



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

WASHINGTON, DC 20410-8000

DEC 16 2014

OFFICE OF HOUSING

Manufactured Housing Consensus Committee

Dear Committee Member:

This is in further follow-up to my letter of April 10, 2014, and our earlier letters of December 11, 2013 and November 27, 2012, to the Manufactured Housing Consensus Committee (MHCC) concerning reductions in design values for Southern Pine Lumber (SPL) which is used in the construction of manufactured homes.

These changes in design values were previously issued as a March 2012 Addendum for certain sizes and species of SPL and later updated in a March 2013 Addendum to the 2001 edition of the National Design Specification for Wood Construction (NDS) to include all sizes and species of SPL. The NDS is incorporated by reference in 24 CFR 3280.304 of the Manufactured Home Construction and Safety Standards.

Initially, HUD intended to make these reduced design values effective on January 1, 2013. However, after receiving a recommendation from the MHCC at the October 2012 meeting to further delay implementation of the NDS 2012 Addendum, until it could be formally presented to the MHCC for its review, HUD elected to delay enforcement of the reduced design values until January 1, 2014, as further changes to the published Southern Pine design values were anticipated. This issue was again discussed at the recent December 2014 meeting of the MHCC during which the MHCC recommended that HUD further delay implementation and enforcement of the reduced design values.

Based on that recommendation, HUD has decided to further delay the effective date of these new design values until 6 months after the full MHCC has had a chance to review and take action on the revised Southern Yellow Pine Values. This delay will provide the MHCC with an opportunity to review all of the changes and provide its recommendations to the Secretary. A copy of the March 2013 Addendum is enclosed for your review and consideration.

If you have any additional comments or questions, please contact me at (202) 402-7112.

Sincerely,

A handwritten signature in black ink, appearing to read "Pamela Beck Danner".

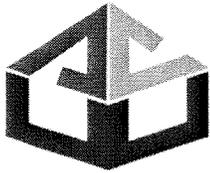
Pamela Beck Danner

Administrator

Office of Manufactured Housing Programs

Enclosure

cc: All Primary Inspection Agencies (PIAs)
All State Administrative Agencies (SAAs)



ADDENDUM
to the 2012 and previous versions of the
Design Values for Wood Construction

(a supplement to the National Design Specification® (NDS®) for Wood Construction)

Effective June 1, 2013, design values for all grades of visually-graded Southern Pine and Mixed Southern Pine lumber, 2" - 4" thick will change. The design values to use with the 2012 NDS, 2005 NDS, and the 2001 NDS are shown below (values that will change on June 1, 2013 are shown as underlined). These values supersede values published in the AWC March 2012 Addendum.

Table 4B Reference Design Values for Visually Graded Southern Pine Dimension Lumber (2" - 4" thick)^{1,2,3,4,5} (Tabulated design values are for normal load duration and dry service conditions, unless specified otherwise. See NDS 4.3 for a comprehensive description of design value adjustment factors.)

USE WITH TABLE 4B ADJUSTMENT FACTORS

Species and commercial grade	Size classification	Design values in pounds per square inch (psi)						Modulus of Elasticity	Specific Gravity ⁶	Grading Rules Agency
		Bending	Tension parallel to grain	Shear parallel to grain	Compression perpendicular to grain	Compression parallel to grain				
		F _b	F _t	F _v	F _{c⊥}	F _c	E			
SOUTHERN PINE										
Dense Select Structural	2" - 4" wide	<u>2,700</u>	<u>1,900</u>	175	660	<u>2,050</u>	1,900,000	690,000	0.55	SPIB
Select Structural Non-Dense		<u>2,350</u>	<u>1,650</u>	175	565	<u>1,900</u>	1,800,000	660,000		
Select Structural No.1 Dense		<u>2,050</u>	<u>1,450</u>	175	480	<u>1,800</u>	<u>1,600,000</u>	<u>580,000</u>		
No.1		<u>1,650</u>	<u>1,100</u>	175	660	<u>1,750</u>	1,800,000	660,000		
No.1 Non-Dense		<u>1,500</u>	<u>1,000</u>	175	565	<u>1,650</u>	<u>1,600,000</u>	<u>580,000</u>		
No.2 Dense		<u>1,300</u>	<u>875</u>	175	480	<u>1,550</u>	<u>1,400,000</u>	<u>510,000</u>		
No.2 Non-Dense		<u>1,200</u>	<u>750</u>	175	660	<u>1,500</u>	<u>1,600,000</u>	<u>580,000</u>		
No.3 and Stud		<u>1,100</u>	<u>675</u>	175	565	<u>1,450</u>	<u>1,400,000</u>	<u>510,000</u>		
Construction Standard		<u>1,050</u>	<u>600</u>	175	480	<u>1,450</u>	<u>1,300,000</u>	<u>470,000</u>		
Utility		<u>650</u>	<u>400</u>	175	565	<u>850</u>	<u>1,300,000</u>	<u>470,000</u>		
Dense Select Structural	4" wide	<u>875</u>	<u>500</u>	175	565	<u>1,600</u>	<u>1,400,000</u>	<u>510,000</u>	0.55	SPIB
Select Structural Non-Dense		<u>475</u>	<u>275</u>	175	565	<u>1,300</u>	<u>1,200,000</u>	<u>440,000</u>		
Select Structural No.1 Dense		<u>225</u>	<u>125</u>	175	565	<u>850</u>	<u>1,200,000</u>	<u>440,000</u>		
No.1		<u>2,400</u>	<u>1,650</u>	175	660	<u>1,900</u>	1,900,000	690,000		
No.1 Non-Dense		<u>2,100</u>	<u>1,450</u>	175	565	<u>1,800</u>	1,800,000	660,000		
No.2 Dense		<u>1,850</u>	<u>1,300</u>	175	480	<u>1,700</u>	<u>1,600,000</u>	<u>580,000</u>		
No.2 Non-Dense		<u>1,500</u>	<u>1,000</u>	175	660	<u>1,650</u>	1,800,000	660,000		
No.3 and Stud		<u>1,350</u>	<u>875</u>	175	565	<u>1,550</u>	<u>1,600,000</u>	<u>580,000</u>		
Construction Standard		<u>1,200</u>	<u>775</u>	175	480	<u>1,450</u>	<u>1,400,000</u>	<u>510,000</u>		
Utility		<u>1,050</u>	<u>650</u>	175	660	<u>1,450</u>	<u>1,600,000</u>	<u>580,000</u>		
Dense Select Structural	5" - 6" wide	<u>1,050</u>	<u>600</u>	175	565	<u>1,400</u>	<u>1,400,000</u>	<u>510,000</u>	0.55	SPIB
Select Structural Non-Dense		<u>950</u>	<u>525</u>	175	480	<u>1,350</u>	<u>1,300,000</u>	<u>470,000</u>		
Select Structural No.1 Dense		<u>575</u>	<u>350</u>	175	565	<u>800</u>	<u>1,300,000</u>	<u>470,000</u>		
No.1		<u>2,400</u>	<u>1,650</u>	175	660	<u>1,850</u>	1,900,000	690,000		
No.1 Non-Dense		<u>2,100</u>	<u>1,450</u>	175	565	<u>1,700</u>	1,800,000	660,000		
No.2 Dense		<u>1,850</u>	<u>1,300</u>	175	480	<u>1,650</u>	<u>1,600,000</u>	<u>580,000</u>		
No.2 Non-Dense		<u>1,500</u>	<u>1,000</u>	175	660	<u>1,600</u>	1,800,000	660,000		
No.3 and Stud		<u>1,350</u>	<u>900</u>	175	565	<u>1,500</u>	<u>1,600,000</u>	<u>580,000</u>		
Construction Standard		<u>1,250</u>	<u>800</u>	175	480	<u>1,400</u>	<u>1,400,000</u>	<u>510,000</u>		
Utility		<u>1,100</u>	<u>700</u>	175	660	<u>1,400</u>	<u>1,600,000</u>	<u>580,000</u>		
Dense Select Structural	8" wide	<u>975</u>	<u>600</u>	175	565	<u>1,350</u>	<u>1,400,000</u>	<u>510,000</u>	0.55	SPIB
Select Structural Non-Dense		<u>925</u>	<u>550</u>	175	565	<u>1,350</u>	<u>1,400,000</u>	<u>510,000</u>		
Select Structural No.1 Dense		<u>875</u>	<u>500</u>	175	480	<u>1,300</u>	<u>1,300,000</u>	<u>470,000</u>		
No.1		<u>525</u>	<u>325</u>	175	565	<u>775</u>	<u>1,300,000</u>	<u>470,000</u>		
No.1 Non-Dense		<u>2,200</u>	<u>1,550</u>	175	660	<u>1,850</u>	1,900,000	690,000		
No.2 Dense		<u>1,950</u>	<u>1,350</u>	175	565	<u>1,700</u>	1,800,000	660,000		
No.2 Non-Dense		<u>1,700</u>	<u>1,200</u>	175	480	<u>1,650</u>	<u>1,600,000</u>	<u>580,000</u>		
No.3 and Stud		<u>1,350</u>	<u>900</u>	175	660	<u>1,600</u>	1,800,000	660,000		
Construction Standard		<u>1,250</u>	<u>800</u>	175	565	<u>1,500</u>	<u>1,600,000</u>	<u>580,000</u>		
Utility		<u>1,100</u>	<u>700</u>	175	480	<u>1,400</u>	<u>1,400,000</u>	<u>510,000</u>		

Species and commercial grade	Size classification	Design values in pounds per square inch (psi)							Specific Gravity ⁶ G	Grading Rules Agency
		Bending F _b	Tension parallel to grain F _t	Shear parallel to grain F _v	Compression perpendicular to grain F _{c⊥}	Compression parallel to grain F _c	Modulus of Elasticity			
							E	E _{min}		
SOUTHERN PINE (continued)										
Dense Select Structural	10" wide	1,950	1,300	175	660	1,800	1,900,000	690,000	0.55	SPIB
Select Structural Non-Dense		1,700	1,150	175	565	1,650	1,800,000	660,000		
Select Structural		1,500	1,050	175	480	1,600	1,600,000	580,000		
No.1 Dense		1,200	800	175	660	1,550	1,800,000	660,000		
No.1		1,050	700	175	565	1,450	1,600,000	580,000		
No.1 Non-Dense		950	625	175	480	1,400	1,400,000	510,000		
No.2 Dense		850	525	175	660	1,350	1,600,000	580,000		
No.2		800	475	175	565	1,300	1,400,000	510,000		
No.2 Non-Dense		750	425	175	480	1,250	1,300,000	470,000		
No.3 and Stud		475	275	175	565	750	1,300,000	470,000		
Dense Select Structural	12" wide	1,800	1,250	175	660	1,750	1,900,000	690,000	0.55	SPIB
Select Structural Non-Dense		1,600	1,100	175	565	1,650	1,800,000	660,000		
Select Structural		1,400	975	175	480	1,550	1,600,000	580,000		
No.1 Dense		1,100	750	175	660	1,500	1,800,000	660,000		
No.1		1,000	650	175	565	1,400	1,600,000	580,000		
No.1 Non-Dense		900	575	175	480	1,350	1,400,000	510,000		
No.2 Dense		800	500	175	660	1,300	1,600,000	580,000		
No.2		750	450	175	565	1,250	1,400,000	510,000		
No.2 Non-Dense		700	400	175	480	1,250	1,300,000	470,000		
No.3 and Stud		450	250	175	565	725	1,300,000	470,000		
MIXED SOUTHERN PINE										
Select Structural	2" - 4" wide	2,050	1,200	175	565	1,800	1,600,000	580,000	0.51	SPIB
No.1		1,450	875	175	565	1,650	1,500,000	550,000		
No.2		1,100	675	175	565	1,450	1,400,000	510,000		
No.3 and Stud	650	400	175	565	850	1,200,000	440,000			
Construction Standard	4" wide	850	500	175	565	1,600	1,300,000	470,000	0.51	
Utility		475	275	175	565	1,300	1,200,000	440,000		
Construction Utility	225	125	175	565	850	1,100,000	400,000			
Select Structural	5" - 6" wide	1,850	1,100	175	565	1,700	1,600,000	580,000	0.51	
No.1		1,300	750	175	565	1,550	1,500,000	550,000		
No.2		1,000	600	175	565	1,400	1,400,000	510,000		
No.3 and Stud		575	350	175	565	775	1,200,000	440,000		
Select Structural	8" wide	1,750	1,000	175	565	1,600	1,600,000	580,000	0.51	
No.1		1,200	700	175	565	1,450	1,500,000	550,000		
No.2		925	550	175	565	1,350	1,400,000	510,000		
No.3 and Stud		525	325	175	565	800	1,200,000	440,000		
Select Structural	10" wide	1,500	875	175	565	1,600	1,600,000	580,000	0.51	
No.1		1,050	600	175	565	1,450	1,500,000	550,000		
No.2		800	475	175	565	1,300	1,400,000	510,000		
No.3 and Stud		475	275	175	565	750	1,200,000	440,000		
Select Structural	12" wide	1,400	825	175	565	1,550	1,600,000	580,000	0.51	
No.1		975	575	175	565	1,400	1,500,000	550,000		
No.2		750	450	175	565	1,250	1,400,000	510,000		
No.3 and Stud		450	250	175	565	725	1,200,000	440,000		

- LUMBER DIMENSIONS.** Tabulated design values are applicable to lumber that will be used under dry conditions such as in most covered structures. For 2" to 4" thick lumber the DRY dressed sizes shall be used (see Table 1A) regardless of the moisture content at the time of manufacture or use. In calculating design values, the natural gain in strength and stiffness that occurs as lumber dries has been taken into consideration as well as the reduction in size that occurs when unseasoned lumber shrinks. The gain in load carrying capacity due to increased strength and stiffness resulting from drying more than offsets the design effect of size reductions due to shrinkage.
- STRESS-RATED BOARDS.** Information for various grades of Southern Pine stress-rated boards of nominal 1", 1 1/4", and 1 1/2" thickness, 2" and wider is available from the Southern Pine Inspection Bureau (SPIB) in the *Standard Grading Rules for Southern Pine Lumber*.

3. **SPRUCE PINE.** To obtain recommended design values for Spruce Pine graded to SPIB rules, multiply the appropriate design values for Mixed Southern Pine by the corresponding conversion factor shown below and round to the nearest 100,000 psi for E; to the nearest 10,000 psi for E_{min} ; to the next lower multiple of 5 psi for F_v and $F_{c\perp}$; to the next lower multiple of 50 psi for F_b , F_t , and F_c if 1,000 psi or greater, 25 psi otherwise.

CONVERSION FACTORS FOR DETERMINING DESIGN VALUES FOR SPRUCE PINE

	Tension parallel to grain	Shear parallel to grain	Compression perpendicular to grain	Compression parallel to grain	Modulus of Elasticity	
Bending	F_t	F_v	$F_{c\perp}$	F_c	E and E_{min}	
F_b	F_t	F_v	$F_{c\perp}$	F_c	E and E_{min}	
Conversion Factor	0.78	0.78	0.98	0.73	0.78	0.82

4. **SIZE FACTOR.** For sizes wider than 12", use size factors for F_b , F_t , and F_c specified for the 12" width. Use 100% of the F_v , $F_{c\perp}$, E, and E_{min} specified for the 12" width.
5. When individual species or species groups are combined, the design values to be used for the combination shall be the lowest design values for each individual species or species group for each design property.
6. Specific gravity, G, based on weight and volume when oven-dry.