

**HEAT PUMP SCHEDULE (AIR COOLED)**

SYMBOL	NOMINAL TONNAGE	COOLING CAPACITY		EFFICIENCY		HEATING CAPACITY		EFFICIENCY		COMPRESSOR		FAN		ELECTRICAL DATA		MANUFACTURER		WEIGHT	REFRIG. TYPE	MATCHING INDOOR UNIT
		IC (BTUH)	SHC (BTUH)	SEER	HEER	(BTUH)	COP	HSPF	LRA	RLA	FLA	MCA	FUSE	VOLTAGE	TRANE MODEL	TRANE				
HP-1	1 1/2	17,700	13,100	11.5	14.0	---	17,800	3.74	8.5	9	56	0.7	12	20	208V-1 $\phi$	4TWR401B	201 LBS.	R-410A	IDU-1	
HP-2	1 1/2	17,700	13,100	11.5	14.0	---	17,800	3.74	8.5	9	56	0.7	12	20	208V-1 $\phi$	4TWR401B	201 LBS.	R-410A	IDU-2	
HP-3	1 1/2	17,700	13,100	11.5	14.0	---	17,800	3.74	8.5	9	56	0.7	12	20	208V-1 $\phi$	4TWR401B	201 LBS.	R-410A	IDU-3	
HP-4	1 1/2	17,700	13,100	11.5	14.0	---	17,800	3.74	8.5	9	56	0.7	12	20	208V-1 $\phi$	4TWR401B	201 LBS.	R-410A	IDU-4	

**NOTES:**

- COOLING CAPACITY @ 95° AMBIENT
- ALL UNITS SHALL BE U.L. LISTED AND HAVE A MINIMUM SEER OF 14.
- MOUNT UNITS ON ROOF ON EQUIPMENT SUPPORT RAILS AS MFG. BY ROOF PRODUCTS AND SYSTEMS, CORP. (OR EQUAL) AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
- PROVIDE UNITS WITH CONDENSER COIL HAIL GUARDS AND LOW AMBIENT CONTROLS.
- FOR REFRIGERANT LINE APPLICATIONS WITH A TOTAL EQUIVALENT LENGTH BETWEEN 50'-0" AND 175'-0" THE FOLLOWING ACCESSORIES SHALL BE PROVIDED:
  - COMPRESSOR CRANKCASE HEATER
  - COMPRESSOR START ASSIST CAPACITOR AND RELAY (NOT REQUIRED FOR SCROLL COMPRESSORS OR 3 PHASE UNITS)
  - WIND BAFFLES (FOR UNIT MOUNTED ON ROOFS)
- FOR HORIZONTAL CONFIGURATION: PROVIDE LIQUID LINE SOLENOID WITHIN 2'-0" OF OUTDOOR UNIT WITH FLOW ARROW POINTING TOWARD OUTDOOR UNIT. VAPOR LINE SHOULD SLOPE TOWARD INDOOR UNIT.
- MECHANICAL CONTRACTOR & UNIT MANUFACTURER ARE TO REVIEW INSTALLATION, AND FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR LONG REFRIGERANT LINE APPLICATIONS (AS DEFINED BY UNIT MFG).

**ROOFTOP UNIT SCHEDULE - (DX COOLING - REFRIGERANT R-410a - WITH GAS HEAT)**

SYMBOL	CFM	NOMINAL TONNAGE	O.A. TEMP	E.S.P.	COOLING CAPACITY		EFFICIENCY	HEATING CAPACITY		EFFICIENCY	COMPRESSOR (FA)		OIL	FAN	POWER EXHAUST	POWER SUPPLY		OPERATING HEIGHT	MANUFACTURER						
					IC (BTUH)	SHC (BTUH)		SEER	HEER		INLET (BTUH)	OUTPUT (BTUH)				HP	FLA			LRA	MCA	FUSE	VOLTAGE		
RTU-L23	1200	3	300	0.5"	36,900	26,700	14.0	N/A	N/A	11.2	1.2	5.8	45.0	1	0.55	1.7	---	10.1	15	460V-3 $\phi$	744 LBS	YSC036C4			
RTU-L26	3000	7 1/2	750	0.5"	94,810	73,700	N/A	11.2	12.7	150,000 / 105,000	121,500 / 85,000	81X	2	SEE NOTE "A"	1	1.5	3.6	1	1.0	8.34	18.5	20	460V-3 $\phi$	1428 LBS	YSC09H4
RTU-L27	1200	3	300	0.5"	36,900	26,700	14.0	N/A	N/A	11.2	1.2	5.8	45.0	1	0.55	1.7	---	10.1	15	460V-3 $\phi$	744 LBS	YSC036C4			

**COMPRESSOR NOTES:**

- COMPRESSOR #1: 6.3 RLA, 55.0 LRA; COMPRESSOR #2: 6.27 RLA, 41.0 LRA

**NOTES:**

- COOLING CAPACITIES BASED ON 95° AMBIENT, 80/67 ENTERING AIR.
- PROVIDE ALL UNITS WITH ROOF CURB, DDC THERMOSTAT AND CONTROLLER (BY BAS VENDOR), 2" THROWAWAY FILTERS (MERV B MINIMUM), COMPARATIVE ENTHALPY ECONOMIZER (RTU-L26), INTERMITTENT FLOT IGNITION (2-STAGE GAS HEAT, RTU-L26), CONDENSER COIL HAIL GUARDS, LOW AMBIENT CONTROLS AND HINGED ACCESS DOORS WITH "TOOL-LESS" ENTRY, POWER EXHAUST (RTU-L26).
- ALL UNITS SHALL BE AGA CERTIFIED, U.L. LABELED, AND ASHRAE 90.1 COMPLIANT.
- PROVIDE RTU-L26 WITH A IONIZATION TYPE SMOKE DETECTOR, INSTALLED IN THE RETURN DUCT W/ WIRE TO SHUT DOWN THE UNIT UPON ACTIVATION. SMOKE DETECTOR SHALL BE SUPPLIED, W/ WIRE FOR INTERFACE WITH FIRE ALARM SYSTEM AND UNIT SHUTDOWN BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN DUCT BY THE MECHANICAL CONTRACTOR.
- PRIMARY COOLING COIL DRAIN PAN SHALL BE PROVIDED WITH A FLOAT SWITCH BY UNIT MFR; ACTIVATION OF THE FLOAT SWITCH SHALL SHUT DOWN UNIT AND SEND AN ALARM TO THE CENTRAL BAS.
- RTU-L26 SHALL HAVE HORIZONTAL DISCHARGE AND INTAKE (POWER EXHAUST MOUNTED TO RA DUCT), DUCT ROUTED ON ROOF, REFER TO DWGS.

**INDOOR UNIT SCHEDULE**

SYMBOL	CFM	NOMINAL TONNAGE	O.A. TEMP	E.S.P.	COOLING CAPACITY		HEATING CAPACITY	ELECTRIC HEAT		FAN MOTOR	ELECTRICAL DATA		MANUFACTURER	WEIGHT	REFRIGERANT TYPE	MATCHING OUTDOOR UNIT	
					IC (BTUH)	SHC (BTUH)		IC (BTUH)	SHC (BTUH)		KW	STAGES					AMPS
IDU-1	600	1 1/2	100	0.4"	17,700	13,100	17,200	---	---	1.4	2	15	208V-1 $\phi$	TEMA40B18	111 LBS.	R-410A	HP-1
IDU-2	600	1 1/2	100	0.4"	17,700	13,100	17,200	---	---	1.4	2	15	208V-1 $\phi$	TEMA40B18	111 LBS.	R-410A	HP-2
IDU-3	600	1 1/2	100	0.4"	17,700	13,100	17,200	5.7	1	---	208V-1 $\phi$	4TWR401B	111 LBS.	R-410A	HP-3		
IDU-4	600	1 1/2	100	0.4"	17,700	13,100	17,200	---	---	1.4	2	15	208V-1 $\phi$	TEMA40B18	111 LBS.	R-410A	HP-4

**NOTES:**

- COOLING CAPACITY @ 95° AMBIENT, 80/67° ENTERING COIL CONDITIONS.
- PROVIDE UNITS WITH DDC THERMOSTAT AND CONTROLLER (BY BAS VENDOR), 1" THICK DISPOSABLE FILTER (MERV B MINIMUM), FIELD INSTALLED HEATER (IDU-3), U.L. LABEL, SINGLE POINT ELECTRICAL CONNECTION, 1-INCH INSULATION.

**CONDENSATE PUMP SCHEDULE**

CONDENSATE PUMP (CP) LITTLE GIANT VCM-15ULS  
25 GPH @ 10' HEAD; 2 QUART TANK; MOTOR - 1/50 H.P., 120V-1 $\phi$ ;  
FURNISH WITH: BUILT-IN CHECK VALVE.

**NOTE:**

- INSTALL CONDENSATE PUMP OVER 3" DEEP EMERGENCY DRAIN PAN WITH LIQUID DETECTOR W/ WIRE TO SHUTDOWN ASSOCIATED INDOOR UNIT IF LIQUID IS DETECTED.

**DUCTLESS SPLIT SYSTEMS**

INDOOR UNIT										OUTDOOR UNIT									
SYMBOL	ROOM NO.	CFM	OPERATING WEIGHT	MANUFACTURER	ELECTRICAL DATA	SYMBOL	LOCATION	SYSTEM COOLING CAP.	HEATING CAP.	COMPRESSOR	ELECTRICAL DATA	OPERATING WEIGHT	MANUFACTURER	ALLOWABLE LINE-SET LENGTHS					
					MCA   FUSE   VOLTAGE			IC (BTUH)	SHC (BTUH)	(BTUH)	MCA   FUSE   VOLTAGE								
A/C-1	IT ROOM	549	26.5 LBS	FTXN18MVJU	* * * 208V-1 $\phi$	DDU-1	ROOF	18,000	12,680	21,600	6.8	15.8	20	208V-1 $\phi$	RXN18MVJU	98' TOTAL			
A/C-2	ELEC ROOM	549	26.5 LBS	FTXN18MVJU	* * * 208V-1 $\phi$	DDU-2	ROOF	18,000	12,680	21,600	6.8	15.8	20	208V-1 $\phi$	RXN18MVJU	98' TOTAL			

**NOTES:**

- ALL UNITS SHALL BE U.L. LISTED AND HAVE A MINIMUM SEER OF 15
- COOLING CAPACITIES ARE BASED ON 95° AMBIENT, 80° ENTERING AIR WET BULB, 67° ENTERING AIR DRY BULB, AIR FLOWS INDICATED ARE A MINIMUM 5'
- MOUNT UNITS ON ROOF ON EQUIPMENT SUPPORT RAILS AS MFG. BY ROOF PRODUCTS AND SERVICE CORP. (OR EQUAL).
- PROVIDE MANUFACTURER'S SUGGESTED CLEARANCES AROUND UNIT.
- PROVIDE UNITS WITH MANUFACTURER'S WIND BAFFLES OR LOW AMBIENT CONTROLS FOR COOLING OPERATION DOWN TO 0' F, INVERTED COMPRESSOR, THERMOSTAT (WALL-MOUNTED), CONDENSATE PUMP
- PROVIDE OUTDOOR UNITS WITH 6 YEAR EXTENDED COMPRESSOR WARRANTY.
- SEE MANUFACTURER'S RECOMMENDATIONS FOR REQUIRED ADDITIONAL REFRIGERANT CHARGE AND RECOMMENDED LINE-SET LENGTHS.
- REFRIGERANT PIPING AND WIRING FOR WALL-MOUNTED INDOOR UNITS SHALL BE ROUTED IN WALLS WHERE POSSIBLE. ANY EXPOSED PIPING SHALL BE ROUTED IN LINE-SET COVERS (OVERSIZED SPEEDCHANNEL OR EQUAL).
- INDOOR UNIT POWER IS FED FROM OUTDOOR UNIT. ELECTRICAL CONTRACTOR SHALL PROVIDE POWER WIRING TO OUTDOOR UNIT AND EXTEND POWER FROM OUTDOOR UNIT TO INDOOR UNIT. COORDINATE FINAL WIRING WITH ELECTRICAL CONTRACTOR.

**HOOD SCHEDULE**

SYMBOL	NECK SIZE	GREENHECK	ACCESSORIES
H-1	10x10	GRS-10	A,B
H-2	8x8	GRS-8	A,B
H-3	8x8	SI-8	A,B

**ACCESSORIES:**

- A: ROOF CURB
- B: DISCONNECT SWITCH
- C: BIRD SCREEN
- D: 24V MODULATING DAMPER

**FAN RE-BALANCE SCHEDULE**

LINE NUMBER	SUPPLY CFM	RETURN CFM	OA CFM
EX-RTU-L1	3000	2250	750
EX-RTU-L2	1600	1200	400
EX-RTU-L3	2400	1800	600
EX-RTU-L18	3000	2250	750
EX-RTU-L23	1600	1200	400
EX-RTU-L24	1600	1200	400

**NOTE:**

- BALANCED AIRFLOW (CFM) INDICATED ON THIS SCHEDULE IS FOR SUPPLY, RETURN AND OUTSIDE AIR AT EXISTING RTU'S. BALANCE AIRFLOW (CFM) AT ALL AIR DEVICES BASED ON CFM SHOWN ON PLANS.

**FAN SCHEDULE**

SYMBOL	LOCATION	TYPE	CFM	APPROX. S.F.	DRIVE	FAN RPM	ELECTRICAL DATA	MANUFACTURER	ACCESSORIES	CONTROLS		
F-1	ROOF	EXHAUST	450	0.50"	DIRECT	1897	---	1/4	120V-1 $\phi$	G-90-VG	A,B,D,E	5

**ACCESSORIES:**

- A: DISCONNECT SWITCH
- B: GRAVITY BACKDRAFT DAMPER
- C: MOTORIZED BACKDRAFT DAMPER
- D: PREFAB. ROOF CURB
- E: BIRDSCREEN
- F: ACOUSTICAL LINING
- G: HANGING BRACKETS WITH VIBRATION ISOLATION
- H: W/ WALL LOUVER DISCHARGE
- I: RCD OR GRS ROOF CAP (FLAT ROOF) OR RJ ROOF CAP (PITCHED ROOF)
- J: WALL MOUNTING COLLAR
- K: INLET GUARD

**CONTROLS:**

- M: 2" WASHABLE ALUMINUM FILTERS
- N: MOTORISED FAN GUARD
- O: EXHAUST GRILLE
- P: U.L. 752
- Q: VENTED ROOF CURB EXTENSION
- R: COMBINATION KITCHEN HOOD FAN CURB
- S: INTERLOCK WITH FUME HOOD
- T: PROVIDE DRAIN PLUG ACCESSORY

**NOTES:**

- ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
- ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
- MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.

**GRILLE AND DIFFUSER SCHEDULE**

SYMBOL	SERVICE	CFM RANGE	FACE SIZE	NECK SIZE	TYPE	DRB	PRICE
A	SUPPLY	0 - 100	24x24	6x6	LOUVERED	NO	SMD
B	SUPPLY	100 - 275	24x24	8x8	LOUVERED	NO	SMD
C	SUPPLY	275 - 400	24x24	12x12	LOUVERED	NO	SMD
D	RETURN	NON-DUCTED	24x24	22x22	LOUVERED	NO	530
E	RET/EXH	225 - 600	24x24	22x22	LOUVERED	NO	SMD
F	SUPPLY	200 - 300	4'-0" LONG (4 SLOTS @ 1" EA)	---	SLOT	NO	SOS 100
H	SUPPLY	SEE DWGS	NK+FRAME	SEE DWGS	FIXED DEFLECTION	YES	520
I	RETURN	SEE DWGS	NK+FRAME	SEE DWGS	DOUBLE LOUVERED	NO	530
TF	SUPPLY	SEE DWGS	24x24	SEE DWGS	VAV DIFFUSER	---	SEE NOTE

**EX**

- EXISTING DIFFUSER TO REMAIN
- RE - EXISTING DIFFUSER TO BE RELOCATED
- XXX-EX - EXISTING DIFFUSER TO REMAIN; BALANCE TO XXX CFM
- XXX-RE - EXISTING DIFFUSER TO BE RELOCATED; BALANCE TO XXX CFM

**NOTES:**

- ALL CEILING AND WALL MOUNTED DEVICES SHALL BE FURNISHED WITH AN ENAMEL OFF-WHITE FINISH.
- ALL DEVICES SHALL BE FURNISHED WITH FRAMES SUITABLE FOR TYPE OF INSTALLATION REQUIRED.
- GRILLES MARKED "TT" SHALL BE A SQUARE 24x24 PRICE PP02, PROVIDING VAV COOLING AND VAV HEATING, A WALL MOUNTED LED THERMOSTAT WILL PROVIDE ROOM TEMPERATURE SENSING AS WELL AS SET POINT ADJUSTMENT FOR HEATING AND COOLING. PROVIDE BAGNET SYSTEM INTERFACE WITH EXISTING ALERTON BAS. PROVIDE PRESSURE RELIEF COLLAR (PRC).

**EQUIVALENT MANUFACTURERS LISTING**

LISTING OF MANUFACTURER'S NAME DOES NOT GUARANTEE APPROVAL. ALL EQUIPMENT MUST MEET OR EXCEED QUALITY AND CAPACITIES OF SPECIFIED EQUIPMENT. FINAL APPROVAL WILL BE BASED ON EQUIPMENT SUBMITTALS. ANY MANUFACTURER NOT LISTED BUT WISHING TO BID THIS PROJECT SHALL SUBMIT A WRITTEN REQUEST A MINIMUM OF 7 DAYS PRIOR TO BID DATE OR AS INDICATED IN THE SPECIFICATIONS, PRIOR APPROVAL IS REQUIRED FOR ALL MANUFACTURERS NOT LISTED.

- (ALPHABETICAL ORDER)
- PACKAGED ROOFTOP UNITS (UNDER 25 TONS): CARRIER, TRANE, YORK, JOHNSON, DIAKIN, AAO
- DUCTED SPLIT SYSTEMS: CARRIER, TRANE, YORK
- EANS: COOK, GREENHECK, PENN, TWIN CITY
- AIR DISTRIBUTION: CARNES, METAL-AIRE, NAILOR, PRICE, TITUS, KRUEGER
- DDC CONTROLS: ALERTON (EXISTING CAMPUS BAS)
- DUCTLESS SPLIT SYSTEMS: DAIKIN, MITSUBISHI, TRANE

**NOTE:**

ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASIS BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

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**MECHANICAL SCHEDULES, NOTES AND LEGEND**

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