WATER FILTER SCHEDULE

TAG	SYSTEM PUMP	FILTER GPM	AUTOMATIC VALVE PRESSURE RANGE PSIG	REMARKS
WF-1	P-1 & P-2	(1% OF PUMP FLOW RATE)	2-32	1/2" AUTOMATIC VALVE

HVAC PUMP SCHEDULE

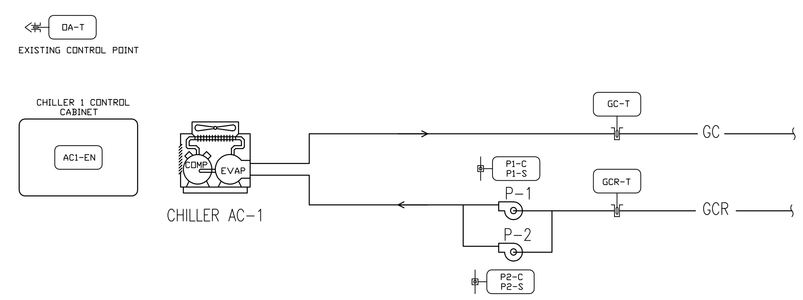
TAG	LOCATION	SYSTEM	CIRCULATING FLUID							TYPE	MOTOR		
			FLUID	GPM	PUMP HEAD FT WATER	TEMP. °F	SP. GR.	% EFF.		HP	PHASE-VOLT	RPM
P-1	ROOF	AC-1	20% PROPYLENE GLYCOL	160	45	40	1.04	58	IN-LINE	5.0	3-460	1750
P-2	ROOF	AC-1	20% PROPYLENE GLYCOL	160	45	40	1.04	58	IN-LINE	5.0	3-460	1750

NOTES:
(1) SELECTION BASED ON BELL & GOSSETT INLINE PUMP.
(2) USE "DOW FROST" PROPYLENE GLYCOL.

FAN SCHEDULE

TAG	CFM	REMARKS
AHU-1	11,000	(1) (2)
EF-1	890	(1) (2)
EF-2	890	(1) (2)
EF-3	890	(1) (2)
EF-4	890	(1) (2)
EF-5	815	(1) (2)
EF-6	305	(1) (2)
EF-7	3,275	(1) (2)

NOTES:
(1) BALANCE EXISTING FAN TO AIRFLOW INDICATED.
(2) REFER TO WILMINGTON VAMC PROJECT 460-15-00 FOR SUPPLY & EXHAUST FAN SIZES AND LOCATIONS.



GLYCOL COOLING CONTROL DIAGRAM

NO SCALE

EXPANSION TANK SCHEDULE

TAG	SYSTEM	APPROX. SYSTEM VOLUME GAL	SYSTEM TEMP. RANGE °F		INITIAL PRESS. IN TANK PSIG	MAX. OPER. PRESSURE		MIN. VOL GAL	MIN. ACCEPT VOLUME GAL	AIR SEPARATOR (AS-1)				PIPE SIZE TO TANK IN.	CW FILL SIZE IN.
			MIN.	MAX.		RELIEF VALVE PSIG	AT TANK PSIG			SIZE IN	GPM	MAX. P.D. FT	BUILT-IN STRAINER REQUIRED		
ET-1	GLYCOL COOLING	300	30	100	12	75	75	8	2.4	8	160	1	NO	1/2	-

NOTES:
(1) DIAPHRAGM TYPE EXPANSION TANK SELECTION BASED ON BELL & GOSSETT.
(2) AS-1: 200 GALLON BUFFER TANK/AIR SEPARATOR.

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:
(1) PROVIDE ENERGY EFFICIENT MOTORS FOR 1 HP AND LARGER. REFER TO "MOTORS" SECTION OF THE SPECIFICATIONS.

TERMINAL UNIT SCHEDULE

TAG	CFM		REMARKS
	MAX.	MIN.	
VAV-1	210	100	(1) (2)
VAV-2	210	100	(1) (2)
VAV-3	160	100	(1) (2)
VAV-4	210	210	(1) (2)
VAV-5	1050	525	(1) (2)
VAV-6	670	670	(1) (2)
VAV-7	1050	525	(1) (2)
VAV-8	1050	525	(1) (2)
VAV-9	1050	525	(1) (2)
VAV-10	330	200	(1) (2)
VAV-11	470	300	(1) (2) (3)
VAV-12	1000	500	(1) (2)
VAV-13	190	190	(1) (2)
VAV-14	220	220	(1) (2)
VAV-15	540	540	(1) (2)
VAV-16	560	300	(1) (2) (3)
VAV-17	340	340	(1) (2)
VAV-18	760	760	(1) (2) (3)
VAV-19	590	590	(1) (2) (4)
VAV-20	890	445	(1) (2)
VAV-21	890	445	(1) (2)
VAV-22	890	445	(1) (2)
VAV-23	890	445	(1) (2)
VAV-24	150	100	(1) (2)

NOTES:
(1) BALANCE EXISTING TERMINAL UNIT TO MAX. & MIN. AIRFLOWS INDICATED.
(2) REFER TO WILMINGTON VAMC PROJECT 460-15-00 FOR TERMINAL UNIT SIZES AND LOCATIONS.
(3) BALANCE CORRIDOR DIFFUSER TO 140 CFM.
(4) BALANCE CORRIDOR DIFFUSER TO 140 CFM.

GLYCOL COOLING SYSTEM - SEQUENCE OF OPERATION

GLYCOL COOLING PUMP CONTROL: The operator selected lead glycol water pump will automatically start when the outside air temperature rises above the system enable setpoint. When the outside air temperature falls below this setpoint, the glycol water pumps will turn off. When enabled, the lead pump will start and run continuously. If for any reason its status does not match its commanded value an alarm will be generated. The lag pump will start if the lead pump is in alarm.

CHILLER CONTROL: The chiller will be enabled when the glycol water pump has a status of on. The chiller via its internal controls will maintain the glycol cooling supply temperature at setpoint. If the glycol cooling supply temperature rises above the high limit setpoint after operating for a period of time, an alarm will be generated.

AIR COOLED CHILLER SCHEDULE

TAG	DESCRIPTION	CAPACITY (TONS)	EVAPORATOR				CONDENSOR FAN		COMPRESSOR			ELECTRICAL				SELECTION BASED ON YORK	REMARKS
			GPM	WPD (FT.)	EWT (°F)	LWT (°F)	QUANTITY	HP	TYPE	QUANTITY	KW	VOLTS	PHASE	MCA	MOCP		
AC-1	AIR-COOLED SCROLL CHILLER	94	160	6.3	50.6	36.0	8	2	SCROLL	6	131.1	460	3	216	225	YCAL0114EC46	SEE NOTES

NOTES:
(1) OPTIONS INCLUDE SINGLE POINT POWER CONNECTION, BUILDING AUTOMATION SYSTEM INTERFACE (COMPATIBLE WITH EXISTING ECC), LANGUAGE LCD & KEYPAD, HOT GAS BYPASS (ONE CIRCUIT) FLOW SWITCH, COMPRESSOR ACOUSTIC BLANKET & VIBRATION ISOLATORS.
(2) PERFORMANCE BASED ON 20% PROPYLENE GLYCOL (DOW FROST).

Glycol Gooling System						
Type	**Point**	**Description**	**Units**	**Trend**	**Alarm**	**Totalize**
AI-1	OA-T	Outside Air Temperature (Existing Point)	Deg F	X		
AI-2	GC-T	Glycol Cooling Supply Temperature	Deg F	X		
AI-3	GCR-T	Glycol Cooling Return Temperature	Deg F	X		
AI-4						
AO-1						
AO-2						
BI-1	P1-S	Glycol Cooling Pump 1 Status	Off On	X	X	X
BI-2	P2-S	Glycol Cooling Pump 2 Status	Off On	X	X	X
BI-3						
BI-4						
BO-1	AC1-EN	Chiller 1 Enable	Off On	X		
BO-2	P1-C	Glycol Cooling Pump 1 Command	Off On	X		
BO-3	P2-C	Glycol Cooling Pump 2 Command	Off On	X		
BO-4						
Software AO	OAEN-SP	Outside Air Enable Setpoint	Deg F	X		
Software BO	SYS-EN	System Enable Command	Disable Enable	X		
Software BO	P-LEAD	Pump Lead/Lag	Off On	X		

GLYCOL COOLING CONTROL POINT LIST

AIRFLOW TABLE

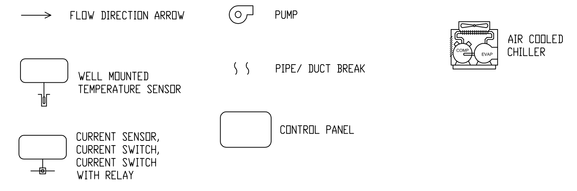
Room No.	Room Name	Supply CFM AHU-1	Exhaust CFM EF-7	Exhaust CFM EF-6	Exhaust CFM EF-2	Exhaust CFM EF-1	Exhaust CFM EF-3	Exhaust CFM EF-4	Exhaust CFM EF-5	Building Exhaust
3001	Corr.	270								
3001N	Corr.	420								
3001S	Corr.	150								100
3097	Office	160							160	
3098	Office	210							210	
3099	Office	210							210	
3096	Holding/Prep.	160							160	
3096A	Toilet	50							75	
3095	O.R.	1050			890					
3094A	Sub-Sterile	210								240
3093	O.R.	1050				890				
3092	O.R.	1050					890			
3091A	Sub-Sterile	210								240
3091	Scrub	50								
3092	Scrub	50								
3090	O.R.	1050						890		
3089A	Women's Toilet									190
3089	Women's Locker	330								190
3088A	Men's Toilet									190
3088	Men's Locker	330								190
3087	Staff Lounge	1000	1000							
3086	Soiled Workroom	190	220							
3085	Clean Workroom	220	190							
3084	Sterile Storage	540	460							
3083	Equip. Storage	420	420							
3082	Anesthesiologist	220	220							
331	Housekeeping	70								85
3081	Red Bag	50								65
3080B	Soiled Utility	70	85							
3080	PACU	620	530							
3079	Isolation	290		240						
3079A	Isolation Toilet	50		65						
3079B	Anteroom	50								
3078	Waiting	150	150							
340	Electrical	50								
Total Airflow		11,000	3,275	305	890	890	890	890	815	1,490

Notes:

1. Refer to Wilmington VAMC project 460-15-00 for room numbers on architectural drawings. Refer to existing mechanical drawings from Wilmington VAMC project 460-15-00 for air outlet and air inlet quantities and locations. Rebalance maximum airflows at

2. Where a space has more than one supply outlet or exhaust inlet, divide the total airflow equally among the total number of air outlets and inlets within the space.

TEMPERATURE CONTROL LEGEND



GLYCOL COOLING COIL SCHEDULE

TAG	SYSTEM	CFM	MAX. FACE VEL. (FPM)	MAX. S.P. LOSS ("WG)	EAT °F		LAT °F		CIRCULATING FLUID (SEE NOTE 1)				COOLING CAPACITY	
					DB	WB	DB	WB	GPM	EWT °F	LWT °F	MAX WPD (FT.)	TOTAL MBH	SENSIBLE MBH
CC-1	AHU-1	5500	400	1.2	100.0	78.0	45.7	45.7	80	36.0	50.5	12	581.3	337.3
CC-2	AHU-1	5500	400	1.2	100.0	78.0	45.7	45.7	80	36.0	50.5	12	581.3	337.3

NOTES:
(1) PERFORMANCE BASED ON 20% PROYLENE GLYCOL (DOW FROST).
(2) COIL NOMINAL DIMENSIONS: 82" WIDE X 25.5" TALL, TYP. OF TWO, VERTICALLY STACKED IN EXISTING AHU-1 (VERIFY DIMENSIONS OF EXISTING AHU CASING).

HVAC DESIGN DATA

OUTDOOR DESIGN TEMPERATURES	100°F Db SUMMER 75°F Wb SUMMER	
INDOOR AREA DESIGN CONDITIONS	SUMMER	
	Db (°F)	% HUMIDITY
SURGERY	62	55

DESIGN ALTITUDE: 79 ft.

CHILLER FOR O.R. SUITE AIR-HANDLING UNIT

WILMINGTON, DE

COMMONWEALTH OF VIRGINIA — BRUCE A. CAMPBELL — No. 35543 — 4/20/06 — PROFESSIONAL ENGINEER

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APPROVED BY VISION 4 SAFETY OFFICER	APPROVED BY INFECTION CONTROL OFFICER
	APPROVED BY CHIEF OF STAFF
	APPROVED BY CENTER DIRECTOR

NO.	REVISIONS	DATE

DRAWING TITLE
MECHANICAL EQUIPMENT SCHEDULES & CONTROL DIAGRAMS

DWG.	PROJECT NO.	DATE
M601	**460-06-101**	**4/20/06**

CONSTRUCTION MANAGEMENT

Department of Veterans Affairs