SOMPO INTERNATIONAL
INSURANCE

Sompo Global Risk Solutions
Risk Control Services
Mechanical Room Inspections

A leading cause of water damage in commercial properties is water releases from equipment located in mechanical rooms – specifically boilers and domestic water heaters. Even a few drops underneath the boiler should be inspected as it can be symptomatic of larger issues. If left unattended, leaks can lead to significant property and equipment damage including the HVAC system. In an effort to reduce the chances for personal injury, property damage and business interruption associated with these types of water releases, formally documented and routine inspections and maintenance need to be conducted.

Hot Water Heating and Supply Boilers

Hot water heating and hot water supply boilers are the lifeline of most commercial buildings, especially during cold and freezing temperatures. If the boiler system was to fail, major property losses and damage associated with low building temperatures and freezing can occur. Formal and routine inspections and preventative maintenance should be implemented to not only reduce the exposure of a boiler failure, but to also help prevent water damage through early detection.

Common hot water heater and supply boiler areas to inspect and maintain include:

Pump:
The pump is an integral part of the boiler that constantly runs and circulates water throughout the boiler system. This continuous operating condition can cause the breakdown of the wearable components, such as valves and seals, resulting in pump failure and water leakage. To prevent this from occurring, pumps should be thoroughly inspected for any signs of damage and water leakage and if any is uncovered, you should contact a licensed and insured boiler repair firm.

Pipes:
Pipes carry heated and tempered water throughout the building, HVAC equipment, and domestic hot water heating systems. Pipes leading in and out of all equipment, including boilers, heat exchangers, air handling units, etc., should be thoroughly inspected for any kind of leaks. Areas where there is a transition of dissimilar piping materials (e.g., copper to black iron pipe), which can lead to accelerated corrosion associated with galvanic corrosion and electrolysis are of specific concern.

Safety Relief Valve (SRV):
The temperature and pressure SRV protect the boiler system from over-pressurization and high temperatures. A dripping SRV is a condition that may cause the valve to operate improperly, resulting in the SRV sticking in the open position or failing to open during an over-pressurization/temperature

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condition. The SRV is a critical safety component within the boiler safety system and any leaking condition should be addressed by a licensed and insured boiler repair firm.

Water Heaters:
Water heaters are an essential appliance that generate, store and transfer hot water for everyday domestic use. Although there is an increase in usage of instantaneous water heaters, the most widely utilized units generate and store hot water in quantities from 25 to over 100 gallons. A leaking water heater may seem like a minor nuisance, but it can quickly turn into a major problem.

Over time, sedimentation and deposits accumulate on the internal surfaces and bottom of the water heater and can not only corrode the tank liner and heater elements, but also insulate the heat transfer areas of the unit, resulting in inefficiencies, overheating and premature failures. Water quality, particularly water hardness, directly influences the amount of sediment. In areas that have high water hardness, consider utilizing water softeners and chemical treatments to manage and control this condition. Moving water can also result in excessive wear on the tank and piping components of the hot water unit. Lastly, water heaters with high set points produce hotter internal and working surfaces that can fatigue the unit.

Signs of problem areas and potential failure include water accumulation beneath the heater and/or a hissing or whistling sound, which could be a sign of a worn valve, rusty or discolored water, and chronic hot water shortages during periods of normal demand. If and when any of these conditions are identified, prompt and corrective action is required.

Water Heater Inspection

Formal, documented and regular inspections help identify issues of irregularity in their early stages, prolong the useful life of the unit, and minimize the chance of a catastrophic water heater failure. If leaks and/or inspection anomalies are identified, a licensed and insured plumber should be consulted to address the issue immediately. For more information on conducting mechanical room inspections and preventing water intrusion losses, contact Sompo International's Risk Control Department at grsriskcontrolquestions@sompo-intl.com.

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Mechanical Room Checklist

General Safety	Pass	Fail
1. Good housekeeping practices in place (i.e., free of debris and obstructions) and routine inspections conducted?	☐	☐
Comment:		
2. Walking surfaces free of tripping/slipping hazards?	☐	☐
Comment:		
3. Signs of leaks, spills or standing water?	☐	☐
Comment:		
4. Permanent ladders in good condition and guarded appropriately?	☐	☐
Comment:		
5. Ventilation adequate and screens clear?	☐	☐
Comment:		
6. Sprinkler heads prevented from being obstructed?	☐	☐
Comment:		
7. Are authorized areas clearly labeled and communicated to staff members?	☐	☐
Comment:		

Machine Guarding	Pass	Fail
1. Machine and belt guards in place and in good condition?	☐	☐
Comment:		
2. All power tools properly guarded to prevent accidental contact?	☐	☐
Comment:		

Egress	Pass	Fail
1. All exit doors unobstructed?	☐	☐
Comment:		
2. All exit doors able to be opened from the inside without special knowledge/keys?	☐	☐
Comment:		
3. All aisle and exit ways free of obstructions?	☐	☐
Comment:		

Fire	Pass	Fail

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1. Room free of combustible and flammable materials?	☐	☐
Comment:		
2. Fire extinguishers clearly identified?	☐	☐
Comment:		
3. Access to fire extinguishers clear and unobstructed?	☐	☐
Comment:		
4. All extinguishers in place and properly mounted?	☐	☐
Comment:		
5. Are carbon monoxide and/or smoke detection systems installed in appropriate areas and correctly?	☐	☐
Comment:		
6. Hot work permits are obtained when required (as necessary)?	☐	☐
Comment:		
Electrical	**Pass**	**Fail**
1. Is there at least 36-inch clearance in front of electrical panels/breaker boxes?	☐	☐
Comment:		
2. Are switches and circuit breakers properly identified as to the service they are in and to what they control?	☐	☐
Comment:		
3. Are electric hand tools properly grounded/double insulated?	☐	☐
Comment:		
4. Are all cords/plugs free from damage or deterioration?	☐	☐
Comment:		
5. Are cover plates in place on junction boxes to eliminate exposed wiring?	☐	☐
Comment:		
6. Is electrical equipment (such as switchboards and control panels) properly labeled with Arc Flash Warning Labels?	☐	☐
Comment:		
7. Is temporary wiring and/or improper use of extension cords in place?	☐	☐
Comment:		
8. Are items being stored on and/or around air cooled/dry transformers?	☐	☐
Comment:		
Piping	**Pass**	**Fail**
1. Is all piping appropriately identified as to contents/direction of flow?	☐	☐
Comment:		

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2. Are hot pipes and surfaces guarded against contact and clearly marked “HOT”?	☐	☐
Comment:		
3. Are bump hazards (low hanging pipes or ducts) labeled or padded?	☐	☐
Comment:		
Boiler Systems	**Pass**	**Fail**
1. Storage tanks, water heaters or other vessels have appropriate drainage overflow pans?	☐	☐
Comment:		
2. Do the Safety Relief valves discharge to a floor drain or outside?	☐	☐
Comment:		
3. Are the location of water shut off valves known?	☐	☐
Comment:		
4. Are water shut off valves maintained in good operating condition?	☐	☐
Comment:		
5. Are there any water shut off valves in need of service or replacement?	☐	☐
Comment:		
6. Are there any signs of leaks around the circulating pumps?	☐	☐
Comment:		
7. Is boiler equipment properly identified, labeled, and/or tagged?	☐	☐
Comment:		
8. Is a valve chart, piping, and/or electrical chart displayed?	☐	☐
Comment:		

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