

### 100% O.A. DX ROOFTOP UNIT

DESIGNATION	MAU-1
SERVICE	KITCHEN HOOD
MANUFACTURER	VALENT
MODEL	VX-212-25A-1-E2
APPR. UNIT SIZE (L"xW"xH")	109x69x74
APPR. UNIT WEIGHT (LBS)	4,200
TOTAL SUPPLY AIRFLOW (CFM)	3,100
<b>FAN</b>	
MOTOR POWER (HP)	2 @ 2
MOTOR RPM	1,627
INTERNAL S.P. (IN H2O)	0.32
EXTERNAL S.P. (IN H2O)	2.50
TOTAL S.P. (IN H2O)	2.82
VFD	YES
<b>PRIMARY COIL</b>	
	HEAT PUMP
<b>COOLING PERFORMANCE</b>	
TOTAL NET CAPACITY (MBH)	277
SENSIBLE NET CAPACITY (MBH)	139
E.A.T. DB/WB (°F)	93/77
COIL L.A.T. DB/WB (°F)	52.0/51.8
REFRIGERANT TYPE	R-454B
REFRIGERANT CHARGE (LBS)	72
<b>HEATING PERFORMANCE</b>	
TOTAL NET CAPACITY (MBH)	196
E.A.T. DB (°F)	30.0
COIL L.A.T. DB (°F)	80.0
<b>HOT GAS REHEAT COIL CAPACITY (MBH)</b>	
	153
<b>AUX HEAT COIL</b>	
	ELECTRIC
TOTAL CAPACITY (MBH)	154
MODE	EMERGENCY
<b>ELECTRICAL</b>	
EMERGENCY POWER	YES
VOLTAGE	480/3/60
FLA	63
MCA	79
MOCP	80
<b>FILTERS</b>	
	MERV-7

**REMARKS:**

- PROVIDE STAINLESS STEEL DRAIN PAN.
- PROVIDE WITH FULLY MODULATING COMPRESSOR(S).
- PROVIDE FAN CYCLING HEAD PRESSURE CONTROL AND 20 SECOND TIME DELAY RELAYS.
- PROVIDE 115 VOLT CONVENIENCE OUTLET WIRED OFF OF MAIN POWER TRANSFORMER.
- CONTROL SHALL BE PROVIDED VIA FULLY DDC MICROPROCESSOR CONTROLLER WITH OUTSIDE AIR SENSOR, DISCHARGE TEMPERATURE SENSOR, DISCHARGE HUMIDITY SENSOR. THE CONTROLLER SHALL MODULATE COMPRESSOR OPERATION FOR COOLING, HEATING, AND HOT GAS REHEAT FOR DISCHARGE AIR DEWPOINT CONTROL.
- PROVIDE CUSTOMER HAND HELD DISPLAY KEYPAD DIAGNOSTIC CONTROLLER TO BE UTILIZED FOR CUSTOMER INTERFACE.
- FACTORY STARTUP SUPERVISION SHALL BE INCLUDED.
- 5 YEAR COMPRESSOR PARTS WARRANTY.
- PROVIDE PREMIUM EFFICIENCY MOTOR(S).
- UNIT SHALL BE SINGLE POINT CONNECTION AND PROVIDED WITH DISCONNECT BY MANUFACTURER

### SPLIT SYSTEM SCHEDULE

DESIGNATION	AC-1	AC-2	AC-3	AC-4	AC-5	AC-6
SERVICE	1052 ELEC.	1051 EM. ELEC.	1056 PUMP	1061 TSER	1094 TDR	1130 ELEC
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
<b>INDOOR UNIT</b>						
AIRFLOW	AC-1 920	AC-2 920	AC-3 920	AC-4 385	AC-5 385	AC-6 920
UNIT CONFIGURATION	WALL CASSETTE	WALL CASSETTE	WALL CASSETTE	WALL CASSETTE	WALL CASSETTE	WALL CASSETTE
COOLING/HEATING CAPACITY (MBH)	36/40	36/40	12/20	12/20	12/20	36/40
ELECTRICAL	FROM CU-1	FROM CU-2	FROM CU-3	FROM CU-4	FROM CU-5	FROM CU-6
FILTER	THOWAWAY	THOWAWAY	THOWAWAY	THOWAWAY	THOWAWAY	THOWAWAY
<b>OUTDOOR UNIT</b>						
COOLING/HEATING CAPACITY (MBH)	36/40	36/40	36/40	12/20	12/20	36/40
MAX AMBIENT DB (°F)	95	95	95	95	95	95
REFRIGERANT TYPE	R-454B	R-454B	R-454B	R-454B	R-454B	R-454B
<b>ELECTRICAL</b>						
TYPE	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY
VOLTAGE	208/1	208/1	208/1	208/1	208/1	208/1
MCA	34	34	34	16	16	34
MOCP	56	56	56	27	27	56

LINE SIZE (HOT GAS/LIQUID)	5/8" / 3/8"	5/8" / 3/8"	5/8" / 3/8"	1/2" / 1/4"	1/2" / 1/4"	5/8" / 3/8"
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- REMARKS:**
- PROVIDE INDOOR UNITS WITH PROGRAMMABLE THERMOSTAT.
  - INDOOR UNIT TO BE INTERLOCKED WITH FIRE ALARM SYSTEM TO SHUT DOWN UNIT WHEN ACTIVATED.
  - UNIT TO BE PROVIDED WITH CONNECTION TO HOSPITAL BAS.
  - UNIT SHALL HAVE SINGLE POINT POWER PROVIDED AT CONDENSING UNIT. INDOOR UNIT POWERED FROM OUTDOOR UNIT.
  - PROVIDE EACH UNIT WITH AN INTEGRAL CONDENSATE PUMP WITH MINIMUM 26" LIFT. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSTALLATION AND POWERING OF PUMPS NOT FACTORY INSTALLED AND WIRED. IF FACTORY INSTALLED CONDENSATE PUMP IS NOT AVAILABLE, PROVIDE 120/1 CONDENSATE LIFT PUMP EQUAL TO ASPEN MINI LIME.

### DX ROOFTOP UNIT SCHEDULE

DESIGNATION	RTU-1	RTU-2	RTU-3
MANUFACTURER	TRANE	TRANE	TRANE
SERVICE	PATIENT ROOMS	PATIENT ROOMS	ADMIN
<b>LOCATION</b>			
	ROOF	ROOF	ROOF
UNIT DIMENSIONS (L"xW"xH")	395x119x88	395x119x88	395x119x88
MAX. WEIGHT (LBS.)	14,000 lbs	14,000 lbs	14,000 lbs
SUPPLY DESIGN AIRFLOW (CFM)	13,000	13,000	17,000
RETURN DESIGN AIRFLOW (CFM)	10,400	8,500	13,800
O.A. DESIGN AIRFLOW (CFM)	2,600	4,500	3,200
O.A. OPERATING AIRFLOW (CFM)	2,250	4,500	3,075 / 3,825
AIR BLENDER	NO	NO	NO
AIR-SIDE ECONOMIZER	YES	YES	YES
SPECIAL CERTIFICATION	N/A	N/A	N/A
<b>SUPPLY FAN</b>			
OPERATING AIRFLOW (CFM)	11,425	12,600	16,700
T.S.P. (IN. W.G.)	3.45	3.64	3.77
E.S.P. (IN. W.G.)	2.50	2.50	2.50
DESIGN FAN RPM	1,397	1,419	1,469
MOTOR POWER (HP)	2 @ 15	2 @ 20	2 @ 20
MOTOR VOLTAGE	480/3/60	480/3/60	480/3/60
SYNCHRONOUS MOTOR RPM	1,500	1,500	1,600
<b>RETURN FAN</b>			
OPERATING AIRFLOW (CFM)	9,175	8,100	13,625 / 12,875
T.S.P. (IN. W.G.)	1.66	1.66	1.66
E.S.P. (IN. W.G.)	1.50	1.50	1.50
DESIGN FAN RPM	652	653	690
MOTOR POWER (HP)	1 @ 5	1 @ 5	1 @ 5
MOTOR VOLTAGE	480/3/60	480/3/60	480/3/60
SYNCHRONOUS MOTOR RPM	700	700	700

**DX COOLING COIL**

MAX. F.V. (FT./MIN.)	500	500	500
MAX. A.P.D. (IN. W.G.)	1.0	1.0	1.0
E.A.T. DB/WB (°F)	76.2/67.1	79.5/70.3	76.8/67.8
L.A.T. DB/WB (°F)	52.0/51.8	52.0/51.8	52.0/51.8
TOTAL CAPACITY (MBH)	674	866	907
SENSIBLE NET CAPACITY (MBH)	349	422	456
REFRIGERANT TYPE	R-454B	R-454B	R-454B

**COMPRESSOR**

QUANTITY	3	3	4
TYPE	SCROLL	SCROLL	SCROLL
AMBIENT TEMP (°F)	94	94	94

**ELECTRICAL**

SUPPLY, RETURN, CONTROLS CIRCUIT	480/3/60	480/3/60	480/3/60
MCA	36	44	44
MOCP	40	50	50
POWER TYPE	EMERGENCY	EMERGENCY	EMERGENCY
COMPRESSOR, CONDENSER CIRCUIT	480/3/60	480/3/60	480/3/60
MCA	108	127	141
MOCP	125	150	175
POWER TYPE	NORMAL	NORMAL	NORMAL

**PRE-FILTER**

EFFICIENCY RATING (MERV)	MERV-8	MERV-8	MERV-8
INITIAL A.P.D. (IN. W.G.)	0.10	0.10	0.10
FINAL A.P.D. (IN. W.G.)	0.60	0.60	0.60

**FINAL FILTER**

EFFICIENCY RATING (MERV)	MERV-14	MERV-14	MERV-14
INITIAL A.P.D. (IN. W.G.)	0.35	0.35	0.35
FINAL A.P.D. (IN. W.G.)	1.35	1.35	1.35

**REMARKS:**

- FANS TO BE SELECTED THAT OPERATE AT NO GREATER THAN 85% OF THEIR NAMEPLATE HORSEPOWER WITH DIRTY FILTERS AT THE OPERATING POINTS SCHEDULED ABOVE.
  - FOR FAN SELECTIONS OVER 12,000 CFM, THE FAN ASSEMBLY SHALL BE PROVIDED WITH A MINIMUM OF TWO FANS AND THE QUANTITY AND MOTOR HORSEPOWER SELECTION SHALL BE SUCH THAT WITH ONE FAN DISABLED, THE FAN ASSEMBLY SHALL BE ABLE TO MAINTAIN 70% OF THE TOTAL AIRFLOW.
- ALL FANS SHALL BE PROVIDED WITH VARIABLE FREQUENCY DRIVES HARDWIRED FROM THE FACTORY.
  - FOR FAN ASSEMBLIES WITH ONLY ONE FAN VFD, THE ASSOCIATED VFD SHALL BE PROVIDED WITH A BYPASS
  - FOR FAN ASSEMBLIES PROVIDED WITH MORE THAN ONE FAN VFD, A MINIMUM OF TWO VFDS WITHOUT BYPASSES SHALL BE PROVIDED FOR THE FAN ASSEMBLY.
- PROVIDE PLENUM LIGHTS IN FAN SECTIONS AND ALL ACCESS SECTIONS. ALL LIGHTS ARE TO BE PREWIRED INSIDE THE UNIT CASING FROM THE FACTORY TO JUNCTION BOXES ON THE OUTSIDE OF THE UNIT CASING. PROVIDE PLENUM LIGHTS ON ONE HOUR TIMER SWITCH.
- ALL FILTERS TO BE ONE OF THE FOLLOWING SIZES: 12"x24", 20"x24", OR 24"x24". ALL FILTERS TO BE FRONT-LOAD TYPE.
- SUPPLY AND RETURN FAN TO BE DIRECT DRIVE PLENUM TYPE. EACH FAN SHALL BE PROVIDED WITH A PIEZO TYPE AIR FLOW MEASURING STATION WITH PARAGON TRANSDUCER AS SPECIFIED. PROVIDE BACnet CONTROLS INTERFACE FOR EACH VFD AND AIRFLOW STATION.
- DESIGN AIR FLOW QUANTITY SHALL BE USED FOR UNIT PERFORMANCE SELECTION. OPERATING FLOW INDICATES TOTAL CONNECTED AIRFLOW TO BE USED FOR SYSTEM BALANCING.
- PROVIDE MAGNEHELIC GAUGE WITH CLEAN AND DIRTY INDICATION ACROSS ALL FILTER BANKS.
- PROVIDE FAN BLANK-OFF PLATE AT EACH FAN ON MULTI-FAN UNITS SO THAT EACH FAN MAY BE INDEPENDENTLY SERVICED FOR MAINTENANCE.
- PROVIDE SEPARATE STAINLESS STEEL DRAIN PAN UNDER EACH COOLING COIL SECTION.
- UNIT MAX WEIGHT DOES NOT INCLUDE CURB.
- PROVIDE ONE 480V CIRCUIT FOR SUPPLY FANS, RETURN FANS, AND CONTROLS, ONE 480V CIRCUIT FOR COMPRESSORS AND CONDENSERS, AND ONE 120V CIRCUIT FOR LIGHTS, AND CONVENIENCE OUTLET.

### DUCT LEGEND

 SUPPLY DUCT	 EXHAUST DUCT
 RETURN DUCT	 OUTSIDE AIR DUCT

### LEGEND

	RECTANGULAR DUCT TURNING DOWN		SMOKE DETECTOR
	ROUND DUCT TURNING DOWN		ACCESS DOOR
	BRANCH TAP OFF MAIN W/45° BOOT FITTING OR SPIN-IN FITTING W/ DAMPER (LOW PRESSURE)		ABOVE FINISHED FLOOR
	TRANSITION IN DUCT		VARIABLE FREQUENCY DRIVE
	FIRE DAMPER		BUILDING AUTOMATION CONTROL SYSTEM
	FIRE/SMOKE DAMPER		LCD DISPLAY HUMIDITY SENSOR
	DUCT TERMINATION		LCD DISPLAY THERMOSTAT
	45° FULL RADIUS TURN		LCD DISPLAY TEMPERATURE SENSOR
	SQUARE ELBOW W/TURNING VANES		LCD DISPLAY CARBON MONOXIDE ALARM
	FULL RADIUS TURN		VARIABLE AIR VOLUME BOX
	AIRFLOW TO DUCT OR SIDEWALL AIR TERMINAL		EA 100 INDICATES A SIZE "A" EXHAUST GRILLE SET FOR 100 CFM
	AIRFLOW AT LOUVER		RB 200 INDICATES A SIZE "B" RETURN GRILLE SET FOR 200 CFM
	ROOM PRESSURE BALANCING AIRFLOW ARROW		SB 200 INDICATES A SIZE "S" SUPPLY DIFFUSER SET FOR 200 CFM
	MANUAL VOLUME DAMPER		EXHAUST GRILLE
			RETURN GRILLE
			DUCT SMOKE DETECTOR
			DUCT-MOUNTED CO2 SENSOR

### PIPING LEGEND

	MOISTURE CONDENSATE DRAIN LINE		DIRECTION OF WATER FLOW
	PIPE SHUT OFF VALVE		TEE
	PIPE TURNING UP		PIPE TURNING DOWN

### SUPPLY DIFFUSER SCHEDULE

SYMBOL	ADAPTOR/NECK SIZE	FACE SIZE	MAX CFM	MAX SP	MAX NC	THROW	DUCT RUNOUT SIZE
SA	6" Ø	24"x24"	110	0.05	12	4-WAY	8"x4"/6"Ø
SAA	6" Ø	12"x12"	110	0.05	12	4-WAY	8"x4"/6"Ø
SB	8" Ø	24"x24"	230	0.07	18	4-WAY	10"x6"/8"Ø
SBB	8" Ø	12"x12"	230	0.07	18	4-WAY	10"x6"/8"Ø
SC	10" Ø	24"x24"	420	0.07	22	4-WAY	12"x8"/10"Ø
SD	12" Ø	24"x24"	500	0.06	22	4-WAY	16"x8"/12"Ø
SE	14" Ø	24"x24"	650	0.07	25	4-WAY	18"x8"/14"Ø

**PERFORMANCE BASIS:**

- 4-WAY CEILING DIFFUSERS BASED ON TITUS MODEL TMS ALL ALUMINUM DIFFUSERS WITH ROUND INLET. PROVIDE LAY-IN CEILING FRAME IN LAY-IN CEILING AREAS AND SURFACE MOUNTING FRAME IN HARD CEILING AREAS. PROVIDE 24"x24" MODULE IN LAY-IN CEILING AREAS.
- CONTRACTOR TO PROVIDE DUCT SPIN-IN FITTING WITH MANUAL VOLUME DAMPER EQUAL TO FLEXMASTER CBD, FLEXMASTER STOD, OR APPROVED EQUAL FOR CIRCULAR DUCT AND STANDARD SIDE TAKEOFF WITH MANUAL VOLUME DAMPER FOR RECTANGULAR RUNOUT. SEE DETAIL.

### RETURN & EXHAUST GRILLES SCHEDULE

SYMBOL	NECK	FACE	MAX CFM	MAX SP	MAX NC	DUCT RUNOUT SIZE
RA/EA	6" SQ	24"x24"	75	.04	20	8"x4"/6"Ø
RAA/EA	6" SQ	12"x12"	75	.04	20	8"x4"/6"Ø
RB/EB	8" SQ	24"x24"	200	.06	20	10"x6"/8"Ø
RBB/EBB	8" SQ	12"x12"	200	.06	20	10"x6"/8"Ø
RC/EC	10" SQ	24"x24"	300	.06	20	14"x6"/10"Ø
RD/ED	12" SQ	24"x24"	540	.06	20	16"x8"/12"Ø
RE/EE	14" SQ	24"x24"	700	.06	20	18"x8"/14"Ø
RF/EF	18" SQ	24"x24"	1,250	.06	20	24"x10"/16"Ø
RG/EG	22" SQ	24"x24"	2,000	.08	20	24"x12"/18"Ø

**PERFORMANCE BASIS:**

- RETURN/EXHAUST GRILLES BASED ON TITUS MODEL 50-F ALUMINUM EGG-CRATE GRILLE WITH 1/2"x1/2" CORE, SQUARE TO ROUND ADAPTER AND SURFACE MOUNTING FRAME.
- CONTRACTOR TO PROVIDE DUCT SPIN-IN FITTING WITH MANUAL VOLUME DAMPER EQUAL TO FLEXMASTER CBD, FLEXMASTER STOD, OR APPROVED EQUAL FOR CIRCULAR DUCT AND STANDARD SIDE TAKEOFF WITH MANUAL VOLUME DAMPER FOR RECTANGULAR RUNOUT. SEE DETAIL.

### APPLICABLE CODES & STANDARDS

- MECHANICAL WORK SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS AS APPLICABLE:
- GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS (FGI, 2022 EDITION)
  - FLORIDA BUILDING CODE (2023 EDITION)
  - FLORIDA BUILDING CODE - MECHANICAL (2023 EDITION)
  - FLORIDA BUILDING CODE - ENERGY CONSERVATION (2023 EDITION)
  - NFPA 90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS (2021 EDITION)
  - NFPA 101 LIFESAFETY CODE (2021 EDITION)
  - NFPA 99 STANDARD FOR HEALTH CARE FACILITIES (2021 EDITION)
  - NFPA 96 STANDARD FOR VENTILATION CONTROL AND FIRE PROTECTION OF COMMERCIAL COOKING OPERATIONS (2021 EDITION)

### DESIGN CRITERIA

DATA FROM ASHRAE FUNDAMENTALS 2025 (IP)	
LOCATION: PANAMA CITY, FL	WEATHER STATION: PANAMA CITY, FL
SUMMER DESIGN CONDITIONS: COOLING 0.4% DB/MCWB (°F): 92.8/76.8 EVAPORATION 0.4% WB/MCDB (°F): 81.4/87.0	WINTER DESIGN CONDITIONS: HEATING 99.6% DB (°F): 31.8 HEATING 99% DB LESS 10 (°F): 25.7