Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/011

Construction of a hot pool building built without boundary fire protection at Arthurs Point, Queenstown

1. The matter to be determined

1.1. This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the Act") made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing ("the Department"), for and on behalf of the Chief Executive of the Department.

1.2. The parties are:

- the owner of an adjacent property, Mr B Walters ("the applicant"), acting through an architect ("the applicant's architect)
- the Queensland Lakes District Council ("the authority"), carrying out its duties and functions as a territorial authority and a building consent authority
- Onsen Hot Pools Ltd, the owner of the hot pool complex in question ('the complex").

1.3. I take the view that the matters for determination, in terms of sections 177(a), 177(b)(i), and 188[2], are whether:

- the complex, in respect of the fire protection to the boundary wall, complies with Clauses C3 and C4 of the of the Building Code (Schedule 1, Building Regulations 1992)
- the decision of the authority to issue a building consent for the complex was correct
- the decision of the authority to issue a code compliance certificate for the complex was correct.

[1] The Building Act 2004, the Building Code the Compliance Documents, past determinations, and guidance documents issued by the Department are available from the Department's website at www.dbh.govt.nz or by contacting the Department on 0888 242 243.

[2] In this determination unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

1.4. In making my decision, I have considered the submissions of the parties and the other evidence in this matter.

1.5. I have not considered any other aspects of the Act or the Building Code with regard to the centre.

1.6. I have consulted with the New Zealand Fire Service ("the NZFS") in accordance with section 170 of the Act.

2. The building work

2.1 The complex in question is a completed two-storey building that is constructed on an excavated sloping site. The lower floor contains 6 separate hot pool enclosures, toilets, a store and a plant room. The upper floor contains a waiting lounge, a coffee kiosk and an office reception area.

2.2 The building has concrete lower and intermediate floors and a corrugated iron roof on timber rafters and purlins. The lower floor area has concrete block walls enclosing the ablution and plant areas and timber-framed walls to the pool enclosures. The upper floor is of light-timber construction. The timber framed external walls are clad with Macrocarpa bevel back weatherboards.

2.3 From the information provided subsequent to the issuing of the draft determination, the west elevation of the complex is situated a minimum of 520mm from the boundary. The west elevation wall is single storey for approximately half its length and two storey for the remainder and is made up of four separate sections that are angled towards the boundary. The lower floor of the two-storey section is constructed with concrete blockwork and all the other wall elevations are timber-framed and lined with timber weatherboards.

2.4 At the present time there are no buildings constructed on the property adjacent to the west elevation of the complex.

2.5 The plans relating to the relevant boundary wall of the complex are shown in Figures 1, 2 and 3.

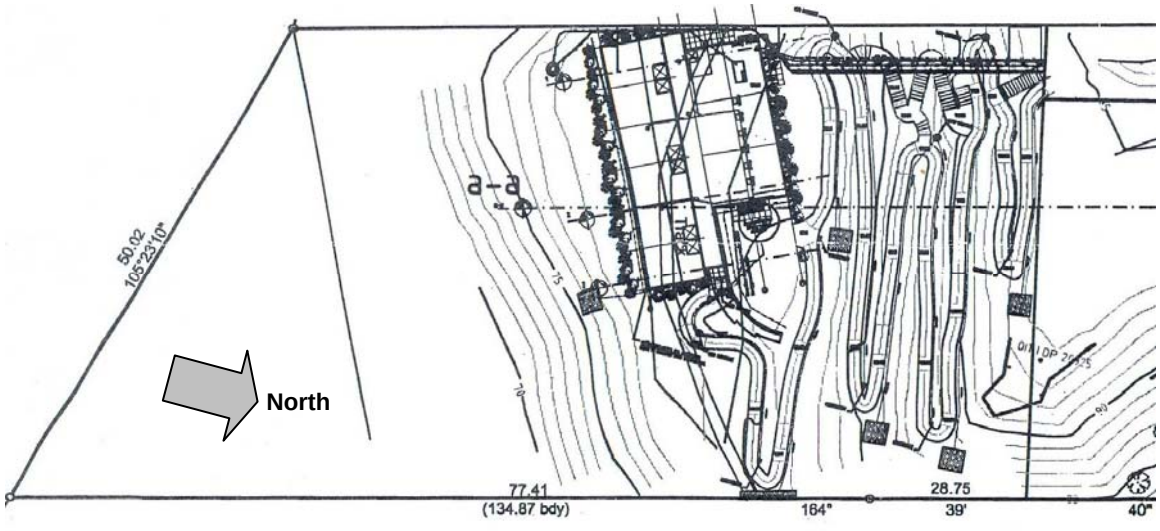

Figure 1: Site plan as proposed

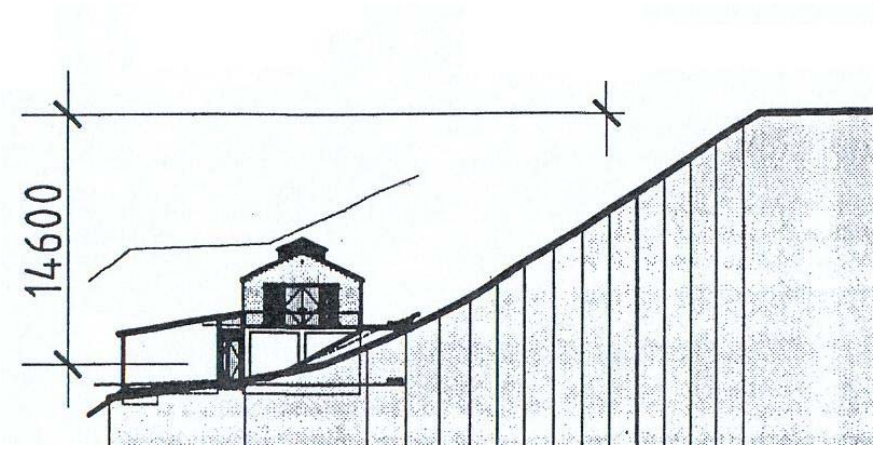

Figure 2: Section through site as proposed looking West

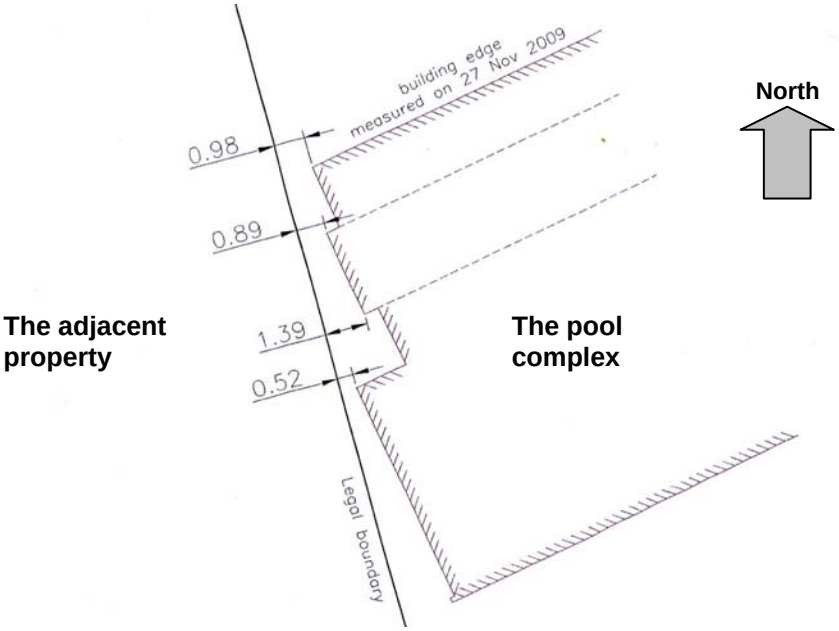

Figure 3: "As built" boundary plan showing closest approach of the various wall segments to the boundary

3. Background

3.1 As part of an application for a building consent, a firm of consulting engineers produced a "Fire Safety Report" ("the Fire Report") for the proposed complex that was received by the authority on 21 June 2006. The purpose of the report was to satisfy the authority that the proposed building would comply with the Building Code for means of escape and spread of fire.

3.2 Paragraph 8.1 of the Fire Report stated:

> S, structural fire endurance rating. The function of this rating is to resist structural collapse close to a relevant boundary and to resist fire spread through external walls. S ratings apply to external walls not permitted to have 100% unprotected area due to the proximity of a relevant boundary.

> As there are no buildings adjacent or relevant boundaries to affect, the S rating is not considered applicable in this instance.

3.3 From the information that I have received, the authority issued a building consent some time in 2006 for the complex and a code compliance certificate after the building work was completed.

3.4 Following a complaint laid by the applicant's architect on 7 April 2009 regarding the lack of boundary wall fire-rating, the authority emailed the architect on 9 June 2009. The authority noted;

> While subsequent analysis appears, in hindsight, to support your view that the complex does not comply with C/AS1 the Building Officer was satisfied on reasonable grounds at the time of approval that a suitably qualified consultant had provided the fire design compliant with C/AS1.

3.5 In two further emails to the applicant's architect dated 12 June 2009, the authority accepted that the information provided in the building consent application was not accurate in as far as the fire design stated "no buildings or boundaries to effect". The authority was now aware that there may be a boundary in close proximity. As the authority had issued a code compliance certificate for the complex, there was no mechanism, other than a determination decision that would allow for the code compliance certificate to be withdrawn. In addition, the authority considered there was no statutory mechanism to direct an owner to alter their building unless it is considered to be dangerous or insanitary. A review of the complex by the authority showed that it did not meet the criteria to be considered as being either dangerous or insanitary.

3.6 The application for a determination was received by the Department on 24 November 2009.

4. The submissions

4.1 In a covering letter dated 18 November 2009 that was forwarded with the application, the applicant's architect stated that he had undertaken planning for the adjacent property. At that time, it was noticed that, although the complex was very close to the common boundary, it did not appear to be fire rated with regard to the boundary or the unprotected openings. The complex appeared to be within the range of 180mm, plus or minus 100mm, off the boundary. The architect also referred to the Fire Report that is described in paragraph 3.2.

4.2 The applicant supplied copies of:

- some of the plans of the complex
- the Fire Report
- The correspondence with the authority.

4.3 The authority did not make a submission in response to the application

4.4 Copies of a draft determination were issued to the parties for comment on 14 December 2009.

4.5 The applicant's architect accepted the draft determination on behalf of the applicant.

4.6 The designer of the complex responded on behalf of the complex owner in a letter to the Department dated 26 January 2010. The designer submitted an "as built" survey that set out the exact location of the complex in regard to the western boundary. It was also noted that accurate documentation was provided for the building consent process and that the building was constructed in accordance with that documentation and the amendments requested by the authority. The authority had also inspected the complex prior to the issuing of the code compliance certificate. In the designer's opinion, the drawings "showed all necessary information to all consultants and Authorities alike, regardless of whether dimensions similar to those shown on the attached survey were shown".

4.7 The authority provided a submission to the Department dated 26 January 2010. The authority attached copies of the "as built" survey described in paragraph 5.3 and an aerial photograph showing the building and the surrounding topography. The authority considered that it was important to take the context of this location into account, as there were no specific buildings close to the complex. As the adjoining site was a steep and difficult, it was "unlikely (although not impossible) to have an adjoining building built on it".

4.8 I summarise below the other main issues raised in the authority's submission:

- The building consent application included a well detailed "Fire Safety Report" that specifically stated that 'as there are no buildings adjacent, or relative boundaries to affect, the S rating is not considered applicable in this case. The authority was of the opinion that the building officer processing the consent application was entitled to be satisfied on reasonable grounds that he could rely on the report.
- The authority also believed that the same processing approach also applied to the issuing of the code compliance certificate.
- The dimensions indicated on the "as built" survey were not available to the authority when the building consent was being considered, and no other appropriate details were provided on the consented plans. While the building officer may have missed the non-dimensioned distance of the complex from the boundary shown on the site plan, he would have relied on the specific exclusions mentioned inn the detailed fire report. In addition, the complex is in a rural setting, on steep terrain set amongst bush, with no other buildings in its proximity.
- The authority accepted that an error had been made in describing the building as being compliant in terms of C/AS1. However, this did not mean that the building was not performing in terms of an alternative solution. The complex 'only has small portions of the walls within 1 metre of the boundary'. The authority believed that the complex was fully compliant with regard to the safety requirements for its occupants and that it provides appropriate protection to household units and other property due to structural instability caused by fire.
- The authority did not consider that the complex currently was a dangerous building in terms of the Act. However, this aspect would be re-visited by the authority should a building consent be granted for buildings to be built in close proximity to the complex.

4.9 I have carefully considered the submissions and amended the determination as appropriate.

4.10 The NZFS had no comment to make on the draft determination and agreed with the conclusions reached.

5. The legislation

5.1 The following legislation applies in this determination. See Appendix A for the full text.

The Building Code:

- Clause C3 – Spread of fire
- Clause C4 – Structural stability during fire.

5.2 The relevant clauses of Approved Document C/AS1, being Part 7 "Control of External Fire Spread"

- 7.3.4 Choosing calculation method
- 7.3.5 Method 1
- Table 7.4.

6. Fire safety features necessary to comply with the Acceptable Solution

6.1 The relevant provisions of the Acceptable Solution C/AS1 ("C/AS1") describe one means of compliance with the performance requirements of Clauses C3 and C4 of the Building Code.

6.2 In comparing an alternative solution with an Acceptable Solution it is useful to bear in mind the objectives of the relevant Building Code clauses.

6.3 With regard to this contention, I note that the antecedent of the Department, the Building Industry Authority ("the BIA"), said in Determination 2004/5:

> 5.2.2 As for the proposed alternative solutions, the [BIA's] task is to determine whether they comply with the performance-based Building Code. In doing so, the [BIA] may use the Acceptable Solution as a guideline or benchmark[3].
>
> 5.2.3 The [BIA] sees the Acceptable Solution C/AS1 as an example of the level of fire safety required by the Building Code. Any departure from the Acceptable Solution must achieve the same level of safety if it is to be accepted as an alternative solution complying with the Building Code.
>
> 5.2.4 As in several previous Determinations, the [BIA] makes the following general observations about Acceptable Solutions and alternative solutions:
>
> (a) Some Acceptable Solutions cover the worst case so that in less extreme cases they may be modified and the resulting alternative solution will still comply with the Building Code.

"[3] *Auckland CC v NZ Fire Service* [1996] 1 NZLR 330."

(b) Usually, however, when there is non-compliance with one provision of an Acceptable Solution it will be necessary to add some other provision to compensate for that in order to comply with the Building Code.

6.4 In the light of comments made separately in relation to another determination application, the BIA then stated:

> I accept that the [BIA's] reference to "the worst case" is too broadly worded in an application of this type. A better formulation would be:
>
> (a) Some Acceptable Solutions cover the worst case of a building closely similar to the building concerned. If the building concerned presents a less extreme case, then some provisions of the Acceptable Solution may be waived or modified (because they are excessive for the building concerned) and the resulting alternative solution will still comply with the Building Code.
>
> (b) Usually, however, when there is non-compliance with one provision of an Acceptable Solution it will be necessary to add some other provision or provisions in order to comply with the Building Code.

7. Discussion

General

7.1 The Fire Report prepared on behalf of the complex owner noted that, as there were no relevant boundaries to consider, there was no requirement to apply an S rating to the complex. The applicant's architect has stated that the west elevation of the complex is a maximum of 280mm from an adjoining common boundary. However, following the issuing of the draft determination, I have now been provided with an accurate "as built" site plan that shows the closest dimensions of the four boundary wall sections as being 520mm, 890mm, 980mm, and 1390mm respectively (refer Figure 3).

7.2 The drawings that have been provided, and which the authority received as part of the building consent process, indicate that the west elevation of the building is extremely close to the boundary. In addition, in its letter to applicant's architect of 9 June 2009, the authority accepted that the complex did not comply with the requirements of C/AS1. However, the authority is of the opinion that, as the fire design was undertaken by a suitably qualified consultant, the officer considering the building consent application had reasonable grounds on which to accept that the design met the requirements of C/AS1. I note also that the authority has since accepted that the owner's application to construct the complex should have been considered in terms of an alternative solution.

7.3 With respect, I cannot accept the grounds on which the authority decided that, at the time the building consent was considered, the complex was code-compliant in terms of C/AS1 or an alternative solution. The fact that a qualified consultant supplies a fire design does not of itself make such a design code-compliant. The authority accepts that the officer concerned may have missed the site plan boundary detail shown on the consented plans and relied instead on the fire report. The authority was fully entitled to request additional information from the owner that would have clarified the position of the complex in relation to the western boundary. The critical factor is whether such a design itself is, on reasonable grounds, in accordance with the requirements of the Building Code.

7.4 Applying the approach set out in paragraph 7, and noting that the complex is close to an adjacent common boundary, I must first consider how the fire design of the complex differs from the requirements of C/AS1. The next step is to ascertain whether there are any compensating features or provisions that would offset any non-compliance with C/AS1 that would make the complex code-compliant.

7.5 To comply with Part 7 of C/AS1, a fully unprotected boundary wall for this complex would require it to be some 9 metres from the boundary. The only calculation method permitted for a wall that is not fully protected, or where part of such a wall less than 1 metre from a relevant boundary and having an intersection angle of less than 80 degrees, is Method 1. Figure 7.4 of C/AS1 indicates the permitted size of the unprotected areas and fire-resistant glazing requirements to comply with the Acceptable Solution. I have not received any information that establishes that the west elevation of the complex as shown on plan L-09 has the required fire-resistant glazing or fire-rating of the external timber-framed walls to satisfy that requirement. Accordingly, I must consider the fire design of the complex in terms of an alternative solution.

7.6 In this respect I am not aware of any compensating factors that offset the lack of fire-resistant glazing or fire-rating of the west elevation of the complex. In addition, I note that the Fire Report indicates that no S rating provisions have been incorporated within the complex. In my opinion, due to the proximity of the complex to a common boundary, this is a further omission that should be rectified.

7.7 The authority also contends that the topography of the adjoining site would make it unlikely, though not impossible, that any building work would take place close to the boundary in question. However, such a decision would rest with the adjoining owner and the question of future building work is not one that either the authority or I can dismiss at this juncture.

7.8 In view of the conclusions that I have reached, I do not consider that the complex as designed and built meets the requirements of C3 and C4 of the Building Code.

The code compliance certificate

7.9 Given that the building work has now been completed and the authority's decision to issue the building consent relied upon, I consider it would be impractical to reverse the authority's decision to issue the building consent. I am of the view that a practical solution is for the authority's decision to issue the code compliance certificate to be reversed, and for the authority to issue a notice to fix requiring the building work be brought into compliance with the Building Code.

7.10 As I have found that the building consent was incorrectly granted, I am of the opinion that the decision to issue the code compliance certificate was similarly incorrect.

7.11 I accept that the task of achieving compliance at this stage may be more difficult than might have otherwise been the case, however, the fact that the work has been completed cannot, of itself, change my view of how the Act and the Building Code should have been applied to the situation.

7.12 The options available to the owner to rectify the matter include:

- application for a waiver under section 67 of the Act of particular provisions within Clauses C3 and C4 relating to the external spread of fire
- the completion of additional building work required to achieve compliance with Clauses C3 and C4
- reclassification of the building consent for a limited intended life under section 113 of the Act conditional on the development of the neighbouring site.

8. What is to be done now?

8.1 Based on my decision, the authority should withdraw the code compliance certificate that it has issued for the complex. A notice to fix should then be issued requiring the complex to be brought into compliance with the Building Code. It is then for the owner of the complex to satisfy the authority how code compliance is to be achieved as an amendment to the original consent. Once the authority is satisfied on reasonable grounds that the remedial work ensures that the complex is code compliant, then it should amend the original building consent and issue a new code compliance certificate based upon that amendment.

9. The decision

9.1 In accordance with section 188 of the Act I determine that:

- the complex, in respect of the fire protection to the boundary wall, does not comply with Building Code Clauses C3 and C4
- the decision of the authority to issue the building consent was therefore incorrect
- the code compliance certificate was incorrectly issued because it was predicated on an incorrectly issued building consent, and accordingly I reverse the authority's decision to issue the code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 15 February 2010.

John Gardiner
Manager Determinations

Appendix A: The legislation

Relevant provisions of the Building Code include:

Clause C3—SPREAD OF FIRE

OBJECTIVE

C3.1 The objective of this provision is to:

(c) Protect adjacent household units, other residential units, and other property from the effects of fire.

FUNCTIONAL REQUIREMENT

C3.2 Buildings shall be provided with safeguards against fire spread so that:

(c) Adjacent household units, other residential units, and other property are protected from the effects of fire.

PERFORMANCE

C3.3.5 External walls and roofs shall have resistance to the spread of fire, appropriate to the fire load within the building and to the proximity of other household units, other residential units and other property.

Clause C4—STRUCTURAL SAFETY DURING FIRE

OBJECTIVE

C4.1 The objective of this provision is to:

(b) Protect household units and other property from damage due to structural instability caused by of fire.

FUNCTIONAL REQUIREMENT

C4.2 Buildings shall be constructed to maintain structural instability caused by of fire to.

(c) Avoid collapse and consequential damage to adjacent household units or other property

The relevant paragraphs of Acceptable Solution C/AS1 are:

PART 7: CONTROL OF EXTERNAL FIRE SPREAD

Choosing calculation method

7.3.4 This acceptable solution provides four methods for determining the required distance separation and associated limits on unprotected areas.

7.3.5 Method 1 allows a combination of small unprotected areas and fire resistant glazing. It is the only method permitted for a wall or part of a wall less than 1.0 metres from the relevant boundary and having an intersection angle of less than 80degrees.

C/AS1: Table 7.4

Table 7.4: Method 4 – Return Walls and Wing Walls for Unsprinklered Firecells Protection of Sleeping Purpose Groups or Safe Paths on the Same Property
Paragraphs 7.3.13, 7.7.1, 7.7.4, 7.7.5, 7.7.6 and 7.7.7

Equivalent opening height h_{eq} (m)		Return walls: Minimum separation distance between unprotected areas and notional boundary D_B (m) — Equivalent opening width W_{eq} (m)										Equivalent opening height h_{eq} (m)		Wing walls: Minimum length of wing wall if located on the relevant boundary L_B (m) — Equivalent opening width W_{eq} (m)									
		1	2	3	4	6	8	10	20			1	2	3	4	6	8	10	20
Fire hazard category 1	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Fire hazard category 1	1	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		2	0.6	0.9	1.0	1.1	1.2	1.2	1.2	1.2
	3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		3	0.7	1.1	1.3	1.4	1.6	1.7	1.8	1.8
	4	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3		4	0.7	1.2	1.5	1.8	2.0	2.2	2.3	2.4
	6	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.5		6	0.7	1.3	1.8	2.1	2.6	2.9	3.1	3.5
	8	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6		8	0.7	1.3	1.8	2.3	3.0	3.5	3.8	4.5
	10	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.7		10	0.7	1.4	2.0	2.5	3.3	3.9	4.4	5.4
Fire hazard category 2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Fire hazard category 2	1	0.6	0.7	0.8	0.8	0.9	0.9	0.9	0.9
	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		2	0.8	1.1	1.4	1.5	1.6	1.7	1.7	1.7
	3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4		3	0.8	1.4	1.7	1.9	2.2	2.3	2.4	2.5
	4	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.5		4	0.9	1.5	2.0	2.3	2.7	2.9	3.1	3.3
	6	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.7		6	0.9	1.7	2.3	2.7	3.4	3.8	4.2	4.8
	8	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		8	0.9	1.7	2.4	3.0	3.9	4.5	5.0	6.2
	10	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.1		10	0.9	1.8	2.5	3.2	4.2	5.0	5.6	7.2
Fire hazard categories 3 & 4	1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	Fire hazard categories 3 & 4	1	0.8	1.1	1.2	1.3	1.3	1.4	1.4	1.4
	2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5		2	1.0	1.5	1.9	2.1	2.3	2.5	2.6	2.7
	3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6		3	1.1	1.8	2.3	2.6	3.1	3.4	3.6	3.9
	4	0.4	0.4	0.5	0.6	0.7	0.8	0.8	0.9		4	1.2	2.0	2.6	3.1	3.7	4.2	4.4	5.1
	6	0.4	0.5	0.7	0.8	1.0	1.1	1.1	1.2		6	1.2	2.2	3.0	3.6	4.6	5.2	5.8	7.2
	8	0.4	0.5	0.7	0.9	1.1	1.3	1.4	1.5		8	1.2	2.3	3.2	4.0	5.2	6.2	6.8	8.8
	10	0.4	0.5	0.8	1.0	1.3	1.4	1.5	1.9		10	1.2	2.4	3.4	4.2	5.6	6.7	7.6	10.5

Note:
The values of D_B or L_B may be linearly interpolated where exact values of h_{eq} or W_{eq} are not shown in the table.