

**PROPERTIES OF ORIENTED STRAND BOARD (OSB) FROM LUDAI  
AND KELEMPAYAN**



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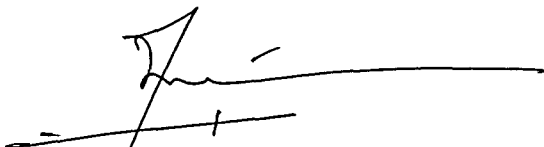
Prof.,

**LAPORAN AKHIR PENYELIDIKAN “PROPERTIES OF ORIENTED  
STRAND BOARD (OSB) FROM LUDAI AND KELEMPAYAN ”.**

Merujuk kepada perkara di atas, bersama-sama ini disertakan 4 (empat) naskah Laporan Akhir Penyelidikan bertajuk “Properties of Oriented Strand Board (OSB) from Ludai and Kelempayan” untuk makluman pihak Prof.

Sekian, terima kasih.

Yang benar,



**WAN MOHD NAZRI WAN ABDUL RAHMAN**  
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# PROPERTIES OF ORIENTED STRAND BOARD (OSB) FROM LUDAI AND KELEMPAYAN

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## ABSTRACT

Wood innovation in manufacturer spans a very wide range of science and technology. Oriented strand board (OSB) is a new type of wood composite, which is yet to be commercially produced in Malaysia or South East Asia region. OSB is made from long thin and narrow wood strands bonded with resin and converted into panel during the hot pressing operation. This study was carried out with the objective of obtaining the mechanical (MOE, MOR and IB) and physical properties of OSB from Ludai wood and Kelempayan wood with three (3) different density and three (3) different resin content (3%, 5% and 7%). As a conclusion to the study of OSB from Ludai wood, all specimens with density of 700 Kg/m<sup>3</sup> and 600 Kg/m<sup>3</sup> with resin content of 7% show better result compared to other specimens of 500 Kg/m<sup>3</sup> and 600 Kg/m<sup>3</sup> which value of MOE, MOR and thickness swelling meet the minimum requirement of the British Standard (BS 5669). All OSB specimens from Kelempayan wood passed the mechanical test accept for density of 500 Kg/m<sup>3</sup> with 3% resin content. But for physical test, only treatment of 650 Kg/m<sup>3</sup> density and 7% resin content meet the minimum requirement of the British Standard (BS 5669). It is also conclude that density of 650 Kg/m<sup>3</sup> and 7% resin content is the optimum treatment to make OSB from Kelempayan wood.

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## CHAPTER I

### INTRODUCTION

According to Bhagwan and Lawrence 1980, the wood composite is a moulded panel include particleboard, fibreboard, oriented strand boards; moulded material and inorganic material. It is interesting to see the dramatic property modification that can be achieve when wood is reduced in size and then reassembled into man-made, wood-based composites especially oriented strand board (OSB).

Oriented strand board is a non-veneer panel manufactured from reconstituted wood strands or wafers. The strand-like or wafer-like wood particles are compressed and bonded with phenolic resin. As the name implies, the wood strands or wafers are directionally oriented. The wood fibers are arranged in perpendicular layers (usually three to five) and are thus cross-laminated in the same manner as plywood (Breyer, 1993).

Composite can be defined as any combination of two or more materials, in any form and for any used. In the wood industry, the terms composite and reconstituted wood are usually used to describe any wood product that is glued together. The composite products in the wood industry rage from fibreboard to laminated beams and structural components (Brent et al., 1994).