THE WARREN CENTRE

Senate Economics References Committee Inquiry on Non-Conforming Building Products

19 July 2017

About the Warren Centre for Advanced Engineering

The Warren Centre brings industry, government, and academia together to create thought leadership in engineering, technology, and innovation. We constantly challenge economic, legal, environmental, social, and political paradigms to open possibilities for innovation and technology to build a better future.

The Warren Centre advocates for the importance of science, technology and innovation. Our 30 years' experience of leading the conversation through projects, promotion, and independent advice drives Australian entrepreneurship and economic growth.

The Warren Centre is pleased to have an opportunity to make a submission to this Senate Inquiry. This submission focusses primarily on building products related to fire safety, but the recommendations are relevant to building products more broadly.

Background

The Warren Centre for Advanced Engineering initiated in 1989 a major project entitled, "Fire Safety Engineering" (FSE). The project drove the development and recognition of a 'performance-based' (rather than prescriptive) approach to fire safety engineering.

Major outcomes of the Warren Centre FSE project were:

- Significant input to the Building Regulation Reform Task Force in 1991; and
- The establishment and funding of the Fire Code Reform Centre (FCRC) in 1994 with the aim to coordinate the technical fire research required to support the development of a performance-based building code.

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The resulting code was published as BCA96 by the Australian Building Codes Board (ABCB) in 1996 and passed into state regulations in 1997.

The Warren Centre FSE Project and the resulting FCRC research was (and still is) perceived by the engineering profession in Australia and by the broader industry internationally as a great pioneering success in the global transition from prescriptive to performance-based fire safety building design.

Since that time, The Warren Centre itself and many professional engineers involved in that earlier work have continued to take a strong interest in the broad building and construction industry. The Warren Centre and our network have an on-going commitment to provide evidence-based research to improve industry performance and professionalism across Australia.

The Issues

The Lacrosse Fire in Melbourne and the Grenfell Fire in London have highlighted some very significant issues with combustible cladding and insulation materials forming facades on buildings and the potential for very serious property damage and tragic loss of life in Australia due to building products being installed which do not conform to the NCC/BCA requirements.

We understand the Commonwealth Government and various State authorities have or will launch enquiries or task forces to investigate these and other matters urgently.

However, it is clear at this point in time, based on public statements, that no authorities in Australia have a firm idea of:

- the number of vulnerable buildings with combustible cladding;
- the extent of the risks to the public; nor
- a clear plan to address the key issues and improve safety.

Widespread anecdotal evidence from professional engineers, property principals and insurers in the field also suggests that not only are there major problems with building facades and non-conforming cladding across the country, but there are a significant number of other serious concerns that have a seriously detrimental impact on the quality of buildings and the health and safety of occupants, including:

- Poor waterproofing, leading to significant mould and spores issues;
- Water damage to timber structures;

- Poor indoor air quality;
- Sprayed external combustible insulation;
- Electrical cable insulation failures and unstopped penetrations; and
- UV-induced failures of external gas pipes.

Reasons for Failure

It has been stated by some that Australia has a first world building code in the NCC/BCA, but a third world compliance system. That is, the State and Territory regulatory and administrative systems appear to be failing to deliver adequate health and safety to Australians in buildings, with considerable latent risks in relation to fires and other hazards potentially arising from combustible facades and other defects.

Some of the regulatory and administrative deficiencies which have been identified, again based on anecdotal evidence, include:

- Conflicts of interest due to the building certifiers being appointed by developers and/or builders and getting involved in planning and design, and then issuing building permits and occupancy certificates back to those same developers and/or builders;
- A lack of proper building inspections and/or proper commissioning of fire protection systems, and product substitutions of cladding and other materials on site;
- Many fire safety engineers and others operating without the required competence, or beyond their level of competence for more complex buildings;
- A total lack of audit and enforcement of practitioner competence and behaviours, including fire safety engineers;
- No requirement for some classes of fire protection practitioners at the trades and semi-professional levels to be registered or accredited; and
- Lack of proper compliance regimes for building products and materials, with use of non-conforming products and issues of fake products and test certificates, including for facade materials.

Many of these issues have been highlighted through the VAGO report in Victoria, the Quality of Buildings Report in NSW, and other past enquiries, as well as appearing to be the subject of major building litigation.

In relation to fire safety, it appears that some States and Territories believe that a Fire Safety Verification Method (FSVM) which the Australian Building Codes Board is trying to develop will solve many of these fire safety issues at least. However, it will solve none of the regulatory and administrative concerns outlined above. In fact, because it is essentially a prescriptive approach to fire safety engineering, it has the great potential to stifle creative design and innovation, increase the costs of sound fire safety engineering, increase building and construction costs, and encourage practitioners of lower competence.

It is highly likely that the introduction of a FSVM would reduce the extent of performance-based fire safety design in Australia and continue to allow the less competent fire safety engineers and others to practice. This is the exact opposite of what ABCB and Governments want to achieve as policy.

The Potential Solutions

The Warren Centre does not have all the evidence at this time to provide governments with a neat set of recommendations supported by clear research evidence to solve the building facades or non-conforming products issues.

However, the issue of non-conforming products such as combustible external walls making up building facades of high risk appears to be not just a question of import controls or proper material or product certification. It appears that much of the building approval, compliance, materials certification, inspection and competence regimes at the State and Territory level have some serious flaws, and the non-conforming products issue is only likely to be resolved by a comprehensive overhaul of the regulatory and administrative regimes on a national basis. Otherwise large fires and other building failures leading to significant public risks are likely to persist.

Recommendations

In the Inquiry into non-conforming products, the Warren Centre recommends that the Committee should:

1. Look more broadly into the issues of regulatory and administrative provisions at a State and Territory level, rather than just issues of import controls and product certification;
2. Consider issues of building certification and conflicts of interest, practitioner competence, education and accreditation of practitioners, audits and enforcement of higher levels of practitioner competence without which safety

and quality of buildings will be unlikely to improve and the problems of non-conforming products in Australia is unlikely to be solved; and

3. Consider the development of a world's best practice and national model Building Act which can be adopted in all States and Territories to address all regulatory and administrative issues. This may be the only effective way to solve the non-conforming products risks to the Australian public.

The performance-based NCC/BCA has brought many benefits to the Australian building and construction industry over 20 years. We have seen many great innovative buildings and cost-effective construction projects in all States and Territories. However, greater use of performance-based design appears to be threatened by inadequate regulatory and administrative weaknesses and a lack of attention to practitioner competence.

The Warren Centre and its members with specific expertise in the relevant fields are now initiating a new research project aimed at addressing world's best practice in all of these regulatory and administrative issues which appear to control fire safety and other health and safety outcomes in buildings. The objective is to provide evidence which can effect real change in building performance and fire safety in the public interest, without sacrificing the benefits derived from the performance-based approach to building regulation.

The Warren Centre Fire Safety Engineering Task Force, 19 July 2017

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About the Warren Centre for Advanced Engineering

The Warren Centre constantly challenges the economic, legal, environmental, social and political issues raised by innovation. We collaborate with industry, government and academia to achieve globally significant outcomes.
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