

Good Building Guide

Installing fire protection to structural steelwork

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This Good Building Guide discusses the importance of correctly installing passive and reactive fire protection to structural steelwork to ensure the anticipated performance can be realised in the event of a fire. It identifies key issues for the guidance of specifiers, manufacturers, contractors and approval authorities, and includes useful references to more comprehensive guidance documents. The guide highlights the importance of adequate testing, product quality, installation, maintenance and the critical role of third-party certification schemes.

Introduction

Structural steel is a widely used framing material in construction. Steel-framed buildings now account for 66% of the market in multistorey non-domestic buildings and 88.5% of the market in single-storey non-domestic buildings in the UK based on figures published in 2017^[1]. One of the factors that has influenced this market share has been the changes to the way in which structural steel is protected from the effects of fire. In 1981, fire protection accounted for some 31% of the cost of structural steelwork but by 2007 this figure had reduced to approximately 17%^[1]. The reduction in the cost of fire protection has been due to the high levels of competition in the industry driving research and innovation.

During this period thin film intumescent coatings have come to dominate the market in the UK. Intumescent coatings are water-based or solvent-based paint-like materials that expand when heated to form a char with insulating properties which act to protect the steel frame in the event of a fire. For all forms of fire protection to steelwork, whether reactive products such as intumescent coatings or a traditional passive form of protection such as insulating boards or sprayed protection, the quality of the performance is dependent on the quality of the installation.

Research undertaken as part of a UK Government Department of Trade and Industry sponsored *Partners in Innovation* project showed that many buildings are constructed and operated

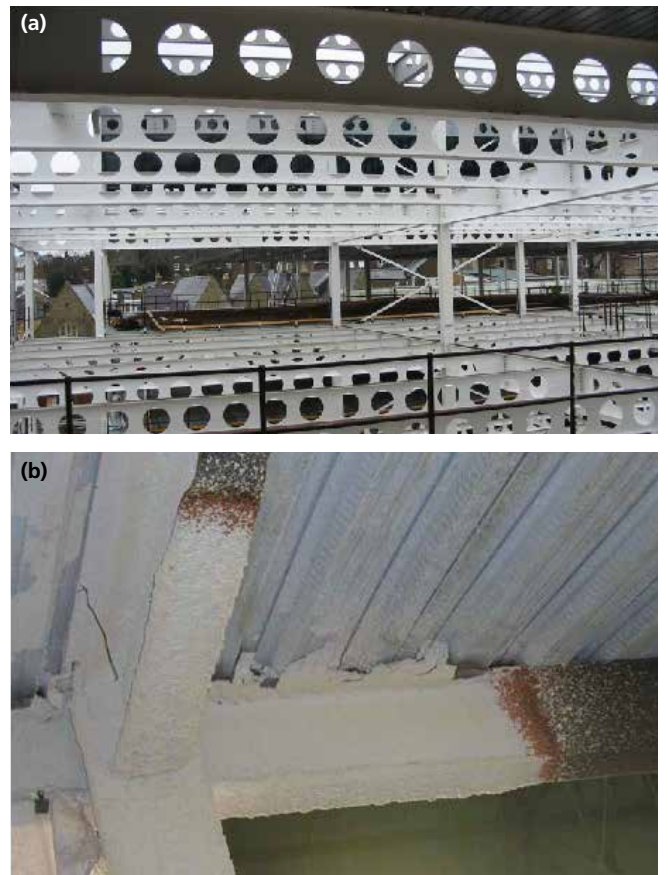


Figure 1: Fire protection to structural steelwork: (a) intumescent coatings on cellular beams, (b) sprayed fire protection to steel connection area
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