

# SOUTHERN PINE TONGUE AND GROOVE DECKING



**S.I. Storey**  
LUMBER COMPANY, INC.

*~ Since 1920 ~*

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# S.I. Storey Lumber Company

## Tongue and Groove

### Southern Pine Decking

#### Scope

Southern pine decking is produced by S.I. Storey Lumber Co., in 2", 3" and 4" thicknesses in accordance with the recommendations of the American Institute of Timber Construction. It is graded in accordance with the latest edition of the Southern Pine Inspection Bureau grading rules. This decking can also be pressure treated with Osiose NatureWood® ACQ preservative to provide longer life when exposed to conditions which can accelerate decay and permit insect attack.

#### Specifications

Roof decking is southern pine as manufactured by S.I. Storey Lumber Co., Inc. It is nominal 2 x 6, 3 x 6, or 4 x 6 in #1 or #2 grade and kiln dried. Maximum moisture content is 19% for 2 x 6, 3 x 6 and 4 x 6. Decking is machined to a single or double tongue and groove EVIS pattern. (See figures 1 and 2)

#### Lengths

Decking pieces may be of specified length or random length. All layout arrangements except controlled random layout require that the specifier indicate the required lengths. If pieces are for controlled random layout, odd or even lengths 4' to 16' are permitted and they will be end matched. The minimum lengths based on fbm percentages shall be as follows:

##### ***Two inch decking:***

- \* Not less than 40% to be 14' and longer
- \* Not more than 10% to be less than 10'
- \* Not more than 1 % to be 4' to 5'
- \* Minimum length is limited to 75% of the span length as provided by the customer

##### ***Three inch decking:***

- \* Not less than 40% to be 14' and longer with at least 20% equal to or greater in length than the maximum span as provided by the customer
- \* Not more than 10% to be less than 10'
- \* Not more than 1 % to be 4' to 5'

##### ***Four inch decking:***

- \* Not less than 25% to be 16' and longer with at least 20% equal to or greater in length than the maximum span as provided by the customer
- \* Not less than 50% to be 15' and longer
- \* Not more than 10% to be 5' to 10'
- \* Not more than 1 % to be 4' to 5'

#### Prefinishing

Factory staining is available if desired. Prefinishing assures a more economical and complete stain application compared with on-site staining. Actual stain samples will be submitted for approval. It should be noted that wood is a natural product with many variations in grain, texture and color. Since all of these affect the appearance of the finished product we cannot guarantee the samples submitted will be an exact replication of the total line production. (Please reference "Prefinishing Policy".)

#### Field Handling and Storage

Proper field handling and storage helps to ensure a precise fit of the decking. The bundles should remain banded until ready for use. If it is not possible to store decking materials under a shelter, then they should be kept covered securely with tarpaulins until needed. Stack and separate individual bundles on timber skids with a sufficient length to extend fully across the bundle. It is recommended that skids be placed no more than four feet apart along the length of the bundle. Limit the height of stacks to no more than three bundles, using care to place the longest length bundles on the bottom. Following these steps will minimize distortion of decking prior to installation.

#### Application

Tongue and groove wood decking should be installed with the tongue up on sloped roofs and outward in direction of laying on flat roofs. Pattern faces should be down and exposed on the underside. Each piece of 2" thick decking should be toenailed through the tongue and face nailed with one 16d common nail per support. Each piece of 3" and 4" thick decking should be toenailed at each support with one 40d nail and face nailed with one 60d nail. Courses should be spiked to each other with 8" spikes at intervals not to exceed 30" through predrilled edge holes and with one spike not to exceed 10" from each end of each piece.

Decking may be installed in any of the following patterns:

#### **1. Simple Span**

All pieces are fully supported on a minimum of two supports. (Figure 3)

#### **2. Controlled Random Layout**

This arrangement is applicable to 4 or more supports. Joints in the same general line (within 6 inches of being in line each way) must be separated by at least two intervening courses. In the end bays each piece must rest on at least one support and must continue over the first inner support for at least 2 feet. (Figure 4)

a. For 2" decking there must be a minimum distance of 2 feet between end joints in adjacent courses. To provide lateral restraint for the supporting member, the pieces in at least the first and second courses must bear on at least two supports with end joints in these two courses occurring in alternate supports. This pattern must be repeated at a maximum of every seven intervening courses. If another provision, such as plywood overlayment, is made to provide continuity, this pattern is not required.

b. For 3" and 4" decking in the interior bays, occasional pieces not resting on a support may occur provided the ends of the adjacent pieces in the same course are continued for at least 2 feet over the next support. This condition must not occur more than once every 6 courses in each interior bay. There must be a minimum distance of 4 feet between end joints in adjacent courses.

(Note: For Load and Span conversions, see Figures 5 and 6.)

#### Conversion Factors

To convert square footage to board footage, multiply the square footage needed by the following factors:

2x6 ... 2.40 3x6... 3.43 4x6... 4.58

Factors are exact and do not include any allowances.

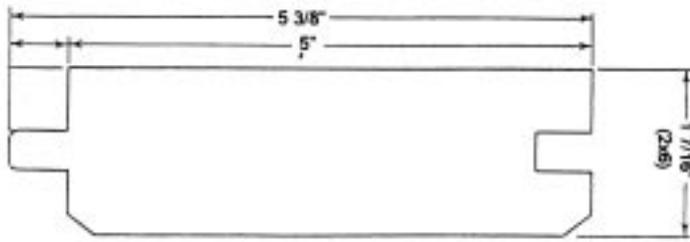
#### Weights

Approximate weight of installed decking in pounds per square foot of roof surface:

2 x 6 . . . . . 4.5 lbs./sq. ft.  
3 x 6 . . . . . 7.6 lbs./sq. ft.  
4 x 6 . . . . . 10.7 lbs./sq. ft.

### Single T&G EVIS

Figure 1



### Double T&G EVIS

Figure 2

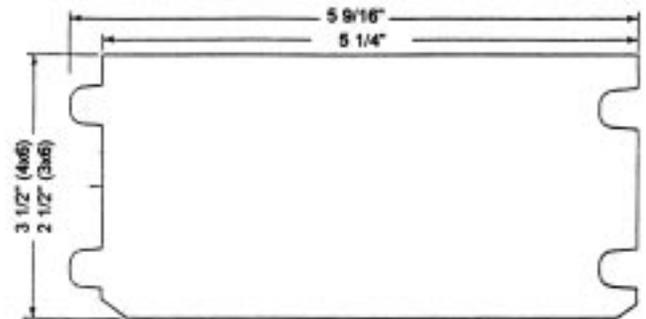


Figure 3

Simple Span - all pieces bear on two supports

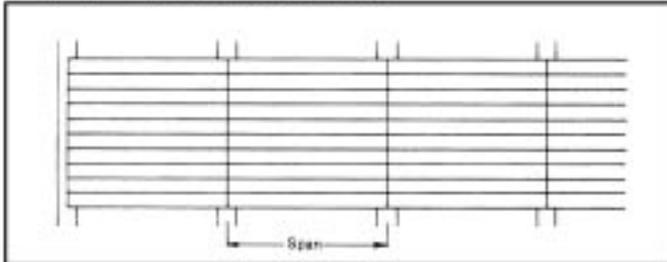


Figure 4

Controlled Random Layup

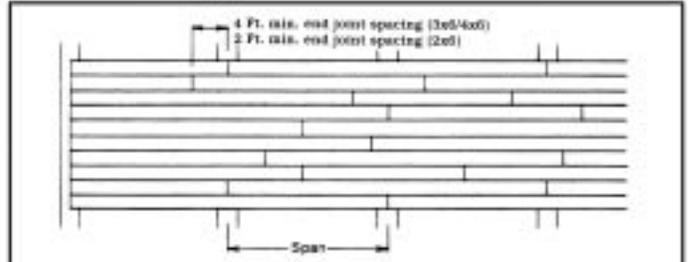


Figure 5

**LOAD CONVERSION.** Example: 60 psf live load and 10 psf dead load on 10 in 12 slope. Step 1: 60 psf live load on horizontal projection equals 46 psf of roof surface area vertical load on 10 in 12 roof slope. Step 2: 10 psf of

roof surface area dead load plus 46 psf of roof surface area live load equals 56 psf of roof surface area vertical total load equals 43 psf normal to roof causing bending and deflection.

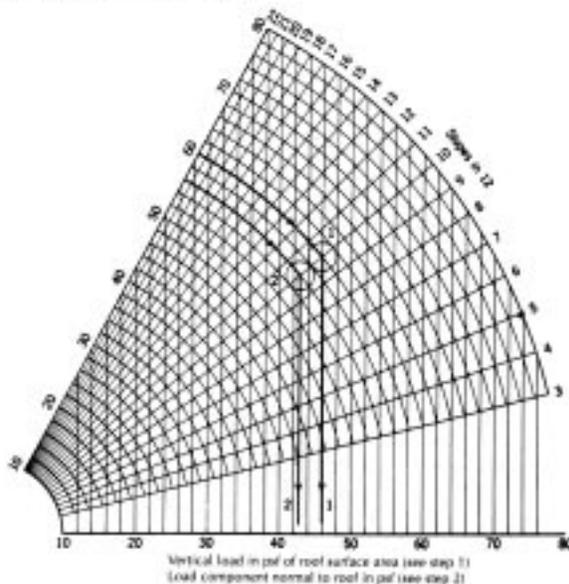
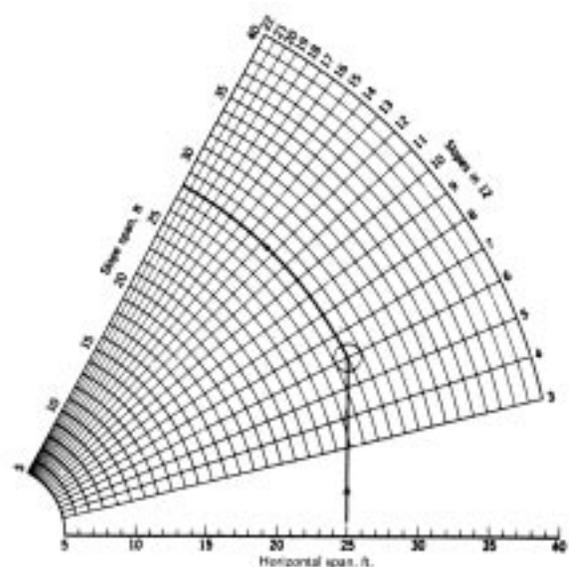


Figure 6

**SPAN CONVERSION.** Example: 25 ft. horizontal span equals 28 ft. slope span when slope is 6 in 12.



## Allowable Loads

Allowable loads may be determined by using Tables 1 through 5 under the correct bending stress and modulus of elasticity values, and then using the

lower of the tabulated load values for the nominal thickness and span under consideration. The loads given are for simple span and controlled random layup. Dry conditions of use are

assumed. For more loading information refer to the AITC Standard 112-93. (Note: Roof load includes weight of decking material.)

Southern Pine Decking Design Values  
Material 6" wide Single or Double Tongue and Groove  
Maximum 19% Moisture Content - 2", 3", & 4" Nominal Thickness

Grade	Bending Stress Fb PSI	Modulus of Elasticity PSI
#2	1400	1,600,000
#1	1650	1,700,000

**Table #1**

Two Inch Nominal Thickness Allowable Roof Load Limited by Bending  
Allowable Uniformly Distributed Total Roof Load, PSF

Grade	Simple Span Ft.			Controlled Random Layup Span, Ft.			
	6	7	8	6	7	8	9
#2	107	78	60	89	65	50	39
#1	126	92	70	104	77	58	46

**Table #2**

Two Inch Nominal Thickness Allowable Roof Load Limited by Deflection  
Allowable Uniformly Distributed Total Roof Load, PSF

Grade	Deflection Limit	Simple Span, Ft.			Controlled Random Layup Span, Ft.			
		6	7	8	6	7	8	9
#2	L/180	65	41	27	84	53	36	24
	L/240	49	30	20	63	40	26	18
#1	L/180	69	44	29	89	56	37	26
	L/240	51	32	22	67	42	28	20

**Table #3**

Three and Four Inch Nominal Thickness  
Allowable Roof Load Limited by Bending  
Simple Span and Controlled Random Layups (3 or more spans)  
Allowable Uniformly Distributed Total Roof Load, PSF

Grade	3" Nominal Thickness, Span, Ft.								4" Nominal Thickness, Span, Ft.							
	8	9	10	11	12	13	14	8	9	10	11	12	13	14	15	16
#2	182	144	117	96	81	69	60	357	282	229	189	159	135	117	102	89
#1	215	170	138	114	95	81	70	421	333	270	223	187	159	138	120	105

**Table #4**

Three and Four Inch Nominal Thickness  
Allowable Roof Load Limited by Deflection  
Simple Span Layup

Grade	Deflection Limit	Allowable Uniformly Distributed Total Roof Load, PSF 3" Nominal Thickness, Span, Ft.									
		8	9	10	11	12	13	14	15	16	
#2	L/180	145	102	74	56	43	34	27	22	18	
	L/240	109	76	56	42	32	25	20	16	14	
#1	L/180	154	108	79	59	46	36	29	23	19	
	L/240	115	81	59	44	34	27	22	17	14	
Grade	Deflection Limit	Allowable Uniformly Distributed Total Roof Load, PSF 4" Nominal Thickness, Span, Ft.									
		8	9	10	11	12	13	14	15	16	
#2	L/180	397	279	203	153	118	93	74	60	50	
	L/240	298	209	152	115	88	69	56	45	37	
#1	L/180	422	296	216	162	125	98	79	64	53	
	L/240	316	222	162	122	94	74	59	48	40	

**Table #5**

Three and Four Inch Nominal Thickness  
Allowable Roof Load Limited by Deflection  
Controlled Random Layup (3 or more spans)

Grade	Deflection Limit	Allowable Uniformly Distributed Total Roof Load, PSF 3" Nominal Thickness, Span, Ft.									
		8	9	10	11	12	13	14			
#2	L/180	218	153	112	84	65	51	41			
	L/240	164	115	84	63	49	38	31			
#1	L/180	232	163	119	89	69	54	43			
	L/240	174	122	89	67	52	41	32			
Grade	Deflection Limit	Allowable Uniformly Distributed Total Roof Load, PSF 4" Nominal Thickness, Span, Ft.									
		8	9	10	11	12	13	14	15	16	
#2	L/180	599	421	307	230	178	140	112	91	75	
	L/240	449	316	230	173	133	105	84	68	56	
#1	L/180	636	447	326	245	189	148	119	97	80	
	L/240	478	335	245	184	142	111	89	72	60	