THE STRENGTH PROPERTIES OF ORIENTED STRAND BOARD FROM PINE SPECIES INCLUDING THICKNESS SWELLING, WATER ABSORPTION AND INTERNAL BOND

BY

YUSRI BIN YUSMAIDI

Final Project Submitted in Partial Fulfillment for the Diploma in Wood Industries,
Faculty of Applied Science,
Universiti Teknologi MARA Pahang

April 2002

ACKNOWLEDGEMENT

I wish to express my gratitude to my supervisor, Mr. Wan Nazri Wan Abdul Rahman whose willingness to contribute his knowledge, time and effort till I completed my thesis for guiding, reading and offering comment as the thesis evolved. I gratefully acknowledge his helpful suggestion.

I would also live to thank all lectures in the department of wood industry, Mara university of Technology especially to Ass. Prof Dr. Jamaluddin Kasim, as head of program for guiding me either direct or indirectly. Also to lab assistant, Mr. Sardi. Not forgetting thanks to all my friends and classmate, for helping me throughout the semester.

Thank You.

TABLE OF CONTENTS

TIT	LE	ř.			PAGE
APP DED ACK LIST LIST LIST ABS		OVA CATI OW OF F OF T OF P	L SHEE ION LEDGEI IGURES ABLES. LATES. T	MENT	i ii iii iv viii viiii ix x
CHA	P	ГER			
	1	IN	TRODU	CTION	1
	2	LI	TERATI	RE REVIEW	3
	_	2.1		ction	3
		2.2		anufacturing Process	4
	19	4.2	2.2.1	Raw Material	4
			2.2.2	Jack Ladder	5
			2.2.3	Debarking.	5
			2.2.4	Stranding	6
			2.2.5	Strand Drying.	6
			2.2.6	Blending.	7
			2.2.7	Binders and Waxes	7
			2.2.8	Forming and Pressing.	8
			2.2.9	Energy System	9
				Finishing Operation	10
	3	N/I /	TEDIA	LS AND METHODS	11
		3.2		ation of Sample	11
		3.2	3.2.1	Testing Machine.	12
			3.2.2	Test Block.	12
			3.2.3	Dimensions.	12
			3.2.3	Conditioning.	13
			3.2.5	Bending of the Test Pieces to the Loading Block	13
			3.2.6	Preparation of Sample	15
,	4	RE	ESULTS	AND DISCUSSIONS	16
18	5	CC	ONCLUS	SION	25

LIST OF FIGURES

Figure		
3.1	OSB Samples	11
3.2	Dimensional of Metal Block	13
3.3	Metal Block Testing	14
3.4	Sample Dimensional	15
4.1	Density of Sample	17
4.2	Comparison Between Water Absorption and Thickness Swelling	18
4.3	Result of Water Absorption	20
4.4	Result of Thickness Swelling	22
4.5	Result of Internal Bond	24

THE STRENGTH PROPERTIES OF ORIENTED STRAND BOARD FROM PINE SPECIES INCLUDING THICKNESS SWELLING, WATER ABSORPTION AND INTERNAL BOND

Ву

YUSRI YUSMAIDI

MARCH 2002

ABSTRACT

The Water Absorption, Thickness Swelling and Internal Bond bonding properties of OSB from pine species were studied. Higher Water Absorption ratio was defected from sample with high density. Similar trend of greater values from sample with high density was observed for Thickness Swelling. While for Internal Bonding it was cleared that sample with higher density carries better readings for Internal Bond. Thus, density plays an important role to lesser the matter Absorption ratio and furthermore perverting Thickness Swelling while support the Internal Bonding. With this, the data fainted is hoped to be used as guidance to view the ability and suitably for the use of OSB made from Pine species as a medium in parts and places which are exposed to moisture.