAL UTILITY CABINET, ANSUL SYSTEM, DUCT COLLAR TEMPERATURE SENSOR, PREWIRE PACKAGE, SPARE FIRE SYSTEM DRY CONTACT, AND 4-POLE 20A CONTACTOR

ROOFTOP UNIT SCHEDULE

TAG	DESCRIPTION	NOMINAL CAPACITY [TONS]	EER	AIRFLOW			NET COOLING CAPACITY					HEATING CAPACITY			# OF COMPRESSORS	# OF CIRCUITS	REFRIG. TYPE	REFRIG. CHARGE	APPROX. WEIGHT [lbs]	ELECTRICAL			FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
				TOTAL [CFM]	OA [CFM]	ESP [in. W.C.]	TOTAL [MBH]	SENSIBLE [MBH]	EAT [DEG. F]	COND. EAT [DEG. F]	INPUT [MBH]	OUTPUT [MBH]	EAT [DEG. F]	MOCP						FLA	V/P/H	MANUFACTURER			MODEL		
RTU-1	KITCHEN ROOFTOP UNIT	8.5	12	3,400	500	0.8	91.6	76.1	80	63	115	180	144	63	2	2	R-410A	19.8	1350	50 A	41 A	208/3/60	HS	GC	CARRIER	48HCED09	FURNISHED WITH COMP. ENTHALPY ECON., BAROMETRIC RELIEF, RET. SMOKE DETECTOR W/ REMOTE KEYPAD ANNUNCIATOR/RESET, M.O.D., MERV-8 FILTERS, CURB, HAIL GUARD, TOOLLESS HINGED ACCESS PANELS, DISCONNECT, & UNIT-MOUNTED CONVENIENCE RECEPTACLE
RTU-2	DINING ROOM ROOFTOP UNIT	10	12	4,000	1,000	0.8	106.4	87.4	83	64	115	224	184	60	2	2	R-410A	25.8	1428	60 A	54 A	208/3/60	HS	GC	CARRIER	48HCED11	FURNISHED WITH COMP. ENTHALPY ECON., BAROMETRIC RELIEF, RET. SMOKE DETECTOR W/ REMOTE KEYPAD ANNUNCIATOR/RESET, M.O.D., MERV-8 FILTERS, CURB, HAIL GUARD, TOOLLESS HINGED ACCESS PANELS, DISCONNECT, & UNIT-MOUNTED CONVENIENCE RECEPTACLE

AIR BALANCE SCHEDULE

TAG	SUPPLY FLOW (CFM)	RETURN FLOW (CFM)	EXHAUST FLOW (CFM)	SUBTOTAL (CFM)
EF-1	0	0	3200	-3200
EF-2	0	0	150	-150
MAU-1	1950	0	0	+1950
RTU-1	3000	2500	0	+500
RTU-2	4000	3000	0	+1000
NET PRESSURIZATION (CFM)				+100

CONTROL FUNCTIONS

- THE MAIN COOKING EXHAUST FAN AND MAKE-UP AIR UNIT SHALL BE INTERLOCKED TO OPERATE TOGETHER. THIS CONTROL CIRCUIT IS ACTIVATED BY A SWITCH AND INCLUDES A FIRE PROTECTION OVERRIDE.
- THE TEMPERATURE IN EACH ZONE IS CONTROLLED BY SPACE TEMPERATURE SENSORS CONNECTED TO THE THERMOSTATS LOCATED IN THE OFFICE. ALL ZONES SHALL OPERATE WITH CONTINUOUS FAN OPERATION DURING OCCUPIED TIMES AND INTERMITTENTLY AS NEEDED TO MAINTAIN SET POINTS DURING UNOCCUPIED TIMES. OUTSIDE AIR DAMPERS SHALL BE OPEN CONTINUOUSLY WHEN EITHER IN OCCUPIED MODE OR WHEN THE HOOD SYSTEM IS ON AND SHALL BE CLOSED DURING UNOCCUPIED PERIODS.
- THE THERMOSTATS SHALL DETERMINE OCCUPIED/UNOCCUPIED STATUS BASED ON SCHEDULE IN THE ENERGY MANAGEMENT SYSTEM.

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