Tubecon AESS: Technical Data Sheet No. 1

CE Marking of Structural Steelwork

The Construction Products Directive

The CE marking of construction products was introduced in the Construction Products Directive (CPD) in 1988. The CPD is a European Directive which seeks to remove technical barriers to trade within the European Economic Area (EEA) as part of a move to complete the European single market. The Directive applies to all construction products permanently incorporated in to 'construction works'. This includes structural steel products and components. The obligations of the CPD are imposed in the UK through the Construction Products Regulations (CPR).

The Construction Products Regulation

Compliance with the CPR is obtained in two ways. The first is by CE marking and the second is by supplying all the information the manufacturer has on the product to enable the authorities to satisfy themselves that the product complies with the regulations. Products which are CE marked are automatically deemed to be in compliance with the regulations and the CPD. If the product is not CE marked, the obligation to prove that the product satisfies the requirements of the CPR rests with the manufacturer or supplier.

Harmonised European Standards

The purpose of the CPD is to align existing policies for construction within the EU, thereby removing barriers to trade with other EU member States. This has involved the establishment of a system of harmonised European Standards (hENs), together with an agreed system of demonstrating the suitability of products, and a framework of assessment bodies accredited under the regulations of the member State to carry out third party conformity assessment procedures.

CE marking

CE (Conformité Européenne) marking is a symbol devised by the European Commission to show that the product complies with European legislation and is a declaration by the manufacturer or supplier that the product meets public safety requirements. The public safety requirements are a set of essential characteristics that each product must satisfy which are given in the product's harmonised standard. For steel structures, the main harmonised standards are:

- Steel sections and plate – BS EN 10025-1
- Hollow sections – BS EN 10219- 1 and BS EN 10210-1
- Pre-loadable bolts – BS EN 14399-1
- Non-pre-loadable bolts- BS EN 15048-1
- Fabricated steel – BS EN 1090-1

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BS EN 1090-1: Execution of steel structures and aluminium structures – Part 1: Requirements for conformity assessment of structural components.

BS EN 1090-1 is the harmonised European Standard which has been accepted by the member States as the standard for fabricated steel components. It deals with the manufacture of load bearing components and kits of components for use in structures. It acknowledges that the manufacture of fabricated components is an assembly process that brings together different elements such as steel sections, steel plate, fasteners and welding consumables. BS EN 1090-1 adopts the harmonised European standards for the use of these constituent products. Because fabricated steel components are "safety critical", the CE marking of components is not allowed unless they have been manufactured under a Factory Production Control (FPC) system assessed and certified by a suitable accreditation body that has been approved by the European Commission. The quality management requirements for factory production control include, for instance, levels of traceability and welding quality management which are defined in BS EN 1090-2.

The design of fabricated steel components

Fabricated structural steel components are usually manufactured for a specific project to provide a bespoke kit of parts for incorporation into the 'construction works.' The design of the kit of parts is the responsibility of the consulting engineer who prepares the design drawings which include all the necessary information for the design of connections and the completion of the fabrication drawings, irrespective of whether the engineer is working for the client or steel fabricator. The National Structural Steelwork Specification (NSSS) presumes that the steel fabricator will undertake the design and detailing of connections. Therefore, it is accepted that the steelwork fabricator will carry out some design work to prepare the specification needed for each component. The *design brief* referred to in BS EN 1090-1 is therefore all the drawings and other information prepared in accordance with the *project specification.*

Evaluation of conformity

The principles of Initial Type Testing (ITT) and Factory Production Control (FPC) are used to evaluate the conformity of the products in accordance with the *design brief.* Because BS EN 10901-1 deals with the manufacture of bespoke components and kits of parts, it is impractical to apply ITT and manufacture prototype samples to test against the essential performance characteristics. Initial Type Calculation (ITC) is therefore used to evaluate conformity. This uses the vast amount of information gathered from physical testing and research over the years and written into the current design codes. BS EN 1090-1 therefore allows historical data from ITC & ITT to be used to reduce the amount of testing to be performed by the manufacturer.

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BS EN 1090-2: Execution of steel structures and aluminium structures – Part 2: Technical requirements for the execution of steel structures

BS EN 1090-2 provides the technical requirements for the execution (fabrication and erection) of steel structures and supports the application of BS EN 1090-1. The scope of BS EN 1090-2 covers not only the technical requirements for manufacture, e.g. fabrication and welding, but all other aspects of execution including erection and surface treatment. It covers the technical requirements for the execution of all types of steel structure, buildings, bridges, masts, chimneys and shells. It applies to structures subject to fatigue and seismic actions. BS EN 1090-2 introduces the concept of Execution Class (EXC) as a specified set of requirements for the execution of the works as a whole or of a detail of a specific component. BS EN 1090-2 relates these Execution Classes to specific weld quality levels contained in BS EN ISO 5817. These quality levels are used to pre-qualify and certificate the routine quality levels achieved by the manufacturers welding operations.

When does CE Marking come into force

The CE marking of construction products will become mandatory in the UK and RoI by July 2014. It will be illegal to trade fabricated steelwork and related products on the European market after this date which are not CE marked. CE marking is regulated by criminal law and the penalties for not CE marking or incorrect CE marking, if found guilty, are a fine, imprisonment or both.

What do "*buyers & specifiers*" need to do?

CE marking will become mandatory in July 2014. After this date *buyers* and *specifiers* will have a "duty of care" to assure themselves that CE marked products are being purchased for incorporation in the 'construction works.' Whilst CE marking does not become mandatory for some months, CE marking is considered as best practice (as stated in the UK Building Regulations) as the most convenient way to identify and demonstrate a products suitability and compliance with the CPD.

Can Tubecon AESS offer CE marking of its manufactured structural steel components?

Yes! Tubecon AESS is a division of Billington Structures Ltd, who were one of the first structural steel fabricators in the UK to undergo assessment by the Steel Construction Certification Scheme (SCCS) for checking compliance with the requirements of BS EN 1090-1. Contact Carl Horner on 01226 345261 to find out more, or alternatively; mailto:chorner@tubecon.co.uk