

Protection of fire fighters in the alteration of a school building

1 THE MATTERS TO BE DETERMINED

- 1.1 The matter before the Authority arises out of a dispute over whether the proposed design for an alteration to a school building complied with the requirements of the building code (the First Schedule to the Building Regulations 1992) for the protection of fire service personnel.
- 1.2 In making its decision, the Authority has not considered whether the building complied with any other provisions of the building code.

2 THE PARTIES

- 2.1 The applicant was the Ministry of Education acting through a firm of fire engineering consultants (“the designer”). The other party was the territorial authority.

3 THE BUILDING AND THE SEQUENCE OF EVENTS

- 3.1 The building was an H-shaped classroom block of two main floors with a part-basement. The alteration consisted of constructing 3 new classrooms on each level within the legs of the H.
- 3.2 The designer submitted a fire engineering report to the territorial authority. The report proposed 15/15/15 fire ratings for floors and stair enclosures. The acceptable solution required 60/60/60 for the lower floor over the basement and 30/30/30 for the upper floor and the stair enclosures.
- 3.3 The territorial authority referred the report to another fire engineer (“the peer reviewer”), who noted that the fire design philosophy varied significantly from the acceptable solutions, and referred it to the Fire Service in respect of the protection of fire fighters.
- 3.4 The Fire Service considered that the building code required fire fighters to be protected during fire fighting operations as well as during rescue operations. It also drew attention to the possible need for fire fighters to evacuate people with disabilities.

- 3.5 After further correspondence between the designer, the peer reviewer, and the Fire Service, the peer reviewer sought the opinion of a member of the Authority's staff. That opinion was noted as being the staff member's personal opinion offered on a no-liability basis. That opinion has not been taken into account in this determination.
- 3.6 The upshot was that the territorial authority refused to issue a building consent on the grounds that the proposed building did not comply with the fire protection clauses of the building code.
- 3.7 The applicant then applied for a determination as to whether there was any requirement to safeguard fire fighters undertaking firefighting to protect property as distinct from undertaking rescue operations to protect lives.

4 THE SUBMISSIONS

4.1 The designer's submissions

4.1.1 The designer said:

The objective to facilitate fire fighting operations etc primarily concerns providing access and facilities to fire fighters during rescue operations, not providing access for fire fighters for extinguishing the fire, as protection of property is not a consideration of the Building Act. It therefore remains to be proved that if the population can evacuate the building with a reasonable factor of safety then the requirement for a 60/60/60 fire rating can be reduced.

- 4.1.2 The designer based its argument on the words of the legislation, particularly section 6(2)(a) of the Building Act and clauses C3.1(b) and C3.2(b) of the building code. It also quoted comments from the new Fire Safety Approved Documents (not yet in force) to the effect that firecell ratings give limited protection to fire fighters because "property protection in the building of origin" is not covered by the building code except as required for household units and "other property" as defined in the Act.

- 4.1.3 As the building concerned was remote from boundaries and household units, said the designer:

there is no '*other property*' to be protected and it follows that there is no requirement for fire fighter protection apart from rescue operations.

- 4.1.4 As to the evacuation of people with disabilities:

. . . there is no requirement in the Building Act for their egress in a fire situation. The only legal requirement is to provide access to the building. The Building Code Regulations Clause D1.1(c) states "ensure that people with disabilities are able to enter and carry out normal activities and functions within buildings". There is currently no legal requirement for their evacuation.

4.2 The Fire Service's submissions

- 4.2.1 The Fire Service also referred to clauses C3.1(b) and C3.2(b) of the building code, and said:

We consider it unacceptable that the design is allowing for structural collapse when it is likely that operational fire fighters would still be in the building fighting the fire. The Building Code is a document that is designed to accommodate the life safety of the building occupants. In the event of a fire it requires that all people in the building be protected (regardless of whether they are evacuating or entering for fire fighting purposes).

In addition, schools are specifically mentioned in the requirements for disabled access Building Act 47A 4(m). This means that it is possible for a disabled person to be in the building during a fire. One method of protection for disabled people is to use the stairwell as a refuge area. If this was so the stairwell would be required to have fire separation of greater than 15/15/15.

5 THE LEGISLATION

- 5.1 The Authority regards the following provisions of the legislation (not all of which were referred to by the designer) as being relevant:

- 5.2 The following definitions in section 2 of the Building Act:

“Functional requirements”, in relation to a building, means those functions which a building is to perform for the purposes of this Act:

“Intended use” of a building includes—

- (a) Any reasonably foreseeable occasional other use that is not incompatible with the intended use; and
- (b) Normal maintenance; and
- (c) Activities taken in response to fire or any other reasonably foreseeable emergency—

but does not include any other maintenance and repairs or rebuilding:

“Performance criteria”, in relation to a building, means those qualitative or quantitative criteria which the building is to satisfy in performing its functional requirements:

- 5.3 The requirement of section 6(2) that particular regard shall be had to the need to:

- (a) Safeguard people from possible injury, illness, or loss of amenity in the course of the use of any building, including the reasonable expectations of any person who is authorised by law to enter the building for the purpose of rescue operations and fire fighting in response to fire:
- (b) Provide protection to limit the extent and effects of the spread of fire, particularly with regard to—
 - (i) Household units and other residential units (whether on the same land or on other property); and
 - (ii) Other property:

5.4 The requirement of section 6(3) that:

In determining the extent to which the matters provided for in subsection (1) of this section shall be the subject of control, due regard shall be had to the national costs and benefits of any control, including (but not by way of limitation) safety, health, and environmental costs and benefits.

5.5 The requirement of regulation 3 of the Building Regulations that:

(2) Except as otherwise provided by the Act, each building shall achieve the performance criteria specified in the building code for the classified use of that building . . .

(3) The classified use or uses of a building or part of a building shall be the ones that most closely correspond to the intended use or uses of that building or part of that building.

5.6 The following definitions in clause A2 of the building code:

Adequate means *Adequate* to achieve the objectives of the building code.

Fire safety systems. The combination of all methods used in a *building* to . . . and restrict the spread of fire, and includes both active and passive protection.

5.7 The provisions of clauses C2, C3, and C4 that:

C2 – MEANS OF ESCAPE

OBJECTIVE

C2.1 The objective of this provision is to:

- (b) Facilitate *fire* rescue operations.

FUNCTIONAL REQUIREMENT

C2.2 *Buildings* shall be provided with *escape routes* which:

- (b) Give fire service personnel *adequate* time to undertake rescue operations.

C3 – SPREAD OF FIRE

OBJECTIVE

C3.1 The objective of this provision is to:

- (b) Provide protection to fire service personnel during firefighting operations.

FUNCTIONAL REQUIREMENT

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

- (b) Fire fighters may undertake rescue operations and protect property,

PERFORMANCE

C3.3.9 The *fire safety systems* installed shall facilitate the specific needs of fire service personnel to:

- (a) Carry out rescue operations, and
- (b) Control the spread of *fire*.

C4 - STRUCTURAL STABILITY DURING FIRE

OBJECTIVE

C4.1 The objective of this provision is to:

- (a) Safeguard people from injury due to loss of structural stability during *fire*, and

FUNCTIONAL REQUIREMENT

C4.2 Buildings shall be constructed to maintain structural stability during *fire* to:

- (b) Allow fire service personnel *adequate* time to undertake rescue and firefighting operations, and

PERFORMANCE

C4.3.1 Structural elements of buildings shall have *fire* resistance appropriate to the function of the elements, the *fire load*, the *fire intensity*, the *fire hazard*, the height of the *buildings* and the *fire* control facilities external to and within them.

6 DISCUSSION

6.1 The Authority takes the view, on its reading of the legislation, that:

- (a) The definitions in section 2 of the Act indicate that, in the building code, the objectives and functional requirements are descriptive or explanatory in nature, whereas the performance criteria are mandatory.
- (b) The reference in section 6(2) to safeguarding life can be taken to refer to the life of anyone likely to be in or about the building in the course of its intended use, which includes fire fighters and people with disabilities.
- (c) The classified uses specified in the building code include, for each classified use, activities taken in response to fire.
- (d) The Building Regulations, therefore, require a building to achieve the performance requirements specified in the building code for activities taken in response to fire.
- (e) The relevant performance requirements are:
- Clause C3.3.9 requiring fire safety systems to facilitate the needs of fire service personnel to control the spread of fire. The term “fire safety systems” includes building elements required to have some fire resistance.
 - Clause C4.3.1 requiring such fire resistance to be appropriate to the function of allowing fire service personnel adequate time to undertake fire fighting operations.

6.2 The Authority recognises that in a fire it might well be that people with disabilities are forced to rely on rescue by fire fighters in the absence of other specific provisions for their safety.

- 6.3 The Authority does not accept that the life of a fire fighter is to be safeguarded only while the fire fighter is undertaking rescue operations or protecting household units or other property. It is enough that the fire fighter is in or around the building for the purpose of activities taken in response to fire or other emergencies as mentioned in the definition of “intended use”.
- 6.4 However, in this case the designer has taken the view that their proposed fire ratings are adequate to protect occupants until they escape from the building, and that there is no requirement to protect the building itself and therefore no requirement to protect fire fighters when they are protecting the building. For the reasons set out above, the Authority disagrees with that view.
- 6.5 The Authority recognises that there is no such thing as absolute safety. The degree to which a fire fighter’s (or anyone else’s) life is to be safeguarded must conform to section 6(3) of the Act. The acceptable solution specifies fire resistance ratings that comply with the building code, but they are not the only means of complying.
- 6.6 The Authority therefore concludes that, in order to comply with the building code, then, unless some other compensating provision is made, the building elements concerned must have fire resistance ratings appropriate for the protection of fire fighters, whether they are performing rescue operations or protecting the building. That does not necessarily mean that the ratings must be those specified in the acceptable solution.

7 THE AUTHORITY’S DECISION

- 7.1 In accordance with section 20 of the Building Act, the Authority hereby confirms the territorial authority’s decision to refuse building consent unless and until the building work concerned complies with the building code in respect of the protection of fire fighters.

Signed for and on behalf of the Building Industry Authority on this 12th day of June 2001

W A Porteous
Chief Executive