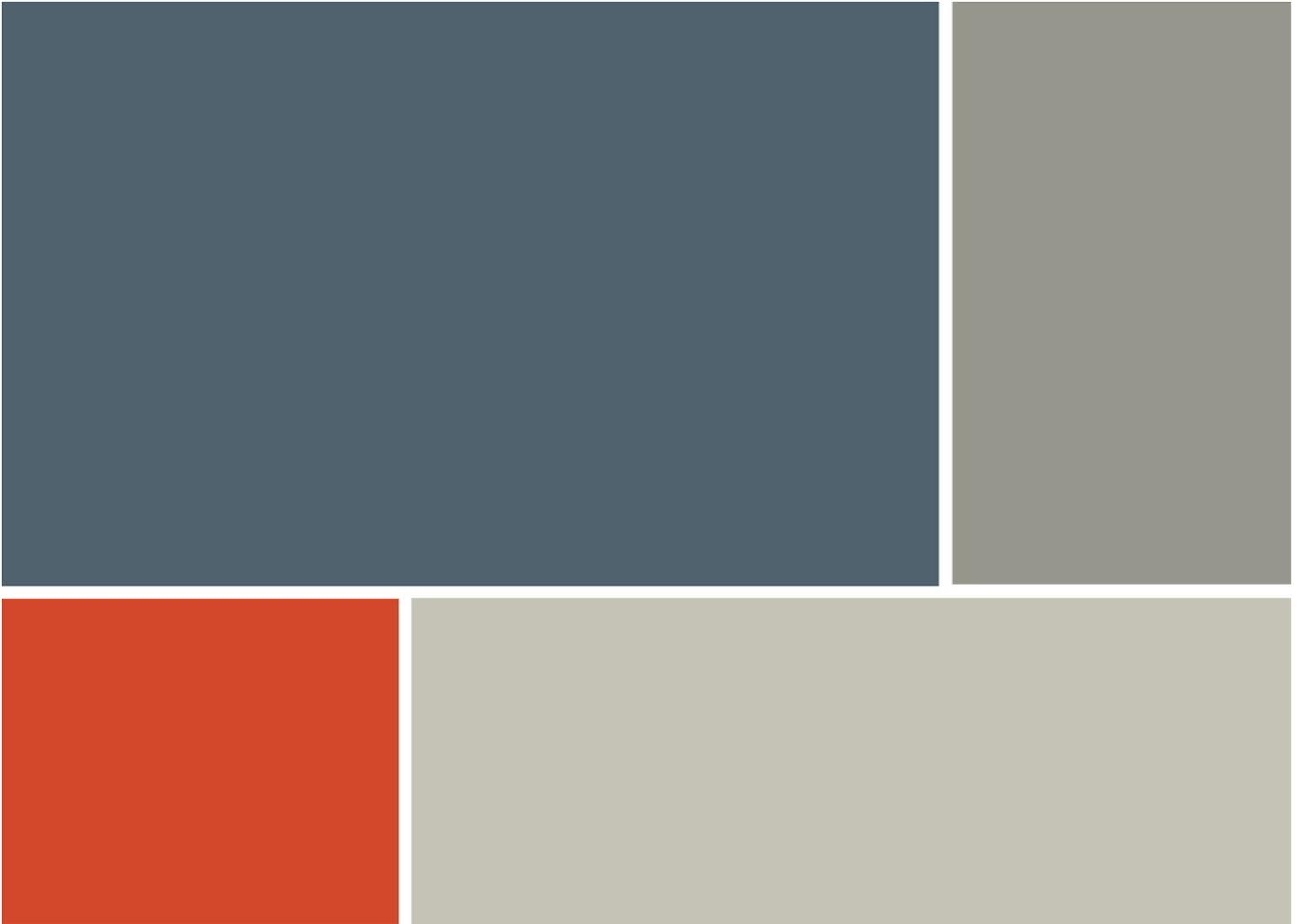


Q2 2018 CONSTRUCTION COST NOTE
LOS ANGELES, CALIFORNIA



SUMMARY

This note assesses the recent and future trends in construction costs in the Los Angeles area and following interviews with local Contractors provides Dharam Consulting's view on the market.

DHARAM CONSULTING VIEW

- Average construction input cost as measured by the ENR Building Cost Index, rose by 6.8% in the 18 months to December 2017, mainly due to a hike in material prices.
- Contractor bid submission prices increased by 8.5% over the same period, on the back of an input cost pass-through and firm overheads & profits.
- We expect input cost pressures to persist in the near to medium term, as strong construction volumes and rebuilding efforts from wildfires in 2017 increase competition for contracting and labor resources. Many material prices are also rising due to the impacts from changes in trade policies and natural disasters, i.e. post-hurricane reconstruction.
- Due to the tightness of the market, projects <\$80-90 million face difficulties to attract sufficiently competitive resources, which may lead to higher average cost. Specific trades, such as curtain walling may be particular affected.

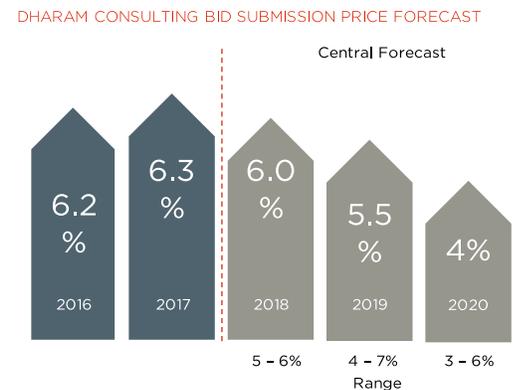
INPUT COSTS				
Period	Building Cost Index*	Labor Cost Index*		Material Price Index*
		Common Labor	Skilled Labor	
Q3- 2016 - Dec-2017 (18 months)	6.8%	7.0%	7.0%	6.4%
2018	4.0%			
2019	3.5%			

* Source: ENR, Los Angeles

- Bid submission prices are forecast to increase by 6% in 2018. After that, our central scenario foresees price escalation to moderate slightly to 5.5% in 2019 and 4% in 2020.

CONTRACTOR BID PRICES	
Period	Bid Submission Index**
Q3 2016 - Q4 2017 (18 months)	9.5%

** Source: Dharam Consulting

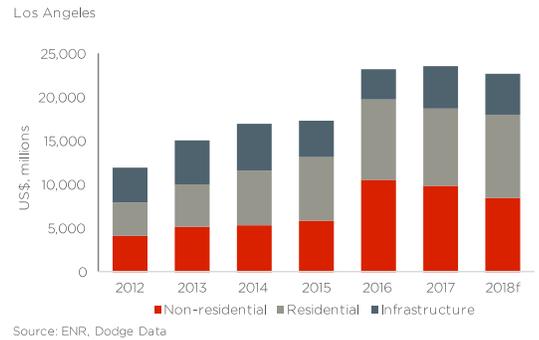


LOS ANGELES CONSTRUCTION ACTIVITY

Recent trends Q3 2016 – Q1 2018

- Nationally, construction spending expanded by 3.8% in 2017. The consensus forecast predicts an increase in construction spending in 2018 in the range of 4-5%. Similar growth is expected for 2019, before forecasters expect a slowdown in the expansion.
- Construction workload in Los Angeles has benefited from economic growth, strong demand for space from increasingly diverse occupants and growing project pipelines.
- Overall, the value of construction starts in Los Angeles jumped from \$11.9 billion in 2012 to an \$23.5 billion in 2017.

FIG. 1: VALUE OF CONSTRUCTION STARTS IN LOS ANGELES



Activity Outlook 2018 – 2019

- Non-residential commercial and industrial work primarily drives the Los Angeles construction market. The primary demand for space comes from the education, healthcare and technical services sectors.
- The value of construction starts is forecast to decrease by around 3.5% in 2018 compared to 2017, but starts remain at a historically high level. Slower non-residential activity is expected to be offset by strengthening residential work.

CONSTRUCTION COST

Recent Trends

Due to the high level of work, the local industry currently experiences a lack of capacity when it comes to labor across main contractors, trades and consultants. These constraints appear a direct consequence from the recession which had hit the sector hard and had led to downsizings, consolidations, and a decrease in the regional labor pool. Whilst labor costs have generally outstripped the rise in material cost in recent years, 2017 has seen a return in building material cost inflation.

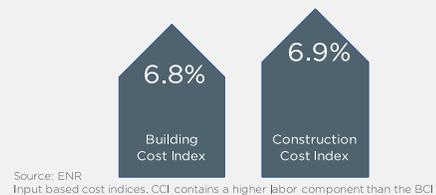
Building cost indices

Building cost in the Los Angeles Area rose by 6.8% between Q3 2016 and December 2017, while construction cost rose by 6.9% (Fig. 1). In March 2018, building and construction costs were unchanged compared to December 2017.

The building cost index (BCI) includes a higher proportion of skilled labor than the construction cost index (CCI), which includes a higher proportion of common labor.

FIG. 2 CONSTRUCTION COST INDICES

Los Angeles: Percentage change: Q3 2016 to to December 2017



Construction employment in the area halved in the Great Recession of 2009/10/ Since then it has recovered, but remains around 5% below pre-recession levels. According to industry sources, there is a significant labor shortage in the area.

Labor cost

Both, the skilled and common labor index increased by 7% between Q3 2016 and December 2017 (Fig. 3). The ENR data shows that costs in March 2018 were stable at December 2017 levels.

Wage escalation for specific trades in Orange County and Southern California are shown in table 1.

FIG. 3 LABOR COST INDEX

Los Angeles: Percentage change: Q3 2016 to to December 2017



Source: ENR
Input based cost indices. CCI contains a higher labor component than the BCI

TABLE 1: PREVAILING WAGES: BASE + FRINGES FOR ORANGE COUNTY

	2016	2017	2018	% change 2016-2018
Plumbers*	74.1	76.3	79.0	▲ 6.7%
Electricians*	71.2	73.3	75.21	▲ 5.6%
Carpenters **	55.8	57.8	59.82	▲ 7.3%
Laborers**	50.5	52.1	53.7	▲ 6.4%

Source: State of California Department of Industrial Relations

* Orange County/ ** Southern California

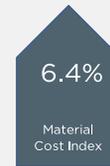
Material cost

After a number of benign years, material prices have increased significantly due to global and domestic factors. In particular, since March 2017, material prices have seen a significant increase in price inflation.

On average, material prices in the Los Angeles area increased by 6.4% between Q3 2016 and December 2017 (Fig. 4).

FIG. 4 MATERIAL COST INDEX

Los Angeles: Percentage change: Q3 2016 to to December 2017



Source: ENR
Input based cost indices. CCI contains a higher labor component than the BCI

Price changes of selected materials between Q3 2016 and Q4 2017 are shown in Figure 5.

FIG 5: PRICE CHANGES OF SELECTED MATERIALS

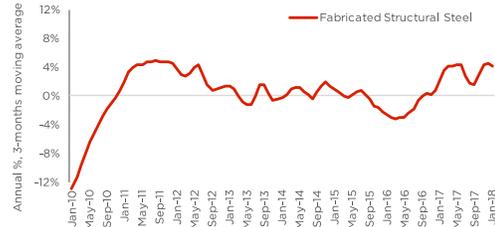
Q3 2016 to Q4 2017

Fabricated structural metal ▲ 3.0%

Cement ▲ 4.1%



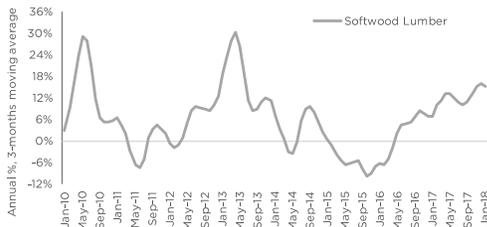
Source: ENR, BLS



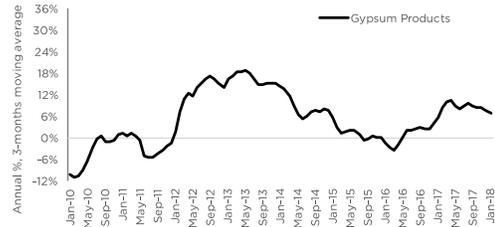
Source: ENR, BLS

Softwood Lumber ▲ 13.9%

Gypsum Products ▲ 8.5%



Source: ENR, BLS



Source: ENR, BLS

Selected Materials

We expect input cost pressures to persist in the near to medium term, as firm construction volumes increase competition for contracting and labor resources. Many material prices are also rising due to the impacts from changes in trade policies and natural disasters, i.e. post-hurricane reconstruction.

Due to the high level of work, local capacity is tight when it comes to labor across main contractors, trades and consultants. According to local sources, it appears that the labor shortage in California could be a very serious hurdle to rebuilding efforts associated with the wildfire damages sustained in 2017. While construction workers from other areas often migrate to disaster-stricken areas to provide their services, this time many will be diverted, or are already working on, some of the other recent disasters, i.e. hurricane damage in Texas and Florida from 2017. These (skilled) labor shortages are adding to cost escalation and wider project risks, including schedule risk. Project specific labor requirements will have to be taken into consideration when assessing labor cost escalation over the next two years. Consideration should be given to whether potential contractors will have open, mixed shop or fully unionized labor arrangements.

We expect **material prices** to continue to fluctuate, depending on global demand and domestic policy changes with regards to the aluminum and steel tariffs and potential other import restrictions. On March 8, the Trump administration signed off the implementation of tariffs of 25% on foreign raw **steel** and 10% on foreign **aluminum** products, under section 232 of the Trade Expansion Act. These tariffs will go into effect on March 23, 2018. Imports from Canada and Mexico are exempt. The full impact of these tariffs on the price of steel materials used in construction, such as fabricated steel, is yet to be assessed. As it currently stands these products are not addressed in the tariff action and will see their input costs rise. Depending on the quantitative changes to imports, the impact on steel prices is potentially sizeable. At the same time, US production is likely to be ramped up under any new policies, which should level out prices. The impact on cost of specific projects will need to be look at individually.

Cement prices have consistently increased in recent years, mirroring construction spending growth. The health of the industry will determine price levels in the years ahead. Should any national infrastructure package commence, prices of cement are likely to spike, until then, price increases are likely to remain steady.

Lumber costs jumped in 2017 due to an up to 24% new tariff on imported Canadian lumber, which in turn allowed US mills to raise quotes. This has caused the price of framing lumber to spike. Adding to price pressures are strong residential demand and the higher demand from hurricane damage.

The latest price announcements from the National Gypsum Price Bulletin indicated that **gypsum** is likely to see the most price increases in 2018 (table 2). The IHS forecast for key materials is shown in table 3.

TABLE 2: PRICE ANNOUNCEMENTS

Material/ Price change	January 2018	June 2018
Gypsum Wallboard	+15%	+15%
Interior Finishing	+7%	
Cement Board	+10%	
Plaster	+7%	

Source: National Gypsum Price Bulletin

TABLE 3: CONSTRUCTION MATERIAL PRICE FORECAST

Material	2017	2018f	2019f	2020f
Aggregates	3.5	4.0	3.0	2.7
Cement	4.7	4.3	3.6	2.2
Rebar	3.1	0.2	1.8	2.7
Structural steel	2.4	-0.1	-0.2	0.8
Sheet-metal work	1.3	0.6	0.1	0.9
Gypsum products	7.4	5.9	1.9	-2.1
Lumber softwood	13.1	-1.8	-3.7	0.1

Source: IHS, ENR

Bid Submission Prices

Bid submission prices in the Los Angeles area, rose by 9.5% in the 18 months between Q3 2016 and the end of 2017. The cost of labor has been the major driver for cost escalation. Adding to bid submission price escalation in the region, are contractor capacity issues, in particular for sub-contractors. Smaller projects (\$50-60 million) have difficulties attracting competitive bids, adding to overall project costs. According to local sources, projects in the cost range of \$80-90 million, start being attractive to (sub-) contractors. Capacity is a particular issue for trades such as curtain waling, with contractors able to pick and choose the most attractive projects for them.

Bid submission prices are forecast to increase by 6% in 2018 and 5.5% in 2019 (Fig 6, 7). If a large national infrastructure package would be announced, demand could increase beyond levels currently foreseen, which in turn could push up construction inflation. Similarly, should the cost of key materials increase significantly due to further changes in trade policies, this could push up prices stronger than forecast.

FIG 6: LA CONSTRUCTION BID SUBMISSION PRICE FORECAST

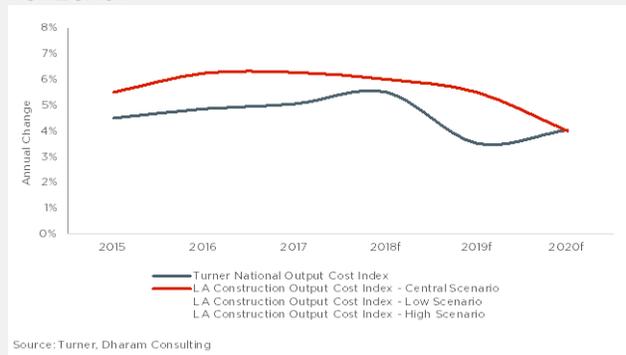


FIG 7: DHARAM LOS ANGELES BID SUBMISSION PRICE FORECAST

