FACT SHEET Thermographic scan

Each year insurance companies receive a significant number of claims, worth millions of dollars, as a result of fire. Many originate in switchboards and could potentially be prevented by conducting a thermographic scan.

The electrical switchboard is the hub of your electrical system, directing electricity from one or more sources to all your appliances and electrical fittings. It's generally comprised of several panels each containing separate circuits controlled and protected by switches.

Switchboards must comply with current Australian standards including AS/NZS 61439.1: 2016 and AS/NZS 3000:2007 which sets out the minimum requirements including wiring, fault protection and access.

Understand the risks

Any electrical switchboard, regardless of age, is a potential ignition source. As electrical systems begin to have problems, heat is emitted. A noise or hum, or perhaps some warmth coming from the board is a tell-tale sign that something is wrong, but in the majority of cases the fault is imperceptible without the proper equipment.

Costly claims and property damage can be avoided if these hot spots are located and identified before they turn into a potential fire hazard. The cost of replacing a faulty switch is likely to be very little compared to the damage it could cause.

Conduct a thermographic scan

The most effective way to identify hot spots in an electrical switchboard is to have a thermographic scan conducted by a qualified electrician.

Thermal scanning is a non-invasive diagnostic technique. An infrared camera converts infrared radiation (heat) emitted from the surface of electrical equipment into electrical impulses, without the need to shutdown electrical supply.

These impulses are mapped as colours which represent the various temperatures, identifying equipment flaws and pinpointing any hot spots well before they progress into an electrical equipment failure or electrical fire.

The image that is produced can pinpoint the exact electrical component that is at fault including:

- Loose bolted connections
- Worn contacts
- Inadequate contact pressure
- Overloads
- Imbalanced circuits
- Faulty equipment
- Damaged circuits
- Faulty fuses

It will also show if any components are reaching a point where they are likely to fail.

The following temperature differentials are used to evaluate thermographic scan results

Hazard	Risk
0°C to 10°C	Continue to monitor on a regular basis
10°C to 20°C	Repair at next convenient opportunity
20°C to 40°C	Repair immediately
>40°C	Failure imminent; shut down for repair

It's good practice to conduct a thermographic scan annually as part of a regular, routine maintenance program. The frequency will be dictated by the use of the electrical switchboard

Practical help

AS/NZS 61439.1: 2016 Low-voltage switchgear and controlgear assemblies - General rules

AS/NZS 3000:2007 Electrical installations (known as the Australian/New Zealand Wiring Rules)

To access Australian Standards visit:
www.standards.org.au

Document Source: Catholic Church Insurance Limited