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Wood Products and Other Building Materials Used in New Residential Construction in the United States

WITH COMPARISON TO PREVIOUS STUDIES

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WOOD PRODUCTS AND OTHER BUILDING MATERIALS USED IN NEW RESIDENTIAL CONSTRUCTION IN THE UNITED STATES, WITH COMPARISON TO PREVIOUS STUDIES

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ABSTRACT

On average, new residential construction accounts for about one-third of all wood products consumed in the United States annually. During periods of robust housing activity, 45% or more of all wood products consumed are for new single-family and multifamily housing. This can fall to as low as 20% or less during times of economic recession. Unfortunately, 2012 was not an average year for new residential construction. The housing boom that occurred between 2000 and 2006 turned into a major housing recession in 2007. The recession bottomed out in 2009, with steady improvements being made since then. In 2005, at the peak of the boom, housing starts totaled 2,086,000 units. In 2009, starts had fallen to just 554,000. By 2012, starts had rebounded to 781,000. Single-family housing starts were harder hit than multifamily housing, further affecting wood use. In 2012, 24% of all solid wood consumed domestically was for new residential construction. This difference was equivalent to a loss of about 20 billion board feet equivalents (20×10^9 bfe).

The construction of new, conventionally built, on-site single-family and multifamily houses in the United States required an estimated 9,299 million bfe of softwood lumber and engineered wood, 7,676 million ft^2, 3/8-inch basis, of structural panels, and small amounts (65 million ft^2) of nonstructural panels in 2012. The reported volumes of lumber, engineered wood, and wood panels used in 2012 were equivalent to a combined 13,170 million bfe of solid wood products.

The average residential unit in 2012 required 11,913 bfe of lumber and engineered wood, 9,834 ft^2 of structural panels, and 83 ft^2 of nonstructural panels. This level of consumption was equivalent to each person in the United States consuming nearly 42 bfe of wood for new housing construction in 2012.

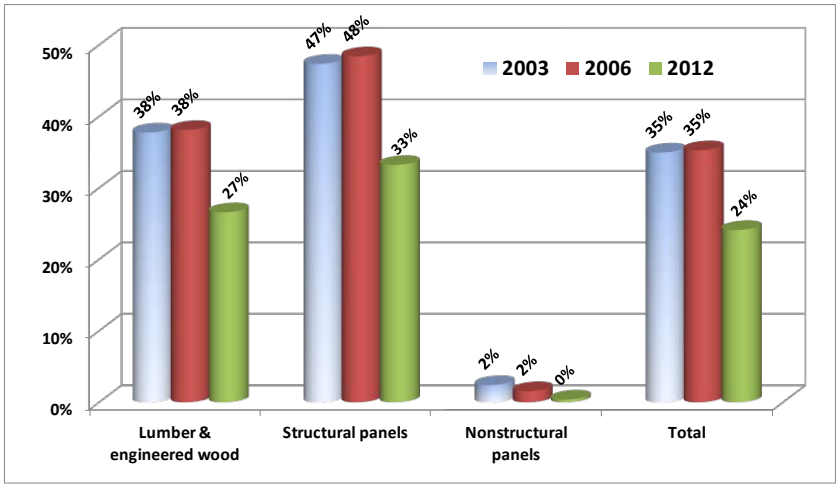
Wood products compete with a variety of nonwood products for market share in both structural and nonstructural applications. In 2012, an additional 1,487 million bfe of nonwood products were used in place of softwood lumber and engineered wood, and 1,677 million ft^2 of nonwood products were used in place of structural wood panels. These nonwood products were equivalent to a total wood potential of 2,326 million bfe. Overall, floors had the largest wood potential at 1,132 million bfe of lumber and engineered wood, and 1,202 million ft^2 of structural panels. Walls were second highest at 179 million bfe of lumber and engineered wood, and 476 million ft^2 of structural panels, followed by decks and porches, and roofs.

Keywords: Residential construction, single-family construction, multifamily construction, wood products consumption, value of new construction, lumber, structural panels, nonstructural panels, engineered wood products, wood I-joists, glulam, structural composite lumber

EXECUTIVE SUMMARY

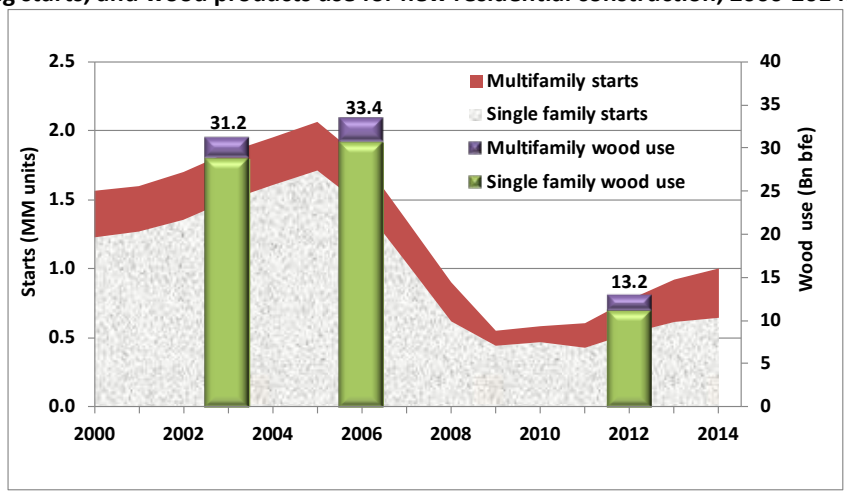
The construction of new single-family and multifamily housing units continues to be an important market for lumber, engineered wood, and wood panels. On average, about one-third of all wood products consumed in the United States is for the construction of new housing units built on-site. During periods of robust housing activity, 45% or more of all wood products are consumed; during periods of severe economic recession, this can fall to 20% or less. In 2003 and 2006, years for which data are available, about 35% of all solid wood products were used for new residential construction, 90% of which being for new single-family houses (Fig. ES1).

Figure ES1. Wood products consumption for new residential construction as a percentage of total U.S. consumption, 2003, 2006 and 2012.



Unfortunately, 2012, the year of interest here, was not an average year for new residential construction. The housing boom that occurred between 2000 and 2006 turned into a major housing recession in 2007. The recession bottomed out in 2009. Steady improvements have been made since then. In 2005, at the peak of the boom, housing starts totaled 2,086,000 units (Fig. ES2). In 2009, starts had fallen to just 554,000. By 2012, starts had rebounded to 781,000. Single-family housing starts were impacted to a greater extent than were multifamily housing starts, further reducing overall wood use. In 2012, 24% of all solid wood consumed domestically was for new residential construction. This difference was equivalent to a loss of about 20 billion bfe. (In this report, a billion is defined as 10^9.)

Figure ES2. Housing starts, and wood products use for new residential construction, 2000-2014.



Wood Use

The construction of new, conventionally built, on-site residential units in the United States required an estimated 13,170 million bfe of wood products in 2012 (Table ES1). Included in the total were 8,098 million bf of softwood lumber, 1,202 million bfe of engineered wood, 1,878 million ft^2 of softwood plywood, 5,798 million ft^2 of oriented strandboard (OSB), and small amounts (65 million ft^2) of nonstructural panels.

Table ES1. Wood products used for new residential construction in the U.S., by building type, region, and structural application, 2012.

	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]
	Softwood lumber[a]	Eng. wood[b]	Total	Softwood plywood	OSB	Total			Softwood lumber[a]	Eng. wood[b]	Total	Softwood plywood	OSB	Total			Softwood lumber[a]	Eng. wood[b]	Total	Softwood plywood	OSB	Total		
Characteristic	*Mil bf*	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*	*Mil bf*	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*	*Mil bf*	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*
Building type	Single family								Multifamily								Total							
Total use[e]	6,976	946	7,922	1,666	5,099	6,765	49	11,329	1,121	256	1,377	212	700	912	15	1,841	8,098	1,202	9,299	1,878	5,798	7,676	65	13,170
Region																								
Northeast	736	100	835	365	376	741	3	1,208	136	34	170	42	68	110	1	225	872	134	1,005	408	444	851	4	1,433
Midwest	1,294	216	1,510	287	970	1,257	9	2,143	156	28	184	37	94	132	0	250	1,450	244	1,694	324	1,064	1,389	10	2,393
South	3,537	375	3,911	643	2,714	3,357	26	5,603	566	98	664	64	364	428	11	883	4,102	473	4,575	708	3,078	3,786	37	6,486
West	1,410	255	1,665	370	1,039	1,409	11	2,375	264	96	360	68	174	242	3	482	1,673	351	2,025	438	1,213	1,651	14	2,857
Total	6,976	946	7,922	1,666	5,099	6,765	49	11,329	1,121	256	1,377	212	700	912	15	1,841	8,098	1,202	9,299	1,878	5,798	7,676	65	13,170
Application																								
Floors	757	815	1,572	565	1,205	1,770	45	2,480	211	232	443	96	299	395	9	645	968	1,047	2,016	661	1,504	2,165	54	3,125
Walls	3,091	84	3,175	338	1,731	2,069	4	4,212	621	15	636	25	107	132	7	705	3,712	99	3,811	363	1,838	2,201	11	4,917
Roofs	2,452	46	2,499	758	2,162	2,920	0	3,959	285	9	294	91	294	385	0	486	2,737	55	2,792	849	2,456	3,306	0	4,445
Foundations	59	0	59	5	0	5	0	61	2	0	2	0	0	0	0	2	61	0	61	5	0	5	0	63
Decks/porches	617	0	617	0	0	0	0	617	3	0	3	0	0	0	0	3	620	0	620	0	0	0	0	620
Total	6,976	946	7,922	1,666	5,099	6,765	49	11,329	1,121	256	1,377	212	700	912	15	1,841	8,098	1,202	9,299	1,878	5,798	7,676	65	13,170

[a] Includes framing lumber, boards, solid sawn beams, and wood trusses.

[b] Includes glulam, I-joists, laminated veneer lumber, parallel strand lumber, laminated strand lumber, oriented strand lumber, and plywood and OSB rim boards. Does not include structural composite lumber rim boards.

[c] Includes hardboard, insulation board, particleboard, medium density fiberboard, and hardwood plywood.

[d] Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

[e] Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

Cross-laminated timber (CLT) is a relatively new wood product that holds great potential for dramatically increasing the use of wood products in construction. Although currently focused largely on nonresidential construction, new residential construction is a potential market where CLT can make dramatic inroads into the use of other types of wood and nonwood products. CLT was not yet being used for new residential construction in 2012, so was not included in this study.

The average residential unit in 2012 required 11,913 bfe of lumber and engineered wood, 9,834 ft^2 of structural panels, and 83 ft^2 of nonstructural panels (Table ES2). This level of consumption was equivalent to each person in the United States consuming nearly 42 bfe of wood for new housing construction in 2012.

Table ES2. Wood products used for new residential construction in the U.S., by building type, 2003, 2006 and 2012.

Characteristic	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]	Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Non-Structural panels (3/8-inch basis)[c]	Total, all wood products[d]
	Soft-wood lumber[a]	Eng. wood[b]	Total	Soft-wood plywood	OSB	Total			Soft-wood lumber[a]	Eng. wood[b]	Total	Soft-wood plywood	OSB	Total			Soft-wood lumber[a]	Eng. wood[b]	Total	Soft-wood plywood	OSB	Total		
	Mil bf	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*	*Mil bf*	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*	*Mil bf*	*Mil bfe*	*Mil bfe*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil ft^2*	*Mil bfe*
Building type	Single family								Multifamily								Total							
2003																								
Total use[e]	17,834	2,231	20,065	4,400	12,366	16,767	540	28,719	1,452	351	1,803	462	833	1,295	50	2,475	19,286	2,581	21,868	4,863	13,199	18,062	590	31,194
Use per house	11,897	1,488	13,386	2,936	8,250	11,185	360	19,158	4,164	1,006	5,170	1,326	2,389	3,715	144	7,099	10,438	1,397	11,835	2,632	7,144	9,776	319	16,883
Use per ft^2	5.1	0.6	5.7	1.3	3.5	4.8	0.2	8.2	3.5	0.8	4.3	1.1	2.0	3.1	0.1	6.0	4.9	0.7	5.6	1.2	3.4	4.6	0.2	7.9
2006																								
Total use[e]	18,894	2,634	21,528	4,014	13,753	17,768	384	30,604	1,693	344	2,037	473	1,016	1,489	21	2,792	20,587	2,977	23,565	4,487	14,769	19,256	405	33,395
Use per house	12,893	1,797	14,691	2,739	9,385	12,125	262	20,884	5,047	1,024	6,071	1,410	3,027	4,437	63	8,321	11,432	1,653	13,085	2,492	8,201	10,693	225	18,544
Use per ft^2	5.2	0.7	5.9	1.1	3.8	4.9	0.1	8.4	3.9	0.8	4.7	1.1	2.3	3.4	0.0	6.4	5.0	0.7	5.8	1.1	3.6	4.7	0.1	8.2
2012																								
Total use[e]	6,976	946	7,922	1,666	5,099	6,765	49	11,329	1,121	256	1,377	212	700	912	15	1,841	8,098	1,202	9,299	1,878	5,798	7,676	65	13,170
Use per house	13,033	1,767	14,799	3,112	9,525	12,637	92	21,164	4,570	1,043	5,614	864	2,853	3,717	63	7,504	10,373	1,539	11,913	2,406	7,428	9,834	83	16,871
Use per ft^2	5.2	0.7	5.9	1.2	3.8	5.0	0.0	8.4	4.1	0.9	5.0	0.8	2.5	3.3	0.1	6.7	5.0	0.7	5.7	1.2	3.6	4.7	0.0	8.1

[a]Includes framing lumber, boards, solid sawn beams, and wood trusses.

[b]Includes glulam, I-joists, laminated veneer lumber, parallel strand lumber, laminated strand lumber, oriented strand lumber, and plywood and OSB rim boards. Does not include structural composite lumber rim boards.

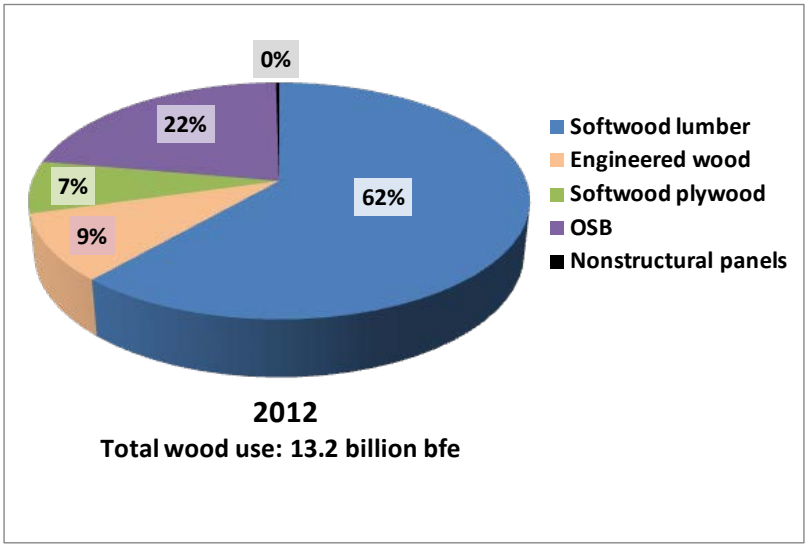
[c]Includes hardboard, insulation board, particleboard, medium density fiberboard, and hardwood plywood.

[d]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

[e]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

Softwood lumber has always been the wood product used in the greatest amounts to build new residential structures. In 2012 softwood lumber accounted for 62% of all wood products used (Fig. ES3). OSB was the second most used product at 22%, followed by nearly equal shares of engineered wood and softwood plywood. Negligible amounts of nonstructural panels were used.

Figure ES3. Wood products used in new residential construction, by product type, 2012.



Single-Family vs. Multifamily

Single-family houses accounted for 11,329 of the 13,170 million bfe of wood used for new residential construction in 2012, or about 86% of all wood used (Table ES1). More than 86% of all lumber and engineered wood, 88% of all structural panels, and 76% of all nonstructural panels were used for single-family houses. Lumber was the preferred structural framing material for new single-family residential construction and accounted for 88% of all wood framing materials used. OSB was the structural sheathing material of choice, capturing 75% of the structural sheathing market. The average new single-family house required 14,799 bfe of lumber and engineered wood, 12,637 ft^2 of structural panels, and 92 ft^2 of nonstructural panels (Table ES2). In total, 21,164 bfe of wood was used for each new single-family house built in 2012.

Multifamily housing, in terms of total numbers of units built, average unit size, and total wood products used, was small compared to single-family housing. Overall, new multifamily construction accounted for 1,841 million bfe of wood products, or about 14% of all wood products used in new residential construction (Table ES1). In 2012, multifamily housing accounted for 15% of all lumber and engineered wood used, 12% of all structural panels, and 24% of all nonstructural panels. Lumber was the preferred structural framing material, as was true in single-family construction, and accounted for 81% of all wood framing materials used. Engineered wood was used more frequently in new multifamily housing than new single-family housing. OSB was the structural sheathing material of choice, capturing nearly 77% of the structural sheathing market, slightly more than the market share for new single-family construction. The average new multifamily unit required 5,614 bfe of lumber and engineered wood, 3,717 ft^2 of structural panels, and 63 ft^2 of nonstructural panels (Table ES2). In total, 7,504 bfe of wood used for each new multifamily housing built in 2012.

Wood Use by Region

Total wood products consumption for new residential construction closely mirrors regional population levels. In 2012, the South was the most populated region of the United States, with 37% of the Nation's total population, and accounted for 49% of all wood used in new residential construction (Table ES1). The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used nearly 6,486 million bfe of wood products in 2012, followed by the West at 2,857 million, Midwest at 2,393 million, and Northeast at 1,433 million bfe. Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

Single-family vs. Multifamily

New single-family residential construction regional patterns of wood products consumption also follow regional population patterns. In 2012, the South accounted for nearly half (49%) of all wood used for new single-family construction, exceeding population by 12%. In contrast, wood products consumption in all other regions was less than the corresponding population. The West was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used 5,603 million bfe of wood products in 2012, followed by the West at 2,375 million bfe, the Midwest at 2,143 million bfe, and the Northeast at 1,208 million bfe (Table ES1). Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

New construction in the South used more lumber relative to engineered wood for framing (90%), and more OSB relative to plywood for sheathing (81%) than any other region. Lumber as a percentage of total structural framing material was lowest in the West region at 85%; OSB as a percentage of total structural panels was lowest in the Northeast at just 51%.

Patterns of wood products use per house and per square foot of floor area are markedly different from total use patterns. Lumber and engineered wood use and structural panel use per house and per square foot of floor area were greatest in the Midwest region, followed closely the Northeast (Table ES2). The West was third highest in overall use per unit and per square foot of floor area, followed closely by the South. Nonstructural panel use was very low in all regions and followed consumption patterns similar to total wood use. Regional differences in use per unit and per square foot of floor area reflect not only architectural and consumer preference differences, but also differences in regional building structural requirements due, in part to, differing environmental and climatic conditions.

New multifamily regional wood use construction patterns also follow regional population patterns, and are similar to those for new single-family construction. In 2012 the South accounted for nearly half (48%) of all wood used for new multifamily construction. As such, wood products consumption exceeded population by 11%. Wood products consumption in the West region also exceeded its population, with 23% of the Nation's population using 26% of all wood for new multifamily construction. In contrast, wood products consumption in the Northeast and Midwest regions as a percentage of total wood products consumption was less than their corresponding population percentage. The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used 883 million bfe of wood products in 2012, followed by the West at 482 million bfe, the Midwest at 250 million bfe, and the Northeast at 225 million bfe. Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

Wood Use by Application

Walls (exterior plus interior) accounted for more wood use than any other single building application in 2012, at more than 4,917 million bfe, 37% of total wood use (Table ES1). Roofs were second highest at 4,445 million bfe, followed by floors at 3,125 million bfe. Comparatively small amounts of lumber were used for construction of decks and porches (620 million bf), and small amounts of lumber and structural panels for foundations (63 million bfe).

Floor construction used less wood in total and per unit of construction activity (per house and per square foot of floor area) than did walls or roofs, primarily because of the popularity of concrete slab foundations, particularly in the South.

Lumber was the principal framing material in all applications except for floors, accounting for 97% or more of all framing material used. Floors were the single exception, with lumber accounting for less than half (48%) of all framing. OSB was the principal sheathing material in all applications, ranging from a high of 84% for walls to a low of 69% for floors.

Single-family vs. Multifamily

Construction of floors, walls, roofs, foundations, and decks and porches for new single-family houses required a total of 7,922 million bfe of lumber and engineered wood for framing and 6,765 million ft^2 of structural panels for sheathing in 2012 (Table ES1). Framing accounted for 70% of all wood used, sheathing for 30%. Small amounts (49 million ft^2) of nonstructural panels were also used, primarily for floor underlayment and wall sheathing.

Overall, walls and roofs in new single-family houses used substantially more wood framing material (softwood lumber and engineered wood products) than did floors, foundations, and decks and porches. Combined wall and roof consumption totaled 5,674 million bfe for new single-family houses and accounted for 71% of total framing materials use (Table ES1). Lumber was by far the most popular choice of wood framing materials, accounting for 88% of total use. Roofs used more structural panels

than other applications at 43% (2,920 million ft^2), followed by walls and floors, respectively. Negligible amounts of structural panels were used for foundations and decks and porches.

New multifamily houses required a total of 1,377 million bfe of lumber and engineered wood for framing and 912 million ft^2 of structural panels for sheathing in 2012 (Table ES1). Framing accounted for 75% of all wood framing and sheathing products used, sheathing for the remaining 25%. This differs from new single-family construction, where framing accounted for 70% of total wood use. Small amounts (15 million ft^2) of nonstructural panels were used, primarily for floor underlayment and wall sheathing.

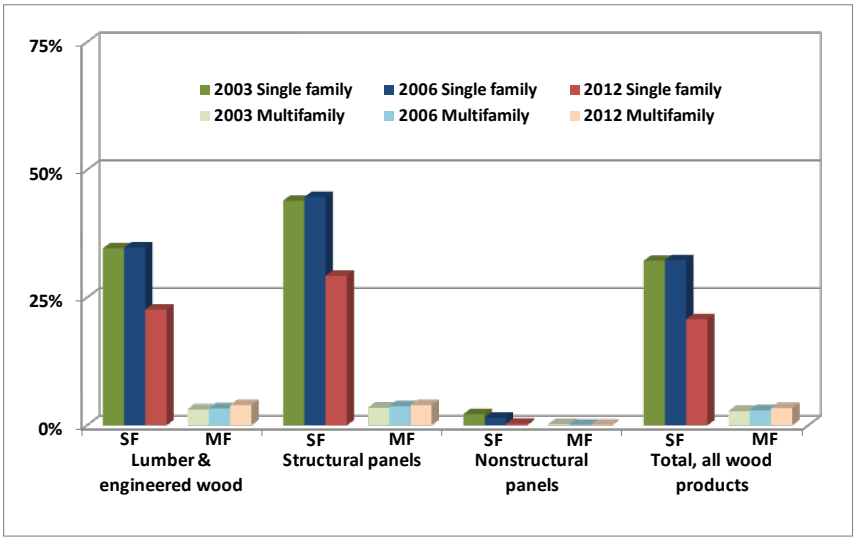
Overall, walls in new multifamily units used 636 million bfe of wood framing material, more than any other application (Table ES1). Floors were second highest at 443 million bfe, followed by roofs at 294 million bfe. Minimal amounts of framing materials were used for foundations and decks and porches. The pattern of use differs from new single-family construction in that new single-family construction used more wood for framing roofs than for floors. This difference was due in part to the relative popularity of concrete slab floors in new single-family houses and multiple stories for multifamily buildings. Combined, wall and floor consumption totaled 1,079 million bfe, or 78% of total framing materials use. Lumber was by far the most popular choice of wood framing materials, accounting for 81% of total use. Structural panel use was nearly equal for floors and roofs at 43% and 42%, respectively, of total structural panel use. The remaining 15% was used for walls. In total, 927 million ft^2 of structural panels were used. No structural panels were reportedly used for foundations or for decks and porches.

Historical Wood Use Comparisons

Wood products use for new residential construction in 2012 totaled 13,170 million bfe (Table ES2). This volume consisted of 9,299 million bfe of lumber and engineered wood, 7,676 million ft^2 of structural panels, and 65 million ft^2 of nonstructural panels. Total use in 2012 was considerably less than the 31,194 million bfe used in 2003 and the 33,395 million bfe used in 2006. The years 2003 and 2006 were at or near the peak of the 2000 through 2006 housing boom, whereas 2012 was near the bottom of the 2007 through 2011 recession. In 2012, 24% of all solid wood consumed domestically was for new residential construction (Fig. ES1). This compares to 35% of domestic consumption being used for new residential construction in 2003 and 2006.

Lumber and engineered wood fell from 38% to 27% of total domestic lumber and engineered wood use in 2003 and 2012, respectively (Fig. ES1). This decline was principally caused by the decline in new single-family housing starts, which resulted in lumber and engineered wood use falling from 35% to just 23% of domestic consumption (Fig. ES4). New multifamily units remained fairly constant over the 9-year period at 3% to 4%. Structural panel use as a percentage of total domestic structural panel use also fell, and fell more so than did lumber and engineered wood. Between 2003 and 2012, overall structural panel use fell from 47% to 33% of domestic structural panel consumption (Fig. ES1). As with lumber, single-family construction was the principal cause of the decline (Fig. ES4). Little change was evident in these percentages between 2003 and 2006.

Figure ES4. Wood products consumption for new residential construction as a percentage of total domestic consumption, 2003, 2006 and 2012.



Wood products consumption for residential construction in total is largely driven by the number of new housing units produced and directly reflects the state of the U.S. economy. It is not a good measure of how the use of wood products is changing over time. A better measure of the market share for wood in new residential construction is its use per house. This measure is less affected by the number of houses built as by the mix of sizes of houses built. An even better measure is its use per square foot of finished floor area, which mitigates the effects of both the number of units built and the sizes of units built. These two measures provide a much better look at how the use of wood is actually trending. In 2012, construction of all new housing units required the equivalent of 13,170 million bfe of wood, less than half that in 2003 (Table ES2). In contrast, use per unit and use per square foot of floor area were virtually unchanged between 2003 and 2012. Use in all categories was higher in 2006 than in 2003 and 2012. These comparisons show that although the housing market in 2012 was still at near record lows, wood was able to maintain its market share.

Single-family vs. Multifamily

New single-family residential construction used 11,329 million bfe of wood products in 2012 (Table ES2). This volume consisted of 7,922 million bfe of lumber and engineered wood, 6,765 million ft^2 of structural panels and 49 million ft^2 of nonstructural panels. Total single-family use in 2012 was considerably less than the 28,719 million bfe used in 2003 and the 30,604 million bfe used in 2006. The dramatic drop in wood use in 2012 compared to 2003 and 2006 was because 2003 and 2006 were at or near the peak of the 2000 through 2006 housing boom, whereas 2012 was near the bottom of the 2007 through 2011 recession. In 2012, 21% of all solid wood consumed domestically was for new single-family residential construction (Fig. ES4). This compares to 32% of domestic consumption in 2003 and 2006 being used for new single-family residential construction.

In 2012, the average single-family house required 13,033 bf of lumber, 1,767 bfe of engineered wood, 3,112 ft^2 of softwood plywood, 9,525 ft^2 of OSB, and 92 ft^2 of nonstructural panels (Table ES2). Compared to 2003 and 2006, more softwood lumber, softwood plywood, and OSB were used per house in 2012. Engineered wood use in 2012 was greater than that in 2003 but slightly less than that in 2006. Nonstructural panel use has fallen steadily over the 9-year period. Average floor area between 2003 and 2006 and between 2008 and 2012 increased, so some of the increase in total use per house can be

attributed to size increases and some to recession-related effects on the mix of house styles, amenities, and other consumer preferences.

In terms of wood use per square foot of floor area, there was little, if any, change in the use of each wood product over the 9-year period. Overall, wood use per square foot of floor area was unchanged at 8.4 bfe per ft^2 (Table ES2). This shows that although new single-family construction in 2012 was still being negatively impacted by the 2007 through 2011 recession, wood product use per unit of construction activity remained at the high levels achieved during the peak of the 2000 through 2006 housing boom.

Total wood products use for new multifamily residential construction in 2012 totaled 1,841 million bfe (Table ES2). This volume consisted of 1,377 million bfe of lumber and engineered wood, 912 million ft^2 of structural panels, and 15 million ft^2 of nonstructural panels. Total use in 2012 was considerably less than the 2,475 million bfe used in 2003 and the 2,792 million bfe used in 2006.

In 2012, the average multifamily unit required 4,570 bf of lumber, 1,043 bfe of engineered wood, 864 ft^2 of softwood plywood, 2,853 ft^2 of OSB, and 63 ft^2 of nonstructural panels (Table ES2). Compared to 2006, softwood lumber use per unit was down but still above amounts used in 2003. Engineered wood use was up from both 2006 and 2003. Softwood plywood and OSB use were both down from 2006 levels, but OSB use was greater than 2003 amounts. Nonstructural panel use remained constant between 2006 and 2012. Average floor area between 2003 and 2006 increased but then fell between 2006 and 2012. Some of the changes in wood use per multifamily unit can be attributed to size, some to recession-related effects.

Wood use per square foot of finished floor area, with the exception of softwood plywood, remained constant or increased between 2003, 2006, and 2012 (Table ES2). Although new multifamily construction in 2012 was still being negatively impacted by the 2007 through 2011 recession, wood product use per unit of construction activity remained at or above levels achieved during the peak of the 2000 through 2006 housing boom. This is good news for producers as multifamily construction has increased its share of the housing market in recent years.

Competition and Wood Products Potential

Wood products are by far the predominant building materials used for new single-family and multifamily residential construction in the United States. According to the U.S. Department of Commerce, Bureau of the Census (2015a, 2015b), wood framing was used to build about 94% of all single-family houses and 87% of all multifamily buildings completed in 2013. But even with these high levels of wood framing (and wood sheathing), there are still ample opportunities for wood to increase its presence in new residential construction.

Wood products compete with a variety of nonwood products for market share in both structural (e.g., floors, walls, roofs, foundations, and decks and porches), and nonstructural (e.g., siding, fascia, soffits, exterior trim, millwork, doors, windows, and finished floor covering) applications. Chief competitors for structural applications include concrete floors, steel framing, nonwood sheathing products, and plastic composite lumber substitutes typically used for outdoor deck surfaces. Concrete foundations are not considered to be a viable application in which wood could make reasonable inroads, and as such, foundation potentials were not developed for this study. Also, nonstructural building application potentials were also not developed for this study.

In 2012 an estimated 1,487 million bfe of nonwood products were used in place of softwood lumber and engineered wood, and 1,677 million ft^2 of nonwood products were used in place of structural wood panels (Table ES3). These nonwood products were equivalent to a total wood potential of 2,326 million bfe. This potential, if realized, coupled with increasing housing starts as the industry approaches more normal activity levels, will help reduce idled wood products production capacity that resulted from the recent economic recession. At the end of 2012, North American lumber capacity was about 66 billion bf, with production being about 51 billion bf, leaving close to 15 billion bf of unused capacity (FEA 2015). At the same time, North American structural panel capacity was 39 billion ft^2 at the end of 2012 (Elling 2015b). Actual structural panel production in 2012 was 26 billion ft^2 resulting in 13 billion ft^2 of unused capacity.

Table ES3. Potential gains for wood products in new residential construction in the U.S., 2012.

	Lumber & engineered wood *(Mil bfe)*					Structural panels *(Mil ft^2, 3/8" basis)*				
Application	North-east	Mid-west	South	West	Total	North-east	Mid-west	South	West	Total
	Single family									
Floors	13	20	715	252	1,000	17	31	792	214	1,054
from Concrete	12	18	714	242	986	17	31	792	214	1,054
from Steel	1	2	1	10	14	--	--	--	--	--
Walls	6	11	110	33	161	16	51	317	62	446
from Concrete	1	7	76	17	100	5	19	164	31	219
from Steel - Exterior	3	1	5	10	19	--	--	--	--	--
from Steel - Interior	3	3	29	6	41	--	--	--	--	--
from Nonwood panels	--	--	--	--	--	10	32	153	31	226
Roofs - from Steel	2	1	2	2	7	--	--	--	--	--
Decks/porches	9	28	93	40	169	--	--	--	--	--
from Plastic composites - Decks	5	8	8	11	31	--	--	--	--	--
from Plastic composites - Porches	3	20	85	29	137	--	--	--	--	--
Total	30	60	920	327	1,337	33	82	1,109	276	1,500
	Multifamily									
Floors	45	17	46	24	133	29	21	62	36	147
from Concrete	45	17	46	24	131	29	21	62	36	147
from Steel	0	0	0	1	1	--	--	--	--	--
Walls	3	0	10	5	18	2	0	26	1	30
from Concrete	3	0	1	1	5	1	0	9	1	11
from Steel - Exterior	0	0	1	1	2	--	--	--	--	--
from Steel - Interior	0	0	8	3	11	--	--	--	--	--
from Nonwood panels	--	--	--	--	--	2	0	17	0	19
Roofs - from Steel	0	0	0	0	0	--	--	--	--	--
Decks/porches	--	--	--	--	--	--	--	--	--	--
from Plastic composites - Decks	--	--	--	--	--	--	--	--	--	--
from Plastic composites - Porches	--	--	--	--	--	--	--	--	--	--
Total	48	18	56	29	150	32	21	88	37	177
	Total									
Floors	58	38	761	277	1,132	46	52	854	250	1,202
from Concrete	56	36	760	266	1,118	46	52	854	250	1,202
from Steel	1	2	1	11	15	--	--	--	--	--
Walls	9	12	120	38	179	18	51	343	63	476
from Concrete	3	7	77	18	105	6	19	174	32	230
from Steel - Exterior	3	1	6	11	22	--	--	--	--	--
from Steel - Interior	3	4	36	9	52	--	--	--	--	--
from Nonwood panels	--	--	--	--	--	12	32	170	32	245
Roofs - from Steel	2	1	2	2	7	--	--	--	--	--
Decks/porches	9	28	93	40	169	--	--	--	--	--
from Plastic composites - Decks	5	8	8	11	31	--	--	--	--	--
from Plastic composites - Porches	3	20	85	29	137	--	--	--	--	--
Total	78	78	976	356	1,487	64	103	1,197	313	1,677

Overall, floors had the largest wood potential at 1,132 million bfe of lumber and engineered wood and 1,202 million ft^2 of structural panels (Table ES3). Walls were second highest at 179 million bfe of lumber and engineered wood and 476 million ft^2 of structural panels, followed by decks and porches and roofs.

Single-family vs. Multifamily

Single-family floor systems held the greatest potential for increasing the use both of framing lumber and engineered wood and of structural sheathing panels. An additional 1,000 million bfe of lumber and engineered wood and 1,054 million ft^2 of structural panels could be used if all concrete slab and steel-framed floor systems were converted to raised wood-framed and sheathed floor systems (Table ES3). Nearly all this lumber and engineered wood, 986 million bfe, would be used to convert concrete slab floor systems to wood. More than 70% of lumber and engineered wood floor potential and 75% of structural panel floor potential were in the South in 2012, due to its high incidence of concrete slab floors. The West was second highest in floor potential both for lumber and engineered wood and for structural panels, followed by the Midwest and Northeast regions. Multifamily floors, although a much smaller potential, followed similar regional trends as single-family floors, with the exception of the Northeast region being third highest potential, followed by the Midwest.

Single-family deck and porch surfaces had the second highest lumber potential by replacing plastic and composite decking with lumber decking. More than 81% of the total 169 million bf of lumber was for porches, with the remaining 19% for decks (Table ES3). More than half of this potential (55%) was in the South. No structural panel potential was associated with single-family decks and porches, nor any wood potential for multifamily decks and porches.

2012
WOOD PRODUCTS AND OTHER BUILDING MATERIALS USED IN NEW RESIDENTIAL CONSTRUCTION IN THE UNITED STATES, WITH COMPARISON TO PREVIOUS STUDIES

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INTRODUCTION

New residential construction is the construction of new housing units built onsite, which includes both single-family houses and multifamily (apartment) buildings, and manufactured housing (mobile homes) built offsite. Single-family houses include detached houses, duplexes, and row and townhouses. Multifamily housing includes traditional apartment buildings and multi-unit condominiums. New residential construction also includes manufactured housing, which is defined as U.S. Department of Housing and Urban Development qualified movable dwellings. On average, manufactured housing represents a fairly constant 6% of all wood used for new residential construction. For this reason, and due to funding limitations, manufactured housing is not included in this report.

The current study is the latest in a series of studies conducted by APA–The Engineered Wood Association, USDA Forest Service, and others to document use of wood products in new residential construction and to evaluate market potential to increase the use of wood products in these structures (McKeever and Anderson 1992, Wood Products Council 1999, 2005, 2009, Adair and McKeever 2009). It examines the use of wood products to construct conventionally built on-site new single-family and new multifamily housing units in 2012. Unlike previous studies, this study includes only the wood needed for structural applications to build the actual structure itself (foundations, walls, floors, roofs, beams, headers, rim boards, and exterior decks and porches). Not included are hardwood lumber and other wood products used principally for finish flooring, exterior siding and trim, millwork (e.g., doors, windows, cabinets, interior trim, stairs,), and outdoor fencing and landscaping, nor does it include amounts of wood used for facilitation (e.g., form work, scaffolding). Also not included is cross-laminated timber (CLT), which had not yet penetrated the new residential construction market in 2012. All reported volumes in this report include allowances for onsite waste and loss: 10% for lumber (excluding trusses), 10% for structural and nonstructural panels, and 5% for engineered wood products. All comparisons between 2012 and previous years made here are based on those components of wood use common to all years.

Data Sources

Data for the current study were provided by Home Innovation Research Labs[1] and were based on results from their *2012 Annual Builder Practices Survey* (ABPS). The ABPS is a paper-based survey of approximately 1,300 U.S. builders designed to develop material usage coefficients of active home building companies nationwide. Because numerous U.S. home building companies have multiple offices throughout the country, each local building establishment of multiregional and national firms is recognized as a separate entity. Hence, questionnaires were sent to local home building establishments, not to regional offices or national headquarters. To assure that local offices are reporting only on homes built by their own operations and not the homes constructed by operations in other areas, the programming methodology allowed a maximum of 200 single-family detached homes per respondent. Single-family attached homes and multifamily dwellings were limited to 500 per respondent. Categories of new wood product usage included were for structural assemblies—foundations, floors, walls, roofs, beams, headers, rim boards, exterior decks and porches.

Wood products definitions and units of measure, regional definitions, and other terms used in this report are provided in Appendix A—DEFINITIONS. Data by geographical area, application, and wood product provided by Home Innovation Research Labs are presented in Appendix B—DETAILED DATA.

Measures of Housing Activity

New residential construction activity in the United States is measured annually by the U.S. Department of Commerce, Bureau of the Census (USDC BC 2015c,e,f) and the U.S. Department of Commerce, Bureau of Economic Analysis (USDC BEA 2015). In 2012, 781,000 single-family and multifamily housing units were started in the United States, representing a total construction value of $155 billion (Table 1). More than two-thirds (69%) of these units were single-family dwellings and accounted for 85% of total construction value. Total housing unit starts in 2012 were below the recent high level of 2,068,000 units set in 2005 (Fig. 1) and well below the record high of 2,357,000 set in 1972. However, housing starts in 2012 were above levels in the previous 3 years as the economic recession, which started in 2006, began to subside. Combined single-family and multifamily starts totaled 1,006,000 units in 2014 and are expected to reach nearly 1,365 units by 2016 (Elling 2015a).

Table 1. Housing starts, floor area, and value of new residential construction in the U.S., by building type, 2000-2014.

	Single family					Multifamily					Total				
		Floor area		Construction value			Floor area		Construction value			Floor area		Construction value	
Year	Starts *Thou*	Average *Ft²*	Total *Mil ft²*	*Bil $*	*Bil '09 $*[a]	Starts *Thou*	Average *Ft²*	Total *Mil ft²*	*(Bil $)*	*(Bil '09 $)*[a]	Starts *Thou*	Average *Ft²*	Total *Mil ft²*	*(Bil $)*	*(Bil '09 $)*[a]
2000	1,231	2,306	2,838	237	315	338	1,171	396	28	43	1,569	2,062	3,234	265	357
2001	1,273	2,310	2,941	249	315	329	1,193	393	30	45	1,603	2,080	3,334	279	360
2002	1,359	2,320	3,152	266	327	346	1,186	411	33	47	1,705	2,090	3,563	299	374
2003	1,499	2,343	3,512	311	362	349	1,190	415	35	48	1,848	2,125	3,927	346	411
2004	1,611	2,384	3,839	378	406	345	1,243	429	40	52	1,956	2,183	4,269	418	458
2005	1,716	2,462	4,224	434	433	353	1,288	454	47	57	2,068	2,262	4,678	481	490
2006	1,465	2,492	3,652	416	391	336	1,291	433	53	58	1,801	2,268	4,085	469	448
2007	1,046	2,507	2,622	305	284	309	1,263	390	49	51	1,355	2,223	3,013	354	335
2008	622	2,463	1,532	186	178	284	1,164	330	44	45	906	2,056	1,862	230	223
2009	445	2,367	1,054	105	105	109	1,167	127	29	29	554	2,131	1,181	134	134
2010	471	2,382	1,122	113	114	116	1,179	136	15	14	587	2,145	1,259	127	129
2011	431	2,504	1,078	108	109	178	1,133	202	15	15	609	2,103	1,280	123	124
2012	535	2,521	1,349	132	132	245	1,126	276	23	22	781	2,083	1,626	155	154
2013	618	2,669	1,648	171	162	307	1,169	359	32	31	925	2,171	2,008	203	193
2014[b]	648	2,660	1,723	179	166	358	1,169	418	38	35	1,006	2,129	2,142	216	201

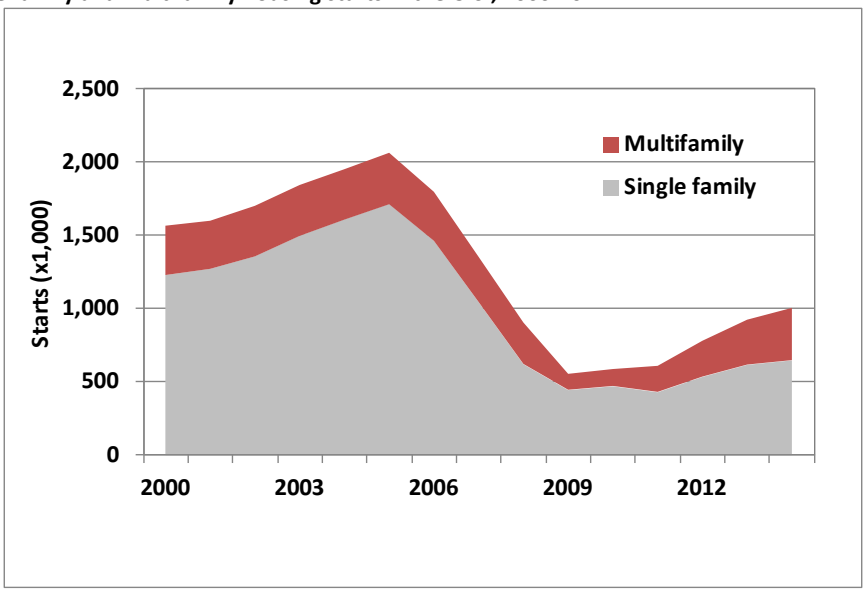
[a] Chained 2009 U.S. dollars.

[b] Preliminary.

Sources: Elling, Joe (2015), USDC BC (2015a, 2015b, 2015c), USDC BEA (2015).

[1] Home Innovation Research Labs, 400 Prince George's Boulevard, Upper Marlboro, Maryland 20774.

Figure 1. New single family and multifamily housing starts in the U.S., 2000-2012.



Many factors affect housing production, including overall performance of the economy, interest rates, household formations, vacancy and replacement rates, and conversion of existing structures to alternative uses, which can cause annual production to vary substantially from year to year and from decade averages. For example, total housing unit production reached record high levels in the early 1970s, fell dramatically in the mid-1970s, and then rose again. This cyclic nature of new housing production is characteristic of the market and was repeated in subsequent decades, with the current housing recession being particularly severe. Wood products consumption for new housing is greatly affected by this cyclic nature of the market.

U.S. Housing Market

The U.S. housing market in general, and new residential construction in particular, is and has long been the largest single market for wood products in the United States. On average, about one-third of all wood products consumed in the United States annually are used in the construction of new housing units built on-site (McKeever and Howard 2011). During periods of robust housing activity, 45% or more of all wood products consumed are for new single-family and multifamily housing. This percentage can fall to as low as 20% or less during times of economic recession.

Wood products consumption for new housing is affected not only by the absolute numbers of housing units produced but also by the types of units produced, their size, location, and types of building products used. Architectural characteristics and consumer preferences also affect wood use. For example, one-story houses tend to use more wood per unit than two-story houses due to a greater roof area; houses built on a foundation or crawlspace tend to use more wood per unit than those built on a slab on grade foundation due to a greater wood-framed floor area; detached houses tend to use more wood per unit than attached houses due to greater exterior wall area. Regional variations in wood use also exist due in part to building style preferences, but also to climatic differences. For example, houses built in the North may require greater snow load capacity; those in the South, greater wind shear capacity; and those in the West, greater earthquake resistance.

Development and acceptance of new wood and nonwood building products have occurred in the past and continue today. Examples include softwood plywood, and later OSB, substituting for lumber in sheathing applications, engineered wood products substituting for dimension lumber in framing applications, concrete slab floor systems substituting for wood framed and sheathed floor systems, and nonwood exterior siding and trim substituting for wood. CLT is a relatively new wood product that holds great potential for dramatically increasing the use of wood products in construction. Although currently focused largely on nonresidential construction, new residential construction is a potential market where CLT can make dramatic inroads into the use of other types of wood and nonwood products. Expectations are high for continued growth in both engineered wood products and CLT in new residential construction.

Nonwood building products such as foam sheathing, steel framing, and vinyl exterior siding, and nonwood construction systems such as concrete slab floor systems, remain as challenges to existing wood markets. Some competitors to wood are becoming more popular, while others less. For example, the concrete slab floor system has always been a popular flooring system, particularly in areas of the country (South) where basements are not typically present. Overall, the use of concrete slab floor systems is increasing and stands at 54% of all new houses nationwide and 75% of all new houses in the South (USDC BC 2015a). Conversely, nonwood exterior wall sheathing is becoming less popular. Structural panels sheathed 67% of all exterior wall surfaces in 2003, 71% in 2006, and 82% in 2012 (WPC 2005, 2009). These examples show that the role of wood as the building product of choice for new residential construction is continually changing and should not be taken for granted.

OBJECTIVES

The objectives of this study were three-fold. The first was to characterize the overall new residential construction market in 2012 as it was emerging from the recent economic recession and housing downturn. The second objective was to develop volume estimates of wood products used in the construction of new residential structures by type of building (new single-family and new multifamily), geographical area (census regions and divisions), structural application (foundations, floors, walls, roofs, and exterior decks and porches), and material type. The third objective was to quantify incremental potential wood use for each building type, geographical area, structural application, and wood product. Incremental wood potential is the additional amounts of wood that could be used if all major structural applications were built entirely with wood. Incremental wood potential does not include conversion of concrete/masonry foundations to wood.

NEW RESIDENTIAL CONSTRUCTION

The construction of new conventionally built onsite single-family houses and multifamily residential units (apartments) in the United States required an estimated 9,299 million board feet equivalent (bfe) of softwood lumber and engineered wood, 7,676 million ft^2, 3/8-inch basis, of structural panels, and small amounts (65 million ft^2) of nonstructural panels in 2012 (Table 2). Board feet equivalents (bfe) are defined as the amount of solid sawn lumber that would be required to replace a given unit of engineered wood or panel product and as such provide a means to compare total solid wood consumption between various uses. Figure 2 shows units of measure for wood products included in this study and their respective board feet equivalents. Because hardwood lumber is not typically used for structural applications, its usage is not included in this report. The term "lumber" when used here denotes softwood lumber only, measured in board feet (bf), unless otherwise specified. The reported volumes of lumber, engineered wood, and wood panels used in 2012 were equivalent to a combined 13,170 million bfe of solid wood products.

Table 2. Wood products used for all new conventional residential construction in the U.S., by building type, region, and structural application, 2012.

	Softwood lumber & engineered wood[a]							Wood panels (3/8-inch basis)[a]					
		Engineered wood						Structural panels					
Characteristic	Softwood lumber[b] *Mil bf*	Glulam *Mil bf*	I-joist *Mil lf*	SCL[c] *Mil cf*	Rim bds[d] *Th. ft²*	Total[e] *Mil bfe*	Total[e] *Mil bfe*	Softwood plywood *Mil ft²*	OSB *Mil ft²*	Total *Mil ft²*	Nonstructural[f] *Mil ft²*	Total *Mil ft²*	Total, all wood products[e] *Mil bfe*
Building type													
Single family	6,976	41	292	19	30	946	7,922	1,666	5,099	6,765	49	6,814	11,329
Multifamily	1,121	19	66	7	1	256	1,377	212	700	912	15	927	1,841
Total	8,098	59	358	26	30	1,202	9,299	1,878	5,798	7,676	65	7,741	13,170
Region													
Northeast	872	3	36	4	5	134	1,005	408	444	851	4	855	1,433
Midwest	1,450	7	71	6	6	244	1,694	324	1,064	1,389	10	1,398	2,393
South	4,102	21	141	10	13	473	4,575	708	3,078	3,786	37	3,823	6,486
West	1,673	29	110	6	6	351	2,025	438	1,213	1,651	14	1,665	2,857
Total	8,098	59	358	26	30	1,202	9,299	1,878	5,798	7,676	65	7,741	13,170
Application													
Floors	968	30	342	20	30	1,047	2,016	661	1,504	2,165	54	2,219	3,125
Walls	3,712	18	2	5	0	99	3,811	363	1,838	2,201	11	2,212	4,917
Roofs	2,737	11	14	1	0	55	2,792	849	2,456	3,306	0	3,306	4,445
Foundations	61	0	0	0	0	0	61	5	0	5	0	5	63
Decks/porches	620	0	0	0	0	0	620	0	0	0	0	0	620
Total	8,098	59	358	26	30	1,202	9,299	1,878	5,798	7,676	65	7,741	13,170

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Includes framing lumber, boards, solid sawn beams, and wood trusses.

[c]Structural Composite Lumber (SCL) includes laminated veneer lumber, parallel strand lumber, laminated strand lumber, and oriented strand lumber.

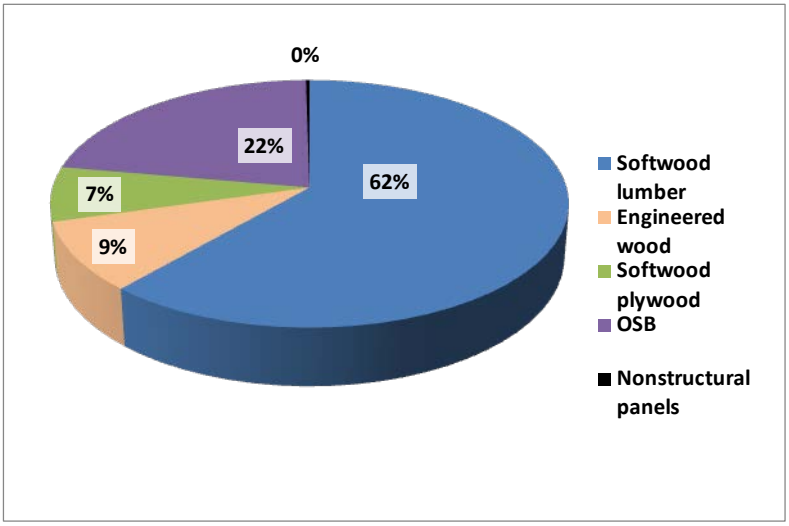
[d]Includes OSB and softwood plywood rim boards. Does not include strand lumber rim boards.

[e]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

[f]Includes hardboard, insulation board, particleboard, medium density fiberboard, and hardwood plywood.

Softwood lumber has always been the wood product used in the greatest amounts to build new residential structures. In 2012 softwood lumber accounted for nearly two-thirds (62%) of all wood products used, based on board feet equivalents of wood products (Fig. 3). OSB was the second most used product at 22%, followed by nearly equal shares of engineered wood and softwood plywood. Negligible amounts of nonstructural panels were used, mostly for floor underlayment and wall sheathing in 2012.

Figure 3. Percentage of wood products used in new residential construction, by product type, 2012.



Lumber was the preferred structural framing material for new residential construction. Overall, lumber accounted for 87% of all wood framing materials used in new residential structures (Fig. 4). New single-family houses used lumber more extensively for framing than did multifamily units. OSB was the structural sheathing material of choice capturing just over three-fourths (76%) of the total structural sheathing market (Fig. 5). Single-family houses used OSB sheathing at a slightly lower rate than did multifamily units.

Figure 4. Principal structural framing material, by building type, region, and structural application, 2012.

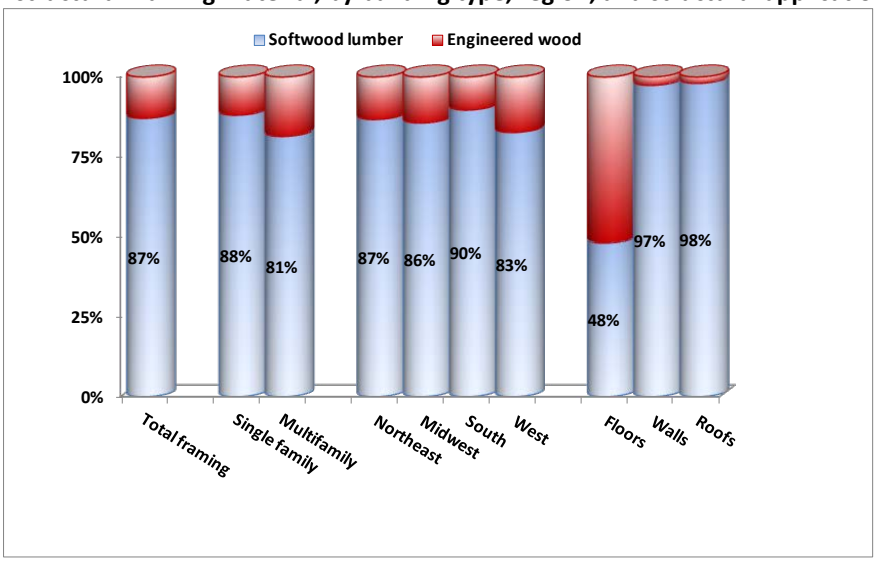
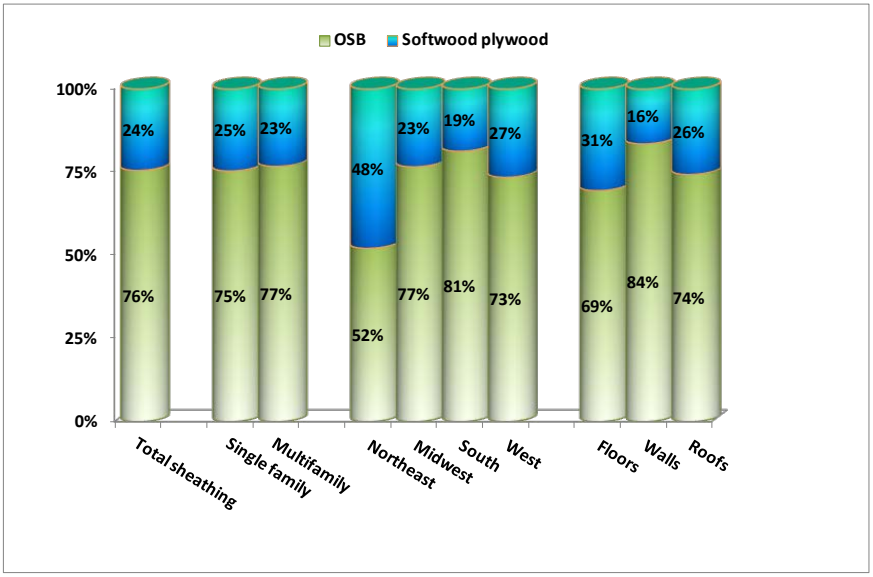


Figure 5. Principal structural sheathing material, by building type, region, and structural application, 2012.



The average residential unit in 2012 required 11,913 bfe of lumber and engineered wood, 9,834 ft^2 of structural panels, and 83 ft^2 of nonstructural panels (Table 3). This level of consumption was equivalent to each person in the United States consuming nearly 42 bfe of wood for new housing construction in 2012.

Table 3. Housing starts, floor area, average floor area per start, and wood products use per start and per square foot of floor area for new residential construction in the U.S., by building type, region, and structural application, 2012.

	Total housing starts	Floor area		Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Nonstructural panels (3/8-inch basis)			Total, all wood products		
Characteristic	*Thou*	Total *Mil ft²*	Aver-age *Ft²*	Total use[a,b] *Mil bfe*	Use per unit *Bfe*	Use per ft² *Bfe*	Total use[a] *Mil ft²*	Use per unit *Ft²*	Use per ft² *Ft²*	Total use[a] *Mil ft²*	Use per unit *Ft²*	Use per ft² *Ft²*	Total use[a,b] *Mil bfe*	Use per unit *Bfe*	Use per ft² *Bfe*
Building type															
Single family	535	1,349	2,521	7,922	14,799	5.9	6,765	12,637	5.0	49	92	0.0	11,329	21,164	8.4
Multifamily	245	276	1,126	1,377	5,614	5.0	912	3,717	3.3	15	63	0.1	1,841	7,504	6.7
Total	781	1,626	2,083	9,299	11,913	5.7	7,676	9,834	4.7	65	83	0.0	13,170	16,871	8.1
Region															
Northeast	80	157	1,976	1,005	12,615	6.4	851	10,680	5.4	4	50	0.0	1,433	17,980	9.1
Midwest	128	260	2,029	1,694	13,245	6.5	1,389	10,856	5.3	10	75	0.0	2,393	18,711	9.2
South	398	863	2,169	4,575	11,501	5.3	3,786	9,517	4.4	37	93	0.0	6,486	16,306	7.5
West	175	346	1,975	2,025	11,563	5.9	1,651	9,427	4.8	14	80	0.0	2,857	16,317	8.3
Total	781	1,626	2,083	9,299	11,913	5.7	7,676	9,834	4.7	65	83	0.0	13,170	16,871	8.1
Application															
Floors	-	-	-	2,016	2,582	1.2	2,165	2,773	1.3	54	69	0.0	3,125	4,003	1.9
Walls	-	-	-	3,811	4,882	2.3	2,201	2,820	1.4	11	14	0.0	4,917	6,299	3.0
Roofs	-	-	-	2,792	3,577	1.7	3,306	4,235	2.0	0	0	0.0	4,445	5,694	2.7
Foundations	-	-	-	61	78	0.0	5	6	0.0	0	0	0.0	63	80	0.0
Decks/porches	-	-	-	620	795	0.4	0	0	0.0	0	0	0.0	620	795	0.4
Total	781	1,626	2,083	9,299	11,913	5.7	7,676	9,834	4.7	65	83	0.0	13,170	16,871	8.1

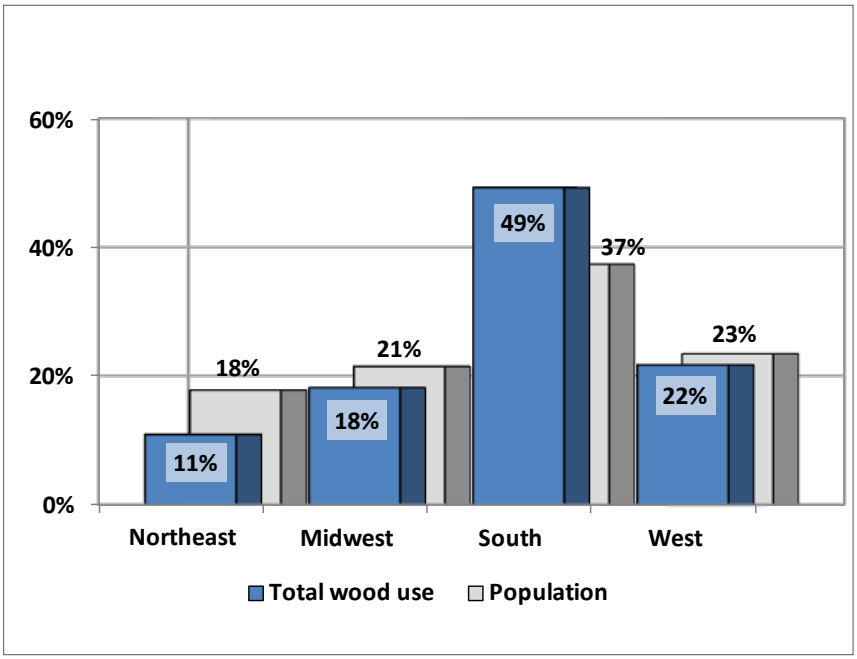
[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

Wood Use by Region

Total wood products consumption for new residential construction closely mirrors regional population levels. In 2012 the South was the most populated region of the U.S. with 37% of the Nation's total population (USDC BC Population Div. 2015) and accounted for nearly half (49%) of all wood used in new residential construction (Fig. 6). The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used nearly 6,486 million bfe of wood products in 2012, followed by the West at 2,857 million bfe, the Midwest at 2,393 million bfe, and the Northeast at 1,433 million bfe (Table 2). Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

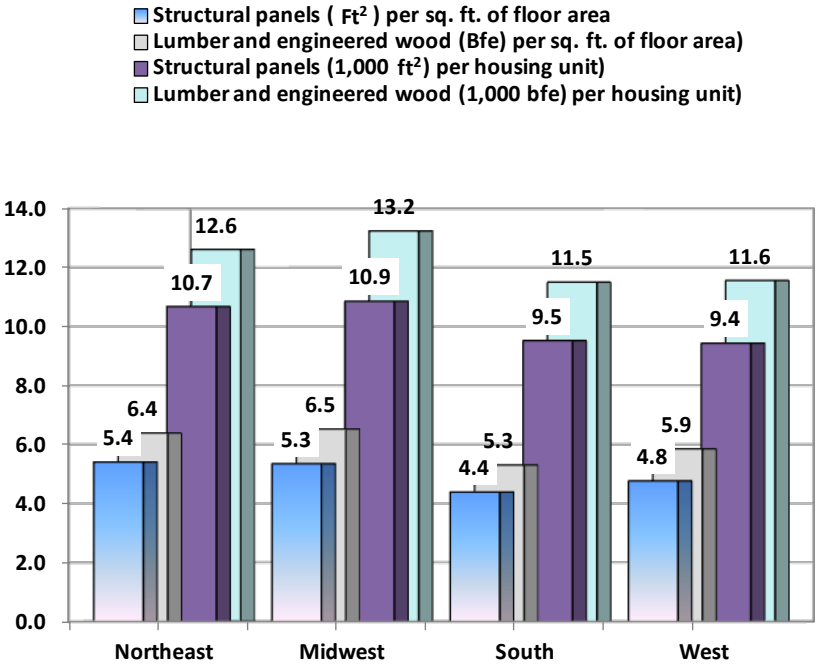
Figure 6. Percentage of population and total wood used for new residential construction, by region, 2012.



New construction in the South used more lumber relative to engineered wood for framing (90%), and more OSB relative to plywood for sheathing (81%) than any other region (Figs. 4, 5). Lumber as a percentage of total structural framing material was lowest in the West region at 83%; OSB as a percentage of total structural panels was lowest in the Northeast at just 52%.

Patterns of wood products use per house and per square foot of floor area are markedly different from total use patterns. Lumber and engineered wood and structural panels use per house and per square foot of floor area were greatest in the Midwest and Northeast regions (Table 3, Fig. 7). The South and West regions were very close to each other in overall use, with the South using slightly more structural panels and the West slightly more lumber and engineered wood. Nonstructural panel use was very low in all regions and followed consumption patterns similar to total wood use. Regional differences in use per unit and per square foot of floor area reflect not only architectural and consumer preference differences but also differences in regional building structural requirements due in part to differing environmental and climatic conditions.

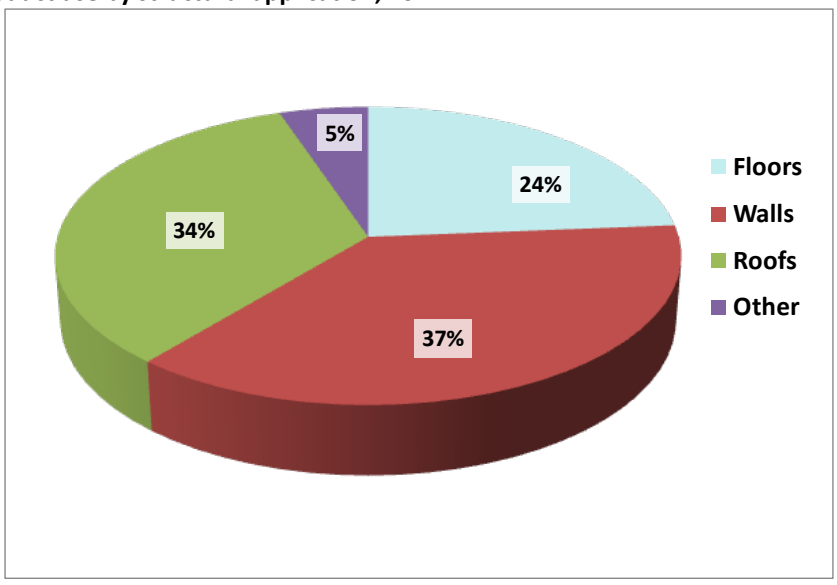
Figure 7. Wood products used per square foot of finished floor area, and per housing unit for new residential construction, by region, 2012.



Wood Use by Structural Application

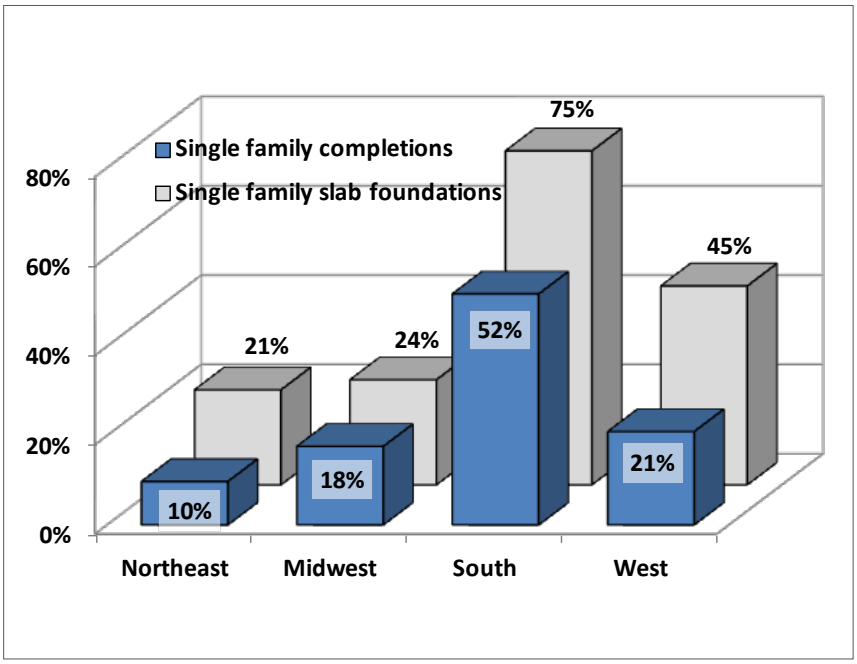
Overall, walls (exterior plus interior) accounted for more wood use than any other single building application in 2012 at more than 4,917 million bfe, 37% of total wood use (Table 2, Fig. 8). Roofs were second highest at 4,445 million bfe, followed by floors at 3,125 million bfe. Comparatively small amounts of lumber were used for the construction of decks and porches (620 million bf), and small amounts of lumber and structural panels for foundations (63 million bfe).

Figure 8. Wood product use by structural application, 2012.



Floor construction used less wood in total and per unit of construction activity (per house and per square foot of floor area) than did walls or roofs (Table 3). The popularity of concrete slab foundations in new single-family houses (and to a lesser extent in new multifamily buildings), particularly in the South and West regions, was the primary cause for lesser amounts of wood in floor systems. In 2012, 52% of all houses completed in the U.S. were in the South, and 21% in the West (Fig. 9). Concrete slab foundations were used in 75% of the houses in the South and 45% in the West, compared to just 21% and 24% in the Northeast and Midwest regions, respectively. Similarly, the relative popularity of one-story houses in the Midwest and South regions compared to the Northeast and West helped to bolster the use of wood in roofs in 2012.

Figure 9. Percentage of new single family house completions, and slab foundations used, by region, 2012.



Lumber was the principal framing material in all applications except for floors, accounting for 97% or more of all framing material used (Fig. 4). Floors were the single exception, with lumber accounting for less than half (48%) of all framing. OSB was the principal sheathing material in all applications, ranging from a high of 84% for walls to a low of 69% for floors (Fig. 5).

Historical Wood Use Comparisons

Total wood products use for new residential construction in 2012 totaled 13,170 million bfe (Table 4). This volume consisted of 9,299 million bfe of lumber and engineered wood, 7,676 million ft^2 of structural panels, and 65 million ft^2 of nonstructural panels. Total use in 2012 was considerably less than the 31,194 million bfe used in 2003 and the 33,395 million bfe used in 2006. As previously discussed, the years 2003 and 2006 were at or near the peak of the 2000 through 2006 housing boom, whereas 2012 was near the bottom of the 2007 through 2011 recession (Fig. 10). In 2012 about one-fourth (24%) of all solid wood consumed domestically was for new residential construction. Solid wood consumption is defined as total domestic production plus imports minus exports (Howard and Westby 2013). This compares to 35% of domestic consumption being used for new residential construction in 2003 and 2006.

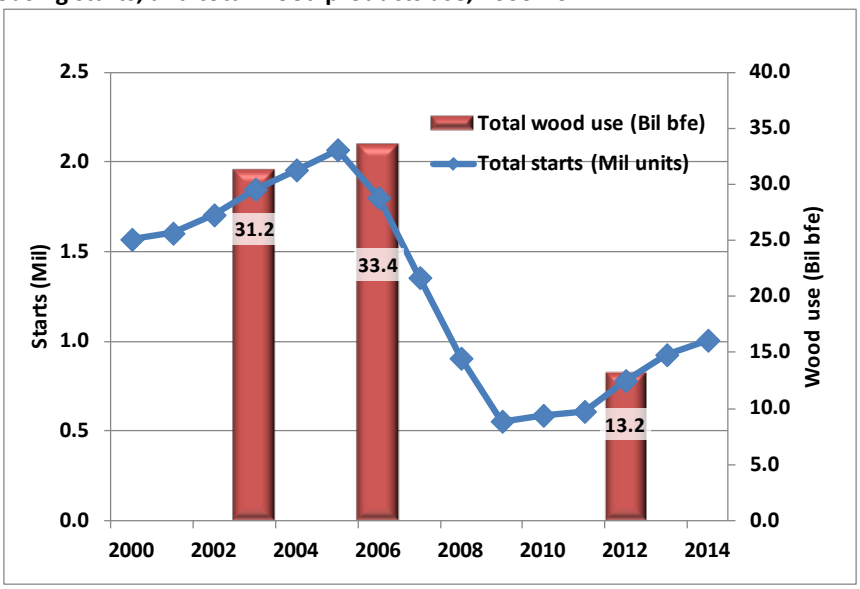
Table 4. Total domestic U.S. wood products consumption, wood products consumption for new residential construction, and new residential market shares, 2003, 2006 and 2012.

Year	Total domestic consumption[a]	Single family		Multifamily		Total	
		Total	Share	Total	Share	Total	Share
	Softwood lumber & engineered wood *(Mil bfe)*[b]						
2003	57,918	20,065	35%	1,803	3%	21,868	38%
2006	61,842	21,528	35%	2,037	3%	23,565	38%
2012	34,960	7,922	23%	1,377	4%	9,299	27%
	Structural panels *(Mil ft^2, 3/8")*						
2003	38,140	16,767	44%	1,295	3%	18,062	47%
2006	39,771	17,768	45%	1,489	4%	19,256	48%
2012	23,099	6,765	29%	912	4%	7,676	33%
	Nonstructural panels *(Mil ft^2, 3/8")*						
2003	24,484	540	2%	50	0%	590	2%
2006	25,865	384	1%	21	0%	405	2%
2012	16,154	49	0%	15	0%	65	0%
	Total, all wood products *(Mil bfe)*[b]						
2003	89,230	28,719	32%	2,475	3%	31,194	35%
2006	94,660	30,604	32%	2,792	3%	33,395	35%
2012	54,586	11,329	21%	1,841	3%	13,170	24%

[a]Total domestic consumption equals total domestic production plus imports minus exports. Howard & Westby (2013).

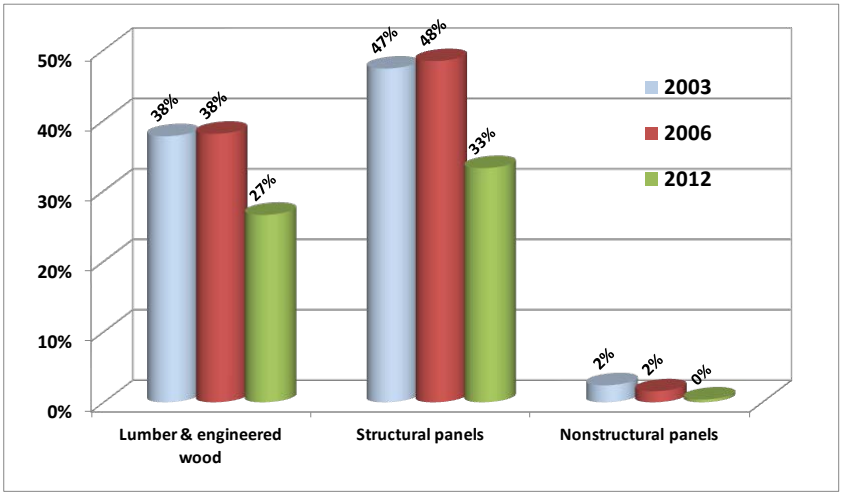
[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

Figure 10. Total housing starts, and total wood products use, 2000-2014.



Lumber and engineered wood fell from 38% to 27% of total domestic lumber and engineered wood use in 2003 and 2012, respectively (Table 4, Fig. 11). This decline was principally caused by a decline in new single-family houses, which fell from using 35% to just 23% of domestic consumption. New multifamily units remained fairly constant over the 9-year period at 3% to 4%. Structural panel use as a percentage of total domestic structural panel use also fell, and fell more so than did lumber and engineered wood. Between 2003 and 2012, overall structural panel use fell from 47% to 33% of domestic structural panel consumption. As with lumber, single-family construction was the principal cause of the decline. Little change was evident in these percentages between 2003 and 2006.

Figure 11. Wood products consumption for new residential construction as a percentage of total U.S. consumption, 2003, 2006 and 2012.



Softwood lumber competes with a variety of nonwood products, such as concrete slab floor systems and steel wall framing, various engineered wood products such as wood I-joists and LVL, and manufactured lumber trusses. In 2012, just under one-third (32%) of the volume of wood used in floor systems was dimension lumber (Table 5). This was down from 37% in 2006 and 44% in 2003. Wood I-joists have held fairly constant at about 45% between 2006 and 2012, while wood trusses have increased by about 5%.Dimension lumber dominates exterior wall framing. In 2012, 2" x 6" dimension lumber for the first time accounted for more than half (55%) of the total volume of exterior wall studs used. This increase is due to a variety of factors, including the need to increase energy efficiency and to construct walls better able to withstand natural disasters. Interior walls continue to primarily be 2" x 4" framing lumber. With only minor fluctuations, roof framing has remained unchanged since 2003, being nearly equally divided between wood trusses and dimension lumber.

Table 5. Lumber, wood trusses, and wood I-joists used for framing applications in new residential construction in the U.S., by structural application, and region, 2003, 2006 and 2012.

	Northeast			Midwest			South			West			Total, U.S.		
Characteristic	2003[a]	2006	2012	2003	2006	2012	2003	2006	2012	2003	2006	2012	2003	2006	2012
	Total, all new residential construction														
Floor framing															
Trusses	13%	4%	11%	-	18%	30%	20%	28%	28%	17%	9%	14%	17%	18%	23%
Lumber[b]	51%	52%	58%	-	43%	29%	45%	35%	31%	26%	28%	21%	44%	37%	32%
I-joists	35%	43%	31%	-	39%	41%	35%	38%	41%	57%	63%	64%	40%	45%	45%
Exterior wall framing															
2"x4"	49%	37%	20%	-	61%	37%	87%	83%	59%	44%	46%	32%	62%	64%	45%
2"x6"	51%	63%	80%	-	39%	63%	13%	17%	41%	56%	54%	68%	38%	36%	55%
Roof framing															
Trusses	61%	40%	42%	-	72%	66%	40%	30%	48%	83%	84%	62%	54%	48%	53%
Lumber[b]	38%	59%	57%	-	26%	34%	59%	69%	51%	16%	15%	36%	45%	51%	46%
I-joists	1%	1%	1%	-	2%	1%	1%	1%	1%	1%	1%	2%	1%	1%	1%
	New single family residential construction														
Floor framing															
Trusses	12%	4%	5%	-	17%	29%	17%	26%	21%	17%	8%	14%	15%	16%	19%
Lumber[b]	52%	49%	62%	-	43%	29%	48%	37%	36%	27%	25%	21%	45%	37%	35%
I-joists	36%	47%	32%	-	40%	42%	35%	38%	43%	56%	67%	65%	40%	47%	46%
Exterior wall framing															
2"x4"	49%	33%	21%	-	62%	36%	87%	85%	59%	43%	46%	29%	61%	64%	44%
2"x6"	51%	67%	79%	-	38%	64%	13%	15%	41%	57%	54%	71%	39%	36%	56%
Roof framing															
Trusses	61%	42%	39%	-	71%	64%	38%	28%	46%	82%	83%	62%	52%	47%	52%
Lumber[b]	38%	56%	60%	-	27%	35%	62%	71%	53%	17%	16%	36%	47%	52%	47%
I-joists	1%	1%	1%	-	2%	1%	0%	1%	1%	1%	1%	2%	1%	1%	1%

[a]Includes Midwest region.

[b]Includes 2"x6" and larger dimension lumber.

Sources: WPC 2005, WPC 2009.

NEW SINGLE-FAMILY RESIDENTIAL CONSTRUCTION

New single-family housing is the predominant market in the United States for lumber, structural panels, and other wood building products, as well as for secondary wood products used to finish and furnish newly constructed houses. In 2012, the construction of 535,000 new single-family houses, duplexes, and row and townhouses added 1,349 million ft^2 of finished floor area to the Nation's housing stock (Table 1). This level of construction required more than 11,329 million bfe of wood products (Table 6), or about 86% of all the wood products used for all new conventionally built residential structures. Not included are wood products used to finish and furnish the newly constructed houses.

Table 6. Wood products used for new single family residential construction in the U.S., by building type, region, and structural application, 2012.

	Softwood lumber & engineered wood[a]							Wood panels (3/8-inch basis)[a]					
		Engineered wood						Structural panels					
Characteristic	Soft-wood lum-ber[b] *Mil bf*	Glu-lam *Mil bf*	I-joist *Mil lf*	SCL[c] *Mil ft³*	Rim bds[d] *Th. ft²*	Total[e] *Mil bfe*	Total[e] *Mil bfe*	Soft-wood ply-wood *Mil ft²*	OSB *Mil ft²*	Total *Mil ft²*	Non-Struc-tural[f] *Mil ft²*	Total *Mil ft²*	Total, all wood prod-ucts[e] *Mil bfe*
Building type	0.881	0.62							0.754				
Single family	6,976	41	292	19	30	946	7,922	1,666	5,099	6,765	49	6,814	11,329
Region													
Northeast	736	1	31	2	4	100	835	365	376	741	3	744	1,208
Midwest	1,294	3	63	5	6	216	1,510	287	970	1,257	9	1,266	2,143
South	3,537	16	116	8	13	375	3,911	643	2,714	3,357	26	3,383	5,603
West	1,410	21	83	4	6	255	1,665	370	1,039	1,409	11	1,420	2,375
Total	6,976	41	292	19	30	946	7,922	1,666	5,099	6,765	49	6,814	11,329
Application										84%			
Floors	757	16	277	14	30	815	1,572	565	1,205	1,770	45	1,815	2,480
Walls	3,091	16	2	4	0	84	3,175	338	1,731	2,069	4	2,073	4,212
Roofs	2,452	9	13	1	0	46	2,499	758	2,162	2,920	0	2,920	3,959
Foundations	59	0	0	0	0	0	59	5	0	5	0	5	61
Decks/porches	617	0	0	0	0	0	617	0	0	0	0	0	617
Total	6,976	41	292	19	30	946	7,922	1,666	5,099	6,765	49	6,814	11,329

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Includes framing lumber, boards, solid sawn beams, and wood trusses.

[c]Structural Composite Lumber (SCL) includes laminated veneer lumber, parallel strand lumber, laminated strand lumber, and oriented strand lumber.

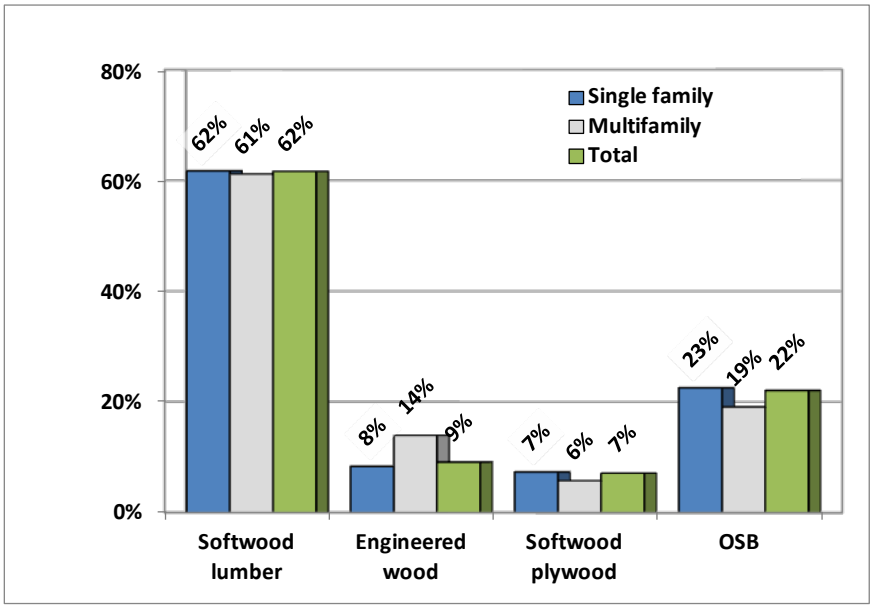
[d]Includes OSB and softwood plywood rim boards. Does not include strand lumber rim boards.

[e]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

[f]Includes hardboard, insulation board, particleboard, medium density fiberboard, and hardwood plywood.

Softwood lumber is the structural building material of choice for new single-family house construction, and because single-family construction accounts for such a large percentage (86%) of total residential construction, wood products consumption patterns in total and for single-family construction are nearly identical (Fig. 12). In 2012, softwood lumber accounted for nearly two-thirds (62%) of all wood products used, based on their board feet equivalents. OSB was the second most used product at 23%, followed by nearly equal shares of engineered wood and softwood plywood, 8% and 7%, respectively. Negligible amounts of nonstructural panels were used in 2012.

Figure 12. Percentage of wood products used in new residential construction, by product and building types, 2012.



Softwood lumber is not only the most widely used wood product overall for new single-family construction, but is also the most widely used wood product for structural framing applications. Softwood lumber accounted for 88% of all wood framing materials used in new single-family houses in 2012 (Fig. 4). OSB was the structural sheathing material of choice, capturing three-fourths (75%) of the total structural sheathing market (Fig. 5). Small amounts of nonstructural panels were also used, accounting for less than 1% of total panel consumption.

The average new single-family house in 2012 had 2,521 ft^2 of floor area and used 8.4 bfe of wood products per square foot of floor area to build (Tables 1 and 7). A total of 21,164 bfe of wood products were used to build the average house in 2012.

Table 7. Housing starts, floor area, average floor area per start, and wood products use per start and per square foot of floor area for new single family residential construction in the U.S., by building type, region, and structural application, 2012.

		Floor area		Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Nonstructural panels (3/8-inch basis)			Total, all wood products		
Characteristic	Total housing starts *Thou*	Total *Mil ft²*	Aver-age *Ft²*	Total use[a,b] *Mil bfe*	Use per unit *Bfe*	Use per ft² *Bfe*	Total use[a] *Mil ft²*	Use per unit *Ft²*	Use per ft² *Ft²*	Total use[a] *Mil ft²*	Use per unit *Ft²*	Use per ft² *Ft²*	Total use[a,b] *Mil bfe*	Use per unit *Bfe*	Use per ft² *Bfe*
Building type															
Single family	535	1,349	2,521	7,922	14,799	5.9	6,765	12,637	5.0	49	92	0.0	11,329	21,164	8.4
Region															
Northeast	47	117	2,525	835	17,965	7.1	741	15,933	6.3	3	74	0.0	1,208	25,968	10.3
Midwest	92	217	2,359	1,510	16,397	7.0	1,257	13,649	5.8	9	100	0.0	2,143	23,271	9.9
South	283	734	2,596	3,911	13,841	5.3	3,357	11,881	4.6	26	92	0.0	5,603	19,827	7.6
West	114	282	2,472	1,665	14,594	5.9	1,409	12,350	5.0	11	92	0.0	2,375	20,816	8.4
Total	535	1,349	2,521	7,922	14,799	5.9	6,765	12,637	5.0	49	92	0.0	11,329	21,164	8.4
Application															
Floors	-	-	-	1,572	2,937	1.2	1,770	3,307	1.3	45	84	0.0	2,480	4,633	1.8
Walls	-	-	-	3,175	5,931	2.4	2,069	3,866	1.5	4	8	0.0	4,212	7,868	3.1
Roofs	-	-	-	2,499	4,668	1.9	2,920	5,456	2.2	0	0	0.0	3,959	7,395	2.9
Foundations	-	-	-	59	110	0.0	5	9	0.0	0	0	0.0	61	114	0.0
Decks/porches	-	-	-	617	1,153	0.5	0	0	0.0	0	0	0.0	617	1,153	0.5
Total	535	1,349	2,521	7,922	14,799	5.9	6,765	12,637	5.0	49	92	0.0	11,329	21,164	8.4

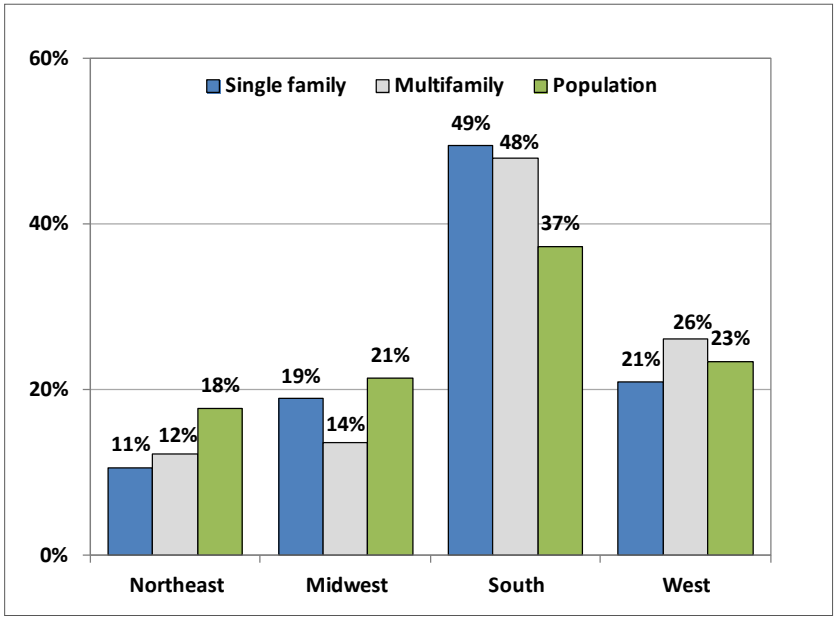
[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volume,s and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

Wood Use by Region

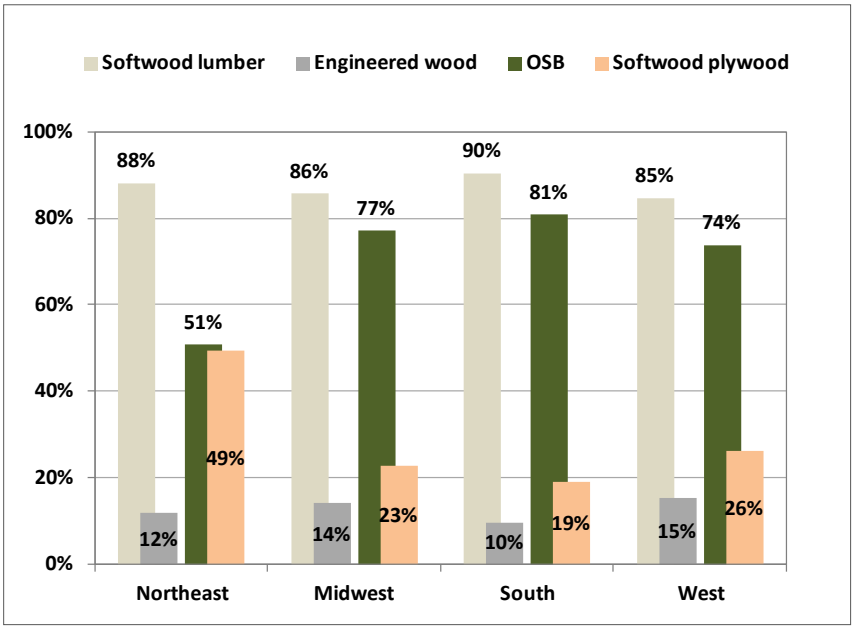
Regional patterns of wood products consumption for new single-family residential construction closely follow regional population patterns. In 2012, the South was the most populated region of the United States, with 37% of the Nation's total population (USDC BC Population Div. 2015), and accounted for nearly half (49%) of all wood used for new single-family construction (Fig. 13). As such, wood products consumption exceeded population by 12%. In contrast, wood products consumption in all other regions as a percentage of total wood products consumption was less than its corresponding population percentage. The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used 5,603 million bfe of wood products in 2012, followed by the West at 2,375 million bfe, the Midwest at 2,143 million bfe, and the Northeast at 1,208 million bfe (Table 6). Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

Figure 13. Percentage of population and total wood used for new residential construction, by building type and region, 2012.



New single-family house construction in the South used more lumber relative to engineered wood for framing (90%) and more OSB relative to plywood for sheathing (81%) than any other region (Fig. 14). Lumber as a percentage of total structural framing material was lowest in the West region at 85%, and OSB as a percentage of total structural panels was lowest in the Northeast at just 51%.

Figure 14. Principal structural framing and sheathing material for new single family residential construction, by region and structural wood product, 2012.



Patterns of wood products use per house and per square foot of floor area are markedly different from total use patterns. Lumber and engineered wood use and structural panel use per house and per square foot of floor area were greatest in the Northeast, followed closely the Midwest region (Table 7). The West was third highest in overall use per unit and per square foot of floor area, followed closely by the South. Nonstructural panel use was very low in all regions and followed consumption patterns similar to total wood use. Regional differences in use per unit and per square foot of floor area reflect not only architectural and consumer preference differences, but also differences in regional building structural requirements due in part to different environmental and climatic conditions.

Wood Use by Structural Application

Construction of floors, walls, roofs, foundations, and decks and porches for new single-family houses required a total of 7,922 million bfe of lumber and engineered wood for framing and 6,765 million ft^2 of structural panels for sheathing in 2012 (Table 6). Framing accounted for 70% of all wood framing and sheathing products used, sheathing for 30%. Small amounts (49 million ft^2) of nonstructural panels were also used, primarily for floor underlayment and wall sheathing.

Overall, walls and roofs used substantially more wood framing material than did floors, foundations, and decks and porches. The combined wall and roof consumption totaled 5,674 million bfe and accounted for nearly three-fourths (71%) of total framing materials use (Table 6). Lumber was by far the most popular choice of wood framing materials, accounting for 88% of total use.

Roofs used more structural panels than other applications at 43% (2,920 million ft^2), followed by walls and floors, respectively (Table 6). Negligible amounts of structural panels were used for foundations and decks and porches.

Floors

Floor construction used less wood in total and per unit of construction activity (per house and per square foot of floor area) than did walls or roofs (Table 7). In 2012, 2,480 million bfe of wood products were used to frame and sheath floors, just 22% of all wood used. This volume of wood for floors is about 40% less than that for either walls or roofs. As previously noted, the popularity of concrete slab foundations, particularly in the South and West regions, was the principal cause for lesser amounts of wood being used in floor than wall and roof systems. Overall, fewer than half (45%) of all new single-family houses completed in 2012 were built with traditional basement or crawlspace foundations. In the 30 years prior to 2000, basement/crawlspace foundations averaged 58% of all foundations but have fallen to just 45% since then. Regionally, the South had the fewest basement/crawlspace foundations at 25% and the Northeast the most at 78%. Trends since 2000 were for fewer houses with basement/crawlspace foundations in all regions except the West.

In 2012, 757 million bf of softwood lumber, and 815 million bfe of engineered wood was used in floor systems (Table 6). Nearly 96% (724 million bf) of the 757 million bf of softwood lumber used was for floor framing in the form of wood trusses, dimension lumber, beams, and rim boards. The remaining 4% was for floor sheathing. Wood trusses accounted for 31% of total framing lumber, dimension lumber 56%, beams 12%, and rim boards 1%.

Engineered wood was the material of choice for floor framing in new single-family houses in 2012. More than half (52%) of the 1,540 million bfe of wood used for floor framing was engineered wood (Table 6). I-joists were the engineered wood product used in the greatest amount, accounting for more than two-thirds (68%) of all engineered wood used and more than one-third (35%) of all framing materials. Structural composite lumber (SCL) was the second highest engineered wood product used at 28%, followed by nearly equal amounts of glulam and OSB/plywood rim boards at 2% each.

Structural panels used for floor sheathing and underlayment totaled 1,815 million ft^2, and nonstructural panels 45 million ft^2 in 2012 (Table 6). OSB was by far the preferred structural panel, accounting for 68% of total use. Overall, structural panels accounted for about 36% of all solid wood used in floor systems. Structural panel floor sheathing totaled 1,623 million ft^2 or about 92% of total use. The remaining 147 million ft^2 was used for floor underlayment. An additional 45 million ft^2 of nonstructural panels were used for underlayment. No nonstructural panels were used for floor sheathing.

In terms of surface area covered, 3/4-inch OSB accounted for more floor area sheathed than any other single floor sheathing material, including concrete slab floors. Of the 1,315 million ft^2 of new floor area built in 2012, 495 million ft^2 (38%) was 3/4-inch OSB, 477 million ft^2 (36%) was concrete slab, and the remaining 26% a combination of softwood plywood and OSB panels of various thicknesses and lumber boards (Appendix B). In addition to sheathing, 277 million ft^2 of the total 1,315 million ft^2 of floor area was covered by underlayment, or about 21%. Based on surface area covered, cementitious board was the most used underlayment material, with a 42% market share. Softwood plywood was the most popular wood-based underlayment panel at 27%, followed by lauan plywood and OSB.

Walls

In 2012, a total of 4,212 million bfe of lumber, engineered wood, and wood panels were used to construct exterior and interior walls in new single-family houses (Table 6). Walls were the single largest wood-using structural application, accounting for more than 37% of all wood used, and consisted of 3,091 million bf of softwood lumber, 84 million bfe of engineered wood, 2,069 ft^2 of structural panels, and 4 million ft^2 of nonstructural panels.

Softwood dimension lumber is the principal wood product used to construct both exterior and interior walls in new single-family houses. In 2012, a total of 2,885 million bf of dimension lumber was used for wall framing, 93 million bf for window and door headers, and 5 million bf for garage door headers (Appendix B). In addition, 15 million bf of solid sawn beams were used for window and door headers, and 4 million bf for garage door headers.

Exterior wall stud framing was the single largest use for dimension lumber, accounting for 1,493 million bf (52%) of total use (Appendix B). Interior wall framing was second at 42% (1,198 million bf). Sill plates and blocking accounted for the remaining 7% of dimension lumber use. The 2" x 6" was the wood product used in greatest amounts for exterior wall framing, the 2" x 4" for interior wall framing. In recent years 2" x 6" exterior wall framing has increased in popularity due to a variety of factors, including the need to increase energy efficiency and to construct walls better able to withstand natural disasters. In 2012, an estimated 45% of all exterior walls had 2" x 6" framing, compared to just 25% 10 years prior (Elling 2014). Spacing of 2" x 6" dimension lumber is quite variable but has exhibited a slight upward trend over the past 10 years, resulting in a greater increase in wood use than otherwise anticipated. In addition to dimension lumber, 88 million bf of posts, beams and logs, and a small amount (0.3 million bfe) of engineered wood, primarily structural composite lumber, were also used for exterior wall framing.

Wood use for window and door headers and garage door headers totaled 202 million bfe, just 6% of total wood use for wall framing (Appendix B). Window and door headers were primarily lumber and solid sawn beams (74%), with engineered wood accounting for the remainder (24%). Laminated veneer lumber (LVL) was the engineered wood product used in greatest amounts. In contrast, garage door headers were primarily engineered wood (84%), with lumber accounting for the remainder (16%).The greater use of engineered wood reflects the larger spans required by garage door headers compared to window and door headers. LVL and glulam accounted for two-thirds of all headers, at 47% and 20%, respectively.

Roofs

In 2012, a total of 3,959 million bfe of lumber, engineered wood, and wood panels were used to construct roofs in new single-family houses (Table 6). Roofs were second only to walls in the use of wood for structural applications. Overall, 35% of all wood used in new construction was for roofs. The 3,959 million bfe consisted of 2,452 million bf of softwood lumber, 46 million bfe of engineered wood, and 2,920 million ft^2 of structural panels No nonstructural panels were used.

Softwood dimension lumber is the principal wood product used in roof framing in new single-family houses. In 2012, a total of 2,436 million bf of dimension lumber was used to frame roofs, and 50 million bf of built-up dimension lumber was used for roof beams (Appendix B). In addition, 3 million bf of solid sawn beams were used.

The 2" x 4" roof truss is the single wood product used in greatest amounts in new single-family house roof framing (Appendix B). Nearly half (47%) of all dimension lumber used for roof framing was 2" x 4" trusses. The use of 2" x 4" gables and dormers added an additional 238 million bf, for a total of 1,389 million bf, 57% of total dimension lumber used for framing. The remaining 1,046 million bf consisted of 594 million bf of 2" x 8" rafters, 314 million bf of 2" x 6" rafters, and 138 million bf of 2" x 10" rafters. Small amounts of wood I-joists were also used for roof framing totaling 26 million bfe.

Wood use for roof beams was 74 million bfe (Appendix B). This consisted of 54 million bf of built-up dimension and solid sawn beams, and nearly 21 million bfe of engineered wood. LVL and glulam were the two most used types of engineered wood beams, at 51% and 42%, respectively, of all engineered wood beams.

Structural wood panels used for roof sheathing totaled 2,920 million ft^2 in 2012 (Table 6). More structural panels were used for roof sheathing than for any other single use. No nonstructural panels were used. OSB use totaled 2,162 million ft^2, 74% of total use. In terms of surface area covered, 7/16- or 1/2-inch OSB accounted for substantially more roof surface area than any other single covering (Appendix B). Of the 2,100 million ft^2 of new roof area built in 2012, 1,398 million ft^2 (67%) was7/16- or 1/2-inch OSB. Softwood plywood, 5⁄8-inch thick, was a distant second at just 12% of area covered. Lumber boards (1 inch and 2 inch) covered 11 million ft^2 of roof area. Overall, wood-based panels covered 99% of all newly constructed roofs in 2012.

Foundations

Small amounts of treated lumber and treated plywood were used in 2012 for foundations. Treated lumber use totaled 59 million bf, and softwood plywood use totaled 5 million ft^2, for a total use of 61 million bfe (Table 6).

Decks and Porches

The construction of outdoor decks and porches required 617 million bf of lumber in 2012 (Table 6). Decks accounted for 62% of total lumber use (385 million bf), with 93% being treated. Conversely, porches accounted for 38% of total lumber use, with just 6% being treated lumber.

Treated lumber was the principal deck surface material, accounting for 41% of the total board footage of decking material (Appendix B). Wood–plastic composites were second at 34%, followed by untreated lumber (21%) and PVC/vinyl/fiberglass at 4%.

Porch surface materials were predominately not wood. Slightly more than 70% of all surface materials were concrete, brick, stone, or tiles, and 14% were plastic or composites (Appendix B). Just 16% of porch surfaces were wood, with 30% being treated, 70% untreated.

Historical Wood Use Comparisons

Total wood products use for new single-family residential construction in 2012 totaled 11,329 million bfe (Table 8). This volume consisted of 7,922 million bfe of lumber and engineered wood, 6,765 million ft^2 of structural panels, and 49 million ft^2 of nonstructural panels. Total use in 2012 was considerably less than the 28,719 million bfe used in 2003 and the 30,604 million bfe used in 2006. The dramatic drop in wood use in 2012 compared to 2003 and 2006 was because the years 2003 and 2006 were at or near the peak of the 2000 through 2006 housing boom, while 2012 was near the bottom of the 2007 through 2011 recession (Fig. 10). In 2012 54,586 million bfe of wood products were consumed domestically in the U.S. (Howard and Westby 2013), just over one-fifth (21%) of which was used for new residential construction. This compares to nearly one-third (32%) of domestic consumption in 2003 and 2006 being used for new single-family residential construction (Table 4).

A better way to compare wood products consumption in 2012 to previous years is to remove, as much as possible, recession-related effects. Wood use per house and wood use per square foot of finished floor area are two ways in which effects from the recession can be mitigated. In 2012, the average house required 13,033 bf of softwood lumber, 1,767 bfe of engineered wood, 3,112 ft^2 of softwood plywood, 9,525 ft^2 of OSB, and 92 ft^2 of nonstructural panels (Table 8). Compared to 2006, more softwood lumber, softwood plywood, and OSB were used per house in 2012, slightly less engineered wood, and considerably less nonstructural panels. Average floor areas between 2003 and 2006 and between 2008 and 2012 increased, so some of the increase in total use per house can be attributed to size and some to recession-related effects on the mix of house styles, amenities, and other consumer preferences.

Table 8. Housing starts, floor area, and wood products use per start and per square foot of floor area for new single family residential construction in the U.S., 2003, 2006 and 2012.

Year	Housing starts *Thou*	Floor area: Total *Mil ft²*	Floor area: Average *Ft²*	Total[a] *Million*	Use per unit	Use per ft²	Total[a] *Million*	Use per unit	Use per ft²	Total[a] *Million*	Use per unit	Use per ft²
				Single family								
				Softwood lumber and engineered wood								
				Softwood lumber *(Bf)*			Engineered wood *(Bfe)*[b]			Total *(Bfe)*[b]		
2003	1,499	3,512	2,343	17,834	11,897	5.1	2,231	1,488	0.6	20,065	13,386	5.7
2006	1,465	3,651	2,492	18,894	12,897	5.2	2,634	1,798	0.7	21,528	14,695	5.9
2012	535	1,349	2,521	6,976	13,033	5.2	946	1,767	0.7	7,922	14,799	5.9
				Structural panels								
				Softwood plywood *(Ft²)*			OSB *(Ft²)*			Total *(Ft²)*		
2003	--	--	--	4,400	2,936	1.3	12,366	8,250	3.5	16,767	11,185	4.8
2006	--	--	--	4,014	2,740	1.1	13,753	9,388	3.8	17,768	12,128	4.9
2012	--	--	--	1,666	3,112	1.2	5,099	9,525	3.8	6,765	12,637	5.0
				Nonstructural panels *(Ft²)*			--	--	--	Total, all wood *(Bfe)*[b]		
2003	--	--	--	540	360	0.2	--	--	--	28,719	19,158	8.2
2006	--	--	--	384	262	0.1	--	--	--	30,604	20,890	8.4
2012	--	--	--	49	92	0.0	--	--	--	11,329	21,164	8.4

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volume,s and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

Wood use per square foot of finished floor area estimates improve the use per house estimates by reducing the effect of changing house size on the wood use estimates. Between 2006 and 2012, the use of each wood product per square foot of floor area remained unchanged, with the exceptions of softwood plywood, which increased slightly, and nonstructural panels, which fell considerably (Table 8). Figures 15 to 17 show trends since 1995 in wood products use for floor, wall, and roof systems. These figures show that during the late 1990s and early 2000s, the use of wood per square foot of finished floor area was more variable than in the late 2000s and 2010s. Floor systems exhibited the greatest variability due in part to changing preferences for concrete slab foundations, while wall systems the least. Although new single-family construction in 2012 was still being negatively impacted by the 2007 to 2011 recession, wood product use per unit of construction activity remained at levels achieved during the peak of the 2000 to 2006 housing boom.

NEW MULTIFAMILY RESIDENTIAL CONSTRUCTION

New multifamily housing is defined to be the construction of traditional apartment buildings and multi-unit condominiums. According to the U.S. Department of Commerce, multifamily housing is "Residential buildings containing units built one on top of another and those built side-by-side which do not have a ground-to-roof wall and/or have common facilities (i.e., attic, basement, heating plant, plumbing, etc.)" (USDC BC 2015d). Although overall the new multifamily construction market is smaller than the new single-family market, it nevertheless is an important component of the U.S. housing stock. In 2012, 245,000 new multifamily housing units were built (Table 3). These units added 276 million ft^2 of new floor area to the housing stock and required more than 1,841 million bfe of wood products, about 14% of all the wood products used for all new conventionally built residential structures. Not included are wood products used to finish and furnish the newly constructed units.

Softwood lumber is the structural building material of choice to build new multifamily housing units. In 2012 1,121 million bf of softwood lumber was used, which accounted for 60% of all wood products used, based on board feet equivalents (Table 9). Overall 75% of all wood used was for framing applications, compared to 70% for framing of new single-family houses. OSB was the second most used product at 19%, followed by engineered wood and softwood plywood at 14% and 6%, respectively. Negligible amounts of nonstructural panels were used in 2012.

Table 9. Wood products used for new multifamily residential construction in the U.S., by building type, region, and structural application, 2012.

	Softwood lumber & engineered wood[a]							Wood panels (3/8-inch basis)[a]					
		Engineered wood						Structural panels					
Characteristic	Soft-wood lum-ber[b] *Mil bf*	Glu-lam *Mil bf*	I-joist *Mil lf*	SCL[c] *Mil cf*	Rim bds[d] *Mil ft²*	Total[e] *Mil bfe*	Total[e] *Mil bfe*	Soft-wood ply-wood *Mil ft²*	OSB *Mil ft²*	Total *Mil ft²*	Non-Struc-tural[f] *Mil ft²*	Total *Mil ft²*	Total, all wood prod-ucts[e] *Mil bfe*
Building type													
Multifamily	1,121	19	66	7	1	256	1,377	212	700	912	15	927	1,841
Region													
Northeast	136	1	5	1	0	34	170	42	68	110	1	111	225
Midwest	156	4	8	1	0	28	184	37	94	132	0	132	250
South	566	5	26	3	0	98	664	64	364	428	11	439	883
West	264	8	27	2	0	96	360	68	174	242	3	245	482
Total	1,121	19	66	7	1	256	1,377	212	700	912	15	927	1,841
Application													
Floors	211	14	65	6	1	232	443	96	299	395	9	403	645
Walls	621	2	0	1	0	15	636	25	107	132	7	139	705
Roofs	285	3	1	0	0	9	294	91	294	385	0	385	486
Foundations	2	0	0	0	0	0	2	0	0	0	0	0	2
Decks/porches	3	0	0	0	0	0	3	0	0	0	0	0	3
Total	1,121	19	66	7	1	256	1,377	212	700	912	15	927	1,841

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Includes framing lumber, boards, solid sawn beams, and wood trusses.

[c]Structural Composite Lumber (SCL) includes laminated veneer lumber, parallel strand lumber, laminated strand lumber, and oriented strand lumber.

[d]Includes OSB and softwood plywood rim boards. Does not include strand lumber rim boards.

[e]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

[f]Includes hardboard, insulation board, particleboard, medium density fiberboard, and hardwood plywood.

Softwood lumber is not only the most widely used wood product overall for new multifamily construction, but is also the most widely used wood product for structural framing applications. Softwood lumber accounted for 81% of all wood framing materials used in new multifamily units in 2012, engineered wood for 19%. It should be noted that as a percentage of total framing lumber, softwood lumber had a slightly smaller share in multifamily than in new single-family construction. The more frequent use of engineered wood was due primarily to the larger size of apartment buildings (not to be confused with individual multifamily units) compared to single-family houses. OSB was the structural sheathing material of choice, capturing more than three-fourths (77%) of the total structural sheathing market. Small amounts of nonstructural panels were also used, accounting for less than 1% of total panel consumption.

The average new multifamily housing unit in 2012 had 1,126 ft^2 of floor area and used 6.7 bfe of wood products per square foot of finished floor area to build (Table 3). A total of 7,504 bfe of wood products were used to build the average multifamily housing unit in 2012.

Wood Use by Region

Regional patterns of wood products consumption for new multifamily residential construction closely follow regional population patterns and are similar to regional new single-family construction use patterns. In 2012, the South was the most populated region of the United States with 37% of the Nation's total population (USDC BC Population Div. 2015) and accounted for nearly half (48%) of all wood used for new multifamily construction (Fig. 13). As such, wood products consumption exceeded population by 11%. Wood products consumption in the West region also exceeded its population, with 23% of the Nation's population using 26% of all wood for new multifamily construction. In contrast, wood products consumption in the Northeast and Midwest regions as a percentage of total wood products consumption was less than its corresponding population percentage. The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used 883 million bfe of wood products in 2012, followed by the West at 482 million bfe, the Midwest at 250 million bfe, and the Northeast at 225 million bfe (Table 9). Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

Overall, the South used more lumber relative to engineered wood for framing (85%) and more OSB relative to plywood for sheathing (85%) than any other region. Lumber as a percentage of total structural framing material was lowest in the West region at 73%; OSB as a percentage of total structural panels was lowest in the Northeast at just 62%.

Regional patterns of wood products use per house and per square foot of floor area differ from total use patterns. Lumber and engineered wood and structural panel use per house and per square foot of floor area were greatest in the West, followed closely the South (Table 10). The West was highest in overall use per unit and per square foot of floor area, followed closely by the South, Midwest, and Northeast, respectively. Nonstructural panel use was very low in all regions and followed consumption patterns similar to total wood use. Regional differences in use per unit and per square foot of floor area reflect not only architectural and consumer preference differences, but also differences in regional building structural requirements due in part to different environmental and climatic conditions.

Wood Use by Structural Application

Construction of floors, walls, roofs, foundations, and decks and porches for new multifamily houses required a total of 1,377 million bfe of lumber and engineered wood for framing and 912 million ft^2 of structural panels for sheathing in 2012 (Table 9). Framing accounted for 75% of all wood framing and sheathing products used, sheathing for 25%. This differs from new single-family construction where framing accounted for 70% of total wood use. Small amounts (15 million ft^2) of nonstructural panels were used primarily for floor underlayment and wall sheathing.

Overall, walls used 636 million bfe of wood framing material, more than any other application (Table 9). Floors were second highest at 443 million bfe, followed by roofs at 294 bfe. Minor amounts of framing material were used for foundations and decks and porches. The pattern of use differs from new single-family construction in that new single-family construction used more wood for framing roofs relative to floors. This difference was due in part to the relative popularity of concrete slab floors in new single-family houses and multiple stories for multifamily buildings. Combined, walls and floors required 1,079 million bfe, or more than three-fourths (78%) of all wood framing products used (Table 9). Lumber was by far the most popular choice of wood framing products, accounting for 81% of total use.

Structural panel use was nearly equal for floors and roofs, at 43% and 42%, respectively, of total structural panel use (Table 9). The remaining 15% was used for walls. In total, 927 million $ft^2$of structural panels were used. No structural panels were used for foundations or for decks and porches.

Floors

Floor construction was the second highest overall use for wood in new multifamily construction, both in total and per unit of construction activity (per housing unit and per square foot of floor area). In 2012, 645 million bfe of wood products were used to frame and sheath floors, 35% of all wood used (Tables 9 and 10). This level of consumption is equivalent to 2,629 bfe per housing unit and 2.3 bfe per square foot of finished floor area. The volume of wood for floors is only 3% less that that for walls (38%), and 9% greater than roofs (26%). This differs markedly from new single-family construction where floors used less wood than either walls or roofs.

Table 10. Housing starts, floor area, average floor area per start, and wood products use per start and per square foot of floor area for new multifamily residential construction in the U.S., by building type, region, and structural application, 2012.

	Total	Floor area		Softwood lumber & engineered wood			Structural panels (3/8-inch basis)			Nonstructural panels (3/8-inch basis)			Total, all wood products		
	housing		Aver-	Total	Use per	Use	Total	Use per	Use	Total	Use per	Use	Total	Use per	Use
	starts	Total	age	use[a,b]	unit	per ft^2	use[a]	unit	per ft^2	use[a]	unit	per ft^2	use[a,b]	unit	per ft^2
Characteristic	*Thou*	*Mil ft^2*	*Ft^2*	*Mil bfe*	*Bfe*	*Bfe*	*Mil ft^2*	*Ft^2*	*Ft^2*	*Mil ft^2*	*Ft^2*	*Ft^2*	*Mil bfe*	*Bfe*	*Bfe*
Building type															
Multifamily	245	276	1,126	1,377	5,614	5.0	912	3,717	3.3	15	63	0.1	1,841	7,504	6.7
Region															
Northeast	33	42	1,252	170	5,122	4.1	110	3,323	2.7	1	17	0.0	225	6,792	5.4
Midwest	36	42	1,181	184	5,136	4.3	132	3,673	3.1	0	12	0.0	250	6,979	5.9
South	115	129	1,116	664	5,761	5.2	428	3,718	3.3	11	96	0.1	883	7,668	6.9
West	61	64	1,050	360	5,894	5.6	242	3,960	3.8	3	56	0.1	482	7,902	7.5
Total	245	276	1,126	1,377	5,614	5.0	912	3,717	3.3	15	63	0.1	1,841	7,504	6.7
Application															
Floors	-	-	-	443	1,807	1.6	395	1,609	1.4	9	35	0.0	645	2,629	2.3
Walls	-	-	-	636	2,591	2.3	132	537	0.5	7	28	0.0	705	2,874	2.6
Roofs	-	-	-	294	1,197	1.1	385	1,570	1.4	0	0	0.0	486	1,982	1.8
Foundations	-	-	-	2	7	0.0	0	0	0.0	0	0	0.0	2	7	0.0
Decks/porches	-	-	-	3	12	0.0	0	0	0.0	0	0	0.0	3	12	0.0
Total	245	276	1,126	1,377	5,614	5.0	912	3,717	3.3	15	63	0.1	1,841	7,504	6.7

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volumes, and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

In 2012, 211 million bf of softwood lumber and 232 million bfe of engineered wood was used in floor systems (Table 9). Nearly all the softwood lumber (210 million bf) was used for floor framing in the form of wood trusses, dimension lumber, beams, and rim boards. The remaining 1 million bf was for floor sheathing. Wood trusses accounted for 55% of total framing lumber, dimension lumber 29%, beams 16%, and rim boards less than 1%.

Engineered wood was the material of choice for floor framing for new multifamily housing in 2012. More than half (52%) of the 443 million bfe of wood used for floor framing was engineered wood (Table 9). I-joists were the engineered wood product used in the greatest amount, accounting for more than half (56%) of all engineered wood used and nearly one-third (29%) of all framing materials. Structural composite lumber (SCL) was the second highest engineered wood products used at 28%, followed by glulam and small amounts of OSB/plywood rim boards.

Structural panels used for floor sheathing and underlayment totaled 395 million ft^2 and nonstructural panels 9 million ft^2 in 2012 (Table 9). OSB was by far the preferred structural panel, accounting for more than three-fourths (76%) of total use. Overall, structural panels accounted for about 31% of all solid wood used in floor systems. Structural panel floor sheathing totaled 378million ft^2, or about 96% of total use. The remaining 17 million ft^2 was used for floor underlayment. An additional 9 million ft^2 of nonstructural panels were used for underlayment. No nonstructural panels were used for floor sheathing.

In terms of surface area covered, OSB, 3/4-inch thick, accounted for more floor area than any other single floor sheathing material, including concrete slab floors. Of the 244 million ft^2 of new floor area built in 2012, 108 million ft^2 (44%) was 3/4-inch OSB, 59 million ft^2 (24%) was concrete slab, and 33 million ft^2 2 was 3/4-inch softwood plywood (Appendix B). The remaining 18% was a combination of softwood plywood and OSB panels of various thicknesses, lumber boards, and miscellaneous other sheathing products. In addition to sheathing, 41 million ft^2 of the total 244 million ft^2 of floor area was covered by underlayment, or about 17%. Based on surface area covered, 1/4-inch softwood plywood and cementitious board were the two most used underlayment materials with 29% and 28% market shares, respectively. Lauan plywood and particleboard, both 1/4-inch thick, were third and fourth with 19% and 13% market shares, respectively.

Walls

In 2012, a total of 705 million bfe of lumber, engineered wood, and wood panels were used to construct exterior and interior walls in new single-family houses (Tables 9 and 10). Walls were the single largest wood-using structural application, accounting for more than 38% of all wood used, and consisted of 621 million bf of softwood lumber, 15 million bfe of engineered wood, 132 ft^2 of structural panels, and 7 million ft^2 of nonstructural panels.

Softwood dimension lumber is the principal wood product used to construct both exterior and interior walls in new single-family houses. In 2012, a total of 594 million bf of dimension lumber was used for wall framing, 18 million bf for window and door headers, and 2 million bf for garage door headers (Appendix B). In addition, 3 million bf of solid sawn beams were used for window and door headers, and nearly 1 million bf for garage door headers.

Interior wall framing was the single largest use for dimension lumber, accounting for 345 million bf, about 58% of total use (Appendix B). Exterior wall framing was second with 199 million bf of framing lumber (34% of total use). Sill plates and blocking accounted for the remaining 8% of dimension lumber use. The 2” x 4” and 2” x 6” studs were used in nearly equal amounts for exterior wall framing at 51% and 49%, respectively. Nearly 95% of all interior walls, when framed with wood, used 2” x 4” studs. In

addition to dimension lumber, nearly 3 million bf of posts, beams, and logs, and trace amounts of engineered wood, primarily structural composite lumber, were also used for exterior wall framing.

Wood use for window and door headers and garage door headers totaled 39 million bfe, just 6% of total wood use for all wall framing (Appendix B). Nearly three-fourths of all window and door headers in multifamily units were lumber and solid sawn beams, one-fourth engineered wood, and 1% glued and nailed box beams. In contrast, garage door headers were primarily LVL (66%), lumber and solid sawn beams (26%), and 8% miscellaneous engineered wood products. The greater use of engineered wood reflects the larger spans required of garage door headers compared to window and door headers.

Roofs

In 2012, a total of 486 million bfe of lumber, engineered wood, and wood panels were used to construct roofs in new multifamily housing units (Tables 9 and 10). Roofs used less wood than floors or walls and accounted for just over one-fourth (26%) of all wood used for structural applications. In contrast, single-family roofs had a greater market share (35%) than multifamily roofs because 96% of all single-family houses completed in 2013[2] had two or fewer stories, whereas just 44% of all multifamily apartment buildings had two or fewer stories (USDC BC 2015a,b). This results in a smaller roof to floor area ratio for multifamily buildings. The 486 million bfe consisted of 285 million bf of softwood lumber, 9 million bfe of engineered wood, and 385 ft^2 of structural panels No nonstructural panels were used.

Softwood dimension lumber is the principal wood product used in roof framing in new multifamily housing. In 2012, a total of 283 million bf of dimension lumber was used to frame roofs, and 10 million bf of built-up dimension lumber used for roof beams. In addition, nearly 2 million bf of solid sawn beams were used (Appendix B).

The 2" x 4" roof truss is the single wood product used in greatest amounts in new multifamily roof framing. Nearly one-third (64%) of all dimension lumber used for roof framing was 2" x 4" trusses (Appendix B). The use of 2" x 4" in gables and dormers added an additional 9 million bf for a total of 190 million bf, 67% of total dimension lumber used for framing. The remaining 93 million bf consisted on 53 million bf of 2" x 8" rafters, 28 million bf of 2" x 6" rafters, and 12 million bf of 2" x 10" rafters. Additionally, just over 1 million bfe of wood I-joists were used.

Wood use for roof beams totaled 19 million bfe (Appendix B). This consisted of 11 million bf of built up dimension lumber and solid sawn beams, and nearly 8 million bfe of engineered wood. Glulam and LVL were the two most used types of engineered wood beams at 37% and 36 respectively of all engineered wood beams. The remaining 27% consisted of i-joists and SCL.

Structural wood panels used for roof sheathing totaled 385 million ft^2 in 2012, 42% of total structural panel use (Table 9). Only floors with a market share of 43% used more structural panels than roofs. No nonstructural panels were used. OSB use totaled 294 million ft^2, 76% of total use. In terms of surface area covered, $^7/_{16}$ or ½ inch OSB accounted for substantially more roof surface area than any other single covering (Appendix B). Of the 272 million ft^2 of new roof area built in 2012, 147 million ft^2 (54%) was $^7/_{16}$ or ½ inch OSB. OSB, $^5/_8$ inch thickness, was second most used at 22% of area covered. Softwood plywood, all thicknesses combined, accounted for 23% of total surface area covered. Lumber boards and other miscellaneous sheathing covered the remaining 4 million ft^2. Overall wood based panels covered 99% of all newly constructed roofs in 2012.

[2] Based on data for 2013. Data prior to 2013 did not differentiate between 2 and fewer story and 3 or more story multifamily buildings.

Foundations

Small amounts of treated lumber were used in 2012 for foundations. Treated lumber use totaled 2 million bf (Table 9). No softwood plywood was used.

Decks and Porches

The construction of outdoor decks and porches required 3 million bf of lumber in 2012, most of which was treated (Table 9). No softwood plywood was used.

Historical Wood Use Comparisons

Total wood products use for new multifamily residential construction in 2012 totaled 1,841 million bfe (Table 11). This volume consisted of 1,377 million bfe of lumber and engineered wood, 912 million ft^2 of structural panels, and 15 million ft^2 of nonstructural panels. Total use in 2012 was considerably less than the 2,475 million bfe used in 2003, and the 2,792 million bfe used in 2006. The large drop in wood use in 2012 compared to 2003 and 2006 was because the years 2003 and 2006 were at or near the peak of the 2000 through 2006 housing boom, while 2012 was near the bottom of the 2007 through 2011 recession (Fig. 10). Wood products consumption for new multifamily housing in 2012 fell 34% from 2006 levels of consumption. During this same period, single-family wood use fell 63%. This difference between new single-family and new multifamily wood use is also evident in the fraction of total domestic solid wood consumption being used for residential construction. In 2012 new multifamily construction used 3% of all wood consumed in the U.S. (Table 4). This percentage was unchanged from 2003 and 2006. New single-family construction used 21% of all wood consumed in the U.S., down from 32% in 2003 and 2006. New multifamily residential construction was less severely impacted by the recent recession than was new single-family construction.

Table 11. Housing starts, floor area, and wood products use per start and per square foot of floor area for new multifamily residential construction in the U.S., 2003, 2006 and 2012.

Year	Housing starts *Thou*	Floor area: Total *Mil ft²*	Floor area: Average *Ft²*	Total[a] *Million*	Use per unit	Use per ft²	Total[a] *Million*	Use per unit	Use per ft²	Total[a] *Million*	Use per unit	Use per ft²
				Multifamily								
				Softwood lumber and engineered wood								
				Softwood lumber *(Bf)*			Engineered wood *(Bfe)*[b]			Total *(Bfe)*[b]		
2003	349	415	1,190	1,452	4,164	3.5	351	1,006	0.8	1,803	5,170	4.3
2006	336	433	1,291	1,693	5,047	3.9	344	1,024	0.8	2,037	6,071	4.7
2012	245	276	1,126	1,121	4,570	4.1	256	1,043	0.9	1,377	5,614	5.0
				Structural panels								
				Softwood plywood *(Ft²)*			OSB *(Ft²)*			Total *(Ft²)*		
2003	--	--		462	1,326	1.1	833	2,389	2.0	1,295	3,715	3.1
2006	--	--		473	1,410	1.1	1,016	3,027	2.3	1,489	4,437	3.4
2012	--	--		212	864	0.8	700	2,853	2.5	912	3,717	3.3
				Nonstructural panels *(Ft²)*			--	--	--	Total, all wood *(Bfe)*[b]		
2003	--	--		50	144	0.1	--	--	--	2,475	7,099	6.0
2006	--	--		21	63	0.0	--	--	--	2,792	8,321	6.4
2012	--	--		15	63	0.1	--	--	--	1,841	7,504	6.7

[a]Total use includes floors, walls, roofs, foundations, and decks and porches. Excludes millwork, and fences and landscape walls.

[b]Board feet equivalents (bfe) includes actual lumber and glulam board feet volume,s and amounts of solid sawn lumber which would be required to replace given amounts of engineered wood or panel products (1 lf I-joist = 2 bfe; 1 ft^3 SCL= 16 bfe, 1 ft^2, 3/8" basis rim boards and panels = 0.5 BF bfe).

A better way to compare wood products consumption in 2012 to previous years is to remove, as much as possible, recession related effects. Wood use per house and wood use per square foot of finished floor area are two ways which effects from the recession can be mitigated. In 2012 the average multifamily unit required 4,570 bf of lumber, 1,043 bfe of engineered wood, 864 ft^2 of softwood plywood, 2,853 ft^2 of OSB and 63 ft^2 of nonstructural panels (Table 11). Compared to 2006, softwood lumber use per unit was down but still above amounts used in 2003. Engineered wood use was up from both 2006 and 2003. Softwood plywood and OSB use were both down from 2006 levels, but OSB use was greater than 2003 amounts. Nonstructural panel use remained constant between 2006 and 2012. Average floor area between 2003 and 2006 increased, but then fell between 2006 and 2012. Some of the changes in wood use per multifamily unit can be attributed to size, some to recession related effects.

Wood use per square foot of finished floor area estimates improve the use per house estimates by reducing the effect of changing size on the wood use estimates. With the exception of softwood plywood, the use per square foot of finished floor area of each wood product remained constant or increased between 2003, 2006 and 2012 (Table 11). This shows that, although new multifamily construction in 2012 was still being negatively impacted by the 2007 through 2011 recession, wood product use per unit of construction activity remained at or above levels achieved during the peak of the 2000 through 2006 housing boom.

COMPETITION AND WOOD PRODUCTS POTENTIAL

Wood products are by far the predominant building materials used for new single-family and multifamily residential construction in the U.S. According the U.S. Department of Commerce, Bureau of the Census, wood framing was used to build about 94% of all single-family houses, and 87% of all multifamily buildings completed in 2013. But even with these high levels of wood framing (and sheathing), there are still ample opportunities for wood to increase its presence in new residential construction.

Wood products compete with a variety of non-wood products for market share in both structural (e.g. floors, walls, roofs, foundations, and decks and porches), and nonstructural (e.g. siding, fascia, soffits, exterior trim, millwork, doors, windows, finished floor covering, etc.) applications. Chief competitors for structural applications include concrete floors, steel framing, nonwood sheathing products, and plastic composite lumber substitutes typically used for outdoor deck surfaces. Concrete foundations are not considered to be a viable application in which wood could make reasonable inroads, and as such, foundation potentials were not developed in this study. Also, due to funding limitations for this study, nonstructural building application potentials were also not developed.

In 2012 wood was used for 64% of all floors, 94% of all exterior walls, 97% of all interior walls, and 100% of all roofs in all new residential units (Table 12). Floors had the smallest market share at 64%, and roofs the highest at 100%. Walls, both exterior and interior, were in the mid to upper 90s. Since 2006, wood has increased its market share in all major applications, most notably exterior walls which increased by 6 percentage points, and achieved a record high market share of 94%. Wood seems to be slowly increasing its market share with each application in 2012 at or above long term averages.

Table 12. Market shares for wood, concrete and steel in new residential construction, 1995, 1998, 2003, 2006 and 2012.

Application	1995	1998	2003	2006	2012
Floors					
Wood	62%	69%	64%	60%	64%
Concrete	37%	30%	36%	39%	35%
Steel	1%	0%	0%	1%	0%
Exterior walls					
Wood	86%	88%	86%	89%	94%
Concrete	13%	12%	13%	11%	5%
Steel	0%	1%	0%	0%	1%
Interior walls					
Wood	98%	95%	95%	95%	97%
Concrete	0%	1%	0%	0%	0%
Steel	2%	5%	5%	5%	3%
Roofs					
Wood	100%	100%	100%	100%	100%
Concrete	0%	0%	0%	0%	0%
Steel	0%	0%	0%	0%	0%

Source, 1995 through 2006: WPC 2009.

In 2012 an estimated 1,487 million bfe of nonwood products were used in place of softwood lumber and engineered wood, and 1,677 million ft^2 of nonwood products were used in place of structural wood panels (Table 13). These nonwood products were equivalent to a total wood potential of 2,326 million bfe. This potential, if realized, coupled with increasing housing starts as the industry approaches more activity levels, will help reduce idled wood products production capacity which resulted from the recent economic recession. At the end of 2012, North American lumber capacity was about 66 billion bf with

production being about 51 billion bf, leaving close to 15 billion bf of unused capacity (FEA 2015). At the same time, North American structural panel capacity was 39 billion ft^2 at the end of 2012 Elling 2015b). Actual structural panel production in 2012 was 26 billion ft^2 resulting in 13 billion ft^2 of unused capacity.

Table 13. Potential gains for wood products in new residential construction in the U.S., 2012.

	Softwood lumber & engineered wood *(Mil bfe)*					Structural panels *(Mil ft^2, 3/8" basis)*				
Application	North-east	Mid-west	South	West	Total	North-east	Mid-west	South	West	Total
	Single family housing									
Floors	13	20	715	252	1,000	17	31	792	214	1,054
Walls	6	11	110	33	161	16	51	317	62	446
Roofs	2	1	2	2	7	0	0	0	0	0
Decks/porches	9	28	93	40	169	0	0	0	0	0
Total	30	60	920	327	1,337	33	82	1,109	276	1,500
	Multifamily housing									
Floors	45	17	46	24	133	29	21	62	36	147
Walls	3	0	10	5	18	2	0	26	1	30
Roofs	0	0	0	0	0	0	0	0	0	0
Decks/porches	0	0	0	0	0	0	0	0	0	0
Total	48	18	56	29	150	32	21	88	37	177
	Total									
Floors	58	38	761	277	1,132	46	52	854	250	1,202
Walls	9	12	120	38	179	18	51	343	63	476
Roofs	2	1	2	2	7	0	0	0	0	0
Decks/porches	9	28	93	40	169	0	0	0	0	0
Total	78	78	976	356	1,487	64	103	1,197	313	1,677

Overall, floors had the largest wood potential at 1,132 million bfe of lumber and engineered wood, and 1,202 million ft^2 of structural panels (Table 13). Walls were second highest at 179 million bfe of lumber and engineered wood, and 476 million ft^2 of structural panels, followed by decks and porches, and roofs.

Single-family floor systems held the greatest potential for increasing the use of both framing lumber and engineered wood, and structural sheathing panels. An additional 1,000 million bfe of lumber and engineered wood, and 1,054 million ft^2 of structural panels could have been used if all concrete slab and steel framed floor systems had been raised wood framed and sheathed floor systems (Table 14). Of the 1,000 million bfe of lumber and engineered wood potential, 986 million bfe would have been for replacing concrete slabs with wood, and 14 million bfe for replacing steel framing with wood. More than 70% of lumber and engineered wood floor potential, and 75% of structural panel floor potential was in the South in 2012, due to its high incidence of concrete slab floors. The West was second highest in floor potential for both lumber and engineered wood, and structural panels, followed by the Midwest and Northeast regions. Multifamily floors, although a much smaller potential, followed similar regional trends as single-family floors with the exception of the Northeast region being third highest potential, followed by the Midwest.

Table 14. Potential gains for softwood lumber and engineered wood, and structural panels in new single family residential construction in the U.S., 2012.					
Material and application	Northeast	Midwest	South	West	Total
	Softwood lumber & engineered wood *(Mil bfe)*				
from Concrete:					
Floors	12	18	714	242	986
Walls	1	7	76	17	100
Total	12	25	790	259	1,086
from Steel framing:					
Floor	1	2	1	10	14
Walls - Exterior	3	1	5	10	19
Walls - Interior	3	3	29	6	41
Roofs	2	1	2	2	7
Total	9	7	37	29	82
from Plastic composites:					
Deck surfaces	5	8	8	11	31
Porch surfaces	3	20	85	29	137
Total	9	28	93	40	169
Total	30	60	920	327	1,337
	Structural wood panels *(Mil ft^2, 3/8" basis)*				
from Concrete:					
Floors	17	31	792	214	1,054
Walls	5	19	164	31	219
Total	22	50	956	245	1,274
from Nonwood panels:					
Walls	10	32	153	31	226
Total	33	82	1,109	276	1,500

Single-family deck and porch surfaces had the second highest lumber potential by replacing plastic and composite decking with lumber decking. More than 81% of the total 169 million bf of lumber was for porches, with the remaining 19% for decks (Tables 13 and 14). More than one-half of this potential (55%) was in the South. No structural panel potential was associated with single-family decks and porches, nor any wood potential for multifamily decks and porches.

SUMMARY AND CONCLUSIONS

The construction of new single-family houses and multifamily housing units has always been an important market for lumber, engineered wood, and wood panels. On average, about one third of all wood products consumed in the United States annually are used in the construction of new housing units built on-site. During periods of robust housing activity, 45% or more of all wood products consumed are for new single-family and multifamily housing. This percentage can fall to as low as 20% or less during times of economic recession. Since 2000, about 35% of all solid wood products were used for new single-family and multifamily construction, with about 90% being for new single-family houses.

Unfortunately 2012 was not an average year for new residential construction. The housing boom which occurred between 2000 and 2006, turned into a major housing recession in 2007. The recession bottomed out in 2009 with steady improvements being made since then. In 2005 at the peak of the boom, housing starts totaled 2,086,000 units. In 2009 starts had fallen to just 554,000. By 2012 starts had rebounded to 781,000. Single-family housing starts were impacted to a greater extent than multifamily housing further affecting wood use. In 2012 about one-fourth (24%) of all solid wood consumed domestically was for new residential construction. This difference was equivalent to a loss of about 20 billion bfe.

The construction of new conventionally built onsite single-family houses and multifamily residential units (apartments) in the United States required an estimated 9,299 million board feet equivalents (bfe) of softwood lumber and engineered wood, 7,676 million ft^2 of structural panels, and small amounts (65 million ft^2) of nonstructural panels in 2012. The reported volumes of lumber, engineered wood, and wood panels used in 2012 were equivalent to a combined 13,170 million bfe of solid wood products.

Softwood lumber has always been the wood product used in the greatest amounts to build new residential structures. In 2012 softwood lumber accounted for nearly two-thirds (62%) of all wood products used. OSB was the second most used product at 22%, followed by nearly equal shares of engineered wood and softwood plywood. Negligible amounts of nonstructural panels were used.

Lumber was the preferred structural framing material for new residential construction. Overall, lumber accounted for 87% of all wood framing materials used. New single-family houses used lumber more extensively for framing than did multifamily units. OSB was the structural sheathing material of choice capturing 76% of the total structural sheathing market. Single-family houses used OSB sheathing at a slightly higher rate than did multifamily units.

The average residential unit in 2012 required 11,913 bfe of lumber and engineered wood, 9,834 ft^2 of structural panels, and 83 ft^2 of nonstructural panels. This level of consumption was equivalent to each person in the United States consuming nearly 42 bfe of wood for new housing construction in 2012.

Total wood products consumption for new residential construction closely mirrors regional population levels. In 2012 the South was the most populated region of the U.S. with 37% of the Nation's total population, and accounted for nearly one-half (49%) of all wood used in new residential construction. The West region was second in both population and wood products use, followed by the Midwest and Northeast regions. Overall, the South used nearly 6,486 million bfe of wood products in 2012, followed by the West at 2,857 million bfe Midwest at 2,393 million bfe, and Northeast at 1,433 million bfe. Patterns of lumber and engineered wood use, structural panel use, and nonstructural panel use each mirrored that of total use.

Walls (exterior plus interior) accounted for more wood use than any other single building application in 2012 at more than 4,917 million bfe, 37% of total wood use. Roofs were second highest at 4,445 million bfe, followed by floors at 3,125 million bfe. Comparatively small amounts of lumber were used for the

construction of decks and porches (620 million bf), and small amounts of lumber and structural panels for foundations (63 million bfe).

Floor construction used less wood in total and per unit of construction activity (per house and per square foot of floor area) than did walls or roofs due primarily to the popularity of concrete slab foundations.

Lumber was the principal framing material in all applications except for floors, accounting for 97% or more of all framing material used. Floors were the single exception with lumber accounting for less than one-half (48%) of all framing. OSB was the principal sheathing material in all applications, ranging from a high of 84% for walls to a low of 69% for floors.

Wood products compete with a variety of non-wood products for market share in both structural and nonstructural applications. Chief competitors for structural applications include concrete floors, steel framing, nonwood sheathing products, and plastic composite lumber substitutes typically used for outdoor deck surfaces. Concrete foundations are not considered to be a viable application in which wood could make reasonable inroads, and as such, foundation potentials were not developed in this study. Also, due to funding limitations for this study, nonstructural building application potentials were also not developed.

In 2012 an estimated 1,487 million bfe of nonwood products were used in place of softwood lumber and engineered wood, and 1,677 million ft^2 of nonwood products were used in place of structural wood panels. These nonwood products were equivalent to a total wood potential of 2,326 million bfe. Overall, floors had the largest wood potential at 1,132 million bfe of lumber and engineered wood, and 1,202 million ft^2 of structural panels. Walls were second highest at 179 million bfe of lumber and engineered wood, and 476 million ft^2 of structural panels, followed by decks and porches, and roofs. The conversion of concrete slab floors to wood framed and sheathed floor systems provided the greatest opportunity to increase the use of lumber, engineered wood and structural sheathing. Overall, 74% of all lumber and engineered wood potential, and 70% of all structural panel potential was based on the conversion of concrete slab floors to wood.

Despite the housing recession of 2007-2011 and subsequent slow recovery, the U.S. housing market is still strong and resilient. Housing starts continue to improve with expectations for starts to reach 1,160,000 in 2015 (Elling 2015a), and to continue to improve into the foreseeable future. The expanding market provides new opportunities for existing wood products to increase their market shares, for new wood products such as cross laminated timber to better penetrate and compete for market share, and for wood products in general to displace nonwood products in new residential construction.

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APPENDIX A—DEFINITIONS

Building Characteristics

Value of new construction (put in place). A measure of the value of construction installed or erected at the site during a given period, including

- cost of materials installed or erected,
- cost of labor and a proportionate share of construction equipment rental cost,
- contractor's profit and overhead,
- miscellaneous overhead and office costs chargeable to the project on the owner's books, and
- interest and taxes paid during construction.

Floor area. Area measured from the outside of the exterior walls, and including all enclosed, usable floor space.

- Single-family—All completely finished floor space, including space in basements and attics with finished walls, floors, and ceilings. This does not include a garage, carport, porch, unfinished attic or utility room, or any unfinished area of the basement.
- Multifamily—All floor and associated living space. Floor space is defined as the floor area of all completely finished living space in the building, including the basement and attic, with finished walls, floors, and ceilings. This does not include a garage, carport, porch, unfinished attic or utility room, or any unfinished area of the basement. Associated living space is defined as hallways, elevator space, lobbies, and any other indoor space used by the residents.

Building application. Major structural systems in the building, including foundation, first and upper floors, exterior and interior walls, roofs, and decks and porches.

Framing type. Classification based on the principal type of building material used to construct the exterior wall of a new building. Principal framing types are as follows:

- Wood—Exterior walls are primarily framed with lumber or other wood products.
- Concrete—Concrete, masonry, stone, brick, or block exterior walls.
- Steel—Steel-framed or supported exterior walls.

Regions and Divisions

Regions and divisions of the United States are standard U.S. Department of Commerce, Bureau of the Census, region and divisions.

Northeast:
New England:
Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Middle Atlantic:
New York, New Jersey, Pennsylvania
Midwest:
East North Central:
Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota
West North Central:
Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South:
South Atlantic:
Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
East South Central:

Kentucky, Tennessee, Alabama, Mississippi
West South Central:
Arkansas, Louisiana, Oklahoma, Texas

West:
Mountain:
Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
Pacific:
Washington, Oregon, California, Alaska, Hawaii

Residential Building Types

Single-Family House. Fully detached, semidetached (semiattached, side-by-side), row houses, and townhouses. In the case of attached units, each must be separated from the adjacent unit by a ground-to-roof wall in order to be classified as a single-family structure. Also, units must not share heating/air-conditioning systems or utilities, such as water supply, power supply, or sewage disposal lines. Units built one on top of another and those built side-by-side that do not have a ground-to-roof wall and/or have common facilities (e.g., attic, basement, heating plant, plumbing) are not single-family houses.

Multifamily Housing Unit. Residential buildings containing units built one on top of another and those built side-by-side which do not have a ground-to-roof wall and/or have common facilities (e.g., attic, basement, heating plant, plumbing).

Wood Product Types

- **Lumber—**Solid sawn timber, including dimension, boards and squares, as well as beams, timbers and millwork.
- **Engineered Wood—**Composite wood products designed to substitute directly for dimension lumber in many building and structural applications. Includes prefabricated wood I-joists, glued laminated timber and structural composite lumber (laminated veneer lumber, parallel strand lumber, laminated strand lumber, and oriented strand lumber)
  - **Glued Laminated Timber (Glulam) —**An engineered stress-rated product created by adhesively bonding individual pieces of lumber or structural composite lumber having a thickness of 50 mm (2 in.) or less. It can be easily shaped into forms ranging from straight beams to complex curved members and is used for a wide variety of structural applications in both residential and nonresidential construction.
  - **Cross-Laminated Timber (CLT) —**A prefabricated solid engineered wood panel made of at least three orthogonally bonded layers of solid-sawn lumber or structural composite lumber (SCL) that are laminated by gluing of longitudinal and transverse layers with structural adhesives to form a solid rectangular-shaped, straight, and plane timber intended for roof, floor or wall applications.
  - **Prefabricated Wood I-Joist—**A structural member manufactured using sawn or structural composite lumber flanges and structural panel webs, bonded together with exterior exposure adhesives, forming an “I” cross-sectional shape. These members are primarily used as joists in floor and roof construction.
  - **Structural Composite Lumber (SCL) —**Structural composite lumber includes laminated veneer lumber (LVL), parallel strand lumber (PSL), laminated strand lumber (LSL), and oriented strand lumber (OSL). According to ASTM D 5456, these materials are intended for structural use and are bonded with exterior exposure adhesives. The following SCL definitions come from ASTM D 5456.

- **Parallel Strand Lumber (PSL**) PSL is a composite of wood veneer strand elements with wood fibers primarily oriented along the length of the member. The least dimension of strands shall not exceed 0.25 in. (6.35 mm) and the average length shall be a minimum of 300 times the least dimension. PSL is commonly used for beam and column applications.
- **Laminated Strand Lumber (LSL):** LSL is a composite of wood strand elements with wood fibers primarily oriented along the length of the member. The least dimension of the strands shall not exceed 0.10 inches (2.54 mm) and the average length shall be a minimum of 150 times the least dimension. LSL can be used for a variety of applications, including beams, headers, studs, rim boards, and I-joist flanges.
- **Laminated Veneer Lumber (LVL):** LVL is a composite of wood veneer sheets whose fibers are primarily oriented along the length of the member. Veneer thickness shall not exceed 0.25 inches (6.35 mm). LVL can be used in a variety of applications, including I-joist flanges, beams, headers, and studs.
- **Oriented Strand Lumber (OSL):** OSL is a composite of wood strands whose fibers are primarily oriented along the length of the member. The least dimension of the strands shall not exceed 0.10 inches (2.54 mm) and the average length shall be a minimum of 75 times the least dimension. OSL may be used in a variety of applications, including beams, headers, studs, and rim boards.

- **Structural Wood Panels**
  - **Softwood (structural) Plywood:** Plywood consists of veneers arranged in perpendicular layers. Performance-rated plywood is typically used in roof, floor and wall construction applications, although there are also a variety of grades for industrial applications.
  - **Oriented Strandboard (OSB):** A structural, performance-rated panel product, OSB consists of wood strands. Unlike glulam, the strands of OSB are not random, but are layered and oriented for maximum strength and stability. Designed to be used in the same construction applications as plywood.
- **Nonstructural wood panels—**Wood-based panels not specifically designed for structural applications. Includes particleboard, medium-density fiberboard, hardboard, insulation board, and hardwood plywood. Uses include siding, floor underlayment, interior wall paneling, and numerous industrial applications.

Wood Product Units of Measure

Wood product	Unit of measure	Abbre-viation	BFE[1]
Lumber[2]	Board feet	bf	1.0
Engineered wood			
I-joist	Linear feet	lf	2.0
Glulam	Board feet	bf	1.0
SCL[3]	Cubic feet	ft^3	16.0
Rim boards[4]	Square feet, 3/8-inch basis	ft^2	0.5
Structural panels[4]	Square feet, 3/8-inch basis	ft^2	0.5
Nonstructural panels[5]	Square feet, 3/8-inch basis	ft^2	0.5

[1]Board Feet Equivalent (bfe) is the amount of solid sawn lumber required to replace an engineered wood or panel product.

[2]Includes softwood dimension lumber, boards, beams, timbers, and prefabricated wood trusses. Hardwood lumber is not included in this study.

[3]Includes laminated veneer lumber (LVL), parallel strand lumber (PSL), laminated strand lumber (LSL), and oriented strand lumber (OSL).

[4]Includes softwood plywood and OSB.

[5]Includes hardwood plywood, particleboard, medium-density fiberboard, and hardboard.

APPENDIX B – DETAILED DATA

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
HOUSING STARTS	15.2	31.3	49.2	42.9	139.3	33.4	109.9	59.2	54.9	535.3
TOTAL WOOD USAGE IN NEW RESIDENTIAL CONSTRUCTION										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	204,677	447,205	594,267	544,875	1,657,982	383,752	1,164,244	662,068	553,816	6,212,887
Boards, BF	2,391	3,468	2,655	6,740	10,853	10,488	18,516	16,006	10,178	81,295
Treated Framing, BF	22,787	38,263	46,603	53,704	114,968	26,340	49,220	61,231	41,905	455,021
Treated Boards, BF	972	4,600	4,631	2,699	16,103	4,132	4,932	2,078	2,596	42,743
Solid Sawn Beams and Posts, BF	2,657	8,555	9,072	5,743	40,099	4,520	20,629	11,044	29,510	131,829
Logs, BF	14	27	19,671	3,651	4,496	33	5,316	15,195	4,249	52,652
Subtotal Lumber, BF	233,500	502,118	676,898	617,412	1,844,501	429,265	1,262,857	767,621	642,254	6,976,427
Engineered Wood										
Glulam, BF	922	537	1,980	894	2,969	466	12,079	8,134	12,521	40,502
I-joist, BF equivalent	21,292	40,221	89,451	36,931	165,124	27,031	39,004	111,337	54,462	584,852
LVL, BF equivalent	16,957	10,866	47,778	18,855	60,825	11,084	12,819	32,246	7,488	218,918
Parallam™, BF equivalent	219	2,528	597	1,860	2,303	1,786	1,934	878	5,133	17,238
Timberstrand™, BF equivalent	1,738	2,301	8,580	5,715	26,112	1,239	3,432	14,451	5,743	69,311
Plywood Rim Board, BF equivalent	71	0	0	55	109	15	0	121	107	479
OSB Rim Board, BF equivalent	531	1,574	2,027	1,101	5,098	353	960	1,197	1,526	14,366
SubTotal Engineered Wood, BF equivalent	41,729	58,028	150,412	65,411	262,539	41,975	70,228	168,363	86,980	945,666
Total Lbr. & Eng. Wood, BF equivalent	275,229	560,146	827,310	682,823	2,107,040	471,240	1,333,086	935,985	729,235	7,922,093
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	111,459	253,546	135,739	147,572	419,543	62,840	160,542	151,986	218,114	1,661,340
Treated Plywood	43	161	756	3,054	459	32	30	25	46	4,606
OSB	123,320	252,355	546,053	423,854	1,478,609	323,633	911,797	607,651	431,306	5,098,578
Total Structural Panels, SF 3/8" basis	234,822	506,062	682,548	574,480	1,898,611	386,504	1,072,368	759,663	649,466	6,764,524
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	0	0	0	0	0	0	0	0	0	0
Particleboard	103	633	1	1,865	957	12	232	2,011	6,600	12,414
Hardboard	4	0	79	210	651	408	5	328	38	1,722
Lauan Plywood	261	2,401	3,756	2,006	15,600	5,168	835	279	618	30,924
Fiberboard	9	8	784	483	275	239	1,581	5	654	4,037
Total Non-Str'l Wood Panels, SF 3/8" basis	376	3,042	4,620	4,563	17,482	5,828	2,653	2,623	7,910	49,097
Total Panels, SF 3/8" basis equivalent	235,198	509,105	687,167	579,044	1,916,094	392,332	1,075,022	762,286	657,376	6,813,622
TOTAL Lumber, Engineered Wood, & Panels BF or Equivalent	392,828	814,699	1,170,893	972,345	3,065,087	667,406	1,870,596	1,317,127	1,057,923	11,328,904

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	39,805	88,333	83,408	96,425	213,753	48,936	42,469	25,138	57,712	695,979
Boards, BF	227	202	439	618	3,432	6,708	8,080	10,808	2,111	32,624
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	705	6,171	1,718	419	2,434	449	3,295	714	12,608	28,512
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	40,737	94,706	85,565	97,462	219,618	56,093	53,844	36,660	72,430	757,115
Engineered Wood										
Glulam, BF	186	110	1,197	701	1,446	50	3,328	2,488	6,535	16,042
I-joist, BF equivalent	20,638	37,901	87,614	35,707	160,167	23,626	32,769	103,221	52,454	554,095
LVL, BF equivalent	13,936	7,919	39,140	12,524	44,876	8,595	5,654	23,662	6,726	163,033
Parallam™, BF equivalent	32	616	454	860	1,068	1,067	899	527	3,929	9,452
Timberstrand™, BF equivalent	1,725	1,986	6,857	5,058	21,010	768	1,454	13,771	5,077	57,707
Plywood Rim Board, BF equivalent	71	0	0	55	109	15	0	121	107	479
OSB Rim Board, BF equivalent	531	1,574	2,027	1,101	5,098	353	960	1,197	1,526	14,366
SubTotal Engineered Wood, BF equivalent	37,118	50,107	137,289	56,007	233,774	34,474	45,063	144,986	76,355	815,173
Total Lbr. & Eng. Wood, BF equivalent	77,855	144,813	222,854	153,469	453,392	90,567	98,907	181,646	148,785	1,572,288
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	1,740	9,930	13,681	4,783	267,322	52,049	394,491	147,424	94,591	986,011
Steel, BF equivalent	1,084	68	1,116	752	717	0	0	4,810	5,373	13,921
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	80,679	154,811	237,651	159,004	721,431	142,617	493,397	333,881	248,749	2,572,219
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	37,201	122,453	45,479	73,042	116,992	21,168	49,861	34,407	64,388	564,991
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	43,952	84,153	179,628	105,502	399,770	54,515	96,093	133,825	107,597	1,205,036
Total Structural Panels, SF 3/8" basis	81,153	206,606	225,107	178,544	516,762	75,683	145,955	168,232	171,985	1,770,027
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	103	633	1	1,865	957	12	232	2,011	6,600	12,414
Hardboard	4	0	79	210	651	408	5	328	38	1,722
Lauan Plywood	261	2,401	3,756	2,006	15,600	5,168	835	279	618	30,924
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	368	3,035	3,836	4,081	17,208	5,589	1,072	2,618	7,256	45,060
Total Panels, SF 3/8" basis equivalent	81,521	209,641	228,943	182,624	533,970	81,272	147,026	170,850	179,241	1,815,087
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	2,051	14,933	18,152	13,313	322,019	48,815	421,254	115,506	98,443	1,054,484
Total Actual plus Potential Panels, SF 3/8" basis equivalent	83,572	224,573	247,094	195,938	855,988	130,086	568,280	286,356	277,683	2,869,572

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN WALL SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	101,572	209,506	279,510	248,489	759,237	167,943	529,710	358,286	261,938	2,916,191
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	1,340	3,182	5,175	5,453	17,614	4,189	18,036	7,765	5,986	68,739
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	935	570	3,762	1,446	24,200	1,278	5,632	4,233	11,297	53,352
Logs, BF	14	27	19,671	3,651	4,496	33	5,316	15,195	4,249	52,652
Subtotal Lumber, BF	103,861	213,285	308,118	259,038	805,547	173,442	558,694	385,479	283,471	3,090,934
Engineered Wood										
Glulam, BF	153	397	725	153	773	396	5,741	2,676	4,932	15,946
I-joist, BF equivalent	108	1,035	111	417	606	160	1,341	269	55	4,103
LVL, BF equivalent	1,575	2,092	6,811	6,124	13,384	1,518	5,017	8,294	598	45,414
Parallam™, BF equivalent	124	1,887	132	980	1,165	719	1,035	319	1,038	7,400
Timberstrand™, BF equivalent	12	305	1,719	654	4,908	370	1,978	663	654	11,264
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	1,972	5,715	9,498	8,329	20,837	3,164	15,113	12,221	7,277	84,126
Total Lbr. & Eng. Wood, BF equivalent	105,833	219,000	317,616	267,368	826,384	176,606	573,807	397,699	290,747	3,175,060
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	203	305	2,463	4,390	55,358	4,703	16,329	15,725	834	100,310
Steel - Exterior Walls, BF equivalent	322	2,331	1,167	0	1,968	422	3,051	248	9,897	19,405
Steel - Interior Walls, BF equivalent	1,723	1,092	2,102	1,353	23,044	897	4,653	1,104	5,169	41,136
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	108,081	222,727	323,347	273,112	906,754	182,628	597,839	414,776	306,647	3,335,912
STRUCTURAL AND NONSTRUCTURAL PANELS (Including Plywood in Box Beams)										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	32,132	56,083	23,572	14,288	73,584	9,616	24,066	41,165	63,708	338,215
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	46,377	89,168	168,024	153,374	527,207	114,219	283,021	206,396	143,431	1,731,217
Total Structural Panels, SF 3/8" basis	78,509	145,252	191,596	167,662	600,791	123,836	307,087	247,561	207,140	2,069,433
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	9	8	784	483	275	239	1,581	5	654	4,037
Total Non-Str'l Wood Panels, SF 3/8" basis	9	8	784	483	275	239	1,581	5	654	4,037
Total Panels, SF 3/8" basis equivalent	78,518	145,259	192,380	168,145	601,066	124,075	308,668	247,566	207,794	2,073,470
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	1,106	4,202	5,444	13,535	96,909	10,968	56,294	20,825	9,913	219,194
Foam & Other, SF 3/8" basis equivalent	1,646	8,630	25,923	6,029	23,245	15,671	113,927	23,458	7,892	226,421
Total Actual plus Potential, SF 3/8" basis equiv.	81,269	158,091	223,746	187,709	721,219	150,713	478,889	291,849	225,599	2,519,085

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN ROOF SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	60,307	141,705	218,733	183,626	640,197	156,913	556,467	257,355	220,332	2,435,635
Boards, BF	478	446	387	310	1,720	2,352	4,358	232	2,867	13,150
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	219	125	29	40	766	538	292	6	1,396	3,412
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	61,005	142,276	219,150	183,976	642,683	159,803	561,117	257,592	224,594	2,452,197
Engineered Wood										
Glulam, BF	582	31	58	40	750	20	3,010	2,970	1,054	8,514
I-joist, BF equivalent	547	1,285	1,725	806	4,352	3,245	4,894	7,847	1,953	26,654
LVL, BF equivalent	1,447	856	1,826	207	2,565	971	2,148	290	163	10,472
Parallam™, BF equivalent	64	24	11	19	69	0	0	32	166	386
Timberstrand™, BF equivalent	0	10	4	3	193	101	0	17	12	340
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	2,639	2,205	3,624	1,075	7,929	4,337	10,052	11,156	3,349	46,366
Total Lbr. & Eng. Wood, BF equivalent	63,644	144,482	222,774	185,051	650,612	164,140	571,169	268,749	227,943	2,498,563
Lbr. & Eng. Lumber equivalent of:										
Steel, BF equivalent	2,048	153	414	191	943	133	1,022	375	1,777	7,055
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	65,693	144,635	223,188	185,242	651,555	164,273	572,191	269,124	229,720	2,505,619
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	42,125	75,011	66,688	60,242	228,967	32,056	86,615	76,413	90,017	758,134
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	32,992	79,033	198,402	164,978	551,632	154,898	532,683	267,431	180,278	2,162,325
Total Structural Panels, SF 3/8" basis	75,117	154,043	265,089	225,220	780,599	186,953	619,297	343,844	270,295	2,920,459
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	75,117	154,043	265,089	225,220	780,599	186,953	619,297	343,844	270,295	2,920,459

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN FOUNDATIONS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	na	na	na	na	na	na	na	na	na	na
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	2,640	5,026	9,245	10,625	14,114	3,134	505	7,264	4,376	56,930
Treated Boards, BF	7	282	242	15	194	28	5	4	8	785
Posts, BF	57	108	189	171	303	69	11	160	96	1,162
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	2,705	5,415	9,676	10,811	14,611	3,231	520	7,429	4,479	58,877
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	2,705	5,415	9,676	10,811	14,611	3,231	520	7,429	4,479	58,877
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	43	161	756	3,054	459	32	30	25	46	4,606
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	43	161	756	3,054	459	32	30	25	46	4,606
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	43	161	756	3,054	459	32	30	25	46	4,606

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN DECKS & PORCHES										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	2,993	7,660	12,616	16,335	44,795	9,960	35,598	21,289	13,835	165,082
Boards, BF	1,686	2,820	1,829	5,812	5,701	1,428	6,079	4,966	5,200	35,521
Treated Framing, BF	18,807	30,055	32,183	37,626	83,240	19,017	30,679	46,202	31,543	329,352
Treated Boards, BF	965	4,318	4,389	2,684	15,909	4,104	4,927	2,073	2,588	41,958
Posts, BF	740	1,582	3,373	3,667	12,396	2,187	11,400	5,932	4,113	45,391
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	25,191	46,436	54,390	66,124	162,042	36,695	88,683	80,461	57,280	617,304
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	25,191	46,436	54,390	66,124	162,042	36,695	88,683	80,461	57,280	617,304
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	na	na	na	na	na	na	na	na	na	na

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL FRAMING (excluding sheathing and underlayment)										
TOTAL LUMBER - FOUNDATIONS, WALLS, FLOORS, ROOFS, BEAMS, HEADERS, RIM BOARDS, DECKS & PORCHES										
Lumber - Regular, BF										
2x2s	418	61	198	1,337	297	95	419	1,872	784	5,482
2x3s	30	367	224	300	2,703	348	443	90	195	4,699
2x4s	78,072	184,374	365,712	324,451	1,036,785	204,939	633,226	401,790	292,939	3,522,288
2x6s	62,404	116,286	109,081	121,964	274,702	62,013	232,215	185,675	142,833	1,307,173
2x8s	23,591	54,157	59,799	46,594	178,558	63,352	235,203	54,691	68,171	784,116
2x10s	23,203	68,589	42,153	37,770	120,858	39,967	51,000	15,835	29,388	428,763
2x12s	16,959	23,374	17,101	12,489	44,080	13,066	11,739	2,115	19,510	160,432
Boards	1,686	2,820	1,829	5,812	5,701	1,428	6,079	4,966	5,200	35,521
Solid Sawn Beams and Posts	2,599	8,448	8,883	5,572	39,796	4,452	20,619	10,884	29,414	130,667
Logs	14	27	19,671	3,651	4,496	33	5,316	15,195	4,249	52,652
Total Lumber - Regular, BF	208,977	458,503	624,651	559,939	1,707,976	389,693	1,196,257	693,113	592,684	6,431,792
Lumber - Treated, BF										
2x2s	247	505	1,078	181	3,881	803	738	155	116	7,705
2x4s	7,026	12,203	14,760	16,655	42,453	9,842	27,162	21,888	15,377	167,365
2x6s	5,432	9,400	13,536	13,991	26,406	5,973	5,047	14,227	8,994	103,005
2x8s	3,329	5,293	5,783	8,841	13,378	3,028	5,147	8,455	5,647	58,901
2x10s	4,498	7,060	7,152	9,087	17,797	4,099	6,990	11,505	7,655	75,842
2x12s	1,499	2,353	2,384	3,029	5,932	1,366	2,330	3,835	2,552	25,281
Boards	972	4,600	4,631	2,699	16,103	4,132	4,932	2,078	2,596	42,743
Posts	814	1,557	2,097	2,092	5,424	1,297	1,816	1,327	1,660	18,084
Total Lumber - Treated, BF	23,817	42,971	51,422	56,575	131,373	30,540	54,163	63,469	44,597	498,926
Total Lumber, BF	232,794	501,474	676,073	616,514	1,839,349	420,233	1,250,420	756,582	637,281	6,930,718
TOTAL LUMBER AND ENGINEERED WOOD EQUIVALENTS USED IN FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	229,380	491,470	665,093	608,850	1,794,129	414,484	1,227,985	744,370	606,207	6,781,967
Solid Sawn Beams and Posts, BF	3,413	10,004	10,980	7,664	45,220	5,749	22,435	12,211	31,074	148,751
Glulam, BF	922	537	1,980	894	2,969	466	12,079	8,134	12,521	40,502
I-joist, LF	10,646	20,110	44,725	18,465	82,562	13,515	19,502	55,668	27,231	292,426
I-joist, BF equivalent	21,292	40,221	89,451	36,931	165,124	27,031	39,004	111,337	54,462	584,852
LVL, Cubic Feet	1,060	679	2,986	1,178	3,802	693	801	2,015	468	13,682
LVL, BF equivalent	16,957	10,866	47,778	18,855	60,825	11,084	12,819	32,246	7,488	218,918
Parallam™, Cubic Feet	14	158	37	116	144	112	121	55	321	1,077
Parallam™, BF equivalent	219	2,528	597	1,860	2,303	1,786	1,934	878	5,133	17,238
Timberstrand™, Cubic Feet	109	144	546	358	1,634	78	216	904	359	4,348
Timberstrand™, BF equivalent	1,739	2,307	8,741	5,721	26,147	1,244	3,457	14,456	5,751	69,565
Plywood, BF equivalent	71	0	0	55	109	15	0	121	107	479
OSB, BF equivalent	531	1,574	2,027	1,101	5,098	353	960	1,197	1,526	14,366
Total Engineered Wood, BF equivalent	41,731	58,034	150,573	65,417	262,575	41,980	70,254	168,369	86,988	945,919
Total Lbr. & Eng. Wood, BF equivalent	274,524	559,508	826,646	681,930	2,101,924	462,213	1,320,673	924,950	724,269	7,876,637

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
ALL FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	77,855	144,813	222,854	153,469	453,392	90,567	98,907	181,646	148,785	1,572,288
Concrete, BF equivalent	1,740	9,930	13,681	4,783	267,322	52,049	394,491	147,424	94,591	986,011
Steel, BF equivalent	1,084	68	1,116	752	717	0	0	4,810	5,373	13,921
Total Material, BF equivalent	80,679	154,811	237,651	159,004	721,431	142,617	493,397	333,881	248,749	2,572,219
GROUND FLOOR										
Total Lbr. & Eng. Wood, BF equivalent	44,892	84,855	157,942	117,540	231,956	61,454	39,089	116,556	85,969	940,254
Concrete, BF equivalent	1,740	9,818	13,513	4,783	243,818	52,049	386,185	147,424	94,591	953,921
Steel, BF equivalent	547	35	526	752	522	0	0	4,810	0	7,192
Total Material, BF equivalent	47,178	94,708	171,981	123,075	476,297	113,503	425,274	268,791	180,560	1,901,368
UPPER FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	32,963	59,958	64,912	35,929	221,436	29,113	59,817	65,090	62,816	632,034
Concrete, BF equivalent	0	112	168	0	23,504	0	8,306	0	0	32,089
Steel, BF equivalent	537	33	590	0	195	0	0	0	5,373	6,728
Total Material, BF equivalent	33,500	60,102	65,670	35,929	245,134	29,113	68,123	65,090	68,189	670,851
STRUCTURAL AND NONSTRUCTURAL PANELS										
ALL FLOORS										
Total Panels, SF 3/8" basis equivalent	81,521	209,641	228,943	182,624	533,970	81,272	147,026	170,850	179,241	1,815,087
Concrete, SF 3/8" basis equivalent	2,051	14,933	18,152	13,313	322,019	48,815	421,254	115,506	98,443	1,054,484
Total Material, SF 3/8" basis equivalent	83,572	224,573	247,094	195,938	855,988	130,086	568,280	286,356	277,683	2,869,572
GROUND FLOOR										
Total Panels, SF 3/8" basis equivalent	50,929	134,346	174,594	143,101	315,385	57,128	51,260	128,148	119,753	1,174,644
Concrete, SF 3/8" basis equivalent	1,861	11,932	17,578	11,130	301,913	48,801	411,287	115,475	94,244	1,014,219
Total Material, SF 3/8" basis equivalent	52,790	146,277	192,172	154,230	617,298	105,928	462,547	243,622	213,997	2,188,863
UPPER FLOORS										
Total Panels, SF 3/8" basis equivalent	30,591	75,295	54,349	39,524	218,585	24,144	95,766	42,703	59,487	640,443
Concrete, SF 3/8" basis equivalent	190	3,001	574	2,184	20,106	14	9,967	31	4,199	40,266
Total Material, SF 3/8" basis equivalent	30,782	78,296	54,922	41,707	238,691	24,158	105,733	42,734	63,686	680,709

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS										
FLOOR JOISTS - ALL FLOORS										
2 x 4s (Trusses), BF	3,834	5,241	29,581	53,567	68,391	7,222	24,080	16,390	14,900	223,205
2 x 8s, BF Lumber	569	1,734	4,679	931	9,742	1,162	1,944	36	6,321	27,117
2 x 10s, BF Lumber	18,867	58,601	32,679	30,322	92,463	28,139	5,373	7,060	17,176	290,681
2 x 12s, BF Lumber	12,543	10,900	8,075	5,575	19,864	7,223	8,817	1,194	16,144	90,336
Subtotal: Lumber in Floor Joists, BF	35,813	76,477	75,013	90,396	190,460	43,746	40,214	24,680	54,540	631,339
I-joist, LF	9,629	17,002	42,284	16,915	78,457	11,676	15,160	47,408	25,445	263,975
I-joist, BF equivalent	19,257	34,005	84,567	33,831	156,913	23,351	30,320	94,815	50,890	527,950
Total Lbr. & Eng. Wood, BF equivalent	55,070	110,482	159,581	124,226	347,374	67,097	70,533	119,495	105,430	1,159,289
FLOOR BEAMS - ALL FLOORS										
Built-up Dimension Lumber, BF	3,901	11,748	6,613	5,746	23,133	4,417	2,068	297	2,527	60,451
Solid Sawn Beams, BF	705	6,171	1,718	419	2,434	449	3,295	714	12,608	28,512
Glulam, BF	127	110	1,084	701	1,446	50	3,328	2,488	6,535	15,869
I-joist, LF	664	1,902	709	601	484	30	825	2,914	610	8,740
I-joist, BF equivalent	1,329	3,805	1,418	1,203	968	60	1,650	5,829	1,220	17,480
LVL, Cubic Feet	865	490	2,390	782	2,753	535	298	1,450	384	9,948
LVL, BF equivalent	13,838	7,843	38,242	12,514	44,055	8,567	4,775	23,196	6,137	159,167
Parallam™, Cubic Feet	2	39	28	54	67	67	56	33	246	591
Parallam™, BF equivalent	32	616	454	860	1,068	1,067	899	527	3,929	9,452
Timberstrand™, Cubic Feet	4	53	182	140	622	1	16	14	59	1,092
Timberstrand™, BF equivalent	64	841	2,914	2,236	9,953	18	260	231	950	17,467
Total Lbr. & Eng. Wood, BF equivalent	19,996	31,134	52,442	23,679	83,057	14,628	16,275	33,281	33,906	308,398
RIM BOARDS FOR I-JOISTS - ALL FLOORS										
Lumber, BF	90	108	1,781	284	159	774	187	162	644	4,189
Glulam, BF	59	0	114	0	0	0	0	0	0	173
I-joist, LF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, Cubic Feet	6	5	56	1	51	2	55	29	37	242
LVL, BF equivalent	98	76	898	11	821	27	878	466	590	3,866
Timberstrand™, Cubic Feet	104	72	246	176	691	47	75	846	258	2,515
Timberstrand™, BF equivalent	1,661	1,146	3,943	2,822	11,057	750	1,194	13,539	4,127	40,240
Plywood, 3/8 inch basis	142	0	0	110	217	31	0	242	215	957
Plywood, BF equivalent	71	0	0	55	109	15	0	121	107	479
OSB, 3/8 inch basis	1,061	3,149	4,053	2,202	10,196	705	1,920	2,393	3,052	28,731
OSB, BF equivalent	531	1,574	2,027	1,101	5,098	353	960	1,197	1,526	14,366
Total Lbr. & Eng. Wood, BF equivalent	2,562	2,996	10,392	4,946	19,530	2,134	4,019	18,061	7,338	71,977

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	40,510	94,504	85,126	96,844	216,186	49,385	45,764	25,852	70,319	724,491
Glulam, BF	186	110	1,197	701	1,446	50	3,328	2,488	6,535	16,042
I-joist, LF	10,319	18,950	43,807	17,854	80,083	11,813	16,384	51,610	26,227	277,048
I-joist, BF equivalent	20,638	37,901	87,614	35,707	160,167	23,626	32,769	103,221	52,454	554,095
LVL, Cubic Feet	871	495	2,446	783	2,805	537	353	1,479	420	10,190
LVL, BF equivalent	13,936	7,919	39,140	12,524	44,876	8,595	5,654	23,662	6,726	163,033
Parallam™, Cubic Feet	2	39	28	54	67	67	56	33	246	591
Parallam™, BF equivalent	32	616	454	860	1,068	1,067	899	527	3,929	9,452
Timberstrand™, Cubic Feet	108	124	429	316	1,313	48	91	861	317	3,607
Timberstrand™, BF equivalent	1,725	1,986	6,857	5,058	21,010	768	1,454	13,771	5,077	57,707
Plywood, BF equivalent	71	0	0	55	109	15	0	121	107	479
OSB, BF equivalent	531	1,574	2,027	1,101	5,098	353	960	1,197	1,526	14,366
Total Engineered Wood, BF equivalent	37,118	50,107	137,289	56,007	233,774	34,474	45,063	144,986	76,355	815,173
Total Lbr. & Eng. Wood, BF equivalent	77,628	144,611	222,415	152,851	449,960	83,859	90,827	170,838	146,674	1,539,664

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR										
FLOOR JOISTS - GROUND FLOOR										
2 x 4s (Trusses), BF	1,568	3,060	23,313	38,996	11,746	5,660	7,899	3,435	4,492	100,169
2 x 8s, BF Lumber	337	975	3,491	710	7,029	758	1,221	34	3,882	18,436
2 x 10s, BF Lumber	11,176	32,936	24,382	23,111	66,712	18,355	3,375	6,820	10,547	197,414
2 x 12s, BF Lumber	7,430	6,126	6,024	4,249	14,332	4,711	5,539	1,154	9,914	59,480
Subtotal: Lumber in Floor Joists, BF	20,511	43,097	57,211	67,066	99,819	29,484	18,034	11,443	28,834	375,499
I-joist, LF	6,038	11,154	31,010	14,794	37,425	8,881	4,849	33,531	16,759	164,442
I-joist, BF equivalent	12,077	22,308	62,021	29,588	74,849	17,762	9,699	67,062	33,519	328,884
Total Lbr. & Eng. Wood, BF equivalent	32,587	65,405	119,232	96,654	174,668	47,246	27,733	78,505	62,353	704,383
FLOOR BEAMS - GROUND FLOOR										
Built-up Dimension Lumber, BF	2,658	7,083	4,278	4,701	17,549	3,504	542	255	1,162	41,733
Solid Sawn Beams, BF	332	2,140	1,120	415	1,644	399	3,263	266	7,126	16,704
Glulam, BF	57	70	667	459	57	17	0	1,342	3,082	5,751
I-joist, LF	361	1,185	401	364	215	0	1	1,249	385	4,161
I-joist, BF equivalent	722	2,371	802	728	431	0	1	2,499	770	8,322
LVL, Cubic Feet	432	314	1,483	544	1,314	301	31	1,061	184	5,663
LVL, BF equivalent	6,918	5,019	23,728	8,698	21,023	4,816	489	16,971	2,944	90,607
Parallam™, Cubic Feet	2	11	20	42	18	0	7	0	147	246
Parallam™, BF equivalent	26	179	316	674	293	0	110	0	2,346	3,943
Timberstrand™, Cubic Feet	4	37	99	108	337	0	0	13	0	600
Timberstrand™, BF equivalent	64	597	1,590	1,733	5,398	0	0	211	0	9,594
Total Lbr. & Eng. Wood, BF equivalent	10,777	17,459	32,500	17,407	46,396	8,735	4,404	21,545	17,430	176,654
RIM BOARDS FOR I-JOISTS - GROUND FLOOR										
Lumber, BF	49	67	1,007	172	71	0	0	69	406	1,842
Glulam, BF	32	0	64	0	0	0	0	0	0	96
I-joist, LF	14	29	461	204	509	0	0	552	108	1,876
I-joist, BF equivalent	28	57	921	408	1,017	0	1	1,105	217	3,753
LVL, Cubic Feet	3	3	32	0	23	0	0	12	23	97
LVL, BF equivalent	53	47	508	6	365	0	1	200	372	1,553
Timberstrand™, Cubic Feet	56	45	139	107	308	0	0	363	163	1,180
Timberstrand™, BF equivalent	902	714	2,230	1,708	4,921	0	1	5,805	2,604	18,884
Plywood, 3/8 inch basis	77	0	0	66	97	0	0	104	136	480
Plywood, BF equivalent	39	0	0	33	48	0	0	52	68	240
OSB, 3/8 inch basis	576	1,962	2,292	1,333	4,537	0	1	1,026	1,926	13,653
OSB, BF equivalent	288	981	1,146	666	2,269	0	1	513	963	6,826
Total Lbr. & Eng. Wood, BF equivalent	1,391	1,866	5,876	2,994	8,691	0	3	7,743	4,630	33,194

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (Excluding boards)										
Lumber Equivalent										
Lumber, BF	23,550	52,388	63,616	72,353	119,083	33,386	21,839	12,034	37,528	435,777
Glulam, BF	90	70	731	459	57	17	0	1,342	3,082	5,847
I-joist, LF	6,413	12,368	31,872	15,362	38,148	8,881	4,850	35,333	17,253	170,479
I-joist, BF equivalent	12,827	24,736	63,743	30,724	76,297	17,762	9,701	70,665	34,505	340,959
LVL, Cubic Feet	436	317	1,515	544	1,337	301	31	1,073	207	5,760
LVL, BF equivalent	6,971	5,066	24,236	8,704	21,389	4,816	489	17,171	3,316	92,160
Parallam™, Cubic Feet	2	11	20	42	18	0	7	0	147	246
Parallam™, BF equivalent	26	179	316	674	293	0	110	0	2,346	3,943
Timberstrand™, Cubic Feet	60	82	239	215	645	0	0	376	163	1,780
Timberstrand™, BF equivalent	966	1,311	3,820	3,442	10,319	0	1	6,016	2,604	28,478
Plywood, BF equivalent	39	0	0	33	48	0	0	52	68	240
OSB, BF equivalent	288	981	1,146	666	2,269	0	1	513	963	6,826
Total Engineered Wood, BF equivalent	21,206	32,342	93,992	44,702	110,672	22,594	10,301	95,760	46,884	478,453
Total Lbr. & Eng. Wood, BF equivalent	44,756	84,730	157,608	117,055	229,755	55,981	32,140	107,793	84,412	914,231

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS										
FLOOR JOISTS - UPPER FLOORS										
2 x 4s (Trusses), BF	2,266	2,181	6,267	14,571	56,644	1,562	16,181	12,954	10,408	123,036
2 x 8s, BF Lumber	232	760	1,188	221	2,713	404	723	1	2,439	8,681
2 x 10s, BF Lumber	7,691	25,665	8,297	7,211	25,751	9,785	1,997	241	6,628	93,267
2 x 12s, BF Lumber	5,113	4,774	2,050	1,326	5,532	2,511	3,278	41	6,230	30,856
Subtotal: Lumber in Floor Joists, BF	15,302	33,380	17,802	23,330	90,641	14,262	22,179	13,237	25,706	255,840
I-joist, LF	3,590	5,848	11,273	2,121	41,032	2,795	10,310	13,877	8,686	99,533
I-joist, BF equivalent	7,180	11,697	22,547	4,243	82,064	5,589	20,621	27,754	17,371	199,066
Total Lbr. & Eng. Wood, BF equivalent	22,483	45,077	40,349	27,572	172,705	19,851	42,800	40,991	43,077	454,906
FLOOR BEAMS - UPPER FLOORS										
Built-up Dimension Lumber, BF	1,243	4,665	2,335	1,045	5,584	913	1,526	42	1,365	18,718
Solid Sawn Beams, BF	374	4,030	598	5	790	50	32	448	5,482	11,808
Glulam, BF	69	40	417	242	1,389	34	3,328	1,146	3,453	10,118
I-joist, LF	304	717	308	237	269	30	825	1,665	225	4,579
I-joist, BF equivalent	607	1,434	616	475	537	60	1,649	3,330	450	9,158
LVL, Cubic Feet	432	177	907	238	1,440	234	268	389	200	4,285
LVL, BF equivalent	6,919	2,824	14,514	3,816	23,032	3,751	4,286	6,225	3,192	68,560
Parallam™, Cubic Feet	0	27	9	12	48	67	49	33	99	344
Parallam™, BF equivalent	6	438	138	187	774	1,067	789	527	1,584	5,509
Timberstrand™, Cubic Feet	0	15	83	31	285	1	16	1	59	492
Timberstrand™, BF equivalent	0	244	1,324	503	4,555	18	260	20	950	7,873
Total Lbr. & Eng. Wood, BF equivalent	9,219	13,675	19,942	6,271	36,661	5,893	11,870	11,736	16,476	131,745
RIM BOARDS FOR I-JOISTS - UPPER FLOORS										
Lumber, BF	41	41	774	112	88	774	187	92	238	2,347
Glulam, BF	27	0	49	0	0	0	0	0	0	76
I-joist, LF	12	17	354	133	634	107	399	736	63	2,456
I-joist, BF equivalent	23	35	708	266	1,268	215	799	1,472	127	4,912
LVL, Cubic Feet	3	2	24	0	28	2	55	17	14	145
LVL, BF equivalent	45	29	390	4	456	27	878	266	218	2,313
Timberstrand™, Cubic Feet	47	27	107	70	384	47	75	483	95	1,335
Timberstrand™, BF equivalent	759	432	1,714	1,114	6,137	750	1,193	7,735	1,523	21,356
Plywood, 3/8 inch basis	65	0	0	43	121	31	0	139	79	477
Plywood, BF equivalent	33	0	0	22	60	15	0	69	40	239
OSB, 3/8 inch basis	485	1,187	1,761	869	5,659	705	1,919	1,367	1,126	15,078
OSB, BF equivalent	242	593	881	435	2,829	353	960	684	563	7,539
Total Lbr. & Eng. Wood, BF equivalent	1,170	1,129	4,516	1,952	10,838	2,134	4,016	10,318	2,708	38,783

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
All Data in Thousands										
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	16,960	42,116	21,510	24,491	97,103	15,999	23,925	13,818	32,791	288,713
Glulam, BF	96	40	466	242	1,389	34	3,328	1,146	3,453	10,195
I-joist, LF	3,906	6,583	11,935	2,492	41,935	2,932	11,534	16,278	8,974	106,568
I-joist, BF equivalent	7,811	13,165	23,871	4,983	83,870	5,864	23,068	32,555	17,948	213,136
LVL, Cubic Feet	435	178	932	239	1,468	236	323	406	213	4,430
LVL, BF equivalent	6,964	2,853	14,904	3,820	23,488	3,779	5,164	6,491	3,410	70,873
Parallam™, Cubic Feet	0	27	9	12	48	67	49	33	99	344
Parallam™, BF equivalent	6	438	138	187	774	1,067	789	527	1,584	5,509
Timberstrand™, Cubic Feet	47	42	190	101	668	48	91	485	155	1,827
Timberstrand™, BF equivalent	759	676	3,037	1,617	10,692	768	1,453	7,755	2,473	29,229
Plywood, BF equivalent	33	0	0	22	60	15	0	69	40	239
OSB, BF equivalent	242	593	881	435	2,829	353	960	684	563	7,539
Total Engineered Wood, BF equivalent	15,912	17,765	43,297	11,305	123,102	11,879	34,762	49,227	29,471	336,720
Total Lbr. & Eng. Wood, BF equivalent	32,872	59,881	64,807	35,796	220,205	27,878	58,687	63,045	62,262	625,433

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING										
WALL FRAMING										
2 x 4s Walls, BF	9,019	24,542	62,518	31,085	216,221	52,201	165,705	50,871	46,346	658,508
2 x 6s Walls, BF	46,944	79,092	72,802	91,689	174,910	27,968	101,860	139,666	99,464	834,396
Interior 2 x 3s Walls, BF	30	367	224	300	2,703	348	443	90	195	4,699
Interior 2 x 4s Walls, BF	34,488	80,259	113,292	98,875	286,125	68,958	199,416	124,634	90,950	1,096,997
Interior 2 x 6s Walls, BF	3,474	9,859	8,533	7,371	19,827	3,510	15,898	18,025	10,174	96,671
Treated plates on slabs	1,340	3,182	5,175	5,453	17,614	4,189	18,036	7,765	5,986	68,739
Blocking for drywall, 2 x 4, BF	2,086	4,953	6,696	5,839	16,816	3,983	11,834	7,841	5,558	65,606
Blocking for drywall, 2 x 6, BF	1,893	4,493	6,074	5,297	15,255	3,613	10,735	7,113	5,042	59,515
Subtotal: Dimension Lumber in Walls	99,274	206,747	275,315	245,910	749,469	164,770	523,926	356,004	263,716	2,885,131
Timberstrand™, BF equivalent	1	6	161	6	36	5	25	5	8	253
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	773	207	2,876	314	23,181	930	5,271	675	826	35,051
Logs, BF	14	27	19,671	3,651	4,496	33	5,316	15,195	4,249	52,652
Total Lbr. & Eng. Wood, BF equivalent	100,063	206,986	298,023	249,880	777,181	165,738	534,538	371,879	268,800	2,973,088
WINDOW AND DOOR HEADERS										
Lumber,BF(Blt-up,Open Web & Flitch Pl'te)	3,185	5,281	8,701	7,066	26,214	6,612	23,028	9,385	3,989	93,461
Solid Sawn Beams, BF	142	270	695	999	985	294	361	2,878	8,156	14,781
Glulam, BF	55	183	394	55	396	20	190	1,068	2,204	4,566
I-joist, LF	44	387	56	198	298	80	670	122	28	1,883
I-joist, BF equivalent	89	773	111	396	596	160	1,341	245	55	3,766
LVL, Cubic Feet	38	74	196	171	344	32	52	232	30	1,169
LVL, BF equivalent	605	1,187	3,141	2,743	5,504	517	834	3,707	472	18,710
Parallam™, Cubic Feet	7	57	0	24	12	0	8	6	29	145
Parallam™, BF equivalent	109	916	6	389	200	0	129	103	470	2,322
Timberstrand™, Cubic Feet	1	16	61	27	216	3	59	26	29	436
Timberstrand™, BF equivalent	12	258	973	427	3,451	49	940	412	459	6,981
Glued & Nailed Box Beams, BF Lumber	29	38	34	38	245	54	126	199	17	782
Total Lbr. & Eng. Wood, BF equivalent	4,226	8,906	14,056	12,113	37,591	7,707	26,949	17,997	15,823	145,369
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	37	49	45	50	319	71	164	259	23	1,016
GARAGE DOOR HEADERS										
Lumber, BF (Blt-up,Open Web & Flitch Pl'te)	424	618	633	884	923	653	666	462	195	5,456
Solid Sawn Beams, BF	19	93	191	133	34	54	0	680	2,315	3,520
Glulam, BF	98	213	331	99	377	376	5,551	1,608	2,727	11,381
I-joist, LF	10	131	0	10	5	0	0	12	0	168
I-joist, BF equivalent	19	262	0	21	10	0	0	24	0	336
LVL, Cubic Feet	61	57	229	211	493	63	261	287	8	1,669
LVL, BF equivalent	970	905	3,670	3,381	7,881	1,001	4,183	4,587	126	26,704
Parallam™, Cubic Feet	1	61	8	37	60	45	57	13	36	317
Parallam™, BF equivalent	15	971	127	591	966	719	906	216	568	5,078
Timberstrand™, Cubic Feet	0	3	47	14	91	20	65	16	12	268
Timberstrand™, BF equivalent	0	46	746	227	1,457	321	1,039	251	195	4,283
Glued & Nailed Box Beams, BF Lumber	0	5	2	44	0	42	0	0	6	99
Total Lbr. & Eng. Wood, BF equivalent	1,545	3,113	5,699	5,381	11,647	3,166	12,345	7,828	6,132	56,857
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	0	21	7	177	0	168	0	0	25	397

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING (CONTINUED)										
TOTAL WOOD USAGE IN WALL FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	103,861	213,285	308,118	259,038	805,547	173,442	558,694	385,479	283,471	3,090,934
Glulam, BF	153	397	725	153	773	396	5,741	2,676	4,932	15,946
I-joist, LF	54	517	56	209	303	80	670	135	28	2,051
I-joist, BF equivalent	108	1,035	111	417	606	160	1,341	269	55	4,103
LVL, Cubic Feet	98	131	426	383	837	95	314	518	37	2,838
LVL, BF equivalent	1,575	2,092	6,811	6,124	13,384	1,518	5,017	8,294	598	45,414
Parallam™, Cubic Feet	8	118	8	61	73	45	65	20	65	462
Parallam™, BF equivalent	124	1,887	132	980	1,165	719	1,035	319	1,038	7,400
Timberstrand™, Cubic Feet	1	19	118	41	309	23	125	42	41	720
Timberstrand™, BF equivalent	14	311	1,880	660	4,944	375	2,004	668	662	11,517
Total Engineered Wood, BF equivalent	1,973	5,721	9,660	8,335	20,872	3,169	15,138	12,226	7,285	84,380
Total Lbr. & Eng. Wood, BF equivalent	105,834	219,006	317,777	267,373	826,420	176,611	573,832	397,705	290,755	3,175,313

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF FRAMING										
TRUSSES, RAFTERS AND CEILING JOISTS										
2 x 4s (Trusses), BF	20,279	51,104	126,871	109,799	357,899	51,267	158,496	168,246	106,783	1,150,746
2 x 6s (Rafters), BF	9,884	22,811	21,572	16,939	64,562	26,874	103,513	19,935	27,760	313,849
2 x 8s (Rafters), BF	18,725	43,237	40,860	32,076	122,249	50,879	195,903	37,741	52,562	594,232
2 x 10s (Rafters), BF	4,336	9,988	9,474	7,448	28,395	11,827	45,627	8,775	12,212	138,083
Turn Gables, 2 x 4s, BF	1,980	4,072	8,853	7,704	18,027	4,317	14,221	7,504	6,959	73,637
Dormers, 2 x 4s, BF	5,103	10,494	11,103	9,661	49,065	11,749	38,706	15,154	14,055	165,089
Subtotal: Framing Lumber in Roofs	60,307	141,705	218,733	183,626	640,197	156,913	556,467	257,355	220,332	2,435,635
I-joist, LF	268	634	854	403	2,176	1,623	2,370	3,881	739	12,948
I-joist, BF equivalent	536	1,269	1,709	806	4,352	3,245	4,740	7,761	1,478	25,897
Total Lbr. & Eng. Wood, BF equivalent	60,844	142,974	220,442	184,432	644,549	160,158	561,207	265,116	221,810	2,461,532
ROOF BEAMS (incl. Beam and Purlin Construction)										
Built-up Dimension Lumber, BF	1,665	3,974	1,502	1,575	4,218	2,698	31,505	1,189	2,168	50,495
Solid Sawn Beams, BF	219	125	29	40	766	538	292	6	1,396	3,412
Glulam, BF	582	31	58	40	750	20	3,010	2,970	1,054	8,514
I-joist, LF	5	8	8	0	0	0	77	43	237	379
I-joist, BF equivalent	10	16	17	0	0	0	154	86	475	757
LVL, Cubic Feet	90	53	114	13	160	61	134	18	10	654
LVL, BF equivalent	1,447	856	1,826	207	2,565	971	2,148	290	163	10,472
Parallam™, Cubic Feet	4	2	1	1	4	0	0	2	10	24
Parallam™, BF equivalent	64	24	11	19	69	0	0	32	166	386
Timberstrand™, Cubic Feet	0	1	0	0	12	6	0	1	1	21
Timberstrand™, BF equivalent	0	10	4	3	193	101	0	17	12	340
Total Lbr. & Eng. Wood, BF equivalent	3,987	5,035	3,447	1,884	8,561	4,328	37,110	4,590	5,434	74,376
TOTAL WOOD USAGE IN ROOF FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	62,192	145,804	220,265	185,242	645,181	160,149	588,264	258,549	223,896	2,489,542
Glulam, BF	582	31	58	40	750	20	3,010	2,970	1,054	8,514
I-joist, LF	273	643	863	403	2,176	1,623	2,447	3,923	976	13,327
I-joist, BF equivalent	547	1,285	1,725	806	4,352	3,245	4,894	7,847	1,953	26,654
LVL, Cubic Feet	90	53	114	13	160	61	134	18	10	654
LVL, BF equivalent	1,447	856	1,826	207	2,565	971	2,148	290	163	10,472
Parallam™, Cubic Feet	4	2	1	1	4	0	0	2	10	24
Parallam™, BF equivalent	64	24	11	19	69	0	0	32	166	386
Timberstrand™, Cubic Feet	0	1	0	0	12	6	0	1	1	21
Timberstrand™, BF equivalent	0	10	4	3	193	101	0	17	12	340
Total Engineered Wood, BF equivalent	2,639	2,205	3,624	1,075	7,929	4,337	10,052	11,156	3,349	46,366
Total Lbr. & Eng. Wood, BF equivalent	64,831	148,010	223,889	186,317	653,110	164,486	598,316	269,706	227,244	2,535,908

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN BEAMS & HEADERS										
BEAMS & HEADERS - BF OR EQUIVALENT										
Lumber Equivalent										
Lumber, BF	9,204	21,664	17,485	15,353	54,734	14,475	57,393	11,533	8,903	210,744
Solid Sawn Beams, BF	1,086	6,659	2,634	1,591	4,219	1,335	3,948	4,278	24,474	50,225
Glulam, BF	862	537	1,866	894	2,969	466	12,079	8,134	12,521	40,329
I-joist, LF	724	2,428	773	810	787	110	1,573	3,092	875	11,170
I-joist, BF equivalent	1,447	4,856	1,545	1,620	1,573	220	3,145	6,183	1,750	22,340
LVL, Cubic Feet	1,054	674	2,930	1,178	3,750	691	746	1,986	431	13,441
LVL, BF equivalent	16,859	10,790	46,880	18,845	60,004	11,057	11,941	31,780	6,898	215,053
Parallam™, Cubic Feet	14	158	37	116	144	112	121	55	321	1,077
Parallam™, BF equivalent	219	2,528	597	1,860	2,303	1,786	1,934	878	5,133	17,238
Timberstrand™, Cubic Feet	5	72	290	181	941	31	140	57	101	1,817
Timberstrand™, BF equivalent	77	1,155	4,636	2,893	15,054	490	2,238	912	1,616	29,071
Total Engineered Wood, BF equivalent	19,464	19,867	55,525	26,112	81,903	14,018	31,337	47,887	27,918	324,031
Total Lbr. & Eng. Wood, BF equivalent	29,755	48,189	75,644	43,057	140,856	29,829	92,678	63,697	61,296	585,000
Plywood, SF 3/8" basis equivalent	37	70	51	227	319	239	164	259	47	1,413

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL SHEATHING & UNDERLAYMENT										
ALL SHEATHING & UNDERLAYMENT										
Square Feet										
None	2,274	8,501	10,788	15,222	213,243	36,350	229,871	74,367	50,054	640,670
Lauan Plywood - 1/4"	392	3,601	5,633	3,009	23,400	7,752	1,253	419	926	46,386
Plywood - 1/4"	244	3,250	1,430	1,958	704	455	3,048	1,869	4,006	16,965
Plywood - 3/8"	2,184	2,278	2,840	7,996	9,555	7,013	3,075	1,835	11,156	47,931
Plywood - 1/2"	32,985	53,250	34,165	34,320	92,175	18,332	29,479	42,585	57,390	394,680
Plywood - 5/8"	20,493	29,667	22,890	22,631	84,452	6,900	36,410	35,913	46,963	306,320
Plywood - 3/4"	14,822	40,493	23,920	26,168	69,766	9,429	17,859	12,793	22,028	237,279
Plywood - 1 1/8"	432	15,867	117	743	2,004	162	6,521	2,141	1,797	29,785
OSB - 1/4"	1,729	69	687	159	170	3	8	0	12	2,836
OSB - 3/8"	132	3,629	6,188	10,717	10,812	1,382	1,202	9,525	10,569	54,158
OSB - 7/16" or 1/2"	50,508	112,500	250,295	208,933	741,305	149,309	574,965	313,726	213,886	2,615,426
OSB - 5/8"	7,201	10,578	14,164	15,568	44,253	18,391	28,076	27,980	21,319	187,529
OSB - 3/4"	19,479	38,296	85,588	52,420	182,410	43,520	29,459	63,414	32,078	546,664
OSB - 7/8"	510	1,599	3,406	158	2,783	458	1,711	2,014	3,629	16,267
OSB - 1"	580	176	973	947	10,389	1,435	2,060	11	314	16,885
OSB - 1 1/8"	333	86	118	258	2,168	194	9,591	545	8,852	22,145
Particleboard - 1/4"	125	368	0	2	160	3	7	2,599	420	3,683
Particleboard - 3/8"	2	0	0	413	74	1	3	272	719	1,485
Particleboard - 1/2"	11	1	0	830	318	6	166	5	4,096	5,432
Particleboard - 5/8"	1	0	0	206	18	0	1	0	82	308
Particleboard - 3/4"	1	194	0	0	161	0	1	0	2	359
Hardboard - 1/4"	5	0	119	315	976	612	7	492	57	2,584
Cementitious Board	2,261	8,418	12,020	6,005	45,220	6,806	11,524	17,019	5,646	114,919
Boards - 1" - no spacing	657	504	584	708	3,406	8,125	6,119	10,892	2,098	33,094
Boards - 1" - spaced	10	39	67	50	278	1,309	185	42	68	2,049
Boards - 2"	22	62	104	97	803	140	3,113	63	1,423	5,828
Fiberboard - 1/2"	6	6	588	362	206	179	1,186	4	491	3,028
Gypsum	78	517	32	25	2,578	2,163	4,691	10	203	10,298
Foil Faced 3-ply Kraft Paper - 1/8"	133	66	205	98	308	2,506	33,140	41	160	36,657
Foam	431	5,587	17,674	3,385	13,115	6,384	40,248	17,615	3,487	107,927
Fiberbond	4	0	700	43	430	2	135	624	700	2,639
Other	1,361	770	5,952	1,993	7,477	4,740	7,345	10,769	2,256	42,663
TOTAL	159,406	340,373	501,248	415,738	1,565,119	334,063	1,082,458	649,585	506,888	5,554,879
ALL SHEATHING & UNDERLAYMENT VOLUMES										
Plywood, SF 3/8" Basis	111,421	253,477	135,688	147,345	419,224	62,601	160,378	151,727	218,066	1,659,927
Lauan Plywood, SF 3/8" Basis	261	2,401	3,756	2,006	15,600	5,168	835	279	618	30,924
OSB, SF 3/8" Basis	123,320	252,355	546,053	423,854	1,478,609	323,633	911,797	607,651	431,306	5,098,578
Particleboard, SF 3/8" Basis	103	633	1	1,865	957	12	232	2,011	6,600	12,414
Hardboard, SF 3/8" Basis	4	0	79	210	651	408	5	328	38	1,722
Foam, SF 3/8" str'l panel basis equivalent	15,466	23,891	79,553	44,550	80,393	38,823	109,581	99,533	39,054	530,843
Other, SF 3/8" str'l panel basis equivalent	4,845	12,621	19,043	7,432	44,213	19,112	70,809	21,209	9,459	208,743
Total Panel, 3/8" str'l pn'l basis equiv.	255,420	545,379	784,173	627,262	2,039,647	449,757	1,253,636	882,738	705,140	7,543,151
Boards, BF	706	648	826	928	5,152	9,060	12,437	11,040	4,978	45,775

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SHEATHING										
FLOOR SHEATHING										
SF of 1st & 2nd Story Floor Area										
None - Slab or Stress Skin Panel	875	5,085	6,762	4,975	141,299	28,470	188,258	58,671	42,703	477,097
Plywood - 1/2"	1,525	2,579	2,707	9,375	1,226	2,187	1,814	59	1,734	23,208
Plywood - 5/8"	3,080	2,455	3,825	1,612	2,666	733	212	426	4,642	19,650
Plywood - 3/4"	10,257	12,922	14,650	25,397	38,804	7,409	7,320	12,279	20,828	149,865
Plywood - 1 1/8"	432	15,867	117	743	2,004	162	6,521	2,141	1,797	29,785
OSB - 7/16" OR 1/2"	158	558	436	3,112	2,824	57	2,164	38	1,472	10,820
OSB - 5/8"	936	2,543	323	602	3,030	433	339	388	1,127	9,721
OSB - 3/4"	17,803	36,378	80,922	47,446	169,473	23,891	26,958	61,542	30,881	495,294
OSB - 7/8"	510	1,599	3,406	158	2,783	458	1,711	2,014	3,629	16,267
OSB - 1"	580	176	973	947	10,389	1,435	2,060	11	314	16,885
OSB - 1 1/8"	333	86	118	258	2,168	194	9,591	545	8,852	22,145
Boards - 1"	212	191	416	583	2,703	6,551	4,550	10,786	1,926	27,918
Boards - 2"	7	5	11	18	364	79	1,765	11	93	2,353
Other	725	318	3,719	392	3,602	4,333	506	39	167	13,802
TOTAL	37,431	80,763	118,387	95,617	383,337	76,392	253,769	148,950	120,163	1,314,810
FLOOR SHEATHING VOLUMES										
Plywood, SF 3/8" basis	28,974	80,976	39,637	68,209	89,700	19,441	36,975	31,770	57,096	452,777
OSB, SF 3/8" basis	41,108	82,197	173,861	103,713	388,464	54,058	95,624	130,145	101,463	1,170,633
Other, SF 3/8" str'l panel basis equivalent	1,428	691	7,387	752	7,318	8,617	1,143	80	352	27,768
Total Panel, 3/8" str'l pn'l basis equiv.	71,510	163,864	220,885	172,674	485,482	82,116	133,742	161,995	158,911	1,651,178
Boards, BF	227	202	439	618	3,432	6,708	8,080	10,808	2,111	32,624

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL SHEATHING										
WALL SHEATHING										
SF of Exterior Wall										
None	806	3,064	4,026	10,247	71,944	7,880	41,613	15,696	7,351	162,628
Plywood - 3/8"	36	1,829	365	2,396	4,130	3,090	910	71	5,592	18,419
Plywood - 1/2"	17,113	29,532	7,327	7,063	36,261	4,331	5,606	25,882	27,678	160,792
Plywood - 5/8"	4,505	1,341	3,839	1,278	3,377	96	4,570	3,766	12,583	35,355
Plywood - 3/4"	866	6,287	3,494	59	7,580	177	3,950	25	97	22,535
OSB - 3/8"	94	3,629	6,108	10,577	9,265	1,378	1,130	9,116	9,159	50,456
OSB - 7/16" OR 1/2"	34,301	60,066	117,916	101,807	374,014	69,735	207,973	145,863	89,604	1,201,279
OSB - 5/8"	53	2,787	1,578	356	9,172	394	2,671	1,655	8,793	27,460
OSB - 3/4"	230	403	1,032	3,230	1,985	9,602	71	19	73	16,645
Fiberboard - 1/2"	6	6	588	362	206	179	1,186	4	491	3,028
Gypsum	78	517	32	25	2,578	2,163	4,691	10	203	10,298
Foil Faced 3-ply Kraft Paper - 1/8"	133	66	205	98	308	2,506	33,140	41	160	36,657
Foam	431	5,587	17,674	3,385	13,115	6,384	40,248	17,615	3,487	107,927
Other	550	117	673	695	1,049	26	4,952	11	1,512	9,585
TOTAL	59,205	115,232	164,856	141,579	534,984	107,942	352,711	219,773	166,782	1,863,063
Foam as a Second Layer of Sheathing, SF 3/8" basis	14,999	12,391	45,827	34,105	71,035	26,443	55,908	50,151	30,663	341,522
WALL SHEATHING VOLUMES										
Plywood, SF 3/8" basis	32,095	56,013	23,521	14,061	73,265	9,378	23,902	40,906	63,661	336,802
OSB, SF 3/8" basis	46,377	89,168	168,024	153,374	527,207	114,219	283,021	206,396	143,431	1,731,217
Foam, SF 3/8" str'l panel basis equivalent	15,466	23,891	79,553	44,550	80,393	38,823	109,581	99,533	39,054	530,843
Other, SF 3/8" str'l panel basis equivalent	1,054	968	2,025	1,559	5,579	6,785	59,480	87	3,190	80,727
Total Panel, 3/8" str'l pn'l basis equiv.	94,991	170,041	273,123	213,544	686,444	169,205	475,983	346,922	249,336	2,679,589
Boards, BF	0	0	0	0	0	0	0	0	0	0

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF SHEATHING										
ROOF SHEATHING										
SF of Roof Area										
None	593	351	0	0	0	0	0	0	0	945
Plywood - 3/8"	93	357	1,982	4,168	4,071	3,703	2,140	378	1,873	18,765
Plywood - 1/2"	11,872	19,377	23,831	17,414	52,822	11,690	22,040	16,643	27,729	203,417
Plywood - 5/8"	12,518	25,866	15,226	18,882	78,197	6,068	30,239	31,721	29,579	248,296
Plywood - 3/4"	2,670	2,854	3,777	693	12,069	1,327	2,345	488	937	27,159
OSB - 7/16" or 1/2"	16,039	51,279	131,241	103,893	363,589	79,511	364,566	167,824	119,866	1,397,808
OSB - 5/8"	6,206	5,247	11,942	13,785	30,410	17,560	25,057	25,542	11,200	146,949
OSB - 3/4"	631	958	1,755	1,740	8,082	9,808	2,416	548	895	26,833
Boards - 1" - no spacing	444	314	169	125	703	1,574	1,568	106	173	5,175
Boards - 1" - spaced	10	39	67	50	278	1,309	185	42	68	2,049
Boards - 2"	15	57	93	80	439	62	1,349	53	1,330	3,475
Other	85	335	1,560	906	2,825	380	1,887	10,720	577	19,276
TOTAL	51,177	107,033	191,643	161,734	553,486	132,992	453,792	254,064	194,227	2,100,148
ROOF SHEATHING VOLUMES										
Plywood, SF 3/8" Basis	42,125	75,011	66,688	60,242	228,967	32,056	86,615	76,413	90,017	758,134
OSB, SF 3/8" Basis	32,992	79,033	198,402	164,978	551,632	154,898	532,683	267,431	180,278	2,162,325
Other, SF 3/8" str'l panel basis equivalent	128	487	2,179	1,270	4,016	548	2,604	15,159	813	27,204
Total Panel, 3/8" str'l pn'l basis equiv.	75,245	154,530	267,269	226,490	784,615	187,502	621,901	359,003	271,108	2,947,663
Boards, BF	478	446	387	310	1,720	2,352	4,358	232	2,867	13,150

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN UNDERLAYMENT										
UNDERLAYMENT MATERIAL										
SF of Floor Area										
Lauan Plywood - 1/4"	392	3,601	5,633	3,009	23,400	7,752	1,253	419	926	46,386
OSB - 1/4"	1,729	69	687	159	170	3	8	0	12	2,836
OSB - 3/8"	38	0	81	140	1,548	4	73	409	1,410	3,702
OSB - 7/16" OR 1/2"	11	597	702	121	878	6	261	0	2,945	5,519
OSB - 5/8"	5	0	321	825	1,641	3	8	395	199	3,399
OSB - 3/4"	815	557	1,879	3	2,870	219	15	1,306	229	7,893
Plywood - 1/4"	244	3,250	1,430	1,958	704	455	3,048	1,869	4,006	16,965
Plywood - 3/8"	2,055	92	493	1,432	1,353	220	26	1,385	3,691	10,747
Plywood - 1/2"	2,475	1,763	300	467	1,866	124	19	1	249	7,263
Plywood - 5/8"	390	4	0	860	212	3	1,389	0	160	3,020
Plywood - 3/4"	1,030	18,430	1,998	19	11,314	516	4,245	2	166	37,720
Particleboard - 1/4"	125	368	0	2	160	3	7	2,599	420	3,683
Particleboard - 3/8"	2	0	0	413	74	1	3	272	719	1,485
Particleboard - 1/2"	11	1	0	830	318	6	166	5	4,096	5,432
Particleboard - 5/8"	1	0	0	206	18	0	1	0	82	308
Particleboard - 3/4"	1	194	0	0	161	0	1	0	2	359
Hardboard - 1/4"	5	0	119	315	976	612	7	492	57	2,584
Cementitious Board	2,261	8,418	12,020	6,005	45,220	6,806	11,524	17,019	5,646	114,919
Fiberbond	4	0	700	43	430	2	135	624	700	2,639
TOTAL	11,594	37,345	26,362	16,808	93,313	16,737	22,187	26,797	25,715	276,859
UNDERLAYMENT VOLUMES										
Plywood, SF 3/8" Basis	8,228	41,476	5,842	4,833	27,292	1,727	12,887	2,637	7,292	112,214
Lauan Plywood, SF 3/8" Basis	261	2,401	3,756	2,006	15,600	5,168	835	279	618	30,924
OSB, SF 3/8" Basis	2,843	1,957	5,767	1,789	11,306	457	469	3,680	6,134	34,403
Particleboard, SF 3/8" Basis	103	633	1	1,865	957	12	232	2,011	6,600	12,414
Hardboard, SF 3/8" Basis	4	0	79	210	651	408	5	328	38	1,722
Other	2,235	10,475	7,452	3,851	27,301	3,162	7,582	5,883	5,104	73,044
Total Panel, 3/8" str'l pn'l basis equiv.	13,674	56,943	22,896	14,553	83,107	10,935	22,009	14,818	25,786	264,721

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FOUNDATIONS										
WOOD FOUNDATION SYSTEMS										
Lumber - Treated, 2 x 6, BF	10	38	180	726	109	8	7	6	11	1,094
Lumber - Treated, 2 x 8, BF	30	115	539	2,177	327	23	21	18	33	3,283
Plywood - Treated, SF 3/8" Basis	43	161	756	3,054	459	32	30	25	46	4,606
MASONRY FOUNDATIONS										
Sill Plates - 2 x 6 Treated, BF	2,599	4,873	8,526	7,723	13,678	3,104	477	7,240	4,332	52,552
Posts - Treated, BF	57	108	189	171	303	69	11	160	96	1,162
Furring for Precast - Treated, BF	7	282	242	15	194	28	5	4	8	785
TOTAL - Treated Lumber, BF	2,705	5,415	9,676	10,811	14,611	3,231	520	7,429	4,479	58,877
TOTAL - Treated Plywood, SF 3/8" Basis	43	161	756	3,054	459	32	30	25	46	4,606

	SINGLE-FAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	US TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN DECKS & PORCHES										
DECKS										
Lumber - Regular, BF										
2x2s	410	20	86	1,167	132	34	394	656	420	3,318
2x4s	272	13	57	776	88	22	262	436	280	2,206
2x6s	205	10	43	584	66	17	197	328	210	1,659
Boards	1,321	1,554	340	3,479	1,182	437	2,476	2,955	3,472	17,216
Posts	272	13	57	776	88	22	262	436	280	2,206
Lumber - Treated, BF										
2x2s	240	452	771	162	2,748	603	612	155	36	5,779
2x4s	5,681	8,985	9,382	11,189	24,086	5,521	9,043	14,123	9,337	97,346
2x6s	2,819	4,462	4,677	5,533	12,052	2,761	4,500	6,980	4,611	48,395
2x8s	3,298	5,178	5,245	6,663	13,051	3,006	5,126	8,437	5,614	55,618
2x10s	4,498	7,060	7,152	9,087	17,797	4,099	6,990	11,505	7,655	75,842
2x12s	1,499	2,353	2,384	3,029	5,932	1,366	2,330	3,835	2,552	25,281
Boards	758	3,750	3,832	2,418	12,500	3,302	3,830	1,462	2,389	34,239
Posts	751	1,413	1,705	1,908	4,368	1,096	1,722	1,167	1,511	15,641
Subtotal - Lumber, BF	2,480	1,611	582	6,783	1,555	532	3,590	4,810	4,662	26,605
Subtotal - Treated Lumber, BF	19,544	33,654	35,147	39,988	92,534	21,753	34,153	47,663	33,705	358,141
Total, BF	22,024	35,264	35,729	46,772	94,089	22,286	37,743	52,473	38,367	384,746
Deck Surfaces										
Lumber - Regular, BF	1,321	1,554	340	3,479	1,182	437	2,476	2,955	3,472	17,216
Lumber - Treated, BF	758	3,750	3,832	2,418	12,500	3,302	3,830	1,462	2,389	34,239
PVC / Vinyl / Fiberglass, BF	773	131	714	199	834	177	118	150	407	3,502
Wood / Plastic composite, BF	2,067	2,287	2,935	3,841	4,947	566	1,220	8,015	2,104	27,982
Total Deck Surface Material, BF	4,918	7,721	7,821	9,937	19,463	4,482	7,644	12,581	8,372	82,940
PORCHES										
Lumber - Regular, BF										
2x2s (Railings)	9	41	112	169	166	61	25	1,217	364	2,165
2x4s (Porch Roofs, Breezeways, & Railings)	982	3,652	6,704	7,062	23,909	5,124	20,380	10,516	7,084	85,412
2x6s (Railings)	4	21	56	85	83	31	13	608	182	1,082
2x8s (Porch Floors & Breezeways)	1,112	3,902	5,558	6,492	20,352	4,672	14,328	7,529	5,295	69,241
Boards	365	1,267	1,489	2,333	4,519	991	3,602	2,011	1,729	18,304
Posts	468	1,569	3,316	2,890	12,309	2,164	11,138	5,496	3,834	43,184
Lumber - Treated, BF										
2x2s (Railings)	7	53	307	19	1,133	200	126	0	80	1,926
2x4s (Porch Roofs, Breezeways, & Railings)	5	36	204	13	753	133	84	0	53	1,281
2x6s (Railings)	4	27	153	10	566	100	63	0	40	963
Boards	207	569	557	267	3,409	802	1,097	612	199	7,719
Posts	5	36	204	13	753	133	84	0	53	1,281
Subtotal - Lumber, BF	2,939	10,452	17,236	19,030	61,338	13,042	49,486	27,377	18,487	219,389
Subtotal - Treated Lumber, BF	229	720	1,425	322	6,614	1,367	1,454	612	426	13,169
Total, BF	3,168	11,172	18,662	19,352	67,952	14,410	50,940	27,988	18,914	232,558
Porch Surfaces										
Lumber - Regular, BF	365	1,267	1,489	2,333	4,519	991	3,602	2,011	1,729	18,304
Lumber - Treated, BF	207	569	557	267	3,409	802	1,097	612	199	7,719
Plastic and Composites, BF	388	1,387	1,847	4,178	2,995	558	2,119	7,643	1,224	22,340
Concrete / Brick / Stone / Tiles, BF	142	1,555	8,932	5,021	28,918	7,185	43,309	10,570	9,504	115,136
Total Porch Surface Material, BF	1,103	4,777	12,825	11,799	39,841	9,536	50,128	20,835	12,655	163,499

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
HOUSING STARTS	7.9	25.3	15.7	20.1	54.2	13.0	48.1	20.3	40.7	245.3
TOTAL WOOD USAGE IN NEW RESIDENTIAL CONSTRUCTION										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	40,062	93,371	61,968	90,055	257,405	77,433	216,444	76,087	176,258	1,089,083
Boards, BF	4	20	5	69	170	63	726	53	168	1,278
Treated Framing, BF	455	1,062	1,094	823	2,404	865	3,295	496	2,229	12,722
Treated Boards, BF	0	0	1	0	1	0	0	0	1	2
Solid Sawn Beams and Posts, BF	505	649	1,913	19	4,880	113	1,675	504	7,725	17,982
Logs, BF	0	0	0	0	34	0	0	0	6	41
Subtotal Lumber, BF	41,026	95,103	64,981	90,966	264,893	78,473	222,140	77,141	186,386	1,121,108
Engineered Wood										
Glulam, BF	257	911	2,925	919	1,987	2,304	1,025	2,328	6,052	18,708
I-joist, BF equivalent	2,114	8,479	5,120	10,051	12,046	5,305	34,193	28,027	26,360	131,694
LVL, BF equivalent	9,979	8,809	3,968	3,679	14,206	6,008	11,731	23,429	3,910	85,719
Parallam™, BF equivalent	124	2,693	628	9	3,913	416	1,156	192	2,257	11,388
Timberstrand™, BF equivalent	33	410	629	1	2,836	132	828	434	2,852	8,157
Plywood Rim Board, BF equivalent	88	0	0	0	0	0	0	0	13	102
OSB Rim Board, BF equivalent	0	18	0	0	35	0	0	0	145	198
SubTotal Engineered Wood, BF equivalent	12,596	21,321	13,269	14,660	35,024	14,164	48,933	54,410	41,590	255,966
Total Lbr. & Eng. Wood, BF equivalent	53,622	116,424	78,250	105,625	299,917	92,637	271,074	131,551	227,976	1,377,075
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	13,675	28,803	14,605	22,740	27,137	4,858	32,275	4,023	63,730	211,847
Treated Plywood	0	0	31	0	2	0	0	0	3	35
OSB	17,174	50,683	38,082	56,046	132,700	56,859	174,504	77,144	96,637	699,829
Total Structural Panels, SF 3/8" basis	30,849	79,486	52,717	78,785	159,839	61,717	206,779	81,167	160,370	911,710
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	0	0	0	0	0	0	0	0	0	0
Particleboard	57	0	0	0	0	0	0	3,352	8	3,417
Hardboard	0	0	0	0	0	0	0	0	0	0
Lauan Plywood	465	36	419	0	4,149	131	0	0	31	5,231
Fiberboard	0	0	0	0	13	0	6,778	0	16	6,806
Total Non-Str'l Wood Panels, SF 3/8" basis	522	36	419	0	4,161	131	6,778	3,352	55	15,454
Total Panels, SF 3/8" basis equivalent	31,371	79,522	53,135	78,785	164,001	61,849	213,557	84,519	160,425	927,164
TOTAL Lumber, Engineered Wood, & Panels BF or Equivalent	69,308	156,185	104,817	145,018	381,917	123,561	377,852	173,810	308,188	1,840,657

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	8,525	18,248	13,084	13,892	61,183	17,375	34,227	7,290	26,615	200,438
Boards, BF	0	13	0	37	42	63	681	0	123	960
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	418	566	1,206	0	1,928	111	1,204	245	4,141	9,819
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	8,943	18,827	14,289	13,929	63,153	17,550	36,112	7,535	30,879	211,217
Engineered Wood										
Glulam, BF	203	886	2,906	900	1,696	2,304	687	1,608	2,393	13,583
I-joist, BF equivalent	2,104	8,326	5,109	10,015	11,875	5,305	34,010	27,687	25,339	129,770
LVL, BF equivalent	9,256	6,817	3,194	1,474	11,616	5,444	9,476	21,905	3,471	72,654
Parallam™, BF equivalent	17	1,668	596	0	3,832	416	1,156	181	1,359	9,224
Timberstrand™, BF equivalent	33	365	628	0	1,604	94	828	428	2,522	6,503
Plywood Rim Board, BF equivalent	88	0	0	0	0	0	0	0	13	102
OSB Rim Board, BF equivalent	0	18	0	0	35	0	0	0	145	198
SubTotal Engineered Wood, BF equivalent	11,701	18,081	12,433	12,389	30,658	13,563	46,157	51,809	35,242	232,033
Total Lbr. & Eng. Wood, BF equivalent	20,645	36,907	26,722	26,318	93,811	31,113	82,269	59,344	66,122	443,251
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	15,320	29,433	8,577	8,627	26,463	5,672	13,683	0	16,219	123,994
Steel, BF equivalent	0	82	0	0	188	0	0	0	743	1,014
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	35,965	66,422	35,299	34,945	120,463	36,784	95,952	59,344	83,084	568,259
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	5,979	19,918	3,813	9,928	13,603	4,156	12,877	0	25,655	95,929
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	6,870	15,852	19,863	20,564	51,062	20,661	75,321	46,057	42,614	298,863
Total Structural Panels, SF 3/8" basis	12,849	35,770	23,676	30,492	64,665	24,817	88,197	46,057	68,269	394,791
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	57	0	0	0	0	0	0	3,352	8	3,417
Hardboard	0	0	0	0	0	0	0	0	0	0
Lauan Plywood	465	36	419	0	4,149	131	0	0	31	5,231
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	522	36	419	0	4,149	131	0	3,352	39	8,648
Total Panels, SF 3/8" basis equivalent	13,371	35,806	24,095	30,492	68,813	24,948	88,197	49,409	68,308	403,439
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	7,772	21,435	8,863	11,649	34,900	7,880	19,080	0	25,000	136,579
Total Actual plus Potential Panels, SF 3/8" basis equivalent	21,143	57,241	32,957	42,141	103,714	32,828	107,277	49,409	93,308	540,018

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN WALL SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	21,420	56,756	36,351	54,741	136,076	40,495	111,155	50,033	98,633	605,661
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	180	793	324	823	1,578	812	2,085	402	1,530	8,526
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	28	47	624	0	2,238	0	341	0	3,118	6,397
Logs, BF	0	0	0	0	34	0	0	0	6	41
Subtotal Lumber, BF	21,628	57,596	37,300	55,563	139,927	41,307	113,582	50,435	103,288	620,625
Engineered Wood										
Glulam, BF	0	0	0	0	0	0	0	0	2,234	2,234
I-joist, BF equivalent	0	0	0	0	0	0	0	0	0	0
LVL, BF equivalent	362	1,729	743	2,002	1,511	290	2,102	1,199	318	10,255
Parallam™, BF equivalent	19	979	0	0	53	0	0	0	775	1,827
Timberstrand™, BF equivalent	0	0	0	0	369	38	0	0	321	727
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	381	2,708	743	2,002	1,933	327	2,102	1,199	3,648	15,044
Total Lbr. & Eng. Wood, BF equivalent	22,009	60,303	38,043	57,565	141,860	41,634	115,684	51,634	106,936	635,669
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	11	2,829	13	94	506	344	116	150	972	5,034
Steel - Exterior Walls, BF equivalent	0	112	0	0	697	0	226	0	1,161	2,196
Steel - Interior Walls, BF equivalent	33	61	38	276	7,290	0	341	444	2,089	10,574
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	22,054	63,305	38,094	57,935	150,353	41,978	116,367	52,229	111,159	653,473
STRUCTURAL AND NONSTRUCTURAL PANELS (Including Plywood in Box Beams)										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	1,187	376	518	2,669	353	0	9,088	0	10,637	24,828
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	3,851	15,758	10,485	12,268	18,027	9,269	8,447	11,358	17,455	106,919
Total Structural Panels, SF 3/8" basis	5,038	16,134	11,002	14,937	18,381	9,269	17,535	11,358	28,092	131,747
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	0	0	0	0	13	0	6,778	0	16	6,806
Total Non-Str'l Wood Panels, SF 3/8" basis	0	0	0	0	13	0	6,778	0	16	6,806
Total Panels, SF 3/8" basis equivalent	5,038	16,134	11,002	14,937	18,393	9,269	24,313	11,358	28,108	138,553
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	0	661	0	0	8,838	292	341	0	971	11,104
Foam & Other, SF 3/8" basis equivalent	153	1,513	96	0	5,405	2,968	8,629	0	219	18,985
Total Actual plus Potential, SF 3/8" basis equiv.	5,191	18,309	11,098	14,937	32,637	12,530	33,282	11,358	29,299	168,642

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN ROOF SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	10,116	18,367	12,533	21,423	60,146	19,562	71,062	18,764	50,784	282,758
Boards, BF	4	7	5	32	128	0	45	53	44	318
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	19	36	78	19	683	0	121	257	393	1,605
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	10,139	18,410	12,616	21,474	60,957	19,562	71,228	19,074	51,221	284,681
Engineered Wood										
Glulam, BF	54	25	18	19	291	0	339	720	1,425	2,891
I-joist, BF equivalent	10	153	11	36	171	0	182	340	1,021	1,924
LVL, BF equivalent	361	264	31	204	1,078	274	153	324	121	2,810
Parallam™, BF equivalent	89	47	32	9	27	0	0	11	123	338
Timberstrand™, BF equivalent	0	45	1	1	864	0	0	6	9	926
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	514	533	93	269	2,432	274	674	1,402	2,699	8,890
Total Lbr. & Eng. Wood, BF equivalent	10,653	18,943	12,709	21,742	63,389	19,836	71,902	20,476	53,921	293,571
Lbr. & Eng. Lumber equivalent of:										
Steel, BF equivalent	0	0	0	0	2	0	1	1	1	5
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	10,653	18,943	12,709	21,743	63,391	19,836	71,902	20,476	53,921	293,576
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	6,510	8,509	10,273	10,142	13,181	702	10,310	4,023	27,438	91,089
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	6,453	19,072	7,734	23,214	63,611	26,929	90,737	19,729	36,568	294,047
Total Structural Panels, SF 3/8" basis	12,963	27,581	18,008	33,356	76,792	27,631	101,047	23,752	64,006	385,137
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	12,963	27,581	18,008	33,356	76,792	27,631	101,047	23,752	64,006	385,137

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN FOUNDATIONS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	na	na	na	na	na	na	na	na	na	na
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	172	37	293	0	400	53	391	95	156	1,597
Treated Boards, BF	0	0	1	0	1	0	0	0	1	2
Posts, BF	4	1	6	0	9	1	9	2	3	35
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	176	38	300	0	409	54	400	97	160	1,634
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	176	38	300	0	409	54	400	97	160	1,634
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	0	0	31	0	2	0	0	0	3	35
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	0	0	31	0	2	0	0	0	3	35
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	0	0	31	0	2	0	0	0	3	35

	MULTIFAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN DECKS & PORCHES										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	0	0	0	0	0	0	0	0	226	226
Boards, BF	0	0	0	0	0	0	0	0	0	0
Treated Framing, BF	103	232	476	0	427	0	819	0	542	2,599
Treated Boards, BF	0	0	0	0	0	0	0	0	0	0
Posts, BF	36	0	0	0	21	0	0	0	69	127
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	139	232	476	0	448	0	819	0	837	2,951
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	139	232	476	0	448	0	819	0	837	2,951
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	na	na	na	na	na	na	na	na		na

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL FRAMING (excluding sheathing and underlayment)										
TOTAL LUMBER - FOUNDATIONS, WALLS, FLOORS, ROOFS, BEAMS, HEADERS, RIM BOARDS, DECKS & PORCHES										
Lumber - Regular, BF										
2x2s	0	0	0	0	0	0	0	0	104	104
2x3s	2	3	212	15	58	0	20	25	21	355
2x4s	17,847	57,659	42,467	63,774	192,670	51,742	156,206	58,766	113,249	754,380
2x6s	9,242	22,893	12,615	14,305	35,214	6,005	21,800	9,400	31,615	163,088
2x8s	4,172	6,565	2,162	5,394	16,841	5,363	21,878	4,217	10,979	77,571
2x10s	5,573	2,556	3,387	5,803	4,322	9,076	7,230	722	7,571	46,239
2x12s	3,227	3,695	1,124	764	8,300	5,246	9,310	2,958	12,720	47,346
Boards	0	0	0	0	0	0	0	0	0	0
Solid Sawn Beams and Posts	501	648	1,908	19	4,871	111	1,666	502	7,722	17,948
Logs	0	0	0	0	34	0	0	0	6	41
Total Lumber - Regular, BF	40,563	94,020	63,876	90,074	262,310	77,544	218,110	76,589	183,985	1,107,071
Lumber - Treated, BF										
2x2s	36	76	156	0	141	0	268	0	177	854
2x4s	204	861	463	823	1,699	812	2,324	402	1,689	9,276
2x6s	190	75	349	0	469	53	525	95	243	1,999
2x8s	0	0	22	0	1	0	0	0	2	25
2x10s	0	0	0	0	0	0	0	0	0	0
2x12s	0	0	0	0	0	0	0	0	0	0
Boards	0	0	1	0	1	0	0	0	1	2
Posts	28	51	109	0	103	1	187	2	121	603
Total Lumber - Treated, BF	459	1,063	1,101	823	2,413	866	3,304	498	2,233	12,759
Total Lumber, BF	41,022	95,083	64,976	90,897	264,723	78,410	221,414	77,087	186,218	1,119,830
TOTAL LUMBER AND ENGINEERED WOOD EQUIVALENTS USED IN FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	40,493	94,383	62,959	90,878	259,750	78,297	219,561	76,584	178,375	1,101,280
Solid Sawn Beams and Posts, BF	529	699	2,017	19	4,974	113	1,853	504	7,843	18,550
Glulam, BF	257	911	2,925	919	1,987	2,304	1,025	2,328	6,052	18,708
I-joist, LF	1,057	4,239	2,560	5,026	6,023	2,652	17,096	14,014	13,180	65,847
I-joist, BF equivalent	2,114	8,479	5,120	10,051	12,046	5,305	34,193	28,027	26,360	131,694
LVL, Cubic Feet	624	551	248	230	888	375	733	1,464	244	5,357
LVL, BF equivalent	9,979	8,809	3,968	3,679	14,206	6,008	11,731	23,429	3,910	85,719
Parallam™, Cubic Feet	8	168	39	1	245	26	72	12	141	712
Parallam™, BF equivalent	124	2,693	628	9	3,913	416	1,156	192	2,257	11,388
Timberstrand™, Cubic Feet	2	26	39	0	177	8	52	27	178	510
Timberstrand™, BF equivalent	33	410	629	1	2,836	132	828	434	2,852	8,157
Plywood, BF equivalent	88	0	0	0	0	0	0	0	13	102
OSB, BF equivalent	0	18	0	0	35	0	0	0	145	198
Total Engineered Wood, BF equivalent	12,596	21,321	13,269	14,660	35,024	14,164	48,933	54,410	41,590	255,966
Total Lbr. & Eng. Wood, BF equivalent	53,618	116,404	78,245	105,557	299,747	92,573	270,347	131,497	227,808	1,375,796

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
ALL FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	20,645	36,907	26,722	26,318	93,811	31,113	82,269	59,344	66,122	443,251
Concrete, BF equivalent	15,320	29,433	8,577	8,627	26,463	5,672	13,683	0	16,219	123,994
Steel, BF equivalent	0	82	0	0	188	0	0	0	743	1,014
Total Material, BF equivalent	35,965	66,422	35,299	34,945	120,463	36,784	95,952	59,344	83,084	568,259
GROUND FLOOR										
Total Lbr. & Eng. Wood, BF equivalent	6,889	7,239	9,706	9,650	43,840	11,351	57,169	26,652	34,607	207,101
Concrete, BF equivalent	15,320	27,683	8,577	8,627	20,149	5,672	13,004	0	16,219	115,251
Steel, BF equivalent	0	49	0	0	188	0	0	0	0	237
Total Material, BF equivalent	22,209	34,971	18,283	18,277	64,177	17,022	70,173	26,652	50,827	322,590
UPPER FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	13,756	29,669	17,015	16,669	49,972	19,762	25,100	32,693	31,514	236,150
Concrete, BF equivalent	0	1,750	0	0	6,314	0	679	0	0	8,743
Steel, BF equivalent	0	33	0	0	0	0	0	0	743	776
Total Material, BF equivalent	13,756	31,452	17,015	16,669	56,286	19,762	25,779	32,693	32,257	245,669
STRUCTURAL AND NONSTRUCTURAL PANELS										
ALL FLOORS										
Total Panels, SF 3/8" basis equivalent	13,371	35,806	24,095	30,492	68,813	24,948	88,197	49,409	68,308	403,439
Concrete, SF 3/8" basis equivalent	7,772	21,435	8,863	11,649	34,900	7,880	19,080	0	25,000	136,579
Total Material, SF 3/8" basis equivalent	21,143	57,241	32,957	42,141	103,714	32,828	107,277	49,409	93,308	540,018
GROUND FLOOR										
Total Panels, SF 3/8" basis equivalent	4,032	7,102	8,221	10,951	34,545	13,309	65,243	26,066	38,683	208,152
Concrete, SF 3/8" basis equivalent	7,772	19,634	8,863	11,631	27,820	7,880	17,174	0	18,626	119,400
Total Material, SF 3/8" basis equivalent	11,804	26,736	17,083	22,582	62,365	21,189	82,417	26,066	57,309	327,552
UPPER FLOORS										
Total Panels, SF 3/8" basis equivalent	9,339	28,703	15,874	19,541	34,269	11,639	22,954	23,343	29,625	195,287
Concrete, SF 3/8" basis equivalent	0	1,802	0	18	7,080	0	1,906	0	6,374	17,179
Total Material, SF 3/8" basis equivalent	9,339	30,505	15,874	19,559	41,349	11,639	24,860	23,343	35,999	212,466

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS										
FLOOR JOISTS - ALL FLOORS										
2 x 4s (Trusses), BF	464	11,137	7,789	7,862	50,479	3,960	20,767	4,332	7,989	114,779
2 x 8s, BF Lumber	12	1,558	894	174	2,128	465	590	0	654	6,476
2 x 10s, BF Lumber	4,822	1,858	3,276	5,091	1,944	8,162	3,560	0	5,251	33,963
2 x 12s, BF Lumber	1,380	710	582	764	1,413	2,044	2,587	0	11,523	21,004
Subtotal: Lumber in Floor Joists, BF	6,679	15,264	12,542	13,892	55,963	14,631	27,503	4,332	25,417	176,223
I-joist, LF	949	2,397	2,460	5,008	5,470	2,612	16,801	13,025	12,564	61,284
I-joist, BF equivalent	1,897	4,794	4,919	10,015	10,940	5,224	33,601	26,050	25,128	122,569
Total Lbr. & Eng. Wood, BF equivalent	8,576	20,057	17,461	23,907	66,903	19,855	61,105	30,382	50,545	298,792
FLOOR BEAMS - ALL FLOORS										
Built-up Dimension Lumber, BF	1,847	2,935	542	0	5,219	2,744	6,723	2,958	1,197	24,166
Solid Sawn Beams, BF	418	566	1,206	0	1,928	111	1,204	245	4,141	9,819
Glulam, BF	203	886	2,906	900	1,696	2,304	687	1,608	2,393	13,583
I-joist, LF	103	1,612	95	0	467	40	204	819	105	3,447
I-joist, BF equivalent	207	3,225	189	0	935	81	409	1,637	211	6,894
LVL, Cubic Feet	579	421	200	92	726	340	592	1,369	217	4,536
LVL, BF equivalent	9,256	6,742	3,194	1,474	11,616	5,444	9,476	21,905	3,471	72,579
Parallam™, Cubic Feet	1	104	37	0	240	26	72	11	85	576
Parallam™, BF equivalent	17	1,668	596	0	3,832	416	1,156	181	1,359	9,224
Timberstrand™, Cubic Feet	2	23	15	0	96	6	7	5	124	278
Timberstrand™, BF equivalent	33	365	241	0	1,534	94	114	79	1,980	4,441
Total Lbr. & Eng. Wood, BF equivalent	11,980	16,388	8,873	2,374	26,761	11,194	19,769	28,613	14,752	140,705
RIM BOARDS FOR I-JOISTS - ALL FLOORS										
Lumber, BF	0	49	0	0	0	0	0	0	0	49
Glulam, BF	0	0	0	0	0	0	0	0	0	0
I-joist, LF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, Cubic Feet	0	5	0	0	0	0	0	0	0	5
LVL, BF equivalent	0	75	0	0	0	0	0	0	0	75
Timberstrand™, Cubic Feet	0	0	24	0	4	0	45	22	34	129
Timberstrand™, BF equivalent	0	0	387	0	70	0	714	349	542	2,062
Plywood, 3/8 inch basis	177	0	0	0	0	0	0	0	27	203
Plywood, BF equivalent	88	0	0	0	0	0	0	0	13	102
OSB, 3/8 inch basis	0	37	0	0	70	0	0	0	290	397
OSB, BF equivalent	0	18	0	0	35	0	0	0	145	198
Total Lbr. & Eng. Wood, BF equivalent	88	449	387	0	105	0	714	349	701	2,793

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	8,943	18,814	14,289	13,892	63,111	17,487	35,431	7,535	30,756	210,257
Glulam, BF	203	886	2,906	900	1,696	2,304	687	1,608	2,393	13,583
I-joist, LF	1,052	4,163	2,554	5,008	5,937	2,652	17,005	13,844	12,669	64,885
I-joist, BF equivalent	2,104	8,326	5,109	10,015	11,875	5,305	34,010	27,687	25,339	129,770
LVL, Cubic Feet	579	426	200	92	726	340	592	1,369	217	4,541
LVL, BF equivalent	9,256	6,817	3,194	1,474	11,616	5,444	9,476	21,905	3,471	72,654
Parallam™, Cubic Feet	1	104	37	0	240	26	72	11	85	576
Parallam™, BF equivalent	17	1,668	596	0	3,832	416	1,156	181	1,359	9,224
Timberstrand™, Cubic Feet	2	23	39	0	100	6	52	27	158	406
Timberstrand™, BF equivalent	33	365	628	0	1,604	94	828	428	2,522	6,503
Plywood, BF equivalent	88	0	0	0	0	0	0	0	13	102
OSB, BF equivalent	0	18	0	0	35	0	0	0	145	198
Total Engineered Wood, BF equivalent	11,701	18,081	12,433	12,389	30,658	13,563	46,157	51,809	35,242	232,033
Total Lbr. & Eng. Wood, BF equivalent	20,644	36,894	26,722	26,281	93,769	31,049	81,588	59,344	65,998	442,290

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR										
FLOOR JOISTS - GROUND FLOOR										
2 x 4s (Trusses), BF	113	537	1,445	1,749	23,873	2,284	9,287	593	5,969	45,850
2 x 8s, BF Lumber	3	448	236	36	834	128	583	0	206	2,474
2 x 10s, BF Lumber	1,353	534	866	1,063	762	2,239	3,517	0	1,653	11,987
2 x 12s, BF Lumber	387	204	154	160	554	561	2,556	0	3,627	8,202
Subtotal: Lumber in Floor Joists, BF	1,856	1,723	2,700	3,008	26,023	5,212	15,942	593	11,455	68,513
I-joist, LF	226	609	1,439	3,310	4,290	2,612	16,182	7,714	8,754	45,135
I-joist, BF equivalent	451	1,218	2,878	6,620	8,581	5,224	32,364	15,428	17,507	90,271
Total Lbr. & Eng. Wood, BF equivalent	2,308	2,941	5,579	9,629	34,604	10,436	48,306	16,020	28,962	158,784
FLOOR BEAMS - GROUND FLOOR										
Built-up Dimension Lumber, BF	798	491	337	0	1,484	179	6,365	2,288	1,090	13,033
Solid Sawn Beams, BF	214	313	369	0	949	111	224	125	1,371	3,675
Glulam, BF	77	112	1,132	0	340	40	80	609	539	2,930
I-joist, LF	78	603	71	0	344	40	81	615	77	1,910
I-joist, BF equivalent	155	1,205	142	0	688	81	162	1,231	154	3,820
LVL, Cubic Feet	202	61	76	0	160	19	38	370	36	960
LVL, BF equivalent	3,234	976	1,211	0	2,555	300	602	5,915	573	15,367
Parallam™, Cubic Feet	1	48	30	0	145	4	34	9	32	303
Parallam™, BF equivalent	13	764	479	0	2,316	69	546	145	520	4,852
Timberstrand™, Cubic Feet	1	16	10	0	50	6	2	3	50	140
Timberstrand™, BF equivalent	23	264	166	0	800	94	37	55	802	2,240
Total Lbr. & Eng. Wood, BF equivalent	4,514	4,124	3,837	0	9,133	874	8,016	10,369	5,048	45,917
RIM BOARDS FOR I-JOISTS - GROUND FLOOR										
Lumber, BF	0	18	0	0	0	0	0	0	0	18
Glulam, BF	0	0	0	0	0	0	0	0	0	0
I-joist, LF	0	57	0	0	0	0	0	0	0	57
I-joist, BF equivalent	0	115	0	0	0	0	0	0	0	115
LVL, Cubic Feet	0	2	0	0	0	0	0	0	0	2
LVL, BF equivalent	0	28	0	0	0	0	0	0	0	28
Timberstrand™, Cubic Feet	0	0	18	0	3	0	18	16	25	80
Timberstrand™, BF equivalent	0	0	291	0	51	0	283	262	397	1,286
Plywood, 3/8 inch basis	133	0	0	0	0	0	0	0	19	152
Plywood, BF equivalent	66	0	0	0	0	0	0	0	10	76
OSB, 3/8 inch basis	0	14	0	0	51	0	0	0	213	278
OSB, BF equivalent	0	7	0	0	26	0	0	0	106	139
Total Lbr. & Eng. Wood, BF equivalent	66	168	291	0	77	0	283	262	514	1,662

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (Excluding boards)										
Lumber Equivalent										
Lumber, BF	2,868	2,545	3,406	3,008	28,457	5,502	22,530	3,007	13,916	85,240
Glulam, BF	77	112	1,132	0	340	40	80	609	539	2,930
I-joist, LF	303	1,269	1,510	3,310	4,635	2,652	16,263	8,329	8,831	47,103
I-joist, BF equivalent	606	2,537	3,021	6,620	9,269	5,305	32,526	16,659	17,662	94,205
LVL, Cubic Feet	202	63	76	0	160	19	38	370	36	962
LVL, BF equivalent	3,234	1,004	1,211	0	2,555	300	602	5,915	573	15,394
Parallam™, Cubic Feet	1	48	30	0	145	4	34	9	32	303
Parallam™, BF equivalent	13	764	479	0	2,316	69	546	145	520	4,852
Timberstrand™, Cubic Feet	1	16	29	0	53	6	20	20	75	220
Timberstrand™, BF equivalent	23	264	457	0	852	94	320	317	1,199	3,526
Plywood, BF equivalent	66	0	0	0	0	0	0	0	10	76
OSB, BF equivalent	0	7	0	0	26	0	0	0	106	139
Total Engineered Wood, BF equivalent	4,020	4,688	6,300	6,620	15,358	5,808	34,075	23,645	20,608	121,123
Total Lbr. & Eng. Wood, BF equivalent	6,888	7,233	9,706	9,629	43,815	11,310	56,605	26,652	34,524	206,362

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS										
FLOOR JOISTS - UPPER FLOORS										
2 x 4s (Trusses), BF	352	10,600	6,345	6,113	26,605	1,675	11,480	3,739	2,020	68,929
2 x 8s, BF Lumber	9	1,111	658	138	1,293	338	7	0	448	4,002
2 x 10s, BF Lumber	3,469	1,324	2,410	4,028	1,182	5,922	43	0	3,598	21,977
2 x 12s, BF Lumber	993	506	428	605	859	1,483	31	0	7,896	12,802
Subtotal: Lumber in Floor Joists, BF	4,822	13,540	9,842	10,883	29,940	9,419	11,562	3,739	13,962	107,709
I-joist, LF	723	1,788	1,021	1,697	1,180	0	619	5,311	3,810	16,149
I-joist, BF equivalent	1,446	3,576	2,041	3,395	2,359	0	1,238	10,622	7,621	32,298
Total Lbr. & Eng. Wood, BF equivalent	6,268	17,117	11,883	14,278	32,299	9,419	12,799	14,362	21,583	140,008
FLOOR BEAMS - UPPER FLOORS										
Built-up Dimension Lumber, BF	1,049	2,444	205	0	3,735	2,565	358	670	107	11,133
Solid Sawn Beams, BF	204	253	837	0	980	0	980	119	2,771	6,144
Glulam, BF	126	774	1,774	900	1,356	2,264	606	999	1,854	10,653
I-joist, LF	26	1,010	24	0	123	0	123	203	28	1,537
I-joist, BF equivalent	51	2,020	47	0	246	0	247	406	56	3,074
LVL, Cubic Feet	376	360	124	92	566	322	555	999	181	3,576
LVL, BF equivalent	6,022	5,766	1,983	1,474	9,062	5,144	8,874	15,990	2,898	57,213
Parallam™, Cubic Feet	0	57	7	0	95	22	38	2	52	273
Parallam™, BF equivalent	3	904	116	0	1,516	347	610	35	839	4,372
Timberstrand™, Cubic Feet	1	6	5	0	46	0	5	2	74	138
Timberstrand™, BF equivalent	10	102	75	0	733	0	77	25	1,179	2,201
Total Lbr. & Eng. Wood, BF equivalent	7,466	12,263	5,037	2,374	17,628	10,320	11,753	18,244	9,704	94,789
RIM BOARDS FOR I-JOISTS - UPPER FLOORS										
Lumber, BF	0	31	0	0	0	0	0	0	0	31
Glulam, BF	0	0	0	0	0	0	0	0	0	0
I-joist, LF	0	96	0	0	0	0	0	0	0	96
I-joist, BF equivalent	0	192	0	0	0	0	0	0	0	192
LVL, Cubic Feet	0	3	0	0	0	0	0	0	0	3
LVL, BF equivalent	0	47	0	0	0	0	0	0	0	47
Timberstrand™, Cubic Feet	0	0	6	0	1	0	27	5	9	49
Timberstrand™, BF equivalent	0	0	96	0	18	0	431	87	145	777
Plywood, 3/8 inch basis	44	0	0	0	0	0	0	0	7	51
Plywood, BF equivalent	22	0	0	0	0	0	0	0	4	25
OSB, 3/8 inch basis	0	23	0	0	18	0	0	0	77	119
OSB, BF equivalent	0	11	0	0	9	0	0	0	39	59
Total Lbr. & Eng. Wood, BF equivalent	22	281	96	0	28	0	431	87	187	1,131

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	6,075	16,269	10,883	10,883	34,654	11,984	12,900	4,528	16,840	125,017
Glulam, BF	126	774	1,774	900	1,356	2,264	606	999	1,854	10,653
I-joist, LF	749	2,894	1,044	1,697	1,303	0	742	5,514	3,838	17,782
I-joist, BF equivalent	1,497	5,788	2,088	3,395	2,606	0	1,484	11,029	7,677	35,564
LVL, Cubic Feet	376	363	124	92	566	322	555	999	181	3,579
LVL, BF equivalent	6,022	5,813	1,983	1,474	9,062	5,144	8,874	15,990	2,898	57,259
Parallam™, Cubic Feet	0	57	7	0	95	22	38	2	52	273
Parallam™, BF equivalent	3	904	116	0	1,516	347	610	35	839	4,372
Timberstrand™, Cubic Feet	1	6	11	0	47	0	32	7	83	186
Timberstrand™, BF equivalent	10	102	171	0	752	0	508	111	1,323	2,977
Plywood, BF equivalent	22	0	0	0	0	0	0	0	4	25
OSB, BF equivalent	0	11	0	0	9	0	0	0	39	59
Total Engineered Wood, BF equivalent	7,681	13,393	6,132	5,769	15,300	7,755	12,082	28,164	14,634	110,911
Total Lbr. & Eng. Wood, BF equivalent	13,756	29,662	17,015	16,653	49,954	19,739	24,982	32,693	31,474	235,928

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING										
WALL FRAMING										
2 x 4s Walls, BF	512	3,393	5,265	8,818	22,450	11,175	23,471	10,619	15,320	101,023
2 x 6s Walls, BF	6,790	18,863	8,543	8,836	19,491	1,654	8,964	5,070	20,008	98,220
Interior 2 x 3s Walls, BF	2	3	212	15	58	0	20	25	21	355
Interior 2 x 4s Walls, BF	11,749	28,298	16,556	29,171	72,714	22,507	64,726	28,728	53,275	327,724
Interior 2 x 6s Walls, BF	69	790	2,727	2,082	5,857	958	791	1,003	3,084	17,360
Treated plates on slabs	180	793	324	823	1,578	812	2,085	402	1,530	8,526
Blocking for drywall, 2 x 4, BF	718	1,768	1,172	1,899	4,775	1,426	3,981	1,807	3,425	20,970
Blocking for drywall, 2 x 6, BF	668	1,645	1,090	1,767	4,443	1,327	3,705	1,681	3,187	19,513
Subtotal: Dimension Lumber in Walls	20,689	55,552	35,890	53,411	131,365	39,859	107,742	49,335	99,849	593,692
Timberstrand™, BF equivalent	0	0	0	0	0	0	0	0	0	0
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	0	47	27	0	2,238	0	341	0	23	2,677
Logs, BF	0	0	0	0	34	0	0	0	6	41
Total Lbr. & Eng. Wood, BF equivalent	20,689	55,599	35,918	53,411	133,638	39,859	108,084	49,335	99,878	596,410
WINDOW AND DOOR HEADERS										
Lumber,BF(Blt-up,Open Web & Flitch Pl'te)	911	1,981	785	2,152	4,438	990	5,498	1,100	314	18,171
Solid Sawn Beams, BF	28	0	441	0	0	0	0	0	2,612	3,082
Glulam, BF	0	0	0	0	0	0	0	0	1,498	1,498
I-joist, LF	0	0	0	0	0	0	0	0	0	0
I-joist, BF equivalent	0	0	0	0	0	0	0	0	0	0
LVL, Cubic Feet	5	57	11	0	15	12	0	75	19	194
LVL, BF equivalent	83	904	176	0	244	193	0	1,199	298	3,097
Parallam™, Cubic Feet	1	61	0	0	0	0	0	0	44	106
Parallam™, BF equivalent	19	979	0	0	0	0	0	0	704	1,702
Timberstrand™, Cubic Feet	0	0	0	0	20	2	0	0	20	42
Timberstrand™, BF equivalent	0	0	0	0	315	38	0	0	321	674
Glued & Nailed Box Beams, BF Lumber	0	15	0	0	183	0	0	0	1	199
Total Lbr. & Eng. Wood, BF equivalent	1,041	3,880	1,402	2,152	5,181	1,221	5,498	2,299	5,747	28,422
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	0	20	0	0	237	0	0	0	1	258
GARAGE DOOR HEADERS										
Lumber, BF (Blt-up,Open Web & Flitch Pl'te)	0	0	0	0	1,668	458	0	0	0	2,126
Solid Sawn Beams, BF	0	0	156	0	0	0	0	0	483	639
Glulam, BF	0	0	0	0	0	0	0	0	736	736
I-joist, LF	0	0	0	0	0	0	0	0	0	0
I-joist, BF equivalent	0	0	0	0	0	0	0	0	0	0
LVL, Cubic Feet	17	52	35	125	79	6	131	0	1	447
LVL, BF equivalent	279	825	567	2,002	1,267	96	2,102	0	20	7,158
Parallam™, Cubic Feet	0	0	0	0	3	0	0	0	4	8
Parallam™, BF equivalent	0	0	0	0	53	0	0	0	71	125
Timberstrand™, Cubic Feet	0	0	0	0	3	0	0	0	0	3
Timberstrand™, BF equivalent	0	0	0	0	53	0	0	0	0	53
Glued & Nailed Box Beams, BF Lumber	0	0	0	0	0	0	0	0	0	0
Total Lbr. & Eng. Wood, BF equivalent	279	825	723	2,002	3,041	554	2,102	0	1,311	10,837
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	0	0	0	0	0	0	0	0	0	0

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING (CONTINUED)										
TOTAL WOOD USAGE IN WALL FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	21,628	57,596	37,300	55,563	139,927	41,307	113,582	50,435	103,288	620,625
Glulam, BF	0	0	0	0	0	0	0	0	2,234	2,234
I-joist, LF	0	0	0	0	0	0	0	0	0	0
I-joist, BF equivalent	0	0	0	0	0	0	0	0	0	0
LVL, Cubic Feet	23	108	46	125	94	18	131	75	20	641
LVL, BF equivalent	362	1,729	743	2,002	1,511	290	2,102	1,199	318	10,255
Parallam™, Cubic Feet	1	61	0	0	3	0	0	0	48	114
Parallam™, BF equivalent	19	979	0	0	53	0	0	0	775	1,827
Timberstrand™, Cubic Feet	0	0	0	0	23	2	0	0	20	45
Timberstrand™, BF equivalent	0	0	0	0	369	38	0	0	321	727
Total Engineered Wood, BF equivalent	381	2,708	743	2,002	1,933	327	2,102	1,199	3,648	15,044
Total Lbr. & Eng. Wood, BF equivalent	22,009	60,303	38,043	57,565	141,860	41,634	115,684	51,634	106,936	635,669

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF FRAMING										
TRUSSES, RAFTERS AND CEILING JOISTS										
2 x 4s (Trusses), BF	4,255	12,574	11,251	15,470	40,839	12,379	42,169	11,722	30,050	180,707
2 x 6s (Rafters), BF	1,714	1,596	255	1,620	5,423	2,067	8,340	1,645	5,284	27,943
2 x 8s (Rafters), BF	3,248	3,025	483	3,068	10,275	3,907	15,790	3,117	10,011	52,925
2 x 10s (Rafters), BF	751	698	111	712	2,378	914	3,670	722	2,319	12,275
Turn Gables, 2 x 4s, BF	71	228	84	107	91	22	81	52	104	839
Dormers, 2 x 4s, BF	77	247	350	447	1,140	274	1,012	1,506	3,016	8,069
Subtotal: Framing Lumber in Roofs	10,116	18,367	12,533	21,423	60,146	19,562	71,062	18,764	50,784	282,758
I-joist, LF	2	57	3	18	86	0	25	30	335	556
I-joist, BF equivalent	4	114	5	36	171	0	51	60	670	1,111
Total Lbr. & Eng. Wood, BF equivalent	10,121	18,481	12,538	21,459	60,317	19,562	71,113	18,824	51,454	283,869
ROOF BEAMS (incl. Beam and Purlin Construction)										
Built-up Dimension Lumber, BF	552	1,332	51	161	791	1,259	4,866	257	553	9,822
Solid Sawn Beams, BF	19	36	78	19	683	0	121	257	393	1,605
Glulam, BF	54	25	18	19	291	0	339	720	1,425	2,891
I-joist, LF	3	19	3	0	0	0	66	140	176	406
I-joist, BF equivalent	5	39	5	0	0	0	132	280	352	813
LVL, Cubic Feet	23	16	2	13	67	17	10	20	8	176
LVL, BF equivalent	361	264	31	204	1,078	274	153	324	121	2,810
Parallam™, Cubic Feet	6	3	2	1	2	0	0	1	8	21
Parallam™, BF equivalent	89	47	32	9	27	0	0	11	123	338
Timberstrand™, Cubic Feet	0	3	0	0	54	0	0	0	1	58
Timberstrand™, BF equivalent	0	45	1	1	864	0	0	6	9	926
Total Lbr. & Eng. Wood, BF equivalent	1,081	1,787	218	413	3,735	1,533	5,610	1,855	2,975	19,206
TOTAL WOOD USAGE IN ROOF FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	10,687	19,735	12,662	21,603	61,620	20,822	76,049	19,277	51,730	294,185
Glulam, BF	54	25	18	19	291	0	339	720	1,425	2,891
I-joist, LF	5	76	5	18	86	0	91	170	511	962
I-joist, BF equivalent	10	153	11	36	171	0	182	340	1,021	1,924
LVL, Cubic Feet	23	16	2	13	67	17	10	20	8	176
LVL, BF equivalent	361	264	31	204	1,078	274	153	324	121	2,810
Parallam™, Cubic Feet	6	3	2	1	2	0	0	1	8	21
Parallam™, BF equivalent	89	47	32	9	27	0	0	11	123	338
Timberstrand™, Cubic Feet	0	3	0	0	54	0	0	0	1	58
Timberstrand™, BF equivalent	0	45	1	1	864	0	0	6	9	926
Total Engineered Wood, BF equivalent	514	533	93	269	2,432	274	674	1,402	2,699	8,890
Total Lbr. & Eng. Wood, BF equivalent	11,201	20,268	12,756	21,871	64,052	21,095	76,723	20,679	54,429	303,075

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN BEAMS & HEADERS										
BEAMS & HEADERS - BF OR EQUIVALENT										
Lumber Equivalent										
Lumber, BF	3,310	6,264	1,379	2,313	12,299	5,452	17,088	4,315	2,064	54,484
Solid Sawn Beams, BF	465	601	1,880	19	2,612	111	1,325	502	7,629	15,144
Glulam, BF	257	911	2,925	919	1,987	2,304	1,025	2,328	6,052	18,708
I-joist, LF	106	1,632	97	0	467	40	270	959	281	3,853
I-joist, BF equivalent	212	3,264	195	0	935	81	541	1,917	562	7,706
LVL, Cubic Feet	624	546	248	230	888	375	733	1,464	244	5,353
LVL, BF equivalent	9,979	8,735	3,968	3,679	14,206	6,008	11,731	23,429	3,910	85,645
Parallam™, Cubic Feet	8	168	39	1	245	26	72	12	141	712
Parallam™, BF equivalent	124	2,693	628	9	3,913	416	1,156	192	2,257	11,388
Timberstrand™, Cubic Feet	2	26	15	0	173	8	7	5	144	381
Timberstrand™, BF equivalent	33	410	242	1	2,767	132	114	85	2,310	6,094
Total Engineered Wood, BF equivalent	10,606	16,014	7,957	4,609	23,808	8,940	14,567	27,951	15,092	129,542
Total Lbr. & Eng. Wood, BF equivalent	14,381	22,879	11,216	6,941	38,718	14,503	32,979	32,767	24,785	199,170
Plywood, SF 3/8" basis equivalent	0	20	0	0	237	0	0	0	1	258

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL SHEATHING & UNDERLAYMENT										
ALL SHEATHING & UNDERLAYMENT										
Square Feet										
None	3,266	9,145	3,391	5,935	20,891	3,715	9,136	0	12,183	67,663
Lauan Plywood - 1/4"	698	54	628	0	6,223	197	0	0	47	7,846
Plywood - 1/4"	752	8,926	0	0	0	0	1,334	0	861	11,873
Plywood - 3/8"	37	32	197	1,563	33	0	10	12	111	1,994
Plywood - 1/2"	3,835	429	4,019	1,906	6,943	40	12,759	1,749	25,411	57,091
Plywood - 5/8"	1,904	4,017	5,013	5,281	5,182	662	1,825	795	3,161	27,839
Plywood - 3/4"	2,425	7,551	347	4,906	4,474	1,832	5,601	177	11,912	39,226
Plywood - 1 1/8"	0	143	0	8	8	13	40	0	24	236
OSB - 1/4"	0	0	0	0	0	0	0	0	0	0
OSB - 3/8"	0	31	0	0	4,607	0	0	0	585	5,223
OSB - 7/16" or 1/2"	5,422	18,249	12,144	24,789	45,979	25,401	31,237	20,150	35,703	219,074
OSB - 5/8"	1,893	6,711	2,603	4,290	9,565	1,622	35,311	2,532	4,559	69,087
OSB - 3/4"	3,247	2,616	8,776	6,806	19,715	8,820	24,495	23,029	11,551	109,055
OSB - 7/8"	107	3,606	0	68	43	89	219	0	109	4,241
OSB - 1"	8	517	0	539	4,038	559	3,056	0	1,738	10,456
OSB - 1 1/8"	8	37	0	211	183	316	5,450	0	4,286	10,491
Particleboard - 1/4"	65	0	0	0	0	0	0	5,028	11	5,103
Particleboard - 3/8"	8	0	0	0	0	0	0	0	0	8
Particleboard - 1/2"	4	0	0	0	0	0	0	0	0	4
Particleboard - 5/8"	0	0	0	0	0	0	0	0	0	0
Particleboard - 3/4"	0	0	0	0	0	0	0	0	0	0
Hardboard - 1/4"	0	0	0	0	0	0	0	0	0	0
Cementitious Board	564	2,475	308	0	3,670	1,215	2,539	0	467	11,237
Boards - 1" - no spacing	0	9	0	25	30	44	519	0	88	716
Boards - 1" - spaced	0	0	0	0	0	0	0	0	0	0
Boards - 2"	2	5	2	22	70	10	104	27	40	281
Fiberboard - 1/2"	0	0	0	0	10	0	5,083	0	12	5,105
Gypsum	20	410	0	0	2,138	0	853	0	124	3,545
Foil Faced 3-ply Kraft Paper - 1/8"	20	0	4	0	1	0	89	0	1	114
Foam	75	647	64	0	2,211	2,226	347	0	26	5,595
Fiberbond	12	0	0	0	0	0	0	0	1	13
Other	16	46	458	167	3,474	62	417	217	297	5,154
TOTAL	24,388	65,658	37,952	56,516	139,488	46,823	140,426	53,716	113,307	678,272
ALL SHEATHING & UNDERLAYMENT VOLUMES										
Plywood, SF 3/8" Basis	13,675	28,783	14,605	22,740	26,900	4,858	32,275	4,023	63,729	211,588
Lauan Plywood, SF 3/8" Basis	465	36	419	0	4,149	131	0	0	31	5,231
OSB, SF 3/8" Basis	17,174	50,683	38,082	56,046	132,700	56,859	174,504	77,144	96,637	699,829
Particleboard, SF 3/8" Basis	57	0	0	0	0	0	0	3,352	8	3,417
Hardboard, SF 3/8" Basis	0	0	0	0	0	0	0	0	0	0
Foam, SF 3/8" str'l panel basis equivalent	1,607	18,149	2,690	0	1,663	7,745	2,837	443	709	35,842
Other, SF 3/8" str'l panel basis equivalent	502	1,960	1,152	259	10,868	239	9,527	306	969	25,783
Total Panel, 3/8" str'l pn'l basis equiv.	33,480	99,611	56,947	79,045	176,280	69,833	219,143	85,268	162,083	981,689
Boards, BF	4	20	5	69	170	63	726	53	168	1,278

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SHEATHING										
FLOOR SHEATHING										
SF of 1st & 2nd Story Floor Area										
None - Slab or Stress Skin Panel	3,266	8,681	3,391	5,935	13,763	3,496	8,885	0	11,458	58,874
Plywood - 1/2"	444	72	0	24	26	40	123	0	74	802
Plywood - 5/8"	7	2,153	1,930	164	3,268	240	587	0	772	9,122
Plywood - 3/4"	2,143	4,901	299	4,799	1,918	1,832	5,363	0	11,749	33,005
Plywood - 1 1/8"	0	143	0	8	8	13	40	0	24	236
OSB - 7/16" OR 1/2"	2	18	938	72	71	115	549	0	840	2,606
OSB - 5/8"	4	484	0	2,775	72	131	351	0	198	4,016
OSB - 3/4"	3,139	2,559	8,776	6,806	18,599	8,820	24,495	23,029	11,545	107,768
OSB - 7/8"	107	3,606	0	68	43	89	219	0	109	4,241
OSB - 1"	8	517	0	539	4,038	559	3,056	0	1,738	10,456
OSB - 1 1/8"	8	37	0	211	183	316	5,450	0	4,286	10,491
Boards - 1"	0	9	0	25	30	44	519	0	88	716
Boards - 2"	0	2	0	6	6	10	81	0	18	122
Other	0	12	439	37	537	62	234	0	117	1,438
TOTAL	9,130	23,194	15,771	21,471	42,563	15,768	49,953	23,029	43,015	243,895
FLOOR SHEATHING VOLUMES										
Plywood, SF 3/8" basis	4,891	13,917	3,813	9,928	9,344	4,156	11,988	0	24,955	82,992
OSB, SF 3/8" basis	6,583	15,852	18,802	20,564	48,831	20,661	75,321	46,057	42,287	294,957
Other, SF 3/8" str'l panel basis equivalent	1	24	831	73	1,107	127	508	0	250	2,921
Total Panel, 3/8" str'l pn'l basis equiv.	11,475	29,793	23,446	30,565	59,281	24,943	87,817	46,057	67,492	380,869
Boards, BF	0	13	0	37	42	63	681	0	123	960

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL SHEATHING										
WALL SHEATHING										
SF of Exterior Wall										
None	0	464	0	0	7,129	219	252	0	725	8,789
Plywood - 3/8"	0	31	0	1,555	4	0	0	0	5	1,595
Plywood - 1/2"	666	126	0	835	73	0	5,971	0	6,724	14,395
Plywood - 5/8"	179	94	270	0	7	0	569	0	998	2,118
Plywood - 3/4"	0	0	34	0	1	0	89	0	2	126
OSB - 3/8"	0	31	0	0	4,607	0	0	0	585	5,223
OSB - 7/16" OR 1/2"	2,888	8,062	5,677	9,201	9,446	6,952	6,263	8,519	12,632	69,640
OSB - 5/8"	0	2,919	1,749	0	495	0	58	0	16	5,237
OSB - 3/4"	0	57	0	0	0	0	0	0	0	57
Fiberboard - 1/2"	0	0	0	0	10	0	5,083	0	12	5,105
Gypsum	20	410	0	0	2,138	0	853	0	124	3,545
Foil Faced 3-ply Kraft Paper - 1/8"	20	0	4	0	1	0	89	0	1	114
Foam	75	647	64	0	2,211	2,226	347	0	26	5,595
Other	0	6	0	0	0	0	0	0	1	7
TOTAL	3,847	12,847	7,798	11,592	26,123	9,397	19,574	8,519	21,850	121,547
Foam as a Second Layer of Sheathing, SF 3/8" basis	1,576	15,814	2,541	0	1,402	3,607	2,642	443	620	28,644
WALL SHEATHING VOLUMES										
Plywood, SF 3/8" basis	1,187	356	518	2,669	116	0	9,088	0	10,636	24,570
OSB, SF 3/8" basis	3,851	15,758	10,485	12,268	18,027	9,269	8,447	11,358	17,455	106,919
Foam, SF 3/8" str'l panel basis equivalent	1,607	18,149	2,690	0	1,663	7,745	2,837	443	709	35,842
Other, SF 3/8" str'l panel basis equivalent	53	592	6	0	2,665	0	8,159	0	185	11,659
Total Panel, 3/8" str'l pn'l basis equiv.	6,697	34,856	13,697	14,937	22,471	17,014	28,531	11,801	28,985	178,989
Boards, BF	0	0	0	0	0	0	0	0	0	0

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF SHEATHING										
ROOF SHEATHING										
SF of Roof Area										
None	0	0	0	0	0	0	0	0	0	0
Plywood - 3/8"	1	2	197	7	29	0	10	12	10	267
Plywood - 1/2"	2,717	231	4,019	1,047	6,844	0	6,665	1,749	18,613	41,884
Plywood - 5/8"	1,716	1,740	2,813	5,116	1,906	421	669	795	1,390	16,568
Plywood - 3/4"	13	2,650	15	106	425	0	149	177	146	3,682
OSB - 7/16" or 1/2"	2,517	10,169	5,529	15,516	36,461	18,333	24,425	11,631	21,996	146,579
OSB - 5/8"	1,858	3,308	217	1,516	8,998	1,491	34,902	2,532	4,344	59,165
OSB - 3/4"	0	0	0	0	0	0	0	0	0	0
Boards - 1" - no spacing	0	0	0	0	0	0	0	0	0	0
Boards - 1" - spaced	0	0	0	0	0	0	0	0	0	0
Boards - 2"	2	4	2	16	64	0	22	27	22	159
Other	16	29	19	130	2,936	0	183	217	180	3,709
TOTAL	8,840	18,132	12,811	23,454	57,663	20,245	67,026	17,141	46,702	272,013
ROOF SHEATHING VOLUMES										
Plywood, SF 3/8" Basis	6,510	8,509	10,273	10,142	13,181	702	10,310	4,023	27,438	91,089
OSB, SF 3/8" Basis	6,453	19,072	7,734	23,214	63,611	26,929	90,737	19,729	36,568	294,047
Other, SF 3/8" str'l panel basis equivalent	23	44	26	186	4,125	0	277	306	247	5,233
Total Panel, 3/8" str'l pn'l basis equiv.	12,986	27,625	18,034	33,542	80,917	27,631	101,324	24,057	64,253	390,370
Boards, BF	4	7	5	32	128	0	45	53	44	318

	MULTIFAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN UNDERLAYMENT										
UNDERLAYMENT MATERIAL										
SF of Floor Area										
Lauan Plywood - 1/4"	698	54	628	0	6,223	197	0	0	47	7,846
OSB - 1/4"	0	0	0	0	0	0	0	0	0	0
OSB - 3/8"	0	0	0	0	0	0	0	0	0	0
OSB - 7/16" OR 1/2"	14	0	0	0	0	0	0	0	234	249
OSB - 5/8"	31	0	637	0	0	0	0	0	2	669
OSB - 3/4"	108	0	0	0	1,116	0	0	0	6	1,229
Plywood - 1/4"	752	8,926	0	0	0	0	1,334	0	861	11,873
Plywood - 3/8"	36	0	0	0	0	0	0	0	96	131
Plywood - 1/2"	8	0	0	0	0	0	0	0	0	9
Plywood - 5/8"	1	30	0	0	0	0	0	0	0	31
Plywood - 3/4"	269	0	0	0	2,130	0	0	0	15	2,414
Particleboard - 1/4"	65	0	0	0	0	0	0	5,028	11	5,103
Particleboard - 3/8"	8	0	0	0	0	0	0	0	0	8
Particleboard - 1/2"	4	0	0	0	0	0	0	0	0	4
Particleboard - 5/8"	0	0	0	0	0	0	0	0	0	0
Particleboard - 3/4"	0	0	0	0	0	0	0	0	0	0
Hardboard - 1/4"	0	0	0	0	0	0	0	0	0	0
Cementitious Board	564	2,475	308	0	3,670	1,215	2,539	0	467	11,237
Fiberbond	12	0	0	0	0	0	0	0	1	13
TOTAL	2,570	11,486	1,572	0	13,139	1,412	3,872	5,028	1,739	40,818
UNDERLAYMENT VOLUMES										
Plywood, SF 3/8" Basis	1,088	6,001	0	0	4,260	0	889	0	700	12,937
Lauan Plywood, SF 3/8" Basis	465	36	419	0	4,149	131	0	0	31	5,231
OSB, SF 3/8" Basis	286	0	1,061	0	2,231	0	0	0	327	3,906
Particleboard, SF 3/8" Basis	57	0	0	0	0	0	0	3,352	8	3,417
Hardboard, SF 3/8" Basis	0	0	0	0	0	0	0	0	0	0
Other	425	1,301	290	0	2,972	113	583	0	287	5,970
Total Panel, 3/8" str'l pn'l basis equiv.	2,321	7,338	1,769	0	13,611	244	1,472	3,352	1,353	31,460

MULTIFAMILY

	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FOUNDATIONS										
WOOD FOUNDATION SYSTEMS										
Lumber - Treated, 2 x 6, BF	0	0	7	0	0	0	0	0	1	8
Lumber - Treated, 2 x 8, BF	0	0	22	0	1	0	0	0	2	25
Plywood - Treated, SF 3/8" Basis	0	0	31	0	2	0	0	0	3	35
MASONRY FOUNDATIONS										
Sill Plates - 2 x 6 Treated, BF	172	37	264	0	398	53	391	95	153	1,564
Posts - Treated, BF	4	1	6	0	9	1	9	2	3	35
Furring for Precast - Treated, BF	0	0	1	0	1	0	0	0	1	2
TOTAL - Treated Lumber, BF	176	38	300	0	409	54	400	97	160	1,634
TOTAL - Treated Plywood, SF 3/8" Basis	0	0	31	0	2	0	0	0	3	35

	MULTIFAMILY									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN DECKS & PORCHES										
DECKS										
Lumber - Regular, BF										
2x2s	0	0	0	0	0	0	0	0	104	104
2x4s	0	0	0	0	0	0	0	0	69	69
2x6s	0	0	0	0	0	0	0	0	52	52
Boards	0	0	0	0	0	0	0	0	0	0
Posts	0	0	0	0	0	0	0	0	69	69
Lumber - Treated, BF										
2x2s	0	76	156	0	120	0	268	0	177	797
2x4s	0	68	139	0	107	0	239	0	158	712
2x6s	0	38	78	0	60	0	134	0	89	398
2x8s	0	0	0	0	0	0	0	0	0	0
2x10s	0	0	0	0	0	0	0	0	0	0
2x12s	0	0	0	0	0	0	0	0	0	0
Boards	0	0	0	0	0	0	0	0	0	0
Posts	0	50	104	0	80	0	178	0	118	530
Subtotal - Lumber, BF	0	0	0	0	0	0	0	0	295	295
Subtotal - Treated Lumber, BF	0	232	476	0	367	0	819	0	542	2,437
Total, BF	0	232	476	0	367	0	819	0	837	2,732
Deck Surfaces										
Lumber - Regular, BF	0	0	0	0	0	0	0	0	0	0
Lumber - Treated, BF	0	0	0	0	0	0	0	0	0	0
PVC / Vinyl / Fiberglass, BF	0	0	0	0	0	0	0	0	0	0
Wood / Plastic composite, BF	0	0	0	0	0	0	0	0	0	0
Total Deck Surface Material, BF	0	0	0	0	0	0	0	0	0	0
PORCHES										
Lumber - Regular, BF										
2x2s (Railings)	0	0	0	0	0	0	0	0	0	0
2x4s (Porch Roofs, Breezeways, & Railings)	0	0	0	0	0	0	0	0	0	0
2x6s (Railings)	0	0	0	0	0	0	0	0	0	0
2x8s (Porch Floors & Breezeways)	0	0	0	0	0	0	0	0	0	0
Boards	0	0	0	0	0	0	0	0	0	0
Posts	36	0	0	0	21	0	0	0	0	57
Lumber - Treated, BF										
2x2s (Railings)	36	0	0	0	21	0	0	0	0	57
2x4s (Porch Roofs, Breezeways, & Railings)	24	0	0	0	14	0	0	0	0	38
2x6s (Railings)	18	0	0	0	10	0	0	0	0	29
Boards	0	0	0	0	0	0	0	0	0	0
Posts	24	0	0	0	14	0	0	0	0	38
Subtotal - Lumber, BF	36	0	0	0	21	0	0	0	0	57
Subtotal - Treated Lumber, BF	103	0	0	0	59	0	0	0	0	162
Total, BF	139	0	0	0	80	0	0	0	0	219
Porch Surfaces										
Lumber - Regular, BF	0	0	0	0	0	0	0	0	0	0
Lumber - Treated, BF	0	0	0	0	0	0	0	0	0	0
Plastic and Composites, BF	0	0	0	0	0	0	0	0	0	0
Concrete / Brick / Stone / Tiles, BF	0	0	0	0	0	0	0	0	0	0
Total Porch Surface Material, BF	0	0	0	0	0	0	0	0	0	0

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
HOUSING STARTS	23.1	56.6	65.0	62.9	193.5	46.4	158.0	79.5	95.6	780.6
TOTAL WOOD USAGE IN NEW RESIDENTIAL CONSTRUCTION										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	244,739	540,576	656,235	634,931	1,915,387	461,185	1,380,689	738,155	730,074	7,301,970
Boards, BF	2,395	3,488	2,660	6,809	11,024	10,551	19,242	16,059	10,346	82,574
Treated Framing, BF	23,242	39,326	47,697	54,527	117,372	27,204	52,515	61,727	44,134	467,743
Treated Boards, BF	972	4,600	4,631	2,699	16,103	4,132	4,932	2,078	2,597	42,745
Solid Sawn Beams and Posts, BF	3,162	9,204	10,985	5,762	44,979	4,633	22,304	11,548	37,235	149,811
Logs, BF	14	27	19,671	3,651	4,530	33	5,316	15,195	4,256	52,692
Subtotal Lumber, BF	274,526	597,221	741,878	708,378	2,109,394	507,738	1,484,997	844,762	828,640	8,097,535
Engineered Wood										
Glulam, BF	1,178	1,448	4,904	1,813	4,956	2,770	13,105	10,462	18,573	59,210
I-joist, BF equivalent	23,406	48,700	94,570	46,982	177,170	32,336	73,197	139,364	80,822	716,546
LVL, BF equivalent	26,936	19,676	51,746	22,534	75,031	17,092	24,550	55,675	11,398	304,638
Parallam™, BF equivalent	343	5,221	1,225	1,869	6,215	2,202	3,090	1,069	7,390	28,626
Timberstrand™, BF equivalent	1,771	2,712	9,209	5,717	28,948	1,371	4,260	14,885	8,595	77,468
Plywood Rim Board, BF equivalent	160	0	0	55	109	15	0	121	121	580
OSB Rim Board, BF equivalent	531	1,593	2,027	1,101	5,133	353	960	1,197	1,671	14,564
SubTotal Engineered Wood, BF equivalent	54,325	79,349	163,681	80,071	297,563	56,138	119,162	222,773	128,570	1,201,632
Total Lbr. & Eng. Wood, BF equivalent	328,851	676,570	905,559	788,448	2,406,957	563,877	1,604,159	1,067,536	957,210	9,299,167
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	125,134	282,350	150,343	170,311	446,680	67,698	192,817	156,009	281,844	1,873,187
Treated Plywood	43	161	787	3,054	461	32	30	25	49	4,641
OSB	140,494	303,037	584,135	479,900	1,611,309	380,492	1,086,301	684,795	527,943	5,798,407
Total Structural Panels, SF 3/8" basis	265,671	585,548	735,265	653,266	2,058,450	448,222	1,279,148	840,830	809,836	7,676,235
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	0	0	0	0	0	0	0	0	0	0
Particleboard	160	633	1	1,865	957	12	232	5,363	6,608	15,830
Hardboard	4	0	79	210	651	408	5	328	38	1,722
Lauan Plywood	727	2,437	4,174	2,006	19,748	5,299	835	279	649	36,155
Fiberboard	9	8	784	483	287	239	8,359	5	670	10,843
Total Non-Str'l Wood Panels, SF 3/8" basis	899	3,078	5,038	4,563	21,644	5,959	9,431	5,975	7,965	64,551
Total Panels, SF 3/8" basis equivalent	266,569	588,626	740,303	657,829	2,080,094	454,180	1,288,579	846,805	817,801	7,740,786
TOTAL Lumber, Engineered Wood, & Panels BF or Equivalent	462,136	970,883	1,275,711	1,117,363	3,447,004	790,967	2,248,448	1,490,938	1,366,111	13,169,560

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	48,330	106,582	96,491	110,317	274,935	66,311	76,696	32,428	84,326	896,417
Boards, BF	228	215	439	655	3,474	6,772	8,761	10,808	2,234	33,585
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	1,123	6,736	2,924	419	4,362	560	4,499	958	16,749	38,331
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	49,681	113,533	99,854	111,391	282,771	73,643	89,956	44,195	103,309	968,332
Engineered Wood										
Glulam, BF	389	997	4,103	1,601	3,142	2,354	4,014	4,096	8,928	29,624
I-joist, BF equivalent	22,741	46,227	92,723	45,722	172,041	28,931	66,779	130,908	77,792	683,865
LVL, BF equivalent	23,192	14,736	42,334	13,998	56,493	14,039	15,130	45,567	10,198	235,687
Parallam™, BF equivalent	48	2,284	1,050	860	4,900	1,483	2,055	707	5,288	18,676
Timberstrand™, BF equivalent	1,759	2,352	7,485	5,058	22,614	862	2,282	14,199	7,599	64,210
Plywood Rim Board, BF equivalent	160	0	0	55	109	15	0	121	121	580
OSB Rim Board, BF equivalent	531	1,593	2,027	1,101	5,133	353	960	1,197	1,671	14,564
SubTotal Engineered Wood, BF equivalent	48,819	68,188	149,722	68,396	264,432	48,036	91,220	196,796	111,597	1,047,206
Total Lbr. & Eng. Wood, BF equivalent	98,500	181,720	249,576	179,787	547,203	121,680	181,176	240,991	214,906	2,015,539
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	17,060	39,363	22,258	13,410	293,786	57,721	408,174	147,424	110,811	1,110,005
Steel, BF equivalent	1,084	150	1,116	752	905	0	0	4,810	6,117	14,934
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	116,643	221,233	272,949	193,949	841,894	179,401	589,350	393,225	331,833	3,140,478
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	43,180	142,370	49,292	82,970	130,595	25,324	62,738	34,407	90,043	660,920
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	50,822	100,006	199,491	126,066	450,832	75,176	171,414	179,882	150,211	1,503,899
Total Structural Panels, SF 3/8" basis	94,002	242,376	248,783	209,036	581,427	100,500	234,152	214,290	240,254	2,164,818
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	160	633	1	1,865	957	12	232	5,363	6,608	15,830
Hardboard	4	0	79	210	651	408	5	328	38	1,722
Lauan Plywood	727	2,437	4,174	2,006	19,748	5,299	835	279	649	36,155
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	890	3,070	4,254	4,081	21,356	5,720	1,072	5,970	7,295	53,708
Total Panels, SF 3/8" basis equivalent	94,892	245,446	253,037	213,117	602,783	106,220	235,224	220,259	247,549	2,218,526
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	9,824	36,368	27,014	24,962	356,919	56,695	440,334	115,506	123,443	1,191,064
Total Actual plus Potential Panels, SF 3/8" basis equivalent	104,715	281,814	280,052	238,079	959,702	162,914	675,557	335,765	370,991	3,409,590

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN WALL SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	122,992	266,262	315,861	303,229	895,314	208,438	640,866	408,319	360,571	3,521,852
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	1,520	3,975	5,499	6,276	19,191	5,000	20,121	8,167	7,517	77,265
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	963	617	4,386	1,446	26,438	1,278	5,973	4,233	14,416	59,750
Logs, BF	14	27	19,671	3,651	4,530	33	5,316	15,195	4,256	52,692
Subtotal Lumber, BF	125,489	270,880	345,417	314,602	945,474	214,749	672,276	435,914	386,758	3,711,559
Engineered Wood										
Glulam, BF	153	397	725	153	773	396	5,741	2,676	7,166	18,180
I-joist, BF equivalent	108	1,035	111	417	606	160	1,341	269	55	4,103
LVL, BF equivalent	1,937	3,820	7,554	8,126	14,895	1,808	7,120	9,493	916	55,669
Parallam™, BF equivalent	142	2,867	132	980	1,219	719	1,035	319	1,813	9,226
Timberstrand™, BF equivalent	12	305	1,719	654	5,277	408	1,978	663	975	11,991
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	2,353	8,423	10,241	10,331	22,770	3,491	17,215	13,420	10,925	99,170
Total Lbr. & Eng. Wood, BF equivalent	127,842	279,303	355,659	324,932	968,244	218,240	689,491	449,334	397,684	3,810,729
Lbr. & Eng. Lumber equivalent of:										
Concrete, BF equivalent	214	3,134	2,476	4,484	55,864	5,047	16,445	15,875	1,807	105,345
Steel - Exterior Walls, BF equivalent	322	2,443	1,167	0	2,665	422	3,276	248	11,058	21,601
Steel - Interior Walls, BF equivalent	1,756	1,153	2,140	1,630	30,334	897	4,994	1,548	7,258	51,710
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	130,135	286,032	361,441	331,046	1,057,106	224,606	714,206	467,006	417,806	3,989,384
STRUCTURAL AND NONSTRUCTURAL PANELS (Including Plywood in Box Beams)										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	33,319	56,459	24,090	16,957	73,938	9,616	33,154	41,165	74,346	363,044
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	50,228	104,927	178,508	165,642	545,234	123,489	291,468	217,754	160,886	1,838,136
Total Structural Panels, SF 3/8" basis	83,547	161,386	202,598	182,599	619,172	133,105	324,622	258,919	235,232	2,201,180
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	9	8	784	483	287	239	8,359	5	670	10,843
Total Non-Str'l Wood Panels, SF 3/8" basis	9	8	784	483	287	239	8,359	5	670	10,843
Total Panels, SF 3/8" basis equivalent	83,555	161,394	203,382	183,082	619,459	133,344	332,981	258,924	235,902	2,212,023
Panel equivalent of:										
Concrete, SF 3/8" basis equivalent	1,106	4,863	5,444	13,535	105,747	11,260	56,635	20,825	10,884	230,298
Foam & Other, SF 3/8" basis equivalent	1,799	10,144	26,019	6,029	28,650	18,639	122,556	23,458	8,112	245,406
Total Actual plus Potential, SF 3/8" basis equiv.	86,461	176,400	234,844	202,646	753,857	163,243	512,171	303,207	254,898	2,687,727

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
TOTAL WOOD USAGE IN ROOF SYSTEMS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	70,424	160,073	231,266	205,049	700,343	176,475	627,529	276,118	271,116	2,718,393
Boards, BF	482	453	392	342	1,848	2,352	4,403	285	2,911	13,469
Treated Framing, BF	na	na	na	na	na	na	na	na	na	na
Treated Boards, BF	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams, BF	239	160	107	59	1,450	538	413	263	1,788	5,017
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	71,145	160,686	231,765	205,450	703,641	179,366	632,345	276,666	275,815	2,736,878
Engineered Wood										
Glulam, BF	636	55	76	58	1,041	20	3,349	3,690	2,479	11,405
I-joist, BF equivalent	556	1,438	1,736	842	4,523	3,245	5,076	8,187	2,974	28,578
LVL, BF equivalent	1,808	1,120	1,858	410	3,643	1,245	2,301	614	284	13,282
Parallam™, BF equivalent	152	71	43	28	96	0	0	43	289	724
Timberstrand™, BF equivalent	0	55	5	5	1,057	101	0	23	21	1,267
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	3,153	2,738	3,718	1,344	10,361	4,611	10,726	12,558	6,048	55,256
Total Lbr. & Eng. Wood, BF equivalent	74,297	163,424	235,483	206,794	714,001	183,976	643,071	289,224	281,864	2,792,134
Lbr. & Eng. Lumber equivalent of:										
Steel, BF equivalent	2,048	153	414	191	945	133	1,022	376	1,777	7,060
Total Actual plus Potential Lbr. & Eng. Lumber, BF equivalent	76,346	163,578	235,897	206,984	714,946	184,109	644,093	289,600	283,641	2,799,194
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	48,635	83,520	76,961	70,384	242,148	32,758	96,925	80,436	117,455	849,223
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	39,444	98,105	206,136	188,192	615,243	181,827	623,420	287,160	216,846	2,456,372
Total Structural Panels, SF 3/8" basis	88,080	181,625	283,097	258,576	857,391	214,585	720,345	367,596	334,301	3,305,595
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	88,080	181,625	283,097	258,576	857,391	214,585	720,345	367,596	334,301	3,305,595

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
	All Data in Thousands									
TOTAL WOOD USAGE IN FOUNDATIONS										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	na	na	na	na	na	na	na	na	na	na
Boards, BF	na	na	na	na	na	na	na	na	na	na
Treated Framing, BF	2,812	5,064	9,538	10,625	14,514	3,187	896	7,359	4,532	58,527
Treated Boards, BF	7	282	243	15	194	28	5	4	9	787
Posts, BF	61	109	194	171	311	70	19	162	99	1,197
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	2,881	5,454	9,976	10,811	15,020	3,285	920	7,525	4,639	60,511
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	2,881	5,454	9,976	10,811	15,020	3,285	920	7,525	4,639	60,511
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	43	161	787	3,054	461	32	30	25	49	4,641
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	43	161	787	3,054	461	32	30	25	49	4,641
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	43	161	787	3,054	461	32	30	25	49	4,641

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
	All Data in Thousands									
TOTAL WOOD USAGE IN DECKS & PORCHES										
LUMBER & ENGINEERED WOOD										
Lumber - Softwood										
Framing, BF	2,993	7,660	12,616	16,335	44,795	9,960	35,598	21,289	14,061	165,308
Boards, BF	1,686	2,820	1,829	5,812	5,701	1,428	6,079	4,966	5,200	35,521
Treated Framing, BF	18,910	30,287	32,659	37,626	83,666	19,017	31,498	46,202	32,085	331,951
Treated Boards, BF	965	4,318	4,389	2,684	15,909	4,104	4,927	2,073	2,588	41,958
Posts, BF	776	1,582	3,373	3,667	12,417	2,187	11,400	5,932	4,183	45,517
Logs, BF	na	na	na	na	na	na	na	na	na	na
Subtotal Lumber, BF	25,330	46,668	54,866	66,124	162,489	36,695	89,502	80,461	58,117	620,255
Engineered Wood										
Glulam, BF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, BF equivalent	na	na	na	na	na	na	na	na	na	na
Parallam™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Timberstrand™, BF equivalent	na	na	na	na	na	na	na	na	na	na
Plywood Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
OSB Rim Board, BF equivalent	na	na	na	na	na	na	na	na	na	na
SubTotal Engineered Wood, BF equivalent	na	na	na	na	na	na	na	na	na	na
Total Lbr. & Eng. Wood, BF equivalent	25,330	46,668	54,866	66,124	162,489	36,695	89,502	80,461	58,117	620,255
STRUCTURAL AND NONSTRUCTURAL PANELS										
Structural Panels, SF 3/8" Basis										
Softwood Plywood	na	na	na	na	na	na	na	na	na	na
Treated Plywood	na	na	na	na	na	na	na	na	na	na
OSB	na	na	na	na	na	na	na	na	na	na
Total Structural Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Nonstructural Wood Panels, SF 3/8" Basis										
MDF	na	na	na	na	na	na	na	na	na	na
Particleboard	na	na	na	na	na	na	na	na	na	na
Hardboard	na	na	na	na	na	na	na	na	na	na
Lauan Plywood	na	na	na	na	na	na	na	na	na	na
Fiberboard	na	na	na	na	na	na	na	na	na	na
Total Non-Str'l Wood Panels, SF 3/8" basis	na	na	na	na	na	na	na	na	na	na
Total Panels, SF 3/8" basis equivalent	na	na	na	na	na	na	na	na	na	na

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL FRAMING (excluding sheathing and underlayment)										
TOTAL LUMBER - FOUNDATIONS, WALLS, FLOORS, ROOFS, BEAMS, HEADERS, RIM BOARDS, DECKS & PORCHES										
Lumber - Regular, BF										
2x2s	418	61	198	1,337	297	95	419	1,872	888	5,586
2x3s	31	370	436	316	2,760	348	462	115	215	5,054
2x4s	95,919	242,033	408,179	388,225	1,229,455	256,682	789,432	460,556	406,188	4,276,668
2x6s	71,646	139,179	121,696	136,269	309,916	68,018	254,015	195,075	174,447	1,470,261
2x8s	27,763	60,722	61,961	51,988	195,399	68,715	257,081	58,908	79,150	861,688
2x10s	28,776	71,145	45,541	43,572	125,180	49,043	58,230	16,557	36,958	475,002
2x12s	20,186	27,069	18,225	13,253	52,380	18,312	21,049	5,073	32,230	207,778
Boards	1,686	2,820	1,829	5,812	5,701	1,428	6,079	4,966	5,200	35,521
Solid Sawn Beams and Posts	3,101	9,096	10,791	5,591	44,667	4,563	22,285	11,386	37,135	148,614
Logs	14	27	19,671	3,651	4,530	33	5,316	15,195	4,256	52,692
Total Lumber - Regular, BF	249,540	552,522	688,526	650,014	1,970,286	467,237	1,414,368	769,702	776,669	7,538,864
Lumber - Treated, BF										
2x2s	284	581	1,234	181	4,022	803	1,006	155	293	8,559
2x4s	7,230	13,063	15,224	17,478	44,152	10,654	29,487	22,289	17,065	176,641
2x6s	5,622	9,475	13,886	13,991	26,875	6,025	5,571	14,321	9,237	105,004
2x8s	3,329	5,293	5,805	8,841	13,380	3,028	5,147	8,455	5,649	58,926
2x10s	4,498	7,060	7,152	9,087	17,797	4,099	6,990	11,505	7,655	75,842
2x12s	1,499	2,353	2,384	3,029	5,932	1,366	2,330	3,835	2,552	25,281
Boards	972	4,600	4,631	2,699	16,103	4,132	4,932	2,078	2,597	42,745
Posts	842	1,608	2,207	2,092	5,526	1,298	2,003	1,329	1,781	18,687
Total Lumber - Treated, BF	24,276	44,034	52,523	57,397	133,786	31,406	57,466	63,967	46,830	511,685
Total Lumber, BF	273,816	596,557	741,049	707,411	2,104,072	498,643	1,471,834	833,669	823,499	8,050,548
TOTAL LUMBER AND ENGINEERED WOOD EQUIVALENTS USED IN FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	269,873	585,853	728,052	699,728	2,053,879	492,782	1,447,546	820,954	784,582	7,883,247
Solid Sawn Beams and Posts, BF	3,943	10,704	12,997	7,683	50,193	5,861	24,288	12,715	38,917	167,301
Glulam, BF	1,178	1,448	4,904	1,813	4,956	2,770	13,105	10,462	18,573	59,210
I-joist, LF	11,703	24,350	47,285	23,491	88,585	16,168	36,598	69,682	40,411	358,273
I-joist, BF equivalent	23,406	48,700	94,570	46,982	177,170	32,336	73,197	139,364	80,822	716,546
LVL, Cubic Feet	1,684	1,230	3,234	1,408	4,689	1,068	1,534	3,480	712	19,040
LVL, BF equivalent	26,936	19,676	51,746	22,534	75,031	17,092	24,550	55,675	11,398	304,638
Parallam™, Cubic Feet	21	326	77	117	388	138	193	67	462	1,789
Parallam™, BF equivalent	343	5,221	1,225	1,869	6,215	2,202	3,090	1,069	7,390	28,626
Timberstrand™, Cubic Feet	111	170	586	358	1,811	86	268	931	538	4,858
Timberstrand™, BF equivalent	1,773	2,718	9,370	5,723	28,984	1,376	4,285	14,891	8,603	77,721
Plywood, BF equivalent	160	0	0	55	109	15	0	121	121	580
OSB, BF equivalent	531	1,593	2,027	1,101	5,133	353	960	1,197	1,671	14,564
Total Engineered Wood, BF equivalent	54,326	79,355	163,842	80,076	297,599	56,143	119,187	222,779	128,578	1,201,885
Total Lbr. & Eng. Wood, BF equivalent	328,142	675,912	904,891	787,487	2,401,671	554,786	1,591,021	1,056,448	952,077	9,252,434

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SYSTEMS										
LUMBER & ENGINEERED WOOD										
ALL FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	98,500	181,720	249,576	179,787	547,203	121,680	181,176	240,991	214,906	2,015,539
Concrete, BF equivalent	17,060	39,363	22,258	13,410	293,786	57,721	408,174	147,424	110,811	1,110,005
Steel, BF equivalent	1,084	150	1,116	752	905	0	0	4,810	6,117	14,934
Total Material, BF equivalent	116,643	221,233	272,949	193,949	841,894	179,401	589,350	393,225	331,833	3,140,478
GROUND FLOOR										
Total Lbr. & Eng. Wood, BF equivalent	51,781	92,094	167,648	127,190	275,796	72,805	96,258	143,208	120,576	1,147,355
Concrete, BF equivalent	17,060	37,501	22,090	13,410	263,967	57,721	399,189	147,424	110,811	1,069,173
Steel, BF equivalent	547	84	526	752	711	0	0	4,810	0	7,430
Total Material, BF equivalent	69,387	129,679	190,264	141,352	540,474	130,526	495,447	295,443	231,387	2,223,958
UPPER FLOORS										
Total Lbr. & Eng. Wood, BF equivalent	46,719	89,626	81,927	52,598	271,407	48,875	84,917	97,783	94,330	868,183
Concrete, BF equivalent	0	1,861	168	0	29,818	0	8,985	0	0	40,832
Steel, BF equivalent	537	66	590	0	195	0	0	0	6,117	7,504
Total Material, BF equivalent	47,256	91,554	82,685	52,598	301,420	48,875	93,902	97,783	100,447	916,520
STRUCTURAL AND NONSTRUCTURAL PANELS										
ALL FLOORS										
Total Panels, SF 3/8" basis equivalent	94,892	245,446	253,037	213,117	602,783	106,220	235,224	220,259	247,549	2,218,526
Concrete, SF 3/8" basis equivalent	9,824	36,368	27,014	24,962	356,919	56,695	440,334	115,506	123,443	1,191,064
Total Material, SF 3/8" basis equivalent	104,715	281,814	280,052	238,079	959,702	162,914	675,557	335,765	370,991	3,409,590
GROUND FLOOR										
Total Panels, SF 3/8" basis equivalent	54,961	141,448	182,815	154,052	349,930	70,437	116,503	154,214	158,437	1,382,796
Concrete, SF 3/8" basis equivalent	9,633	31,565	26,440	22,761	329,733	56,680	428,461	115,475	112,870	1,133,619
Total Material, SF 3/8" basis equivalent	64,595	173,013	209,255	176,813	679,663	127,117	544,964	269,689	271,307	2,516,415
UPPER FLOORS										
Total Panels, SF 3/8" basis equivalent	39,930	103,998	70,223	59,064	252,853	35,783	118,720	66,046	89,112	835,730
Concrete, SF 3/8" basis equivalent	190	4,803	574	2,202	27,186	14	11,873	31	10,573	57,445
Total Material, SF 3/8" basis equivalent	40,121	108,801	70,797	61,266	280,039	35,797	130,594	66,077	99,685	893,175

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS										
FLOOR JOISTS - ALL FLOORS										
2 x 4s (Trusses), BF	4,298	16,378	37,370	61,430	118,869	11,182	44,846	20,722	22,888	337,984
2 x 8s, BF Lumber	581	3,293	5,573	1,105	11,870	1,627	2,534	36	6,975	33,593
2 x 10s, BF Lumber	23,689	60,459	35,955	35,413	94,407	36,301	8,933	7,060	22,427	324,644
2 x 12s, BF Lumber	13,924	11,611	8,656	6,340	21,278	9,267	11,404	1,194	27,667	111,341
Subtotal: Lumber in Floor Joists, BF	42,492	91,741	87,555	104,287	246,424	58,377	67,717	29,012	79,958	807,562
I-joist, LF	10,577	19,399	44,743	21,923	83,927	14,288	31,961	60,433	38,009	325,259
I-joist, BF equivalent	21,155	38,798	89,487	43,846	167,853	28,575	63,921	120,865	76,018	650,518
Total Lbr. & Eng. Wood, BF equivalent	63,646	130,539	177,042	148,133	414,277	86,952	131,638	149,878	155,976	1,458,080
FLOOR BEAMS - ALL FLOORS										
Built-up Dimension Lumber, BF	5,748	14,684	7,155	5,746	28,352	7,161	8,792	3,255	3,725	84,617
Solid Sawn Beams, BF	1,123	6,736	2,924	419	4,362	560	4,499	958	16,749	38,331
Glulam, BF	330	997	3,990	1,601	3,142	2,354	4,014	4,096	8,928	29,452
I-joist, LF	768	3,515	803	601	951	70	1,030	3,733	715	12,187
I-joist, BF equivalent	1,535	7,029	1,607	1,203	1,903	141	2,059	7,466	1,431	24,374
LVL, Cubic Feet	1,443	912	2,590	874	3,479	876	891	2,819	601	14,484
LVL, BF equivalent	23,094	14,585	41,436	13,987	55,672	14,011	14,251	45,101	9,608	231,746
Parallam™, Cubic Feet	3	143	66	54	306	93	128	44	330	1,167
Parallam™, BF equivalent	48	2,284	1,050	860	4,900	1,483	2,055	707	5,288	18,676
Timberstrand™, Cubic Feet	6	75	197	140	718	7	23	19	183	1,369
Timberstrand™, BF equivalent	98	1,206	3,155	2,236	11,487	112	373	311	2,930	21,908
Total Lbr. & Eng. Wood, BF equivalent	31,976	47,522	61,316	26,053	109,818	25,823	36,043	61,895	48,658	449,104
RIM BOARDS FOR I-JOISTS - ALL FLOORS										
Lumber, BF	90	157	1,781	284	159	774	187	162	644	4,238
Glulam, BF	59	0	114	0	0	0	0	0	0	173
I-joist, LF	na	na	na	na	na	na	na	na	na	na
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
LVL, Cubic Feet	6	9	56	1	51	2	55	29	37	246
LVL, BF equivalent	98	150	898	11	821	27	878	466	590	3,940
Timberstrand™, Cubic Feet	104	72	271	176	695	47	119	868	292	2,644
Timberstrand™, BF equivalent	1,661	1,146	4,330	2,822	11,127	750	1,908	13,888	4,669	42,302
Plywood, 3/8 inch basis	319	0	0	110	217	31	0	242	242	1,161
Plywood, BF equivalent	160	0	0	55	109	15	0	121	121	580
OSB, 3/8 inch basis	1,061	3,185	4,053	2,202	10,266	705	1,920	2,393	3,342	29,128
OSB, BF equivalent	531	1,593	2,027	1,101	5,133	353	960	1,197	1,671	14,564
Total Lbr. & Eng. Wood, BF equivalent	2,650	3,445	10,779	4,946	19,634	2,134	4,733	18,410	8,038	74,770

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - ALL FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	49,453	113,318	99,415	110,736	279,297	66,872	81,195	33,387	101,075	934,748
Glulam, BF	389	997	4,103	1,601	3,142	2,354	4,014	4,096	8,928	29,624
I-joist, LF	11,371	23,113	46,361	22,861	86,021	14,465	33,390	65,454	38,896	341,932
I-joist, BF equivalent	22,741	46,227	92,723	45,722	172,041	28,931	66,779	130,908	77,792	683,865
LVL, Cubic Feet	1,449	921	2,646	875	3,531	877	946	2,848	637	14,730
LVL, BF equivalent	23,192	14,736	42,334	13,998	56,493	14,039	15,130	45,567	10,198	235,687
Parallam™, Cubic Feet	3	143	66	54	306	93	128	44	330	1,167
Parallam™, BF equivalent	48	2,284	1,050	860	4,900	1,483	2,055	707	5,288	18,676
Timberstrand™, Cubic Feet	110	147	468	316	1,413	54	143	887	475	4,013
Timberstrand™, BF equivalent	1,759	2,352	7,485	5,058	22,614	862	2,282	14,199	7,599	64,210
Plywood, BF equivalent	160	0	0	55	109	15	0	121	121	580
OSB, BF equivalent	531	1,593	2,027	1,101	5,133	353	960	1,197	1,671	14,564
Total Engineered Wood, BF equivalent	48,819	68,188	149,722	68,396	264,432	48,036	91,220	196,796	111,597	1,047,206
Total Lbr. & Eng. Wood, BF equivalent	98,273	181,506	249,137	179,132	543,729	114,908	172,415	230,183	212,672	1,981,954

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR										
FLOOR JOISTS - GROUND FLOOR										
2 x 4s (Trusses), BF	1,681	3,597	24,758	40,745	35,620	7,944	17,185	4,028	10,461	146,019
2 x 8s, BF Lumber	340	1,423	3,727	746	7,863	885	1,804	34	4,088	20,910
2 x 10s, BF Lumber	12,529	33,470	25,248	24,174	67,474	20,594	6,892	6,820	12,200	209,401
2 x 12s, BF Lumber	7,817	6,330	6,178	4,409	14,886	5,272	8,095	1,154	13,541	67,683
Subtotal: Lumber in Floor Joists, BF	22,367	44,820	59,911	70,074	125,843	34,696	33,976	12,036	40,289	444,013
I-joist, LF	6,264	11,763	32,449	18,104	41,715	11,493	21,031	41,245	25,513	209,577
I-joist, BF equivalent	12,528	23,526	64,899	36,208	83,430	22,986	42,063	82,489	51,026	419,155
Total Lbr. & Eng. Wood, BF equivalent	34,895	68,346	124,810	106,282	209,273	57,682	76,039	94,525	91,315	863,167
FLOOR BEAMS - GROUND FLOOR										
Built-up Dimension Lumber, BF	3,456	7,574	4,615	4,701	19,034	3,683	6,907	2,544	2,252	54,766
Solid Sawn Beams, BF	546	2,453	1,489	415	2,593	510	3,486	391	8,496	20,379
Glulam, BF	134	182	1,799	459	397	57	80	1,951	3,621	8,680
I-joist, LF	438	1,788	472	364	560	40	82	1,865	462	6,071
I-joist, BF equivalent	877	3,576	944	728	1,119	81	163	3,730	924	12,142
LVL, Cubic Feet	635	375	1,559	544	1,474	320	68	1,430	220	6,623
LVL, BF equivalent	10,152	5,995	24,939	8,698	23,578	5,116	1,091	22,887	3,518	105,974
Parallam™, Cubic Feet	2	59	50	42	163	4	41	9	179	550
Parallam™, BF equivalent	39	942	795	674	2,610	69	656	145	2,865	8,795
Timberstrand™, Cubic Feet	5	54	110	108	387	6	2	17	50	740
Timberstrand™, BF equivalent	87	861	1,756	1,733	6,198	94	37	266	802	11,834
Total Lbr. & Eng. Wood, BF equivalent	15,292	21,583	36,337	17,407	55,529	9,610	12,421	31,914	22,478	222,570
RIM BOARDS FOR I-JOISTS - GROUND FLOOR										
Lumber, BF	49	86	1,007	172	71	0	0	69	406	1,860
Glulam, BF	32	0	64	0	0	0	0	0	0	96
I-joist, LF	14	86	461	204	509	0	0	552	108	1,934
I-joist, BF equivalent	28	172	921	408	1,017	0	1	1,105	217	3,868
LVL, Cubic Feet	3	5	32	0	23	0	0	12	23	99
LVL, BF equivalent	53	75	508	6	365	0	1	200	372	1,581
Timberstrand™, Cubic Feet	56	45	158	107	311	0	18	379	188	1,261
Timberstrand™, BF equivalent	902	714	2,521	1,708	4,972	0	284	6,067	3,001	20,170
Plywood, 3/8 inch basis	210	0	0	66	97	0	0	104	155	632
Plywood, BF equivalent	105	0	0	33	48	0	0	52	78	316
OSB, 3/8 inch basis	576	1,976	2,292	1,333	4,589	0	1	1,026	2,138	13,931
OSB, BF equivalent	288	988	1,146	666	2,294	0	1	513	1,069	6,965
Total Lbr. & Eng. Wood, BF equivalent	1,458	2,034	6,167	2,994	8,768	0	286	8,006	5,143	34,856

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - GROUND FLOOR (Excluding boards)										
Lumber Equivalent										
Lumber, BF	26,418	54,933	67,022	75,362	147,540	38,889	44,370	15,040	51,444	521,017
Glulam, BF	166	182	1,863	459	397	57	80	1,951	3,621	8,777
I-joist, LF	6,716	13,637	33,382	18,672	42,783	11,533	21,113	43,662	26,084	217,582
I-joist, BF equivalent	13,433	27,273	66,764	37,344	85,566	23,067	42,227	87,324	52,167	435,164
LVL, Cubic Feet	638	379	1,590	544	1,496	320	68	1,443	243	6,722
LVL, BF equivalent	10,205	6,070	25,447	8,704	23,943	5,116	1,092	23,086	3,890	107,554
Parallam™, Cubic Feet	2	59	50	42	163	4	41	9	179	550
Parallam™, BF equivalent	39	942	795	674	2,610	69	656	145	2,865	8,795
Timberstrand™, Cubic Feet	62	98	267	215	698	6	20	396	238	2,000
Timberstrand™, BF equivalent	989	1,575	4,277	3,442	11,171	94	321	6,333	3,803	32,004
Plywood, BF equivalent	105	0	0	33	48	0	0	52	78	316
OSB, BF equivalent	288	988	1,146	666	2,294	0	1	513	1,069	6,965
Total Engineered Wood, BF equivalent	25,226	37,030	100,293	51,322	126,030	28,402	44,376	119,405	67,492	599,576
Total Lbr. & Eng. Wood, BF equivalent	51,644	91,963	167,314	126,684	273,570	67,291	88,745	134,445	118,936	1,120,593

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS										
FLOOR JOISTS - UPPER FLOORS										
2 x 4s (Trusses), BF	2,618	12,781	12,612	20,685	83,250	3,237	27,661	16,694	12,428	191,965
2 x 8s, BF Lumber	240	1,870	1,846	359	4,007	742	730	1	2,888	12,683
2 x 10s, BF Lumber	11,160	26,989	10,707	11,238	26,933	15,707	2,041	241	10,227	115,243
2 x 12s, BF Lumber	6,107	5,280	2,478	1,931	6,392	3,995	3,309	41	14,126	43,658
Subtotal: Lumber in Floor Joists, BF	20,125	46,920	27,644	34,213	120,581	23,681	33,741	16,976	39,668	363,550
I-joist, LF	4,313	7,636	12,294	3,819	42,212	2,795	10,929	19,188	12,496	115,682
I-joist, BF equivalent	8,627	15,273	24,588	7,638	84,423	5,589	21,858	38,376	24,992	231,364
Total Lbr. & Eng. Wood, BF equivalent	28,751	62,193	52,232	41,851	205,004	29,270	55,599	55,352	64,660	594,913
FLOOR BEAMS - UPPER FLOORS										
Built-up Dimension Lumber, BF	2,292	7,109	2,540	1,045	9,319	3,478	1,885	711	1,472	29,851
Solid Sawn Beams, BF	577	4,283	1,435	5	1,769	50	1,012	567	8,253	17,952
Glulam, BF	195	814	2,191	1,143	2,745	2,297	3,934	2,145	5,307	20,771
I-joist, LF	329	1,727	332	237	392	30	948	1,868	253	6,116
I-joist, BF equivalent	658	3,454	663	475	784	60	1,896	3,736	506	12,232
LVL, Cubic Feet	809	537	1,031	331	2,006	556	823	1,388	381	7,861
LVL, BF equivalent	12,941	8,591	16,497	5,289	32,094	8,895	13,160	22,215	6,091	125,773
Parallam™, Cubic Feet	1	84	16	12	143	88	87	35	151	618
Parallam™, BF equivalent	9	1,342	254	187	2,291	1,414	1,399	562	2,423	9,881
Timberstrand™, Cubic Feet	1	22	87	31	331	1	21	3	133	630
Timberstrand™, BF equivalent	11	345	1,399	503	5,289	18	337	45	2,128	10,074
Total Lbr. & Eng. Wood, BF equivalent	16,685	25,939	24,979	8,646	54,289	16,213	23,623	29,981	26,181	226,533
RIM BOARDS FOR I-JOISTS - UPPER FLOORS										
Lumber, BF	41	72	774	112	88	774	187	92	238	2,378
Glulam, BF	27	0	49	0	0	0	0	0	0	76
I-joist, LF	12	114	354	133	634	107	399	736	63	2,552
I-joist, BF equivalent	23	227	708	266	1,268	215	799	1,472	127	5,105
LVL, Cubic Feet	3	5	24	0	28	2	55	17	14	147
LVL, BF equivalent	45	75	390	4	456	27	878	266	218	2,360
Timberstrand™, Cubic Feet	47	27	113	70	385	47	102	489	104	1,383
Timberstrand™, BF equivalent	759	432	1,810	1,114	6,155	750	1,624	7,821	1,668	22,132
Plywood, 3/8 inch basis	109	0	0	43	121	31	0	139	86	528
Plywood, BF equivalent	54	0	0	22	60	15	0	69	43	264
OSB, 3/8 inch basis	485	1,210	1,761	869	5,677	705	1,919	1,367	1,204	15,197
OSB, BF equivalent	242	605	881	435	2,838	353	960	684	602	7,599
Total Lbr. & Eng. Wood, BF equivalent	1,192	1,411	4,612	1,952	10,866	2,134	4,447	10,405	2,895	39,914

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (CONTINUED)										
TOTAL WOOD USAGE IN FLOOR FRAMING - UPPER FLOORS (Excluding boards)										
Lumber Equivalent										
Lumber, BF	23,035	58,385	32,393	35,375	131,757	27,983	36,825	18,347	49,631	413,731
Glulam, BF	222	814	2,240	1,143	2,745	2,297	3,934	2,145	5,307	20,848
I-joist, LF	4,654	9,477	12,979	4,189	43,238	2,932	12,276	21,792	12,813	124,350
I-joist, BF equivalent	9,308	18,954	25,959	8,378	86,475	5,864	24,553	43,584	25,625	248,701
LVL, Cubic Feet	812	542	1,055	331	2,034	558	877	1,405	394	8,008
LVL, BF equivalent	12,986	8,666	16,887	5,294	32,549	8,923	14,038	22,481	6,308	128,132
Parallam™, Cubic Feet	1	84	16	12	143	88	87	35	151	618
Parallam™, BF equivalent	9	1,342	254	187	2,291	1,414	1,399	562	2,423	9,881
Timberstrand™, Cubic Feet	48	49	201	101	715	48	123	492	237	2,013
Timberstrand™, BF equivalent	770	777	3,208	1,617	11,444	768	1,961	7,866	3,796	32,206
Plywood, BF equivalent	54	0	0	22	60	15	0	69	43	264
OSB, BF equivalent	242	605	881	435	2,838	353	960	684	602	7,599
Total Engineered Wood, BF equivalent	23,593	31,158	49,429	17,074	138,402	19,634	46,844	77,391	44,105	447,630
Total Lbr. & Eng. Wood, BF equivalent	46,628	89,542	81,823	52,449	270,159	47,617	83,669	95,738	93,736	861,361

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING										
WALL FRAMING										
2 x 4s Walls, BF	9,531	27,935	67,783	39,902	238,671	63,376	189,176	61,490	61,666	759,531
2 x 6s Walls, BF	53,734	97,955	81,346	100,525	194,401	29,622	110,824	144,736	119,472	932,616
Interior 2 x 3s Walls, BF	31	370	436	316	2,760	348	462	115	215	5,054
Interior 2 x 4s Walls, BF	46,237	108,557	129,849	128,046	358,838	91,465	264,141	153,362	144,226	1,424,721
Interior 2 x 6s Walls, BF	3,544	10,648	11,260	9,453	25,684	4,468	16,688	19,029	13,257	114,031
Treated plates on slabs	1,520	3,975	5,499	6,276	19,191	5,000	20,121	8,167	7,517	77,265
Blocking for drywall, 2 x 4, BF	2,805	6,721	7,868	7,739	21,590	5,409	15,815	9,648	8,983	86,576
Blocking for drywall, 2 x 6, BF	2,561	6,138	7,165	7,065	19,697	4,940	14,440	8,794	8,229	79,028
Subtotal: Dimension Lumber in Walls	119,963	262,299	311,205	299,321	880,834	204,629	631,669	405,339	363,565	3,478,824
Timberstrand™, BF equivalent	1	6	161	6	36	5	25	5	8	253
I-joist, BF equivalent	na	na	na	na	na	na	na	na	na	na
Solid Sawn Beams and Posts, BF	773	253	2,903	314	25,419	930	5,612	675	849	37,728
Logs, BF	14	27	19,671	3,651	4,530	33	5,316	15,195	4,256	52,692
Total Lbr. & Eng. Wood, BF equivalent	120,752	262,585	333,940	303,291	910,819	205,597	642,622	421,214	368,678	3,569,498
WINDOW AND DOOR HEADERS										
Lumber,BF(Blt-up,Open Web & Flitch Pl'te)	4,097	7,262	9,486	9,218	30,652	7,603	28,526	10,485	4,303	111,632
Solid Sawn Beams, BF	170	270	1,137	999	985	294	361	2,878	10,768	17,863
Glulam, BF	55	183	394	55	396	20	190	1,068	3,703	6,064
I-joist, LF	44	387	56	198	298	80	670	122	28	1,883
I-joist, BF equivalent	89	773	111	396	596	160	1,341	245	55	3,766
LVL, Cubic Feet	43	131	207	171	359	44	52	307	48	1,363
LVL, BF equivalent	687	2,091	3,317	2,743	5,748	710	834	4,906	770	21,807
Parallam™, Cubic Feet	8	118	0	24	12	0	8	6	73	251
Parallam™, BF equivalent	128	1,895	6	389	200	0	129	103	1,173	4,023
Timberstrand™, Cubic Feet	1	16	61	27	235	5	59	26	49	478
Timberstrand™, BF equivalent	12	258	973	427	3,766	87	940	412	780	7,655
Glued & Nailed Box Beams, BF Lumber	29	53	34	38	428	54	126	199	18	980
Total Lbr. & Eng. Wood, BF equivalent	5,267	12,786	15,458	14,265	42,772	8,928	32,447	20,297	21,570	173,791
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	37	69	45	50	556	71	164	259	24	1,275
GARAGE DOOR HEADERS										
Lumber, BF (Blt-up,Open Web & Flitch Pl'te)	424	618	633	884	2,591	1,110	666	462	195	7,582
Solid Sawn Beams, BF	19	93	347	133	34	54	0	680	2,798	4,158
Glulam, BF	98	213	331	99	377	376	5,551	1,608	3,463	12,116
I-joist, LF	10	131	0	10	5	0	0	12	0	168
I-joist, BF equivalent	19	262	0	21	10	0	0	24	0	336
LVL, Cubic Feet	78	108	265	336	572	69	393	287	9	2,116
LVL, BF equivalent	1,249	1,730	4,237	5,382	9,147	1,098	6,285	4,587	146	33,862
Parallam™, Cubic Feet	1	61	8	37	64	45	57	13	40	325
Parallam™, BF equivalent	15	971	127	591	1,019	719	906	216	640	5,203
Timberstrand™, Cubic Feet	0	3	47	14	94	20	65	16	12	271
Timberstrand™, BF equivalent	0	46	746	227	1,511	321	1,039	251	195	4,337
Glued & Nailed Box Beams, BF Lumber	0	5	2	44	0	42	0	0	6	99
Total Lbr. & Eng. Wood, BF equivalent	1,825	3,938	6,421	7,382	14,689	3,720	14,447	7,828	7,443	67,694
Plywood from Glued & Nailed Box Beams, SF 3/8" basis equiv.	0	21	7	177	0	168	0	0	25	397

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL FRAMING (CONTINUED)										
TOTAL WOOD USAGE IN WALL FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	125,489	270,880	345,417	314,602	945,474	214,749	672,276	435,914	386,758	3,711,559
Glulam, BF	153	397	725	153	773	396	5,741	2,676	7,166	18,180
I-joist, LF	54	517	56	209	303	80	670	135	28	2,051
I-joist, BF equivalent	108	1,035	111	417	606	160	1,341	269	55	4,103
LVL, Cubic Feet	121	239	472	508	931	113	445	593	57	3,479
LVL, BF equivalent	1,937	3,820	7,554	8,126	14,895	1,808	7,120	9,493	916	55,669
Parallam™, Cubic Feet	9	179	8	61	76	45	65	20	113	577
Parallam™, BF equivalent	142	2,867	132	980	1,219	719	1,035	319	1,813	9,226
Timberstrand™, Cubic Feet	1	19	118	41	332	26	125	42	61	765
Timberstrand™, BF equivalent	14	311	1,880	660	5,313	413	2,004	668	983	12,244
Total Engineered Wood, BF equivalent	2,354	8,429	10,403	10,336	22,806	3,496	17,241	13,425	10,933	99,423
Total Lbr. & Eng. Wood, BF equivalent	127,843	279,309	355,820	324,938	968,280	218,245	689,516	449,339	397,692	3,810,982

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF FRAMING										
TRUSSES, RAFTERS AND CEILING JOISTS										
2 x 4s (Trusses), BF	24,534	63,678	138,122	125,269	398,738	63,646	200,665	179,967	136,833	1,331,453
2 x 6s (Rafters), BF	11,597	24,406	21,826	18,559	69,985	28,940	111,853	21,581	33,045	341,792
2 x 8s (Rafters), BF	21,974	46,262	41,343	35,144	132,524	54,786	211,693	40,858	62,572	647,156
2 x 10s (Rafters), BF	5,087	10,686	9,585	8,160	30,773	12,742	49,297	9,497	14,531	150,358
Turn Gables, 2 x 4s, BF	2,051	4,300	8,937	7,810	18,118	4,339	14,302	7,556	7,064	74,476
Dormers, 2 x 4s, BF	5,180	10,741	11,453	10,108	50,205	12,023	39,719	16,660	17,071	173,158
Subtotal: Framing Lumber in Roofs	70,424	160,073	231,266	205,049	700,343	176,475	627,529	276,118	271,116	2,718,393
I-joist, LF	270	691	857	421	2,262	1,623	2,395	3,911	1,074	13,504
I-joist, BF equivalent	541	1,383	1,714	842	4,523	3,245	4,791	7,821	2,148	27,008
Total Lbr. & Eng. Wood, BF equivalent	70,964	161,456	232,980	205,891	704,866	179,720	632,320	283,940	273,264	2,745,401
ROOF BEAMS (incl. Beam and Purlin Construction)										
Built-up Dimension Lumber, BF	2,217	5,307	1,554	1,736	5,009	3,957	36,371	1,446	2,721	60,317
Solid Sawn Beams, BF	239	160	107	59	1,450	538	413	263	1,788	5,017
Glulam, BF	636	55	76	58	1,041	20	3,349	3,690	2,479	11,405
I-joist, LF	8	27	11	0	0	0	143	183	413	785
I-joist, BF equivalent	16	55	22	0	0	0	286	365	826	1,570
LVL, Cubic Feet	113	70	116	26	228	78	144	38	18	830
LVL, BF equivalent	1,808	1,120	1,858	410	3,643	1,245	2,301	614	284	13,282
Parallam™, Cubic Feet	10	4	3	2	6	0	0	3	18	45
Parallam™, BF equivalent	152	71	43	28	96	0	0	43	289	724
Timberstrand™, Cubic Feet	0	3	0	0	66	6	0	1	1	79
Timberstrand™, BF equivalent	0	55	5	5	1,057	101	0	23	21	1,267
Total Lbr. & Eng. Wood, BF equivalent	5,068	6,822	3,664	2,297	12,296	5,861	42,720	6,445	8,409	93,582
TOTAL WOOD USAGE IN ROOF FRAMING (Excluding boards)										
Lumber Equivalent										
Lumber, BF	72,879	165,540	232,927	206,844	706,801	180,971	664,313	277,827	275,625	2,783,727
Glulam, BF	636	55	76	58	1,041	20	3,349	3,690	2,479	11,405
I-joist, LF	278	719	868	421	2,262	1,623	2,538	4,093	1,487	14,289
I-joist, BF equivalent	556	1,438	1,736	842	4,523	3,245	5,076	8,187	2,974	28,578
LVL, Cubic Feet	113	70	116	26	228	78	144	38	18	830
LVL, BF equivalent	1,808	1,120	1,858	410	3,643	1,245	2,301	614	284	13,282
Parallam™, Cubic Feet	10	4	3	2	6	0	0	3	18	45
Parallam™, BF equivalent	152	71	43	28	96	0	0	43	289	724
Timberstrand™, Cubic Feet	0	3	0	0	66	6	0	1	1	79
Timberstrand™, BF equivalent	0	55	5	5	1,057	101	0	23	21	1,267
Total Engineered Wood, BF equivalent	3,153	2,738	3,718	1,344	10,361	4,611	10,726	12,558	6,048	55,256
Total Lbr. & Eng. Wood, BF equivalent	76,032	168,278	236,645	208,188	717,162	185,581	675,039	290,385	281,673	2,838,983

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN BEAMS & HEADERS										
BEAMS & HEADERS - BF OR EQUIVALENT										
Lumber Equivalent										
Lumber, BF	12,514	27,928	18,864	17,667	67,033	19,927	74,481	15,847	10,968	265,228
Solid Sawn Beams, BF	1,551	7,260	4,514	1,610	6,831	1,447	5,273	4,779	32,103	65,369
Glulam, BF	1,119	1,448	4,790	1,813	4,956	2,770	13,105	10,462	18,573	59,037
I-joist, LF	830	4,060	870	810	1,254	150	1,843	4,050	1,156	15,023
I-joist, BF equivalent	1,659	8,119	1,740	1,620	2,508	301	3,686	8,101	2,312	30,047
LVL, Cubic Feet	1,677	1,220	3,178	1,408	4,638	1,067	1,479	3,451	676	18,794
LVL, BF equivalent	26,838	19,525	50,848	22,524	74,210	17,064	23,672	55,208	10,809	300,697
Parallam™, Cubic Feet	21	326	77	117	388	138	193	67	462	1,789
Parallam™, BF equivalent	343	5,221	1,225	1,869	6,215	2,202	3,090	1,069	7,390	28,626
Timberstrand™, Cubic Feet	7	98	305	181	1,114	39	147	62	245	2,198
Timberstrand™, BF equivalent	110	1,566	4,878	2,894	17,821	621	2,352	997	3,926	35,166
Total Engineered Wood, BF equivalent	30,070	35,880	63,482	30,720	105,711	22,958	45,904	75,838	43,010	453,573
Total Lbr. & Eng. Wood, BF equivalent	44,136	71,068	86,860	49,997	179,574	44,332	125,658	96,465	86,081	784,170
Plywood, SF 3/8" basis equivalent	37	89	51	227	556	239	164	259	48	1,671

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ALL SHEATHING & UNDERLAYMENT										
ALL SHEATHING & UNDERLAYMENT										
Square Feet										
None	5,540	17,646	14,179	21,157	234,134	40,066	239,007	74,367	62,237	708,333
Lauan Plywood - 1/4"	1,090	3,655	6,261	3,009	29,623	7,949	1,253	419	973	54,233
Plywood - 1/4"	996	12,177	1,430	1,958	704	455	4,381	1,869	4,867	28,838
Plywood - 3/8"	2,221	2,310	3,037	9,558	9,587	7,013	3,085	1,847	11,266	49,925
Plywood - 1/2"	36,820	53,679	38,184	36,226	99,118	18,371	42,238	44,333	82,801	451,771
Plywood - 5/8"	22,397	33,685	27,903	27,911	89,634	7,561	38,236	36,708	50,124	334,159
Plywood - 3/4"	17,247	48,044	24,267	31,074	74,241	11,261	23,461	12,971	33,940	276,505
Plywood - 1 1/8"	432	16,010	117	751	2,013	175	6,561	2,141	1,821	30,021
OSB - 1/4"	1,729	69	687	159	170	3	8	0	12	2,836
OSB - 3/8"	132	3,660	6,188	10,717	15,419	1,382	1,202	9,525	11,154	59,380
OSB - 7/16" or 1/2"	55,929	130,749	262,440	233,722	787,284	174,710	606,202	333,876	249,589	2,834,500
OSB - 5/8"	9,094	17,289	16,767	19,859	53,818	20,013	63,387	30,513	25,878	256,616
OSB - 3/4"	22,726	40,912	94,364	59,226	202,125	52,340	53,954	86,443	43,629	655,719
OSB - 7/8"	616	5,205	3,406	226	2,826	547	1,930	2,014	3,737	20,508
OSB - 1"	588	693	973	1,486	14,427	1,995	5,116	11	2,052	27,341
OSB - 1 1/8"	341	123	118	469	2,351	510	15,041	545	13,138	32,636
Particleboard - 1/4"	190	368	0	2	160	3	7	7,627	431	8,786
Particleboard - 3/8"	10	0	0	413	74	1	3	272	719	1,494
Particleboard - 1/2"	15	1	0	830	318	6	166	5	4,096	5,436
Particleboard - 5/8"	1	0	0	206	18	0	1	0	82	308
Particleboard - 3/4"	1	194	0	0	161	0	1	0	2	359
Hardboard - 1/4"	5	0	119	315	976	612	7	492	57	2,584
Cementitious Board	2,825	10,894	12,327	6,005	48,890	8,021	14,063	17,019	6,112	126,156
Boards - 1" - no spacing	657	514	584	733	3,436	8,169	6,638	10,892	2,186	33,809
Boards - 1" - spaced	10	39	67	50	278	1,309	185	42	68	2,049
Boards - 2"	24	67	106	119	874	150	3,217	90	1,462	6,110
Fiberboard - 1/2"	6	6	588	362	216	179	6,269	4	503	8,133
Gypsum	98	927	32	25	4,717	2,163	5,544	10	328	13,844
Foil Faced 3-ply Kraft Paper - 1/8"	153	66	208	98	309	2,506	33,229	41	161	36,772
Foam	506	6,235	17,737	3,385	15,326	8,611	40,595	17,615	3,513	113,522
Fiberbond	17	0	700	43	430	2	135	624	701	2,652
Other	1,377	817	6,409	2,161	10,950	4,802	7,762	10,987	2,553	47,817
TOTAL	183,794	406,032	539,200	472,254	1,704,607	380,886	1,222,884	703,301	620,194	6,233,152
	0	0	0	0	0	0	0	0	0	
ALL SHEATHING & UNDERLAYMENT VOLUMES	0	0	0	0	0	0	0	0	0	
Plywood, SF 3/8" Basis	125,097	282,260	150,292	170,085	446,124	67,459	192,653	155,750	281,795	1,871,515
Lauan Plywood, SF 3/8" Basis	727	2,437	4,174	2,006	19,748	5,299	835	279	649	36,155
OSB, SF 3/8" Basis	140,494	303,037	584,135	479,900	1,611,309	380,492	1,086,301	684,795	527,943	5,798,407
Particleboard, SF 3/8" Basis	160	633	1	1,865	957	12	232	5,363	6,608	15,830
Hardboard, SF 3/8" Basis	4	0	79	210	651	408	5	328	38	1,722
Foam, SF 3/8" str'l panel basis equivalent	17,072	42,041	82,243	44,550	82,056	46,568	112,417	99,976	39,763	566,684
Other, SF 3/8" str'l panel basis equivalent	5,347	14,582	20,196	7,691	55,081	19,351	80,336	21,514	10,427	234,526
Total Panel, 3/8" str'l pn'l basis equiv.	288,900	644,990	841,120	706,306	2,215,927	519,590	1,472,779	968,005	867,223	8,524,840
Boards, BF	710	668	831	996	5,322	9,123	13,164	11,093	5,145	47,053

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN FLOOR SHEATHING										
FLOOR SHEATHING										
SF of 1st & 2nd Story Floor Area										
None - Slab or Stress Skin Panel	4,141	13,765	10,153	10,910	155,062	31,966	197,143	58,671	54,161	535,972
Plywood - 1/2"	1,969	2,651	2,707	9,399	1,252	2,227	1,937	59	1,808	24,010
Plywood - 5/8"	3,087	4,609	5,755	1,776	5,935	973	799	426	5,414	28,773
Plywood - 3/4"	12,400	17,823	14,949	30,196	40,723	9,241	12,683	12,279	32,577	182,870
Plywood - 1 1/8"	432	16,010	117	751	2,013	175	6,561	2,141	1,821	30,021
OSB - 7/16" OR 1/2"	159	576	1,374	3,185	2,895	172	2,713	38	2,313	13,426
OSB - 5/8"	940	3,027	323	3,377	3,102	564	691	388	1,325	13,737
OSB - 3/4"	20,942	38,937	89,698	54,253	188,073	32,711	51,453	84,571	42,426	603,062
OSB - 7/8"	616	5,205	3,406	226	2,826	547	1,930	2,014	3,737	20,508
OSB - 1"	588	693	973	1,486	14,427	1,995	5,116	11	2,052	27,341
OSB - 1 1/8"	341	123	118	469	2,351	510	15,041	545	13,138	32,636
Boards - 1"	212	200	416	608	2,733	6,595	5,069	10,786	2,013	28,634
Boards - 2"	8	7	11	23	370	88	1,846	11	110	2,475
Other	726	330	4,158	429	4,139	4,395	740	39	284	15,240
TOTAL	46,561	103,957	134,158	117,088	425,900	92,160	303,722	171,979	163,179	1,558,704
FLOOR SHEATHING VOLUMES										
Plywood, SF 3/8" basis	33,865	94,893	43,450	78,138	99,043	23,597	48,962	31,770	82,051	535,769
OSB, SF 3/8" basis	47,692	98,049	192,663	124,276	437,295	74,719	170,945	176,202	143,750	1,465,590
Other, SF 3/8" str'l panel basis equivalent	1,428	715	8,218	825	8,425	8,743	1,652	80	602	30,689
Total Panel, 3/8" str'l pn'l basis equiv.	82,985	193,657	244,331	203,239	544,762	107,059	221,559	208,052	226,403	2,032,048
Boards, BF	228	215	439	655	3,474	6,772	8,761	10,808	2,234	33,585

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN WALL SHEATHING										
WALL SHEATHING										
SF of Exterior Wall										
None	806	3,529	4,026	10,247	79,073	8,099	41,865	15,696	8,076	171,417
Plywood - 3/8"	36	1,860	365	3,951	4,134	3,090	910	71	5,597	20,014
Plywood - 1/2"	17,779	29,658	7,327	7,899	36,334	4,331	11,577	25,882	34,401	175,188
Plywood - 5/8"	4,685	1,435	4,109	1,278	3,384	96	5,139	3,766	13,581	37,472
Plywood - 3/4"	866	6,287	3,528	59	7,581	177	4,039	25	99	22,661
OSB - 3/8"	94	3,660	6,108	10,577	13,872	1,378	1,130	9,116	9,744	55,678
OSB - 7/16" OR 1/2"	37,189	68,128	123,594	111,008	383,461	76,687	214,236	154,382	102,236	1,270,919
OSB - 5/8"	53	5,707	3,327	356	9,667	394	2,729	1,655	8,809	32,697
OSB - 3/4"	230	460	1,032	3,230	1,985	9,602	71	19	73	16,702
Fiberboard - 1/2"	6	6	588	362	216	179	6,269	4	503	8,133
Gypsum	98	927	32	25	4,717	2,163	5,544	10	328	13,844
Foil Faced 3-ply Kraft Paper - 1/8"	153	66	208	98	309	2,506	33,229	41	161	36,772
Foam	506	6,235	17,737	3,385	15,326	8,611	40,595	17,615	3,513	113,522
Other	550	123	673	695	1,049	26	4,952	11	1,512	9,592
TOTAL	63,052	128,079	172,654	153,170	561,107	117,340	372,285	228,292	188,632	1,984,610
Foam as a Second Layer of Sheathing, SF 3/8" basis	16,575	28,205	48,368	34,105	72,436	30,050	58,550	50,594	31,282	370,166
WALL SHEATHING VOLUMES										
Plywood, SF 3/8" basis	33,281	56,370	24,038	16,731	73,381	9,378	32,990	40,906	74,297	361,373
OSB, SF 3/8" basis	50,228	104,927	178,508	165,642	545,234	123,489	291,468	217,754	160,886	1,838,136
Foam, SF 3/8" str'l panel basis equivalent	17,072	42,041	82,243	44,550	82,056	46,568	112,417	99,976	39,763	566,684
Other, SF 3/8" str'l panel basis equivalent	1,107	1,560	2,031	1,559	8,243	6,785	67,639	87	3,375	92,386
Total Panel, 3/8" str'l pn'l basis equiv.	101,688	204,897	286,820	228,481	708,915	186,219	504,514	358,723	278,321	2,858,578
Boards, BF	0	0	0	0	0	0	0	0	0	0

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN ROOF SHEATHING										
ROOF SHEATHING										
SF of Roof Area										
None	593	351	0	0	0	0	0	0	0	945
Plywood - 3/8"	94	358	2,179	4,175	4,100	3,703	2,150	390	1,883	19,032
Plywood - 1/2"	14,589	19,607	27,850	18,460	59,666	11,690	28,705	18,392	46,342	245,302
Plywood - 5/8"	14,234	27,606	18,038	23,998	80,103	6,489	30,908	32,516	30,969	264,864
Plywood - 3/4"	2,683	5,504	3,792	799	12,494	1,327	2,494	665	1,083	30,841
OSB - 7/16" or 1/2"	18,556	61,448	136,770	119,409	400,050	97,845	388,992	179,456	141,862	1,544,387
OSB - 5/8"	8,064	8,555	12,159	15,300	39,408	19,051	59,959	28,074	15,544	206,114
OSB - 3/4"	631	958	1,755	1,740	8,082	9,808	2,416	548	895	26,833
Boards - 1" - no spacing	444	314	169	125	703	1,574	1,568	106	173	5,175
Boards - 1" - spaced	10	39	67	50	278	1,309	185	42	68	2,049
Boards - 2"	16	60	95	96	503	62	1,371	79	1,352	3,634
Other	101	363	1,579	1,036	5,762	380	2,070	10,937	757	22,985
TOTAL	60,017	125,164	204,454	185,188	611,149	153,237	520,818	271,205	240,929	2,372,161
ROOF SHEATHING VOLUMES										
Plywood, SF 3/8" Basis	48,635	83,520	76,961	70,384	242,148	32,758	96,925	80,436	117,455	849,223
OSB, SF 3/8" Basis	39,444	98,105	206,136	188,192	615,243	181,827	623,420	287,160	216,846	2,456,372
Other, SF 3/8" str'l panel basis equivalent	152	530	2,205	1,456	8,140	548	2,881	15,465	1,060	32,438
Total Panel, 3/8" str'l pn'l basis equiv.	88,231	182,155	285,302	260,033	865,531	215,133	723,225	383,061	335,361	3,338,033
Boards, BF	482	453	392	342	1,848	2,352	4,403	285	2,911	13,469

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN UNDERLAYMENT										
UNDERLAYMENT MATERIAL										
SF of Floor Area										
Lauan Plywood - 1/4"	1,090	3,655	6,261	3,009	29,623	7,949	1,253	419	973	54,233
OSB - 1/4"	1,729	69	687	159	170	3	8	0	12	2,836
OSB - 3/8"	38	0	81	140	1,548	4	73	409	1,410	3,702
OSB - 7/16" OR 1/2"	25	597	702	121	878	6	261	0	3,179	5,768
OSB - 5/8"	36	0	958	825	1,641	3	8	395	201	4,068
OSB - 3/4"	923	557	1,879	3	3,986	219	15	1,306	235	9,122
Plywood - 1/4"	996	12,177	1,430	1,958	704	455	4,381	1,869	4,867	28,838
Plywood - 3/8"	2,091	92	493	1,432	1,353	220	26	1,385	3,786	10,878
Plywood - 1/2"	2,483	1,763	300	467	1,866	124	19	1	249	7,272
Plywood - 5/8"	392	34	0	860	212	3	1,389	0	160	3,051
Plywood - 3/4"	1,298	18,430	1,998	19	13,443	516	4,245	2	181	40,134
Particleboard - 1/4"	190	368	0	2	160	3	7	7,627	431	8,786
Particleboard - 3/8"	10	0	0	413	74	1	3	272	719	1,494
Particleboard - 1/2"	15	1	0	830	318	6	166	5	4,096	5,436
Particleboard - 5/8"	1	0	0	206	18	0	1	0	82	308
Particleboard - 3/4"	1	194	0	0	161	0	1	0	2	359
Hardboard - 1/4"	5	0	119	315	976	612	7	492	57	2,584
Cementitious Board	2,825	10,894	12,327	6,005	48,890	8,021	14,063	17,019	6,112	126,156
Fiberbond	17	0	700	43	430	2	135	624	701	2,652
TOTAL	14,164	48,831	27,935	16,808	106,452	18,149	26,059	31,825	27,454	317,677
UNDERLAYMENT VOLUMES										
Plywood, SF 3/8" Basis	9,315	47,477	5,842	4,833	31,552	1,727	13,776	2,637	7,992	125,151
Lauan Plywood, SF 3/8" Basis	727	2,437	4,174	2,006	19,748	5,299	835	279	649	36,155
OSB, SF 3/8" Basis	3,130	1,957	6,828	1,789	13,537	457	469	3,680	6,461	38,309
Particleboard, SF 3/8" Basis	160	633	1	1,865	957	12	232	5,363	6,608	15,830
Hardboard, SF 3/8" Basis	4	0	79	210	651	408	5	328	38	1,722
Other	2,660	11,776	7,741	3,851	30,273	3,275	8,165	5,883	5,390	79,014
Total Panel, 3/8" str'l pn'l basis equiv.	15,995	64,281	24,666	14,553	96,718	11,179	23,481	18,169	27,138	296,181

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
	All Data in Thousands									
DETAILS OF WOOD USAGE IN FOUNDATIONS										
WOOD FOUNDATION SYSTEMS										
Lumber - Treated, 2 x 6, BF	10	38	187	726	109	8	7	6	12	1,103
Lumber - Treated, 2 x 8, BF	30	115	561	2,177	328	23	21	18	35	3,308
Plywood - Treated, SF 3/8" Basis	43	161	787	3,054	461	32	30	25	49	4,641
MASONRY FOUNDATIONS										
Sill Plates - 2 x 6 Treated, BF	2,772	4,910	8,791	7,723	14,076	3,157	867	7,335	4,485	54,116
Posts - Treated, BF	61	109	194	171	311	70	19	162	99	1,197
Furring for Precast - Treated, BF	7	282	243	15	194	28	5	4	9	787
TOTAL - Treated Lumber, BF	2,881	5,454	9,976	10,811	15,020	3,285	920	7,525	4,639	60,511
TOTAL - Treated Plywood, SF 3/8" Basis	43	161	787	3,054	461	32	30	25	49	4,641

	TOTAL NEW RESIDENTIAL									
	NEW ENG	MID ATL	E N CEN	W N CEN	S ATL	E S CEN	W S CEN	MTN	PAC	U S TOTAL
					All Data in Thousands					
DETAILS OF WOOD USAGE IN DECKS & PORCHES										
DECKS										
Lumber - Regular, BF										
2x2s	410	20	86	1,167	132	34	394	656	525	3,422
2x4s	272	13	57	776	88	22	262	436	349	2,275
2x6s	205	10	43	584	66	17	197	328	262	1,711
Boards	1,321	1,554	340	3,479	1,182	437	2,476	2,955	3,472	17,216
Posts	272	13	57	776	88	22	262	436	349	2,275
Lumber - Treated, BF										
2x2s	240	528	927	162	2,868	603	880	155	213	6,576
2x4s	5,681	9,053	9,521	11,189	24,193	5,521	9,282	14,123	9,495	98,057
2x6s	2,819	4,500	4,755	5,533	12,112	2,761	4,634	6,980	4,700	48,793
2x8s	3,298	5,178	5,245	6,663	13,051	3,006	5,126	8,437	5,614	55,618
2x10s	4,498	7,060	7,152	9,087	17,797	4,099	6,990	11,505	7,655	75,842
2x12s	1,499	2,353	2,384	3,029	5,932	1,366	2,330	3,835	2,552	25,281
Boards	758	3,750	3,832	2,418	12,500	3,302	3,830	1,462	2,389	34,239
Posts	751	1,464	1,808	1,908	4,448	1,096	1,900	1,167	1,629	16,171
Subtotal - Lumber, BF	2,480	1,611	582	6,783	1,555	532	3,590	4,810	4,956	26,900
Subtotal - Treated Lumber, BF	19,544	33,886	35,623	39,988	92,901	21,753	34,971	47,663	34,247	360,578
Total, BF	22,024	35,496	36,205	46,772	94,457	22,286	38,562	52,473	39,204	387,478
Deck Surfaces										
Lumber - Regular, BF	1,321	1,554	340	3,479	1,182	437	2,476	2,955	3,472	17,216
Lumber - Treated, BF	758	3,750	3,832	2,418	12,500	3,302	3,830	1,462	2,389	34,239
PVC / Vinyl / Fiberglass, BF	773	131	714	199	834	177	118	150	407	3,502
Wood / Plastic composite, BF	2,067	2,287	2,935	3,841	4,947	566	1,220	8,015	2,104	27,982
Total Deck Surface Material, BF	4,918	7,721	7,821	9,937	19,463	4,482	7,644	12,581	8,372	82,940
PORCHES										
Lumber - Regular, BF										
2x2s (Railings)	9	41	112	169	166	61	25	1,217	364	2,165
2x4s (Porch Roofs, Breezeways, & Railings)	982	3,652	6,704	7,062	23,909	5,124	20,380	10,516	7,084	85,412
2x6s (Railings)	4	21	56	85	83	31	13	608	182	1,082
2x8s (Porch Floors & Breezeways)	1,112	3,902	5,558	6,492	20,352	4,672	14,328	7,529	5,295	69,241
Boards	365	1,267	1,489	2,333	4,519	991	3,602	2,011	1,729	18,304
Posts	504	1,569	3,316	2,890	12,330	2,164	11,138	5,496	3,834	43,242
Lumber - Treated, BF										
2x2s (Railings)	44	53	307	19	1,154	200	126	0	80	1,983
2x4s (Porch Roofs, Breezeways, & Railings)	29	36	204	13	767	133	84	0	53	1,319
2x6s (Railings)	22	27	153	10	577	100	63	0	40	992
Boards	207	569	557	267	3,409	802	1,097	612	199	7,719
Posts	29	36	204	13	767	133	84	0	53	1,319
Subtotal - Lumber, BF	2,976	10,452	17,236	19,030	61,359	13,042	49,486	27,377	18,487	219,446
Subtotal - Treated Lumber, BF	331	720	1,425	322	6,674	1,367	1,454	612	426	13,331
Total, BF	3,307	11,172	18,662	19,352	68,033	14,410	50,940	27,988	18,914	232,777
Porch Surfaces										
Lumber - Regular, BF	365	1,267	1,489	2,333	4,519	991	3,602	2,011	1,729	18,304
Lumber - Treated, BF	207	569	557	267	3,409	802	1,097	612	199	7,719
Plastic and Composites, BF	388	1,387	1,847	4,178	2,995	558	2,119	7,643	1,224	22,340
Concrete / Brick / Stone / Tiles, BF	142	1,555	8,932	5,021	28,918	7,185	43,309	10,570	9,504	115,136
Total Porch Surface Material, BF	1,103	4,777	12,825	11,799	39,841	9,536	50,128	20,835	12,655	163,499