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We have to start our report with a correction. Most days for people who write a lot of reports, a correction means fixing an error caught in proofing. Corrections happen all the time, but when the correction involves the stock market, it has a more specific meaning: “A market correction refers to a price decline of at least 10% of any security or market index following a temporary upswing in market prices.” (http://www.investinganswers.com/financial-dictionary/) Sometime around August 19, the correction began, although it wouldn’t be recognized as a correction until around August 24. Nonetheless, as of August 30 the DJIA was somewhere around 87% higher than it was five years earlier. So what does this mean to the construction industry and its markets? For one thing, there is a much different time scale. Most of the construction industry’s economic reports are issued on a monthly or quarterly basis. Generally, the time it takes to plan, build and occupy or create the products of construction are measured in months and years, not minutes and milliseconds. While there are changes in our forecast each quarter, the underlying drivers for many construction sectors change little in most markets. Nonetheless, the stock market is one important barometer of a future financial status.

As readers of FMI’s Nonresidential Construction Index report for the third quarter 2015 may recall, we asked panelists to give us their opinions on the potential effects to their business in the light of ongoing economic crises abroad, i.e., the Eurozone (Greece, Italy, Spain and Portugal), Puerto Rico and market losses in China. However, 25% of our panelists were not sure how those various potential crises would eventually play out. There were a few NRCl panelists who noted they were more concerned about what might be happening in China, for instance, “Interest rates, China’s slowing economic growth and a destabilized Middle East are all more worrisome than Greece.” Their concerns were well-placed. China devalued its currency by 4% over August 11-12, confirming what many suspected—China’s economy was not quite as good as reports from China seemed to imply.

Investors are naturally willing to take on various amounts of risk, but when uncertainty meets opacity, the risk calculations become more complicated. Faced with that situation, on top of a long list of other “known unknowns,” it appears that a number of super computers and nervous investors decided in unison to take some profits out of an otherwise bullish stock market. The market would stand corrected.

In our NRCl report for Q3 2015, we wrote, “Nonetheless, even though most don’t expect any immediate repercussions to the debt problems in Europe, etc., there is a sense that a ‘Black Swan’ lurks in the reeds, and that causes uncertainty.” China’s currency devaluation was unexpected. Was this event the potential Black Swan or a Black Swan averted? In his book “The Black Swan” (2007), Nassim Nicholas Taleb summarized the characteristics of a Black Swan event as “rarity, extreme impact, and retrospective (though not prospective) predictability.” This isn’t the first time China has devalued its currency, but it hasn’t happened often. On the other hand, many currencies float in line with the dollar in the foreign exchange market. We could say China’s surprise move had extreme impact, but it is really too soon to tell the full extent, and it is also too early to do a full retrospective. Black Swans are not necessarily bad events. Out of turmoil there may come world-changing inventions and ideas. Nonetheless, the “correction” was significant, as CNN reported, “The American stock market has surrendered a stunning $2.1 trillion of value in just the last six days of market chaos.” (CNN, August 26, 2015). For the time being, we might view the market correction as just that, a course correction to better reflect the real value of the markets. (It would have been nice to apply that $2.1 trillion to the national debt, but that isn’t the way things work.)
While the stock markets seemed to have had a significant back-to-school sale with everything 10% off, the U.S. economy was humming along at a reported “annual rate of 3.7 percent in the second quarter of 2015.” (Bureau of Economic Analysis, August 27, 2015) Unemployment was at 5.3%, and many industries, including the construction industry, were struggling to find talented workers. Gasoline prices were at the lowest they have been in over five years, and construction put in place for 2015 is expected to end the year with 6% growth and another 7% forecast for 2016. There are even those that translate the troubles in the stock market and China to be sufficient reason for the Federal Reserve to hold off on its long anticipated announcement of interest rate hikes. (Those reading this report several months after it was written will be able to verify that line of thinking.) So the “C” word for now remains correction, not crash or catastrophe or even China Syndrome. In fact, the economy could be considered a C student, or maybe a generous professor would give it a C+.

The most important things happening to offset the problems in the economy include investing in production, productivity and new ideas that will keep the next generation working for years to come. That is what will really make the economy hum a happier tune.

**Construction Forecast**

After adjusting our forecast for construction down a notch last quarter to 5%, we now expect 6% growth for 2015 and 7% for 2016 to reach $1.09 trillion, the highest total since 2008, unadjusted for inflation. Manufacturing has been the rock star of 2015 and should come in at 18% growth for 2015. However, that pace is unlikely to continue, as we predict only 5% to 7% for 2016 through 2019. Manufacturing and industrial construction requires a long planning cycle in most cases; it also is a market that reflects global competition as countries strive to keep their workers employed and boost exports. Lower energy prices are, overall, beneficial to this sector, with the exception being mining and oil and gas construction, which has slowed since energy prices started dropping last year. Lower energy prices, along with a trained and available workforce and improved modes of transportation, also attract manufacturing. The completion of the Panama Canal will mean a boost for manufacturing in Gulf Coast states.

Other strong markets for 2015 include lodging, office, and amusement and recreation, all experiencing double-digit growth. Multifamily con-

**IN FACT, THE ECONOMY COULD BE CONSIDERED A C STUDENT, OR MAYBE A GENEROUS PROFESSOR WOULD GIVE IT A C+**
RESIDENTIAL CONSTRUCTION

After three years of rapid growth, single-family and multifamily construction have cooled somewhat. We expect single-family construction to end the year at 9% growth and multifamily to realize 11% growth for 2015. Along with home improvements, the total 9% residential construction growth for 2015 will continue into 2016. After a rapid rise for multifamily post-recession, there is the sense that it is temporarily overbuilt in some areas. The growth of residential purchases of new and existing homes has also slowed multifamily momentum. Currently, nationwide, there is more demand than supply for housing, as the current supply is at 5.2 months as of July 2015. That compares with a supply of 5.1 months in March and a supply of 12.2 months at the height of the recession in January 2009. The average monthly supply since 1963 is 6.1 months. Although housing starts have continued to trend upward—now at 1,206,000—that is still lower than the historical average of 1,452,000 since 1970.

The new interest in purchasing a home and the reduced inventory have tipped the supply/demand balance in favor of the seller in many parts of the country, with the S&P/Case-Shiller Home Price Indices increasing 4.5% for existing home sales. “According to the latest NAHB/Wells Fargo Housing opportunity Index, 66.5% of new and existing homes sold between January and the end of March were affordable to families earning the U.S. median income of $65,800.” (“Increasing Housing Affordability Opens Doors to Homeownership for More Americans,” NAHB National Association of Home Builders, June 1, 2015) With employment remaining strong, wages slowly improving and the threat of higher interest rates sometime this year, more new homebuyers and fence-sitters may take the plunge to become homeowners. However, there are always circumstances that may continue to hold home ownership down, and the losses in the stock market could make many would-be buyers feel a little lighter in the savings account.
NEW PRIVATELY OWNED HOUSING UNITS STARTED
Seasonally Adjusted Annual Rate

TRENDS:

- According to its August 2015 report, RealtyTrac reported a total of 124,910 U.S. properties with foreclosure filings — default notices, scheduled auctions and bank repossessions — in July, up 7 percent from the previous month and up 14 percent from a year ago. July was the fifth consecutive month with a year-over-year increase in overall foreclosure activity following 53 consecutive months of decreases.” (RealtyTrac.com, August 19, 2015)

- The S&P Dow Jones Indices for its S&P/Case-Shiller Home Price Indices “recorded a slightly higher year-over-year gain with a 4.5% annual increase in June 2015 versus a 4.4% increase in May 2015. The 10-City Composite had marginally lower year-over-year gains, with an increase of 4.6% year-over-year. The 20-City Composite year-over-year pace was virtually unchanged from last month, rising 5.0% year-over-year.” (PR Newswire.com, August 25, 2015)

- According to the U.S. Census Bureau, “Privately-owned housing units authorized by building permits in July were at a seasonally adjusted annual rate of 1,119,000. This is 16.3 percent (±1.1%) below the revised June rate of 1,337,000, but is 7.5 percent (±1.4%) above the July 2014 estimate of 1,041,000.” (August 2015)

DRIVERS:

- Unemployment
- Core CPI
- Income
- Mortgage rates
- Home prices
- Housing starts
- Housing permits

Source: Federal Reserve Economic Data Link: http://research.stlouisfed.org/fred2
FMI NONRESIDENTIAL CONSTRUCTION FORECAST

Lodging
Lodging construction continues a trend of rapid growth of 15% for 2015 and an expected rate of 12% for 2016 to $20.8 billion. The current pace is expected to slow to only 8% growth in 2017. Increased business travel and improving room rates combine to bring this market back from the overbuilt prerecession levels.

TRENDS:
- According to HospitalityNet, “PKF-HR is forecasting gains in excess of 10% for both 2015 and 2016 for unit-level net operating income, extending the streak of double-digit increases in hotel profits to six consecutive years.”
- Lodging Econometrics reports, “Now at 3,885 Projects/488,230 Rooms, the Total Construction Pipeline has shown seven consecutive quarters of growth, with the last three quarters posting Year-Over-Year (YOY) gains of 20% or greater.” (Lodging Econometrics, May 2015)
- STR reports the “industry’s occupancy increased 1.2% to 74.3%. Average daily rate for the week was up 3.9% to US$122.30. Revenue per available room increased 5.1% to finish the week at US$90.85.” (“U.S. Hotel Occupancy Up 1.2% to 74.3% Week Ending August 15th – 2015,” STR, August 20, 2015)
- The greatest amount of growth will continue to be upscale properties and event locations.
- Green building is more commonplace in remodels and retrofits.

DRIVERS:
- Occupancy rate
- RevPar
- Average daily rate
- Room starts

LODGING CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

* FMI Forecast
Office

Office construction has slowed since reaching 21% in 2014, but the current rate of 15% growth for 2015 continues to show that there is still steam in the office construction recovery. We expect growth to carry over into 2016 and beyond, but at a slower rate. Continued growth in the technical sector and in larger metropolitan areas like New York City will keep rents and absorption of new space high.

TRENDS:

- According to the National Association of Realtors, “office vacancies are expected to drop below 15.0 percent by the end of this year. Rents for office properties rose 2.5 percent over the first six months of 2015, leading to projections that—at the current demand pace—they will close the year higher by 5.0 – 6.0 percent from 2014.” (“Commercial Real Estate Outlook: 2015.Q3,” National Association of Realtors)
- JLL’s “Office Investment Outlook, Q2 2015” reports, “Leasing activity surges as scientific and technical companies continue to grow. More than 40.0 percent of all office leases 20,000 square feet and larger are exhibiting growth this quarter.”

DRIVERS:

- Office vacancy rate
- Unemployment rate

OFFICE CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

[Chart showing office construction put in place from 2000 to 2019, with forecast for 2016-2019 labeled as * FMI Forecast]
Commercial

Commercial construction is expected to end 2015 with growth of 8% on top of 18% growth for 2014. The return to growth of one of the largest construction sectors, weighing in at $67.7 billion for 2015, reflects the improvement in the U.S. economy. Some of the fastest-growing areas are drinking places and food services. While many national chain stores are closing properties, new startup businesses are taking off in major metro areas. Though online sales continue to grow, the future will be an integration of storefronts and online marketing.

TRENDS:
- According to the U.S. Census Bureau, “[A] advance estimates of U.S. retail and food services sales for July, adjusted for seasonal variation and holiday and trading-day differences, but not for price changes, were $446.5 billion, an increase of 0.6 percent (±0.5%) from the previous month, and up 2.4 percent (±0.7%) above July 2014. Total sales for the May 2015 through July 2015 period were up 2.3 percent (±0.7%) from the same period a year ago.” (U.S. Department of Commerce, August 13, 2015)
- The Department of Commerce also reported, “Food services and drinking places were up 9.0 percent (±3.3%) from July 2014, and motor vehicle and parts dealers were up 6.9 percent (±2.8%) from last year.” Nonstore retailers grew 5.2% over 2014.
- Consumer confidence rose 10.5 points in August to 101.5 (The Conference Board).
- Closings of well-known chain stores like Sears, JCPenney and RadioShack signal a change in consumer shopping habits as well as an example of traditional brands’ inability to move with the trends.

COMMERCIAL CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

![Graph showing commercial construction put in place from 2000 to 2019](image_url)
Health Care

Health care construction is returning to a more historical growth rate for 2015 through our forecast horizon of 2019. Construction put in place for health care construction should end up at $40.4 billion for 2015 and grow to $1.9 billion in 2016. Although traditional large hospital projects are returning to the drawing boards and starts, the bulk of the work will be renovation and additions as well as outpatient care.

TRENDS:
- Hospitals cautious with new investment due to changing nature of health care and insurance as well as the need for more qualified health care workers to staff any additions.
- Veterans Administration hospitals rocked by poor management and patient care, old facilities and huge construction cost overruns.
- According to Health Facilities Management, “Ambulatory care accounts for approximately one-third of health care spending in the United States, slightly more than inpatient care, according to the U.S. Department of Health and Human Services' Agency for Healthcare Research and Quality.”
- “Renovation and expansion projects will account for about 73% of total healthcare-related construction.” (Giants 300 Report. Hospital and medical office construction facing a slow but steady recover.” Building Design and Construction, August 6, 2015)
- The new model for hospitals is the medical center with a cluster of offices including beds, which will deliver more of a patient's needs.
- Nontraditional funding sources for private nonprofit facilities.
  - Private development and equity
  - Government or government-backed
  - Pension and life insurance companies

DRIVERS:
- Population change younger than age 18
- Population change ages 18-24
- Stock market
- Government spending
- Nonresidential structure investment

HEALTH CARE CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

[Graph showing health care construction put in place from 2000 to 2019, with a forecast for 2016 to 2019.]*
Education

Our forecast for education construction has changed little in recent reports. The good news remains that this sector is growing again, although at a continued low rate of 3% for 2015 and an expected 4% for 2016. Although tax revenues have been improving for about half the states, increases in funding for school construction are slow to return to the highs prior to the recession. That means the need for new and renovated schools will continue to grow in most parts of the country. The National Education Foundation (NEA) reports that $197 billion is “needed for repairs, renovations and modernizations to bring on-site public schools up to a good overall condition.” (NEA, September 9, 2014)

TRENDS:
- Significantly less funding from states for K-12 schools.
- Enrollment growth 2.5 million in the next four years.
- New designs for schools will be more flexible for changing classrooms and greater use of natural light. Expect more use of modular building designs.
- Greater attention to reducing energy use and employing green building technologies.
- Renovation and additions to current school buildings will continue to grow in comparison to new school projects.
- Greater focus on safe schools, as the threat for shootings on campus continues to rise.

DRIVERS:
- Population change younger than age 18
- Population change ages 18-24
- Stock market
- Government spending
- Nonresidential structure investment

EDUCATION CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015
Religious

Religious construction continues to decline with our current forecast for 2015 indicating no growth, and the outlook for 2016 is just 2% growth. Although the recession can be seen as a primary reason for slow growth in this sector, there are also many other changes in the religious landscape, including a changing mix of religious faiths in America and fewer people who consider themselves regular churchgoers, even if they still belong to a certain faith. Many new churches are small and established in existing buildings like those found in vacated shopping centers.

TRENDS:
- The 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.
- PEW Research Center reports the share of people who describe themselves as Christians has dropped by nearly eight percentage points in just seven years, from 78.4% in an equally massive Pew Research survey in 2007 to 70.6% in 2014. Over the same period, the percentage of Americans who are religiously unaffiliated – describing themselves as atheist, agnostic or ‘nothing in particular’ – has jumped more than six points, from 16.1% to 22.8%. (America’s Changing Religious Landscape, PEW Research Center, May 12, 2015)
- New methods for charitable giving, including online giving and donation collections, are empowering religious organizations.

RELIGIOUS CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

[Chart showing religious construction put in place from 2000 to 2019, with millions of current dollars and years on the x-axis, and millions of current dollars on the y-axis.]

* FMI Forecast
Public Safety

Spending for public safety construction is currently on the decline with our forecast calling for a 3% drop in 2015 and a return to only 2% growth in 2016. In part, this is largely the result of reduced government spending. Otherwise, there are questions as to how much should be privatized or publicly funded. The prison breakout in northern New York in 2015 put some light on the age and condition of some of the prisons in the country.

TRENDS:

- “The federal prison system is increasingly overcrowded. Overall, the federal prison system was 36% over its rated capacity in FY2013, but high- and medium security male facilities were operating at 52% and 45%, respectively, over rated capacity. At issue is whether overcrowding might lead to more inmate misconduct.”
- “While our country is home to only 5% of the world’s total population, we are home to 25% of the world’s prison population.” (Sen. Cory A. Booker, CNN, April 23, 2015)
- 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.
- CM at-risk or design-build arrangements will increase.
- P3s overcome shortfalls in public financing.

DRIVERS:

- Population
- Government spending
- Incarceration rate
- Nonresidential structure investment

PUBLIC SAFETY CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

[Bar chart showing annual public safety construction put in place from 2000 to 2019. The chart includes a legend that indicates the forecast for 2019.]

* FMI Forecast
Amusement and Recreation

Amusement and recreation construction growth jumped to 11% in 2015 after growing 9% in 2014. Our forecast calls for a slower 8% growth in 2016, but still strong compared with most sectors. Sports venues are promoted as job creators with the ability to revitalize many dilapidated areas around a city. While many question the return on investment when public money is concerned, America still loves its sports and is willing to invest its money to partake in the pastime, whether at the stadium or in front of the big screen TV.

TRENDS:
- The Tropicana Las Vegas was sold to Penn National Gaming. According to Meeting and Conventions online magazine, “In the first phase of a two-part, three- to five-year plan, Penn will invest approximately $20 million over the next six to nine months on facility improvements and the integration of the property into its portfolio.” (August 23, 2015)
- A new, privately funded indoor arena was recently announced by the partnership of AEG and MGM Resorts International. The Las Vegas arena will have 20,000 seats and is expected to cost $375 million.
- Building Design and Construction reported recently that “the Green Bay Packers will break ground on Titletown District, a mixed-used development west of the NFL team’s home of Lambeau Field.” (August 24, 2015) This is not a sports venue, per se, but characteristic of mixed-use development around sports venues.
- Public/private venture planned for the campus of UNLV includes a 50,000-seat, domed stadium but still waiting approvals and taxpayer votes on plan to allow the project to be tax-free.
- Competition in the gaming sector will draw business away from some existing gambling centers, such as Atlantic City and Las Vegas, as well as from other public arenas.

DRIVERS:
- Income
- Personal savings
- Unemployment rate

AMUSEMENT AND RECREATION CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

[Graph showing amusement and recreation construction put in place from 2000 to 2019, with a note indicating FMI Forecast for 2016-2019.]
Transportation

Transportation construction achieved a solid 9% growth in 2015, and it is expected to match that growth rate for 2016. After Vice President Biden compared LaGuardia Airport with a third-world country, it is finally breaking ground on a $4 billion renovation or nearly a complete rebuild. Like many airports near major metropolitan areas, it is landlocked, thus restricting the ability to build new and badly needed runways. However, the LaGuardia project will manage to rearrange buildings to allow for new runways.

TRENDS:

- According to the American Association of Railroads report for July 15, 2015, “Total carloads for the week ending July 11, 2015 were 271,494 carloads, down 6.6 percent compared with the same week in 2014, while U.S. weekly intermodal volume was 262,603 containers and trailers, up 2.4 percent compared to 2014.” (AAR, July 15, 2015)
- The FAA Modernization and Reform Act will provide $63.6 billion for the agency’s programs between 2012 and 2015.
- “The 2015 FAA forecast calls for U.S. carrier passenger growth over the next 20 years to average 2.0 percent per year, slightly lower than last year’s forecast. The sharp decline in the price of oil in 2015 is a catalyst for a short lived uptick in passenger growth.” (FAA Aerospace Forecast Fiscal Years 2015-2035)
- High-speed rail is slow to get projects off the ground due to state funding and political resistance.
- The recent disaster involving an Amtrak train derailment in Philadelphia points up the need for improving transportation infrastructure as well as safety procedures.

TRANSPORTATION CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015
Communication

Communication construction put in place will improve by 4% over last year. We expect between 3% and 5% growth each year through 2019. The trend for communications is likely to be more integration and mergers in order to capture market share. The current trend is for building more data centers and beefing up security and privacy against potential interlopers and severe weather events. The passing of new net neutrality regulations by the FCC is designed to protect the free flow of content on the Internet. This means that access providers cannot charge special rates for data flows or slow down the delivery of certain content to others. With mergers and proposed mergers, we will see a rise in multimedia giants.

TRENDS:
- The AT&T/Direct TV merger has been approved. One of the stipulations of the approval is that AT&T connects fiber-optic service to 12.5 million new customer locations.
- “Mini towers” for increasing coverage and spectrum will proliferate rapidly in the next five years.
- Google Fiber is deploying high-speed gigabit connections in selected metro areas.
- Data security is critical for large businesses and governments in the face of potential disasters and threats from hackers and foreign enemies.

DRIVERS:
- Innovation/technology
- Global mobility
- Population
- Security/regulatory standards
- Private investment

COMMUNICATION CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

* FMI Forecast
Manufacturing

Manufacturing is currently the fastest-growing construction sector at 18% for 2015. However, we expect that rate to slow in 2016 to just 5%. Continued low energy prices will hold down capacity additions in the oil and gas sector, but help those relocating or expanding in other areas of manufacturing including the current boom in the petrochemical areas. One concern, like much of the construction industry, is the lack of trained personnel needed to keep up with growing backlogs. Current fluctuations in the stock market and the future direction of the Chinese economy will be watched closely by those considering adding new manufacturing plants or relocating to the U.S. from offshore locations.

TRENDS:

- With little change since last quarter, manufacturing capacity utilization rates are at 77.7% of capacity in July 2015, which is near the historical average.
- The U.S. Department of Commerce reports, “Nondefense new orders for capital goods in July increased $0.9 billion or 1.1 percent to $82.3 billion. Shipments increased $0.1 billion or 0.1 percent to $79.3 billion. Unfilled orders increased $3.1 billion or 0.4 percent to $762.2 billion. Inventories increased $0.2 billion or 0.1 percent to $177.3 billion.”
- “Reshoring of manufacturing” may experience setbacks as long as the dollar stays strong in international markets.
- “New orders for manufactured durable goods in July increased $4.6 billion or 2.0 percent to $241.1 billion, the U.S. Census Bureau announced today. This increase, up two consecutive months, followed a 4.1 percent June increase. Excluding transportation, new orders increased 0.6 percent. Excluding defense, new orders increased 1.0 percent.” (U.S. Census Bureau, July 2015)
- The Manufacturing ISM® Report On Business® reports the PMI for August 2015 was at 51.1%.

DRIVERS:

- PMI
- Industrial production
- Capacity utilization
- Durable goods orders
- Manufacturing inventories

MANUFACTURING CONSTRUCTION PUT IN PLACE

Forecast as of Q3 2015

[Graph showing manufacturing construction put in place from 2000 to 2019]
NONBUILDING STRUCTURES

Power
After a strong year in 2014, power construction has slipped 8% in 2015 and is expected to regain 3% of that drop in 2016 to $96.7 billion. The power industry is in flux due to changing fuel supplies using more natural gas and less coal as well as variable rates of growth in alternative energy sources like solar and wind. Power plants must be updated to keep up with changing requirements as well to manage distributed generation sources. Despite losing subsidies and the lower cost of oil and gas, wind and solar power generation facilities continue to grow. The power industry will continue to consolidate as the average consumer reduces power use, although demand will continue to grow due to population growth.

TRENDS:
- Power companies are placing greater emphasis on flexibility to respond to peak needs alongside hydropower, solar and wind-generating facilities.
- According to the “Annual Energy Outlook 2015,” “Growth in U.S. energy production—led by crude oil and natural gas—and only modest growth in demand reduces U.S. reliance on imported energy supplies. Energy imports and exports come into balance in the United States starting in 2028 in the AEO2015 Reference case and in 2019 in the High Oil Price and High Oil and Gas Resource cases. Natural gas is the dominant U.S. energy export, while liquid fuels continue to be imported. Due to increased manufacturing activity, most growth will come from the industrial sector.” (EIA Annual Energy Outlook 2015)
- Consumer electricity demand has been slowing due to appliances that are more efficient.

DRIVERS:
- Industrial production
- Population
- Nonresidential structure investment

POWER CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

![Power Construction Put in Place Chart]

* FMI Forecast
Highway and Street

Even without a long-range highway-funding bill, highway and street construction increased 3% in 2015 and is expected to eke out another 2% in 2016. This is largely due to increased state and local funding of necessary highway and bridge projects. Whether or not there is a more reliable source of funding, repairs and emergency response must continue while large projects may be tabled until more secure funding is in place.

TRENDS:

- According to Finance and Commerce, “About $163 billion is needed annually over a six-year period for highways, bridges and transit systems, yet only about $105 billion is being invested, according to a December report from the American Association of State Highway and Transportation Officials and the American Public Transportation Association.” (finance-commerce.com/2015/04)

- The current extension for the Highway Trust Fund expires October 29, 2015. The current bill extends funding for three years, but this is the beginning of another political season, so it continues to be seen if a bill will pass.

DRIVERS:

- Population
- Government spending
- Nonresidential structure investment

HIGHWAY AND STREET CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

![Graph showing highway and street construction put in place from 2000 to 2019.](image-url)
Sewage and Waste Disposal

Construction put in place for sewage and waste disposal construction grew 6% in 2015 and will continue at the rate of 4% in 2016. Often this area of civil construction is overlooked until some kind of disaster or failure. That is why there are several projects proceeding around the country due to court order. DigIndy is one such case. According to the Indianapolis Business Journal, “In 2006, the U.S. Environmental Protection Agency and the U.S. Department of Justice reached a consent agreement with the city to eliminate 97 percent of combined sewer overflow by 2025.” (July 11, 2015) The $1.9 billion plan is a massive undertaking, but it proceeding in good order, according to IBJ.

TRENDS:

- Growth, driven by aging infrastructure and regulation, is on the horizon, but the length of the horizon is still unknown. Slow water infrastructure markets in the aftermath of the recession continue to build the backlog of necessary work as existing infrastructure ages.
- 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 (stormwater and sewage) serve roughly 950 communities with about 40 million people. Most communities with CSOs are located in the Northeast and Great Lakes.
- The Clean Water State Revolving Fund (CWSRF) programs have provided more than $5 billion annually in recent years to fund water-quality protection projects.

DRIVERS:

- Population
- Industrial production
- Government spending

SEWAGE AND WASTE DISPOSAL CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015
Water Supply

Water supply construction will grow 4% in 2015 and is expected to maintain slower growth between 2 and 4% through 2019. The severe drought in the western part of the country and subsequent fires with potential winter floods predicted should be enough to spur new solutions to water supply control. However, water supply is likely to remain in the background in other areas of the country due to spending cutbacks and lack of long-range planning.

TRENDS:
- Gov. Jerry Brown declares a drought emergency, and recent fires have only made the continuing water shortage worse.
- Recent research from the EPA reports, “$72.5 billion is needed to prevent contamination of 73,400 water systems across the country, as well as water systems in American Indian, Alaska Native Village and other U.S. territories.” (Wengian Zhu, CNN Money, June 5, 2013)
- Green construction practices, such as controlling runoff to help increase groundwater, will become the norm for improvements and new construction.
- Water for shale oil and gas mining will increase demand in selected areas of the country.

DRIVERS:
- Population
- Industrial production
- Government spending

WATER SUPPLY CONSTRUCTION PUT IN PLACE
Forecast as of Q3 2015

* FMI Forecast
Conservation and Development

After a period of rapid growth in 2014, conservation and development construction slowed to just 6% in 2015. As oil and gas exploration slows, many related conservation projects will also come to a halt for the time being. The low cost of energy is driving an onshoring phenomenon in other industrial sectors, such as chemical and automotive. Conversely, Department of Defense and Department of Energy markets continue to struggle against the headwinds of budget constraints. Industrial market strength should increase the size of the overall environmental market, albeit much more slowly as public markets contract.

The Army Corp of Engineers Civil Works Program budget for FY 2015 calls for $1,507,079,864 in spending for environmental projects like flood control and restoration of beaches and waterways.

DRIVERS:

- Population
- Government spending

CONSERVATION AND DEVELOPMENT CONSTRUCTION PUT IN PLACE

Forecast as of Q3 2015

* FMI Forecast
Construction Put in Place
Estimated for The United States
Millions of Current Dollars
3rd Quarter 2015 Forecast (based on 2nd Quarter 2015 Actuals)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Multifamily</td>
<td>17,405</td>
<td>17,821</td>
<td>26,293</td>
<td>38,545</td>
<td>50,689</td>
<td>56,151</td>
<td>63,136</td>
<td>68,108</td>
<td>72,596</td>
<td>79,413</td>
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<tr>
<td>Improvements*</td>
<td>118,398</td>
<td>124,853</td>
<td>128,738</td>
<td>135,306</td>
<td>130,613</td>
<td>110,125</td>
<td>115,485</td>
<td>119,937</td>
<td>125,609</td>
<td>132,529</td>
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<tr>
<td>Total Residential</td>
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<td>252,657</td>
<td>286,847</td>
<td>341,215</td>
<td>345,993</td>
<td>375,691</td>
<td>408,538</td>
<td>437,931</td>
<td>472,571</td>
<td>512,109</td>
</tr>
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</table>

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</thead>
<tbody>
<tr>
<td>Lodging</td>
<td>11,635</td>
<td>9,129</td>
<td>10,836</td>
<td>13,484</td>
<td>16,124</td>
<td>18,539</td>
<td>20,762</td>
<td>22,521</td>
<td>23,476</td>
<td>24,916</td>
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<td>Office</td>
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<td>36,011</td>
<td>37,800</td>
<td>39,799</td>
<td>46,056</td>
<td>52,579</td>
<td>56,306</td>
<td>57,660</td>
<td>61,229</td>
<td>66,691</td>
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<tr>
<td>Commercial</td>
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<td>47,335</td>
<td>53,159</td>
<td>62,708</td>
<td>67,659</td>
<td>74,414</td>
<td>79,134</td>
<td>80,770</td>
<td>84,691</td>
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<tr>
<td>Health Care</td>
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<td>40,204</td>
<td>42,544</td>
<td>40,689</td>
<td>38,410</td>
<td>40,416</td>
<td>41,899</td>
<td>44,277</td>
<td>47,454</td>
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<td>84,985</td>
<td>84,672</td>
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<td>79,700</td>
<td>82,277</td>
<td>85,810</td>
<td>88,956</td>
<td>93,825</td>
<td>99,362</td>
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<td>Public Safety</td>
<td>11,153</td>
<td>10,407</td>
<td>10,431</td>
<td>9,506</td>
<td>9,380</td>
<td>9,079</td>
<td>9,284</td>
<td>9,695</td>
<td>10,041</td>
<td>10,516</td>
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<td>Amusement and Recreation</td>
<td>16,943</td>
<td>15,995</td>
<td>15,480</td>
<td>15,207</td>
<td>16,630</td>
<td>18,499</td>
<td>19,972</td>
<td>20,662</td>
<td>21,650</td>
<td>22,760</td>
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<td>Transportation</td>
<td>38,340</td>
<td>34,737</td>
<td>37,862</td>
<td>39,459</td>
<td>41,786</td>
<td>45,655</td>
<td>49,917</td>
<td>54,086</td>
<td>57,278</td>
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<td>Communication</td>
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<td>17,783</td>
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<td>17,742</td>
<td>18,716</td>
<td>19,237</td>
<td>19,971</td>
<td>20,792</td>
<td>21,227</td>
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<td>Manufacturing</td>
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<td>40,559</td>
<td>47,741</td>
<td>50,548</td>
<td>57,751</td>
<td>68,282</td>
<td>71,850</td>
<td>75,920</td>
<td>81,427</td>
<td>86,970</td>
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</table>

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

Construction Put in Place
Estimated for The United States
Change From Prior Year - Current Dollar Basis
3rd Quarter 2015 Forecast (based on 2nd Quarter 2015 Actuals)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>SingleFamily</td>
<td></td>
<td>-3%</td>
<td>20%</td>
<td>27%</td>
<td>15%</td>
<td>9%</td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td>Multifamily</td>
<td></td>
<td>-46%</td>
<td>2%</td>
<td>48%</td>
<td>47%</td>
<td>32%</td>
<td>11%</td>
<td>12%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>Improvements*</td>
<td></td>
<td>2%</td>
<td>5%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Total Residential</td>
<td></td>
<td>-2%</td>
<td>1%</td>
<td>14%</td>
<td>19%</td>
<td>1%</td>
<td>9%</td>
<td>9%</td>
<td>7%</td>
<td>8%</td>
</tr>
</tbody>
</table>

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

WEEKLY U.S. REGULAR CONVENTIONAL RETAIL GASOLINE PRICES
Dollars Per Gallon

CONSUMER PRICE INDEX
Inflation Remains Low
CONSTRUCTION UNEMPLOYMENT RATES

EMPLOYMENT AND UNEMPLOYMENT RATE COMPARISON
CONSTRUCTION AS A PERCENTAGE OF GDP

CONSTRUCTION SPENDING AND NOMINAL GDP

* FMI Forecast
VALUE OF PUBLIC CONSTRUCTION PUT IN PLACE – SEASONALLY ADJUSTED RATE

(Millions of dollars. Details may not add to totals due to rounding.)

<table>
<thead>
<tr>
<th>Value of Construction Put in Place – Seasonally Adjusted Annual Rate (Millions of Dollars)</th>
<th>Total Construction Put in Place (June 2014)</th>
<th>% of Total Construction Put in Place (Q2 2014)</th>
<th>Total Construction Put in Place (Q2 2015 Forecast)</th>
<th>% of Total Construction Put in Place (Q2 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Public Construction</td>
<td><strong>$276,233</strong></td>
<td>29%</td>
<td><strong>$298,228</strong></td>
<td>29%</td>
</tr>
<tr>
<td>State and Local</td>
<td><strong>$253,286</strong></td>
<td>26%</td>
<td><strong>$276,010</strong></td>
<td>27%</td>
</tr>
<tr>
<td>Federal</td>
<td><strong>$22,947</strong></td>
<td>2%</td>
<td><strong>$22,219</strong></td>
<td>2%</td>
</tr>
<tr>
<td>FMI Forecast: Private Construction Put in Place</td>
<td><strong>$688,070</strong></td>
<td>71%</td>
<td><strong>$727,713</strong></td>
<td>71%</td>
</tr>
<tr>
<td>FMI Forecast: Construction Put in Place</td>
<td><strong>$946,303</strong></td>
<td>100%</td>
<td><strong>$1,025,941</strong></td>
<td>100%</td>
</tr>
<tr>
<td>* from U.S. Census Bureau Construction Spending</td>
<td></td>
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</tr>
</tbody>
</table>

CONFEERENCE BOARD CONSUMER CONFIDENCE INDEX

![Graph of Conference Board Consumer Confidence Index](image-url)
Benefits
A Construction Market Forecast From FMI's Research Services Group Can:
- Supply the market-oriented, economy-driven dimension essential for preparing, implementing and monitoring strategic plans.
- Be a significant aid in defining, targeting, implementing and monitoring other critical corporate decisions, such as long- and short-term sales goals or redirecting resources (i.e., on a geographic or a product-line basis).
- Provide the basis for estimating submarkets.
- Provide the basis for comparing performance among markets.
- Provide the basis for identifying activities that are beneficial or detrimental to performance.

Features
Each Standard Construction Market Forecast:
- Details construction put in place in three residential building, 11 nonresidential building and five nonbuilding structure categories. It covers the current year, eight previous years and five forecast years. It is available for any county in the U.S. or any combination of counties, metropolitan statistical areas, states, regions, etc.
- Includes both construction values and annual percentage changes. Delivery time depends on the size of the request but is usually only a few days. It can be delivered in printed or electronic form and in most major text or spreadsheet formats. Graphs can be provided at additional cost.

Basis
- Historical information in FMI's standard Construction Market Forecast is based on building permits and construction put in place data as provided by the U.S. Commerce Department. Forecasts are based on econometric and demographic relationships developed by FMI, on information from specific projects gathered from trade sources, and on FMI's analysis and interpretation of current and expected social and economic conditions.

Other Reports
- Reports on state and federally financed highway construction are available for most counties or combinations of counties.
- Custom reports on a wide variety of construction-related topics can be prepared by FMI.
- Reports are based on multiple sources and are appropriate for preliminary analytical and planning purposes but contain little or no direct observation of the area described and are not guaranteed by FMI to be accurate.

For more information, call 919.785.9268.

About FMI's Research Services Group
As the construction industry becomes increasingly competitive, market intelligence becomes an important tool for the building industry. A more complete understanding of the market, market trends, customer perceptions, buying practices, competitor profiles and other market influencers will enhance craft labor studies.

Since 1953, FMI has provided consulting and training services specialized for the construction industry. FMI's market research includes both secondary and primary research designed to meet clients' specific needs. Both types of research are used to provide accurate assessments in a timely, efficient and concise manner for clients.

Typical project work performed includes customer buying practices, competitive analyses, market-size modeling, market forecasts and trends, channel performance analyses, customer satisfaction surveys and sales performance evaluations.

J. Randall (Randy) Giggard
Managing Director
Research Services

Randy Giggard is responsible for design, management and performance of primary and secondary market research projects and related research activities, including economic analysis and modeling, construction market forecasting and database management. Randy's particular expertise is in the areas of market sizing and modeling, competitive analysis, sales and market performance evaluations, buying practices and trends analysis.

Randy holds undergraduate degrees in mechanical engineering from Southern Illinois University and in English from Illinois State University and a master's of marketing and management policy from Northwestern University.

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About FMI

Founded in 1953 by Dr. Emol A. Fails, FMI is the leading management consulting, investment banking* and people development firm dedicated exclusively to the engineering and construction industry. FMI professionals serve all sectors of the industry and combine more than 60-plus years of industry context and leading insights to achieve transformational outcomes for our clients. We have subject matter experts in the following practice areas and serve clients throughout the U.S., Canada and internationally:

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- Strategy
- Market Research
- Business Development
- Operations and Project Execution
- Risk Management
- Compensation
- Peer Groups
- Performance Management

**Investment Banking**
- M&A Representation
- Valuations and Fairness Opinions
- Private Capital Placement
- Ownership Transfer Planning

**People Development**
- Organizational Leadership Development
- Leadership Training
- Executive Coaching
- Succession Planning
- Training and Talent Development

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