New and revised codes & standards

From BSI Updates March 2020

BS EN PUBLICATIONS

BS EN 1090-2:2018 – TC
Tracked Changes. Execution of steel structures and aluminium structures. Technical requirements for steel structures
No current standard is superseded

BS EN ISO 2081:2018 – TC
Tracked Changes. Metallic and other inorganic coatings. Electroplated coatings of zinc with supplementary treatments on iron or steel
No current standard is superseded

BS EN ISO 6507-1:2018 – TC
Tracked Changes. Metallic materials. Vickers hardness test. Test method
No current standard is superseded

BS EN ISO 7500-1:2018 – TC
Tracked Changes. Metallic materials. Calibration and verification of static uniaxial testing machines. Tension/compression testing machines. Calibration and verification of force-measuring system
No current standard is superseded

BS EN ISO 14713-2:2020
Zinc coatings. Guidelines and recommendations for the protection against corrosion of iron and steel in structures. Hot dip galvanizing
Supersedes BS EN ISO 14713-2:2009

BS IMPLEMENTATIONS

BS ISO 11971:2020
Steel and iron castings. Visual testing of surface quality
Supersedes BS ISO 11971:2008

BS ISO 20887:2020
Sustainability in buildings and civil engineering works. Design for disassembly and adaptability. Principles, requirements and guidance
No current standard is superseded

BRITISH STANDARDS REVIEWED AND CONFIRMED

BS EN 10149-1:2013
Hot rolled flat products made of high yield strength steels for cold forming. General technical delivery conditions

BS EN 10149-2:2013
Hot rolled flat products made of high yield strength steels for cold forming. Technical delivery conditions for thermomechanically rolled steels

BS EN 10149-3:2013
Hot rolled flat products made of high yield strength steels for cold forming. Technical delivery conditions for normalized or normalized rolled steels

BS 476-4:1970
Fire tests on building materials and structures. Non-combustibility test for materials

BS 476-10:2009
Fire tests on building materials and structures. Guide to the principles, selection, role and application of fire testing and their outputs

BS 499-2C:1999 (R12)
Welding terms and symbols. European arc welding symbols in chart form

BS ISO 16715:2014
Cranes. Hand signals used with cranes

BS 4190:2014
ISO metric black hexagon bolts, screws and nuts. Specification

BS 4320:1968
Specification for metal washers for general engineering purposes. Metric series

BS 5228-1:2009+A1:2014
Code of practice for noise and vibration control on construction and open sites. Noise

BS 5228-2:2009+A1:2014
Code of practice for noise and vibration control on construction and open sites. Vibration

BS 7121-2-1:2012
Code of practice for the safe use of cranes. Inspection, maintenance and thorough examination. General

BS 9102:2014
Code of practice for safe working on lifting platforms

PD 6688-1-7:2009+A1:2014
Recommendations for the design of structures to BS EN 1991-1-7

PD 6695-1-9:2008
Recommendations for the design of structures to BS EN 1993-1-9

BRITISH STANDARDS WITHDRAWN

BS EN ISO 14713-2:2009
Zinc coatings. Guidelines and recommendations for the protection against corrosion of iron and steel in structures. Hot dip galvanizing
Superseded by BS EN ISO 14713-2:2020

BS ISO 11971:2008
Steel and iron castings. Visual examination of surface quality
Superseded by BS ISO 11971:2020

DRAFT BRITISH STANDARDS FOR PUBLIC COMMENT – ADOPTIONS

20/30399840 DC
BS ISO 630-2 Structural steels. Technical delivery conditions for structural steels for general purposes
Comments for the above document were required by 15 March, 2020

CEN EUROPEAN STANDARDS

EN ISO 14713-2:2020
Zinc coatings. Guidelines and recommendations for the protection against corrosion of iron and steel in structures. Part 2: Hot dip galvanizing

ISO PUBLICATIONS

ISO 4987:2020
Steel castings. Liquid penetrant testing
Will be implemented as an identical British Standard

ISO 20887:2020
Sustainability in buildings and civil engineering works. Design for disassembly and adaptability. Principles, requirements and guidance
Will be implemented as an identical British Standard

AD 439: Transverse reinforcement in composite beams

This Advisory Desk note has been produced to reflect the publication in 2015 of P405 *Minimum degree of shear connection rules for UK construction to Eurocode 4*. As a result, AD 241: *Transverse reinforcement in composite beams* is redundant.

Transverse reinforcement in the form of mesh or additional loose bars is required in composite beam design to transfer the longitudinal shear force from the shear connectors (typically studs) into the effective width of the slab. Traditionally, light mesh reinforcement has been used throughout the slab, as a 'deemed to satisfy' approach, although BS 5950-3.1 and EN 1994-1-1 give explicit guidance than can result in a requirement for additional reinforcement.

This updated Advisory Desk Note focuses on Eurocode design, although the principles also apply to BS 5950 design so the guidance given may be readily adapted.

The requirements for transverse reinforcement in EN1994-1-1 are based on the premise that the longitudinal shear resistance of the slab must be greater than the resistance of the shear connectors (i.e. the longitudinal shear force that can be transferred to the slab). Thereby the ability to achieve 6 mm slip at failure is maintained, because failure of the connectors will always be more critical. However, and this was the origin of AD 241, the number of shear connectors found in many composite beams is greater than the number

FROM

Building with Steel

May 1970

Packaged buildings for cash and carry

Butler Buildings (UK) Limited, London office at 113 Upper Richmond Road, SW15, are at present engaged in a program for Crest Cash and Carry Stores (Gallaher's Limited) which provides an interesting example of steel buildings into one of today's growth businesses.

The building pictured is the recently completed Hull store. As with other Butler Buildings for Crest the architects were Boissevan and Osmond, Epsom, and construction of the complete package was by Geo Houlton and Sons Ltd of Hull, Butler Builder-dealers for the area. B.B. (UK) Ltd, the European subsidiary of Butler manufacturing Co, Kansas City, the world's largest manufacturers of pre-engineered metal buildings, supplied the primary and secondary structurals from their plant at Kircaldy, Fife. Cladding was supplied by Butlers Canadian plant, although production of this has now commenced in the UK. The building clad both in Monopanl 24/26G dual skin with glass fibre infill and Butlerib single skin sheeting backed with board insulation shows the harmony achieved with burnished gold walls and parchment Butlerib roof. The roof is insulated throughout with Butler 25 insulation blanket.

Erection time for the building was 42 days, the entire project being completed by Houltons in 21 weeks. 85 tons of steel were used. The primary structurals being plate steel, sheared and welded with roll-formed secondary structurals.

This Crest store is one of Butlers LRF range 120ft clear span 168ft along with 2ft x 24ft width extensions to form a 168ft foot square building. Canopy as shown is steel 26G Butlerib and steel gutters and downpipes are used throughout.

Crest Cash and Carry stores incorporate a very high standard of shopfitting to provide an attractive interior - at Hull this work was also entrusted to Messrs Houltons using a variety of materials which enhance the clean lines of its steel frame.

Other projects to the same specification have been completed at Morley near Leeds where the Butler Builders were R.M. Thompson Ltd of Leeds, and Butler are at present engaged on the construction of the Clayton, Manchester, store.

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needed to achieve the required beam resistance. Often, the design of composite beams is governed by serviceability limits, and they are not designed to achieve their full bending resistance. In such cases the studs provided are needed in order to satisfy the rules for minimum degree of shear connection, which are associated with limiting slip at the steel to concrete interface. So in terms of beam resistance alone, fewer studs could be used, and therefore less transverse reinforcement.

AD 241 therefore proposed applying a reduction factor to the longitudinal shear force that was a function of the applied moment divided by the moment resistance.

As noted above, a big change since AD 241 was originally written has been the publication of P405. Covering composite beams with both transverse and parallel decking, and considering a wider range of variables than EN1994-1-1, it provides new rules for minimum degree of shear connection. In many cases the number of studs needed on a beam has dramatically reduced compared to the EN1994-1-1 provisions. It is worth noting that one of the variables considered is the beam utilisation in bending, with minimum degree of connection now varying according to:

$$\left[\frac{M_{Ed}}{M_{Rd}}\right]^2$$

Applying the original guidance given in AD 241 alongside the guidance in P405 could therefore result in a certain amount of double counting. Moreover, when beams are designed in accordance with P405 it is unlikely that the 'old problem' of being unable to accommodate sufficient transverse reinforcement to provide a resistance in excess of that of the shear connectors will remain.

By applying the rules in P405 (which appear in numerous design software packages) there is no need for AD 241.

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