JLL Achieve Ambitions

United States | Q3 2017

JLL Research Report

Construction Outlook

Construction industry well positioned in mature phase of the real estate cycle.

Contents

National outlook

Spending in and on the construction industry this quarter was up

1.9%

over 2016 levels

Through the third quarter of 2017, the construction and development industry continues to hit a mature stage of economic expansion, evident by the steady 3 percent growth across indicators - compared to double digit growth in 2012 through 2015. Spending in and on the construction industry in the quarter was up 1.9 percent over 2016 levels, which remains promising as work cools off and seasonal projects begin to wrap up. Contractor and subcontractor work on the books was also up 1.4 percent over Q3 2016 heights, further driving home the steady and mature growth perspective.

However, the national construction workforce had minimal meaningful employment growth over the last nine months.

This minimal growth is primarily due to historically low unemployment in the United States at large, which severely limits the pool of new construction talent that could alleviate current pressures. Combined, these indicators serve as preemptive warning signs that the labor situation won't be improving in construction until workload begins to lighten. Industry professionals can expect labor indicators to remain stuck at current levels and wage growth to accelerate over coming quarters.

Materials prices in the third quarter maintained a 3 percent year-over-year increase, on par with the larger U.S. economic growth rate, but **costs are beginning to outpace current construction demand**. Individual material costs remained reserved in pricing through the quarter, staying within a 1 to 2 percent band of growth or decline.

Over the last three months, the political realm remained relatively quiet on construction, with rhetoric focused on healthcare and tax reform at large. The only **notable conversations and action were around NAFTA and tariffs on Canadian subsidized soft wood lumber.** If approved, a significant tax uptick of nearly 20 percent is expected to go into effect in early 2018, primarily impacting the homebuilding sector. Further details on the proposed $1T infrastructure package and role of public-private partnerships (P3s) remained silent through the quarter, with conversation expecting to resume in early 2018.

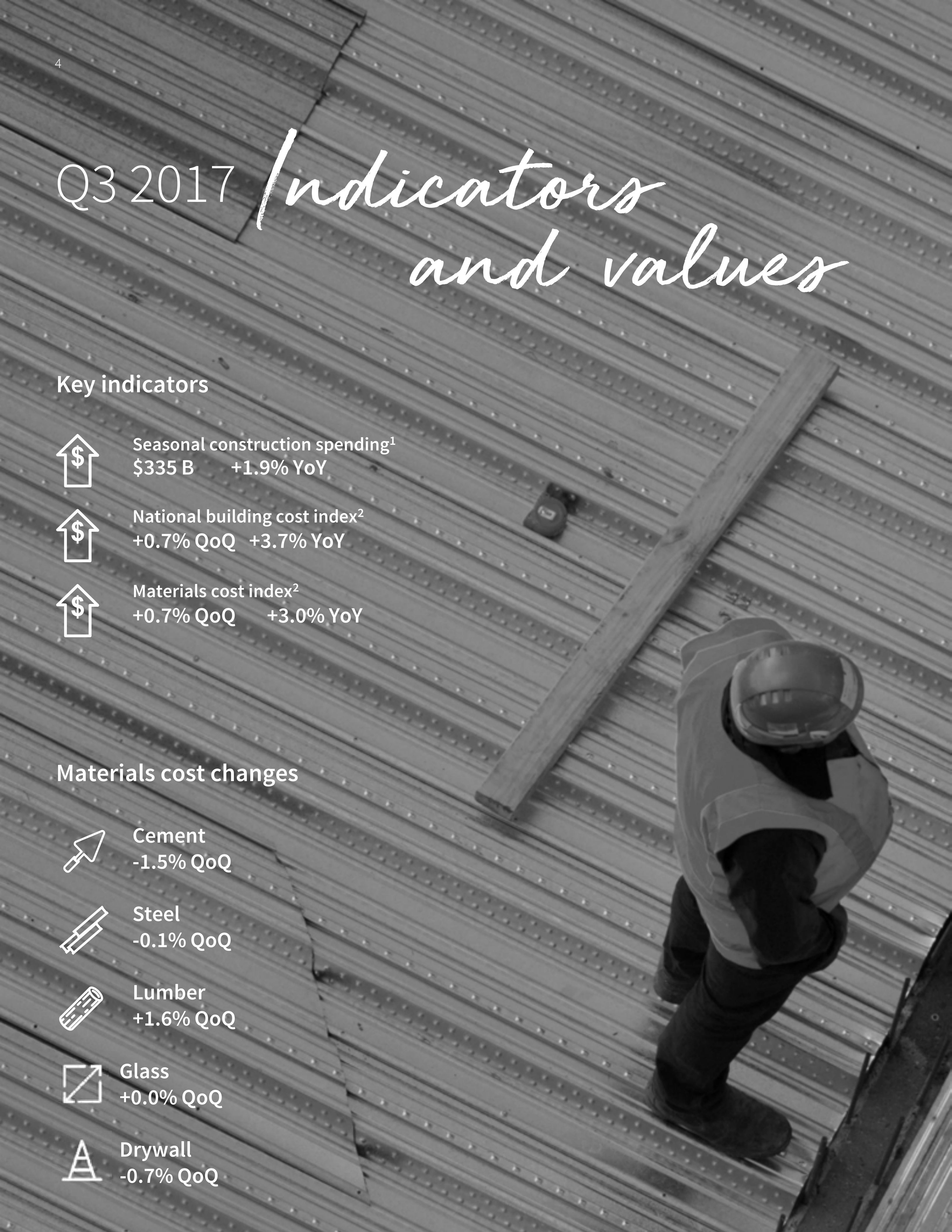
Construction spending in the trailing three months **hit $335 billion across industries, setting the high mark for 2017**. Public construction, infrastructure and public works projects have slightly picked up steam, and are beginning to pick up slack from the slowing growth of commercial projects. Multi-family projects saw a dip in starts in the quarter, while single family home construction grew at nearly double digit annualized growth, and is expected to continue. Additionally, new construction loans and loan standards sentiment remains unchanged in the third quarter, as loans standards are neither tightening nor relaxing and lenders have hit an equilibrium with risk level. Demand for new construction loans also remains unchanged, as developers remain confident in future growth.

Looking into 2018, key stories will center on **the deepening labor struggle**, a focus on productivity increases for contractors, **financial interest rate stability** for loans and increased reliance on public funding.

Materials prices in the third quarter maintained a steady

3% increase

year-over-year



Q3 2017 Indicators and values

Key indicators

Seasonal construction spending[1]
$335 B +1.9% YoY

National building cost index[2]
+0.7% QoQ +3.7% YoY

Materials cost index[2]
+0.7% QoQ +3.0% YoY

Materials cost changes

Cement
-1.5% QoQ

Steel
-0.1% QoQ

Lumber
+1.6% QoQ

Glass
+0.0% QoQ

Drywall
-0.7% QoQ

Construction Labor Indicators[4]

Unemployment (construction)
4.5% in Oct. 2017 **5.7% in Oct. 2016**

Number of construction workers
1.53m in Oct. 2017 **+2.0% YoY**

Average hourly wage
$31.07/hr in Oct. 2017 **+3.4% YoY**

Construction Backlog Indicator[5]

The CBI depicts how many months of work contractors currently have on the books—higher numbers show higher demand.

National construction backlog (CBI)

8.6 months
+1.4% YoY
-4.1% QoQ

Region with the highest growth

Northeast (9.7 months)
+1.02 months
+11.8% YoY

1. U.S. Census Bureau
2. Engineering News Record
3. R.S. Means
4. Bureau of Labor Statistics
5. Associated Builders and Contractors

What does the future hold for commercial real estate?

Where does the economy stand?
What does that mean for commercial real estate?

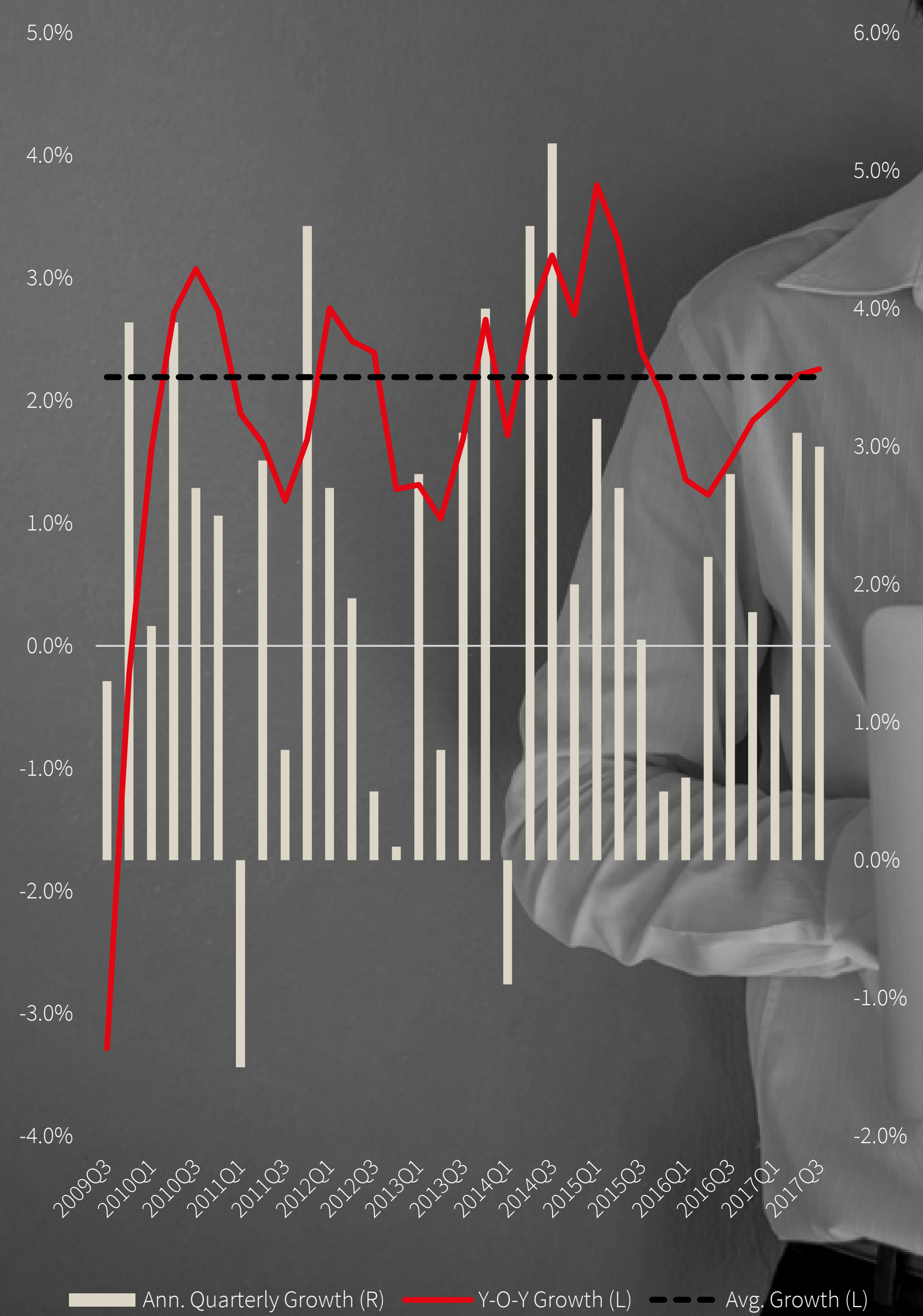
On the whole, gross domestic product (GDP) during the third quarter is reason for celebration. But it is important to keep things in perspective. The U.S. economy expanded at an annualized rate of 3 percent during the third quarter, exceeding our projection of mid-2 percent expected growth. While growth continues to recover, the economy has not broken out of its current growth trajectory, holding around a long term average of 2.3 percent growth.

A number of factors drove growth during the third quarter, and the negative impact from hurricanes Harvey and Irma was not as bad as feared. During the quarter, business investment continued to rebound from its 2016 lull, and a smaller trade deficit and an increase in government spending also contributed to growth. However, they were partially offset by negative contributions from residential investment and state and local government spending.

For commercial real estate (CRE), the news remains good.

The past eight years have demonstrated that CRE does not require rapid economic growth to perform well. Moderate economic growth drives improvement in real estate fundamentals without creating imbalances that often lead to the end of economic and real estate expansions. This phenomenon is happening right now and if the economy continues to follow along its current trajectory, benign growth can continue for at least the next 12-18 months. Of course, any major deviations in fiscal or monetary policy could threaten this prediction, but right now we see little in fundamentals to cause concern about real estate as an asset class.

Real GDP growth



Construction *Technology*

What is it, and why do I care?

Stalling construction employment growth and declining productivity spotlight technology as a saving grace.

The construction industry has seen a variety of technologies take hold over the last two years, yet adoption of products has been incredibly low. Let's take a look at why the industry needs to embrace tech, what options exist and how it'll help in the long run. With economic growth holding out for the next 12 – 18 months, savvy firms have a sizeable window of time to accept and implement technologies to combat any level of slowdown.

First off, there's the skilled construction labor issue. The volume of new workers headed to the construction industry has nearly come to a halt over the last nine months – increasing by only 0.4 percent in a historically high time for industry employment growth according to the U.S. Census Bureau. Construction industry unemployment has also bottomed out, holding steady at 4.5 percent for the last several months – a sign that the bandwidth for employment has hit a wall.

To top it off, **the construction industry is falling behind in productivity improvements** compared to other industries. Construction has traditionally been slow at developing technology, and has undergone no disruptive changes in several decades. The industry hasn't widely applied any advances, and as a result, efficiency and productivity gains have been minimal. In the U.S. for instance, gains have actually been negative. Substantial innovative changes are already in reach for companies, and can have profound impacts, especially in tech – let's look at a few options.

These three technologies show the most promise for 2018.

This tech will improve productivity, reduce project delays, enhance worker safety and create higher quality buildings.

Building Information Modeling (BIM) – BIM plays a crucial role in innovation in construction and is the facilitator and enabler for which many technologies are based. A firm's fluency and acceptance of all things BIM is the first step in heading towards a stronger future and bottom line. 3D printing, cloud based collaboration, robotics and artificial intelligence all stem from a central BIM platform. Several firms have already taken big bets on BIM and digitized construction and the living documents it offers. AutoDesk and GRAPHISOFT both have products that offer innovative uses of BIM.

Artificial Intelligence (AI) & Big Data – Gathering, storing and analyzing large sets of data has become increasingly easier and cheaper over the last several years, and the construction industry is starting to hop on board. As construction site data tools and big data sets become available for tech savvy contractors and firms, expect early adopters to reap the rewards. Big data and artificial intelligence is already being used to drive autonomous equipment, track and optimize worker positioning and schedule materials delivery – all working towards more efficient and timely job sites.

Prefab and Offsite Construction – Fewer construction workers and reduced access to skilled labor creates a tough situation, most notably ending in higher costs and project delays. General contractors are turning to prefabrication (prefab) and offsite construction facilities to produce building elements in a factory setting to outsmart competition. The increased use of prefab operations allow for the industry to create building product in a weather controlled environment with semi-skilled labor in a safe manufacturing atmosphere, presenting a win-win scenario. Prefab facilities now have the capabilities to tackle everything from individual walls, to fully built bathrooms and offices offsite.

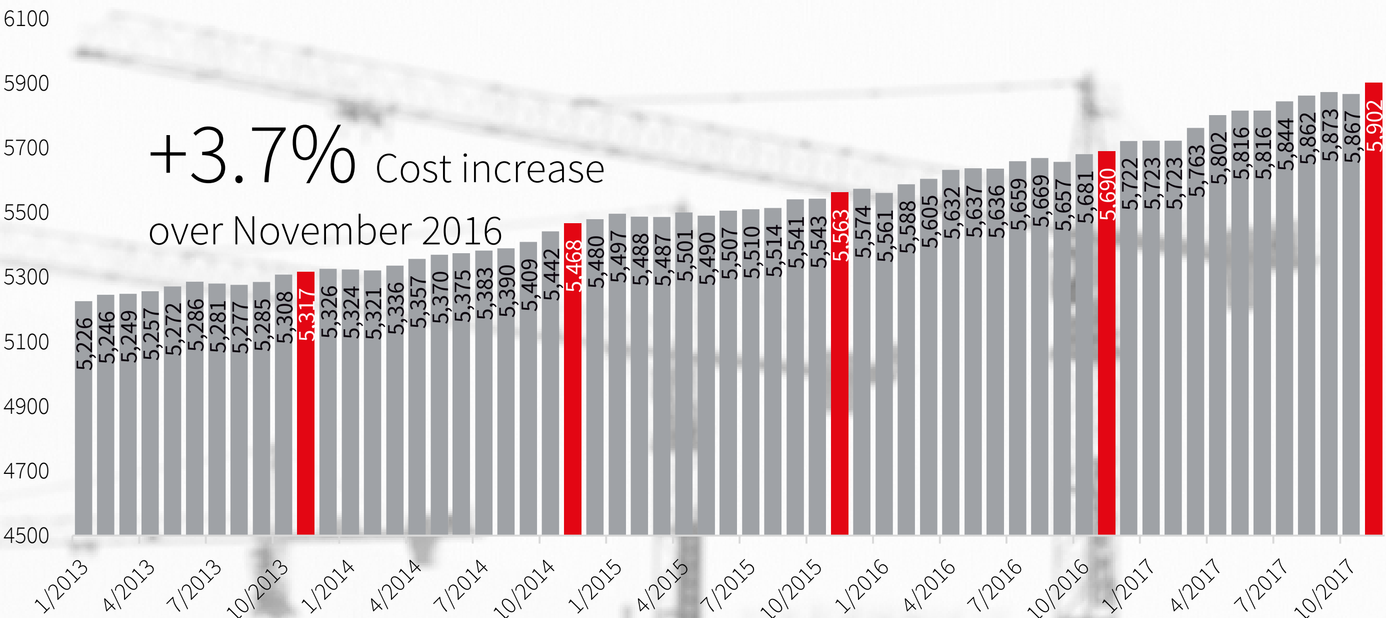
Construction costs

Building costs

All-in building cost growth slowed in the third quarter for the third consecutive time, only growing by 3 percent over the last 12 months, and 0.7 percent over the third quarter. The consistent cost growth closely mirrors the rate of economic expansion, hugging close to 2.5 - 3 percent growth each year, led by preeminent economic indicators. However, building cost growth is heading up a bit faster than construction spending, driven primarily by continued labor wage movement. In 2018, we expect close to a 3 percent increases barring any political or financial deviations.

National building cost index

Units=Index Values



Source: JLL Research, Engineering News Record

Materials costs

In the third quarter of 2017, Engineering News Record's **materials cost index grew by 0.6 percent, on pace for a relatively tame 2.6 percent increase for calendar year 2017** due largely to industry maturity, stabilizing costs of materials across the board. Compared to Q2 2017's drastic cost swings, especially in steel and lumber, nearly all materials were within a + or – 1 percent change this quarter – a welcome respite to purchasers across the U.S.

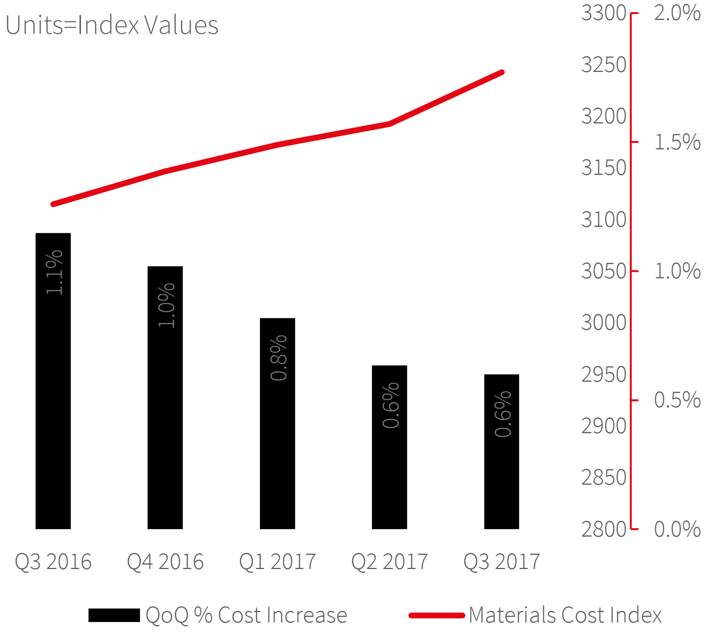
Rhetoric and conversation around trade policy has been relatively silent in the third quarter as political eyes have been focused on healthcare and tax reform, which resulted in stable materials prices over the last three months. The only expected drastic change is centered on soft wood lumber imports from Canada, **U.S. purchasers can expect to pay an additional 20 percent tax on any lumber directly imported from Canadian suppliers** – while the bill is officially decided in early 2018, the House and Senate have already approved the move, so implementation is nearly guaranteed.

All is calm on the materials front in Q3 2017.

In the wake of the hurricanes in Houston and South Florida and the wildfires in California, the rebuilding efforts have had smaller than expected impacts on materials costs. While the physical impact of the disasters as a whole has been large and wide ranging, access to materials has been relatively unhindered. However, soft wood lumber and gypsum drywall have been the two materials hit by the largest costs growths, each at nearly 5 – 10 percent over standard rates, as the majority of rebuild efforts is centered on housing and residential projects.

Materials cost index

+2.0% Cost increase since January 2017

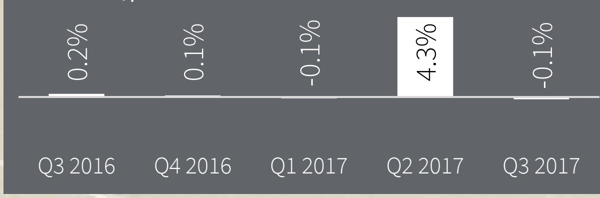


Source: JLL Research, Engineering News Record

Materials
breakdown

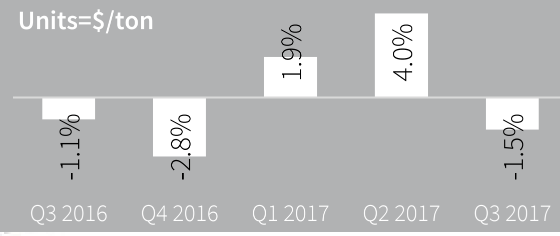
Steel
+4.2% Cost increase over Q3 2016

Units=$/CWT



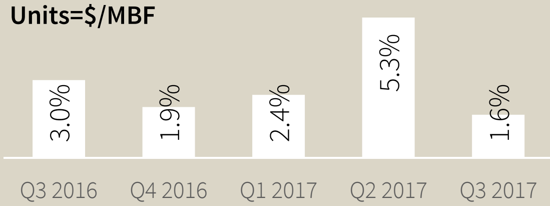
Cement
-1.4% Cost increase over Q3 2016

Units=$/ton



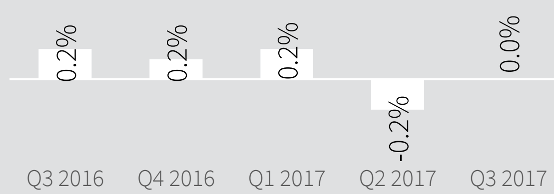
Lumber
+11.8% Cost increase over Q3 2016

Units=$/MBF



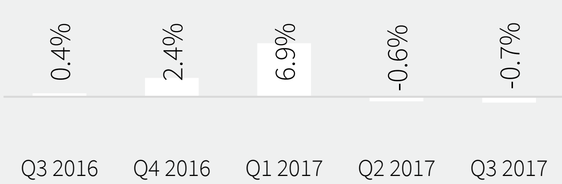
Glass
+0.2%Cost increase over Q3 2016

Units=$/MBF



Drywall and Gypsum
+8.0% Cost increase over Q3 2016

Units=$/MBF



Source: JLL Research, Engineering News Record

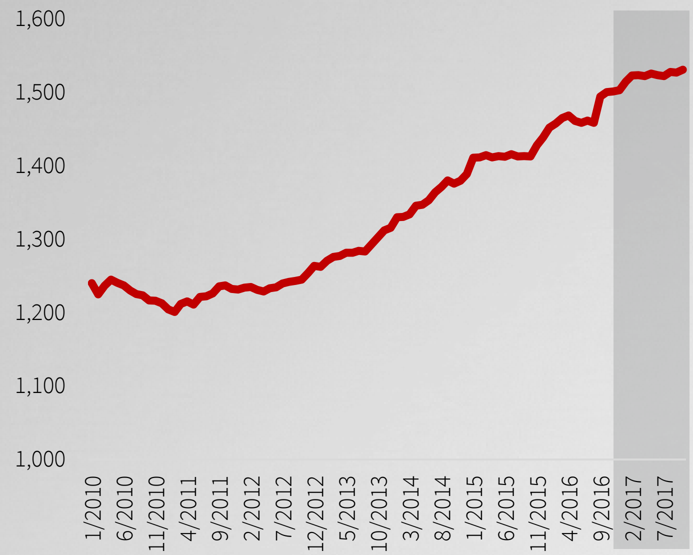
Labor costs

Indicators and national labor data shows that **the U.S. construction labor efforts are pinned against a wall**, with minimal room to grow. The unemployment rate holding at 4.5 percent, and stationary employee volume, remaining seasonally unchanged for the last nine months, are proof of fact that the skilled labor shortage in the U.S. will remain unchanged heading in to and throughout 2018. The construction industry has essentially hit the level where no more candidates can be pulled in from outside industry, as the U.S. overall unemployment remains historically low.

Throughout the first half of 2017, wage growth remained reserved, increasing at sub 3 percent annually, as the construction labor pool still had a margin for growth. However, the third quarter of 2017 is the **first representation of a changing tide, with wages increasing at a quicker rate, hitting nearly 3.4 percent growth on an annualized basis**. In to 2018, we can expect hourly wage growth to accelerate based on existing circumstances, potentially hitting 5 percent annual growth or higher in peak seasons.

Construction employment begins to taper

Construction workforce grew by +2.0% since the same time last year

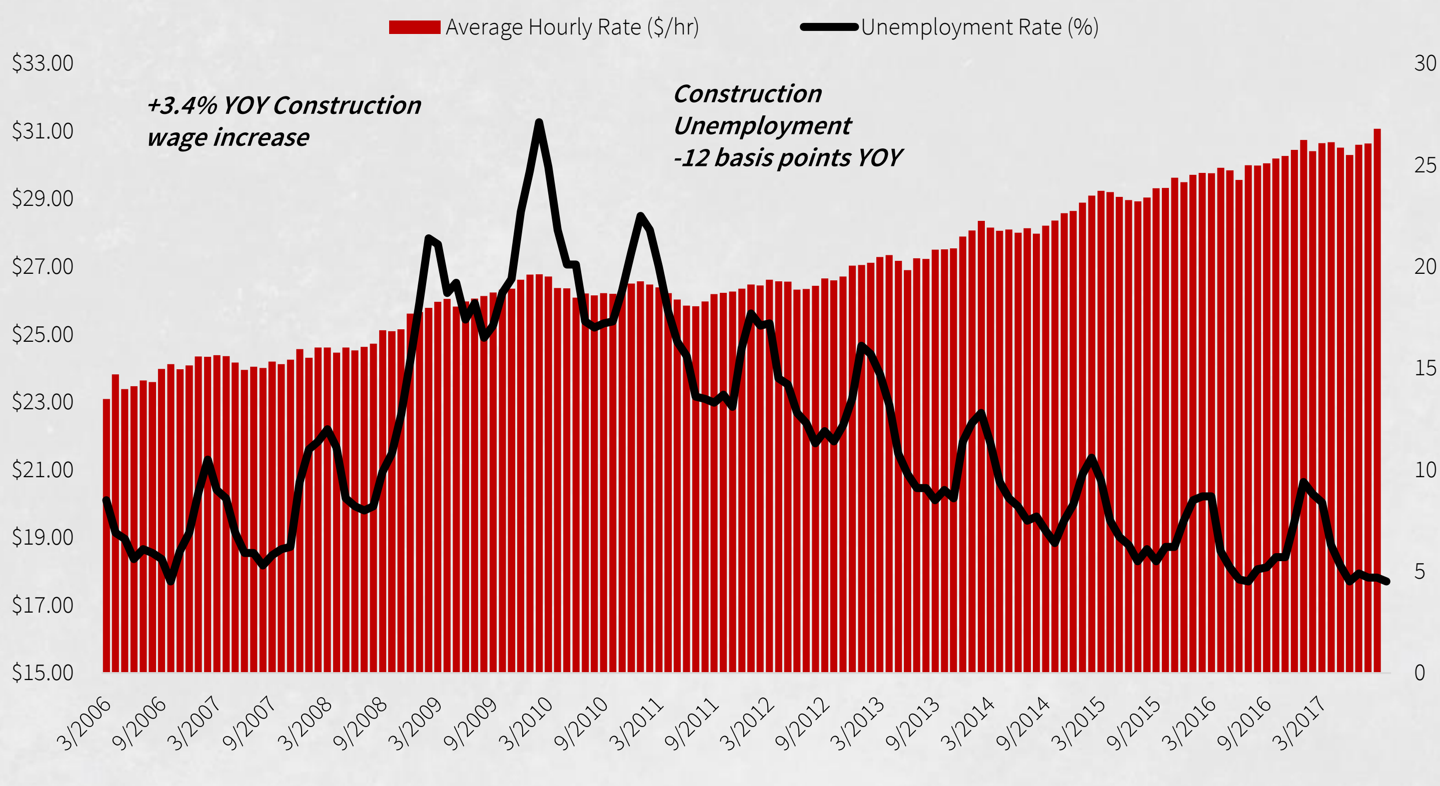


Source: JLL Research, Bureau of Labor Statistics

Unemployment bottoms out,

holding steady at 4.5%, while wages continue climbing

Hourly Wages vs. Unemployment in Construction



Source: JLL Research, Bureau of Labor Statistics

National *development* profile

Overview

New construction ground breaks and development pipelines through the third quarter remained relatively on par with Q2 2017 levels across nearly all property types. The annual seasonal slowdowns of construction work on top of long term economic concerns have kept year-over-year development growth in check with sustainable levels. While new ground breaks for large scale private projects have begun to scale back due to the long-term nature of the timelines, renovation and fit-out work demonstrates continued strength, which will prevail in to the next several quarters and beyond in to 2019.

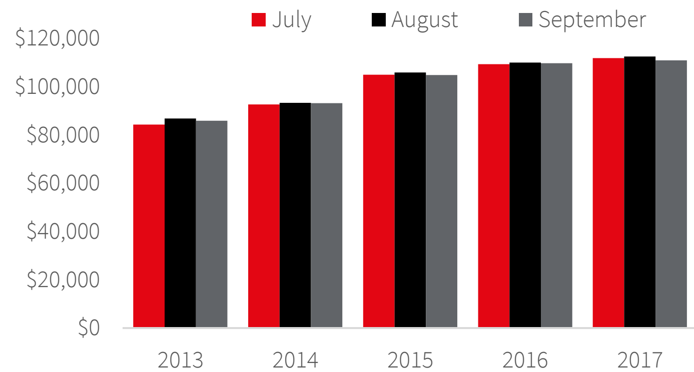
National construction spending

Spending on construction projects, labor and materials in the United States was up 1.9 percent from Q3 2016. In a shift of project spending, retail project spending increased by 11 percent over last year, while office specific projects have seen four successive months of spending contraction, down 7.4 percent over 12 months.

While topline spending is still increasing, consecutive quarters are demonstrating smaller and smaller gains over past years – underlining the trajectory towards a mature and stable industry. Percent growth of year-over-year spending has decreased for 9 out of the past 11 months, but still above zero, pointing to a tapering growth curve. This notion tracks directly in line with the industry's move towards reasonable spending by construction professionals, no longer spending hand over fist. This is a great sign, as spending is still growing, but at a significantly more reasonable and sustainable long term pace. As proof of point, spending in August 2017 hit $112 billion, hitting the second highest spending volume in history, yet it took nearly nine years of steady growth to get there.

Seasonal construction spending

Millions of $US

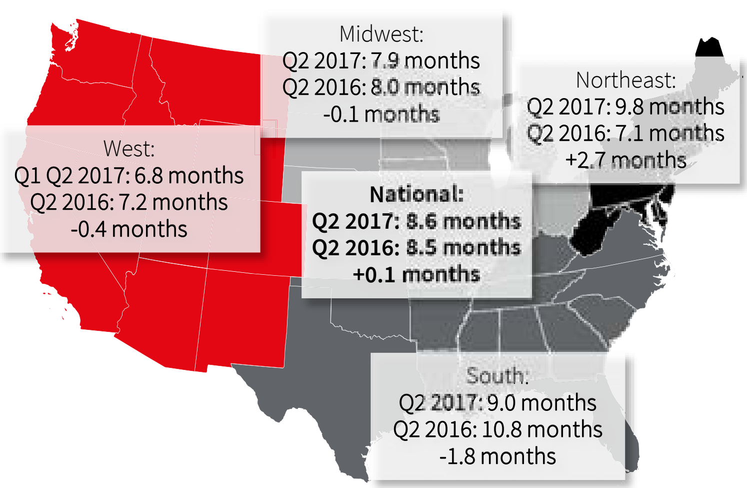


Construction backlog indicator

- Backlogs remain consistent over the year – about 1.5 percent increase over 12 months ago.
  - Resurgence in the Northeast carried weight, +11.8 percent year-over-year
  - South and West backlog came back to earth
    - Expect both regions to have higher backlogs in Q4 though due to hurricane and fire rebuilding efforts

Construction backlog indicator

Units = Months of Backlog



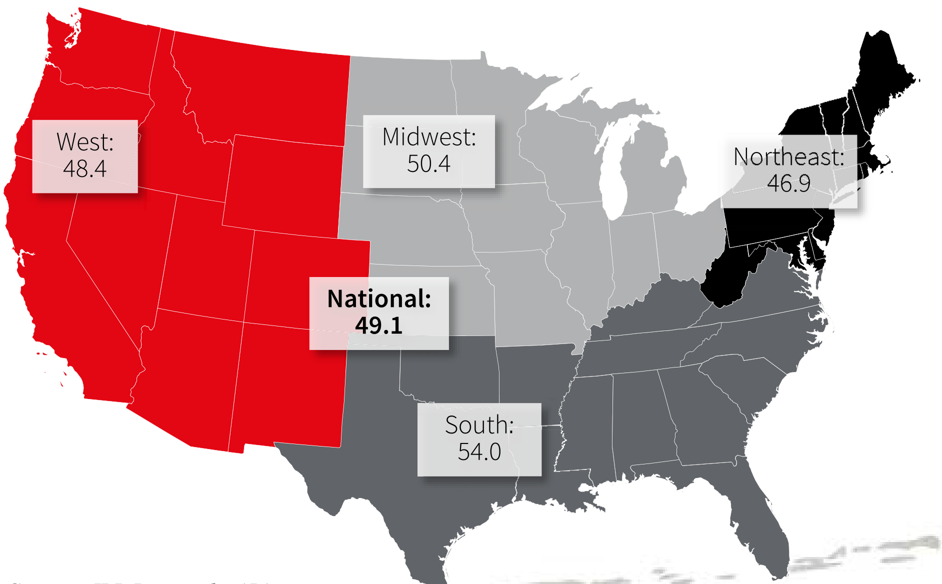
The CBI is a forward-looking indicator that reflects the amount of work that will be performed by contractors in the months ahead.

Architecture billings index

When looking at the most recent indicators for architecture billings, the profession saw work on the books slip by a small fraction in the third quarter, contributing the majority of the drop to negligible factors. The architecture billings index (ABI) gathered and created by the American Institute of Architects (AIA) tends to lead future construction starts by three to six months, and is one of several indicators we consult. Interesting commentary has begun to come from architecture professionals, as several firms around the U.S. have begun reporting major and minor projects placed on hold due to rising construction costs and labor shortages. Projects throughout the U.S. are getting to the point where they are no longer within the original budgets and pro formas originally allotted months and years earlier, and are being tabled indefinitely. While this narrative is minimal, it presents a growing concern in the industry.

Regionally, billings in Northeast and South remain consistently strong and will lead to future work in the pipelines. Professionals in Houston specifically, state the city is still chugging along post-hurricane and actually only saw about a week of lost productivity. Work on the books in the West slipped a small percentage in the past two months, which is in part to the region being particularly hard hit by the materials and labor cost growth. While marking a small growth this quarter, the Midwest demonstrated its twelfth consecutive month of billings growth, a sign that construction remains resilient in the markets.

Architecture billings index – trailing 3 months
Units = Diffusion Index Values



Index < 50
Firms reporting decrease in billings
Index = 50
Firms reporting no change in billings
Index > 50
Firms reporting increase in billings

The further the ABI is from 50, the larger the number of firms reporting the change.

Source: JLL Research, AIA

About these indicators

The Construction Spending Indicator (U.S. Census) is the leading indicator of current construction levels and details how much money is spent in the construction industry (building materials, labor, fees, etc.) each month. Both the Construction Backlog Indicator (CBI) and the Architecture Billings Index (ABI) are tools that can be used to anticipate strength and growth in the construction industry in coming quarters. The CBI depicts how many months of work contractors currently have on the books—higher numbers show higher demand. The ABI portrays the growth (or decline) of billings in architecture firms for the current quarter—and is an indicator leading construction activity by approximately 9–12 months.

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About JLL PDS

JLL Project and Development Services is a leader in the development, design, construction and branding of commercial real estate projects for the world's most prominent corporations, educational institutions, public jurisdictions, healthcare organizations, industrial facilities, retailers, hotels and real estate owners. Ranked No. 4 in Building Design + Construction's 2017 Construction Management Giants survey and No. 5 on Engineering News Record's 2017 list of Top 100 Construction Management-for-Fee Firms, JLL's project management team comprises 4,895 project managers across 51 countries and is actively managing $31.1 billion under construction."

About JLL Research

JLL's research team delivers intelligence, analysis and insight through market-leading reports and services that illuminate today's commercial real estate dynamics and identify tomorrow's challenges and opportunities. Our more than 400 global research professionals track and analyze economic and property trends and forecast future conditions in over 60 countries, producing unrivalled local and global perspectives. Our research and expertise, fueled by real-time information and innovative thinking around the world, creates a competitive advantage for our clients and drives successful strategies and optimal real estate decisions.