

Determination

under the

Building Act 1991

No. 92.1101: Fire Safety Provisions in a University Building

1. The matter to be determined

- 1.1 The matter before the Authority was a dispute arising from a territorial authority's refusal to issue a building consent in respect of the alarm system, toilets within the fire separation around a safe path, and a pressurised stair, being a vertical safe path, as the only available exitway.
- 1.2 The Authority takes the view that it is being asked to determine under Part III of the Building Act 1991:
 - (a) Whether, in terms of the Authority's Approved Document C2, a Type 5 alarm system shall consist of three separate systems (a Type 4 smoke detector system, a Type 3 heat detector system, and a Type 1 manual fire alarm system together with the necessary alerting devices and control and indicating equipment) or may consist of one integrated system;
 - (b) Whether toilets shall be permitted within the fire protection around a safe path; and
 - (c) Whether the proposed arrangement of exitways is adequate for the upper floors of the building concerned.

2. Discussion

2.1 Smoke detectors

- 2.1.1 The applicant and the territorial authority agree that the basis of the dispute is whether or not the building complies with Approved Document C2. The Authority notes that the building is of purpose group WL as defined in Table A1 of Appendix A to Approved Documents C2, C3, and C4, with an occupant load of 296 calculated from Table A2. For a three floor building of that purpose group and occupancy load, Table B1/3 requires a Type 5 alarm system as defined in Appendix B. That definition includes the words "i.e. fire safety precautions Types 3 and 4 combined". The proposed system is an integrated system (not three separate systems) that includes smoke detectors, heat detectors, and manual call points, together with the necessary alerting devices and control and indicating equipment.

The applicant considers that the proposed system is a Type 5 system, the territorial authority considers that a type 5 system should consist of three separate systems.

- 2.1.2 The Authority also notes that Table 3 of C2/AS1 in Approved Document C2 permits an increase of open path lengths of “100% where smoke detectors are installed”. The applicant considers that the installation of the Type 5 system justifies that increase. The territorial authority considers that a separate Type 4 smoke detector system is necessary in order to justify the increase.
- 2.1.3 The Authority considers that a Type 5 system may be an integrated system; so long as detectors are placed in appropriate positions or spaces to detect heat or smoke, it is not always necessary that they detect both. The choice of detector type must be made by the designer taking into account the circumstances and use of each space. Guidance on the placement of smoke detectors is given in the New Zealand Fire Protection Association’s “Code of Practice for Smoke Detectors” (see paragraph 1.2.3 of F7/AS1 in Approved Document F7).
- 2.1.4 The Authority considers that the installation of a Type 5 system justify an increase in open path length to the same extent as a Type 4 system. The choice of detector type must be made by the designer taking into account the circumstances and use of each space. Guidance on the placement of smoke detectors is given in the New Zealand Fire Protection Association’s “Code of Practice for Smoke Detectors” (see paragraph 1.2.3 of F7/AS1 in Approved Document F7).

2.2 *Toilets opening off safe paths*

- 2.2.1 The Authority notes that a safe path protected from the effects of fire by fire separations and external walls, as is the case with the building concerned, is itself a fire cell. The question, therefore, is whether that firecell may include toilets that are not fire separated from the route of travel.
- 2.2.2 The Authority considers that the amount of combustible material in toilets is small and therefore there is little risk to the buildings users. That does not apply to associated facilities such as a cloakroom or cleaner’s cupboard.
- 2.2.3 The Authority therefore considers that in general toilets may be within the same firecell as a safe path and need not be fire separated from the route of travel. That does not apply to toilets that include associated facilities likely to contain significant amounts of combustible materials, which are to be fire separated from the safe path, nor does it apply to toilets that are within an adjacent firecell.

2.3 *Means of escape*

- 2.3.1 The documents submitted to the Authority show two pressurised stairs to the two upper floors of the building. Each stair, with its foyer, is protected by fire separation. Each stair is therefore a safe path. However, only one of those stairs is accessible from some rooms on

the upper floors. If that stair were unavailable because of fire or smoke, then the occupants of the rooms served by that stair would have to go along an open path to the foyer of that stair, through the foyer, and then along another open path in order to reach the other stair.

2.3.2 The applicant accepts that two exitways are necessary, but considers that because the stairs are pressurised the effect is that there are two exitways from each room on the floors concerned. The territorial authority considers that for some rooms there is only one available exitway.

2.3.2 The Authority considers that one of the purposes of requiring two exitways is to allow for the possibility that one of them might not be available in a fire emergency because the fire is within the exitway itself. The fact that the stairs are pressurised would not necessarily make it safe to enter the foyer of a stair in which there is a fire in order to reach the other stair. The Authority therefore does not agree that the pressurisation of the stairs amounts to the provision of two available exitways.

3. The Authority's decision

3.1 In accordance with section 20(a) of the Act, the Authority:

- (a) Reverses the decision of the territorial authority in respect of the Type 5 alarm system and the associated increase in open path length;
- (b) Reverses the decision of the territorial authority in respect of the toilets; and
- (c) Confirms the decision of the territorial authority in respect of the proposed arrangement of exitways.