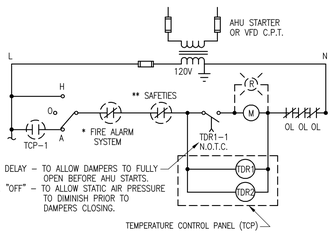
NOTES

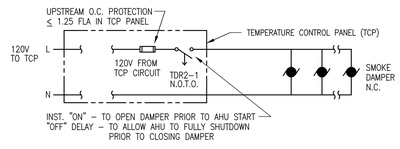
1. DIV 26 SHALL PROVIDE FUSES FOR ALL FUSED SWITCHES. FUSES SHALL BE DUAL-ELEMENT TYPE, RATED AS SHOWN, OR IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATION. CHECK NAMEPLATE RATINGS OF INSTALLED EQUIPMENT.

2. UNLESS NOTED OTHERWISE, CONTROLLERS, AND DISCONNECT SWITCHES NOT FURNISHED BY DIV. 26, SHALL BE PART OF PREWIRED EQUIPMENT OR CONTROL PANEL AND WILL BE INSTALLED BY THE CONTRACTOR FURNISHING SUCH EQUIPMENT OR PANEL. THE DIV. 16 SHALL MAKE ALL LINE CONNECTIONS AND SUCH CONTROL CONNECTIONS, AS INDICATED BY CONTROL SCHEME.

ABBREVIATIONS

CB	CIRCUIT BREAKER
FU	FUSE, DUAL-ELEMENT
MCP	MOTOR CIRCUIT PROTECTOR
NFDS	NON-FUSED DISCONNECT SWITCH
FDS	FUSED DISCONNECT SWITCH
MS	MAGNETIC STARTER
CS/XXX	COMBINATION STARTER WITH NFDS, OR MCP AS INDICATED
TC	TEMPERATURE CONTROL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MSPB	MOTOR STARTER PANEL
MMS	MANUAL MOTOR STARTER
DIV	DIVISION OF SPECIFICATION
FS	FUSED SWITCH – BUSSMANN SSY
PE	PNEUMATIC/ELECTRIC SWITCH
T-STAT	THERMOSTAT
G	GROUND
C	CONDUIT
VFD	VARIABLE FREQUENCY DRIVE





* SHUTDOWN CONTACT FROM FIRE ALARM SYSTEM AND INITIATED BY DUCT SMOKE DETECTOR(S) ASSOCIATED WITH AHU. (SEE MECH & ELECT PLANS).

** DIV. 15 PROVIDED SAFETY SHUTDOWN CONTACTS AS REQUIRED, IE: FREEZESTAT, STATIC PRESSURE SWITCH HI LIMIT, END SWITCHES, ETC., AS REQUIRED.

TYPICAL AHU SMOKE DAMPER CONTROL

NOT TO SCALE

DIVISION OF WORK

DIVISION 26 WORK

- PROVIDE 20/1, 120V CIRCUIT TO ASSOCIATED AHU TCP. PROVIDE ADDITIONAL 20/1, 120V CIRCUIT TO TCP AS DAMPER ACTUATOR LOADS REQUIRE.
- WIRE SHUTDOWN CONTACTS FROM FIRE ALARM SYSTEM TO AHU STARTER CONTROL CIRCUIT.
- ALL CONTACTS SHALL BE RATED FOR 150% OF TOTAL LOAD.

TEMPERATURE CONTROL WORK

- DAMPERS MUST CLOSE WHENEVER UNIT SHUTS DOWN OR DURING POWER LOSS OFF DELAY ALLOWS FAN TO SLOW DOWN PRIOR TO CLOSING DAMPERS.
- WIRE TCP-1 CONTROL CONTACT TO AHU STARTER H.O.A. CONTROL CIRCUIT.
- WIRE TDR1-1 "ON" DELAY CONTACT TO ALLOW THE SMOKE DAMPERS TO OPEN PRIOR TO ALLOWING THE FAN TO RUN.
- WIRE FREEZESTAT AND STATIC PRESSURE SWITCH AND OTHER SAFETY DEVICES INTO AHU STARTER CONTROL CIRCUIT.
- 120V CIRCUIT WIRING FROM T.C.P. TO SMOKE DAMPERS.
- PROVIDE ADJUSTABLE TIMED "ON" AND "OFF" DELAY CONTACTS. CONTACT TDR2-1 TO BE MOTOR RATED FOR THE CONNECTED LOAD.
- PROVIDE ADDITIONAL SMOKE DAMPER FUSED CIRCUITS AND CONTROL CONTACTS AS DAMPER ACTUATOR LOADS REQUIRE.
- ALL CONTACTS SHALL BE RATED FOR 150% OF TOTAL LOAD.
- WIRE TO END SWITCHES ON UNIT 15,000 CFM AND ABOVE.
- PROVIDE TIMED DELAY RELAYS (TDR) IN THE TEMPERATURE CONTROL PANEL AND WIRE TO AHU MOTOR STARTER. TDR'S TO HAVE 2 TO 60 SECOND TIMING RANGE WITH KNOB ADJUST – AGASTAT SERIES SSC.
- TIMED DELAY RELAYS SHALL BE MOUNTED IN AN ELECTRICAL ENCLOSURE WITH A COVER, AND LOCATED INSIDE OF THE TEMPERATURE CONTROL PANEL.
- PROVIDE A LABEL ON THE COVER OF THE TIME DELAY RELAY ENCLOSURE WITH THE FINAL SETTINGS OF THE RELAYS AND THE DATE SET. THE LABEL SHALL ALSO INCLUDE THE FOLLOWING WARNINGS:
- ALL NEW SMOKE DETECTORS TO BE COMPARABLE WITH EXISTING SMOKE DETECTOR SYSTEM.

DO NOT REMOVE THIS COVER OR ADJUST THE TIME DELAY RELAY SETTINGS LOCATED WITHIN WITHOUT PROPER AUTHORIZATION.

"ON" DELAY SETTING: _____ MIN.
"OFF" DELAY SETTING: _____ MIN.
DATE SET: _____
SET BY: _____

AIR HANDLING UNIT SCHEDULE

MARK	SERVICE	SUPPLY AIR FAN						COILS		HUMD.	RETURN / EXHAUST AIR FAN					WEIGHT	UNIT SIZE		REMARKS
		TOTAL CFM	EXT SP	TOTAL SP	SIZE/RPM	MODEL	HP	HTG	CLG		TOTAL CFM	TOTAL SP WC	SIZE/RPM	MODEL	HP	LBS	W	H	
AHU-1	SOUTH	14820	2.08	4.90	AF 25-25/1465	25-25	20	HC-1	CC-1	HUM-1	–	–	–	–	–	8116	81	81	(1)(2)(3)(4)
RAF-1	SOUTH	–	–	–	–	–	–	–	–	–	11090	1.46	AF 25-25/1079	25-25	7 1/2				
AHU-2	CENTER	6530	2.99	5.16	AF 15-15/2644	15-15	10	HC-2	CC-2	HUM-2	–	–	–	–	–	4365	54	60	(1)(2)(3)(4)
RAF-2	CENTER	–	–	–	–	–	–	–	–	–	5480	1.40	FC 18-13/741	15-15	5				
AHU-3	NORTH	12300	2.08	4.87	AF 22-22/1676	22-22	15	HC-3	CC-3	HUM-3	–	–	–	–	–	7271	75	75	(1)(2)(3)(4)
RAF-3	NORTH	–	–	–	–	–	–	–	–	–	8120	1.40	AF 22-22/1268	22-22	7 1/2				

(1) BASED ON YORK, CUSTOM SIZE UNIT INCLUDING BASE RAIL (BASE RAIL HEIGHT TO PROVIDE PROPER HEIGHT TO ALLOW COIL TO DRAIN REFER TO AIR HANDLING UNIT DRAIN TRAP DETAIL ON MH500.)
(2) VARIABLE FREQUENCY DRIVE FOR SUPPLY AND RETURN FAN.
(3) REFER TO CONSTRUCTION DETAIL FOR CUSTOM ECONOMIZER SECTION.
(4) UNIT SUPPLIED IN MULTIPLE SECTIONS AND ASSEMBLED IN THE FIELD.

ELECTRICAL REQUIREMENTS

VOLTAGE & PHASE	CIRCUIT NO.	CIRCUIT PROTECTION DEVICE	CIRCUIT SIZE	CONTROLLER DISCONNECT				CONTROLLER				DISCONNECT AT MOTOR			REMARKS	MARK
				TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY		
480/3	PNL PA	50/3 CB	3#8, #10G, 1"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	AHU-1
480/3	PNL PA	20/3 CB	3#12, #12G, 1/2"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	RAF-1
480/3	PNL PA	30/3 CB	3#10, #10G, 1/2"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	AHU-2
480/3	PNL PA	15/3 CB	3#12, #12G, 1/2"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	RAF-2
480/3	PNL PA	40/3 CB	3#8, #10G, 1"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	AHU-3
480/3	PNL PA	20/3 CB	3#12, #12G, 1/2"C.	–	–	MC	–	VFD	–	MC	–	–	–	MC	.	RAF-3

AIR HANDLING UNITS – FAN SOUND POWER LEVELS

FAN	SOUND POWER LEVELS (DBA)							
	1	2	3	4	5	6	7	8
AHU-1 SUPPLY SF-1	99	95	97	91	88	81	87	73
AHU-1 RETURN RAF-1	90	84	86	83	78	74	71	69
AHU-2 SUPPLY SF-2	101	96	95	97	92	87	80	75
AHU-2 RETURN RAF-2	86	80	77	76	79	77	73	69
AHU-3 SUPPLY SF-3	99	94	96	90	87	81	76	71
AHU-3 RETURN RAF-3	88	84	86	82	78	74	71	68

COOLING COIL SCHEDULE

MARK	LOCATION	SERVICE	CFM	OA CFM	TOT MBH	SENS MBH	CHILLED WATER				AIR PD	DBE	WBE	DBL	WBL	COILS						REMARKS
							GPM	H_2O PD FT.HD	EWT	LWT						TYPE	ROWS	FIN TYPE	FPF	FV	SIZE	
CC-1	ATTIC	AHU-1	14820	3480	389	195	65	6.6	44	56	0.43	77.5	62.9	60	57	WATER	4	ALUM	132	476	69x65	(1)(2)
CC-2	ATTIC	AHU-2	6530	1828	171	86	30	4.6	44	56	0.46	77.8	68.0	60	57	WATER	4	ALUM	132	498	42x45	(1)(2)
CC-3	ATTIC	AHU-3	12300	3340	323	161	59	4.2	44	56	0.50	78.0	67.9	60	57	WATER	5	ALUM	120	489	63x57.5	(1)(2)
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(1) BASED ON YORK, PRESENT CONDITIONS WITH EXISTING CHILLER.
(2) FUTURE CONDITIONS WITH NEW CHILLER: 42" EWT, 57" LWT, 55" DBL, 54.3" WBL.

HEATING COIL SCHEDULE

MARK	LOCATION	SERVICE	CFM	OA CFM	MBH	GPM	H_2O PD FT.HD	EWT	LWT	AIR PD	EAT	LAT	COILS						REMARKS
													TYPE	ROWS	FIN TYPE	FPF	FV	SIZE	
HC-1	ATTIC	AHU-1	14820	3480	280	28	0.8	190	170	0.05	54	72.5	WATER	1	ALUM	96	477	69x65	(1)
HC-2	ATTIC	AHU-2	6530	1828	127	13	1.7	190	170	0.06	56	72.5	WATER	1	ALUM	96	498	42x45	(1)
HC-3	ATTIC	AHU-3	12300	3444	240	24	4.4	190	170	0.06	54	72.5	WATER	1	ALUM	96	488	63x57.5	(1)
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(1) BASED ON YORK

UNIT HEATER SCHEDULE

MARK	LOCATION	MODEL	CFM	MBH	GPM	RPM	LAT	P.D. FT.HD.	HP	REMARKS
UH-1	ATTIC	HC-3	630	20	1.5	1550	91	0.2	1/25	(1)
UH-2	ATTIC	HC-3	630	20	1.5	1550	91	0.2	1/25	(1)
UH-3	ATTIC	HC-3	630	20	1.5	1550	91	0.2	1/25	(1)
.	.	.	.	.	.	.	.	.	.	.

(1) BASED ON MODINE, 190°F EWT, 160°F LWT

ELECTRICAL REQUIREMENTS

VOLTAGE & PHASE	CIRCUIT NO.	CIRCUIT PROTECTION DEVICE	CIRCUIT SIZE	CONTROLLER DISCONNECT				CONTROLLER				DISCONNECT AT MOTOR			REMARKS	MARK
				TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY		
120/1	PNL P	15/1 CB	2#12, #12G, 1/2"C.	–	–	MC	–	–	–	MC	–	–	–	MC	.	UH-1
120/1	PNL P	15/1 CB	2#12, #12G, 1/2"C.	–	–	MC	–	–	–	MC	–	–	–	MC	.	UH-2
120/1	PNL P	15/1 CB	2#12, #12G, 1/2"C.	–	–	MC	–	–	–	MC	–	–	–	MC	.	UH-3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

FAN SCHEDULE

MARK	LOCATION	SERVICE	TYPE	MODEL	CFM	SP	RPM	TS / OV	WHEEL SIZE	HP	SONE @ 5'	REMARKS
EF-1	ATTIC	ATTIC VENT.	INLINE	BSQ 140	1200	0.375	1140	–/1548	––	1/4	9.7	(1)
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(1) BASED ON GREENHECK

ELECTRICAL REQUIREMENTS

VOLTAGE & PHASE	CIRCUIT NO.	CIRCUIT PROTECTION DEVICE	CIRCUIT SIZE	CONTROLLER DISCONNECT				CONTROLLER				DISCONNECT AT MOTOR			REMARKS	MARK
				TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY		
120/1	PNL P	20/1 CB	2#12, #12G, 1/2"C.	MMS	–	EC	–	–	–	MC	–	← SEE CONT. DISC. →			.	EF-1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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PUMP SCHEDULE

MARK	LOCATION	SERVICE	MODEL	GPM	HEAD	RPM	IMPELLER	HP	REMARKS
P-1	ATTIC (AHU-1)	HC-1	SERIES 60 1x5-1/4	28	22.5	1750	5.0	1/2	(1)
P-2	ATTIC (AHU-2)	HC-2	SERIES 60 1x5-1/4	13	23.5	1750	4.875	1/2	(1)
P-3	ATTIC (AHU-3)	HC-3	SERIES 60 1x5-1/4	24	26.5	1750	5.125	1/2	(1)
.	.	.	.	.	.	.	.	.	.

(1) BASED ON BELL & GOSSETT

ELECTRICAL REQUIREMENTS

VOLTAGE & PHASE	CIRCUIT NO.	CIRCUIT PROTECTION DEVICE	CIRCUIT SIZE	CONTROLLER DISCONNECT				CONTROLLER				DISCONNECT AT MOTOR			REMARKS	MARK
				TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY	LOCATE	TYPE	SIZE	BY		
480/3	PNL PA	15/3 CB	3#12, #12G, 1/2"C.	CS/FDS	30/3	EC	AT PUMP	CS	0	← SEE CONT. DISC. →					.	P-1
480/3	PNL PA	15/3 CB	3#12, #12G, 1/2"C.	CS/FDS	30/3	EC	AT PUMP	CS	0	← SEE CONT. DISC. →					.	P-2
480/3	PNL PA	15/3 CB	3#12, #12G, 1/2"C.	CS/FDS	30/3	EC	AT PUMP	CS	0	← SEE CONT. DISC. →					.	P-3
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

STEAM HUMIDIFIER SCHEDULE

MARK	LOCATION	SERVICE	MODEL	CFM	STEAM PRESS PSIG	CAPACITY LBS/HR	ABSORPTION DISTANCE INCHES	REMARKS
HUM-1	ATTIC	AHU-1	SAM-e	14820	10	205	2"	(1)
HUM-2	ATTIC	AHU-2	SAM-e	6530	10	90	6"	(1)
HUM-3	ATTIC	AHU-3	SAM-e	12300	10	170	6"	(1)
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(1) BASED ON NORTEC, LOCATED IN AIR HANDLING UNIT.

LOUVER SCHEDULE

MARK	LOCATION	SERVICE	MODEL	INTAKE/ EXHAUST	DIMENSIONS		FREE AREA SQ.FT.	CFM	S.P. DROP (W.G.)	FINISH	REMARKS
					LENGTH	HEIGHT					
L-1	ATTIC	AHU-1	ELF6375 DX	INTAKE	36	66	9.51	14820	.45	BY ARCH	(1)
L-2	ATTIC	AHU-2	ELF6375 DX	INTAKE	36	66	9.51	6530	.08	BY ARCH	(1)
L-3	ATTIC	AHU-3	ELF6375 DX	INTAKE	36	66	9.51	12300	.25	BY ARCH	(1)
.	.	.	.	.	.	.	.	.	.	.	.

(1) BASED ON RUSKIN, 6" DRAINABLE BLADES

MISC-39A

100% DOCUMENTS	11/30/2011
Revisions	Date

URS
3950 SPARKS DRIVE SE
GRAND RAPIDS, MI
616-574-8520
PROJ. NO. 12942721
Architect

stamp

	DATE	ENGINEERING MANAGER	DATE
INFECTION CONTROL	DATE	CARELINE MANAGER	DATE
SAFETY OFFICER	DATE	CHIEF OF STAFF	DATE

Drawing Title: MECHANICAL EQUIPMENT SCHEDULES

MEDICAL CENTER DIRECTOR DATE

ASSOCIATE MEDICAL CENTER DIRECTOR DATE

Project Title: FCA – REPLACE HVAC SYSTEM
PROJ. NO. 515-10-109
CONTRACT NO. VA251-P-0592

Building Number: 82
Checked: CBD
Drawn: JAE
Location: V.A.M.C. BATTLE CREEK, MICHIGAN

Date: 11/30/2011
Station No.: 515

MH600

Office of Facilities
Department of Veterans Affairs