



WYONG SHIRE COUNCIL

STANDARD ELECTRICAL SPECIFICATION (EI2B)

**Installation and Use of Electrical Equipment at
Shows, Carnivals and Displays**

Prepared: January 2003

Preface

This Standard was prepared by Wyong Shire Council Electrical Department to provide safety standards and procedures for Sporting Organisations, Volunteer Groups, Committees, Contractors and their staff, Sub-contractors and their staff, Suppliers of equipment and individuals who wish to use electricity on any Council controlled reserve or property.

This latest revision has come about from the need to ensure that when electricity is utilised in a public place, the safety of the General Public is paramount.

Failure to comply with any of the requirements within this document could result in heavy penalties from both Council and WorkCover NSW.

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Section 1 - General

1.1 Scope

This Specification details the Council's General, Safety and Installation requirements for the use of Electricity on any Council controlled reserve or property.

It includes, but is not limited to, electricity supply for concessions and rides, tents and other temporary structures used for entertainment or displays, shows and carnivals.

It includes the use and Safety Requirements when using extension leads, portable generating sets, current operated (core balance) earth leakage circuit breakers (RCD's), hot water urns and lighting equipment.

All of the above listed items fall under the heading of temporary installations.

1.2 Compliance with Authorities and Standards

Equipment, all switchgear and control gear assemblies, plugs, leads and their installation shall comply with the requirements and recommendations of the latest relevant "Standards Association of Australia" Standard or Code.

The requirements of Wyong Shire Council Guide to safe electrical work procedures and the requirements of the NSW WorkCover Authority in particular the following:

AS3002	AS3126
AS3000	AS3152
AS3005	AS3167
AS3105	AS3190
AS3112	AS2790

All work shall be carried out in accordance with the Service Rules of the Supply Authority, the requirements of Telstra and all relevant Statutory Authorities.

1.3 Abbreviations and Expressions

Where abbreviations and expressions occur in the Specification, they shall mean as follows:

<i>Accepted</i>	Accepted by the Superintendent
<i>Approved</i>	Approved by the Superintendent
<i>Council</i>	Wyong Shire Council
<i>Directed</i>	Directed by the Superintendent
<i>Supply Authority</i>	The Authority that supplies electricity to the locality of the project
<i>Superintendent</i>	Council's Operations Supervisor (Electrical)
<i>Wiring Rules</i>	The current edition of the SAA Wiring Rules AS 3000
<i>GPO</i>	General Purpose Outlet
<i>IP Rating</i>	Degree of Protection as described in AS 1939
<i>PVC</i>	Polyvinyl chloride
<i>SAA</i>	Standards Association of Australia

<i>Concession</i>	Any booth, display, riding device or any other single entertainment units.
<i>Concession Installation</i>	All the electrical wiring, accessories, luminaries, switchboards, control panels, fittings, consuming devices, control and protective gear and other equipment associated with the wiring of the Concession. The Concession installation shall be deemed to commence at the plug socket, terminals or links provided on the site installation for the connection of the Concession.
<i>Site</i>	Any area used for shows, circuses, carnivals, fairs, temporary entertainment or displays and the like, that is under Wyong Shire Council control.
<i>RCD</i>	Residual Current Devices (electrical safety devices that provide protection against faults to earth).
<i>Site Installation</i>	All the electrical wiring, accessories, luminaries, switchboards, control panels, fittings, consuming devices, control and protective gear and other equipment associated with the wiring of the site.

1.4 Council Assistance

In an endeavour to assist the Organisers with their various requirements and taking into account the technical and legal requirements now required to conduct an event in a public place, Council will provide an electrical tradesman to the site on the morning prior to the start of the festival/show.

Details regarding the provision of this assistance are to be agreed between the organisers and the Superintendent.

The electrical tradesman will assist in the provision of electricity supply to the site in accordance with the site requirements as previously agreed between the organisers and the Superintendent.

Any changes to the agreed amount of power required or alteration to the location of extension leads, power outlets etc, are not to be made without the approval of the Superintendent or electrical tradesman.

It should be noted, that the provision of all temporary electrical equipment such as extension leads, power outlets etc, is the responsibility of the organisers, and that all of the equipment to be used on-site will comply with this document.

Once the electrical tradesman has established electrical supply to the site and is satisfied that all equipment is safe and operating in the manner intended, the on-going electrical safety for the site is the responsibility of the Organisers.

The electrical tradesman will then complete the electrical safety checklist as shown in Appendix A.

Section 2 – Site Loading

In order to assist the Organisers with their requirements Council needs to know what the intended electrical load may be, as there are parks and reserves throughout Wyong Shire that have only limited power and not established to cater for heavy demands.

It is the responsibility of the organising committee to obtain from each participant the electrical ratings of their concession, ride, stall, tent, etc to enable Council to ascertain the maximum current requirement for the venue.

Information required on each piece of electrical equipment should be listed on Addendum "A" and forwarded to the Electrical Workshop at Charmhaven Depot 7 days prior to the event – fax number (02) 4392 5393.

Voltage	=	240 volts or 415 volts
Current	=	in amps
Power	=	watts or kilowatts
Motor Rating	=	Horse Power / Kilowatts
(if electric motors are being used)		

Section 3 – Equipment Tagging

All extension leads, portable RCD's, portable generators, hot water urns, and plug-in type appliances shall be inspected, tested and tagged by a licensed electrician before being brought onto site.

The only form of inspection duration accepted by Council is Monthly – 3 monthly inspection tags will not be accepted.

Each month will have a different coloured tag as detailed below.

January/September	=	Red
February/July	=	Blue
March/November	=	Orange
April/August	=	Green
May/December	=	White
June/October	=	Yellow

These tags will show the following information:

- i) Date of inspection.
- ii) The plant number or inspection number of the item inspected.
- iii) The name of the testing company.
- iv) The licence number and signature of the electrician.

Council will make itself available the week prior to the event in view and give advice to the organisers on any intended equipment they envisage using, provided reasonable notice is given.

It should be noted that in the interest of public safety, it is a requirement of WorkCover NSW that all electrical equipment used in a public place shall be inspected, tested and tagged by a licensed electrician before being brought onto site.

Section 4 – Cabling

4.1 Overhead

Overhead wiring for a temporary site installation shall consist of stranded, insulated and sheathed type heavy duty flexible cords.

Bare conductors are unacceptable.

The clearance of cables from the ground shall be as follows:

- i) Around concessions, rides or any movement amusements – 4.5 metres.
- ii) Where used across vehicular access or roadways – 5.5 metres.
- iii) Where used over other areas – 2.5 metres.

Where an overhead span exceeds 13 metres, cables shall be fixed to a catenary wire.

The maximum acceptable distance of an overhead span without an intermediate upright support is 45 metres.

4.2 Underground

Cables may be buried either direct in the ground or in appropriate underground enclosures with a minimum depth of:

- a) for areas subject to vehicular traffic 150mm
- b) for other areas 75mm

Permission must be obtained in writing from Council's Open Space and Recreation Manager before any park or reserve area has temporary cables of the nature described above, buried in it.

4.3 Onground

Cables shall not be laid on the ground in areas accessible to the public. In all other situations cables may be laid on the ground for short distances provided that suitable means of protection is provided.

The suitability of protection will be determined by the Superintendent or Council's on-site electrical tradesman.

4.4 Joints in Cabling

Where possible, cable runs shall be free of joints and continuous over their entire length.

If joints are required, they will be enclosed in junction boxes or other suitable enclosures.

Conductors shall be joined within junction boxes or suitable enclosures by means of connectors, soldering, crimping or approved compression fittings. Joints shall be suitably insulated and taped.

Provision shall be made to remove any tension from all joints.

Temporary joints installed underground shall be sealed to prevent the entry of moisture.

In all cases, joints in cables shall be inspected by Council before being sealed, closed, buried underground etc.

NOTE: All joints will be inspected before supply is connected.

4.5 Flexible Cords/Cables

All flexible cords/leads shall be heavy duty sheathed type having a minimum current carrying capacity of 15 amps.

All flexible cords/leads shall be inspected, tested and tagged in accordance with the requirements of Section 3 before being allowed to be put into use.

Section 5 – Switchboards

Where a temporary switchboard having connection facilities is installed within 2.5 metres of the ground in an area accessible to unauthorised persons the switchboard shall:

- a) have no exposed live parts
- b) be enclosed within a cupboard or box fitted with a door or lid provided with facility for locking. Such a cupboard or box shall be:
 - i) constructed to permit the opening or closing of the door or lid without the removal of, or damage to, any cables or flexible cords attached to the connection facilities; and
 - ii) provided with a tie-bar or similar arrangement for the anchorage of the cables or flexible cords in order to prevent strain at the termination of the cables or cords.
- c) Each plug socket shall:
 - i) be individually controlled by a switch which interrupts all live conductors.
 - ii) incorporate an earthing contact which shall be connected to the earthing conductor of the supply flexible cord.

Every connection facility or outlet device shall be protected by a Residual Current Device (RCD) over current circuit breaker with a rated tripping current not exceeding 30 mA.

Every connection facility shall be connected to a separately protected final sub circuit.

Section 6 – Portable Generators

All portable generating sets up to 25 kilowatts in rating shall comply with the performance and construction requirements of AS 2790.

The power outlets on all portable generating sets shall be protected by core balance earth leakage device (RCD) with a rated tripping current not exceeding 30 mA.

All portable generating sets shall be inspected, tested and tagged before being brought onto site as detailed in Section 3.

Section 7 – Connection to Supply

7.1 Portable Outlets

Electrical portable outlet devices shall be connected to a site installation or generating set by means of plug and plug socket connection facilities.

Where the supply flexible cord or cable attached to the device is of insufficient length to permit an unbroken connection, approved heavy duty sheathed cord extension sets, or sheathed cables fitted with plug and socket connection facilities, shall be permitted. Supply for the device shall not be obtained from another electrical portable outlet device.

Electrical portable outlet devices shall be adequately supported by a rigid section of the concession structure and shall not be laid on the ground. The device shall not be installed within 1 metre of flammable materials unless provided with a suitable cover.

All plugs sockets provided on an electrical portable outlet device shall be protected by one or more current-operated (core balance) earth-leakage circuit breakers complying with AS 3190 or other earth monitoring devices such as RCD's.

Single phase and multiphase electrical portable outlet devices shall comply with the relevant requirements of AS 3105.

All portable outlet devices shall be constructed of suitable impact resistant and durable material.

7.2 Concession Installation

Concession installations shall be connected to the site installation or to generating sets by means of cables or flexible cords and suitable plugs or connecting devices.

Each consuming device within the concession shall be connected to the supply by either:

- a) an independent cable or flexible cord connected to the site installation or generating set.
- b) an electrical portable outlet device.

However, where only two consuming devices are installed within a concession, connection to the supply may be made by means of a plug-socket adaptor provided that the adaptor is:

- i) located within the concession; and

- ii) not laid in contact with the ground or exposed to the rain.

In determination of the number of consuming devices in a concession, each system of festoon lighting and each decorative lighting outfit shall be considered as one device for each plug provided for connection to the supply.

Section 8 – Riding Devices

Electrical equipment installed on riding devices shall be supplied by one of the following methods:

- a) Extra Low Voltage (not exceeding 32 volts AC or 115 volts DC)

The extra low voltage supply shall be obtained from the unearthed secondary or a transformer complying with AS 3126.

- b) Low Voltage (exceeding extra low voltage but not exceeding 1000 volts AC)

The low voltage supply source shall be protected by a current operated (core balance) earth leakage device (RCD) with a rated tripping current not exceeding 30 mA.

Section 9 – Lighting

9.1 General

All lighting, whether festoon, general or flood shall comply with the requirements of AS 3000 wiring rules.

Light fittings designed for indoor use only shall not be used in an outdoor situation.

9.2 Floodlights

Due to the amount of heat generated from various types of floodlights, all floodlights will not be mounted or positioned within 300mm of any flammable material.

Where the organiser wishes to use a floodlight for display purposes, suitable support bracketry will be required to ensure a minimum of 300mm is maintained.

9.3 Festoon Lighting

Festoon lighting shall be located and support so that:

- a) no lamp is within 150mm of flammable material
- b) no lampholder is within 2.5m of the ground or any place where a person is likely to stand, unless:
 - i) the lampholders are installed immediately below a ceiling or fixed to a structure, in a position not exposed to mechanical damage, or
 - ii) precautions are taken to prevent inadvertent contact by members of the public, and
- c) no part of the lighting system is within 5.5m of the ground in areas subject to vehicular traffic.

Loading of final sub circuits

The number of lighting points per festoon lighting final sub circuit shall be limited only by the total loading of the final sub circuit which shall not exceed 15A.

Decorative lighting outfits

Decorative lighting outfits shall comply with AS 3152 and may incorporate flexible cords having conductors not smaller than 0.75mm² provided that the flexible cord, lampholders, connections and other parts of the system are suitable for outdoor use.

Installation of Electrical Equipment at Shows, Carnivals & Displays Checklist EI2B

Note: This checklist is to be completed by WSC Electrician and returned to Charmhaven Workshop for future reference.

LOCATION: _____ DATE: _____

EVENT: _____

CONCESSION PROVIDER: _____

CHECKLIST IS BASED UPON COMPLIANCE WITH WYONG COUNCIL ELECTRICAL SPECIFICATION WSC EI2B

	OK	N/A	NOT OK
SITE LOADING AS PER SECTION 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQUIPMENT TAGGED AS PER SECTION 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OVERHEAD CABLING AS PER SECTION 4.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ONGROUND CABLING AS PER SECTION 4.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
JOINTS IN CABLING AS PER SECTION 4.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FLEXIBLE CORDS/CABLES AS PER SECTION 4.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHBOARDS AS PER SECTION 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PORTABLE GENERATORS AS PER SECTION 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PORTABLE OUTLETS AS PER SECTION 7.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RIDING DEVICES AS PER SECTION 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTING AS PER SECTION 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELECTRIC MOTOR SYSTEMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CONTROL SYSTEMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SUPPLY AUTHORITY METER READINGS: _____

COMMENTS:

INSPECTION CARRIED OUT BY:

Signature: _____ Print Name: _____

Date: _____

