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REVISIONS

A ADDENDUM 'A' 13 AUG. 2021
B ADDENDUM 'B' 27 AUG. 2021

CHECKED BY: AB
ISSUE DATE: 30 JULY 2021
PROJECT NO: 269.005

MECHANICAL -
SCHEDULES AND
CALCULATIONS
M002

PERMIT / BID SET

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ENERGY RECOVERY VENTILATION															
MARK	SERVING	ESP	CFM		ENERGY RECOVERY			FAN MOTOR HP		ELECTRICAL			WT LBS	MAKE & MODEL	NOTES
			SF	EF	TYPE	COOL EFF.	HEAT EFF.	SF	EF	V/PH	MCA	MOCP			
ERV-1	OPEN BAYS	0.25	580	535	SENS/LAT CORE	58	52	1/2	1/2	208/1	10.8	15	325	RENEWAIRE HEX11NV	ALL APPLY

NOTES:

- PROVIDE MERV 13 FILTERS SUPPLY, MERV 8 FILTERS EXHAUST, AND DIRTY FILTER DIFFERENTIAL PRESSURE SENSORS TO BMS
- VARIABLE SPEED EC MOTORS
- DUCT CONNECTION ARRANGEMENT AS SHOWN ON DRAWINGS.

SPLIT SYSTEM AIR HANDLING AND CONDENSING UNITS																
MARK	SERVING	COOL MBH		HEAT COIL		TONS	CFM	ESP	OSA	HP	V/PH	UNIT MCA/MOCP	WT LBS	SEER	MAKE & MODEL	NOTES
		TC	SC	MBH	GPM											
CU-1	OPEN BAY 01	24	16.9	-	-	-	2	-	-	1.25	208/3	11/15	376	14.7	AAON CFA-002	3
AHU-1				30	3	2	900	0.5	300	3/4	208/3	4/15	503	-	AAON H3 SERIES	1, 2, 4
CU-2	OPEN BAY 02	24	16.9	-	-	-	2	-	-	1.25	208/3	11/15	376	14.7	AAON CFA-002	3
AHU-2				30	3	2	900	0.5	280	3/4	208/3	4/15	503	-	AAON H3 SERIES	1, 2, 4

NOTES:

- SIZE AND INSTALL REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE PROGRAMMABLE THERMOSTAT & DRAIN PAN WITH CONDENSATE PUMP (IF NECESSARY).
- PROVIDE CONCRETE HOUSEKEEPING PAD.
- MERV 13 FILTERS WITH DIRTY FILTER DIFFERENTIAL PRESSURE SENSORS

SPLIT SYSTEM HEAT PUMPS																
MARK	SERVING	COOL MBH		HEAT MBH	TONS	CFM	ESP	W	V/PH	UNIT MCA/MOCP	WT LBS	SEER	HSPF	MAKE & MODEL	NOTES	
		TC	SC													
HP-1	ELECTRICAL ROOM	12	9	13	1	1590	-	-	208/1	11	28	93	20.8	10.2	mitsubishi PUZ-A12NKA7	3
FC-1					1	320	-	30	208/1	1.0	15	29	-	-	-	-
HP-2	IT ROOM	12	9	13	1	1590	-	-	208/1	11	28	93	20.8	10.2	mitsubishi PUZ-A12NKA7	3
FC-2					1	320	-	30	208/1	1.0	15	29	-	-	-	-

NOTES:

- SIZE AND INSTALL REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE PROGRAMMABLE THERMOSTAT & DRAIN PAN WITH CONDENSATE PUMP (IF NECESSARY).
- PROVIDE CONCRETE HOUSEKEEPING PAD.

PUMPS											
MARK	SERVING	TYPE	FLUID	TEMP F	GPM	HEAD FT	W	SPEED	V/PH	MAKE & MODEL	NOTES
P-1	BOILER PRIMARY	INLINE	WATER	140	10	25	500	VS	208/1	TACO VR15-3	1

NOTES:

- ECM/PM MOTOR WITH VS CONTROLLER

HYDRONIC ACCESSORIES			
MARK	DESCRIPTION	MAKE & MODEL	REMARKS
AS-1	AIR SEPARATOR	AIRTROL IAS 1-1/2	1-1/2 INCH INLINE AIR SEPARATOR, 175 PSI MAX WORKING PRESSURE
CF-1	CHEMICAL FEEDER	NEPTUNE/DBF-2HP	2 GALLON CHEMICAL FEEDER, 200 PSI MAX WORKING PRESSURE.
ET-1	EXPANSION TANK	BELL & GOSSETT D-15	8 GAL TANK AND 2.4 ACCEPTANCE, 125 PSI MAX WORKING PRESSURE

BOILERS													
MARK	LOCATION	HEAT MBH		FLUID	GPM	EWT F	LWT F	MAX WPD FT	V/PH	MOCP	WT LBS	MAKE & MODEL	NOTES
		IN	OUT										
B-1	MECHANICAL	110	101	WATER	10	120	140	1.2	120/1	20	125	WEIL MCLAIN EVG 110	1, 2, 3, 4

NOTES:

- MAY PROVIDE APPROVED EQUIVALENT EQUIPMENT.
- PROVIDE DIRECT EXHAUST/INTAKE VENTS, SIZE AND INSTALLED PER MANUFACTURER RECOMMENDATIONS
- PROVIDE MANUFACTURER CONDENSATE NEUTRALIZATION KIT. INSTALL PER MANUFACTURER.
- PROPANE GAS BOILER

AIR DISTRIBUTION			
MARK	TYPE	MAKE & MODEL	REMARKS
EG-1/RG-1	EXHAUST/RETURN	TITUS 50F	24X24 OR 12X12 FACE AS SHOWN ON DRAWINGS, EGGRATE FACE RETURN, WITH OBD, MATCH FRAME TO CEILING TYPE, NECK SIZE AS INDICATED ON DRAWINGS
RG-2	RETURN	TITUS 350RL	LOUVERED FACE RETURN, WITH OBD, MATCH FRAME TO CEILING TYPE, NECK SIZE AS INDICATED ON DRAWINGS
SD-1	SUPPLY	TITUS TMSA	24X24 FACE, ADJUSTIBLE SQUARE CONE DIFFUSER, MATCH FRAME TO CEILING TYPE, NECK SIZE AS INDICATED ON DRAWINGS

NOTES:

- MAY PROVIDE EQUIVALENT EQUIPMENT FROM NAILOR, PRICE, SHOEMAKER, TITUS.

VENTILATION REQUIREMENTS												
TAG	SERVING	PEOPLE	@	CFM/PERSON	+	AREA	@	CFM/SQ.FT.	/	Ez	=	CFM OSA
ERV-1	CIRCULATION	0	@	0	+	300	@	0.06	/	0.8	=	23
ERV-1	OPEN BAY 01	20	@	5	+	870	@	0.06	/	0.8	=	191
ERV-1	OPEN BAY 02	20	@	5	+	870	@	0.06	/	0.8	=	191
ERV-1	TOTAL										=	405

CONVECTORS										
MARK	SERVING	MBH	GPM	EWT F	WPD FT.	LENGTH IN	HEIGHT IN	DEPTH IN	MAKE & MODEL	NOTES
CV-1	107 RESTROOM	5.5	1	140	.33	48	26	4	MODINE PL	1, 2.
CV-2	108 RESTROOM	5.5	1	140	.33	48	26	4	MODINE PL	1, 2.

NOTES:

- CONNECTING PIPING PER MANUFACTURER. INCLUDE SHUTOFF VAVLES AND HW CONTROL VALVE.
- ARCHED INLET, LOUVERED OUTLET, FULLY RECESSED

EXHAUST REQUIREMENTS																
EQUIP.	SPACE	RATE	@	# OF FIXTURES	+	AREA	@	CFM/SQ. FT.	+	ACH	@	VOLUME	=	CFM EA REQUIRED	CFM EA PROVIDED	
ERV-1	RESTROOM	70		3		-		-		-		-		210	210	
ERV-1	RESTROOM	70		3		-		-		-		-		210	210	
ERV-1	SHOWER ROOM	20		2		-		-		-		-		40	40	
ERV-1	SHOWER ROOM	20		2		-		-		-		-		40	40	
ERV-1	JANITOR CLOSET	-		-		35		1		-		-		35	35	
														EXHAUST REQUIRED BY EB2-ERV-1	535	535

Notes 1. RESTROOM EXHAUST IS CONTINUOUS DURING OCCUPIED HOURS