

**EFFICIENCIES OF FINGER JOINT  
OF LIGHT RED MERANTI  
(EXPERIMENTAL WORK)**

**by**

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**A Report Submitted to the School Of Civil Engineering  
MARA Institute of Technology, Shah Alam  
In Partial Fulfilment of the Requirements for a degree in  
Bachelor Of Engineering (Hons) (Civil)**

**November 1996**

## ACKNOWLEDGEMENT

*Alhamdulillah, and praised to Allah, beloved parents Jamaluddin bin Salleh and Shaariah binti Md Yunus for giving the inspirations and strengthens to the author in completion the study. The author is grateful to Assoc. Prof. Ir. Hj. Mohd Salleh Mohd Noh, advisor of the project for his friendly guidance, advice and support. Also thanks to all technician involved in preparing and co-operation during laboratory work. Special thanks to En. Mansur Ahmad, Applied Science Lecturer for his guidance and advice. And friends, thanks in helping either directly or indirectly.*

*"May Allah Bless Them All"*

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*November 96'*

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## ***ABSTRACT***

Finger Joint was developed to minimize wasting of wood in jointing. Generally, finger joint is use in glue laminated timber to increase the length of the structure without wasting too much of wood. The commercial finger joint for furniture industrial widely used.

In this study, investigation on the suitability of Light Red Meranti to be jointed by using mini finger joint with the PRF glue through the samples. The primary objective of this study is to find the most effective profile from the five different commercial sizes that has been chosen which carry the highest tensile strength. This study employs samples of 20 x 30 x 600 mm in dimensions. These samples are glued at the middle using finger joint represent the actual structural members carrying tension load.

A theoretical discussion of finger joint is also presented to analyze the data in order to achieve the objectives.

The data showed conclusively that an adequately large glue-joint area to develop high shear resistance, as well as thin finger tips, are required to obtain maximum joint strength.

# CHAPTER 1

## INTRODUCTION

### 1.1 General

Finger joint was first developed by Dr. Egner of the Otto-Graf Institute, Technische Hochschule, Stuttgart during World war II (Barry A Richardson, 1976) in an attempt to improve the utilisation of wood. Finger joints which are produced by cutting a series of tapered fingers at the ends of the timbers, are readily interlocked for assembly. There are two types of finger joints (Chu Yue Pun 1984); the conventional longer finger joints and the more recent "mini-joints". The conventional longer finger joint is suitable used in jointing for moderately size of wood otherwise the mini finger joint are used in the investigation to analyze and recommend the suitability of local wood to be used in the construction of glue laminated structural element. The profile of a finger joint is described by the shape of the fingers in terms of length  $l$ , pitch  $p$  and tip width  $t$ . The effect of tip thickness, length of glueline are presented and a suitable finger joint profile is recommended. Finger joint in softwood for structural purposes, in the case of solid timber it can be used to obtain long members for structural components and for utilizing short offcuts arising in production and also the limited timber case. Many different finger joints profiles have been proposed in order to improve the degree of side grain adhesion or, in case of a staggered profile, in order to reduce stress concentration. Finger joint more economics and convenient method of end jointing lamination rather than scarf jointing. The scarf jointing which slopes involves wasting a significant amount of timber and