



Laser[®]

Plumbing & Electrical



Professional Development
For Property Managers
Electrical Essentials

Our Team



Electrical Essentials for Property Managers

- One** Introduction
- Two** Relevant Electrical Legislation
- Three** Common electrical components & issues
- Four** Required maintenance and compliance
- Five** Reducing power consumption & efficiencies
- Six** Knowledge Quiz



Electrical Essentials for Property Managers

- Why electrical knowledge is essential for property managers.
- Common electrical challenges in commercial buildings.
- What you will learn today:
 1. Understanding Electrical Systems – Key terminology and components of an electrical system.
 2. Key Switchboard Components – Overview of main switchboard parts and their functions.
 3. Common Switchboard Issues – Typical problems found in commercial switchboards.
 4. Maintenance & Compliance – How to ensure electrical systems remain safe and up to standard.
 5. Electrical Compliance – Important documents and regulations property managers should be aware of.
 6. Commercial Solar Installations – Key considerations, benefits, and trends.
 7. Electrical Knowledge Quiz – Test your understanding with a quick multiple-choice quiz.

Relevant Electrical Legislation

All residential Electrical work is governed by: The Electricity Act 1992, and the following standards

- **AS/NZS 3000:2018:** Also known as the Australian/New Zealand Wiring Rules, this standard covers the design, construction, and verification of electrical installations.
- **AS/NZS 3760:2014:** Covers the in-service safety inspection and testing of electrical equipment.
- **AS/NZS 3001:2008:** Covers electrical installations in transportable structures and vehicles.
- **AS/NZS 3017:2007:** Covers electrical installations verification guidelines.
- **AS/NZS 3019:2007:** Covers electrical installations periodic verification.
- **AS/NZS 3820:2009:** Covers essential safety requirements for electrical equipment.

Electrical Systems

What can you do yourself?

Electricity Act 1992 Exemption for domestic electrical wiring , Section 79 ([link](#))

WorkSafe does not recommend that a consumer does any of their own electrical work unless they have the necessary skills and knowledge. However, as a member of the public, the law allows homeowners to carry out some of their own electrical work.

Conditions: you must own and live in the property to undertake low voltage electrical installations when there is no payment or reward.

Employers, employees, landlords, tenants and school staff (including caretakers) cannot carry out electrical work in their workplace or any rented property unless they are registered electrical workers and hold current practicing licenses.

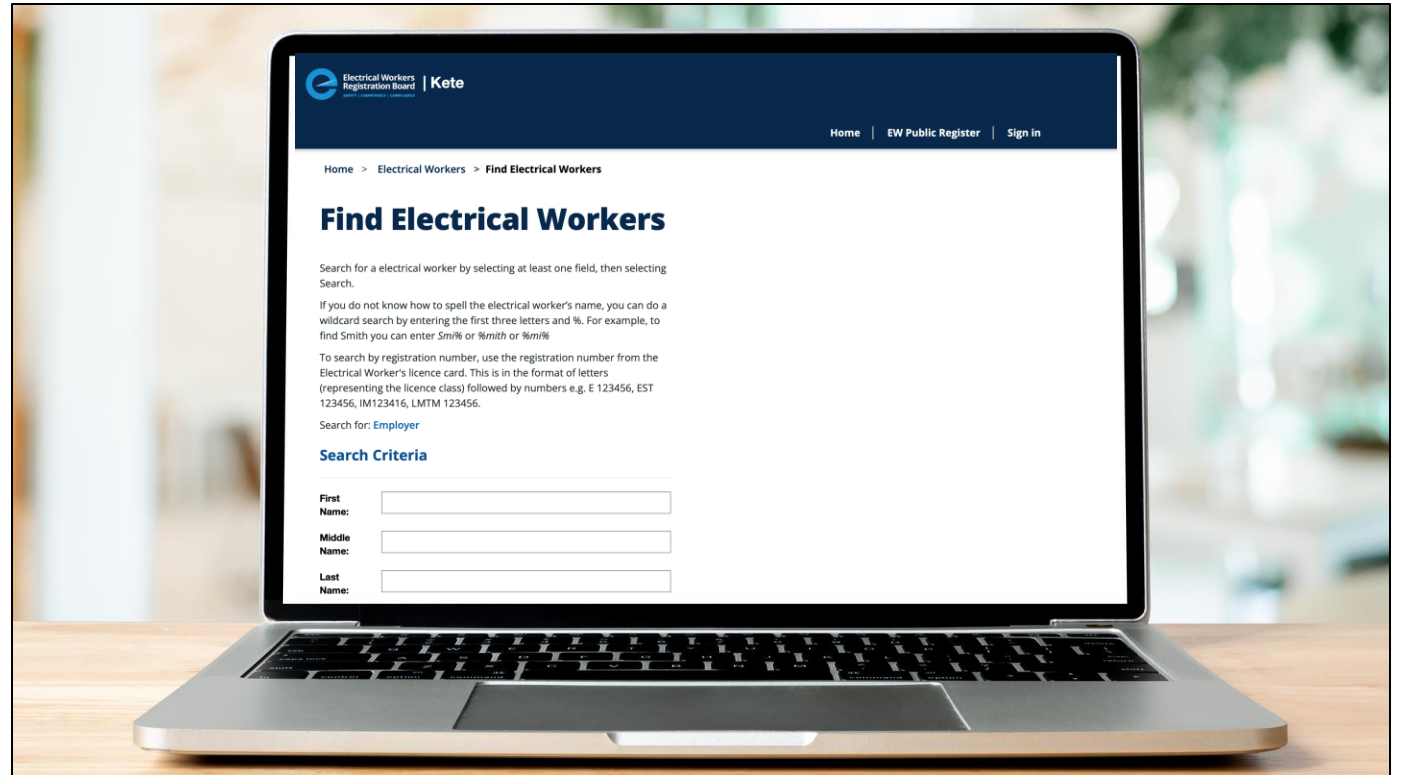


Know your electrician

How do I know if someone is really a registered electrical worker with a current practicing license?

Visit MBIE's Electrical Workers Register

<https://kete.mbie.govt.nz/EW/EWPRSearch/>

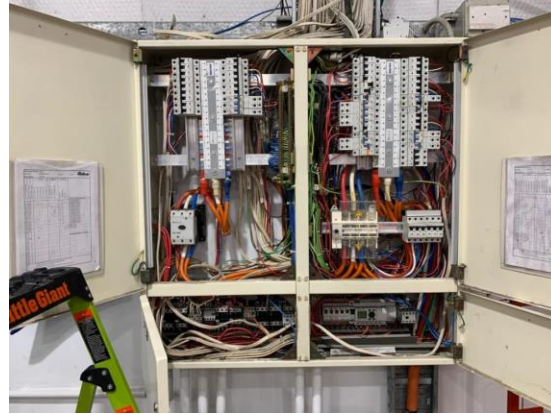


Understanding Electrical Systems

Point of Supply
(Transformer, Pillar, Plinth, Pit)



Commercial Switchboard (MSB)



Residential Switchboard



Commercial Distribution Board



Older residential switchboard

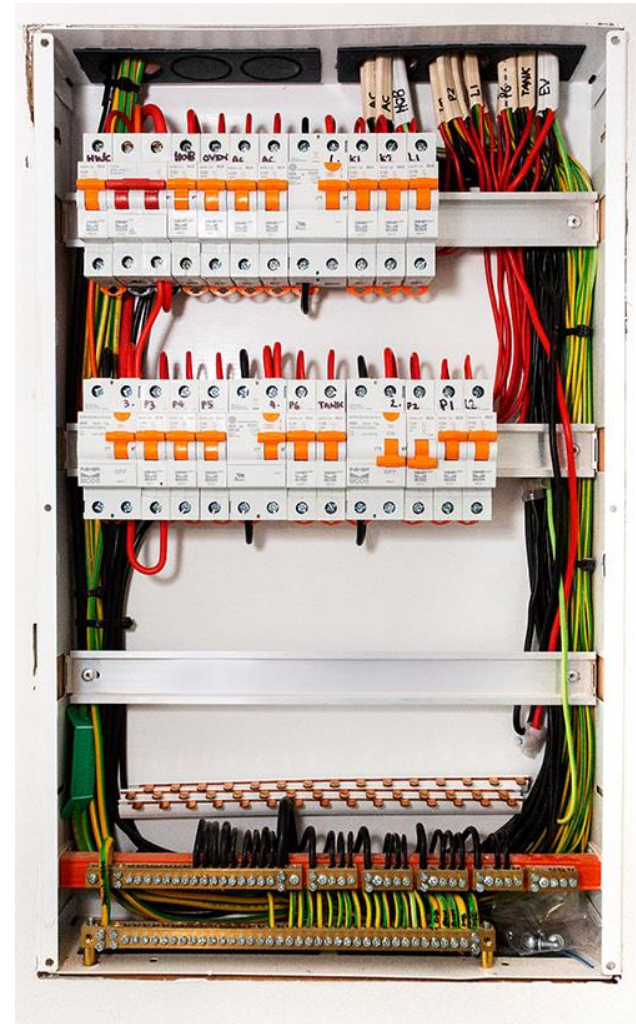


Residential Meter Box



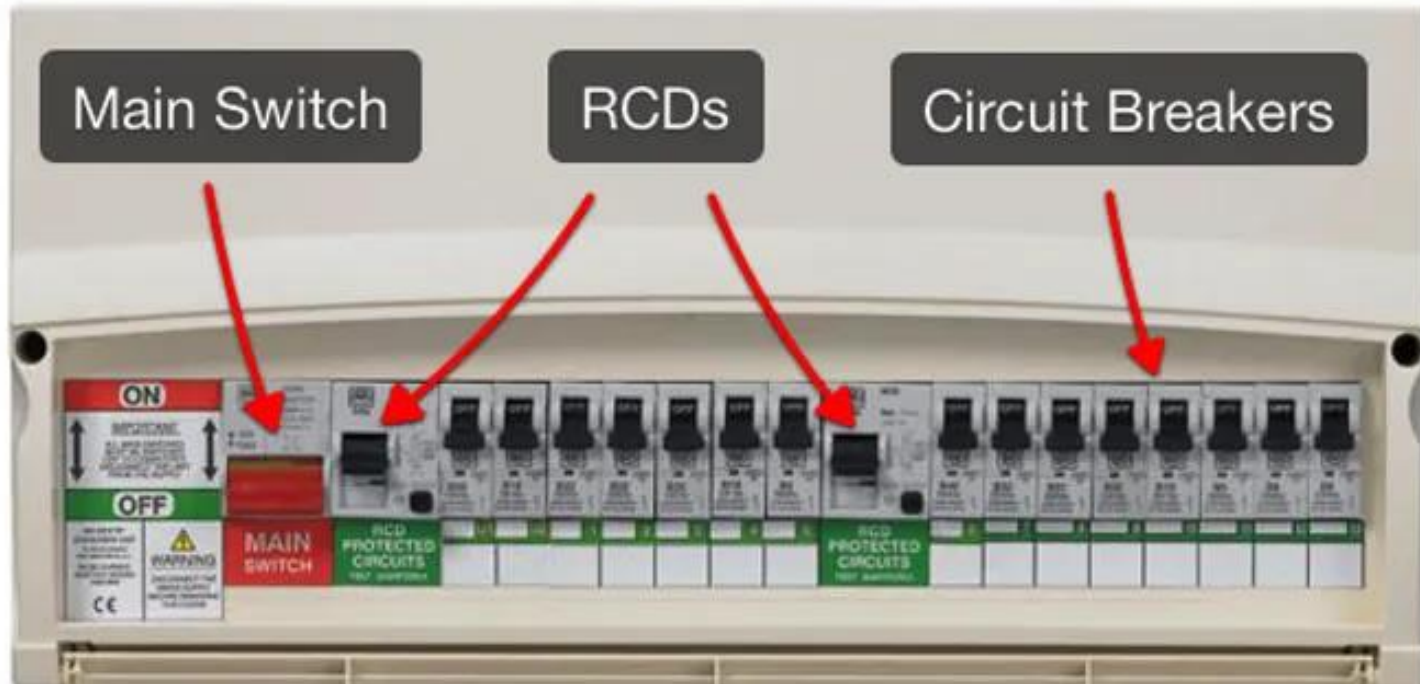
Understanding Switchboards

- The main hub that distributes power throughout a building.
- Ensures safe and efficient power distribution.
- Has devices to protect against overloading and electrical fire or faults



Understanding Switchboards

- Main switch: Controls power supply to the building.
- Circuit breakers (MCBs): Protect against overloads and short circuits.
- Residual Current Devices (RCDs): Protect against electric shock.

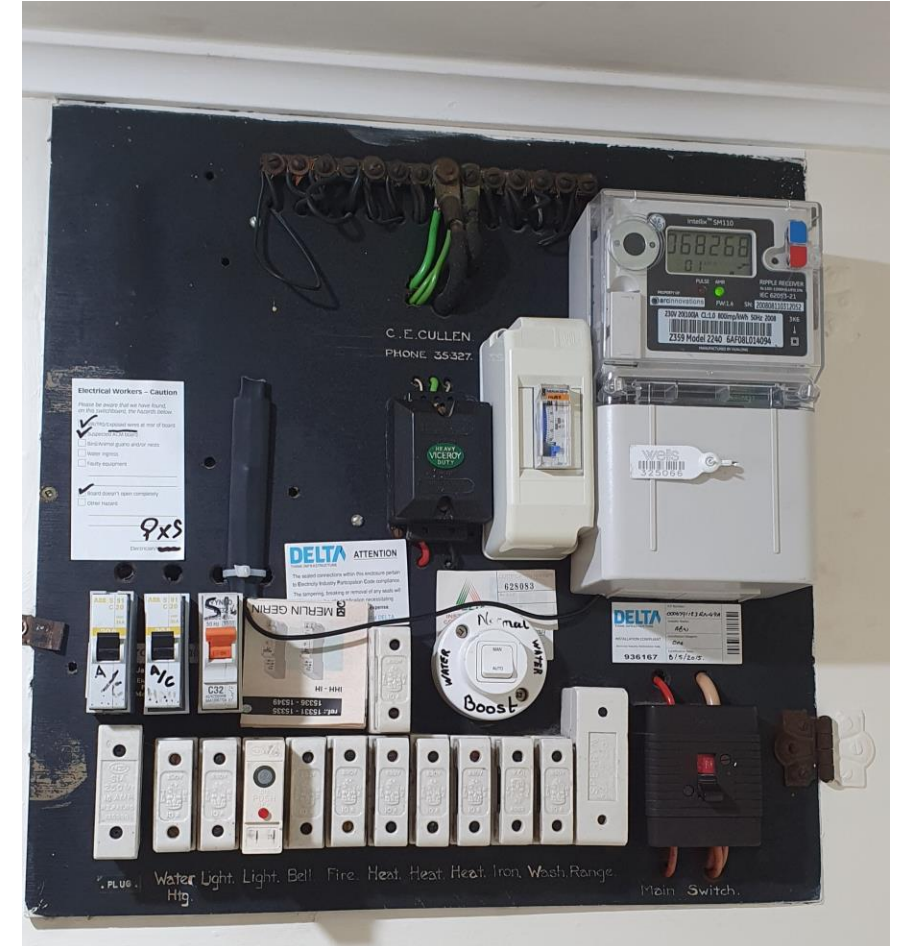


Understanding Switchboards

Common Switchboard Issues

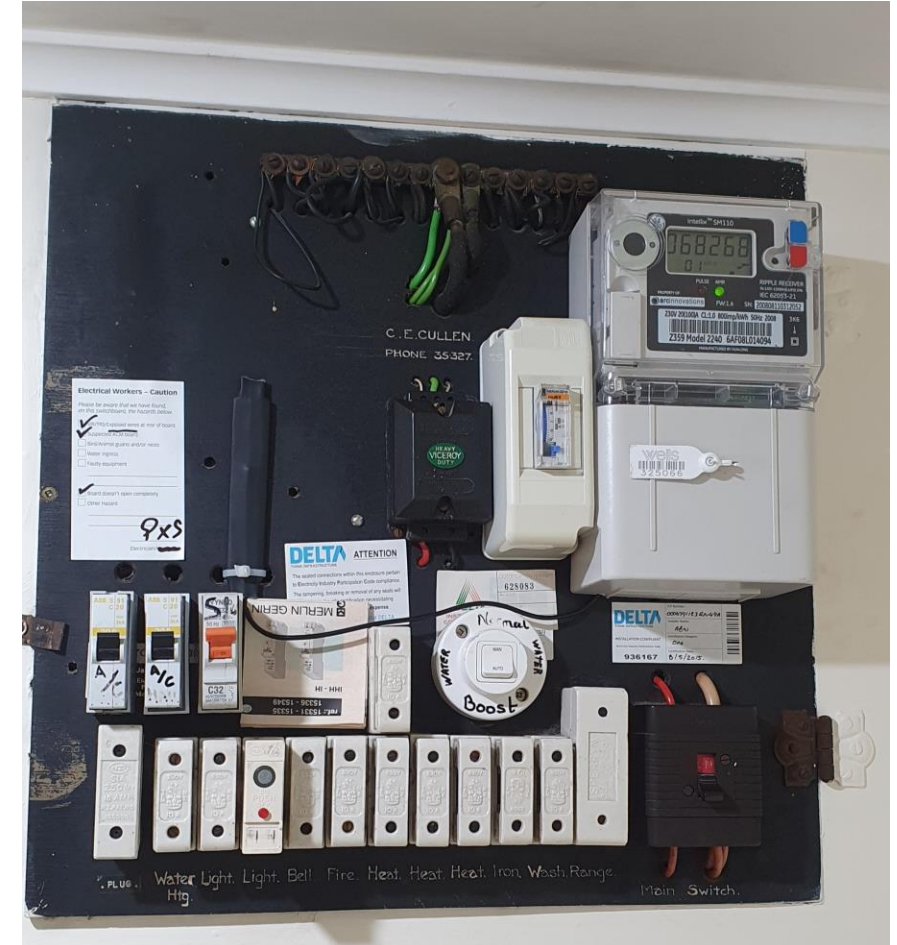
- Overloaded circuits causing frequent trips.
- Ageing switchboards that don't meet modern safety standards.
- Loose connections leading to flickering lights, power fluctuations or complete power loss.
- Lack of labeling, making troubleshooting difficult.
- Items stored in front of switchboards making access difficult or dangerous

Question: A circuit breaker has tripped, should you just reset it?



Understanding Switchboards Maintenance & Compliance

- **Regular inspections:** Recommended COV every 5 years for commercial properties. Insurance companies will sometimes recommend more often.
- **Upgrading outdated switchboards:** Safety and efficiency benefits. Proactive replacement is cheaper and quicker. Switchboards have an expected life of 25-30 years.
- **Proper labeling of circuits:** Helps in troubleshooting and repairs.



Electrical Compliance Documents

Code of Compliance (COC)



Certificate of Compliance (Reference: [Worksafe link](#))

Electricians must issue a Certificate of Compliance (CoC) to customers when doing any fixed wiring work, including fitting new power points. CoCs are not issued for maintenance work, such as replacing sockets and light fittings or repairing appliances.

Keep your CoC in a safe place as a record of the work done on your property. It is an important document and may be required for insurance claims.

A CoC guarantees that the work:

1. has been completed by a licensed electrician
2. meets safety standards set by law, and
3. has been tested.

ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

REFERENCE/CERTIFICATE ID No.: _____

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details: _____

Contact Details:
(Name and address) _____

Name of Electrical worker: _____ **Registration/Practising licence number:** _____

Phone & email: _____

Name and registration number of person(s) supervised: _____

Certificate of Compliance

Type of work: Addition Alteration New work
The prescribed electrical work is: Low risk General High-risk (Specify): _____

Means of compliance: Part 1 of AS/NZS 3000 Part 2 of AS/NZS 3000
Additional Standards or electrical code of practice were required: No Yes (specify): _____

Date or range of dates that prescribed electrical work undertaken: _____

Contains fittings that are safe to connect to a power supply? Yes No

Specify type of supply system: _____

The installation has an earthing system that is correctly rated (where applicable) Yes No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?
 All Parts (specify) _____

The work relies on manufacturers instructions: Yes No
If yes - identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.
(Or provide reference to readily accessible electronic format, eg internet link.)
Identify: _____
Link: _____

The work has been done in accordance with a certified design: Yes No
If yes - identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.
(Or provide reference to readily accessible electronic format, eg internet link.)
Identify: _____
Link: _____

The work relies on a Supplier Declaration of Conformity (SDoC): Yes No
If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.
(Or provide reference to readily accessible electronic format, eg internet link.)
Identify: _____
Link: _____

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010 No Yes

Description of Work: _____

Test Results (provide values)	
Polarity	
(Independent earth):	
Insulation resistance:	Ohms
Earth Continuity:	Ohms
Bonding:	Ohms
Fault Loop Impedance:	Ohms
Other (specify):	

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature: _____ **Date:** _____

Electrical Safety Certificate

By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name: _____ **Registration/Practising licence number:** _____

Certifier's signature: _____ **Certificate Issue Date:** _____ **Connection Date:** _____

CUSTOMER COPY - THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS


This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

Electrical Compliance Documents

Electrical Safety Certificate (ESC)

This Electrical Safety Certificate provides a legally recognisable statement that the connected installation or part installation, or any fitting that supplies an installation or a part of an installation, is safe to use following prescribed electrical work.

Where CoCs are not issued for maintenance work, ESCs are issued instead.


ELECTRICAL SAFETY CERTIFICATE	
	REFERENCE/CERTIFICATE ID NO.: <input type="text"/>
<small>This Electrical Safety Certificate provides a legally recognisable statement that the connected installation or part installation, or any fitting that supplies an installation or a part of an installation, is safe to use following prescribed electrical work.</small>	
Location Details:	<input type="text"/>
Contact Details: <small>(Name and address)</small>	<input type="text"/>
Details of work:	<input type="checkbox"/> The whole installation <input type="checkbox"/> Part of the installation
Description of work:	<input type="text"/>
Date of connection:	<input type="text"/>
<small>By signing this document I certify that the installation, or part of the installation, to which the Electrical Safety Certificate applies is connected to a power supply and is safe to use.</small>	
Certifier's name:	<input type="text"/>
Certifier's signature:	<input type="text"/>
Email:	<input type="text"/>
Registration/Practising licence number:	<input type="text"/>
Certificate Issue Date:	<input type="text"/>
Organisation/Company:	<input type="text"/>
CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS	
<small>This electrical safety certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.</small>	

Electrical Compliance Documents

Record of Inspection (ROI)

The Record of Inspection is a formal document detailing an inspection of high-risk prescribed electrical work (PEW). Such as mains work or solar installations.



 RECORD OF INSPECTION (ROI) OF HIGH-RISK PRESCRIBED ELECTRICAL WORK
PURSUANT TO THE ELECTRICITY (SAFETY) REGULATIONS 2010

Reference/Record ID Number:

Issuer (Inspector) details:

Name of Inspector: Registration #:
Email address: Telephone:

Location of installation:

Location details:
Location type: Domestic Non-Domestic Accommodation Industrial Commercial
 Educational Healthcare Miscellaneous (other)

Certifying Electrical Work and Certificate of Compliance (CoC) details:

Name of Electrical worker(s): Registration #:
CoC details: CoC(s) attached

Certifying Electrical Work and Roi details:

What was inspected:

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

What are the results of the inspection:

High Risk Category:

Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) Photovoltaic system – 6A(2)(a)(iv) Electrical medical area – 6A(2)(a)(vi)
 High voltage installation – 6A(2)(a)(ii) Hazardous area – 6A(2)(a)(v) Mains work – 6A(2)(b)
 Mains parallel generation – 6A(2)(a)(iii) Animal stunning or meat conditioning – 6A(2)(c)
 Other – please describe:

Declaration
I hereby confirm that the work described above has been done in accordance with the regulations; and the installation on which the work has been done is, and will be, when energised, electrically safe.

Signature: Date:

Record of Inspection (ROI) – Version: May 2014

Electrical Compliance Documents

Certificate of Verification (COV)

An electrical Certificate of Verification (COV) for residential property can often be requested by insurance companies during the sale & purchase of property. In particular, older properties are more likely to receive a request for a COV from an insurance company. Insurance compliance is normally a vital requirement for banks to sign-off on mortgage settlement. Also, homes that have been without power for 6 months or more may need a COV from the retailer prior to reliving. The purpose of the electrical COV is to verify the condition and safety of the electrical circuits in the property.

CONNECTION / RECONNECTION / FINAL CONNECTION / ENLIVENING VERIFICATION

Installation compatible with supply system Address: _____ PostCode: _____

Installation last disconnected / isolated for 6 months or more apply Regulation 73(2)(2) **OR** this is an independent inspection for property owner **OR** other: _____

Where inspection required by others (Reg 73) I have verified inspection completed on CDC: _____ COC No: _____

Was New PEW carried out on installation - Reg 6(7)(2) on mains OR other: _____ I have sighted CDC: _____ COC No: _____

DOC Installation on CDC: _____ Other: _____

CHECKS	LOCATION	VISUAL	INSULATION / RES RESULTS	IF SUPPLY IS MAIN EARTHING SYSTEM PRESENT	POLARITY OF SUPPLY CORRECT	MULTI PHASE CORRECT	PROTECTION OF SUPPLY ROTATION CORRECT CORRECTLY SATED
Mains	<input type="checkbox"/> OH						
	<input type="checkbox"/> LG						
MEN							
Main Earth							

Verification by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____
 Meter Installer Safety check / test or DDC available Date: ____/____/____ Signature: _____ Registration No: _____
 Company / EMP Licence: _____
 Smart Meter installed ICP No: _____ Retailer: _____

Final connection by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____
 Enlivened by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____

Comments: _____

Electrical Workers Registration Board
SAFETY | COMPETENCY | COMPLIANCE

VC No: _____

CONNECTION / RECONNECTION / FINAL CONNECTION / ENLIVENING VERIFICATION

Installation compatible with supply system Address: _____ PostCode: _____

Installation last disconnected / isolated for 6 months or more apply Regulation 73(2)(2) **OR** this is an independent inspection for property owner **OR** other: _____

Where inspection required by others (Reg 73) I have verified inspection completed on CDC: _____ COC No: _____

Was New PEW carried out on installation - Reg 6(7)(2) on mains OR other: _____ I have sighted CDC: _____ COC No: _____

DOC Installation on CDC: _____ Other: _____

CHECKS	LOCATION	VISUAL	INSULATION / RES RESULTS	IF SUPPLY IS MAIN EARTHING SYSTEM PRESENT	POLARITY OF SUPPLY CORRECT	MULTI PHASE CORRECT	PROTECTION OF SUPPLY ROTATION CORRECT CORRECTLY SATED
Mains	<input type="checkbox"/> OH						
	<input type="checkbox"/> LG						
MEN							
Main Earth							

Verification by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____
 Meter Installer Safety check / test or DDC available Date: ____/____/____ Signature: _____ Registration No: _____
 Company / EMP Licence: _____
 Smart Meter installed ICP No: _____ Retailer: _____

Final connection by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____
 Enlivened by: _____ Date: ____/____/____ Network Co / Contractor: _____
 Registration No: _____

Comments: _____

Electrical Workers Registration Board
SAFETY | COMPETENCY | COMPLIANCE

VC No: _____

Electrical Workers Registration Board
SAFETY | COMPETENCY | COMPLIANCE

Certificate of Verification

VC No: _____

INSTALLATION DETAILS

Client: _____ Address of installation (to which this certificate refers): _____ Postcode: _____

THIS CERTIFICATE COVERS VERIFICATION OF:

- An existing electrical installation following disconnection from supply for greater than 6 months (Reg 73 Electrical Inspector)
- An existing installation of a caravan park in accordance with Reg 75 & AS/NZS 3001:2008 (Electrical Inspector)
- An existing installation of a boat marina in accordance with Reg 75 & AS/NZS 3004:2008 (Electrical Inspector)
- An existing installation on which no work has been carried out and is not subject to Regulation 73
- An MEB system of installation
- Existing Mains work

DETAILS OF INSTALLATION VERIFICATION:

NOTE:
The COV does not satisfy the obligations under regulation 66(2)(b) if the person carries out prescribed electrical work, to have the work certified. Also refer Reg 71(3) (a) (iii) Inspector of Prescribed Electrical Work & 74(3) Reconnection or restoring supply to certain low voltage installations.

CERTIFICATION:
I have carried out a verification of the above installation in accordance with AS/NZS 3019:2007 and I certify the installation meets the requirements detailed in section 3, 4 or 5 of AS/NZS Standard for the issue of a Certificate of Verification.
AS/NZS 3019:2007 in accordance with Section 3 Section 4 Section 5
Name (name person who carried out the verification): _____
Registration Class and Number: _____ Date: ____/____/____
Signature: _____

CLIENT COPY (LEAVE IN METER BOX)

Electrical Workers Registration Board
SAFETY | COMPETENCY | COMPLIANCE

Certificate of Verification

VC No: _____

INSTALLATION DETAILS

Client: _____ Address of installation (to which this certificate refers): _____ Postcode: _____

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AS/NZS 3019:2007 in accordance with Section 3 Section 4 Section 5
Name (name person who carried out the verification): _____
Registration Class and Number: _____ Date: ____/____/____
Signature: _____

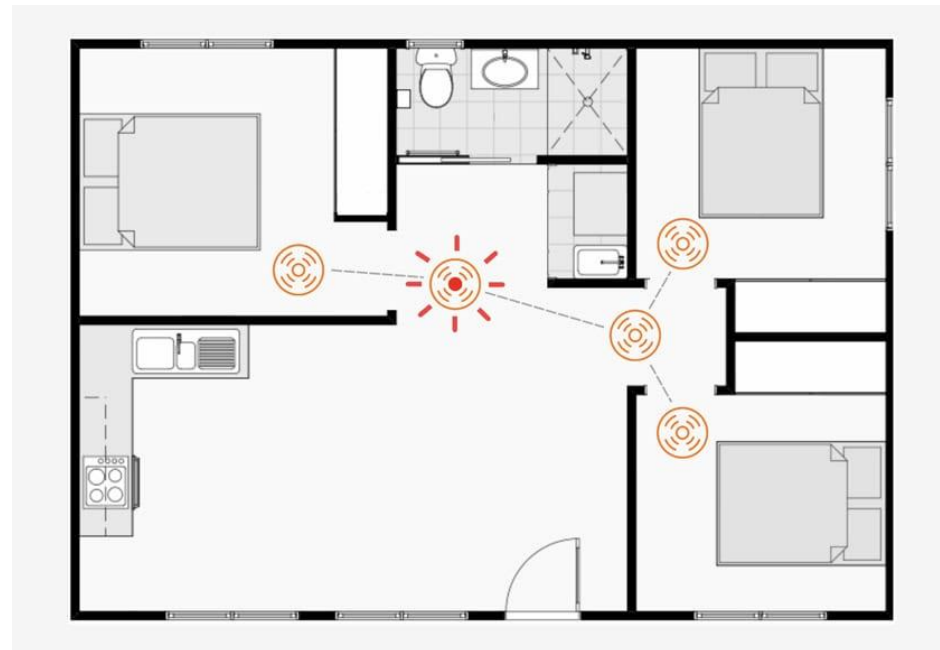
CERTIFIERS COPY

Prepare for Changes in Legislation

Smoke Alarms

Smoke alarms need to be checked annually by pressing the 'test' button. Smoke Alarm legislation changed in November 2024. All new homes must have interconnected alarms, with one in each bedroom, living space and on each floor of a multi level home.

When replacing Smoke Alarms, it would be sensible to buy smoke alarms that can be interconnected so that over time each property will provide a greater level of protection. Interconnected smoke alarms cost approximately the same as non-interconnected alarms.



Electrical

Reducing Power Consumption

Solar Power Systems

The cost of solar power equipment and installation is now approx. $\frac{1}{4}$ of the purchase price in 2020, making the repayment period now around 6 years, size dependent.

EV Chargers

- EV Chargers are becoming more and more common place. Our recommendation is to install a non-car brand charger to ensure future tenants are able to use the charger also.



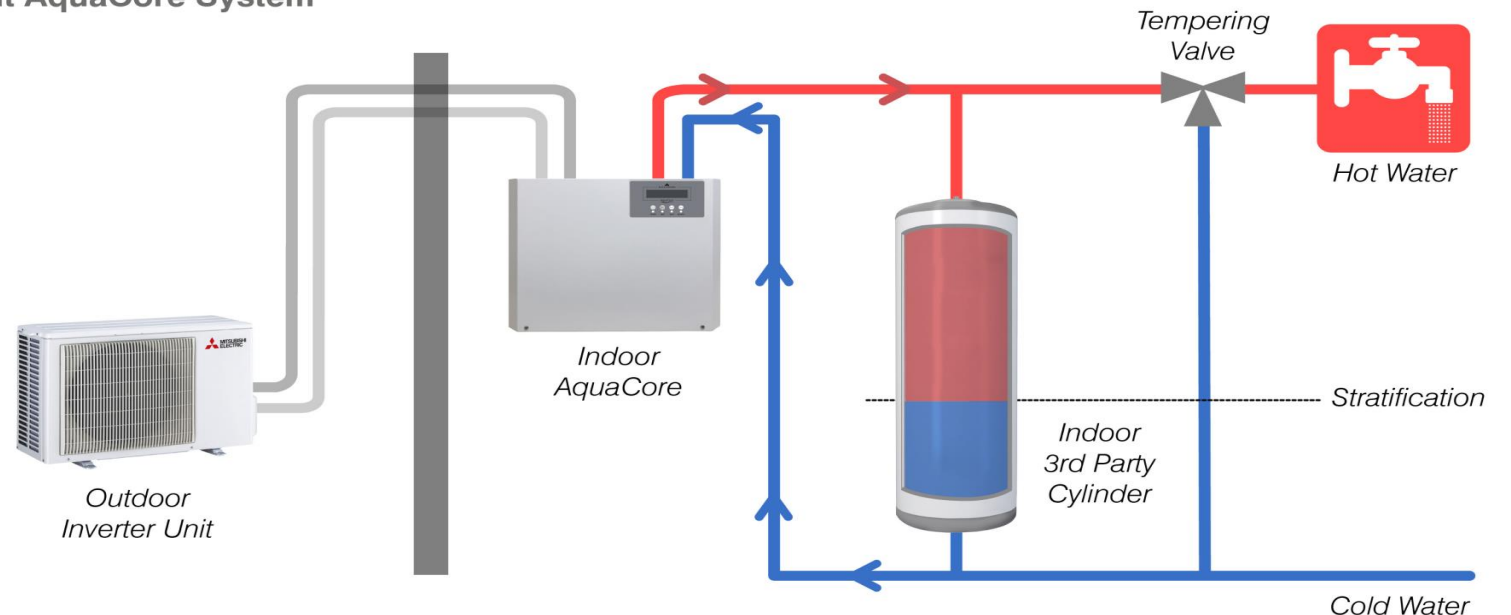
Electrical

Reducing Power Consumption

Hot water

Increasing energy bills, coupled with the need to heat our homes and hot water efficiently, is driving the demand for alternative forms of domestic water heating. On average, hot water and home heating needs combined account for over 67%*1 of the overall energy bill in New Zealand homes.

Split AquaCore System

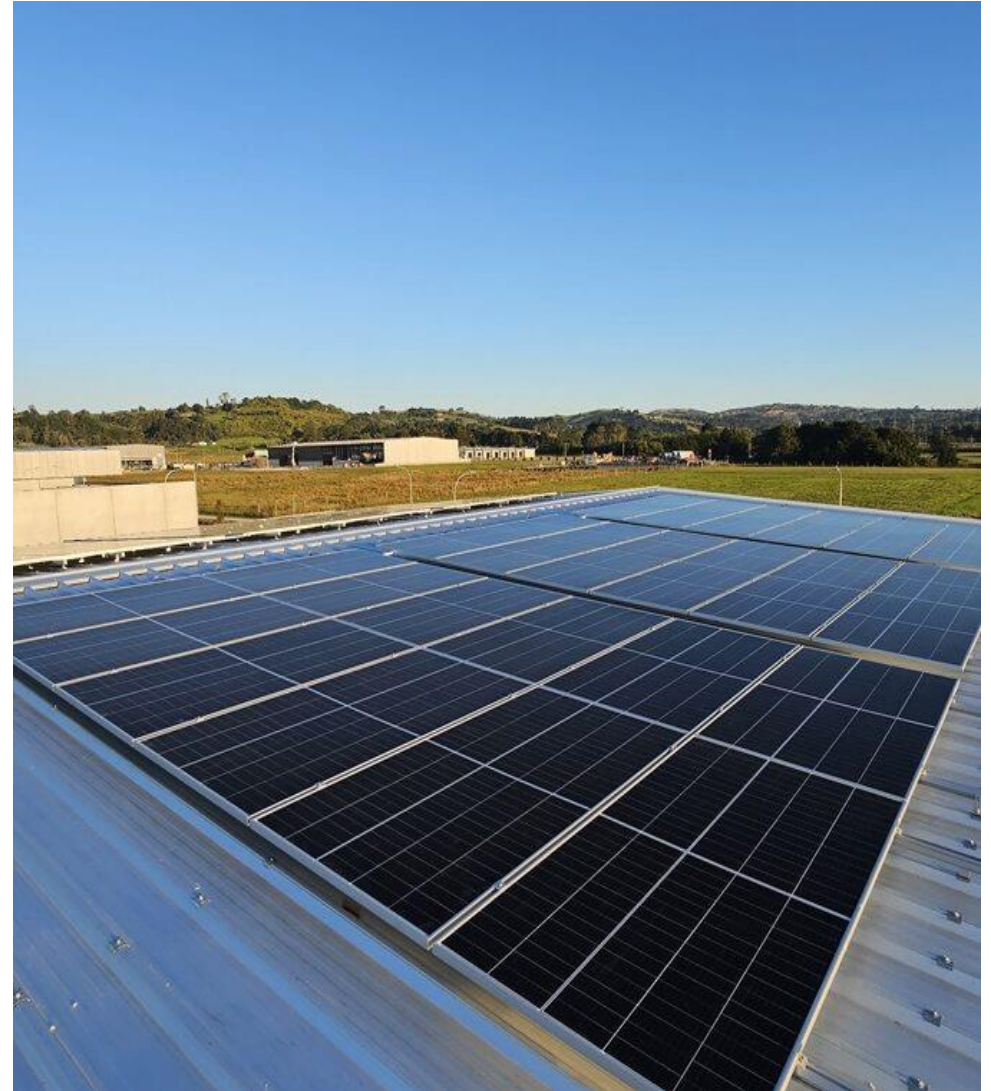


Electrical

Healthy homes

Combat Condensation & Prevent Overheating

Modern airtight homes can trap moisture-laden air in winter, leading to mould, and overheat in summer, creating uncomfortable living spaces. Revolutionised mechanical ventilation tackles both issues, ensuring fresh, filtered air, year-round comfort, and improved energy efficiency.



Commercial Solar Installations

Why consider solar?

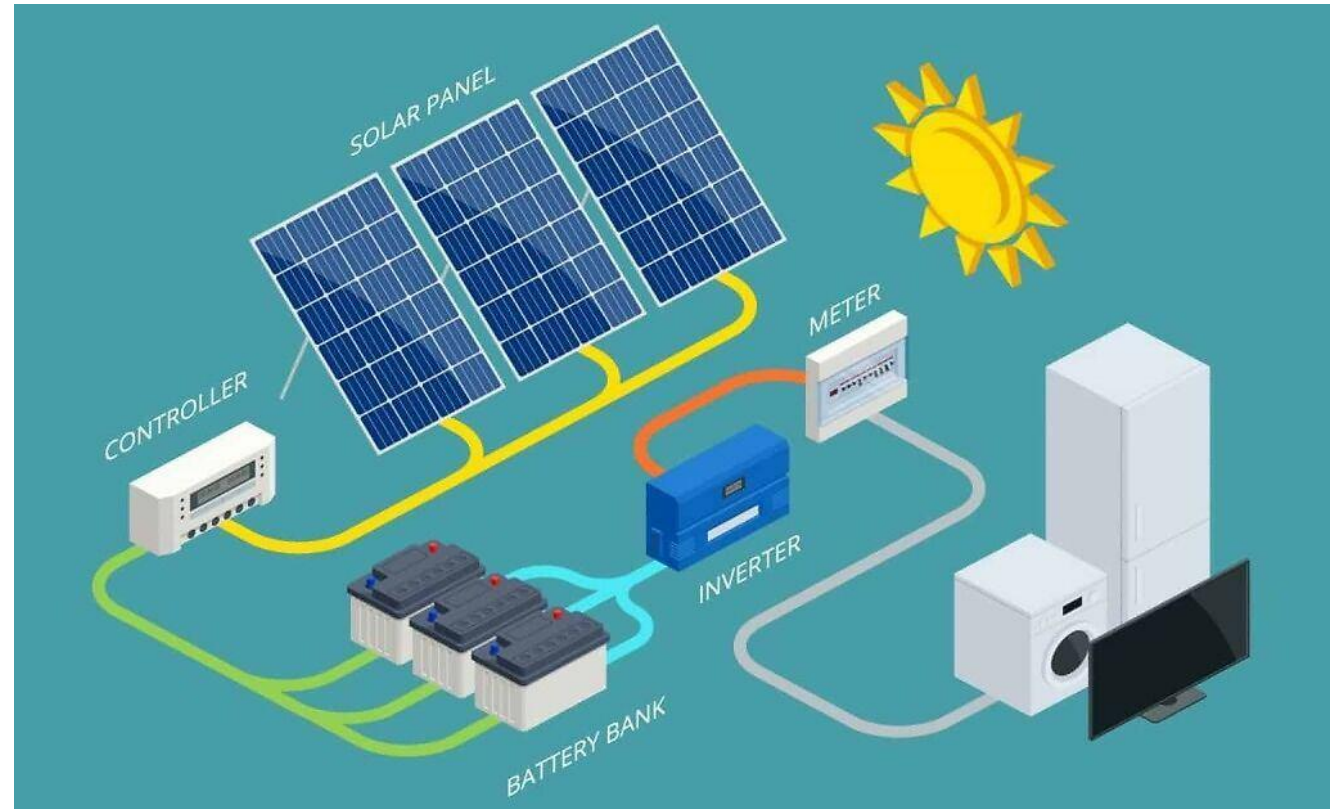
- Reducing energy costs for commercial buildings.
- Sustainability benefits and meeting environmental goals.
- Government incentives and rebates - No but not really required, payback is normally around 4-5 years
- Funding available through banks and other lenders



Commercial Solar Installations

Key Components of a Solar System

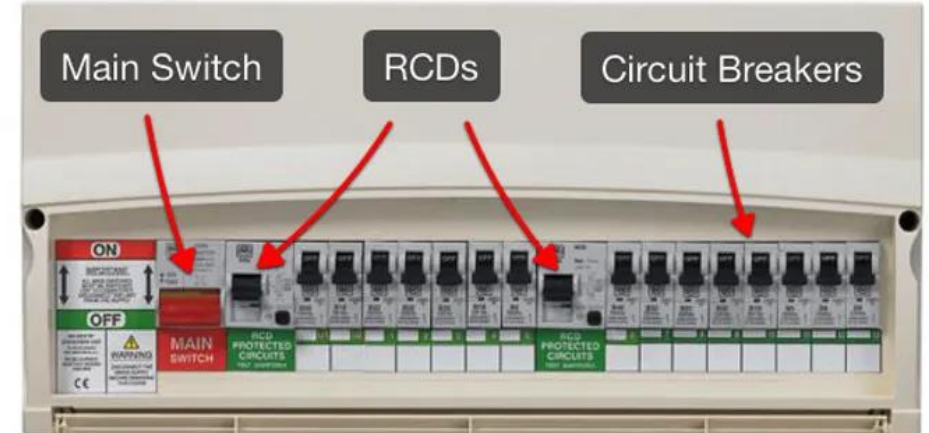
1. Solar panels – Convert sunlight into electricity.
2. Inverters – Convert DC power to usable AC power.
3. Batteries (optional) – Store energy for later use.



Electrical Knowledge Quiz

1. What is the purpose of a circuit breaker?
 - a. To turn off the lights
 - b. To protect against overloads and short circuits
 - c. To increase voltage
 - d. To store electricity

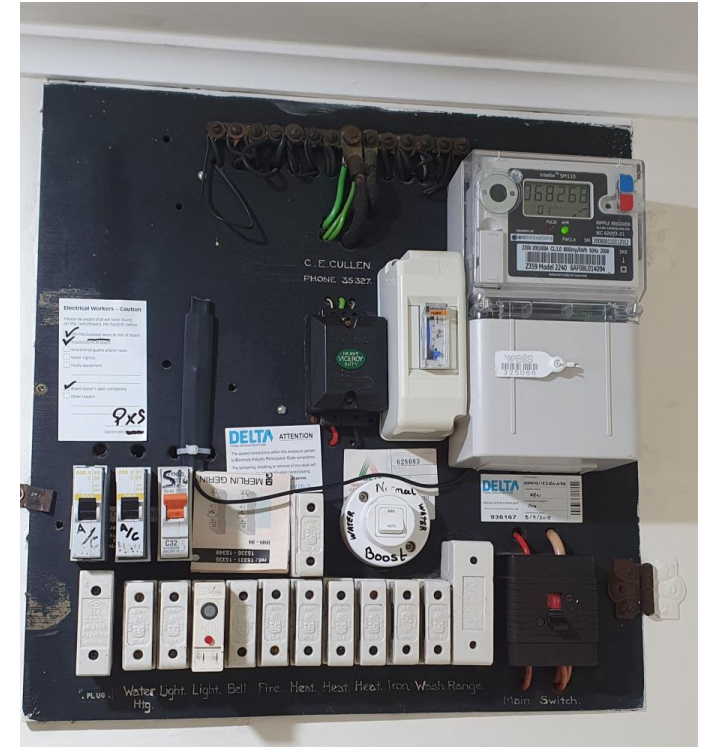
2. What's another term for a Distribution Board?
 - a. Transformer
 - b. Sub Board
 - c. Circuit Breaker Panel
 - d. Load Center



Electrical Knowledge Quiz

3. What is the life expectancy of a switchboard?
 - a. 10-15 years
 - b. 25-30 years
 - c. 40-50 years
 - d. Indefinite

4. Which of the following is NOT a compliance document?
 - a. COC (Certificate of Compliance)
 - b. ROI (Record of Inspection)
 - c. ABC (Appliance Building Certificate)
 - d. ESC (Electrical Safety Certificate)



ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

By signing this document I certify that the completed electrical work to which this Certificate of Compliance applies has been done in accordance with the Electrical Safety Regulations 2018 and the Electrical Safety Regulations 2018 (as amended) and that the work complies with the requirements of the Regulations.

Contact Details:
Name of electrical worker: _____ Registration/Practising licence number: _____
Phone & email: _____
Name and registration number of person(s) supervised: _____

Certificate of Compliance:
Type of work: Addition Alteration New work
 Line fit Service Job fit
Means of compliance: Part 1 of AS/NZS 3000 Part 2 of AS/NZS 3000
Additional standards or electrical code of practice were required: Yes No (specify): _____
Special type of equipment used: Yes No (specify): _____
The work complies with manufacturer's instructions: Yes No
The work has been done in accordance with a certified design: Yes No
The work complies with a Supplier Declaration of Conformity (SDC): Yes No
The installation has been substantially tested in accordance with the Electricity (Safety) Regulations 2018: Yes No

Description of Work:
Description of work: _____
Checked by: _____
Checked by: _____
Checked by: _____
Checked by: _____

By signing this document I certify that the completed electrical work to which this Certificate of Compliance applies has been done in accordance with the Electrical Safety Regulations 2018 and the Electrical Safety Regulations 2018 (as amended) and that the work complies with the requirements of the Regulations.

Electrical Safety Certificate:
By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Electrical worker: _____ Supervisor: _____
Name: _____ Name: _____
Signature: _____ Signature: _____

CUSTOMER COPY - THIS IS A SUPPORT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS.
This document is not valid if it is not signed by the electrical worker and the supervisor.

Electrical Knowledge Quiz

5. What is a common sign of a loose electrical connection?
- a. Flickering lights
 - b. Increased electricity bills
 - c. Lower power output
 - d. Silent switchboards



Key Takeaways

1. Get to know your building's switchboard and key components.
2. Schedule regular maintenance to prevent issues.
3. Proactively upgrade outdated switchboards for safety and compliance.
4. Consider solar energy as a cost-saving and sustainability solution.





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