2017 U.S. CONSTRUCTION FORECAST REPORT

This report outlines the expected U.S. construction growth for 2017 by end-market and geography based on several different sources.

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How much will construction grow in 2017? Which geographies and end-markets will experience the most growth?

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Executive Summary – 2017 Construction Forecast

Economic Overview

- It is expected that Real GDP growth will be 2.2%, unemployment rate to further improve to 4.8% and inflation will be 2.3% in the United States in 2017

National Construction Forecast

- Construction is expected to grow 7% in 2017, a bit higher than in 2016
    - Single-family will experience the most growth at 12% and Multi-family will continue to grow, but at a slower rate of 3%
    - Institutional (7%) will lead Non-Residential construction (6%)
    - Non-building is forecasted to grow 2%, mainly due to growth in the Transportation (3%)

Regional and State Forecast

- Geographically, the Northeast and West will experience the biggest growth in 2017, both over 8%
    - South will have healthy growth of just under 8% and Midwest will grow at 2%
    - Among the five largest states, California and Florida are forecasted for the strongest growth
    - Overall, West Virginia, Virginia, Mississippi and Arizona will have the highest increase in construction starts spend
    - Six states are expected to have declines in 2017 (KS, IA, UT, ND, SD, DC)

MSA Forecast

- Amongst the Top 50 MSAs, Richmond (24%), San José (19%) and Riverside (18%) will experience the most growth in 2017
    - New York City (12%), Houston (7%), and Dallas (10%) will be the three largest markets in terms of construction starts spend in 2017
    - In 2017, St. Louis (-4%), Nashville (-3%), Portland (-3%), Cincinnati, OH (-2%), Denver (-2%), Minneapolis (-2%), and Austin (-1%) will experience a decrease in construction

Construction Cost Forecasts

- After 2% growth in 2016, overall construction costs are forecasted for ongoing growth (2-3% range) in 2017, led by gains in construction labor wages (3-4%)
- Material costs are forecasted to have 2-3% increase in 2017
    - Asphalt paving, fabricated steel and concrete block pricing should resume growth in 2017
    - Gypsum products will experience 6-7% increase in price

Construction Employment

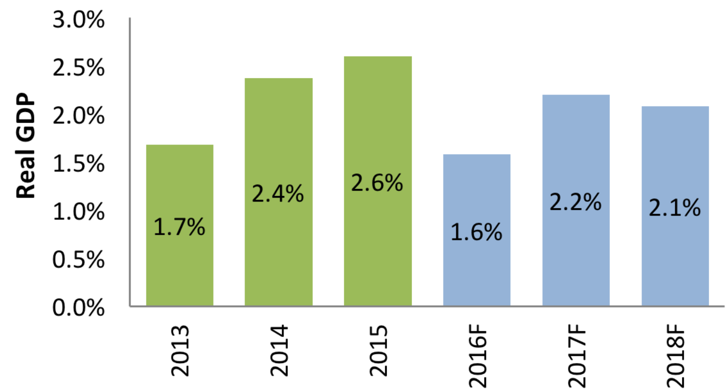
- There were 6.6M construction industry employees in the U.S. in August 2016, 82% of its peak
- The unemployment rate for the construction industry fell to 5.1%
- However, the growth in job openings (194K average unfilled openings per month in 2016) is significantly outpacing the growth in job additions (only 72K jobs added in first eight months)
    - Firms are facing ongoing, and perhaps increasing, struggles to fill open positions, and this is a tangible threat to industry growth

Analysis

Economic Overview

Real GDP is expected to rise by 1.6% during the four quarters of 2016, and then increase 2.2% in 2017, as seen on Graph 1. Given the slow economic recovery, 3% growth, as previously predicted for 2016, doesn't seem attainable, in light of the relatively weak performance in Q1 (0.8%) and Q2 (1.4%). Consumer and business confidence have yet to make a big jump and therefore, consumption and investments are only increasing modestly. This caution is further exacerbated by the uncertainty of the 2016 election.

GRAPH 1: Gross Domestic Product



Source: IMF World Economic Outlook, October 2016

The unemployment rate is projected to be 4.9% (see Table 1) by the fourth quarter of 2016, mirroring the current 4.9% reported in August. Since October 2009, the unemployment rate has been cut in half, declining 0.6 percentage points in 2015 and falling below its pre-recession average. Continued improvement is expected in 2017 declining to 4.8%.

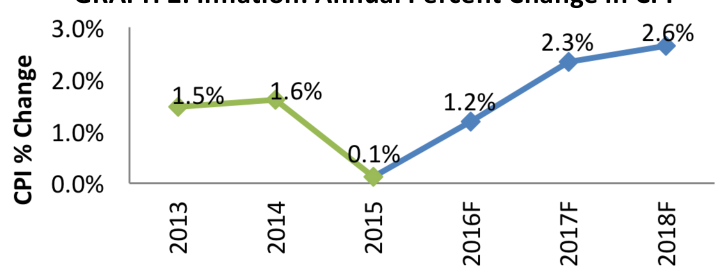
TABLE 1: Employment

Unemployment Rate, Civilian Annual Percentage	
2013	7.4%
2014	6.2%
2015	5.3%
2016F	4.9%
2017F	4.8%
2018F	4.7%

Source: IMF World Economic Outlook, October 2016

For 2016, inflation, which is measured by the consumer price index (CPI), will be around 1%. With the drop in oil prices, inflation was basically nonexistent in 2015 and is forecasted to slowly rebound to above 2.0% in 2017, as you can see in Graph 2.

GRAPH 2: Inflation: Annual Percent Change in CPI



Source: IMF World Economic Outlook, October 2016

Key factors to watch out for, affecting the economy are:

- 2016 Elections
- Global politics and economy (Brexit effect still to be known)
- Federal Reserve's decision regarding rates
- Oil Price fluctuation

National Construction Forecast

Total construction will likely grow 7% in 2017. This growth is a bit higher than the expected growth for 2016. See Table 2 for our consensus forecast by end-market.

TABLE 2: 2016 and 2017 Construction Forecast by Segment

	Consensus	
Year	**2016**	**2017**
Total	**4%**	**7%**
Residential	**8%**	**10%**
Single-family	9%	12%
Multi-family	6%	3%
Non-Residential	**4%**	**6%**
Commercial	**8%**	**6%**
Hotels	13%	3%
Office	9%	8%
Retail	5%	6%
Institutional	**5%**	**7%**
Education	5%	7%
Healthcare	4%	6%
Public Buildings	4%	6%
Industrial	**-8%**	**5%**
Other Non-Residential	**5%**	**7%**
Non Building	**-2%**	**2%**
Transportation	1%	3%
Infrastructure	-3%	-1%

Residential

In the Residential segment, we will see a 10% increase in construction. This will be driven by a pick-up in Single-family, which will have 9% growth this year and 12% in 2017. Multi-family's growth has tapered off, growing in single-digits versus the double-digit growth it had experienced in previous years. It will still grow at 3% in 2017, but as we predicted the pendulum has started swinging towards Single-family.

In terms of units, the average forecast is 1,290K residential units in 2017, 870K units for Single-family and 418K for Multi-family. See Table 3 for details.

TABLE 3: 2016 and 2017 Average Housing Units (000's) Forecast

Year	2016	2017
Residential	**1,186**	**1,288**
Single-family	779	870
Multi-family	417	418

Growth in the Residential markets is supported by several drivers, including:

- Population continues to grow overall
- Household formations are on the rise
- Unemployment rate is very low

- Income/wage growth is accelerating
- Mortgage rates remain at historic lows
- Growth in home values is expected to continue through 2017
- Rental vacancy rates are continuing to decline

Some factors that are hindering growth and might be risk factors for our residential forecast include:

- Rate of homeownership is declining, although this is positive for the MF/rental markets
- Lending standards remain high and credit availability is low
- Tightening in for-sale inventory, especially in entry level housing (below $200K)
- With valuations outpacing income growth, affordability is a growing concern
- Low land and improved lot availability
- Labor shortages (further discussed later in report)

Non-Residential

Among the Non-Residential segment, Commercial is expected to grow 6% and Institutional 7% in 2017. Commercial will be led by Office and Retail construction as a result of business confidence and employment improvements. Institutional will be led by Education, which has been waiting to revamp given funding uncertainty in the past.

Non-Building

Non-Building is forecasted to grow 2% in 2017, mainly due to growth in the Transportation sector, which will experience a 3% growth. The passing of the transportation bill (FAST Act) in December 2015 is supporting this growth. On the other hand, after a big increase in 2015, Infrastructure will slow down in 2016 and 2017, as a result of the lack of large projects that started in 2015.

Regional and State Forecast

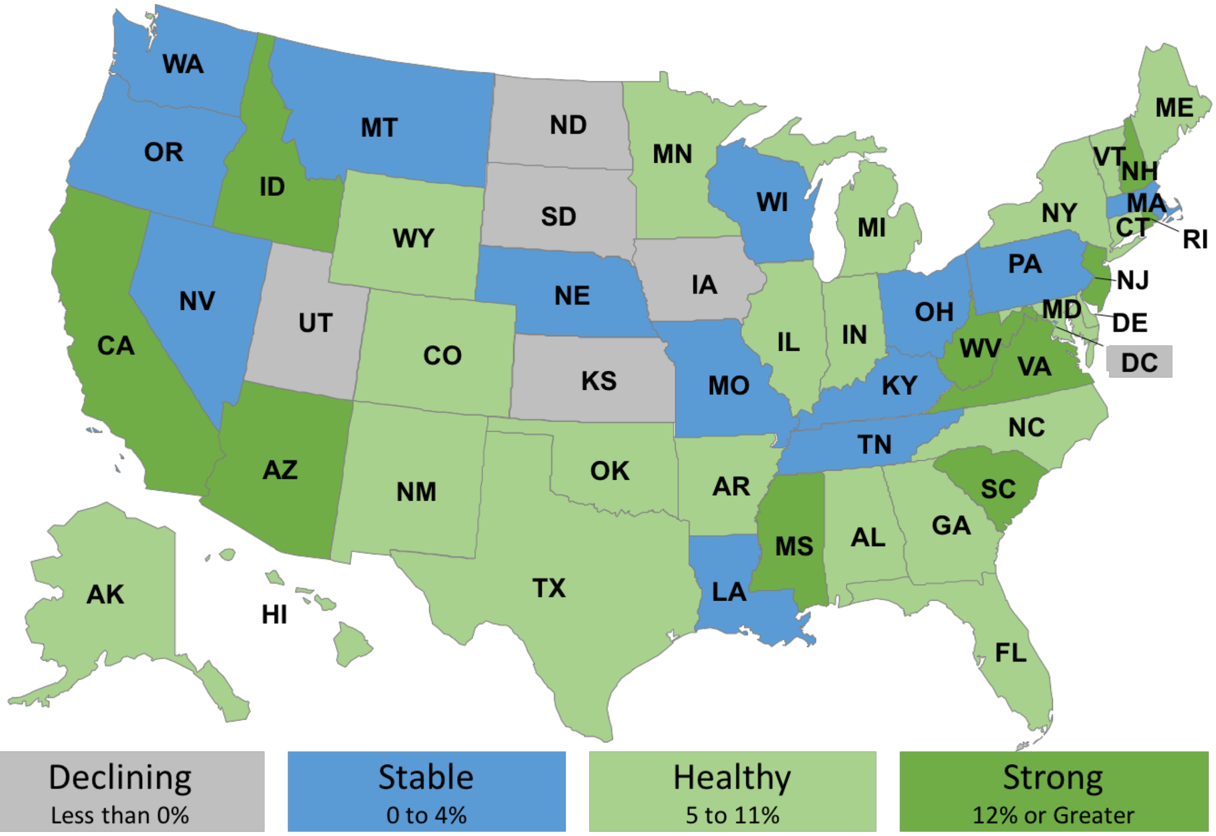
Geographically, the Northeast and West will experience the biggest growth in 2017, both over 8%. See Table 4 for our consensus forecast by State. In these two regions, the states with overall largest increases are Arizona, Idaho, California, West Virginia, Virginia, Rhode Island and New Jersey. The South and Midwest will grow just under 8% and 2%, respectively, in 2017. In the South, Mississippi and South Carolina will grow the most in the 13-15% range. In the Midwest, Indiana stands out with 11% growth. While nine States will have declines in 2016 (NY, LA, OK, TX, KS, ND, AK, NV, WY), six states are expected to have declines in 2017 (KS, IA, UT, ND, SD, DC). See Figure 1 for a map detailing the 2017 forecast by state.

TABLE 4: 2016 and 2017 Construction Forecast by Region/State

	Consensus	
Year	2016	2017
Northeast	**4%**	**8%**
Connecticut	7%	8%
Delaware	24%	11%
DC	24%	-1%
Maine	12%	8%
Maryland	7%	9%
Massachusetts	4%	3%
New Hampshire	17%	13%
New Jersey	13%	13%
New York	-8%	7%
Pennsylvania	14%	4%
Rhode Island	3%	14%
Vermont	6%	10%
Virginia	16%	15%
West Virginia	0%	22%
South	**3%**	**8%**
Alabama	16%	7%
Arkansas	15%	5%
Florida	11%	10%
Georgia	18%	11%
Louisiana	-24%	3%
Mississippi	7%	15%
North Carolina	10%	8%
Oklahoma	-1%	9%
South Carolina	13%	13%
Tennessee	10%	3%
Texas	-3%	6%

	Consensus	
Year	2016	2017
Midwest	**5%**	**2%**
Illinois	5%	6%
Indiana	11%	11%
Iowa	2%	-8%
Kansas	-3%	-1%
Kentucky	5%	3%
Michigan	2%	5%
Minnesota	6%	5%
Missouri	8%	3%
Nebraska	3%	0%
North Dakota	-8%	-14%
Ohio	7%	3%
South Dakota	15%	-11%
Wisconsin	10%	3%
West	**8%**	**8%**
Alaska	-13%	5%
Arizona	16%	15%
California	9%	13%
Colorado	10%	6%
Hawaii	12%	9%
Idaho	17%	13%
Montana	5%	2%
Nevada	-6%	4%
New Mexico	15%	10%
Oregon	14%	1%
Utah	5%	-3%
Washington	4%	4%
Wyoming	-9%	6%

FIGURE 1: 2017 Construction Forecast by State



MSA Forecast

At an MSA level, we looked at the Top 50 MSAs by population and created a consensus forecast for 2016 and 2017 similar to the analysis in the previous section. See Table 5 for our consensus forecast by MSA.

Overall, Richmond (24%), San José (19%) and Riverside (18%) will experience the most growth in 2017 among the Top 50 markets. For the most part, the majority of MSAs will experience growth in 2017 with only seven cities forecasted to experience decrease, St. Louis (-4%), Nashville (-3%), Portland (-3%), Cincinnati, OH (-2%), Denver (-2%), Minneapolis (-2%), and Austin (-1%).

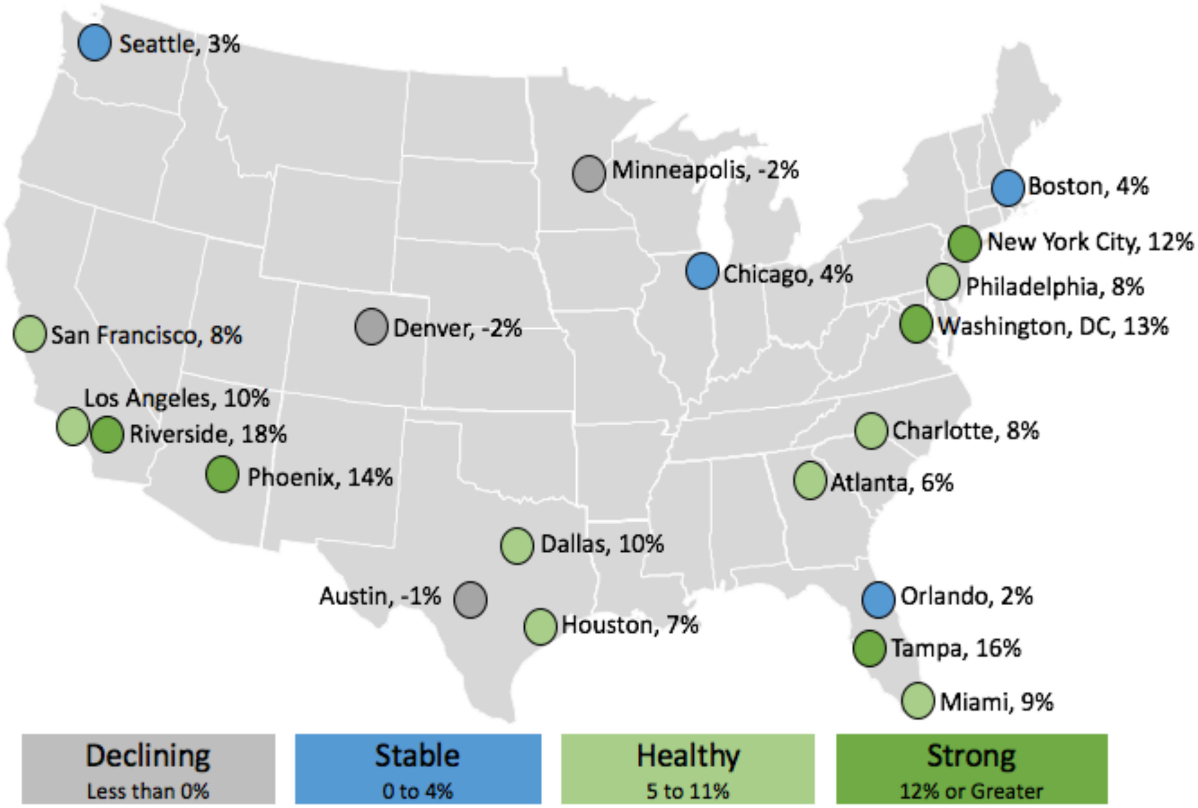
The three largest MSAs in terms of construction starts spend are New York, Houston and Dallas, which will grow 12%, 7% and 10% respectively.

TABLE 5: 2016 and 2017 Construction Forecast for Top 50 MSAs

	Consensus	
Year	**2016**	**2017**
Northeast		
Baltimore, MD	23%	6%
Boston, MA	-3%	4%
Buffalo, NY	23%	17%
Hartford, CT	-5%	18%
New York, NY	-15%	12%
Philadelphia, PA	7%	8%
Pittsburgh, PA	18%	4%
Providence, RI	5%	16%
Richmond, VA	9%	24%
Virginia Beach, VA	28%	18%
Washington, DC	10%	13%
South		
Atlanta, GA	24%	6%
Austin, TX	11%	-1%
Birmingham, AL	36%	8%
Charleston, SC	10%	12%
Charlotte, NC	16%	8%
Dallas, TX	5%	10%
Houston, TX	-8%	7%
Jacksonville, FL	21%	13%
Miami, FL	-1%	9%
Nashville, TN	14%	-3%
New Orleans, LA	15%	18%
Oklahoma City, OK	1%	5%
Orlando, FL	1%	2%
Raleigh, NC	19%	11%
San Antonio, TX	-4%	12%
Tampa, FL	13%	16%
Tulsa, OK	-8%	9%

	Consensus	
Year	**2016**	**2017**
Midwest		
Chicago, IL	1%	4%
Cincinnati, OH	19%	-2%
Cleveland, OH	0%	5%
Columbus, OH	-16%	9%
Des Moines, IA	-22%	3%
Detroit, MI	-11%	8%
Indianapolis, IN	9%	13%
Kansas City, MO	-14%	1%
Minneapolis, MN	10%	-2%
St Louis, MO	14%	-4%
West		
Denver, CO	13%	-2%
Las Vegas, NV	-11%	7%
Los Angeles, CA	19%	10%
Phoenix, AZ	10%	14%
Portland, OR	16%	-3%
Riverside, CA	-11%	18%
Sacramento, CA	17%	16%
Salt Lake City, UT	23%	13%
San Diego, CA	6%	10%
San Francisco, CA	18%	8%
San José, CA	8%	19%
Seattle, WA	3%	3%

FIGURE 2: 2017 Construction Forecast for Top 20 MSAs



Construction Cost Forecasts

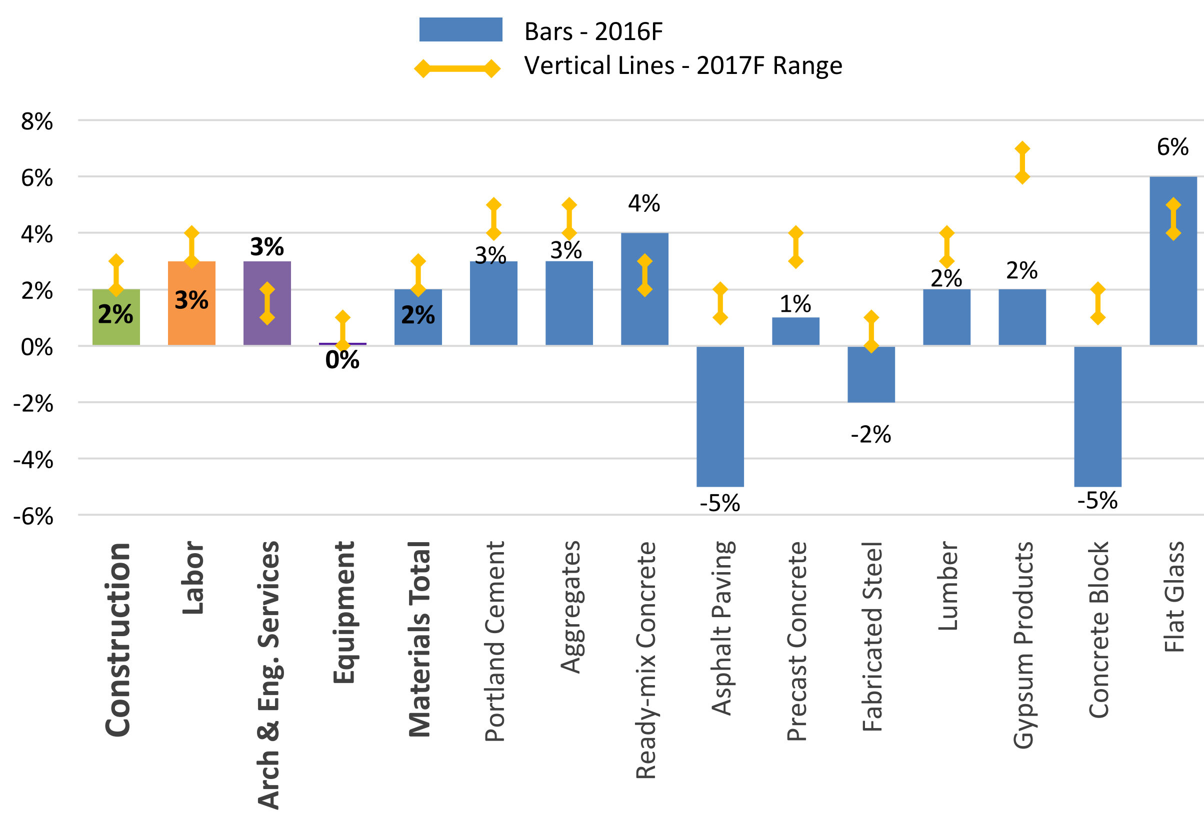
Another important aspect to consider in forecasting this industry's activity is analyzing how construction costs will change in the future. In this effort, we have developed a Cost Forecast for the main elements in construction including materials.

After what will likely be 2% growth in 2016, overall construction costs are forecasted for ongoing growth in 2017 in the 2-3% range. See Graph 3 for details. These increases will be primarily led by gains in construction labor wages, which is forecasted for 3-4% in 2017; a result of the labor shortages the industry is already experiencing. The pace of growth for Architectural / Engineering services will slow in 2017, after 3% growth in 2016. Equipment will be relatively flat in 2016 and 2017, with 0-1% forecasted.

Material costs are forecasted to have a 2-3% increase. Asphalt paving, fabricated steel and concrete block pricing should resume growth in 2017 after contractions in 2016. Gypsum products will experience the strongest growth of all materials with 6-7% increase in price.

Other important inputs to construction that are not included in the graph are gasoline and crude oil, which are expected to nearly fully recover the ground lost in 2016 by the end of 2017. Crude oil is expected to stabilize around $50-60 per barrel, according to most analysts.

GRAPH 3: 2016 and 2017 Construction Cost Forecast

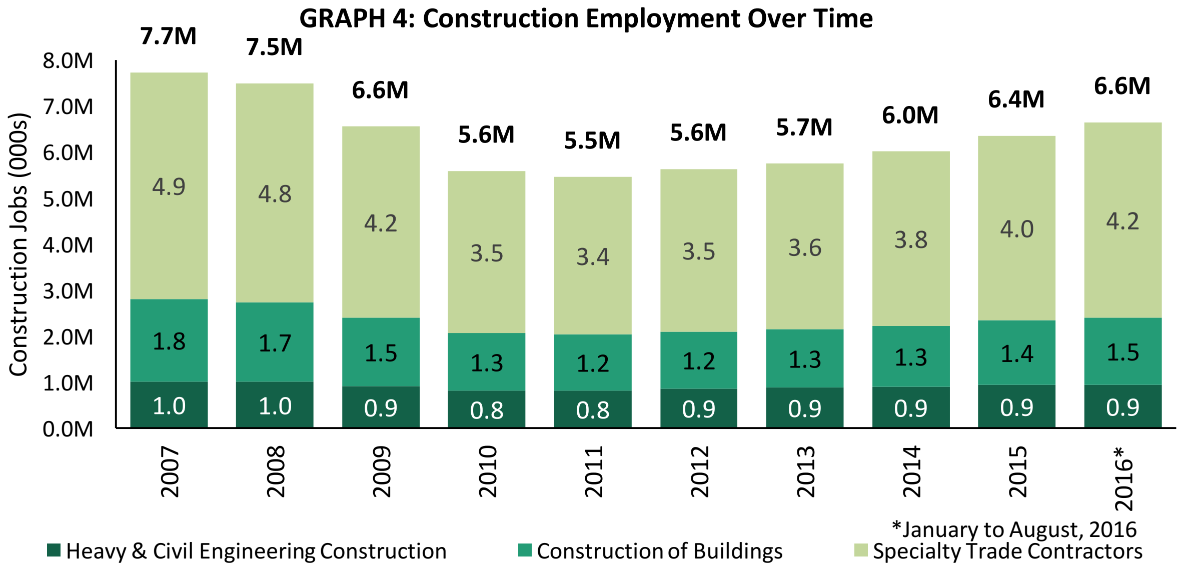


Source: Internal analysis

Construction Employment

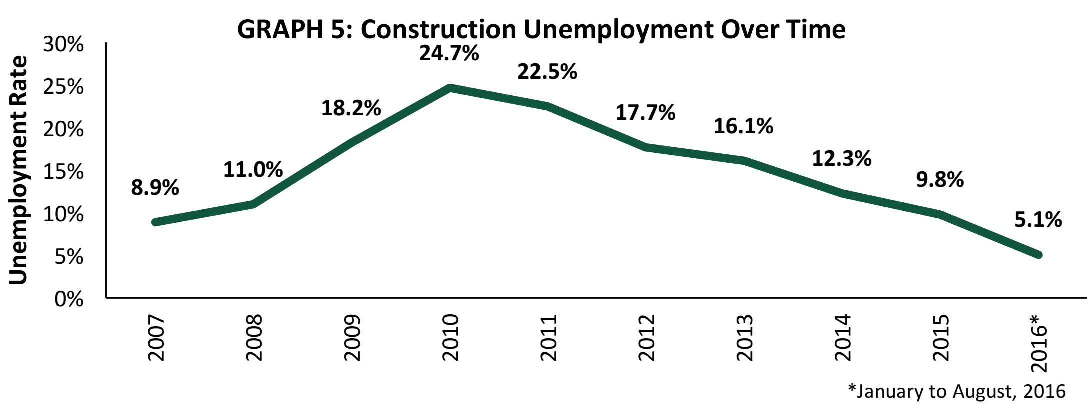
One of the main risk factors we have identified for the above forecast is labor availability. Due to this, we analyzed in detail the current status of the Construction Employment.

In August 2016, there were 6.6M construction industry employees in the United States, a 4% annual growth since the low in 2011. See Graph 4 for detail. However, the industry has only recovered 82% of the employees from its peak in 2007 of 7.7M. Recovery in Heavy & Civil Engineering construction jobs, at 92% of peak, has outpaced Building construction jobs, which are currently 78% of peak.



Source: Bureau of Labor Statistics, CES2023600001 CES2023700001, CES2023800001 and CES2020000001, August 2016

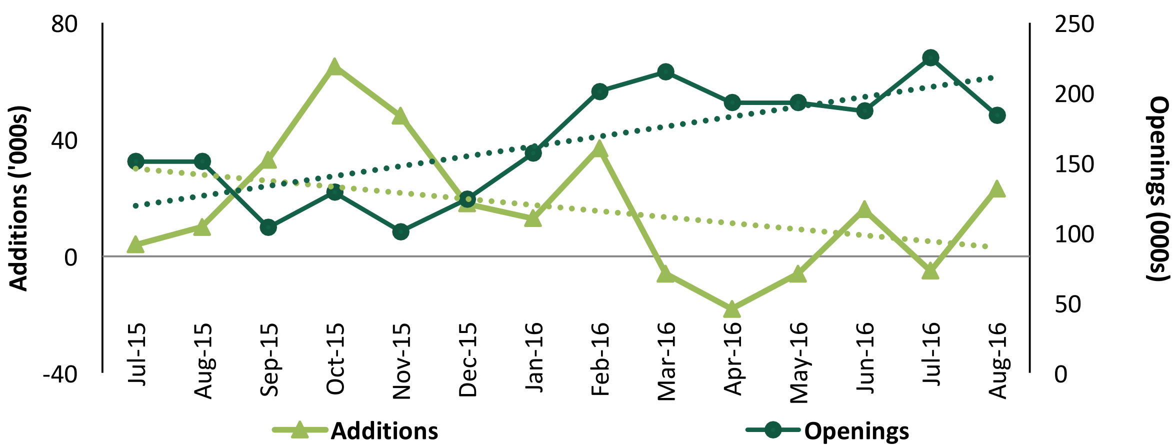
In August 2016, the unemployment rate for the construction industry was 5.1%, up 0.6% from the decade low 4.5% rate measured in July 2016. See Graph 5 for details. This is well below the 8.9% unemployment level during the 2007 construction employment peak and a great improvement from the 24.7% it reached in 2010. It is great news that unemployment in construction is low, but it also shows that the industry is using most of the available construction workers. And continued construction growth is only possible if the industry is able to continue to find qualified labor.



Source: Bureau of Labor Statistics, LNU04032231, August 2016

The August Job Openings and Labor Turnover Survey (JOLTS) indicates there is a threat to continued growth. The BLS reported 184K unfilled job openings in the construction industry in August 2016, following a cycle high of 225K openings in July 2016. The average unfilled openings per month in 2016 has been 194K. See Graph 6 for details. Meanwhile, construction industry job additions (hires) have been waning, with only 72K in the first eight months of 2016; 52% less than the 150K jobs added in the first eight months of 2015. The growth in job openings is outpacing the growth in job additions (hires), significantly, illustrating that firms are facing ongoing, and perhaps increasing, struggles to fill open positions. This, in fact, will hinder industry overall growth.

GRAPH 6: Construction Job Additions and Openings



Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Study (JOLTS), August 2016

In addition to several proposals in front of Congress (the Workforce Innovation and Opportunity Act and the extension of Perkins Act, prescribed by AGC's Workforce Development Plan), individual firms are trying to overcome obstacles in finding and hiring qualified labor by:

- Focusing and investing on training by sponsoring local training programs and partnering with product manufacturers that provide training
- Investing in current and prospective employees by raising salaries and improving benefits
- Promoting the construction industry to younger people by becoming more active on social media
- Using products and materials that require less "special" skills to install or that can be prefabricated off-site

This is something that needs to continue to be followed and as an industry, we need to work together to overcome this issue and generate a steady supply of qualified workers ensuring the industry's continued upward growth trend.

Summary

Overall the perspective for 2017 is of continued growth given the positive progress made in 2016.

Based on our consensus forecast, we expect 7% growth in 2017, driven by Single-family and Education construction - two markets that directly reflect a stronger overall economy in the United States.

Geographically, the Northeast and West are the key regions of growth, with West Virginia, Virginia, Mississippi and Arizona leading the growth.

Overall construction costs are forecasted for ongoing increase in 2017 at 2-3%, same forecasted rate as material prices. Oil is expected to nearly fully recover the ground lost in 2016 by the end of 2017.

One area to watch is construction employment that even though it is experiencing very low unemployment rate, it has shown signs of concerns because job openings are outpacing job additions, signaling firms are having a hard time finding qualified labor.