| GNB-CPD SG02 | Guidance from the Group of Notified Bodies for the Construction Products Directive 89/106/EEC | NB-CPD/SG02/06/037 Issued: 1 September 2006 APPROVED – GUIDANCE |
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# GNB-CPD position paper from SG02 - GNB-CPD position paper from SG02 - EN 1504-2, EN 1504-3, EN 1504-4, EN 1504-5, EN 1504-6 and EN 1504-7

## *Products and Systems for the Repair of Concrete Structures*

### General scope, limitations and aim of this guidance for Notified Bodies (NBs)

This position paper contains guidance for Notified Bodies (NBs) involved in the attestation of conformity of Products and Systems for the Repair of Concrete Structures according to EN 1504-2, EN 1504-3, EN 1504-4, EN 1504-5, EN 1504-6 and EN 1504-7. The purpose is to help NBs work equivalently and come to common judgments. This guidance contains informative material (which NBs should or may follow) and normative guidance (which NBs shall follow or at least work equivalently to as circumstances demand).

This guidance is thought necessary to provide clarity and completeness for NBs so that they can work equivalently. It **supplements and makes practical for NBs** the harmonized standards EN 1504-2, EN 1504-3, EN 1504-4, EN 1504-5, EN 1504-6 and EN 1504-7, approved AG guidance, and Standing Committee guidance in the form of GPs, which also apply - unless otherwise explicitly stated in this guidance. This position paper should **not** contradict nor extend the scope of the work and role of a NB, nor impose additional burdens on the manufacturer, beyond those laid down in the CPD and EN 1504-2, EN 1504-3, EN 1504-4, EN 1504-5, EN 1504-6 and EN 1504-7.

This guidance should be considered valid until the relevant standards are amended to include the guidance (as thought fit by the CEN/TC); or until guidance from Commission, SCC, and AG has changed on relevant matters. Whereupon, the paper should be considered for withdrawal/revision and be replaced by new guidance as necessary.

This position paper was considered approved by SG02 on 16 June 2006 and by Advisory Group (AG) on 24 August 2006.

# Contents

# 1 Foreword

This document was prepared by the Sector Group 02 of the Notified Bodies working under Construction Products Directive 89/106/EEC. It is intended to give guidance to notified bodies in preparing equivalent procedures in relation to CE marking of concrete protection and repair products, including the issue of a certificate of factory production control (FPC) as required by the respective Annexes ZA of the EN 1504 series of product standards, on request from a manufacturer of products and systems for the protection and repair of concrete structures.

This document has been prepared by Sector Group 2, WG5, of the Group of Notified Bodies, in liaison with CEN TC104 SC8, and is for guidance only. It is intended to provide for equivalent and consistent actions by those notified bodies involved in the field of factory production control certification for products and systems for the protection and repair of concrete structures. In all cases the relevant product standard takes precedence over this guidance.

To maintain equivalent use and interpretation of this document by the notified bodies it is important that any questions or remarks, or problems related to the use of this document, are communicated to the secretary of NB-CPD/SG02. In particular, the notified bodies are strongly invited to consider this request. The address of the secretary/chairman of SG02 can be found on the CIRCA website http://www.forum.europa.eu.int/Public/irc/enterprise/Home/main.

# 2 Scope and field of application

This document defines and describes the sequence of the main operating procedures to be followed by a notified certification body in granting and maintaining a EC certificate of factory production control or a certificate of conformity in accordance with annex ZA of the relevant parts of EN 1504 on request from a manufacturer of products and systems for the protection and repair of concrete structures.

The general requirements for factory production control are given in section 5.5 of EN 1504-8 which is the relevant EN 1504 standard covering quality control and evaluation of conformity. Specific requirements may be given in the relevant product standard, EN 1504 Part 2 to 7.

The interaction between the essential requirement “reaction to fire”, the Attestation of Conformity system (AoC) and the products and systems concerned are given in the relevant Annex ZA.2 and ZA.3 tables of the EN 1504 product standards, but the main elements are summarised in the following table.

**System of attestation of conformity**

| Product(s) | Intended use(s) | Level(s) or class(es) | Attestation of conformity system(s) |
|---|---|---|---|
| Concrete protection and repair products | For use with low performance requirements in buildings and civil engineering works | — | 4 |
| | For use in buildings and civil engineering works | — | 2+ |
| Concrete protection and repair products | For uses subject to reaction to fire regulations | A1*, A2*, B*, C* | 1 |
| | | A1**, A2*, B**, C**, D, E | 3 |
| | | (A1 to E)***, F | 4 |

* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

** Products/materials not covered by footnote (*)

*** Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of class A1 according to the Decision 96/603/EC, as amended by Decision 20000/605/EC)

The attestation of conformity requirements of the products are given in the tables in Annex ZA.1 of the appropriate EN 1504 product standard and shall be based on the evaluation of conformity procedures indicated in the tables in Annex ZA.3 of the relevant product standard, resulting from the application of the clauses of this relevant standard or other European Standards indicated therein.

## 2.1 Attestation of Conformity levels and tasks for the notified body

From the above, certain concrete protection and repair products when used in building and civil engineering works, are required to comply with attestation of conformity system 2+ (see table ZA.2 of the relevant EN 1504 product standard). The manufacturer should use the services of a notified body in such instances as for these products there is a requirement that a notified certification body carries out certification of the factory production control (FPC) by initial inspection of the factory and FPC and followed by continuous surveillance, assessment and approval of the FPC. There is no requirement to engage a notified body to undertake any product testing except in certain instances for fire testing, as set out below.

Further, when the product is subject to reaction to fire requirements the manufacturer should inform the notified body of the level and classes relating to the product(s) – see Annex ZA.2 of the relevant EN 1504 product standard. This may be for example for products improved by addition of fire retardant or by limiting organic material.

Where system 2+ plus 1 or system 4 plus 1, is required, the notified body shall issue an EC certificate of conformity, covering the performance requirements of initial type testing required for reaction to fire, and also initial inspection of factory and FPC, and continuous surveillance, assessment and approval of the factory production control.

Where system 2+ plus 3 is required, the notified body shall issue a EC certificate of Factory Production Control, following the inspection of the factory and FPC. Also, a notified test laboratory shall carry out initial type testing for reaction to fire only and issue a test report to the manufacturer. This laboratory may, or may not, be under the control of the notified body carrying out the certification of FPC.

Where system 4 plus 3 is required, a notified test laboratory shall carry out initial type testing for reaction to fire only and issue a test report to the manufacturer.

See also Annex ZA 3 of the relevant EN 1504 product standard.

The scope of this document is to consider the requirements for the initial assessment of the factory, of the factory production control (FPC) and of its continuous surveillance once the certificate has been issued. It also covers the tasks to be undertaken before issuing EC certificates to cover initial type testing by the notified body when required for fire regulations.

# 3 Reference list

EN 1504-1, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 1: Definitions.

EN 1504-2, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 2: Surface protection systems for concrete.

EN 1504-3, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 3: Structural and non-structural repair.

EN 1504-4, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 4: Structural bonding.

EN 1504-5, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 5: Concrete injection.

EN 1504-6, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 6: Anchoring of reinforcing steel bar.

EN 1504-7, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 7: Reinforcement corrosion protection.

EN 1504-8, Products and systems for the protection and repair of concrete structures – Definitions, requirements, quality control and evaluation of conformity – Part 8: Quality control and evaluation of conformity.

EN 13501-1, Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests.

Guidance paper B – The definition of Factory Production Control in Technical Specifications for construction products.

Guidance paper K – The attestation of conformity system and the role and tasks of the notified bodies in the field of the Construction Products Directive.

Guidance Paper M – Conformity Assessment under the CPD: Initial type-testing and Factory production control

Position paper NB-CPD/AG03/002 - Guidance to notified bodies on the attestation of conformity under the Constructions Products Directive 89/106/EEC. (The relevant parts for the attestation of conformity for level 2+ are copied into Annex 5.)

Position paper NB-CPD/AG/03/003r1 - Examples of EC certificates of conformity (example certificates in various languages are held in the folder on CIRCA).

A table of European standard test methods for protection and repair materials is given as Annex 4.

# 4 Terminology

Terms used in this document that are not defined in the EN 1504 series of standards (terms and definitions), are defined below.

## 4.1 Manufacturer

Company having full control and responsibility for the quality of the delivered protection and repair products and systems and for carrying out the factory production control.

A manufacturer who intends to place the product on the market, whether established inside or outside the Community, is ultimately responsible for the conformity of the product with the provisions of the directive.

## 4.2 Notified Certification Body

The notified certification body is responsible for assembling all of the relevant information, verifying that tasks have been carried out according to the technical specification and assessing and certifying conformity.

## 4.3 Notified Inspection Body

The notified inspection body, which can also be the notified certification body, carries out its functions on behalf of the notified certification body. In cases in which the notified certification body also is a notified inspection body, the inspection (not the responsibility) can be subcontracted to an inspection body.

## 4.4 Notified test laboratory

Under EN 1504 a notified test laboratory is only responsible for initial type testing for reaction to fire.

## 4.5 Non-compliances

In the context of these operating procedures the following degrees of non-compliances are applied:

**Observation:**

A non-compliance which affords no risk to the functioning of the factory production control but must be dealt with before the next inspection of the factory production control.

**Remark:**

A non-compliance which affords no risk to the effective functioning of the factory production control when dealt with within a limited period of time, for example 2 months.

**Non-conformity:**

A non-compliance that affects the functioning and the effectiveness of the factory production control in such a way that products that do not comply with the relevant standard can be put on the market. This kind of non-compliance normally makes it necessary to repeat all or part of the inspection of the factory production control.

# 5 Certification process

The scheme to be followed by the Notified Certification Body to grant and maintain the Certificate of Factory production Control is divided into six main “operative phases”:

- the application (see chapter 6);
- the initial inspection of the factory and the FPC (see chapter 7);
- the initial type testing and issuing of a test report (see chapter 8);
- the issuing of the certificate (see chapter 9);
- the extension of a certificate (see chapter 10);
- the continuous surveillance of FPC (see chapter 11).

In the case where a notified certification body subcontracts any of its tasks, it remains nevertheless responsible for the whole certification process.

# 6 Application

The application for certification of the FPC system is submitted to the notified body by the manufacturer or his legal representative. A model for an application form which requires all of the relevant product information is given in annex 1.

At the application process, the manufacturer should identify to the notified body:

- In case of AoC 2+ plus 1 or 4 plus 1
  the names of the products/ systems and for each product/system the level or class of reaction to fire which applies and the construction product type and the intended use according to the relevant Part or parts of EN 1504.

- In case of AoC 2+ plus 3 or 2+ plus 4
  the construction product types and the intended use(s) according to the relevant Part or parts of EN 1504.

The attestation system to be applied should then be agreed between the manufacturer and the notified body. This is important in identifying the respective tasks for the manufacturer and the notified body.

The certification agreement between the manufacturer and the notified certification body must be signed. This can take place immediately after the application form has been submitted or before the issuing of a first certificate, depending on the certification regulations of the notified certification body.

The agreement will also incorporate (among others) the following items:

- reference to the general certification regulations of the notified certification body;
- financial obligations;
- starting date, duration of the agreement and terms for discontinuation of the contract;
- specific regulations about liability if these are not mentioned in the general regulations;
- declaration of confidentiality;
- appeals procedures.

# 7 Initial inspection of the factory and the factory production control

Before carrying out the initial inspection of the factory and the FPC the notified certification body shall verify whether all the provisions described in EN 1504-8 and in particular, clause 5.5 (Factory production control) and Annex A.2.1 of EN 1504-8, and any extra requirements included in the relevant product standard, are dealt with appropriately in the factory production control system.

Annex A of EN 1504-8 is an Informative Annex. However, TC104 SC8 has indicated that the provisions of Annex A should normally be followed, and that where the fpc system deviates from the provisions of Annex A, a technical justification should be presented to the certification body for consideration by the notified body.

If this is not the case the Notified Certification Body will inform the manufacturer about the non-compliances found and request corrective actions and an updated version of the factory production control system.

In particular, the factory production control system of the manufacturer should contain an overview of all equipment checks to be carried out, detailing the equipment, frequency and methods to be used.

When the factory production control system has been accepted by the notified certification body, a date for the initial inspection of the factory and the FPC will be agreed. During this initial inspection the notified certification body will investigate whether the factory production control system is implemented in accordance with the requirements of clause 7.3 of the appropriate EN 1504 product standard and clause 5.5 and Annex A 2.1 of EN 1504-8. A checklist, prepared by the notified certification body, should support the inspector in this task. Items found not to be in compliance will be classified as observations, remarks and non-conformities and reported at the end of the initial inspection (see 4.3 for definitions of these forms of non-compliance).

For initial type testing (ITT) which is not to be carried out under the authority of a notified body (this may be everything except reaction to fire) it must have been carried out by the manufacturer in accordance with the test methods described in the standard. Therefore where ITT is the responsibility of the manufacturer, the certification body may wish to see evidence of ITT to check the results from the factory production control for similarity and credibility.

Test results from FPC must comply with the requirements of the appropriate part of EN 1504 (table ZA.1 as required).

EN 1504-8 clause 5.5.states: “For fpc the manufacturer can select representative identification or performance tests or may select other test methods. Such other fpc test methods shall be correlated to the initial identification and performance tests to ensure conformity of the product to the requirements of the standard. If the factory production control system uses tests other than the identification and performance tests, there shall be evidence of the correlation between the identification or performance test results and the factory production control system test results.”

Evidence is submitted for the agreement of the notified certification body. Determination of the correlation of test results should be carried out on a regular basis using a procedure described in the production control system.

**IMPORTANT NOTE:**
**The list and frequency of FPC tests given in the informative annex “minimum frequency of testing for FPC” is intended to address all characteristics and parameters listed in Table ZA.1.**

Checks on proper functioning and reliability should be carried out on equipment used in the relevant test methods at planned intervals or prior to use.

ITT results for the products mentioned in the application form must be available at the time of the initial inspection.

A report containing the results of the assessment of the production control system and related documents and the initial inspection of the factory shall be sent to the manufacturer within an agreed period of time after the initial inspection, normally not longer than 6 weeks.

The manufacturer shall inform the notified certification body about the corrective actions taken within 3 months from receipt of the report of the initial inspection.

In the case where the corrective actions cannot resolve the non-conformances the notified certification body may cease the certification process and the manufacturer will be informed of this decision.

*Note: The GNB has agreed that the task for the manufacturer “further testing of samples taken at the factory”, included within the Annex ZA2 Tables ZA.3, may be considered as part of the normal FPC testing of finished products (reference clause 5.9 of Guidance Paper M).*

# 8 Initial type testing and issuing of a test report by the notified body

**(Applicable for reaction to fire tests only).**

Sampling shall have been conducted in accordance with clause 4 of EN 1504-8. Note there is a requirement that part of the sample should be retained for future reference until the use by date.

Where there is a requirement for initial type testing under the control of the notified body or one or more notified test laboratories, this shall be for reaction to fire to the appropriate EN test method and ITT is also required to conform to clause 5.2 of EN 1504-8. The rules for identifying the product are laid down in Guidance Paper K. The performance and exact fire identification characteristics to be tested will have been identified by the manufacturer to the notified body according to the relevant part of the performance standard, and as required to satisfy the relevant clauses given in table ZA.1 of the standard.

The test laboratory will be under the control of the notified body for systems 2+ plus 1 and 4 plus 1. The testing should be conducted in accordance with the fire test methods described in the standard. The test report issued to the manufacturer either by the notified body or by a notified test laboratory will include the full identification of the product as per Guidance Paper K, e.g. production location, product line, date and time of production etc as provided by the manufacturer and mention the essential requirements covered by tests in the report (especially important when the testing is performed by different notified laboratories). The results should be expressed in accordance with the requirements of the relevant table ZA.1.

## 9 Issue of the EC certificate

See also 2.4 of annex 5 for general information.

For systems 2+ plus 1 and 4 plus 1, the notified certification body shall issue for each product/system an EC certificate of conformity to the manufacturer, when the initial inspection of the factory and of the FPC has been conducted with a positive result and the results of the initial type testing obtained by the notified body from the approved test laboratory are deemed to be satisfactory. The manufacturer shall be informed about this as soon as possible.

For systems 2+ plus 3 and 2+ plus 4, the notified certification body shall issue a EC certificate of factory production control when the initial inspection of the factory and of the FPC has been conducted with a positive result. The manufacturer shall be informed about this as soon as possible.

In the case of systems 2+ plus 1 and 4 plus 1, and 2+ plus 3 and 2+ plus 4, where non-compliances are detected during the initial inspection, all non-conformities and remarks must be dealt with to the satisfaction of the notified certification body. The notified certification body shall acknowledge this in writing, and the relevant certificate will then be issued to the manufacturer by the notified certification body.

A certificate is issued covering those types of product requested by the manufacturer as requested at the application process, as long as the products are produced under the same system of factory production control.

Annex 2 gives an example of a EC certificate of FPC and Annex 3 gives an example of a EC certificate of conformity.

The certificate shall have a unique number, which shall be allocated by the notified certification body. The number is divided in three parts, separated by hyphens as follows:

1. the notification number of the notified certification body;
2. the acronym CPD;
3. a unique reference number allocated by the notified certification body for each individual certificate. This unique reference number shall be composed of a number or an alpha-numeric combination consistent with the procedures of the notified certification body.

## 10 Extension of a certificate

See 2.4.1 of annex 3 for general information.

A manufacturer can use the application form to ask the notified certification body for an extension of the certificate for additional types of products complying with EN 1504 but manufactured under the same system of FPC in the same factory. In the case where further ITT for reaction to fire is required, under the responsibility of the notified body, this will be identified using a further application form.

## 11 Continuous surveillance of FPC

See also annex 4 for further information.

The notified certification body exercises the surveillance of the FPC on the basis of the requirements of the relevant harmonised standard, EN 1504-8 clause 5.5 (Factory production control) and Annex A.2.2 of EN 1504-8, and any extra requirements included in the relevant product standard, and on the basis of the initial and/or previous inspection of the factory and FPC.

At least once per year an announced inspection of the factory production control will take place.

The manufacturer is required to inform the notified certification body of any significant changes in the factory production control, including significant modifications to the factory. Failure to so do may result in a non-compliance being raised by the notified certification body. It will be the decision of the notified certification body whether or not a further inspection visit is necessary at the time of the announcement of any such changes.

The notified certification body may wish to examine, for example, the frequencies and results of testing within the scope of the inspection of factory production control.

The test equipment and test methods used also fall under the scope of factory production control and shall be assessed as part of the initial inspection of FPC and may be assessed during each surveillance visit.

The product technical specification will include minimum frequencies of testing requirements by the manufacturer under the factory production control. Guidance on these will be found in the relevant Informative Annex “minimum frequency of testing for FPC” of the appropriate part of EN 1504. The notified certification body may examine the conformity of fpc testing with the frequencies specified in the production control system.

The notified certification body shall inform the manufacturer in writing about the results of all continuous surveillance visits and shall also inform the manufacturer of any non-compliances (observations, remarks or non-conformities) it has raised.

The notified certification body may decide to carry out further visits if serious deficiencies in the factory production control are identified.

## 12 Non – compliances

Non compliances apply only to the FPC and its implementation. A non-compliance occurs when a manufacturer fails to follow the requirements detailed in the production control system or fails to take action following a failure in the specified systems, equipment calibration or a product with test results outside the limit values stated in the FPC system. The notified certification body has to determine whether the non-compliance can be seen as “observation”, “remark” or “non-conformity” as defined in 4.5.

The presence of one or more results outside the required limit values for the properties of the product, should not be considered as a non-compliance for the purposes of notified body surveillance of the FPC.

However, the absence of corrective actions in the production control system to cover such deviations, or the absence of corrective actions as such, do qualify as a non-compliance.

Where a non-compliance is identified, it is the responsibility of the manufacturer to investigate the cause of the problem and report to the notified certification body effective corrective action measures appropriate to the nature of the non-compliance raised.

In the case of non-implementation of suitable corrective action or continuing non-compliance (non-conformities), the notified certification body should advise the manufacturer in writing of the decision and actions it intends to take.

The notified certification body may decide to withdraw the certificate of factory production control or certificate of conformity (whichever is applicable) and, in such cases, the manufacturer shall be informed in writing as soon as this is practicable.

## 13 List of certificates of factory production control and certificates of conformity

The notified certification body shall as a minimum keep an up-to-date list of the certificates it has issued. This list shall be made available on request.

# Annex 1 Model for an application form

**APPLICATION FORM [A] FOR SERVICES TO PROVIDE A EC CERTIFICATE OF CONFORMITY AND/OR A EC CERTIFICATE OF FACTORY PRODUCTION CONTROL (delete as appropriate)**

REQUIRED AS PART OF THE EVALUATION OF CONFORMITY FOR PRODUCTS AND SYSTEMS FOR THE PROTECTION AND REPAIR OF CONCRETE STRUCTURES TO EN 1504

I the undersigned [B] ……, in my capacity as representative of [C] …… ,
with its registered office in
[D] ……,
as a manufacturer, [E]
as authorised representative established in the EEA[F] , of the manufacturer located in
[G] ……..;

in compliance with Annex ZA of the relevant part of EN 1504 Parts …/…/…/…/ given below, apply, for the first time and only to this notified certification body, for the issue of a EC certificate of conformity or factory production control for the concrete repair product type(s) mentioned below, produced at the factory of
[H] ……..,
with its registered office at
[I] ……..……;

Concrete repair product type(s)/ and description(s) in accordance with EN 1504-2, EN 1504-3, EN 1504-4, EN 1504-5, EN 1504-6 and EN 1504-7 (delete as appropriate):[K]……..,

- relevant Part(s) of EN 1504: ……
- Construction product type(s) in accordance with EN 1504:……
- Intended use(s) in accordance with EN 1504: ……
- List of product names with appropriated class in accordance with EN 13501-1 if reaction to fire is relevant (AoC 1)

Additional information: [L]…….……..,
Additional identification: [M] ……..,

It is further declared that:

- type testing of the product(s) has been / is being* performed under the responsibility of the above manufacturer / or is to be performed by the notified body / or a notified test laboratory*
- the factory in question has / has not* received any other valid EC certificate of conformity / or factory production control.

(*delete as appropriate).

In addition I declare I have read the current rules and conditions of this notified certification body for this service under this directive and fully accept all the provisions.

I authorise the access of the inspectors appointed by the notified certification body to carry out the required initial inspection of the factory and of the factory production control, and continuous surveillance of the same as required.

The following documents are attached in support of this application:

- production control system documents describing the FPC system
- list of related quality documents
- others [N]

I authorise the notified certification body to use the above data in order to manage the relevant procedures.

I further authorise that all correspondence of the notified certification body concerning this matter is to be addressed to the named contact person…….[O]

Place ……..……, Date ……

Signature .....

[A] The Application shall be drawn up by the manufacturer or by his authorised representative established in the EEA. The application shall be presented in one original, written in a language previously accepted by the receiving notified certification body.

[B] Name and surname of applicant appointed by the manufacturer.

[C] Acronym and full name of the applicant and relevant business name.

[D] Full address.

[E] If applicable.

[F] If applicable.

[G] Name of the extra country.

[H] Name of the factory, full address, phone and fax numbers and e-mail address of the factory.

[I] If applicable.

[K] Type of concrete repair product according to the relevant part of EN 1504. It may be permissible to attach a separate list combining information required for items K, L and M in the case of submitting a large range of product types.

[L] If applicable. It may be permissible to attach a separate list in the case of a large range of product type, see K.

[M] If applicable. It may be permissible to attach a separate list in the case of a large range of product types, see K.

[N] Any other needed or applicable document.

[O] Name of person and job title.

## Annex 2 Example of a EC certificate of FPC (for AoC 2+) based on EN 1504

**Logo, name and address of the notified certification body**

**EC Certificate of Factory Production Control**
**XXX - CPD - YYY**

In compliance with the Directive 89/106/EEC of the council of European Communities of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to the construction products (Construction Products Directive - CPD), amended by the Directive 93/68/EEC of the Council of European Communities of 22 July 1993, it has been stated that the construction products

**Products and systems for the protection and repair of concrete structures**
List part and title of the product standard, e.g.**:**
**Part 2: Surface protection systems for concrete**

characterised as
**List of**
**construction product type(s) and intended use(s) in accordance with the relevant table(s) ZA 1x of the relevant Part of EN 1504**

produced by the manufacturer

**Name of the producer**
Full address

in the factory

**Factory**

is submitted by the manufacturer to initial type testing of the products and factory production control and to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the notified body

**Name of the notified certification body**

has performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control.
This certificate attests that all provisions concerning the attestation of factory production control described in Annex ZA of the standard **EN 1504 Part -**, were applied.

This certificate was first issued on ..... and remains valid as long as the conditions laid down in the harmonised technical specification in reference or the manufacturing conditions in the factory or the factory production control itself are not modified significantly

*City, Date*

*Authorized signature*
*Title, Position*

## Annex 3 Example of a certificate of conformity (for AoC 1) based on EN 1504

**Logo, name and address of the notified certification body**

**EC Certificate of Conformity**
**XXX - CPD - YYY**

In compliance with the Directive 89/106/EEC of the council of European Communities of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to the construction products (Construction Products Directive - CPD), amended by the Directive 93/68/EEC of the Council of European Communities of 22 July 1993, it has been stated that the construction products

**Products and systems for the protection and repair of concrete structures**
List part and title of the product standard, e.g.**:**
**Part 2: Surface protection systems for concrete**

characterised as
**Product name (brand name)**
**Construction product type(s) and intended use(s) in accordance with the relevant table(s) ZA 1x of the relevant Part of EN 1504**
**Level(s) or class(es) of reaction to fire in accordance with EN 13501-1**

placed on the market by

**Name** of the producer or its authorised representative**,**
Full address

and produced in the factory

**Factory**

is submitted by the manufacturer to a factory production control and to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the approved body
**Name of the certification body**
has performed the initial type testing for the reaction to fire of the product, the inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control.

This certificate attests that all provisions concerning the attestation of conformity and the performances described in Annex ZA of the standard **EN 1504 Part -**, were applied and that the product fulfils all the prescribed requirements.

This certificate was first issued on ..... and remains valid as long as the conditions laid down in the harmonised technical specification in reference or the manufacturing conditions in the factory or the factory production control itself are not modified significantly

*City, Date*

*Authorized signature*
*Title, Position*

## Annex 4 European standard test methods for protection and repair materials

| Table: European Standard test methods for protection and repair materials | | coating & surface treatment | repair mortars | structural bonding | injection products | anchoring products | reinforcement protection |
|---|---|---|---|---|---|---|---|
| **Standard** | **Title** | **1504-2** | **1504-3** | **1504-4** | **1504-5** | **1504-6** | **1504-7** |
| EN ISO 1517 | Paints and varnishes. Surface -drying test. Ballotini method | √ | | | | | |
| EN 1542 | Measurement of bond strength by pull-off | | √ | | | | |
| EN 1543 | Determination of tensile strength development for polymers | | | | √ | | |
| EN 1544 | Determination of creep under tensile stress at 23 & 50°C | | | | | √ | |
| EN 1766 | Reference concretes for testing | √ | √ | √ | √ | | |
| EN 1767 | Infrared analysis | √ | | | | | |
| EN 1770 | Determination of coefficient of thermal expansion | | | √ | | | |
| EN 1771 | Determination of injectability: wet medium – dry medium | | | | √ | √ | |
| EN 1799 | Tests to measure the suitability of structural bonding agents for application to concrete surface | | | √ | | | |
| EN 1877-1 | Reactive functions related to epoxy resins – Part 1: Determination of epoxy equivalent | √ | | | | | |
| EN 1877-2 | Reactive functions related to epoxy resins – Part 2: Determination of amine functions using the total basicity number | √ | | | | | |
| EN 1881-1 | Pull-out test - Part 1: Uncracked concrete | | | | | √ | |
| EN 12188 | Determination of adhesion steel-to-steel for characterisation of structural bonding agents | | | √ | | | |
| EN 12189 | Determination of open time | | | √ | | | |
| EN 12190 | Determination of compressive strength of repair mortar | | √ | | | | |
| EN 12192-1 | Granulometry analysis – Part 1: Test method for dry components of premixed mortar | | √ | | | | |
| EN 12192-2 | Granulometry analysis – Part 2: Test method for fillers for polymer bonding agents | | | √ | | | |
| EN 12614 | Determination of glass transition temperature of polymers | | | | | | √ |
| EN 12615 | Determination of slant shear strength | | | √ | | | |

| **Table (cont): European Standard test methods for protection and repair materials** | | **coating & surface treatment** | **repair mortars** | **structural bonding** | **injection products** | **anchoring products** | **reinforcement protection** |
|---|---|---|---|---|---|---|---|
| **Standard** | **Title** | **1504-2** | **1504-3** | **1504-4** | **1504-5** | **1504-6** | **1504-7** |
| EN 12617-1 | Part 1: Determination of linear shrinkage for polymers and surface protection systems | √ | | | | | |
| EN 12617-2 | Shrinkage of crack injection product formulated with polymer binder – Part 2: Volumetric shrinkage | | | | | | √ |
| EN 12617-3 | Part 3: Determination of early age linear shrinkage for structural bonding agents | | | √ | | | |
| EN 12617-4 | Part 4: Determination of shrinkage and expansion | | √ | | | | |
| EN 12618-1 | Adhesion and elongation capacity of injection products, with limited ductility | | | | | | √ |
| EN 12618-2 | Determination of the adhesion of injection products, with or without thermal cycling – Part 2: Tensile bond method | | | | | | √ |
| EN 12618-3 | Determination of the adhesion of injection products, with or without thermal cycling – Part 3: Slant shear method | | | | | | √ |
| EN 12636 | Determination of adhesion concrete to concrete | | | √ | | | |
| EN 12637-1 | Compatibility of injection products – Part 1: Compatibility with concrete | | | | | | √ |
| EN 12637-3 | Compatibility of injection products – Part 3: Effect of injection products on elastomers | | | | | | √ |
| EN 13057 | Determination of resistance of capillary absorption | | √ | | | | |
| EN 13062 | Thixotropy | √ | | | | | |
| EN 13294 | Determination of stiffening time | | √ | | | | |
| EN 13295 | Determination of resistance to carbonation | | √ | | | | |
| EN 13395-1 | Determination of workability – Part 1: Test of flow of thixotropic repair mortars | | √ | | | | |
| EN 13395-2 | Determination of workability – Part 2: Test for flow of grout or mortar | | √ | | | | |
| EN 13395-3 | Determination of workability – Part 3: Test for flow of repair concrete | | √ | | | | |

| Table (cont): European Standard test methods for protection and repair materials | | coating & surface treatment | repair mortars | structural bonding | injection products | anchoring products | reinforcement protection |
|---|---|---|---|---|---|---|---|
| **Standard** | **Title** | **1504-2** | **1504-3** | **1504-4** | **1504-5** | **1504-6** | **1504-7** |
| EN 13395-4 | Determination of workability – Part 4: Application of repair mortar overhead | | √ | | | | |
| EN 13396 | Measurement of chloride ion ingress | | √ | | | | |
| EN 13412 | Determination of modulus of elasticity in compression | | √ | | | | |
| EN 13529 | Resistance to severe chemical attack | √ | | | | | |
| EN 13578 | Compatibility on wet concrete | √ | | | | | |
| EN 13579 | Drying test for hydrophobic impregnation | √ | | | | | |
| EN 13580 | Water absorption and resistance to alkali for hydrophobic impregnations | √ | | | | | |
| EN 13581 | Determination of loss of mass of hydrophobic impregnated concrete after freeze-thaw salt stress | √ | | | | | |
| EN 13584 | Creep in compression | | √ | | | | |
| EN 13687-1 | Determination of thermal compatibility – Part 1: Freeze-thaw cycling with de-icing salt immersion | | √ | | | | |
| EN 13687-1 | Determination of thermal compatibility – Part 1: Freeze-thaw cycling with de-icing salt immersion | | √ | | | | |
| EN 13687-2 | Determination of thermal compatibility – Part 2: Thunder shower cycling (thermal shock) | | √ | | | | |
| EN 13687-3 | Determination of thermal compatibility – Part 3: Thermal cycling without de-icing salt impact | | √ | | | | |
| EN 13687-4 | Determination of thermal compatibility – Part 4: Dry thermal cycling | | √ | | | | |
| EN 13687-5 | Determination of thermal compatibility – Part 5: Resistance to temperature shock | √ | | | | | |
| EN 13733 | Determination of the durability of structural bonding agents | | | √ | | | |
| EN 13894-1 | Determination of fatigue under dynamic loading – Part 1:During cure | | | √ | | | |
| EN 13894-2 | Determination of fatigue under dynamic loading – Part 2: After hardening | | | √ | | | |

| **Table (cont): European Standard test methods for protection and repair materials** | | **coating & surface treatment** | **repair mortars** | **structural bonding** | **injection products** | **anchoring products** | **reinforcement protection** |
|---|---|---|---|---|---|---|---|
| **Standard** | **Title** | **1504-2** | **1504-3** | **1504-4** | **1504-5** | **1504-6** | **1504-7** |
| EN14068 | Determination of watertightness (of injection products) | | | | | | √ |
| EN 14117 | Determination of viscosity of cementitious injection products | | | | √ | | |
| EN 14406 | Determination of the expansion ratio and expansion evolution | | | | √ | | |
| EN 14497 | Determination of the filtration stability | | | | √ | | |
| EN 14498 | Volume and weight changes after air drying and water storage cycles | | | | √ | | |
| EN 14629 | Determination of chloride content in hardened concrete | | | | | | √ |
| EN 14630 | Determination of carbonation depth in hardened concrete by the phenolphthalein method | | | | | | √ |
| ISO 2811-1 | Methods of test for paints. Determination of density by the pyknometer method. Also available as 3900-A19:1998 | √ | | | | | |
| ISO 2811-2 | Methods of test for paints. Determination of density by the immersed body (plummet) method. Also available as 3900-A20:1998 | √ | | | | | |
| EN ISO 3219 | Determination of viscosity using a rotational viscometer with defined sheer rate | √ | | | | | |
| EN ISO 3251 | Paints and varnishes - Determination of non-volatile matter of paints, varnishes and binders for paints and varnishes | √ | | | | | |
| EN ISO 3451-1 | Plastics - Determination of ash - Part 1: General methods | √ | | | | | |
| EN ISO 6272 | Paints and varnishes. Falling-weight test | √ | | | | | |
| EN ISO 9514 | Paints and varnishes. Determination of the pot-life of liquid systems. Preparation and conditioning of samples and guidelines for testing | √ | | √ | | | |
| EN ISO 11358 | Plastics - Thermogravimetry (TG) of polymers - General principles | √ | | | | | |

# Annex 5 Guidance on the participation of the notified bodies in the attestation of conformity under the Construction Products Directive 89/106/EEC.

The information in this annex is a copy of relevant parts of the position paper NB-CPD/AG/03/002 issued: 07 April 2001

## *2 The certification of the factory production control under systems 2+ and 2*

*Under systems 2+ and 2, the task assigned to the notified bodies is the certification of the factory production control based on :*

1. *Initial inspection of the factory and of the factory production control;*
2. *Under system 2+, continuous surveillance, assessment and approval of the factory production control;*

*The identification of conformity shall be in the form of a certificate of factory production control as figured in annexes 3 (system 2+) and 4 (system 2) of the present document.*

## *2.1 Basic conditions*

*The basic conditions for issuing a certificate of factory production control are that the applicant follows the general rules as laid down in the harmonised technical specification and, when relevant, the additional guidelines commonly agreed by the relevant sector group of notified bodies.*

*These additional guidelines may be included in specific documents of the Group of Notified Bodies (GNB), which should also be taken into account. These documents should serve as guidelines to ensure that the attestation of conformity is consistent and equivalent for all manufacturers. They have to be approved by the Advisory Group NB-CPD after having consulted the relevant CEN committee according to the procedure laid down in the CEN Reykjavik Resolutions (October 2000). As far as EOTA-Guidelines are concerned the respective Working Group of EOTA should have been involved.*

## *2.2 Application for a certificate of factory production control*

*The application shall be made on a special form obtainable from a notified FPC-certification body.*

*The manufacturer or his authorised representative established within the European Economic Area (further called "the applicant") shall, in his application, refer to the specific product or group of products determined in the relevant Decision of the European Commission and, when relevant, in the additional guidelines. It should normally cover one factory only.*

*A notified FPC-certification body on acceptance of a completed application form will confirm this to the applicant and provide him with any further information necessary for the processing of his application.*

## *2.3 Initial inspection of the factory and production control*

### *2.3.1 General*

*After confirmation of the acceptance of the application, the certification body shall make the necessary arrangements with the applicant for the initial inspection, in accordance with the rules of the scheme.*

*The notified FPC-certification body is responsible for all actions of certification of the factory production control including inspection of the factory and of the factory production control, but should pay particular attention to those characteristics identified as being relevant for FPC in Annex 3 of the mandate. Under system 2+, the notified FPC-certification body is also responsible for surveillance, assessment and approval of the factory production control.*

*When the inspection of the factory and of the factory production control, as well as the surveillance and assessment of the factory production control are conducted by an inspection body different from the notified FPC-certification body, a report on the performed inspections and assessments is communicated to the notified FPC-certification body.*

*The inspection body involved in the attestation of conformity is responsible for carrying out its tasks. The certification body is responsible for assembling all the relevant information, verifying that the tasks have been carried out according to the technical specifications and assessing and certifying the factory production control.*

*The notified FPC-certification body shall inform the applicant of the results of the initial inspection.*

*If the notified FPC-certification body is not satisfied that all the requirements for the certification of FPC are being met, it will inform the applicant of those aspects in which his application has failed.*

*If the applicant can show that remedial action has been taken by him to meet all requirements within a specified time limit, the notified body concerned will repeat only the necessary parts of the initial inspection procedure. Otherwise the application shall be cancelled.*

*Re-inspection may not be needed for subsequent applications for the same product.*

### *2.3.2 Assessment of factory production control*

*Assessment of the applicant's system of factory production control forms part of the initial inspection. This may be done according to the specific guidance agreed by the group of notified bodies for the product.*

*Ideally, guidance for these elements should be included in the harmonised standard or in the ETAG/CUAP/ETA.*

*All records produced for the implementation of the factory production control related to certification shall be readily available for attestation body inspection.*

*The applicant shall ensure that the question of responsibility to the notified FPC-certification body for the factory production control is clearly defined, e.g. by appointing a designated person who is independent from production management 1 as far as the technical performance of his function is concerned and who is qualified to maintain the contact with the notified FPC-certification body, to ensure that the above provisions have been observed.*

*In case of ETAs it should in particular be recalled that the notified FPC-certification body shall seek to obtain from the Approval Body the relevant technical documentation which is essential for the fulfilment of its tasks of attestation of conformity (i.e. the relevant elements contained in the possible confidential part of the ETA).*

*The notified certification body should also inform the Approval Body of its investigation results, in particular in cases of significant non-conformity to allow it to keep the ETA-file updated.*

## *2.4 Certificate of factory production control*

*The notified FPC-certification body, when complete fulfilment of the requirements laid down in Annex ZA of the harmonised standard or in the relevant ETA has been established, informs the applicant accordingly and issues a certificate of factory production control.*

*The certificate should normally be issued for one factory in respect of one harmonised specification. In any case, the factory(ies) covered have to be clearly identified on the certificate of factory production control.*

[1] In the case of SME's with reduced staff, this condition is not of application

### *2.4.1 Certificate of factory production control for other products from the same factory*

*A manufacturer wishing to obtain certificate(s) of factory production control for additional type(s) or model(s) of product(s) made in the same factory to the same harmonised standard or another ETA as the product for which a certificate of factory production control is already held, shall apply to the certification body, using the usual application form. The certification body can decide in such case not to carry out or to only carry out partial factory inspection and to grant the corresponding certificate.*

*If the manufacturer wishes to apply the certification of the factory production control to additional types of products made at the same factory, but to different harmonised technical specifications, or if the manufacturer wishes to apply for certification of factory production control to be applied in an additional factory that is not covered by an earlier EC-certificate or certificate of factory production control, the elements that have already be assessed during the previous assessment(s) could be used again when relevant, in accordance with sector group practices. In case of doubt, the notified body shall consult the sector group concerned.*

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## *2.5 Surveillance (system 2+ only)*

*The certification body exercises the surveillance of the factory production control on the basis of the requirements of the relevant harmonised technical specification and of the additional guidance of the scheme and on the basis of the original assessment of the factory production control.*

*The certification body may appoint an inspection body to carry out the surveillance under its authority and responsibility, exercised under agreed conditions.*

*The manufacturer shall be informed about the results of the surveillance.*

*The manufacturer shall inform the notified certification body about any intended modification of the production process or factory production control, where this is likely to have an effect on the stated properties of the product. It is up to the certification body to determine whether the announced changes require another inspection or other further investigations. In such cases the manufacturer is not allowed to release CE-marked products resulting from such changes until the certification body has notified the manufacturer accordingly.*

*In the case of ETA, the notified body shall inform the Approval Body that issued the ETA in the case of non-conformity and by any modification of the FPC to allow him either to update the ETA file of the product or to renew the ETA when relevant.*

*The manufacturer shall keep a record of all non-conformities and complaints relative to the product covered by the certificate of factory production control and make this available to the certification body on request.*