Electrical Safety Codes of Practice 2010

Electrical Safety Office - 2010

Department of Justice and Attorney-General

Queensland Government

Overview

This presentation will introduce:

- **The Electrical Safety Office** and Queensland's electrical safety laws

- **The new Electrical Safety Codes of Practice 2010 with particular reference to the code on risk management**
  - We will include case studies from the new risk management code.

Electrical Safety Office Goal

Electrically safe:

Dwellings

Workplaces

Public places

Electrical Safety Office functions

- Legislation, standards, policy development.
- Education and awareness.
- Compliance – advice, audits and investigations.
- Electrical licensing.
- Electrical equipment safety.

Electrical safety services → **Improved electrical safety**

Legislation

Electrical Safety Act 2002

- Imposes obligations on persons

Electrical Safety Regulation 2002

- Wiring rules, live work and working around electrical parts

Legislation

Codes of Practice – updated & effective from 1 January 2010

- Working Near Exposed Live Parts
- Electrical Work
- **Risk Management**
- Works
- Electrical Equipment - Rural Industry

How Can I Meet My Obligations?

Under the Electrical Safety Act there are three instruments that assist in meeting your obligations:

- Regulations
- Ministerial Notices
- Codes of Practice

How Can I Meet My Obligations?

If there is a regulation or ministerial notice about managing exposure to a risk – it **must** be followed.

How Can I Meet My Obligations?

If there is a code of practice, it must be followed or you must follow another way that gives the same or greater level of protection against the risk.

How Can I Meet My Obligations?

If there is no regulation, ministerial notice or code of practice about a risk a person must:

1. Adopt and follow any way to discharge the person's electrical safety obligation for exposure to the risk; and

2. Take reasonable precautions and exercise proper diligence to discharge the electrical safety obligation.

Electrical Safety Codes of Practice 2010

- Major changes
  - In line with changes to legislation;
  - Consistent with Risk Management CoP;
  - Addition of training & supervision material;
  - Removal of extracts of legislation taken directly from the Act/Regulation.

All Codes of Practice 2010

As a result of the release in November 2009, by Standards Australia of *AS/NZS ISO 31000;2009 Risk Management – Principles and Guidelines,* all references to 'hazards' and to 'controlling risks' have been changed to 'risks' and 'treatments of risk'.

Code of Practice 2010 – Working Near Exposed Live Parts

- Part 1 Introduction
  - legislation referenced
- Part 2 Risk Management
  - consistency with *Electrical Safety Code of Practice 2010 – Risk Management*
  - new section Instruction, Training & Supervision
- Part 3 Exclusion zones
- Part 4, 5 , 6, 7, 9, 10 – Revised in line with *Electrical Safety Code of Practice 2010 Risk Management*
- Appendices

Code of Practice 2010 – Electrical Work

- Part 1 Introduction
  - legislation referenced
- Part 2 Risk Management
  - consistency with *Electrical Safety Code of Practice 2010 – Risk Management*
  - new section Instruction, Training & Supervision
- Part 3 Working De-energised
- Part 4 Working Live
- Appendices

Code of Practice 2010 – Electrical Equipment – Rural Industry

- All part numbering
- Part 1 Introduction
  - legislation referenced
- Part 4 Risk Management
  - consistency with *Electrical Safety Code of Practice 2010 – Risk Management*
  - new section Instruction, Training & Supervision

Code of Practice 2010 – Works

- Part 1 Introduction
  - legislation referenced
- Part 2 Risk Management
  - consistency with *Electrical Safety Code of Practice 2010 – Risk Management*
  - new section Instruction, Training & Supervision
- Other minor changes

Electrical Safety Code of Practice 2010 – Risk Management

- A new specialised code to assist safe electrical work
- Under the *Electrical Safety Act 2002*
- Consistent with and complements WHSQ's Risk Management Code of Practice 2007
- Details risk management for electrical workers undertaking live electrical work
- Complements other four codes, particularly:
  - Working Near Exposed Live Parts
  - Electrical Work

Electrical Safety Code of Practice 2010 – Risk Management

- **Why do we have such a code?**
  - to meet specific electrical risks
  - to complement other Electrical Safety Codes of Practice
  - help electrical workers understand risk management
  - provide template risk assessment forms

Code of Practice 2010 – Risk Management

- Part 1 – Introduction
- Part 2 - Overview of Requirements
- Part 3 - Electrical Risk Identification
- Part 4 - Risk Assessment – except for licensed workers undertaking live electrical work
- Part 5 - Risk Assessment – for licensed workers undertaking live electrical work
- Part 6 - Treat, Implement, Monitor and Review
- Appendix A - Forms for record keeping

Part 1 – INTRODUCTION

- **1.2 Legislative Framework**.

- This Introduces the *Electrical Safety Act 2002* and the *Electrical Safety Regulation 2002.*

Part 2 Overview of Requirements

- **Definition of risk management**

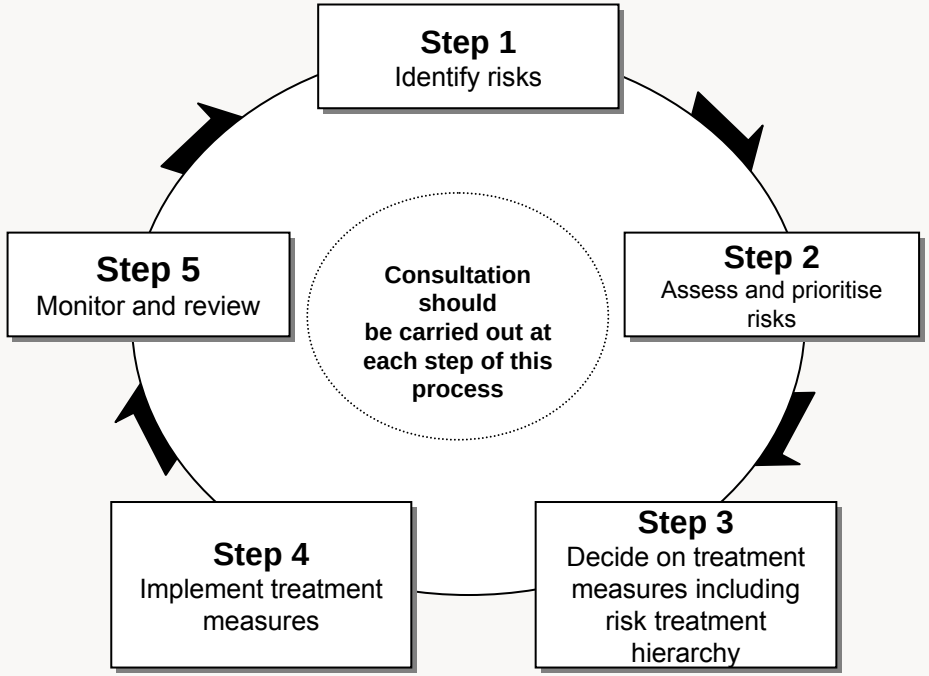
- **Risk management** is 'the coordinating of activites to direct and control an organisation with regard to risk'

  AS/NZS ISO 31000 Risk Management'

Part 2.2 Five–step risk management process

- The basic five steps of the risk management process are set out in this diagram.

- Note that consultation is central to the process.



Part 2.4.3 When to use the process

- NOW, if it has not been done before;
- when planning or making a change;
- after an incident, and/or a near miss;
- at regular or scheduled intervals appropriate to the nature of the workplace and the risks present;
- when legislative obligations change (including regulations);
- before work starts.

Part 2.4.3 Making a change? Examples of planned or actual changes

- starting a new project;
- changes in work procedures and/or practices;
- changes to the worksite during construction phases;
- changes in work schedules (e.g. introducing extended work hours or shift work);
- changes in how materials and substances are used, who uses them and how much is used;

Part 2.4.3 Making a change? Examples of planned or actual changes

- changes in the use or location of tools, equipment or machinery;
- discovery of new information about a previously unknown design or manufacturing fault, or about a previously unidentified risk;
- introducing new workers with different skill levels or workers returning after periods away from the task;
- changes in a risk treatment measure after reviewing the effectiveness; and
- plans to design a new facility or premises including the layout of the work area and fit-out.

Part 2.5 Consultation

- Benefits of consultation:
  - brings together people with different expertise to identify and analyse risks
  - allow those close to the action to have input
  - increases likelihood of a buy in by all parties
  - helps develop a positive electrical safety culture in the workplace

Consultation

- Who should be consulted
  - Electrical workers
  - Supervisors
  - Persons in control of the electrical equipment
  - Workplace Health and Safety Representatives
  - Workplace Health and Safety Officers
  - Workplace Health and Safety Committees
  - Electrical contractors
  - Electrical equipment suppliers
  - Electrical entities
  - Specialists such as electrical engineers

Part 2.6 Record keeping

- Why keep records?
  - Demonstrates potential compliance with the Act;
  - Provides a record of risks and how they are to be managed; and
  - Demonstrates that the process was conducted properly and in accordance with legislation.

Part 3 Electrical Risk Identification

- This is the start of the 5 step process
- Electrical risk means the risk to a person of death, shock or injury caused directly by electricity or originating from electricity. It also includes the risk to property of damage caused by a cathodic protection system or loss or damage caused directly by electricity or originating from electricity.

Categories of risk

- **The obvious risk** is apparent to the senses (e.g. visibly damaged electrical equipment).
- **The concealed risk** is not apparent to the senses (e.g. electricity supply infrastructure inside walls).
- **The developing risk** cannot be recognised immediately and will develop over time (e.g. fraying electrical extension cords due to surface contact).
- **The transient risk** is an intermittent or a temporary risk (e.g. use of lifting equipment near overhead lines or intermittent electrical defect).

Common electrical risks

- **Electric shock** causing injury or death. May be received by direct contact, tracking through or across a medium, or by arcing.

  Arcing, explosion, overheating or fire causing burns. The injuries are often suffered because arcing, explosion, or both occur when high fault currents are present. Overheating can also result in burns and fire.

  Toxic gases causing illness or death. Burning and arcing associated with electrical equipment causes a range of toxic gases and contaminants to be present. Compounds ranging from ozone to cyanide and sulphuric acids can be present as well as the risks such as low oxygen content in the air.

Part 4 Risk assessment

- Part 4 does not apply to licensed electrical workers undertaking live electrical work
- Risk assessment is the second step in the five step process.
- The definition of risk for the purpose of this Code is:

  - the likelihood and consequence of injury or harm occurring

Risk assessment

- Part 4.2 Why assess risk?

The purpose of a risk assessment is to determine:

- whether there is any likelihood of a potentially hazardous situation causing death, injury or illness to people in the workplace;
- how severe that risk is; and
- whether the risk needs to be managed and how urgently.

Risk assessment

- Part 4.3 How to assess risks?
- By establishing likelihood and consequences
  - **Likelihood** is how likely it is to happen
  - **Consequence** is how severely it will hurt someone**.**

Likelihood

- Factors influencing likelihood:
  - How often the task occurs;
  - How many people will be exposed;
  - The duration of the exposure;
  - The position of the electrical risk relative to workers and to other risks;

Likelihood (cont'd)

- The skills and competence of person exposed;
- Distractions;
- Environmental conditions;
- Conditions of equipment;
- The effectiveness of existing risk treatment measures.

Consequence

- Factors influencing consequence
  - potential for chain reaction;
  - position of the worker relative to the risk;
  - volumes of materials;
  - forces and energy levels

LIKELIHOOD **How likely is it to happen?**	**CONSEQUENCES:** **How severely it hurts someone (if it happens)?**				
	Insignificant (no injuries)	Minor (first aid treatment only)	Moderate (medical treatment)	Major (extensive injuries, loss of production)	Catastroph (death)
Almost certain - expected in most circumstances	**3** **H**	**3** **H**	**4** **A**	**4** **A**	**4** **A**
Likely - will probably occur in most circumstances	**2** **M**	**3** **H**	**3** **H**	**4** **A**	**4** **A**
Possible - might occur at some time	**1** **L**	**2** **M**	**3** **H**	**4** **A**	**4** **A**
Unlikely - could occur at some time	**1** **L**	**1** **L**	**2** **M**	**3** **H**	**4** **A**
Rare - may occur, only in exceptional circumstances	**1** **L**	**1** **L**	**2** **M**	**3** **H**	**3** **H**

Risk Score and Statement

Score and statement	Action
4 A: Acute	ACT NOW – Urgent - do something about the risks immediately. Requires immediate attention.
3 H: High	Highest management decision is required urgently.
2 M: Moderate	Follow management instructions.
1 L: Low	OK for now. Record and review if any equipment/ people/ materials/ work processes or procedures change.

Simplified advice

No or low risk – continue activity.

- If it is not at all likely that anyone will be exposed to a hazardous situation or event, then there is no risk, and no risk treatment measures are required.

Moderate or high risk – continue activity under management instruction.

- If it is possible or likely that a person will be exposed to a hazardous situation or event, then risk treatment measures are urgently required.

Acute risk – stop activity now.

- If there is an acute or immediate risk to health or safety, the process / activity in question must be ceased until measures are taken to remove the acute or immediate risk.

Part 5

Risk Management for Licensed Electrical Workers Undertaking Live Electrical Work

Live work must not be performed unless: (ESR s.11 and 12)

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

a) it is necessary in the interests of safety;
b) electricity supply is needed to perform the electrical work; or
c) there is no reasonable alternative to performing the electrical work by live work.

If there is no reasonable alternative (ESR s.12)

then all (nine) requirements must be met

1. Risk assessment
2. Safe system of work (AS/NZS 4836)
3. Authorisation
4. Appropriate training
5. Test equipment is appropriate
6. Clothing and PPE are appropriate
7. Isolation point clear and unobstructed
8. Area is clear of obstructions
9. Safety observer

Managing electrical safety for live electrical work

- Taking **a risk management approach** to live electrical work

Risk Management for Live Electrical Work

- Step 1 Identify risks
- Step 2 Assess the risks
  - The Regulation, Code of Practice
- Step 3 Decide risk treatment measures
- Step 4 Implement risk treatment measures
- Step 5 Monitor and review

Risk priority chart - live work

LIKELIHOOD OF HARM How likely is it to happen?	**CONSEQUENCES: Likely severity of harm**				
	Insignificant (no injuries)	**Minor** (first aid only)	**Moderate** (medical treatment)	**Major** (extensive injuries)	**Catastrophic** (death)
Almost certain: expected to occur in most circumstances	**Low**	**Moderate**	**High**	**High**	**High**
Likely: will probably occur in most circumstances	**Low**	**Moderate**	**High**	**High**	**High**
Moderate: might occur at some time	**Low**	**Moderate**	**Moderate**	**High**	**High**
Unlikely: could occur at some time	**Low**	**Low**	**Moderate**	**High**	**High**
Rare: may occur only in Exceptional circumstances	**Low**	**Low**	**Low**	**Moderate**	**Moderate**

Risk score and action for live work

Score and statement	Action
High	Review decision to work live. In the event of no practicable alternative to working live, use a competent safety observer and follow mandated actions for live work in accordance with section 12 of the Regulation as listed in this part.
Moderate	Review decision to work live. In the event of no practicable alternative to working live, follow mandated actions for live work in accordance with section 12 of the Regulation as listed in this part.
Low	Follow mandated actions for live work in accordance with section 12 of the regulations as listed in this part.
Regularly review implemented risk treatment measures.	

Case Studies

- **Low Risk**

  Testing polarity of installed outlets where power circuits are protected by safety switches
- **Moderate Risk**

  Testing work involved in the replacement of a domestic electric stove
- **High**

  Partial loss of power in a multi level hospital complex where power cannot be disconnected

Summary

- A systematic risk assessment process is a legal obligation when undertaking live work.
- The process outlined in the code prescribes a way of discharging an employer's or self employed person's electrical safety obligation.

Part 6 Treat, Implement, Monitor and Review

- Part 6 of the code covers steps 3, 4 and 5 of the risk management process. That is:
  - Decide on risk treatment measures
  - Implement these treatment measures
  - Monitor and review them.

Risk Treatment hierarchy

A. eliminating the risk;

B. if this is not possible, the risk must be minimised by measures considered in the following order:

   i. substituting the risk with one giving rise to a lesser risk; if not then

   ii. isolating the risk from anyone who may be at risk; if not then

   iii. minimising the risk by engineering means; if not then

   iv. applying administrative measures; if not then

   v. using personal protective equipment.

Most effective measure

Least effective

Implementation of treatment measures

- **Develop the plan**
  - The plan should:
  - specify the preferred risk treatment options;
  - set out the steps that need to be taken to implement the risk treatment measures;
  - identify and allocate the resources necessary to implement the treatment measures (i.e. time and expenses);
  - allocate responsibilities and accountabilities (i.e. who does what and when);
  - set the timeframe for implementation (i.e. when it is to be completed by); and
  - set a date for reviewing the risk treatment measures.

Summary

In this session we have covered:

- The ESO and Queensland's electrical safety laws
- Electrical safety obligations
- The new Electrical Safety Code of Practice 2010
  - Risk Management

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Feedback and Evaluation

Please tell us what you think, on the evaluation form.

Questions?

- **Further Information:**
- The Electrical Safety Office online: **www.electricalsafety.qld.gov.au**
- Electrical Safety Infoline: **1300 650 662**
- Workplace Health and Safety Infoline: **1300 369 915**