

Product certification in the new Europe

CE marking explained

After years of discussions and horse trading between member states, CE marking of construction products is now upon us. The new performance-based harmonised standards open the door to greater innovation of design than the recipe-based ones they replace and European Technical Approvals (ETA), one of the routes to attestation, will eventually replace the well-known BBA Agrément Certificates.

Axter Ltd's Managing Director John Medlock explains how CE marking will affect the flexible membrane roofing sector. Mr Medlock is well qualified in this regard for as well as sitting on a number of relevant BSI committees his Company, Axter Ltd, is the first in the sector to offer CE marking on its complete product range.

Introduction

Article 7, Materials and Workmanship, of the Building Regulations 2000 reads: -

Materials and Workmanship

7. Building work shall be carried out –
 - a. with adequate and proper materials which –
 - i. are appropriate for the circumstances in which they are used;
 - ii. are adequately mixed or prepared; and
 - iii. are applied, used or fixed so as adequately to perform the functions for which they are designed: and
 - b. in a workmanlike manner
-

The Regulations go on to describe a number of ways in which the suitability of a material for use for a specific purpose may be assessed as *adequate and proper* but it is probable that one will predominate in the coming years: -

CE Marking



How can manufacturers claim CE marking for their products?

The Construction Products Regulations 1991 describe two routes by which manufacturers can claim CE marking for their products: -

- 1) **Conformity with a harmonized European Standard**
- 2) **A European Technical Approval for a construction product based on**
 - a. **a European Technical Approval Guideline (ETAG) or**
 - b. **an assessment procedure, known as a Common Understanding of Assessment Procedure (CUAP).**

- 1) Harmonised European Standard.

The European Committee for Standardisation (CEN) in conjunction with national standards bodies, such as the BSI in the UK, has produced harmonised standards for a wide range of construction products. The two which affect flexible sheet membranes are: -

BS EN 13707:2004 *Flexible sheets for waterproofing – Reinforced bitumen sheets for roof waterproofing – Definitions and characteristics.*

BS EN 13956:2005 *Flexible sheet for waterproofing – Plastic and rubber sheets for roof waterproofing – Definitions and characteristics*.

These standards were given the status of UK national standards in April 2005 and March 2006 and any competing national standard has to be withdrawn, at the latest, by July 2007 and June 2008 respectively.

How do the new standards differ from old ones such as BS 747:2000?

Unlike previous British Standards, which were recipe based, the new ones are based on performance. For instance, the well known BS 747:2000 *Reinforced bitumen sheets for waterproofing* described the composition of a bituminous based roofing felt: type and weight of reinforcement, mass of the impregnation and coating bitumen etc. BS EN 13707:2004 gives information as to how the product must perform; such as point loading resistance, tensile strength, pliability at cold temperature, nail pull out strength, etc.

Who issues the test data?

Manufacturers have to publish, either on the product label or on a technical data sheet the results of tests carried out in accordance with the requirements of the BS EN. Although self-certification is allowed, in most cases the information will be verified as part of a manufacturer's quality assurance programme. Like-for-like comparisons between products can therefore be made safe in the knowledge that they have all been tested to the same standard.

What happens if no harmonised standard exists?

2) European Technical Approval

It is not possible for all products and systems to be covered by a harmonised product standard. Where a standard does not exist or where products differ significantly from harmonised standards then it may be possible to grant a European Technical Approval (ETA). ETAs can be issued in two ways: -

- a. Materials can conform to a guideline (ETAG) issued under the authority of the European Organisation for Technical Approvals (EOTA) as is the case with mechanically fastened waterproofing systems; ETAG 06 *Systems of Mechanically Fastened Flexible Roof Waterproofing Membranes*. Here both the membrane and the fixings are covered by separate harmonised standards but because the performance of the fixing/membrane assembly is crucial to the system performance further specific testing is necessary.
- b. Where a manufacturer has a unique product or when products differ significantly from harmonised standards then a material can conform to a series of tests designed specifically with the requirements of that material in mind. The design of those tests is carried out under the auspices of the Common Understanding of Assessment Procedure (CUAP).

Who can issue an ETA?

Products CE marked under the auspices of an ETA will be certified by an independent organisation such as the British Board of Agrément (BBA). This certification will describe the conditions under which the product can be used and so long as the described conditions match the requirements of the construction then the product will meet the requirements of Article 7 of the Building Regulations.

ETAs can be issued by a body certified by any European Member state and once issued are valid in all member countries. Manufacturers having achieved certification in one country no longer have to seek and pay for confirmation in every other EEC state in which they wish to market their materials. Member countries are Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

However this does not mean that all products carrying CE marking are automatically suitable for use. Specifiers must compare the performance characteristics of the product with the requirements of their construction.

ETAs just like the BBA Agrément Certificates they replace not only describe the product characteristics and components but also give *Guidance for the assessment of fitness for use*. This means that a designer can quickly check the manufacturer's ETA document to see if that product or system is approved for use on his/her specific construction.

This is not the case when a manufacturer claims CE marking to a harmonised standard such as BS EN 13707 or 13956. This is because the information supplied by the manufacturer tells the specifier how the product performs but gives no guidance as to whether that level of performance is suitable for any particular construction. Specifiers need to be especially careful, for it is possible for totally unsuitable materials to gain conformity. In such cases the performance claimed by the product will be very poor but it will still carry a CE mark. Unfortunately most specifiers have little knowledge as to the performance they require for any given roof construction and are therefore not capable of making a considered decision. There has been very little applied research into what actually goes on on a roof and they have therefore relied on the persuasive skills of individual salesmen. The result has been that most flexible membrane roofs are over engineered for the task in hand.

With products tested to a harmonised standard how can a specifier decide if a product is suitable for use on his roof?

For reinforced bitumen sheets for waterproofing (RBM roofing) manufactured to the requirements of BS EN 13707 help is at hand.

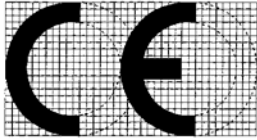
A draft version of BS 8747 *Reinforced bitumen membranes for roofing - Guide to selection and specification* has been issued for public comment and it is hoped that this will be confirmed as a full British Standard in 2007. This document gives guidance as to the minimum product performance requirements of certain key criteria, in particular tensile strength and point loading, for different roof constructions. This means that a specifier can easily compare the technical information provided by the manufacturer with the minimum standards as described in BS 8747. He/she can then ensure that the material he/she wishes to use meets or exceeds the requirements of the construction.

How do I know if a CE marked product has achieved that status by conformity to a harmonised European Standard (BS EN) or a European Technical Approval (ETA)?

The CE mark on the product label or data sheet must include the number of the European Standard or the ETA which applies to that conformity. If a number contains the letters EN it means that the product conforms to a harmonised standard and some other form of assurance is required to ensure 'fitness for purpose'. If it contains the letters ETA then conformity is by way of a European Technical Approval and the supporting ETA document must be closely scrutinised to ensure that it includes the use to which the product is to be put.

Summary

In the future CE marking will be the main method by which 'fitness for purpose' will be assessed. Care must be taken to check the method by which conformity has been achieved. If that mark is by way of a harmonised standard (EN) then specifiers must ensure that the detailed technical information provided by the manufacturer conforms to the construction requirements. If conformity is via an ETA then the accompanying manufacturer's certificate will detail the constructions for which the material can be used.

 01234
AnyCo Ltd, PO Box 21, B-1050 04 01234-CPD-00234
EN 13707 1 m × 5 m × 4 mm, polyester non-woven, elastomeric modified bitumen, fine mineral and polymeric sheeting, torchable only. Top layer, not for single layer application, not for roof gardens. External fire performance: B _{ROOF} (t2) see manufacturer's document XYZ* Reaction to fire: F Tensile strength in longitudinal direction: 700 N/50 mm ± 50 N/50 mm Tensile strength in transverse direction: 500 N/50 mm ± 50 N/50 mm Elongation: 30 % ± 3 % Resistance to static loading: 20 kg Resistance to impact: 20mm Tear resistance: 500 N ± 50 N Pliability: -20 °C Durability: -10 °C ± 5 °C Watertightness: Pass Root resistance: NPD

CE conformity marking, consisting of the "CE"-symbol given in Directive 93/68/EEC.

Identification number of the certification body

Name or identifying mark and registered address of the producer

Last two digits of the year in which the marking was affixed

Certificate number

No. of European Standard

Description of product

and

information on regulated characteristics

* This document to contain details of the system(s), of which the roofing sheet is a part, which were tested

Example of CE marking information to be given on the accompanying commercial (technical) documentation, for a product in reaction to fire class F of the harmonised European Standard BS EN 13707: 2004.

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