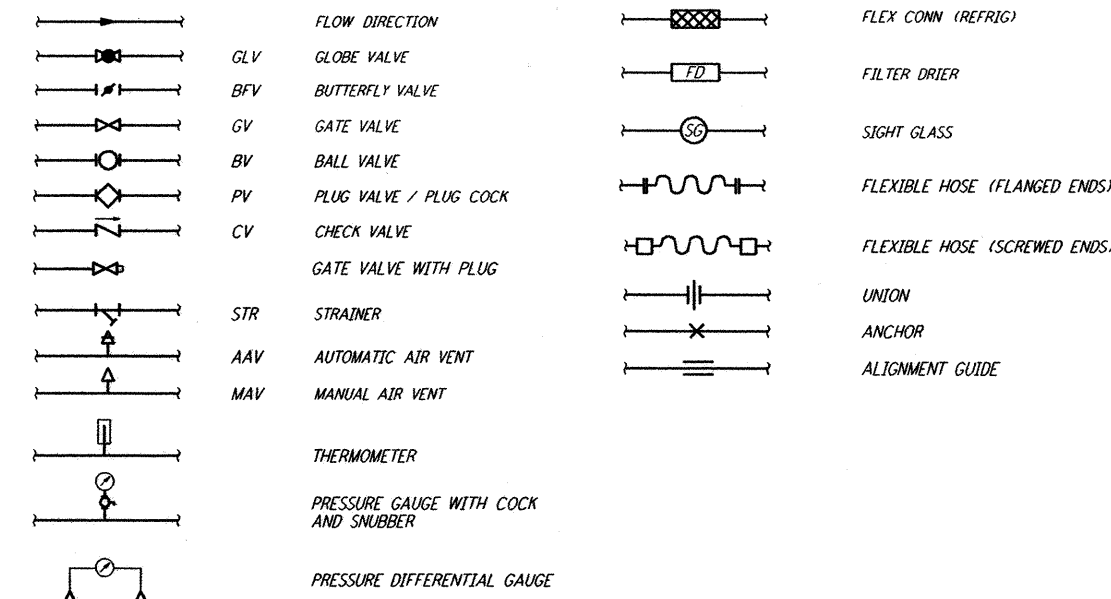
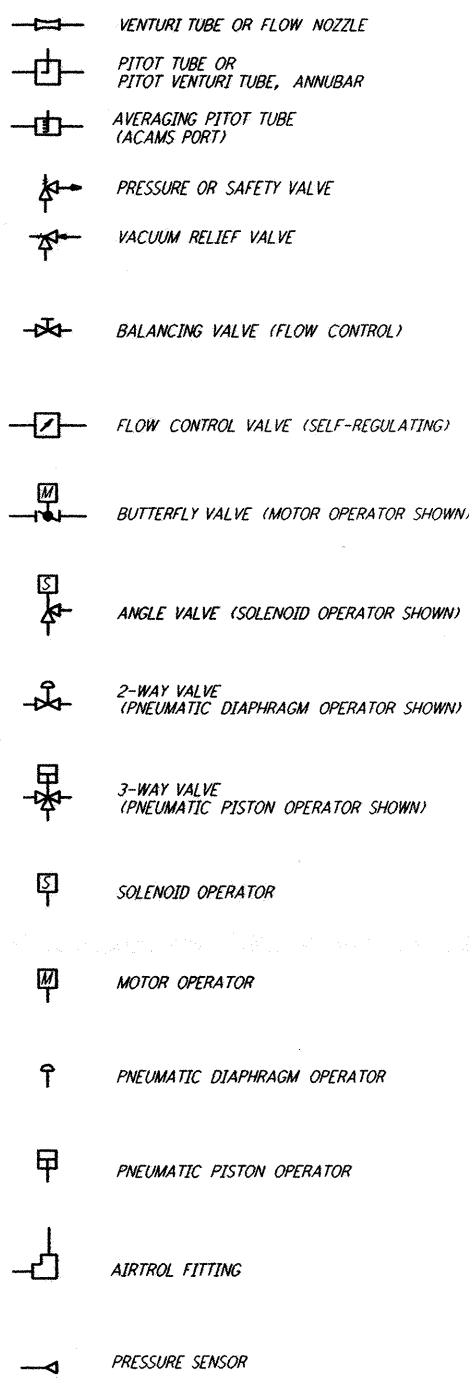


HVAC PIPING AND INSTRUMENTATION LEGEND AND SYMBOLS

PIPING AND INSTRUMENTATION LEGEND AND SYMBOLS



INSTRUMENT IDENTIFICATION

FIRST LETTER		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C USER'S CHOICE			CONTROL	
D USER'S CHOICE	DIFFERENTIAL			DETECTOR
E VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F FLOW RATE	RATIO(FRACTION)			
G USER'S CHOICE		GLASS, VIEWING DEVICE		
H RELATIVE HUMIDITY				HIGH
I CURRENT(ELECTRICAL)		INDICATE		
J POWER	SCAN			
K TIME, TIME SCHEDULE		TIME RATE OF CHANGE	CONTROL STATION	
L LEVEL		LIGHT		LOW
M USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORIFICE (RESTRICTION)		
P PRESSURE, VACUUM		POINT (TEST CONNECTION)		
Q USER'S CHOICE	INTEGRATE, TOTALIZE			
R RADIATION		RECORD		
S SPEED, FREQUENCY, SMOKE	SAFETY		SWITCH	
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE		WELL		
X UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y EVENT, STATE OR PRESENCE	Y AXIS		RELAY COMPUTE, CONVERT	
Z POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

GENERAL NOTES

- BEFORE STARTING WORK, VERIFY LOCATIONS, ELEVATIONS AND SIZES OF ALL DUCTWORK AND EQUIPMENT REQUIRING CONNECTIONS.
- COORDINATE ALL DUCTWORK WITH ALL OTHER WORK TO AVOID CONFLICTS. RIN ALL DUCTS TO AVOID ARCHITECTURAL OPENINGS, STRUCTURAL MEMBERS, OR OTHER OBSTRUCTIONS. RUN DUCTS TIGHT TO BOTTOM OF STRUCTURAL MEMBERS UNLESS OTHERWISE NOTED. OFFSET DUCTS WHERE REQUIRED. INSTALL ALL DUCTWORK AND PIPING TO BEST SUIT FIELD CONDITIONS AND COORDINATE WITH THE INSTALLATION WORK OF OTHER TRADES. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF MECHANICAL WORK.
- ALL DIFFUSER SIZES AND DUCT SIZES SHOWN ARE NET DIMENSIONS UNLESS OTHERWISE INDICATED.
- PROVIDE AND INSTALL ALL NECESSARY DAMPERS TO BALANCE THE AIR DISTRIBUTION SYSTEM TO WITHIN +/- 5% OF THE AIR QUANTITIES SHOWN ON CONSTRUCTION DOCUMENTS. ALL DUCT BRANCHES TO AIR OUTLETS SHALL BE PROVIDED WITH VOLUME DAMPERS.
- MOUNT ALL THERMOSTATS AT HEIGHT APPROVED BY APPLICABLE CODE OF REGULATIONS.
- PROVIDE AND INSTALL ALL THREADOLETS AND OTHER NECESSARY FITTINGS IN PIPING AND DUCTWORK REQUIRED FOR CONTROL AND MEASURING DEVICES.
- CONTRACTOR MAY USE AT MOST 6- FEET OF FLEXIBLE DUCT RUN TO THE AIR TERMINAL.
- PROVIDE 1/2" WIRE MESH SCREENS AT ALL INTAKE AND EXHAUST OPENINGS. INSIDE, PROVIDE 1/2" STAINLESS STEEL WIRE FOR OUTDOOR INSTALLATION. INSECT SCREEN SHALL BE INSTALLED AS NECESSARY.
- ALL VISIBLE INTERIOR PORTIONS OF DUCTWORK AND AIR TERMINALS SHALL BE PAINTED FLAT BLACK UNLESS OTHERWISE NOTED.
- COORDINATE WITH OTHER TRADES TO INSURE THAT 24"x24" ACCESS PANEL OR AS INDICATED ARE PROVIDED FOR ALL CONCEALED COILS, VAV BOXES, FIRE DAMPERS, CONTROL VALVES AND VOLUME DAMPERS.
- ALL POWER AND INTERLOCK WIRING SHALL BE INSTALLED UNDER DIVISION 16. LINE VOLTAGE CONTROL WIRING AND LOW VOLTAGE (24 VOLT) CONTROL WIRING SHALL BE INSTALLED UNDER DIVISION 15.
- ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON 4" CONCRETE PADS UNLESS OTHERWISE INDICATED. PAD SHALL BE 3" WIDER (IN EACH DIRECTION) THAN EQUIPMENT FOOT PRINT.
- ALL ROOFTOP EQUIPMENT SHALL BE INSTALLED ON PRE-FABRICATED CURBS.
- IMMEDIATELY REPORT TO THE OWNER'S REPRESENTATIVE ANY OBSERVATIONS OF EXISTING CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING AND WHICH MAY PREVENT THE CORRECT INSTALLATION OF THE HVAC SYSTEM.
- ALL NOTED DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS UNLESS INDICATED OTHERWISE.
- RECTANGULAR DUCTWORK ELEVATIONS ARE BOTTOM OF DUCT. ROUND DUCTWORK ELEVATIONS ARE CENTERLINE UNLESS NOTED OTHERWISE.
- DIFFERENTIAL AIR PRESSURES INDICATED ON DRAWINGS ARE IN INCHES OF WATER.
- AIR FLOWS SHOWN IN CUBIC FEET PER MINUTE (CFM) ARE ACTUAL FLOWS (ACTFM) AT THE SITE ELEVATION ABOVE SEA LEVEL.
- ALL EQUIPMENT SUPPORTS, FOUNDATIONS, PADS, WALL OPENINGS OR PENETRATIONS SHALL BE VERIFIED WITH ACTUAL PURCHASED EQUIPMENT FOR SIZE AND FIT. THE EQUIPMENT SIZES INDICATED ON THE DRAWINGS WERE SELECTED FOR ENGINEERING DESIGN AND SPACE ALLOCATION PURPOSES. THE ACTUAL SIZE MAY VARY DEPENDING ON THE PURCHASED EQUIPMENT TO BE INSTALLED.

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A	10/31/95	TDM	PRELIMINARY DESIGN REVIEW

DATE	10/31/95
DRAWN	CLP
CHECKED	
ENGINEER	
PROJ MGR	

100 WEST WALNUT STREET  
PASADENA, CALIFORNIA

CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LASER INTERFEROMETER  
GRAVITATIONAL-WAVE OBSERVATORY  
SITE NO. 2 - LIVINGSTON, LOUISIANA

TITLE	SCALE	CONTRACT NUMBER	PROJECT NUMBER
LEGEND AND GENERAL NOTES	NONE	PP150969	8094
SHEET NUMBER		REVISION	
LA-H-002			

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