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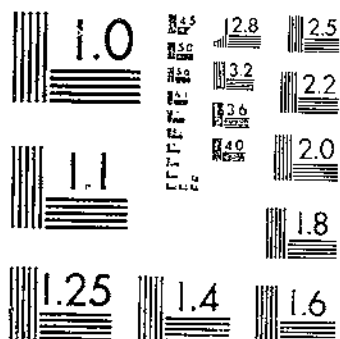
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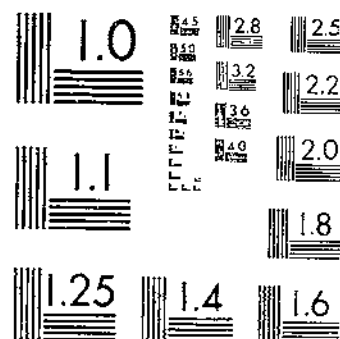
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A



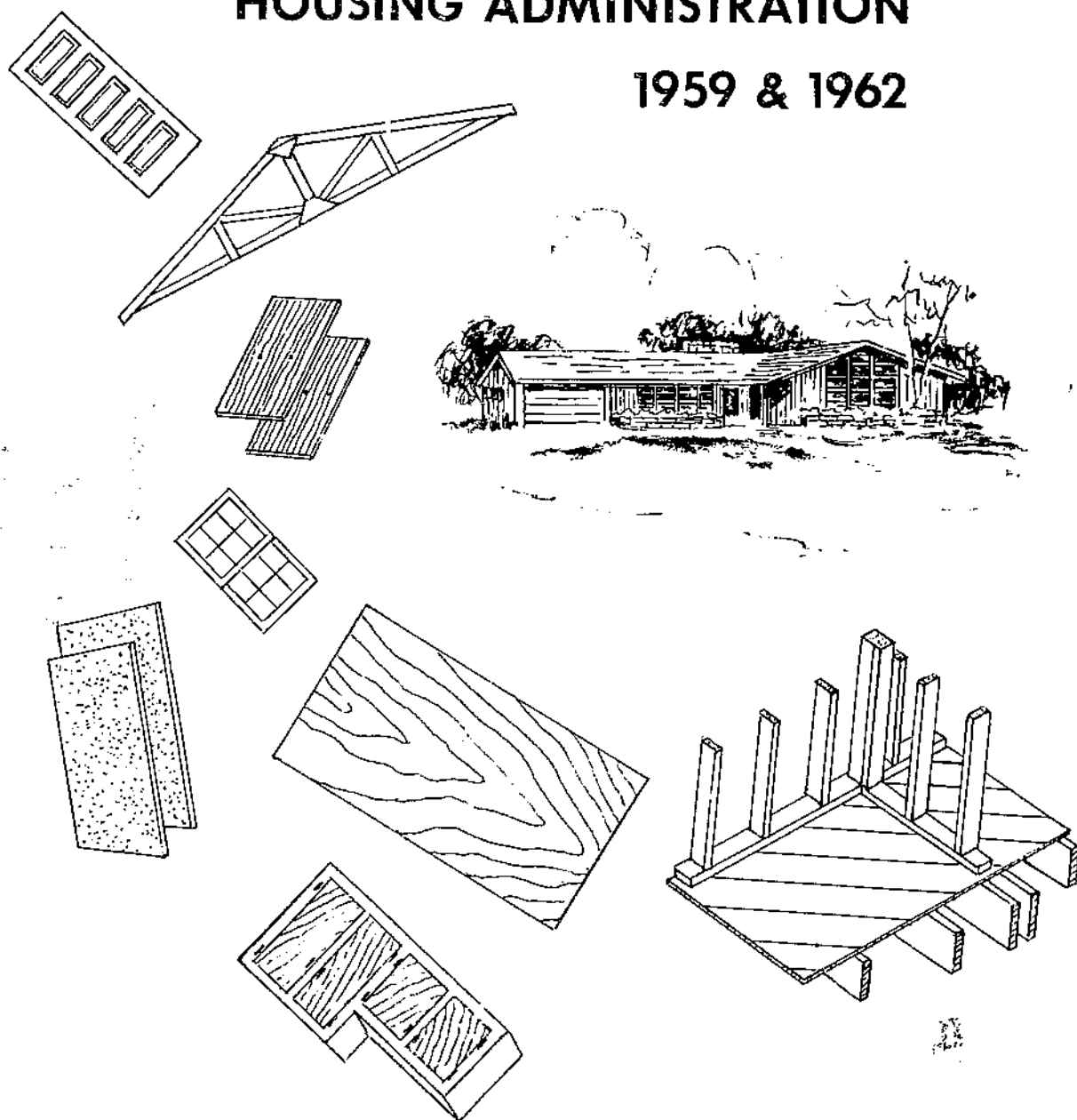
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1959 & 1962



U.S. DEPARTMENT OF AGRICULTURE • FOREST SERVICE
STATISTICAL BULLETIN NO. 366

WOOD PRODUCTS

used in

SINGLE-FAMILY HOUSES

inspected by the

FEDERAL HOUSING ADMINISTRATION 1959 and 1962

Robert B. Phelps, Market Analyst
Division of Forest Economics and Marketing Research

STATISTICAL BULLETIN NO. 366

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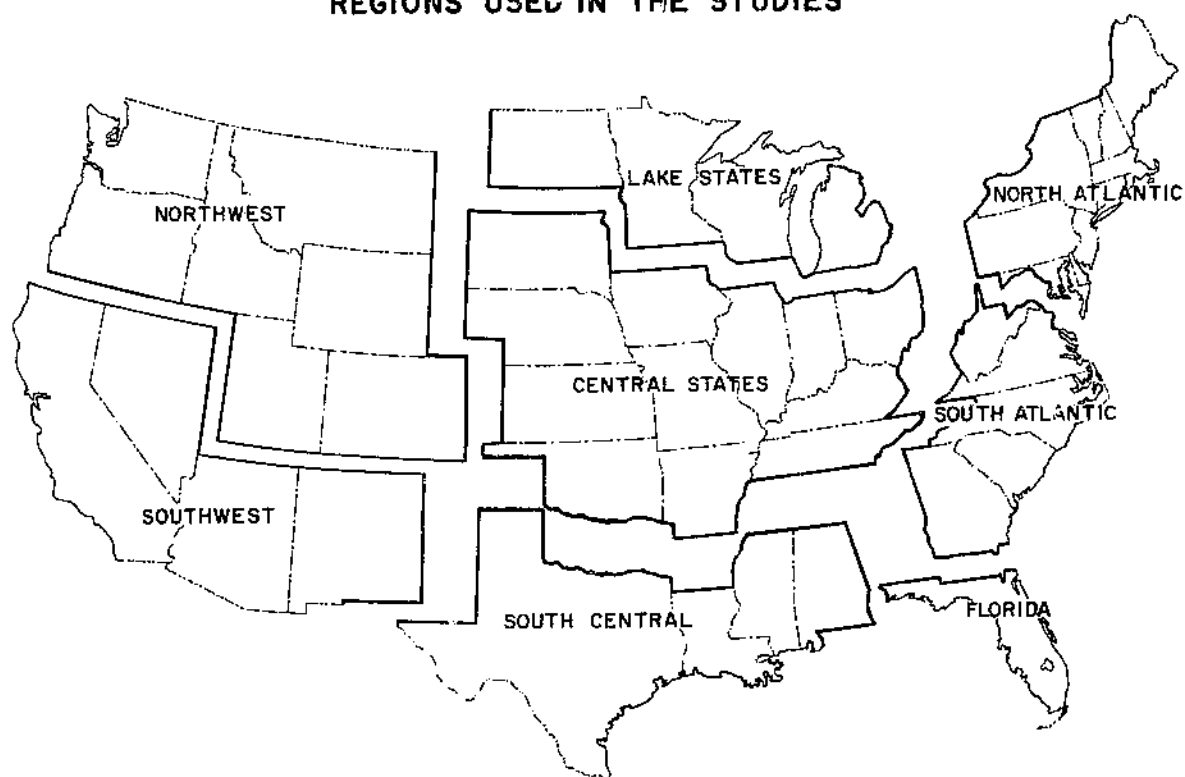
FOREST SERVICE

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REGIONS USED IN THE STUDIES



PREFACE

This bulletin presents information on the structural characteristics and the volume of wood products consumed in new single-family detached houses inspected by the Federal Housing Administration in 1959 and 1962. The wood products covered are lumber, plywood, hardboard, insulation board, particleboard, and shingles and shakes. Consumption of each of these products is shown by major end uses such as framing, sheathing, and flooring; and by major house components such as walls, roofs, and foundations. All data are presented for each of eight major geographic regions in the conterminous United States.

The information given here will be useful to industry, market research organizations, government analysts, and numerous others in evaluating the extent and location of markets for wood products and competing materials in single-family residential construction. It also provides basic data needed in analyzing trends in the use of wood products in construction, for use in periodic appraisals of the Nation's timber situation and outlook.

All data were collected and prepared as one phase of the Forest Survey, authorized by section 9 of the McSweeney-McNary Forest Research Act of 1928, as amended. This act authorized and directed the Secretary of Agriculture to cooperate with State and other agencies "in making and keeping current a comprehensive survey of the present and prospective requirements for timber and other forest products. . . ."

The author and the Forest Service are indebted to personnel at all levels in both the headquarters and field organizations of the Federal Housing Administration for their help and cooperation and especially to Robert J. Miller of the headquarters staff.

Within the Forest Service special acknowledgment is made to David E. Herrick for help in planning and conducting the surveys and to David J. Neebe for developing the necessary computer programs for data compilation. The help of personnel at the Forest Service's experiment stations who obtained information is gratefully acknowledged. Daniel Cohen, formerly with the Forest Service, was responsible for the 1959 survey in its early stages.

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INTRODUCTION

Residential construction is the largest single market for lumber, plywood, and other wood-base panel products. In 1962, an estimated 14 billion board feet of lumber, 4.2 billion square feet (3/8-inch basis) of plywood, and 1.6 billion square feet (1/2-inch basis) of building board were used in the construction of 1,605,600 new single-family and multifamily housing units and mobile homes. Single-family houses, which comprised about three-fifths of all units built, consumed an estimated 80 percent of the lumber and building board and almost 75 percent of the plywood used for new housing unit construction.

Most of the single-family houses started each year (more than 97 percent in 1962) are privately owned, but many of these houses are affected by one or more of the Federal Government's housing programs. One of the most important of these programs is administered by the Federal Housing Administration (FHA) of the Department of Housing and Urban Development. FHA, under authority of the National Housing Act of June 27, 1934, as amended, operates housing loan insurance programs designed to encourage improvement in housing standards and conditions, to facilitate sound home financing on reasonable terms, and to exert a stabilizing influence in the mortgage market. The FHA makes no loans and neither plans nor builds housing.

To obtain a FHA commitment for mortgage insurance, a house must be built in accordance with FHA-accepted construction methods and materials as outlined in FHA's Minimum Property Standards, Engineering Bulletins, Materials Releases, or Use of Materials Bulletins. Compliance is determined during a series of inspections by the FHA at various stages of construction.

In 1959 approximately 332,470 new dwelling units were started with FHA inspection. This was about 22 percent of the private units started that year. In 1962 there were approximately 260,850 new starts with FHA inspection—about 18 percent of the total private housing starts. In addition, during both years, all Veterans Administration mortgage-insured residences were built according to FHA's Minimum Property Standards, releases, and bulletins, even though these houses were inspected by VA personnel.

Of the total starts receiving FHA's first compliance inspection during each year, it is estimated that about 87 percent in 1959 and 68 percent in 1962 were one-family detached structures built in the conterminous United States. These units—289,075 in 1959 and 176,327 in 1962—represented about 23 and 18 percent, respectively, of the private single-family units started each year and composed the universe for which data were collected.

In the survey of 1959 starts (made in 1960), the conterminous United States was divided into eight regions (see frontispiece) consisting of blocks of contiguous States, in which the characteristics of the houses appeared to be similar. A sample of FHA offices was selected in each region, consisting of all FHA offices that had processed more than 10,000 inspection applications in 1958, plus a random selection of the remainder. In total, the sample included 30 of the 71 offices then in existence.

At each of the sample offices, houses were classified into construction types on the basis of characteristics such as number of stories, kind of foundations, and exterior wall construction. Similar information was obtained from the FHA field offices not in the sample. Wood use by construction type, derived from FHA records in the original sample of offices, was then used to calculate consumption of wood products for each end use and house component.

In the study of 1962 starts (made in 1963), information on construction characteristics and the estimated change between 1959 and 1962 in house floor area and in wood products use in components such as sheathing, subflooring, and finish flooring was obtained by a mail questionnaire sent to all FHA offices. These data were used to classify the houses inspected in 1962 by house construction types similar to those used in the earlier survey, and to calculate wood products consumption by end use and house component for each region.

The use of figures throughout this bulletin stating quantities to the nearest board foot, tenth board foot, etc., does not mean that the data have this degree of accuracy. They are shown in this form to illustrate differences in use between geographic regions and between houses with various construction characteristics.

CONSTRUCTION CHARACTERISTICS

This section of the report presents information on the construction characteristics of new single-family detached houses receiving a first-compliance inspection by the FHA in the conterminous United States in 1959 and 1962. These characteristics are important determinants of the amounts and types of wood products used in the construction of each unit.

Most of the houses inspected were one-story structures

In 1962, about 82 percent of the FHA units inspected were one-story structures (table 1,¹ fig. 1). Another 10 percent were split level, and 8 percent one and one-half or two stories. These percentages were somewhat different in 1959 when one-story structures accounted for about 88 percent of the units inspected; split level units, 9 percent; and one and one-half- or two-story houses, 3 percent.

One-story houses predominated in all regions but their relative importance varied greatly. They were most popular in the Southwest, where they composed 95 percent of the units inspected in 1962. In contrast, they accounted for 63 percent of the units inspected in the North Atlantic region.

Most houses had basement or crawl space

In both 1959 and 1962 about three-fifths of the houses inspected were built on nonslab foundations, i.e., with basement or crawl space, and two-fifths on concrete slabs. During both years foundation types varied greatly among regions. In general, nonslab foundations were preferred in the northern regions, especially the Northwest, where they were used in nearly 100 percent of the units inspected. Slab foundations on the other hand were most widely used in the Southern regions,

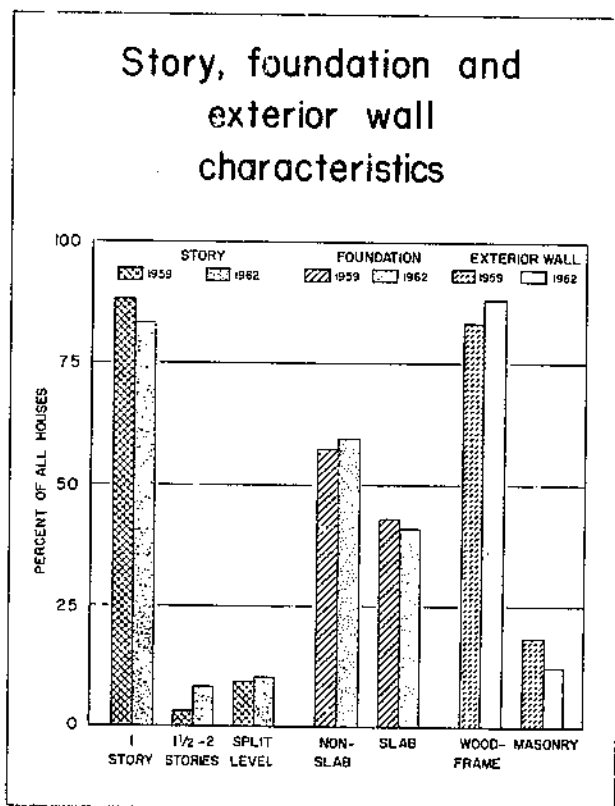


Figure 1.

particularly in Florida and the South Central region, where about 90 percent of the inspected units were built on such foundations.

Nearly 9 of 10 houses had wood-frame exterior walls in 1962—most used wood sheathing but nonwood siding

In 1959 and 1962, 82 and 88 percent, respectively, of all the houses inspected had wood-frame exterior walls (table 1, fig. 1). In several regions

¹ Tables are presented in the appendix.

100 percent of the houses had this kind of exterior walls. In Florida, however, wood frames were used on only 8 percent of the units, with masonry accounting for the remainder.

About two-thirds of the houses with wood frames were sheathed with wood materials during both study years. This percentage varied among regions, ranging in 1962 from a high of about 97 percent in the Lake States to a low of 14 percent in the Southwest.

Fiberboard was used as sheathing on 46 percent of the wood-frame houses inspected in 1962. Plywood was used on another 17 percent and lumber on 3 percent. This latter figure was significantly lower than in 1959, when lumber was the exterior wall sheathing on 10 percent of the wood-frame houses inspected.

Wood siding materials (lumber, plywood, fiberboard, shingles and shakes, and mixed types) were used on 36 percent of the houses with wood-frame exterior walls in 1962 (fig. 2). This was about 8 percent less than in 1959, when 44 percent of such units had wood siding. The decline occurred in all regions except Florida, and was particularly rapid in the Lake States, Central States, and South Central region.

Within the wood siding types, lumber, fiberboard, and shingles and shakes were used most. In most regions there were decreases in the percentage of houses with lumber siding and shingle or shake siding between 1959 and 1962, and increases in those with fiberboard or nonwood siding.

Floor area per house averaged 1,223 square feet in 1962—7 percent more than in 1959

The floor area of the houses inspected in 1962 averaged about 1,223 square feet—80 square feet more than in 1959 (table 2). Among the regions in 1962 the average ranged from 1,112 square feet in the Lake States to 1,302 square feet in the Southwest.

One and one-half- or two-story houses in 1962 had an average floor area of 1,563 square feet, substantially more than the 1,369 square feet for split level houses, and the 1,170 square feet for one-story units. There was little difference, however, between the size of houses constructed on slab foundations and those built with basement or crawl space. Units with wood-frame exterior walls were also about the same size as those with masonry walls.

In both study years, wood-frame houses with plywood, nonwood, and mixed siding were somewhat larger than the units with lumber, fiberboard, and shingle or shake siding.

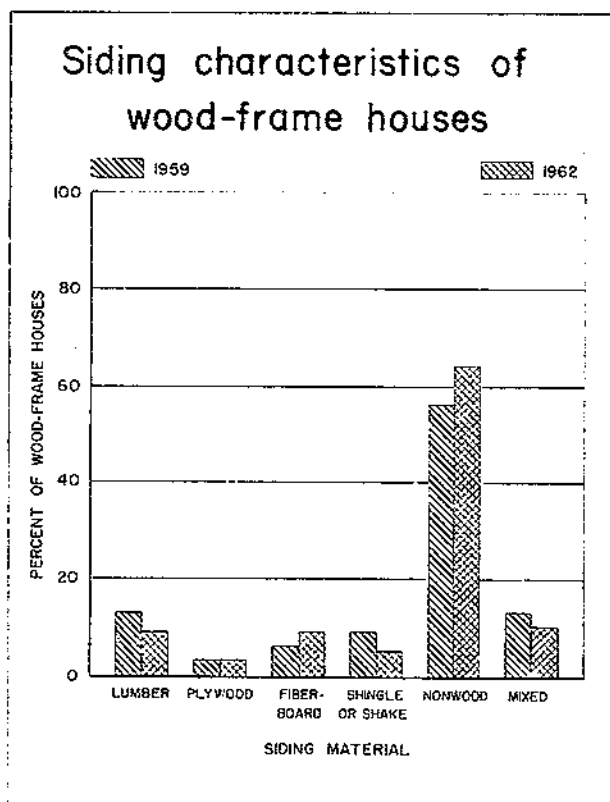


Figure 2.

Most nonslab-foundation houses had lumber subflooring in 1959—plywood subflooring in 1962

In the two study years, wood was used for subflooring in 99 percent of the nonslab-foundation houses (table 3). There were, however, important shifts in the kind of wood materials utilized. In 1959, 58 percent of the nonslab-foundation houses inspected had lumber subflooring (fig. 3). Those using plywood comprised another 41 percent of the total and units using other materials or built without subflooring 1 percent. However, by 1962 plywood was used in 55 percent of the nonslab-foundation units inspected and lumber in only 44 percent.

Among the regions there were wide variations in the kind of subflooring used. In 1962, for example, plywood was used on 77 percent of the nonslab-foundation units inspected in the Central States but on only 25 percent of those in the Southwest.

There was not much subflooring used in slab-foundation houses, except those with one and one-half or two stories. Relatively few houses with this combination of characteristics were inspected in either study year.

Subflooring and finish flooring characteristics

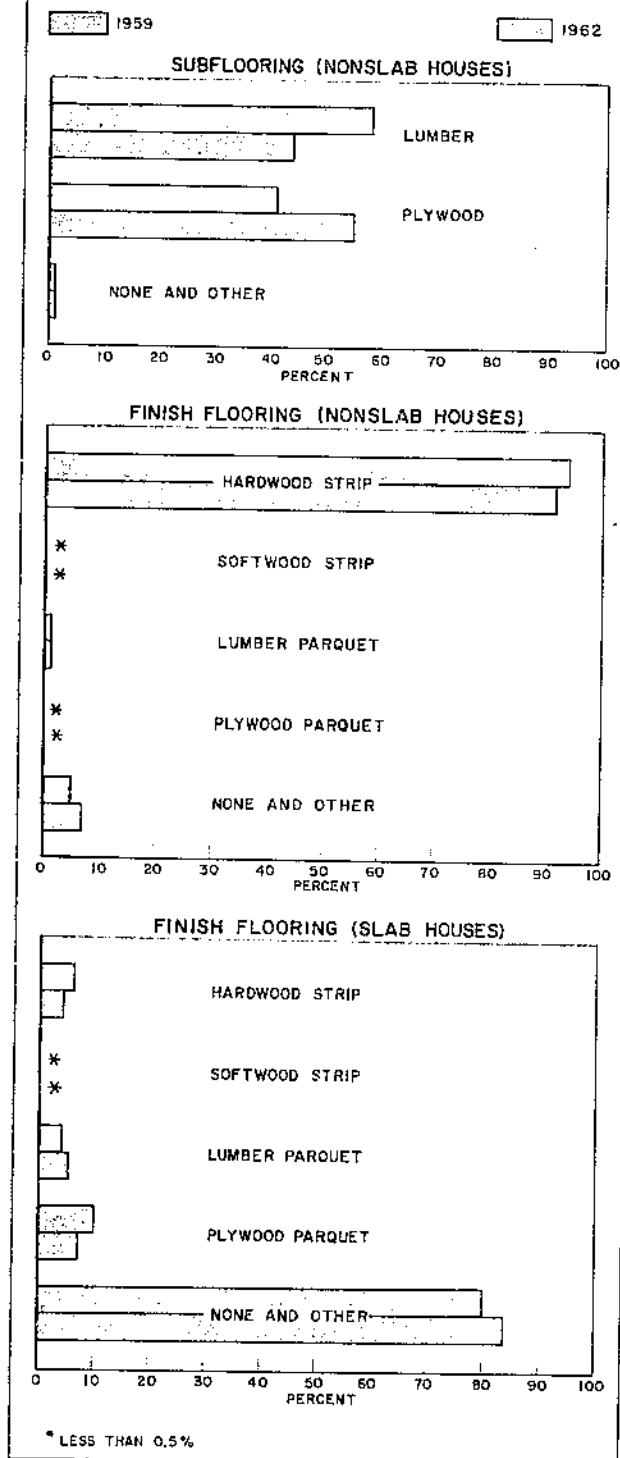


Figure 3.

Wood was used as finish flooring in more than nine-tenths of the nonslab-foundation houses

Wood, nearly all hardwood strip, was used for finish floors in the "living room-bedroom" areas of more than 90 percent of the nonslab-foundation houses inspected in both survey years. In contrast, it was the preferred finish flooring material in only about 16 percent of the slab-foundation houses inspected in 1962. The remaining houses built on slabs either had nonwood types or did not have finish flooring.

There was little regional variation in the use of wood for finish flooring. In nonslab-foundation houses, for example, it was utilized in more than 90 percent of the houses inspected in all regions except the Central States, where it was used on 85 percent of the units.

69 percent of the houses had plywood roof sheathing in 1962—19 percent more than in 1959

About 69 percent of the houses inspected in 1962 had plywood roof sheathing and 31 percent lumber (table 4). These percentages varied widely among the regions. For example, only 11 percent of the houses inspected in the North Atlantic region used lumber for roof sheathing, while it was utilized in 53 percent of the units in the Southwest.

Between the study years the percentages of houses utilizing plywood for roof sheathing rose by about 19 percent; those using lumber showed a corresponding decline. This change from lumber to plywood was evident in all regions.

Wood roof shingles were used on about 10 percent of the houses inspected in 1962—3 percent more than in 1959. In half of the study regions less than 0.5 percent of the houses were built with wood roof shingles. Most of the use was in the Southwest, with shingle roofs on about 36 percent of the units inspected.

Nearly all houses had wood kitchen cabinets

Kitchen cabinets made from lumber, plywood, hardboard, and particleboard, or combinations of these materials were used in 97 percent of the houses inspected in 1962. This proportion was slightly higher than in 1959, when 95 percent of the units had wood cabinets.

WOOD PRODUCTS USE

This section presents information on the volume of lumber, plywood, hardboard, insulation board, particleboard, and shingles and shakes used in new FHA-inspected, single-family detached houses. Information is also presented on the consumption of wood products in major end uses such as framing, sheathing, and flooring; and in major housing components such as walls, roofs, and foundations.

LUMBER

About 10,185 board feet of lumber was used per unit in 1962

In 1962 an average of 10,183 board feet of lumber was used in the houses (table 5; fig. 4). This was about 130 board feet more than in 1959, when 10,050 board feet was consumed per unit. The increase was largely due to greater average floor area (table 2), as there was a fairly substantial decline in the average use of lumber per square foot of floor area (see tabulation below). The decline in lumber use per square foot mainly resulted from the substitution of other materials, especially softwood plywood, for lumber in sheathing and subflooring (tables 1, 3, and 4).

Region	Lumber use in board feet per square foot of floor area		
	1959	1962	Change
All regions.....	8.79	8.33	-0.46
North Atlantic.....	10.36	9.25	-1.11
South Atlantic.....	10.89	9.81	-1.08
Florida.....	5.31	5.38	+0.07
Lake States.....	9.92	9.71	-0.21
Central States.....	9.26	8.58	-0.68
South Central.....	7.66	6.86	-0.80
Northwest.....	10.79	10.23	-0.56
Southwest.....	8.22	7.73	-0.49

NOTE: Includes allowances for onsite and manufacturing waste. Materials used in attached and detached garages and in carports are not included.

Lumber use per unit varied considerably among regions in both survey years. For example, in 1962 average use in houses in the South Atlantic region was 12,376 board feet, over twice the average of 6,110 board feet in Florida. Much of this difference resulted from variations in house con-

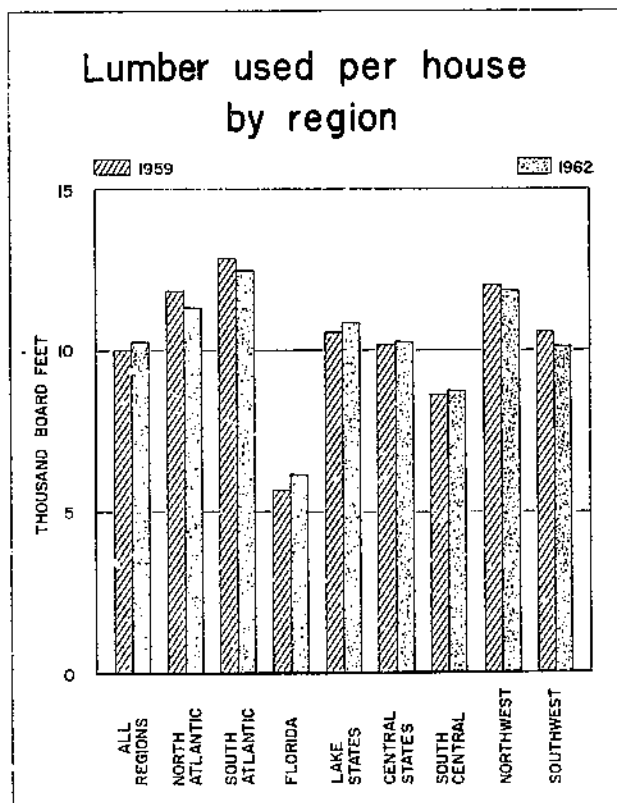


Figure 4.

struction characteristics, particularly in foundations and exterior walls.

Although there was some rise in the use of lumber per unit when all regions were combined, use in individual regions showed divergent trends between study years. In general, however, the regions with the highest use per unit in 1959 showed decreases and those with the lowest use increases.

Nearly two-thirds of the lumber used per unit was for framing

Details on the major end uses of the lumber are shown in table 5 and figure 5. In 1962 an average of 3,377 board feet was used for framing—about

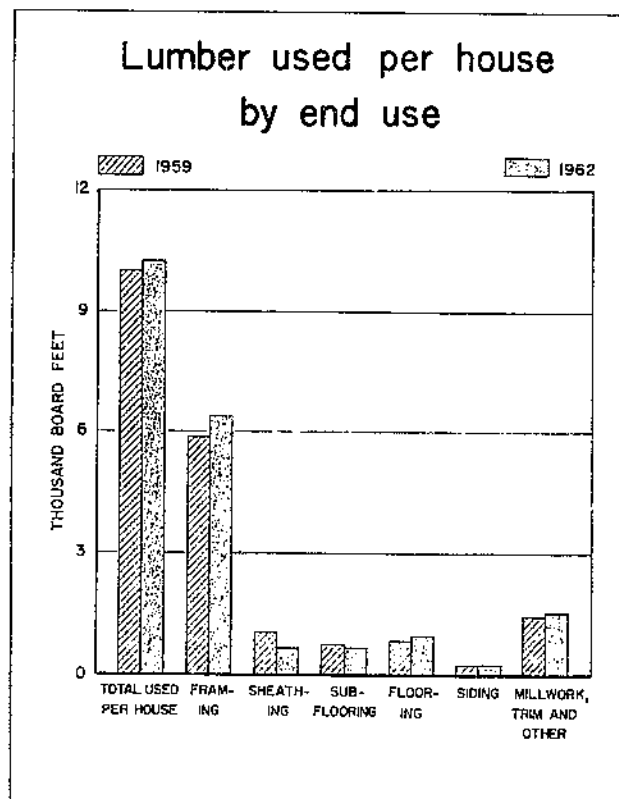


Figure 5.

8 percent more than the 1959 average of 5,890 board feet.

Of the lumber used for framing in 1962, about 1,500 board feet went into partitions and nearly 1,500 board feet into exterior walls. Of the remainder, some 1,348 board feet was used for roof framing, 1,157 board feet for floor framing, and 881 board feet for ceiling framing. In total, framing material, nearly all of which was 2 inches or more thick, composed about 63 percent of total lumber use per unit.

Houses constructed in the South Atlantic region had the largest per unit use of framing lumber—7,637 board feet in 1962—and those in Florida the smallest—4,049 board feet.

About 62 percent of the houses inspected in 1959, the only study year for which data on species use were collected, utilized Douglas fir, larch, or inland fir for framing (table 6). Southern pine composed another 22 percent of the framing lumber used, and white fir, mountain fir, western pine, spruce, cedar, redwood, and unknown species made up the remainder. The Douglas fir-larch group predominated except in Florida and the South Atlantic regions, where the southern pines were preferred.

About 15 percent of the lumber was used in millwork and trim

An average of 1,510 board feet of lumber, or about 15 percent of total per unit consumption, was used for millwork and trim items in 1962. This was about 90 board feet more than in 1959. Much of this rise was probably due to increases in average house size (table 2), with consequent increases in use of interior and exterior trim, and the number of windows, interior doors, and wood cabinets per unit. The use of lumber for millwork and trim was close to the national average in most regions. The largest use per unit was in the South Atlantic region, and the smallest was in Florida.

In 1959 ponderosa pine was used for millwork and trim on 47 percent of the houses inspected (table 7). White pine composed another 16 percent; Douglas fir, 15 percent; southern pine, 10 percent; and various hardwoods, 9 percent.

Finish flooring and subflooring accounted for 9 and 5 percent, respectively, of the lumber used per unit

Houses inspected in 1962 used an average of about 920 board feet of lumber for finish flooring—nearly 100 board feet more than in 1959 (table 5).

In 1962, the use of finish flooring per unit ranged from 1,506 board feet in the Northwest to 210 board feet in Florida. The differences in per unit use among the regions largely reflected the kinds of foundations used (slab or nonslab), although other factors such as size of unit were involved.

In addition to the lumber for finish flooring, an average of 555 board feet was used for subflooring in 1962. This was significantly less than in 1959, when 682 board feet was used per unit.

In 1962 regional differences in the use of lumber for subflooring ranged from 1,175 board feet in the Northwest to 109 board feet in Florida.

597 board feet of lumber was used for sheathing in 1962— 38 percent below the 1959 average

Per unit use of lumber for sheathing in 1962 was 597 board feet (table 5). Of this volume about 551 board feet went into roofs and 46 board feet into walls. The unit consumption of sheathing lumber in 1962 was 38 percent below that in 1959, declines in use having occurred in each of the eight regions.

Lumber sheathing use per unit in 1962 ranged from 1,149 board feet in the Southwest to 261 board feet in the North Atlantic region.

Forty-two percent of the houses which had lum-

ber sheathing in 1959 used southern pine, and 34 percent used Douglas fir, western fir, or inland fir (table 8). Most of the remainder used western pine, hemlock, white fir, and spruce. Southern pine was the most used sheathing species in five of the eight regions, and was practically the only one used in Florida and the South Atlantic region.

About a third of the lumber used goes into walls and partitions

The data on the end uses of lumber in table 5 are reorganized and shown in table 9 and figure 6 by major house component. A third of the lumber used per unit went into walls and partitions. Somewhat more than a quarter was used for roofs and ceilings, the same amount for floors and foundations, and the remainder for millwork and trim.

The average use of lumber increased in all components except roofs and ceilings, mainly because of the growth in the average size of the units. The decline in use in roofs and ceilings largely reflected the substitution of softwood plywood for lumber in roof sheathing (table 4).

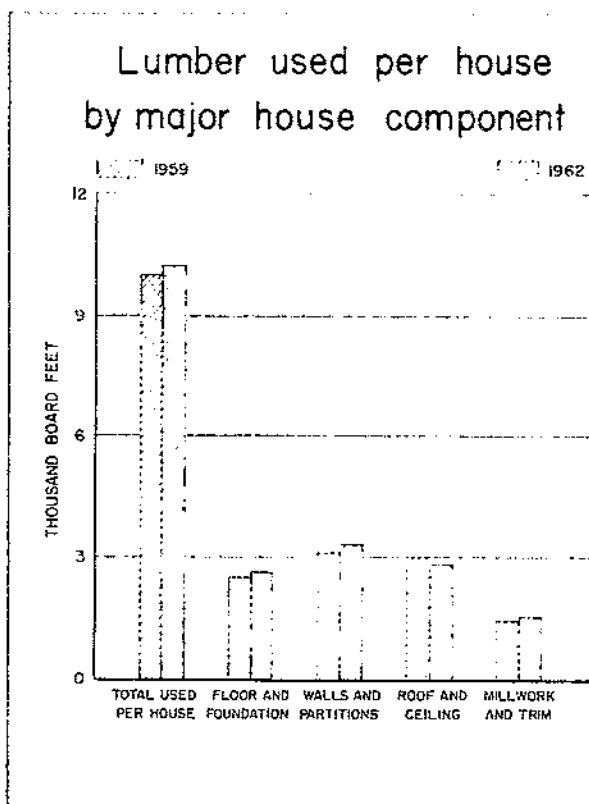


Figure 6.

Lumber used per house by house construction characteristic, 1962*

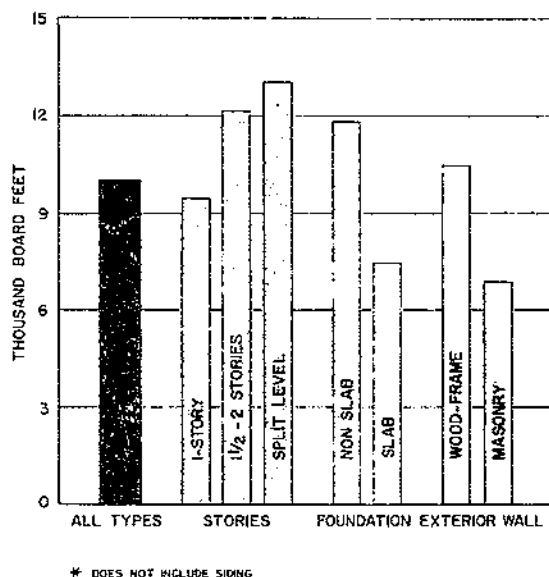


Figure 7.

Lumber use per unit largest in split level houses

The influence of construction characteristics on lumber use is illustrated in table 10 and figure 7. Lumber use per unit in split level houses—13,007 board feet in 1962—was about 40 percent more than in one-story houses and 8 percent above that in one and one-half- or two-story structures.² Average use in units with nonslab foundations was 11,823 board feet in 1962, some 60 percent more than in houses with slab foundations. Substantially more lumber was also used in units with wood-frame exterior walls than in those with masonry walls.

Trends in the average use of lumber between the study years were generally upward for all story, foundation, and exterior wall types. This mainly reflected increases in average house size (table 2) as the use of lumber per square foot of floor area declined for each type of structure in this period (table 11).

In most regions more lumber was used in split level houses and in those with nonslab foundations

² Excludes lumber used for exterior wall siding.

and wood-frame exterior walls than in the other story, foundation, and wall types. There were fairly large regional differences in lumber use for each type of structure. Generally, however, lumber use per unit was largest in the Atlantic States and smallest in Florida.

Use of lumber per square foot of floor area generally declined

The use of lumber per square foot of floor area fell about 5 percent between the study years (table 11). This decrease occurred in all types of structures and in nearly all regions.² It was mainly caused by the substitution of plywood and other panel products for lumber in sheathing and subflooring. The substitution of other materials in siding, finish flooring, and windows also had some effect.

An average of about 200 board feet of lumber was used for siding in 1962

Lumber use for siding averaged 204 board feet in the FHA-inspected dwelling units in 1962 (table 12). For wood-frame houses the average was 224 board feet—significantly more than the 52 board feet used on masonry units.

Houses classified as "frame with lumber siding" used an average of 1,710 board feet of lumber siding in 1962, and those classified in the "mixed siding" category used about 450 board feet. Houses classified in the other siding categories also used some lumber siding; however, the quantities were small.

There was some decrease in the average use of lumber siding for all houses and for all wood-frame houses between 1959 and 1962, consonant with the decrease in the proportion of houses classified as "frame with lumber siding" (table 1). For the houses in this classification, however, there was an increase in use per unit.

PLYWOOD

2,234 square feet of plywood was used per unit in 1962—about 520 square feet more than in 1959

In 1962 an average of 2,234 square feet ($\frac{3}{8}$ -inch basis) of plywood was used in the new single-family detached houses inspected by FHIA—518 square feet more than in 1959 (table 13, fig. 8).

Plywood used per house by region

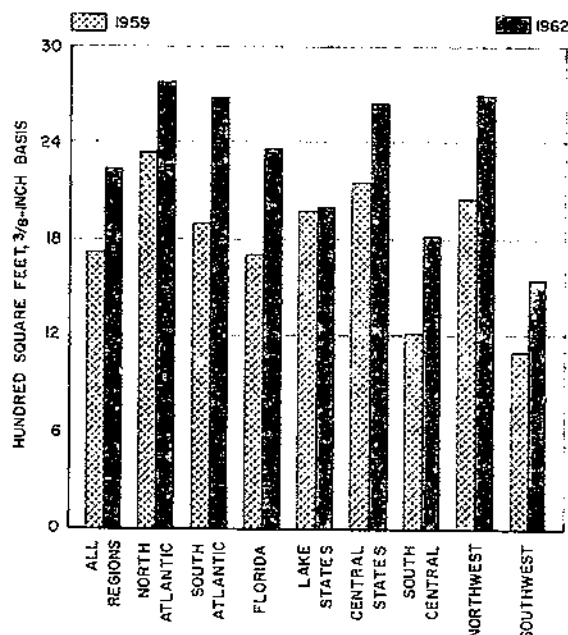


Figure 8.

The increase in use between study years was attributable in part to the growth in average house size. It was also partly caused by a 22-percent increase in average use per square foot of floor area (see tabulation below), which apparently resulted from the substitution of plywood for other materials, chiefly lumber.

Region	Plywood use per square foot of floor area (square feet, $\frac{3}{8}$ -inch basis)		
	1959	1962	Change
All regions.....	1.50	1.83	+0.33
North Atlantic.....	2.04	2.26	+ .22
South Atlantic.....	1.59	2.12	+ .53
Florida.....	1.60	2.07	+ .47
Lake States.....	1.85	1.79	— .06
Central States.....	1.97	2.22	+ .25
South Central.....	1.03	1.42	+ .34
Northwest.....	1.84	2.32	+ .48
Southwest.....	.86	1.18	+ .32

NOTE: Includes allowances for onsite and manufacturing waste. Materials used in attached and detached garages and in carports are not included.

The increase in plywood use, both in average use per house and use per square foot, occurred in all regions except the Lake States. In that region there was a small decline in use per square foot.

Regional plywood use per unit in 1962 ranged from 2,755 square feet in the North Atlantic region to 1,542 square feet in the Southwest. In most regions it was above 2,000 square feet.

More than half the plywood used per unit went into sheathing

About 55 percent of the 2,234 square feet of plywood used per unit in 1962 went into sheathing, largely roof sheathing (table 13, fig. 9). Another 21 percent was used for subflooring and underlayment, 20 percent for millwork and trim, 3 percent for siding, and 1 percent for finish flooring.

Although all end uses except finish flooring increased somewhat between study years, the rise was largest in roof sheathing and in subflooring and underlayment. Most of these increases resulted from the widespread substitution of plywood for lumber.

Houses in the South Atlantic region had the largest per unit use of plywood sheathing in 1962. Use for subflooring and underlayment was greatest in the Central States and for millwork and trim in the Southwest.

About two-fifths of the plywood consumed per unit was used in roofs and ceilings

Data on plywood use in major house components are shown in table 14 and figure 10. In both 1959 and 1962 slightly more than two-fifths of the plywood consumed per unit was used in roofs and ceilings. Somewhat more than a fifth was used in floors and foundations, and about the same proportion in millwork and trim. The remainder went into walls and partitions.

In the 1959-62 period there was an increase in plywood use in each of the major house components. Most of the change was in the roof and ceiling component, reflecting the greater use of plywood roof sheathing previously noted.

Substantially more plywood was used per unit in split level houses than in other story types

As with lumber, the largest per unit use of plywood was in split level houses (table 15, fig. 11).

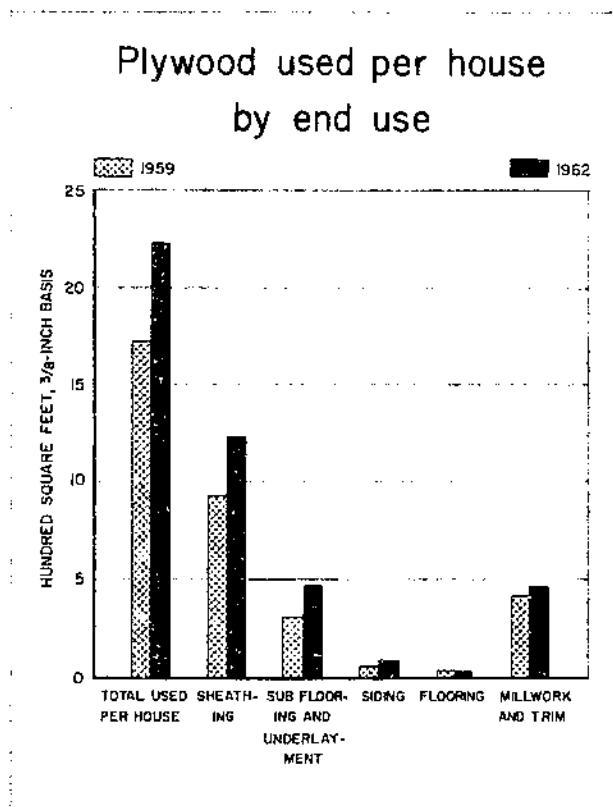


Figure 9.

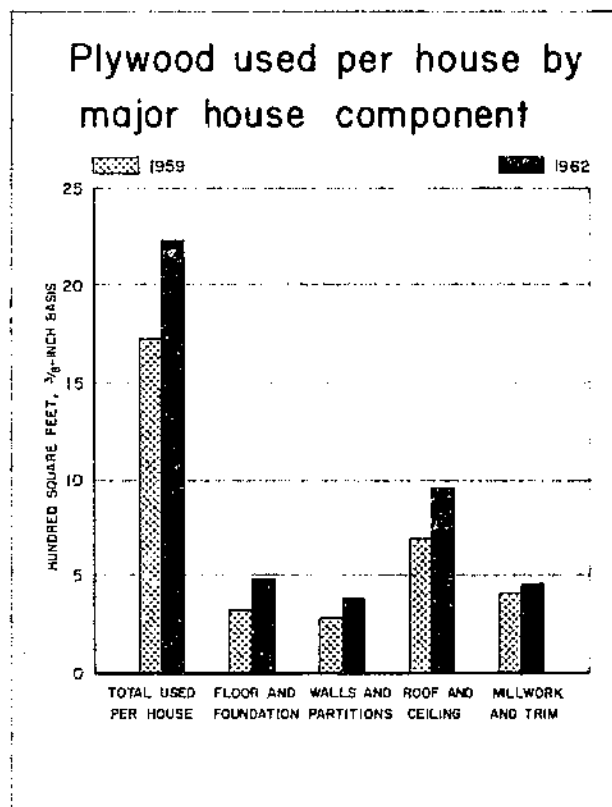


Figure 10.

Plywood used per house* by house construction characteristic, 1962

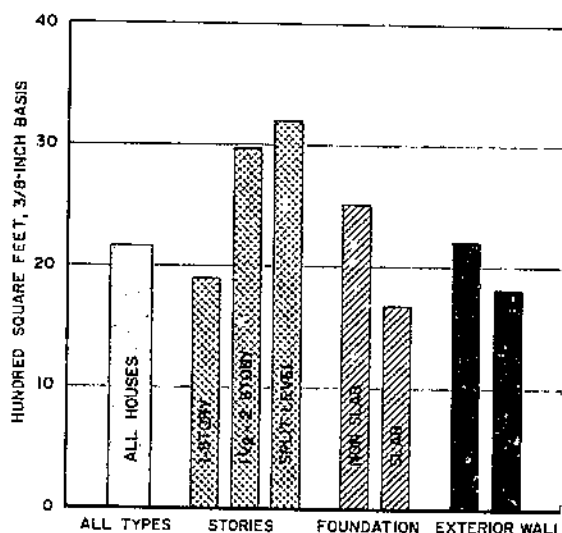


Figure 11.

In 1962 an average of about 3,234 square feet of plywood (3/8-inch basis) was consumed in such units.³ This was some 264 square feet more than was used in one and one-half- or two-story units and nearly 1,300 square feet above consumption in one-story units.

Average use in houses with nonslab foundations was about 2,508 square feet in 1962—over 800 square feet more than in houses built on slabs.

Consumption in units with wood-frame exterior walls was 2,205 square feet—some 375 square feet above those with masonry exterior walls.

The use of plywood in each type of house increased substantially between 1959 and 1962. Much of this rise was due to the substitution of plywood for other materials. Some indication of the extent of this substitution is given by the data in table 16 showing plywood use per square foot of floor area. These data show that average plywood use per square foot of floor area rose by 0.3 square foot between 1959 and 1962. This increase occurred in all types of houses but was greatest in split level and in nonslab-foundation units.

There were fairly large differences among the regions in the use of plywood per unit and in use

per square foot of floor area for each type of house construction. Plywood use per unit in 1962 ranged from 5,196 square feet for split level houses in the South Atlantic region to 1,234 square feet for slab units in the Southwest. Use per square foot of floor area ranged from over 3 square feet for one and one-half- or two-story houses in the South Atlantic region to less than 1 square foot for slab houses in the Southwest.

An average of about 75 square feet of plywood was used for siding in 1962

In 1962 an average of about 75 square feet of plywood was used for siding (table 17). For wood-frame houses, average use was about 80 square feet—more than twice the 35 square feet used on masonry units.

Plywood siding use per unit was rather small for all houses except those classified as "wood-frame with plywood siding." In 1962 use in such units averaged about 1,900 square feet and ranged from 2,802 square feet in the Southwest to 1,415 square feet in the Lake States.

Use of plywood siding increased for houses in each siding classification, but especially for plywood-sided houses, where average use increased by 228 square feet.

HARDBOARD⁴

Hardboard use was 492 square feet per unit in 1962

An average of 492 square feet (1/8-inch basis) of hardboard was used in the single-family, detached houses inspected by the FHA in 1962—about 115 square feet more than in 1959 (table 18, fig. 12). Much of the rise in consumption was due to increase in the floor area of the units inspected, since little change occurred in the use per square foot of floor area (see tabulation below).

Region	Hardboard use per square foot of floor area (square feet, 1/8-inch basis)		
	1959	1962	Change
All regions.....	0.14	0.13	-0.01
North Atlantic.....	.15	.16	+0.01
South Atlantic.....	.10	.09	-0.01
Florida.....	.14	.14	--
Lake States.....	.11	.11	--
Central States.....	.11	.11	--
South Central.....	.11	.12	+0.01
Northwest.....	.17	.17	--
Southwest.....	.19	.17	-0.02

NOTE: Includes allowance for onsite and manufacturing waste. Materials used in attached and detached garages and in carports are not included.

⁴ Includes all fiberboards with a density of more than 26 pounds per cubic foot.

³ Excludes plywood used for exterior wall siding.

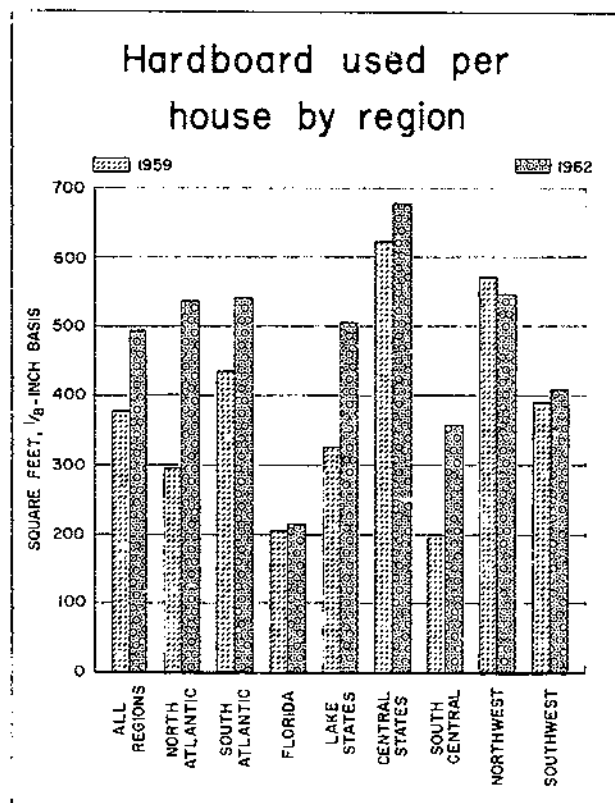


Figure 12.

Per unit use of hardboard varied substantially among regions, ranging in 1962 from 679 square feet in the Central States to 212 square feet in Florida.

Average use of hardboard showed fairly rapid growth in most regions between studies. There was, however, a small decrease in use per unit in the Northwest and little change in Florida and the Southwest.

Nearly two-thirds of the hardboard used per unit in 1962 went into walls and partitions

In 1962 almost two-thirds of the hardboard used per unit went into walls and partitions (table 18, fig. 13). Nearly all of the remainder was used for millwork and trim. Very small quantities were used in floors and foundations and roofs and ceilings.

Between the study years hardboard consumption in walls and partitions increased by about

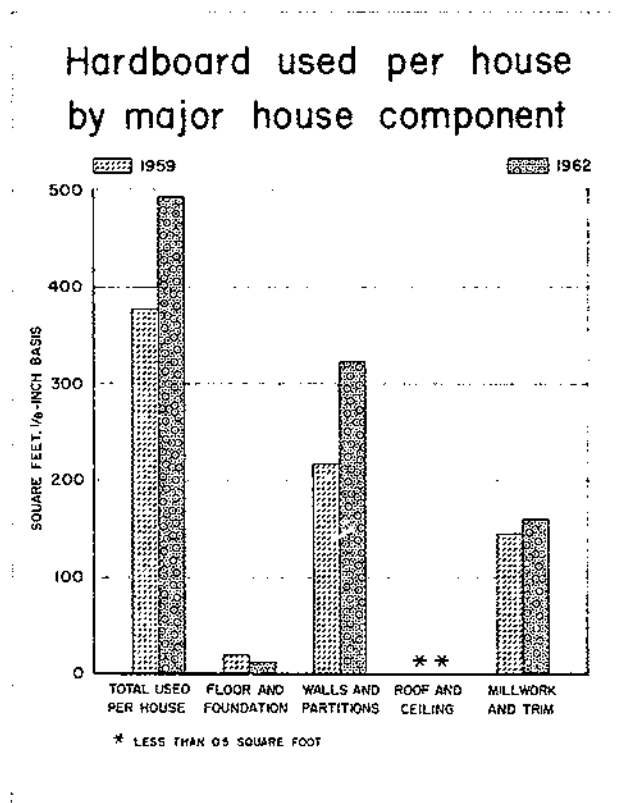


Figure 13.

50 percent. Nearly all of this increase was due to growth in use for siding.

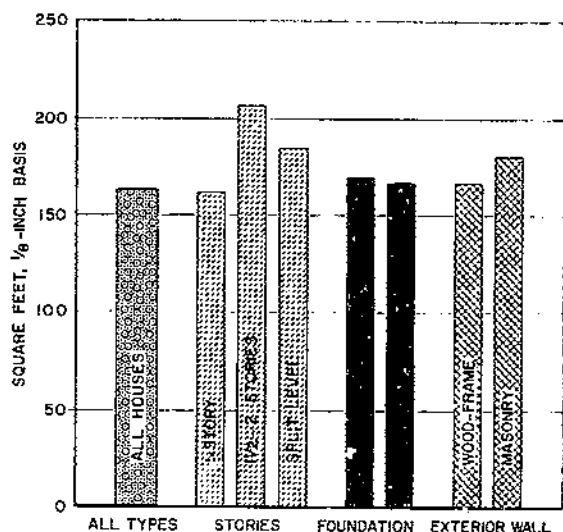
Some variation occurred in the use of hardboard between story types but not between other construction types

Hardboard use in one and one-half- or two-story houses in both study years was somewhat more than in split level units and considerably higher than in one-story units* (table 19, fig. 14). However, there was little difference in the average use of hardboard between houses with nonslab and slab foundations and those with frame and masonry walls.

There was also little change in the use of hardboard between 1959 and 1962 among most types of houses. The only significant change occurred in one and one-half- or two-story units, where consumption per unit rose from 157 to 207 square feet.

* Does not include hardboard used for exterior wall siding.

Hardboard used per house* by house construction characteristic, 1962



* DOES NOT INCLUDE SIDING

Figure 14.

Hardboard siding use averaged 323 square feet in 1962

An average of 323 square feet of hardboard siding was used in 1962—slightly over 100 square feet more than in 1959 (table 20). For houses with wood-frame exterior walls, average use was 356 square feet—about 5 times that in masonry units.

Houses classified as frame with “fiberboard siding” in 1962 used 3,600 square feet of hardboard siding per unit.⁶ About 146 square feet of hardboard siding was consumed per unit in wood-frame houses with “mixed siding” and somewhat less for those classified as having “nonwood” and “shingle and shake” siding. Practically none was used on lumber- or plywood-sided houses.

In general, the use of siding per unit in each region followed the pattern for all regions combined. An exception was the large volume used on houses with “mixed siding” in Florida.

⁶ The large square foot usage is partly due to the inclusion of medium-density fiberboard on a 1/8-inch thickness basis.

INSULATION BOARD

An average of 750 square feet of insulation board was used per unit in 1962

Insulation board use in the new single-family detached houses inspected by the FHA in 1962 averaged 750 square feet (1/2-inch basis)—148 square feet above unit use in 1959 (table 21, fig. 15). The rise between the study years chiefly reflected growth in the average size of units inspected and a small increase in the use of insulation board per square foot of floor area (see tabulation below).

Region	Insulation board use per square foot of floor area (square feet, 1/2-inch basis)		
	1959	1962	Change
All regions	0.53	0.61	+0.08
North Atlantic	.33	.40	+.07
South Atlantic	.75	.92	+.17
Florida	.08	.07	-.01
Lake States	1.40	1.49	+.09
Central States	.71	.80	+.09
South Central	.88	1.03	+.15
Northwest	.71	.63	-.08
Southwest	.10	.08	-.02

NOTE: Includes allowance for onsite and manufacturing waste. Materials used in attached and detached garages and in carports are not included.

Insulation board used per house by region

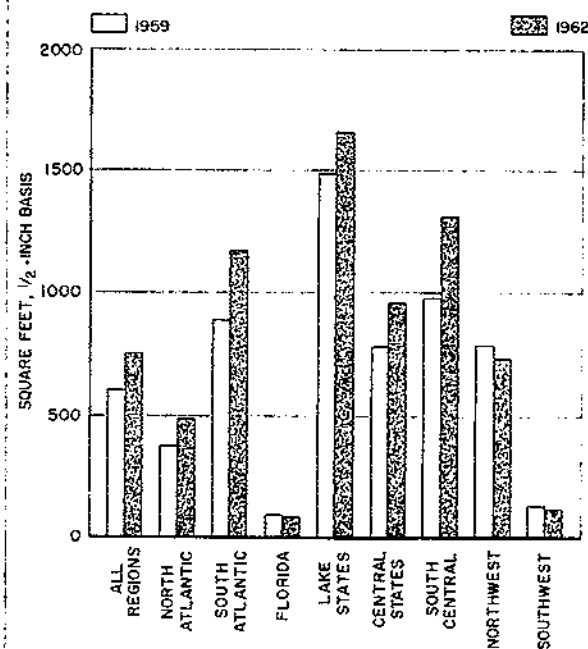


Figure 15.

Most of the growth in the use of insulation board per square foot of floor area occurred in the South Central and South Atlantic regions.

Nearly all of the insulation board used went into exterior wall sheathing

In both 1959 and 1962 more than 95 percent of the insulation board consumed per house was used in walls and interior partitions—nearly all for exterior wall sheathing (fig. 16). In addition, 30 square feet of insulation board was used per unit in roofs and ceilings in both study years, and very small quantities, less than 0.5 square foot in most regions, were used in floors and foundations and millwork and trim.

More insulation board was used in split level units than in other story types

Consumption of insulation board in split level houses averaged 859 square feet in 1962. This was

about 100 and 300 square feet, respectively, above average use in one-story and one and one-half- or two-story units (table 22, fig. 17). Use in nonslab and slab-foundation houses averaged 766 and 730 square feet, respectively. In contrast, per unit consumption in houses with wood-frame exterior walls was 840 square feet—10 times that in units with masonry walls.

Except for houses with masonry walls, use of insulation board in each type of house increased considerably between study years. This mostly reflected the substitution of insulation board for other exterior wall sheathing materials, principally lumber (table 1) and the increases in unit size (table 2). Some idea of the extent of the substitution is given by the data on average use of insulation board per square foot of floor area presented in table 23.

There were substantial differences in consumption of insulation board per unit and per square foot of floor area among the regions. By far the largest amounts were used in the Lake States, and the smallest amounts in Florida and the Southwest.

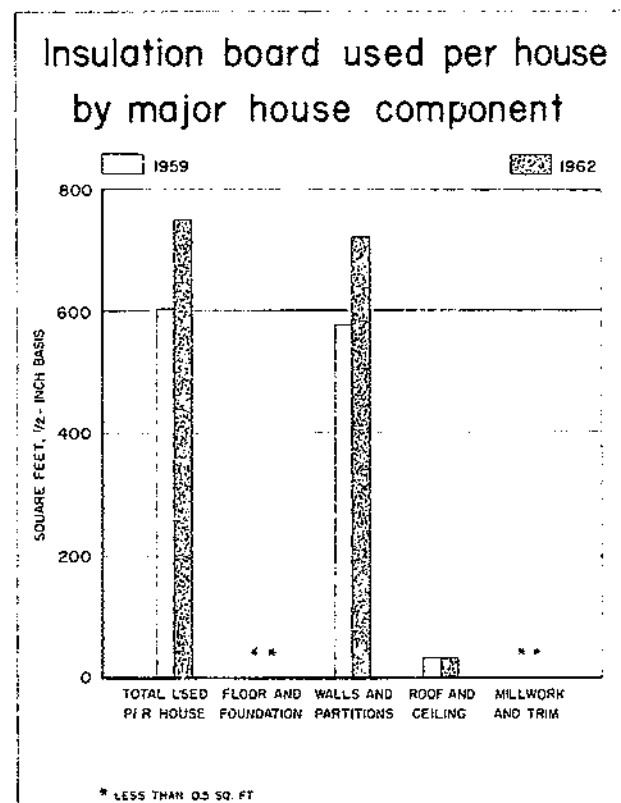


Figure 16.

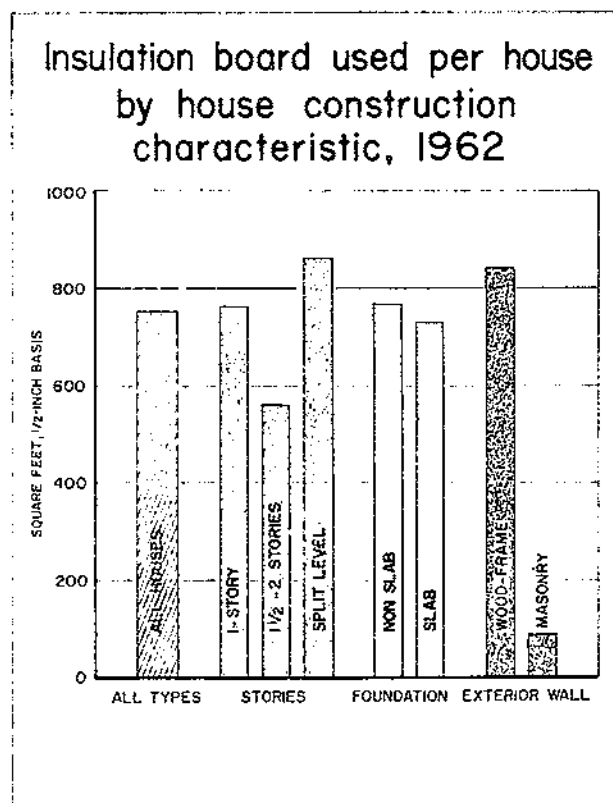


Figure 17.

PARTICLEBOARD

Particleboard use averaged 70 square feet per unit in 1962

Seventy square feet ($\frac{3}{4}$ -inch basis) of particleboard was used in the single-family detached houses inspected by FHA in 1962—about 20 square feet above average use in 1959 (table 24, fig. 18). Much of this rise was apparently due to the increase in the average size of units inspected. The small increase in average use per square foot of floor area, especially in the Southwest (see tabulation below), also contributed.

Region	Particleboard use per square foot of floor area (square feet, $\frac{3}{4}$ -inch basis)		
	1959	1962	Change
All regions	0.04	0.06	+0.02
North Atlantic	.03	.03	-----
South Atlantic	.03	.02	-.01
Florida	.04	.04	-----
Lake States	.03	.03	-----
Central States	.04	.04	-----
South Central	.04	.04	-----
Northwest	.04	.05	+.01
Southwest	.07	.12	+.05

NOTE: Includes allowances for onsite and manufacturing waste. Materials used in attached and detached garages and carports are not included.

Particleboard consumption in most regions was less than 50 square feet per unit in 1962. The largest use was in the Southwest, where it averaged 160 square feet.

Most of the particleboard used per unit went into millwork and trim—use in floors and foundations increased most

In both 1959 and 1962 most of the particleboard consumed was used for millwork and trim, largely as core material in counter tops and cabinets (table 24; fig. 19). However, nearly all of the increase in consumption per unit between study years went into floors and foundations, primarily as underlayment.

No significant quantities of particleboard were used in walls and partitions and roofs and ceilings in either of the study years.

Use of particleboard varied among the different types of houses

As shown in table 25 and figure 20, use of particleboard varied somewhat among the different

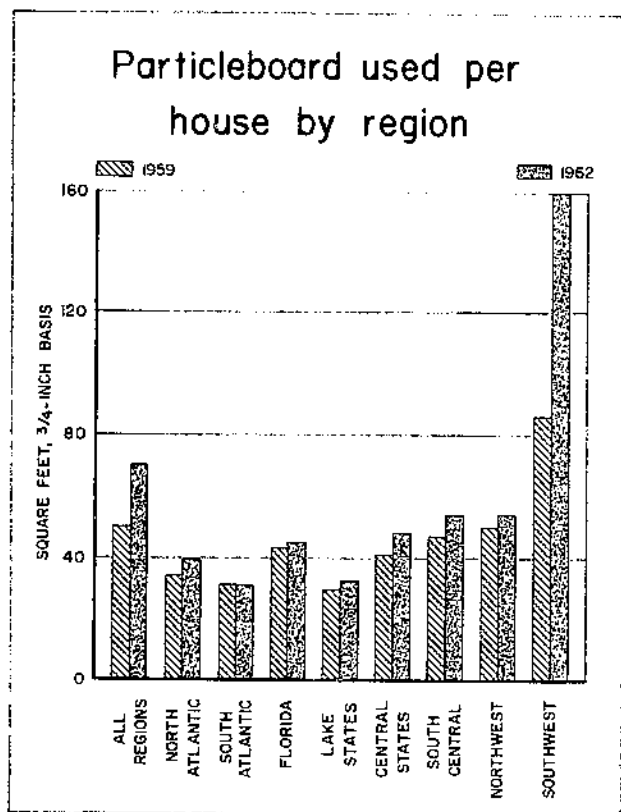


Figure 18.

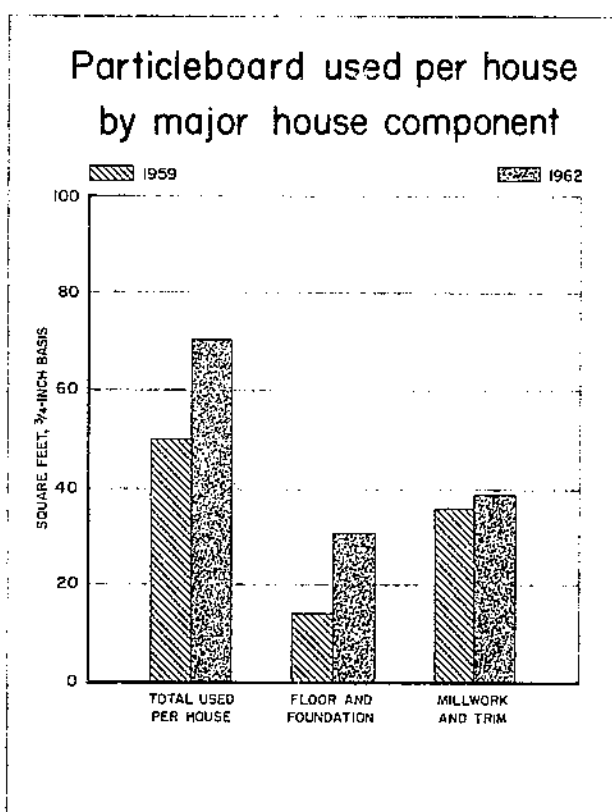


Figure 19.

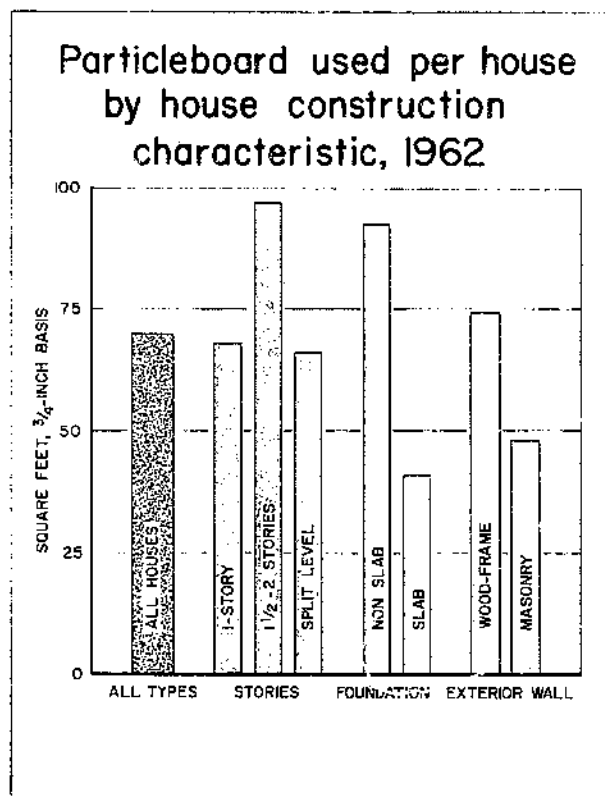


Figure 20.

types of houses. In 1962 average use per unit was largest in one and one-half- or two-story units and in houses with nonslab foundations and those with wood-frame exterior walls.

All types of units showed some growth in average use of particleboard between the survey years. These increases were largest in the Southwest, where use in nearly all types of houses was far above that in other regions.

SHINGLES ⁷

About 3 squares of shingles was used per unit in 1962—mostly for roofs

An average of 3 squares of shingles was used in 1962 (table 26, fig. 21). This was about 30 percent higher than in 1959, when about 2.3 squares was used per unit. Consumption in the Southwest, equivalent to about 5.8 squares per unit in 1959 and 8.5 squares in 1962, was far above that of other regions.

Most of the shingles used in both years went into roofs (fig. 22). This largely reflected the situation

⁷ Includes shakes.

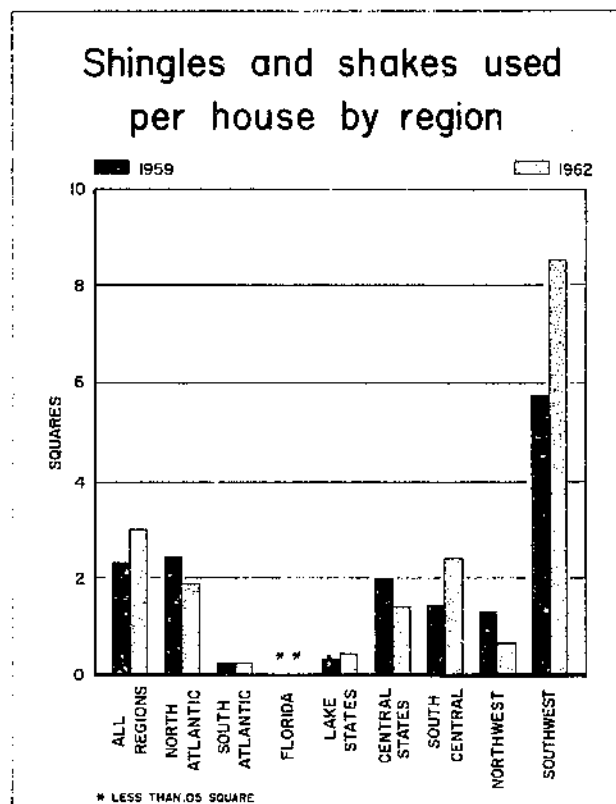


Figure 21.

in the Southwest, where nearly all of the shingles consumed were for this purpose. In contrast in some other regions, particularly in the North Atlantic and the Lake States, all or nearly all of the shingles were used as siding.

As indicated in the tabulation below, more roof shingles—an average of 3.4 squares in 1962—were used on houses with nonslab foundations than on other types. However, average use was in excess of 2.5 squares on houses with one story and on those with wood-frame exterior walls.

Construction characteristic	Roof shingle use per unit (squares)	
	1959	1962
All houses	1.4	2.4
Stories:		
1 story	1.6	2.6
1 1/2-2 stories	.7	2.3
Split level	.2	.6
Foundation:		
Nonslab	1.9	3.4
Slab	.8	1.7
Exterior wall:		
Wood frame	1.7	2.6
Masonry	.2	.5

NOTE: Shingles used in attached and detached garages and in carports are not included.

Shingles and shakes used per house by major house component

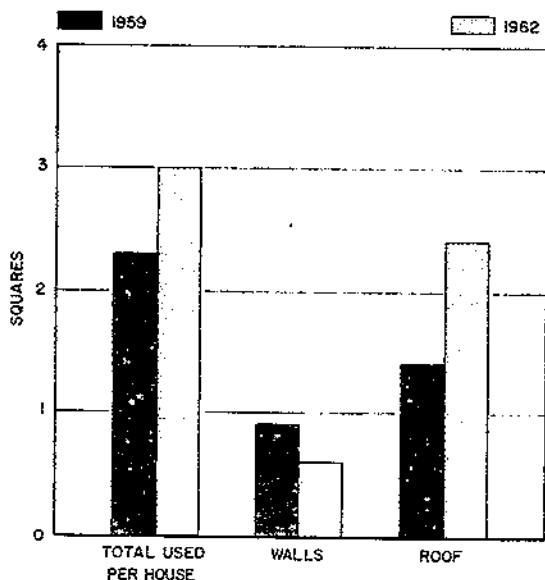


Figure 22.

An average of 10.9 squares of siding shingles was used on "shingle-sided" houses in 1962

Details on the use of shingles for siding are given in table 27. Large quantities of shingles—an average of almost 11 squares in 1962—were used on wood-frame houses with shingle siding. As would be expected, only small quantities of siding shingles were used on houses classified as having other types of siding and on those with masonry walls.

On shingle-sided, wood-frame houses, the quantity used in most regions was fairly uniform, averaging 10 to 14 squares of shingles.

APPENDIX

DEFINITIONS

Detached house.—A dwelling unit designed for occupancy by one family, the exterior walls of which are completely surrounded by permanent open space.

Dwelling unit.—A room or group of rooms providing complete living facilities for one family, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

FHA-inspected house.—A house inspected by the Federal Housing Administration to determine whether construction is in acceptable compliance with the provisions of the commitment for mortgage insurance. Commitments for insurance require the completion of construction in accordance with approved drawings and description of materials and in a manner equal to or exceeding the applicable FHA Minimum Property Standards.

Fiberboard-sided house.—A wood-frame house with 75 percent or more of the total exterior wall area covered with hardboard or medium-density wood fiberboard siding.

Floor area.—The total area of all stories or floors finished as living accommodations. This area includes bays and dormers, but does not include space in garages or carports or in attics. Measurements are taken to the outside of the exterior walls.

Framing.—Those members used in the construction of a house which provide primary structural support or integrity. In addition to special members used in unusual types of construction, wood products use was tabulated for the following items:

Ceiling.—Joists, joist hangers, bridging, headers, strongback. (Members performing the dual function of ceiling and floor framing as in two-story houses were tabulated in floor framing.)

Exterior wall.—Studs, lintels, posts, soleplates, bracing, top plates, fire stops, door and window headers.

Floor.—Sills and girders, floor joists, ledger strips, blocking, bridging, headers.

Roof.—Rafters, purlins, struts, ridge boards, headers, bracing, dormer framing.

Lumber-sided house.—A wood-frame house with 75 percent or more of the total exterior wall area covered with a type of lumber siding such as drop, bevel, or rustic.

Masonry house.—A house that has less than 75 percent of its exterior wall area constructed with use of vertical wood structural framing members (studs).

Millwork and trim.—Generally all building ma-

terials made of finished wood and manufactured in millwork plants and planing mills are included under the term "millwork." As used in this report, millwork and trim includes the following: Wood gutters, interior doors, false beams, windows, doors, cornice, porch posts and beams, shutters, louvers, kitchen cabinets, closet equipment, stairs, shelves, soffits, door panels and skins, paneling, doors for built-in garages, and miscellaneous interior and exterior trim.

Mixed-sided house.—A wood-frame house with no one siding type covering 75 percent or more of the total exterior wall area. This classification includes houses with a combination of the wood types and combinations of wood and nonwood types.

Nonslab-foundation house.—A house with either a full or partial basement or a crawl space. Houses with part basement or part crawl space in combination with a concrete slab are classified as nonslab.

Nonwood-sided house.—A wood-frame house with 75 percent or more of the total exterior wall area covered with a nonwood siding such as brick, stone, stucco, aluminum or asbestos shingles.

One- and one-half-story house.—A house having finished livable space primarily on the first floor but in addition having finished livable space located wholly or partly within the roof frame and having a floor area at least half as large as the story below. (Combined with two-story houses in this study.)

One-story house.—A house having finished livable space only on one floor.

Plywood-sided house.—A wood-frame house with 75 percent or more of the total exterior wall area covered with a type of plywood siding.

Shingle- or shake-sided house.—A wood-frame house with 75 percent or more of the total exterior wall area covered with shingles or shakes.

Slab-foundation house.—A house that rests entirely on a concrete slab laid on the ground, which provides support for the house walls and a suitable surface for other floor finishes.

Split level house.—A house construction interpreted on the basis of local custom and tending to vary from area to area, but in general having floors on more than one level, the difference between some floor levels being less than one story.

Two-story house.—A house having the living space divided almost equally between two floors and having the exterior walls continuous for the full height of two complete stories. (Combined with one- and one-half-story houses in this study.)

Wood-frame house.—A house that has 75 percent or more of its total exterior wall area constructed with use of vertical wood structural framing members (studs).

TABLES

TABLE 1.—Percent of new FHA-inspected, single-family detached houses having specified characteristics, by region, 1959 and 1962

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses:																		
Stories.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1 story.....	88	82	58	63	94	80	99	92	84	76	86	76	97	88	81	82	98	95
1½-2 stories.....	3	8	10	19	1	5	(1)	4	7	15	2	7	2	9	1	4	2	4
Split level.....	9	10	32	18	5	15	1	4	9	9	12	17	1	3	18	14	(1)	1
Foundation.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nonslab.....	57	59	94	89	87	81	6	9	89	97	65	62	21	12	100	100	45	44
Slab.....	43	41	6	11	13	19	94	91	11	3	35	38	79	88	(1)	(1)	55	56
Exterior wall.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood frame.....	82	88	93	90	99	99	8	8	100	100	95	100	91	100	84	91	80	81
Masonry.....	18	12	7	10	1	1	92	92	(1)	(1)	5	(1)	9	(1)	16	9	20	19
Wood-frame houses:																		
Exterior wall sheathing.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber.....	10	3	13	4	7	2	13	10	13	10	7	3	13	3	16	3	9	(1)
Plywood.....	17	17	38	32	21	18	27	14	11	9	17	12	7	10	32	50	4	7
Fiberboard.....	41	46	30	40	34	49	19	12	73	78	68	76	39	45	48	40	11	7
None and other.....	32	34	49	24	38	31	41	64	3	3	8	9	41	42	4	7	76	86
Siding.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber.....	13	9	5	4	9	4	9	14	27	7	17	12	17	9	33	39	1	(1)
Plywood.....	3	3	1	1	(1)	3	8	12	1	2	4	3	1	3	10	9	2	5
Fiberboard.....	6	9	2	7	5	6	13	6	7	13	17	17	1	4	13	11	2	4
Shingle or shake.....	9	5	20	16	2	2	(1)	4	2	3	13	5	10	1	10	8	2	1
Nonwood.....	56	64	64	66	73	81	51	49	51	70	38	55	47	62	28	28	79	81
Mixed.....	13	10	8	6	11	4	19	15	12	5	11	8	24	21	6	5	14	9

NUMBER OF HOUSES

All houses.....	289, 075	176, 327	43, 328	26, 575	17, 445	10, 527	27, 991	9, 890	22, 456	12, 949	53, 335	37, 433	46, 585	26, 501	15, 191	14, 019	62, 744	38, 433
Wood-frame houses.....	238, 401	155, 603	40, 263	24, 001	17, 229	10, 453	2, 076	853	22, 455	12, 949	50, 621	37, 267	42, 412	26, 423	12, 825	12, 733	50, 520	30, 944

¹ Less than 0.5 percent.

TABLE 2.—Average floor area of new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962
[Square feet]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	1, 143	1, 223	1, 142	1, 217	1, 177	1, 262	1, 055	1, 135	1, 061	1, 112	1, 088	1, 191	1, 122	1, 270	1, 109	1, 154	1, 274	1, 302
Stories:																		
1 story.....	1, 129	1, 170	1, 047	1, 085	1, 160	1, 158	1, 054	1, 107	1, 027	1, 063	1, 069	1, 127	1, 119	1, 219	1, 101	1, 096	1, 274	1, 281
1½-2 stories.....	1, 239	1, 563	1, 336	1, 490	1, 149	1, 479	(¹)	1, 479	1, 392	1, 389	1, 075	1, 613	1, 278	1, 706	1, 176	1, 548	1, 230	1, 723
Split level.....	1, 236	1, 369	1, 255	1, 395	1, 528	1, 700	1, 149	1, 433	1, 122	1, 049	1, 237	1, 301	1, 195	1, 451	1, 143	1, 374	(¹)	1, 563
Foundation:																		
Nonslab.....	1, 145	1, 214	1, 145	1, 212	1, 186	1, 281	1, 172	1, 318	1, 064	1, 117	1, 095	1, 177	1, 126	1, 309	1, 110	1, 154	1, 263	1, 334
Slab.....	1, 142	1, 236	1, 087	1, 267	1, 109	1, 180	1, 047	1, 107	1, 048	953	1, 076	1, 215	1, 122	1, 261	(¹)	(¹)	1, 284	1, 278
Exterior wall:																		
Wood frame.....	1, 141	1, 228	1, 135	1, 214	1, 175	1, 284	1, 060	1, 239	1, 061	1, 112	1, 089	1, 191	1, 113	1, 271	1, 104	1, 160	1, 255	1, 310
Masonry.....	1, 157	1, 191	1, 229	1, 253	(¹)	(¹)	1, 055	1, 125	(¹)	(¹)	1, 078	(¹)	1, 215	(¹)	1, 136	1, 093	1, 352	1, 270
Siding (frame houses only):																		
Lumber.....	1, 081	1, 150	1, 107	1, 166	1, 200	1, 252	1, 161	1, 262	1, 046	1, 072	1, 046	1, 160	1, 071	1, 174	1, 133	1, 126	1, 273	(¹)
Plywood.....	1, 177	1, 303	1, 083	1, 212	(¹)	1, 252	1, 057	1, 226	1, 012	1, 081	1, 052	1, 202	1, 045	1, 236	1, 114	1, 122	1, 615	1, 634
Fiberboard.....	1, 107	1, 170	1, 135	1, 235	1, 207	1, 249	946	1, 094	1, 036	1, 051	1, 098	1, 144	1, 169	1, 355	1, 089	1, 091	1, 294	1, 293
Shingle or shake.....	1, 086	1, 117	1, 097	1, 113	974	1, 235	(¹)	(¹)	1, 197	1, 284	1, 074	1, 089	1, 088	(¹)	1, 048	1, 045	1, 109	1, 134
Nonwood.....	1, 161	1, 244	1, 134	1, 232	1, 195	1, 269	1, 091	1, 237	1, 063	1, 120	1, 114	1, 220	1, 134	1, 278	1, 077	1, 260	1, 241	1, 286
Mixed.....	1, 160	1, 278	1, 272	1, 298	1, 039	1, 218	1, 004	1, 288	1, 092	1, 141	1, 098	1, 198	1, 113	1, 283	1, 172	1, 271	1, 298	1, 383

¹ Insufficient number of houses for meaningful estimate.

TABLE 3.—Percent of new FHA-inspected, single-family detached houses having specified subflooring and finish flooring characteristics, by region, 1959 and 1962

Characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Nonslab houses:																		
Subflooring.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber.....	58	44	58	24	52	48	81	71	63	66	47	23	68	58	65	51	88	75
Plywood.....	41	55	40	73	48	52	19	29	37	34	53	77	27	42	33	48	12	25
None and other.....	1	1	2	3	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	5	(²)	2	1	(²)	(²)
Finish flooring.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Hardwood strip.....	94	92	95	95	99	98	97	97	93	95	89	83	94	97	93	94	99	95
Softwood strip.....	(²)	(²)	(²)	(²)	(²)	1	(²)	(²)	1	1	(²)	(²)	1	1	(²)	(²)	(²)	(²)
Lumber parquet.....	1	1	2	1	(²)	(²)	(²)	(²)	(²)	(²)	(²)	2	3	(²)	(²)	(²)	(²)	(²)
Plywood parquet.....	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
None and other.....	5	7	3	4	1	1	3	3	6	4	11	15	2	2	7	6	1	5
Slab houses:																		
Finish flooring.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Hardwood strip.....	6	4	(²)	(²)	(²)	(²)	(²)	(²)	(²)	1	9	10	14	6	(²)	(²)	(¹)	(¹)
Lumber parquet.....	4	5	5	9	8	8	2	1	1	1	11	10	7	8	(²)	(²)	(¹)	(¹)
Plywood parquet.....	10	7	5	1	20	3	2	3	1	(²)	8	6	21	14	(²)	(²)	6	1
None and other.....	80	84	90	90	72	89	96	96	98	98	72	74	58	72	(²)	(²)	94	99

NUMBER OF HOUSES

Nonslab houses.....	165,606	103,026	40,885	23,744	15,229	8,552	1,836	904	19,931	12,518	34,667	23,369	9,820	3,208	15,132	14,000	28,106	16,731
Slab houses.....	123,469	73,301	2,443	2,831	2,216	1,975	26,155	8,986	2,525	431	18,668	14,064	36,765	23,293	59	19	34,638	21,702

¹ Does not apply to finish flooring use in bathrooms, kitchens, pantries, and other similar areas.

² Less than 0.5 percent.

³ Insufficient number of houses for meaningful estimate.

TABLE 4.—Percent of new FHA-inspected, single-family detached houses having specified types of roofs and kitchen cabinets, by region, 1959 and 1962

Characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Roof sheathing.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber.....	50	31	32	11	47	28	45	26	41	40	47	23	52	31	44	22	76	53
Plywood.....	50	69	68	89	53	72	54	73	59	60	53	77	48	69	56	78	23	47
Other.....	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	1	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	1	(¹)
Roofing.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood shingles.....	7	10	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	2	2	3	12	3	2	25	36
Other.....	93	90	100	100	100	100	100	100	100	100	98	98	97	88	97	98	75	64
Kitchen cabinets.....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood.....	95	97	90	97	98	93	99	100	92	98	92	94	94	98	94	99	98	99
Other.....	5	3	10	3	2	7	1	(¹)	8	2	8	6	6	2	6	1	2	1

¹ Less than 0.5 percent.

TABLE 5.—Lumber used per unit in new *FHA-inspected, single-family detached houses, by major end use and region, 1959 and 1962*

[Board feet]

Major end use	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Framing:																		
Roof.....	1,302	1,348	1,349	1,381	1,348	1,410	1,323	1,384	1,097	1,087	1,212	1,284	1,330	1,451	1,106	1,136	1,424	1,455
Ceiling.....	836	881	818	826	1,035	1,025	597	631	882	875	843	898	775	867	893	932	911	922
Partition.....	1,401	1,500	1,432	1,479	1,391	1,516	1,261	1,378	1,283	1,340	1,337	1,481	1,381	1,568	1,339	1,402	1,570	1,604
Exterior wall.....	1,298	1,491	1,543	1,620	1,598	1,734	133	220	1,496	1,562	1,438	1,645	1,192	1,499	1,254	1,383	1,465	1,521
Floor.....	1,053	1,157	1,063	2,021	1,959	1,952	327	436	1,432	1,596	1,190	1,259	359	339	1,539	1,592	643	684
Total.....	5,890	6,377	7,105	7,327	7,331	7,637	3,641	4,049	6,190	6,460	6,020	6,567	5,037	5,724	6,131	6,445	6,013	6,186
Sheathing:																		
Roof.....	834	551	510	185	508	279	412	243	315	303	572	374	995	665	953	504	1,597	1,149
Wall.....	122	46	208	76	560	155	8	19	43	35	167	77	113	34	46	10	5	(¹)
Total.....	956	597	718	261	1,068	434	420	262	358	338	739	451	1,108	699	999	514	1,602	1,149
Subflooring.....	682	555	1,061	624	1,113	1,014	80	109	777	910	426	232	244	139	1,435	1,175	898	753
Flooring.....	827	921	1,227	1,307	1,391	1,411	127	210	1,194	1,426	1,024	1,067	481	376	1,374	1,506	531	554
Siding.....	246	204	126	120	232	105	30	74	560	168	335	265	330	257	501	595	119	96
Millwork and trim.....	1,422	1,510	1,578	1,596	1,676	1,771	1,150	1,251	1,440	1,493	1,520	1,638	1,390	1,516	1,503	1,547	1,278	1,308
Other.....	27	19	16	19	3	4	151	155	1	1	9	1	3	1	23	19	25	24
Total.....	3,204	3,209	4,008	3,666	4,415	4,305	1,538	1,799	3,972	3,998	3,314	3,203	2,448	2,289	4,836	4,842	2,851	2,735
Total, all uses.....	10,050	10,183	11,831	11,254	12,814	12,376	5,599	6,110	10,520	10,796	10,073	10,221	8,593	8,712	11,966	11,801	10,466	10,070

¹ Less than 0.5 board foot.

NOTE: Includes allowance for onsite and manufacturing waste. Lumber used in attached and detached garages and in carports not included.

TABLE 6.—Percent of new FHA-inspected, single-family detached houses using listed species groups for lumber framing, by region, 1959

Species group ¹	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	North-west	South-west
Douglas fir-larch.....	62	51	19	31	71	69	64	79	78
Western pine.....	1			1	3			3	1
Southern yellow pine.....	22	2	30	68		25	34		
Hemlock-true fir.....	12	39			8	5		18	18
Other.....	3	8	1		18	1	2		3
All species.....	100	100	100	100	100	100	100	100	100

¹ Species grouped as follows:

Douglas fir-larch—Douglas fir, larch, inland fir.

Western pine—Western pine, lodgepole pine, ponderosa pine.

Southern pine—Loblolly pine, slash pine, longleaf pine, shortleaf pine.

Hemlock-true fir—White fir, mountain fir, western hemlock.

Other—Spruce, cedar, redwood, unspecified.

TABLE 7.—Percent of new FHA-inspected, single-family detached houses using listed species groups for lumber in molding and trim and window and door frames, by region, 1959

Species group ¹	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	North-west	South-west
Douglas fir.....	14	2	4	20	4	24	23	17	12
White pine.....	16	30	9		18	12	42	7	3
Southern pine.....	10	7	21	48			18		
Ponderosa pine.....	47	61	64	19	67	49	11	54	59
Hardwoods.....	9				7	15		7	21
Other.....	4		2	13	4		6	15	5
All species.....	100	100	100	100	100	100	100	100	100

¹ Species grouped as follows:

Ponderosa pine—Ponderosa pine, pine.

White pine—White pine.

Southern pine—Loblolly pine, slash pine, longleaf pine, shortleaf pine.

Douglas fir—Douglas fir.

Hardwoods—Oak, luan, birch, maple.

Other—White fir, cypress, spruce, redwood, unspecified.

TABLE 8.—Percent of new FHA-inspected, single-family detached houses using listed species groups for lumber sheathing, by region, 1959

Species group ¹	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	North-west	South-west
Douglas fir.....	34	37			53	34	8	28	61
Western pine.....	7				6	14	8	24	3
Southern yellow pine.....	42	53	98	99		45	84		
Hemlock-true fir.....	9	3			2			17	34
Spruce.....	6	7			39	7			
Other.....	2		2	1				31	2
All species.....	100	100	100	100	100	100	100	100	100

¹ Species grouped as follows:

Douglas fir—Douglas fir, western fir, inland fir.

Western pine—Ponderosa pine, white pine, western pine.

Southern pine—Loblolly pine, slash pine, longleaf pine, shortleaf pine.

Hemlock-true fir—Hemlock, white fir.

Spruce—Spruce, western spruce.

Other—Engelmann spruce and lodgepole pine, cedar and larch, redwood, unspecified.

TABLE 9.—Lumber used per unit in new FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962

[Board feet]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Floor and foundation.....	2,562	2,633	4,251	3,952	4,462	4,377	534	755	3,403	3,932	2,641	2,558	1,084	854	4,348	4,273	2,072	1,991
Walls and partitions.....	3,093	3,260	3,324	3,314	3,785	3,514	1,583	1,846	3,383	3,106	3,285	3,469	3,019	3,359	3,163	3,409	3,184	3,245
Roof and ceiling.....	2,973	2,780	2,678	2,392	2,891	2,714	2,332	2,258	2,294	2,265	2,627	2,556	3,100	2,983	2,952	2,572	3,932	3,526
Millwork and trim.....	1,422	1,510	1,578	1,596	1,676	1,771	1,150	1,251	1,440	1,493	1,520	1,638	1,390	1,516	1,503	1,547	1,278	1,308
Total, all components.....	10,050	10,183	11,831	11,254	12,814	12,376	5,599	6,110	10,520	10,796	10,073	10,221	8,593	8,712	11,966	11,801	10,468	10,070

NOTE: Includes allowance for onsite and manufacturing waste. Lumber used in attached and detached garages and in carports not included.

TABLE 10.—Lumber used per unit¹ in new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962

[Board feet]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	9,804	9,979	11,705	11,134	12,582	12,271	5,569	6,036	9,960	10,628	9,738	9,956	8,263	8,455	11,465	11,206	10,347	9,974
Stories:																		
1 story.....	9,471	9,394	10,856	10,272	12,494	11,592	5,499	5,539	9,895	10,765	9,325	9,129	8,226	8,018	11,571	10,776	10,345	9,727
1½-2 stories.....	11,074	12,080	12,535	11,948	11,296	11,917	(?)	(?)	9,923	10,339	10,101	12,627	8,963	11,738	11,159	13,834	9,722	14,247
Split level.....	12,541	13,007	12,994	13,309	14,660	16,161	11,011	13,484	10,590	9,979	12,723	12,526	10,700	12,218	10,991	12,942	(?)	(?)
Foundation:																		
Non-slab.....	11,912	11,823	11,984	11,565	13,310	13,372	11,351	12,632	10,446	10,801	11,280	11,370	11,247	11,881	11,490	11,214	13,398	13,252
Slab.....	6,975	7,387	7,157	7,516	8,082	7,497	5,164	5,373	6,120	5,645	6,878	7,614	7,466	7,984	(?)	(?)	7,873	7,443
Exterior wall:																		
Wood frame.....	10,450	10,400	11,697	11,227	12,582	12,302	7,249	9,638	9,960	10,629	9,907	9,970	8,380	8,467	11,715	11,412	11,041	10,794
Masonry.....	6,759	6,820	11,809	10,257	(?)	(?)	5,434	5,897	(?)	(?)	6,569	(?)	7,078	(?)	10,107	9,175	7,483	6,578

¹ Does not include lumber used for exterior wall siding (see table 12).

² Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Lumber used in attached and detached garages and in carports not included.

TABLE 11.—Lumber used per square foot of floor area¹ in new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962

[Board feet]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962 ²	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	8.6	8.2	10.2	9.2	10.7	9.7	5.3	5.3	9.4	9.6	9.0	8.4	7.4	6.7	10.3	9.7	8.1	7.7
Stories:																		
1 story.....	8.4	8.0	10.4	9.5	10.8	10.0	5.2	5.0	9.6	10.1	8.7	8.1	7.4	6.6	10.5	9.8	8.1	7.6
1½-2 stories.....	8.6	7.7	9.4	8.0	9.8	8.1	(?)	(?)	7.1	7.4	9.4	7.8	7.0	6.9	9.5	8.9	7.9	8.3
Split level.....	10.2	9.5	10.4	9.5	9.6	9.5	9.6	9.4	9.4	9.5	10.3	9.6	9.0	8.4	9.6	9.4	(?)	(?)
Foundation:																		
Nonslab.....	10.4	9.7	10.5	9.5	11.2	10.4	9.7	9.6	9.8	9.7	10.3	9.7	10.0	9.1	10.4	9.7	10.6	9.9
Slab.....	6.1	6.0	6.6	5.9	7.3	6.4	4.9	4.8	5.8	5.9	6.4	6.3	6.6	6.3	(?)	(?)	6.1	5.8
Exterior wall:																		
Wood frame.....	9.2	8.5	10.3	9.2	10.7	9.7	6.8	7.8	9.4	9.6	9.1	8.4	7.5	6.7	10.6	9.8	8.8	8.2
Masonry.....	5.8	5.7	9.6	8.2	(?)	(?)	5.2	5.1	(?)	(?)	6.1	(?)	5.8	(?)	8.9	8.4	5.5	5.2

¹ Does not include lumber used for exterior wall siding.

² Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Lumber used in attached and detached garages and in carports not included.

TABLE 12.—Lumber siding used per unit in new FHA-inspected, single-family detached houses, by exterior wall construction and region, 1959 and 1962

[Board feet]

Exterior wall construction	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	246	204	126	120	232	105	30	74	560	168	335	265	330	257	501	595	119	96
All wood-frame houses.....	299	224	136	114	235	106	232	366	560	168	353	266	362	258	593	648	148	116
Lumber siding.....	1,666	1,710	1,495	1,575	1,898	1,980	1,610	1,750	1,795	1,840	1,654	1,835	1,594	1,747	1,564	1,554	1,996	(?)
Plywood siding.....	6	4	11	12	(?)	(?)	7	8	8	9	11	12	2	3	2	2	(?)	(?)
Fiberboard siding.....	11	19	47	51	1	1	(?)	(?)	(?)	(?)	(?)	(?)	74	87	(?)	(?)	90	90
Shingle or shake siding.....	4	4	6	6	1	2	(?)	(?)	1	1	(?)	(?)	5	6	2	2	13	14
Nonwood siding.....	39	38	55	60	(?)	(?)	(?)	53	(?)	(?)	3	3	48	54	15	18	69	72
Mixed siding.....	419	448	180	183	493	478	458	589	631	658	605	659	272	313	615	667	470	501
All masonry houses.....	46	52	186	176	(?)	(?)	14	46	(?)	(?)	185	(?)	69	(?)	168	69	12	11

¹ Insufficient number of houses for meaningful estimate.

² Less than 0.5 board foot.

NOTE: Includes allowance for onsite and manufacturing waste. Siding used in attached and detached garages and in carports not included.

TABLE 13.—Plywood used per unit in new FHA-inspected, single-family detached houses, by major end use and region, 1959 and 1962

[Square feet, 3/8-inch basis]

Major end use	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Sheathing:																		
Roof.....	694	963	952	1,248	928	1,432	1,195	1,717	826	842	751	994	543	937	621	868	248	507
Wall.....	228	254	571	528	355	533	11	6	368	295	360	272	7	34	362	612	28	43
Total.....	922	1,217	1,523	1,776	1,283	1,965	1,206	1,723	1,194	1,137	1,111	1,266	550	971	983	1,480	276	550
Subflooring and underlayment.....	304	464	408	539	266	298	27	116	433	478	607	881	89	160	438	552	183	315
Flooring.....	27	24	7	5	4	13	(1)	13	2	1	4	27	110	87	3	3	32	11
Siding.....	50	75	32	37	2	60	23	34	20	23	56	44	36	84	135	137	85	133
Millwork and trim.....	413	454	354	398	322	338	432	463	323	346	370	422	426	505	477	511	514	533
Total.....	794	1,017	801	979	594	709	482	626	778	848	1,037	1,374	661	836	1,053	1,203	814	992
Total, all uses.....	1,716	2,234	2,324	2,755	1,877	2,674	1,688	2,349	1,972	1,985	2,148	2,640	1,211	1,807	2,036	2,683	1,090	1,542

¹ Less than 0.5 square foot.

NOTE: Includes allowance for onsite and manufacturing waste. Plywood used in attached and detached garages and in carports not included.

TABLE 14.—Plywood used per unit in new FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962

[Square feet, 3/8-inch basis]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Floor and foundation.....	331	488	415	544	270	311	27	129	435	479	611	908	199	247	441	555	215	326
Walls and partitions.....	278	329	603	565	357	593	34	40	388	318	416	316	43	118	497	749	113	176
Roof and ceiling.....	694	963	952	1,248	928	1,432	1,195	1,717	826	842	751	994	543	937	621	868	248	507
Millwork and trim.....	413	454	354	398	322	338	432	463	323	346	370	422	426	505	477	511	514	533
Total, all components.....	1,716	2,234	2,324	2,755	1,877	2,674	1,688	2,349	1,972	1,985	2,148	2,640	1,211	1,807	2,035	2,683	1,090	1,542

NOTE: Includes allowance for onsite manufacturing waste. Plywood used in attached and detached garages and in carports not included.

TABLE 15.—Plywood used per unit¹ in new *FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962*

[Square feet, $\frac{3}{8}$ -inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	1,666	2,159	2,292	2,718	1,875	2,614	1,665	2,315	1,952	1,962	2,092	2,596	1,175	1,723	1,901	2,546	1,005	1,409
Stories:																		
1 story.....	1,570	1,947	2,234	2,604	1,743	2,009	1,663	2,196	1,930	1,979	2,004	2,336	1,163	1,497	1,967	2,534	996	1,360
1½-2 stories.....	2,161	2,970	2,446	2,929	3,486	4,711	(?)	(?)	1,927	1,872	1,804	3,421	2,199	3,639	1,860	3,190	1,503	1,775
Split level.....	2,419	3,234	2,370	2,918	4,322	5,196	1,931	3,088	2,188	1,976	2,782	3,436	1,806	3,001	1,624	2,455	(?)	(?)
Foundation:																		
Nonslab.....	1,986	2,508	2,357	2,785	1,940	2,735	2,133	2,918	2,023	1,987	2,428	3,046	1,482	2,213	1,905	2,547	1,109	1,636
Slab.....	1,238	1,673	1,306	2,195	1,439	2,097	1,634	2,256	1,401	1,242	1,462	1,855	1,110	1,656	(?)	(?)	923	1,234
Exterior wall:																		
Wood frame.....	1,721	2,205	2,360	2,805	1,884	2,633	1,777	2,581	1,953	1,963	2,119	2,601	1,190	1,726	1,983	2,641	1,029	1,440
Masonry.....	1,412	1,829	1,476	1,948	(?)	(?)	1,658	2,292	(?)	(?)	1,541	(?)	1,177	(?)	1,485	1,613	915	1,283

¹ Does not include plywood used for exterior wall siding (see table 17).

² Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Plywood used in attached and detached garages and in carports not included.

TABLE 16.—Plywood used per square foot of floor area¹ in new *FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962*

[Square feet, $\frac{3}{8}$ -inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	1.5	1.8	2.0	2.2	1.6	2.1	1.6	2.0	1.8	1.8	1.9	2.2	1.0	1.4	1.7	2.2	0.8	1.1
Stories:																		
1 story.....	1.4	1.7	2.1	2.4	1.5	1.7	1.6	2.0	1.9	1.9	1.9	2.1	1.0	1.2	1.8	2.3	.8	1.1
1½-2 stories.....	1.7	1.9	1.8	2.0	3.0	3.2	(?)	(?)	1.4	1.4	1.7	2.1	1.7	2.1	1.6	2.1	1.2	1.0
Split level.....	2.0	2.4	1.9	2.1	2.8	3.1	1.7	2.2	2.0	1.9	2.2	2.6	1.5	2.1	1.4	1.8	(?)	(?)
Foundation:																		
Nonslab.....	1.7	2.1	2.1	2.3	1.6	2.1	1.8	2.2	1.9	1.8	2.2	2.6	1.3	1.7	1.7	2.2	.9	1.2
Slab.....	1.1	1.4	1.2	1.7	1.3	1.8	1.6	2.0	1.3	1.3	1.4	1.5	1.0	1.3	(?)	(?)	.7	1.0
Exterior wall:																		
Wood frame.....	1.5	1.8	2.1	2.3	1.6	2.1	1.7	2.1	1.8	1.8	2.0	2.2	1.1	1.4	1.8	2.3	.8	1.1
Masonry.....	1.2	1.5	1.2	1.6	(?)	(?)	1.6	2.0	(?)	(?)	1.4	(?)	1.0	(?)	1.3	1.5	.7	1.0

¹ Does not include plywood used for exterior wall siding.

² Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Plywood used in attached and detached garages and in carports not included.

TABLE 17.—Plywood siding used per unit in new FHA-inspected, single-family detached houses, by exterior wall construction and region, 1959 and 1962

[Square feet, 1/8-inch basis]

Exterior wall construction	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	50	75	32	37	2	60	23	32	20	23	56	44	36	84	135	137	85	133
All wood-frame houses.....	61	80	34	37	2	61	307	222	20	23	59	44	39	85	160	150	106	149
Lumber siding.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)
Plywood siding.....	1,674	1,902	1,492	1,669	(2)	(2)	1,366	1,584	1,329	1,415	1,372	1,567	1,228	1,452	1,493	1,503	2,770	2,802
Fiberboard siding.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Shingle or shake siding.....	5	7	11	11	4	6	(2)	(2)	3	3	(1)	(1)	1	1	5	5	17	17
Nonwood siding.....	14	16	12	13	(1)	(1)	(1)	56	2	2	2	2	51	58	5	5	13	13
Mixed siding.....	37	42	4	3	5	1	(1)	(1)	2	2	26	28	11	12	128	139	97	103
All masonry houses.....	27	35	32	27	(2)	(2)	15	16	(2)	(2)	(1)	(2)	1	(2)	(1)	(1)	72	67

¹ Less than 0.5 square foot.

² Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Siding used in attached and detached garages and in carports not included.

TABLE 18.—Hardboard¹ used per unit in new FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962

[Square feet, 1/8-inch basis]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Floor and foundation.....	17	9	45	39	1	(2)	3	3	7	3	(2)	(2)	1	(2)	23	20	34	6
Walls and partitions.....	216	323	117	345	319	418	56	50	208	379	508	547	74	200	386	351	148	186
Roof and ceiling.....	1	1	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	4	4
Millwork and trim.....	143	159	132	152	113	119	147	159	110	120	115	132	125	151	162	175	204	211
Total, all components.....	377	492	294	536	433	537	206	212	325	502	623	679	200	351	571	546	390	407

¹ Includes all fiberboards with a density of more than 26 pounds per cubic foot.

² Less than 0.5 square foot.

NOTE: Includes allowance for onsite and manufacturing waste. Hardboard and medium-density fiberboard used in attached and detached garages and in carports not included.

TABLE 19.—Hardboard¹ used per unit² in new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962

[Square feet, 1/8-inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	161	163	177	191	114	119	150	162	117	123	115	132	126	151	185	195	242	221
Stories:																		
1 story.....	159	162	168	180	111	105	150	158	111	119	111	121	125	144	172	178	243	218
1½-2 stories.....	157	207	171	197	178	231	(?)	(?)	112	117	131	205	171	230	306	397	172	244
Split level.....	183	185	195	218	146	156	165	205	175	164	138	149	102	129	242	241	(?)	(?)
Foundation:																		
Nonslab.....	168	169	180	193	114	119	178	193	120	124	112	126	128	145	186	195	287	239
Slab.....	151	167	130	167	110	122	148	159	96	94	120	142	126	151	(?)	(?)	206	207
Exterior wall:																		
Wood frame.....	160	167	179	192	113	119	144	170	117	123	115	132	127	151	172	192	250	226
Masonry.....	165	180	149	170	(?)	(?)	150	162	(?)	(?)	105	(?)	115	(?)	260	221	212	202

¹ Includes all fiberboards with a density of more than 26 pounds per cubic foot.

² Does not include hardboard used for exterior wall siding (see table 20).

³ Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Hardboard used in attached and detached garages and in carports not included.

TABLE 20.—Hardboard¹ siding used per unit in new FHA-inspected, single-family detached houses, by exterior wall construction and region, 1959 and 1962

[Square feet, 1/8-inch basis]

Exterior wall construction	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	216	323	117	345	319	418	56	50	208	379	508	547	74	200	386	351	148	186
All wood-frame houses.....	262	356	125	373	323	422	495	356	208	379	536	550	74	201	457	379	183	199
Lumber siding.....	(?)	1	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	1	1	(?)	(?)	2	2	(?)	(?)
Plywood siding.....	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)
Fiberboard siding.....	3,330	3,600	4,351	4,732	6,534	6,760	2,698	3,119	2,877	2,918	3,004	3,152	3,374	3,937	3,158	3,163	3,928	3,926
Shingle or shake siding.....	15	21	23	24	17	21	(?)	(?)	31	33	(?)	(?)	2	2	58	58	25	26
Nonwood siding.....	28	28	23	25	(?)	(?)	(?)	33	1	1	4	5	30	34	55	64	55	57
Mixed siding.....	130	146	332	338	24	28	797	1,024	(?)	(?)	65	70	122	140	117	127	144	154
All masonry houses.....	57	72	90	84	(?)	(?)	21	21	(?)	(?)	(?)	(?)	(?)	(?)	131	69	143	135

¹ Includes all fiberboards with a density of more than 26 pounds per cubic foot.

² Less than 0.5 square foot.

³ Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Siding used in attached and detached garages and in carports not included.

TABLE 21.—Insulation board used per unit in new FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962

[Square feet, ½-inch basis]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Floor and foundation.....	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Walls and partitions.....	572	720	372	487	885	1,164	88	75	1,406	1,581	747	931	924	1,308	773	716	36	23
Roof and ceiling.....	30	30	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	75	73	26	23	(¹)	(¹)	13	15	87	87
Millwork and trim.....	(¹)	(¹)	4	3	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total, all components..	602	750	376	490	885	1,164	88	75	1,481	1,654	773	954	984	1,308	786	731	123	110

¹ Less than 0.5 square foot.

NOTE: Includes allowance for onsite and manufacturing waste. Insulation board used in attached and detached garages and in carports not included.

TABLE 22.—Insulation board used per unit in new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962

[Square feet, ½-inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	602	750	376	490	885	1,164	88	75	1,481	1,654	773	954	984	1,308	786	731	123	110
Stories:																		
1 story.....	606	758	405	521	907	1,297	75	47	1,474	1,671	766	961	1,001	1,407	839	704	123	114
1½-2 stories.....	516	558	264	348	538	457	(¹)	54	1,588	1,683	513	695	151	263	1,000	1,095	30	18
Split level.....	603	859	356	534	493	687	991	723	1,466	1,470	873	1,032	1,022	1,441	538	796	(¹)	218
Foundation:																		
Non-slab.....	642	766	390	523	889	1,206	427	520	1,512	1,670	714	878	894	1,205	789	731	15	13
Slab.....	550	730	137	224	860	982	63	32	1,242	1,205	884	1,083	1,009	1,323	(¹)	(¹)	210	188
Exterior wall:																		
Wood frame.....	714	840	373	499	892	1,174	1,110	727	1,481	1,655	800	957	1,071	1,313	919	803	28	123
Masonry.....	81	84	424	411	(¹)	(¹)	6	14	(¹)	(¹)	263	(¹)	113	(¹)	66	29	2	61

¹ Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Insulation board used in attached and detached garages and in carports not included.

TABLE 23.—Insulation board used per square foot of floor area in new *FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962*

[Square feet, 1/2-inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	0.5	0.6	0.3	0.4	0.8	0.9	0.1	0.1	1.4	1.5	0.7	0.8	0.9	1.0	0.7	0.6	0.1	0.1
Stories:																		
1 story.....	.5	.7	.4	.5	.8	1.1	.1	(2)	1.4	1.6	.7	.8	.9	1.2	.8	.6	.1	.1
1½-2 stories.....	.4	.4	.2	.2	.5	.3	(1)	(1)	1.1	1.2	.5	.4	.1	.2	.8	.8	(2)	(2)
Split level.....	.5	.6	.3	.4	.3	.4	.9	.5	1.3	1.4	.7	.8	.9	1.0	.5	.6	(1)	(1)
Foundation:																		
Nonslab.....	.6	.6	.3	.4	.8	.9	.4	.4	1.4	1.5	.6	.8	.8	.9	.7	.6	(2)	(2)
Slab.....	.5	.6	.1	.2	.8	.8	.1	(2)	1.2	1.3	.8	.9	.9	1.0	(1)	(1)	.2	.2
Exterior wall:																		
Wood frame.....	.6	.7	.3	.4	.8	.9	1.0	.6	1.4	1.5	.7	.8	1.0	1.0	.8	.7	.1	.1
Masonry.....	.1	.1	.3	.3	(1)	(1)	(2)	(2)	(1)	(1)	.2	(1)	.1	(1)	.1	(2)	.1	.1

¹ Insufficient number of houses for meaningful estimate.

² Less than 0.5 square foot.

NOTE: Includes allowance for onsite and manufacturing waste. Insulation board used in attached and detached garages and in carports not included.

TABLE 24.—Particleboard use per unit in new *FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962*

[Square feet, 1/2-inch basis]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Floor and foundation.....	14	31	2	2	(1)	(1)	4	5	(1)	(1)	13	15	13	14	7	7	39	110
Millwork and trim.....	36	39	32	37	31	31	39	40	29	32	28	33	34	40	43	47	47	50
Total, all components.....	50	70	34	39	31	31	43	45	29	32	41	48	47	54	50	54	86	160

¹ Less than 0.5 square foot.

NOTE: Includes allowance for onsite and manufacturing waste. Particleboard used in attached and detached garages and in carports not included.

TABLE 25.—Particleboard used per unit in new FHA-inspected, single-family detached houses, by selected construction characteristic and region, 1959 and 1962

[Square feet, ¼-inch basis]

Construction characteristic	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	50	70	34	39	31	31	43	45	29	32	41	48	47	54	50	54	86	160
Stories:																		
1 story.....	50	68	32	38	29	29	43	43	29	31	39	45	45	48	50	52	86	145
1½-2 stories.....	43	97	34	43	43	45	(¹)	48	29	31	48	70	45	77	43	61	106	459
Split level.....	43	66	34	41	38	41	90	90	36	39	54	65	92	163	52	65	(¹)	357
Foundation:																		
Nonslab.....	57	92	34	39	31	31	95	84	29	32	47	57	93	156	50	54	133	307
Slab.....	38	41	31	41	29	29	39	41	25	25	31	36	32	39	(¹)	(¹)	48	48
Exterior wall:																		
Wood frame.....	50	74	32	38	31	31	47	57	29	32	41	50	47	54	48	54	95	188
Masonry.....	45	48	45	50	(¹)	(¹)	43	45	(¹)	(¹)	34	(¹)	41	(¹)	59	66	50	48

¹ Insufficient number of houses for meaningful estimate.

NOTE: Includes allowance for onsite and manufacturing waste. Particleboard used in attached and detached garages and in carports not included.

TABLE 26.—Shingles and shakes used per unit in new FHA-inspected, single-family detached houses, by major house component and region, 1959 and 1962

[Squares]

House component	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
Walls.....	0.9	0.6	2.4	1.9	0.2	0.2	(¹)	(¹)	0.3	0.4	1.4	0.7	0.9	0.2	0.8	0.4	0.4	0.2
Roof.....	1.4	2.4	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	.6	.7	.5	2.2	.5	.2	5.4	8.3
Total, all components.....	2.3	3.0	2.4	1.9	.2	.2	(¹)	(¹)	.3	.4	2.0	1.4	1.4	2.4	1.3	.6	5.8	8.5

¹ Less than 0.05 square.

NOTE: Shingles and shakes used in attached and detached garages and in carports not included.

TABLE 27.—*Shingle and shake siding used per unit in new FHA-inspected, single-family detached houses, by exterior wall construction and region, 1959 and 1962*

[Squares]

Exterior wall construction	All regions		North Atlantic		South Atlantic		Florida		Lake States		Central States		South Central		Northwest		Southwest	
	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962	1959	1962
All houses.....	0.9	0.6	2.4	1.9	0.2	0.2	(¹)	(¹)	0.3	0.4	1.4	0.7	0.9	0.2	0.8	0.4	0.4	0.2
All wood-frame houses.....	1.1	.7	2.5	2.0	.2	.2	(¹)	0.2	.3	.4	1.5	.7	1.0	.2	1.0	.8	.4	.3
Lumber siding.....	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	.1	.1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Plywood siding.....	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Fiberboard siding.....	(¹)	.1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	.1	.1
Shingle or shake siding.....	10.6	10.9	10.4	10.6	9.9	12.6	(¹)	(¹)	13.1	14.1	10.9	11.0	9.9	11.5	10.1	10.0	12.6	12.9
Nonwood siding.....	.1	.1	.3	.3	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	.1	.1
Mixed siding.....	.5	.7	2.4	2.5	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	.8	.9	(¹)	.4	(¹)	(¹)	.5	.5
All masonry houses.....	(¹)	.1	.5	.7	(¹)	.1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)

¹ Less than 0.05 square.² Insufficient number of houses for meaningful estimate.

NOTE: Shingles and shakes used in attached and detached garages and in carports not included.

END