MECHANICAL SYMBOLS LEGEND

H.V.A.C. PIPING

RD	REFRIGERANT DISCHARGE	HWR	HEATING WATER RETURN	LPS	STEAM (LOW PRESSURE)
RL	REFRIGERANT LIQUID	HWS	HEATING WATER SUPPLY	MPS	STEAM (MEDIUM PRESSURE)
RS	REFRIGERANT SUCTION	HPWR	HEAT PUMP WATER RETURN	HPS	STEAM (HIGH PRESSURE)
EGR	ETHYLENE GLYCOL RETURN	HPWS	HEAT PUMP WATER SUPPLY	LPC	LOW PRESSURE CONDENSATE
EGS	ETHYLENE GLYCOL SUPPLY	HCR	HOT/CHILLED WATER RETURN	MPC	MEDIUM PRESSURE CONDENSATE
PGR	PROPYLENE GLYCOL RETURN	HCS	HOT/CHILLED WATER SUPPLY	HPC	HIGH PRESSURE CONDENSATE
PGS	PROPYLENE GLYCOL SUPPLY	CWR	CHILLED WATER RETURN	PC	PUMPED CONDENSATE
FOR	FUEL OIL RETURN	CWS	CHILLED WATER SUPPLY	CD	COIL CONDENSATE DRAIN
FOS	FUEL OIL SUPPLY	CR	CONDENSER WATER RETURN	EV	EXHAUST VENT
FOV	FUEL OIL VENT	CS	CONDENSER WATER SUPPLY	VR	VACUUM STEAM CONDENSATE RETURN
CF	CHEMICAL FEED				

H.V.A.C. DUCTWORK

	SUPPLY OR MIXED AIR DUCT		EXTRACTOR	FD	FIRE DAMPER (IN HORIZONTAL DUCT)
	RETURN, RELIEF OR EXHAUST AIR DUCT		SPIN-IN FITTING WITH VOLUME DAMPER	SD	SMOKE DAMPER (IN HORIZONTAL DUCT)
	VENTILATION OR OUTSIDE AIR DUCT		MANUAL VOLUME CONTROL DAMPER	FD	FIRE DAMPER (IN VERTICAL DUCT)
10/8	AIR DUCT SIZE (WIDTH/HEIGHT)		OPPOSED BLADE DAMPER	SD	SMOKE DAMPER (IN VERTICAL DUCT)
	ROUND DUCT		PARALLEL BLADE DAMPER	FSD	FIRE/SMOKE DAMPER (IN HORIZONTAL DUCT)
	ROUND DUCT (IN SECTION)	M	MOTORIZED ACTUATOR	FSD	FIRE/SMOKE DAMPER (IN VERTICAL DUCT)
	TURNING VANES		PNEUMATIC ACTUATOR		
	FLEXIBLE DUCTWORK	BD	BACKDRAFT DAMPER		
h/b	ELEVATION CHANGE (RISE OR DROP)		SPLITTER		

VALVES AND FITTINGS

	ELBOW		AUTOMATIC FLOW CONTROL VALVE		STRAINER WITH DRAIN (BALL VALVE)
	ELBOW - OUTLET DOWN		MANUAL FLOW CONTROL VALVE (CIRCUIT SETTER)	TW	THERMOMETER WELL
	ELBOW - OUTLET UP		CHECK VALVE (ARROW IND. FLOW)		NEEDLE VALVE
	TEE - OUTLET DOWN		GATE VALVE		GAS VALVE
	TEE - OUTLET UP	R	RELIEF VALVE		GAS PRESSURE REGULATOR
	TEE		VALVE IN VERTICAL LINE	RPBF	REDUCED PRESS. BACKFLOW PREV.
	CAPPED CONNECTION		PRESSURE GAGE AND COCK		DOUBLE CHK VALVE BACKFLOW PREV.
	STRAINER		THERMOMETER	DDCC	DOUBLE DETECTOR CHECK VALVE
	AUTOMATIC 2-WAY VALVE		TEMP. & PRESS. RELIEF VALVE	MV	MANUAL AIR VENT
	AUTOMATIC 3-WAY VALVE		UNION	A	AUTOMATIC AIR VENT
	PRESSURE REDUCING VALVE		BALL VALVE		FLEX CONNECTOR
	GLOBE VALVE		PIPE ANCHOR		POST INDICATOR VALVE
	PLUG VALVE		EXPANSION JOINT		
	BUTTERFLY VALVE		F & T TRAP		
	ANGLE VALVE		REDUCER		

PLUMBING PIPING

	COLD WATER	SAN	SANITARY BELOW FLOOR OR GRADE	AW	ACID WASTE BELOW FLOOR OR GRADE
	HOT WATER SUPPLY	SAN	SANITARY ABOVE FLOOR OR GRADE	AW	ACID WASTE ABOVE FLOOR OR GRADE
	HOT WATER RECIRC.		SANITARY VENT	AV	ACID VENT PIPING
SCW	SOFTENED COLD WATER	ST	STORM BELOW FLOOR OR GRADE	GW	GREASE WASTE BELOW FLOOR OR GRADE
IR	IRRIGATION	ST	STORM ABOVE FLOOR OR GRADE	GW	GREASE WASTE ABOVE FLOOR OR GRADE
A	COMPRESSED AIR	SC	STORM OVERFLOW BELOW FLOOR OR GRADE	GV	GREASE WASTE VENT
G	GAS PIPING (7" W.C.)	SO	STORM OVERFLOW ABOVE FLOOR OR GRADE	OSW	OIL/SAND BELOW FLOOR OR GRADE
2#G	GAS PIPING (2 PSI)	F	FIRE PROTECTION MAIN	OSW	OIL/SAND ABOVE FLOOR OR GRADE
		SM	SPRINKLER MAIN		

MEDICAL

MA	MEDICAL AIR	EVAC	WASTED ANESTHESIA GAS DISPOSAL	NOX	NITROUS OXIDE
OX	OXYGEN	N	NITROGEN	CO2	CARBON DIOXIDE
VAC	VACUUM				

CONTROLS

T XX-X	THERMOSTAT - XX-X DENOTES UNIT SERVED	CO	CARBON MONOXIDE SENSOR	P	PRESSURE SENSOR
		CO2	CARBON DIOXIDE SENSOR	G	TEMPERATURE SENSOR WITH GUARD
TG	THERMOSTAT WITH GUARD	NOX	NITROGEN DIOXIDE SENSOR	H	HUMIDISTAT
S XX-X	TEMPERATURE SENSOR - XX-X DENOTES UNIT SERVED	H	HUMIDITY SENSOR		BOILER EMERGENCY SHUTDOWN SWITCH - SEE SPECIFICATIONS
		W	WALL SWITCH		

MISCELLANEOUS

AHU 1	EQUIPMENT IDENTIFICATION TAG (ELECTRICAL CONNECTION REQUIRED)		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY
1 M1.1	TOP NUMBER: DETAIL IDENTIFICATION NUMBER BOTTOM NUMBER: DETAIL SHEET LOCATION		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY	T	ELECTRICAL TRANSFORMER - SHOWN FOR COORDINATION PURPOSES ONLY
	NEW CONNECTION POINT	CO	CLEAN OUT (CO)		FLOOR DRAIN/FLOOR SINK
	POINT OF DISCONNECT	FCO	FLOOR CLEAN OUT (FCO)		INLINE PUMP
				HB	HOSE BIBB
				WH	WALL HYDRANT

ABBREVIATIONS

AFCV	AUTO FLOW CONTROL VALVE	dB	DECIBELS	FS	FLOOR SINK	MIN	MINIMUM	RAD	RADIUS	TYP	TYPICAL
AFF	ABOVE FINISHED FLOOR	DF	DRINKING FOUNTAIN	FT	FIN TUBE RADIATION	MSB	MOP SINK BASIN	RCP	REINFORCED CONCRETE PIPE	UR	URINAL
AV	AIR VENT	Dp	DEW POINT TEMPERATURE, °F	GALV	GALVANIZED	NC	NORMALLY CLOSED	REF	REFERENCE	VA	VENTILATION AIR
BFF	BELOW FINISHED FLOOR	DPS	DIFFERENTIAL PRESSURE SWITCH	GWH	GAS WATER HEATER	NIC	NOT IN CONTRACT	RF	RELIEF OR RETURN FAN	VAV	VARIABLE AIR VOLUME (BOX)
BOF	BOTTOM OF FOOTING	DWH	DOMESTIC WATER HEATER	HDPE	HIGH DENSITY POLYETHYLENE	NO	NORMALLY OPEN	S	SINK	VERT	VERTICAL
CI	CAST IRON	EA	EXHAUST AIR	HORIZ	HORIZONTAL	NOM	NOMINAL	SA	SUPPLY AIR	VP	VACUUM PUMP
℄	CENTERLINE	EF	EXHAUST FAN	HP	HORSEPOWER	OA	OUTSIDE AIR	SF	SQUARE FEET	VTR	VENT THRU ROOF
CLR	CLEAR	ET	EXPANSION TANK	HRP	HYDRONIC RADIANT CEILING PANEL	OC	ON CENTER	SH	SHOWER	W	WATER
CONV	CONVECTOR	EWC	ELECTRIC WATER COOLER	HW	HOT WATER	OD	OUTSIDE DIAMETER	SIM	SIMILAR	Wb	WET BULB TEMPERATURE, °F
COTR	CONTRACTING OFFICERS, TECHNICAL REPRESENTATIVE	EWH	ELECTRIC WATER HEATER	HWC	HOT WATER CIRCULATING	OFE	OWNER FURNISHED EQUIPMENT	SS	SERVICE SINK	WC	WATER CLOSET
CP	CONDENSATE PUMP	FF	FINISHED FLOOR	IE	INVERT ELEVATION	P	PUMP	STD	STANDARD	WCO	WALL CLEANOUT
C.R.	CONCENTRIC REDUCER	FFE	FINISHED FLOOR ELEVATION	LAV	LAVATORY	PA	PIPE ANCHOR	TOF	TOP OF FOOTING	WT	WEIGHT
CS	CARBON STEEL	FHC	FIRE HOSE CABINET	LBS/HR	POUNDS PER HOUR	PD	PRESSURE DROP (FEET OF WATER)	TOG	TOP OF GRADE		
CT	CONTRACTOR	FL	FLOW LINE	MA	MIXED AIR	PI	POINT OF INTERSECTION	TOW	TOP OF WALL		
CW	COLD WATER	FLR	FLOOR	MAX	MAXIMUM	PIV	POST INDICATOR VALVE	TOS	TOP OF SLAB OR STEEL		
Db	DRY BULB TEMPERATURE, °F	FRP	FIBERGLASS REINFORCED PIPE	MH	MANHOLE	RA	RELIEF OR RETURN AIR	TS	TEMPERATURE SENSOR		

GENERAL MECHANICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLETELY REMOVE ALL PIPING, DUCTWORK, COILS, EQUIPMENT, TERMINAL UNITS AND OTHER ASSOCIATED ITEMS SHOWN BOLD AND/OR BOLD DASHED LINES UNLESS SPECIFICALLY NOTED OTHERWISE. THE ITEMS INDICATED SPECIFICALLY ON THE DRAWINGS TO BE REMOVED ARE ONLY TO INDICATE IN GENERAL TO THE CONTRACTOR THE AMOUNT OF DEMOLITION WORK INVOLVED. ITEMS NOT SPECIFICALLY SHOWN BUT CONNECTED TO SYSTEMS SHOWN TO BE REMOVED SHALL BE REMOVED AS PART OF DEMOLITION WORK. A SITE INVESTIGATION BY THE CONTRACTOR MUST BE PERFORMED TO AID IN DETERMINING THE COMPLETE EXTENT OF WORK INVOLVED.
2. PIPING AND DUCTWORK EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS. DRAIN AND CAP PIPING AND DUCTWORK INDICATED TO REMAIN.
3. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.
4. LOCATE, IDENTIFY, AND PROTECT MECHANICAL SERVICES PASSING THROUGH DEMOLITION AREA AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS. WHEN SERVICES MUST BE INTERRUPTED, NOTIFY OWNER AND INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS, IF REQUIRED.
5. MATERIALS AND EQUIPMENT TO BE SALVAGED: REMOVE, DEMOUNT, AND DISCONNECT EXISTING MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED, AND DELIVER MATERIALS AND EQUIPMENT TO THE LOCATION DESIGNATED FOR STORAGE BY OWNER. REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
6. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL NECESSARY UTILITY SHUT-OFFS WITH COTR PRIOR TO PROCEEDING WITH SUCH WORK.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING, PAINTING, REPAIRING OR REPLACEMENT OF ALL WALLS, FLOORS, CEILINGS, OR OTHER BUILDING ELEMENTS WHICH ARE DISTURBED AS PART OF THE DEMOLITION OR INSTALLATION OF MECHANICAL WORK. FIRE SEAL WALL OPENINGS AS REQUIRED.
8. REPLACE/REPAIR DAMAGED PIPING AND OR DUCTWORK INSULATION TO MATCH EXISTING.
9. CONTRACTOR SHALL PROVIDE WORK IN PHASES AS REQUIRED BY THE CONTRACT DOCUMENTS WHILE MINIMIZING POTENTIAL WORK DELAYS AND UTILITY SHUT-DOWNS. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GENERAL HVAC NOTES

1. DUCTWORK DIMENSIONS ON PLANS AND DETAILS INDICATE SIDE OF DUCT SEEN FIRST. ALL DIMENSIONS ARE IN INCHES AND ARE INSIDE CLEAR DIMENSIONS.
2. COORDINATE LOCATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK AND PIPING WITH OTHER TRADES ON THE SITE BEFORE PROCEEDING WITH WORK. COORDINATE ROUTING OF DUCTWORK AND PIPING WITH ELECTRICAL PANELS. DO NOT INSTALL DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS.
3. WHERE DUCTWORK PENETRATES FULL HEIGHT PARTITIONS (EXTENDING UP TO UNDERSIDE OF ROOF DECK) THE MECHANICAL CONTRACTOR SHALL COMPLETELY PACK FIBERGLASS INSULATION IN ANY GAPS BETWEEN WALL OPENINGS AND DUCT EDGE. PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE CONSTRUCTED PER APPLICABLE U.L. CONSTRUCTION DETAIL(S).
4. VOLUME DAMPERS ABOVE PLASTER OR GYPBOARD CEILINGS SHALL HAVE EXTENSION RODS AND CHROME PLATED ESCUTCHEON PLATES (TYPICAL FOR ALL PLASTER OR GYPBOARD CEILINGS), SEE SPECIFICATIONS.
5. COORDINATE ALL GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH REFLECTED CEILING PLAN, LIGHTING, AND ALL OTHER CEILING MOUNTED DEVICES.
6. COORDINATE ALL RISES AND OFFSETS IN DUCTWORK AND PIPING PRIOR TO INSTALLATION.
7. LIGHT LINE WEIGHT INDICATES EXISTING PIPING, DUCTWORK, AND/OR EQUIPMENT TO REMAIN. BOLD LINE WEIGHT INDICATES NEW WORK TO BE INSTALLED IN THIS CONTRACT.

GENERAL PLUMBING NOTES

1. INSTALL WALL CLEAN OUTS (WCO) ON ALL SANITARY & STORM STACKS AT 30" AFF OR AT 42" AFF WHEN LOCATED BEHIND A WATER CLOSET OR CABINETRY.
2. PROVIDE RPZ BACKFLOW PREVENTERS IN ACCORDANCE WITH LOCAL CODES. PROVIDE AIR GAP FITTINGS AND ROUTE DISCHARGE PIPING TO NEAREST FLOOR DRAIN OR FLOOR SINK.
3. COORDINATE LOCATION OF ALL PLUMBING EQUIPMENT AND PIPING WITH OTHER TRADES ON THE SITE BEFORE PROCEEDING WITH WORK. COORDINATE ROUTING OF PLUMBING PIPING WITH ELECTRICAL PANELS. DO NOT INSTALL PLUMBING PIPING ABOVE ELECTRICAL PANELS.
4. EXISTING PIPING IS SHOWN IN ITS APPROXIMATE LOCATION.
5. LIGHT LINE WEIGHT INDICATES EXISTING PIPING AND/OR EQUIPMENT TO REMAIN BOLD LINE WEIGHT INDICATES NEW WORK TO BE INSTALLED IN THIS CONTRACT.
6. PIPE PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE CONSTRUCTED PER APPLICABLE U.L. CONSTRUCTION DETAIL(S).
7. DRAWINGS INDICATE APPROXIMATE ROUTING OF PIPING AND DO NOT INCLUDE ALL OFFSETS, FITTINGS, VALVES, ETC. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE SIZES AND SERVICE PRIOR TO FINAL CONNECTION. COORDINATE LOCATION OF PIPING WITH LIGHTING, STRUCTURAL MEMBERS, SPRINKLER PIPING AND DUCTWORK, ETC. PROVIDE OFFSETS OR RELOCATE PIPING AS REQUIRED TO AVOID CONFLICTS WITH WORK OF ALL OTHER TRADES.
8. SUPPORT ALL PIPING, EQUIPMENT, ETC. FROM BUILDING STRUCTURAL MEMBERS. HOLD PIPING TIGHT TO BOTTOM OF STRUCTURAL MEMBERS. DO NOT USE WIRE OR PERFORATED METAL TO SUPPORT PIPING. DO NOT SUPPORT PIPING FROM OTHER PIPING, DUCTWORK AND/OR ELECTRICAL CONDUITS.
9. ALL PLUMBING WORK SHALL BE LOCATED ABOVE CEILINGS, IN PIPE CHASE, OR OTHER CONCEALED ACCESSIBLE LOCATIONS UNLESS NOTED OTHERWISE. LOCATE AND ARRANGE VALVES, DRAIN FITTINGS, ETC. TO BE ACCESSIBLE THROUGH LAY-IN CEILINGS, ACCESS PANELS OR ACCESS DOORS. PROVIDE AN ACCESS PANEL OR DOOR AS SPECIFIED FOR ALL NON-ACCESSIBLE INSTALLATIONS.
10. INSTALL SECTIONAL VALVES ON EACH BRANCH AND/OR RISER SERVING MULTIPLE PLUMBING FIXTURES AND ELSEWHERE AS INDICATED. INSTALL VALVES AS CLOSE TO MAIN AS POSSIBLE.

HAZARDOUS MATERIAL COORDINATION

1. WHENEVER THE CONTRACTOR ENCOUNTERS A MATERIAL WHICH MAY BE HAZARDOUS, THE CONTRACTOR SHALL STOP WORK AND CONTACT THE COTR IMMEDIATELY FOR DIRECTION. DO NOT DISTURB THE MATERIAL IN ITS LOCATION. CONTRACTOR SHALL COORDINATE REMOVAL OF ANY ITEMS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS WITH THE COTR. REMOVAL OF HAZARDOUS MATERIALS SHALL BE IN ACCORDANCE WITH EPA REQUIREMENTS AS WELL AS REQUIREMENTS OF ANY OTHER AGENCIES WITH JURISDICTION OVER SUCH WORK.

Revisions	Date

IMPORTANT CONTRACTOR'S NOTE

1. ALL CONTRACTORS ARE RESPONSIBLE FOR REVIEWING ENTIRE SET OF DOCUMENTS TO DETERMINE THEIR FULL SCOPE OF WORK. CONTRACTOR SHALL NOT BE ALLOWED EXTRA COSTS DUE TO FAILURE TO REVIEW ENTIRE SET OF DOCUMENTS.
2. ANY USE OF THESE ELECTRONIC DRAWINGS OR SCALING OF THE PRINTED DOCUMENTS ARE DONE SO AT THE CONTRACTORS RISK.

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Drawing Title: - MECHANICAL SYMBOL LEGEND - GENERAL NOTES

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Project Number: 636-12-101

Building Number: ONE

Drawing Number: M0.0

Dwg. 8 of 26

Approved Project Director: KEVIN HUTSELL

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