

New Home Cost Components

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While prices for materials, financing, and land have had ups and downs, and labor has been more scarce during some periods than others, in terms of national averages the share of the cost of a new single-family home accounted for by the hard costs of materials and on-site labor has remained around 50 percent over the past 30 years, while the cost of the finished lot has represented an average of 20 percent to 25 percent of the sales price. Overhead expenses, financing costs, selling expenses, and profits account for the rest. Although total hard costs have consistently accounted for an average of about half of the sales price of new homes, however, it appears that labor has recently accounted for an increased share of those onsite costs, and materials have accounted for a reduced share.

NAHB has conducted a number of surveys of builders over the years to collect cost data for a typical house. Table 1 summarizes the results of some of those surveys. In addition to the broad categories shown in the

table, the surveys collected detailed information about components of the construction cost such as the cost of stairs, cabinets, and drywall, as well as land development costs such as paving and processing approvals. Unfortunately, the complexity of these surveys, as well as builders' reluctance to reveal sensitive information, has meant that the number of participants has been limited.

The latest NAHB survey, which collected data for 2002, indicated that the cost of the finished lot accounted for an average of 23.5 percent of the sales price. This is about the same as the share reported in each NAHB survey since 1982, and is only slightly more than the 21.0 percent share reported in 1969. The price per acre of land has increased faster than the cost of construction, but the share has held steady because larger homes have been built on smaller lots.

The cost element whose share has changed the most according to these surveys has been the cost of financing. In the early 1980s, when construction loan rates soared to 20 percent or more, and many builders were paying fees to help ensure that

their customers could get financing, the survey found that builders' financing costs accounted for about 15 percent of the house price. Builders' financing costs now represent only about 2 percent of the total.

A separate series of NAHB surveys, conducted for the NAHB Business Management group, focused on income statement categories for the firm rather than construction and land development details for a typical house. The most recent of these surveys was conducted in 2000 and published in 2001.¹ Past results from these "cost of doing business" surveys did not show as large an increase in finance costs in the early 1980s as the survey of housing cost components did. One reason is that no surveys were conducted during the 1980 to 1983 period, when interest rates were at their peak. One-fourth of all participants in the 1983 survey reported no costs for financing, probably because they built on the customers' land. In addition, costs such as buy-down fees may have been recorded as sales or overhead expenses rather than financing.

The cost shares indicated by the NAHB surveys are generally consistent with data from other sources, such as the Census Bureau's ongoing Survey of Construction, reports of publicly-traded home building companies, information collected by *Professional Builder* magazine for their annual reports on the largest 400 or so builders, and services providing information for contractors bidding on construction jobs. Of these, only the *Professional Builder* reports attempt to provide a fairly comprehensive breakdown of cost components, and those are only

Table 1. Cost Breakdown of Single-Family Home (National)

	1949	1969	1982	1995	1998	2002
Sale Price Breakdown (Percent of Total Sale Price)						
Finished Lot	11.00	21.00	24.00	24.40	23.60	23.48
Total Construction	69.00	55.00	45.00	53.30	54.80	50.83
Financing	5.00	7.00	15.00	2.00	1.90	2.13
Other Costs*	15.00	17.00	16.00	20.40	19.70	23.56
a. General Overhead				5.80	5.70	5.53
b. Marketing				2.20	1.40	2.39
c. Sales Commission				3.30	3.40	3.67
d. Profit				9.10	9.20	11.97
Total	100.00	100.00	100.00	100.00	100.00	100.00
Sale Price	\$9,500	\$26,000	\$70,000	\$183,585	\$226,680	\$298,412

Source: NAHB Surveys of Builder Members.

*No breakdown of "Other Costs" available for 1949, 1969, and 1982.

Note: 2002 data based on survey of builder members carried out in late 2002-early 2003.

Table 2. Summary Data from the NAHB Cost of Doing Business Studies

	2000	1996	1993	1991	1989	1987	1985	1983*	1980	1978	1975	1970
Total Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of Sales	80.1%	82.4%	79.4%	78.0%	79.1%	79.7%	81.7%	79.7%	77.2%	76.1%	84.1%	82.4%
Gross Profit	19.9%	17.6%	20.6%	22.0%	20.9%	20.3%	18.3%	20.3%	22.8%	23.9%	15.9%	17.6%
Operating Expenses												
Finance	2.2%	1.5%	1.9%	3.0%	5.6%	3.3%	3.9%	4.5%	2.0%	2.7%	2.8%	3.3%
Sales and Marketing	5.7%	3.3%	4.0%	4.0%	5.2%	3.7%	3.3%	3.3%	2.5%	3.6%	2.3%	3.0%
General & Administrative	3.9%	5.0%	5.1%	5.0%	4.8%	6.1%	7.6%	8.8%	9.4%	5.5%	7.5%	6.5%
Owner Compensation	1.8%	3.4%	5.0%									
Total Operating Expense	13.5%	13.2%	16.0%	12.0%	15.6%	13.1%	14.8%	17.6%	16.9%	16.9%	11.6%	14.4%
Net Income Before Tax	6.3%	4.4%	4.6%	10.0%	5.3%	7.2%	3.5%	2.7%	5.9%	7.0%	4.3%	3.2%

* The Values for 1980 and 1983 are medians.

Note: Beginning with the 1983 data the report titles used the year of publication rather than the year data were collected. For example, the 2000 data were presented in the 2001 Cost of Doing Business study.

Source: NAHB.

available for recent years, but the other sources provide information about particular aspects such as profits or land costs.

Land

As part of the Census Bureau's Survey of Construction, from which monthly estimates of housing starts and new home sales are derived, builders are asked the value of the finished lot. Estimated lot values are provided for about 80 percent of new for-sale homes in the survey. For the year 2000, the average ratio of lot value to sales price was 20.4 percent, and the median ratio was 19.5 percent. These shares are slightly lower than the NAHB surveys have shown, perhaps because more of the homes in the Census Bureau survey are in rural areas or other lower-cost locations. The average price reported by the Census Bureau is lower than for the homes reported in the NAHB survey, and land generally accounts for a larger share of the total price for luxury homes than for more affordable homes.

The Census data show large regional variations in the lot value as a share of the total sales price. The lot cost in 2000 was about 30 percent of the total price in New

England, but only about 16 percent in West North Central and West South Central states.²

The average ratio of lot value to sales price in the Census Bureau data has been relative consistent over time. It was lower (about 18 percent) in the early 1980s, although that lower average may have been biased by lower reporting rates for higher-priced houses at that time. The Census Bureau data indicated a slightly higher lot cost share in the late 1980s than in 2000.

The finished lot cost includes the cost of improvements and fees, as well as the cost of the land. The data from NAHB's surveys indicate that development costs, such as the costs of paving and of water and sewer lines and development fees, account for slightly more than half of the cost of the finished lot. A special study by the Census Bureau in 1999 concluded that raw land accounted for an average of 10.6 percent of the sales price, or about half of the reported value of the finished lot. The costs for "raw" land indicated by the NAHB surveys and by the Census Bureau study are actually overstatements of the value of land in its previous use, since there are substantial costs incurred in bring-

ing land to the point where it can be developed, largely in the form of payments to lawyers, consultants, local governments, and banks.

Labor and Materials

It is difficult for builders to know how much of the actual cost of construction consists of the cost of materials or of labor, since most of the work is done by subcontractors, and the subcontractors often supply both materials and labor. Among larger builders, the share of the construction work done by subcontractors is even greater than the share among smaller builders.³

A series of studies by the Bureau of Labor Statistics in the 1960s and early 1970s measured total material and labor inputs, tracing through the web of subcontractors. As a share of total single-family construction costs in 1969 (including off-site costs other than land), materials were found to account for 43.4 percent and onsite wages were found to represent 20.4 percent. For 1962, materials and onsite wages accounted for 22.1 percent and 47.2 percent, respectively.⁴ Thus, wages were less than one-third of onsite costs. The true cost of onsite labor was probably substantially higher than the

value reported for onsite wages, however, because a large share of construction-site workers are self-employed independent contractors, and their hours and earnings were probably missed. Fringe benefits and other non-wage labor costs were also not included in onsite wages.

In an analysis of multifamily construction in 1971, materials accounted for 44.2 percent of total costs and onsite labor was 27.9 percent. Other types of construction studied by BLS at that time also had higher shares for onsite labor than was found for single-family home building.⁵

There are several firms that publish books for estimating construction costs, and these provide an indication of the components of on-site costs for single-family home building. The Craftsman 2002 *National Construction Estimator* provides an example of a 1,600 square foot home built in 2001, with direct costs of \$60.97 per square foot. That is shown as consisting of \$31.46 (51 percent) for materials, \$27.94 (46

percent) for labor, and \$1.57 (3 percent) for equipment.⁶

R.S. Means and Company shows estimated costs for a variety of new home examples. For a 2,000 square foot, 2-story, average-quality home in 2003, they show an estimated cost per square foot of \$68.65, with \$34.79 (51 percent) for materials and \$33.86 (49 percent) for labor.⁷ Earlier editions of the R.S. Means report indicated a somewhat larger share for materials. In their 1988 edition, for the same 2,000 square foot house, the R.S. Means estimate of cost per square foot was \$41.35, with 55 percent of the cost accounted for by materials.

Another of the R.S. Means examples for 2003 is a 2-story, 3,200-square foot, "luxury" home with an estimated cost per square foot of \$82.90. That is shown as including \$45.94 (55 percent) for materials and \$36.96 (45 percent) for labor. In 1988, 59 percent of the estimated \$58.90 cost per square foot was attributed to materials.

The R.S. Means examples

assume the same quantities for materials, and the same number of hours of work, for 2003 as for previous years. The savings from the use of different materials such as oriented strand board instead of plywood, vinyl siding instead of wood siding, etc., are not incorporated, nor are labor productivity improvements from the use of new tools. Comparing the latest R.S. Means volume with earlier years, the materials costs for framing, mechanical (plumbing fixtures, HVAC), and electrical work are shown to have increased faster than overall costs. Materials for exteriors, roofing, and interiors, however, have had only modest price increases, on average, so that total costs of materials increased less than labor costs.

Data collected by *Professional Builder* (PB) magazine for their annual study of the "Giants" of the home building industry includes a cost breakdown,⁸ although the editors of the magazine presumably face the same difficulty as other analysts getting data on a consistent basis from different builders and separating labor from materials. The results from some recent PB reports are summarized in Table 3. The categories and groupings in the table are copied from the PB questionnaire. These data indicate that construction labor represented 42 percent (21.8/52.0) of the combined hard costs of materials and construction labor in 2001, up from 39 percent in 1995.

The PB data also include land costs, with information from builders that develop lots themselves and from those that buy finished lots. From the aggregate data for 2001, the combination of raw land, land improvements, and purchases of finished lots accounts for 19.7 percent of the home sales price. It is not clear how much of

Table 3. Housing Giants' Average Home Price Breakdown

	1995	1999	2000	2001
Land/Entitlement/Financing Expenses				
Raw Land	10.7%	7.6%	7.0%	7.2%
Land Improvements	8.6	5.5	5.6	5.3
Improved Lot Costs	na	6.7	7.2	7.2
Fees (Permits, Impact Fees, etc.)	2.8	2.2	2.2	2.1
Financing Costs	3.1	3.3	2.9	2.8
Hard Costs				
Materials	29.7%	32.0%	31.8%	30.2%
Construction Labor	19.3	20.3	20.7	21.8
Landscaping/Community Amenities	3.6	1.6	1.5	1.3
Sales/Marketing Expenses				
Advertising	1.6%	1.2%	1.2%	1.2%
Marketing	1.4	1.2	1.2	1.2
Model Merchandising	1.2	0.9	0.8	0.9
Sales Commissions	2.8	2.9	2.9	3.0
Overhead/Profit/Miscellaneous				
Overhead Expenses (Salaries, Office etc.)	5.9%	6.0%	6.5%	6.4%
Profit	6.0	7.9	7.8	8.6
Miscellaneous	3.4	0.6	0.7	0.8
TOTAL	100.0%	100.0%	100.0%	100.0%

Source: *Professional Builder*. Compiled by NAHB Economics.

the cost of fees, financing, or “landscaping/community amenities” also ought to be considered as part of the finished lot cost.

During the 30 years from 1972 to 2002, average hourly earnings for construction workers increased 211 percent, while the producer price index (PPI) for construction materials increased 227 percent. During the second half of that 30-year period, however, construction wage rates increased faster than materials prices. Large price increases for wood products and some other materials in the early 1990s put inflation in building materials ahead of wage increases for several years, but since 1995 average hourly earnings in construction have outpaced increases in materials prices. From 1995 to 2002, average hourly earnings for production workers in the construction industry increased by 25 percent—from \$15.09 to \$18.87. Increases for construction workers employed directly by residential builders, or by subcontractors like carpenters that are mainly in residential construction, were closer to 30 percent. The PPI for materials used by single family builders increased by less than 6 percent,⁹ even though there were larger increases for some materials.

The data on average hourly earnings do not include fringe benefits. Another measure from the Bureau of Labor Statistics, the Employment Cost Index (ECI), shows construction industry compensation trends with and without fringe benefits such as health insurance and workers compensation. The ECI also differs from average hourly earnings in a number of other respects. For example, the ECI holds the mix of jobs constant and includes non-production jobs in the industry. From 1987 to 2002, the construction

	Latest Year - \$millions			Pretax Profit Margin				
	Revenue	Pretax Profit		2002	2001	2000	1999	1998
		Profit	After-tax Profit					
Beazer	2,641	202	123	7.7%	6.9%	4.7%	4.3%	3.8%
Capital Pacific	299	9	6	3.0%	3.4%	2.4%	2.3%	-1.5%
D.R. Horton	6,739	648	405	9.6%	9.2%	8.5%	8.4%	7.3%
Dominion	492	42	24	8.5%	6.6%	4.7%	4.9%	6.2%
K. Hovnanian	2,551	227	138	8.9%	6.1%	4.6%	5.3%	4.4%
KB Homes	5,031	469	314	9.3%	7.1%	7.6%	5.9%	6.0%
Lennar	7,320	876	545	12.0%	11.3%	8.0%	9.2%	9.9%
M/I Schottenstein	977	85	53	8.7%	7.8%	8.1%	6.3%	4.8%
MDC Holdings	2,319	274	167	11.8%	12.0%	11.6%	9.5%	6.6%
Meritage	1,120	114	70	10.1%	11.2%	10.9%	9.4%	11.9%
NVR	3,136	536	331	17.1%	15.0%	11.5%	9.2%	7.1%
Orleans	355	29	18	8.1%	6.1%	6.8%	5.7%	2.5%
Pulte	7,472	729	445	9.8%	9.1%	8.4%	7.6%	5.8%
Ryland	2,877	309	186	10.8%	7.9%	5.8%	5.4%	4.3%
Standard Pacific	1,885	195	119	10.3%	13.3%	12.6%	9.5%	10.6%
Toll Brothers	2,329	347	220	14.9%	15.2%	12.7%	11.1%	11.1%
William Lyons	613	68	50	11.1%	11.4%	12.3%	9.8%	2.2%
TOTAL - 17 Firms	48,155	5,157	3,213	10.7%	9.9%	8.5%	7.7%	6.7%

Source: Company financial reports.

industry wage and salary ECI increased by 59 percent, while the total ECI, including fringe benefits, increased by 68 percent. Average hourly earnings for production workers in construction increased by 49 percent over that period.

While the growth in earnings for construction workers exceeded increases in materials prices in recent years, it was not greater than the change in earnings for workers in other industries. From 1987 to 2002, average hourly earnings for all private production workers increased by 65 percent and the total ECI for all private industry workers increased by 75 percent. Since 1972, earnings for construction workers have increased less than the average for workers in all private industries.¹⁰

The various sources cited here suggest an increase in labor costs relative to materials in the last few years. But a comparison of recent estimates of materials and construction labor costs with the BLS studies from the 1960s probably gives a

distorted impression of the longer-term trend. Data from the Census of Construction from 1997 (the latest available) compared to the Census of Construction for 1967 do not show an increase in construction worker payroll relative to materials purchased, either for builders or for the major subcontractor groups.

Profit

Data from builders surveyed by NAHB in 2002 indicate an increase in profit as a share of the selling price for a typical house to 12 percent, from about 9 percent in similar surveys of costs for 1995 and 1998. Profits are sometimes difficult to measure, especially if the owner of the business is also a manager receiving a salary and other compensation. The *Cost of Doing Business* report found a modest average profit margin of 6.3 percent in 2000 and owner compensation of 1.8 percent of revenue.

The PB report on Giants in 2001 showed an overall average profit

margin of 8.6 percent, with the larger builders having higher average profits. For the 20 largest of 400 builders on their list, the average profit margin was reported as 11.8 percent for 2001.

Table 4 shows data for publicly-traded companies that are largely “pure” single-family builders, although they may also have mortgage finance arms or other secondary operations. There used to be more such public companies, but mergers have thinned their ranks. Companies, such as Centex, with relatively large non-building operations are excluded. For the group as a whole, pre-tax profits for the latest year represented 10.7 percent of combined revenues. Pretax profit margins for this group of companies has grown steadily and substantially from 6.7 percent in 1998.

Although there is a lot of detail in the reports from public companies, it is difficult to compare cost components, because there is no consistency in accounting methods. For example, some firms capitalize interest payments into the cost of homes, so that they become operating expenses in the cost of goods sold, while others show all interest payments as overhead, non-operating expenses.

Conclusion

Taking all the different information into account, it appears that the cost of an average home breaks down roughly as follows: the finished lot generally accounts for 20 percent to 25 percent, with half of that cost reflecting development costs; materials represent 25 percent to 30 percent

of the total; onsite construction labor represents 20 percent to 25 percent; general overhead and selling expenses are each about 6 percent; financing costs, under current low interest rates, are about 2 percent; and profits, when times are good, are more than 10 percent, although the long-term average profit margin is lower.

Part of the strength in profits reported recently represents implicit capital gains on land. The finished lot frequently became worth more by the time the house was ready than it was when the builder purchased it or obtained an option. Tight new and existing home inventories also created something of a sellers’ market, and as supply catches up to demand there could be greater pressure on profit margins.

Labor costs as a share of home prices seem to have increased. Part of that reflects higher wage rates and benefit costs. But even with new tools and some components that require less onsite labor for installation, home building has not achieved the improvements in labor productivity that have occurred in other industries. Producers of building materials have succeeded in reducing labor requirements in their plants, but have not done as much to create products that reduce labor requirements on the job site. Builders also could look harder for opportunities to reduce labor requirements.

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¹ Steve Hays, Steve Maltzman, Emma Shinn, and Mike Benshoof, *The Business of Building: 2001 Cost of Doing Business Study* (National Association of Home Builders, 2001)

² Michael Carliner, “New Home Structures and Land,” *Housing Economics*, January 2002.

³ Gopal Ahluwalia and Jo Chapman, “Structure of the Residential Construction Industry,” *Housing Economics*, October 2000. Also, Barry A. Rappaport and Tamara A. Cole, *1997 Economic Census—Construction Sector: Housing Starts Statistics—A Profile of the Home Building Industry* (U.S. Census Bureau, Manufacturing and Construction Division, July 2000)

⁴ U.S. Bureau of Labor Statistics, *Labor and Material Requirements for Construction of Private Single-Family Houses* (Bulletin 1755, 1972).

⁵ U.S. Bureau of Labor Statistics, *Labor and Material Requirements for Private Multifamily Housing Construction* (BLS Bulletin 1892, 1976)

⁶ Dave Ogershok, *2002 National Construction Estimator* (Craftsman Book Co., Carlsbad, CA)

⁷ R.S. Means, *Residential Cost Data 2003* (R.S. Means & Co., Kingston, MA)

⁸ Patrick L. O’Toole, “Bigger, Better, Stronger,” *Professional Builder*, April 2002.

⁹ PPI measures weighted according to purchases by segments of the construction industry, rather than outputs of construction materials, became available in 1986. The PPI for purchases by all construction industries increased from 1995 to 2002 by 7.1 percent, while the “commodity” PPI for construction materials increased by 4.1 percent. From 1986 to 2002, the commodity-based index for construction materials increased by 34.2 percent, while the industry-based indexes increased by 41.1 percent for single-family residential and 38.3 percent for all construction.

¹⁰ See Elliot Eisenberg, “Construction Wages and Labor Supply,” *Housing Economics*, March 2000, for a discussion of relative wages in construction.