# Inflation in Materials

Michael Carliner

While the marketplace generally continues to favor home builders, the pace of home building activity, along with the improvement in the overall national and global economy, have produced some unanticipated, and unwelcome, spikes in the prices for key building materials. Collectively, the increases in wholesale wood and metal prices from a year ago could add about $5,000 to $7,000 to the cost of building an average-sized home. Since higher wholesale prices can become magnified by add-on costs such as sales taxes and financing costs, the impact on new home costs could be even greater. On the other hand, some of the cost increases, especially for metal products that go into homes indirectly, in the form of trusses, appliances, electrical supplies, etc., may be absorbed by manufacturers of such components.

The materials with large price increases over the past year generally fall into one of two categories.

1. Products used principally in residential construction, where record levels of demand from builders have put upward pressure on prices. These include (in decreasing order of crisis) OSB, plywood, lumber, wallboard, and insulation.
2. Products for which U.S. home building is not a major end use market, but where conditions in the global marketplace have spilled over into home building materials. These include steel, copper, aluminum, and asphalt.

Even though housing starts have declined from the elevated pace in the final months of 2003, when single-family starts and new home sales broke previous records, the number of homes started still exceeds the number completed, so the number under construction and requiring materials has continued to increase and will likely increase further between now and the summer months.

The impact of home building activity on supplies and prices is greatest for those products that are not used as much in nonresidential construction or in non-construction industries. The material whose use is most concentrated in residential construction is OSB, for which 90 percent of demand comes from residential construction (including remodeling). For plywood and lumber, residential construction represents about 70 percent of demand. Residential construction accounts for lower, but still substantial, shares of demand for

**Table 1. Price Increases for Building Materials**

| | Measure | Latest Data Available | Latest Price | 12-Month Change |
|---|---|---|---|---|
| ***BLS Producer Price Index*** | | | | |
| Gypsum products | (1982-84=100) | 2/04 | 177.4 | 3.9% |
| Cement | (1982-84=100) | 2/04 | 152.5 | -0.6% |
| Ready-mixed concrete | (1982-84=100) | 2/04 | 155.8 | 3.8% |
| Brick | (1982-84=100) | 2/04 | 164.9 | 0.5% |
| Prep asphalt roofing/siding | (1982-84=100) | 2/04 | 108.6 | 3.2% |
| Insulation materials | (1982-84=100) | 2/04 | 133.6 | 1.9% |
| Copper & brass mill shapes | (1982-84=100) | 2/04 | 190.3 | 27.3% |
| Steel mill products | (1982-84=100) | 2/04 | 120.8 | 10.0% |
| Ceramic floor and wall tile | (1982-84=100) | 2/04 | 107.3 | 1.1% |
| ***Random Lengths - Mill Prices*** | | | | |
| Framing Lumber Composite | Thousand Board Feet | 3/04 | $382.00 | 34.5% |
| 2x4 S-P-F (KD #2 or Btr, West) | Thousand Board Feet | 3/04 | $378.00 | 58.2% |
| 7/16 OSB | 4x8 Sheet | 3/04 | $15.65 | 178.0% |
| 15/32 3-ply CDX southern plywood | 4x8 Sheet | 3/04 | $15.36 | 100.0% |
| ***Engineering News Record - 20 city avg*** | | | | |
| Rebar (Grade 60 #4) | cwt | 3/04 | $30.28 | 23.5% |
| Structural Steel Shapes | cwt | 3/04 | $29.57 | 13.1% |
| ***American Metal Market - Midwest price*** | | | | |
| Hot-dipped Galvanized Sheet | cwt | 4/2/04 | $36.00 | 71.4% |

*Sources: U.S. Department of Labor, Random Lengths, McGraw-Hill, Cahners.*

products such as gypsum wallboard, insulation, and asphalt roofing.

## Wood Panels

After dropping sharply in December 2003 from the unprecedented levels of September–November 2003, OSB prices surged again, and are now higher than ever. While OSB is usually less expensive than plywood, prices are now roughly equal. As of April 2, Random Lengths reports the wholesale price of 7/16 OSB at $15.84 per 4x8 sheet, vs. $15.68 for 15/32 CDX southern plywood in the western region.

The basic problem is a shortage of capacity and inability to meet home building demand. The situation could become worse as home building moves into its peak season. OSB has increasingly displaced plywood in home building. There were only slight increases in OSB capacity in 2002–2003, and only one new plant is scheduled for 2004. Capacity in North America will increase about 4 percent by year-end. Plywood plants have closed, offsetting most of the new OSB capacity. The falling U.S. dollar and rising Canadian domestic demand are secondary factors in the OSB price surge. Demand for plywood to use in Iraq was not a significant factor in the supply situation.

In 2003, 39 percent of OSB used in the U.S. came from Canada, 1.4 percent from elsewhere. There is no duty on OSB or plywood from Canada. Canadian trees are better suited for making OSB than most domestic species.

U.S. consumption of OSB in 2003 was 22.65 million square feet, up by 4.4 percent from 2002. But for the last 3 months of 2003, when home building was at record levels, the difference from the year before was 14.3 percent. About a third of OSB/plywood used in new homes is for wall sheathing, a quarter is used for floors, and about 45 percent is for roofs. Non-structural sheathing can be substituted for walls, with appropriate strengthening of the framing, and many builders have already switched. There are no easy alternatives for floors and roofs.

## Lumber

Lumber supplies and prices are not being greatly affected by mill capacities. In fact, there is some excess capacity as new, more efficient mills have come on-line. To the extent that there is a supply constraint for framing lumber, it has more to do with the supply of trees available for harvest than with ability to turn logs into lumber.

Canada supplies more than a third of lumber used by U.S. builders. The 27 percent duty on lumber imported from Canada continues to keep lumber prices higher than they otherwise would be. Canada has appealed these duties, and prospects for those appeals to be successful in eventually eliminating the duties are good, but there is interest on the part of lumber producers in a negotiated settlement of the dispute that could involve a quota, similar to the quota in effect from April 1996 to March 2001. Such a quota would make prices rise and become more volatile.

## Other Materials

There have been widespread reports of recent price increases for gypsum wallboard and fiberglass insulation, but prices for those products remain lower than they were five years ago, when there were large price spikes and serious shortages. Prices fell following capacity increases, and capacity is now generally adequate to meet demand. Not all of the announced price increases will stick.

Worldwide cement prices have increased, but not dramatically. A large share of cement is imported, despite its low value relative to weight. The most logical source for imported cement is Mexico, but Mexican cement is subject to high anti-dumping duties. At least, unlike lumber, there are many other countries able to provide cement. At the local level, concrete prices and supply may become problems for builders in hot markets, even if cement price increases are moderate.

Prices for asphalt shingles jumped in 2003. The prices have leveled off, but much depends on the oil market.

## Metals

In the case of steel, copper, and other metals, use by U.S. home builders is a relatively small element of overall demand. The price increases are a worldwide phenomenon, with much of it attributed to purchases by China. The supply bottlenecks that have sparked higher prices mainly involve scrap metal rather than processing capacity. Concerns about supply shortages have led users such as automobile manufacturers to stockpile supplies, possibly making prophecies of shortages self-fulfilling.

Steel and other metals generally account for a smaller share of new home costs than wood products, but metals are used in many components, such as trusses, windows, doors, HVAC, etc. If deliveries of these components to job sites were delayed because of allocations of metal products to component manufacturers, the impact on builders would go beyond higher prices.

## Impact on Builders

A survey of home builders in early March 2004 found that nearly all experienced large increases in

costs for plywood and OSB, as well as substantial, but less severe, increases for framing lumber. For most other products, a majority of the builders who gave answers to the yes or no questions about price increases in the preceding six months indicated that they had faced increases. For products other than wood or metals, however, the average increases reported were generally less than 10 percent, and taking into account those reporting no increase, as well as those who didn't give responses for all products, the survey results don't show major problems for products that weren't made from wood.

There were 229 builders who answered at least part of the supplement dealing with building materials that was included with NAHB's regular monthly survey. Of those, 190 answered yes or no about price changes for at least one of the listed items, but many gave no response for particular items because they didn't use that product, or weren't familiar with its cost (e.g., they only see the installed cost for products supplied by subcontractors). If a product's price hadn't changed, it is perhaps less likely that the price would be brought to the builder's attention.

As an example, in the case of cement/concrete, 159 builders answered the yes or no question about increases, and 71 percent (113) of those said that prices had changed. Of the 113 reporting changes, there were 86 builders who specified the size of the change. The mean increase reported by that group was 7 percent (Table 2). Given this pattern of partial response, the survey results may have some bias toward overstatement of the average increase, but it certainly would create a greater bias to assume that those who didn't respond had unchanged costs.

While the survey found higher prices for a wide range of materials, there were few reports of outright shortages and consequent disruptions of construction schedules. That is a welcome contrast with 1999 and 2000, when many builders faced delays in receiving bricks, insulation, and/or wallboard. There were some reports of shortages for OSB and plywood in the latest survey, but the shares of builders reporting "severe" shortages of those products were much smaller than in October 2003.

**Table 2. Builder Survey: Price Change for Materials**

| | March 2004 | | October 2003 | |
|---|---|---|---|---|
| | Price Change in past 6 Months | If yes, Average Change | Price Change in past 3 Months | If yes, Average Change |
| Cement/concrete | 71% | 7% | 26% | 7% |
| Concrete brick and block | 51 | 6 | 13 | 6 |
| Clay brick | 45 | 7 | 12 | 6 |
| Insulation materials | 54 | 6 | 23 | 7 |
| Gypsum wall board | 74 | 9 | 37 | 10 |
| Framing lumber | 93 | 15 | 68 | 16 |
| Steel (lightweight for framing) | 58 | 19 | - | - |
| Rebar (steel reinforcing bars) | 54 | 22 | - | - |
| Trusses | 60 | 11 | - | - |
| Steel beams | 60 | 16 | - | - |
| Flitch plate for headers | 47 | 11 | - | - |
| Structural Insulated Panels (SIP) | 28 | 20 | - | - |
| OSB | 95 | 73 | 89 | 89 |
| Plywood | 91 | 51 | 74 | 75 |
| Roofing materials | 59 | 9 | 31 | 23 |
| Windows and Doors | 51 | 6 | 15 | 20 |

*Source: NAHB Builders Economics Council Survey.*

## Outlook

There is a speculative element in the price fluctuation for wood panels, steel, and other products, although the participants probably don't see themselves as speculators. Instead, they view their changes in inventories as defensive measures. In any case, however, price movements are likely to be exaggerated by producers, distributors, and customers trying to avoid buying at the peak of the market or running out of supply.

With little prospect for additional capacity to produce wood panels, prices are likely to remain elevated as long as home building remains strong. Eventually, there will be a better match between demand and capacity, and then OSB prices are likely to settle far below current levels. New OSB plants should be able to make money at around $200 per 1,000 square feet, rather than the $500 price prevailing now.

For products like steel, the future is less clear. In the long run, prices are likely to be lower, and the long run may arrive sooner for metals than for OSB. But not all of the recent price increases have been passed on the builders yet, so their costs may continue to rise.

Overall, the cost of materials for home building in 2004 are likely to be higher on average, than in 2003. To a large extent, that is a measure of the strength of demand for homes and the improvement in the overall economy, and the alternative—low prices caused by a slump—is certainly less attractive.