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## THE IMPACT OF CLIMATE CONDITIONS ON WOOD SHRINKING AND SWELLING AND ITS EFFECT ON FURNITURE DAMAGE (Case study in the Republic of Kosovo)

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### ABSTRACT

In general, shrinkage and swelling are the two bad physical properties of wood. That is because the biggest problems that occur in wood-based products are precisely of this nature. During their service, wood and wooden products (especially joints of furniture) are subject of climatic exposed in different conditions. The shrinkage of wood occurs when its moisture content is below the fiber saturation point, and when climatic conditions (relative humidity and temperature) change. Dimensional stability of wood is one of the few properties that significantly differs in each of the three fiber directions. Depending from fiber directions (longitudinal, radial and tangential), shrinkage and swelling 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. The paper provides seasonal data on changes of relative humidity and temperature for some regions of Kosovo, extracted for a 38-year period. 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 Petraea* L). The study was conducted specifically by going to manufacturing entities of furniture for external and internal use in regions taken into consideration and are illustrated with specific examples the defects caused as a result of changes in these parameters. There are provided recommendations in order to reduce the defects occurring in wooden objects, when external or in some cases and internal climatic conditions change.

**Keyword:** wood moisture, shrinkage, swelling, climate, furniture.