

## MECHANICAL SPECIFICATIONS

GENERAL:  
THE CONTRACTOR SHALL THOROUGHLY REVIEW ALL THE RELEVANT CONSTRUCTION DOCUMENTS FOR INTERFACE COORDINATIONS, AND DETAILS. THESE DOCUMENTS SHALL INCLUDE ARCHITECTURAL, STRUCTURAL, AND CIVIL DRAWINGS AND SPECIFICATIONS.

OWNER'S REP SHALL SECURE ALL NECESSARY BUILDING PERMITS. CERTIFICATES OF INSPECTION FOR ALL EQUIPMENT INCLUDED IN THIS WORK SHALL BE BY THE CONTRACTOR. ALL PERMIT FEES SHALL BE PAID BY THE OWNER'S REP.

THIS CONTRACTOR SHALL PROVIDE GUARANTEES FOR HIS WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

APPLICABLE CODES AND STANDARDS:

CODES:  
CURRENT CITY OF MERRILLVILLE'S BUILDING CODES (2006 IMC, 2015 IECC,  
CITY, COUNTY AND/OR STATE FIRE CODES  
NATIONAL ELECTRICAL CODE (NEC 2008)  
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION(OSHA)  
APPLICABLE LOCAL CODES AND ORDINANCES

**STANDARDS:**

AIR-CONDITIONING AND REFRIGERATION INSTITUTE (ARCI)  
AIR DIFFUSION COUNCIL (ADC)  
AIR MOVEMENT AND CONTROL ASSOCIATION, INC. (AMCA)  
AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)  
AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS (ASHRAE)  
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)  
AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)  
AMERICAN WATER WORKS ASSOCIATION (AWWA)  
INSTITUTE OF BOILER AND RADIATOR MANUFACTURERS (IBR)  
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)  
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)  
SHEET METAL AND AIR-CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. (SMACNA)  
UNDERWRITERS' LABORATORIES (UL)

**VISITING THE SITE.** PRIOR TO THE PROPOSAL FOR HIS WORK, THE CONTRACTOR SHALL VISIT THE SITE. HE SHALL SATISFY HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE GENERAL AND LOCAL CONDITIONS. HE SHALL HAVE FULL KNOWLEDGE AS TO TRANSPORTATION, DISPOSAL, HANDLING AND STORAGE OF MATERIALS, AVAILABILITY OF EQUIPMENT AND PERSONNEL, AND THE GENERAL CHARACTER OF THE WORK. HE SHALL BE RESPONSIBLE FOR OBTAINING ALL INFORMATION OF HIS WORK AND THE CONTRACT FOR WHICH HE SUBMITS HIS PROPOSAL. ANY FAILURE BY THIS CONTRACTOR TO ACQUAINT HIMSELF WITH ALL OF THE AVAILABLE INFORMATION SHALL NOT RELIEVE HIM FROM ANY RESPONSIBILITY FOR THE ACCURACY OF HIS PROPOSAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF HIS PROPOSAL. INCREASING THIS CONTRACTOR'S COST WHICH WERE NOT KNOWN TO OR APPRECIATED BY HIM WHEN SUBMITTING HIS PROPOSAL, IF THE CONDITION WAS OBVIOUS AND COULD HAVE BEEN DISCOVERED BY HIM IF HE HAD VISITED THE PROJECT AND HAD THOROUGHLY INFORMED HIMSELF OF ALL EXISTING CONDITIONS WHICH WOULD AFFECT HIS WORK.

**PROTECTION:**  
PROTECT ALL MATERIALS OR EQUIPMENT INSTALLED UNDER THIS CONTRACT FROM ALL DAMAGE DUE TO BUILDING OPERATIONS, WEATHER, ETC. CONTRACTOR WILL BE HELD STRICTLY RESPONSIBLE FOR ANY DAMAGE INCURRED TO MATERIALS, EQUIPMENT, ETC., DUE TO HIS FAILURE TO TAKE NECESSARY PRECAUTIONS OR TO PROVIDE PROPER PROTECTION. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE WORK OF OTHERS. IN THE EVENT OF DAMAGE TO OTHER WORK CAUSED BY THIS CONTRACTOR, HIS EMPLOYEES, OR HIS APPARATUS, HE SHALL HAVE SAME REPAIRED AT HIS OWN EXPENSE.

CLEANING UP:  
UPON COMPLETION OF WORK AND TESTING, REMOVE ALL LABELS, TAGS, ETC., FROM ANY SPECIALTIES, EQUIPMENT, ETC., AND REMOVE ALL GREASE OR OTHER PROTECTIVE COATING FROM ANY MACHINERY, EQUIPMENT, ETC., AND LEAVE WORK IN A MANNER ACCEPTABLE TO THE OWNER.

**RUBBISH:**  
THIS CONTRACTOR SHALL NOT ALLOW WASTE MATERIAL OR RUBBISH CAUSED BY HIS EMPLOYEES TO ACCUMULATE IN OR ABOUT THE PREMISES BUT SHALL REMOVE SAME, AND AT THE COMPLETION OF THE WORK HE SHALL REMOVE ALL RUBBISH, TOOLS, SCAFFOLDING AND SURPLUS MATERIALS FROM ABOUT THE BUILDING AND SHALL LEAVE HIS WORK THOROUGHLY CLEANED AND READY FOR USE. IN CASE OF A DISPUTE AS TO RESPONSIBILITY, THE OWNER WILL REMOVE THE RUBBISH AND CHARGE THE COST OF SUCH WORK TO THE CONTRACTOR.

**MECHANICAL IDENTIFICATION:**  
GENERAL: PROVIDE MECHANICAL IDENTIFICATION FOR MECHANICAL EQUIPMENT, PIPING AND DUCT SYSTEMS. COMPLY WITH ANSI A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS, AND VIEWING ANGLES OF IDENTIFICATION DEVICES.  
EQUIPMENT: PROVIDE EQUIPMENT SYSTEM NUMBER, CAPACITY, FLOW RATE, STATIC PRESSURE, PUMP HEAD, HORSEPOWER, VOLTAGE. PROVIDE "SETON MODEL VENTMARK MARKERS."

PIPING SYSTEMS: PROVIDE SYSTEM DESIGNATION NAME AND DIRECTION OF FLOW. PROVIDE "SETON MODEL SETMARK" PIPE MARKERS.

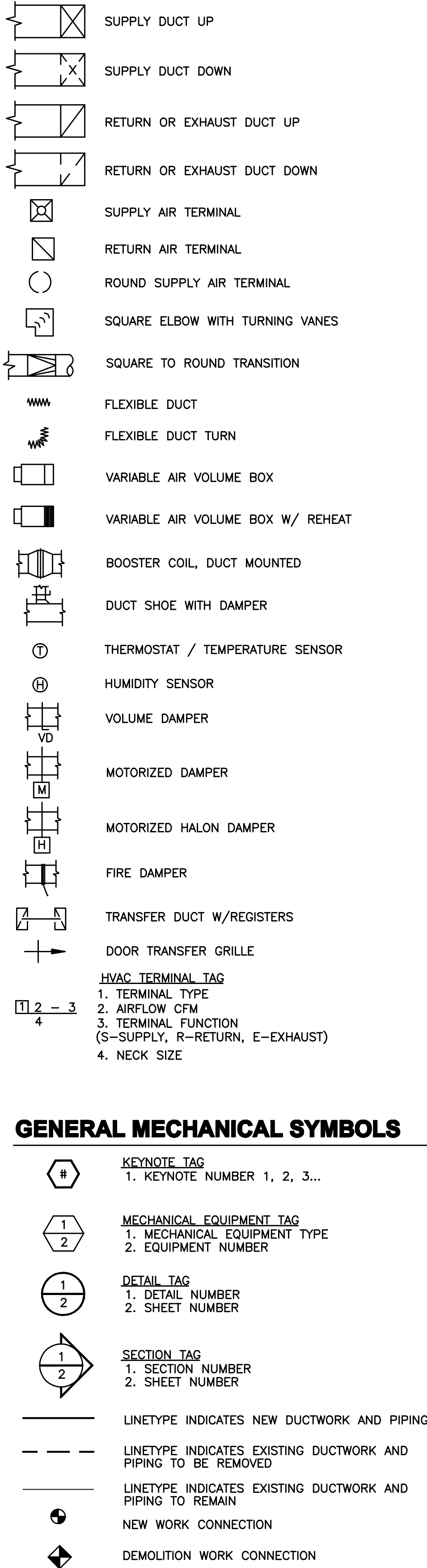
DUCT SYSTEMS: PROVIDE SYSTEM DESIGNATION NAME AND DIRECTION OF FLOW. PROVIDE "SETON MODEL VENTMARK MARKERS."

**TESTING, ADJUSTING, AND BALANCING:**  
GENERAL: TESTING, ADJUSTING, AND BALANCING SHALL BE PROVIDED BY AN INDEPENDENT CERTIFIED TEST AND BALANCE AGENCY. TESTING SHALL BE PERFORMED IN COMPLETE ACCORDANCE WITH AABC OR SMACNA NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION.

REQUIREMENTS: COMPONENT TYPES OF TESTING, ADJUSTING AND BALANCING SPECIFIED IN THIS SECTION INCLUDES THE FOLLOWING AS APPLIED TO THE FOLLOWING EQUIPMENT: FANS, AIR-CONDITIONING UNITS, DUCTWORK SYSTEMS, UNIT HEATERS. AIR SYSTEMS TO BE BALANCED TO WITHIN +5% OF DESIGN DRAWING AIR QUANTITIES. IF THESE LIMITS CANNOT BE REACHED, BALANCER IS TO SUBMIT A LIST OF RECOMMENDATIONS TO REMEDY THE SITUATION.

EXTENT OF TESTING, ADJUSTING, AND BALANCING WORK IS INDICATED BY REQUIREMENTS OF THIS SECTION AND ALSO BY DRAWINGS AND SCHEDULES, AND IS DEFINED TO INCLUDE, BUT IS NOT NECESSARILY LIMITED TO, AIR DISTRIBUTION SYSTEMS, HYDRONIC DISTRIBUTION SYSTEMS AND ASSOCIATED EQUIPMENT AND APPARATUS OF MECHANICAL WORK. THE WORK CONSISTS OF SETTING SPEED AND VOLUME (FLOW) ADJUSTING FACILITIES PROVIDED FOR SYSTEMS, RECORDING DATA, CONDUCTING TESTS, PREPARING AND SUBMITTING REPORTS, AND RECOMMENDING MODIFICATIONS TO WORK AS REQUIRED BY CONTRACT DOCUMENTS.

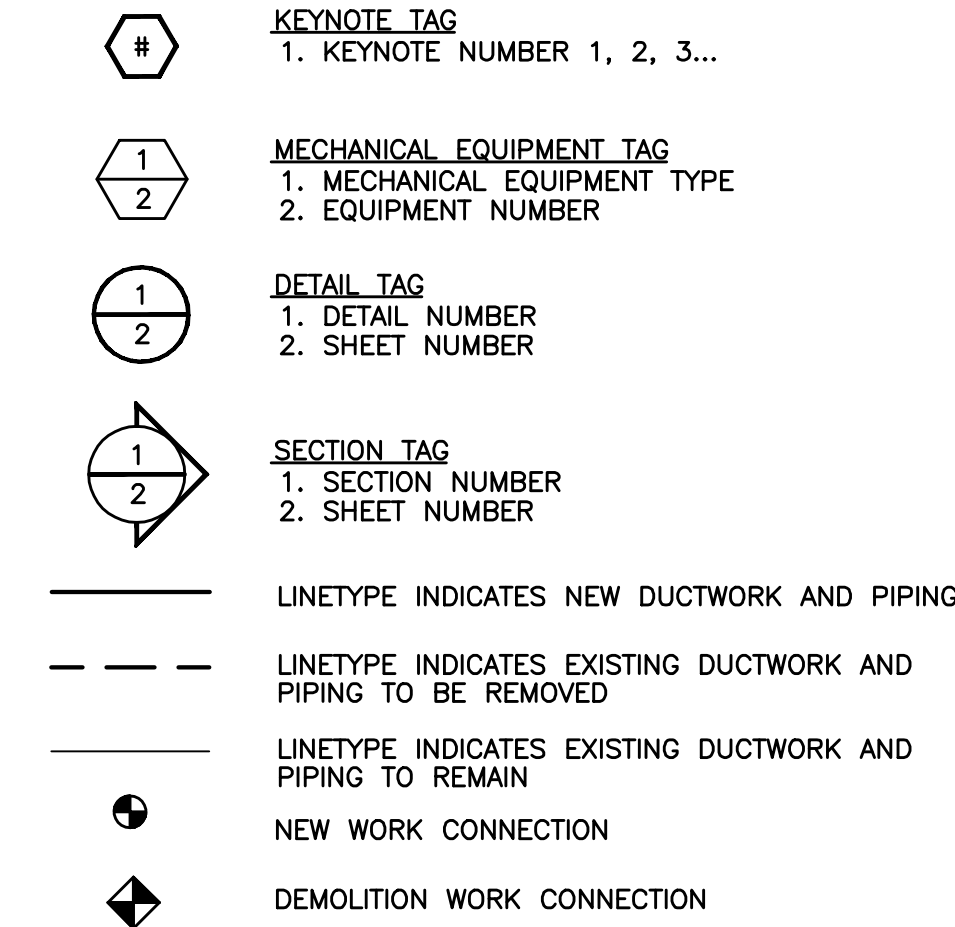
## VENTILATION SYMBOLS



## ABBREVIATIONS

AIR CONDITION (—ED, —ER, —ING)	HB	HOSE BIBB	SF	SQUARE FEET
AIR COOLED CONDENSER	HC	HEATING COIL	SH	SENSIBLE HEAT
AIR COOLED CONDENSING UNIT	HD	HEAD	SHG	SENSIBLE HEAT GAIN
ABOVE FINISHED FLOOR	HEV	HAND EXPANSION VALVE	SHT	SHEET
ANALOG INPUT	HG	HEAT GAIN, HOT GAS, MERCURY	SP	STATIC PRESSURE, SUMP PUMP
AIR MONITORING STATION	HP	HORSEPOWER, HIGH POINT	SPGR	SPECIFIC GRAVITY
ANALOG OUTPUT	HR	HUMIDITY RATIO, HOUR	SPKLR	SPRINKLER
ACCESS PANEL	HT	HEIGHT	SPT	STATIC PRESSURE TRANSMITTER
ARCHITECT (—URAL, —URE)	HTG	HEATING	SPVOL	SPECIFIC VOLUME
ATMOSPHERE	HTR	HEATER	SS	STAINLESS STEEL, SERVICE SINK
AUTOMATIC	HVAC	HEATING/VENTILATING/AIR CONDITIONING	STD	STANDARD
AUXILIARY	HW	HOT WATER	SYS	SYSTEM
AVERAGE WATER TEMPERATURE	HWP	HOT WATER PUMP		
	HWR	HOT WATER RETURN	T	THERMOSTAT, TANK
	HWS	HOT WATER SUPPLY	TAB	TESTING, ADJUSTING, AND BALANCING
BOOSTER COIL	HYD	HYDRAULIC	TAU	TOP ANGULAR UP
BACK DRAFT DAMPER	HZ	HERTZ	TCC	TEMPERATURE CONTROL CONTRACTOR
BACKFLOW PREVENTER			TCP	TEMPERATURE CONTROL PANEL
BRAKE HORSEPOWER, BOILER HORSEPOWER	ID	INSIDE DIAMETER	TD	TEMPERATURE DIFFERENCE
BOTTOM OF DUCT	IE	INVERT ELEVATION	TI	TEMPERATURE INDICATOR
BOTTOM OF PIPE	IN	INCHES	TR	TRANSFER
BRITISH THERMAL UNIT	INCR	INCREASE(—R)	TSP	TOTAL STATIC PRESSURE
BRITISH THERMAL UNITS PER HOUR			TT	TEMPERATURE TRANSMITTER
BETWEEN	KW	KILOWATTS	TYP	TYPICAL
COMPRESSED AIR	L	LENGTH	U	HEAT TRANSFER COEFFICIENT
CAPACITY	LAT	LEAVING AIR TEMPERATURE	UB	UP BLAST
CATCH BASIN	LAV	LAVATORY	UH	UNIT HEATER
CABLE CHASE	LBS	POUNDS	UNO	UNLESS NOTED OTHERWISE
CUBIC FEET PER MINUTE	LF	LINEAR FEET	UR	URNAL
CABINET HEATER	LH	LATENT HEAT		
CHILLED WATER RETURN	LHG	LATENT HEAT GAIN	V	VENT, VOLTS
CHILLED WATER SUPPLY	LIN	LINEAR	VAC	VACUUM
CAST IRON	LQ	LIQUID	VAV	VARIABLE AIR VOLUME
CLASSES	LL	LOW LIMIT	VD	MANUAL VOLUME DAMPER
CLEANOUT, CARBON MONOXIDE	LMTD	LOG MEAN TEMPERATURE DIFFERENCE	VEL	VELOCITY
COLUMN	LPS	LOW PRESSURE STEAM	VLV	VALVE
COMPRESSOR	LTD	LEAST TEMPERATURE DIFFERENCE	VPT	VELOCITY PRESSURE TRANSMITTER
CONDENS(—ER, —ING, —ATION, —ATE)	LVG	LEAVING	VTR	VENT THRU ROOF
CONNECT (—ION)	LVR	LOUVER		
CONTINU(—E, —ATION, —OUS)	LWT	LEAVING WATER TEMPERATURE	W	WASTE, WIDTH, WATTS
CONTROL PANEL, CONDENSATE PUMP			W/O	WITHOUT
CONDENSATE RETURN	M	METER, MOTOR	WB	WET—BULB
CIRCUIT SETTER	MA	MIXED AIR	WC	WATER COLUMN
COOLING TOWER	MAT	MIXED AIR TEMPERATURE	WTR	WATER HEATER, WALL HUNG
CEILING TRANSFER GRILLE	MAX	MAXIMUM		
CONSTANT VOLUME, CONTROL VALVE	MBH	BRITISH THERMAL UNITS (THOUSANDS)		
COEFFICIENT, VALVE FLOW	MCC	MOTOR CONTROL CENTER		
COLD WATER	MD	MOTORIZED DAMPER		
COLD WATER PUMP	MET	MEAN EFFECTIVE TEMPERATURE		
CONDENSER WATER RETURN	MIN	MINUTES, MINIMUM		
CONDENSER WATER SUPPLY	MP	MEDIUM PRESSURE		
	MPC	MEDIUM PRESSURE CONDENSATE		
	MPS	MEDIUM PRESSURE STEAM		
DRY—BULB	MTD	MEAN TEMPERATURE DIFFERENCE		
DUCT DETECTOR	MU	MAKE—UP		
DIRECT DIGITAL CONTROL	MVD	MOTOR—OPERATED VOLUME DAMPER		
DIGITAL INPUT	MWP	MAXIMUM WORKING PRESSURE		
DIAMETER				
DISCONNECT	N/A	NOT APPLICABLE		
DIVISION	NC	NORMALLY CLOSED, NOISE CRITERIA		
DOWN	NIC	NOT IN CONTRACT		
DIGITAL OUTPUT	NK	NECK		
DEW POINT	NO	NORMALLY OPEN, NUMBER		
DIFFERENTIAL PRESSURE TRANSMITTER				
DOWNSPOUT, DUCT SILENCER	OA	OUTSIDE AIR		
DOOR TRANSFER GRILLE	OBD	OPPOSED BLADE DAMPER		
DRAWING	OD	OUTSIDE DIAMETER		
DIRECT EXPANSION	OS&Y	OUTSIDE SCREW & YOKE (VALVE)		
	OV	OUTLET VELOCITY		
	OW	OPEN WASTE		
ELECTRIC TO PNEUMATIC				
EACH	P'WIRED	PRE—WIRED		
ENTERING AIR TEMPERATURE	PBD	PARALLEL BLADE DAMPER		
EXHAUST FAN	PCF	POUNDS PER CUBIC FOOT		
EFFICIENT(—T, —CY)	PC	PUMPED CONDENSATE		
ENTERING	PD	PRESSURE DROP		
EQUIPMENT	P—E	PNEUMATIC TO ELECTRIC		
EXTERNAL STATIC PRESSURE	PH	PHASE		
EXPANSION TANK	PHC	PREHEAT COIL		
ELECTRIC UNIT HEATER	PI	PRESSURE INDICATOR		
EVAPORATE(—ING, —ED, —PR)	PKG	PACKAGED		
ELECTRIC WATER COOLER	PNEU	PNEUMATIC		
ENTERING WATER TEMPERATURE	PNL	PANEL		
EXHAUST	PPM	PARTS PER MILLION		
EXPANSION	PRESS	PRESSURE		
	PRV	PRESSURE REDUCING VALVE		
FIRE ALARM	PSI	POUNDS PER SQUARE INCH		
FIRE ALARM PANEL	PSIG	POUNDS PER SQUARE INCH GAGE		
FIRE ALARM GONG	PSV	PILOT SOLENOID VALVE		
FLOOR CLEANOUT				
FAN COIL UNIT	QT	QUART		
FIRE DAMPER, FLOOR DRAIN	QTY	QUANTITY		
FIRE DEPARTMENT CONNECTION				
FIRE EXTINGUISHER	RA	RETURN AIR		
FIRE EXTINGUISHER CABINET	RAD	RADIAT(—E, —ION, —OR)		
FIRE HOSE	RD	ROOF DRAIN		
FIRE HOSE CABINET	RECIRC	RECIRCULATE		
FIRE HOSE RACK	REFRIG	REFRIGERANT		
FIRE HYDRANT	REG	REGISTER		
FIXTURE	RET	RETURN		
FULL LOAD AMPS	REV	REVOLUTION(S)		
FUEL OIL RETURN	RH	RELATIVE HUMIDITY		
FUEL OIL SUPPLY	RHC	REHEAT COIL		
FEET PER MINUTE	RL	REFRIGERANT LIQUID		
FEET PER SECOND	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER		
FLOW SWITCH	RPM	REVOLUTIONS PER MINUTE		
FREEZE STAT	RPS	REVOLUTIONS PER SECOND		
FEET	RR	REFRIGERANT RELIEF		
FIN TUBE RADIATION	RS	REFRIGERANT SUCTION		
	RTD	RESISTANCE TEMPERATURE DETECTOR		
NATURAL GAS				
GALVANIZED	S/M	SHEET METAL		
GENERAL CONTRACTOR	SA	SUPPLY AIR		
GALLONS PER HOUR	SAT	SATURAT(—E, —ED, —ION), SUPPLY AIR TEMPERATURE		
GALLONS PER MINUTE	SCFM	CFM, STANDARD CONDITIONS		
GALLONS PER SECOND	SD	SMOKE DETECTOR, STORM DRAIN		

## GENERAL MECHANICAL SYMBOLS



**GENERAL NOTES**

1. ALL UTILITY DRAWINGS ARE TO BE ON SCALE. THE ACCURACY OF THE DRAWING CANNOT BE GUARANTEED DUE TO DISCREPANCIES IN THE INFORMATION PROVIDED BY THE CLIENT. ANY ERRORS SHOULD BE DERIVED FROM DIMENSIONED PLANS.

2. ALL DIMENSIONS, ROUGH OPENING SIZES, AND FINISHES ARE TO BE SHOWN ON THE DRAWING BY THE GENERAL CONTRACTOR. MAUST ARCHITECTURAL SERVICES SHALL NOT BE HELD RESPONSIBLE FOR ANY DISCREPANCIES, WHICH HAVE NOT BEEN POINTED OUT BY THE ARCHITECT PRIOR TO CONSTRUCTION.

**M**ALIST ARCHITECTURAL  
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