



PRELIMINARY IMPACT ANALYSIS

PROPOSAL: This proposal seeks to amend Australian and New Zealand Standard (AS/NZS) 3500, *Plumbing and Drainage Part 4: Heated water services* to align the requirements for separation distances between above ground heated water pipes and electrical services with AS 3000 Wiring rules.

Responsible Technical committee: Australian Standard Committee WS-014, *Plumbing and Drainage*

NCC REFERENCE:	BCA Volume One: N/A
For revisions or amendments to existing National Construction Code (NCC) referenced documents, provide additional information	BCA Volume Two: N/A
	PCA Volume Three: B2.2, B2.6, B2.7, B2.8 and B2.9.

PROPONENT:	Nominating organisation: Plastics Industry Pipe Association
	Nominating individual: Alan Whittle
	Position: Consultant
	Contact email: alan_whittle@optusnet.com.au

DATE OF PIA:	Date: 2020
To differentiate between versions include the document date and/or version number	Version: 2.0
	Status: DRAFT

NATURE AND EXTENT OF THE PROBLEM:

Nature of the problem

- Clause 3.9.8.4 (b) of AS 3000 states the wiring systems shall maintain a separation distance of not less than 25 mm between any above-ground gas and water piping. This minimum separation distance is consistent with AS/NZS 3500 Part 1: Water services but

not AS/NZS 3500 Part 4: Heated water services. The latter specifies a minimum separation distance of 100 mm between electrical services and heated water pipes.

A problem arises when an electrician installs wiring within 25 to 100 mm of a heated water pipe after a plumber has completed the heated water service installation. In order to comply with AS/NZS 3500.4 the plumbing practitioner is then obligated to relocate his pipework which imposes additional time and material costs on the construction, which would vary based on building type if insulation is installed and the site specifics of the building. It is generally considered that this would be very expensive

- The problem of having to relocate heated water pipes because of the different separation requirements of the wiring rules and plumbing and drainage Standards has been presented to WS-014 by committee members. The committee includes representatives of The Institute of Plumbing Australia Inc. and Master Plumbers Australia. Both representatives stated their members reported having to relocate heated water pipes because of the conflict between the requirements of the plumbing and drainage Standard (AS/NZS 3400.4) and wiring rules (AS/NZS 3000).
- The conflict arises because an electrician is entitled to install above ground wiring to within 25 mm of water pipework but the plumber must maintain a separation of not less than 100 mm from electrical wiring.

Extent of the problem

- Plumbers are directly impacted in that relocation of pipework costs both time and materials. The possibility exists that construction is delayed whilst heated water pipework is 'corrected' and hence home owners can be directly impacted by delayed completion date.
- The industry has indicated that the discrepancy has resulted in plumbing regulators adopting different solutions.
- Apart from the cost of having to redo the plumbing, there are significant additional costs associated with re-inspection and possible dispute resolution via a tribunal, e.g. In QLD it costs approximately \$122 for re-inspection and approximately \$350 for an appeal to a tribunal.
- Time lost is also considered to add further costs to a project.

OBJECTIVES:

The objective of the proposal is to align AS/NZS 3500.4 Clause 4.2.2.2 with AS/NZS 3000 Clause 3.9.8.4 (b), thus aligning plumbing and electrical installation requirements.

OPTIONS:

There are considered to be two options to resolve the issue which are described below. The option of a non-regulatory means of resolution has been discounted as it is considered that this could not result in a resolution to the issue.

Option 1 – Status quo

This option would see that no changes are made to either AS/NZS 3500.4 or AS/NZS 3000.

Option 2 – Amendment of AS 3000

This option would be to amend AS/NZS 3000 Clause 3.9.8.4 (b) with the current requirements of AS/NZS 3500.4 clause 4.2.2.2. That is, make the minimum separation distance 100 mm in both documents.

Option 3 – Amendment of AS/NZS 3500.4

This option would amend AS/NZS 3500.4 Clause 4.2.2.2 with the current requirements of AS/NZS 3000 Clause 3.9.8.4 (b). That is, make the minimum separation distance 25mm in both documents.

IMPACT ANALYSIS (OF ALL OPTIONS):

Impact analysis of the three options are as follows:

Option 1 - Status quo

If no action is taken the issue remains that electrical wiring installed after a plumbing 'rough-in' will render the 'rough-in' non-compliant.

Maintaining the Status Quo simply means there will continue to be occasions when plumbers are obliged to redo heated water pipework because of the actions of electricians working to the wiring rules. This will impact on plumbers and ultimately building owners.

Option 2 – Amendment of AS/NZS 3000

This is not the preferred option because, if the electrical committee accepts wiring can reasonably be installed to within 25 mm of a heated water pipe, there is no reason why the separation distance should be greater. The effect of a heated water pipe on electrical cables is likely to be more significant than the reverse. If the electrical committee accepts cables can be safely installed with 25 mm of a heated water pipe, there is no reason why a heated water pipe cannot be installed with 25 mm of an electrical cable.

Option 3 – Amendment of AS/NZS 3500.4

It is considered that this option imposes no additional costs to construction and eliminates the possibility of plumbing practitioners having to alter or redo pipework because of an electrical installation which is compliant to a different installation requirement.

The potential cost and time savings would be considered significant where this issue occurs.

This solution also resolves inconsistent solutions applied by plumbing regulators across Australia.

TRANSITIONAL MEASURES

No transitional measures are recommended. Once the revision of AS/NZS 3500.4 is published, the minimum 25 mm separation distance can be adopted for all future constructions.

CONSULTATION:

- Consultation occurred with the plumbing industry representatives on WS-014. This conflict between the Standards was formally brought to the attention of WS-014 during the public consultation of AS/NZS 3500.4:2018 in 2017.

- The ABCB's Plumbing Code Committee were consulted in regards to the proposed amendment and supported the changes proposed by Option 3.
- No contrary opinion has been made to this proposal during consultation.
- AS/NZS 3500.4 will be released for public consultation in 2020.
- Consultation occurred with AG-006, EL-001 and WS-014 in 2019.

CONCLUSION AND RECOMMENDED OPTION:

Option 3 is recommended as this change would align the minimum separation distances between above-ground heated water pipes and electric wiring so that the requirements in AS/NZS 3500.4 match those in AS/NZS 3000. The effect will be to avoid plumbing practitioners having to amend or redo pipework installations as a result of electricians installing wiring compliant to AS/NZS 3000, but in doing so render heated water pipes pipework as not compliant to AS/NZS 3500.4.

IMPLEMENTATION AND REVIEW:

The preferred option (option 3) can simply be implemented by changing Clause 4.2.2.2 of AS/NZS 3500.4. It is expected the plumbing industry organisations would alert their members to the change and the plumbing regulators would also be aware of the change.

The ABCB will present on the changes to inform stakeholders of the amendments prior to the adoption of NCC 2022.

LIST OF ATTACHMENTS:

Attachment A – Schedule of Major Changes

Attachment A: SCHEDULE OF MAJOR CHANGES

No.	Clause / Ref	Proposed Change	Justification / Reason for Change	Cost implications
1	AS/NZS 3500.4 Clause 4.2.2.2	Reduce the minimum separation distance between heated water pipes and electrical wiring to 25 mm in above ground installations.	Currently there is a contradiction between AS/NZS 3500.4 and AS 3000 such that heated water pipes might have to be relocated if the electrician installs wiring too close.	No additional material or installation costs will be incurred as a result of this change. There is a potential cost benefit as one possible need for having to relocate heated water pipes is eliminated.