



**Connection and Livening Guide
For
Low Voltage Electricity
Installations**

**INFRASTRUCTURE MANAGEMENT
NW72.15.02**

DETAILS OF DOCUMENT AMENDMENT No.4	
Section amended	Description of amendment
As marked	Review to include Electricity (Safety) Amendment Regulation 2012

The latest amendments are marked with a vertical line against the left margin. New text is **red** and removed text that has been left for clarity is **green**.

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1. FOREWORD

On the 1st April 2010 The Electricity Regulations 1997 were replaced by the Electricity (Safety) Regulations 2010 (Regulations).

All work that begins from 1 July 2013 will need to comply with the Electricity (Safety) Amendment Regulations 2012. Work that began before 1 July 2013 may be certified under the previous regime. The changes are aimed at providing flexibility to improve business effectiveness and efficiency in certification. The new regime also explicitly recognises both the work and the product of the work, i.e. the resulting installation, and is expected to lead to safer outcomes for consumers.

The changes also clarify the roles and accountabilities for designs and manufacturer's instructions.

The Regulations introduce changes across the spectrum of electrical safety, affecting appliances, installations, works (distribution systems) and apply particularly to electrical workers, appliance importers/retailers, and electricity generators/distributors. This guide has been compiled in conjunction with Orion's Design standards and Technical Specifications and other best practice guides to ensure all new installations, major alterations or additions conform to AS/NZS3000.

Whilst care has been taken in the preparation of this guide, Orion does not guarantee that the information contained therein is accurate, complete or up to date at time of publication.

It details the general requirements and responsibilities for operational systems and capabilities, staff and resources, communications and public information.

2. PURPOSE AND SCOPE

This guide does not replace or change the requirements of any existing standards or rules and it is intended for the use of electrical contractors, consultant/designers. Orion's requirements are not to be used retrospectively unless major additions or alterations have taken place.

This guide is to promote industry uniformity through standardisation of practices throughout the Central Canterbury region. It is primarily to assist in providing information to establish good working practices and consistency when preparing low voltage installations for connection or reconnection to Orion's electricity distribution network.

Where departures from these guidelines may be necessary, prior consultation with Orion will be required.

Should an installation not satisfy the requirements of these and/or other applicable rules, the connection of electricity supply may be delayed or withheld and installations with supply may be disconnected, until such time as the non-compliance(s) has been rectified.

Where serious breaches have been identified, the issues will be raised with Energy Safety, part of the Ministry of Business Innovation & Employment, which monitors and encourages compliance with the laws relating to energy safety.

3. STAKE HOLDERS

Customer

The Customer is the applicant who requires an installation to be connected to Orion's electricity distribution network and who engages a Retailer and/or other stakeholders to facilitate this process.

Electrical Consultant/Designer

The person who prepares or facilitates the design of the electrical installation in accordance with Part 1 or Part 2, as appropriate, of AS/NZS3000.

Electrical Contractor

The person(s) engaged to carry out the prescribed electrical work that has the relevant industry experience and appropriate competencies. They are to ensure that all electrical work carried out is in accordance with the Standards and provide the applicable certification of the installation.

Orion

Orion NZ Ltd owns the local distribution network in the central Canterbury area that carries electricity from the national grid to residential, commercial and smaller industrial users. Our primary role with respect to the installation is to authorise the initial livening of the installation after the customers main switchboard, MEN system and revenue metering (if applicable) of the installation is completed and certified by the appropriate people.

The initial livening of the installation will **ONLY** be carried out by Authorised Livening Agents contracted to Orion to perform this task.

Electricity Retailers

Electricity Retailers have the primary relationship with the customer for the supply of electricity, which includes electricity metering, billing and electricity quantification in the case of unmetered loads (UML).

4. REFERENCES

Legislation:

Electricity Act 1992

Electricity (Safety) Regulation 2010

Health and Safety in Employment Act 1992

Building Act 2004

Standards:

AS/NZS3000 Wiring Rules

AS/NZS 3019

NZS 6206:1980

ISO/17050-1 Conformity assessment Supplier's declaration of conformity Part 1: General requirements

Guides:

Electricity Networks Association and Electricity Engineers' Association Guide for Metering Safety Good Practice Guide (Aug 2011)

Electricity Engineers' Association Guide for Livening of Service Connections to Premises (November 2010)

5. CONNECTIONS

5.1 GENERAL

It is important that all applications or proposals requiring electricity supplies are discussed with Orion and/or an electricity retailer prior to the build process to avoid unnecessary delays and frustrations.

An [Orion online application form](#) is to be completed and must provide accurate information about what is required to be connected to the network. This is a requirement for all new, temporary, additions, alterations and unmetered loads.

Customers need to have an agreement in place with Orion and an Electricity Retailer of their choice before a connection and subsequent livening can be made.

The connection and livening process is only summarized below but can be accessed via Orion's website <http://www.oriongroup.co.nz/your-network/connecting-to-the-network/the-network-code.aspx>

5.2 CONNECTION PROCEDURE

The following steps must be complied with before livening may proceed:

- agreement as to ownership of reticulation is clearly identified
- environmental requirements are met
- legal route requirements/easements are met
- the Installation's earthing system is appropriate and in place
- electrical protection systems are in place and appropriately sized
- all equipment identifiers are correct and are securely in place
- all technical and operational standards have been met
- connection agreements are in place
- Customer is notified of the livening of the Installation.

Before a connection can be permanently livened for the first time, it is essential that all steps in the procedure have been completed and the necessary certification (section 10) is completed and is ready and available for review by the Livening Agent at the work site.

Livening may be delayed if the necessary information is not provided.

6. DESIGN OF INSTALLATIONS

6.1 GENERAL

All installations that operate at low voltage shall conform to either Part 1 or Part 2 of AS/NZS3000 and identify the design of the installation and the supply system that the installation is compatible with.

All domestic installations that have a maximum demand at or below 80 amperes single phase or 50 amperes per multi-phase must ensure that the installation complies with Part 2 of AS/NZS3000.

Where the installation Prescribed Electrical Work (PEW) is subject to a Certified Design, the designer must certify the design is compliant and safe. The electrical practitioner, who installs tests or connects the resulting installation, is entitled, if acting in good faith, to rely on the certified design.

The recognition of certified designs in regulation means that someone other than the certifier of the work takes responsibility and liability that the design is compliant and will achieve safe outcomes.

The design can be a separate document, or if done by the certifier, be incorporated into the certification for the installation and must:

- Identify the location of the installation
- Identify the Standards (if any) with which the installation PEW will comply
- Be signed and dated by the person who completed the design

6.2 MANUFACTURER'S INSTRUCTIONS

Manufacturers and importers (suppliers) of appliances and fittings are responsible for ensuring that any instructions, if followed for installation, testing, maintenance, or connecting, will result in a compliant and safe installation. This applies to instructions that are for New Zealand or apply generally.

Revenue meters are required to have manufacturer's instructions that are available to the meter installers.

6.3 IDENTIFICATION

A site plan of the overall layout of the site shall also be permanently displayed on the inside door of the main (MEN) switchboard.

The site plan should have marked on it, the location of the main (MEN) switchboard, the main earth, the location of the customer's main service cable from the MEN switchboard to the Network Connection Point (NCP) including the building entry point.

Large sites will require additional information such as sub-distribution boards and an indication of sub-main cable routes.

As far as practically possible the MEN switchboard shall be positioned in the Installation, nearest to the Network Connection Point (NCP).

Each installation shall have an individual Installation Control Point (ICP) identifier. Where multiple installations e.g. shops, units or apartments are involved, the corresponding identifiers shall be at the NCP and permanently marked on the main switchboard and/or 'other' distribution boards in order for the Electricity Retailers and Orion to install the appropriate equipment for each customer's specific requirements.

7. METER ENCLOSURES

7.1 GENERAL

Enclosures are to be provided by the customer to house the retailer's metering equipment and other control devices which may be part of the main switchboard.

The electricity connection will be dependent on Orion and the Retailer being satisfied that the enclosure meets the required levels of electrical safety with the appropriate space and access provided for all equipment.

7.2 MANUFACTURE

The enclosure and internal gear trays shall be fit for purpose and made from non-combustible durable materials that will endure during the lifetime of the installation.

The door must be hinged or of the 'lift-off' type and a means must be provided to prevent the inadvertent removal of the door. Hinged or removable external cover doors shall have closing or locking mechanisms that require a tool to access.

Hinged gear trays are preferred for the mounting of equipment and accessories that provides sufficient space for internal wiring to be enclosed.

Where a main switch is fitted, the access cover/door itself must not be locked but must have a secure closing latch device.

7.3 LOCATION

The enclosure shall be installed in a position where it can be easily checked, maintained and replaced i.e. in an outside position in/on an exterior wall of the dwelling or associated garage or other outbuilding.

No permanent obstructions such as walls, fence, trees or bushes shall be placed in front of, beneath or adjacent to the metering enclosure such that they obstruct, or have the potential to obstruct, clear unrestricted access.

In other circumstances where the premises are located within restricted areas closed off to the general public, arrangements for access for routine maintenance or emergencies shall be made with the electricity retailer and distributor prior to supply being connected.

Existing installations do not need to comply with this requirement unless major upgrades or meter/switchboard relocations are being undertaken.

In all cases consideration has to be given to the separation of other services.

8. EARTHING ARRANGEMENTS

8.1 GENERAL

Orion manages and operates a multiple earthed neutral system (MEN). This is the standard system used in New Zealand, see 6.1 above.

The MEN system connects the neutral conductor of the distribution system to earth at the source of supply at regular intervals throughout the system and at each electrical installation connected to the system.

In the event of a short-circuit-to-earth fault or excessive earth-leakage currents the installation and earthing arrangements shall be installed to provide an effective low impedance fault path to enable automatic disconnection of the electricity supply.

8.2 EARTHING SYSTEM PARTS

The main components of the earthing system are:

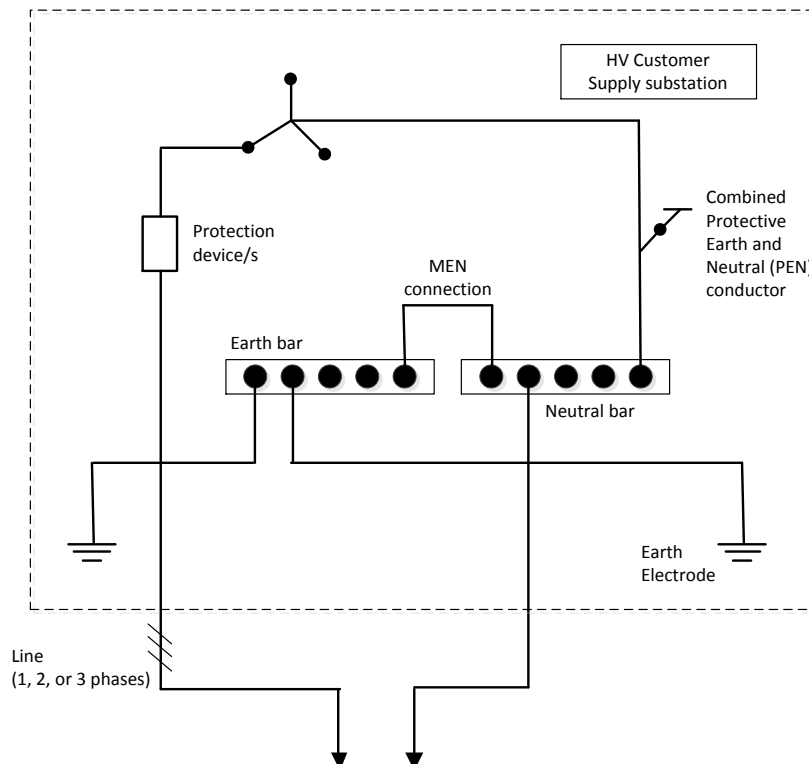
- protective earthing conductors
- main earthing conductor
- main earth terminal connection or bar
- MEN connection between main earth terminal or bar & the supply neutral bar
- earth electrode
- equi-potential bonding of extraneous conductive parts.

8.3 EARTH & NEUTRAL CONFIGURATIONS

Within the electrical installation the neutral and earth conductors are segregated and the earth conductors are arranged to be connected to the exposed conductive parts of equipment and apparatus as shown in the following examples.

Figure 8.3.1 shows a typical earth and neutral arrangement at an Orion substation and is generally where a transformer is within the customer's premises (applies to large capacity customers typically above 150kVA @ 400V).

Figure 8.3.1



Note 1: Retailer metering apparatus and devices are omitted for clarity

Note 2: Where an Orion substation is located on or within the customer's premises, it is permissible to directly connect an earth cable between the Orion substation earth bar and the customer's main earth bar. This is generally dependent on proximity and the distance between the two earth systems and if this is the case then this will need to be discussed with Orion for approval before work is done.

Figure 8.3.2 shows a typical Multiple Earthed Neutral (MEN) System of Earthing - General Arrangement for electrical installations with multiple switchboards.

Figure 8.3.2

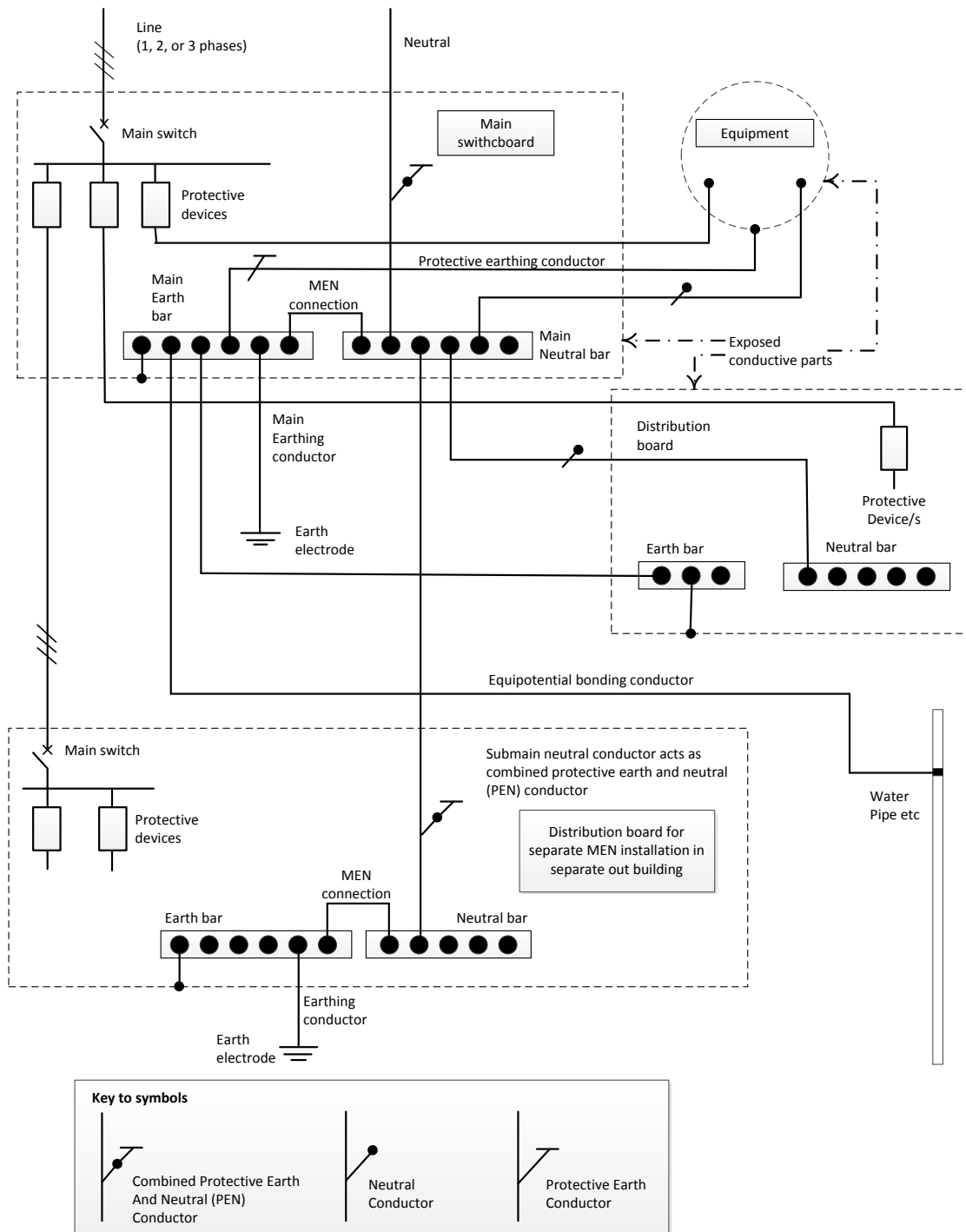
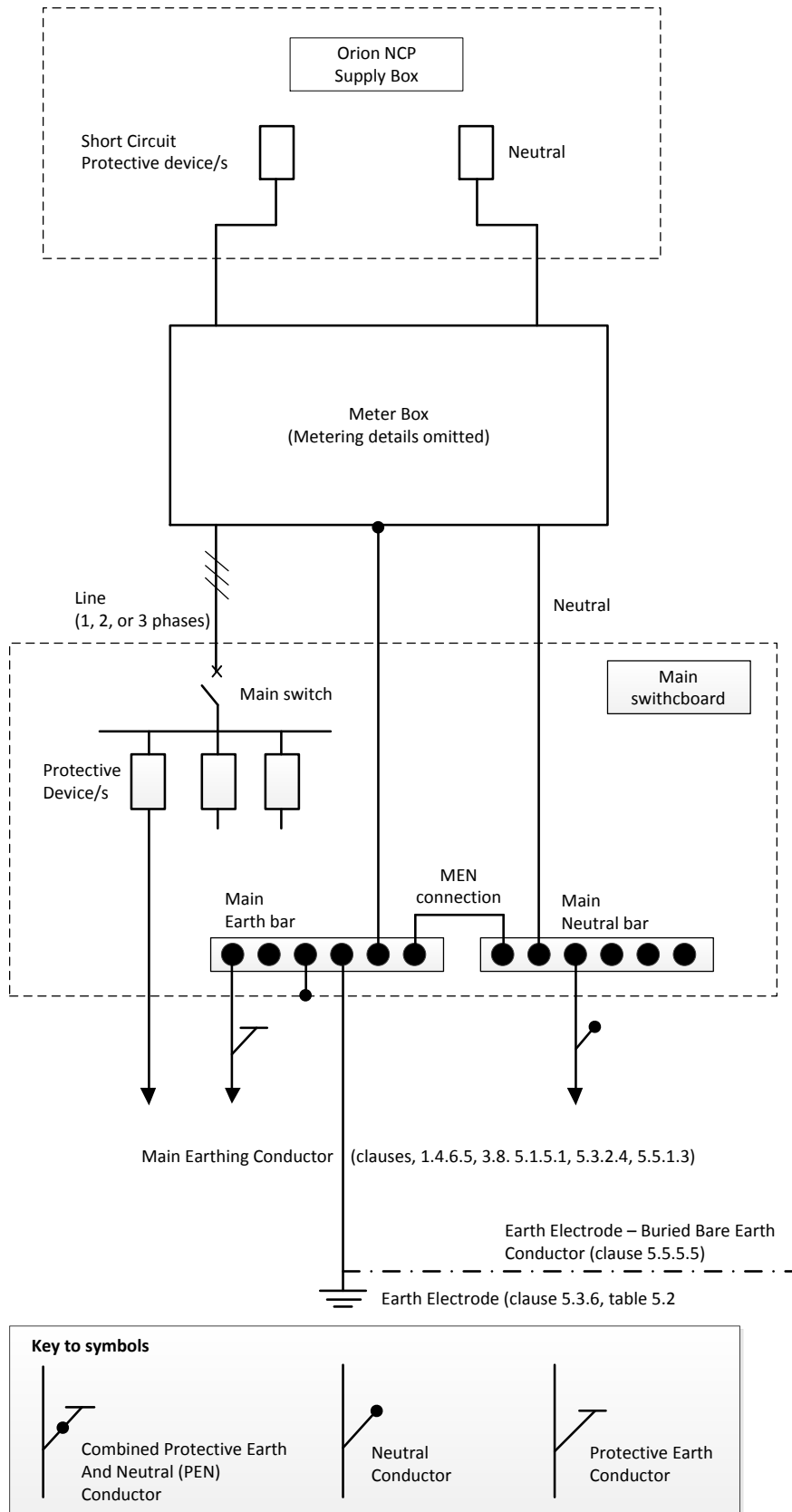


Figure 8.3.3 shows a typical Multiple Earthed Neutral (MEN) System of Earthing - General Arrangement for electrical installations with a single switchboard with example clauses from AS/NZS 3000 when considering Main Earth Conductors and Earth Electrodes.

Figure 8.3.3



8.4 OTHER EARTHING SYSTEMS

Alternatives to the MEN system may be permitted provided they meet Part 1 of AS/NZS3000. In these cases the customer is advised to discuss with Orion if other alternatives exist.

9. PROTECTION FOR SAFETY

9.1 GENERAL

The method of protection applied to the installation shall be considered in the selection and erection of equipment. Active conductors shall be protected by one or more devices that automatically disconnect the supply in the event of short circuit or over current.

9.2 SHORT CIRCUIT PROTECTION

Protective devices installed by the customer shall have an interrupting capacity adequate for the prospective short circuit current at the point of the installation NCP.

In the event of the fault current being increased at any point on an installation because of provisions for additional load, the customer shall be responsible for the upgrading of all equipment not rated for the prospective fault level.

Prospective fault level details may be obtained by contacting Orion.

Notes:

1. For low voltage supplies, Orion's service fuse shall NOT be considered as overload protection for the customer's mains or metering equipment.
2. Orion's (HRC) low voltage service fuse rated up to 160A will provide suitable short circuit fault current limiting for a customer's service mains at the NCP.
3. Installation of fault current limiters may be required to protect direct-connected metering on the customer's installation.
4. The customer is reminded of the requirements to ensure coordination between conductors and protective devices.

9.3 ISOLATION FOR DIRECT-CONNECTED METERING

Single Installations

Where direct-connected metering is installed on the line side of the individual installation's main switch, a metering **isolation** fuse link or circuit breaker per phase shall be connected to the line side of the metering. This arrangement allows isolation of supply to meters and allows safe access to the metering equipment. **The cover (or fuse carrier, if a fuse is used) should be sealed to deter meter bypass.**

Exception:

Where overload protection for the customer's mains, in accordance with AS/NZS 3000 (Wiring Rules), cannot be achieved by the positioning of the installation's Main Switches on the load side of the direct metering; a metering isolation circuit breaker shall be connected on the line side of the metering correctly sized to provide overload protection of the customer's mains and associated equipment.

Multiple Installations

A circuit breaker main switch, sized for overload protection of the consumer's mains shall be connected on the line side of the metering. Metering isolation links **or circuit breakers** are required for individual customers.

Note:

The type of tripping curve characteristic for the associated circuit breakers e.g. B, C or D will be dependent on the electrical installation's application.

Existing Installations

When minor work is being carried out at an existing installation such as a 'like for like' meter change, it will not be necessary to alter the wiring of the meter before the main switch.

This change need only be made where there is a major alteration to or replacement of the metering switchboard or for example when replacing single phase meters with a polyphase meter for the connection of additional phases.

10. TESTING AND CERTIFICATION

10.1 GENERAL

The Electricity (Safety) Regulations 2010 have specific requirements relating to the inspection, testing and certification of prescribed electrical work.

All new electrical installations and any alterations, additions or repairs to electrical installations shall, prior to being placed in service or use, be inspected and tested to ensure that the installation is electrically safe, and the work done does not reduce the safety of existing works.

This includes the 'customer service mains' (Consumer Mains) from the point of supply (NCP) to the main switch of the MEN switch board, the MEN switchboard, earth installation and Retailer metering equipment when it forms part of the customer mains.

10.2 VERIFICATION

AS/NZS3000 outlines the minimum standard of verification that must be achieved to satisfy the fundamental safety principles therein.

The tests must prove that all phases, neutral and protective earthing conductors are correctly installed and connected.

1. Low voltage electrical installations shall be inspected as far as it is practicable.
2. The mandatory tests carried out on low voltage electrical installations are:
 - continuity of the earthing system; these are individual tests to establish the resistance of the main earthing conductor, protective earthing conductors and bonding conductors
 - insulation resistance
 - polarity & phase rotation
 - correct circuit connections
 - verification of earth loop impedance required for automatic disconnection of supply
 - operation of RCDs.

Notes:

1. The supply may be temporarily energised to perform some of the tests.
2. Precautions are to be taken to ensure the safety of persons and to avoid damage to property during testing.

10.3 CERTIFICATION

Certification will cover **all** installations PEW, including maintenance, repairs and replacements and other work previously exempted from certification.

The Electricity (Safety) Amendment Regulations 2012 specify the details for the required certificates and what they must contain. Examples are provided in the appendices.

10.3.1 Certificate of Compliance

The Certificate of Compliance (CoC) will no longer need to be purchased from the EWRB from 1 July 2013. Businesses can design their own certificates (CoC and ESC) or use a format designed by an industry organisation.

The purpose of the Certificate of Compliance (CoC) is to certify the compliance of the work prior to connection. Installation PEW is not considered complete until a CoC is issued. It shall provide technical information and confirms that work is compliant and lawful.

The CoC is issued by the person who did the work or supervised the work and who is authorised to certify that category of PEW.

10.3.2 Record of Inspection

Electrical inspectors who carry out an inspection of high risk PEW prior to connection must prepare a signed and dated Record of Inspection (RoI). The purpose of the RoI is to verify and confirm that work on an installation (or part of an installation) has been done in accordance with the Regulations and when enlivened will be electrically safe.

Electrical inspectors will be responsible for entering details of high risk installation PEW on an online database available at www.energysafety.govt.nz and this should be done within 20 days of issuing the RoI.

10.3.3 Electrical Safety Certificate

An Electrical Safety Certificate (ESC) is required to be issued after connection of any installation (or part installation) to the electricity supply. It verifies that the completed installation, as connected, is compliant and "safe to use". The ESC can be incorporated with the CoC or be a separate document.

The person who carries out or supervises the connection to the electricity supply is responsible for issuing the ESC and must be satisfied that the installation, or part of the installation, is safe and complies with the Regulations. The definition of connection, for the purposes of the ESC, is defined in the Regulations.

If the work done is an addition or alteration, the person responsible must be satisfied that the work has not adversely affected any other part of the installation.

10.3.4 Supplier Declaration of Conformity

A Supplier Declaration of Conformity (SDoC) is required for medium risk articles, if they are installed and are part of the installation, to show that fittings are safe.

All declarations of conformance provided are to be captured as part of the support documentation for the Certificate of Compliance (CoC).

10.3.5 Issuing and retaining Certificates

A copy of the CoC and ESC must be issued to the person who contracted the work, or the occupier of the premises that the work was done on, as soon as practicable after the installation is connected, but no later than 20 working days from connection.

Persons certifying must keep a copy of certification documents for at least seven years. Any supporting documentation such as certified designs or manufacturer's instructions must also be retained or detail given as to where they can be obtained.

11. LIVENING

11.1 GENERAL

When an installation is ready for livening of the supply, the Customer or their agent needs to notify Orion or contact the authorised Livening Agent directly.

11.2 LIVENING AGENT

The Livening Agent contracted to Orion will confirm that the necessary certification has been completed. This may include ESC, RoI, CoC before livening the supply to put the installation into service.

The person connecting the installation to a power supply must ensure that the polarity and phase rotation of the supply are correct, **the installation is compatible, that there is a main earthing system in place** and that the **protection** is correctly rated for the installation.

It is also a requirement that the revenue meters, and any load control fittings, are installed and operational, and that there are no un-terminated conductors. Any un-terminated conductors must be secured and be made electrically safe.

Note: A meter does not need to be fitted to make the installation safe provided that the conductors are terminated, usually at the main switch and neutral bar. However if the meters are installed retrospectively and are part of the customer mains, and the mains are manipulated to achieve this, then this work is required to be inspected, tested and certified by a third party electrical inspector.

The inspection shall not supersede any specification and the Electrical Contractor remains responsible for the standard of work, regardless of whether the Livening Agent inspects or tests the whole or part of the installation.

11.3 SERVICE MAIN LABELS

Service main labels are to be applied to all service mains at the time of livening to clearly identify the ICP #, destination, cable size, type, date installed and livened to:

- Ensure that Orion and Retailer knows the ICP connection characteristics, and
- To reduce the risk of disconnecting and/or connecting the wrong customer.

Permanent service main labels are fitted to the Red phase (if three phase) and phase conductor (if single phase) on all service main cables as part of the livening process. The label is to be installed around the cable on the load side of the fuse.

When working on a service main and no label exists, or doubt exists as to where the service main supply goes to, it is the responsibility of the contractor to identify its destination. The Orion Contract Manager may be contacted to determine ICP number physical address.

Further information can be found in the Orion procedure NW21.31.02 Operating the Low Voltage Network.

11.4 DATE OF INITIAL LIVENING OF AN INSTALLATION

This information shall be on site and shall be permanently marked on the meter enclosure/ MEN switchboard or captured as part of the installation records.

11.5 RECORD KEEPING

All records relating to the living of the installation shall be collected and retained as required.

In addition to any relevant testing and certification documentation including any plant information that may be required, a Low Voltage Alteration Sheet (LVA) as shown in Appendix D must be provided for any new, removal, addition or alteration that affects the Orion electrical reticulation.

The completed LVA shall be provided to Orion within 24 hours of livening.

Orion maintains:

- connection agreements
- connection application
- design and work instruction
- payment records
- land and easement records

The livening agent supplies confirmation of:

- ICP reference
- Enquiry for Supply (ES) number
- Location address
- Phases
- Protection rating

- Electrical Safety Certificate (ESC) number
- Inspection date and Inspector name
- Energised date
- Temporary Supply, Box number, date installed or removed
- LV Alteration sheet (Appendix D) or map if required
- Livening Agent ID number and name.

12. RECONNECTING INSTALLATIONS

12.1 GENERAL

Where **premises installations** have been disconnected from a power supply for less than six months and have had no **general or high risk** prescribed electrical work done on them since the installation was disconnected, the person livening may reconnect the installation without carrying out the requirements shown under section 10 of this guide.

The person livening and connecting the installation is entitled to rely on written confirmation by the owner of the installation that no **general or high risk** prescribed electrical work has been done on the installation since it was last disconnected.

If the period since the last disconnection is more than six months **on which no general or high risk** prescribed electrical has been done, again the requirements under section 10 do not apply. In this case the person livening may only reconnect the installation once they have sighted (or issued) a verification certificate given by a person authorised to certify mains work. This certificate is to be dated no earlier than six months before the date of reconnection and certify the installation is suitable for continued use.

12.2 RELOCATED PREMISES

Where fixed premises have been permanently disconnected from an electrical power supply and are to be physically relocated from one site to another and permanently fixed in place, the requirements of this guide do apply to the prescribed electrical work carried out to facilitate the new connection.

The Customers mains cable, the MEN system and revenue metering (if applicable) are an example of the work that has to be completed as per the requirements of AS/NZS 3000 and certified by the appropriate people before the initial livening can be done.

The initial livening of this type installation will ONLY be carried out by an Authorised Livening Agent contracted by Orion to perform this task.

Notes:

1. The conditions stated in Section 11.1 are applicable to relocated premises.
2. The conditions stated in Section 11.4 apply to all connections under this section.
3. If there is evidence that prescribed electrical work has been carried out, then the requirements of AS/NZS 3000 do apply and testing and certification will be required for all new work that has been carried out.

13. UNMETERED LOADS

13.1 GENERAL

Unmetered Loads (UML), e.g. bus shelters, traffic controllers and road lighting are electrical installations that do not exceed 3,000kWh per annum. All such installations must comply with the requirements of this guide.

In all cases and prior to connection to the Orion NCP, there must be an Electricity Retailer who is responsible for owning and quantifying the conveyance of electricity to the installation.

Depending on the type of Orion electrical reticulation and the electrical installations involved, the location of the Orion NCPs shall vary as follows:

Underground Reticulated Areas:

NCP – is the Orion underground fuse. It may be situated within an Orion distribution box, distribution cabinet, at the base of a lighting column or within a traffic control box adjacent to or near the electrical installation.

Overhead Reticulated Areas:

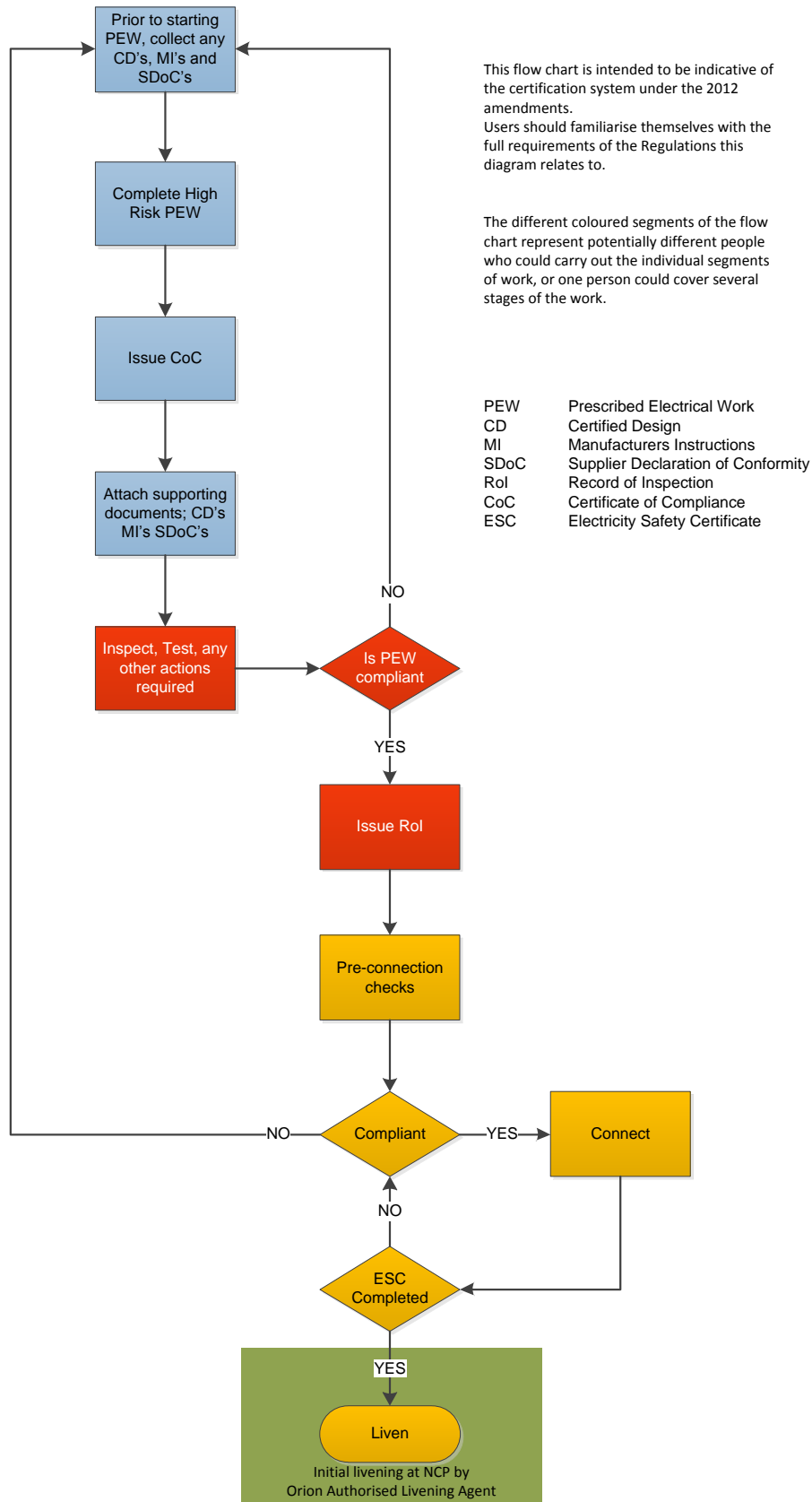
NCP – is the Orion pole fuse mounted on the Orion pole structure adjacent to or near the electrical installation.

Notes:

1. Any electrical reticulation up to the NCP is the Orion owned and operated distribution system.
2. Any installation or fittings beyond the Orion NCP is the responsibility of others e.g. in the case of road lighting it is the Road Controlling Authority (RCA).


APPENDIX A

CERTIFICATION LIVENING PROCESS FLOW CHART




APPENDIX B

EWRB COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE



Compliance and Electrical Safety Certificate

This form has been issued by the Electrical Workers Registration Board



Unique ID: _____

This form has been designed to be used by licensed electrical workers to certify low voltage installations or part installations that comply with Part 2 of AS/NZS 3000 and are safe to be connected to a 230/400 volt multiple earth neutral (MEN) system of electrical supply.

(1) Location of installation

Address: _____

(2) Customer Information

Name: _____
 Postal Address: _____
 Phone and Email: _____

(3) Electrical Worker Information

Name: _____ Registration/Practising Licence Number: _____
 Organisation: _____ Telephone Number: _____
 Email: _____
 Name of person(s) being supervised: _____

(4) Work Details

The work is (circle): **additions** | alterations | new work

The prescribed electrical work is: High Risk General Low Risk The homeowner has undertaken part of the electrical installation work.
(Please tick (✓) as appropriate)

Indicate the number of each item installed or altered:	Other Work?	Tick (✓) if work includes:
Number of lighting outlets: _____	_____	<input type="radio"/> Mains
Number of socket outlets: _____	_____	<input type="radio"/> MEN switchboard closest to point of supply
Number of ranges: _____	_____	<input type="radio"/> Main Earthing System
Number of water heaters: _____	_____	<input type="radio"/> Electric Lines

(5) Certification of Work

I certify that the completed prescribed electrical work to which this certificate applies, has been done lawfully and safely and the information in the certificate is correct in that the installation, or part of the installation:

- has been installed in accordance with a certified design
- has an earthing system that is correctly rated
- contains fittings which are safe to connect to a power supply
- relies on supplier's Declaration of Conformity (attach or reference¹)
- relies on manufacturer's instructions (attach or reference¹)
- has been satisfactorily tested in accordance with Electricity (Safety) Regulations 2010
- is safe to connect

Test Results:		
	Electrical Worker	Inspector
Polarity (independent earth):		
Insulation resistance:		
Earth continuity:		
Bonding:		
Other (specify):		

Electronic reference: _____

Electrical Worker's Signature: _____ Date: _____

1. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declarations of conformity, provide a reference to where the documents can be found, in a readily accessible format, through electronic means.

(6) Electrical Safety Certificate

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

Name: _____ Registration/Practising Licence Number: _____

Signature: _____ Date _____
(If certifier is different from electrical worker)

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED

APPENDIX C

CERTIFICATE OF COMPLIANCE REQUIREMENTS

Checklist for Certificates of Compliance (CoCs) – Electricity

The Certificate of Compliance (CoC) provides a legally recognisable statement of the safety status of completed installation prescribed electrical work (PEW) specifically for the purpose of connection to electricity supply, and also for other purposes, including auditing and investigations.

A CoC is required in the circumstances described in Regulation 65 of the Electricity (Safety) Regulations (ESRs). ESR 66 describes what the CoC must contain and ESR 67 specifies the details that must be recorded on the CoC.

Requirement	ESR	Comment	<input checked="" type="checkbox"/>	Assessment
The CoC form provides for a statement confirming that the person issuing the certificate is satisfied that:—				
<ul style="list-style-type: none"> the prescribed electrical work has been done lawfully and safely; and 	66(1)(a)(i)		<input type="checkbox"/>	
<ul style="list-style-type: none"> the information in the certificate is correct. 	66(1)(a)(ii)		<input type="checkbox"/>	
The CoC form provides for:—				
<ul style="list-style-type: none"> inclusion of the authentication mark 	66(1)(c)		<input type="checkbox"/>	
<ul style="list-style-type: none"> attachment of a copy of any of the following used in the course of the PEW: <ul style="list-style-type: none"> manufacturer's instructions, supplier declarations of conformity, or certified designs 	66(1)(d)	This information must be attached if it is relied upon in doing the work. <i>Note: If it is impractical to attach a copy, ESR 66(3) allows the certificate to contain a reference to where these documents can be found.</i>	<input type="checkbox"/>	
<ul style="list-style-type: none"> recording whether high-risk work on a low or extra-low voltage installation or part installation, was done in accordance with Part 1 of AS/NZS 3000 or in accordance with Part 2 of AS/NZS 3000 	67(1)(a)	A Y/N answer is expected. This information is mandatory. The checklist should require certifier to indicate whether compliance was with Part 1 or Part 2.	<input type="checkbox"/>	
<ul style="list-style-type: none"> specifying whether the work was done in accordance with the certified design for the installation or part installation 	67(1)(b)	A Y/N answer is expected. This information is mandatory. The form should require a copy of the Certified Design be attached.	<input type="checkbox"/>	
<ul style="list-style-type: none"> recording any other standards complied with, if the work was required to comply with standards other than, or in addition to, Part 1 or Part 2 of AS/NZS 3000 	67(1)(c)	A Y/N answer is expected. This information is mandatory if compliance with other standards was required for the work. Possible choices are: <ul style="list-style-type: none"> No additional standard Additional standard – specify. A certificate may be designed where this option is not exercised or where the same standard is always used.	<input type="checkbox"/>	

specifying whether the work relied on any manufacturer's instructions	67(1)(d)	A Y/N answer is expected. This information is mandatory. The form should require a copy of any manufacturer's instructions relied upon to be attached. <i>Note: alternatively, if this is impractical a reference to where manufacturer's instructions can be accessed may be given.</i>	<input type="checkbox"/>	
<ul style="list-style-type: none"> identifying the type of supply system that the installation or part installation is safe to connect to 	67(1)(e)	This information is mandatory. If intended to be only ever used for certifying work suitable for connection to one type of supply system this may be permanently entered. Otherwise, a range of alternatives may be given.	<input type="checkbox"/>	
<ul style="list-style-type: none"> identifying which parts of the installation, if any, are safe to connect to a power supply 	67(1)(f)	This information is mandatory. The form make provision for 'All', with the ability to provide details in other cases.	<input type="checkbox"/>	
<ul style="list-style-type: none"> identifying the location of the installation or part installation on which prescribed electrical work was done 	67(2)(a)	This information is mandatory. This should be a format that encourages the correct entry of addresses, eg in the Postal Address format.	<input type="checkbox"/>	
<ul style="list-style-type: none"> a description of the work done 	67(2)(b)	This information is mandatory. The form should provide for a clear and concise description of the work.	<input type="checkbox"/>	
<ul style="list-style-type: none"> recording the name of the person issuing the certificate, and the names of anyone performing PEW under the supervision of the certifier 	67(2)(c)	This information is mandatory.	<input type="checkbox"/>	
<ul style="list-style-type: none"> recording the registration numbers (if any) of the person issuing the certificate, and everyone performing the PEW referred to in the certificate under supervision 	67(2)(d)	This information is mandatory. <i>Note: If the person issuing the certificate is acting under an employer licence, the employer's licence number is recorded.</i>	<input type="checkbox"/>	
<ul style="list-style-type: none"> recording the date or dates on which the work was done, or the period within which it was done 	67(2)(e)	This information is mandatory. This could be a date or a date range.	<input type="checkbox"/>	
<ul style="list-style-type: none"> being signed and dated by the person issuing the certificate 	67(2)(f)	This is mandatory.	<input type="checkbox"/>	
<ul style="list-style-type: none"> attachment of additional information, such as test reports. 	67(3)	Inclusion of this information is optional.	<input type="checkbox"/>	

APPENDIX C

EXAMPLE RECORD OF INSPECTION

RECORD OF INSPECTION (RoI) OF HIGH-RISK PRESCRIBED ELECTRICAL WORK PURSUANT TO THE ELECTRICITY (SAFETY) REGULATIONS 2010	
Record Number:	<input style="width: 80%;" type="text"/>
Issuer (Inspector) details:	
Name of Inspector:	<input style="width: 80%;" type="text"/>
Registration Number:	<input style="width: 80%;" type="text"/>
Email Address:	<input style="width: 80%;" type="text"/>
Telephone:	<input style="width: 80%;" type="text"/>
Location information:	
Location details:	<input style="width: 95%;" type="text"/>
Location Type:	<input type="checkbox"/> Domestic <input type="checkbox"/> Non-Domestic Accommodation <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Healthcare <input type="checkbox"/> Miscellaneous (Other)
Certifying Electrical Worker and CoC details:	
Name of Electrical worker(s):	<input style="width: 80%;" type="text"/>
Registration Number(s):	<input style="width: 80%;" type="text"/>
CoC details:	<input style="width: 80%;" type="text"/>
<input type="checkbox"/> CoC(s) attached	
Record of Inspection:	
What was inspected:	
<div style="border: 1px solid black; height: 100px;"></div>	
Specify what the inspection carried out in accordance with (i.e regulation(s) and/or companion standard(s)):	
<div style="border: 1px solid black; height: 20px;"></div>	
What are the results of the inspection:	
<div style="border: 1px solid black; height: 100px;"></div>	
High Risk Category:	
<input type="checkbox"/> Not to AS/NZS 3000 Part 2 (6A(2)a(i)) <input type="checkbox"/> Photovoltaic system (6A(2)a(iv)) <input type="checkbox"/> Electrical medical area (6A(2)a(vii)) <input type="checkbox"/> High voltage installation (6A(2)a(ii)) <input type="checkbox"/> Hazardous area (6A(2)a(v)) <input type="checkbox"/> Mains work (6A(2)b) <input type="checkbox"/> Mains parallel generation (6A(2)a(iii)) <input type="checkbox"/> Installation located in a mine (6A(2)a(vi)) <input type="checkbox"/> Animal stunning or meat conditioning (6A(2)c) <input type="checkbox"/> Other – please describe	
<div style="border: 1px solid black; height: 20px;"></div>	
Declaration	
I hereby confirm that the work described above has been done <i>in / not in</i> accordance with the regulations; and the <i>installation / part installation</i> on which the work has been done is, and will <i>be / not be</i> when energised, electrically safe: <i>(Note: Strike out or delete the inapplicable words highlighted by red above.)</i>	
Signature:	Date:
<div style="border: 1px solid black; width: 80%; height: 20px;"></div>	<div style="border: 1px solid black; width: 80%; height: 20px;"></div>

MBIE-MAKO-5290416Record of Inspection (RoI) - Version: June 2013

