PACKAGED ROOFTOP HVAC UNIT SCHEDULE

UNIT NO	AREA SERVED	NOMINAL COOLING CAPACITY, TONS	PERFORMANCE SEER	MIN COOLING		ENTERING AIR DB/WB	CFM		EXTERNAL STATIC PRESSURE IN WC	ECONOMIZER	ELECTRICAL	EQUIPMENT WEIGHT (LBS)	BASIS OF DESIGN	NOTES
				SENSIBLE COOLING MBH	TOTAL COOLING MBH		SUPPLY AIR	MIN OUTSIDE AIR			VOLTS/ PHASE			
RTU–1	LECTURE HALL 303	7.5	14.5	65.0	87.0	79.4/67.6	3020	900	1.2	YES	208/3	1200	TRANE THC 092	1–10

NOTES:
1. PROVIDE 2" THICK, MERV 13 PLEATED FILTERS.
2. PROVIDE HIGH EFFICIENCY COOLING, DUAL COMPRESSORS.
3. PROVIDE 0–1005 ECONOMIZER WITH COMPARATIVE ENTHALPY.
4. 40% POWERED EXHAUST (1200 CFM @ 0.25" WG) ACCESSORY. 1/4 HP MOTOR POWERED VIA ROOFTOP UNIT POWER SOURCE.
5. PROVIDE CONDENSER COIL HAIL GUARD.
6. PROVIDE HINGED ACCESS DOORS.
7. PROVIDE POWERED CONVENIENCE OUTLET.
8. PROVIDE SINGLE POINT POWER, THROUGH THE BASE ELECTRICAL ACCESS, WITH DISCONNECT SWITCH.
9. PROVIDE VIBRATION ISOLATORS AND NECESSARY HARDWARE TO SECURE ROOFTOP UNIT TO ELEVATED ROOF MOUNTED STRUCTURAL FRAME. REFER TO DRAWING SF–101, DETAIL 2 FOR FRAMING DETAIL.
10. PROVIDE FACTORY MOUNTED THERMOSTATIC INTERFACE AND FACTORY MOUNTED ENTHALPY CONTROLLER FOR ECONOMIZER COOLING.

DIFFUSER / REGISTER SCHEDULE

UNIT NO	FACE SIZE IN	NECK SIZE IN	MAX PRESSURE DROP IN WC	MAX NOISE CRITERIA	CFM RANGE	TYPE	BASIS OF DESIGN	NOTES
S–1	24x24	9x9	0.1	<25	170	LOUVERED FACE 2–WAY DIRECTIONAL DIFFUSER	PRICE SMD, 2S	1,2,3,4
S–2	24x24	12x12	0.1	<25	400	LOUVERED FACE 2–WAY DIRECTIONAL DIFFUSER	PRICE SMD, 2S	1,2,3,4
S–3	24x24	15x15	0.1	<25	770	LOUVERED FACE 4–WAY DIRECTIONAL DIFFUSER	PRICE SMD, 4A	1,2,3,5,6
R–1E	–	–	–	–	1360	LOUVERED RETURN GRILLE, EXISTING	EXIST GRILLE	7

NOTES:
1. FINISH: WHITE POWDER COAT.
2. STEEL CONSTRUCTION.
3. PROVIDE TRANSITION FROM DUCT TO GRILLE AS NEEDED.
4. FOR INSTALLATION IN T–BAR CEILING.
5. SURFACE MOUNTED.
6. PROVIDE INTEGRAL OPPOSED BLADE DAMPER.
7. EXISTING GRILLE PROVIDED FOR REFERENCE ONLY.

DUCT MOUNTED STEAM COIL SCHEDULE

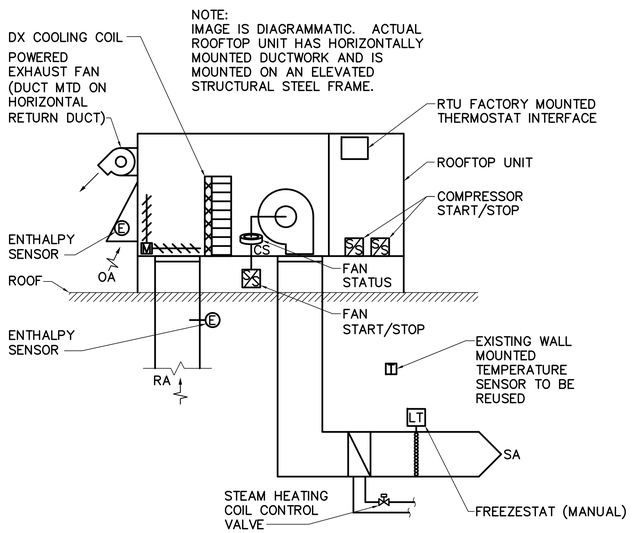
UNIT NO	SERVES	AIR SIDE					DUCT SIZE		STEAM		BASIS OF DESIGN	NOTES
		CFM	MAX APD IN WC	FACE VELOCITY (FT/MIN)	EAT °F	LAT °F	WIDTH IN	HEIGHT IN	PRESSURE PSI	LB COND/HR		
HC–1	RTU–1	3020	0.15	503	45	85	36	24	2.0	135	TRANE DNSB24036G	1,2

NOTES: 1. FOULING FACTOR: 0.005 2. SYSTEM PRESSURE UPSTREAM OF DUCT COIL CONTROL VALVE: 5 PSI

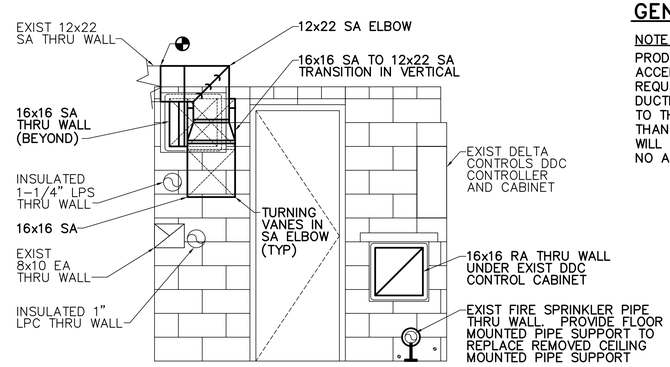
RTU–1 POINTS LIST

SYSTEM POINT DESCRIPTION	GRAPHIC	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ALARM	ANALOG VARIABLE	BINARY VARIABLE	TREND LOG	NOTES
SPACE TEMPERATURE	x	x				x			x	1,2
SPACE SET POINT	x						x		x	1
COOLING STAGE 1	x				x				x	1
COOLING STAGE 2	x				x				x	1
HEATING COIL CONTROL VALVE	x		x						x	1
SUPPLY AIR TEMPERATURE	x	x							x	1
OUTSIDE AIR TEMPERATURE	x	x							x	1
FREEZESTAT (MANUAL)	x			x		x			x	1
SUPPLY FAN START/STOP	x				x				x	1
SUPPLY FAN STATUS (CURRENT SENSOR)	x			x		x			x	1,3

NOTES:
1. REUSE EXISTING HV–4 DELTA CONTROLS CONTROLLER FOR RTU–1 AND RELABEL CONTROLLER. RE–USE SPACE TEMPERATURE SENSOR. PROVIDE OTHER LISTED DEVICES.
2. GENERATE ALARM IF TEMPERATURE IS NOT ±5°F OF SETPOINT.
3. GENERATE ALARM IF FAN FAILS TO SHOW PROOF OF AIRFLOW.



2 RTU–1 CONTROL DIAGRAM
M–601 NOT TO SCALE



1 MECHANICAL MEZZANINE M100 SECTION
M–601 SCALE: 1/2"=1'–0"

GENERAL NOTE

NOTE ON BASIS OF DESIGN

PRODUCTS OF OTHER MANUFACTURERS ARE ACCEPTABLE IF THEY MEET THE OPERATIONAL REQUIREMENTS INDICATED. ANY ADJUSTMENTS TO DUCTING, PIPING, WIRING OR CONFIGURATION DUE TO THE SELECTION OF A MANUFACTURER OTHER THAN THAT LISTED AS THE BASIS OF DESIGN WILL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE UNIVERSITY.

SEQUENCE OF OPERATION – ROOF TOP UNIT (RTU)

FACTORY CONTROLLER:
THE RTU SHALL BE PROVIDED WITH A FACTORY MOUNTED THERMOSTATIC INTERFACE AND FACTORY MOUNTED ENTHALPY CONTROLLER FOR ECONOMIZER COOLING.

OCCUPANCY:
THE RTU SHALL OPERATE IN THE OCCUPIED MODE WHENEVER THE ASSOCIATED USER ADJUSTABLE OCCUPANCY SCHEDULE IS IN THE OCCUPIED MODE; OTHERWISE THE RTU SHALL BE IN THE UN–OCCUPIED MODE. THE SCHEDULE SHALL BE ACCESSED BY THE USER THROUGH ICONS ON THE GRAPHICAL USER INTERFACE (GUI) COMPUTER. THE CONTRACTOR SHALL COORDINATE INITIAL SCHEDULE SETTINGS WITH BUILDING MAINTENANCE PERSONNEL.

HEATING/COOLING MODE:
THE RTU SHALL ENTER HEATING MODE WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 60° F (ADJUSTABLE) AND THERE IS A CALL FOR HEATING FROM THE SPACE THERMOSTAT. THE RTU SHALL ENTER THE COOLING MODE WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 65° F (ADJUSTABLE) AND THERE IS A CALL FOR COOLING FROM THE SPACE. THE RTU SHALL REMAIN IN IT'S CURRENT MODE (HEATING OR COOLING) UNTIL CONDITIONS ARE SATISFIED TO CHANGE MODES.

OCCUPIED MODE:
THE RTU SUPPLY FAN SHALL START AUTOMATICALLY AND RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER MINIMUM POSITION SHALL BE SET AT 900 CFM (ADJUSTABLE) AS DETERMINED BY BALANCING CONTRACTOR. DURING COOLING MODE THE HEATING COIL VALVE SHALL REMAIN CLOSED AND COOLING STAGES 1 AND 2 SHALL CYCLE TO MAINTAIN THE COOLING SET POINT 75° F (ADJUSTABLE). COOLING STAGE 1 SHALL BE ENABLED WHEN THE WARMEST ROOM TEMPERATURE IS 1° F (ADJUSTABLE) ABOVE THE COOLING SET POINT AND DISABLED AT SET POINT. COOLING STAGE 2 SHALL BE ENABLED 3° F (ADJUSTABLE) ABOVE THE COOLING SET POINT AND DISABLED AT SET POINT. DURING THE HEATING MODE THE COOLING STAGES SHALL REMAIN OFF AND THE HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT THE HEATING SET POINT, 68° F (ADJUSTABLE).

UNOCCUPIED MODE:
THE RTU FAN SHALL REMAIN OFF, THE OUTSIDE AIR DAMPER SHALL BE CLOSED AND THE 2 STAGES OF COOLING SHALL REMAIN OFF. WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 35° F THE HEATING COIL VALVE SHALL MODULATE TO MAINTAIN 50° F AS SENSED BY THE SUPPLY AIR TEMPERATURE SENSOR, OTHERWISE THE VALVE SHALL REMAIN CLOSED.

SAFETY – SMOKE DETECTOR:
THE DUCT MOUNTED SMOKE DETECTOR SHALL BE HARD–WIRED TO SHUT DOWN THE RTU IF THE SMOKE DETECTOR INDICATES AN ALARM CONDITION.

SAFETY– FREEZE PROTECTION:
PROVIDE ONE (1) LOW TEMPERATURE THERMOSTAT (FREEZE STAT) SERPENTINED ACROSS THE FACE OF THE HEATING COIL. THE FREEZE STAT SHALL BE MANUAL RESET TYPE SET TO TRIP AT OR BELOW 38° F (ADJUSTABLE). DURING A FREEZING CONDITION THE FANS SHALL REMAIN OFF, THE OUTSIDE AND THE EXHAUST AIR DAMPERS SHALL REMAIN CLOSED, THE HEATING COIL CONTROL VALVE SHALL BE OPEN AND AN ALARM SHALL BE GENERATED ON THE GUI COMPUTER.

GRAPHIC SCALE
0 1' 2' 3' 6'
1/2"=1'–0"
CHECK GRAPHIC SCALE BEFORE USING

08 Jan, 2018 – 7:21pm
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MECHANICAL SCHEDULES, SECTION AND CONTROL DIAGRAMS

SCALE: AS NOTED
DATE: 01-09-18
DWG.: M-601
SHEET: 14 OF 17