

# AGC CONSTRUCTION INFLATION ALERT

REPORTED BY AGC CHIEF ECONOMIST KEN SIMONSON

MARCH 2008

The Construction Inflation Alert is the sixth in a series of continuing economic reports educating contractors and owners on construction materials prices.

## Uneven Growth Looms for Construction Spending, Costs and Labor

Nonresidential construction is entering a period of divergent trends for activity, materials costs and labor. In 2007, the industry experienced high levels of demand in nearly every segment and region. For most of the year, materials costs rose less than they had in 2004-2006 and labor supplies were adequate.

In 2008, some nonresidential segments, including power and energy, will continue to grow, but others such as lodging will slow or decline. Diesel, copper and steel are among materials whose costs are likely to accelerate, while others remain benign. Labor shortages will worsen for a few crafts, pulling average wage rates higher, but in other segments such as residential specialty trades, the supply of some crafts will be plentiful.

To enable contractors, owners, public officials and the media to understand the trends in construction and have a better idea of what to expect in 2008 and beyond, this report first reviews the course of construction activity, materials costs and labor in 2007. The categories of projects that are expected to show the greatest growth in demand in 2008 are important for an understanding of how prices will behave for key materials and different crafts. Therefore, discussion proceeds from the spending outlook to an analysis of five inputs (diesel fuel, steel, concrete, copper and gypsum) and of labor and wage trends for 2008 and later.



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## Activity in 2007

The ongoing growth in some nonresidential categories shows that nonresidential construction does not necessarily follow residential, as many observers assume. Indeed, the Bureau of Economic Analysis (BEA) reported on February 28 that the growth rate for real (net of inflation) investment in private nonresidential structures exceeded that of real gross domestic product for a record-setting ninth straight quarter in the fourth quarter of 2007 ([www.bea.gov](http://www.bea.gov)). Investment in such structures jumped 15 percent in the fourth quarter. BEA's definition of structures includes wells and mineshafts, making it somewhat broader than construction, but clearly nonresidential construction held up very well in the latest period, even after adjusting for inflation.

For 2007 as a whole, real nonresidential investment climbed 13 percent, following gains of 8.4 percent in 2006 and just 0.5 percent in 2005.

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A report from the Census Bureau on February 1 showed that spending on nonresidential construction climbed 16 percent for 2007 as a whole, before taking inflation into account ([www.census.gov/constructionspending](http://www.census.gov/constructionspending)). This definition includes public as well as private construction but excludes wells and mineshafts. Private nonresidential construction increased 18 percent; public, 13 percent.

In contrast, real investment in private residential structures plunged 25 percent in the fourth quarter according to BEA, the eighth consecutive drop and an even steeper decline than the 21 percent decrease in the third quarter. The full-year drop totaled 17 percent, following a fall of 4.6 percent in 2006 and an increase of 6.6 percent in 2005. Census measured the full-year decrease at -18 percent before adjustment for inflation.

Some observers cite a supposed "rule of thumb" that nonresidential construction follows residential with an 18-month lag. Such a lag may have occurred in the housing downturns of the early 1980s and early 1990s but, if so, the nonresidential downturns more likely resulted from the double-digit interest, inflation, and unemployment rates at the time, not from the housing slumps. In early 2008, all of those rates are 5 percent or less, and several categories of nonresidential construction should do well for at least the next year, and likely beyond.



## Spending Outlook

The Census report showed that spending in 15 of the agency's 16 nonresidential categories increased in 2007. The only exception was religious structures, the category most closely tied to new housing.

For 2008, the outlook is much more mixed, as shown in **Table 1** (page 5). Five types of projects appear poised for another year of strong spending growth: power, energy, communication, hospitals and higher education. Such activity will affect demand for materials and labor used in other construction segments as well.

- **Power.** Spending on power plants, wind and solar facilities, and transmission lines soared 27 percent in 2007, according to Census, and should climb by a similar percentage in 2008. Dozens of power plants are currently in permitting or design stages. Operators of existing plants have announced plans to spend billions of dollars on upgrades and environmental retrofits. Demand for "green" power from renewable sources and experimental projects is still rising, although many of these depend on tax credits that are currently due to expire at the end of 2008. The credits seem sure to be renewed but there may be a pause in investment if they expire first.
- **Energy.** Refiners last year announced massive additions to facilities, plus environmental retrofits, on the Texas and Louisiana coast, as well as selected other sites. These projects will take several years to design and build. Construction related to onshore oil and gas development will also add to order books. Ethanol plants, a torrid construction market during most of 2007, are now being delayed or canceled, but there have been numerous biodiesel and renewable diesel plants announced. Several demonstration projects of new technologies may also add modestly to construction levels. Census data show a 40 percent spurt in chemical manufacturing construction (the category that includes refineries, ethanol and biodiesel plants) in 2007. A further 20 percent increase is likely in 2008.
- **Communication.** The explosive growth in usage of cell phones and personal digital assistants has spurred a new round of cell tower construction. Ever-rising Internet traffic, especially for data-intensive sound and video files, is sparking construction of more data centers or "server farms" with heavy requirements for electrical, cooling and security systems. The 21 percent growth in communication construction that Census reported for 2007 could be repeated in 2008, but spending could cool abruptly if the economy slumps.
- **Hospitals.** Technological changes in the way patients are admitted, diagnosed and operated on or otherwise treated have forced hospitals to do major rebuilding to accommodate large new machines, wiring, plumbing and air handling equipment. Semi-private rooms have been converted to private. Hospitals in California are doing complex retrofits to meet tougher seismic standards. New hospitals, both limited and full-service, are being built in areas where population growth has created new demand. Combined private and

**TABLE 1 | Construction Spending by Category, 2007-2008**

Category	2007 total (billion \$)	Change from 2006 (percent)	2008 projected change (percent)
Total	1161	-3	-6 to -2
Residential	531	-18	-20 to -15
Nonresidential	630	16	4 to 8
Educational	98	14	3 to 6
Commercial	85	13	1 to 4
Highway & street	77	7	3 to 7
Office	65	20	0 to 5
Power	50	27	15 to 25
Healthcare	45	14	10 to 15
Manufacturing	38	9	2 to 5
Transportation	31	16	5 to 10
Lodging	30	66	-5 to 5
Communication	26	21	10 to 15
Sewage & waste disposal	25	7	1 to 5
Other*	59	10	-5 to 5

\* Other: amusement & recreation, water supply, public safety, conservation & development, religious.

Source: 2007 total and percent change from U.S. Census Bureau news release, "Value of Construction Put in Place," February 1, 2008. Projected change from AGC

state and local hospital construction rose 16 percent in 2007, Census reported, and could expand equally rapidly in 2008.

- **Higher education.** Educational construction climbed 14 percent in 2007, Census estimated, with private construction rising 21 percent and public construction, 13 percent. The strongest subcategory was private higher education, up 25 percent. Colleges with endowments or capital campaigns benefited from recent stock-market appreciation and are able to devote more money to construction. These projects are often multi-year efforts and should continue in 2008. However, public education construction, from pre-kindergarten through universities, may begin to suffer in 2008 from the downturn in property taxes and other revenue sources.

Other types of nonresidential construction are likely to experience slow growth or outright declines in 2008. The extent and types of growing and flat or shrinking projects is at least as important as the overall total for predicting the movement of materials and labor costs.

THE EXPLOSIVE GROWTH  
IN USAGE OF CELL  
PHONES AND PERSONAL  
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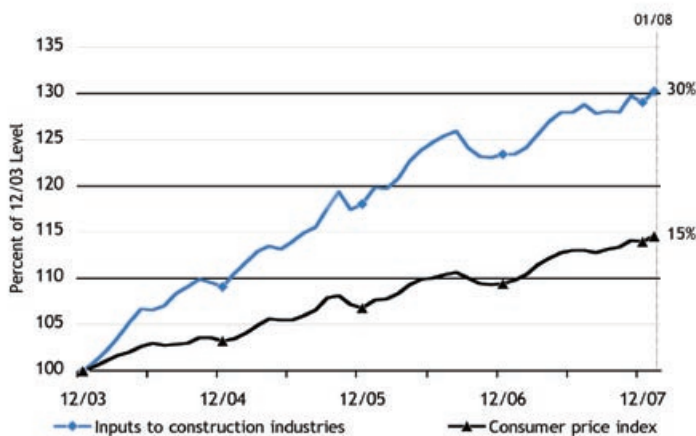


## Materials Costs, 2003-2008

Every month, the Bureau of Labor Statistics (BLS) collects prices for specific products from thousands of producers. BLS does not reveal the actual prices but publishes producer price indexes (PPIs) that show how prices have changed over time ([www.bls.gov/ppi](http://www.bls.gov/ppi)). BLS also compiles indexes for groups of commodities and for a weighted average of the inputs used by specific industries.

For the past four years, the prices of inputs used in construction—materials that go into projects plus items consumed by contractors, primarily diesel fuel—have risen faster than the consumer price index (CPI), is also published by BLS ([www.bls.gov/cpi](http://www.bls.gov/cpi)). From December 2003 to January 2008 the producer price index (PPI) for inputs to construction industries rose a cumulative 30.2 percent, compared to 14.5 percent for the CPI, as shown in Figure 1, which plots both series using a base of 100 in December 2003.

**FIGURE 1**  
Change in Producer Prices  
for Construction vs. Consumer Prices, 2003-08  
(December 2003=100)



Since December 2003 the cumulative increase in the prices of inputs used in construction (30.2%) has been more than double the increase in the consumer price index (14.5%).

This comparison is relevant because many public agencies use the CPI to project future costs. Such an index worked well in the past, when there was little difference between the change in construction costs and consumer prices. But the ever-widening gap in these two series has meant that public owners have increasingly had to defer, redesign or cancel projects for which they did not budget enough money in 2003 or 2004. Contractors, for their part, have been frustrated by public officials' lack of awareness that their costs have diverged so much from the cost of office supplies or wages, for instance. Some contractors have turned away from bidding on public projects for which they knew the cost expectations were unrealistically low.

To determine if recent trends will continue, and how they will affect different types of construction, it is necessary to look at the behavior of several key inputs. Construction uses a wide range of materials. The mix varies greatly from one category of construction to another, and changes in demand from one segment may not influence the price change experienced by another.



DIVERSE MIXES OF MATERIALS  
EXPLAIN WHY COSTS FOR  
DIFFERENT CONSTRUCTION  
SEGMENTS HAVE DIVERGED  
IN RECENT YEARS.

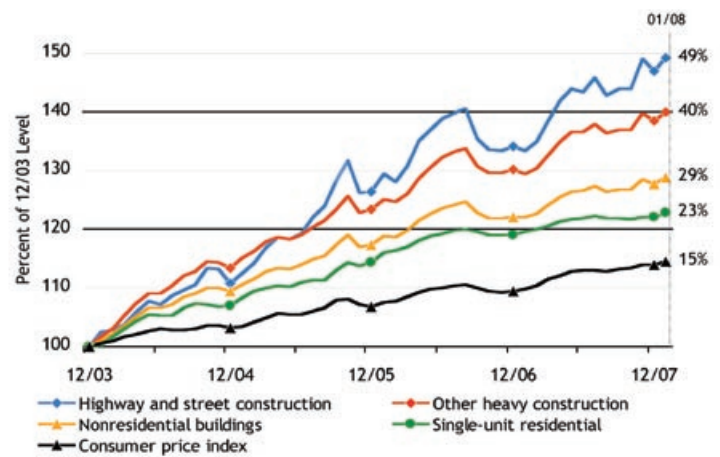
Some materials are used exclusively or primarily in construction, while others have a range of users. Some materials are supplied locally or regionally; others have global markets.

This diversity of influences explains why costs for different construction segments have diverged in recent years and are likely to differ in 2008 and beyond, as well. For instance, wood products manufacturing industries (North American Industrial Classification System, or NAICS, code 321) made up 14 percent of the PPI for inputs to single-unit residential construction in 2007, but only 1 percent of the PPI for highway and street construction, and minor shares of the indexes for other construction types. Conversely, petroleum refineries, asphalt products and petroleum lubricating oil and grease manufacturing (NAICS code 324) accounted for 38 percent of the highway PPI but only 7 percent of the single-unit residential index. The indexes for multi-unit residential and nonresidential building construction and for other heavy construction were in between these extremes but used more fabricated metal products than either houses or highways.

Figure 2 shows the cumulative change since December 2003 in the PPIs for highway, other heavy, nonresidential building and single-unit residential construction, along with the CPI. (The PPI for multi-unit residential construction is not shown but closely matches the index for nonresidential buildings because they use a similar mix of inputs.)

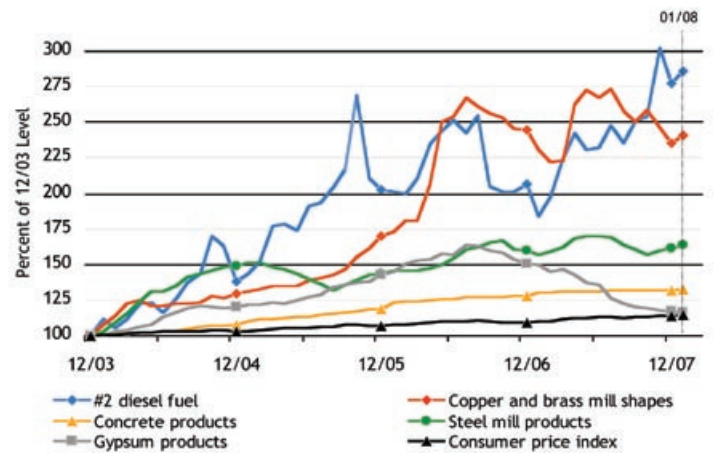
The final prices for projects built in 2007 and for current bids may not depend just on price movements in 2007. Such prices may also reflect the cumulative change over the past several years and the expectations of contractors who must provide a firm bid on a project many months, or even years, before they buy some of the materials. Therefore, the following discussion of price movements for major materials and components used in construction includes information on cumulative changes since December 2003, when steel prices first spiked, as well as price changes in the latest 12 months (January 2007-January 2008), to improve readers' understanding of what has shaped recent construction pricing, along with possible movements in 2008. The cumulative change in each of these indexes—for diesel fuel, steel mill products, concrete products, copper and brass mill shapes, and gypsum products—is shown, along with the cumulative CPI change—in Figure 3.

**FIGURE 2**  
Change in Producer Prices for Construction Segments, 2003-08  
(December 2003=100)



Construction segments vary in the amount of cost escalation but all have risen faster than consumer prices.

**FIGURE 3**  
Change in Producer Prices for Major Construction Inputs, 2003-08  
(December 2003=100)



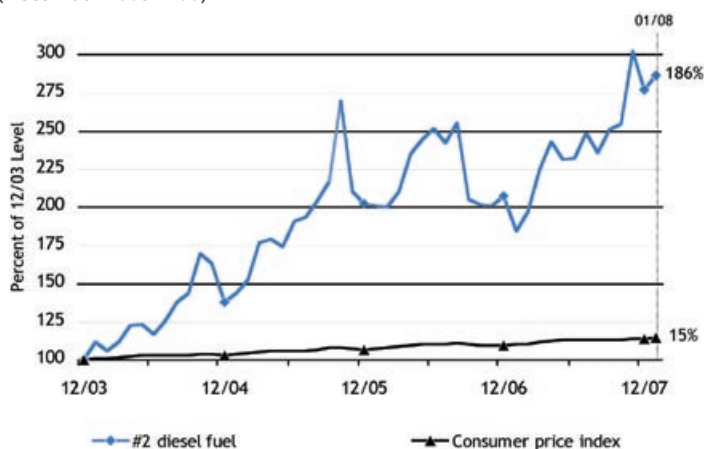
The most extreme price increases have been for diesel fuel, copper and steel products.

## Outlook for Key Materials

- **Diesel fuel.** Contractors use diesel to power earthmoving and other offroad equipment as well as construction vehicles such as dump trucks, concrete mixers and pumpers, and tower cranes. In addition, contractors pay fuel surcharges on deliveries of equipment and materials to job sites and on backhauls of dirt, debris and equipment.

**FIGURE 4**  
Change in Producer Prices for Diesel Fuel, 2003-08

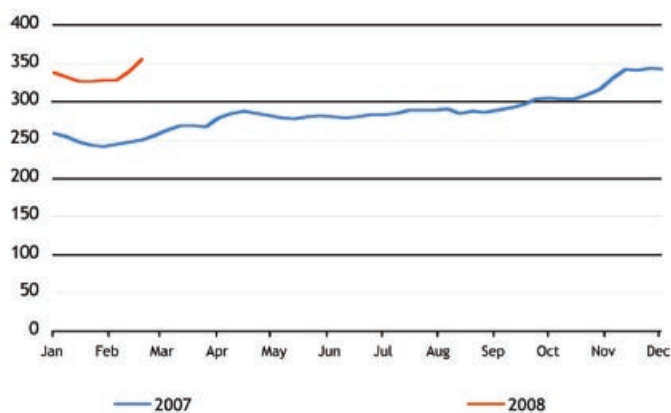
(December 2003=100)



Diesel prices remain extremely volatile and have risen the most of any major construction input.

**FIGURE 5**  
Diesel Fuel Prices

(cents per gallon)



Retail prices for on-road diesel fuel have started 2008 much higher than in most of 2007.

Diesel costs and fuel surcharges also work their way into the prices of many materials that require fuel to mine, manufacture, mill, mix and move throughout the production process. For instance, concrete is made from crushed stone (known as aggregate), sand, cement and water. The quarrying, crushing, sorting and delivery of aggregate and sand take large amounts of diesel fuel. Cement is made from limestone that must be transported to a cement kiln, heated to an extremely high temperature and ground to a powder; carrying the dense cement to a ready-mixed concrete plant (batch plant) is also fuel-intensive. Mixing the ingredients at a batch plant or moving concrete building materials also uses diesel fuel.

Diesel prices have been extremely volatile over the past several years, driven mainly by crude oil prices but also by winter weather conditions (diesel prices tend to rise when more crude is marketed as heating oil, which is chemically similar) and refinery damage following the 2005 hurricanes. Since December 2003, the PPI for diesel fuel soared 186 percent, the most of any major construction input. From January 2007 to January 2008, the diesel PPI jumped 55 percent, following a mild 2.3 percent increase in 2006.

In the first two months of 2008, retail diesel prices have been nearly 40 percent higher than in the same months of 2007. As Figure 4 shows, diesel prices dipped as low as \$2.41 in early 2007, then climbed to a record level of \$3.55 in late February 2008. With crude oil prices dancing around \$100 per barrel, it appears that diesel prices in much of 2008 will remain well above prices in the same month of 2007. The Energy Information Administration forecasted in its February Short-Term Energy Outlook that on-highway diesel fuel would average \$3.21 per gallon in 2008, 11 percent more than the \$2.88 average in 2007 ([www.eia.doe.gov](http://www.eia.doe.gov)).



The most diesel-intensive construction segment is highway construction. That explains why the PPI for highway construction rose the most of any construction type from January 2007 to January 2008—12 percent—and in the last four years combined—49 percent.

- **Steel.** Steel prices soared in the first half of 2004, kicking off a period in which construction costs have risen faster than the CPI for four straight years. Over that span, the PPI for steel mill products has climbed 63 percent.

But there has been considerable variation among types of steel. The PPI for sheet metal products, which include light studs and ventilation ducts for houses, rose 24 percent over four years. Several building-steel indexes rose 30-50 percent. The index for steel pipe and tube, which has been in heavy demand from the oil and gas industries, moved up 81 percent.

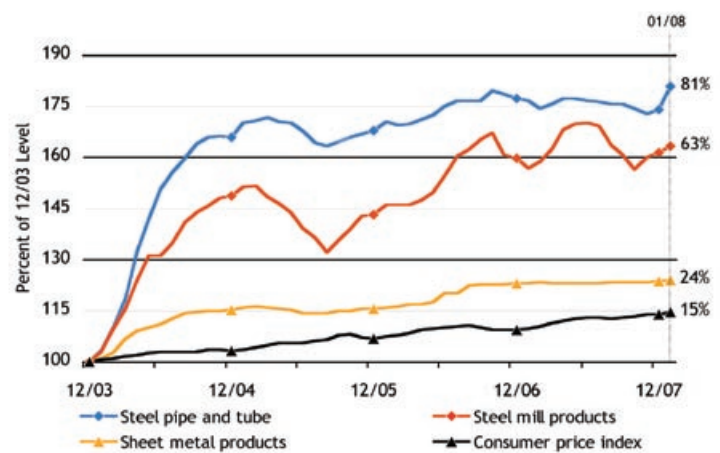
In the first two months of 2008, U.S. steel mills have announced numerous price increases, driven by costs and opportunity. The decline in the value of the dollar relative to many other currencies attracted foreign buyers for scrap iron and steel, the principal ingredient in most steel used in construction. Moreover, steel is very energy-intensive, and the cost of melting scrap or producing steel from ore and coke has risen as the price of crude oil set new records in January and February. In addition, the weaker dollar and high shipping rates have made foreign steel more expensive and enabled U.S. producers to pass on these cost increases.

However, there is ample worldwide steel capacity, and steel prices have frequently reversed course after rising steeply for a few months, as they did in 2007. Given the slowing demand for several types of construction and a weak U.S. manufacturing sector, it is likely that steel prices will average only about 5 percent higher in 2008 as a whole than in 2007.

- **Concrete.** Concrete is used almost exclusively in construction, where it is ubiquitous. It appears in foundations and driveways for single-family homes, in buildings and parking structures, and in highways and other heavy construction. The PPI for concrete products climbed 8-10 percent annually in 2004-2006 as all types of construction increased and U.S. cement capacity fell far short of demand.

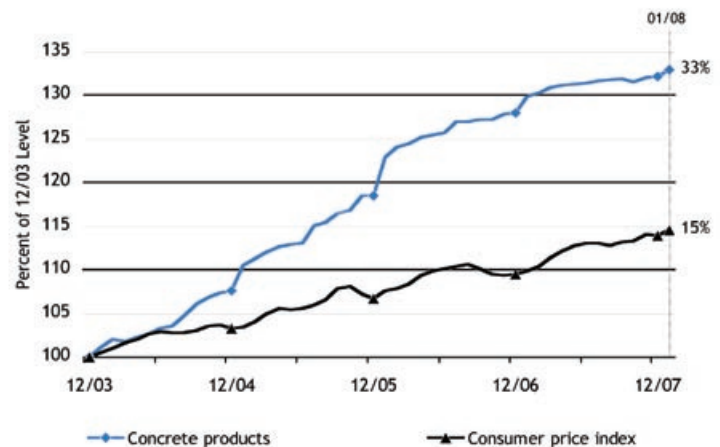
In 2007, concrete prices rose a more moderate 3.3 percent as residential demand slackened, foreign supplies of cement—particularly from China—increased, and U.S. capacity began to expand. More capacity will come on line in 2008-2010, while residential demand

**FIGURE 6**  
Change in Producer Prices for Steel Products, 2003-08  
(December 2003=100)



Steel prices soared unexpectedly in 2004 and have stayed high and volatile since then. There has been considerable variation among types of steel products.

**FIGURE 7**  
Change in Producer Prices for Concrete Products, 2003-08  
(December 2003=100)



Concrete price increases slowed in 2007 but remain far above increases in the consumer price index.

will shrink further this year. Nonresidential demand will be mixed but will certainly not grow as robustly as in 2004-2007. Although high fuel prices will push up production costs, ready-mix and concrete product suppliers will have trouble fully passing through the increases. A 2-4 percent rise appears likely.

- **Copper.** Copper prices have shown a strong upward trend since 2003. Copper appears in construction in the form of wire, pipes, some roof flashing and gutters and in many electrical and electronic components. In addition, brass fixtures have a large copper component. Copper is in high demand worldwide, both for construction and many other products. The supply of copper

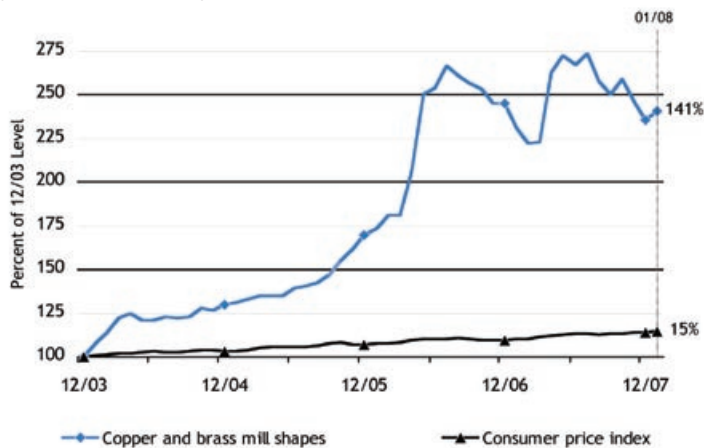
comes from a limited number of mines that are subject to many types of disruptions. Recently, these have included power shortages in Zambia, continuing civil strife in Congo, earthquakes and strikes in Chile.

Nevertheless, copper prices do retreat at times. The PPI for copper and brass mill shapes fell 3.8 percent in 2007, though the cumulative change since the end of 2003 was still 141 percent.

In late February 2008, the price of copper futures on the Comex division of the New York Mercantile Exchange was more than \$3.80 per pound, roughly 40 percent higher than a year before. Although a slowing U.S. economy is likely to keep prices from soaring beyond the current level, the average price for copper and brass mill shapes in 2008 as a whole could easily exceed the 2007 average by 10 percent or more.

**FIGURE 8**  
Change in Producer Prices for  
Copper and Brass Mill Shapes, 2003-08

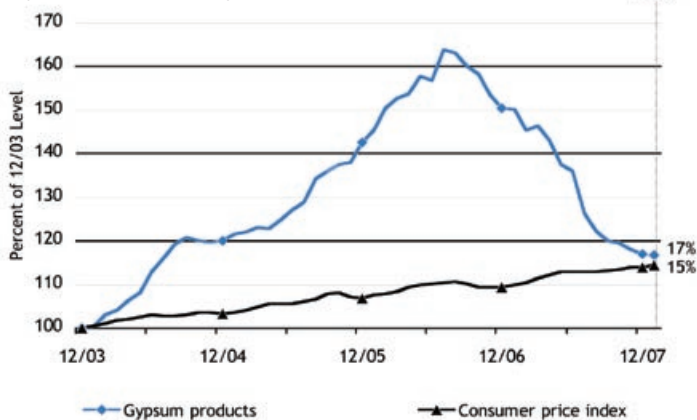
(December 2003=100)



Copper prices have seen sharp increases since 2004. Despite a pullback in late 2007, prices remain higher than a year ago.

**FIGURE 9**  
Change in Producer Prices for  
Gypsum Products, 2003-08

(December 2003=100)



Demand for wallboard and plaster has fallen since mid 2006 and production has increased, bringing prices down to early-2004 levels.

- **Gypsum.** The price of gypsum, the primary ingredient in wallboard and plaster, traced an inverted V pattern over the past four years. The PPI for gypsum products climbed at a 20 percent annual rate from August 2003 until July 2006. At that point, demand continued to rise for wallboard in schools, hotels, offices, stores and hospitals, but not by enough to offset the drop in demand from single-family house construction, which had peaked in February 2006. Prices have fallen at a 20 percent rate ever since.

Adding to the downward pressure on prices, wallboard manufacturers began to open new plants, some of which are virtually forced to keep producing, even if demand is low, because they committed to use as their raw material all of the residue from the

smokestack of a nearby power plant. Although some older factories have closed, capacity is still growing. The slowdown in nonresidential building construction in 2008, along with further contraction of homebuilding, should push gypsum prices down another 10-20 percent in 2008.

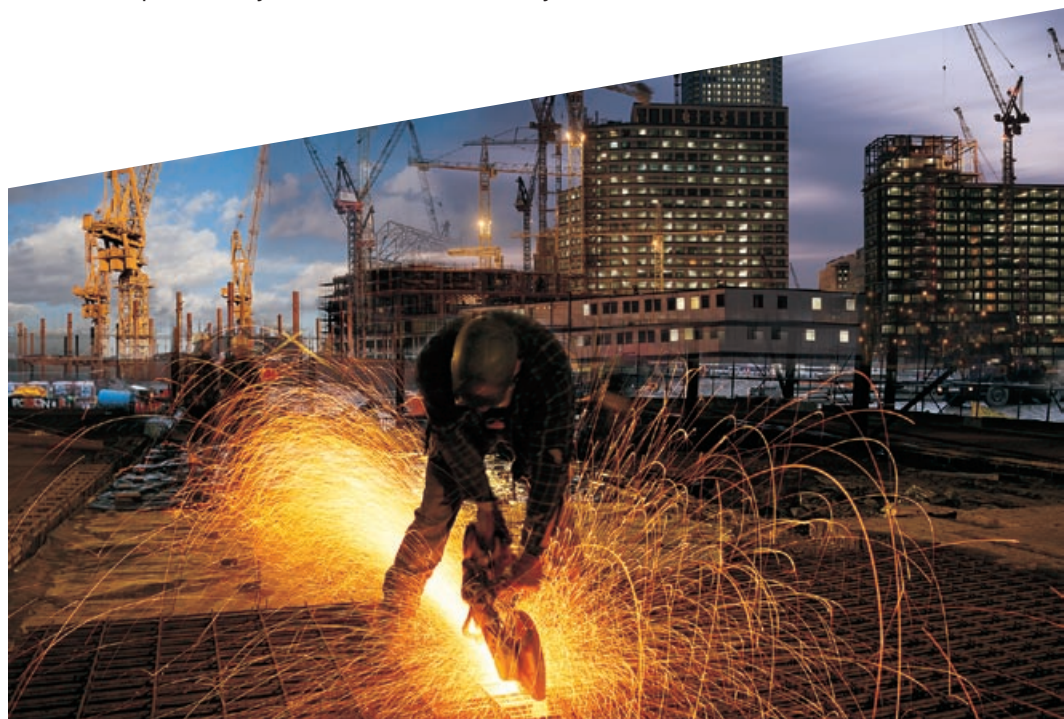
These cross-cutting trends make it likely that the PPI for construction inputs will accelerate from the 4.5 percent rate of increase that prevailed in 2006 and 2007 to a 6-8 percent range by the end of 2008. The large increase in diesel fuel prices compared to a year ago, along with the importance of diesel fuel to highway construction, makes it likely that highway costs will go up even more. Conversely, the slumping demand and rising supply of gypsum products may mean nonresidential and multi-unit residential building costs go up a little less than 6 percent.

Looking beyond 2008, there are two factors that make it likely a 6-8 percent growth rate for construction input prices will be sustained. First, many construction inputs, such as diesel fuel, steel and copper, are in demand worldwide. As long as demand is rising sharply in large, developing countries such as China, India and other East Asian and Middle Eastern nations, there will be upward pressure on prices. Supplies of copper and oil are likely to remain tenuous, leading to frequent price spikes. Even products made from abundant raw materials, such as steel, are likely to experience price jolts when the exchange rate of the dollar makes U.S. scrap iron cheap for foreigners and foreign steel expensive for U.S. customers.

Second, construction will always be dependent on physical delivery of heavy, bulky, relatively low-value materials for which transportation and fuel costs are a major part of the delivered price. This contrasts sharply with the CPI, which is dominated by services and high-value, often light or locally produced goods for which transportation and fuel costs are relatively insignificant. Therefore, growing transportation bottlenecks and rising fuel prices will have a greater impact on construction than on most other industries or on consumers.

Given the worldwide competition for materials used in construction and the ongoing dependence on limited supplies of fuel and transport capacity, it appears prudent to expect construction input prices to rise 6-8 percent a year for the next several years.

CONSTRUCTION WILL ALWAYS BE DEPENDENT ON PHYSICAL DELIVERY OF HEAVY, BULKY, RELATIVELY LOW-VALUE MATERIALS FOR WHICH TRANSPORTATION AND FUEL COSTS ARE A MAJOR PART OF THE DELIVERED PRICE.





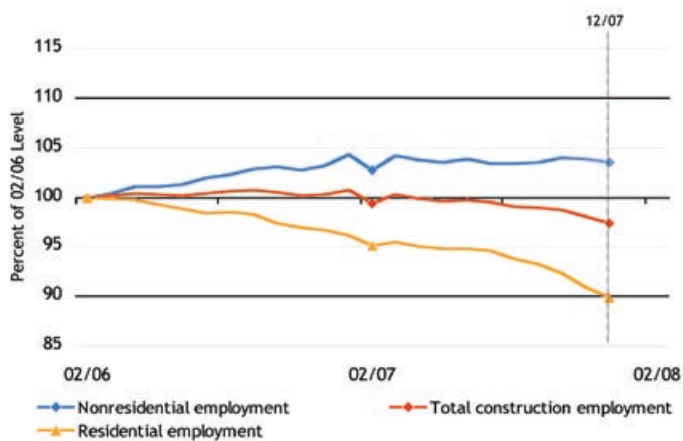
## Labor Costs

Labor accounts for roughly half the cost of a construction project. Therefore, to get a full picture of the outlook for construction costs, it is important to look at wage trends as well as materials costs.

BLS publishes average hourly earnings (wages) for “production and nonsupervisory workers” by industry each month as part of the employment and unemployment report ([www.bls.gov/ces](http://www.bls.gov/ces)). From January 2007 to January 2008, average hourly earnings for residential and nonresidential construction combined rose 3.6 percent, virtually the same as the 3.7 percent increase for the entire private nonfarm sector. Yet construction employment fell 3.6 percent over that span, while total (public and private) nonfarm payroll employment edged up 0.7 percent.

To predict the future course of construction wages it is necessary to understand why they have kept pace with overall wages despite a drop in construction employment. BLS reports on employment in five construction segments—residential building and specialty trades contractors, and nonresidential building, specialty trades, and heavy and civil engineering construction. The trends in residential, nonresidential and total construction over the past two years are shown in Figure 10, with each series indexed to 100 in February 2006, the month that residential employment peaked. As Figure 5 (page 8) shows, residential construction employment fell 10 percent from February 2006 to December 2007, a drop of 350,000 employees. In contrast, nonresidential employment kept rising until recently and remained 150,000 employees, or 3.5 percent, higher in December 2007 than in February 2006.

**FIGURE 10**  
BLS Change in Construction  
Employment, Feb. 2006-Dec. 2007  
(February 2006 = 100)



BLS data show little change in nonresidential employment in 2007.

In fact, the disparity between residential and nonresidential employment is probably much greater than the BLS data shows. Figure 11 shows how much more steeply residential activity (using Census figures on spending) has declined than the apparent drop in residential employment. It is illogical to assume that homebuilders or their subcontractors would have held onto so many workers, particularly at the end of 2007, when firms are selling land and canceling developments in anticipation of even slower activity ahead.

It is much more likely that actual residential employment has fallen by roughly the same percentage as residential spending, namely 33 percent from the peak in February 2006 to December 2007, or 1.15 million employees, not 350,000—an additional employment cut of approximately 800,000. The discrepancy can be explained by employees of firms engaged in residential specialty trade work in early 2006, and still counted by BLS as residential specialty contractors, but who are now installing wallboard, wiring, plumbing and other components in nonresidential projects.



If these roughly 800,000 workers are subtracted from the residential workforce and added to the nonresidential total in December 2007, the nonresidential employment gain since February 2006 turns out to be 950,000, or 23 percent, not 3.5 percent. Although this gain appears huge, it is consistent with the 30 percent increase in nonresidential spending recorded by the Census Bureau over that period. In fact, nonresidential activity could not have risen that much without a very large increase in employment.

This realignment of the employment numbers has two implications for nonresidential construction wages. First, the pool of specialty trade contractors is much larger than it appears from the BLS numbers, and there will be downward pressure on specialty trade wages as the increase in office, hotel, retail and perhaps school projects slows or reverses in 2008 and 2009. Indeed, many general contractors and subcontractors have reported large increases lately in the number of "subs" bidding on jobs. However, by 2009, residential construction should begin to revive, absorbing some of these excess workers.

Second, workers who have switched from residential to nonresidential work do not necessarily have the skills needed for the high-growth construction categories of 2008, such as hospitals, refineries, power plants, wind turbines and cell towers. Those projects require workers skilled in high-steel erection, heavy lifting, close coordination with a variety of crafts in confined or hazardous spaces—conditions far different from typical single-family home sites.

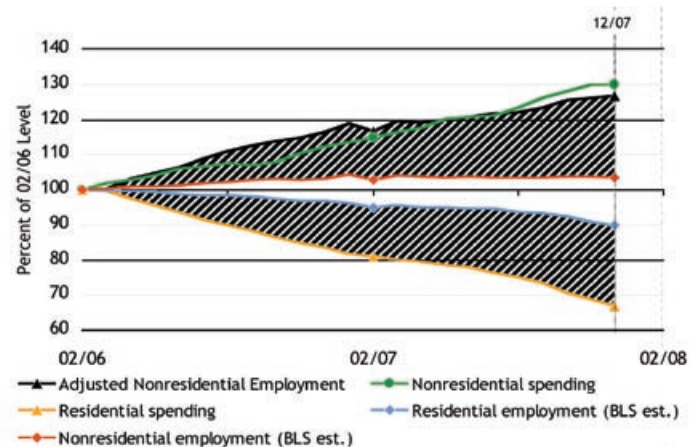
The Construction Labor Research Council, which tracks union wage settlements, reported in December 2007 that first-year increases for craft workers averaged 4.4 percent for 2007, nearly identical to the 4.5 percent average for first-year increases in 2006. That is consistent with the still-rising demand for many types of nonresidential workers in 2007. It is also broadly consistent with the 3.6 percent increase in average hourly earnings for residential and nonresidential workers combined that BLS reported for January 2007 to January 2008.

The construction consulting firm FMI completed a Craft Worker Compensation Research Report for AGC in early January 2008 (available at [www.agc.org](http://www.agc.org)). The report contains more than 50 charts and tables comparing construction wages by region, unionization, craft, and with reference to occupations in other industries that require similar education or training levels. Based on the results from this report, compensation is a factor of the labor shortage and along with efforts to make the industry more attractive, an industry-wide wage increase would help solve labor shortage issues.

The combined influence of these factors makes it likely that nonresidential wages will rise 4.5-5.5 percent in 2008 and 5-6 percent in subsequent years. Heavy industrial projects are likely to experience the largest increases; small commercial projects, the smallest rises.

**FIGURE 11**  
Adjusted Change in Construction  
Employment, Feb. 2006-Dec. 2007

(February 2006 = 100)



Adjusting the BLS residential job estimate to match the drop in spending and adding the workers to nonresidential employment produces job gains that better match nonresidential spending.

THE DISPARITY  
BETWEEN RESIDENTIAL  
AND NONRESIDENTIAL  
EMPLOYMENT IS  
PROBABLY MUCH  
GREATER THAN THE  
BLS DATA SHOWS

## Conclusion

Nonresidential construction is in a period of transition from nearly universal expansion in 2007 to much more selective growth. Five types of projects are likely to grow rapidly in 2008: power, energy, communication, hospital and higher education. But other large categories that grew strongly in 2007 will slow or perhaps shrink in 2008 and again in 2009 as projects started last year are completed and not replaced by new starts. Those types include commercial (retail, warehouse and farm in Census's terminology), office, pre-kindergarten through high school, highway, hotel, water and sewer. Meanwhile, residential spending will shrink for most of 2008, turning up late in the year or in 2009. Overall nonresidential spending is likely to increase by 4-8 percent (vs. a 16 percent rise in 2007). But a 15-20 percent drop in residential spending (vs. 18 percent in 2007) will bring down total construction spending by 2-6 percent (compared to a 3 percent fall in 2007).

These changes in spending patterns will contribute to changes in materials and labor costs. Diesel, copper and steel prices are likely to keep rising relatively fast, more than offsetting any savings from falling gypsum prices or slow concrete price escalation. The PPI for construction inputs rose at double the pace of the CPI from 2003 to 2007 and thereby forced spending cutbacks or project deferrals and redesigns at many public agencies that relied on the CPI as an all-purpose escalator. In 2008, the construction PPI is likely to go up 6-8 percent (compared to 4.5 percent in 2007), while the CPI climbs 2.5-3.5 percent (vs. 4.1 percent in 2007). A similar disparity is likely in future years.

Despite the high level of nonresidential activity in 2007, contractors were generally able to find enough workers, thanks to a massive redeployment of specialty trade contractors from residential to lighter nonresidential projects. Wages rose at about the same rate in construction (3.6 percent) and the overall private sector (3.7 percent), although nonresidential construction wages may have gone up somewhat more (4.4 percent for first-year union settlements). In 2008, the leading nonresidential categories will require skilled workers not typically found on single-family job sites. Consequently, wage increases in nonresidential construction may rise to the 4.5-5.5 percent range in 2008, despite the slowdown in overall activity, and to 5-6 percent in 2009, when residential work begins to compete again for some specialties.





## Economic Resources from AGC

AGC produces a variety of materials to help contractors, owners and the public learn what is happening to construction activity, costs and labor. *The Data DIGest* is a weekly, one-page e-mail newsletter covering economic data and news affecting the industry. It is posted at [www.agc.org](http://www.agc.org); for a free subscription, e-mail [simonsonk@agc.org](mailto:simonsonk@agc.org). Monthly supplements provide updated tables of PPIs for construction inputs and segments, along with charts showing the cumulative changes in PPIs and the CPI since 2003. State fact sheets and a page of Quick Facts about the Construction Industry are posted at [www.agc.org/factsheets](http://www.agc.org/factsheets). AGC holds audio conferences featuring Ken Simonson and outside experts discussing economic trends for construction in June and December ([www.agc.org/audioconferences](http://www.agc.org/audioconferences)) and an economic issues forum at the annual convention in March.

## About the Author

Ken Simonson has been Chief Economist for AGC since 2001. In that role, he provides a multitude of information, through written materials, personal appearances and media interviews, about the role of construction in the economy and about economic developments affecting construction nationally and locally.

Ken served on the Blue Ribbon Panel of Transportation Experts advising the National Surface Transportation Policy and Revenue Study Commission, and he has testified to state governmental panels about construction costs. He is a board member of two professional organizations, the National Tax Association and the National Association for Business Economics (NABE). For the latter, he serves on the executive committee, chairs the quarterly industry survey and co-chaired the Spring 2008 policy conference. Among his many publications is "Digging into Construction Data," published in NABE's journal, *Business Economics*. Ken has been co-chair since 1982 of the Tax Economists Forum, a professional meeting group he co-founded for leading researchers and policy staff among tax economists. He is a member of several other professional organizations for economists.

Ken has a BA in economics from the University of Chicago, an MA in economics from Northwestern University, and has taken advanced graduate economics courses at the Université de Paris, Johns Hopkins and Georgetown Universities.

## About AGC

The Associated General Contractors of America (AGC) is the largest and oldest national construction trade association in the United States. AGC represents 33,000 firms, including 7,500 of America's leading general contractors and 12,500 specialty-contracting firms. More than 13,000 service providers and suppliers are associated with AGC through a nationwide network of chapters. Visit the AGC Web site at [www.agc.org](http://www.agc.org). AGC members are "Building Your Quality of Life."



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