

## **Effect of heat treatment using palm oil on properties and durability of Semantan bamboo**

### **Abstract**

This paper investigates the effect of heat treatment on Semantan bamboo (*Gigantochloa scortechinii*) with emphasis given to their properties and durability. Matured four-year-old bamboo culms were harvested and subjected to high temperature condition using palm oil as a heating media. Two groups of samples, green and air-dried, were used. The temperatures applied were 140°C, 180°C and 220°C, with exposure duration of 30, 60 and 90 min, respectively. The results of the investigations show that the heat-treated bamboos retained most of their original physical and strength properties after undergoing the heat treatment. Green or air-dried bamboo culms can be dried to an MC of 6-7% within 2-3 h of treatment. The basic densities of bamboo were found to improve slightly by the heat application. The overall strengths properties of the heat-treated bamboo were found to decrease. The modulus of elasticity in the bending strengths was reduced between 2 and 33% in the green- and 6-9% in the air-dried conditions. For the modulus of rupture in the bending strengths, the value was reduced between 1 and 23% in green- and 4-16% in air-dried conditions. The compression strengths were reduced in the range between 2 and 3% in green- and 2-35% in air-dried conditions. The shear strengths were reduced in the range between 16 and 24% and 12-24% in in green- and air-dried conditions, respectively.