



# PIN-LOK 2.0E SCAFFOLD PLANK



## Strength in Reserve

Developed after years of study and testing, Indian Mill's Pin-Lok 2.0E Scaffold Planking was designed to be the strongest, safest, most durable plank on the market.

In our patented Pin-Lok process, multiple structural members of Dense Select Grade Southern Yellow Pine or Douglas Fir lumber are milled to size. The center structural member is sealed to keep out moisture and job-site chemicals. Heat-treated twist steel pins are then inserted every 22 inches along the plank's length to bond the separate pieces into a single solid unit. The resulting planking is stronger, more resistant to moisture and chemicals, and safer in an overload situation than standard DI-65 or laminated scaffold planking.

In tests conducted at our facilities, at Texas A&M and Purdue Universities, the resulting plank resists point, center and shock loads which destroyed standard DI65 and high-grade laminated wood planking.

## Built In Safety

In a situation where the plank is damaged or grossly overloaded, the center section of the plank is designed to break first, giving an audible and visible warning. At that point the plank is damaged but complete failure has not occurred and workers have time to safely exit the scaffold. Other types of planks lack this feature and can fail catastrophically with little or no visible warning causing serious fall hazards for workers and bystanders.

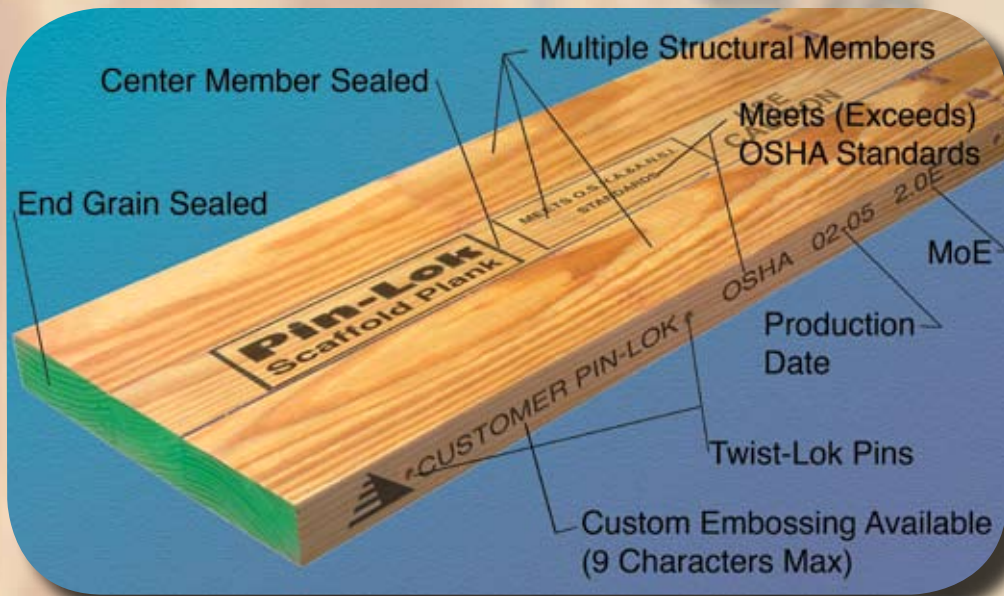
Due to the insertion of twist-lok pins over the entire length of the plank they are extremely resistant to warping and cupping compared to standard wood planking. They are also quick to dry due to the sealed center member. We offer optional custom embossing and custom branding so that you can keep your inventory sorted at the job site, and planks can be manufactured to standard or custom lengths to meet your individual needs.



## Reserve Strength Defined

The picture above was taken from one of our testing videos, and shows four men jumping on a Pin-Lok plank after the center section was broken in destructive testing. In the same series of tests, both LVL and standard DI-65 planks broke at much lower loads and lost all load holding capability.

The plank pictured withstood 2950 pounds of load. At that point, the center section of the plank broke. This feature of the Pin-Lok design gives a visual and audible indication that the plank has been overloaded, and needs to be taken out of service, but at this point the plank has not failed completely. The reserve strength of the plank easily supports both the weight of the four men and the shock loads from their jumping up and down. This extra margin of safety is an integral part of the Pin-Lok design giving a much greater safety margin than traditional wood planking.



The Unique and Patented design of the Indian Mill Pin-Lok Scaffold Plank combines multiple structural members of Dense Select Grade wood in a manner engineered to create a plank stronger, safer and more resistant to point and shock loading than a regular solid wood plank.

### Center Point Load Test (Non-Destructive)

The center of a scaffold plank is the area of greatest stress when loaded, since this is the point usually farthest from the support structure. Loading in the center will stress the plank more severely than any other point, so all load testing is done at or near the center.

### Shock Test (Destructive)

Shock loading is destructive testing used to determine overall product strength and safety. This test is done by dropping a 300 pound steel cylinder from increasing heights until a plank fails. Shock testing can be used to determine a planks ability to handle shear stress, vibration, and sudden impact. Because the cylinder is dropped repeatedly in the same area of the plank, it also provides a measure of how well the plank will withstand repeated abuse.

### Pin-Lok Test Results vs Standard Planking

In tests conducted at Purdue University,

impact testing was performed on several types of scaffold planking. During the

tests, a 300 pound cylinder was dropped onto the center of 7 foot spans of scaffold planking until they failed. If the plank survived, the cylinder was raised an additional 3 inches and dropped again.

This is how Indian Mill Pin-Lok planking stood up against some of the others:  
(All testing performed on a 7 foot span plank.)

Plank	Failed	# Drops	Max Load	Reserve
LVL	3"	2	1189 lbs	None
DI-65	6"	3	1790 lbs	None
Pin-Lok	27"	10	3795 lbs	*1 Man

\* The Pin-Lok could have supported more, but was not tested with more than one man standing on it after failure.

### Design Properties

- Plank Thickness - 1 1/2 inches
- Flexural Stress  $F_b$  - 2900 psi
- Modulus of Elasticity -  $2.00 \times 10^6$  psi
- Horizontal Shear Stress  $F_v$  - 120
- Coefficient of Variation (MOR) - 10%

- 1) The design properties are applicable when the moisture content is below 19%.
- 2) If the moisture content exceeds 19%, the design properties must be multiplied by 0.8.
- 3) The design properties are based on "flat" plank orientation.
- 4) Fastener values for scaffold planks shall use SPF lumber values.
- 5) All values are based on a 4 to 1 safety factor as defined by OSHA.

### Pin-Lok Span Tables (U.S.)

Spans	Live Loading 1 1/2" x 9 1/4"	
	Single Span	Two Equal
50 psf	10'3"	10'9"
75 psf	9'0"	9'6"
1-person	10'3"	10'9"
2-person	8'4"	8'10"
3-person	6'0"	6'6"

- 1) Spans are center-to-center of scaffold supports.
- 2) Deflections are limited to L/60 per OSHA requirements.
- 3) The "Person" load is defined in ANSI 10.8 as a 200 pound person with 50 pounds of equipment.  
The "1-person" load is applied at mid-span.  
The "2-person" load is applied with a "person" load placed 18" to either side of mid-span.  
The "3-person" load is applied with a "person" load at mid-span and a "person" load 18" to either side of mid-span.
- 4) For other span information contact Indian Mill

### Cautions

- Planks must be stacked so as to allow air to circulate on all sides and kept dry when stored.
- Scaffold planks which have been exposed to chemicals should be removed from service and re-evaluated before reuse.
- Obtain MSDS sheets for any chemicals likely to come in contact with scaffold planks.
- Do not overload scaffold planks. If planks are overloaded, they must be removed from service and tested before reuse.
- Notching scaffold planks is not recommended.



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