FAN SCHEDULE

UNIT NUMBER	FAN SERVICE	FAN TYPE	DRIVE TYPE	CFM	S.P. IN. W.G.	FAN RPM	MOTOR RPM	MAX TIP SPEED	HP	V	PH	Hz	SONES	SELECTION BASED ON		NOTES
														MANUFACTURER	MODEL	
EF-5F4	GENERAL EXHAUST	DOWNBLAST CENTRIFUGAL	BELT	270	0.375	1,626	1,725	4,500	1/4	115	1	60	10.7	COOK	70C2B	1-3

NOTES
1. PROVIDE BACKDRAFT DAMPER, BIRDSCREEN, THERMAL OVERLOAD PROTECTION AND FACTORY MOUNTED DISCONNECT SWITCH.
2. BASIS OF DESIGN IS COOK, OR EQUAL.
3. PROVIDE CURB ADAPTER. FIELD VERIFY EXISTING CURB SIZE.

DUCT LEAKAGE CLASSIFICATION AND ALLOWABLE LEAKAGE TABLE

DUCT PRESSURE CLASS, W.G. IN[mm]	SEAL CLASS	APPLICABLE SEALING	SMACNA LEAKAGE CLASS: RECTANGULAR DUCT	SMACNA LEAKAGE CLASS: ROUND DUCT
1/2", 1", 2" [13, 25, 51]	C	TRAVERSE JOINTS ONLY		12
3" [76]	B	TRAVERSE JOINTS AND SEAMS	12	6
4", 6", 10" [102, 152, 254]	A	JOINTS, SEAMS AND ALL WALL PENETRATIONS	6	3

DUCT PRESSURE CLASS TABLE

FAN NO.	DUCT SYSTEM SOLVED	POSITIVE (P) OR NEGATIVE (N) PRESSURE	MINIMUM PRESSURE CLASS W.G. IN. [mm]
AHU SUPPLY FAN	FROM DISCHARGE OF AHU TO INLET OF VAV TERMINAL UNITS	P	6 [152]
AHU SUPPLY FAN	FROM TERMINAL BOXES TO ROOM OUTLETS	P	1 [25]
AHU RETURN FAN	FROM CEILING REGISTER TO INLET OF AHU	N	3 [76]
EXHAUST FANS	FROM ROOM INLET TO EXHAUST FAN	N	1 [25]

ENERGY EFFICIENT MOTOR SCHEDULE

SCHEDULED HP [KW]	NOMINAL NEMA EFF.	SCHEDULED HP [KW]	NOMINAL NEMA EFF.	SCHEDULED HP [KW]	NOMINAL NEMA EFF.
1.0 E [0.75]	82.5	10 E [7.4]	89.5	50 E [37.3]	93.0
1.5 E [1.1]	84.0	15 E [11.1]	91.0	60 E [44.7]	93.6
2.0 E [1.5]	84.0	20 E [14.9]	91.0	75 E [55.9]	94.1
3.0 E [2.2]	86.5	25 E [18.6]	91.7	100 E [74.6]	94.1
5.0 E [3.7]	87.5	30 E [22.3]	92.4	125 E [93.2]	94.5
7.5 E [5.6]	88.5	40 E [29.8]	93.0	150 E [111.9]	95.0

NOTE:

REFER TO SPECIFICATION SECTION 230512 FOR ADDITIONAL INFORMATION ON MOTORS.

MOTOR LABELING

ALL MOTORS FOR USE WITH VARIABLE FREQUENCY DRIVES SHALL HAVE CLASS F INSULATION AND SHALL BE SPECIFICALLY LABELED FOR THAT SERVICE; OR A LETTER FROM THE MOTOR MANUFACTURER STATING CONSTRUCTION COMPATIBILITY MAY BE INCLUDED IN THE SUBMITTAL AND O & M MANUALS.

ELECTRICAL CONNECTIONS

REFERENCE ELECTRICAL PANEL SCHEDULES AND MECHANICAL/ELECTRICAL CONNECTION SCHEDULE FOR DISCONNECT SWITCH, STARTER, WIRE AND CONDUIT SIZES.

MOTOR EFFICIENCIES

ALL MOTORS PROVIDED WITH PUMPS, AIR HANDLING UNITS, FANS, ETC. SHALL BE "PREMIUM EFFICIENCY" TYPE AND SHALL MEET THE REQUIREMENTS OF THE "COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT" SECTION OF THE SPECIFICATIONS. SHOP DRAWINGS SHALL BE SUBMITTED FOR EACH MOTOR PROVIDED WITH MOTOR TYPE AND EFFICIENCY.

AIR FLOW MEASURING DEVICE SCHEDULE

UNIT NO.	LOCATION: ROOM	LOCATION: DUCT	DUCT SIZE: W [IN]	DUCT SIZE: H [IN]	DUCT TYPE	CFM[l/s]: MIN.	CFM[l/s]: MAX.	S.P. DROP [IN]	FAN SYSTEM
110-AFMS205S	2E100	S.A.	60	22	MEDIUM PRESSURE SUPPLY	0	15,000	0.06	110-AHU205
110-AFMS205R	2E100	R.A.	60	22	LOW PRESSURE RETURN	0	11,000	0.06	110-AHU205

SOUND ATTENUATING UNITS SCHEDULE

UNIT NO.	W x L x H (IN.)	CFM	MAX. S.P. IN	DYNAMIC INSERTION LOSS DB OCTAVE BAND MID-FREQUENCY [CPS] 63	125	250	500	1000	2000	4000	8000	SERVICE
				1	2	3	4	5	6	7	8	
110-SA205S	66x60x30	15,000	0.2	7	11	18	27	28	17	12	8	110-AHU205 SUPPLY
110-SA205R	66x60x30	11,000	0.2	7	11	18	27	28	17	12	8	110-AHU205 RETURN

1. BASIS OF DESIGN IS ACOUSTICS NOISE CONTROL MODEL 33VRS-F/3-60x66x30
2. SOUND ATTENUATORS SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL

AIR TERMINAL UNIT SOUND REQUIREMENTS

ROOM NC (SEE NOTE 1)	MAXIMUM SOUND POWER LEVEL (Re: 10^{-12} WATTS) FOR BOX DISCHARGE AT MAXIMUM INLET DUCT SP. (SEE NOTE 2) OCTAVE BANDS 2	3	4	5	6	7
25	48	41	35	31	29	28
30	58	53	49	45	43	40
35	62	57	53	50	48	45
40	66	62	57	55	53	50
45	69	66	62	60	58	55

NOTES:

1. THE MAXIMUM SOUND POWER LEVELS LISTED ARE BASED ON A ROOM ATTENUATION OF 5 dB AND AN ALLOWANCE FOR DISCHARGE DUCTWORK, EXCEPT UNITS SERVING AUDIO SOUND BOOTHS WHICH SHALL MEET VALUES LISTED FOR ROOM NC LEVEL OF 25.

RADIANT CEILING PANEL SCHEDULE

UNIT NUMBER	LOCATION AND AREAS SERVED	PANEL SIZE (IN.)	HEATING CAPACITY (BTUH)	EWT (F°)	FLOWRATE (GPM)	PRESSURE DROP (FT.)	NOTES
110-RP1	BUILDING 110	24x24	840	180	0.5	2	ALL

NOTES:
1. MATCH EXISTING RADIANT CEILING PANELS.
2. ROOM TEMPERATURE SHALL BE 70 DEGREES.
3. SEE PLANS FOR NUMBER REQUIRED.

WALL MOUNTED SPACE HUMIDIFICATION UNIT SCHEDULE

UNIT NUMBER	LOCATION	CAPACITY (LBS/HR)	ELECTRICAL DATA: VOLTS	PHASE	Hz	AMPS	SELECTION BASED ON: MANUFACTURER	MODEL NO.	NOTES
110-WMH1	CLEAN ROOM 2F227	4.0	120	1	60	12	ARMSTRONG	EHU-701	ALL

NOTES
1. SEE KEYNOTE 17 ON MH101 AND MH102 FOR LOCATIONS.

AIR HANDLING UNIT SCHEDULE (SEE AHU PLANS AND ELEVATIONS ON SHEET M602)

UNIT NUMBER	LOCATION	AREA(S) SERVED	TYPE	MINIMUM OUTSIDE AIR (CFM)	RETURN AIR FAN DATA: RETURN AIR CFM	FAN TYPE	TOT/EXT. S.P. IN. W.G.	WHEEL DIA.	MAX. FAN RPM	MOTOR DATA: MIN. HP	V	PH	Hz	STARTER BY	DISC. SW. BY	AIR MIXING SECTION: PROVIDE SECTION	PROVIDE RET. AIR DAMPER	PROVIDE U.L. LISTED RETURN AIR SMK. DMPR	PRE-FILTER (PF-1) DATA: PRE-FILTER BOX (Y/N)	CFM	MIN. FACE AREA (SQ. FT.)	PD (IN. W.G.) CLEAN	PD (IN. W.G.) FINAL	EFFICIENCY	TYPE	ACCESS SECTION	PRE-FILTER (PF-2) DATA: PRE-FILTER BOX (Y/N)	CFM	MIN. FACE AREA (SQ. FT.)	PD (IN. W.G.) CLEAN	PD (IN. W.G.) FINAL	EFFICIENCY	TYPE
110-AHU205	2E100	2ND FLOOR "F" WING	VAV	4,000	11,000	AF	2.5	22"	1,200	15	460	3	60	VFD	VFD	Y	Y	N	Y	15,000	28.22	0.25	0.65	MERV 7	NOTE 6	YES	Y	15,000	28.22	0.25	0.74	MERV 11	NOTE 7

AIR HANDLING UNIT SCHEDULE (CONTINUED)

UNIT NUMBER	ACCESS SECTION	HOT WATER HEATING COIL DATA: APPROX. SECTION LENGTH	HEATING LOAD (MBH)	AIR SIDE DATA: CFM	EAT (F°) DB	LAT (F°) DB	MAX APD (IN. W.G.)	MAX FACE VEL (FPM)	WATER SIDE DATA: GPM	EWT (F°)	LWT (F°)	WPD (FT.W.G.)	MAX ROWS	MAX FPF	MIN. TUBE VEL. (FPS)	ACCESS SECTION: PROVIDE SECTION	MIN. SECTION LENGTH	CHILLED WATER COOLING COIL DATA (MAX. FACE VELOCITY = 505 FPM): COOLING LOAD TOTAL MBH	SENS. MBH	AIR SIDE DATA: CFM	EAT (F°) DB/WB	LAT (F°) DB/WB	MAX APD (IN. W.G.)	MAX FACE VEL (FPM)	WATER SIDE DATA: GPM	EWT (F°)	LWT (F°)	WPD (FT.W.G.)	MIN. ROWS	MAX FPF	MIN. TUBE VEL. (FPS)
110-AHU205	NO	24-1/2"	243	15,000	45	60	0.10	523	49.0	180	160	10.0	1			YES	14	742	551	15,000	83.4/66.7	50.0/49.9	1.0	502	123.2	44	56	15	8	125	2.5

AIR HANDLING UNIT SCHEDULE (CONTINUED)

UNIT NUMBER	SUPPLY FAN DATA: DESIGN FAN CFM	T&B FAN CFM	EXT. S.P. IN. W.G.	MINIMUM TOTAL S.P. IN. W.G.	FAN & WHEEL TYPE	WHEEL DIA.	MAX. OUTLET VEL. (FPM)	MAX. RPM	MOTOR DATA: MIN. HP	V	PH	Hz	STARTER BY	DISC. SW. BY	DIFFUSER SECTION	AFTER-FILTER (AF-1) DATA: CFM	MIN. FACE AREA (SQ. FT.)	PD IN W.C. CLEAN	PD IN W.C. FINAL	EFFICIENCY	TYPE	DISCHARGE PLENUM SECTION: PROVIDE ACCESS DOOR	MINIMUM SECTION LENGTH	MAX APD (IN. W.G.)	UNIT ELECTRICAL DATA (LIGHTS AND 20A RECEPT.): VOLTAGE	MINIMUM CIRCUIT AMPERAGE	MAXIMUM OVERCURRENT PROTECTION	NOTES
110-AHU205	15,000	13,200	3.3	7.0	[illegible]	22"	2707	1071	30	460	3	60	VFD	VFD	YES	15,000	28.22	0.25	1.0	MERV 14	NOTE 17	Y	46"	0.067	120	27.0	33.75	ALL

NOTES
1. MECHANICAL CONTRACTOR SHALL INSTALL SMOKE DETECTORS IN SUPPLY AND RETURN DUCTS. INTERLOCK SMOKE DETECTORS TO SHUT DOWN FANS ON ALARM (BY CONTROLS CONTRACTOR).
2. SMOKE DETECTORS SHALL BE FURNISHED AND WIRED (POWER AND FIRE ALARM) BY THE ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL INSTALL SMOKE DETECTORS IN DUCTWORK.
3. MECHANICAL CONTRACTOR AND MANUFACTURER SHALL COORDINATE CAREFULLY FOR THE DUCT CONNECTIONS TO THE UNITS. SEE PLANS AND UNIT SECTIONS.
4. UNIT SHALL HAVE SINGLE POINT POWER CONNECTION AND STEP DOWN TRANSFORMER FOR LIGHTS AND SERVICE RECEPTACLES.
5. OUTLET VELOCITIES FROM FANS SHALL NOT EXCEED 2,710 FEET PER MINUTE.
6. PROVIDE MERV 7; 2" INCH THICK PLEATED AWAY FILTERS.
7. PROVIDE MERV 11; 12" INCH THICK RIGID CARTRIDGE FILTERS.
8. PROVIDE 8" HIGH BASE FOR FRAME UNDER UNIT.
9. ALL DAMPERS SHALL BE ARRANGED FOR SEPARATE OUTSIDE AIR AND RETURN AIR ACTUATORS.
10. ALL UNITS SHALL BE DOUBLE WALL CONSTRUCTION WITH 2" THICK SPRAY FOAM PANELS.
11. MINIMUM SCHEDULED CHILLED WATER COIL TUBE VELOCITIES ARE FOR DESIGN MAXIMUM WATER FLOW RATES, AS SCHEDULED.
12. MAXIMUM APD AND MAXIMUM COIL FACE VELOCITIES SCHEDULED ARE FOR FULL FAN DESIGN AIRFLOW.
13. PROVIDE MARINE LIGHT IN ALL SECTIONS WITH ACCESS DOOR.
14. PROVIDE UL-555S OPPOSED BLADE SMOKE DAMPER AT THE INLET AND DISCHARGE OPENINGS OF THE AIR HANDLER. DAMPER SHALL BE FULL SIZE OF OPENING, AS NOTED, AND SHALL NOT CONSTRICT AIR FLOW.
15. VFDs WITH MANUAL BYPASS AND LOCKING DISCONNECT MEANS SHALL BE PROVIDED BY DIVISION 23. VFDs SHALL BE MOUNTED AS SHOWN ON THE PLANS. COORDINATE POWER REQUIREMENTS WITH E.C.
16. AHUs SHALL BE CONSTRUCTED AND PRESSURE, DEFLECTION AND LEAKAGE TESTED IN FACTORY. UNITS SHALL BE SHIPPED IN SECTIONS AS REQUIRED BY THE INSTALLATION. MECHANICAL ROOM ACCESS DIMENSIONS ARE LIMITED. MECHANICAL CONTRACTOR SHALL FIELD-VERIFY, WITH CONTRACTING OFFICER, THE ALLOWABLE DIMENSIONS. FIELD ASSEMBLE UNITS AS REQUIRED.
17. PROVIDE MERV 14; 12-INCH THICK RIGID CARTRIDGE FILTERS. (NOMINAL FILTER SIZES SHALL BE 24"x24")
18. PROVIDE AIR DISTRIBUTION BAFFLE WITH 0.10" STATIC PRESSURE LOSS MAXIMUM
19. SUBMIT UNIT COMPONENT STATIC PRESSURE LOSSES TABULATION.
20. SUPPLY AIR FAN AND MOTOR SHALL BE CAPABLE OF 8.0" STATIC PRESSURE, WITH STABLE FAN OPERATION.
21. UNIT CASINGS SHALL BE CONSTRUCTED FOR 8" W.G. PRESSURE.
22. BALANCE RETURN FANS TO SCHEDULED CFM, THEN REDUCE AS REQUIRED FOR POSITIVE SUITE PRESSURE.
23. BASIS OF DESIGN: TRANE PERFORMANCE CLIMATE CHANGER SIZE 30.

Revisions	By	Date
REVISION	DESCRIPTION	

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Recommended Approvals:	
1. MEDICAL CENTER DIRECTOR	6. OPERATIONS SERVICE LINE MANAGER
2. ASSISTANT DIRECTOR	7. INFECTION CONTROL MANAGER
3. CHIEF OF STAFF	8. SAFETY MANAGER
4. ASSOC. DIRECTOR	9. GENERAL ENGINEER
5. SERVICE LINE MGRS.	10. COR

Drawing Title: MECHANICAL SCHEDULES

Project Title: RENOVATE MENTAL HEALTH UNITS

Date: February 10, 2017
Project Number: 509-12-104

100% CONSTRUCTION DOCUMENTS
FULLY SPRINKLERED

Drawn	Building Number	AutoCAD File Name
Checked	Reviewed	Const. Contract No.

DRAWING No. M601

Veterans Affairs