PROCEDURES AND DOCUMENTS FROM THE LABORATORY FOR TESTING OF PRODUCTS TO OBTAIN THE CERTIFICATE OF PARTICIPATION OF THE SINGLE EUROPEAN

Boriana ILIEVA[*], Georgi KIUCHUKOV[**]

[*] Technical University of Sofia, Bulgaria
[**] University of Forestry, Sofia, Bulgaria

Abstract. Standardization is a prerequisite for creating an optimal order in the economy and social life of each country. It is an integral part of science, as any science to manufacture certain products is based on standardized terminology, technical safety requirements and test methods for assessing the conformity of the quality characteristics of the products. Without standardization it cannot be achieved advanced technical guidance on the production and marketing of products.

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1. Testing of products − a necessary condition for their certification

Testing of products is the first essential step in the procedures for their certification. It is a process which proves that they meet the requirements of Bulgarian, European and international standards. Conformity of the quality characteristics of the products of European standards is essential to our country as a member of the European Union, as this gives it the right to equal participation in the European single market, to eliminate obstacles to trade between economic partners and increasing competitiveness of Bulgarian producers.

Conformity assessment according to a "new approach" is limited to compliance with the mandatory basic requirements (essential requirements) to the products. The technical specifications that ensure the fulfillment of the essential requirements for the products are contained in the harmonized standards to each directive. It is assumed that the products produced in accordance with harmonized standards meet the essential requirements of the directives.

The most direct way for attesting the conformity of products with the essential requirements of the directives is the assessment of conformity with the standards.

The first basic procedure for assessing the conformity testing of products is incompliance with European standards. Basic condition for this is the presence of an accredited laboratory for testing these products. Unfortunately, the lack of such a laboratory for many of the products manufactured by Bulgarian producers of products is a big problem. They are forced to seek the services of laboratories in Germany, Italy, Hungary, Slovakia and Macedonia, and this is associated with a large expenditure of funds labor and time.

Bulgarian product manufacturers are challenged to combine their efforts to create a modern industry testing laboratories in accordance with the requirements of the harmonized European standards.

Test protocol. The test of each product type ends with a test protocol that in the general case must contain the following data:

a) Reference to the European standard and corresponding documents requirements;
b) Accurate description of the tested products;
c) All identified deficiencies before the test;
d) Test results according to relevant sections of the standard;
e) Data that must be contained in the product information;
f) Data for deviations from the European standard;
g) Name and address of the test area;
h) Date of the test.

2. Example for testing furniture, doors, windows and wood products for their certification

Test of furniture, doors, windows and wood products requires special laboratory. The laboratory must be equipped with test machines for the following types of furniture:

a) Furniture for use by the elderly in housing

Testing of furniture (chairs, armchairs, stools, sofas, etc.) is carried out in several European standards.

Test of stability in the operation of furniture is carried out according to EN 1022:2005. This test includes requirements and test methods in overturning furniture forward, sideways and backward.

Requirements to furniture for strength, durability and safety are regulated in EN 12520:2010. This standard establishes the test methods for determining the strength and durability of all types of furniture designs furniture, regardless of the materials they are made, the layout of the models and methods of production. Test methods include testing of seats, backrests, handrails, footrest and skeletal structures under static loads to establish the strength and durability of furniture.

b) Beds intended for use by adults in housing

For testing bed using the following European standards:

- EN 1725:1998. *Furniture for the home. Beds and mattresses. Safety requirements and test methods*.
- EN 1334:1996. *Furniture for the home. Beds and mattresses. Test methods and recommended tolerances*.

c) Cots

For testing of children's beds the following European standards are used:

- EN 716-1:2008. *Children's beds, folding and non-folding for home use*. Part 1: *Safety requirements*.
- EN 716-2:2008. *Children's beds, folding and non-folding for home use*. Part 2: *Test methods*.

The laboratory must be equipped with apparatus for measuring and determining the functional dimensions of children's beds according to EN 1957:2012 and with stands for testing the strength and durability of beds and mattresses using cyclic rolling.

d) Office furniture. Furniture

Furniture for offices, tested by EN 1335-1:2000 for determining the functional dimensions and test methods for safety in use in accordance with EN 1335-3:2009 and in accordance with the requirements of EN 1335-2:2008.

- Office furniture. Desks and tables

Desks and tables for offices to be tested to determine the functional dimensions in EN 527-1:2011 and EN 527-3:2003 for resistance and structural strength according to the technical safety requirements EN 527-2:2002.

e) Office furniture. Cabinets

* Cabinets. Part 1: *Dimensions*. Be tested by CEN/ TR 14073-1:2004.
* Cabinets. Part 2: *Safety requirements* (EN 14073-2:2004).
* Cabinets. Part 3: *Test methods for determination of stability and strength of the structure* (EN 14073-3:2004).
* Cabinets and desks. *Test methods for determining the strength and durability of the moving components of furniture for office* (EN 14074:2004)

f) Lining for furniture with sliding drawers and their components

Furniture (lining) fittings, sliding drawers and their components are tested for strength and durability according to EN 15338:2007.

g) Tables for residential (home) use

Requirements for tables for home use are regulated in EN 12521:2009.

Tables for home use are tested according to EN 1730:2012 for resistance and according to EN 12521:2009 for strength, durability and safety.

h) Chairs and tables for educational institutions

Chairs and tables for educational institutions are tested in EN 1729-1:2006 for determining the functional dimensions and in EN 1729-2:2012 for test for safety in use.

i) Chairs arranged in a row

Requirements for strength and durability and methods of their testing are according to EN 12727:2000.

j) Corps furniture

Methods for testing the strength and durability of the compounds of the doors of the furniture are according to EN 15570:2008.

k) Windows and balcony doors

Windows and balcony doors are tested in:

- EN 1026:2000 for the determination of air permeability;
- EN 1027:2000 for determination of water permeability;
- EN 12211:2000 for the determination of resistance to wind and storm.

l) Doors opening on the vertical axis.

Doors opening on the vertical axis are tested in accordance with the strength requirements according to EN 1192-1:1999.

The test methods are:

* Determination of resistance to vertical load (EN 947:1998);
* Determination of the resistance to static torsion (EN 948:1998);
* Determination of impact resistance to soft and heavy body (EN 949:1999);
* Determination of resistance to impact with solid (EN 950:1999).

m) Physical and mechanical properties of wood and wooden materials.

Testing of physical and mechanical properties of wood and wooden materials is carried out on a universal testing machine.

The universal testing machine is designed to

test the physical mechanical properties of the solid wood of coniferous and deciduous tree species and wood materials - particle board (chipboard), fiberboard, plywood glued sawn timber, plywood glued veneer wood (including plywood and plywood boards), which are the main material in the construction of furniture, but also to test the strength and deformation characteristics of different types of furniture panels.

Compounds of structural elements of the furniture, doors and windows can be tested with the universal testing machine, using special positioning of the load. Tests are carried out according to the following BDS standards [3]:

* BDS EN 13085:89. Furniture. Test method for moving compounds through hinges of slab components;
* BDS EN 13086:89. Furniture. Method for determining the bearing capacity of the shelf;
* BDS EN 13087:89. Furniture. Test method for fixed detachable connections of slab components under load of bending;
* BDS EN 9165:76. Furniture. Test method for still unassembled joints details of solid wood under bending load;
* BDS EN 16890:88. Furniture. Test method for fixed connections of slab components under load shear and strength;
* BDS EN 7858:97. Solid wood and plywood. Method for determining resistance on removing the screws and nails.
* BDS EN 13446:2004. Wood-based panels. Determining resistance in removing the connectors.

3. Procedures and documents to obtain a certificate

General rule: One product has the right to freedom of movement, i.e. is admitted to the domestic markets, forming the Single European Market (SEM), when it is proven safe on the level of the European Union (EU). Then this product may be granted for use as intended by the users of the Member States of the EU.

"Proven safety" meets the requirement for free movement of products in the SEM.

4. The systematization of introducing concepts and definitions

To clarify the nature of the term "product" to distinguish four phases of the life cycle of creation and use of the products.

I-st phase: Design

In this phase, the product is only a name of a product (article), e.g. bed, desk, cupboard, fridge, etc. First a project is carried out, which determines the appropriate name of the product user characteristics. To be able to place regulatory provision required for the free movement of the product, the designer must determine and characteristics that make it unsafe for use. Most often they differ from consumer characteristics.

II-nd phase: Production

On the basis of the project a certain amount of product specimens are made. The specimens must have real characteristics, which correspond to the norms of design characteristics.

III-rd phase: Conformity assessment

Performed for all specimens of product produced by activities:

- Certification of products;
- Certification of Systems for management;
- Control of the product.

When assessing conformity with the statutory provision of safety defined by regulations of European Technical Legislation (ETL) copies acquire right of free movement in SEM. This is not enough the safe copies of the product to be competitive.

IV-th phase: Use

Consumer purchases one or more copies which the supplier has put on the market. When specimens are evaluated correctly, purchased are considered safe. But they may not have the necessary user characteristics, because they are set by another legal provision and require other conformity assessment.

5. Models of the elements of the main activities of conformity assessment (CA)

For conformity assessment of products the following three types of activities are applied:

* Certification of the product;
* Certification of Quality Management System (QMS);
* Product control.

5.1) Control authority. In general control applies when the lot is a small number of specimens. The authority to control all specimens tested and issued Test Protocol with the values of the characteristics tested. Then it performs legal expertise – whether the values correspond to the norms laid down in the regulations of the product. When they match, it shall issue a certificate of conformity. It is valid only for a single batch tested and accompanied by the Protocol.

5.2) Body for certification of products. It is applied for lots with a large number of copies of the product. It includes laboratory that tested a sample of the batch and body product certification conducts regulatory conformity expertise of the sample. In accordance a team of auditors from certification body products now check on conformity of the design, manufacture and internal control of the whole lot. Audit results are described in the report. Using statistical methods a legal expertise on the results of the report is used. In the presence of conformity the body according to product certification issues a certificate of conformity of the product. It is valid for (usually) three years, as it is true for all other lots in this period. For this purpose, the authority for product certification signed Contract for supervision in 12 months and license agreement for the company responsible for the conformity of the copies of the unaudited by the authority for the certification of production lots. [2]

5.3) The authority for certification system for quality management certifies a system for managing the quality of the company, preferably with a large range of products. No product testing, certification audit first checks the documentation (Manual of quality). In accordance, a check / audit of the system in place in the company is carried out. The auditing team prepares the report, which should reflect the conformity of the quality management system with standard EN ISO/IEC 9001 and the quality management of nomenclature products, as well. The Body of certified system for quality management performs a legal expertise on the data of the report and according to the results issues a certificate of conformity. In it, except accordance with EN ISO/IEC 9001, it must be described and the consistency of nomenclature products with the regulations that govern them.

6. Principal procedure for certification of product (CP)

Its stages are [1]:

Stage I. (CP). Compilation of certification schemes;

Stage II. (CP). Test of a sample copies of the regular (first) batch of the product;

Stage III. (CP). Legal expertise on the conformity of the sample specimens of the product;

Stage IVa. (CP). In accordance the sampling process SP continues;

Stage IVb. (CP). In discrepancy in the sample the process is stopped for a certain period in which Company's performs corrective actions;

Stage V. (CP). Audit of specific (first) batch of product;

Stage VI. (CP). Legal expertise on the conformity of the audited account on the regulatory provision;

Stage VIIa. (CP). In established accordance of the batch the process CP continues;

Stage VIIb. (CP). When non-compliance of the batch process CP is stopped for a certain period in which the corrective actions are performed;

Stage VIII. (CP). Issuance of Certificate of Conformity;

Stage IX. (CP). Releasing information to demonstrate conformity of the product with the regulations is published;

Stage X. (CP). A license - Contract between the certifying authority and company to comply with the following, non-certified batches of the product is issued;

Stage XI. (CP). The surveillance audit;

Stage XII. (CP). Information on the results of the supervisory audit is published. They can be:

- Extension of the validity of the certificate until the end;
- Suspension of validity;
- Cancellation/suspension of the certificate validity.

7. Conclusion

The present report is considered exemplary staging conformity assessment of products of wood. Procedures may be used for reference by the Bulgarian furniture producers.

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