

**ABBREVIATIONS**

A/C	ABOVE CEILING ACCESS DOOR	ID	INSIDE DIMENSION INCHES
ADJ	ADJUSTABLE	IN	
AF	ABOVE FINISHED FLOOR	KW	KILOWATTS
AG	AIR CONDITIONING		
AHU	AIR HANDLING UNIT		
BAL	BALANCING	LAT	LEAVING AIR TEMPERATURE
BDD	BACKDRAFT DAMPER	LB	POUNDS
B/F	BELOW FLOOR	LG	LINEAR GRILLE
B/G	BELOW GRADE	LRO	LINEAR RETURN GRILLE
B'FLY	BUTTERFLY	LRS	LOOP WATER RETURN
BHP	BRAKE HORSEPOWER	LWS	LOOP WATER SUPPLY
BCO	BASE CLEANOUT	MIN	MINIMUM
		MAX	MAXIMUM
		MD	MANUAL DAMPER
		MOD	MOTOR OPERATED DAMPER
		MFR	MANUFACTURER
CFM	CUBIC FEET PER MINUTE		
CBCR	CURVED BLADE CEILING REGISTER		
CD	CEILING DIFFUSER		
CU	CONDENSING UNIT	NC	NORMALLY CLOSED
CW	COLD WATER (DOMESTIC)	NG	NATURAL GAS
CHWS	CHILLED WATER SUPPLY	NFWH	NON-FREEZE WALL HYDRANT
CHWR	CHILLED WATER RETURN	NO	NORMALLY OPEN
CWS	CONDENSER WATER SUPPLY	NOM	NOMINAL
CWR	CONDENSER WATER RETURN		
CON	CONCENTRIC		
CO	CLEANOUT	OA	OUTSIDE AIR
COND	CONDENSATE	OD	OUTSIDE DIMENSION
		ODB	OPPOSED BLADE DAMPER
db	DRY BULB		
DN	DOWN	PIU	POWERED INDUCTION UNIT
DR	DRAIN	PSI	POUNDS PER SQUARE INCH
do	DITTO		
DB	DECIBELS		
DWG	DRAWING	RA	RETURN AIR
		RAD	RADIUS
EA	EACH	RAG	RETURN AIR GRILLE
EAT	ENTERING AIR TEMPERATURE	RED	REDUCER
ECC	ECCENTRIC	RL	REFRIGERANT LIQUID
EF	EXHAUST FAN	RS	REFRIGERANT SUCTION
EOD	EMERGENCY OVERFLOW DRAIN	RTU	ROOFTOP UNIT
ER	EXHAUST REGISTER	RAK	RETURN AIR REGISTER
ESP	EXTERNAL STATIC PRESSURE		
EWT	ENTERING WATER TEMPERATURE	SP	STATIC PRESSURE
EXH	EXHAUST	SPS	STATIC PRESSURE SENSOR
EFF	EFFICIENCY	SA	SUPPLY AIR
		SAN	SANITARY
F	FAHRENHEIT	SD	SMOKE DAMPER
FCO	FLOOR CLEANOUT	SEN	SENSIBLE
FCU	FAN COIL UNIT	SG	SQUARE
FSD	FIRE/SMOKE DAMPER	SO	SUPPLY REGISTER
FD	FIRE DAMPER OR FLOOR DRAIN	ST	STORM
FL DR	FLOOR DRAIN (only)	SS	SPLIT SYSTEM
FLR	FLOOR		
FOB	FLAT ON BOTTOM	TEMP	TEMPERATURE
FOR	FUEL OIL RETURN	TG	TRANSFER GRILLE
FOS	FUEL OIL SUPPLY	TYP	TYPICAL
FOT	FLAT ON TOP		
FFM	FEET PER MINUTE		
FFS	FEET PER SECOND	UN	UNLESS OTHERWISE NOTED
FT	FEET		
G	GATE	V	VENT
GA	GAUGE	VA	VALVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
GL	GLOBE	VAV	VARIABLE AIR VOLUME
GCO	GRADE CLEANOUT		
		wb	WET BULB
HD	HUB DRAIN	WC	WATER COLUMN
HP	HORSEPOWER	WHA	WATER HAMMER ARRESTOR
HTG	HEATING	WT	WEIGHT
HW	HOT WATER (DOMESTIC)	W	WASTE
HWR	HOT WATER RETURN		
HWRR	HOT WATER REVERSE RETURN		
HWS	HOT WATER SUPPLY		
HZ	HERTZ		

**MECHANICAL SUMMARY**  
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Method of Compliance:  Prescriptive  Energy cost Budget

Thermal Zone 3A  
winter dry bulb: 18 deg F  
summer dry bulb: 94 deg F

Interior design conditions  
winter dry bulb: 70 deg F  
summer dry bulb: 75 deg F  
relative humidity: 50%

Total tenant heating load N/A

Total tenant cooling load N/A

**Mechanical Spacing Conditioning System**

Unitary	
description of unit	N/A
heating efficiency	N/A
cooling efficiency	N/A
heat output of unit	N/A
cooling output of unit	N/A
total boiler output	N/A
total chiller capacity	N/A

**List equipment efficiencies**

Equipment associated with motors (mechanical systems)  
motor horsepower  
number of phases  
minimum efficiency  
motor type  
# of poles

**PACKAGED ROOF TOP UNITS**

I.D. TAG	MINIMUM TOTAL CAP. (MBH)	MINIMUM SENSIBLE CAP. (MBH)	AMBIENT TEMP. (°F)	COIL EAT		AIRFLOW (CFM)	EXT. S.P. (IN. W.C.)	MAX H.P.	OUTSIDE AIR (CFM)	HEATING		VOLTS/PHASE	MCA	MOCP	BASIS OF DESIGN	SEER	APPROX. UNIT WEIGHT (LBS)	REMARKS
				°F db	°F wb					TYPE	INPUT (kw)							
RTU-1	67.8	63.9	105	80.0	67.0	2,400	0.6	---	---	ELEC	27	460/3	43.8	45	TRANE THC072	12.40 EER	1078	②③④⑤⑥
RTU-2	77.7	58.3	105	80.0	67.0	3,000	0.6	---	---	ELEC	27	460/3	46	50	TRANE THC092	12.60 EER	778	②③④⑤⑥
RTU-3	58.1	47.0	105	80.0	67.0	1,600	0.6	---	---	ELEC	17.4	460/3	31.1	35	TRANE THC060	13.35 EER	778	②③④⑤⑥

- ① THIS IS THE STATIC PRESSURE EXTERNAL TO THE UNIT. IT DOES NOT INCLUDE COIL, CASING, FILTER OR HEATER LOSSES.
- ② PROVIDE UNIT COMPLETE FACTORY DISCONNECT W/ LOCKOUT PROTECTION CAPABILITY.
- ③ CAPACITY IN MBH.
- ④ SUPPLY FAN SHALL BE CAPABLE OF SUPPLYING AIRFLOW AT CFM & E.S.P. (IN. W.C.) AS INDICATED ON SCHEDULED ABOVE.
- ⑤ PROVIDE SMOKE DETECTOR IN UNIT SUPPLY AND RETURN. INSTALLATION SHALL BE IN ACCORDANCE WITH NFA 72E. COORD. W/ DIVISION 16.
- ⑥ POWERED WEATHERPROOF GFI DEDICATED CONVENIENCE OUTLET TO BE PROVIDED, COORDINATE WITH ELECTRICAL.
- ⑦ PROVIDE UNIT WITH COMPARTMENT ENTHALPY ECONOMIZER
- ⑧ PROVIDE WITH HAL GUARD.
- ⑨ PROVIDE WITH 2 MULTI-STAGE COMPRESSORS.
- ⑩ PROVIDE UNIT WITH HOT GAS REHEAT AND COMBINATION THERMOSTAT/HUMIDISTAT.

**GENERAL NOTES**

- THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE TENANT MECHANICAL SYSTEM BE PROVIDED WITH ALL NECESSARY EQUIPMENT, ACCESSORIES, OPTIONS AND CONTROLS, COMPLETELY COORDINATED WITH ALL DISCIPLINES. ALL ITEMS AND LABOR REQUIRED FOR A COMPLETE TENANT MECHANICAL SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS AND THE BASE BUILDING CONTRACT DOCUMENTS SHALL BE FURNISHED WITHOUT INCURRING ADDITIONS TO THE CONTRACT.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT PARTITION LAYOUTS, REFLECTED CEILING PLANS, DIMENSIONS, ETC.
- EXISTING MECHANICAL EQUIPMENT AND DUCTWORK ARE SHOWN BY DASHED LINES. NEW WORK AND RELOCATED WORK ARE SHOWN BY SOLID LINES. EXISTING WORK TO BE REMOVED IS SHOWN CROSSHATCHED. WHEN ANY DUCTWORK OR AIR DISTRIBUTION DEVICE IS REMOVED, THE ASSOCIATED TRUNK DUCT SHALL BE SEALED AIRTIGHT WITH A SHEET METAL PATCH OR CAP.
- VISIT SITE AND CAREFULLY EXAMINE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. THE EXISTING CONDITIONS SHOWN ARE BASED ON DOCUMENTS PROVIDED BY OTHERS AND HAVE NOT BEEN VERIFIED BY THE ENGINEER. IF EXISTING CONDITIONS DIFFER FROM DRAWINGS IN SUCH A MANNER THAT WILL AFFECT PRICING, (I.E., DUCTWORK, VAV OR PIU ARE NOT IN THE SHOWN LOCATION) CONTRACTOR WILL NOTIFY OWNER SO THAT A RESOLUTION CAN BE MADE PRIOR TO SUBMITTING BIDS. NO ALLOWANCE WILL BE MADE FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
- REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED AIR DISTRIBUTION DEVICES. IF ANY ITEMS ARE NOT SHOWN ON THE REFLECTED CEILING PLANS, PREPARE A DRAWING OF THE PROPOSED LOCATION AND PRESENT IT TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
- ALL ROUND AND FLEXIBLE DUCTWORK EXTENDING TO DIFFUSERS SHALL BE SIZED FULL SIZE OF DISTRIBUTION DEVICE INLET, AND TAPS TO THE EXISTING LOW-PRESSURE DUCTWORK SHALL BE MADE WITH SPIN-IN FITTINGS INTEGRAL SCOPES AND VOLUME DAMPERS. ALL NEW RECTANGULAR DUCTWORK TAPS SHALL BE MADE WITH SPLITTERS OR EXTRACTORS. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SMACNA DUCT STANDARDS. NEW LOW PRESSURE SPIN-IN FITTINGS AND TAPS SHALL NOT BE MADE WITHIN 5 FT. OF OUTLET OF HEAT PUMP. NEW LOW PRESSURE SPIN-IN FITTINGS SHALL BE MADE NO CLOSER THAN 2"-6" ON CENTER.
- ALL CEILING SUPPLY DIFFUSERS SHALL BE PERFORATED FACE, BASE BUILDING STANDARD TYPE. FACE AREA SHALL BE APPROXIMATELY 20" x 20" EXCEPT OTHERWISE NOTED. FINISH SHALL BE BAKED ENAMEL IN COLOR TO MATCH EXISTING CEILING GRID. FRAME SHALL BE SUITABLE FOR THE CEILING TYPE IN WHICH INSTALLED. NEW DIFFUSERS ARE SHOWN WITH NECK SIZE AND EACH DIFFUSER SHALL HAVE ADJUSTABLE AIRFLOW PATTERN CONTROLLERS. SEE 1/MODS FOR TYPICAL CONNECTION DETAIL.
- RETURN AIR GRILLES (R.A.G.) SHALL BE PERFORATED FACE TO MATCH EXISTING BASE BUILDING DIFFUSERS. FACE AREA SHALL BE APPROXIMATELY 24" x 24". FINISH SHALL BE BAKED ENAMEL IN COLOR TO MATCH EXISTING GRID. FRAME SHALL BE SUITABLE FOR THE CEILING TYPE IN WHICH INSTALLED.
- FLEXIBLE DUCTS SHALL BE INSTALLED FREE OF SAGS AND KINKS; SUPPORTED AT NOT MORE THAN 48" O.C.
- TEST AND BALANCE ALL DIFFUSERS, BOXES, FANS, ETC. TO THE AIRFLOWS AND CONDITIONS INDICATED. ALL EXISTING DIFFUSERS, BOXES, FANS, ETC. WHICH ARE NOT NOTED OTHERWISE SHALL BE BALANCED TO THEIR PRIOR DESIGN AIRFLOWS; REFERENCE THE EXISTING RECORD DRAWING AVAILABLE FROM THE OWNER. TESTING AND BALANCING OF THIS SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF ASHRAE. TESTING SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF AN ASHRAE OR NIBB CERTIFIED TEST AND BALANCE ENGINEER. SUBMIT 4 COPIES OF THE REPORT TO THE OWNER.
- PORTIONS OF DUCTWORK VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREA SHALL BE PAINTED FLAT BLACK.
- ALL CONTROL WIRING AND TUBING INSTALLED ABOVE THE CEILING SHALL BE LOCATED AS HIGH ABOVE THE CEILING AS POSSIBLE AND SHALL FOLLOW THE DESIGNATED GENERAL ROUTING. DO NOT HANG WIRING OR TUBING FROM DUCTWORK; RATHER, SUSPEND FROM THE STRUCTURE. ALL NEW TERMINAL UNITS SHALL BE TIED INTO THE BASE BUILDING CONTROL SYSTEM. SEE BASE BUILDING SPECIFICATIONS FOR REQUIREMENTS.
- SPRINKLER HEADS AND ASSOCIATED BRANCH PIPING SHALL BE PROVIDED AND RELOCATED IN ACCORDANCE WITH NFPA 13 AND ALL PREVAILING LOCAL CODES AS REQUIRED TO PROTECT ALL SPACES IN THIS TENANT AREA. SPRINKLER HEADS SHALL BE SEMI-RECESSED SPRINKLER HEADS IN TENANT AREAS AND CONCEALED FULLY RECESSED TYPE IN PUBLIC CORRIDORS.
- COORDINATE ALL WORK IN OCCUPIED AREAS WITH THE TENANT IN THAT AREA. COORDINATE ALL WORK IN UNOCCUPIED AREAS AND COMMON AREAS WITH LANDLORD.
- ALL MATERIALS IN PLENUM SHALL BE PLENUM-RATED.
- THERMOSTATS SHALL BE LOCATED IN EACH ZONE AS SHOWN. THE EXACT LOCATION ON THE WALL INDICATED SHALL BE AS DIRECTED BY THE ARCHITECT. NEW THERMOSTATS SHALL BE SELECTED TO MATCH EXISTING BASE BUILDING THERMOSTATS AND SHALL BE COMPATIBLE WITH EQUIPMENT SERVED.
- ADJUST ALL DIFFUSERS IN CORRIDORS OR WITHIN 3 FEET OF A WALL TO PROVIDE 2-WAY OR 3-WAY BLOW AWAY FROM OR PARALLEL TO WALLS. ALL 1-WAY-IN DIFFUSERS SHALL HAVE 4-WAY BLOW UNLESS NOTED OTHERWISE.
- REFERENCE BASE BUILDING SPECIFICATIONS FOR EQUIPMENT AND MATERIAL REQUIREMENTS. ALL NEW WORK SHALL CONFORM TO BASE BUILDING STANDARD AS A MINIMUM.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED AS COMPLETE PACKAGES PROVIDING ALL RELATED ACCESSORIES SUCH AS TAIL PIECES, SUPPLY STOPS, P-TRAPS ETC., SO AS TO FURNISH A COMPLETE JOB. SEE ARCHITECTURAL DRAWINGS FOR SINK.

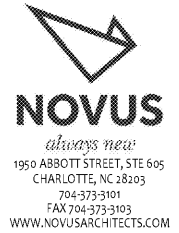
**LEGEND**

	CEILING DIFFUSER
	RETURN AIR GRILLE
	SIDE WALL or DOWN MOUNTED REGISTER
	SLOT DIFFUSER
	MANUAL VOLUME DAMPER
	FIRE DAMPER, FIRE SMOKE DAMPER
	THERMOSTAT
	HUMIDISTAT
	CO2 MONITOR
	MOTOR OPERATED DAMPER
	EXISTING WORK
	NEW WORK
	WORK TO BE REMOVED
	SMOKE DETECTOR
	PRESSURE REGULATOR VALVE 5 PSI TO 7" WATER GAUGE

**SPLIT SYSTEM SCHEDULE**

I.D. TAG	MINIMUM TOTAL CAP. (BTUH)	MINIMUM SENSIBLE CAP. (BTUH)	AIRFLOW (CFM)	OUTSIDE AIR (CFM)	EXT. S.P. (IN. W.C.)	MAX H.P.	FAN COIL UNIT DATA		TYPE OF UNIT	HEATING SECTION		CONDENSING UNIT DATA			BASIS OF DESIGN	REMARKS		
							°F db	°F wb		DRIVE	MAX FAN RPM	TYPE	CAPACITY	AMBIENT TEMP. (°F)			VOLTS/PHASE	STAGES
SS-1/CU-1	24,000	---	---	---	---	---	80	67	208/1	D	---	---	105	208/1	---	15.1	MITSUBISHI PKA-A24/PUY-A24	②③④

- ① THIS IS THE SP EXTERNAL TO THE ENTIRE FAN COIL UNIT ASSEMBLY (WET COIL, CASING, CLEAN FILTERS, AND FURNACE LOSSES ARE NOT INCLUDED IN THIS EXT. SP.)
- ② B = BELT DRIVE, D = DIRECT
- ③ HP STANDS FOR HEAT PUMP AND CAPACITY IS GIVEN IN MBH, ELEC STANDS FOR ELECTRIC HEAT AND VALUES ARE GIVEN IN KW.
- ④ PROVIDE WITH REMOTE WALL MOUNTED FULLY PROGRAMMABLE THERMOSTAT LOCATED AS SHOWN ON PLANS.
- ⑤ PROVIDE WITH CONDENSATE PUMP AND LEAK DETECTION ROPE KIT.
- ⑥ PROVIDE WITH LOW AMBIENT CONTROLS.



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**SCHEDULES & NOTES - MECHANICAL**  
SCALE: AS NOTED

**MO.4**