

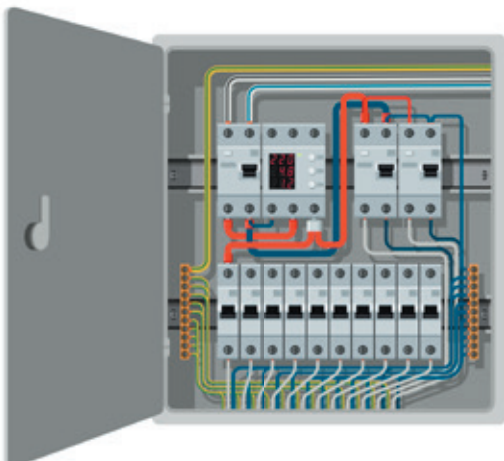
Electrical switchboards are a core component of any electrical infrastructure.

They are also a significant fire ignition source. According to the International Association of Fire and Rescue Services (CTIF), electrical fires account for 35% of fires in the world that require firefighter intervention within buildings. Every electrical installation deteriorates through use and over time. Often overlooked, electrical overload and faulty electrical installations are some of the major causes of fire which can result in significant damage and business interruption.



What is an electrical switchboard?

An electrical switchboard houses switches and circuit breakers that control the flow of electricity from the mains supply to different parts of the electrical system.



Key components include:

- main switch/isolator - controls the flow of electricity to the entire electrical system.
- circuit breakers – electrical cables can overheat from excess power which can result in fire. Provided on each circuit, breakers will interrupt current flow when it exceeds a predetermined value.
- safety switch or residual current device (RCD) - monitors the flow of electricity through the circuit, detecting imbalances which can occur due to a leak to earth. A person making direct contact with electricity due to a faulty appliance for example, may cause the leak. RCD's protect people from electric shock by cutting the supply to that circuit very quickly (typically around 0.3 seconds).
- earth electrode - a metal rod fitted into the ground and connected to the switchboard. Will safely discharge an overflow or excess of electricity from a poorly insulated or electrically faulty device.

What can you do?

- **Maintain adequate clearance around switchboards (1 m minimum)**

Updates to AS/NZS 3000:2018 (Wiring Rules) includes the requirement to keep 1 m minimum clearance distance from all faces of a closed switchboard that needs to be accessible.

Of particular importance is maintaining clearance from any combustible materials, removing potential fuel in the event of a fire. Combustible materials are those that will ignite and burn when exposed to fire, including but not limited to: timber, plastic, paper, rubber and cardboard.

Maintenance of this clearance should be reinforced by regular, routine inspection. In some instances it may be necessary to provide a physical barrier such as a fence or railing for example, to assist in preventing combustibles from encroaching upon the switchboards.

- **Enclose the switchboard within a non-combustible cover or cabinet**

The cover or cabinet will assist in limiting the spread of a fire from the switchboard, as well as protecting individuals from possible direct or indirect electric shock. So keep it locked and only accessible by authorised persons. An enclosure will provide protection from physical damage, vibrations, the ingress and accumulation of dust, moisture and vermin.

- **Cleaning as part of your maintenance program**

Dust build-up on electrical switchboards can cause overheating and insulation failure, increasing fire risk. To maintain a clean condition within, include cleaning as part of your inspection and maintenance program.

- **Install impact protection to protect from damage caused by vehicles**

Impact damage may result in fire initiation and in turn has the potential for extensive business interruption. Review traffic flow, including material handling movement. Where necessary, provide substantial protection in the form of steel bollards/fencing for example.



- **Establish a preventative maintenance program**

A formal preventative maintenance program including thermographic scanning by suitably qualified professionals and periodic electrical safety audits will assist in reducing the risk of fire by identifying and rectifying electrical faults and concerns before a loss occurs.



The inclusion of testing and tagging of leads, power boards and equipment as well as the installation of additional hardwired power points as a safer, permanent alternative to temporary power boards and extension leads, will also assist in risk mitigation.

References:

1. International Association of Fire and Rescue Services (CTIF)
2. www.fallonsolutions.com.au/handy-hints/switchboard-features-what-they-do
3. RM Insight issue 59 – Infrared thermographic scanning.
4. RM Insight issue 45 – Powerboards and Double Adaptors.