

A STUDY TO DETERMINE THE SUITABLE "PASAK" SIZE ON
38.10mm PLANK THICKNESS FOR CONSTRUCTION OF
TRADITIONAL FISHING BOAT IN TERENGGANU

W. MUHAMAD MURSYID BIIN W. RAZALI

bpd
LP
43
FMSM
1
2013

SCHOOL OF MARITIME STUDIES AND SCIENCE MARINE
UNIVERSITY MALAYSIA TERENGGANU

2013

1100087843



bpd

I.P. 43 FMSM 1 2013



1100087843

A study to determine the suitable 'pasak' size on 38.10 mm plank thickness for construction of traditional fishing boat in Terengganu / W. Muhamad Mursyid W. Razali.

PERPUSTAKAAN SULTANAH NUR ZAHRAH
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU.

1100087843

1100087843	

Lihat sebelah

HAK MILIK
PERPUSTAKAAN SULTANAH NUR ZAHRAH UMT

A STUDY TO DETERMINE THE SUITABLE "PASAK" SIZE ON
38.10 mm PLANK THICKNESS FOR CONSTRUCTION OF
TRADITIONAL FISHING BOAT IN TERENGGANU

By
W. MUHAMAD MURSYID BIN W. RAZALI

A thesis submitted in partial fulfilment
of the requirements for the award of the degree of
Bachelor of Applied Science (Maritime Technology)

DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2013



DEPARTMENT OF MARITIME TECHNOLOGY

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

**DECLARATION AND VERIFICATION REPORT FINAL YEAR
RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled: A Study To Determine The Suitable "Pasak" Size on 38.10 mm Plank Thickness For Construction Of Traditional Fishing Boat by W. Muhamad Mursyid Bin W. Razali, matric number UK21544, have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment towards obtaining the degree of Bachelor of Applied Science (Maritime Technology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

CHE WAN MOHD NOOR
JABATAN TEKNOLOGI MARITIM
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Principal Supervisor

Name: Mr. Che Wan Mohd Mohd Noor Che Wan Othman

Official stamp:

Date: 14/01/2013

Second Supervisor (where applicable)

FERRY MANHUTTU
JABATAN TEKNOLOGI MARITIM
FAKULTI PENGAJIAN MARITIM DAN SAINS MARIN
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Name: Mr. Ir Ferry Manhuttu

Official stamp:

Date: 14/01/2013

Head of Department of Maritime Technology

Name: Dr. Mohammad Fadhli Bin Ahmad


Official stamp:

Date: 14/1/13

ASSOC. PROF. DR. MOHAMMAD FADHLI AHMAD
HEAD
DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

DECLARATION

I hereby declare that this thesis entitle “A Study To Determine The Suitable “Pasak ” Size On 38.10 mm Plank Thickness For Construction Of Traditional Fishing Boat In Terengganu” is my own research except as cited in the references.

Signature : 

Name : W. Muhamad Mursyid Bin W. Razali
Matrix No. : UK 21544
Date : 13rd January 2013

TABLE OF CONTENT

	PAGE
DECLARATION AND VERIFICATION REPORT	
FINAL YEAR RESEARCH PROJECT	i
DECLARATION	ii
TABLE OF CONTENT	iii
ACKNOWLEDGEMENT	vi
ABSTRACT	vii
ABSTRAK	viii
LIST OF TABLE	ix
LIST OF FIGURE	x
ABBREVIATION	xi
CHAPTER	
1.0 INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	6
1.3 Objective	8
1.4 Scope of Study	8
2.0 LITERATURE REVIEW	10
2.1 "Pasak"	10
2.2 Traditional Fishing Boat	12
2.2.1 Construction of Traditional Fishing Boat	12
2.3 Wood	18

3.0	METHODOLOGY	22
3.1	Flow Chart	22
3.2	Survey	23
3.3	Interview	23
3.4	Observation	23
3.5	Computer Software	24
3.6	Field Work	24
3.6.1	Making of “Pasak”	25
3.6.2	Making the Sample	27
3.6.3.1	Measuring Process	27
3.6.3.2	Cutting Process	28
3.6.3.3	Find the Midpoint of “Pasak” Holes Process	28
3.6.3.4	Drilling Process	28
3.6.3.5	Installation of “Pasak”, Bark of “Gelam” and New Plank	29
3.7	Laboratory Work	29
3.7.1	Static Bending Test	30
3.7.2	Compressive Test	31
3.7.3	Tensile Test	31
3.8	Data Analysis	32
4.0	RESULT	33
4.1	Survey	33
4.2	Interview	34
4.3	Observation	36
4.3.1	Planking Process	36
4.3.2	Part of Traditional Fishing Boat	41
4.4	Computer Software	43
4.5	Field Work	44
4.5.1	Making the “Pasak”	44
4.5.2	Making the Sample	44

4.6	Laboratory Work	45
4.6.1	Static Bending Test	47
4.6.2	Tensile Test	48
4.6.3	Compressive Test	49
4.7	Explanation Graph	50
4.7.1	Static Bending Test	50
	4.7.1.2 Graph "Pasak" versus Maximum Load (kN)	50
	4.7.1.2 Graph "Pasak" versus Maximum Displacement (mm)	51
4.7.2	Tensile Test	52
	4.7.2.1 Graph "Pasak" versus Maximum Load (kN).	52
4.7.3	Compressive Test	53
	4.7.3.1 Graph "Pasak" versus Shear Stress (N/mm ²)	53
	4.7.3.2 Graph "Pasak" versus Maximum Load (kN)	54
4.8	Analysis Data	55
5.0	CONCLUSION AND RECOMMENDATION	57
5.1	Conclusion	57
5.2	Recommendation	58
	REFERENCES	64
	APPENDIX	65

ACKNOWLEDGEMENT

First of all, Alhamdulillah Praise to Allah SWT because by His leave, my final year project report was completed.

I also would like to thank to my first supervisor, Che Wan Mohd Noor Che Bin Wan Othman because much help and guide me to doing this study and complete this final year project report. My thanks also to my second supervisor, Ir. Ferry Manuhutu and Dr. Khalid Bin Samo which also much help me to complete the study and this report.

Special thanks to my parents and family who also helped me in term of money and moral support for me to complete this study and report.

Also not forget is my friends who are around me are equally struggling with me for a degree which is Mohd Sukri Salehudin, Ahmad Aslam Mohamd, Mohd Zahid Mainur, Abd Halim Mat Ali, Syed Mohd Faizal Syed Jafri, Khairun Mohd Naim and the other, which is too many for me to mention. Whatever ever your help, I always remember you

And last but not least, my special thanks also to those who have been involved in my project either directly or indirectly.

Thank you.

ABSTRACT

Traditional fishing boats are still use in Terengganu. Its main purpose is to catch the fish. Although traditional fishing boats still in use, but the fact is the amount of boat builder or "Tukang Timbal" is getting depleted. The construction of traditional fishing boats in Terengganu is quite unique because using the "Pasak" to make the boat hull and rather than using nails.

In construction of traditional fishing boat, the use of size of "Pasak" is depend on the thickness of the plank that used to make the hull of boat. Usually, the boat builder only using one type size of "Pasak" which sized is 10.76 mm for plank thickness is 38.1 mm for the making of the boat hull, whereas there are three different sizes of "Pasak". And this has given rise to doubts and problems which are the size of pegs used are appropriate to the thickness of the plank used because there is no scientific evidence to prove the problem.

There are two objectives of this study which is to study and analyze the strengths "Pasak" through several tests such as static bending tests, tensile tests and compressive test and to determine the suitable size of "Pasak" for plank thickness is 38.1 mm.

There are seven types of methodology were used for this study which is surveys, interviews, observations, computer software, field work which include the process making the "Pasak" and the process making the samples, laboratory work which include the three types of tests such as static bending test, compressive test and tensile test, and the lastly is analyze the data.

By through this methodology, the both objectives of this study were achieved and the results clearly show that what is practiced by the boat builders to use size pegs 10.76 mm for 38.1 mm thickness of plank is correct and accurate.

ABSTRAK

Bot nelayan tradisional masih lagi digunakan di Terengganu. Tujuan utamanya adalah untuk menangkap ikan. Walaupun bot nelayan tradisional masih digunakan, tetapi hakikatnya jumlah tukang timbai atau pembuat bot nelayan tradisional ini semakin berkurangan. Pembinaan bot nelayan tradisional di Terengganu adalah cukup unik kerana menggunakan kaedah pasak untuk membuat badan bot dan bukannya menggunakan paku.

Dalam pembinaan bot nelayan tradisional ini, penggunaan saiz "pasak" adalah bergantung kepada ketebalan papan yang digunakan untuk membuat badan bot. Kebiasaannya, pembuat bot hanya menggunakan satu jenis saiz pasak iaitu 10.76 mm untuk ketebalan papan 38.1 mm bagi membuat badan bot, sedangkan terdapat tiga lagi saiz pasak yang berbeza. Dan ini telah menimbulkan keraguan dan permasalahan dimana adakah saiz pasak yang digunakan adalah sesuai dengan ketebalan kayu yang digunakan kerana tidak terdapat bukti saintifik untuk membuktikan permasalahan tersebut.

Terdapat dua objektif dalam kajian ini iaitu untuk mengkaji dan menganalisis kekuatan pasak melalui beberapa ujian seperti ujian lenturan statik, ujian tegangan dan ujian mampatan dan untuk menentukan saiz pasak yang sesuai bagi ketebalan kayu 38.1 mm.

Terdapat tujuh jenis kaedah metodologi yang digunakan dalam kajian ini iaitu tinjauan, temuramah, pemerhatian, perisian komputer, kerja lapangan yang meliputi proses membuat pasak dan membuat sampel, kerja makmal yang meliputi tiga jenis ujian iaitu ujian lenturan statik, mampatan dan tegangan serta yang terakhir adalah menganalisis data.

Melalui kaedah-kaedah metodologi ini, kedua-dua objektif kajian ini telah dicapai dan keputusan jelas menunjukkan bahawa apa yang amalkan oleh pembuat bot iaitu menggunakan pasak bersaiz 10.76 mm untuk papan berketebalan 38.1 mm adalah betul dan tepat.