

Fire performance of curtain walls and rainscreens

Curtain walls are normally used for areas of the building envelope that are not required to be fire resisting but they still require appropriate detailing to limit the spread of fire. This Technical Note reviews the aspects relating to fire performance that generally need to be considered in the design of facades that are not required to be fire resisting. Where the façade is required to be fire resisting additional requirements will apply.

Introduction

Some parts of the building envelope are required to be fire resisting and these areas must be determined by the designer of the building taking account of the proximity of other buildings and the location of escape routes. Where curtain walls are used in these areas they are required to provide fire resistance and there are fire resisting systems that can be used in such cases. Where fire resistance is required, the full wall comprising the frame and infill panels/glazing must be tested to demonstrate the required performance.

Curtain walls are normally used for areas of the building envelope that are not required to be fire resisting however they still require appropriate detailing to limit the spread of fire.

The scope of this Technical Note is limited to walls which are not required to be fire resisting.

The main requirement for curtain walls that are not required to provide fire resistance is provision of fire stopping between the external wall and compartment floors and walls. In some situations there may also be a requirement to provide fire protection to brackets supporting the wall and limit the combustibility of materials used in the wall.

Rainscreen walls are additionally required to limit the spread of fire in the rainscreen cavity.

Requirements are given in Building Regulations and recommendations on how these can be satisfied are given in supporting documents. Additional requirements are given in guidance documents relating to particular types of buildings such as hospitals and schools. Clients and Insurers may also have requirements.

Many of the requirements are open to interpretation and construction details that are deemed acceptable vary from project to project. It is therefore important to discuss the provisions for a particular building with all the interested parties at an early stage.

This Technical Note provides guidance on the following issues:

- Provision of fire stopping at junctions between external walls and compartment walls and floors
- Protection of curtain wall brackets
- Provision of cavity barriers in rainscreen walls
- Use of combustible insulation materials

Building Regulations

In England and Wales, guidance on ways of satisfying the requirements of the Building Regulations relating to fire performance are given in Approved Document B (AD B). In Scotland guidance is given in section 2 of the Technical Handbook and in Northern Ireland it is given in Technical Booklet E.

The guidance in the various documents is similar although the way the documents are set out is very different making comparison difficult. However there are some differences in the technical requirements that will be described under the relevant headings below. There is also a different terminology for fire performance of materials used in Scotland which is described in this section.