

INTEGRATED INSTALLATION SYSTEMS USED FOR A JOINERY AND FURNITURE TESTING LABORATORY WITH A VIEW TO THE QUALITY CERTIFICATION

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ABSTRACT

The EU country-members must develop testing laboratories for the products resulted from specific departments, in order to respond to the demands of quality assurance within the unique European market. Within this context, the paper presents the research studies performed in time in order to achieve a testing laboratory for joinery and furniture products, in view of certifying the quality of these products in Romania.

The main installations and integrated systems functioning within the laboratories are pointed out, besides them some details and pictures are used for a better understanding. The achieved and presented installations offer the possibility to determine the strength properties for subassemblies, windows and doors. Furthermore, other installations and systems allow the determination of some physical parameters, such as water and air permeability, resistance to moisture content variation. The documentation of the quality management system was elaborated for this laboratory. The laboratory has accreditation and works under an integrated system with other laboratories from Romania.

The laboratory functions in Bucharest and might represent an objective for other factors interested in the domain, due to its experience.

Keywords: laboratory, testing, certificate.

1. INTRODUCTION

The free traffic of the merchandise is the base of the Unique Market – the economical space where the goods, services, capital and working force can freely move. The mechanisms resorted to on European level for realizing the Unique Market are based on eliminating the technical barriers, harmonizing the technical settlements and mutually recognizing the conformity evaluation.

The products' conformity with the requests from the technical settlements harmonized according to the European directives based on the principle of the New Approach, must be recognized through the conformity declaration made by the producer or by the authorized spokesman of this, through the testing reports or by the conformity certificates emitted by the laboratory or by the certifying or inspection organs, chosen by the producer, in accordance with the evaluation producers, and through the conformity marking, due to the applicable technical settlements.

2. LABORATORY FOR TESTING JOINERY PRODUCTS

The main installations that make up the laboratory infrastructure were achieved in the framework of the research contracts coordinated by the author of the paper, were certified in accordance with the regulations existing in Romania and were aligned to the international standards. Their functioning is based on methodologies (procedures) correlated with the ISO standards and with the European Norms specific for every type of test. The installations and the devices function within the Laboratory in an

integrated system for data collection and processing. The aspects enhanced above are presented in detail in the documents of the management and quality assurance systems elaborated for accrediting the laboratory.

The Laboratory functions in the framework of the National Institute of the Wood in Bucharest, being part, together with the laboratory for furniture testing, of the national network of the laboratories for quality evaluation and conformity certification of the wood products, throughout Romania.

Within the laboratory there are installations for effecting the dimensional verifications and the mechanical attempts which reproduce strains similar to those in the current exploitation of the products; and likewise installations for determining the characteristics afferent to the physical agents (determining the specific infiltrations at air and water, temperature and humidity variations) etc. The most representative installations in the laboratory (fig.1) are presented as follows.



Figure 1. Laboratory for door and window quality evaluation and conformity certification

3. WORKING METHODOLOGY

3.1. Testing of the window permeability to air and water

It is carried through on the basis of a specific procedure which is part of the quality management system within the laboratory, elaborated on the basis of the standards SR EN1026 (Windows and doors. Air permeability. Testing method); SR EN1027 (Windows and doors. Water permeability. Testing method).. Method of testing. The verifications and the tests are effected under static and dynamic regime, aiming at achieving pressure scales equivalent to the forces developed by the action of the wind and of the rain water. The equipment afferent to the installation may measure pressures equivalent to a wind speed ranging between (0-1000)Pa, recording at the same time the infiltrated quantity of air in m³ (cube meters) / linear meter of closure joint and m² of window; calculating the coefficient of specific infiltration.

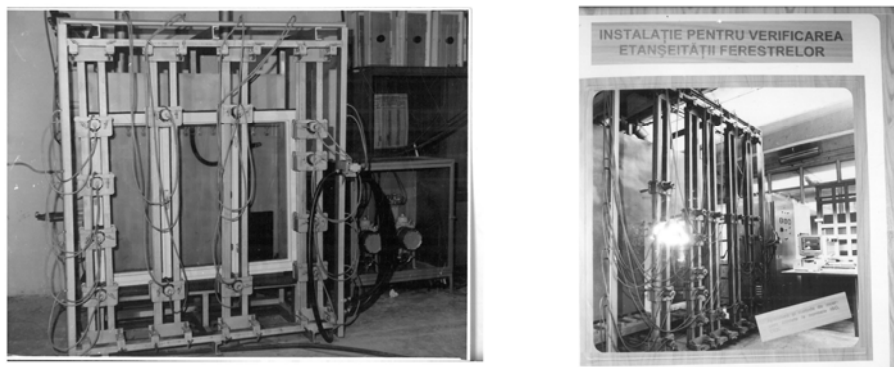


Figure 2 Installations for verifying the permeability at air and water of the joinery products

3.2. Testing the door sheets at bending on horizontal and vertical plane

It is carried through according to the specific procedures aligned to the standards SR EN948 (Swivel doors. Determination of the resistance to static bending); SR EN947 (Swivel doors. Determination of the resistance to vertical force) ; SR EN108 (Doors. Door testing methods. The deformation testing of the door sheet in its plane). The attempt at deforming the sheet door in the plane; SR EN129 (Doors. Door testing methods. Torsion deformation testing of the door sheets). The attempt at deforming at torsion the sheet doors. SR EN130 (Doors. Door testing methods. Testing for the determination of the rigidity modifications of the door sheets by repeated torsions). The afferent installations are presented in figure (3)



Figure 3 Installations for testing the sheet doors at bending on the horizontal plane (left) and on the vertical plane (right)

3.3. Testing at mechanical strains upon the window sashes

It is carried out according to the specific procedures aligned to the standards SR EN107 (Windows testing methods. Mechanical testing); SR EN12400 (Mechanical durability Requirements and classifications); SR EN1629 (Resistance to burglary. The specific installations for these tests are presented in figure (4)

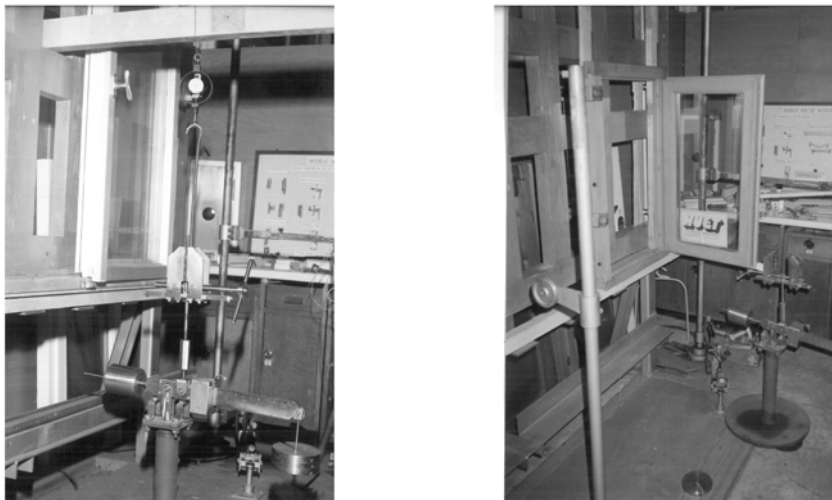


Figure 4. Installations for straining on the vertical plane the window sashes with closed/open to 90° wing

3.4. Testing the doors and the windows at temperature and humidity variations

It is carried through according to the specific procedure aligned to the following standards: SR EN43 (Doors.Door testing methods. Behaviour of door sheets placed in uniform successive climates at humidity variation); SR EN12219 (Doors. Climatic influences. Requirements and classification); SR EN1121 (Doors. The behavior between two different climates. Testing method).



Figure 5 Automated climatic chamber for testing the doors and windows at temperature and humidity variations

4. CONCLUSIONS

The stands and the testing installations are situated on the level of the technical performances promoted on the international plane, ensuring cycles of automatic testing assisted by computer and printer which perform the setting, processing, display and editing of the data and of the testing bulletins.

The advantages for certifying a product are:

- It gives the possibility of presenting the product at the level of the international demands by applying on the product a CS mark, after signing the adhesion accords to UE, and the CE mark.
- It gives to the clients the conviction that the certificated products fulfill the quality requirements.
- It allows the continuous improvement of the products.
- It introduces the transparency of the technological flow.
- It identifies the weak points regarding the fabrication and allows an optimum solving of the problems.
- It allows the analyses of the product characteristics especially of those regarding the security, health and environment in all the phases of the life cycle from conception to recycling.
- It allows the optimization of the rapport quality/price.

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