

Primljen / Received: 9.11.2017.

Ispravljen / Corrected: 9.1.2020.

Prihvaćen / Accepted: 10.4.2020.

Dostupno online / Available online: 10.5.2020.

Special cases of construction products performance verification

Authors:



Assist.Prof. **Goran Puž**, PhD. CE
Hrvatske ceste d.o.o., Croatia
Goran.Puz@hrvatske-ceste.hr
Corresponding author



Igor Džajić, Ms. CE
Institut IGH d.d., Croatia
igor.dzajic@igh.hr

Professional paper

Goran Puž, Igor Džajić

Special cases of construction products performance verification

In the construction process, the contractor purchases products accompanied with certain documentation, whose compliance with regulations is additionally checked by the supervising engineer. Cases of doubt arise with regard to products that belong to the area of non-harmonised standards, i.e. for products without technical specifications or products that come to the construction site without "CE" or "C" marks. Regulations applicable to construction products are analysed in the paper, and the authors' opinion on action to be taken in special cases is presented. An overview of situation in other EU countries is also given.

Key words:

construction product, legislation, "CE" mark, expert supervision of construction works

Stručni rad

Goran Puž, Igor Džajić

Posebni slučajevi dokazivanja uporabljivosti građevnih proizvoda

U procesu građenja izvođač nabavlja proizvode koje prati određena dokumentacija, čiju usklađenost s propisima dodatno provjerava nadzorni inženjer. Do nedoumica dolazi kod ugradnje proizvoda koji pripadaju neusklađenom području normi, proizvoda za koje ne postoje tehničke specifikacije ili proizvoda koji dolaze na gradilište bez "CE" ili "C" oznaka. U radu se analizira regulativa koja se odnosi na građevne proizvode i iznose stavovi autora o postupanju u posebnim slučajevima, a dan je i osvrt na situaciju u drugim zemljama EU.

Ključne riječi:

građevni proizvod, zakonska regulativa, "CE" oznaka, nadzor nad izgradnjom

Fachbericht

Goran Puž, Igor Džajić

Sonderfälle zum Nachweis der Verwendbarkeit von Bauprodukte

Während des Bauprozesses beschafft der Auftragnehmer Produkte, die von einer bestimmten Dokumentation begleitet wird, deren Konformität mit den Vorschriften zusätzlich vom Aufsichtsingenieur überprüft wird. Zu Bedenken kommt es beim Einbau von Produkten, die zum nicht angepassten Bereich der Normen gehören, Produkte für die es keine technischen Spezifikationen gibt oder Produkte, die ohne die Kennzeichnung „CE“ oder „C“ auf die Baustelle kommen. In der Abhandlung werden die Vorschriften analysiert, die sich auf Bauprodukte beziehen und es werden die Ansichten der Autoren zum Vorgehen in Sonderfällen präsentiert, und es wird auch eine Übersicht der Situation in anderen EU-Ländern dargelegt.

Schlüsselwörter:

Bauprodukt, gesetzliche Regelung, "CE"-Kennzeichen, Bauaufsicht

1. Introduction

The main document covering the area of placing construction products on the EU common market is the Regulation (EU) No. 305/2011 of the European Parliament and of the Council (the Regulation), in which harmonized conditions for placing construction products on the market are specified [1] including, inter alia, the assessment and verification of constancy of performance. The system based on the Regulation is aimed at harmonising conditions for marketing of construction products through establishment of a common technical language in which significant characteristics are defined with regard to their performance in harmonised technical specifications: harmonised standards and European documents for assessment, which have to cover the area of basic requirements for construction works. The entry into force of the Regulation coincides with the date of accession of the Republic of Croatia to the European Union, 1 July 2013. The Regulation was included into national legislation of the Republic of Croatia together with the Construction Products Act [2], and these two documents form the basis of the system for the assessment and verification of the constancy of performance of construction products.

The construction itself (as well as the design, use and maintenance) of construction works is regulated by the Construction Act [3] which, inter alia, sets obligations for fulfilling basic and other requirements for construction works. Basic requirements for construction works are specified in technical regulations, in accordance with the principles of harmonisation of European technical regulations. In simple terms, it can be said that the Construction Products Act regulates marketing of construction products, while the Construction Act, together with its byelaws, regulates incorporation of construction products.

According to its definition [1], "construction product" means any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works. Construction products can vary greatly, and differences in the significance, size, complexity and intended use of construction products result in complex rules that lead to various interpretations and hinder conformity in use. It should be noted that the European Union is a union of countries that have different building traditions as to regulatory framework and usual practices.

The rules specifying requirements for placing construction products on the market of the European Union were derived from harmonised basic requirements for construction works, which must not put into jeopardy the safety of persons or property, and must not be harmful to environment. The Regulation is related to construction products in the so called harmonised area, which covers those products for which harmonized technical specifications exist, while the national Construction Products Act is mostly concerned with non-harmonized area. These two areas differ from one another by the status of product standards: harmonized standards are accepted by standardisation bodies in their original form throughout the EU area, while non-harmonised standards also have national features.

In principle, internal market of the European Union is the area without internal borders in which free movement of goods is guaranteed,

while national measures that would hinder trade in goods are generally forbidden. However, member countries are entitled to adopt some national measures that are aimed at protecting the health, environment, and workers during the use of construction products. The main objective of the Regulation is to increase functionality of the uniform market and improve free movement of construction products in the EU by defining harmonized conditions for their placement on the market, and this by setting four basic elements of the system for assessing conformity of construction products. These elements are:

- system of harmonised technical specifications
- agreed system of conformity certification for each group of products
- framework for establishing the system of notified bodies – third party bodies
- "CE" marking [4].

The intention of the Regulation is not to harmonise national provisions of the member countries, which in other word means that private and public clients can freely set their own requirements regarding performance of products. Harmonisation on the EU level involves: definition of product testing methods, formulation of text for declaration of performance, "CE" product marking, and procedure for the assessment and verification of constancy of performance. On the national level, harmonisation involves determination of values that define performance levels for specific intended uses of products. Numerous problems have been observed in implementation of the system used for the determination of harmonised conditions for placing products on the market, and the economic effects of harmonisation have not been compliant with expectations. A study on the implementation of the Regulation [4], prepared for the European Commission, has revealed problems in practical operation of a single market, especially those arising from specific national requirements for placing some products on the market, and those that come as a consequence of an insufficient market surveillance.

Construction products from the EU area, accompanied by a variety of documents, are being supplied to our construction sites. The incorporation of products not accompanied by the manufacturer's declaration of performance, and devoid of C or CE mark, is in some cases allowed by the Construction Products Act, which has led to difficulties when having to decide which product may and which product may not be accepted and incorporated. According to Construction Act [3], the contractor is required to incorporate construction products in accordance with the Act and relevant regulations, and to provide proof about performance of construction products as related to their essential characteristics, as well as the documents on the compliance of individual parts of the construction work with basic requirements for the construction works, and also the evidence of quality (test results, records on quality control activities undertaken, etc.) that has to be provided during realization of construction works. The contractor's compliance with relevant requirements is verified by the supervising engineer.

Contact Points have been established in each country included in the European economic area, and so also in Croatia, in order to provide information on rules applicable on the national level, the aim being

to ensure fulfilment of basic requirements for construction works, which are applied for the intended use of each construction product. It is specified in the Regulation that Contact Points “should provide information on rules applicable to the incorporation, assembling or installation of a specific type of construction product”. The Contact Point for construction products, organised within the Ministry of Construction and Physical Planning (MGIPU) provides official information, and so the opinions presented in this paper are personal opinions of the authors, as well as an invitation for a broader expert-level discussion about special cases that occur on construction sites and cause dilemmas resulting in serious financial consequences.

2. Products with CE or C mark

2.1. Product marking

Products that are placed on the common European Union market bear a recognisable CE mark, by which the manufacturer confirms that essential characteristics have been assessed and checked according to provisions of harmonised technical specifications, which are in most cases either harmonised product standards (hEN) or European assessment documents (EAD). For the products covered by standards that have not been harmonized on the EU level, the use of Croatian technical specifications is regulated by national legislation, and such products bear the mark “C” on our market. Standards for construction products (often call specifications) that have been adopted by Croatian Standards Institute (HZN) are mandatory when they are specifically mentioned in one of technical regulations. Standards accepted in the harmonised area are thus mentioned in the technical regulation defining technical specifications for construction products in the harmonised area [5], and so certificates and test reports are delivered in the harmonised area on the basis of these harmonised technical specifications. Certificates and test reports in the non-harmonised area are delivered on the basis of standards that have been defined in the Technical Regulation on Construction Products (TPGP) [6] and in other technical regulations. Thus, mandatory application of standards is specified by the competent ministry (MGIPU) by laying down appropriate technical regulations. Standards mentioned in technical regulations are dated, which means that regulations contain references to a particular edition of a standard, and so regular updating is needed to take into account new editions that have been adopted by the Croatian Standards Institute. The C mark is also placed on products for which Croatian Technical Approval (HTO) has been obtained. Such products do not have a certificate but are generally subjected to procedures specified according to an appropriate system of assessment and verification of constancy of performance.

2.2. Third-party tasks

Manufacturers have the basic responsibility for harmonisation with standards or other specifications relating to products. Third-party bodies provide an independent view on the compliance of a construction product with appropriate requirements and this

through assessment and verification of constancy of performance [7], which is done in accordance with an applicable assessment system. The systems, numerically marked as 1+, 1, 2+, 3 or 4, differ by their stringency, i.e. by the extent of specified activities and distribution of responsibilities between the manufacturer and the third party, and they are specified depending on the significance of the product with regard to basic requirements for construction works. A simplified procedure that precedes placing on the market of construction products for which standards (technical specifications) are available, is presented in Figure 1.

The competent ministry (MGIPU) appoints the bodies that will perform third-party tasks: in the harmonised area these bodies are the so-called notified bodies and, in the non-harmonised area, this task is entrusted to approved bodies. The manufacturer and the notified body or approved body conduct a specified set of activities based on which the manufacturer draws up an obligatory declaration on performance and places the prescribed mark on the construction product. The official confirmation of the scope of authority of notified bodies is given on the EU pages, in the so called NANDO database [8]. The procedures that precede placing the CE mark on products are described in an appropriate brochure issued by the European Commission [9].

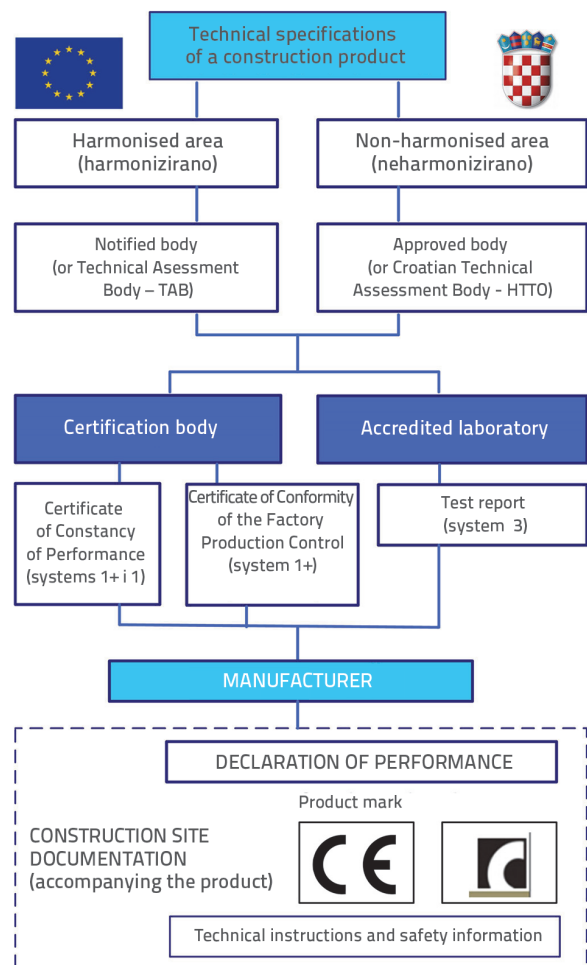


Figure 1. Schematic view of the procedure that precedes placing on the market of construction products for which standards are available

The construction products that are not covered by standards can be subjected to European technical assessment (ETA) or the national technical assessment (HTO), which is in practical terms a specification written for a particular product. Third-party bodies that make ETA assessments are known as TABs which is an acronym for Technical Assessment Bodies, while their counterparts on the national level are in our country HTTOs (Croatian Technical Assessment Bodies).

At the time of writing of this paper, only one body for technical assessment of construction products (HTTO) has been in operation in the Republic of Croatia. During its ten years of operation (from 2009 to 2019), this HTTO has issued a total of 46 technical assessments. Considering the number and diversity of construction products offered on the market, it can be stated that the number of documents issued so far is rather small. This is partly due to the cost and long time needed to conduct the procedure, which contains a formal procedure in which the MGIPU is involved, and confirmation of properties through laboratory testing. On a relatively small market such as the one in Croatia, manufacturers that can not place great quantities of their products on the market are not likely to make this assessment, but are rather opting for alternative ways for preparing documentation that will enable incorporation of their products.

2.3. On-site verification of product documentation

When conducting an on-site verification of documents for the product for which the declaration on performance and CE or C mark have been provided, the attention should be paid to the following factors:

1. Verification of the documentation accompanying the product

The product should be accompanied with the manufacturer's declaration on performance, and the CE or C mark should be placed on the product. The product should also be accompanied with instructions and safety information, all in Croatian language. The data contained in all documents, and the product marks, must be mutually compliant and also compliant with provisions specified in the design. Some other marks are also available on the market of construction products, but they are of national significance only. The incorporation of a product for which a national mark has been issued (such as our "C" mark) can be permitted under special conditions that are described later on in this text.

A special attention must be paid to the required performance of essential characteristics of a product, as similar products very often differ in the performance of essential characteristics due to the difference in intended use. The intended use should be unambiguously defined in the design documentation or, more specifically, in the Quality Control and Quality Assurance Program which is an integral part of the detailed design.

2. Verification of certificates / reports

When having some doubts about adequacy of the declaration on performance, the supervising engineer must check whether this document has been issued based on a valid certificate or report. This is very important as sometimes declarations on performance are being

written based on certificates that have been revoked, that are invalid, or whose validity is related to a national area of another member country or is not at all related to the legislation regulating the market of construction products. The body that has issued the certificate is required to provide information about whether the certificate is valid and this either through a register of certificates that is publicly available on the Internet, or is available upon request. The manufacturer or the person representing the manufacturer is not required to let the site personnel consult the certificate or the test report for the product that has been delivered. In case of doubt, the person in charge of the construction site can check the registers and find the list of valid documents. This does not apply to products belonging to the system 4 of assessment and verification of constancy of performance, where the manufacturer writes declaration of performance of significant properties based on actions it has taken by itself. In this case, a third-party body does not take part in the procedure for the assessment of performance, and so there is not certificate.

3. Verification of compliance with the design of construction work

Some essential characteristics of products relating to basic requirements for construction works are indicated in the declaration on performance and on the product mark. According to article 13 of TPGP, a marked product can be incorporated in the construction work if it is compliant with requirements from the design of the construction work. The role of the Quality Control and Quality Assurance Program (PKOK) in defining performance of construction products for the designed construction work is emphasized in Article 12 of the same regulation. The role of PKOK, as a relevant part of the project, with regard to performance of construction products, is also indicated in the Technical Regulation for Building Structures (TPGK) [10]. It is indicated in both regulations, TPGP and TPGK, that detailed design is relevant for defining performance of construction products that are incorporated in the construction work. Nevertheless, both regulations allow for and permit a more detailed elaboration of requirements in the working design.

4. Control tests

Both TPGP and TPGK require obligatory performance of control procedures – control tests – according to the design for the construction work (or according to the PKOK), which must be conducted immediately prior to incorporation of a product. Control tests can also be ordered by the supervising engineer in case of doubt. The control test program must be harmonised prior to the commencement of works, and its implementation is supervised by the supervising engineer. It is important that there is a mutual agreement between the client, contractor and supervising engineer as to the objectives, scope and supervision of performance of these tests.

3. Construction products without mark

3.1. Prescribed conditions for acceptance of products without mark

Some PKOK designers require that only construction products accompanied with the declaration of performance and with

an appropriate mark, can be accepted on the construction site on which the construction work is carried out. However, it is indicated in the Construction Products Act that products for which the declaration of performance has not been issued, and that do not have the CE or C mark, can lawfully be incorporated in the construction work. Such products may be lawfully incorporated in two cases:

- a) when suitability for use of the product originates from the design
- b) when the product is lawfully sold in another member country in the non-harmonised area (Figure 2).

3.2. Designed products

According to the Regulation [1], the manufacturer of a product in a harmonized area publishes significant properties of the product, writes the corresponding declaration, places a mark on the packaging, and thus assumes full responsibility for the compliance of the product with the specified performance of essential properties. According to the Construction Products Act, a construction product can be manufactured individually or according to a special order, either on construction site or in a plant outside of the construction site, for the purpose of its incorporation in a particular construction work (Article 27). In this case, product performance as related to its significant properties must be defined in the detailed design. It can be said that, instead of a general technical specification, the specification contained in the design is applied for such products, and that the proof of usability of such products arises from such specification, which is why these products do not have to have the mark and the declaration of performance. It is specified in Article 13 of TPGK [10]: *characteristics of construction products in relation to their essential properties for the intended use of the construction work, as well as to any foreseen impacts and effects the environment might have on the construction work during its originally designed (calculated) useful lifetime, shall be determined within the quality control and quality assurance program contained in the structural design of the construction work.* It is specified in the same article of TPGK that the requirements that were unknown at the time of the detailed design preparation, or that were not included in the detailed design, shall be further developed in the working design. In Article 35 of the *Byelaw on Obligatory Content and Presentation of Design Documents for Construction Works* it is specified that the working design must contain detailed descriptions and additional computational verifications, i.e. a more detailed elaboration of the quality control and quality assurance program. It often happens in practice that the Manufacturer, with whom the Contractor has agreed on the supply (fabrication) of a certain product, prepares a part of the working design documentation, which is then further elaborated by the designer of the working design and included in the working design, and for which the said designer assumes responsibility. The following two cases, in which products can lawfully be incorporated despite the absence of the declaration of performance and the mark, are most frequently encountered in practical situations:

Case 1

A construction product is manufactured individually or according to a special order in the scope of a non-serial manufacturing procedure, in a plant situated outside of the construction site, for the purpose of being incorporated in a particular construction work. In this case, according to Article 27 of the Construction Products Act, the manufacturer incorporates this product and assumes responsibility for the product and for its incorporation, and this through declaration entered in the site diary.

In practical situations, a question may arise about who represents the manufacturer on the construction site. It is expressly stated in the Construction Products Act that the authorised representative can not be authorised to prepare technical documentation (Article 31), which can be interpreted to mean that the representative can not enter a declaration in the site diary. In case of a distributor who places the product on the market of the Republic of Croatia, it can also be interpreted to mean that the manufacturer is solely authorised to give such declaration (Article 33). However, if this distributor sells the product under its name or trademark, then the said distributor is considered to be the manufacturer and can enter its declaration in the site diary. On the construction site, it can in this case be stated that:

- detailed design contains a detailed product specification
- the person responsible for the incorporation rightfully represents the manufacturer, so that it can confirm, by making an appropriate entry in the site diary, that the product has been manufactured in accordance with the specification and in the scope of a non-serial procedure.

In addition to the mentioned entry, it can be inferred that the product must be accompanied with a "special order" or technical specification issued by the manufacturer, from which it can be seen (which is the proof) that the product has been manufactured in full accordance with the provisions contained in the Detailed Design.

Case 2

The construction product has been manufactured on the construction site where it will be incorporated in a single construction work. It is specified in articles 10 and 16 of the TPGK that the proof of usability of such product is obtained according to the PKOK which is contained in the design (i.e. in the detailed design, which can be further elaborated in the working design). In this case, the PKOK must inter alia contain requirements relating to (Article 10):

- contractor's manufacturing verification and contractor's type testing for the construction product
- supervision of manufacturing plant and supervision of contractor's verification of the construction product.

Technical performances of the product must also be specified in the PKOK, and this by specifying (Article 16):

- description of required performances,
- physical and other values that the construction product must have in relation to the required performances, and
- everything else that is significant, from the aspect of the construction product, for fulfilling basic requirements for the construction work.

In this case, some activities that are otherwise conducted by the third-party bodies in plants should be conducted on the construction site as it is the place at which the product is manufactured. As the regulation does not specifically indicate that the term "supervision" implies technical supervision, the question can be put about who is responsible for the conduct of supervision of manufacturing plant and for the supervision of the contractor's verification of the construction product. It would be quite logical to select for such tasks relevant third-party experts who are authorised for the group of products related to the product that is to be supervised; however, this obligation is not expressly specified in relevant regulations.

3.3. Products that are lawfully sold in other member countries in non-harmonised area

Let us assume that it has been decided to incorporate in the construction work a product that is lawfully sold in another member country situated within the European economic area, and this in the non-harmonised area, i.e. in the area covered by national standards.

In the Republic of Croatia, such products are regulated by Article 54 of the Construction Products Act. For the products that are sold in another member country in accordance with its regulations, the manufacturer (representative) can choose the way in which the products will be placed on the market of the Republic of Croatia:

1. By proving that these construction products meet requirements of the Croatian technical specification in accordance with the Construction Products Act and regulations for the implementation of this Act. This case brings us back to marking by "C" mark and to delivery of the declaration of performance, and so it will not be considered any further.
2. By placing the product on the market in accordance with article 54 of the Construction Products Act. This article contains the provision on the free movement of goods in the non-harmonised area, in accordance with the European legislation, i.e. the EU Regulation No. 764/2008 (Regulation on mutual recognition) [11]. The principle of mutual recognition is summarized in the preamble of Regulation 764:

A Member State may not prohibit the sale on its territory of products which are lawfully marketed in another Member State, even where those products were manufactured in accordance with technical rules different from those to which domestic products are subject.

More specifically, it is allowed to incorporate in the construction work any product that is lawfully sold in another EU member country and that is in accordance with a separate law regulating construction products placed on the market within the territory of the Republic of Croatia, provided that this product does not have a "C" mark and that a declaration on performance has not been drawn up for such product.

Technical properties of such (unmarked) product must be specified in the PKOK, just like in case 2 described in previous section, in accordance with Article 17a of the TPGP. In addition to properties indicated in this article, the PKOK enabling incorporation of the said product must also contain:

- clear indication of the way the product will be used in the designed construction work,
- safety precautions to be met so that this product can be incorporated in the designed construction work,
- requirements for handling, storage, incorporation and permanent disposal of this product as related to the construction, use and disassembly of the designed construction work,
- additional testing of the performance of significant properties of the construction product and/or another way of proving adequacy of this products for the designed construction

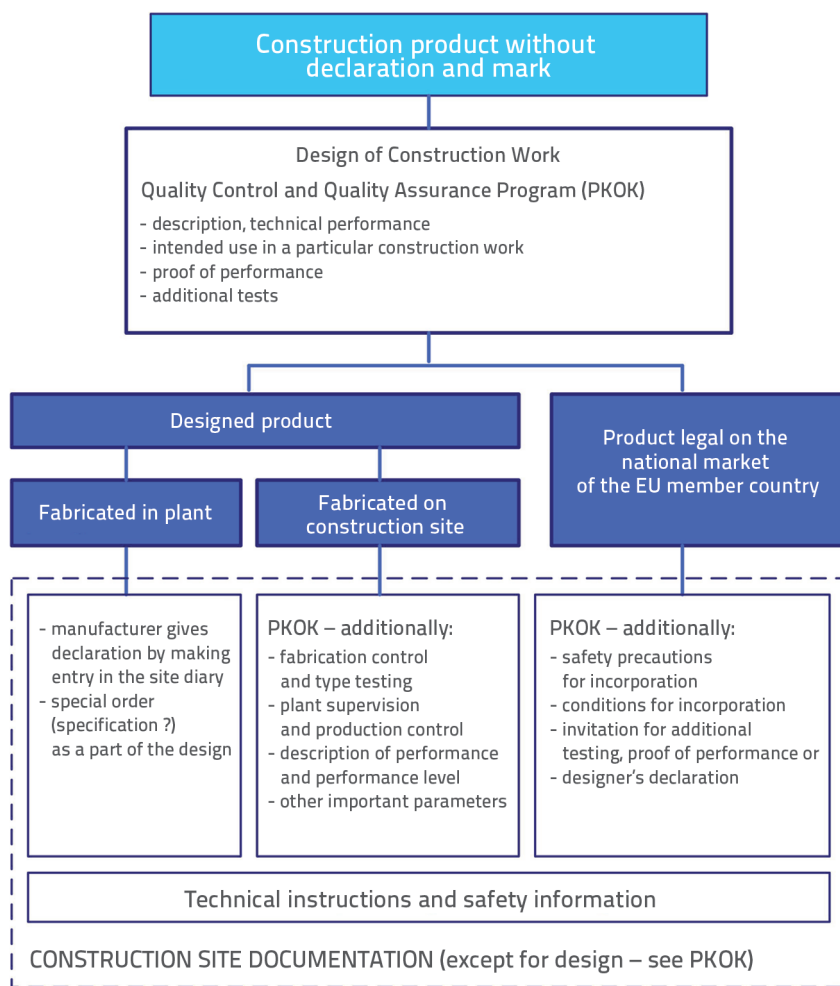


Figure 2. Documenting performance of construction product without declaration of performance and mark

work, especially as related to the geographical, climatic and other particularities of the location in which the construction work is to be built, and/or particularities of the designed construction work as related to the fulfilment of basic requirements or, alternately, the designer's statement that additional testing and/or another way of proving adequacy is not necessary.

It is specified in the law that was in force at the time this paper was written [2] that procedures related to the use of Regulation 764 must be specified by a technical regulation and byelaw; however, the byelaw that would further specify the Construction Products Act has not been adopted by the time this paper was submitted.

It can be concluded from the above that the designer and the supervising engineer bear responsibility for products in non-harmonised area that are incorporated in the construction work without the manufacturer's declaration of performance. The designer will estimate whether the product is compliant with the declared performance and whether additional tests are needed for its use in the Republic of Croatia. The supervising engineer estimates whether the product backed by accompanying documentation can really be incorporated into construction works either in the country of origin or in another EU country, and whether performances of the product supplied to the construction site are in accordance with the design. Proposal for further elaboration of the procedure in such situations is given in the following section.

4. Practical procedure

4.1. General

Let us assume that a product of significance to basic requirements for construction works, not marked by appropriate marks (CE or C) and not accompanied by declaration of performance, is supplied to the construction site. Such situation is not very complex when the designer is at the same time an expert for such construction product, and when he has elaborated the detailed design to such level of detail that, based on such design, the product can really be fabricated, assessed, incorporated and maintained. However, in practical cases, the situation is often quite different, as products are not sufficiently and adequately described in the detailed design, or are not fully harmonised with that design. In such a case, the manufacturer, distributor or representative is entitled to prepare an appropriate documentation as further elaboration of PKOK given in the detailed design, in such a way that it is acceptable to the designer. After that, the designer is required to further elaborate and present this documentation as a part of the working design. In the extension of the design, the designer should specify additional tests or give statement that other proofs of adequacy are not required. It may be highly problematic for the designer to give such statement for a manufactured product whose technical details are not fully known to him. While the designer is competent to define performance of significant properties of the product, he does not have to be competent for the way of proving adequacy of the product or for the elaboration of technical specification.

When the contractor obtains a product, without the mark and without the declaration of performance, in order to incorporate such product in the construction work, the supervising engineer will evaluate whether such product can lawfully be incorporated. The proposal for the assessment of adequacy for incorporation is presented in several steps.

4.2. Proposed procedure

The presented proposal places main emphasis on the role of supervising engineer although the obligation of the contractor is to "incorporate construction products in accordance with the law and separate regulations, and obtain proof about performance of incorporated construction products with regard to their significant properties". The reason behind shifting the obligation from the contractor to the supervising engineer is based on practical experience from our construction sites where the supervising engineer de facto assumes the role of arbitrator who decides which product can be incorporated, especially in cases of doubt.

1. Checking if a product belongs to a non-harmonised area

Only those products for which the Regulation [4] is not valid, i.e. products belonging to the non-harmonised area, can be accepted without the mark and declaration of performance. Countries belonging to the European economic space do not have uniform practices in dealing with construction products, and so it is possible that a product having a harmonised technical specification comes to the construction site without the required documentation.

Valid standards for products in the harmonised area are listed in the current edition of the *Technical regulation defining technical specifications for construction products in the harmonised area* [5]. There were approximately 500 of such standards at the time this paper was written. For many products, it is questionable whether the person in charge of the construction site would be able to estimate whether they are related to some of the harmonised standards, as such estimation would imply good knowledge of product-related standards, which is a very broad area.

2. Verification of compliance with the design for construction work

For the marked products, the designer of the construction work is required to define relevant product performances based on the product-related standards. Similarly, performance of significant properties must also be defined in the design in the case of products without mark and without declaration of performance. It is indicated in Article 17a of the TPGP that this performance has to be defined in the detailed design of the construction work, although other articles allow for further elaboration of performance details in the working design. It must be checked on the construction site whether performance of unmarked products is in contradiction with the detailed design, or PKOK: In addition, it has to be checked whether PKOK contains product information as required by law:

- performance
- control before incorporation
- construction requirements and other requirements.

In case the PKOK provided in the detailed design is not complete, it has to be extended in such a way that technical solution given in the detailed design is not modified [13].

3. Verification of product legality on the market of origin

The main accompanying document of the unmarked product is the proof that it is lawfully sold in another country that is a member of the European Union (TPGP, Article 17) and this in accordance with its regulations related to products that are not covered by the Regulation. In practical terms, it is a document similar to Croatian technical assessment accompanied with the proof that the product is really marketed in the country in which the document has been issued. This document must be accompanied with the certificate issued by a national approved body. The validity of the certificate can be checked through public registers of the country from which the product originates.

The supervising engineer has to indisputably establish that the product has really been placed on the market of another country, because attempts have been made on a number of occasions to sell products with outdated or invalid documents. If this condition is not met, it is necessary to check whether the product has been placed on the market of another member country as a construction product. Although this verification might seem unnecessary, it should be done because some countries have national guidelines that cover products, e.g. road products, whose incorporation is regulated not by regulations related to construction but by regulations relating to the field of traffic/transport.

Therefore, the supervising engineer's task involving verification that the product is lawfully sold in another EU country might in some cases be quite complex. In such cases, relevant information about the product is given by the Contact Point of the country from which the product originates. More specifically, such Contact Point guarantees availability of national technical rules. The supervising engineer may approach the Contact Point in the country from which the product originates with the following question:

Has the construction product (name of product) intended to be used as (enter intended use from the document) been lawfully placed on the market of (name of the country) in accordance with national regulations related to construction products?

Contact Points are required to submit their answer within a specified deadline, and their addresses, i.e. addresses of each individual country that is a member of the European economic area, are published by the Croatian Contact Point operating within the MGIPU.

4. Verification of accompanying documentation

If the product is a construction product and if it has been proven to be lawful, then it should be checked whether the accompanying documentation in Croatian language contains:

- indication about intended use
- characteristics of the product
- safety notices and instructions.

A special attention should be paid about the intended use as it significantly determines characteristics of the product and its place within the construction work. Some products are being placed on

the market with the declared intended use differing from the final use in the construction work, in order to simplify the performance documenting procedure. Thus the intended use of the product as declared in the accompanying document (e.g. national technical assessment) must be compared with the design of the construction work.

5. Control tests or designer's declaration

If the designer of the construction work does not specify in the PKOK additional tests for an unmarked product in order to confirm its adequacy for a particular construction work, then it is necessary to enclose the designer's declaration stating that additional tests or other proofs of usability are not required.

In any case, the supervising engineer should seek in the design, or obtain from the designer, an indisputable statement confirming the intention to incorporate the unmarked product in the construction work. As in the scope of the described procedures the designer and the supervising engineer are placed in the situation in which they assume responsibility for technical details about the product they might not be fully familiar with, it can be recommended to entrust some authorised body of the Republic of Croatia with the conduct of additional activities, the purpose being to eliminate any doubt and confirm usability of the product.

5. Application of Regulation in other EU member countries

The fact is that products that are outside of the assessment system can be found on the EU market and that such products can be less expensive than the products that are properly marked and accompanied with appropriate documentation. Such products are usually manufactured in the very member country where they are in most cases incorporated. They are accompanied by certain technical documentation and often also with some documents about performance or conformity that can be, but do not need to be, covered by regulations related to construction products. When a contractor or client wishes to reduce the price of the construction work, they turn to products that are legal somewhere in the EU but are not accompanied with documentation that meets criteria of Croatian legislation, and then the designer and the supervising engineer get additional tasks to accomplish. It should be noted that the quality of such products may not be necessarily lower compared to the quality of lawfully marked products. The CE mark or national mark does not guarantee quality but rather conformity with the declared performance.

In many EU countries national systems for marking construction products are used in addition to the universal CE mark. Thus, it is indicated in [14] that as many as thirty-two national marks are used in ten member countries (e.g. Germany has nine national marking systems). The use of these marks is usually declared as voluntary, i.e. as an additional activity the manufacturer can but does not need to undertake.

According to the Regulation, the CE mark is the only mark which attests conformity of a construction product with the declared performance, of course, if the product is covered by one of

harmonised technical specifications. However, in the preamble of this Regulation, it is specified in item 33 that other markings may be used, provided that they help to improve the protection of users of construction products and are not covered by existing Union harmonisation legislation. More specifically, the Regulation does not allow the use of marks for including those product characteristics that are included in the harmonised technical specification.

In practice, some national marks practically become obligatory as, without these marks, products – although properly marked according to EU regulations – can not in fact be incorporated on construction sites in these countries. Products without national marks – which are by name voluntary and in practice obligatory – can be marketed but their incorporation is contrary to the rules prescribed e.g. in the public procurement system or are imposed by insurance companies, or are specified in internal regulations of big public clients. This situation is favourable for big manufacturers and for national companies established in their home country, while at the same time limiting possibilities of smaller manufacturers that are trying to enter the market of other EU member countries.

The following conclusion is inter alia made in the report prepared in 2016 for the European Commission with regard to results achieved during implementation of the Regulation:

For the time being, the implementation of the Regulation (CPR) is characterised by a small number of new market opportunities for manufacturers (such as easier cross-border trade), while still present national requirements for additional product testing are mentioned as a barrier to the realisation of a functional uniform market for construction products [12].

6. Conclusion

An ever increasing number of elements formed in the scope of factory manufacturing processes, and thus defined as

construction products, are incorporated in construction works. In their attempts to fulfil the principles of common market, European regulators specify requirements for placing on the market those construction products that belong to the harmonised area. On the other hand, national – Croatian – legislation, compliant with the European one (follows the same principles), is applied for products in the non-harmonised area. In practice, there are situations on construction sites in which decision has to be made about whether or not to incorporate a particular product, taking into account its accompanying documentation. Without support from third parties, i.e. experts for construction products, the construction site personnel are often faced with dilemmas that exceed their competences.

Provisions of the existing common European legislation have been extended in many member countries to include byelaws or guidelines that have created additional barriers to cross-border trade within the EU. In the Republic of Croatia, there is room for improving realisation in the field of construction products, as current practice has revealed cases in which it is difficult to determine whether a product can or can not be lawfully incorporated. When developing new national byelaws and guidelines, proper heed should be paid to the interests of domestic manufacturers, as much as that is possible within legal framework of the Union. Some member countries have shown by their example that national market can be regulated in such a way to create a business environment in which the operation and development of smaller manufacturers is quite possible. In this context, a considerable role is to be assumed by national bodies, but only in collaboration with third-party bodies, which can provide competent answers with regard to the introduction and implementation of some national rules, and as to implementation of the European legislation.

REFERENCES

- [1] Uredba (EU) br. 305/2011 Europskog parlamenta i Vijeća od 9. ožujka 2011. koja propisuje usklađene uvjete trgovanja građevnim proizvodima i ukida Direktivu Vijeća 89/106/EEZ; Službeni list Europske unije L 88, 4.4.2011.
- [2] Zakon o građevnim proizvodima, "Narodne novine" broj 76/13., 30/14., 130/17 i 39/19.
- [3] Zakon o gradnji, NN 153/13, 20/17 i 39/19
- [4] Supporting study for the Review of the Construction Products Regulation: Impact Assessment; Published: 2018-11-20, Corporate Authors: Danish Technological Institute (DTI); Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (European Commission); Global Data Collection Company (GDCC); Joint Institute for Innovation Policy (JIIP); VVA Economics & Policy; <https://op.europa.eu/en/publication-detail/-/publication/57fd5ffa-ed41-11e8-b690-01aa75ed71a1/language-en> (31.12.2019.)
- [5] Tehnički propis kojim se utvrđuju tehničke specifikacije za građevne proizvode u usklađenom području "Narodne novine" broj 4/15., 24/15., 93/15., 133/15., 36/16., 58/16., 104/16., 28/17., 88/17., 29/18. i 43/19.
- [6] Tehnički propis o građevnim proizvodima, "Narodne novine" broj 35/18. i 104/19.
- [7] Fučić, L.: Propisi o uporabljivosti građevnih proizvoda, GRAĐEVINAR, 57 (2005) 5
- [8] Nando (New Approach Notified and Designated Organisations) Information System, <https://ec.europa.eu/growth/tools-databases/nando/index.cfm>
- [9] Oznaka CE za građevne proizvode – korak po korak, <https://ec.europa.eu/docsroom/documents/12309?locale=hr>
- [10] Tehnički propis za građevinske konstrukcije, "Narodne novine" broj 17/17.
- [11] Uredba (EZ) br. 764/2008 Europskog parlamenta i Vijeća od 9. srpnja 2008. o utvrđivanju postupaka koji se odnose na primjenu određenih nacionalnih tehničkih propisa na proizvode koji se zakonito stavljaju na tržište u drugoj državi članici i o stavljanju izvan snage Odluke br. 3052/95/EZ, <http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX%3A32008R0764>
- [12] RPA. (2015). Analysis of the Implementation of the Construction Products Regulation, Topical Report #3, National Certifications/Quality Marks, prepared for DG GROW
- [13] Pravilnik o obveznom sadržaju i opremanju projekata građevina, NN 118/19