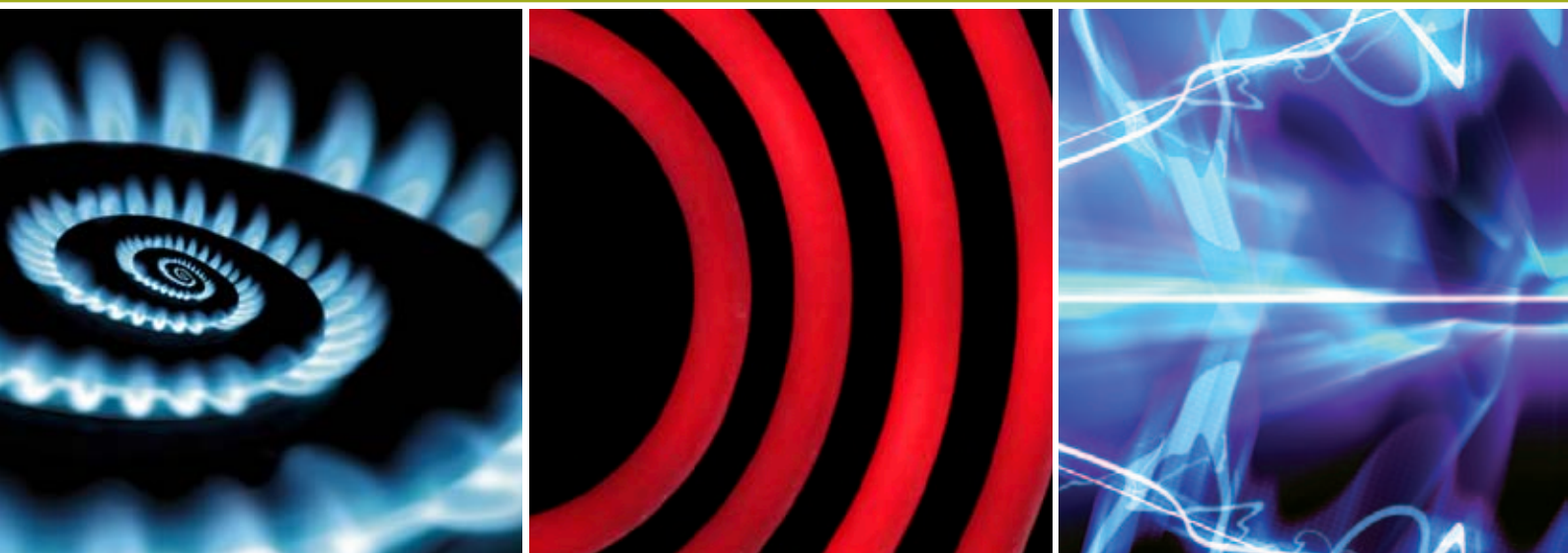


A GUIDE TO DESIGNING INSTALLING AND MAINTAINING SAFE ELECTRICAL AND GAS INSTALLATIONS AND DISTRIBUTION SYSTEMS

FOR DESIGNERS, ELECTRICAL WORKERS, GAS WORKERS AND USERS OF ELECTRICAL AND GAS INSTALLATIONS AND DISTRIBUTION SYSTEMS



ELECTRICITY (SAFETY) REGULATIONS 2010 and
GAS (SAFETY & MEASUREMENT) REGULATIONS 2010

Energy Safety is responsible for the operation of an effective investigation, compliance, enforcement and conformance regime for gas and electrical safety.



Please consider the environment before printing this document.

Ministry of Economic
Development



Manatū Ōhanga

Energy Safety



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● Introduction

WHAT DOES ENERGY SAFETY DO?

Energy Safety is the government agency responsible for the operation of an effective investigation, compliance, enforcement and conformance regime for electrical and gas safety under the provisions of the Electricity Act 1992, the Gas Act 1992 and associated Regulations and Gazette notices.

We administer the technical provisions of the [Electricity \(Safety\) Regulations 2010](#) and the [Gas \(Safety and Measurement\) Regulations 2010](#) to promote, monitor and enforce safe supply and use of electrical and gas installations, works, appliances and fittings. We do this by:

- working with manufacturers, importers, suppliers, retailers and all traders and installers of electrical and gas products to ensure they provide safe products to New Zealand consumers
- monitoring the New Zealand marketplace to encourage appropriate behaviour and processes that ensure the safe supply and use of electrical and gas products and installations
- conducting compliance audits of electrical and gas installations and suppliers
- investigating accidents and incidents involving electrical and gas installations
- investigating complaints of non-compliance involving electrical and gas installations

- providing advice to Government on energy safety issues associated with electrical and gas safety.

Energy Safety is a business unit within the Ministry of Economic Development (MED) and works with a number of agencies with an interest in energy safety.

All electrical and gas installations, work, appliances and fittings in New Zealand must comply with the fundamental safety requirements and any applicable Standards, in accordance with the Electricity (Safety) Regulations 2010 and Gas (Safety and Measurement) Regulations 2010.

WHAT IS THIS GUIDE?

Energy Safety has produced this guide to give designers, electrical workers and gasfitters of electrical and gas installations information that will help you:

- comply with safety requirements
- take the appropriate steps designing, constructing or connecting an electrical or gas installation
- avoid enforcement action which can be costly to the person responsible, especially where someone has been harmed, property damaged, or a safety recall is required or remedial action is required.

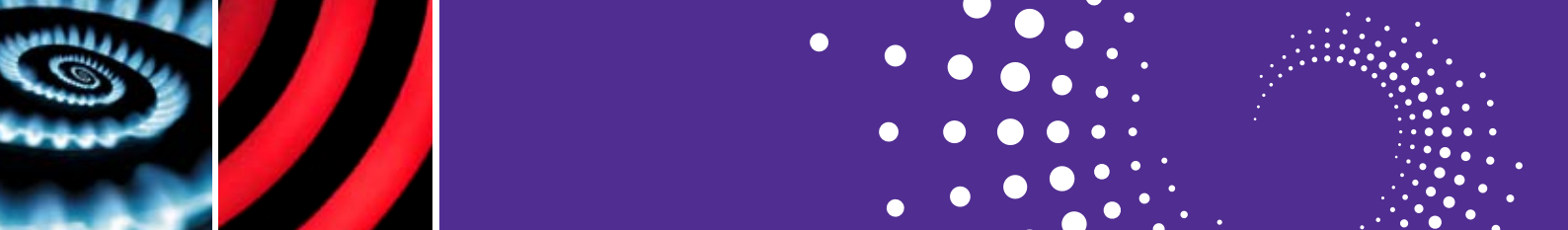


The information in this guide tells you about:

- compliance requirements
- the audit and monitoring processes
- enforcement action for non-compliance.

The information in this guide is current as at the date of publication and should be read and used in conjunction with the [Electricity \(Safety\) Regulations 2010](#) and [Gas \(Safety and Measurement\) Regulations 2010](#) on the New Zealand Legislation Regulations website.

No information in this guide overrides or replaces any requirement specified by the Regulations, or associated electricity and gas Gazette notices.



● Background to Energy Safety's Compliance Programme

It is important for people, organisations and businesses with “duties” under the Electricity Act 1992 and the Gas Act 1992 to understand how and why we choose to respond to non-compliance.

It is also important to outline our overall approach to enforcement. This will help you develop or refine your own internal operating systems and procedures to achieve compliance.

OPTIMISING SAFETY

The use of electrical and gas technology in New Zealand society is commonplace in almost every aspect of business and personal life. Society relies on electrical and gas technology to improve business efficiency, maintain well-being and improve social interaction. The use of electricity and gas as energy sources brings with it risks that need to be understood and managed.

Energy Safety manages the acceptable levels of electrical and gas safety through the compliance framework that forms part of the regulatory environment. In addition, the New Zealand regulatory environment is closely aligned with international practices through the application of International Standards.

Where appropriate Mutual Recognition Arrangements (MRAs) with our trading partners reduce the impact of New Zealand's regulatory environment and support compliance through international regulatory co-operation.

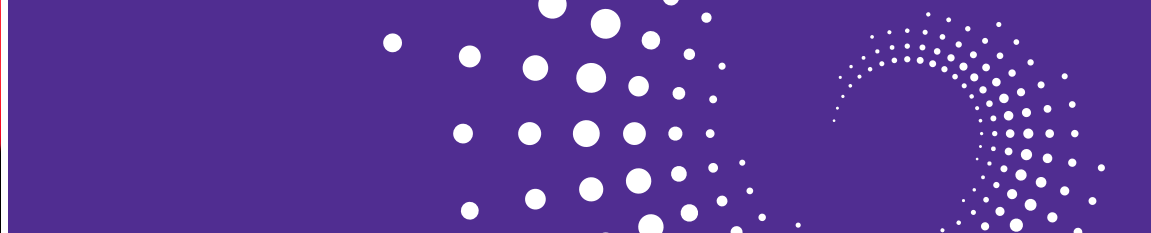
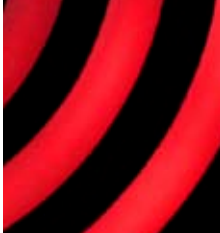
FOSTERING BUSINESS GROWTH BY MAINTAINING A SAFE ENVIRONMENT

Energy Safety fosters economic development for all New Zealanders by supporting an environment that seeks to ensure that electrical and gas installations, works and supply networks in New Zealand are safe to use.

Managing a safe electrical and gas environment within technical and economically justifiable limits is the primary objective of Energy Safety.

» Electricity and Gas Compliance Framework is based on:

- *Electricity (Safety) Regulations 2010*
- *Gas (Safety and Measurement) Regulations 2010*
- *associated electricity and gas Gazette notices*
- *Recognised International Standards*
- *New Zealand Standards.*



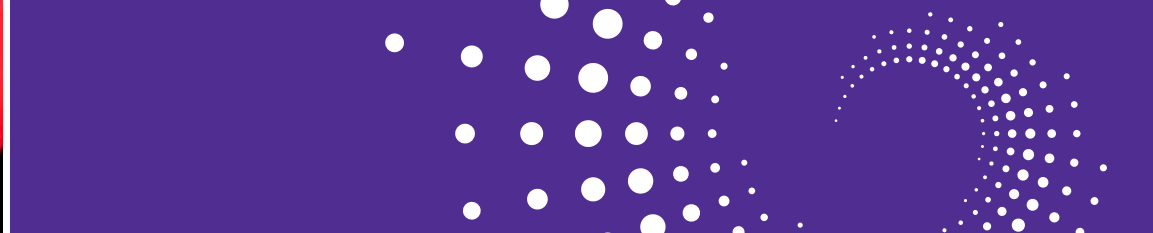
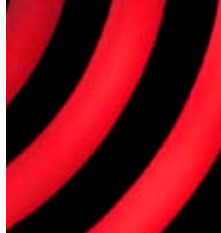
ENERGY SAFETY'S COMPLIANCE STRATEGY

To support our compliance strategy, Energy Safety's compliance and enforcement team ensures safety issues are quickly identified and consistently managed. Our strategy is to:

- monitor the market and promote greater industry and public awareness of safety for electrical and gas installations
- promote greater industry and public awareness of installation safety compliance requirements
- audit designers, installers, owners and operators of electrical and gas installations and distribution networks to ensure they comply with safety fundamentals and with legislative obligations
- enforce compliance, including issuing Warning notices, Infringement notices and Prosecution proceedings as appropriate.

»» Energy Safety's compliance programme has five key components:

- *increase industry and public awareness of the benefits of compliance*
- *undertake a proactive audit programme for electrical and gas installations and distribution systems*
- *investigate accidents and incidents involving electrical and gas installations and distribution systems*
- *investigate cases where non-compliance is suspected or reported*
- *carry out enforcement activities.*



● Compliance of Installations

WHO MUST COMPLY?

Everyone who designs or does work on installations, supply networks, distribution systems, fittings and appliances in New Zealand must ensure they comply with New Zealand's established regulatory framework. This also applies to everyone who supervises the design or work.

Persons who do work or supervise this work must ensure that:

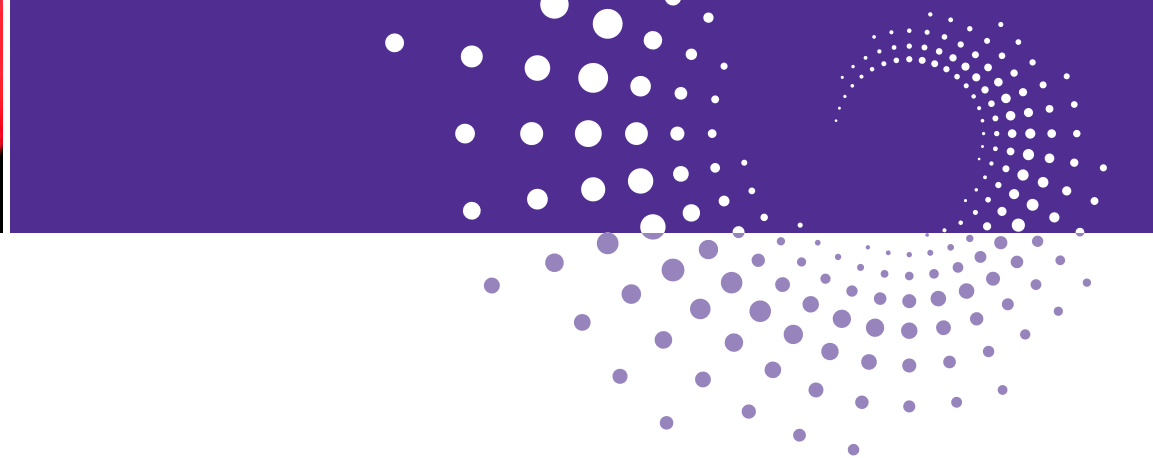
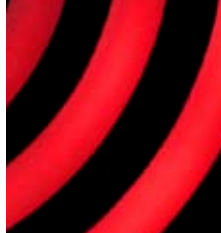
- the resulting works, installations, fittings or appliances are safe
- it has not affected the safety of the rest of the distribution systems or installation
- people and property are protected from dangers arising from the work.

Persons who own or operate works, supply networks, installations, fittings or appliances must not use or allow anyone to use them if they are unsafe.

Installations supplied by both energy sources will have obligations under both the Gas Regulations and Electricity Regulations.

»» Definition of work:

- designing
- constructing
- manufacturing
- assembling
- installing
- connecting
- maintaining
- testing
- certifying
- connecting
- inspecting
- using
- managing.



REGULATORY FRAMEWORK

New Zealand's regulatory framework requires that electrical or gas installations are designed or constructed to be safe. The principal provisions are implemented throughout the installation process. This includes the design, construction, connection as well as disconnection and reconnection. These rules apply to anyone authorised to perform electrical or gasfitting work.

The framework aligns with the following World Trade Organisation (WTO) requirements:

- Performance based
- Risk driven
- Aligned with international standards
- Inclusive of MRAs, including those at equivalent level.

If you have doubt about compliance with the Regulations, Energy Safety recommends you seek advice from professional consultants who specialise in electrical and gas safety, or an accredited testing, or certification agency such as those listed on the [International Accreditation New Zealand \(IANZ\)](#) or [Joint Accreditation System of Australia and New Zealand \(JAS-ANZ\)](#) websites.

Electrical Installations Compliance Framework

The Electrical Installations Compliance Framework is contained in the Act, Regulations and Standards.

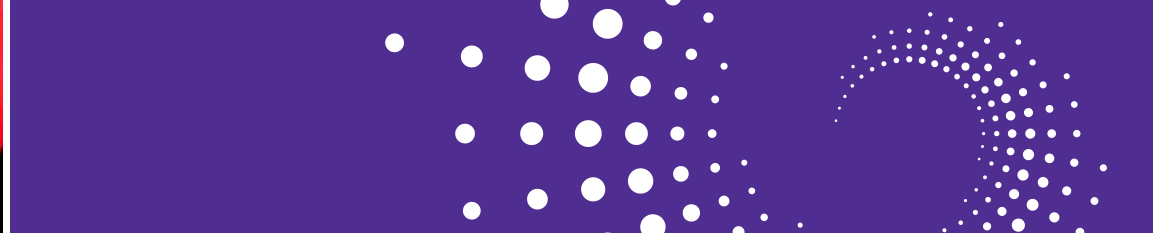
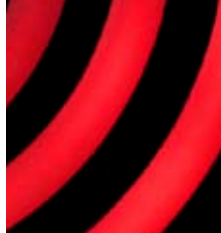
- [Electricity Act](#) – determines power of the Electrical Workers Registration Board (EWRB)
- [EWRB](#) – through registration and licensing, controls who can do the work
- [Regulations](#) – describe the mechanism for doing work
- [Standards](#) – contain the technical requirements.

The previous Regulations had separate requirements for distribution systems (works) and electrical installations.

In the new regime, the majority of technical rules that you need to follow are contained within AS/NZS 3000 (the principal requirements are also mirrored in the Regulations). The requirements for certification, inspection, and testing are contained in the Regulations.

The 2010 Regulations have been rearranged:

- most of the requirements applying to installations have been grouped together
- most of the technical requirements have now been transferred to the Wiring Rules – AS/NZS 3000 – which itself has been expanded to contain more technical information



- the majority of Companion Standards that are referred to by AS/NZS 3000 have also been revised and updated.

The 2010 Regulations still retain requirements for all electrical work to be carried out safely, and for the completed work to be safe.

Gas Installation Compliance Framework

The Gas Installations Compliance Framework is contained in Acts, Regulations and Standards.

- [Gas Act](#) – provides the framework for gas installations.
- [Plumbers Gasfitters and Drainlayers Act](#) – controls who may do gasfitting work.
- [Regulations](#) – describe the requirements for gas installations and certification of gasfitting.
- [Standards](#) – provide technical performance requirements and means of compliance.

The 2010 Regulations still retain requirements for gas work to be carried out safely, and for the completed work to be safe. The majority of technical rules that you need to follow are contained within NZS 5261. This includes testing and commissioning. Requirements for certification are contained in the Regulations.

The 2010 Regulations have been rearranged so that most of the requirements applying to installations are grouped together.

TRANSITIONING FROM OLD TO NEW REGULATIONS

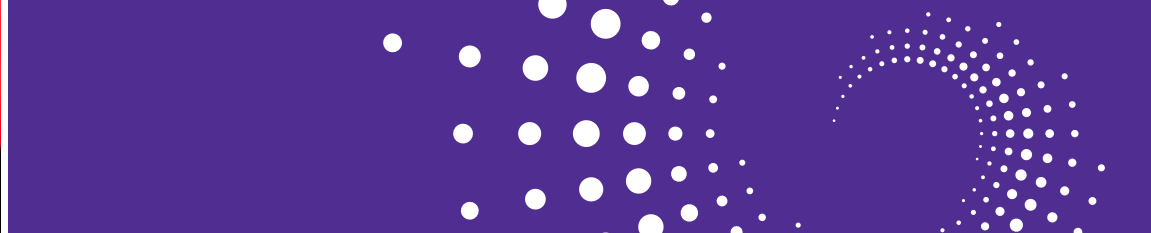
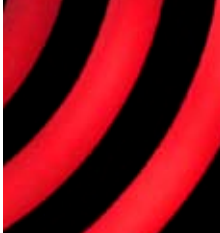
Electrical installations

The new regime is driven by risk, accountability and cost.

- Risk: the higher the risk, the more controls have been set up (inspection, verification, and certification).
- Accountability/liability: systems have been put in place to identify who is responsible and accountable at every stage of the process from design, to construction, connection and maintenance.
- Compliance cost: compliance costs have been reduced on areas on which safety would not be compromised.

The [Electricity \(Safety\) Regulations 2010](#) (Regulations 113 – 118) have provisions that allow works and installations under construction or being installed in New Zealand prior to 1 April 2010 to continue to remain covered by the previous Electricity Regulations 1997.

Works and installations being constructed or installed after 1 April 2010 must comply with the new [Electricity \(Safety\) Regulations 2010](#).



In addition the transitional provisions retain the validity of prohibitions, exemptions and other legislative “instruments” into the new regulatory environment.

When carrying out work on an existing installation:

- only the actual extensions to existing installations are required to be compliant with the latest Regulations and Standards.
- the repair or replacement, including repositioning, of faulty or damaged conductors and the replacement of any fitting, including a conductor, with a fitting of appropriate size, type and rating does not create a need for upgrading.
- the only requirements that apply to the existing parts of an installation when maintaining, extending, or altering the installation, are to replace or upgrade any parts that are now electrically unsafe. In all cases, older wiring rules and practices remain valid.

Gas Installations

Work on gas installations connected to less than 15 kg of LPG remains exempt from the requirement for certification.

Transitional provisions in the [Gas \(Safety & Measurement\) Regulations 2010](#) provide that distribution systems and installations constructed under the previous Gas Regulations are compliant provided they remain safe.

In addition the transitional provisions retain the validity of prohibitions, exemptions and other legislative “instruments” into the new regulatory environment.

Part A: Safety of Electrical Installations and Distribution Works

STAGE	LOW VOLTAGE INSTALLATIONS	HIGH VOLTAGE INSTALLATIONS	WORKS
Design	Choice of design Decide whether design complies with part 1 or part 2 of the wiring rules (Reg 57)	General safety requirements (Reg 14)	Choice of design Must take into account whether installation will operate under Safety Management System (SMS). Can be constructed as low voltage installations (Reg 38) General safety requirements (Reg 14)
	Declaration of Conformity (DoC) Certify choice of design, description of installation, designer's details. (Reg 58)		
Construction	General requirements and technical rules Follow either rules for part 1 (Reg 59) or part 2 (Reg 60) of the AS/NZ3000	Safety requirements relating to overhead lines, earthing systems, isolation from supply of electricity, conductors and notices (Reg 41 to 46)	Construction process General safety rules Reg 34 and 36 SMS No SMS Reg 41(1)(2) Reg 41(3)(4) and 47 to 55 and 42 to 46
	Test the installation in accordance with AS/NZS 3000 (Reg 65) unless exempted for domestic wiring work (Reg 64)		Testing (Reg 38) unless constructed as low voltage installations
	Certification Certify work (Reg 66) then complete Certificate of Compliance (CoC) (Reg 67) within 20 days (Reg 68) on the form approved by the Board (Reg 69)	Certification required	Certification Documentation required only if the person testing is different from person connecting Reg 38(3)
Connection	Inspection Only high risk electrical installations are subject to third party inspection (Reg 70 to 72)	Inspection All high voltage installations are subject to testing (Reg 38) and third party inspection (Reg 70 to 72)	
	Safety check certification and inspection complete Verify and technical safety compliance of the supply (Reg 73)	Safety check (Reg 73 (4))	Safety check Check power supply as specified on Reg 38(2)
Periodic Verification	In service safety verification For installations with high risk of becoming unsafe overtime (Reg 75)		In service safety verification Reg 41(1)(2)
	Warrant of electrical fitness required for certain installations (Reg 76 to 78)		Audit Reg 51 and statutory declaration Reg 53 at least once every 5 years
	Reconnection Certificate of Verification (CoV) required if disconnection → 6 months (Reg 74)		



LOW VOLTAGE INSTALLATIONS

Introduction

During the installation, and at its completion, the installation work is tested and certified.

For those installations or part of installations recognised as having higher risk of harm or damage to property by reason of their particular characteristics, e.g. high voltage, hazardous areas, electrical medical, mains, etc , an independent inspection is required.

Finally, the installation work can be permanently connected to a supply after the certification, testing, and safety verifications have been completed.

AS/NZS 3000 has been written to allow its use in different regulatory systems. However, in New Zealand, Part 1 or Part 2 are applied as two distinct and separate options, and any cross references between Part 1 and Part 2 have no relevance when Part 2 is being applied.

Regulation 14 makes it an offence to complete a design – including supervision – which if constructed would not be electrically safe.

Design

Choice of design

At the beginning of the construction (or extension) of a low voltage electrical installation, a choice has to be made as to whether the installation work can be compliant with the prescriptive requirements of Part 2 of AS/NZS 3000 (Wiring Rules) or could only be constructed to the fundamental principles contained in Part 1.

The establishment of the design can be made by:

- the same electrician who constructs the installation
- different electricians for the design and the installation
- an engineer.

Every installation that operates at low voltage or extra-low voltage must comply with either Part 1 or Part 2 of AS/NZS 3000 [Regulation 57](#). However, there are some limitations to the use of Part 1:

- installations considered to be high risk
- domestic installations requiring home owner wiring.



[Regulation 60](#) gives the details of those installations that are required to comply with Part 2 of the Wiring Rules.

The design will need to have been declared on a Declaration of Conformity (DoC) in accordance with the Regulations.

Measures must be put in place to do at least one of the following – [Regulation 20](#):

- *Prevent accidental contact with exposed parts.*
- *Provide automatic disconnection of power if a fault arise that would cause injury.*
- *Prevent or limit (IEC shock current standards) electric current passing through the body of a person on contact of any part of the works or installations.*

Declaration of Conformity (DoC)

The choice is then declared by the installer, or by the designer if the designer is not responsible for the installation work. This declaration can be made on the Certificate of Compliance (CoC) for the work by the installer, or on a separate form if declared by a designer who is not the installer.

If the installer has chosen to use Part 1 then a separate DoC will be needed.

[Regulation 58](#) specifies the details required on a DoC:

- Designer's details and signature.
- Description and location of installation.
- Compliance with either Part 1 or Part 2 of the wiring rules (AS/NZS 3000).
- If Part 1: confirm compliance with [Regulation 63](#).

Once the design has been declared, the installation work can begin.



Construction

General requirements

Installations complying with Part 2 are subject to the Technical Requirements of Part 2, but are certified, tested, and inspected as detailed in the Regulations. Although technically a Part 2 installation meets the fundamental safety principles of Part 1 none of the Regulatory requirements applying to a Part 1 design apply if Part 2 has been chosen.

Technical Rules

Rules for Part 1

When Part 1 is being used, a number of additional technical and documentation requirements are required. These are set because installations in accordance with Part 1 are considered to be a higher risk installation.

Installations designed to Part 1 are required to be installed in accordance with the technical, testing, certification and inspection requirements of **both** the Regulations and Part 1 of the Wiring Rules.

The use of Sections of Part 2 to achieve compliance with Part 1 is only recognised where explicitly detailed in the Wiring Rules.

The new Regulations retain flexibility to depart from the listed Standards by applying Part 1 of the Wiring Rules. This flexibility is restricted to those circumstances where higher risks do not exist.

There are limitations as to when Part 1 can be applied. Part 1 cannot be applied for:

- *domestic installations with maximum demand up to 80A 1 Ph /50A Multi-phase MUST be to Part 2 (Regulation 60(1))*
- *specific high risk installations (medical, mobile medical, connectable, shows and carnivals, hazardous, marinas) MUST comply with AS/NZS 3000 Part 2 and the relevant Companion Standard. (Regulation 60(2)).*

Compliance with Part 1 requires the designer to complete a DoC and the design must be followed by the installer ([Regulation 58](#)). The installations design MUST be fully documented to show how compliance has been achieved and MUST be independently audited.



When designing and installing to Part 1, it is also important to consider the requirement of Part 2 of the Electricity Regulations, in particular, [Regulations 20, 22, 24](#) and [Regulation 8 of Part 1](#).

There are specific safety requirements applying when Part 1 is being used ([Regulation 59](#)):

- Switches and circuit breakers in unearthed 2- and 4-wire systems must operate in all conductors
- Switches, fuses and circuit breakers must not be installed into an earthing conductor
- The installation must be designed so that the voltage drop is not more than 5% under maximum load conditions between the point of supply and any socket-outlet or the supply terminals of fixed appliances operating at standard low voltage.

Rules for Part 2

Installations complying with Part 2 are subject to the technical requirements of Part 2, but are certified, tested, and inspected as detailed in the Regulations.

For most installations, AS/NZS 3000 Part 2 will be suitable and so the installation would be carried out in accordance with that Standard.

AS/NZS 3000 is supported by a number of Companion Standards that set special requirements for particular types of installation.

Where an installation is being constructed to comply with Part 2, any part of the installation containing electrical installations listed below must comply with Part 2 and with the relevant companion standard indicated ([Regulation 60\(3\)](#)):

- refrigeration system (but not a refrigeration appliance): AS/NZS 1677.2
- animal stunning or meat conditioning system: NZS 6116
- stand-alone power system: AS/NZS 4509.1
- photovoltaic array: AS/NZS 5033
- emergency power supply in a hospital: AS/NZS 3009
- low voltage mains parallel generation system that is connected to the national grid: AS/NZS 3010 and AS 4777.1.

Although technically a Part 2 installation meets the fundamental safety principles of Part 1, none of the Regulatory requirements applying to a Part 1 design apply if Part 2 has been chosen.



Electrical installations listed below must comply with Part 2 and with the relevant standard indicated ([Regulation 60\(2\)](#)):

- domestic installation that has a maximum demand at or below 80 amperes single phase or 50 amperes per phase in multi-phase
- electrical medical devices: AS/NZS 3003
- hazardous area: AS/NZS 60079.14
- mobile medical facility: NZS 6115
- pleasure vessel/marina: AS/NZS 3004.2
- all other connectable installations: AS/NZS 3001
- in a show or carnival: AS/NZS 3002
- intended to supply any other connectable installation: AS/NZS 3001.

In all cases, departures from the cited Standards are considered to be a departure from Part 2 and the rules applying to a Part 1 solution would apply.

The as-built drawing provided by third parties such as installers are not the designs required to be declared by the engineer or designer in the Regulations. They are simply drawings that document what was done for the clients.

» Final Subcircuit

AS/NZS 3000 sets requirements for the number of final subcircuits that can be connected to an RCD.

In New Zealand, a final subcircuit is considered to start at the terminals of a protective device for that circuit and extend along all cables supplied from that protective device, irrespective of any branching might be taking place, including branching directly from the terminals of the protective device.

In effect this means that an RCD feeding three subcircuits would be one supplying, for example, three circuit breakers.

Design changes

The installer is responsible for any changes or additions. The designer must either:

- complete design declarations as changes, or
- document these changes on a CoC.

Other parties making design changes need to supply a declaration of their designs to the installer so responsibility for all design and changes is accounted for.

This way a project remains on track with DoCs completed as the project develops. There is no need



to revise the engineer's original declarations as long as the design remains to Part 2 of AS/NZS 3000.

Engineers still remain responsible for the overall design and aspects of the design that have not been changed. The engineer cannot contract out of this responsibility.

Testing

The Regulations implement three levels of testing and verification, depending on the elements of safety that are involved, in recognition of the principles of risk management.

At the first level most work is allowed to be self certified and connected. The Regulations are prescriptive on the various tests and checks necessary to verify the safety of the work carried out. Self checks would include polarity testing, continuity testing and other testing.

At the second level certain work, recognising that safety is more critical, requires additional independent checks and hence the requirement of an inspector. This requirement is for the likes of mains work, medical electrical locations, hazardous areas of work.

An electrical installation can be connected to a supply for the purposes of testing. This is provided for in Section 82(4) of the Electricity Act.

At the third level a small amount of work where safety is vital requires the testing to be carried out a third time, in many cases by another person. This requirement is applicable for the connection of any Mains Work.

The Multiple Earthed Neutral (MEN) system in New Zealand is safe only if the polarities of both the supply system and the installation are correct and the connections of the neutral are reliable.

This is why polarity testing and earthing verification are absolutely critical and are repeated as requirements for the installer, inspector, and person making a connection to an electricity supply.

The safety requirements of mains and the MEN switchboard are so critical that failure to comply with these requirements is very likely to result in the most serious sanctions being sought in any enforcement action.

All testing required by the Regulations must be certified, and if not carried out by the installer may need to be certified on a separate certificate.



Test in accordance with AS/NZS 3000

All low voltage installations must be tested in accordance with AS/NZS 3000 ([Regulation 65](#)), unless the person is acting under the exemption for domestic electrical wiring ([Regulation 64](#)).

Special situations

Where the work has been carried out in accordance with a Companion Standard, that work must also be tested in accordance with the Companion Standard.

Low voltage AC railway signalling equipment must be tested in accordance with Electrical Code of Practice (ECP) 60, and not in accordance with AS/NZS 3000.

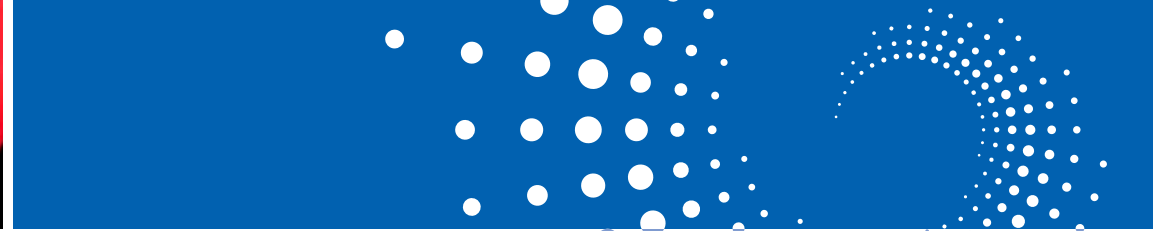
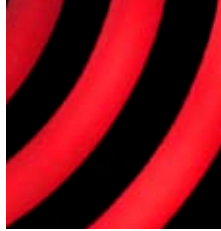
[Regulation 67](#) allows multiple signatures on a CoC (or multiple CoC's) where the Prescribed Electrical Work (PEW) has been done by more than one person, e.g. installation, testing. The person completing a CoC may then rely on other CoC's and DoC's as to correctness of the electrical design, metering safety, and the safety of fittings.

Certification

The requirements applying to certification have changed to introduce more flexibility, and Declarations of Conformity (DoC) have been introduced. This allows transfer of responsibility to others who may have contributed to the completed installation, for example, when the testing work has been carried out by another worker.

Most installation wiring work (the placing, replacing, or repositioning conductors or fittings attached to conductors) is required to be certified. However, there are a number of exemptions that apply ([Regulation 66\(3\)](#)):

- work done on an installation by a person acting under the exemption in Section 79 ('home owner wiring') of the Electricity Act, unless Regulation 64 (work requiring inspection) requires the work to be certified
- the repair or replacement of a faulty or damaged conductor
- the replacement of a fuse carrier with a circuit breaker appropriate to the rating of the electrical circuit in which the replacement is being made
- the replacement of any fitting with a fitting of an appropriate size, type, and rating for the electrical circuit



- the installation of a revenue meter, provided that:
 - the work does not involve alterations to mains or a main switchboard; and
 - there is a DoC for the revenue meter, signed by the installer.

A Certificate of Compliance (CoC) for a completed new low voltage installation must:

- indicate that the installation on which the work has been done is, and will be when connected to a power supply, electrically safe
- certify that the work has been done in accordance with the Act and the Regulations
- specify whether the installation is installed in accordance with a design prepared under Part 1 of the Wiring Rules or was installed in accordance with Part 2 of the Wiring Rules
- confirm that the person certifying the work has sighted or made the relevant declaration of conformity required by [Regulation 55](#).

Any CoC may also certify any of the following:

- particular tests have been satisfactorily completed
- the ratings of the earthing system for the installation is correct
- particular fittings on which work has been done are safe to connect to a power supply

- the installation or particular parts of an installation are safe to connect to a power supply.

Some of the certification, for example the certification of testing, may be completed by another licensed worker.

An installation that requires certification cannot be connected to a power supply until all of the certification has been completed. Some of the certification, for example, the certification of testing, may be completed by another licensed worker.



Safety Rules

If there is a danger from electricity during the installation work, signage is required ([Regulation 63](#)).

The purpose of this sign is to identify to the public that the environment they are entering is not the normal environment they may be used to and that they should take extra care; for example parents should more closely supervise their children.

The signage does not remove the obligation for safety applying to the person who has control of the installation under [Regulation 16](#) or the electrical workers under [Regulation 13](#).



» Inspection and Testing

Not all Testing and Inspection is Prescribed Electrical Work (PEW). Testing and Inspection is PEW only if it meets the following three criteria concurrently:

- *that the Inspection or Testing work is PEW within [schedule 1](#); and*
- *that the Inspection or Testing work is Inspection or Testing required to be carried out for compliance with the Regulations. For example: Testing to comply with [Regulation 65](#); and*
- *that the Testing or Inspection work is that work which is being carried out for that purpose of compliance with the Regulations. For example, insulation resistance testing that is not being used for the certification of an electrical installation, is not PEW.*

Inspection

Electrical installations considered to comprise a high risk are subject to third party inspection ([Regulation 70](#)). Such installations include:

- those carried out in accordance with Part 1 of AS/NZ 3000
- installations that operate at high voltages
- mains work
- work on mains parallel generation
- work on hazardous areas
- installations intended for use with electrical medical devices
- work on animal stunning appliances or meat conditioning appliances.

The applicable Regulations are [Regulations 70](#), and [66](#), and [Regulation 4](#) for the definition of “Mains work” and the definition of an “MEN switchboard”.

It is an offence to sign a Certificate when the inspector is not satisfied of the compliance of the installation work.



The person certifying the inspection must retain the certificate and make it available when requested by the EWRB.

The inspection, third-party verification, must be carried out to ensure that the installation will be safe when connected to a supply and has been done in accordance with the Act and Regulations. ([Regulation 71](#)).

Inspections can only be carried out by a person who is authorised by their registration and practising licence to carry out inspection work and by a person who has not carried that work or supervised that work or certified that work ([Regulation 71](#)).

References to “Inspections” within AS/NZS 3000 do not imply that that “inspection” is work required to be performed by an “Inspector” unless the Regulations specifically require these aspects of the work to be inspected by a person authorised (Registered and Licensed) to perform inspection. For example, when the installation work is in a hazardous area.

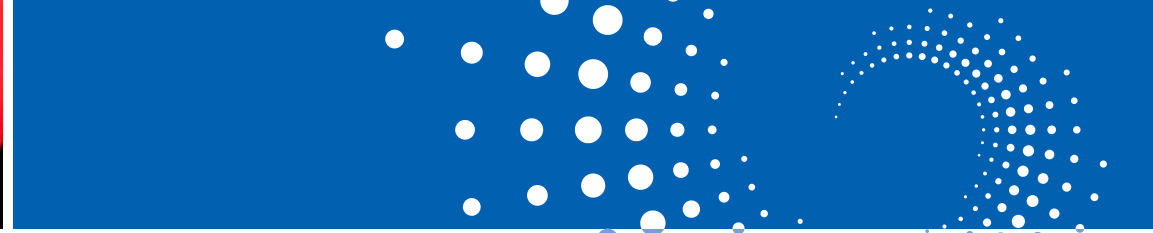
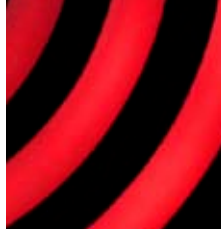
The inspection must be carried out in accordance with the requirements of the applicable installation standards ([Regulation 72](#)).

Only when the installation has been confirmed to be compliant may the inspection certificate portion of the CoC be signed by the “inspector”. Any certification must be dated not earlier than six months before the proposed connection.

Work done on an installation that complies with Part 1 of AS/NZS 3000 must be inspected in accordance with that standard and in accordance with the verification process described in the DoC for the installation.

The requirements applying to the inspection of each of the specific kinds of installations are set in the Regulations ([Regulation 72](#)). The “Inspector” must work in accordance with AS/NZS 3000 and the standard indicated:

- *mains parallel generation systems: AS 4771.1 and AS/NZS 3010*
- *installations in hazardous areas: AS/NZS 600079.17*
- *installations for use with electrical medical devices situated in mobile medical facilities NZS 6115*
- *installations intended for use with electrical medical devices situated in other medical location AS/NZS 3003*
- *work on animal stunning appliances or meat conditioning appliances: NZS 6116.*



» Inspection of Switchboards

To require inspection, the work relating to the addition of a new final sub-circuit to a “MEN Switchboard closest to the point of supply” must firstly comprise PEW subject to certification under [Regulation 66](#), taking into account the exceptions of [Regulation 66\(3\)](#).

The definition of “Mains work” makes reference to a “MEN switchboard”, which in turn clarifies the particular aspects of the switchboard that are relevant. In this way the two definitions point to the features of the switchboard that would make the work subject to inspection.

Therefore, unless the work carried out on the MEN switchboard relates to the “connection to an earth electrode via an earthing conductor, and a connection between earth and neutral made by a removable link, for the purposes of creating a MEN system”, the work is not considered to comprise of “Mains work” and therefore not subject to inspection.

Connection

The next stage of the work is its permanent connection to a supply. Connection is interpreted as the last activity that is prescribed electrical work that results in the installation becoming alive – other than for testing – or being able to subsequently be made alive bar an action that is not prescribed electrical work. For example, turning on the main switch is not connecting.

Temporary connection for the purposes of testing may have already taken place.

The Regulations use the action of connecting completed work to a supply – which is prescribed electrical work – as the keystone of the safety regime by requiring those making a connection responsible for verifying the safety or certification of the work being connected. The Regulations also use the expanded certification requirements to ensure safety is achieved.

Any certification must be dated not earlier than 6 months before the proposed connection.



Before any low voltage installation work can be connected to a supply, the person intending to make the connection must:

- verify that the work has been certified or
- have certified that work.

The certification is required to cover the requirements of [Regulations 67\(1\) and 67\(2\)](#)

AND

- verify that any necessary inspection has been carried out and certified or
- inspect and certify the work ([Regulations 70 to 72](#))

AND

- verify the technical safety compliance of the supply ([Regulations 73\(2\)](#)).

The person doing the connection must:

- ensure that the polarity and phase rotation of the supply is correct
- ensure that the protection of the supply is correctly rated
- verify, by testing, checking, or sighting a declaration as to safety, the safety of revenue meters and associated load control fittings of mains
- ensure that the installation is compatible with the supply system

- if the supply system is from a MEN system, verify that there is a main earthing system
- if PEW has been done on the installation, either certify it or sight a certificate given by another person.

» Metering

If a new revenue meter or associated load control fittings of mains have been installed, or there are revenue meters or associated load control fittings on which PEW has been done, their safety must be verified by confirming that there is a DoC for the revenue meter, signed by the installer, confirming that it is safe to connect.

The installation of a revenue meter and associated load control fittings does not require certification providing the work is covered by a DoC, signed by the installer, that confirms the revenue meter is safe to connect, and the work does not involve alterations to mains or a main switchboard. See [Regulation 73\(2\) \(a\)\(v\)](#).



Periodic verification

A person who owns or operates works, installations, fittings, or appliances must not use, and must not allow anyone to use, the works, installations, fittings, or appliances if they are electrically unsafe.

In service safety verification

Certain installations are at higher risk of becoming unsafe over time and therefore, they must be inspected and tested.

These low voltage installations must be verified by authorised persons ([Regulation 75 \(1\)\(a\)\(b\)\(c\)](#)):

- caravan parks
- boat marinas
- demolition and construction sites.

These low voltage installations must be verified by competent persons ([Regulation 75 \(1\)\(d\)\(e\)\(f\)](#)):

- carnivals and fair grounds
- hazardous areas
- medical facilities.

Warrant of electrical fitness

A warrant of electrical fitness, issued by an authorised person, is required prior to connecting or using electrical installation in [Regulations 76, 77, 78](#):

- a vehicle
- relocatable building
- pleasure vessel.

Reconnection

If the installation has been disconnected for more than 6 months, the person doing the connection must give or sight a Certificate of Verification (CoV) issued in accordance with Section 3 of AS/NZS 3019 that it:

- was issued no earlier than 6 months before the date of reconnection
- certifies the installations are suitable for continued use, and
- is given by a person authorised to certify mains work.



HIGH VOLTAGE INSTALLATIONS

General

Unlike a low voltage installation which is generally designed and constructed in accordance with technically prescriptive requirements, most high voltage installations are unique to their application and are designed according to electrical engineering safety principles. As a result, the Regulations that apply set fundamental safety requirements only.

In addition, high voltage installations require planned ongoing maintenance and are often designed as a part of or closely interact with the electricity distribution supplying them. As a result, the Regulations implement explicitly a number of measures that apply the same principles and practices across the supply systems/installations interface.

Reflecting the engineered installation philosophy, the Regulations achieve control through identifying the factors that need to be addressed during design and construction and by defining characteristics that are considered to be unsafe.

Note: *The Regulations in defining “safe” and “unsafe” reflect the principle that there is a technical distance between what is defined as being safe and what is defined as being unsafe. This distance provides scope for innovation between recognised practices and unacceptable technical factor.*

Design

[Regulation 14](#) makes it an offence to complete a design – including supervision – which if constructed would not be electrically safe.

Owners of installations are responsible for ensuring the risks of injury to persons or damage to properties are minimised ([Regulation 41](#)). This requirement applies to:

- design
- construction
- maintenance.

[Regulation 20](#) defines electrically unsafe works and installations.

Works and installations are unsafe if:

- the characteristics of any fittings are impaired
- the conductors are inadequately identified (e.g. the neutral conductor must be black/black must not be used for any other conductor)
- the connections are not secure and reliable
- cooling conditions are impaired
- there is a risk of ignition (e.g. fittings subject to high temperature unguarded.)
- cables are not protected against the risk of damage or are bent beyond their design criteria
- there is insufficient space to work on the installations safely.



In addition, measures must be put in place to do at least one of the following:

- prevent accidental contact with exposed parts
- provide automatic disconnection of power if a fault arise that would cause injury
- prevent or limit (International Electrotechnical Commission shock current Standards) electric current passing through the body of a person on contact of any part of the works or installations.

Construction

The overhead lines must be capable of withstanding, without damage, the likely static and dynamic loading; and must not become unsafe or dangerous to the public or to persons likely to work on them. If overhead line structures fail to meet these requirements they must be marked and repaired or replaced within 12 months (or 3 months if there is a risk of injury or damage to property) ([Regulation 41](#)).

High voltage conductors of overhead electric lines must be by earth fault protection fittings ([Regulation 44](#)).

Installations must be protected by an earthing system compliant with ECP 35 or, in the case of a railway electrification system, IEC 62128-1 ([Regulation 42](#)).

The installation must be capable of being isolated from its supply of electricity. If the installation comprises separate parts, each part must have an isolation fitting to disconnect that part from its supply of electricity ([Regulation 43](#)).

Visible and durable notices reading “Danger Live Wires” or equivalent warnings must be installed on all poles or supports carrying uninsulated conductors ([Regulation 45](#)).

The owner must keep records and plans of the installations ([Regulation 46](#)).

Connection

Inspection

Electrical work on installations that operate at high voltages must be inspected ([Regulation 70](#)).

The inspection, third-party verification, must be carried out to ensure that the installation will be safe when connected to a supply and has been done in accordance with the Act and Regulations ([Regulation 71](#)).

The person certifying the inspection must retain the certificate and make it available when requested by the Regulator.



Inspections can only be carried out by a person who is authorised by their registration and practising licence to carry out inspection work and by a person who has not carried, supervised or certified that work ([Regulation 71](#)).

The inspection must be carried out in accordance with the requirements of the applicable installation standards ([Regulation 72](#)).

Only when the installation has been confirmed to be compliant may the inspection certificate portion of the CoC be signed by the “inspector”.

The “inspector” must work in accordance with AS/NZS 3000 and the standard indicated:

- *mains parallel generation systems: AS 4771.1 and AS/NZS 3010*
- *installations in hazardous areas: AS/NZS 600079.17*
- *installations for use with electrical medical devices situated in mobile medical facilities NZS 6115*
- *installations intended for use with electrical medical devices situated in other medical location AS/NZS 3003*
- *work on animal stunning appliances or meat conditioning appliances: NZS 6116.*

The inspection of work done on a high voltage installation must verify that the installation complies with ECP 34 and also with [Regulations 34, 41\(1\), 42\(1\), 43\(1\), and 44\(1\)](#), as if references in those Regulations to works were references to high voltage installations.

Safety Check

A person who owns or operates works, installations, fittings, or appliances must not use, and must not allow anyone to use, the works, installations, fittings, or appliances if they are electrically unsafe.

Before any high voltage installation work can be connected to a supply, the person intending to make the connection must:

- inspect and certify the work ([Regulations 70 to 72](#))

AND

- be satisfied that tests have been carried out to ensure the electrical safety, the compatibility with the supply system, and the correct polarity, phase rotation and protection of the supply ([Regulation 38](#) and [Regulation 73\(4\)](#))

AND

- verify the technical safety compliance of the supply ([Regulations 27 to 33](#)).



Periodic verification

There is a requirement to implement a safety checking system ([Regulation 40](#)) that must:

- verify compliance with all the requirements
- occur periodically at reasonable intervals
- ensure records of results are being kept.

Private distribution systems

The Regulations formally allow the Wiring Rules to be used for Private Works, for example low voltage wiring of a shopping centre that would otherwise be classified as “works”. The same principles as those described under the low voltage installations section of this guide apply.

WORKS

General safety obligations

There is a general obligation on everyone who designs, constructs, maintains, uses or manages a distribution system to ensure the distribution system is safe.

Some general safety rules apply to all works, whether they are covered by a Safety Management System (SMS) or not:

- The owner of works must ensure the works and fittings have adequate electrical protection against short circuits and earth faults.
- A person must not interfere with, move or attempt to move the works ([Regulation 35](#)).
- Electricity generations facilities of works and installations must be secured against access by unauthorised persons ([Regulation 36](#)).
- Before any works on which prescribed electrical work has been done are connected to a power supply, the person who does the connection must ensure that tests have been carried out to ensure the electrical safety, the compatibility with the supply system, and the correct polarity, phase rotation and protection of the supply Regulation ([Regulation 38](#)).



Works covered by Safety Management Systems (SMS)

Safety Management Systems (SMS) create an environment where all aspects of the design, construction and operation of a electricity distribution system are subject to third party audit and certification. This allows the owner or operator of a distribution system to fulfil their legal obligations for safety in a rigorous manner while at the same time allowing a certain amount of flexibility in their implementation.

Electricity generators and distributors that own or operate an electricity supply system must implement and maintain safety management systems. Owners or operators of other works may opt in to having a SMS in order to meet their obligations to ensure safety.

A SMS is implemented and maintained by a safety management system operator. The SMS ensures that all practicable steps are taken to prevent the electricity supply system or works from presenting a significant risk of:

- *serious harm to a person*
- *significant damage to property.*

SMSs must either comply with NZS 7901 or [Regulations 49](#) and [50](#).

Each SMS must be fully documented and provide for the following:

- the systematic identification of hazards
- the assessment of hazards
- the steps to be taken to eliminate, isolate, or minimise hazards and to mitigate risks from those hazards
- assessment of the effectiveness of this risk management
- investigation of accidents
- enhancement of safety performance throughout the system including performance measurement
- an audit programme.

Every SMS must be regularly audited by an accredited auditor to confirm it is being implemented and maintained in compliance with these requirements ([Regulation 51](#)).

The requirement for a SMS comes into force on 4 May 2013.

Operators of SMS are required to provide the Secretary with a statutory declaration at least once every five years to confirm the operator has a current audit certificate ([Regulation 53](#)).



The first such statutory declaration must be made and sent to the Secretary within six months of the first audit of the SMS.

Auditors must not issue an audit certificate without being satisfied that the conditions are being met. They are required to cancel the audit certificate for an SMS if the requirements for an SMS are not met, or if the Secretary directs cancellation on the grounds that the SMS is not being implemented ([Regulation 54](#) and [56](#)).

Works not covered by SMS

Distribution systems that are not covered by an SMS must meet the requirements of [Regulations 40 to 46](#). These Regulations require owners and operators to ensure the safety of their works by ensuring:

- adequate records and plans are kept up to date
- these works are designed, constructed, maintained and operated in a manner that achieves continuity of supply and safety of the distribution systems
- that overhead electric lines are constructed to support structural design loads with no risk of failure or injury to persons

- that the works are protected by an earthing system
- that the works are capable of being isolated from its supply of electricity
- that high voltage conductors of overhead electric lines are protected by earth fault protection fittings that interrupt fault currents to earth in 5 seconds or less
- that notices reading “Danger Live Wires” are affixed, and maintained on all poles that carry uninsulated conductors
- keeping records and plans of those works.

If overhead line structures are damaged or unsafe, the owner must repair or replace them within the maximum timeframe set by [Regulation 41](#) depending on their condition.

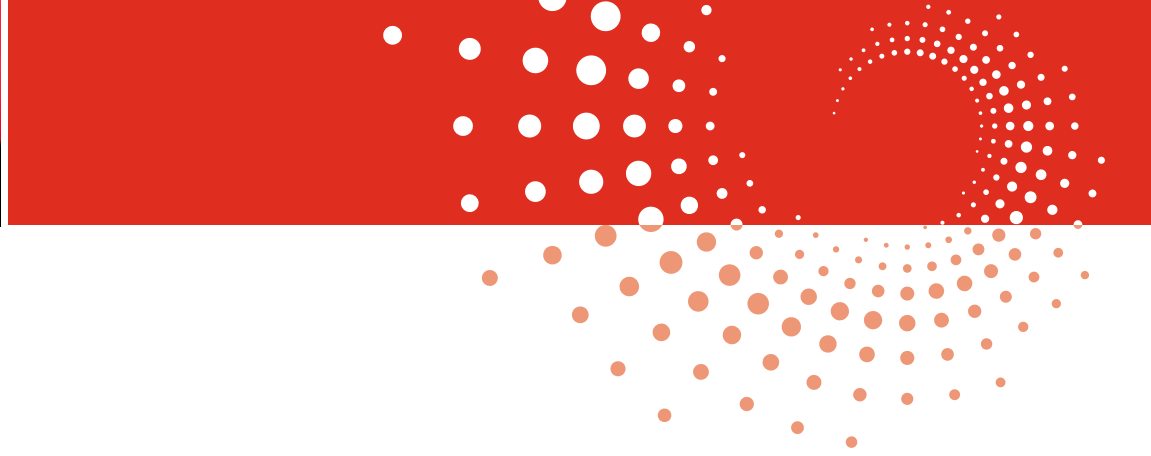
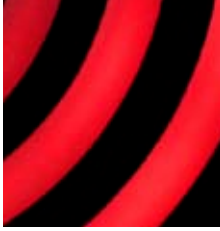


● Part B: Safety of Gas Installations and Gas Distribution Systems

GENERAL SAFETY REQUIREMENTS

There is a general obligation on every person who commissions, imports, installs, tests a gas installation or gas distribution system to take all practicable steps to ensure that the gas installation or gas distribution system is safe. This applies to a gas installation, part of a gas installation, extension or replacement of a gas installation.

STAGE	LOW CAPACITY INSTALLATIONS	HIGH CAPACITY INSTALLATIONS	DISTRIBUTION SYSTEMS
Design and Construction (including testing and commissioning)	Design and construction Reg 43 and in accordance with NZS 5261 Part 1 AND Part 2 or NZS 5428 (for caravans and boats)	Design and construction Reg 43 and in accordance with NZS 5261 Part 1 AND Part 2 or Part 3	Design and construction SMS or relevant distribution standards
	Performance requirement	Performance requirement	Performance requirement
Who can do the work	Licensed gasfitters or licensed certifying gasfitters or other authorised persons	Licensed gasfitters or licensed certifying gasfitters or other authorised persons	Competent persons authorised by owner or operator of distribution systems
Certification	Certification Certify work (Reg 44 to 48) within 10 days of completing the work and supply to Board within 5 days. Copy to client and retain a copy in accordance with (Reg 48)	Certification Certify work (Reg 44 to 48) within 10 days of completing the work and supply to Board within 5 days. Copy to client and retain a copy in accordance with (Reg 48)	Certification of work is not required by the Regulations
Connection	Inspection Third-party inspection of gas installations not required	Inspection Third-party inspection of gas installations not required	Inspection
	Safety check Certification and inspection complete. Verify and technical safety compliance of the supply (Reg 50)	Safety check Certification and inspection complete. Verify and technical safety compliance of the supply (Reg 50)	



LOW CAPACITY GAS INSTALLATIONS

Definition

Low capacity installations are gas installations containing gas appliances with a capacity typically under 250 MJ/h.

These usually include domestic and small commercial installations such as offices, shops, gymnasiums and sports complex.

Design and construction

Part 1

Anyone who commissions, installs, tests or imports a gas installation must ensure it complies with Part 1 of NZS 5261. This applies to the full installation, and any part, extension, addition or replacement of an installation.

Part 1 gives essential requirements for the safety of gas installations. These express the safety objectives that are to be achieved. They cover materials and components, design and construction for the completion of gas installations, including appliances and flueing requirements.

Anyone who designs, constructs, maintains, uses, or manages a distribution system or gas installation must ensure that it will be safe to use – [Regulation 9](#).

Part 2

Part 2 gives means of compliance with Part 1 for low volume gas installations. It can also provide guidance for simple installations of higher gas consumption.

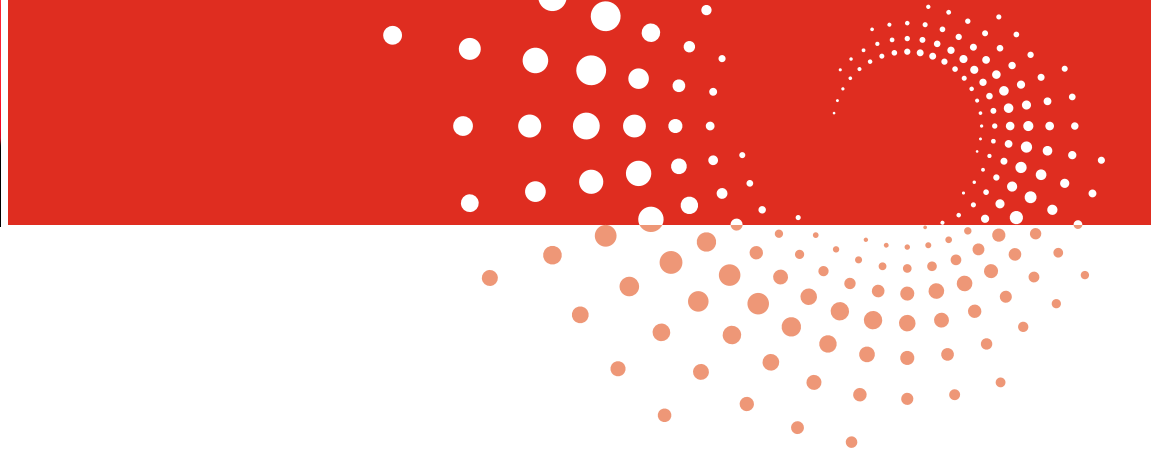
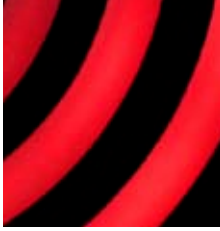
NZS 5428 provides a means of compliance for gas installations in caravans and boats.

Part 2 and NZS 5428 give specific instructions that, if followed, result in installations that meet the essential requirements or safety objectives of Part 1.

Topics covered in Part 2 include materials and components, installing pipe work, installing gas equipment and appliances, ventilation and flueing, and testing and commissioning.

Safety of installations

There is a general obligation on everyone who owns, supplies, sells or operates a gas installation to not use or allow another person to use the gas installation if it is unsafe ([Regulation 9](#)).



HIGH CAPACITY GAS INSTALLATIONS

Definition

High capacity installations are gas installations containing gas appliances with a capacity typically over 250 MJ/h.

These usually include installations that are connected to large capacity gas appliances such as boilers and package burners used in industrial processes.

Design and construction

Part 1

Anyone who commissions, installs, tests or imports a gas installation must ensure it complies with Part 1 of NZS 5261. This applies to the full installation, and to any part, extension, addition or replacement of an installation.

Part 1 gives essential requirements for the safety of gas installations. These express the safety objectives that are to be achieved. These include materials and components, design and construction for the completion of gas installations, including appliances and flueing requirements.

Part 2

Part 2 gives means of compliance that can be applied to simple installations that have a total gas

consumption under 250 MJ/h or include simple appliances with gas consumption under 250 MJ/h.

Part 3

Part 3 can be applied to establish means of compliance for gas installations containing appliances generally with capacity over 250 MJ/h, and one-off designs.

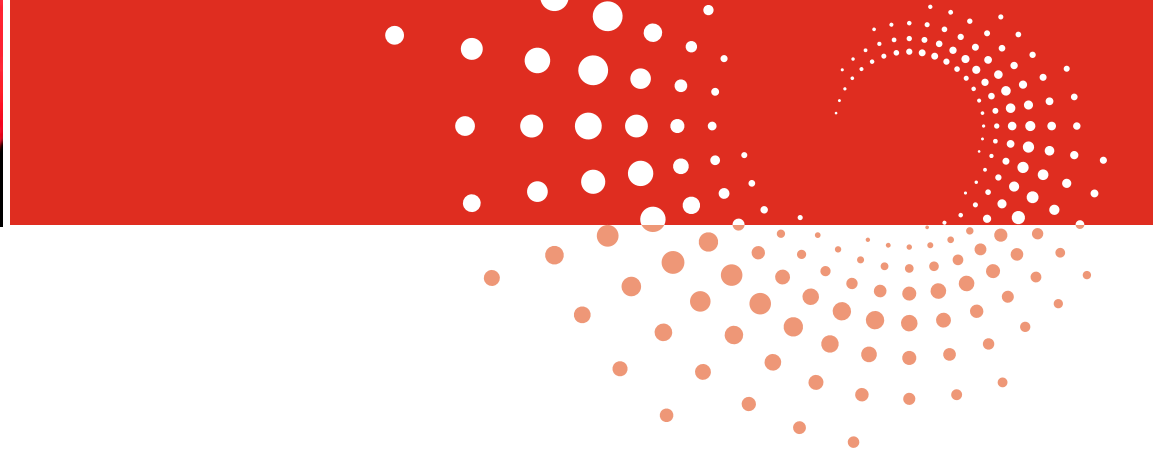
Part 3 allows flexibility in selection of means of compliance that meet the Part 1 essential requirements. When using Part 3, practitioners must ensure that the means of compliance used fully address the essential requirements of Part 1.

Part 3 allows the selection of relevant Standards or industry Codes to suit each particular application and ensure that the essential requirements of Part 1 are met. This includes:

- materials and components
- installing pipe work
- installing gas equipment and appliances
- ventilation and flueing
- testing and commissioning.

Safety of installations

There is a general obligation on everyone who designs, constructs, maintains, uses or manages a gas installation to ensure the installation is safe. ([Regulation 9](#)).



COMPRESSED NATURAL GAS (CNG) STATIONS

Definition

Compressed Natural Gas (CNG) is methane-based gas compressed for storage or use outside a gas transmission or distribution system. CNG is used as a vehicle fuel. CNG refuelling stations are gas installations subject to a particular part of the Gas Regulations. CNG installations are subject to additional inspection, training and records requirements as described at the end of this section.

Design and construction

CNG stations must be designed and constructed to be safe and NZS 5425 provides means of compliance.

Safety of CNG stations

There is a general obligation on everyone who owns, supplies, sells or operates a gas installation, that they must not use or allow another person to use the gas installation if it is unsafe ([Regulation 9](#)).

[Regulation 80](#) makes specific requirements to maintain CNG stations in a safe condition and ensure they are operated safely. Gas Code of Practice (GCP) 2 is deemed compliance with this Regulation.

Operation and periodic inspection

Operator training

Operators of CNG stations must ensure that vehicles are refuelled at the station by or in the presence of a person who has received training in safety requirements specified in Schedule 3 of the Gas Regulations.

In service safety inspection

Because CNG installations represent a higher risk, they must be inspected on a periodic basis.

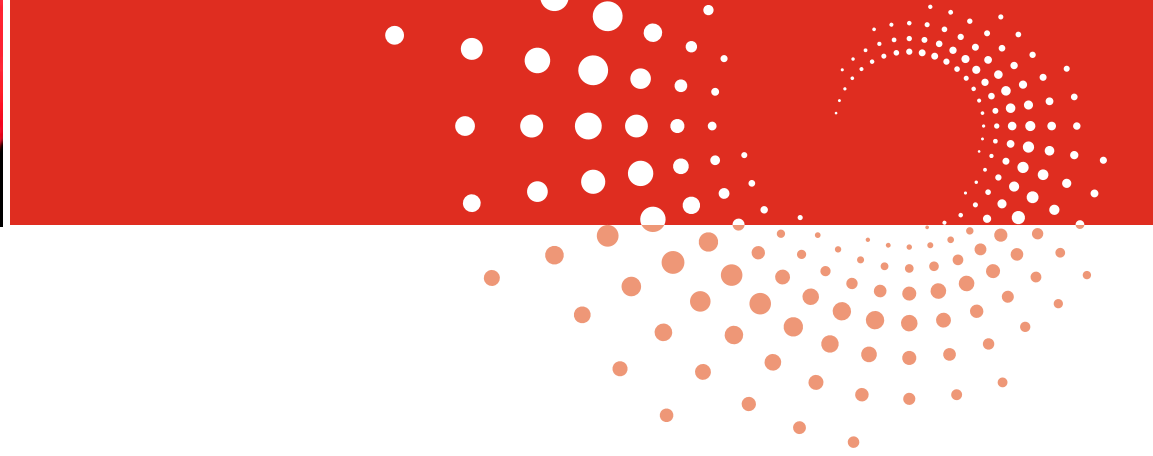
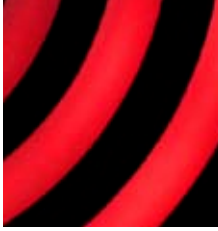
Inspections must be carried out:

- at least once every two years
- by a competent organisation
- in accordance with GCP 2.

A CNG Station CoC in the form specified in Schedule 4 of the Regulations must be issued.

Records

The Gas Regulations make specific requirements on operators of CNG stations to maintain records in relation to measurement systems, pressure limiting devices and staff training.



CERTIFICATION

Licensed certifying gasfitters are responsible for certifying their own work and the work of those working under their supervision.

What must be certified?

Gasfitting work that must be certified includes:

- work on new installations, whether imported or constructed
- extensions, additions and replacements of existing gas installations
- alterations to pipework or to gasfitting that result in change of operation of the installation
- repairs after accidents notifiable under [section 17](#) of the Gas Act.

There is some gasfitting that does not require certification. This includes:

- work on pipes or fittings connected to portable LPG containers with a total combined capacity of 15 kg or less
- replacement of a gas appliance with an equivalent provided that it does not require repositioning of the pipe or the flue, or changing gas type or pressure, ventilation, energy consumption, or operation of the installation
- replacement of equivalent instrumentation and control fittings providing it does not require repositioning of the instrumentation and control piping.

Refer to [Regulation 44](#) for further information on what requires certification and [Regulation 45](#) on what qualifies for an exemption.

Certificates of Compliance (CoC)

The CoC identifies the work that has been completed and who is responsible for that work.

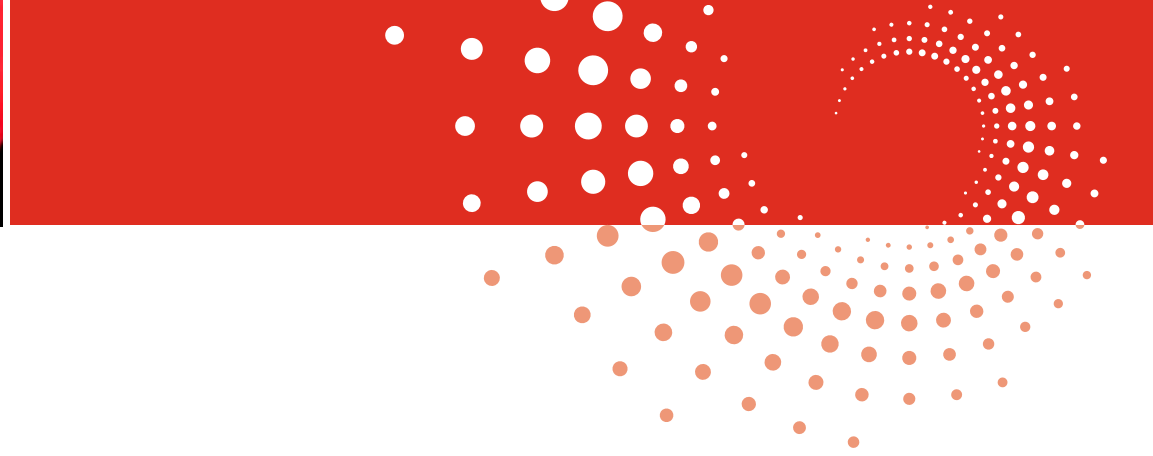
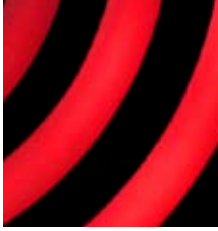
The Certificate must contain:

- an accurate description of the gasfitting
- a statement that the gas installation is safe to connect to gas supply
- a statement that the gasfitting was carried out in accordance with all applicable requirements of the Gas Act and Regulations
- a statement that the gasfitting certified does not make other parts of the gas installation unsafe.

If the installation includes a gas appliance or fittings have been imported or manufactured by a person for the person's own use, the CoC must also include a statement that the appliance or fittings have been imported or manufactured by a person for the person's own use.

Timeframe

Gasfitting work must be certified within 10 working days of completing the work.



Completed CoCs must be supplied to the Plumbers, Gasfitters and Drainlayers Board (PGDB) within five working days.

The person responsible for ensuring gasfitting is certified must, within five working days, ensure the CoC is supplied to the PGDB and a copy supplied to the person for whom the work is carried out, and retain a copy in accordance with [Regulation 48](#).

Electronic certification

The PGDB requires CoCs to be completed online. The process for online certification is described on the PGDB website www.pgdb.co.nz.

This facility is available to persons authorised to certify and to complete CoCs.

Connection

The Gas Regulations place obligations on those responsible for connecting a gas installation (including a CNG station) to a gas supply. In most cases, the person doing the connection must ensure that:

- the connection is safe,
- once connected, the installation is operating in a safe manner,
- the installation is compatible with the gas supply, and

- if the installation consists of alterations to an existing installation, ensure the whole installation is safe once connected.

Where gasfitting that requires certification has been done, the person connecting must either:

- certify the work or,
- sign a relevant CoC no older than six months before the date of connection.

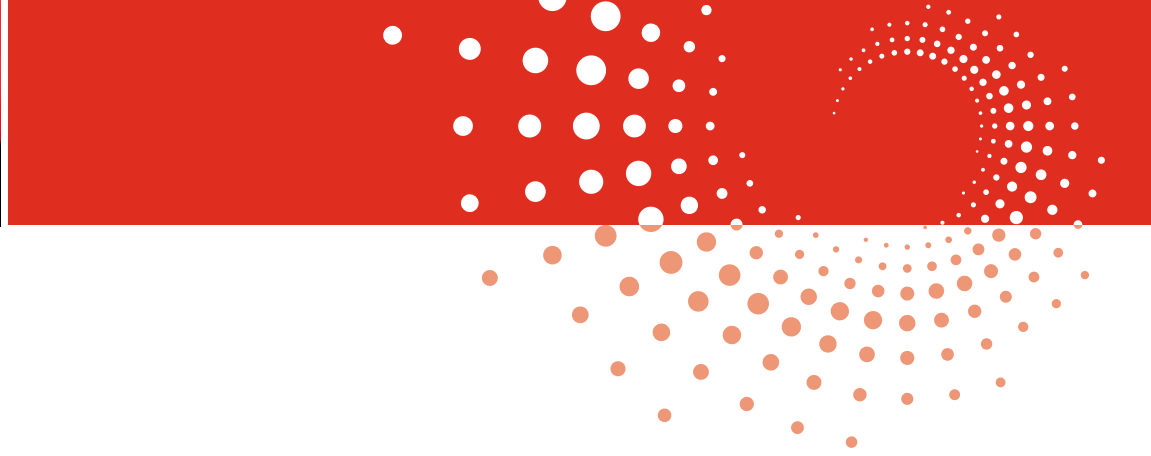
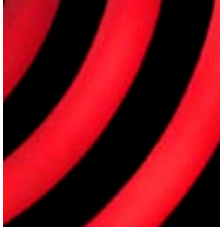
Reconnection where no gasfitting has occurred

If the installation was last disconnected less than six months previously and no gasfitting has occurred, then the connection requirements outlined above do not apply. The gas installation may be reconnected provided the installation will operate safely once reconnected to the gas supply.

In these cases, the person doing the reconnection may rely on written confirmation from the owner of the installation that no gasfitting has been done since it was last disconnected.

Cessation of supply

If a gas supplier (wholesaler or retailer) becomes aware that a gas installation is unsafe, that supplier may cease supply of gas to the installation.



GAS DISTRIBUTION SYSTEMS

Definition

Natural gas transmission systems transport natural gas from a production facility to distribution systems and end users.

Natural gas distribution systems take gas from the point at which the transmission system delivers gas to the “city gate” station to various consumer points of supply. Transmission systems and distribution systems are generally constructed of either steel or plastic to specific standards. Transmission systems are operated at pressures upwards of 2000 kPa. Distribution systems can be operated at various pressures that are typically up to about 400 kPa.

Liquefied Petroleum Gas (LPG) is supplied by bulk tanker or in cylinders to supply depots and consumer installations. When stored and supplied in bulk, LPG is in liquid form. It is vaporised by withdrawal from the tank or cylinder.

While most LPG supplied in New Zealand is delivered in bulk form or in cylinders, there are some small LPG reticulation systems in the South Island. LPG must meet *NZS 5435 Specification for Liquefied Petroleum Gas (LPG)*.

Supply pressure, gas quality and odour

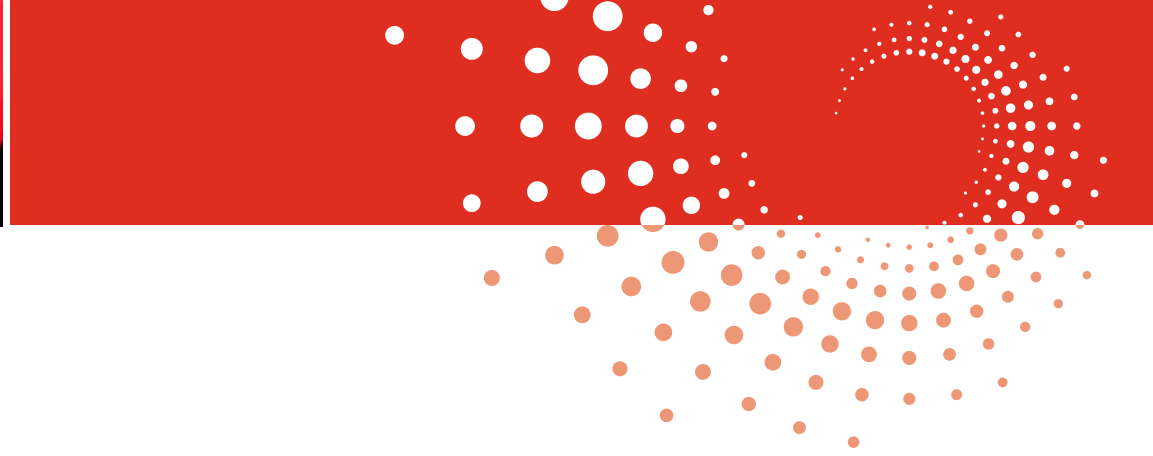
The gas pressure available to each installation must be sufficient for the safe supply and use of gas at that installation. Gas suppliers are responsible for ensuring consumers have sufficient supply pressure. In practice, suppliers will indicate the supply pressure available.

In order to ensure that the gas supplied is suitable for appliances available in New Zealand, the gas supplied must meet the relevant specification. For natural gas, this specification is *NZS 5442 Specification for reticulated natural gas*.

Gas supplied into distribution systems must have a distinctive and unpleasant odour so that the presence of gas in the atmosphere is readily detectable. This requirement is fundamental to the way safety for gas supply and use is achieved.

Gas measurement

The Regulations specify limits for accuracy of measurement of gas for revenue purposes. The requirements of *NZS 5259 Gas measurement* must be met unless there is written agreement between the seller and the purchaser.



Design, construction and operation

Safety of distribution systems

There is a general obligation on everyone who designs, constructs, maintains, uses or manages a distribution system to ensure the distribution system is safe ([Regulation 9](#)).

Safety Management Systems (SMS)

From 4 May 2013, owners and operators of gas supply systems are required to implement and maintain a Safety Management System (SMS).

SMSs create an environment where all aspects of the design, construction and operation of a gas distribution system are subject to third party audit and certification. This allows the owner or operator of a distribution system to fulfil their legal obligations for safety in a rigorous manner while at the same time allowing a certain amount of flexibility in their implementation.

A gas supply system is the distribution system plus any related installations, appliances and fittings that form part of a system for conveying gas to consumers (section 46A of the Gas Act).

Gas supply systems that supply or are intended to supply annual consumption greater than 10 TJ of gas per year are required to maintain an SMS.

A safety management system (SMS) is implemented and maintained by a safety management system operator. The SMS ensures that all practicable steps are taken to prevent the gas supply system from presenting a significant risk of:

- *serious harm to a person*
- *significant damage to property.*

Owners or operators of other distribution systems that are not gas supply systems may opt in to having an SMS in order to meet their obligations to ensure safety.

The requirements for a SMS are stated in [Regulations 32 to 40](#).

SMSs must either comply with NZS 7901 or [Regulations 33](#) and [34](#).

Each SMS must be fully documented and provide for the following:

- the systematic identification of hazards
- the assessment of hazards
- the steps to be taken to eliminate, isolate, or minimise hazards and to mitigate risks from those hazards



- assessment of the effectiveness of this risk management
- investigation of accidents
- enhancement of safety performance throughout the system including performance measurement
- an audit programme.

Every SMS must be regularly audited to confirm it is being implemented and maintained in compliance with these requirements.

Operators of SMSs are required to provide the Secretary with a statutory declaration at least once every five years to confirm the operator has a current audit certificate.

The first such statutory declaration must be made and sent to the Secretary within six months of the first audit of the SMS.

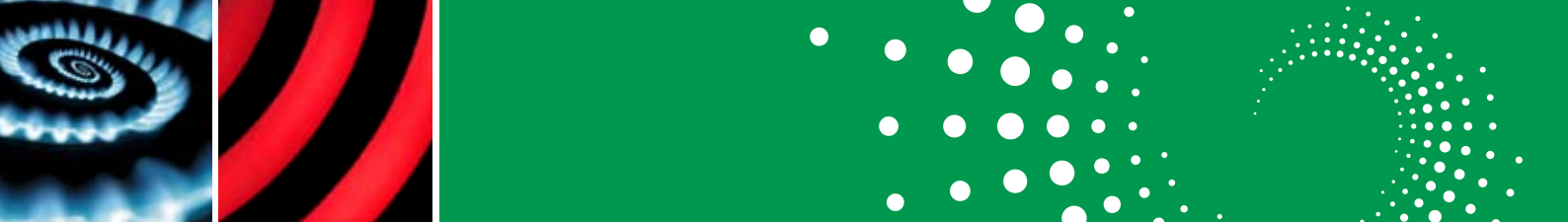
Auditors are required to cancel the audit certificate for an SMS if the requirements for an SMS are not met, or if the Secretary directs cancellation on the grounds that the SMS is not being implemented.

Distribution systems not covered by SMS

Distribution systems that are not covered by an SMS must meet the requirements of [Regulations 25 to 28](#). These Regulations require owners and operators of distribution systems to ensure the safety of their systems by ensuring:

- adequate records and plans are kept up to date
- these systems are designed, constructed, maintained and operated in a manner that achieves continuity of supply and safety of the distribution systems
- competence of all persons who carry out work on the system and
- regular inspections of the systems.

Compliance with New Zealand Standard NZS 5258 gas distribution networks or Australian New Zealand Standard AS/NZS 4645 gas distribution networks is cited by the Regulations as providing technical detail that is intended to ensure the safety of the distribution system.



● Part C: Audits and Enforcement

MONITORING ACCIDENTS, INCIDENTS & ALERTS

Regular market monitoring of electrical and gas installations and networks through audits and inspections is Energy Safety's proactive approach to maintaining the compliance framework and promoting the appropriate steps to compliance. This minimises the likelihood of unsafe installations and networks operating in New Zealand, as well as the costs associated with compliance action.

Our approach to market monitoring is to:

- ensure that electrical and gas installations works and distribution systems comply with the Regulations
- strengthen relationships with the electrical and gas installers, designers and operators through education
- strengthen relationships with electrical and gas network owners and operators
- improve Energy Safety's understanding of the marketplace
- maintain the value of a safe gas and electrical installation safety environment in New Zealand
- maintain the integrity of the installations and networks safety regime
- provide a level playing field for operators
- target non-compliance.

AUDITS AND INSPECTIONS

Who can be audited by Energy Safety?

Anyone who designs, installs and/or operates electrical or gas installations and networks in New Zealand can be audited.

Energy Safety works with installers, owners and operators throughout the audit and investigation process to initiate proactive education strategies and audit programmes that enhance our effectiveness as a safety regulator.

What are the selection criteria?

The selection criteria undertaken by Energy Safety are based on:

- operator risk assessment
- installation or network risk assessment
- complaints, incidents and accidents
- advice from other regulatory agencies
- type of operator
- regional spread.

If you have concerns about any electrical or gas installation please call our free phone number 0508 377 463.



Accidents and Incidents

Where an accident or incident involving installation or network occurs that is considered significant, or where installation compliance is drawn into question, Energy Safety may at the time of investigation:

- request the designer, installer or operator to provide information relating to installation safety or compliance
- request the designer, installer or operator to undertake specific remedial action
- request the network to cease supply of electricity and gas.

Any subsequent action will follow Energy Safety's compliance and enforcement procedures.

Alerts

Energy Safety maintains a number of co-operation arrangements with other regulatory agencies where information on safety compliance is exchanged and surveillance activities are carried out co-operatively.

Based on information exchanged, investigations may be carried out or direct enforcement action implemented.

In some cases, information from industry participants is brought to the attention of Energy Safety for assessment and follow-up action.

The Audit Process

If you are selected for a planned electrical or gas installations audit, Energy Safety will give you reasonable notice. Spot audits may also occur without advanced notice during business hours. When Energy Safety visits, you will need to provide:

- details of the appropriate contact person authorised to respond on behalf of the business
- details of your business e.g. registered company, partnership
- documentation about design and construction of the installation, works or distribution systems
- evidence of testing and other requirements prior to connection (such as certification, Certification of Compliance, Warrant of Electrical Fitness)
- documentation about maintenance (Safety Management Systems (if required) and record of periodic inspection)
- evidence of general safety requirements.

Outcome of audits

Energy Safety will advise the outcome when all elements of the audit have been considered. At the time of an audit, a verbal explanation will be given which may include advice to cease operation.

If the audit has been deemed unsatisfactory, Energy Safety will advise of the problem(s) requiring remedy and compliance action may include issuing an Infringement notice or Prosecution.



ENFORCEMENT

Assessment process

Enforcement of electrical and gas installations, networks and works safety is based on Energy Safety's observations and assessment of the market. Energy Safety operates in a fair and consistent manner when dealing with non-compliance.

Non-compliance is based on evidence and circumstance to determine the appropriate action required. The action may be a Warning, Infringement notice, Prosecution, and/or Prohibition or Urgent Instruction. A variety of factors are considered for their impact on public safety and care, including:

- severity of the offence
- impact of the offence
- co-operation, attitude and behaviour
- operational implications
- risk to consumers and members of the public.

If the impact from the assessment indicates that non-compliance is sufficiently serious, or there is a previous history of non-compliance, Energy Safety may issue an Infringement notice directly after the investigation or audit.

Energy Safety will also consider what action(s) may be necessary to correct the non-compliance.

This may include issuing an Urgent Instruction. Failure to comply with the Urgent Instruction may result in Prosecution.

Warnings & Advisories

A Warning notice will outline:

- the offence observed
- the remedial action to take.

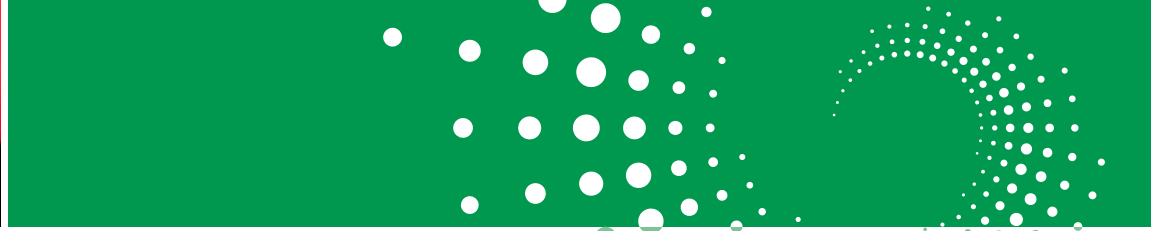
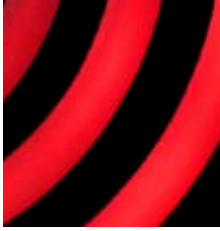
The Warning notice may be accompanied by advice to cease use and remedy.

A follow-up audit may be made to monitor compliance with the Regulations and any remedial action required.

If remedial action is not taken within the specified timeframe, Energy Safety may escalate the enforcement to ensure protection of the public and their property.

Warnings

While an Infringement notice may follow from an unresolved Warning notice, there is no requirement to give a Warning notice first.



Infringement Notices

[Regulations 10, 11](#) and [12](#) of the Electricity Regulations and [6, 7](#) and [8](#) of the Gas Regulations define Grade A and B offences, strict liability offences and infringement offences.

There are two levels of offences, and many of the offences are strict liability offences where the Crown does not have to prove an intent to fail to comply, but merely show that the situation discovered clearly demonstrates non-compliance.

The Regulations now provide more significant penalties, including “instant fines”, for those who fail to comply with their requirements.

An infringement fee is an instant fine of:

- For an individual
 - \$1,000 for a Grade A offence.
 - \$500 for a Grade B offence.
- For a body corporate
 - \$3,000 for a Grade A offence.
 - \$1,000 for a Grade B offence.

** Bodies Corporate include (but are not limited to) organisations such as companies, incorporated societies and charitable trust boards.*

An Infringement notice will be issued in the form specified in Schedules of the Regulations, and will outline:

- the relevant infringement offence
- your rights and obligations

- the amount of the Infringement fee and
- the address for payment of the Infringement fee.

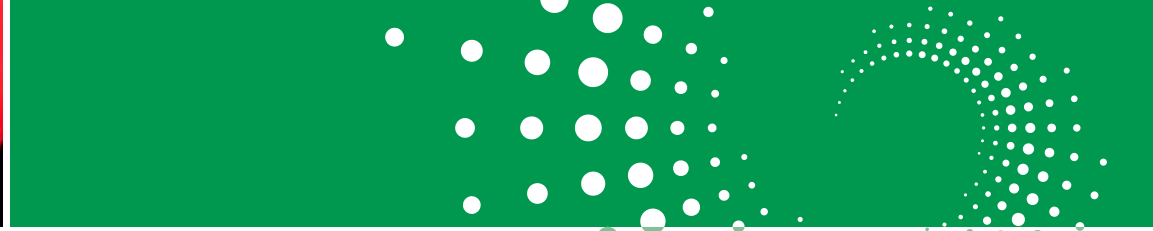
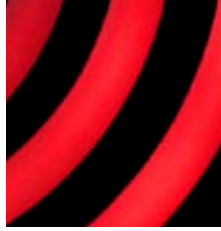
Paying an Infringement fee will not exempt you from having to carry out any remedial action. Continuing to commit an offence may result in further notices or prosecution.

If the impact assessment made by Energy Safety indicates that the effect of non-compliance is sufficiently serious, or a previous history of non-compliance exists, an Infringement notice may be issued directly following an investigation or audit. For example, a serious breach would be the sale, or offer for sale of prohibited items. The seriousness of this breach would result in an Infringement notice, regardless of circumstance.

Infringement notices are accompanied by Infringement fees. The notice applies to the observed instance of non-compliance.

Notices include an explanation of the recipient’s responsibilities and rights so should be read carefully and advice should be sought if necessary.

Infringement notices do not require a preliminary warning. Infringement notices are issued where the effect of the non-compliant situation is sufficiently serious, or a previous history of non-compliance exists.



Offences & Prosecutions

Energy Safety may take Prosecution action rather than issue an Infringement notice. This will usually happen when this is considered necessary for deterrent effect or when an Infringement notice has not achieved correction of a non-compliance situation. This will be considered on a case by case basis.

Every individual or body corporate who commits an offence shall be liable on summary conviction to a fine not exceeding:

Grade A offences:

- \$10,000 in the case of an individual
- \$50,000 in the case of a company or other body corporate.

Grade B offences:

- \$2,000 in the case of individuals
- \$10,000 in the case of a company or body corporate.

Offences under the Electricity Act and Gas Act:

- \$100,000 for an individual
- \$500,000 for a body corporate
- or two years in jail.

Prohibitions & Urgent Instructions

If it is determined that a serious safety risk is occurring or could occur, then a Prohibition or an Urgent Instruction may be issued.

A Prohibition or Urgent Instruction may:

- require operation of the installation to cease
- alert the public of safety risks
- specify that an instruction be carried out within a stipulated way.

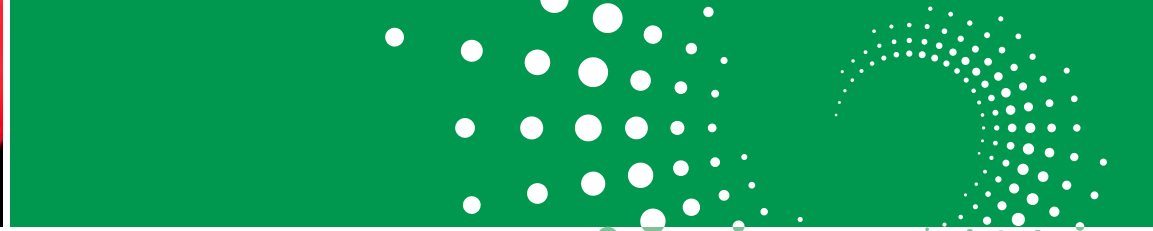
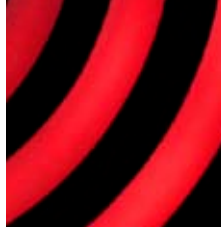
Failing to comply with a Prohibition or Urgent Instruction, may result in a Prosecution and is a Grade A offence.

The person to whom the instruction is issued is responsible for the costs of complying with an Urgent Instruction.

Definition of safe and unsafe

[Regulation 20](#) of the Electricity Regulations defines electrically unsafe works and installations. Works and installations are unsafe if:

- the characteristics of any fittings are impaired
- the conductors are inadequately identified (e.g. the neutral conductor must be black / black must not be used for any other conductor)
- the connections are not secure and reliable



- cooling conditions are impaired
- there is a risk of ignition (e.g. fittings subject to high temperature unguarded.)
- cables are not protected against the risk of damage or are bent beyond their design criteria
- there is insufficient space to work on the installations safely.

In respect of enforcement, it is important to understand that the defined terms of 'safe' and 'unsafe' are not opposites, but are better understood as defined points on a spectrum of risk of harm or damage to property. Non-compliance with a recognised specification does not immediately imply that safety is compromised. However, it is critical that workers familiarise themselves with the contents of the Regulations that specifically describe what is deemed to be unsafe, as these are the most likely drivers of enforcement.

Note:

for electricity, Regulations 5 and 20 to 26 explain what is meant by 'electrically safe' and 'electrically unsafe'.

for gas, Regulations 4 and 11 to 14 explain what is meant by 'safe' and 'unsafe'.

The Regulations also define:

- Unsafe low voltage fittings – [Regulation 22](#)
- Unsafe appliances – [Regulation 23](#)
- Unsafe RCDs – [Regulation 24](#).

[Regulation 11](#) of the Gas Regulations define unsafe distribution systems or gas installations. Works and installations are unsafe if:

- Measures are not in place to ensure:
 - a release of gas is detectable or ignition of release is prevented
 - gas is not released in an uncontrolled manner and ensure that any oxygen and gas is prevented from mixing in a pipe
 - persons are not exposed to harmful products of combustion of gas
 - persons and property are not exposed to excessive forces
 - the failure of any control or safety device does not expose the downstream equipment to excessive pressure above the rated pressure of any distribution system and equipment downstream of that control or safety device
 - the effective isolation and shut-off of the gas supply, including during an emergency.
- the safety-related characteristics of any fittings are impaired
- the connections are inadequate and unreliable



- the fittings are exposed to a pressure exceeding their maximum rated pressure
 - a pipe is inadequately protected against the risk of damage or corrosion; or subject to forces beyond its design criteria; or there is insufficient space, access, lighting, ventilation, or facilities to operate, maintain, test, and inspect any fittings required to be operated, maintained, tested, or inspected; or
 - fittings subject to high temperatures can create a risk of ignition of flammable materials or a risk of injury to persons or damage to property.
- (iii) the effects of the action or event were adequately mitigated or remedied by the defendant after it occurred; or
 - (b) that the action or event to which the prosecution relates was due to an event beyond the control of the defendant (such as natural disaster, mechanical failure, or sabotage) and
 - (i) the action or event could not reasonably have been foreseen or been provided against by the defendant; and
 - (ii) the effects of the action or event were adequately mitigated or remedied.

Special circumstances

The Regulations recognise circumstances in which non-compliance could be accepted.

[Regulation 11\(3\)](#) of the Electricity Regulations and [7\(3\)](#) of the Gas Regulations states:

It is a defence to a prosecution for an offence to which this subclause applies if the defendant proves—

- (a) that—
 - (i) the action or event to which the prosecution relates was necessary for the purpose of avoiding serious harm to any person, or preventing significant damage to property; and
 - (ii) the defendant's conduct was reasonable in the circumstances; and

Electricity offences

Examples of Grade A offences:

Offences relating to design and installation

- Completing a design – including supervision – which if constructed would be unsafe ([Regulation 14](#)).
- Installing a low voltage installation without a valid DoC ([Regulation 57](#)).
- When installing a low voltage installation, failing to comply with either Part 1 ([Regulation 59](#)) or Part 2 ([Regulation 60](#)) of the Wiring Rule.

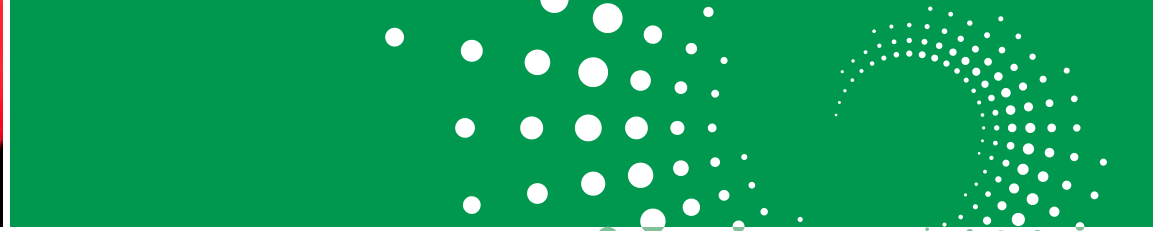
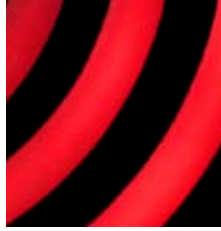


Offences relating to connection

- Failing to verify safety before connection ([Regulation 73](#)) or reconnection ([Regulation 74](#)) of an installation.
- Connecting an installation to an inadequate system of supply of electricity ([Regulation 27](#)).
- Supplying electricity with inadequate voltage ([Regulation 28](#)) or inadequate frequency ([Regulation 29](#)).
- Failing to take reasonable steps to limit levels of fault currents ([Regulation 30](#)).
- Failing to install fitting to protect against fault currents ([Regulation 32](#)).
- Not verifying electrical safety after constructing, manufacturing, assembling, installing, connecting, maintaining, testing, certifying, or inspecting an installation or part of it ([Regulation 13](#)).
- Using – or letting anyone use – installations known to be unsafe ([Regulation 15](#)).
- Failing to:
 - minimise risk of contact with live conductive parts ([Regulation 16](#))
 - maintain safe distances in accordance with ECP 34 ([Regulation 17](#)).
- Signing a declaration of conformity which is incorrect ([Regulation 58](#)).
- Failing to use the correct socket outlets ([Regulation 61](#)).

Offence relating to works

- Failing to ensure that the works:
 - are designed, constructed, and maintained to minimise the risk of injury to persons or damage to property from the expected structural loading ([Regulation 41](#))
 - are protected by an earthing system ([Regulation 42](#))
 - are capable of being isolated from its supply of electricity ([Regulation 43](#)).
- Failing to carry out tests to verify electrical safety of works before connecting to supply ([Regulation 38](#)).
- Failing to ensure that the works have adequate electrical protection against short circuits and earth faults ([Regulation 34](#)).
- Failing to implement a safety checking system for regularly checking the compliance of the works ([Regulation 40](#)).
- Failing to ensure that:
 - high voltage conductors of overhead electric lines are protected ([Regulation 44](#))
 - Durable notices reading “Danger Live Wires” or equivalent are affixed ([Regulation 45](#)).



Offences relating to performing electrical work

- Failing to ensure that people and property are protected from dangers arising from electrical work ([Regulation 13](#)).
- Failing to follow safety responsibilities when carrying out work ([Regulation 14](#)).
- Failing to notify owner/occupier and Secretary of danger if electrical worker has reasonable grounds to believe there is an immediate risk of danger to life or property ([Regulation 19](#)).

Offence relating to inspection

- For an accredited auditor to:
 - issue an audit certificate for a SMS without being satisfied of compliance with [Regulation 51\(4\)\(a\)](#)
 - failing to cancel an audit certificate if not satisfied of compliance
 - failing to issue a notice of cancellation, or give a copy of the notice ([Regulation 56](#)).
- Inspecting an installation without being authorised or competent to do so ([Regulation 75](#)).

Other offences

- Failing to comply with urgent instructions, orders, or requirements ([Regulation 110](#)).

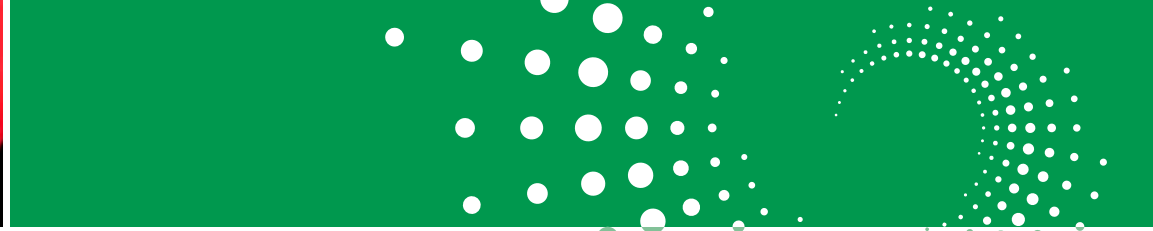
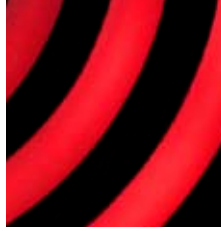
Examples of Grade B offences:

Offences relating to notices, signs and records

- Failing to maintain notices where high voltages used, generated, or transmitted ([Regulation 18](#)).
- Failing to keep record and plans of works ([Regulation 46](#)).
- Failing to erect signs when carrying out work on installations ([Regulation 63](#)).

Offences relating to certification and periodic assessments

- Once prescribed electrical work has been done:
 - failing to test the installation ([Regulation 65](#))
 - failing to certify or arrange certification of the work ([Regulation 66](#))
 - arranging certification, inspecting, issuing and keeping a certificate of compliance if not satisfied that the work is electrically safe and that the work was done in accordance with the Electricity Act and associated Regulations. ([Regulation 67](#)) and ([Regulation 68](#)) and ([Regulation 71](#)) and ([Regulation 72](#)).
- Failing to arrange periodic assessments of certain installations ([Regulation 75](#)).



Offences relating to electrical warrants of fitness

- Supplying electricity without warrant of electrical fitness ([Regulation 76](#)).
- Hiring out a vehicle, relocatable building, or pleasure vessel that contains a connectable installation if this does not have a current warrant of electrical fitness ([Regulation 77](#)).
- Issuing of warrant of electrical fitness if the installation is unsafe or without being authorised to do so ([Regulation 78](#)).

Offence relating to works

- Interfering with, moving or attempting to move works ([Regulation 35](#)).
- Failing to secure access to generating facilities by unauthorised persons ([Regulation 36](#)).

Other offences

- Using of fittings and appliances that interfere with the satisfactory supply of electricity or impair its safety ([Regulation 31](#)).

Gas offences

Examples of Grade A offences:

Offences relating to design and installation

- Designs, constructs, maintains, uses or manages a distribution system or gas installation in an unsafe manner ([Regulation 9](#)).
- Commissions, installs, or tests a gas installation or a part of a gas installation, or an extension, addition, or replacement not in accordance with NZS 5261 ([Regulation 43](#)).

Offences relating to operation of distribution systems

- Failing to verify safety before connection ([Regulation 50](#)).
- Failing to ensure continuity of supply and safety of the distribution system ([Regulation 26](#)).
- Failing to ensure competency of persons working on systems ([Regulation 27](#)).
- Failing to arrange regular safety inspections and keeping record of these inspections ([Regulation 28](#)).
- Issuing an audit certificate without being satisfied of the audit or failing to cancel the audit or to issue the notice of cancellation if not satisfied with the audit ([Regulation 40](#)).



Offences relating to certification

- Failing to ensure that certain type of gasfitting is being certified ([Regulation 44](#)).
- Knowingly using gasfitting that has not been certified ([Regulation 46](#)).

Offences relating to supplying gas

- Failing to odourise gas as required by ([Regulations 16](#) and [17](#)).
- Sells gas in a manner that does not comply with the Regulations.
- Supplying gas for use in gas installations and gas appliances, or for use as an automotive fuel, that is not suitable and safe for those uses ([Regulation 41](#)).
- Supplying gas to consumers that is not at a pressure that ensures the safe supply, passage, and use of the gas ([Regulation 42](#)).

Offences relating to CNG

- Failing to follow specific requirements regarding measurement of CNG station ([Regulation 76](#)).
- Failing to test CNG gas measurement systems to ensure safety and failing to keep record ([Regulation 77](#)).
- Failing to ensure pressure-limiting device and metering unit of a CNG station is sealed ([Regulation 79](#)).

- Failing to ensure that a CNG station is maintained in a safe condition and operated safely ([Regulation 80](#)).
- Operating a CNG dispenser above maximum fill pressure ([Regulation 81](#)).
- Providing a certificate of compliance for unsafe CNG stations ([Regulation 83](#)).

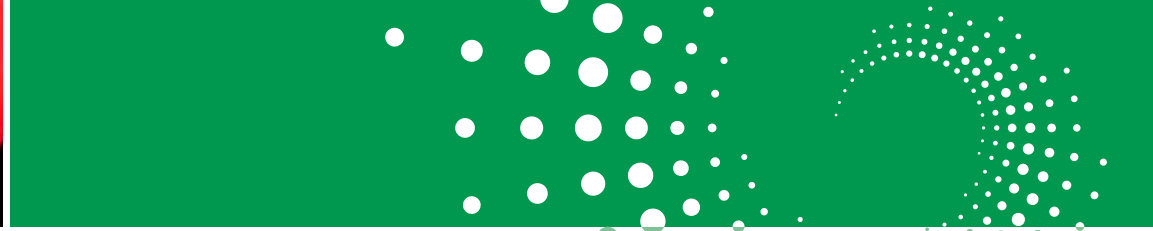
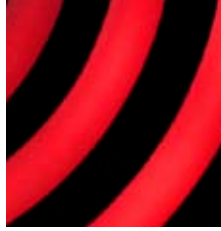
Other offences

- Failing to comply with urgent instructions ([Regulation 86](#)).
- Failing to notify Secretary of danger ([Regulation 10](#)).

Examples of Grade B offences:

Offences relating to documentation and records

- Not having relevant documentation regarding gas odourisation ([Regulation 19](#)).
- Not keeping records of tests of gas measurement systems ([Regulation 23](#)).
- Failing to keep records and plans of distribution systems ([Regulation 25](#)).
- Signing an incomplete or inaccurate certificate of compliance ([Regulation 47](#)).
- Failing to a copy of the certificate of compliance to the Board and to retain a copy of the certificate of compliance ([Regulation 48](#)).



- Failing to supply the Secretary copies of seals for the competent organisation prior to carrying out work ([Regulation 88](#)).
- For competent organisations, failing to keep records ([Regulation 89](#)).

Offences relating to CNG

- Installing a CNG station in an unsafe manner ([Regulation 78](#)).
- Failing to ensure pressure-limiting device and metering unit of a CNG station is sealed ([Regulation 79](#)).
- Failing to ensure that personnel filling or being present for the filling of vehicles with CNG have been trained adequately ([Regulation 82](#)).

- Failing to have CNG stations certified ([Regulation 83](#)).
- Failing to maintain records for CNG stations ([Regulation 84](#)).

Other offences

- Damaging, interfering with, moving or attempting to move fittings or a distribution system of gas measurement system ([Regulation 15](#)).
- Using odorants likely to damage the integrity of distribution system ([Regulation 18](#)).
- Not having gas measurement systems tested by a competent organisation ([Regulation 22](#)).



Helpful Information

RELATED ORGANISATIONS

If you have an enquiry about	Contact:
Competency of electrical and electronic workers	Electrical Workers Registration Board (EWRB) http://www.ewrb.govt.nz/
Registration and licensing of electrical and electronic workers	Department of Building and Housing (DBH) http://www.dbh.govt.nz/electrical-workers
Competency and licensing of plumbers, gasfitters and drainlayers	Plumbers, Gasfitters and Drainlayers Board (PGDB) http://www.pgdb.co.nz/
Incident or accident to a gas or electrical worker	Department of Labour http://www.dol.govt.nz/



ACRONYMS AND GLOSSARY

Audits	A term used by Energy Safety to refer to a range of activities undertaken to assess the compliance and safety of products and systems under the Electricity (Safety) Regulations 2010 and the Gas (Safety and Measurement) Regulations 2010
Authorised person	A person registered and licensed to carry out this type of work
CNG	Compressed Natural Gas
CoC	Certificate of Compliance
CoV	Certificate of Verification
kPa	Kilo Pascal
PEW	Prescribed Electrical Work
Electricity Act	Electricity Act 1992
Gas Act	Gas Act 1992
Electricity Regulations	Electricity (Safety) Regulations 2010
Gas Regulations	Gas (Safety and Measurement) Regulations 2010
MED	Ministry of Economic Development
MRA	Mutual Recognition Arrangement
JAS-ANZ	Joint Accreditation System of Australia and New Zealand
IANZ	International Accreditation New Zealand
LPG	Liquefied Petroleum Gas
SMS	Safety Management System
RCD	Residual Current Device
DoCs	Declaration of Conformity
ECP	Electrical Code of Practice
GCP	Gas Code of Practice
MEN	Multiple Earthed Neutral
MJ/h	Megajoules per Hour
Tj	Terajoule

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Published April 2011

ISBN: 978-0-478-35898-8 (PDF)

ISBN: 978-0-478-35899-5 (HTML)