- PIPE ELBOW TURNED DN
- PIPE ELBOW TURNED UP
- PIPING TEE DOWN
- PIPING TEE UP
- PIPE RISER
- 45° ELBOW DOWN
- PIPING TO BE REMOVED
- CAPPED PIPING
- CAPPED BELOW FINISHED FLOOR
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- DIRECTION OF FLOW
- PIPING PITCHES DOWN
- PIPE GUIDE
- EXPANSION JOINT
- PIPE ANCHOR
- UNION
- FLANGED CONNECTION
- BACKFLOW PREVENTER
- FLEXIBLE CONNECTION
- SHUT-OFF/ISOLATION VALVE REFER TO SPECIFICATIONS
- GATE VALVE ~ OUTSIDE SCREW & YOKE (OS&Y)
- GLOBE VALVE
- LOCKABLE BALL VALVE
- PLUG VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- LOCK & SHIELD VALVE
- CHECK VALVE
- BALANCING VALVE (CIRCUIT SETTER)
- AIR VENT ~ REFER TO SPECIFICATIONS
- STRAINER WITH BLOWDOWN VALVE AND CAP
- EXPANSION VALVE (AUTOMATIC)
- RELIEF/SAFETY VALVE
- PRESSURE GAUGE WITH COCK
- SIGHT GLASS
- PRESSURE REDUCING VALVE
- FLOW SWITCH
- SELF-CONTAINED TEMP. CONTROL VALVE WITH REMOTE SENSOR
- STEAM TRAP (FLOAT & THERMOSTATIC INDICATED T.T. = THERMOSTATIC TRAP, B.T. = BUCKET TRAP)
- PUMP ~ POINT OF TRIANGLE INDICATES DIRECTION OF FLOW
- GAS SHUT-OFF VALVE
- HOSE END DRAIN VALVE W/CAP
- TEMPERATURE/PRESSURE TAP (PETE'S PLUG)
- THERMOMETER WITH COCK
- SOLENOID VALVE
- ORIFICE FLOWMETER
- DIFFERENTIAL PRESSURE TRANSMITTER
- HUMIDIFIER (DUCT/AHU MOUNTED)
- FINNED TUBE BASEBOARD
- HOSE BIB/WALL HYDRANT
- FLOOR CLEANOUT
- FUSIBLE LINK VALVE
- WALL CLEANOUT
- AQUASTAT
- EXPANSION LOOP
- EXPANSION LOOP (BRAIDED/MANUFACTURED)
- FLOOR DRAIN
- SHOCK ABSORBER (WATER HAMMER ARRESTER)
- FIRE DEPARTMENT CONNECTION
- FREE STANDING FIRE DEPARTMENT CONNECTION
- WATER GONG
- DUCTWORK ~ FIRST DIMENSION IS SIDE SHOWN IN INCHES S= SUPPLY, R= RETURN, E= EXHAUST, OA= OUTSIDE AIR F.O. = FLAT OVAL
- ACCOUSTICAL LINING (DUCT DIMENSION FOR NET FREE AREA)
- DUCTWORK TO BE REMOVED
- SINGLE LINE DUCTWORK TO BE REMOVED
- DUCT TRANSITION
- SQUARE TO ROUND TRANSITION
- FLEX DUCT ~ DOUBLE LINE
- FLEX DUCT ~ SINGLE LINE
- CHANGE IN ELEVATION (UP/DOWN, RISE OR DROP)
- SUPPLY DUCT TURNED UP/DN
- RETURN DUCT TURNED UP/DN
- EXHAUST DUCT TURNED UP/DN
- ROUND DUCT TURNED UP/DN
- MITERED DUCT ELBOW W/TURNING VANES
- RADIUS DUCT ELBOW
- DUCT/PIPE CAP (SINGLE/DOUBLE LINE)
- VOLUME DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- FIRE AND SMOKE DAMPER
- BACKDRAFT DAMPER
- MOTORIZED DAMPER
- FLEXIBLE CONNECTION
- TEMPERATURE SENSOR OR THERMOSTAT (AS SPECIFIED)
- HUMIDISTAT OR HUMIDITY SENSOR (AS SPECIFIED)
- CARBON DIOXIDE SENSOR
- CARBON MONOXIDE SENSOR
- ACCESS PANEL
- DUCT SMOKE DETECTOR
- ROOFTOP EXHAUST FAN
- ROOFTOP SUPPLY FAN
- CEILING DIFFUSER ~ 4-WAY BLOW
- CEILING DIFFUSER ~ 3-WAY BLOW
- CEILING DIFFUSER ~ 2-WAY BLOW
- CEILING DIFFUSER ~ CORNER BLOW
- CEILING RETURN GRILLE
- CEILING EXHAUST GRILLE
- POINT OF CONNECTION EXISTING TO NEW
- DIRECTION OF AIR FLOW
- R, G & D TAG: DIFFUSER, REGISTER OR GRILLE No.; QUANTITY; CFM AIR FLOW
- FINTUBE TAG: FINTUBE No.; LENGTH; GPM
- VAV TAG: VAV No.; MINIMUM CFM; MAXIMUM CFM; GPM
- EQUIPMENT TAG: TYPE DESIGNATOR; NUMBER
- EQUIPMENT TAG (ON FLOOR/ROOF ABOVE): TYPE DESIGNATOR; NUMBER
- DETAIL No.; DETAIL REFERENCE SYMBOL; SHEET DETAIL LOCATED ON
- SECTION No.; SECTION REFERENCE SYMBOL; SHEET SECTION LOCATED ON

E1 SYMBOLS LEGEND

NONE

- AW — ACID WASTE
- ATV — AIR RELIEF
- BBD — BOILER BLOWDOWN
- C — CONDENSATE (HVAC DRAIN PAN)
- C — CONDENSATE (HVAC DRAIN PAN - BELOW FLOOR)
- CA — COMPRESSED AIR
- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC WATER RECIRC.
- D — DRAIN
- FM — PUMP FORCE MAIN
- FOF — FUEL OIL FILL
- FOR — FUEL OIL RETURN
- FOS — FUEL OIL SUPPLY
- FOV — FUEL OIL TANK VENT
- FW — FEEDWATER
- GR — GLYCOL RETURN
- GS — GLYCOL SUPPLY
- H — HYDROGEN GAS
- HE — HELIUM
- HPWR — HEAT PUMP WATER RETURN
- HPWS — HEAT PUMP WATER SUPPLY
- HPC — HIGH-PRESSURE CONDENSATE
- HPS — HIGH-PRESSURE STEAM
- HTWR — HIGH-TEMP. HOT WATER RETURN
- HWR — HOT WATER RETURN
- HWS — HOT WATER SUPPLY
- IND — INDUSTRIAL WASTE
- IW — INDIRECT WASTE
- LN — LIQUID NITROGEN
- LOX — LIQUID OXYGEN
- LPC — LOW-PRESSURE CONDENSATE
- LP — LIQUID PETROLEUM GAS
- LPR — LOW-PRESSURE CONDENSATE
- LPS — LOW-PRESSURE STEAM
- MA — MEDICAL AIR
- MPR — MEDIUM-PRESSURE CONDENSATE
- MPS — MEDIUM-PRESSURE STEAM
- MU — MAKEUP WATER
- N2 — NITROGEN
- NG — NATURAL GAS
- NO — NITROUS OXIDE
- NPW — NON-POTABLE WATER
- O_2 — OXYGEN
- PC — PUMPED CONDENSATE
- PCW — PROCESSED COLD WATER SUPPLY
- PHW — PROCESSED HOT WATER
- PHWR — PROCESSED HOT WATER RETURN
- RD — REFRIGERANT DISCHARGE
- RL — REFRIGERANT LIQUID
- ROS — REVERSE OSMOSIS SUPPLY
- ROR — REVERSE OSMOSIS RETURN
- RS — REFRIGERANT SUCTION
- RW — RAIN WATER ABOVE FLOOR
- RW — RAIN WATER BELOW GRADE
- SANITARY SOIL WASTE (ABOVE FLOOR)
- SANITARY SOIL WASTE (BELOW FLOOR)
- SANITARY SOIL VENT (ABOVE FLOOR)
- SANITARY SOIL VENT (BELOW FLOOR)
- SV — SANITARY WASTE & VENT COMBINATION
- SP — SPRINKLER MAIN PIPING
- SWR — SOLAR WATER RETURN
- SWS — SOLAR WATER SUPPLY
- TP — TRAP PRIMER PIPING ABOVE GRADE
- TP — TRAP PRIMER PIPING BELOW GRADE
- TW — TEMPERED WATER
- UHP-HE — ULTRA - H1 PURITY HELIUM
- VAC — VACUUM (AIR)
- VC — VACUUM CLEANING (HOUSE)
- VPD — VACUUM PUMP DISCHARGE

A1 PIPING LINETYPE LEGEND

NONE

AAV	AUTOMATIC AIR VENT	DN	DOWN
AC	ABOVE CEILING	DS	DOWNSPOUT
ACC	AIR COOLED CONDENSER	DT	DROP AND TRANSITION
ACU	AIR CONDITIONING UNIT	DV	DRAIN VALVE
ADA	AMERICANS WITH DISABILITIES ACT	DWG	DRAWING
AD	ACCESS DOOR	EA	EXHAUST AIR
AE	ACID EXHAUST	EF	EXHAUST FAN
AW	ACID WASTE	EG	EXHAUST GRILLE
AFF; A.F.F.	ABOVE FINISHED FLOOR	ELEV	ELEVATION
AHU	AIR HANDLING UNIT	ELONG	ELONGATE
AP	ACCESS PANEL	ENC	ENCLOSURE
APPROX	APPROXIMATE; APPROXIMATELY	ER	EXHAUST REGISTER
APMR	AS PER MFR'S RECOMMENDATIONS	ESP	EXTERNAL STATIC PRESSURE
ATC	AUTOMATIC TEMPERATURE CONTROL	ET	EXPANSION TANK
AV	AIR VENT	(E)	EXISTING
BC	BALANCING COCK	F & T	FLOAT AND THERMOSTATIC
BDD	BACKDRAFT DAMPER	FBO	FURNISHED BY OTHERS
BG	BLAST GATE	FBP	FACE AND BYPASS
BF	BARRIER FREE	FC	FLEXIBLE CONNECTION
BFP	BACKFLOW PREVENTER	FCO	FLOOR CLEANOUT
BHP	BRAKE HORSEPOWER	FD-#	FLOOR DRAIN TAG
BLDG	BUILDING	FD	FIRE DAMPER
BOD	BOTTOM OF DUCT	FIN	FINISH
B.T.U.	BRITISH THERMAL UNIT	FL	FLOOR
C; CONV.	CONVECTOR	FTG	FOOTING
CCW	COUNTER CLOCKWISE	FTR	FINNED TUBE RADIATION
CFF	CAPPED FOR FUTURE	FS	FLOW SWITCH
CFM	CUBIC FEET PER MINUTE	FM	FORCE MAIN
CLG	CEILING	GC	GENERAL CONTRACTOR
CO	CLEANOUT	GE	GENERAL EXHAUST
CM	CONSTRUCTION MANAGER	GPM	GALLONS PER MINUTE
CNTR	COUNTER; COUNTERTOP	GV	GRAVITY VENTILATOR
CONN	CONNECT; CONNECTION	H	HUMIDIFIER
CONT	CONTINUE; CONTINUATION	HB	HOSE BIB
COORD	COORDINATE	HC; HDC	HANDICAP ACCESS
CORR	CORRIDOR	HE	HOOD EXHAUST
CR	CHEMICAL RESISTING	HGT, HT.	HEIGHT
CT	COOLING TOWER	HP	HEAT PUMP
CTE	CONNECT TO EXISTING	HRU	HEAT RECOVERY UNIT
CTR	CENTER	HTR	HEATER
CTRLN	CENTERLINE	H & V	HEATING AND VENTILATION
CU	COPPER	HVAC	HEATING, VENTILATING, & AIR COND.
CUH	CABINET UNIT HEATER	HW	HOT WATER
C.V.	CONTROL VALVE	HWR	HOT WATER RETURN
CW	COLD WATER/CLOCKWISE	HWS	HOT WATER SUPPLY
DB	DRY BULB TEMPERATURE, °F	HX	HEAT EXCHANGER
DC	DOUBLE CONTAINED	ID	INSIDE DIAMETER
DDC	DIRECT DIGITAL CONTROL	IN WG	INCHES WATER GAUGE
DET	DETAIL	INCL	INCLUDING
DIA	DIAMETER	INV EL	INVERT ELEVATION
DIC	DOWN IN CHASE	IPS	IRON PIPE SIZE
DIW	DOWN IN WALL	KE-#	KITCHEN EQUIPMENT NUMBER
LD	LINEAR DIFFUSER	TD	TRENCH DRAIN
LE-#	SCIENCE LAB EQUIPMENT NUMBER	TG	TRANSFER GRILLE
LP	LIQUID PETROLEUM GAS	TOD	TOP OF DUCT
LPR	LOW PRESSURE STEAM RETURN	TP	TRAP PRIMER
LPS	LOW PRESSURE STEAM SUPPLY	TSP	TOTAL STATIC PRESSURE
MAX	MAXIMUM	TTS	TIGHT TO STEEL
MBH	1000 BTU/HR.	TV	TURNING VANE
MFR	MANUFACTURER	TW	TEMPERED WATER
MIN	MINIMUM	TYP	TYPICAL
MOD	MOTOR OPERATED DAMPER	UH	UNIT HEATER
MPG	MEDIUM PRESSURE GAS	UIC	UP IN CHASE
MPV	MULTI-PURPOSE VALVE	UIW	UP IN WALL
MTD	MOUNTED	UV	UNIT VENTILATOR
MTG	MOUNTING	V	VENT
MUA	MAKE UP AIR	VAC	VACUUM
N.C.	NORMALLY CLOSED	VB	VACUUM BREAKER
N.O.	NORMALLY OPEN	VCFF	VALVE & CAP FOR FUTURE
NIC	NOT IN CONTRACT	VD	VOLUME DAMPER - MANUAL
NPT	NATIONAL PIPE THREAD	VLV	VALVE
NTS	NOT TO SCALE	VS	VENT STACK
OA	OUTSIDE AIR	VTR	VENT THROUGH ROOF
OBD	OPPOSED BLADE DAMPER	W	WASTE
OD	OUTSIDE DIAMETER	W/	WITH
OED	OPEN ENDED DUCT	WB	WET BULB TEMPERATURE, °F
P-#	PLUMBING FIXTURE TAG	WCO	WALL CLEANOUT
PD	PUMPED DISCHARGE	WH	WATER HEATER
PRS	PRESSURE REDUCING STATION	WHYD	WALL HYDRANT
PRV	PRESSURE REDUCING VALVE	NTS	NOT TO SCALE
RA	RETURN AIR	Ø	DIAMETER
RD	ROOF DRAIN	@	AT
REC	RECOMMENDATION	&	AND
REG	REGULAR	%	PERCENT
RF	RETURN FAN		
RG	RETURN GRILLE		
RHC	REHEAT COIL		
RM	ROOM		
RPZ	REDUCED PRESSURE BFP		
RR	RETURN REGISTER		
RV	RELIEF VALVE		
RW	RAIN WATER		
S	SUPPLY AIR		
SA-" "	SHOCK ABSORBER OF PDI SIZE (" ") AS INDICATED		
SCV	SELF CONTAINED VALVE		
SD	SMOKE DAMPER		
SF	SUPPLY FAN		
SG	SUPPLY GRILLE		
SGL	SINGLE		
SHT	SHEET		
SPLR	SPRINKLER		
SQ FT; S. F.	SQUARE FEET		
SR	SUPPLY REGISTER		
S/O	SHUT OFF		
S.S.	STAINLESS STEEL		

A4 ABBREVIATIONS

NONE

NOTE

ALL GENERAL NOTES, SYMBOL LEGENDS, AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL PLUMBING AND HVAC DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION INTO THE DESIGN.

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