

REFLECTIONS ON WOOD CONSERVATION IN ARCHITECTURE MUSEUM OF POPULAR GORJ FROM CURTIȘOARA

Ion CATANĂ
Dumitru HORTOPAN
Gorj County Museum „Alexandru Ștefulescu”

Delia NICA-BADEA
University „Constantin Brâncuși” of Târgu-Jiu

Abstract

Wood is a material constituent of the natural, built and cultural heritage, depending on the area to which we refer. Vital functions, chemical composition, structure and climatic conditions define wood as perishable biological substances, and hygroscopic fuel. Effective control over the factors that degrade the wood of museums, art collections and historic monuments has become a basic principle of business conservatives and a strategic objective in heaven → questioning products and technologies for heritage preservation. In this respect, an important role is to reduce the overall impact on heritage aggressive environmental factors and agents and self control biodestructivi through the conservation and sustainable management of natural and cultural assets wood.

Keywords: wood biodegradation, ethnographic heritage, conservative treatment.

1. Introduction

Curtișoara village located only 10 km north of Targu-Jiu, Gorj capital on the right side of the road and placing national advantage in an exceptional natural environment that reproduces almost all smaller scale landforms, a museum area of approx. 13 ha has coalesced around a part of the family domain Cornoiu, heiress collected built in the early eighteenth century, today the largest and best preserved building of its kind in Oltenia. Was founded in 1946 and represents the County Museum Ethnography Gorj, having a park of 1.5 hectares. It includes architectural and popular technique in Gorj: cula Cornoiu (eighteenth century), the church wall, „Sfântul Ioan Botezătorul” (1820), wood rural buildings (houses, cellars, patu, technical installations century popular XVIII-XIX) with rustic furniture, clothes, fabrics, tools, pottery, wood carvings, dozens of farmhouses, some 2-3 centuries old, water mills, pive and other utilities construction of rural households was dismantled and brought from neighboring villages or Gorj space and then refitted to Curtișoara, forming a complex outdoor museum of great tourist value and extraordinary authenticity. Since 2002 heritage enriched by complex displacement George Tătărescu.

Wood is an organic material with a complex chemical composition, heterogeneous and anisotropic obtained from resinous or forest trees leafy essence. Wood has a fibrous structure and focused, composed of lignified cell membrane. They form specialized tissue resistance and also serve to water management and soil minerals sap developed. It was found that a piece of wood degraded sound maintain outside a shell whose thickness varies between 1-4 cm. Explanation is related to slight drying of the shell, which retains most of the time a moisture about equal to atmospheric humidity. The parts degraded kept healthy wood in the fiber direction perpendicular to the fibers 4-6 cm and only 1-1.5 cm. The explanation is the distinction between curing speed on the three directions. Kollmann found that the ratio of the speed of migration of the axial and radial water can be increased from 1/1, 1 to 1/7 as wood specific gravity decreases from 1.2 g/cm³ to 0.2 g / cm³.

Following the action factors of decay, the wood, the complex organic material, undergoes irreversible changes in time: deformation, fading, darkening, cracking, cracking, peeling, mold, rot, weakening of strength due to insect attack. All this leads to changes in conservation status, structure, shape, strength monuments, which are becoming increasingly fragile and vulnerable, sharp degradation and noninterference in time leading to their disappearance.

2. Biocidal agents: action, treatment.

Museum as application "in situ" is a complex mix of materials on various substrates. Regarding the wood, it is found in a variety of shapes and seniority, with different degradation problems caused by time stamp. All these aspects are added many sources of origin of the exhibits, the museum is representative at the national historic but also as an ecosystem. Diversity of biotic and abiotic factors make the exhibition area to increase the level of attraction, but also the risk of damage. A prerequisite for perpetuating life outdoor ethnographic museum is to ensure adequate conservation conditions enabling them to maintain the original character. The great part construction, facilities, furniture, etc. which are housed in these museums have the wood based material that meets various different properties in terms of structure, resistance to attack by biological factors, mechanics, and others.

Organic material still used in illo tempore, wood known for significant changes over time as a result of separate or simultaneous action of atmospheric weather, light, chemical and biological factors. A prerequisite for perpetuating life outdoor ethnographic museum is to ensure adequate conservation conditions enabling them to maintain the original character. The great part construction, facilities, furniture, etc. which are housed in these museums have the wood based material that meets various different properties in terms of structure, resistance to attack by biological factors, mechanics, and others. But the most important enemies of wood are biological agents associated with favorable temperature and humidity affect them in terms of physical and chemical structure. These biological factors were divided into two main categories: insects; wood decay fungi [1].

Boring insects in the form of small creatures that feed on substances contained in wood. They operate mainly in wood which crosses the stage from egg to adult.

Beetles have body cavities are generally cylindrical, elongated oval sometimes covered with fine hairs and brown or black color. It fertilizes the parts affected or outside their laying eggs oval maggots coming out after approx. 2-3 weeks that are equipped with

very strong jaws. in wood "dead" dig tunnels fabric in different directions, showing preference for sap, part of the wood which contains juicy for these pests.

Serious attack in ethnographic museums beams, structures of, planks, poles, panels, sills, flooring, handicrafts, paintings, icons, etc..



Figure 1. Biodegradativ attack of decay on wooden stand of icons.

Is the very real danger when several generations develop in the same piece that unless timely intervention can cancel object. Experts consider that the fight against cavities should start from the moment the forest to cut wood, and subsequently recommended a balance between temperature and humidity. Storage area must be flat, dry, well ventilated wind and at a considerable distance from the edge of the forest. Cultural goods must be arranged so that they receive an adequate ventilation, ideally keeping a distance of 0.25 m

height from the ground. Buildings and their annexes are affected less if they complied with the rules of construction. Permanent control of parts must be made of wood when changing their location. The use of caries attack in construction material. However, infested cultural goods must not be placed in homes, annexes or deposits. To combat cavities of large parts can use substances such as creosote, sodium fluoride, magnesium fluorsilicatul, dinitrophenol, dinitrocrezolul, ortonitrofenolul, carbolineum etc. [1]. They can be applied by spraying, brushing or impregnation. Small parts affected by tooth decay can be treated by brushing, spraying, impregnating, injections and saturated solution of naphthalene, globol, creosote oil terbentină the ratio being 3:1. Another measure is the antique pieces gassing with carbon disulphide, carbon tetrachloride, chloropicrin, hydrogen cyanide or dichloroethane. Also longer and method ers use hot air or hot steam which raises the temperature of parts "sick" at 60° C. Cavities are, however, natural enemies such as predatory beetles and some species of parasitic wasps that annihilates larvae. Action against caries is difficult because these biotic agents live in wood is an excellent insulator and sometimes refuge. Using various chemicals should be done very cautiously for that poor management may change the original character of the cultural object or cause fire, poisoning, etc. [2].

Chemical treatment of wood with antiseptic substances action avoids danger biological factors. A product with insecticides and fungicides real meanings must have the following properties: to annihilate insects; provide wood for a longer period than life; to act as an insecticide and fungicide; easy to penetrate wood; be immune to handling by humans, colorless, flammable and non-corrosive [3]. Chemical products are divided into organic and mineral products. Above they are worth antiseptic and fungicidal important only insofar as it is technically specific to achieve solid conservation operations. This reality requires effective treatment equipment, laboratory analysis and staff [4]. It also should not be overlooked existence of knowledge of mycology, microscopy, chemistry, etc.. The wood is very strong attack and decay fungi which a development environment causes a short pace to rot. Among the species of fungi that acts on construction wood can remember: *poria vaporaria*, *caniophora cerebella* (Figure 2), *merulius lacrymans*, etc..



Figure 2. Wood decay fungi: *Poria vaporaria* (a); *Canophora cerebella* (b).

Fungi reproduce by spores that are carried by air, and incubate quickly spread where conditions are favorable. When germinating form a network as a cobweb which in turn bag contains spores that burst and released him [5]. Mold created by these fungi secrete enzymes that allow it to digest organic materials. The most important factors that favor mold are: high humidity, temperature, air and darkness closed. Fighting mold should consider the following measures: reducing humidity and high temperatures; avoid

superficial treatment; removing the risk of exposure to these fungi; maintaining cleanliness; protect items from dust, etc..

Other preventive measures for the protection of buildings, annexes, wooden furniture, etc. against possible attacks are: resistance to atmospheric bad roofs; ventilation of all rooms; avoiding the infiltration of moisture in the soil; use in the construction of a timber with humidity below 20%; maintain a ventilation space between the floor and the ground; wood treatment with appropriate substances, etc..

There are currently a number of products on the market Supralux range, Sadolin and Basileum to ensure effective protection of wood. These important properties: close the pores of the wood surface; inhibit swelling due to moisture dry wood; hydrophilic reduces surface layer that increases the duration; protects wood against fungi and UV radiation the sun; impregnates well; protects wood against weathering, against mold and bluing; protects against harmful insects; are hydrophobic and form an air permeable layer through which moisture from the wood and the environment will be in equilibrium, and the wood is not deformed; form a surface film which increases the resistance of wood; highlights the natural beauty of the wood; have extra-long, show wood decoration; easy application; prevent the formation of cavities and mold; are very economical, etc.; apply by brush, dip, soak, infusion, roller and spray sometimes [6].

Treatment of cultural goods with these products is to be performed by specialized personnel to follow the directions for use and labor protection measures. Noteworthy is the fact that such operations have led conservatives, curators, conservators and specialists in other fields (chemists, biologists, architects) [7]. The only drawback of these substances is that they are very expensive. However, to ensure a superior preservation of open air museum is necessary to provide amount in its budget to be procured products for treatment of various objects affected by fungi or insects. Another way would be to attract serious sponsors and fans of popular culture.

Conclusions

One of the basic problems of preventive conservation is damage that results from direct action of environmental factors. Wood as a structural or sculptural element is subjected to biological factors of degradation, manifested through holes, galleries, blue, false heartwood, annealing and rot. Degradation of cultural property gradually alter appearance, shape and nature of the material, physical and artistic unity.

In the history of human civilization have used numerous methods and products for wood protection agents to prevent and combat destructive biotic and abiotic

Research into the effects of degradation, conservation, restoration, developed in the last decades of interdisciplinary upward trajectory, with the purpose of transmitting this diverse, rich and valuable cultural heritage material to future generations.

References

- [1]. Pândele, B.A., *Conservarea lemnului din construcții în muzeele etnografice în aer liber*, Revista Muzeelor, 3, III, 1966.
- [2]. Negru, Ș., *Carii de lemn dăunători în muzee*, Revista Muzeelor, nr. 2, III, 1966.
- [3]. Sachelarescu, F., Vintilă, E., Gheorghe, M., *Produse fungicide pe bază de fluor, fabricate în R. S. România pentru protecția lemnului*, Industria lemnului, nr. 4, 1965.

- [4]. Sachelarescu, F., *Antiseptizarea lemnului de fag și molid prin impregnare cu produse fungicide nelavabile realizate în Republica Socialistă România*, Industria lemnului, nr. 2/1967.
- [5]. Oberlander-Târnoveanu, I., *Un viitor pentru trecut*, București, 2002, p. 57.
- [6]. Moldoveanu, A., *Conservarea preventivă a bunurilor culturale*, București, 2003.
- [7]. Nica-Badea, D., *Elemente de chimia conservării, restaurării operelor de artă*, Editura Academica Brâncuși Tg-Jiu, 2009.