Western Australia Legislative Assembly
Education and Health Standing Committee

Public hearing in respect to the ABCB's investigation of lead contamination in drinking water.

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Introduction

The Australian Building Codes Board (ABCB) is a Council of Australian Government (COAG) codes and standards writing body that is responsible for the development and maintenance of the National Construction Code (NCC), which comprises the Building Code of Australia (BCA) and the Plumbing Code of Australia (PCA).

It is a joint initiative of all governments in Australia and was established by an Intergovernmental Agreement (IGA) signed by the Commonwealth, States and Territories on 1 March 1994. The most recent IGA was signed by Ministers, with effect from 31 January 2018.

The Board's key Objective is to address issues of safety and health, amenity and accessibility, and sustainability in the design, construction and performance of buildings (note the NCC does not cover infrastructure, such as water mains or water features not associated with buildings, such as public drinking fountains).

Under the IGA, the remaining principal Objectives of the ABCB are to:

- establish codes and standards that are the minimum necessary;
- ensure that in determining the area of regulation and the level of requirements there is a rigorously tested rationale for the regulation;
- provide regulations that are proportional to the issue so that the benefits to society are greater than the costs;
- ensure that there is no regulatory or non-regulatory alternative that would generate higher benefits;
- develop requirements that are performance based and as far as practicable consistent across the States and Territories; and
- encourage a reduced reliance on regulation.

The Board consists of an independent Chairman, up to five industry representatives, a representative of the Australian government (from the Department of Industry and Science), senior executives responsible for building and plumbing regulatory matters from all State and Territory governments, and a Local government representative.

The ABCB reports directly to the Australian government, State and Territory Ministers responsible for building and plumbing regulatory matters, and provides a vital link for the building industry, between building practice and regulatory policy.

The BCA and PCA are national codes (model regulation) that are developed and maintained by the ABCB on behalf of and in conjunction with the Australian and the State and Territory governments, who each have statutory responsibility for building and plumbing control/regulation within their jurisdictions. In this respect the ABCB has no powers of compliance. It is not a statutory body and administers no legislation.

Background

Under the Australian Constitution, governance of the built environment is the responsibility of State and Territory governments. Therefore; eight respective governments are the empowered regulators.

Under the IGA, the governments agree to accept the NCC as the minimum mandatory national technical standard for the design and construction of buildings. Consequently, the NCC is adopted through individual government statutes as a mandatory national standard for all new building work.

The NCC provides the minimum necessary requirements for safety, health, amenity and sustainability in the design and construction of new buildings, including new building work in existing buildings.

Methods of designing and constructing buildings are constantly evolving and to ensure the NCC is able to facilitate the application of new technologies and methodologies, in 1996 the NCC became a performance based code. Likewise the NCC has expanded beyond its primary focus around fire safety and structural reliability to encompass broader societal expectations including disability access, energy efficiency and building resilience.

When amendments to the NCC are found to be necessary, they are developed in accordance with the COAG publication 'Best Practice Regulation' and where a regulatory impact assessment is involved, are subject to review by the Office of Best Practice Regulation. A need to comply with these processes reflects the ABCB's status as a COAG agency.

The primary output of regulatory impact analysis is realisation of the cost of compliance in comparison to net benefits derived from compliance. When assessing benefits it is necessary to consider whether a proposal is likely to generate an outcome that is inconsistent with the ABCB Objective of only imposing 'minimum necessary' regulation. In undertaking an assessment, it is also necessary to consider the mandatory Performance Requirements of the NCC as being the 'minimum necessary' regulations, rather than the optional Deemed-to-Satisfy provisions.

Plumbing Research

The ABCB has a standing item on its work program to undertake plumbing research on topical and prioritised subjects. Following the events associated with the Perth Children's Hospital and other less well known reports of potential lead contamination, the ABCB assigned the 2017-18 research project to the consider the potential of drinking water contamination from products containing lead.

It needs to be emphasized that the nature of such research being conducted by the ABCB would be to determine if products covered by the scope of the PCA are responsible for levels above those determined as being acceptable by the Australian Drinking Water Guidelines, which are not set by the ABCB. In addition, the research is not looking into the causes, effects and solutions relating to the events specific to the Perth Children's Hospital.

Lead contamination of drinking water

- Lead contamination of drinking water is often attributed to plumbing products and materials. For centuries the contamination of drinking water caused by lead pipes and flashings has been a major concern to public health and the use of lead pipe and flashings has been banned in Australia in circumstances where contact with drinking water will occur.
- In older buildings, lead from 50/50 solder used to join pipes and fittings (which was permitted in Australia until 1989), brass fittings, and copper pipes can leach into the drinking water.
- Monitoring for lead in the urban distribution system will not detect lead contamination in these buildings.
- The level of lead contamination can increase when water sits stagnant in pipes and taps for long periods.

- The far reaching effects of lead contamination can also apply to modern buildings and is exemplified by the audit findings of the new Perth Children's Hospital, where some of the lead contamination has been attributed to the possible leaching from new brass fittings.
- The National Construction Code (NCC) already requires all products intended for use in contact with drinking water to comply with AS/NZS 4020, which includes testing for lead with a maximum allowable concentration of 0.01 mg/L.
- Compliance with AS/NZS 4020 in such plumbing products is also covered by the ABCB's WaterMark Certification Scheme (WaterMark), which includes the listing of certified products on the publicly accessible WaterMark Product Database.

AS/NZS 4020 – Standard for testing products in contact with drinking water

- The PCA requires that all materials or products intended for use in contact with drinking water must comply with AS/NZS 4020, the standard for testing products in contact with drinking water.
- AS/NZS 4020 was prepared by the Joint Standards Australia/Standards New Zealand Committee CH-034.
- In preparing this Standard, the joint committee gave consideration to comparable overseas Standards, to minimize duplication of effort and to maintain commonality, wherever reasonable, with those Standards.
- Particular consideration was given by AS/NZS 4020 to establish a method of testing for the leaching of compounds and testing for metals extracted from metal products that are often components of products in contact with drinking water.

ABCB Priority Research Project

The ABCB engaged Professor Mark P. Taylor of Macquarie University, Sydney NSW in February 2018 to undertake an extensive literature review of Lead in Plumbing Products and Materials.

The research is to determine to what extent plumbing products and materials may contribute to lead levels in drinking water in excess of those permitted by the Australian Drinking Water Quality Guidelines.

The scope of work was broken into the following key areas for research:

- The potential sources of lead in plumbing products / materials
- The effect of water chemistry, quality and temperature on plumbing products/materials
- The cumulative effect of multiple products/materials in a water service
- The interaction of different product / materials within a water service
- Consideration of product Standards (not just AS/NZS 4020), hydraulic effects on materials and how products are currently tested.
- Assessment of hydraulic design features in relevant standards on lead released from plumbing materials.

The report will not include:

- Testing and evaluation of lead content in plumbing products, materials and components to determine compliance with the lead content standards;
- Testing and evaluation of lead content in drinking water caused by plumbing products, materials and components.
- Potential sources of lead in drinking water other than as a result of plumbing products, materials and components (e.g. water supply quality).

Professor Taylor and his team have:

- canvased over 3000 articles highlighting 228 of relevance to the project scope
- engaged with industry and regulatory stakeholders to gain information on their current manufacturing process, component and system testing and alternative no or low lead products.

Next Steps

The ABCB is continuing this work with Professor Taylor and expect a final report to be submitted to its Plumbing Codes Committee (PCC) for consideration and advice at its July 2018 meeting, this will include the findings of the project and recommendations for further action.

The PCC is the ABCB's peak technical committee for plumbing, comprising representatives from state and territory plumbing regulators, as well as key industry groups.

The final report and advice from the PCC will then be presented to the Board and if there are any matters of significant policy, in all likelihood a report will be prepared for consideration by the Building Ministers' Forum.

Depending on the nature of the report's findings and actions arising from the decision-making process, if it is determined that there is a need to amend the regulatory settings in Australia, it will be necessary to commence an amendment process for the PCA, in accordance with the ABCB's objectives. In this event it is also likely that Standards Australia would be requested to commence a process of reviewing AS 4020.