

ANNEX 19

Guarantee levels and requirements for the official recognition of quality marks

1. Introduction

This Code consider the possibility that the Project Management may apply special considerations for some products and processes if they show additional guarantee levels to the minimum ones required in accordance with Article 81.

In general, these additional guarantee levels are demonstrated through the possession of a quality mark that is officially recognised by a competent Administration within the field of construction and which belongs to a Member State of the European Union, or to the Agreement on the European Economic Area or having an agreement for establishing a Custom Union, in which case the level of equivalence shall be proved applying the procedures in the Directive 89/106/CEE .

2. Guarantee levels for products and processes

In case of products that, according the Directive 89/106/EEC, need to have the CE marking, the guarantee level required by regulation is that associated with the referred CE marking, specified in the corresponding harmonized European standards and which allows free trade within the European Economic Area. In the case of products or processes for which the CE marking is not in force, the guarantee level required by regulation is that laid down in the Article in this Code.

The Manufacturer of any product, the Person responsible for any process or the Constructor may, voluntarily, opt for a quality mark that ensures a guarantee level that exceeds the minimum requirement laid down by this Code. In the case of products with a CE marking, said quality marks must bring added value with regard to characteristics not covered by CE marking.

Given that, since these are voluntary initiatives, the quality marks may show different criteria for concession in the corresponding specific procedures; this Annex lays down the conditions that allow differentiation when there is an additional guarantee level to the minimum required by regulation and which, therefore, may be officially recognised by the competent public authorities.

3. Technical basis for the official recognition of quality marks

The Administration that carries out the official recognition of the quality mark must verify that the requirements included in this Annex are complied with and ensure that they are maintained for official recognition. In order to achieve this, the Administration, while maintaining the necessary confidentiality, may intervene in all those activities that it considers relevant for the recognition of the quality mark.

The official regulation where the Administration gives the recognition shall explicitly indicate that it is done for the purpose that lays down in this Code and in agreement with the technical basis included in this Annex.

The Administration that carries out the official recognition of a quality mark of a product or process, in order to guarantee the requirements that lead to recognition, may require that designated representatives to participate in the committees defined in the certification body for taking decisions on certification matters.

The competent Administration shall have access to all the documents regarding the quality mark, with the necessary guaranty of confidentiality.

4. General requirements for quality marks

For its official recognition a quality mark shall:

- Be of a voluntary nature and awarded by a certification body that complies with the requirements of this Annex.
- Be in agreement with this Code and to include in its regulations explicit declaration of this agreement.
- Shall be awarded based on a procedure described in a governing Regulation for the quality mark that defines its specific guarantees, the awarding procedure, the operating system, the technical requirements and the rules for making decisions related to it. This regulation must be available to the public, defined in clear and specific terms and it must provide unambiguous information both for the client of the certifier and the other interested parties. Likewise, the regulation must take account of specific procedures both in the case of external installations to the construction site and installations that belong to the site, as well as processes developed in the site
- Guarantee independence and impartiality in the concession, not allowing, among other measures, taking part in the decisions regarding any expedient to persons developing consultancy activities related with it.
- It shall include, in the Regulations governing the granting of the quality mark, the appropriate treatment for certificated products for which there are non-compliant production test results in order to guarantee that, in this case, the appropriate corrective action is carried out immediately and, if applicable, clients are informed. The Regulations procedure shall also lay down the maximum period that may elapse between the non-conformance being detected and the corrective action being carried out.
- It shall lay down the minimum requirements that the laboratories working on the certification must verify.
- To establish for the awarding that it shall be a continuous production control during a period of at least six months in the case of products or processes developed in installations different from the work site. In the event of installations on the site, the governing regulation shall consider criteria to ensure the same level of information of the production and the guarantee for the user.
- In case of products or processes included in the scope of this Code, but which is different to those covered in this Annex, additional guarantees shall be presented over those required by regulation, but which may contribute to the compliance of the basic requirements laid down by this Code.

5. Specific requirements of the quality marks

This Code defines, besides the general requirements demanded in the section 4 of this Annex, specific requirements that the quality marks must fulfil in order to be officially recognized by an Administration.

5.1. Concrete

The quality mark for concrete shall:

- Guarantee the control of the acceptance of component materials used in the manufacture of concrete and the stocks system shall allow the trazability of every batch, with a continuous and documented control of the reception and consumption of such component materials.
- Guarantee the concrete is mixed in fixed installations, for which the Regulations could include a transitory situation until January 1st, 2010. Apart of that, shall be guaranteed the real use of such installations with sealing systems or similar in order to detect by-pass systems for using mobile mixers. As alternative could be used other systems of fabrication with mobile mixers provided the certification body could guarantee an adequate control of the homogeneity and quality of the process, taking into account, among others, the six-monthly checking of all the tests specified in the table 71.2.4.
- Check that the concrete production installations have a management system for data regarding the production in order to supervise in real time the amount of concrete produced. With this system the daily real versus foreseen data of dosage regarding, at least, cement, aggregates, admixtures and water will be registered. Apart of that, it will be checked that exist electronic systems to guarantee the correct dosage of, at least, cement, admixture and water. Dosing shall be automatic not allowing non-authorized variations in dosing and it will operate when detecting non-admissible deviations. The certification system shall audit the dosing data.
- Guarantee that when the concrete needs to be transported outside the installation, such as for example prepared concrete, the product reach the consumer maintaining the homogeneity and the specifications defined, through, among other procedures, using transport units implemented with systems for continuous register of the resistance of the shovels as well as the volume of the water tanks. As alternative, could be adopted the sealing of the water tanks to check that water has not been added to concrete before the supply, in this case, it will be checked that a declaration signed by the client on the correct condition of the sealing is included in the documentation. The transportation elements shall be implemented with systems to allow their geographic allocation from the production central and to track the path from the central to the final supply site.
- Consider concrete designated by characteristics with a different resistance or ambient as different products, belonging to independent productions.
- Guarantee that the installation has a procedure to maintain the guarantee during the periods when, for whatever reason, interruptions occur in the normal production of a certificated product. Likewise, the quality mark shall define the way to check that the procedure is carried out if any interruption occurs. It shall demand to generate the corresponding alert when any of these situations occur. It shall supervise that concretes with interruptions in their production longer than 3 months were not maintained as certified products, cancelling the certificate validity in such case.
- Guarantee the production control followed by the concrete installation shall consist of at least a daily determination of the resistance of the concrete for each kind of specific resistance manufactured.
- Implement a external control of the strength that shall be carried out at least twice a month for each type of product for which more than 200 m³ has been produced. In other cases at least one determination shall be carried out for the types produced.
- Guarantee the interruptions of certified products sampling are never longer than 1 month, in which case it will be considered that the product has had a discontinuity in the

production and it must be penalized accordingly to the Regulation of the quality mark, as well as being applied a sampling frequency that corresponds to a new production.

- Define a system of penalties that ensures the least impact to the production of non-conformance concrete. For this purpose, the Producer shall inform in writing to the certification body the detail of the first corrective actions adopted in a period no longer than a week since any non conformity detection, not elapsing more that two months since detecting a non conformity regarding the product requirements until, if not solved, the awarding of the quality mark be invalidated.
- The consumer risk, understood as the probability of accepting a defective batch, for the specific resistance of concrete must be less than 45%.
- Guarantee that in the conditions defined in the previous paragraph, the values of strength obtained in the control of production have a limited scattering, such that in every case the standard deviation and the variation coefficient being simultaneously smaller than the values in the table below:

Strength specified for concrete, f_{ck} (N/mm ²)	Standard deviation of the population σ (N/mm ²)	Coefficient of variation of the population δ
20	3,0	0,115
25	3,6	0,110
30	4,2	0,110
35	4,9	0,110
40	5,5	0,108
45	6,0	0,105
50	6,5	0,103
60	7,3	0,098
70	8,1	0,094
80	8,7	0,089
90	9,2	0,085
100	9,6	0,080

- Guarantee the concrete compositions specified by the producer to the client in the certificated declaration of the concrete composition supplied as referred in the section 86.6.
- Guarantee the traceability of concrete with the component materials, that would be declared to the client with proper labelling systems for this goal.

5.2. Passive reinforcements

The quality mark for passive reinforcements shall:

- Guarantee that the acceptance of steel used for elaboration of passive reinforcement and the stock system allow a perfect traceability by mean of a continuous and documented control of the consumption of steel.
- Demand an computerized system for the control of the traceability of the reinforcements regarding the steel used in the elaboration.
- In the case of standardised passive reinforcements, when the CE marking enters into force, the quality mark must bring added value with regard to characteristics not covered by such marking. In any case, the quality mark must ensure that the added values are consistent with the special considerations covered by the Code for this case.
- In the case of assembled reinforcement or structural ironwork, guarantee that it is checked, at least once each turn, the height of the corrugation by diameter and machine of the straightened material and the length, by machine or cutting tool, in the control of production defined by the Producer.
- Guarantee that the validation of the processes:
 - o Straightening: for each machine and this for a diameter for each one of the series (small, medium or large), a monthly sample shall be taken before and after the process.
 - o Cutting: for each machine or operator (if the cut is by hand), a measurement each turn.
 - o Bending: for each machine, a reinforcement each turn.
 - o Welding: for every welding work position, a quarterly check.
- Require that, when discontinuities superior to 1 month in the manufacture of the certified product are produced, the manufacturer will communicate this discontinuity to the certificatory body, otherwise it will be sanctioned according to the Regulations of the quality mark. The requirements to the production and the intensity of the controls after the discontinuity will have to be established in the Regulations, according to the causes.
- Require the manufacturers of structural ironwork having systems of labelling through computerized codes that guarantee the traceability of the reinforcements and that allow the subsequent management of the traceability in the work.
- Define and apply, in its case, a regime of sanctions that guarantees the minimum impact of the production of not conformed reinforcement in the user. To this purpose, will not elapse more than 3 months since a non conformity related to the requirements of the product is detected until, if it had not been settled, the use of the mark is suspended for this certified product.

5.3. Precast elements

The quality mark for precast elements shall:

- Guarantee the requirements laid down in this Annex in the installations for producing the component elements (concrete, passive reinforcement, active reinforcement, etc.) without prejudice to the provisions specifically laid down in this section.
- Guarantee that the Prefabricator have a fixed concreting installation and a workshop for passive reinforcement capable of producing the whole of materials necessary for the manufacture of precast elements. Only in exceptional cases shall the use of external

plants or workshops be permitted, in which case, they must also possess a quality mark.

- Check that precast concrete installations have a data management system of the concrete plant in order to supervise in real time the production of concrete. This supervision shall be carried out by external technical personnel to the concrete production department. By means of this system, the daily production of concrete shall be registered with data on the real dosage against the anticipated dosage, of at least cement, aggregates, admixtures and water. In addition, the concrete plant shall have appropriate electronic systems to ensure, as a minimum, the dosage of cement and admixtures. The dosage shall be fully automatic thereby preventing unauthorised variations in the dosage and it shall respond when unauthorised deviations are detected.
- Check that the transport of concrete for pouring into moulds must be carried out in such a way that the concrete has the ideal characteristics for its use; to ensure this the samples shall be taken during the unloading of the vehicle or in the system for distribution of the concrete.
- Check the production control shall consider concretes with different designations as belonging to independent productions.
- Guarantee that the production control followed by the installation shall consist of at least one daily determination of the strength of the concrete for each kind of concrete manufactured that day. To minimise the risk of the consumer accepting a defective batch, this determination shall consist of a sufficient number of samples to carry out a predictive analysis of the resistance required at 28 days.
- Check that a procedure is established to maintain the guarantee during the periods when, for whatever reason, interruptions occur in the normal production of any type of concrete.
- Guarantee that under no circumstances shall interruptions of more than 1 month be permitted during the sampling of concretes.
- Check the external control of resistance shall be carried out with a frequency of at least or more than 2 times a month for each designation of concrete manufactured with a monthly production volume exceeding 200 m³. For production volumes of less than 200 m³ a month, at least one external test shall be carried out.
- Check that the Prefabricator has an internal self-control laboratory to at least carry out tests on concrete strength and verification tests shall be carried out in external accredited laboratories. A responsible technician shall be head in the laboratory of the Prefabricator.
- Guarantee whether or not resistant soldering is used for the elaboration of the reinforcements, the welders must be approved in accordance with the system used.
- Check appropriate systems to ensure the traceability shall be available, both for the materials used and for the precast elements themselves.
- Check that the manufacturers to have labelling systems by means of codes that allow the computerized management of the precast products and guarantee the identification and the traceability of the element from its fabrication to the position in site. This system of management of the finalized products will allow the preparation of computer listings that contain the prefabricated units supplied to a construction site and their main characteristics.
- Check that in the case of precast units for one-way floors slabs, the Prefabricator has a specification sheet and its corresponding Memory of Calculation of the systems of floor slab systems in which each of its elements can be used and guarantee that its technical contents is correct. For that, the certification body will seal the corresponding

sheets, indicating the dates on which they have been checked and the technician responsible for this verification. This specification sheet, which could be given to the Authors of the project, shall include, at least the following information:

- a) Name and addresses of the producer and the technician author of the Memory.
- b) All the geometric and mechanical characteristics of the constituting systems and elements considered by the producer as useful for making easier to check their complying with this Code, complementing the characteristics of each element provided, if it is the case, for the CE mark.
- c) All the geometric and mechanical characteristics of the elements not subjected to the CE mark necessary to check them according this Code.
- d) In particular, at least the following characteristics shall be defined:
 - geometric characteristics and weight per meter, in the case of the resistant elements of the floor, or per square meter in the case of floor slabs, and of its constitutive elements if they are not included in the CE mark. Sections details at scale among 1:2 and 1:50 of each of the elements that compose the system will be included. When the resistant prefabricated unit incorporates transverse reinforcements, these will be represented to scale separately of it,
 - the designation of the used materials, so much of the prefabricated units without EC marking as those of the upper in situ concrete slab , if any. For each material it will be given the design strength, elastic limit or maximum unit load, if necessary, according to this Code,
 - for elements without EC marking, the diameter and position of the reinforcement in the transversal section of the resistant prefabricated units. In the case of the prestressed elements, the initial prestress tension of the active reinforcement and the estimated total loss.
 - the mechanical characteristics of the resistant elements considered as isolated indicating the maximum resistant moments on secondary supports and the centre of span. In the case of prestressed elements, it will be indicated, as well, the bottom resistant module, the stresses due to prestressing in the upper and lower fibre and the value of the prestressing force multiplied by the eccentricity of the equivalent tendon relative to the centre of mass of the element section.
 - the mechanical characteristics of the different types of floor slabs defined in the specification sheet, to negative and positive bending, indicating the ultimate bending and cracking moments, the gross and fissured stiffness, the limit moments in service according to the different classes of exposure and the ultimate shear. The values of rigidity and moment of cracking will be calculated at twenty-eight days of age, the multiplier coefficients to obtain these values being indicated to other ages.

5.4. Steel for passive reinforcements

The quality mark for passive reinforcement shall:

- When the CE marking enters into force, guarantee an added value with regard to characteristics not covered by said marking.
- Differentiate the productions based on the forms of supply (bar or roll).

- The quality mark must ensure added value focused on the transformation processes in ironwork and the assembly of reinforcements being consistent with the special considerations covered by this Code for these cases.
- Request the manufacturers to have labelling systems by means of computerised codes ensuring the traceability of steel up to the casting level and which allow the subsequent management of said traceability by the customer.

5.5. Steel for active reinforcements

The quality mark for passive reinforcement shall:

- Guarantee for the products supplied to the customer bonding conditions so that the anchoring lengths and the transfer of the prestressing covered in this Code may be applied.
- Guarantee that the relaxation at 80% shall not exceed the non-permissible conformity values referred to in the article 38.9 of this Code.
- Define, with a sufficient statistical guarantee, experimental checks on samples, and, if applicable, on elements, including the risk of variability and defining the bonding characteristics for each type of element.

5.6. Prestressing application systems

The quality mark for this execution process shall:

- Develop a quality system that covers all the activities included in the installation procedure, including injection.
- Check the fulfilment of the quality system referred in the previous paragraph.
- Guarantee the entire traceability of the post-tensioning process, carried out by specially trained personnel in accordance with the audited procedures of the quality mark.
- Check that the prestressing Company has a health and safety system with additional guarantees to the usual required by the current legislation and which may be audited by a certification system.

6. temporary quality mark for concrete

Up to the 31 of December 2010 and with temporary character, the competent Public Administrations will be able to recognize officially quality marks of concrete, even in the case that they do not reach the level of guarantee established in the section 5.1 of this Annex, provided the fulfilment of the rest of applicable requirements of this Annex is guaranteed. This type of quality mark with official recognition will have to be referred as temporary in all the documentation that regulates it.

In order to prevent confusions in the market, those facilities that opt for a temporary quality marks, shall not be able to fabricate products with marks of level of guarantee according to the section 5.

The transitory quality mark of concrete shall:

- Guarantee that the control of reception of the component materials used for the manufacture of the concrete and the system of stocks allow the perfect traceability of every batch.
- Guarantee the supplied concrete is homogeneous.
- Guaranteeing that, when there is transport of the concrete out of the installation, as for example in the case of the ready-mixed concrete, the product supplied to the customer preserves its homogeneity and maintains the defined specifications.

- Consider concretes designated by different resistance as independent productions (products, from now on).
- Guarantee that the installation has a procedure to maintain the guarantee during the periods when, for whatever reason, interruptions occur in the normal production of a certificated product. Likewise, the quality mark shall define the way to check that the procedure is carried out if any interruption occurs, for that reason shall request updated information when these circumstances occur.
- Guarantee that the production control followed by the installation of concrete implies at least a determination for every 200 m³ of elaborated product and that a weekly verification is complied at least.
- Define an external control that will be carried out with a frequency never inferior to 2 determinations per month for the total of the products fabricated, procuring an equitable sampling of the total set of the products protected by the quality mark.
- Guarantee that, in no case, are interruptions produced in the samplings corresponding to the products certified, by causes external to the certificatory organism, which are superior to 3 months, in whose case it will be considered that the product had a discontinuity in the production and will have to be sanctioned according to the regulation of the mark, applying it, as well, a sampling rate equivalent to the one of a new production.
- Define and apply, if applicable, a sanction regime that guarantees the minimum impact of the production of not conformal concretes in the user. To this purpose, will not pass more than 4 months since it is detected a non conformity that decreases the confidence in the fulfilment of the requirements of the product until, if it had not been settled, the use of the mark shall be suspended for this registered product, if necessary.
- Guarantee that the products present a scatter measured by the coefficient of variation being less than 13%.
- Guaranteeing, through the statistical criteria established in the corresponding regulations of the mark, that the risk of the consumer, understood as the probability of accepting a faulty batch, for the resistance specified of the concrete will have to be inferior to 50%..

7. Requirements for the Certification Body

The certification bodies applying for new awarding after the date of approval of this Code, must be accredited according to the Royal Decree 2200/1995 in 28th December, in conformity with UNE-EN 45011 in case of certification of products or in conformity with UNE-EN ISO/IEC 17021 in case of certification of processes or systems.

The certification bodies that are recognized or have requested the official recognition before the date of approval of this Code, will have up to the 31th of December 2010 to be accredited in accordance with what has been indicated in the previous paragraph.

The certification body will put available of the competent Administration that carries out the recognition all the necessary information for the correct development of the activities in relation to the recognition of the badge.

Likewise, the certificatory body shall:

- Notify the competent Administration that carries out the official recognition any change that took place in the initial conditions in which the recognition was granted.
- Being endowed with an organ (committee), specific for every product or process, that analyze the application of the regulating rules and adopt or, depending the case, suggest the adoption of decisions related to the concession of the mark. In this committee will have to be, justly represented, the manufacturers, the users and the collaborative agents with the certification (laboratories, auditors, etc.).

- Check that the laboratory used to carry out the control of production has the sufficient material and human resources.
- Check the conformity of the results of tests for the control of production with a periodicity adequate for the manufacture of the product and, in no case, less than one per semester. For that, the regulations of the mark will establish criteria of acceptance, statistical as well as precise. For the analysis of these results of tests, the regulations will establish also the criteria for correction, according to the results obtained through the verification laboratory in the tests of contrast. The statistical conformity of the results of self-control corrected, as well as of the not corrected ones will have to be checked
- Check that, when a non conformity of the production control is produced, the manufacturers have taken corrective measures in a term not superior to a week, have informed in writing to the customers, providing them with the results of the self-control. They will have to have solved the non conformity in a maximum term of three months. According to the adoption of corrective measures, it will be able to be granted an additional term of three months, to the ending of which it will be proceeded to the withdrawal of the mark in the case of the non conformity being maintained. If necessary, to the effect of speeding up the adoption of measures, the allegations of the manufacturer and the proposal of withdrawal of the mark, the process will be able to be carried out by computer procedures (Internet, etc).
- Carry out, through verification laboratories, periodic tests of contrast of the properties of the products protected by the mark. The sampling to carry out these tests must be done guaranteeing the representativeness and proper distribution to the verification laboratories and also to the laboratories of the manufacturers, in its case. The certification body, according to the obtained results, will carry out, if applicable, corrections of the data obtained in the production control.
- Organize inter-laboratory tests with periodicity annual, at least, to allow tracking the evolution of the laboratories.
- Establish a system of market monitoring, so that all the products protected by the mark are the target of periodic analysis, taking samples for testing and checking that the documentation allows, in any case, guarantee the traceability as well as the coincidence of the supplied product with the characteristics that appear in the sheet of supply.
- In the case of the concrete, as the certification must include the transport up to the supply site of the customer, any sampling for self-control, for tests of contrast or for tracking the market, will always be carried out on specimens taken in the final destination.

8. General requirements for verification laboratories

They shall be laboratories of the certification body or subcontracted by it, accredited according to the Real Decree 2200/1995 of 28 of December fulfilling the standard UNE-EN-ISO/IEC 17025 or belonging to some Public Administration with competences in the area of the construction of the referred in section 78.2.2.1.

The certificatory body shall watch that the verification laboratories designated for every dossier, are independent of the laboratories that carry out the production control.

9. Requirements for the manufacturer production system

The production installation shall:

- Have implemented a quality system audited by an authorized certificatory body according to the Real Decree 2200/1995 of 28 of December conforms to UNE-EN-ISO/IEC 17021. This system will be according to the standard UNE-EN ISO 9001, in the parts that are of application.

- Have a laboratory for the continuous control of the production and the product to supply, being own or contracted.
- Have defined and implemented a continuous production control in factory, whose data for a period of, at least, six months before the concession have to be available. This period could be of two months in some special cases in which the same product is fabricated regularly, as for example in the facilities of work site. For these cases, the regulations of the mark shall include specific criteria that assure the same level of guarantee to the user as in the general case, so that the mark can be granted in a maximum term of two months from the presentation of the self-control data.
- Have subscribed a certificate of insurance that protects its civil liability for possible faulty products fabricated, in a sufficient amount, according to has been established by the regulations of the quality, mark.
- Have an information system on the results of the production control, which is accessible for the user, through computer procedures (internet, etc...) or, alternatively, a system for evaluation by the certification body of the self-control with weekly periodicity, preferably automatized by computer procedures, In the last case, the manufacturer will make available the results of the production control to the users that require it,.