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Work Health & Safety legislation; the fire engineer's neglected duty?

P.A. (Tony) Enright *

Enright Consulting Pty Ltd, PO Box 84, Black Rock, Victoria 3193, Australia

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ABSTRACT

Fire engineers are in general, aware of their duties under Building legislation. However, they are often unfamiliar of separate duties under Work Health and Safety legislation.

This paper describes an Australian case-study, but one that is presented generally so as to have applicability in those other jurisdictions where similar Work Health and Safety obligations exist.

As society becomes safer, Work Health and Safety has evolved from being solely about the employer–employee relationship, to also impose duties on other participants, such as building designers. Fire engineers are building designers that by the very nature of their work, directly influence the safety of a workplace. Most buildings upon which fire engineering is practiced are workplaces.

Under Building legislation, fire engineers must design to minimum performance requirements. In the process, usually adopting the most cost effective approach and thereby creating economic benefits.

Under Work Health and Safety legislation however, fire engineers have a duty to adopt the highest possible level of precautions, unless it is not reasonably practicable to do so. The reasonably practicable test must follow the hierarchy of controls and consider all relevant matters, the last of which is cost.

Fire engineers that ignore Work Health and Safety duties, intentionally or not, are exposed to claims of negligence.

Introduction

Building legislation

Australia has a performance-based, building code [1]. The Building Code of Australia or BCA is given legal effect in each State and Territory under their respective Building Acts and Regulations.[1] In this paper, the various Building Acts and Regulations are referred collectively as 'Building legislation'.

* Tel.: +61 458 111 022.
E-mail address: mail@enrightconsulting.com
URL: http://www.enrightconsulting.com

[1] Building Act 2004 (ACT), Environmental Planning and Assessment Act 1979 (NSW), Building Act 1993 (NT), Building Act 1975 (Qld), Development Act 1993 (SA), Building Act 2000 (Tas), Building Act 1993 (Vic), Building Act 2011 (WA).

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Performance-based building codes were first introduced in the 1990's to replace prescriptive building codes. They are outcome-focussed, or 'target based'. Performance-based building codes have been adopted in several international jurisdictions including but not limited to; Australia, Canada, Japan, the United Kingdom, the United States of America, New Zealand, and the Nordic Countries [2].

It is not the purpose of this paper to describe in detail the architecture of performance-based building codes, or the practice of fire engineering other than to say that a fire engineer has a duty to design to certain minimum performance requirements. For those interested, more comprehensive information can be found in resources such as the SFPE Engineering Guide to Performance-based Fire Protection [3] and International Fire Engineering Guidelines [4].

Work Health and Safety (WHS) legislation

Similarly to the Building legislation, Work Health and Safety (WHS) legislation is also given legal effect at State and Territory level.[2] Unlike the Building legislation however, harmonisation is intended to be at the Act level.

To that end, the Australian Federal Government enacted the Model Work Health and Safety Act 2011. This Model WHS Act has been passed in each State and Territory except at this stage in Victoria and Western Australia. For the purposes of this paper, being largely a discussion on duties of safety in design, the Victorian and Western Australian legislation is sufficiently similar to the Model WHS Act.

The various WHS Acts and Regulations are referred collectively as 'WHS legislation' to be as general as possible, so as to have relevance in those other jurisdictions where similar Work Health and Safety duties exist.

WHS duties

WHS legislation has shifted away from a paradigm that focused on the duties in the employer-employee relationship to a more expanded paradigm including upstream parties such as; contractors, designers, suppliers and manufacturers [5].

Under WHS legislation designers of structures that are used as workplaces have a duty to eliminate or minimise risks to health and safety in a workplace so far as is reasonably practicable.

This raises three key questions:

- Are fire engineers designers of structures and therefore duty-holders?
- What proportion of buildings that are fire engineered are workplaces?
- Does designing to a building code performance requirement, discharge the WHS duty to minimise a risk 'so far as is reasonably practicable'?

Fire engineers are designers

The opinion is sometimes expressed that fire engineers are not designers of buildings and so do not have the duties of designers under WHS legislation. This opinion is based on the practice, where fire engineering documentation is part of a compliance process rather than directly documented in the specifications and drawings. A building design is typically documented (that is specified and drawn), by the; architect, structural engineer and various services engineers each incorporating elements of the fire design and coordinated with the fire engineer.

This opinion incorrectly assumes documentation is design. Consider the kind of activities undertaken by fire engineers. Reports from 22 consultants were surveyed and the frequency of alternative solutions noted [6]. Each report considers multiple issues so these do not sum to 100%. The sample size is small and concentrated in geography and time but nevertheless useful in illustrating the point that these are 'design' activities.

The survey found:

- Fire resistance levels reduced/eliminated 68%.
- Travel distance increased 66%.
- Smoke exhaust volume reduced/eliminated 42%.
- Sprinklers reduced/eliminated 38%.
- Exits (reduced width/aggregate width/height) 34%.
- Exit discharge not to an open space 32%.
- Fire hose reel modification 28%.
- Fire distance levels eliminated 22%.

These activities clearly and profoundly influence the design of a building, and are therefore a priori design activities.

[2] WHS Act 2011 (ACT), (NSW), (NT) and (Qld), WHS Act 2012 (SA) and (Tas), OHS Act 2004 (Vic), OHS Act 1984 (WA).