STA advice notes

CE marking (part 1)

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CE marking and the timber frame industry

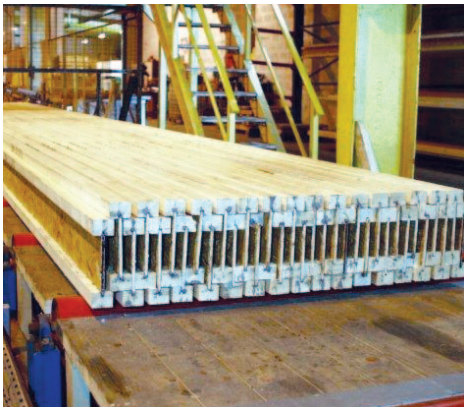
This advice note from the STA provides background information to on CE marking of timber frame products - what it is and where it is required. It has been written for persons who are looking for an introduction to CE marking and to provide some more detailed explanations for those who have some awareness of the CE mark processes.

The content of this document will be of use and interest to timber frame manufacturers, architects, engineers and project managers for timber frame.

Limitations of this advice note

There are many certification and European-speak focused words and terminology used in CE marking, for which manufacturers and specifiers should obtain an understanding in order to ensure correct products are specified, sold and used. This advice note has an appendix, which is an introduction to the terminology.

This advice note is intended as a guide to the timber frame industry as an explanation of CE marking. The advice note provides information obtained by the STA and does not hold any legally binding interpretations. It is the responsibility of the timber frame manufacturer to seek expert advice on the legal requirements.



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Essential briefing

The CE mark

For the construction industry CE marking will be a legal requirement from July 2013. The CE mark is to provide confidence to the building approval bodies, for example building control, that products sold have met minimum safety and performance levels presented in harmonised European standards (hEN) or a product's European Technical Approval (ETA).

A harmonised European standard is one which all member nations have agreed to declare minimum product performance levels relevant to the product being considered. Not all products are covered by a European standard or covered by a hEN, which in turn means they cannot have a CE mark unless the product has a route through an ETA. An ETA

is presented to a product that has achieved conformity of the relevant European Technical Approval Guidance (ETAG).

If there is no hEN or ETAG for a product then there is no legal obligation to have a CE mark for the product.

The CE mark is applied as a stamp on the product or as a product dispatch note on the packaging.

The CE mark itself will comply with the instructions given in the hEN or ETAG. The CE mark typically will comprise:

a. The CE mark symbol

b. Identification number of the notified certification body who audited the product Factory Production Control system

c. Name or identifying reference of the manufacturer

d. The last two digits of the year in which the CE mark was given

e. Brief information to describe the product

f. Reference to the hEN (e.g. EN 14081-1:2005+A1:2011) or ETAG

g. Identification code number, which identifies the product in accompanying documents

h. The mandated essential characteristic performance data, e.g. for timber joist C16

i. Options to provide summary performances of other essential characteristics as referenced in the hEN or ETAG.

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The CE mark and the supply chain

CE marking applies to the construction products supply chain for all relevant products that are sold to an end user, either over a shop counter or direct sales, to other supply chains or builders and developers. For example CE marking is needed for OSB boards sold to timber frame companies, or direct to site.

Designers that write product specifications have a duty to ensure CE marked products are specified. The receiver of relevant products has a responsibility to request evidence of the CE mark compliance and not to purchase non CE marked products that should be CE marked.

A supply chain business that distributes a product has a legal obligation to ensure where appropriate that it has a current CE mark. For example structural timber joists that were purchased by a timber frame fabricator then sold on as part of the timber frame kit.

CE mark compliance

CE mark compliance is achieved by an audited Factory Production Control leading to a Declaration of Performance certificate. The Factory Production Control applies to each company that alters the product in a way that impacts on the product performance criteria. If no change has occurred to the product in passing through a business, for example

a nail to be used to secure panels together, then the CE mark certification can be handed across to the end user. If a change has occurred to the product, for example a timber joist that has a treatmentapplied by the timber frame business that in turn alters the product from what has been declared by the CE mark, then a new CE mark is required to cover the change and performance level expectation. To clarify the CE mark is, in principle, a means of communicating in a consistent way the intended use of product.

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Product performance

CE marking provides the assurance that the correct protocol has been followed for the manufacture of the product. It is not a third party approval for a product which may address the end application of a product. The customer of a CE marked product may use it in many ways, for example, by adding insulation to an open panel timber frame or fixing a plasterboard ceiling to a joisted floor. A CE mark on a construction product should be accompanied by a declared performance, which may be a single attribute such as characteristic strength that the customer can use to build up the finished building performance.

CE marking and design

CE marking is a consistent way of expressing a product's properties. It is effectively a 'passport' allowing a product to be legally placed on the market in any European Union country. CE marking of a product, with a product performance criteria as required by the hEN or ETAG, may only be part of a design solution and so it is the responsibility of the designer to ensure the total assembly achieves the required total design performance. An example of total design performance can be shown for a house external wall. An external wall among other things will require a thermal performance, which will be a function of the full wall build up and how it is joined together, whereas the CE marking performance of the individual components that make up the wall will only address the specific CE mark criteria. Examples of the CE mark criteria can be stud timbers which will be strength based only, for other components such as insulation the U value will be declared. How the individual CE marking components come together for a particular application remains as the current process i.e. rests with designers.

CE marking and Health & Safety

CE marking presents the mandated essential characteristic performance data of an element. CE marking does not necessarily confirm that a product meets a specific project detailed health and safety requirements. These remain, as in current practice, the responsibility of the project team.

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Essential steps in CE marking

To achieve a CE mark timber construction products would typically have an audited Factory Production Control system, from which approval by a Notified Body organisation will lead to a Declaration of Performance certificate, allowing the manufacture to apply a CE mark.

A Notified Body being an organisation approved to provide CE mark to a product - see Part 2 definitions.

The CE mark process comprises the following steps:

a. Company application to a Notified Body

b. Initial inspection of the Factory Production Control system by the Notified Body

c. Changes, noncompliance review where appropriate

d. Notified Body certification / CE mark

e. Continuous surveillance (audits to the harmonised technical standard).

Factory Production Control (FPC)

The FPC is a process that demonstrates that the manufacturing is done in such a way that it can be repeated and that the method can be recorded and confirmed. The FPC would avoid any manufacturing methods that may be carried out by habit and tradition. The FPC in its simplest form is flow chart of a manufacturing procedure with a clear understandable record of how the product is produced and what works have been undertaken, together with confirmation that it has been done in a repeatable way with measurements on the product performance.

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The 3R's in FPC

The reason for undertaking manufacturing in a *recognised, repeatable* and *recordable* way is to enable an auditable trail of the manufacturing process and to record, in a consistent way, that the product performance is the same for all businesses. This CE process will make it difficult for products being sold that do not have the same level of safety or performance expected of that product. It does not stop businesses selling better products or competing against each other on commercial grounds.

The ISO 9001 trap

ISO 9001 is not the same as the production controls system needed for the CE marking processes. ISO 9001 is a management quality approach to business, whereas CE marking is a product quality processes plus agreed recognised minimum performance criteria. Put simply ISO 9001 demonstrates that a business can repeat its outputs, regardless of the performance of those outputs, whereas a CE Factory Production Control certification demonstrates the repeatability to deliver to an European agreed level of performance. The CE marking requires a Factory Production Control that maps out the way a product is made, along with the 'how' and 'where' the product checks are done. This is recorded together with the 'how' and 'who' checks, to ensure the product achieves the minimum standards required by the CE mark criteria. An ISO 9001 system may in some cases cover similar quality processes to a Factory Production Control but has no external requirement to detail a specific performance level. An ISO 9001 quality system does not have to be as detailed or robust as a Factory Production Control to achieve CE marking. It is true however, that some companies that have a detailed ISO 9001 system will find the cross over to CE compliant Factory Production Control easier, whereas those businesses with basic ISO 9001 procedures will find the transition over to a CE marking difficult, as they may consider that they have to start again.

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CE marking background

The CE mark history

The European Union (EU) has, since 1993, sought to allow products to be sold across European member countries, now referred to as European Economic Areas (EEA), such that national bodies, e.g. trading standards has confidence that the product has an agreed minimum level of safety and quality. The CE mark or logo became common place on products sold in the UK but is not a legal requirement until July 2013. The meaning of the letters "CE" is suggested by most to be an abbreviation of the French phrase "Conformité Européene" which literally means "European Conformity". What it actually means is not relevant as it is a logo that demonstrates that a manufacturer is stating conformity with the legal requirements to a standard that has been agreed (harmonised) across the EU. The EU ambitions are that the CE marked product can be sold into the EEA without barriers, based on a common platform of safety and quality levels for a product.

Key Point: CE Marking on a product indicates to national authorities that the product may be **legally placed on the market** in their country.

CE marking and the construction industry

For the construction industry there has been a lot of debate and resultant complexity in determining the level of certification for each element or final product that is used in a building. The CE certification process may appear confusing on account of the many stages in a construction process for a building - and the vast range of applications for construction products. This huge range of applications, where products are sold on through different companies and supply chains before it reaches the final destination on the construction site, does mean that there are inevitable gaps in the standards for which products can be certified against; for which it may take years to clarify. The logic of CE marking, however, is clear and the certification processes, where now defined and required, are straightforward once the principles are understood by the manufacturer.

The Construction Products Regulation 2011 (CPR) is the products directive that has brought together the methods of assessment and means of declaration for construction products, as manufactured and sold out of a sales yard. The construction products sold can be considered as a product (e.g. timber joist), a construction part (e.g. wall panel), a kit of parts (e.g. wall assembly with services) or component (e.g. whole room). The actual construction site is not considered as a point of sale - and the site itself and any activity is not covered by the CPR; to clarify CE marking applies only to products sold to the site.

Guidance on construction products regulation and CE marking for the construction industry can be found on the Construction Products Association website.

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The timber frame manufactures may be in control of delivering the final building on site, such as in the self-build turnkey market. Under a turnkey contract specialist legal definitions are needed to clarify if CE marking is required, as technically no product component is being sold to the open market through the timber frame manufacturer. In many business transactions however, the timber frame manufacture will be providing only parts of the finished building for which CE marking may be required by the harmonised European Standard or ETAG. To clarify the CE certification the different scopes of timber frame businesses need to be understood on a case by case basis, for which competent advisors should be engaged to clarify the standard relevant to the manufacturing business model used.

Key concepts for the timber frame manufacture to consider

a. What CE compliant products do you sell from your manufacturing plant or sales yard?

b. How are your CE compliant products used and what technical data does the user of your product rely on to complete the element of construction being considered?

c. What added value and processes do you add to CE compliant products you buy in to sell onwards out of your manufacturing plant or sales yard?

d. The CE compliant product is one which is produced in line with the requirements of a harmonised European Standards (hEN) or European Technical Approval Guidance (ETAG).

The "experienced work force" debate

The difference between a FPC and a process that has no formal auditing, (even if it is argued that the current process is undertaken by an experienced workforce), is that the FPC is recorded and continually checked to ensure that the possibility of an off day, or key persons absence, does not affect the product performance. Under a FPC a manufacturer can continue to make a product to the same level of performance without reliance on one individual's secret knowledge of how to do something. A factory that relies on experience alone has a risk of product variations and no way of knowing if the product production is in line with agreed levels of performance. Once a business operation has been correctly process reviewed, the business may benefit from an increased efficiency and errors in the product manufacture, which have sneaked in with familiarity, removed.

Further reading:

Part 2 of the STA advice note provides additional information based on a questions and answers format.

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