



**PROPOSAL FOR CHANGE
NATIONAL CONSTRUCTION CODE SERIES**

SUBJECT:	Obsolescence of Lead as a flashing Material
BCA Volume One:	N/A
BCA Volume Two:	3.5.1.2
Guide to Volume One:	N/A
PCA Volume Three:	N/A

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The Proposal

1. What is the proposal?

A total ban on the use of lead as a roofing material.

If the Building Code of Australia could ban lead as a roofing material, hopefully in the process of letting roof plumbers and builders know of the ban, the Australian Building Code Board could also promote existing lead materials on rainwater collection roofs be replaced with non-lead flashing, thus over time minimising lead contamination caused by roof flashings to both the general population and the environment.

In the past we have seen the use of toxic materials phased out due to growing health concerns and the advancement of technology allowing for safer alternatives. We no longer allow the use of asbestos, or lead in paints, piping and petrol, so why do we still use it to flash our roofs?

It is the aim of this proposal to provide a safer healthier environment for all Australians.

The Current Problem

2. What problem is the proposal designed to solve?

The negative health effects associated with lead exposure have been documented for many years, with its use being banned in many applications including piping, petrol and paint. It is proposed that by implementing a complete ban of lead use in roofing it will further lessen the exposure to this toxic material to both the general population and the environment.



3. What evidence exists to show there is a problem?

Lead is a nerve poison and over the years it has been proven to have negative effects on people's cognitive function. Cases of high level exposure in children have been linked to brain damage and other severe disorders. Even low level exposure in adults has been linked to brain ageing, heart attack, stroke and other severe disorders. Although exposure has been lessened over the last fifteen years with the banning of the addition of lead to petrol (2002) and to all paints (2010) in Australia, for some reason the roofing and plumbing products industry is lagging dangerously behind with the information below highlighting the need for immediate action.

- 5 out of 11 Sydney homes with water harvesting facilities have dangerous levels of lead in their harvested water. (Kus et al, 2010 <http://epress.lib.uts.edu.au/research/handle/10453/13626?show=full>)
- Excessive amounts of lead were found in 33% of Melbourne rain water tanks (Magyar et al, 2008 <https://web.archive.org/web/20080907162221/http://www.csiro.au/files/files/pk7r.pdf>)
- Over 10% of Brisbane homes have higher than acceptable lead levels in their drinking water, with the study suggesting that unless the homes are in a town with heavy industry the likely source of contamination is from lead used as a roofing material (Huston et al, 2012 <http://www.sciencedirect.com/science/article/pii/S0043135411007809>)
- According to Russell Kirkwood, Director and Forensic Plumber, Metropolis Solutions: "If the technology exists to rid the world of lead in drinking water systems, then that should be where we are going. If you say there is lead-free product, then there should be incentives for everyone to use it." (Plumbing Connection Magazine, Winter 2017, <http://search.informit.com.au/documentSummary;dn=753049977160088;res=IELENG>)
- Harmful effects to the environment including seepage into soil if roof lead is not properly disposed of.
- Lead roofing product is heavy, leading to additional OH&S issues.
- Lead roofing materials contaminate stormwater, or downpipe water which runs into the ground on the property, or the rainwater goes into a garden water tank. The lead can poison sediment and aquatic microbes, fish and other aquatic organisms, plants (including vegetables and herbs), soil microbes, animals including pets, chooks and farm animals, and children who drink from the garden tank tap or hose.
- The Australian Department of Health's NHMRC recommend using alternative materials. According to Harvey et al (2016, www.sciencedirect.com/science/article/pii/S0013935116303280) the National Health and Medical Research Council (NHMRC), the peak medical research body in Australia, recommended the following: 'The use of products containing lead could be prohibited from use in drinking water or plumbing systems. Even if high lead levels in drinking water are found [in the proposed national pilot study of first flush water lead levels] to be relatively uncommon



in Australia, elimination of unnecessary sources of lead would be of benefit in reducing the exposure of children to lead' [Greene et al.,1993 "Reducing lead exposure in Australians " p.116].

The Objective

4. How will the proposal solve the problem?

According to the Australian Bureau of Statistics, 16 per cent of households use rainwater tanks, and more than three-quarters of them use the tanks as their main source of drinking water. (Phillips, April 2010

<http://www.smh.com.au/environment/rainwater-users-warned-of-lead-risk-20100409-ryu0.html>)

By banning the use of lead roofing materials and promoting the replacement of installed lead roofing materials, not only will all new homes be lead safe (as long as they don't have brass plumbing fittings or sources of lead dust such as leadlighting or old painted wooden building components or furniture), additionally we will see a total reduction in toxic lead flashings as they are replaced with non-toxic alternatives. There are many high quality 100% non-toxic lead free alternatives on the market today.

In the past we have seen the use of toxic building materials phased out due to growing health concerns and the advancement of technology allowing for safer alternatives. We no longer allow the use of asbestos, or lead in paints, piping and petrol, so why do we still use it to flash our roofs? It is the aim of this proposal to provide a safer healthier environment for all Australians.

5. What alternatives to the proposal (regulatory and non-regulatory) have been considered and why are they not recommended?

There is no better combination than a ban on lead roofing materials and an education campaign to promote existing lead roofing materials to be swapped for non-toxic materials.

The Impacts

6. Who will be affected by the proposal?

- The general community (especially children) but anyone who drinks rainwater or uses rainwater to water their vegetable/herb gardens, and for poultry, farm animals and pets.
- Tradesmen (<http://www.leadsafeworld.com/solutions/lead-safety-for-roofers-and-rainwater-users/>)
- The environment including soil and sediment microbes and aquatic plants and animals (Greene et al, 1993 "Effects of Lead on The Environment "- From: Reducing lead exposure in Australians. Final report pp 21-23.



<http://www.leadworld.com/wp-content/uploads/2016/06/LANv16n4-WANTED-Lead-safety-graphics-for-shooters-and-food-growers.pdf>)

7. In what way and to what extent will they be affected by the proposal?

- The general population will have better health outcomes – smarter, longer lives - through better quality harvested water.
- Tradesmen will not be exposed to handling this toxic and heavy material.
- The environment will be less affected by lead-contaminated storm water run-off, and lead contaminated soil.

Consultation

8. Who has been consulted and what are their views?

The Lead Education and Abatement Design (LEAD) Group Inc (environmental, occupational and public health charity) has been consulted and fully supports any proposal for lead-free plumbing and roofing products. Both Elizabeth O'Brien, Lead Advisor for The LEAD Group, and Emeritus Professor Brian Gulson, Head, Technical Advisory Board for The LEAD Group have been consulted and support this proposal.