Curtin University

Permit to Work Guide

Electrical LV Isolation

This guide is intended for Curtin University's Contractors, Vendors, University Staff, Students, and Permit Managers*. The information contained in the guide is to assist Permit Applicants in successfully obtaining a permit by understanding Curtin's minimum requirements.

Permit Applicants will have control over the way work is undertaken and will be operating under their own safety management system. This includes the responsibility to put in place appropriate control measures to eliminate risks so far as is reasonably practicable, or, if it is not reasonably practicable to eliminate risks, to minimise health, safety, and operational risks, so far as is reasonably practicable.

**A Permit Manager is a person trained and authorised by Curtin University to approve permits.*

properties.curtin.edu.au/working-with-us

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BEFORE PERMIT APPLICATION

1.1 Permit information

Electrical LV Isolation Permit
To be issued for any disruption or shut-down of the LV switchboard **OR** any notifiable electrical installation work **OR** when an activity requiring an LV circuit to be de-energised that will have an impact on multiple groups of stakeholders, sensitive equipment or critical research projects or infrastructure.

Examples:
Disconnecting and reconnecting of electricity supply to electrical installations; replacement of service apparatus; de-energising LV switchboard to install a circuit breaker / RCD or LV isolation for demolition activities.

Please note:
Permit to be submitted minimum **2 business days** prior to commencement of activity, a longer notice period is strongly encouraged.

1.2 Ensure:

- ☐ Contractor Company Status is COMPLIANT on Rapid Global (where applicable).
- ☐ Worker(s) have completed induction(s) for Curtin University (where applicable).
- ☐ Contractor Company and worker(s) hold required licenses and competencies to do the task (where applicable).

1.3 Plan & Consult

- ☐ Discuss works with Permit Manager to investigate potential impacts of the service isolation and identify relevant stakeholders.
- ☐ Engage with relevant Curtin University stakeholders to agree on isolation methodology.
- ☐ Identify all potential hazards associated with the works and outline control measures.
- ☐ Use stakeholder feedback received to prepare required documents for permit application.
- ☐ Consider if other permits are required, i.e. Working at Height Permit.

Please note:
Consultation with the relevant Curtin stakeholders prior to lodging the permit application is integral when planning a service isolation on campus.

LODGING PERMIT APPLICATION

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2.1 Submit Application

https://properties.curtin.edu.au/working-with-us/permits/

- ☐ **Location Plan (showing location of intended isolation and affected areas).**
- ☐ **Services Plan / Survey Information.**
- ☐ **Work methodology.**
- ☐ **Risk Management Plan or Safe Work Method Statement (SWMS).**

2.2 Important

- Ensure only competent and licensed business / workers carry out electrical work.
- It is not permitted for electrical work to be performed on or near an exposed energised part of an electrical installation that can be de-energised.
- Ensure correctly rated and calibrated test equipment is used to prove there is zero voltage present when verifying electrical isolations.
- Electrical apprentices working under a training license cannot apply for electrical access and will not be approved to obtain electrical keys.
- An approved Electrical LV Isolation Permit does not mean that the electrical service will be isolated by a Curtin staff member on the permit start date.
- A separate maintenance work order (**10 business days notice**) is to be raised to request attendance of an Operations & Maintenance staff member to attend site to isolate the service.

Please note:
Submission of permit does not constitute an approval. No works are to commence until approval notice email is received.

2.3 Issue Permit

- ☐ Permit Manager approves permit when they are satisfied applicant has met all relevant requirements.
- ☐ Work may begin based on the documentation submitted with the application and in accordance with the conditions outlined in the issued permit.

Please note:

- **Isolation Procedure** – the Permit Applicant must follow a suitable and compliant isolation (lock-out/tag-out) procedure when performing energy source isolation.
- **Pre-work Verifications** - A procedure to check that the equipment / service is completely isolated from all sources feeding the service is required, i.e “test before you touch”.

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AFTER PERMIT APPROVAL

3.1 Conduct Works

The Permit Holder will have control over the manner in which work is undertaken and will be operating under their own safety management system to effectively manage the risks involved.

If any issues arise, stop works and escalate to Permit Manager (note: not SCC). Works may only proceed once the issue is resolved.

Please note:
Before commencing any work, it is essential that the required service isolation is verified to be effective.

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AFTER WORKS ARE COMPLETED

4.1 Close Permit

- ☐ Permit Holder to notify Permit Manager once all works pertaining to the permit are finished.
- ☐ Inspect the area to ensure no hazards remain as a result of the works.
- ☐ Where applicable, Permit Holder to send through relevant documentation to Permit Manager to close the permit, i.e an Electrical Safety Certificate submitted by the electrical contractor at the completion of the work.

Frequently Asked Questions (FAQ)

1. What is the difference between Low Voltage (LV) and High Voltage (HV)?

Low Voltage (LV) is a nominal voltage *between* 50V AC / 120V DC - 1000V AC / 1500V DC.

High Voltage (HV) is a nominal voltage *exceeding* 1000V AC / 1500V DC.

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2. When do I need an LV Isolation Permit?

An LV Isolation Permit is required when:

i) Disrupting or shutting down the LV switchboard, i.e de-energising the LV switchboard to install a circuit breaker / RCD or to carry out demolition activities;

OR

ii) An electrical contractor intends to carry out or cause any notifiable electrical installation work to be carried out;

OR

iii) An activity or situation requiring an LV circuit to be de-energised that has an impact on multiple groups of stakeholders, sensitive equipment or critical research projects or infrastructure.

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3. Do I need an LV Isolation Permit for adding one socket outlet (or light point) to the same or different existing final sub-circuits?

An LV Isolation Permit may not be required if all of the following conditions are met prior to doing the works:

- Electrical contractor doing the work is deemed to have met all the licensing and competency requirements by Building Energy Western Australia and Curtin University; **and**
- Investigation of surrounding areas and consultation with relevant stakeholders to ensure there are no unforeseen impacts to the identified users in the area; **and**
- A risk assessment or SWMS which details the necessary controls to eliminate or minimise the risks must be completed. It should include the “Test before you touch” principle and a Lock Out Tag Out process.

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4. What licences and qualifications do I need to isolate LV equipment?

The electrical business must hold a current Electrical Contractor Registration and License and be registered with Curtin University as a contractor and have completed the contractor induction in Rapid.

To isolate any Low Voltage circuit, the worker must hold a current Australian issued A Grade Electrical License.

Frequently Asked Questions (FAQ)

5. What are some of the dangers working with electricity?

The most common electrical risks and causes of injury are:

- Electric shock causing injury or death (all electric shocks are potenthially fatal).
- Burns from arcing, explosion or fire (typically applies to low voltage circuits close to transformers or switchboards).
- Falls from ladders, scaffolds or elevated work platforms (EWPs) as a direct consequence of an electric shock.
- Poisoning from toxic gases causing illness or death.
- Fire resulting from an electrical fault.

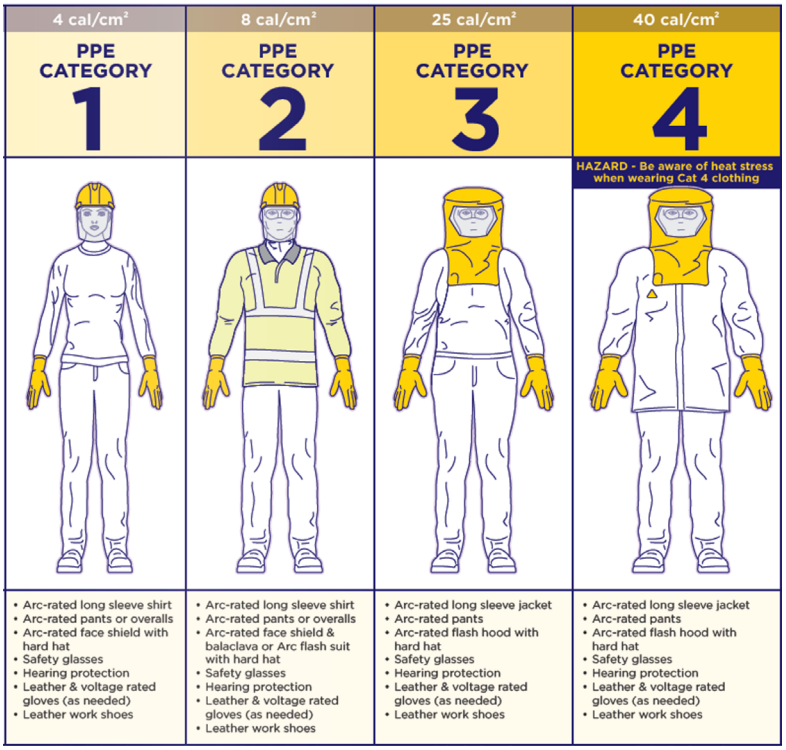
It only requires a very small failure of a work practice, such as a slip with a screwdriver or a dropped tool, for such accidents to occur.

6. What PPE do I need to complete an LV Isolation?

The specific PPE required to complete an isolation is dependant on the arc flash rating of the equipment as well as the voltage of the circuit. It is important to remember that isolation is not just the act of switching off a supply, but also includes testing for dead and any other operations undertaken in the process such as racking out circuit breakers or removing covers.

The arc flash rating of electrical equipment is typically located on the switchboard and will define the arc flash PPE levels required for these operations. Be aware that some sub-boards and distribution boards may not have been assessed for arc flash PPE ratings. In this case it is best to abide by the arc flash PPE rating stated on the main switchboard supplying the sub board.

If the circuit being isolated is Low Voltage then the appropriately rated and insulated PPE, tooling and test equipment shall be used at all times.



Frequently Asked Questions (FAQ)

7. How long can I isolate the LV system for at Curtin?

The duration of the Isolation required is to be carefully considered as this has a significant impact on Curtin University assets, its tenants and patrons.

There are three (3) types of Electrical Isolations that can be carried out:

Type 1) **Daily Isolation**.

Type 2) **Extended Isolation - With Daily reinstatement**.

Type 3) **Extended Isolation - With No Daily reinstatement**.

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8. What are the differences between the 3 types of LV isolations?

i) **Daily Isolation** - An isolation that will be completed and reinstated within a single day.

ii) **Extended Isolation With Daily Reinstatement** - An isolation that will occur over multiple consecutive days, with the service reinstated each day.

iii) **Extended Isolation With No Daily Reinstatement** - An isolation that will occur over multiple consecutive days, without being reinstated each day.

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9. Who are the relevant stakeholders?

The electrical network at Curtin University is managed by the following:

- Infrastructure Management team - Electrical
- Service Manager, Electrical

Before any electrical work can be completed on campus, either one or both of the teams need to be consulted. This step is essential to ensuring a permit can be raised and an isolation can occur safely and with minimal disruption to all stakeholders.

Frequently Asked Questions (FAQ)

10. Does Curtin University have a Lock Out Tag Out procedure (LOTO)?

Yes, this document can be found on the Curtin Health & Safety website – it outlines methods and equipment to be used to achieve safe and effective isolations.

Please note:

- Always verify that isolations have been completed successfully before starting work.
- Tags act as warnings and a mean of providing vital information to others at the workplace.
- All required details on the tag must be clearly and permanently entered in the spaces provided, with emphasis given to the reason for placing the tag.
- Yellow “Out of service” tags should be removed only by an authorised person who is both familiar with the equipment and fully aware of the reason that the tag was placed.
- Red “Personal Danger” tags should be removed only by the person whose name is on the tag.