

Electrical installations (known as the Australian/New Zealand Wiring Rules)

Amendment No. 2

Revised text amendment

Publishing and Approval Dates

Council of Standards Australia Approval: 15 April 2021

New Zealand Standards Approval Board Approval: 7 April 2021

Published: 30 April 2021

Summary

This Amendment applies to the following elements:

- Preface
- Clauses 1.5.3.1, 2.6.2.2.1, 2.6.2.2.2, 2.6.3.2.2, 2.6.3.2.5, 2.6.3.2.6, 2.6.3.3.1, 2.10.2.2, 2.10.3.2, 3.4.3, 3.6.2, 3.8.3.3, 4.1.2, 4.3.1, 4.18.4, 6.2.4.1, 7.3.4.1, 8.3.2, 8.3.2.1, 8.3.2.2 (new), 8.3.7, 8.3.8, 8.3.10
- Table 6.1
- Figures 7.3, 7.4, 7.5 and 7.6
- Appendix A
- Appendix C, C4.2
- Appendix F, F1.2.4
- Index

Amendment Details

AS/NZS 3000:2018 is amended as follows. The amendments should be inserted in the locations as instructed.

Element	Instruction / New text
Preface	<i>Add</i> the following after the second paragraph: Amendment No. 2 includes text in Clause 2.6.2.2.2 that has transitional implementation arrangements. Users of this document should consult with regulatory authorities to confirm the implementation dates of these requirements.
Cl 1.5.3.1	<i>Delete</i> second paragraph and <i>replace</i> with the following: Live parts shall not be accessible without the use of a tool or a key, either under normal conditions or under single fault conditions.
Cl 2.6.2.2.1	1 <i>Add</i> the following new second paragraph before the Notes:

Element	Instruction / New text
	<p>With the increased adoption of electronics, renewables and emerging technologies by end users, there is a greater impact due to d.c. waveforms on the a.c. supply. It is recommended that Type A RCDs are used as the general type for installations.</p>
	<p>2 <i>Delete</i> the second sentence in Note 1(a).</p>
CI 2.6.2.2.2	<p><i>Delete</i> Items (a) and (b) and <i>replace</i> with the following: RCDs may have any number of poles. As a minimum, RCDs shall interrupt all active conductors. NOTE: Other Standards may require the interruption of all live (active and neutral) conductors. RCDs located beside a socket-outlet or incorporated into a socket-outlet (SRCDs) shall interrupt all live (active and neutral) conductors. RCDs shall be of the type for which tripping is ensured —</p> <ul style="list-style-type: none"> (a) for residual sinusoidal alternating current; or (b) for residual sinusoidal alternating current and residual pulsating direct current. <p>For 24 months from the date of publication of Amendment No. 2, either Item (a) or (b) may apply. Following that time, Type AC RCDs as described in Item (a) shall not be installed.</p>
CI 2.6.3.2.2	<p><i>Add</i> the following new Exception to Item (c), after the Note: <i>Exception: Final subcircuits of multiple residential installations may instead comply with Clause 2.6.3.2.3 if they supply only equipment not located within or supplied from any residential living unit, e.g. lifts, central air conditioning plant, fire systems, drainage pumps.</i></p>
CI 2.6.3.2.5	<p><i>Delete</i> Item (a) and <i>replace</i> with the following: <i>Alterations</i> For alterations to existing installations, RCD protection shall be provided as required by Clauses 2.6.3.2.2, 2.6.3.2.3 or 2.6.3.2.4 as applicable to the type of installation. For existing domestic and residential installations, RCDs installed for the protection of additional socket-outlets, electrical equipment or lighting points shall be installed at the origin of the final subcircuit. NOTE: For the purposes of this Clause, combination fan, light and heater units, smoke alarms, exhaust and ceiling sweep fans are all regarded as electrical equipment.</p>
CI 2.6.3.2.6	<p>1 <i>Delete</i> the existing Clause, including the Note, and <i>replace</i> with the following: <i>Repairs—Australia only</i> The requirements of this Clause (2.6.3) for RCD protection need not apply to the following applications that are deemed to be repairs to an existing installation:</p> <ul style="list-style-type: none"> (a) Where a socket-outlet, luminaire or single item of electrical equipment that is not RCD protected is replaced with an equivalent item in the same location. or (b) Where a single socket-outlet is replaced with a multiple socket-outlet assembly. or (c) Where an unswitched socket-outlet is installed— <ul style="list-style-type: none"> (i) in a roof space or at a height of more than 3 m above the ground, floor or platform; and

Element	Instruction / New text
	<p>(ii) at an existing lighting point specifically for the connection of a replacement luminaire or lighting point.</p> <p>NOTE: For the purposes of this Clause, combination fan, light and heater units, smoke alarms, exhaust and ceiling sweep fans are all regarded as lighting points.</p>
CI 2.6.3.3.1	<p><i>Replace</i> the existing Note to Item (b) with the following:</p> <p>NOTE: For the purposes of this Clause, combination fan, light and heater units, smoke alarms, exhaust and ceiling sweep fans are all regarded as lighting points.</p>
CI 2.10.2.2	<p><i>Delete</i> the existing Clause text but excluding all figures and <i>replace</i> with the following:</p> <p>2.10.2.2 <i>Accessibility and emergency exit facilities</i></p> <p>2.10.2.2.1 <i>Switchboards</i></p> <p>Switchboards shall comply with the following provisions:</p> <p>(a) Located so that the switchboard and access to it is not obstructed by the structure or contents of the building or by fittings and fixtures within the building.</p> <p>and</p> <p>(b) Provided with sufficient space around the switchboard on all sides to allow persons to pass to enable all electrical equipment to be safely and effectively operated and adjusted.</p> <p>This requirement shall be achieved by the following:</p> <p>(i) A 1.0 m minimum distance from all faces of a closed switchboard that need to be accessed.</p> <p><i>Exception: In a domestic electrical installation the 1.0 m distance may be reduced to 0.6 m from the face of the switchboard.</i></p> <p>(ii) An unimpeded space of at least 0.6 m around switchboards with switchgear doors in any position and with switchgear in a fully racked out position.</p> <p>NOTE: Figures 2.19 to 2.23 illustrate access requirements for typical switchboard arrangements.</p> <p>and</p> <p>(c) Provided with sufficient exit paths to enable a person to leave the vicinity of a switchboard under emergency conditions.</p> <p>NOTE: Consideration should be given to providing means of escape from the immediate vicinity of the switchboard in more than one direction, in case of an arcing fault occurring while work is in progress at the switchboard.</p> <p>2.10.2.2.2 <i>Switchboard rooms</i></p> <p>Doors shall open in the direction of egress without the use, on the switchboard side of the door, of a key or tool.</p> <p><i>Exception: This requirement need not apply to domestic electrical installations.</i></p> <p>Where a switchboard is rated at 800 A or greater per phase, or is more than 3.0 m in length, switchboard rooms, or similar enclosed spaces housing the switchboard, to which a person is required to enter in order to access the switchboard, shall comply with the following provisions:</p> <p>(a) A minimum of two emergency exit paths spaced well apart providing means of escape from the switchboard room.</p> <p><i>Exception: Where a clear space of at least 3.0 m is provided in front of the switchboard and its equipment, including switchboard doors, in all normal positions of operating, opening and withdrawal, only one emergency exit path need be provided. (See Figure 2.24.)</i></p>

Element	Instruction / New text
	<p>(b) Openings or doorways to the switchboard room shall have an unobstructed height of not less than 2.0 m and an unobstructed width of not less than 0.9 m.</p> <p>NOTE: Larger openings may be required to enable the entry of prefabricated switchboards; a doorway height of 2.2 m or greater is recommended.</p> <p><i>Exception: This requirement need not apply when replacing an existing switchboard in the same location with a switchboard of the same or lesser rating.</i></p>
	<p>2.10.2.2.3 <i>Switchboard doors and switchboard cupboard doors</i></p> <p>Doors of switchboards or switchboard cupboards that open into passageways or narrow access ways shall be capable of being secured in the open position to prevent workers being inadvertently pushed towards the switchboard.</p> <p><i>Exception: This requirement need not apply to domestic electrical installations.</i></p>
CI 2.10.3.2	<p>1 <i>Replace</i> the first paragraph with the following:</p> <p style="padding-left: 40px;">Switchboards shall be suitable to withstand the mechanical, electrical and thermal stresses that are likely to occur in service, and the environment in which they are to be installed.</p> <p>2 <i>Replace</i> the second paragraph with the following:</p> <p style="padding-left: 40px;">Switchboards complying with the requirements of the AS/NZS 3439 series or AS/NZS 61439 series are deemed to comply with this Clause (2.10.3).</p> <p>3 <i>Add</i> the following as a new third paragraph, before the Notes:</p> <p style="padding-left: 40px;">Switchboards shall comply with AS/NZS 3439 series or AS/NZS 61439 series if one or both of the following exist:</p> <p style="padding-left: 80px;">(a) The total of the connected load at the point where the switchboard is installed exceeds 125 A r.m.s. per phase.</p> <p style="padding-left: 80px;">(b) The prospective short-circuit current at the incoming terminals of the switchboard is greater than 10 kA r.m.s.</p> <p>4 <i>Delete</i> the Notes and <i>replace</i> with the following:</p> <p style="padding-left: 40px;">NOTES:</p> <p style="padding-left: 80px;">1 Under AS/NZS 61439, switchboards less than or equal to 10 kA r.m.s. short-circuit withstand current, are not required to be independently verified (type-tested) as complete assemblies; but instead may be assembled using standard verified (type-tested) components. Verification of compliance is achieved largely by assessment; relying on component certification and including adherence to the manufacturer's instructions.</p> <p style="padding-left: 80px;">2 Appendix K contains guidance on verification of switchboards.</p>
CI 3.4.3	<p><i>Add</i> the following new Exception after Item (a):</p> <p><i>Exception: The minimum conductor cross-sectional area of 4 mm² need not apply to cores of flexible trailing or reeling cables, e.g. specialized flexible trailing cables used in lift installations.</i></p>
CI 3.6.2	<p><i>Delete</i> existing Exception 1 and <i>replace</i> with the following:</p> <p>1 <i>Exception: For final subcircuits, with distributed load (such as socket-outlets or lighting), half the current rating of the protective device may be used.</i></p>
CI 3.8.3.3	<p><i>Delete</i> Item (a) and <i>replace</i> with the following:</p> <p>(a) insulated conductors within a multi-core cable, provided they are not yellow, have each core clearly identifiable by means of numbering, lettering or equivalent means; or</p>
CI 4.1.2	<p><i>Delete</i> Item (xi) and <i>replace</i> with the following:</p>

Element	Instruction / New text
	(xi) Smoke alarms and fire detectors.
CI 4.3.1	At the end of the Clause, <i>add</i> the following new paragraph: Electrical accessories complying with AS/NZS 3105, AS/NZS 3122 or AS/NZS 3199 shall not be used to connect equipment wiring to installation wiring where the location is not readily accessible.
CI 4.18.4	<i>Delete</i> Note 2 in Figure 4.19 and <i>replace</i> with the following: 2 The exclusion zone shown in Figure 4.19(a) depicts a space consisting of a cylinder in the discharge direction and a hemisphere in the opposite direction of discharge for the vent terminal discharge point.
CI 6.2.4.1	<i>Delete</i> the existing Clause and <i>replace</i> with the following: 6.2.4.1 Degree of protection required Electrical equipment permitted to be installed in a classified zone shall have at least the following degree of protection: (a) In Zone 0—IPX7. (b) In Zones 1 and 2—IPX4. (c) In Zone 3—no specific degree of protection. The requirements for selection and installation of electrical equipment are provided in Table 6.1.
Tbl 6.1	<i>Delete</i> all instances of the reference mark “†” and the following footnote: † Degree of protection IPX5 required in communal baths/showers.
CI 7.3.4.1	<i>Delete</i> the existing Exception under Item (e) and <i>replace</i> with the following: <i>Exception: The requirements for isolation locations detailed in this Clause may be varied in other related Standards.</i>
Figure 7.3	<i>Delete</i> the Figure and <i>replace</i> with the following:

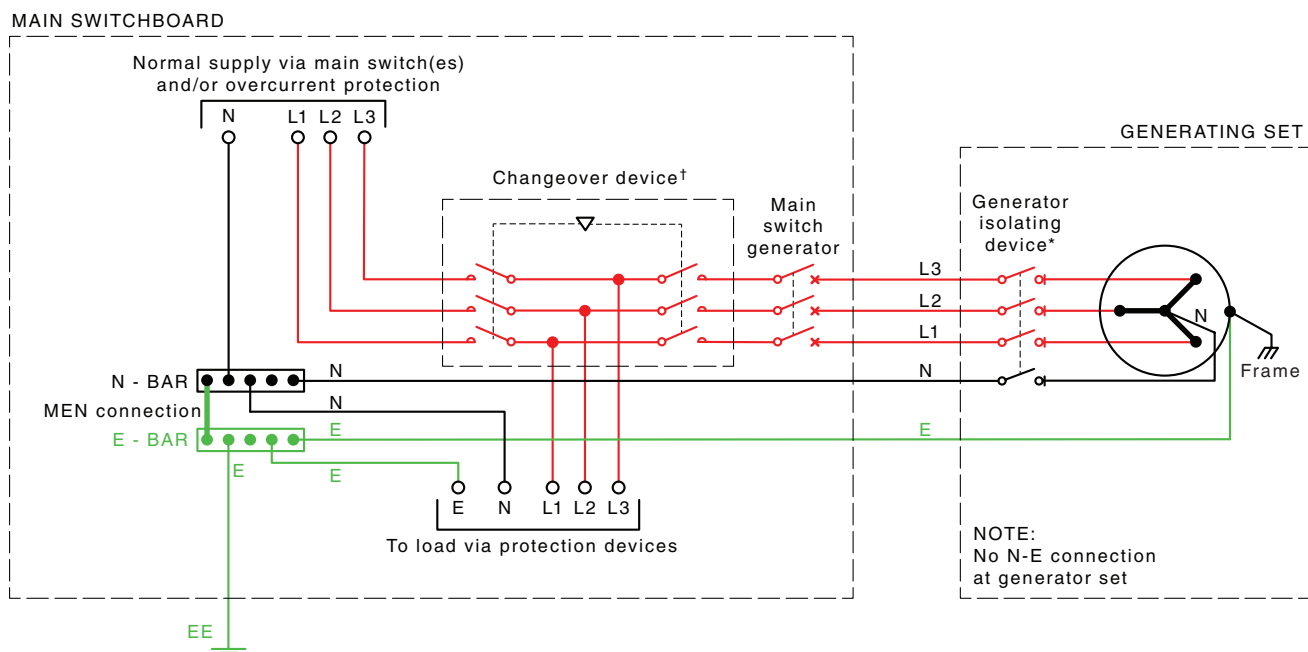


FIGURE 7.3 TYPICAL EXAMPLE OF CONNECTION OF A THREE-PHASE ALTERNATIVE SUPPLY TO A SWITCHBOARD WITH LOCAL MEN CONNECTION (THREE POLE/THREE POLE CHANGEOVER)

Figure 7.4 *Delete* the Figure and *replace* with the following:

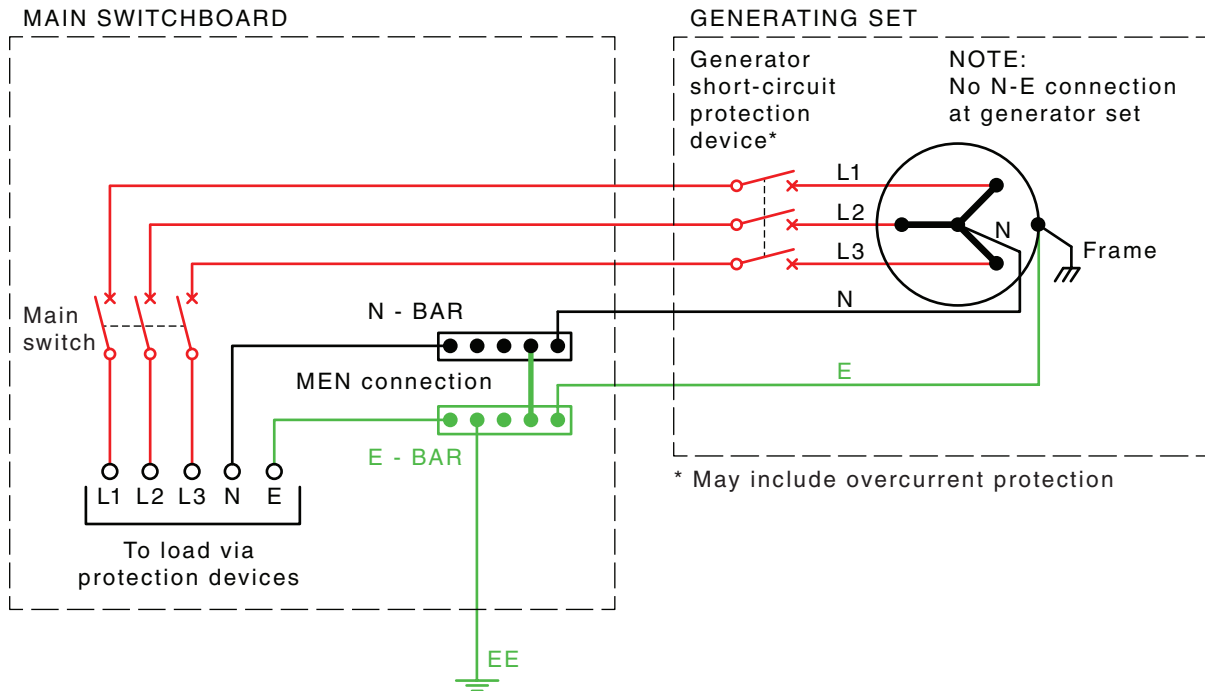


FIGURE 7.4 TYPICAL EXAMPLE OF CONNECTION OF A STAND-ALONE SYSTEM TO A SWITCHBOARD WITH A LOCAL MEN CONNECTION

Figure 7.5 Delete the Figure and replace with the following:

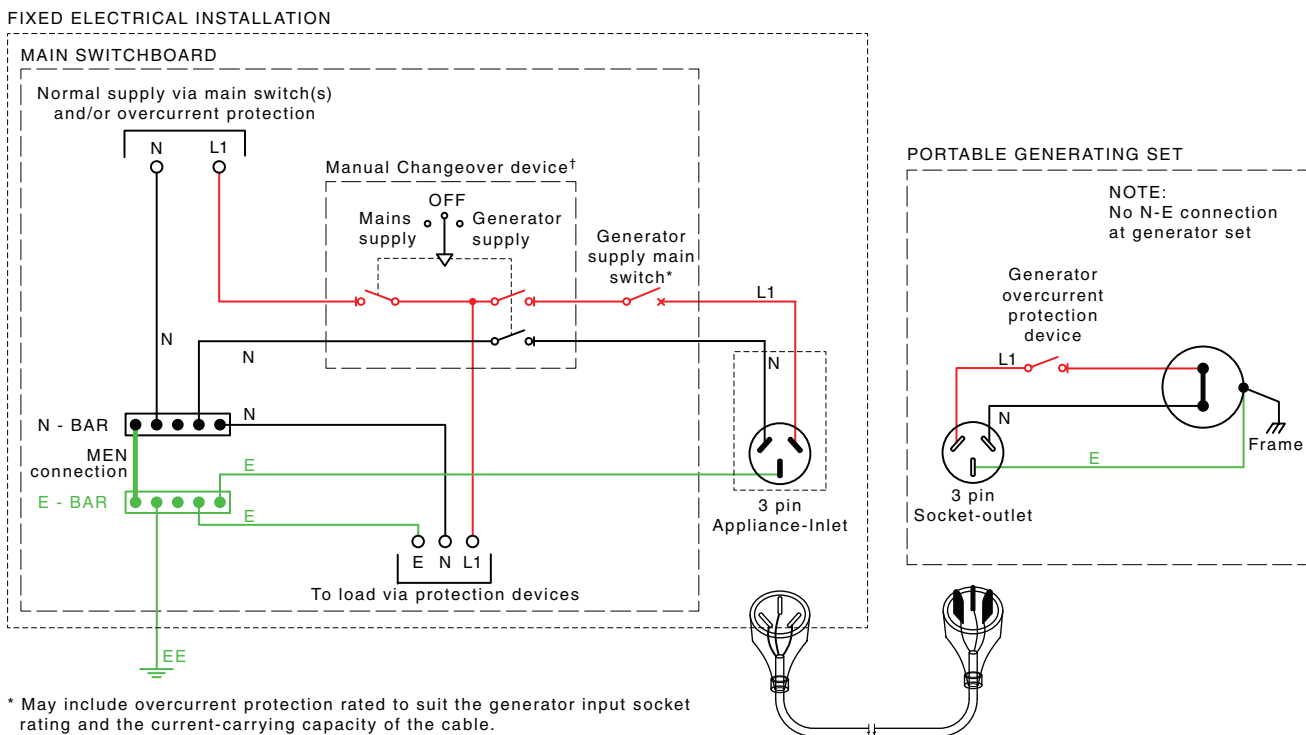


FIGURE 7.5 TYPICAL EXAMPLE OF CONNECTION OF A SINGLE-PHASE ALTERNATIVE SUPPLY TO A SWITCHBOARD WITH A LOCAL MEN CONNECTION BY MEANS OF A PLUG AND SOCKET

Figure 7.6 Delete the Figure and replace with the following:

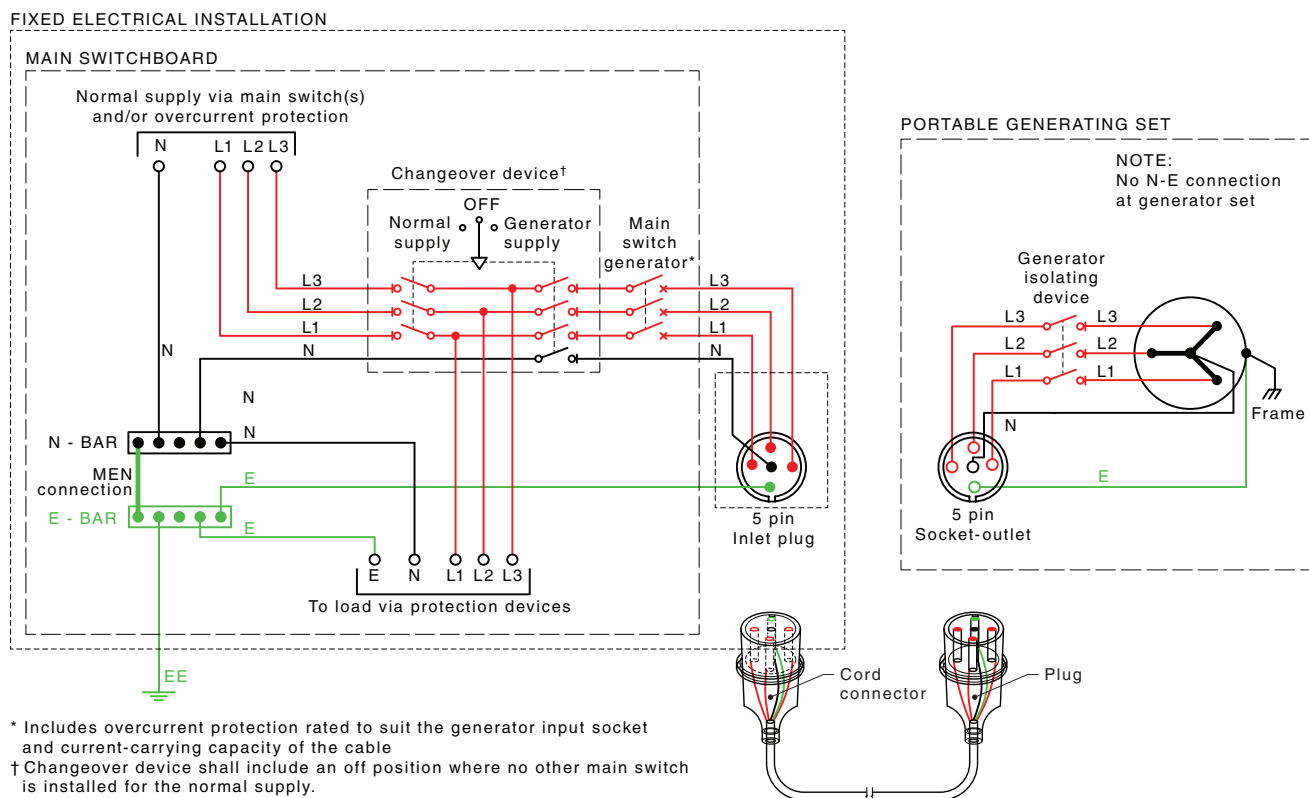


FIGURE 7.6 TYPICAL EXAMPLE OF CONNECTION OF A THREE-PHASE ALTERNATIVE SUPPLY TO A SWITCHBOARD WITH A LOCAL MEN CONNECTION BY MEANS OF A PLUG AND SOCKET

Cl 8.3.2 1 Add the following new subclause heading:

8.3.2.1 General

Cl 8.3.2.2 (new) 2 Add the following new subclause and Note:

8.3.2.2 Recording of results

It is recommended that the results of the tests, especially tests that require a value for verification be recorded and maintained.

NOTE: Legislative requirements may be made in each State or Territory of Australia or New Zealand relating to the format and contents of test records.

8.3.7 Delete existing Clause 8.3.7 and replace with following (text of Clauses 8.3.8 and 8.3.7 consolidated):

8.3.7 Polarity and correct circuit connections

8.3.7.1 General

This testing is to prevent—

- (a) the transposition of active and neutral conductors of the consumer mains, or submains supplying an outbuilding having an MEN connection, resulting in the electrical installation earthing system becoming energized; and
- (b) combinations of incorrect active, neutral and earthing conductor connections, resulting in the exposed conductive parts of the electrical installation becoming energized; and
- (c) the connection of switches or protective devices in neutral conductors, resulting in parts of appliances, such as heating elements and lampholders, remaining energized when the switches are in the “OFF” position; and
- (d) multiphase equipment, such as multiphase motors, and semiconductor-controlled equipment operating in an unpredictable manner; and

