



Building and Development Tribunals—Decision

Integrated Planning Act 1997

Appeal Number: 3–09–021

Applicant: Queensland Fire and Rescue Service

Assessment Manager: Terry Moran of Philip Chun and Associates

Concurrence Agency: N/A
(if applicable)

Site Address: 1191 & 120 Lytton Road, Hemmant and described as Lot 11 on SP 116632 & Lot 13 on SP151827

Appeal

Appeal under section IPA 4.2.10

Date of hearing: 7 May, 2009

Place of hearing: Level 3, 63 George Street, Brisbane

Tribunal: Russell Bergman (Chairperson)
Malcolm Edmiston (Member)

Present: Lindsay Hackett, QFRS (Applicant)
Tony Dunn, QFRS
Kevin Connelly, QFRS
Steven McKee, QFRS

Terry Moran, Philip Chun and Associates (Co-Respondent)
Michael Moran, Philip Chun and Associates
Blair Stratton, Beca Pty Ltd
Peter Shand, Beca Pty Ltd
Harry Pik-Wakling, Beca Pty Ltd
Barry Eadie, Barry Eadie Consulting
Jeff Illes, Spaceframe Pty Ltd (Co-respondent)
Rick Woods, SWIRE Cold Storage
Sam Czyczelis, SWIRE Cold Storage
Phillip Herbert, SWIRE Cold Storage
David Nicholls, Hopgood Ganim Lawyers (Observer)
Bill O'Flaherty, Spaceframe Pty Ltd (Co-respondent named on the Registrar form but not in attendance)

Site Visit 15 May, 2009

Decision:

The Tribunal, in accordance with section 4.2.34 (2)(b) of the IPA, **changes** the decision appealed against by adding the additional conditions of approval:

1. Provide reflective, durable and non-slip marking on the freezer floor and anywhere else deemed appropriate to indicate the limits of coverage (not including spray) of the 36m fire hose reels taking account of material stored at the top of the racking. Amend the approved hydraulic plans to show 36m FHR's as provided in lieu of 50m FHR's.
2. Fire engineer and other specialists to re-examine and instigate measures as deemed necessary to the satisfaction of the certifier, for safe, initial attack fire-fighting at any level and any position in the storage racking system.
3. The emergency lighting level of illumination at floor level to be at least AS2293.1 target determined by the electrical services engineer and in conjunction with the fire engineer, for a diminished visibility or obscuration scenario.
4. Install additional emergency lights to end-of-row aisles.
5. Fire engineer to re-examine fire brigade intervention to the satisfaction of the certifier.

Background

The appeal relates to an extension to a cold store being Stage 3, the final stage.

The building proposal is a large, isolated building and for a deemed-to-satisfy building solution requires a range of fire safety measures including fire sprinklers, fire hydrants, perimeter access for the attending fire service, fire hose reels, emergency lighting, exit lighting, smoke detection and alarms, and mechanical smoke and heat venting.

An alternative solution was proposed which omitted sprinklers from within the freezer area, reduced the range of fire hose reel coverage, extended travel distances to exits, omitted the mechanical smoke exhaust from inside the freezer cabinet (not the roof space) and omitted directional exit signage.

The QFRS did not agree with certain points of the Fire Engineering Report supporting this solution. The certifier sought and obtained a peer review of the report, which identified deficiencies and recommended a number of changes, but generally supported the conclusions reached. The certifier issued a decision notice without further consideration by QFRS. As QFRS are still of the opinion that the report is deficient and the decision notice should not have been issued they have appealed to have these matters raised and heard by the Building and Development Tribunal.

In their presentation, the co-respondents highlighted a key issue of the jurisdiction of the QFRS and Tribunal in handling these matters. This is noted. Subsequently, the Tribunal states that (a) the QFRS has the right of appeal (IPA s4.2.10) and (b) the Tribunal has jurisdiction to appropriately hear and decide the matter (IPA s4.2.7).

Material Considered

A significant amount of material was presented.

The material considered in arriving at this decision includes:

- 'Form 10 – Appeal Notice', Grounds for appeal and correspondence accompanying the appeal lodged with the Registrar on 10 March, 2009.
- IPA Decision Notice issued by Mr Terry Moran, of Philip Chun ref: Q4439 dated 24 February, 2009
- Philip Chun Fire Engineer Review Fee Proposal dated 18 November 2008

- Form 1 Parts A & B Development Application (undated)
- BCC Material Change of Use A001909676 dated 31 March 2008
- Form 15 Certification - Fire Engineering Solution dated 19 February 2009
- Form 15 Certification - Structural Design dated 21 April 2008
- Form 15 Certification - Lighting Design dated 5 June 2006
- Form 15 Certification – Automatic Fire Sprinkler System dated 3 June 2008
- Form 15 Certification - Mechanical Exhaust Systems dated 26 November 2008
- Form 15 Certification –Automatic Smoke Detection, Building Occupant Warning System dated 3 June 2008
- Application for Assessment of Special Fire Services dated 22 July 2008
- QFRS Assessment referral agency advice Non-compliant dated 17 September 2008
- Beca Pty Ltd Response to QFRS Assessment dated 1 May 2009
- Statement of Reasons for Decision by Mr Terry Moran dated 20 February 2009
- QFRS submissions submitted to the Registrar and as delivered at the hearing.
- Philip Chun submissions submitted to the Registrar and as delivered at the hearing.
- Beca Pty Ltd Fire Engineering Report Revision 'D' dated 13 February 2009
- Beca Pty Ltd Fire Engineering Brief Minutes dated 21 November 2007
- Philip Chun Fire Peer Review dated 16 February 2009
- Integrated Planning Act 1997 and Integrated Planning Regulation 1998
- Building Act 1975 and Building Regulation 2006
- Building Code of Australia 2006
- International Fire Engineering Guidelines 2005

Findings of Fact

The Tribunal makes the following findings of fact:

1. The building is a large isolated building comprising a single storey Class 7b warehouse with an ancillary 2 storey class 5 office and staff amenities attached.
2. The creation and operation of a very low temperature freezer facility (as is the Swire Cold Storage) is a specialist activity, as are fire-fighting and rescue of occupants from these environments in a fire emergency.
3. Internal spaces are “inhospitable” (approximately -25°C) to workers (freezer occupants) for even short to medium periods of time ie. it is not a role for “anyone” and “freezer time” is on an as-required basis. It was also noted that movement throughout the freezer complex could be judged as high or frequent on a 24 hour, 7 days a week basis. Warm-up rooms and ancillary facilities have been provided for occupants.
4. Access to other building parts is limited and infrequent, for example, the roof space. Safety and security measures have been put in place to escort and supervise visitors to the site.
5. In the majority, handling operations are fully mechanised and it was stated and observed that safety is a high priority.
6. While storage capacity fluctuates, it was stated and observed that the volume of goods stored is generally “higher” than “lower”. Overflow delivery events are logistically managed usually within 24 hrs.
7. The D-t-S provisions of the BCA require an automatic fire sprinkler system throughout the entire building.

8. The building has fire sprinklers in the class 5 (offices) section and in the roof space over the main freezer box but not in the freezer itself which forms the major area of the complex.
9. The D-t-S provisions require the entire floor area to have coverage by installation of complying fire hydrants and fire hose reels. The fire hydrants and fire hose reels do not fully cover the entire floor area.
10. The alternative solution in the Fire Engineering Report proposed that additional lengths of fire hose be used from hydrants and fire extinguishers to be used to cover those areas not covered by fire hose reels.
11. The travel distances to exits exceed the maximum travel distances allowed by the D-t-S provisions.
12. The D-t-S provisions require illuminated EXIT signs at the exits and illuminated directional signs where required. EXIT signs are provided at exit doors but directional signage is not provided.
13. A sub-zero temperature can be maintained for many days without power, allowing for maintenance of refrigeration plant or the provision of generating equipment as well as the preservation of stock.
14. Water freezes and "cakes" on the floor in a very short time creating a slip hazard. This was demonstrated to the Tribunal at the site visit.
15. Water vapour in the air creates a mist that reduces visibility, thus, the ability to control or not control the internal environment (including for when it could be expected that smoke be produced) of the freezer is a significant issue. A contrast was noted between the new and existing spaces in this regard.
16. Fork lift recharge room, refrigeration plant room, electrical sub-station and other likely sources of ignition are fire separated from the remainder of the building.
17. A Vesda smoke aspirating system serves the building.
18. The QFRS is an advice referral agency in accordance with Schedule 2 of the Integrated Planning Regulation 1998 for an alternative solution assessed against the performance requirements of the Building Code of Australia (as assessed - 2006), for a *fire safety system*. See the BCA A1.1 for the definition.
19. In accordance with Schedule 4 of the Integrated Planning Regulation 1998 the QFRS have 15 business days to assess the application and respond with advice to the building certifier.
20. The International Fire Engineering Guidelines 0.3.4 states "It is also essential that the reviewer be independent of the project and participants in the project in question".
21. The Professional Engineers Act 2002 requires all engineers providing engineering consultancy services in Queensland to be registered with the Queensland Board of Professional Engineers. Fire-engineering and peer reviews of fire-engineering reports are deemed engineering consultancy.
22. Further, s18 of the Building Regulation 2006 states:
 - (1) *A building certifier may decide an individual is a competent person to give design/specification help or inspection help only under subsections (2) to (4).*
 - (2) *If, under a relevant law, the individual must be licensed or registered to be able to give such help-*
 - (a) *the individual must be so licensed or registered; and....."*

Reasons for the Decision

The alternative solution for this proposal relies significantly on the work and judgement of "experts" in their respective fields. The final alternative solution must demonstrate to the satisfaction of the certifier, the qualifications and experience of such experts, adherence to established processes and methods as described in the legislation and other means permitted by the legislation.

In Queensland, Parliament has instigated processes for the assessment of building work including by private certifiers. It has adopted the Building Code of Australia and its methods for the technical assessment of a building solution. The Integrated Planning Act 1997 and Building Act 1975 processes place onus on the certifier to be satisfied of compliance, which includes the taking of mandatory and voluntary advice, and thus, to decide. The same legislation gives authorities the power to impose significant penalties for breaches of conduct or professional incompetence or not acting in the general public interest. It is the view of the Tribunal that the certifier has reasonably made his decision under the prevailing legislation.

Subsequently, an appeal has been made by the QFRS as is their right. The grounds for appeal by the QFRS are addressed as follows:

1. QFRS Reason 1 – BCA EP 1.1 has not been met

EP 1.1 states:

“A fire hose reel system must be installed to the degree necessary to allow occupants to safely undertake initial attack on a fire appropriate to –

- (a) the size of the *fire compartment*; and
- (b) the function or use of the building; and
- (c) any other *fire safety systems* installed in the building; and
- (d) the *fire hazard*.”

Note here Decision additional condition 1 and 2.

The freezer operates at approximately -25°C which greatly reduces the likelihood of a fire hazard but the Tribunal accepts that a fire start and some limited growth is possible. A key element of fire is heat.

Thirty-six (36) metre fire hose reels are provided outside of the freezer and to locate FHR's in the freezer would be to render them inoperable. It is considered that a 36m hose is the most suitable length to be operated on a reel. Occupants using these reels must have sufficient training in their use attributable to this environment. It is noted that the approved hydraulic plans conflict with the FEB and FER in that they show 50m FHRs when 36m FHR's have been provided. This shall be amended to correspond.

Because of the significant height of the store's racking in the fire compartment, D-t-S FHR's which may if longer, cover the floor area, may still be insufficient to extinguish or suppress a fire. The concern that a fire may occur in an area not covered by a FHR and an occupant may waste time and effort extending a hose to find out that a fire extinguisher was a better option. To address this concern, the extremities should be marked as an indication of limitation of FHR coverage. Due to the ice hazard created by water in this area there is doubt as to whether occupants would attempt to use a FHR.

The facility is staffed 24/7 so if a fire was to occur they would most likely find it quickly and extinguish/suppress it by other means. Accordingly, the FHR system installed is to the degree necessary to allow occupants to undertake initial attack on a fire. This includes the use of fire extinguishers. The Tribunal questions the ability of staff to quickly and competently address an exposed fire start at any point in the racking system. Given the height of the racking, can an extinguisher be used to initially fight a small fire early and with acceptable safety? Should it be attacked or left to the QFRS? Can a high rack incident be reasonably dealt with through use of appropriate equipment and regular practice?

2. QFRS Reason 2 – BCA performance requirement EP 1.4 has not been met

EP 1.4 states “An automatic fire suppression system must be installed to the degree necessary to control the development and spread of fire appropriate to-

- (a) the size of the *fire compartment*; and
- (b) the function or use of the building; and
- (c) the *fire hazard*; and
- (d) the height of the building.”

A wet pipe automatic fire sprinkler system would freeze up and almost certainly burst the pipe work in the sub-zero temperatures. A dry pipe system is not guaranteed to work in extreme temperatures as would be generally expected for reliability of sprinklers in normal instances. Questions are raised about such as system including water discharge at the sprinkler head in this environment. If it did work it would deliver water spray over a large area not necessarily affected by a fire, causing dangerous ice formation. The height of the building and racking would most likely make sprinklers ineffective.

It was noted that the QFRS did not support only water-based automatic fire sprinklers as the preferred solution for suppression and management of fire growth.

Wet or dry pipe sprinklers are potentially a negative life safety hazard in this instance. Water sprayed will quickly form ice, creating a slip hazard and a sticking hazard during evacuation. Gas suppression systems are a concern as the pipe work may still freeze and if automatically operated, may inadvertently trap occupant/s with potential for fatality. Such a system could not be operated manually until all occupants are confirmed evacuated through the 10 emergency exits around the building.

The Tribunal accepts the fire modelling that shows the fire hazard is low due to the function and use of the building while in normal operations. In the unlikely event of a fire start, it is proposed that fire would spread slowly due to the very low temperatures in the freezer even in a fire compartment having such a large floor area and height. Accordingly, not having an automatic fire suppression system in the freezer is to the degree necessary, for the purpose of controlling the development and spread of fire appropriate to the risk.

3. QFRS Reason 3 – BCA performance requirement EP 2.2 has not been met

EP 2.2 states:

- “(a) In the event of a fire in a building the conditions in any *evacuation route* must be maintained for the period of time occupants take to evacuate the part of the building so that-
- (i) the temperature will not endanger human life; and
 - (ii) the level of visibility will enable the *evacuation route* to be determined; and
 - (iii) the level of toxicity will not endanger human life
- (b) The period of time occupants take to evacuate referred to in (a) must be appropriate to-
- (i) the number, mobility and other characteristics of the occupants; and
 - (ii) the function or use of the building; and
 - (iii) the travel distance and other characteristics of the building; and
 - (iv) the *fire load*; and
 - (v) the potential *fire intensity*; and
 - (vi) the *fire hazard*; and
 - (vii) any active *fire safety systems* installed in the building; and
 - (viii) *fire brigade* intervention.”

A form of smoke and heat venting is provided in the roof space to ventilate the roof space. This meets the D-t-S requirement for the area and volume when the freezer area is not included. In the event of a fire in the freezer, the FER states that due to the function and use of the building the fire will develop slowly. Hot smoke will rise towards the 15m high ceiling and will remain above 2.1m until all occupants have evacuated. Due to the nature of the work in the freezer there are a low number of occupants in the building. Occupants are constantly mobile and familiar with the building. Accordingly, there is no life safety requirement for a smoke exhaust system in the freezer to assist evacuation.

It is noted that upon extinguishment of a fire, the smoke will cool and descend towards the floor. Without some form of exhaust this smoke layer may not disburse for several days. In most enclosed spaces without an exhaust system the doors are opened and fans employed to disburse the smoke. This is not an option for this facility. This is not a BCA issue.

4. QFRS Reason 4 BCA performance requirement EP 4.2 has not been met

EP 4.2 states:

“To facilitate evacuation suitable signs or other means of identification must, to the degree necessary-

- (a) be provided to identify the location of *exits*; and
- (b) guide occupants to *exits*; and
- (c) be clearly visible to occupants; and
- (d) operate in the event of a power failure of the main lighting system for sufficient time for occupants to safely evacuate.”

Note here Decision additional condition 3 and 4.

EXIT signs are provided at all exits. Moving to either end of an aisle will allow occupants to sight the nearest exit signs and thus exits. There are small passages (cross-overs) through the racking that allow movement to an exit door. Occupants would be familiar with the building and can only move along the aisles towards an exit. Better illumination from additional emergency lighting to the end-of-aisle cross routes and along the aisles, suitable EXIT signs or other means of identification will ensure, to the degree necessary, facilitation of effective evacuation.

5. QFRS Reason 5 – BCA performance requirement CP 2 has not been met

CP 2 states:

- (a) A building must have elements which will, to the degree necessary, avoid the spread of fire-
 - (i) to exits; and
 - (ii) ...N/A...
 - (iii) between buildings; and
 - (iv) in a building.
- (b) Avoidance of the spread of fire referred to in (a) must be appropriate to-
 - (i) the function or use of the building; and
 - (ii) the fire load; and
 - (iii) the potential fire intensity; and
 - (iv) the fire hazard; and
 - (v) the number of storeys in the building; and
 - (vi) its proximity to other property; and
 - (vii) any active fire safety systems installed in the building;
 - (viii) the size of any fire compartment; and
 - (ix) fire brigade intervention; and
 - (x) other elements they support; and
 - (xi) the evacuation time.”

The building is a large isolated building with complying open spaces and vehicular access. It has an automatic detection and alarm system.

Sprinklers are located throughout *except* in the freezer area which has been shown to not require them. A system of smoke and heat venting in the roof to vent and cool the roof space meets the D-t-S provisions for the floor area; and for the volume when the freezer is deleted as that area has been shown to not require such a system.

Fire-resistant walls separate adjoining service areas of higher risk of fire start and growth that are served by fire sprinklers. The Tribunal considers that the risk of fire is far greater in these areas served by sprinklers and that this will prevent the spread of fire to the areas without sprinklers. Accordingly, the building has incorporated elements to avoid the spread of fire “to the degree necessary”.

6. QFRS Reason 6 – Accepted and documented processes have not been followed

The application was submitted to the QFRS for assessment and advice in accordance with the Integrated Planning Act 1997 and the Integrated Planning Regulation 1998. The QFRS provided advice which the certifier is bound to consider but not necessarily abide by (see s60 of the BA). A peer review was sought and obtained by the owners. This was considered by the certifier and the decision notice issued. The FER was revised after the QFRS assessment was received. There was no requirement for the certifier to seek such advice. An advice agency may only change its response if the applicant has given a written agreement to the amended response (see s3.3.17 of the IPA). The certifier must consider objectives and functional statements of the BCA when deciding the application (see s56 of the BA).

A peer review in accordance with the IFEG should be obtained by the building certifier, not the owner.

The peer reviewer should be independent of the applicant, owner and certifier. The selection of Philip Chun Fire for this role could be seen as not meeting the tenant of separation regardless of the quality and depth of the review.

The BCA defines an engineer as one who is an NPER unless the engineer is required to be registered in that State. The Queensland Professional Engineers Act 2002 requires practicing engineers to be registered in Queensland. None of the signatories to the peer review are RPEQ's. There are RPEQ fire engineers who could readily have provided an independent review thus negating the perception of independence as noted by the IFEG.

It is also noted that only one (1) of the signatories to the FER is a RPEQ. A certifier may obtain advice from competent persons, including an engineer, when deciding an application for building work. Schedule 2 Table 1 Item 1 of IPR 1998 provides jurisdiction to the QFRS as an advice agency for -

- '1 A 'fire safety system' for a building or structure, other than a temporary or special structure if the building work -
- (a) requires special fire services mentioned in schedule 2A, part 1; or
- (b) includes an alternative solution assessed against the performance requirements of the Building Code of Australia, Volume 1, for a fire safety system'

There was no requirement for the certifier to seek such advice for a change to the special fire services as no change had occurred. However, there was a need to seek such advice in respect to the changes to the report regarding an alternate solution (Rev 'D' as based upon) against the performance requirements of the BCA for the fire safety system. While the peer review should have been sought from an independent RPEQ it was the certifiers call if such a review was required. Although the certifier should have resubmitted the revised FER (including with the peer report) the QFRS have effectively had that opportunity through this current process. Accordingly, there is no reason why the process would now justify the setting aside of the certifiers decision.

7. Reason 7 – Technical errors included in fire engineering reports

Note here Decision additional condition 5.

The FER is an engineering document. Professional, expert judgement on these matters must be made by registered engineers. The Tribunal accepts that engineers will not always have 100% agreement with peers on technical matters. However, the method of analysis and criteria used should be discussed and agreed at FEB. The only technical errors that appear obvious are in the FBIM and this appears to be due to the absence of information from the QFRS to the fire engineer.

The FBIM presented in the FER gives the time of arrival by QFRS at after evacuation is completed. An earlier arrival would probably have little effect on occupant evacuation but enable fire-fighting to commence earlier. This does not justify reversal of the certifier's decision.

R E Bergman
Building and Development Tribunal Chair
Date: 11 June 2009

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 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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