



Building and Development Tribunals – Decision

Integrated Planning Act 1997

Appeal Number:	3—08—052
Applicant:	Queensland Fire and Rescue Service (QFRS) – Community Safety Unit, Rockhampton
Assessment Manager:	Mr Dan Caldwell, private building certifier, Napier Blakely Pty Ltd
Concurrence Agency: (if applicable)	n/a
Site Address:	31 Brisbane Street (27 Gordon Street) Mackay described as Lot 1 on RP700907 and Lot 11 on RP745927

Appeal

Appeal under section 4.2.10 of the *Integrated Planning Act 1997* (IPA) against the issuing of a decision notice by the Assessment Manager and in so doing, rejecting the advice of the referral agency.

Date of hearing:	9am – Monday, 4 August July 2008
Place of hearing:	Department of Infrastructure and Planning, Level 3, 63 George Street, Brisbane
Tribunal:	Mr Russell Bergman – Member and subsequent replacement Chair Mr Chris Odgers – Hearing Chair
Present:	Mr Wayne Smith – QFRS representative Mr Ray Davidson – QFRS representative Mr Daryl Youngberry – QFRS representative Mr Stephen Burton – FERM Engineering representative Mr Keith Walton – FERM Engineering representative

Decision

The tribunal, in accordance with section 4.2.34(2)(b) of the IPA, **changes** the decision appealed against by **directing** that the building development approval be amended to include the following conditions:

1. provide access via a public corridor/passageway to two exits on each storey;
2. FERM Engineering to propose a regime of testing elements of the alternative solution; and
3. discontinue direct connection (entry access) to the manager's office off fire-isolated *Passageway 1* (Ground).

Background

This is a second appeal by the QFRS, Rockhampton on this project. The first was held on 11 October, 2007 (Building and Development Tribunal Appeal No. 03-07-055) and presided over by the same Tribunal members, Messers Odgers and Bergman. In the first hearing, in summary, the following forms a background to the key issues in dispute:

- due processes had not been followed including insufficient consultation and submissions made with the QFRS's office as a referral advice agency under the IPA;
- the building requires two fire-isolated stairs and that both of those stairs to be directly available to occupants at each storey including the attending fire service;
- evacuation safety for occupants (this includes attending fire services officers) under fire emergency conditions would be confusing and escape compromised due to (a) the configuration of the stairs over the lower levels in particular and (b) lack of direct access to two fire-isolated stairs being alternative means of escape. (*Note: the building does contain two fire-isolated stairs servicing all residential floors but only one stair is available to three or four sole occupancy units (SOU's) depending on location of the SOU door on Levels 4 - 11*);
- fire-fighting operations would be significantly and unacceptably diminished because of the fire-isolated stairs as a result of the design;
- there exists other design features with arguably detrimental impact and bearing upon life-safety and fire-fighting operations per the QFRS's submission as made.

As a result, the tribunal decided to confirm the first appeal in favour of the applicant (QFRS) and gave certain directions.

The building plans as supplied are largely unchanged in terms of floor layouts. They indicate a mixed-use building containing:

- 10 storeys of multi-residential living units and areas located from levels three to roof (inclusive);
- a roof storey of four private outdoor entertainment areas located at the very top of the building;
- three levels of carparking and service delivery use located one below and two above ground; and five street level commercial shop tenancies.

The building site has influenced the L-shape building footprint and provides for two street accesses (Brisbane and Gordon Streets) close to the nearby street corner intersection.

At the time of the first hearing, construction of the building was underway and the structure had reached approximately level three. At the time of the second hearing, the tribunal was advised that the contracted builder had defaulted and work was now ceased. It is understood that the site remains dormant.

As stated above, the fundamental floor layouts continue to be the basis of the building design.

Building Code of Australia (BCA) non-compliances with the deemed-to-satisfy are acknowledged by the Fire Safety Engineering Report. The building solution adopts a new alternative solution to address these non-compliances i.e. the performance-based solution has been continued. The previous provider of a fire-engineering report (basis of the 2007 appeal) has been disengaged and FERM Engineering has been commissioned to provide a new performance-based report supporting a new alternative solution. The details of the alternative solution are contained in the FERM Engineering Report titled "*Fire Safety Engineering Report – Multi-Storey Development – 'Latitude At Mackay' – 31 Brisbane Street, Mackay*" dated 8 June 2008 and Project ref: FN7166.

Material Considered

Material submitted in writing or relied upon was:

- IPA Form Notice of Appeal - Form 10 dated 17 July 2008 signatory Mr Wayne Smith, QFRS, Rockhampton.
- copy of Napier Blakely Pty Ltd Decision Notice – 4006318.PC2 (amended) and dated 7 July, 2008.
- copy of QFRS correspondence to Registrar of the Building and Development Tribunal *Appeal of decision notice by Napier Blakely Pty Ltd for the Development at Latitude in Mackay, 31 Brisbane Street, Mackay* dated 17 July 2008 and signatories Mr Wayne Smith and Mr Raymond Davidson;
- QFRS correspondence to the Registrar, Building and Development Tribunal dated 17 July, 2008 (ref: M07-098) outlining the basis and purpose for the appeal;
- copy of QFRS correspondence to Napier Blakely Pty Ltd “*QFRS Response, Fire Safety Engineering Report (FSER), FERM Engineering – Revision 1 (08-06-08) Proposed Building - Latitude at Mackay, Brisbane and Gordon Streets, Mackay*” dated 7 July, 2008.
- copy of FERM Engineering Pty Ltd – “*Fire Safety Engineering Report – Multi-Storey Development “Latitude at Mackay” - ref no: FN7166 – FEB Rev 2*” dated 08-06-08;
- copy of FERM Engineering Pty Ltd – “*Fire Safety Engineering Report – Multi-Storey Development “Latitude at Mackay” - ref no: FN7166 – FEB Rev 1*” dated 08-06-08;
- copy of QFRS correspondence to Napier Blakely Pty Ltd “*QFRS Response, Fire Safety Engineering Brief (FSEB), FERM Engineering – Revision 2 (27-03-08) Proposed Building - Latitude at Mackay, Brisbane and Gordon Streets, Mackay*” dated 30 April, 2008.
- copies of floor plans, sections and elevations with the following architectural plans:
 - Dwg no. A-010/44 – Floor Plan Level 1B
 - Dwg no. A-012/38 – Floor Plan Level 2
 - Dwg no. A-011/48 – Floor Plan Level 1
 - Dwg no. A-013/29 – Floor Plan Level 3
 - Dwg no. A-014/28 – Typical Floor Plans Level 4 to 10
 - Dwg no. A-015/19 – Floor Plan Level 11
 - Dwg no. A-016/16 – Floor Plan Level 12
 - Dwg no. A-017/10 – Roof Plan
 - Dwg no. A-030/10 – North Elevation
 - Dwg no. A-040/11 – Section A
 - Dwg no. A-041/13 – Section B
 - Dwg no. A-042/11 – Section C
 - Dwg no. A-043/14 – Section D
- BCA 2005 (as basis for assessment)
- The *Building Act 1975* (BA)
- The IPA
- Building and Development Decision 03-07-052 dated 14 October, 2007 (reviewed for information only).

Findings of Fact

The tribunal makes the following findings of fact:

- Deemed-to-satisfy provisions are minimum requirements of the BCA that would satisfy compliance for both passive and equipment systems for the building of this kind. In short summary, these are highlighted as a benchmark guide in the following table.

Item	Requirement	References
Classifications	Class 2 – residential and roof entertainment spa area (special structure – minor related residential uses only, manager’s office is ancillary minor use to main storey Class 7a use <10% i.e. not separately classified) Class 6 – shops Class 7a – carparking	BCA A3.2, A3.3 and s120 of the BA
Rise-in-storeys	12 (this includes the roof as a storey)	BCA C1.2
Type of Construction	Type A	BCA C1.1, Spec C1.1
Effective height	31.5m (RL’s 36.60m – 5.60m)	BCA A1.1
Fire-isolated stairs	required	BCA D1.2 and D1.3
Travel distances from SOU’s	max 6m Levels 4 – 11 under present design scheme	BCA D1.4
Fire hydrants	required	BCA E1.3
Fire hose reels	required	BCA E1.4
Fire sprinklers	required	BCA E1.5
Fire control centre (not a fire control room per BCA 2005)	required	BCA E1.8
Stairwell pressurisation	required	BCA E2.2, Spec E2.2a
Smoke detection and alarm system	required	BCA E2.2, Spec E2.2a
Emergency lifts	required	BCA E3.4
Emergency lighting	required	BCA E4.2
EXIT signs	required	BCA E4.5 and E4.7 (class 2)
EWIS (BCA 2005)	required	BCA E4.9

- The fundamental floor plates, partition layouts and stair configurations continue to be the proposed basis of the building design.
- The proposal has included additional measures, significantly mechanical, sensing and detection equipment, for the creation of pressurised stair and lift lobbies. This is by the inclusion of air from the fire-isolated stair into these spaces via a dampered opening in the stair shafts and by considerations such as pressure effects due to an open door to a SOU etc.
- Further to the above, a level of *redundancy* has been built-in meaning, the provision of additional or duplicate or backup systems, equipment and the like that function in the event of an operating system failure or part failure.
- The FERM Engineering Report does not model an equipment malfunction event, for example, failure of the fan to boost lobby pressurisation to required levels or impacts as may result in over-pressurisation of a floor lobby.
- Similarly the same level of access to safe/safer havens and alternative hydrant points are not possible. The QFRS is concerned about the protection of fire-fighters and impacts on their operations. i.e. the ability to effectively perform fire-fighting tasks including access to the other fire stair as an optional place of safety, hydrants, removal of encumbrances and job distractions such as occupant evacuation.
- s68A of the BA remains not addressed i.e. no statement of reasons for accepting the alternative solution by the building certifier.

Reasons for the Decision

Safety via means of escape and safety and effectiveness for fire-fighting.

The alternative solution mentions (p10, [4] Legislation) a number of BCA performance requirements. These are listed as CP9, DP4, EP1.1, EP1.2 and EP2.2. However, the following performances clauses have also been considered as key to this issue:

BCA 2005 – DP5

To protect evacuating occupants from a fire in the building *exits* must be fire-isolated, to the degree necessary, appropriate to—

- (a) the number of storeys connected by the exits; and
- (b) the *fire safety system* installed in the building; and
- (c) the function or use of the building; and
- (d) the number of storeys passed through by the exits; and
- (e) *fire brigade* intervention.

While the need for fire-isolation has not been an issue for dispute, the purpose of fire-isolation for assisting fire brigade intervention (DP5(e)) is highlighted.

BCA 2005 – EP1.3

A fire hydrant system must be provided to the degree necessary to facilitate the needs of the *fire brigade* appropriate to—

- (a) fire-fighting operations; and
- (b) the *floor area* of the building; and
- (c) the *fire hazard*.

While the need for the provision of fire hydrants has not been an issue for dispute, the degree of access to facilitate fire-fighting operations (hydrant access) (EP1.3(a)) in dealing with the fire hazard (EP1.3(c)) is highlighted.

Concerning directive #1, by removal of the opportunity for direct access to both stairs (Levels 4 to 11) on each storey then the capability for intervention by the QFRS (stated as Sub-system F) to perform their duties is diminished when measured against the deemed-to-satisfy provisions.

Access to two exits on each storey – Levels 4 - 11

The tribunal takes the position that the appropriate and intended application of BCA D1.2(b)(i) is that where a minimum of two exits are required per storey for a Class 2 building with an effective height of greater than 25m then these exits shall be alternate to each other on that same storey and for each storey. This concurs with the previous tribunal decision 03-07-052 dated 14 October, 2007.

Therefore, for persons seeking egress from a level between Levels 4 - 11 in the building, they are not afforded a complying alternative means of escape from the floor if there is only a single exit. In essence, on these levels, they must use one exit to gain access to the second exit travelling (mostly) upwards.

The BCA Guide 2005 states “*The purpose of regulatory control over exits in a building is to maximise the opportunities for people to have egress from the building in an emergency.*” and “*Egress from some buildings can be very difficult (for example, particularly tall or large buildings or even small buildings which have a complex passageway design). It may be necessary to provide several alternative exits.*” Directive #1 may negate the proposal by FERM Engineering that has sought to address this BCA D1.2(b)(i) issue, as the major focus of the FSER alternative solution. This would effectively mean a deemed-to-satisfy outcome. However, the tribunal takes the view that the relevant BCA performance requirements (other than DP5(e) and EP1.3(a) as stated above) may well be addressed by the design as devised but subject to an appropriate and agreed regime of proof testing.

Standard of provision for fire-fighting operations and the fire hazard

Ready access to both fire-isolated stairs is a primary issue for the QFRS. This could be required at any level in the tower or from street ground level up to a fire affected floor. The alternative solution does not demonstrate an equivalent level of provision to the deemed-to-satisfy for fire-fighting operations. The level of same, convenient access to fire hydrant points and hose rollouts or places of retreat if there was provided a connecting passageway on each floor, the deemed-to-satisfy standard, has thus been diminished.

Safety via means of escape and safety and effectiveness for fire-fighting

As previously mentioned, BCA D1.2 and D1.3 state that where a Class 2 building is above an effective height of 25m then two fire-isolated exits are required. These stair systems are provided for discharge (and emergency access if necessary) from the tower to open-space and the connecting road. The alternative solution does recognise the need of two fire-isolated stairs to service the footprint of the residential tower but not to have access to two stairs on each storey.

Because of the questions concerning some safety aspects, the tribunal considers it necessary to direct that the design be amended to add the opportunity for unimpeded cross-over access in the tower. This is given the current cessation of construction and the ability to incorporate, the nature of the fire-resisting construction and consideration of the minimum requirements as expressed in for a deemed to satisfy building solution.

It is recommended however, that FERM Engineering could further investigate provision of reduced access between fire-isolated stairs benefiting general occupants as well how the QFRS could perform their emergency services duties. For example, should the alternative solution consider some transitions be provided at least at levels 6 and 9 while addressing fire-fighting operations? As access is already available at levels 3 and roof, this equates to a worst case of a maximum upward travel in a stairway of no more than two storeys to presumably a place of safer escape. Downward travel in the fire stair remains available to be determined by occupants. Given added attention to processes and consultation, this may prove to negate the need for alterations to most floors and in particular, Level 11 (penthouses), a difficult floor to re-plan for a connecting passageway.

Advice proposal as to testing

Concerning directive #2, the alternative solution / FERM Engineering shall give a proposal as to the testing and acceptability of design outcomes. For example, when measured as a fair test against tenability assessment criteria section [8] of the FSER. It is not considered reasonable to leave testing toward the project end and largely be up to the QFRS. The design as proposed is complicated but it is not the QFRS's design. In the light of standard testing procedures, FERM Engineering shall provide a test plan of all major elements to the QFRS in sufficient time to review, discuss and agree such plan. Note: This is subject to further decisions by the applicant for the development about the design.

The alternative solution as presented does include significant additional measures but are not limited to voice-over, mechanical, detection sensing and controlling equipment. Central to the alternative solution, the FSER deals with access to a single stair by creation of pressurised stair and lift lobbies. This solution:

- increases the level of equipment and complexity of its operation (mostly by detection and sensing for activation and running of equipment) above the deemed-to-satisfy;
- places a heavier reliance on a regular and competent maintenance program; and
- heightens the potential for equipment failure when required under fire conditions.

However, this proposal raises further questions about the final end result when as-constructed. For example, will the proposed new design (and new alternative solution) as implemented achieve BCA outcomes and with longevity? Will the pressure differential when in fire mode driven by the 2-fan and air-in/relief-air arrangement be such that lift and fire escape doors will adversely affect opening and closing of doors? What if by testing there are issues discovered that cannot be resolved by adjustments to equipment or other minor actions? Has the fire brigade intervention been adequately addressed? Hence, the directive (#2) to demonstrate by testing. It is envisaged that adjustments and refinements will be typically necessary.

Complexity of stair network

Further, the Stair 4/Stair 5/Stair 6 network below Level 3/4 is not usual or an arrangement for directing people to final discharge point at road and open to the sky. This is not to say that it does not comply with the BCA and/or cannot work effectively. Hence, it is recommended that this be demonstrated by simple test to:

- ensure persons using Stair 4 can be assured of unimpeded escape to the adjoining road; and
- QFRS personnel can navigate via the stairs from street level to a fire affected floor.

Manager's office

Concerning directive #3, the manager's office as designed is not a permitted opening to the fire-isolated corridor and no substantive, satisfactory argument has been put forward to otherwise accept this arrangement.

Sound working relationships are key to final building code compliance outcome

The on-going lack of effective communication and poor attention to processes has not assisted the overall effectiveness of assessment by the certifier and the QFRS in dealing with the alternative solutions¹. The QFRS are aggrieved by the limited dialogue and amount of opportunity for response in dealing with their concerns over aspects of the design. Though a written response was given (30 April, 2008), these concerns are as stated in their submission to the tribunal (dated 29 July, 2008 and presented at the hearing on 4 August, 2008). The QFRS contend that this design though amended, will impair their explicit statutory duties as expressed under their own legislation, the *Fire and Rescue Service Act 1990* (FRA).

Supplementing BCA A0.8, A0.9 and A0.10, the *International Fire Engineering Guidelines (IFEG)* are generally considered a reasonable and well-structured basis for the initiation, development and finalisation of a performance-based alternative solution. However, in assessing this type of building work proposal, this methodology must be married together with the Queensland building legislation. The BA and the IPA and their respective regulations state other specific requirements. For example, the regulation states the role of the QFRS for its giving of advice on *special fire services* and where applicable, of reasonable participation in the realisation of the alternative solution. It is acknowledged that the QFRS are an advice agency² under the IPA. (See Schedule 2, Table 1 of the Integrated Planning Regulation 1998.) Where an alternative solution emerges affecting a *fire safety system*, the commitment is clear in that the QFRS is a major stakeholder in an advice agency capacity. (See Section 1.2.2 of the IFEG extract stated below).

¹ This includes the first alternative solution and subsequent QFRS appeal.

² This includes the opportunity for pre-"substantial completion" testing by the QFRS.

1.2.2 Relevant stakeholders

Ideally, the FEB should be developed collaboratively by the relevant stakeholders in the particular project. For example, the following parties may be involved:

- client or client's representative (such as a project manager)
- fire engineer
- architect or designer
- regulations consultant
- various specialist consultants
- fire service (both public and private)
- authority having jurisdiction (AHJ)
- representative of owner's insurance company
- tenants
- building operations management

International Fire Engineering Guidelines (IFEG 2005)

The applicant for the building work (under the IPA) has many obligations including the obligation to deliver a building, as agent of the owner, that complies with the building code legislation. In practical terms, responsibility for the design and proving of the (final) design as necessary, rests with the applicant's agents i.e. the fire safety engineer and principal consultant to the satisfaction of the certifier after advice from the QFRS.

Definable benefits from the specialist involvement of the QFRS can be found right throughout the process. This includes in assessment, inspection, at final testing and any input for management-in-use. The QFRS effectively takes over the building for compliance checking (as approved) in its post-occupancy stage. It is responsible under the FRSA to ensure that the building owner/s maintain the installed fire safety systems including to the original level of performance as approved. Any actions prescribed by the FSER, for example, management-in-use, are similarly included as part of the approval and are to be carried out as stated. It is reinforced that the alternative solution may only change when the building where mandated by re-assessment and/or a new assessment, is affected by further building work.

Lastly, Section I of the BCA 2005 is to be noted. This applies as part of the approval and is a perennial obligation of the approval. The performance requirements states:

IP1.1

Safety measures must be capable of performing to a standard no less than that which they were originally required to achieve.

BCA 2005

Fire safety system and *safety measures* have definitions in accordance with BCA 2005 A1.1.

Russell Bergman
Building and Development Tribunal Chair
Date: 12 September, 2008

Appeal Rights

Section 4.1.37 of the *Integrated Planning Act 1997* provides that a party to a proceeding decided by a tribunal may appeal to the Planning and Environment Court against the tribunal's decision, but only on the ground:

- (a) of error or mistake in law on the part of the Tribunal; or
- (b) that the Tribunal had no jurisdiction to make the decision or exceeded its jurisdiction in making the decision.

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

Enquiries

All correspondence should be addressed to:

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