INDOC	OR ABOVEGR	OUND PIPE IN	SULATION MIN	NIMUM THICK	NESS:	SCHEE	DULE				
	FLUID	INSULATION		NOMINA	L PIPE	OR TUBI	E SIZE (II	NCHES)			
PIPING SYSTEM	OPERATING TEMPERATUR E RANGE (DEG	CONDUCTIVITY RANGE (BTU-	MEAN TEMPERATURE RATING (DEG F)	PIPE BRANCH RUN OUTS ( SEE NOTE 2 BELOW)	< 1	1 TO < 1-1/2			8 TO >	INSULATION MATERIAL	VAPOR BARRIER REQUIRE D
	F)	Г)		INSUI	_ATION <sup>·</sup>	THICKN	ESS (INC	HES)			
DOMESTIC COLD WATER	40-60	0.21 - 0.27	75	N/A	0.5	0.5	0.5	N/A	N/A	MF	YES
DOMESTIC DHW & DHWR	105-140	0.22 - 0.28	100	N/A	1	1	1.5	N/A	N/A	MF	NO
REFRIGERANT SUCTION & LIQUID (SEE NOTE 3 BELOW)	10 & UP	0.21 - 0.27	75	0.5	0.75	0.75	N/A	N/A	N/A	FC	NO
NOTES:	_									_	

2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.

3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTUREER'S RECOMMENDATIONS.

### PIPE INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDELX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)

FC - FLEXIBLE CLOSED-CELL

MF - MINERAL FIBER

N/A - NOT APPLICABLE

	OPERATING	MEAN	NOMINAL	SIZES	INSULATION	VAPOR	
DUCT SYSTEM	TEMPERATURE RANGE (DEG F)	TEMPERATURE RATING (DEG F)	THICKNESS INCH	R VALUE	MATERIAL	BARRIER REQUIRED	NOTES
INTERIOR DUCT LINER (ACOUSTICAL)(WHERE NOTED)	0-150	75	1/2"	NA	FC	YES	1
SUPPLY DUCT FROM FCU TO DIFFUSERS (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
RETURN DUCT FROM RETURN BOOT TO FCU (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
EXTERIOR OUTSIDE AIR DUCT FROM INTAKE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR VENTILATION AIR DUCT FROM ERV TO REHEAT COIL	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR EXHAUST DUCT FROM SPACE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR EXHAUST DUCT FROM ERV TO GARAGE	0-150	75	0"	NONE			
VENTILATION DUCTWORK FROM REHEAT COIL TO DIFFUSERS	0-150	75	0"	NONE			
EXHAUST DUCT IN SPACE TO EXTERIOR WALL	0-150	75	0"	NONE			

1.THE TABLE ABOVE APPLIES TO DUCTWORK. THE BASIS OF THE ABOVE SCHEDULE IS ECONOMIC THICKNESS, PREVENTION OF CONDENSATION, AND COMPLIANCE WITH ASHRAE 90.1-2013 MINIMUM INSULATION THICKNESSES. BRANCH RUNOUTS LESS THAN 10FT CAN BE R-3.5.

2. UNCONDITIONED SPACES INCLUDE LOADING DOCKS, WAREHOUSES, MECHANICAL ROOMS, NON-PLENUM CEILINGS, VESTIBULE CEILING AREA.

3. DUCTWORK IS EXPOSED IN SPACE. DUCTWORK MAY BE PAINTED BLACK.

4. PROVIDE PVC OR OTHER PROTECTIVE COVER WHERE DUCTWORK IS EXPOSED AND SUBJECT TO IMPACT

5. PROVIDE WITH PROTECTIVE/WEATHERPROOF EXTERIOR WRAP. WRAP SHALL BE MINIMUM OF 40 MIL, SELF-ADHERING,

6. PROVIDE UL LISTED GREASE DUCT ASSEMBLY TO MEET CLEARANCE TO COMBUSTABLES

### DUCT INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

RIGID BOARD (RB): RIGID POLYISOCYANURATE FOAM CORE DUCT BOARD WITH FACTORY APPLIED VAPOR RETARDER FACING BOTH SIDES. DUCT BOARD SHALL BE "ENERGY 3 FOIL FACE" BY JOHN MANSVILLE OR EQUIVALENT. R-6 PER INCH, k-VALUE = 0.16 AT 50 DEG F. ASTM C 1289, TYPE I, CLASS I.

MINERAL-FIBER DUCT-WRAP INSULATION (MF): FORMELDEHYDE-FREE, TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1290, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED FSK (FOIL-SCRIM-KRAFT). FOIL WILL BE 0.02 PERMS; COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

				<u>DI</u>	<u>UCT C</u>	OIL S	<u>CHEDU</u>	<u>LE</u>							
		HEATING		COIL SIZE	<b>:</b>	HE	ATING	Δ	IRSIDE		EL	ECTRIC	AL	MANU. &	
Tag	DESCRIPTION	AIRFLOW	WIDTH	HEIGHT	AREA	CAF	PACITY	EAT	LAT	VEL	V	PH	HZ	MODEL	NOTES
		CFM	IN	IN	SF	KW	MBH	DEG F	DEG F	FPM				WIODEL	
DC 2-1	ELECTRIC DUCT COIL -	350	12	12	1	1	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
DC 2-1	VENTILATION RE-HEAT	330	12	12	l	7	13.0	45	01	330	200	•	00	EK SERIES	/LL
DC 2-2	ELECTRIC DUCT COIL -	350	12	12	,	4	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
DC 2-2	VENTILATION RE-HEAT	350	12	12	I	4	13.0	45	01	330	200		00	EK SERIES	ALL
NOTES:															

1. PROVIDE DISCHARGE AIR TEMPERATURE CONTROL W/ OA RESET SCHEDULE

2. PROVIDE SCR STAGING OF COIL

3. PROVIDE AIR-FLOW PROVING WITH FAN RELAY

4. UNIT IS HORIZONTAL AIRFLOW

						<u>F</u>	AN COIL	UNIT (FC	<u>U)</u>							
		NOM.				INDOOR UNI	Т				E	LECTR	ICAL DAT	·A		
TAG	DESCRIPTION	TONS	TYPE	AIRFLOW (CFM)	ESP (IN)	SENSIBLE COOLING	HEATING (MBH)	REFRIG.	SOUND (dBA)	WEIGHT (LBS)	VOLTS	РН	MCA	МОР	MANUFACTURER & MODEL	NOTES
SCU-2-1	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-2-2	PERIMETER	2.5	CEILING CASSETTE	600/690/775	ı	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-2-3	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
FCU-2-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-2-5	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-2-6	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-2-7	CONFERENCE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-2-8	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-2-9	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
NOTES:		•		_	•				•			•				

1. PROVIDE GRAVITY CONDENSATE DRAIN TO APPROVED LOCATION.

2. PROVIDE UNIT WITH WIRED REMOTE THERMOSTAT MOUNTED ON WALL AS SHOWN (WIRED BY MC). 3. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

\*VENTILATION AIR IS PROVIDED THRU ERV 2-1 & ERV 2-2 AND DUCTED DIRECTLY INTO THE SPACE.

			GRILL	E, REGIS	ΓER	AND	DIFFUSER	SCHE	DULE				
TAG	DESCRIPTION	AIRFLOW	NECK	FACE SIZE	NC	<u>SP</u>	THROW (FT)	MATRL	<u>VOL</u>	MOUNTING	<u>AIR</u>	MODEL	NOTES
TAG	DESCRIPTION	CFM	INCHES	INCHES	<u>INC</u>	W.G.	@ 22-1/2	WATKE	<u>DAMP</u>	WOONTING	<u>PATTERN</u>	MODEL	NOTES
SR-1	SUPPLY - SIDEWALL	100	6"	8"X8"	<20	0.01	6-9-19	ALUM	YES	SURFACE	ADJ	PRICE 22DAL	1
EG-6	EXHAUST - CEILING	125	6"	12"X12"	<20	0.011	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
EG-8	EXHAUST - CEILING	250	8"	12"X12"	<20	0.025	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
NOTES	S:												

								CONDEINS	DER SCH	EDOLE (	<u>CIN)</u>			
AID			TAG	DESCRIPTION	NOM.	TYPE	REFRIG.	EER	SOUND	WEIGHT	E	LECTF	RICAL DAT	Α
AIR PATTERN	MODEL	NOTES	IAG	DESCRIPTION	TONS	ITPE	REFRIG.	EER	(dBA)	(LBS)	VOLTS	PH	MCA	
PALIERN	-		CN 2.4	SERVES FCU 2-	1.4	INVERTER	D 440A	20.0	63	740	460		24.2	
ADJ	PRICE 22DAL	1	CN 2-1	1 THRU 2-5	14	COMPRESSOR	R-410A	20.8	63	740	460	<u> </u>	31.3	
45 DEG	PRICE 630	1	NOTES:	OOR HEATPLIMP I	INIT MOLINI	TED ON 12" STAND								
45 DEG	PRICE 630	1						•						

I. CORRDINATE FINISH WITH ARCHITECTURAL

											<u>ENER</u>	GY RECO\	VERY VENT	ILATOR S	CHEDULE	<u> E (ERV)</u>											
		SUPPLY	/VENTILAT	ION AIR	EXHAL	JST/RETUF	RN AIR			SUMMER					WINTER				EFFECT	IVENESS		ELE	CTRICA	L DATA	INICTALLED		
TAG	DESCRIPTION	AIRFLOW (CFM)	ESP (IN WC)	MOTOR	AIRFLOW (CFM)	ESP (IN WC)	MOTOR HP	TOTAL CAPACITY	LATENT CAPACITY	OA AT	EXH. AT	ERVLAT	TOTAL CAPACITY	LATENT CAPACITY	EAT	EXH. AT	ERVLAT	SUMN CONDIT		WINTER CO	NDITIONS	VOLTS F	PH HZ	MCA MO	P INSTALLED WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
		(CFIVI)	(IN VVC)	ПР	(CFIVI)	(IN WC)	ПР	MBH	MBH	DB/ <b>W</b> B	DB/WB	DB/WB	MBH	MBH	DB/WB	DB/WB	DB/WB	SENSIBLE	TOTAL	SENSIBLE	TOTAL				(LD3)		
ERV 2	1 STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1 15	275	RENEWAIRE HE1XINV	/ ALL
ERV 2	2 STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1 15	275	RENEWAIRE HE1XINV	/ ALL

1. UNIT HAS DUAL MOTORS, DUAL ECM FANS.

2. PROVIDE STANDARD 2" MERV 8 FILTERS WITH UNIT.

					CONDENS	ER SCH	EDULE (	<u>CN)</u>							
	DESCRIPTION	NOM.	TYPE	REFRIG.	EER	SOUND	WEIGHT	E	LECTF	RICAL DAT	Ά	MANUFACTURER & MODEL	NOTES	11	
	DESCRIPTION	TONS	1115	KLI KIG.	LLIX	(dBA)	(LBS)	VOLTS	PH	MCA	MOP	WANDI ACTONEN & WODEL	HOTES		ΙL
	SERVES FCU 2-	14	INVERTER	R-410A	20.8	63	740	460	٥	31.3	40	TRANE 4TVR0169C400N	ALL		П
	1 THRU 2-5	17	COMPRESSOR	11-410/1	20.0	03	740	400	٥	31.3	40	11/AINE 41 VIVO 109C400IN		」 I	ΙĿ
<u>:</u>															H
·		IN HET MACH IN	ITED ON 4011 CTAND	1											<i>i</i> I

2. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

DESCRIPTION ISSUE STATUS: ISSUED FOR CONSTRUCTION 3-28-19

MECHANICAL CONTRACTORS

SCARBOROUGH, ME 04074

TEL. (207) 883-8345

PROJECT:

**OCEAN GATEWAY ADDITION** 

PORTLAND, ME

SHEET TITLE:

2ND FLOOR **MECHANICAL** SCHEDULES

DATE:		PROJECT#
3-28	8-19	17150
DD AVAAL	CLIECKED.	COME.

NOT TO SCALE

INDOC	OR ABOVEGR	OUND PIPE IN	ISULATION MII	NIMUM THICK	NESS:	SCHE	DULE				
	FLUID	INCLU ATION		NOMINA	L PIPE	OR TUB	E SIZE (II	NCHES)			
PIPING SYSTEM	FLUID OPERATING TEMPERATUR E RANGE (DEG	INSULATION CONDUCTIVITY RANGE (BTU- IN/HR-FT2 DEG	MEAN TEMPERATURE RATING (DEG F)	PIPE BRANCH RUN OUTS ( SEE NOTE 2 BELOW)	< 1	1 TO < 1-1/2	1-1/2 TO < 4		8 TO >	INSULATION MATERIAL	VAPOR BARRIER REQUIRE D
	F)	[		INSUI	_ATION	THICKN	ESS (INC	HES)			
DOMESTIC COLD WATER	40-60	0.21 - 0.27	75	N/A	0.5	0.5	0.5	N/A	N/A	MF	YES
DOMESTIC DHW & DHWR	105-140	0.22 - 0.28	100	N/A	1	1	1.5	N/A	N/A	MF	NO
REFRIGERANT SUCTION & LIQUID (SEE NOTE 3 BELOW)	10 & UP	0.21 - 0.27	75	0.5	0.75	0.75	N/A	N/A	N/A	FC	NO
NOTES:										_	

2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.

3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTUREER'S RECOMMENDATIONS.

# PIPE INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDELX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)

FC - FLEXIBLE CLOSED-CELL

MF - MINERAL FIBER

N/A - NOT APPLICABLE

	OPERATING	MEAN	NOMINA	L SIZES	INSULATION	VAPOR	
DUCT SYSTEM	TEMPERATURE	TEMPERATURE	THICKNESS	R VALUE	MATERIAL	BARRIER	NOTES
	RANGE (DEG F)	RATING (DEG F)	INCH		WAILKIAL	REQUIRED	
NTERIOR DUCT LINER (ACOUSTICAL)(WHERE NOTED)	0-150	75	1/2"	NA	FC	YES	1
SUPPLY DUCT FROM FCU TO DIFFUSERS (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
RETURN DUCT FROM RETURN BOOT TO FCU (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
XTERIOR OUTSIDE AIR DUCT FROM INTAKE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR VENTILATION AIR DUCT FROM ERV TO REHEAT COIL	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR EXHAUST DUCT FROM SPACE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR EXHAUST DUCT FROM ERV TO GARAGE	0-150	75	0"	NONE			
ENTILATION DUCTWORK FROM REHEAT COIL TO DIFFUSERS	0-150	75	0"	NONE			
XHAUST DUCT IN SPACE TO EXTERIOR WALL	0-150	75	0"	NONE			

1.THE TABLE ABOVE APPLIES TO DUCTWORK. THE BASIS OF THE ABOVE SCHEDULE IS ECONOMIC THICKNESS, PREVENTION OF CONDENSATION, AND COMPLIANCE WITH ASHRAE 90.1-2013 MINIMUM INSULATION THICKNESSES. BRANCH RUNOUTS LESS THAN 10FT CAN BE R-3.5.

2. UNCONDITIONED SPACES INCLUDE LOADING DOCKS, WAREHOUSES, MECHANICAL ROOMS, NON-PLENUM CEILINGS, VESTIBULE CEILING AREA.

3. DUCTWORK IS EXPOSED IN SPACE. DUCTWORK MAY BE PAINTED BLACK.

4. PROVIDE PVC OR OTHER PROTECTIVE COVER WHERE DUCTWORK IS EXPOSED AND SUBJECT TO IMPACT

5. PROVIDE WITH PROTECTIVE/WEATHERPROOF EXTERIOR WRAP. WRAP SHALL BE MINIMUM OF 40 MIL, SELF-ADHERING,

6. PROVIDE UL LISTED GREASE DUCT ASSEMBLY TO MEET CLEARANCE TO COMBUSTABLES

### DUCT INSULATION SPECIFICATIONS:

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RIGID BOARD (RB): RIGID POLYISOCYANURATE FOAM CORE DUCT BOARD WITH FACTORY APPLIED VAPOR RETARDER FACING BOTH SIDES. DUCT BOARD SHALL BE "ENERGY 3 FOIL FACE" BY JOHN MANSVILLE OR EQUIVALENT. R-6 PER INCH, k-VALUE = 0.16 AT 50 DEG F. ASTM C 1289, TYPE I, CLASS I.

MINERAL-FIBER DUCT-WRAP INSULATION (MF): FORMELDEHYDE-FREE, TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1290, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED FSK (FOIL-SCRIM-KRAFT). FOIL WILL BE 0.02 PERMS; COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

				<u>D</u> l	JCT C	OIL S	CHEDU	<u>lle</u>							
		HEATING	(	COIL SIZE		HE	ATING	Δ	NRSIDE		EL	ECTRIC	AL	MANU. &	
Tag	DESCRIPTION	AIRFLOW	WIDTH	HEIGHT	AREA	CA	PACITY	EAT	LAT	VEL	<b>V</b>	PH	HZ	MODEL	NOTES
		CFM	IN	IN	SF	KW	MBH	DEG F	DEG F	FPM				MODEL	
DC 3-1	ELECTRIC DUCT COIL - VENTILATION RE-HEAT	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE EK SERIES	ALL
DC 3-2	ELECTRIC DUCT COIL - VENTILATION RE-HEAT	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE EK SERIES	ALL
NOTES:															

1. PROVIDE DISCHARGE AIR TEMPERATURE CONTROL W/ OA RESET SCHEDULE

1. CORRDINATE FINISH WITH ARCHITECTURAL

- 2. PROVIDE SCR STAGING OF COIL
- 3. PROVIDE AIR-FLOW PROVING WITH FAN RELAY
- 4. UNIT IS HORIZONTAL AIRFLOW

	FAN COIL UNIT (FCU)															
		NOM.				INDOOR UNI	Γ	-	-		E	LECTR	ICAL DAT	Ά		
TAG	DESCRIPTION	TONS	TYPE	ARFLOW (CFM)	ESP	SENSIBLE	HEATING	REFRIG.	SOUND	WEIGHT	VOLTS	PH	MCA	МОР	MANUFACTURER & MODEL	NOTES
				1 0 (0)	(IN)	COOLING	(MBH)		(dBA)	(LBS)						
SCU-3-1	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-3-2	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-3-3	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
FCU-3-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-3-5	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-3-6	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-3-7	CONFERENCE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-3-8	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-3-9	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1	·		TRANE 4TVW0012B100N	ALL
NOTES																

- 1. PROVIDE GRAVITY CONDENSATE DRAIN TO APPROVED LOCATION.
- 2. PROVIDE UNIT WITH WIRED REMOTE THERMOSTAT MOUNTED ON WALL AS SHOWN (WIRED BY MC). 3. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

10.1 0 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
*VENTILATION AIR IS PROVIDED THRU ERV 3-1 & ERV 3-2 AND DUCTED DIRECTLY INTO THE SPACE.

			GRILL	E, REGIS	ΓER	AND I	DIFFUSER	SCHE	DULE				
TAG	DESCRIPTION	AIRFLOW	<u>NECK</u>	FACE SIZE	NC	<u>SP</u>	THROW (FT)	MATDI	<u>VOL</u>	MOUNTING	AIR	MODEL	NOTES
TAG	DESCRIPTION	CFM	INCHES	INCHES	<u> </u>	W.G.	@ 22-1/2	MATRL	<u>DAMP</u>	WICONTING	<u>PATTERN</u>	MODEL	NOTES
SR-1	SUPPLY - SIDEWALL	100	6"	8"X8"	<20	0.01	6-9-19	ALUM	YES	SURFACE	ADJ	PRICE 22DAL	1
EG-6	EXHAUST - CEILING	125	6"	12"X12"	<20	0.011	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
EG-8	EXHAUST - CEILING	250	8"	12"X12"	<20	0.025	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
NOTES	TES:												

	CONDENSER SCHEDULE (CN)												
TAG	DESCRIPTION	NOM.	TYPE	REFRIG.	EER	SOUND	WEIGHT			RICAL DAT		MANUFACTURER & MODEL	NOTES
		TONS				(dBA)	(LBS)	VOLTS	PH	MCA	MOP		
CN 3-1	SERVES FCU 3- 1 THRU 3-5	14	INVERTER COMPRESSOR	R-410A	20.8	63	740	460	3	31.3	40	TRANE 4TVR0169C400N	ALL
			TED ON 12" STAND. PROVIDED TO OUT!		).								

											<u>ENERO</u>	SY RECOV	ERY VENT	<u> ILATOR S</u>	CHEDULE	<u> (ERV)</u>													
		SUPPLY/	<b>VENTILAT</b>	ION AIR	EXHAUS	ST/RETUF	RN AIR			SUMMER					WINTER				EFFEC.	TIVENESS		EL	ECTRICA	L DATA	INIST	ALLED			. 17
TAG	DESCRIPTION	AIRFLOW	ESP	MOTOR	AIRFLOW	ESP	MOTOR	TOTAL	LATENT	OA AT	EXH. AT	ERV LAT	TOTAL	LATENT	EAT	EXH. AT	ERV LAT	SUMN	1ER	WINTER CON	ADITIONS					GHT	MANUFACTURER &	NOTES	
IAG	DESCRIPTION	(CFM)	(IN WC)	INIO TOK	(CFM)	(IN WC)		CAPACITY	CAPACITY	UAAI	EAH. AI	ENVLAI	CAPACITY	CAPACITY	LAI	EAH. AI	ENVLAI	CONDIT	IONS	WINTERCON	1DITIONS	VOLTS	PH HZ	MCA N	MOP I	BS)	MODEL	NOTES	
		(CFIVI)	(IN WC)	ПР	(CFIVI)	(IIV VVC)	ПР	MBH	MBH	DB/WB	DB/WB	DB/ <b>W</b> B	MBH	MBH	DB/WB	DB/WB	DB/WB	SENSIBLE	TOTAL	SENSIBLE	TOTAL				(1	.63)			
ERV 3-1	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1	15 2	275	RENEWAIRE HE1XINV	ALL	
ERV 3-2	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1	15 2	275	RENEWAIRE HE1XINV	ALL	.

1. UNIT HAS DUAL MOTORS, DUAL ECM FANS.

2. PROVIDE STANDARD 2" MERV 8 FILTERS WITH UNIT.

DESCRIPTION **ISSUE STATUS:** ISSUED FOR

MECHANICAL CONTRACTORS

SCARBOROUGH, ME 04074 TEL. (207) 883-8345

CONSTRUCTION 3-28-19 PROJECT:

> **OCEAN GATEWAY ADDITION**

> > PORTLAND, ME

SHEET TITLE:

3RD FLOOR **MECHANICAL SCHEDULES** 

ı			
ı	DATE:		PROJECT#
l	3-2	8-19	17150
ı	DRAWN:	CHECKED:	SCALE:
- 1	1 110	10.4	L NOT TO COAL

INDOC	OR ABOVEGR	OUND PIPE IN	SULATION MIN	NIMUM THICK	NESS	SCHEE	DULE				-
	FLUID	INSULATION		NOMINA	L PIPE	OR TUBI	E SIZE (IN	NCHES)		!	
PIPING SYSTEM	OPERATING TEMPERATUR E RANGE (DEG	CONDUCTIVITY RANGE (BTU-	MEAN TEMPERATURE RATING (DEG F)	PIPE BRANCH RUN OUTS ( SEE NOTE 2 BELOW)	< 1	1 TO < 1-1/2			8 TO >	INSULATION MATERIAL	VAPOR BARRIER REQUIRE D
	Γ)	Γ)		INSUL	ATION .	THICKNI	ESS (INC	HES)			
DOMESTIC COLD WATER	40-60	0.21 - 0.27	75	N/A	0.5	0.5	0.5	N/A	N/A	MF	YES
DOMESTIC DHW & DHWR	105-140	0.22 - 0.28	100	N/A	1	1	1.5	N/A	N/A	MF	NO
REFRIGERANT SUCTION & LIQUID (SEE NOTE 3 BELOW)	10 & UP	0.21 - 0.27	75	0.5	0.75	0.75	N/A	N/A	N/A	FC	NO
NOTES:								-			

2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.

3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTUREER'S RECOMMENDATIONS.

# PIPE INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDELX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)

FC - FLEXIBLE CLOSED-CELL

MF - MINERAL FIBER

N/A - NOT APPLICABLE

<u>DUCTWORK IN</u>	DUCTWORK INSULATION SCHEDULE											
	OPERATING	MEAN	NOMINAL	SIZES	INSULATION	VAPOR						
DUCT SYSTEM	TEMPERATURE	TEMPERATURE	THICKNESS	R VALUE	MATERIAL	BARRIER	NOTES					
	RANGE (DEG F)	RATING (DEG F)	INCH		MATERIAL	REQUIRED						
INTERIOR DUCT LINER (ACOUSTICAL)(WHERE NOTED)	0-150	75	1/2"	NA	FC	YES	1					
SUPPLY DUCT FROM FCU TO DIFFUSERS (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE		I	3					
RETURN DUCT FROM RETURN BOOT TO FCU (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE		· · · · · · · · · · · · · · · · · · ·	3					
EXTERIOR OUTSIDE AIR DUCT FROM INTAKE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5					
EXTERIOR VENTILATION AIR DUCT FROM ERV TO REHEAT COIL	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5					
EXTERIOR EXHAUST DUCT FROM SPACE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5					
EXTERIOR EXHAUST DUCT FROM ERV TO GARAGE	0-150	75	0"	NONE		1						
VENTILATION DUCTWORK FROM REHEAT COIL TO DIFFUSERS	0-150	75	0"	NONE								
EXHAUST DUCT IN SPACE TO EXTERIOR WALL	0-150	75	0"	NONE								
NOTES:												

1.THE TABLE ABOVE APPLIES TO DUCTWORK. THE BASIS OF THE ABOVE SCHEDULE IS ECONOMIC THICKNESS, PREVENTION OF CONDENSATION, AND COMPLIANCE WITH ASHRAE 90.1-2013 MINIMUM INSULATION THICKNESSES. BRANCH RUNOUTS LESS THAN 10FT CAN BE R-3.5.

2. UNCONDITIONED SPACES INCLUDE LOADING DOCKS, WAREHOUSES, MECHANICAL ROOMS, NON-PLENUM CEILINGS, VESTIBULE CEILING AREA.

3. DUCTWORK IS EXPOSED IN SPACE. DUCTWORK MAY BE PAINTED BLACK.

4. PROVIDE PVC OR OTHER PROTECTIVE COVER WHERE DUCTWORK IS EXPOSED AND SUBJECT TO IMPACT

5. PROVIDE WITH PROTECTIVE/WEATHERPROOF EXTERIOR WRAP. WRAP SHALL BE MINIMUM OF 40 MIL, SELF-ADHERING,

6. PROVIDE UL LISTED GREASE DUCT ASSEMBLY TO MEET CLEARANCE TO COMBUSTABLES

### DUCT INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

RIGID BOARD (RB): RIGID POLYISOCYANURATE FOAM CORE DUCT BOARD WITH FACTORY APPLIED VAPOR RETARDER FACING BOTH SIDES. DUCT BOARD SHALL BE "ENERGY 3 FOIL FACE" BY JOHN MANSVILLE OR EQUIVALENT. R-6 PER INCH, k-VALUE = 0.16 AT 50 DEG F. ASTM C 1289, TYPE I, CLASS I.

MINERAL-FIBER DUCT-WRAP INSULATION (MF): FORMELDEHYDE-FREE, TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1290, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED FSK (FOIL-SCRIM-KRAFT). FOIL WILL BE 0.02 PERMS; COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

				<u>DI</u>	<u>UCT C</u>	OIL S	CHEDU	<u>LE</u>							
		HEATING		COIL SIZE		HE	ATING	A	IRSIDE		EL	ECTRIC	AL	MANU. &	
Tag	DESCRIPTION	AIRFLOW	WIDTH	HEIGHT	AREA	CAF	PACITY	EAT	LAT	VEL	٧	PH	HZ	MODEL	NOTES
		CFM	IN	IN	SF	KW	MBH	DEG F	DEG F	FPM				WODEL	
DC 4-1	ELECTRIC DUCT COIL -	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
	VENTILATION RE-HEAT													EK SERIES	
DC 4-2	ELECTRIC DUCT COIL -	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
DO 7 Z	VENTILATION RE-HEAT	000	'-	12	'	7	10.0	15	0.	330	200	'	00	EK SERIES	/\
NOTES:								_							

- 1. PROVIDE DISCHARGE AIR TEMPERATURE CONTROL W/ OA RESET SCHEDULE
- 2. PROVIDE SCR STAGING OF COIL
- 3. PROVIDE AIR-FLOW PROVING WITH FAN RELAY
- 4. UNIT IS HORIZONTAL AIRFLOW

						<u>E</u>	AN COIL L	JNIT (FC	<u>U)</u>							
		NOM.				INDOOR UNI					EL	ECTR	ICAL DAT	Α		
TAG	DESCRIPTION	TONS	TYPE	AIRFLOW (CFM)	ESP (IN)	SENSIBLE COOLING	HEATING (MBH)	REFRIG.	SOUND (dBA)	WEIGHT (LBS)	VOLTS	РН	MCA	МОР	MANUFACTURER & MODEL	NOTES
SCU-4-1	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-4-2	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-4-3	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
FCU-4-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-4-5	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-4-6	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-4-7	CONFERENCE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-4-8	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-4-9	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
NOTES:	_									_						

- 1. PROVIDE GRAVITY CONDENSATE DRAIN TO APPROVED LOCATION.
- 2. PROVIDE UNIT WITH WIRED REMOTE THERMOSTAT MOUNTED ON WALL AS SHOWN (WIRED BY MC).
- 3. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.
- \*VENTILATION AIR IS PROVIDED THRU ERV 4-1 & ERV 4-2 AND DUCTED DIRECTLY INTO THE SPACE.

			<u>GRILL</u>	E, REGIS	<u>TER</u>	AND	DIFFUSER	SCHE	DULE				
TAG	DESCRIPTION	AIRFLOW	<u>NECK</u>	FACE SIZE	NC	<u>SP</u>	THROW (FT)	MATRI	<u>VOL</u>	MOUNTING	AIR	MODEL	NOTES
TAG	DESCRIPTION	CFM	INCHES	INCHES	NC	W.G.	@ 22-1/2	MATRL	<u>DAMP</u>	WOONTING	<u>PATTERN</u>	MODEL	NOTES
SR-1	SUPPLY - SIDEWALL	100	6"	8"X8"	<20	0.01	6-9-19	ALUM	YES	SURFACE	ADJ	PRICE 22DAL	1
EG-6	EXHAUST - CEILING	125	6"	12"X12"	<20	0.011	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
EG-8	EXHAUST - CEILING	250	8"	12"X12"	<20	0.025	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
NOTES	ES:												

·
1. CORRDINATE FINISH WITH ARCHITECTURAL

					CONDENS	SER SCH	EDULE (	CN)						
TAG	DESCRIPTION	NOM.	TYPE	REFRIG.	EER	SOUND	WEIGHT	El	ECTF	RICAL DAT	Α	MANUFACTURER & MODEL	NOTES	11
IAG	DESCRIPTION	TONS	1176	KEFKIG.	LEN	(dBA)	(LBS)	VOLTS	PH	MCA	MOP	WANDFACTORER & WODEL	NOTES	
CN 4-1	SERVES FCU 4- 1 THRU 4-5	14	INVERTER COMPRESSOR	R-410A	20.8	63	740	460	3	31.3	40	TRANE 4TVR0169C400N	ALL	
NOTES:	1 1111(0 4-5		COM RESSOR											11

1. OUTDOOR HEATPUMP UNIT MOUNTED ON 12" STAND. 2. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

											<u>ENER</u>	GY RECOV	<b>/ERY VENT</b>	TILATOR S	CHEDULE	<u> (ERV)</u>												
		SUPPLY/\	/ENTILAT	ION AIR	EXHAU	ST/RETUF	N AIR			SUMMER					WINTER				EFFECT	IVENESS		ELE	CTRICA	AL DATA	I.N.	NSTALLED		
TAG	DESCRIPTION	AIRFLOW	EGD	MOTOR	AIRFLOW	ESD	MOTOR	TOTAL	LATENT	OA AT	EXH. AT	ERV LAT	TOTAL	LATENT	EAT	EXH. AT	ERV LAT	SUMI	/IER	WINTER CO	ADITIONS					WEIGHT	MANUFACTURER &	NOTES
IAG	DESCRIPTION		(IN WC)	INIO TOK	(CFM)	(IN WC)	HP	CAPACITY	CAPACITY	UAAI	EAH. AI	ERVLAI	CAPACITY	CAPACITY	EAI	EAR. AI	ERVLAI	CONDI	<b>FIONS</b>	WINTERCOI	101110113	VOLTS	PH   HZ	Z   MCA	MOP	(I BS)	MODEL	NOTES
		(CFIVI)	(IN WC)	ПР	(CFIVI)	(IIV VVC)	ПГ	MBH	MBH	DB/ <b>W</b> B	DB/WB	DB/WB	MBH	MBH	DB/WB	DB/WB	DB/WB	SENSIBLE	TOTAL	SENSIBLE	TOTAL					(LBS)		
ERV 4-1	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1	15	275	RENEWAIRE HE1XINV	' ALL
ERV 4-2	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1	15	275	RENEWAIRE HE1XINV	' ALL

1. UNIT HAS DUAL MOTORS, DUAL ECM FANS.

2. PROVIDE STANDARD 2" MERV 8 FILTERS WITH UNIT.

_			
	REV.	DESCRIPTION	DATE
	ISSUE	STATUS:	

MECHANICAL CONTRACTORS

SCARBOROUGH, ME 04074 TEL. (207) 883-8345

ISSUED FOR CONSTRUCTION 3-28-19

PROJECT:

OCEAN GATEWAY **ADDITION** 

PORTLAND, ME

SHEET TITLE:

4TH FLOOR **MECHANICAL SCHEDULES** 

DATE:		PROJECT#
5-20	8-19	17150
DRAWN:	CHECKED:	SCALE:
1	1004	NOT TO COAL F

INDOC	OR ABOVEGR	OUND PIPE IN	SULATION MIN	NIMUM THICK	NESS	SCHE	DULE				
	FLUID	INCLU ATION		NOMINA	L PIPE	OR TUBI	E SIZE (II	NCHES)			
PIPING SYSTEM	FLUID OPERATING TEMPERATUR E RANGE (DEG	INSULATION CONDUCTIVITY RANGE (BTU- IN/HR-FT2 DEG	MEAN TEMPERATURE RATING (DEG F)	PIPE BRANCH RUN OUTS ( SEE NOTE 2 BELOW)	<1	1 TO < 1-1/2			8 TO >	INSULATION MATERIAL	VAPOR BARRIER REQUIRE D
	',	' '		INSUL	_ATION	THICKNI	ESS (INC	HES)			
DOMESTIC COLD WATER	40-60	0.21 - 0.27	75	N/A	0.5	0.5	0.5	N/A	N/A	MF	YES
DOMESTIC DHW & DHWR	105-140	0.22 - 0.28	100	N/A	1	1	1.5	N/A	N/A	MF	NO
REFRIGERANT SUCTION & LIQUID (SEE NOTE 3 BELOW)	10 & UP	0.21 - 0.27	75	0.5	0.75	0.75	N/A	N/A	N/A	FC	NO
NOTES:	_		_	_						_	_

2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.

3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTUREER'S RECOMMENDATIONS.

# PIPE INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDELX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)

- FC FLEXIBLE CLOSED-CELL
- MF MINERAL FIBER

N/A - NOT APPLICABLE
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	OPERATING	MEAN	NOMINAL	SIZES	INSULATION	VAPOR	
DUCT SYSTEM	TEMPERATURE	TEMPERATURE	THICKNESS	R VALUE	MATERIAL	BARRIER	NOTE
	RANGE (DEG F)	RATING (DEG F)	INCH			REQUIRED	
NTERIOR DUCT LINER (ACOUSTICAL)(WHERE NOTED)	0-150	75	1/2"	NA	FC	YES	1
SUPPLY DUCT FROM FCU TO DIFFUSERS (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
RETURN DUCT FROM RETURN BOOT TO FCU (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
XTERIOR OUTSIDE AIR DUCT FROM INTAKE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR VENTILATION AIR DUCT FROM ERV TO REHEAT COIL	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR EXHAUST DUCT FROM SPACE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
XTERIOR EXHAUST DUCT FROM ERV TO GARAGE	0-150	75	0"	NONE			
ENTILATION DUCTWORK FROM REHEAT COIL TO DIFFUSERS	0-150	75	0"	NONE			
XHAUST DUCT IN SPACE TO EXTERIOR WALL	0-150	75	0"	NONE			
IOTES:	•				•		

INSULATION THICKNESSES. BRANCH RUNOUTS LESS THAN 10FT CAN BE R-3.5.

2. UNCONDITIONED SPACES INCLUDE LOADING DOCKS, WAREHOUSES, MECHANICAL ROOMS, NON-PLENUM CEILINGS, VESTIBULE CEILING AREA.

3. DUCTWORK IS EXPOSED IN SPACE. DUCTWORK MAY BE PAINTED BLACK.

4. PROVIDE PVC OR OTHER PROTECTIVE COVER WHERE DUCTWORK IS EXPOSED AND SUBJECT TO IMPACT

5. PROVIDE WITH PROTECTIVE/WEATHERPROOF EXTERIOR WRAP. WRAP SHALL BE MINIMUM OF 40 MIL, SELF-ADHERING,

6. PROVIDE UL LISTED GREASE DUCT ASSEMBLY TO MEET CLEARANCE TO COMBUSTABLES

### **DUCT INSULATION SPECIFICATIONS:**

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

RIGID BOARD (RB): RIGID POLYISOCYANURATE FOAM CORE DUCT BOARD WITH FACTORY APPLIED VAPOR RETARDER FACING BOTH SIDES. DUCT BOARD SHALL BE "ENERGY 3 FOIL FACE" BY JOHN MANSVILLE OR EQUIVALENT. R-6 PER INCH, k-VALUE = 0.16 AT 50 DEG F. ASTM C 1289, TYPE I, CLASS I.

MINERAL-FIBER DUCT-WRAP INSULATION (MF): FORMELDEHYDE-FREE, TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1290, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED FSK (FOIL-SCRIM-KRAFT). FOIL WILL BE 0.02 PERMS; COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

				DI	JCT C	OIL S	CHEDU	<u>LE</u>							
		HEATING		COIL SIZE			ATING	-	IRSIDE		EL	ECTRIC		MANU. &	
Tag	DESCRIPTION	AIRFLOW	WIDTH	HEIGHT	AREA	CAF	PACITY	EAT	LAT	VEL	V	PH	HZ	MODEL	NOTES
		CFM	IN	IN	SF	KW	MBH	DEG F	DEG F	FPM				WIODEL	
DC 5-1	ELECTRIC DUCT COIL - VENTILATION RE-HEAT	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE EK SERIES	ALL
DC 5-2	ELECTRIC DUCT COIL - VENTILATION RE-HEAT	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE EK SERIES	ALL
NOTEC:								·		·	· ·				

1. PROVIDE DISCHARGE AIR TEMPERATURE CONTROL W/ OA RESET SCHEDULE

2. PROVIDE SCR STAGING OF COIL

3. PROVIDE AIR-FLOW PROVING WITH FAN RELAY

_		_			_	
4.	UNI	TIS	HOR	1OSI	NTAL	Alf

						<u> </u>	AN COIL	<u>UNIT (FC</u>	:U)							
						INDOOR UNI	Т				E	LECT	RICAL DAT	Α		
TAG	DESCRIPTION	NOM. TONS	TYPE	AIRFLOW (CFM)	ESP (IN)	SENSIBLE COOLING (MBH)	HEATING (MBH)	REFRIG.	SOUND (dBA)	WEIGHT (LBS)	VOLTS	РН	MCA	МОР	MANUFACTURER & MODEL	NOTES
SCU-5-1	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-5-2	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-5-3	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
FCU-5-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-5-5	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU5-6	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-5-7	CONFERENCE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-5-8	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU 5-9	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
NOTES:			•													

# NOTES:

I. PROVIDE GRAVITY CONDENSATE DRAIN TO APPROVED LOCATION.

2. PROVIDE UNIT WITH WIRED REMOTE THERMOSTAT MOUNTED ON WALL AS SHOWN (WIRED BY MC).

3. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

\*VENTILATION AIR IS PROVIDED THRU ERV 5-1 & ERV 5-2 AND DUCTED DIRECTLY INTO THE SPACE.

			<u>GRILL</u>	E, REGIS	<u>TER</u>	AND	DIFFUSER	SCHE	DULE				
TAG	DESCRIPTION	AIRFLOW	<u>NECK</u>	FACE SIZE	NC	<u>SP</u>	THROW (FT)	MATRL	<u>VOL</u>	MOUNTING	<u>AIR</u>	MODEL	NOTES
IAG	DESCRIPTION	CFM	INCHES	INCHES	NC	W.G.	@ 22-1/2	WAIKL	<u>DAMP</u>	WOONTING	<u>PATTERN</u>	WODEL	NOTES
SR-1	SUPPLY - SIDEWALL	100	6"	8"X8"	<20	0.01	6-9-19	ALUM	YES	SURFACE	ADJ	PRICE 22DAL	1
EG-6	EXHAUST - CEILING	125	6"	12"X12"	<20	0.011	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
EG-8	EXHAUST - CEILING	250	8"	12"X12"	<20	0.025	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
NOTES	<u>.</u>												

1. CORRDINATE FINISH WITH ARCHITECTURAL

	CONDENSER SCHEDULE (CN)														
TAC	DESCRIPTION	NOM.	TVDE	DEEDIC	CCD	SOUND	WEIGHT	El	LECTF	RICAL DAT	A	MANUEACTURER & MODEL	NOTES		
TAG	DESCRIPTION	TONS	TYPE	REFRIG.	EER	(dBA)	(LBS)	VOLTS	PH	MCA	МОР	MANUFACTURER & MODEL	NOTES		
CN 5-1	SERVES FCU 5- 1 THRU 5-5	14	INVERTER COMPRESSOR	R-410A	20.8	63	740	460	3	31.3	40	TRANE 4TVR0169C400N	ALL		

											<u>ENER</u>	GY RECOV	/ERY VEN	FILATOR S	CHEDULE	<u> (ERV)</u>													
		SUPPLY/	VENTILAT	ION AIR	EXHAU	ST/RETU	RN AIR			SUMMER					WNTER				EFFEC1	IVENESS		ELE	CTRIC	CAL DA	ATA				1
TAG	DESCRIPTION	ARFLOW		MOTOR HP		I		TOTAL CAPACITY	LATENT CAPACITY	OAAT	EXH. AT	ERV LAT	TOTAL CAPACITY	LATENT CAPACITY	EAT	EXH. AT	ERV LAT	SUMN CONDIT		WNTER CO		VOLTS	РН Н	IZ M	CA MOP	WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES	1
		(CFM)	(IN WC)	пР	(CFM)	(IN WC)	ПР	МВН	MBH	DB/WB	DB/WB	DB/WB	МВН	МВН	DB/WB	DB/WB	DB/WB	SENSIBLE	TOTAL	SENSIBLE	TOTAL					(===)			]   \
ERV 5-1	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 6	0 10	).1 15	275	RENEWAIRE HE1XINV	ALL	
ERV 5-2	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 6	0 10	).1 15	275	RENEWAIRE HE1XINV	ALL	

1. UNIT HAS DUAL MOTORS, DUAL ECM FANS.

2. PROVIDE STANDARD 2" MERV 8 FILTERS WITH UNIT.

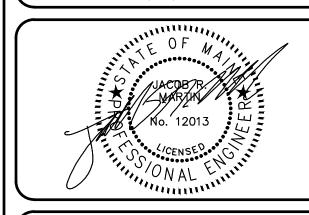
					CONDENS	ER SCH	EDULE (C	CN)					
_	DESCRIPTION	NOM.	TVDE	DEEDIG	FED	SOUND	WEIGHT	EI	LECTF	RICAL DAT	Α	MANUFACTURED & MODEL	NOTES
G	DESCRIPTION	TONS	TYPE	REFRIG.	EER	(dBA)	(LBS)	VOLTS	РН	MCA	МОР	MANUFACTURER & MODEL	NOTES
5-1	SERVES FCU 5- 1 THRU 5-5	14	INVERTER COMPRESSOR	R-410A	20.8	63	740	460	3	31.3	40	TRANE 4TVR0169C400N	ALL
<u> </u>													

# 1. OUTDOOR HEATPUMP UNIT MOUNTED ON 12" STAND.

POWER WIRING &	DISCONNECT P	PROVIDED TO	OUTDOOR UN	IIT BY EC.

			-	INCTALLED			DATE:	
		_	_	INSTALLED WEIGHT	MANUFACTURER & MODEL	NOTES	3-28	3-19
PH	HZ	MCA	MOP	(LBS)	WIODEL		DRAWN:	CHECKED:
				, ,			MAC	JRM
1	60	10.1	15	275	RENEWAIRE HE1XINV	ALL	SHEET#	
1	60	10.1	15	275	RENEWAIRE HE1XINV	ALL	GIILLI II	
							<b>  N</b> /	





DESCRIPTION

CONSTRUCTION 3-28-19

**OCEAN GATEWAY** 

**ADDITION** 

PORTLAND, ME

PROJECT#

17150

NOT TO SCALE

ISSUE STATUS:

PROJECT:

SHEET TITLE:

5TH FLOOR

**MECHANICAL** 

SCHEDULES

ISSUED FOR

INDOC	OR ABOVEGR	OUND PIPE IN	ISULATION MII	NIMUM THICK	NESS:	SCHE	DULE				
	FLUID	INCLU ATION		NOMINA	L PIPE	OR TUB	E SIZE (II	NCHES)			
PIPING SYSTEM	FLUID OPERATING TEMPERATUR E RANGE (DEG	INSULATION CONDUCTIVITY RANGE (BTU- IN/HR-FT2 DEG	MEAN TEMPERATURE RATING (DEG F)	PIPE BRANCH RUN OUTS ( SEE NOTE 2 BELOW)	< 1	1 TO < 1-1/2	1-1/2 TO < 4		8 TO >	INSULATION MATERIAL	VAPOR BARRIER REQUIRE D
	F)	[		INSUI	_ATION	THICKN	ESS (INC	HES)			
DOMESTIC COLD WATER	40-60	0.21 - 0.27	75	N/A	0.5	0.5	0.5	N/A	N/A	MF	YES
DOMESTIC DHW & DHWR	105-140	0.22 - 0.28	100	N/A	1	1	1.5	N/A	N/A	MF	NO
REFRIGERANT SUCTION & LIQUID (SEE NOTE 3 BELOW)	10 & UP	0.21 - 0.27	75	0.5	0.75	0.75	N/A	N/A	N/A	FC	NO
NOTES:										_	

2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.

3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTUREER'S RECOMMENDATIONS.

## PIPE INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDELX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)

FC - FLEXIBLE CLOSED-CELL

MF - MINERAL FIBER

N/A - NOT APPLICABLE

DUCTWORK	( INSULATION S	CHEDULE					
	OPERATING	MEAN	NOMINAL	SIZES	INSULATION	VAPOR	
DUCT SYSTEM	RANGE (DEG F)	TEMPERATURE RATING (DEG F)	THICKNESS INCH	R VALUE	MATERIAL	BARRIER REQUIRED	NOTES
INTERIOR DUCT LINER (ACQUISTICAL) (AMUERE MOTER)	` '	,		NIA	FC	•	1
INTERIOR DUCT LINER (ACOUSTICAL)(WHERE NOTED)	0-150	75	1/2"	NA	FC	YES	1
SUPPLY DUCT FROM FCU TO DIFFUSERS (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
RETURN DUCT FROM RETURN BOOT TO FCU (CONDITIONED SPACE, EXPOSED)	0-150	75	0"	NONE			3
EXTERIOR OUTSIDE AIR DUCT FROM INTAKE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR VENTILATION AIR DUCT FROM ERV TO REHEAT COIL	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR EXHAUST DUCT FROM SPACE TO ERV	0-150	75	2-1/2"	R-12	FC & RB	YES	1, 5
EXTERIOR EXHAUST DUCT FROM ERV TO GARAGE	0-150	75	0"	NONE			
VENTILATION DUCTWORK FROM REHEAT COIL TO DIFFUSERS	0-150	75	0"	NONE			
EXHAUST DUCT IN SPACE TO EXTERIOR WALL	0-150	75	0"	NONE			
NOTES:	·						

1.THE TABLE ABOVE APPLIES TO DUCTWORK. THE BASIS OF THE ABOVE SCHEDULE IS ECONOMIC THICKNESS, PREVENTION OF CONDENSATION, AND COMPLIANCE WITH ASHRAE 90.1-2013 MINIMUM INSULATION THICKNESSES. BRANCH RUNOUTS LESS THAN 10FT CAN BE R-3.5.

2. UNCONDITIONED SPACES INCLUDE LOADING DOCKS, WAREHOUSES, MECHANICAL ROOMS, NON-PLENUM CEILINGS, VESTIBULE CEILING AREA.

3. DUCTWORK IS EXPOSED IN SPACE. DUCTWORK MAY BE PAINTED BLACK.

4. PROVIDE PVC OR OTHER PROTECTIVE COVER WHERE DUCTWORK IS EXPOSED AND SUBJECT TO IMPACT

5. PROVIDE WITH PROTECTIVE/WEATHERPROOF EXTERIOR WRAP. WRAP SHALL BE MINIMUM OF 40 MIL, SELF-ADHERING,

6. PROVIDE UL LISTED GREASE DUCT ASSEMBLY TO MEET CLEARANCE TO COMBUSTABLES

DUCT INSULATION SPECIFICATIONS:

FLEXIBLE ELASTOMERIC INSLATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

RIGID BOARD (RB): RIGID POLYISOCYANURATE FOAM CORE DUCT BOARD WITH FACTORY APPLIED VAPOR RETARDER FACING BOTH SIDES. DUCT BOARD SHALL BE "ENERGY 3 FOIL FACE" BY JOHN MANSVILLE OR EQUIVALENT. R-6 PER INCH, k-VALUE = 0.16 AT 50 DEG F. ASTM C 1289, TYPE I, CLASS I.

MINERAL-FIBER DUCT-WRAP INSULATION (MF): FORMELDEHYDE-FREE, TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1290, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED FSK (FOIL-SCRIM-KRAFT). FOIL WILL BE 0.02 PERMS; COMPLY WITH ASTM E 84 AT 25/50 FOR USE IN AIR PLENUMS. INSTALL INSULATION PER THE MAUFACTURER'S RECOMMENDATIONS

				Dl	JCT C	OIL S	CHEDU	<u>LE</u>							
		HEATING		COIL SIZE		HE	ATING	Α	IRSIDE		EL	ECTRIC	AL	MANU. &	
Tag	DESCRIPTION	AIRFLOW	WIDTH	HEIGHT	AREA	CA	PACITY	EAT	LAT	VEL	V	PH	HZ	MODEL	NOTES
		CFM	IN	IN	SF	KW	MBH	DEG F	DEG F	FPM				MODEL	
DC 6-1	ELECTRIC DUCT COIL -	350	12	12	1	4	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
DC 0-1	VENTILATION RE-HEAT	330	12	12	ı		13.0	73	01	330	200	J	0	EK SERIES	/LL
DC 6-2	ELECTRIC DUCT COIL -	350	12	12	1	1	13.6	45	81	350	208	1	60	RENEWAIRE	ALL
DC 0-2	VENTILATION RE-HEAT	350	12	12	ı	4	13.0	40	01	330	200	ı	00	EK SERIES	ALL
NOTES:				<u> </u>						•	•				

- 1. PROVIDE DISCHARGE AIR TEMPERATURE CONTROL W/ OA RESET SCHEDULE
- 2. PROVIDE SCR STAGING OF COIL
- 3. PROVIDE AIR-FLOW PROVING WITH FAN RELAY
- 4. UNIT IS HORIZONTAL AIRFLOW

	FAN COIL UNIT (FCU)															
		NOM.				INDOOR UNI		-	-		E	LECTR	ICAL DAT	Ά		
TAG	DESCRIPTION	TONS	TYPE	ARFLOW (CFM)	ESP (IN)	SENSIBLE COOLING	HEATING (MBH)	REFRIG.	SOUND (dBA)	WEIGHT (LBS)	VOLTS	РН	MCA	МОР	MANUFACTURER & MODEL	NOTES
SCU-6-1	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-4-2	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
SCU-6-3	PERIMETER	2.5	CEILING CASSETTE	600/690/775	-	30	34	R-410A	30/34/39	42	208	3			TRANE 4TVC0030B100N	ALL
FCU-4-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-4	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-5	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-6	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-7	CONFERENCE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-8	OFFICE	1	WALL CASSETTE	255/295/325	-	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
FCU-6-9	OFFICE	1	WALL CASSETTE	255/295/325	_	12	13.5	R-410A	29/33/37	20	208	1			TRANE 4TVW0012B100N	ALL
NOTES:																

- 1. PROVIDE GRAVITY CONDENSATE DRAIN TO APPROVED LOCATION.
- 2. PROVIDE UNIT WITH WIRED REMOTE THERMOSTAT MOUNTED ON WALL AS SHOWN (WIRED BY MC). 3. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.
- \*VENTILATION AIR IS PROVIDED THRU ERV 6-1 & ERV 6-2 AND DUCTED DIRECTLY INTO THE SPACE.

			<u>GRILL</u>	E, REGIS	<u>TER</u>	AND	<u>DIFFUSER</u>	SCHE	<u>DULE</u>				
TAG	DESCRIPTION	AIRFLOW	<u>NECK</u>	FACE SIZE	NC	<u>SP</u>	THROW (FT)	MATRL	<u>VOL</u>	MOUNTING	<u>AIR</u>	MODEL	NOTES
170	<u>DESCRIPTION</u>	CFM	INCHES	INCHES	110	W.G.	@ 22-1/2	WIATINE	<u>DAMP</u>	MOONTHO	<u>PATTERN</u>	WODEL	NOTES
SR-1	SUPPLY - SIDEWALL	100	6"	8"X8"	<20	0.01	6-9-19	ALUM	YES	SURFACE	ADJ	PRICE 22DAL	1
EG-6	EXHAUST - CEILING	125	6"	12"X12"	<20	0.011	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
EG-8	EXHAUST - CEILING	250	8"	12"X12"	<20	0.025	NA	ALUM	YES	SURFACE	45 DEG	PRICE 630	1
NOTES	 }:												

					CONDENS	SER SCH	<u>EDULE (</u>	<u>CN)</u>					
TAG	DESCRIPTION	NOM.	TYPE	REFRIG.	EER	SOUND	WEIGHT	E	LECTI	RICAL DAT	Ά	MANUFACTURER & MODEL	NOTES
170	DESCRIPTION	TONS	1116	KLI KIO.	LLIX	(dBA)	(LBS)	VOLTS	PH	MCA	MOP	MANOT ACTONER & MODEL	NOTES
CN 6-1	SERVES FCU 6-	14	INVERTER	R-410A	20.8	63	740	460	3	31.3	40	TRANE 4TVR0169C400N	ALL
	1 THRU 6-5		COMPRESSOR	-			_				_		
NOTES:													
	OD HEATDLIND I		TED ON 12" STAND										

I. OUTDOOR HEATPUMP UNIT MOUNTED ON 12" STAND. 2. POWER WIRING & DISCONNECT PROVIDED TO OUTDOOR UNIT BY EC.

											ENER	GY RECOV	ERY VENT	<b>ILATOR S</b>	CHEDULE	<u> (ERV)</u>												
		SUPPLY	VENTILAT	ION AIR	EXHAU	ST/RET	URN AIR			SUMMER					WNTER				EFFEC	TIVENESS		ELE	CTRICAL	DATA	INIC	TALLED		
TAG	DESCRIPTION	ARFLOW		MOTOR	ARFLOW	1		TOTAL CAPACITY	LATENT CAPACITY	OA AT	EXH. AT	ERV LAT	TOTAL CAPACITY	LATENT CAPACITY	EAT	EXH. AT	ERV LAT	SUMM CONDIT		WINTER CON	IDITIONS	VOLTS	PH HZ	MCA M	OP W	EIGHT	MANUFACTURER & MODEL	NOTES
		(CFM)	(IN WC)	НР	(CFM)	(IN WC	C) HP	MBH	MBH	DB/WB	DB/WB	DB/WB	МВН	MBH	DB/WB	DB/WB	DB/WB	SENSIBLE	TOTAL	SENSIBLE	TOTAL				(	(LBS)		
ERV 6-1	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1 1	5	275	RENEWAIRE HE1XINV	ALL
ERV 6-2	STATIC PLATE HX	350	0.5	0.75	250	0.5	0.75	5.9	2.8	88/71	75/62.6	79.6/66.4	24.6	5.1	-10/-11	70/54.4	41.6/36.1	90%	80%	90%	88%	208	1 60	10.1	5	275	RENEWAIRE HE1XINV	ALL
NOTES:																												

I. CORRDINATE FINISH WITH ARCHITECTURAL

1. UNIT HAS DUAL MOTORS, DUAL ECM FANS.

2. PROVIDE STANDARD 2" MERV 8 FILTERS WITH UNIT.

DESCRIPTION ISSUE STATUS: ISSUED FOR CONSTRUCTION 3-28-19

MECHANICAL CONTRACTORS

SCARBOROUGH, ME 04074

TEL. (207) 883-8345

**OCEAN GATEWAY** 

PROJECT:

PORTLAND, ME

**ADDITION** 

SHEET TITLE: 6TH FLOOR **MECHANICAL SCHEDULES** 

DATE:		PROJECT#
3-28	3-19	17150
DRAWN:	CHECKED:	SCALE:

JRM NOT TO SCALE