

The trouble with Section J

In 2000, as part of the Australian Government's greenhouse gas reduction strategy, and with the support of all State and Territory Governments, the introduction of minimum energy performance standards in the Building Code of Australia were agreed to. Eight years on, Section J continues to mystify some, and frustrate others.

The introduction of Section J to the BCA was a slow process. After agreement in 2000, it took three years before these standards were introduced for detached residential buildings, and another two years before multi-residential buildings were also included.

A year later, in 2006, Section J became part of the BCA for all buildings, and while no-one could argue its intention, it seems many in the HVAC&R industry still can't get their heads around its demands.

In fact, so misunderstood is Section J that this article was intended to be a round-table discussion between industry members on the subject, until willing participants became harder to find than a Wii on Christmas eve.

It was our original intention to bring members from different industry segments together to talk through the challenges of Section J, as it relates to fans and pumps, but it didn't take long to realise this wouldn't happen – no one was prepared to talk about it.

The first to say no was the Australian Building Codes Board, who politely declined to respond to a range of questions for this article. Similar responses from contractors and facilities managers followed.

While it is recognised that the ABCB 'only' administer the Code, with each state responsible for its implementation in law, the fact that the ABCB declined the opportunity to communicate through one of the industry's most widely read publications, is perhaps a reflection of why Section J remains largely misunderstood, and in some cases, ignored.

According to Stuart McLennan, director with Progressive Building Solutions, specialists in Victorian and national building regulatory systems, the industry has struggled to understand and correctly apply the requirements of Section J since its introduction.

"There are some organisations that are approaching the task in a competent manner, however, the changes when they were introduced were significant and there has not been the necessary industry up-skilling to ensure the requirements are applied in a competent and professional manner," explains McLennan.

"While some mechanical engineers may be coping, other professionals that are not familiar with the concepts introduced in Section J are struggling to adapt. Many, I believe, see it as an inconvenience and will do the least amount of work to achieve compliance."

Therefore it seems clear the reason few will talk publicly about Section J is that many just don't understand it.



Simon Bradwell

While ignoring Section J has been an option in some states (the Victorian legislation allowed a work-around until recently), McLennan believes the issue sits with a lack of communication, and effective training on the subject.

He says many of the problems of compliance on site trace back to poor documentation in initial design stages and the failure to issue building permits with all aspects of compliance clearly documented.

"Training is required at all levels, although, perhaps, to a lesser extent for engineers. It is essential for architects, building surveyors, builders, contractors and the like, because if they don't understand the requirements and the obligations and expectation of other practitioners then they will not be able to apply the requirements in a competent manner."

The effect on building surveyors

This void in communication and training is also leading to another issue. Not only do industry practitioners not understand the Code, but building surveyors are also struggling to adapt.



Stuart McLennan

"It will take time for building surveyors to understand the provisions. Unfortunately there has been insufficient training on how to work with the new requirements and this has led to an ad-hoc approach and often created confusion as different building surveyors will require different levels of information for compliance."

It also seems the qualifications of some practitioners working in the area of BCA compliance reports remain questionable. An AIRAH member who asked not to be named was amazed that a nurse recently acquired accreditation to provide FirstRate assessment reports although they had no construction industry experience.

According to McLennan, cheaper assessments and compliance reports are being offered by people with little understanding of the requirements. He says this not only reduces the commercial viability of those wishing to provide a quality service and product, but also undermines the intention of the Code.

He says the building owner is left with a poorly performing building and from a societal perspective opportunities to save on greenhouse gas emissions will be lost.

"This failure to apply the provisions correctly is undermining the validity of the provisions as well as lowering the standard," he asserts.

Course info

Vocational Graduate Certificate in Energy Efficient HVAC Design

The first module of AIRAH's new *Vocational Graduate Certificate in Energy Efficient HVAC Design* includes a topic on Section J of the BCA.

The first module, *Ensure compliance with mechanical services codes, standards and rating schemes for heating, ventilation and air-conditioning (HVAC) systems design*, will give candidates a comprehensive analysis of the Building Code of Australia (BCA) Deemed to Satisfy energy efficiency requirements and verification requirements.

"At the conclusion of the module, candidates will be able to interpret the BCA Section J equivalents and apply them with confidence," says AIRAH course manager, Carolyn Hughes.

For more information about AIRAH's new Vocational Graduate Certificate in Energy Efficient HVAC Design, visit www.airah.org.au or contact course manager, Carolyn Hughes on 03 8623 3000.

"Section J is being used as a specifying tool by some building consultants but without reference to the inaccuracies or the detail. For example, it is understood that there are errors in evaporative and condenser fan power consumption figures," he says. Section J 5.2 and 5.4 and the limited use of specific fan power are areas that also concern him.

While Bradwell says there had been no impact on manufacturers from these inaccuracies as high efficiency solutions are readily available, he assumes the guidelines are not being policed.

Like McLennan, Bradwell believes communication remains a problem.

"All industry wants to see this work and move in the right direction for all parties; this is a great opportunity for all of us and we should get it right."

Where to from here?

Despite the obvious lack in communication, there is some help out there.

According to McLennan, the Building Commission in Victoria recently conducted a state-wide seminar series providing further education on Section J, which he says was a positive initiative. Other states have also conducted seminars, while they all provide phone advice, as does the ABCB.

"However, it is often difficult to get the type of advice you need (over the phone) and within the time lines. This will improve as industry become better informed of the requirements."

The ABCB website (www.abcb.gov.au) does however feature a Frequently Asked Questions section on energy efficiency, as well as information explaining the background of application of the provisions.

If you would like to participate in further discussion on Section J of the BCA in HVAC&R Nation®, we would like to hear from you. ▲

Energy efficiency FAQ

We've selected a couple of Frequently Asked Questions from the BCA Awareness Resource Kit Module Four: *Understanding Energy Efficiency Provisions for Class 2 and 9 Buildings – Frequently Asked Questions*. Visit www.abcb.gov.au for more information.

Question 11

The plant room on my building has outside air louvers so how do I meet the sealing requirements?

Answer

External louvre doors and windows are exempt from sealing requirements due to gaps between each individual shutter being difficult to seal completely and due to availability of manufacturers' sealable systems that may be used in these applications. Also a plant room is unlikely to be a conditioned space and so not require sealing.

Question 12

If a building has a number of small air-conditioning units making up a system, do I have to put an outside air cycle on them all?

Answer

For a building located in climate zones 3, 4, 5, 6, 7 and 8 with a larger air conditioning unit (over 65kW_r for climate zone 3 and 50kW_r for the other climate zones) then an outside air economy cycle must be provided on the air conditioning unit. This will facilitate free cooling by the utilisation of external air when the internal temperature is significantly lower than desired comfort levels.

However when a number of small units make up a system of over 65kW_r in climate zone 3 or 50kW_r for those other climate zones listed then each does not have to have an outside air economy cycle.

Please note there are some exceptions which will be addressed in Question 13.

Question 13

It appears that I don't have to put an outside air cycle on air-conditioning plant serving restaurants and theatres – is this correct?

Answer

Yes this is correct.

Class 6 restaurants, bars, cafes and Class 9b buildings are exempt from having an outside air economy cycle for the air-conditioning system. The concession recognises that such buildings require very high outside air rates anyway, therefore the added costs for dampers and controls cannot be justified.

Question 15

Who can certify my Section J design?

Answer

The Building Control Authority is responsible for approving buildings. However, in many jurisdictions Building Control Authorities may rely on certification from a specialist, such as an energy efficiency specialist, when making their determination.

Legislation in some States and Territories requires such specialists to be registered. It is recommended that the relevant State or Territory Building Administration be contacted to obtain the applicable requirements.

Despite the ongoing communication issues, McLennan says there are a number of ways practitioners can ensure a better result.

"Firstly, adjust your documentation and provide a summary sheet for Section J compliance (for instance, from a mechanical engineering perspective, this would answer each of the questions raised in Section J relating to HVAC). Ensure the building permit application contains all relevant Section J compliance information. This will include manufacturer's test data where appropriate."

"Thirdly, ensure the design performance levels of equipment are clearly detailed to allow ongoing maintenance."

Errors add to the challenge

Some parts of Section J are also ruffling feathers due to suggested inaccuracies in the detail. Industry scuttlebutt only adds to the confusion and frustration.

One manufacturer who believes there are inaccuracies in Section J relating to fan power consumption figures is Simon Bradwell, managing director of fan manufacturer ebm-papst Pty Ltd.