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Client Advisory Note June 2015:

Topics:

1. Substantially revised Fire Alarm and Smoke Control Standards for proposed adoption in NCC Volume One BCA 2016;

2. Independent review of Building Professionals Act 2005

1. For the first time in over 20 years there are major revisions occurring simultaneously in a series of essential services building standards. Because these standards are closely linked and cross referenced, they must all be published and called up in legislation at the same time. The fire detection standards are referencing new equipment standards which also require simultaneous publication.

In 2016 The National Construction Code (NCC) will publish the first three year edition of the Building Code of Australia (BCA). There will be no planned amendments for three years; the next revision is scheduled for 2019.

The major Standards under review are:

AS 1668.1 – 2015 - Fire and smoke control in buildings

AS1668.3 - Hot Layer Smoke Control Systems (to be withdrawn)

AS 1682.1 & 2 – 2015 - Smoke & Fire Dampers (reference to be included in AS1668.1)

AS 1670.1 – 2015 - System design Installation and commissioning - Fire detection, warning, control and intercom systems

AS 1670.4 – 2015 - System design Installation and commissioning - Emergency Warning and Intercom Systems

AS4428.16 - Emergency Warning Control and Indicating Equipment (reference to be included in AS 1670.1 and AS1670.4)

AS 2118.1 – 201x - Automatic Fire Sprinkler Systems.

Summary of changes:

The most significant changes relate to AS 1668.1 – 2015 - Fire and smoke control in buildings and AS 1670.1 – 2015 - System design Installation and commissioning - Fire detection, warning, control and intercom systems.

The changes largely align the different discipline requirements to similar standards. The intent is to improve practitioner knowledge by placing all the related requirements within a single Standard. Detection, control and indication in the electrical standard AS 1670.1, mechanical systems and power in the mechanical standard AS 1668.1.

AS 1668.1 – 2015 - Fire and smoke control in buildings

This is the first revision of AS 1668.1 – 1998 in 17 years and must occur simultaneously with the revision of AS 1670.1 as both standards cross reference.

The main changes proposed are:

1. A new Section 9. 'Hot Layer Smoke Control Systems' has been added. This new section addresses the requirements for smoke exhaust systems above the hot smoke layer such as typically found in Warehouses and Shopping Centres. Hot Layer smoke control systems are currently required and detailed in the BCA Part E2.2a & b. The intent is that Part E2.2b will reference Section 9 of AS 1668.1 in future BCA revisions. These systems were also previously defined in AS 1668.3 (which was never referenced in the BCA) which will now be withdrawn.

2. The function of carpark ventilation systems and control methodologies has been revised. The application of mechanical air moving devices such as Jet fans, shutdown and control has been included under **Section 5 *'Miscellaneous systems'***.

3. The requirements for smoke detection, initiation of smoke control systems, Fire Fan Control panels, Control and indication and interface to mechanical systems has been deleted from AS 1668.1 and are now included in a new **Section 7 *'Smoke Control'* of AS 1670.1 - 2015**. All references to detection; control and indication; and interface in AS 1668.1 will be cross referenced to the 'Smoke Control' section of AS 1670.1.

4. Mandatory requirements for baseline data and service access (removed from BCA) have been included.

5. Inclusion of requirements for flame and spark arresting in certain kitchen exhaust systems and a requirement that kitchen exhaust systems that are operating at the time of a fire trip MUST continue to operate.

6. Amendments to clarify various clauses in the previous edition which were often misunderstood.

7. AS1682.1&2-2015: Fire & Smoke Dampers will be referenced in AS1668.1-2015 and these standards shall be released shortly in draft form for public comment.

AS 1670.1 - 2015 - Fire detection, warning, control and intercom systems - System design Installation and commissioning .

This is the first major revision of AS1670.1 – 2004 in 11 years and must occur simultaneously with the revision of AS 1668.1 as both standards cross reference.

The main changes proposed are:

1. A major revision of control for fire and smoke doors to clarify requirements and bring AS 1670.1 into similar language as the BCA.

2. Simplification around faults which is now more universally applied across all transmission paths.

3. The addition of a new **Section 7** ***'Smoke Control'*** where the requirements for Smoke Control systems have been removed from AS1668.1. Requirements for smoke detection, initiation of smoke control systems, Fire Fan Control panels, Control and indication and interface to mechanical systems for smoke control systems have been included in this new section.

4. The function of carpark ventilation systems and control methodologies has been revised. The application of mechanical air moving devices such as Jet fans, shutdown and control has been included under **Section 7 *'Smoke Control'***.

5. Use of a new term "Circulation Space" in **Section 7 *'Smoke Control'*.** This term replaces the previous term "Occupied Space" which had a variety of interpretations. "Circulation Space" is a defined term detailed in Section 1 of the Standard. This term is used to define the required location of smoke detection for smoke control systems.

6. The deletion of return air smoke detection where point smoke detector spacing is reduced to 15 metres for general smoke detection for initiating smoke control systems.

7. Clarify initiation of Zone smoke control systems and multiple zone hot layer smoke control systems such that unintended multiple smoke control zone initiations from multiple sprinkler flow switch triggers are minimised.

8. Mandatory requirements for baseline data and Cause and Effects documentation have been included as this provides the documentation at the completion of installation that will be required to assess ongoing conformance in the Annual Fire Safety Statements.

9. A new **Section 9 *'Commissioning'*** has been added to better define commissioning testing and reporting requirements especially around systems interface testing 'End to end'. "End to end" is now a defined term.

10. A new **Section 8 *'Special Hazards Detection, Actuation and Control Systems'*** has been added. This section contains the requirements formerly contained in AS 4214 – Gaseous Extinguishing systems. This brings all detection and control into AS 1670.1.

11. Wiring systems requirements for sprinkler systems interfacing to detection systems are now clarified. All sprinkler systems transmission paths must be fire rated and supervised for faults

12. Changes to different types of warning systems with reference to a Grade 3 warning system defined in a new equipment standard for warning systems AS 4428.16. These systems were previously loosely defined with no performance specification.

13. Definitions have been expanded to define terms used within the standard and the adoption of new terms for clarity.

AS 1670.4 – 2015 - Emergency Warning and Intercom Systems - System design Installation and commissioning.

This is the first major revision of AS1670.4 – 2004 in 11 years and must occur simultaneously with the revision of AS 1670.1 as both standards cross reference.

The main changes proposed are:

1. Reference to three different grades of warning systems.

2. The addition of Visual Alarm Devices (VADs).

3. Changes that allow dispensation from voice intelligibility where VADs are installed in accordance with the standard.

4. A return to the use of the description 'Emergency Warning and Intercom System' (EWIS) from the previous description of 'Sound and Intercom System for Emergency Purposes'.

AS4428.16 - Emergency Warning Control and Indicating Equipment (reference to be included in AS 1670.1 and AS1670.4)

This is a new equipment standard for EWIS equipment and replaces the old 1989 AS 2220.1 and the 2004 AS 60849. AS 4428.16 must be published simultaneously with the revision of AS 1670.1 and AS 1670.4 as it is referenced in both. Both AS 2220.1 and AS 60849 will be withdrawn with advance notice probably from the 2019 BCA.

The main change is the standard now details requirements for three different grades of equipment; Grade 1, 2 & 3.

Grade 3 is the lowest grade which is equivalent to the previous non EWIS basic occupant warning systems that previously had no performance specification and therefore had no Agency verification for compliance.

Grade 1 is the highest grade and is equivalent in some areas to the old AS 2220 EWIS.

Grade 2 sits in between and has its application in Class 2 residential type buildings where there is unlikely to be any emergency management personnel to attend Warden stations in an evacuation.

This Standard is intended for manufacturers to be able to build and submit to this test specification for compliance 'Listing'.

AS 2118.1 – 201x - Automatic Fire Sprinkler Systems.

This sprinkler standard is also under review and has completed the public Comment stage. The final editing is unlikely to be completed in time for adoption in the BCA 2016 edition. This standard will likely be considered for the 2019 BCA reference.

Cost Impact of changes to the Standards:

The Australian Buildings Code Board (ABCB) requires Cost versus Benefit assessments to be completed for any proposed changes to Standards referenced in the BCA. The ABCB is constantly looking for ways to reduce the cost of construction. The notable exception being Appendix J.

The overall impact of the changes detailed above is cost neutral. There will arguably be some savings which will be achieved by adding clarity and reducing ambiguity to the requirements which in the past has led some practitioners to over specify.

2. Independent Review of Building Professionals Act 2005.

At the same time as the proposed introduction of the above revised standards, the NSW Government has commenced an independent review of the Building Professionals Act. The government has published a discussion paper in May 2015 and invited public comment which closes on 12 June 2015. The author of the discussion paper is Mr. Michael Lambert. The review is looking at the level of building defects and issues surrounding training, competency and registration / licensing of building practitioners.

The Forward of the discussion paper is copied here:

"Foreword

This discussion paper has been released to invite input on the review of the *Building Professionals Act 2005*. The *Building Professionals Act 2005* is an important part of the NSW building regulation framework directed at ensuring a safe, quality building product.

The NSW building and construction industry is a major industry employing broadly 255,000 full time equivalent employees, about 9.9 per cent of the total state labour force, contributing over $25 billion per annum to the gross state product or about 5.1 per cent of the total gross state product. It has been for the last few years a major engine of growth for the state economy and that is expected to continue.

There is a legitimate public policy and regulatory role in respect to the building industry, centred on achieving desirable planning outcomes as well as safety, health, amenity and sustainability of buildings and construction. Building regulation and certification plays an important role in achieving these objectives and is the subject of this review and this discussion paper.

Until 1998, NSW had a building permit scheme with councils having responsibility for assessing building proposals in respect to building and planning requirements. In 1998 the system of development consent and separate building approvals was replaced with certification, supported by the introduction of private certification in competition with certification by council officers. This led to the *Building Professionals Act 2005* (BP Act), the Building Professionals Board (BPB) and the *Building Professionals Board Accreditation Scheme* (accreditation scheme) which came into effect in 2007.

The purpose of this review is to evaluate the BP Act and its performance and to identify whether there are ways in which the certification scheme and building regulation in general can be improved. The terms of reference have been broadly set to allow consideration of the larger context of building regulation within which certification operates.

Building regulation is concerned with the establishment and maintenance of standards for building work (which here and hereafter covers new buildings and associated structures such as swimming pools, building systems, changes of use of existing buildings, alterations and additions, and subdivisions); setting requirements for the maintenance of building safety; and the setting and enforcement of building controls in general. Certification is part of building regulation and is concerned with ensuring that building work meets established standards and other administrative and regulation requirements.

There is a lack of adequate data on the level of building defects, that is, inadequate workmanship. NSW Fair Trading collects information on defects from complaints about residential building work but does not have a more general source of data on defects. Of the 8,000 complaints about construction matters received annually by Fair Trading, 2,000 relate to alleged building defects. The *City Futures Research Project* at the University of NSW estimated that approximately 80 per cent of buildings have defects but the survey on which the data is based is a self-reporting survey and may not properly represent the overall position.

The major areas where concerns have been raised about building defects are with fire protection and waterproofing, and the type of building where most concerns have been raised is multi-unit residential strata and community development.

Over the years there have been a number of inquiries which have examined aspects of the NSW building industry and more recently there was a review of the planning system with the release of the 2013 *White Paper: A New Planning System for NSW* (White Paper) and two exposure Planning Bills.

While these broader planning reforms have not proceeded, chapter eight (*Building regulation and certification*) of the White Paper included proposals for reform of building regulation and certification. While there were differences of view expressed about aspects of the proposed planning reforms, there was a broad consensus both about the need for building regulation and certification reform and the broad elements of what reforms should occur.

As part of the review process initial discussions have been held with key stakeholder groups. The next stage in the review process is public consultation which has been preceded by the release of this discussion paper.

We are looking to your views and suggestions on what are the key issues in building regulation and certification and the appropriate approach to addressing these issues.

Michael Lambert, April 2015."

Cee3 Pty. Ltd. comment.

We have long been concerned as to the competency of many fire industry practitioners. The fact that no nationally recognised structured trade training has taken place in the industry since the late 1980s is a major Cause of concern. This was when most of the internal structured training programs by companies like Wormalds, Fire Fighting Enterprises (FFE) and O'Donnell Griffin (ODG) ceased.

The state governments (except Queensland) do not recognise the various disciplines in the fire industry as 'registerable' or 'licensable' trades apart from a recognised Fire Engineering Registration system at the highest Degree qualification level. Fire engineers at the Degree level do not have the required trade and installation competency to provide services at these levels.

Whilst governments Nationally recognise the need to license Electricians, Plumbers, Gas fitters and Drain layers, no such recognition is applied to the fire protection disciplines in spite of an Industry White paper some years ago that clearly demonstrated the need and strongly recommended a licensing process.

Until such licensing or registration is implemented, there is no incentive for employers to train staff to raise the level of competency to achieve the required level for licensing or registration.

Our clients are experiencing significant levels of building defects on life safety essential services on buildings that have routinely been signed off as compliant. Because there is no registration or licensing process available in most Australian States there is no remedy other than under the Trade Practices Act or Common law for a building owner to take action against a fire practitioner. There is no practical method on which a building owner can assess competency other than by reputation and recommendation.

This is a serious issue since all Acts and Regulations place the onus of essential services and fire safety compliance responsibility on the building Owner. It is the owner under the Acts and Regulations that must ensure the engagement of competent persons when there is no structured means of assessing competency for the fire industry.

Cee3 strongly recommends its clients comment on the discussion paper via their peak representative bodies to lobby for licensing and / or registration based on competency assessments for all practitioners in the fire protection industry.

David Isaac

About the Author:

David Isaac has more than 44 years' experience in electrical systems design installation and commissioning for building services, heavy industrial installations and essential services systems including fire detection, smoke hazard management systems and warning systems.

David is a systems application specialist in his field, a registered Electrician and a Licensed Electrical Contractor.

David holds Post Trade electrical engineering Certificates in Building Services and Heavy Industrial installations.

David is an Australian Communications and Media Authority (ACMA) Registered communications cabler.

David has been trained and certified in numerous electrical detection and PLC and SCADA products over the last 40 years.

David was a member of the NSW Rural Fire Service from 1978 to 1989.

David is a member of the Australian Standards Committee FP-002 – 'Fire Detection, Warning, Control & Intercom Systems'. FP-002 writes the suite of Australian Standards on fire detection and alarm systems. David is also a member of Standards Sub-Committee ME-062 advising the committee on the electrical performance and compliance issues for AS 1668.1 'The use of ventilation and air-conditioning in buildings Part 1: Fire and smoke control in multi-compartment buildings' and AS 4428.7 'Fire detection, warning, control and intercom systems—Control and indicating equipment Part 7: Air-handling fire mode control panel'.

David is also a member of the Fire Protection Association Australia (FPAA) Technical Advisory Committee TAC/2, a former FPAA representative to Australian Communications Industry Forum Cabling Advisory Group (ACIF/CAG) which writes the communications industry cabling Standards and a member of the Audio Engineering Society.

In the last 30 years David has worked in private consulting, advising corporations on fire safety measures and held senior management roles for major international fire detection system manufacturers.

In the last 18 years David has been an active participant in Fire Industry Associations and the Standards writing processes in Australia.

David is a consumer advocate and has published several articles on the imperative of uniformity and Code compliance of life safety systems.

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