

REFRIGERATION SCHEDULE												
ALL PRODUCTS ON THIS SCHEDULE ARE FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR												
CIRCUIT No.	SIZE	CIRCUIT INFORMATION			PIPE SIZE		MANUFACTURER	EVAPORATOR			CON. PIPE SIZE	
		AREA SERVED	EVAP (°F)	Est. Dev Length (ft)	Liquid	Suction		REFRIG-ERANT	CAPACITY BTU/H	LIQUID		SUCTION
C-1		FBD	-30°	55	3/8"	* 5/8"	KIRWAN	12-7462-0007	R-404A	19,000	3/8"	5/8"
C-2		FBD	-30°	45	3/8"	* 5/8"	KIRWAN	12-7462-0007	R-404A	19,000	3/8"	5/8"
C-3		CHILL ZONE ICE MAKER	-30°	60	3/8"	* 1/2"	MANITOWOC ICE	YT0500N-161	R-410A	6,900		
C-4		CHILL ZONE ICE MAKER	-30°	65	3/8"	* 1/2"	MANITOWOC ICE	YT0500N-161	R-410A	6,900		

* DISCHARGE LINE FROM COMPRESSOR TO REMOTE CONDENSER ON ROOF. COMPRESSOR LOCATED INSIDE THE BUILDING.

GENERAL NOTES (APPLIES TO ALL UNITS):

- REFRIGERANT PIPING SHALL BE SIZED BY MANUFACTURER'S RECOMMENDATIONS BASED ON FIELD CONDITIONS.
- PROVIDE ECM MOTOR
- DISCONNECT TO BE PROVIDED BY ELECTRICAL SUBCONTRACTOR.

REFRIGERANT	LIQUID LINE RISE IN FEET																	
	10'	15'	20'	25'	30'	40'	50'	75'	100'	PSIG	°F	PSIG	°F	PSIG	°F			
R448A	4.3	1.1	6.5	1.7	8.7	2.3	10.9	2.8	13	3.4	17.4	4.5	21.7	5.6	32.6	8.3	43.5	10.9

BASED ON 110°F LIQUID TEMPERATURE AT BOTTOM OF RISER

EQUIVALENT FEET OF PIPE DUE TO VALVE AND FITTING FRICTION														
COPPER TUBE, O.D. TYPE "L"	1/2	5/8	7/8	1-1/8	1-3/8	1-5/8	2-1/8	2-5/8	3-1/8	3-5/8	4-1/8	5-1/8	6-1/8	
GLOBE VALVE (OPEN)	14	16	22	28	36	42	57	69	83	99	118	138	168	
ANGLE VALVE (OPEN)	7	9	12	15	18	21	28	34	42	49	57	70	83	
90° TURN THROUGH TEE	3	4	5	6	8	9	12	14	17	20	22	28	34	
TEE (STRAIGHT THROUGH) OR SWEEP BELOW	0.75	1	0.15	2	2.5	3	3.5	4	5	6	7	9	11	
90° ELBOW OR REDUCING TEE (STRAIGHT THROUGH)	1	2	2	3	4	4	5	7	8	10	12	14	16	

INSULATION THICKNESS BASED ON SEVERE DESIGN CONDITIONS*	LINE TEMPERATURE		
	35°F (2°C)	0°F (-18°C)	-20°F (-29°C)
3/8" ID THROUGH 1-1/8" ID	NOM 1"	NOM 1-1/2"	NOM 1-1/2"
OVER 1-5/8" ID THROUGH 3-5/8" ID	NOM 1"	NOM 1-1/2"	NOM 1-3/4"
OVER 3-5/8" ID THROUGH 6" IPS	NOM 1"	NOM 1-1/2"	NOM 2"

NOTES:
*BASED ON SEVERE DESIGN CONDITIONS OF 90°F AND 80% RH.

INSULATION THICKNESS BASED ON NORMAL DESIGN CONDITIONS*	LINE TEMPERATURE		
	35°F (2°C)	0°F (-18°C)	-20°F (-29°C)
3/8" ID THROUGH 1-1/8" ID	NOM 1/2"	NOM 3/4"	NOM 1"
OVER 1-1/8" ID THROUGH 2-1/8" ID	NOM 1/2"	NOM 1"	NOM 1"
OVER 2-1/8" ID THROUGH 2-5/8" ID	NOM 1/2"	NOM 1"	NOM 1-1/4"
OVER 2-5/8" ID THROUGH 6" IPS	NOM 3/4"	NOM 1"	NOM 1-1/4"

NOTES:
*BASED ON NORMAL DESIGN CONDITIONS OF 85°F AND 70% RH.

GENERAL NOTES

- PROVIDE 1" CONDENSATE DRAIN PIPE FROM EACH UNIT COOLER TO DRAIN LINE PROVIDED BY PLUMBING. SEE PLUMBING DRAWINGS FOR LOCATION. REFER TO SPECIFICATION FOR PIPE COPPER TYPE.
- CZ ICE MAKER, (2) FBD FROZEN BEVERAGE, SANDWICH COOLER & ICE DISPENSER RSL & RLL PIPING RUNS ARE SHOWN FOR COORDINATION PURPOSES ONLY. EQUIPMENT IS BY OTHERS. RSL & RLL LOCATIONS AND SIZING SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- EXACT LOCATION AND LENGTH OF RSL & RLL PIPING RUNS TO EQUIPMENT SHALL BE DETERMINED IN FIELD. FINAL SIZES TO BE DETERMINED BY FINAL ROUTINGS.
- REFRIGERANT LIQUID AND SUCTION PIPE SIZES SHALL BE VERIFIED BY EQUIPMENT MANUFACTURER (TYPICAL).
- ALL TUBING REFRIGERANT LINES SHALL BE TYPE L HARD DRAWN COPPER OR TYPE L SOFT DRAWN COPPER ASTM B280. REFRIGERANT GAUGE, BRAIDED LINE SETS SHALL ONLY BE USED AS SHOWN ON PLANS.
- ALL REFRIGERANT PIPE SETS SHALL BE INSULATED WITH 3/4" ARMA-FLEX TUBE INSULATION TO THE THICKNESS SHOWN ON THE INSULATION THICKNESS SCHEDULES ON SHEET R140.
- REFRIGERATION CIRCUITS ARE SHOWN AS ONE (1) LINE ON PLANS BUT CONSIST OF BOTH LIQUID AND SUCTION LINES.
- REFRIGERATION DRAWINGS ARE PROVIDED AS AN AID TO BIDDING AND TO INDICATE DESIRED ROUTING OF REFRIGERATION LINES. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR CORRECT INSTALLATION OF PIPING AND ACCESSORIES TO PROVIDE A COMPLETE AND FULLY OPERATING SYSTEM.
- PROVIDE INTERMEDIATE SUCTION LINE TRAP IN WALL OR VOID SPACE AT THE MIDPOINT OF A SUCTION LINE DROP WHICH EXCEEDS 16 FT. REFER TO INTERMEDIATE SUCTION LINE TRAP DETAIL ON SHEET P501.
- AT ALL POINTS WHERE SUCTION LINES RISE 48" OR MORE, PROVIDE A SHORT RADIUS SUCTION LINE TRAP AT THE BASE OF THE RISER. REFER TO INTERMEDIATE SUCTION LINE TRAP DETAIL ON SHEET P501.

KEYNOTES

- RSL & RLL TO DROP IN WALL AND SHALL CONTINUE IN 4" CONDUIT WITHOUT BENDS IN SLAB TO CONNECT TO SANDWICH COOLERS. 4" CONDUIT PROVIDED BY G.C.
- PROVIDE AND INSTALL 6'-0" LENGTH OF FLEXIBLE, BRAIDED RSL & RLL AT FBD DISPENSERS TO ALLOW UNITS TO BE PULLED FORWARD FOR ACCESS.
- CONCEAL RSL & RLL VERTICAL DROPS IN WALL.
- PROVIDE AND INSTALL 3'-0" LENGTH OF FLEXIBLE, BRAIDED RSL & RLL AT CHILLZONE ICE MAKER TO ALLOW UNITS TO BE PULLED FORWARD FOR ACCESS.

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ISSUE BLOCK	
CLIENT REVIEW	08/30/19
100%	09/27/19

CHECKED BY: BRT
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REFRIGERATION FLOOR PLAN AND SCHEDULES

SHEET: R100

