MECHANICAL SYMBOLS LEGEND

H.V.A.C. PIPING

RD	REFRIGERANT DISCHARGE	HWR	HEATING WATER RETURN
RL	REFRIGERANT LIQUID	HWS	HEATING WATER SUPPLY
RS	REFRIGERANT SUCTION	HPWR	HEAT PUMP WATER RETURN
EGR	ETHYLENE GLYCOL RETURN	HPWS	HEAT PUMP WATER SUPPLY
EGS	ETHYLENE GLYCOL SUPPLY	HCR	HOT/CHILLED WATER RETURN
PGR	PROPYLENE GLYCOL RETURN	HCS	HOT/CHILLED WATER SUPPLY
PGS	PROPYLENE GLYCOL SUPPLY	CWR	CHILLED WATER RETURN
FOR	FUEL OIL RETURN	CWS	CHILLED WATER SUPPLY
FOS	FUEL OIL SUPPLY	CR	CONDENSER WATER RETURN
FOV	FUEL OIL VENT	CS	CONDENSER WATER SUPPLY
CF	CHEMICAL FEED		

LPS	STEAM (LOW PRESSURE)
MPS	STEAM (MEDIUM PRESSURE)
HPS	STEAM (HIGH PRESSURE)
LPC	LOW PRESSURE CONDENSATE
MPC	MEDIUM PRESSURE CONDENSATE
HPC	HIGH PRESSURE CONDENSATE
PC	PUMPED CONDENSATE
CD	COIL CONDENSATE DRAIN
EV	EMERGENCY VENT
VR	VACUUM STEAM CONDENSATE RETURN

H.V.A.C. DUCTWORK

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

FD	FIRE DAMPER (IN HORIZONTAL DUCT)
SD	SMOKE DAMPER (IN HORIZONTAL DUCT)
FD	FIRE DAMPER (IN VERTICAL DUCT)
SD	SMOKE DAMPER (IN VERTICAL DUCT)
FSD	FIRE/SMOKE DAMPER (IN HORIZONTAL DUCT)
FSD	FIRE/SMOKE DAMPER (IN VERTICAL DUCT)

VALVES AND FITTINGS

	ELBOW		AUTOMATIC FLOW CONTROL VALVE
	ELBOW - OUTLET DOWN		MANUAL FLOW CONTROL VALVE (CIRCUIT SETTER)
	ELBOW - OUTLET UP		CHECK VALVE (ARROW IND. FLOW)
	TEE - OUTLET DOWN		GATE VALVE
	TEE - OUTLET UP		RELIEF VALVE
	TEE		VALVE IN VERTICAL LINE
	CAPPED CONNECTION		PRESSURE GAGE AND COCK
	STRAINER		THERMOMETER
	AUTOMATIC 2-WAY VALVE		TEMP. & PRESS. RELIEF VALVE
	AUTOMATIC 3-WAY VALVE		UNION
	PRESSURE REDUCING VALVE		BALL VALVE
	GLOBE VALVE		PIPE ANCHOR
	PLUG VALVE		EXPANSION JOINT
	BUTTERFLY VALVE		F & T TRAP
	ANGLE VALVE		REDUCER

	STRAINER WITH DRAIN (BALL VALVE)
TW	THERMOMETER WELL
	NEEDLE VALVE
	GAS VALVE
	GAS PRESSURE REGULATOR
	REDUCED PRESS. BACKFLOW PREV.
DCDC	DOUBLE CHK VALVE BACKFLOW PREV.
DDC	DOUBLE DETECTOR CHECK VALVE
MV	MANUAL AIR VENT
A	AUTOMATIC AIR VENT
	FLEX CONNECTOR
	POST INDICATOR VALVE

PLUMBING PIPING

	COLD WATER	SAN	SANITARY BELOW FLOOR OR GRADE
	HOT WATER SUPPLY	SAN	SANITARY ABOVE FLOOR OR GRADE
	HOT WATER RECIRC.		SANITARY VENT
SCW	SOFTENED COLD WATER	ST	STORM BELOW FLOOR OR GRADE
IR	IRRIGATION	ST	STORM ABOVE FLOOR OR GRADE
A	COMPRESSED AIR	SO	STORM OVERFLOW BELOW FLOOR OR GRADE
G	GAS PIPING (7" W.C.)	SO	STORM OVERFLOW ABOVE FLOOR OR GRADE
2#G	GAS PIPING (2 PSI)	F	FIRE PROTECTION MAIN
		SM	SPRINKLER MAIN

AW	ACID WASTE BELOW FLOOR OR GRADE
AW	ACID WASTE ABOVE FLOOR OR GRADE
AV	ACID VENT PIPING
GW	GREASE WASTE BELOW FLOOR OR GRADE
GW	GREASE WASTE ABOVE FLOOR OR GRADE
GV	GREASE WASTE VENT
OSW	OIL/SAND BELOW FLOOR OR GRADE
OSW	OIL/SAND ABOVE FLOOR OR GRADE

MEDICAL

MA	MEDICAL AIR	EVAC	WASTED ANESTHESIA GAS DISPOSAL
OX	OXYGEN	N	NITROGEN
VAC	VACUUM		

NOX	NITROUS OXIDE
CO2	CARBON DIOXIDE

CONTROLS

XX-X	THERMOSTAT - XX-X DENOTES UNIT SERVED	CO	CARBON MONOXIDE SENSOR
		CO2	CARBON DIOXIDE SENSOR
G	THERMOSTAT WITH GUARD	NOX	NITROGEN DIOXIDE SENSOR
XX-X	TEMPERATURE SENSOR - XX-X DENOTES UNIT SERVED	H	HUMIDITY SENSOR
		W	WALL SWITCH

P	PRESSURE SENSOR
G	TEMPERATURE SENSOR WITH GUARD
	HUMIDISTAT
	BOILER EMERGENCY SHUTDOWN SWITCH - SEE SPECIFICATIONS

MISCELLANEOUS

AHU 1	EQUIPMENT IDENTIFICATION TAG (ELECTRICAL CONNECTION REQUIRED)		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
	NEW CONNECTION POINT	CO	CLEAN OUT (CO)
	POINT OF DISCONNECT	FCO	FLOOR CLEAN OUT (FCO)

T	ELECTRICAL TRANSFORMER - SHOWN FOR COORDINATION PURPOSES ONLY
	FLOOR DRAIN/FLOOR SINK
	INLINE PUMP
HB	HOSE BIBB
WH	WALL HYDRANT

ABBREVIATIONS

AFCV	AUTO FLOW CONTROL VALVE	DF	DRINKING FOUNTAIN	FT	FIN TUBE RADIATION	MSB	MOP SINK BASIN	RCP	REINFORCED CONCRETE PIPE	UR	URINAL
AFF	ABOVE FINISHED FLOOR	Dp	DEW POINT TEMPERATURE, °F	GALV	GALVANIZED	NC	NORMALLY CLOSED	REF	REFERENCE	VA	VENTILATION AIR
AV	AIR VENT	DPS	DIFFERENTIAL PRESSURE SWITCH	GWH	GAS WATER HEATER	NIC	NOT IN CONTRACT	RF	RELIEF OR RETURN FAN	VAV	VARIABLE AIR VOLUME (BOX)
BFF	BELOW FINISHED FLOOR	DWH	DOMESTIC WATER HEATER	HDPE	HIGH DENSITY POLYETHYLENE	NO	NORMALLY OPEN	S	SINK	VERT	VERTICAL
BOF	BOTTOM OF FOOTING	EA	EXHAUST AIR	HORIZ	HORIZONTAL	NOM	NOMINAL	SA	SUPPLY AIR	VP	VACUUM PUMP
CI	CAST IRON	EF	EXHAUST FAN	HP	HORSEPOWER	OA	OUTSIDE AIR	SF	SQUARE FEET	VTR	VENT THRU ROOF
℄	CENTERLINE	ET	EXPANSION TANK	HRP	HYDRONIC RADIANT CEILING PANEL	OC	ON CENTER	SH	SHOWER	W	WATER
CLR	CLEAR	EWC	ELECTRIC WATER COOLER	HW	HOT WATER	OD	OUTSIDE DIAMETER	SIM	SIMILAR	Wb	WET BULB TEMPERATURE, °F
CONV	CONVECTOR	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		
dB	DECIBELS	FS	FLOOR SINK	MIN	MINIMUM	RAD	RADIUS	TYP	TYPICAL		

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 OWNERS REPRESENTATIVE 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.

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. COORDINATE CEILING MOUNTED EQUIPMENT AND ALL GRILLE, REGISTER AND DIFFUSER LOCATIONS WITH REFLECTED CEILING PLAN, LIGHTING, AND ALL OTHER CEILING MOUNTED DEVICES.
5. COORDINATE ALL RISES AND OFFSETS IN DUCTWORK AND PIPING PRIOR TO INSTALLATION.
6. LIGHT LINE WEIGHT INDICATES EXISTING PIPING, DUCTWORK, AND/OR EQUIPMENT TO REMAIN. BOLD LINE WEIGHT INDICATES NEW WORK TO BE INSTALLED IN THIS CONTRACT.

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MECHANICAL SYMBOLS LEGEND AND GENERAL NOTES

BUILDING FIVE
RENOVATE VBA CONFERENCE ROOM
VBA Lincoln, NE

Date	Checked by	Drawn by
February 22, 2012	MKL	SFP

Project Number: 636-12-803
Building Number: Five
Drawing Number: M0.0
Dwg. 4 of 9

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