



# TIMBER TECHNOLOGIES LLC

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## Ten specimen head to head comparison between Titan Timber Glue Laminated Columns and Nailed / Finger Jointed Columns

### Timber Technologies Columns

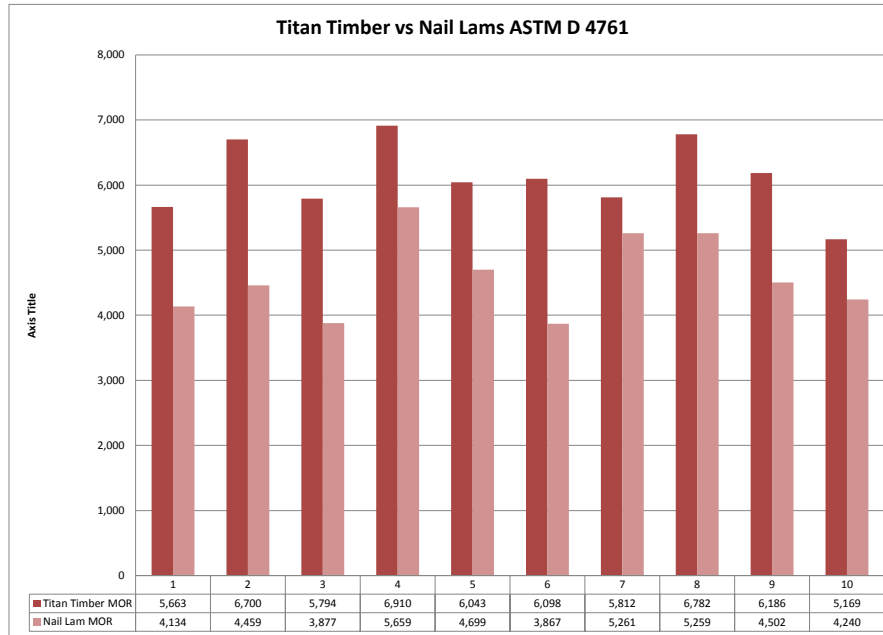
3-ply 2x6 1650Fb-1.5E/SPF and #1 (4.125"x5.375"x102")										09/30/13
Specimen ID	h (in.)	b (in.)	L (in.)	a (in.)	P <sub>ult</sub> (lbf)	θ (lbf/in.)	MOR (psi)	MOR <sub>adi</sub> <sup>(a)</sup> (psi)	MOE (10 <sup>6</sup> psi)	
1	5.391	4.166	102	36	6,939		6,190	5,663		
2	5.385	4.152	102	36	8,165		7,324	6,700		
3	5.382	4.161	102	36	7,068		6,333	5,794		
4	5.367	4.160	102	36	8,384		7,556	6,910		
5	5.338	4.159	102	36	7,255		6,612	6,043		
6	5.370	4.159	102	36	7,404		6,667	6,098		
7	5.370	4.159	102	36	7,057		6,355	5,812		
8	5.370	4.159	102	36	8,235		7,416	6,782		
9	5.370	4.159	102	36	7,512		6,765	6,186		
10	5.370	4.159	102	36	6,277		5,652	5,169		
Total no. of observations							10	10		
Mean							6,687	6,116		
COV (%)							9.0	9.0		
Maximum							7,556	6,910		
Minimum							5,652	5,169		
K								2.104		
Lower tolerance limit (LTL)								4,958		
NPE/2.1								2,697		
LTL/2.1 (Normal)								2,361	Fb	
Targeted value								1,900	Fb	

<sup>(a)</sup> Adjusted MOR to standard beam depth.

### Competitor column with Structural finger joint and nail laminated .

3-ply 2x6 1650Fb-1.5E/SPF and M-29 (4.5"x5.5"x102")										09/30/13
Specimen ID	h (in.)	b (in.)	L (in.)	a (in.)	P <sub>ult</sub> (lbf)	θ (lbf/in.)	MOR (psi)	MOR <sub>adi</sub> <sup>(a)</sup> (psi)	MOE (10 <sup>6</sup> psi)	
1	5.488	4.582	102	36	5,762		4,509	4,134		0.00
2	5.464	4.555	102	36	6,127		4,866	4,459		
3	5.495	4.560	102	36	5,391		4,229	3,877		
4	5.495	4.560	102	36	7,869		6,172	5,659		
5	5.495	4.560	102	36	6,534		5,125	4,699		
6	5.495	4.560	102	36	5,377		4,218	3,867		
7	5.495	4.560	102	36	7,315		5,738	5,261		
8	5.475	4.562	102	36	7,266		5,738	5,259		
9	5.458	4.55	102	36	6,167		4,914	4,502		
10	5.590	4.551	102	36	6,078		4,616	4,240		
Total no. of observations							10	10		
Mean							5,012	4,596		
COV (%)							13.5	13.5		
Maximum							6,172	5,659		
Minimum							4,218	3,867		
K								2.104		
Lower tolerance limit (LTL)								3,295		
NPE/2.1								1,846		
LTL/2.1 (Normal)								1,569	Fb	
Claimed Value***								1,782	Fb	

\*\*Bending Value (Fb) of M-29 Southern Yellow Pine times the repetitive member factor of 1.15 from the NDS  
= 1550 \* 1.15



### What can be determined from the data:

Titan Timbers tested approximately 33% stronger than the nail laminated competitor.

Titan Timbers tested 19% stronger than what they report.

The competitors nail laminated product tested 12% weaker than what they report.