

# MECHANICAL SYSTEMS

## GENERAL

Continuous maintenance is essential for the proper operation of mechanical equipment. Without proper preventative maintenance, the equipment usually fails when it is working the hardest and most needed. Mechanical system preventative maintenance is best handled by professionals skilled and specially trained in the operation and maintenance of heating, ventilating, and air-conditioning equipment.

This section includes general information and procedures essential to preventative maintenance of mechanical equipment. It is designed to be used as a monitoring tool. It is suggested that this technician review the operation and maintenance instructions provided by the manufacturer for each piece of equipment and add any pertinent items to the mechanical check lists which follow.

General preventative maintenance contracts should include the following:

- Water heaters, burners, valves, gauges, motors, pumps, compressors, exhaust fans, steam traps, ignition components, filters and safety devices
- Operation of the equipment
- Parts inventory
- Corrosion prevention for pipe connections, especially for steam pipe connections
- Calibration of temperature controls
- Fuel efficiency tests
- Air conditioning ventilation balancing
- Corrosion free electrical connection

## MECHANICAL SYSTEMS CHECK LIST

**BUILDING:**

**DATE:**

√		W	M	Q	S	A	COMMENTS
	Clean hot water heater and piping internally. Swab tubes with neutral oil as directed by the manufacturer's operating instructions.						
	Clean water side of steam. Use pressurized water jet and scrapers to remove any scale as directed by the manufacturer's operating instructions.						
	Fill tubes with water as required or annually.					X	
	Clean control box of all dust as required or annually.					X	
	Check operation of combustion air louvers which supply air to room.						
	Test water quality for pH, hardness, and corrosive compounds. Chemically treat as required or monthly.		X				
	Clean strainers as required or annually.					X	
	Test low water cutoff annually.					X	
	Check high steam pressure limit control.					X	
	Check low water level limit control.					X	
	Check pressure relief valve.					X	

**Abbreviation key:**

- W = Weekly
- M = Monthly
- Q = Quarterly
- S = Semi-annually
- A = Annually

**MECHANICAL SYSTEMS CHECK LIST – continued**

√	<b>AIR HANDLERS</b>	<b>W</b>	<b>M</b>	<b>Q</b>	<b>S</b>	<b>A</b>	<b>COMMENTS</b>
	Lubricate and grease all bearings, motors and fans.			X			
	Adjust all V-belts for proper tension. Replace all worn belts.			X			
	Check and clean air filters. Replace as needed.				X		
	Clean and adjust controls which operate valves and motorized dampers.				X		
<b>HEAT PUMPS</b>							
	Check all control valves for proper operation.				X		or as directed by manufacturer's operating instructions
	Inspect air filters and replace as required by the manufacturer.						
	Oil and lubricate motors.			X			
	Inspect, adjust, calibrate, and clean temperature control items.			X			
	Inspect heat exchangers.				X		
	Clean finned pipe surfaces.				X		
	Inspect coil casings for rust; clean and paint as required.						
	Inspect heating coil tubes.					X	
	Inspect heating coil mountings and tighten any loose bolts.					X	
<b>STEAM AND HOT WATER PIPING</b>							
	Open steam traps; replace worn or inoperative parts.				X		
	Replace valves and valve seats that are worn.					X	
	Inspect and repair any breaks in pipe insulation.		X				
	Inspect pipe hangers for tightness.					X	

**MECHANICAL SYSTEMS CHECK LIST – continued**

√	<b>STEAM AND HOT WATER PIPING</b>	<b>W</b>	<b>M</b>	<b>Q</b>	<b>S</b>	<b>A</b>	<b>COMMENTS</b>
	Inspect for steam and water leaks at valves and piping.		x				
	Test steam traps for by-passing.		x				
	Inspect for corrosion.		x				
<b>OIL TANK</b>							
	Clean oil strainer.		x				
	Clean sludge from tank.					x	
<b>BURNERS</b>							
	Clean oil strainers.				x		
	Check draft regulators for free movement.			x			
	Inspect induced draft fan and forced draft fan for alignment and wear on bearings.			x			
	Test combustion efficiency.			x			