

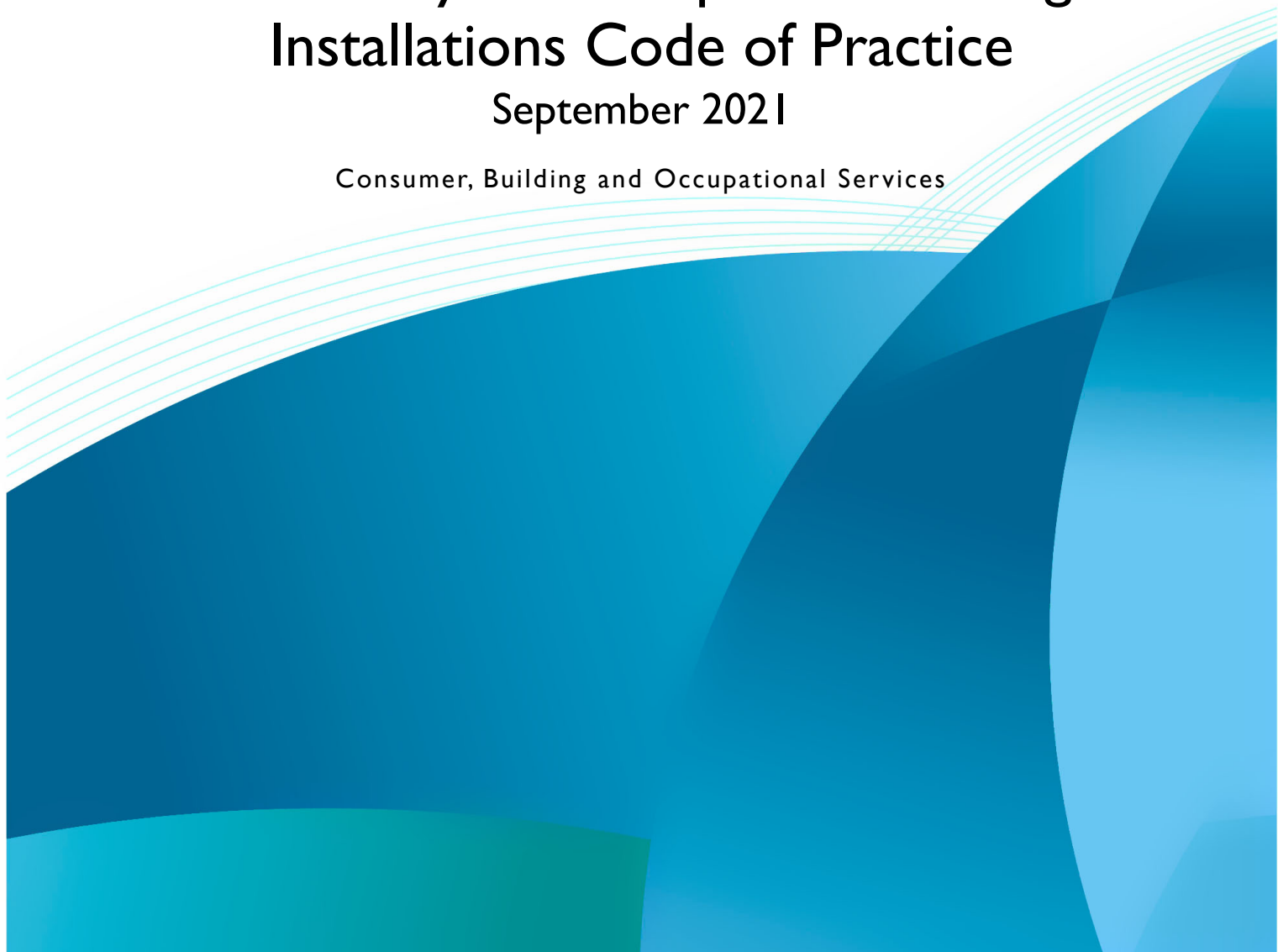


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Government

Consultation Draft

Occupational Licensing Electricity Consumption Metering Installations Code of Practice September 2021

Consumer, Building and Occupational Services



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Document Development History

Document Title	Version	Application Date	Sections amended
Occupational Licensing (Electricity Consumption Metering Installations) Code of Practice 2021	DRAFT	DRAFT	Complete revision of document
Electricity Consumption Metering Installation Requirements Advisory Note	0.B	1 October 2020	Non-mandatory advisory note supplementing the Electricity Consumption Metering Safety Requirements (Tasmania)
Electricity Consumption Metering Safety Requirements (Tasmania)	1	1 November 2017	Original version

I. Definitions

“Accessible” has the same meaning as per AS/NZS 3000;

“Act” means the *Occupational Licensing Act 2005* (Tas) as amended or superseded from time to time;

“AS/NZS 3000” means Australian Standard AS/NZS 3000 “Electrical Installations” (known as the Wiring Rules) as amended or superseded from time to time;

“AS/NZS 61439.1” means Part 1 of Australian Standard AS/NZS 61439 “Low-voltage switchgear and control-gear assemblies” as amended or superseded from time to time;

“Common property” means an area accessible by all residents without the need to pass through nor enter private property;

“Electrical installation” has the meaning as per the *Occupational Licensing (Electrical Work) Regulations 2018* as amended or superseded from time to time;

“Electricity consumption metering equipment” means all the equipment supplied, owned and installed by or on behalf of the electricity retailer, the metering coordinator or the metering provider, or their respective agent, for the purposes of recording the electricity consumption and other associated functions including controlling, isolating, testing and connecting of the recording device (meter);

“Electricity entity” has the same meaning as in the *Electricity Supply Industry Act 1995* as amended or superseded from time to time;

“Electricity infrastructure” means any electrical equipment that is owned and operated by an electricity entity and used for the generation, transmission, distribution or storage of electricity;

“Electricity retailer” means a person or business authorised by the Australian Energy Regulator to engage in the retail sale of electricity;

“High voltage” has the meaning as per AS/NZS3000;

“Like for like” means the replacement of an item of electrical equipment or a component part, with another item of electrical equipment or component part, that performs substantially the same function and located in the same position and does not require alteration to the existing supply conductors nor circuit protection;

“Meter enclosure” means an enclosure that is designed and installed to contain the electricity consumption metering equipment;

“Meter panel” means the backing panel to which the electricity consumption metering equipment is fixed.

“Metering provider” means a person or business that meets the requirements of the National Electricity Rules and is accredited by and registered with the Australian Energy Market Operator (AEMO);

“Multiple tenancy” means two or more individual electrical installations on separate land titles that as a group that have one point of supply;

For the avoidance of doubt, separately metered electrical installations on one land title is not considered to be “multiple tenancy” e.g. water pumps, teenager retreats, parents’ flats etcetera.

“Point of supply” means the demarcation of ownership between the electricity entity’s electricity infrastructure and the owner’s electrical installation;

“Premises” means a place which is or will be connected to the electricity infrastructure and includes:

- A temporary or permanent building or structure; and
- A transportable structure, vehicle or vessel;

“Regulations” means the *Occupational Licensing (Electrical Work) Regulations 2018* as amended or superseded from time to time;

“Switchboard” has the same meaning as per AS/NZS 3000.

2. Interpretation

- (1) Words and phrases in this document have the same meaning as in the Act and Regulations unless otherwise stated.
- (2) Explanatory Notes are not a mandatory part of this Code of Practice and are for the purpose of clarification.
- (3) The requirements in this document apply in addition to the standards of electrical work specified in the *Occupational Licensing (Standards of Electrical Work) Code of Practice 2017* as amended or superseded from time to time.
- (4) In the event of any inconsistency, the requirements in the standards specified in the *Occupational Licensing (Standards of Electrical Work) Code of Practice 2017* as amended or superseded from time to time prevail over the requirements in this document.
- (5) The person performing the relevant electrical work is responsible for ensuring compliance to the requirements in this Code of Practice. However, depending on the circumstances, the electrical contractor’s licence holder, their nominated manager or other parties may be held responsible for non-compliance if appropriate.

PART I – APPLICATION OF CODE OF PRACTICE

3. Purpose

The purpose of this document is to ensure a safe and consistent approach for the connection of electrical installations to electricity infrastructure and for the provision of electricity consumption metering equipment. The requirements in this document are intended to supplement the requirements contained within AS/NZS 3000.

4. Scope – general

This document provides specific requirements to accommodate electricity consumption metering equipment for electrical installations that are to be connected to electricity infrastructure.

In order to facilitate this metering and other connection requirements of the electricity entity, this document will include additional requirements between the point of supply and the electrical installation main switch.

Part 5 of this document specifies additional requirements that apply to electrical installations with an amperage of 100 amps per phase and above, excluding high voltage installations.

5. Application

- (1) This Code of Practice applies in all of the following circumstances:
 - (a) New installations of electricity consumption metering equipment;
 - (b) The replacement of a meter enclosure that is due to:
 - (i) Damage caused by fire, deterioration, degradation or another cause; or
 - (ii) The need for expansion of the meter enclosure in order to accommodate additional or separate electricity metering consumption equipment;
 - (c) Relocation of the meter enclosure; and
 - (d) Upgrading of the supply arrangement from single phase to multi-phase.
- (2) Part 2 of this document applies in all of the following circumstances:
 - (a) The replacement of electricity consumption metering equipment in order to accommodate the export of electricity upstream of the point of supply (alternative energy export);
 - (b) The replacement of a switchboard that is contained within the meter enclosure;

- (c) The replacement of the consumer's mains for any reason; and
- (d) The alteration or addition to the meter enclosure.

Explanatory Notes

For the avoidance of doubt, a replacement of an existing meter due to or a result of a meter failure or aged meter replacement program does not invoke any of the requirements of this document.

6. Exclusions from this Code of Practice

- (1) This Code of Practice does not address requirements for the following:
 - (a) Electricity supply arrangements;
 - (b) Unmetered supplies (approved by TasNetworks);
 - (c) High voltage metering; or
 - (d) Tariff changes.

Explanatory Notes

For information on connection arrangements prior to the point of supply, please refer to the TasNetworks Service and Installation Rules.

It is recommended that persons seeking connection to the electricity infrastructure familiarise themselves with those separate requirements before commencement of work.

7. Date of commencement

- (1) This document applies six months after the publication date to the installations listed in part 1 clause 5.

8. Departures from requirements

- (1) This Code of Practice does not preclude alternative methods, innovation or technology provided that the same or better level of safety, reliability and efficiency has been achieved.
- (2) Prior to departing from the requirements of this Code of Practice, the responsible electrical contractor, or in the absence of an electrical contractor, the person responsible for the electrical work must obtain written acceptance for the departure from the:
 - (a) Owner of the electrical installation;

- (b) Relevant electricity retailer, and their appointed metering coordinator and metering provider; and
 - (c) Electricity entity.
- (3) The departure must be clearly documented in a format that describes the alternative method, innovation or technology and a declaration from a competent person that the design of this alternative method achieves the same safety outcomes as the requirements specified in this Code of Practice.
- (4) The electrical contractor must keep the above records for 10 years.
- (5) Electrical installations within a historic or heritage listed building may require elements of the requirements in this Code of Practice to be varied, modified and/or waived (for example, meter positions and panel design and sizing etcetera).
- (6) This clause does not permit any departure from the requirements of the standards specified in the *Occupational Licensing (Standards of Electrical Work) Code of Practice 2017* as amended or substituted from time to time.

9. Non-compliance with this Code of Practice

- (1) Where an electrical installation does not comply with the requirements of this Code of Practice, to or an accepted alternative method as per the process in clause 8 above, the following may occur:
 - (a) The electricity entity may refuse, suspend or discontinue supply until the requirements have been met; and/or
 - (b) The Department of Justice's electrical safety inspection service contractor may require the person responsible for the electrical work to facilitate rectification as appropriate.

10. Ownership and responsibility

- (1) **Electrical installation and premises**
 - (a) The owner or person in control of an electrical installation is responsible for ensuring that it is maintained in a safe and fit for purpose condition. This includes the provision of safe and unrestricted access to the electricity consumption metering equipment as required by this Code of Practice.
 - (b) Meter enclosures, meter panels and other electrical equipment supplied and installed on behalf of the owner or developer is a part of the electrical installation.

(2) Electricity consumption metering equipment

- (a)** Electricity consumption metering equipment must be installed and maintained by the relevant electricity retailer or the metering provider in accordance with this Code of Practice.

(3) Electricity infrastructure

- (a)** Existing legacy type electricity consumption metering equipment owned by the electricity entity or their agent must be installed and maintained by the relevant electricity entity or agent in accordance with this Code of Practice.

Explanatory Notes

The electricity entity may install electricity consumption metering equipment in accordance with the requirements of the National Electricity Rules.

11. Record of electrical work and Certificate of Electrical Compliance

A person responsible for electrical work, including for electricity consumption metering, must ensure that the work is recorded and notified when required by the Regulations.

Explanatory Notes

The electrical work recording and notification requirements are specified in the Regulations and further explained on the CBOS website.

Notifiable electrical work is defined in the Occupational Licensing (Classification of Electrical Work) Code of Practice 2018 as amended or superseded from time to time.

12. Licensing

Work on the installation, addition, alteration or repair of electricity consumption metering equipment is considered to be prescribed electrical work under the *Occupational Licensing Act 2005*.

Explanatory Notes

The licensing requirements for electrical work in Tasmania are contained within the Occupational Licensing Act 2005, and are explained in detail on the CBOS website.

PART 2 – EXISTING ELECTRICAL INSTALLATIONS

Explanatory Notes

For clarification on when this Part 2 applies, please refer to clause 5.

13. Asbestos

Materials or products that contain asbestos may not be re-used if removed from the enclosure for any reason.

Explanatory Notes

It is recommended that existing materials and products that contain asbestos be replaced with alternative products whenever conducting work on or in an existing meter enclosure. In circumstances where the replacement of an existing asbestos meter panel is not undertaken, then work that may disturb the integrity (for example, drilling or cutting) of asbestos products must not be undertaken without suitable precautions being considered and implemented as necessary.

All persons working on or in meter enclosures should be able to identify the presence of asbestos.

Information relating to asbestos is available from the WorkSafe Tasmania website (www.worksafe.tas.gov.au) which lists relevant industry safety guidelines and model procedures.

14. Fireproofing of existing timber structures

All combustible surfaces such as timber, plasterboard and the like within an existing meter enclosure must be lined with a fibre-cement sheet of thickness of 3mm or more.

PART 3 – REQUIREMENTS OF THE ELECTRICITY ENTITY

15. Service Protection Device (SPD)

The Service Protection Device installed by the electricity entity is for the purposes of protecting the electricity infrastructure only.

Please refer to the TasNetworks Service and Installation Rules for further information.

16. Connection arrangements

For information on connection arrangements prior to the point of supply, please refer to the TasNetworks Service and Installation Rules.

It is recommended that persons seeking connection to the electricity infrastructure familiarise themselves with those separate requirements before commencement of work.

PART 4 – GENERAL REQUIREMENTS

17. Installation protection device (IPD)

Explanatory Notes

This clause 18 does not apply to high current (CT) metering.

- (1) Each individual electrical installation that is, or is intended to be, connected to the electricity infrastructure must be provided with an installation protection device (IPD) that complies with all of the following requirements:
- (a) Be a resettable non-adjustable circuit breaker;
 - (b) Be capable of being secured in the open and closed position;
 - (c) Be rated at a maximum of 80A and be of D curve characteristics;
 - (d) Have a minimum fault current (short circuit) rating of 6kA;
 - (e) Be installed on the meter panel adjacent to the electricity metering consumption equipment;
 - i. *Exception to (e) above: Certain propriety made enclosures that have a dedicated facility away from the meter panel are acceptable.*
 - (f) Have all live parts (i.e terminals) adequately shrouded from direct contact;
 - (g) Be connected upstream of the consumption meter; and
 - (h) Be labelled “**Installation protection device**” “**Do not switch off**”. These labels must be:
 - i. Of traffolyte type;
 - ii. Permanent; and
 - iii. Secured adjacent to the device; and
 - iv. Have lettering no less than 5mm in height.

**Installation protection
device**
Do not switch off

- (2) The installation protection device will perform the following functions:
- (a) Enable persons to isolate the electricity consumption metering equipment for the purposes of carrying out work on the switchboard;

- (b) Ensure appropriate overcurrent protection of the electricity consumption metering equipment; and
- (c) Ensure current limiting (overload protection) of the individual electrical installation.

18. Multiple tenancy installations

Explanatory Notes

For the meaning of “multiple tenancy” installations, see the definitions section. Examples include strata titles, company titles and community titles.

- (1) Each multiple tenancy installation must have one main switchboard that:
 - (a) Is situated on common property;
 - (b) Contains a “main switch” that provides suitable overcurrent protection for the total maximum demand of the installation;
 - (c) Contains the first multiple earthed neutral (M.E.N) of the installation;
 - i. *Note: This requirement does not prevent the use of the TN-S system of earthing;*
 - (d) Complies with the requirements of AS/NZS 3000; and
 - (e) Has a barrier (escutcheon) covering all connections and live parts that has the capability to be sealed by the electricity retailer or their agent.

19. Meter enclosure requirements

(1) General requirements

- (a) Each electrical installation that is, or is intended to be, connected to the electricity infrastructure must be provided with a meter enclosure that is suitable to contain all of the required electricity consumption metering equipment in a configuration that is approved by the electricity retailer and their metering provider.

(2) Number of metering positions per property

- (a) Only one metering position may be installed for each individual land title unless written permission is obtained from the electricity retailer and accepted by the property owner.
- (b) The electricity retailer may grant permission for more than one metering position if this is appropriate in the circumstances.

- (c) If this written permission is obtained, the electrical contractor should keep a record of this for 10 years.

(3) Locations

- (a) Meter enclosures must be installed in a location that ensures they can be readily and safely accessed for the initial installation and subsequent meter reading, testing, adjustment and repair. This includes ensuring that access to the meter enclosure is not obstructed by the structure, surrounding vegetation, contents of a building or by other fittings or fixtures within a building;
- (b) For individual domestic and residential installations, meter enclosures must be located external to the building(s) and should be located as close as practical to the public roadside frontage of the property;
- (c) For commercial, industrial or stratum title, the meter enclosure may be located within the confines of the building provided the communication ability is not compromised; and
- (d) For multiple tenancy arrangements the meter enclosure must be located in an area designated as common property.

Explanatory Notes

The responsible contractor should discuss the meter enclosure location with the owner to ensure that future plans regarding vegetation and building additions have been considered and will not negatively impact the location.

The responsible contractor should inform the owner that re-energising the installation following a fault on the electricity infrastructure or meter fault may be delayed if access to the meter is in any way restricted.

The removal or disconnection of communication equipment that enables remote reading may require the relocation of the metering equipment or removal of the gate to facilitate the required access.

Meter enclosures may be free standing. See clause 20(10) of this document for further requirements for free standing meter enclosures.

(4) Clearances

- (a) For domestic, single tenancy enclosures, there must be a minimum unimpeded clearance space of 600mm measured horizontally from the front of the meter enclosure;
- (b) For installations other than domestic, single tenancies, there must be a minimum unimpeded clearance space of:

- i. 600mm measured from the edge of the door in any open position; and
 - ii. 1000mm measured horizontally from the front of the meter enclosure.
- (c) The above clearance dimensions are limited by the:
 - i. Property boundary irrespective of whether a boundary fence or wall exists or not; and
 - ii. Railing, balustrade, guardrail or edge of a deck or platform that is raised above normal ground level.
- (d) A meter enclosure door must be able to open on a hinge no less than 120 degrees.

Important Information

AS/NZS 3000 provides specific clearance requirements for switchboards. If the meter enclosure contains a switchboard, the clearance dimensions for the meter enclosure must comply with AS/NZS 3000.

(5) Meter enclosure sizes

- (a) For all meter enclosures, a minimum depth of 175mm must be provided from the front of the meter panel to the inside back of the meter enclosure door to allow for the meters and associated equipment. This distance excludes any door stiffening;
- (b) Meter enclosures for three tariffs must accommodate at least two panels with dimensions of 300mm (height) x 350mm (width), or one panel of 600mm (height) x 350mm (width); and
- (c) The responsible contractor or, in the absence of an electrical contractor, the person responsible for the electrical work, must ensure that non-standard meter panels will meet the requirements of the metering provider.

Explanatory Notes

Contractors and customers should consider future needs when planning an electrical installation.

(6) Meter enclosure locking devices

- (a) All meter enclosures that are locked in order to prevent unauthorised interference with equipment, must be locked or secured in a manner that meets the approval of the metering provider and relevant electricity entity.

- (b) It is recommended that a combination lock be used and the access code provided to the electricity retailer.
- (c) Locking or securing of a meter enclosure must not diminish the ability of a person to access the protective devices for their particular installation.

(7) Environment protection

- (a) The meter enclosure must provide adequate protection against the effects of moisture to which it may be exposed.
- (b) The meter enclosure must not be rated less than IP23.

Explanatory Notes

There may be particular environments where the minimum rating of IP23 is not adequate. The installer needs to carefully consider the installation environment and the effects of external influences.

- (c) Construction of the meter enclosure must be from appropriate materials that prevent degradation and corrosion. Locations that are in close proximity to salt laden atmospheres may require additional corrosion protection.

(8) Mechanical protection

- (a) All meter enclosures must be electrically and mechanically protected in accordance with the requirements of AS/NZS 3000.

(9) Heights

- (a) A meter enclosure must be installed at a height above the final finished ground level that allows the:
 - i. Top edge of each of the actual meter(s) to be no higher than 2000mm; and
 - ii. Bottom edge of each of the meter(s) to be no lower than 600mm.

(10) Free standing meter enclosures

- (a) Meter enclosures that are free standing and not fixed to a permanent structure must be adequately supported to ensure stability and protection against damage by construction activities. To meet this requirement, all of the following must be satisfied:

- i. A minimum of two individual upright posts that prevent sway in any direction;
 - ii. A diagonal brace between the two upright posts; and
 - iii. The upright posts to be buried at a depth of no less than 500mm with stone based concrete (rapitest) backfill.
- (b) Electrical installations on construction sites must comply with the additional requirements of AS/NZS 3012.

20. Meter panels

(1) General

- (a) Meter panels are considered to be a part of an electrical installation and are owned by the electrical installation owner.
- (b) Meter panels must be:
 - i. For the sole use of electricity metering consumption equipment and the installation protection device;
 - ii. Constructed of a non-conductive, non-combustible and ridged material that conforms to the requirements of AS/NZS 61439.1; and
 - iii. If larger than 25cm² then provided with a hinge on one vertical side or handles on two opposite sides to enable removal of the meter panel. If a hinge is provided it must be placed no closer than 170mm away from the sidewall to allow sufficient access behind the panel and to prevent damage to the meter when opening.

(2) Equipment installed on meter panel

- (a) Electricity metering consumption equipment installed on a meter panel must:
 - i. Be back wired only; and
 - ii. Be provided with sufficient conductor length behind the panel to allow the panel to open no less than 120 degrees.

Explanatory Notes

The responsible contractor or, in the absence of an electrical contractor, the person responsible for the electrical work should discuss with the owner the possibilities of future expansion of the electrical installation which may require additional metering or associated equipment.

(3) Panel sizes – individual electrical installations

- (a)** The standard size meter panel for a single supply to a premises must be no less than 300mm x 350mm, and which would allow for the equipment required by the metering provider.

DRAFTING NOTE

COMMENT SOUGHT ON APPROPRIATENESS OF SIZE

- (b)** In all cases, a meter panel must allow for a minimum of 20mm separation distance between equipment mounted on the panel.

(4) Panel sizes – other installations

- (a)** To facilitate installation, future alterations and repairs, the maximum size of a meter panel must be no greater than 0.5m² unless otherwise approved by the metering provider. For electrical installations that require a larger area, separate individual panels should be used.
- (b)** Installations that differ to a standard installation may require the following considerations to be taken into account:
- i.** Number of separately metered installations;
 - ii.** Number of tariffs per customer;
 - iii.** Commercial or residential tariffs involved;
 - iv.** The amount of space required for:
 - 1.** Metering control equipment; and
 - 2.** Installation protection device.
- (c)** If any tariff requires a multi-phase supply, additional space may be required. Consult with the relevant metering provider to determine the requirements.

Explanatory Notes

Consideration for future requirements or expansion is the responsibility of the installation owner and electrical contractor.

(5) Behind the meter panel

- (a)** Wiring passing behind a meter panel that is not intended for the connection to metering equipment, must be enclosed within a separate duct or conduit located in a corner of the meter enclosure.
- (b)** Electrical equipment or connections, such as a multiple earthed neutral (M.E.N) connection, earthing terminal(s) or neutral terminal(s) that may

require access for future testing, maintenance or repair must not be located behind a sealed panel.

- (c) The clearance behind a meter panel must be at least 50mm measured between the meter panel and meter enclosure to allow for the minimum internal radius of conductors as specified in AS/NZS 3000.

Explanatory Notes

Cables larger than 35mm² may require additional clearance space.

(6) Labelling and identification

- (a) Electrical equipment mounted on the meter panel or within the meter enclosure must be clearly identified by means of a label to indicate its purpose. The label must be fixed, durable and legible. Identification by marker pens is not acceptable.
- (b) With all multiple tenancy arrangements, labelling of the meter panel and switchboard must clearly identify the individual flats, units or shops, and associated meter and installation protection devices.

21. Wiring for metering and associated equipment

(1) Conductors

- (a) All conductors connecting metering or associated with metering equipment must be no less than 4mm² unless the relevant manufacturers' installation instructions permit a smaller size.
- (b) The maximum conductor size terminated on removable meter panels is 35mm². All larger conductors that are installed for the purposes of achieving voltage drop specification, must be terminated in sealable links or another acceptable tamper-proof method, located behind the meter panel or sealable panel.
- (c) Hard drawn conductors should not be used for consumer mains or metering terminal ends. If hard drawn conductors are used, they must be terminated in sealed links located behind the meter panel and connected to soft-drawn copper stranded conductors that can then be connected to the meter terminals.

(2) Metering neutral conductor

- (a) The neutral conductor of consumer's mains (between the point of supply and the electrical installation main switch / main neutral terminal) must not be broken.

- (b) The neutral conductor for electricity consumption metering equipment must be soldered (sweated) to the consumer's mains neutral conductor and the insulation re-instated with appropriate black heat shrink sleeving.
- (c) For installations that have more than one meter, looping of the metering neutral is not permitted, separate conductors must be sweated to the main neutral conductor for each meter.

22. Communication equipment associated with metering

- (I) Customer owned communication equipment, other than that approved and installed by the metering provider, may not be contained within the meter enclosure or any other enclosure that contains metering provider communication equipment.

23. Work process

- (I) The person responsible for the electrical installation is responsible for the following:
 - (a) The meter enclosure and associated meter panel;
 - (b) The installation protection device;
 - (c) The consumer's mains from the point of supply to the electrical installation main switch, including the following:
 - i. If the consumer's mains are not colour-coded by the manufacturer, use heat shrink sleeving or other similar material to identify the consumer's mains active as red, white or blue and the neutral as black in accordance with the requirements of AS/NZS 3000. Insulation tape must not be the sole means of identification;
 - ii. Install sufficient length of consumer's mains and load conductors to enable the meter panel to open no less than 120 degrees with the mains / load-ends connected;
 - (d) The metering neutral (see clause 21(2) of this Code of Practice);
 - (e) The tariff load conductor, with the ends installed through the appropriate terminal holes in the meter panel. Each conductor must be clearly marked to identify the tariff to be connected to and have sufficient length provided for meter installers to connect to meter terminals; and
 - (f) Testing to ensure correct consumer's mains polarity and then fix the meter panels securely in place with supply left un-connected at the point of supply.

PART 5 – HIGH CURRENT METERING (100A and above)

24. General

- (1) The installation of meter panels and accessories associated with metering, such as components to disconnect, isolate, test or short-circuit current transformers (CTs) must comply with the relevant parts of AS/NZS 3000 and the manufacturer's instructions.
- (2) A switchboard must not be energised unless CTs are either connected to a meter or short-circuited.
- (3) The person performing the work and/or the responsible contractor must discuss CT installation requirements with the metering provider and verify that the proposed CTs are appropriately certified. The responsible contractor must keep a written record of this for 10 years.

25. CT chambers

- (1) The following requirements apply to the chambers where CTs are located:
 - (a) A separate chamber of the meter enclosure must be provided in every electrical installation that requires a full load current of 100A or greater. This chamber must only contain the required CTs and associated equipment;
 - (b) The internal dimensions of the above chamber may be no less than 600mm x 600mm;
 - (c) CTs must be mounted behind an escutcheon that is removable by a tool and has a label fixed to the front of the escutcheon with the words "CURRENT TRANSFORMERS BEHIND". This label must be permanent;
 - (d) All access panels must have provision for sealing by the metering provider;
 - (e) A sealable or lockable isolation device must be provided for CT metered installations. This isolation device is to be located on the line side of the CTs and allows each individual tariff and/or customer to be isolated. An appropriately rated circuit breaker is a suitable device for this purpose;
 - (f) Keyed locks are not permitted as a means of securing current transformer chambers due to the difficulty in obtaining access;
 - (g) Removable covers must be provided with either a hinge on one vertical side or handles on two opposite sides to enable removal of the cover;

- (h) To enable appropriate testing, the removal of the escutcheon enclosing CTs must not be restricted by the need to operate a device such as a main switch or other circuit breaker;
- (i) All live low voltage parts within CT chambers are to be individually insulated in order to prevent inadvertent contact with live parts during testing or other maintenance operations. A non-conductive insulated barrier alone (removable transparent cover over CT chamber) is not an acceptable method of insulation; and
- (j) Metering neutral conductors must be in accordance with clause 22(2) of this Code of Practice.

26. Meter panel sizes and arrangement

- (I) The following clearances must be maintained as a minimum:
 - (a) 50mm between equipment and meter panel external perimeter;
 - (b) 50mm between installed equipment; and
 - (c) 140mm depth of space between the meter panel and meter enclosure door.

27. Current transformers (CTs)

(I) General

- (a) The following requirements apply to CTs:
 - i. CTs must be manufactured and type tested to Australian Standard AS 61869.2 “Instrument transformers, Part 2: Additional requirements for current transformers” as amended or superseded from time to time;
 - ii. CTs must be appropriately selected and installed in accordance with the applicable manufacturers’ instructions;
 - iii. All CTs must be mounted on the load side of the main circuit breaker unless approval has been given by the metering provider to do otherwise;
 - iv. If busbars are used, the section passing through the current transformer window must be easily removable (minimum length of 300mm);
 - v. If insulated cables are used to pass through windows, then joints or terminations must be made near the CT to allow for easy removal of the CT;
 - vi. Metal cable sheaths must be terminated prior to conductors passing through the CT windows;

- vii. No cable joints may be made within the tunnel of the CT window;
and
- viii. The size of CT wiring must be matched to the CT, wire length and meter so as not to affect the accuracy of the meter recordings.

Explanatory Notes

Special attention is required to ensure CT limitations, meter wire lengths, CT ratios and ratings appropriate to the max current rating of the main switch are adhered to.

(2) Potential fuses

- (a) When installing and protecting line side equipment, each CT must be protected on the line side by a suitably rated fuse installed in an accessible location such as:
 - i. On the busbar (preferred method);
 - ii. Adjacent to the busbar installation;
 - iii. Adjacent to insulated cables that are used as the consumers mains;
or
 - iv. If the above methods are unsuitable, mounted on a meter panel.
- (b) Potential fuses must have provision for sealing. If these fuses are located behind an escutcheon, a suitable label indicating the words "POTENTIAL METERING FUSES BEHIND" must be fixed to the front side of the escutcheon.

(3) Test blocks – general construction

- (a) The test block base, cover and insulated portions of the voltage slide links and insulated nuts must:
 - i. Be of moulded insulating material or materials complying with the requirements of AS/NZS 61439.1;
 - ii. Not be adversely affected by normal (operational) heat and abnormal heat. Glow-wire test principles of AS/NZS 61439.1 must be used to verify the suitability of insulating materials; and
 - iii. All moulded material for the base must be black and the phases of the voltage links must be identified by red, white and blue coloured insulated nuts.
- (b) Unless otherwise specified, all current carrying metal parts must be made of electro tin-plated brass suitable for electrical purposes. Any steel holding down screws must be suitably protected against corrosion.

- (c) Utilise metric coarse pitch machine screw threads except where otherwise specified.
- (d) Incorporate provision to isolate potential feeds and short circuit CTs to prevent voltages in excess of the equipment rating.

(4) Test blocks – mounting

- (a) Test blocks must be:
 - i. Mounted such that the voltage connection terminals are on the right-hand side when viewed from the front of the test block
 - ii. Arranged in order for the CT secondary links to fall closed and the voltage circuit links to fall open; and
 - iii. Have all associated wiring enclosed under the test block cover (surface wiring is not permitted).

(5) Safety services

- (a) Where control equipment for fire alarms and lifts and other similar equipment is connected from the line side of the metering CTs, the conductors must pass through the CT window as shown in Figure 1 below:

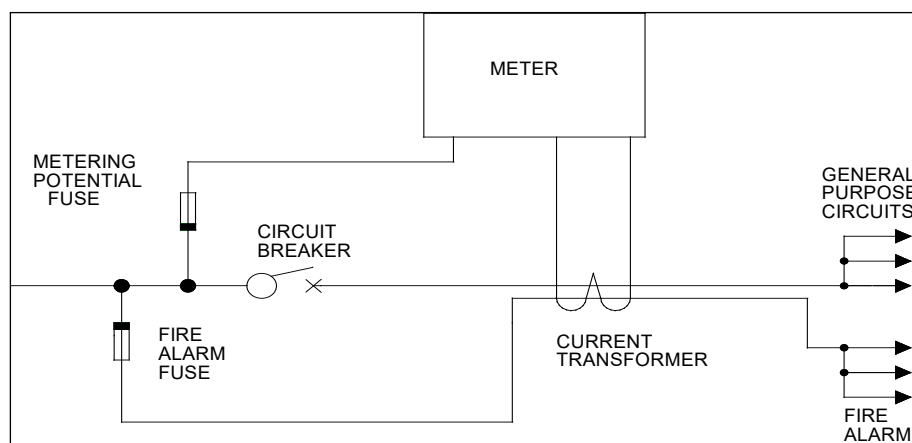


Figure 1: Metering fire alarms

Explanatory Notes

As conductors for fire alarms and lifts and similar are normally connected prior to the main circuit breaker, the person performing/energising the work and the responsible contractor should give special consideration to providing fault protection in the form of a fault current limiter or circuit breaker as well as mechanical protection, segregation and enclosure of cables.