MECHANICAL LEGEND (NOT ALL SYMBOLS MAY BE USED)

DUCTWORK

SYMBOL / ABBREVIATION	DESCRIPTION
	RECTANGULAR SUPPLY DUCT - UP
	RECTANGULAR SUPPLY DUCT - DOWN
	RECTANGULAR RETURN / EXHAUST DUCT - UP
	RECTANGULAR RETURN / EXHAUST DUCT - DOWN
	ROUND SUPPLY DUCT - UP
	ROUND SUPPLY DUCT - DOWN
	ROUND RETURN / EXHAUST DUCT - UP
	ROUND RETURN / EXHAUST DUCT - DOWN
	OVAL SUPPLY DUCT - UP
	OVAL SUPPLY DUCT - DOWN
	OVAL RETURN / EXHAUST DUCT - UP
	OVAL RETURN / EXHAUST DUCT - DOWN
	FIRE DAMPER
	SMOKE DAMPER
	COMBINATION FIRE/SMOKE DAMPER
MVD MVD	MANUAL VOLUME DAMPER
M M	MOTORIZED DAMPER
A A	AIR FLOW MONITORING STATION
DP DP	DIFFERENTIAL PRESSURE SENSOR
SP SP	STATIC PRESSURE SENSOR
CO_2 CO_2	CARBON DIOXIDE DETECTOR
CO CO	CARBON MONOXIDE DETECTOR
O_2 O_2	DUCT SENSOR
	TRAVERSE DUCT TEST AND BALANCE
H-XX HUM H-XX H	HUMIDIFIER WITH IDENTIFICATION
	TRANSITION
	RADIUS ELBOW
	SQUARE THROAT ELBOW WITH TURNING VANES
	BRANCH DUCT CONNECTION RECTANGULAR OR ROUND BRANCH. RECTANGULAR TRUNK. MVD REQUIRED TO AIR DEVICES
R/D R/D	RISE/DROP IN ELEVATION
X X	SPLITTER WITH SPLIT SIZE SHOWN
X X	SPLITTER WITH SPLIT SIZES SHOWN
	BRANCH DUCT CONNECTION CONICAL TEE AND TAP ROUND TRUNK.
	BRANCH DUCT CONNECTION BEVELED TEE. ROUND TRUNK. MVD REQUIRED TO AIR DEVICES.

SYMBOL / ABBREVIATION 12"X12" FACE	SYMBOL / ABBREVIATION 24"X24" FACE	DESCRIPTION
	SX	SUPPLY DIFFUSER AND AIR QUANTITY. BLANK OUTS INDICATE THROW IN THIS DIRECTION. (X DENOTES TYPE. SEE NOTE 1 OF AIR DISTRIBUTION DEVICE SCHEDULE)
	RX	RETURN GRILLE AND AIR QUANTITY (X DENOTES TYPE)
	EX	EXHAUST GRILLE AND AIR QUANTITY (X DENOTES TYPE)
100SX	100SX	LAMINAR FLOW SUPPLY DIFFUSER AND AIR FLOW QUANTITY (X DENOTES TYPE)
	100	LINEAR SLOT DIFFUSER AND AIR FLOW QUANTITY
100		SCREENED OPENING AND AIR FLOW QUANTITY
AT-XX-XX		SOUND ATTENUATOR
XXX		HEATING COIL WITH IDENT.
XXX		ELECTRIC HEATING COIL WITH IDENT.
ATU-XX-XX XXX		AIR TERMINAL UNIT WITH IDENT. & MAX CFM
ATU-XX-XX XXX		AIR TERMINAL UNIT WITH IDENT., MIN AND MAX CFM
CB-XX-XX XXX		CHILLED BEAM WITH IDENT. & CFM
CFM		AIRFLOW TRANSFER RATE AT DOOR
AD		ACCESS DOOR
AFF		ABOVE FINISHED FLOOR
ATC		AUTOMATIC TEMPERATURE CONTROL PANEL
BDD		BACKDRAFT DAMPER
BOD		BOTTOM OF DUCT
BOP		BOTTOM OF PIPE
CS		COLD DECK SUPPLY
DDC		DIRECT DIGITAL CONTROL
DE		DISHWASHER EXHAUST
EA		EXHAUST AIR
FD		FIRE DAMPER
FSD		COMBINATION FIRE/SMOKE DAMPER
GE		GREASE EXHAUST
HE		HOOD EXHAUST
HS		HOT DECK SUPPLY
IE		ISOLATION EXHAUST
LE		LAB EXHAUST
ML		MARINE LIGHT
MVD		MANUAL VOLUME DAMPER
OA		OUTSIDE AIR
OBD		OPPOSED BLADE DAMPER
PE		PHARMACY EXHAUST
RA		RETURN AIR
SA		SUPPLY AIR
SD		SMOKE DAMPER
SO		SCREENED OPENING
SWR		SIDEWALL REGISTER
SWG		SIDEWALL GRILLE
TG		TRANSFER GRILLE
UNO		UNLESS NOTED OTHERWISE

WALL MOUNTED CONTROL DEVICES

T	THERMOSTAT OR TEMP SENSOR
H	HUMIDISTAT OR HUMIDITY SENSOR
P	PRESSURE MONITOR
CO_2	CARBON DIOXIDE SENSOR
CO	CARBON MONOXIDE SENSOR
MPM-X	MULTI-POINT MONITOR
EPO	EMERGENCY POWER OFF

MECHANICAL LEGEND (NOT ALL SYMBOLS MAY BE USED)

PIPING

SYMBOL / ABBREVIATION		DESCRIPTION	SYMBOL / ABBREVIATION	DESCRIPTION
—CHR—	CHR	CHILLED WATER RETURN		GATE VALVE
—CHS—	CHS	CHILLED WATER SUPPLY		BALL VALVE
—PCHR—	PCHR	PRIMARY CHILLED WATER RETURN		BUTTERFLY VALVE
—PCHS—	PCHS	PRIMARY CHILLED WATER SUPPLY		CONTROL VALVE, 2 WAY
—CD—	CD	CONDENSATE DRAIN		CONTROL VALVE, 3 WAY
—CWR—	CWR	CONDENSER WATER RETURN		CHECK VALVE - SWING
—CWS—	CWS	CONDENSER WATER SUPPLY		CHECK VALVE - WAFER
—HWR—	HWR	HEATING WATER RETURN		STRAINER
—HWS—	HWS	HEATING WATER SUPPLY		STRAINER & BLOWDOWN VALVE
— D —	D	DRAIN LINE		BALANCING VALVE
—HPS—	HPS	HIGH PRESSURE STEAM		PRESSURE REDUCING VALVE
—HPR—	HPR	HIGH PRESSURE CONDENSATE RETURN		OS & Y VALVE
—MPS—	MPS	MEDIUM PRESSURE STEAM		PRESSURE RELIEF VALVE
—MPR—	MPR	MED. PRESSURE CONDENSATE RETURN		COMPANION FLANGE
— LPS —	LPS	LOW PRESSURE STEAM		UNION
— LPR —	LPR	LOW PRESSURE CONDENSATE RETURN		PIPE GUIDE
—PCR—	PCR	PUMPED CONDENSATE RETURN		PIPE ANCHOR
—FSHRR—	FSHRR	FOOD SERVICE HEAT REJECTION RETURN		FLEXIBLE CONNECTOR
—FSHRS—	FSHRS	FOOD SERVICE HEAT REJECTION SUPPLY		THERMOMETER WELL
—GCHS—	GCHS	GLYCOL CHILL WATER SUPPLY	P	PETE'S PLUG
—GCHR—	GCHR	GLYCOL CHILL WATER RETURN		VALVE WITH BLIND FLANGE
—GHWS—	GHWS	GLYCOL HEATING WATER SUPPLY		CAP/PLUG
—GHWR—	GHWR	GLYCOL HEATING WATER RETURN	T	STEAM TRAP
—GTS—	GTS	GEOTHERMAL SUPPLY	T EOM	END OF MAIN DRIP
—GTR—	GTR	GEOTHERMAL RETURN		PRESSURE REDUCING STATION
—HPWS—	HPWS	HEAT PUMP WATER SUPPLY		PRESSURE GAUGE
—HPWR—	HPWR	HEAT PUMP WATER RETURN	T	THERMOMETER
—FOR—	FOR	FUEL OIL RETURN	PRV	PRESSURE REDUCING VALVE
—FOS—	FOS	FUEL OIL SUCTION	PR	PRESSURE RELIEF VALVE
—FOV—	FOV	FUEL OIL VENT	PRS	PRESSURE REDUCING STATION
—RHGB—	RHGB	REFRIGERANT HOT GAS BYPASS		
—RL—	RL	REFRIGERANT LIQUID		
—RS—	RS	REFRIGERANT SUCTION		
—RV—	RV	RELIEF VENT		
		DIRECTION OF FLOW		
		REDUCER		
		SLOPE PIPE DOWN IN THIS DIRECTION		
		ELBOW UP		
		ELBOW DOWN		
TEE	TAKEOFF	BRANCH PIPE CONNECTION		
		TEE - OUTLET DOWN		
		TEE - OUTLET UP		

MECHANICAL DEMOLITION NOTES

A. PRIOR TO ANY DEMOLITION WORK, CONTRACTOR SHALL TAKE AIR FLOW AND STATIC PRESSURE READINGS ON EXISTING EQUIPMENT AS FOLLOWS: (OAHU-1 & AH-T3). RECORD AND SUBMIT TO ARCHITECT/ENGINEER.

B. PRIOR TO DEMOLITION WORK, CONTRACTOR SHALL TAKE AIRFLOW READINGS OF ALL GRILLES, REGISTERS, AND DIFFUSERS IN PROJECT AREAS. RECORD AND SUBMIT TO ARCHITECT/ENGINEER.

C. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE CONDITION OF ALL EXISTING EQUIPMENT, EXACT SIZES OF EXISTING DUCT AND PIPING, ETC. BEFORE DEMOLITION WORK IS BEGUN. REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS TO ARCHITECT AND ENGINEER PRIOR TO THE COMMENCEMENT OF DEMOLITION WORK.

D. REMOVE THE INDICATED HVAC ITEMS AS SHOWN ON PLANS. THIS INCLUDES ALL HANGERS, STRAPS AND RELATED MATERIAL. IF THE OWNER WISHES TO UTILIZE THE EXISTING EQUIPMENT, CONTRACTOR SHALL MOVE THE EQUIPMENT TO AN ON-SITE LOCATION DESIGNATED BY THE OWNER. ALL EQUIPMENT REFUSED BY OWNER SHALL BE DISPOSED OF IN A MANNER ACCEPTABLE BY LOCAL JURISDICTION. ITEMS SHOWN TO BE REMOVED SHALL NOT BE ABANDONED IN PLACE.

E. CAP AND SEAL AIR TIGHT ALL POINTS AT WHICH DUCTWORK IS REMOVED FROM DUCTWORK THAT WILL REMAIN. RE-INSULATE REMAINING DUCTWORK TO MAINTAIN VAPOR BARRIER.

F. CAP AND SEAL WATER TIGHT ALL POINTS WHICH PIPING IS REMOVED. RE-INSULATE REMAINING PIPING TO MAINTAIN VAPOR BARRIER.

G. PATCH OPENINGS IN WALLS WITH LIKE MATERIALS TO MAINTAIN THE INTEGRITY OF THE WALL WHERE AIR DEVICES, DUCTS, PIPING, ETC. HAVE BEEN REMOVED.

H. CONTRACTOR SHALL VERIFY CLEARANCE REQUIREMENTS AND INDICATE ROUTING OF NEW DUCTWORK BEFORE FABRICATION BEGINS AS RISES AND DROPS MAY BE NECESSARY DUE TO EXISTING FIELD CONDITIONS.

I. CONTRACTOR SHALL VERIFY ALL EXISTING TO REMAIN FIRE, SMOKE, AND COMBINATION FIRE/SMOKE DAMPERS AND DUCT SMOKE DETECTORS IN THE PROJECT AREA ARE IN PROPER WORKING CONDITION. CONTRACTOR TO NOTIFY ENGINEER AND OWNER OF ANY EXISTING EQUIPMENT FOUND INOPERABLE.

J. CONTRACTOR TO VERIFY ALL MOTORS, MANUAL AND MOTORIZED DAMPERS, TEMPERATURE AND HUMIDITY SENSORS, AIR TERMINAL UNITS, AND CONTROLS IN THE PROJECT AREA SHOWN AS EXISTING TO REMAIN ARE IN PROPER WORKING CONDITION. CONTRACTOR TO NOTIFY ENGINEER AND OWNER OF ANY EXISTING EQUIPMENT FOUND INOPERABLE.

K. GENERAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL AND ELECTRICAL CONTRACTOR ALL CEILING REMOVAL WHICH IS REQUIRED TO ACCESS THEIR WORK AND IS NOT DESIGNATED FOR REMOVAL. NOTIFY ARCHITECT AND OWNER PRIOR TO COMMENCING REMOVAL. IF EXISTING CEILING IS DETERMINED TO REQUIRE REMOVAL, REMOVE ONLY THAT PORTION NECESSARY TO ACCESS AND COMPLETE DEMOLITION AND NEW WORK. UPON COMPLETION OF THE ABOVE CEILING WORK, CEILING IS TO BE REPLACED TO MATCH EXISTING CEILING.

SHEET INDEX

MECHANICAL GENERAL NOTES

A. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE PROJECT SCOPE, UTILITY CONNECTIONS, AND ALL BUILDING SERVICES.

B. PROVIDE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT. HOUSEKEEPING PAD SIZE AND FLOOR DRAIN LOCATIONS SHALL BE COORDINATED WITH THE SIZE AND LOCATION OF EXACT EQUIPMENT TO BE INSTALLED.

C. STANDARD DETAILS ILLUSTRATED ON THE DRAWINGS SHALL BE APPLIED IN ALL CASES WHERE THE FEATURE OCCURS IN THE SYSTEM DESIGN.

D. ALL DUCTWORK SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS IN INCHES. REFER TO SPECIFICATION SECTION 230700 FOR DUCT INSULATION REQUIREMENTS.

E. MAJOR EQUIPMENT SHOWN ON THE PLANS AND ELEVATIONS ILLUSTRATE THE GENERAL ARRANGEMENT AND SPACE ALLOCATIONS. THE CONTRACTOR SHALL VERIFY THE SPACE REQUIREMENTS FOR EACH SYSTEM COMPONENT USING MANUFACTURER CERTIFIED SHOP DRAWINGS AND MAKE THE NECESSARY ADJUSTMENTS IN EQUIPMENT PLACEMENT AND CONNECTION IN ORDER TO ACCOMMODATE THE EXACT EQUIPMENT TO BE INSTALLED.

F. SUPPORTS, ANCHOR BOLTS, AND HANGERS FOR ALL EQUIPMENT SPECIFIED IN DIVISION 23 SHALL CONFORM TO THE SPECIFICATIONS. MISCELLANEOUS STEEL BRACING SUPPORTS AND REINFORCING STEEL NEEDED TO SUPPORT EQUIPMENT SPECIFIED IN DIVISION 23 SHALL BE PART OF THE SCOPE OF WORK OF DIVISION 23.

G. DIFFUSERS, REGISTERS, AND GRILLES SHOWN ON THE MECHANICAL DRAWINGS SHALL BE IN ACCORDANCE WITH THE AIR DISTRIBUTION DEVICE SCHEDULE AND SPECIFICATIONS. BRANCH DUCTS TO AIR DEVICES SHALL BE IN ACCORDANCE WITH THE SCHEDULE UNLESS NOTED OTHERWISE.

H. FIRE/SMOKE DAMPERS SHALL BE INSTALLED IN DUCTWORK PENETRATIONS THROUGH RATED PARTITIONS, WALLS, BARRIERS, FLOORS, AND SHAFTS IN ACCORDANCE WITH THE PROJECT APPLICABLE BUILDING CODES. DAMPERS SHALL MEET THE REQUIREMENTS OF THE FIRE/SMOKE RATING AND BE "U.L." LABELED. REFER TO ARCHITECTURAL DRAWINGS FOR THE LOCATIONS AND RATINGS OF ALL WALLS AND FLOORS.

I. PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SLEEVED, SEALED AND FIRESAFED TO MAINTAIN THE INTEGRITY OF THE WALL AND FLOOR UL FIRE RESISTANCE RATING.

J. DUCTWORK AND PIPING 4” AND LARGER ROUTED PARALLEL TO A RATED WALL SHALL BE INSTALLED WITH A MINIMUM 6” CLEARANCE TO ALLOW FOR INSPECTION OF WALL PENETRATIONS.

K. DUCTWORK STORED ON-SITE AWAITING INSTALLATION SHALL REMAIN PROPERLY SEALED AND PROTECTED. OPEN ENDS OF DUCTWORK SHALL BE CAPPED AND SEALED AFTER INSTALLATION.

L. SMOKE DETECTORS SHALL BE LOCATED AS INDICATED ON THE MECHANICAL PLANS AND IN CONFORMANCE WITH NFPA 90A AND LOCAL CODES.

M. CEILING DIFFUSER LOCATIONS SHALL BE AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS.

N. CEILING DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED WITH MOUNTING FRAMES AND FEATURES IN ACCORDANCE WITH THE CEILING TYPE.

O. PIPING CONNECTIONS TO AIR HANDLING UNIT COILS AND MAJOR EQUIPMENT TO BE FABRICATED WITH ISOLATION VALVES, FLANGES, AND/OR UNIONS POSITIONED TO ALLOW REMOVAL AND SERVICE OF THE COMPONENT PARTS.

P. THERMOMETER WELLS AND PRESSURE GAUGES SHALL BE INSTALLED ON THE TOP OR SIDE OF HORIZONTAL PIPING IN ORDER TO RETAIN GAUGE FLUID AND BE EASILY READ FROM THE FLOOR.

Q. PROVIDE EXPANSION JOINT AT EACH PIPE AND DUCT CROSSING AN INTERIOR BUILDING EXPANSION JOINT.

R. PROVIDE MANUAL BALANCING/VOLUME DAMPERS AT ALL LOW PRESSURE BRANCH TAKE-OFFS TO DIFFUSERS AND GRILLES FROM SUPPLY, RETURN AND EXHAUST MAINS AND SUB-MAINS, AND AT ALL LOW PRESSURE DUCT SPLITS OR SUB-MAIN TAKE-OFFS. DAMPERS SHALL BE INSTALLED ABOVE AN ACCESSIBLE CEILING OR ACCESS PANEL.

S. DRAWINGS ARE SCHEMATIC IN NATURE AND SHALL NOT BE SCALED. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING EXACT ROUTING OF ALL SERVICES WITH EXISTING CONDITIONS AND WITH ALL OTHER TRADES. REFER TO SPECIFICATIONS FOR COORDINATION DRAWING REQUIREMENTS.

T. MAINTAIN ACCESSIBILITY OF ALL EQUIPMENT, DAMPERS, CONTROL PANELS, VALVES, AND OTHER DEVICES. PROVIDE ACCESS PANELS AS REQUIRED. COORDINATE PLACEMENT WITH THE ARCHITECT PRIOR TO INSTALLATION.

U. CONTRACTOR SHALL COORDINATE WITH THE ARCHITECT PRIOR TO CUTTING ANY OPENING IN THE STRUCTURE.

V. WHERE WORK IN RENOVATED AREAS AFFECTS SYSTEMS IN OTHER AREAS OF THE BUILDING, THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE OWNER. THIS WORK SHALL BE DONE TO FIT THE BUILDING OPERATIONAL SCHEDULE AND MINIMIZE DISRUPTION/ DISCOMFORT TO OCCUPIED AREAS. PROVIDE MINIMUM 48 HOURS WRITTEN NOTICE WITH ANTICIPATED DURATION OF OUTAGE.

W. COORDINATE WITH ALL TRADES FOR REQUIRED CEILING REMOVAL IN EXISTING BUILDING. NOTIFY THE ARCHITECT AND OWNER PRIOR TO COMMENCING REMOVAL. REMOVE ONLY THAT PORTION OF CEILING NECESSARY TO ACCESS AND COMPLETE THE NEW WORK. UPON COMPLETION OF THE ABOVE CEILING WORK, CEILING IS TO BE REINSTALLED. REPLACE ANY DAMAGED CEILING TILES WITH NEW TILES TO MATCH EXISTING.

X. UNLESS OTHERWISE NOTED ON PLANS, LOW RETURN AIR AND LOW EXHAUST AIR GRILLES/REGISTERS SHALL BE MOUNTED 8" ABOVE FINISHED FLOOR TO THE BOTTOM OF THE FRAME.

Y. CONTRACTOR SHALL COMPLY WITH THE ARCHITECT AND/OR OWNER PROVIDED INFECTION CONTROL RISK ASSESSMENT PLAN AND OTHER CONSTRUCTION RELATED PROCESSES.

Z. OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 25 FEET AWAY FROM PLUMBING VENTS, EXHAUST VENTS, AND OTHER SOURCES OF NOXIOUS FUMES AND/OR ODORS. INTAKES SHALL BE A MINIMUM OF 36” ABOVE FINISHED ROOF AND 72” ABOVE FINISHED GRADE.

MECHANICAL COMMISSIONING AND TEST AND BALANCE COORDINATION

A. COMMISSIONING SHALL BE PROVIDED FOR THIS PROJECT PER THE IECC CHAPTER C408. THE COMMISSIONING AND TEST AND BALANCE AGENT SHALL BE DESIGNATED BY THE OWNER AND BE RESPONSIBLE FOR TASKS SPECIFIED BY IECC C408.2.1 AS WELL AS THE TEST AND BALANCE SPECIFICATIONS. MECHANICAL, TEST AND BALANCE, CONTROLS, AND ELECTRICAL CONTRACTORS SHALL PROVIDE SUPPORT FOR THE COMMISSIONING AND TEST AND BALANCE AGENT AS REQUIRED BY THE COMMISSIONING PLAN.

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DATE:
BIDS & CONSTRUCTION ☒
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DATE: MM-DD-YYYY
REVISION: 3
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DRAWINGS SHEET TITLE
MECHANICAL - LEGENDS, INDEX & NOTES

SHEET NUMBER
M001

20109
PROJECT NUMBER

AIR DISTRIBUTION DEVICE SCHEDULE

GENERAL NOTES:
1. PROVIDE MOUNTING STYLE BASED ON CEILING TYPE INDICATED ON THE REFLECTED CEILING PLANS.
2. ALL AIR DISTRIBUTION DEVICES SHALL HAVE A MAXIMUM NC RATING OF 25.
3. IN AREAS WITH LAY-IN CEILINGS, PROVIDE LISTED PANEL SIZE.
4. IN AREAS WITH HARD CEILINGS, PROVIDE SURFACE MOUNTED TYPE AIR DISTRIBUTION DEVICE AT LISTED FACE SIZE WITHOUT PANEL.
5. ALL AIR DEVICES LOCATED IN INACCESSIBLE HARD CEILINGS SHALL BE PROVIDED WITH VOLUME DAMPERS (YOUNG REGULATOR TYPE).
6. CONTRACTOR SHALL PAINT THE INTERIOR OF RETURN/EXHAUST SQUARE TO ROUND TRANSITIONS AND PLENUMS FLAT BLACK.
7. PROVIDE TRANSITION AS REQUIRED FOR DUCT AND DEVICE CONNECTION.
8. RUNOUT DUCTS FOR RETURN/EXHAUST GRILLES SIZED AT MAXIMUM VELOCITY OF 600 FPM.
9. CEILING DIFFUSERS ARE 4-WAY THROW UNLESS NOTED OTHERWISE. INCREASE NECK SIZE ONE STEP FOR 2-WAY THROW AND PROVIDE BLANK OFF PLATES AS REQUIRED.
10. FACE, NECK, AND RUNOUT SIZES FOR SIDEWALL GRILLES ARE THE NOMINAL DUCT SIZE.
11. REFER TO SPECIFICATION SECTION 233700 FOR ADDITIONAL REQUIREMENTS.

REMARKS:
A. FIELD EXTERNALLY INSULATED PLENUM/BACK PAN.
B. MANUFACTURER PROVIDED EXTERNAL INSULATION.
C. MANUFACTURER PROVIDED BACK PLENUM WITH NECK OPENING SIZES AS INDICATED.
D. HEAVY DUTY CONSTRUCTION.
E. PROVIDE WITH HINGED FRAME.

DESIGNATION	CFM RANGE		MANUFACTURER	MODEL	TYPE	LOCATION	FACE SIZE (IN.)	NECK SIZE (IN.)	RUNOUT SIZE (IN.)	PANEL SIZE (IN.)	REMARKS
	MIN.	MAX.									
R4/E4	0	90	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	6 DIA.	6 DIA./8x4	24x24	C
R4/E4	95	190	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	8 DIA.	8 DIA./10x6	24x24	C
R4/E4	195	320	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	10 DIA.	10 DIA./12x8	24x24	C
R4/E4	325	450	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	12 DIA.	12 DIA./14x10	24x24	C
R4/E4	455	650	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	14 DIA.	14 DIA./16x10	24x24	C
R5/E5	0	17050	TITUS	30RFS	HEAVY DUTY FIXED BLADE 3/8 INCH BLADE SPACING - 38 DEG. FILTER GRILLE (PROVIDE NO FILTER)	SIDEWALL	SEE FLOOR PLANS	SEE FLOOR PLANS	SEE FLOOR PLANS	N/A	D,E
S4	0	90	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	6 DIA.	6 DIA./8x4	24x24	B,C
S4	95	190	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	8 DIA.	8 DIA./10x6	24x24	B,C
S4	195	320	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	10 DIA.	10 DIA./12x8	24x24	B,C
S4	325	450	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	12 DIA.	12 DIA./14x10	24x24	B,C
S4	455	650	TITUS	OMNI	SQ. PLAQUE FACE	CEILING	24x24	14 DIA.	14 DIA./16x10	24x24	B,C
S5	0	21700	TITUS	300R	DOUBLE DEFLECTION 3/4 INCH BLADE SPACING W/BLADES PARALLEL TO LONG DIMENSION	SIDEWALL	SEE FLOOR PLANS	SEE FLOOR PLANS	SEE FLOOR PLANS	N/A	B,C
S6	0	120	TITUS	TLF-AA	LAMINAR FLOW	CEILING	24x24	7 DIA.	8 DIA./8x6	24x24	A,C
S6	125	240	TITUS	TLF-AA	LAMINAR FLOW	CEILING	24x48	10 DIA.	10 DIA./12x8	24x48	A,C
S6	245	300	TITUS	TLF-AA	LAMINAR FLOW	CEILING	24x72	12 DIA.	12 DIA./14x10	24x60	A,C
S6	305	360	TITUS	TLF-AA	LAMINAR FLOW	CEILING	24x72	12 DIA.	12 DIA./14x10	24x72	A,C

ELECTRIC AIR TERMINAL UNIT SCHEDULE

GENERAL NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. 120V CCT AND PILOT LIGHT.
3. AIRFLOW SWITCH.
4. DOOR DISCONNECT SWITCH.
5. MAGNETIC CONTACTOR.
6. SCR PROPORTIONAL CONTROL.
7. MAXIMUM REQUIRED INLET STATIC PRESSURE SHALL NOT EXCEED 0.7 INCHES WC.
8. MAXIMUM INLET VELOCITY = 2200 FPM.
9. TRANSITION AT BOX FROM DUCT RUNOUT SIZE SHOWN TO BOX INLET SIZE.

DESIGNATION	AHU	OCC. COOLING MAX (CFM)	OCC. HEATING MAX (CFM)	OCC. MIN. (CFM)	UNOCC. (CFM)	INLET SIZE (IN.)	DUCT RUNOUT SIZE (IN.)	AIR PD (IN. WC)	EAT (° F)	LAT (° F)	HEATER KW	VOLT/PH	STEPS	CONTROLS	SOUND ATTENUATOR	MAX NC DISCHARGE	MAX NC RADIATED	REMARKS
ATU-4-1	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-2	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-3	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-4	OAHU-1	230	230	230	230	5	6	0.50	55	95	3	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-5	OAHU-1	180	180	180	180	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-6	OAHU-1	180	180	180	180	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-7	OAHU-1	220	220	220	220	5	6	0.50	55	95	3	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-8	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-9	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-10	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-11	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9
ATU-4-12	OAHU-1	200	200	200	200	5	6	0.50	55	95	2.5	277/1	1 STEP	SCRA-DAT	No	18	15	1-9

100% OUTSIDE AIR HANDLING UNIT SCHEDULE

GENERAL NOTES:
1. ISOLATION CURB SHALL PROVIDE CLEARANCE FOR CONDENSATE TRAP INSTALLATION AS DETAILED.
2. REFER TO PLANS FOR OVERALL AHU SIZE, COMPONENTS AND ARRANGEMENT.
3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. SEE FILTER SCHEDULE FOR FILTER REQUIREMENTS.
5. PERFORMANCE REQUIREMENTS AT SENSIBLE OA CONDITIONS (95F DB/78.0F WB) ARE 499.1 MBH TOTAL, AND 265.5 MBH SENSIBLE.
6. UNIT PERFORMANCE SELECTED FOR OPERATION AT 4500 ACFM, BUT SHALL BE BALANCED TO PROVIDE 3660 ACFM at 4.2 BHP.

REMARKS:
A. SUPPLY FAN TOTAL STATIC PRESSURE (TSP) INCLUDES SCHEDULED DIRTY FILTER LOSS.
B. BRAKE HP FOR SUPPLY FANS SHALL BE NO GREATER THAN 85% OF THE MOTOR HP.
C. DRAIN PAN IN FAN SECTIONS FOR DRAW THRU CONFIGURATIONS.
D. PROVIDE PREMIUM EFFICIENT MOTOR(S).
E. EXTERNAL STATIC PRESSURE PERTAINS TO DUCTWORK AND EXTERNAL COMPONENTS ONLY.
F. AHU SHALL HAVE N+1 FANS CAPABLE OF PROVIDING 3660 CFM AND HAVE AUTOMATIC DAMPERS TO CLOSE OFF DISABLED FAN.
G. OAHU-1 SHALL HAVE A 36" DEEP PIPING VESTIBULE THE LENGTH OF THE UNIT, SHIPPED LOOSE AND INSTALLED PER MANUFACTUERS DIRECTIONS BY MC.
H. PROVIDE A SPRING ISOLATED CURB FOR THIS UNIT.
I. WITH AIRFLOW, ACCESS PANELS SHALL BE ON THE RIGHT-HAND SIDE OF THE UNIT AND COIL CONNECTIONS ON THE LEFT-HAND SIDE.
J. THE VFDS SHALL BE FACTORY INSTALLED IN A NEMA 3X RATED ENCLOSURE, VENTILATED FROM THE AHU.
K. PROVIDE UV RESOURCES UVC ARRAY AND CONTROLLER OR APPROVED EQUAL.
L. PROVIDE WIND-RATED CURB PER SPECIFICATIONS.

STARTER...
VFD.
MMS (MANUAL MOTOR STARTER).
MAG-X-L (COMBINATION MAGNETIC X-LINE STARTER).

DESIGNATION	AREA SERVED	MANUF	MODEL NUMBER	TYPE	LOW, MEDIUM, OR HIGH PRESSURE	OUTSIDE AIR CFM		SUPPLY FAN																
						DESIGN	MAX	CFM/ FAN	ESP (IN. WG)	TSP (IN. WG)	WHEEL(S) QTY	WHEEL(S) TYPE	WHEEL(S) DIA (IN.)	WHEEL(S) RPM	DRIVE	MOTOR(S) QTY	MOTOR(S) BHP (EA)	MOTOR(S) MIN. HP (EA)	MOTOR(S) MCA	MOTOR(S) MOCP	MOTOR(S) VOLT /PH	STARTER TYPE	STARTER QTY	EP
OAHU-1	LEVEL 4	TEMTROL	ITF	EXT	LOW	3,660	4,500	2225	2.4	5.33	2	BI	14	3480	DIRECT	2	2.8	5.5	6.3	12.3	480/3	VFD	2	YES

DESIGNATION	COOLING COIL												
	FLUID	CFM	MAX. FACE VEL. (FPM)	EDB/ EWB (° F)	LDB/ LWB (° F)	SENSIBLE CAPACITY (MBTU/HR)	TOTAL CAPACITY (MBTU/HR)	EWT (° F)	LWT (° F)	GPM	ROWS & FPI	MAX. AIR PD (IN. WG)	MAX. WATER PD (FT HD)
OAHU-1	CHW	4500	429	95.0/78.0	52.0/52.0	199.4	379.6	42	57.9	47.5	6/11	0.74	10.53

DESIGNATION	COIL	FLUID	CFM	MAX FACE VEL. (FPM)	EAT (° F)	LAT (° F)	CAPACITY (MBTU/HR)	EWT (° F)	LWT (° F)	GPM	ROWS & FPI	MAX. AIR PD (IN. WG)	MAX. WATER PD (FT. HD)	ISOLATION TYPE	OPERATING WEIGHT (LBS)	REMARKS
OAHU-1	PRE-HEATING COIL	HHW	4500	429	30.5	65.3	182.4	150	130	18.5	1/10	0.09	4.03	2" SPRING	4,029	A-L
OAHU-1	RE-HEATING COIL	HHW	4500	429	52	68.3	81.6	150	130	8.3	1/6	0.05	0.47			

FAN SCHEDULE

GENERAL NOTES:
1. MOTOR H.P. SHALL COMPLY WITH ASHRAE 90.1.
2. BHP SHALL BE NO GREATER THAN 90% OF THE MOTOR H.P.
3. CFM AT SITE ELEVATION OF 100 FT. STATIC PRESSURE AT SEA LEVEL.

FAN TYPES:
BVS - BELTED VENT SET.
CEILING - CEILING MOUNTED FAN.
MF - MIXED FLOW FAN.
PRE - POWER ROOF EXHAUSTER.
PROP - PROPELLER.
PRS - POWER ROOF SUPPLY FAN.
PRV - POWER ROOF VENTILATOR.
SQI - SQUARE-INLINE CENTRIFUGAL.
TA - TUBE AXIAL.
TC - TUBULAR CENTRIFUGAL (INLINE).
UBD - UPBLAST DILUTION FAN.
VA - VANE AXIAL.

WHEEL TYPES:
AF - AIR FOIL.
BI - BACKWARD INCLINE.
FC - FORWARD CURVED.
ESP - EXTERNAL STATIC PRESSURE.
TS - MAX. TIP SPEED (RPM).

STARTER TYPES / ACCESS:
MAG-X-L - COMBINATION MAGNETIC ACROSS THE LINE STARTER.
MMS - MANUAL MOTOR STARTER.
VFD - VARIABLE FREQUENCY DRIVE.
EP - EMERGENCY POWER.

ACCESSORIES:
1. LINED HOUSING.
2. DOUBLE WALL HOUSING.
3. WEATHERPROOF HOUSING.
4. OSHA BELT GUARD.
5. MOTOR COVER.
6. FAN CAGE WITH WALL SLEEVE.
7. ACCESS DOOR.
8. HOUSING DRAIN.
9. INLET SCREEN.
10. OUTLET SCREEN.
11. MOTORIZED ALUMINUM INLET DAMPERS.
12. MOTORIZED OUTLET DAMPERS.
13. GRAVITY INLET DAMPERS.
14. GRAVITY OUTLET DAMPERS.
15. UL 793 BUTTERFLY DISCHARGE DAMPER.
16. INLET BELL.
17. OUTLET CONE.
18. HIGH VELOCITY DISCHARGE CONE, 3,000 FPM.
19. ROOF CURB (12" HIGH).
20. WALL CURB.
21. COPLANER SILENCER.
22. INLET AIRFLOW STRAIGHTENER.
23. INLET AND OUTLET REGAIN ATTENUATORS.
24. FAN ROLL OUT EQUIPMENT.
25. AUTOMATIC BELT TENSIONER.
26. SOLID STATE SPEED CONTROLLER (PRE-WIRED).
27. SOLID STATE SPEED CONTROLLER (FIELD INSTALLED).
28. DISCONNECT SWITCH IN FAN HOUSING (PRE-WIRED).
29. DISCONNECT SWITCH IN FAN HOUSING (FIELD INSTALLED).
30. FAN INLET PIEZOMETRIC AIRFLOW MEASUREMENT RING.
31. ELECTRONICALLY COMMUNICATED MOTOR (ECM).
32. 1" FILTER (ESP INCLUDES DIRTY FILTER LOSS).
33. 2" FILTER (ESP INCLUDES DIRTY FILTER LOSS).
34. HAND-OFF-AUTOSWITCH IN MOTOR STARTER.
35. CONTROL CIRCUIT TRANSFORMER IN MOTOR STARTER.
36. EXTENDED LUBRICATION LINES
37. FACTORY NEMA 3R DISCONNECT.

REMARKS:
A. EXPLOSION PROOF MOTOR WITH NON-SPARKING WHEEL AND DRIVE ASSEMBLY.
B. UL 762 LISTING WITH GREASE TROUGH, HINGED FAN ACCESS,
DUCT ADAPTIVE PLATE AND CURB EXTENSION TO MAINTAIN INCHES ABOVE THE ROOF.
C. UL LISTED FOR SMOKE CONTROL SYSTEM.
D. STAINLESS STEEL SHAFT AND HARDWARE.
E. ALUMINUM WHEEL AND HOUSING.
F. CONCRETE INERTIA BASE (TYPE C).
G. REVERSIBLE MOTOR.
H. DISCONNECT SHALL HAVE CONTACTS FOR REMOTE VFD OPERATION.
I. TEAO MOTOR.
J. TEFC MOTOR.
K. HIGH WIND RATED FAN AND ASSEMBLY.
L. DISCHARGE STACK SHALL BE SELF SUPPORTING.
M. REFER TO STRUCUTRAL PLANS FOR ADDITIONAL DISCHARGE STACK SUPPORT REQUIREMENTS.
N. PROVIDE WITH EPOXY COATING COMPLIANT WITH ASTM B117
O. SPARK RESISTANT TYPE B CONSTRUCTION.
P. PROVIDE WITH SPRING ISOLATORS.
Q. PROVIDE WITH SHAFT GROUNDING RING.

DESIGNATION	SERVICE	MANUFACTURER	MODEL NUMBER	TYPE	CFM	ESP (IN. WG)	WHEEL TYPE	WHEEL SIZE	WHEEL TS	MOTOR BHP	MOTOR MIN. HP	MOTOR RPM	MOTOR VOLTAGE	MOTOR PHASE	MOTOR STARTER	MOTOR EP	dB 63 Hz IN / OUT	dB 125 Hz IN / OUT	dB 250 Hz IN / OUT	dB 500 Hz IN / OUT	dB 1000 Hz IN / OUT	dB 2000 Hz IN / OUT	dB 4000 Hz IN / OUT	dB 8000 Hz IN / OUT	dB LwA IN / OUT	MAX. SONES	OPERATING WEIGHT (LBS)	ACCESSORIES	REMARKS
EF-4-1	NEG PRESS RM EXH	GREENHECK	FJI-12-BI-X	BVS	1,220	1.2	BI	12	5,588	0.44	1	1725	115	1	ATL	YES	77/88	78/85	74/83	72/77	71/71	66/68	62/64	57/58	75/79	17.1	299	3,4,5,8,11,16,18,19,28,30,36,37	D,E,H,J,K,L,M,N,O,P,Q
EF-4-2	NEG PRESS RM EXH	GREENHECK	FJI-12-BI-X	BVS	880	1.0	BI	12	4,689	0.26	3/4	1725	115	1	ATL	YES	75/85	75/81	71/77	68/72	68/66	61/62	57/58	52/53	71/74	12.5	299	3,4,5,8,11,16,18,19,28,30,36,37	D,E,H,J,K,L,M,N,O,P,Q
EF-4-3	NEG PRESS RM EXH	GREENHECK	FJI-12-BI-X	BVS	1,490	1.1	BI	12	6,047	0.56	1	1725	115	1	ATL	YES	78/91	79/87	76/86	75/81	73/75	69/72	65/67	59/60	78/83	21	299	3,4,5,8,11,16,18,19,28,30,36,37	D,E,H,J,K,L,M,N,O,P,Q

AIR MOVING EQUIPMENT OPERATION DURING CONSTRUCTION

THE USE OF NEW OR EXISTING AIR HANDLING UNITS, FANS, OR OTHER PERMANENT AIR MOVING EQUIPMENT DURING CONSTRUCTION IS PROHIBITED UNLESS APPROVED BY THE OWNER. IF APPROVED FOR USE DURING CONSTRUCTION, THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

A. THE CONTRACTOR SHALL PROTECT THE INTERIOR OF ALL DUCTWORK, AIR HANDLING UNITS, AND OTHER EQUIPMENT FROM THE ACCUMULATION OF DIRT AND DUST AND OTHER CONTAMINANTS. IF THE PERMANENT EQUIPMENT CANNOT BE ADEQUATELY PROTECTED, TEMPORARY AIR MOVING/ CONDITIONING EQUIPMENT AND DISTRIBUTION SYSTEMS SHALL BE UTILIZED AS REQUIRED FOR FINISHING TRADES.

B. PROVIDE TEMPORARY FILTERS ON ALL RETURN AND EXHAUST AIR GRILLES, OPEN DUCTWORK, AND TRANSFER OPENINGS IN THE WORK AREA.

C. THE CONTRACTOR SHALL REMOVE ALL FILTERS USED DURING CONSTRUCTION AND REPLACE THEM WITH NEW FILTERS PRIOR TO TEST AND BALANCE WORK AND PRIOR TO SUBSTANTIAL COMPLETION.

D. IF THE DUCTWORK AND/OR EQUIPMENT IS FOUND TO BE CONTAMINATED AT ANY POINT DURING CONSTRUCTION, AN INDEPENDENT NADCA CERTIFIED CONTRACTOR SHALL BE RETAINED TO CLEAN THE DUCTWORK AND/OR EQUIPMENT AT THE CONTRACTORS EXPENSE.

E. SYSTEM OPERATING TEMPERATURES SHALL BE MAINTAINED TO AVOID CONDENSATION ON DUCTWORK AND EQUIPMENT SURFACES. NEW OR EXISTING INSULATION FOUND DAMAGED SHALL BE REPLACED.

F. COORDINATE USE OF AIR HANDLING EQUIPMENT WITH ICRA PLAN, IF APPLICABLE. MAINTAIN REQUIRED PRESSURE RELATIONSHIPS IN CONSTRUCTION AREAS ADJACENT TO OCCUPIED AREAS.

G. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

INFECTION CONTROL RISK ASSESSMENT NOTES

A. CONTRACTOR SHALL OBTAIN FROM THE OWNER A COPY OF THE INFECTION CONTROL RISK ASSESSMENT (ICRA) PREPARED FOR THIS PROJECT. CONTRACTOR SHALL REVIEW THE REQUIREMENTS IN THE REPORT AND PERFORM ALL WORK IN ACCORDANCE WITH THOSE REQUIREMENTS. CONTRACTOR SHALL STRICTLY ADHERE TO THE LIMITS OF THE CONSTRUCTION AREA, AND WHERE PHASING APPLIES SHALL ADHERE TO THE PHASING PLAN. ANY WORK OUTSIDE THE CONSTRUCTION AREA SHALL BE COORDINATED WITH THE OWNER AND PERFORMED IN ACCORDANCE WITH THE ICRA REPORT, UNDER THE SUPERVISION OF THE OWNER'S REPRESENTATIVE OR OTHER DESIGNATED ICRA COMMITTEE OFFICER.

B. TO THE EXTENT THAT IT IS REQUIRED BY THE ICRA, THE CONTRACTOR SHALL ENDEAVOR TO MAINTAIN EXISTING LEVELS OF INDOOR AIR QUALITY IN AREAS SURROUNDING AND ADJACENT TO THE CONSTRUCTION WORK ZONE AND ELSEWHERE IN THE FACILITY. IT SHOULD BE ANTICIPATED THAT THE ICRA REPORT WILL REQUIRE MEASURES TO THIS EFFECT INCLUDING ERECTION OF CONSTRUCTION ZONE BARRIERS AND PROVISION OF NEGATIVE AIR PRESSURE IN THE CONSTRUCTION ZONE RELATIVE TO OTHER AREAS OF THE FACILITY.

C. IN ADDITION TO THE MEETING THE REQUIREMENTS OF THE ICRA REPORT, THE CONTRACTOR AT A MINIMUM SHALL PROVIDE EQUIPMENT AND COMPONENTS NECESSARY TO CREATE A NEGATIVE PRESSURE IN THE CONSTRUCTION WORK ZONE RELATIVE TO ADJACENT AREA. EXISTING HVAC SYSTEMS AND COMPONENTS SHALL NOT BE USED FOR THIS FUNCTION, UNLESS SPECIFICALLY APPROVED BY THE OWNER'S INFECTION CONTROL OFFICER. THE CONCEPT AND ALL ASPECTS OF THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE ICRA REQUIREMENTS AND AT A MINIMUM AS FOLLOWS:

1. VERIFY ALL EXISTING DUCTWORK WHICH PASSES THROUGH THE CONSTRUCTION ZONE, AND IS TO REMAIN, IS SEALED AND PROTECTED DURING THE CONSTRUCTION DURATION.
2. AIR REMOVED FROM THE CONSTRUCTION ZONE SHALL BE FILTERED AND/OR DISCHARGED AS DIRECTED BY THE ICRA REPORT.
3. PRESENT THE NEGATIVE AIR PRESSURE PLAN TO THE OWNER FOR APPROVAL BY THE INFECTION CONTROL COMMITTEE.
4. PROVIDE MEANS TO MONITOR AND VERIFY NEGATIVE PRESSURE IS BEING MAINTAINED IN ACCORDANCE WITH THE ICRA REPORT, AND PROVIDE DOCUMENTATION TO THE OWNER AS REQUIRED.

D. COORDINATE IN ADVANCE ANY REQUIRED EQUIPMENT SHUTDOWN WITH THE OWNER, AND VERIFY BEFORE SHUTDOWN THAT EXISTING OR DESIRED AIR PRESSURE RELATIONSHIPS WILL NOT BE ADVERSELY AFFECTED.

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KYLE G. CRANSTON
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LICENSED PROFESSIONAL ENGINEER
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4 NORTH WEST COVID UNIT
Baptist Hospitals of Southeast Texas
3080 College Street
Beaumont, TX 77701

ISSUED FOR
SCHEMATIC DESIGN ☐
DATE:
DESIGN DEVELOPMENT ☐
DATE:
BIDS & CONSTRUCTION ☒
DATE: 02/26/2021
REVISION: 1
DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - SCHEDULES & NOTES

SHEET NUMBER
M002

20109
PROJECT NUMBER

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PUMP SCHEDULE

GENERAL NOTES:
1 - SCHEDULED MOTOR HP IS MINIMUM ACCEPTABLE
2 - MOTORS SHALL BE NON-OVERLOADING. IF ANY POINT ON THE PUMP CURVE EXCEEDS THE SCHEDULED HP, GO TO THE NEXT LARGER SIZE MOTOR AND INCLUDE IN PUMP. QUOTE ALL CHANGES TO STARTERS & ELECTRICAL WORK.
3 - MAG-X-L STARTERS PROVIDED BY DIVISION 26

REMARKS:
1. FLANGED CONNECTION, CAST IRON BODY, FRACTIONAL HORSEPOWER CIRCULATOR

IDENT	SERVICE	MFR & MODEL	SIZE	TYPE	GPM	HEAD (FT)	IMPELLR DIA. (IN)	MIN EFF (%)	MOTOR					REMARKS
									BHP	HP	RPM	VOLTS / PHASE	STARTER	
HWCP-1	PREHEAT COIL (OAHU-1)	BELL & GOSSETT SERIES e-90	1AAB	INLINE	19	19	3.5	43	0.222	1.0	3600	120/1	ECM	
HWCP-2	REHEAT COIL (OAHU-1)	BELL & GOSSETT ecocirc	20-18	INLINE	8	7.5	-	51	0.6	-	4700	120/1	ECM	1

TEMPERATURE SENSOR LEGEND

GENERAL NOTES:
1. REFER TO EQUIPMENT SCHEDULES FOR SENSOR TYPE.
2. REFER TO SPECIFICATIONS FOR SENSOR TYPES APPEARING ON FLOOR PLANS BUT NOT LISTED IN THIS SCHEDULE.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TYPE	LOCAL ADJUSTMENT	LCD DISPLAY	FLUSH MTD	UNOCC. OVERRIDE	REMARKS
H	NO	YES	NO	NO	
T1	YES	YES	NO	NO	

AIR FILTER SCHEDULE

GENERAL NOTES:
1. FILTERS MERV 14 AND BELOW SHALL BE RATED IN ACCORDANCE WITH ASHRAE 52.2 - 2012. 95% FILTERS SHALL BE TESTED BY THE DOP METHOD. FILTERS ABOVE 95% SHALL BE RATED IN ACCORDANCE WITH IEST RP-CC001.3 SCAN STANDARD.
2. FURNISH WITH SIDE LOADING FILTER FRAME.
3. FURNISH WITH UNIVERSAL FRONT LOADING TYPE 8 FILTER FRAME.
4. FURNISH WITH FRONT LOADING HEPA FILTER FRAME WITH GEL SEALS.
5. PROVIDE ONE DWYER MAGNEHELIC GAUGE OF APPROPRIATE RANGE ACROSS EACH FILTER TYPE AND RACK.
6. QUANTITIES AND MAXIMUM FACE VELOCITY SHALL MATCH FILTER FRAME FREE AREA WITHOUT SPACERS.
7. REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

DESIGNATION	SYSTEM	MANUFACTURER	MODEL NUMBER	TYPE	MAX FACE VELOCITY (FPM)	EFFICIENCY	MERV	INITIAL RESISTANCE (IN. WC.)	FINAL RESISTANCE (IN. WC.)	FILTER DEPTH	REMARKS
PF-1	OAHU-1	CAMFIL	30/30	PANEL-PRE	500	-	8A	0.27	0.5	4	1,5,6,7
FF-1	OAHU-1	CAMFIL	DURAFIL ES	V-BAMK	500	-	14A	0.29	1	12	1,5,6,7

FAN FILTER UNIT SCHEDULE

REMARKS:
A. SEE SPECIFICATIONS FOR CONSTRUCTION, FINISH, FILTER, ACCESSORIES AND CONTROLS.
B. SEE CONTROL DRAWINGS FOR OPERATIONAL SEQUENCE.
C. UNIT MOUNTED DISCONNECT SWITCH.
D. UNIT MOUNTED FAN SPEED CONTROLLER WITH UNIVERSAL CARD FOR DDC FAN SPEED CONTROL WITH ANALOG OUTPUTS
E. PROVIDE 12" DUCT COLLARS
F. INSULATED PLENUM ON TOP OF UNIT.
G. PROVIDE 3/8" CHALLENGE PORTS ACCESSIBLE FROM FACE
H. PROVIDE DRYWALL ADAPTER FRAMES.
I. PROVIDE WASHABLE PRE-FILTER
J. PROVIDE ECM FANS
K. PROVIDE ROOMSIDE REPLACEABLE MOTORS AND FILTERS
L. BACNET CARD FOR FILTER LOADING STATUS.

DESIGNATION	MANUFACTURER	MODEL NUMBER	UNIT FACE SIZE	DESIGN CFM @90 FPM	MAXIMUM CFM (FPM)	FILTER				UNIT ELECTRICAL			REMARKS
						TYPE	AREA (SQ. FT.)	EFFICIENCY	MERV	WATTS	FLA	VOLT/PH	
FFU-1	ENVIRCO	MAC10 LEDC RSRC	2X2	SEE PLAN	350	HEPA	2.3	99.99%	17	145	2.75	120/1	A, B, C, D, F, H, I, J, K, L

VENTILATION CODE SUMMARY SCHEDULE (OAHU-1)

NOTES:
1. SYSTEM VENTILATION SUMMARY FOR UNIT OAHU-1:
A. TOTAL POPULATION (Ps) = 25
B. OCCUPANT DIVERSITY (D) = 1
C. DIVERSIFIED POPULATION = 25
D. UNCORRECTED OUTDOOR AIR INTAKE FLOW (Vou) = 904 CFM
E. PRIMARY AIR FLOW (Vps) = 4500 CFM
F. AVERAGE OUTDOOR AIR FRACTION (Xs) = 0.247
G. VENTILATION EFFICIENCY (Ev) = 0.912
H. MINIMUM OUTDOOR AIR INTAKE FLOW (Vot) = 991 CFM
I. DESIGN OUTDOOR AIR INTAKE FLOW = 3660 CFM
J. 6 ACH FOR PATIENT ROOMS ARE PROVIDED BY HEPA FILTRATION RECIRCULATION FAN FILTER UNITS PER TX. ADMIN. CODE TITLE 25 CHAPER 133 TABLE 3 NOTE 12

SPACE NUMBER - NAME	VENTILATION CODE OCCUPANCY CATEGORY	ZONE FLOOR AREA (Az) FT2	AREA OUTDOOR AIR RATE (Ra) CFM/FT2	AREA OUTDOOR AIRFLOW CFM	DEFAULT OCCUPANT DENSITY #/1000 FT2	DEFAULT ZONE POPULATION PEOPLE	DESIGN ZONE POPULATION (Pz) PEOPLE	PEOPLE OUTDOOR AIR RATE (Rp) CFM/PERSON	PEOPLE OUTDOOR AIRFLOW CFM	BREATHING ZONE OUTDOOR AIRFLOW (Vbz) CFM	ZONE AIR DISTRIBUTION EFFECTIV... (Ez)	ZONE OUTDOOR AIRFLOW (Voz) CFM	ZONE PRIMARY AIRFLOW MAX (Vpz) CFM	ZONE PRIMARY AIRFLOW MIN (Vpz) CFM	ZONE VENTILATION EFFICIENCY (Evz)	REMARKS
451 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	38	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
451 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	221	0.12	27	0	0	2	0	40	67	1.0	67	200	200	0.912	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
452 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	38	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
452 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	221	0.12	26	0	0	2	0	41	67	1.0	67	200	200	0.912	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
453 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
453 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	221	0.12	26	0	0	2	0	41	67	1.0	67	200	200	0.912	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
454 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
454 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	245	0.12	29	0	0	2	0	45	74	1.0	74	230	230	0.925	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
457 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	38	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
457 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	190	0.12	23	0	0	1	0	34	57	1.0	57	180	180	0.930	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
458 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	41	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
458 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	190	0.12	23	0	0	1	0	34	57	1.0	57	180	180	0.930	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
459 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	38	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
459 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	239	0.12	29	0	0	1	0	43	72	1.0	72	220	220	0.920	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
460 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
460 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	218	0.12	26	0	0	2	0	40	66	1.0	66	200	200	0.917	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
461 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
461 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	220	0.12	26	0	0	2	0	40	66	1.0	66	200	200	0.917	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
462 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
462 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	220	0.12	26	0	0	2	0	40	66	1.0	66	200	200	0.917	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
463 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
463 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	220	0.12	26	0	0	2	0	40	66	1.0	66	200	200	0.917	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
464 - RR	EXHAUST - TOILETS (PRIVATE) - CONTINUOUS EXHAUST	39	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
464 - SEMI-PRIVATE PAT RM	NR - NO REQUIREMENT	220	0.12	26	0	0	2	0	40	66	1.0	66	200	200	0.917	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
CORRIDOR	GENERAL - CORRIDORS	1,351	0.06	81	0	0	0	0	0	81	0.8	101	900	900	1.134	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
EVS	EXHAUST - JANITOR CLOSET	21	0	0	0	0	0	0	0	0	0.0	0	0	0	0.000	
NURSE STATION	OFFICE - OFFICE SPACE	192	0.06	12	5	1	4	5	20	32	0.8	39	300	300	1.116	ZONE OUTDOOR AIRFLOW PER TX ADMIN. CODE TITLE 25 CHAPTER 133
SOILED RM	EXHAUST - SOILED LAUNDRY STORAGE	78	0	0	0	0	0	0	0	0	0.8	0	50	50	0.000	

AIR TERMINAL UNITS SCHEDULE

GENERAL NOTES:
1. MAXIMUM INLET VELOCITY = 2100 FPM.
2. TRANSITION AT BOX FROM DUCT RUNOUT SIZE SHOWN TO BOX INLET SIZE (REFER TO DETAIL).
3. IF DUCT RUNOUT EXCEEDS 12 FEET IN LENGTH, INCREASE RUNOUT DIAMETER 2".
4. INLET STATIC PRESSURE REQUIRED TO OPERATE ATU AND HEATING COIL SHALL NOT EXCEED 0.7" W.C. MAXIMUM COIL VELOCITY SHALL NOT EXCEED 700 FPM.
5. IF HEATING CAPACITY CANNOT BE MET, ELIMINATE COIL FROM ATU AND PROVIDE SEPARATE DUCT MOUNTED HEATING COIL TO MEET SCHEDULED CAPACITY. INDEPENDENTLY INSTALL COIL AND INSULATE DUCT AND COIL. COMPLY WITH MAXIMUM AIR PRESSURE DROP AND WATER PRESSURE DROP AIR VALVE HEATING COIL ASSEMBLY.
6. CONTROL VALVE SHALL BE SIZED FROM GPM LISTED ON THE APPROVED AIR TERMINAL UNIT SUBMITTAL. CONTROL VALVES SHALL BE MODULATING 2-WAY UNLESS NOTED OTHERWISE.
7. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DESIGNATION	AHU	OCC. COOLING MAX (CFM)	OCC. HEATING MAX (CFM)	OCC. MIN. (CFM)	UNOCC. (CFM)	INLET SIZE (IN.)	DUCT RUNOUT SIZE (IN.)	AIR PD (IN. W.C.)	EAT (° F)	LAT (° F)	BTUH	ROWS	GPM	PIPE RUNOUT SIZE (IN.)	EWT (° F)	LWT (° F)	WATER DT (° F)	WATER PD (FT. HD.)	CONTROL TYPE	SOUND ATT.	NOISE CRITERIA		TEMP. SENSOR TYPE	REMARKS
																					DISCHARGE	RADIATED		
ATU-4-13	OAHU-1	1200	1200	1200	1200	12	14	0.67	55	85	39240	2	2.3	3/4"	150	117	34	2.5	2-WAY VALVE	No	24	30	T1	

STATE OF TEXAS
KYLE G. CRANSTON
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02/25/2021

4 NORTH WEST COVID UNIT
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Beaumont, TX 77701

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DATE:
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DATE: 02/26/2021
REVISION: 1
DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - SCHEDULES

SHEET NUMBER
M003

20109
PROJECT NUMBER

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HEALTCHARE CODE SUMMARY GENERAL NOTE

A. ACTUAL ACH NDICATED ON HEALTHCARE CODE SUMMARY DOES NOT INLCUDE AIR CHANGE RATE FROM FFU'S WITHIN EACH PRIVATE ROOM. TOTAL ATU AND WALL MOUNTED FAN FILTER UNIT (FFU) CFM INDICATED ON MH104 EXCEEDS REQUIRED MINIMUM ACH FOR EACH ROOM.

HEALTHCARE CODE SUMMARY SCHEDULE (OAHU-1)

NOTES:

1. DATA IN THIS TABLE IS ONLY PROVIDED FOR SPACES WITH A SPECIFIC HEALTHCARE CODE FUNCTION.
2. BLANK FIELDS FOR SPACES WITH A SPECIFIC HEALTHCARE CODE FUNCTION INDICATE NO REQUIREMENT BY THE HEALTHCARE CODE.
3. SYSTEM MINIMUM OUTDOOR AIR QUANTITY IS CALCULATED BY THE VENTILATION RATE PROCEDURE OF ASHRAE STANDARD 62.1 AS ALLOWED BY ASHRAE STANDARD 170-2017 SECTION 7.1.a.6.ii. THE REQUIRED MINIMUM OUTDOOR AIR CHANGE RATES FOR EACH SPACE ARE... ZONE OUTDOOR AIRFLOW (Voz) IN THE VENTILATION RATE PROCEDURE CALCULATIONS AND ARE INCLUDED IN THE OUTSIDE AIR QUANTIY FOR EACH SYSTEM. THE VENTILATION RATE PROCEDURE DOES NOT PROVIDE A MEANS OF DETERMINING ACTUAL ZONE (SPACE) OUTDOO... REFER TO THE VENTILATION CODE SUMMARY SCHEDULE FOR VENTILATION RATE PROCEDURE CALCULATION RESULTS.
4. PER INTERPRETATION IC 170-2013-14 OF ANSI/ASHRAE/ASHE STANDARD 170-2013, THE RATIO OF MINIMUM OUTDOOR AIR AIR CHANGE RATE TO MINIMUM TOTAL AIR CHANGE RATE DOES NOT ESTABLISH THE MINIMUM SYSTEM OUTDOOR AIR QUANTITY.

SPACE NUMBER - NAME	FUNCTION OF SPACE	PRESSURE RELATIONSHIP TO ADJACENT AREAS		MINIMUM OUTDOOR ACH		MINIMUM TOTAL ACH		ALL ROOM AIR EXHAUSTED DIRECTLY OUTDOORS		AIR RECIRCULATED BY MEANS OF ROOM UNITS		DESIGN RELATIVE HUMIDITY (%)		DESIGN TEMPERATURE (oF)		REMARKS
		REQ'D	ACTUAL	REQ'D	ACTUAL	REQ'D	ACTUAL	REQ'D	ACTUAL	REQ'D	ACTUAL	REQ'D	ACTUAL	REQ'D	ACTUAL	
451 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.5	Y	Y	N	N	NR	20 - 50	75	70 - 75	
451 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.2	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
452 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.5	Y	Y	N	N	NR	20 - 50	75	70 - 75	
452 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
453 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
453 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
454 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
454 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.1	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
457 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.5	Y	Y	N	N	NR	20 - 50	75	70 - 75	
457 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.0	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
458 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.6	Y	Y	N	N	NR	20 - 50	75	70 - 75	
458 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.0	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
459 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.5	Y	Y	N	N	NR	20 - 50	75	70 - 75	
459 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
460 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
460 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.0	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
461 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
461 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
462 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
462 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
463 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
463 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
464 - RR	SERVICE - BATHROOM	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	75	70 - 75	
464 - SEMI-PRIVATE PAT RM	NURSING - AIRBORNE INFECTION ISOLATION ROOM	NEGATIVE	NEGATIVE	2	NOTES 3 & 4	12	7.3	Y	Y	N	N	NR	20 - 50	70 - 75	70 - 75	
CORRIDOR	NURSING - PATIENT CORRIDOR	NR	POSITIVE	NR	NOTES 3 & 4	2	4.4	NR	N	NR	N	NR	20 - 50	NR	70 - 75	
EVS	SERVICE - JANITOR'S CLOSET	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	11.1	Y	Y	N	N	NR	20 - 50	NR	70 - 75	
NURSE STATION	ADMINISTRATIVE - ADMINISTRATIVE AND SUPPORT SERVICE	NR	POSITIVE	NR	NOTES 3 & 4	2	10.4	NR	N	NR	N	MIN 30	20 - 50	68 - 73	70 - 75	
SOILED RM	SERVICE - SOILED LINEN (SORTING AND STORAGE)	NEGATIVE	NEGATIVE	NR	NOTES 3 & 4	10	10.3	Y	Y	N	N	NR	20 - 50	NR	70 - 75	

Load Summary (Spaces)

Zone Number	Space Number - Name	Area	Cooling										Heating									
			Envelope		People		Lights	Equipment		Total (Internal...		Total		Envelope	People		Lights	Equipment		Total		
			Sensi...	Latent	Sensi...	Latent	Sensi...	Sensi...	Latent	Sensible	Latent	Sensi...	Latent	Sensible	Sensi...	Latent	Sensi...	Sensi...	Latent	Sensi...	Latent	
		ft2	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h	Btu/h
001	451 - RR	38	3				110			110		113		-4			110			106		
001	451 - SEMI-PRIVATE PA...	221	687		500	400	468	1,768	500	2,736	900	3,422	900	-889	500	400	468	1,768	500	1,847	900	
002	452 - RR	38	3				110			110		113		-4			110			106		
002	452 - SEMI-PRIVATE PA...	221	687		500	400	467	1,768	500	2,735	900	3,421	900	-889	500	400	467	1,768	500	1,846	900	
003	453 - RR	39	3				113			113		116		-4			113			109		
003	453 - SEMI-PRIVATE PA...	221	687		500	400	467	1,768	500	2,735	900	3,421	900	-889	500	400	467	1,768	500	1,846	900	
004	454 - RR	39	3				113			113		116		-4			113			109		
004	454 - SEMI-PRIVATE PA...	245	684		500	400	518	1,768	500	2,786	900	3,471	900	-882	500	400	518	1,768	500	1,904	900	
005	457 - RR	38	3				110			110		113		-4			110			106		
005	457 - SEMI-PRIVATE PA...	190	1,705		250	200	401	1,768	500	2,419	700	4,124	700	-906	250	200	401	1,768	500	1,513	700	
006	458 - RR	41	3				119			119		122		-4			119			115		
006	458 - SEMI-PRIVATE PA...	190	1,705		250	200	401	1,768	500	2,419	700	4,124	700	-906	250	200	401	1,768	500	1,513	700	
007	459 - RR	38	3				110			110		113		-4			110			106		
007	459 - SEMI-PRIVATE PA...	239	1,767		250	200	506	1,768	500	2,524	700	4,291	700	-1,032	250	200	506	1,768	500	1,491	700	
008	460 - RR	39	3				113			113		116		-4			113			109		
008	460 - SEMI-PRIVATE PA...	218	1,485		500	400	460	1,768	500	2,728	900	4,213	900	-870	500	400	460	1,768	500	1,858	900	
009	461 - RR	39	3				113			113		116		-4			113			109		
009	461 - SEMI-PRIVATE PA...	220	1,494		500	400	466	1,768	500	2,733	900	4,228	900	-889	500	400	466	1,768	500	1,845	900	
010	462 - RR	39	3				113			113		116		-4			113			109		
010	462 - SEMI-PRIVATE PA...	220	1,494		500	400	466	1,768	500	2,733	900	4,228	900	-889	500	400	466	1,768	500	1,845	900	
011	463 - RR	39	3				113			113		116		-4			113			109		
011	463 - SEMI-PRIVATE PA...	220	1,494		500	400	466	1,768	500	2,733	900	4,228	900	-889	500	400	466	1,768	500	1,845	900	
012	464 - RR	39	3				113			113		116		-4			113			109		
012	464 - SEMI-PRIVATE PA...	220	1,494		500	400	466	1,768	500	2,733	900	4,228	900	-889	500	400	466	1,768	500	1,845	900	
013	CORRIDOR	1,351	65				4,242			4,242		4,307		-96			4,242			4,146		
013	EVS	21	1				31			31		32		-2			31			29		
013	NURSE STATION	192	13		1,000	800	531	1,635		3,166	800	3,178	800	-19	1,000	800	531	1,635		3,147	800	
014	SOILED RM	78	5				114			114		120		-8			114			107		

STATE OF TEXAS
KYLE G. CRANSTON
120432
LICENSED
PROFESSIONAL ENGINEER
02/25/2021

4 NORTH WEST COVID UNIT
Baptist Hospitals of Southeast Texas
3080 College Street
Beaumont, TX 77701

ISSUED FOR
SCHEMATIC DESIGN ☐
DATE:
DESIGN DEVELOPMENT ☐
DATE:
BIDS & CONSTRUCTION ☒
DATE: **02/26/2021**
REVISION: 1
DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - SCHEDULES

SHEET NUMBER
M004

20109
PROJECT NUMBER

SSR Smith Seckman Reid, Inc.
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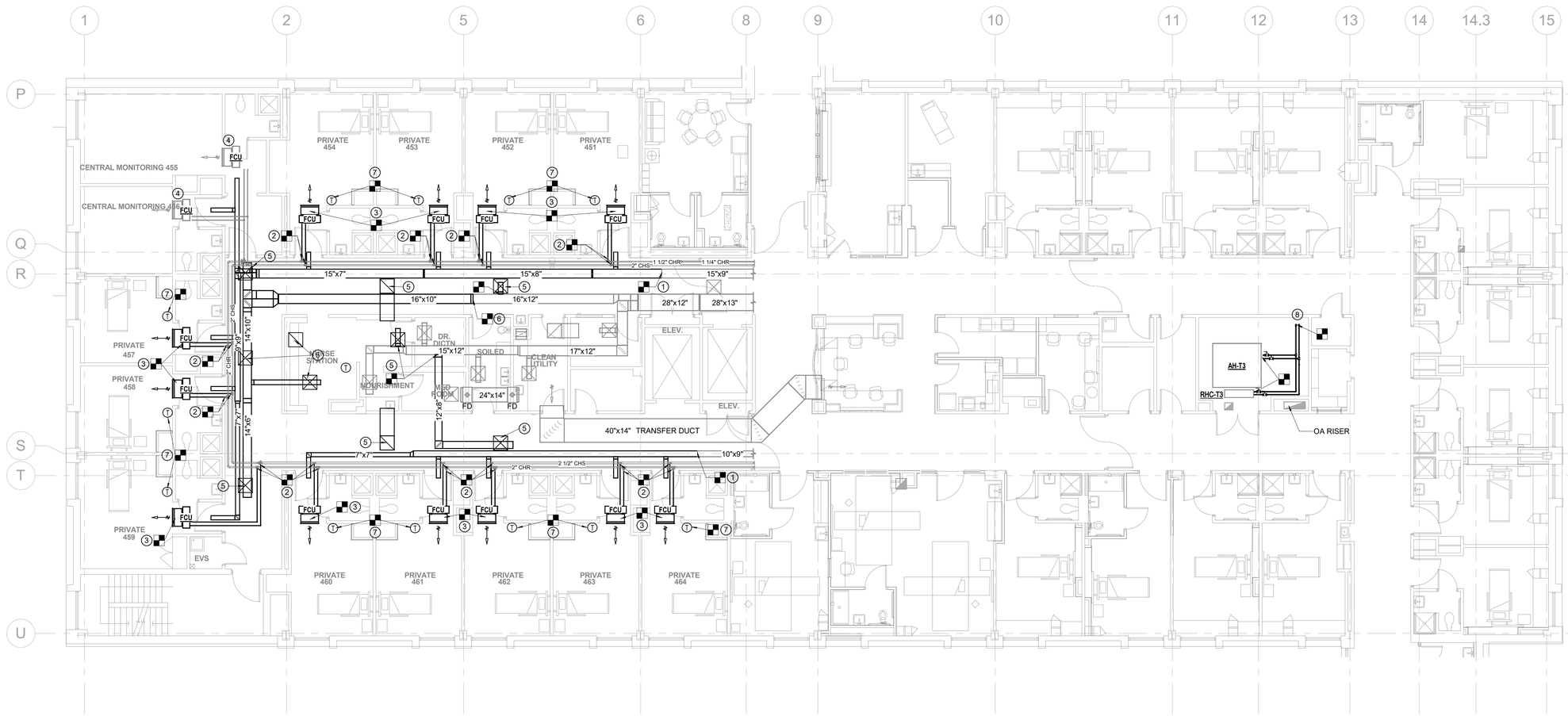


1 LEVEL 4 PLAN - MECHANICAL DEMOLITION

1/8" = 1'-0"

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
- - - - -	EXISTING TO BE REMOVED
■	DEMO TO THIS POINT

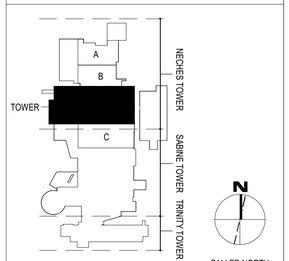
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. DEMO OUTSIDE AIR DUCT BACK AS INDICATED AND CAP.
2. DEMO CHILLED WATER PIPING BACK TO MAIN AND CAP.
3. DEMO EXISTING FAN COIL UNIT.
4. EXISTING FAN COIL UNIT TO REMAIN.
5. REMOVE EXISTING AIR DEVICE AND ASSOCIATED BRANCH DUCT BACK AS INDICATED.
6. DEMO SUPPLY AIR DUCT BACK AS INDICATED AND CAP.
7. DEMO EXISTING PNEUMATIC THERMOSTAT ASSOCIATED WITH FCU.
8. DEMO EXISTING PIPING AND RISERS BACK AS INDICATED ON PIPING SCHEMATIC. SEE M601 FOR MORE INFORMATION.

KEY PLAN



STATE OF TEXAS
KYLE G. CRANSTON
120432
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PROFESSIONAL ENGINEER
FINAL 02/25/2021

4 NORTH WEST COVID UNIT
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DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 4 PLAN - DEMOLITION

SHEET NUMBER
MD104

20109
PROJECT NUMBER

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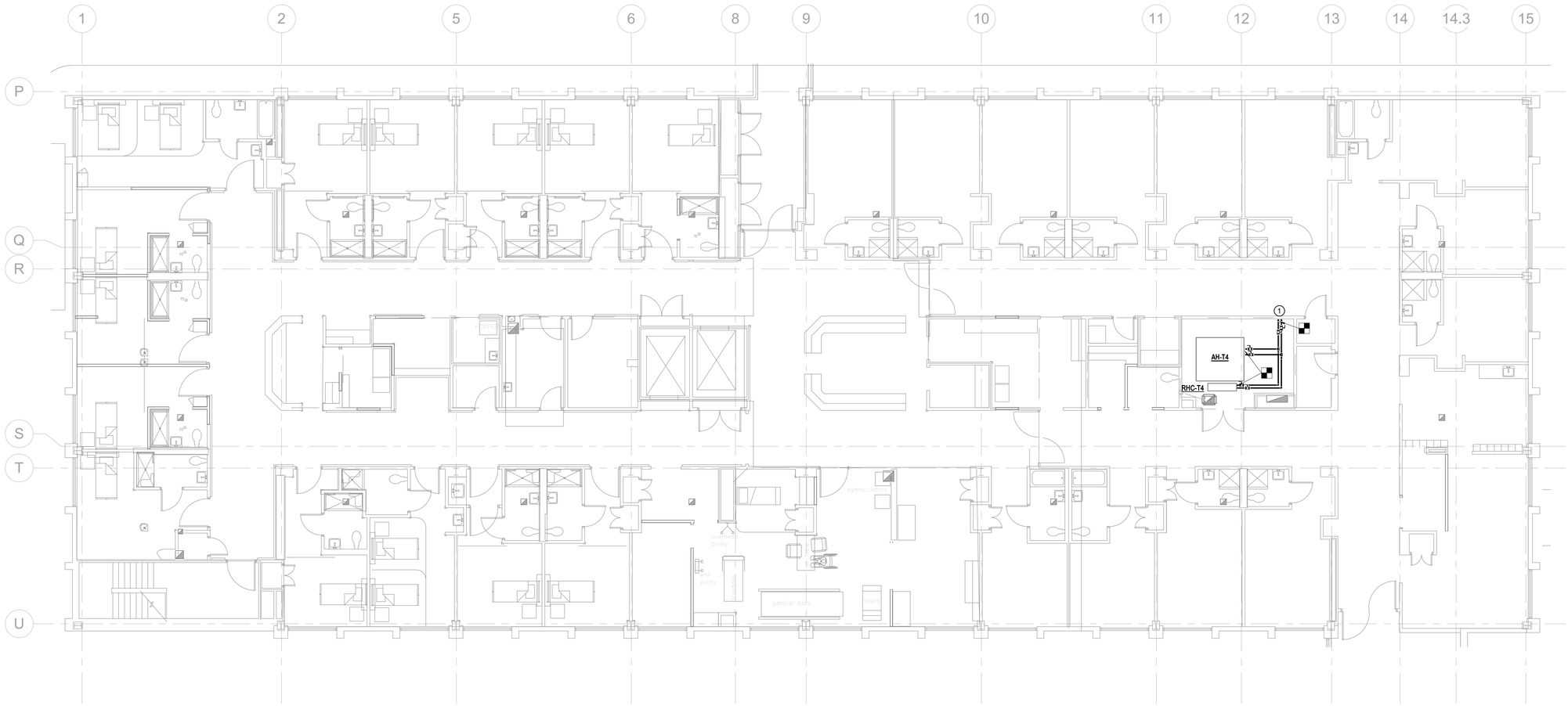


1 LEVEL 5 PLAN - MECHANICAL DEMOLITION
1/8" = 1'-0"

DEMOLITION LEGEND	
SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
- - - - -	EXISTING TO BE REMOVED
■	DEMO TO THIS POINT

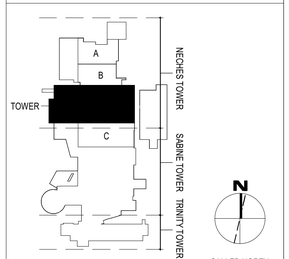
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. DEMO EXISTING PIPING AND RISERS BACK TO LEVEL 2. SEE M105 AND M601 FOR MORE INFORMATION.

KEY PLAN



STATE OF TEXAS
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DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 5 PLAN - DEMOLITION

SHEET NUMBER
MD105

20109
PROJECT NUMBER

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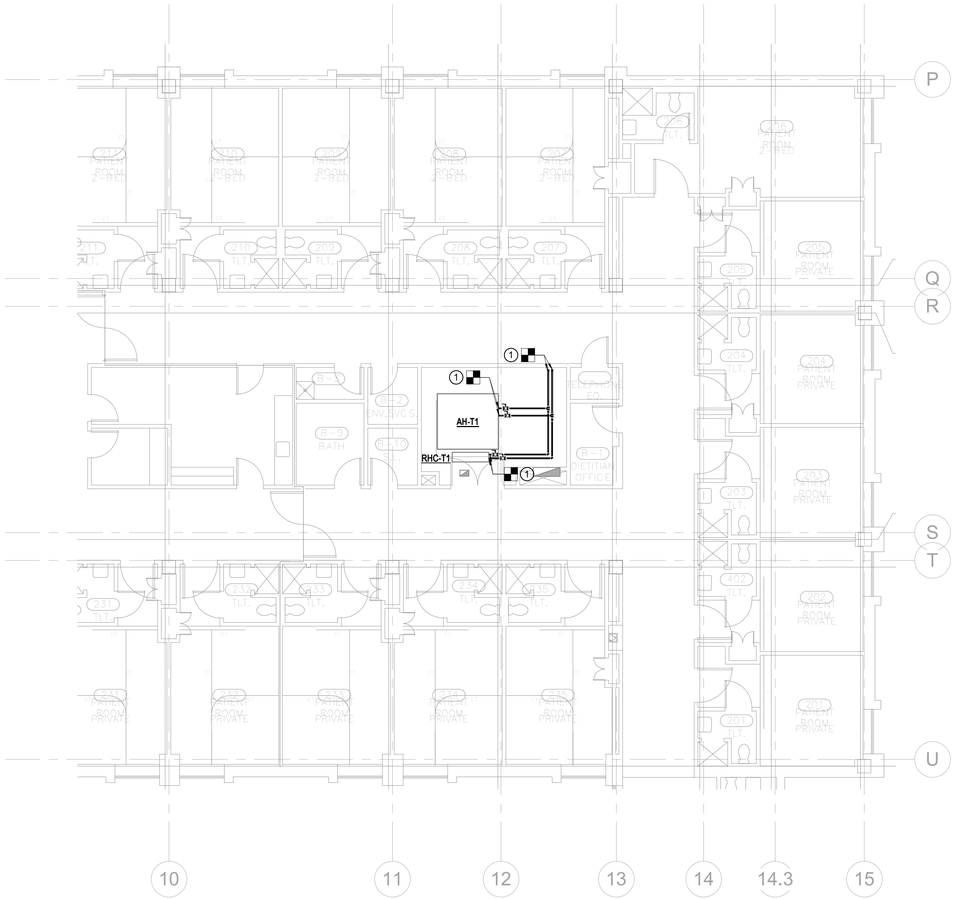
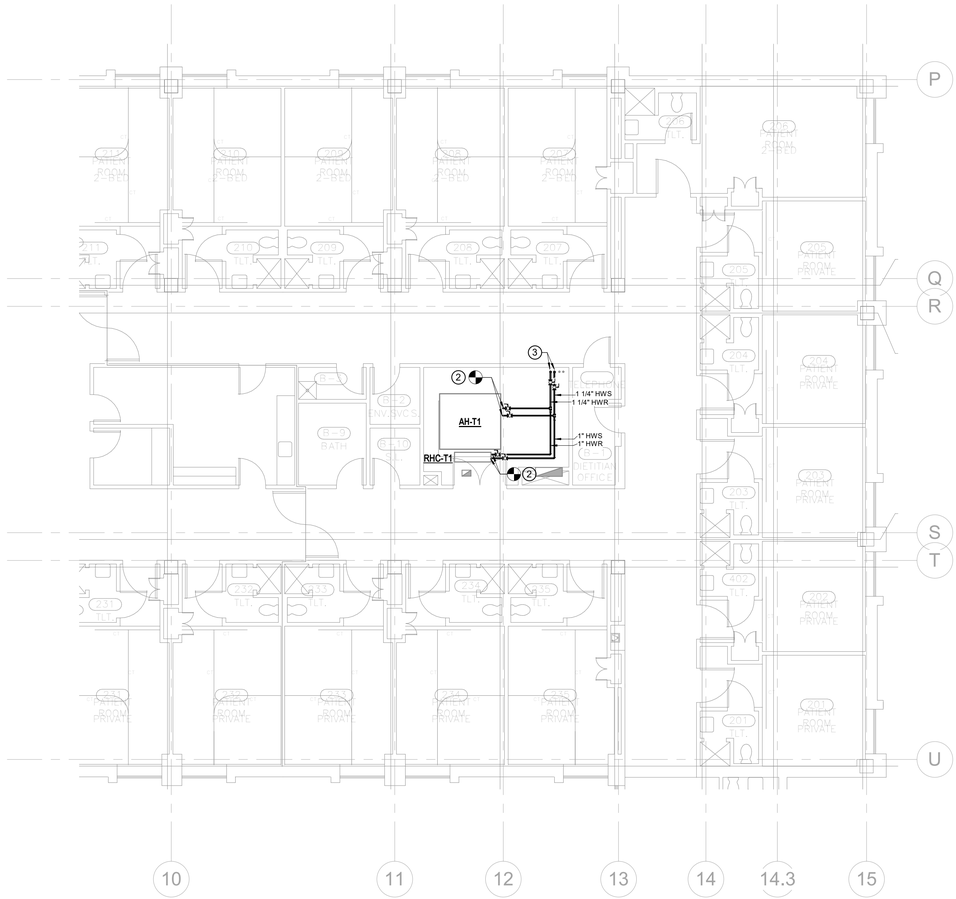


2 LEVEL 2 PLAN - MECHANICAL DEMOLITION

1/8" = 1'-0"



1 LEVEL 2 - PIPING

1/8" = 1'-0"

RENOVATION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
◔	CONNECT TO EXISTING AT THIS POINT

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	EXISTING TO BE REMOVED
◪	DEMO TO THIS POINT

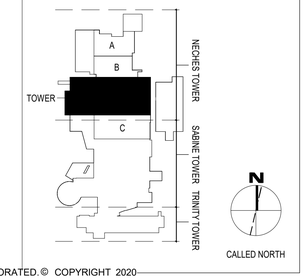
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. DEMO EXISTING PIPING AND RISERS BACK AS INDICATED ON PIPING SCHEMATIC. SEE M601 FOR MORE INFORMATION.
2. PROVIDE NEW HEATING HOT WATER PIPING TO EXISTING AIR HANDLING UNIT AND EXISTING REHEAT COIL PER SCHEMATIC ON M601.
3. NEW 2-1/2" HEATING HOT WATER SUPPLY AND RETURN PIPE RISERS PER SCHEMATIC ON M601.

KEY PLAN



STATE OF TEXAS
KYLE G. CRANSTON
120432
LICENSED
PROFESSIONAL ENGINEER
02/25/2021

4 NORTH WEST COVID UNIT

Baptist Hospitals of Southeast Texas

3080 College Street

Beaumont, TX 77701

ISSUED FOR
SCHEMATIC DESIGN ☐
DATE:
DESIGN DEVELOPMENT ☐
DATE:
BIDS & CONSTRUCTION ☒
DATE: **02/26/2021**
REVISION: 1
DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE

MECHANICAL - LEVEL 2 PLAN

SHEET NUMBER

M102

20109
PROJECT NUMBER

Smith Seckman Reid, Inc.
3700 West Sam Houston Parkway South, Suite 200
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FAX: (713) 952-8655
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TEXAS FIRM REGISTRATION #: F-2874
SSR Project #: 20230850

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KYLE G. CRANSTON
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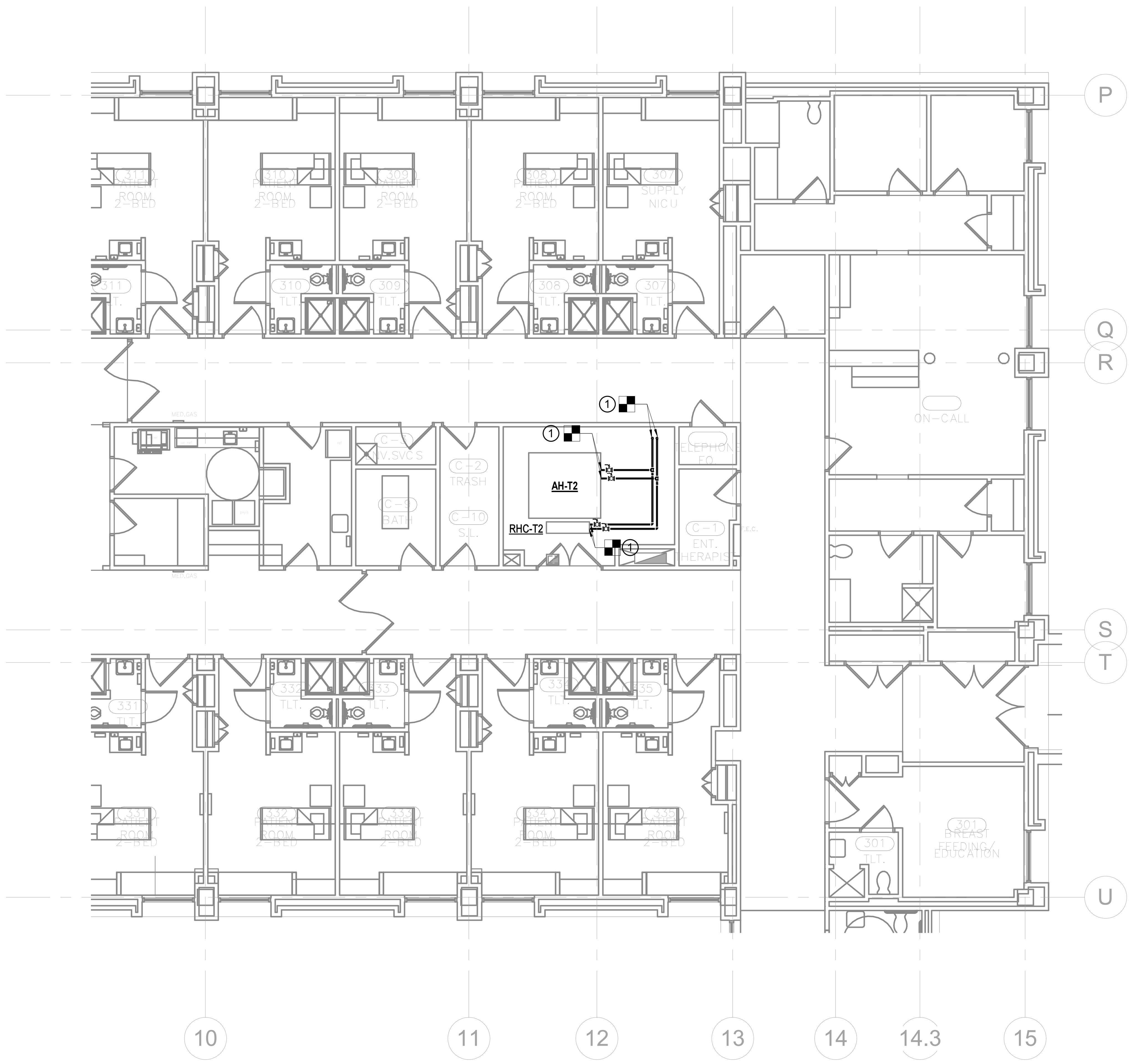
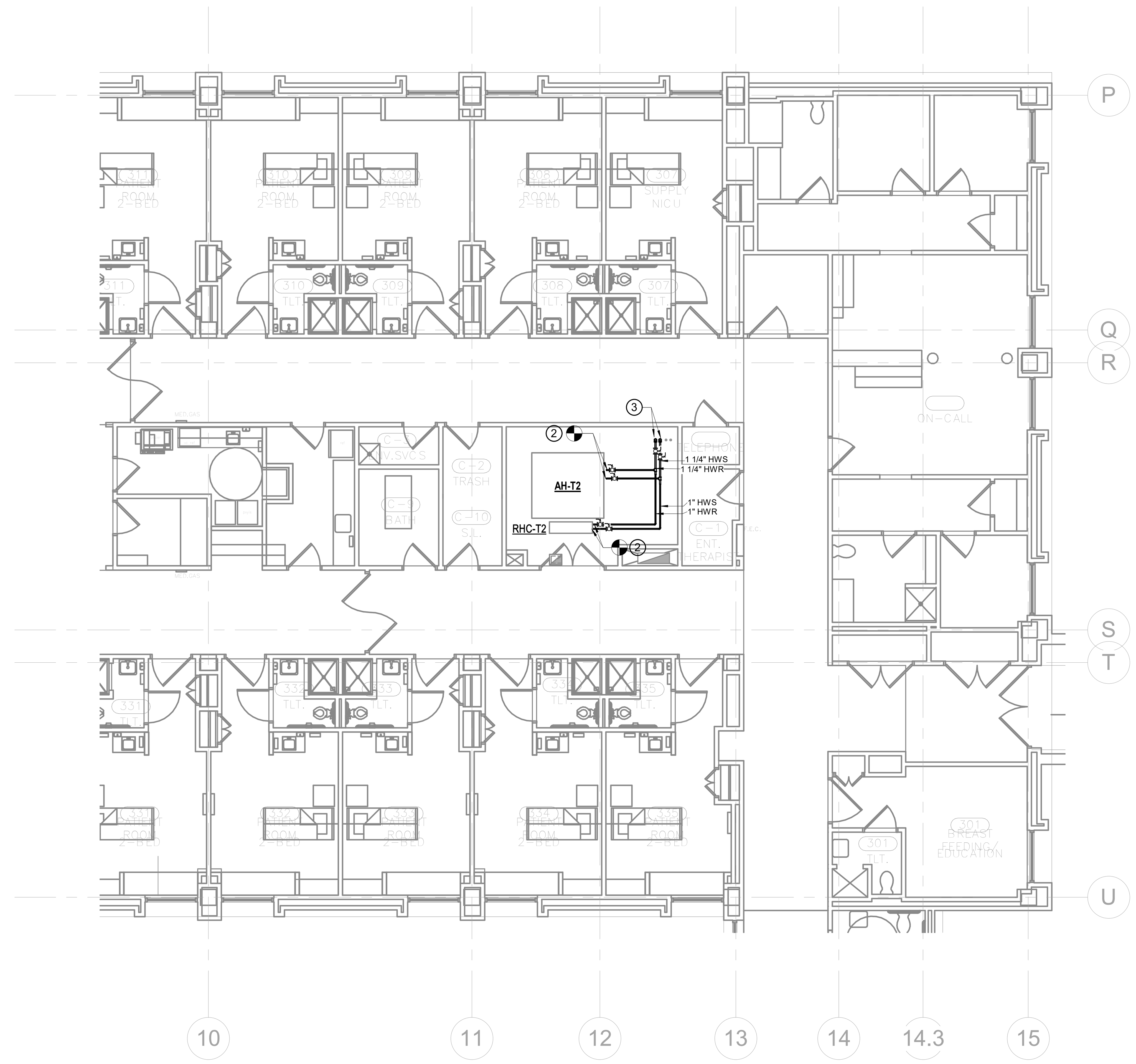
02/25/2021



2 LEVEL 3 PLAN - MECHANICAL DEMOLITION
1/8" = 1'-0"



1 LEVEL 3 - PIPING
1/8" = 1'-0"

RENOVATION LEGEND

SYMBOL	DESCRIPTION
	EXISTING TO REMAIN
	NEW CONSTRUCTION
	CONNECT TO EXISTING AT THIS POINT

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
	DEMO TO THIS POINT

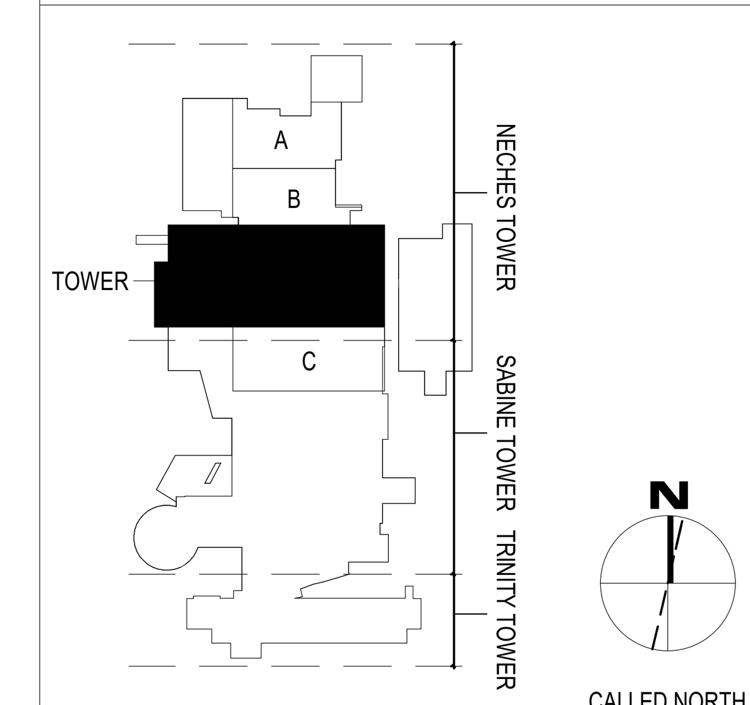
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. DEMO EXISTING PIPING AND RISERS BACK AS INDICATED ON PIPING SCHEMATIC. SEE M601 FOR MORE INFORMATION.
2. PROVIDE NEW HEATING HOT WATER PIPING TO EXISTING AIR HANDLING UNIT AND EXISTING REHEAT COIL PER SCHEMATIC ON M601.
3. NEW 2" HEATING HOT WATER SUPPLY AND RETURN PIPE RISERS PER SCHEMATIC ON M601.

KEY PLAN



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REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 3 PLAN

SHEET NUMBER
M103

20109
PROJECT NUMBER

SSR Smith Seckman Reid, Inc.
3700 West Sam Houston Parkway South,
Suite 200
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SSR Project #: 20230850

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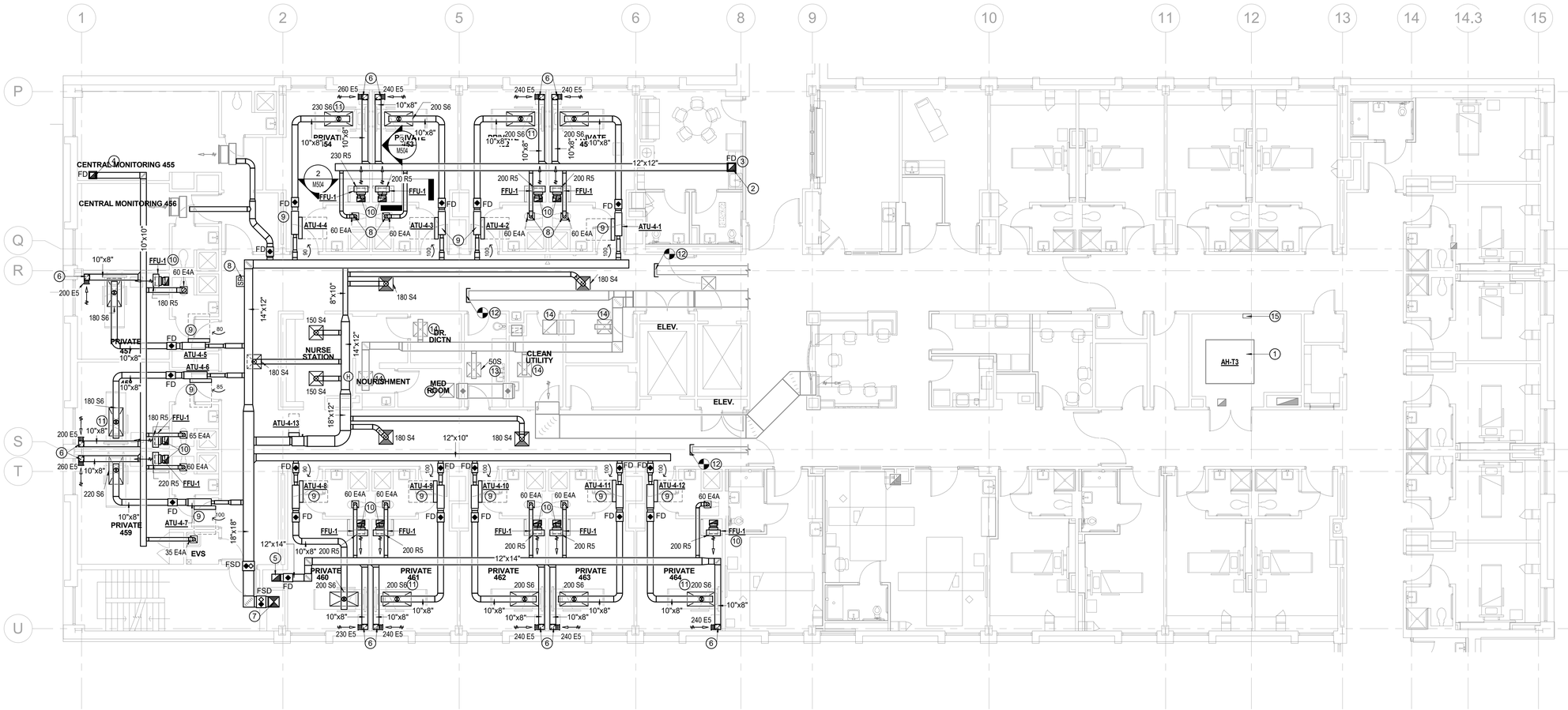


1 LEVEL 4 PLAN - DUCTWORK
1/8" = 1'-0"

RENOVATION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
◔	CONNECT TO EXISTING AT THIS POINT

SHEET GENERAL NOTES

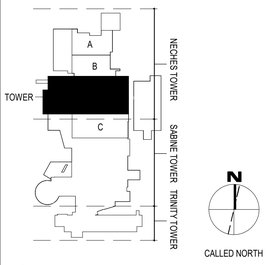
A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

B. PROVIDE A CEILING RADIATION DAMPER PER SPECIFICATIONS FOR ALL CEILING MOUNTED SUPPLY, RETURN AND EXHAUST GRILLES TO MAINTAIN CEILING FIRE RATING.

SHEET KEYED NOTES

1. REBALANCE AHU TO REDUCE AIRFLOW FOR REMOVED SUPPLY DUCT TO CORRIDOR. ENGINEER OF RECORD TO VERIFY BASED ON PRE-TAB DATA PRIOR TO DEMOLITION.
   ADD: CONTRACTOR TO PROVIDE A COST LINE ITEM TO REPLACE THE FAN MOTOR AND STARTER WITH AN INVERTER RATED MOTOR AND VFD.
2. CONTRACTOR TO COORDINATE WITH ELECTRICIAN TO RELOCATE THREE (3) 3/4" CONDUITS TO ALLOW FOR DUCT INSTALLATION.
3. PROVIDE FIRE DAMPER AT 12X12 EXHAUST RISER UP TO LEVEL 5 AT FLOOR LEVEL.
4. PROVIDE FIRE DAMPER AT 12X10 EXHAUST RISER UP TO LEVEL 5 AT FLOOR LEVEL.
5. 12X14 EXHAUST RISER UP TO LEVEL 5.
6. NEW 10"WX8"D EXHAUST DUCT WITH 13"WX11"D CLEAR FOR INSULATION AND DUCT CONNECTIONS TO LOW ROOM EXHAUST.
7. 18"X18" OUTSIDE AIR RISER UP TO LEVEL 5.
8. INSTALL NEW DUCT STATIC PRESSURE SENSOR FOR AHU IN THIS LOCATION. THIS NEW SENSOR SHALL CONTROL FAN SPEED.
9. TERMINAL UNIT SHALL BE INSTALLED WITHIN FIRE RATED ENCLOSURE IN AREA ADJACENT TO THE BATHROOM, TYPICAL.
10. ROOM DIRECT HEPA FILTRATION FAN FILTER UNIT (FFU-1). WALL MOUNTED IN CHASE WITH RETURN GRILLE IMMEDIATELY BELOW. SEE SCHEDULE.
11. PROVIDE CEILING SUPPLY 2X4 LAMINAR FLOW TYPE DIFFUSER, TYPICAL.
12. CAP EXISTING DUCT AS INDICATED.
13. RE-BALANCE EXISTING AIR DEVICE TO CFM INDICATED.
14. MAINTAIN EXISTING AIR BALANCE AT EXISTING AIR DEVICE. PER PRE-DEMO TAB REPORT.
15. PROVIDE DDC CONTROL PANEL AT THIS LOCATION.

KEY PLAN



STATE OF TEXAS
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02/25/2021

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REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 4 PLAN - DUCTWORK

SHEET NUMBER
MH104

20109
PROJECT NUMBER

SSR Smith Seckman Reid, Inc.
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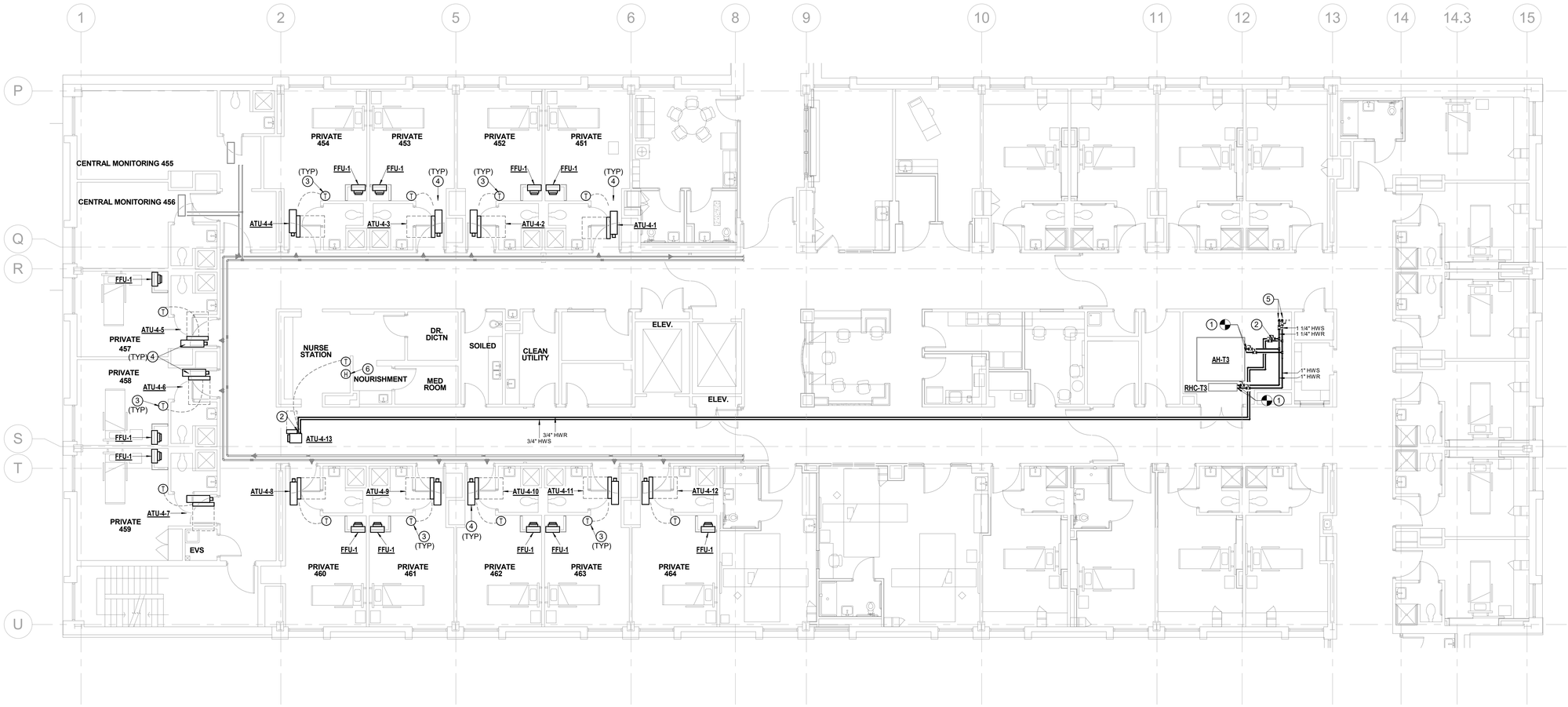


1 LEVEL 4 PLAN - HVAC PIPING

1/8" = 1'-0"

RENOVATION LEGEND	
SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
◔	CONNECT TO EXISTING AT THIS POINT

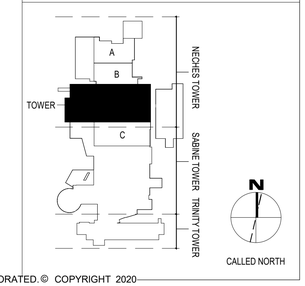
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. PROVIDE NEW HEATING HOT WATER PIPING TO EXISTING AIR HANDLING UNIT AND EXISTING REHEAT COIL PER SCHEMATIC ON M601.
2. ROUTE NEW HEATING HOT WATER PIPING TO ATU-4-13 FROM AIR HANDLING EQUIPMENT ROOM.
3. PROVIDE NEW DDC TEMPERATURE SENSOR FOR EACH ATU IN EACH PATIENT ROOM, REPLACING THE DEMOLISHED PNEUMATIC STAT.
4. CONNECT ATU CONTROLS TRANSFORMER TO ELECTRICAL CONTRACTOR PROVIDED 120V CIRCUIT.
5. NEW 2" HEATING HOT WATER SUPPLY AND RETURN PIPE RISERS PER SCHEMATIC ON M601.
6. NEW SPACE HUMIDITY CONTROL SENSOR. SEE M701 FOR MORE INFORMATION.

KEY PLAN



STATE OF TEXAS
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REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 4 PLAN - PIPING

SHEET NUMBER
MP104

20109
PROJECT NUMBER

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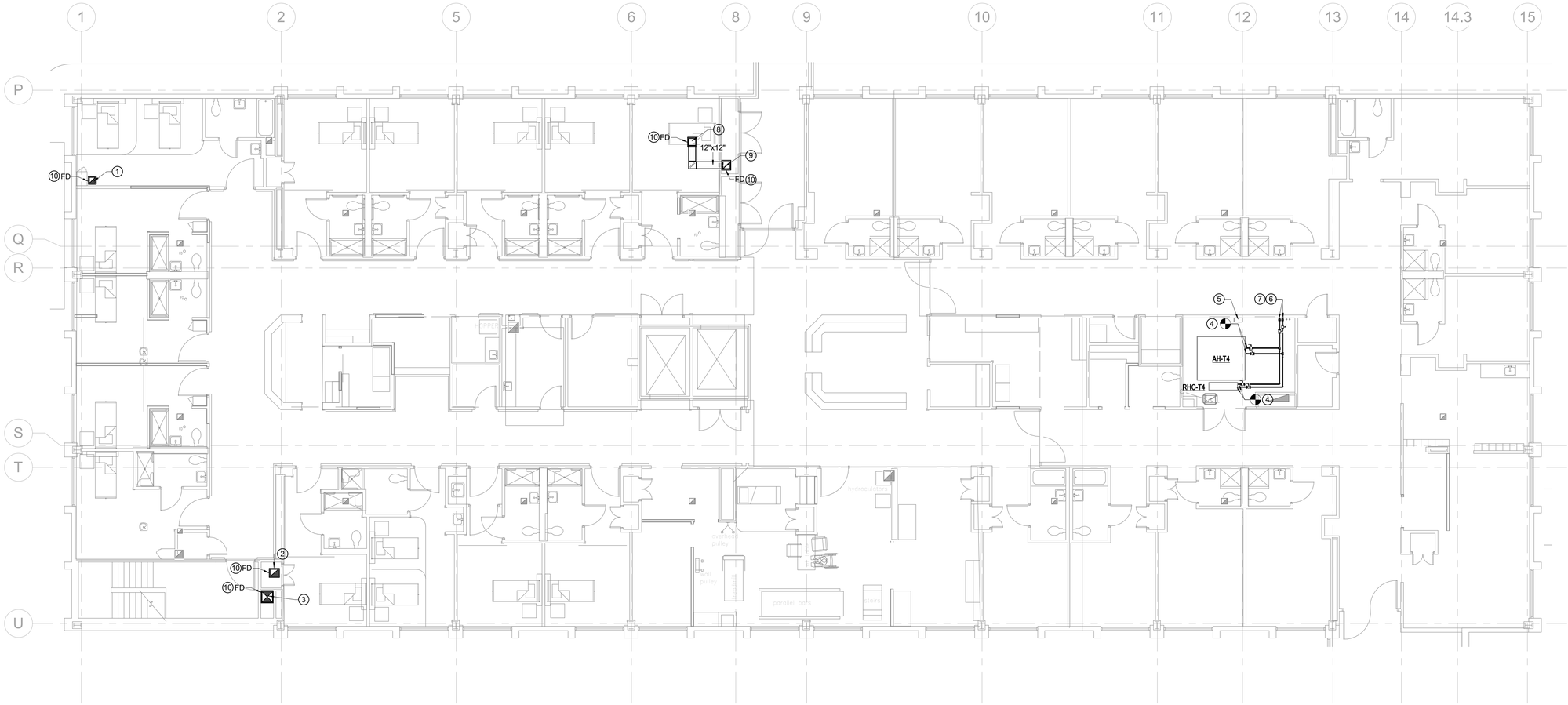


1 LEVEL 5 PLAN - DUCTWORK & PIPING
1/8" = 1'-0"

RENOVATION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
◔	CONNECT TO EXISTING AT THIS POINT

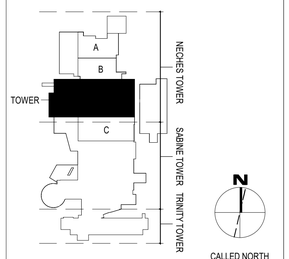
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. 10"X10" EXHAUST RISER UP TO EF-4-2.
2. 14"X12" EXHAUST RISER UP TO EF-4-3.
3. 18"X18" OUTSIDE AIR RISER UP TO ROOF LEVEL.
4. PROVIDE NEW HEATING HOT WATER PIPING TO EXISTING AIR HANDLING UNIT AND EXISTING REHEAT COIL PER SCHEMATIC ON M601.
5. PROVIDE DDC CONTROL PANEL AT THIS LOCATION.
6. NEW 2" HEATING HOT WATER SUPPLY AND RETURN PIPE RISERS PER SCHEMATIC ON M601.
7. NEW 2" HEATING HOT WATER SUPPLY AND RETURN PENETRATING UP TO ROOF LEVEL TO NEW OAHU-1. SEE M106 AND M601 FOR MORE INFORMATION.
8. 12"X12" EXHAUST DUCT UP TO EF-4-1 ON ROOF LEVEL ABOVE.
9. EXHAUST DUCT DOWN TO LEVEL 4 PLENUM SPACE BELOW.
10. PROVIDE FIRE DAMPER AT FLOOR PENETRATION AS INDICATED.

KEY PLAN



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REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - LEVEL 5 PLAN - DUCT & PIPING

SHEET NUMBER
M105

20109
PROJECT NUMBER

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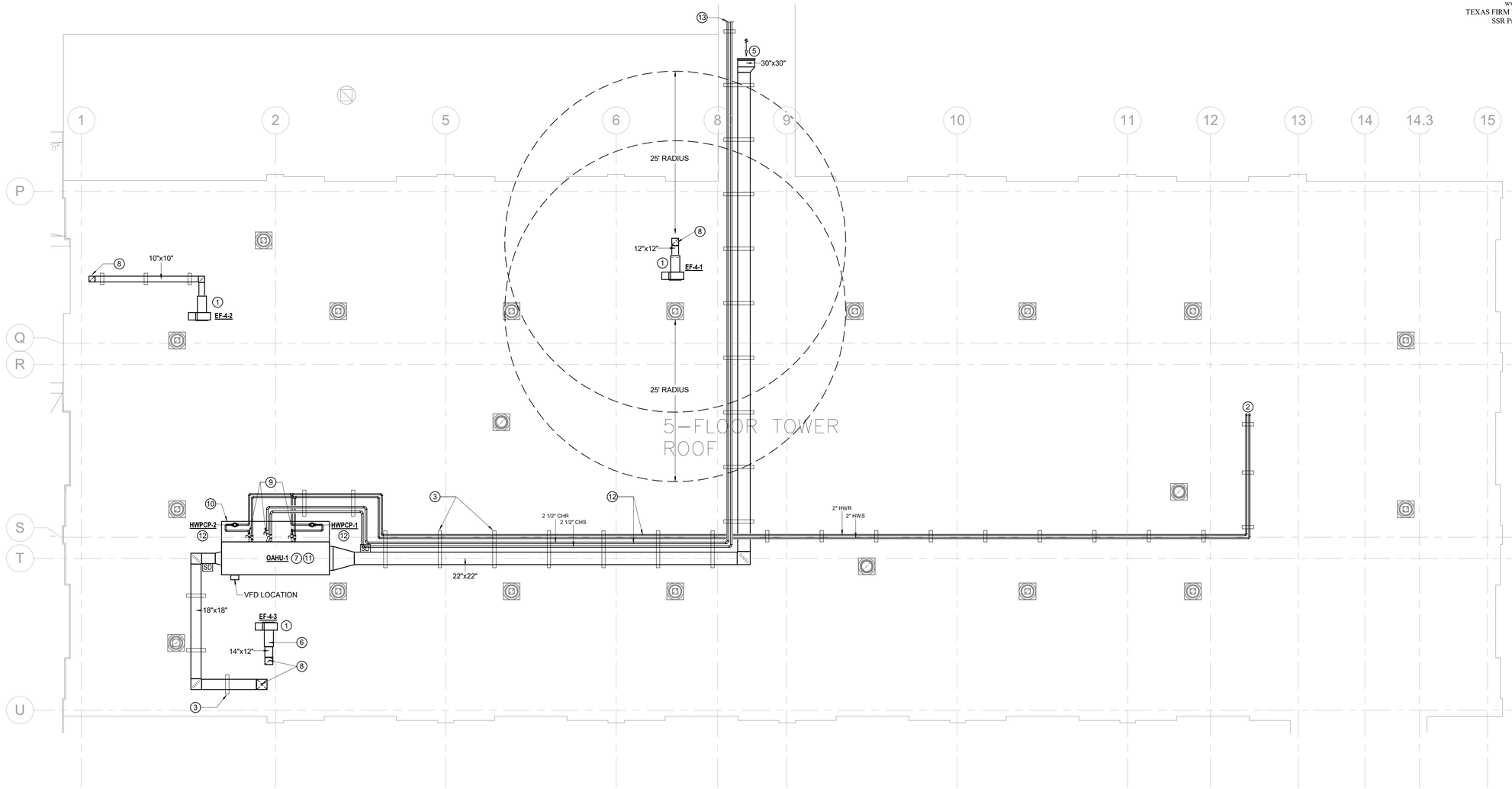


1 ROOF PLAN - MECHANICAL

1/8" = 1'-0"

RENOVATION LEGEND

SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
◔	CONNECT TO EXISTING AT THIS POINT

SHEET GENERAL NOTES

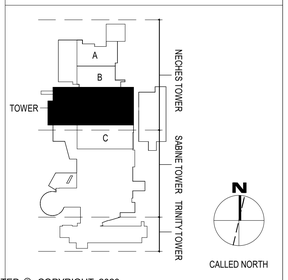
A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

B. FOR ALL MECHANICAL EQUIPMENT LOCATED ON THE ROOF AND NOT ADDRESSED ON THE STRUCTURAL DRAWINGS, G.C. SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS TO PROVIDE SIGNED AND SEALED DRAWINGS AND CALCULATIONS OF ANCHORAGE, GUYS, ETC. AS REQUIRED TO WITHSTAND THE WIND LOADS INDICATED ON THE GENERAL NOTES SHEET. G.C. SHALL SUBMIT A SIGNED & SEALED CERTIFICATE FROM A REGISTERED WINDSTORM ENGINEER THAT THE INSTALLATION MEETS THE CITY'S WIND LOAD REQUIREMENTS.

SHEET KEYED NOTES

1. NEW EXHAUST FANS. REFER TO STRUCTURAL FOR VERTICAL DISCHARGE STACK GUY WIRE REQUIREMENTS. SEE SCHEDULE.
2. ROUTE NEW PIPING TO MECHANICAL ROOM ON LEVEL 5 BELOW. REFER TO DETAILS FOR PIPE ROOF PENETRATIONS AND SEALING. SEE M105 AND M601 FOR MORE INFORMATION.
3. SUPPORT ALL PIPING AND DUCT PER DETAILS AT SPECIFIED SPACING, TYPICAL.
4. CONTRACTOR TO ROUTE POWER AND CONTROL CABLING OUT TO EQUIPMENT IN WEATHER RATED CONDUIT ON ROOF SUPPORTS PER SPECIFICATIONS.
5. OUTSIDE AIR INTAKE AT NEW OAHU-1 SHALL BE A MINIMUM OF 25' FROM EXHAUST FAN OUTLETS AND PLUMBING VENTS. INSTALL INTAKE 36" ABOVE FINISH ROOF AND WITH MITERED ENDCAP WITH INSECT SCREEN. PROVIDE MINIMUM 6.5 SQ. FT. FREE AREA AT INTAKE.
6. ALL NEW EQUIPMENT TO BE INSTALLED A MINIMUM OF 10' AWAY FROM EDGE OF ROOF.
7. NEW OUTSIDE AIR HANDLING UNIT INSTALLED ON ISOLATION CURB WITH HORIZONTAL DISCHARGE. SEE SCHEDULE.
8. NEW DUCT DOWN TO LEVEL 5 BELOW. REFER TO DETAILS FOR DUCT ROOF PENETRATIONS AND SEALING.
9. PROVIDE DRAINS ON THE SUPPLY AND RETURN PIPING UP AND DOWNSTREAM OF THE SHUT-OFF VALVES.
10. PROVIDE INTEGRAL 36" DEEP PIPE VESTIBULE TO HOUSE COIL SHUTOFF VALVES, CONTROL VALVES AND HOT WATER COIL IN-LINE CIRCULATION PUMPS.
11. MECHANICAL CONTRACTOR TO INSTALL AHU MANUFACTURER PROVIDED UV LAMP ARRAY DOWNSTREAM OF THE COOLING COIL WITH A 120V CIRCUIT FROM THE ELECTRICAL CONTRACTOR. INSTALL A DOOR INTERLOCK SWITCH AND OTHER ACCESSORIES INDICATED IN SPECIFICATIONS.
12. COST LINE ITEM: MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL THERMON BSX 3-2 SELF-REGULATING HEAT TRACING CABLE ON CHILLED WATER AND HOT WATER PIPING UNDER THE INSULATION ON THE ROOF OR EQUIVALENT MANUFACTURER'S PRODUCT PER SPECIFICATION. PROVIDE ACCESSORIES PER SPECIFICATION. EACH PIPING SERVICE SHALL HAVE A 20A/277V/1PH CIRCUIT AND 4.1 WATT/FOOT HEAT GENERATING CAPACITY. THE CHILLED WATER PIPING RUN IS APPROXIMATELY 540 LINEAR FOOT SUPPLY AND RETURN COMBINED. THE HEATING WATER PIPING RUN IS APPROXIMATELY 320 LINEAR FOOT SUPPLY AND RETURN COMBINED. CONTRACTOR TO VERIFY FINAL LENGTH IN FIELD PRIOR TO ORDERING. PROVIDE PIPE TEMPERATURE SENSING BULBS, FIXING TAPE AND WARNING LABELS. INSTALL PER MANUFACTURERS REQUIREMENTS.
13. NEW IN-LINE RE-CIRCULATING HEATING HOT WATER PUMP. INSTALL PER DETAIL. SEE SCHEDULE.
14. SEE OVERALL ROOF PLAN FOR CHILLED WATER SUPPLY/RETURN CONTINUATION ON MP107.

KEY PLAN



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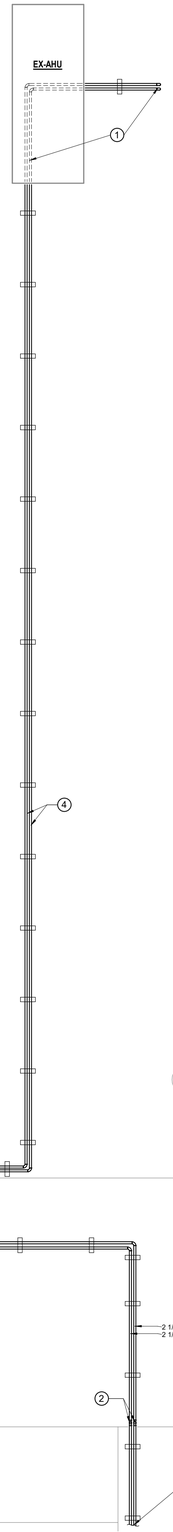
DRAWINGS SHEET TITLE
MECHANICAL - ROOF PLAN - DUCT & PIPING

SHEET NUMBER
M106

20109
PROJECT NUMBER



RENOVATION LEGEND

SYMBOL	DESCRIPTION
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———	NEW CONSTRUCTION
⌖	CONNECT TO EXISTING AT THIS POINT

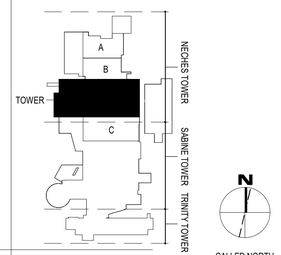
SHEET GENERAL NOTES

A. REFER TO MECHANICAL GENERAL NOTES ON M001 AND M002.

SHEET KEYED NOTES

1. ROUTE PIPING UNDERNEATH EXISTING AHU SUPPORT STRUCTURE ON ROOF LEVEL DOWN TO MECHANICAL ROOM AND TIE-IN NEW CHILLED WATER SUPPLY/RETURN TO EXISTING AT BLIND FLANGE. SEE PICTURE (THIS SHEET) FOR REFERENCE.
2. PIPE DROP DOWN TO 5TH FLOOR ROOF. PROVIDE VERTICAL PIPE SUPPORTS PER DETAIL.
3. PIPE RISE UP TO ELEVATOR TOWER ROOF. PROVIDE VERTICAL PIPE SUPPORTS PER DETAIL.
4. COST LINE ITEM. CHILLED WATER HEAT TRACING INDICATED ON SHEET M106 CONTINUES ON THIS SHEET UNTIL PIPING ENTERS THE BUILDING THROUGH THE CEILING.

KEY PLAN



1 OVERALL ROOF PLAN - MECHANICAL

1/8" = 1'-0"

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PROFESSIONAL ENGINEER
02/25/2021

4 NORTH WEST COVID UNIT

Baptist Hospitals of Southeast Texas

3080 College Street

Beaumont, TX 77701

ISSUED FOR
SCHEMATIC DESIGN ☐
DATE:
DESIGN DEVELOPMENT ☐
DATE:
BIDS & CONSTRUCTION ☒
DATE: **02/26/2021**
REVISION: 1
DATE: MM-DD-YYYY
REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE

MECHANICAL - OVERALL ROOF PLAN - PIPING

SHEET NUMBER

MP107

20109
PROJECT NUMBER

Smith Seckman Reid, Inc.
3700 West Sam Houston Parkway South,
Suite 200
Houston, TX 77042
(713) 784-8211
FAX: (713) 952-8655
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TEXAS FIRM REGISTRATION #: F-2874
SSR Project #: 20230850

Architectural Alliance Incorporated
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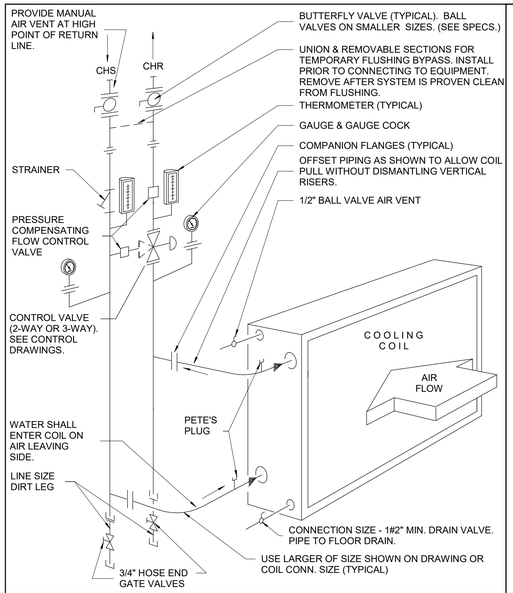
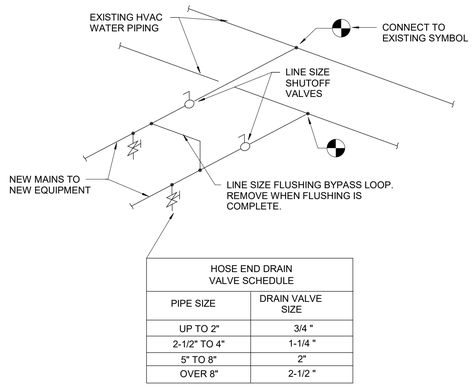
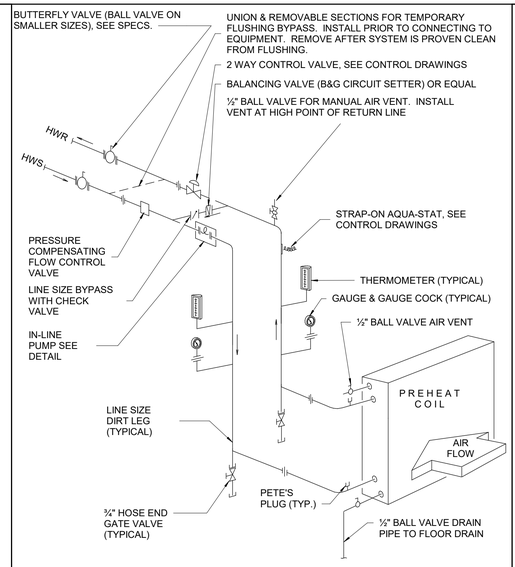


CHILLED WATER PIPING AT SINGLE COOLING COIL | 7



HOSE END DRAIN VALVE SCHEDULE	
PIPE SIZE	DRAIN VALVE SIZE
UP TO 2"	3/4 "
2-1/2" TO 4"	1-1/4 "
5" TO 8"	2"
OVER 8"	2-1/2 "

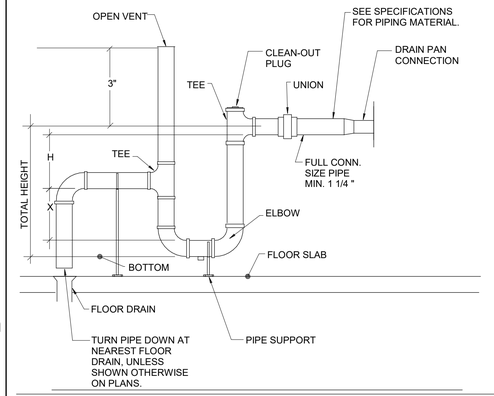
NEW HVAC WATER PIPE CONNECTIONS TO EXISTING PIPING | 5



PREHEAT AND REHEAT COIL | 3

N O T E :

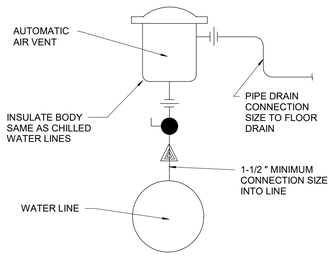
ELEVATE A/C UNIT SUFFICIENT DISTANCE ABOVE FLOOR OR ROOF TO ALLOW FOR INSTALLATION OF TRAP WITH ADEQUATE DIMENSIONS TO WITHSTAND SYSTEM OPERATING PRESSURE. COORDINATE WITH DETAIL FOR A UNIT MOUNTING.



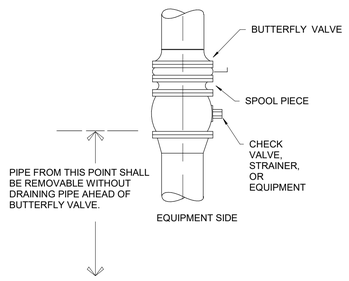
TOTAL HEIGHT OF TRAP= X+H+ (1 1/2 x PIPE DIAMETER)

FOR DRAW THRU UNITS	FOR BLOW THRU UNITS
X= MIN. 1/2 H (PREFERRED X=H)	X= FAN STATIC PRESSURE +1"
H= NEGATIVE STATIC PRESSURE +1"	H= MIN. 1"

COOLING COIL CONDENSATE DRAIN | 2



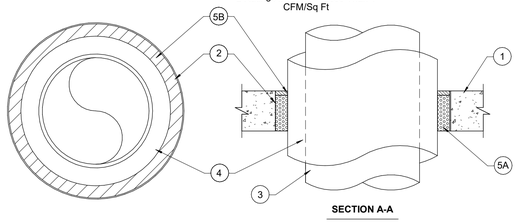
AUTOMATIC AIR VENT | 6



TYPICAL PIPING AT BUTTERFLY VALVE | 4

System No. C-AJ-5091

F Rating — 2 Hr
T Rating — 1 Hr
L Rating At Ambient — 4 CFM/Sq Ft
L Rating At 400 F — Less Than 1 CFM/Sq Ft



SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max dia. of opening is 19-1/2 in.
See Concrete Blocks (CAZT) category in the Fire Resistance directory for names of manufacturers.

2. Metallic Sleeve — (Optional) — Nom 20 in. dia. (or smaller) Schedule 10 (or heavier) steel pipe.

2A. Sheet Metal Sleeve — (Optional) - Max 6 in. dia., min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approximately mid- height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. larger than the sleeve dia.. The sleeve is to be cast in place flush with bottom surface of floor and may extend a max of 1 in. above the top surface of the floor.

2B. Sheet Metal Sleeve — (Optional) - Max 12 in. dia., min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approximately mid- height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. larger than the sleeve dia.. The sleeve is to be cast in place flush with bottom surface of floor and may extend a max of 1 in. above the top surface of the floor.

3. Through Penetrants — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. Steel Pipe — Nom 12 in. dia. (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe — Nom 12 in. dia. (or smaller) cast or ductile iron pipe.
C. Copper Pipe — Nom 6 in. dia. (or smaller) Regular (or heavier) copper pipe.
D. Copper Tubing — Nom 6 in. dia. (or smaller) Type L (or heavier) copper tubing.

4. Pipe Covering — Nom 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied, self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the periphery of the opening shall be min 1/2 in. to a max 2-1/4 in. e-018,I0.041667;

See Pipe Equipment Covering — Materials — (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4A. Pipe Covering — (Not Shown) — As an alternate to Item 4, max 2 in. thick cylindrical calcium silicate (min 14 pcf) units sized to the outside dia. of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 8 AWG stainless steel wire spaced max 12 in. OC. The annular space shall be min 1/2 in. to max 2-1/4 in.

5. Firestop System — The firestop system shall consist of the following:

A. Packing Material — Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

B. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant
*Bearing the UL Classification Mark

INSULATED METAL PIPE THROUGH OPTIONAL STEEL SLEEVE IN CONCRETE FLOOR/WALL | 1

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DRAWINGS SHEET TITLE

MECHANICAL - DETAILS

SHEET NUMBER
M501

20109
PROJECT NUMBER

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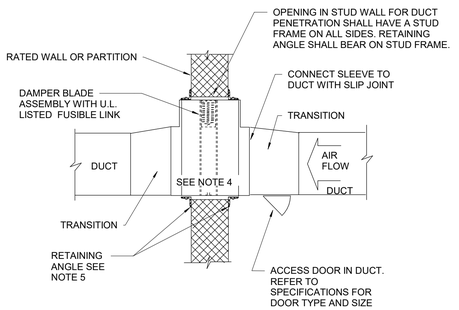
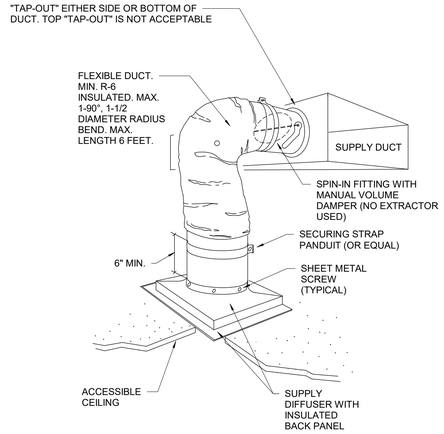


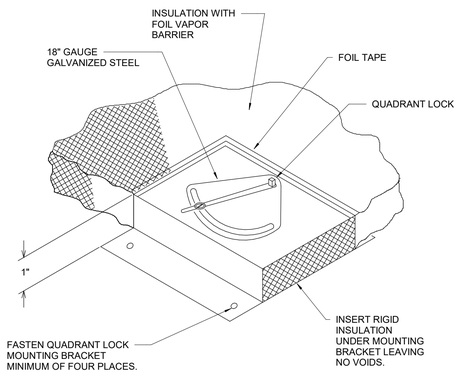
N O T E S:
1. PROVIDE U.L. LISTED DAMPER AND SLEEVE IN ACCORDANCE WITH U.L. 555.
2. INSTALL DAMPER AND SLEEVE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS NOT TO VOID U.L. LISTING.
3. SLEEVE MAY EXTEND BEYOND WALL MAXIMUM 6 INCHES.
4. PROVIDE EXPANSION SPACE PER MANUFACTURER'S INSTRUCTION, BUT NOT LESS THAN 1/8 " PER LINEAR FOOT, BOTH DIRECTIONS.
5. PROVIDE MINIMUM 1-1/2 " x 1-1/2 " x 16 GA. RETAINING ANGLE ON TOP, BOTTOM, AND SIDES. ATTACH ANGLE TO SLEEVE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DAMPER SHALL BE SELF SUPPORTING, INDEPENDENT OF DUCTWORK. ANGLES SHALL OVERLAP WALL A MINIMUM OF ONE INCH.

FIRE DAMPER AT RATED WALL — 8

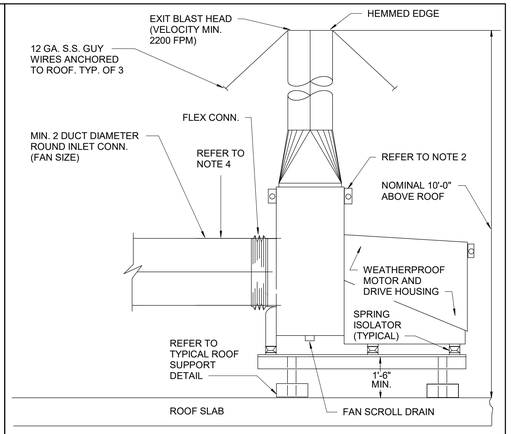


NOTE:
FOLLOW MFR'S INSTRUCTIONS FOR INSTALLATION OF SUPPLY DIFFUSER IN CEILING

DUCTWORK CONNECTION TO SUPPLY DIFFUSER (FLEX DUCT) — 6

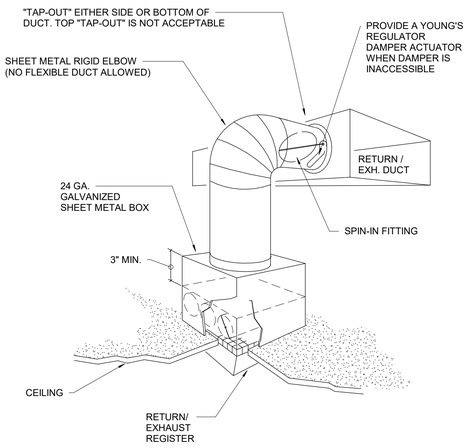


QUADRANT LOCK DETAIL — 4

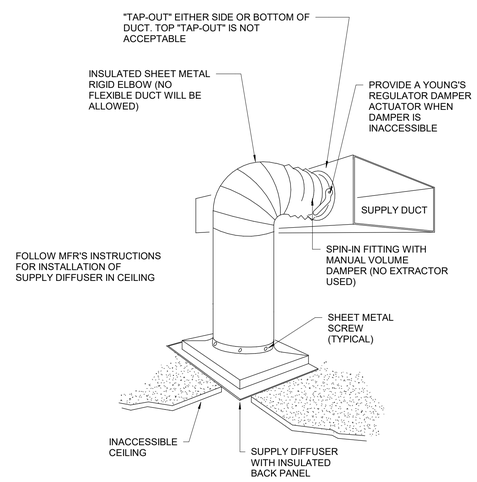


N O T E S :
1. PROVIDE MEANS TO LUBRICATE BEARINGS, EITHER BY ACCESS PANEL OR EXTERIOR MOUNTED ZERK FITTING.
2. REFER TO ARCHITECTURAL DRAWING FOR ADDITIONAL BRACING AND TIE-DOWN REQUIREMENTS.
3. ALL EXPOSED DUCT INCLUDING THE FILTER HOUSING SHALL BE INSULATED AS SPECIFIED.

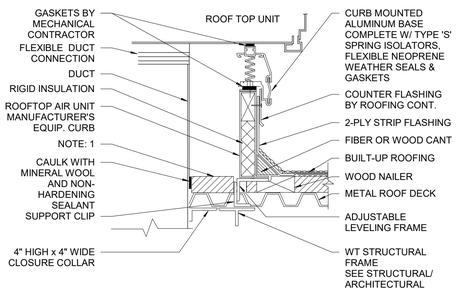
ROOF MOUNTED EXHAUST FAN (B.V.S.) — 2



DUCTWORK CONNECTION TO RETURN / EXHAUST GRILLE (RIGID DUCT) — 7

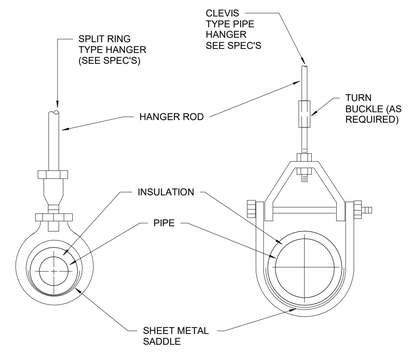


DUCTWORK CONNECTION TO SUPPLY DIFFUSER (ALL RIGID DUCT) — 5



NOTES:
1. FIT DECKING AND DECK INSULATION AROUND DUCTS AFTER DUCTS ARE STUBBED THRU DECK.

SPRING ISOLATION CURB ROOF TOP UNIT MOUNTING — 3



PIPE HANGER SUPPORTS — 1

STATE OF TEXAS
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DRAWINGS SHEET TITLE
MECHANICAL - DETAILS

SHEET NUMBER
M502

20109
PROJECT NUMBER

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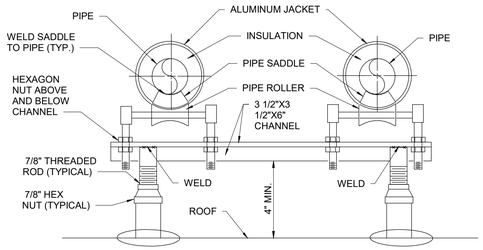
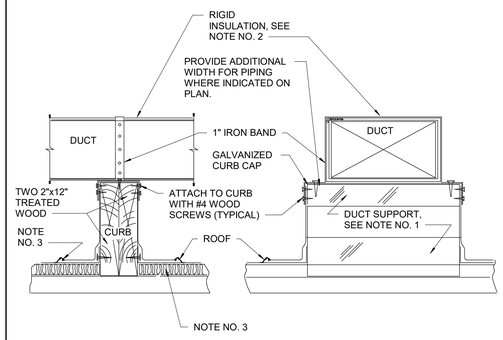


NOTE:

ALL NUTS, BOLTS, AND THREADED RODS SHALL BE STAINLESS STEEL. WHEN NOTED ON PLAN THE CHANNEL SUPPORT MAY BE SUBSTITUTED FOR INSTALLATION OF THE ROLLER SUPPORTS ON TO THE BLOCK DUCTWORK SUPPORT. SEE THAT DETAIL.

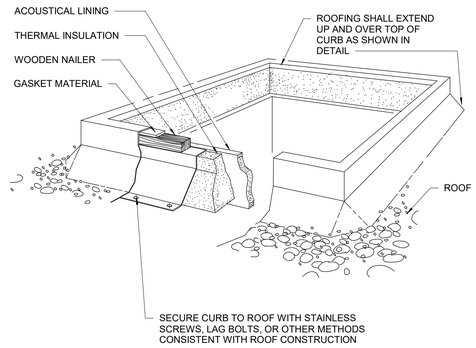
ROOF PIPE SUPPORT | 8



NOTE:

1. REFER TO SPECIFICATIONS FOR SPACING OF SUPPORTS.
2. REFER TO SPECIFICATIONS FOR INSULATION.
3. SEE ARCHITECTURAL DETAILS OF ROOF CURB FLASHING AND COUNTERFLASHING.

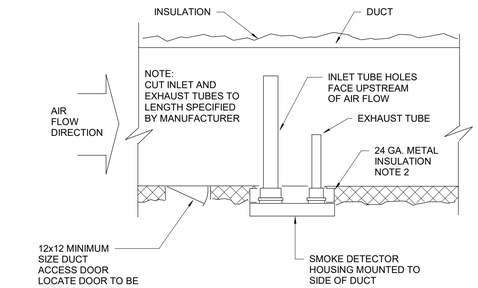
ROOF DUCT SUPPORT | 6



NOTE:

REFER TO ARCHITECTURAL DETAILS FOR FLASHING INTO ROOF.

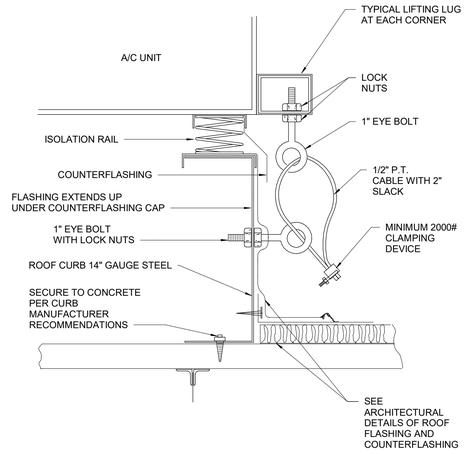
THERMAL/ACOUSTICAL ROOF CURB | 4



NOTES:

1. DETAIL SHOWS GENERAL INSTALLATION METHODS. REFER TO INDIVIDUAL MANUFACTURER FOR THEIR SPECIFIC INSTALLATION AND LOCATION INSTRUCTIONS.
2. STANDOFF BRACKET NOT REQUIRED ON NON-INSULATED DUCT.
3. INSTALL DETECTOR WITHIN 5'-0" OF EACH FIRE AND SMOKE DAMPER WITH NO AIR INLETS OR OUTLETS BETWEEN DETECTOR AND DAMPER.
4. IT IS PREFERABLE TO INSTALL DETECTOR UPSTREAM BUT DOWNSTREAM IS ACCEPTABLE IF BETTER ACCESSIBILITY.

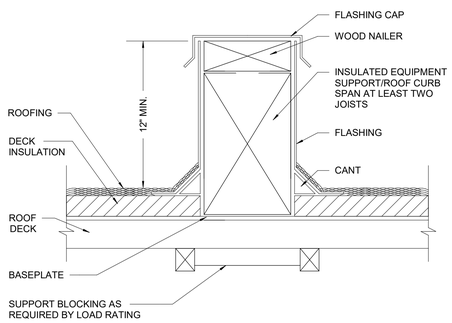
DUCT MOUNTED SMOKE DETECTOR | 2



NOTE:

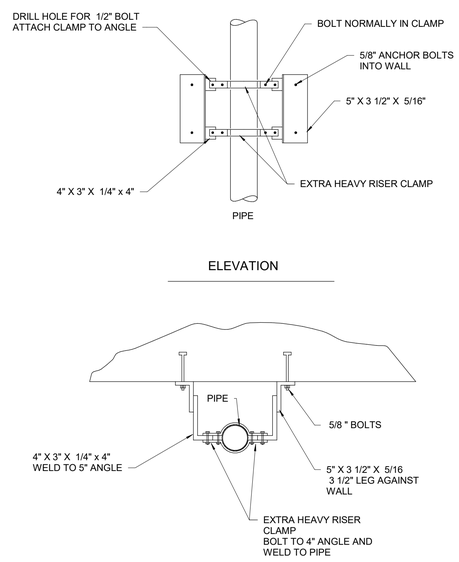
A/C UNIT ROOF CURB/ISOLATION BASE/CONNECTION POINTS SHALL BE MADE PER UNIT MANUFACTURER'S RECOMMENDATIONS.

HURRICANE ANCHORING FOR ROOF MOUNTED EQUIPMENT | 7

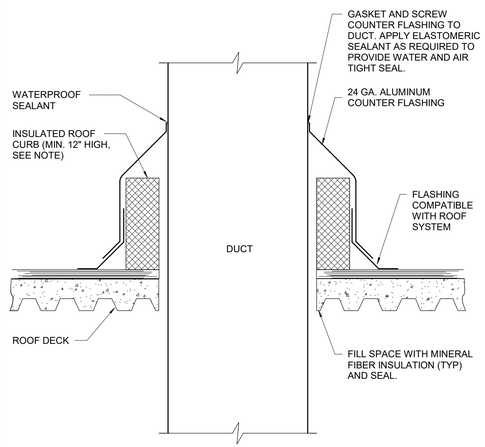


SECURE BASEPLATE TO ROOF DECK WITH STAINLESS STEEL FASTENERS OR WELD PER MANUFACTURERS RECOMMENDATIONS.

EQUIPMENT SUPPORT RAIL INSTALLATION | 5



PIPE SUPPORT TO VERTICAL WALL | 3



NOTES:

1. SEE SPECIFICATIONS AND EQUIPMENT SCHEDULES FOR ADDITIONAL ROOF CURB REQUIREMENTS.
2. FLASH AND COUNTERFLASH CURB TO ROOF.
3. FLASH AND COUNTERFLASH DUCT TO CURB.

DUCT PENETRATION THROUGH ROOF | 1

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DRAWINGS SHEET TITLE

MECHANICAL - DETAILS

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M504

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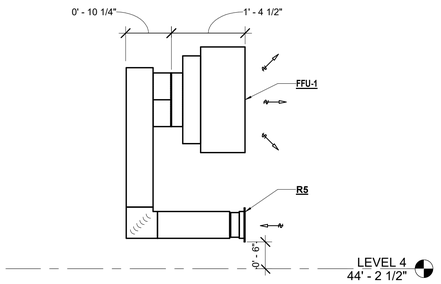
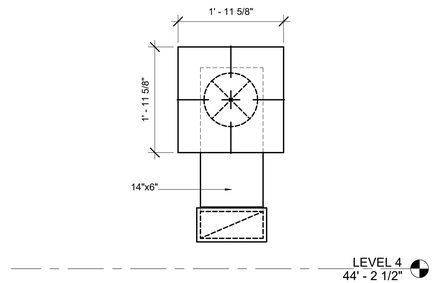
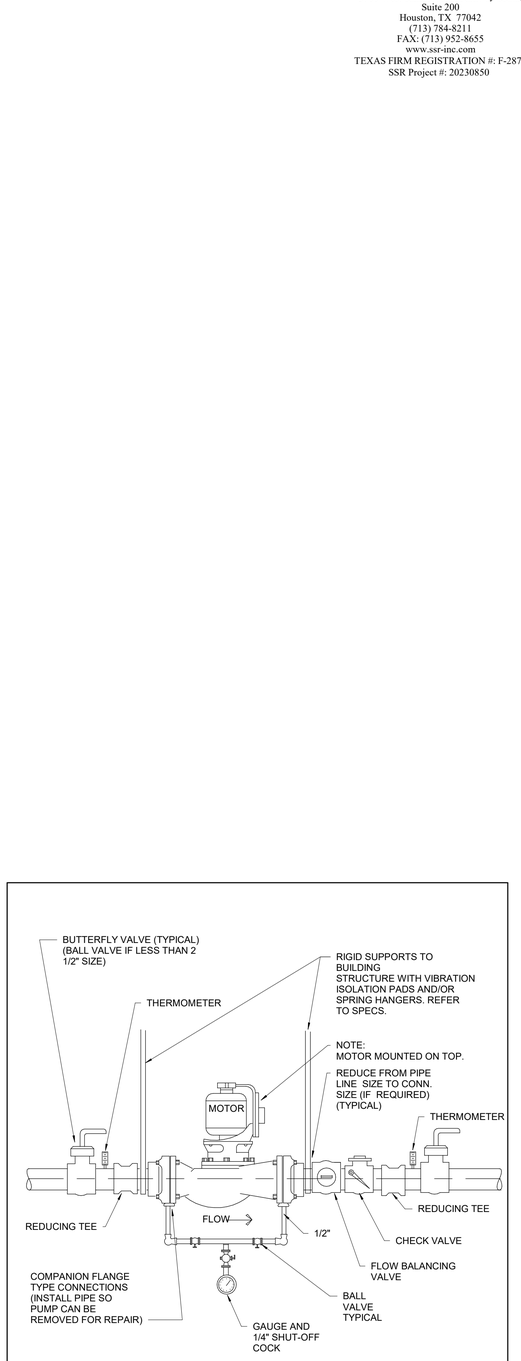
PROJECT NUMBER



3 TYPICAL WALL MOUNTED FFU SECTION VIEW
3/4" = 1'-0"

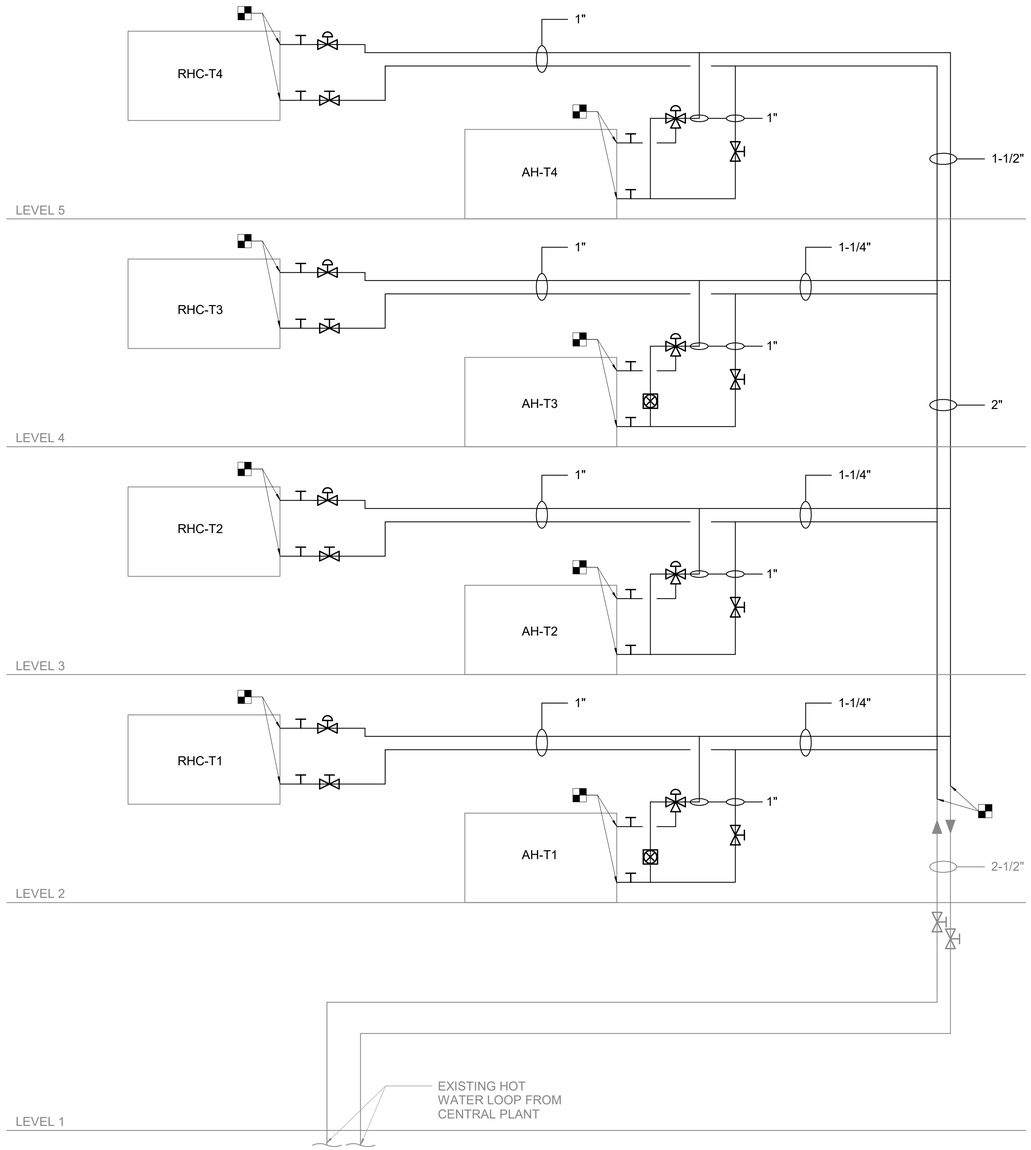


2 TYPICAL WALL MOUNTED FFU FRONT VIEW
3/4" = 1'-0"



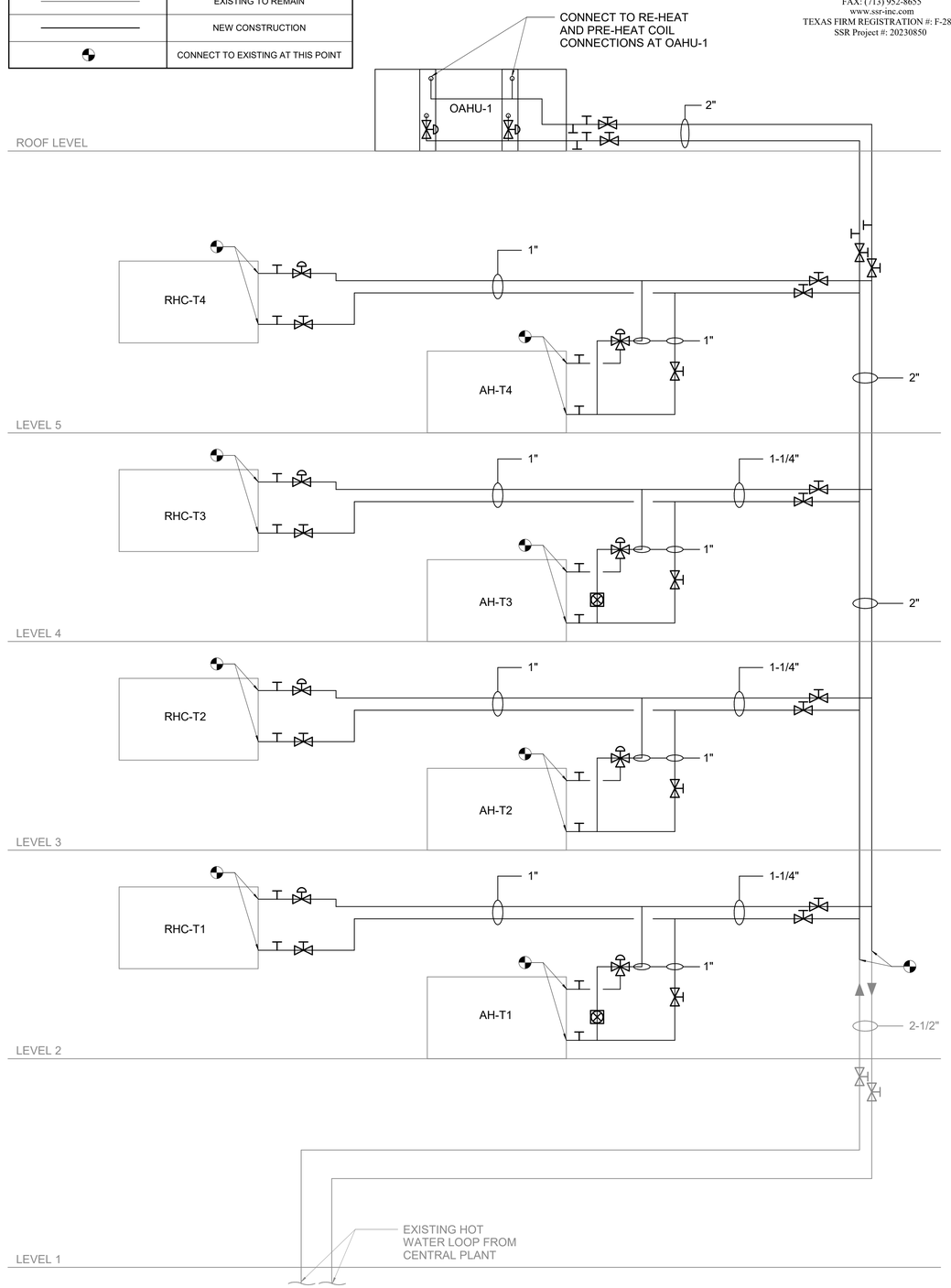
IN-LINE CIRCULATING PUMP | 1

DEMOLITION LEGEND	
SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	EXISTING TO BE REMOVED
■	DEMO TO THIS POINT



2 HOT WATER PIPING SCHEMATIC - DEMO
NOT TO SCALE

RENOVATION LEGEND	
SYMBOL	DESCRIPTION
———	EXISTING TO REMAIN
———	NEW CONSTRUCTION
●	CONNECT TO EXISTING AT THIS POINT



1 HOT WATER PIPING SCHEMATIC - RENO
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REVISION: 2
DATE: MM-DD-YYYY
REVISION: 3
DATE: MM-DD-YYYY

DRAWINGS SHEET TITLE
MECHANICAL - HW PIPING SCHEMATIC

SHEET NUMBER
M601

20109
PROJECT NUMBER

SEQUENCE OF OPERATION

GENERAL NOTE: ALL SETPOINTS AND TIME DURATIONS SHALL BE USER ADJUSTABLE THROUGH LOCAL CONTROLS AND THROUGH THE BAS.

SUPPLY FAN CONTROL
SUPPLY FAN SHALL BE STARTED BY ANY OF THE FOLLOWING:
- BAS COMMAND AUTOMATICALLY OR BY OPERATOR.
- VFD "HAND" POSITION.

SUPPLY FAN SHALL BE STOPPED BY ANY OF THE FOLLOWING:
- BAS COMMAND AUTOMATICALLY OR BY OPERATOR.
- VFD "HAND" POSITION.
- HARDWIRED SAFETIES.
- FIRE ALARM.

WHENEVER THE AHU IS DE-ENERGIZED:
- OUTSIDE AIR DAMPERS SHALL BE CLOSED.
- CHILLED WATER VALVE SHALL BE CLOSED.
- PREHEAT HOT WATER VALVE SHALL BE OPEN.
- DUCT MOUNTED SMOKE DAMPERS SHALL BE CLOSED.

WHENEVER THE AHU IS ENERGIZED, THE FOLLOWING SEQUENCE SHALL TAKE PLACE:
- OUTSIDE AIR DAMPER SHALL OPEN.
- WHEN SUPPLY FAN START IS PROVEN, SUPPLY AIR TEMPERATURE CONTROL SHALL BE ENABLED.

SUPPLY AIR TEMPERATURE CONTROL

AS T-SA BEGINS TO FALL BELOW SETPOINT:
1. CHILLED WATER VALVE SHALL BEGIN TO CLOSE.
2. CHILLED WATER VALVE SHALL BE CLOSED FULLY WHEN T-OA IS EQUAL OR LESS THAN T-SA SETPOINT.
3. UPON CONTINUED FALL IN T-SA BELOW SETPOINT, PREHEAT HOT WATER VALVE SHALL MODULATE TO MAINTAIN T-SA SETPOINT.

AS OUTSIDE AIR TEMPERATURE RISES AND T-SA RISES ABOVE SETPOINT:
1. PREHEAT HOT WATER VALVE SHALL MODULATE CLOSED.
2. UPON A CONTINUED RISE IN T-SA ABOVE SETPOINT, CHILLED WATER VALVE SHALL MODULATE OPEN TO MAINTAIN T-SA SETPOINT AND THE PHP SHALL ENGAGE.

SUPPLY AIR HUMIDITY CONTROL
AS SPACE HUMIDITY AS MEASURED BY H-SPACE RISES ABOVE SETPOINT THE CHILLED WATER CONTROL VALVE SHALL MODULATE OPEN REDUCING THE T-CC BELOW SETPOINT UNTIL H-SPACE SETPOINT IS ACHIEVED. THE REHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN THE T-SA SETPOINT AND NOT OVERCOOL THE SPACE AND THE RHP SHALL ENGAGE.

SUPPLY AIR TEMPERATURE RESET CONTROL
BAS SHALL RESET THE T-SAT SETPOINT LINEARLY ACCORDING TO SCHEDULE BELOW.
IF H-RA EXCEEDS 58%, RESET SHALL BE DISABLED. WHEN H-RA FALLS BELOW 55%, RESET SHALL BE ENABLED.

OAT	T-SA
80	SETPOINT
40	SETPOINT + 5

SUPPLY FAN SPEED CONTROL
- SUPPLY FAN VFD SPEED SHALL MODULATE TO MAINTAIN AIRFLOW SETPOINT.
- BAS SHALL READ VELOCITY PRESSURE AT SUPPLY FAN AND CALCULATE AIRFLOW.

FILTERS
BAS SHALL MONITOR DIFFERENTIAL PRESSURE ACROSS FILTER BANKS AND INITIATE AN ALARM IF PRESSURE DROP EXCEEDS HIGH LIMIT SETPOINTS.

FREEZE PROTECTION
IF TEMPERATURE T-HC FALLS BELOW ALARM SETPOINT;
- PREHEAT HOT WATER VALVE SHALL OPEN FULLY AND PHP AND RHP SHALL BE ENGAGED IF NOT ALREADY ON.
- INITIATE AN ALARM.

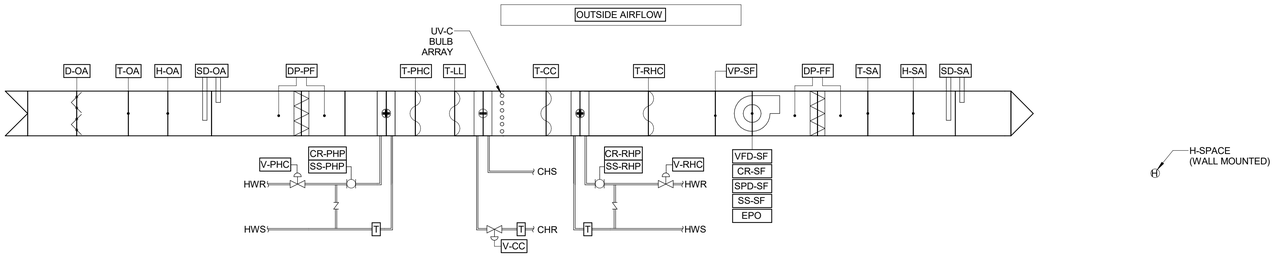
IF THE TEMPERATURE LOW LIMIT T-LL UPSTREAM OF THE COOLING COIL FALLS BELOW 36 F:
- STOP SUPPLY FAN
- OPEN THE CHILLED WATER VALVE 20%.
- INITIATE AN ALARM.

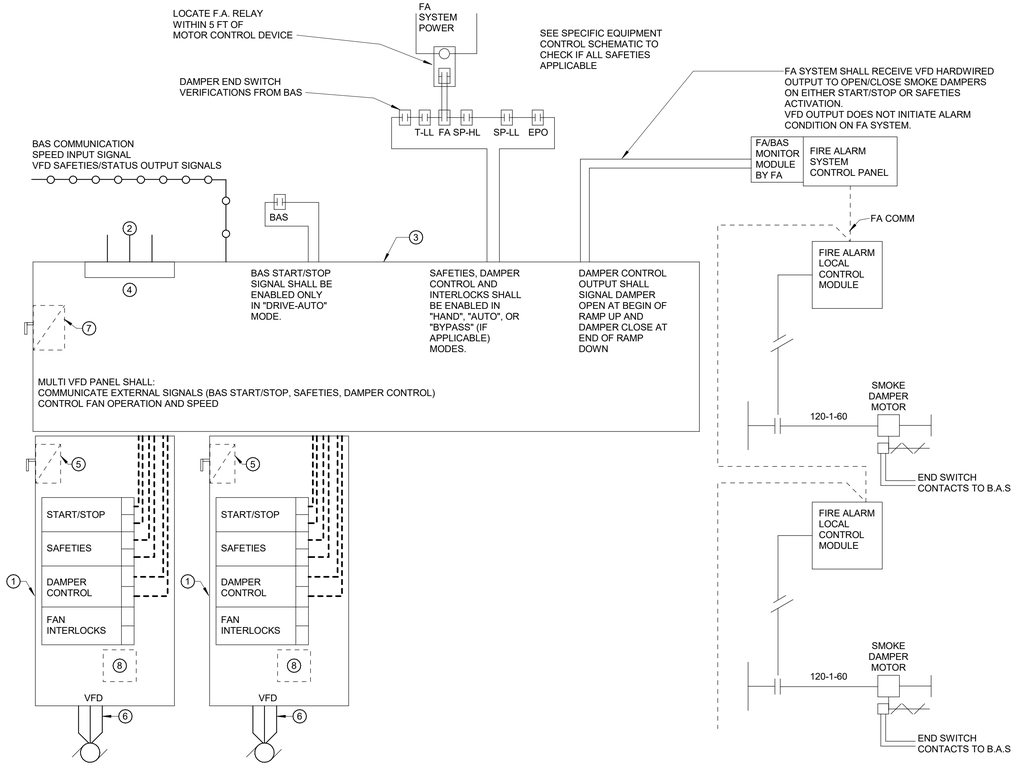
AHU RESPONSE TO FIRE ALARM
UPON ACTIVATION OF ANY FIRE ALARM DEVICE OTHER THAN PULL STATIONS:
THE FIRE ALARM SYSTEM SHALL HARDWIRE STOP THE SUPPLY FAN AND INTERLOCKED RETURN AND EXHAUST FANS.
FIRE/SMOKE DAMPERS WILL BE CLOSED BY THE FIRE ALARM SYSTEM.

HVAC CONTROL SIGNAL LEGEND - 100% OA, CH WATER COOLING

SIGNAL LEGEND IS A DESCRIPTION OF POINTS AND NOT A QUANTITATIVE POINTS LIST. CONTRACTOR SHALL DEVELOP POINTS LIST BASED ON SCOPE OF PROJECT
ACTION: "A" = ANALOG/MODULATING; "B"= BINARY/TWO POSITION
ALL POINTS LISTED IN "BAS VALUE" OR "BAS ALARM" SHALL BE SHOWN ON GRAPHICAL DISPLAY.
ALL ANALOG POINTS EXCEPT VALVE AND DAMPER POSITIONS SHALL BE TRENDED. MAINTAIN HISTORY OF FAN RUNTIMES AND BINARY ALARMS.
ALL DAMPERS AND VALVES SHALL BE ABLE TO ACCEPT MANUAL OVERRIDE OF POSITION.
ALL SETPOINTS, TIME DURATIONS AND ALARM VALUES SHALL BE ADJUSTABLE.

TAG	DEVICE	ACTION	FAIL POSITION	BAS VALUE	BAS ALARM	DIRECT CONTROL BY FIRE ALARM	NOTES
CR-SF	CURRENT RELAY - SUPPLY FAN	B		ON/OFF	MOTOR FAILURE		ALARM IF MOTOR STATUS NOT EQUAL TO COMMAND
D-OA	DAMPER - OUTSIDE AIR	A	CLOSED	% OPEN			DAMPER FURNISHED AS PART OF AHU BY MFR
DP-PF	DIFFERENTIAL PRESSURE - PRE FILTER	B			GREATER THAN 0.8 IN.W.C.		
EPO	EMERGENCY POWER OFF	B			ACTIVATED		
H-OA	RELATIVE HUMIDITY - OUTSIDE AIR	A		% RH			
H-SA	RELATIVE HUMIDITY - SUPPLY AIR	A		% RH			
SD-OA	SMOKE DETECTOR - OUTSIDE AIR PLENUM	B				WIRED BY F.A. INSTALLER	FURNISHED BY DIV 26
SD-SA	SMOKE DETECTOR - SUPPLY AIR DUCT	B				WIRED BY F.A. INSTALLER	FURNISHED BY DIV 26
SPD-SF	SPEED CONTROL - SUPPLY FAN	A		% SPEED			
SS-SF	START/STOP - SUPPLY FAN	B					
T-CC	TEMPERATURE - COOLING COIL LEAVING	A		DEG F	SETPOINT + 4 F		
T-PHC	TEMPERATURE - PRE-HEATING COIL LEAVING	A		DEG F	LESS THAN 40 F		
T-RHC	TEMPERATURE - RE-HEATING COIL LEAVING	A		DEG F	LESS THAN 40 F		
T-LL	TEMPERATURE - LOW LIMIT	B		DEG F	LESS THAN 36 F		HARDWIRED TO STOP SUPPLY FAN; MANUAL RESET
T-OA	TEMPERATURE - OUTSIDE AIR	A		DEG F			
T-SA	TEMPERATURE - LEAVING SUPPLY AIR	A		DEG F	SETPOINT + 4 F		SETPOINT = T-CC + 2° F
V-CC	VALVE - COOLING COIL	A	CLOSED	% OPEN			
V-PHC	VALVE - PRE-HEATING COIL	A	OPEN	% OPEN			
V-RHC	VALVE - RE-HEATING COIL	A	OPEN	% OPEN			
VFD-SF	VARIABLE FREQ DRIVE - SUPPLY FAN	varies		multiple	multiple		REPLICATE INFORMATION FROM FAN VFD BAS INTERFACE: HZ, % SPEED, KW, AMPS, SAFETIES, FAULTS
VP-SF	VELOCITY PRESSURE - SUPPLY FAN INLET	A		CFM			PIEZO RING FAN INLET: IF FAN ARRAY, PROVIDE AT EACH FAN & BAS TO SUM WITH PARAGON SUMMING PANEL
SS-PHP	START/STOP - PREHEAT PUMP	B					
CR-PHP	CURRENT RELAY - PREHEAT PUMP	B		ON/OFF	MOTOR FAILURE		
SS-RHP	START/STOP - REHEAT PUMP	B					
CR-RHP	CURRENT RELAY - REHEAT PUMP	B		ON/OFF	MOTOR FAILURE		
H-SPACE	RELATIVE HUMIDITY - SPACE (WALL MOUNTED)	A		% RH			





		FURNISHED	INSTALLED	NOTES
1	VFD (SEE DIV 26 SPECS)	AHU MFR	CONTRACTOR	MOUNT ON UNISTRUT; SEE ELEC PLANS FOR LOCATION
2	ELECTRIC POWER	CONTRACTOR	CONTRACTOR	
3	MULTI VFD PANEL	AHU MFR	FACTORY	
4	TERMINAL BLOCKS	AHU MFR	FACTORY	SIZE PER "ELECTRICAL CONNECTION SCHEDULE" SEE ELEC DWGS
5	INTEGRAL DISCONNECT/CIRCUIT BREAKER	AHU MFR	FACTORY	ENABLE REPAIR/REPLACE OF VFD; OTHER VFD REMAINS IN SERVICE
6	ELECTRIC POWER	CONTRACTOR	CONTRACTOR	
7	VFD MAIN DISCONNECT	AHU MFR	FACTORY	INTEGRAL TO MULTI VFD PANEL
8	INTERNAL MOTOR OVERLOAD PROTECTION	AHU MFR	FACTORY	

FAN ARRAY, VFD PER FAN

1 100% OA, CH WATER COOLING
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DRAWINGS SHEET TITLE
MECHANICAL - OAHU CONTROLS

SHEET NUMBER
M701

20109
PROJECT NUMBER

MIS-2 - HVAC CONTROL SIGNAL LEGEND - NEGATIVE PRESSURE PATIENT ROOMS - PLUME FAN

SIGNAL LEGEND IS A DESCRIPTION OF POINTS AND NOT A QUANTITATIVE POINTS LIST. CONTRACTOR SHALL DEVELOP POINTS LIST BASED ON SCOPE OF PROJECT
ACTION: "A" = ANALOG/MODULATING; "B"= BINARY/TWO POSITION
ALL POINTS LISTED IN "BAS VALUE" OR "BAS ALARM" SHALL BE SHOWN ON GRAPHICAL DISPLAY.
ALL ANALOG POINTS SHALL BE TRENDED. SEE TRENDING REQUIREMENTS FOR MORE INFORMATION.
ALL DAMPERS AND VALVES SHALL BE ABLE TO ACCEPT MANUAL OVERRIDE OF POSITION. VIA GRAPHIC DISPLAY
ALL SETPOINTS, TIME DURATIONS AND ALARM VALUES SHALL BE ADJUSTABLE. VIA GRAPHIC DISPLAY

TAG	DEVICE	ACTION	FAIL POSITION	BAS VALUE	BAS ALARM	NOTES
CR-EF	CURRENT RELAY - EXHAUST FAN	B		ON/OFF	MOTOR FAILURE	ALARM IF MOTOR STATUS NOT EQUAL TO COMMAND
D-FANISO	DAMPER - FAN ISOLATION	B	OPEN	OPEN/CLOSED		PROVIDED BY FAN MFR
D-SA	DAMPER - SUPPLY AIR	A	OPEN	% OPEN		
SP-LL	STATIC PRESSURE - DUCT LOW LIMIT	B			LESS THAN -2.5 IN.W.C.	HARDWIRED TO STOP EF
SS-EF	START/STOP - EXHAUST FAN	B				
T-DAT	TEMPERATURE - DISCHARGE AIR TEMP SENSOR	A		DEG °F	DAT > HIGH LIMIT SETPOINT + 2°F	
T-SPACE	TEMPERATURE - SPACE TEMP SENSOR	A		DEG °F		
KW-HC	POWER OUTPUT - HEATING COIL	A	LAST POSITION	KW		
calculated CLG Set	COOLING TEMP SETPOINT	calculated		DEF °F	ROOM TEMP > CLG SETPOINT + 2 °F	OCCUPIED MODE: CLG SETPOINT = ROOM TEMP SETPOINT +1.5 °F; UNOCCUPIED = 80 °F
calculated HTG Set	HEATING TEMP SETPOINT	calculated		DEF °F	ROOM TEMP < HTG SETPOINT - 2 °F	OCCUPIED MODE: HTG SETPOINT = ROOM TEMP SETPOINT -1.5 °F; UNOCCUPIED = 65 °F
input TEMP	ROOM TEMP SETPOINT	input		DEF °F		OCCUPIED MODE: ALLOWABLE RANGE 68-75 °F
V-HC	VALVE - HEATING COIL	A	OPEN	% OPEN		OCCUPIED MODE: ALLOWABLE RANGE 68-75 °F

ISOLATION PATIENT ROOM (NEGATIVE PRESSURE) ROOM CONTROL

SYSTEM SHALL PROVIDE CONSTANT SUPPLY AIR VOLUME AND CONSTANT EXHAUST AIR VOLUME IN CONNECTED PATIENT ROOMS.

ELECTRIC SCR OR HEATING HOT WATER HEATING COIL DISCHARGE AIR TEMPERATURE SHALL NOT EXCEED HIGH LIMIT SETPOINT.

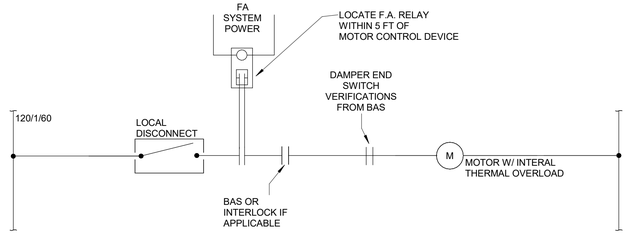
EXHAUST FAN SYSTEM SHALL BE STARTED BY ANY OF THE FOLLOWING:
- BAS COMMAND BY OPERATOR
- VFD HAND POSITION

EXHAUST FAN SYSTEM SHALL BE STOPPED BY ANY OF THE FOLLOWING:
- BAS COMMAND BY OPERATOR
- VFD HAND POSITION
- HARDWIRED SAFETIES

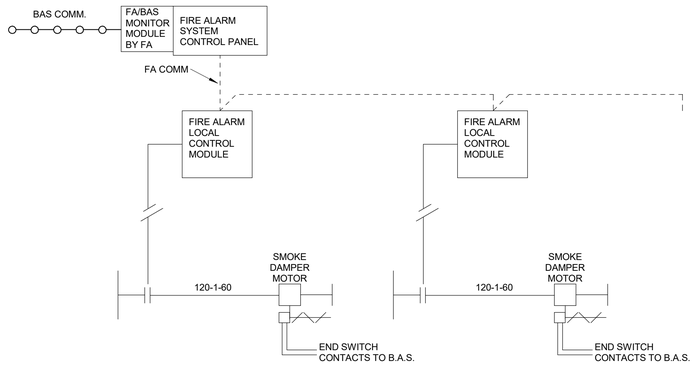
UPON SIGNAL TO START A FAN:
- ISOLATION DAMPER FOR THAT FAN SHALL BE PROVEN OPEN VIA DAMPER END SWITCHES TO ALLOW FAN TO START

IF EXHAUST DUCT STATIC PRESSURE SP-LL FALLS BELOW SETPOINT:
- SUPPLY AIR TERMINAL SHALL CLOSE COMPLETELY
- EXHAUST FAN SYSTEM SHALL STOP
- BAS SHALL INITIATE ALARM

UPON ACTIVATION OF AREA FIRE ALARM:
- EXHAUST SYSTEM SHALL CONTINUE TO RUN.



SINGLE PHASE FAN



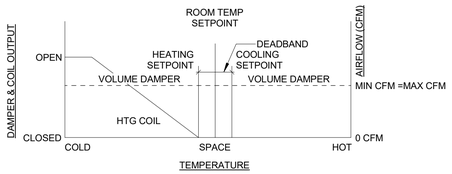
ELECTRIC HEAT CONSTANT AIR VOLUME BOX CONTROL

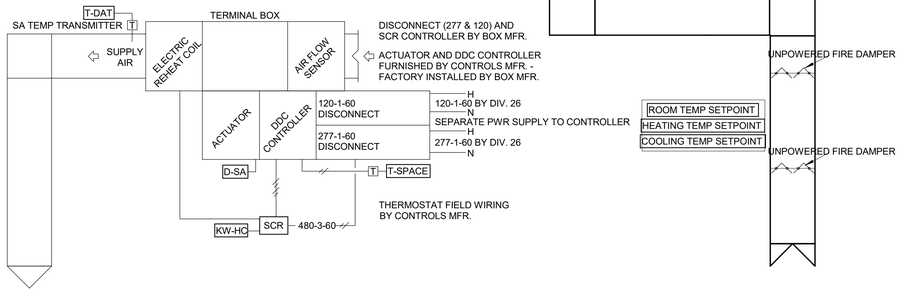
UPON A FALL IN ROOM TEMPERATURE BELOW HEATING TEMPERATURE SETPOINT, HEATING CONTROLLER SHALL MODULATE. HEATING CONTROLLER OUTPUT SHALL BE LIMITED SO THAT DISCHARGE AIR TEMPERATURE SHALL NOT EXCEED DISCHARGE AIR TEMPERATURE SETPOINT.

ELECTRIC HEATING COIL SHALL BE DISABLED IF THE BOX AIR FLOW SENSOR DOES NOT DETECT AIRFLOW.

IF OCCUPANCY SENSOR IS USED IN SPACES SERVED BY BOX, THE BOX SHALL ADJUST CFM TO "UNOCCUPIED" CFM WHEN SPACE IS UNOCCUPIED.

HEATING CONTROLLER SHALL BE LOCKED OUT IF THE SUPPLY AIR FLOW SENSOR DOES NOT INDICATE AIR FLOW.



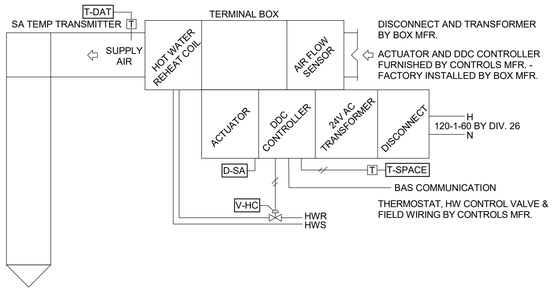


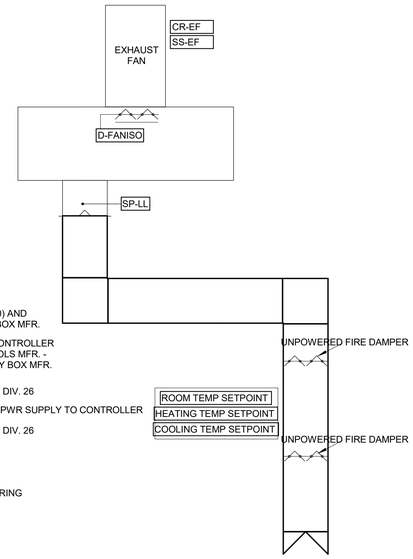
HOT WATER HEAT CONSTANT AIR VOLUME BOX CONTROL

UPON A FALL IN ROOM TEMPERATURE BELOW HEATING TEMPERATURE SETPOINT, HOT WATER VALVE SHALL MODULATE OPEN.

HOT WATER VALVE OPEN POSITION SHALL BE LIMITED SO THAT DISCHARGE AIR TEMPERATURE SHALL NOT EXCEED HIGH LIMIT SETPOINT.

IF BOX HAS NIGHT SETBACK CONTROL, THE BOX SHALL ADJUST AIR FLOW TO UNOCCUPIED CFM SETTING AND SHALL MODULATE HOT WATER VALVE TO MAINTAIN UNOCCUPIED HEATING AND COOLING SETPOINTS WHEN UOCCUPIED.





1 NEGATIVE PRESSURE ROOM EXHAUST FAN

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DRAWINGS SHEET TITLE
MECHANICAL - EF CONTROLS

SHEET NUMBER
M702

20109
PROJECT NUMBER

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SSR Project #: 20230850

SEQUENCE OF OPERATION

GENERAL NOTE: ALL SETPOINTS AND TIME DURATIONS SHALL BE USER ADJUSTABLE.

SUPPLY AIR TEMPERATURE CONTROL

AS T-SA BEGINS TO FALL BELOW SETPOINT:
1. CHILLED WATER VALVE SHALL BEGIN TO CLOSE.
2. CHILLED WATER VALVE SHALL BE CLOSED FULLY WHEN T-OA IS EQUAL OR LESS THAN T-SA SETPOINT.
3. UPON CONTINUED FALL IN T-SA BELOW SETPOINT PREHEAT HOT WATER VALVE SHALL MODULATE TO DIRECT WATER TO THE COIL AND CLOSE OFF THE BYPASS TO MAINTAIN T-SA SETPOINT.

AS OUTSIDE AIR TEMPERATURE RISES AND T-SA RISES ABOVE SETPOINT:
1. PREHEAT HOT WATER VALVE SHALL MODULATE CLOSED TO THE COIL AND DIRECT WATER TO THE BYPASS.
2. THE PREHEAT COIL VALVE SHALL BE FULLY CLOSED TO THE COIL AND OPEN TO THE BYPASS WHEN THE SUPPLY FAN IS OFF.

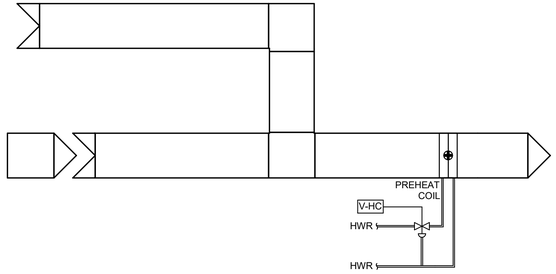
FREEZE PROTECTION

IF TEMPERATURE T-HC FALLS BELOW ALARM SETPOINT;
• PREHEAT HOT WATER VALVE SHALL OPEN FULLY TO THE COIL AND CLOSE THE BY-PASS.
• INITIATE AN ALARM.
IF THE TEMPERATURE LOW LIMIT T-LL UPSTREAM OF THE COOLING COIL FALLS BELOW 36 F:
• OPEN THE CHILLED WATER VALVE 20%.

ACN-3 - HVAC CONTROL SIGNAL LEGEND - EXISTING PREHEAT COIL

SIGNAL LEGEND IS A DESCRIPTION OF POINTS AND NOT A QUANTITATIVE POINTS LIST. CONTRACTOR SHALL DEVELOP POINTS LIST BASED ON SCOPE OF PROJECT
ACTION: "A" = ANALOG/MODULATING; "B"= BINARY/TWO POSITION
ALL POINTS LISTED IN "BAS VALUE" OR "BAS ALARM" SHALL BE SHOWN ON GRAPHICAL DISPLAY.
ALL ANALOG POINTS EXCEPT VALVE AND DAMPER POSITIONS SHALL BE TRENDED. MAINTAIN HISTORY OF FAN RUNTIMES AND BINARY ALARMS.
ALL DAMPERS AND VALVES SHALL BE ABLE TO ACCEPT MANUAL OVERRIDE OF POSITION.
ALL SETPOINTS, TIME DURATIONS AND ALARM VALUES SHALL BE ADJUSTABLE.

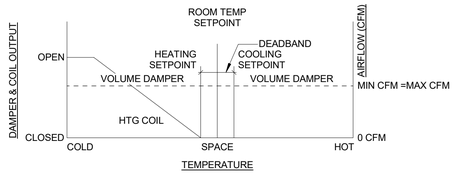
TAG	DEVICE	ACTION	FAIL POSITION	BAS VALUE	BAS ALARM	DIRECT CONTROL BY FIRE ALARM	NOTES
V-HC	VALVE - HEATING COIL	A	OPEN	% OPEN			



TTB-1 - HVAC CONTROL SIGNAL LEGEND - HOT WATER REHEAT

SIGNAL LEGEND IS A DESCRIPTION OF POINTS AND NOT A QUANTITATIVE POINTS LIST. CONTRACTOR SHALL DEVELOP POINTS LIST BASED ON SCOPE OF PROJECT
ACTION: "A" = ANALOG/MODULATING; "B"= BINARY/TWO POSITION
ALL POINTS LISTED IN "BAS VALUE" OR "BAS ALARM" SHALL BE SHOWN ON GRAPHICAL DISPLAY.
ALL ANALOG POINTS EXCEPT VALVE AND DAMPER POSITIONS SHALL BE TRENDED. MAINTAIN HISTORY OF FAN RUNTIMES AND BINARY ALARMS.
ALL DAMPERS AND VALVES SHALL BE ABLE TO ACCEPT MANUAL OVERRIDE OF POSITION.
ALL SETPOINTS, TIME DURATIONS AND ALARM VALUES SHALL BE ADJUSTABLE.

TAG	DEVICE	ACTION	FAIL POSITION	BAS VALUE	BAS ALARM	NOTES
T-SPACE	TEMPERATURE - SPACE TEMP SENSOR	A		DEG °F		
V-HC	VALVE - HEATING COIL	A	OPEN	% OPEN		
calculated CLG Set	COOLING TEMP SETPOINT	calculated		DEF °F	ROOM TEMP > CLG SETPOINT + 2 °F	OCCUPIED MODE: CLG SETPOINT = ROOM TEMP SETPOINT +2 °F; UNOCCUPIED = 80 °F
calculated HTG Set	HEATING TEMP SETPOINT	calculated		DEF °F	ROOM TEMP < HTG SETPOINT - 2 °F	OCCUPIED MODE: HTG SETPOINT = ROOM TEMP SETPOINT -2 °F; UNOCCUPIED = 65 °F
input TEMP	ROOM TEMP SETPOINT	input		DEF °F		OCCUPIED MODE: ALLOWABLE RANGE 68-75 °F



CONSTANT AIR VOLUME REHEAT COIL BOX CONTROL

UPON A FALL IN ROOM TEMPERATURE BELOW HEATING TEMPERATURE SETPOINT, HOT WATER VALVE SHALL MODULATE OPEN TO THE COIL AND CLOSE TO THE BYPASS.

HOT WATER VALVE OPEN POSITION SHALL BE LIMITED SO THAT DISCHARGE AIR TEMPERATURE SHALL NOT EXCEED HIGH LIMIT SETPOINT.

1 EXISTING AHU PREHEAT COIL
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Baptist Hospitals of Southeast Texas
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Beaumont, TX 77701

ISSUED FOR
SCHEMATIC DESIGN ☐
DATE:
DESIGN DEVELOPMENT ☐
DATE:
BIDS & CONSTRUCTION ☒
DATE: 02/26/2021
REVISION: 1
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DRAWINGS SHEET TITLE
MECHANICAL - EX AHU & REHEAT COIL CONTROLS

SHEET NUMBER
M703

20109
PROJECT NUMBER