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MECHANICAL SYMBOLS LEGEND											
H.V.A.C. PIPING						PLUMBING PIPING					
—RD—	REFRIGERANT DISCHARGE	—HWR—	HEATING WATER RETURN	—LPS—	STEAM (LOW PRESSURE)	—SAW—	SANITARY BELOW FLOOR OR GRADE	—AW—	ACID WASTE BELOW FLOOR OR GRADE		
—RL—	REFRIGERANT LIQUID	—HWS—	HEATING WATER SUPPLY	—MPS—	STEAM (MEDIUM PRESSURE)	—SAN—	SANITARY ABOVE FLOOR OR GRADE	—AW—	ACID WASTE ABOVE FLOOR OR GRADE		
—RS—	REFRIGERANT SUCTION	—HPWR—	HEAT PUMP WATER RETURN	—HPS—	STEAM (HIGH PRESSURE)	—SV—	SANITARY VENT	—AV—	ACID VENT PIPING		
—EGR—	ETHYLENE GLYCOL RETURN	—HPWS—	HEAT PUMP WATER SUPPLY	—LPC—	LOW PRESSURE CONDENSATE	—SCW—	SOFTENED COLD WATER	—COW—	GREASE WASTE BELOW FLOOR OR GRADE		
—EOS—	ETHYLENE GLYCOL SUPPLY	—HCR—	HOT/CHILLED WATER RETURN	—MPC—	MEDIUM PRESSURE CONDENSATE	—IR—	IRRIGATION	—GW—	GREASE WASTE ABOVE FLOOR OR GRADE		
—PGR—	PROPYLENE GLYCOL RETURN	—HCS—	HOT/CHILLED WATER SUPPLY	—HPC—	HIGH PRESSURE CONDENSATE	—A—	COMPRESSED AIR	—GV—	GREASE WASTE VENT		
—PGS—	PROPYLENE GLYCOL SUPPLY	—CWR—	CHILLED WATER RETURN	—PC—	PUMPED CONDENSATE	—G—	GAS PIPING (7" W.C.)	—OSW—	OIL/SAND BELOW FLOOR OR GRADE		
—FOR—	FUEL OIL RETURN	—CWS—	CHILLED WATER SUPPLY	—CD—	COIL CONDENSATE DRAIN	—2P—	GAS PIPING (2 PSI)	—F—	FIRE PROTECTION MAIN		
—FOS—	FUEL OIL SUPPLY	—CR—	CONDENSER WATER RETURN	—EV—	EMERGENCY VENT			—SM—	SPRINKLER MAIN		
—FOV—	FUEL OIL VENT	—CS—	CONDENSER WATER SUPPLY	—VR—	VACUUM STEAM CONDENSATE RETURN						
—CF—	CHEMICAL FEED										
H.V.A.C. DUCTWORK						MEDICAL					
	SUPPLY OR MIXED AIR DUCT		EXTRACTOR		FIRE DAMPER (IN HORIZONTAL DUCT)	—MA—	MEDICAL AIR	—EVAC—	WASTED ANESTHESIA GAS DISPOSAL	—NOX—	NITROUS OXIDE
	RETURN, RELIEF OR EXHAUST AIR DUCT		SPIN-IN FITTING WITH VOLUME DAMPER		SMOKE DAMPER (IN HORIZONTAL DUCT)	—OX—	OXYGEN	—N—	NITROGEN	—CO2—	CARBON DIOXIDE
	VENTILATION OR OUTSIDE AIR DUCT		MANUAL VOLUME CONTROL DAMPER		FIRE DAMPER (IN VERTICAL DUCT)						
	AIR DUCT SIZE (WIDTH x HEIGHT)		OPPOSED BLADE DAMPER		SMOKE DAMPER (IN VERTICAL DUCT)	CONTROLS					
	ROUND DUCT		PARALLEL BLADE DAMPER		FIRE/SMOKE DAMPER (IN HORIZONTAL DUCT)		THERMOSTAT - UNIT SERVED		CARBON MONOXIDE SENSOR		PRESSURE SENSOR
	ROUND DUCT (IN SECTION)		MOTORIZED ACTUATOR		FIRE/SMOKE DAMPER (IN VERTICAL DUCT)		XX-X DENOTES UNIT SERVED		CARBON DIOXIDE SENSOR		TEMPERATURE SENSOR WITH GUARD
	TURNING VANES		PNEUMATIC ACTUATOR				THERMOSTAT WITH GUARD		NITROGEN DIOXIDE SENSOR		HUMIDISTAT
	FLEXIBLE DUCTWORK		BACKDRAFT DAMPER				TEMPERATURE SENSOR - XX-X DENOTES UNIT SERVED		HUMIDITY SENSOR		BOILER EMERGENCY SHUTDOWN SWITCH - SEE SPECIFICATIONS
	ELEVATION CHANGE (RISE OR DROP)		SPLITTER						WALL SWITCH		
VALVES AND FITTINGS						MISCELLANEOUS					
	ELBOW		AUTOMATIC FLOW CONTROL VALVE		STRAINER WITH DRAIN (BALL VALVE)		EQUIPMENT IDENTIFICATION TAG (ELECTRICAL CONNECTION REQUIRED)		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY
	ELBOW - OUTLET DOWN		MANUAL FLOW CONTROL VALVE (CIRCUIT SETTER)		THERMOMETER WELL		TOP NUMBER: DETAIL IDENTIFICATION NUMBER		ELECTRICAL PANEL - SHOWN FOR COORDINATION PURPOSES ONLY		ELECTRICAL TRANSFORMER - SHOWN FOR COORDINATION PURPOSES ONLY
	ELBOW - OUTLET UP		CHECK VALVE (ARROW IND. FLOW)		NEEDLE VALVE		BOTTOM NUMBER: DETAIL SHEET LOCATION		NEW CONNECTION POINT		FLOOR DRAIN/FLOOR SINK
	TEE - OUTLET DOWN		GATE VALVE		GAS VALVE		POINT OF DISCONNECT		CLEAN OUT (CO)		INLINE PUMP
	TEE - OUTLET UP		RELIEF VALVE		GAS PRESSURE REGULATOR				FLOOR CLEAN OUT (FCO)		HOSE BIBB
	TEE		VALVE IN VERTICAL LINE		REDUCED PRESS. BACKFLOW PREV.						WALL HYDRANT
	CAPPED CONNECTION		PRESSURE GAGE AND COCK		DOUBLE CHK VALVE BACKFLOW PREV.						
	STRAINER		THERMOMETER		DOUBLE DETECTOR CHECK VALVE						
	AUTOMATIC 2-WAY VALVE		TEMP. & PRESS. RELIEF VALVE		MANUAL AIR VENT						
	AUTOMATIC 3-WAY VALVE		UNION		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								
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
CL	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	QC	ON CENTER	SH	SHOWER	W	WATER
CONV	CONVECTOR	EW	ELECTRIC WATER COOLER	HW	HOT WATER	OD	OUTSIDE DIAMETER	SIM	SIMILAR	Wb	WET BULB TEMPERATURE, °F
COTR	CONTRACTING OFFICERS, TECHNICAL REPRESENTATIVE	EW	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

- 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.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL NECESSARY UTILITY SHUT-OFFS WITH COTR PRIOR TO PROCEEDING WITH SUCH WORK.
- 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.
- REPLACE/REPAIR DAMAGED PIPING AND OR DUCTWORK INSULATION TO MATCH EXISTING.
- 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

- DUCTWORK DIMENSIONS ON PLANS AND DETAILS INDICATE SIDE OF DUCT SEEN FIRST. ALL DIMENSIONS ARE IN INCHES AND ARE INSIDE CLEAR DIMENSIONS.
- 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.
- 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).
- 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.
- COORDINATE ALL GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH REFLECTED CEILING PLAN, LIGHTING, AND ALL OTHER CEILING MOUNTED DEVICES.
- COORDINATE ALL RISES AND OFFSETS IN DUCTWORK AND PIPING PRIOR TO INSTALLATION.
- 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

- INSTALL WALL CLEAN OUTS (WCO) ON ALL SANITARY & STORM STACKS AT 30" AFF OR AT 42" AFF WHEN LOCATED BEHIND A WATER CLOSET OR CABINETS.
- PROVIDE RPZ BACKFLOW PREVENTERS IN ACCORDANCE WITH LOCAL CODES. PROVIDE AIR GAP FITTINGS AND ROUTE DISCHARGE PIPING TO NEAREST FLOOR DRAIN OR FLOOR SINK.
- 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.
- LIGHT LINE WEIGHT INDICATES EXISTING PIPING AND/OR EQUIPMENT TO REMAIN BOLD LINE WEIGHT INDICATES NEW WORK TO BE INSTALLED IN THIS CONTRACT.
- PIPE PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE CONSTRUCTED PER APPLICABLE U.L. CONSTRUCTION DETAIL(S).
- 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.
- 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.
- 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.
- 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

- 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.