

By **Tim Grogan**

Dramatic Drop in Fuel Prices Starts To Affect the Markets

Annual price declines: 41% for diesel fuel, 42% for gasoline, 52% for crude, 25% for natural gas

The largest drop in energy costs in decades has to have an impact on construction costs and markets. But perhaps not as much as you may think.

“The impact of the drop in oil prices will be limited to a few specific markets, such as petrochemical plants, and it will be very regional,” says Robert Murray, chief economist for Dodge Data & Analytics. He still predicts that the dollar value of total construction starts will increase 9% to 10% this year. “The pull-back in manufacturing is dampening growth but not causing a decline,” he says.

However, the downturn in the manufacturing sector will be severe. “We had a surge in petrochemical work last year and expected a slowdown in 2015, but now we expect that slowdown to be even stronger due to the drop in oil prices,” Murray says. That is also adding to the deferral of pipeline work. He predicts that, overall, the manufacturing sector will decline 25% this year. However, Murray points out that this downturn follows two very strong years of growth for the manufacturing market.

“When we look at major markets, we predict that non-residential construction will settle back to a 6% annual increase in 2015, after a 19% gain in 2014. However, if we exclude manufacturing, we would be looking at an 11% gain this year in the non-residential building market,” he says.

On the plus side, Murray believes lower oil prices will help boost consumer spending, which should have a positive impact on both the commercial building and homebuilding markets. “The drop in oil prices will have a mixed impact on construction, but, in net, we think it will be positive,” Murray says.

In addition, Murray says there are indications that oil prices have bottomed out. “The key to our forecast is the duration of the decline in oil prices and when they will stabilize. What we have seen in February and March is oil prices edging upward, and, as a result, we think the overall impact of lower oil prices on construction will be relatively small,” he says.

Anirban Basu, the chief economist for the Associated Builders and Contractors,

agrees that the positive side of lower oil prices outweighs the negative side. “Lower energy prices are reducing the input cost of producers for most construction materials, especially the drop in diesel fuel prices on transportation costs. That’s good news for the industry because it shrinks overall costs,” says Basu.

“Lower fuel prices will reduce tax revenue for highway projects, but, on the other hand, those projects become cheaper to deliver,” he adds.

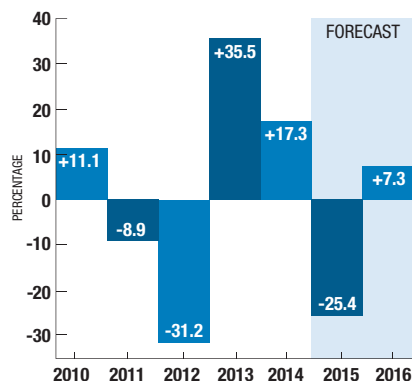
“Also, lower fuel prices means people will drive more, helping to boost gas-tax revenue. So, in the end, I think it’s a wash.”

Most state and local governments do not depend heavily on gas taxes to fund construction, he adds. “However, it may threaten future projects if the federal Highway Trust Fund becomes depleted. But, for now, with lower material costs, state and local governments will find it easier to push projects forward, given their limited budgets, he says.

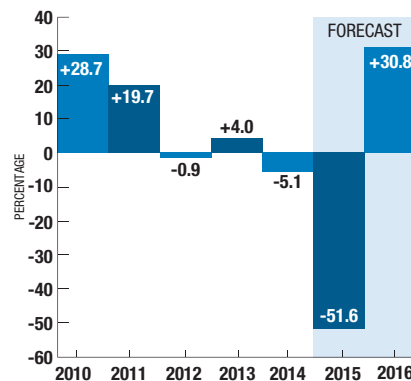
“Falling interest costs combined with falling materials costs will be a boost for



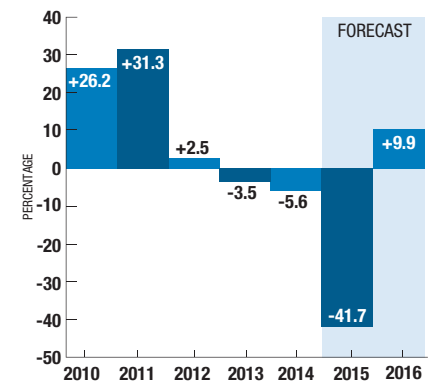
NATURAL GAS



TEXAS CRUDE



U.S. GASOLINE



SOURCE: DATA SUPPLIED BY IHS GLOBAL INSIGHT

WHAT THE ECONOMISTS THINK



Anirban Basu,
ABC

Lower oil prices will be a plus for overall economic growth.

The bottom line is that lower oil prices will be a boost to overall economic growth by stimulating consumer spending, says Anirban Basu, chief economist for the Associated Builders and Contractors. “Many markets will benefit, but oil-related sectors will suffer.”



Charlie McCarren,
IHS Global Insight

Lower oil prices won't have a big impact on construction materials prices.

Strong market demand will mostly offset lower energy costs, says Charlie McCarren, the economist who forecasts construction materials trends for IHS Global Insight. “It takes about six months for lower crude-oil prices to trickle down through the supply chain, and even then there will be a diminished impact.” He predicts that asphalt paving prices will decline only 4.1% this year, despite the forecast of a 52% drop in West Texas crude-oil spot prices.



Robert Murray,
Dodge Data & Analytics

The impact of lower oil prices on construction starts will be limited to a few markets.

The major impact of lower oil prices will be on the manufacturing sector, especially those related to petrochemical plants, says Robert Murray, chief economist for Dodge Data & Analytics. While he expects to see a pullback in the manufacturing sector, his forecast still looks for a 9% to 10% increase in the dollar value of overall construction starts in 2015. “The drop in oil prices will be focused on a few project types and be very regional,” he says.

construction. I have talked with several contractors, and they all say they have not seen any slowdown in the market,” says Basu.

The impact of lower oil prices on construction materials is more sketchy. Some will be hit, but other materials are not vulnerable to lower oil prices. And though some materials prices are falling, that has nothing to do with the drop in oil prices.

The obvious construction materials to reflect the massive drop in oil prices would be paving asphalt. Not so. “There is a major disconnect between falling oil prices and asphalt prices,” says Charlie McCarren, construction materials economist with IHS Global Insight. There are several components in the manufacturing of asphalt that blunt the impact of lower oil prices, such as using lighter crude oil, which reduces the asphalt by-product, McCarren says. “Asphalt may move in

the same direction as oil, but it does not have the same volatility,” he says.

IHS Global Insight forecasts the spot price for West Texas crude oil will fall 52% this year. But the same forecast calls for only a 4.1% decline in asphalt paving cost. IHS expects asphalt prices to decline another 1.2% in 2016 before rebounding 4.2% in 2017 and 3.7% in 2018.

However, there is a time lag to take into account, McCarren warns. “It takes about six months for lower crude-oil prices to trickle down through the supply chain. That is one reason we have not seen much of a reaction in the producer price indexes yet,” he says.

“We have a big drop in input costs, but most material prices seem to be improving because there is no slowdown in demand,” says McCarren. “Material [prices] are just not driven by input costs, such as energy, but also by demand in the

marketplace. The one sector we expect to see a pullback is manufacturing, but general demand is improving, and that will put a floor beneath prices,” he adds. As a consequence, lower input costs may result in larger profit margins for producers, rather than lower prices for contractors.

“We are not at a tipping point for most material prices yet. But by the end of the second quarter of this year, we think we may start seeing price declines for some materials,” McCarren says.

The dramatic 52% decline in crude-oil prices is overshadowing the 25% decline in natural-gas prices that IHS Global Insight is forecasting. However, the drop in natural-gas prices may be more significant for construction materials, says McCarren. “Most construction materials producers have moved away from oil, in favor of natural gas,” he says.

IHS Global Insight predicts that

natural-gas prices will rebound 7.3% next year and another 10.5% in 2017. Likewise, it forecasts that the spot price for West Texas crude oil will bounce back 30.8% next year, followed by another 16.8% gain in 2017. The prediction for the average U.S. gasoline price is more subdued: After an expected 41.7% decline this year, prices are predicted to rebound 9.9% in 2016 and another 5.0% in 2017.

IHS also recently released its latest Procurement Executive Group survey index. That PEG index dropped to 42.4%. It is a diffusion index, which means when it drops below 50, more firms are reporting price declines than increases. However, it does not measure the magnitude of the declines, only the direction, says McCarren. In addition, the index was only created in 2011, so claims of a record low should be taken with a grain of salt, he says.

Prices for other construction materials also are falling, but the declines have little to do with lower oil prices. The Bureau of Labor Statistics' producer price index for softwood lumber in February was down 4.5% from a year ago, which is mostly due to the soft rebound in housing.

Likewise, steel, aluminum and copper prices are down but, again, due more to market conditions than oil prices. "There has been a great expansion of production capacity for commodities such as copper, aluminum and steel, and the global market is not strong enough to soak up the excess capacity," says McCarren. "That is having a bigger impact on lower commodity prices than the recent drop in oil prices," he adds.

Bucking the downward price trend has been cement, which is posting historically high price increases. In February, the producer price index for cement was 9.4% above a year ago; IHS predicts that will calm down to a year average 3.5% gain. The February PPI for ready-mix concrete was up 4.3% for the year. The PPI for gypsum-wallboard prices rose 3.4% in February, following a 4.6% gain the previous month, leaving prices 1% above a 2014's level. The PPI for plywood prices is up 4.9% for the year. ■

BUILDERS' CONSTRUCTION COST INDEXES

NAME, AREA AND TYPE	JAN. 2014	APRIL 2014	JULY 2014	OCT. 2014	JAN. 2015	% CHANGE QTR.	% CHANGE YEAR
GENERAL-PURPOSE COST INDEXES:							
ENR 20-CITY: CONSTRUCTION COST¹	899.72	907.64	915.56	920.35	928.35	+0.9	+3.2
ENR 20-CITY: BUILDING COST¹	788.05	792.90	796.73	805.49	813.67	+1.0	+3.3
BUREC: GENERAL BUILDINGS²	345.00	349.00	352.00	354.00	355.00	+0.3	+2.9
FM GLOBAL: INDUSTRIAL³	305.00	NA	308.00	NA	NA	NA	NA
MEANS: CONSTRUCTION COST⁴	203.00	203.80	204.90	205.60	204.00	-0.8	+0.5
ECC, EDWARTOSKI COST CONSULTING⁵	173.50	174.00	174.35	174.78	175.21	+0.3	+1.0
SELLING PRICES INDEXES—BUILDING:							
TURNER: GENERAL BUILDING¹	885.00	896.00	908.00	917.00	NA	NA	NA
RIDER LEVETT BUCKNALL⁶	154.56	156.33	158.48	161.11	162.98	+1.2	+5.5
SPECIAL-PURPOSE BUILDING COST INDEXES							
U.S. COMMERCE: ONE-FAMILY HOUSE⁷	109.90	109.80	111.30	113.80	116.70	+2.6	+6.2
U.S. COMMERCE: NEW WAREHOUSES⁷	136.80	137.50	138.50	139.00	139.90	+0.7	+2.3
U.S. COMMERCE: NEW SCHOOL BUILDINGS⁷	145.70	146.30	146.60	147.70	148.10	+0.3	+1.7
U.S. COMMERCE: NEW OFFICE BUILDINGS⁷	122.10	122.60	123.20	124.20	125.00	+0.7	+2.4
POWER ADVOCATE: POWERPLANT⁸	185.29	185.79	186.41	187.34	188.48	+0.6	+1.7

¹BASE: 1967=100; ²BASE: 1977=100; ³BASE: 1980=100; ⁴BASE: 1993=100; ⁵FORMERLY SMITH GROUP, 1992=100; ⁶BASE: APRIL 2005=100; ⁷BASE: 1992=100; ⁸POWERPLANT FOR A 550-MW COMBINED-CYCLE FACILITY.

ENR'S CANADIAN COST INDEXES

1913=100 CITY	CONSTRUCTION COST		BUILDING COST		COMMON LABOR COST		SKILLED LABOR COST		MATERIALS COST	
	OCT. '14 INDEX	% CHG. YEAR	OCT. '14 INDEX	% CHG. YEAR	OCT. '14 INDEX	% CHG. YEAR	OCT. '14 INDEX	% CHG. YEAR	OCT. '14 INDEX	% CHG. YEAR
MONTREAL	10378.38	+3.2	5767.66	+2.7	20873.68	+3.5	9484.08	+3.2	3497.36	+1.9
TORONTO	10515.58	+2.9	5491.24	+2.4	21705.26	+3.3	8494.29	+3.0	3657.39	+1.6

CONSTRUCTION MATERIALS PRICE MOVEMENT IN 2014-15

		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.
AGGREGATES	MONTHLY % CHG.	0.0	-0.1	0.0	+0.2	-0.1	+0.2	0.9	+0.1
	ANNUAL % CHG.	+4.5	+4.1	+3.1	+3.5	+3.4	+3.3	+3.1	+2.6
ALUMINUM SHEET	MONTHLY % CHG.	+1.7	+2.5	+0.7	-1.2	+1.5	+0.1	-2.0	-0.3
	ANNUAL % CHG.	+4.1	+6.7	+7.3	+6.7	+8.4	+8.7	+5.7	+3.7
ASPHALT PAVING	MONTHLY % CHG.	-0.2	+0.9	0.0	+0.3	+0.2	+0.1	-0.3	-1.2
	ANNUAL % CHG.	+2.0	+1.7	+1.7	+2.0	+2.3	+2.7	+1.5	+0.2
CEMENT	MONTHLY % CHG.	0.0	+0.4	+0.5	+0.8	+0.3	-0.1	+3.4	0.0
	ANNUAL % CHG.	+5.0	+5.1	+5.7	+6.4	+6.6	+6.8	+8.5	+9.4
CONCRETE PIPE	MONTHLY % CHG.	0.0	0.0	0.0	0.0	0.0	+0.9	+1.2	-0.3
	ANNUAL % CHG.	+3.5	+3.4	+3.4	+2.7	+2.7	+3.3	+4.0	+3.7
COPPER PIPE	MONTHLY % CHG.	+2.6	-0.4	-0.7	-1.4	-0.3	-1.3	-3.5	-2.7
	ANNUAL % CHG.	+2.2	-0.9	-2.1	-3.5	-3.0	-4.4	-9.3	-10.5
DIESEL FUEL	MONTHLY % CHG.	-0.3	-0.3	-1.5	-6.2	-3.6	-14.9	-20.9	+3.2
	ANNUAL % CHG.	-1.2	-3.9	-7.9	-11.0	-11.0	-26.1	-40.4	-41.0
FABRICATED STEEL	MONTHLY % CHG.	+0.1	0.0	0.0	-0.2	0.0	0.0	+0.1	+0.1
	ANNUAL % CHG.	+1.3	+1.2	+1.9	+1.6	+1.6	+1.6	+1.2	+1.0
GYPSUM PRODUCTS	MONTHLY % CHG.	+0.4	-0.6	-1.2	+0.4	+1.7	-4.2	+4.6	+3.4
	ANNUAL % CHG.	+8.2	+7.2	+6.1	+7.5	+10.4	+3.8	+0.2	+1.0
LUMBER, SOFTWOOD	MONTHLY % CHG.	-0.2	+1.8	+1.6	-2.9	-2.2	-1.2	+2.0	-1.6
	ANNUAL % CHG.	+9.7	+9.1	+10.1	+5.4	+0.8	+0.3	-0.6	-4.5
PLYWOOD	MONTHLY % CHG.	+2.6	+4.6	-1.8	+0.3	+0.1	-0.7	-0.3	-2.5
	ANNUAL % CHG.	+5.9	+8.9	+7.0	+6.9	+8.1	+8.2	+7.5	+4.9
PVC PRODUCTS	MONTHLY % CHG.	-0.1	+0.3	-0.1	+0.7	0.0	-1.0	-0.1	+1.0
	ANNUAL % CHG.	+1.5	+2.1	+1.7	+2.8	+2.4	+1.4	+0.7	+1.1
READY-MIX CONCRETE	MONTHLY % CHG.	+0.5	+0.2	0.0	+0.4	+0.7	-0.3	+1.0	+0.4
	ANNUAL % CHG.	+4.6	+5.0	+4.8	+5.1	+5.5	+5.0	+4.8	+4.3
SHEET METAL	MONTHLY % CHG.	+0.4	+0.6	-0.5	-0.4	+0.1	0.0	+0.7	+0.3
	ANNUAL % CHG.	+2.0	+2.9	+2.3	+2.0	+2.1	+2.1	+2.2	+2.3

SOURCE: BUREAU OF LABOR STATISTICS. MONTHLY AND YEAR-TO-YEAR PERCENT CHANGES FOR PRODUCER PRICE INDEXES FOR LATEST EIGHT-MONTH PERIOD.

By Tudor Van Hampton

Diesel Fuel Prices Bottom Out

Nationwide fuel prices ticked up in February but are still 41% lower than last year's levels

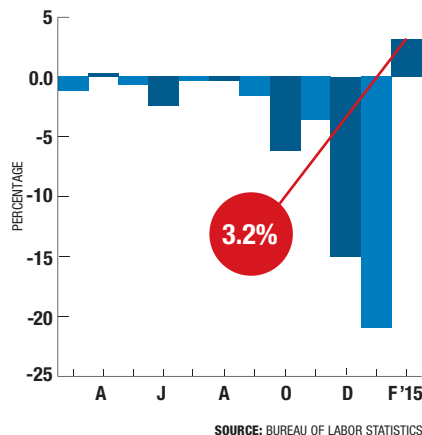
For some construction projects—such as public paving work—the cost of fuel and freight is often tied to a price index. So, a drop in petroleum prices of 50% or more is neither good news nor bad news for contractors. For others, the news is seen as a mixed blessing. Prices inched up in February, but they still remain far lower than last year's levels. If low fuel prices continue, some experts predict, they will create an economic stimulus that will give consumers more cash—and, eventually, more money to find its way into new construction.

All this remains to be seen, though. Shale output has slowed, and after roughly 10 straight months of price declines, diesel fuel prices in February inched up 3.2% higher than January's but were still 41% lower than a year ago, according to the Producer Price Index. Diesel prices at the pump averaged \$2.92 across the U.S. in mid-March, down 27% compared to a year ago, after falling to \$2.83 in early February—its lowest since January 2010, according to the Energy Dept.

Falling prices already have produced mixed effects. Firms working in the oil patch have seen drilling put on hold and equipment idled, while some refinery upgrades have continued as planned. Estimating is a bigger challenge, too. “We just got a six-year job where we estimated \$4-a-gallon gas,” says Thad Pirtle, vice president of equipment for Evansville, Ind.-based Traylor Bros. “It’s really a throw of the dice.”

Fleet managers say projects are certainly spending less on fuel but add that the drop in prices has hindered their ability to make strategic investments. Firms investing in alternative fuels, such as electric, propane and compressed-natural-gas vehicles, say they likely will take a break from these purchases this year as the drop in petroleum-oil prices

**PRODUCER PRICE INDEX
DIESEL FUEL**
Monthly percent change



now makes for a longer payback period.

“It gives us pause,” admits Marty Ozinga IV, president of Chicago-area concrete supplier Ozinga Bros. Inc. It operates four CNG filling stations and about 150 vehicles that run on CNG. “There is some general replacement of equipment that we are doing this year with diesel,” Ozinga says. “The low prices on diesel and oil are definitely part of the decision.”

Alternative-fuel experts say oil prices may be back on the rise. “I think we will see sales pick up next year as soon as oil prices start to increase,” said Stephen Yborra, director of market development for natural-gas group NGV America at the Green Truck Summit, held in early March in Indianapolis. “Don’t fall off the train,” he urged fleet managers.

Even with the sharp downturn in oil prices, the price spread between petroleum and alternative fuels is still favorable—though greatly diminished—compared to last year. According to the website CNGNow.com, the average per-gallon-equivalent price of CNG is \$2.11, while diesel prices in the U.S. are expected to average \$2.83 this year com-

pared to \$4 a gallon last year, EIA says. “We know it is going to go back up,” Yborra said, referring to petroleum-based fuels such as diesel, which powers most construction machines. “We just don’t know how quickly.”

Meanwhile, companies say they are continuing to make investments that lower their overall fuel costs. Newer, clean-diesel engines in both on-road and off-road machinery are proving to be more fuel-efficient, and less-critical upgrades can further reduce operating costs, say fleet managers. On heavy-duty trucks, even the lights can make a difference. “The fuel savings of moving from incandescent high-energy lights to LEDs is real money,” said Doyle Sumrall, managing director of the National Truck Equipment Association, at the Indianapolis summit. “It’s almost like turning off your truck for an hour or two a day.”

Cutting idle time is another industry focus, he added, noting that more firms are adopting technologies such as wireless telematics to help monitor their fuel usage. “Over 50% of the cost of fuel we use is from truck idling,” echoes Ozinga.

Those who rely on equipment values to secure bonding or asset-backed loans may be concerned about a glut of idle machines in the oil patch, but appraisers are less worried. Machines in oil-producing regions are at risk, but only 6% to 8% of all rented heavy equipment is exposed to pure oil-and-gas work, according to appraisal firm Rouse Asset Services. Further, the oil-and-gas sector accounts for only 10% of all rental revenue, its analysts say.

“[If] all this were to be wiped out, you might have 6% to 10% of equipment come to market that has to find other projects or is going to be off-loaded in the used-equipment markets,” explains Raffi Aharonian, managing director at Rouse. “The exposure is rather low.” ■

By Aileen Cho and Jeffrey Rubenstone

Asphalt Prices Drop; Concrete Looks for Long-Term Role

While asphalt will continue to dominate paving, concrete advocates point to life-cycle costs

Both asphalt and concrete advocates expect increases in paving activity overall, and both note that asphalt prices haven't gone down in conjunction with oil prices as quickly as in the past. While asphalt will continue its paving prevalence, proponents of concrete contend that life-cycle costs and tight budgets may contribute to an increasing competitiveness with asphalt.

"Oil prices have been going down, and liquid-asphalt prices have finally gone downward," says Jay Hansen, executive vice president at the National Asphalt Pavement Association. "Demand for asphalt paving is expected to continue to go up 5% in 2015 on the strength of private commercial [and] residential markets, mainly, and in states that approved user-fee increases for their programs."

Ed Sullivan, chief economist for the Portland Cement Association, concurs that the effect of low oil prices is filtering into asphalt prices, but adds that it is "nowhere near the degree that people might have expected." The ratio between oil and asphalt prices is "tighter" when oil prices rise and less than when they fall, he notes.

While Sullivan expects asphalt prices will continue to ease, he says that, over the long term, "you'd expect the world economy to keep increasing its demands on oil. If there is tremendous paving activity, then asphalt prices won't decline."

But Hansen says, "When the price of oil was a \$100 a barrel, we were competitive. The price of oil is now around \$50, and we're going to be even more competitive, and that's the bottom line."

Hansen says the shift by many companies from recycled fuel oil to natural gas has created an energy-related cost savings per ton of asphalt paving.

Scott Sounart, technical practice leader in pavement engineering for Kleinfelder, says cash-strapped municipalities are trying to avoid large-scale reconstruction in favor of maintenance when it comes to facilities such as parking lots.

Moreover, he adds, "state transportation departments are forced to have to wait" on major reconstruction projects, also due to funding uncertainties. "The fear is that roads are being allowed to deteriorate, and that may cause problems in the years to come," he says. Down the road, higher demand for asphalt might then drive prices up.

Still, asphalt's "first cost" remains lower than concrete's, and, "for the clients we work with, it's more prevalent. I think it will stay that way, regardless of oil prices," Sounart says.

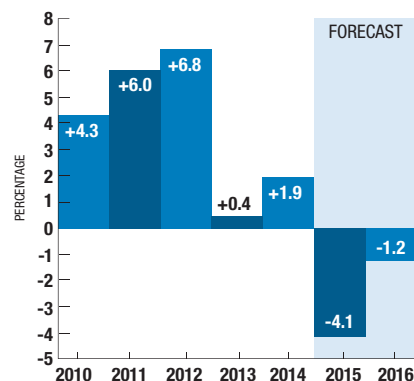
There is a recent example, however, of a state bucking the tradition. The Nevada Dept. of Transportation awarded an \$83-million concrete contract last month to Fisher Sand and Gravel, although the contract was \$3 million more than the low

asphalt bid by Las Vegas Paving Corp. The state applied a life-cycle equivalency factor and anticipated that maintenance of asphalt paving would be three times the cost over 35 years, says Darin Tedford, NDOT assistant chief materials engineer.

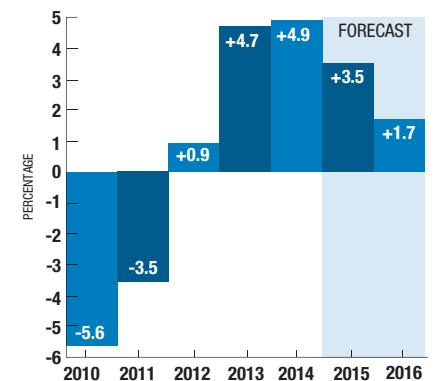
For maintenance of existing roads, the traditional asphalt prevalence is a "detriment to the tax-paying public," says Leif Wathne, executive vice president of the American Concrete Pavement Association. States that have an asphalt paving monopoly pay higher prices per ton but don't leverage the competitiveness of a free-market dynamic.

The focus on so-called Band-Aid maintenance could include greater attention to concrete overlays, which have increased from nearly zero 10 years ago to about 15% for all repaving projects nationwide, Wathne adds. If DOTs encouraged healthy competition between concrete and asphalt overlays, "we could get something like 17% additional lane-miles with the same investment," he says. ■

**PRODUCER PRICE INDEX
ASPHALT**



CEMENT



SOURCE: IHS GLOBAL INSIGHT

By Jeff Rubenstone with ENR Staff

Firms Feeling the Drop in Oil

Drilling work slows in key regions, downstream projects continue, and contractors readjust

The fallout from a decline in oil prices has driven a recent decline in upstream oil-and-gas work for engineers and contractors. Still, big industrial projects continue downstream, and some contractors in some regions are hoping to take advantage of a glut of skilled labor.

Work along the Gulf Coast has already seen adjustments to lower oil prices, with large oil and gas projects shelved as their economics evaporated. Sasol Ltd. delayed a decision to invest in a \$14-billion project next to an ethane cracker under construction in Lake Charles, La. (ENR 3/23/15 p.11), and other projects on the drawing board also are being put on hold.

“Anything tied directly to crude oil or direct derivatives, these projects have been pushed to the right and/or cancelled,” says Robert Connors, engineering and construction analyst with Stifel Equity Research. “Anything upstream-related or oil-related is seeing capex cut, and anything LNG-related is being deferred and/or cancelled. The reason for including liquified natural gas is that, while natural gas may be attractively priced in the U.S., they’re selling it to Asia, where it is pegged to oil prices.”

On the industrial side, projects using oil derivatives haven’t felt the worst of the drop in prices, and cheaper feedstock may actually bolster some projects. “You’re not going to see any cancellations with the five big ethylene-based crackers underway,” says Connors. “But there’s going to be less of a rush to build the next few.”

Major downstream Gulf Coast projects that continue may see unexpected benefits from a slowdown in oil-and-gas exploration. “You’re going to see craft labor rates in the Gulf Coast start to relax and start to help on project economics. A lot of guys from the oil patch are going to be out looking for work,” says Connors.



STILL ON A drop in oil prices has slowed production, but work on Dow’s Freeport ethylene cracker rolls on.

“There is a shock value that happens,” he says. “When oil gets cut in half, the first reaction from clients is, ‘Let’s wait to see volatility out.’ There is definitely a heightened caution across the industry.”

Far upstream, in the oil and gas fields of Colorado, the drop in prices has slowed work for oil-service engineering firms. The number of oil rigs operating along the Front Range of the Rockies has dropped by a third, to 44, in the past five months, according to Baker Hughes, an oil services company. The nine major drillers in the area have cut spending by nearly 30%.

But Colorado is a hot market that is only starting to cool. It’s likely the slowdown hasn’t been felt in the state yet because there was already so much work out there, says Scott Merritt, director of communications for the Rocky Mountains Chapter of the Associated Builders and Contractors. “Most of the contracting firms that do oil-and-gas work also have a pretty diverse client base,” he notes.

Glenwood Springs, Colo.-based H-P Geotech says the slowdown has actually helped the geotechnical services firm by making more engineering talent available

to hire. “A young engineer in California had turned down our job offer, then came back recently after he was laid off from his oil-and-gas job and said he was available. That helps with our labor shortage issues,” says Steve Pawlak, firm president.

Across the country, in the shale plays of Pennsylvania, oil-and-gas engineering firms that saw tremendous growth in recent years are starting to feel the pullback. “In this environment, with the clients facing those contractions, they are looking for concessions from their suppliers,” says Jim Rodgers communications director for Enola, Pa.-based Dawood Engineering, which does most of its work in midstream and pipelines. “Trying to keep people busy while maintaining profitable work, that’s a double whammy. The pie is getting smaller. So, firms are asked to work for a lower price.”

Rodgers expects his firm will feel the price drop eventually. “The easiest thing to slow down is new exploration ... and that’s where we do see the budgets are [being] cut,” he says. “But there is still so much volume of work, between what’s new and what’s been re-permitted. There’s still plenty of work to be done.” ■

By Gary J. Tulacz

Industry Executives Predict Market Growth Through 2016

Petroleum sector takes a tumble, but most believe the markets will remain healthy

The construction market has enjoyed steady growth for several years. Most industry executives believe this growth will continue through 2016. But one sector that has been leading the recovery, petroleum, has suddenly hit a roadblock as plummeting oil prices have resulted in project postponements.

The ENR Construction Industry Confidence Index for the first quarter shows that, of the 305 executives of large construction and design firms responding to the survey, a majority believe the market is growing. The CICI index moved up a point, to a record 78 on a scale of 100, in the first-quarter survey, an indicator of a growth market.

The CICI measures executive sentiment about the current market and reflects the respondents' views on where it will be in the next three to six months and over a 12- to 18-month period. The index is based on responses to surveys sent out to more than 6,000 U.S. firms on

ENR's lists of leading contractors, subcontractors and design firms. The latest results are calibrated from a survey conducted from Feb. 19 to March 16.

Surveyed industry executives believe most market sectors measured by the CICI are now in growth mode. The index has risen steadily, as few firms now believe the market is in decline.

Survey respondents generally believe the overall market will continue to pick up steam over the next 18 months. For example, 60% say the current market is growing, up from 55% in the last quarter, and 67% believe the market will be in growth mode in three to six months, up from 61% in the fourth quarter.

The soon-to-be-released results of the latest Confindex survey from the Con-



struction Financial Management Association, Princeton, N.J., shows growing optimism about 2015. CFMA polls 200 CFOs from general contractors, subcontractors and civil contractors.

While a Confindex rating of 100 indicates a stable market, higher ratings show growth is expected. "Our Confindex rose

by five points, to 137 [on a scale of 200], for the first quarter," says Stuart Binstock, CEO of CFMA.

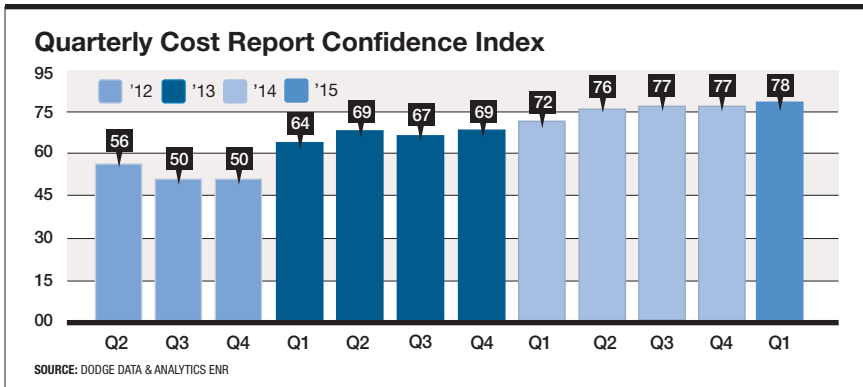
CFMA Sees Near-Term Growth

Binstock notes that the "financial conditions" component of the CFMA survey rose sharply in the fourth quarter, up 11 points to 127. Further, the "current confidence" component was up 10 points, to 139. "This indicates that our CFOs are

PROSPECTS BY INDIVIDUAL SECTORS BY FIRMS WORKING IN THOSE MARKETS	NUMBER OF FIRMS	CURRENTLY (%)			3-6 MONTHS (%)			12-18 MONTHS (%)		
		DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY	DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY	DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY
COMMERCIAL OFFICES	191	6	46	48	7	46	47	8	51	40
DISTRIBUTION, WAREHOUSE	116	9	46	46	8	42	50	9	50	41
EDUCATION K-12	140	13	44	43	12	41	46	11	45	44
ENTERTAINMENT, THEME PARKS, CULTURAL	74	9	65	26	7	61	32	12	51	36
HOSPITALS, HEALTH CARE	167	5	42	53	4	37	59	4	42	54
HIGHER EDUCATION	169	14	47	40	11	45	44	11	47	42
HOTELS, HOSPITALITY	122	3	46	51	3	49	48	11	56	34
MULTI-UNIT RESIDENTIAL	116	3	38	59	7	37	56	19	43	38
RETAIL	138	8	50	42	7	51	43	8	55	37
INDUSTRIAL, MANUFACTURING	148	8	47	45	7	48	45	8	47	45
TRANSPORTATION	95	11	52	38	9	40	51	7	39	54
WATER, SEWER AND WASTE	86	10	45	44	7	44	49	7	45	48
POWER	65	9	35	55	8	37	55	8	40	52
PETROLEUM, PETROCHEMICAL	49	33	45	22	35	29	37	16	35	49
ENVIRONMENTAL, HAZARDOUS WASTE	32	9	59	31	6	53	41	9	50	41

ENR FIGURES MAY NOT ADD UP TO 100% DUE TO ROUNDING

U.S. ECONOMY'S CICI is seven points below the overall construction market's rating, showing exec's are concerned about the economy.



very optimistic about the near-term market,” Binstock says. However, he noted that the “overall business conditions” component was down four points, to 148, and the “year-ahead outlook” component also was down, to 133 from 135.

“Our four components are somewhat time-based,” notes Anirban Basu, CEO of economic consultant Sage Policy Group Inc., Baltimore, and CFMA economic adviser. The two components that look at the near-term markets are very strong, he says.

Oil-Patch Blues

For the CICI survey, execs were asked to assess current and future market prospects in general and in any of 15 market sectors in which they currently work. The big story is the sudden drop in the prospects for the petroleum market.

Petroleum has been the top or second-ranked market sector in the CICI survey for two years. However, in the first quarter, the petroleum-market CICI rating fell 24 points, to 51—marking an essentially a flat market. Many executives are beginning to see projects put on hold, largely thanks to plummeting oil prices.

As part of the CICI survey, ENR asked participants whether the drop in oil prices has had an impact on their markets. Of survey respondents, 30.2% said oil price declines have had a negative impact on their markets. Further, 77% of firms working in the petroleum sector agreed that their markets have declined.

Among the other individual market sectors, the industrial process and manu-

facturing market, which was the top-regarded market in the last quarter, fell seven points, to a 69 CICI rating. The distribution and warehouse market fell five points, to a 69 rating.

Macroeconomics may be playing a role in these declines. “We have seen lower-than-expected numbers in several economic indicators, such as retail sales and housing starts, which is worrisome in the long term,” says Basu.

The growing strength of the U.S. dollar against other currencies also is a concern. “This could have a negative impact on construction in industries that rely heavily on exports,” Basu says. Overseas companies have been building U.S. plants to take advantage of cheap energy prices and a skilled and stable workforce. “These companies are now finding the price of investing in the U.S. rising sharply and may reconsider locating here, and some domestic companies may even locate new production facilities offshore,” says Basu.

While there are reasons to be wary about the market’s long-term prospects, the next year or so still looks bright. This quarter, 38.1% of CICI survey respondents said client’s access to funds for project financing was either “somewhat easier” or “much easier” over the past six months, down only slightly from last quarter, when that figure was 39.5%.

Industry executives are confident the market will remain strong over the next year to 18 months. “Even with the drop in oil prices and its impact on that sector, for the overall market, it’s full speed ahead,” Binstock concludes. ■

How Different Types of Firms View the Overall Market

■ Improving ■ Stable ■ Declining

Designers

General Contractors, Construction Managers, Engineer-Constructors

Subcontractors

All Firms

SOURCE: DODGE DATA & ANALYTICS/ENR. FIGURES MAY NOT ADD UP TO 100% DUE TO ROUNDING.

By **Bruce Buckley**

Executive Salary Increases Stall, While Bonuses Improve

Despite improved revenues for many contractors in 2014, top executives saw mixed results in their compensation packages. Average salary increases for executives remained flat at 3.8% in 2014 compared to the previous year, according to the 2015 Executive Compensation Survey For Contractors, published by Personal Administration Services, Saline, Mich. Following the historically low increases of around 3% between 2010 and 2012, salaries seemed to be on the rebound in 2013. However, salary increases didn't make gains last year and remain below historic norms.

Prior to 2009, since PAS began its survey in 1984, executive raises had never increased at less than 4% annually.

Jeff Robinson, president of PAS, says that, although companies are forecasting a modest 3.5% increase in salaries this year, he expects actual increases to equal 2014 levels or improve slightly.

Bonuses are making modest gains, according to PAS. Robinson says the number of contractors paying bonuses remains below prerecession levels, "although the dip now seems to have leveled off." In 2008, 83% of firms gave bonuses; by comparison, around 70% of firms gave bonuses last year. Still, with many firms seeing improved revenues, executives are reaping the rewards. "The bright spot is that bonus amounts for most executives increased over the previous year," he says.

According to PAS data, those executives who received bonuses are seeing both higher dollar amounts and receiving bonuses that represent a higher percentage of total compensation.

The percentage of executives receiving bonuses and the dollar amount of those bonuses vary greatly, depending on the executive position. For example, 69% of

CONTRACTOR EXECUTIVE PAY		
TITLE	MEDIAN BASE COMPENSATION (\$)	MEDIAN BONUS (\$)
PRESIDENT	\$217,300	\$112,576
CHAIRMAN	\$330,000	\$267,500
EXECUTIVE VP	\$218,500	\$116,750
SENIOR V.P.	\$196,685	\$80,575
VP, OPERATIONS	\$151,330	\$60,750
VP, ESTIMATING	\$140,602	\$44,570
VP, BUS. DEVELOPMENT	\$138,900	\$33,086
VP, PRECONSTRUCTION	\$145,551	\$52,750
VP, ADMINISTRATION	\$164,350	\$41,750
VP, CFO	\$152,900	\$50,000
VP, HUMAN RESOURCES	\$143,850	\$32,500
GENERAL COUNSEL	\$224,500	\$80,500
OPERATIONS MANAGER	\$120,076	\$18,341
IT-MIS DIRECTOR	\$112,046	\$17,000
DIVISIONAL MANAGER	\$130,000	\$35,000
GEN. SUPERINTENDENT	\$113,625	\$24,000
CONTROLLER	\$109,726	\$18,000
SOURCE: PAS INC. 2015 EXECUTIVE COMPENSATION SURVEY		

board chairman received bonuses, and, among those who received bonuses, the median amount represented 44% of total compensation, according to the latest PAS survey. By comparison, 83% of vice presidents of human resources received bonuses last year, but the median bonus amount received represented only 18% of total compensation.

Generally, executives working for construction management firms, design-build firms and developers earned the highest total compensation packages, according to the survey.

Dan Pauletich, senior managing director of Specialty Consultants, Pittsburgh, agrees that firms offer modest increases in base salaries at the executive level, focusing instead on bonuses. "Bonuses are starting to come back into play as a significant part of compensation as companies set their [financial] goals," he says. "More companies are establishing bonuses to achieve those objectives."

Although Pauletich sees "intense competition for talent," it is mostly at the staff level, rather than the executive level.

Tom Helbling, president of Helbling & Associates, Pittsburgh, says that, since the recession, he has seen companies develop more defined bonus programs, especially among midsize firms.

"Historically, the industry has been more discretionary," he says. "The industry is taking the opportunity to have more definition in both short-term and long-term programs. They are trying to give employees more comfort."

Helbling sees multi-family residential, hospitality and other dense urban development as the biggest drivers for executive searches. Although major metropolitan markets, such as New York City, Washington, D.C., and Los Angeles, are the biggest draw, there is widespread activity in most metro markets.

While residential is still hot, Helbling says he has seen significant contraction in the oil-and-gas market, as prices have fallen and projects have stalled.

Helbling notes that companies are typically looking for talent with experience in specific regional and metro markets, rather than bringing in executives from other parts of the country to work in a different geographic market.

While the largest firms may be looking for executive leaders with experience in specific sectors, Pauletich says midsize and smaller firms are looking for executives with a broader résumé.

"The smaller companies have really been asking for executives that are experts in multiple disciplines," he says. "They need to be experienced in business development; they need to be a strategist, an estimator, and someone who can stay on top of operations." ■

By Scott Lewis

Finding Data On ENR.com

The three index tables on this page each represent various components of ENR's two primary indexes. The Materials Price Index is the materials component of both cost indexes. The Common-Labor Index is the labor component of ENR's Construction Cost Index, and the Skilled-Labor Index is the labor component of ENR's Building Cost Index.

ENR publishes cost-index history tables in its First Quarterly Cost Report. However, ENR's website, ENR.com, will keep you current with historical data and monthly updates. Historical tables for all five of ENR's cost indexes are posted at ENR.construction.com/economics/historical_indices.

Also, going back to January 2008, all of ENR's building-materials price tables—comprising items such as asphalt, portland cement, ready-mix concrete, plastic and concrete pipe, copper water tubing, lumber, drywall, structural steel and reinforcing bar—are posted in the archive section at ENR.com.

To find these materials price tables, go to the homepage of ENR.com and, on the right-hand side of the screen, click on the link marked "Archive." Next, scroll down to the issue containing the table you need and click on the "View this entire issue" link, which will bring you to that issue's table-of-contents page. Then, under the "Departments" or the "More from magazine" heading, click on the "Construction Economics" link.

The most comprehensive data on construction labor costs appear in ENR's annual Third Quarterly Cost Report, which contains hourly union wage rates for 22 different construction trades in 34 cities and open-shop wage rates for eight trades in various regions. The current tables can be found in ENR's most recent Third Quarterly Cost Report (10/06/14 p. 27). ■

ENR'S MATERIALS PRICE INDEX (1994-2015)

1913=100	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1994	2036	2093	2109	2120	2113	2083	2064	2055	2048	2039	2029	2029
1995	2031	2024	2009	1999	1989	1987	1996	1993	1965	1968	1979	1974
1996	1973	1977	1985	2000	2013	2028	2039	2062	2094	2139	2168	2072
1997	2206	2207	2189	2254	2262	2293	2269	2238	2225	2207	2166	2195
1998	2185	2186	2177	2189	2187	2178	2169	2172	2192	2177	2174	2165
1999	2173	2161	2151	2158	2156	2157	2184	2208	2230	2228	2211	2192
2000	2197	2224	2228	2225	2241	2219	2198	2191	2177	2163	2151	2127
2001	2122	2108	2116	2104	2105	2120	2189	2152	2097	2097	2088	2056
2002	2045	2045	2062	2039	2063	2070	2070	2049	2044	2029	2016	1992
2003	1987	1981	1961	1960	1970	1961	1954	1976	1974	2003	2031	2011
2004	2008	2056	2139	2219	2295	2345	2361	2376	2431	2452	2448	2420
2005	2402	2399	2417	2483	2489	2492	2486	2466	2460	2494	2548	2575
2006	2584	2584	2572	2578	2570	2585	2607	2610	2608	2608	2637	2596
2007	2584	2583	2546	2551	2578	2572	2601	2599	2597	2590	2581	2577
2008	2578	2577	2600	2606	2633	2698	2815	2823	2904	2891	2857	2775
2009	2747	2721	2723	2714	2697	2680	2661	2647	2634	2628	2620	2620
2010	2628	2624	2623	2632	2672	2713	2720	2709	2707	2719	2728	2731
2011	2723	2786	2789	2813	2825	2828	2843	2856	2858	2863	2865	2863
2012	2866	2862	2882	2890	2917	2920	2926	2906	2890	2901	2901	2889
2013	2913	2935	2940	2953	2976	2988	2978	2967	2977	2974	2966	2969
2014	2963	2956	2959	2969	2972	2979	2985	2995	3006	3031	3073	3064
2015	3073	3056	3052	—	—	—	—	—	—	—	—	—

ENR'S COMMON-LABOR PRICE INDEX (2001-2015)

1913=100	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
2001	13066	13066	13073	13109	13113	13168	13282	13300	13397	13411	13461	13461
2002	13669	13669	13745	13727	13772	13812	14003	14003	14003	14003	14021	14021
2003	14075	14241	14241	14264	14264	14417	14432	14493	14518	14551	14566	14566
2004	14684	14702	14816	14845	14845	14884	14900	15038	15239	15247	15247	15284
2005	15284	15290	15290	15306	15408	15447	15474	15658	15829	15831	15921	15921
2006	15943	16018	16045	16045	16045	16045	16065	16065	16173	16489	16515	16521
2007	16521	16521	16521	16534	16694	16694	16702	16831	16946	16946	17084	17084
2008	17084	17097	17097	17097	17128	17137	17231	17399	17779	17976	17976	17976
2009	18016	18016	18016	18016	18162	18201	18201	18217	18296	18335	18335	18467
2010	18502	18538	18538	18538	18698	18744	18836	18837	18836	19039	19103	19103
2011	19079	19134	19162	19166	19166	19209	19256	19256	19326	19400	19466	19466
2012	19472	19537	19686	19686	19686	19686	19762	19866	19866	19940	20000	20056
2013	20082	20087	20087	20139	20186	20236	20278	20278	20278	20644	20598	20598
2014	20598	20653	20704	20813	20930	20930	21010	21022	21070	21070	21070	21149
2015	21229	21229	21264	—	—	—	—	—	—	—	—	—

ENR'S SKILLED-LABOR PRICE INDEX (2001-2015)

1913=100	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
2001	5874	5874	5874	5892	5906	5948	5978	5984	6052	6065	6065	6067
2002	6097	6097	6109	6109	6148	6166	6242	6264	6291	6306	6333	6338
2003	6366	6393	6411	6421	6426	6487	6515	6553	6569	6596	6604	6616
2004	6644	6660	6672	6672	6672	6698	6717	6728	6838	6874	6878	6912
2005	6912	6926	6926	6926	6972	6981	6997	7065	7157	7164	7199	7199
2006	7201	7207	7209	7213	7213	7213	7218	7225	7266	7416	7450	7459
2007	7459	7459	7464	7466	7579	7579	7591	7651	7701	7718	7793	7796
2008	7796	7796	7796	7796	7818	7818	7846	7861	7975	8103	8105	8107
2009	8112	8112	8112	8112	8171	8191	8200	8240	8251	8255	8255	8356
2010	8356	8391	8391	8391	8437	8449	8494	8499	8517	8593	8634	8634
2011	8644	8644	8644	8652	8652	8711	8725	8748	8763	8773	8793	8800
2012	8809	8820	8848	8848	8848	8851	8879	8963	8966	8973	8997	9010
2013	9010	9028	9028	9028	9029	9047	9051	9058	9062	9129	9164	9183
2014	9188	9192	9225	9265	9294	9295	9306	9309	9341	9387	9387	9434
2015	9465	9468	9474	—	—	—	—	—	—	—	—	—

By Tim Grogan

Inflation Picking Up Steam

Increases in lumber, steel and cement prices are driving ENR's cost indexes

Although ENR's indexes measure the costs of non-residential buildings, the recovery in the housing market is having a major impact on index movement. After a long decline, ENR's 20-city average price for 2x4 lumber is up 5.7% this year, following just a 1% increase during the previous year. During the same period, ENR's prices for structural steel has increased 2% over a year ago, while cement prices in the cost indexes rose 4.8%. This rebound in prices pushed ENR's materials cost component in March up 3.1% for the year, compared to just a 0.6% increase the previous year.

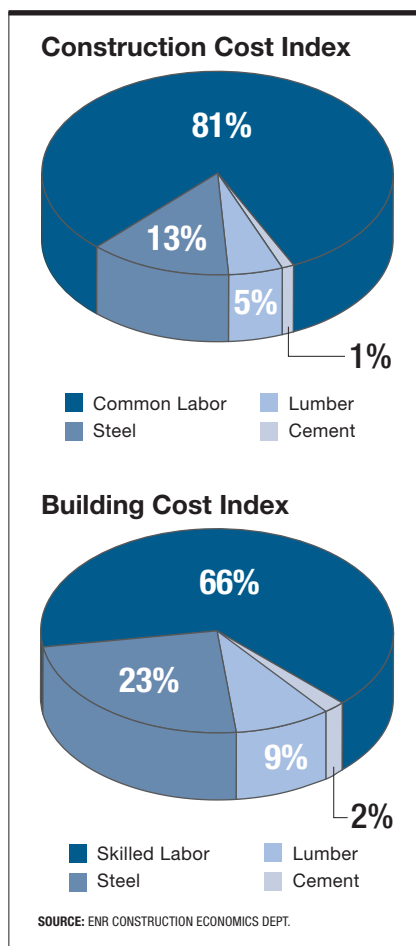
As a result, the Building Cost Index is up 2.9% for the year, after increasing 1.7% last year. The Construction Cost Index (CCI) is up 2.8%, following a 2.6% annual increase in 2014.

The mechanics of what drives ENR's indexes are explained below.

ENR began systematically reporting materials prices and wages in 1909, but it did not establish the CCI until 1921. The index was designed as a general-purpose tool to chart basic cost trends. Today, it remains as a weighted aggregate index of the prices of a constant quantity of structural steel, portland cement, lumber and common labor. This package of goods was valued at \$100, using 1913 prices.

The original use of common labor in the CCI was intended to reflect wage-rate activity for all construction workers. In the 1930s, however, wage and fringe-benefit rates climbed much faster in percentage terms for common laborers than for skilled tradesmen. In response to this trend, ENR introduced, in 1938, its Building Cost Index (BCI) to weigh the impact of skilled-labor trades on costs.

The BCI labor component is the average union wage rate, plus fringes, for carpenters, bricklayers and ironworkers. The materials component is the same as



the CCI's. The BCI also represents a hypothetical package of these construction items, valued at \$100 in 1913.

Both indexes are designed to indicate the basic underlying trends of construction costs in the U.S. Therefore, components are based on construction materials that are influenced less by local conditions; ENR chose steel, lumber and cement because they have a stable relationship to the U.S. economy and play a predominant role in construction.

As a practical matter, ENR selected these materials because reliable price quotations are available for all three, ensuring

the index can be computed on a timely basis. While there may be some weaknesses in any index based on a limited number of components, ENR thinks a larger number of elements would increase the time lag between verifying prices and releasing the index. Also, an index with fewer components is more sensitive to price changes than one comprising many.

On the downside, the use of only a few cost components makes indexes for individual cities more vulnerable to source changes. These aberrations tend to average out for the 20-city indexes.

Since the indexes are computed with real prices, the proportion a given component has in the index will vary with its relative escalation rate. In the late 1970s, labor's share of the index dropped because materials prices were in the grip of hyperinflation. For example, in 1979, lumber prices increased 16%, cement prices increased 13%, and steel prices jumped 11%, but common and skilled labor rose 8%. These events resulted in materials gaining a larger percentage of the index.

In the original CCI, the components were weighted at 38% for labor, 38% for steel, 17% for lumber and 7% for portland cement. The shifting tide of inflation changed the weight of the CCI components to 81% for labor, 13% for steel, 5% for lumber and 1% for cement. This shift was less dramatic for the BCI, which now registers 66% for labor, 23% for steel, 9% for lumber and 2% for cement.

Neither index is adjusted for productivity, managerial efficiency, contractor overhead or profits. However, the indexes can get a fix on these factors.

As a rule, when productivity is low, the selling price will be relatively higher than the ENR index. When competition is sharp, the selling price of finished construction generally will fall below ENR's indexes. ■

By Tim Grogan

How To Use ENR's Indexes

Explaining the difference between the construction and building cost indexes

Readers of ENR generate a steady stream of questions about the magazine's indexes and how to apply them accurately to construction projects. To help clarify the nature and use of the cost indexes, here are answers to the most frequently asked questions as well as suggestions on how to avoid costly mistakes when using the indexes.

■ **What is the difference between ENR's Construction Cost Index and its Building Cost Index?**

The difference is in their respective labor components. The CCI uses 200 hours of common labor, multiplied by the 20-city average rate for wages and fringe benefits. The BCI derives its calculation from a baseline of 68.38 hours of skilled labor, multiplied by the 20-city wage-fringe average for three trades: brick-layers, carpenters and structural ironworkers. For their materials components, both indexes use 25 cwt of standard fabricated structural steel at the 20-city average price, 1.128

tons of bulk portland cement priced locally and 1,088 board-ft of 2x4 lumber, which is also priced locally. The ENR indexes measure how much it costs to purchase this hypothetical package of goods compared to the price in the base year.

■ **What kinds of construction are represented in the ENR indexes?**

The two indexes apply to general construction costs. The CCI can be used when labor costs are a high proportion of total costs. The BCI is more applicable for structures.

■ **Where does ENR get its data?**

ENR has price reporters who check prices locally in 20 U.S. cities. The prices are quoted from the same suppliers each month. ENR computes its latest indexes from these figures as well as local union wage rates.

■ **Does ENR have cost indexes for cities outside of the U.S.?**

ENR publishes indexes for two Canadian cities, Montreal and Toronto, each quarter in the cost reports. ENR's Fourth

Quarterly Cost Report includes a comprehensive listing of international costs.

■ **Are materials prices averaged?**

No. ENR reporters collect spot prices from a single source for all the materials tracked, including those in the index. The reporters survey the same suppliers each month for materials that affect the index. Actual prices within a city may vary, depending on the competitiveness of the market and local discounting practices. This method allows for a quick indicator of price movement, which is the primary objective of both indexes.

■ **Do the indexes measure cost differentials between cities?**

No. This is a common error in the application of ENR's indexes, which measure a trend only in an individual city and in the U.S. as a whole. Differentials between cities may reflect differences in labor productivity and building codes. Moreover, price quotations for lumber and cement vary from one city to another.

BUILDING COST INDEX HISTORY (1928-2015)																
HOW ENR BUILDS THE INDEX: 68.38 hours of skilled labor at the 20-city average wage of bricklayers, carpenters and structural ironworkers, plus 25 cwt of standard structural-steel shapes at the mill price prior to 1996 and the fabricated 20-city price from 1996, plus 1.128 tons of portland cement at the 20-city price, plus 1,088 board-ft of 2x4 lumber at the 20-city price.																
ANNUAL AVERAGE, 1993=100			JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVERAGE	
1928: 188	1951: 401	1974: 1205	1997	3332	3333	3323	3364	3377	3396	3392	3385	3378	3372	3350	3370	3364
1929: 191	1952: 416	1975: 1306	1998	3363	3372	3368	3375	3374	3379	3382	3391	3414	3423	3424	3419	3391
1930: 185	1953: 431	1976: 1425	1999	3425	3417	3411	3421	3422	3433	3460	3474	3504	3505	3498	3497	3456
1931: 168	1954: 446	1977: 1545	2000	3503	3523	3536	3534	3558	3553	3545	3546	3539	3547	3541	3548	3539
1932: 131	1955: 469	1978: 1674	2001	3545	3536	3541	3541	3547	3572	3625	3605	3597	3602	3596	3577	3574
1933: 148	1956: 491	1979: 1819	2002	3581	3581	3597	3583	3612	3624	3652	3648	3655	3651	3654	3640	3623
1934: 167	1957: 509	1980: 1941	2003	3648	3655	3649	3652	3660	3677	3684	3712	3717	3745	3766	3758	3694
1935: 166	1958: 525	1981: 2097	2004	3767	3802	3859	3908	3955	3996	4013	4027	4103	4129	4128	4123	3984
1936: 172	1959: 548	1982: 2234	2005	4112	4116	4127	4168	4189	4195	4197	4210	4242	4265	4312	4329	4205
1937: 196	1960: 559	1983: 2384	2006	4335	4337	4330	4335	4331	4340	4356	4360	4375	4431	4462	4441	4369
1938: 197	1961: 568	1984: 2417	2007	4432	4432	4411	4416	4475	4471	4493	4515	4533	4535	4558	4556	4486
1939: 197	1962: 580	1985: 2425	2008	4557	4556	4571	4574	4599	4640	4723	4733	4827	4867	4847	4797	4691
1940: 203	1963: 594	1986: 2483	2009	4782	4765	4767	4761	4773	4771	4762	4768	4764	4762	4757	4795	4769
1941: 211	1964: 612	1987: 2541	2010	4800	4812	4811	4817	4858	4888	4910	4905	4910	4947	4968	4970	4883
1942: 222	1965: 627	1988: 2598	2011	4969	5007	5010	5028	5035	5059	5074	5091	5098	5104	5113	5115	5059
1943: 229	1966: 650	1989: 2634	2012	5120	5122	5144	5150	5167	5170	5184	5204	5195	5204	5213	5210	5174
1944: 235	1967: 676	1990: 2702	2013	5226	5246	5249	5257	5272	5286	5281	5277	5285	5308	5317	5326	5278
1945: 239	1968: 721	1991: 2751	2014	5324	5321	5336	2357	5370	5375	5383	5390	5409	5442	5468	5480	5387
1946: 262	1969: 790	1992: 2834	2015	5497	5488	5487	—	—	—	—	—	—	—	—	—	—
1947: 313	1970: 836	1993: 2996														
1948: 341	1971: 948	1994: 3111														
1949: 352	1972: 1048	1995: 3112														
1950: 375	1973: 1138	1996: 3203														

One city may report list prices, while another city may include discounts in its reported price for the same material.

■ Are the cost indexes seasonally adjusted?

No. This is an important point for index users to keep in mind. Wages, the most important component, usually affect the indexes once or twice a year. Cement prices tend to be more active in the spring, while pricing for fabricated structural-steel tends to have monthly adjustments.

Lumber prices, which are more dependent upon local pricing and production conditions, are the most volatile and can change appreciably from month to month. Declines in the indexes are most often the result of falling lumber and steel prices.

The study of an index movement for a period of less than 12 months can sometimes miss these important developments. Users of an index for individual cities should watch the timing of wage settlements, too. Stalled labor negotiations may keep the old wage rate in effect longer than a 12-month period, giving the appearance of a low inflation rate.

■ Is it more accurate to use an index that is closest to my home city?

No. The 20-city average index is generally more appropriate. Because that

index has more elements, it has a smoother trend. Indexes for individual cities are more susceptible to price spikes.

■ Are annual averages weighted?

No. They are straight mathematical averages.

■ Are the indexes verifiable?

Yes. In the "Construction Economics" section, ENR's national indexes are updated in the first week of each month, while the indexes for individual cities appear in the second issue of each month.

Prices for the indexes' materials components can be found in the preceding month's Construction Economics pages: Cement prices appear in the first issue, lumber prices in the third issue and steel in the fourth issue. Wage rates for all 20 cities are published in the Third Quarterly Cost Report. Readers can compute ENR's indexes by multiplying the published prices and wages by the appropriate weights (shown in the tables below) and summing the results.

■ Does ENR forecast its indexes?

Yes. Once a year, ENR projects its BCI and CCI for the next 12 months in the Fourth Quarterly Cost Report. To reach its forecast, ENR incorporates the new wage rates called for in multi-year, collective-bargaining agreements and estimates for the cities in which

new contract terms will be negotiated. Further, ENR estimates the materials component by studying consumption forecasts as well as price trends.

■ Does ENR change the weighting of the index components?

No. The components are always multiplied by the same factors. However, a component's share of an index's total will shift with its relative escalation rate.

■ Has ENR ever changed the makeup of the index components?

Only once, in 1996. ENR was forced to switch from the mill price for structural steel to the 20-city average fabricated price for channel beams, I-beams and wide flanges when ENR's two sources for mill prices left the structural market.

■ Does ENR revise the indexes?

On some occasions, ENR must revise the indexes. For example, ENR revised its March 2004 indexes shortly after their initial publication to reflect the huge surcharges being placed on structural steel. Any revisions to the national indexes are published below. Any revisions to indexes for individual cities are published in the cost report at ENR.com.

■ Is ENR's cost data on the web?

Yes. All ENR's cost indexes, wage rates, material prices and cost-issue articles can be found at ENR.com. ■

CONSTRUCTION COST INDEX HISTORY (1928-2015)																
HOW ENR BUILDS THE INDEX: Two hundred hours of common labor at the 20-city average common-labor wage rates, plus 25 cwt of standard structural-steel shapes at the mill price prior to 1996 and the fabricated 20-city price from 1996, plus 1,128 tons of portland cement at the 20-city price, plus 1,088 board-ft of 2x4 lumber at the 20-city price.																
ANNUAL AVERAGE, 1993=100			JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVERAGE	
1928: 207	1951: 543	1974: 2020	1997	5765	5769	5759	5799	5837	5860	5863	5854	5851	5848	5838	5858	5826
1929: 207	1952: 569	1975: 2212	1998	5852	5874	5875	5883	5881	5895	5921	5929	5963	5986	5995	5991	5920
1930: 203	1953: 600	1976: 2401	1999	6000	5992	5986	6008	6006	6039	6076	6091	6128	6134	6127	6127	6059
1931: 181	1954: 628	1977: 2576	2000	6130	6160	6202	6201	6233	6238	6225	6233	6224	6259	6266	6283	6221
1932: 157	1955: 660	1978: 2776	2001	6281	6272	6279	6286	6288	6318	6404	6389	6391	6397	6410	6390	6334
1933: 170	1956: 692	1979: 3003	2002	6462	6462	6502	6480	6512	6532	6605	6592	6589	6579	6578	6563	6538
1934: 198	1957: 724	1980: 3237	2003	6581	6640	6627	6635	6642	6694	6696	6733	6741	6771	6794	6782	6695
1935: 196	1958: 759	1981: 3535	2004	6825	6861	6957	7017	7064	7109	7126	7188	7298	7314	7312	7308	7115
1936: 206	1959: 797	1982: 3825	2005	7297	7298	7309	7355	7398	7415	7422	7479	7540	7563	7630	7647	7446
1937: 235	1960: 824	1983: 4066	2006	7660	7689	7692	7695	7691	7700	7721	7723	7763	7883	7911	7888	7751
1938: 236	1961: 847	1984: 4148	2007	7880	7880	7856	7865	7942	7939	7959	8007	8050	8045	8092	8089	7967
1939: 236	1962: 872	1985: 4182	2008	8090	8094	8109	8112	8141	8185	8293	8362	8557	8623	8602	8551	8310
1940: 242	1963: 901	1986: 4295	2009	8549	8533	8534	8528	8574	8578	8566	8564	8586	8596	8592	8641	8570
1941: 258	1964: 936	1987: 4406	2010	8660	8672	8671	8677	8761	8805	8844	8837	8836	8921	8951	8952	8799
1942: 276	1965: 971	1988: 4519	2011	8938	8998	9011	9027	9035	9053	9080	9088	9116	9147	9173	9172	9070
1943: 290	1966: 1019	1989: 4615	2012	9176	9198	9268	9273	9290	9291	9324	9351	9341	9376	9398	9412	9308
1944: 299	1967: 1074	1990: 4732	2013	9437	9453	9456	9484	9516	9542	9552	9545	9552	9689	9666	9668	9547
1945: 308	1968: 1155	1991: 4835	2014	9664	9681	9702	9750	9796	9800	9835	9846	9870	9886	9912	9936	9806
1946: 346	1969: 1269	1992: 4985	2015	9972	9962	9972	—	—	—	—	—	—	—	—	—	—
1947: 413	1970: 1381	1993: 5210														
1948: 461	1971: 1581	1994: 5408														
1949: 477	1972: 1753	1995: 5471														
1950: 510	1973: 1895	1996: 5620														

ENR's 20-city average cost indexes, wages and material prices. Historical data and details for ENR's 20 cities can be found at ENR.com/economics

Construction Cost Index

+2.8%
MARCH 2015

ANNUAL INFLATION RATE

1913=100	INDEX VALUE	MONTH	YEAR
CONSTRUCTION COST	9972.38	+0.1%	+2.8%
COMMON LABOR	21264.34	+0.2%	+2.7%
WAGE \$/HR.	40.34	+0.2%	+2.7%

Despite a 0.2% increase in its labor component this month, the annual escalation rate for the CCI fell to 2.8% from 2.9% in February.

Building Cost Index

+2.9%
MARCH 2015

ANNUAL INFLATION RATE

1913=100	INDEX VALUE	MONTH	YEAR
BUILDING COST	5487.34	0.0%	+2.9%
SKILLED LABOR	9473.84	+0.1%	+2.7%
WAGE \$/HR.	52.58	+0.1%	+2.7%

The BCI showed no movement this month as a 0.2% decline in materials cost offset a small increase in labor costs.

Materials Cost Index

-0.2%
MARCH 2015

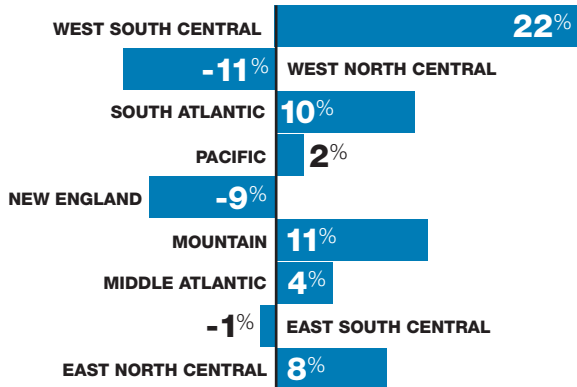
MONTHLY INFLATION RATE

1913=100	INDEX VALUE	MONTH	YEAR
MATERIALS COST	3051.50	-0.2%	+3.1%
CEMENT \$/TON	116.27	-0.2%	+4.8%
STEEL \$/CWT	50.31	-0.2%	+2.0%
LUMBER \$/MBF	462.34	-0.1%	+5.7%

Cement, steel and lumber prices all slipped this month, pulling the MCI down 0.2%

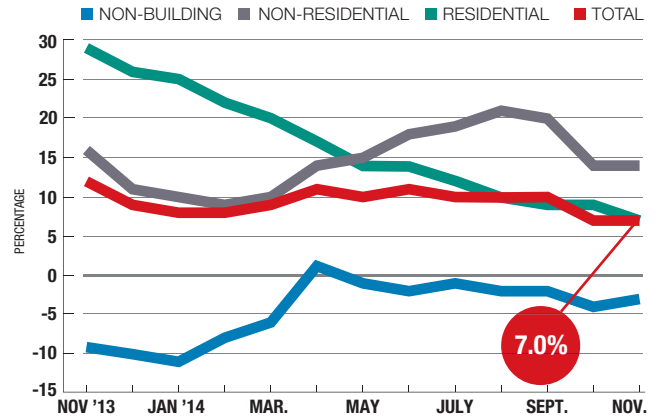
Construction Starts Regional growth trends vs. national trends

STARTS ARE UP 10% IN THE SOUTHEAST



SOURCE: DODGE DATA & ANALYTICS. YEAR-TO-YEAR PERCENT CHANGE IN VALUE OF TOTAL PROJECTS STARTED NOV. 2014 FOR 12-MONTH ROLLING TOTALS.

RESIDENTIAL CONSTRUCTION SLOWS



SOURCE: DODGE DATA & ANALYTICS. YEAR-TO-YEAR PERCENT CHANGE FOR 12-MONTH ROLLING NATIONAL TOTAL STARTS.

The dollar value of total construction starts in Georgia is up 13% from a year ago, in line with regional trends for the South Atlantic, where overall starts are up 10% for the year, according to Dodge Data & Analytics. Georgia saw large annual gains of 79% for hotels, 41% for office buildings and 29% for highway construction.

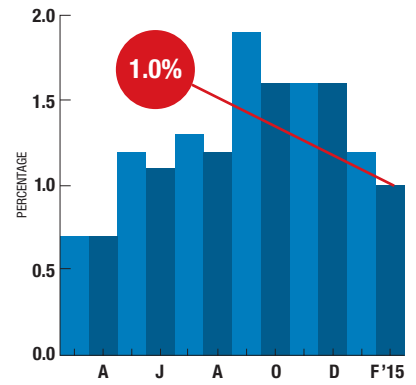
GEORGIA CONSTRUCTION STARTS: \$/MIL.

	2014 NOV.	2014 OCT.	2013 NOV.	% CHG. MONTH	% CHG. YEAR
TOTAL CONSTRUCTION	\$16,936.008	\$16,829.275	\$14,988.928	+0.6	+13.0
NON-RESIDENTIAL	\$5,916.582	\$5,598.241	\$5,654.795	+5.6	+4.6
COMMERCIAL & MANUFACTURING	2,456.961	2,349.542	2,422.421	+4.6	+1.4
STORES & SHOPPING CENTERS	479.885	477.262	529.296	+0.6	-9.3
OFFICE & BANK BUILDINGS	424.694	329.209	301.769	+29.0	+40.7
HOTELS & MOTELS	214.122	143.289	119.713	+49.0	+78.9
MANUFACTURING BUILDINGS	652.514	756.513	1,037.156	-13.8	-37.1
INSTITUTIONAL	3,459.621	3,248.699	3,232.374	+6.5	+7.0
EDUCATION BUILDINGS	1,385.649	1,475.272	1,700.429	-6.1	-18.5
HEALTHCARE FACILITIES	745.369	446.575	886.437	+66.9	-15.9
RESIDENTIAL	7,590.522	7,639.645	6,770.106	-0.7	+12.1
NONBUILDING	3,428.904	3,591.389	2,564.027	-4.5	+33.7
HIGHWAYS & BRIDGES	1,908.620	1,973.106	1,482.123	-3.3	+28.8
ENVIRONMENTAL PUBLIC WORKS	534.438	588.327	510.102	-9.2	+4.8
POWER/UTILITIES	47.263	15.803	169.299	+199.1	-72.1

SOURCE: DODGE DATA & ANALYTICS CONSTRUCTION STARTS. TOTALS MAY NOT ADD UP DUE TO EXCLUSION OF OTHER CATEGORIES. 12-MONTH ROLLING TOTALS FOR GEORGIA.

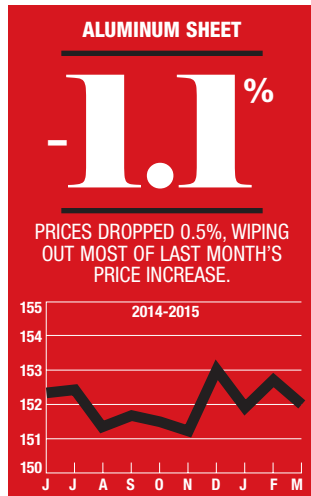
Steel prices are starting to tumble. ENR's 20-city average price for three types of structural steel declined 0.5% this month, following February's 0.2% drop. Prices are now just 1.2% higher than a year ago. Likewise, ENR's rebar price fell 0.9% in March and is only 1.6% above 2014's level. Spot market prices tracked by Platts Metal Week also are showing weakness. Platts' rebar price fell 3.7% in February, following a 2.4% decline the previous month. Platts' steel-plate price dropped 8.3%, while its price for hot-rolled steel coil fell 9.0%. Both the plate and coil price cuts followed declines during the previous month.

PRODUCER PRICE INDEX FABRICATED STEEL Monthly Percent Change

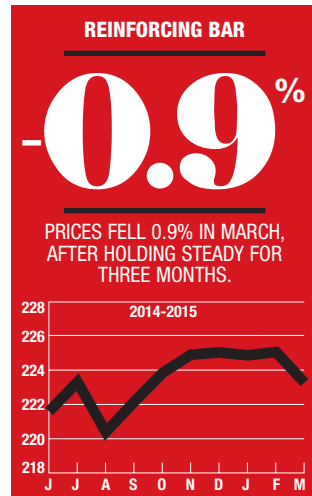


SOURCE: BUREAU OF LABOR STATISTICS

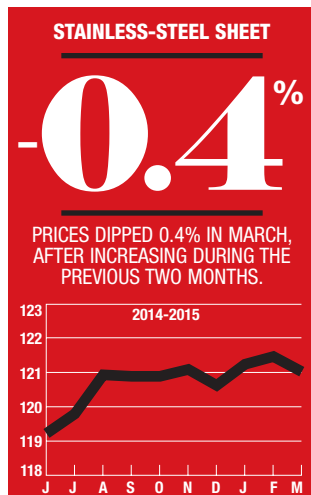
ENR's Materials Prices For March 2015



1992=100



1992=100



1992=100



1992=100

20-CITY AVERAGE

ITEM	UNIT	\$PRICE	%MONTH	%YEAR
STANDARD STRUCTURAL SHAPES				
Average	CWT	50.04	-0.5	+1.2
Channel beams, 6" Deep, 8.2 LB/LF	CWT	49.98	-0.5	+1.0
I-beams, 6" Deep, 12.5 LB/LF	CWT	52.43	-0.5	+1.5
Wide-flange, 8" Deep, 31 LB/LF	CWT	47.72	-0.6	+1.1
REINFORCING BARS				
Grade 60, No. 4	CWT	45.78	-0.9	+1.6
HOT-ROLLED CARBON-STEEL PLATE				
12 gauge, 48" x 10'	CWT	46.82	-0.8	+1.6
ALUMINUM SHEET				
3003H14, 36" x 96"	CWT	190.20	-0.5	-1.1
STAINLESS STEEL SHEET				
14 gauge	CWT	166.52	-0.2	+2.1
16 gauge	CWT	169.61	-0.5	+1.6
20 gauge	CWT	174.34	-0.4	+2.2
STAINLESS STEEL PLATE				
304, 1/4", 72" X 240"	CWT	195.34	-0.5	-2.2
316, 1/4", 96" X 140"	CWT	250.03	-0.4	+1.8
STEEL PILING (H-PILE)				
HP10 X 42	CWT	33.45	-0.3	-0.3

SOURCE: DODGE DATA & ANALYTICS/ENR

PLATTS* STEEL SPOT MARKET PRICES: FEB. 2015

Reinforcing bar, No. 5	TON	592.37	-3.7	-7.3
Plate	TON	691.58	-8.3	-9.0
Hot-rolled coil	TON	521.18	-9.0	-20.6

SOURCE: *PLATTS MCGRAW HILL FINANCIAL. REBAR SOUTHERN U.S.; PLATE PRICES U.S. SOUTHEAST AVERAGE; HOT-ROLLED COIL PRICES INDIANA.

Structural Steel, Rebar, Building Sheet, Piling For March 2015

City prices reflect quotes from single sources and can be volatile. They are not meant to be the prevailing price for a city. Data are a mix of list and transaction prices and may include ENR estimates. Do not compare prices between locations. Use city information to analyze national trends.

ITEM	UNIT	ATLANTA	BALTIMORE	BIRMINGHAM	BOSTON	CHICAGO	CINCINNATI	CLEVELAND	DALLAS	DENVER	DETROIT
STANDARD STRUCTURAL SHAPES											
AVERAGE	CWT	52.29	-50.00	51.02	49.73	55.41	-48.50	48.54	+50.46	49.82	43.63
CHANNEL BEAMS, 6" DEEP, 8.2 LB/LF	CWT	52.95	-50.00	51.80	49.57	55.05	-46.50	51.15	-48.50	50.32	46.32
I-BEAMS, 6" DEEP, 12.5 LB/LF	CWT	55.10	-56.00	53.50	51.00	58.37	-52.00	48.20	+52.89	51.65	42.30
WIDE-FLANGE, 8" DEEP, 31 LB/LF	CWT	48.82	-44.00	47.75	48.63	52.80	-47.00	46.26	+50.00	47.48	42.28
REINFORCING BARS											
GRADE 60, No. 4	CWT	+47.56	-42.50	44.50	46.69	48.07	-43.00	48.00	46.33	49.92	-49.00
HOT-ROLLED CARBON-STEEL PLATE											
12 GAUGE, 48" x 10'	CWT	45.45	-45.00	44.12	50.20	46.33	-52.00	45.40	47.59	47.00	+43.88
BUILDING SHEET AND PLATE											
ALUM. SHEET, 3003H14, 36" x 96"	CWT	191.59	219.00	180.00	-188.20	205.35	206.00	189.60	195.55	-182.75	-198.20
STAINLESS-STEEL SHEET											
14 GAUGE	CWT	169.20	-158.00	156.88	+177.33	167.29	150.00	-163.87	179.05	165.39	159.80
16 GAUGE	CWT	172.88	+159.60	157.59	+182.92	171.55	150.00	-162.00	183.27	169.51	166.60
20 GAUGE	CWT	177.45	167.00	169.42	+188.45	175.80	152.00	-167.60	187.56	173.00	169.00
STAINLESS-STEEL PLATE											
304, 1/4", 72" x 240"	CWT	206.64	165.00	195.07	211.68	-197.53	154.00	175.00	215.00	-218.67	218.58
316, 1/4", 96" x 140"	CWT	263.31	330.00	+240.98	261.07	-239.82	376.00	238.00	263.90	-230.96	237.42
STEEL PILING: H-PILE											
HP10 x 42	CWT	32.30	45.00	-40.15	34.00	31.80	44.00	+29.95	37.25	-30.75	29.58

ITEM	UNIT	KANSAS CITY	LOS ANGELES	MINNEAPOLIS	NEW ORLEANS	NEW YORK	PHILADELPHIA	PITTSBURGH	ST. LOUIS	SAN FRANCISCO	SEATTLE
STANDARD STRUCTURAL SHAPES											
AVERAGE	CWT	60.81	44.00	+46.91	-48.82	54.46	52.88	55.25	44.75	43.42	50.14
CHANNEL BEAMS, 6" DEEP, 8.2 LB/LF	CWT	56.90	44.57	+46.88	-48.09	54.59	52.60	50.92	50.10	42.82	49.92
I-BEAMS, 6" DEEP, 12.5 LB/LF	CWT	69.05	42.74	47.60	-51.58	56.45	53.97	69.00	42.88	42.74	51.63
WIDE-FLANGE, 8" DEEP, 31 LB/LF	CWT	56.48	44.69	+46.25	-46.80	52.33	52.06	45.82	41.28	44.69	48.88
REINFORCING BARS											
GRADE 60, No. 4	CWT	49.00	32.68	49.00	-44.25	51.30	-49.30	45.85	50.00	32.68	45.95
HOT-ROLLED CARBON-STEEL PLATE											
12 GAUGE, 48" x 10'	CWT	56.00	47.92	46.30	+45.38	47.19	-49.82	42.91	42.58	47.08	45.17
BUILDING SHEET AND PLATE											
ALUM. SHEET, 3003H14, 36" x 96"	CWT	180.20	190.00	179.28	193.42	175.20	188.65	190.00	183.10	190.00	-177.98
STAINLESS-STEEL SHEET											
14 GAUGE	CWT	-76.50	179.20	162.88	175.19	-160.55	173.20	158.47	152.50	182.33	162.77
16 GAUGE	CWT	-175.00	188.76	166.10	179.30	-162.72	177.00	159.12	155.25	183.97	169.10
20 GAUGE	CWT	-177.87	184.37	168.40	185.00	-170.28	183.84	167.55	165.20	181.64	175.36
STAINLESS-STEEL PLATE											
304, 1/4", 72" x 240"	CWT	180.10	188.50	250.00	188.90	195.00	190.29	172.20	-197.10	188.80	198.70
316, 1/4", 96" x 140"	CWT	243.90	235.53	255.10	233.72	249.56	247.65	204.34	-175.00	236.84	237.55
STEEL PILING: H-PILE											
HP10 x 42	CWT	+28.88	33.16	29.00	31.49	30.02	31.48	0.00	+30.00	33.16	33.65

+ OR - DENOTES PRICE HAS RISEN OR FALLEN SINCE PREVIOUS REPORT. ALL PRICES ARE FOB WAREHOUSE OR CITY. STAINLESS-STEEL SHEET PRICES ARE FOR TYPE 304, 2B FINISH, 48 X 120-IN. STEEL PILES ARE HIGH-STRENGTH A572. SOME PRICES MAY INCLUDE TAXES OR DISCOUNTS. PRODUCT SPECIFICATIONS MAY VARY DEPENDING ON WHAT IS MOST COMMONLY USED OR MOST ACCESSIBLE IN A CITY. QUANTITIES ARE GENERALLY TRUCKLOADS.