

**MECHANICAL SYMBOLS**

**EQUIPMENT DESIGNATIONS**

SYMBOL	DESCRIPTION
AHU, X UH, X L, X	AIR HANDLING UNIT DESIGNATION UNIT HEATER DESIGNATION LOUVER DESIGNATION
⊕	HUMIDITY SENSOR
⊙	TEMPERATURE SENSOR
⊗	CARBON DIOXIDE SENSOR
◇	DUCT SMOKE DETECTOR
◇	SMOKE DETECTOR (IONIZATION)
→	AIR FLOW
→ 100 CFM	TRANSFER AIR FLOW (CFM INDICATED)
DL	DOOR LOUVER
UCD	UNDERCUT DOOR
⊠	SUPPLY AIR DIFFUSER
⊠	RETURN AIR GRILLE
⊠	EXHAUST AIR GRILLE
⊠	CIRCULAR AIR DIFFUSER
⊠	AIRFLOW MONITORING DEVICE
⊠	STATIC PRESSURE SENSING STATION
FD	FIRE DAMPER
FD	COMBINATION FIRE/ SMOKE DAMPER
VD	VOLUME DAMPER
BDD	BACK DRAFT DAMPER
⊠	AUTOMATIC ISOLATION DAMPER
⊠	AUTOMATIC GAS TIGHT ISOLATION DAMPER
⊠	MANUAL GAS TIGHT ISOLATION DAMPER
⊠	⊕
⊠	SMOKE DETECTOR
⊠	FLEXIBLE CONNECTION
⊠	DUCTWORK SOUND LINING
HD	HORIZONTAL ACCESS DOOR
VD	VERTICAL ACCESS DOOR
ELBOW W/ DOUBLE THICKNESS TURNING VANES	
⊠	RECTANGULAR BRANCH TAKE OFF
⊠	BELL MOUTH BRANCH TAKE OFF
⊠	ROUND BRANCH TAKE OFF
⊠	ROUND DUCT DROP OFF BOTTOM
⊠	DUCT TRANSITION
⊠	SQUARE TO ROUND TRANSITION
UPGN	DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)
⊠	SUPPLY / OUTSIDE AIR DUCT RISER
⊠	RETURN AIR DUCT RISER
⊠	EXHAUST / RELIEF AIR DUCT RISER
⊠	AIR DEVICE TYPE CFM
⊠	AIR DEVICE IDENTIFIER
⊠	POINT OF CONNECTION
⊠	POINT OF DISCONNECTION

**DUCTWORK SYMBOLS**

SYMBOL	DESCRIPTION
⊕	HUMIDITY SENSOR
⊙	TEMPERATURE SENSOR
⊗	CARBON DIOXIDE SENSOR
◇	DUCT SMOKE DETECTOR
◇	SMOKE DETECTOR (IONIZATION)
→	AIR FLOW
→ 100 CFM	TRANSFER AIR FLOW (CFM INDICATED)
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UCD	UNDERCUT DOOR
⊠	SUPPLY AIR DIFFUSER
⊠	RETURN AIR GRILLE
⊠	EXHAUST AIR GRILLE
⊠	CIRCULAR AIR DIFFUSER
⊠	AIRFLOW MONITORING DEVICE
⊠	STATIC PRESSURE SENSING STATION
FD	FIRE DAMPER
FD	COMBINATION FIRE/ SMOKE DAMPER
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BDD	BACK DRAFT DAMPER
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⊠	RECTANGULAR BRANCH TAKE OFF
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⊠	ROUND BRANCH TAKE OFF
⊠	ROUND DUCT DROP OFF BOTTOM
⊠	DUCT TRANSITION
⊠	SQUARE TO ROUND TRANSITION
UPGN	DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)
⊠	SUPPLY / OUTSIDE AIR DUCT RISER
⊠	RETURN AIR DUCT RISER
⊠	EXHAUST / RELIEF AIR DUCT RISER

**MECHANICAL ABBREVIATIONS**

NOTE: THIS IS A STANDARD ABBREVIATION LIST. SOME ABBREVIATIONS MAY NOT APPEAR ON THE ACCOMPANYING DRAWINGS.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
#	NUMBER, POUND	HWR	HOT WATER RECIRCULATION
\$	DOLLAR	HZ	HERTZ
%	PERCENT	IA	INSTRUMENT AIR
&	AND	ICW	INDUSTRIAL COLD WATER
+	PLUS	IHR	INDUSTRIAL HOT WATER RECIRCULATION
-	MINUS	IHW	INDUSTRIAL HOT WATER
/	DIVIDE BY, PER	IN	INCH, INCHES
<	LESS THAN	INVEL	INVERT ELEVATION
=	EQUALS, EQUAL TO	KW	KILOWATTS
>	GREATER THAN	L	LONG LENGTH
x	MULTIPLY BY, BY	LA	LABORATORY AIR
"	INCHES, INCH	LAT	LEAVING AIR TEMPERATURE
'	FEET, FOOT	LEB	POUNDS PER HOUR
±	PLUS OR MINUS	LESSHR	POUNDS PER HOUR
≤	LESS THAN OR EQUAL TO	LN	LIQUID NITROGEN
≥	GREATER THAN OR EQUAL TO	LP	LIQUID PROPANE
⊕	AT	LPQ	LIQUID PETROLEUM GAS
A	COMPRESSED AIR	LPR	LOW PRESSURE STEAM RETURN
AAV	AUTOMATIC AIR VENT	LPS	LOW PRESSURE STEAM SUPPLY
ACV	AUTOMATIC CONTROL VALVE	LV	LABORATORY VENT, LABORATORY VACUUM
AD	ACCESS DOOR, AREA DRAIN	LWT	LABORATORY WATER, LABORATORY WATER
AF	ANTIFREEZE	MA	MEDICAL AIR
AFF	ABOVE FINISHED FLOOR	MAV	MEDICAL AIR VENT
ARG	ARGON GAS	MAX	MAXIMUM
ATC	AUTOMATIC TEMPERATURE CONTROL	MBH	THOUSAND BTU PER HOUR
BAS	BUILDING AUTOMATION SYSTEM	MCC	MOTOR CONTROL CENTER
BBD	BOILER BLOWDOWN	MEQ	MECHANICAL EQUIPMENT
BCWR	BEARING COOLING WATER RETURN	MHR	MOTOR OPERATED DAMPER
BCWS	BEARING COOLING WATER SUPPLY	MIP	MEDIUM PRESSURE STEAM RETURN
BDD	BACKDRAFT DAMPER	MPS	MEDIUM PRESSURE STEAM SUPPLY
BFP	BACKFLOW PREVENTER	MV	MEDICAL VACUUM
BHP	BRAKE HORSEPOWER	N	NITROGEN
BMS	BUILDING MANAGEMENT SYSTEM	N/A	NOT APPLICABLE
BO	BLOW OFF	NC	NOISE CRITERIA, NORMALLY CLOSED
BTU	BRITISH THERMAL UNIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
BTUH	BRITISH THERMAL UNIT PER HOUR	NG	NATURAL GAS
BV	BALANCING VALVE	NO	NORMALLY OPEN, NITROGEN OXIDE
CA	CONTROL AIR	NO	NUMBER
CD	CONTINUOUS BLOWDOWN	NO	NOMINAL
CC	CAMPUS CONDENSATE	NPSH	NET POSITIVE SUCTION HEAD
CCMS	CENTRAL CONTROL AND MONITORING SYSTEM	NPW	NON-POTABLE WATER
CD	CONDENSATE DRAIN	O	OXYGEN
CF	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	OD	OVERFLOW DRAIN
CH	CHILLED WATER RETURN	OED	OPEN ENDED DUCT
CH	CHILLED WATER SUPPLY	OF	OVERFLOW
CH	CHILLED WATER HEAT EXCHANGER	OSLY	OUTSIDE STEAM AND YOKE
CO	CLEANOUT	P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
CO2	CARBON DIOXIDE	PA	PLANT AIR
CS	CLEAN STEAM	PC	PUMPED CONDENSATE
CT	COMBUSTION TURBINE	PCIR	PRIMARY CHILLED WATER RETURN
CW	COLD WATER, DOMESTIC CITY WATER	PCHS	PRIMARY CHILLED WATER SUPPLY
CWR	CONDENSER WATER RETURN	PCP	PUMP CONTROL PANEL
CWS	CONDENSER WATER SUPPLY	PCR	PUMPED CONDENSATE RECIRCULATION
°C	DEGREE(S) CELSIUS	PCWR	PROCESS COOLING WATER RETURN
D	DEEP, DRAIN WATER	PCWS	PROCESS COOLING WATER SUPPLY
DB	DECIBEL, DRY BULB	PD	PRESSURE DROP, PUMP DISCHARGE
DDC	DIRECT DIGITAL CONTROL	PD	PILOT GAS
DESIG	DESIGNATION	PGR	PROCESS GLYCOL WATER RETURN
DHR	DISTRIBUTION HEATING WATER RETURN	PH	PHASE
DHSR	DISTRIBUTION HEATING WATER SUPPLY	PHR	PRIMARY HEATING RETURN
DHRW	DOMESTIC HOT WATER RETURN	PHS	PRIMARY HEATING SUPPLY
DHWS	DOMESTIC HOT WATER SUPPLY	PV	POST INDICATING VALVE
DIA, Ø	DIAMETER	PPH	POUNDS PER HOUR
DR	DEIONIZED WATER RETURN	PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATING VALVE
DIS	DEIONIZED WATER SUPPLY	PSI	POUNDS PER SQUARE INCH
DL	DOOR LOUVER	PSIG	POUNDS PER SQUARE INCH GAUGE
DN	DOWN	PW	POTABLE WATER
DSP	DRY SPRINKLER PIPE	RA	SUPPLY AIR, SHOCK ARRESTOR
DTR	DUAL TEMPERATURE RETURN	RAN	SANITARY, SOIL, WASTE
DTS	DUAL TEMPERATURE SUPPLY	SCAR	SECONDARY CHILLED WATER RETURN
DW	DISTILLED WATER	SCHS	SECONDARY CHILLED WATER SUPPLY
EA	EXHAUST AIR	SD	STORM DRAIN, SMOKE DETECTOR
EAT	ENTERING AIR TEMPERATURE	SF	SQUARE FOOT
ED	EQUIPMENT DRAIN	SHR	SECONDARY HEATING WATER RETURN
EJ	EXPANSION JOINT	SBS	SECONDARY HEATING WATER SUPPLY
ELEV	ELEVATION	SL	SOUND LINING
EMS	ENERGY MANAGEMENT SYSTEM	SP	STATIC PRESSURE
EO	EQUIPMENT, EQUALIZING	SFR	SPRINKLER LINE
ESP	EXTERNAL STATIC PRESSURE	SGFT	SQUARE FOOT
ETC	ETCETERA	SS	STAINLESS STEEL
EVAC	GAS EVACUATION	SSUL	SODIUM SULFITE
EW	ENTERING WATER TEMPERATURE	STD	STORM DRAIN
EXIST	EXISTING	SW	SOFT WATER
#2FOR	NUMBER 2 FUEL OIL RETURN	TS	TAMPER SWITCH
#2POS	NUMBER 2 FUEL OIL SUPPLY	TSP	TOTAL STATIC PRESSURE
#6FOR	NUMBER 6 FUEL OIL RETURN	TW	TREATED WATER
#6POS	NUMBER 6 FUEL OIL SUPPLY	TWR	TEMPERED WATER RETURN
F	FIRE LINE	TWS	TEMPERED WATER SUPPLY
F&T	FLOAT AND THERMOSTATIC TRAP	TVP	TYPICAL
FC	FLEXIBLE CONNECTION	ΔT	TEMPERATURE DIFFERENCE
FD	FIRE DAMPER, FOUNDATION DRAIN	UCD	UNDERCUT DOOR
FDR	FLOOR DRAIN	UL	UNDERWRITERS LABORATORIES
FDV	FIRE DEPARTMENT VALVE	V	VACUUM, VOLTS
FF	FINISHED FLOOR	VD	VOLUME DAMPER
FFE	FINISHED FLOOR ELEVATION	VENT	VENTILATION
FINFT	FINS PER FOOT	VFD	VARIABLE FREQUENCY DRIVE
FININCH	FINS PER INCH	VFD	VACUUM PUMP DISCHARGE
FM	FLOWMETER	VSD	VARIABLE SPEED DRIVE
FMF	FLOWMETER FITTING	VTR	VENT THROUGH ROOF
FO	FUEL OIL	W	WATTS, WIDE
FOF	FUEL OIL FILL	WB	WET BULB
FOO	FUEL OIL OVERFLOW	WC	WATER COLUMN
FOR	FUEL OIL RETURN	WD	WATER DRAIN
FOS	FUEL OIL SUPPLY	WH	WALL HYDRANT
FOSUCT	FUEL OIL SUCTION	WVF	WELDED WIRE FABRIC
FOT	FUEL OIL TRANSFER	WWM	WELDED WIRE MESH
FOTP	FUEL OIL TRANSFER PUMP		
FOV	FUEL OIL VENT		
FFM	FEET PER MINUTE		
FPS	FEET PER SECOND		
FS	FLOW SWITCH		
FT	FOOT, FEET		
FW	FEED WATER		
FWR	FEED WATER RECIRCULATION		
FWS	FEED WATER SUCTION		
°F	DEGREE(S) FAHRENHEIT		
G	NATURAL GAS		
GAL	GALLON, GALLONS		
GEN	GENERATOR		
GHR	GLYCOL HEATING RETURN		
GHS	GLYCOL HEATING SUPPLY		
GPH	GALLONS PER HOUR		
QPM	GALLONS PER MINUTE		
GR	AUTOMOTIVE LUBRICATION PIPING		
H	HIGH		
HB	HOSE BIB		
HED	HOSE END DRAIN VALVE		
HP	HORSEPOWER		
HPR	HIGH PRESSURE STEAM RETURN		
HPS	HIGH PRESSURE STEAM SUPPLY		
HR	HEATING WATER RETURN		
HRR	HEAT RECOVERY RETURN		
HRS	HEAT RECOVERY SUPPLY		
HRSIG	HEAT RECOVERY STEAM GENERATOR		
HS	HEATING WATER SUPPLY		
HT	HEIGHT		
HTHR	HIGH TEMPERATURE HEATING WATER RETURN		
HTHS	HIGH TEMPERATURE HEATING WATER SUPPLY		
HW	HOT WATER		

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DRAWING TITLE:  
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