



Test Report

Applicant **SHANDONG FUSHI WOOD CO.,LTD.**

Test Category **Type Test**

Sample Type **Structural Laminated Veneer Lumber**

Test Standard **AS/NZS 4357.0**

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Precautions

1. This test report is invalid without authorized approved signature, signature of verifier and approver.
2. This test report is invalid if being supplemented, deleted or altered.
3. Unless otherwise stated, the observations and test results in this report are relevant only to the sample(s) tested.
4. Objections to the test report must be submitted to Hongjun within 15 days of report received date. This report does not imply that the material, product, or service is or have ever been under Hongjun or ICTT certification program.
5. The test applicant is responsible for authenticity of sample information which not subject to verification of Hongjun.
6. The applicable decision rules of this test are: IEC Guide 115:2007 Procedure 2 - Accuracy method, do not subject to measurement uncertainty.

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1. Sample Description¹

Samples for type test in this report were sampled and shipped to test laboratory by applicant on Dec 13th, 2021, packed well and kept in good conditions. Samples were identified as Structural laminated veneer lumber by the applicant. The cross-sectional dimension of laminated veneer lumber is 90mm×45mm, 95mm×65mm and 150mm×77mm, respectively. Laminated veneer lumber are made of larch. The dimension specification and quantity of samples obtained are shown in the table below:

Sampling Plan			
Test Item	Sample Specification (Length×Width×Thickness, mm)		Sample Size
Structural Properties			
Bending Strength and Modulus Of Elasticity	On edge ²	1800×90×45	32
	On flat ²	900×90×45	32
	On edge	1900×95×65	32
	On edge	3000×150×77	32
Beam Shear Strength	On edge	720×90×45	32
	On flat	360×90×45	32
	On edge	760×95×65	32
	On edge	1200×150×77	32
Bearing Strength Perpendicular To Grain	On edge	200×50×45	32
	On flat	200×50×45	32
	On edge	200×50×65	32
	On edge	200×50×77	32
Tensile Strength Parallel to Grain	Axial	3000×90×45	32
Compression Strength Parallel to Grain	Axial	3000×90×45	32

Notes:

1. Sample information is provided by the applicant.
2. On edge and on flat mean specimen placement depending upon end use according to Table 2 of AS/NZS 4357.0.

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2. Adhesive Information³

The adhesive used is phenolic formaldehyde resin. Adhesive information is listed in the table below:

Adhesive Name	Type	Manufacturer
Phenolic formaldehyde resin adhesive	WG62	Jinyu Weiguan (Cangzhou) Chemical Co., LTD

Notes:

- Adhesive information is provided by the applicant.

3. Referenced Standards

- ◆ AS/NZS 2098.1:2006 Methods of test for veneer and plywood-Method 1: Moisture content of veneer and plywood
- ◆ AS/NZS 2098.2:2012 Methods of test for veneer and plywood-Method 2: Bond quality of plywood (chisel test)
- ◆ AS/NZS 2754.1:2016 Adhesives for timber and timber products-Part 1: Adhesives for manufacture of plywood and laminated veneer lumber (LVL)
- ◆ AS/NZS 4063.1:2010 Characterization of structural timber-Part 1: Test methods
- ◆ AS/NZS 4063.2:2010 Characterization of structural timber Part 2: Determination of characteristic values
- ◆ AS/NZS 4357.0:2005 Structural laminated veneer lumber-Part 0: Specifications
- ◆ AS/NZS 4357.2:2005 Structural laminated veneer lumber(LVL)-Part 2: Determination of structural properties—Test methods
- ◆ AS/NZS 4357.3:2006 Structural laminated veneer lumber-Part 3: Determination of structural properties—Evaluation methods
- ◆ AS/NZS 4357.4:2005 Structural Laminated Veneer Lumber Part 4: Determination Of Formaldehyde Emissions
- ◆ AS 1720.1:2010 Timber structures-Part 1: Design methods

Unless specified, all test standards in this report are the version cited by AS/NZS 4357.0.

4. Test Description/ Environment

All test items in this report are according to Table 2 of AS/NZS 4357.0 for different end use purpose per client request. Test procedure complied with corresponding test method requirement where those test methods are listed in section 3 of this report.

During the test, the relative humidity and temperature of test environment are $(65 \pm 5)\%$ and $(20 \pm 5)^\circ\text{C}$, respectively.

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5. Test Results

STRUCTURE PROPERTIES			
Test Item	Dimension Specification (mm)	Place Direction	Results ⁴⁻⁶
In-grade Testing	90×45	On edge	E : 17617 MPa f'_b : 82.9 MPa f'_s : 6.3 MPa f'_p : 13.0 MPa
		On flat	E : 14627 MPa f'_b : 80.0 MPa f'_s : 5.5 MPa f'_p : 6.0 MPa
		Axial	f'_t : 55.1 MPa f'_c : 50.5 MPa
	95×65	On edge	E : 15949 MPa f'_b : 76.4 MPa f'_s : 6.6 MPa f'_p : 10.2 MPa
	150×77	On edge	E : 15158 MPa f'_b : 68.7 MPa f'_s : 5.5 MPa f'_p : 9.2 MPa

Notes:

4. The results were adjusted to 12% moisture content in accordance with ISO 13061:2014.
5. The characteristic values for strength, were the 5th percentile values estimated with 75% confidence, which was determined in accordance with AS/NZS 4357.3.
6. The characteristic value for modulus of elasticity was the mean or adjusted mean value, estimated with 75% confidence, which was determined in accordance with AS/NZS 4063.2
7. Characteristic values for design shall be determined based on the characteristic values and modification factors, where modification factor for resource and process and modification factor for variability should be both considered.
8. For detailed test data, please refer to Appendix I of test report.
9. The F-grades shall be assigned according to Table H2.1 of AS 1720.1 based on characteristic values for design, which is shown below.

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TABLE H2.1
CHARACTERISTIC VALUES FOR DESIGN—F-GRADES—BENDING AND SHEAR FOR BEAMS, TENSION, COMPRESSION AND ELASTIC MODULI PARALLEL TO GRAIN

Stress grade	Characteristic values, MPa						
	Bending (f'_b)	Tension parallel to grain		Shear in beam (f'_s)	Compression parallel to grain (f'_c)	Short duration average modulus of elasticity parallel to the gain, MPa (E)	Short duration average modulus of rigidity, MPa (G)
		Hardwood	Softwood				
		(f'_t)					
F34	84	51	42	6.1	63	21 500	1 430
F27	67	42	34	5.1	51	18 500	1 230
F22	55	34	29	4.2	42	16 000	1 070
F17	42	25	22	3.6	34	14 000	930
F14	36	22	19	3.3	27	12 000	800
F11	31	18	15	2.8	22	10 500	700
F8	22	13	12	2.2	18	9 100	610
F7	18	11	8.9	1.9	13	7 900	530
F5	14	9	7.3	1.6	11	6 900	460
F4	12	7	5.8	1.3	8.6	6 100	410

Reporter:

Dang tony tang

Verifier:

Ji Li

Approver:



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Appendix I - Test Data

1. Bending Strength and Modulus Of Elasticity

Dimension Specification (mm)	Specimen No	Mid-Span Width (mm)	Mid-Span Thickness (mm)	Ultimate Load (N)	P/Δ (N/mm)	12% MC Bending Strength (MPa)	12%MC MOE (MPa)	Moisture Content (%)
90×45 (On edge)	1	46.71	91.23	24065.8	722	92.8	17909	10.1
	2	46.82	90.76	23241.8	693	98.6	17989	12.3
	3	46.74	90.63	22970.0	675	90.6	17131	10.4
	4	46.97	90.32	23013.0	718	93.8	18528	11.1
	5	46.49	90.71	24079.2	695	102.4	18173	12.1
	6	45.37	90.37	19121.6	629	83.7	17018	12.0
	7	46.65	90.42	22885.4	692	94.1	17946	11.2
	8	46.13	90.20	21359.0	640	91.1	17053	11.7
	9	46.63	90.97	22226.0	674	90.7	17193	11.3
	10	46.55	90.58	22001.0	641	87.7	16403	10.5
	11	45.64	90.34	23033.4	661	97.0	17568	11.2
	12	46.73	90.55	25209.2	710	104.0	18360	11.4
	13	46.98	90.62	23798.4	705	97.9	18127	11.5
	14	46.36	90.19	21041.0	704	90.0	18712	11.9
	15	46.35	90.27	21577.4	679	91.8	17986	11.8
	16	46.77	90.17	21669.6	691	86.4	17818	10.4
	17	46.59	90.38	21765.6	679	91.9	17813	11.8
	18	45.56	90.20	19467.8	638	84.7	17243	11.9
	19	46.52	90.43	23916.6	709	97.8	18382	11.0
	20	46.01	90.35	22824.8	660	93.3	17270	10.7
	21	46.39	90.03	22030.8	658	90.0	17246	10.7
	22	46.43	90.63	23329.6	670	97.1	17420	11.5
	23	47.46	90.33	22642.2	688	94.3	17770	11.9
	24	46.05	90.69	21552.6	651	88.9	16933	11.1
	25	46.31	90.02	24371.2	709	105.2	19008	12.0
	26	46.25	90.69	24951.8	730	103.7	18995	11.4
	27	46.05	90.25	21025.6	639	89.7	17016	11.7
	28	46.62	90.21	22992.4	676	92.7	17513	10.6
	29	47.34	90.34	20714.2	695	80.9	17569	10.3
	30	46.33	90.06	22540.4	647	96.4	17269	11.8
	31	46.74	90.25	22742.6	664	91.4	17123	10.6
	32	46.52	90.48	24356.6	675	103.6	17731	12.0

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Report No.: HJ-QT-17465

Issue Date: Jan. 14th, 2022

Dimension Specification (mm)	Specimen No	Mid-Span Width (mm)	Mid-Span Thickness (mm)	Ultimate Load (N)	P/Δ (N/mm)	12% MC Bending Strength (MPa)	12%MC MOE (MPa)	Moisture Content (%)
90×45 (On flat)	1	90.57	45.71	25225.0	1201	106.7	15644	11.7
	2	90.66	45.99	22222.2	1155	90.9	14642	11.2
	3	90.29	45.63	19392.6	1134	81.9	14855	11.5
	4	90.56	47.12	25403.8	1247	99.9	14763	11.4
	5	90.28	45.52	24859.4	1158	104.6	15236	11.3
	6	90.29	45.49	24210.8	1140	97.0	14742	10.1
	7	90.33	46.16	21275.0	1118	84.9	13962	10.7
	8	90.35	45.48	26850.8	1267	107.5	16387	10.1
	9	90.25	45.85	23403.0	1148	93.9	14605	10.5
	10	90.35	45.40	25665.4	1203	103.6	15671	10.2
	11	90.36	46.16	23289.8	1169	91.7	14535	10.4
	12	90.57	45.99	20499.0	1133	82.5	14288	10.8
	13	90.20	46.12	22057.0	1069	89.0	13444	10.9
	14	90.50	47.03	21492.2	1126	82.1	13249	10.6
	15	90.35	47.33	29883.4	1236	110.5	14182	10.1
	16	90.56	45.71	27132.0	1206	109.6	15445	10.6
	17	90.45	45.91	19699.4	1058	79.7	13432	10.8
	18	90.34	45.97	28579.8	1163	114.5	14679	10.6
	19	90.47	46.39	24326.2	1154	98.4	14307	11.3
	20	90.61	45.48	23983.4	1143	95.8	14749	10.1
	21	90.38	45.51	27119.8	1146	110.3	14880	10.5
	22	90.23	46.27	27635.0	1248	108.9	15449	10.5
	23	90.36	46.63	21298.4	1156	82.9	13978	10.6
	24	90.46	45.84	24541.4	1146	103.3	14816	11.7
	25	90.44	46.78	29794.2	1257	114.1	14991	10.4
	26	90.49	46.05	21547.4	1102	87.0	13886	10.9
	27	90.14	45.56	24614.2	1211	104.4	15956	11.5
	28	90.44	46.09	23054.0	1146	95.3	14543	11.5
	29	90.60	45.50	24489.2	1169	103.2	15362	11.4
	30	90.48	46.51	26891.0	1215	107.7	14920	11.2
	31	90.52	45.89	24633.4	1142	100.5	14559	11.0
	32	90.38	46.23	23843.2	1175	97.2	14738	11.3

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95×65	1	65.42	96.61	32961.6	867	88.8	15434	11.0
	2	62.41	96.82	30759.2	907	86.8	16836	11.1
	3	62.42	96.23	29110.6	863	82.8	16276	11.0
	4	65.05	96.60	30274.2	875	84.0	15807	11.6
	5	65.25	96.21	30712.8	829	84.4	15024	11.3
	6	65.18	96.46	29792.2	863	83.7	15681	11.9
	7	65.18	96.39	28733.0	834	80.5	15176	11.8
	8	63.91	96.21	34484.6	865	96.9	16006	11.3
	9	64.55	96.51	33236.8	869	88.5	15560	10.4
	10	63.14	96.41	28294.0	809	79.5	15013	11.1
	11	62.26	96.72	34327.0	930	98.0	17400	11.3
	12	62.16	96.68	34848.8	973	101.3	18354	11.7
	13	63.50	96.50	30214.6	819	81.8	14922	10.4
	14	61.99	96.28	33286.4	898	93.9	16954	10.7
	15	61.44	96.32	30666.8	853	87.6	16255	10.8
	16	62.04	96.46	31948.6	905	93.5	17231	11.7
	17	61.79	96.10	33519.2	946	96.0	18067	10.9
	18	62.04	96.21	31441.8	891	89.1	16872	10.8
	19	64.36	96.69	33319.4	870	92.0	15764	11.3
	20	63.00	96.39	30015.6	822	83.8	15253	10.9
	21	64.65	96.44	30265.2	846	84.0	15400	11.4
	22	61.69	96.16	34294.8	904	97.5	17200	10.7
	23	65.18	96.53	29232.0	881	77.0	15610	10.4
	24	62.05	96.47	33840.4	966	94.6	18083	10.6
	25	62.15	96.20	31307.8	880	91.2	16807	11.5
	26	65.13	96.36	27033.8	801	74.9	14525	11.5
	27	63.44	96.56	30518.6	823	83.6	15043	10.7
	28	63.57	96.55	30041.2	830	83.6	15247	11.1
	29	64.17	96.41	32420.2	875	89.2	15956	11.0
	30	63.63	96.36	29845.6	819	86.4	15324	12.0
	31	64.14	96.24	30573.6	849	82.0	15403	10.3
	32	63.89	96.45	31647.4	857	89.6	15830	11.6

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Dimension Specification (mm)	Specimen No	Mid-Span Width (mm)	Mid-Span Thickness (mm)	Ultimate Load (N)	P/Δ (N/mm)	12% MC Bending Strength (MPa)	12%MC MOE (MPa)	Moisture Content (%)
150×77	1	77.16	149.57	53771.4	1021	83.1	16503	11.7
	2	78.02	152.31	50088.8	955	73.6	14442	11.6
	3	78.17	152.44	56925.6	1049	84.2	15849	11.9
	4	79.19	151.21	50489.2	991	73.7	15055	11.5
	5	78.82	151.48	54488.4	1101	79.5	16706	11.4
	6	75.36	150.10	51160.6	953	80.0	15586	11.6
	7	77.82	151.54	46385.4	981	68.1	15019	11.3
	8	77.62	152.24	50192.2	944	74.4	14376	11.7
	9	76.55	150.23	57117.4	1021	87.8	16387	11.6
	10	78.76	151.89	50177.6	1034	70.1	15351	10.5
	11	77.75	151.53	46897.6	921	68.1	14053	11.0
	12	77.83	151.66	56140.4	969	78.9	14574	10.3
	13	77.99	152.03	50316.4	1005	73.3	15214	11.3
	14	79.81	152.01	51917.0	1004	73.9	14856	11.3
	15	78.21	150.16	57792.0	1061	84.9	16536	11.0
	16	77.90	151.20	56291.2	971	81.9	14887	11.0
	17	77.42	151.63	51894.2	981	78.1	15196	11.8
	18	78.38	150.79	53431.4	954	80.3	14839	11.8
	19	77.87	152.13	55472.6	957	78.5	14323	10.6
	20	78.22	150.72	51838.8	997	76.9	15469	11.4
	21	77.59	151.16	55488.2	978	80.1	15001	10.7
	22	77.84	151.15	56623.2	1007	82.9	15487	11.1
	23	78.19	150.27	50504.6	955	76.3	15012	11.7
	24	77.88	150.39	55392.0	971	83.9	15299	11.7
	25	77.94	151.30	51167.6	1009	73.7	15390	10.8
	26	78.57	151.29	56925.8	1006	81.4	15219	10.8
	27	78.41	150.34	51504.4	962	76.9	15018	11.5
	28	78.13	151.52	48065.6	997	68.9	15098	10.8
	29	78.66	150.31	55354.0	980	83.4	15337	11.8
	30	78.32	151.46	56993.8	1006	83.9	15380	11.5
	31	77.38	151.64	52511.4	972	75.2	14783	10.6
	32	79.23	150.30	54337.0	983	81.6	15293	11.9

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2. Beam Shear Strength

Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Shear Strength (MPa)	Moisture Content (%)
90×45 (On edge)	1	46.69	90.18	41999.0	7.3	11.3
	2	46.61	90.49	41328.8	7.0	10.6
	3	46.38	90.79	40843.6	7.0	10.9
	4	46.96	90.54	41506.2	7.3	11.7
	5	46.72	90.61	42005.0	7.0	10.2
	6	46.99	89.92	42472.6	7.2	10.7
	7	46.71	90.31	43594.4	7.3	10.1
	8	47.42	90.56	40543.6	7.0	11.5
	9	46.61	90.21	41927.4	7.3	11.4
	10	47.08	90.61	42091.2	7.1	10.5
	11	46.51	90.58	38868.8	6.6	10.5
	12	47.07	90.26	43177.4	7.6	12.0
	13	47.44	90.09	45428.0	7.5	10.2
	14	47.00	90.57	41003.8	7.0	10.9
	15	46.38	90.33	38096.2	6.5	10.2
	16	46.06	90.36	38541.4	6.8	11.5
	17	46.22	90.67	42969.4	7.4	10.7
	18	45.79	90.01	40794.2	7.0	10.3
	19	46.47	90.53	36532.6	6.5	11.9
	20	47.66	90.51	41717.2	7.2	11.8
	21	46.73	90.39	42233.8	7.1	10.1
	22	46.04	90.58	42719.0	7.6	11.7
	23	47.15	90.16	38872.8	6.6	10.8
	24	46.83	90.22	43651.4	7.3	10.1
	25	45.91	90.65	41324.2	7.4	11.7
	26	46.54	90.53	37028.6	6.4	11.1
	27	46.29	90.56	40617.8	7.1	11.4
	28	47.28	90.23	44477.0	7.8	12.0
	29	46.27	90.61	41914.2	7.4	11.7
	30	46.62	90.64	37772.8	6.4	10.6
	31	47.07	90.22	37413.2	6.3	10.5
	32	45.89	90.65	37460.0	6.6	11.0

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Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Shear Strength (MPa)	Moisture Content (%)
90×45 (On flat)	1	90.28	46.06	36787.0	6.5	11.1
	2	90.15	47.00	37010.4	6.6	12.0
	3	90.50	45.99	31264.6	5.5	11.2
	4	90.26	46.52	37782.6	6.6	11.1
	5	90.34	46.93	37999.6	6.3	10.1
	6	90.36	46.94	36630.8	6.3	11.3
	7	90.39	46.44	36650.4	6.2	10.4
	8	90.12	46.40	35651.6	6.1	10.5
	9	90.16	46.13	33638.0	5.8	10.3
	10	90.31	46.46	33153.0	5.9	11.9
	11	90.26	46.52	36300.0	6.3	11.2
	12	90.19	46.40	35048.8	6.1	11.2
	13	90.74	46.84	37209.6	6.4	11.0
	14	90.72	45.54	38072.2	6.7	11.2
	15	90.35	46.16	31634.8	5.7	11.8
	16	90.68	46.75	38459.0	6.4	10.2
	17	90.45	46.95	33602.2	5.8	11.3
	18	90.21	47.85	35528.6	6.1	11.4
	19	90.54	46.73	37817.4	6.6	11.6
	20	90.39	45.72	35830.6	6.3	11.0
	21	90.28	46.57	36630.2	6.4	11.3
	22	90.41	46.89	36249.0	6.3	11.6
	23	90.49	47.00	32086.0	5.3	10.1
	24	90.43	46.52	34983.4	6.2	11.9
	25	90.16	45.89	37785.8	6.6	10.9
	26	90.64	46.21	32031.6	5.6	11.0
	27	90.68	47.16	36774.4	6.2	10.6
	28	90.65	46.86	34527.8	5.8	10.5
	29	90.49	47.18	33360.6	5.9	12.0
	30	90.37	47.23	34112.8	5.9	11.3
	31	90.33	46.53	34006.6	6.0	11.8
	32	90.48	47.32	34412.4	5.7	10.3

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Report No.: HJ-QT-17465

Issue Date: Jan. 14th, 2022

Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Shear Strength (MPa)	Moisture Content (%)
95×65	1	63.73	96.25	57475.8	7.0	12.0
	2	63.02	96.79	61080.4	7.5	11.8
	3	61.68	96.06	65356.0	8.1	11.5
	4	65.09	96.61	60873.8	6.9	10.5
	5	64.11	96.70	57074.4	6.9	11.8
	6	63.72	96.14	62928.6	7.4	10.6
	7	63.27	96.85	58514.8	7.1	11.7
	8	62.15	96.33	66403.4	8.0	10.8
	9	64.96	96.46	57299.0	6.7	11.3
	10	65.29	96.58	62711.6	7.3	11.5
	11	62.15	96.30	64782.6	8.0	11.7
	12	62.43	96.22	68732.2	8.5	11.7
	13	65.05	96.73	63346.4	7.5	11.7
	14	62.68	96.65	64036.0	7.9	12.0
	15	64.92	96.53	65542.0	7.8	11.7
	16	62.98	96.18	65979.8	7.9	10.9
	17	64.73	96.57	58323.8	6.7	10.7
	18	65.55	96.48	57340.2	6.5	10.3
	19	65.05	96.80	60434.6	7.2	11.8
	20	65.12	96.77	63906.0	7.3	10.8
	21	65.09	96.65	60716.8	7.1	11.4
	22	64.34	96.77	62778.0	7.3	11.0
	23	62.77	96.63	62936.4	7.5	10.8
	24	62.13	96.25	63860.6	7.8	11.2
	25	62.48	96.74	66823.2	7.9	10.3
	26	63.63	96.79	61959.4	7.3	10.9
	27	62.45	96.79	61126.2	7.3	10.7
	28	65.08	96.41	58268.6	6.9	11.8
	29	63.99	96.32	60139.0	7.0	10.7
	30	62.32	96.74	64407.0	8.0	12.0
	31	63.82	96.58	60482.8	7.3	11.8
	32	63.79	96.26	66928.2	7.8	10.6

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Issue Date: Jan. 14th, 2022

Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Shear Strength (MPa)	Moisture Content (%)
150×77	1	76.64	151.32	87668.6	5.6	11.4
	2	77.62	150.65	94972.6	6.1	12.0
	3	78.21	151.21	95712.8	6.1	12.0
	4	78.42	151.21	94230.6	5.9	11.9
	5	77.51	151.25	97851.2	6.0	10.6
	6	77.74	151.47	97813.2	6.1	11.1
	7	77.34	151.09	91457.0	5.8	11.6
	8	78.33	151.71	100613.2	6.2	11.4
	9	78.46	151.64	97085.0	6.1	11.7
	10	77.20	150.95	90119.2	5.8	11.9
	11	78.73	152.04	91451.6	5.5	10.4
	12	77.43	152.29	96378.4	6.0	11.5
	13	78.55	151.37	100194.0	6.1	10.9
	14	78.69	152.26	92655.6	5.6	10.9
	15	78.25	152.23	90690.0	5.7	11.8
	16	78.53	151.13	102699.8	6.5	11.9
	17	78.17	151.34	98269.8	6.2	11.8
	18	77.81	151.51	91482.6	5.8	11.8
	19	78.12	152.20	97338.4	6.0	11.0
	20	78.05	150.85	93248.8	5.7	10.7
	21	78.29	151.05	102647.0	6.3	10.8
	22	78.21	151.10	99740.0	6.2	11.5
	23	77.68	151.10	97186.2	6.0	10.7
	24	77.56	152.04	95123.6	6.0	11.5
	25	77.15	150.89	91111.4	5.7	11.0
	26	77.17	150.71	97539.4	6.1	11.0
	27	77.53	151.29	93523.2	5.7	10.5
	28	77.62	152.22	93892.4	5.8	11.1
	29	77.10	151.03	88808.0	5.4	10.4
	30	77.26	151.18	101539.6	6.5	11.8
	31	77.74	151.15	96039.8	6.1	11.8
	32	77.78	151.22	102720.4	6.5	11.8

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3. Bearing Strength Perpendicular To Grain

Dimension Specification (mm)	Specimen No	Width (mm)	Load at 2.0 mm Deformation (N)	12% MC Bearing Strength (MPa)	Moisture Content (%)
90×45 (On edge)	1	47.07	28429.8	12.0	11.9
	2	46.42	33355.0	14.1	11.6
	3	46.44	35394.0	14.8	11.4
	4	47.01	34229.2	14.4	11.7
	5	46.38	36067.8	15.5	11.9
	6	45.97	31453.8	13.5	11.6
	7	46.58	40103.6	16.9	11.6
	8	47.12	33498.2	14.1	11.8
	9	45.88	32389.6	13.8	11.5
	10	46.02	34905.4	15.0	11.8
	11	46.09	33787.0	14.3	11.5
	12	46.22	35338.0	15.0	11.6
	13	46.75	36551.2	15.3	11.5
	14	46.59	36630.8	15.3	11.4
	15	46.75	32253.0	13.7	11.9
	16	45.72	35971.2	15.7	11.9
	17	46.53	34769.6	14.6	11.5
	18	46.50	33082.4	14.1	11.8
	19	46.96	31974.0	13.6	11.9
	20	46.30	34564.8	14.8	11.8
	21	46.60	39747.6	16.7	11.5
	22	46.40	34224.6	14.4	11.4
	23	46.30	37671.0	16.1	11.8
	24	46.10	34091.8	14.7	11.9
	25	45.90	35203.4	14.9	11.4
	26	46.00	36126.2	15.7	11.9
	27	47.10	35752.2	14.9	11.6
	28	46.70	39446.2	16.5	11.5
	29	46.50	34350.6	14.7	11.9
	30	47.00	35128.4	14.8	11.8
	31	46.90	32860.0	13.8	11.6
	32	46.20	37899.4	16.1	11.5

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Dimension Specification (mm)	Specimen No	Width (mm)	Load at 2.0 mm Deformation (N)	12% MC Bearing Strength (MPa)	Moisture Content (%)
90×45 (On flat)	1	50.04	21202.7	8.0	10.8
	2	49.63	17459.1	7.0	11.8
	3	50.16	19453.7	7.5	11.2
	4	53.13	16719.4	6.0	10.8
	5	49.85	17957.8	6.8	10.8
	6	52.47	19168.4	7.0	10.9
	7	49.49	20549.8	7.8	10.6
	8	50.10	21392.4	8.4	11.7
	9	50.43	21902.2	8.4	11.3
	10	50.21	19186.6	7.3	11.1
	11	50.11	19940.4	7.9	11.7
	12	50.13	19045.0	7.4	11.3
	13	49.75	20034.2	7.7	11.0
	14	50.13	20204.0	8.0	11.9
	15	50.33	20281.8	8.0	11.7
	16	49.40	15846.2	6.4	11.8
	17	50.09	19864.0	7.5	10.8
	18	49.51	19420.4	7.4	10.6
	19	50.03	21407.2	8.5	11.9
	20	52.65	21310.2	8.0	11.6
	21	51.30	16195.3	6.3	11.8
	22	51.00	20577.6	7.7	11.0
	23	51.70	16818.0	6.2	11.1
	24	51.10	17774.5	6.5	10.6
	25	50.00	19316.1	7.2	10.6
	26	49.80	18473.6	7.3	11.7
	27	53.00	18704.6	6.7	10.7
	28	49.60	16377.4	6.2	10.6
	29	49.50	18923.1	7.3	11.0
	30	50.80	18230.8	6.9	11.2
	31	51.80	16161.6	5.9	10.8
	32	50.70	18923.4	7.3	11.4

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Dimension Specification (mm)	Specimen No	Width (mm)	Load at 2.0 mm Deformation (N)	12% MC Bearing Strength (MPa)	Moisture Content (%)
95×65	1	61.12	41248.2	13.4	11.8
	2	61.05	40347.2	12.6	10.9
	3	61.08	46929.8	14.5	10.7
	4	65.66	43873.2	12.9	11.3
	5	60.26	40287.6	12.6	10.7
	6	58.92	37853.4	12.4	11.3
	7	63.81	43920.4	13.4	11.4
	8	60.88	42130.8	13.3	11.1
	9	60.58	43653.2	13.6	10.8
	10	61.39	46319.4	14.1	10.6
	11	62.23	41657.0	13.3	11.8
	12	65.72	32306.8	9.5	11.2
	13	63.54	32756.2	10.2	11.7
	14	62.87	36208.0	11.5	11.9
	15	61.50	36705.0	11.3	10.8
	16	65.55	39179.2	11.2	10.7
	17	65.76	43118.0	12.6	11.2
	18	64.45	42035.4	12.2	10.6
	19	62.04	44759.8	14.1	11.5
	20	59.92	40347.6	13.2	11.5
	21	61.90	33304.7	10.2	10.9
	22	64.20	38236.0	11.6	11.4
	23	62.70	40828.9	12.8	11.7
	24	60.60	36528.0	11.9	11.8
	25	64.40	42707.5	12.4	10.6
	26	63.60	38968.9	11.6	10.8
	27	60.50	35334.4	11.1	10.9
	28	60.40	34412.8	11.0	11.2
	29	64.60	37468.5	11.1	11.0
	30	60.30	43110.5	13.5	10.8
	31	64.50	42484.7	12.7	11.3
	32	65.70	43014.7	12.4	10.8

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Dimension Specification (mm)	Specimen No	Width (mm)	Load at 2.0 mm Deformation (N)	12% MC Bearing Strength (MPa)	Moisture Content (%)
150×77	1	80.15	46156.6	10.9	10.8
	2	81.59	35444.0	8.6	11.7
	3	80.10	46478.0	11.1	11.1
	4	81.18	48222.0	11.4	11.1
	5	80.35	43835.6	10.8	11.7
	6	80.01	47331.0	11.6	11.6
	7	79.89	49856.0	11.9	10.9
	8	80.01	48580.8	11.5	10.9
	9	80.32	43565.2	10.2	10.6
	10	75.70	42374.0	11.0	11.7
	11	81.06	49505.2	11.4	10.6
	12	80.45	49283.2	12.0	11.6
	13	80.21	46965.8	11.3	11.2
	14	80.80	42412.4	9.8	10.6
	15	81.23	39941.8	9.2	10.6
	16	79.57	47944.8	11.7	11.3
	17	80.17	45559.2	10.8	11.0
	18	80.18	42987.2	10.1	10.8
	19	74.25	43579.0	11.7	11.9
	20	79.79	48960.2	12.1	11.7
	21	77.62	45027.0	10.9	10.6
	22	78.10	45692.5	11.3	11.2
	23	76.29	45223.6	11.4	11.2
	24	80.44	39043.5	9.6	11.8
	25	74.86	49567.3	12.4	10.6
	26	74.42	42369.9	10.7	10.7
	27	80.19	37369.9	9.1	11.4
	28	78.45	44524.6	10.8	11.0
	29	76.28	46389.8	11.4	10.6
	30	75.00	47007.8	12.2	11.4
	31	76.33	48616.6	12.1	10.9
	32	80.57	40410.3	9.8	11.6

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4. Tension Strength Parallel to Grain

Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Tension Strength (MPa)	Moisture Content (%)
90×45	1	90.62	45.79	263036.2	61.6	10.1
	2	90.62	46.40	246777.8	57.5	10.6
	3	90.57	45.41	253594.2	60.3	10.5
	4	90.83	45.51	259429.4	61.3	10.5
	5	90.72	45.61	246774.8	59.1	11.4
	6	90.83	45.70	265991.8	63.1	11.0
	7	90.62	47.05	251556.6	59.0	12.0
	8	90.81	46.38	256117.6	59.9	11.0
	9	90.45	46.00	250390.2	59.3	11.0
	10	90.67	46.22	264730.8	62.9	11.7
	11	90.48	46.16	246500.4	58.1	11.0
	12	90.10	45.67	243312.0	58.2	11.0
	13	90.64	46.00	239034.0	56.1	10.6
	14	90.61	46.35	267147.6	63.0	11.4
	15	90.24	45.95	268819.4	63.4	10.5
	16	90.53	46.68	241639.2	55.6	10.1
	17	90.12	46.79	246467.0	57.7	11.2
	18	90.61	46.74	269226.0	61.9	10.2
	19	90.45	46.17	238829.8	57.3	12.1
	20	90.15	46.34	266318.8	62.6	10.8
	21	90.75	46.21	268345.6	64.1	12.1
	22	90.35	46.99	247345.4	56.9	10.5
	23	90.38	46.22	271069.0	64.2	11.3
	24	90.62	45.88	258813.4	60.8	10.5
	25	90.32	45.82	268379.2	64.2	11.3
	26	90.50	46.82	248215.8	57.1	10.3
	27	90.44	46.53	251564.6	58.7	10.8
	28	90.21	46.05	237493.4	56.3	11.0
	29	90.45	45.84	236666.6	56.3	11.1
	30	90.51	46.76	261933.8	61.4	11.5
	31	90.58	46.02	252277.0	60.1	11.5
	32	90.61	47.18	252138.2	57.8	10.7

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5. Compression Strength Parallel to Grain




Dimension Specification (mm)	Specimen No	Width (mm)	Thickness (mm)	Ultimate Load (N)	12% MC Compression Strength (MPa)	Moisture Content (%)
90×45	1	90.81	47.12	253450.0	58.9	11.9
	2	90.43	45.31	265487.8	62.2	11.2
	3	90.43	45.33	271816.2	64.3	11.4
	4	90.85	46.77	228319.0	50.8	10.9
	5	90.29	47.84	254318.8	53.3	10.1
	6	90.83	47.46	254238.4	54.3	10.4
	7	90.54	47.38	256165.6	54.3	10.2
	8	90.63	46.53	263697.8	59.7	11.1
	9	90.68	46.88	248505.2	52.9	10.1
	10	90.67	47.17	260585.8	56.7	10.6
	11	90.26	45.40	266696.2	63.5	11.5
	12	90.22	46.60	253370.6	55.1	10.3
	13	90.27	46.05	249592.2	55.8	10.6
	14	90.17	45.45	247551.2	55.9	10.5
	15	90.47	46.41	241233.0	52.6	10.3
	16	90.75	45.64	249556.8	59.0	11.6
	17	90.72	45.66	243532.8	55.9	11.0
	18	90.64	46.66	238758.8	51.9	10.4
	19	90.25	46.36	265451.0	59.3	10.7
	20	90.55	46.12	261393.6	56.6	10.1
	21	90.47	46.11	243887.2	56.4	11.3
	22	90.75	45.50	238214.6	52.5	10.2
	23	90.24	46.81	240606.2	54.1	11.0
	24	90.74	47.20	243007.0	51.3	10.1
	25	90.79	46.14	250767.8	56.9	11.0
	26	90.37	45.43	251480.8	58.2	11.0
	27	90.83	46.70	260943.0	58.4	11.0
	28	90.49	46.15	234176.0	55.2	11.7
	29	90.63	46.18	262684.8	58.1	10.5
	30	90.22	47.18	267147.4	58.7	10.7
	31	90.28	45.74	264546.0	60.9	11.0
	32	90.22	45.82	262480.4	63.5	12.0

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Appendix II – Typical Sample Photos

	
Beam Shear Strength Test Specimen	Bearing Strength Test Specimen
	
Bending Properties Test Specimen	

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