BENDING PROPERTIES OF FINGER JOINTED FROM OIL PALM LUMBER (OPL)

IZWAN BIN ISMAIL

Final Project Paper Submitted in Partial Fulfillment for the Bachelor of Science (Hons) (Furniture Technology), Faculty of Applied Science, Universiti Teknologi MARA,

JANUARY 2012

ACKNOWLEDGEMENTS

Assalamualaikum w.b.t

Praise to the almighty Allah the most gracious and the most merciful, for His blessing that give us healthy either physical nor mental to finish this final project properly and also get finish a project report in subject FUR 529; Final Project.

I also would like to express my special thanks to Miss Nur Hannani Bt. Abdul Latif, my advisor. For her willingness to contribute her knowledge, effort and time to monitor the work until completed our final project paper. Without guidance, I would not have been able to complete this project. Not forgot to Dr Wan Mohd Nazri Bin Abdul Rahman who has been so helpful and dedicated to give us a lot of commitment in helping me to complete this project. Thanks for him guidance, critics and advises during the class.

Besides that, I would like to thank to all friends to Hj Mansor bin Anas, owner of KONSORTIUM PEKA SDN BHD for giving permission to use the machines and the cooperative when I was there. Finally, special thanks my co-supervisor Mr. Ahmad Fauzi B. Othman whose guidance and support from the initial to the final stage enabled me to complete this thesis project. Thank you.

TABLE OF CONTENTS

APPROVAL SHEET DEDICATIONS CANDIDATE'S DECLARATION ACKNOWLEDMENTS LIST OF TABLE LIST OF PLATES		
	ix x	
LIST OF FIGURES LIST OF ABBREVIATIONS		xi
	ABSTRACT	
	STRAK	xii xiii
СН	APTER	
1.0	INTRODUCTION	
	1.1 General	1-2
	1.2 Scientific Background	2-6
	1.3 Problem Statement	6-7
	1.4 Justification of Study1.5 Objective	7 7
2.0	LITERATURE REVIEW 2.1 General Review 2.1.1 Development of Oil Palm In Malaysia 2.1.2 Botanical Description of Oil Palm 2.1.3 Distribution of Oil Palm 2.2 Related Research Review 2.2.1 Oil Palm Character a) Mechanical Properties b) Physical Properties 2.3 Finger Joint 2.3.1 Structural of Finger Joints 2.4 Polyvinyl Acetate Glue (PVAc)	8-11 12 13 14 14-16 16-18 19 19-22 23-24
3.0	MATERIAL AND METHOD 3.1 Description of Test Material 3.2 Material 3.3 Oil Palm Trunk Processing 3.4 Experimental Design 3.5 Methodology 3.5.1 Sample Preparation 3.6 Evaluation Bending Test 3.6.1 Modulus of Elasticity (MOE) and Modulus of Rupture	25 25 25-26 27 28-30 30-31 32-33
	(MOR)	

4.0	RE	RESULT AND DISCUSSION	
	4.1	General	34
	4.2	1	35
		at Different Portion and Finger Orientation	26.25
		The Effect of Different Portion on Bending Properties	36-37
	4.4	The Effect Of Different Finger Orientation On Bending	38-39
		Properties	
5.0	CO	NCLUSION	40-41
REFERENCE		42-44	
APPENDICES			45-53
VITAE			54

ABSTRACT

BENDING PROPERTIES OF FINGER JOINTED FROM OIL PALM LUMBER (OPL)

This research is to determine the bending properties (modulus of elasticity (MOE) and modulus of rupture (MOR) of finger jointed from oil palm lumber (OPL). OPL have been used because of the potential as raw material to replace the solid wood that is becoming short in supply in future. Oil palm lumber from peripheral zone at different portion top, middle and bottom is taken to produce finger joint in different type of finger orientation which is vertical and horizontal. From the result, it can be concluded that MOR and MOE of the bottom portion is higher compared to middle and top portion. Increase in density caused increases the MOR and MOE value. The strength for horizontal and vertical finger joint is little bit different even through both MOR and MOE graphs showed the strength of horizontal finger joint is a bit higher than the vertical finger joint.