Performance criteria and classification method

The performance criteria and classification method set out here are based upon the BS 8414-1:2002 test method[A4]. The primary concern when setting the performance criteria for these systems is that of fire spread away from the initial fire source and the rate of fire spread. If fire spread away from the initial fire source occurs, the rate of progress of fire spread or tendency for collapse should not unduly hinder intervention by the emergency services.

The performance of the system under investigation is evaluated against three criteria:

- External fire spread
- Internal fire spread
- Mechanical performance

Fire spread start time, t_s

Fire spread is measured by type K thermocouples set at levels 1 and 2 (see Figure A3). The start time, t_s, for fire spread occurs when the temperature recorded by any external thermocouple at level 1 equals or exceeds a 200 °C temperature rise above the start temperature, T_s, and remains above this value for at least 30 seconds. An example graph is shown in Figure A5, where ignition of the heat source corresponds to time zero.

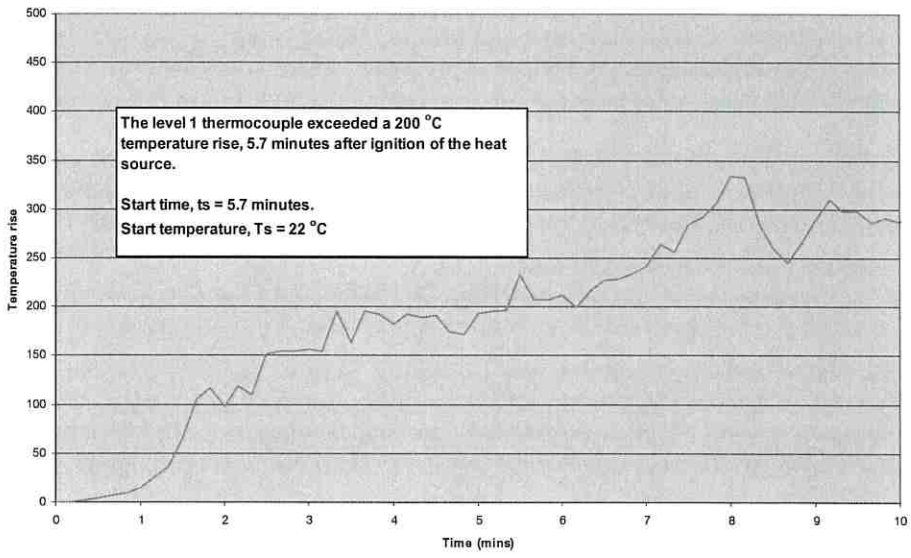

Figure A5 Level 1 thermocouple used to determine start time, t_s

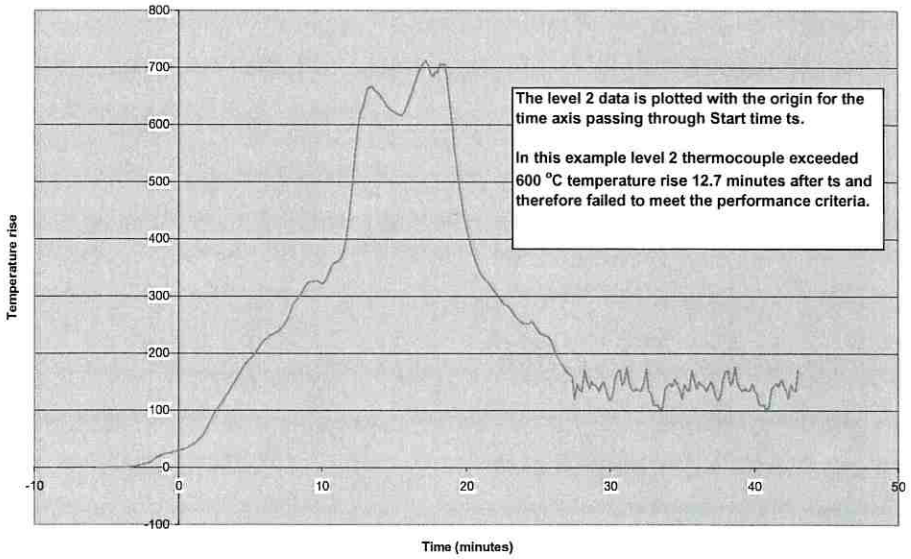

Figure A6 Level 2 thermocouple plotted with start time set to time zero

External fire spread

Failure due to external fire spread is deemed to have occurred if the temperature rise above T_s of any of the external thermocouples at level 2 exceeds 600 °C, for a period of at least 30 seconds, within 15 minutes of the start time t_s. An example graph is shown in Figure A6.

Internal fire spread

Failure due to internal fire spread is deemed to have occurred if the temperature rise above T_s of any of the internal thermocouples at level 2 exceeds 600 °C, for a period of at least 30 seconds, within 15 minutes of the start time t_s. An example graph is shown in Figure A6.

Mechanical performance

No failure criteria have been set for mechanical performance. However, details of any system collapse, spalling, delamination or flaming debris should be included in the test report. The nature of the mechanical failure should be considered as part of the overall risk assessment when specifying the system (see for example Figure A7).

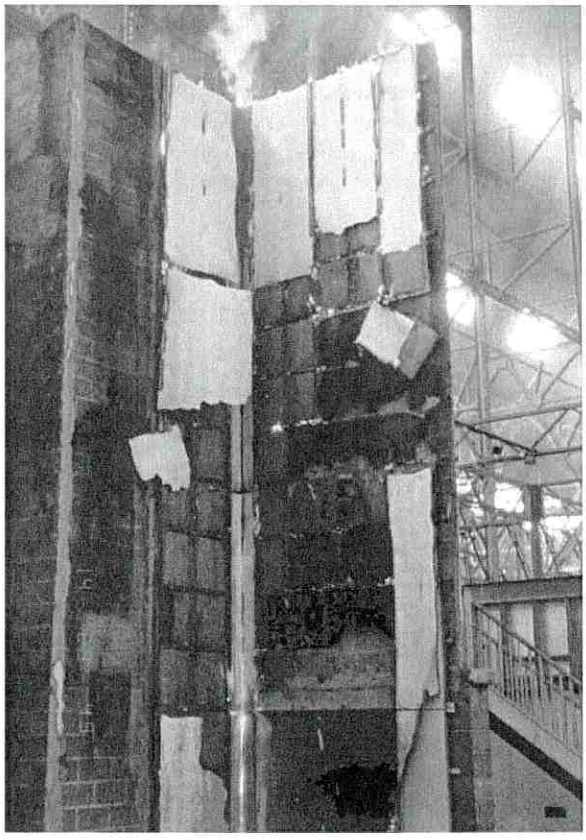

Figure A7 After the test