

**EFFECT OF GEOMETRICAL PROPERTIES OF FINGER JOINT
ON THE BENDING STRENGTH OF TIMBER (PROFILE II)**

BY

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ABSTRACT

Nowadays, finger jointed woods are widely used in wood industry as a joinery and also in structural members. The most important criteria in designing the timber structures are its bending strength.

A study was conducted to determine the effect of finger joint profile on the bending strength of finger-jointed woods. This study was carried out by using Light Red Meranti wood. In this study case, three different profiles are used where ten samples for each profiles are prepared and tested. Twenty control samples were also needed to be prepared and tested for comparison. The samples also tested for their modulus of elasticity (MOR) besides bending strength. The dimensions of the samples used are 20 x 43 x 400 mm and this is standard for all the samples.

This study is to investigate the bending strength of different finger joint profiles and the control sample. Thus, the relationship between profile geometry and the strength can be obtained and also, to determine the modulus of elasticity where it is the important properties in design timber as structural member.

It was found from the study that the maximum value of mean modulus of elasticity for the finger joint profiles (average of all the profiles) is 9853.56 N/mm^2 while for the control sample is 9666.51 N/mm^2 . For the bending strength, the maximum mean value (average of all the profiles) is 39.72 N/mm^2 and for the control sample is 57.80 N/mm^2 .

CHAPTER ONE – INTRODUCTION

1.1 GENERAL

Wood has long dominating construction sector even after technology has found steel and concrete. In accordance to the rapid growth and development of human civilization and its diminishing sources, wood has found new forms to stay survive and available in fulfilling the ever increase demand. It happens when finger joint was introduced, has helped wood achieves this status.

Finger joint is an end joint, which is commonly met within timber engineering today (Dawe 1965). Dr. Egner of Otto-Graf Institute, Technische Hochschule, Stuttgart first developed it during the World War II. It is an attempt to improve the utilization of wood during the wartime shortages (Richardson 1976).

Finger joint is produced by cutting a series of sloping finger on the ends of timbers to be joined and interlocking the two-piece together (Dawe 1965). Thus finger jointing enables the required lengths of timbers for particular applications to be obtained which it enables any short off cuts or scraps of timber to be joined, with the helped of glue, which would otherwise be wasted. Despite, it also can upgrade the timber by cutting out and rejecting the defects (Chu 1987).