

Unbroken protection: Superlintels are corrosion-proofed after manufacture with a hot dip post-galvanised Duragalv zinc coating for complete coating integrity vital in achieving predicted service life

# Only post-galvanising guarantees compliance with British Standards governing lintels and their durability

It is the task of the structural engineer to validate the structural performance of a lintel, including the durability features that determine lifespan. But too few recognise that only post-galvanising will guarantee modern lifespan requirements in compliance with key standards BS EN845-2:2003 and BS 7543:2003

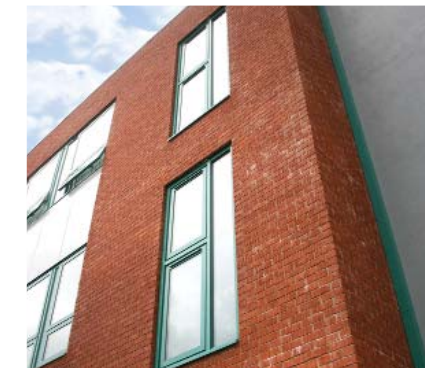
The lintel specification, BS EN845-2:2003\*, lists a number of minimum protective coating specifications for steel lintels, but gives no qualification of their relative longevity. Simply claiming compliance with these protection grades provides no measure or assurance of lintel durability.

Firstly, zinc coating specifications must account for regional differences in 'weathering' - as defined on the Galvanizers Association Zinc Millennium Map - in compliance with the durability standard BS 7543:2003\*\*. The local corrosivity rate coupled with building design life will dictate the zinc coating thickness required for any given application.

**Post-galvanising – the only guarantee**  
Secondly, only post-galvanising will guarantee complete, uninterrupted coverage of the lintel with the required zinc coating thickness. Post-galvanised lintels are immersed in a tank of molten zinc after fabrication, ensuring that the zinc coating is continuous and unbroken. This is critical to achieving the calculated service life.

#### **Pre-galvanised – coating damage, integrity undermined**

In the manufacture of pre-galvanised lintels, the zinc coating suffers damage from cutting and forming processes during fabrication,



Superlintels with Duragalv 140 (& Duplex finish) were specified as an alternative to stainless steel to meet 60 years PFI design life and exposed soffit application at Northampton School for Girls

undermining coating integrity. Paint finishes applied to pre-galv lintels to compensate will not restore this integrity, as they are less robust than mechanically bonded zinc galvanising and will damage more easily during handling.

Therefore, none of the pre-coated steel specifications of BS845-2 can guarantee a complete coating and assure the same integrity of structural protection as post-galvanising.

#### **Post-galvanising – thicker coatings, longer service life**

In addition, zinc coating thickness shown for BS845-2 pre-galvanised material are no greater than 65 microns, precluding their application for longer service life and/or for more demanding atmospheric corrosivity. For instance, a steel lintel needs a minimum 90 microns post-galvanised zinc coating to assure the 60 year design life typical of a public sector/PFI project in an area of average atmospheric corrosivity (category 3, e.g. Wolverhampton, Leeds, Reading).

#### **Less than 3mm steel – insufficient for thicker coatings & longer life**

Also restricting their application, pre-galvanised lintels are typically manufactured in less than 3mm steel sheet which will not support the formation of thicker zinc coatings. Galvanising standard BS EN ISO 1461 states, for example, that 1.5mm thick steel will produce no more than a 45 microns zinc coating.

#### **Compliance with BS EN845-2 and BS 7543:2003**

Jones of Oswestry designs, fabricates and post-galvanises lintels with control of all the essential features that determine and assure product life in compliance with BS EN845-2 and BS 7543:2003.

We offer three grades of Duragalv post-galvanised zinc coating (70, 100 and 140 microns) with a stated longevity to suit the full range of design life needs - up to 120 years+ - and regional categories of atmospheric corrosivity. We post-galvanise in-house to ensure quality control of the finish, backed by test certification. We use minimum 4mm thick



Superlintels with Duragalv 70, for spans up to 6m, were specified to meet minimum 60 years design life for the external envelope at the new PFI University Hospital of North Staffordshire, Stoke

steel plate essential in bonding higher specifications of zinc coating, in excess of BS EN845-2, dictated by the design life targets of modern sustainable building.

#### **References**

\* Specification for ancillary components for masonry - Part 2: Lintels.

\*\* Guide to durability of buildings and building elements, products and components.

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Corner Superlintels with Duragalv 140 met 90 years component service life demands at Lynton Lifeboat station, near Southampton.