

**MECHANICAL SYMBOLS**

**EQUIPMENT DESIGNATIONS**

SYMBOL	DESCRIPTION
AHU, X	AIR HANDLING UNIT DESIGNATION
UHX	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
⊗	AUTOMATIC ISOLATION DAMPER
⊗	AUTOMATIC GAS TIGHT ISOLATION DAMPER
⊗	MANUAL GAS TIGHT ISOLATION DAMPER
⊗	SOLENOID DAMPER
⊗	SMOKE DETECTOR
⊗	FLEXIBLE CONNECTION
⊗	DUCTWORK SOUND LINING
HD	HORIZONTAL ACCESS DOOR
VD	VERTICAL ACCESS DOOR
ELBOW W/ DOUBLE THICKNESS TURNING VANES	ELBOW W/ DOUBLE THICKNESS TURNING VANES
RECTANGULAR BRANCH TAKE OFF	RECTANGULAR BRANCH TAKE OFF
BELL MOUTH BRANCH TAKE OFF	BELL MOUTH BRANCH TAKE OFF
ROUND BRANCH TAKE OFF	ROUND BRANCH TAKE OFF
ROUND DUCT DROP OFF BOTTOM	ROUND DUCT DROP OFF BOTTOM
DUCT TRANSITION	DUCT TRANSITION
SQUARE TO ROUND TRANSITION	SQUARE TO ROUND TRANSITION
DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)	DUCTWORK CHANGE IN ELEVATION (UP OR DOWN)
SUPPLY / OUTSIDE AIR DUCT RISER	SUPPLY / OUTSIDE AIR DUCT RISER
RETURN AIR DUCT RISER	RETURN AIR DUCT RISER
EXHAUST / RELIEF AIR DUCT RISER	EXHAUST / RELIEF AIR DUCT RISER
⊕	AIR DEVICE TYPE
⊖	CFM
⊗	POINT OF CONNECTION
⊘	POINT OF DISCONNECTION

**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	IN 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	LBSHR	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	LW	LABORATORY WASTE
AF	ANTIFREEZE	LWT	LEAVING WATER TEMPERATURE
AFF	ABOVE FINISHED FLOOR	MA	MEDICAL AIR
ARG	ARGON GAS	MAV	MEDICAL AIR VENT
ATC	AUTOMATIC TEMPERATURE CONTROL	MAK	THOUSAND CUBIC METERS PER HOUR
BAS	BUILDING AUTOMATION SYSTEM	MBH	THOUSAND BTU PER HOUR
BBD	BACKFLOW PREVENTER	MCC	MOTOR CONTROL CENTER
BBD	BACK DRAFT DAMPER	MEQ	Mechanical Equipment
BBD	BEARING COOLING WATER RETURN	MH	METER
BBD	BEARING COOLING WATER SUPPLY	MISC	MISCELLANEOUS
BDD	BACK DRAFT DAMPER	MO	MOTOR OIL PIPING
BFP	BACKFLOW PREVENTER	MO	MOTOR OPERATED DAMPER
BHP	BRAKE HORSEPOWER	MP	MEDIUM PRESSURE STEAM RETURN
BMS	BUILDING MANAGEMENT SYSTEM	MPS	MEDIUM PRESSURE STEAM SUPPLY
BO	BLOW OFF	MV	MEDICAL VACUUM
BTU	BRITISH THERMAL UNIT	N	NITROGEN
BTUH	BRITISH THERMAL UNIT PER HOUR	NA/NA	NOT APPLICABLE
BV	BALANCING VALVE	NC	NOISE CRITERIA, NORMALLY CLOSED
CA	CONTROL AIR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CBD	CONTINUOUS BLOWDOWN	NO	NATURAL GAS
CC	CAMPUS CONDENSATE	NO	NORMALLY OPEN, NITROUS OXIDE
CCMS	CENTRAL CONTROL AND MONITORING SYSTEM	No	NUMBER
CD	CONDENSATE DRAIN	NO	NOMINAL
CF	CUBIC FEET PER MINUTE	NFPA	NET POSITIVE SUCTION HEAD
CFM	CUBIC FEET PER MINUTE	NFPA	NON-POTABLE WATER
CH	CHILLED WATER SUPPLY	O	OXYGEN
CH	CHILLED WATER HEAT EXCHANGER	OA	OUTSIDE AIR
CO	CLEANOUT	OD	OVERFLOW DRAIN
CO <sub>2</sub>	CARBON DIOXIDE	OED	OPEN ENDED DUCT
CS	CLEAN STEAM	OF	OVERFLOW
CT	COMBUSTION TURBINE	OSLY	OUTSIDE STEM AND YOKE
CW	COLD WATER, DOMESTIC CITY WATER	P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
CWR	CONDENSER WATER RETURN	PA	PLANT AIR
CWS	CONDENSER WATER SUPPLY	PC	PUMPED CONDENSATE
°C	DEGREE(S) CELSIUS	PCHIR	PRIMARY CHILLED WATER RETURN
D	DEEP, DRAIN WATER	PCHS	PRIMARY CHILLED WATER SUPPLY
DB	DECIBEL, DRY BULB	PCP	PUMP CONTROL PANEL
DDC	DIRECT DIGITAL CONTROL	PCIR	PUMPED CONDENSATE RECIRCULATION
DESIG	DESIGNATION	PCWR	PROCESS COOLING WATER RETURN
DHR	DISTRIBUTION HEATING WATER RETURN	PCWS	PROCESS COOLING WATER SUPPLY
DHS	DISTRIBUTION HEATING WATER SUPPLY	PD	PRESSURE DROP, PUMP DISCHARGE
DHW	DOMESTIC HOT WATER RETURN	PG	PILOT GAS
DHWS	DOMESTIC HOT WATER SUPPLY	PGR	PROCESS GLYCOL WATER RETURN
DIA. Ø	DIAMETER	PGS	PROCESS GLYCOL WATER SUPPLY
DIS	DEIONIZED WATER RETURN	PH	PHASE
DL	DOOR LOUVER	PHR	PRIMARY HEATING RETURN
DN	DOWN	PHS	PRIMARY HEATING SUPPLY
DSP	DRY SPRINKLER PIPE	PV	POST INDICATING VALVE
DTR	DUAL TEMPERATURE RETURN	PPH	POUNDS PER HOUR
DTS	DUAL TEMPERATURE SUPPLY	PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATING VALVE
DW	DISTILLED WATER	PSI	POUNDS PER SQUARE INCH
EA	EXHAUST AIR	PSIG	POUNDS PER SQUARE INCH GAUGE
EAT	ENTERING AIR TEMPERATURE	PW	POTABLE WATER
ED	EQUIPMENT DRAIN	RA	RETURN AIR, RELIEF AIR
EJ	EXPANSION JOINT	RAF	RETURN AIR FAN
ELEV	ELEVATION	RD	REFRIGERANT DISCHARGE
EMS	ENERGY MANAGEMENT SYSTEM	RDR	ROOF DRAIN
EQ	EQUIPMENT, EQUALIZING	RH	RELATIVE HUMIDITY
ESP	EXTERNAL STATIC PRESSURE	RHR	REHEAT WATER RETURN
ETC	ETCETERA	RHS	REHEAT WATER SUPPLY
EVAC	GAS EVACUATION	RI	REMOVE AND REINSTALL
EW	ENTERING WATER TEMPERATURE	RL	REFRIGERANT LIQUID
EXISTING	EXISTING	ROR	REVERSE OSMOSIS WATER RETURN
#2FOR	NUMBER 2 FUEL OIL RETURN	ROS	REVERSE OSMOSIS WATER SUPPLY
#2FOS	NUMBER 2 FUEL OIL SUPPLY	RPM	REVOLUTIONS PER MINUTE
#6FOR	NUMBER 6 FUEL OIL RETURN	RS	REFRIGERANT SUCTION
#6FOS	NUMBER 6 FUEL OIL SUPPLY	RV	RELIEF VENT, REFRIGERANT VENT
F	FIRE LINE	RX	REMOVE EXISTING
F&T	FLOAT AND THERMOSTATIC TRAP	SA	SUPPLY AIR, SHOCK ARRESTOR
FC	FLEXIBLE CONNECTION	SAN	SANITARY, SOIL, WASTE
FDR	FIRE DAMPER, FOUNDATION DRAIN	SCIR	SECONDARY CHILLED WATER RETURN
FDR	FLOOR DRAIN	SCHS	SECONDARY CHILLED WATER SUPPLY
FDV	FIRE DEPARTMENT VALVE	SD	STORM DRAIN, SMOKE DETECTOR
FF	FINISHED FLOOR	SF	SQUARE FOOT
FFE	FINISHED FLOOR ELEVATION	SHR	SECONDARY HEATING WATER RETURN
FINFT	FNS PER FOOT	SHS	SECONDARY HEATING WATER SUPPLY
FININCH	FNS PER INCH	SL	SOUND LINING
FM	FLOWMETER	SP	STATIC PRESSURE
FME	FLOWMETER FITTING	SFR	SPRINKLER LINE
FO	FUEL OIL	SOFT	SQUARE FOOT
FOF	FUEL OIL FILL	SS	STAINLESS STEEL
FOO	FUEL OIL OVERFLOW	SSUL	SODIUM SULFITE
FOR	FUEL OIL RETURN	STDR	STORM DRAIN
FOS	FUEL OIL SUPPLY	SW	SOFT WATER
FOSUCT	FUEL OIL SUCTION	TS	TAMPER SWITCH
FOT	FUEL OIL TRANSFER	TSP	TOTAL STATIC PRESSURE
FOTP	FUEL OIL TRANSFER PUMP	TW	TREATED WATER
FOV	FUEL OIL VENT	TWR	TEMPERED WATER RETURN
FPM	FEET PER MINUTE	TWS	TEMPERED WATER SUPPLY
FPS	FEET PER SECOND	TYP	TYPICAL
FS	FLOW SWITCH	ΔT	TEMPERATURE DIFFERENCE
FT	FOOT, FEET	UCD	UNDERCUT DOOR
FW	FEED WATER	UL	UNDERWRITERS LABORATORIES
FWR	FEED WATER RECIRCULATION	V	VACUUM, VOLTS
FWS	FEED WATER SUCTION	VD	VOLUME DAMPER
°F	DEGREE(S) FAHRENHEIT	VENT	VENTILATION
G	NATURAL GAS	VFD	VARIABLE FREQUENCY DRIVE
GAL	GALLON, GALLONS	VPD	VACUUM PUMP DISCHARGE
GEN	GENERATOR	VSD	VARIABLE SPEED DRIVE
GHR	GLYCOL HEATING RETURN	VTR	VENT THROUGH ROOF
GHS	GLYCOL HEATING SUPPLY	W	WATTS, WIDE
GPH	GALLONS PER HOUR	WB	WET BULB
QPM	GALLONS PER MINUTE	WC	WATER COLUMN
GR	AUTOMOTIVE LUBRICATION PIPING	WG	WATER GAUGE
H	HIGH	WH	WALL HYDRANT
HB	HOSE BIB	WWF	WELDED WIRE FABRIC
HED	HOSE END DRAIN VALVE	WWM	WELDED WIRE MESH
HP	HORSEPOWER		
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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404-576-0256  
www.stanleylove.com

MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS

PROFESSIONAL SEAL  
DANIEL NOTO  
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT

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