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U.S. Markets Construction Overview



MANAGEMENT CONSULTING • INVESTMENT BANKING
for the ENGINEERING and CONSTRUCTION INDUSTRY

2012

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INTRODUCTION

FMI, the nation's leader in consulting and investment banking services for the engineering and construction industry, is pleased to present the **2012 U.S. Markets Construction Overview**. This publication offers insights into some of the construction industry's most complex business challenges.

FMI publishes the **U.S. Markets Construction Overview** annually. The **Overview** includes a comprehensive report on current and emerging construction trends and forecasts the growth or decline in each market segment, noting both short-term and long-term considerations.

We hope this document will provide you with a thorough understanding of the economic and other major issues affecting the industry and serve as a starting point for your company's strategic planning efforts. However, we must caution that major decisions should not be made without additional investigation and research of your own specific geographic and construction market segments.

We welcome your comments and questions. Your feedback is important to us and helps us to improve our service to you. Please complete the form at the back of this publication to give us your input about the **Overview** and to reserve a copy of next year's issue.

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EXECUTIVE SUMMARY

As we publish this 2012 edition of FMI's *U.S. Construction Market Overview*, the global and U.S. national economies continue to struggle. This publication focuses primarily on the U.S. domestic construction market, which is also a lagging reflection of the country's economic health. The broad picture is not dramatically different from last year. We remain in difficult times. Notwithstanding, FMI's core purpose as an organization is to have a positive impact on the construction industry and its leading organizations. We can only accomplish that through collaboration with the many leading thinkers and successful organizations that populate the built environment. Our goal is that this publication provides a basis for further collaboration, investigation and planning by and with the industry's best and brightest executives.

In that spirit, we offer a synopsis of current and emerging trends affecting the industry. These are useful in reflecting on implications for given markets and organizations. Our forecast for major construction markets through 2015 and a look at the drivers behind those markets are included.

Regular readers might observe that this year's forecast has not changed dramatically from last year, but total put in place construction volume is pushed out to 2015 before it matches the prior peak of 2007. This is consistent with our general view of a long and slow recovery of the construction markets.

Housing has been, and continues to be, a cloud hanging over U.S. economic recovery. "The Wall Street Journal" recently observed that new starts are only about .03% of GDP, although historically they have risen to .5% in the two years following recessions. However, housing has an enormous ripple effect in the overall economy, and it is hard to overstate the emotional ties of home ownership to the American psyche. The question of an economic recovery in the U.S. not led by housing is an interesting one. It is unprecedented, but we believe possible, and we explore that issue in some depth this year.

Another issue examined this year is the expected decline in public spending. Government construction has been rather a safe harbor for some firms the past few years, but budget constraints are expected to cause serious problems here. We take an in-depth look at what is expected and some of the issues surrounding the tension between demand and capital availability.

Since we published the last annual version of this report, many of the trends affecting the industry remain in play. Consolidation, especially at the large end of the market, continues to occur. Globalization influences the domestic market via further penetration of international firms and a growing number of U.S. E&C firms pursuing international markets. Technology advancements aid these expansion strategies. Technology also continues to affect numerous implementation strategies and different project delivery systems. However, the ease with which technology advancements are replicated makes the achievement of competitive advantage through their application an elusive proposition.

Numerous players continue to converge at the front end of the construction value chain. Program managers, owners' representatives, agency construction managers, general contractors, design firms and numerous consultants all are vying for the primary relationship with the client. The perception is that paying for value only occurs at the top of the food chain, and commodity purchasing prevails from there.

As this battle continues, we see significant entry of engineering firms into the construction business and vice versa. As the “theory” of design and construction convergence has become a market reality, it is clear that engineering has led as the design discipline to make it happen. By contrast, architecturally dominated firms remain relatively small, fragmented and independent from construction. The number of real design-build firms that feature architects integrated with constructors is small. By contrast, the number of E&C firms in the U.S. is significant, growing and composed of firms with critical mass and financial strength.

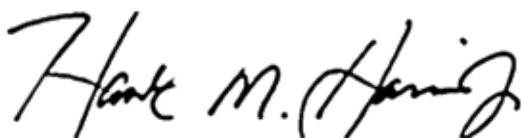
We also look at other major participants in the creation of America’s built environment. Since the flow of project capital always starts with owners, we observe how they are responding to the down economy. Unfortunately, a large amount of this is a predictable return to a “price only” procurement mind-set. With this added to the pressures resulting from the residential downturn, companies in the materials business are feeling a huge strain. We review the status of business for building product manufacturers as well as construction material providers. These include companies whose primary business is the provision of aggregates, asphalt, concrete and related materials to the industry.

From a construction standpoint, this Great Recession and its aftermath are more about the flow of capital than supply/demand imbalance. While select markets are overbuilt, most are not. In many markets, quite the opposite is true and there is significant pent-up demand. We examine project funding challenges and related impact of the down market on private equity investors. We also cover the public company perspective, although it is a small portion of the overall industry.

Our markets and industry remain challenged at present. While we believe recovery will be slow, we will recover. It is difficult to get past the 24-hour drumbeat of bad news in our modern world, but long-term opportunities will be abundant. Americans generally view the 1950s as a period of great prosperity. One of my colleagues recently made an interesting observation – who in 1936 could have predicted the 1950s? We believe that the U.S. will recover and so will the construction industry. Now is a good time to be planning for what your firm will look like when this cycle finally passes.

As a senior leader in this industry, undoubtedly you are charged with seeing beyond the current malaise. We hope our efforts here assist you in that process and invite you to contact us if we can help further. Thank you for reading and reflecting with us.

Sincerely,

A handwritten signature in black ink, reading "Hank M. Harris Jr." in a cursive, flowing script.

Hank M. Harris Jr., cmc
President and Chief Executive Officer

State of the Economy

SECTION 1



With the publication of each year's *U.S. Markets Construction Overview*, we at FMI scratch our collective heads to determine which key drivers are causing certain markets to perform differently than others and why. Looking back on 2011, there were opportunities for some and disappointments for many. Several outstanding problems still must be addressed in order for any real recovery to take hold. We have always known that our industry's economic success is linked indirectly to variables outside of our control. Today, those factors seem to be so extreme in their volatility, which makes it all the more difficult for many to anticipate the future. In this section, we examine four potential scenarios of the future, the impact of government on the industry, and the residential market. We also contemplate the effect of our political climate, constricted capital markets, EU's financial situation and state of the housing industry. Our intent is that these analyses and compilations stimulate, provoke and cause you to think more about tomorrow and how best to prepare your company. For example:

- What does this mean in terms of our future markets?
- Are our core strategies affected?
- Will our skill set still be relevant in the future?

Regardless of the conclusions you draw, give serious thought to these questions and, most importantly, to the implications and actions required.

What Is Really Ahead? A Provocative Look at What the Next Five Years Could Hold for the U.S. Construction Industry

By Wallace Marshall, Randy Giggard and Lee Smither

If there is one thing almost everyone can agree on as we approach the end of 2011, it is that the near-term future of America's economy, political structure and, consequently, the construction industry appears more uncertain than at any time in recent memory. The uncertainty is altering the way many contractors plan for the future. Traditionally, strategic planning with our clients involved three basic steps: (1) thorough research and analysis of our clients' markets; (2) an in-depth evaluation of our clients' organization, and (3) crafting a compelling vision and detailed strategic plan to maximize our clients' success for the foreseeable future.

That is still the right model for some companies. However, the radical uncertainty of today's marketplace has increasingly led us to advocate "multiple-scenario" strategic planning as a better model for many of the contractors we work with. The general structure of the three

steps outlined above remains the same. But instead of determining what the future will look like and then building a single strategic plan based on that, the new model incorporates three to four different scenarios and outlines a different strategic direction for each situation.

Of course, it is not possible to pursue multiple strategic plans at the same time. A company still has to choose a most likely scenario around which to build a detailed strategic plan. The resulting plan has a much more provisional nature and is revisited with greater frequency than was the case under the traditional model; and our client is prepared to move quickly and decisively if an alternative scenario begins to materialize. In today's highly uncertain market, the six to 18 months saved on the multiple-scenario model can be the difference between moving to the head of the pack or being left behind between selling your company at a solid multiple or exiting the business with little in hand.

In this article, FMI outlines four potential scenarios for the direction the U.S. construction industry could head over the next five years. Although researched-based and a product of bringing our leading consultants together to assess, analyze and debate, it is important to recognize that these scenarios are just that ... they are scenarios, not forecasts. We provide them as a basis for stimulating creative thought, not as a prescription for the future.

Scenario # 1: Rapid Escalation of the Global Financial Crisis

Let's take the worst-case scenario first. In April 2011, the nation's second-largest university endowment, the University of Texas at Austin, doubled its gold holdings from \$500 million it acquired in 2009 to \$1 billion. The trustees also opted to take physical delivery of the gold: 6,643 bars were transported to a J.P. Morgan vault in New York City. The Longhorns now own as much gold as the country of Brazil. Asked to explain the university's rationale for the investment, one of the endowment's board members responded, "Central banks are printing more money than they ever have, so what's the value of money in terms of purchases of goods and services? I look at gold as just another currency that they can't print any more of."¹

The decision by the University of Texas endowment highlights the insecurities of today's financial markets. Many investors have shifted from looking for a solid return on their investment to merely seeking a safe haven where their wealth will not be in danger of evaporating.

1. David Mildenberg and Pham-Duy Nguyen, "Texas University Endowment Storing About \$1 Billion in Gold Bars." Bloomberg Businessweek, 16 April 2011. <http://www.businessweek.com/news/2011-04-16/texas-university-endowment-storing-about-1-billion-in-gold-bars.html>.

Who can blame them? No one who takes a serious look at the global financial and currency markets can go away without a feeling of uneasiness.

Consider some of the numbers. America's national debt has skyrocketed to \$14.6 trillion over the last four years, a 62% increase from the \$9.0 trillion it owed at the end of 2007. With an additional \$1.2 trillion of debt at the state level and an estimated \$1.8 trillion at the local municipality level, our total government debt is fast approaching \$18 trillion. That works out to roughly \$176,000 per citizen, \$667,000 per family.

As if that was not enough, the U.S. government's unfunded liabilities for Social Security and Medicare stand at a staggering \$45 trillion. That is the most benign estimate. The true figure is undoubtedly much greater, possibly as high as \$95 trillion. And that does not count unfunded liabilities for military retirement and disability benefits (\$3.6 trillion) and federal employee retirement benefits (\$2.0 trillion).^[2] Nor does it include trillions more in unfunded liabilities by states and local municipalities.

To put this in perspective, the total debt and unfunded liability of the United States government is at least equal to, if not twice, the GDP of the entire world at its 2008 peak of \$61.4 trillion. In December 2010, President Obama's bipartisan National Commission on Fiscal Responsibility and Reform warned Congress that by the year 2025 – just 13 years from now – federal tax revenue “will be able to finance only interest payments, Medicare, Medicaid and Social Security. Every other federal government activity ... will have to be paid with borrowed money.”^[3]

The view across the Atlantic adds little cheer to this picture. According to the latest figures released by Eurostat, the statistical office of the European Union, at the end of 2010, 14 of the EU's 27 member countries had debt exceeding 60% of their GDP, the maximum limit agreed to by members when the EU was established in 1999. The ratio of government debt to GDP across all 27 member nations increased from 74% in 2009 to 80% in 2010. There is a serious risk of sovereign defaults and accompanying currency devaluations, and it is no longer clear whether the EU will survive, at least in anything resembling its current structure. Germany for one, with its revived manufacturing sector, increasingly views its recovered economic fortunes as roped to a leaky, if not sinking, ship.

It would not be difficult to heap on additional melancholy data. But you get the picture. Nothing could be clearer than that the current financial

course of the West is utterly unsustainable. China knows this all too well. The declining value of the dollar and the instability of the euro mean that it is sitting on a proverbial volcano with its \$3.2 trillion in foreign exchange reserves (30% of the world's total). It comes as no surprise that in order to hedge its exposure, China is quietly accumulating as much gold as it can, having now surpassed South Africa to become the world's leading producer, and is directing its sovereign wealth funds to shift their focus to hard assets, natural resources and industrial commodities. It is also aiming to make the yuan fully convertible as a traded currency by 2015.

The U.S. Treasury is aware of the danger posed by waning global confidence in the U.S. dollar. In August 2011, the Treasury Borrowing Advisory Committee warned, “The idea of a reserve currency is that it is built on strength, not typically that it is ‘best among poor choices.’ The fact that there are not currently viable alternatives to the U.S. dollar is a hollow victory and perhaps portends a deteriorating fate.”^[4]

The fluctuations and jitters of the financial markets thus have their basis in something far deeper than a predominantly psychological “crisis of confidence.” There is a crisis of confidence, to be sure. But it is rooted in alarming economic realities. That is why addressing the problem through an artificially induced stimulation of consumer spending and capital investment cannot work. It is treating the symptom rather than the disease.

In fact, in this case it makes the disease worse, both at home and abroad. Every round of quantitative easing (a euphemism for printing money) increases talk of a global currency war. A column in the “Financial Times” a little more than a year ago summed up the situation as follows: “To put it crudely, the U.S. wants to inflate the rest of the world, while the latter is trying to deflate the U.S. The U.S. must win since it has infinite ammunition: There is no limit to the dollars the Federal Reserve can create. What needs to be discussed is the terms of the world's surrender: the needed changes in nominal exchange rates and domestic policies around the world.”^[5]

This is exactly what former Federal Reserve Chairman Alan Greenspan told CNBC's “Meet the Press” after Standard & Poor's downgraded the U.S. credit rating in August: “The United States can pay any debt it has because we can always print money to do that. So there is zero

2. Dennis Cauchon, “The Government's Mountain of Debt.” USA Today, 7 June 2011. http://www.usatoday.com/news/washington/2011-06-06-us-debt-chart-medicare-social-security_n.htm.

3. “The Moment of Truth: Report of the National Commission on Fiscal Responsibility and Reform” (Washington, D.C.: The White House, December 2010), p. 11.

4. “70% of U.S. bonds mature in five years.” Reuters, 1 September 2011. <http://business.financialpost.com/2011/09/01/70-of-u-s-bonds-matures-in-five-years/>.

5. Martin Wolf, “Why America is going to win the global currency battle.” Financial Times, 12 October 2010. <http://www.ft.com/intl/cms/s/0/fe45eeb2-d644-11df-81f0-00144feabdc0.html#axzz1XOXTCah0>.

probability of default.”^[6] This fairy tale of a magic money tree in the Fed’s backyard may sound reassuring to the average American, which is undoubtedly what Greenspan intended. But in the terminology of the global currency war, Greenspan is saying precisely the opposite to international creditors – that the U.S. can default simply by paying its debts in devalued dollars. Greenspan is bluffing, of course. The U.S. does not have “infinite ammunition” because it cannot print away its debt without catastrophic consequences.

There is reason to hope that Congress, prodded by an electorate that is increasingly aware of the suicidal course we are presently on, will, at the ninth hour, finally get its fiscal house in order, massively reduce the cost of government and enact sweeping changes to reduce the regulatory burdens on U.S. multinational corporations, thus encouraging them to invest their accumulated cash in their home country.

However, in the scenario we are considering here, that will not happen. Nor will the EU be able to get its fiscal house in order. Instead, the indebtedness of western nations will continue to escalate, followed by massive defaults on national debts, rapid devaluation of currencies, inflation, hyper-inflation in some countries and – if recent events in England and Greece serve as any indication – waves of crime, rioting and even outright revolution in some places. In short, it would be economic and social chaos.

This is truly a worst-case scenario, and it gives us no pleasure to put it forward. However, in view of the numbers, it is a scenario that has to be taken into consideration within a multiple-scenario planning model. What are the characteristics of contractors most likely to survive such a development?

- Strong balance sheets with a large percentage of cash, perhaps converted into precious metals or essential resources.
- Diversified presence in foreign markets.
- Low fixed costs on the mainland, because construction in the U.S. would come to a virtual halt for six to 12 months.
- Focus on the health care, technology, energy or industrial sectors, because these would be the only sectors doing any building for a long time to come.

How soon the worst-case scenario might unfold would depend on a myriad of factors, such as the short-term effects of whatever kick-the-can-down-the-road measures American and European politicians are able to concoct. A five- or even three-year timetable is not inconceivable.

6. Patrick Allen, “No Chance of Default, US Can Print Money: Greenspan.” CNBC.com, 7 August 2011. http://www.cnbc.com/id/44051683/No_Chance_of_Default_US_Can_Print_Money_Greenspan.



Scenario # 2: The Lost Decade

As the U.S. recession marked the passage of its third year in 2011, economists began to voice concerns that we might be in for a “lost decade” similar to that experienced by Japan during the 1990s. In this scenario, the U.S. and most European governments will attain enough fiscal discipline to avert a financial collapse, but their economies will languish through a period of anemic growth for another six to seven years.

Should this be the case, the U.S. housing market would not recover for at least five years. According to the latest estimates, 11.8 million to 13.8 million new households will form between now and the end of the decade, depending on the pace of immigration and other factors.^[7] The number of homes vacant year-round has risen to 14.3 million, which is 11% of the total inventory of 131 million.^[8] It is important to understand that not all, or even most, of those homes have to be absorbed before new construction can begin, since the percentage of homes vacant year-round has averaged around 8% over the last three decades.^[9] That means that the current level of excess inventory stands at roughly four million homes.

That figure, however, is sure to rise due to the high level of “shadow inventory” currently in the pipeline. Shadow inventory is a term the real estate industry uses for homes that are either currently in foreclosure, have mortgages in default but have not yet been foreclosed upon, or have been foreclosed by banks but not yet put on the market. No one

7. George S. Masnic, Daniel McCue, and Eric S. Belsky, “Updated 2010-2020 Household and New Home Demand Projections.” Joint Center for Housing Studies, Harvard University, September 2010.

8. Mark Whitehouse, “Number of the Week: Glut of Vacant Homes Complicates Recovery.” Wall Street Journal Blogs, 28 May 2011. <http://blogs.wsj.com/economics/2011/05/28/number-of-the-week-glut-of-vacant-homes-complicates-recovery/>.

9. Frederick J. Eggers and Alexander Thackeray, “32 Years of Housing Data.” Prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, by Econometrica, Inc. (Bethesda, Md.: October 2007), p. 5.

knows just how many homes are in this shadow inventory, but it is significant. An August 2011 report by Lender Processing Services, which was based on a huge sample of 40 million U.S. mortgages, puts the number of delinquent home loans as of July 2011 at 6.5 million, only 2.2 million of which have so far entered the foreclosure process.^[10] That does not include homes that have foreclosed but are not yet on the market.

The upshot is that the true level of excess inventory in the residential market (over and above the historical 8% of year-round vacant homes) exceeds 10 million homes. Without an economic rebound, it will be a long time before that is absorbed. The reported decline in foreclosures in 2011 was not the result of a stabilizing residential market, but was rather due to procedural holdups such as the so-called “robo-signer” scandal. In the current scenario, moreover, high unemployment will continue, resulting in further foreclosures and a “doubling up” of households, adding still more inventory to the pipeline.

The commercial and retail markets will not recover until after housing does and in the interim will be plagued with high vacancy rates resulting from rising unemployment as well as downsizing and failed businesses. So where would that leave the U.S. construction industry? Part of the answer depends on the political course the country follows on this scenario. With current economic woes persisting into the next election, this becomes a difficult call. Depressed economic conditions might make a regime change seem likely in both the presidency and the Congress, but it could easily go the other way if distressed voters see further government intervention as their best hope of salvation.

If a stronger, more broadly defined federal government is the model for the future, it is entirely conceivable that we could move into an era of big, European-style government. Heightened environmental regulation, while discouraging overall capital investment in the U.S., could significantly increase the number of industrial retrofit projects, in the near term. Additionally, the implementation of a national health care program could result in a short-term spike in health care construction as projects that have been on hold due to political uncertainty become free to proceed. In the long term, however, a government takeover of health care could also result in “utilitarianism” in the industry, and the emphasis among facility owners would shift to austerity and functionality, thus discouraging new construction and renovation.

On the other hand, a loosening of environmental regulations and the

creation of a national energy policy could lead to a renewed focus on increasing domestic energy production similar to what has taken place in Canada over the last two years. Health care construction would continue its relatively strong pace as owners compete to serve an aging population.

Regardless of what happens in November of 2012, a recovering economy requires ample energy, at preferably lower prices. Power generation, be it gas, coal, nuclear, wind or solar, will continue to be a relatively strong sector in the years to come. Technology-driven projects, such as data centers and communications (both wired and wireless), will also experience continued growth. As people require wireless devices to provide more information at faster speeds, communications infrastructure investment will continue at an increased rate. Health care construction has demographics in its favor and will provide opportunities for companies that are equipped to play in that arena.

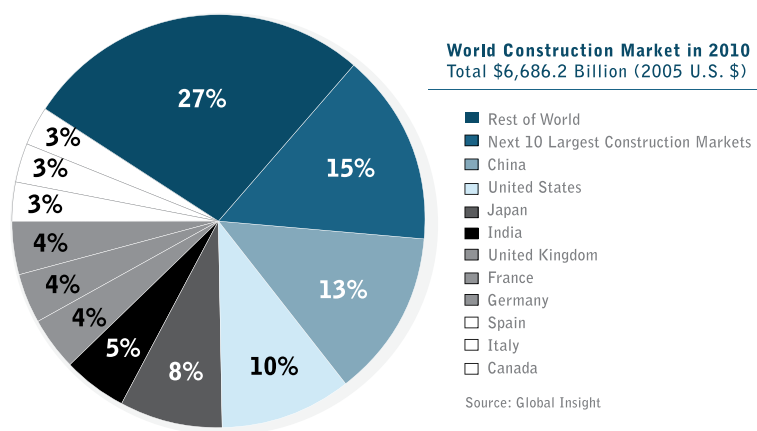
In general, the outlook for infrastructure construction looks relatively positive in this scenario, no matter which way the political winds blow. The pent-up demand for infrastructure projects will have to find an outlet. Fiscal austerity notwithstanding, we believe that once the dust settles, funding of infrastructure will be seen as a worthy investment.

Public-private partnerships (P3s) will become more prevalent as municipal and state agencies become more familiar with this funding mechanism. P3s will not be a panacea for America's aging infrastructure, however. Voters have been reticent to hand over ownership of roads and bridges to private, and especially foreign, entities. Even if they become more open to this idea, most concessionaires are no longer willing to assume traffic-volume risk, especially in the wake of failures like San Diego's South Bay Expressway, which declared bankruptcy in 2010 after three years of unexpectedly low toll revenues. That leaves availability payments as the primary financing vehicle, which means that the state or municipality still has to come up with the money to pay for the project. It just has a little bit longer to do it.

What about the supply side of the industry, though? On the lost-decade scenario, it is inevitable that we will see a larger number of contractor failures over the next several years. There is simply no way the current market structure can sustain another 15% drop in construction, and that is what we will see if the U.S. enters a prolonged period of economic malaise, the aforementioned bright spots notwithstanding. Besides, those bright spots will not follow immediately in the wake of the November 2012 election, and some industrial and civil contractors will not be able to ride out the wait. The industry will be forced to consolidate.

10. “LPS ‘First Look’ Mortgage Report: July Month-End Data Shows an Increase in the Delinquency Rate and Decline in Foreclosure Inventories.” 16 August 2011. <http://www.lpsvcs.com/LPSCorporateInformation/NewsRoom/Pages/20110816.aspx>.

Will the mid-sized contractors get squeezed out as the big get bigger? To date, this long-discussed trend has not really materialized in the U.S., as shown in a recent “FMI Quarterly” study.^[11] Over the last four decades, the largest contractors (ENR Top 400) do gain a greater share of the entire construction market going into each recession, but coming out of the recession their market share returns to its standard historical level of 25% to 30%. This indicates that the change in market share is probably a function of the sharper decline in smaller and mid-sized projects during a recession rather than being the result of consolidation. However, this time it could be different and the large firms could permanently increase their market share.



Small to midsize building and civil contractors are getting squeezed in all sectors. Competition is up and margins are down. Large national firms, particularly those with a desirable niche, continue to be successful and profitable. In the lost-decade scenario, this trend will probably continue due to consolidation among private customers (like health care providers due to expanded health care regulations) and design-build mega projects by public owners. Larger firms will have a structural advantage.

U.S. contractors with a foothold in the international market would be better-positioned to ride out the lost decade. Currently, this is a relatively small group. Only 22 U.S.-based firms find a place among the ENR Top 225 International Contractors. The combined revenues of those 22 companies (\$86.5 billion) are divided almost evenly between the U.S. and international markets, 52% and 48%, respectively.

But that group statistic is misleading if applied to two-thirds of the individual contractors in this group. The eight U.S.-based firms who made ENR's top 100 (Bechtel, Fluor, KBR, Foster Wheeler, Kiewit, CB&I, McDermott and Jacobs) receive 62% of their revenues from international markets, whereas the remaining 14 derive only 18% of

their revenues from foreign projects. Look for that number, as well as the number of U.S. contractors with international operations, to grow in the lost-decade scenario.

So where on the world map would U.S. contractors be most likely to plant their flag? Currently, the international revenues of the 22 American firms who made the ENR Top 225 are distributed nicely geographically: 26% in the Middle East, 22% in Asia, 21% in Canada, 13% in Europe, 10% in Africa and 8% percent in Latin America and the Caribbean. The same is true of their 67 European counterparts. This makes it likely that American and European contractors may increasingly join forces in order to compete more effectively abroad and compensate for their depressed home markets. What may very well distinguish the next decade from the previous two decades in this respect is that this time American firms are as likely to be buyers as sellers.

Canada remains a relatively strong market. Its growing P3 sector has heightened competition among concessionaires and has drawn larger American contractors as well. The industrial and infrastructure needs of emerging economies will also help to compensate for the short-term decline of these sectors in the U.S. and the longer-term decline in Europe as many projects there fall victim to austerity measures. China has already surpassed the U.S. to become the world's largest construction market. India, which ranks fourth, is in the third year of a \$1.7 trillion construction program aimed at rebuilding its road, rail and energy infrastructure.

The No. 3 construction market, Japan, will see its construction expenditures rise as it rebuilds from the devastation of the March 2011 tsunami. However, Japan's construction market essentially is not open to foreign contractors, and anyone who studies the bizarre history of the state-funded construction industry in that country will understand why that is not going to change.

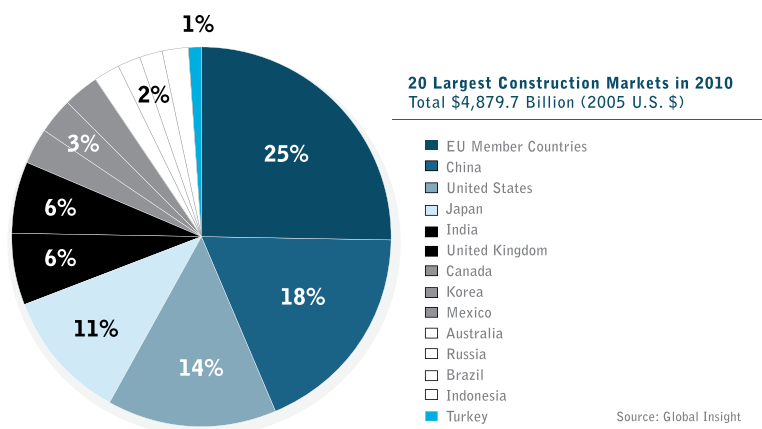
India and China could benefit tremendously from the technical skills and project management capabilities of U.S. firms. Neither country is easy to break into. China's construction market, apart from complex energy and chemical projects for which it lacks domestic capability, is “very, very closed” to foreign contractors, as Balfour Beatty CEO Ian Tyler bluntly put it in a recent interview.^[12] Moreover, its loose adherence to contractual terms makes it one of the riskiest markets in the world to compete in, especially on mega projects that are stretched out over a period of three to five years.

India is highly provincial itself and hampered by a burdensome bu-

11. Will Hill, Tim Szniewajs, and Sabine Hoover, “Study Reveals Trends in Industry Ownership and Consolidation,” FMI Quarterly 2009, Issue 2, pp. 61-81. See especially Exhibit 2, p. 63.

12. Peter Reina and Gary Tulacz, “With Traditionally Strong Markets in Decline, Firms Look to Break Through in New Regions,” Engineering News-Record, 29 August 2011, p. 48.

reocracy and pervasive corruption. It has slowly been opening up since 2005 when its government liberalized regulations of foreign investment in its real estate and construction industries. Although the corruption is too deeply rooted for anyone to expect it to disappear in the near future, the issue was at the forefront of Indian media coverage throughout 2011, and there is an increasing awareness that a failure to deal effectively with the issue will seriously jeopardize India's rise among the world economic powers. Foreign participation in major Indian construction projects still requires a joint venture with an Indian firm. The relative absence of a language barrier (English is a second language for most educated Indians) will facilitate participation in these ventures by U.S. firms.



What are the characteristics of contractors most likely to survive the lost decade?

- Strong balance sheets and diversified experience.
- Strategic acquisitions at sensible multiples.
- Presence in health care, technology, energy or infrastructure.
- Ability to assume an equity position in P3 projects and/or vertical integration into construction materials, especially aggregates (this applies to infrastructure contractors).
- Organizationwide, operations-led business development culture.
- Foothold in emerging international markets, with ability to deliver complex energy and infrastructure projects or contribute advanced project management capabilities while establishing trusting, transparent relationships with native contractors.

Scenario # 3: Taking Our Medicine Sooner Rather Than Later

Niall Ferguson is a rare breed: an academic, and an Ivy League academic at that, who loves capitalism and believes colonialism was a powerful force for good in the world. A British-born professor of history and economics at Harvard University and Harvard Business School, Ferguson has written a contrarian account of the rise and decline of the British Empire that he believes contains a salutary lesson for America. Great Britain, he argues, lost its empire because it lost confidence in what had made it a great civilization. Instead of correcting the abuses of colonialism (which Ferguson freely acknowledges), it resorted, along with the rest of western Europe, to “imperial guilt” and “self-flagellation,” and both England and the world were losers because of it. ^[13]

Ferguson believes America stands at a similar crossroads today. It is the world's only remaining empire, but it is ashamed of being an empire – “an empire in denial,” he calls it. ^[14] Americans love their country's symbols but no longer understand or believe in the superiority of their civilization. That is why, on the level of ideological export, its leaders are content to offer the world vague concepts like “democracy” and “freedom” but are unable to preach the personal character traits that enable democracy and freedom to produce prosperity. That is also why, instead of embracing capitalism and free markets at home, the U.S. is turning in the opposite direction. “The Chinese,” he remarked in a recent panel discussion “are more committed to capitalism than we are.” ^[15]

Although empires usually decline gradually, Ferguson believes that America's massive public and private debt puts it in danger of rapid economic decline. But even if it can bring its debt problem under control, there remains a deeper issue that will ultimately decide whether America remains a true world power or, instead, follows the slow path of decline that Great Britain tread as the 20th century progressed. That issue, he thinks, is whether enough Americans can rediscover the values that made their country what it is, muster the political will to remodel their institutions accordingly, and export this vision with confidence to the rest of the globe.

13. Interview of Niall Ferguson by William Skidelsky, “Niall Ferguson: ‘Westerners don't understand how vulnerable freedom is.’” *The Observer*, 20 February 2011. <http://www.guardian.co.uk/books/2011/feb/20/niall-ferguson-interview-civilization>.

14. Niall Ferguson, *Empire: The Rise and Demise of the British World Order and the Lessons for Global Power* (New York: Basic Books, 2002), 317.

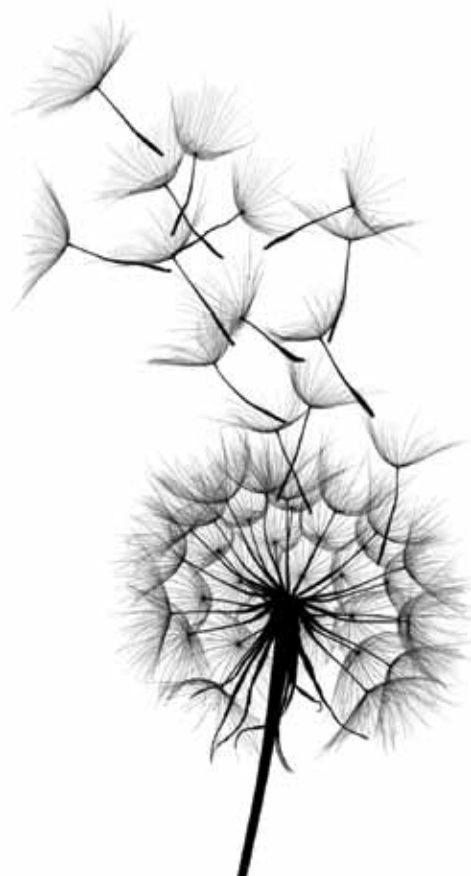
15. Panel Discussion at The Daily Beast's Innovators Summit, New Orleans, La., 22 October 2010. <http://www.youtube.com/watch?v=4mq9FKAm9qs>, accessed September 8, 2011.

Ferguson is not the only notable economic historian who is challenging global leaders to change their thinking about the root causes of prosperity. One of the most fascinating and controversial scholarly books to be published in recent years is Gregory Clark's "A Farewell to Alms," a must-read for anyone interested in the future of globalization. Clark, who chairs the Department of Economics at the University of California-Davis, presents a wealth of historical data in an attempt to answer the long-standing question of why the Industrial Revolution and the unprecedented prosperity it generated occurred in 18th century England, and nowhere else, and why this model of prosperity spread to some parts of the world, but not others.

His answer is that neither personal freedom, the rule of law, free markets, literacy, property rights or even technological advances prove to be a satisfactory explanation. Those things were all important, but they were only the preparatory soil. The seed that turned those ingredients into a prosperity that otherwise would have never materialized was a rapid shift (genetically driven by high fertility rates among the upper classes, he believes) in the personal character of the average Brit. "Thrift, prudence, negotiation and hard work were becoming values for communities that previously had been spendthrift, impulsive, violent and leisure-loving." The extent to which this transition has occurred in other societies, he argues, also explains the divergence between developed and underdeveloped nations in the world today.^[16]

The implications of Clark's conclusions for the economic future of underdeveloped nations are disturbing, but this is largely because of his view that these traits are more a function of nature than nurture. But even if he is wrong on the nature versus nurture question, his overall thesis remains highly relevant because if he is correct, it means that it is naïve to assume that the mere dissemination of democracy, freedom and technology will produce prosperity in emerging economies, or that population growth driven by immigration – the situation America and especially Europe are facing – automatically will yield results that are similar to historical population growth that was numerically equivalent but driven by native births.

Whatever one makes of Clark's explanation for economic disparity or Ferguson's assessment of western imperialism, it is certainly true that the November elections, as well as the elections that follow the rest of this decade, will function as a forum in which American voters will – whether they recognize it or not – register their verdict on the question of what has made America great. Was it the New Deal, the Great Society, social welfare, entitlement programs, a big federal government and comprehensive regulations? Or the simple, constitutional



freedoms of the first 150 years of our Republic's existence, with all the personal risks and responsibilities entailed by that freedom? Or some golden mean in between the two?

The likelihood is that American voters will aim for the last of those three alternatives, and in that case everything depends on whether the mean is really a golden one. Anything resembling that would require a dramatic decrease in the size of the federal government, a huge scaling back of federal regulatory agencies, a diminished role for the federal judiciary, significant reductions in military spending, a shift in the balance of regulatory power and a transfer of tax revenue and social welfare to states and the private sector.

That may seem like a long shot, and it is. But remember that dramatic changes of some kind will have to occur in order for the federal government to achieve fiscal sanity. That is simple mathematics. Even on the most optimistic growth projections, there is no way for the U.S. to grow itself out of its deficit and unfunded liabilities. It cannot print its way out of these problems without significant inflationary implications. Nor can it tax its way out of these problems. Over the last six decades, the ratio between federal income tax receipts and GDP has fallen into a remarkably narrow range no matter what the marginal taxation rate on the wealthiest Americans (see table on the following page). The anticipated gains from higher taxes on the rich fail

16. Gregory Clark, *A Farewell to Alms: A Brief Economic History of the World*. (Princeton, N.J.: Princeton University Press, 2007), 166.

to materialize because of their negative impact on GDP. So another year of economic doldrums, especially if it is combined with further deterioration in Europe, may be just the catalyst U.S. voters need to chart a markedly different course for the nation.

The resulting picture, however, may not be pretty at first. Unemployment could rise as tens of thousands of government jobs are lost. Housing inventory would grow still higher and home prices could drop another 15% to 20%. Some banks would fail after realizing huge losses in the value of their mortgage holdings. In view of these and other implications, it is not hard to understand why politicians have been “kicking the can down the road.”

Development of natural resources could be spurred dramatically by a loosening of environmental regulations and, what would probably accompany it, the opening of federal lands for natural resource development. But most building construction activity in the U.S. would decline sharply for several years, which means that the near-term consolidation we outlined under the previous scenario would apply to this scenario as well. The general decline in construction activity could also extend to highway infrastructure spending, which, unlike the lost-decade scenario, would not be exempted from a federal downsizing of these proportions.

Federal Taxation Rate on Wealthiest Americans and Its Effects on Federal Share of GDP

Years	Highest Tax Rate	Federal Income Tax Receipts as a % of GDP
1946-1951	91.0%	16%
1952-1953	92.0%	19%
1954-1963	91.0%	18%
1964	77.0%	18%
1965-1981	70.0%	18%
1982-1986	50.0%	18%
1987	38.5%	18%
1988-1990	28.0%	18%
1991-1992	31.0%	18%
1993-2000	39.6%	19%
2001	39.1%	20%
2002	38.6%	18%
2003-2010	35.0%	17%

Assuming the country could stay this course, however (and that is by no means a given), in the end, the pain would prove to be wholesome. International markets would recover their confidence in the dollar and, by consequence, since the dollar is presently the only viable world currency, in the global economy itself. The average American family would have fewer dollars, but the purchasing value of

those dollars would be higher. Capital transferred from the public to the private sector would be vastly more productive. Cheaper home prices would bring the housing cost-to-wage ratio – which is still at an arguably high level – back to normal historical standards. It would also establish a pricing bottom so that absorption of excess inventory could begin in earnest. Above all, deregulation and the restoration of more free-market conditions would encourage sustained, long-term investment in the United States, which is the ultimate foundation for a healthy construction market.

What are the characteristics of contractors most likely to survive this scenario?

- Strong balance sheets and strategic acquisitions transacted at sensible multiples.
- Presence in energy, technology, health care and natural resource development sectors.
- Foothold in international markets to ride out the tough, early years on the domestic front.
- Contractors who time the rebuilding of their organizations to coincide with a strong U.S. recovery beginning in 2015 or 2016.

Thus, like the country itself, the U.S. construction industry finds its short-term interests (from a demand point of view) to be at odds with its long-term interests. We will have one or the other, but not both.

Scenario #4: We Have Nothing to Fear but Fear Itself

So the final question becomes “Under what conditions could a positive scenario take place?” Is there any evidence that suggests that things could improve and our industry would return to a cycle of growth? According to the National Association of Realtors (9/21/11), existing homes sales rose 7.7% in August, which is an 18.6% increase over August of 2010. The greatest year over year improvement came in the hard-hit West and Midwest regions. The multifamily segment is becoming active again, driven by both displaced single-family homeowners and a new breed of owner that is more interested in lifestyle and less in the responsibilities of ownership and maintenance. Some would argue that the current glut of vacant homes will not appreciably mute demand for multifamily housing. These are two different things. The new breed of renter is not interested in mowing grass and painting the siding. Otherwise, he or she would get a 4% mortgage and buy it for a lower monthly payment. A distressed home likely was maintained poorly for an extended period prior to foreclosure. Thus, it is misguided to consider 10 million foreclosures as marketable. Many already have been neglected for three to five years. They will require significant repair or demolition, both of which contribute to construction.

Put all the economic science and theory to the side for a moment. Forget the supply versus demand-side debate. We know that perceptions, feelings and expectations play a strong role in the economy. Earlier this year, the economy showed signs of life. Consumer Confidence rose to 70.4. By August, it had fallen back to a desperate 44.5. We live in a time of 24-hour media and politically fueled “disaster-speak.” Not surprisingly, the decline in Consumer Confidence coincides with Washington’s debt ceiling debacle and the news coverage of it. Consumers want to spend. In fact, retail spending in July was up 8.2% versus 2010. GDP continues to inch upward. “Employment” is 90% of the workforce earning regular wages and receiving annual raises. Record corporate profits are sitting on the sidelines just waiting ... and waiting. Americans want to believe, but beyond an economic crisis, they see a crisis of leadership on both sides of the aisle.

Let’s give some perspective to FMI’s forecast projections. In current dollars, it would look much better. But let’s go the other way to constant dollars (inflation removed). Then the construction put in place forecast for 2014 is equivalent to:

- 1995 level for the residential sector
- 1996 level for nonresidential buildings sector
- Best year ever for the non-building sector
- 1998 level for total construction

Now the pessimist might say that is a lost decade. However, the optimist will say that the decade that followed those benchmark years was pretty good. Furthermore, our econometric modeling has historically been accurate. We look at the correlation of economic variables to changes in construction going back to the 1960s. As simple as it sounds, the variable that correlates best, in every segment, is population change.

U.S. Population

1996:	265 million
2014 (projected):	320 million

As an example for one sector then, nonresidential construction will be back to the 1996 level (inflation removed) by 2014, but will have the fuel of a 21% population increase driving growth. That is a significant difference.

Let the foreclosure mess begin to sort itself out. Let the EU finally gain traction on its recovery plan. Give consumers some sense that there is a light at the end of the tunnel. Give corporations some modest confidence that it is time to reinvest profits. Then perhaps we could see a positive trend in growth for the economy and construction.

Can we grow our way out of this problem without significant near-term pain? We do not think so but one thing is certain: The next few years will be anything but dull. ■

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Government Construction Facing a Downturn

By Kevin Haynes, Brian Strawberry and Phil Warner

Spending for government construction, especially infrastructure construction, is expected to decline, possibly sharply, as budget battles continue to rage in Washington and spill over to every state in the nation. Although federal spending for construction represents only a small percentage of total annual construction put in place, the government sets the tone for private spending and development. Government spending also helps generate needed infrastructure funding for the betterment of national transportation by providing better ports, airports and highways to keep people and goods flowing throughout the economy. More importantly, in times of recession, government projects help stimulate the economy by providing needed jobs until the private sector recovers from the economic shock. At least, that is how the government stimulus should work.

In our brief review of federal, state and local government construction, we look at many of the problems facing governments under budgetary stress and how needed public projects may or may not be funded in the near future. There is a sense that we are facing a long-term slowdown, while at the same time needs for public construction are on the rise. The budget gap between available or planned funding for public construction projects is large and growing; however, the national political gap is even larger. That is the basis for ongoing unease and sets an unharmonious tone for business everywhere.

Federal Government Construction Outlook

When the American Recovery and Reinvestment Act (ARRA) of 2009 was passed, it was with the hope that public investment would help to lessen the significant blow that the U.S. was dealt from the economic recession. The idea of “recovery” noted in the ARRA was that helping to keep people employed and the country’s infrastructure from falling apart would contribute to a return of private investment and consumer spending. Funding from the act did help states avoid even deeper crises in the last couple of years; roads and bridges continued to be repaired and schools continued to be built and staffed. However, while there is supporting evidence to show that the billions of dollars spent through the ARRA helped to keep the recession from becoming much worse, private sector investment in new capital construction projects is not flowing back into the market as soon as hoped.

Of the \$787 billion stimulus bill, roughly \$94 billion allocated for construction has been spent or committed in the past three years.

With one crisis averted, we are now faced with the bulging national deficit and falling federal budgets. As a result, the U.S. construction market now faces not only depressed private investment but also proposed cuts from the federal government. This is alarming, especially for contractors focused on government work or many other companies recently looking to federal spending for new project opportunities, because private sector projects have been sparse. For those that thought increased public spending would help to tide everyone over until the private market recovered, they are now wondering where the next project opportunities will be.

At the time of this writing, the House Appropriations Committee and its Republican leaders are moving forward on their budget-cutting pledge. Included in this pledge is the reduction in spending for several construction programs (See Exhibit 1: House Appropriations).

The expected conclusion of the program for base realignment and closure (BRAC), which began in 2005, will wind down in 2011. As part of this program, the U.S. Army Corps of Engineers (USACE)



House Appropriations

Exhibit 1

Program (\$ millions)	FY 2012 House	FY 2011 Enacted	% Change
DOD base realignment and closure	482	2,482	-81
DOD family housing construction	373	357	+4
DOD other military construction	11,489	11,933	-4
VA major construction	590	1,076	-45
DOE defense environmental cleanup	4,938C	4,980	-1
Corps civil works (regular appropriations)	4,768C*	4,857	-2
Bureau of Reclamation water/related resources	822C	912	-10
Total	23,462	26,597	-12

Note: Amounts are rounded, *Excludes \$1,029 million in emergency funding for 2011 storm and flood damage repair, C: Approved by committee, no floor vote as of 6/20/2011.

Source: House Appropriations Committee

is executing \$16 billion of military construction (MILCON) for 275 Army, 127 Air Force and 32 DOD BRAC projects. In addition to engineering and construction management-related work, USACE handles real estate acquisition and disposal, environmental services and equipment, and furniture procurement. The Army has benefited from a favorable bid environment and is on track to meet all of its program milestones on time. As a result of this program nearing completion, the DOD fiscal year 2012 budget for base realignment and closure will be reduced by more than 80% of 2011 levels. In addition, other military DOD construction, which makes up the bulk of its construction program, will be down 4% in 2012. The one bright spot for the DOD is in family housing where spending is projected to increase by 4% in 2012.

Several other federal programs, including the Department of Veterans Affairs (VA) and the General Services Administration (GSA), are bracing for significant decreases in their construction programs. The Department of Veterans Affairs has recently undergone its largest expansion program since World War II. As shown in Exhibit 1, its major construction budget would decrease by 45%, based on the House's recommended construction cuts. The GSA expects a similar decline and does not project much construction down the road, especially when compared to its recent level of activity. A 2011 spending bill enacted on April 15 reduced the GSA construction account for the current fiscal year by 91% to

\$82 million. In addition, the House panel slashed the agency's \$869 million request for repairs and renovations by 68%. Because of these reductions, the GSA is holding off on \$480 million in DHS and FDA construction projects, which it had planned to proceed with this year.

In June 2011, the House committee cleared a spending bill that covers energy and water programs, which would reduce the USACE regular civil works appropriations by 2%. However, lawmakers also adopted an amendment that adds \$1 billion in emergency aid for the Corps to repair flood and storm damage. If combined with the FY2012 budgeted civil works program, then total spending would actually increase by nearly 20% in 2012. The added funding for the Corps comes at the expense of another stakeholder group, as the flood and storm damage appropriation is met with an equal decrease of \$1 billion from high-speed rail funding.

The 2012 appropriations debate is far from over. Senate lawmakers have taken no action to date on any of the 2012 spending measures. However, we do know that there has been increasing pressure to shrink the federal budget deficit. In addition, funding from the ARRA, which has helped keep construction put in place for 2009 and 2010 from falling even further than the 10% to 15% dive the construction market has experienced is now mostly gone. For those companies and employees who depend on government funding for most, if not all of their livelihood, this is an uneasy time. Nonetheless, on a larger scale, while the proposed 12% reduction in federal construction spending for fiscal year 2012 is significant, total federal spending only represents roughly 3% of the total U.S. construction market estimated for 2011. In all of the news and publicity surrounding what occurs at the federal level, this fact can often get lost in the shuffle. While federal construction gets the most attention in the national news, the larger category of public construction is state and local, which represents nearly one-third of total U.S. construction. (see Exhibit 2) This is where our roads, bridges, sidewalks, water and wastewater systems, courthouses, town halls, schools and parks are constructed.

Exhibit 2

Value of Construction Put in Place — Seasonally Adjusted Annual Rate (Millions of Dollars) as of Q1 2010

	Total Construction Put in Place (Q1, 2010)	% Total Construction Put in Place (Q1, 2010)	Total Construction Put in Place (Q1, 2011)	% Total Construction Put in Place (Q1, 2011)
Public Construction	304,494	33%	276,270	33%
State and Local	272,722	30%	246,672	29%
Federal	31,776	3%	29,598	4%
Private Construction (FMI)	583,712	6%	560,486	67%
Total Construction (FMI)	888,209	100%	836,756	100%

Summarizes FMI's first quarter 2010 and 2011 construction put in place volume distribution by public and private markets.

Construction Budget Challenges for State and Local Governments

Much like federal construction, state and local construction spending has declined more than \$25 billion in 2011. While some of this decline is due to decreased federal distributions to state programs, reduced spending also ties to the way state budgets operate, how state and local construction is funded, and why a stable economy is needed to maintain a working balance between the public and private markets.

The two primary sources of state revenues include personal and corporate income taxes and/or sales taxes. Approximately one-quarter of a state's funds come from the federal government, and on average, more than half of what a state spends each year goes toward education and health care services. Payments for services normally are allocated from a state's general fund.

However, state and local construction are not funded directly from the general fund, because states are required by law to maintain a balanced budget. The typical and accepted practice to fund major construction is to borrow through the sale of bonds and tie payments to either revenues generated directly by the capital investment, a tax collection vehicle (e.g., the general fund, state highway fund, etc.) or a mix of both. During a recession, where the economy experiences long periods of high unemployment, the impact quickly erodes state and local tax collections.

Generally, and at the risk of an increased cost on debt, states must first cover debt payment obligations. When states do not have revenues coming in to cover payments for public services, service cuts are necessary. The payments for public service are what states across the nation have struggled with over the past four years, making cuts each year more significant than the year before as budgets are forced to become leaner. Again, in 2011 we have seen deep cuts into significant public services, including public safety, education and health care – services essential to the well-being of the state. Economic groups expect 2011's cuts to hit the economy harder than any other prior cuts. Interestingly, only a few states are using the traditional approach to balance budgets by increasing/replacing lost revenues through new or increased taxes.

Unlike the federal government, which is allowed to operate at a deficit, states are required to cover their costs for the year based on annual revenues. During times of recession, this can become, as we have seen recently, counteractive to economic development. A balanced budget forces a downward economic spiral at the state and local levels as economic development becomes more and more unaffordable.

States are forced to rely on federal relief, much like the ARRA, to spur development in the short term and hope that private investment returns rapidly because of federal support.

Where ARRA failed was the slower-than-expected return of private investment. While there was a lot of hustle and bustle over the billions going into construction and development, much of the spending that the stimulus provided was maintenance-related (e.g., department of transportation paving work) and too little “stimulated” a rapid expansion in the private sector.

From where we stand now, with all ARRA funds expired and little to no discussion of short-term future federal support, state revenues and the public service programs are in considerable distress. In 2012 some 42 states will be working to close \$103 billion in budget gaps on top of those shortfalls experienced between 2009 through 2011. States are working on closing the gap using typical service cuts, new taxes and reserve funds, all while trying to cause the least amount of damage to the economy as possible.

The sharp falloff in state and local government spending leaves contractors scratching their heads and asking themselves where the public projects that have kept them afloat for the past three years have gone. State and local owners are ultimately in a place where private investment must return in order for their situations to improve. Private-sector growth is the only sustainable way to increase revenues from tax collections and regrow programs to the levels maintained in 2007.

Last July, the Center on Budget and Policy Priorities reported that at least 28 states recognized tax collections for the year-end 2011 that exceed amounts expected in their revised budgets. This is good news considering it may show signs of a long expected, albeit slow, rebound. Much of the noted revenue improvements are tied directly to gains associated with income tax collections, which, in effect, shines some positive light on performance in the private sector. As with historical recessions, trends show that the first sign of an economic rebound is the increased income of the upper classes. What the report on tax collections shows is between 2010 and 2011, income from business ownership, rental property and investment dividends increased more rapidly than income from wages, potentially indicating signs that economic rebound is near and the private market is getting ready to invest and grow again.

Seeking Alternative Funding — P3s and Infrastructure Banks

Symptomatic of the cuts in government spending for construction at all levels is the failure of Congress to pass a federal surface transportation bill. The current bill, 2005 SAFETEA-LU law, expired September 30, 2009, and the latest reauthorization expired in September 2011. At this point, SAFTEA-LU will likely be transformed as current discussions in the Senate and the House involve discussions on whether the bill should cover two or six years and how projects may be funded. For instance, the House bill recently introduced by House Transportation and Infrastructure (T&I) Committee Chairman John Mica, R-Fla., calls for more involvement of P3s (public-private partnerships) and investments in state infrastructure banks; however, that bill cuts current spending levels by 35% to around \$27 billion next year.

The identified and perceived needs for building and rebuilding the nation's infrastructure are tremendous. Those needs did not just surface overnight. They have been there for decades, but with new calls for sharply reduced government spending with no new taxes – or no taxes at all seems to be the growing cry – the lack of funding for infrastructure will become more of a problem in the coming years. Infrastructure is only noticeable by the general public when something fails, like a bridge collapsing or a water main erupting or gas main exploding, causing death, destruction and disruption to our daily lives. The dilemma we are facing is how to have our infrastructure without breaking the budget. The solutions proposed are akin to looking for a white knight and, lately, that white knight takes the form of P3s and national and state infrastructure banks.

White knights are not what they used to be. For one thing, they charge more; that is, they expect to make a profit on their rescue investments. Private investors looking to participate in infrastructure projects come in many forms, such as investment funds, private equity firms, institutional money managers, pension funds, insurance companies and wealthy individual investors. The one thing they have in common is that they are all looking for long-term, low-risk investment streams – the type of return one might see from building and operating a toll road or a tolled bridge in high-traffic zones. Therefore, one of the requirements for likely P3 projects is a revenue stream that is profitable over the lifetime of the project. Toll roads are not the only means of revenues; P3 investors may receive revenues from a variety of sources or a mix of tolls, taxes, interest on bonds, etc. The governments seeking to fund and build the projects may participate as investors as well, but they invest their tax receipts or tax reductions, land and right of way or other concessions. One of the primary benefits sought in this complex relationship is the idea that private

organizations can get projects built faster and for lower cost than government entities with a lot of bureaucracy and insufficient numbers of qualified personnel for project oversight.

While more states are allowing P3 financing, the deals are complex and not easily understood by anyone without a degree in high finance. This makes it difficult not only to get public approval, but also tough to establish a consortium for the project and get all the public and private parties together and in agreement. P3 projects are also not immune to the economic slowdown; for instance, consider the example of a toll road – a project made easier to justify with the increase of the EZ-Pass system. As recessionary pressures continue, fewer people are commuting to work or are just reducing unnecessary trips. Private investors counting on that revenue stream to justify their risk will seek other sources of guaranteed revenues. For instance, the Florida I-595 P3 project entails a 35-year concession for a 10.5-mile stretch of highway north of Miami. Funding of the \$1.8 billion project is a mix of bank debt; TIFIA (Transportation Infrastructure Finance and Innovation Act) lending, Florida Department of Transportation funds, equity investment and toll revenues.

The move to greater use of P3 project funding methods will be slow, but the concept and its many permutations are beginning to gain traction in the U.S., as witnessed by a number of large projects approved or in process around the country. For instance, a consortium formed by Macquarie and Skanska, called Elizabeth River Crossings (ERC), has agreed to commit \$318 million in equity and \$495 million in debt toward the project, according to a presentation on the business terms provided by Virginia's Office of Transportation Public-Private Partnerships. The private developers are expected to commit \$1.2 billion of construction and financing costs at financial close and \$1.3 billion in operation and maintenance costs over the 58-year concession term.

Here is a sample list of current projects from a longer list of P3 projects assembled by the National Conference of State Legislatures, "Public-Private Partnerships for Transportation: A Toolkit for Legislators."

- \$3.8B project for Indiana Toll Road, Ind., Indiana Finance Authority, 75-year lease, Cintra Concessions/Macquarie
- \$2B I-495 Capital Beltway HOT Lanes, Va., Virginia DOT, DBFO, Transurban/Fluor (\$1.4b Fluor/Lane)
- \$1.7B Hudson-Bergen Light Rail, N.J., N.J. Transit DBOM258, Wash. Group/Itochu (\$1.15b Perini/Slattery)
- \$350M Dulles Greenway Toll Road, Va., TRIP II DBFO, TRIP II (\$150m Brown & Root)

P3 projects are not confined to mega-highway projects, but these are projects most likely to attract private investment at this point and also the projects that most need investment from the public sector. Often, public projects that would normally be funded piecemeal over many years can be combined into larger P3 projects and completed long in advance of what the public sector could do on its own.

Another funding vehicle that might include private investments and P3s is the idea of a national infrastructure bank. One bill currently before Congress is H.R. 402, the “National Infrastructure Development Bank Act of 2011.” The bill is proposed “to facilitate efficient investments and financing of infrastructure projects and new job creation through the establishment of a National Infrastructure Development Bank, and for other purposes.” It would be established as a wholly owned government corporation for a limited time, 15 years, and have a board appointed by the president. The NIB would be funded by a variety of public and private sources, including seed money from the federal government:

The capital markets, including central banks, pension funds, financial institutions, sovereign wealth funds and insurance companies, have a growing interest in infrastructure investment. The establishment of a United States government-owned institution that would provide this investment opportunity through high-quality bond issues that would be used to finance qualifying infrastructure projects would attract needed capital for United States infrastructure development. (Bill H.R. 402)

The needs for infrastructure development in the U.S. identified in the bill are staggering, and various associations and institutions, most notably the American Society of Civil Engineers (ASCE), have published most of their cost estimates. Comparing those numbers with current levels of construction put in place for the U.S., we can get an idea of how much more construction work will be needed to build infrastructure at the rate suggested by the several reports. (See Exhibit 3. Note: The comparisons are approximate only as CPIP categories

and identified needs may differ in project type and reporting.) Consider also that the deficit may increase if governments cut spending back to maintenance levels in several of these categories, as has been proposed in recent budget debates.

The idea of a National Infrastructure Bank has been considered for some time now. At the state level, State Infrastructure Banks (SIBs) have existed in one form or another since around 2005 when the federal highway authorization bill, SAFETEA-LU, provided a means of establishing such banks to fund highway projects from federal and state funds. SIBs, with few exceptions, are targeted at helping cities and communities fund transportation projects, and, unlike the NIB, will fund smaller projects. They provide low-interest, or no interest, loans and often tax incentives to help projects that otherwise would be shelved due to funding difficulties.

There are a number of detractors, especially for the NIB, with criticism including the problem that the banks would not act like private banks in that they are not required to break even or make a profit. The loans or grants also have social requirements attached in addition to other technical requirements needed to meet eligibility. For instance, for transportation projects, “the Board shall consider the following:

- (A) Job creation, including workforce development for women and minorities, responsible employment practices and quality job-training opportunities.
- (B) Reduction in carbon emissions.
- (C) Reduction in surface and air traffic congestion.
- (D) Poverty and inequality reduction through targeted training and employment opportunities for low-income workers.
- (E) Use of smart tolling, such as vehicle miles traveled and congestion pricing, for highway, road and bridge projects.
- (F) Public health benefits.” (Bill H.R. 402)

Generally, these requirements should not be surprising, as most government contracts include such desiderata now. However, in the cur-

Exhibit 3

Identified Infrastructure Needs

Organization or Institution Estimating Infrastructure Needs	Amount	Time Frame in Years	Annualized Estimated Spending Needs	Est. 2011 Infrastructure Construction Put in Place (CPIP)*	Difference Per Year (Shortfall)	Notes on Needs
American Society of Civil Engineers (ASCE)	\$2,200,000,000,000	5	\$440,000,000,000	\$261,225,369,030	\$178,774,630,970	“to meet adequate conditions”
National Surface Transportation Policy and Revenue Study commission	\$11,250,000,000,000	50	\$225,000,000,000	\$85,494,464,244	\$139,505,535,756	“for the next 50 years to upgrade our surface transportation system to a state of good repair and create a more advanced system”
Environmental Protection Agency	\$334,000,000,000	20	\$16,700,000,000	\$15,732,037,728	\$967,962,272	“to ensure the provision of safe water”
Environmental Protection Agency	\$202,500,000,000	20	\$10,125,000,000	\$26,937,630,720	\$(16,812,630,720)	“for publicly owned wastewater systems-related infrastructure needs”
Edison Electric Institute, electric power industry	\$298,000,000,000	20	\$14,900,000,000	\$86,417,842,500	\$(71,517,842,500)	“for Nation transmission system ‘in order to maintain reliable service.’”
Total			\$706,725,000,000	\$475,807,344,222	\$230,917,655,778	

*The construction needs identified and CPIP estimated are not entirely comparable, and CPIP represents both public and private spending.

Reference Source: Congressional Bill H.R. 402, January 24, 2011

rent political environment, the NIB bill is likely to be shot down or greatly modified. Nonetheless, a National Infrastructure Bank is one more possibility to help meet the needs of the nation's infrastructure. A better way to increase infrastructure investment would be for the economy to return to pre-recession spending levels with an improving economy generating greater tax revenues even without raising taxes. The problem is that the desired growth rate the country needs in order to keep up with population growth and to maintain current levels of quality of life, etc., will not occur until we have more jobs like those created by building more infrastructure. Therefore, we are caught in a bind with no white knight in sight. The message on government spending for construction is mixed and the challenges are great. The solutions will need to be equally great. ■

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A Recovery Without Housing?

By Richard Tison, Phil Warner and Randy Giggard

Former U.S. President Herbert Hoover once quipped, "Please find me a one-armed economist so we will not always hear 'on the other hand' ..." A review of economists' current perspectives on the economic recovery and the conditions of the U.S. housing market offers clear signs that Mr. Hoover was unable to shift the norm away from two-armed economists.

“*On the one hand, the possibility remains that the recent economic weakness may prove more persistent than expected and that deflationary risks might re-emerge, implying a need for additional policy support.*”

“*On the other hand, the economy could evolve in a way that would warrant a move toward less accommodative policy.*”

Ben Bernanke, semiannual monetary policy report to Congress, as quoted in CNN Money, July 13, 2011

While economists do not always agree on the future of the economy, one thing is certain. Although the Great Recession is officially over, the turbulence of 2011 offered few signs of relief for the nation's households and businesses, whose interconnected stories are the building blocks of the economy. Many of the same structural challenges facing the U.S. economy at the end of the recession remain roadblocks to recovery. Unemployment is too high. Banks continue to hold onto money. The housing market is still a mess.

The recovery from the previous recession of this century resulted from strong consumer spending and a robust housing market. This time around, neither of those sources appears ready to lead us forward. The housing market remains especially challenged. Due to the depths to which that market fell – and in large part still remains – it now acts as a ball and chain, dragging down the rest of the economy, depressing the consumers' ability to spend, businesses' desire to invest and the financial market's ability to lend.

What does this mean for recovery? Does the traditional link between residential and nonresidential construction still apply? If so, what is the implication of the link on a broader economic recovery without a housing market recovery?



It is our sincere belief that the economy can recover without a housing market recovery, albeit more slowly. Moreover, the lack of a housing market recovery will affect how and to what extent the economy recovers.

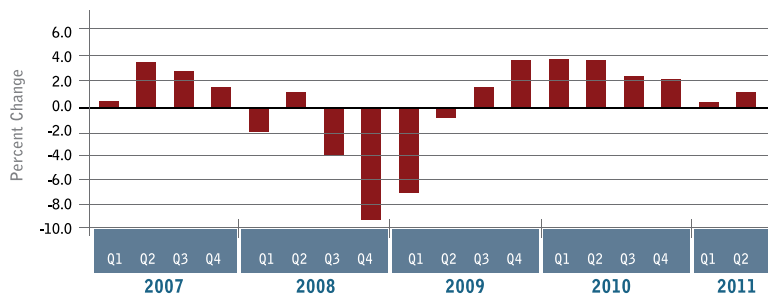
To explain this belief, we will review where the economy currently stands with regard to GDP and unemployment, the challenges of the housing market and the implications of a down housing market on a broader recovery. Then we will present what we believe is down the road for firms in the construction industry.

Getting Back to Normal What Is Normal Anyway?

Prior to the Great Recession, from 1993-2007, real GDP grew at an annual rate of 2.8%. By those standards, a return to approximately 3% annual growth in real GDP would be “normal.” Unfortunately, during the Great Recession, real GDP declined at an average annual rate of 2.7%, according to data released by the Bureau of Economic Analysis.

What does this mean? Growth needs to exceed 2.8% in order for the U.S. economy to recover ground lost during the recession. Despite growth of 3% in 2010, economic growth has slowed in the first half of 2011 to only 0.4% in the first quarter and 1.3% in the second quarter, seasonally adjusted at annual rates.^[1]

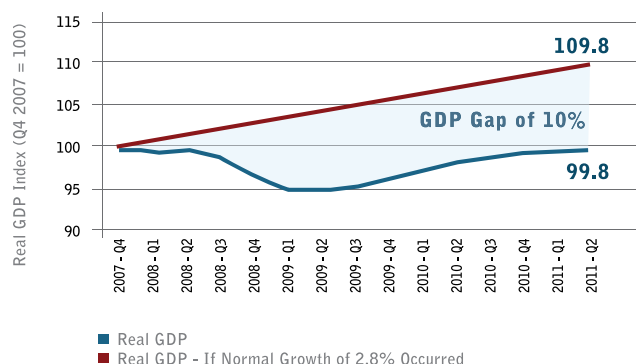
Quarter-to-Quarter Growth in Real GDP



Source: Bureau of Economic Analysis

Today, there is a 10% gap between where real GDP would be if the recession never occurred and where we are right now. As opposed to real GDP being 9.8% higher than in Q4 2007, it is actually 0.2% lower than it was in Q4 2007. While 3% real GDP growth would not quickly diminish the gap, it would at least be a step toward “normal.” We are a long way from closing that gap.

Normal vs. Slow Recovery



Source: Bureau of Economic Analysis

For evidence of the effects of this gap, look no further than the labor market. The unemployment rate remains stubbornly fixed at around 9% and appears ready to remain at that level for some time. To declare the labor market healthy again, that stronghold must give way to a lower rate approaching full employment.

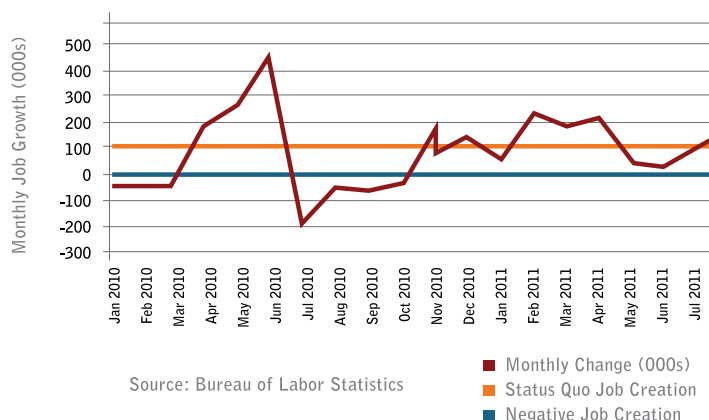
The rate of unemployment consistent with “full employment” varies from one economist to the next, with a range of approximately 4% to 6%. According to Bureau of Labor Statistics (BLS) data, the average rate of unemployment in the U.S. from 1993 to 2007 was 5.2%, just more than half of what it has been throughout most of the recession and into 2011. With that in mind, a target unemployment rate for a “normal” labor market in this economy would be getting below 6%. What will it take to accomplish less than 6% unemployment? First, as the U.S. population is growing, there must be enough job creation to account for that growth. With an overall population growth rate of approximately 0.9%, a population of around 311 million based on the 2010 census, and a workforce of approximately 150 million according to the BLS, the U.S. economy must create around 1.35 million jobs per year, or 115,000 per month, just to keep the unemployment rate constant. Further job creation is then necessary to reduce unemployment toward and below 6%. The Bureau of Labor Statistics shows the average monthly job growth from January 2010 to July 2011 was only 98,000.

Even more disheartening is what the unemployment rate hides – those no longer in the labor force but able to work and those underemployed. The unemployment rate excludes those not actively looking for work. As the jobless recovery grinds along, the median number of weeks that the unemployed are out of work is increasing. From approximately two months before the recession, this figure has grown to a staggering six months at the midpoint of 2011.^[2] As

1. According to data released by the Bureau of Economic Analysis after the second quarter of 2011: www.bea.gov; National Income and Product Accounts Gross Domestic Product: Second Quarter 2011 (Advance Estimate), Revised Estimates: 2003 through First Quarter 2011.

2. National Economic Trends, August 2011, Updated through 8/11/2011, Federal Reserve Bank of St. Louis: <http://research.stlouisfed.org/publications/net/>.

Job Growth



this figure increases, more and more people are simply giving up the search for work and dropping out of the labor force. This has the effect of decreasing the unemployment rate, all else held constant.

The unemployment rate also does not differentiate between workers employed at their fullest potential and those employed at a level below that potential. Laid off and unemployed workers seeking employment since the beginning of the recession found far fewer opportunities than before the downturn. As some income is certainly better than no income, many had to settle for positions below their qualifications.

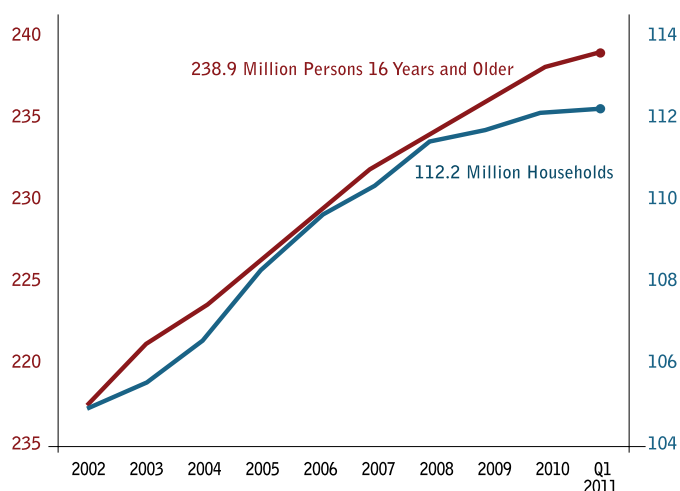
With sluggish GDP growth and stubborn unemployment, it appears that “normal” is a long way off. Then again, something has to give. Something always does. Following the recession of the early 2000s, that something was the housing market. Can the housing market again lead us in economic recovery? Despite the usual effect of population growth to increase demand for residential construction, the structural issues facing the housing market make it unlikely that it will rebound in the near future.

Why the Housing Market is Unlikely to Recover in the Near Future

Population growth is traditionally a driver of demand for residential construction. Current U.S. population growth, however, is not having this effect for a variety of reasons. First, although our population is growing, household formation is not keeping pace to the tune of 200 million fewer households than one would expect given population growth. It is understandable that household formation would not keep pace with population growth during the recession. New

Household Growing Pains

Millions of households and persons in the civilian noninstitutional population



college graduates, having a hard time finding jobs, end up back at home with their parents instead of on their own; people previously living alone are seeking roommates to cut down on the cost of living because their wages are dropping.

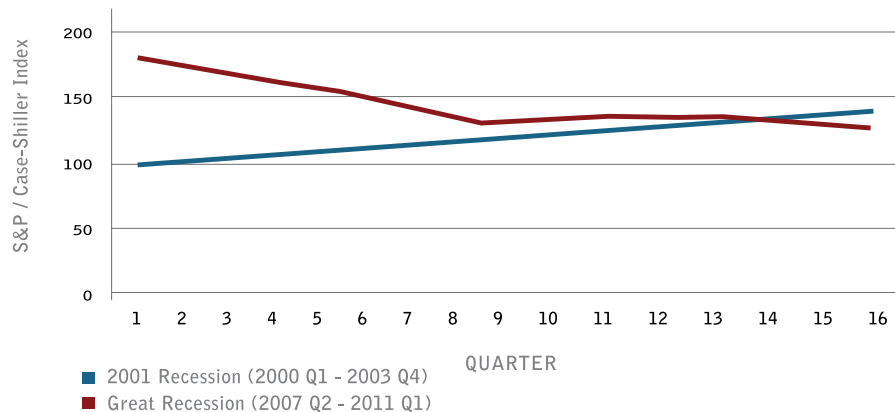
The question that remains is: Will this trend reverse itself once the economy improves, or is this a shift in the “American Dream” and its implications for home ownership? A survey by the National Association of Realtors found that 72% of renters still view home ownership as a top priority.^[3] The relationship between dream and reality, however, has yet to play out. If household formation catches up to population, as some economists expect, then population growth is a ray of hope in an otherwise grim market.

While population growth is a potential sign of hope for the future of the housing market, the other hand, in this case, is excess inventory and the problem of shadow inventory, which are the dark, ominous clouds overhead. As of June 2011, data released by the National Association of Realtors shows that inventory in the housing market rose 3.3% to 3.77 million units, which represents 9.5 months of inventory at current sales rates. While this is down from its height during the recession, it has risen throughout 2011.

Shadow inventory poses another challenge for the supply of homes. The shadow inventory consists of foreclosures and those about to enter foreclosure as well as owners who want to sell but are waiting for the market to improve. According to a study released by Standard & Poor's, this inventory stood at \$405 billion during the summer of

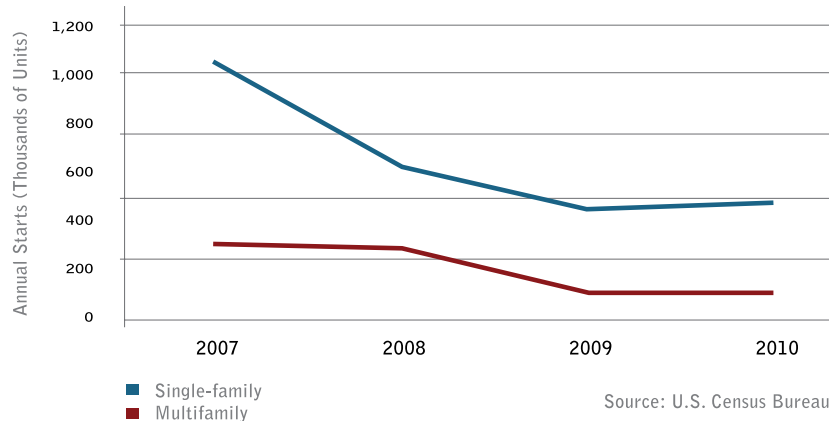
3. “Home Ownership Remains an American Dream,” Kenneth Leon, S&P Equity Research Services.

S&P / Case-Shiller Index During Last Two Recessions



Source: S&P/Case-Shiller Home Price Index

Housing Starts Decline



Source: U.S. Census Bureau

2011, which represents four years of housing inventory.^[4]

The weight of slow household formation and excess and shadow inventories is easy to see in the traditional housing market indicators of home prices and housing starts. A look at how these indicators differed through the past two recessions shows a market on two different trajectories.

Unlike the previous recession of the 21st century where the housing market led us out of recession, this time around it led us into recession. While home prices rose during the previous recession, they continue to fall after the Great Recession. Home affordability indices show housing is affordable for those in a position to buy. According to the NAHB/Wells Fargo Housing Opportunity Index in August 2011, 72.6% of new and existing homes sold in the second quarter of 2011 were affordable to families earning the national median income.

Housing start statistics offer further evidence of the differences in the housing market during and after the past two recessions. During the 40 years prior to the 2001 recession, housing starts averaged 1.5 million units annually. While this number usually falls during a recession that was not the case in 2001. In 2001 low mortgage rates, house price appreciation and poor performance of other investment alternatives combined to shift personal investment toward housing, which maintained the average level of annual starts at 1.6 million, despite the recession.^[5] The Great Recession, on the other hand, saw housing starts drop precipitously. During the first half of 2011, single-family housing starts averaged an annual rate of only 426,000, based on U.S. Census Bureau data.

As the data regarding the housing market during and shortly after the last two recessions could hardly look much different, it is clear that housing is not following the same trajectory. The availability of cheap credit that fueled housing during the recession of the early 2000s was a catalyst for the bubble that burst, leading us into the Great Recession.

While what goes up must come down, and presumably, what goes down will eventually come back up, the housing market shows no signs of recovering any time soon. In that case, where will the growth come from, and what does this mean for the rest of the economy and, specifically, nonresidential construction?

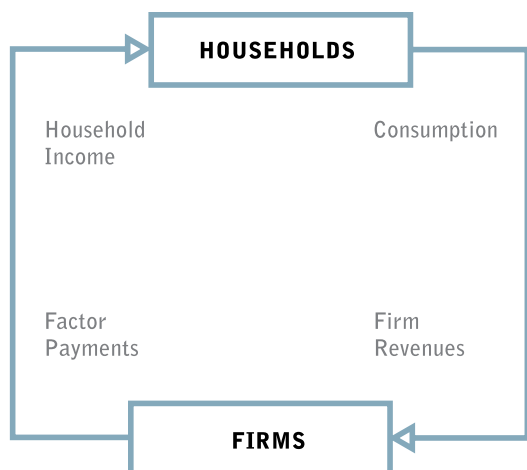
What Does This Mean For the Rest of the Economy?

In essence, the economy of any nation is a circular flow of income between firms and households. Firms employ people to produce goods and provide services. This process, in turn, creates household income, which allows households to spend. Household spending gives firms a reason to exist and fulfill consumer demand.

4. U.S. Residential Performance Index: "The Housing Market Recovery Moved Inches In The First Half of 2011, But It Still Has Miles To Go."

5. "Economic Conditions During the 2001 Recession," Washington State Office of Financial Management, July 2002.

While this simple view helps illustrate the circular nature of the economy, the real world is more complex than this. To the simple diagram, we need to add taxes, government spending and saving, private saving and the many marketplaces in which these exchanges occur. To understand the role of housing on the broader economy, we will look at some macroeconomics and how the major components of GDP interconnect.



The economy, as measured by GDP, is a combination of four components: private consumption, business investment, government spending and trade. Expressed as a formula:

$$GDP = C + I + G + NX$$

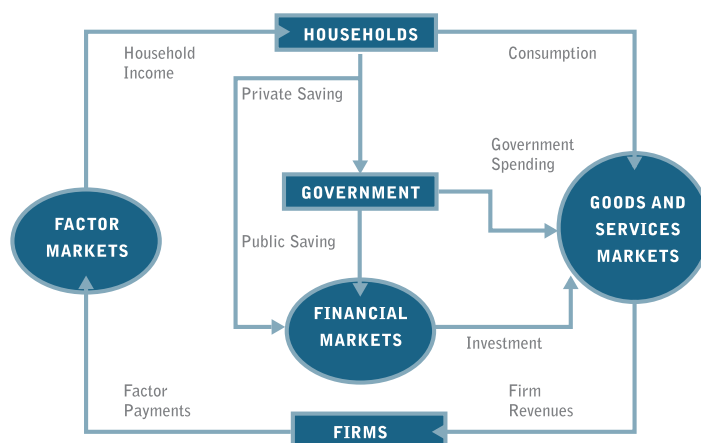
C = Private Consumption

I = Investment

G = Government Spending

NX = Net Exports, or Exports Less Imports

A quick rundown of the components offers few signs of hope for sources of growth in our current economic situation. Consumers, still cleaning up bad household balance sheets, are unlikely to increase spending enough to move the consumption needle (C or negative C) to the plus side of the equation. Government spending is certain to drop, as 42 out of 50 states are grappling with budget shortfalls, and the federal government is likewise pledging to slow its credit-fueled spending spree (negative G). Economists expect exports to grow as demand from emerging markets continues to increase. On the other hand, they say the same for imports, meaning the net effect (NX) will be at best zero. The last source of growth then is investment, which is a combination of business investment and residential construction. Considering the current shape of the housing market previously discussed, that leaves businesses to get our economic model moving in the positive direction.



Problem Solved? Not Quite.

Profits have risen since the depths of the Great Recession because of reduced costs (i.e., unemployment) and increased productivity. In some ways, the cyclical nature of the economy is slowing as the financial markets and firms are not passing through their gains and profits to the factor markets in the form of labor, which then becomes household income.

While profitability keeps cash available on corporate balance sheets, we are not seeing much of that cash put to good use. It is likely this trend will continue without first addressing the sources of political and economic uncertainty that are making businesses think twice about spending.

A major question that businesses face is: Where is the demand? Changing consumer-spending habits, high unemployment and the challenges of the housing market all negatively affect demand for the goods and services that businesses produce. Without growing demand, business will continue to maintain current levels of production without tapping into the labor market. In turn, wages will continue to stagnate, and the unemployment rate will remain stubbornly high as demand for labor remains flat. Unfortunately, households need jobs before consumption can rise, and businesses need households to consume for hiring to make sense. The vicious cycle perpetuates. In the past, credit card borrowing and home equity loans helped consumers to break out of this cycle. With homes under water and credit cards more than maxed out, that route is closed. We can expect little help from consumers spending their savings. The personal savings rate, while still low, has begun to improve since the recession. However, sharp drops in the stock market and inflationary dollars and rising prices threaten to erode whatever people can sock away.

The Role of Housing Throughout the Economy

Housing plays a role in determining GDP growth or decline. As housing is unlikely to grow any time soon, its role in increasing GDP is unlikely. The role of housing, however, is more than just its direct contribution to GDP. As the Great Recession tragically illustrates, housing plays a key role in household wealth, labor mobility, government policy and business investment decisions. The implosion of the housing market left evidence of its importance throughout the U.S. economy. Cleaning it up, much like cleaning up the oil spill in the Gulf, involves more than just picking up the pieces of the housing market to restore the ecosystem to its original state, if that is even possible. Another similarity to the oil spill is that the cleanup process will take a long time.

Home equity is a significant driver of household wealth. The drop in home prices caused by the housing bubble created a decline in household wealth. The decrease in household wealth, in turn, affects businesses, because as wealth decreases, consumers tend to slow consumption in an attempt to make up for the loss. The dual story of firms and households again shows signs of weakness.

In addition to lower wealth, the housing market is affecting mobility as some homeowners' mortgages are under water while others looking to relocate are waiting for market conditions to improve before doing so. The effects on labor mobility are evident in the labor market.

The condition of the housing market also affects government finances. Through Fannie Mae, Freddie Mac and the Federal Housing Administration, the government owned 250,000 homes at the end of June 2011 with another 850,000 in some stage of foreclosure.^[6] Creative solutions to lowering this inventory, such as selling bundles of homes to convert them into rental properties, are on the table, but in the near future, these agencies will have to carry the burden of bulk home ownership.

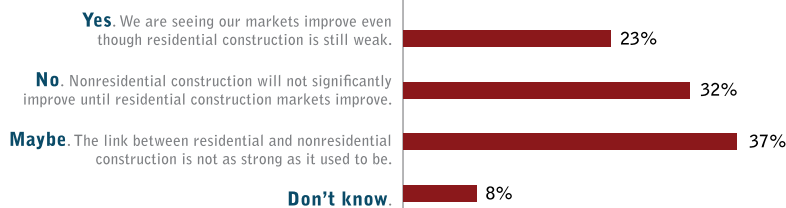
6. Timiraos, Nick. "Housing Plan Gets A Mixed Response," Wall Street Journal, August 11, 2011.

What Does This Mean for Nonresidential Construction?

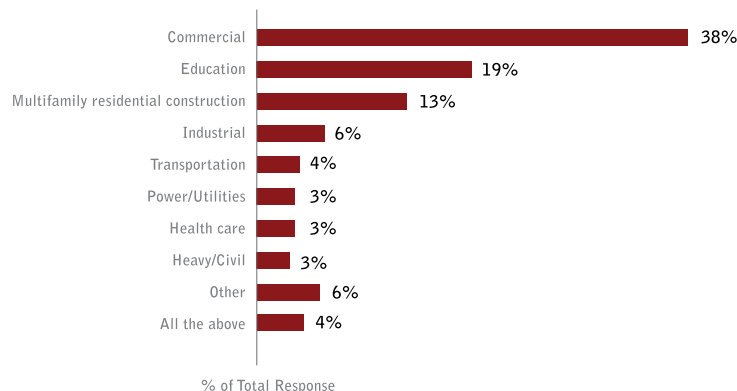
People are a key driver of demand for nonresidential construction in all markets. As such, there has traditionally been a link between residential and nonresidential construction. As population increases, so, too, does residential construction. As residential construction increases, so, too, does the construction of malls, schools, hospitals, roads and utilities. Now that residential construction is likely to be depressed for years, what does that mean for the demand for nonresidential construction, which has shown some signs of improvement?

According to feedback to FMI's NRCI (Nonresidential Construction Index, Q3, 2011) panel, views on the effect of the housing market on nonresidential construction were mixed, with 23% believing the link between residential and nonresidential construction to be broken, 32% believing the link is still strong, and 37% believing the link has weakened.

Can there be an economic recovery for nonresidential construction without a recovery in residential construction?



Which nonresidential markets have been most negatively affected by the weakness in single-family residential construction?



Panelists' views on which nonresidential markets negatively have been affected the most by the down housing market are not as divergent. Commercial construction tops the list, while utilities, health care and infrastructure round out the bottom of the results. As the growth of new developments slows, it is intuitive that demand for some forms of nonresidential construction will slow. On the other hand, factors such as population growth and deteriorating infrastructure are driving demand for other nonresidential construction markets.

As the effect of the housing market on nonresidential construction varies across industries, the condition of the housing market also varies across geographies. By the end of May 2011, the S&P/Case-Shiller Home Price Indices composite of 10 and 20 cities had experienced 33% declines from peak to trough. Each had also experienced 1.5-2% recoveries from recent lows. For their similarities, these composites mask geographic variations. For example, while San Francisco and Tampa experienced index declines of 46.1% and 47.5%, respectively, San Francisco had recovered 14.2% since recent lows, while Tampa had not recovered at all.

Signs of Hope?

While residential construction is in poor shape, signs of a weakening link between residential and nonresidential construction may be a sign of hope. Demographics are driving demand for health care, education and improving infrastructure, which all offer opportunities for growth in nonresidential construction. In addition, all of the above can create opportunities for employment, which in turn, could begin to reinvigorate the economy's circular flow.

On the other hand, who is going to pay for the projects that would fulfill this demand? National, state and local governments have depleted budgets, and while demographics would say that demand is increasing, are consumers willing to pay, either through consumption of services or higher taxes, to cover the costs of investments in education, health care and infrastructure? There is a funding continuum. Some projects will be funded; others will not. With an election year around the corner, an expansive ideological divide and politicians with heels well dug in for a fight, political resolution will come in a way that is protracted and painful and will likely fall short of optimizing economic recovery. ■

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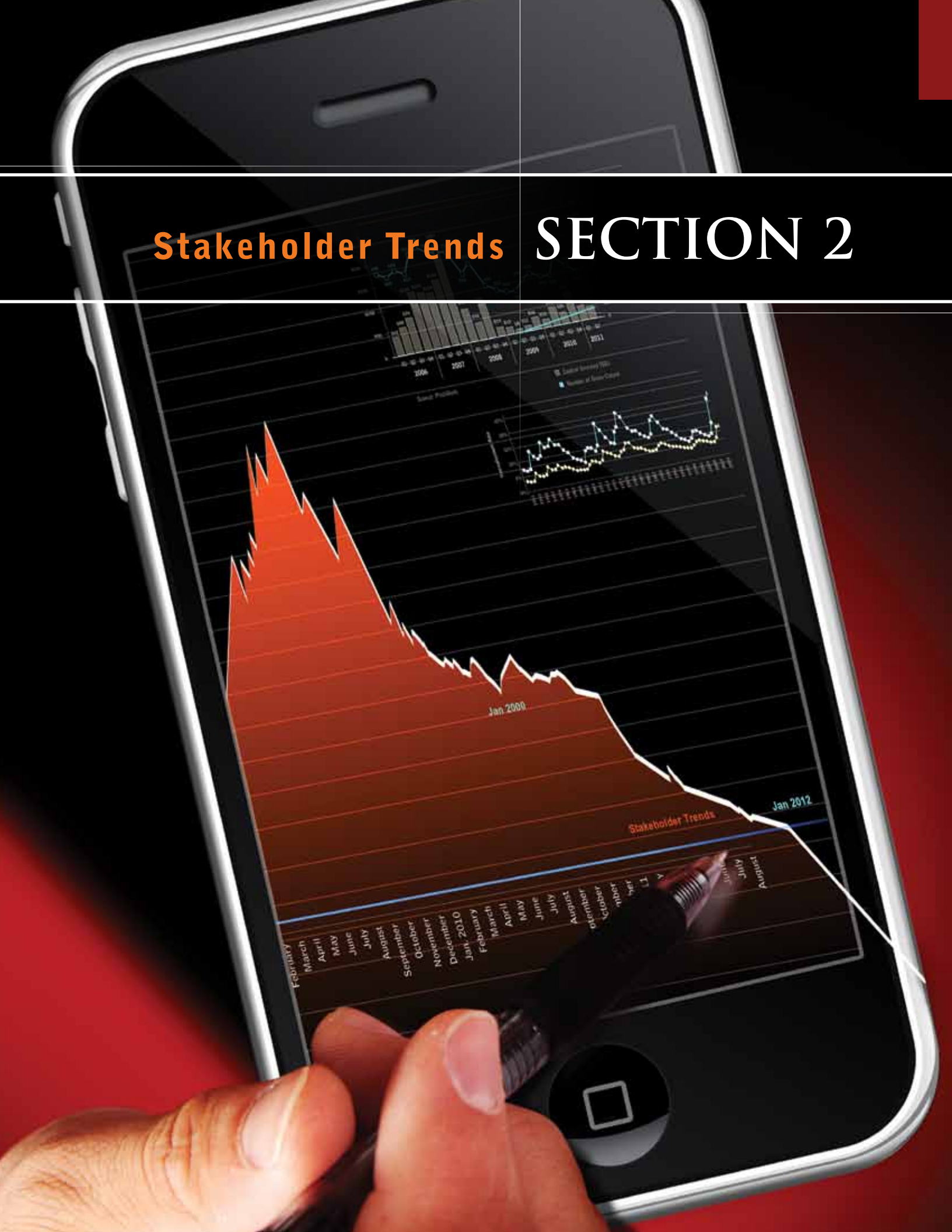
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Stakeholder Trends

SECTION 2



New technology and processes continue to shape the way projects are designed and delivered today. As pressures mount to keep project costs down and increase efficiency, design firms and contractors alike have embraced Building Information Modeling (BIM), lean construction and Integrated Project Delivery (IPD) as tools for more efficient execution. Prefabrication and modularization are becoming more prevalent for trade contractors as they search for production gains as their labor force shrinks. Improving business development processes as well as the results, has become a priority for many companies as they compete for hard-won market share.

In this section, we attempt to paint a clearer picture of the current industry environment for each constituent as we examine these and other more pertinent trends.

Architects/Engineers/ Constructors (A/E/C)

*By Louis Marines, Steven J. Isaacs, Karen L. Newcombe,
Michael Landry, Grant Thayer and Hunt Davis*

Over the past three years, design firm leaders have gone from ensuring survival during a deep recession to guiding firms through an exceptionally slow and flat recovery. No one at this time expects a normal rebound from this recession, and the current pattern of small steps forward alternating with jolts backward, is widely projected to continue for at least the next year.

To maintain our understanding of conditions facing engineers and architects, FMI conducts ongoing surveys throughout the year. Recently, we have conversed with CEOs, presidents and other senior executives of consulting design firms about the greatest challenges facing them through 2012. The six major trends we have identified as a result of these interviews and related surveys are:

1. Project funding
2. Evolving delivery methods
3. Competition
4. Finding and retaining staff
5. Technology driving change
6. Industry consolidation/merger and acquisition activity

Project Funding

The greatest challenge facing firms today, and likely through at least 2013, is finding funding for projects. With the economic recovery moving like a slow-motion roller coaster, CEOs report to us that projects start, stop, are put on hold for indefinite periods, then start again with little warning when funding comes through. Reports on the deterioration of the nation's infrastructure continue to appear regularly, yet little work is expected while tax coffers remain low.

Terry Neimeyer, CEO and chairman of the board of KCI Technologies, Inc., told FMI that, "Our transportation sector used to lead our company in growth and profitability. Today, it lags our other businesses, as project-funding issues have caused many state DOTs to reduce their programs. Given a lack of a robust federal [transportation] bill, the outlook for the future is not promising."

The funding picture is complicated further by pending federal agency budget cuts. An August 2011 analysis by Deltek, Inc. projects that the federal budget for architecture and engineering services will grow slowly between now and 2016, with the current budget of \$8.1 billion expected to rise slightly to \$9.5 billion over the next five years.

While overall construction budgets will be cut by \$2 billion in 2012, two areas will see increases: Health facilities and veterans hospitals will grow from \$1.81 billion to \$3.06 billion, and projects supporting energy initiatives will rise from \$7.41 billion to \$10.47 billion. These numbers align with the perception of the CEOs who spoke with us in the first quarter, many of whom said that health care and energy-related projects seem to have readily available funding.

When federal funds are lacking, can communities find alternative methods of project financing? If those methods happen to include tax hikes, will voters accept those increases? Kenneth M. Wightman, CEO of David Evans Enterprises, Inc., Portland Ore., says, "From a project funding perspective, a good percent of public-sector work is stressed due to the lack of private development. Typically, this development generates tax revenue, which feeds back into local, state and federal budgets, and then back into the agencies who hire engineers and architects. We expect that through 2012 on into 2013, funding for public projects will remain flat. Contributing to this problem at the federal level, the partisan bickering and entrenched positions within Congress are leaving the country unable to create jobs through reasonable tax increases. Transportation infrastructure work is being held up by outdated gas taxes that have not been raised since the early 1990s. Fortunately, the local populaces in Oregon and Washington have supported tax increases when they can see a relationship to specific projects that will benefit their communities or the states'

economies.” This civic-mindedness is not new in the U.S. On November 4, 1930, one year into the Great Depression, voters in the San Francisco Bay area went to the polls and put their homes, farms and business properties up for collateral to support the \$35 million bond issue that financed the construction of the Golden Gate Bridge. Alternative project funding methods continue to gain ground. President and CEO of the American Consulting Engineers Council (ACEC) David Raymond recognizes this shift and calls for continued advocacy of public investment in infrastructure: “As government budgets for public works continue to be constrained, we see growing interest in public-private partnerships (P3s), infrastructure banks, new forms of bonding authority and other mechanisms that facilitate project financing by bringing in private capital, shifting risk and monetizing infrastructure assets. At the same time, we must recognize that private investment alone cannot overcome the tremendous funding gap we have between current levels of public investment and what is needed. Therefore, we must continue to advocate for sizable public investment in core programs to sustain and improve existing infrastructure as well as to leverage public funding to generate supplementary private investment.”

Evolving Delivery Methods

“Delivery methods are evolving – if you do not have full life cycle abilities, you are stuck and cannot have control of the market,” said one of FMI’s survey participants. Although it is not new, design-build is back on the front burner for clients due to the cost savings associated with this method. Public-private partnerships were mentioned in many interviews, but one firm with experience in P3s asserts that the entry costs and risk may be too high for many firms to take on. “Our firm is one of a handful of firms with the funding to be able to get into P3s. The financial risks are high, but we are pursuing it ... The process to get in and the risk you have to cover, the terms and the timing are significant impediments. If you win, it’s great.”

Someone is winning these projects, though cost may not be the only barrier to entry. Terry Neimeyer notes, “The trend of P3s as a way to increase project funding is good. However, P3s tend to exclude many engineers who are not familiar with the large contractors and financiers who make the selection decisions. Regardless, this is a good trend, but we all must remember that P3s will not apply to freeways and require a revenue stream (tolls) to pay out the debt and concessionaire.”

Peter Beck, CEO of The Beck Group, agrees. “P3s have enormous potential, but are typically best for projects of \$300 million and up, where the cost of papering the transaction can be justified.” Peter

suggests that, “We may eventually develop standards like Canada has that allow municipalities to get smaller projects done using P3s. Canada’s standardization of P3 contracts has made this possible, but we have not yet achieved this in the U.S.”

BIM as a design tool will also have large impacts on project delivery, yet it is early in BIM’s development and some executives are uncertain how best to implement it or where it will lead. Many construction managers as well as specialty contractors have embraced BIM, as have enlightened owners who have witnessed the benefits of better clash detection, improved project planning and fewer change orders. In a recent McGraw Hill Construction survey of AGC BIM forum members, Gilbane Building Company “saw a nearly 1,500% return on its BIM-related expenses” on a recently completed 96,000-square-foot data center. “With 1,445 clashes detected before crews even got in the field, Gilbane saw a 43% reduction in anticipated requests for information ... that could have cost the owner roughly \$863,000.”^[1]

Integrated Project Delivery (IPD) continues to gain ground, and Peter Beck offered FMI his perspective on the changes that IPD may bring about: “In our minds IPD is a half-step toward where the industry needs to go. One of the problems we have as an industry is the difficulty of aligning motivations between the disciplines using contracts, a number of disciplines really struggle with sharing the risk of other disciplines – but this is not something we can eliminate. Some of the best firms using IPD now tell me that trust between the disciplines is essential in IPD and most important in the early stages of a project, but people do not want to share their contingency until after they trust each other.”

Beck goes on and adds, “The logical conclusion is to merge disciplines, or form long-term alliances between a particular team and the client. IPD may be a strong driver in bringing this unification about. The cost of investing in acquiring, customizing and developing the database can’t be justified by a single job, and there is no guarantee that your firm will work with that architect again, or that this particular customization and protocol will ever be required in the future. Standardization of IPD would solve this problem, but that is still years away. Therefore, the cost has to be amortized over many jobs to make financial sense. This is where an alliance or merging of the disciplines makes sense. There is an architecture firm in the Midwest that has formed a shared subsidiary with a contractor. Both firms staff it; they pursue one type of work together and are integrated in a functional way to form this successful subsidiary. Trying to align on one project and then dispersing is not the answer.”

1. Buckley, Bruce (2009) BIM at Its Best: Contractors Report Big Returns of BIM Investments. *Constructor Magazine*.

Competition

Firms are seeing prices driven down as competition intensifies. “There is now big competition for projects and more firms than is typical pursue every project. In the past we would see 15 firms pursuing a bridge project in our geographic area; now we see as many as 45 firms competing for the same kinds of projects,” says Ken Wightman. FMI’s survey respondents agree, with design firm executives reporting that competition for projects now comes from all quarters, including firms from other regions, other service sectors and outside the U.S.

Large firms have been seen competing for small bread-and-butter projects, in spite of likely having to take a loss. This brings into greater prominence the need to counter commoditization and find creative ways to differentiate the firm from competitors, put more energy than ever into relationships with long-term clients, and look for problem-solving opportunities that can get a firm in the door earlier or bring the firm into greater public view in the marketplace.

Several executives reported to FMI that they have seen clients make choices based on cost alone that could prove to be costly to them later (i.e., a contract that is too low to complete the necessary work accurately and safely.) Engineers and architects can continue to battle the lure of the too-low fee by maintaining close contact with clients and constantly educating them about what is necessary and realistic for a project to be designed and constructed effectively and safely.

Some firms are turning down long-term projects at reduced fees, opting for short projects that will be over quickly, when better-paying work becomes available. Others are giving long-term clients discounts now with the caveat that this is not business as usual; but all are concerned that as prices are driven down, it will be difficult to get them back to normal again.

A few clients are trying a new way to leverage this heightened competition for their own benefit by conducting electronic “auctions” between firms of similar capability on a project shortlist. The shortlisted firms typically are offered the chance to see how the firms’ fees are ranked on the shortlist. Then they are asked to “bid” against each other online by revising their offers, for the opportunity to move up in the rankings. Some of these are held live, like an eBay® auction, so that firms can see in real time how the rankings change. Will this become a trend, and will bidding of architecture and engineering fees become a predominant process in the nonresidential marketplace, or is it just a few clients taking advantage of a difficult market? The direction of this trend will have a lot to do with the willingness of architects and engineers to participate in this process; so far, we have

not identified firms walking away, primarily due to the ongoing need for new commissions.

Finding and Retaining Staff

As the recession eases, the recruiters have seen their moment arrive and are actively courting the top talent at design firms; firm leaders are equally determined to hold onto them. Some acknowledge that their leadership and staff development efforts have lagged due to the recession and are anxious to get these back on track.

Firms tell us that staffing remains a tremendous challenge at this time. Most firms cut back to their essential staff during the depths of the recession, but now face difficulty finding highly qualified talent for projects as they become available. With the irregular start/stop/start again pattern many projects are going through, firms are also reluctant to hold staff on standby, waiting for project funding that may not come through.

Recruiters are pursuing senior executives and those with specialized training in BIM, energy-efficient design and similar technologies. One COO reported to FMI that even though he is only five years from retirement, he is called repeatedly by recruiters. Another firm is frustrated in attempts to build up an experienced staff in cutting-edge energy modeling; those they train invariably are hired away by other firms. Strong staff engagement and retention policies can help firms hang on to key staff.



Bringing the brightest young people into the design and construction industry is an additional challenge. One executive expressed the fear that once again, the most talented young professionals are leaving engineering and architecture, never to return – there may be people available, but they are not necessarily the top talent that firms need now. The number of annual graduates in engineering and architecture who do not actually enter the professions is believed to be high. The National Society of Professional Engineers (NSPE) says that “only about 20% of those who graduate with a B.S. in engineering in the U.S. go on to become licensed professional engineers.”

Corresponding data for architecture graduates is not available. Architect Matthew Arnold, author of an independent study on architectural licensure, believes the number is approximately 30%.

Beyond simply meeting staffing needs today, there is a large challenge to our industry to understand why the greater number of graduating engineers and architects are choosing other careers, and how to bring the best and brightest minds of future generations into these professions.

Technology Driving Change

Firms are under pressure to keep up with technology and are caught between clients and software companies. Clients, dazzled by what software developers show them, are driving firms to use technologies that do not always do what is advertised – but at no extra cost. One survey participant told FMI, “The software and tech folks are pushing for things that don’t exist yet, leading clients to have high expectations that they can get from us a higher level of technology than actually exists yet. We are caught in the middle.”

Many firms are seeking to fill positions now to prepare for expected future needs in BIM, energy modeling and similar areas, but find that few people are fully conversant, and those they train are poached by others. There is also a need to look beyond this year’s trends and the next software update to identify and prepare for possible long-term impacts of technology on the entire industry.

A CEO in our survey said, “We are trying to enhance what we think about technology; we would like to jump over some increments and get to what is coming two to three years from now. It is a little risky to do this, but we are early adopters and want to take a broad-based approach. In BIM and information management, we are improving to some degree. We are looking for new ways to support project information, new technologies that also help us across the firm for marketing efforts and so forth. You can go online and customize your Nike shoes, so what if I could go online and get a custom brochure,

on demand, for a client in Beijing – on his iPad? We suspect that in one year, the iPad will be a game changer – wait a year or two and see what happens.”

Peter Beck sees not only the immediate benefits technology is offering, but also possibly a future resolution to the shortage of people entering the A/E/C industry. “Technology is definitely driving change and also contributing to commoditization among the sub-disciplines across architecture, engineering and construction. We are also seeing benefits. We are able to do estimating faster and with fewer people, and I expect to see the same happen in design. The hours in production phase will go down, while the time in design development will go up to ensure the necessary level of detail is there. This will help us solve many problems before we get to the field, which will help keep costs down. On a recent \$200 million project, we estimate that we found 4,200 coordination issues before we got to the field that we would not have previously identified in advance. This translates to a smoother job and fewer field engineers needed. Over time, as we all are accustomed to working with these tools, it could result in less contingency held by subconsultants. Fewer man-hours will be required over time, so unless there is a massive increase in the demand for square footage, ultimately – just like banking, insurance, music, publishing and others – we could end up needing fewer people in the industry.”

FMI will follow this trend closely, to see how technology affects future staffing needs as it becomes more deeply embedded in the work of architects, engineers and constructors.

Industry Consolidation / Mergers & Acquisitions

The perception among design firm leaders is that M&A activity is way up. Firms with M&A as a strategy are generally happy with the results and are using it to expand into new markets and bring strong talent on board. One survey respondent said, “We would like to double today’s business and become bigger, more diverse and more geographically spread out. Right now we are predominantly looking for complementary services to those we offer already, firms that have value on their client list, talent and the prospect for a good financial return. We have had a good track record of turning firms around that had potential but were having difficulty managing their firm.”

Terry Neimeyer shares another perspective: “The M&A market has changed from an aggressive market with high earnings multiples to a defensive market with lower multiples and firm owners looking for a way to cash in on their capitalization before it declines any further.” Some firms are seeking strategies that will position them to avoid

becoming acquisition targets. One commented, “We’re 500 to 600 people right now, and we are pretty sure that is not big enough to stay in business down the road. We are looking to grow, and organic growth is only feasible in states where we already have a presence. So if we are going to expand, M&A is probably going to be the right vehicle. We want to grow enough that we don’t get gobbled up.”

A few said that the industry could use some consolidation to clear the playing field of too many firms. One such comment collected during the FMI survey was, “Personally I think the industry is too fragmented. The large firms carry the burden for the small firms. The large firms end up taking on the risk for all the small firms ... Consolidation will turn out to be a net positive for the industry; there are too many small firms right now.”

The outlook for 2012 on into 2013 appears at this time to be a continuation of the slow-moving recovery we have experienced during 2011, with some movement forward and some backslides as markets and economic conditions seek the stability needed to begin an upswing. ■

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General Contractors

By Mike Clancy

As 2011 heads into the history books, many general contractors and construction managers are looking forward to increased demand and a return to normalcy. While in some parts of the country, there is cause for guarded optimism, vertical construction markets nationwide remain challenged. Those firms that have spent the past few years improving their business development and estimating have started to see the fruits of improved capture rates and recovering revenues. Most firms have made deep and painful changes to their cost structures in order to rationalize their overheads to the continued bear market in construction. However, contractors throughout the industry are being generally conservative, making sure that they remain flexible to face whatever new challenges the market has yet to reveal.

Work Acquisition — The Most Important Strategic Challenge

It seems intuitive that work acquisition is a strategic imperative given the current economic environment. However, many general contractors and construction managers have failed to develop strategies and implementation plans that adequately support and clearly demonstrate the importance of their work acquisition efforts.

According to FMI’s “Survey of Construction Industry Business Development Practices,” most firms that have changed their business development approaches have followed the method of increasing the involvement of firm principals and executives in business development. This is an important first step to developing a business development culture. However, a business development culture also requires operations employees (project managers and superintendents especially) to develop relationships with key client personnel, and this is where many firms struggle in implementation. Contractors often express frustration with the business development aptitudes of their operations employees, and many have decided that only a select few have the skills needed to be effective ambassadors for their companies.

Many of these same firms have failed to invest in their operations employees, seemingly expecting project managers and superintendents who have never been asked to act in a selling role before to develop the needed skills organically. Implementing the correct processes, providing the proper training and guidance, clearly defining expected actions and following through with accountability measurements, the business development effort and the acumen of these key

company ambassadors can be improved, leading to better and more frequent negotiated opportunities.

For firms operating heavily in the hard-bid arena, the problem is a failure to bring the same process approach to estimating as is used in project management. Many firms lack consistency in their estimating function, with attendant poor results. In order to improve capture rates, the best organizations are selecting bid opportunities based on a thorough understanding of their ability to win and execute. These best-in-class firms are also ensuring that their estimators spend more time on fewer opportunities, rather than taking a superficial approach to a wide range of projects. In short, those firms that use a focused approach in the bid market are achieving dramatic success compared to their less disciplined peers.

Next-Level Overhead Management

Most contractors have made large and intense cuts in overhead, eliminating discretionary spending and reducing headcount. Yet these reductions have proven insufficient in many cases, leading to repeated cuts as well as the morale and productivity impacts that ensue from this reactive approach to costs. Again, the best firms are taking a different approach. Using annual budgeting with quarterly or monthly updates, these companies are able to forecast personnel needs and profit shortfalls better. This allows these firms to make smart business decisions that support their operations while keeping their people engaged and motivated.

Additionally, many firms have realized that the employees who remain are the elite – loyal, competent and, in many cases, doing the work of two or more people. In these firms, rewards and perquisites are starting to return. Most contractors who suspended 401(k) contributions have resumed them. Firms are ensuring that their incentive compensation plans are in place and aligned strategically with company goals. In addition, training and development budgets gradually are being restored. These efforts are not entirely altruistic, though; they are a rational response to concerns about employee engagement and long-term management succession. Given the demographic challenges of an aging industry workforce and the relative unattractiveness of construction as a career (especially with the hit the industry experienced in this recession), attracting and retaining the very best people will provide a lasting competitive edge to these firms.

Strategy – Flexibility Equals Strength

Historically, general contractors and construction managers who conducted strategic planning developed five-year action plans with clearly defined initiatives. The past few years have demonstrated the



value of flexibility, though. As changes in the industry increase in both frequency and impact, firms whose strategies allow for quick identification of trends and predetermined responses have an advantage over those companies who lack this responsiveness.

Scenario planning has become a vital management skill, as executives have been forced to analyze possible market changes and develop quick reaction plans to meet them. Many contractors have focused on a return to their core – core project types, customers and geographies. Others have achieved positive results by identifying underserved markets whose customers require capabilities these firms already possess.

The attribute all of these successful firms share, though, is an understanding that just because the strategies employed may change during the plan period, there is still an inherent value in the exercise of planning. By reaching down to key midlevel managers in the strategy development process, these firms are able to tap new ideas while increasing the engagement of these employees. Some contractors view strategic planning as an important management succession tool and use the process to identify the thought leaders who will guide the organization in the future.

Conclusion

Many general contractors and construction managers have focused on short-term survival concerns for the past couple of years. These companies are like a man walking while staring at his feet – prone to stumbling and unable to see the dangers (and opportunities) around him. As the industry heads into another challenging year, full of uncertainty, the firms that thrive will be those who raise their eyes periodically to scope out the path ahead. ■

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Heavy Civil Construction

By Brian Moore and Wallace Marshall

Do you need another reason to believe this recession is unlike those we have seen in recent history? It used to be that publicly funded heavy and highway construction was a good market to be in during times of recession. It was reasonably “countercyclical” and maintained decent margins. However, the length and severity of this recession in private construction markets, coupled with public owners’ lack of capacity for funding have meant more contractors chasing fewer jobs and resultant lower margins. Although there is significant need for infrastructure construction and there is almost unanimous agreement that it is the right thing for our nation, politicians cannot come to terms with the amount and method of making these investments. The ongoing resolutions to SAFETEA-LU required because Congress cannot see eye to eye on how to fund the program is indicative of a systemic stalemate. The one positive note to all of the political discussion is that we continue to build a significant amount of pent-up demand, meaning there will always be an infrastructure construction market with lots of needs.

In addition, other changes have made it difficult for heavy-highway and civil contractors to see their way out of these difficult times. Some of the most important market shifts that are occurring include:

- Competitors rushing to the market over the last few years
- Changes in the stability of funding sources and the methods of procurement
- New means of differentiation

These shifts separate the sophisticated (and sometime more profitable) contractor from those stuck in the past.

As funding dries up, state DOTs and other owners tend to focus resources on large, high-impact projects. For contractors, this means fewer opportunities and it tends to attract competitors from outside the market. When there are new (i.e., inexperienced) competitors, it is more likely that some will fail to understand local business conditions that can affect construction costs (labor capabilities/availability, materials issues, regulatory environment, subcontractor quality/stability). This can lead to significant amounts of money “left on the table” at bid time. However, in many cases, these contractors have indeed figured out a way to procure and produce work at a lower cost and, in fact, are earning a profit in your backyard. Many complain that their competitors are “taking work below our cost.” However, those companies continue to exist.

Competition for run-of-the-mill projects is continuing to intensify, even though the rush of contractors that migrated from private construction markets has mostly subsided. Fewer dollars in this market have driven down margins with many companies experiencing losses for the first time in a generation. To keep a core group of resources intact, some companies are employing a strategy of pursuing the large, anchor projects at minimal margin to keep the organization busy. This strategy has been difficult for small- to mid-sized contractors to sustain as the down-market threat from large contractors and international competitors has intensified.

Joint venturing is continuing to be more common because it is a better mechanism to allocate project risk: It allows contractors to expand their estimating capacity and have another set of eyes on the project. To react to threats from larger, better-capitalized competitors, joint ventures allow contractors to pursue larger and potentially less competitive projects by gaining access to someone else’s balance sheet.

Project delivery is evolving. Owners are trying new methods like CM/GC, qualifications-based procurement and public private partnerships (P3s). As public owners deal with budget cutbacks and an aging workforce, they continue to lose key engineering and project management staff. Fewer resources (human and financial) and public pressure to procure work more efficiently are leading public owners to consider methods other than design-bid-build. This trend is likely to continue for the near future as public revenue streams continue to be weak, with little public support to raise taxes or user fees.

Technology has evolved to the point where it affects the bottom line. GPS, lasers and WiFi allow information to flow more quickly to and from the field and allow distributed management and control. Business information systems make it possible for managers to have instant access to data and information and allow them to make decisions quickly.

Almost all companies say that safety is a priority. However, if you really look at how they operate, it is apparent that it is more talk than reality. Today, more and more companies are realizing that they must BE safe in order to qualify for the chance to compete for some work. Safety is beginning to be recognized more often as a potential differentiator by companies that before now had only a superficial interest in it.

Companies seeking guidance on where the market will take them often come to a couple of conclusions. In the near term, it looks like it is going to be a difficult market in which to compete and be successful. However, the long term still looks bright for the market. There will always be a need for civil infrastructure to support our population growth, and this means there will always be civil and highway construction. Our nation recognizes the need and must develop the will to invest in order to see growth in this market again. In addition, the changes outlined above add a new level of excitement and opportunity. As technology and market dynamics bring about change, some will find a way to capitalize. The key is to be one that makes the most from change, not one that complains about it and watches the market pass you by. ■

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Trade Contractors

By Scott Kimpland and Randy Stutzman

Trade contractors experienced many difficult challenges in 2011. Most saw fewer work opportunities, changes in the buying practices of their customers, major cuts in staffing and costs, and declining backlogs. Looking ahead, 2012 will continue to be a challenging year for most of these firms. While we may see a few more work opportunities, the market is not going to return to best of times that many firms experienced between 2005 and 2008. It will continue to be tough sledding in a market characterized by the following:

- Challenges with financing and funding for both public and private projects.
- Limited construction demand in many sectors.
- Hypercompetitive and emotional pricing practices.
- Continued difficulty finding and attracting superstar talent in spite of high unemployment and lower volumes.

To prepare adequately for these changing times and what many refer to as the “new normal,” the most successful trade contractors will be the ones that realize they must make serious changes to the way they manage and run their businesses. If you currently cannot point to several specific initiatives that you are working on to address and meet the demands identified above, you are behind the curve. While it is easy in times like this to pull in your horns, go into a bunker and stop spending money, this is a time where change and investment in change are essential. Nevermore has Jack Welch’s quote, “Change before you have to,” been so timely and appropriate for our industry.

Several specific trends that FMI is seeing with trade contractors that should be driving change and action include the following:

- Move to a buyers’ market for construction services where low price is the priority for the majority of buyers.
- Select serial buyers (mostly health care/hospital groups) using Integrated Project Delivery (IPD) delivery methods.
- Continued emphasis on prefabrication and modularization.
- Many aging owners are facing ownership transfer and management succession dilemmas.

It Is More About Price and Less About Relationships ... But Relationships Still Count

Owners and purchasers of trade contractor services realize that the market is now in their favor, and more buying decisions are based on price. For contractors that historically relied on relationships to get negotiated or shortlisted opportunities with limited competition, competing in this new environment will be difficult. At a time when construction managers’ fees are being sliced to 1% or 2%, you can bet that subcontractor and supplier margins will be strained as well. Trying to sell value, quality and workmanship to customers who want to buy on price will do nothing but create frustration and ultimately lead to poor results. By choosing to target customers and markets that clearly want to buy on price, the trade contractor must be committed to strategies that improve productivity and ultimately allow them to become lower-cost producers. Attempting to manage and execute work the same way they did several years ago, in today’s competitive environment, is a recipe for failure.

Trade contractors that choose to operate on the low-cost provider end of the market can be successful and profitable, but to do so they will need to make the necessary changes and investments to become lower-cost producers. A good example of this is Wal-Mart, a major retailer that strategically chooses to target a market that buys on price.

It is also interesting to note that Wal-Mart is very progressive and innovative, and invests substantial amounts into various initiatives that support its mission of, “We save people money so they can live better.” Being a low-cost producer is not as easy as simply being cheap.

Although the title of this section may have seemed to minimize the importance of relationships, the intent was to overemphasize the increased focus on price in the current economy. Regardless of whether you compete in a pure hard-bid, price-based market or get a reasonable share of opportunities with limited competition, construction is a people business and relationships count. In the hard-bid environment, you will encounter your share of difficult discussions over change orders, possible claims or other contentious situations. Your chances of finding fair, reasonable or win-win solutions are much higher when these situations involve people with solid relationships.

Whether you operate in the hard-bid, select-bid or purely negotiated market, lowering your production costs and becoming a lean, mean, productivity machine will be key. Long gone are the days where the contractor could use conservative production rates, include budgeted monies for contingency, add a nice margin and still get the job. In 2012 the winners will be the firms that can find ways to increase productivity. To achieve these improvements, the most progressive companies will focus on finding and capturing the potential benefits from the following strategies, initiatives and delivery methods:

- Integrated Project Delivery Model (IPD)
- Building Information Modeling (BIM)
- Multitrade prefabrication and modularization
- Lean project delivery or management methods
- Strategic initiatives focused on productivity improvement
- Investment in equipment and/or tools that affect productivity
- Formal leadership and management development programs for field managers
- Technology that directly or indirectly affects labor or equipment productivity
- Strategic approaches to material purchasing and buying

Even if you are not seeing or hearing much about these things in your market or from your customers, you would be wise to study, understand and embrace them and begin thinking about how you might be able to use them to differentiate your firm from the dozen others that you bid against every day. In some cases, the benefit might be a direct cost savings; in others the benefit may be a way to deliver on what appears to be an impossible schedule (using traditional techniques); and yet on others, the benefit may be in how you can use it to solve a unique or challenging customer problem. For example, FMI sees a number of the industry-leading trade contractors getting profitable

work as a result of their IPD, BIM and/or leading-edge prefabrication capabilities. While price and economics are still important in these situations, the competition is limited and typically includes good firms that also understand how to price their work appropriately.

While none of these strategies or tactics are the perfect answer, and in some cases thrown around simply as marketing buzzwords, there are contractors that have figured out how to make them true game changers. These firms will put significant distance between themselves and the rest of the herd that discounts these ideas and waits for things to get back to normal.

Progressive Owners Are Driving New Models and Delivery Methods

On the other end of the spectrum, we will continue to see a very small but highly successful group of trade contractors that can (or are perceived to be able to) adapt to changing delivery methods, technologies and trends that select owners and general contractors are looking for. Many of these opportunities are in the health care/hospital sector where the projects are large, schedules are tight, and risks are high. In this environment, established contracting and delivery methods have failed, and these owners see opportunities to eliminate many of the traditional problems by using untraditional approaches and delivery methods.

These progressive owners understand that not all trade contractors are created equal, and some can bring creative, innovative and unique solutions to the table if engaged and involved early in the design and construction process. This is the underlying driver behind the IPD model. It focuses on early selection of a collaborative project team, including the general contractor, designers and key trade contractors. In the purest form of IPD, this team is aligned around a common set of project goals and, in some cases, includes contractual commitments that reinforce this alignment and define success. The objective is to have all stakeholders share in the success or failure of the project. When the project goals are achieved, the various team members share in the success. When the project goals are not achieved, the various team members share in the risks. There are numerous examples of highly successful projects that have used this approach and probably a fair number where it has been less than successful. To be most successful heavily depends on an active owner that can be involved in expediting day-to-day project decisions, competent and trustworthy stakeholders, common values regarding teamwork and collaboration, and often a willingness of the stakeholders to step outside the comfort zone of a traditional relationship or contract.

These same owners are also realizing that traditional construction means, methods and delivery models create problems that add cost and do not optimize construction schedules. As a result, they are pushing the lean philosophy, utilizing tools like BIM and supporting multitrade prefabrication that allows significant portions of a project to be manufactured off-site in a controlled environment. While most of these ideas and practices have been around for several years, the better owners, CMs, GCs and trade contractors are finally beginning to get past the learning curve and realize significant improvements in the following areas:

- Schedule reduction and earlier revenue generation by building owners
- Productivity improvements
- Reduced rework
- Fewer field conflicts and crisis coordination in the work area
- More collaboration and less conflict between project stakeholders

Trade contractors that choose to operate in this environment must be very progressive in their business development efforts, as securing this type of work will require a deep understanding of marketing, strong presentation skills and the ability to create professional presentations that clearly differentiate unique capabilities. In most cases, the owners on this end of the spectrum will be serial buyers who continually buy construction services and see the value that a progressive trade contractor can bring to the construction process. Trying to operate in this market and the pure, competitive-bid market at the same time will be next to impossible, and many midsized trade contractors that have played both sides of the fence when demand was high will be forced to move to one end or the other.



The Evolution From Stick Building to Prefabrication, Manufacturing and Modularization

Historically, most buildings were stick-built, where each piece of construction material was delivered, handled (multiple times) and ultimately installed one piece at a time on-site. Almost a decade ago, progressive mechanical contractors began to realize that prefabricating certain mechanical elements in a shop setting could bring many advantages, including improved productivity, better safety and schedule benefits. More recently, many electrical contractors and some framing/drywall contractors have taken advantage of similar advantages from prefabrication and building in a controlled environment. In late 2010 and 2011, we began to see a number of innovative examples of multitrade prefabrication, where the mechanical, electrical and framing trades teamed up and manufactured building elements in a fabrication facility located in close proximity to the project. Many of these examples involved prefabricated headwalls in hospital settings where mechanical, electrical and framing scope converge.

Other examples involving fabricated bathroom pods for hospitals or college dorms are also gaining popularity. A great example is the Miami Valley Hospital project where the Skanska Construction and the key subs' success story went viral. Not only is much of this fabrication work being done in temporary facilities at or near the job site, but we also are beginning to see manufacturing companies that build complete bathroom pods in a factory, shrink-wrap and ship them to the construction site. Once on-site, the pods are lifted into place; a few quick and simple electrical, piping and HVAC connections are made; and the shrink-wrap is removed. Installed is a fully operational bathroom with a key in the door, flooring, wall covering, granite countertops, a shower curtain and a fresh roll of toilet paper ready to go!

In Europe and other parts of the world, prefabrication and modularization construction methods have proven to be very successful. Expect to see this trend in the U.S. accelerate as owners demand shorter schedules, labor supply becomes more and more of a challenge, and traditional construction approaches prove less and less successful in certain scenarios. The benefits that can be realized from prefabrication are too significant for this trend to be ignored.

It Is Easier to Get Into This Business Than It Is to Get Out

Over the past several years, there have been a number of unexpected events in the construction industry. The aging of baby boomers was not one of those. It has been expected for decades and is now upon us. Baby boomers (those born between 1946 and 1964) number about 79 million people. By contrast, the following generation (usually referred to as Gen X and including those born between 1965 and 1980) numbers only 46 million people. Baby boomers have been shaping the culture since their arrival, so why should ownership transitioning be any different? They are currently between 48 and 66 years old, and their retirement is just beginning, but the impact is already significant. In the next 10 years, the vast majority of senior management teams will have to be replaced. As one FMI client was quoted, “It seems like I spent the first half of my life trying to build the value of the business; now it looks like I might spend the second half trying to transition out of it.”

Transitioning a successful trade contractor was once rather straightforward. The goal was to pass the business to the next generation of family members at as low a value as possible. Since revenues, margins and net worth were relatively low, this was not a difficult task. In the past 15 years, this model has changed:

- In the late 1990s, consolidators, utilities and private equity companies started buying successful trade contractors. Owners who previously could not spell EBITDA were now arguing add backs and multiples. In short, they had active third-party buyers with cash.
- As children had more choices, passing the business to family members became the exception rather than the rule.
- While the concept of selling to employees is attractive to many owners, they do want to achieve fair market value for their firms.

Before the downturn, internal transfers were becoming difficult. High earnings, net worth and owners' expectations made it almost impossible to transition ownership to employees in a timely manner. As revenues, profits and bonding requirements have lessened, employee buyouts have actually become easier to achieve. Owners have also been reminded that we are still a cyclical industry. This may be the only good thing to come out of the downturn.

Third-party buyers have become much more sophisticated and strategic in their actions. While there is still a market for good trade contractors, those in most demand are focused on the following sectors:

- Energy and power
- Energy efficiency
- Industrial construction and maintenance
- Infrastructure
- High percentages of recurring revenue
- Other sectors with high barriers of entry

The majority of trade contractors are not salable to a third party and will ultimately be transitioned to employees in some manner.

One factor has remained constant. The biggest challenge in transitioning ownership has always been and will always be in the area of management succession. A long time ago, it was said that if you have a business that cannot operate without you, you do not have a business, you have a job. This is still very true. Finding, training and retaining top senior managers will be the biggest challenge that most trade contractors will ultimately face.

Conclusion

As mentioned in the introduction of this section, 2012 will most certainly be a year of challenge and change for trade contractors. At this point, the market appears to have bottomed out with some evidence of a slow recovery beginning to happen. The good news is that construction is still an \$800 billion-plus industry in the U.S., and demand for trade contractors will still be significant. As in any competitive industry, those that are progressive, willing to change and capable of adapting will get their share of this work and ultimately control their own success and destiny. ■

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Publicly Owned Contractors

By Curt Young

The outlook for many engineering and construction (E&C) firms has been muddled by the deep malaise affecting the global markets. Most E&C firms experienced a significant decrease in both volume and profitability in 2010, reflecting their struggles in working through a weak backlog. The performance of publicly traded E&C firms has improved in recent months, however, as many firms have successfully right-sized their businesses and refocused on areas of strength and opportunity. In fact, the earnings of nearly 60% of the publicly traded E&C companies tracked by FMI rose during their last 12-month reporting periods.

As a whole, these E&C firms, which include architectural and engineering (A/E) companies, general engineering and contracting firms, and specialty contractors, experienced median year-over-year revenue growth of 4.5% and median year-over-year EBITDA (earnings before interest, taxes, depreciation and amortization) growth of 5.8%. The stock price of the companies comprising these E&C segments plummeted by 48.7% on the median in 2008. However, since December 31, 2008 to July 31, 2011, the share prices of these E&C firms have risen notably and climbing on the median by 22.1%.

Residential homebuilders continue to suffer as high foreclosure rates, weak economic conditions and tighter underwriting standards have depressed demand and kept existing housing inventory at relatively high levels. Despite record-low interest rates, housing starts have remained at an anemically low, seasonally adjusted rate of 580,000 and can be expected to remain at a depressed level until inventory works off and real job growth ensues. For purposes of comparison, the long-term annualized rate for housing starts exceeded 1,500,000 prior to the Great Recession. Such depressed conditions have been brutal for homebuilders. The revenue of the 16 publicly traded homebuilders tracked by FMI has declined by a compound average annual rate of 25.2% over the past five years (i.e., total drop of more than 75%), with most firms realizing continued losses over this period. However, the stock prices of homebuilders bounced off lows reached in late 2008 and have increased more than 45% since – signaling that the roughest stretch for these stocks may be over. Despite the recent recovery, homebuilder stocks are still down more than 75% from their July 2005 peak.

Demand for basic construction materials has contracted in recent years, reflecting the broad slowdown in the economy. The fiscal year revenues of the 16 construction materials firms tracked by FMI were down by 1.7%, on average, representing a significant departure from

the robust growth rates experienced in the earlier part of the previous decade. The decline in revenues has adversely affected earnings, as evidenced by the 14.0% average annual decline in materials producers' EBITDA over the past three fiscal years. The punishment to materials producers' stocks occurred in 2008, however, with prices falling by more than 40% in that year. Since December 31, 2008, stock prices, on average, have recovered by approximately 20%.

Economic conditions have also been difficult for building products firms. During the past five years, more than half of the building products manufacturers and/or distributors tracked by FMI have experienced a decline in revenues and/or earnings. Results have improved for these firms recently as reflected by median year-over-year revenue and EBITDA growth of 3.9% and 4.6%, respectively. The stock performance of building products firms also suggests a turn of fortune. After suffering a median decline of 38.1% in 2008, building product stocks have rallied by 54.0%, thereby recouping most of their losses.

Public E&C Company Groupings

As indicated on Exhibit 1, next page, the public firms in the E&C industry are divided into five groups:

1. Architectural, engineering and environmental consulting firms (A/Es)
2. Construction contractors (contractors)
3. Basic construction-materials suppliers [construction aggregates, cement, and asphaltic and cement-based concrete] (materials)
4. Residential homebuilders (homebuilders)
5. Building products firms (building products)

For better comparative analysis, the contractor group and the building products group were divided into subgroups. The contractor group was divided into engineering and general construction (general E&C contractors) and specialty contractors (specialty), whereas, the building products group was divided into building products manufacturers (manufacturers) and building products distributors (distributors).

Publicly Traded Engineering and Construction Companies

Architectural, Engineering and Environmental Firms

AECOM Technology Corporation
The Babcock & Wilcox Company
Ecology & Environment, Inc.
Energy Solutions, Inc.
Fluor Corporation
Foster Wheeler AG
Hill International, Inc.
Jacobs Engineering Group Inc.
KBR, Inc.
Michael Baker Corporation
Tetra Tech Inc.
TRC Companies Inc.
Shaw Group Inc.
Stantec Inc.
URS Corporation

Construction Materials Firm

Ameron International Corporation
CEMEX, S.A.B. de C.V.
Continental Materials Corporation
CRH plc
Eagle Materials Inc.
Heidelberg Cement AG
Holcim Ltd.
Lafarge SA
Martin Marietta Materials Inc.
MDU Resources Group Inc.
Monarch Cement Co.
Texas Industries Inc.
Titan Cement Company S.A.
Trinity Industries Inc.
United States Lime & Minerals, Inc.
Vulcan Materials Company

Contractors

General E&C

Aecon Group Inc.
Balfour Beatty plc
Bilfinger Berger SE
Bouygues SA
ENGlobal Corp.
Flint Energy Services Ltd.
Granite Construction Incorporated
Helix Energy Solutions Group, Inc.
Hochtief AG
Kajima Corp.
Lend Lease Group
McDermott International Inc.
Obayashi Corp.
Primoris Services Corporation
Skanska AB
SNC Lavalin Group Inc.
Sterling Construction Co., Inc.
Tutor Perini Corporation
VINCI S.A.
Willbros Group Inc.

Specialty

Black Box Corporation
Chicago Bridge & Iron Company N.V.
Comfort Systems USA Inc.
Dycom Industries Inc.
EMCOR Group Inc.
Global Industries Ltd.
Goldfield Corp.
Great Lakes Dredge & Dock Corporation
Insituform Technologies Inc.
Integrated Electrical Services, Inc.
Layne Christensen Co.
MasTec, Inc.
Matrix Service Co.
North American Energy Partners Inc.
Orion Marine Group, Inc.
Pike Electric Corporation
Quanta Services, Inc.
Schuff International, Inc.
WPCS International Inc.

Homebuilders

Avatar Holdings Inc.
Beazer Homes USA Inc.
Brookfield Residential Properties Inc.
DR Horton Inc.
Hovnanian Enterprises Inc.
KB Home
Lennar Corp.
M/I Homes, Inc.
MDC Holdings Inc.
Meritage Homes Corporation
NVR Inc.
Pulte Group, Inc.
Ryland Group, Inc.
Standard Pacific Corp.
Taylor Wimpey plc
Toll Brothers Inc.

Building Products Firms

Manufacturers

AAON Inc.
Acuity Brands, Inc.
American Woodmark Corporation
Apogee Enterprises, Inc.
Armstrong World Industries, Inc.
Griffon Corporation
Headwaters Inc.
HNI Corporation
Hubbell Inc.
Ingersoll-Rand Plc
Interface Inc.
James Hardie Industries SE
Lennox International, Inc.
Louisiana-Pacific Corporation
Masco Corporation
Mestek Inc.
Mohawk Industries Inc.
NCI Building Systems Inc.
OMNOVA Solutions Inc.
Owens Corning
PGT, Inc.
Quanex Building Products Corporation
RPM International Inc.
The Sherwin-Williams Co.
Simpson Manufacturing Co., Inc.
Stanley Black & Decker, Inc.
Trex Co. Inc.
Universal Forest Products Inc.
US Home Systems Inc.
USG Corporation

Distributors

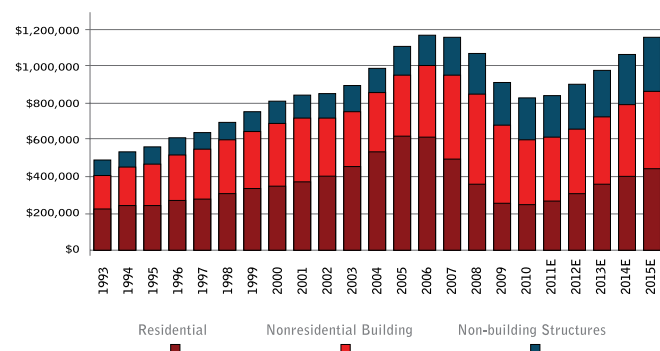
Beacon Roofing Supply Inc.
Bluelinx Holdings Inc.
Builders FirstSource, Inc.
Fastenal Co.
Huttig Building Products Inc.
Interline Brands Inc.
Lowe's Companies Inc.
The Home Depot, Inc.
Watsco Inc.
Wolseley plc
W.W. Grainger, Inc.

General State of the Economy and Outlook for the Future

Total construction put in place in the U.S. declined for the fourth consecutive year in 2010, falling from \$901 billion to \$818 billion (see Exhibit 2 below). The decline was almost entirely the result of the contraction in the nonresidential building market. In 2010 nonresidential building construction contracted by more than \$80 billion (18.6%), whereas nonresidential construction declined by more than \$2 billion (1.0%), and construction of non-building structures (i.e., roads, infrastructure, utilities, etc.) declined by less than \$1 billion (0.3%). FMI is projecting modest growth in residential and non-building construction in 2011 and 2012. The non-building construction market has been relatively stable the last couple of years, with annual growth rates ranging from slightly less than 0% to greater than 3%. The residential market, on the other hand, has been extremely volatile, experiencing 12% to 19% positive annual growth rates between 2003 and 2005, which drove residential construction up from \$451 billion to \$618 billion, and 19% to 30% negative annual growth rates between 2007 and 2009, which drove residential construction down from \$620 billion to \$252 billion.

U.S. Construction Industry
Total Construction Put in Place (\$ in millions)

Exhibit 2



Source: U.S. Census Bureau; estimates developed by FMI

Residential construction is expected to experience a gradual recovery in the next few years. FMI's Research Services Group is projecting residential construction to climb to \$445 billion by 2015, which would effectively bring the market back to 2002-2003 levels. Any recovery will be fragile and will be highly susceptible to prevailing economic conditions. An aged housing stock, favorable demographics trends (e.g., immigration, maturation of Generation Y, downsizing of baby boomers) and greater affordability should provide a certain level of support to the new housing market in coming years.

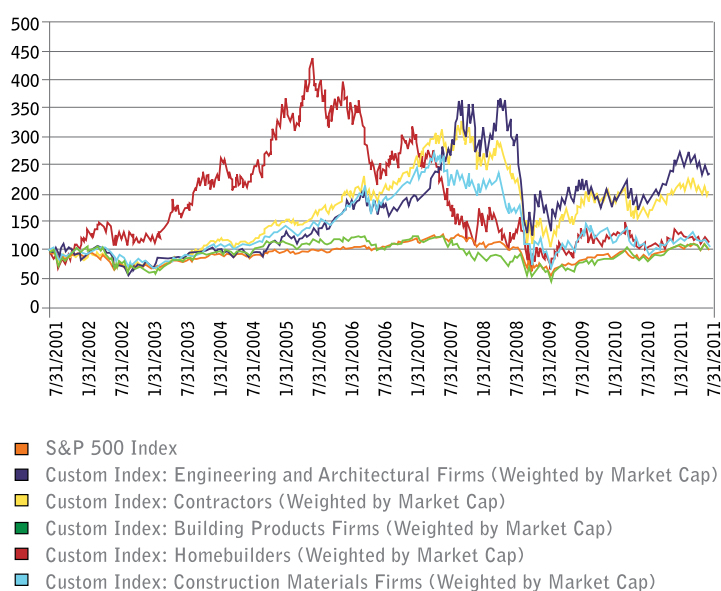
AIA's Architectural Billings Index, a leading indicator of nonresidential building construction, has improved significantly since the beginning of 2009. However, the index, at 46.3 in June 2011 remained below 50.0, signaling continued contraction in the construction markets (i.e., a score above 50.0 indicates an increase in architectural billings, whereas a score below 50.0 indicates a decrease). Considering the index leads construction spending by nine to 12 months, nonresidential construction activity can be expected to decline until at least early 2012. The downturn is negatively affecting certain subsectors, including lodging, manufacturing, office and commercial construction, to a much greater degree than other subsectors, including health care and education, which have experienced a much more modest downturn thus far. Non-building construction, which has been aided by federal stimulus and an improved economy, is expected to remain healthy during the next couple of years, with expected growth rates in 2011 and 2012 of 3% and 5%, respectively.

Construction Industry Stock Performance

The graph below plots the performance of FMI's five major E&C indices versus the S&P 500 over the past 10 years.



Public Company Indices vs. S&P 500 Index, July 2001 - July 2011



Source: Capital IQ

With the exception of building products firms, publicly traded E&C firms have experienced a significant amount of variability compared to the S&P 500 over the past 10 years. Between July 2000 and August 2005, the market capitalization of homebuilders increased by an astounding 700%; however, between September 2005 and November 2008, homebuilders incurred dramatic losses that wiped away most of the gains amassed earlier in the decade. Since November 2008, the market capitalization of homebuilders has increased more than 25%. Engineering and architectural firms', contractors', and construction material firms' stocks have also experienced a tremendous run-up, with market capitalizations skyrocketing between 2003 and 2007. These segments gave up most of their gains in 2008 and have generally been trending upward since. Despite this volatility, A/E firms and contractors have significantly outperformed the S&P 500 over the past 10 years. Between July 2001 and July 2011, \$1,000 invested in the S&P 500 would have grown to \$1,067, whereas, that same \$1,000 would have grown to \$2,308 if invested in A/E firms and \$1,994 if invested in contractors. As shown, the stock market performance of residential homebuilders, construction materials firms and building products firms has been similar to that of the S&P 500 over the past 10 years.

General Valuation Issues

Although privately held companies dominate the E&C industry, an evaluation of public firms establishes some benchmarks of performance within the industry for both public and private companies. Furthermore, the concerns and strategies of public firms usually reflect general trends in this market. Public E&C company stock pricing can also provide some guidelines for valuing privately held firms in the industry.

Architectural, Engineering and Environmental Consulting Firms

The A/E group experienced respectable year-over-year median revenue and earnings growth, at 4.6% and 2.5%, respectively. Firms that experienced year-over-year revenue and earnings growth include AECOM, Ecology and Environment, EnergySolutions, Tetra Tech, Stantec and URS. AECOM, a diversified global engineering firm focused on the transportation, facilities and environmental markets, exhibited particularly strong performance, with respective revenue and EBITDA growth rates of 17.4% and 23.4%. Ecology and Environment, a \$150 million environmental consulting firm headquartered in Lancaster, N.Y., and Tetra Tech, a \$1.6 billion engineering firm headquartered in Pasadena, Calif., also exhibited strong year-over-year performance. Fiscal year EBITDA margins ranged from a low of -1.8% (TRC Companies) to a high of 14.5% (Stantec). The groups' median and average fiscal-year EBITDA margins were respectable at 6.9% and 7.0%. On the median, ROE, often regarded as the ultimate measure of financial performance, was rather unimpressive for the group at 11.0%. Of the companies in the A/E category, Babcock & Wilcox, a clean energy technology and services firm that spun off from McDermott in 2010, experienced the highest ROE last year at 36.8%. TRC Companies had negative net income last year and, consequently, experienced the lowest ROE in the group.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	8.1
TEV/EBIT	9.8
P/BV	1.7
P/E	16.1

Median Valuation Multiples (July 31, 2001 - July 31, 2011)

	RANGE		MEDIAN
TEV/EBITDA	5.0	14.4	8.8
TEV/EBIT	5.9	16.8	8.3
P/BV	1.1	3.5	1.9
P/E	10.8	27.2	18.5

As shown, the A/E group's median EV/EBITDA (8.1x), EV/EBIT (9.8x), price-to-book value (1.7x), and price-to-earnings (16.1) ratios were near their long-term levels, which suggests that markets do not foresee a substantial change in the performance level of these firms in the near future.

Prominent M&A Transactions

KBR, Inc. (NYSE: KBR) acquired Roberts & Schaefer Company from Elgin National Industries, Inc. for approximately \$290 million on December 21, 2010. Roberts & Schaefer Company engages in the design, construction and commissioning of bulk handling and transportation facilities for power, minerals and mining, oil and gas, and industrial processing industries in the United States and internationally. Founded in 1903, the company is based in Chicago, Ill.

Tetra Tech Inc. (NasdaqGS: TTEK) acquired BPR Inc. for \$157 million in cash on October 4, 2010. The purchase price includes cash of \$117 million and earnout payments of \$40 million upon the achievement of specified financial objectives. For the last 12 months, BPR reported revenues of \$170 million. BPR Inc. provides engineering consulting and construction services. Its services include building design, renovation, cleanrooms, construction management, structural engineering, illumination, project management, civil, maritime engineering, and mechanical and electrical engineering. It serves clients in institutional, manufacturing, pharmaceutical, educational, chemical, petrochemical, aluminum, mining and governmental sectors. The company was founded in 1961 and is based in Quebec City, Canada.

WS Atkins plc (LSE: ATK) entered into a definitive merger agreement to acquire The PBSJ Corporation for approximately \$280 million in cash on August 1, 2010. The PBSJ Corporation provides a range of program management, planning, design and construction management services to various public and private-sector clients. The company offers its services to state and local government clients, including various state departments of transportation, water utilities, local power generators, wastewater treatment agencies, environmental protection agencies, schools and colleges, law enforcement agencies, judiciary, hospitals and other health care providers as well as to a variety of private-sector clients. The PBSJ Corporation was founded in 1960 and is based in Tampa, Fla.

AECOM Technical Services, Inc., a subsidiary of AECOM Technology Corporation (NYSE:ACM), acquired Tishman Construction Corporation for approximately \$230 million in cash and stock on July 14, 2010. Tishman generated revenues of nearly \$1 billion in 2009. Tishman Construction Corporation, through its subsidiaries, provides pre-construction and construction services in the United States. Its projects include arts and culture, building renovations and interiors, commercial, convention centers, sports and leisure, K-12 and higher education, gaming, government, health and life sciences, historic renovations, hospitality, residential, retail and restaurant, technology and transportation. The company was founded in 1898 and is based in New York, N.Y. FMI's Investment Banking Group represented Tishman Construction in the transaction.

Construction Contracting Companies

General E&C Contractors

The midsize general E&C contracting company, as determined by the median of the 20 firms in that group, had revenues of approximately \$4.8 billion in 2010. Vinci S.A., the French-based firm, generated the largest volume last year, with total revenues of \$45.8 billion. The vast majority of Vinci's revenue is generated in Europe. Tutor Perini was the largest U.S.-based contractor included in this year's survey, generating revenues of \$3.2 billion.

On average, general E&C firms' revenues grew by 12.8% last year; however, seven out of the 20 members experienced a drop in revenue. The majority of the firms also achieved increased EBITDA year over year, with several firms experiencing a large jump in profitability. Median ROE for the group was 10.1% although ROE varied substantially among group members. From an overall financial performance standpoint, SNC Lavalin and

Skanska have fared the best of the general E&C companies over the past year or so. General E&C stocks were battered in 2008, and many firms have still not recouped the losses that were sustained. The stock prices of several firms in the group, including Aecon, Bouygues, ENGglobal, Helix Energy Solutions, Sterling Construction, Tutor Perini and Willbros, are still down more than 40% since year-end 2007.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	6.6
TEV/EBIT	8.1
P/BV	1.5
P/E	14.2

Median Valuation Multiples (July 31, 2001 — July 31, 2011)

	RANGE		MEDIAN
TEV/EBITDA	3.7	11.5	7.3
TEV/EBIT	5.3	14.8	10.2
P/BV	1.2	3.1	1.7
P/E	7.9	34.7	14.9

As shown, the general E&C contractor group's median EV/EBITDA (6.6x), EV/EBIT (8.1x), price-to-book value (1.5x), and price-to-earnings (14.2x) ratios were below their long-term levels, which suggests that the next couple of years will continue to be challenging for many of these firms.

Prominent M&A Transactions

Tutor Perini Corporation (NYSE: TPC) acquired Frontier-Kemper Constructors, Inc. from Deilmann Haniel International Mining and Tunneling GmbH for approximately \$110 million in cash and debt assumption on June 1, 2011. Frontier-Kemper Constructors, Inc. is a general contractor that specializes in heavy civil and mining underground construction. Among other activities, the company builds tunnels for highways, railroads, subways and rapid transit systems; and shafts and other facilities for water supply and wastewater transport. The company was founded in 1965 and is headquartered in Evansville, Ind. FMI's Investment Banking Group represented Frontier-Kemper in the transaction.

Tutor Perini Corporation (NYSE: TPC) signed a letter of intent to acquire Lunda Construction Company from a group of investors for approximately \$150 million on May 31, 2011. Lunda Construction Company operates as a heavy highway construc-

tion company. It operates through two divisions, Heavy Highway Bridge and Industrial. The Heavy Highway Bridge division is involved in bridge construction, pile driving, railroad bridges and concrete work. The Industrial division provides structural steel erection, marine construction, rigging and millwright, project performance and specialty services. The company was founded in 1938 and is based in Black River Falls, Wis. FMI's Investment Banking Group represented Lunda Construction in the transaction.

Tutor Perini Corporation (NYSE: TPC) acquired Anderson Companies, Inc. for \$80.8 million in cash from Roy Anderson III on April 1, 2011. Under the terms of agreement, Tutor Perini will pay \$64.6 million in cash plus \$16.2 million based on Andersons' operating results for 2011-2013. Anderson Companies, Inc. provides nonresidential, residential and industrial building construction services. The company was founded in 1955 and is based in Gulfport, Miss. FMI's Investment Banking Group represented Anderson Companies in the transaction.

Aecon Construction Group, Inc. signed a letter of intent to acquire assets of Cow Harbour Construction Ltd. for CAD 180 million on August 6, 2010. The purchase price consists of a CAD 10 million deposit and a further CAD 50 million to be paid at closing. The remainder of the purchase price will be paid within 90 days of closing by way of a promissory note. Cow Harbour provides construction services for oil sands clients in Canada. The company specializes in mining, environmental reclamation, project management, overburden removal, civil and road construction, mechanical, and general contracting services. The company was founded in 1987 and is based in Fort McMurray, Canada.

Churchill Corp. (TSX: CUQ) entered into an agreement arrangement to acquire Seaciff Construction Corp. (TSX: SDC) for approximately CAD 380 million on May 16, 2010. Seaciff Construction Corp. provides general contracting construction, electrical contracting, earthmoving and heavy civil construction services to public and private sectors in western Canada. The company was founded in 1911 and is headquartered in Vancouver, Canada.

Specialty Contractors

The revenues of the specialty contractors ranged from roughly \$30 million (Goldfield Corporation) to \$3.6 billion (Chicago Bridge & Iron). The mid-sized firms' revenues in this group were up 7.8% to \$883 million. Tighter earnings margins resulted in a decline in EBITDA (2.5% median decrease) and much lower

ROEs (2.1% median ROE). Chicago Bridge & Iron and MasTec were two of the group's best performers, while Integrated Electrical Services, a firm that declared Chapter 11 bankruptcy in 2006 and has generally been unprofitable over the last several years, performed poorly in 2010 and early 2011. The market rewarded Chicago Bridge & Iron and MasTec for their strong performance, with share price gains of 104.6% and 67.0%, respectively, since 2009.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	7.3
TEV/EBIT	9.4
P/BV	1.2
P/E	16.4

Median Valuation Multiples (July 31, 2001 — July 31, 2011)

	RANGE		MEDIAN
TEV/EBITDA	3.7	13.0	7.5
TEV/EBIT	5.5	16.2	11.0
P/BV	1.0	3.1	1.5
P/E	7.7	30.6	17.5

As shown, the specialty contractor group's median EV/EBITDA (7.3x), EV/EBIT (9.4x), price-to-book value (1.2x) and price-to-earnings (16.4x) ratios were slightly below their long-term levels, which suggests that the next couple of years will continue to be challenging for many of these firms.

Prominent M&A Transactions

Tutor Perini Corporation (NYSE: TPC) acquired GreenStar Services Corporation from Eos Partners, L.P. and other shareholders for approximately \$250 million in cash and note on July 1, 2011. The purchase price consists of \$100 million in cash paid at closing, a \$74.9 million promissory note issued at closing, and \$33.5 million of holdbacks to secure certain indemnification obligations plus a structured earnout based on the achievement of certain profitability targets over the next five years capped at an aggregate of \$40 million. The note is payable no later than October 31, 2011. GreenStar Services Corporation reported revenues of \$560 million for the period ended December 31, 2010. GreenStar Services Corporation operates as a heavy mechanical, plumbing, HVAC, electrical and specialty general contractor in the United States. GreenStar Services Corporation was founded in 2008 and is based in New York, N.Y.

MasTec, Inc. (NYSE: MTZ) acquired the remaining 67% interest in EC Source Services, LLC for approximately \$130 million on April 29, 2011. As per the terms of the deal, MasTec, Inc. will issue 5.13 million shares and assume approximately \$8.6 million in debt and a five-year contingent earn-out, payable at MasTec's election in common stock, cash or a combination thereof. The dollar amount of the earn-out will be equal to 20% of the excess, if any, of EC Source's annual EBITDA more than \$15 million. EC Source Services, LLC, together with its subsidiaries, provides construction and engineering services. It focuses on financing, engineering, constructing and deploying overhead and underground extra-high-voltage electrical systems, substations, switchyards and pipelines in North America. EC Source Services, LLC was founded in 2006 and is based in Mesa, Ariz., with additional offices in Houston, Texas, and Stateline, Nev. as well as an equipment facility in Frannie, Wyo.

Tutor Perini Corporation (NYSE: TPC) acquired Fisk Corporation for approximately \$120 million in cash on January 3, 2011. Under the terms of the transaction, Tutor Perini acquired 100% of Fisk's capital stock for approximately \$105 million in cash, subject to a post closing net worth adjustment, plus an earn-out capped at an aggregate of \$15 million based on Fisk's performance over the next three years. Fisk Electric Company had revenues of approximately \$305 million for the fiscal year 2010. Fisk Corporation provides design, installation and maintenance services of electrical, structured cabling and building technologies solutions in the U.S. and the United Kingdom. The company was founded in 1913 and is headquartered in Houston, Texas, with regional electrical division and technologies offices in Carrollton, San Antonio and Austin, Texas; Las Vegas, Nev.; Metairie, La; Miami, Fla.; New York, N.Y.; and Tempe, Ariz. FMI's Investment Banking Group represented Fisk Electric in the transaction.

Quanta Services, Inc. (NYSE: PWR) signed a definitive agreement to acquire Valard Construction Ltd. for approximately \$230 million in cash and stock on October 22, 2010. Under the terms of the transaction, Quanta Services will pay \$118.9 million in cash and an aggregate of approximately 4.5 million of its common shares. Out of the total cash purchase price, \$5 million will be deposited into escrow. On the date of the acquisition, Quanta also repaid approximately \$12.8 million in Valard debt. Valard Construction Ltd., a power line contractor, provides construction and maintenance services in overhead and underground transmission and distribution systems, substations, fiber optics and transmission foundations. The company was incorporated in 1978 and is headquartered in Edmonton, Canada.

Construction Materials Producers

The 16 basic construction materials producers generated median revenue of approximately \$2.0 billion in 2010. Volume ranged from \$114 million for Continental Materials, a manufacturer and distributor of construction materials as well as HVAC products, to the \$23.2 billion worldwide revenues of Switzerland-based Holcim, which has significant cement and aggregates operations in the United States. ROEs remained at some of their lowest levels in several years (average 2.8%; median 4.7%), as, on average, EBITDA contracted year over year by 4.0%. ROEs for the construction-materials producers fell within a range of -8.9% (Texas Industries) to 14.1% (United States Lime & Minerals).

After shedding nearly 50% of total market capitalization in 2008, construction-materials producers' stock prices have only inched up slightly over the last 31 months. On average, share prices have climbed 18.7% for the group over this period. The recovery has not been widespread, however, as several firms, including Martin Marietta (18.3% decline) and Vulcan Materials (47.2% decline), have continued to lose value. Only United States Lime & Minerals has made a substantial recovery from the losses sustained in 2008.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	7.9
TEV/EBIT	12.7
P/BV	1.1
P/E	16.2

Median Valuation Multiples (July 31, 2001 — July 31, 2011)

	RANGE		MEDIAN
TEV/EBITDA	5.3	9.4	7.7
TEV/EBIT	7.4	14.0	11.7
P/BV	0.9	2.5	1.3
P/E	7.5	20.6	15.4

As shown, as a group, the construction material producers' median EV/EBITDA (7.9x), EV/EBIT (12.7x), and price-to-earnings (16.2x) ratios were slightly above their long-term levels, which suggests that the worst may be over for this sector. Many firms in the group are still carrying relatively heavy debt loads from the intensive acquisition and expansion activity that occurred earlier in the decade, and, in some cases, are strug-

gling to maintain that debt, given significantly reduced cash flow. Merger and acquisition activity has picked up in this sector recently, with a number of buyers selectively looking at opportunities.

Prominent M&A Transactions

National Oilwell Varco, Inc. (NYSE: NOV) entered into an agreement to acquire Ameron International Corporation (NYSE: AMN) for approximately \$770 million in cash on July 1, 2011. Ameron International Corporation, together with its subsidiaries, manufactures and sells engineered products and materials for the chemical, industrial, energy, transportation and infrastructure industries from its plants in North America, South America, Europe and Asia. It operates in three groups: Fiberglass-Composite Pipe, Water Transmission and Infrastructure Products. Ameron International was founded in 1907 and is headquartered in Pasadena, Calif.

Cementos Argos (BVC: CEMARGOS) agreed to acquire cement and concrete assets in Southeast United States of Lafarge S.A. (ENXTPA: LG) for \$760 million on May 12, 2011. The assets had revenue of \$240 million in 2010.

CEMEX, S.A.B. de C.V. (NYSE: CX) agreed to acquire the remaining 50.01% interest in Ready Mix USA, LLC from Ready Mix USA, Inc. for approximately \$380 million on October 8, 2010. Closing was to take place in September 2011. Ready Mix USA, Inc. produces and distributes ready mix concrete in the Southeastern United States. The company was founded in 1995 and is based in Birmingham, Ala.

John D. Baker II and Edward L. Baker II signed an agreement to acquire non-core aggregates and concrete block assets of CEMEX, S.A.B. de C.V. (NYSE: CX) for \$90 million on July 8, 2010. The assets include seven aggregates quarries, three resale aggregate distribution centers and one concrete block manufacturing facility in Kentucky.

Residential Homebuilders

The residential homebuilding category in this year's public company report includes 16 homebuilders. The midsize firm had revenues of \$1.1 billion, down more than 17% from the prior year. Volume of the selected builders ranged from \$59 million for Avatar Holdings to \$4.1 billion for Taylor Wimpey. Homebuilders have faced tremendous challenges in recent years and have struggled to reduce inventory during a period of tight credit, high foreclosures and a general unraveling of the 2005/2006

speculative bubble. In July 2011 housing starts were up slightly year over year at a seasonally adjusted rate of 597,000. However, this level remains near the lowest on record.

The difficult environment has been reflected in the homebuilders' financials, as revenue and EBITDA have declined dramatically over the past few years. The average EBITDA margin of homebuilders dropped from 13.0% in 2006, to 3.7% in 2007, to -13.1% in 2008, to -6.9% in 2009 and to -0.6% in 2010. Thus far in 2011, the average EBITDA margin for homebuilders has remained slightly negative. The steep contraction in margins has resulted in median and average ROEs dropping from around 30% in 2005 to extraordinarily negative levels in 2008 (-43.8% to -56.2%). Homebuilders have been able to slow the bleeding in recent months, with ROEs improving to around -3%, over their respective last 12-month reporting periods. Stock prices recovered more than 45% since 2008, but remain a far cry from their July 2005 peak.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	NM
TEV/EBIT	NM
P/BV	1.3
P/E	NM

Median Valuation Multiples (July 31, 2001 — July 31, 2011)

		RANGE	MEDIAN
TEV/EBITDA	NM	10.4	6.6
TEV/EBIT	NM	10.8	6.9
P/BV	0.7	2.4	1.3
P/E	NM	11.0	8.3

The group's valuation multiples continue to reside at the low end of their normal ranges. The median and averages for TEV/EBITDA, TEV/EBIT and P/E were not calculated since a majority of the 16 residential homebuilders did not have meaningful multiples in these categories due to marginal profits or losses. From a long-term perspective, many industry experts expect housing demand to be relatively strong over the next decade due to positive demographic trends and an aging housing stock. However, it appears that it will be at least another year or two before the homebuilding sector begins an earnest recovery.

Prominent M&A Transactions

JH Investments Inc., Oaktree Capital Management, L.P. and TPG Capital agreed to acquire Taylor Woodrow Holdings (USA), Inc. and Taylor Wimpey Holdings of Canada, Corp. (North American Business) from Taylor Wimpey plc (LSE: TW.) for approximately \$960 million on March 31, 2011.

Building Products Manufacturers and Distributors

The revenues of the building products firms included in this year's report ranged from roughly \$160 million (U.S. Home Systems) to \$68 billion (Home Depot). The mid-sized firms' revenues in this group were up 4.8% to \$1.8 billion. Stronger earnings margins resulted in increased EBITDA (7.2% median decrease) and slightly higher ROEs (5.8% median ROE). OMNOVA Solutions and Sherwin-Williams were two of the group's best performers. Despite more than 30% of the group continuing to suffer losses at the net income level, the stock prices of building products firms have come roaring back since 2008. With only a few exceptions, the stock prices of building products firms have risen substantially since 2008 (i.e., on the median, stock prices are up more than 50% since 2008), which suggests that the market is expecting the gradual turnaround in the sector to stay the course.

Valuation Multiples

Median Valuation Multiples (as of July 31, 2011)

TEV/EBITDA	9.8
TEV/EBIT	12.5
P/BV	1.8
P/E	18.5

Median Valuation Multiples (July 31, 2001 — July 31, 2011)

	RANGE		MEDIAN
TEV/EBITDA	5.4	11.1	8.7
TEV/EBIT	7.2	14.6	10.8
P/BV	1.1	3.1	2.1
P/E	10.0	25.0	16.9

As shown, as a group, the building products firms' median EV/EBITDA (9.8x), EV/EBIT (12.5x) and price-to-earnings (18.5x) ratios were slightly above their long-term levels, which suggests that the worst may be over for this sector.

Prominent M&A Transactions

Graco Minnesota Inc. entered into an asset purchase agreement to buy the operations of the finishing businesses of Illinois Tool Works Inc. (NYSE: ITW) for \$650 million in cash on April 14, 2011. The finishing business includes leading equipment technologies and brands, such as Gema powder finishing equipment, Binks industrial pumping solutions, DeVilbiss auto refinish guns and accessories, Ransburg electrostatic guns and accessories, and BGK curing technology. As of 2010, revenues of finishing business are \$305 million. The acquisition will add about 900 employees.

Hellman & Friedman LLC signed a definitive agreement to AMH Holdings II, Inc. from Investcorp, Harvest Partners and others for \$1.3 billion of transaction value on September 8, 2010. AMH Holdings II, Inc. through its subsidiary engages in the manufacture and distribution of exterior residential building products. The company incorporated in 2004 and is based in Cuyahoga Falls, Ohio.

Oak Hill Capital and its fund Oak Hill Capital Partners III, L.P., along with Hillman's management team, signed a definitive agreement to acquire the capital stock of Hillman Companies Inc. from a group of investors, valued at approximately \$820 million on April 21, 2010. The Hillman Companies, Inc. provides hardware-related products and related merchandising services to retail markets. The company serves hardware stores, home centers, mass merchants, pet supply stores and other retail outlets in the United States, Canada, Mexico, Latin America and the Caribbean. The company was founded in 1964 and is headquartered in Cincinnati, Ohio.

Griffon Corporation (NYSE:GFF) entered into a stock purchase agreement to acquire Ames True Temper Inc. from Castle Harlan, Inc. and Castle Harlan Partners IV, L.P. in a transaction valued at approximately \$540 million in cash on July 19, 2010. Ames True Temper, Inc. engages in the manufacture and marketing of non-powered landscaping products for homeowners and professionals primarily in the United States, Canada and Europe. The company sells its products through retail centers that consist of home centers and mass merchandisers; wholesale chains, such as hardware stores and garden centers; and industrial distributors under the Ames, True Temper, Jackson Professional Tools, UnionTools, Razor-Back Professional Tools, Garant and Dynamic Design brand names. The company was founded in 1808 and is based in Camp Hill, Pa.

2011 will likely be another difficult year for publicly held companies participating in the E&C industry. However, this industry has gone through many cycles in the past, and, with total U.S. construction put in place still hovering around the \$1 trillion mark, engineering and construction remains one of the largest and most fundamental industries in our nation's economy. While a meaningful recovery may not be right around the corner, we believe the worst is now behind us. ■

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Building Product Manufacturers

By Porter Wiley and John Hughes

The mood with most suppliers of products and equipment going into the building industry continues to be somber. Our observations last year almost can be repeated verbatim as we look ahead at the 2012 market:

Little good news has surfaced in the last 12 months for most building product manufacturers. The residential building market has slowly begun to stabilize and the nonresidential building market continues to decline before it is expected to stabilize (in 2011). Non-building-infrastructure-related work offers some solace with modest gains, but this market is not the target market for most building product suppliers.

For many building product categories, margins continue to be challenged as manufacturers in a down market are often forced to compete on price to maintain key customers, despite long-term relationships in many cases. As we approach the end of another difficult year for most building product manufacturers, a return to normality in terms of pricing, channel support, staff additions and most long-term discretionary expenditures still appears to be off in the distance.

The only solace to last year's forecast is that "off in the distance" is a year closer this time. A quick look at last year's **Overview** trends follows.

Where Are the Bankruptcies?

As we looked at the continuing downward spiral in the building market, we noted that this precipitous decline did not yield an avalanche of building supplier bankruptcies as one might expect. The early reaction to the market challenges and the unrelenting cost cuts prevented a more noticeable number of failures in the building products industry. We also expect that another factor was that many family-owned businesses made the unpleasant choice to deplete personal net worth to ride out the storm in anticipation of the rebound. Moving into the new year, defaults in the industry are expected to accelerate as the long-awaited construction industry return to prosperity remains long awaited.

Green Drives Innovation

The predicted green growth continued as expected even during the building downturn as the energy efficiency and sustainability motivators have driven a greater share for green construction. As the need for product differentiation also grew, the research and development

efforts continued in the quest to create new products that capitalized on the green movement. With the industry's pace of adoption, it will be years before we see the true results from these innovation efforts. As we look toward 2012, we see the momentum continuing for LEED/green/sustainability/energy conservation activities even with the headwind of reduced government spending and heightened cost consciousness by virtually all public and private buyers of construction services.

Consolidation Activity Returns

Consolidation activity returned and brought back both the strategic buyers and the financial buyers. The emphasis was clearly on building products firms in the long depressed residential market with buyers seeking to capitalize on motivated sellers and lower multiple expectations from the sellers. Recurring revenue operations, firms related to renewables and others with a green bent were the most sought-after firms in the market. Moving forward, we expect that the pace of acquisitions will continue to accelerate, driven by the demographics that provide an inventory of sellers, cash-heavy financial buyers and strategic buyers with an interest in diversification and future market positioning.

2012 and Beyond ...

Doing More With Less

Moving forward from a market perspective in 2012 continues to be much more of the same. Suppliers to the residential market will likely see some modest improvement in terms of new residential building, but with a different mix of homes requiring a different mix of products. Remodeling and additions are also expected to see modest gains for the near future. Barring another financial crisis, nonresidential building and infrastructure construction will remain flat for the coming year. With budget deficits at all levels of government, suppliers will see a shift in the private to public-sector construction ratio, with a corresponding shift in product selection and usage.

What that means to the typical building product supplier is a continuation of the stringent cost controls that have enabled them to survive the crisis of the past few years. Doing more with less has become the mantra for many industry firms with only a fading memory of the good old days that were enjoyed for most of 1997 to 2006. Reduced training budgets, sales force realignments, customer rationalization, limited advertising, trade show space reductions and other discretionary spending will continue to be closely monitored for many industry suppliers. In addition, the hiring that we all so desperately need remains an elusive goal for most firms. Overall, it is still not much fun on the supply side of the building business.

Balance Sheet Repair

One consequence of the prolonged construction slump is that company balance sheets have taken a pounding. Few firms had the foresight or ability to cut expenses as quickly as the market disappeared. The result is that many firms incurred operating losses as they struggled to right-size their business to current demand.

These losses needed to be financed somehow, and a variety of methods were used, including tapping existing credit lines, shrinking the balance sheet to generate cash, and injecting fresh equity, either from existing owners or outside investors.

Many firms were able to tap existing credit lines to cover their operating losses. This short-term fix was simple, but carried with it longer-term problems. Firms found themselves with higher levels of debt and declining revenues. And as credit agreements came up for renewal in a post-housing meltdown world, banks did everything they could to limit their exposure to housing by shrinking credit lines or, where possible, simply not offering to renew. This process is still working itself out, as many firms have high levels of debt and banks seek to limit their potential losses. Contentious relationships between borrowers and lenders are all too common in the sector.

Shrinking the balance sheet to generate cash is a natural occurrence as sales shrink. Less working capital – inventory and accounts receivable – is necessary to support lower sales volumes. The challenge comes when the cash generated from a shrinking balance sheet is used to finance losses rather than pay off existing debt. The result for the firm is relatively unchanged levels of debt with fewer assets and earnings to support that debt. That is a recipe for trouble.

Fresh equity to shore up a balance sheet is the most stable and enduring strategy. Some owners had the wherewithal to do so and reinvested in their company – though in these times that is not an easy decision to make. Outside equity is also an option, but not without its own challenges. With earnings down or nonexistent, equity valuations are low. One would not choose to sell equity cheaply in a historic trough, but for some there is no other option. Even the biggest firms are not immune. Witness the announced \$864 million investment private equity firm Onex is making in JELD-WEN, a multibillion-dollar manufacturer of doors and windows.

Avoiding distress and the bankruptcy court is not the only reason that firms are looking to improve the health of their balance sheets. Nobody knows exactly when, but the housing and construction market will return some day. When it does, capital will be essential to fuel growth. Just as declining sales can produce cash from shrinking working capital, growth sucks up cash, as higher levels of inventory and trade credit are necessary to support greater sales.

The challenge many firms will face is how to flex the balance sheet back up when the market returns. It would be a shame to have survived the pain of the past few years and not have the capital available to ride the market back up when it happens.

Though it is difficult to predict what the lending appetite will be for banks several years into the future, it is almost certain that a senior debt alone strategy is not likely to be sufficient for many in this situation. Junior capital of some sort will be necessary – whether subordinated debt, minority equity or some convertible hybrid security.

The one bit of good news is that junior capital providers like where we are in the building cycle and are looking for opportunities to invest in good companies with balance sheet issues. They understand that many solid, well-managed companies with excellent long-term prospects were caught up in the tsunami that befell the market.

Private Equity Returns

Private equity has long been active in building products for a variety of reasons: very large markets, regional and national consolidation opportunities, leveragable assets, limited offshore threat in many cases and stable earnings. All these attributes but the last one still hold true. Sometime within the next few years, earnings should be rising.

Private equity has taken notice, and demand for investments in building products companies is strong. The challenge is finding company owners willing to sell their equity in the current environment, unless they are forced to (see JELD-WEN above). This has led to a supply/demand imbalance in the building products M&A marketplace, which is driving prices for the few healthy building products companies that hit the market higher. This is an interesting situation, as many PE funds still sit on languishing investments in building products companies they bought prior to the meltdown.

Buy low, sell high is the oldest and wisest of investment strategies. PE firms see where we are in the construction cycle and see now as an opportune time to “buy low.” The challenge is that owners of building products companies see the same thing and ask, “Is now is the right time to sell, or should I wait for better times?” In many cases, the response is to wait, though a variety of factors may lead to a different answer. Many entrepreneurs have deferred their retirement until they can get a better price for their company.

However, deferment cannot go on forever, and the last few years have been no fun. We are left with an interesting market dynamic in which buy-side demand is strong from private equity firms as well as well-capitalized strategic players, and with strong, pent-up, sell-side demand from company owners deferring retirement.

We see a number of things occurring in response to this dynamic. PE firms are extending their traditional mandates to gain exposure to a market sure to experience solid growth. Minority investments, distressed investments, convertible sub-debt and investment strategies other than strict control buyouts are being considered and done. PE firms are also paying higher prices for healthy companies, which when viewed on a forward earning basis may be reasonable. On the other side of the ledger, company owners have come a long way toward moderating their price expectations. The boom years and prices of 2005-2007 are a receding memory.

When the Market Finally Returns

By late 2012, barring another financial meltdown, we should begin to see some positive signs and modest growth in both the residential and nonresidential building markets. With greater revenue through price increases, increased demand and continued cost control, manufacturers should be positioned to return to reasonable profitability levels in the following years, certainly not a return to glory year levels, but considerably better than the past few years.

It is time to start thinking about balancing the short-term need to be vigilant with discretionary spending while beginning to make the investments required to support future growth. Long-overdue capital expenses and internal infrastructure support system expenses will be needed by most industry suppliers to be ready for the market upturn. Not being prepared creates risks that may prove to be costly if you are unable to respond to customer needs; do not count on your competitors also being slow to respond.

One specific risk that we previously noted is your customers' readiness when the market returns. Your success in the recovery period is directly dependent on your channel partners' readiness during this period of renewed activity. These firms will also need to address issues such as working capital, cash flow, staff additions, management controls, business development, training and quality to be in a position to benefit from the recovery. Your direct and indirect support of your customers will increase the likelihood of their success and yours. So not only do you have to be prepared, but also you need to have the whole team ready. Compared to the challenges of the past several years, this should be a much more pleasant and fulfilling challenge. ■

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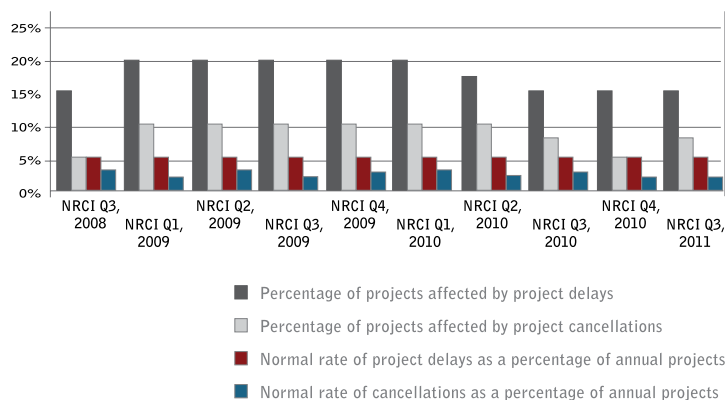
Owners

By Phil Warner

What difference does a year make? Not much for nonresidential construction. While there were signs of growth at the beginning of 2011, that optimism once again has been tempered by reality. The FMI NRCI Index dropped in the third quarter 2011 to 52.4 from 58.7 in the second quarter. Unemployment for construction workers is down approximately 29% since its highs in 2006. Government construction projects are slowing, while private construction projects show only small signs of picking up. Delays and cancellations are about the same as they were in 2010, except now they are less often caused by lack of funding rather than lack of starting or delays in the funding and approval process. Federal and state budgets are in a constant state of emergency and uncertainty, and the electioneering is starting again, so we can be certain the uncertainty will continue. That makes the markets nervous and prevents investment in new properties.

Project Delays and Cancellations, NRCI Q3, 2011

(Delays and cancellations not measured for Q4 2008, Q1 and Q2, 2011)



Is there any good news? Like everyone, we are looking for it; but it seems that any good news comes with a footnote. For instance, it appears to be good news that corporate profits and cash holdings are at all-time highs. One of the most obvious examples is Apple, the maker of iPods, iPads and computers, which at the end of June 2011 had amassed approximately \$76 billion in cash and other short-term investments. (Wall Street Journal, July 21, 2011. "For Apple, a \$76 Billion Dilemma" by Yukari Iwatani Kane.) The financial press reports that U.S. companies are currently holding \$2 trillion dollars in cash.^[2] That is approximately one-seventh of the U.S. national debt or, not coincidentally, about one-seventh of U.S. annual GDP. Moreover, while we are talking in the trillions, \$2 trillion dollars is nearly four years worth of nonresidential construction at current rates, not



accounting for price increases, etc. The point is, that is a lot of money that could be doing something other than being invested in stock buybacks and long-term, low interest bonds.

The good news of all that cash-on-hand is offset by the bad news that it is not being spent on development, new capital equipment, acquisitions or hiring. Why not? Business lacks confidence in the economy. The consumer is not spending because unemployment is high, and, like businesses, consumers are trying to repair their personal budgets after being devastated in the recession. In other words, our country is deleveraging itself.

Banks are beginning to open up a bit and make construction loans again, but with tougher lending criteria. Like housing, commercial real estate continues to face foreclosures and loans that have been "amended and extended," many of which will fail in the next few years. Trepp, a leading provider of commercial mortgage information, reported that problem commercial real estate loans caused 13 banks to fail in July 2011, and another 100 will close by the end of 2011. CRE loans outstanding are decreasing, but only by 2% since 2010. According to O'Connell, Bender & Powers (June 30, 2011), nonresidential loans are slowly coming down but still total \$1.07 trillion. For comparison, that is about 2.5 times the current rate of nonresidential building construction or one-half of the cash held by U.S. companies. Things are getting better, but it will take some time to unwind all of that outstanding debt. Until then, there is a stalemate in the economy, and those awaiting a return of private capital should not be holding their breath.

2. Bloomberg, "Use It or Lose It' Should be the Rule on Corporate Cash," August 24, 2011.

Who Will Break the Investment Stalemate?

Fortunately, some businesses are putting their profits to work as we expect \$343 billion in nonresidential building construction in 2011, down about 34% from highs in 2008, and continued steady improvement in non-building structures of approximately \$222 billion in 2011. That is not the kind of growth spurt we had hoped for in 2011, so we will kick that projection down the road another year. Meantime, caution and quality will be the themes for owners investing in real estate ventures. Only the brave investors and those with long-range strategic plans and cash reserves will be getting back in the markets and taking advantage of low prices for value.

For other investors, vacancy rates are still too high at 17.5%, but these rates may have peaked. Rents are slightly up (0.8% effective yearly change), but net absorption is just barely keeping up with added capacity/completions, which are at the lowest point since 1999. ^[3]

Retail Bellwether

Historically, the housing and retail markets driven by the consumer would lead us out of the recession. If that is still the case, we will need to be more patient. Retail sales rose 0.5% in July, but that was mostly bargain hunting for back-to-school sales. Shopping malls have historically high vacancy rates, and many are going bankrupt and closing. However, according to Chain Store Age (June 28, 2011), “BRE Retail Holdings, an affiliate of Blackstone Real Estate Partners VI L.P., announced . . . it has acquired the U.S. assets and platform of Centro Properties Group and its managed funds for approximately \$9 billion,” which includes “585 community and neighborhood shopping centers and related retail assets aggregating 92.1 million sq. ft. in 39 states.”

Like Willie Sutton, the famous bank robber who said he robbed banks “because that’s where the money is,” the trend for retail construction is going where the money is, which means building or buying malls in more upscale, urban A and B markets. More urban malls are including big-box chain stores like Target rather than competing with them. Big-box stores, such as Wal-Mart Express, Wal-Mart Market and CityTarget stores, are reducing their footprints and moving to the city. If the money is in the large cities, we can expect that is where more people will be as that is where the jobs are, and fewer are looking to own new homes and becoming renters, which leads to an expected growth in multifamily housing.

But that is not where all the money is. Online sales are up 15% or more and competing with traditional storefronts and malls. However, traditional stores are increasing their online presence and offering pickup at local locations. A move that may change the advantage of selling online is a growing number of states seeking to get their fair share of sales tax from online stores, a move being contested by Amazon and others.

Data centers for both security and increased computing power and storage for the increased use of cloud computing have boomed in recent years. This helps online companies like Amazon and Google compete in the electronic business world. While this means more construction in the IT sector in the short term, there will be less need for individual, especially small, companies to build their own IT centers when leasing space is more cost-effective. At the same time, the cost and time to build data centers is going down as equipment suppliers go modular to decrease costs and the time to get up and running. That is one more model for the growing use of modular and prefabricated construction.

Other markets, such as hospitality and office buildings, continue to wait on the economy to grow and absorb inventory before a new building boom will occur. The major activity in hotels in 2011 has been refinancing loans and acquisitions of existing properties. The sector has dropped almost 55% since its highs in 2008 and is now at levels not seen since 2004, with about \$12.4 billion in construction expected to be completed in 2011. Office vacancy rates are stabilizing around 16%, and rents are improving slightly. However, net absorption is down, and the market will not make a solid turnaround until the unemployment rate improves.

Utility construction has been one of the brighter spots this year as new power projects are dominated by wind and solar power, in an effort to meet President Obama’s call to reduce dependence on offshore oil. At the same time, the White House is calling for a reduction of 20% in commercial building energy use by 2020.

Water and wastewater projects have grown, as the EPA estimates approximately 7 billion gallons of clean drinking water are lost to leaking pipes daily. The total estimated cost to replace aged and inefficient water supply infrastructure over the next 20 years is approximately \$334 billion or close to a billion more than current spending levels indicate. Annual water supply construction has grown from \$8.6 billion in 2000 to \$16 billion in 2010, but that is far short of what is needed to address the problem. In the short term, the economic recession has led to flat spending as municipal governments face revenue shortfalls and tight credit markets. However, by 2015, water supply construction is anticipated to grow to nearly \$20 billion annually.

3. Reis data from <http://www.worldpropertychannel.com/us-markets/commercial-real-estate-1/reis-office-market-report-real-gdp-growth-office-rents-office-space-net-absorption-rates-office-space-for-lease-asking-rents-office-rental-rates-in-different-us-cities-4510.php>.

Owner Needs and Construction Trends

What owners need the most is more certainty that their markets will grow and less uncertainty in how the taxation and regulation of their businesses will be affected by the ongoing crisis of confidence in Washington. In the meantime, there are a few trends that are continuing for owners:

- Greener and leaner
- Energy efficient buildings
- Collaborative construction methods
- Full-service and turn-key delivery
- Creative use of technology
(BIM, modular construction, materials)

The main theme is what owners have always wanted – cheaper, better, faster – but the “faster” factor is not the highest priority at the moment. Cheaper does not always mean best value, either, as we learned in a recent survey of contractors. Owners realize this too, but low-bid delivery methods prevail in the current market:

Everyone is doing more with less – less human resources as well as lower profit margins. The economy has produced a great bidding environment for owners relative to pricing; however, it does not come without risks – mainly quality of work and subcontractor solvency. A significant value is placed on contractor prequalification with the hopes that the subcontractors selected will last throughout the project. (Owner/Project Manager, large university system, responding to FMI's 11th Annual Survey of Owners.)

It is our contention and expectation that, once the recessionary thinking abates, owners need to focus more on win-win strategies to work with the best contractors and build the most successful projects. On large, complex projects, that is the case today.

Greener, leaner and more energy-efficient buildings may have suffered some setbacks as fewer new buildings are built; however, even for renovation projects, reducing energy use is one of the primary objectives. According to McGraw-Hill estimates, nonresidential green construction grew to somewhere between \$43 billion and \$54 billion. More owners want LEED-certified buildings, especially apartment complexes, office buildings, public buildings, schools and hos-

pitals. The price differential is going down, and the attractiveness to renters and occupants is going up.

Owners will consistently look to reduce risk and price, and the increasing use of modular construction and prefabrication will favor those contractors becoming expert in these building methods. If even a significant fraction of the \$2 trillion in the coffers of U.S. businesses starts to flow into the economy again, it could mean more jobs and construction just around the corner – with money that will help find innovative and solid investments that prove better and more comfortable than sitting on a pile of cash. ■

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Private Equity

By Hunt Davis and Robert Womble

The private equity industry has continued to remain in a wait-and-see mode while watching for growth indicators in the broader economy. Private equity investments, exits and fundraisings remained consistent with post-financial crisis levels for the first half of 2011. To date, there have been 811 U.S. private equity deals, representing \$60 billion of investment. Private equity interest in the engineering and construction industry has remained selective with questions regarding current economic risks and uncertainties. Sectors that have attracted private equity interest include construction materials, engineering and environmental services, and building products.

Following the depths of the financial crisis and economic recession, private equity activity began to pick back up in the second half of 2009. However, activity has been stagnating at that same level for the past eight quarters. Lower-middle-market and middle-market companies continue to account for the vast majority of activity, as 40% of deals are less than \$50 million, and 87% of deals are less than \$500 million. Returns on private equity investment are beginning to improve with one-year internal rates of return (IRRs) of approximately 19.2% and quarter-over-quarter IRRs of approximately 7.6% (as of 12/31/10). Certain bright spots exist within the industry, including robust exit activity, with the majority of exits occurring in the form of a sale to a strategic buyer. The outlook for exits over the next two to four quarters is promising, given a record-large company inventory (6,000+ companies) in private equity portfolios and the large cash deposits both strategic and private equity firms are carrying.

During the worst days of the downturn, private equity was unable to deploy new capital due to rapidly deteriorating target companies, bid-ask spreads with sellers, economic uncertainty and trouble at home with its own portfolio companies. Out of this trend was born a re-emergence of operational partners at firms and operationally focused funds, if only in marketing. This caused the private equity industry to stockpile record levels of dry powder or capital committed to funds that have not been spent. Currently, private equity investors have accumulated a significant overhang of capital that is burning a hole in the pockets of private equity funds. This money must be invested or returned to investors.

While there has been a mix of positive and negative economic signs through the capital markets and leading economic indicators, the industry remains stuck in a holding pattern at the time of this writing. Extreme volatility in the stock market, the U.S. debt/deficit crisis, the solvency of the Eurozone and fears of further global economic weak-



ness have prompted institutional equity capital to be quite viscous for now. While corporate earnings are looking up, it appears we are going nowhere fast.

As previously mentioned, private equity has been hesitant to enter the engineering and construction industry with the exception of construction materials, engineering and environmental services, and building products. However, there has been some activity of note. Summit Materials, backed by a \$780 million investment from The Blackstone Group, has been aggressive in pursuing acquisitions in the construction materials sector. At the time of this writing, Summit Materials has made four acquisitions in the first half of 2011 and 12 since the beginning of 2010. Summit has been targeting aggregate and concrete operations in the Midwestern United States. Canadian private equity firm Onex Corporation has announced an \$864 million control investment into JELD-WEN, one of the largest window and door manufacturers. Alcoa Inc.'s \$10 million acquisition of Electronic Recyclers International, Inc. is representative of one of the many small- and middle-market engineering and environmental deals that are getting done. Engineering and environmental services firms are in a fragmented but consolidating industry, provide a high value-add to their clients, and are difficult to commoditize.

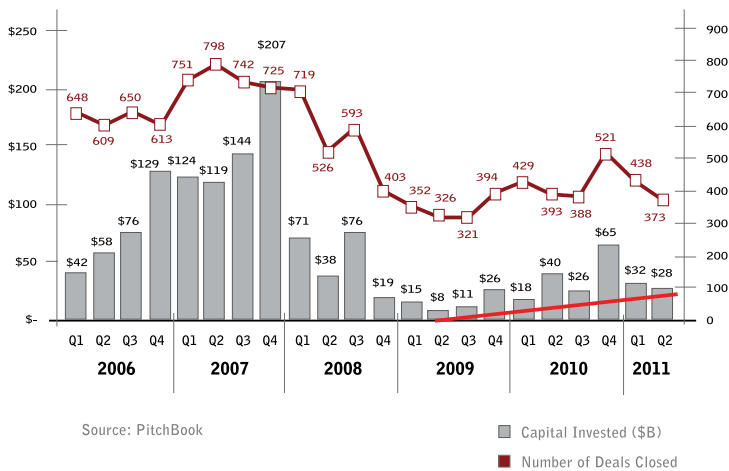
Bonding is the primary difficulty facing private equity firms investing in construction industry firms, particularly contractors. Bonding prevents most firms from taking on high levels of debt, which depresses the amount private equity firms can pay as buyers. Strategic firms with excess bonding capacity have a distinct advantage over private equity funds because they can allow a seller to retain excess capital that is used for bonding purposes, whereas a private equity fund may need that cash to support the bonding requirements going forward. However, there have been great acquisitions by private equity buyers of bonded contractors when a strong commitment is made to learn

about the bonding dynamics, develop appropriate stakeholder relationships and capitalize the firm appropriately.

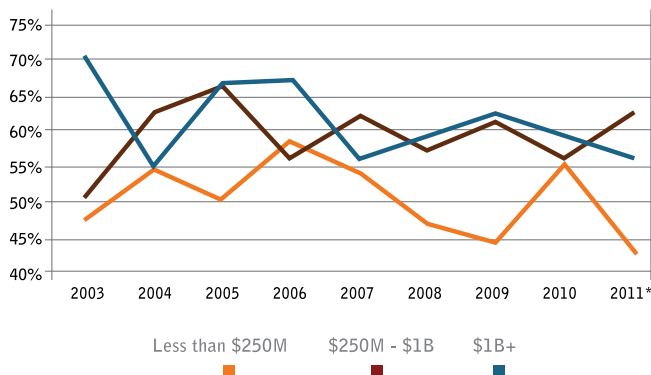
Overall, the engineering and construction industry is an underserved sector by private equity funds. There have been some big wins and some big losses, but there are numerous examples of solid successes in private equity buyouts and investments in our space. They are an appropriate buyer in certain cases, but the challenge is to weed through the thousands of undifferentiated private equity firms to find the ones that are solid candidates and partners. The challenge for private equity firms looking to invest in this space is to learn the language of the industry, from bonding to percent-complete accounting to project-based revenues. When successful, the returns in our industry can be significantly rewarding. ■

Investing: PE Activity Slowed Down in First Half of 2011

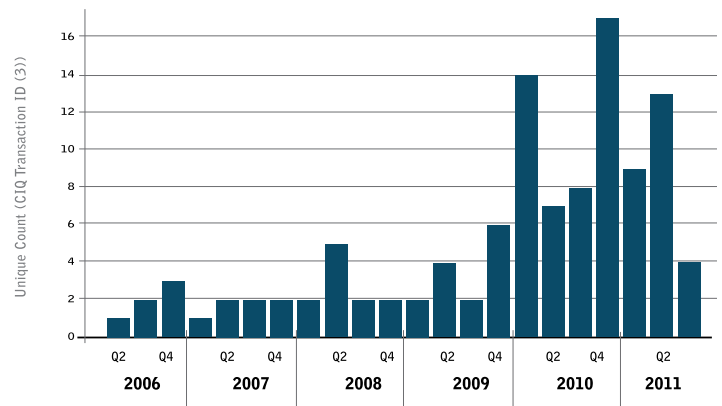
Quarterly U.S. Private Equity Deal Activity and Capital Invested (Billions)



Percentage of Debt Used in Buyout



Announced PE Deal Transaction Count in E&C Industry



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Surety

By Tim Szniewajs

Entering 2012, trends in the surety market continue to resemble the proverbial duck gliding upon the water – serenely peaceful on the surface, but churning like mad underneath. Why do we say this? Despite the challenging fundamentals continuing to face the overall construction industry, the surety market results demonstrate a sector relatively unscathed to date. The chart below provides the summary of the industry's direct loss ratio :

Period	Average Direct Loss Ratio
1st Half 2011	11.8%
2010	13.2%
2009	19.6%
2008	13.3%
Last 5 Years (2006-2010)	16.4%
Last 10 Years (2001-2010)	36.8%
Last 48 Years (1962-2010)	35.7%

Data taken from the Surety and Fidelity Association of America

As the data demonstrate, the first half of 2011 and the entirety of 2010's average direct loss ratio remains exceedingly low by historical standards; in fact, it is one of the lowest direct loss ratios on record. While several factors explain this outcome, two of the most obvious

explanations include 1) strong surety underwriting discipline in the marketplace, driven at least in part by the large percentage of the market controlled by the top 10 underwriters; and 2) the typical 18-to-24 month lag in claim (and subsequent loss) activity which occurs from the initial trough in construction markets. In addition, the elongated decline in backlogs for commercial contractors has provided enough time to allow for overhead reductions to match decreased revenue and profitability.

Based on these dynamics, what does 2012 hold for the contractor community, given the current state of the surety market? FMI believes that 2012 will be characterized by the following trends in the surety market:

- **Discipline and caution in overall underwriting.** Sureties have worked hard to position their businesses over the past several years to withstand the downturn in the marketplace. While direct loss ratios can only increase from their historic lows, the largest sureties will be vigilant in ensuring the losses to their portfolios are minimal through rigorous underwriting standards.
- **Pushback from onerous contract terms and conditions.** While project owners are anxious to take advantage of the down market to obtain exceedingly favorable contract conditions, sureties will continue to provide a firm backstop to zealous owners on behalf of contractors to ensure the appropriate risk allocation.
- **Continued separation of the “haves” and “have nots.”** For those contractors with strong balance sheets and healthy backlogs, surety credit remains ample. However, for the weaker contractors struggling in today’s market, surety credit will be difficult to obtain and may contribute to a further decline in financial position.

Surety underwriters continue to monitor key indicators of the overall construction economy’s health. Particular attention is being paid to the subcontractor community and the negative potential it presents for default or underperformance on jobs. A spike in business failures in this segment could lead to a rapid tightening of the surety market for all participants, should it occur. Additionally, it is important to remember that the surety lines of most insurers represent a relatively small portion of the overall company. Changes in other parts of the insurance market, including continued market volatility and low investment returns, natural disaster and catastrophe losses, mergers and acquisitions, and other insurance industry fundamentals, have an impact upon surety market dynamics.

The fundamentals of surety have not changed despite the roiling that exists in today’s construction environment. For those construction firms looking to obtain surety credit in a difficult economic envi-

ronment, a continued focus on business basics is paramount. These basics include:

- Manage overhead to be sensible and consistent relative to realistic revenue projections.
- Employ best-in-class estimating processes to ensure accurate bids.
- Manage cash conservatively and minimize debt to ensure strong business liquidity.
- Communicate regularly and openly with providers of credit, including banks and sureties. A no-surprises strategy will go a long way towards securing trust and support.

According to Jack Kehl, vice president and Surety Department manager at Willis of Ohio, Inc., “Sureties will need to roll up their sleeves and get in deep with their clients if they are going to remain relevant in the future. The days of sitting back and watching while collecting bond premiums is coming to an end. A real partnership is needed moving forward.”

It is a cliché to say that times have changed and business models must change with them. However, this statement remains true for both contractors and surety underwriters going forward. ■

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Construction Materials

By George Reddin

For construction materials producers (construction aggregates, cement, ready-mixed concrete and hot-mix asphalt), 2011 is déjà vu all over again, with more of the same expected for 2012. There is more optimism for 2013-2015 as we expect improvements in the residential construction sector and more clarity on funding for highway construction.

After the financial markets collapsed in 2008, residential construction came to a halt, creating a huge drop in demand for construction materials. This, together with the inability of the White House and Congress to reauthorize the federal transportation bill, spelled doom for the demand of construction materials in most markets across the United States. Most producers have been expecting a recovery “next year” since 2009 and are again hoping for a rebound in 2012.

While most in the industry believe that we have seen the bottom, few are expecting significant improvements in 2012. The consensus is for more of the same next year, with hope that the country avoids a double-dip recession. The optimism increases beyond 2012, especially if we have a new highway bill and improved outlook for job growth.

The construction materials sector is highly dependent on residential and highway construction. The decline in residential construction has been well-documented and is easily understood by the overall population. We anticipate significant year over year growth in this sector between now and 2015; however, this is starting on a historically low base and results in spending in 2015 that will remain well below the spending levels at the peak in 2006.

Funding for highway construction comes primarily from the federal highway bill and state Departments of Transportation. The status of the efforts to reauthorize the federal transportation bill and the condition of the various state Departments of Transportation (DOTs) is less well-known. Funding for the federal transportation bill expired in September 2009 and has been operating on short-term extensions with no great hope of a significant increase in funding. Additionally, at the state level, the outlook for most state DOTs is dismal, with all but six of the states showing budget deficits.

At the time of this writing, the House and Senate just passed a new stopgap measure to extend funding for six months at the 2011 levels, or about \$20.6 billion. Construction officials and state transportation and airport managers are weary of operating under stopgap authorizations. The new bill is the eighth highway-transit extension since September 2009, when the last multiyear authorization for the pro-



gram expired. The stopgaps have been necessary because Congress has been unable to pass new long-term bills. The main hang-up for surface transportation is a funding shortfall and congressional opposition to hiking the gas tax.

There is significant concern in the industry because of recent efforts in the House of Representatives to pass a reauthorization bill. The House Appropriations Subcommittee on Transportation, Housing and Urban Development approved legislation on September 8, 2011, that would decrease federal highway and public transportation guaranteed funding by 34% from the fiscal year 2011 level of \$41.1 billion to \$27 billion in fiscal year 2012. The reduction is in line with the funding supported by existing Highway Trust Fund revenues over the next six years. This decreased funding would be devastating to the industry and America's transportation infrastructure network.

In addition to challenges at the federal level, most states are facing substantial budget deficits for the fourth consecutive year. According to the Center on Budget and Policy Priorities, the budget gaps total \$112 billion for fiscal year 2012, which starts July 1 in most states, with only six states not projecting a deficit. A survey of 13 state departments of transportation budgets by the Thompson Research Group for fiscal 2011-12 showed an average decrease of 1.9% from 2010-11 levels, compared with a 1.0% increase from 2009-10. States are expected to see a gradual return of state tax collections as the economy rebounds.

On a positive note, in September, President Obama submitted the American Jobs Act (AJA), which calls for \$50 billion for highway, transit, high-speed rail and aviation projects, of which \$27 billion is for highways. According to the bill, highway funds will be distributed to states using the same formulas that were used in the American Recovery and Reinvestment Act (ARRA).

The president also requested \$10 billion to create a National Infrastructure Bank. The National Infrastructure Bank would be modeled after the one proposed in legislation introduced in March by Sens. John Kerry (D-Mass.), Kay Bailey Hutchinson, (R-Texas) and Mark Warner, (D-Va.) Under that proposal, the infrastructure bank would provide loans and loan guarantees that would be secured by toll revenues, user fees or other dedicated revenue sources. Eligible projects would include transportation, water and energy facilities, and would need to cost at least \$100 million, or \$25 million in rural areas.

Public-private partnerships (P3s) will become more prevalent as municipal and state agencies become familiar with this funding mechanism. Voters have been reticent to hand over ownership of roads and bridges to private, and especially foreign, entities. Even if they become more open to this idea, most concessionaires are no longer willing to assume traffic-volume risk, especially in the wake of failures like San Diego's South Bay Expressway, which declared bankruptcy in 2010 after three years of unexpectedly low toll revenues.

Impact on Construction Materials Producers

The construction materials sector has seen a significant drop in volume since the peak, which is defined as having occurred between 2005 and 2006 (2004 for the hot mix asphalt producers). The declines from peak to trough during the Great Recession, in units of cement, aggregates, ready-mixed concrete and hot-mix asphalt, are the greatest since the Great Depression, far exceeding the declines in the other recessions in the last 40 years.

Profit margins in the industry have taken a big hit. The industry has seen significant decreases in volumes, increased costs of operations and an excess capacity dynamic that has led to pressure on average selling prices. The result of these factors is reduced profitability in the sector and increased uncertainty about the near-term outlook.

In most markets, the unit volumes (tons for cement, asphalt and construction aggregates; cubic yards for ready-mix concrete) are down as much as 30% to 50% or more. This is primarily a result of reduced demand due to the lack of spending in the residential and highway construction markets. Material costs have also increased, which means the budgetary dollar now supports fewer units. For example, the cost of liquid asphalt cement has increased as crude oil

prices have increased, resulting in fewer tons of hot-mix asphalt being produced and sold. The increased emphasis on utilizing recycled materials has also resulted in a decline in the sale of virgin construction aggregates.

Margins continue to see pressure due to excess capacity and continued increases in cost. The number of permitted plants in the sector has remained the same; however, the volumes have decreased significantly, leading to the expected supply-demand dynamic result. A small piece of good news is that the product mix in the construction aggregates sector has shifted somewhat to higher-priced products as more thin overlays are performed rather than the construction of new roads. These projects utilize premium products rather than the high usage of base-rock materials in new construction. The result is an appearance of average selling prices remaining stable or even increasing. Continued increased regulation on the industry has also had a material impact on costs.

The overall result is lower volumes and lower levels of profitability with less clarity as to the future of the sector. The stock market recognizes this dynamic, with investors lowering their price expectations for the publicly traded companies in the sector. Many of the construction materials stocks are down 30% or more from their 52-week highs at the time of this writing.

Merger and Acquisition Activity

Merger and acquisition activity has centered around bolt-on, strategic deals in the aggregates, and asphalt paving parts of the construction materials sector. There has been very little activity among the cement companies or in the ready-mix concrete space. The demand for acquiring construction aggregates remains rather steady through the economic cycle, with demand for asphalt producers exceeding that of ready-mix concrete producers at times like these due to the impact of public versus private spending.

The cement industry, which has already been consolidated in the U.S., only sees transaction activity when the large deals take place, and the industry has not seen one of these deals since Vulcan acquired Florida Rock. There have been few transactions in the ready-mix concrete sector due to the significant downturn in the residential homebuilding sector, which left the average ready-mix concrete producer reporting losses in recent years. The majority of the transactions have been small and involved companies that were struggling.

This year has seen numerous bolt-on strategic acquisitions with Summit Materials and Oldcastle once again leading the way. These transactions are often less than \$50 million in enterprise value and are

with targets in existing markets. Most of these transactions center on aggregates and asphalt and may have ready-mix concrete as well, although, the ready-mix concrete is usually not the focus of the deal.

The industry continues to focus on balance sheet management with debt restructuring and capital raising efforts. Many of the major publicly traded companies continued to pursue divestitures of non-core assets. An example is Lafarge's planned sale of its southeastern operations to Argos Cement for more than \$700 million.

Overall, the pace of mergers and acquisitions has been steady over the last two years and is expected to remain that way as we enter 2012. Small strategic bolt-on acquisitions, corporate divestitures and small distress deals should lead the way again. Outside of the U.S., merger and acquisition activity is very active, especially in emerging markets that present growth and consolidation opportunities to buyers. The internal competition for capital within the global construction materials producers remains fierce, and the opportunities in the emerging markets are currently presenting superior return opportunities. There remains a pent-up supply of prospective sellers, and we expect to see increased activity from the traditional buyers once confidence of sustainable growth returns. In the meantime, it will continue to be a challenging environment for mergers and acquisitions.

Near-term Outlook

The near-term outlook for construction materials producers remains heavily dependent upon the following:

- **Avoiding a double-dip recession.** Producers have relied heavily on public spending for the last three years, as the residential and commercial markets are essentially inactive. One of the biggest unknowns remains the future for the reauthorization of the federal highway bill. Many are concerned and doubtful that there will be a traditional five-year reauthorization of the bill and expect the industry to continue to live under the uncertainty of interim funding. This approach to funding is not conducive to long-range planning and spending.
- **State DOT Funding.** The recession has brought an increased focus on fuel efficiency and overall reduction of miles traveled, which has a significant impact on the fuel tax revenues. Additionally, many states face overall budget deficit challenges.
- **American Jobs Act.** At the time of this writing, the President had introduced his jobs bill, which had \$27 billion for highways. This is good news for construction materials producers; however, there is concern about whether or not the bill can pass. One silver lining may be that the House will back off its proposal for reduced funding in its Federal Highway Bill reauthorization proposal.
- **Global economy.** The economy has withstood a number of recent shocks. Another major shock to the economy and stock market could set the construction materials producers back further. Sovereign debt issues will continue to dominate the headlines well into 2012.
- **Absorption of residential inventory.** Material producers do not expect any major gains on the residential front until the existing inventory of residential housing is absorbed. This dynamic leaves most producers feeling that it will be 2013 or beyond before they see any significant gains.
- **Industry consolidation.** Merger and acquisition activity should continue at a steady, albeit modest, pace. Deals will continue to be in the lower-middle market and will be strategic in nature. More owners, who were holding out for a return to peak level profitability, will be resigned to the current market as being the new normal and will move forward with the selling process.
- **Regulation.** Costs associated with OSHA, MSHA and EPA regulations will continue to increase, making it more challenging for the small producers. The larger players will have an advantage with a larger production base to support the overhead commitment to regulatory compliance.
- **Talent Development.** Materials producers will continue to hire talent available due to layoffs in the industry and rid themselves of mediocre employees.

Things appear to have stabilized in 2011 for construction materials producers. More of the same is expected in 2012, with greater optimism for 2013 and beyond, as the residential markets eventually rebound and the federal highway bill funding is resolved. ■

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Construction Outlook

SECTION 3

Construction Forecast

By Phil Warner

In a fast-paced, growth-oriented world, it is hard to accept a slow-paced economy. It just does not suit our multitasked, smart-phone-packing self-image. In the past decade or more, we literally have been wired and programmed for growth. It has become typical – and maybe too facile – to assume 10% growth as part of our business strategies. However, for some time, that has been a minimum starting point to attract investors or retain people with raises and promotions. We must have superlatives! If we cannot have superlative growth on the upside, then everyone starts to see superlative crashes on the downside.

Our “very, very” inflated language reflects our inflated expectations of growth. One of the ways to return to more normal language and growth – a time when one “very” was pretty darn good – is through deflating our expectations. That is why, after dropping 34% since 2007, a forecast of 2% growth in total construction put in place for 2011 and 6% (!!!!) for 2012 can look very good, even though construction put in place has grown on average 3% a year since 1997 in current dollars. However, adjusted for inflation using 2006 constant dollars, that is a drop of 1% for 2011 and only a 3% increase for 2012 for construction put in place.

We would like to simply plug the losses from the recession into our computers, recalculate stock prices and move on. That sort of work can be done in a flash on the super computers traders use in the stock markets, but it takes much longer to turn around a once trillion-dollar construction industry. After all, the economy has suffered multiple wounds from its severe crash; it still needs more life support before it can grow on its own power – that is private investment and business hiring. However, life support is costly, and many are saying it is past time to see if the patient can live without it. It is a difficult decision if the patient is you or your company; but we are using a metaphor for a whole economy of more than 311 million people here. How many of them are we willing to take a risk, and, more importantly, what are the consequences?

When it comes to the economy or the healing of patients, we are impatient. We want a solution right away. We also want to show our strength, even when market prices are dropping. That is why the solemn, downward-facing bear is the symbol of receding markets and not likely going to be replaced with an invalid patient. We like the statue of the raging bull on Wall Street, so it is not likely anyone will commission a statue of a raging inchworm anytime soon. However, that is what our economy looks like right now – an inchworm.

The inchworm economy is creeping forward despite many obstacles in its path. Growth struggles under the weight of 9.1% unemploy-

ment and the millions of uncounted unemployed. Yet the consumer is still displaying enough purchasing power to grow sales 8.2% for May through July 2011 over 2010 rates. GDP is inching along, too, with the latest report of just 1.3%, but not a negative number as we had in 2009. Slow growth is discouraging for the growing number of Americans falling below the poverty line and many more sliding in that direction if they cannot find jobs soon. This is not just an American problem; our concerns for European and Middle-Eastern troubles are just as great. At the time of this writing, it appears the question is not, “Will Greece default but when will it default?” What if it does and “defaults big” as some economists are recommending – yes, recommending? Then, like our recommended deflation expectations, we will have a real deflation of currencies as lenders can expect to get fractions back on their investments.

The well-being of the construction industry is intimately tied to that of the general economy. Although construction unemployment has “improved” to 13.5%, unemployment for construction has been running nearly twice that of the general economy, and it looks like many unemployed construction workers are leaving the industry altogether. Growth for construction depends on expected long-term growth for the economy. Long-term, in that short-lived improvements in retail spending, for instance, do not justify building more stores. The bulk of construction is directly tied to population changes and employment. However, even if there is a growing need for new schools and infrastructure, there must be revenues designated to pay for the construction.

Not all of the job loss is due to recession. Some of it, especially in manufacturing, is lost due to gains in productivity. Just like the demise of the American family farm, U.S. manufacturing has lost more than five million jobs, nearly 33%, in the last decade. Not all of that loss is due to off-shoring; much of it is due to efficiency or changing products. Blame Microsoft, Intel or Google, which are all growing companies, but that growth displaces other products. How many typists or typewriters can you count in your company right now? Where are the drafters and drawing boards? All the gadgets once on a desktop are now incorporated into smart phones and laptops. Even the laptop is in peril of becoming a dinosaur because it is too bulky. To get out of the recession and on to the next boom, we will need new jobs, new industries and new ideas.

Where is the next big idea? Some candidates include sustainable energy, infrastructure and transportation, all areas where old structures and technologies need updating to bring them into the modern world and prepare for generations to come. Infrastructure and sustainability will dominate the new markets, though old markets will still dominate the construction put in place for some years to come.

The American Jobs Act

Chief among the “known unknowns” is the president’s proposed American Jobs Act (AJA). Among the ideas proposed in the Act there is \$105 billion in potential investment for construction and construction jobs. Of that potential spending, \$50 billion is for “immediate investments for highways, transit, rail and aviation, helping to modernize an infrastructure that now receives a grade of D from the American Society of Civil Engineers, and putting hundreds of thousands of construction workers back on the job.” While \$50 billion is still a lot of money, it does not necessarily add up to more than what is already expected to be spent on transportation infrastructure this year and next. In fact, it is equivalent to the funding from the last SAFETEA-LU transportation bill—reauthorized for another six months for the eighth time since 2009 and at the eleventh-hour, two days before expiration.

The Republicans have introduced their own plan for transportation funding that would streamline existing transit bills. The plan is headed by John L. Mica, chairman of the Transportation and Infrastructure Committee. It would cut highway funding next year by \$14 billion over current levels. In this case, both the president’s proposal and the Republican proposals agree on the need to cut red tape. The question is, How will that be done?

The next largest sum of money proposed is \$30 billion for schools and colleges:

- \$25 billion investment in school infrastructure that will modernize at least 35,000 public schools – investments that will create jobs, while improving classrooms and upgrading our schools to meet 21st century needs. This includes a priority for rural schools and dedicated funding for Bureau of Indian Education-funded schools.
- \$5 billion investment in modernizing community colleges (including tribal colleges), bolstering their infrastructure in this time of need while ensuring their ability to serve future generations of students and communities.

Considering it will take at least two years to get projects off the ground and completed, this would represent about 16% of current education construction spending levels. At the rate states are currently cutting school budgets, including teacher layoffs, these new funds would likely amount to somewhat less than expected cuts. What might be just as important is where the funds go, as rural and poor to middle-class school districts will suffer the most with budget cuts. If jobs do not improve, these communities may also suffer the most population loss from people leaving to find jobs closer to urban areas.

The establishment of a National Infrastructure Bank outlined in the AJA proposal will invest \$10 billion as seed capital for the new bank, targeting infrastructure. This is not such a new idea as there have been a number of states with similar infrastructure banks for some years now. If it does indeed attract private investment or stimulate P3 projects, it will help fund needed infrastructure across the country. Potential capital markets, including central banks, pension funds, financial institutions, sovereign wealth funds and insurance companies, have a growing interest in infrastructure investment. The establishment of a U.S. government-operated institution that would provide this investment opportunity through high-quality bond issues that would be used to finance qualifying infrastructure projects would attract needed capital for U.S. infrastructure development.

The needs for infrastructure development in the U.S. identified in the bill now before Congress (Bill H.R. 402) are staggering. They are based on the research and opinions of various respected associations and institutions, most notably the American Society of Civil Engineers (ASCE). Comparing those numbers with current levels of construction put in place for the U.S., we get an idea of how much more construction work will be needed to build infrastructure at the rate suggested by the several reports. (See Exhibit 1. Note: The comparisons are approximate only as CIP categories and identified needs may differ in project type and reporting.) Consider also that the deficit may increase if governments cut spending back to maintenance levels in several of these categories, as has been proposed in recent budget debates.

Another \$15 billion is targeted for a new “Project Rebuild” to put people back to work “rehabilitating homes, businesses and communities.” The funds are designed to help boost construction jobs and revitalize neighborhoods blighted by foreclosures and loss of jobs and rising crime. At this point, it is not clear how these funds will be targeted, but it is an important problem that needs addressing. Detractors will say, “Let the markets work.” The vacant buildings will be purchased when the market is ready and either torn down for new construction or otherwise rehabilitated at owner expense. The question is, How long will natural market forces take before that land is reoccupied and back on the tax rolls?

In the midst of this ongoing climb out of the deepest recession we have ever known, we begin a new election “year.” Most experts on such matters expect another record-breaker for campaign costs, in the \$5 billion to \$6 billion range. The CEO of Starbucks, Howard Schultz, has recently called for a halt on campaign donations until we get the current office holders to start working for the American people and not just special interests and huge campaign donors. At least it suggests not everyone is scraping the bottom of the barrel for funds.

Exhibit 1

Identified Infrastructure Needs

Organization or Institution Estimating Infrastructure Needs	Amount	Time Frame In Years	Annualized Estimated Spending Needs	Est. 2011 Infrastructure Construction Put in Place (CPIP)*	Difference Per Year (Shortfall)	Notes on Needs
American Society of Civil Engineers (ASCE)	\$2,200,000,000,000	5	\$440,000,000,000	\$261,225,369,080	\$178,774,630,970	"To meet adequate conditions."
National Surface Transportation Policy and Revenue Study Commission	\$11,250,000,000,000	50	\$225,000,000,000	\$85,494,464,244	\$139,505,535,756	"For the next 50 years to upgrade our surface transportation system to a state of good repair and create a more advanced system."
Environmental Protection Agency	\$334,000,000,000	20	\$16,700,000,000	\$15,732,037,728	\$967,962,272	"To ensure the provision of safe water."
Environmental Protection Agency	\$202,500,000,000	20	\$10,125,000,000	\$26,937,630,720	\$(16,812,630,720)	"For publicly owned wastewater-system-related infrastructure needs."
Edison Electric Institute, Electric Power Industry	\$298,000,000,000	20	\$14,900,000,000	\$86,417,842,500	\$(71,517,842,500)	"For Nation's transmission system 'in order to maintain reliable service.'"
Total			\$706,725,000,000	\$475,807,344,222	\$230,917,655,778	

*The construction needs identified and CPIP estimated are not entirely comparable, and CPIP represents both public and private spending.
Reference Source: Congressional Bill H.R. 402, January 24, 2011

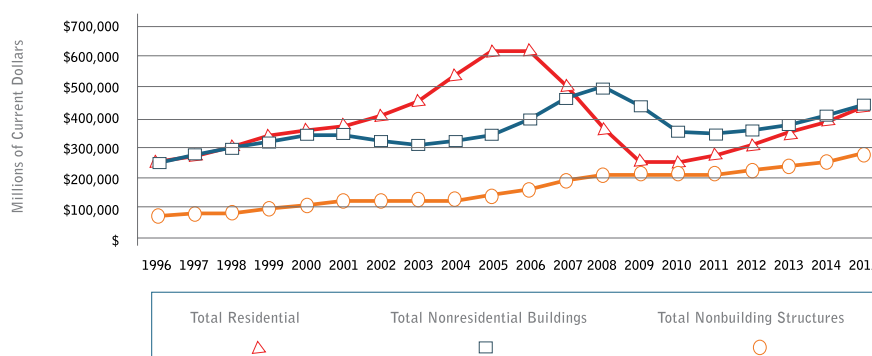
There is also approximately \$1 trillion to \$2 trillion dollars in corporate coffers from record profits not being invested in new capital or jobs or even dividends. When will those funds decide that low or no returns are better than looking for new ideas and business?

Finally, there is the residential sector. Everyone is waiting on housing to lead the way out of the recession. After all, building new housing usually requires new streets, schools, shopping centers and the entire supporting infrastructure. Ironically, it was the housing boom/bust that triggered the recession, and we are pinning our hopes on it also starting the recovery. Our research with industry experts and other data tells us that we can have a recovery without a new boom in new housing construction. It will be much slower, however, and driven by infrastructure and gains in multifamily and improvements in housing. Housing is at its most affordable levels right now, but potential buyers and banks are wary of foreclosures, and, like banks and business, they are trying to rebuild their savings wiped away in the markets.

Ultimately, we will have recovery when we overcome the "fear itself" factor and get back to building and rebuilding our economy and lives. That will be tough to do as long as fear garners more votes than realism or optimism, but we are still a tough industry and people, are we not?

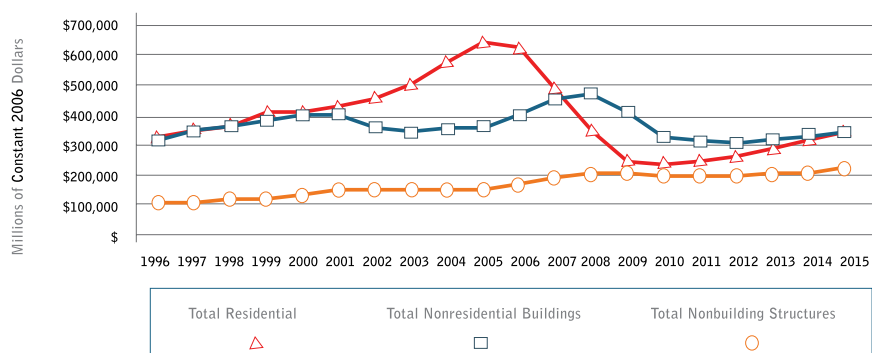
FMI Construction Put in Place, Estimated for the United States

Millions of Current Dollars



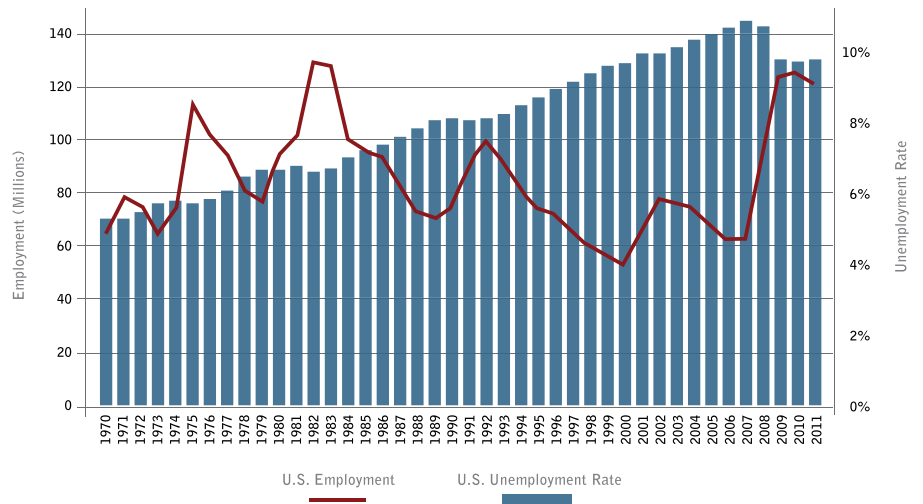
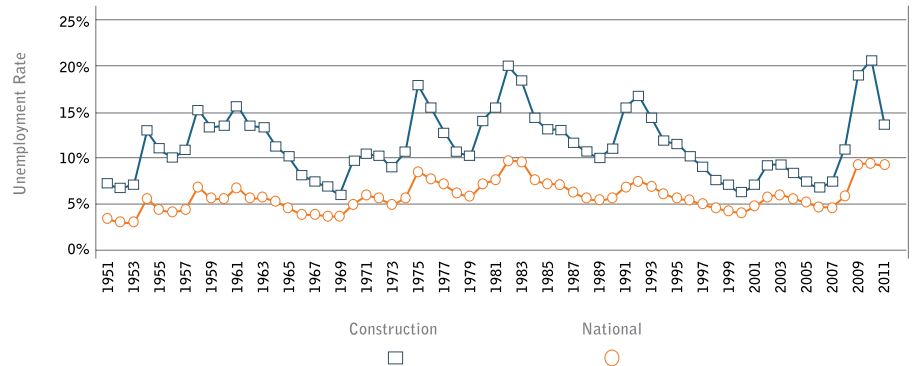
FMI Construction Put in Place, Estimated for the United States

Millions of Constant 2006 Dollars

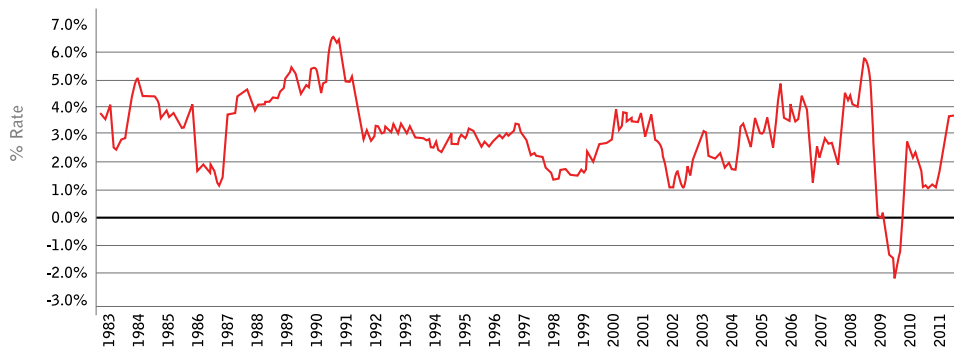


Construction Forecast

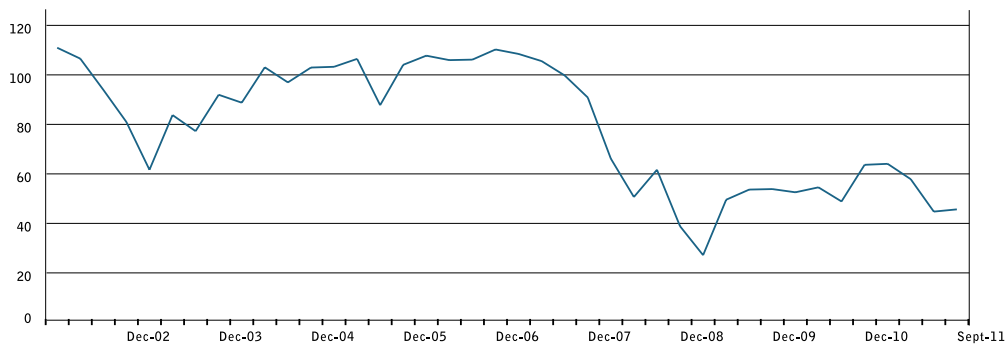
Our construction forecast for the remainder of 2011 calls for a 2% increase in overall construction put in place to \$834.8 billion and a 6% rise in CIP for 2012. Note, we use “millions of current dollars” for our forecast numbers unless noted otherwise. For instance, the CIP changes considerably when we recalculate the data into constant 2006 dollars. That shows the effect of inflation, especially the cost of materials important to construction. Using constant 2006 dollars, we expect a 1% decrease in 2011 in total CIP and only a 3% increase in 2012.



CPI



Consumer Confidence Index



Source: The Conference Board

Residential Construction

Our forecast calls for a 12% increase in residential construction for 2012. While that appears to be a strong recovery, consider housing is just starting to move off the bottom. The total represents stronger multifamily construction and home improvements as well as single-family housing; however, the total of \$303.9 billion is equivalent to 1997 CIP. In constant 2006 dollars, the gain is more like 9% for 2012.

Housing starts for July 2011 were 604,000 units compared with 550,000 for July 2010. New home sales for July were only 298,000 units. However, according to the National Association of Realtors, sales of existing homes fell 3.5% in July for an annual rate of 4.67 million, down from 4.84 million in June 2011. NAHB's vacancy index for multifamily stood at 35.3 in the second quarter of 2011 compared to 41.9 in Q2 2010.

During the 40 years prior to the 2001 recession, housing starts averaged 1.5 million units annually. While this number usually falls during a recession that was not the case in 2001. In 2001, low mortgage rates, house price appreciation and poor performance of other investment alternatives combined to shift personal investment toward housing, which maintained the average level of annual starts at 1.6 million, despite the recession.

Households need jobs before consumption can rise, and businesses need households to consume for hiring to make sense. The vicious cycle perpetuates. Through Fannie Mae, Freddie Mac and the Federal Housing Administration, the government owned 250,000 homes at the end of June 2011, with another 850,000 in some stage of foreclosure.

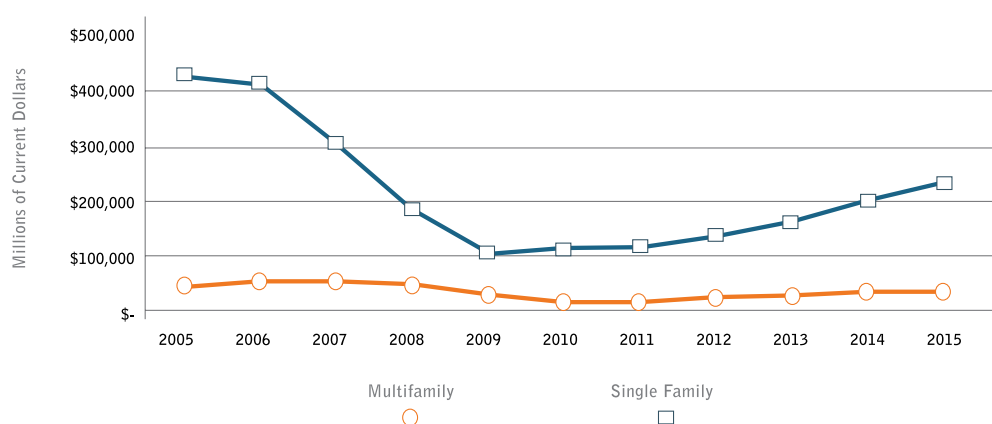
Trends:

- **Total Occupied Units:** According to the Bureau of Census, the vacancy rates for homeowner housing in the second quarter 2011 were 9.2% for rental housing and 2.5% for homeowner housing.
- **Homeownership Rate:** The homeownership rate of 65.9% was the lowest since the fourth quarter 1998. The homeowner vacancy rate of 2.5% was approximately the same as the second quarter 2010.
- **Housing Affordability:** The March composite index for housing affordability was 176.9, up nearly 12 points from the previous years, but down from the February 2011 peak of 193.2. The median home price fell in July to \$138,400, but mortgage rates remain historically low. However, the Case-Shiller Home Price Index increased 3.6% in the second quarter 2011.
- **Household Formation:** Although population is growing, household formation is not keeping pace to the tune of two million fewer households than one would expect given population growth.
- **Supply of Unsold Homes:** According to the National Association of Realtors, "Total housing inventory at the end of July fell 1.7 percent to 3.65 million existing homes available for sale, which represents a 9.4-month supply at the current sales pace, up from a 9.2-month supply in June."

Drivers:

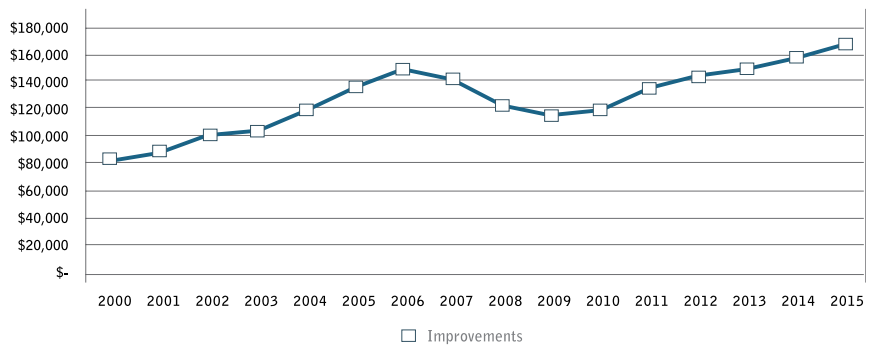
- Unemployment Rate
- ↑ Core CPI
- ↓ Income
- Mortgage Rate
- ↑ Home Prices
- ↓ Housing Starts
- ↑ Housing Permits

Residential Construction Put in Place

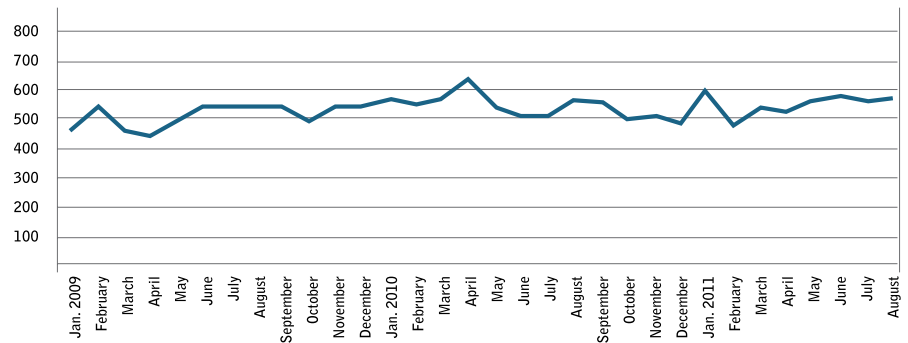


Residential Construction

Residential Construction Put in Place | Forecast of Q2 2011

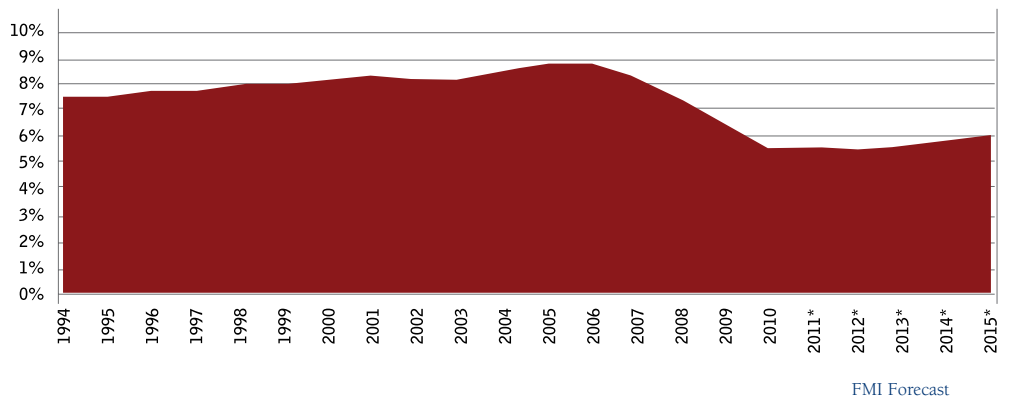


New Privately Owned Housing Units Started

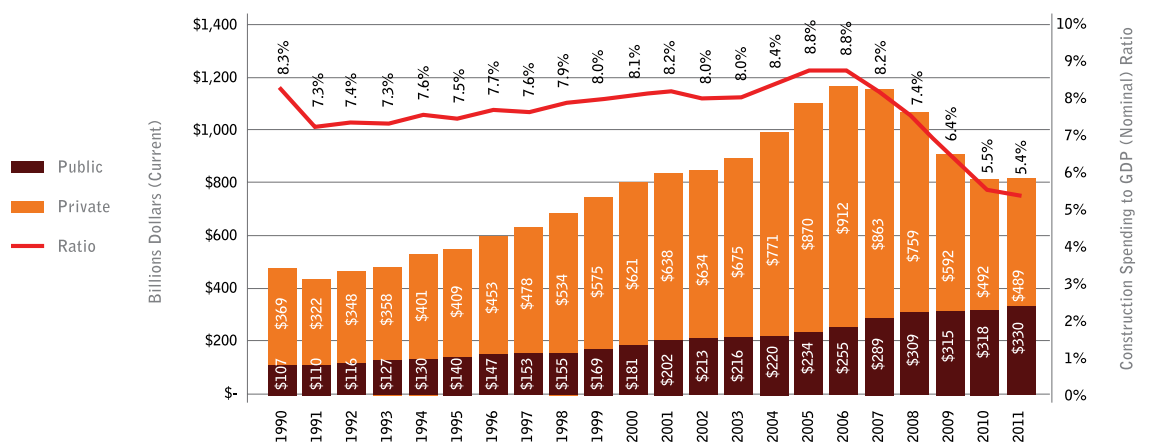


Nonresidential Buildings

Construction as a Percentage of GDP



U.S. Total Construction Spending vs. GDP



Value of Construction Put in Place Seasonally Adjusted Annual Rate (Millions of Dollars) as of Q1 2010	Total Construction Put in Place (Q1 2010)	% of Total Construction Put in Place (Q1 2010)	Total Construction Put in Place (Q2 2010)	% of Total Construction Put in Place (Q1 2010)
Public Construction	304,494	33%	276,270	33%
State, Local and Federal	272,722	30%	246,672	29%
	31,776	3%	29,598	4%
Private Construction (FMI)	583,712	67%	558,523	67%
Total Construction (FMI)	888,209	100%	834,793	100%

Lodging

Lodging construction will drop 16% to \$10 billion and show some signs of growth at 4% for 2012. Occupancy rates have increased slightly to 62.8% and RevPar is up 7.8%, but still not enough to justify new building plans. The focus is on getting finances in order and rejuvenating older properties.

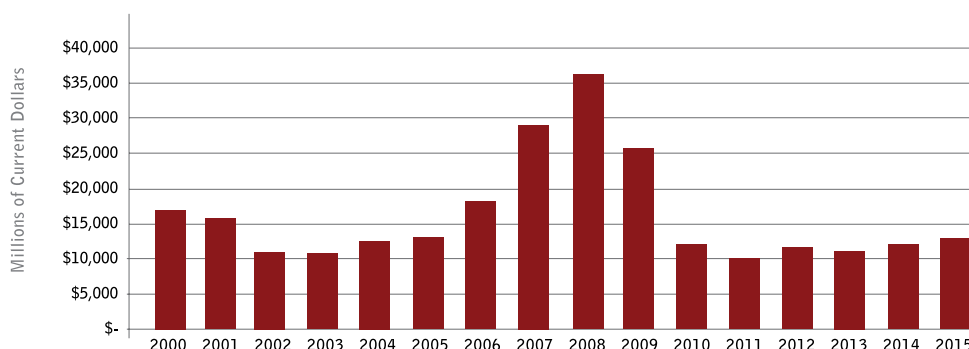
Trends:

- The major activity in hotels in 2011 has been refinancing loans and acquisitions of existing properties. The sector has dropped around 55% since its highs in 2008 and is now at levels not seen since 2004, with about \$10.4 billion in construction expected to be completed in 2012.
- In July 2011, occupancy rose 4.5% to 62.8%. Average daily rate increased 3.2%. Revenue per available room (RevPar) was 7.8% or \$62.63. (STR Analytics, 9/2/11)
- Lodging decreased 16% in 2011 and will increase slightly by 4% in 2012.
- International travel is still steady due to weak dollar.
- Occupancy rates are on the rise.
- Green building is commonplace in remodels and retrofits.
- 2009 was the start of a contraction in lodging construction.

Drivers:

- ↑ Occupancy Rate
- ↑ RevPar
- ↑ Average Daily Rate
- ↓ Room Starts

Lodging Construction Put in Place | Forecast of Q2 2011



Office

Office construction is highly dependent on employment. It will take several years until there is enough employment growth to spur new construction. Office construction will drop another 5% in 2011, compared with a 32% drop in 2010, with some improvement expected in 2012 to get to \$45.5 billion.

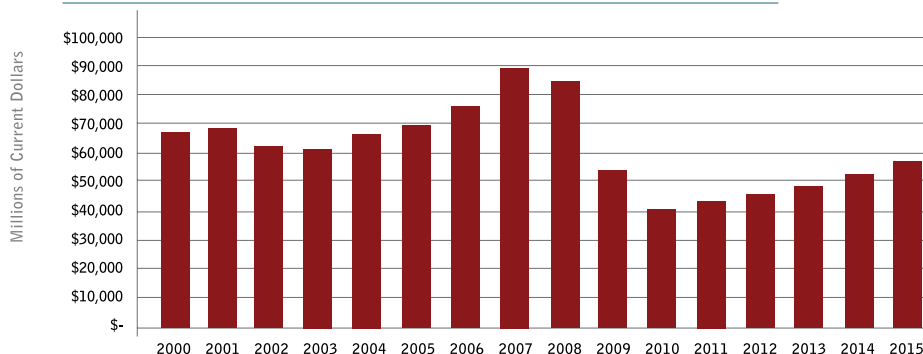
Trends:

- Vacancy rates were 17.5% in the second quarter 2011, showing some signs of improvement. Rents were up slightly, but net absorption slowed in the second quarter.
- Tenants will continue to “trade up” in the near term by relocating or upgrading.
- Unemployment is expected to remain around 9% in 2012.

Drivers:

- ↑ Office vacancy rate improving
- Unemployment rate

Office Construction Put in Place | Forecast of Q2 2011



Commercial

U.S. retail sales rose 0.5% in August, but that was mostly bargain hunting for back-to-school sales. Shopping malls have historically high vacancy rates, and many are going bankrupt and closing. However, according to Chain Store Age (June 28, 2011), “BRE Retail Holdings, an affiliate of Blackstone Real Estate Partners VI L.P. announced . . . it has acquired the U.S. assets and platform of Centro Properties Group and its managed funds for approximately \$9 billion,” which includes “585 community and neighborhood shopping centers and related retail assets aggregating 92.1 million sq. ft. in 39 states.” More urban malls are including big-box chain stores, like Target, rather than competing with them. Big-box stores like WalMart Express, WalMart Market and CityTarget are reducing their footprints and moving to the city.

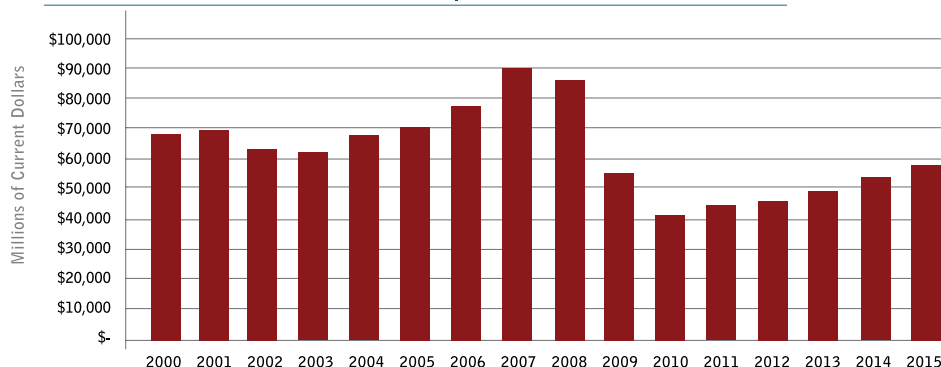
Trends:

- Lower fuel prices may help increase consumer spending on other goods if it holds into 2012.
- Residential building activity increases slowly.
- Commercial construction lags residential by 12 to 18 months.
- Open-air centers are replacing traditional, enclosed malls.
- Vacant big-box stores undergo renovations, such as repositioning for health care and educational purposes.
- Discount and food retailers have major expansion plans for price-conscious shoppers.
- Online retail sales are increasing. Sales for non-store retail sales were up 13.3%.

Drivers:

- ↑ Retail sales
- ↑ CPI
- Unemployment Rate
- Employment
- ↓ Income
- ↓ Housing Starts
- ↑ Building Permits

Commercial Construction Put in Place | Forecast of Q2 2011



Health Care

Health care construction will grow only 2% in 2010 and is forecast to grow just 3% in 2012. This is a drop from the previous forecast. Despite slower growth, the sector remains at a historically high level. That forecast is further supported by the panelists for FMI's Nonresidential Construction Index, as health care construction continues to be one of the strongest components of the overall NRCI index. Nonetheless, the sector is under the strain of financing concerns and uncertainty as to government policy changes just as most all markets are. Special-care facility construction is one area that will help drive future growth. Renovation is another area of growth.

According to a survey conducted by Health Facilities Management magazine and the American Society for Healthcare Engineering (ASHE), 73% of construction is currently for facility renovation and modernization to be greener and more patient friendly and to update IT infrastructure. (*Health Facilities Management, February 2011*.) Among the drivers for updating facilities is the need for greater clinical integration, which requires integration among IT systems and health care providers to deliver efficient patient care.

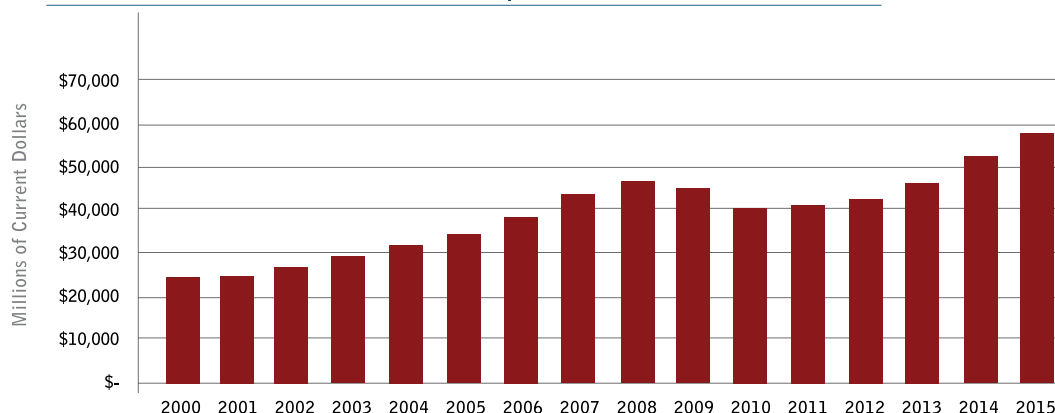
Factors that may slow or delay growth are uncertainties in the fate of the health care bill and bank financing. Slow economic growth coming out of the recession and sharp decreases in the nest eggs of retirees and baby boomers nearing retirement age will lead to more frugality in health care and retirement choices.

Medical office building vacancy rates are expected to decline when the general economy recovers. The increased focus on outpatient care and elective surgical procedures by those with the means to pay in cash will help drive this market. Health parks with several related physician practices have become popular and efficient for doctors and patients, but the health care bill may also affect this trend.

Trends:

- Health care construction grew just 2% in 2011 and will gain another 3% in 2012.
- Aging U.S. population, new technologies, increased single-bed-room demand and increased health care consumerism are shaping decisions about new hospital design and location.
- New building technologies and facility upgrades increase.
- A high percentage of construction is currently for facility renovation and modernization.
- Hospitals face declining revenues due to higher percentage of uninsured and underinsured patients.
- Potential patients forego elective surgery.
- More capital projects will be put on hold due to losses in investment capital.
- Uncertainty over the health care bill's effect continues to delay expansion decisions.
- Focus will be on affordability as potential for lower reimbursements from government-funded health care programs, while at the same time many more people will have coverage.
- Among the drivers for updating facilities is the need for greater clinical integration, which requires integration among IT systems and health care providers to deliver efficient patient care.

Health Care Construction Put in Place | Forecast of Q2 2011



Educational

Education construction put in place was down 13% in 2010, so a reduction of only 2% for 2011 and a forecast of 4% growth for 2012 is welcome. Other than 2010, school construction has been holding up well during the recession, but the current cuts in state and federal budgets threaten another downturn. If the AJA or at least the education part of it passes, there could be \$30 billion available for school construction in selected, needy districts across the country. For 2012 school construction should hit \$91.1 billion in CPIP, but it is not certain if or how much the potential new funds from the AJA would be additive or, in some cases, replace state money for schools already planned.

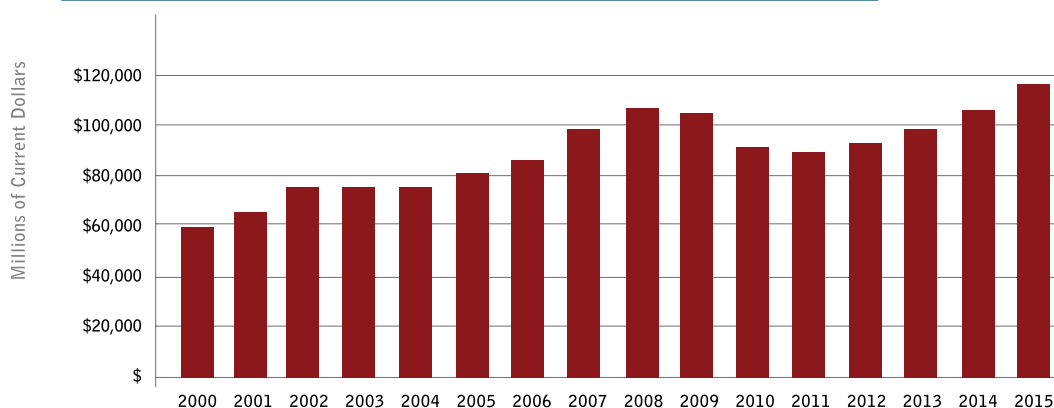
Trends:

- American Jobs Act—Modernizing schools/vacant property: \$25 billion to modernize at least 35,000 public schools: improving community colleges, \$5 billion.
- Funding is increasingly a local responsibility as states cut support, but local government budgets would need to increase property taxes.
- Greener schools or renovating existing schools for improved energy use will continue to be a strong trend in education construction.
- Many major universities have announced they will only build LEED-certified facilities.
- Sustainability and “saving the planet” are now part of the curriculum starting in grade school, so both parents and students will soon expect their schools to be green.
- Increased use of prefabricated/modular school construction. Not to be confused with the “temporary” classroom units filling playground and parking space in growing communities, manufactured modular school construction has gained in acceptance for school systems looking to save time and money and maybe even improve their green footprint.
- Rise in distance learning or online courses. Online degrees from universities specializing in distance learning are becoming more accepted, especially in a world where knowledge workers spend most of their time working in the online world.

Drivers:

- ↑ Population Change Younger than Age 18
- ↑ Population Change Ages 18-24
- ↓ Stock Market
- ↓ Government Spending
- ↓ Nonresidential Structure Investment

Educational Construction Put in Place | Forecast of Q2 2011



Religious

Religious construction lost another 4% in 2011 and will continue to be weak in 2012 with \$4.25 billion expected in CPIP. During an economic downturn, religious construction is usually the first segment to produce a decline. We expect religious construction to increase when consumer spending and the employment situation improve later next year.

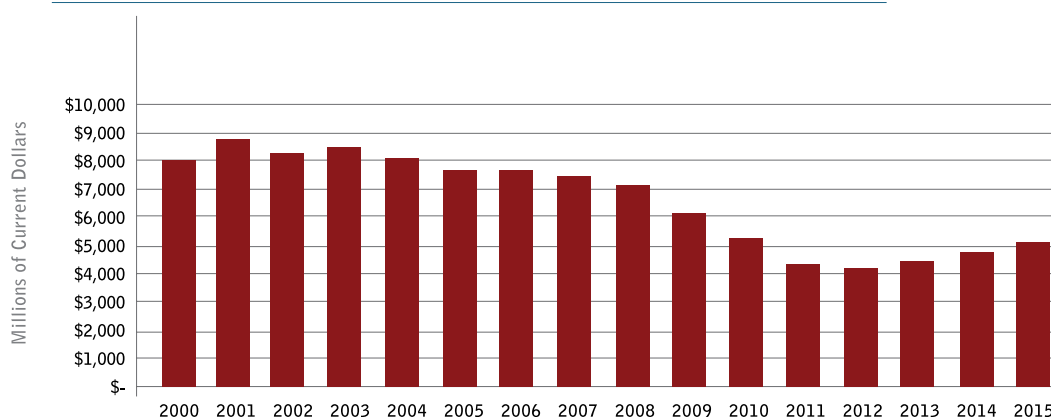
Trends:

- Lending environment continues to be a challenge for many congregations.
- Establishing a capital campaign is becoming increasingly common.
- Many churches are seeing tremendous declines in contributions and tithes.
- More parishioners are relying on their houses of worship to provide guidance and assistance, further stretching thin resources.
- Social mobility and migration have altered the religious landscape of several regions, including New England and the Southeast.
- New methods for charitable giving, including online giving and donation collections, are empowering religious organizations.
- Improved space utilization and additions are taking the forefront, as new construction is increasingly not an option.
- Churches are becoming smarter about attracting parishioners who are drawn in by facilities and the church building itself.
- Energy efficiency, green sustainability and long-lasting quality are becoming top features many congregations want in worship houses.

Drivers:

- ↑ GDP
- ↑ Population
- Income
- ↓ Personal Savings Rate

Religious Construction Put in Place | Forecast of Q2 2011



Public Safety

After holding up well with projects under way, public safety construction lost 8% in 2010, another 4% in 2011 and will drop 3% again in 2012 to around \$12 billion. According to a report by the Federal Bureau of Prisons, “The system-wide crowding level in BOP facilities is estimated to climb to 43% above rated capacity by the end of FY 2011.” Overcrowding and updating facilities are the prime drivers for prison construction. Like other facilities, new and renovated facilities will seek to be not only more secure, but also greener and more facilities are even seeking LEED certification. More states are looking at privatization of their prisons to save money.

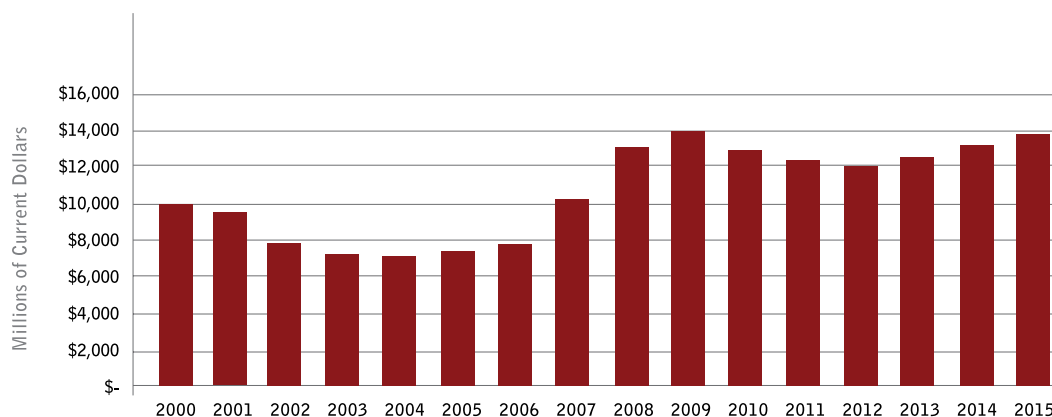
Trends:

- Overcrowding in jails and prisons leads to new and renovated facilities.
- California’s AB 900 authorizes \$7.7 billion to fund 53,000 additional state prison and local jail beds.
- The federal prison population grew by 3.4% in 2009.
- Jail population decreased 2.4% in 2010.
- Privately managed secure facilities are increasing.
- Corrections Corporation of America will alter the conditions at nine detention facilities across five states to make them less prison-like.
- Private corporations now operate 5% of the 5,000 prisons and jails in the U.S. The private prison industry is growing at a rate of 30% per year.
- The government appointed its first chief greening officer (under GSA) to oversee aggressive pursuit of sustainable practices in government buildings.
- CM-at-risk or design-build arrangements increase.
- P3s overcome shortfalls in public financing.
- Public safety budgets see deep cuts, mostly reflected in personnel and salary.

Drivers:

- ↑ Population
- Government Spending
- ↑ Incarceration Rate
- ↓ Nonresidential Structure Investment

Public Safety Construction Put in Place | Forecast of Q2 2011



Amusement and Recreation

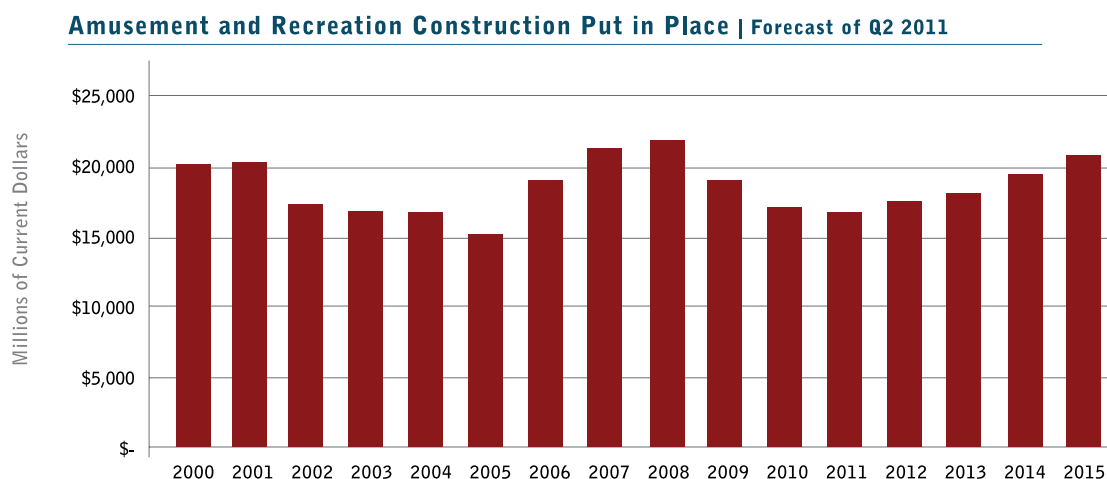
Amusement and recreation construction is expected to decline 2% in 2011 but grow 4% in 2012 to reach \$17.4 billion. Casino construction has been hard-hit during the recession with a number of projects canceled, postponed or otherwise in litigation. Most plans call for downsized additions or updates of existing facilities. Stadium construction has been strong with a number of new stadiums or ballparks opening and several large projects in the funding and planning stages. Funding will be difficult as projects requiring state and local contributions will need to balance spending and taxation with the potential for new jobs and attracting the additional revenue from surrounding infrastructure and businesses. Most construction in this sector calls for multiuse projects or combinations of retail, hotel and housing accommodations along with the sports or gambling venues.

Trends:

- High unemployment rates, usually a negative for construction in this sector, may be a major justification to build new projects to attract work and businesses to a community or city.
- States are reluctant to increase taxes for anything.
- Plans for a P3 to build a new football stadium for UNLV could set a precedent for such projects.
- Minnesota Vikings \$1.1 billion project is still in planning stages and awaiting venue decisions.
- San Francisco 49ers are looking to build a new stadium, awaiting decisions.

Drivers:

- Income
- ↓ Personal Savings Rate
- Unemployment Rate
- Employment



Transportation

Transportation construction will decline 3% in 2011 to \$37.2 billion. ARRA stimulus helped in the last two years, but with funding winding down and state budgets being cut, transportation has had a tough time getting back off the ground. The last-minute reauthorization of the transportation bill until March 2012 will help, but the nearly two month hiatus in funding for the FAA transportation bill delayed construction projects underway and resulted in lost tax revenues from airports. High-speed rail is being funded, but political differences are slowing any progress. As we climb out of the recession, transportation construction will benefit from increased attention to needed infrastructure spending to assure goods and people move efficiently across the country, and the transportation system is both safe and sufficient to handle the growing traffic.

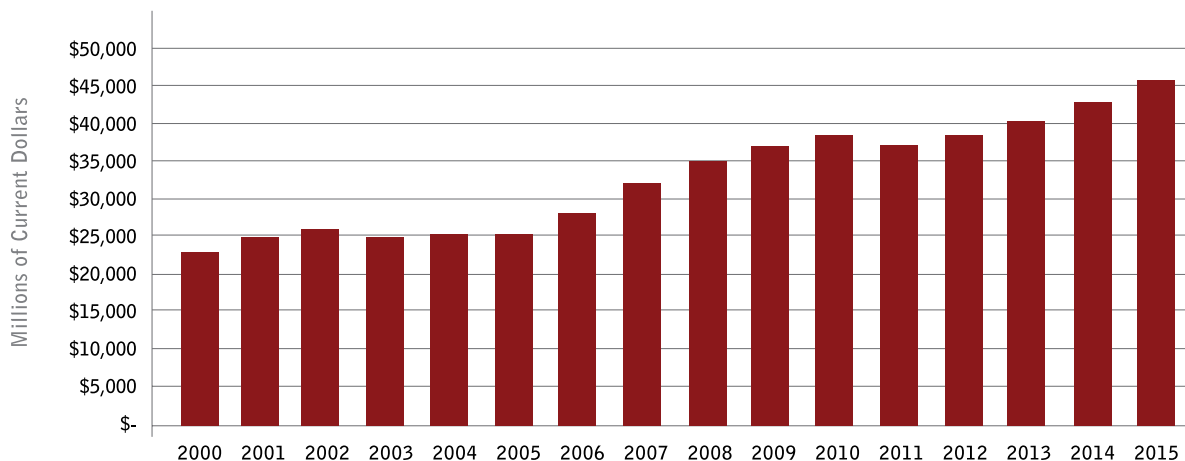
Trends:

- Reauthorization of transportation bill was extended another six months, but will need more permanent funding bill.
- American Jobs Act calls for \$50 billion for transportation, if passed.
- The FAA projects passenger growth will increase 3.7% a year over the next five years. System capacity is expected to grow 3.6% annually until 2031.
- By 2021, more than one billion people a year will take to the air.
- Growth in container ports is recovering from recession.
- Intermodal transportation will be the focus of new projects.
- Railcar loadings are down slightly over 2010 levels.

Drivers:

- ↑ Polulation
- ↓ Government Spending
- ↓ Transportation Funding

Transportation Construction Put in Place | Forecast of Q2 2011



Communication

Communications construction is showing signs of recovery as CIPIP will add 4% over 2010 levels to \$19 billion, and another 3% growth is expected for 2014. The trend to move data storage to the “cloud” will increase growth of data centers. Integrating systems such as health care will increase IT spending. Generally, communications is technology-driven and only limited by consumer demand.

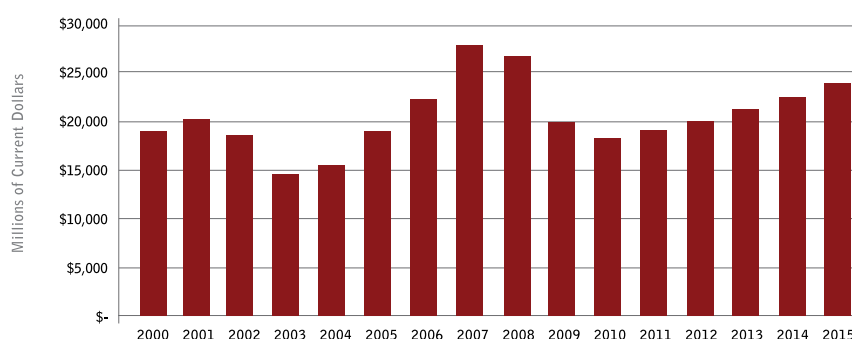
Trends:

- Moving computer storage and retrieval to the cloud will enable greater use of “thin-client” terminals.
- Devices such as cell phones and laptops are consolidating and requiring greater bandwidth and interconnectivity.
- Consolidation of ownership and shift away from print media will continue into 2012.

Drivers:

- ↑ Innovation/Technology
- ↑ Global Mobility
- ↑ Population
- ↑ Security/Regulatory Standards
- ↑ Private Investment

Communication Construction Put in Place | Forecast of Q2 2011



Manufacturing

The manufacturing sector has been one of the hardest-hit in the recession with a 33% drop in 2010 and another 6% expected in 2011 compounded with a 2% loss in 2012 to just \$35.8 billion. U.S. manufacturing has lost more than five million jobs, nearly 33%, in the last decade.

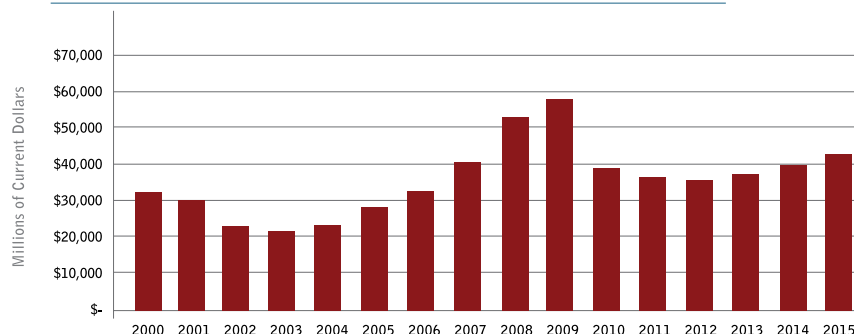
Trends:

- Manufacturing construction fell 33% in 2010, with an expected 6% decline in 2011. Growth is not expected to return until 2013.
- Several multibillion-dollar projects are under construction.
- There were six years of strong growth through 2009, almost doubling the size of the market before sharp decline.
- Capacity utilization is rising, but still only 75.5%.
- Automotive industry in slow recovery, but expects to hire in 2012 and increase capital projects.
- Politicians are talking about incentives to “repatriate” manufacturing in the U.S. from offshore.

Drivers:

- ↓ PML
- ↑ Industrial Production
- ↑ Capacity Utilization
- ↑ Factory Orders
- ↓ Durable Goods Orders
- ↑ Manufacturing Inventories

Value of Manufacturing Construction | Forecast of Q2 2011



Non-building Structure

Power

Power construction has benefited from both the growth in sustainable energy, like solar and wind power as well as more traditional power sources. Construction put in place for 2011 should be \$89.7 billion or 7% over 2010 with another 5% expected to be added in 2012. According to the American Public Power Association (APPA), nearly “446,000 Megawatts (MW) of new capacity is under some degree of development.” Natural gas and coal still dominate new capacity, but wind is expected to grow faster than nuclear power, with solar making up 4.3% of new capacity. While older capacity will be decommissioned, demand from businesses and factories is expected to grow only 0.7% annually through 2035. Residential demand has slowed from 2.5% annually to just 2% due to conservation practices.

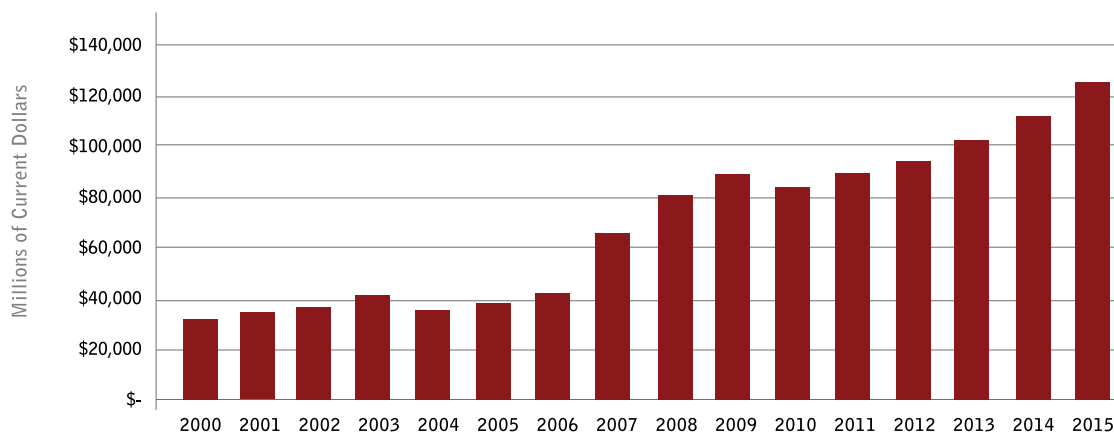
Trends:

- Expectations of four to six new nuclear power plants in the U.S. by 2020 will be reduced due to costs versus alternative fuels and concerns for safety.
 - Obama pledges nuclear power loan guarantees.
- Wind power represents only 2.4% of America's power supply but 18.2% of now under construction.
 - North Carolina recently approved a 300-megawatt wind farm at a cost of about \$600 million in Eastern North Carolina.
 - Cape Wind off the coast of Massachusetts will likely be the first offshore wind project with 130 wind turbines generating 420 megawatts.
 - Power grids are insufficient to handle the output of wind farms, especially in remote areas where there is the most wind potential.
- Solar power is an alternative. Florida Power & Light, the state's largest energy supplier, is building three solar plants. It will take Florida from not being on the solar map to being the second-largest producer in the nation, after California. By the end of next year, the plants will produce 110 megawatts of electricity, enough for 35,000 homes and businesses.
- Big Solar will generate jobs as well as electricity: solar thermal and photovoltaic power plants.
- Lower cost of traditional energy will slow the advancement of alternative energy plants.
- Clean coal is still in the experimental phase, but billions will be spent on full-sized utilities.

Drivers:

- ↑ Industrial Production
- ↑ Population
- ↓ Nonresidential Structure Investment

Power Construction Put in Place | Forecast of Q2 2011



Highway and Street

Due to shrinking state budgets and a struggling residential market, highway and street construction slowed in 2011 to 3% below 2010 levels, but it is expected to make up 2% of the loss in 2012. This sector is under the microscope as it is closely tied to the ability to generate jobs faster than other sectors. The ARRA helped to keep it from falling faster in 2010, and reauthorization of the transportation bill will help it keep from declining further in 2012. Nonetheless, if budget cuts decrease infrastructure spending rather than increase it to help put people back to work and repair failing highways and bridges, this sector could again see steep declines in coming years.

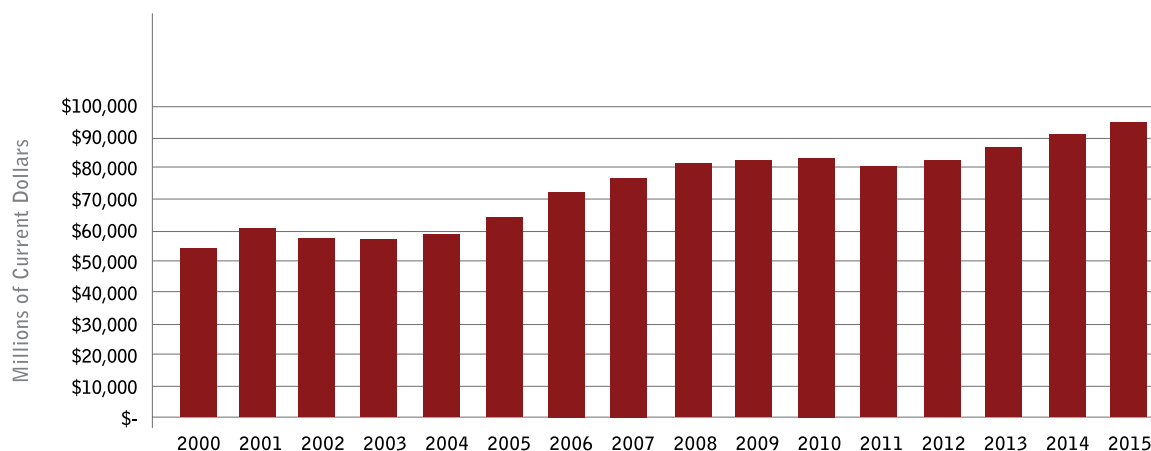
Trends:

- The National Infrastructure Bank proposed by the Obama administration could spur development of needed projects as well as increase private investment and P3s.
- Reauthorization extension of the high-transit bill keeps highway construction from sharp drop in the near term.
- National Surface Transportation Policy and Revenue Study Commission report calls for more than \$225 Billion annually “for the next 50 years to upgrade our surface transportation system to a state of good repair and create a more advanced system.” (Bill H. R. 402)
- Funding will continue to be the big question for highway and street construction.

Drivers:

- ↑ Population
- ↓ Government Spending
- ↓ Nonresidential Structure Investment

Highway and Street Construction Put in Place | Forecast of Q2 2011



Sewage and Waste Disposal

Along with the drop in public spending, sewage and waste disposal construction is expected to fall 2% in 2011 but grow faster than GDP through 2015. Due to the decaying state of major municipal systems, upgrades in some areas will be mandated by law. This is an area that rarely receives public attention until something fails and public health is at stake.

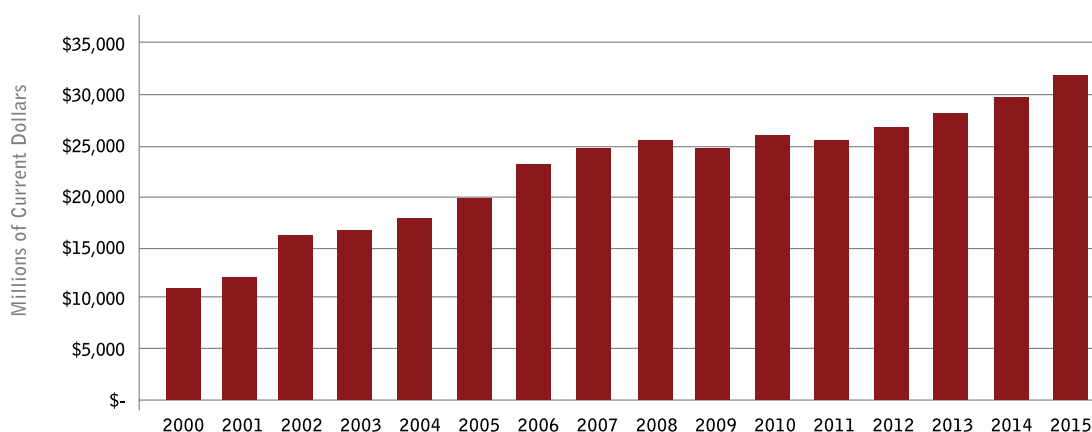
Trends:

- In need of replacement and upgrades, the 16,000 wastewater systems nationwide discharge more than 850 billion gallons of untreated sewage into surface waters each year.
- Combined sewer systems (storm water and sewage) serve roughly 950 communities with about 40 million people. Most communities with CSOs are located in the Northeast and Great Lakes regions.
- The EPA's Storm Water Phase II Final Rule, published on December 8, 1999, expands the Phase I storm water runoff regulations program by requiring programs and practices to control polluted storm water runoffs.
- The American Society of Civil Engineers (ASCE) gave drinking water and wastewater "D" grades in its 2009 American Infrastructure Report Card.
- The Clean Water State Revolving Fund (CWSRF) programs have provided more than \$5 billion annually in recent years to fund water quality protection projects.
- ARRA contributed \$4 billion to the CWSRF.
- The March 2010 U.S. Conference of Mayors Water Council report forecasts that future spending for public water and wastewater systems will range between \$2.5 and \$4.8 trillion over the next 20-year period, 2009 to 2028.

Drivers:

- ↑ Population
- ↑ Industrial Production
- ↓ Government Spending

Sewage and Waste Disposal Construction Put in Place | Forecast of Q2 2011



Water Supply

Like all other areas that heavily depend on public funds and new residential construction, water supply construction has been struggling to gain traction with another 2% drop expected in 2011 and 4% growth to \$15.6 billion in 2012. While most of the headlines are focused on energy conservation and sustainability, clean water is even more essential and a sign of the health of a nation's economy. Storms causing temporary outages of water supply in the Northeast reinforce this fact, but construction must do more than just emergency repairs to assure safe and reasonably priced water sources in the coming years.

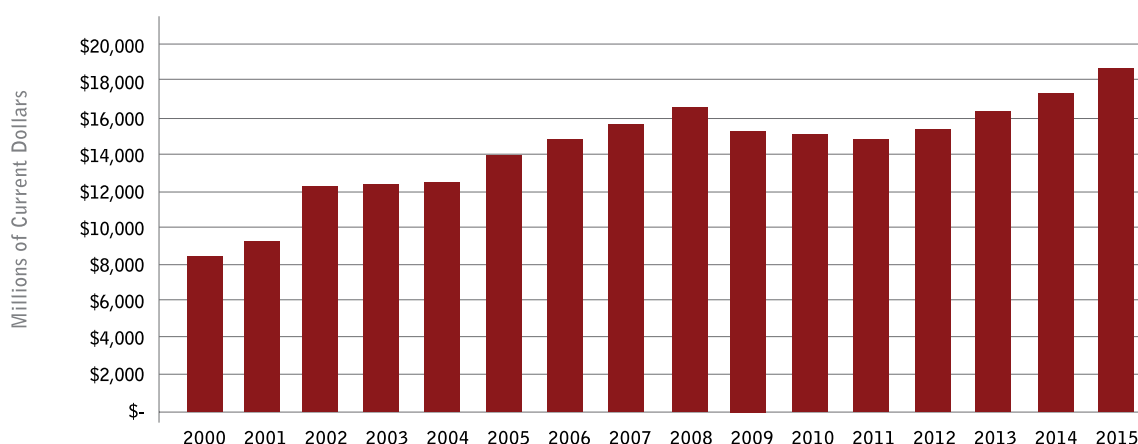
Trends:

- Seven billion gallons of clean drinking water are lost to leaking pipes each day, owing to an annual investment shortfall of \$11 billion (EPA) to replace old systems.
- Approximately 17 million people in the U.S. are served by substandard water facilities.
 - The EPA is in the process of improving numerous drinking water standards for various impurities. The agency is considering further revisions to the lead and copper rule.
- Federal assistance for the safe drinking water State Revolving Fund (SRF) in the 11-year period between 1997 and 2008 totaled \$9.5 billion, just slightly more than the investment gap for each of those years.
- Green construction practices, such as controlling runoff to help increase groundwater, will become the norm for improvements and new construction.

Drivers:

- ↑ Population
- ↑ Industrial Production
- ↓ Government Spending

Water Supply Construction Put in Place | Forecast of Q2 2011



Conservation and Development

The high rate of damage from natural disasters in the past two years has strained FEMA and Army Corp of Engineers (USACE) funding. However, while slow in 2011, conservation and development construction is expected to grow 5% in 2012.

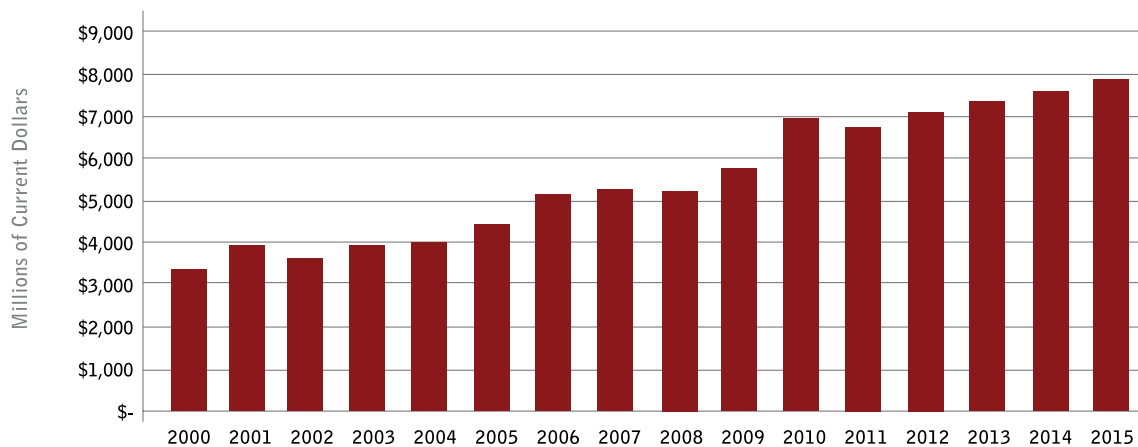
Trends:

- President's budget for 2012 (FY12) includes \$4.631 billion in gross discretionary funding for the Civil Works program of the U.S. Army Corps of Engineers (\$1.48 billion for construction).
- The goal of EPA's Brownfields Program (\$100 million) is to revitalize and restore neighborhoods through environmental cleanup. The program has a proven history of attracting private investment, producing trained environmental technicians, creating jobs and spurring local economic development.
- EPA's Superfund Hazardous Waste Cleanup (\$600 million) funds the cleanup of uncontrolled hazardous waste sites.

Drivers:

- ↑ Population
- ↓ Government Spending

Conservation and Development Construction Put in Place | Forecast of Q2 2011



Construction Put in Place

Millions of Current Dollars

3rd Quarter 2011

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
RESIDENTIAL BUILDINGS																
Single Family	238,269	251,123	267,205	311,879	378,934	434,912	417,518	306,990	187,648	106,960	113,377	117,912	137,957	164,169	201,928	234,236
Multi Family	29,740	32,342	34,268	36,420	41,321	48,699	54,324	52,570	48,083	32,215	17,718	19,136	23,920	29,182	34,435	39,945
Improvements*	84,054	89,096	100,487	102,952	118,153	133,896	147,973	140,909	122,016	114,027	118,588	134,005	142,045	147,727	155,113	164,420
Total Residential	352,063	372,561	401,960	451,251	538,408	617,507	619,814	500,468	357,747	253,202	249,684	271,053	303,922	341,078	391,476	438,601
NONRESIDENTIAL BUILDINGS																
Lodging	16,850	15,486	10,869	10,712	12,363	12,840	18,139	28,706	35,806	25,422	11,948	10,037	10,438	11,064	11,950	12,786
Office	61,001	59,495	44,277	39,418	42,404	45,763	54,187	65,259	68,563	57,593	39,163	37,205	39,065	41,409	43,894	46,088
Commercial	67,873	68,506	62,520	61,529	67,057	70,242	76,713	89,684	85,200	54,528	40,896	43,759	45,509	48,695	53,077	57,323
Health Care	24,615	24,776	27,139	29,329	32,184	34,430	38,472	43,766	46,902	45,026	40,523	41,334	42,574	46,405	52,438	58,206
Educational	58,848	64,960	73,862	74,316	74,250	79,687	84,928	96,758	104,890	102,792	89,429	87,641	91,146	96,615	104,344	113,735
Religious	8,071	8,806	8,339	8,569	8,159	7,735	7,749	7,540	7,225	6,214	5,344	4,382	4,250	4,505	4,866	5,158
Public Safety	10,049	9,558	7,827	7,161	7,019	7,314	7,768	10,201	13,083	13,999	12,879	12,364	11,993	12,473	13,096	13,751
Amusement and Recreation	20,168	20,207	17,328	16,847	16,695	15,236	19,033	21,212	21,829	18,991	17,092	16,750	17,420	18,117	19,385	20,742
Transportation	22,887	24,409	25,781	24,710	25,059	25,052	27,964	31,877	34,746	36,831	38,304	37,155	38,269	40,183	42,594	45,575
Communication	18,958	20,173	18,457	14,550	15,546	18,906	22,219	27,580	26,487	19,865	18,276	19,007	19,957	21,155	22,424	23,770
Manufacturing	32,184	30,364	22,926	21,508	23,360	28,568	32,677	40,633	53,234	58,025	38,877	36,544	35,813	37,604	39,860	43,049
Total Nonresidential Buildings	341,503	346,739	319,325	308,649	324,096	345,773	389,849	463,216	497,965	439,286	352,731	346,177	356,436	378,225	407,928	440,184
NONBUILDING STRUCTURES																
Power	32,289	35,025	36,804	41,450	35,638	38,371	42,244	66,055	81,075	89,183	83,832	89,700	94,185	102,661	111,901	125,329
Highway and Street	54,002	60,554	57,484	57,139	58,623	64,139	72,040	76,682	81,361	82,175	82,996	80,506	82,117	86,222	90,534	94,155
Sewage and Waste Disposal	10,949	12,006	16,237	16,581	17,929	19,867	23,186	24,872	25,696	24,925	26,171	25,648	26,930	28,277	29,973	32,072
Water Supply	8,587	9,397	12,442	12,492	12,620	14,028	14,960	15,798	16,752	15,412	15,258	14,953	15,551	16,484	17,473	18,871
Conservation and Development	3,362	3,967	3,621	3,935	4,044	4,453	5,130	5,260	5,234	5,757	6,966	6,757	7,095	7,379	7,601	7,905
Total Nonbuilding Structures	109,190	120,949	126,588	131,597	128,854	140,858	157,560	188,667	210,118	217,451	215,223	217,564	225,878	241,024	257,481	278,331
Total Put in Place	802,756	840,249	847,873	891,497	991,358	1,104,138	1,167,223	1,152,351	1,065,830	909,939	817,638	834,793	886,236	960,327	1,056,885	1,157,116

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Change From Prior Year - Current Dollar Basis

3rd Quarter 2011

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
RESIDENTIAL BUILDINGS																
Single Family	6%	5%	6%	17%	22%	15%	-4%	-26%	-39%	-43%	6%	4%	17%	19%	23%	16%
Multi Family	2%	9%	6%	6%	13%	18%	12%	-3%	-9%	-33%	-45%	8%	25%	22%	18%	16%
Improvements*	7%	6%	13%	2%	15%	13%	11%	-5%	-13%	-7%	4%	13%	6%	4%	5%	6%
Total Residential	6%	6%	8%	12%	19%	15%	0%	-19%	-29%	-29%	-1%	9%	12%	12%	15%	12%
NONRESIDENTIAL BUILDINGS																
Lodging	2%	-8%	-30%	-1%	15%	4%	41%	58%	25%	-29%	-53%	-16%	4%	6%	8%	7%
Office	17%	-2%	-26%	-11%	8%	8%	18%	20%	5%	-16%	-32%	-5%	5%	6%	6%	5%
Commercial	7%	1%	-9%	-2%	9%	5%	9%	17%	-5%	-36%	-25%	7%	4%	7%	9%	8%
Health Care	8%	1%	10%	8%	10%	7%	12%	14%	7%	-4%	-10%	2%	3%	9%	13%	11%
Educational	12%	10%	14%	1%	0%	7%	7%	14%	8%	-2%	-13%	-2%	4%	6%	8%	9%
Religious	9%	9%	-5%	3%	-5%	-5%	0%	-3%	-4%	-14%	-14%	-18%	-3%	6%	8%	6%
Public Safety	3%	-5%	-18%	-9%	-2%	4%	6%	31%	28%	7%	-8%	-4%	-3%	4%	5%	5%
Amusement and Recreation	3%	0%	-14%	-3%	-1%	-9%	25%	11%	3%	-13%	-10%	-2%	4%	4%	7%	7%
Transportation	17%	7%	6%	-4%	1%	0%	12%	14%	9%	6%	4%	-3%	3%	5%	6%	7%
Communication	2%	6%	-9%	-21%	7%	22%	18%	24%	-4%	-25%	-8%	4%	5%	6%	6%	6%
Manufacturing	-3%	-6%	-24%	-6%	9%	22%	14%	24%	31%	9%	-33%	-6%	-2%	5%	6%	8%
Total Nonresidential Buildings	8%	2%	-8%	-3%	5%	7%	13%	19%	8%	-12%	-20%	-2%	3%	6%	8%	8%
NONBUILDING STRUCTURES																
Power	30%	8%	5%	13%	-14%	8%	10%	56%	23%	10%	-6%	7%	5%	9%	9%	12%
Highway and Street	7%	12%	-5%	-1%	3%	9%	12%	6%	6%	1%	1%	-3%	2%	5%	5%	4%
Sewage and Waste Disposal	9%	10%	35%	2%	8%	11%	17%	7%	3%	-3%	5%	-2%	5%	5%	6%	7%
Water Supply	13%	9%	32%	0%	1%	11%	7%	6%	6%	-8%	-1%	-2%	4%	6%	6%	8%
Conservation and Development	9%	18%	-9%	9%	3%	10%	15%	3%	0%	10%	21%	-3%	5%	4%	3%	4%
Total Nonbuilding Structures	14%	11%	5%	4%	-2%	9%	12%	20%	11%	3%	-1%	1%	4%	7%	7%	8%
Total Put in Place	8%	5%	1%	5%	11%	11%	6%	-1%	-8%	-15%	-10%	2%	6%	8%	10%	9%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries

Of all the regional construction markets, New England is the only one expected to have lower construction put in place for 2012 (-2%). The largest increase on a percentage basis will be in the Mountain region, where we expect 17% growth, largely attributable to construction for mining and natural resources growth. The Pacific region is the next-highest growth region with 13% expected in 2012 over 2011; but the South Atlantic region is the largest in total, spending expected at \$174 billion. Mountain and Pacific regions are expected to have the highest rates of increased activity in the residential sector in 2012, although, next to Pacific, the South Atlantic will have the most residential construction put in place at \$60.8 billion.

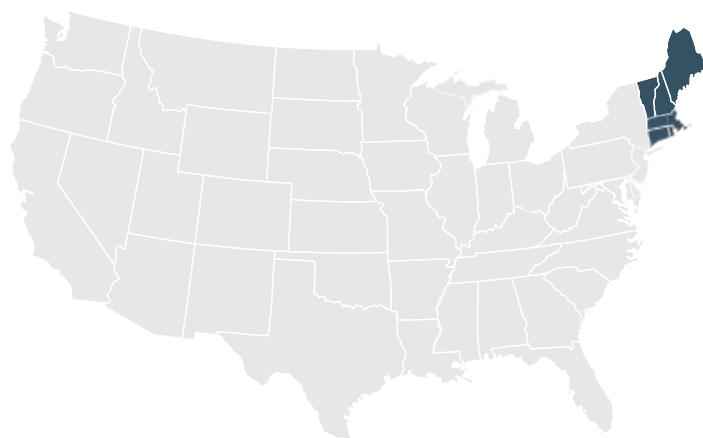
U.S. Construction Put in Place - Regional Summary

Millions of Current Dollars

YEAR	Total			
	Total Residential	Nonresidential Buildings	Total Nonbuilding Structures	Total Put in Place
	New England			
2011	13,205	21,766	8,556	43,528
2012	12,636	22,045	7,922	42,604
	West North Central			
2011	31,136	32,899	20,464	84,499
2012	33,842	33,934	20,567	88,342
	South Atlantic			
2011	55,202	62,715	46,018	163,935
2012	60,820	64,806	48,437	174,063
	East South Central			
2011	10,717	17,312	13,244	41,273
2012	12,072	17,862	13,902	43,836
	West South Central			
2011	33,222	34,723	35,478	103,423
2012	35,970	35,959	37,829	109,758
	Mountain			
2011	24,926	21,290	17,754	63,970
2012	32,007	22,237	20,433	74,677
	Pacific			
2011	56,611	49,866	27,856	134,332
2012	69,352	51,646	30,262	151,260

Millions of Current Dollars

Regional Summaries



Construction Put in Place

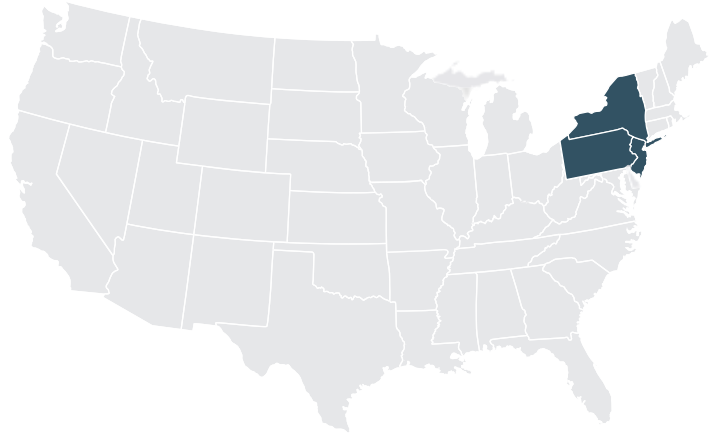
Millions of Current Dollars

NEW ENGLAND FORECAST

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change From Prior Year		
											2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	14,131	10,797	6,894	4,580	5,831	5,744	5,736	6,489	7,579	8,563	27%	-1%	0%
Multi Family	1,839	1,849	1,767	1,379	911	932	995	1,154	1,292	1,460	-34%	2%	7%
Improvements*	5,008	4,956	4,483	4,883	6,099	6,528	5,906	5,839	5,822	6,011	25%	7%	-10%
Total Residential	20,978	17,603	13,143	10,842	12,842	13,205	12,636	13,482	14,693	16,034	18%	3%	-4%
NONRESIDENTIAL BUILDINGS													
Lodging	1,118	1,746	2,173	1,577	759	631	646	673	718	762	-52%	-17%	2%
Office	3,340	3,969	4,160	3,573	2,488	2,339	2,416	2,519	2,639	2,748	-30%	-6%	3%
Commercial	4,729	5,455	5,170	3,383	2,598	2,751	2,815	2,962	3,191	3,418	-23%	6%	2%
Health Care	2,372	2,662	2,846	2,793	2,574	2,599	2,633	2,823	3,152	3,471	-8%	1%	1%
Educational	5,235	5,885	6,365	6,377	5,681	5,511	5,637	5,878	6,273	6,781	-11%	-3%	2%
Religious	478	459	438	385	339	276	263	274	293	308	-12%	-19%	-5%
Public Safety	479	620	794	868	818	777	742	759	787	820	-6%	-5%	-5%
Amusement and Recreation	1,173	1,290	1,325	1,178	1,086	1,053	1,077	1,102	1,165	1,237	-8%	-3%	2%
Transportation	1,724	1,939	2,108	2,285	2,433	2,336	2,367	2,445	2,561	2,717	6%	-4%	1%
Communication	1,370	1,678	1,607	1,232	1,161	1,195	1,234	1,287	1,348	1,417	-6%	3%	3%
Manufacturing	2,014	2,471	3,230	3,600	2,470	2,298	2,215	2,288	2,396	2,567	-31%	-7%	-4%
Total Nonresidential Buildings	24,032	28,175	30,216	27,253	22,408	21,766	22,045	23,010	24,523	26,246	-18%	-3%	1%
NONBUILDING STRUCTURES													
Power	1,335	2,202	2,785	3,186	3,155	3,528	3,303	3,437	3,687	4,085	-1%	12%	-6%
Highway and Street	2,276	2,556	2,795	2,936	3,123	3,166	2,880	2,887	2,983	3,069	6%	1%	-9%
Sewage and Waste Disposal	732	829	883	890	985	1,009	945	947	988	1,045	11%	2%	-6%
Water Supply	473	527	575	551	574	588	545	552	576	615	4%	2%	-7%
Conservation and Development	162	175	180	206	262	266	249	247	250	258	27%	1%	-6%
Total Nonbuilding Structures	4,978	6,290	7,217	7,769	8,099	8,556	7,922	8,069	8,483	9,072	4%	6%	-7%
Total Put in Place	49,988	52,067	50,577	45,864	43,349	43,528	42,604	44,561	47,700	51,353	-5%	0%	-2%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

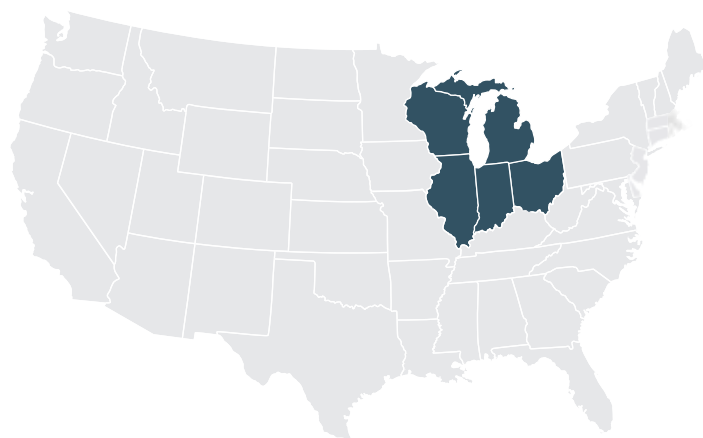
Millions of Current Dollars

MID-ATLANTIC FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	33,044	28,958	25,371	11,637	12,913	12,217	12,450	13,588	16,032	18,215	11%	-5%	2%
Multi Family	4,299	4,959	6,501	3,505	2,018	1,983	2,159	2,415	2,734	3,106	-42%	-2%	9%
Improvements*	11,711	13,292	16,498	12,406	13,507	13,884	12,818	12,227	12,315	12,786	9%	3%	-8%
Total Residential	49,055	47,209	48,370	27,549	28,438	28,083	27,427	28,231	31,081	34,107	3%	-1%	-2%
NONRESIDENTIAL BUILDINGS													
Lodging	2,800	4,366	5,432	3,943	1,875	1,571	1,620	1,701	1,827	1,952	-52%	-16%	3%
Office	8,364	9,925	10,401	8,933	6,146	5,824	6,062	6,366	6,710	7,034	-31%	-5%	4%
Commercial	11,841	13,639	12,925	8,457	6,418	6,850	7,062	7,487	8,114	8,749	-24%	7%	3%
Health Care	5,938	6,656	7,115	6,984	6,360	6,471	6,606	7,135	8,016	8,884	-9%	2%	2%
Educational	13,109	14,715	15,913	15,943	14,035	13,720	14,143	14,854	15,951	17,359	-12%	-2%	3%
Religious	1,196	1,147	1,096	964	839	686	660	693	744	787	-13%	-18%	-4%
Public Safety	1,199	1,551	1,985	2,171	2,021	1,936	1,861	1,918	2,002	2,099	-7%	-4%	-4%
Amusement and Recreation	2,938	3,226	3,312	2,946	2,682	2,622	2,703	2,785	2,963	3,166	-9%	-2%	3%
Transportation	4,316	4,848	5,271	5,713	6,011	5,817	5,938	6,178	6,511	6,956	5%	-3%	2%
Communication	3,430	4,194	4,018	3,081	2,868	2,976	3,097	3,252	3,428	3,628	-7%	4%	4%
Manufacturing	5,044	6,180	8,076	9,000	6,101	5,721	5,557	5,781	6,093	6,571	-32%	-6%	-3%
Total Nonresidential Buildings	60,173	70,447	75,545	68,135	55,357	54,194	55,309	58,150	62,358	67,185	-19%	-2%	2%
NONBUILDING STRUCTURES													
Power	3,553	6,155	8,670	9,431	8,491	9,114	8,665	8,845	9,481	10,579	-10%	7%	-5%
Highway and Street	6,058	7,146	8,700	8,689	8,406	8,180	7,555	7,429	7,670	7,947	-3%	-3%	-8%
Sewage and Waste Disposal	1,950	2,318	2,748	2,636	2,651	2,606	2,478	2,436	2,539	2,707	1%	-2%	-5%
Water Supply	1,258	1,472	1,791	1,630	1,545	1,519	1,431	1,420	1,480	1,593	-5%	-2%	-6%
Conservation and Development	431	490	560	609	706	687	653	636	644	667	16%	-3%	-5%
Total Nonbuilding Structures	13,250	17,581	22,469	22,994	21,799	22,105	20,781	20,766	21,815	23,493	-5%	1%	-6%
Total Put in Place	122,478	135,237	146,384	118,678	105,593	104,382	103,517	107,147	115,253	124,785	-11%	-1%	-1%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

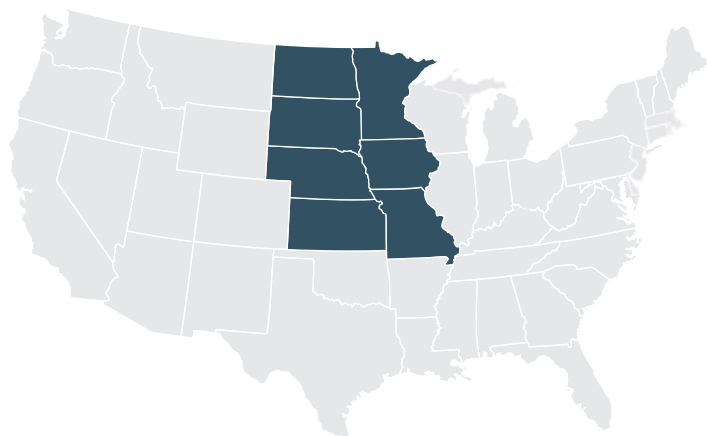
Millions of Current Dollars

NORTH EAST CENTRAL FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	28,981	20,419	12,163	7,449	7,656	7,809	8,986	10,371	12,989	15,178	3%	2%	15%
Multi Family	3,771	3,497	3,117	2,243	1,196	1,267	1,558	1,844	2,215	2,588	-47%	6%	23%
Improvements*	10,271	9,372	7,909	7,941	8,008	8,875	9,253	9,332	9,977	10,654	1%	11%	4%
Total Residential	43,023	33,287	23,188	17,633	16,860	17,952	19,797	21,547	25,181	28,421	-4%	6%	10%
NONRESIDENTIAL BUILDINGS													
Lodging	2,755	4,322	5,422	3,872	1,797	1,491	1,542	1,629	1,757	1,871	-54%	-17%	3%
Office	8,229	9,826	10,383	8,771	5,891	5,525	5,769	6,096	6,452	6,743	-33%	-6%	4%
Commercial	11,650	13,504	12,902	8,304	6,151	6,499	6,721	7,169	7,802	8,386	-26%	6%	3%
Health Care	5,842	6,590	7,103	6,857	6,095	6,138	6,287	6,832	7,708	8,515	-11%	1%	2%
Educational	12,897	14,569	15,884	15,655	13,451	13,015	13,461	14,223	15,339	16,639	-14%	-3%	3%
Religious	1,177	1,135	1,094	946	804	651	628	663	715	755	-15%	-19%	-4%
Public Safety	1,180	1,536	1,981	2,132	1,937	1,836	1,771	1,836	1,925	2,012	-9%	-5%	-4%
Amusement and Recreation	2,890	3,194	3,306	2,892	2,571	2,488	2,573	2,667	2,850	3,035	-11%	-3%	3%
Transportation	4,247	4,800	5,262	5,609	5,761	5,518	5,652	5,916	6,261	6,668	3%	-4%	2%
Communication	3,374	4,153	4,011	3,025	2,749	2,823	2,947	3,114	3,296	3,477	-9%	3%	4%
Manufacturing	4,962	6,118	8,061	8,837	5,847	5,427	5,289	5,536	5,859	6,298	-34%	-7%	-3%
Total Nonresidential Buildings	59,203	69,749	75,408	66,902	53,054	51,410	52,639	55,681	59,965	64,398	-21%	-3%	2%
NONBUILDING STRUCTURES													
Power	5,113	7,875	9,746	10,882	10,156	10,756	10,735	11,342	12,323	13,898	-7%	6%	0%
Highway and Street	8,720	9,142	9,780	10,027	10,055	9,654	9,359	9,526	9,970	10,441	0%	-4%	-3%
Sewage and Waste Disposal	2,807	2,965	3,089	3,041	3,171	3,076	3,069	3,124	3,301	3,556	4%	-3%	0%
Water Supply	1,811	1,883	2,014	1,881	1,849	1,793	1,772	1,821	1,924	2,093	-2%	-3%	-1%
Conservation and Development	621	627	629	703	844	810	809	815	837	877	20%	-4%	0%
Total Nonbuilding Structures	19,072	22,493	25,258	26,533	26,075	26,089	25,744	26,628	28,355	30,864	-2%	0%	-1%
Total Put in Place	121,298	125,530	123,855	111,068	95,989	95,452	98,180	103,857	113,501	123,683	-14%	-1%	3%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

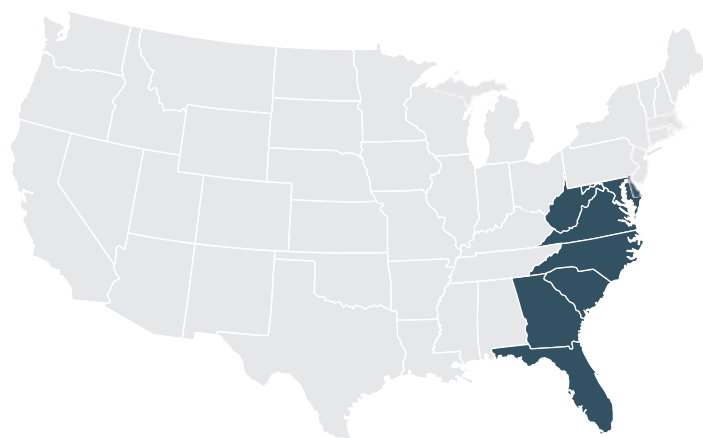
Millions of Current Dollars

WEST NORTH CENTRAL FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	39,695	34,558	22,355	13,199	13,968	13,545	15,361	18,917	23,378	26,980	6%	-3%	13%
Multi Family	5,165	5,918	5,728	3,976	2,183	2,198	2,663	3,363	3,987	4,601	-45%	1%	21%
Improvements*	14,068	15,862	14,536	14,072	14,610	15,393	15,817	17,023	17,958	18,939	4%	5%	3%
Total Residential	58,929	56,338	42,620	31,246	30,762	31,136	33,842	39,302	45,323	50,520	-2%	1%	9%
NONRESIDENTIAL BUILDINGS													
Lodging	1,647	2,633	3,314	2,373	1,125	954	994	1,056	1,141	1,219	-53%	-15%	4%
Office	4,921	5,985	6,345	5,375	3,689	3,536	3,719	3,952	4,191	4,395	-31%	-4%	5%
Commercial	6,967	8,226	7,885	5,089	3,852	4,159	4,333	4,647	5,068	5,466	-24%	8%	4%
Health Care	3,494	4,014	4,341	4,202	3,817	3,928	4,053	4,429	5,007	5,550	-9%	3%	3%
Educational	7,713	8,875	9,707	9,594	8,424	8,329	8,677	9,221	9,963	10,845	-12%	-1%	4%
Religious	704	692	669	580	503	416	405	430	465	492	-13%	-17%	-3%
Public Safety	705	936	1,211	1,307	1,213	1,175	1,142	1,190	1,250	1,311	-7%	-3%	-3%
Amusement and Recreation	1,728	1,946	2,020	1,773	1,610	1,592	1,658	1,729	1,851	1,978	-9%	-1%	4%
Transportation	2,540	2,924	3,216	3,438	3,608	3,531	3,643	3,835	4,067	4,346	5%	-2%	3%
Communication	2,018	2,530	2,451	1,854	1,721	1,806	1,900	2,019	2,141	2,267	-7%	5%	5%
Manufacturing	2,968	3,727	4,927	5,416	3,662	3,473	3,410	3,589	3,806	4,105	-32%	-5%	-2%
Total Nonresidential Buildings	35,404	42,486	46,086	41,000	33,225	32,899	33,934	36,098	38,949	41,973	-19%	-1%	3%
NONBUILDING STRUCTURES													
Power	3,652	5,956	7,467	8,395	8,137	8,437	8,576	9,497	10,402	11,664	-3%	4%	2%
Highway and Street	6,228	6,914	7,493	7,736	8,056	7,572	7,477	7,976	8,416	8,763	4%	-6%	-1%
Sewage and Waste Disposal	2,005	2,243	2,367	2,346	2,540	2,412	2,452	2,616	2,786	2,985	8%	-5%	2%
Water Supply	1,293	1,424	1,543	1,451	1,481	1,406	1,416	1,525	1,624	1,756	2%	-5%	1%
Conservation and Development	444	474	482	542	676	636	646	683	707	736	25%	-6%	2%
Total Nonbuilding Structures	13,622	17,012	19,351	20,470	20,891	20,464	20,567	22,295	23,936	25,903	2%	-2%	1%
Total Put in Place	107,954	115,835	108,057	92,717	84,878	84,499	88,342	97,696	108,208	118,396	-8%	0%	5%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

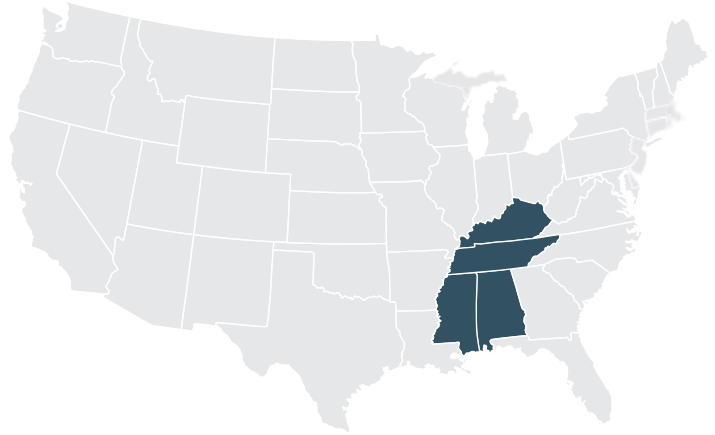
Millions of Current Dollars

SOUTH ATLANTIC FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	103,867	69,039	39,295	22,673	24,468	24,014	27,607	33,115	41,157	49,667	8%	-2%	15%
Multi Family	13,514	11,823	10,069	6,829	3,824	3,897	4,787	5,886	7,019	8,470	-44%	2%	23%
Improvements*	36,812	31,689	25,551	24,171	25,593	27,291	28,425	29,798	31,615	34,864	6%	7%	4%
Total Residential	154,193	112,551	74,915	53,672	53,885	55,202	60,820	68,800	79,791	93,001	0%	2%	10%
NONRESIDENTIAL BUILDINGS													
Lodging	3,376	5,336	6,584	4,607	2,163	1,818	1,898	2,024	2,197	2,366	-53%	-16%	4%
Office	10,086	12,131	12,608	10,436	7,089	6,740	7,103	7,574	8,071	8,528	-32%	-5%	5%
Commercial	14,279	16,671	15,668	9,881	7,403	7,928	8,274	8,907	9,759	10,607	-25%	7%	4%
Health Care	7,161	8,136	8,625	8,159	7,335	7,488	7,741	8,488	9,642	10,770	-10%	2%	3%
Educational	15,808	17,986	19,289	18,626	16,188	15,877	16,572	17,672	19,186	21,045	-13%	-2%	4%
Religious	1,442	1,402	1,329	1,126	967	794	773	824	895	954	-14%	-18%	-3%
Public Safety	1,446	1,896	2,406	2,537	2,331	2,240	2,181	2,281	2,408	2,544	-8%	-4%	-3%
Amusement and Recreation	3,543	3,943	4,014	3,441	3,094	3,035	3,167	3,314	3,564	3,838	-10%	-2%	4%
Transportation	5,205	5,926	6,390	6,674	6,934	6,731	6,958	7,350	7,832	8,433	4%	-3%	3%
Communication	4,136	5,127	4,871	3,600	3,308	3,443	3,629	3,869	4,123	4,398	-8%	4%	5%
Manufacturing	6,082	7,553	9,789	10,514	7,037	6,621	6,512	6,878	7,329	7,965	-33%	-6%	-2%
Total Nonresidential Buildings	72,564	86,107	91,572	79,600	63,850	62,715	64,806	69,180	75,005	81,448	-20%	-2%	3%
NONBUILDING STRUCTURES													
Power	11,031	15,644	17,929	18,800	17,894	18,973	20,197	22,537	24,830	28,219	-5%	6%	6%
Highway and Street	18,812	18,161	17,992	17,323	17,716	17,028	17,609	18,928	20,089	21,200	2%	-4%	3%
Sewage and Waste Disposal	6,055	5,891	5,682	5,254	5,586	5,425	5,775	6,208	6,651	7,221	6%	-3%	6%
Water Supply	3,907	3,742	3,704	3,249	3,257	3,163	3,335	3,619	3,877	4,249	0%	-3%	5%
Conservation and Development	1,340	1,246	1,157	1,214	1,487	1,429	1,522	1,620	1,687	1,780	23%	-4%	6%
Total Nonbuilding Structures	41,144	44,683	46,464	45,839	45,939	46,018	48,437	52,911	57,134	62,669	0%	0%	5%
Total Put in Place	267,901	243,340	212,951	179,112	163,674	163,935	174,063	190,891	211,930	237,118	-9%	0%	6%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

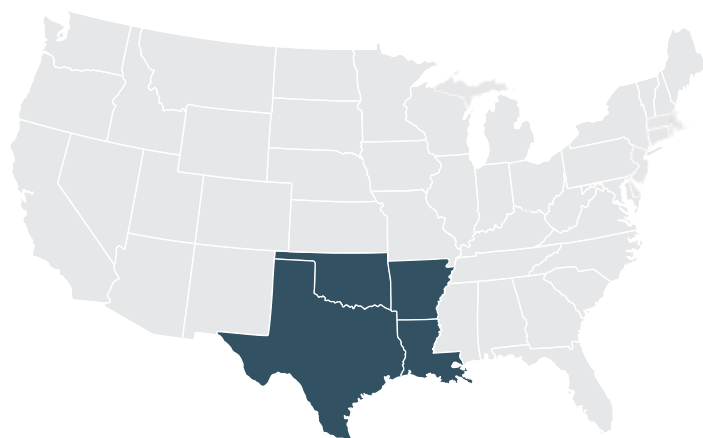
Millions of Current Dollars

EAST SOUTH CENTRAL FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	12,433	10,884	7,063	4,616	4,494	4,662	5,480	6,218	7,423	8,389	-3%	4%	18%
Multi Family	1,618	1,864	1,810	1,390	702	757	950	1,105	1,266	1,431	-49%	8%	26%
Improvements*	4,406	4,996	4,593	4,921	4,700	5,298	5,642	5,595	5,702	5,888	-4%	13%	6%
Total Residential	18,457	17,744	13,465	10,928	9,897	10,717	12,072	12,918	14,390	15,707	-9%	8%	13%
NONRESIDENTIAL BUILDINGS													
Lodging	923	1,466	1,834	1,306	602	502	523	556	601	642	-54%	-17%	4%
Office	2,757	3,333	3,512	2,960	1,974	1,861	1,958	2,082	2,208	2,313	-33%	-6%	5%
Commercial	3,904	4,580	4,364	2,802	2,061	2,188	2,281	2,448	2,670	2,877	-26%	6%	4%
Health Care	1,958	2,235	2,402	2,314	2,042	2,067	2,133	2,333	2,638	2,921	-12%	1%	3%
Educational	4,322	4,941	5,373	5,282	4,507	4,383	4,568	4,858	5,250	5,708	-15%	-3%	4%
Religious	394	385	370	319	269	219	213	227	245	259	-16%	-19%	-3%
Public Safety	395	521	670	719	649	618	601	627	659	690	-10%	-5%	-3%
Amusement and Recreation	968	1,083	1,118	976	861	838	873	911	975	1,041	-12%	-3%	4%
Transportation	1,423	1,628	1,780	1,893	1,930	1,858	1,918	2,020	2,143	2,287	2%	-4%	3%
Communication	1,131	1,408	1,357	1,021	921	951	1,000	1,064	1,128	1,193	-10%	3%	5%
Manufacturing	1,663	2,075	2,727	2,982	1,959	1,828	1,795	1,891	2,005	2,161	-34%	-7%	-2%
Total Nonresidential Buildings	19,837	23,656	25,507	22,573	17,775	17,312	17,862	19,017	20,524	22,093	-21%	-3%	3%
NONBUILDING STRUCTURES													
Power	2,336	4,080	5,033	5,625	5,305	5,460	5,797	6,240	6,685	7,392	-6%	3%	6%
Highway and Street	3,983	4,736	5,051	5,183	5,253	4,901	5,054	5,241	5,408	5,554	1%	-7%	3%
Sewage and Waste Disposal	1,282	1,536	1,595	1,572	1,656	1,561	1,657	1,719	1,791	1,892	5%	-6%	6%
Water Supply	827	976	1,040	972	966	910	957	1,002	1,044	1,113	-1%	-6%	5%
Conservation and Development	284	325	325	363	441	411	437	449	454	466	21%	-7%	6%
Total Nonbuilding Structures	8,712	11,653	13,045	13,714	13,621	13,244	13,902	14,650	15,381	16,417	-1%	-3%	5%
Total Put in Place	47,006	53,052	52,017	47,216	41,293	41,273	43,836	46,585	50,295	54,217	-13%	0%	6%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

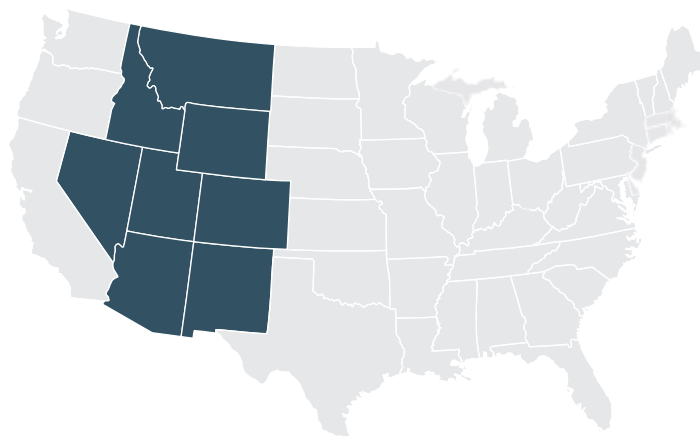
Millions of Current Dollars

WEST SOUTH CENTRAL FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	28,697	24,941	18,880	12,682	13,036	14,452	16,327	18,200	21,505	24,342	3%	11%	13%
Multi Family	3,734	4,271	4,838	3,820	2,037	2,345	2,831	3,235	3,667	4,151	-47%	15%	21%
Improvements*	10,171	11,448	12,277	13,521	13,635	16,424	16,811	16,377	16,519	17,086	1%	20%	2%
Total Residential	42,602	40,660	35,995	30,023	28,709	33,222	35,970	37,812	41,692	45,579	-4%	16%	8%
NONRESIDENTIAL BUILDINGS													
Lodging	1,746	2,818	3,561	2,549	1,194	1,007	1,053	1,118	1,208	1,292	-53%	-16%	5%
Office	5,217	6,405	6,819	5,774	3,913	3,732	3,941	4,186	4,439	4,658	-32%	-5%	6%
Commercial	7,385	8,803	8,474	5,467	4,086	4,389	4,591	4,922	5,368	5,793	-25%	7%	5%
Health Care	3,704	4,296	4,665	4,514	4,049	4,146	4,295	4,691	5,303	5,883	-10%	2%	4%
Educational	8,176	9,497	10,433	10,305	8,934	8,791	9,195	9,766	10,552	11,495	-13%	-2%	5%
Religious	746	740	719	623	534	440	429	455	492	521	-14%	-18%	-2%
Public Safety	748	1,001	1,301	1,403	1,287	1,240	1,210	1,261	1,324	1,390	-8%	-4%	-2%
Amusement and Recreation	1,832	2,082	2,171	1,904	1,708	1,680	1,757	1,831	1,960	2,096	-10%	-2%	5%
Transportation	2,692	3,129	3,456	3,692	3,827	3,727	3,861	4,062	4,307	4,606	4%	-3%	4%
Communication	2,139	2,707	2,634	1,992	1,826	1,907	2,013	2,138	2,268	2,402	-8%	4%	6%
Manufacturing	3,146	3,988	5,295	5,817	3,884	3,666	3,613	3,801	4,031	4,351	-33%	-6%	-1%
Total Nonresidential Buildings	37,532	45,465	49,529	44,041	35,240	34,723	35,959	38,233	41,253	44,487	-20%	-1%	4%
NONBUILDING STRUCTURES													
Power	5,520	9,384	12,377	14,365	13,673	14,627	15,774	16,686	17,730	19,566	-5%	7%	8%
Highway and Street	9,414	10,894	12,421	13,236	13,537	13,128	13,753	14,014	14,344	14,699	2%	-3%	5%
Sewage and Waste Disposal	3,030	3,534	3,923	4,015	4,269	4,182	4,510	4,596	4,749	5,007	6%	-2%	8%
Water Supply	1,955	2,244	2,557	2,482	2,489	2,438	2,604	2,679	2,768	2,946	0%	-2%	7%
Conservation and Development	670	747	799	927	1,136	1,102	1,188	1,199	1,204	1,234	23%	-3%	8%
Total Nonbuilding Structures	20,589	26,804	32,077	35,025	35,103	35,478	37,829	39,175	40,796	43,453	0%	1%	7%
Total Put in Place	100,723	112,929	117,601	109,089	99,052	103,423	109,758	115,219	123,741	133,519	-9%	4%	6%

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Regional Summaries



Construction Put in Place

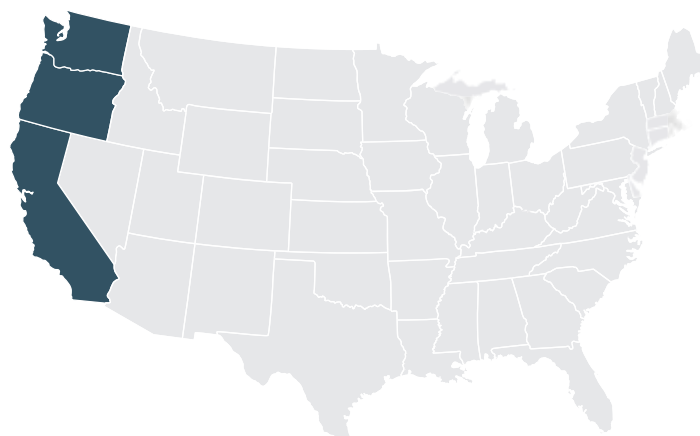
Millions of Current Dollars

MOUNTAIN FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	50,525	35,333	19,062	10,297	9,772	10,843	14,529	17,925	22,121	26,135	-5%	11%	34%
Multi Family	6,574	6,051	4,884	3,101	1,527	1,760	2,519	3,186	3,772	4,457	-51%	15%	43%
Improvements*	17,907	16,218	12,395	10,978	10,221	12,323	14,959	16,130	16,992	18,345	-7%	21%	21%
Total Residential	75,005	57,601	36,341	24,377	21,520	24,926	32,007	37,241	42,886	48,936	-12%	16%	28%
NONRESIDENTIAL BUILDINGS													
Lodging	1,140	1,827	2,274	1,562	727	617	651	698	758	815	-53%	-15%	5%
Office	3,406	4,153	4,355	3,540	2,383	2,288	2,437	2,611	2,784	2,938	-33%	-4%	7%
Commercial	4,822	5,707	5,411	3,351	2,488	2,691	2,839	3,070	3,366	3,655	-26%	8%	5%
Health Care	2,418	2,785	2,979	2,767	2,466	2,542	2,656	2,926	3,326	3,711	-11%	3%	4%
Educational	5,338	6,158	6,662	6,318	5,442	5,390	5,686	6,091	6,618	7,251	-14%	-1%	5%
Religious	487	480	459	382	325	269	265	284	309	329	-15%	-17%	-2%
Public Safety	488	649	831	860	784	760	748	786	831	877	-9%	-3%	-2%
Amusement and Recreation	1,196	1,350	1,386	1,167	1,040	1,030	1,087	1,142	1,230	1,322	-11%	-1%	5%
Transportation	1,758	2,029	2,207	2,264	2,331	2,285	2,388	2,533	2,702	2,906	3%	-2%	4%
Communication	1,397	1,755	1,682	1,221	1,112	1,169	1,245	1,334	1,422	1,515	-9%	5%	7%
Manufacturing	2,054	2,586	3,381	3,566	2,366	2,247	2,234	2,371	2,528	2,745	-34%	-5%	-1%
Total Nonresidential Buildings	24,505	29,479	31,626	26,998	21,464	21,290	22,237	23,845	25,873	28,065	-20%	-1%	4%
NONBUILDING STRUCTURES													
Power	4,283	6,214	7,140	7,580	6,946	7,320	8,520	9,781	10,752	12,117	-8%	5%	16%
Highway and Street	7,304	7,213	7,166	6,984	6,877	6,570	7,428	8,215	8,699	9,103	-2%	-4%	13%
Sewage and Waste Disposal	2,351	2,340	2,263	2,118	2,168	2,093	2,436	2,694	2,880	3,101	2%	-3%	16%
Water Supply	1,517	1,486	1,475	1,310	1,264	1,220	1,407	1,570	1,679	1,824	-3%	-3%	15%
Conservation and Development	520	495	461	489	577	551	642	703	730	764	18%	-4%	16%
Total Nonbuilding Structures	15,975	17,748	18,505	18,481	17,832	17,754	20,433	22,963	24,739	26,909	-4%	0%	15%
Total Put in Place	115,486	104,828	86,473	69,856	60,816	63,970	74,677	84,049	93,498	103,910	-13%	5%	17%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

Regional Summaries



Construction Put in Place

Millions of Current Dollars

PACIFIC FORECAST

											Change From Prior Year		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2010	2011	2012
RESIDENTIAL BUILDINGS													
Single Family	106,143	72,060	36,564	19,825	21,238	24,627	31,480	39,346	49,745	56,767	7%	16%	28%
Multi Family	13,810	12,340	9,369	5,971	3,319	3,997	5,458	6,994	8,483	9,681	-44%	20%	37%
Improvements*	37,618	33,076	23,776	21,135	22,215	27,988	32,413	35,405	38,212	39,847	5%	26%	16%
Total Residential	157,572	117,475	69,709	46,931	46,772	56,611	69,352	81,745	96,439	106,295	0%	21%	23%
NONRESIDENTIAL BUILDINGS													
Lodging	2,633	4,193	5,211	3,633	1,706	1,446	1,512	1,609	1,742	1,867	-53%	-15%	5%
Office	7,867	9,531	9,979	8,231	5,591	5,359	5,660	6,023	6,400	6,731	-32%	-4%	6%
Commercial	11,137	13,098	12,400	7,793	5,839	6,303	6,594	7,082	7,739	8,372	-25%	8%	5%
Health Care	5,585	6,392	6,826	6,435	5,785	5,954	6,169	6,749	7,646	8,501	-10%	3%	4%
Educational	12,330	14,132	15,266	14,691	12,768	12,624	13,207	14,052	15,214	16,611	-13%	-1%	5%
Religious	1,125	1,101	1,052	888	763	631	616	655	709	753	-14%	-17%	-2%
Public Safety	1,128	1,490	1,904	2,001	1,839	1,781	1,738	1,814	1,909	2,008	-8%	-3%	-2%
Amusement and Recreation	2,763	3,098	3,177	2,714	2,440	2,413	2,524	2,635	2,826	3,029	-10%	-1%	5%
Transportation	4,060	4,656	5,057	5,264	5,469	5,352	5,545	5,844	6,210	6,656	4%	-2%	4%
Communication	3,226	4,028	3,855	2,839	2,609	2,738	2,892	3,077	3,270	3,472	-8%	5%	6%
Manufacturing	4,744	5,935	7,748	8,293	5,550	5,264	5,189	5,469	5,812	6,287	-33%	-5%	-1%
Total Nonresidential Buildings	56,597	67,653	72,476	62,784	50,359	49,866	51,646	55,011	59,478	64,289	-20%	-1%	4%
NONBUILDING STRUCTURES													
Power	5,421	8,544	9,928	10,919	10,074	11,485	12,619	14,297	16,012	17,809	-8%	14%	10%
Highway and Street	9,244	9,919	9,963	10,061	9,974	10,308	11,002	12,008	12,954	13,379	-1%	3%	7%
Sewage and Waste Disposal	2,975	3,217	3,147	3,052	3,145	3,284	3,608	3,938	4,289	4,557	3%	4%	10%
Water Supply	1,920	2,043	2,051	1,887	1,834	1,914	2,083	2,296	2,500	2,681	-3%	4%	9%
Conservation and Development	658	680	641	705	837	865	951	1,028	1,088	1,123	19%	3%	10%
Total Nonbuilding Structures	20,219	24,404	25,730	26,625	25,864	27,856	30,262	33,566	36,842	39,549	-3%	8%	9%
Total Put in Place	234,388	209,533	167,915	136,340	122,995	134,332	151,260	170,323	192,759	210,134	-10%	9%	13%

* Improvements include additions, alterations and major replacements. It does not include maintenance and repairs.

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