NORTH AMERICA

QUARTERLY CONSTRUCTION COST REPORT

THIRD QUARTER 2017

RLB Rider Levett Bucknall

ON THE COVER

OREGON STATE UNIVERSITY VALLEY FOOTBALL CENTER
CORVALLIS, OR

As part of a 15-year comprehensive athletic and educational facilities plan, the Valley Football Center at Oregon State University has undergone a major renovation and expansion. The project added 37,932 SF to the facility and renovated 27,339 SF, bringing the facility to a total of over 119,000 SF.

This $42M project included doubling the size of the current locker room, the addition of therapy pools, an additional ticket holder entrance, as well as a new media center. A new concourse connects the east and west stadium sides, and the end zone seating has been reconstructed with improved sightlines. The total stadium seating count after adding the new club seating at The Terrace in the North End Zone is 43,319 seats.

Rider Levett Bucknall provided cost management services from concept to construction, in addition to CM/GC cost reconciliation at each phase.

NORTH AMERICA

In a matter of hours, the one-two punch packed by hurricanes Harvey and Irma resulted in destruction that will take many years to repair. As initial assessments begin to quantify the losses—Enki Research estimates the cost of Harvey's damage as $85 billion, and Irma (in Florida) as $58 billion, figures that are likely to escalate over time—we at Rider Levett Bucknall are mindful of the human toll as well as the economic repercussions, and hope for a full recovery for all.

The aftermath of the hurricanes heightened the urgency of the ongoing labor shortage affecting the construction industry. In a National Association of Home Builders survey completed just a few weeks before the storms hit, builders across the nation were reporting an increasingly tight market for most of the major trades; for example, 77% were encountering significant difficulties in hiring framing crews, 61% faced the same problem with drywall installers, and 58% were seeing roofers in short supply. The situation will only be exacerbated by the storms, as a spike in demand for construction services will trigger competition for laborers at all skill levels.

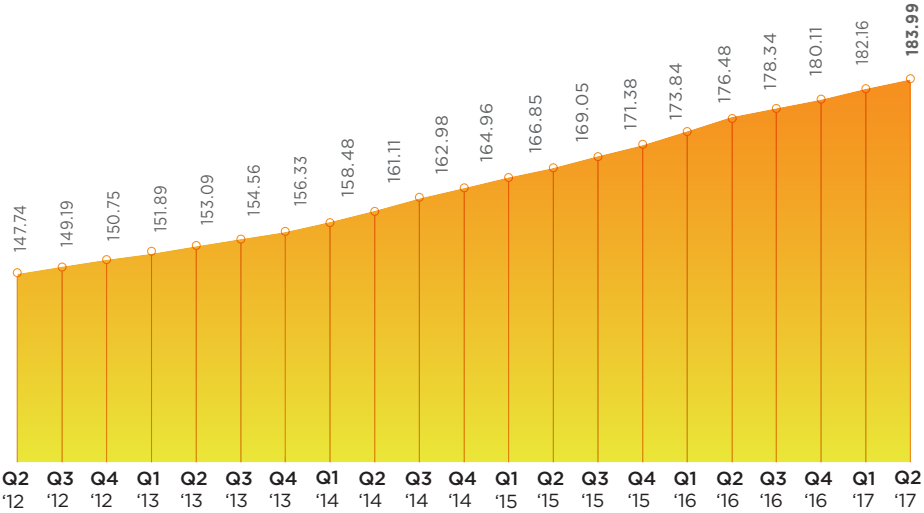
To attract a new generation of workers, contractors are using a variety of incentives. The most popular, not surprisingly, is to increase wages, followed by offering training programs to bring employees' skills in line with advancing technologies. Other firms are taking an alternative approach, and turning to modular construction. Originally developed for the single-family residence sector, the often-automated production method is increasingly being applied to aspects of larger-scaled projects, including hotels, commercial, and multi-family buildings. Manufactured indoors, they are virtually immune to weather delays that can slow conventional construction, and the prefabricated units can be rapidly assembled on-site, making it a cost-effective process.

The events of Irma and Harvey have powerfully illustrated the broad connections between the built and natural environments, and the importance of devising a long-term, efficient response to the complex issues they pose is clear. The AEC communities are in a unique position to lead this effort, and I am confident that a balanced solution, beneficial to all, is within our grasp.

Julian Anderson FRICS
President, North America
Chairman of the Global Board

USA REPORT

NATIONAL CONSTRUCTION COST INDEX



Welcome to the third quarter 2017 issue of the Rider Levett Bucknall Quarterly Cost Report! This issue contains data current to July 1, 2017.

$1,205.8 Billion

According to the U.S. Department of Commerce, construction-put-in-place during June 2017 was estimated at a seasonally adjusted annual rate of $1,205.8 billion, which is

1.3% below

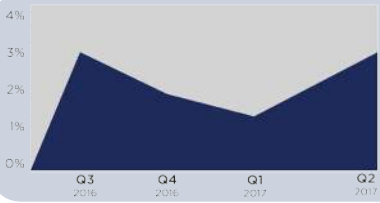
the revised May estimate of $1,221.6 billion, and

1.6% above

above the June 2016 estimate of $1,186.4 billion.

The National Construction Cost Index shows the changing cost of construction between July 2012 and July 2017, relative to a base of 100 in April 2001. Index recalibrated as of April 2011.

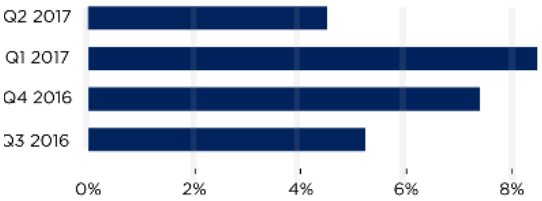
KEY UNITED STATES STATISTICS



Gross Domestic Product* (GDP)
GDP is less than 2% variance from this time last year, however, during the course of the year there was a dip of 1.8%.

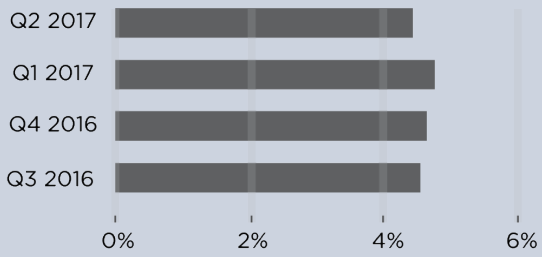
Consumer Price Index (CPI)
CPI fluctuates nominally. Inflation has not exceeded 1% over the previous four quarters.

Architectural Billings Index (ABI)
ABI remains relatively steady since last quarter, indicating a healthy start into 2017.



Construction Unemployment
Experiencing a significant drop since last quarter, construction unemployment now resides at 4.5%.

National Unemployment
National unemployment remains relatively steady over the course of the last year, varying 4.9% to 4.4%.



GDP represented in percent change from the preceding quarter, seasonally adjusted at annual rates. CPI quarterly figures represent the monthly value at the end of the quarter. Inflation rates represent the total price of inflation from the previous quarter, based on the change in the Consumer Price Index. ABI is derived from a monthly American Institute of Architects survey of architectural firms of their work on the boards, reported at the end of the period. Construction Put-in-Place figures represent total value of construction dollars in billions spent at a seasonally adjusted annual rate taken at the end of each quarter. General Unemployment rates are based on the total population 16 years and older. Construction Unemployment rates represent only the percent of experienced private wage and salary workers in the construction industry 16 years and older. Unemployment rates are seasonally adjusted, reported at the end of the period.
* Adjustments made to GDP based on amended changes from the Bureau of Economic Analysis.
Sources: U.S. Bureau of Labor Statistics, Bureau of Economic Analysis, American Institute of Architects.

INDICATIVE CONSTRUCTION COSTS

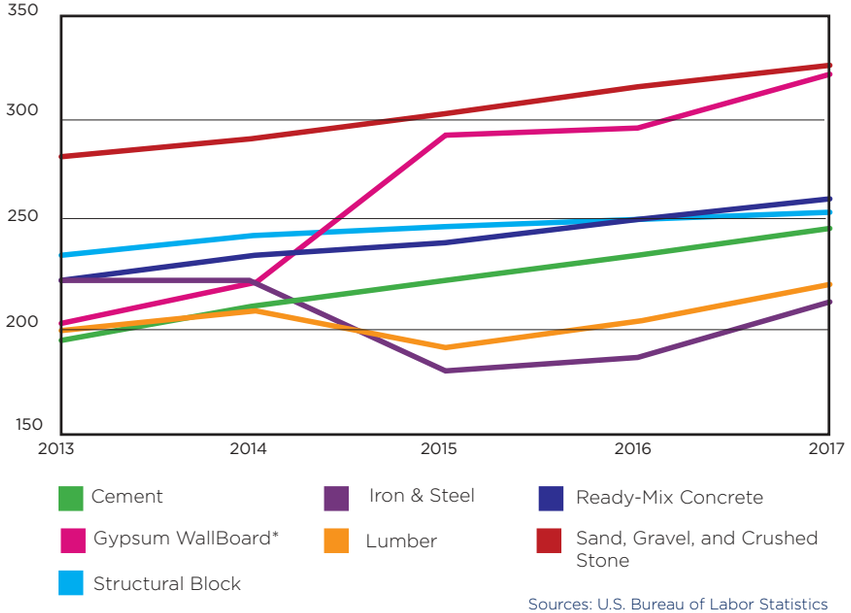
The data in the chart below represents estimates of current building costs in each respective market. Costs may vary as a consequence of factors such as site conditions, climatic conditions, standards of specification, market conditions, etc. Values of U.S. locations represent hard construction costs based on U.S. dollars per square foot of gross floor area, while values of Canadian locations represent hard construction costs based on Canadian dollars per square foot.

	OFFICES				RETAIL SHOPPING				HOTELS				HOSPITAL		INDUSTRIAL		PARKING				RESIDENTIAL				EDUCATION					
	PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR		GENERAL		WAREHOUSE		GROUND		BASEMENT		MULTI-FAMILY		SINGLE-FAMILY		ELEMENTARY		HIGH SCHOOL		UNIVERSITY	
LOCATION	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
USA																														
Boston	300	475	200	300	175	275	125	200	375	550	250	375	400	650	100	175	75	125	90	150	175	300	250	350	280	380	290	405	330	480
Chicago	280	450	175	280	185	280	135	220	390	650	270	390	360	630	110	185	80	125	90	155	160	340	220	420	250	380	300	380	345	480
Denver	160	255	115	175	90	145	70	135	200	310	150	185	370	455	90	150	50	70	90	120	85	190	90	400	245	300	260	310	285	400
Honolulu	285	530	245	400	210	495	175	435	515	745	325	545	475	760	145	225	100	145	140	265	195	445	280	760	340	475	405	610	445	720
Las Vegas	140	295	105	190	115	480	65	145	350	500	150	300	285	455	50	100	50	85	60	150	70	405	90	350	180	315	200	455	235	455
Los Angeles	220	340	160	245	145	325	115	180	350	515	250	325	470	700	105	175	100	120	125	170	180	290	190	335	335	445	355	480	385	550
New York	375	575	300	400	275	425	175	300	400	600	300	400	475	700	115	200	95	175	125	200	200	375	275	400	295	405	305	455	330	480
Phoenix	160	275	110	175	120	200	80	140	300	500	150	250	350	500	55	100	45	70	60	110	90	185	100	400	170	250	220	340	280	420
Portland	180	250	130	180	140	240	120	180	190	275	150	190	380	525	90	150	85	105	110	150	150	240	125	280	235	295	250	310	280	400
San Francisco	210	325	190	300	225	350	225	325	400	600	350	500	450	650	140	190	110	145	175	215	320	430	200	400	320	400	315	400	250	375
Seattle	200	250	145	200	135	305	110	155	240	330	220	235	385	530	95	125	90	110	130	160	150	250	165	285	250	300	275	465	315	465
Washington	275	425	200	300	150	275	125	175	350	525	250	350	400	650	90	150	70	125	80	125	175	300	250	350	280	355	280	380	330	480
CANADA																														
Calgary	235	295	190	285	220	310	110	160	300	450	190	245	550	720	85	145	75	90	75	120	140	215	125	315	185	260	220	310	300	450
Toronto	195	260	170	250	200	250	105	160	300	355	195	260	500	645	115	150	70	90	70	90	130	205	190	330	170	195	200	230	200	295

MATERIALS PRICE INDEX

The events of hurricanes Harvey and Irma have resulted in devastation which will take a number of years to recover from. Preliminary estimates indicate that around 136,000 homes were damaged in Harris County, Texas and a large portion of them destroyed completely. Similarly, in Florida Keys, according to Federal Emergency Management Agency, around 25% houses on the chains of islands were completely destroyed and a big portion of them, around 65%, suffered major damage. It is likely that these two catastrophic events will have some effect on nation's construction costs. However, the affected areas and the adjacent states might see an increase of about 4%-6% above the national costs.

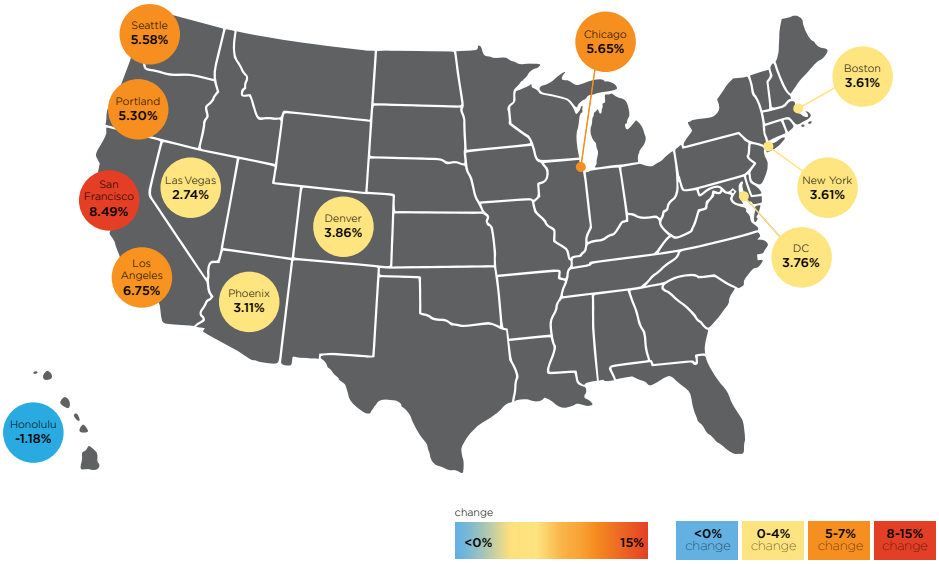
Lumber and gypsum wall board prices continue to soar when compared to the other building materials. Lumber price index increased 7.2% and gypsum wallboard 8.4% year over year in the month of August 2017. During the same period, cement, structural concrete block, and ready-mixed concrete increased by 4.8%, 2.3% and 3.3% respectively. Gypsum wallboard will certainly be one of most affected commodities when repairing of the houses is started in the areas affected by Harvey and Irma.



Sources: U.S. Bureau of Labor Statistics
*for Gypsum Wall Board only, base = 100 at 1994

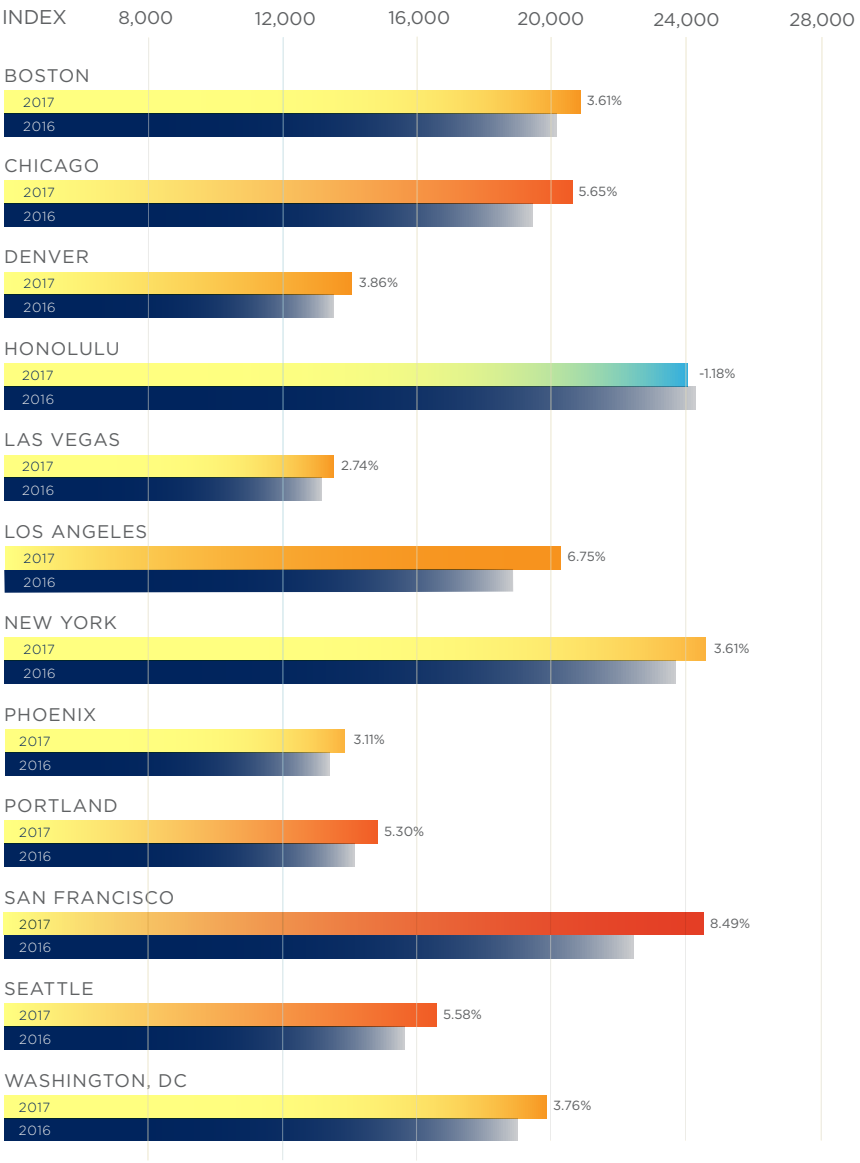
USA REPORT

COMPARATIVE COST INDEX



City	July 2016	October 2016	January 2017	April 2017	July 2017	% Change
Boston	20,257	20,489	20,671	20,835	20,989	3.61%
Chicago	19,547	19,809	20,103	20,414	20,652	5.65%
Denver	13,660	13,932	13,987	14,097	14,187	3.86%
Honolulu	24,338	24,181	24,082	24,060	24,050	-1.18%
Las Vegas	13,251	13,342	13,435	13,510	13,614	2.74%
Los Angeles	19,041	19,225	19,401	19,997	20,326	6.75%
New York	23,837	24,101	24,303	24,499	24,698	3.61%
Phoenix	13,481	13,578	13,659	13,785	13,900	3.11%
Portland	14,287	14,469	14,638	14,830	15,044	5.30%
San Francisco	22,625	23,005	23,677	24,039	24,546	8.49%
Seattle	15,774	15,972	16,190	16,419	16,654	5.58%
Washington, DC	19,163	19,376	19,586	19,774	19,884	3.76%

Comparative Cost Map and Bar Graph Indicate percentage change between July 2016 and July 2017.



Each quarter we look at the comparative cost of construction in 12 US cities, indexing them to show how costs are changing in each city in particular, and against the costs in the other 11 locations. You will be able to find this information in the graph titled *Comparative Cost Index (above)* and in the *Cost and Change Summary (right)*.

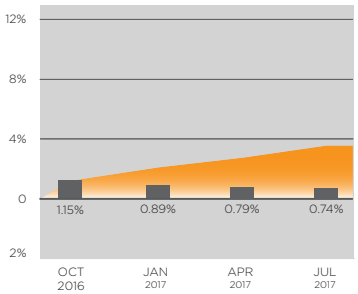
Our Comparative Cost Index tracks the 'true' bid cost of construction, which includes, in addition to costs of labor and materials, general contractor and sub-contractor overhead costs and fees (profit). The index also includes applicable sales/use taxes that 'standard' construction contracts attract. In a 'boom,' construction costs typically increase more rapidly than the net cost of labor and materials. This happens as the overhead levels and profit margins are increased in response to the increasing demand. Similarly, in a 'bust', construction cost increases are dampened (or may even be reversed) due to reductions in overheads and profit margins.

USA REPORT

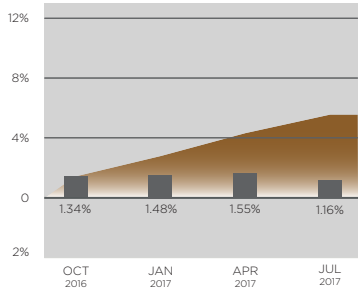
The following escalation charts track changes in the cost of construction each quarter in many of the cities where RLB offices are located. Each chart illustrates the percentage change per period and the cumulative percentage change throughout the charted timeline.

Percentage change per quarter — Cumulative percentage change for the period shown

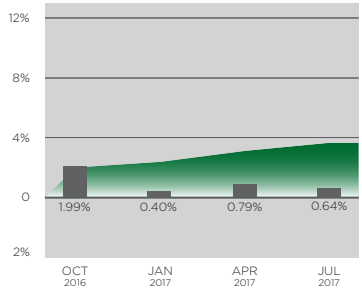
COST INDEX Boston



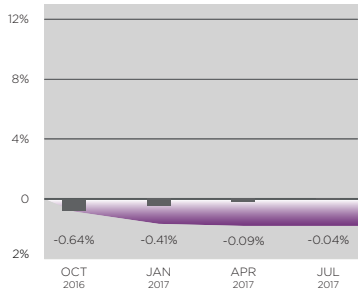
COST INDEX Chicago



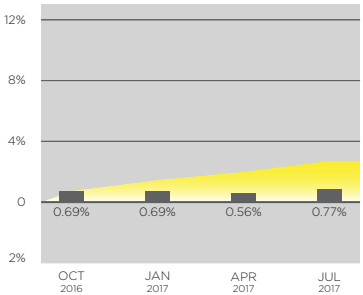
COST INDEX Denver



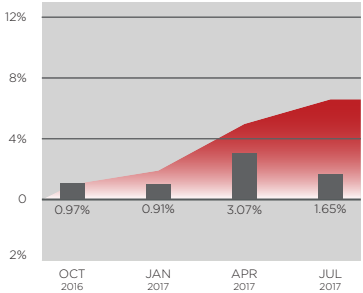
COST INDEX Honolulu



COST INDEX Las Vegas

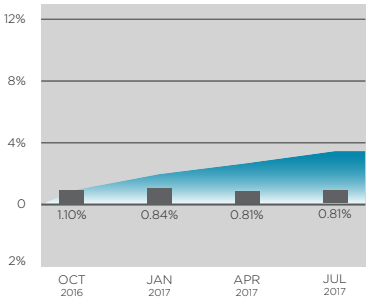


COST INDEX Los Angeles

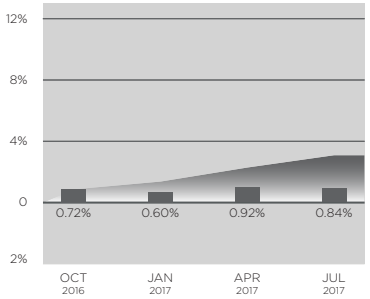


Our research suggests that between April 1, 2017 and July 1, 2017 the national average increase in construction was approximately 1.01%. Chicago, Los Angeles, Portland, San Francisco, and Seattle all experienced increases over 1% in the quarter. Boston, Denver, Las Vegas, New York, Phoenix, and Washington DC experienced modest gains of less than one percent, while Honolulu continues to experience a mild decline in construction costs.

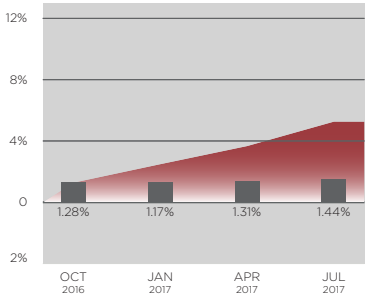
COST INDEX New York



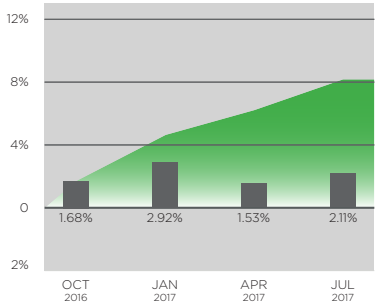
COST INDEX Phoenix



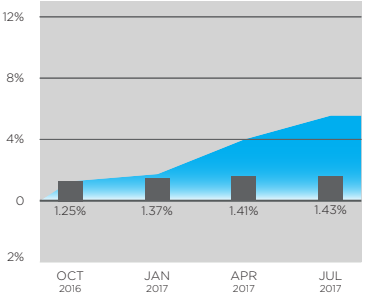
COST INDEX Portland



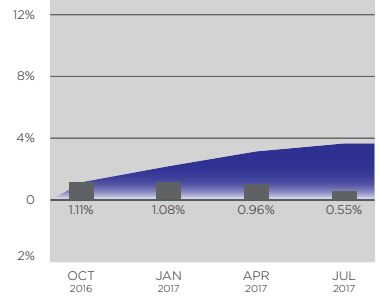
COST INDEX San Francisco



COST INDEX Seattle

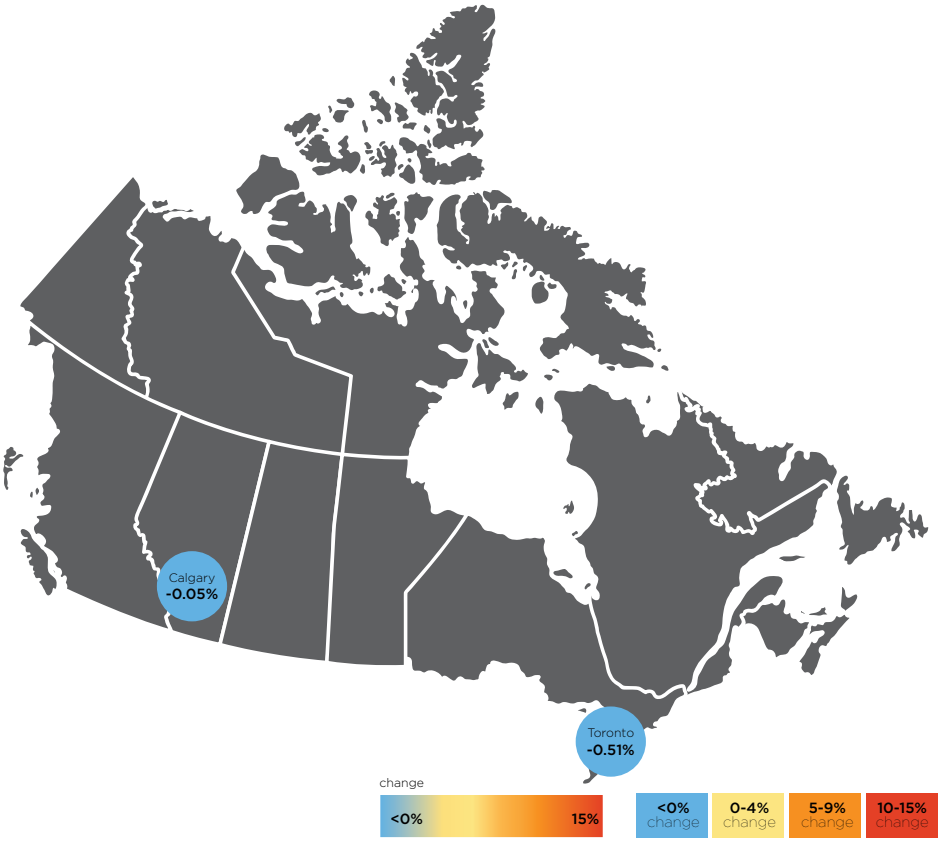


COST INDEX Washington DC



CANADA REPORT

COMPARATIVE COST INDEX

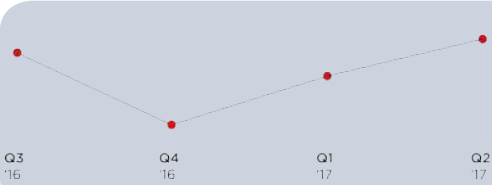


City	October 2016	January 2017	April 2017	July 2017	Quarterly % Change
• Calgary	18,435	18,190	18,089	18,080	-0.05%
• Toronto	18,690	18,800	18,664	18,569	-0.51%

Canadian construction starts saw year-on-year contractions in Q1 and Q2 of 2017, with changes in activities varying significantly by region/province. The outlook for the Canadian non-residential construction activity suggests further overall contraction in 2017, before the return of relatively healthy growth in 2018. Canadian residential construction is up 28.5% from last quarter, recovering at a rate slightly higher than this time last year.

Considerable improvement is expected based on a strong outlook for the oil and gas sector by the end of 2017. This should stimulate a recovery in demand for oil-related services in regions such as Alberta, with subsequent increases in demand for new office space and Oilfield construction rebound from its current lows. Overall, the government spending plan targeting infrastructure investments should see growth in civil engineering sector, and hospitality sector is also expected to gain strength with government support driven by an aging population.

KEY CANADIAN STATISTICS

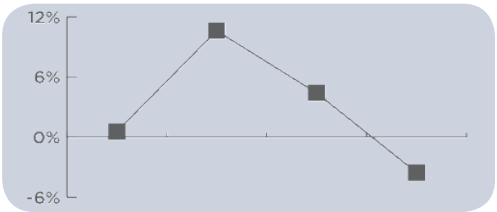


Gross Domestic Product

GDP continues an upward trend, reaching 1.09% in Q2, slightly higher than the rate of 1.02% from this time last year.

Consumer Price Index

Canada's CPI grows steadily into 2017, with a variance of 1.8%.



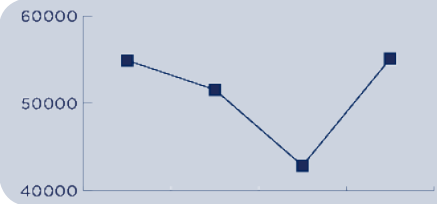
Value of Building Permits

The total value of permits experiences a national decline, attributed to lower construction intentions for commercial buildings and multi-family dwellings.

Unemployment

Canada's unemployment decreases steadily.

Q3 2016	Q4 2016	Q1 2017	Q2 2017
7.0	6.9	6.7	6.5



Housing Starts

Housing starts are up 28.5% from last quarter, recovering at a rate 3.3% higher than this time last year.

GDP represented in percent change from the preceding quarter, seasonally adjusted at annual rates. CPI quarterly figures represent the monthly value at the end of the quarter. Inflation rates represent the total price of inflation from the previous quarter, based on the change in the Consumer Price Index. General Unemployment rates are based on the total population 16 years and older. Construction Unemployment rates represent only the percent of experienced private wage and salary workers in the construction industry 15 years and older. Unemployment rates are seasonally adjusted, reported at the end of the period.

Sources: Statistics Canada

ABOUT RIDER LEVETT BUCKNALL

Rider Levett Bucknall is an award-winning international firm known for providing project management, construction cost consulting, and related property and construction advisory services – at all stages of the design and construction process. The firm was voted #1 Cost Consultant in 2016 and 2017 by World Architecture Magazine.

While the information in this publication is believed to be correct, no responsibility is accepted for its accuracy. Persons desiring to utilize any information appearing in this publication should verify its applicability to their specific circumstances.

This issue was compiled by Taryn Harbert with contributions from Evans Pomegas, Grant Owen, Edd Hamzanlui, Paul Brussow, Maelyn Uyehara, Cassie Idehara, Simon James, Philip Mathur, Scott Macpherson, Graham Roy, Daniel Junge, George Bergeron, Peter Knowles, Catherine Stoupas, Joe Pendlebury, and Edward Traore.

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