

MECHANICAL SYMBOLS

EQUIPMENT DESIGNATIONS	
SYMBOL	DESCRIPTION
AHU-X	AIR HANDLING UNIT DESIGNATION
UH-X	UNIT HEATER DESIGNATION
LX	LOUVER DESIGNATION

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)
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
FSD	COMBINATION FIRE / SMOKE DAMPER
VD	VOLUME DAMPER
BDD	BACK DRAFT DAMPER
AI	AUTOMATIC ISOLATION DAMPER
AI	AUTOMATIC GAS TIGHT ISOLATION DAMPER
MI	MANUAL GAS TIGHT ISOLATION DAMPER
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
FD	FLEXIBLE CONNECTION
DL	DUCTWORK W/ SOUND LINING
HD	HORIZONTAL ACCESS DOOR
VD	VERTICAL ACCESS DOOR
DL	ELBOW W/ DOUBLE THICKNESS TURNING VANES
RT	RECTANGULAR BRANCH TAKE OFF
BM	BELL MOUTH BRANCH TAKE OFF
RB	ROUND BRANCH TAKE OFF
RD	ROUND DUCT DROP OFF BOTTOM
TR	DUCT TRANSITION
SR	SQUARE TO ROUND TRANSITION
UP/DN	DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)
RF	SUPPLY / OUTSIDE AIR DUCT RISER
RF	RETURN AIR DUCT RISER
RF	EXHAUST / RELIEF AIR DUCT RISER
RD	ROUND DUCT RISER
W	ALL WELDED VEHICLE EXHAUST DUCT CONNECTION
MA	MAINTENANCE ACCESS AREA
MA	MAINTENANCE ACCESS AREA
MA	MAINTENANCE ACCESS AREA
MA	MAINTENANCE ACCESS AREA
MA	MAINTENANCE ACCESS AREA
X	SUPPLY AIR VOLUME TERMINAL UNIT IDENTIFIER
X	EXHAUST AIR TERMINAL UNIT IDENTIFIER
X	AIR DEVICE TYPE
XX	AIR DEVICE IDENTIFIER

MECHANICAL ABBREVIATIONS

#	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	INV EL	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	LBS	POUNDS
±	PLUS OR MINUS	LBS/HR	POUNDS PER HOUR
≤	LESS THAN OR EQUAL TO	LN	LIQUID NITROGEN
≥	GREATER THAN OR EQUAL TO	LP	LIQUID PROPANE
@	AT	LPG	LIQUID PETROLEUM GAS
A	COMPRESSED AIR	LPR	LOW PRESSURE STEAM RETURN
AAV	AUTOMATIC AIR VENT	LPS	LOW PRESSURE STEAM SUPPLY
ACV	AUTOMATIC CONTROL VALVE	LW	LABORATORY WASTE
AD	ACCESS DOOR, AREA DRAIN	LWT	LEAVING WATER TEMPERATURE
AF	ANTIFREEZE	MA	MEDICAL VACUUM
AFF	ABOVE FINISHED FLOOR	MAV	MANUAL AIR VENT
AR	ARGON GAS	MAX	MAXIMUM
ATC	AUTOMATIC TEMPERATURE CONTROL	MBS	MECHANICAL BRITISH THERMAL UNITS PER HOUR
BAS	BUILDING AUTOMATION SYSTEM	MB	MOTOR OPERATED DAMPER
BBD	BOILER BLOWDOWN	MB	MEDIUM PRESSURE STEAM RETURN
BCWR	BEARING COOLING WATER RETURN	MB	MEDIUM PRESSURE STEAM SUPPLY
BCWS	BEARING COOLING WATER SUPPLY	MC	MECHANICAL EQUIPMENT
BDD	BACKDRAFT DAMPER	MD	MANHOLE
BFP	BACKFLOW PREVENTER	ME	MILLIMETER
BHP	BRAKE HORSEPOWER	ML	MILLILITERS
BMS	BUILDING MANAGEMENT SYSTEM	MO	MOTOR OIL PIPING
BO	BLOW OFF	MOD	MOTOR OPERATED DAMPER
BTU	BRITISH THERMAL UNIT	MP	MEDIUM PRESSURE STEAM RETURN
BTUH	BRITISH THERMAL UNIT PER HOUR	MS	MEDIUM PRESSURE STEAM SUPPLY
BV	BALANCE VALVE	MV	MEDICAL VACUUM
CA	CONTROL AIR	N	NITROGEN
CB	CONTINUOUS FLOW	NA, N/A	NOT APPLICABLE
CC	CAMPUS CONDENSATE	NC	NOISE CRITERIA, NORMALLY CLOSED
CCS	CENTRAL CONTROL AND MONITORING SYSTEM	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CF	CHEMICAL FEED	NG	NATURAL GAS
CFM	CUBIC FEET PER MINUTE	NO	NORMALLY OPEN, NITROUS OXIDE
CH	CHEMICAL	No	NUMBER
CHL	CHELANT	NOM	NOMINAL
CHS	CHILLED WATER RETURN	NPSH	NET POSITIVE SUCTION HEAD
CHX	CHILLED WATER HEAT EXCHANGER	NPW	NON-POTABLE WATER
CI	CLEANOUT	O	OXYGEN
CO	CARBON DIOXIDE	OA	OUTSIDE AIR
CS	CLEAN STEAM	OD	OVERFLOW DRAIN
CT	COMBUSTION TURBINE	OED	OPEN ENDED DUCT
CW	COLD WATER, DOMESTIC CITY WATER	OF	OVERFLOW
CWR	CONDENSER WATER RETURN	OS&Y	OUTSIDE STEM AND YOKE
CWS	CONDENSER WATER SUPPLY	PAID	PROCESS AND INSTRUMENTATION DIAGRAM
°C	DEGREE(S) CELSIUS	PA	PLANT AIR
D	DEEP, DRAIN WATER	PC	PUMPED CONDENSATE
DB	DECEIL, DRY BULB	PCHR	PRIMARY CHILLED WATER RETURN
DDC	DIRECT DIGITAL CONTROL	PCHS	PRIMARY CHILLED WATER SUPPLY
DESIG	DESIGNATION	PCP	PUMP CONTROL PANEL
DHR	DISTRIBUTION HEATING WATER RETURN	PCR	PUMPED CONDENSATE RECIRCULATION
DHS	DISTRIBUTION HEATING WATER SUPPLY	PCWR	PROCESS COOLING WATER RETURN
DIWR	DOMESTIC HOT WATER RETURN	PCWS	PROCESS COOLING WATER SUPPLY
DIWS	DOMESTIC HOT WATER SUPPLY	PD	PRESSURE DROP, PUMP DISCHARGE
DIA, Ø	DIAMETER	PG	PILLOT GAS
DIR	DEIONIZED WATER RETURN	PCR	PROCESS GLYCOL WATER RETURN
DIS	DEIONIZED WATER SUPPLY	PCS	PROCESS GLYCOL WATER SUPPLY
DL	DOOR LOUVER	PH	PHASE
DN	DOWN	PHR	PRIMARY HEATING RETURN
DSP	DRY SPRINKLER PIPE	PHS	PRIMARY HEATING SUPPLY
DTR	DUAL TEMPERATURE RETURN	PI	POST INDICATING VALVE
DTS	DUAL TEMPERATURE SUPPLY	PPH	POUNDS PER HOUR
DW	DISTILLED WATER	PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATING VALVE
EA	EXHAUST AIR	PSI	POUNDS PER SQUARE INCH
EAT	ENTERING AIR TEMPERATURE	PSIG	POUNDS PER SQUARE INCH GAUGE
ED	EQUIPMENT DRAIN	PW	POTABLE WATER
EJ	EXPANSION JOINT	RA	RETURN AIR, RELIEF AIR
ELEV	ELEVATION	RAF	RETURN AIR FAN
EMS	ENERGY MANAGEMENT SYSTEM	RD	REFRIGERANT DISCHARGE
EQ	EQUIPMENT EQUALIZING	RDR	ROOF DRAIN
ESP	EXTERNAL STATIC PRESSURE	RH	RELATIVE HUMIDITY
ETC	ETCETERA	RHR	REHEAT WATER RETURN
EVC	GAS EVACUATION	RHS	REHEAT WATER SUPPLY
EWT	ENTERING WATER TEMPERATURE	RI	REMOVE AND REINSTALL
EX	EXISTING	RL	REFRIGERANT LIQUID
#FOR	NUMBER 2 FUEL OIL RETURN	ROR	REVERSE OSMOSIS WATER RETURN
#FOS	NUMBER 2 FUEL OIL SUPPLY	ROS	REVERSE OSMOSIS WATER SUPPLY
#FR	NUMBER 6 FUEL OIL RETURN	RPM	REVOLUTIONS PER MINUTE
#FOS	NUMBER 6 FUEL OIL SUPPLY	RS	REFRIGERANT SUCTION
F	FIRE LINE	RV	RELIEF VENT, REFRIGERANT VENT
FAT	FLOAT AND THERMOSTATIC TRAP	RX	REMOVE EXISTING
FC	FLEXIBLE CONNECTION	SA	SUPPLY AIR, SHOCK ARRESTOR
FD	FIRE DAMPER, FOUNDATION DRAIN	SAN	SANITARY, SOIL, WASTE
FDR	FLOOR DRAIN	SCHR	SECONDARY CHILLED WATER RETURN
FDV	FIRE DEPARTMENT VALVE	SCHS	SECONDARY CHILLED WATER SUPPLY
FE	FINISHED FLOOR	SD	STORM DRAIN, SMOKE DETECTOR
FFE	FINISHED FLOOR ELEVATION	SF	SQUARE FOOT
FNFT	FNS PER FOOT	SHR	SECONDARY HEATING WATER RETURN
FNINCH	FNS PER INCH	SHS	SECONDARY HEATING WATER SUPPLY
FM	FLOWMETER	SL	SOUND LINING
FMF	FLOWMETER FITTING	SP	STATIC PRESSURE
FO	FUEL OIL	SPR	SPRINKLER LINE
FOF	FUEL OIL FILL	SO FT	SQUARE FOOT
FOO	FUEL OIL OVERFLOW	SS	STAINLESS STEEL
FOR	FUEL OIL RETURN	SSUL	SODIUM SULFITE
FOS	FUEL OIL SUPPLY	STD	STORM DRAIN
FOSUCT	FUEL OIL SUCTION	SW	SOFT WATER
FOT	FUEL OIL TRANSFER	TS	TAMPER SWITCH
FOTP	FUEL OIL TRANSFER PUMP	TSP	TOTAL STATIC PRESSURE
FOV	FUEL OIL VENT	TW	TREATED WATER
FFM	FEET PER MINUTE	TWR	TEMPERED WATER RETURN
FPS	FEET PER SECOND	TWS	TEMPERED WATER SUPPLY
FS	FLOW SWITCH	TYP	TYPICAL
FT	FOOT, FEET	ΔT	TEMPERATURE DIFFERENCE
FW	FEED WATER	UCD	UNDERCUT DOOR
FWR	FEED WATER RECIRCULATION	UL	UNDERWRITERS LABORATORIES
FWS	FEED WATER SUCTION	V	VACUUM, VOLTS
°F	DEGREE(S) FAHRENHEIT	VD	VOLUME DAMPER
G	NATURAL GAS	VENT	VENTILATION
GAL	GALLON, GALLONS	VFD	VARIABLE FREQUENCY DRIVE
GEN	GENERATOR	VFD	VACUUM PUMP DISCHARGE
GHR	GLYCOL HEATING RETURN	VSD	VARIABLE SPEED DRIVE
GHS	GLYCOL HEATING SUPPLY	VTR	VENT THROUGH ROOF
GPH	GALLONS PER HOUR	W	WATTS, WIDE
GPM	GALLONS PER MINUTE	WB	WET BULB
GR	AUTOMOTIVE LUBRICATION PIPING	WC	WATER COLUMN
H	HIGH	WG	WATER GAUGE
HB	HOSE BB	WH	WALL HYDRANT
HED	HOSE END DRAIN VALVE	WWF	WELDED WIRE FABRIC
HP	HORSEPOWER	WWM	WELDED WIRE MESH
HPR	HIGH PRESSURE STEAM RETURN		
HPS	HIGH PRESSURE STEAM SUPPLY		
HR	HEATING WATER RETURN		
HRR	HEAT RECOVERY RETURN		
HRS	HEAT RECOVERY SUPPLY		
HRSQ	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
MECHANICAL NOTES, SYMBOLS, AND ABBREVIATIONS

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