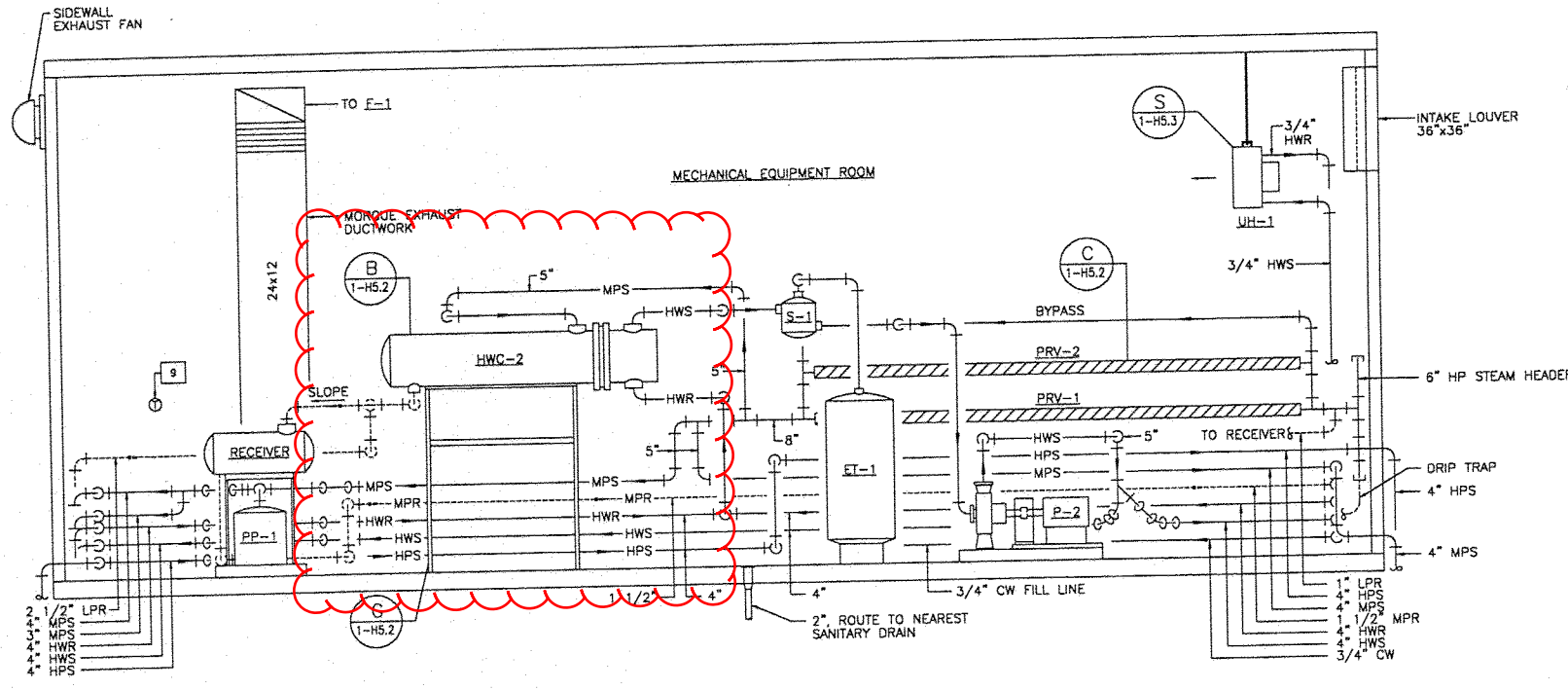


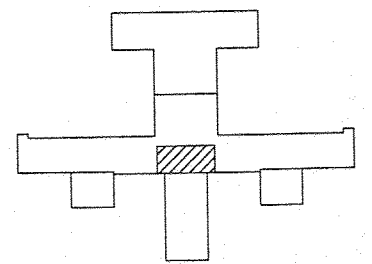
ENLARGED MECHANICAL EQUIPMENT ROOM PLAN
SCALE: 1/2"=1'-0"



MECHANICAL EQUIPMENT ROOM SECTION
SCALE: 1/2"=1'-0"

CONSTRUCTION NOTES:

1. PROVIDE BASE-MOUNTED CLOSED-COUPLED PUMPS, TO INCLUDE ALL NECESSARY PIPING, FITTINGS, VALVES, SUPPORTS AND CONTROLS.
2. PROVIDE HOT WATER CONVERTORS, TO INCLUDE ALL NECESSARY PIPING, FITTINGS, VALVES, SUPPORTS AND CONTROLS.
3. PROVIDE PACKAGED PRESSURE-POWERED PUMP WITH RECEIVER, TO INCLUDE ALL NECESSARY PIPING, FITTINGS, VALVES, SUPPORTS AND CONTROLS.
4. PROVIDE VERTICAL EXPANSION TANK, TO INCLUDE ALL NECESSARY PIPING, FITTINGS, VALVES, SUPPORTS AND CONTROLS.
5. PROVIDE PRESSURE REDUCING STATIONS, TO INCLUDE ALL NECESSARY PIPING, FITTINGS, VALVES, SUPPORTS AND CONTROLS.
6. PROVIDE VARIABLE SPEED DRIVES, TO INCLUDE ALL NECESSARY SUPPORTS AND CONTROLS. SECURE TO MER WALL/FLOOR STRUCTURAL SYSTEM.
7. PROVIDE HOT WATER UNIT HEATER, TO INCLUDE ALL NECESSARY PIPING, HANGERS, SUPPORTS AND CONTROLS. UNIT HEATER SHALL MAINTAIN SPACE TEMPERATURE ABOVE 55°F. MOUNT TO MER CEILING.
8. SEE SCHEMATICS, EQUIPMENT DETAILS AND PROJECT SPECIFICATIONS FOR ALL REQUIRED VALVES, FITTINGS, HANGERS, SUPPORTS AND CONTROLS.
9. PROVIDE THERMOSTAT FOR MER EXHAUST FAN. FAN SHALL ENERGIZE WHEN SPACE TEMPERATURE EXCEEDS 85°F.
10. PROVIDE DUCTLESS SPLIT SYSTEM AIR CONDITIONER AC-1, TO INCLUDE WALL MOUNTED THERMOSTAT, CONTROL WIRING AND REFRIGERANT PIPING.
11. EQUIPMENT/PIPING SHALL BE SECURELY MOUNTED TO THE WALL/FLOOR/ROOF STRUCTURAL SYSTEM OF THE MER. DO NOT USE THE SHEET METAL SKIN FOR SUPPORT.
12. DDC SYSTEM RCU'S FOR AHUS.



KEY PLAN
SCALE: NONE

Symbol	Description	Date
Revisions		
John J. Kirlin, Inc. SPECIAL PROJECT DIVISION REPLACE/REPAIR AIR HANDLING UNITS 1, 2 & 4 DURHAM VA MEDICAL CENTER DURHAM, NORTH CAROLINA ENLARGED MECHANICAL ROOM PLAN AND SECTION		
The GREENWOOD PARTNERSHIP LLC ARCHITECTS / ENGINEERS 11111 RICHMOND AVENUE, SUITE 100 DURHAM, NORTH CAROLINA 27706		Sheet reference number 18 JUNE 99 Design file no.: BLD1H1-2.DWG Scale: 1/2"=1'-0" Sheet 16 of 36

1/2"=1'-0" 0 6" 1' 2' 3' 4' 5'

CONVERTOR SCHEDULE														
CONVERTOR NO	LOCATION	CIRCULATION FLUID						STEAM PSIG		MANUFACTURER & MODEL	CONTROL VALVE	TRAP		
		FLUID	GPM	FOULING FACTOR	TEMP IN °F	TEMP OUT °F	MAX LOSS FT FLUID	ENTERING CONTROL VALVE	ENTERING CONVERTOR		LBS/HR	LBS/HR	DIFFERENTIAL PRESSURE (LBS)	MANUFACTURER & MODEL
HWC-1	11TH FLR MER	WATER	240	.001	160	180	2.1	30	20	TACO G12210-S	2,458	3,690	1/4	SPIRAX SARCO 2" FTB-30
HWC-2	11TH FLR MER	WATER	240	.001	160	180	2.1	30	20	TACO G12210-S	2,458	3,690	1/4	SPIRAX SARCO 2" FTB-30

* PRESSURE DROP ACROSS THE VALVE = 10 PSIG MAX.

GLYCOL MAKE-UP UNIT SCHEDULE					
UNIT NO	CAPACITY (GPM/PSIG)	MOTOR HP	VOLTS	CONTAINER (GAL)	MANUFACTURER & MODEL
GMU-1	1.8/50	1/3	110	50	WESSELS GMP-1052
GMU-2	1.8/50	1/3	110	50	WESSELS GMP-1052

HOT WATER UNIT HEATER SCHEDULE										
UNIT NO	LOCATION	TYPE	CAPACITY (MBH)	WATER			ELECTRICAL			MANUFACTURER & MODEL
				GPM	EWT (°F)	LWT (°F)	HP	VOLTS	PHASE	
UH-1	MER	PROPELLER	14	1.47	180	160	1/20	120	1	TRANE JB-S

NOTE: PROVIDE WITH ADJUSTABLE LOUVER FIN DIFFUSER.

EXPANSION TANK SYSTEM SCHEDULE																
TANK NO	SYSTEM	MANUFACTURER & MODEL	APPROX SYSTEM VOL GAL	SYSTEM TEMP RANGE °F		INITIAL PRESS IN TANK PSIG	PRV FILL PRESS AT TANK PSIG	MAX OPER PRESS		TANK SIZE GAL	PIPE SIZE TO TANK	AIR SEPARATOR				
				MIN	MAX			RELIEF VALVE PSIG	AT TANK PSIG			SIZE	GPM	MAX PD (FT)	BUILT-IN STRAINER REQUIRED	MANUFACTURER & MODEL
ET-1	HOT WATER	TACO CAX300	1250	50	180	0	10	42.2	32.5	79	1/2"	5"	420	2.5	YES	TACO AC5F
ET-2	CHILLED WATER	TACO CAXB4	300	32	95	0	10	32.5	25	22	1/2"	4"	229	1.5	YES	TACO AC4F
ET-3	CHILLED WATER	TACO CAXB4	300	32	95	0	10	32.5	25	22	1/2"	4"	191	1.3	YES	TACO AC4F

CIRCULATING PUMP SCHEDULE															
PUMP NO	LOCATION	SYSTEM	CIRCULATION FLUID					% EFF	TYPE	MOTOR			MANUFACTURER & MODEL	REMARK	
			FLUID	GPM	PUMP HEAD FT FLUID	TEMP °F	Sp Gr			NOM HP	PHASE/VOLTS	RPM			
P-1	11TH FLR MER	HOT WATER	WATER	210	54	160	1.0	65	FRAME MTD	5	3/460	1160	TACO FE2513	SEE NOTE BELOW	
P-2	11TH FLR MER	HOT WATER	WATER	210	54	160	1.0	65	FRAME MTD	5	3/460	1160	TACO FE2513	SEE NOTE BELOW	
P-3	AHU-1 MER	CHILLER CH-4	EG	123	34.1	32	1.05	65	IN-LINE	2	3/460	1750	TACO 1941	SEE NOTE BELOW	
P-4	AHU-1 MER	CHILLER CH-4	EG	123	34.1	32	1.05	65	IN-LINE	2	3/460	1750	TACO 1941	SEE NOTE BELOW	
P-5	AHU-2 MER	CHILLER CH-5	EG	112	29.5	32	1.05	65	IN-LINE	1.5	3/460	1750	TACO 1941	SEE NOTE BELOW	
P-6	AHU-2 MER	CHILLER CH-5	EG	112	29.5	32	1.05	65	IN-LINE	1.5	3/460	1750	TACO 1941	SEE NOTE BELOW	

NOTE: ALL UNITS TO BE PROVIDED WITH VARIABLE FREQUENCY DRIVES.

NOTE: ALL UNITS TO BE PROVIDED WITH VARIABLE FREQUENCY DRIVES

AIR-COOLED CHILLER UNIT SCHEDULE															
UNIT NO	SERVING	MIN TONS	MAX KW PER TON	POWER				CHILLED WATER			BRINE		MANUFACTURER & MODEL	REMARKS	
				KW INPUT	VOLT	HERTZ	PHASE	GPM	ENT WATER TEMP 'F	LVG WATER TEMP 'F	MAX PD FT	TYPE			%
CH-4	AHU-1	93.7	1.45	134.2	480	60	3	247	42	32	18.3	ETHYLENE GLYCOL	30	TRANE RTAA125	1, 2
CH-5	AHU-2	84	1.45	112.4	480	60	3	223	42	32	11.4	ETHYLENE GLYCOL	30	TRANE RTAA110	1, 2

- NOTES:
- INCLUDE NEOPRENE ISOLATORS FOR FIELD MOUNTING UNDER BASE OF CHILLER.
 - INCLUDE FACTORY INSTALLED CONDENSER COIL, HAIL GUARDS, CONTROL POWER TRANSFORMER, SUCTION SERVICE VALVES AND DUAL INDEPENDENT CIRCUITS.

PACKAGED PRESSURE POWERED PUMP ASSEMBLY SCHEDULE							
PUMP NO	LOCATION	TYPE UNIT	LB/HR	INLET PRESSURE (PSIG)	BACK PRESSURE (PSIG)	RECEIVER (GAL)	MANUFACTURER & MODEL
PP-1	11TH FLR MER	SIMPLEX	11,925	30	5	24	SPIRAX SARCO PPC 2"x2"
PP-2	AHU-1	SIMPLEX	3,725	30	5	24	SPIRAX SARCO PPEC 1"
PP-3	AHU-2	SIMPLEX	3,725	30	5	24	SPIRAX SARCO PPEC 1"

EXHAUST FAN SCHEDULE									
FAN NO	LOCATION	USE	TYPE	CFM	STATIC PRESSURE (IN)	ELECTRICAL			MANUFACTURER & MODEL
						HP	VOLTS	PHASE	
F-1	MER ROOF	MORQUE EXHAUST	CENTRIFUGAL	3340	1.10	1.5	460	3	GREENHECK LBP 24-20

DUCTLESS SPLIT-SYSTEM AIR CONDITIONER SCHEDULE										
UNIT NO	LOCATION	COOLING CAPACITY NOMINAL (BTU)	INDOOR EVAPORATOR			OUTDOOR CONDENSER				
			VOLTS	PHASE	MCA	MANUFACTURER & MODEL	VOLTS	PHASE	MCA	MANUFACTURER & MODEL
AC-1	11TH FLR MER	30,000	208	1	1.4	EMI FLC 30	208	1	15.4	EMI SCC 30

AIR HANDLING UNIT SCHEDULE				
		AHU-1	AHU-2	AHU-4
GENERAL	SYSTEM NUMBER LOCATION	BUILDING 1	BUILDING 1	BUILDING 1
FAN (SUPPLY)	FAN CFM	38,165	32,285	58,800
	MIN OA CFM	13,628	11,108	58,800
	SYSTEM SP (IN WG)	9.0	9.0	9.67
	FAN RPM	1,349	1,508	1,156
	MIN WHEEL DIA (IN)	44.50	40.26	54.25
	FAN HP	100	75	150
	ELEC VOLTS/PHASE	480/3	480/3	480/3
FAN (RETURN)	FAN CFM	24,760	21,370	-
	OPER SP	1.5	1.25	-
	FAN RPM	670	788	-
	MIN WHEEL DIA	44.5	40.25	-
	FAN HP	10	10	-
	ELEC VOLTS/PHASE	460/3	460/3	-
		2,125,812	1,763,953	4,863,173
PRIMARY COOLING COIL BANK	BTUH	38,165	32,285	58,800
	CFM	0.99	0.97	1.51
	MAX SP LOSS (IN)	487	486	487
	MAX FV (FPM)	84.0/69.3	84.0/69.0	96.9/76.0
	EAT (DB/WB)	51.8/51.4	51.7/51.4	51.9/51.5
	LAT (DB/WB)	WATER	WATER	WATER
	FLUID	257	212	700
	GPM	42.0/58.5	42.0/58.6	42.0/55.9
	EWT/LWT	8.9	9.3	11.9
	MAX PD (FT H2O)	1,071,157	896,665	-
AUXILIARY COOLING COIL BANK	BTUH	38,165	32,285	-
	CFM	0.79	0.79	-
	MAX SP LOSS (IN)	500	500	-
	MAX FV (FPM)	56.1/53.2	55.8/53.1	-
	EAT (DB/WB)	41.8/41.5	41.8/41.5	-
	LAT (DB/WB)	30% ETHYLENE GLYCOL	30% ETHYLENE GLYCOL	-
	FLUID	229	191	-
	GPM	34.0/43.3	34.0/43.4	-
	EWT/LWT	4.6	5.2	-
	MAX PD (FT H2O)	1,639,000	1,386,000	2,651,000
STEAM HEATING COIL BANK	BTUH	38,165	32,285	58,800
	CFM	IFB	IFB	IFB
	TYPE	0.10	0.10	0.12
	MAX SP LOSS	536	523	550
	MAX FV (FPM)	11.0	11.0	11.0
	EAT	57.6	58.2	113.2
	LAT	1,639	1,386	2,651
	LBS/HR (CONT VALVE)	20	20	20
	PSIG	2459	2077	3977
	TRAP (LBS/HR)	15	15	15
PREFILTER	TRAP DP (LBS)	DISPOSABLE 2" THICK	DISPOSABLE 2" THICK	DISPOSABLE 2" THICK
	TYPE & SIZE	38,165	32,285	58,800
	CFM	500	500	500
	MAX FV (FPM)	30%	30%	30%
	MIN EFFICIENCY	0.35	0.35	0.35
MAX CLEAN FILTER SP (IN)	CARTRIDGE 24"x24"x12"	CARTRIDGE 24"x24"x12"	CARTRIDGE 24"x24"x12"	
FINAL FILTER	TYPE & SIZE	38,165	32,285	58,800
	CFM	375	375	375
	MAX FV (FPM)	7Wx4H	6Wx4H	8Wx5H
	ARRANGEMENT	90%	90%	90%
	MIN EFFICIENCY	0.6	0.6	0.6
	MAX CLEAN FILTER SP (IN)	38,165	32,285	58,800
STEAM HUMIDIFIER	CFM	335	275	1430
	LBS/HR (CAPACITY)	2.0	2.0	2.0
	PSIG	503	413	2,145
	TRAP (LBS/HR)			

NOTES:

- ALL UNITS TO BE PROVIDED WITH VARIABLE SPEED DRIVES.

PRESSURE REDUCING VALVE STATION SCHEDULE							
VALVE NO	LOCATION	SIZE (IN)	STEAM PRESSURE PSIG		CAPACITY LBS/HR		MANUFACTURER & MODEL
			INLET	OUTLET	REQUIRED	MAXIMUM	
PRV-1	MER	2	100	30	3750	6055	SEE NOTE 1
PRV-2	MER	2 1/2	100	30	8740	9690	SEE NOTE 1

NOTE: SEE DETAIL C, SHEET 1-H5.2

- REDUCING STATION CONSISTING OF:
6" S-3 MOISTURE SEPARATOR
2 1/2" CASTIRON REDUCING VALVE 25P
5" CAST IRON 125 LB STRAINER
2 1/2" D-8 NOISE REDUCER
3" 125 LB STRAINER
2" PRESSURE REDUCING VALVE 25P
2" D-6 NOISE REDUCER
SAFETY VALVE SVI KQP-35
8" DPE DRAIN PAN ELBOW
6" BYPASS LINE
FTI 125 TRAP STATION
(PART #S REFERENCE SPIRAX SARCO)

Symbol	Description	Date
Revisions		
John J. Kirlin, Inc. SPECIAL PROJECT DIVISION REPLACE/REPAIR AIR HANDLING UNITS 1, 2 & 4 DURHAM VA MEDICAL CENTER DURHAM, NORTH CAROLINA MECHANICAL SCHEDULES		
The GREENWOOD PARTNERSHIP LLC ARCHITECTS / INTERIORS 10000 WOODBRIDGE BLVD SUITE 200 GREENWOOD VILLAGE, NC 27617	Sheet reference number 1-H5.4	Date: 18 JUNE 99 Design file no.: BLD1HS-4.DWG Scale: NONE Rev: 28 of 38