



Tasmania

Plumbing Regulation *Advisory Notes*

Building Standards and Regulation

Department of Infrastructure, Energy and Resources
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Advisory notes are issued to assist in the interpretation of Tasmanian plumbing legislation and to keep all relevant stakeholders informed of developments within the plumbing industry.

Electrical Safety for Plumbers



Remember to have bridging conductor in place when working on mains water supplies

WARNING!

A number of incidents have been reported in Australia where persons working on metallic water piping have received electric shocks.

Commonly these incidents have occurred where persons were installing water meters, or replacing/repairing metallic water pipes on premises mains water supply.

The main contributing factor in these incidents is a fault with the electrical supply in the area, causing metallic water supply piping to become 'live'. When a plumber, or other person, cuts the metal piping they receive a shock from the electrical current running through the pipe.

It is important for all plumbers to note that prior to carrying out any work on metallic water pipes or installing a water meter, the procedures set out in AS/NZS 3500.1.2:1998 *National plumbing and drainage, Part 1.2: Water supply—Acceptable solutions*, or AS/NZS 3500 5: 2000 *National plumbing and drainage, Part 5: Domestic installations*, must be considered.

The following are the procedures as set out in the above referenced Australian Standards.

SAFETY PRECAUTIONS EARTHING

Before any existing metallic water service pipe, which forms part of an earth electrode for an electrical installation, is cut or uncoupled, the following precautions shall be taken to reduce the risk of electrical shock:

- The main switch or switches on the premises must be switched off and a tag reading '**DANGER DO NOT SWITCH ON**' attached over the switch.
- A bridging conductor, fitted with suitable clamps and having a current rating of not less than 70 Amps, shall be connected across the intended gap.
- The pipe shall be cleaned to bare metal where the clamps are to be connected.
- The electrical bridge shall not be broken or removed until all work on the water service is completed and continuity of the metallic service pipe is restored.
- Where any existing metallic service pipe is to be replaced in its entirety by plastic pipe or other non-metallic fittings or couplings, the work must not commence until the earthing requirements have been checked by an electrical contractor and modified, if necessary.

Note: The requirements for hot water services are specified in AS/NZS 3500.4.2:1997 *National plumbing and drainage, Part 4.2: Hot water supply systems—Acceptable solutions*.

This article has been substantially based on a Significant Incident Summary—Electrical Hazards When Working on Water Supplies, produced by WorkSafe WA.

Please circulate to:

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To keep Local Government, Statutory Authorities, Engineers, Designers and the Plumbing Industry informed on developments, and to assist in the clarification and interpretation of parts of the Act, the Plumbing Regulations, and the Tasmanian Plumbing Code, this series of advisory notes will be issued as and when necessary.

Blue-Water Syndrome

A number of incidents in the North and South of the State relating to Blue-Water (copper corrosion) in drinking water supplies have been reported by the media over the past twelve months. As a result of those incidents Building Standards and Regulation (BSR) have received several enquiries as to the cause and for solutions to prevent the Blue-Water problem.

There is no simple solution to the problem. Water industry experts have been intensely researching the problem and are unable to agree on a specific cause or solution to prevent this form of copper corrosion. Incidents of Blue-Water occur in both hard and soft water supplies, appearing randomly in some properties and not in others, however it is more common in soft water such as in Tasmania. Soft water can cause copper pipes to corrode, allowing copper to separate from the pipes. In some cases this causes the water to go a blue-green colour and at times appear cloudy.

BSR are currently investigating the extent of the problem through their membership with the National Plumbing Regulators Forum and the Australian Standards Committee WS-014 AS/NZS 3500 *National Plumbing and Drainage Code*.

To assist in the investigation BSR are seeking responses from the plumbing industry and regulators. This can be done by contacting Alan Humphreys by email or telephone and providing details of any known incidents or anecdotal information on Blue-Water or corrosion of copper piping. The information being sought should include, but not be restricted to, the following:

- Location of incident
- Type of water supply (Town or Tank etc)
- Type of copper pipe (Class and Manufacturer)
- When the copper pipe was installed
- Soft or hard water
- Whether the water is chlorinated or not
- If chlorinated, to what level (chlorine residual)

(See back page for Alan Humphreys' contact details).



Should you or your clients have particular health concerns about copper trace levels in drinking water, please seek the advice of a health professional such as the local Environmental Health Officer or the Tasmanian Department of Health and Human Services.

Despite the recent research by water industry experts, copper corrosion is a complex issue and no-one fully understands it. The Australian Water Association (AWA) has prepared a fact sheet to provide helpful hints for consumers in simple terms, however it cannot be considered as authoritative advice for a particular problem.

The fact sheet and other useful links to web sites containing more detailed information can be obtained from the AWA web site at <http://www.awa.asn.au/news&info/copper.asp>

Water Filters

There are many types of water filters available, ranging from simple bench top styles to sophisticated systems requiring special plumbing and electrical work. Water filters work by physically blocking or entrapping debris and, depending on the system, bacteria. Generally, the flow of water through a filter decreases as the filter size decreases. As the barrier becomes clogged the flow of water is reduced.

The following are some of the types of water filter currently available:

- Polypropylene and Ceramic
- Activated Carbon
- Reverse Osmosis; and
- Distiller

The most sophisticated are reverse osmosis and distiller filters and only these two systems are capable of effectively removing all the micro-organisms that may cause illness. In some cases, water filters may act as a reservoir in which organisms can multiply to greater levels than in the water supply. Also, as some filters remove residual biocide e.g. chlorine, it is possible that bacteria will re-grow unless the filtered water is stored in a sterile container in a cool, dark place. Special attention should also be made to requirements preventing backflow, causing potential recontamination of the drinking water supplies. Filtering may not disinfect water supplies from sources such as streams, dams, rainwater tanks and bores, therefore it is recommended that all naturally sourced water be disinfected

before consumption. The simplest method of disinfection is with chlorine. However other systems such as ultra violet light, reverse osmosis, ozone, amongst others, may also achieve suitable water disinfection.

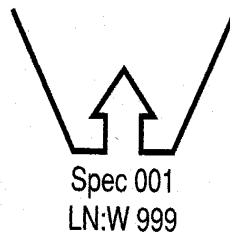
Materials and products used in domestic water supply systems can influence water quality, and domestic water filters should be of a type recommended by the Australian Drinking Water Guidelines. From November 1994 the Tasmanian Plumbing Code required all plumbing and drainage products to be authorized for use in plumbing installations. To verify their authorisation the filters must carry either a standard WaterMark or Plumbing Safety Type Test Mark. This mark assures the installer that the product has been tested by an independent laboratory and will function properly. On the following page are the types of marking expected to be found on authorised products. Several filters on the market will improve the aesthetic quality of water, by removing tastes and odours, whether caused naturally or by the disinfection process. Some

filters will also remove the calcium and magnesium salts that cause scale in plumbing fixtures and a metallic taste to water.

Correct maintenance of water filters is vitally important. The following matters should be considered to minimise the risk of contaminating drinking water supplies:



(Continued from page 2)



- Read the manufacturer's instructions.
- Maintain regularly.

Where applicable:

- Flush every day before use or after 12 hours without use.

- Remove, wash and scrub the filter regularly.

Checklist for selecting or using a water filter:

- Ascertain the quantity of water to be filtered at one time.
- Buy a filter appropriate for your needs which has the standard WaterMark or plumbing safety Type Test mark.
- Disinfect all water, except scheme water, before using the polypropylene, ceramic and activated carbon filters.
- Replace the filter according to the manufacturer's recommendations.
- Back flush the filter every morning, where applicable.
- Clean the filter regularly, where applicable.
- Store filtered water in a sterile container in a cool, dark place to prevent contamination.

Building Act 2000

Building Act 2000 - Implementation update

The *Building Act 2000* implementation process is well under way. As you may recall Parliament passed the Building Act in 2000. However, passing the Act was just one part of building and plumbing regulation reform. Some of the provisions of the Act have to be prepared in the form of regulations before it can be proclaimed to come into effect.

The Act makes no major changes to the existing provisions in the legislation relating to plumbing.

The new Act introduces building practitioner accreditation with mandatory insurance requirements for all building practitioners who have responsibility for design, assessment or construction.

Plumbers and plumbing designers are exempted from accreditation.

Accreditation of building practitioners is not a system of occupational licensing so not all practitioners will require accreditation.

The Act also introduces proportionate liability, private certification, maintenance provisions and infringement notices.

New regulations



Three sets of regulations have been identified. These are the Plumbing Regulations, Building Regulations, and Fees and Levy Regulations. The latter will contain provisions on Building Appeal Board fees currently contained in the *Building Appeals Regulations 1984*.

Work on these regulations, to date, has been a detailed and time-consuming process. It required extensive research and consultation with all the various stakeholders in the plumbing, design and building industries. Work has been proceeding well, however to ensure the job is done accurately we need to be tolerant. Full implementation of the Act and regulations will happen in 2003.

A pre-Parliamentary Counsel draft of the three sets of regulations has been prepared in consultation with the Regulations Reference Groups which consists of representatives from the plumbing, building and design industries.

The Regulations Reference Group has been meeting since November 2001 with the aim of achieving consensus among groups of stakeholders on matters relating to the 3 sets of Regulations and any other prescribed matter within the *Building Act 2000*. The first task of this Reference Group was to analyse the existing regulations to identify those provisions that had been transferred to the new *Building Act 2000*, those that should remain and those that could be improved. It was agreed to retain a similar structure for the new regulations. Additional matters included in the new Regulations include infringement notices, temporary occupancy permits, maintenance and management of certain features and reliance of certification of others. Consultations have already begun with Parliamentary Counsel.



Infringement Notices

Section 243 of the *Building Act 2000* enables infringement notices to be served where an offence is prescribed in the Regulations. The Regulations Reference Group advised that it supported the use of infringement notices.

A list is being prepared for inclusion in the new Regulations.



New provisions for Maintenance and Management of Plumbing Systems

The *Building Act 2000* provides for regulations to be made for the maintenance, management and rectification of plumbing work. The new regulations will have requirements for the owner of a plumbing installation to ensure it is used, operated and maintained in accordance with the Act, the Tasmanian Plumbing Code and the Plumbing Regulations. The owner or occupier of a premise on which an on-site waste water management system is installed will be required to ensure that the system is used, operated, maintained and managed in accordance with the conditions of a permit issued by the permit authority, and conditions of accreditation issued under the Tasmanian Plumbing Code.

Amendments to AS/NZS 3500 Part 4.2:1997 and Part 5:2000 Energy Efficiency Proposals

During 2001 and 2002 Australian Standards WS-014 *National Plumbing and Drainage Code Committee* produced amendments to AS/NZSS 3500:4.2 *Hot water installations* and AS/NZS 3500: 5 *Domestic installations*. This was done to provide a solution for the proposed new performance requirements in the Building Code of Australia (BCA) for energy efficiency measures in class one buildings and in line with the Australian Governments agreement to greenhouse gas reduction.

The original proposal for energy efficiency savings was for inclusion in AS/NZS 3500 Part 4.2 only however Tasmania and some other states argued that it should go in Part 5 also as the proposals are for class 1 buildings only at this stage.

In 2001 the Australian Building Codes Board released a Regulation Document (RD) and a Regulatory Impact Statement (RIS). These documents provided for energy efficiency measures for hot water supply systems and building services.

The RD and RIS was put out in the plumbing and building industry for comment. The comment suggested that the community and the industry supports the concept of energy efficiency measures and that the most appropriate place for them to be was in AS/NZS 3500.

The energy efficiency measures in AS/NZS 3500 include the use of a climate map for Australia which is based on the BCA climate map which divides Australia into climate regions. After considerable consultation it was decided to make **all** of Tasmania (including Bass Strait Islands) region C to provide certainty to designers, installers and assessors.

The proposed amendment to the standards provide tables to specify minimum insulation values for insulating hot water installations to minimise heat loss as follows: -

- for hot water storage heaters, insulation of :-
 - (a) the cold water supply piping between the water storage heater and the closest valve; and

- (b) the hot water delivery pipe, the first 500 mm of the pipe from the heater or where an external heat trap is fitted, to a point 150 mm down the first vertical leg of the heat trap;

- for an auxiliary water heater, insulation of the primary flow and return pipes between the auxiliary heater and the hot water storage tank;
- for an open vented water heater, insulation of all vent pipes to 300 mm above the working water level of the hot water system;
- for multiple hot water heater installations, insulation of the whole of the hot water delivery manifold to a point at least 500 mm past the outlet of the last water heater;
- for a non-recirculating hot water supply system insulation of :-
 - (a) all hot water piping within a conduit encased within concrete floor slab; and
 - (b) all external piping from a water heater to the primary kitchen sink;
- for a recirculating hot water supply system insulation of :-
 - (a) all flow and return piping including 500 mm along any branch from the flow and return piping; and
 - (b) all hot water piping within a conduit encased within a concrete floor slab, except for piping which is part of a floor heating system.

In addition storage water heater installations must have heat traps fitted to reduce heat loss of energy by convection through the heated water.

The proposed amendments to the AS/NZS 3500 Part 4.2 1997 and AS/NZS 3500 Part 5 2000 are expected to be published in late 2002 for adoption in early 2003.

Amendments - AS/NZS 3500 Parts 1.2 and 2.2

Amendment 2 to the 1996 edition of AS/NZS 3500 Part 2.2: Sanitary plumbing and drainage, acceptable solutions was published on 25 September 2002. The amendment applies to Clauses 6.8.1, 6.8.2, 6.8.3, and 6.8.4, 7.2.2 and 7.2.3. Tables 6.6 and 6.7 (new), Figure 6.8 (new) and Appendix A.

This amendment make minor amendments to the requirements

for the use, location and installation of air admittance valves.

Amendment 1 to the 1998 edition of AS/NZS 3500 Part 1.2: Water supply - acceptable solutions was published on 27 August 2002. The changes apply to Clauses 2.6.5 and 5.6.9 which amends the provisions of shouldered or grooved joints and provides for rolled grooved joints.

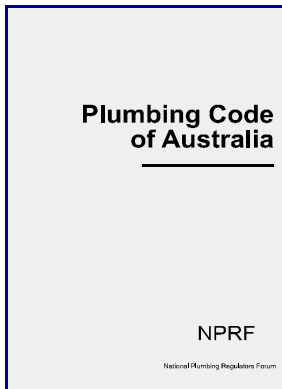
Amendments - AS/NZS 3666 Parts 1 and 2

AS/NZS 3666. Parts 1 and 2 Air-handling and water systems of buildings—Microbial control revision

These two standards deal with microbial control (in particular legionella control) in buildings with Part 1 being for design, installation and commissioning and Part 2 for operation and main-

tenance. Editions of these standards are now seven years old, and the joint committee ME/62 has revised these standards to improve their readability and to take account of changes that have come from industry use of the standards since the last edition.

Plumbing Code of Australia



The Laver Report, *Review of the Australian Building Codes Board*, (February 2000) prepared for the Commonwealth Department of Industry Science and Resources, recognised that important improvements could be achieved in the short term through the consolidation of all plumbing technical regulatory requirements into a national Code that, in turn, is adopted by each individual regulator.

To facilitate that outcome, Recommendation 4 of the Laver Report supported the establishment by Australian Governments of the National Plumbing Regulators Forum (NPRF) and charged it, amongst other things, with the responsibility for the preparation of a national Plumbing Code.

In addition to the Laver Report, the Fisher Stewart report, *On-site Plumbing Regulatory Framework*, (March 2000) prepared for the Commonwealth Department of Industry Science and Resources, highlighted marked disparities in regulatory regimes between the various States and Territories. As a consequence of that, significant opportunities for improvement are apparent.

As a result of the recommendations of the Laver report the NPRF was formed. The NPRF is the national policy advisory body for the regulation of on-site plumbing and consists of representatives of each State and Territory on-site plumbing regulators. The Manager, Building Standards and Regulation, Graeme R Hunt is the Tasmanian representative on the Forum.

The NPRF has prepared a draft Plumbing Code of Australia (PCA) for consideration by States and Territories for adoption in the same way that we now use the Tasmanian Plumbing Code (TPC). Until the PCA is called up the TPC remains the technical requirement for compliance with Tasmania's legislation. The PCA is a major step in the development of uniform plumbing standards across Australia, as well as

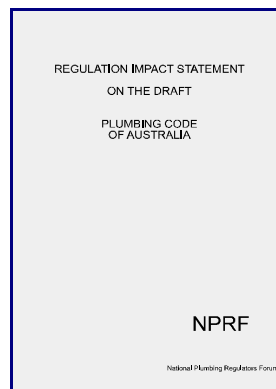
providing nationally consistent procedures for the approval of plumbing products.

The benefit to industry will be greater consistency, with the requirements of all States and Territories outlined in a single document. In addition, new streamlined product approval procedures address manufacturer's concerns with the current National Certification of Plumbing and Drainage Products Scheme. For the community, the PCA provides a platform by which important public health, safety and environmental issues can be resolved efficiently and effectively by all governments.

The National Plumbing Regulators Forum (NPRF) is seeking comment on a draft Plumbing Code of Australia (PCA) and on the associated draft Regulatory Impact Statement (RIS).

The PCA consists of two parts. Part A is a set of performance based technical provisions for plumbing and drainage installations. Part B defines the processes for the certification of plumbing products that require statutory authorisation.

The RIS details the costs and benefits of introducing a nationally consistent set of plumbing standards.



The draft PCA and RIS are available on the BSR website at <http://www.wsa.tas.gov.au/bsr/building.htm>

Comments on the PCA and RIS should be sent to:

National Plumbing Regulators Forum
C/O Plumbing Industry Commission
PO Box 360
Caulfield East VIC 3145

or Fax to 03 98893999

or email to heather.raux@pic.vic.gov.au

**All submissions must be received by:
The NPRF by 5.00 pm 14 October 2002**

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