Summary of NCC 2016 Changes

Research carried out for the ABCB showed that the NCC, though designed to be performance based, was not working as such, and therefore hampering over $1 billion of productivity gains that could potentially be realised.

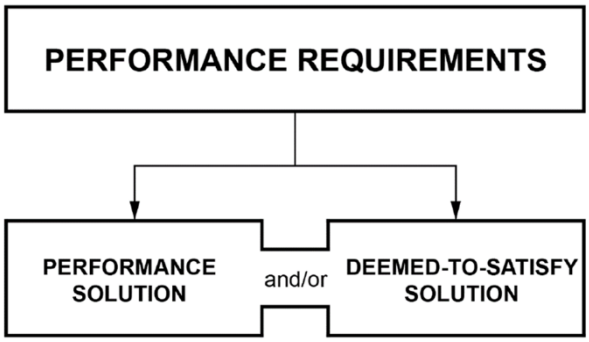
This resulted in changes being made.

One of the changes was to quantify NCC Performance Requirements. The purpose of this is to endeavour to develop a performance mindset.

Performance Requirements are the mandatory requirements of the code and specify the minimum level of performance for all buildings.

Industry feedback suggested that the performance-based code was difficult to understand, so the former hierarchy pyramid diagram in the building code was removed and replaced with the one below.

The diagram below clearly shows that the Performance Requirements are achieved by a Performance Solution, a Deemed-to-Satisfy (DtS) Solution, or a combination of both. (Note the term 'Alternative Solution' is no longer used and has been replaced with 'Performance Solution'.)



A Performance Requirement can be satisfied through a Performance Solution or a Deemed-to-Satisfy (DtS) Solution or a combination of both.

A Performance Solution is defined as any solution that can meet the Performance Requirements, other than a DtS Solution. A Performance Solution may differ in whole or in part from the DtS Provisions, but will still meet the Performance Requirements as long as it can be successfully demonstrated how this will be achieved.

A Deemed-to-Satisfy Solution uses the DtS Provisions and any referenced documents contained within the NCC. These provisions include prescriptive examples of materials, products, design factors, construction and installation methods, which if followed in full, are deemed to comply with the Performance Requirements of the NCC.

It is hoped that by clarifying the Performance Requirements and shifting emphasis from the prescriptive aspects of the NCC, that the use of Performance Solutions will increase leading to more efficient, innovative and cost effective design solutions and ultimately result in greater productivity for the construction sector.

Inclusion of Photoluminescent Exit Signs into NCC 2014

Increasing international acceptance of photoluminescent exit signs for use in egress systems in buildings overseas together with a demand for low cost and energy efficient systems prompted the ABCB to consider the inclusion of photoluminescent exit signs in the NCC. The ABCB recognised that with low installation and maintenance costs, little reliance on backup electrical supply, a high level of redundancy and low ongoing running costs, photoluminescent exit signs were an innovative option for exit signage. Consequently new provisions were made in NCC 2014 to allow for the use of photoluminescent exit signs as an alternative to internally illuminated signs.

E4.8 Design and operation of exit signs had a sub-clause (in bold) added to acknowledge this.

Every *required* exit sign must comply with-

(a) AS2293.1; or

(b) for a photoluminescent *exit* sign, Specification E4.8; and

be clearly visible at all times when the building is occupied by any person having the right of legal entry to the building.

Specification E4.8 outlines specific provisions relating to illumination, size, pictorial elements and viewing distance.

Where the provisions for photoluminescent exit signs significantly differ from those for electrical exit signs is in the illumination requirements (detailed below) which are designed to ensure that photoluminescent exit signs are adequately charged in the event of a power failure.

Clause **3. Illumination** of Specification E4.8 states:

A photoluminescent *exit* sign must-

(a) be maintained in a continuously charged state by a minimum illumination of 100 lux at the face of the sign by a dedicated light source with a colour temperature not less than 4000K; and

(b) in the event of a power failure, continue to provide a minimum luminance of 30 mcd/m^2 for not less than 90 minutes; and

(c) have its performance verified by testing in accordance with ASTM E2073-10, except the activation illumination in clause 8.3 is replaced with 54 lux.

Note that while E4.8 'Design and operation of exit signs' is a DtS provision, the Performance Requirement EP4.2 can also be met via a Performance Solution that can integrate charging sources of less than 100 lux.

NCC 2016 Part E4 VISIBILITY IN AN EMERGENCY, EXIT SIGNS AND WARNING SYSTEMS (formerly Emergency Lighting, Exit Signs And Warning Systems)

It was recognised that EP4.1 was potentially preventing innovation by limiting visibility in an emergency to that provided by lighting only. Therefore 'lighting' was replaced with 'visibility' in NCC 2016 to enable innovation through alternative systems.

Further to this change, and to encourage the use of Performance Solutions, two new sub-clauses (in bold) have been introduced into Performance Requirement EP4.1 as follows:

To facilitate safe evacuation in an emergency, a building must be provided with a system that-

(a) ensures a level of visibility sufficient to enable *exits*, paths of travel to *exits* and any obstacles along a path of travel to an *exit* to be identified: and

(b) activates instantaneously upon the failure of an artificial lighting system,

to the degree necessary, appropriate to-

(c) the function or use of the building: and

(d) the *floor area* of the building: and

(e) the distance of travel to an *exit*.

NCC 2016 A1.7 (b) clarifies what is meant by **the degree necessary** -
'A reference in a *Performance Requirement* of the BCA to "the degree necessary" means that consideration of all the criteria referred to in the *Performance Requirement* will determine the outcome appropriate to the circumstances. These words have been inserted to indicate that in certain situations it may not be necessary to incorporate any specific measures to meet the *Performance Requirements*.'