



ISSUE NO 3

AUGUST 2002

The next months will be very important for all electrical workers.

It is anticipated that from January 2003, AS/NZS 3000:2000 and it's companion standards will be cited in the Electricity Regulations 1997. Apart from a mandatory section in AS/NZS 3000:2000 and a number of mandatory clauses, the documents will be able to be used as a means of compliance.



I believe that the introduction of the joint Standards into the Regulations is another milestone in developing consistent requirements for the electrical/electronic industries in both Australia and New Zealand and builds on the very good reciprocal agreements that exist for occupational licensing and goods. I look forward to the developments continuing and I would like to take this opportunity to thank those people in both countries for the dedication it has taken to make the joint Standards project a reality.

In recognising the significance of the changes the joint Standards introduction will bring, and to eliminate any confusion over which documents should be used, the Electrical Workers Registration Board has entered into an agreement with Standards New Zealand whereby the Board will print and distribute a copy of AS/NZS 3000:2000 to all people who held a practising licence as at 30 June 2002. In addition, the Board will also make available to all electricians, electrical service technicians and electrical inspectors a CD which contains nine companion Standards to AS/NZS 3000:2000.

The joint Standards distribution is part of the Board's overall strategy to make all information readily available to those people who support the Board's practising licence requirements.

It is also very pleasing to see that Standards New Zealand and the Energy Safety Service are combining efforts to conduct comprehensive seminars throughout the country on AS/NZS 3000:2000, it's companion documents and changes to the Regulations. The Board is pleased to support the seminar initiative by making available a seminar registration form as part of this edition of Electron.

This edition of Electron is dedicated to the joint Standards introduction and I sincerely hope that all people in the electrical/electronic industry will find the information in it useful, and that the Standards pack being made available negates any confusion over what documents should be used.

John Sickels
Registrar

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Safety • Competency

ELECTRON is published quarterly by the Electrical Workers Licensing Group, the service unit of the Ministry of Economic Development for the Electrical Workers Registration Board. If you have any enquiries or comments on this newsletter please write to The Editor, PO Box 10-156, Wellington or email kay.lyons@med.govt.nz

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Articles reflect the opinion of the author and not necessarily that of the Electrical Workers Registration Board, Electrical Workers Licensing Group or the Ministry of Economic Development.

Main changes the introduction of AS/NZS 3000:2000 brings:

The following information has been made available by the Energy Safety Service.

AS/NZS 3000:2000 when cited for use in New Zealand will introduce the greater use of Residual Current Devices (RCDs) on the lighting and socket outlet's subcircuits in new domestic installations.

The greater use of RCDs is also being extended to new socket outlet subcircuits in the residential type areas in residential institutions, hotels, motels, hostels and like areas.

This residential type requirement only applies to the parts of these installations that are domestic in their usage, **not** to service areas, car parks, reception and commercial or workplace functions. Other requirements such as damp locations and OSH legislation may also require the installation of RCDs in these latter areas.

The whole thrust of the greater use of RCDs in domestic residences and residential type areas is to provide a higher level of electrical safety.

AS/NZS 3000:2000 will not require the fitting of a link between the neutral and earth busbars on all new distribution switchboards. It should be noted that the neutral to earth link on the main switchboard is still required as part of the MEN system of supply.

The new wiring rules also make a few minor changes to current wiring practices, the main ones being: -

- the need to check that the earth fault loop impedance of cables is not exceeded so that protective device operating time and touch voltage of exposed earthed metal in the event of a fault condition are not exceeded,
- the green or green/yellow core of a multi-core cable can be used for an earth conductor only.
- the use of rewirable fuses for new installation work is not permitted,
- there are new requirements for relocatable installations, see details below.

Additional requirements for specialised applications

The existing Electricity Regulations and Electrical Codes of Practice (ECPs) provide additional requirements for specialised applications, such as relocatable installations, damp locations, electro-medical areas, hazardous locations, etc.

When AS/NZS 3000:2000 is cited, the existing NZS 3000 and some of the existing ECPs will be revoked and replaced by material in AS/NZS 3000:2000 and a number of companion standards called by AS/NZS 3000:2000.

In many cases, the requirements have been recently reviewed, updated and reissued as joint standards. Listed below are details identifying where ECP requirements have been relocated.

Present Relocated Document

ECP 1	AS/NZS 3001:2001
ECP 2	AS/NZS 3000:2000
ECP 3	AS/NZS 4417.2:1996 and 3820
ECP 4	AS 3010
ECP 5	AS/NZS 3832:1998
ECP 7	AS/NZS 3000:2000
ECP 11	AS/NZS 3000:2000 Section 6 for new installations. AS/NZS 3000:2000 and NZS 3019:2000 installations that have been disconnected for more than six months, caravan parks and boat marinas and connectable installations etc
ECP 12	AS/NZS 2500, 3003 and 3551
ECP 14	AS/NZS 3000:2000
ECP 19	AS/NZS 3000:2000
ECP 21.2	AS/NZS 3016:1994
ECP 24	AS/NZS 2381.1
ECP 25	AS/NZS 3000:2000
ECP 28	AS/NZS 3000:2000 and 3008.1.2:1998
ECP 29	AS/NZS 3004:2002
ECP 33	AS/NZS 3000:2000

Other Standards which may be referenced

AS/NZS 3002:2002: Shows and Carnivals

AS/NZS 3012:1995: Construction and Demolition Sites

AS/NZS 4249: Film, Video and Television Sites

HOT !!

Wiring Rules

SEMINARS

**LIVE
SHOW**

WIRES



**IT'S
ELECTRIC**



The Electricity Regulations will change on 1 Jan 2003

These changes will affect you!



**Don't be left in the dark..
Don't risk your business!**



Register now for a seminar that will throw light on the changes!

Announcing ...

Nationwide Seminar Series 2002

Key changes relating to AS/NZS 3000:2000 (Wiring Rules)

It's official - AS/NZS 3000:2000 (Wiring Rules) is recognised as the primary means of compliance with the soon to be amended Electricity Regulations. The fundamental outcome for all electrical installations is to achieve high levels of electrical safety for people, livestock and property.

What are the key changes then?

When AS/NZS 3000:2000 is cited, the existing New Zealand Standard NZS 3000:1997 and a number of the existing Electrical Codes of Practice (ECPs) will be revoked and replaced by material in AS/NZS 3000:2000 and a number of companion Standards referenced in the document. Technical requirements relating to installations will be removed from the Electricity Regulations. There are new requirements for installations in caravan parks and for shows and carnivals, boat marinas and pleasure vessels. Installations in construction and demolition sites are also affected. There will be greater use of Residual Current Devices in new domestic installations and in residential type institutions including hotels, motels and the like.

A seminar to outline the key changes

This is a three-hour, very affordable "let's cut to the chase" session, designed to explain the key changes to the regulations and how they will affect you. There are a number of critical changes that you need to know about, so if you are involved in electrical installations this seminar should be considered a must attend.

Seminar Duration: 3 hours

The Seminar Presenters

Peter Morfee is Chairman of the Standards New Zealand Wiring Rules Committee responsible for AS/NZS 3000:2000, and sits on numerous national and international Standards committees. He is a registered electrical engineer and Principal Technical Advisor for the Energy Safety Service.

Alan Cuthbert is a registered Electrical Inspector, a member of the New Zealand Electrical Institute and a member of the joint Standards Committee EL/1 which drafted AS/NZS 3000:2000. Alan has worked in the electrical industry for over 40 years, firstly as a tradesperson and latterly as a designer.

Colin Murphy is a technical advisor for the Energy Safety Service and is a registered Electrical Inspector in both Australia and New Zealand. He is the technical representative for New Zealand on the International Electrotechnical Commission Committee and Sub-Committees dealing with hazardous areas equipment, installation, maintenance and repair, and also sits on a number of key Australia/New Zealand electrical Standards committees.

The seminar programme

Gisborne	Start-time:10.30 am	30-September
Lecture Theatre, Tairāwhiti Polytechnic, Middleton Building		
Napier (Taradale)	4.00 pm	30-September
Lecture Theatre One, Eastern Institute of Technology, 501 Gloucester St		
Dannevirke	7.30 am	1-October
The Games Room, Dannevirke Citizens & Services Club, 1 Princess St		
Masterton	3.00 pm	1-October
Holdsworth Room, Solway Resort, High St South		
Wellington	7.30 am	2-October
Ilott Theatre, Town Hall, Wakefield St		
Porirua	3.00 pm	2-October
Auditorium, Aotea College, Okowai Rd		
Taupo	7.30 am	7-October
Karapiti Room, Wairakei Resort, State Highway 1, Wairakei Park		
Rotorua	3.00 pm	7-October
Totara Room, Centra Rotorua, Froude St		
Tauranga	7.30 am	8-October
Main Room, Hotel Armitage, Cnr Willow & Park Sts		
Hamilton	3.00 pm	8-October
Centennial Room, Te Rapa Racecourse, Te Rapa Road		
Auckland (North Shore)	7.30 am	9-October
Main Auditorium, Bruce Mason Centre, 1 The Promenade		
Whangarei	3.00 pm	9-October
Conference Room One, Flames International Hotel, Waverly St		
Kaitiā	7.30 am	10-October
Little Theatre, Kaitiā Community Centre, South Rd		
Auckland (Central)	5.30 pm	10-October
Delightful Lady Lounge, Alexander Raceway, Cnr Greenlane and Manukau Rds		
Auckland (South)	7.30 am	11-October
Fountain 2 Room, Lakeside Convention Centre, Montgomerie Rd, Manukau		
Cromwell	7.30 am	21-October
Conference Room One, Golden Gate Lodge, Barry Ave		
Invercargill	3.00 pm	21-October
Waiau Room, Ascot Park, Cnr Tay St & Racecourse Rd		
Dunedin	7.30 am	22-October
Glenroy Auditorium, The Dunedin Centre, 1 Harrop St		
Timaru	3.00 pm	22-October
Grosvenor Conference Centre, Grosvenor Hotel, 26 Cains Terrace		
Christchurch (am)	7.30 am	23-October
Silks Room, Addington Raceway, 75 Jack Hinton Drive		
Christchurch (pm)	2.30 pm	23-October
Silks Room, Addington Raceway, 75 Jack Hinton Drive		
Greymouth	7.30 am	24-October
Trowbridge Room, Regent Theatre Complex, Cnr Herbert & Mackay Sts		
Westport	2.30 pm	24-October
Charleston Lounge, Westport Motor Hotel, Palmerston St		
Nelson	7.30 am	25-October
The Rivers Room, Trailways, 66 Trafalgar St		
Blenheim	2.00 pm	25-October
Ballroom, Marlborough Hotel, 20 Nelson St		
New Plymouth	10.00 am	30-October
Hobson Room, Plymouth International, Cnr Courtenay & Leach Sts		
Hawera	3.00 pm	30-October
Theatre Lounge, Hawera Community Centre, Albion St, Hawera		
Wanganui	7.30 am	31-October
Dickins Room & McKinnon Room, Avenue Motor Inn, 379 Victoria Ave		
Palmerston North	12.00 pm	31-October
Banquet Room, Rydges Hotel, 140 Fitzherbert Ave		
Levin	5.00 pm	31-October
Athletic Rugby Clubrooms, Bartholomew Road		

Sponsored by:

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REGISTRATION FORM

Nationwide Seminar Series 2002

Key changes relating to AS/NZS 3000:2000 (Wiring Rules)

The cost is \$44.⁴⁰ exc. GST

Three easy ways to pay: (\$49.⁹⁵ inc. GST)

To register, just fill in the payment details and indicate below which location you will be attending.

1 Invoice me (SNZ Members only)

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Purchase order no:

2 Cheque

 Enclose a cheque made payable to **Standards New**

Zealand. Amount \$

3 Credit Card

Please debit my (tick one) Visa MasterCard

Number:

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Need more information?

I would like to be kept up-to-date electronically regarding the electrical sector.

My e-mail address is:

Your order:

Post the completed order form (keeping a copy for your records) to:

Standards New Zealand, Freepost 1573, Private Bag 2439, Wellington 6020.

Fax the completed form to us on **(04) 498 5994.**

E-mail your order to us at seminar@standards.co.nz (remember to include all relevant information in your e-mail).

Phone direct on 0800 -PLUGON (0800 - 758466)

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|--------------------------|------------------------|--------------|
| <input type="checkbox"/> | Gisborne | 30-September |
| <input type="checkbox"/> | Napier (Taradale) | 30-September |
| <input type="checkbox"/> | Dannevirke | 1-October |
| <input type="checkbox"/> | Masterton | 1-October |
| <input type="checkbox"/> | Wellington | 2-October |
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| <input type="checkbox"/> | Taupo | 7-October |
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| <input type="checkbox"/> | Dunedin | 22-October |
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| <input type="checkbox"/> | New Plymouth | 30-October |
| <input type="checkbox"/> | Hawera | 30-October |
| <input type="checkbox"/> | Wanganui | 31-October |
| <input type="checkbox"/> | Palmerston North | 31-October |
| <input type="checkbox"/> | Levin | 31-October |

ELECTRICAL SEMINARS

AS/NZS 3000
WIRING RULES

*Register
now!*



Companion Standards to AS/NZS 3000:2000

The following detail has been made available by the Energy Safety Service.

AS/NZS 3001:2001 – Electrical Installations – Relocatable premises including caravans and tents and their site installations

This joint standard replaces ECP 1 and NZS 3000 section 701 for requirements for caravan parks and relocatable installations of caravans. It also covers the supply of mains power to tents in caravan parks.

The main changes to existing practices for new caravans are the use of an RCD in the caravan for increased electrical safety instead of an in-line RCD in the supply lead. Provision has also been made for the use of RCD protected 15 amp 3 pin flat pin socket outlets in caravan park service pillars. The requirement for the neutral to earth link in caravans has also been removed.

The certification of initial installation is carried out on a certificate of compliance. The testing requirement for the issue of Warrants of Electrical Fitness has been placed in NZS 3019:2002.

AS/NZS 3002:2002 – Electrical Installations – Shows and carnivals

This joint standard details the additional requirements for shows and carnivals. There were no special requirements in the Electricity Regulations or ECP's for this area.

AS/NZS 3004:2002 – Electrical Installations – Marinas and pleasure craft at low voltage

This joint standard replaces ECP 29 and NZS 3000 section 705 for the requirements for boat marinas and pleasure vessels.

The main changes are the provision of 3 systems of supply arrangements to reduce the effects of corrosion of the pleasure vessel hulls due to circulating earth currents from the MEN supply system.

The certification of initial installation is carried out on a certificate of compliance. The testing requirement for the issue of Warrants of Electrical Fitness has been placed in NZS 3019:2002.

[continued on next page](#)



Graham Boxall, Energy Safety Service, John Sickels, Electrical Workers Registration Board, and Pat Duffy, Standards New Zealand – three way hand shake celebrating the AS/NZS 3000:2000 distribution to electrical workers deal.

AS/NZS 3008.1.2:1998 – Electrical Installations – Selection of cables

This joint standard replaces ECP 28 for the requirements for cables of alternating voltages up to and including 0.6/1kV for typical New Zealand installation conditions.

AS/NZS 3012:1995 – Electrical Installations – Construction and demolition sites

This current joint standard covers the additional requirements for construction and demolition sites.

AS/NZS 3016:1994 – Electrical Installations – Electric security fences

This joint standard replaces ECP 21.2.

NZS 3019:2002 – Electrical Installations – In-service testing

This interim New Zealand standard replaces parts of ECP 11 and has been prepared to cover the periodic inspections for the issue of certificates of re-inspection of caravan park and boat marinas

socket outlet service pillars, certificates of inspection for installations in which no electrical work has been carried out and warrants of electrical fitness inspections for relocatable installations.

This interim standard will be converted into a joint standard with Australia once re-inspection requirements for schools and old person's homes have been developed.

It should be noted that the requirements in ECP 11 for the testing and verification of new installation work is contained in AS/NZS 3000:2000 section 6 and the requirements for the issue of certificates of compliance will be detailed in the amended Electricity Regulations.

AS/NZS 3832:1998 – Electrical Installations – Cold cathode illumination systems

The joint Standard replaces ECP 5.

AS/NZS 4417.2:1996 – Marking of electrical products to indicate compliance with regulations

The requirements for electrical safety of fittings and appliances previously contained in ECP 3 have been revised and are now contained in this joint standard.

Standards NZ Seminars

The following information has been made available by Standards New Zealand

All attendees to the above seminars will also receive a handbook which will be very useful as a quick guide to AS/NZS 3000:2000. The handbook will cover the following topics.

- RCDs as supplementary protection (but not effective for class II appliances).
- Principles of RCD operation including test circuit operation. Classification of RCDs with specific detail on RCCBs, RCBOs, SRCDs, PRCs, RCDs functionally independent on line voltage and RCDs functionally dependent on line or auxiliary voltage.
- Residual current ratings and typical uses. E.g. 10, 30 and 300 mA devices. Classification of RCDs according to tolerance to the presence of d.c. components. Types AC, A and B RCDs. Maximum load (earth) leakage current values in circuits protected by RCDs to prevent nuisance tripping.

Wiring of RCDs in switchboards including options for terminations depending on number and type of RCDs. Testing and certification of RCDs and associated final sub-circuits.

The handbook will also cover:

- The legislative framework
- Fundamental outcomes for safety
- Certification of new work and periodic inspections
- Cable selection
- Testing methods
- Fault level effects on electrical equipment

- Guidelines for selecting protective devices
- Determining protective fault current
- Protecting installations against damage from short circuit faults
- Approximate method of fault current measurement

There will also be some supplementary material included in the handbook relating to:

- Linking of neutral and earth bars in switchboards. Background to the MEN (TN-C-S) system and why neutral-earth connections on other than a main switchboard are not permitted.
- Connectable installations. A study of the existing and proposed methods of connecting installations such as caravans, food vending vans, TV outside broadcast vans, mobile display signs, temporary site offices, pleasure vessels etc and how existing installations can be upgraded. Requirements for caravan sites, marinas, show & carnival sites and construction & demolition sites are also covered.

A table showing maximum lengths for single phase TPS cable for earth fault loop and volt drop will also be included in the handbook.

To make sure you get your copy of the handbook register for the seminars now by completing and returning to Standards New Zealand the seminar registration form.