



26 September 2008

FI 091

Question:

Std: NZS 4512

Interpretation:

Issued by the Alarms and Detection Group

Clause 405.2.1(n)(iii)

In an atrium space (>20m high) within a building, how extensive is the *specific fire engineering design* required to be?

Specifically must it cover:

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| a) Balconies, walkways, mezzanines, and bridges within the atrium? | a) Yes. |
| b) The effects of the atrium on other areas of the building? | b) Yes. |

The approach of NZS 4512 is to provide an *integrated set of rules* (foreword paragraph 3). Clause 405.2.1 (n) (iii) has the effect of declaring the rules-based approach of NZS 4512 incapable of accounting for the effects of a large mass of air with a vertical dimension exceeding 20m, and instead requires the detection in these areas to be separately assessed by means of a *specific fire engineering design*.

Specifically, a comprehensive fire engineering design for the *detector selection, location and spacing* associated with such atrium area must cover:

1. The atrium itself (wherever ceiling height is greater than 20m);
2. Elevated sub-areas, mezzanines, walkways, bridges, open balconies and the like within the atrium's air circulation area, whether or not these are within 20m of the atrium roof/ceiling;
3. The effects of the atrium volume on other areas of the building into which there is a free flow of air, smoke, and heat; and
4. The effects of temperature, stratification, air currents and ventilation systems within the atrium on both the atrium itself and the surrounding areas - per 405.2.1 (o).

Taking into account all Objectives, Declared Functional Requirements, and Legislative Requirements (NZS 4512 part 1).