Use of Thermographic Cameras – Checklist

This Loss Prevention Standard document provides a checklist of items that can be checked using thermographic camera equipment or included within self-inspection programmes.

Version: 1.0
Date: 18th July 2025

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Introduction

Thermographic cameras capture infra-red radiation emitted, transmitted and reflected by objects. This can be used to help identify a range of faults and issues in the workplace, and help prevent breakdowns, stoppages, fires and fluid leaks. These issues include, but are not limited to:

- **Electrical Faults**. Overheating components, panels, circuits or outlets including fixed and portable equipment.
- **Hot Work Operations**. Can lead to ignition of combustible materials in proximity, and subsequent fire spread. Heat transfer during fire watch period.
- **Heating**. Over temperature, insulation failure, radiated heat warming of stock in proximity, blocked radiators.
- **Lighting**. Radiated heat, overheating ballasts, warming or igniting stock or other combustible materials in proximity.
- **Batteries**. Defective charging equipment, over-heating batteries, waste battery stores/bins, damaged batteries, returned or recycled batteries, faulty emergency lighting.
- **Vehicle Charging**. Faults with forklift or electric vehicle (EV) charging equipment.
- **Plant and Machinery**. Faulty or overheating cooking and oven equipment, power tools, use of volatile chemicals or other agents, recycling processes, friction heat from faulty rotating components or bearings.
- **Housekeeping**. Storage of gas cylinders in the open, smoking waste, areas where inappropriate housekeeping can lead to overheating e.g. electrical or heating systems.
- **Self-heating**. Oily or solvent infused rags etc., can self-heat and ignite; stacked damp or drying laundry; combustible metals.
- **Solar Photovoltaic (PV) Equipment**. Overheating or under-performing solar PV panels, inverters and other associated equipment.
- **Escape of Water and Other Fluids**. Leaking pipes, faulty fixtures and appliances, damp and/or condensation; pressurised gas systems.
- **Heating and Cooling Systems**. Damaged or faulty boiler equipment, filtration plant, water tanks, air conditioning systems and air movement, refrigerators/freezers etc.
- **Insulation.** Hot and cold spots where insulation is used to retain hot or cold temperature environments.
- **Damp and Water Ingress.** Gutters, window and door frames, wall and flooring systems.

Aviva Loss Prevention Standard, **Use of Thermographic Cameras - General Considerations**, provides an overview of the technology, the benefits, training and accreditation recommendations, along with guidance on including thermographic camera checks into self-inspection programmes.

However used, whether informally as part of simple or regular daily and weekly checks, thermographic cameras can help identify many issues before they develop into failures,

breakdowns, cause wider damage or even a fire. Introducing a thermographic camera into day to day activities can be very beneficial and significantly reduce the risks to any business.

This document provides a sample checklist of the common items which can be checked/inspected to maximise the benefits of thermographic camera equipment, and can be amended to suit organisational needs.

Use of Thermographic Cameras - Checklist

Location	
Date	
Completed by (name and signature)	

	Electrical	Y/N	Comments
1.	Distribution boards		
2.	Isolation switches		
3.	Circuit breakers		
4.	Junction boxes		
5.	Switchgear cabinets		
6.	Busbars		
7.	Cable joints		
8.	Power generators		
9.	Transformers		
10.	Lighting systems including switches		
11.	Power outlets (when loaded)		
12.	Extension Leads (when loaded)		
13.	Electric Motors		
14.	Cable conduits		
15.	Earthing systems/cables/connectors		
16.	Plugs		
17.	Server cabinets and racks		
18.	Data cabling		
19.	Uninterrupted power supplies		
20.	Fire alarm panels and other fire protection systems		
21.	Other		

	Hot Works	Y/N	Comments
22.	Work area (over-heating, radiated heat)		
23.	Permit issue (normal temperature checks)		
24.	During works and post works (fire watch – cooling rate of 'worked on' materials, smouldering/ignition of materials, conducted heat to other areas), hot work equipment (cooling rate)		
25.	Other		

	Heating/Cooling	Y/N	Comments
26.	Boilers (hot spots, insulation damage)		
27.	Hot spots on panel heaters, radiators (air locks and scale/residue build-up)		
28.	Hot water tanks (blockages, insulation damage, stratification)		
29.	Flues (blockages and other damage)		
30.	Underfloor heating (broken heating chains/leaks)		
31.	Pipework (blockages, air locks)		
32.	Trace heating (faults and damage, insulation issues)		
33.	Heating oil tanks (overheating, leaks)		
34.	Thermostats and thermocouples (operating temperature checks)		
35.	Heat exchangers, ventilation systems		
36.	Portable heaters (overheating, heat emissions, radiated heat to other items)		
37.	Sauna equipment (heaters, thermostats)		
38.	Building insulation (energy efficiency, ESG etc.)		
39.	Other		

	Battery Powered/Charging	Y/N	Comments
40.	Electric vehicle charging (towers/outlets, vehicle charging sockets)		
41.	Forklift charging (chargers, cables and batteries)		
42.	Powered pallet trucks (chargers, cables and batteries)		
43.	Floor cleaners (chargers, cables and batteries)		
44.	Scanning equipment		
45.	Power tools		
46.	Camera equipment		
47.	Tablets / Mobile telephones / radios		
48.	Electronic point of sale (EPOS)		
49.	Vehicle batteries (defective chargers and batteries)		
50.	Electric bicycles and scooters		
51.	Battery Energy Storage Systems (operating temperatures, switchgear, modules, cooling systems)		
52.	Returned or recycled batteries		
53.	Damaged batteries		
54.	Batteries on charge		
55.	Charging cables		
56.	Other		

	Lighting	Y/N	Comments
57.	High powered lighting (heat emissions and radiated heat to other materials/surfaces		
58.	Defective starter motors and ballasts		
59.	Switches and junction boxes		
60.	LED lighting		
61.	High-Intensity Discharge (HID) Lamps		
62.	Recessed lighting		
63.	Other		

	Plant and Machinery	Y/N	Comments
64.	Ovens and cooking equipment (oven temperatures, thermostats, door seals, oil temperatures, product temperatures, insulation failure)		
65.	Pumps (over-temperature)		
66.	Conveyors (friction, over-heating motors, waste accumulation, belt misalignment)		
67.	Moving parts (friction, bearing failure, over-heating components or materials, long production runs)		
68.	Presses (unexpected heat generation)		
69.	Refrigeration equipment (condensers, insulation, liquid leaks, temperature leaks)		
70.	Mobile plant (engine bays, processing equipment and motors e.g. conveyors, hydraulics etc.)		
71.	Machinery temperature monitoring (over-heating components, excessive energy usage)		
72.	Heating ventilation air conditioning equipment		
73.	Fans and blowers		
74.	Equipment bearings		
75.	Equipment packing glands		
76.	Gearboxes		
77.	Modified atmosphere packing lines		
78.	Other		

	Building and Water Ingress	Y/N	Comments
79.	Door frames		
80.	Window frames		
81.	Eaves and apexes		
82.	Guttering		
83.	Roof deck		
84.	Floor and ceiling voids		
85.	Other		

	Housekeeping	Y/N	Comments
86.	Smoking areas (receptacles and loose waste)		
87.	Stock and raw materials storage areas (self-heating, seeding)		
88.	Waste areas (combustible fluids/materials overheating)		
89.	Laundry (damp, drying or dry) and associated equipment (self-heating, ventilation)		
90.	White goods (washing machines, tumble dryers, refrigerators etc)		
91.	Gas cylinders (Leaks, overheating)		
92.	Other		

	Escape of Water/Fluids	Y/N	Comments
93.	Tanks or vessels		
94.	Appliances e.g. washing machines, dishwashers etc.		
95.	Sanitary fittings (e.g., toilets, sinks, basins, showers etc.)		
96.	Pipework (including concealed behind dry walling/cladding systems.)		
97.	Valves including stopcocks		
98.	Regulators		
99.	Seals and joints		
100.	Internal areas behind external soffits, gutters, flat and/or aged roofing etc		
101.	Surfaces under and in proximity to such fittings		
102.	Areas of staining or damp		
103.	Flat roof areas		
104.	Other		

	Solar PV Systems	Y/N	Comments
105.	Modules/panels (where safely accessible – hot spots)		
106.	Connectors (over-heating)		
107.	Isolation switches/switchgear (over heating)		
108.	Cables and cable terminations		
109.	Inverters (overheating, cooling, heat dispersal)		
110.	Meters (defective electrical components/wiring)		
111.	Control panels		
112.	Auxiliary components		
113.	Other		

18th July 2025

Version 1.0

ARMSGI3272025

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