Building and Development Tribunals
Queensland Government
Department of Local Government and Planning

APPEAL **File No. 3-05-072**
Integrated Planning Act 1997

BUILDING AND DEVELOPMENT TRIBUNAL - DECISION

Building Certifier: Prabha Ponniah of Certis Pty Ltd

Site Address: *withheld* – "the subject site"

Applicant: *withheld*

Local Government: Brisbane City Council

Nature of Appeal

Appeal against the decision of Prabha Ponniah of Certis Pty Ltd to refuse an application for a combined sprinkler/hydrant/domestic water supply based on advice from the Queensland Fire and Rescue Service (QFRS) as a referral advice agency that the proposed system is not considered to be a deemed to satisfy solution in accordance with the Building Code of Australia.

Date and Place of Hearing: 10:35 am on Monday 6 February 2006 at Level 17 Mineral House, 41 George Street Brisbane. Hearing concluded at 12:05 pm.

Tribunal: David Kay - Tribunal Chairperson
Chris Odgers - Tribunal member

Present:

Prabha Ponniah - Certis Pty. Ltd.
Withheld - applicant
Withheld - applicant
Robert Hook - Queensland Fire and Rescue Service
Jim Graham - Brisbane City Council

Decision

The decision of Prabha Ponniah, building certifier, of Certis Pty Ltd dated 15 November 2005 to refuse the application to use a combined sprinkler, hydrant and domestic water supply is **confirmed** and **the appeal is dismissed**.

Background

***Applicant's submissions to the tribunal*:-**
Withheld were commissioned to design the hydraulic services for the potable water supply, fire main and sprinkler systems.

QFRS decision in 1998 to accept combined services is considered by the applicant to be a deemed to satisfy decision.

An independent fire certifier, Warwick Barnett was asked for opinion of system and received advice that it conformed to the hydrant and sprinkler code in every respect and also to the water supply code in every respect.

Pre lodgement meetings were held with QFRS and Brisbane Water and several issues were raised.

Warwick Barnett provided a letter advising that it was considered to be a deemed to satisfy solution.

The hydraulic services plans and documents were lodged with Brisbane Water and were approved by Brisbane Water.

The application was then lodged with QFRS. The Applicants were advised by B. Johnson from of QFRS Metropolitan that it was not compliant with the codes. Discussions were held with Certis about the proposal being considered to be deemed to satisfy and Certis sent a letter to this effect to QFRS on the 19 July 2005.

QFRS then assigned the assessment to the State assessment section of QFRS and subsequently QFRS advised that the proposal was considered to be an alternative solution, not a deemed to satisfy solution.

The proposed system is an environmentally more efficient system in that it has significant savings in materials and that all pipe work is suitable to supply water of a potable standard. Black steel pipes or other types suitable only for fire fighting purposes will not be used.

Building certifier's submissions to the tribunal:-

Prabha Ponniah advised that the required statutory processes were followed in making the decision. In relation to the issues QFRS raised about the application, details were provided to QFRS. In relation to the hydraulic designs the building certifier could not determine if the design complied with the standards referenced in the BCA and consequently required a competent person to certify the design. The building certifier also relied on the Brisbane Water approval of the plumbing and drainage work.

As to whether the combined sprinkler, hydrant and domestic water supply complied with the relevant standards, the certifier accepted advice from QFRS. QFRS as the referral advice agency and competent authority for this aspect of the building work advised that the combined system was not considered to be a deemed to satisfy solution.

The building certifier then made the decision to refuse on this advice.

***QFRS submission to the tribunal*:-**

The application was lodged at the Kemp Place office of QFRS who after examining the application referred to the State section as it was considered too large or complex to deal with in the local office.

Since their involvement it has been regarded as an Alternative Solution. The sprinkler system for an in slab system is not a deemed to satisfy solution. The sprinkler system code does not cover in slab systems only covers through slab situations.

The "Blazemaster" system proposed to be used is an in slab system.

The proposal may require valves that may require a higher level or periods of maintenance.

The Building Code of Australia supports innovation but it needs to be done on an individual building basis. The pumps are variable speed which are not factory mutual compliant and are not compliant with AS2941. Items 2-7 of QFRS assessment advice fax dated 13 April 2005 have been satisfied but Item 1 in this advice dated 13 April 2005, is still relevant. The proposal still requires to be considered as an Alternative Solution.

In response to the reference to the 1998 Tribunal determination relating to combined domestic water and fire mains it was considered as an Alternate Solution.

Further responses from parties attending the hearing:-

In response to a question from the tribunal regarding the condition on Warwick Barnett certificate requiring supervision of the PVC pipe installation to be used as an in slab sprinkler pipe system Steve Paul replied in order to use retrievable pipe they had to search the world to find a pipe that was acceptable for use in a potable water supply and carried a Watermark stamp of approval.

They also need to have a Watermark approval for the sprinkler head but this is not expected for about 3 months.

In response to a question about the water demand from the tribunal, Steve Paul advised that the design flows were 20l/s for the hydrant system, 3.6l/s for sprinkler system and 4.4 l/s for domestic supply.

Bob Hook also advised that a valve system is to determine whether the flow of 1 sprinkler head going off will be more than the domestic simultaneous demand and this will trigger alarm.

The tribunal enquired as to what the current fire engineering solution relates to. Steve Paul advised that it relates to the recessed sprinkler head system and the reduced concrete slab depth to demonstrate that the reduced depth of slab has the equivalent fire resistance level.

Jim Graham questioned that if the materials are required to have Australia Standard approval for water supply use, are they also required to have other approvals such as SSL or CSIRO approval for use in fire services?

Material Considered

- QFRS fax advice dated 13 April listing 7 items requiring consideration.
- Brisbane City Council Plumbing and Drainage compliance assessment of plans permit dated

16 June 2005.

- QFRS letter to building certifier Certis dated 11 August advising variations from deemed to satisfy requirements.
- Steve Paul letter to QFRS dated 4 October advising that the consider it to be deemed to satisfy and requesting QFRS to consider it in this manner.
- Certis letter to QFRS dated 19 July 2005 asking for referral advice regarding the combined system.
- QFRS leter to Steve Paul dated 31 October advising that the proposal has been assessed as a non complying deemed to satisfy solution.
- QFRS letter to Certis advising that the proposal has been assessed as a non complying deemed to satisfy solution and requiring the development of a Fire Engineering Brief for an Alternative Solution.
- Description of Integrated Fire and Domestic Water supply system prepared by Steve Paul dated 4 November 2005.
- Building certifier Certis decision dated 15 November 2005 advising the proposed combined domestic and fire service system is not approved.
- Steve Paul letter dated 15 November to Registrar of Building and Development Tribunals.
- Extract of Building Tribunal Determination 3/98/038 dated 12 November 1998.
- W. Barnett Certificate of Design dated 7 June 2005 for automatic Fire Sprinkler System.
- The *Integrated Planning Act 1997*.
- Steve Paul documentation listing questions raised by QFRS from 12 April 2005 to 6 February 2006.
- Arup Fire Safety Assessment Report Issue 2 dated June 2005 for recessed sprinklers in slab.
- Drawings B03165-H- 208-TD-D, B03165-H- 402-TD-E and B03165-H-501-TD-F
- QFRS fax dated 9 February 2006 advising details of pumps in 3 existing buildings.
- Steve Paul letter dated 17 February 2006 response to issues raised by Tribunal members at hearing.
- The *Building Act 1975* and the *Standard Building Regulation 1993*.
- Building Code of Australia –Volume1
- AS 2118-1999 Automatic Fire Sprinklers Part 1: General requirements.
- AS 2419-1994 Fire Hydrant installations Part 1: System design, installation and commissioning.

Findings of Fact

- The building certifier did not approve a combined sprinkler, hydrant and domestic water supply system.
- The system uses a one pipe system to supply potable domestic water, sprinkler systems and fire hydrants.
- The sprinkler pipe work system is proposed to be contained within the slab.
- There is an alternate solution for the cast in slab fire sprinkler junction recess.
- The system uses variable speed pumps.
- Part E1.5 of the BCA has a requirement for the installation of sprinklers in the building and these are to comply with Specification E1.5 of the BCA.
- The Queensland Fire and Rescue Service is a referral advice agency.
- The Brisbane City Council is the approval authority for the plumbing and drainage work in relation to the suitability of the pipe work and water supply plumbing for fire systems under the *Plumbing and Drainage Act 2003* and Standard Plumbing and Drainage Regulation but the

decision as to the suitability of the system and its compliance with the *Standard Building Regulation 1993* and the BCA is to be made by the building certifier.

- The Building Tribunal Determination 3/98/038 dated 12 November 1998 was based on an alternative solution as referenced on the second page of the determination.

Reasons for the Decision

- AS 2118 Part 6 – Combined Fire Sprinkler Systems called up by the Building Code of Australia states that the scope of the Standard is to set out the minimum requirements for combined sprinkler and hydrant systems. It does not include any description of the requirements for the integration of a domestic water supply with a fire hydrant and sprinkler system.
- AS2941-2002-Pumpset Standard referenced in AS 2118.6 requires that the performance characteristics of pump sets for fixed fire protection systems shall be such that the pressure falls progressively with the rate of flow. Figure 3.2 shows a graph of the pump characteristic curve which indicates a fully developed system pressure with no flow and a progressive drop in developed pressure as a result of increased flow.
  This is not able to be achieved using variable speed pumps as a variable speed drive will produce an increased flow together with an increase in pressure. This is the inverse of the requirements of the standard.
- The variable speed pumps proposed for the one pipe system do not comply with the Standard.
- The use of a flow monitoring device to distinguish between normal domestic potable water supply demand and increased flow caused by the activation of a sprinkler head in a combined domestic water and sprinkler feed pipe is not referenced in any Standard.
- The Arup Fire Alternative Solution report addresses the performance of the building structure because of the recessing of the sprinkler head pipe feed junctions into the slab but the one pipe system has not been addressed as an alternative solution. Consequently Part A0.10 of the BCA requires the identification of other Sections and Parts of the deemed to satisfy provisions relevant to or affected by the alternative solution for both the recesses heads and the one pipe combined sprinkler, hydrant and domestic potable water supply system.
- Whilst the proposal is seen as an example of a unique solution incorporating multiple pipe services into a one pipe system with efficiency and energy saving benefits for the building owners and the community as submitted by the applicant the proposal needs to undergo the rigours of developing the Fire Engineering Brief with input from all affected parties and producing the Fire Engineering Assessment Report to demonstrate to the QFRS and building certifier that the relevant Performance Criteria of the BCA have been satisfied in the interests of public safety.
- The QFRS as a referral advice agency also considers that the proposed one pipe system is not a deemed to satisfy solution in accordance with the Building Code of Australia.
- A similar situation arises where treatment systems not specified in AS3660.1 –Termite Risk Management are developed and tested and may be equal to or better than those specified in the Standard but because they are not specifically included in the Standard become an Alternative Solution.

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David Kay
Chairperson
Building and Development Tribunal
Date: 16 March 2006

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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