

## The Development of the Prototype of Bamboo Shading Device

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**Abstract :** The main aim of this research was to investigate the prototype of bamboo shading device. There were two objectives of this study. The first objective was to investigate the effect of non-chemical treatments on damage of bamboo shading device by powder-post beetle and fungi. The second aim of this study was to develop a prototype of bamboo shading device. The study of the effect of non-chemical treatments on damage of bamboo shading device by powder-post beetle in laboratory showed that, among seven treatments tested, wood vinegar treatment can protect powder-post beetle better than the original method up to 92.91%. It was also found that wood vinegar treatment can show the best performance in fungi protection and work better than the original method up to 40%. The second experiment was carried out by constructing four bamboo shading devices and installing them on a building for 28 days. All aspects of shading device were investigated in terms of their beauty, durability, and ease of construction and assembly. The final prototype was developed from the lessons drawn from these tested options. In conclusion this study showed the effectiveness of some natural preservatives against insect and fungi damage. It also illustrated the characteristics of the prototype of bamboo shading device that can constructed by rural workers within one week.

**Keywords :** bamboo, shading device, energy conservation, alternative material

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