Building and Development
Dispute Resolution Committees—Decision

Sustainable Planning Act 2009

Appeal Number:	**03 - 16**
Applicant:	Queensland Fire and Emergency Services (QFES)
Assessment Manager:	TT Building Surveyors Pty Ltd (TTBS)
Concurrence Agency: (if applicable)	QFES as Advice Agency
Site Address:	81-103 King Street, Caboolture and described as Lot 1 on RP13950, Lot 5 on RP206133 and Lot 5 on RP849228 – the subject site

Appeal

Appeal under section 528 of the *Sustainable Planning Act 2009* (SPA) brought by the QFES as an Advice Agency against the decision of the Assessment Manager to grant a development permit for building work in an existing residential care building on the subject site. The QFES is appealing the development permit for building work issued by the Assessment Manager approving an alternative solution under the Queensland Development Code MP 2.3 - Fire Safety in Existing Residential Care Buildings (Pre 1 June 2007*)*(QDC MP 2.3)*.*

Date and time of hearing:	10.00am Thursday 10 March 2016
Place of hearing:	Building Codes Queensland Office, Mineral House, Level 16 / 41 George Street, Brisbane, Queensland
Committee:	Samantha Hall – Chair Lauren Turner - Member Mark Anderson - Member
Present:	Steven McKee (QFES) – Applicant Ted Simmons (QFES) - Applicant Peter Milne (QFES) - Applicant Dennis Taylor (QFES) - Applicant John Harrison (QFES) - Applicant Shawn Brosnan (TTBS) - Assessment Manager Ashley Trost (TTBS) - Assessment Manager Leigh Clark (Defire) Jason Jeffress (Defire) James Mantis (RSL Care - owner of the site) Vicki Eckart (RSL Care - owner of the site)

Decision:

The Building and Development Dispute Resolution Committee (Committee), in accordance with section 564(2)(b) of the SPA, changes the decision of the Assessment Manager to give the development approval. The Committee has decided that the development approval should be given subject to the following additional condition:

“13. Prior to the final inspection, the applicant for this development must provide an amended Alternative Solution Report described as Defire Job no. BR130093, Issue date 29/9/2015 that:

(a) requires in section 5 (Fire safety measures), that either of the following additional measures must form part of the alternative solution:

(i) To reduce travel distance for responsible persons, the report must identify:
   a. the location of BCA compliant additional gates and doors to be installed to provide access between the covered walkways and adjoining hostel blocks; and
   b. the alternative doors to be used by the responsible persons in adjacent blocks; or

(ii) Identify other measures that will increase the factor of safety from 1.01 to 1.25, such as reduced spacing of smoke detectors; and

(b) more clearly identifies in table 1 (QDC requirements associated with the alternative solutions) and table 7 (BCA requirements associated with the alternative solutions), how acceptable solution A1 is not achieved and how the alternative solution is equivalent to that acceptable solution.”

Background

Description of proposed development

The proposed development is an existing aged care facility called Fernhill Retirement Community, Caboolture which comprises a number of serviced apartments, residential aged care facilities and an administration building connected by covered walkways.

The residential aged care facilities comprise eight (8) single storey hostel blocks that were constructed prior to 1 June 2007.

The legislative framework

Section 30(1)(d) of the *Building Act 1975* (BA) relevantly provides that assessable building work must be carried out under the fire safety standard (RCB).

Section 231AE of the BA relevantly provides that the Queensland Development Code (QDC), part MP 2.3 - Fire Safety in Existing Residential Care Buildings (Pre 1 June 2007) (QDC MP 2.3) is the fire safety standard (RCB).

Section 14 of the BA relevantly sets out when building work complies with the QDC.

"Residential care building" (RCB) is defined in section 231AC of the BA, as comprising a building:

"(a) that is operated as a place of residence for 6 or more persons; and
(b) where at least 10% of the residents:
(i) need physical assistance in conducting their daily activities; and
(ii) would need physical assistance to evacuate the building during an emergency."

Section 231AD of the BA, sets out what are "assessment categories" for RCB's and relevantly provides that assessment category 2 includes RCB's that are of a type C construction with a rise of 1 storey.

As part of a Queensland government initiative to improve fire safety for a range of high-occupancy buildings, including RCB's, the QDC MP 2.3 came into effect on 1 September 2011.

QDC MP 2.3 is a mandatory part of the QDC which applies to all RCB's operating on 1 September 2011 and constructed before 1 June 2007, as identified in section 231AA of the BA.

The purpose of the QDC MP 2.3 is:

> "*to ensure that each residential care building to which it applies provides an adequate level of fire safety for residents and provides for the safe evacuation of those residents in the event of a fire threatening the building*."

Section 231AK of the BA, requires the owner of a RCB to obtain a fire safety (RCB) compliance certificate for the RCB within a specified period of time. For RCB's in assessment category 2, the fire safety (RCB) compliance certificate must be obtained before 1 September 2016.

The RCB's on the site

The following facts are undisputed by the parties to the appeal:

- The eight (8) single storey hostel blocks on the subject site are RCB's for the purposes of the definition in the BA (subject RCBs).
- The subject RCBs were constructed prior to 1 June 2007 and were operating on 1 September 2011.
- The subject RCBs fall within assessment category 2, being of a type C construction with a rise of 1 storey.

On or about 29 September 2015, the owner of the site, RSL Care, submitted a development application for building work for a minor alteration to the existing smoke detection system for the subject RCBs and for approval of an alternative solution to compliance with acceptable solution A1(1)(b) of the QDC MP2.3 (development application).

The development application was supported by a report titled "Alternative solution report" prepared by Defire, Revision R1.1, dated 29 September 2015 (Defire report).

The Defire report identified that the subject RCBs did not comply with acceptable solution A1 of the QDC MP 2.3 and therefore an alternative solution was proposed to comply with performance criteria P1 of the QDC MP 2.3 or to be at least equivalent to acceptable solution A1 of the QDC MP 2.3.

Pursuant to schedule 7 of the Sustainable Planning Regulation 2009 (SPR), the QFES is an advice agency for an alternative solution assessed against the relevant performance criteria in the QDC MP 2.3. The Assessment Manager referred the Defire report to the QFES as advice agency.

By 8 separate letters each dated 28 October 2015, the QFES advised the Assessment Manager that the QFES assessed the RCBs as being "Non Compliant", providing the following comments in each letter:

> "*It is the opinion of QFES that the proposed Alternative Solution **does not** demonstrate that the identified non-compliance with QDC MP2.3 regarding staff ratios and travel distances meets the benchmark level of safety. Therefore a satisfactory level of occupant life safety is not achieved to satisfy the requirements of QDC MP 2.3 and is not supported by QFES."*

By decision notice dated 28 January 2016, the Assessment Manager granted a development permit for building work, deciding that the alternative solution proposed for the subject RCBs did

achieve compliance with the QDC MP 2.3 and noting that the QFES advice agency advice was not accepted as a condition of the approval granted for the following reasons:

> *"The Alternative Solution shows a support ratio and building life safety better than the Acceptable Solution outlined within the MP 2.3 Code and evacuation in a time frame more effective that [sic] that of the Acceptable Solution proposed in the Legislation.;"*

On 10 February 2016, the QFES lodged a Form 10, Notice of appeal with the Committees Registrar against the Assessment Manager's decision that the subject RCBs complied with the performance criteria P1 of the QDC MP 2.3, based on the following grounds:

- *"It is the opinion of the QFES that the Alternative Solution does not appropriately take into consideration deteriorating compartment conditions during a fire event;*
- *The Alternative Solution relies on staff assisted evacuation of up to 15 impaired occupants from a fire and smoke affected compartment in a fire emergency;*
- *The Alternative Solution predicts evacuation to be ongoing well beyond the time that, in the QFES' operational experience, conditions would become untenable for residents or staff;*
- *The deteriorating compartment conditions has the potential to:*
    - *Limit the ability for staff intervention resulting in an incomplete evacuation;*
    - *Expose staff, in addition to residents, to untenable conditions;*
    - *Place fire brigade personnel at greater risk if required to conduct extensive search and rescue operations, subsequently delaying fire-fighting activities."*

The QFES provided a written submission to the Registrar dated 7 March 2016, which narrowed the grounds of the appeal to the following two grounds:

> *"(a) The approved design poses an unacceptable life safety risk to residents and staff occupying the building.*
> *(b) The approved design is based on flawed engineering assumptions which invalidate the conclusion ultimately relied upon for approval that [QDC MP 2.3] Performance Criteria P1 has been satisfied."*

Material Considered

The material considered in arriving at this decision comprises:

1. 'Form 10 – Appeal Notice', grounds for appeal and correspondence accompanying the appeal lodged with the Committees Registrar on 10 February 2016.
2. Written submission prepared by the QFES dated 7 March 2016.
3. Fire incident photos and summaries tabled at the hearing, copies of which were provided by subsequent email from Ted Simmonds of the QFES to the Registrar, dated 10 March 2016.
4. Material provided in response to the Committee's query for additional information, provided under cover of email from Shawn Brosnan dated 29 April 2016.
5. *Sustainable Planning Act 2009* (SPA).
6. Sustainable Planning Regulation 2009 (SPR).
7. *Building Act 1975* (BA).
8. Queensland Development Code, part MP 2.3 Fire Safety in Existing Residential Care Buildings (Pre 1 June 2007), Publication Date: 14 June 2011 (QDC MP 2.3).

Findings of Fact

The Committee makes the following findings of fact:

The legislative framework

The QDC MP 2.3 is a mandatory part of the QDC which applies to the eight (8) RCB's on the subject site.

Under section 14 of the BA, compliance with the QDC MP 2.3 can be achieved only by (the compliance provisions):

(a) complying with the relevant *acceptable solution* for the *performance requirement*; or
(b) formulating an *alternative solution* that complies with the *performance requirement* or is shown to be at least equivalent to the *relevant requirement*; or
(c) a combination of (a) and (b).

These compliance provisions are repeated in the QDC MP 2.3 under the heading "Compliance with the QDC". The QDC MP 2.3 relevantly defines *acceptable solution* to mean solutions which are deemed to satisfy the performance criteria.

Performance requirement is defined in the BA to mean the performance criteria under the QDC.

Performance criteria is defined in the QDC MP 2.3 to mean the outcome that must be achieved for an element of the building.

The applicable acceptable solution and performance requirement for the purpose of this appeal is – *Fire suppression, smoke compartmentation and evacuation support*, which are articulated at performance criteria P1 and acceptable solution A1 of the QDC MP 2.3.

The QDC MP 2.3 also defines alternative solution to have the meaning given by the 2011 edition of the Building Code of Australia (BCA). Pursuant to the BCA, *alternative solution* means a *building solution* which complies with the *performance requirements* other than by reason of satisfying the *deemed-to-satisfy provisions*. The BA provides a similar definition.

Relevant requirement is defined in the BA to mean the acceptable solution for the performance requirement.

When applying the compliance provisions to this appeal, the subject RCBs are assessed against:

(a) acceptable solution A1 of the QDC MP 2.3;
(b) an alternative solution that complies with performance criteria P1 or is shown to be at least equivalent to acceptable solution A1 of the QDC MP 2.3; or
(c) a combination of (a) and (b).

It is common ground between the parties that the fire suppression, smoke compartmentation and evacuation support measures proposed for the RCB's on the subject site do not meet acceptable solution A1 of the QDC MP 2.3 and this is what triggered the development application and the preparation of the Defire Report.

Consequently, subsection (a) of the compliance provisions cannot be achieved in isolation.

Compliance with the QDC MP 2.3 can be achieved by formulating an alternative solution that either:

- complies with the performance requirement, being performance criteria P1 of the QDC MP 2.3; or
- is shown to be equivalent to acceptable solution A1 of the QDC MP 2.3.

Alternatively, compliance with the QDC MP 2.3 can be achieved through a combination of complying with acceptable solution A1 in part and providing an alternative solution in part, which either complies with performance criteria P1 or is equivalent to acceptable solution A1.

Technical issues

As noted above, the QDC MP 2.3 provides performance criteria and acceptable solutions for how to meet the performance criteria. The acceptable solutions provide a minimum standard that would be acceptable in order to meet the performance criteria.

The QDC MP 2.3 is split into 10 performance criteria. Performance criteria P1-P9 are separate requirements, each of which must be met by complying with the acceptable solution, complying with the performance criteria or providing an alternative solution that provides equivalency to the acceptable solution. Performance criteria P10 is an amalgamation of performance criteria P1-P9.

Performance criteria P1 of the QDC MP 2.3, which relates to fire suppression, smoke compartmentation and evacuation support, provides the following:

> "*P1 A residential care building has adequate fire suppression provided to control the development and spread of fire, or measures to prevent the spread of smoke from fire to maintain tenable conditions in evacuation routes during a fire, appropriate to:*
>
> *(a) the size and height of the building; and*
> *(b) high risk fire areas in the building; and*
> *(c) the number, mobility and any other characteristics of the occupants that may affect their ability to evacuate the building in an emergency; and*
> (d) *the number of responsible persons available to assist with occupant evacuation*."

Each of the subject RCB's is a single storey non sprinklered building constructed to a type C level of fire safety. The 8 blocks (set out as 2 groups of 4 blocks) are considered to each be a single fire compartment in their own right.

The Assessment Manager has accepted section 3.4 of the Defire report that the acceptable alternative solution for complying with the QDC MP 2.3 is not compliant with performance criteria P1 but it is instead providing a solution that is at least equivalent to the acceptable solution.

The acceptable solution requires that a management procedure be included in the subject RCBs' fire and evacuation plan that complies with Schedule 3 of the QDC and identifies the following:

- that the subject RCBs have the minimum support ratio of 1:5;
- the responsible person who:
    - records and assesses resident information; and
    - is responsible to ensure that the minimum support ratio for residents is maintained.

Minimum support ratio is defined in the QDC MP 2.3 to mean:

*"the ratio obtained by comparing the lowest number of **on site** responsible persons to the number of persons with an evacuation impairment accommodated in a smoke compartment*."

On site is also defined in the QDC MP 2.3 to mean, for a responsible person employed to work in an unsprinklered RCB:

"the person is working in an area the furthest point of which is located no more than 60 metres travel distance from an entrance of the smoke compartment in the building where residential care is provided".

Travel distance is defined in the QDC MP 2.3 to mean:

"the distance a responsible person can walk from the area they are working or occupying to the smoke compartment … without using mechanical assistance (e.g. lift)."

Responsible person is also defined in the QDC MP 2.3, for a residential care building to mean:

"a person without an evacuation impairment nominated by the owner, manager or service provider of a residential care building to provide evacuation support to the building's occupants and who is:

(a) on-site, alert and able to hear or otherwise immediately respond to an activation of the building's fire alarm at all times; and
(b) if asleep and on duty in the part of the building used to provide residential care, able to hear and immediately respond to an evacuation of the building's fire alarm at all times."

Statement of Facts

To comply with the QDC MP 2.3 and section 14 of the BA, the subject RCBs must either comply with acceptable solution A1 fully, or provide an alternative solution that either complies with performance criteria P1 or is at least equivalent to acceptable solution A1.

It has been accepted by the Committee that the subject RCBs and the responsible persons for the subject RCBs will not satisfy the acceptable solution and that an alternative solution to show equivalency as provided by the Defire report, was determined by the Assessment Manager to be an acceptable approach to adopt in order to show compliance.

The non-compliance was based upon the definition of 'on site' and the fact that the 'responsible person' may not be located within 60m of each of the smoke compartments entrances.

Content of the Defire report

To show equivalency, the Defire report had to develop a base and a proposed design. The obligation is only to show that the alternative solution (the proposed design) is no worse than the base design. The actual time taken to evacuate is only considered against a base design as a method of comparison. For a fully ambulant situation the time is considerable but the decision not to include total evacuation times in the acceptable solution A1 is outside of the scope of this appeal.

The Defire report bases its proposed design upon a nurse call system, enhanced fire indicator panel and staff response to fill the gap in evacuation time that the extra distance to be travelled by a responsible person to each of the smoke compartments developed. All staff would be notified of the location of the fire rather than going to the Fire Indicator Panel (FIP) to

locate the alarm signal. The FIP at present is located in the main building not in each individual block. This means that upon alarm actuation, a responsible person would normally have to go the FIP to determine the location of the alarm. The proposed system provides the location of a fire to the responsible person directly, as well as the normal evacuation auditory tones.

In section 3.4 of the Defire report, it is stated that the minimum support ratio for the subject RCBs is 1:14 (block 1) or 1:15 (blocks 3, 4, 6 and 7) for each individual smoke compartment. However, it is also stated that the overall staff ratio when considering all 8 blocks (set out as 2 groups of 4 blocks) together is 1:5. This means that there are three responsible persons on site for each of the 2 groups of 4 blocks, with a total of six responsible persons for the subject RCBs. This is further explained in appendix 3 of the Defire report. This has been determined by the Committee as acceptable given the maximum number of residents to patient ratio is still 1:5 (3 responsible people and 15 patients maximum).

In section 3.4 of the Defire report, it is stated that the minimum ratio of staff to residents for the subject RCBs cannot be met, although the ratio does meet the minimum requirement stated in acceptable solution A1 of the QDC MP 2.3. It is understood that another criteria is not being met, specifically the definition of “on site” in the QDC MP 2.3. This definition requires that the distance to be travelled by a responsible person from the furthest block within the complex where they are working to the entrance of another block being a smoke compartment, is to be no greater than 60m. In the case of the subject RCBs, it is approximately 74m travel distance in the worst case and therefore the acceptable solution cannot be met fully.

The on site travel distances of the subject RCBs are as follows:

- Block 1 has one compliant distance of 57m and two non-compliant distances of 67m
- Block 3 has one compliant distance of 54m and two non-compliant distances of 74m
- Block 4 has one compliant distance of 48m and two non-compliant distances of 68m
- Block 6 has one compliant distance of 53m and two non-compliant distances of 66m
- Block 7 has one compliant distance of 49m and two non-compliant distances of 65m
- Blocks 2, 5 and 8 have compliant on site travel distances to all associated blocks.

Table 7 in section 3.4 of the Defire report, states that the method of meeting the performance requirements is to show that the alternative solution is at least equivalent to the acceptable solution in the QDC MP 2.3 and this assessment would be shown through comparison methodology. The Defire report did not expressly state the acceptable solution to which the comparison would be made, that is, it did not state that non-compliance was with acceptable solution A1(1)(b). However, mention of acceptable solution A1 is made in sections 6.1 and 6.2 of the Defire report.

The “acceptance criteria” to form the basis of the alternative solution that is stated in sections 6.4 and 6.8 of the Defire report is to show that the occupants and staff will be able to safely evacuate from the subject RCBs in the event of a fire. The methodology adopted in section 6.4 of the Defire report is the comparison of the required safe egress time (RSET) for a compliant building against the RSET for the proposed building, in this case the subject RCBs. The Committee determined that this approach was acceptable.

The travel distances for a responsible person from the furthest point in each block to the entrance of another block is detailed in table 10 of the Defire report. The worst case is block 3, which requires a responsible person to travel 74m to its entrance. It is noted by the Committee that this is the worst case scenario.

It was also noted that there are 3 blocks that are fully compliant and that all other blocks have a combination of non-compliant blocks and compliant blocks with regards to the on site travel distances. The Committee has determined that the front entrance was used as the point of

reference to determine the furthest point. It was noted that there are multiple entrances to each block which would reduce the actual travel distance that a responsible person is likely to take in an emergency to closer to the compliant 60m. The Committee noted that 'entrance' was not defined in the QDC MP 2.3 and therefore other entrances could be used to access the smoke compartment. It is also noted that the 74m distance follows the covered walkway and does not cross the courtyard which would reduce the travel distance.

The Committee noted that calculation of the egress time was based upon 0.7m/s movement time which was considered acceptable based on the fire engineering guidelines. The delay period of 30 seconds adopted was questioned by the QFES as being unnecessary, however it is reasonable that staff will have to assess the situation before carrying out the evacuation and therefore the Committee determined this delay to be acceptable.

The Committee noted that the 120 seconds stated in the Defire Report to move the residents is referenced and based upon average times and upon empirical data.

The calculations detailed in appendix D of the Defire report considered three types of evacuation: one that is fully ambulatory, one that is non-ambulatory and one combined. This takes into consideration typical mixes of occupants within a RCB. The Defire report states that the time taken for non-ambulatory evacuation is approximately 30 minutes. The acceptable solution A1 makes no reference to the actual time to evacuate whether the residents are ambulant or non-ambulant. The Committee determined that it is incumbent on the fire engineer providing the fire engineering report to make an engineering judgement in the report that applies the Code of Practice for Registered Professional Engineers in Queensland and implements appropriate controls. The Committee determined that no comprehensive engineering judgement had been provided in the Defire report regarding the evacuation types.

To show equivalency, the Defire report had to develop a base and a proposed design. The obligation is only to show that the alternative solution (the proposed design) is no worse than the base design. The actual time taken to evacuate is only considered against a base design as a method of comparison. It is obvious that for a fully ambulant situation the time is considerable but the decision not to include total evacuation times in the acceptable solution is out of the scope of this appeal. Therefore the solution in the Defire report for each evacuation type demonstrates that each is better than the adopted equivalent base design. This is based upon the nurse call system, FIP proposed and staff response to fill the gap in evacuation time that the extra distance of up to 14m developed. All responsible persons would be notified of the location of the fire rather than going to the FIP to locate the alarm signal. This is considered acceptable by the Committee.

<u>QFES Objections</u>

The QFES disputed that the Defire report met the performance criteria in P1 of QDC MP 2.3, however the Committee determined that the alternative solution would be considered acceptable if it was at least equivalent to the management procedure set out in acceptable solution A1(1)(b), regardless of the performance requirements of performance criteria P1. This is stated in the section headed "Compliance with the QDC" of the QDC MP 2.3.

The Committee determined that tenability criteria stated in performance criteria P1 do not need to be considered if it can be demonstrated that the alternative solution provides equivalent or enhanced levels of management procedures to those identified in the acceptable solution. The Committee determined that performance criteria P1 only relates to acceptable solutions A1(1)(a) and (c) and not to A1(1)(b), as management procedures solely could not prevent the spread of smoke from a fire and maintain tenable conditions. Therefore the Committee determined that the approach adopted by the Defire report is an acceptable method to show compliance.

The Committee notes that performance criteria P1 is one of nine performance criteria to be addressed within the QDC MP 2.3 to ensure fire safety is met for the residents and the remainder of these include provision of an early warning system, provision of adequate emergency escapes, provision of compartmentation of high risk areas, provision of portable fire extinguishers, provision of hydrants for fighting the fire, provision of smoke hazard management, provision of emergency lighting, and exit signage. It is accepted by all parties that all other performance criteria P2-P9 have been met as none of these criteria formed part of the issues in dispute.

At the hearing, the QFES representatives stated that the QFES has a duty of care to the community and to its staff and that there may be situations where rescue cannot be undertaken. The Committee agrees that the QFES has a duty of care with limitations.

The QFES representatives further stated that the measures proposed in the Defire report do not provide any protection during evacuation of a fully developed fire in a block. The Committee agrees that this could occur however the acceptable solution makes no reference to this being taken into account and indeed, allows for a solution that does not include sprinklers or QFES intervention. Therefore the ratio of staff to patients, and acceptable and safe travel distance to the fire from another block must be considered to provide adequate evacuation time for both staff and patients without intervention by the QFES to demonstrate compliance with the QDC MP 2.3.

Fire service intervention is based upon a direct fire alarm signal to the QFES and then normal firefighting activities once on site. The QFES considered that the evacuation may not have been completed by the responsible persons by the time they arrived on site.

Assistance by the QFES during evacuation is not considered in either the performance criteria P1 or acceptable solution AS1. QFES intervention is considered later in the QDC MP 2.3 in performance criteria P7 which relates to firefighting water supply which as stated earlier, is accepted as compliant.

The statements in section 6.9 of the Defire report that the alternative solution proposed causes no adverse effect on the QFES is therefore accepted by the Committee.

Summary of technical findings of fact

When dealing with sensitive issues such as the young and elderly it is common practice to allow a factor of safety to travel distances and other such issues as they are considered slower and more vulnerable during an evacuation. However the International Fire Engineering Guidelines which QFES endorse, states that for the purposes of comparison it is not necessary to include explicit factors of safety because the same methods and assumptions for analysis would be used for both deemed to satisfy or prescriptive design and the proposed design. All the evacuation types considered by the Defire report showed that the evacuation was at least equivalent to the relevant criteria but there was only limited factor of safety in each.

Given the type of building occupant, it would have been prudent to have adopted a factor of safety such as the provision of reduced spacings of smoke detectors. The reduced spacing of smoke detectors would reduce the time to the actuation of the alarm. This would have been based upon engineering judgement as stated in the code of Conduct for Professional Engineers in Queensland.

A safety factor in the International Fire Engineering Guidelines 2005 is defined as:

> *"an adjustment made to compensate for uncertainty in the methods, calculations and assumptions employed in developing engineering designs."*

The Defire report has a limited factor of safety which means that the s calculated time for evacuation of the subject RCBs, is very close to the calculated time for evacuation of the base build, being a factor of safety of 1.01. It is considered that a factor of safety of 1.25 for the subject RCBs would provide increased time to evacuate and allow for uncertainty stated in the Defire report such as 'pre movement' time. This is based upon section 1.3 of the Code of Conduct for Registered Professional Engineers section 1.3 which provides as follows:

1.3. Health, welfare, and community safety:

A registered professional engineer must take reasonable steps to safeguard the health, welfare, and the safety of the community including:

(a) Identifying hazards

(b) Assessing micro and macro risks

(c) Implementing appropriate controls to manage risk."

The Committee considers that an increased factor of safety should have been provided in this instance in the Defire report to allow for uncertainty in the assumptions employed such as reducing the spacing of smoke detectors or that further measures should be undertaken which, when incorporated, would reduce the path of travel for a responsible person from the furthest point to the entrance of blocks 1, 3, 4, 6 and 7.

This could be in the form of the inclusion of BCA compliant gates and or doors to the covered walkway which would allow the responsible person to cross the courtyard and reduce the distance to around 60m by providing a more direct path to the blocks, as shown in Figure 4 of the Defire report. It was also noted that by using alternative doors, some staff may have considerably reduced travel times to the blocks and be able to commence evacuation more quickly. The Committee has determined that a factor of safety of 1.25 is appropriate in this instance.

Reasons for the Decision

Legislative framework

Compliance with the QDC MP 2.3 is mandatory for the eight (8) subject RCB's.

Under section 14(2) of the BA, compliance with the QDC MP 2.3 can be achieved only if the building work the subject of the development application complies with all relevant performance requirements under the QDC.

It is accepted by both parties that the building work the subject of the development application complies with all relevant performance requirements of the QDC MP 2.3, save for the *Fire suppression, smoke compartmentation and evacuation support* requirement which is articulated at performance criteria P1 and acceptable solution A1 of the QDC MP 2.3.

It is also accepted by both parties that the building work the subject of the development application does not comply with acceptable solution A1 of the QDC MP 2.3.

The issue considered by the Committee is whether the alternative solution proposed in the Defire report for *Fire suppression, smoke compartmentation and evacuation support* is sufficient to enable the building work the subject of the development application to be compliant with the QDC MP 2.3.

Technical issues

The alternative solution proposed in the Defire Report with the Committees' additional condition will achieve compliance with the QDC MP 2.3 as it provides an alternative solution that will be equivalent to acceptable solution A1 of the QDC MP 2.3.

The Committee therefore changes the decision of the Assessment Manager to give the development approval. The Committee has decided that the development approval should be given subject to the following additional condition:

"13. Prior to the final inspection, the applicant for this development must provide an amended Alternative Solution Report described as Defire Job no. BR130093, Issue date 29/9/2015 that:

(a) requires in section 5 (Fire safety measures), that either of the following additional measures must form part of the alternative solution:

   (i) To reduce travel distance for responsible persons, the report must identify:
      a. the location of BCA compliant additional gates and doors to be installed to provide access between the covered walkways and adjoining hostel blocks; and
      b. the alternative doors to be used by the responsible persons in adjacent blocks; or

   (ii) Identify other measures that will increase the factor of safety from 1.01 to 1.25, such as reduced spacing of smoke detectors; and

(b) more clearly identifies in table 1 (QDC requirements associated with the alternative solutions) and table 7 (BCA requirements associated with the alternative solutions), how acceptable solution A1 is not achieved and how the alternative solution is equivalent to that acceptable solution."

Samantha Hall
Building and Development Committee Chair
Date: 13 May 2016

Appeal Rights

Section 479 of the *Sustainable Planning Act 2009* provides that a party to a proceeding decided by a Committee may appeal to the Planning and Environment Court against the Committee's decision, but only on the ground:

(a) of error or mistake in law on the part of the Committee or

(b) that the Committee had no jurisdiction to make the decision or exceeded its jurisdiction in making the decision.

The appeal must be started within 20 business days after the day notice of the Committee's decision is given to the party.

Enquiries

All correspondence should be addressed to:

The Registrar of Building and Development Dispute Resolution Committees
Building Codes Queensland
Department of Housing and Public Works
GPO Box 2457
Brisbane QLD 4001
Telephone (07) 1800 804 833 Facsimile (07) 3237 1248