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## **Development of Stretchable and Flexible Wood which Possesses Optimum Properties for Three-Dimensional Molding**

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Abstract: A three-dimensional molding method has been developed to make wood an alternative resource of plastics. This method is an unprecedented way of wood processing which uses deep-draw wood molding. To establish this method, development of stretchable and flexible semi-fixed compressed wood which provides optimum properties for three-dimensional molding by deep drawing, and clarification of its best fabricating steaming conditions are necessary. In this study, semi-fixed compressed woods were fabricated from *Cryptomeria japonica* and *Chamaecyparis obtusa* under various temperature and time conditions, and their mechanical properties were examined. The results indicated that the best steaming conditions for *Cryptomeria japonica* were 2-hour preliminary softening at 110°C, followed by 1-hour softening at 150°C which provided 97.8% elongation. For *Chamaecyparis obtusa*, it was 2-hour preliminary softening at 110°C, followed by 1-hour softening at 140°C which provided 107.4% elongation.

**Keywords:** three-dimensional molding, high-pressure steam, deep drawing, stretchable wood, compressed wood

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