

THE IMPACT OF CLIMATIC CONDITIONS ON WOOD SHRINKAGE AND SWELLING AND THEIR EFFECT IN FURNITURES FOR EXTERNAL USE IN KOSOVO

Rrahim Sejdiu¹, Arben Bejtja², Agron Bajraktari³

¹University of Applied Sciences in Ferizaj, Faculty of Interior Architecture & Furniture Design

²Agricultural University of Tirana, Faculty of Forest Sciences

Abstract

Shrinkage and swelling are the two not good physical properties of wood. That's because the biggest problems that occur in wood-based products are precisely of this nature. Wood products are exposed to different climate conditions during their service. As a result of changes in moisture and temperature dimensional changes can occur in different parts of furniture that cause disruptions of join elements, cracking of attached parts, decay layers or protective lacquers and other damages to the furniture. After consultations with the Kosovo Hydro-meteorological Institute and with their recommendations, the study was oriented in three different regions, from where the extracted data can also be used for other regions. The paper provides seasonal data on changes of relative humidity and temperature for some regions of Kosovo, extracted for a 38-year period (1970-2008). Based on these data there are calculated the maximum and minimum possibilities of shrinkage or swelling of beech wood (*Fagus Sylvatica* L) and oak wood (*Quercus Sessiliflora*). The study provided the most common faults that are related to these two properties of wood that appear in the final product of furniture. The study was conducted specifically by going to manufacturing entities of furniture for external use in regions taken into consideration and are illustrated with concrete examples the defects caused as a result of changes in these parameters. There are also shown the data computed of equilibrium moisture of wood for the regions of Peja, Pristina and Ferizaj. There are provided recommendations in order to reduce the defects occurring in wooden objects, when external climatic conditions change.

Keyword: *Equilibrium moisture, Shrinkage, Swelling, Kosovo, Climate.*