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# The CE mark and European Technical Approval

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## 1. How does a CE mark get on a construction product?

In order to understand European construction regulations and not to misinterpret them, a certain level of knowledge of the inter-relationships is necessary: The requirement for uniform European construction regulations resulted from the political realisation in the 1980s that the many standards, approvals and directives existing in the individual countries were preventing the exchange and trade of construction products and construction methods across national borders. **To put it briefly: the many different rules and standards in the construction industry were preventing the integration of Europe!**

The result of this political realisation was the so-called 'new approach', in which the further procedure was laid down as to how construction products are to be treated and equipped, so that they may be traded without hindrance in Europe: the construction products must bear the CE mark, like other products. To this end there are three prerequisites that must all be fulfilled at the same time and without whose presence no CE mark may be borne:

**1.1 A European directive** must exist. If not, it must be drawn up and introduced without delay as a national law in the individual countries. The already existing national laws cease to apply as a result of this! The '**Construction Products Directive**' (CPD) 89/106/EEC has existed since 1989 and has since been introduced as the national building legislation in all EU member states. The most important part of the CPD – as defined in its appendix – concerns the so-called 'essential requirements', which must be fulfilled by a construction product in order for it to be allowed to bear the CE mark.

**1.2** There must be **procedural instructions** specifying how the Construction Product Directive is to be applied. These so-called '**guidance papers**' have in the meantime also been drawn up and published.

**1.3 Harmonised technical rules ('harmonised standards')** for the appropriate products must have been drawn up and published. 'Harmonised' means: all European nations must have agreed to them! 'Technical rules' are understood by builders to mean: **European standards**, whereby this concerns **product standards**. This work is not carried out by the EU or one of its organisations, but in fact – in order to ensure a certain quality – only 'mandates' are issued, which define the scope of a standard

to be drawn up. Such an EN standard governs how the product to be standardised has to fulfil the 'essential requirements' of the Construction Products Directive and stipulates the checking system (more about this later) that is to be used to check conformity with the 'essential requirements'. The actual work on an EN standard is usually carried out under the custody of the CEN (Centre Européenne de Normalisation = European Committee for Standardisation) under the chairmanship of a country, usually the one in which the application for the standardisation of a certain construction product was received.

**Example:** If a manufacturing company or its industry wishes to trade its construction products freely, i.e. wants to have a CE mark for them, then an application must be made to the national standards institute for the standardisation of this product. After checking the worthiness for standardisation, application is made to the EU for a mandate, after whose issue the CEN sets up a standardisation committee, which is accompanied by national mirror committees, and the standardisation procedure begins. As experience shows, this procedure takes many years. There can be different reasons for this; it is often the case that national standards already exist in some countries for the product to be standardised, and their representatives of the national vested rights defend them vehemently against it, or it may be the case that in other countries no standards exist for the product or their representatives aren't even acquainted with it but want to have their say. Important: when an EN standard comes into force, the corresponding national standards lose their validity and must be withdrawn. Some countries then even withdraw their approvals.

**1.4 A separate or a substitute method** in place of the CEN standardisation is possible for new products ('innovative products'), for which there is (still) no harmonised product standard, but whose supplier or manufacturer cannot wait many years for one to be drawn up so that they can bring their product onto the market with a CE mark and trade freely with it, or for special products (e.g. individual products or products from a single manufacturer) for which it is not worthwhile drawing up a standard: the '**European Technical Approval**' (ETA), which is issued by the 'European Organisation for Technical Approvals' (EOTA).

But: if a product is governed by a harmonised standard, then it is not possible to obtain an ETA for it. Application for an ETA is made to the responsible organisation or authority (e.g. DIBt, CSTB, BBA) in the country in which the product is manufactured

or brought onto the market. The application is passed on to the EOTA, which decides whether to accept or reject the application. This organisation then draws up a guideline (**ETAG** = ETA guideline) for the treatment of the product applied for, so that it can obtain a CE mark. Experience shows that the preparation of such a guideline can take several years and it can run to several hundred pages. This negative procedure, which is hardly acceptable for the applicant, has given rise to a simplified procedure in which the approval authority of a country (with the appropriate responsibility) suggests the procedural path to the ETA in a dossier and the other countries give their approval within a relatively short period: 'Common Understanding of Assessment Procedure' (**CUAP**).

In these procedures (EN standard and ETA approval) it is to be noted that construction products are governed, whereby products can be assembled from different components, but not buildings. It also does not concern design or execution.

## 2. Meaning of the CE mark

The CE mark indicates that the characteristics of the corresponding product are **conform** to the associated European directive, i.e. that the product fulfils the 'essential requirements' defined therein and may therefore be traded freely in Europe. The CE mark does not indicate that the product has any particular safety or load bearing characteristics or that it fulfils functional or aesthetic requirements. Its purpose is to indicate the free tradability of a product to the **supervisory authorities** (not the consumers, not the users and also not architects).

The CE mark is not displayed on a special document, e.g. on an attestation or a certificate, and it is also not awarded like a medal or issued like an approval. It should be located, depending upon the possibilities and dimensions, on the product or its packaging or in or on the delivery documents.

## 3. The essential requirements

The essential requirements for a construction product are defined in the appendix to the '**Construction Products Directive**' (CPD).

These are:

- Mechanical strength and stability
- Fire protection
- Hygiene, health and environmental protection
- Safety in use
- Noise protection
- Energy conservation and thermal protection

How these requirements are fulfilled (e.g. the tests to be carried out and the required results), is defined in the harmonised standards. Since the fulfilment of characteristics is in question here, these examinations are usually of the type 'yes/no' or 'passed/failed' and are not of any assistance with a design.

## 4. Systems for the verification of conformity

The extent of the work to be done in order to verify that the essential requirements are fulfilled is governed by the above mentioned documents (e.g. guidance paper K or appendix ZA of the harmonised standard), i.e. the procedures and **systems for the verification of conformity** are governed. The regulation governing which system is to be used to verify conformity is specified according to a structural model at European level and cannot be influenced by those concerned (e.g. manufacturer, user).

Two participants are involved in the implementation of the verification of conformity: the producer and the notified body. The verification of conformity consists of four stages, wherein more and more responsibility is placed on the manufacturer and less and less on the notified body as the ordinal number increases and the level monitoring decreases.

### 4.1 Certification of conformity by a notified body on account of:

- a) In-house production checks and additional individual tests by the manufacturer;
- b) Initial inspection, inspection of the works and production, continuous monitoring and possible random checks by the notified body.

### 4.2 Declaration of conformity by the manufacturer on account of:

- a) Initial inspection, in-house production checks and, if necessary, individual test by the manufacturer;
- b) Certification of the production checks by means of initial inspection of production and continuous monitoring by the notified body.

### 4.3 Declaration of conformity by the manufacturer on account of:

- a) Initial inspection of the product by the notified body;
- b) In-house production checks by the manufacturer.

### 4.4 Declaration of conformity by the manufacturer on account of:

- a) Initial inspection of the product by the manufacturer;
- b) In-house production checks by the manufacturer.

## 5. The CE mark for Kalzip profiled sheets and foldable products

The previously missing harmonised standards for thin-walled, cold-formed products came into force in 2007. **EN 14782 'Self-supporting metal sheet for roofing, external cladding and internal lining. Product specification and requirements'** applies to all **Kalzip profiled sheets** and **aluminium trapezoidal profiles**. This standard refers in the case of aluminium to **EN 508-2 'Roofing products made of sheet metal – definitions for self-supporting roofing elements made of sheet aluminium'**, wherein the suitable materials and the manufacturing tolerances to be complied with are essentially governed.

**EN 14783 'Fully supported metal sheet and strip for roofing, external cladding and internal lining. Product specification and requirements'** applies to the **foldable products**. This standard refers in the case of aluminium to **EN 507 'Roofing products**

**made of sheet metal – definitions for fully supported roofing elements made of sheet aluminium**', wherein the suitable materials and the manufacturing tolerances to be complied with are essentially governed. Hence all Kalzip products must bear a CE mark. The conformity declaration system prescribed according to the above mentioned documents for all products that have no organic coating on the surface (stucco, millfinish, AluPlusZinc, AluPlusPatina, FalZinc and TitanSilver) is **System 4: Declaration of conformity by the manufacturer**, following initial inspection and in-house production checks by the manufacturer. The declaration of conformity by the manufacturer is likewise adequate for all organically coated products (SP, PVDF), with an exception in the case of fire protection. System 3: Initial inspection of behaviour in case of fire by a notified body applies here. Investigations have shown that the fire protection requirements are also fulfilled by these products. For the case 'Fire from outside', which approximates to the previous 'flying sparks and radiating heat', there are definitions by the European Commission, according to which all aluminium roof products are to be classified in the (best) B<sub>roof</sub> class.

Hence all Kalzip products bear the CE mark in short form on the packaging and, together with the associated data according to EN 147823 or EN 14783, in the delivery documents (appendix).

Since the **FC-Fassade** has so far been tested according to the rules for thin-walled construction elements (hence its suitability is verified in accordance with Eurocode 9, parts 1-4 (EN 1999-1-4)), it must be classified as a wall cladding within the area of regulation of EN 14782 or EN 508-2 and is thus entitled to bear the CE mark. Deviations from this procedure require application for a European Technical Approval (ETA) or the verification of suitability according to the European regulations for facade elements, against which it must be warned.

## 6. Comparison with previous procedures

Some of the experiences had since the introduction of the CE mark are summarised below:


- The interpretation and practical implementation of the prescribed procedure differ from country to country: for some countries the CE procedure is the first regulation of construction products ever – with the corresponding respect for such a procedure. For other countries it is an agreement at the lowest level, because so far construction has been (and still is) organised by a multiplicity of standards and directives, including approvals and regulations by authorities, associations and safety bodies.
- The CE mark is not formally awarded and it is neither a certificate nor a document. There is a right to bear it and an obligation to display it. It may be declared both on the attached delivery documents or accompanying documents and on the products themselves.
- The CE mark does not give any indication of the safety of the product, let alone buildings ('safety for life and limb'). It merely documents compliance with the Construction Product Directive and thus the fulfilment of the essential requirements contained therein. Since it is not backed up by any measured variables, it also cannot be used as a verification of suitability.
- The purpose of the procedure is to reduce trade restrictions and to be able to freely trade and exchange construction products more simply across national borders. In accordance with the European Union politico-economic concept, more and more national regulations should be abolished and construction should be left to its own devices. (For some that even applies to the safety of buildings, true to the motto: 'unsafe construction products (= those that collapse or fall down) will automatically disappear from the market if they are no good'.)
- This results in the state supervisory procedures and authorities being viewed with suspicion and their importance being reduced rather than being promoted. Voluntary checks on the basis of self-obligations e.g. at association level, are welcomed. Hence, in those countries in which construction had previously been state-controlled for reasons of safety, private quality organisations are being established that attempt to maintain the old high safety standards, preferably cross-border, on a voluntary basis (e.g. EPAQ = European Quality Assurance Association for Panel and Profiles).
- The demand for (new) approvals in countries that had previously had no stipulated safety regulations (approvals or the like) is not in accord with the European goal of the free trade of goods, because new trade barriers are thereby erected. In particular, the demand for a European Technical Approval (ETA) when the CE mark is already borne due to a harmonised standard contradicts the construction product directive.
- The safety of life and limb remains (for all products) a matter for the individual nations, because the CE mark does not give any indication about this. In order to meet these demands, obsolete normative or legal regulations exist in several countries (already for a long time in some cases), which are not (may not be) repealed by the CE mark, because this fundamental right of safety remains with the countries. (Astoundingly, product approvals have nevertheless been withdrawn in at least one European country following the introduction of the CE marking obligation).
- In order to maintain the safety of buildings, the compulsory approval remains in force, for example, in France, Germany, England and other countries too – as far as can be discerned up to now. Although the CE mark entitles a construction product to be freely traded in Germany, its use requires a Ü mark, which is only issued on the basis of a general building authority approval.

**7. Future:**

The Construction Product Directive ('CPD') is at present being revised and is to be replaced by a **regulation ('CPR')** of the European Parliament and Council. The reason for this is that a regulation does not permit so many interpretations in terms of time and content, but must be implemented more strictly. The six essential requirements of the CPD will be supplemented by a seventh: the

**sustainable use of natural resources.**The new regulation is intended to strengthen the credibility of the system and the acceptance of the CE marking. The way in which these goals are to be achieved is clear in principle, but the detailed measures are still very much under discussion.

**Appendix: example of a CE mark for Kalzip**

	
Kalzip GmbH August-Horch-Str. 20 – 22 D-56070 Coblenz	Manufacturer
10	Year of manufacture
<b>EN 14782</b>	Harmonised standard
Self-supporting aluminium profile sheets for roofing and wall cladding	Generic term for the product
Roof profile/wall profile	Intended purpose of use
Kalzip 65/400, thickness 0.8 mm, category 2	Manufacturer's product designation/nominal sheet metal thickness/category 2 means: half minus tolerance of the sheet metal according to EN 485
EN AW-3004 Page 1: SP 25 µm / Page 2: SP 5 µm, EN 508-2	Material designation/organic coating (if present)/basic or reference standard
<b>Behaviour in case of fire:</b> Class A1	Fire classification according to EN 13501
<b>Behaviour in case of fire from outside:</b> Class B <sub>roof</sub> (t1), class B <sub>roof</sub> (t2), class B <sub>roof</sub> (t3), class B <sub>roof</sub> (t4)	Only necessary for roofs: Classification according to Commission resolution
<b>Resistance to point loads:</b> NPD	Indication not necessary, therefore 'no performance determined'

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