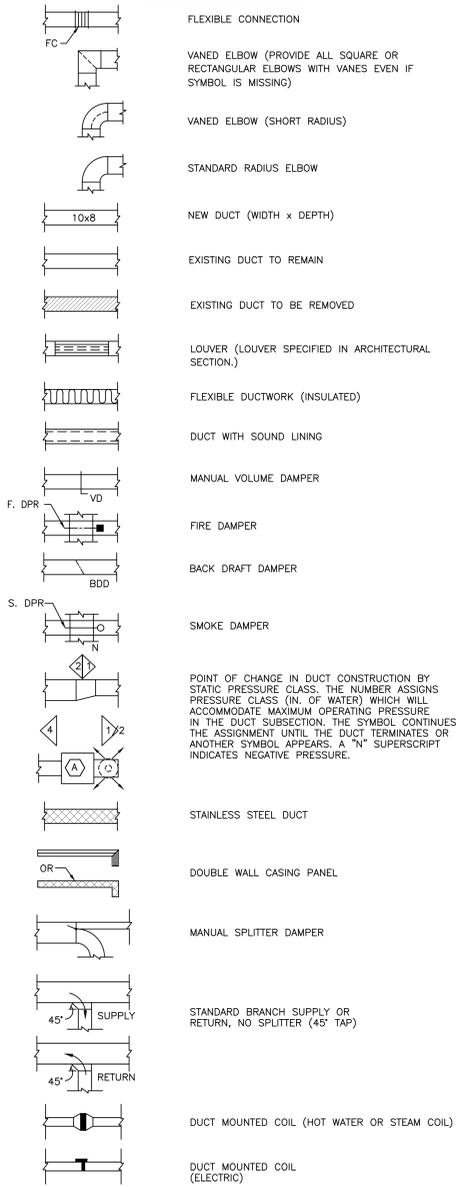
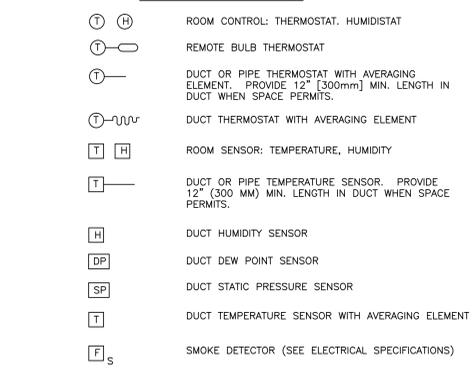


three inches = one foot
 one and one-half inches = one foot
 one inch = one foot
 three-quarters inch = one foot
 one-half inch = one foot
 three-eighths inch = one foot
 one-quarter inch = one foot
 one-eighth inch = one foot

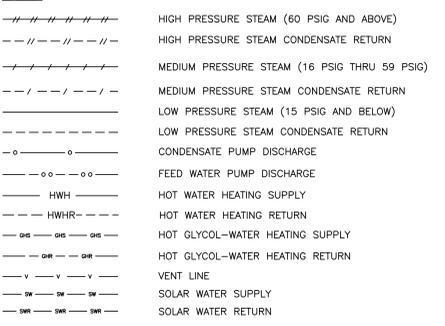
DUCTWORK SYMBOLS



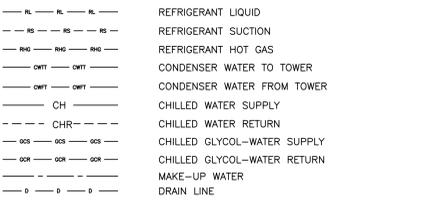
CONTROLS SYMBOLS



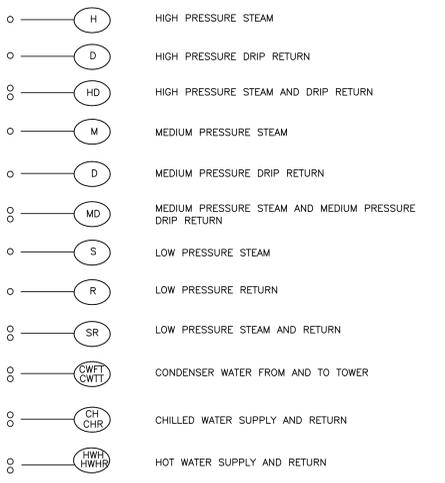
HEATING



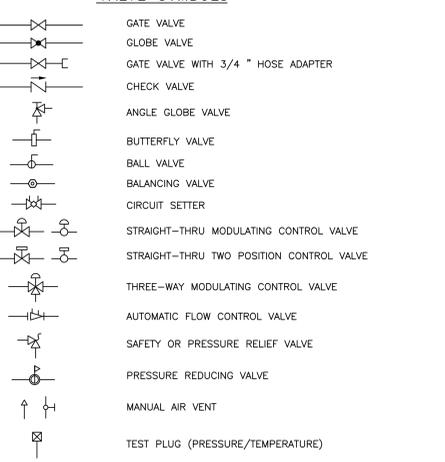
AIR CONDITIONING



PIPING RISER SYMBOLS



VALVE SYMBOLS



GENERAL NOTES

- ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE SUSPENDED CEILING.
- THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
- ACCESS PANELS IN SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
- TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
- FOR TYPICAL STEAM, WATER AND REFRIGERANT PIPING CONNECTIONS TO EQUIPMENT SEE STANDARD EQUIPMENT DETAILS.
- DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
- WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
- WALL TYPE EXHAUST REGISTERS NOTED AS "BR" ON DRAWINGS ARE TO BE INSTALLED WITH BOTTOM ELEVATION OF REGISTER AT 7" [178mm] ABOVE FINISHED FLOOR.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
- ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COTR FOR RESOLUTION.

HVAC DESIGN DATA

OUTDOOR DESIGN TEMPERATURES	88.4 (31.3)°F (°C) Db SUMMER	71 (21.7)°F (°C) Wb SUMMER	-1 (-18.3)°F (°C) Db WINTER	DESIGN ALTITUDE: 859 FT.
INDOOR AREA DESIGN CONDITIONS	Db °F (°C)	% HUMIDITY	Db °F (°C)	% HUMIDITY
ALL INDOOR AREAS	75 (23.9)	50	70 (21.1)	30

OUTDOOR AIR CALCULATION

SPACE CLASSIFICATION	FT ² OR NUMBER PEOPLE	CFM/PERSON	CFM/FT ²	TOTAL OUTDOOR AIR
GYMNASIUM 201	7200		.3	2160
OFFICE 102/WORKOUT 104/RESTROOM 103	2	20		40
LAUNDRY 106/RESTROOM 110/SHOWER 107	3	20		60
REC ROOM 101	40	10		400
TOTAL OUTDOOR AIR REQUIRED:				2660
TOTAL OUTDOOR AIR PROVIDED:				2660

FAN SCHEDULE

FAN NO.	LOCATION	CFM	S.P. IN	FAN TYPE	ARRANGEMENT, ROTATION & DISCHARGE	WHEEL TYPE	MAX. RPM	DRIVE	MOTOR		VARIABLE CONTROL TYPE
									NOM. W	PHASE VOLTS	
8-EF1	RESTROOM 103	200	0.25	CENTRIFUGAL	INLINE CABINET FAN	FC	900	DIRECT	48.2	1/120	NONE
8-EF2	RESTROOM 110	375	0.25	CENTRIFUGAL	CEILING MOUNTED FAN	FC	1050	DIRECT	217	1/120	NONE
8-EF3	SHOWER 107	250	0.25	CENTRIFUGAL	INLINE CABINET FAN	FC	1070	DIRECT	80.7	1/120	NONE

- NOTES:
 1. PROVIDE DISCONNECT SWITCH.
 2. PROVIDE VIBRATION ISOLATION HANGERS.
 3. PROVIDE BACKDRAFT DAMPERS.
 4. FAN SHALL OPERATE FROM LIGHT SWITCH.

EXPANSION TANK SCHEDULE

UNIT NO.	SYSTEM	APPROX. SYSTEM VOLUME GAL	TEMP. RANGE MIN. °F	MAX. °F	INITIAL PRESS. IN TANK PSIG	MAX. OPER. PRESS. PSIG	FILL PRESS. AT TANK PSIG	RELIEF VALVE PSIG	AIR SEPARATOR	PIPE SIZE TO TANK IN [mm]	COLD WATER FILL SIZE IN [mm]				
												MIN. VOLUME GAL	MIN. ACCEPT VOLUME GAL	SIZE IN [mm]	GAL [L]
8-ET1	1-P#	500	35	95	11	28	30	30	12	5 [127]	110	2 [0.61]	YES	1-1/2 [38]	3/4 [19]

WATER SOURCE HEAT PUMP SCHEDULE

UNIT SYMBOL	FAN CFM	OUTSIDE AIR CFM	COOLING CAPACITY WITH 90°F ENTR. WATER TEMP.				COOLING EER	CIRCULATING WATER		TOTAL HEATING CAP. WITH 40°F ENTR. WATER TEMP.		POWER REQ.			
			MIN. TOTAL BTUH	MIN. SENS. BTUH	ENT. AIR °F Db	°F Wb		GPM	COIL P.D. FT	RUN-OUT SIZE IN	BTUH	ENT. AIR °F	HEATING COP	MOCOP	PHASE VOLT.
A	10000	2160	280.5	198.5	78.0	67.5	13.9	37.5	15.9	2	322.4	70	4.3	175	3-208
B	800	150	23.0	16.5	78.0	67.5	14.4	6.7	23.9	3/4	27.4	70	4.7	30	1-208
C	800	150	23.0	16.5	78.0	67.5	14.4	6.7	23.9	3/4	27.4	70	4.7	30	1-208
D	600	100	17.3	13.0	78.0	67.5	13.3	5	10.4	3/4	20.2	70	4.8	20	1-208
E	600	40	17.3	13.0	78.0	67.5	13.3	5	10.4	3/4	20.2	70	4.8	20	1-208
F	600	-	17.3	13.0	78.0	67.5	13.3	5	10.4	3/4	20.2	70	4.8	20	1-208
G	600	60	17.3	13.0	78.0	67.5	13.3	5	10.4	3/4	20.2	70	4.8	20	1-208

- NOTES:
 1. PROVIDE DISCONNECT SWITCH.
 2. R-410A REFRIGERANT.
 3. PROVIDE FILTERS DURING CONSTRUCTION WHEN UNITS ARE OPERATING. PROVIDE NEW FILTERS UPON TURNOVER TO THE VA.
 4. ALL UNITS MUST COMPLY WITH ASHRAE 90.1-2007.
 5. PROVIDE WATERSIDE ECONOMIZER ON UNIT A.

HVAC PUMP SCHEDULE

PUMP NO.	LOCATION	SYSTEM	CIRCULATING FLUID				% EFF.	TYPE	MOTOR	
			FLUID	GPM	PUMP HEAD FT FLUID	TEMP. °F			SP. GR.	NOM. HP
8-P1	MECH. RM.	HEAT PUMP WATER	30% PG	71	80	35-95	1.03	55.4	BASE MTD END SUCTION	5 3-208 1750
8-P2	MECH. RM.	HEAT PUMP WATER	30% PG	71	80	35-95	1.03	55.4	BASE MTD END SUCTION	5 3-208 1750

- NOTES:
 1. PROVIDE DISCONNECT SWITCH.
 2. PROVIDE STRAINER.
 3. PROVIDE VFD.

TERMINAL OUTLET SCHEDULE

TAG	USE	TYPE	PANEL SIZE	NECK SIZE	CFM	NOISE CRITERIA
SG-1	SUPPLY	SPIRAL DUCT GRILLE	HEAT PUMP WATER	HEAT PUMP WATER	200	<=20
SG-2	SUPPLY	SPIRAL DUCT GRILLE	HEAT PUMP WATER	HEAT PUMP WATER	200	<=20
RG-1	RETURN	HEAVY DUTY GYM GRILLE	HEAT PUMP WATER	HEAT PUMP WATER	200	<=20

LOUVER SCHEDULE

TAG	USE	TYPE	CFM	SIZE W X H (IN)	PRESSURE DROP IN WG	FREE AREA SQ. FT.
8-LV1	INTAKE	STATIONARY DRAINABLE BLADE	2660	63 x 56	0.1	12.25

- NOTES:
 1. PROVIDE INSECT SCREEN.
 2. PROVIDE VIBRATION ISOLATION HANGERS.
 3. CONTRACTOR SHALL FIELD VERIFY LOUVER SIZE TO FIT IN EXISTING WINDOW. CONTRACTOR SHALL BLANK OFF PORTION OF LOUVER NOT USED WITH INSULATED SHEET METAL PANEL PAINTED FLAT BLACK.

100% CONSTRUCTION DOCUMENTS

Revisions	Date
ADDENDUM 1	06/01/12

ENGINEERS:

 8831 Keystone Crossing
 Indianapolis, IN 46240
 (317) 819-0200 Fax (919) 858-7423
 Apogee Project # 2011 135
 Apogee CO# PC80800389

Professional Stamp/Seal

ARCHITECT:

 8831 Keystone Crossing - Indianapolis, IN 46240
 Main 317.848.7800 - Fax 317.574.0957 - csoinc.net



Drawing Title
MECHANICAL GENERAL NOTES AND SCHEDULES
 Approved: Robert Nash, CO
 Approved: Andrew Mercker, COTR

Project Title
ENERGY IMPROVEMENTS & AIR CONDITIONING BUILDING #8, GYM
 Building No. 8
 Scale AS SHOWN
 Drawn/Checked DMB/JWM
 Location VA MEDICAL CENTER ENGINEERING BLDG #52, RM 201 1700 E. 38TH ST. MARION, IN 46953

Date 09/19/11
 Project No. 610-10-100
 DRAWING NO. **M-501**
 Dwg. 5 of 7

VA NIHCS Engineering