



**DANISH
TECHNOLOGICAL
INSTITUTE**

Gregersensvej
DK-2630 Taastrup
Tel. +45 72 20 20 00
Fax +45 72 20 20 19

info@teknologisk.dk
www.teknologisk.dk

CE 1235
EU Notified Body

BOWA – Falster Træ & Finer ApS
Tuemosevej 1
DK-4850 Stubbekøbing

Journal/ 1214195-02
Order no.. 198665
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Appendices 5
Initials jlj/liha/hbs

Test Report

Material: 2 types of BOWA plywood, dimension approx. 1200 × 1200 mm:
 - Type T: 12 mm 9 layers plywood with Teak top veneer, other layers Gaboon
 - Type K: 12 mm 9 layers plywood with Khaya top veneer, other layers Gaboon.
 The client has informed the glue type to be: Nordcoll Prefere 4551 with curing agent Prefere 5080. Laboratory no. 070229.

Sampling: The test material was sampled and sent by the client and received at the Danish Technological Institute 23.02.2007.

Method: Germanischer Lloyd (GL). Prüfvorschriften für Bootsbau-Sperrholz. 1967 og Klassifikations- und Bauvorschriften. II – Werkstoff- und Schweissttechnik, Teil 2 – Nicht-metallische Werkstoffe, Kapitel 1 - 2. 1998.
 DIN 52 374 Prüfung von Sperrholz. Bestimmung der Rohdichte.
 DIN 52 375 Prüfung von Sperrholz. Bestimmung des Feuchtigkeitsgehaltes.
 DIN 52 377 Prüfung von Sperrholz. Bestimmung des Zug-Elastizitätsmodul und der Zugfestigkeit.
 Prüfung von Holzleimen und Holzverleimungen. Bestimmung der Bindefestigkeit von Sperrholzleimungen (Furnier- und Tischlerplatten) im Zugversuch und im Aufstechversuch.
 Pre-treatment was boiling/drying interplay cf. GL, as for BFU 100 panels (previously AW 100).
 DIN 68 705 Teil 3. Bau- und Furniersperrholz.
 In case of divergence of the DIN norm from GL what regards test specimen treatment, number of test specimens and/or dimension the specifications stated in GL were used.
 The test material was conditioned at 20°C/65% RH prior to testing.

Period: March/April 2007

Result: The test result is summarised in Appendix 1. All individual values are stated in Appendices 2-5.
 Both panels meet the requirements for strength class F1 according to GL.

Terms The test has been performed according to the rear side conditions, which are according to the guidelines laid down by DANAK (The Danish Accreditation). The testing is only valid for the tested specimen.
 The test report may only be extracted, if this is either public accessible, or if the laboratory has approved the extract.

Date/place 12th April 2007, Danish Technological Institute, Timber, Taastrup
 Signature

Jens Ljørring

Lidia Hashemi

APPENDIX 1

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Main Results

Testing		Test Results Mean Values		Requirements cf. GL	
Standard	property	Type T	Type K	F1	F2
DIN52375	Moisture content at delivery [%]	8,8	8,9	5 < M < 12	
DIN52375	Moisture content after conditioning [%]	12,0	12,5	-	
DIN52374	Density [kg/m ³]	550	523	-	
DIN52377	Tensile strength [N/mm ²]				
	Parallel to YF	44,2	49,8	M ≥ 40	M < 40
	Perpendicular to YF	41,2	34,9	M ≥ 30	M < 30
DIN53255	Bonding quality				
	Shear strength [N/mm ²]	1,99	2,23	M ≥ 1,5	M ≥ 1,2
DIN53255	Bonding quality				
	Knife testing	1,00	1,00	M ≤ 3	
	Stated for each specimen.	1,17	1,00		

M = Mean value

YF = Top veneer

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Glue Bond

Shear

Sample no	TEAK		KHAYA	
	N	N/mm ²	N	N/mm ²
1	385	1,54	680	2,72
2	560	2,24	515	2,06
3	360	1,44	430	1,72
4	585	2,34	610	2,44
5	465	1,94	625	2,5
6	665	2,66	445	1,78
7	725	2,9	455	1,82
8	275	1,1	665	2,66
9	300	1,2	590	2,36
10	635	2,54	555	2,22
Mean	495,5	1,99	557,7	2,23

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DANISH TECHNOLOGICAL INSTITUTE - WOOD TECHNOLOGY

DATE : 12.04.2007
ANNEX NO. : 3
REPORT NO : 198665
ORDER NO : 1214195-02
TESTER : JIJ
DISK-IDENT. : 2.0- 0- 33

ASSIGNOR : FALSTER T&F

MATERIAL : BOWA 12 mm 9/9 Pluwood

STRENGTH	TEST :				TRAEK	N/mm2
	SERIE No					
	T1	T2	K1	K2		
TEST No						
1	49.10	41.54	49.05	41.21		
2	48.06	45.30	48.89	32.78		
3	36.49	35.84	54.27	33.62		
4	37.81	39.26	49.02	44.69		
5	44.53	44.06	48.77	26.70		
6	49.44	41.45	48.75	30.37		
MEANVALUE /SERIE	: 44.24	41.24	49.79	34.89		
STD.DEV. /SERIE	: 5.77	3.40	2.20	6.78		

GRAND MEAN : 42.5411

STD.DEV. (BETW SERIES) : 6.21 COV % : 14.59

STD.DEV. (TOTAL) : 7.14 COV % : 16.78

CROSSSECT. (CONSTANT) mm2 : 12.90 x : 8.00

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Results – Density and Moisture Content

Specimen	Width [mm]	Length [mm]	Thickness [mm]	Weight, wet [g]	Weight, dry [g]	Density [kg/m ³]	Moisture content [%]
T-1	50,14	100,13	12,79	35,2	31,4	548	12,1
T-2	50,02	100,10	12,63	35,0	31,3	553	11,8
Mean	50,08	100,12	12,71	35,1	31,35	550,5	11,95
K-1	50,04	100,70	13,27	34,5	30,6	516	12,7
K-2	50,11	100,14	13,06	34,8	31,0	531	12,3
Mean	50,08	100,42	13,17	34,65	30,8	523,5	12,5

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Results – Bonding Quality, All Glue Lines

Specimen	1	2	3	4	5	6	7	8	Min.	Mean value	Max.
T-1	1	1	1	1	1	1	1	1	1	1	1
T-2	3	2	1	1	1	1	1	3	1	2,6	3
K-1	1	1	1	1	1	1	1	1	1	1	1
K-2	1	1	1	1	1	1	1	1	1	1	1

Results, Glue Lines 2-7 between Gaboon Veneers

Specimen	Min.	Mean value	Max.
T-1	1	1	1
T-2	1	1,17	2
K-1	1	1	1
K-2	1	1	1

- 1 = Perfect bonding
- 2 = Good bonding
- 3 = Adequate bonding = MINIMUM REQUIREMENT
- 4 = Inadequate bonding