



## **NSAI's concerns on Imported Structural Plywood – Warning Bulletin**

NSAI Certification Services is issuing this warning bulletin to the Construction Industry including Building Contractors, Importers and Wholesaler Timber Providers expressing an increasing concern about the quality of non European Structural and Non Structural Plywood. This plywood has been found in use on Construction sites in Ireland over the past number of months. The sheets come in varying thickness. The source has been traced to a number of manufacturers from China. Confidence in the quality of Plywood imported from China into Europe has been eroding for sometime NSAI is warning that this problem is now an Irish problem.

The main concerns are: intermittent glue cover, incorrect glue type, overlapping of laminates and /or a combination of these. This renders the plywood susceptible to disintegration when wet.

Contractors have found that they are being required to remove faulty product from sites. Costs involved include replacement of faulty product with attendant additional labour costs.

In case of doubt, full-scale testing to demonstrate conformity with the product standard is advisable and details of how this can be done are given later. However a simple 24 hour cold water soak test or 6 hour boil test will give an initial indication of the possibility of non conforming plywood. Sound product will remain intact while non conforming product will visibly disintegrate during the above tests. Also a thorough visual examination may uncover missing glue lines or partial glue lines at laminates or voids which will also deem the product as non conforming.

Of particular concern is that the non conforming plywood is being supplied to Ireland with all the necessary Certification support documentation, both from the individual plants and from European Certification Notified Bodies. Certain mills have either falsified CE marks on sub-standard products or supplied standard and non standard product in the same or subsequent shipments. This has given rise to serious concerns about the reliability and quality of all such material.

The evidence indicates that Irish importers are purchasing the plywood in good faith and are being supplied with all of the supporting documentation to show that the plywood complies with the European Standard. Individual sheets may be stamped with the 'CE' mark and also in some cases with the identification number of the European Notified Certification Body number and mill of origin. In the cases that have been investigated by NSAI concerning site failure, all or some of this information has shown to be either inaccurate or false.

In Ireland, construction products such as structural plywood must comply with the National Building Regulations, with particular reference to Part D 'Materials'. Structural Plywood which complies with I.S. EN 13986 'Wood based panels for use in construction.' is deemed to satisfy this requirement.



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## Communication to Construction Industry Non European Structural and Non Structural Plywood

This standard in turn refers to I.S. EN 636 which gives criteria for three bond classes:

- Class 1 Plywood for use in dry conditions
- Class 2 Plywood for use in humid conditions
- Class 3 Plywood for use in external conditions

Importers to Europe will typically prove compliance with I.S. EN 13986 by demonstrating conformity with the Construction Products Directive (CPD) and by applying the CE mark for structural plywood manufactured in accordance with this standard and other supporting standards, including having the factory production control activity in the mill audited by a European Notified Certification Body.

'CE' marking is based on the principle that a manufacturer should be able to prove that its product is fit for its intended end use. It also demonstrates that it meets the requirements of a European Technical Specification, I.S. EN 13986 'Wood based panels for use in construction.'

Structural plywood must meet Attestation of Conformity (AoC) Level 2+, one of six levels within the CE marking process. For CE marking, three key areas must be monitored:

1. Initial Type Testing (ITT)
2. Factory Production Control (FPC)
3. On-going test programmes.

The Notified Body references initial type testing results, which will include as standard: bending strength and bending stiffness according to I.S. EN310; bonding quality according to I.S. EN314 Part 1; and release of formaldehyde according to I.S. EN717 Part 1 against the Factory Production Control data. Additional tests for specific end uses such as wall sheathing, structural flooring and roof decking must also be carried out.

All boards must be individually marked and any mills found to be non-compliant with any of the requirements should be suspended from the scheme immediately.

NSAI have informed Dutch and Italian European Notified Bodies who's Certificates of Factory Production have been supplied to the Irish construction sites along with the non conforming plywood and sought that these Bodies take action when auditing their client certified mills in China.

A listing of All Notified Certification and test Bodies active under the Construction Products Directive can be found on the EU Commission sponsored web site at:

[www.gnb-cpd.eu](http://www.gnb-cpd.eu)

Copies of standards can be obtained from the NSAI sales web site at:

[www.standards.ie](http://www.standards.ie)

General information on the Certification process can be obtained at:

[www.nsai.ie](http://www.nsai.ie) and [www.cqaireland.com](http://www.cqaireland.com)

Testing of structural plywood to the full range of conformity tests, as called up in I.S. 13986 and supporting standards, is carried out by the BRE testing laboratory. Contact:

Dr Ed Suttie, [suttie@bre.co.uk](mailto:suttie@bre.co.uk) Tel: 00 44 (0)1923 664200, [www.bre.co.uk/timber](http://www.bre.co.uk/timber)

## **Background to CE marking**

In 1985 the European Commission introduced a number of Directives aimed at technical harmonisation. The Construction Products Directive (CPD) has since been transposed into Irish law as the European Communities Regulations 1992 (S.I. No. 198 of 1992) and European Communities Regulations 1994 (S.I. No. 210 of 1994). These Regulations implement the CPD in Ireland. The CPD differs from some other Directives in that it applies standards to the finished works into which construction products are used, rather than applying them direct to the products themselves.

### **What is CE marking?**

The CPD introduced the concept of CE marking, which demonstrates conformance with the Directive. In all of the Member States except Ireland, UK, Sweden and Finland the only way to show compliance is by applying the CE mark. In the four 'opt out' countries, applying the CE mark is not mandatory, but compliance with the CPD is. However most construction products imported into Europe, whether to the 'opt out' Countries or the 'opt in' mainland group, will have their products 'CE' marked for ease of trade movement.

The CE mark is intended to promote the free movement of products throughout the EU by showing that essential health and safety requirements have been met. It is not a statement of quality as such; it is simply a 'fitness for purpose' mark.

### **What is the function of a CE mark?**

The CE mark makes a claim that the product bearing the mark has been legally placed on the market within the EU, as required by the CPD on the grounds that;

- it has been subject to an appropriate system of attestation of conformity with one or more technical specifications
- the product conforms with the relevant aspects of the identified technical specifications, and
- therefore, product is fit for its express intended purpose or with its implied range of suitable uses

The composite claim is shortened in the CPD to the focus of enabling the "works" in which the products are used to comply with the Directive's Essential Requirements. These may include mechanical resistance and stability, safety in case of fire, hygiene, health and the environment, safety in use, protection against noise and energy economy and heat retention.

Under the regulatory procedure, the European Commission generally issues a mandate for an appropriate form of Technical Specification. This will contain conformance criteria reflecting the Essential Requirements deemed by the Commission to be relevant to the product group in question. The possible types of Technical Specification may include; Harmonised Standards, European Technical Approvals or possibly, National Technical Specifications.

The conformity of wood based panels with the regulatory requirements rests almost entirely on the criteria contained in the mandated Harmonised Standard, I.S. EN 13986 'Wood based panels for use in construction – Characteristics, evaluation of conformity and marking'.



The Harmonised Standard encapsulates the requirements of individual standards containing specifications, performance criteria and test methods applicable to particleboards (chipboard), fibreboards (including MDF), OSB and plywood and which covers performance characteristics that relate to the full range of essential requirements, as well as durability. This is the document according to which CE marking will be carried out for the great majority of wood based panels.

The Harmonised Standard specifies all the conformity elements that have to be satisfied, including marking requirements and lists the appropriate systems of attestation of conformity – the required system and degree of involvement of a Notified Body depending on whether the panel product is to be used as a structural or a non-structural element and on the reaction to fire class that the product belongs to.

#### **Who applies the mark?**

It is for the manufacturer, or his agent to apply the CE Mark on the product itself, on a label attached to it, or on its packaging, or on the accompanying commercial documents. There is a hierarchy of preference for location of the CE mark. Wherever possible, the CE mark should be applied to the product itself. If this is not possible, other options are available. The CE mark should be affixed visibly, legibly and indelibly. The CE mark must be applied before the product is placed on the market.

#### **What does the CE mark indicate?**

The CE mark is only the basic symbol, but accompanying information consists first and foremost of;

- Identification of the Notified Body and the number it has given to the certified product. This generally applies to structural panels, but in the case of cement bonded particleboard, it applies to both structural and non-structural panels.
- Name and /or identifying mark of the producer.
- The last two digits of the year in which the marking was affixed.
- Reference to I.S. EN 132986 (the Harmonised Standard).

For the remaining accompanying documentation, there are two options; marking requirements based on technical classes, or marking requirements based on declared values of each of the performance characteristics relevant to the product type.

#### **Legal aspects**

The Construction Products Regulations make it an offence to supply any construction product (other than a minor part product) not conforming with the requirement that it

*"shall have such characteristics that the works in which it is to be incorporated, assembled, applied or installed can, if properly designed and built, satisfy the essential requirements when, where and to the extent that such works are subject to regulations containing such requirements".*

The enforcement authorities are the Building Control sections of the relevant local authority.

#### **Wood based panel products and CE marking.**

Amongst wood products used in the construction industry, wood based panel products are now covered by CE marking, following the publication of a harmonised European Standard, EN 13986, which was the first harmonised Standard to be published for timber products. CE marking has been available on a voluntary basis from March 2003, with compulsory CE marking in most Member States from March 2004.



### **CE marked plywood – structural and non-structural applications**

It should be noted that the CPD applies to both structural and non-structural wood based panels. Therefore, the fact that plywood carries a CE Mark does not necessarily mean that it is suitable for structural applications. Two questions must be answered;

1. Has the plywood been independently type tested for structural use in accordance with the procedures given in I.S. EN 13986?
2. Which European Notified Body has approved the structural type testing and is providing the independent third-party quality assurance?

Unfortunately, the CE marking of structural and non-structural plywood is not very different; however, the CE Mark for structural plywood must always show a reference to identify the Notified Body.

The existing design standard commonly used in Ireland at present BS 5268-2 'Structural use of timber - Code of Practice for permissible stress design, materials and workmanship', will be replaced by Eurocode 5 in 2010. The plywood products listed for structural applications in BS 5268-2 are not exempt from CE marking and most have already achieved a CE mark because they have always had the two main criteria of independent structural type testing and independent third party quality assurance.

### **What about CE marking of other wood products used in construction?**

As we have seen, publication of a harmonised European Standard is a prerequisite for CE marking.

The Harmonised European Standard for structural timber is I.S. EN14081 and so CE marking of structural timber is now possible with Ireland's first mill Certified in November 2009 to this standard. Harmonised Standards for roof trusses are also available.

A number of timber and timber related products are currently covered by European Technical Approval Guidelines (ETAG's) and may carry CE marks. These include timber frame components, prefabricated stairs and I-beams.

Despite the introduction of CE marking for wood based panel products, it is the case that wood and wood products used in construction, and indeed a wide range of other end uses too, have been covered by Irish or British Standards for many years and now by European Standards as well. These form the basis of specifications and provide safeguards for specifiers, buyers and users.

For further information contact the Trade Bodies such as the Irish Timber Frame Manufacturers Association (ITFMA), The Irish Roof Truss Fabricators Association (IRTFA), or the Building Control Section of the Local Authority in whose administrative area the faulty product was found on the market.

See also the NSAI web site for "10 Steps to 'CE' marking" at [www.nσαι.ie](http://www.nσαι.ie) also copies of standards can be obtained from the NSAI sales web site at:

[www.standards.ie](http://www.standards.ie)

A listing of All Notified Certification and test Bodies active under the Construction Products Directive including guidance documentation and a link to the CEN website, for a listing of current Harmonised European Standards, can be found on the EU Commission sponsored web site at:

[www.gnb-cpd.eu](http://www.gnb-cpd.eu)