









































ABBREVIATIONS

ABBREV	ABBREVIATION	IB	INVERTED BUCKET TRAP
ABV	ABOVE	IN	INCH OR INCHES
A/C	AIR CONDITIONING	INV	INVERT ELEVATION
ACV	AUTOMATIC CONTROL VALVE	KVA	KILOVOLT AMPERES
AD	ACCESS DOOR	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	L	LENGTH
AHU	AIR HANDLING UNIT	LAT	LEAVING AIR TEMPERATURE
AL	ACTIVE LENGTH	LBS(S)	POUNDS(S)
ALUM	ALUMINUM	LDB	LEAVING DRY BULB
APD	AIR PRESSURE DROP	LF	LINEAR FEET
APPROX	APPROXIMATE	L.P.	LOW PRESSURE
ARCH	ARCHITECT, ARCHITECTURAL	LVG	LEAVING
ARRG	ARRANGEMENT	LWB	LEAVING WET BULB
AST	ABOVEGROUND STORAGE TANK	LWT	LEAVING WATER TEMPERATURE
ATC	AUTOMATIC TEMPERATURE CONTROL	MAX	MAXIMUM
ATM	ATMOSPHERE	MECH	MECHANICAL
ATR	AIR TEMPERATURE RISE	MBH	THOUSAND BTU'S PER HOUR
ATU	AIR TERMINAL UNIT	MFR	MANUFACTURER
AVG	AVERAGE	MIN	MINIMUM
AWT	AVERAGE WATER TEMPERATURE	MO	MOTOR OPERATOR
BWV	BACK WATER VALVE	MTD	MOUNTED
BHP	BRAKE HORSEPOWER	NAT	NATURAL
BLDG	BUILDING	NC	NOISE CRITERIA
BOP	BOTTOM OF PIPE	NC.	NORMALLY CLOSED
BTM	BOTTOM	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNITS PER HOUR	NO.	NORMALLY OPEN
BFP	BACKFLOW PREVENTER	NO.	NUMBER
*C	DEGREES CELSIUS	OA	OUTDOOR AIR
CAV	CONSTANT AIR VOLUME	OC	ON CENTER
CD	CEILING DIFFUSER	OD	OPEN END DUCT
CFM	CUBIC FEET PER MINUTE	OD&Y	OUTSIDE SCREW AND YOKE
CLG	CEILING	PACU	PRECISION AIR CONDITIONING UNIT
CD	CLEANOUT	PD	PRESSURE DROP
CO2	CARBON DIOXIDE	PF	POWER FACTOR
CDMP	COMPRESSED	PG	PROPYLENE GLYCOL
CDNC	CONCRETE	PH	PHASE
CDNN	CONNECTION, CONNECT	PLBG	PLUMBING
CDNT	CONTINUATION	PPH	POUNDS PER HOUR (STEAM)
CSA	COILING SUPPLY AIR (DUAL DUCT SYSTEM)	PPM	PARTS PER MILLION
CRU	CONDENSATE RETURN UNIT	PRESS.	PRESSURE
CU FT	CUBIC FEET	PRV	PRESSURE REDUCING VALVE
CUH	CABINET UNIT HEATER	PSIG(S)	POUNDS PER SQUARE INCH (GAGE)
CX	CONNECT TO EXISTING	PUH	PROPELLER UNIT HEATER
CW	DOMESTIC COLD WATER PIPE	PVC	POLYVINYL CHLORIDE
D	DRAIN OR DEPTH	QTY	QUANTITY
DB	DRY BULB OR DECIBEL	R	RADIUS
DBA	DECIBEL (REFERENCE "A" SCALE)	RA	RETURN AIR
DBL	DOUBLE	RAD	RADIATED
DCP	DIGITAL CONTROL PANEL	RD	ROOF DRAIN
DDC	DIRECT DIGITAL CONTROL	REQ'D	REQUIRED
DESIG	DESIGNATION	RH	RELATIVE HUMIDITY
DFU	DRAINAGE FIXTURE UNITS	RHP	RADIANT HEATING PANEL
DIU	DIAMETER	RL	RAINLEADER
DIFF	DIFFUSER	RLF	RELIEF AIR
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
DW	DOMESTIC WATER	RPZ	REDUCED PRESSURE ZONE
DWG	DRAWING	RX	REMOVE EXISTING
EA	EXHAUST AIR	SA	SUPPLY AIR
EAT	ENTERING AIR TEMPERATURE	SF	SQUARE FEET
EDB	ENTERING DRY BULB	SH	SENSIBLE HEAT
EFF	EFFICIENCY	SL	SOUND LINING
EG	ETHYLENE GLYCOL	SP	STATIC PRESSURE
EJ	EXPANSION JOINT	SPEC	SPECIFICATION/PROJECT MANUAL
ELEC	ELECTRICAL, ELECTRIC	SQ	SQUARE
ELEV	ELEVATION OR ELEVATOR	SRD	SECONDARY (OVERFLOW) ROOF DRAIN
ENT	ENTERING	SRL	SECONDARY (OVERFLOW) RAIN LEADER
ESP	EXTERNAL STATIC PRESSURE	S/S	STAINLESS STEEL
ETC	ET CETERA	STL	STEEL
EWB	ENTERING WET BULB	STRUCT	STRUCTURAL
EWT	ENTERING WATER TEMPERATURE	TEMP	TEMPERATURE
EX	EXISTING	TH	TOTAL HEAT
EXP	EXPANDED	TD	TRENCH DRAIN
*F	DEGREES FAHRENHEIT	THD	THERMODYNAMIC TRAP
F&T	FLOAT & THERMOSTATIC TRAP	TSP	TOTAL STATIC PRESURE
FCU	FAN COIL UNIT	TYP	TYPICAL
FCVA	FLOOR CONTROL VALVE ASSEMBLY	UC	DOOR UNDER CUT
FD	FLOOR DRAIN, FIRE DAMPER	UGN	UNLESS OTHERWISE NOTED
FDC	FIRE DEPARTMENT CONNECTION	UST	UNDERGROUND STORAGE TANK
FDV	FIRE DEPARTMENT VALVE	V	VOLTS
FF	FINISHED FLOOR	VA	VOLT AMPERES
FHC	FIRE HOSE CABINET	VAV	VARIABLE AIR VOLUME
FL	FLOOR	VEL	VELOCITY
FDB	FLAT ON BOTTOM	VFC	VARIABLE FREQUENCY CONTROLLER
FDT	FLAT ON TOP	VTR	VENT THRU ROOF
FPI	FINS PER INCH	W	WIDTH
FPM	FEET PER MINUTE	WB	WET BULB
FPS	FEET PER SECOND	WC	WATER COLUMN
FS	FLOOR SINK	WG	WATER GAGE
FT HD	FEET OF HEAD PRESSURE	W/	WITH
FTR	FINNED TUBE RADIATION	W/O	WITHOUT
GAGE	GAGE	WPD	WATER PRESSURE DROP
GAL	GALLON		
GALV	GALVANIZED		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
GR	GRILLE		
H	HEIGHT		
HED	HOSE END DRAIN		
HORIZ	HORIZONTAL		
HP	HORSEPOWER		
H.P.	HIGH PRESSURE		
HVAC	HEATING, VENTILATING & AIR CONDITIONING		
HW	HEATING HOT WATER		
HW	DOMESTIC HOT WATER PIPE		
HWR	DOMESTIC HOT WATER RECIRCULATING PIPE		
HSA	HEATING SUPPLY AIR (DUAL DUCT SYSTEM)		
HZ	HERTZ		

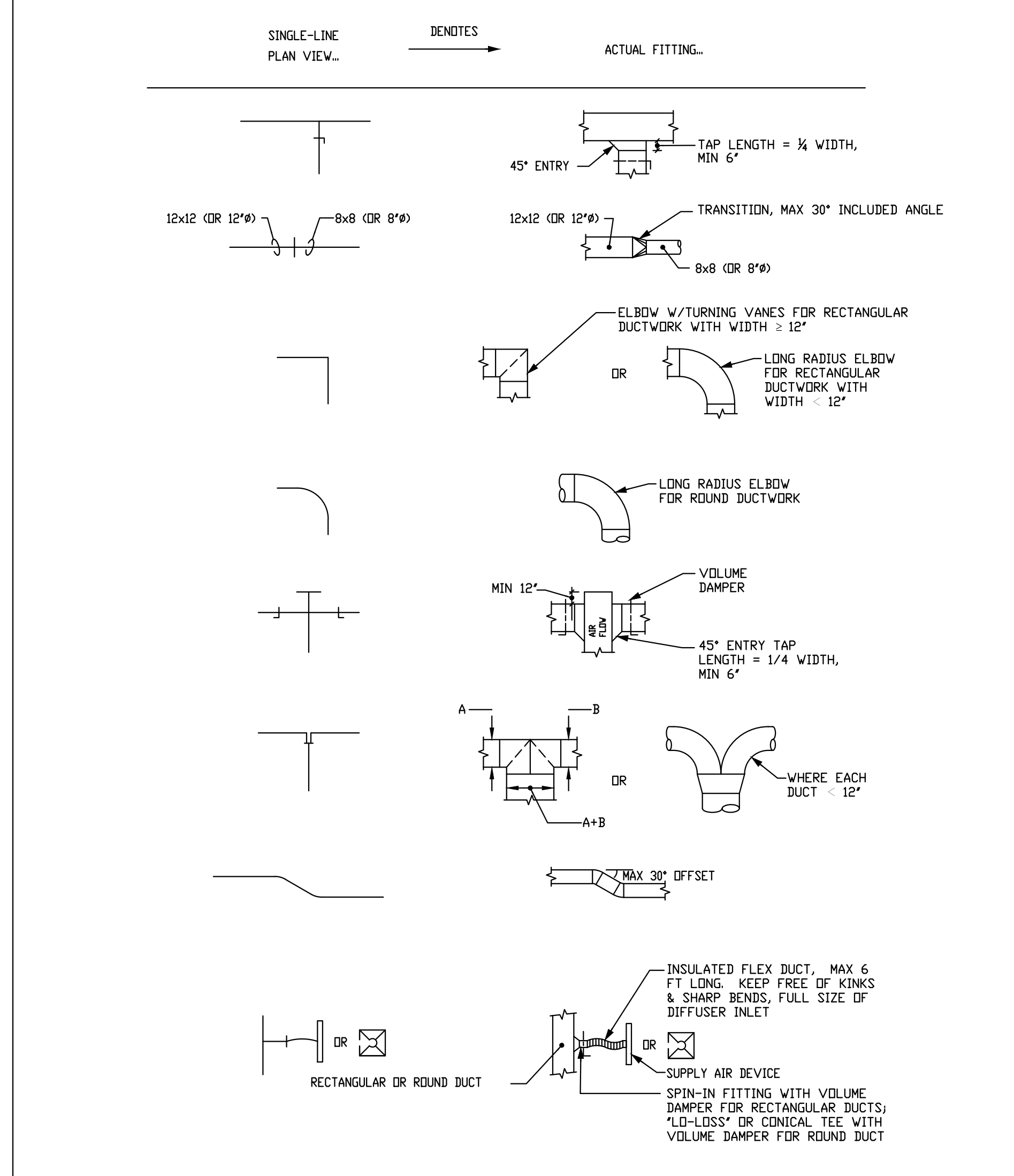
SYMBOLS

	SUPPLY AIR DUCT (UP, DOWN)		BOUNDARY LINE
	RETURN/OUTDOOR/RELIEF AIR DUCT (UP, DOWN)		SANITARY/WASTE PIPE
	EXHAUST AIR DUCT (UP, DOWN)		CHEMICAL RESISTANT WASTE PIPE
	FIRE DAMPER WITH ACCESS DOOR		A/C CONDENSATE AND EQUIPMENT DRAIN PIPE VENT PIPE
	SMOKE DAMPER WITH ACCESS DOOR		CHEMICAL RESISTANT VENT PIPE
	COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR		STORM WATER PIPE
	MANUAL VOLUME DAMPER		SECONDARY (OVERFLOW) STORM WATER PIPE
	FLEXIBLE CONNECTION (DUCT)		FOUNDATION DRAIN PIPE
	SOUND ATTENUATOR		SANITARY PUMPED DISCHARGE PIPE
	1' SOUND LINED DUCT (DIMENSIONS SHOWN ARE AIR-SIDE)		STORM WATER PUMPED DISCHARGE PIPE
	2' SOUND LINED DUCT (DIMENSIONS SHOWN ARE AIR-SIDE)		DOMESTIC COLD WATER PIPE
	TRANSITION ROUND TO RECTANGULAR		DOMESTIC HOT WATER PIPE (TEMP. IF INDICATED)
	DUCT (SIZE IN INCHES) FIRST FIGURE IS SIDE SHOWN		DOMESTIC HOT WATER RECIRCULATING PIPE
	DUCT OFFSET UP IN DIRECTION OF ARROW		NON-POTABLE WATER PIPE
	DUCT OFFSET DOWN IN DIRECTION OF ARROW		TREATED WATER PIPE
	ROUND FLEXIBLE DUCT		TEMPERED WATER PIPE
	SUPPLY AIR TERMINAL UNIT		REVERSE OSMOSIS WATER SUPPLY PIPE
	SUPPLY AIR TERMINAL UNIT WITH REHEAT COIL		REVERSE OSMOSIS WATER RETURN PIPE
	FAN POWERED AIR TERMINAL UNIT WITH HEATING COIL		DEIONIZED WATER SUPPLY PIPE
	DUCT MOUNTED REHEAT COIL		DEIONIZED WATER RETURN PIPE
	SUPPLY AIR DEVICE		COMPRESSED AIR PIPE
	RETURN AIR DEVICE		NATURAL GAS PIPE
	EXHAUST AIR DEVICE		VACUUM PIPE
	LINEAR SLOT DIFFUSER WITH PLENUM		NITROGEN GAS PIPE
	SIDEWALL DIFFUSER W/ FIELD FABRICATED PLENUM		SPECIALTY GAS PIPE
	DUCT OR WALL MOUNTED AIR DEVICE		FIRE SUPPRESSION AND WET-PIPE SPRINKLER PIPE
	PROPELLER UNIT HEATER		PREACTION FIRE SUPPRESSION PIPE
	FINNED TUBE RADIATION OR RADIANT HEATING PANEL		CAMPUS CHILLED WATER SUPPLY PIPE
	RETURN AIR FLOW DIRECTION		CAMPUS CHILLED WATER RETURN PIPE
	SUPPLY AIR FLOW DIRECTION		PRIMARY CHILLED WATER SUPPLY PIPE
	DIAMETER		PRIMARY CHILLED WATER RETURN PIPE
	CUBIC FEET PER MINUTE		SECONDARY CHILLED WATER SUPPLY PIPE
	CENTER LINE		SECONDARY CHILLED WATER RETURN PIPE
	DUCT OVAL		PROCESS CHILLED WATER SUPPLY PIPE
	AREA DRAIN		PROCESS CHILLED WATER RETURN PIPE
	FLOOR DRAIN		CHILLED WATER (GLYCOL) SUPPLY PIPE
	ROOF DRAIN/SECONDARY (OVERFLOW) ROOF DRAIN		CHILLED WATER (GLYCOL) RETURN PIPE
	FLOOR SINK		ICE STORAGE CHILLED WATER SUPPLY PIPE
	TRENCH DRAIN		ICE STORAGE CHILLED WATER RETURN PIPE
	INVERT ELEVATION		CONDENSER WATER SUPPLY PIPE
	CLEANOUT IN HORIZONTAL		CONDENSER WATER RETURN PIPE
	CLEANOUT IN VERTICAL		HEATING WATER SUPPLY PIPE ASSOCIATED WITH HEATING WATER PUMP SYSTEM "X"
	DOMESTIC WATER BACKFLOW PREVENTER		HEATING WATER RETURN PIPE ASSOCIATED WITH HEATING WATER PUMP SYSTEM "X"
	BACK WATER VALVE (ARROW INDICATES DIRECTION OF FLOW)		PRIMARY HEATING WATER SUPPLY PIPE
	SHOCK ABSORBER		PRIMARY HEATING WATER RETURN PIPE
	HOSE BIBB		HIGH PRESSURE STEAM PIPE (PSIG)
	NON-FREEZE CONCEALED OUTLET WALL HYDRANT		HIGH PRESSURE CONDENSATE RETURN PIPE
	TRAP PRIMER PIPE		MEDIUM PRESSURE STEAM PIPE (PSIG)
	SPACE TEMPERATURE SENSOR OR THERMOSTAT		MEDIUM PRESSURE CONDENSATE RETURN PIPE
	SPACE HUMIDITY SENSOR OR HUMIDISTAT		LOW PRESSURE STEAM PIPE (PSIG)
	SPACE CARBON DIOXIDE SENSOR		LOW PRESSURE CONDENSATE RETURN PIPE
	OCCUPANCY SENSOR		HUMIDIFICATION STEAM PIPE
	DUCT OR PIPE MOUNTED TEMPERATURE SENSOR/TRANSMITTER		PUMPED CONDENSATE RETURN PIPE
	DUCT MOUNTED HUMIDITY SENSOR/TRANSMITTER		STEAM VAPOR VENT PIPE
	DUCT MOUNTED CARBON DIOXIDE SENSOR/TRANSMITTER		REFRIGERANT RELIEF PIPE
	DUCT MOUNTED SMOKE DETECTOR		REFRIGERANT SUCTION PIPE
	FREEZESTAT		REFRIGERANT LIQUID PIPE
	CONTROL DAMPER		HOT GAS REFRIGERANT PIPE
	STATIC PRESSURE SENSOR/AIR FLOW STATION		FUEL OIL SUPPLY PIPE
	FAN INLET AIR FLOW MEASURING STATION		FUEL OIL RETURN PIPE
	TWO WAY CONTROL VALVE		FUEL OIL OVERFLOW PIPE
	THREE WAY CONTROL VALVE		ENERGY RECOVERY SUPPLY PIPE
	FLOW SWITCH		ENERGY RECOVERY RETURN PIPE
	DIFFERENTIAL PRESSURE SWITCH		DUAL TEMPERATURE SUPPLY PIPE
	DIFFERENTIAL PRESSURE TRANSMITTER		DUAL TEMPERATURE RETURN PIPE
	CURRENT SENSING RELAY		GLYCOL HEATING SUPPLY PIPE
	MANUAL OVERRIDE SWITCH		GLYCOL HEATING RETURN PIPE
			GLYCOL FILL PIPE
			FLOW DIRECTION ARROW
			PIPE UP
			PIPE DOWN
			PIPE/DUCT CAP
			UNION
			FLANGED CONNECTION
			PIPE ANCHOR
			PIPE GUIDE
			CONCENTRIC REDUCER
			ECCENTRIC REDUCER
			FLEXIBLE CONNECTION (PIPING)
			SHUT-OFF VALVE (IN HORIZONTAL / IN VERTICAL)
			THROTTLING VALVE
			MANUAL BALANCING VALVE
			AUTOMATIC BALANCING VALVE
			CHECK VALVE (ARROW INDICATES DIRECTION OF FLOW)
			PRESSURE REDUCING VALVE
			PRESSURE RELIEF VALVE
			HOSE END DRAIN
			PRESSURE GAGE WITH ISOLATION VALVE
			TEMPERATURE GAGE/THERMOMETER
			FLOW METER FITTING
			COMBINATION BALANCING VALVE & FLOW METER FITTING
			PRESSURE AND TEMPERATURE PLUG
			AUTOMATIC AIR VENT
			MANUAL AIR VENT
			STRAINER WITH VALVE
			STEAM TRAP
			FIRE SUPPRESSION INDICATING VALVE W/TAMPER SWITCH
			FIRE DEPARTMENT VALVE
			ALARM CHECK VALVE
			DRY PIPE VALVE
			DRY PIPE VALVE W/ACCELERATOR
			PREACTION VALVE
			DELUGE VALVE
			WATER MOTOR GONG
			WATER METER

DRAWING CONVENTIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	INDICATES DIRECTION OF CUTTING PLANE		POINT OF CONNECTION, NEW TO EXISTING
	NUMBER OR LETTER INDICATES SECTION OR ELEVATION		DEMOLITION WORK TERMINATION POINT
	DRAWING NUMBER WHERE ELEVATION OR SECTION IS TAKEN OR DRAWN		INDICATES AIR DEVICE
	SANITARY RISER NUMBER		LETTER INDICATES AIR DEVICE DESIGNATION. REFER TO SCHEDULE FOR SIZE AND TYPE
	DOMESTIC WATER RISER NUMBER		INDICATES SPECIAL NOTE
	FIRE PROTECTION RISER NUMBER		NUMBER INDICATES SPECIAL NOTE DESIGNATION. REFER TO SPECIAL NOTE LIST ON DRAWING FOR DESCRIPTION OF ITEM
	EQUIPMENT DESIGNATION		SUPPLY OR EXHAUST AIR TERMINAL UNIT SEQUENTIAL DESIGNATION
	NUMERICAL DESIGNATION		DESIGNATES FLOOR LOCATION OF SUPPLY AIR TERMINAL UNIT ('0' FOR BASEMENT, '1' FOR FIRST, '2' FOR SECOND, '3' FOR THIRD, ETC.)
	EQUIPMENT SERVICE DESIGNATION		HEAVY LINE WEIGHT DESIGNATES NEW WORK ON NEW WORK PLANS, AND REMOVAL WORK ON DEMOLITION PLANS
	PLUMBING FIXTURE DESIGNATION, P-X		LIGHT LINE WEIGHT DESIGNATES EXISTING WORK TO REMAIN

DUCTWORK CONVENTIONS



DD 100% DRAWINGS  
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