



Electrical safety awareness - electrical technicians and appliance servicing 2011 **Part 2** **Electrical licensing**

A presentation by the Electrical Safety Office

Overview of topics

- **Part 1**
Electrical Safety Office role and legislation.
- **Part 2**
Electrical licensing.
- **Part 3**
Test and tag electrical equipment and working with and near live electrical parts.
- **Part 4**
Electrical equipment safety system (implementation 1/7/2011)



The Electrical Safety Office

- Division of the Department of Justice and Attorney-General.
- Works to Electrical Safety Board's *Electrical Safety Plan for Queensland 2009-2014*.
- Administers *Electrical Safety Act 2002* and regulation.
- Responsible for delivering electrical safety services in Queensland.

Electrical Safety Office

Goals:

- Electrically safe dwellings, workplaces, public places and other environments.

We work with:

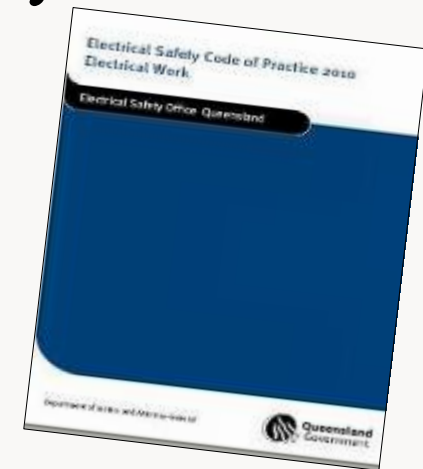
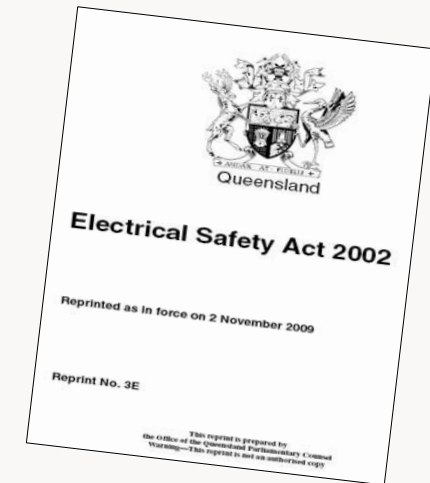
- Workers, employers and the community
- Unions and employer representatives
- Federal and state jurisdictions.

Key outcome:

- Reduction in electricity-related deaths and injuries.

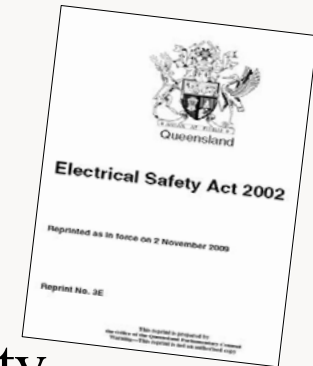
Legislation framework

- *Electrical Safety Act 2002* (ESA)
- *Electrical Safety Regulation 2002* (ESR)
- Electrical Safety Code of Practice
 - Five Codes of Practice effective 1 January 2010
 - working near exposed live parts
 - electrical work
 - electrical equipment - rural industry
 - risk management
 - works



About the *Electrical Safety Act 2002*

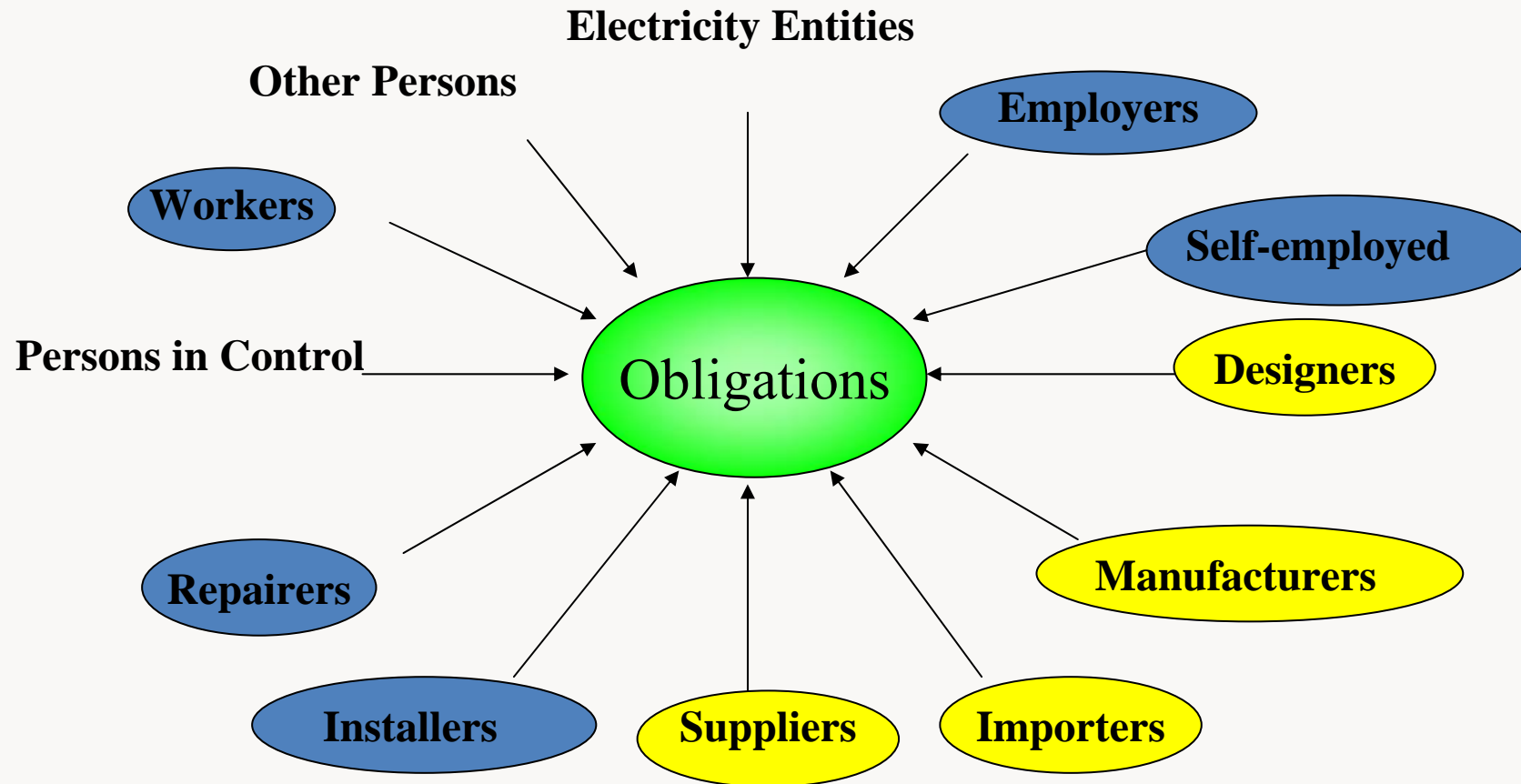
- Imposes obligations on certain persons who can affect the electrical safety of others.
- Obligations must be discharged.
- Establishes benchmarks for industry and the community – regulations and codes of practice.
- Provides electrical licensing – and disciplinary action if required.
- Provides consultation through the Electrical Safety Board and its Committees.



Why are electrical safety obligations imposed?

To ensure all persons who may affect the electrical safety of others by their acts or omissions have particular electrical safety outcomes they must achieve.

Who has obligations?



Designer's obligations - (ESA s31)

- Ensure the electrical equipment or installation is designed to be electrically safe; and
- Ensure the design is accompanied by information about the way the electrical equipment or installation must be used and installed to ensure the equipment or installation is electrically safe.

Manufacturer's obligations - (ESA s32)

- Ensure the electrical equipment, when made, is electrically safe.
- Ensure the electrical equipment, when made, is tested and examined to ensure it is electrically safe.

Importer's obligations - (ESA s33)

- Ensure the electrical equipment is electrically safe.
- Ensure electrical equipment is designed to be electrically safe.
- Ensure the electrical equipment is tested and examined to ensure it is electrically safe.

Supplier's obligations - (ESA s34)

- Ensure when the electrical equipment leaves the supplier it is accompanied by information about the way the electrical equipment must be used to ensure that its use is electrically safe.

Installer's obligations - (ESA s36)

- Ensure that the way the equipment or installations is installed is electrically safe, e.g. installed as per manufacturers instructions.
- Ensure the processes followed for installing the equipment or installation ensure that, when installed, it will be electrically safe.
- Ensure that after the equipment or installation is installed, the person tests and examines it to ensure it is electrically safe.

Electrical safety obligation of employer or self-employed person (ESA s. 30)

“...to ensure that the person’s business
or undertaking is conducted in a
way that is electrically safe.”

Electrical safety obligation of workers

(ESA s39)

- To comply with employer's instructions.
- Use personal protective equipment if properly instructed in its use.
- Not to wilfully interfere with or misuse anything provided for electrical safety.
- Not to wilfully place any person, including the worker, in electrical risk.

Repairer's obligations - (ESA s37)

- Ensure the way the equipment or installation is repaired is electrically safe.
- Ensure the processes followed for repairing equipment or installation ensure that, when repaired, it will be electrically safe.
- Ensure the equipment or installation, when repaired, is electrically safe.



Repairer's obligations - (ESA s37)

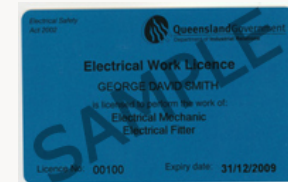
- Equipment should be repaired in accordance with manufacturers original design or manufacturers/designers approved change.
- Otherwise the repairer is taking on obligations of designers/manufacturers as well as repairers.

Maximum penalties for breaching an obligation

- Multiple deaths – 2000 units or 3 years jail.
- Death or grievous bodily harm – 1000 units or 2 years jail.
- Bodily harm – 750 units or 1 year jail.
- Other – 500 units or 6 months jail
[1Penalty unit = \$100 (individual) or \$500 (company)].

Part 2 - Licensing

- Electrical workers.
 - Categories and licences
- Electrical contractors.



National harmonisation of electrical licences

- The Federal Government is managing the implementation of electrical licensing into a national licensing system.
- National system release date scheduled 1 July 2012.

Electrical licensing

- *Electrical Safety Act 2002*
- *Electrical Safety Regulation 2002*
 - Must be licensed to conduct electrical work on electrical appliances or electrical equipment or conduct the repairs in a workshop in accordance with specific requirements.
- Electrical Safety Office licensing eligibility policy.

What is an electrical appliance? (ESA s13)

- A device that consumes electricity at a voltage greater than extra low voltage and where electricity is converted into heat, motion, or another form of energy or is substantially changed in its electrical character.
 - Extra low voltage =
 - 50V or less AC RMS, or
 - 120V or less ripple-free DC
- Bulbs or tubes alone are not an electrical appliance.

What is electrical equipment? (ESA s14)

- Any apparatus, appliance, cable, conductor, fitting, insulator, material meter or wire used for controlling, generating, supplying, transforming or transmitting electricity at a voltage greater than extra low voltage.
- Operated by electricity at a voltage greater than extra low voltage.

What is electrical equipment? cont'd (ESA s14)

There are exceptions to the extra low voltage exclusion :-

- Extra Low Voltage (ELV) in a hazardous area
 - *hazardous area* has the meaning given by *AS/NZS 3000:2007*.
- Water equipment that is *designated equipment* as equipment in or around pools (*AS/NZS 3000:2007 s7*).

What is electrical equipment? cont'd (ESR s69)

- Electrical equipment does not include parts of a vehicle relating to parts that form the propulsion of the vehicle (the motor) or source of electricity from the part that provides propulsion for the vehicle.
 - Special exception: motors of vehicles other than car or motorbike are treated as electrical equipment when considering if a person is performing electrical work or not. i.e. this is electric motors of large trucks, earth moving equipment.

What is electrical work? (ESA s18)

- Electrical work is the manufacturing, constructing, installing, testing, maintaining, repairing, altering removing, or replacing of electrical equipment.

Examples:

- Installing low voltage electrical wiring in a building
- Installing electrical equipment into an installation coupler or interconnector
- Replacing a low voltage electrical component on a washing machine
- Maintaining an electricity entity's overhead distribution system.

What is not electrical work?

- Replacing non-electrical components of electrical equipment.
e.g. replacing a drive belt on a washing machine.
- Assembling, making, modifying or repairing electrical equipment in a prescribed workplace.

What is not electrical work?

- Examples of these workplaces are included in *ESR, section 207A and schedule 6A*.
 - Appliance manufacturing and pump and compressor manufacturing
 - Conditions apply in accordance with 18(2)(d) detail in written form, for ensuring that:
 - (i) the work is done safely and competently;
and
 - (ii) the equipment is tested to ensure compliance with relevant standards.

Who needs a work licence in Queensland?

- A person performing electrical work
 - Licence must be current and in force
 - Licence authorises the person to perform the work, and scope of work.
- Only an individual may be the holder of a work licence.

Classes of electrical worker licences:

- Electrical mechanic.
- Electrical fitter.
- Electrical linesperson.
- Restricted electrical licence.
- Electrical jointer licence.
- Electrical work training permit.

Which trades or activities do not require a Queensland electrical work licence?

- Telecommunications equipment repairers/installers (provided the equipment is extra low voltage).
- Electrical engineer practising profession as an Electrical engineer.
- Apprentice, trainee or electrical student at a university or college, school or similar institution.
- Equivalent licences (see next slide).

External licences that are equivalent in Queensland? (ESA s55, s65 and ESR 32 and schedule 1)

- An external licence is a electrical installation licence based in another state taken to be the Queensland electrical work licence to which it is equivalent:
 - Schedule 1 of the *Electrical safety Regulation 2002* provides a list of licences from other jurisdictions and their equivalent Queensland licence.

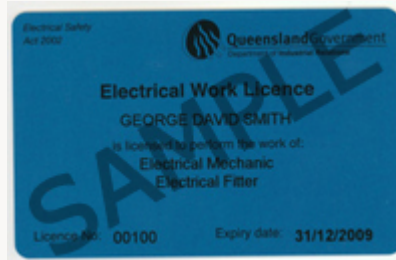
Which trades or activities do not require an electrical work licence in Queensland?

- Test and tag of electrical equipment by a competent person if the testing is required under *ESR* Part 5, Division 5 or section 126 workplace electrical installations requirements.

Note: if you test and tag as a business you will need a Queensland electrical contractors licence.

- Testing of works by an **electrical entity** by a competent person.
- Testing of electrical equipment by a person, if the testing does not interfere with the integrity of electrical equipment. e.g. Person testing a safety switch at home.

Electrical licensing – worker licences:



In this example the worker is a licensed electrical fitter/mechanic.



A green electrical work licence means the worker is restricted to particular types of equipment and types of work. A restricted electrical work licence does not cover the installation of electrical equipment.

Electrical work training permit–Licence issued in the form of a letter.

This is authorisation to perform identified electrical work under supervision.

Restricted electrical work licence (REL) requires a trade or a calling (ESR s30, s38, s38A)

- Authorises the holder to perform electrical work only of a particular type i.e. endorsement of electronics.
- Restricted to electrical work allied to the trade or calling.
- Restricted to the scope of electrical work approved in the units of competency.
- Compliance with conditions and restrictions (ESA 2002 s57).

Restricted electrical licence endorsements (8) and units of competency (6)

Endorsements

- 1- Composite equipment
- 2- Electronics
- 3- Plumbing/gas
- 4- Electric motor
- 5- Refrigeration and air conditioning
- 6- Pre-assembled signs
- 7- Instrumentation/process control
- 8- High voltage electrical propulsion.

Units of competence

- 1- Occupational health and safety
- 2- Disconnect and reconnect fixed wired equipment
- 3- Locate and rectify faults in 250V equipment
- 4- Locate and rectify faults in 650V equipment
- 5- Attach flexible cord and plug to 250V equipment
- 6- Attach flexible cord and plug to 650V equipment.



Electrical licensing – contractor licenses:



Unrestricted contractor licence-
A business with a gold electrical contractor licence is licensed to perform all types of electrical work.



Restricted contractor Licence-
A business with a silver electrical contractor licence is restricted to the scope of work of the qualified persons electrical work licence.

Electrical contractor licence requirements — (ESA s56)

- A person who runs a business or undertaking that includes the performance of electrical work must hold a **Queensland electrical contractor licence**.
- A person conducts a business or undertaking that includes the performance of electrical work if the person:
 - advertises if the person carries on the business of performing electrical work – published advertisement;
 - contracts for the performance of electrical work;
 - represents to the public that the person is willing to perform electrical work;
 - employs a worker to perform electrical work other than for the person.

Electrical contractor licence requirements — (ESA s56)

- Performance of repairs outside of workshop.
- Must ensure workers are appropriately licensed (ESA s57AA); and
- Record and maintain a register of licensed workers (ESA s57AB).

Electrical contractor licence exemptions

A licensed electrical mechanic who performs:

- Work for self or relatives at premises owned or occupied by self or relatives.
- Minor emergency repairs to make electrical equipment electrically safe.
- Contracting for any work if it is to be sub-contracted to a licensed electrical contractor (ESA s56(3)(b)).

Electrical contractor licence exemptions

- Building Services Authority (BSA) contractors licence for repair work only associated with trade e.g. plumbing and gas or air conditioning and refrigeration - ESR s55A.



Interstate electrical contractors who want to work in Queensland

- Must hold a Queensland electrical contractor licence to perform electrical contracting in Queensland.
- Interstate contractor licence not transferable.
- Need to meet Queensland eligibility requirements – qualified technical person, qualified business person, insurance requirements.

Case study 2008

- unlicensed electrical contractor and worker

- Charged with 65 offences of conducting electrical installation work while not the holder of an electrical work licence.
- Charged with one offence of making a false or misleading statement to an electrical safety inspector.
- Advertised in the local Yellow Pages for location and surrounding areas promoting services and handed out business cards to consumers.
- Sub-contracted to another company to do electrical installation work on split-system air conditioning installations at residential and business premises.
- When investigated he said he had installed the air conditioning units but did not do any electrical installation work associated with the units. He claimed to have had a valid Victorian electrical licence.
- Fined \$20,000 and ordered to pay investigation and court costs.

Case study 2008

- unlicensed electrical contractor and obligation employer/ self employed breach

- Electrical worker received a shock while repairing an industrial dishwasher - worker was taken to hospital in a critical condition.
- Not the holder of an electrical contractors licence.
- Business did not have adequate policies or procedures in place with respect to safe systems of work.
- No formal induction for new employees and no formulated on-going training framework for current staff.
- Inadequate personal protective equipment issued to workers and supervision of employees was limited. Any training or instruction given was verbal and was not recorded.
- Fined \$25,000 and ordered to pay investigation and court costs.

Additional case studies

2007 - 2009

- Unlicensed contractor \$8,000.
- Unlicensed electrical worker.
2 x misrepresentation about electrical work \$3,000 and court costs \$1,219.60.
- Section 27 - Obligation Section 36 – Installer \$17,500 and court costs \$750.
- Unlicensed electrical worker and unlicensed contractor \$20,000 and court costs \$1,571.25.



Check if your contractor or worker is licensed

- Facility on the ESO website to check if your electrical contractor or worker is licensed.

www.electricalsafety.qld.gov.au

- Electrical contractors (licensed to conduct and electrical contracting business, both installation and repairs).
- Electrical workers (licensed to perform electrical work in the class stated on the licence).

Workplace health and safety



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Electrical licence holder search

This facility allows you to search for Queensland:

- electrical contractors (licensed to conduct an electrical contracting business)
- electrical workers (licensed to perform electrical work in the class stated on the licence)

Performing electrical work or contracting without the appropriate licence is dangerous and illegal and should be reported to the Electrical Safety Office on 1300 362 320.

You can search by **one** of the following:

Licence number

Worker Contractor

Business name

Business location

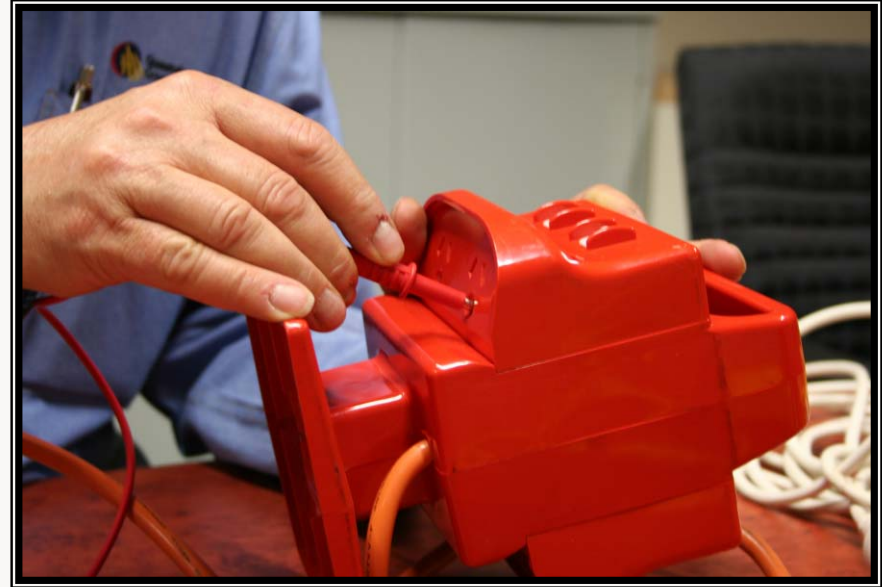
Legal name

Worker first name

Worker last name

Part 3 – Test and tag

- Who can test and tag.
- Specific requirements for test and tag for hire equipment.
- Queensland electrical contractor requirements for restricted contractor licence of test and tag.



Test and tag – Who can test and tag electrical equipment?

- Test and tag is the common term used for in-service safety inspections as per AS/NZS3760.
- Only a person appointed as competent by their employer can test and tag electrical equipment.
- ***Competent person*** means a person who has acquired, through training, qualifications, experience or a combination of these, the knowledge and skill enabling the person to inspect and test electrical equipment.

Test and tag – Who can test and tag electrical equipment?

- Registered training organisations conduct test and tag courses appropriate for employees to perform test and tag functions.
- Eligibility for qualified technical person for a test and tag restricted electrical contractor licence must complete recognised course of instruction or equivalent (e.g. UEENEEP008 conduct in-service safety testing of electrical cord assemblies and cord connected equipment).

Test and tag

- A test and tag competent qualification, or restricted contractor test and tag - does not allow repair work. It is an offence under the *Electrical Safety Act 2002* to repair electrical equipment unless you have the appropriate electrical work licence.
- Under the *Electrical Safety Regulation 2002*, there are specific test and tag requirements for:
 - Manufacturing work
 - Office work
 - Amusement work
 - Rural industry work
 - Construction work.



Test and tag requirements for hire electrical equipment

- Section 1.2.4 of AS/NZS3760 states requirements for hire equipment. However, there are other specific requirements for hire equipment in the *Electrical Safety Regulation 2002*.
 - refer to *Electrical Safety Regulation 2002*, s126 Hiring electrical equipment for requirements.

Live electrical work

Testing is live work.



Basic requirements for electrical work (ESR s11)

An employer or
self-employed person
must
ensure that live work is
not
performed unless -

Live work (ESR s.12)

It is not practicable to perform the electrical work other than by live work because;

- It is necessary in the interests of safety,
- Electricity supply is needed to perform the electrical work, or
- There is no reasonable alternative to performing the electrical work by live work.

Live work – continued

If there is no reasonable alternative to live work – then all these requirements must be met:

1. Risk assessment
2. Safe system of work (AS/NZS 4836)
3. Authorisation
4. Appropriate training



Live work – continued

5. Test equipment is appropriate
6. Clothing and PPE are appropriate
7. Isolation point
8. Area is clear of obstructions
9. Safety observer.



Test and tag review

- Test and tag must be performed by a competent person.
- Repairs must not be performed on equipment tested unless performed by the holder an appropriate electrical licence with the scope and a Queensland electrical contractor.

Test and tag review

- Qualified technical person on a restricted Queensland electrical contractor licence for test and tag must successfully complete a course of instruction recognised by the Chief Executive.
- Live work requirements.



Part 4 – Electrical equipment safety system

- Electrical Regulatory Authorities Council (ERAC) works towards harmonising electrical safety regulations:-
 - Members include 8 Australian States/territories and New Zealand; and
 - Some federal government departments.

Electrical equipment safety system

- Electrical equipment safety currently regulated by state and territory governments.
- Increased imports and internet sales have the potential to increase the risk of unsafe equipment being supplied in Australia and New Zealand.
- Formal and comprehensive review required for future direction.
- ERAC agreed to undertake a review.

Electrical equipment safety system

- ERAC equipment review process
 - Options report– public consultations across Australian and New Zealand.
 - Industry working group was formed to provide direct stakeholder input.
 - Approximately 80 stakeholders individually consulted.
 - Final report accepted by ERAC December 2007.

Electrical equipment safety system

- Current system:-
 - Lack of harmonisation across jurisdictions
 - Serious deficiency in enforcement.
- Proposed system:-
 - Uniform pre-market certification process
 - Different levels of risk based on market experience
 - Coordinated post-market enforcement
 - National registration database.

Electrical equipment safety system

- Nationally consistent legislation in each jurisdiction.
- Appropriate mix of pre-market registration and post-market enforcement.
- Equipment will be classified into 3 levels of risk:
 - Level 1 – low risk
 - Level 2 – medium risk
 - Level 3 – high risk.

Electrical equipment safety system

- 3 Major initiatives:
 1. National legislation.
 2. Scheme rules.
 3. National registration database.

Summary

- The *Electrical Safety Act 2002* and the *Electrical Safety Regulation 2002* enforce electrical licensing requirements to ensure that electrical workers and contractors are appropriately licensed and the public is safe from electrical related risks.
- The Electrical Safety Office also regulates:
 - Electrical licensing (National Licensing System 1/7/2012)
 - Electrical equipment safety;
 - Electrical equipment approvals (new electrical equipment safety system for implementation 1/7/2011).

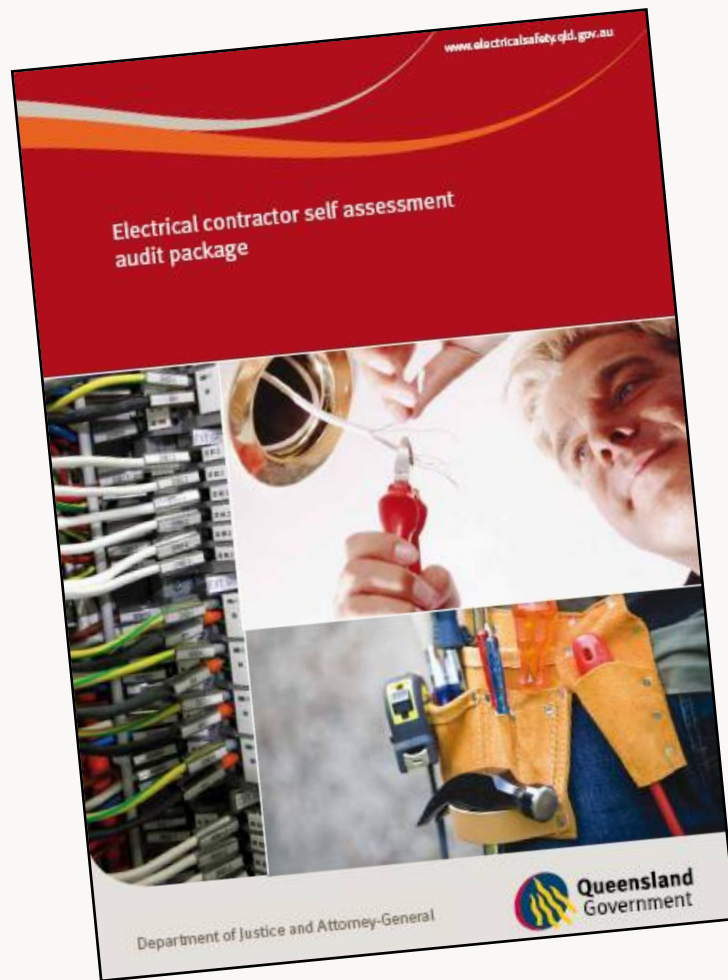
Summary

- Licence holders must only perform electrical work in accordance with the restrictions and conditions imposed on the electrical work licence.
- Definitions of electrical appliances, equipment and electrical work.
- Clarification of who needs an electrical workers licence.
- When is a Queensland electrical contractor licence required.

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- Electrical contractor self-assessment audit package.

A free resource for safe electrical work.

Annual Queensland Work Safe Awards

Celebrate, showcase and reward innovative ideas, leadership and commitment to workplace health and safety.

Five different categories. Four for Workplace Health and Safety and one for *Electrical Safety Category 5 – Best solution to an identified electrical safety issue.*

Each year the competition is open to Queensland businesses who have developed or implemented safety solutions and practices resulting in health and safety improvements, no matter how big or small.

Annual prize money of \$1000 to be won!

Important dates to remember each year for these awards:

Entries open: early May

Entries close: early July

Finalist announced: September / October

Winners announced: late October



Feedback and evaluation

Please tell us what you think on the evaluation form.

Electrical Safety Office 2010
Electrical Safety Seminar - Presentation Evaluation

Location: _____ Date: 22/07/10

1. Was the seminar content useful to you, your work or your business?
Very useful 5, Useful 4, Average 3, Needs improvement 2, Inadequate 1

2. Was the information presented in a way that was easy to understand?
Very easy 5, Easy 4, Average 3, Needs improvement 2, Inadequate 1

3. Please rate your overall satisfaction with the seminar:
Very Good 5, Good 4, Average 3, Needs improvement 2, Inadequate 1

4. Age: Under 17 17-24 25-34 35-49 50+

5. Which best describes you? Electrician
 Apprentice
 Designer or manufacturer of electrical equipment
 Electrical contractor
 Electrical worker
 Electrician
 Facilities manager
 Maintenance electrician
 Maintenance manager or engineer
 Repairs/maintenance
 Self-employed electrical business holder
 Service or maintenance electrician
 Supervisor or manager of electrical workers
 Non-electrical - (Please specify: _____)

6. How do you feel about taking risks with live electrical work or working near live parts?
 I won't do it It's OK to take some risks depending on the situation I take risks, but I am OK comfortable with this I don't take risks as part of my job

7. Do you think working near live parts is as dangerous as live work? Yes No

8. Do you take risks with your electrical work? Never Rarely Sometimes Often Always

9. Do you get pressured to work live? Yes. What is the pressure? No.
 Electrical Safety Officer/inspector Newsgroup, Which one?
 E-Alert Friends
 ESD Website Other
 My workplace/employer

11. If you would like to receive electrical safety updates by email please check your email here:

12. Please provide any comments you would like to make about the seminar.

Thank you
Please scan the completed form below and it will be collected at the end of the seminar.

Queensland Government
Department of Justice and Attorney-General

Where to find more information
on electrical safety:

Electrical Safety Office

www.electricalsafety.qld.gov.au

Electrical Safety Infoline

1300 650 662

