

THE LIFE OF LINTELS

Changes to industry standards governing lintels should ensure they are better matched to building design life but not without placing extra pressure on the specifier. Pat Murphy explains.

Current emphasis in industry standards is on sustainable design and on more rigorous evaluation of component durability and life expectancy. This is definitely true of recent changes to standards affecting lintels, which also make the specifier responsible for assuring the fitness-for-purpose of products.

BS EN 845-2:2003 (Specification for ancillary components for masonry Part 2: Lintels), which came into effect January 2005, makes it the responsibility of the designer to ensure lintel compliance and performance.

BS 7543:2003 (Guide to durability of buildings and building elements, products and components), revised last year, places the onus on the designer to evaluate the performance and service life potential of products.

Significantly, both require that the lintel's system of corrosion protection is suited to the prevailing climactic and atmospheric conditions of the project location.

So how can the public sector specifier make sure that a lintel specification at least matches, if not exceeds, the design life of a building project? It is a daunting task. If a structurally critical element like a lintel fails prematurely, then the repercussions could be

catastrophic. And accountability no longer falls on the manufacturer or supplier but on the specifier. Where steel lintels are concerned, it means selecting suitable corrosion protection to provide the service life required.

BS EN 845 lists a range of specifications, from zinc coated steel strip to post-galvanised steel and stainless steel, offering different levels of durability and corrosion protection. But it does not provide guidance on the product life expectancy they support. The specifier is still left to work out what specification of protective coating will provide the required project design life in relation to local exposure and atmospheric conditions,

Atmospheric corrosion

BS7543:2003 gives more detailed guidance on assessing the environmental, climactic, thermal, mechanical and other agents that can cause deterioration of building components. It refers to the use of data sources on atmospheric corrosivity, such as

MAFF (Ministry of Agriculture, Fisheries and Food) which issues a map showing average atmospheric corrosivity rate for zinc based on 10km grids of the UK.

This, plus data from ADAS (Agricultural Development Advisory Service), forms part of an even more comprehensive guide to UK atmospheric corrosivity – the Galvanizers Association 'Zinc Millennium Map'. This identifies five main categories of atmospheric corrosivity for the UK, from low to extremely high (coastal/industrial) and the corresponding annual average rate of zinc corrosion. It is an indispensable tool in evaluating what level of protective coating will be required to meet design life criteria in any UK location.

Design life criteria generally fall into three categories. A 30 year design life is typically



Jones of Oswestry applies the Duragalv system of zinc galvanising to its products, a series of coatings developed to meet different design life needs in the five different categories of atmospheric corrosivity in the UK.

adopted for retail, industrial and general refurbishment projects. A 60 year design life is recommended for health, education, new housing and high quality refurbishment projects. A 120 year design life is usually applied to civic and other quality buildings.

For the public sector specifier working to the more onerous criteria of 60 and 120 years, or even more, there are a number of key points to assessing steel lintel durability.

Although responsibility for product compliance now rests with the specifier, manufacturers will still be keen to demonstrate the suitability of their products and ease the designer's workload. BS7543 and the HAPM Component Life Manual both advise that manufacturer statements about the predicted service life of products are important in assessing product durability. So specifiers should check if the manufacturer can provide qualified data on the potential longevity of its lintels in relation to regional atmospheric corrosivity.

Corbelled lintel

