



**PERFORMANCE EVALUATION TEST REPORT**

**Rendered to:**

**MADERA PRODUCTS LLC**

**PRODUCT: TimberSIL Lumber Cross Arm Product**

**Report No: A4658.01-106-31**  
**Report Date: 10/29/10**  
**Expiration Date: 10/11/14**

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Rendered to:

MADERA PRODUCTS LLC  
1681 Valley Road  
Schellsburg, Pennsylvania 15559

Report No:A4658.01-106-31  
Test Dates: 10/11/10  
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**Product:** TimberSIL Lumber Cross Arm Product

**Project Summary:** Architectural Testing, Inc. was contracted by Madera Products LLC to perform testing and evaluation services for flexural properties of TimberSIL lumber cross arm product. This report details the procedures employed and results of the evaluation.

**Test Methods:** The test specimen was evaluated in accordance with ASTM D 198-09, *Standard Test Methods of Static Tests of Lumber in Structural Sizes*.

**Test Procedures:** Testing was performed on materials which were provided by Madera Products LLC in ready to test condition. These test samples were represented to have been southern yellow pine cross arms, manufactured to ANSI 05.3 standards. Madera randomly selected ten arms, divided into two groups of five, for this testing. One group of five arms was randomly chosen for the TimberSIL process, the other group of five arms was the control set.

Five lumber cross arm specimens (nominal dimensions 96.25 in. x 3.50 in. x 4.50 in.) were evaluated for both the control series and TimberSIL test series in accordance with the procedures detailed in ASTM D 198, Section 4. Each specimen was supported with the top face oriented downwards on two 0.5 in. thick, 3.0 in. wide steel bearing plates at a span of 86.0 in. on the test stage of a SATEC 50 UD Universal Testing Machine (ICN Y002011) and compressive load was applied through two 0.5 in. thick, 3.0 in. wide steel bearing plates at a span of 24.0 in. and at a loading rate of 0.75 in/min. Both initial failure load (first localized peak) and ultimate failure load were recorded for calculation of corresponding Modulus of Rupture.

**Test Results:** The results are reported in the following table.

ASTM D 198, Section 4 - Flexure								
Specimen			Support Span (in)	Initial Failure		Ultimate Failure		Modulus of Elasticity (psi)
Series	No.	Mass (lb)		Load (lb <sub>f</sub> )	Modulus of Rupture (psi)	Load (lb <sub>f</sub> )	Modulus of Rupture (psi)	
<b>Control</b>	<b>C-1</b>	33.3	86.0	6,905	9,060	7,411	9,724	1,534,751
	<b>C-2</b>	33.0		6,928	9,091	6,928	9,091	1,977,279
	<b>C-3</b>	33.2		6,027	7,908	6,184	8,115	1,322,692
	<b>C-4</b>	30.2		5,364	7,039	5,447	7,147	1,667,489
	<b>C-5</b>	38.4		7,661	10,053	7,661	10,053	1,392,835
	<b>Mean</b>	<b>33.6</b>	<b>86.0</b>	<b>6,577</b>	<b>8,630</b>	<b>6,726</b>	<b>8,826</b>	<b>1,579,009</b>
<b>Test</b>	<b>T-1</b>	36.1	86.0	9,174	12,038	9,174	12,038	2,452,997
	<b>T-2</b>	33.6		7,429	9,748	7,615	9,992	2,122,011
	<b>T-3</b>	35.2		7,702	10,106	7,998	10,494	1,907,932
	<b>T-4</b>	33.0		6,833	8,966	6,833	8,966	1,541,338
	<b>T-5</b>	38.2		6,216	8,156	6,216	8,156	2,182,583
	<b>Mean</b>	<b>35.2</b>	<b>86.0</b>	<b>7,471</b>	<b>9,803</b>	<b>7,567</b>	<b>9,929</b>	<b>2,041,372</b>

**Witnesses:**

Name

Tom Young, V.P. - Technical Sales  
Ryan Young - Sales Engineer  
Gary Hartman, P.E.  
Scott Scallorn

Company

Madera Products, LLC  
Madera Products, LLC  
Architectural Testing, Inc.  
Architectural Testing, Inc.

Data sheets, representative samples of test specimens, a copy of this test report will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period such materials shall be discarded without notice and the service life of this report by Architectural Testing will expire. Results obtained are tested values and were secured using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

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Scott D. Scallorn - Technician I  
Components / Materials Testing

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Gary Hartman, P.E. - Director  
Components / Materials Testing

SDS:sds/nlb

Attachments (pages) This report is complete only when all attachments listed are included.  
Appendix A - Photographs (6)

### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	10/29/10	N/A	Original report issue.

**APPENDIX A**

**Photographs**



**Photo No. 1**  
**Flexural Evaluation Test Setup**



**Photo No. 2**  
**Typical Specimen End Support Detail**



**Photo No. 3**  
**Typical Specimen Loading Detail**



**Photo No. 4**  
**Deflection Measurement Apparatus**



**Photo No. 5**  
**Typical Control Series Specimen at Initial Failure Load**



**Photo No. 6**  
**Typical Control Series Specimen at Ultimate Failure Condition**



**Photo No. 7**  
**Typical Control Series Specimen at Ultimate Failure Condition Detail**



**Photo No. 8**  
**TimberSIL Test Series Specimen at Initial Failure Load**



**Photo No. 9**  
**TimberSIL Test Series Specimen at Ultimate Failure Condition**



**Photo No. 10**  
**TimberSIL Test Series Specimen at Ultimate Failure Condition Detail**