

## Fire Engineering Design

### Structural fire engineering >

A severe fire within a building will affect the structure to some degree. Concrete based structures as well as steel composites normally require some degree of fire protection to prevent the structure heating too rapidly and failing prematurely. Concrete structures can have inherent fire resistance while steel structures can be protected with a board or spray to insulate the structure from fire. Our capability to determine the required fire protection is illustrated below.

#### Aims >

>Provide sufficient fire protection for the specific building's structure to protect it throughout the duration of a fire.

#### Benefits >

>Reduced construction cost (and time) without reducing safety.

>In some cases fire protection can be removed from secondary steel, while the whole structure may be reduced by as much as 60 minutes. A 30-minute reduction is typical for well-vented buildings (i.e. large area of glazing).

>Improved structural resilience with enhanced structural details where appropriate, i.e. sheer stud overlap, composite mesh size and improved column-beam connections.

#### Tools >

>Simple equations for hand calculations, PD 7974-1 for compartment fires.

>In-house zone model analysis for compartment temperatures assessment.

>Time Equivalence Analyse.

>Finite Element Analysis of whole building performance.

#### Projects >

>The Point Development

>Douglas Village Shopping Centre

>Montevetro Tower

>Northern Quarter

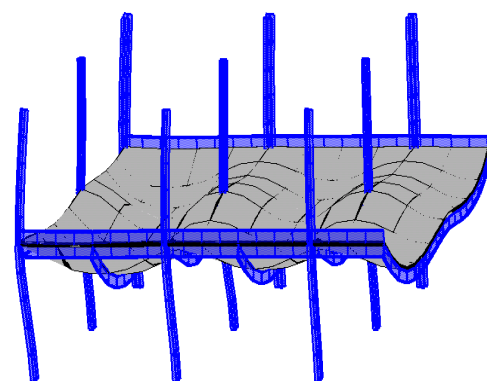
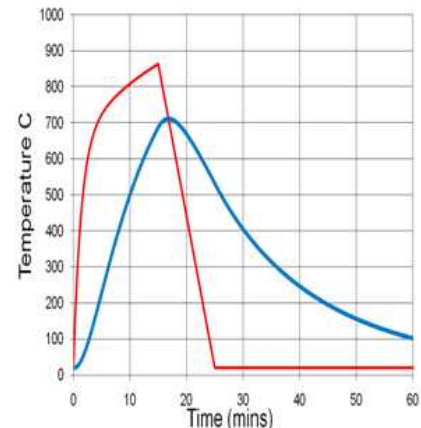
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