

Abstract

The aim of the research was building chair resistant to force from front to back and top to bottom. In order to achieve this goal, poplar wood treated under conditions of heat and steam and then these pieces were bent at an angle of 90 degrees and for the manufacture chairs were used.

In this study instead of joints, two different designs were used. The first design was chairs with curved legs and the second design, includes chairs with curved parts and independent rear seat, and each of treatments were done with three replications.

Experimental seats mechanically tested based on the standard 9697-2. Step to step loading from front to back were done by mechanical universal testing machine in accordance with mentioned standard.

The results showed that there are significant differences between the treatments and their interactions at 95% of confidence level. The manufactured chairs with fully bent legs, that has been pulled by loading from front to back (1725 N), were more resistant than chairs with curved parts and independent rear legs that has been pulled by loading from front to back (1421.33 N).

The first design, chairs with curved legs that force was drawn from top to bottom (1052.33 N) and second design, including chairs with curved parts and independent rear legs were more resistance than the first design. In general, the resistance of chairs made of bent and modified poplar wood has been improved.

Keywords: wooden Chairs, maximum force from front to back, maximum force from top to bottom, poplar wood



University of Zabol
Graduate school
Faculty of Natural resource
Department of Wood Science and Technology

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**Investigation of the maximum load front to back at the
chairs made from curved and modified poplar wood**

Supervisor:

Dr. A. Bayat kashkoli

Advisers:

Dr. M. R. H. Tabatabaei
N. KH. Madahi

By:

M. Rahmani Ardakani

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