AD 416:
Artificially reducing the effective width of slab to satisfy shear connection requirements

In composite construction, the effective width of slab to be used in composite beam design, as calculated from BS EN 1994-1-1 (clause 5.4.1.2) and the former BS 5950-3.1+A1, is based on results from experimental and analytical studies. In the past, designers would sometimes use a smaller effective width in their design in an attempt to satisfy the minimum degree of shear connection requirements (BS EN 1994-1-1, 6.6.1.2). This method has been a matter of controversy as it could lead to situations where the actual number of studs provided is not adequate.

The minimum degree of shear connection requirement is a complex problem which is associated with the overall behaviour of the composite beam, and the stiffness and ductility (slip capacity) of the shear connectors. Therefore, due to the various unknowns and nonlinearities present, it is difficult to justify a relaxation to the codified requirements for a minimum degree of shear connection without proper analysis. For example, a number of parameters have been known to have an effect on shear connection demands such as the span, any asymmetry in the steel flange areas, the steel grade, the construction method (propped vs unpropped) and the utilisation of the beam in bending. As one can imagine, simplified methods such as the one in question cannot possibly account for all these in a quantifiable manner.

The most recent guidance in SCI P405 was developed based on the results from tests and extensive numerical analyses that accounted for the effects of the above mentioned parameters. A set of alternative shear connection rules that cover different practical cases is provided to complement the rules in BS EN 1994-1-1.

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New and revised codes & standards

From BSI Updates February 2018

BS EN PUBLICATIONS

BS EN ISO 544:2017
Welding consumables. Technical delivery conditions for filler materials and fluxes. Type of product, dimensions, tolerances and markings
Supersedes BS EN ISO 544:2011

BS IMPLENTATIONS

BS ISO 20805:2017
Hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming
Supersedes BS ISO 20805:2011

UPDATED BRITISH STANDARDS

BS 5427:2016+A1:2017
Code of practice for the use of profiled sheet for roof and wall cladding on buildings
AMENDMENT 1

BS EN 1993-1-6:2007+A1:2017
Eurocode 3. Design of steel structures. Strength and Stability of Shell Structures
AMENDMENT 1

BS EN 1993-4-1:2007+A1:2017
Eurocode 3. Design of steel structures. Silos
AMENDMENT 1

BRITISH STANDARDS WITHDRAWN

BS EN ISO 544:2011
Welding consumables. Technical delivery conditions for filler materials and fluxes. Type of product, dimensions, tolerances and markings
Superseded by BS EN ISO 544.2017

BS ISO 20805:2011
Hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming
Superseded by BS ISO 20805:2017

DRAFT BRITISH STANDARDS FOR PUBLIC COMMENT - ADOPTIONS

18/30361473 DC

BS EN ISO 8504-3 Preparation of steel substrates before application of paints and related products. Surface preparation methods. Part 3. Hand- and power-tool cleaning
Comments for the above document were required by 13 February, 2018

ISO PUBLICATIONS

ISO 9017:2017
Destructive tests on welds in metallic materials. Fracture test
Will be implemented as an identical British Standard

ISO 26304:2017
Welding consumables. Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of high strength steels. Classification
Will be implemented as an identical British Standard