CUSTOM PACKAGED AIR HANDLING UNIT SCHEDULE (FULL BREAK DOWN FOR SITE ASSEMBLY)

MECHANICAL (237313, 237316, 237333, 237339)

EQUIPMENT TAG	APPLICATION	FACE & BYPASS DAMPERS (YES/NO)	BLENDER & MIXING BOX (YES/NO)	MINIMUM OUTDOOR AIR CFM (note 8)	COOLING COIL	HEATING COIL	AIR PRE-FILTER	AIR FINAL-FILTER	HUMIDIFIER	SUPPLY FAN	RETURN FAN	MANUFACTURER Base Bid	MANUFACTURER Alternate 1	MODEL NUMBER	MECHANICAL NOTES
AH1NW-11	EMERGENCY DEPARTMENT	YES	N/A	5,250	AHUCC 11	EXISTING	AHUPF 11	AHUFF 11	AHUH 11	AHUS 11	EXISTING	FANWALL	ACOUSTIFLO	NA	1,2,4,6
AH2NW-19	OR SUITE	YES	YES	10,000/18,000	AHUCC 19	AHUHC 19	AHUPF 19	AHUFF 19	AHUH 19	AHUS 19	AHUR 19	VENTROL	HAAKON	CUSTOM	1,2,3,4,5,6,7,9,10
AH2NW-20	OR SUITE	YES	YES	8,000/18,000	AHUCC 20	AHUHC 20	AHUPF 20	AHUFF 20	AHUH 20	AHUS 20	AHUR 20	VENTROL	HAAKON	CUSTOM	1,2,3,4,5,6,7,9,10
AH3NW-27	GI	YES	N/A	10,500	AHUCC 27	EXISTING	AHUPF 27	AHUFF 27	AHUH 27	AHUS 27	EXISTING	FANWALL	ACOUSTIFLO	NA	1,2,4,6

MECHANICAL NOTES:
1. MANUFACTURER MAY SELECT FAN ARRAY SIZE OF THEIR PREFERENCE. HOWEVER, AT LEAST ONE(1) SUPPLY, AND ONE(1) RETURN, FAN SHOULD BE FULLY REDUNDANT WITH THE REMAINDER BEING SIZED FOR THE FULL UNIT CAPACITY.
2. MANUFACTURER SHOULD PROVIDE ALTERNATE LINE ITEM PRICING FOR THE UNIT COST OF EACH ADDITIONAL FAN AND MOTOR TO BE PROVIDED FOR EMERGENCY REPLACEMENT (TO BE STORED ON SITE BY OWNER).
3. PROVIDE SPLIT OUTDOOR AIR INTAKE DAMPERS WITH INSULATED CONTROL BLADES. ONE DAMPER SIZED FOR MINIMUM O.A. INTAKE (POSITIONED ON TOP OF UNIT WITH AIRFLOW SENSOR FURNISHED BY UNIT MANUFACTURER) AND ANOTHER SIZED FOR FULL ECONOMIZER MODE (ADJACENT FIRST DAMPER BUT W/O AIRFLOW SENSOR). SIZE DAMPER SIZE RATIO BASED ON MINIMUM INTAKE VOLUMES LISTED ON THIS EQUIPMENT SCHEDULE.
4. PROVIDE ALL NEW SUPPLY, AND RETURN FANS, WITH SPRING TYPE VIBRATION ISOLATORS AND PIEZO RINGS, OR ALTERNATE METHOD OF AIRFLOW MEASUREMENT, FOR ENTIRE SUPPLY/RETURN AIRFLOW RATE MONITORING.
5. AIR HANDLING UNIT MANUFACTURER TO PERFORM AIRFLOW PRESSURE LEAK TESTING, AND FLOOR FLOOD TESTING, ON SITE AND SUBMIT REPORT TO ENGINEER/OWNER (SEE SPECIFICATIONS).
6. PROVIDE BACKDRAFT, OR MOTORIZED, DAMPERS FOR ALL SUPPLY AND RETURN FANS. PROVIDE NECESSARY CONTROLS TO ISOLATE OFF EACH INDIVIDUAL FAN, WITHOUT AFFECTING UNIT PERFORMANCE, WHEN NECESSARY.
7. UNIT SHALL HAVE 2" INSULATED WALLS WITH 16 GA GALVANIZED STEEL EXTERIOR PANELS AND 20 GA WASH DOWN INTERIOR LINER WITH ANTI-MICROBIAL COATING (STAINLESS AT WET SECTIONS). FLOORS SHALL BE HEAVY GAUGE ALUMINUM CHECKER PLATE OR 304 STAINLESS.
8. OUTSIDE AIR INTAKES ARE SHOWN FOR BOTH NORMAL OPERATING CONDITIONS, AND BACKFEED CONDITION. ALL COOLING AND PREHEAT COILS TO BE SIZED FOR NORMAL OPERATING CONDITION ONLY.
9. SURGERY UNITS #19 AND #20 BOTH SHALL BE PROVIDED WITH AIRFOIL BLADE CONTROL DAMPERS FOR BYPASS AROUND BLENDER SECTION DURING BACKFEED MODE OF OPERATION. REFER TO MANUFACTURER DRAWINGS.
10. ALL DAMPERS TO BE PROVIDED BY THE UNIT MANUFACTURER WITH AIRFOIL BLADES. DAMPER ACTUATORS ARE TO BE PROVIDED BY THE CONTROLS CONTRACTOR. CONTROL DAMPERS INCLUDE O.A. INTAKE (x2 per note 3), RELIEF AIR, MIXING BOX RETURN AIR, AND ON UNITS #19 AND #20 ADDITIONAL CONTROL DAMPERS FOR BYPASS OPERATION CONTROL (refer to note #9). O.A. INTAKE AND RELIEF DAMPERS SHALL HAVE INSULATED BLADES WITH INTEGRAL THERMAL BREAK.

ELECTRICAL NOTES:
1. SEE SUPPLY FAN SCHEDULE AND RETURN FAN SCHEDULE FOR ELECTRICAL INFORMATION.

VARIABLE FREQUENCY MOTOR CONTROLLER SCHEDULE

MECHANICAL/ELECTRICAL (230923)

EQUIPMENT TAG	QUANTITY (# of VFC'S)	EQUIPMENT SERVED	VOLTAGE	PHASE	CALCULATED AFC	ENCLOSURE TYPE (NEMA 1/4X/12)	ENCLOSURE PLENUM RATED (YES/NO)	VARIABLE TORQUE/ CONSTANT TORQUE	HARMONIC CONTROL: INPUT AC (YES/NO)	HARMONIC CONTROL: OUTPUT AC (YES/NO)	VFD BYPASS: BYPASS (YES/NO)	VFD BYPASS: BYPASS TYPE (CONTACTOR/ VFD)	VFD BYPASS: BYPASS CONTROL TYPE (MANUAL/ AUTOMATIC)	VFD BYPASS: MOTOR STARTING IN BYPASS MODE (FULL/REDUCED VOLTAGE)	MULTIPLE MOTOR CONTROL (YES/NO)	DAMPER CONTROL CIRCUIT (YES/NO)	ESSENTIAL SERVICE/ FIRE FIGHTER MODE (YES/NO)	NOTES
VFC 01	4 or 3	AHUS 11	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 02	1	AHUR 11	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 03	12 or 4	AHUS 19	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 04	2	AHUR 19	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 05	12 or 4	AHUS 20	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 06	2	AHUR 20	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 07	6 or 3	AHUS 27	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X
VFC 08	2	AHUR 27	480 V	3	–	NEMA 4X	NO	CONSTANT TORQUE	NO	NO	YES	CONTACTOR	MANUAL	FULL	NO	NO	NO	X

GENERAL NOTES:
A. FOR VFD'S WITH BYPASS PROVISIONS, SEPARATE MOTOR OVERLOAD PROTECTION REQUIRED FOR EACH MOTOR, WHEN IN THE BYPASS POSITION.
B. VFD EQUIPMENT SHALL HAVE STANDARD SHORT-CIRCUIT CURRENT RATING HIGHER THAN THE CALCULATED VALUE SHOWN IN THE SCHEDULE.
C. VFDS TO HAVE INTEGRAL DISCONNECT UNLESS NOTED OTHERWISE.

NOTES:
1.

AIR HANDLING UNIT – PREFILTER SCHEDULE

MECHANICAL (234100)

EQUIPMENT TAG	AHU SERVED	TYPE	CFM	NUMBER OF MODULES	SIZE PER MODULE (H"xL"xD")	EFFICIENCY (%)	MERV RATING	APD CLEAN (IN W.C.)	APD AT 50% LOADING (IN W.C.)	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
AHUPF 11	AH1NW-11	4" PLEATED	21,000	X	24"X24"X4"	60%	11	0.35"	1.0"	CAMFIL-FARR	OPMV11	1,2,3
AHUPF 19	AH2NW-19	4" PLEATED	36,000/60,000	X	24"X24"X4"	60%	11	0.35"	1.0"	CAMFIL-FARR	OPMV11	1,2,3,4
AHUPF 20	AH2NW-20	4" PLEATED	36,000/60,000	X	24"X24"X4"	60%	11	0.35"	1.0"	CAMFIL-FARR	OPMV11	1,2,3,4
AHUPF 27	AH3NW-27	4" PLEATED	42,000	X	24"X24"X4"	60%	11	0.35"	1.0"	CAMFIL-FARR	OPMV11	1,2,3

MECHANICAL NOTES:
1. PROVIDE PREFILTERS WITH ANGLED RACK TO REDUCE FACE VELOCITY BELOW 500 FPM DURING HIGHER AIRFLOW BACKFEED OPERATION AND MINIMIZE PRESSURE DROP.
2. INCLUDE MAGNAHELIC GAUGE, IN ADDITION TO DIGITAL PRESSURE SENSORS PROVIDED BY CONTROLS CONTRACTOR, TO MEASURE PRESSURE DROP ACROSS FILTERS.
3. PROVIDE CONSTRUCTION FILTERS. REPLACE FILTERS PRIOR TO OCCUPANCY AND PROVIDE OWNER WITH COMPLETE SET OF EXTRA FILTERS (FOR A TOTAL 3 SETS OF PREFILTERS).
4. FILTER CONDITIONS SHOWN ARE FOR FULL BYPASS MODE OF OPERATION AT 60,000 CFM. LOWER FLOW NORMAL OPERATION WILL RESULT IN LOWER VELOCITY AND PD.

AIR HANDLING UNIT – FINAL FILTER SCHEDULE

MECHANICAL (234133)

EQUIPMENT TAG	AHU SERVED	TYPE	CFM	NUMBER OF MODULES	SIZE PER MODULE (H"xL"xD")	EFFICIENCY (%)	MERV RATING	APD CLEAN (IN W.C.)	APD AT 50% LOADING (IN W.C.)	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
AHUFF 11	AH1NW-11	V-MINIPLEAT	21,000	X	24"X24"X12"	90-95%	14	0.35"	1.25"	CAMFIL-FARR	DU4V-ES	1,2,3
AHUFF 19	AH2NW-19	HEPA	36,000/60,000	X	24"X24"X12"	99.99%	18	1.25"	1.75"	CAMFIL-FARR	12XH	1,2,3,4
AHUFF 20	AH2NW-20	HEPA	24,000/60,000	X	24"X24"X12"	99.99%	18	1.25"	1.75"	CAMFIL-FARR	12XH	1,2,3,4
AHUFF 27	AH3NW-27	V-MINIPLEAT	42,000	X	24"X24"X12"	90-95%	14	0.35"	1.25"	CAMFIL-FARR	DU4V-ES	1,2,3

MECHANICAL NOTES:
1. INCLUDE FULL MOUNTING RACK WITH CLAMPING MECHANISMS AT EACH CORNER, OR EDGE, FOR FULL PERIMETER SUPPORT. HEPA FILTER RACKS TO HAVE KNIFE EDGE SEAL.
2. INCLUDE MAGNAHELIC GAUGE, IN ADDITION TO DIGITAL PRESSURE SENSORS PROVIDED BY CONTROLS CONTRACTOR, TO MEASURE PRESSURE DROP ACROSS FILTERS.
3. BALANCING CONTRACTOR SHALL MEASURE LEAKAGE AROUND PERIMETER OF EACH FINAL FILTER AND PROVIDE READINGS WITHIN BALANCING REPORT FOR REVIEW BY ENGINEER.
4. FILTER CONDITIONS SHOWN ARE FOR FULL BYPASS MODE OF OPERATION AT 60,000 CFM. LOWER FLOW NORMAL OPERATION WILL RESULT IN LOWER VELOCITY AND PD.

AIR HANDLING UNIT – COOLING COIL SCHEDULE – CHILLED WATER

MECHANICAL (238216)

EQUIPMENT TAG	AHU SERVED	CFM	COIL: NUMBER OF COILS	COIL: EACH COIL SIZE (W"xH")	COIL: ROWS	COIL: FINS PER INCH	AIR: EAT DB (F)	AIR: EAT WB (F)	AIR: LAT DB (F)	AIR: LAT WB (F)	AIR: FACE VELOCITY (FPM)	AIR: APD (IN W.C.)	WATER: EWT (F)	WATER: LWT (F)	WATER: GPM	WATER: GLYCOL TYPE	WATER: GLYCOL %	WATER: WPD (FT)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
AHUCC 01	AH1NW-11	21,000	2	106"x30"	8	10	80	67	52.0	51.5	475	0.92	44	57.7	140	N/A	0	13.8'	642	960	DAIKIN	5WS1008B	1,2,3
AHUCC 02	AH2NW-19	36,000	2	114"x48"	8	10	80	67	49.0	48.5	474	0.90	44	56	278	N/A	0	X	1,034	1,945	VENTROL	5WC-8-10	2,3,4
AHUCC 03	AH2NW-20	24,000	2	114"x48"	8	10	80.5	67.5	49.0	48.5	474	0.90	44	56	198/278**	N/A	0	X	817/1034**	1380/1938**	VENTROL	5WC-8-10	2,3,4,5
AHUCC 04	AH3NW-27	42,000	2	130"x46"	8	10	80	67	52.0	51.5	480	0.93	44	57.5	280	N/A	0	12.6'	1,270	1,950	DAIKIN	5WM1008B	1,2,3

MECHANICAL NOTES:
1. CONTRACTOR TO PROVIDE ADDITIONAL FIELD MEASUREMENTS TO CONFIRM THAT RACK, AND DOUBLE PITCHED DRAIN PAN, WILL HAVE ENOUGH CLEARANCE WITHIN EXISTING UNIT CASING.
2. REFER TO DETAILS FOR ALL PIPING COMPONENTS, DRAIN PANS INSTALLATION, AND SUPPORT RACK DETAILS REQUIRED FOR COMPLETE INSTALLATION.
3. COOLING COILS SHALL BE PROVIDED WITH 304 STAINLESS STEEL CASINGS AND RACK. CONFIRM THAT ALL MOUNTING HARDWARE IS ALSO CORROSION RESISTANT.
4. SURGERY UNITS #19 AND #20 BOTH SHALL BE PROVIDED WITH AIRFOIL BLADE CONTROL DAMPERS FOR PARTIAL BYPASS AROUND COOLING COILS DURING BACKFEED MODE OF OPERATION. REFER TO MANUFACTURER DRAWINGS.
5. COOLING COILS FOR AH2NW-20 ARE SHOWN WITH 2-VALUES. LOWER CAPACITY INDICATE NORMAL OPERATING CONDITION. HOWEVER, COILS SHALL BE SIZED FOR HIGHER CAPACITY VALUE TO ALLOW SWITCHING WITH AH2NW-19.

AIR HANDLING UNIT – HEATING COIL SCHEDULE – STEAM INTEGRAL FACE/BYPASS

MECHANICAL (238216)

EQUIPMENT TAG	AHU SERVED	CFM	COIL: NUMBER OF COILS	COIL: SIZE (W"xH")	COIL: ROWS	COIL: FINS PER INCH	AIR: EAT (F)	AIR: LAT (F)	AIR: FACE VELOCITY (FPM)	AIR: APD (IN W.C.)	STEAM: STEAM CAPACITY (LBS/HR)	STEAM: INLET STEAM PRESSURE (PSIG)	CAPACITY (MBH)	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
AHUHC 01	AH1NW-11	21,000	existing	existing	existing	existing	exist	exist	existing	existing	existing	existing	existing	existing	existing	X
AHUHC 02	AH2NW-19	36,000	1	122"X68"	2	11	-16	64	864	0.50"	3,287	30	3110	LJ WING	VC-11T	1,2,3
AHUHC 03	AH2NW-20	24,000	1	122"X56"	2	11	-16	64	822	0.44"	2,189	30	2,074	LJ WING	VB-11T	1,2,3
AHUHC 04	AH3NW-27	42,000	existing	existing	existing	existing	exist	exist	existing	existing	existing	existing	existing	existing	existing	X

MECHANICAL NOTES:
1. IFB COIL SIZED FOR 100% O.A. DURING SMOKE PURGE. PROVIDE 1/3 AND 2/3 CONTROL VALVES WITH SMALLER VALVE ONLY OPERATIONAL DURING NORMAL MINIMUM O.A. INTAKE.
2. SURGERY UNITS #19 AND #20 BOTH SHALL BE PROVIDED WITH AIRFOIL BLADE CONTROL DAMPERS FOR PARTIAL BYPASS AROUND PREHEAT COILS DURING BACKFEED MODE OF OPERATION.
3. SURGERY UNITS #19 AND #20 BOTH SHALL ALLOW DISCHARGE TEMPERATURE TO DECREASE DOWN TO 49 DEGREES (ADJ) PRIOR TO ENABLING STEAM COIL, SEE SEQUENCE OF OPERATIONS.

AIR HANDLING UNIT – SUPPLY FAN SCHEDULE

MECHANICAL (233416)

EQUIPMENT TAG	AHU SERVED	# OF FANS (see note 3)	TYPE	CLASS	CFM	ESP (IN W.C.)	TOTAL SP (IN W.C.)	WHEEL DIAMETER (IN)	VFC (YES/NO)	FAN RPM	BHP	DRIVE TYPE (BELT/DIRECT)	MANUFACTURER Base Bid: MANUFACTURER	MANUFACTURER Base Bid: MODEL #	MANUFACTURER Alternate #1: MANUFACTURER	MANUFACTURER Alternate #1: MODEL #	MECHANICAL NOTES
AHUS 11	AH1NW-11	4 or 3	FAN ARRAY	III	21,000 (total)	2.5"	6"	16"	YES	3,250/2179	7.1/8.8	DIRECT	FANWALL	16-100-213T	ACOUSTIFLO	3-686q1600	2,3,4,5,6
AHUS 19	AH2NW-19	12 or 4	FAN ARRAY	III	60,000 (total)	3.0"	7"	16"	YES	3,483/2366	7.9/25	DIRECT	FANWALL	16-90-213T	ACOUSTIFLO	ACFQ2 SW	1,3,4,5,6
AHUS 20	AH2NW-20	12 or 4	FAN ARRAY	III	60,000 (total)	3.0"	7"	16"	YES	3,483/2366	7.9/25	DIRECT	FANWALL	16-90-213T	ACOUSTIFLO	ACFQ2 SW	1,3,4,5,6
AHUS 27	AH3NW-27	6 or 3	FAN ARRAY	III	42,000 (total)	2.5"	6"	22"	YES	2,327/1981	9.4/17.4	DIRECT	FANWALL	22-80-215T	ACOUSTIFLO	3-686q1000	2,3,4,5,6

MECHANICAL NOTES:
1. TOTAL AIRFLOW REPRESENTS BACKFEED CONDITION OF BOTH UNITS. NORMAL OPERATING CONDITION FOR AH2NW-19 APPROX 36,000 CFM, AND FOR AH2NW-20 IS 24,000 CFM. COILS/HUMIDIFIER TO BE SIZED ON NORMAL OPERATING AIRFLOW.
2. TOTAL AIRFLOW REPRESENTS ALLOWANCE FOR SPARE FUTURE CAPACITY. PRESENT OPERATING CONDITIONS FOR AH1NW-11 IS 13,500 CFM* AND FOR AH3NW-27 IS 30,000 CFM. COILS/HUMIDIFIER TO BE SIZED FOR FUTURE ALSO.
3. FAN REDUNDANCY IS REQUIRED FOR NORMAL OPERATING CONDITIONS ONLY FOR ALL AHU'S (refer to note #1 on AHU schedule). BACKFEED CONDITION WILL NOT REQUIRE FAN REDUNDANCY.
4. PROVIDE EACH FAN WITH ITS OWN DEDICATE VFD SPEED CONTROLLER. ALL VFD'S TO BE MOUNTED WITHIN VENTED ENCLOSURE WITH REMOTE LCD PANELS THAT DISPLAY DRIVE CONDITION EXTERNAL OF ENCLOSURE.
5. PROVIDE VFD ENCLOSURE PREWIRED FROM FACTORY WITH SINGLE POINT OF CONNECTION FOR MAIN POWER SERVICE BY ELECTRICAL CONTRACTOR. INCLUDE INDIVIDUAL DISCONNECTS FUSES INSIDE PANEL FOR SERVICE OF EACH VFD.
6. ALL FANS SHALL BE PROVIDED WITH INDIVIDUAL BACKDRAFT DAMPERS. CONTROLS CONTRACTOR TO AUTOMATE FAN OPTIMIZATION TO ALLOW EQUAL RUN TIME ON EACH FAN IF SOME ARE NOT REQUIRED DURING NORMAL OPERATION.

ELECTRICAL

EQUIPMENT TAG	HP/LOAD	VOLTAGE	PHASE	CONTROLLER: TYPE	CONTROLLER: FURNISHED BY/ INSTALLED BY	CONTROLLER: LOCATION	CONTROLLER: CTRL WIRE BY	DISCONNECT AT MOTOR: AMPS/TYPE	DISCONNECT AT MOTOR: FUSE SIZE (AMPS)	DISCONNECT AT MOTOR: NEMA TYPE	DISCONNECT AT MOTOR: FURNISHED BY/ INSTALLED BY	DISCONNECT AT MOTOR: LOCATION	PANEL	CIRCUIT NUMBER	CONDUIT/FEEDER SIZE	ELECTRICAL NOTES
AHUS 11	32 HP(total)	480	3	VFD	MANUF/DIV 23	UNIT	DIV 23	200A	150A	1	DIV 26/DIV 26	UNIT	EH1M3-1	3	2"C – 3#1/0 & #6 GND	1,2
AHUS 19	100 HP(total)	480	3	VFD	MANUF/DIV 23	UNIT	DIV 23	200A	200A	1	DIV 26/DIV 26	UNIT	EH2M1-1	1	2"C. – 3#3/0 & #6 GND	1,2
AHUS 20	100 HP(total)	480	3	VFD	MANUF/DIV 23	UNIT	DIV 23	200A	200A	1	DIV 26/DIV 26	UNIT	EH2M1-1	12	2"C. – 3#3/0 & #6 GND	1,2
AHUS 27	60 HP(total)	480	3	VFD	MANUF/DIV 23	UNIT	DIV 23	200A	200A	1	DIV 26/DIV 26	UNIT	EH3M3-1	14	1-1/4"C. – 3#3 & #6 GND	1,2,3

GENERAL ELECTRICAL NOTES:
A. WHEN THE CONTROLLER TYPE IS A VFD OR MAGNETIC STARTER, REFER TO THE VARIABLE FREQUENCY DRIVE CONTROLLER SCHEDULE OR THE MAGNETIC STARTER SCHEDULE FOR MORE INFORMATION.

CONTROLLER TYPES:
VFD – VARIABLE FREQUENCY MOTOR CONTROLLER
MMS – MANUAL MOTOR STARTER (WITH OVERLOADS)
CP – CONTROL PANEL
MAGS – MAGNETIC STARTER
MRS/MS – MOTOR RATED SWITCH (WITHOUT OVERLOADS)
VFD/MAGS – VFD WITH BYPASS OPTION AND EXTERNAL STARTER

ELECTRICAL NOTES:
1. SEE SCHEMATIC WIRING DRAWINGS FOR ADDITIONAL INFORMATION.
2. PROVIDE CONNECTION TO AIR HANDLING UNIT CONVENIENCE RECEPTACLES, LIGHTING AND LIGHTING CONTROLS.
3. USE EXISTING SPACE FOR NEW BREAKER.

AIR HANDLING UNIT – RETURN FAN SCHEDULE

MECHANICAL (233416)

EQUIPMENT TAG	AHU SERVED	NUMBER OF FANS	TYPE	CLASS	CFM	ESP (IN W.C.)	TOTAL SP (IN W.C.)	WHEEL DIAMETER (IN)	VFC (YES/NO)	FAN RPM	BHP	DRIVE TYPE (BELT/DIRECT)	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
AHUR 11	AH1NW-11	N/A	existing	existing	17,500	2.0"	2.25"	40"	YES(new)	700	8.2	BELT	existing	existing	1,2
AHUR 19	AH2NW-19	2	PLENUM	II	26,000	2.25"	2.50"	40"	YES	1086	19.1	BELT	BARRY BLOWER	ESP 402	2,3,4
AHUR 20	AH2NW-20	2	PLENUM	II	16,000	2.25"	2.50"	40"	YES	968	19.1	BELT	BARRY BLOWER	ESP 402	2,3,4
AHUR 27	AH3NW-27	N/A	existing	existing	35,000	2.0"	2.25"	54"	YES(new)	968	18	BELT	existing	existing	1,2

MECHANICAL NOTES:
1. PROVIDE NEW SHEAVES AND BELT FOR EXISTING FAN TO ACHIEVE RPM LISTED ON SCHEDULE. REFER TO ELECTRICAL TO DETERMINE IF MOTOR REPLACEMENT IS REQUIRED.
2. ALL RETURN FANS, BOTH NEW AND EXISTING, SHALL BE PROVIDED WITH NEW VFC'S TO MODULATE AIRFLOW AS INDICATED ON SEQUENCE OF OPERATION.
3. ALL NEW RETURN FANS SHALL BE PROVIDED AS U.L. 793 COMPLIANT FOR HIGH TEMPERATURE SMOKE PURGE EXHAUST PER NFPA REQUIREMENTS.
4. RETURN AIRFLOW RATINGS ARE LISTED FOR BOTH NORMAL OPERATION, AND BACKFEED OPERATION OF ADJACENT SURGICAL AHU. SIZE FANS APPROPRIATELY TO WORK EFFICIENTLY AT BOTH POINTS OF OPERATION.

ELECTRICAL

EQUIPMENT TAG	HP/LOAD	VOLTAGE	PHASE	CONTROLLER: TYPE	CONTROLLER: FURNISHED BY/ INSTALLED BY	CONTROLLER: LOCATION	CONTROLLER: CTRL WIRE BY	DISCONNECT AT MOTOR: AMPS/TYPE	DISCONNECT AT MOTOR: FUSE SIZE (AMPS)	DISCONNECT AT MOTOR: NEMA TYPE	DISCONNECT AT MOTOR: FURNISHED BY/ INSTALLED BY	DISCONNECT AT MOTOR: LOCATION	PANEL	CIRCUIT NUMBER	CONDUIT/FEEDER SIZE	ELECTRICAL NOTES
AHUR 11	10 HP (exist 5 hp)	480	3	VFD	DIV 23	UNIT	DIV 23	60A	30A	1	DIV 26/DIV 26	UNIT	EH1M1-3	4	3/4"C. – 3#12 & #12 GND	1
AHUR 19	25 HP(x2)	480	3	VFD	DIV 23	UNIT	DIV 23	60A	50A	1	DIV 26/DIV 26	UNIT	EH2M1-1	8,9	(x2) 3/4"C. – 3#8 & #10 GND	1,2,4
AHUR 20	25 HP(x2)	480	3	VFD	DIV 23	UNIT	DIV 23	60A	50A	1	DIV 26/DIV 26	UNIT	EH1M3-1	9,11	(x2) 3/4"C. – 3#8 & #10 GND	1
AHUR 27	20 HP (exist 10 hp)	480	3	VFD	DIV 23	UNIT	DIV 23	60A	50A	1	DIV 26/DIV 26	UNIT	EH3M3-1	16	3/4"C. – 3#8 & #10 GND	1,3,4

GENERAL ELECTRICAL NOTES:
A. WHEN THE CONTROLLER TYPE IS A VFD OR MAGNETIC STARTER, REFER TO THE VARIABLE FREQUENCY DRIVE CONTROLLER SCHEDULE OR THE MAGNETIC STARTER SCHEDULE FOR MORE INFORMATION.

CONTROLLER TYPES:
VFD – VARIABLE FREQUENCY MOTOR CONTROLLER
MMS – MANUAL MOTOR STARTER (WITH OVERLOADS)
CP – CONTROL PANEL
MAGS – MAGNETIC STARTER
MRS/MS – MOTOR RATED SWITCH (WITHOUT OVERLOADS)
VFD/MAGS – VFD WITH BYPASS OPTION AND EXTERNAL STARTER

ELECTRICAL NOTES:
1. SEE SCHEMATIC WIRING DRAWINGS FOR ADDITIONAL INFORMATION.
2. LABEL EXISTING CIRCUIT 4 BREAKER AS "SPARE".
3. LABEL EXISTING CIRCUIT 3 BREAKER AS "SPARE".
4. UTILIZE EXISTING SPACE FOR NEW BREAKER.

AIR HANDLING UNIT – HUMIDIFIER SCHEDULE

MECHANICAL (238413)

EQUIPMENT TAG	AHU SERVED	TYPE	CFM	EAT DB (F)	EAT WB (F)	STEAM CAPACITY (LBS/HR)	INLET STEAM PRESSURE (PSIG)	NUMBER OF MANIFOLDS	MANIFOLD LENGTH (IN)	TUBE SPACING (IN)	ABSORPTION DISTANCE (FT)	FEEDWATER RATE (GPM)	DISTRIBUTION MANIFOLD: MANUFACTURER	DISTRIBUTION MANIFOLD: MODEL NUMBER	HEAT EXCHANGER: MANUFACTURER	HEAT EXCHANGER: MODEL NUMBER	MECHANICAL NOTES
AHUH 01	AH1NW-11	DIRECT INJECT	21,000	54	43	212	30	X	X	X	X	N/A	X	X	X	X	1,2
AHUH 02	AH2NW-19	STEAM-TO-STEAM	36,000/60,000	49.0	39.5	425	30	X	X	X	X	1.2 GPM	DRI-STEEM	UTLRA-SORB	DRI-STEEM	200S	1,2,3
AHUH 03	AH2NW-20	STEAM-TO-STEAM	24,000/60,000	49.0	39.5	425	30	X	X	X	X	1.2 GPM	DRI-STEEM	ULTRA-SORB	DRI-STEEM	200S	1,2,3
AHUH 04	AH3NW-27	DIRECT INJECT	42,000	54	44	425	30	X	X	X	X	N/A	X	X	X	X	1,2

MECHANICAL NOTES:
1. COORDINATE MANIFOLD LENGTH WITH CONTRACTOR PRIOR TO DELIVERY TO INSURE ADEQUATE CLEARANCES NEEDED FOR CONTROLS AND PIPING CONNECTIONS.
2. VERIFY THAT DRAIN PAN EXTENDS WELL BEYOND CALCULATED ABSORPTION DISTANCE LISTED ON SCHEDULE.
3. STEAM-TO-STEAM GENERATORS WILL BE FED WITH RO WATER THROUGH A RPZ VALVE FOR BACKFLOW PREVENTION. REFER TO DRAWINGS FOR INSTALLATION.

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE

MECHANICAL (233713)

EQUIPMENT TAG	APPLICATION	MOUNTING TYPE	DESCRIPTION	MATERIAL	ACCESSORIES	FINISH	MANUFACTURER	MODEL NUMBER	MECHANICAL NOTES
A	SUPPLY	LAY-IN	PERFORATED	ALUMINUM	X	WHITE	TITUS	PAS	1
B	EXHAUST	LAY-IN	PERFORATED	ALUMINUM	X	WHITE	TITUS	PAR	1

MECHANICAL NOTES:
1. BALANCE DIFFUSER OR REGISTER VIA REMOTE TAKE-OFF DAMPER WITHIN INTERSTITIAL SPACE. DO NO PROVIDE DAMPER INTEGRAL WITH DIFFUSER.

VARIABLE AIR VOLUME BOX SCHEDULE – HEATING WATER

MECHANICAL (233600)

EQUIPMENT TAG	UNIT SERVED	INLET SIZE (IN)	MAXIMUM CFM	MINIMUM CFM	MAXIMUM APD (IN W.C.)	HEATING COIL: HEATING CFM	HEATING COIL: EAT (F)	HEATING COIL: LAT (F)	HEATING COIL: CAPACITY (MBH)	HEATING COIL: EWT (F)	HEATING COIL: LWT (F)	HEATING COIL: GPM	HEATING COIL: GLYCOL TYPE	HEATING COIL: GLYCOL %	HEATING COIL: MAXIMUM WPD (FT)	HEATING COIL: COIL ROWS	MANUFACTURER	MODEL	MECHANICAL NOTES
VAV 01	AH2NW-19	12"	1200	800	0.40"	800	55	85	25.9	180	160	2.6	NONE	–	10'	1	ENVIROTEC	SDR-12	1,2,3
VAV 02	AH2NW-19	14"	1500	1000	0.40"	1000	55	85	32.4	180	160	3.2	NONE	–	10'	1	ENVIROTEC	SDR-12	1,2,3

MECHANICAL NOTES:
1. INCLUDE VAV BOXES WITH DDC ELECTRONIC ACTUATORS COORDINATED WITH CONTROLS CONTRACTOR. PROVIDE ACTUATOR ENCLOSURE BOX AND LABELING.
2. PROVIDE VAV BOXES WITH FIBER FREE FOAM LINER OPTION THAT IS FULLY WASHABLE AND NO EXPOSED EDGES.
3. PROVIDE ACCESS PANELS ON BOTH SIDE OF REHEAT COILS. ACCESS PANELS TO HAVE LATCHES, COVER PLATE WITH SCREWS IS NOT ACCEPTABLE.

100% BACKCHECK SET
NOT FOR CONSTRUCTION
FULLY SPRINKLERED

GENERAL NOTES:

GENERAL CONTRACTOR AND/OR ALL SUBCONTRACTORS SHALL FIELD VERIFY ALL DIMENSIONS SHOWN ON THESE PLANS AND SHALL BE RESPONSIBLE FOR VARIATIONS BETWEEN PLAN DIMENSIONS AND ACTUAL FIELD DIMENSIONS. WHERE VARIATIONS ARE FOUND TO OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING PRIOR TO PROCEEDING WITH CONSTRUCTION; NO ADJUSTMENT TO THE WORK WILL BE MADE WITHOUT THE PRIOR APPROVAL OF THE PROJECT ENGINEER.

GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL DEMOLITION INCLUDING REMOVAL OF WALLS, PARTITIONS, DOORS & CEILING & FLOORS. ANY AND ALL CUTTING OF CONCRETE FLOORS, WALLS OR STRUCTURE SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY. CORE DRILLING THROUGH CONCRETE WALLS, FLOORS OR STRUCTURE FOR PIPING OR CONDUIT SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR BY TRADE; FIRESTOPPING OF THESE OPENINGS SHALL BE DONE BY THE RESPECTIVE SUBCONTRACTOR. REMOVAL OF DEBRIS RESULTING FROM DEMOLITION, CUTTING, AND/OR DRILLING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. PATCHING AND REPAIR OF CONCRETE WALLS, FLOOR, OR STRUCTURE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR; THIS WILL BE ACCOMPLISHED UPON COMPLETION OF THE INSTALLATION OF ANY AND ALL UTILITIES INSTALLED BY THE VARIOUS SUBCONTRACTORS.

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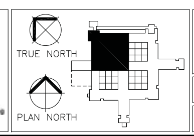

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
JASON GOTTWALT PE
Date xx/xx/2014 Reg. No. 41360

Drawing Title: MECHANICAL SCHEDULES
Project Title: UPGRADE AHU'S PHASE 2
Project No.: 618-13-130
Building Number: 70
Drawing Scale: AS NOTED
Plot Scale: 12" = 1'-0"
Approved: Catherine Joyce, Chief, Projects Section
Approved: Steven Challeen, Director, Engineering
Location: V.A. MEDICAL CENTER ONE VETERANS DRIVE MINNEAPOLIS, MN 55417
Date: 07/14/2014
Checked: JRG
Drawn: JG/RF
DRAWING NO. 1272-70-M4.2
Dwg. 25 of 30

Office of Facilities Management
Department of Veterans Affairs