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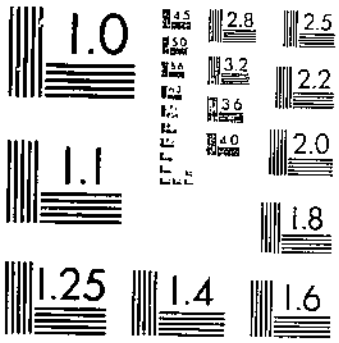

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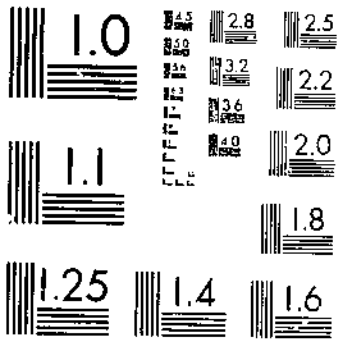

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WOOD PRODUCTS USED IN SINGLE-FAMILY HOUSES

INSPECTED BY THE FEDERAL HOUSING ADMINISTRATION

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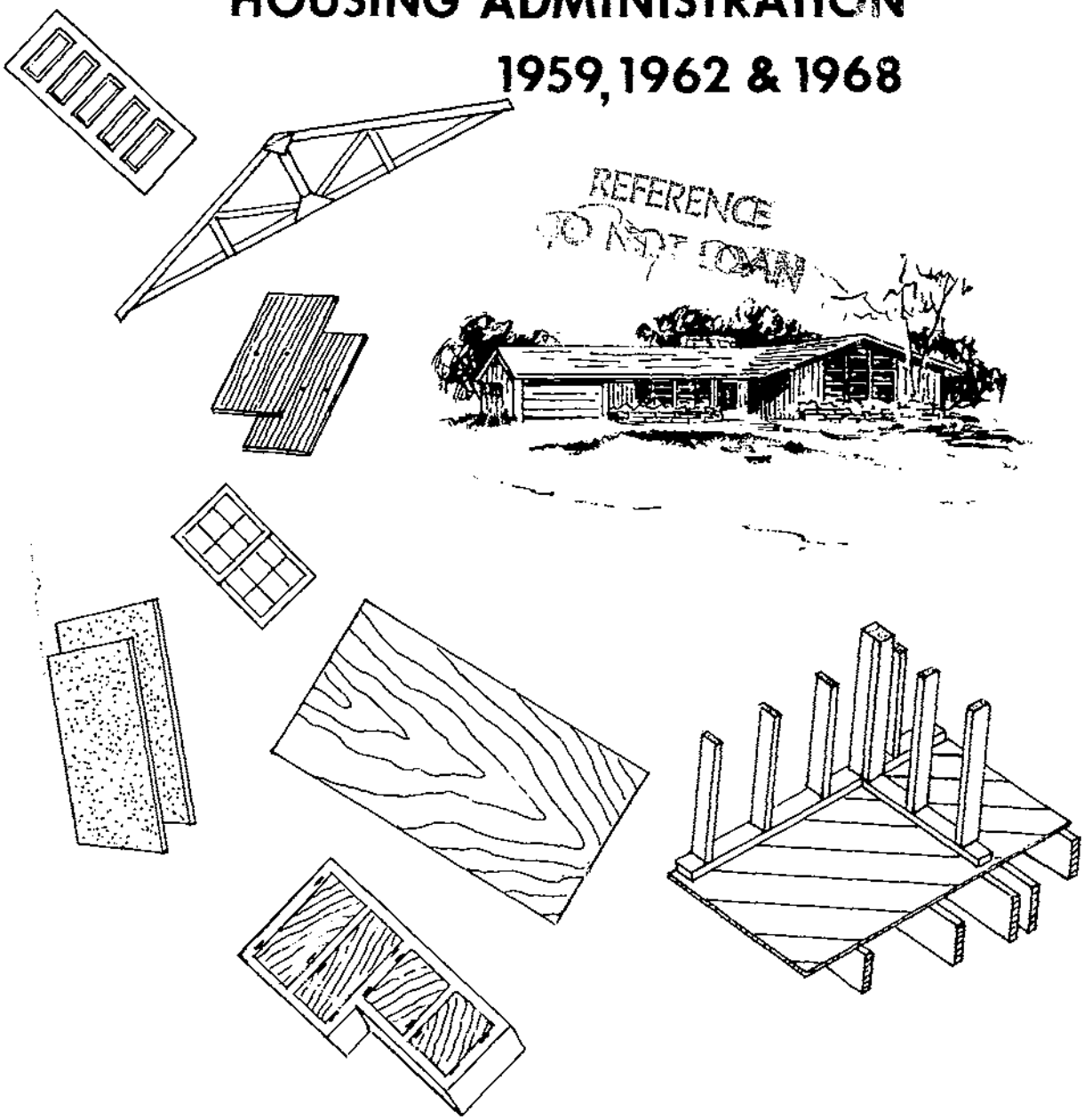

U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE
STATISTICAL BULLETIN NO. 452

WOOD PRODUCTS
used in
SINGLE-FAMILY HOUSES
inspected by the
FEDERAL HOUSING ADMINISTRATION
1959, 1962, and 1968

Robert B. Phelps
Division of Forest Economics and Marketing Research

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U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

October 1970

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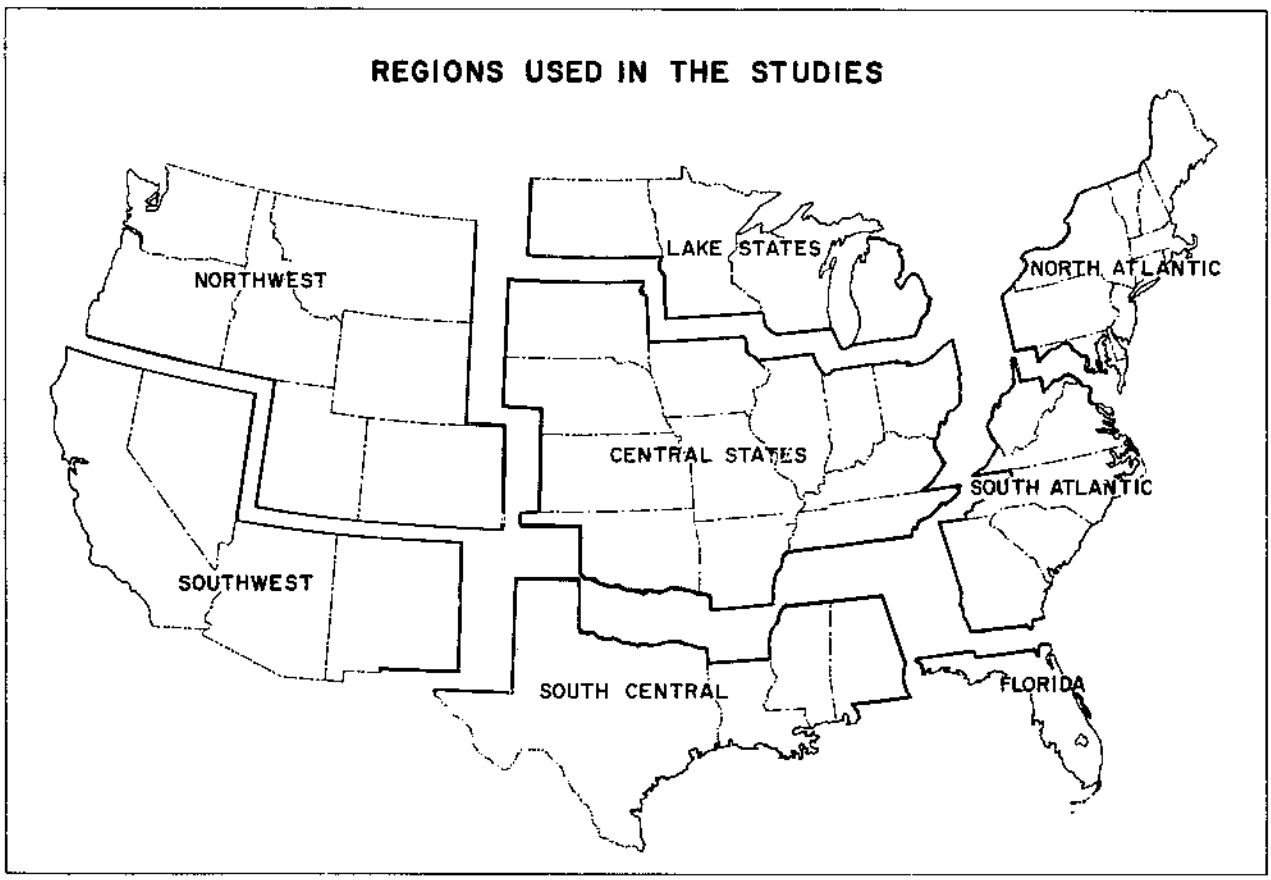
REGIONS USED IN THE STUDIES
NORTHWEST
LAKE STATES
NORTH ATLANTIC
CENTRAL STATES
SOUTH ATLANTIC
SOUTHWEST
SOUTH CENTRAL
FLORIDA

PREFACE

This bulletin presents information on the structural characteristics and on the volume of wood products consumed in new single-family detached houses inspected by the Federal Housing Administration in 1959, 1962, and 1968. 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 eight regions in the conterminous United States (see frontispiece).

The information is intended for use by industry, market research organizations, State and Federal forestry agencies, and others in evaluating the extent and location of markets for wood products and competing materials in single-family house construction. It also provides basic data for analyzing trends in the use of wood products in periodic appraisals of the Nation's prospective timber demand and supply situation.

The data were derived from sample surveys of single-family houses inspected by the Federal Housing Administration (see Survey Procedure, page 17).

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. Special acknowledgement is made to Porter Driscoll and Richard A. Atwell, Architecture and Engineering Division, Office of the Assistant Commissioner for Technical and Credit Standards of the FHA central office in Washington, and to members of the architectural staffs in the Atlanta, St. Louis, San Francisco, Seattle, Tampa, and Washington, D.C. field offices.

Within the Forest Service, the help of Maurice G. Wright of the Division of Forest Economics and Marketing Research in collecting wood use data is gratefully acknowledged.

This publication supersedes Statistical Bulletin No. 366, "Wood Products Used in Single-Family Houses Inspected by the Federal Housing Administration, 1959 & 1962."

CONTENTS

LIST OF TABLES

INTRODUCTION

Residential construction is a major market for lumber, plywood, and other wood-base panel products. In 1968, for example, nearly 40 percent of the lumber, about one-third of the plywood, and large amounts of other wood-base panel products were consumed in the construction of 1,866,000 new single- and multi-family housing units and mobile homes. Single-family houses, which comprised just over one-half of the units built, accounted for almost 30 percent of the total lumber and plywood consumed.

Most of the single-family houses started each year (nearly 99.9 percent in 1968) 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. Under authority of the National Housing Act of June 27, 1934, as amended, FHA 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. FHA makes no loans and neither plans nor builds housing.

To obtain an 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 by a series of FHA inspections at various stages of construction.

In 1968, about 17 percent of the new single-family homes sold, with type of mortgage financing known, were insured by FHA.[1] Another 10 percent—built according to FHA's *Minimum Property Standards*, releases, and bulletins—were sold with Veterans Administration guaranteed mortgages. FHA also inspected many houses that were not sold with FHA-insured financing, since many builders secure FHA inspection for all their houses in order to have flexibility in their sales operations.

Although FHA-inspected houses compose a substantial proportion of the single-family houses built, there are nonetheless important differences between FHA-inspected units and other single-family houses. In 1968, for example, the average floor area for all new privately owned single-family homes started or sold in the United States was 1,580 square feet, some 188 square feet more than the 1,392 square feet for the FHA-inspected houses described in this report. Twenty-nine percent of all homes started or sold had slab foundations, compared to 45 percent of the FHA-inspected units. Of all new single-family homes started or sold, 59 percent had one story, 23 percent had two stories or more, and 18 percent were split level. The FHA-inspected houses in this report were 79 percent one story, 12 percent one and one-half or two story, and 9 percent split level.

Because of these differences in size and other characteristics, tentative estimates indicate that lumber and plywood use per unit for all new privately owned single-family houses started or sold in 1968 was about 12,000 board feet and 5,000 square feet (3/8-inch basis), respectively. Average use for the FHA-inspected, single-family units in this study was 10,271 board feet and 4,158 square feet (3/8-inch basis).

[1] U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Housing and Urban Development. Sales of new one-family homes: annual statistics, 1968. Construction Reports C25-68-13, published by U.S. Department of Commerce, Bureau of the Census, Washington, D.C., 1969.

CONSTRUCTION CHARACTERISTICS

This section of the report presents information on the construction characteristics of new single-family detached houses inspected by the Federal Housing Administration in 1959, 1962, and 1968. These characteristics are important determinants of the amounts and kinds of wood products used in the construction of each unit.

Proportion of one-story houses declined 10 percent between 1959 and 1968

In 1968, 79 percent of the FHA units inspected were one-story structures (table 1,[2] fig. 1). This was 3 percent less than in 1962 and nearly 10 percent less than in 1959. One and one-half- or two-story houses accounted for 12 percent of the units inspected in 1968—a substantial increase from 1959 and 1962, when 3 percent and 8 percent, respectively, were in this category. Little change occurred in the proportion of split-level houses in the survey years.

One-story houses predominated in all regions in all 3 survey years. However, their relative importance varied greatly among regions, ranging from a high of 93 percent of the houses in both Florida and the South Central region to 58 percent in the North Atlantic region. There was similar variation for the other types.

In most regions there was a decline in the proportion of one-story units and an increase in the one and one-half- and two-story units over the survey years. Split-level houses declined or remained about the same.

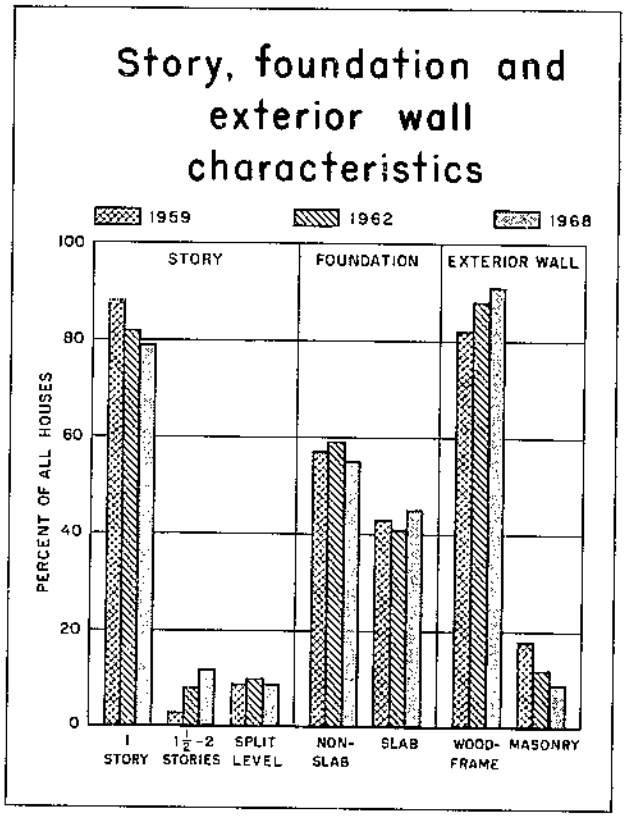

Figure 1.

Percentage of nonslab-foundation houses showed a small decrease between 1962 and 1968

About 55 percent of the houses in the 1968 survey were built on nonslab foundations. This is somewhat lower than the 2 earlier survey years, when 57 percent and 59 percent of the units had this kind of foundation. The percentage of houses built on slab foundations increased from 43 percent in 1959 to 45 percent in 1968.

There were substantial regional differences in foundation characteristics in all survey years. For example, well over four-fifths of the houses built in the North Atlantic, South Atlantic, Lake States, and Northwest regions had nonslab foundations in all 3 years. On the other hand, about 90 percent of the units built in Florida and the South Central regions were on slabs.

Regional trends in the types of foundations were generally the same as the national trend—some decline in the percentage of units built on nonslab foundations and small increases in the proportion built on slabs.

Wood-frame wall construction used in 9 of 10 houses in 1968

Ninety-one percent of the houses inspected in 1968 had wood-frame exterior walls. This was 3 percent higher than 1962 and 9 percent more than in 1959.

[2] Tables are presented in the appendix.

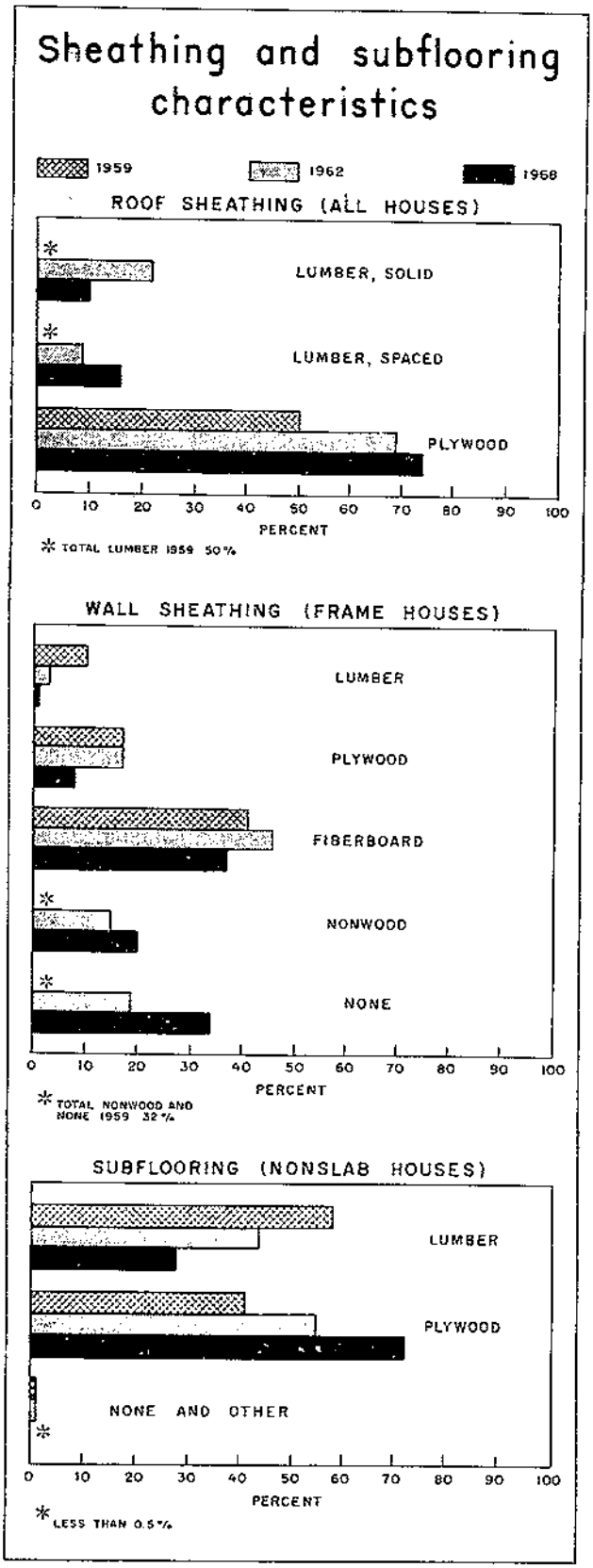

Figure 2.

In the Lake States and South Central regions, all of the houses inspected had this type of exterior wall. In all other regions except Florida, 89 percent or more of the houses were of this construction type. Only 12 percent of the houses in Florida, however, had wood-frame exterior walls.

The percentage of houses with wood-frame exterior walls increased or remained about the same in all regions between 1962 and 1968. The largest regional increase was in the Southwest, where 92 percent were wood-frame in 1968, 11 percent more than in 1962.

Less than half of the frame houses had wood wall sheathing in 1968—percentage without wall sheathing increased significantly

Wood or wood-base wall sheathing was used on 46 percent of the wood-frame houses in 1968 (table 1, fig. 2). This was 20 percent below 1962 and 22 percent less than in 1959. Lumber and plywood accounted for most of the decline in use. In contrast, there was a particularly rapid rise in the percentage of frame houses with no wall sheathing, i.e., that used siding only. There was also some increase in the proportion of units with nonwood types.

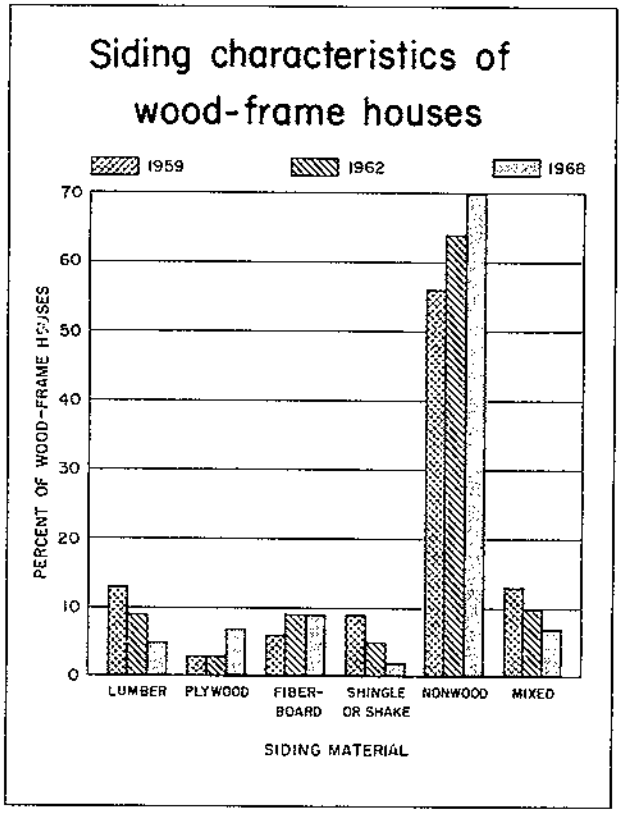

Figure 3.

Use of wood wall sheathing on frame houses in 1968 varied from 98 percent of the units in the Lake States to 3 percent in the Southwest. Fiberboard was the predominant type of wood wall sheathing used in all regions.

The percentage of frame houses with wood wall sheathing declined in most regions over the survey years. The most pronounced decreases were in Florida and the Northwest region.

Most frame houses had nonwood siding in 1968

Wood siding materials (lumber, plywood, fiberboard, shingles and shakes, and mixed types) were used on 30 percent of the wood-frame houses in 1968 (table 1, fig. 3). This was 6 percent less than in 1962 and 14 percent less than in 1959. The drop in percentage of units with wood siding reflected declines in the use of lumber and shingles and shakes for this purpose. There was some increase in the percentage of units with plywood and fiberboard and a large gain in the percentage of units with nonwood types of siding.

The kinds of siding used varied widely among the regions. In the Northwest, wood siding was used on 87 percent of the houses in 1968—a sharp contrast to the 5 percent of the houses in the Southwest.

In most regions the percentage of houses with wood siding declined over the survey period. In Florida and the Northwest, however, there were substantial increases.

Floor area averaged 1,392 square feet in 1968—largest houses in the Southwest

The average size[3] of new single-family houses inspected by FHA in 1968 was 1,392 square feet (table 2, fig. 4). This was 14 percent larger than in 1962 and nearly 22 percent larger than in 1959.

The average size of all types of units increased substantially over the survey period. The largest increase—about 40 percent—was in one and one-half- or two-story houses. The size of units built on slab foundations also showed a large increase—about 27 percent. Wood-frame houses increased from 1,141 square feet in 1959 to 1,392 in 1968, an increase of about 22 percent.

The average size of the FHA-inspected houses in 1968 ranged from 1,115 square feet in the Lake States to 1,585 square feet in the Southwest. In every region average size was larger than in 1959 and 1962. The largest increase over the survey period was in the North Atlantic region, where average floor area rose by nearly 400 square feet.

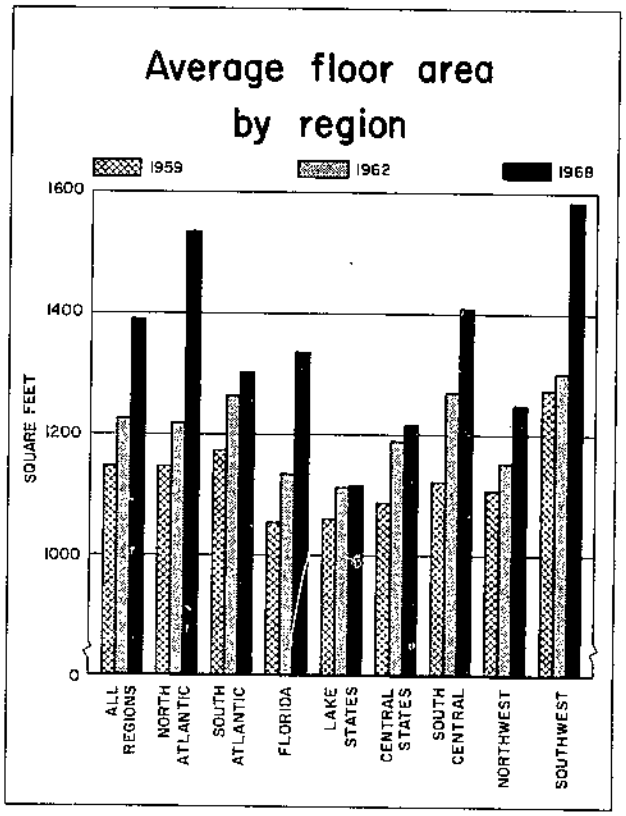

Figure 4.

Nearly three-fourths of nonslab houses had plywood subflooring

In all 3 survey years, wood was used for subflooring in 99 percent or more of the houses built on nonslab foundations (table 3, fig. 2). Although this percentage remained about constant, important shifts occurred in the relative importance of lumber and plywood. In 1968, plywood was used in 72 percent of the units, compared with 55 percent of the units in 1962 and only 41 percent in 1959. The percentage of units with lumber followed an opposite trend, falling from 58 percent in 1959 to 28 percent in 1968.

The downward trend in the use of lumber took place in all regions. The largest decline was in the Lake States where the percentage of nonslab houses with lumber subflooring decreased from 66 percent in 1962 to 11 percent in 1968.

Although regional trends in use were similar to national trends, there were wide regional variations in the use of lumber and plywood. For example, in 1968, lumber was used in 68 percent of the houses with nonslab foundations in the Southwest region, compared with 7 percent in the Central States.

[3] In 1959 and 1962 calculated floor area. In 1968 improved floor area. See Appendix section on survey procedures.

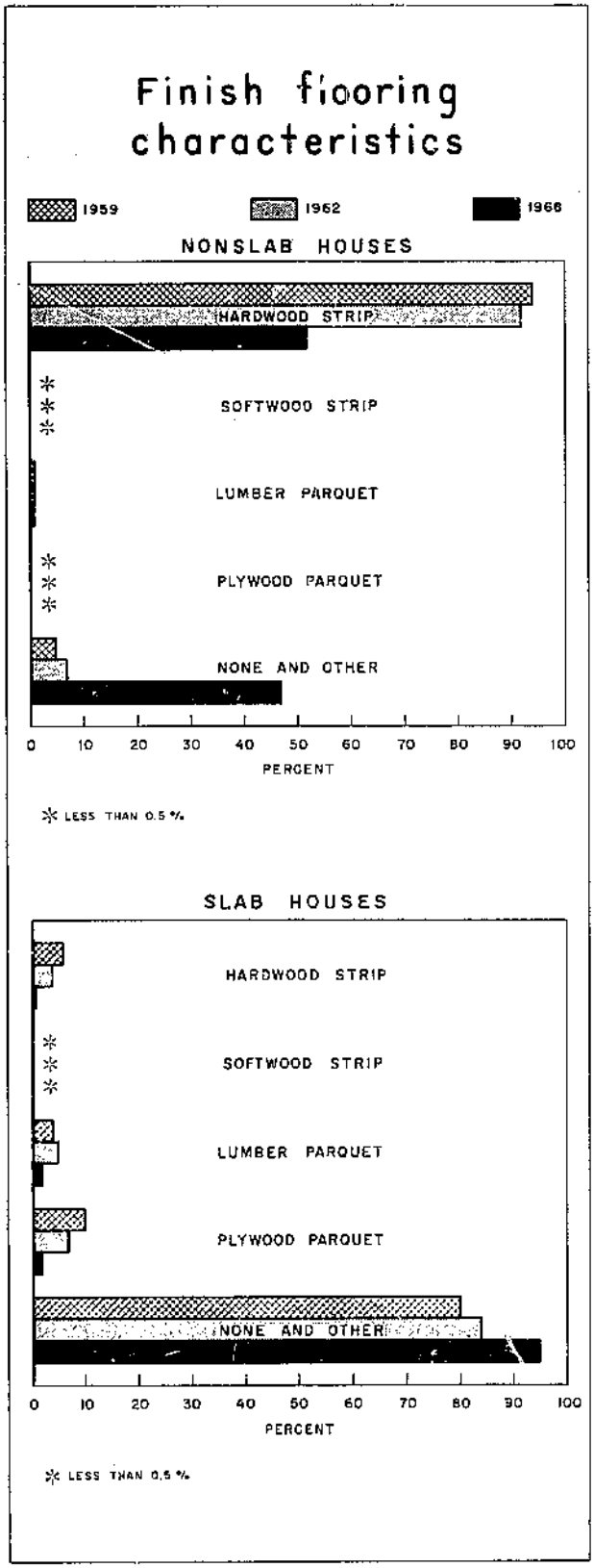

Figure 5.

Wood flooring used in 53 percent of nonslab houses in 1968—a substantial decline from 93 percent in 1962

In 1968, 53 percent of the houses with basement or crawl space foundations used wood, nearly all hardwood strip, for finish flooring in the "living room-bedroom" areas (table 3, fig. 5). This was 40 percent below 1962, when 93 percent of these units had wood flooring. Most of the decline was due to the use of carpeting directly on underlayment or combination subfloor-underlayment. Houses with slab foundations also showed a significant decrease in wood flooring use—from 16 percent in 1962 to 5 percent in 1968.

Use of wood finish flooring in houses with nonslab foundations in 1968 varied from 92 percent in the North Atlantic region to 11 percent in the Southwest. This variation is in sharp contrast to 1959 and 1962 when there was little regional difference in the percentage of units using wood for finish flooring. There were declines in wood flooring use in houses on nonslab foundations between 1962 and 1968 in all regions, with particularly rapid decreases in the West.

Wood flooring use in slab-foundation houses ranged from 15 percent in the Central States region to less than 0.5 percent in the Lake States, Northwest, and Southwest regions. Percentage use declined in all regions except Florida between 1962 and 1968.

Plywood underlayment most used under tile and resilient flooring—particleboard under carpeting

Of the houses inspected in 1968, 46 percent had wood underlayment in addition to subflooring under tile or resilient flooring, primarily in bathrooms and kitchens (table 4). About 55 percent of this underlayment was plywood, 41 percent particleboard, and 4 percent hardboard.

The percentage of houses having underlayment under tile or resilient flooring varied from 85 percent in the Northwest region to only 1 percent in Florida. Use of plywood for underlayment ranged from 88 percent in the North Atlantic to 9 percent in the Southwest. Particleboard use was highest in the Southwest.

Twenty-seven percent of the houses had wood underlayment in addition to subflooring under carpeting in 1968. Particleboard was used in 49 percent of these houses, plywood in 47 percent, and hardboard in 4 percent.

Regional use of underlayment under carpeting varied from 49 percent of the houses in the South Atlantic to only 1 percent in Florida. The type of wood material also varied greatly. For example, 90 percent of the houses with underlayment under carpeting in the Southwest had particleboard, compared with only 11 percent in the North Atlantic.

No comparable data on the use of underlayment are available for 1959 and 1962.

Plywood roof sheathing used on nearly three-fourths of 1968 houses

Plywood was used for roof sheathing on 74 percent of the houses inspected in 1968 (table 5, fig. 2). This was substantially above the amount used in 1959 and 1962, when plywood was used in 50 and 69 percent of the units, respectively. Spaced-lumber sheathing, the type commonly used under shingles or shakes, was utilized in 16 percent of the houses in 1968. This was also a substantial increase from earlier survey years. In contrast to these upward trends, use of closed or solid lumber roof sheathing dropped from 22 percent of the units in 1962 to 10 percent in 1968.

Use of plywood roof sheathing was highest—96 percent of the houses—in the North Atlantic region and smallest—41 percent—in the Southwest. Almost half of the houses inspected in the Southwest region had spaced-lumber roof sheathing.

The shift from lumber to plywood was evident in nearly all regions between 1959 and 1968. The one exception was in the Southwest, where a large increase occurred in the use of spaced-lumber.

Use of wood shingles in 1968 nearly double use in 1962

Wood shingles or shakes were used for roofing on 18 percent of the houses inspected in 1968 (table 5). This was nearly double the percentage in 1962 and almost triple that of 1959.

Use of shingles and shakes for roofs increased in four of the eight regions over the survey years, with the largest increase occurring in the Southwest. This region also had the highest percentage of houses with wood roof shingles in all 3 survey years.

Wood kitchen cabinets continued to dominate—particleboard most used under countertops

Kitchen cabinets made from lumber, plywood, hardboard, and particleboard, and combinations of these materials, were used in 97 percent of the houses inspected in 1968. This percentage was the same as in 1962, but slightly higher than in 1959, when 95 percent of the houses inspected had wood cabinets.

All of the houses in Florida, the South Central, and Northwest regions had wood kitchen cabinets. The lowest use—90 percent—was in houses in the North Atlantic region.

Particleboard was used for underlayment under kitchen countertops in 53 percent of the houses inspected in 1968. Plywood accounted for another 44 percent, hardboard 2 percent, and other types of material 1 percent.

Use of wood windows declined in most regions between 1962 and 1968

Wood windows were used in the areas above ground level in about 28 percent of the houses inspected in 1968 (table 5). This was a considerable decrease from 1962, when some 40 percent of the units had wood windows. The decline occurred in all but two regions—the North Atlantic and Lake States. Regional percentage use in 1968 ranged from a high of 66 percent in the South Atlantic to less than 0.5 percent in Florida.

Plywood paneling most popular wood wall material used in dens and recreation rooms in 1968

About 65 percent of the houses inspected in 1968 contained dens and/or recreation rooms (table 7). The average floor area of these rooms was 194 square feet. Slightly less than half of these rooms had walls paneled with wood or wood-base materials. The remainder had drywall or plaster construction.

Plywood paneling was used for walls in 39 percent of the dens and/or recreation rooms, and was the most popular wood material in each of the eight regions. About 4 percent of these rooms were paneled with lumber and about 4 percent with hardboard.

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 these wood products in major end uses such as framing, sheathing, and flooring; and in major house components such as walls, roofs, and foundations. Where possible, the changes in house characteristics that were responsible for changes in the volume of materials used are noted.

LUMBER

10,271 board feet of lumber used per unit in 1968—430 board feet less than in 1962

In 1968, an average of 10,271 board feet of lumber was used in new single-family detached houses inspected by the FHA (table 8, fig. 6). This was 430 board feet less than in 1962 and was a reversal of the increase in per unit use—146 board feet—between 1959 and 1962.

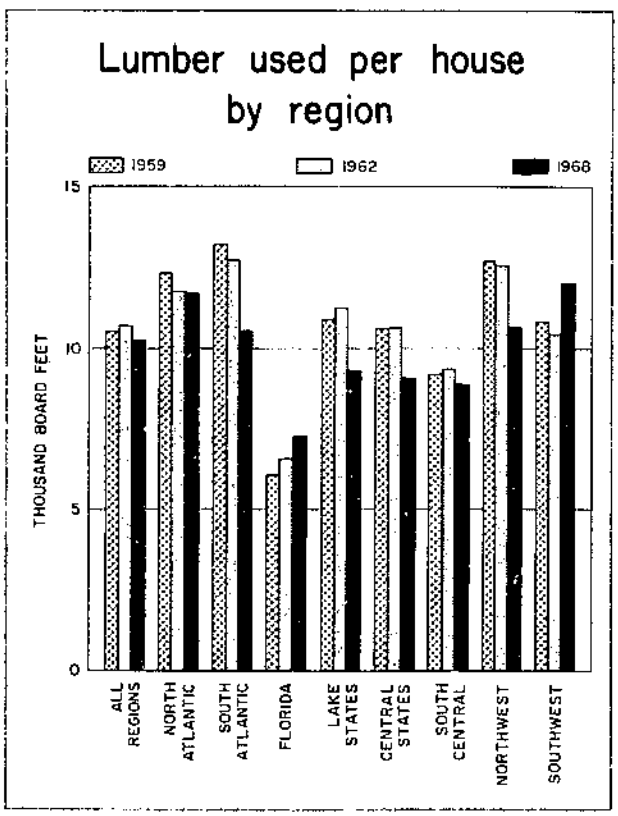

Figure 6.

The decrease in average lumber use between 1962 and 1968 was caused by shifts in some construction characteristics—particularly in the number of stories and kind of foundations; increased substitution, chiefly for sheathing and flooring; and increased use of roof trusses. Losses were moderated by continued increases in average house size.

Lumber use per unit in 1968 ranged from a high of 12,096 board feet in the Southwest to 7,271 board feet in Florida. These were also the only regions in which there were no declines in use per unit over the survey years. Trends in use in the other regions were similar to national trends.

Use per square foot of floor area in 1968 down from earlier survey years

Average lumber use per square foot of house floor area was 7.38 board feet in 1968—about 16 percent below use in 1962 and 20 percent less than in 1959 (table 9, fig. 7).

Substantial differences in regional use per square foot of floor area occurred in all survey years. In 1968, for example, use varied from 8.57 board feet in the Northwest to only 5.44 board feet in Florida.

Use per square foot of floor area dropped in all regions between 1959 and 1962, with particularly large decreases in the North and South Atlantic regions. The decline is attributable to the substitution of other materials, especially of panel products in sheathing and subflooring.

Almost 7,000 board feet of lumber used for framing in 1968—about 68 percent of average unit use

Use of framing lumber averaged nearly 7,000 board feet in 1968 (table 8, fig. 8). This was 712 board feet above 1959 and 211 board feet more than in 1962. Framing lumber composed about 68 percent of total lumber use per unit in 1968, up from 63 percent in 1962 and 60 percent in 1959.

Of the lumber used for framing in 1968, 1,696 board feet went into exterior walls, 1,566 board feet into interior walls and partitions, and 1,259 board feet into floor framing. The remainder—2,474 board feet—went into roof and ceiling framing—the only

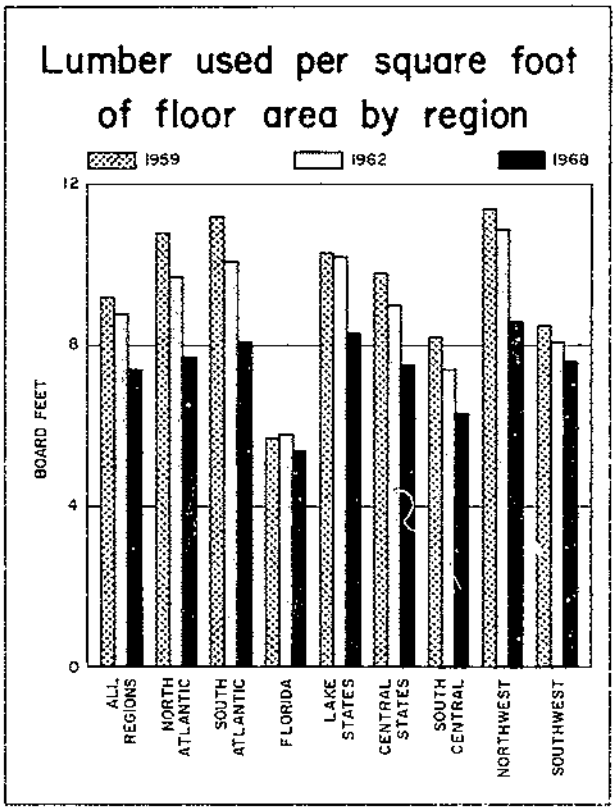

Figure 7.

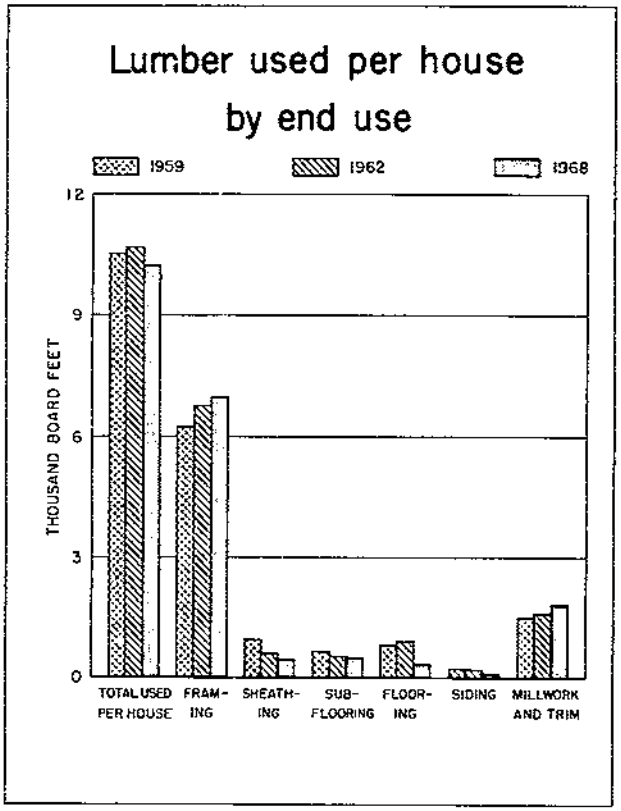

Figure 8.

framing use to show a decrease in the survey period. Other framing uses showed significant increases—in response to increases in house size.

Regional use and trends in use varied greatly for the components included in framing lumber. Roof and ceiling framing use was largest in the Southwest—2,743 board feet per unit. This region and Florida were the only ones in which roof framing increased between 1962 and 1968. Floor framing use was highest in the North Atlantic region. The largest average amount of lumber used for exterior wall and partition framing was in the Southwest.

Framing use per square foot of floor area in 1968—5.03 board feet—was substantially less than the 5.55 board feet used in 1962 and the 5.50 board feet used in 1959. Most of the decline was in roof and ceiling framing.

There were two major reasons for the decrease in use per square foot of floor area for roof and ceiling framing. First, during the study period there was rather marked growth in the use of roof trusses which are usually spaced further apart and use smaller structural members than conventional roof framing. Second, there was a large rise in the percentage of one and one-half- and two-story houses. In a one and one-half- or two-story house, living areas are built one above the other, resulting in a major reduction in the area of roof needed to cover a given floor area.

Lumber use in roof and wall sheathing continued to decrease

An average of 465 board feet of lumber was used for sheathing in 1968 (table 8, fig. 8). This was 152 board feet below the amount used in 1962 and less than half the volume used in 1959. Of the total lumber used in 1968, 453 board feet went into roofs and 12 board feet into walls. These volumes were 406 board feet and 114 board feet, respectively, below the amounts used in 1959.

The drop in the use of lumber for roof sheathing reflects substitution of plywood. Increased use of spaced boards rather than solid lumber sheathing also contributed to the decline.

Lumber roof sheathing use was highest—1,079 board feet—in the Southwest, where nearly 60 percent of the houses had this type of roof sheathing. Use was lowest—less than 70 board feet per house—in the North Atlantic and Northwest regions. Wall sheathing lumber use was relatively small in all regions, ranging from 50 board feet in the North Atlantic to less than 0.5 board feet in the Southwest. Trends in the use of lumber for both roof and wall sheathing were down in nearly every region during the survey period.

Lumber use in subflooring down 45 board feet per house between 1962 and 1968

In 1968, an average of 510 board feet of lumber subflooring was used in the houses inspected. This was some 45 board feet per house less than in 1962 and nearly 175 board feet below use in 1959. The drop was largely due to increases in the percentage of houses on slab foundations and declines in the percentage of houses with lumber subflooring. The decrease would have been larger but for increases in the thickness of the lumber subflooring used with post and beam floor construction and an increase in the percentage of slab-foundation houses with one and one-half or two stories.

The largest average volume of lumber subflooring—1,156 board feet—was used for houses in the Southwest region. Smallest use was in houses in the Central States, where the average was 132 board feet. There were decreases in use per house over the survey years in all regions except the Southwest and Florida.

Lumber use in finish flooring in 1968 less than 40 percent of use in 1962

The volume of lumber used for finish flooring in the houses inspected by FHA in 1968 averaged 357 board feet per unit, some 564 board feet less than in 1962. Most of the decrease was due to the substitution of other materials, chiefly carpeting. Part of the loss was also attributable to increases in the percentage of houses with slab foundations, a floor system that usually uses little wood flooring.

Lumber finish flooring use per house varied considerably among the regions, ranging from 1,148 board feet in the North Atlantic to 93 board feet in the Southwest.

Average use declined in all regions between 1962 and 1968. In many regions in 1968, use was less than one-third of that in 1962. The largest drop was in the Northwest, where use per unit fell about 1,130 board feet.

Lumber siding use per house down 100 board feet between 1962 and 1968

Lumber used for siding averaged 113 board feet in 1968, 100 board feet less than in 1962 and 144 board feet less than in 1959. The drop reflected displacement by plywood and nonwood siding types.

Lumber siding use per house was highest—436 board feet—in the Northwest region, and lowest in the Southwest—29 board feet.

Between 1962 and 1968 there were declines in the use of lumber siding in all regions. There were also declines in most regions between 1959 and 1962.

Lumber use in millwork increased—primarily due to larger size houses

An average of 1,831 board feet of lumber, or about 18 percent of the total use per unit, was used for millwork and trim items in 1968 (table 8, fig. 8). This was 220 board feet more than in 1962 and 310 board feet above 1959. Use per square foot of floor area for millwork was about the same in all 3 survey years (table 9). Thus, the rise in use per unit was due to increases in average house size, with consequent increases in the amounts of interior and exterior trim, interior doors, wood cabinets, and other items.

Among the eight survey regions, Florida had both the smallest average amount used per unit—1,584 board feet—and the smallest use per square foot of floor area. The North Atlantic region had the largest use per unit—2,032 board feet—but use per square foot of floor area was about the same as the national average.

Trends in use per unit in most regions during the survey period were similar to the national trend.

Most lumber used in walls and partitions

The data on end uses of lumber in table 8 are reorganized and shown in table 10 and figure 9 by

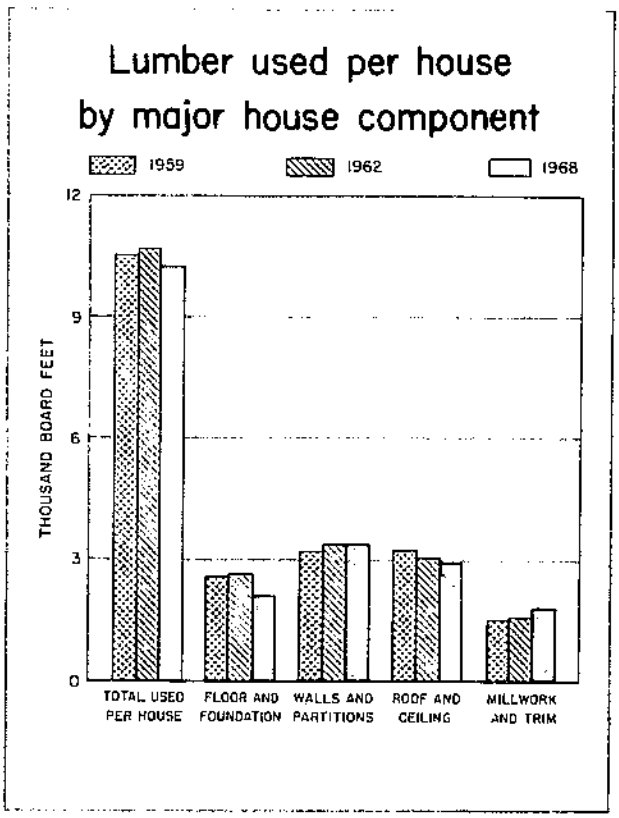

Figure 9.

major house component. In 1968 a third—3,387 board feet—of the lumber used per unit went into walls and partitions. Somewhat more than a quarter was used in roofs and ceilings, and about a fifth for floors and foundations. The remainder—18 percent—was used for millwork.

During the 1962 to 1968 period there were decreases of 507 board feet and 143 board feet, respectively, in the volume of lumber used in floors and foundations and roofs and ceilings. There was an increase of 220 board feet in millwork lumber use. Wall and partition use remained the same.

Regionally, lumber use per unit for the various house components differed greatly. For example, in 1968 average floor and foundation use was 3,524 board feet in the North Atlantic region, compared with 650 board feet in Florida. Use in walls and partitions varied from 3,684 board feet in the North Atlantic to 2,202 board feet in Florida. Lumber use in roofs and ceilings was highest—3,822 board feet—in the Southwest and lowest—2,015 board feet—in the Lake States.

Regional use of lumber was down for most components except millwork and trim in most regions between 1962 and 1968. In the Southwest region, however, there were increases in average use for all components.

Average lumber use per square foot of floor area was highest—2.44 board feet—for the walls and partitions component in 1968 (table 11). Of the other components, roofs and ceilings had the highest use per square foot of floor area and millwork used least.

Use of lumber per square foot of floor area decreased between 1962 and 1968 for all components. This was a continuation of the downward trend between 1959 and 1962.

Lumber use per square foot of floor area was highest for floors and foundations in the North Atlantic; for walls and partitions in the Northwest; for millwork and trim in the Lake States; and for roofs and ceilings in the Southwest. Houses in Florida had the smallest use per square foot of floor area for floors and foundations, walls and partitions, and millwork and trim. Use per square foot of floor area for roofs and ceiling was lowest in the North Atlantic. There was a decline in use per square foot of floor area for nearly all components in all regions.

PLYWOOD

4,158 square feet of plywood used per unit in 1968—a 75 percent increase since 1962

An average of 4,158 square feet (3/8-inch basis) of plywood was used in the new single-family detached houses inspected in 1968 (table 12, fig. 10). This was 1,776 square feet more than in 1962 and 2,333 square feet above use in 1959.

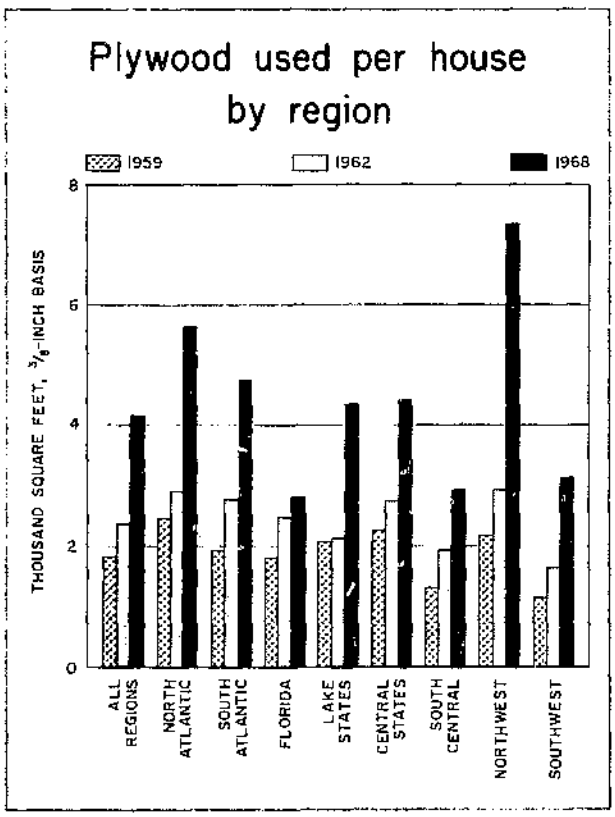

Figure 10.

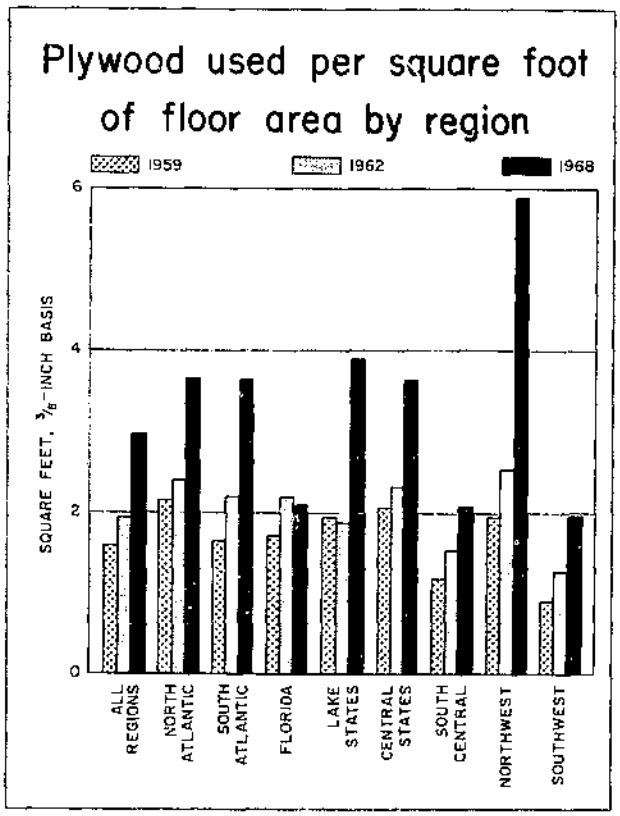

Figure 11.

The largest average use of plywood per house—7,358 square feet—was in the Northwest region. In Florida, on the other hand, use was only 2,806 square feet per unit.

Average use per house was up in all regions between 1962 and 1968. The largest increase—4,414 square feet—was in the Northwest region. Houses inspected in Florida showed the smallest increase—310 square feet.

Plywood use per square foot of floor area averaged 2.99 square feet in 1968, about 87 and 53 percent, respectively, above 1959 and 1962 (table 13, fig. 11). The increase in use which occurred in all regions except Florida largely reflected the extensive substitution of plywood for lumber.

Sheathing plywood use continued to increase—over 1,700 square feet used per house in 1968

The amount of plywood used for sheathing averaged 1,707 square feet in 1968. This was 365 square feet more than was used in 1962 and 700 square feet above that in 1959 (table 12, fig. 12).

More than 92 percent of the plywood used for sheathing went into roofs. Plywood use in roofs rose steadily over the survey years, both in use per house and in use per square foot of floor area (table 13). Conversely, plywood wall sheathing dropped about 133 square feet between 1962 and 1968—after a small increase between 1959 and 1962.

The major reasons for the rise in plywood roof sheathing was increased substitution of plywood for lumber (table 5) and the larger roof areas associated with growth in average house size.

The use of plywood for roof sheathing was largest—2,092 square feet—in the Northwest region, where 96 percent of the houses had this type of sheathing. Use was smallest in the Southwest—966 square feet—where only 41 percent of the houses inspected used plywood for this purpose.

Trends in the use of plywood sheathing in most regions followed the national trends.

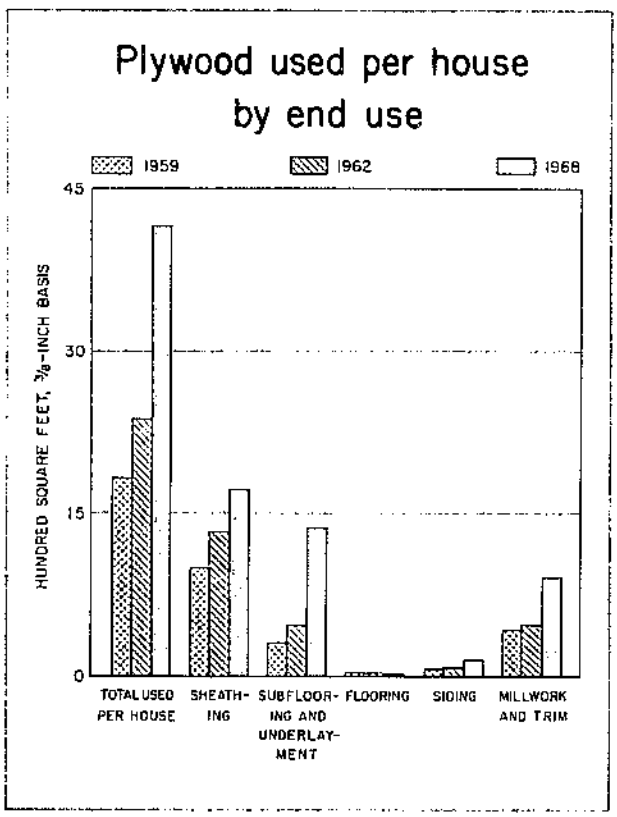

Figure 12.

Amount of plywood used for subflooring and underlayment nearly tripled between 1962 and 1968

An average of 1,379 square feet (3/8-inch basis) of plywood was used for subflooring and underlayment in the houses inspected in 1968. This was nearly 3 times the 464 square feet used in 1962 and 4.5 times the 304 square feet used in 1959.

These large increases were due to the growth in average house size and in the proportion of houses on nonslab foundations with plywood subflooring. The big expansion in the use of carpeting in lieu of wood flooring also resulted in a substantial gain in the use of plywood underlayment.

The volume of plywood used for subflooring and underlayment per house was largest—3,109 square feet—in the Northwest region. Smallest average use—109 square feet—was in Florida, where nearly 90 percent of the houses had slab foundations.

In contrast to the trends for subflooring, use of plywood flooring dropped from 27 to 7 square feet during the survey period. This was primarily due to a reduction in its use in houses on slab foundations (table 3). Highest use—18 square feet per unit—was in Florida, where 7 percent of the houses on nonslab foundations had plywood finish flooring.

Plywood siding use increased about 63 square feet between 1962 and 1968

Plywood siding use per house in 1968 averaged 148 square feet (3/8-inch basis). This was 63 square feet more than in 1962 and about 90 square feet above 1959. This rise reflected both a greater percentage of frame houses with plywood siding and the increase in house size.

The largest per unit use of plywood siding in 1968—946 square feet—was in the Northwest region. Smallest per unit use was in the North Atlantic, where it averaged 19 square feet per house. There were fairly substantial increases in plywood siding use in about half of the regions between 1959 and 1968.

Plywood use in millwork and trim nearly doubled between 1962 and 1968

An average of 917 square feet of plywood (3/8-inch basis) was used for millwork and trim items in 1968—450 square feet more than in 1962 and 489 square feet above that in 1959. This national pattern of change—a slow rise from 1959 to 1962, then a major increase to 1968—was also followed in the regions. Among the regions, average use in 1968 ranged from a low of 782 square feet in Florida to 1,000 square feet in the North Atlantic.

Most plywood used for roof and ceiling component in 1968—floor and foundation use climbed rapidly

Data on plywood use in major house components are shown in tables 14 and 15 and figure 13. An average of 1,578 square feet of plywood was used in the roofs and ceilings of the houses inspected in 1968. An additional 1,386 square feet was used in floors and foundations, 917 in millwork, and 277 in walls and partitions.

There were increases in average plywood use for all components except walls and partitions between 1962 and 1968. The largest increase during this period—nearly 900 square feet—was in floors and foundations. Roof and ceiling use climbed almost 500 square feet and millwork and trim 450 square feet. Most regions followed the national trends with an increase in use per house for all components except walls and partitions.

Use per square foot of floor area in 1968 was largest—1.13 square feet—for the roof and ceiling component. One square foot of plywood per square foot of floor area was used in floors and foundations, and about two-thirds of a square foot for millwork.

There were increases between 1962 and 1968 in use per square foot of floor area for all components except walls and partitions. The largest increase—0.60 square foot—was for floors and foundations.

Plywood use per square foot of floor area was higher in the Northwest than in any other region for all components except millwork. The Lake States had the highest millwork use per square foot of area. Use per square foot of floor area was lowest for floors and foundations in Florida; and for roof and ceiling, walls and partitions, and millwork in the Southwest.

In most regions, plywood use per square foot of floor area was up between 1962 and 1968 for millwork, trim, roof, and ceilings. The other two components showed diverse trends.

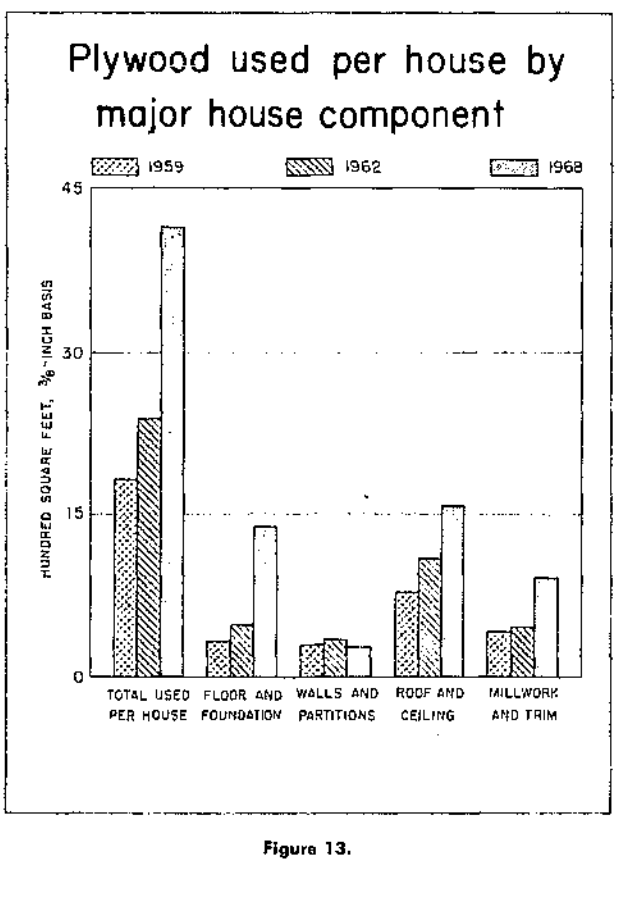

Figure 13.

HARDBOARD[4]

1,062 square feet of hardboard used per unit in 1968—more than double in use in 1962

Hardboard use in the new FHA-inspected single-family detached houses in 1968 averaged 1,062 square feet (1/8-inch basis) per unit—over twice the volume used in 1962 and nearly 3 times that used in 1959 (table 16, fig. 14). Part of the rise in use per unit was due to increases in floor area. However, there was also a substantial increase in use per square foot of floor area in response to the substitution of hardboard for other materials (table 17).

Per unit use varied substantially among the regions, ranging in 1968 from 1,655 square feet in the North Atlantic to 617 square feet in the Southwest. The increase in average per unit use occurred in all regions. The largest gain between 1962 and 1968—1,097 square feet—was in the North Atlantic; the smallest was in the Southwest, where use increased 191 square feet.

Over half of hardboard used in 1968 went into walls and partitions

In 1968, 571 square feet of hardboard—54 percent of average unit use—went into walls and partitions

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

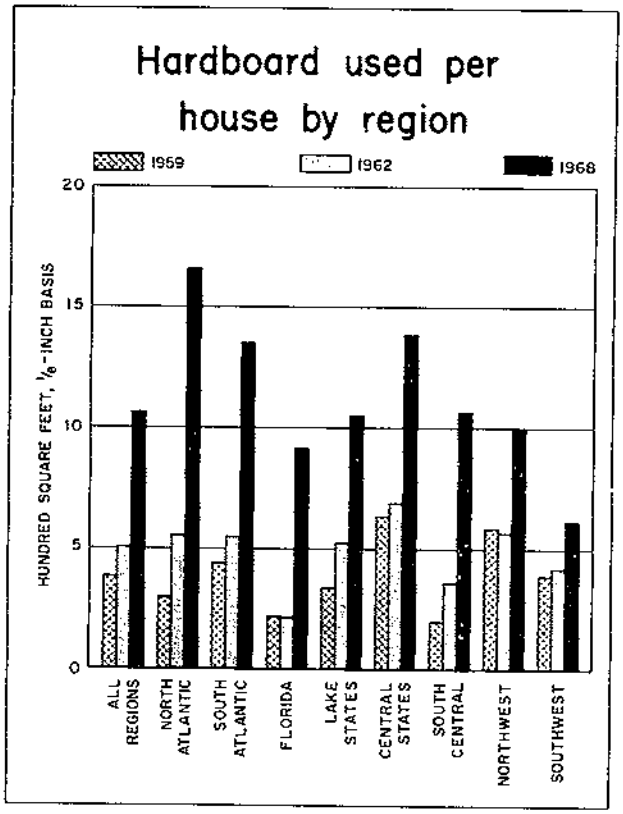

Figure 14.

(table 16, fig. 15). This was an increase of 238 square feet over average use in 1962 and 347 square feet above that in 1959. Practically all of the rise was due to increases in siding use.

Hardboard use per unit for walls and partitions averaged 1,102 square feet in the North Atlantic region—almost 8 times the 139 square feet used in the Southwest. Between 1959 and 1968, there were substantial increases in the use of hardboard for walls and partitions in all regions except the Southwest.

Hardboard used for millwork and trim increased over 300 square feet

Hardboard used for millwork and trim averaged 469 square feet in 1968, up 305 square feet from 1962. Regional use varied from 517 square feet in Florida to 394 square feet in the Northwest. Much of the regional difference was due to house size variation.

INSULATION BOARD

Insulation board use per house in 1968 was about the same as in 1962

Insulation board use in 1968 averaged 742 square feet per unit (1/2-inch basis)—8 square feet less

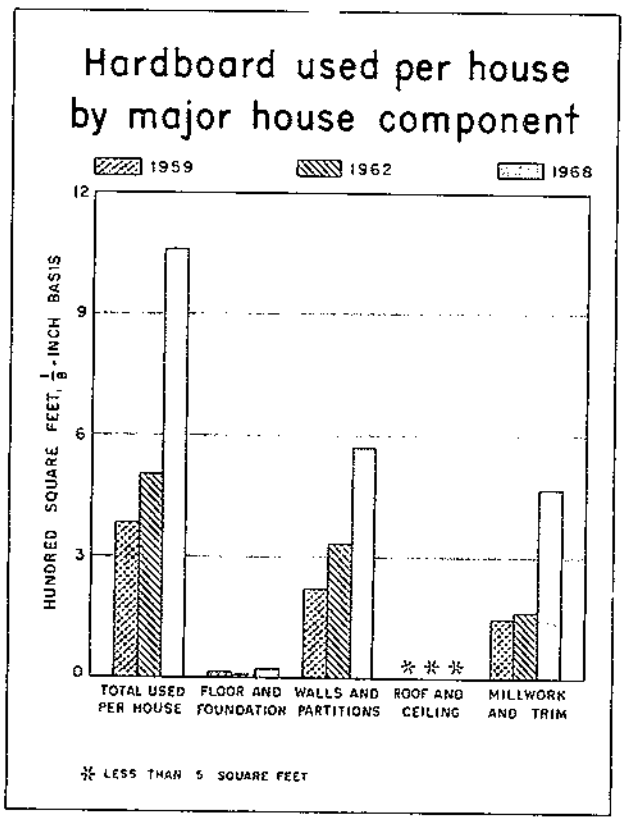

Figure 15.

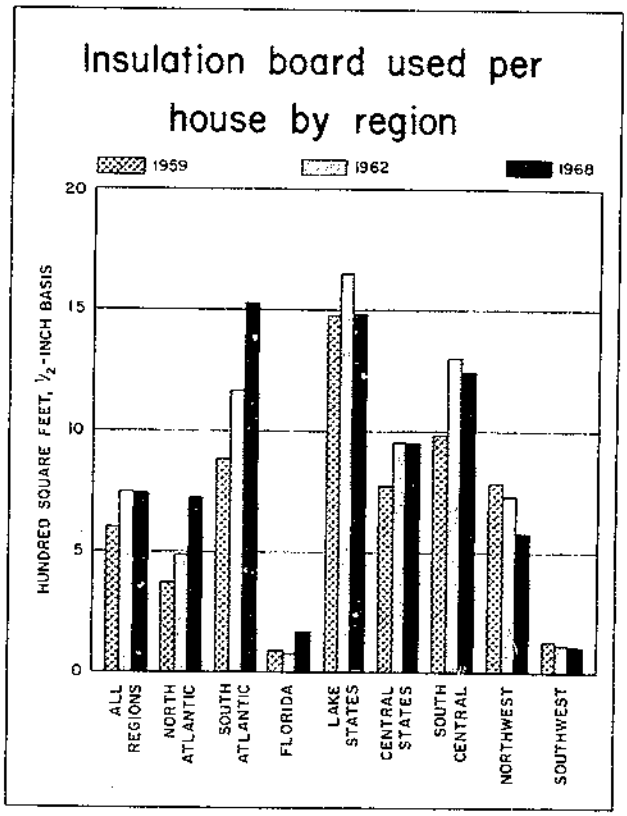

Figure 16.

than was used in 1962—but some 140 square feet more than was used in 1959 (table 18, fig. 16).

Use per house ranged from a high of 1,522 square feet in the South Atlantic region to only 105 square feet in the Southwest. There was a decrease in average use per house between 1962 and 1968 in five regions and increases in three. The largest increase—358 square feet—was in the South Atlantic region. Average use in the Lake States dropped 171 square feet.

Over 90 percent of insulation board used in walls and partitions in 1968

Of the insulation board used per unit in 1968, some 91 percent, or 677 square feet, went into walls and interior partitions—nearly all of which was used for exterior wall sheathing (fig. 17). This average was 43 square feet less than that in 1962. The drop was caused by a decline in the percentage of frame houses using insulation board wall sheathing (table 1). The decrease in sheathing use was also primarily responsible for the drop in average total insulation board use per square foot of floor in the 1962–68 period (table 19).

The use of insulation board in walls and partitions was highest in the South Atlantic—1,472 square feet—and in the Lake States region—1,439 square feet—and lowest in the Southwest—10 square feet.

Insulation board used in roof and ceiling averaged about 65 square feet per unit. Use in the millwork and trim was very small.

PARTICLEBOARD

Particleboard use averaged 180 square feet in 1968—110 square feet over use in 1962

Particleboard use per unit averaged 180 square feet (3/4-inch basis) in 1968 (table 20, fig. 18). This was more than 2.5 times the 70 square feet used in 1962. The rise in use was largely the result of the substitution of particleboard for other materials and the increase in the average house size.

Particleboard use was highest in the Southwest at 352 square feet per house, and lowest—49 square feet—in Florida. There was a per unit increase in each of the eight regions between 1962 and 1968. However, these increases were not uniform. For example, use per unit rose by 218 square feet in the Northwest but by only 4 square feet in Florida.

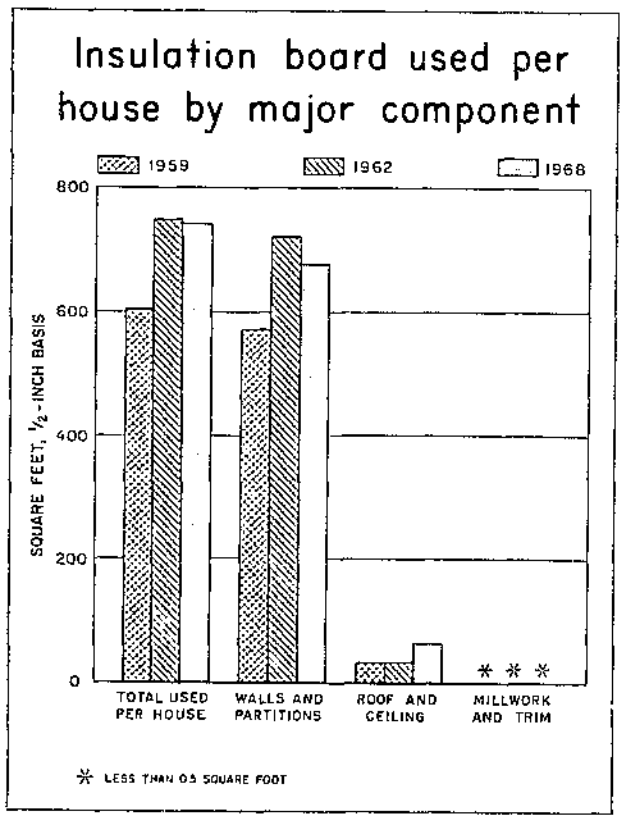

Figure 17.

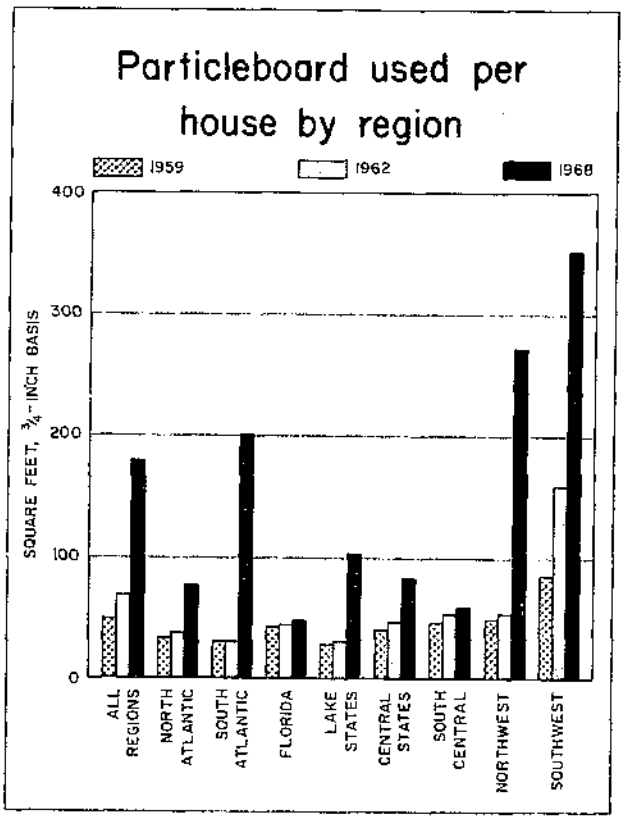

Figure 18.

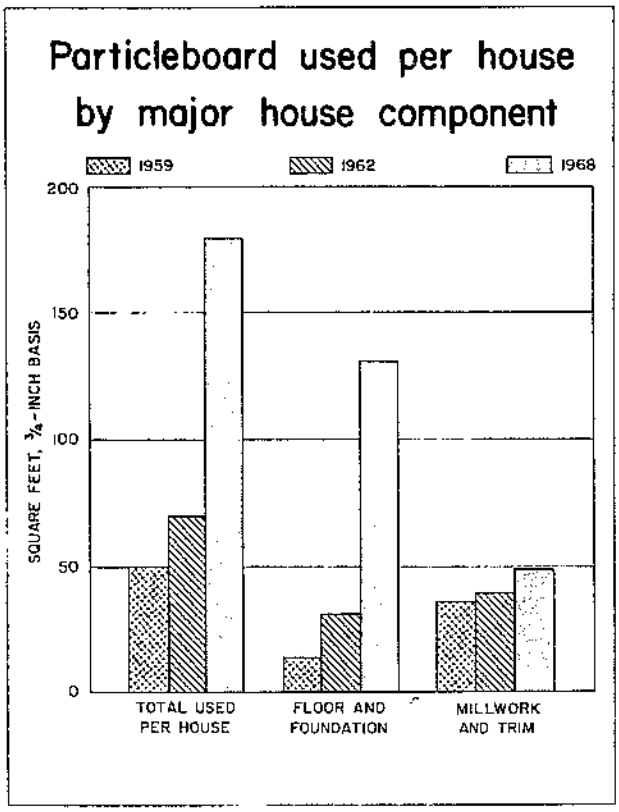

Figure 19.

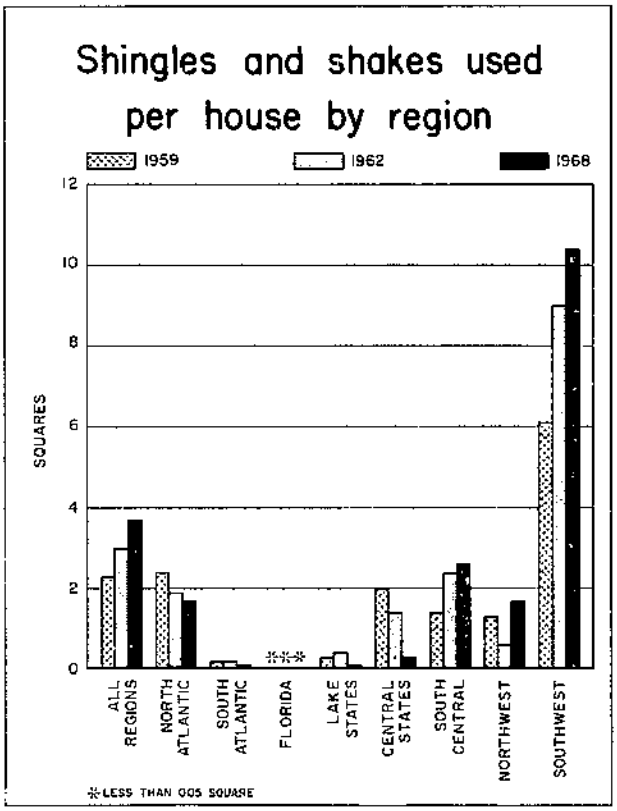

Figure 20.

Almost 75 percent of particleboard used per unit in 1968 was in floors and foundations

Average particleboard use for floors and foundations in 1968 was 131 square feet (table 20, fig. 19). This was 100 square feet above 1962 and 117 square feet more than in 1959. Practically all of the rise was due to the greater use of particleboard underlayment under tile, resilient flooring, and carpeting (table 4) and to the increase in house size.

Use of particleboard in millwork and trim also increased between 1962 and 1968. Much of this particleboard went into cabinets, kitchen countertop underlayment, and a small amount into paneling.

Regionally, particleboard use in floors and foundations ranged from 298 square feet in the Southwest to only 2 square feet in Florida. The largest increase between 1962 and 1968—220 square feet—was in the Northwest region. Use of particleboard for millwork and trim was relatively uniform among the regions, with increases in all regions except the Northwest.

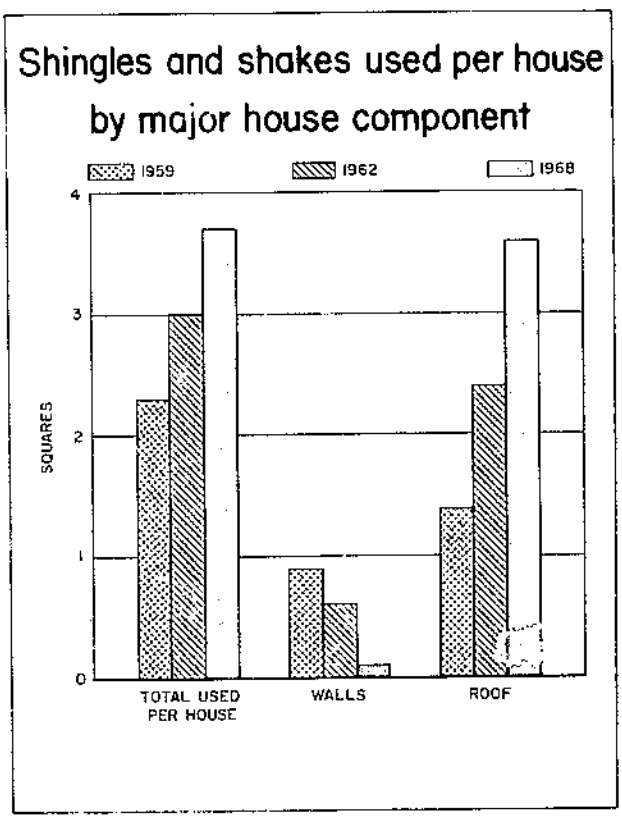

Figure 21.

SHINGLES[5]

About 3.7 squares of shingles were used per unit in 1968—mostly for roofs

An average of 3.7 squares of shingles were used per unit in 1968 (table 22, fig. 20). This was about 25 percent higher than in 1962, when 3.0 squares were used per unit. As in previous survey years, the Southwest region showed both the largest use—10.4 squares—and the largest increase between surveys. In all 3 survey years, use in Florida was less than 0.05 square per house.

Most of the shingles used in 1968 went on roofs (fig. 21). This reflected an increase between 1962 and 1968 in the percentage of houses with wood shingle roofs in all regions. Use of shingles for siding decreased by 0.5 square nationally due to a decrease in the percentage of frame houses with this type of siding.

[5] Includes shakes.

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:

Calculated 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, carports, or attics. Measurements are taken to the outside of the exterior walls. This definition was used in the 1959 and 1962 surveys.

Improved floor area.—The total square feet of floor area of a house appropriately improved for the intended use and in compliance with the *Minimum Property Standards.* This area includes all improved areas including foyers, vestibules, bays, dormers, cantilevered overhang of rooms, family rooms, and improved recreation and attic rooms. Measurements are taken to the outside of the exterior walls. This definition was used in the 1968 survey.

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, trusses.

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 materials 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 wood gutters, interior doors, false beams, windows, doors, cornice, porch posts and beams, shutters, louvers, kitchen cabinets, closet equipment, stairs, shelves, soffitts, door panels and skins, paneling, garage doors, 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).

SURVEY PROCEDURE

For the 1959 survey a sample of FHA offices was selected in each of the eight regions used in this report. The sample consisted of all FHA offices processing 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. The study included 289,075 houses.

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 offices, was then used to calculate consumption of wood products for each end use and house component.

In the 1962 survey, 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 the classifications used in the earlier survey and to calculate wood products consumption by end use and house component for each region. The survey included 176,327 houses.

In the 1968 survey, a mail questionnaire was again sent to each of the FHA field offices that handled new single-family house construction. The questionnaire was designed to measure changes in house size and wood products use in house components between 1962 and 1968. In addition, six field offices were visited and wood use statistics for houses inspected by the offices were derived from FHA file data. Wood use in these houses was compared with wood use in houses with similar construction characteristics from earlier surveys to correlate changes in material amounts and construction practices. These data were combined with the questionnaire data to calculate wood products consumption for houses inspected in 1968. In total, 136,333 houses were included in the survey.

The results of the 1959 and 1962 surveys were presented in an earlier publication.[6] In that bulletin, data on wood products use was presented with material used in attached and detached garages and in carports not included. In this bulletin, estimates for wood products used in attached garages and carports have been made for 1959 and 1962 so that the earlier data would be comparable with those from the 1968 study which included use for these items. Data on use in detached garages are not included for any of the study years. Relatively few houses with these types of structures are built annually.

Between 1962 and 1968 the Federal Housing Administration changed the way that floor area is measured in their housing programs. In 1959 and 1962 calculated floor area was used. In 1968 three areas, foundation area, improved floor area, and other usable floor area were measured.[7] The measurement most nearly comparable to calculated floor area is improved floor area and is the one used in this study.

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[6] Robert B. Phelps. Wood products used in single-family houses inspected by the Federal Housing Administration, 1959 and 1962. Statistical Bulletin No. 366. U.S. Department of Agriculture, Forest Service, Washington, D.C., 1966.

[7] How FHA measures a house. Department of Housing and Urban Development, Federal Housing Administration, Washington, D.C. 20411.

TABLES

TABLE 1.—*Percentage of new FHA-inspected single-family detached houses with specified characteristics, by region, 1959, 1962, and 1968*

Construction characteristic	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
All houses:																											
Stories	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1 story	88	82	79	58	63	58	94	80	83	99	92	93	84	76	71	86	76	73	97	88	93	81	82	82	98	95	75
1½–2 stories	3	8	12	10	19	25	1	5	6	(1)	4	5	7	15	19	2	7	8	2	9	5	1	4	3	2	4	22
Split level	9	10	9	32	18	17	5	15	11	1	4	2	9	9	10	12	17	19	1	3	2	18	14	15	(1)	1	3
Foundation	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nonslab	57	59	55	94	89	88	87	81	85	6	9	11	89	97	87	65	62	66	21	12	8	100	100	98	45	44	47
Slab	43	41	45	6	11	12	13	19	15	94	91	89	11	3	13	35	38	34	79	88	92	(1)	(1)	2	55	56	53
Exterior wall	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood frame	82	88	91	93	90	89	99	99	98	8	8	12	100	100	100	95	100	99	91	100	100	84	91	96	80	81	92
Masonry	18	12	9	7	10	11	1	1	2	92	92	88	(1)	(1)	(1)	5	(1)	1	9	(1)	(1)	16	9	4	20	19	8
Wood-frame houses:																											
Exterior wall sheathing	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber	10	3	1	13	4	3	7	2	1	13	10	3	13	10	3	7	3	1	13	3	(1)	16	3	1	9	(1)	(1)
Plywood	17	17	8	38	32	30	21	18	6	27	14	10	11	9	24	17	12	5	7	10	2	32	50	23	4	7	1
Fiberboard	41	46	37	30	40	44	34	49	59	19	12	12	73	78	71	68	76	73	39	45	37	48	40	26	11	7	2
Nonwood	32	15	20	19	24	22	38	30	29	41	59	69	3	3	2	8	7	15	41	32	55	4	3	4	76	3	3
None		19	34		(1)	1		1	5		5	6		(1)	(1)		2	6		10	6		4	46		83	94
Siding	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber	13	9	5	5	4	2	9	4	2	9	14	19	27	7	8	17	12	7	17	9	2	33	39	25	1	(1)	(1)
Plywood	3	3	7	1	1	1	(1)	3	3	8	12	9	1	2	4	4	3	7	1	3	2	10	9	46	2	5	2
Fiberboard	6	9	9	2	7	18	5	6	14	13	6	12	7	13	10	17	17	17	1	4	6	13	11	12	2	4	1
Shingle or shake	9	5	2	20	16	9	2	2	2	(1)	4	2	2	3	2	13	5	1	10	1	(1)	10	8	1	2	1	1
Nonwood	56	64	70	64	66	62	73	81	74	51	49	34	51	70	74	38	55	61	47	62	72	28	28	13	79	81	95
Mixed	13	10	7	8	6	8	11	4	5	19	15	24	12	5	2	11	8	7	24	21	18	6	5	3	14	9	1
NUMBER OF HOUSES																											
All houses	289,075	176,327	136,333	43,328	26,575	11,517	17,445	10,527	13,312	27,991	9,890	8,607	22,456	12,949	5,312	53,335	37,433	24,976	46,585	26,501	22,820	15,191	14,019	12,084	62,744	38,433	37,705
Wood-frame houses	238,401	255,623	123,419	40,263	24,001	10,295	17,229	10,453	13,093	2,076	853	990	22,455	12,949	5,312	50,621	37,267	24,720	42,412	26,423	22,809	12,825	12,733	11,630	50,520	30,944	34,570

[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, 1962, and 1968*

[Square feet]

Construction characteristic	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
All houses	1,143	1,223	1,392	1,142	1,217	1,534	1,177	1,262	1,302	1,055	1,135	1,337	1,061	1,112	1,115	1,088	1,191	1,216	1,122	1,270	1,409	1,109	1,154	1,247	1,274	1,302	1,585
Stories:																											
1 story	1,129	1,170	1,318	1,047	1,085	1,371	1,160	1,158	1,225	1,054	1,107	1,308	1,027	1,063	1,077	1,069	1,127	1,135	1,119	1,219	1,396	1,101	1,096	1,184	1,274	1,281	1,471
1½–2 stories	1,289	1,563	1,812	1,336	1,490	1,796	1,149	1,479	1,701	(1)	1,479	1,755	1,392	1,389	1,304	1,075	1,613	1,600	1,278	1,706	1,707	1,176	1,548	1,735	1,230	1,723	1,961
Split level	1,236	1,369	1,490	1,255	1,395	1,706	1,528	1,700	1,667	1,149	1,433	1,499	1,122	1,049	1,025	1,237	1,301	1,367	1,195	1,451	1,283	1,143	1,374	1,498	(1)	1,563	1,697
Foundation:																											
Nonslab	1,145	1,214	1,349	1,145	1,212	1,530	1,186	1,281	1,307	1,172	1,318	1,305	1,064	1,117	1,137	1,095	1,177	1,199	1,126	1,309	1,264	1,110	1,154	1,244	1,263	1,334	1,545
Slab	1,142	1,236	1,446	1,087	1,267	1,574	1,109	1,180	1,272	1,047	1,107	1,340	1,048	953	970	1,076	1,215	1,249	1,122	1,261	1,422	(1)	(1)	1,386	1,284	1,278	1,622
Exterior wall:																											
Wood frame	1,141	1,228	1,392	1,135	1,214	1,520	1,175	1,264	1,304	1,060	1,239	1,168	1,061	1,112	1,115	1,089	1,191	1,217	1,113	1,271	1,409	1,104	1,160	1,255	1,255	1,310	1,595
Masonry	1,157	1,191	1,397	1,229	1,253	1,658	(1)	(1)	1,187	1,055	1,125	1,358	(1)	(1)	(1)	1,078	(1)	1,163	1,215	(1)	900	1,136	1,093	1,043	1,352	1,270	1,474

[1] Insufficient number of houses for meaningful estimate.

TABLE 3.—*Percentage of new FHA-inspected single-family detached houses with specified subflooring and finish flooring characteristics, by region, 1959, 1962, and 1968*

Construction characteristic	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Nonslab houses:																											
Subflooring	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber	58	44	28	58	24	14	52	48	16	81	71	59	63	66	11	47	23	7	68	58	36	65	51	25	88	75	68
Plywood	41	55	72	40	73	85	48	52	84	19	29	41	37	34	89	53	77	93	27	42	64	33	48	75	12	25	32
None and other	1	1	(1)	2	3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	5	(1)	(1)	2	1	(1)	(1)	(1)	(1)
Finish flooring[2]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Hardwood strip	94	92	52	95	95	92	99	98	87	97	97	66	93	95	76	89	83	49	94	97	74	93	94	35	99	95	11
Softwood strip	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1	(1)	(1)	(1)	(1)	1	1	(1)	(1)	(1)	(1)	(1)	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Lumber parquet	1	1	1	2	1	(1)	(1)	(1)	(1)	(1)	(1)	11	(1)	(1)	(1)	(1)	2	3	3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Plywood parquet	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1	(1)	(1)	7	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
None and other	5	7	47	3	4	8	1	1	12	3	3	16	6	4	24	1	15	48	2	2	26	7	6	65	1	5	89
Slab houses:																											
Finish flooring[2]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Hardwood strip	6	4	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1	(1)	9	10	6	14	6	1	(3)	(3)	(1)	(1)	(1)	(1)
Softwood strip	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(3)	(3)	(1)	(1)	(1)	(1)
Lumber parquet	4	5	2	5	9	3	8	8	1	2	1	2	1	1	(1)	11	10	6	7	3	3	(3)	(3)	(1)	(1)	(1)	(1)
Plywood parquet	10	7	2	5	1	1	20	3	3	2	3	2	1	(1)	(1)	8	6	3	21	14	2	(3)	(3)	(1)	6	1	(1)
None and other	80	84	95	90	90	96	72	89	96	96	96	96	98	98	100	72	74	85	58	72	94	(3)	(3)	100	94	99	100
NUMBER OF HOUSES																											
Nonslab houses	165,606	103,026	75,128	40,885	23,744	10,156	15,229	8,552	11,348	1,836	904	953	19,031	12,518	4,622	34,667	23,369	16,413	9,820	3,208	1,908	15,132	14,000	11,838	28,106	16,731	17,890
Slab houses	123,469	73,301	61,205	2,443	2,831	1,361	2,216	1,975	1,964	26,155	8,986	7,654	2,525	431	690	18,668	14,064	8,563	36,765	23,293	20,912	59	19	246	34,638	21,702	19,815

[1] Less than 0.5 percent.
[2] Applies only to living room, dining room, halls, and bedroom areas.
[3] Insufficient number of houses for meaningful estimate.

TABLE 4.—*Percentage of new FHA-inspected single-family detached houses with floor underlayment, by where used, material used, and region, 1968*

Underlayment use	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	Northwest	Southwest
Under tile or resilient flooring:									
Percentage of houses	46	83	67	1	78	53	4	85	43
Material used									
Plywood	55	88	57	53	79	85	49	51	9
Hardboard	4	7	7	6	2	4	(1)	2	(1)
Particleboard	41	5	36	41	19	11	51	47	91
Under carpeting:									
Percentage of houses	27	21	49	1	23	39	2	41	32
Material used									
Plywood	47	77	55	40	70	83	48	35	9
Hardboard	4	12	8	5	2	5	(1)	2	1
Particleboard	49	11	37	55	28	12	52	63	90

[1] Less than 0.5 percent.

TABLE 5.—*Percentage of new FHA-inspected single-family detached houses with specified types of roofs, kitchen cabinets, and windows, by region, 1959, 1962, and 1968*

Construction characteristic	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Roof sheathing	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Lumber, solid	50	22	10	32	11	4	47	28	14	45	26	25	41	40	13	47	22	11	52	18	9	44	21	2	76	23	10
Lumber, spaced		9	16		(1)	(1)		(1)	(1)		(1)	(1)		(1)	(1)		2	1		13	14		1	2		30	49
Plywood	50	69	74	68	89	96	53	72	86	55	73	75	59	60	87	53	76	88	48	69	77	56	78	96	23	47	41
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(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	100	100	100	100	100	100	100	100	100
Wood shingles	7	10	18	(1)	(1)	6	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2	2	2	3	12	14	3	2	10	25	36	52
Other	93	90	82	100	100	94	100	100	100	100	100	100	100	100	100	98	98	98	97	88	86	97	98	90	75	64	48
Kitchen cabinets	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood	95	97	97	90	97	90	98	93	95	99	100	100	92	98	99	92	94	95	94	98	100	94	99	100	98	99	99
Other	5	3	3	10	3	10	2	7	5	1	(1)	(1)	8	2	1	8	6	5	6	2	(1)	6	1	(1)	2	1	1
Windows[2]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wood	(NA)	40	28	(NA)	49	57	(NA)	79	66	(NA)	3	(1)	(NA)	29	41	(NA)	37	32	(NA)	13	8	(NA)	18	4	(NA)	30	28
Other	(NA)	60	72	(NA)	51	43	(NA)	21	34	(NA)	97	100	(NA)	71	59	(NA)	63	68	(NA)	87	92	(NA)	82	96	(NA)	70	72

[1] Less than 0.5 percent.
[2] Above grade only.
(NA) Not available.

TABLE 6.—*Percentage of new FHA-inspected single-family detached houses with specified materials used for kitchen countertop underlayment, by region, 1968*

Material	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	Northwest	Southwest
Particleboard	53	45	42	40	40	35	53	30	85
Plywood	44	39	55	60	60	62	47	70	13
Hardboard	2	16	(1)	(1)	(1)	3	(1)	(1)	1
Other[2]	1	(1)	3	(1)	(1)	(1)	(1)	(1)	1

[1] Less than 0.5 percent.
[2] Includes wood boards, metal, etc.

TABLE 7.—*Den and recreation room characteristics of new FHA-inspected single-family detached houses, by region, 1968*

[Percent]

Item	All regions	North Atlantic	South Atlantic	Florida	Lake States	Central States	South Central	Northwest	Southwest
Houses with dens and/or recreation rooms	65	60	49	69	27	41	72	62	88
Material used for wall finish									
Lumber	4	3	4	7	3	4	(1)	2	5
Plywood	39	57	81	22	22	57	87	20	6
Hardboard	4	2	11	12	2	18	1	(1)	1
Particleboard	(1)	(1)	(1)	(1)	(1)	1	(1)	2	(1)
Nonwood	53	38	4	59	73	20	12	76	88

[Square feet]

Den and/or recreation room floor area	194	220	177	157	192	192	237	198	177

TABLE 8.—*Lumber used per unit in new FHA-inspected single-family detached houses, by major end use and region, 1959, 1962, and 1968*

[Board feet]

Major end use	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Framing:																											
Roof and ceiling	2,406	2,503	2,474	2,443	2,500	2,448	2,583	2,642	2,262	2,228	2,344	2,506	2,211	2,226	1,849	2,353	2,429	2,211	2,403	2,642	2,624	2,384	2,456	2,401	2,532	2,596	2,743
Partition	1,401	1,500	1,566	1,432	1,479	1,714	1,391	1,516	1,490	1,261	1,378	1,544	1,283	1,340	1,403	1,337	1,481	1,419	1,381	1,568	1,549	1,339	1,402	1,418	1,570	1,604	1,731
Exterior wall	1,423	1,624	1,696	1,685	1,770	1,846	1,702	1,810	1,720	155	255	592	1,616	1,698	1,570	1,592	1,772	1,677	1,346	1,685	1,716	1,453	1,583	1,782	1,567	1,633	1,884
Floor	1,053	1,157	1,259	1,963	2,021	1,991	1,959	1,952	1,684	327	436	320	1,432	1,596	1,591	1,190	1,259	1,257	359	339	445	1,539	1,592	1,836	643	684	1,363
Total	6,283	6,784	6,995	7,523	7,770	7,999	7,635	7,950	7,156	3,971	4,413	4,962	6,542	6,860	6,413	6,472	6,941	6,564	5,489	6,214	6,334	6,715	7,033	7,437	6,312	6,517	7,721
Sheathing:																											
Roof	859	567	453	525	193	67	523	284	220	424	250	329	325	311	166	589	384	171	1,025	695	380	981	518	61	1,644	1,180	1,079
Wall	126	50	12	214	79	50	587	160	16	8	19	5	44	36	41	172	79	15	117	36	4	47	34	15	5	(1)	(1)
Total	985	617	465	739	272	117	1,110	444	236	432	269	334	369	347	207	761	463	186	1,142	731	384	1,028	552	76	1,649	1,180	1,079
Subflooring	682	555	510	1,061	624	385	1,113	1,014	348	80	109	212	777	910	209	426	232	132	244	139	156	1,435	1,175	584	898	753	1,156
Flooring	827	921	357	1,227	1,307	1,148	1,391	1,411	874	127	210	118	1,194	1,426	657	1,024	1,067	364	481	376	101	1,374	1,506	375	531	554	93
Siding	257	213	113	136	128	74	247	115	81	35	85	61	570	176	135	350	270	147	345	273	96	519	613	436	121	96	29
Millwork and trim	1,521	1,611	1,831	1,070	1,703	2,032	1,735	1,837	1,822	1,386	1,501	1,584	1,505	1,573	1,674	1,611	1,713	1,674	1,475	1,614	1,804	1,632	1,682	1,779	1,357	1,397	2,018
Total	3,287	3,300	2,811	4,094	3,762	3,639	4,486	4,377	3,125	1,628	1,905	1,975	4,046	4,085	2,675	3,411	3,282	2,317	2,545	2,402	2,157	4,960	4,976	3,174	2,907	2,800	3,296
Total, all uses	10,555	10,701	10,271	12,356	11,804	11,755	13,231	12,771	10,517	6,031	6,587	7,271	10,957	11,292	9,295	10,644	10,686	9,067	9,176	9,347	8,875	12,703	12,561	10,687	10,868	10,497	12,096

[1] Less than 0.5 board foot.

NOTE: Includes allowance for onsite and manufacturing waste.

TABLE 9.—*Lumber used per square foot of floor area in new FHA-inspected single-family detached houses, by major end use and region, 1959, 1962, and 1968*

[Board feet]

Major end use	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Framing:																											
Roof and ceiling	2.11	2.05	1.78	2.14	2.06	1.59	2.19	2.09	1.74	2.11	2.06	1.87	2.09	2.00	1.66	2.16	2.04	1.82	2.14	2.08	1.86	2.15	2.13	1.92	1.99	1.99	1.73
Partition	1.23	1.23	1.13	1.25	1.22	1.12	1.18	1.20	1.15	1.20	1.21	1.16	1.21	1.20	1.26	1.23	1.24	1.17	1.23	1.23	1.10	1.20	1.21	1.14	1.23	1.23	1.09
Exterior wall	1.24	1.33	1.22	1.48	1.45	1.20	1.45	1.46	1.32	.15	.23	.44	1.52	1.53	1.41	1.46	1.49	1.38	1.20	1.31	1.22	1.31	1.37	1.43	1.23	1.25	1.19
Floor	.92	.94	.90	1.72	1.66	1.30	1.67	1.55	1.29	.31	.38	.24	1.35	1.44	1.42	1.10	1.06	1.03	.32	.27	.32	1.39	1.38	1.47	.51	.53	.86
Total	5.50	5.55	5.03	6.59	6.39	5.21	6.49	6.30	5.50	3.77	3.88	3.71	6.17	6.17	5.75	5.95	5.83	5.40	4.89	4.89	4.50	6.05	6.09	5.96	4.96	5.00	4.87
Sheathing:																											
Roof	0.75	0.46	0.32	0.46	0.16	0.05	0.44	0.22	0.17	0.40	0.22	0.25	0.31	0.28	0.15	0.54	0.32	0.14	0.92	0.55	0.27	0.89	0.45	0.05	1.29	0.91	0.68
Wall	.11	.04	.01	.19	.06	.03	.50	.13	.01	.01	.02	(1)	.04	.03	.04	.16	.07	.01	.10	.03	(1)	.04	.03	.01	(1)	(1)	(1)
Total	.86	.50	.33	.65	.22	.08	.94	.35	.18	.41	.24	.25	.35	.31	.19	.70	.39	.15	1.02	.58	.27	.93	.48	.06	1.29	.91	.68
Subflooring	0.60	0.46	0.37	0.93	0.51	0.25	0.95	0.80	0.27	0.08	0.10	0.16	0.73	0.82	0.19	0.39	0.19	0.11	0.22	0.11	0.11	1.29	1.02	0.47	0.71	0.58	0.73
Flooring	.72	.75	.26	1.07	1.07	.75	1.18	1.12	.67	.12	.18	.09	1.12	1.28	.59	.94	.89	.30	.43	.30	.07	1.24	1.30	.30	.42	.43	.06
Siding	.22	.17	.08	.12	.11	.05	.21	.09	.06	.03	.08	.05	.54	.16	.12	.32	.23	.12	.31	.21	.07	.47	.53	.35	.09	.07	.02
Millwork and trim	1.33	1.32	1.31	1.46	1.40	1.32	1.47	1.46	1.40	1.31	1.32	1.18	1.42	1.41	1.50	1.48	1.44	1.38	1.31	1.27	1.28	1.47	1.46	1.43	1.06	1.07	1.27
Total	2.87	2.70	2.02	3.58	3.09	2.37	3.81	3.47	2.40	1.54	1.68	1.48	3.81	3.67	2.40	3.13	2.75	1.91	2.27	1.89	1.53	4.47	4.31	2.55	2.28	2.15	2.08
Total, all uses	9.23	8.75	7.38	10.82	9.70	7.66	11.24	10.12	8.08	5.72	5.80	5.44	10.33	10.15	8.34	9.78	8.97	7.46	8.18	7.36	6.30	11.45	10.88	8.57	8.53	8.06	7.63

[1] Less than .005 board foot.

NOTE: Includes allowance for onsite and manufacturing waste.

TABLE 10.—*Lumber used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Board feet]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	2,562	2,633	2,126	4,251	3,952	3,524	4,463	4,377	2,906	534	755	650	3,403	3,932	2,457	2,640	2,558	1,753	1,084	854	702	4,348	4,273	2,795	2,072	1,991	2,612
Walls and partitions	3,207	3,387	3,387	3,467	3,456	3,684	3,927	3,631	3,307	1,459	1,737	2,202	3,513	3,250	3,149	3,451	3,602	3,258	3,189	3,542	3,365	3,358	3,632	3,651	3,263	3,333	3,644
Roof and ceiling	3,265	3,070	2,927	2,968	2,693	2,515	3,106	2,926	2,482	2,652	2,594	2,835	2,536	2,537	2,015	2,942	2,813	2,382	3,428	3,337	3,004	3,365	2,974	2,462	4,176	3,776	3,822
Millwork and trim	1,521	1,611	1,831	1,670	1,703	2,032	1,735	1,837	1,822	1,386	1,501	1,584	1,505	1,573	1,674	1,611	1,713	1,674	1,475	1,614	1,804	1,632	1,682	1,779	1,357	1,397	2,018
Total, all components	10,555	10,701	10,271	12,356	11,804	11,755	13,231	12,771	10,517	6,031	6,587	7,271	10,957	11,292	9,295	10,644	10,686	9,067	9,176	9,347	8,875	12,703	12,561	10,687	10,868	10,497	12,096

NOTE: Includes allowance for onsite and manufacturing waste.

TABLE 11.—*Lumber used per square foot of floor area in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Board feet]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	2.24	2.15	1.53	3.72	3.24	2.30	3.80	3.47	2.23	0.51	0.66	0.49	3.20	3.54	2.20	2.43	2.14	1.44	0.97	0.68	0.50	3.92	3.70	2.24	1.64	1.54	1.65
Walls and partitions	2.80	2.77	2.44	3.04	2.84	2.40	3.34	2.88	2.54	1.39	1.54	1.65	3.31	2.92	2.83	3.17	3.03	2.68	2.84	2.78	2.30	3.02	3.14	2.93	2.55	2.55	2.30
Roof and ceiling	2.86	2.51	2.10	2.60	2.21	1.64	2.63	2.31	1.91	2.51	2.28	2.12	2.40	2.28	1.81	2.70	2.36	1.[illegible]	3.06	2.63	2.13	3.04	2.58	1.97	3.28	2.90	2.41
Millwork and trim	1.33	1.32	1.31	1.46	1.40	1.32	1.47	1.46	1.40	1.31	1.32	1.18	1.42	1.41	1.50	1.48	1.44	1.38	1.31	1.27	1.28	1.47	1.46	1.43	1.06	1.07	1.27
Total, all components	9.23	8.75	7.38	10.82	9.69	7.66	11.24	10.12	8.08	5.72	5.80	5.44	10.33	10.15	8.34	9.78	8.97	7.46	8.18	7.36	6.30	11.45	10.88	8.57	8.53	8.06	7.63

NOTE: Includes allowance for onsite and manufacturing waste.

TABLE 12.—*Plywood used per unit in new FHA-inspected single-family detached houses, by major end use and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Sheathing:																											
Roof	775	1,080	1,578	1,061	1,371	2,072	978	1,507	1,771	1,289	1,837	1,816	906	925	1,535	841	1,089	1,743	633	1,059	1,694	721	1,066	2,092	308	630	966
Wall	235	262	129	583	538	506	361	538	91	12	6	33	373	299	299	368	279	71	8	38	98	377	637	335	31	49	17
Total	1,010	1,342	1,707	1,644	1,909	2,578	1,339	2,045	1,862	1,301	1,843	1,849	1,279	1,224	1,834	1,209	1,368	1,814	641	1,097	1,792	1,098	1,703	2,427	339	679	983
Subflooring and underlayment	304	464	1,379	408	539	2,022	266	298	1,870	27	116	109	433	478	1,614	607	881	1,652	89	160	172	438	552	3,109	183	315	1,261
Flooring	27	24	7	7	5	1	4	13	11	(1)	13	18	2	1	(1)	4	27	10	110	87	17	3	3	(1)	32	11	(1)
Siding	56	85	148	40	47	19	2	69	63	27	41	48	35	37	72	61	48	158	39	98	55	153	155	946	87	143	46
Millwork and trim	428	467	917	368	417	1,000	332	348	944	448	483	782	337	362	843	385	436	807	441	523	899	497	531	876	528	532	859
Total	815	1,040	2,451	823	1,008	3,042	604	728	2,888	502	653	957	807	878	2,529	1,057	1,392	2,627	679	868	1,143	1,091	1,241	4,931	830	1,001	2,166
Total, all uses	1,825	2,382	4,158	2,467	2,917	5,620	1,943	2,773	4,750	1,803	2,496	2,806	2,086	2,102	4,363	2,266	2,760	4,441	1,320	1,965	2,935	2,189	2,944	7,358	1,169	1,680	3,149

[1] Less than 0.5 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 13.— *Plywood used per square foot of floor area in new FHA-inspected single-family detached houses, by major end use and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Sheathing:																											
Roof	0.68	0.88	1.13	0.93	1.13	1.35	0.83	1.19	1.36	1.22	1.62	1.36	0.86	0.83	1.37	0.77	0.91	1.43	0.56	0.84	1.20	0.65	0.93	1.68	0.24	0.48	0.61
Wall	.21	.22	.10	.51	.44	.33	.31	.43	.07	.01	(1)	.02	.35	.27	.27	.34	.24	.06	.01	.03	.07	.34	.55	.27	.03	.04	.01
Total	.89	1.10	1.23	1.44	1.57	1.68	1.14	1.62	1.43	1.23	1.62	1.38	1.21	1.10	1.64	1.11	1.15	1.49	.57	.87	1.27	.99	1.48	1.95	.27	.52	.62
Subflooring and underlayment	0.27	0.38	0.99	0.36	0.44	1.32	0.23	0.24	1.44	0.03	0.10	0.08	0.41	0.43	1.45	0.56	0.74	1.36	0.08	0.12	0.12	0.39	0.48	2.49	0.14	0.24	0.80
Flooring	.02	.02	.01	.01	(1)	(1)	(1)	.01	.01	(1)	.01	.01	(1)	(1)	(1)	(1)	.02	.01	.10	.07	.01	(1)	(1)	(1)	.03	.01	(1)
Siding	.05	.07	.10	.03	.04	.01	(1)	.05	.05	.02	.04	.04	.03	.03	.06	.06	.04	.13	.04	.08	.04	.14	.13	.76	.07	.11	.03
Millwork and trim	.37	.38	.66	.32	.35	.65	.28	.28	.72	.43	.43	.59	.32	.33	.76	.35	.37	.66	.39	.41	.64	.45	.46	.70	.41	.41	.54
Total	.71	.85	1.76	.72	.83	1.98	.51	.58	2.22	.48	.58	.72	.76	.79	2.27	.97	1.17	2.16	.61	.68	.81	.98	1.07	3.95	.65	.77	1.37
Total, all uses	1.60	1.95	2.99	2.16	2.40	3.66	1.65	2.20	3.65	1.71	2.20	2.10	1.97	1.89	3.91	2.08	2.32	3.65	1.18	1.55	2.08	1.97	2.55	5.90	.92	1.29	1.99

[1] Less than .005 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 14.— *Plywood used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	331	488	1,386	415	544	2,023	270	311	1,881	27	129	127	435	479	1,614	611	908	1,662	199	247	189	441	555	3,109	215	326	1,261
Walls and partitions	291	347	277	623	585	525	363	607	154	39	47	81	408	336	371	429	327	229	47	136	153	530	792	1,281	118	192	63
Roof and ceiling	775	1,080	1,578	1,061	1,371	2,072	978	1,507	1,771	1,289	1,837	1,816	906	925	1,535	841	1,089	1,743	633	1,059	1,694	721	1,066	2,092	308	630	966
Millwork and trim	428	467	917	368	417	1,000	332	348	944	448	483	782	337	362	843	385	436	807	441	523	899	497	531	876	528	532	859
Total, all components	1,825	2,382	4,158	2,467	2,917	5,620	1,943	2,773	4,750	1,803	2,496	2,806	2,086	2,102	4,363	2,266	2,760	4,441	1,320	1,965	2,935	2,189	2,944	7,358	1,169	1,680	3,149

NOTE: Includes allowance for onsite waste.

TABLE 15.—*Plywood used per square foot of floor area in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	0.29	0.40	1.00	0.37	0.44	1.32	0.23	0.25	1.45	0.03	0.11	0.09	0.41	0.43	1.45	0.56	0.76	1.37	0.18	0.19	0.13	0.39	0.48	2.49	0.17	0.25	0.80
Walls and partitions	.26	.29	.20	.54	.48	.34	.31	.48	.12	.03	.04	.06	.38	.30	.33	.40	.28	.19	.05	.11	.11	.48	.68	1.03	.10	.15	.04
Roof and ceiling	.68	.88	1.13	.93	1.13	1.35	.83	1.19	1.36	1.22	1.62	1.36	.86	.83	1.37	.77	.91	1.43	.56	.84	1.20	.65	.93	1.68	.24	.48	.61
Millwork and trim	.37	.38	.66	.32	.35	.65	.28	.28	.72	.43	.43	.59	.32	.33	.76	.35	.37	.66	.30	.41	.64	.45	.46	.70	.41	.41	.54
Total, all components	1.60	1.95	2.99	2.16	2.40	3.66	1.65	2.20	3.65	1.71	2.20	2.10	1.97	1.89	3.01	2.08	2.32	3.65	1.18	1.55	2.08	1.97	2.55	5.90	.92	1.29	1.99

NOTE: Includes allowance for onsite waste.

TABLE 16.—*Hardboard[1] used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	17	9	22	45	39	67	1	(2)	72	3	3	(2)	7	3	10	(2)	(2)	30	1	(2)	(2)	23	20	17	34	6	6
Walls and partitions	224	333	571	124	363	1,102	327	428	808	69	55	400	219	397	616	518	554	876	76	206	586	396	367	590	153	198	139
Roof and ceiling	1	1	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	4	4	(2)
Millwork and trim	146	164	469	132	156	486	116	122	471	152	164	517	114	127	427	119	136	479	129	157	479	168	182	394	204	218	472
Total, all components	388	507	1,062	301	558	1,655	444	550	1,351	224	222	917	340	527	1,053	637	690	1,385	206	363	1,065	587	569	1,001	395	426	617

[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 waste.

TABLE 17.—*Hardboard[1] used per square foot of floor area in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	0.01	0.01	0.01	0.04	0.03	0.04	(2)	(2)	0.06	(2)	(2)	(2)	0.01	(2)	0.01	(2)	(2)	0.03	(2)	(2)	(2)	0.02	0.02	0.01	0.03	0.01	(2)
Walls and partitions	.20	.27	.41	.11	.30	.72	.28	.34	.62	.07	.05	.30	.20	.36	.55	.48	.47	.72	.07	.16	.42	.36	.32	.47	.12	.15	.09
Roof and ceiling	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.39	(2)	(2)	.34	(2)	(2)	(2)	(2)	(2)	(2)
Millwork and trim	.13	.13	.34	.11	.13	.32	.10	.10	.36	.14	.14	.38	.11	.11	.38	.11	.11		.11	.13		.15	.15	.32	.16	.17	.30
Total, all components	.34	.41	.76	.26	.46	1.08	.38	.44	1.04	.21	.19	.68	.32	.47	.94	.59	.58	1.14	.18	.29	.76	.53	.49	.80	.31	.33	.39

[1] Includes all fiberboards with a density of more than 26 pounds per cubic foot.
[2] Less than .005 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 18.—*Insulation board used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[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	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Walls and partitions	572	720	677	372	487	663	885	1,164	1,472	88	75	106	1,406	1,581	1,439	747	931	903	984	1,308	1,191	773	716	528	36	23	10
Roof and ceiling	30	30	65	(1)	(1)	60	(1)	(1)	50	(1)	(1)	63	75	73	44	26	23	49	(1)	(1)	56	13	15	50	87	87	95
Millwork and trim	(1)	(1)	(1)	4	3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total, all components	602	750	742	376	490	723	885	1,164	1,522	88	75	169	1,481	1,654	1,483	773	954	952	984	1,308	1,247	786	731	578	123	110	105

[1] Less than 0.5 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 19.—*Insulation board used per square foot of floor area in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Square feet, ½-inch basis]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Walls and partitions	0.50	0.59	0.48	0.33	0.40	0.43	0.75	0.92	1.13	0.08	0.07	0.08	1.33	1.42	1.29	0.69	0.78	0.74	0.88	1.03	0.84	0.70	0.62	0.42	0.03	0.02	0.01
Roof and ceiling	.03	.02	.05	(1)	(1)	.04	(1)	(1)	.04	(1)	(1)	.05	.07	.07	.04	.02	.02	.04	(1)	(1)	.04	.01	.01	.04	.07	.06	.06
Millwork and trim	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total, all components	.53	.61	.53	.33	.40	.47	.75	.92	1.17	.08	.07	.13	1.40	1.49	1.33	.71	.80	.78	.88	1.03	.88	.71	.63	.46	.10	.08	.07

[1] Less than .005 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 20.—*Particleboard used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Square feet, ¾-inch basis]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	14	31	131	2	2	27	(1)	(1)	155	4	5	2	(1)	(1)	62	13	15	38	13	14	11	7	7	227	39	110	268
Millwork and trim	36	39	49	32	37	51	31	31	46	39	40	47	29	32	42	28	33	45	34	40	49	43	47	45	47	50	54
Total, all components	50	70	180	34	39	78	31	31	201	43	45	49	29	32	104	41	48	83	47	54	60	50	54	272	86	160	352

[1] Less than 0.5 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 21.— *Particleboard used per square foot of floor area in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Square feet, ¾-inch basis]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Floor and foundation	0.01	0.03	0.09	(1)	(1)	0.02	(1)	(1)	0.12	(1)	(1)	(1)	(1)	(1)	0.05	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.18	0.03	0.08	0.19
Millwork and trim	.03	.03	.03	.03	.03	.03	.03	.02	.03	.04	.04	.04	.03	.03	.04	.03	.03	.04	.03	.03	.03	.04	.04	.03	.04	.04	.03
Total, all components	.04	.06	.12	.03	.03	.05	.03	.02	.15	.04	.04	.04	.03	.03	.09	.04	.04	.07	.04	.04	.04	.05	.05	.21	.07	.12	.22

[1] Less than .005 square foot.
NOTE: Includes allowance for onsite waste.

TABLE 22.— *Shingles and shakes used per unit in new FHA-inspected single-family detached houses, by major house component and region, 1959, 1962, and 1968*

[Squares]

House component	All regions			North Atlantic			South Atlantic			Florida			Lake States			Central States			South Central			Northwest			Southwest		
	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968	1959	1962	1968
Walls	0.9	0.6	0.1	2.4	1.9	0.6	0.2	0.2	0.1	(1)	(1)	(1)	0.3	0.4	0.1	1.4	0.7	0.1	0.9	0.2	(1)	0.8	0.4	0.1	0.4	0.2	0.1
Roof	1.4	2.4	3.6	(1)	(1)	1.1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	.6	.7	.2	.5	2.2	2.6	.5	.2	1.6	5.7	8.8	10.3
Total, all components	2.3	3.0	3.7	2.4	1.9	1.7	.2	.2	.1	(1)	(1)	(1)	.3	.4	.1	2.0	1.4	.3	1.4	2.4	2.6	1.3	.6	1.7	6.1	9.0	10.4

[1] Less than 0.05 square.

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END