

PACKAGED ROOFTOP UNIT SCHEDULE			
DESIGNATION	RTU-1	RTU-2	RTU-3
AREA SERVED	REFER TO PLAN	REFER TO PLAN	REFER TO PLAN
MODEL NUMBER	OAKE144A3	OAKE180A3	OAKE144A3
NOMINAL CAPACITY (TONS)	12	15	12
WEIGHT OF UNIT (POUNDS)	4,214	4,237	4,179
EER/IEER	15.9	14.2	14.9
<b>DESIGN DATA:</b>			
SUPPLY AIR (CFM)	2,840	3,045	2,175
OUTDOOR AIR (CFM)	2,840	3,045	2,175
<b>CONDENSER/COMPRESSOR DATA:</b>			
COMPRESSOR No./TYPE	DIGITAL SCROLL	DIGITAL SCROLL	DIGITAL SCROLL
CAPACITY CONTROL	FOUR-STAGE	FOUR-STAGE	FOUR-STAGE
REFRIGERANT TYPE	R-410A	R-410A	R-410A
COMPRESSOR (RLA) EACH	20.4	24	20.4
No. OF FANS	3	3	3
FAN MOTOR HP	1.23	1.59	1.01
COIL FACE AREA (SQ. FT.)	30	30	30
No. OF ROWS/FPI	2/12	2/12	2/12
AMBIENT TEMPERATURE (°F)	95	95	95
<b>FILTER DATA:</b>			
TYPE	MERV-8/MERV-13	MERV-8/MERV-13	MERV-8/MERV-13
RETURN AIR (QTY / SIZE)	(4) 16x20x2	(4) 16x20x2	(4) 16x20x2
OUTSIDE AIR (QTY / SIZE)	(4) 16x20x2	(4) 16x20x2	(4) 16x20x2
<b>EVAPORATOR COIL DATA:</b>			
FACE AREA (SQ. FT.)	10	10	10
No. OF ROWS/FPI	4/12	4/12	4/12
EAT (°F) DBWB	79.4/60.2	79.1/66.0	78.6/65.7
LAT (°F) DBWB	50.9/50.4	48.3/48.0	45.6/45.5
FACE VELOCITY (FPM)	284	304	217
TOTAL/SENSIBLE CAP. (MBH)	128.8/85.5	153.8/99.9	120.7/76.4
<b>ELECTRIC HEATING DATA:</b>			
INPUT (MBH)	51.15	51.15	34.10
CAPACITY (KW)	15	15	10
EAT/LAT (°F) DB	53.1/69.8	54.5/70.1	56.0/70.5
CAPACITY CONTROL	SCR MODULATING	SCR MODULATING	SCR MODULATING
<b>HOT GAS REHEAT DATA:</b>			
CAPACITY (MBH)	58.9	71.7	57.6
EAT/LAT (°F) DB	50.9/70	48.3/70	45.6/70
<b>ENERGY RECOVERY WHEEL DATA:</b>			
EXHAUST AIR (CFM)	3,033	3,604	2,362
OUTDOOR AIR (CFM)	3,033	3,244	2,362
PRESSURE DROP (IN. LO)	0.84	0.90	0.65
MOTOR HP	0.17	0.17	0.17
MOTOR FLA (AMPS)	0.7	0.7	0.7
<b>ENERGY RECOVERY WHEEL SUMMER DATA:</b>			
OUTDOOR AIR EAT (°F) DBWB	95.0/75.0	95.0/75.0	95.0/75.0
RETURN AIR EAT (°F) DBWB	75.0/63.0	75.0/63.0	75.0/63.0
WHEEL LEAVING T (°F) DBWB	79.4/66.1	79.1/66.0	78.6/65.7
CAPACITY RECOVERED (MBH)	92.48	100.66	74.45
EFFECTIVENESS (TOTAL/SENS.)	0.730/72	0.740/79	0.770/81
<b>ENERGY RECOVERY WHEEL WINTER DATA:</b>			
OUTDOOR AIR EAT (°F) DBWB	0.0/0.0	0.0/0.0	0.0/0.0
RETURN AIR EAT (°F) DBWB	70.0/53.0	70.0/53.0	70.0/53.0
WHEEL LEAVING T (°F) DBWB	53.1/43.0	54.5/43.8	56.0/44.8
CAPACITY RECOVERED (MBH)	204.95	224.88	164.72
EFFECTIVENESS (TOTAL/SENS.)	0.770/73	0.720/77	0.770/81
<b>HEAT PUMP DATA:</b>			
CAPACITY (MBH)	79.2	97.4	77.2
COP	2.4	2.3	2.4
EAT/LAT (°F) DB	53.1/77.4	54.5/82.5	56.0/75.5
<b>SUPPLY FAN DATA:</b>			
SUPPLY AIRFLOW (CFM)	2,840	3,045	2,175
ESP/TSF (IN H <sub>2</sub> O)	1.25/2.45	1.25/0.91	1.25/2.10
BHP/HP	1.57/3.0	1.74/3.0	1.01/1.5
RPM	1,552	1,592	1,846
FLA (AMPS)	8	8	4.8
<b>EXHAUST FAN DATA:</b>			
EXHAUST AIRFLOW (CFM)	2,840	3,045	2,175
ESP/TSF (IN H <sub>2</sub> O)	0.75/1.83	0.75/2.0	0.75/1.62
BHP/HP	1.23/2.0	1.59/3.0	0.86/1.5
RPM	1,397	1,307	1,267
FLA (AMPS)	6	8	4.8
<b>SINGLE POINT POWER CONNECTION ELECTRICAL DATA:</b>			
VOLTS/Ø/Hz	208/3Ø/60	208/3Ø/60	208/3Ø/60
MCA/MOCP (AMPS)	115.0/125.0	125.1/150.0	93.3/100

- NOTES:**
- UNITS BASED ON TRANE
  - PROVIDE (1) COMPLETE EXTRA SET OF FILTERS FOR EACH UNIT.
  - UNITS SHALL BE COMPLETE WITH:
    - NON-FUSED DISCONNECT SWITCH
    - FACTORY POWERED 115 VOLT GFI OUTLET
    - INVERTER RATED PREMIUM EFFICIENCY MOTORS SUITABLE FOR VARIABLE SPEED AND TORQUE APPLICATIONS.
    - COMPARATIVE ENTHALPY ECONOMIZER WITH LOW LEAK DAMPERS.
    - OUTDOOR AIRFLOW MONITORING STATION.
    - POLYMER CONSTRUCTION ERV WITH FROST PROTECTION AND VFD.
    - FILTER STATUS SWITCH.
    - DIRECT DRIVE EXHAUST FAN WITH VFD.
    - DIRECT DRIVE SUPPLY FAN WITH VFD.
    - STAINLESS STEEL DRAIN PANS.
    - BACNET IP INTERFACE. PROVIDE FACTORY START-UP SUPPORT FOR INTERFACE WITH THE BUILDING MANAGEMENT SYSTEM.
    - 5 YEAR COMPRESSOR PARTS WARRANTY.
    - LOW AMBIENT CONTROL.
    - 24 HOUR ROOF CURB
    - TRANK LOCK CONTROLS WITH BACNET.
    - CONDENSER HAIL GUARD.
  - ROOF CURBS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION.
  - ALL UNITS SHALL BE PROVIDED WITH VARIABLE FREQUENCY DRIVES.
  - RTU-1 SHALL BE SUPPLIED CAMBRIDGEPORT CUSTOM ROOF CURB OR APPROVED EQUAL. ROOF CURB SHALL HAVE ONE-Piece WELDED CONSTRUCTION, BE MADE OF HEAVY GAUGE GALVANIZED STEEL, GALVANIZED COMPOUND COATED WELDS, GASKETING FOR UNIT TO CURB SEALING, FULLY INSULATED AND HAVE SUPPLY TRANSITION AND RETURN PLENUM WITH A OVERALL HEIGHT OF 36".

EXHAUST FAN SCHEDULE		
DESIGNATION	EF-1	EF-2
LOCATION	ROOF	ROOF
AREA SERVED	REFER TO PLANS	REFER TO PLANS
MODEL	G-100-VG	G-095-VG
CFM	600	600
BHP	0.1	0.15
HP	1/4	1/6
RPM	1,238	1,689
ESP (IN H <sub>2</sub> O)	0.45"	0.43"
VOLTS/Ø	115/1	115/1
FLA (AMPS)	3.8	2.8
MCA/MOCP (AMPS)	4.8/15	3.5/15
SOUND DATA (DBA/SONES)	49/5.2	59/10.4
<b>NOTES:</b>		
1. FANS BASED ON GREENHECK		
2. ALL SINGLE PHASE MOTORS TO INCLUDE THERMAL OVERLOAD		
3. ALL FANS SHALL BE PROVIDED WITH MOTORIZED BACKRAFT DAMPERS CONSTRUCTED OF A GALVANIZED STEEL FRAME AND ALUMINUM BLADES WITH SEALS. MOTORIZED DAMPER VOLTAGE SHALL BE 120 VOLTS. MOTORIZED DAMPER SHALL BE COMPLETE WITH END SWITCH AND DISCONNECT SWITCH.		
4. ALL EXHAUST FANS SHALL BE PROVIDED WITH THE FOLLOWING: VARI-GREEN EC MOTOR WITH MOUNTED POTENTIOMETER DIAL, BIRDSCREEN, HOOD HASPS, CURB SEAL AND 18" HIGH ALUMINUM ROOF CURB WITH DAMPER TRAY.		
5. ALL FANS SHALL BE PROVIDED WITH DISCONNECT SWITCH AT UNIT FOR SERVICE. OUTDOOR DISCONNECT SWITCHES SHALL BE NEMA 3R.		
6. ROOF CURBS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND INSTALLED BY GENERAL CONTRACTOR.		

HEATING AND COOLING MINIMUM PIPE INSULATION COMMERCIAL (THICKNESS IN INCHES)				
FLUID	NOMINAL PIPE DIAMETER			
	< 1-1/2"	1-1/2" < 4.0"	4.0" to 8.0"	8.0" >
HOT WATER	1.5	2.0	2.0	2.0
REFRIGERANT	1.0	1.0	1.0	1.0
INTERIOR CONDENSATE AND PUMP DISCHARGE	1.0	1.0	1.0	1.0
CHILLED WATER	1.5	1.5	1.5	1.5
<b>NOTES:</b>				
1. UNLESS OTHERWISE NOTED ALL INTERIOR PIPE COVERING SHALL BE FIBERGLASS PREFORMED PIPE AND PREMOLDED FITTING INSULATION WITH FIRE RETARDANT VAPOR BARRIER JACKET, 0.23 K-FACTOR AT 75°F MEAN TEMPERATURE, FLAME SPREAD = 25, SMOKE DEVELOPED = 50.				
2. ALL INTERIOR AND EXTERIOR PIPING, FITTINGS, AND VALVES SHALL BE INSTALLED WITH 20 MIL THICK WHITE PVC JACKETING. PVC JACKETING SHALL BE HIGH IMPACT RESISTANT, UV RESISTANT COMPLYING WITH ASTM D 1784, CLASS 1834-C. PROVIDE FACTORY FABRICATED FITTING AND VALVE COVERS WHERE AVAILABLE.				
3. REFRIGERANT AND CONDENSATE PIPE INSULATION SHALL BE FLEXIBLE ELASTOMERIC FOAM SIMILAR TO ARMAFLEX. EXTERIOR INSULATIONS TO BE COATED WITH ARMAFLEX WB OR BE INSTALLED WITH PVC JACKETING.				
4. FITTINGS AND VALVES SHALL BE PROVIDED WITH PREMOLDED FITTING COVERS WITH PVC JACKETING EQUAL IN THICKNESS AND MATERIAL TO ADJOINING PIPE INSULATION.				

MINIMUM DUCT INSULATION COMMERCIAL		
LOCATION	ROOF	ROOF
AREA SERVED	REFER TO PLANS	REFER TO PLANS
MODEL	G-100-VG	G-095-VG
CFM	600	600
BHP	0.1	0.15
HP	1/4	1/6
RPM	1,238	1,689
ESP (IN H <sub>2</sub> O)	0.45"	0.43"
VOLTS/Ø	115/1	115/1
FLA (AMPS)	3.8	2.8
MCA/MOCP (AMPS)	4.8/15	3.5/15
SOUND DATA (DBA/SONES)	49/5.2	59/10.4
<b>NOTES:</b>		
1. WHEN LOCATED WITHIN EQUIPMENT.		
2. WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15°F (8°C).		
ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS, EMBEDDED FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.		
<b>NOTE:</b>		
DUCT INSULATION, COVERINGS AND LINING MATERIALS AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25, AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50, IN ACCORDANCE WITH 2020 MECHANICAL CODE OF NEW YORK STATE SECTION 804.3.		

MINIMUM HANGER SIZES FOR ROUND DUCT					
DIAMETER	MAXIMUM SPACING	WIRE DIAMETER	ROD	STRAP	
≤ 10"	12'	—	1/4"	1" X 22 ga.	
11" - 18"	12'	—	1/4"	1" X 22 ga.	
19" - 24"	12'	—	1/4"	1" X 22 ga.	
25" - 36"	12'	—	3/8"	1" X 20 ga.	
37" - 50"	12'	—	TWO 3/8"	TWO 1" X 20 ga.	
51" - 60"	12'	—	TWO 3/8"	TWO 1" X 18 ga.	
61" - 84"	12'	—	TWO 3/8"	TWO 1" X 16 ga.	
<b>NOTES:</b>					
1. STRAPS AND RODS ARE GALVANIZED STEEL					
2. TABLE ALLOWS FOR CONVENTIONAL WALL THICKNESS, AND JOINT SYSTEMS PLUS ONE RIVET OF INSULATION WEIGHT. IF HEAVIER DUCTS ARE TO BE INSTALLED, ADJUST HANGER SIZES TO BE WITHIN THEIR LOAD LIMITS.					

VENTILATION SCHEDULE FIRST FLOOR																		
Space Name	Gross Area	Ra	Ventilation based on Net Floor Area		Occupant Density	Calculated Occupants (Pz)	People Used	Rp Cfm/Person	Ventilation based on People	Total OA Ventilation (Vbz) CFM	Zone Air Distribution Effectiveness (Ez)	Zone OA Required (Voz) CFM	Ventilation Provided CFM	Exhaust Airflow Rates CFM/sqft	Exhaust Required CFM	Exhaust Provided CFM		
			sqft	CFM/sqft													CFM	#/1000 sqft
Class 101	650	0.12	78	+	35	22.8	27.0	10	270	=	348	x	0.8	435	435	-	-	
Class 102	710	0.12	86	+	40	28.4	28.0	10	280	=	366	x	0.8	458	460	-	-	
Class 103	545	0.12	66	+	40	21.8	22.0	10	220	=	286	x	0.8	358	360	-	-	
Class 104	475	0.12	57	+	40	19.0	19.0	10	190	=	247	x	0.8	309	310	-	-	
Class 105	780	0.12	94	+	30	23.4	30.0	10	300	=	394	x	0.8	493	495	-	-	
Class 106	560	0.12	68	+	40	22.4	22.0	10	220	=	288	x	0.8	360	360	-	-	
Class 107	545	0.12	66	+	40	21.8	22.0	10	220	=	286	x	0.8	358	360	-	-	
SGI 108	230	0.12	28	+	40	9.2	10.0	10	100	=	128	x	0.8	160	160	-	-	
SGI 109	200	0.12	24	+	40	8.0	8.0	10	80	=	104	x	0.8	130	130	-	-	
SGI 113	130	0.12	16	+	40	5.2	5.0	10	50	=	66	x	0.8	83	85	-	-	
SGI 114	130	0.12	16	+	40	5.2	5.0	10	50	=	66	x	0.8	83	85	-	-	
SGI 115	130	0.12	16	+	40	5.2	5.0	10	50	=	66	x	0.8	83	85	-	-	
Toil 117	70	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 118	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 119	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Jan 120	45	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 122	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 123	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 124	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Toil 125	60	-	-	+	-	-	-	-	-	=	-	x	-	-	-	75	75	
Elev Lobby	365	0.06	22	+	30	11.0	-	12.0	7.5	90	=	112	x	0.8	140	140	-	-
Corridor C102	410	0.06	-	+	-	-	-	-	-	=	25	x	0.8	31	30	-	-	
VENTILATION SCHEDULE SECOND FLOOR																		
Space Name	Gross Area	Ra	Ventilation based on Net Floor Area		Occupant Density	Calculated Occupants (Pz)	People Used	Rp Cfm/Person	Ventilation based on People	Total OA Ventilation (Vbz) CFM	Zone Air Distribution Effectiveness (Ez)	Zone OA Required (Voz) CFM	Ventilation Provided CFM	Exhaust Airflow Rates CFM/sqft	Exhaust Required CFM	Exhaust Provided CFM		
			sqft	CFM/sqft													CFM	#/1000 sqft
Class 201	635	0.12	77	+	40	25.4	25.0	10	250	=	327	x	0.8	409	410	-	-	
Class 202	565	0.12	68	+	40	22.6	23.0	10	230	=	298	x	0.8	373	375	-	-	
Class 203	470	0.12	57	+	40	18.8	19.0	10	190	=	247	x	0.8	309	310	-	-	
Office 204	100	0.06	6	+	5	0.5	2.0	5	10	=	16	x	0.8	20	20	-	-	
Office 205	100	0.06	6	+	5	0.5	2.0	5	10	=	16	x	0.8	20	20	-	-	
Class 206	515	0.12	62	+	40	20.6	21.0	10	210	=	272	x	0.8	340	340	-	-	
Class 207	815	0.12	98	+	30	24.5	30.0	10	300	=	398	x	0.8	498	500	-	-	
Class 208	540	0.12	65	+	40	21.6	22.0	10	220	=	285	x	0.8	357	360	-	-	
SGI 209	255	0.12	31	+	40	10.2	10.0	10	100	=	131	x	0.8	164	165	-	-	
Class 210	860	0.12	104	+	30	25.8	30.0	10	300	=	404	x	0.8	505	505	-	-	
Class 211	830	0.12	100	+	30	24.9	30.0	10	300	=	40							