



Turner & Townsend

International construction market survey 2018



making the **difference**

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There's no easy money!

Global construction volume is on the up and the future is looking bright. But the industry faces more work with fewer workers. The challenge for the supply chain is how to convert this increased output into profit.

There is an expectation of increasing construction activity around the globe with a few exceptions, notably a reduction in the UK. Our 2018 international construction market survey shows that of the 46 markets examined 21 expect to warm up, 23 are set for stability with only two looking likely to cool.

'Good news' is a repeated undertone in this year's survey. Underpinning this optimism is an accelerating global economy. In the ten years after the global financial crisis, growth among the major advanced economies has averaged half the pace of the previous ten years. This prompted an extended period of exceptionally low interest rates and sparked concern over stagnation and years of slow growth. But now the giant boiler rooms of the USA and European Union are once again fired-up and brightening global prospects.

So what has changed?

There has been a significant demographic shift. The United Nations (UN) estimates that in the last three decades, one billion people have been lifted out of extreme poverty.¹ Construction has been a major lever to unlock these higher living standards. It shapes the world in which we live, work and relax, increasingly so as nations urbanise. The UN also estimates that a third of the world's population was urbanised in 1960, compared to just over a half currently and by 2050, two-thirds will live in urban areas.²

This progress, combined with technological advances and a more global outlook, means longer life spans and an expanding global middle class, which according to a forecast

by Brookings Institute, will enlarge by 160 million people annually for some years.³ This means an ageing population, growing aspirations and more income to achieve them.

The International Monetary Fund (IMF) forecasts global GDP to increase by 3.9 percent in 2018. The construction sector has a strong correlation with economic growth. When GDP rises above a moderate rate, construction's share of the economy expands in greater proportion. While this is exciting news for the global construction industry, higher medium term growth is a potential game changer that could go either way. There may be big upsides for some players, but improved returns will be hard won.

With construction's three sectors, natural resources, infrastructure and real estate all in global growth mode, there are clear warnings for us all if we plan on a traditional approach, relying on risk transfer pricing alone. The recent downfall of high profile contractors in busy markets as diverse as the UK and New Zealand shows that irrespective of the market size or level of construction demand, things need to change.

How ready is the industry to respond to the uplift in demand?

A key measure is availability of skills and labour. This year's survey shows skills shortages are prevalent across disparate markets. Just three of the 46 markets surveyed recorded a surplus. Skills shortages appeared in markets as different as Zurich, where labour costs USD104 an hour and Bangalore, with USD1.1 hourly.

A consequence of prosperity, global connectivity and growing aspirations, is a shrinking pool of cheaper migrant

labour, on which historically construction has been reliant. So, with a surge of workload ahead, the global industry faces more work with fewer workers. Inevitably, this will increase upwards pressure on costs. The average expected construction inflation across the markets covered is 4.3 percent, up on the 4.1 percent seen last year. Set against local consumer inflation rates, most markets will see modest rises. While this might not seem an excessive increase, it is an average and at the beginning of increasing global demand. There will be price spikes in some markets, but not only in those ahead of the curve.

The less obvious but more profound conclusion from this year's survey is that, regardless of the cyclical ups and downs, productivity will become an even bigger global issue for the construction industry. Despite the technical advances of the last generation, productivity in construction has barely improved.

We all have a responsibility to drive change. The industry needs to collaborate and establish new delivery models that set requirements and design to a commercial baseline that reflects the capabilities and realities of individual markets. To establish an acceptable level of certainty in project outcome, reward needs to be based on performance, not just on allocation and management of risk. Without this, the industry has every excuse not to change.

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Survey overview

The 2018 international construction market survey brings together data and experience from 46 markets around the world, to provide an insight into the current state and direction of the global construction industry. This year it also brings optimism.

Our international construction market survey aims to deliver comparable data from real projects across the world that provides greater insight into the constantly changing dynamics of global construction activity.

The data inevitably represents just a snapshot of what lies behind the analysis. Even so, one message should ring clear. Global construction is more buoyant than it has been for many years and in the short term at least, things are looking up.

Much attention is paid to fast-developing nations, but the developed economies still account for about half of global construction. So, with the giant US and EU economies surprising on the upside they are better able to support investment and they appear ready to do so.

Within the array of new major projects coming on stream, infrastructure stands out as the hottest sector for the future, followed by commercial construction. The pursuit of expanding global infrastructure gets to the heart of two key global ambitions – to increase productivity and reduce poverty. In developing and emerging nations especially, infrastructure can be a boon for both, opening access to both markets and resources and reducing the frictions within economies.

For construction, investment in infrastructure delivers immediate workloads. But it also brings the promise of future work, as better connections and better utilities encourage follow-on development in the residential and commercial sectors.

In gathering and gaining insight from the data, our team of expert economists worked closely with our local experts to analyse input costs – such as labour and materials – and chart the average construction costs per square metre for six building types across all 46 markets in 33 countries. We added three more markets this year – Ho Chi Minh City, Jakarta and Shanghai.

We use a variety of construction cost comparison methodologies to ensure our findings deliver accuracy and insight. Methods such as straight-line USD conversion, purchasing power parity (PPP) and location factors are used to standardise our data and draw useful conclusions.

This is increasingly important given the volatility in exchange rates and its impact on comparing construction costs across markets.

The research also gathers data on the market conditions, which provide context and a deeper understanding of the balance of supply and demand and the cost pressures within each market. Common themes emerge. One of the more important is that the tightening of skills shortage seen in last year's report is continuing.

This, in many ways, reflects growing demand for construction across the globe. It also reinforces the need to improve productivity.

For more information on the methods we use see page 104. Detailed explanations of what's included in and excluded from our cost information are given on pages 102 and 103.



Survey
2018



Key
markets
and new
markets

46

key markets

3

new markets:
Ho Chi Minh City,
Jakarta and Shanghai

Forecasted cost escalation 2018-2019

Current tendering conditions

- Overheating
- Hot
- Warm
- Lukewarm
- Cold



Global construction costs are expected to rise 4.3 percent in 2018 following a 4.1 percent rise in 2017



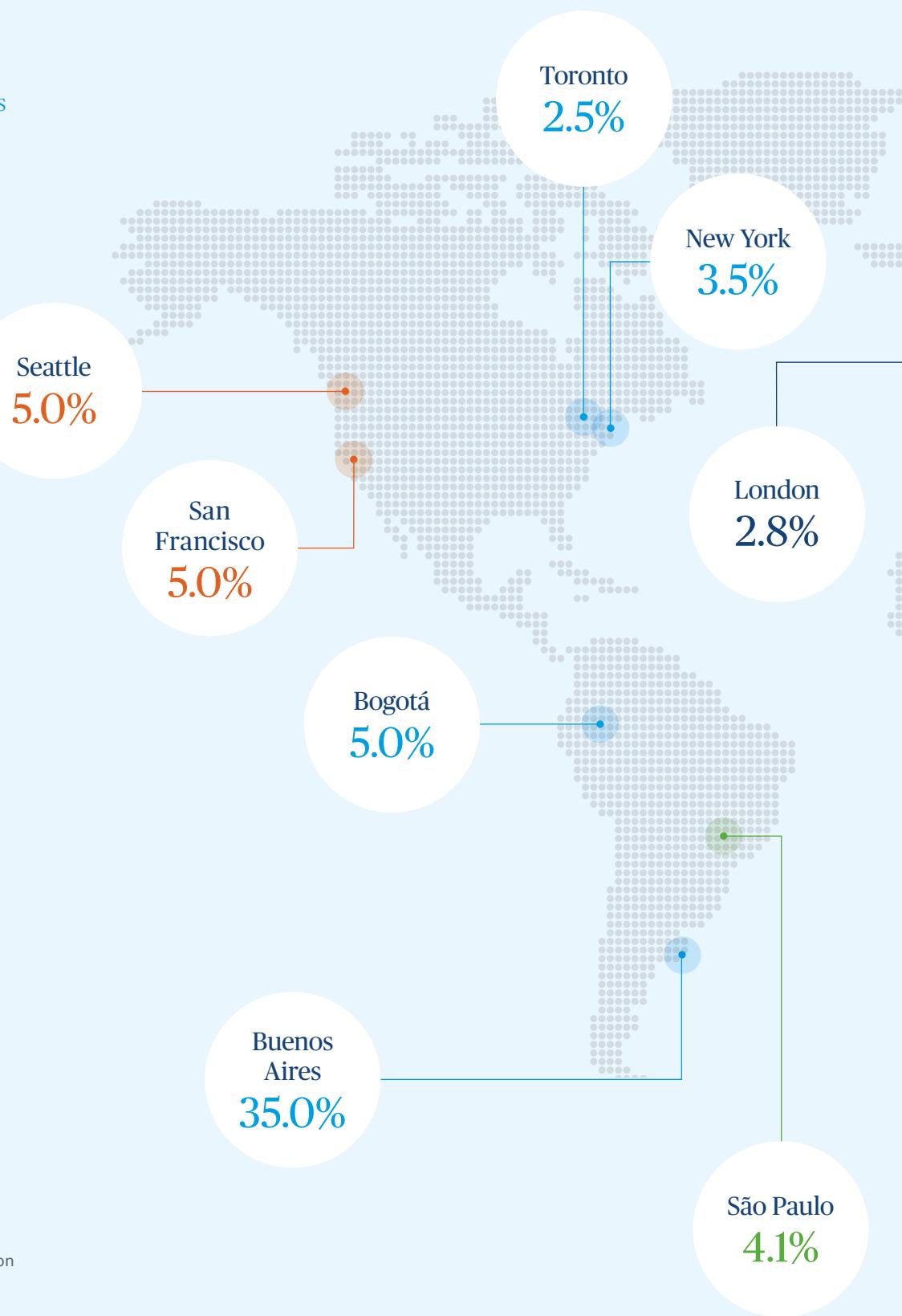
21 of the 46 markets measured are expected to warm up in 2018, just two are expected to cool

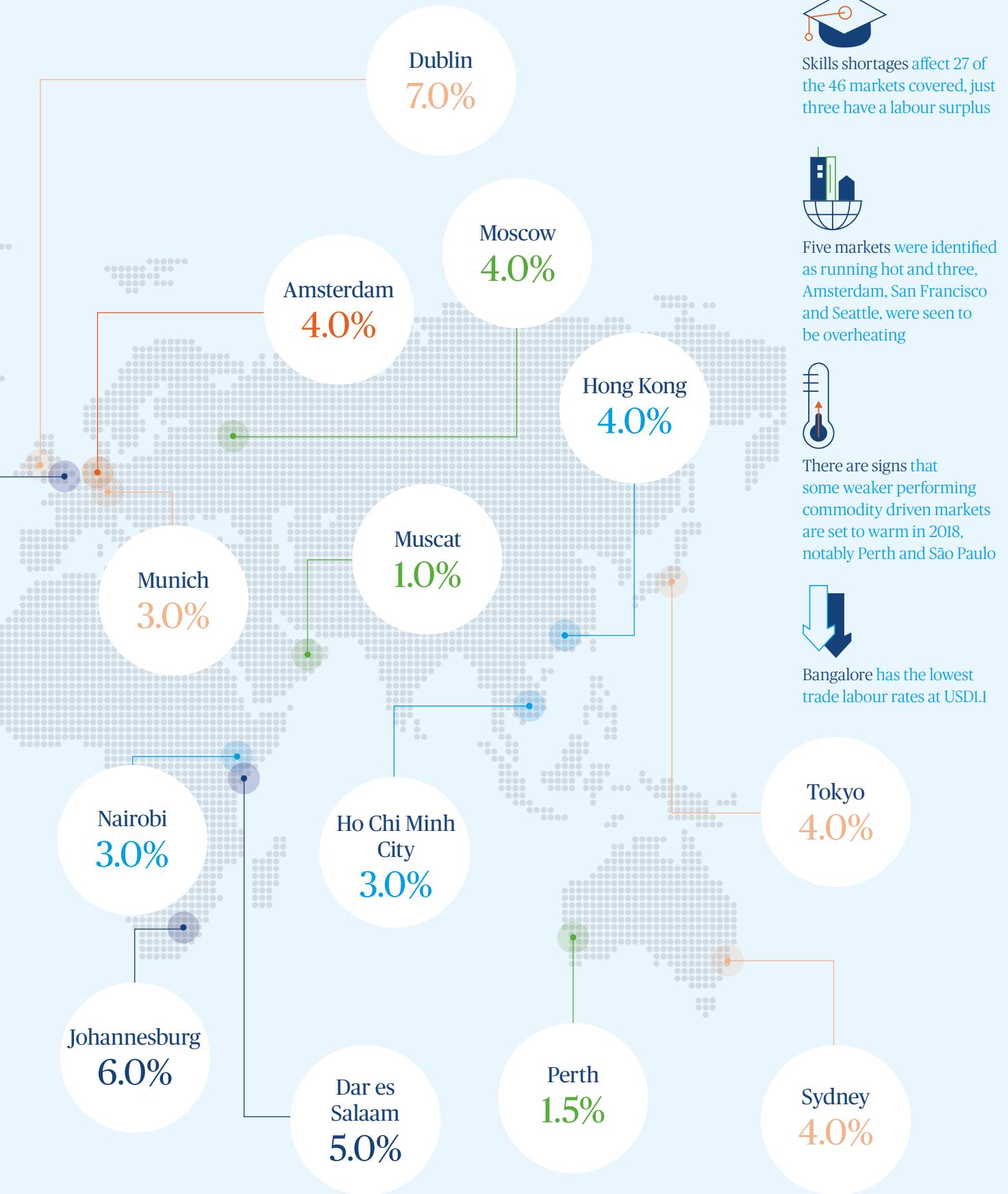


New York once again holds the top spot for highest construction costs, ahead of Zurich



Perth and Muscat were the only two markets to see falls in construction costs







Economic overview



Global

3.9% forecasted GDP growth in 2018

3.9% forecasted GDP growth in 2019

China

6.6% forecasted GDP growth in 2018

6.4% forecasted GDP growth in 2019

“120 economies accounting for three quarters of world GDP enjoyed a rise in year-on-year growth rates in 2017”





Global economic overview

It may have felt like a long time coming, but global construction got into its stride in 2017 as the economic backdrop brightened and boosted optimism. The USA is enjoying rapid economic growth, European markets are catching up and China continues to surprise. The growing confidence this brings is a much-needed tonic for the construction industry as it tackles the challenges of a rapidly evolving world.

A decade on from the global financial crisis and the world economy is finally reaching cruising speed. 2018 looks positive for employment, business profits, investment and construction.

It was hard to identify a dominant trend in the global economy and construction in our 2017 international construction market survey. Steady as she goes was probably the closest we could get. This year it is easier, and the tone is more upbeat. We see prospects for the global economy as being the most positive in this decade. This translates into much better prospects for construction.

This more upbeat take on the global economy appears to mirror a similar mood at the International Monetary Fund (IMF). Its latest two global growth forecasts, in October last year and January this, were revised upwards as economic growth outpaced expectations in most regions. The IMF currently forecasts global growth

for 2018 at 3.9 percent, reflecting increased global economic momentum and the expected positive impact of recent US tax policy changes.⁴

Indicators of business confidence are up in Australia, China, Europe, Japan and USA, illustrating the broadly synchronised pick-up in growth. 120 economies accounting for three quarters of world GDP enjoyed a rise in year-on-year growth rates in 2017. Big advanced economies like Germany, Japan and the USA all outpaced expectations along with the emerging economies of Brazil, China and South Africa.

The USA is growing rapidly

In the USA GDP escalated at an annualised 3.2 percent in the last quarter of 2017 and this solid growth is expected to continue throughout 2018. Business profits are surging. USA housing prices appear to finally be back to 2008 levels. Unemployment has fallen from 10 percent in 2009 to 4.1 percent in 2018.

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This recovery is close to the longest in US history. At some stage it must end. However, recently passed tax cuts should encourage business investment and consumer spending, pushing the downturn beyond 2018. By then the US administration will be returning to election mode and eager to inject money to avert any potential downturn.

China continues to surprise

China's faster than expected growth has been driving a resurgence in commodity prices and benefitting resource-rich economies, such as Australia, Brazil and South Africa. China is pushing ahead with major infrastructure investments along the route of the old Silk Road. This is driving construction as well as providing a stimulus to some of China's sluggish state-owned enterprises, setting China on a growth path that is stronger for longer.

This new mega project called "One Belt and Road" stretches from China to Europe. It is a massive construction and engineering feat with highways, high-speed rail, logistics and technology. Its impact on construction is equivalent to another Chinese economy at the start of its rapid expansion.

Europe is catching up

Meanwhile, the European economies are strengthening, although further behind in the business cycle. The EU economy grew at 2.6 percent at the end of 2017. France, Germany, Ireland, Italy and

the Netherlands all experienced stronger growth in the second half of 2017. Spain's economy continues to grow above 3 percent. The Spanish unemployment rate has declined from 23 percent in 2015 to 16 percent at the end of 2017. Italy's unemployment is at a five-year low at 11 percent. France's unemployment is 8.9 percent. These figures illustrate European growth is only now starting to get into its stride.

Uncertainty in the UK

In a relatively short period the UK has fallen from being a top performing economy in the G7 to be vying for bottom spot with Italy and Japan, with annual GDP growth in the UK at 1.8 percent in 2017 and forecast to slow further.

Since the Brexit vote, the economy may have fared better than many commentators suggested, but the uncertainty generated is having a dampening effect on businesses and consumers, not helped by a fall in sterling leading to higher inflation and an erosion in real earnings.

There are positives. Exports are up, helped by a fall in sterling and manufacturing appears to be buoyant. The banking system is stable and access to credit remains favourable. Importantly, greater global growth can act to offset cooling in UK domestic demand.

Despite posting growth for the year, construction output has stuttered in recent quarters, with negative growth seen in Q2 and Q4 of 2017. However, slower growth is not the only issue for construction. Skilled labour is a worry. A heavy reliance on EU workers is a cause for concern as the Brexit negotiations progress. There is little slack in the labour market. Unemployment is close to historical lows and construction unemployment is even tighter.

Business conditions are good

Looking at the wider backdrop to global prospects, business conditions are good. Worldwide corporate profits are generally higher. This includes the corporate sectors of Australia, China, Germany, Japan, the UK and USA.

Most key indicators appear positive. Generally, interest rates remain low and expansionary. While the need for monetary stimulus has receded and thoughts are turning to normalising interest rates, the mood is to proceed cautiously. Meanwhile, wage growth is low, reducing risks of a breakout in wage-push inflation. And inflation generally remains low.

Oil prices are recovering, raising optimism in the oil and gas sector. Brent crude went above USD60 as the Organization of the Petroleum Exporting Countries (OPEC) cut production. Higher global growth is set to redress the oil supply-demand balance quicker and prompt new investments in oil and gas.

Infrastructure highlights from around the world



USA

A massive infrastructure plan is taking shape for announcement in 2018, which includes extensions to federal grants, incentives and permitting simplification to encourage local programmes.



Argentina

There are plans for an additional 1,600km of highway around Buenos Aires. The International Development Bank has approved USD280m in funding for the Agua Negra Tunnel project to connect Chile and Argentina across the Andes. Brazil is upgrading 1,100km of railway as part of its USD40bn 2018 transport budget.



UK

The Infrastructure and Projects Authority (IPA) estimates the next decade will see around £600bn of public and private investment in infrastructure. Major projects in the pipeline include the HS2 high-speed railway and the Cambridge-Oxford expressway.



France

The massive Le Grand Paris project which is underway includes four new metro lines connecting seven strategic and economic centres, encompassing 70,000 new homes, 68 new stations and 200km of rail network at a total cost of USD31bn.

There seem to be few obvious roadblocks on the horizon to derail higher growth in 2018, except for a potential dent in global trade, caused by the USA reassessing its terms of trade with the rest of the world. It is difficult to gauge the impact. It may prove to be more posturing than actual policy. It may not.

This caveat aside, we believe there is a high probability that growth will continue to surprise.

Progress in the construction sector

A more positive business environment should support an evolution in construction that is both underway and inevitable, as the industry seeks to cater for rapidly shifting demands related both to business cycles and structural changes.

The residential apartment construction cycle that provided a big boost to many economies during 2016 and 2017 is shifting focus. Nevertheless, high house prices in many regions is generating a strong wealth effect, stimulating consumption and driving growth.

With job creation and productivity in mind, governments are boosting infrastructure spending. The effect is telling when it appears that now there are too few tunnel-boring machines and teams to cover the tunnelling work coming up.

Meanwhile, the diffusion of disruptive new technologies into every corner of the global economy is continuing to fuel growth of global businesses, such as Airbnb, Amazon, Google and Uber. This is driving construction activity as demand for building grows.

There is strong growth in and potentially stronger demand for data centres. These rapidly growing corporates urgently require new operational centres. Logistics warehouse and distribution centres are also needed to service booming online sales.

On the flip side, opportunity also lies in refreshing and repurposing "the built legacy", such as retail refurbishment allowing major bricks-and-mortar players to compete with global online giants through developing alternative retail and leisure experiences.

Longer term, demographic and wealth effects are changing how people behave. Businesses today increasingly deliver experiences, as the emphasis shifts from purely product to personal experiences. This greatly supports the market for global spectacles, which prompts major construction works. Global events such as the 2018 World Cup in Russia lead not only to the construction of major sporting venues, but also new and upgraded infrastructure such as roads and rail. Meanwhile, Chinese tourists and

cashed-up baby boomers nearing retirement are travelling in rapidly rising numbers, driving investment in leisure and hotel developments and airports.

For many years the world has also been demanding a cleaner environment and this has created a major shift in construction practices and investment, not least in the energy sector. This is prompting a global refresh of power generation facilities and ancillary industries based on renewable technologies. Green-power utilities are investing heavily.

Meanwhile, even the money we trade with is changing. Banking is under pressure from global non-bank players, bitcoins and electronic payments. Cash is being phased out in favour of electronic payments, further driving the growth of data centres.

The world is changing quickly and construction is integral to that change. The good news is that both the change and the economic factors that drive it are currently very favourable to the construction sector.



Kenya

The nation's airport network is being upgraded, adding three more international standard entry points in Isiolo, Lake Turkana and Lamu.



Indonesia

Work is underway on 850km of new roads within their USD30bn 2018 roads budget, which includes new sections of the Trans-Sumatran highway, expected to be completed in 2019.



Australia

Major road and rail projects are underway in Melbourne, Perth and Sydney, with Brisbane soon to follow suit. New driverless trains will eventually carry an extra 100,000 passengers a day in and out of the Sydney central business district (CBD).



India

There are plans to invest USD109bn on roads and highways over the next five years.

Global cost performance analysis

The upturn in the global construction market is gathering momentum. This year's survey shows that almost half of the 46 markets explored are expecting to heat up while just two expect to see construction cool in 2018. This expansion in activity isn't without its challenges and the number of markets constrained by skilled labour shortages is growing.

By looking at current market outlooks in 46 markets across 33 countries, we found 21 showing signs of heating up in 2018. This compares with 14 out of 43 a year ago.

Encouragingly, the improvement this signifies is being felt in markets across the globe, with a hefty majority of the markets in Africa, Asia and South America picking up pace.

What adds to this sense of optimism is that markets, such as Singapore, had been "cooler" in the survey for several years, but are now starting to heat up. In last year's survey construction markets in Santiago and Singapore were expected to cool in 2017. Today the reverse is expected.

As markets warm we should expect to see more construction projects starting. So, with a widening spread of global markets heating up, this should translate into higher levels of activity across the globe.

More than half the markets we tested were regarded as warm, hot or overheating for current market tendering conditions. This suggests construction is edging closer to capacity in many parts of the world. Five cities were "hot" – Dublin, Melbourne, Munich, Sydney and Tokyo. Meanwhile, Amsterdam, San Francisco and Seattle

were described as "overheating". With far more markets heating up than cooling, we should expect to see globally shared resources coming under pressure.

But there are big markets among those that have cooled. London's construction market had been pegged as hot last year. This year's survey finds it "lukewarm", pointing to a chilling effect from Brexit uncertainty.

When tested this year, the construction market in New York City had also eased. Not as dramatically as in London, New York City had moved down a notch from hot to warm. This, however, looks less like New York City catching a cold and more like a pause for breath and contemplation as it digested the possibility and impact of rising interest rates.

Whatever their respective temperatures, both remain important markets and, despite both markets softening slightly in the year, construction costs still increased and skilled labour shortages remain a challenge.

The cities our survey found to be "cold" tended to be those sensitive to changes in commodity prices – Doha, Moscow, Muscat, Perth and São Paulo. So, with commodity prices on the up these too might begin to provide a warmer climate for construction.

Defining market temperature

Our ratings of markets as cold, lukewarm, warm, hot or overheating rely on several interrelated factors. In a cold market there is typically intense competition among contractors for very little work, reducing cost pressures.

Markets are considered warmer as competition decreases and prices begin to rise, as demand increases in relation to supply. Hot and overheating markets have a higher number of projects, and consequently there is less competition in bidding for tenders, which tends to drive up tender prices.

Generally, those markets described as hot and overheating can expect high construction cost inflation and those cold, lukewarm or warm should have low inflation, but that is not always the case. For example, contractors may reduce margins as they seek to win more work in a cold market, but higher costs of materials can still lead to inflation in overall construction costs.

- Despite the temperature of the construction market in Melbourne rising from warm to hot, construction cost inflation in 2017 was just 2 percent.
- Istanbul's construction market is pegged as lukewarm and expected to remain so in 2018, yet construction cost inflation is expected to rise to 15 percent, pushed up by double-digit consumer inflation.
- In Buenos Aires activity is seen as warm, not hot, yet construction costs in the local currency increased by nearly 32 percent in 2017, the highest in any of the markets covered. This, however, reflects the high level of general inflation locally.



Market	Current tendering conditions	Future market outlook	Market	Current tendering conditions	Future market outlook
Africa					
Nairobi	Warm	—	Warsaw	Warm	—
Kigali	Lukewarm	△	UK South	Warm	—
Johannesburg	Lukewarm	—	UK North	Warm	—
Dar es Salaam	Lukewarm	△	UK Central	Warm	—
Kampala	Lukewarm	△	Madrid	Warm	△
Asia					
Tokyo	Hot	△	Zurich	Warm	—
Beijing	Warm	△	Istanbul	Lukewarm	—
Kuala Lumpur	Warm	▽	London	Lukewarm	—
Hong Kong	Warm	△	Scotland	Lukewarm	▽
Bangalore	Warm	△	Northern Ireland	Lukewarm	—
Ho Chi Minh City	Warm	△	Moscow	Cold	—
Jakarta	Lukewarm	—	Middle East		—
Shanghai	Lukewarm	△	UAE	Lukewarm	△
Singapore	Lukewarm	△	Muscat	Cold	—
Seoul	Lukewarm	—	Doha	Cold	—
Australasia					
Sydney	Hot	—	Seattle	Overheating	—
Melbourne	Hot	△	San Francisco	Overheating	△
Brisbane	Lukewarm	—	Toronto	Warm	—
Perth	Cold	△	New York City	Warm	—
Europe					
Amsterdam	Overheating	—	Houston	Lukewarm	—
Munich	Hot	—	North America		—
Dublin	Hot	△	Seattle	Overheating	—
Paris	Warm	△	San Francisco	Overheating	△
South America					
Buenos Aires	Warm	△	Toronto	Warm	—
Bogotá	Warm	△	New York City	Warm	—
Santiago	Lukewarm	—	Houston	Lukewarm	—
São Paulo	Cold	△	South America		—

Looking hard at current tendering conditions in 46 regions, we found 21 showing signs of heating up in 2018. This compares with 14 last year.

Construction costs are increasing

The average construction cost increase for the 43 markets in 2007 came in at 4.1 percent. This compares with our forecast in last year's report for global cost increases in 2017 of 3.5 percent. The difference is consistent with growth in construction activity surprising on the upside in 2017. It is worth noting that the rise is slightly inflated by the addition into the mix of Jakarta and Shanghai where prices jumped 8.0 percent and 7.5 percent, respectively, in 2017.

The average construction cost increase for 2018 is forecast at 4.3 percent. This again is consistent with a global construction market that is expected to get busier. It compares with IMF global inflation forecasts for 2018 of 1.7 percent in the advanced economies and 4.4 percent in the emerging economies.

Why do construction costs increase as global growth increases? As contractors come closer to filling their order books they can be more discerning about which projects to bid for and they can submit higher tender prices. Deeper into the supply chain higher demand drives costs of materials, equipment and labour higher. Skills shortages occur. Projects are undertaken by less skilled labour with less experience. This extends the project's duration, leading to more rework and rectification and ultimately to higher costs.

For the 46 markets included in this year's survey:

- **Construction cost inflation rate for 2017:** 4.1 percent (average of 43 markets' inflation rate)
- **Construction cost inflation forecast for 2018:** 4.3 percent (average of 46 markets' inflation rate)

Almost all markets saw construction costs rise in 2017. Three of them experienced either negligible inflation or a fall in construction costs (Doha 0.1 percent, Muscat -1.0 percent and Perth -1.0 percent).

Perth continued to see a decline in construction costs as residential and commercial construction remained in a slump and contractors cut prices as the competition for work intensified. In Muscat, a flat real estate market was the main reason behind it seeing construction costs fall.

There are no regions expecting to see declines in costs in 2018, which may reflect the greater optimism emerging across the globe. The lowest forecast for construction cost inflation is 0.3 percent in Madrid.

At the other end of the scale, Beijing, Buenos Aires and Istanbul saw cost inflation in 2017 reaching 10 percent, 31.7 percent and 10 percent respectively. The expectation is that Buenos Aires will see inflation escalate to 35 percent in 2018, a rise to 15 percent in Istanbul, while in Beijing construction cost rises are expected to ease to 7.0 percent.

Construction costs inflation

Region	Market	Cost inflation in 2017	Forecasted cost inflation in 2018
Africa	Johannesburg	6.2%	6.0%
	Dar es Salaam	6.0%	5.0%
	Kigali	3.6%	2.0%
	Kampala	3.0%	3.0%
	Nairobi	2.5%	3.0%
Asia	Beijing	10.0%	7.0%
	Shanghai	8.0%	5.0%
	Jakarta	7.5%	7.5%
	Seoul	5.0%	3.0%
	Tokyo	3.0%	4.0%
	Kuala Lumpur	3.0%	3.0%
	Ho Chi Minh City	2.0%	3.0%
	Hong Kong	2.0%	4.0%
	Singapore	2.0%	2.0%
	Bangalore	1.0%	2.0%
Australasia	Sydney	4.0%	4.0%
	Brisbane	4.0%	3.0%
	Melbourne	2.0%	4.0%
	Perth	-1.0%	1.5%
Europe	Istanbul	10.0%	15.0%
	Warsaw	8.0%	6.0%
	Dublin	7.0%	7.0%
	Amsterdam	4.0%	4.0%
	Moscow	4.0%	4.0%
	London	3.9%	2.8%
	Munich	3.2%	3.0%
	UK South	3.0%	2.5%
	UK Central	2.5%	2.0%
	UK North	2.5%	1.9%
	Scotland	1.8%	2.0%
	Northern Ireland	1.8%	2.0%
	Paris	1.5%	1.9%
	Zurich	0.4%	0.6%
	Madrid	0.3%	0.3%
Middle East	UAE	2.0%	2.0%
	Doha	0.1%	1.0%
	Muscat	-1.0%	1.0%
North America	San Francisco	5.0%	5.0%
	Seattle	5.0%	5.0%
	Houston	4.0%	3.0%
	New York City	3.5%	3.5%
	Toronto	3.0%	2.5%
South America	Buenos Aires	31.7%	35.0%
	São Paulo	4.6%	4.1%
	Santiago	2.0%	2.5%
	Bogotá	1.1%	5.0%

Almost all markets saw construction costs rise in 2017. However, Doha, Muscat and Perth experienced either negligible inflation or a fall in construction costs.



The most expensive place in the world to build

To identify the most expensive place to build, the average build cost in USD for six different types of building was assessed:

- Apartment high-rise
- Office block prestige
- Large warehouse distribution centre
- General hospital
- Primary and secondary school
- Shopping centre including mall

The five most expensive locations are New York City, San Francisco, Hong Kong, Zurich, and London. New York City retained its position as the most expensive place to build in the world even though building spend dipped in 2017. But that was from an all-time high in 2016 and growth in construction spending is set to resume in 2018, stretching resources.

San Francisco held the second spot, driven by the wealth and demand generated by high-speed growth in the technology sector.

Hong Kong moved ahead of Zurich to third. An emphasis on boosting housing and infrastructure supported growth and with labour increasingly stretched, the market's already historically high construction costs rose further and are expected to grow in 2018.

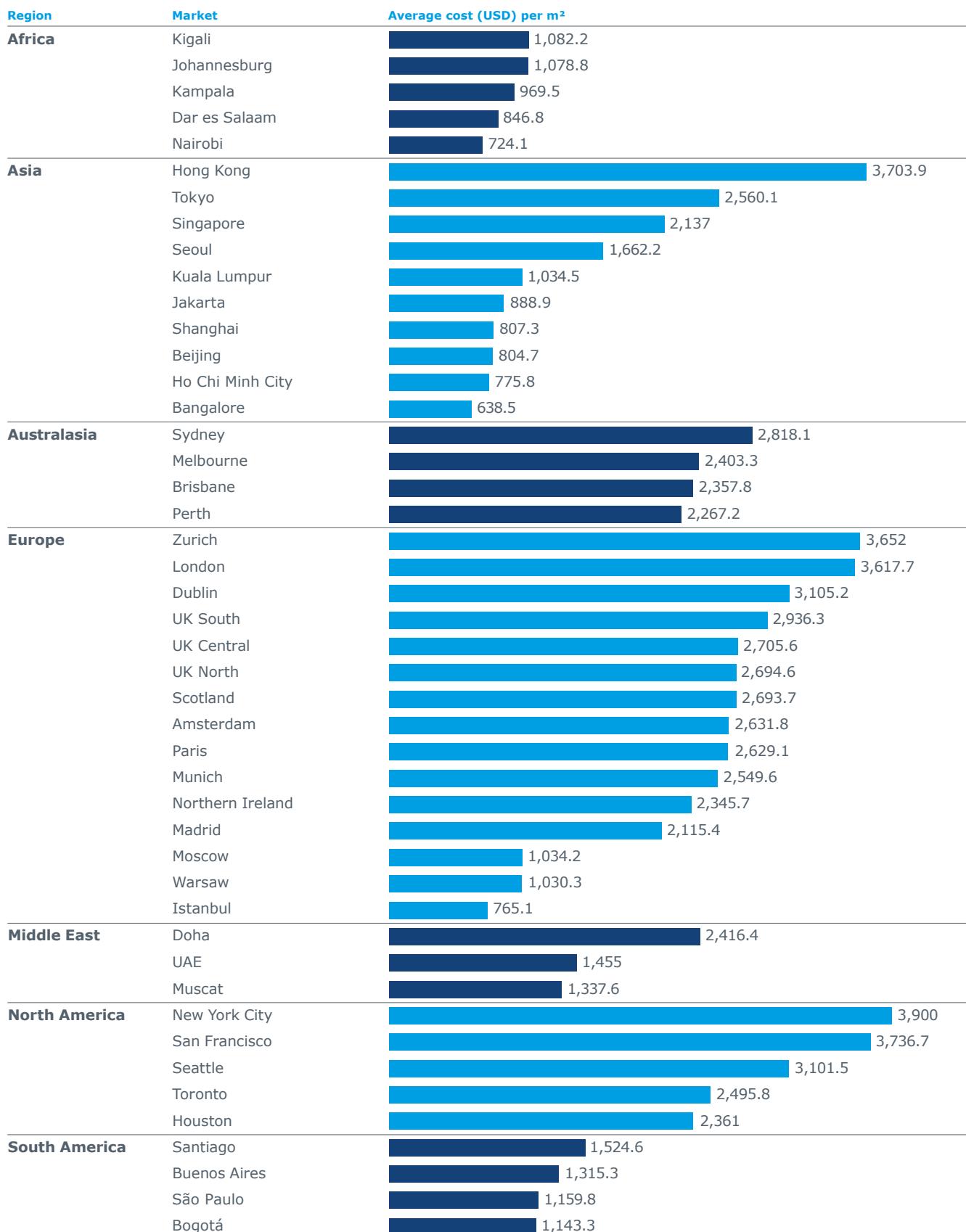
Meanwhile, Zurich, saw relatively low levels of construction cost inflation in 2017 with levels of construction stable and a relatively even balance between supply and demand established in the market.

London held fifth place, with noticeably higher costs than other UK regions. Construction cost inflation at 3.9 percent was above the rate seen elsewhere in the UK, which in part reflects the high demand and pressures on supply, notably skilled labour, in the capital.

The locations with the lowest construction costs can be found in Bangalore, Beijing, Ho Chi Minh City, Istanbul and Nairobi. It is intriguing to note that average construction costs in 2017 in New York City, the most expensive place to build, are more than six times those seen in Bangalore, the cheapest place to build.

It is, however, worth noting that the method we use to compare the least and most expensive places to build is highly dependent on the exchange rate. A country with a weak currency against the USD will seem like an inexpensive place to build and a country with a strong exchange rate will seem expensive. Turner & Townsend also publishes purchasing power parity which compares the cost of construction with the local cost of living. To find out more about purchasing power parity and how and when to use it see our section on "Comparing construction cost" on pages 102 and 103.

Average cost of six building types in USD



New York City retained its position as the most expensive place in the world to build, with an average cost of USD3,900 per m² followed by San Francisco (USD3,736.7 per m²) and Hong Kong (USD3,703.9 per m²).

Trade labour wages

A significant factor influencing overall construction costs is the wages of labour, including additional expenses such as travel costs, national/health insurance, pensions, and other benefits of employment.

This year's survey once again highlights the extreme level of variation in the cost of labour between regions. The markets with the lowest construction wages are Bangalore, Ho Chi Minh City and Kigali, where wages were all below USD3 an hour. The cheapest is Bangalore where average hourly wages are at USD1.1. This compares with more than USD104 in Zurich and USD98 in New York City.

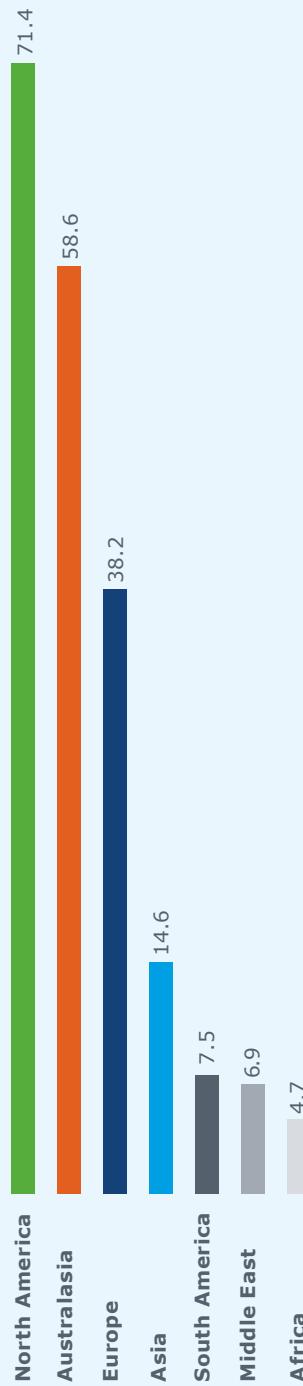
Across the 46 markets, the average labour costs is USD29.9, with Seoul representing the median average hourly wage at USD22.

The significant drop to USD14.4 per hour for Asia we see this year compared with the USD18.1 seen last year is statistical not actual, as the number of markets covered has increased with the introduction of Ho Chi Minh City, Jakarta and Shanghai, all with relatively low labour rates.

Again, a note of caution when comparing labour rates. The supplied labour wages do not take into consideration labour productivity, which is affected by training, and the use of automated equipment and machinery in construction. In cheap labour countries there is likely to be less automation because labour is cheap and plentiful. Where labour is very expensive or scarce we would expect to see fewer workers on site and many tasks are carried out using labour-saving machinery. To gain a clearer picture of the cost of labour on a project, consideration should be given to productivity and how this affects the size of the project's workforce and duration on site.

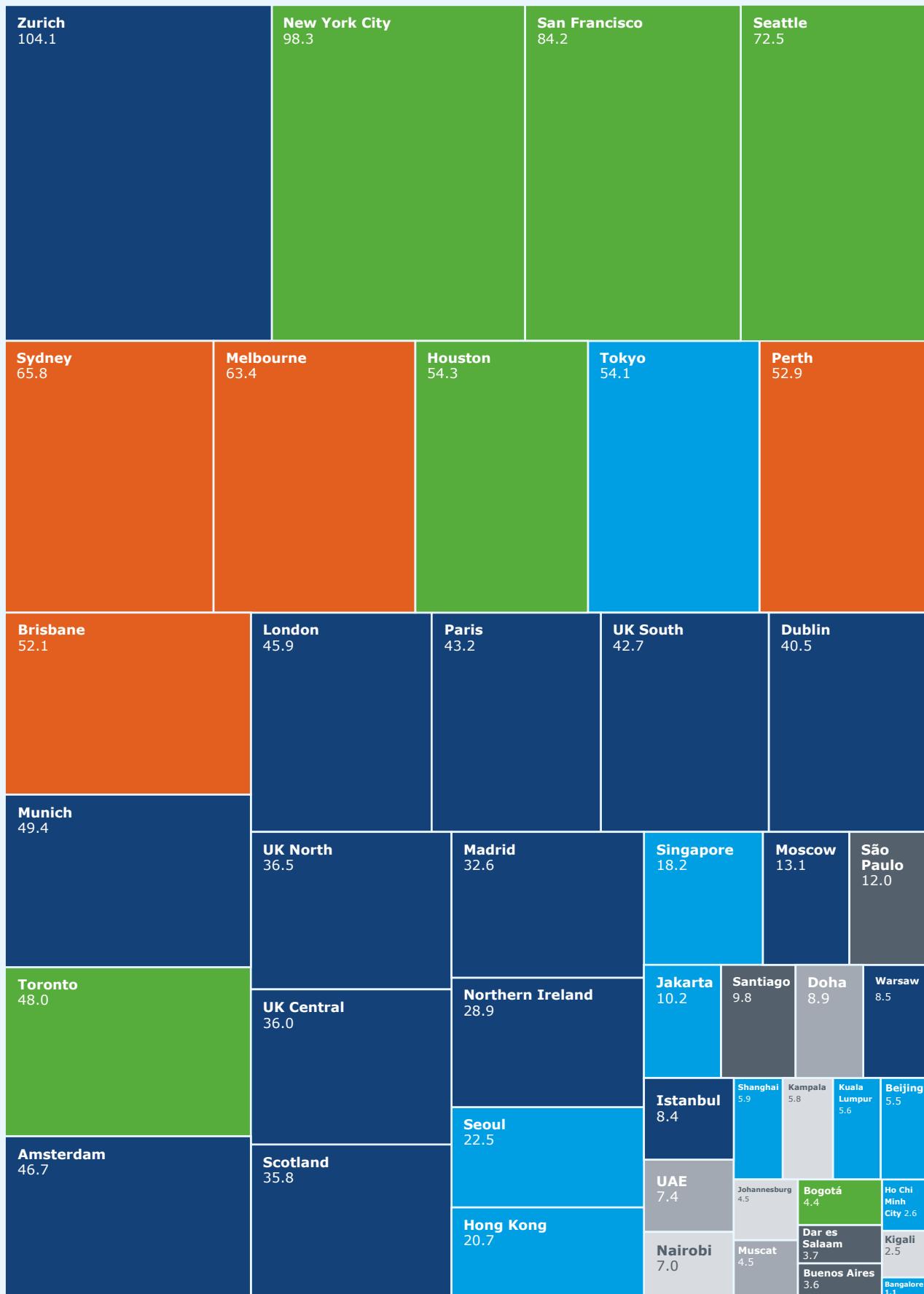


Average hourly wage (USD) by region



North America has the highest hourly wage of all the regions analysed in this year's survey.

Average hourly wage (USD) by city. Zurich remains the market with the highest labour costs with an average hourly wage of USD104.1



Labour shortages

Labour shortages appear to be an increasingly common feature of global construction in recent years. Last year's report noted a rise from 20 to 24 markets registering skills shortage. This year the number has risen to 27, one of which (Jakarta) is a new addition this year.

As workloads in most markets look set to expand, skills shortages are likely to persist into 2018 and potentially intensify in places as hot spots appear in the generally warming global construction market.

The problem is easily understood in markets such as New York City, where there has been a prolonged spell of activity at historically high levels, similarly in London and other buoyant markets. But the problem is not just confined to one type of region or economy. Markets with low labour costs, such as Bangalore, Johannesburg and Kigali, are also suffering from skilled and semi-skilled labour shortages.

Only three of the markets analysed are experiencing labour surplus: Houston, Muscat and São Paulo. Oman (Muscat) and Brazil (São Paulo) both suffered economically from the fall in commodity prices and while prices are recovering it will take time to carry through to the construction sector. There are signs in São Paulo that the market is warming, which may bring the supply and demand in the construction labour market closer into balance.

Preliminaries and margins

Preliminaries and margins are two other drivers of overall construction costs.

Preliminary costs are affected by job complexity, so in busy cities such as London, New York City and Tokyo you would expect to see higher preliminaries. The logistics of setting up in tight spaces, managing traffic, working with small lay-down areas, and complex building regulations mean a larger proportion of costs need to be set aside for preliminary costs. There will also be other local factors that will influence

the cost. The average preliminaries globally in 2018 were 10.3 percent and ranged from 15 percent in Tokyo and Buenos Aires, to 5 percent in Madrid.

Several factors will impact on margins, including the condition of the market, the risk associated with the project and the contractual arrangements. The business cultures within markets will also have an influence.

The figures quoted are derived from typical projects and do not equate to the margins found within company accounts, as they will not reflect, for example, the impact of projects where significant losses have been made.

Margins can be expected to fluctuate quite markedly over time. The average margin globally in 2018 was 6.4 percent, but margins ranged between 15 percent in Kuala Lumpur to 3 percent in Northern Ireland. In broad terms, changes within a given market over a short period are one indicator to take into account when assessing market activity and cost pressures.

Availability of labour



Skills shortage

Amsterdam	Munich
Bangalore	New York City
Beijing	Northern Ireland
Bogotá	San Francisco
Dublin	Seattle
Hong Kong	Seoul
Jakarta	Singapore
Johannesburg	Sydney
Kampala	Tokyo
Kigali	Toronto
Kuala Lumpur	UK Central
London	UK North
Melbourne	UK South
	Zurich



In balance

Brisbane	Nairobi
Buenos Aires	Paris
Dar es Salaam	Perth
Doha	Santiago
Ho Chi Minh City	Scotland
Istanbul	Shanghai
Madrid	UAE
Moscow	Warsaw

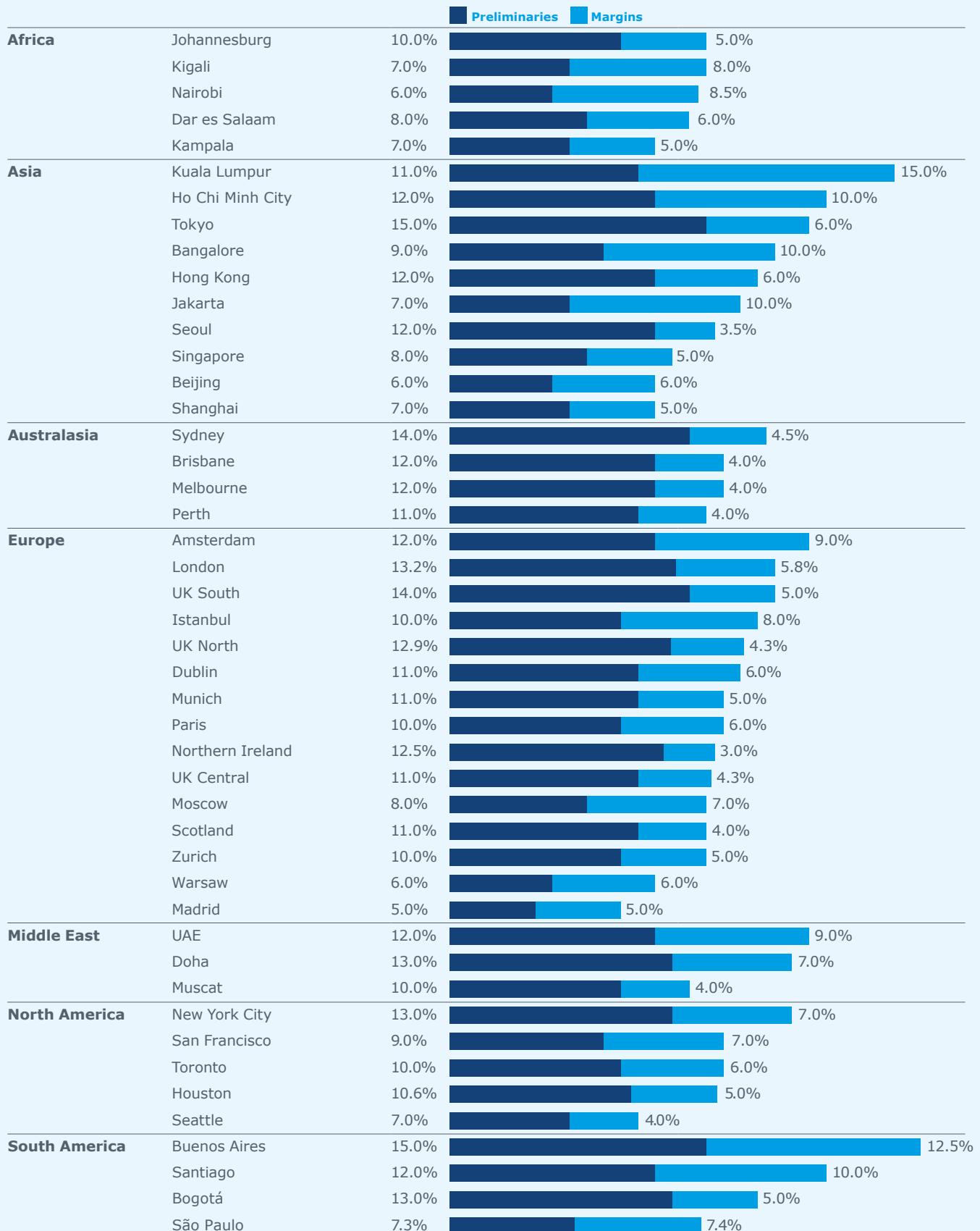


Surplus

Houston
Muscat
São Paulo

Labour shortages are a common theme in this year's survey with 27 markets suffering from a skills shortage.

Preliminaries and margins



High preliminary costs are found in complex markets where construction is difficult and set-up costs are correspondingly high. Falling margins are often found in cooling markets.

Calculating the effect of exchange rates

Conducting an analysis across markets by converting costs to a single currency can allow for direct comparison between markets. However, any devaluation or revaluation of a currency impacts both the wage levels and the overall construction cost.

We use the USD as the common currency for comparison throughout this report. Therefore, it is important to consider the impact on the construction costs by changing exchange rates relative to the USD. If the exchange rate of a country strengthens against the USD its construction costs will rise, even if costs within the local currency remain unchanged. A falling exchange rate would create the opposite effect.

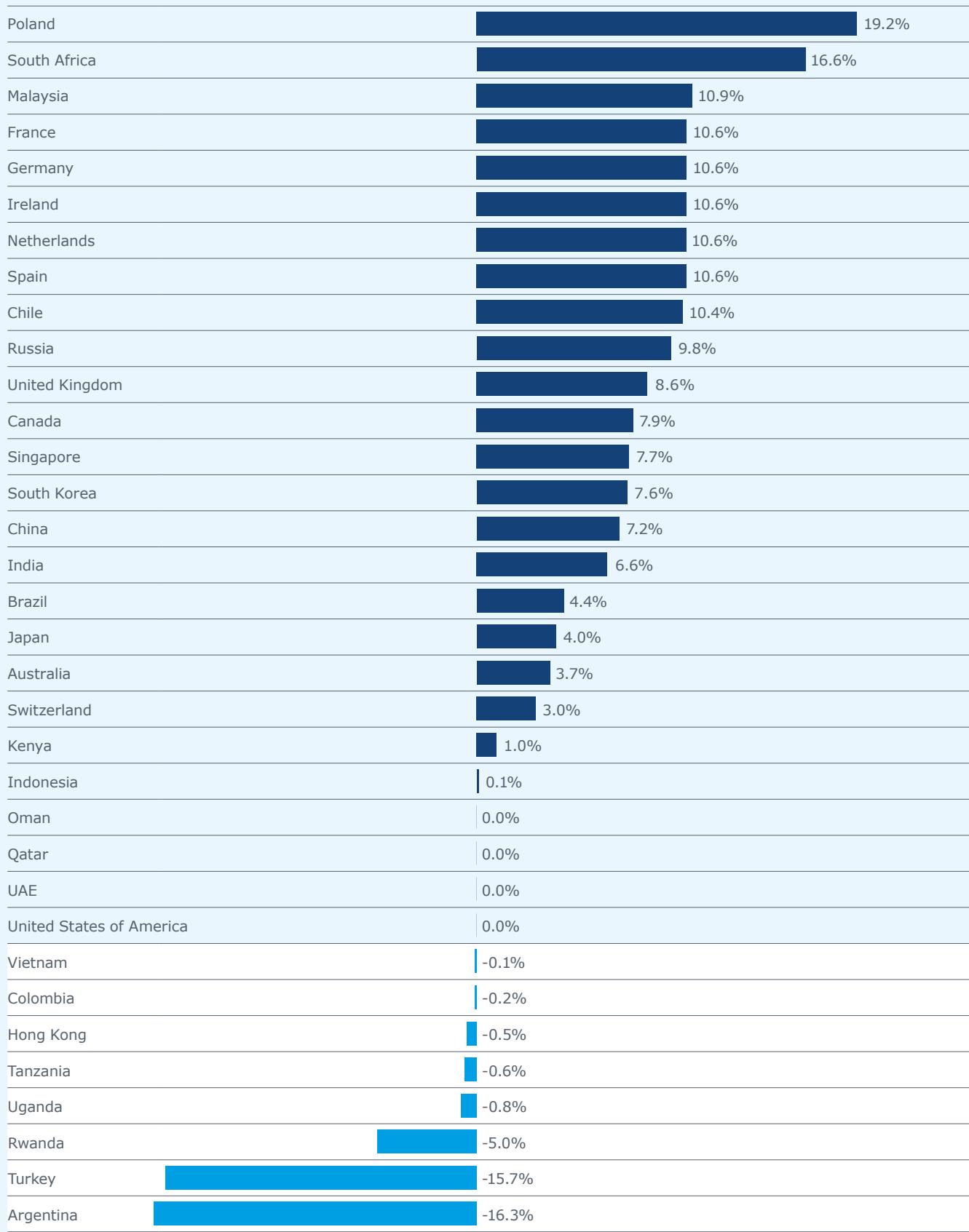
With exchange rates constantly fluctuating, this means that the reported construction costs in USD for several of the markets covered have also fluctuated as their relative exchange rates have changed during 2017. The chart shows the change relative to the USD for 2017 as a percentage. Some countries have seen a stronger exchange rate including Brazil, the Euro Countries, South Africa and the UK. Some countries have experienced a fall in the exchange rate including Argentina, Rwanda and Turkey.

Indeed there are material economic and business effects caused by fluctuating exchange rates, rather than simply the statistical effects described above related to comparing costs against a common currency. For example, a sudden and large drop in an exchange rate will lead to inflation in imported materials, plant and equipment or services. This will push up construction costs in the local currency, and in turn might lead to changes in decisions made locally on what, how or when to build, as the detail of individual and total costs are considered.

Other less obvious effects might occur. If there is a large migrant workforce, a significant fall in the value of the currency in which they are paid relative to the currency of their homeland might alter their decision to come, stay or go, potentially leading to wage inflation or labour shortages.

To ensure our findings deliver accuracy and insight, we continue to use three construction cost comparison methodologies. This is increasingly important given the volatility in exchange rates and its impact on construction costs (see pages 102 and 103 for further details).

Exchange rate fluctuation



If the exchange rate of a country strengthens against the USD its construction costs will rise, even if costs within the local currency remain unchanged. A falling exchange rate would create the opposite effect.



The global challenge
for construction -
more work with
fewer workers

Every year we ask our experts around the world to tell us about the growth sectors in construction and the challenges in their markets. This year, one issue reverberates - skills shortages. It is a global problem.

Growth sectors

One common thread around the world is that governments are investing heavily in projects to promote easier movement of people and reduce congestion. Road and rail are the top two spots in the list for growth sectors globally.

This upswing in investment comes after years of urging from major international organisations. As a recent World Bank note stated: "Infrastructure development lies at the nexus of economic growth, productive investment, job creation, and poverty reduction."

When it comes to transport, developing nations need to greatly expand their infrastructure to accommodate economic growth and spread wealth and wellbeing, while developed nations need to revitalise theirs to sustain prosperity.

High-tech and manufacturing is third in the top five growth sectors. Interestingly, the scores indicate that while growth here is widespread across the regions, the increase is more marginal than strong.

Urban development and commercial development, which cover the construction of apartments and commercial offices and hotels, take the remaining top five spots for growth, reflecting the intensity of urbanisation and rising global economic growth.

Beyond the five, it is interesting to note the mining and oil and gas sectors remain relatively in the doldrums, but as the sectors rebound there are signs of expansion in 2018.

Challenges

Looking at the challenges that local contractors face in delivering projects on time and on budget at a profit, skills shortages remain firmly at the top of the list.

The spread of greater opportunity, higher education and loftier aspirations is making recruitment into construction harder. Meanwhile an increasing proportion of the workforce is retiring or nearing retirement. There isn't a simple answer, but investing in more technology, technical skills and training and more advanced construction techniques are essential.

Directly linked to the skills shortage are two further key challenges: rising costs and stagnating productivity. This emphasises the imperative to attract and retain top talent. Those firms that do invest in technology and talent are likely to be the strongest survivors when growth in the global economy softens again, as inevitably it will.

Our subject matter experts have provided first hand on-the-ground insight into why these challenges exist and what can be done to mitigate them.

Global construction challenges

67%

of all respondents said skilled labour shortages had a major or large impact on the delivery of construction projects

33%

of all respondents said a lack of confidence in the market had a medium impact on the delivery of construction projects

63%

of all respondents said labour disputes and industrial action only had a fair or little impact on the delivery of construction projects

Major/large impact

1. Skilled labour shortages
2. Government red tape, bureaucracy, delayed approvals
3. Rising costs of construction
4. Low workplace productivity, inefficient and outdated work practices

Medium impact

5. High insurances, taxes, duties, government charges and other ancillary costs
6. Lack of confidence in the market to invest in new projects
7. Too many contractors chasing too few projects
8. Political instability

Fair/little impact

9. Difficult contractual and legal conditions
10. The market is oversupplied, e.g. too many vacant apartments and office space
11. Contractors are having difficulty finding sufficient credit
12. Labour disputes and industrial action



USA

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1.3tn

Construction spending hit an all-time high in cash terms of almost USD1.3tn in 2017

2m

More than two million construction jobs were shed in the economic downturn ten years ago

Construction spending hit an all-time high in cash terms of almost USD1.3tn in 2017 and forecasts suggests that figure will be eclipsed in 2018. Increasing activity, driven by major cities and urban markets, presents ample opportunity. But new and age-old challenges still plague the industry.

Balancing the supply and demand of labour and materials remains the single biggest challenge. More than two million construction jobs were shed in the economic downturn ten years

ago. The labour pool is still well below pre-2007 levels and worryingly, it is an older workforce. It is getting harder to recruit youth into construction. There have been some encouraging signs though, following more intensive efforts to attract new workers. However, labour shortages will drive higher costs and lengthen completion schedules.

The impact of skills shortages is not helped by the industry's poor record on productivity. Despite improvements, such as lean construction and better use of technology, productivity remains a hot topic for construction.

Meanwhile, materials cost rises continue to outpace general inflation and this trend may be exacerbated by tariffs, particularly on imported steel and aluminium products, as policy is shaped to encourage buying US rather than imported goods and materials.

Argentina

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Director



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Despite economic recovery and more controlled inflation, international investors remain wary of Argentina's professional, regulatory and legal standards. There are two crucial areas that concern investors in construction, a lack of a best-practice mindset and incomplete documentation.

The government is leading bold infrastructure projects and private investors and contractors are feeling more confident about undertaking new and more ambitious projects. But nagging doubts remain. Are projects planned accurately with their real implications understood from the start? Are projects correctly budgeted and controlled considering the entire lifecycle of the asset?

International investors are increasingly looking to minimise risk by implementing industry best practices and avoiding local ways of doing business-as-usual. However, these best practices don't tend to be the norm within local organisations, which means bringing in additional resources. Local contractors are used to receiving documentation that is incomplete and often misleading. This becomes an excuse for not delivering projects on time or on budget, leading to numerous legal claims.

It will take time for internationally proven standards and best practice to become the norm. When this happens, it will lead to construction having a more sustainable and positive impact within Argentina's economy.



United Kingdom

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Managing Director



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Looking across the UK market there has been clear market softening in the year following the EU referendum. In this environment customers of construction need to be agile and alert to the changes in the contractor's ability to take and successfully manage risk, particularly in a cycle of skills shortages and rising input prices are eroding margins.

The supply chain is the lifeblood of a construction project and it is important to recognise that across the UK there are clear regional variations in capacity.

This demands an intelligent market response from construction procurers as they consider the ability of the supply chain to deliver with a changing appetite for risks.

If Carillion's failure has brought one thing into sharp focus it is that commercial risk transfer can be illusory in a fast-changing market.

Although Brexit has generated uncertainty, reducing UK construction output, there are signs that increasing devolution may be acting as a counterweight. Beyond London, devolution has created hot spots in spending on infrastructure and housing in key UK regional cities. This in turn may well fuel further investment.



France

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Skills shortages are proving a major problem for the French construction industry. A study by the institut national de la statistique et des études économiques in October 2017 found 70 percent of construction firms are struggling to recruit skilled labour, despite France's unemployment rate being above the EU average.⁶

The problem is not new to France, suggesting it may be a cultural issue. The skills gap was extreme in the early 2000s, easing during the global recession, before re-emerging in 2016. Since then skilled labour has again become scarce, creating intense competition in recruitment. This trend is expected to continue, reinforced by large projects such as the Grand Paris and the 2024 Olympics.

Construction companies and the authorities have instigated specialised programmes to better prepare students for careers in construction and there is ongoing reform of apprenticeships and vocational training. That's a major opportunity for both the construction

market and authorities to have a positive impact on employment in the future.

Economists and construction experts point to the industry's lack of attractiveness. Despite efforts to improve the image and to create partnerships with universities and engineering schools, students and young professionals are reluctant to choose a career in construction. It could be a symptom of the French cultural and systemic bias favouring general broad-spectrum education, discouraging students to pursue more specialised, technical and hands-on training.



Kenya

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After political turbulence in 2017, with two elections in six months, the prospects for Kenyan construction looks much brighter for 2018 and beyond.

There is major infrastructure spending on the Standard Gauge Railway between Nairobi and Naivasha and the planned new Nairobi to Mombasa Road. International real estate investors are re-emerging, and local development firms are pushing forward with plans. The oil sector, finally, seems set to blossom with exports slated for 2019.

Meanwhile, Kenya's 2030 vision includes building one million affordable homes to house the flow of rural people into cities. An emerging middle class is demanding better-quality homes.

These future workflows present Kenyan construction with challenges in three main areas – skills shortages, contractors struggling to find credit and low workplace productivity.

To address the skills issue, the industry must build better relationships with technical training colleges and universities to ensure learning aligns with the sector's emerging needs.

Albeit a macro-economic issue, the cap on interest rates since 2016 has led to a tortuous process for contractors to navigate. Encouragingly, there are discussions about how to release the restraints on credit.

Raising productivity is a problem. Clients and contractors automatically go for low-paid, low-skilled workers. This inhibits innovation. Investing in new techniques, such as modular building, and higher-skilled workers would unleash economies of scale, providing greater production at lower unit cost. A better-paid workforce would increase spending back into the economy providing a virtuous circle.

“Skills shortages are proving a major problem for the French construction industry”



UAE

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Director



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A key challenge for UAE lies in how risk is allocated within contracts, which are regarded as far more onerous in this region than elsewhere. Historically, the norm has been for clients to tailor contracts by transferring all the risk to the consultant or contractor.

There still exists among some clients a culture not to negotiate contract terms, adopting a “take it or leave it” strategy. This can lead consultants and contractors into agreeing terms they would not accept elsewhere.

In turn this can result in higher tender sums, where associated risks are priced into bids, and a potentially smaller pool of tenderers, with some consultants and contractors

stepping away having judged the risks unacceptable. Ultimately, it lowers the likelihood of attaining a best-value appointment.

Outdated contract forms are commonplace, with clients sticking to what they know. But as industry practices adapt, these outdated standard contracts are amended, favouring the client, and become in effect bespoke contracts. This can present serious risks to contractors who may not fully appreciate the amendments and unwittingly administer the contract as they have in the past, leading to claims.

An average dispute in the UAE is twice as large as elsewhere and the average time taken to resolve disputes has risen to 15 months.

One solution lies in awareness building of alternative procurement for both clients and contractors. Certainly, those operating in the region must diligently read and understand the terms, so they can administer contracts accordingly.

India

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Construction in India is hindered by an acute labour shortage, especially the skill set required in the fast growing housing and infrastructure sectors.

It is getting harder to recruit. Construction graduates are opting for more lucrative jobs in IT, particularly abroad. The fast growing emergence of greater opportunities in other occupations has created a shift in aspirations among India's school leavers and graduates.

Construction's appeal is worsened by the temporary and transient nature of much of the employment.

The effects can be seen in rising costs to both project owners and contractors, fewer apprenticeship programmes, a less-qualified workforce creating safety concerns and less focus on trades and vocational schools.

This poses a challenge for the industry to demonstrate its value as a career. It will need to increase pay to attract and retain workers, reaching out to a younger generation and invest more in training and mentoring programmes.

Construction is also hindered by red tape, bureaucracy and delays in approving projects. The multi-tiered administration inhibits progress, while litigation related to land acquisition adds further delay and increases the financial risks taken by developers.

However, there are signs of change, such as the ‘Swiss Challenge method’ whereby a submitted proposal is viewable online making it open to scrutiny, discouraging impractical projects. And there is the RERA Act which should ease approvals and support fast-track real estate projects.

Hong Kong

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Sky-high housing prices are a way of life in Hong Kong. Experts believe the low affordability is due to the limited land supply, falling household size and population growth.

In late 2017, the government announced its policy to offer more public housing which will lead to more public funded jobs. However, the labour market is already short of skilled labour and the situation is in danger of worsening.

In 2018 and over the next few years, Hong Kong's construction costs are expected to rise, despite already being

historically high. One main driver pushing up construction costs is this shortage of skilled labour.

The public and private sectors are competing for the same resources from the same labour market. It is expected that with the shortage of skilled labour, wage cost will continue to increase and in turn further raise the cost of construction.

The challenge for the construction labour market is not just about the lack of numbers employed. The workforce is old, ageing and inflexible. According to the Hong Kong Construction Association, about 42 percent of the Hong Kong construction workforce is 50 or older.

To mitigate the challenge, Hong Kong must learn from other markets. In the short term, employing imported labour might be the answer. However, a long-term strategy is needed to encourage youth into the industry.



Australia

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Director



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In recent years volatility in global markets, particularly natural resources, has unsettled the ability of clients to set strategies, develop long-term programmes of investment and execute their projects.

The long-term nature of construction investment means that the industry thrives on confidence. Without it, leadership can become paralysed by unforeseen risk and shy away from setting long-term targets and freeing up the necessary capital.

This inhibits the delivery team's potential to properly engage the supply chain with a guarantee of solid volumes of work. It can lead to short-term variations to longer-term strategic plans, increasing bureaucracy and uncertainty delays. In this environment, local supply chains become nervous about recruitment and skills development, and supply-chain partnerships set-up on the promise of long-term work are undermined.

The problems may only become apparent later, when the investment decision is finally made, and the supply chain is underprepared to respond effectively.

It is encouraging that clients who have confidence in their abilities to drive their projects through and have engaged constructively with their supply partners are seeing their supply chains respond with enthusiasm and commitment – sharing their business goals.

This approach should be the goal of any organisation with ambition to grow and develop their business.

There's no easy money!

Global construction volume is on the up and the future is looking bright. But the industry faces more work with fewer workers. The challenge for the supply chain is how to convert this increased output into profit.

There is an expectation of increasing construction activity around the globe with a few exceptions, notably a reduction in the UK. Our 2018 international construction market survey shows that of the 46 markets examined 21 expect to warm up, 23 are set for stability with only two looking likely to cool.

'Good news' is a repeated undertone in this year's survey. Underpinning this optimism is an accelerating global economy. In the ten years after the global financial crisis, growth among the major advanced economies has averaged half the pace of the previous ten years. This prompted an extended period of exceptionally low interest rates and sparked concern over stagnation and years of slow growth. But now the giant boiler rooms of the USA and European Union are once again fired-up and brightening global prospects.

So what has changed?

There has been a significant demographic shift. The United Nations (UN) estimates that in the last three decades, one billion people have been lifted out of extreme poverty.¹ Construction has been a major lever to unlock these higher living standards. It shapes the world in which we live, work and relax, increasingly so as nations urbanise. The UN also estimates that a third of the world's population was urbanised in 1960, compared to just over a half currently and by 2050, two-thirds will live in urban areas.²

This progress, combined with technological advances and a more global outlook, means longer life spans and an expanding global middle class, which according to a forecast

by Brookings Institute, will enlarge by 160 million people annually for some years.³ This means an ageing population, growing aspirations and more income to achieve them.

The International Monetary Fund (IMF) forecasts global GDP to increase by 3.9 percent in 2018. The construction sector has a strong correlation with economic growth. When GDP rises above a moderate rate, construction's share of the economy expands in greater proportion. While this is exciting news for the global construction industry, higher medium term growth is a potential game changer that could go either way. There may be big upsides for some players, but improved returns will be hard won.

With construction's three sectors, natural resources, infrastructure and real estate all in global growth mode, there are clear warnings for us all if we plan on a traditional approach, relying on risk transfer pricing alone. The recent downfall of high profile contractors in busy markets as diverse as the UK and New Zealand shows that irrespective of the market size or level of construction demand, things need to change.

How ready is the industry to respond to the uplift in demand?

A key measure is availability of skills and labour. This year's survey shows skills shortages are prevalent across disparate markets. Just three of the 46 markets surveyed recorded a surplus. Skills shortages appeared in markets as different as Zurich, where labour costs USD104 an hour and Bangalore, with USD1.1 hourly.

A consequence of prosperity, global connectivity and growing aspirations, is a shrinking pool of cheaper migrant

labour, on which historically construction has been reliant. So, with a surge of workload ahead, the global industry faces more work with fewer workers. Inevitably, this will increase upwards pressure on costs. The average expected construction inflation across the markets covered is 4.3 percent, up on the 4.1 percent seen last year. Set against local consumer inflation rates, most markets will see modest rises. While this might not seem an excessive increase, it is an average and at the beginning of increasing global demand. There will be price spikes in some markets, but not only in those ahead of the curve.

The less obvious but more profound conclusion from this year's survey is that, regardless of the cyclical ups and downs, productivity will become an even bigger global issue for the construction industry. Despite the technical advances of the last generation, productivity in construction has barely improved.

We all have a responsibility to drive change. The industry needs to collaborate and establish new delivery models that set requirements and design to a commercial baseline that reflects the capabilities and realities of individual markets. To establish an acceptable level of certainty in project outcome, reward needs to be based on performance, not just on allocation and management of risk. Without this, the industry has every excuse not to change.

Steve McGuckin
Global Head of Client Programmes

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Survey overview

The 2018 international construction market survey brings together data and experience from 46 markets around the world, to provide an insight into the current state and direction of the global construction industry. This year it also brings optimism.

Our international construction market survey aims to deliver comparable data from real projects across the world that provides greater insight into the constantly changing dynamics of global construction activity.

The data inevitably represents just a snapshot of what lies behind the analysis. Even so, one message should ring clear. Global construction is more buoyant than it has been for many years and in the short term at least, things are looking up.

Much attention is paid to fast-developing nations, but the developed economies still account for about half of global construction. So, with the giant US and EU economies surprising on the upside they are better able to support investment and they appear ready to do so.

Within the array of new major projects coming on stream, infrastructure stands out as the hottest sector for the future, followed by commercial construction. The pursuit of expanding global infrastructure gets to the heart of two key global ambitions – to increase productivity and reduce poverty. In developing and emerging nations especially, infrastructure can be a boon for both, opening access to both markets and resources and reducing the frictions within economies.

For construction, investment in infrastructure delivers immediate workloads. But it also brings the promise of future work, as better connections and better utilities encourage follow-on development in the residential and commercial sectors.

In gathering and gaining insight from the data, our team of expert economists worked closely with our local experts to analyse input costs – such as labour and materials – and chart the average construction costs per square metre for six building types across all 46 markets in 33 countries. We added three more markets this year – Ho Chi Minh City, Jakarta and Shanghai.

We use a variety of construction cost comparison methodologies to ensure our findings deliver accuracy and insight. Methods such as straight-line USD conversion, purchasing power parity (PPP) and location factors are used to standardise our data and draw useful conclusions.

This is increasingly important given the volatility in exchange rates and its impact on comparing construction costs across markets.

The research also gathers data on the market conditions, which provide context and a deeper understanding of the balance of supply and demand and the cost pressures within each market. Common themes emerge. One of the more important is that the tightening of skills shortage seen in last year's report is continuing.

This, in many ways, reflects growing demand for construction across the globe. It also reinforces the need to improve productivity.

For more information on the methods we use see page 104. Detailed explanations of what's included in and excluded from our cost information are given on pages 102 and 103.



Survey
2018



Key
markets
and new
markets

46

key markets

3

new markets:
Ho Chi Minh City,
Jakarta and Shanghai

Forecasted cost escalation 2018-2019

Current tendering conditions

- Overheating
- Hot
- Warm
- Lukewarm
- Cold



Global construction costs are expected to rise 4.3 percent in 2018 following a 4.1 percent rise in 2017



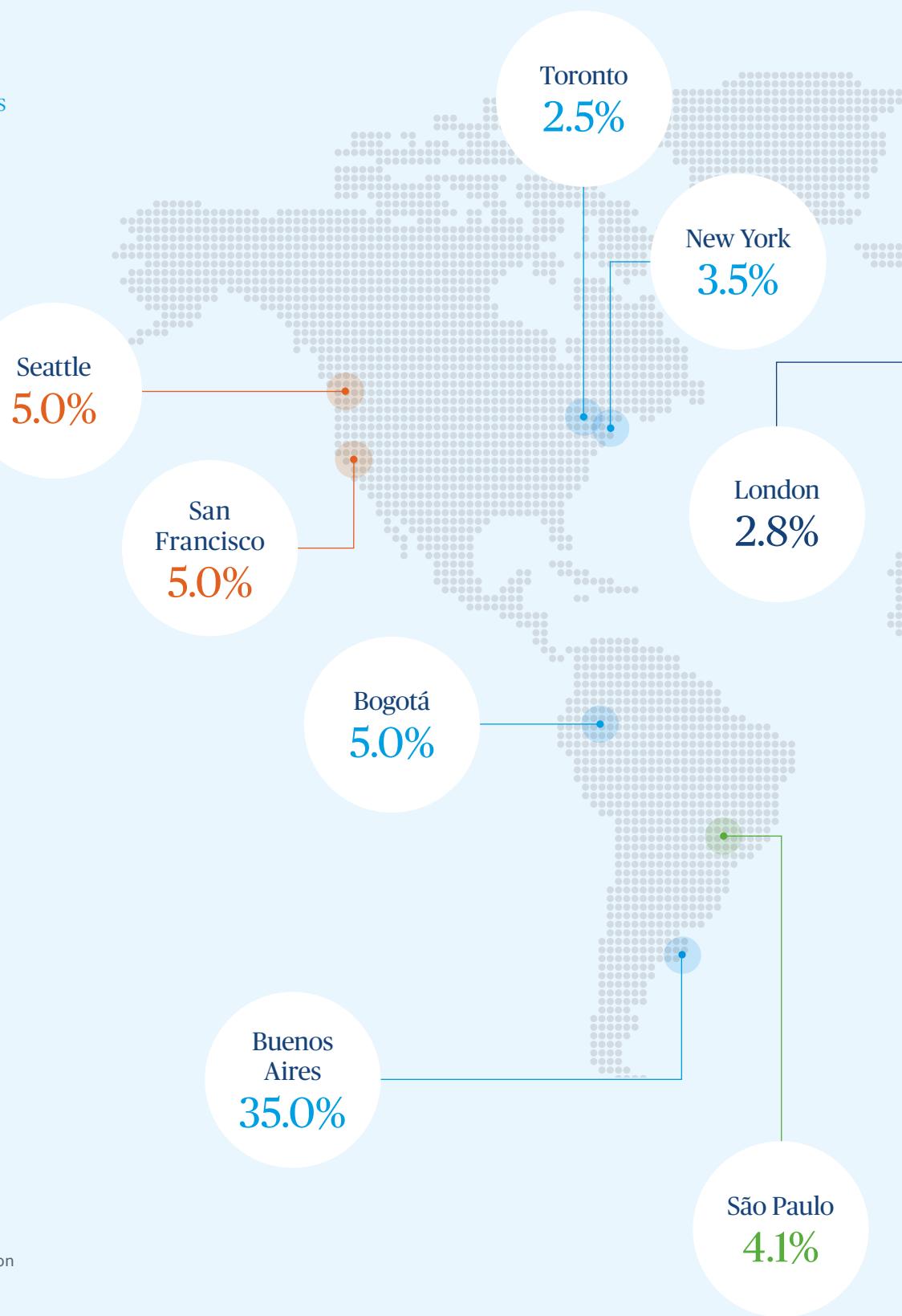
21 of the 46 markets measured are expected to warm up in 2018, just two are expected to cool

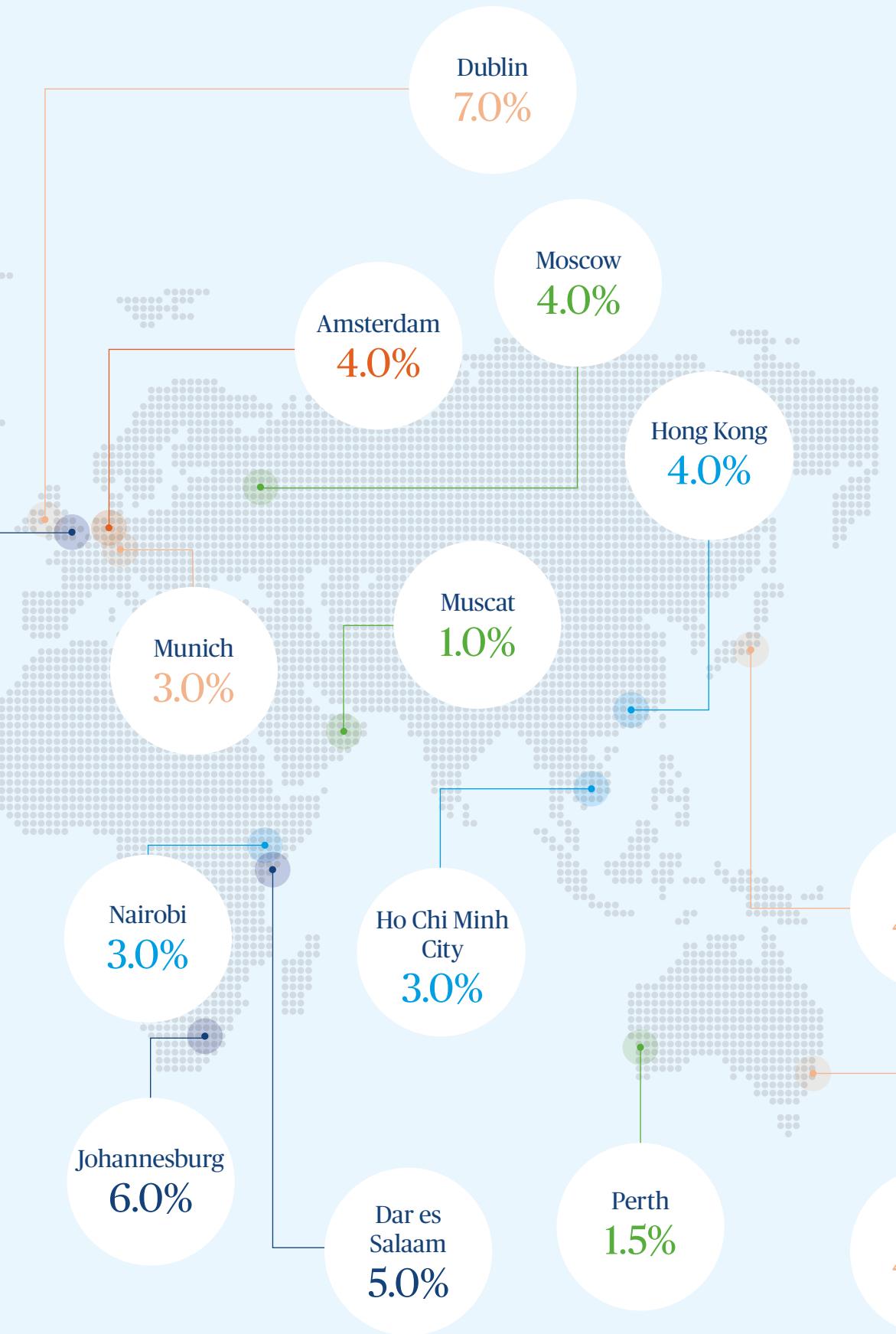


New York once again holds the top spot for highest construction costs, ahead of Zurich



Perth and Muscat were the only two markets to see falls in construction costs





Skills shortages affect 27 of the 46 markets covered, just three have a labour surplus



Five markets were identified as running hot and three, Amsterdam, San Francisco and Seattle, were seen to be overheating



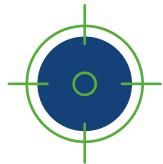
There are signs that some weaker performing commodity driven markets are set to warm in 2018, notably Perth and São Paulo



Bangalore has the lowest trade labour rates at USD1.1



Economic overview



Global

3.9% forecasted GDP growth in 2018

3.9% forecasted GDP growth in 2019

China

6.6% forecasted GDP growth in 2018

6.4% forecasted GDP growth in 2019

“120 economies accounting for three quarters of world GDP enjoyed a rise in year-on-year growth rates in 2017”





Global economic overview

It may have felt like a long time coming, but global construction got into its stride in 2017 as the economic backdrop brightened and boosted optimism. The USA is enjoying rapid economic growth, European markets are catching up and China continues to surprise. The growing confidence this brings is a much-needed tonic for the construction industry as it tackles the challenges of a rapidly evolving world.

A decade on from the global financial crisis and the world economy is finally reaching cruising speed. 2018 looks positive for employment, business profits, investment and construction.

It was hard to identify a dominant trend in the global economy and construction in our 2017 international construction market survey. Steady as she goes was probably the closest we could get. This year it is easier, and the tone is more upbeat. We see prospects for the global economy as being the most positive in this decade. This translates into much better prospects for construction.

This more upbeat take on the global economy appears to mirror a similar mood at the International Monetary Fund (IMF). Its latest two global growth forecasts, in October last year and January this, were revised upwards as economic growth outpaced expectations in most regions. The IMF currently forecasts global growth

for 2018 at 3.9 percent, reflecting increased global economic momentum and the expected positive impact of recent US tax policy changes.⁴

Indicators of business confidence are up in Australia, China, Europe, Japan and USA, illustrating the broadly synchronised pick-up in growth. 120 economies accounting for three quarters of world GDP enjoyed a rise in year-on-year growth rates in 2017. Big advanced economies like Germany, Japan and the USA all outpaced expectations along with the emerging economies of Brazil, China and South Africa.

The USA is growing rapidly

In the USA GDP escalated at an annualised 3.2 percent in the last quarter of 2017 and this solid growth is expected to continue throughout 2018. Business profits are surging. USA housing prices appear to finally be back to 2008 levels. Unemployment has fallen from 10 percent in 2009 to 4.1 percent in 2018.

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Australia

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This recovery is close to the longest in US history. At some stage it must end. However, recently passed tax cuts should encourage business investment and consumer spending, pushing the downturn beyond 2018. By then the US administration will be returning to election mode and eager to inject money to avert any potential downturn.

China continues to surprise

China's faster than expected growth has been driving a resurgence in commodity prices and benefitting resource-rich economies, such as Australia, Brazil and South Africa. China is pushing ahead with major infrastructure investments along the route of the old Silk Road. This is driving construction as well as providing a stimulus to some of China's sluggish state-owned enterprises, setting China on a growth path that is stronger for longer.

This new mega project called "One Belt and Road" stretches from China to Europe. It is a massive construction and engineering feat with highways, high-speed rail, logistics and technology. Its impact on construction is equivalent to another Chinese economy at the start of its rapid expansion.

Europe is catching up

Meanwhile, the European economies are strengthening, although further behind in the business cycle. The EU economy grew at 2.6 percent at the end of 2017. France, Germany, Ireland, Italy and

the Netherlands all experienced stronger growth in the second half of 2017. Spain's economy continues to grow above 3 percent. The Spanish unemployment rate has declined from 23 percent in 2015 to 16 percent at the end of 2017. Italy's unemployment is at a five-year low at 11 percent. France's unemployment is 8.9 percent. These figures illustrate European growth is only now starting to get into its stride.

Uncertainty in the UK

In a relatively short period the UK has fallen from being a top performing economy in the G7 to be vying for bottom spot with Italy and Japan, with annual GDP growth in the UK at 1.8 percent in 2017 and forecast to slow further.

Since the Brexit vote, the economy may have fared better than many commentators suggested, but the uncertainty generated is having a dampening effect on businesses and consumers, not helped by a fall in sterling leading to higher inflation and an erosion in real earnings.

There are positives. Exports are up, helped by a fall in sterling and manufacturing appears to be buoyant. The banking system is stable and access to credit remains favourable. Importantly, greater global growth can act to offset cooling in UK domestic demand.

Despite posting growth for the year, construction output has stuttered in recent quarters, with negative growth seen in Q2 and Q4 of 2017. However, slower growth is not the only issue for construction. Skilled labour is a worry. A heavy reliance on EU workers is a cause for concern as the Brexit negotiations progress. There is little slack in the labour market. Unemployment is close to historical lows and construction unemployment is even tighter.

Business conditions are good

Looking at the wider backdrop to global prospects, business conditions are good. Worldwide corporate profits are generally higher. This includes the corporate sectors of Australia, China, Germany, Japan, the UK and USA.

Most key indicators appear positive. Generally, interest rates remain low and expansionary. While the need for monetary stimulus has receded and thoughts are turning to normalising interest rates, the mood is to proceed cautiously. Meanwhile, wage growth is low, reducing risks of a breakout in wage-push inflation. And inflation generally remains low.

Oil prices are recovering, raising optimism in the oil and gas sector. Brent crude went above USD60 as the Organization of the Petroleum Exporting Countries (OPEC) cut production. Higher global growth is set to redress the oil supply-demand balance quicker and prompt new investments in oil and gas.

Infrastructure highlights from around the world



USA

A massive infrastructure plan is taking shape for announcement in 2018, which includes extensions to federal grants, incentives and permitting simplification to encourage local programmes.



Argentina

There are plans for an additional 1,600km of highway around Buenos Aires. The International Development Bank has approved USD280m in funding for the Agua Negra Tunnel project to connect Chile and Argentina across the Andes. Brazil is upgrading 1,100km of railway as part of its USD40bn 2018 transport budget.



UK

The Infrastructure and Projects Authority (IPA) estimates the next decade will see around £600bn of public and private investment in infrastructure. Major projects in the pipeline include the HS2 high-speed railway and the Cambridge-Oxford expressway.



France

The massive Le Grand Paris project which is underway includes four new metro lines connecting seven strategic and economic centres, encompassing 70,000 new homes, 68 new stations and 200km of rail network at a total cost of USD31bn.

There seem to be few obvious roadblocks on the horizon to derail higher growth in 2018, except for a potential dent in global trade, caused by the USA reassessing its terms of trade with the rest of the world. It is difficult to gauge the impact. It may prove to be more posturing than actual policy. It may not.

This caveat aside, we believe there is a high probability that growth will continue to surprise.

Progress in the construction sector

A more positive business environment should support an evolution in construction that is both underway and inevitable, as the industry seeks to cater for rapidly shifting demands related both to business cycles and structural changes.

The residential apartment construction cycle that provided a big boost to many economies during 2016 and 2017 is shifting focus. Nevertheless, high house prices in many regions is generating a strong wealth effect, stimulating consumption and driving growth.

With job creation and productivity in mind, governments are boosting infrastructure spending. The effect is telling when it appears that now there are too few tunnel-boring machines and teams to cover the tunnelling work coming up.

Meanwhile, the diffusion of disruptive new technologies into every corner of the global economy is continuing to fuel growth of global businesses, such as Airbnb, Amazon, Google and Uber. This is driving construction activity as demand for building grows.

There is strong growth in and potentially stronger demand for data centres. These rapidly growing corporates urgently require new operational centres. Logistics warehouse and distribution centres are also needed to service booming online sales.

On the flip side, opportunity also lies in refreshing and repurposing "the built legacy", such as retail refurbishment allowing major bricks-and-mortar players to compete with global online giants through developing alternative retail and leisure experiences.

Longer term, demographic and wealth effects are changing how people behave. Businesses today increasingly deliver experiences, as the emphasis shifts from purely product to personal experiences. This greatly supports the market for global spectacles, which prompts major construction works. Global events such as the 2018 World Cup in Russia lead not only to the construction of major sporting venues, but also new and upgraded infrastructure such as roads and rail. Meanwhile, Chinese tourists and

cashed-up baby boomers nearing retirement are travelling in rapidly rising numbers, driving investment in leisure and hotel developments and airports.

For many years the world has also been demanding a cleaner environment and this has created a major shift in construction practices and investment, not least in the energy sector. This is prompting a global refresh of power generation facilities and ancillary industries based on renewable technologies. Green-power utilities are investing heavily.

Meanwhile, even the money we trade with is changing. Banking is under pressure from global non-bank players, bitcoins and electronic payments. Cash is being phased out in favour of electronic payments, further driving the growth of data centres.

The world is changing quickly and construction is integral to that change. The good news is that both the change and the economic factors that drive it are currently very favourable to the construction sector.



Kenya

The nation's airport network is being upgraded, adding three more international standard entry points in Isiolo, Lake Turkana and Lamu.



Indonesia

Work is underway on 850km of new roads within their USD30bn 2018 roads budget, which includes new sections of the Trans-Sumatran highway, expected to be completed in 2019.



Australia

Major road and rail projects are underway in Melbourne, Perth and Sydney, with Brisbane soon to follow suit. New driverless trains will eventually carry an extra 100,000 passengers a day in and out of the Sydney central business district (CBD).



India

There are plans to invest USD109bn on roads and highways over the next five years.

Global cost performance analysis

The upturn in the global construction market is gathering momentum. This year's survey shows that almost half of the 46 markets explored are expecting to heat up while just two expect to see construction cool in 2018. This expansion in activity isn't without its challenges and the number of markets constrained by skilled labour shortages is growing.

By looking at current market outlooks in 46 markets across 33 countries, we found 21 showing signs of heating up in 2018. This compares with 14 out of 43 a year ago.

Encouragingly, the improvement this signifies is being felt in markets across the globe, with a hefty majority of the markets in Africa, Asia and South America picking up pace.

What adds to this sense of optimism is that markets, such as Singapore, had been "cooler" in the survey for several years, but are now starting to heat up. In last year's survey construction markets in Santiago and Singapore were expected to cool in 2017. Today the reverse is expected.

As markets warm we should expect to see more construction projects starting. So, with a widening spread of global markets heating up, this should translate into higher levels of activity across the globe.

More than half the markets we tested were regarded as warm, hot or overheating for current market tendering conditions. This suggests construction is edging closer to capacity in many parts of the world. Five cities were "hot" – Dublin, Melbourne, Munich, Sydney and Tokyo. Meanwhile, Amsterdam, San Francisco and Seattle

were described as "overheating". With far more markets heating up than cooling, we should expect to see globally shared resources coming under pressure.

But there are big markets among those that have cooled. London's construction market had been pegged as hot last year. This year's survey finds it "lukewarm", pointing to a chilling effect from Brexit uncertainty.

When tested this year, the construction market in New York City had also eased. Not as dramatically as in London, New York City had moved down a notch from hot to warm. This, however, looks less like New York City catching a cold and more like a pause for breath and contemplation as it digested the possibility and impact of rising interest rates.

Whatever their respective temperatures, both remain important markets and, despite both markets softening slightly in the year, construction costs still increased and skilled labour shortages remain a challenge.

The cities our survey found to be "cold" tended to be those sensitive to changes in commodity prices – Doha, Moscow, Muscat, Perth and São Paulo. So, with commodity prices on the up these too might begin to provide a warmer climate for construction.

Defining market temperature

Our ratings of markets as cold, lukewarm, warm, hot or overheating rely on several interrelated factors. In a cold market there is typically intense competition among contractors for very little work, reducing cost pressures.

Markets are considered warmer as competition decreases and prices begin to rise, as demand increases in relation to supply. Hot and overheating markets have a higher number of projects, and consequently there is less competition in bidding for tenders, which tends to drive up tender prices.

Generally, those markets described as hot and overheating can expect high construction cost inflation and those cold, lukewarm or warm should have low inflation, but that is not always the case. For example, contractors may reduce margins as they seek to win more work in a cold market, but higher costs of materials can still lead to inflation in overall construction costs.

- Despite the temperature of the construction market in Melbourne rising from warm to hot, construction cost inflation in 2017 was just 2 percent.
- Istanbul's construction market is pegged as lukewarm and expected to remain so in 2018, yet construction cost inflation is expected to rise to 15 percent, pushed up by double-digit consumer inflation.
- In Buenos Aires activity is seen as warm, not hot, yet construction costs in the local currency increased by nearly 32 percent in 2017, the highest in any of the markets covered. This, however, reflects the high level of general inflation locally.



Market	Current tendering conditions	Future market outlook	Market	Current tendering conditions	Future market outlook
Africa					
Nairobi	Warm	—	Warsaw	Warm	—
Kigali	Lukewarm	△	UK South	Warm	—
Johannesburg	Lukewarm	—	UK North	Warm	—
Dar es Salaam	Lukewarm	△	UK Central	Warm	—
Kampala	Lukewarm	△	Madrid	Warm	△
Asia					
Tokyo	Hot	△	Zurich	Warm	—
Beijing	Warm	△	Istanbul	Lukewarm	—
Kuala Lumpur	Warm	▽	London	Lukewarm	—
Hong Kong	Warm	△	Scotland	Lukewarm	▽
Bangalore	Warm	△	Northern Ireland	Lukewarm	—
Ho Chi Minh City	Warm	△	Moscow	Cold	—
Jakarta	Lukewarm	—	Middle East		—
Shanghai	Lukewarm	△	UAE	Lukewarm	△
Singapore	Lukewarm	△	Muscat	Cold	—
Seoul	Lukewarm	—	Doha	Cold	—
Australasia					
Sydney	Hot	—	Seattle	Overheating	—
Melbourne	Hot	△	San Francisco	Overheating	△
Brisbane	Lukewarm	—	Toronto	Warm	—
Perth	Cold	△	New York City	Warm	—
Europe					
Amsterdam	Overheating	—	Houston	Lukewarm	—
Munich	Hot	—	North America		—
Dublin	Hot	△	Seattle	Overheating	—
Paris	Warm	△	San Francisco	Overheating	△
South America					
Buenos Aires	Warm	△	Toronto	Warm	—
Bogotá	Warm	△	New York City	Warm	—
Santiago	Lukewarm	—	Houston	Lukewarm	—
São Paulo	Cold	△	South America		—

Looking hard at current tendering conditions in 46 regions, we found 21 showing signs of heating up in 2018. This compares with 14 last year.

Construction costs are increasing

The average construction cost increase for the 43 markets in 2007 came in at 4.1 percent. This compares with our forecast in last year's report for global cost increases in 2017 of 3.5 percent. The difference is consistent with growth in construction activity surprising on the upside in 2017. It is worth noting that the rise is slightly inflated by the addition into the mix of Jakarta and Shanghai where prices jumped 8.0 percent and 7.5 percent, respectively, in 2017.

The average construction cost increase for 2018 is forecast at 4.3 percent. This again is consistent with a global construction market that is expected to get busier. It compares with IMF global inflation forecasts for 2018 of 1.7 percent in the advanced economies and 4.4 percent in the emerging economies.

Why do construction costs increase as global growth increases? As contractors come closer to filling their order books they can be more discerning about which projects to bid for and they can submit higher tender prices. Deeper into the supply chain higher demand drives costs of materials, equipment and labour higher. Skills shortages occur. Projects are undertaken by less skilled labour with less experience. This extends the project's duration, leading to more rework and rectification and ultimately to higher costs.

For the 46 markets included in this year's survey:

- **Construction cost inflation rate for 2017:** 4.1 percent (average of 43 markets' inflation rate)
- **Construction cost inflation forecast for 2018:** 4.3 percent (average of 46 markets' inflation rate)

Almost all markets saw construction costs rise in 2017. Three of them experienced either negligible inflation or a fall in construction costs (Doha 0.1 percent, Muscat -1.0 percent and Perth -1.0 percent).

Perth continued to see a decline in construction costs as residential and commercial construction remained in a slump and contractors cut prices as the competition for work intensified. In Muscat, a flat real estate market was the main reason behind it seeing construction costs fall.

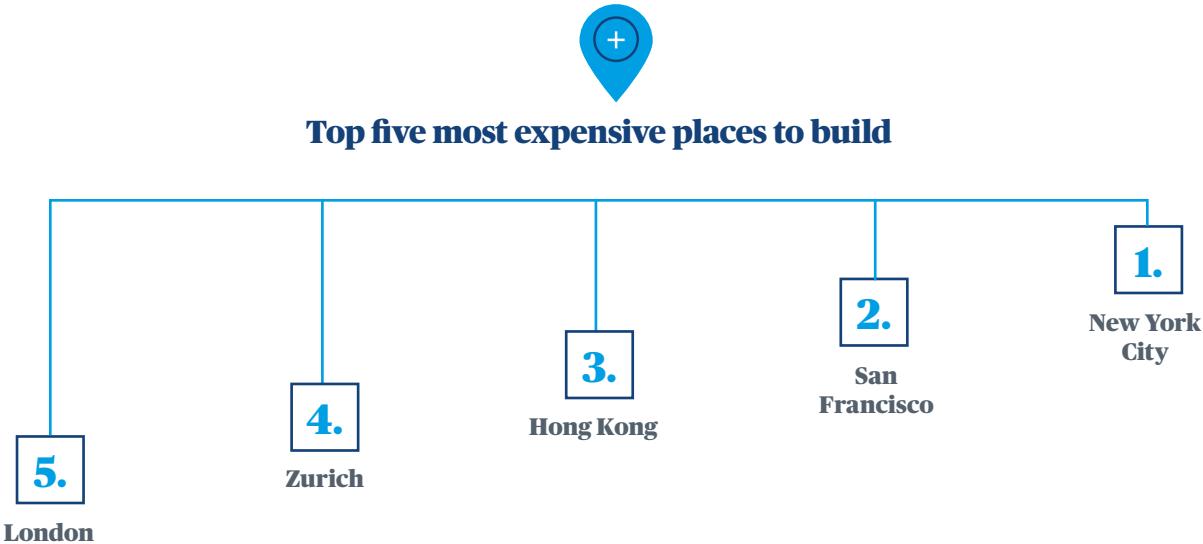
There are no regions expecting to see declines in costs in 2018, which may reflect the greater optimism emerging across the globe. The lowest forecast for construction cost inflation is 0.3 percent in Madrid.

At the other end of the scale, Beijing, Buenos Aires and Istanbul saw cost inflation in 2017 reaching 10 percent, 31.7 percent and 10 percent respectively. The expectation is that Buenos Aires will see inflation escalate to 35 percent in 2018, a rise to 15 percent in Istanbul, while in Beijing construction cost rises are expected to ease to 7.0 percent.

Construction costs inflation

Region	Market	Cost inflation in 2017	Forecasted cost inflation in 2018
Africa	Johannesburg	6.2%	6.0%
	Dar es Salaam	6.0%	5.0%
	Kigali	3.6%	2.0%
	Kampala	3.0%	3.0%
	Nairobi	2.5%	3.0%
Asia	Beijing	10.0%	7.0%
	Shanghai	8.0%	5.0%
	Jakarta	7.5%	7.5%
	Seoul	5.0%	3.0%
	Tokyo	3.0%	4.0%
	Kuala Lumpur	3.0%	3.0%
	Ho Chi Minh City	2.0%	3.0%
	Hong Kong	2.0%	4.0%
	Singapore	2.0%	2.0%
	Bangalore	1.0%	2.0%
Australasia	Sydney	4.0%	4.0%
	Brisbane	4.0%	3.0%
	Melbourne	2.0%	4.0%
	Perth	-1.0%	1.5%
Europe	Istanbul	10.0%	15.0%
	Warsaw	8.0%	6.0%
	Dublin	7.0%	7.0%
	Amsterdam	4.0%	4.0%
	Moscow	4.0%	4.0%
	London	3.9%	2.8%
	Munich	3.2%	3.0%
	UK South	3.0%	2.5%
	UK Central	2.5%	2.0%
	UK North	2.5%	1.9%
	Scotland	1.8%	2.0%
	Northern Ireland	1.8%	2.0%
	Paris	1.5%	1.9%
	Zurich	0.4%	0.6%
	Madrid	0.3%	0.3%
Middle East	UAE	2.0%	2.0%
	Doha	0.1%	1.0%
	Muscat	-1.0%	1.0%
North America	San Francisco	5.0%	5.0%
	Seattle	5.0%	5.0%
	Houston	4.0%	3.0%
	New York City	3.5%	3.5%
	Toronto	3.0%	2.5%
South America	Buenos Aires	31.7%	35.0%
	São Paulo	4.6%	4.1%
	Santiago	2.0%	2.5%
	Bogotá	1.1%	5.0%

Almost all markets saw construction costs rise in 2017. However, Doha, Muscat and Perth experienced either negligible inflation or a fall in construction costs.



The most expensive place in the world to build

To identify the most expensive place to build, the average build cost in USD for six different types of building was assessed:

- Apartment high-rise
- Office block prestige
- Large warehouse distribution centre
- General hospital
- Primary and secondary school
- Shopping centre including mall

The five most expensive locations are New York City, San Francisco, Hong Kong, Zurich, and London. New York City retained its position as the most expensive place to build in the world even though building spend dipped in 2017. But that was from an all-time high in 2016 and growth in construction spending is set to resume in 2018, stretching resources.

San Francisco held the second spot, driven by the wealth and demand generated by high-speed growth in the technology sector.

Hong Kong moved ahead of Zurich to third. An emphasis on boosting housing and infrastructure supported growth and with labour increasingly stretched, the market's already historically high construction costs rose further and are expected to grow in 2018.

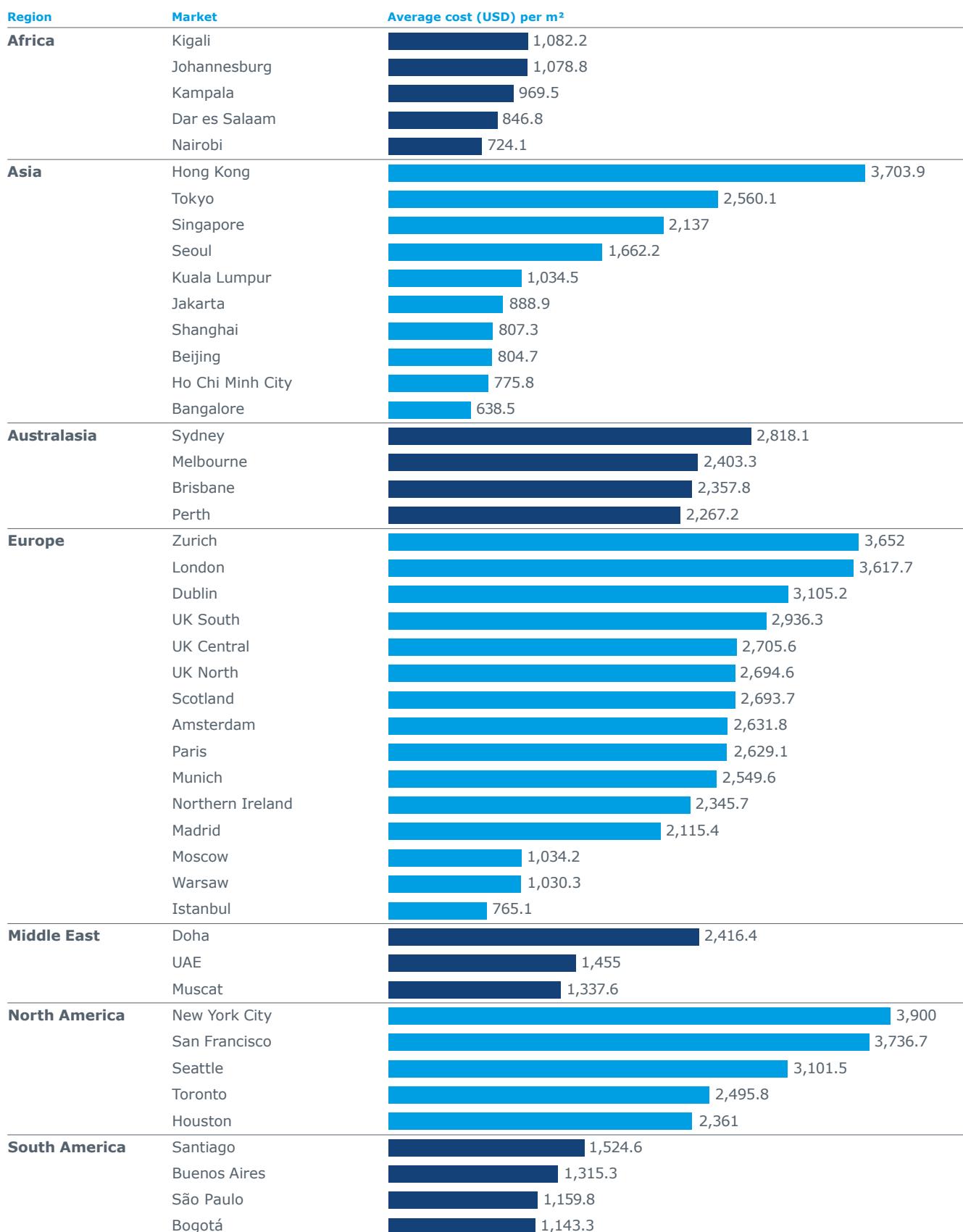
Meanwhile, Zurich, saw relatively low levels of construction cost inflation in 2017 with levels of construction stable and a relatively even balance between supply and demand established in the market.

London held fifth place, with noticeably higher costs than other UK regions. Construction cost inflation at 3.9 percent was above the rate seen elsewhere in the UK, which in part reflects the high demand and pressures on supply, notably skilled labour, in the capital.

The locations with the lowest construction costs can be found in Bangalore, Beijing, Ho Chi Minh City, Istanbul and Nairobi. It is intriguing to note that average construction costs in 2017 in New York City, the most expensive place to build, are more than six times those seen in Bangalore, the cheapest place to build.

It is, however, worth noting that the method we use to compare the least and most expensive places to build is highly dependent on the exchange rate. A country with a weak currency against the USD will seem like an inexpensive place to build and a country with a strong exchange rate will seem expensive. Turner & Townsend also publishes purchasing power parity which compares the cost of construction with the local cost of living. To find out more about purchasing power parity and how and when to use it see our section on "Comparing construction cost" on pages 102 and 103.

Average cost of six building types in USD



New York City retained its position as the most expensive place in the world to build, with an average cost of USD3,900 per m² followed by San Francisco (USD3,736.7 per m²) and Hong Kong (USD3,703.9 per m²).

Trade labour wages

A significant factor influencing overall construction costs is the wages of labour, including additional expenses such as travel costs, national/health insurance, pensions, and other benefits of employment.

This year's survey once again highlights the extreme level of variation in the cost of labour between regions. The markets with the lowest construction wages are Bangalore, Ho Chi Minh City and Kigali, where wages were all below USD3 an hour. The cheapest is Bangalore where average hourly wages are at USD1.1. This compares with more than USD104 in Zurich and USD98 in New York City.

Across the 46 markets, the average labour costs is USD29.9, with Seoul representing the median average hourly wage at USD22.

The significant drop to USD14.4 per hour for Asia we see this year compared with the USD18.1 seen last year is statistical not actual, as the number of markets covered has increased with the introduction of Ho Chi Minh City, Jakarta and Shanghai, all with relatively low labour rates.

Again, a note of caution when comparing labour rates. The supplied labour wages do not take into consideration labour productivity, which is affected by training, and the use of automated equipment and machinery in construction. In cheap labour countries there is likely to be less automation because labour is cheap and plentiful. Where labour is very expensive or scarce we would expect to see fewer workers on site and many tasks are carried out using labour-saving machinery. To gain a clearer picture of the cost of labour on a project, consideration should be given to productivity and how this affects the size of the project's workforce and duration on site.

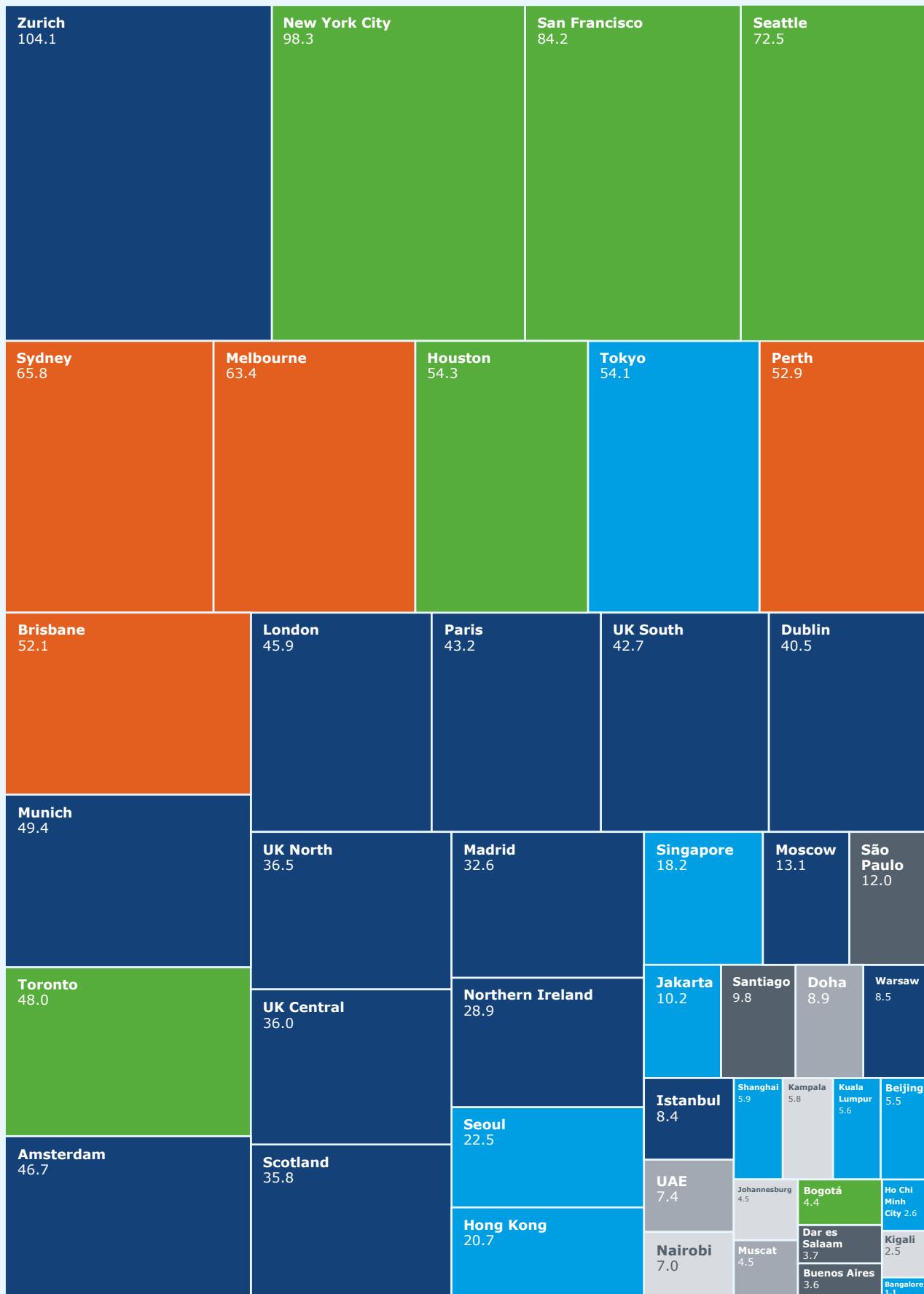


Average hourly wage (USD) by region



North America has the highest hourly wage of all the regions analysed in this year's survey.

Average hourly wage (USD) by city. Zurich remains the market with the highest labour costs with an average hourly wage of USD104.1



Labour shortages

Labour shortages appear to be an increasingly common feature of global construction in recent years. Last year's report noted a rise from 20 to 24 markets registering skills shortage. This year the number has risen to 27, one of which (Jakarta) is a new addition this year.

As workloads in most markets look set to expand, skills shortages are likely to persist into 2018 and potentially intensify in places as hot spots appear in the generally warming global construction market.

The problem is easily understood in markets such as New York City, where there has been a prolonged spell of activity at historically high levels, similarly in London and other buoyant markets. But the problem is not just confined to one type of region or economy. Markets with low labour costs, such as Bangalore, Johannesburg and Kigali, are also suffering from skilled and semi-skilled labour shortages.

Only three of the markets analysed are experiencing labour surplus: Houston, Muscat and São Paulo. Oman (Muscat) and Brazil (São Paulo) both suffered economically from the fall in commodity prices and while prices are recovering it will take time to carry through to the construction sector. There are signs in São Paulo that the market is warming, which may bring the supply and demand in the construction labour market closer into balance.

Preliminaries and margins

Preliminaries and margins are two other drivers of overall construction costs.

Preliminary costs are affected by job complexity, so in busy cities such as London, New York City and Tokyo you would expect to see higher preliminaries. The logistics of setting up in tight spaces, managing traffic, working with small lay-down areas, and complex building regulations mean a larger proportion of costs need to be set aside for preliminary costs. There will also be other local factors that will influence

the cost. The average preliminaries globally in 2018 were 10.3 percent and ranged from 15 percent in Tokyo and Buenos Aires, to 5 percent in Madrid.

Several factors will impact on margins, including the condition of the market, the risk associated with the project and the contractual arrangements. The business cultures within markets will also have an influence.

The figures quoted are derived from typical projects and do not equate to the margins found within company accounts, as they will not reflect, for example, the impact of projects where significant losses have been made.

Margins can be expected to fluctuate quite markedly over time. The average margin globally in 2018 was 6.4 percent, but margins ranged between 15 percent in Kuala Lumpur to 3 percent in Northern Ireland. In broad terms, changes within a given market over a short period are one indicator to take into account when assessing market activity and cost pressures.

Availability of labour



Skills shortage

Amsterdam	Munich
Bangalore	New York City
Beijing	Northern Ireland
Bogotá	San Francisco
Dublin	Seattle
Hong Kong	Seoul
Jakarta	Singapore
Johannesburg	Sydney
Kampala	Tokyo
Kigali	Toronto
Kuala Lumpur	UK Central
London	UK North
Melbourne	UK South
	Zurich



In balance

Brisbane	Nairobi
Buenos Aires	Paris
Dar es Salaam	Perth
Doha	Santiago
Ho Chi Minh City	Scotland
Istanbul	Shanghai
Madrid	UAE
Moscow	Warsaw

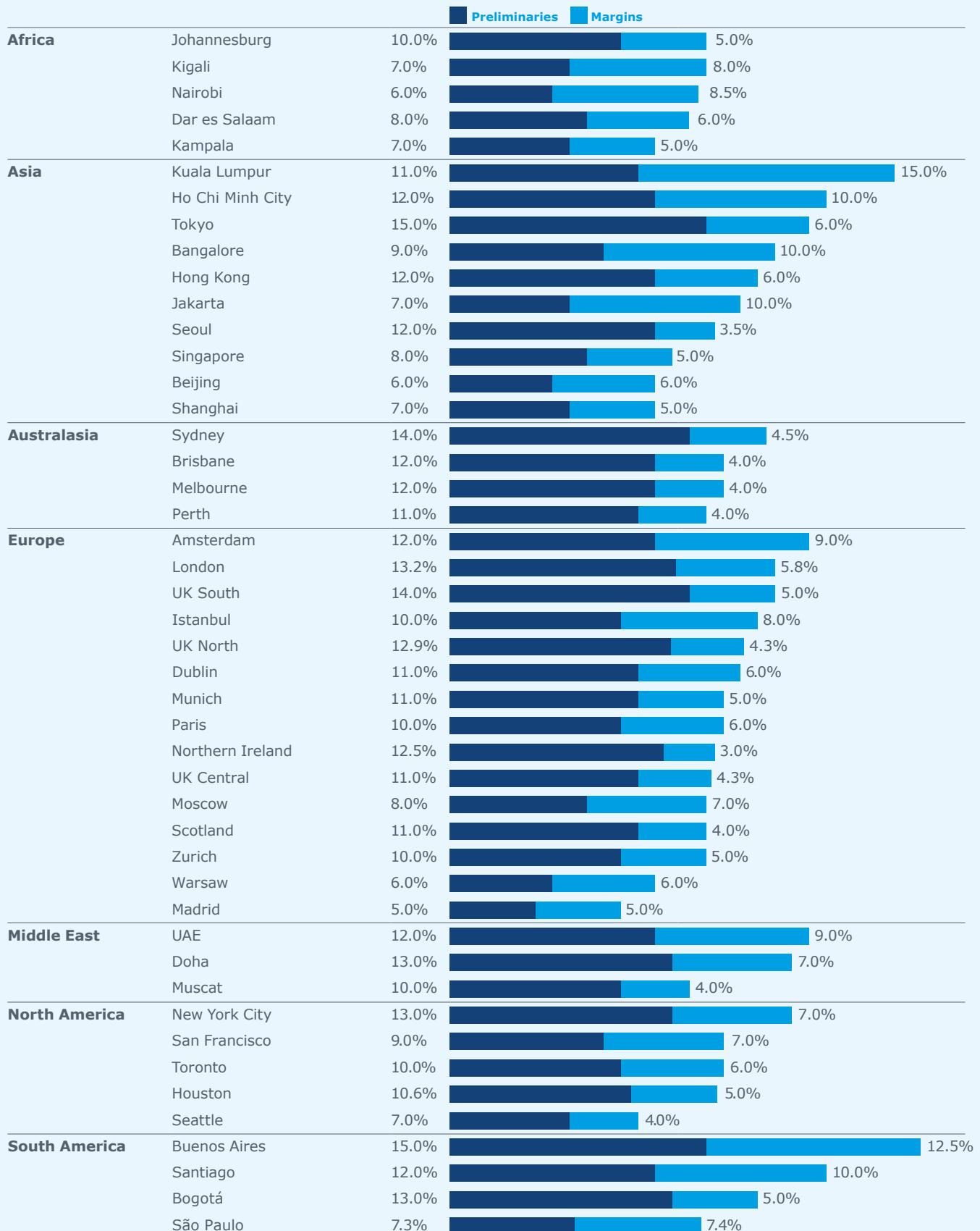


Surplus

Houston
Muscat
São Paulo

Labour shortages are a common theme in this year's survey with 27 markets suffering from a skills shortage.

Preliminaries and margins



High preliminary costs are found in complex markets where construction is difficult and set-up costs are correspondingly high. Falling margins are often found in cooling markets.

Calculating the effect of exchange rates

Conducting an analysis across markets by converting costs to a single currency can allow for direct comparison between markets. However, any devaluation or revaluation of a currency impacts both the wage levels and the overall construction cost.

We use the USD as the common currency for comparison throughout this report. Therefore, it is important to consider the impact on the construction costs by changing exchange rates relative to the USD. If the exchange rate of a country strengthens against the USD its construction costs will rise, even if costs within the local currency remain unchanged. A falling exchange rate would create the opposite effect.

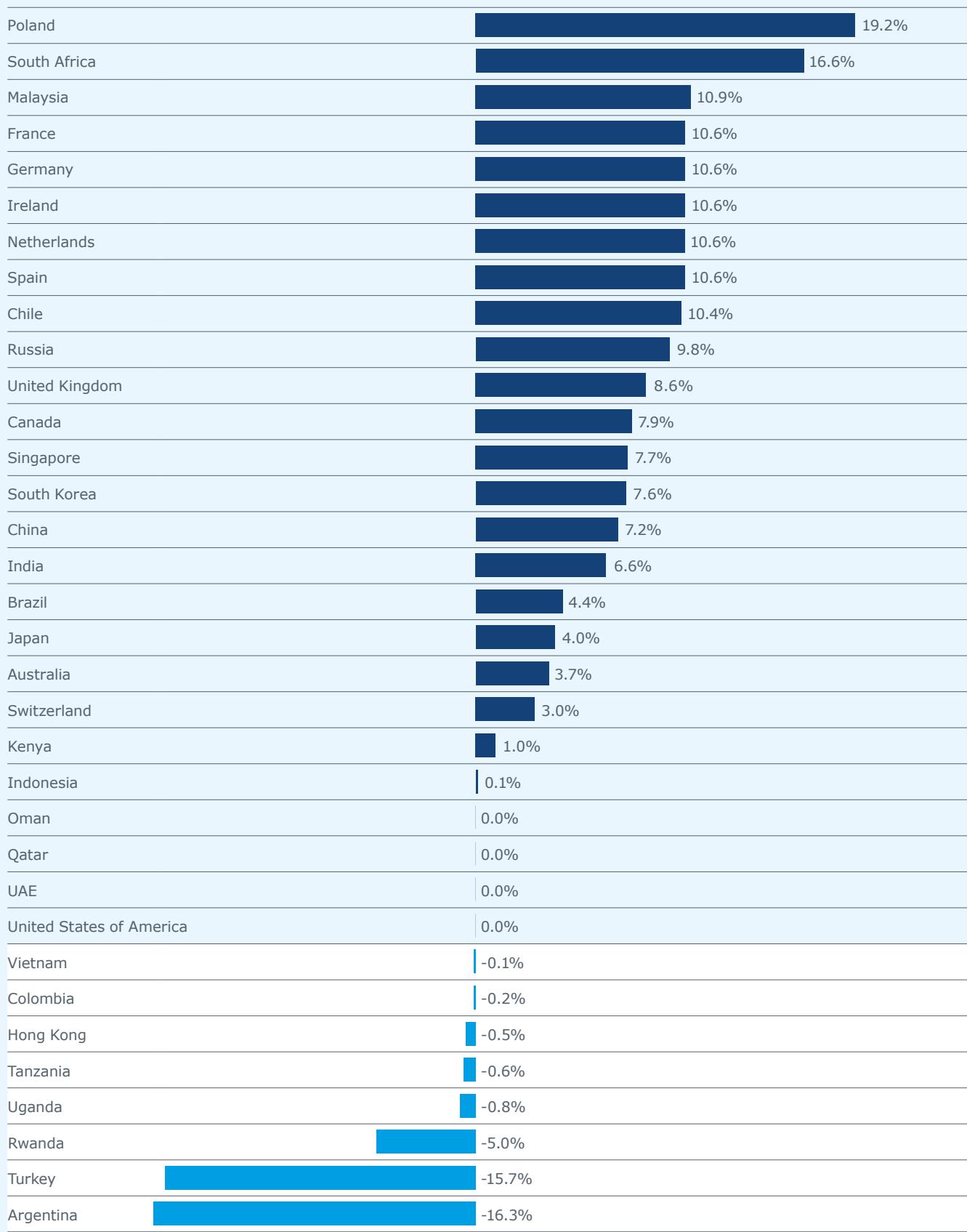
With exchange rates constantly fluctuating, this means that the reported construction costs in USD for several of the markets covered have also fluctuated as their relative exchange rates have changed during 2017. The chart shows the change relative to the USD for 2017 as a percentage. Some countries have seen a stronger exchange rate including Brazil, the Euro Countries, South Africa and the UK. Some countries have experienced a fall in the exchange rate including Argentina, Rwanda and Turkey.

Indeed there are material economic and business effects caused by fluctuating exchange rates, rather than simply the statistical effects described above related to comparing costs against a common currency. For example, a sudden and large drop in an exchange rate will lead to inflation in imported materials, plant and equipment or services. This will push up construction costs in the local currency, and in turn might lead to changes in decisions made locally on what, how or when to build, as the detail of individual and total costs are considered.

Other less obvious effects might occur. If there is a large migrant workforce, a significant fall in the value of the currency in which they are paid relative to the currency of their homeland might alter their decision to come, stay or go, potentially leading to wage inflation or labour shortages.

To ensure our findings deliver accuracy and insight, we continue to use three construction cost comparison methodologies. This is increasingly important given the volatility in exchange rates and its impact on construction costs (see pages 102 and 103 for further details).

Exchange rate fluctuation



If the exchange rate of a country strengthens against the USD its construction costs will rise, even if costs within the local currency remain unchanged. A falling exchange rate would create the opposite effect.

An aerial photograph of a construction site. In the center-left, three workers wearing yellow safety vests and hard hats are gathered around a clipboard, looking down at it. One worker holds a tablet. To the right, another worker stands near a large concrete structure. The site is made of grey concrete with some white-painted lines and a metal pipe. A small square opening is visible in the concrete. The background shows more of the construction area.

The global challenge for construction - more work with fewer workers

Every year we ask our experts around the world to tell us about the growth sectors in construction and the challenges in their markets. This year, one issue reverberates - skills shortages. It is a global problem.

Growth sectors

One common thread around the world is that governments are investing heavily in projects to promote easier movement of people and reduce congestion. Road and rail are the top two spots in the list for growth sectors globally.

This upswing in investment comes after years of urging from major international organisations. As a recent World Bank note stated: "Infrastructure development lies at the nexus of economic growth, productive investment, job creation, and poverty reduction."

When it comes to transport, developing nations need to greatly expand their infrastructure to accommodate economic growth and spread wealth and wellbeing, while developed nations need to revitalise theirs to sustain prosperity.

High-tech and manufacturing is third in the top five growth sectors. Interestingly, the scores indicate that while growth here is widespread across the regions, the increase is more marginal than strong.

Urban development and commercial development, which cover the construction of apartments and commercial offices and hotels, take the remaining top five spots for growth, reflecting the intensity of urbanisation and rising global economic growth.

Beyond the five, it is interesting to note the mining and oil and gas sectors remain relatively in the doldrums, but as the sectors rebound there are signs of expansion in 2018.

Challenges

Looking at the challenges that local contractors face in delivering projects on time and on budget at a profit, skills shortages remain firmly at the top of the list.

The spread of greater opportunity, higher education and loftier aspirations is making recruitment into construction harder. Meanwhile an increasing proportion of the workforce is retiring or nearing retirement. There isn't a simple answer, but investing in more technology, technical skills and training and more advanced construction techniques are essential.

Directly linked to the skills shortage are two further key challenges: rising costs and stagnating productivity. This emphasises the imperative to attract and retain top talent. Those firms that do invest in technology and talent are likely to be the strongest survivors when growth in the global economy softens again, as inevitably it will.

Our subject matter experts have provided first hand on-the-ground insight into why these challenges exist and what can be done to mitigate them.

Global construction challenges

67%

of all respondents said skilled labour shortages had a major or large impact on the delivery of construction projects

33%

of all respondents said a lack of confidence in the market had a medium impact on the delivery of construction projects

63%

of all respondents said labour disputes and industrial action only had a fair or little impact on the delivery of construction projects

Major/large impact

1. Skilled labour shortages
2. Government red tape, bureaucracy, delayed approvals
3. Rising costs of construction
4. Low workplace productivity, inefficient and outdated work practices

Medium impact

5. High insurances, taxes, duties, government charges and other ancillary costs
6. Lack of confidence in the market to invest in new projects
7. Too many contractors chasing too few projects
8. Political instability

Fair/little impact

9. Difficult contractual and legal conditions
10. The market is oversupplied, e.g. too many vacant apartments and office space
11. Contractors are having difficulty finding sufficient credit
12. Labour disputes and industrial action



USA

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1.3tn

Construction spending hit an all-time high in cash terms of almost USD1.3tn in 2017

2m

More than two million construction jobs were shed in the economic downturn ten years ago

Construction spending hit an all-time high in cash terms of almost USD1.3tn in 2017 and forecasts suggests that figure will be eclipsed in 2018. Increasing activity, driven by major cities and urban markets, presents ample opportunity. But new and age-old challenges still plague the industry.

Balancing the supply and demand of labour and materials remains the single biggest challenge. More than two million construction jobs were shed in the economic downturn ten years

ago. The labour pool is still well below pre-2007 levels and worryingly, it is an older workforce. It is getting harder to recruit youth into construction. There have been some encouraging signs though, following more intensive efforts to attract new workers. However, labour shortages will drive higher costs and lengthen completion schedules.

The impact of skills shortages is not helped by the industry's poor record on productivity. Despite improvements, such as lean construction and better use of technology, productivity remains a hot topic for construction.

Meanwhile, materials cost rises continue to outpace general inflation and this trend may be exacerbated by tariffs, particularly on imported steel and aluminium products, as policy is shaped to encourage buying US rather than imported goods and materials.

Argentina

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Despite economic recovery and more controlled inflation, international investors remain wary of Argentina's professional, regulatory and legal standards. There are two crucial areas that concern investors in construction, a lack of a best-practice mindset and incomplete documentation.

The government is leading bold infrastructure projects and private investors and contractors are feeling more confident about undertaking new and more ambitious projects. But nagging doubts remain. Are projects planned accurately with their real implications understood from the start? Are projects correctly budgeted and controlled considering the entire lifecycle of the asset?

International investors are increasingly looking to minimise risk by implementing industry best practices and avoiding local ways of doing business-as-usual. However, these best practices don't tend to be the norm within local organisations, which means bringing in additional resources. Local contractors are used to receiving documentation that is incomplete and often misleading. This becomes an excuse for not delivering projects on time or on budget, leading to numerous legal claims.

It will take time for internationally proven standards and best practice to become the norm. When this happens, it will lead to construction having a more sustainable and positive impact within Argentina's economy.



United Kingdom

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Looking across the UK market there has been clear market softening in the year following the EU referendum. In this environment customers of construction need to be agile and alert to the changes in the contractor's ability to take and successfully manage risk, particularly in a cycle of skills shortages and rising input prices are eroding margins.

The supply chain is the lifeblood of a construction project and it is important to recognise that across the UK there are clear regional variations in capacity.

This demands an intelligent market response from construction procurers as they consider the ability of the supply chain to deliver with a changing appetite for risks.

If Carillion's failure has brought one thing into sharp focus it is that commercial risk transfer can be illusory in a fast-changing market.

Although Brexit has generated uncertainty, reducing UK construction output, there are signs that increasing devolution may be acting as a counterweight. Beyond London, devolution has created hot spots in spending on infrastructure and housing in key UK regional cities. This in turn may well fuel further investment.



France

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Skills shortages are proving a major problem for the French construction industry. A study by the institut national de la statistique et des études économiques in October 2017 found 70 percent of construction firms are struggling to recruit skilled labour, despite France's unemployment rate being above the EU average.⁶

The problem is not new to France, suggesting it may be a cultural issue. The skills gap was extreme in the early 2000s, easing during the global recession, before re-emerging in 2016. Since then skilled labour has again become scarce, creating intense competition in recruitment. This trend is expected to continue, reinforced by large projects such as the Grand Paris and the 2024 Olympics.

Construction companies and the authorities have instigated specialised programmes to better prepare students for careers in construction and there is ongoing reform of apprenticeships and vocational training. That's a major opportunity for both the construction

market and authorities to have a positive impact on employment in the future.

Economists and construction experts point to the industry's lack of attractiveness. Despite efforts to improve the image and to create partnerships with universities and engineering schools, students and young professionals are reluctant to choose a career in construction. It could be a symptom of the French cultural and systemic bias favouring general broad-spectrum education, discouraging students to pursue more specialised, technical and hands-on training.



Kenya

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After political turbulence in 2017, with two elections in six months, the prospects for Kenyan construction looks much brighter for 2018 and beyond.

There is major infrastructure spending on the Standard Gauge Railway between Nairobi and Naivasha and the planned new Nairobi to Mombasa Road. International real estate investors are re-emerging, and local development firms are pushing forward with plans. The oil sector, finally, seems set to blossom with exports slated for 2019.

Meanwhile, Kenya's 2030 vision includes building one million affordable homes to house the flow of rural people into cities. An emerging middle class is demanding better-quality homes.

These future workflows present Kenyan construction with challenges in three main areas – skills shortages, contractors struggling to find credit and low workplace productivity.

To address the skills issue, the industry must build better relationships with technical training colleges and universities to ensure learning aligns with the sector's emerging needs.

Albeit a macro-economic issue, the cap on interest rates since 2016 has led to a tortuous process for contractors to navigate. Encouragingly, there are discussions about how to release the restraints on credit.

Raising productivity is a problem. Clients and contractors automatically go for low-paid, low-skilled workers. This inhibits innovation. Investing in new techniques, such as modular building, and higher-skilled workers would unleash economies of scale, providing greater production at lower unit cost. A better-paid workforce would increase spending back into the economy providing a virtuous circle.

“Skills shortages are proving a major problem for the French construction industry”



UAE

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A key challenge for UAE lies in how risk is allocated within contracts, which are regarded as far more onerous in this region than elsewhere. Historically, the norm has been for clients to tailor contracts by transferring all the risk to the consultant or contractor.

There still exists among some clients a culture not to negotiate contract terms, adopting a “take it or leave it” strategy. This can lead consultants and contractors into agreeing terms they would not accept elsewhere.

In turn this can result in higher tender sums, where associated risks are priced into bids, and a potentially smaller pool of tenderers, with some consultants and contractors

stepping away having judged the risks unacceptable. Ultimately, it lowers the likelihood of attaining a best-value appointment.

Outdated contract forms are commonplace, with clients sticking to what they know. But as industry practices adapt, these outdated standard contracts are amended, favouring the client, and become in effect bespoke contracts. This can present serious risks to contractors who may not fully appreciate the amendments and unwittingly administer the contract as they have in the past, leading to claims.

An average dispute in the UAE is twice as large as elsewhere and the average time taken to resolve disputes has risen to 15 months.

One solution lies in awareness building of alternative procurement for both clients and contractors. Certainly, those operating in the region must diligently read and understand the terms, so they can administer contracts accordingly.

India

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Construction in India is hindered by an acute labour shortage, especially the skill set required in the fast growing housing and infrastructure sectors.

It is getting harder to recruit. Construction graduates are opting for more lucrative jobs in IT, particularly abroad. The fast growing emergence of greater opportunities in other occupations has created a shift in aspirations among India's school leavers and graduates.

Construction's appeal is worsened by the temporary and transient nature of much of the employment.

The effects can be seen in rising costs to both project owners and contractors, fewer apprenticeship programmes, a less-qualified workforce creating safety concerns and less focus on trades and vocational schools.

This poses a challenge for the industry to demonstrate its value as a career. It will need to increase pay to attract and retain workers, reaching out to a younger generation and invest more in training and mentoring programmes.

Construction is also hindered by red tape, bureaucracy and delays in approving projects. The multi-tiered administration inhibits progress, while litigation related to land acquisition adds further delay and increases the financial risks taken by developers.

However, there are signs of change, such as the ‘Swiss Challenge method’ whereby a submitted proposal is viewable online making it open to scrutiny, discouraging impractical projects. And there is the RERA Act which should ease approvals and support fast-track real estate projects.

Hong Kong

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Sky-high housing prices are a way of life in Hong Kong. Experts believe the low affordability is due to the limited land supply, falling household size and population growth.

In late 2017, the government announced its policy to offer more public housing which will lead to more public funded jobs. However, the labour market is already short of skilled labour and the situation is in danger of worsening.

In 2018 and over the next few years, Hong Kong's construction costs are expected to rise, despite already being

historically high. One main driver pushing up construction costs is this shortage of skilled labour.

The public and private sectors are competing for the same resources from the same labour market. It is expected that with the shortage of skilled labour, wage cost will continue to increase and in turn further raise the cost of construction.

The challenge for the construction labour market is not just about the lack of numbers employed. The workforce is old, ageing and inflexible. According to the Hong Kong Construction Association, about 42 percent of the Hong Kong construction workforce is 50 or older.

To mitigate the challenge, Hong Kong must learn from other markets. In the short term, employing imported labour might be the answer. However, a long-term strategy is needed to encourage youth into the industry.



Australia

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In recent years volatility in global markets, particularly natural resources, has unsettled the ability of clients to set strategies, develop long-term programmes of investment and execute their projects.

The long-term nature of construction investment means that the industry thrives on confidence. Without it, leadership can become paralysed by unforeseen risk and shy away from setting long-term targets and freeing up the necessary capital.

This inhibits the delivery team's potential to properly engage the supply chain with a guarantee of solid volumes of work. It can lead to short-term variations to longer-term strategic plans, increasing bureaucracy and uncertainty delays. In this environment, local supply chains become nervous about recruitment and skills development, and supply-chain partnerships set-up on the promise of long-term work are undermined.

The problems may only become apparent later, when the investment decision is finally made, and the supply chain is underprepared to respond effectively.

It is encouraging that clients who have confidence in their abilities to drive their projects through and have engaged constructively with their supply partners are seeing their supply chains respond with enthusiasm and commitment – sharing their business goals.

This approach should be the goal of any organisation with ambition to grow and develop their business.

Kenya Nairobi

Population growth and transport needs fuel construction demand

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Economic outlook

The economy is expected to bounce back in 2018 after slowing in 2017, a year of drought and political turmoil. The government forecasts economic growth to rise above 6 percent. Recent growth in local and foreign investment suggests a continued increase in demand for residential and commercial buildings. But, lingering political tensions and the negative effects of an interest rate cap policy introduced in 2016 pose downside risk.

Construction market and trends

Population growth and a need to improve transport links are fuelling construction. Kenya's urban population is expanding at an annual rate of 4.15 percent, generating demand for new cities. However, a surge

	KSH	USD (exchange rate: 103)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	267,000	2,592
Low cost carrier terminal, basic service	200,000	1,942
Car parks		
Multi storey above ground	42,000	408
Multi storey below ground	45,000	437
Commercial		
Offices – Business Park	65,000	631
CBD Offices – up to 20 floors medium (A-Grade)	72,000	699
CBD Offices – high-rise prestige	95,000	922
Education		
Primary and secondary	45,000	437
University	50,000	485
Hospitals		
Day centre (including basic surgeries)	85,000	825
Regional hospital	103,000	1,000
General hospital (e.g. city teaching hospital)	125,000	1,214
Hotels		
3 Star travellers	102,000	990
5 Star luxury	130,000	1,262
Resort style	130,000	1,262
Industrial		
Warehouse/factory units – basic	35,000	340
Large warehouse distribution centre	50,000	485
High tech factory/laboratory	100,000	971
Residential		
Individual detached or terrace style house medium standard	52,000	505
Individual detached house prestige	80,000	777
Townhouses medium standard	60,000	583
Apartments low-rise medium standard	55,000	534
Apartments high-rise	65,000	631
Aged care/affordable units	45,000	437
Retail		
Large shopping centre including mall	67,500	655
Neighbourhood incl supermarket	57,500	558
Prestige car showroom	72,500	704

in residential and commercial building since 2013 has created some short-term oversupply in the market. But the government has pledged to spend USD26bn building a million low-cost homes over five years.

Among plans for infrastructure are a USD140m port at Kisumu and three airports at Lamu (USD188m), Isiolo (USD175m) and Lake Turkana (USD143m). The World Bank is funding a USD285m aviation modernisation project to improve airport facilities. Major road improvements include making the Nairobi/Mombasa road a dual carriageway.

Future outlook

The real estate sector should recover in 2018 with high housing demand, improved infrastructure and an expanding middle class in Kenya. Demand for affordable housing grows with some estimates suggesting that more than 210,000 new homes need to be built annually. Longer term, there is also growing excitement over oil and gas related expenditure, following recent discoveries.

	KSH	USD (exchange rate: 103)
Kenya international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	400	4
Excavate footings (m)	350	3
Concrete in slab (m ³) (1500m ³ job)	14,000	136
Reinforcement in beams (tonne)	120,000	1,165
Formwork to soffit of slab (m ²)	550	5
Blockwork in wall (m ²) (10,000 block job)	1,800	17
Structural steel beams (tonne)	210,000	2,039
Pre-cast concrete wall (m ²)	2,500	24
Curtain wall glazing incl support system (m ²) (1000m ² job)	20,000	194
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	3,250	32
Single solid core door incl frame and hardware (no) (50 door job)	39,500	383
Painting to walls primer + 2 coats (m ²)	400	4
Ceramic tiling (m ²) (1000m ² job)	2,000	19
Vinyl flooring to wet areas (m ²) (500m ² job)	1,800	17
Carpet medium tufted (m ²) (4500m ² job)	5,000	49
Lighting installation (m ²) (5000m ² + job)	1,000	10
Copper pipe 15mm to wall (m) (1000+ metre job)	2,600	25
Fire sprinklers (per m ²) (5000m ² job)	3,200	31
Air conditioning incl main plant (m ²) (5000m ² + job)	10,500	102
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	800	8
Group 2 Tradesman eg carpenter bricklayer	800	8
Group 3 Tradesman eg carpet layer, tiler, plasterer	800	8
General labourer	500	5
Site foreman	1,500	15
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	11,000	107
Reinforcement bar 16mm (tonne) (120 tonne job)	98,000	951
Concrete block (400x200) per 1000 (>10,000 block job)	60,000	583
Standard brick per 1000	50,000	485
Structural steel beams (tonne) (100 tonne +job)	175,000	1,699
Glass pane 10mm tempered (m ²)	9,000	87
Softwood timber for framing 100mm X 50mm (m)	450	4
13 mm plasterboard (m ²)	1,500	15
Emulsion paint (litre)	685	7
Copper pipe 15 mm (metre) (1000+ metre job)	1,450	14
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	360	3
Plant costs		
Hire 50t mobile crane + operator (day)	120,000	1,165

	Nairobi
Tendering:	Warm
Market:	Staying the same
Cost escalation 2017–18:	2.5%
Cost escalation 2018–19:	3.0%
Contractor's margin:	8.5%
Preliminaries:	6.0%
Location factor (USD):	60.1
PPP coefficient:	77.3

Rwanda

Kigali

Urbanisation and population growth feeds demand for infrastructure and housing

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Economic outlook

Among sub-Saharan nations Rwanda's strong economic growth, relatively high ranking on the World Bank's Ease of Doing Business Index and low ranking on corruption make it an attractive destination for investors. GDP growth topped 6 percent in 2017, up on 2016 due to improved global economic conditions and higher commodities prices. Growth is set to continue in 2018.

Construction market and trends

Construction is key to Rwanda's ongoing economic recovery. The government is keen to attract global construction investment and has increased investment for infrastructure expansion and modernisation.

International building costs per m² of internal area, in 2018

	USD (exchange RWF rate: 863.07)
Airports (Building only)	
Domestic terminal, full service	3,283,936 3,805
Low cost carrier terminal, basic service	2,355,801 2,730
Car parks	
Multi storey above ground	397,575 461
Multi storey below ground	504,242 584
Commercial	
Offices – Business Park	723,180 838
CBD Offices – up to 20 floors medium (A-Grade)	882,423 1,022
CBD Offices – high-rise prestige	1,318,787 1,528
Education	
Primary and secondary	570,036 660
University	685,600 794
Hospitals	
Day centre (including basic surgeries)	833,939 966
Regional hospital	979,393 1,135
General hospital (e.g. city teaching hospital)	1,473,938 1,708
Hotels	
3 Star travellers	1,207,178 1,399
5 Star luxury	1,473,938 1,708
Resort style	1,454,544 1,685
Industrial	
Warehouse/factory units – basic	339,394 393
Large warehouse distribution centre	494,545 573
High tech factory/laboratory	1,473,938 1,708
Residential	
Individual detached or terrace style house medium standard	480,000 556
Individual detached house prestige	815,584 945
Townhouses medium standard	589,523 683
Apartments low-rise medium standard	648,571 751
Apartments high-rise	687,618 797
Aged care/affordable units	484,848 562
Retail	
Large shopping centre including mall	1,059,144 1,227
Neighbourhood incl supermarket	785,454 910
Prestige car showroom	775,757 899

The growth rates of both construction, 10 percent in 2017, and real estate, 7 percent, provide optimism.

Major schemes in the pipeline include the proposed USD800m international airport at Bugesera, which will provide extra capacity for passenger transport and freight. The Rwandan and Tanzanian government have also agreed to jointly construct a railway between Isaka and Kigali linking Rwanda to the major port of Dar es Salaam. The scheme is estimated to cost USD5bn. Investment is also being made in the natural resources and mining sectors.

Future outlook

Overall the future looks positive in Rwanda. Urbanisation and a growing population are the main drivers of construction, both are generating pressure to build new infrastructure and housing.

		USD (exchange rate: 863.07)
	RWF	
Rwanda international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	3,879	4
Excavate footings (m)	2,909	3
Concrete in slab (m³) (1500m³ job)	211,460	245
Reinforcement in beams (tonne)	1,246,752	1,445
Formwork to soffit of slab (m²)	12,606	15
Blockwork in wall (m²) (10,000 block job)	29,091	34
Structural steel beams (tonne)	3,234,906	3,748
Pre-cast concrete wall (m²)	120,242	139
Curtain wall glazing incl support system (m²) (1000m² job)	271,515	315
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	34,909	40
Single solid core door incl frame and hardware (no) (50 door job)	390,787	453
Painting to walls primer + 2 coats (m²)	3,879	4
Ceramic tiling (m²) (1000m² job)	29,091	34
Vinyl flooring to wet areas (m²) (500m² job)	96,000	111
Carpet medium tufted (m²) (4500m² job)	48,485	56
Lighting installation (m²) (5000m² + job)	117,333	136
Copper pipe 15mm to wall (m) (1000+ metre job)	26,182	30
Fire sprinklers (per m²) (5000m² job)	62,338	72
Air conditioning incl main plant (m²) (5000m² + job)	96,970	112
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	2,987	3
Group 2 Tradesman eg carpenter bricklayer	2,338	3
Group 3 Tradesman eg carpet layer, tiler, plasterer	1,896	2
General labourer	1,299	2
Site foreman	3,961	5
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	201,787	234
Reinforcement bar 16mm (tonne) (120 tonne job)	1,027,878	1,191
Concrete block (400x200) per 1000 (>10,000 block job)	1,233,453	1,429
Standard brick per 1000	360,000	417
Structural steel beams (tonne) (100 tonne +job)	2,588,119	2,999
Glass pane 10mm tempered (m²)	102,788	119
Softwood timber for framing 100mm X 50mm (m)	2,909	3
13 mm plasterboard (m²)	4,254	5
Emulsion paint (litre)	3,030	4
Copper pipe 15 mm (metre) (1000+ metre job)	19,394	22
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	10,667	12
Plant costs		
Hire 50t mobile crane + operator (day)	1,328,484	1,539
Kigali		
Tendering:	Lukewarm	
Market:	Warmer	
Cost escalation 2017–18:	3.6%	
Cost escalation 2018–19:	2.0%	
Contractor's margin:	8.0%	
Preliminaries:	7.0%	
Location factor (USD):	52.1	
PPP coefficient:	609.4	

South Africa

Johannesburg

Low-cost housing and infrastructure provide hope for construction

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Economic outlook

South Africa's economy grew 1.3 percent in 2017, after a wobbly first quarter which saw the economy shrink. At the final count growth exceeded earlier expectations. Mining, an important sector in the economy, started to bounce back in 2017, largely due to a resurgence in some commodity prices and a weaker currency against the USD.

Construction market and trends

Construction spending has been affected by slow economic growth. The residential market is flat, and the commercial market is oversupplied, suggesting a lag in activity even as the economy picks up.

	ZAR	USD (exchange rate: 12.07)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	30,800	2,552
Low cost carrier terminal, basic service	21,600	1,790
Car parks		
Multi storey above ground	5,300	439
Multi storey below ground	6,300	522
Commercial		
Offices – Business Park	8,700	721
CBD Offices – up to 20 floors medium (A-Grade)	11,700	969
CBD Offices – high-rise prestige	16,100	1,334
Education		
Primary and secondary	9,600	795
University	12,700	1,052
Hospitals		
Day centre (including basic surgeries)	11,000	911
Regional hospital	16,700	1,384
General hospital (e.g. city teaching hospital)	20,500	1,698
Hotels		
3 Star travellers	13,900	1,152
5 Star luxury	23,700	1,964
Resort style	22,700	1,881
Industrial		
Warehouse/factory units – basic	4,900	406
Large warehouse distribution centre	5,300	439
High tech factory/laboratory	12,400	1,027
Residential		
Individual detached or terrace style house medium standard	7,400	613
Individual detached house prestige	13,900	1,152
Townhouses medium standard	8,200	679
Apartments low-rise medium standard	8,700	721
Apartments high-rise	12,700	1,052
Aged care/affordable units	7,900	655
Retail		
Large shopping centre including mall	13,900	1,152
Neighbourhood incl supermarket	9,900	820
Prestige car showroom	11,000	911

But the government is keen to meet the demand for housing from the country's lower and middle-income groups by building 1.6 million affordable homes by 2019.

The government is also intent on boosting renewable energy and transport infrastructure. It is estimated that the government will spend USD71.6bn on the construction and modernisation of infrastructure, with USD24.2bn invested in transport and logistics and USD9.9bn in water and sanitation.

Among the major schemes are the expansion of the manganese export terminal at the Port of Ngqura and the proposed Johannesburg to Durban high-speed rail link.

Future outlook

Construction spending has suffered due to negative investor sentiment and slow economic growth. But the government's intention to invest in infrastructure and low-cost housing should support construction. The uncertainty over the nation's presidency had unsettled confidence. The resolution brings more certainty, but business is likely to remain watchful as the new president shapes policy.

	ZAR	USD (exchange rate: 12.07)
South Africa international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	90	7
Excavate footings (m)	150	12
Concrete in slab (m³) (1500m³ job)	1,400	116
Reinforcement in beams (tonne)	12,200	1,011
Formwork to soffit of slab (m²)	300	25
Blockwork in wall (m²) (10,000 block job)	400	33
Structural steel beams (tonne)	35,600	2,949
Pre-cast concrete wall (m²)	1,000	83
Curtain wall glazing incl support system (m²) (1000m² job)	3,900	323
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	400	33
Single solid core door incl frame and hardware (no) (50 door job)	2,500	207
Painting to walls primer + 2 coats (m²)	50	4
Ceramic tiling (m²) (1000m² job)	530	44
Vinyl flooring to wet areas (m²) (500m² job)	420	35
Carpet medium tufted (m²) (4500m² job)	340	28
Lighting installation (m²) (5000m² + job)	800	66
Copper pipe 15mm to wall (m) (1000+ metre job)	200	17
Fire sprinklers (per m²) (5000m² job)	400	33
Air conditioning incl main plant (m²) (5000m² + job)	1,500	124
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	74	6
Group 2 Tradesman eg carpenter bricklayer	53	4
Group 3 Tradesman eg carpet layer, tiler, plasterer	53	4
General labourer	37	3
Site foreman	169	14
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	1,300	108
Reinforcement bar 16mm (tonne) (120 tonne job)	11,500	953
Concrete block (400x200) per 1000 (>10,000 block job)	4,600	381
Standard brick per 1000	1,300	108
Structural steel beams (tonne) (100 tonne +job)	31,200	2,585
Glass pane 10mm tempered (m²)	2,400	199
Softwood timber for framing 100mm X 50mm (m)	70	6
13 mm plasterboard (m²)	120	10
Emulsion paint (litre)	110	9
Copper pipe 15 mm (metre) (1000+ metre job)	80	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	30	2
Plant costs		
Hire 50t mobile crane + operator (day)	10,600	878

Johannesburg

Tendering:	Lukewarm
Market:	Staying the same
Cost escalation 2017–18:	6.2%
Cost escalation 2018–19:	6.0%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	55.1
PPP coefficient:	9.2

Tanzania

Dar es Salaam

Creating infrastructure for trade links boosts opportunity

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Economic outlook

Tanzania has been a bright prospect for economic activity in East Africa. Projected GDP growth remains robust at 6.7 percent in 2018 and 6.9 percent in 2019. However, a surge in foreign investment in 2009 waned in 2016. This partly reflects falling commodities prices, but underlines unease over policy uncertainty.

Construction market and trends

Tanzania has ambitious plans to develop the port at Dar es Salaam into a major centre for transporting imported goods to landlocked neighbouring countries.

	USD (exchange rate: 2,246)	TZS
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	6,441,372	2,868
Low cost carrier terminal, basic service	4,600,973	2,049
Car parks		
Multi storey above ground	921,757	410
Multi storey below ground	1,007,787	449
Commercial		
Offices – Business Park	1,800,000	801
CBD Offices – up to 20 floors medium (A-Grade)	1,816,416	809
CBD Offices – high-rise prestige	2,594,880	1,155
Education		
Primary and secondary	1,106,108	492
University	1,229,009	547
Hospitals		
Day centre (including basic surgeries)	2,021,844	900
Regional hospital	2,378,640	1,059
General hospital (e.g. city teaching hospital)	3,330,096	1,483
Hotels		
3 Star travellers	2,378,640	1,059
5 Star luxury	2,973,300	1,324
Resort style	2,913,834	1,297
Industrial		
Warehouse/factory units – basic	860,306	383
Large warehouse distribution centre	1,204,429	536
High tech factory/laboratory	2,458,018	1,094
Residential		
Individual detached or terrace style house medium standard	975,200	434
Individual detached house prestige	1,843,446	821
Townhouses medium standard	1,301,839	580
Apartments low-rise medium standard	1,351,818	602
Apartments high-rise	1,459,963	650
Aged care/affordable units	1,106,099	492
Retail		
Large shopping centre including mall	1,716,061	764
Neighbourhood incl supermarket	1,351,910	602
Prestige car showroom	2,002,829	892

Recent projects include the expansion of Julius Kambarage Nyerere International Airport and improvements to the Voi Taveta road connecting Kenya to Tanzania. The government has also signed an agreement with Uganda for a USD3.55bn oil export pipeline through Tanzania. There are plans for rail improvements including the USD1.9bn construction of the 336km Standard Gauge Railway from Morogoro to the capital, Dodoma.

Future outlook

Tanzania's future depends heavily on more investment in infrastructure, building a skilled workforce and managing urbanisation. Public investment, particularly in infrastructure projects, is expected to boost growth in the future.

Its political stability since the 1960s has made it attractive to foreign investment. But recently concerns have emerged. The US State Department's Investment Climate Statements for 2017 noted "increasing uncertainty in government policies has recently raised questions about the business climate and long-term prospects for investment in Tanzania".⁷

	USD (exchange rate: 2,246)	TZS
Tanzania international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	6,095	3
Excavate footings (m)	5,300	2
Concrete in slab (m ³) (1500m ³ job)	386,364	172
Reinforcement in beams (tonne)	2,650,000	1,180
Formwork to soffit of slab (m ²)	19,080	8
Blockwork in wall (m ²) (10,000 block job)	38,690	17
Structural steel beams (tonne)	7,420,000	3,304
Pre-cast concrete wall (m ²)	161,000	72
Curtain wall glazing incl support system (m ²) (1000m ² job)	402,800	179
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	84,800	38
Single solid core door incl frame and hardware (no) (50 door job)	657,200	293
Painting to walls primer + 2 coats (m ²)	9,832	4
Ceramic tiling (m ²) (1000m ² job)	74,200	33
Vinyl flooring to wet areas (m ²) (500m ² job)	84,800	38
Carpet medium tufted (m ²) (4500m ² job)	84,800	38
Lighting installation (m ²) (5000m ² + job)	24,334	11
Copper pipe 15mm to wall (m) (1000+ metre job)	25,440	11
Fire sprinklers (per m ²) (5000m ² job)	78,657	35
Air conditioning incl main plant (m ²) (5000m ² + job)	248,533	111
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	10,000	4
Group 2 Tradesman eg carpenter bricklayer	9,500	4
Group 3 Tradesman eg carpet layer, tiler, plasterer	8,500	4
General labourer	5,000	2
Site foreman	15,000	7
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	358,000	159
Reinforcement bar 16mm (tonne) (120 tonne job)	1,855,000	826
Concrete block (400x200) per 1000 (>10,000 block job)	1,500,000	668
Standard brick per 1000	500,000	223
Structural steel beams (tonne) (100 tonne +job)	4,178,630	1,860
Glass pane 10mm tempered (m ²)	221,222	98
Softwood timber for framing 100mm X 50mm (m)	17,490	8
13 mm plasterboard (m ²)	6,625	3
Emulsion paint (litre)	8,745	4
Copper pipe 15 mm (metre) (1000+ metre job)	15,370	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3,180	1
Plant costs		
Hire 50t mobile crane + operator (day)	1,802,000	802

	Dar es Salaam
Tendering:	Lukewarm
Market:	Warmer
Cost escalation 2017–18:	6.0%
Cost escalation 2018–19:	5.0%
Contractor's margin:	6.0%
Preliminaries:	8.0%
Location factor (USD):	47.3
PPP coefficient:	1,392.3

Uganda

Kampala

**Public infrastructure investment
paves the way for construction growth**

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Economic outlook

The prospects for the economy are positive. GDP growth in 2017 was strong and 2018 forecasts suggest growth will reach 5.9 percent. The main drivers of the economy in 2017 were agriculture and the services sector, but economic growth in 2018 is likely to be driven mainly by public infrastructure investment. The country is also expected to start benefitting from recent oil discoveries.

	UGX	USD (exchange rate: 3,643)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	14,065,900	3,861
Low cost carrier terminal, basic service	9,505,666	2,609
Car parks		
Multi storey above ground	1,563,129	429
Multi storey below ground	1,982,484	544
Commercial		
Offices – Business Park	2,732,250	750
CBD Offices – up to 20 floors medium (A-Grade)	3,469,347	952
CBD Offices – high-rise prestige	4,553,750	1,250
Education		
Primary and secondary	2,003,650	550
University	2,971,073	816
Hospitals		
Day centre (including basic surgeries)	3,420,000	939
Regional hospital	3,850,568	1,057
General hospital (e.g. city teaching hospital)	6,193,100	1,700
Hotels		
3 Star travellers	4,613,122	1,266
5 Star luxury	5,795,030	1,591
Resort style	5,526,550	1,517
Industrial		
Warehouse/factory units – basic	1,440,000	395
Large warehouse distribution centre	1,944,351	534
High tech factory/laboratory	5,795,030	1,591
Residential		
Individual detached or terrace style house medium standard	1,876,264	515
Individual detached house prestige	3,226,400	886
Townhouses medium standard	2,135,017	586
Apartments low-rise medium standard	2,516,238	691
Apartments high-rise	2,897,460	795
Aged care/affordable units	1,989,558	546
Retail		
Large shopping centre including mall	3,600,000	988
Neighbourhood incl supermarket	3,088,126	848
Prestige car showroom	3,049,992	837

Construction market and trends

The government allocated 31 percent of its 2016/2017 budget to road and energy infrastructure, by far the largest allocation of any sector. Only 4 percent of the road network is paved, and the government intends, along 49 roads, to upgrade 2,760km to paved standard.

Construction is also expected to benefit from demands for infrastructure to support the country's developing oil industry. Proposed schemes include a deal with Tanzania for a USD3.55bn oil export pipeline and the development of Kabaale Airport in Hoima.

Meanwhile, Chinese investment is funding various projects including the USD2.3bn railway linking Kampala to Kenya through the border town of Malaba.

Future outlook

With the increasing investment in infrastructure and the expected benefits from the country's nascent oil sector Uganda's economy is likely to grow. However, unstable politics continue to affect the construction industry, bringing a risk of increasing costs.

	USD (exchange rate: 3,643)	UGX
Uganda international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	15,396	4
Excavate footings (m)	11,491	3
Concrete in slab (m³) (1500m³ job)	750,379	206
Reinforcement in beams (tonne)	4,545,117	1,248
Formwork to soffit of slab (m²)	49,981	14
Blockwork in wall (m²) (10,000 block job)	91,075	25
Structural steel beams (tonne)	11,362,793	3,119
Pre-cast concrete wall (m²)	464,400	127
Curtain wall glazing incl support system (m²) (1000m² job)	1,077,485	296
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	138,562	38
Single solid core door incl frame and hardware (no) (50 door job)	1,550,740	426
Painting to walls primer + 2 coats (m²)	15,396	4
Ceramic tiling (m²) (1000m² job)	115,469	32
Vinyl flooring to wet areas (m²) (500m² job)	163,935	45
Carpet medium tufted (m²) (4500m² job)	192,448	53
Lighting installation (m²) (5000m² + job)	145,720	40
Copper pipe 15mm to wall (m) (1000+ metre job)	103,866	29
Fire sprinklers (per m²) (5000m² job)	48,962	13
Air conditioning incl main plant (m²) (5000m² + job)	384,784	106
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	20,000	5
Group 2 Tradesman eg carpenter bricklayer	25,000	7
Group 3 Tradesman eg carpet layer, tiler, plasterer	25,000	7
General labourer	15,000	4
Site foreman	35,000	10
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	723,100	198
Reinforcement bar 16mm (tonne) (120 tonne job)	3,754,800	1,031
Concrete block (400x200) per 1000 (>10,000 block job)	4,740,665	1,301
Standard brick per 1000	2,300,000	631
Structural steel beams (tonne) (100 tonne +job)	7,000,000	1,921
Glass pane 10mm tempered (m²)	395,037	108
Softwood timber for framing 100mm X 50mm (m)	11,129	3
13 mm plasterboard (m²)	21,858	6
Emulsion paint (litre)	12,858	4
Copper pipe 15 mm (metre) (1000+ metre job)	74,556	20
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	40,952	11
Plant costs		
Hire 50t mobile crane + operator (day)	5,105,988	1,402
Kampala		
Tendering:	Lukewarm	
Market:	Warmer	
Cost escalation 2017–18:	3.0%	
Cost escalation 2018–19:	3.0%	
Contractor's margin:	5.0%	
Preliminaries:	7.0%	
Location factor (USD):	53.4	
PPP coefficient:	2,523.5	

China

Beijing and Shanghai

Rising demand and restricted land supply is driving infrastructure

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Economic outlook

The Chinese economy gathered speed again in 2017 after dipping to a 26-year low in GDP growth of 6.7 percent. Growing industrial production, exports and a resilient property market spurred the economy.

The government is targeting slightly slower growth for 2018, 6.5 percent, as it seeks to deleverage, contain debt and control financial risks. Critically, the outlook for the economy and construction remains bright in both Beijing and Shanghai.

International building costs per m ² of internal area, in 2018	Beijing RMB	Shanghai RMB	Beijing USD (exchange rate: 6.4)	Shanghai USD (exchange rate: 6.4)
Airports (Building only)				
Domestic terminal, full service	13,000	11,000	2,031	1,719
Low cost carrier terminal, basic service	9,000	9,000	1,406	1,406
Car parks				
Multi storey above ground	2,400	2,500	375	391
Multi storey below ground	4,500	4,700	703	734
Commercial				
Offices – Business Park	4,450	4,500	695	703
CBD Offices – up to 20 floors medium (A-Grade)	6,900	7,000	1,078	1,094
CBD Offices – high-rise prestige	8,300	8,300	1,297	1,297
Education				
Primary and secondary	4,000	3,700	625	578
University	6,000	5,600	938	875
Hospitals				
Day centre (including basic surgeries)	4,600	4,500	719	703
Regional hospital	5,500	5,500	859	859
General hospital (e.g. city teaching hospital)	6,100	6,300	953	984
Hotels				
3 Star travellers	5,800	6,000	906	938
5 Star luxury	13,000	11,000	2,031	1,719
Resort style	9,000	7,000	1,406	1,094
Industrial				
Warehouse/factory units – basic	2,350	2,400	367	375
Large warehouse distribution centre	2,700	3,000	422	469
High tech factory/laboratory	6,000	6,000	938	938
Residential				
Individual detached or terrace style house medium standard	4,250	4,300	664	672
Individual detached house prestige	4,850	4,900	758	766
Townhouses medium standard	4,050	4,100	633	641
Apartments low-rise medium standard	3,050	3,100	477	484
Apartments high-rise	4,050	4,100	633	641
Aged care/affordable units	2,800	2,600	438	406
Retail				
Large shopping centre including mall	5,750	5,600	898	875
Neighbourhood incl supermarket	3,650	3,700	570	578
Prestige car showroom	4,200	4,000	656	625

Construction market and trends

Beijing should remain attractive to investors and end-users, keeping demand for office leasing positive. Retail and warehouse demand is increasing moderately. Meanwhile, a shortage of logistics facilities is fuelling demand and infrastructure construction is set to surge in 2018. To accommodate continued expansion, Beijing plans to allocate 1,200ha of land for housing in 2018, with more added to expand the city's rental market.

In and around Shanghai similar efforts are being made. Satellite cities along the Yangtze River are experiencing

rapid development in housing, commercial and infrastructure. Increasing demand and restricted land supply is driving infrastructure construction and triggered several major investments in 2017.

Future outlook

Economic growth and low real interest rates will continue to drive occupier and investment real estate. The big growth sectors over the next ten years appear to be finance and high-tech. Meanwhile, urban development will be significant due to migration from rural to urban areas.

China

Hong Kong

**Emphasis placed on
housing and infrastructure**

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Economic outlook

Fast economic growth in 2017 saw GDP expand 3.7 percent, driven by a solid stock market, a hot real estate sector, employment growth and a strengthening global economy. 2018 looks brighter, with 3.5 percent GDP growth forecast.

Unemployment and inflation rates remain steady, but an interest rates rise may dampen domestic consumption. However, robust growth in both China and the US should benefit Hong Kong.

	HKD	USD (exchange rate: 7.8)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	48,740	6,249
Low cost carrier terminal, basic service	30,604	3,924
Car parks		
Multi storey above ground	11,312	1,450
Multi storey below ground	23,300	2,987
Commercial		
Offices – Business Park	22,086	2,832
CBD Offices – up to 20 floors medium (A-Grade)	26,070	3,342
CBD Offices – high-rise prestige	30,510	3,912
Education		
Primary and secondary	21,536	2,761
University	29,470	3,778
Hospitals		
Day centre (including basic surgeries)	21,536	2,761
Regional hospital	34,005	4,360
General hospital (e.g. city teaching hospital)	38,538	4,941
Hotels		
3 Star travellers	31,738	4,069
5 Star luxury	38,538	4,941
Resort style	43,073	5,522
Industrial		
Warehouse/factory units – basic	17,002	2,180
Large warehouse distribution centre	18,306	2,347
High tech factory/laboratory	30,604	3,924
Residential		
Individual detached or terrace style house medium standard	34,005	4,360
Individual detached house prestige	65,000	8,333
Townhouses medium standard	30,150	3,865
Apartments low-rise medium standard	24,936	3,197
Apartments high-rise	27,203	3,488
Aged care/affordable units	17,002	2,180
Retail		
Large shopping centre including mall	37,250	4,776
Neighbourhood incl supermarket	27,203	3,488
Prestige car showroom	34,005	4,360

Construction market and trends

The new Hong Kong Special Administration Region (KHSAR) chief executive Carrie Lam in 2017 emphasised boosting housing and infrastructure. A new home-ownership scheme to provide 1,000 affordable flats for middle-class households has shifted the orientation of government public housing policy from rental to ownership. With tourism recovering, construction has begun on a USD18bn airport expansion project to provide a new terminal and third runway by 2024.

USD25.6bn has been committed to a ten-year plan to build a new acute hospital at Kai Tak Development area, expand 11 hospitals, construct three new community health-care

centres and a support-services centre. Commercial construction remained buoyant and is forecast to grow in 2018, even though banking-related demand has declined.

Future outlook

Despite being high historically, construction cost inflation is expected to persist in 2018 and beyond.

Labour is increasingly stretched, exacerbated by an ageing population. This is increasing construction costs as employers raise wage rates to retain their workforce in a tight labour market.

	HKD	USD (exchange rate: 7.8)
China (Hong Kong) international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	234	30
Excavate footings (m)	214	27
Concrete in slab (m³) (1500m³ job)	1,339	172
Reinforcement in beams (tonne)	16,320	2,092
Formwork to soffit of slab (m²)	459	59
Blockwork in wall (m²) (10,000 block job)	450	58
Structural steel beams (tonne)	40,800	5,231
Pre-cast concrete wall (m²)	1,463	188
Curtain wall glazing incl support system (m²) (1000m² job)	6,380	818
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	593	76
Single solid core door incl frame and hardware (no) (50 door job)	7,311	937
Painting to walls primer + 2 coats (m²)	188	24
Ceramic tiling (m²) (1000m² job)	776	99
Vinyl flooring to wet areas (m²) (500m² job)	370	47
Carpet medium tufted (m²) (4500m² job)	602	77
Lighting installation (m²) (5000m² + job)	910	117
Copper pipe 15mm to wall (m) (1000+ metre job)	262	34
Fire sprinklers (per m²) (5000m² job)	650	83
Air conditioning incl main plant (m²) (5000m² + job)	3,174	407
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	158	20
Group 2 Tradesman eg carpenter bricklayer	217	28
Group 3 Tradesman eg carpet layer, tiler, plasterer	155	20
General labourer	115	15
Site foreman	195	25
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	796	102
Reinforcement bar 16mm (tonne) (120 tonne job)	8,160	1,046
Concrete block (400x200) per 1000 (>10,000 block job)	4,080	523
Standard brick per 1000	2,241	287
Structural steel beams (tonne) (100 tonne +job)	16,320	2,092
Glass pane 10mm tempered (m²)	2,380	305
Softwood timber for framing 100mm X 50mm (m)	80	10
13 mm plasterboard (m²)	100	13
Emulsion paint (litre)	68	9
Copper pipe 15 mm (metre) (1000+ metre job)	35	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	17	2
Plant costs		
Hire 50t mobile crane + operator (day)	7,593	973
Hong Kong		
Tendering:	Warm	
Market:	Warmer	
Cost escalation 2017–18:	2.0%	
Cost escalation 2018–19:	4.0%	
Contractor's margin:	6.0%	
Preliminaries:	12.0%	
Location factor (USD):	93.1	
PPP coefficient:	9.4	

India

Bangalore

Government-led initiatives have been key drivers for construction

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Economic outlook

The economy is growing at about 7 percent annually and, despite short-term hits from Goods & Service Tax (GST) and Real Estate Regulatory Agency (RERA). The economy is showing strong signs of recovery and is expected to grow even faster over the next two years.

Lower crude oil prices, greater ease in doing business and a broader goods and services tax net will help to accelerate growth while checking inflation and the fiscal deficit.

	INR	USD (exchange rate: 64.5)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	98,000	1,519
Low cost carrier terminal, basic service	78,583	1,218
Car parks		
Multi storey above ground	16,921	262
Multi storey below ground	20,990	325
Commercial		
Offices – Business Park	41,000	636
CBD Offices – up to 20 floors medium (A-Grade)	43,379	673
CBD Offices – high-rise prestige	48,438	751
Education		
Primary and secondary	30,000	465
University	48,000	744
Hospitals		
Day centre (including basic surgeries)	43,000	667
Regional hospital	48,000	744
General hospital (e.g. city teaching hospital)	62,000	961
Hotels		
3 Star travellers	47,500	736
5 Star luxury	105,000	1,628
Resort style	82,500	1,279
Industrial		
Warehouse/factory units – basic	26,000	403
Large warehouse distribution centre	34,000	527
High tech factory/laboratory	45,000	698
Residential		
Individual detached or terrace style house medium standard	27,986	434
Individual detached house prestige	34,445	534
Townhouses medium standard	27,986	434
Apartments low-rise medium standard	30,677	476
Apartments high-rise	40,365	626
Aged care/affordable units	23,681	367
Retail		
Large shopping centre including mall	32,292	501
Neighbourhood incl supermarket	29,601	459
Prestige car showroom	29,063	451

Construction market and trends

Government-led initiatives have been key drivers for construction, attracting investment in urbanisation, high-tech manufacturing and the health sector. India's ambition as the knowledge economy of Asia is driving investment in research and development.

The 'Make in India' initiative is encouraging investors to establish manufacturing plants in India, fuelling construction activities related to the automobile, defence, food processing, pharmaceutical and health sectors. The health sector is set to grow 20 percent by 2020 to support demand from rural areas.

Future outlook

The government will boost spending on more airports, roads, ports and infrastructure. The central government has decided to invest USD109bn over the next five years in 83,677km of new roads and highways.

	INR	USD (exchange rate: 64.5)
India international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	826	13
Excavate footings (m)	950	15
Concrete in slab (m³) (1500m³ job)	6,084	94
Reinforcement in beams (tonne)	66,102	1,025
Formwork to soffit of slab (m²)	767	12
Blockwork in wall (m²) (10,000 block job)	1,309	20
Structural steel beams (tonne)	116,457	1,806
Pre-cast concrete wall (m²)	12,036	187
Curtain wall glazing incl support system (m²) (1000m² job)	12,980	201
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	1,094	17
Single solid core door incl frame and hardware (no) (50 door job)	57,180	887
Painting to walls primer + 2 coats (m²)	283	4
Ceramic tiling (m²) (1000m² job)	1,353	21
Vinyl flooring to wet areas (m²) (500m² job)	1,797	28
Carpet medium tufted (m²) (4500m² job)	2,306	36
Lighting installation (m²) (5000m² + job)	2,858	44
Copper pipe 15mm to wall (m) (1000+ metre job)	589	9
Fire sprinklers (per m²) (5000m² job)	893	14
Air conditioning incl main plant (m²) (5000m² + job)	6,458	100
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	82	1
Group 2 Tradesman eg carpenter bricklayer	76	1
Group 3 Tradesman eg carpet layer, tiler, plasterer	82	1
General labourer	56	1
Site foreman	120	2
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	6,018	93
Reinforcement bar 16mm (tonne) (120 tonne job)	42,185	654
Concrete block (400x200) per 1000 (>10,000 block job)	47,040	729
Standard brick per 1000	5,775	90
Structural steel beams (tonne) (100 tonne +job)	42,716	662
Glass pane 10mm tempered (m²)	1,841	29
Softwood timber for framing 100mm X 50mm (m)	166	3
13 mm plasterboard (m²)	178	3
Emulsion paint (litre)	271	4
Copper pipe 15 mm (metre) (1000+ metre job)	317	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	77	1
Plant costs		
Hire 50t mobile crane + operator (day)	26,000	403
Bangalore		
Tendering:	Warm	
Market:	Warmer	
Cost escalation 2017–18:	1.0%	
Cost escalation 2018–19:	2.0%	
Contractor's margin:	10.0%	
Preliminaries:	9.0%	
Location factor (USD):	23.2	
PPP coefficient:	20.0	

Indonesia

Jakarta

Urbanisation and a growing population are driving demand

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Economic outlook

The economy has grown steadily since 2014, growing 5.2 percent in 2017 with 5.3 percent forecast for 2018. Public debt is relatively low and inflation moderate at around 4 percent. Governance is stable and political risk low. Stronger commodity prices should boost the value of exports and support growth.

Construction market and trends

Government efforts to improve infrastructure, logistics and low-cost housing are big drivers for construction, while rising domestic demand and lower interest rates are fuelling the private housing sector.

		USD (exchange rate: 13,500)	
	IDR		
International building costs per m² of internal area, in 2018			
Airports (Building only)			
Domestic terminal, full service	22,500,000	1,667	
Low cost carrier terminal, basic service	17,500,000	1,296	
Car parks			
Multi storey above ground	5,000,000	370	
Multi storey below ground	6,500,000	481	
Commercial			
Offices – Business Park	8,500,000	630	
CBD Offices – up to 20 floors medium (A-Grade)	10,000,000	741	
CBD Offices – high-rise prestige	12,500,000	926	
Education			
Primary and secondary	8,000,000	593	
University	10,500,000	778	
Hospitals			
Day centre (including basic surgeries)	15,000,000	1,111	
Regional hospital	17,500,000	1,296	
General hospital (e.g. city teaching hospital)	20,000,000	1,481	
Hotels			
3 Star travellers	12,000,000	889	
5 Star luxury	20,000,000	1,481	
Resort style	25,000,000	1,852	
Industrial			
Warehouse/factory units – basic	6,500,000	481	
Large warehouse distribution centre	10,000,000	741	
High tech factory/laboratory	12,500,000	926	
Residential			
Individual detached or terrace style house medium standard	10,000,000	741	
Individual detached house prestige	12,500,000	926	
Townhouses medium standard	7,500,000	556	
Apartments low-rise medium standard	8,500,000	630	
Apartments high-rise	12,500,000	926	
Aged care/affordable units	8,500,000	630	
Retail			
Large shopping centre including mall	9,000,000	667	
Neighbourhood incl supermarket	7,500,000	556	
Prestige car showroom	15,000,000	1,111	

Public investment in 2017 of USD29bn was part of a plan to add 10.2km of bridges, 13 airports, 61 seaports, 710km of railway lines and 836km of highway to the country's infrastructure network. In 2018, the budget is USD30.2bn. The government has plans to construct 856km of new roads and 7.86km of new bridges, plus revamping 46,000km of national road.

Rapidly rising living standards, urbanisation and a growing population are driving both demand for and concern over housing. A new affordable housing project in Jakarta worth USD450m will provide 8,000 apartments for low-income families.

Future outlook

Indonesia is a leading investment destination in Asia. With annual population growth at about four million, construction will remain a key economic enabler. Expansion in roads and infrastructure is vital with annual new vehicle registration at almost one million. However, challenges exist. Skilled labour is a concern along with problems acquiring land and project delays.

(Data kindly supplied by Reynolds Partnership PT, Indonesia)

	USD (exchange rate: 13,500)	IDR
Indonesia international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	50,000	4
Excavate footings (m)	85,000	6
Concrete in slab (m³) (1500m³ job)	1,100,000	81
Reinforcement in beams (tonne)	12,000,000	889
Formwork to soffit of slab (m²)	200,000	15
Blockwork in wall (m²) (10,000 block job)	225,000	17
Structural steel beams (tonne)	22,000,000	1,630
Pre-cast concrete wall (m²)	950,000	70
Curtain wall glazing incl support system (m²) (1000m² job)	2,000,000	148
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	250,000	19
Single solid core door incl frame and hardware (no) (50 door job)	6,000,000	444
Painting to walls primer + 2 coats (m²)	30,000	2
Ceramic tiling (m²) (1000m² job)	250,000	19
Vinyl flooring to wet areas (m²) (500m² job)	300,000	22
Carpet medium tufted (m²) (4500m² job)	500,000	37
Lighting installation (m²) (5000m² + job)	375,000	28
Copper pipe 15mm to wall (m) (1000+ metre job)	120,000	9
Fire sprinklers (per m²) (5000m² job)	250,000	19
Air conditioning incl main plant (m²) (5000m² + job)	750,000	56
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	150,000	11
Group 2 Tradesman eg carpenter bricklayer	150,000	11
Group 3 Tradesman eg carpet layer, tiler, plasterer	150,000	11
General labourer	100,000	7
Site foreman	200,000	15
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	750,000	56
Reinforcement bar 16mm (tonne) (120 tonne job)	8,500,000	630
Concrete block (400x200) per 1000 (>10,000 block job)	10,000,000	741
Standard brick per 1000	550,000	41
Structural steel beams (tonne) (100 tonne +job)	10,000,000	741
Glass pane 10mm tempered (m²)	450,000	33
Softwood timber for framing 100mm X 50mm (m)	50,000	4
13 mm plasterboard (m²)	45,000	3
Emulsion paint (litre)	80,000	6
Copper pipe 15 mm (metre) (1000+ metre job)	100,000	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	25,000	2
Plant costs		
Hire 50t mobile crane + operator (day)	8,500,000	630
Jakarta		
Tendering:	Lukewarm	
Market:	Staying the same	
Cost escalation 2017–18:	7.5%	
Cost escalation 2018–19:	7.5%	
Contractor's margin:	10.0%	
Preliminaries:	7.0%	
Location factor (USD):	41.2	
PPP coefficient:	5,932.2	

Japan Tokyo

**Japan turns to robots
to ease skills shortages**

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Economic outlook

Japan's economy is expanding, with 1.7 percent GDP growth expected for 2017. Strengthening global growth saw exports rise in 2017. This growth is set to continue in 2018. Business profits are improving, which bodes well for higher business investment and wage growth. 2018 should see further wage growth and a boost to the domestic economy.

	JPY	USD (exchange rate: 111)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	408,000	3,676
Low cost carrier terminal, basic service	333,000	3,000
Car parks		
Multi storey above ground	224,000	2,018
Multi storey below ground	486,000	4,378
Commercial		
Offices – Business Park	254,000	2,288
CBD Offices – up to 20 floors medium (A-Grade)	294,000	2,649
CBD Offices – high-rise prestige	335,000	3,018
Education		
Primary and secondary	221,000	1,991
University	204,000	1,838
Hospitals		
Day centre (including basic surgeries)	179,000	1,613
Regional hospital	179,000	1,613
General hospital (e.g. city teaching hospital)	276,000	2,486
Hotels		
3 Star travellers	381,000	3,432
5 Star luxury	572,000	5,153
Resort style	322,000	2,901
Industrial		
Warehouse/factory units – basic	169,000	1,523
Large warehouse distribution centre	227,000	2,045
High tech factory/laboratory	497,000	4,477
Residential		
Individual detached or terrace style house medium standard	223,000	2,009
Individual detached house prestige	261,000	2,351
Townhouses medium standard	205,000	1,847
Apartments low-rise medium standard	209,000	1,883
Apartments high-rise	314,000	2,829
Aged care/affordable units	182,000	1,640
Retail		
Large shopping centre including mall	332,000	2,991
Neighbourhood incl supermarket	403,000	3,631
Prestige car showroom	530,000	4,775

Construction market and trends

Preparations for Tokyo Olympics 2020 is boosting construction. The huge national stadium in Tokyo is well underway for completion in 2019 along with six other sports complexes. Japan is also hosting the 2019 Rugby World Cup and investing in stadium upgrades. The New Shinagawa Railway Station is being built to service the Yamanote Loop line and the Keihin-Tohoku line ahead of the Olympics.

Skills shortages and rising costs continue to remain challenges to construction. Policies to encourage wage growth and cut long working hours to make construction more appealing have had limited success.

Future outlook

The outlook for construction is optimistic, despite a possible small post-Olympics slump. Japan continues to promote innovation. Sumitomo Forestry recently announced plans for a 70-floor 350m skyscraper made almost entirely of wood, able to withstand earthquakes and high winds. It would be Japan's tallest building and the highest in the world made from wood.

	JPY	USD (exchange rate: 111)
Japan international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	550	5
Excavate footings (m)	550	5
Concrete in slab (m³) (1500m³ job)	15,290	138
Reinforcement in beams (tonne)	107,980	973
Formwork to soffit of slab (m²)	2,900	26
Blockwork in wall (m²) (10,000 block job)	4,900	44
Structural steel beams (tonne)	128,000	1,153
Pre-cast concrete wall (m²)	16,810	151
Curtain wall glazing incl support system (m²) (1000m² job)	111,000	1,000
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	3,380	30
Single solid core door incl frame and hardware (no) (50 door job)	82,000	739
Painting to walls primer + 2 coats (m²)	980	9
Ceramic tiling (m²) (1000m² job)	6,400	58
Vinyl flooring to wet areas (m²) (500m² job)	3,700	33
Carpet medium tufted (m²) (4500m² job)	4,800	43
Lighting installation (m²) (5000m² + job)	5,000	45
Copper pipe 15mm to wall (m) (1000+ metre job)	2,500	23
Fire sprinklers (per m²) (5000m² job)	4,500	41
Air conditioning incl main plant (m²) (5000m² + job)	32,200	290
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	7,200	65
Group 2 Tradesman eg carpenter bricklayer	6,800	61
Group 3 Tradesman eg carpet layer, tiler, plasterer	5,600	50
General labourer	4,400	40
Site foreman	9,300	84
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	12,800	115
Reinforcement bar 16mm (tonne) (120 tonne job)	120,100	1,082
Concrete block (400x200) per 1000 (>10,000 block job)	119,000	1,072
Standard brick per 1000	105,600	951
Structural steel beams (tonne) (100 tonne +job)	86,600	780
Glass pane 10mm tempered (m²)	19,100	172
Softwood timber for framing 100mm X 50mm (m)	850	8
13 mm plasterboard (m²)	530	5
Emulsion paint (litre)	320	3
Copper pipe 15 mm (metre) (1000+ metre job)	740	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	210	2
Plant costs		
Hire 50t mobile crane + operator (day)	167,000	1,505
Tokyo		
Market:	Hot	
Tendering:	Warmer	
Cost escalation 2017–18:	3.0%	
Cost escalation 2018–19:	4.0%	
Contractor's margin:	6.0%	
Preliminaries:	15.0%	
Location factor (USD):	96.2	
PPP coefficient:	150.0	

Malaysia

Kuala Lumpur

Government spending remains focused on infrastructure

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Economic outlook

Economic growth is solid. GDP grew 5.9 percent in 2017 and is forecast to grow 5 percent in 2018. This positive economic trend is underpinned by robust domestic and external conditions. Domestic demand is being supported by strong household consumption and rising private sector investment.

Construction market and trends

Government spending remains focused on infrastructure, but the 2018 budget also includes funds for healthcare, with medical tourism seen as a growth area.

	MYR	USD (exchange rate: 3.94)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	7,231	1,835
Low cost carrier terminal, basic service	5,060	1,284
Car parks		
Multi storey above ground	1,237	314
Multi storey below ground	1,912	485
Commercial		
Offices – Business Park	3,599	913
CBD Offices – up to 20 floors medium (A-Grade)	4,701	1,193
CBD Offices – high-rise prestige	6,250	1,586
Education		
Primary and secondary	2,170	551
University	5,330	1,353
Hospitals		
Day centre (including basic surgeries)	3,250	825
Regional hospital	4,329	1,099
General hospital (e.g. city teaching hospital)	4,880	1,239
Hotels		
3 Star travellers	5,668	1,439
5 Star luxury	6,916	1,755
Resort style	10,807	2,743
Industrial		
Warehouse/factory units – basic	2,193	557
Large warehouse distribution centre	2,812	714
High tech factory/laboratory	4,701	1,193
Residential		
Individual detached or terrace style house medium standard	2,710	688
Individual detached house prestige	3,464	879
Townhouses medium standard	1,811	460
Apartments low-rise medium standard	2,115	537
Apartments high-rise	3,014	765
Aged care/affordable units	2,261	574
Retail		
Large shopping centre including mall	5,330	1,353
Neighbourhood incl supermarket	4,543	1,153
Prestige car showroom	5,792	1,470

Last year the government allocated USD1.3bn to build the Lebuhraya Persisiran Pantai Barat highway between Banting in Selangor to Taiping in Perak and plans to invest USD60.2m in a road linking Raub, Bentong, Gua Musang and Kampung Relong.

The 2018 government budget highlighted affordable housing. Among various housing programmes are plans for 210,000 homes under Perumahan Rakyat 1Malaysia Program (people's housing programme).

Future outlook

Infrastructure should continue to drive construction. It is forecast to account for 33 percent in 2022. In 2017 the government announced plans for 12 new power plants by 2023 and allocated USD261.6m for internet infrastructure in Sarawak and Sabah to provide all households with broadband by 2020.

Strong activity is expected in the larger cities. A government initiative expanding housing-loan eligibility among public servants is expected to boost home sales, and plans are underway to build more affordable housing.

	MYR	USD (exchange rate: 3.94)
Malaysia international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	22	6
Excavate footings (m)	30	8
Concrete in slab (m³) (1500m³ job)	350	89
Reinforcement in beams (tonne)	4,400	1,117
Formwork to soffit of slab (m²)	45	11
Blockwork in wall (m²) (10,000 block job)	58	15
Structural steel beams (tonne)	11,000	2,792
Pre-cast concrete wall (m²)	247	63
Curtain wall glazing incl support system (m²) (1000m² job)	2,200	558
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	150	38
Single solid core door incl frame and hardware (no) (50 door job)	2,800	711
Painting to walls primer + 2 coats (m²)	8	2
Ceramic tiling (m²) (1000m² job)	170	43
Vinyl flooring to wet areas (m²) (500m² job)	230	58
Carpet medium tufted (m²) (4500m² job)	120	30
Lighting installation (m²) (5000m² + job)	171	43
Copper pipe 15mm to wall (m) (1000+ metre job)	50	13
Fire sprinklers (per m²) (5000m² job)	126	32
Air conditioning incl main plant (m²) (5000m² + job)	328	83
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	32	8
Group 2 Tradesman eg carpenter bricklayer	22	6
Group 3 Tradesman eg carpet layer, tiler, plasterer	22	6
General labourer	12	3
Site foreman	60	15
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	215	55
Reinforcement bar 16mm (tonne) (120 tonne job)	4,149	1,053
Concrete block (400x200) per 1000 (>10,000 block job)	2,800	711
Standard brick per 1000	460	117
Structural steel beams (tonne) (100 tonne +job)	9,494	2,410
Glass pane 10mm tempered (m²)	280	71
Softwood timber for framing 100mm X 50mm (m)	15	4
13 mm plasterboard (m²)	30	8
Emulsion paint (litre)	15	4
Copper pipe 15 mm (metre) (1000+ metre job)	31	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	18	5
Plant costs		
Hire 50t mobile crane + operator (day)	2,500	635

Kuala Lumpur

Tendering:	Warm
Market:	Cooler
Cost escalation 2017–18:	3.0%
Cost escalation 2018–19:	3.0%
Contractor's margin:	15.0%
Preliminaries:	11.0%
Location factor (USD):	42.7
PPP coefficient:	2.1

Singapore

Signs of life return to the construction sector

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Economic outlook

The main drivers for the economy are robust exports and solid manufacturing growth. Low unemployment and rising wages should prompt higher domestic consumption, although unwinding an oversupply in housing will take time.

Despite economic growth rising to 3.1 percent in late 2017, Singapore is struggling to sustain this level. Growth is expected to ease to 2.7 percent in 2018 and 2.6 percent in 2019.

	SGD	USD (exchange rate: 1.32)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	5,304	4,018
Low cost carrier terminal, basic service	4,080	3,091
Car parks		
Multi storey above ground	1,255	950
Multi storey below ground	1,775	1,345
Commercial		
Offices – Business Park	2,070	1,568
CBD Offices – up to 20 floors medium (A-Grade)	2,559	1,939
CBD Offices – high-rise prestige	2,969	2,249
Education		
Primary and secondary	1,530	1,159
University	2,825	2,140
Hospitals		
Day centre (including basic surgeries)	1,906	1,444
Regional hospital	3,091	2,341
General hospital (e.g. city teaching hospital)	4,018	3,044
Hotels		
3 Star travellers	3,379	2,560
5 Star luxury	4,440	3,364
Resort style	5,306	4,019
Industrial		
Warehouse/factory units – basic	2,199	1,666
Large warehouse distribution centre	2,499	1,893
High tech factory/laboratory	3,142	2,380
Residential		
Individual detached or terrace style house medium standard	4,080	3,091
Individual detached house prestige	4,718	3,574
Townhouses medium standard	2,781	2,107
Apartments low-rise medium standard	2,042	1,547
Apartments high-rise	2,630	1,993
Aged care/affordable units	1,571	1,190
Retail		
Large shopping centre including mall	3,279	2,484
Neighbourhood incl supermarket	2,149	1,628
Prestige car showroom	3,448	2,612

Construction market and trends

The slump in construction since mid-2016 appears to have bottomed out and orders seem to be on the rise again. Public projects remain the largest construction sector and the Building and Construction Authority estimates that between USD16bn and USD19bn worth of public projects will be awarded this year. Construction demand in the private sector is also expected to improve to between USD10bn and USD12bn this year, up from USD9bn in 2017.

In April 2016, the Maritime and Port Authority of Singapore began the first phase of a USD1.8bn mega-port terminal in Tuas. The port will consolidate all Singapore's port operations. It will open in four phases, with the first berths expected to be operational in 2021.

Future outlook

Government spending on infrastructure and public housing will continue to drive construction. Meanwhile, there are signs of increased activity from private housing, but the big impact of this will be felt after 2018 from major projects at Shundu Rd, Stirling Rd, Hougang and Upper Serangoon area.

	SGD	USD (exchange rate: 1.32)
Singapore international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	78	59
Excavate footings (m)	26	20
Concrete in slab (m³) (1500m³ job)	164	124
Reinforcement in beams (tonne)	1,580	1,197
Formwork to soffit of slab (m²)	38	29
Blockwork in wall (m²) (10,000 block job)	68	51
Structural steel beams (tonne)	4,179	3,166
Pre-cast concrete wall (m²)	147	112
Curtain wall glazing incl support system (m²) (1000m² job)	1,420	1,075
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	26	20
Single solid core door incl frame and hardware (no) (50 door job)	878	665
Painting to walls primer + 2 coats (m²)	10	7
Ceramic tiling (m²) (1000m² job)	90	68
Vinyl flooring to wet areas (m²) (500m² job)	83	63
Carpet medium tufted (m²) (4500m² job)	66	50
Lighting installation (m²) (5000m² + job)	213	162
Copper pipe 15mm to wall (m) (1000+ metre job)	29	22
Fire sprinklers (per m²) (5000m² job)	85	65
Air conditioning incl main plant (m²) (5000m² + job)	277	210
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	29	22
Group 2 Tradesman eg carpenter bricklayer	21	16
Group 3 Tradesman eg carpet layer, tiler, plasterer	29	22
General labourer	18	13
Site foreman	29	22
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	112	85
Reinforcement bar 16mm (tonne) (120 tonne job)	1,223	927
Concrete block (400x200) per 1000 (>10,000 block job)	728	552
Standard brick per 1000	364	276
Structural steel beams (tonne) (100 tonne +job)	2,242	1,699
Glass pane 10mm tempered (m²)	125	95
Softwood timber for framing 100mm X 50mm (m)	12	9
13 mm plasterboard (m²)	8	6
Emulsion paint (litre)	19	14
Copper pipe 15 mm (metre) (1000+ metre job)	14	10
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	2
Plant costs		
Hire 50t mobile crane + operator (day)	2,080	1,576

	Singapore
Tendering:	Lukewarm
Market:	Warmer
Cost escalation 2017–18:	2.0%
Cost escalation 2018–19:	2.0%
Contractor's margin:	5.0%
Preliminaries:	8.0%
Location factor (USD):	65.0
PPP coefficient:	1.2

South Korea Seoul

Korean housing boom has cooled

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Economic outlook

Despite improved international trading, the domestic economy is being dampened as strong growth in construction eases. The forecast is for the economy to expand slower in 2018 than in 2017.

Planned increases in public employment and social spending, aimed at raising the minimum wage, are expected to boost household consumption and help to offset a drop in residential investment.

	USD (exchange rate: 1,090)	KRW
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,412,470	3,131
Low cost carrier terminal, basic service	2,388,090	2,191
Car parks		
Multi storey above ground	735,470	675
Multi storey below ground	1,071,040	983
Commercial		
Offices – Business Park	1,472,210	1,351
CBD Offices – up to 20 floors medium (A-Grade)	1,806,520	1,657
CBD Offices – high-rise prestige	2,274,550	2,087
Education		
Primary and secondary	1,337,230	1,227
University	1,820,400	1,670
Hospitals		
Day centre (including basic surgeries)	1,472,210	1,351
Regional hospital	2,140,830	1,964
General hospital (e.g. city teaching hospital)	2,274,550	2,087
Hotels		
3 Star travellers	1,967,990	1,805
5 Star luxury	4,199,660	3,853
Resort style	2,690,360	2,468
Industrial		
Warehouse/factory units – basic	1,180,790	1,083
Large warehouse distribution centre	918,400	843
High tech factory/laboratory	3,411,200	3,130
Residential		
Individual detached or terrace style house medium standard	1,508,800	1,384
Individual detached house prestige	2,231,020	2,047
Townhouses medium standard	1,784,820	1,637
Apartments low-rise medium standard	1,443,190	1,324
Apartments high-rise	1,836,800	1,685
Aged care/affordable units	1,574,400	1,444
Retail		
Large shopping centre including mall	2,229,140	2,045
Neighbourhood incl supermarket	1,246,400	1,143
Prestige car showroom	2,453,690	2,251

Construction market and trends

As a whole, construction activity in 2017 was up on 2016. During the final quarter activity started to decrease. Housing starts have been dropping since 2016 with government policy aimed at stabilising the real estate market. The residential sector is also feeling the effects of high household debt and a weak employment rate.

Although in general construction is expected to slow, investment by the high-tech and manufacturing sector should hold steady given the upswing in exports. Samsung Electronics and SK Hynix will be key players in 2018.

Public infrastructure, energy, commercial and industrial projects should support construction activity. In June 2017, the government announced investment of USD36.6bn on the energy infrastructure intended to increase the share of natural gas in electricity production. The government also plans to invest USD79.4bn to increase the railway network by 39 percent, from 3,550km in 2016 to 4,934km by 2025.

Future outlook

	USD (exchange rate: 1,090)	KRW
South Korea international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	7,310	7
Excavate footings (m)	7,310	7
Concrete in slab (m³) (1500m³ job)	148,090	136
Reinforcement in beams (tonne)	1,372,770	1,259
Formwork to soffit of slab (m²)	34,000	31
Blockwork in wall (m²) (10,000 block job)	44,970	41
Structural steel beams (tonne)	2,203,310	2,021
Pre-cast concrete wall (m²)	290,690	267
Curtain wall glazing incl support system (m²) (1000m² job)	348,840	320
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	52,420	48
Single solid core door incl frame and hardware (no) (50 door job)	291,790	268
Painting to walls primer + 2 coats (m²)	5,260	5
Ceramic tiling (m²) (1000m² job)	51,000	47
Vinyl flooring to wet areas (m²) (500m² job)	40,690	37
Carpet medium tufted (m²) (4500m² job)	58,130	53
Lighting installation (m²) (5000m² + job)	47,450	44
Copper pipe 15mm to wall (m) (1000+ metre job)	12,710	12
Fire sprinklers (per m²) (5000m² job)	26,170	24
Air conditioning incl main plant (m²) (5000m² + job)	234,750	215
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	27,000	25
Group 2 Tradesman eg carpenter bricklayer	27,000	25
Group 3 Tradesman eg carpet layer, tiler, plasterer	27,000	25
General labourer	17,000	16
Site foreman	36,000	33
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	81,540	75
Reinforcement bar 16mm (tonne) (120 tonne job)	797,500	732
Concrete block (400x200) per 1000 (>10,000 block job)	660,000	606
Standard brick per 1000	75,900	70
Structural steel beams (tonne) (100 tonne +job)	1,199,000	1,100
Glass pane 10mm tempered (m²)	22,330	20
Softwood timber for framing 100mm X 50mm (m)	6,600	6
13 mm plasterboard (m²)	3,800	3
Emulsion paint (litre)	5,600	5
Copper pipe 15 mm (metre) (1000+ metre job)	6,980	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2,360	2
Plant costs		
Hire 50t mobile crane + operator (day)	1,042,130	956

	Seoul
Tendering:	Lukewarm
Market:	Staying the same
Cost escalation 2017–18:	5.0%
Cost escalation 2018–19:	3.0%
Contractor's margin:	3.5%
Preliminaries:	12.0%
Location factor (USD):	53.2
PPP coefficient:	738.1

Vietnam

Ho Chi Minh City

**Infrastructure and housing investment
should sustain momentum in construction**

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Economic outlook

The economic growth is very positive with GDP rising 6.2 percent in 2017 and forecast in 2018 to expand by 6.6 percent. The main drivers are surging foreign direct investment and expanding exports. Vietnam remains attractive for foreign investors and new foreign direct investment increased year-on-year by 77.6 percent.

The economy also benefits from a young population mostly of work age. Unemployment is low and domestic demand strong.

		USD (exchange rate: 22,805)
	VND	
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service		–
Low cost carrier terminal, basic service		–
Car parks		
Multi storey above ground	10,260,000	450
Multi storey below ground	18,240,000	800
Commercial		
Offices – Business Park	18,240,000	800
CBD Offices – up to 20 floors medium (A-Grade)	25,080,000	1,100
CBD Offices – high-rise prestige	29,640,000	1,300
Education		
Primary and secondary	11,856,000	520
University	15,960,000	700
Hospitals		
Day centre (including basic surgeries)	–	–
Regional hospital	–	–
General hospital (e.g. city teaching hospital)	–	–
Hotels		
3 Star travellers	29,640,000	1,300
5 Star luxury	43,320,000	1,900
Resort style	–	–
Industrial		
Warehouse/factory units – basic	7,980,000	350
Large warehouse distribution centre	9,348,000	410
High tech factory/laboratory	14,022,000	615
Residential		
Individual detached or terrace style house medium standard	9,804,000	430
Individual detached house prestige	10,944,000	480
Townhouses medium standard	14,000,000	614
Apartments low-rise medium standard	16,872,000	740
Apartments high-rise	18,240,000	800
Aged care/affordable units	10,000,000	439
Retail		
Large shopping centre including mall	19,380,000	850
Neighbourhood incl supermarket	17,000,000	745
Prestige car showroom	25,080,000	1,100

Construction market and trends

Construction has performed strongly and the momentum is forecast to be sustained through to 2021 by economic recovery and government infrastructure and housing investment. Significant population growth adds to the urgency.

Rapid rail, airports and roads are on the government priority list. Major projects in Ho Chi Minh City alone include the USD1bn Thu Thiem Smart City, USD800m of investment in metro lines, the planned USD16bn Long Thanh International Airport and an extension to Tan Son Nhat International

Airport. There is also the PPP funded 654km North-South Expressway project, expected to cost USD5.23bn between 2017 and 2020.

Future outlook

The future of Vietnam is bright. With its rapid-growing economy, it has attracted ever more investment. However, it struggles with poor infrastructure. To meet the demands of increased urbanisation and a growing population, a robust infrastructure development plan is underway, providing huge scope for the construction industry.

	VND	USD (exchange rate: 22,805)
Vietnam international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	90,000	4
Excavate footings (m)	90,000	4
Concrete in slab (m³) (1500m³ job)	2,500,000	110
Reinforcement in beams (tonne)	23,000,000	1,009
Formwork to soffit of slab (m²)	220,000	10
Blockwork in wall (m²) (10,000 block job)	600,000	26
Structural steel beams (tonne)	50,000,000	2,193
Pre-cast concrete wall (m²)	4,400,000	193
Curtain wall glazing incl support system (m²) (1000m² job)	6,840,000	300
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	180,000	8
Single solid core door incl frame and hardware (no) (50 door job)	11,400,000	500
Painting to walls primer + 2 coats (m²)	120,000	5
Ceramic tiling (m²) (1000m² job)	850,000	37
Vinyl flooring to wet areas (m²) (500m² job)	1,596,000	70
Carpet medium tufted (m²) (4500m² job)	1,824,000	80
Lighting installation (m²) (5000m² + job)	2,200,000	96
Copper pipe 15mm to wall (m) (1000+ metre job)	180,000	8
Fire sprinklers (per m²) (5000m² job)	800,000	35
Air conditioning incl main plant (m²) (5000m² + job)	2,000,000	88
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	80,000	4
Group 2 Tradesman eg carpenter bricklayer	60,000	3
Group 3 Tradesman eg carpet layer, tiler, plasterer	60,000	3
General labourer	40,000	2
Site foreman	100,000	4
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	1,300,000	57
Reinforcement bar 16mm (tonne) (120 tonne job)	13,180,000	578
Concrete block (400x200) per 1000 (>10,000 block job)	10,000,000	439
Standard brick per 1000	350,000	15
Structural steel beams (tonne) (100 tonne +job)	30,000,000	1,316
Glass pane 10mm tempered (m²)	3,000,000	132
Softwood timber for framing 100mm X 50mm (m)	152,125	7
13 mm plasterboard (m²)	91,000	4
Emulsion paint (litre)	209,091	9
Copper pipe 15 mm (metre) (1000+ metre job)	110,000	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	40,000	2
Plant costs		
Hire 50t mobile crane + operator (day)	20,000,000	877

Ho Chi Minh City

Tendering:	Warm
Market:	Warmer
Cost escalation 2017–18:	2.0%
Cost escalation 2018–19:	3.0%
Contractor's margin:	10.0%
Preliminaries:	12.0%
Location factor (USD):	39.7
PPP coefficient:	12,037.1

Australia

Construction enters a growth phase

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Economic outlook

Australia's economy in 2018 looks positive, with forecast growth close to 3 percent. Sydney and Melbourne are seeing strong growth in financial services, and real estate, with 17 percent jobs growth over the year. Unemployment has fallen to 5.4 percent.

In 2017 short-term visitor arrivals surged to 9 million, boosting the tourism and higher education industries. Meanwhile, there were proposals for new mining projects in Western Australia, Queensland and South Australia, as minerals prices recover. The renewable energy sector is also buoyant.

	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.31)
International building costs per m² of internal area, in 2018					
Airports (Building only)					
Domestic terminal, full service	5,300	5,300	4,815	5,500	4,198
Low cost carrier terminal, basic service	4,200	4,120	3,815	4,500	3,435
Car parks					
Multi storey above ground	890	878	815	950	725
Multi storey below ground	1,630	1,760	1,705	1,800	1,374
Commercial					
Offices – Business Park	1,625	1,720	1,575	1,850	1,412
CBD Offices – up to 20 floors medium (A-Grade)	3,340	3,100	3,040	3,450	2,634
CBD Offices – high-rise prestige	4,192	4,200	4,430	5,800	4,427
Education					
Primary and secondary	1,859	2,100	1,775	3,400	2,595
University	3,679	3,440	3,080	3,900	2,977
Hospitals					
Day centre (including basic surgeries)	3,373	3,175	2,915	3,250	2,481
Regional hospital	3,715	4,000	3,450	4,000	3,053
General hospital (e.g. city teaching hospital)	5,807	6,190	5,695	6,000	4,580
Hotels					
3 Star travellers	2,685	2,455	2,310	2,950	2,252
5 Star luxury	4,499	4,420	4,120	5,800	4,427
Resort style	3,850	3,785	3,535	4,000	3,053
Industrial					
Warehouse/factory units – basic	840	800	765	850	649
Large warehouse distribution centre	1,100	1,050	945	1,100	840
High tech factory/laboratory	3,502	3,950	3,935	4,000	3,053
Residential					
Individual detached or terrace style house medium standard	1,720	1,800	1,535	2,250	1,718
Individual detached house prestige	3,478	2,900	2,865	4,100	3,130
Townhouses medium standard	1,740	2,000	1,775	2,150	1,641
Apartments low-rise medium standard	1,935	2,200	1,815	2,400	1,832
Apartments high-rise	2,805	2,950	2,775	3,000	2,290
Aged care/affordable units	2,520	2,600	2,490	2,850	2,176
Retail					
Large shopping centre including mall	2,770	2,400	2,200	2,850	2,176
Neighbourhood incl supermarket	1,711	1,940	1,775	2,200	1,679
Prestige car showroom	2,800	2,600	2,470	2,850	2,176
Australia international building costs					
	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.31)
Composite trade rates					
Excavate basement (m ³) (1800m ³ job)	27	25	12	47	36
Excavate footings (m)	44	40	30	59	45
Concrete in slab (m ³) (1500m ³ job)	310	340	255	340	260
Reinforcement in beams (tonne)	2,426	2,700	1,805	2,300	1,756

Construction market and trends

Several large commercial office projects in Sydney and Melbourne are underway. And while apartment construction has eased, the large number of approvals late in 2017 indicates plenty to come.

Road and rail projects are ramping up, boosting the local economies and demand for trade skills. Tunnelling is big. Sydney Metro Rail is delivering 15km of tunnels and Westconnex, a 33km motorway, is mostly underground. In Melbourne there is the West Gate Tunnel project and Monash freeway upgrade. In Queensland the re-elected labour government committed to deliver Cross River Rail.

Future outlook

Construction is entering another growth phase, set to last until the end of the decade. Higher numbers of overseas tourists are boosting hotel construction. Commercial, health, defence, retail and hotel construction will increase in parallel to the massive multi-year road and rail projects underway. Several natural resources projects are in planning. Construction costs are likely to overheat as competition for labour hots up.

	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.31)
Australia international building costs					
Formwork to soffit of slab (m ²)	155	140	105	175	134
Blockwork in wall (m ²) (10,000 block job)	153	150	120	150	115
Structural steel beams (tonne)	5,400	6,000	4,565	5,500	4,198
Pre-cast concrete wall (m ²)	459	400	370	400	305
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,330	1,400	1,095	1,400	1,069
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	36	39	33	38	29
Single solid core door incl frame and hardware (no) (50 door job)	835	900	765	850	649
Painting to walls primer + 2 coats (m ²)	15	15	13	17	13
Ceramic tiling (m ²) (1000m ² job)	125	112	105	120	92
Vinyl flooring to wet areas (m ²) (500m ² job)	75	71	67	80	61
Carpet medium tufted (m ²) (4500m ² job)	71	61	59	70	53
Lighting installation (m ²) (5000m ² + job)	91	90	80	90	69
Copper pipe 15mm to wall (m) (1000+ metre job)	54	75	30	57	44
Fire sprinklers (per m ²) (5000m ² job)	64	55	45	55	42
Air conditioning incl main plant (m ²) (5000m ² + job)	325	300	320	350	267
Labour costs, per hour					
Group 1 Tradesman eg plumber/electrician	82	96	83	100	76
Group 2 Tradesman eg carpenter bricklayer	67	84	69	90	69
Group 3 Tradesman eg carpet layer, tiler, plasterer	67	84	69	85	65
General labourer	57	68	56	70	53
Site foreman	93	102	88	110	84
Material costs					
Concrete 30 MPa (m ³) (1500m ³ job)	170	160	172	210	160
Reinforcement bar 16mm (tonne) (120 tonne job)	1,185	1,450	1,173	1,250	954
Concrete block (400x200) per 1000 (>10,000 block job)	3,554	3,600	3,420	3,500	2,672
Standard brick per 1000	570	570	738	810	618
Structural steel beams (tonne) (100 tonne +job)	2,500	2,385	1,795	2,450	1,870
Glass pane 10mm tempered (m ²)	311	290	240	260	198
Softwood timber for framing 100mm X 50mm (m)	4	5	4	3	2
13 mm plasterboard (m ²)	8	9	9	10	8
Emulsion paint (litre)	13	15	10	14	11
Copper pipe 15 mm (metre) (1000+ metre job)	13	15	5	12	9
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	4	3	3	2
Plant costs					
Hire 50t mobile crane + operator (day)	2,080	2,381	1,760	2,250	1,718
Tendering:	Brisbane Lukewarm	Melbourne Hot	Perth Cold	Sydney Hot	
Market:	Staying the same	Warmer	Warmer	Staying the same	
Cost escalation 2017–18:	4.0%	2.0%	-1.0%	4.0%	
Cost escalation 2018–19:	3.0%	4.0%	1.5%	4.0%	
Contractor's margin:	4.0%	4.0%	4.0%	4.5%	
Preliminaries:	12.0%	12.0%	11.0%	14.0%	
Location factor (USD):	87.4	104.7	84.4	105.0	
PPP coefficient:	1.7	2.0	1.7	2.0	

France

Paris

Brexit and Olympics provide prospects for Paris

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Economic outlook

The French economy accelerated through 2017 along with much of the EU and the expectation is for stronger growth over the next two years thanks to stronger external demand, a rebound in tourism and more robust business confidence. The appointment of Emmanuel Macron as French president, cuts in business taxes and labour market reforms should support investment and employment.

	EUR	USD (exchange rate: 0.84)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,705	4,410
Low cost carrier terminal, basic service	2,436	2,900
Car parks		
Multi storey above ground	593	706
Multi storey below ground	1,167	1,390
Commercial		
Offices – Business Park	1,715	2,042
CBD Offices – up to 20 floors medium (A-Grade)	2,279	2,713
CBD Offices – high-rise prestige	2,867	3,414
Education		
Primary and secondary	1,624	1,933
University	2,081	2,477
Hospitals		
Day centre (including basic surgeries)	2,436	2,900
Regional hospital	2,852	3,395
General hospital (e.g. city teaching hospital)	3,502	4,169
Hotels		
3 Star travellers	1,979	2,356
5 Star luxury	3,583	4,265
Resort style	2,639	3,142
Industrial		
Warehouse/factory units – basic	731	870
Large warehouse distribution centre	903	1,075
High tech factory/laboratory	1,847	2,199
Residential		
Individual detached or terrace style house medium standard	1,267	1,508
Individual detached house prestige	2,020	2,405
Townhouses medium standard	1,269	1,510
Apartments low-rise medium standard	1,573	1,873
Apartments high-rise	2,020	2,405
Aged care/affordable units	1,827	2,175
Retail		
Large shopping centre including mall	2,335	2,779
Neighbourhood incl supermarket	1,956	2,328
Prestige car showroom	2,538	3,021

Construction market and trends

The construction sector in Paris is likely to feel the benefit of the massive rapid transit scheme linking the city's suburbs for at least a decade. The USD31bn Euro Grand Paris Express includes four new metro lines connecting seven strategic and economic centres with 70,000 new homes, 68 new stations and 200km of rail network. The project is expected to be completed in ten years.

Construction productivity is improving slowly. Building Information Modelling (BIM) is set to be one of the key drivers behind this as it allows better coordination between stakeholders in the pre-construction phase.

Future outlook

Paris, with its good transport links to London, sees benefits in Brexit through attracting firms from the UK capital. Meanwhile, the Paris Olympic Games in 2024 will also provide a boost to construction, building stadiums, transport links and accommodation.

	EUR	USD (exchange rate: 0.84)
France international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	14	17
Excavate footings (m)	27	32
Concrete in slab (m³) (1500m³ job)	142	169
Reinforcement in beams (tonne)	1,700	2,024
Formwork to soffit of slab (m²)	46	54
Blockwork in wall (m²) (10,000 block job)	66	79
Structural steel beams (tonne)	3,248	3,867
Pre-cast concrete wall (m²)	117	139
Curtain wall glazing incl support system (m²) (1000m² job)	660	785
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	69	82
Single solid core door incl frame and hardware (no) (50 door job)	1,006	1,197
Painting to walls primer + 2 coats (m²)	12	14
Ceramic tiling (m²) (1000m² job)	66	79
Vinyl flooring to wet areas (m²) (500m² job)	35	42
Carpet medium tufted (m²) (4500m² job)	33	39
Lighting installation (m²) (5000m² + job)	63	75
Copper pipe 15mm to wall (m) (1000+ metre job)	31	37
Fire sprinklers (per m²) (5000m² job)	82	98
Air conditioning incl main plant (m²) (5000m² + job)	117	139
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	47	56
Group 2 Tradesman eg carpenter bricklayer	41	48
Group 3 Tradesman eg carpet layer, tiler, plasterer	32	39
General labourer	25	30
Site foreman	41	48
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	104	123
Reinforcement bar 16mm (tonne) (120 tonne job)	903	1,075
Concrete block (400x200) per 1000 (>10,000 block job)	2,741	3,263
Standard brick per 1000	660	785
Structural steel beams (tonne) (100 tonne +job)	1,715	2,042
Glass pane 10mm tempered (m²)	142	169
Softwood timber for framing 100mm X 50mm (m)	3	4
13 mm plasterboard (m²)	4	5
Emulsion paint (litre)	6	7
Copper pipe 15 mm (metre) (1000+ metre job)	7	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	4
Plant costs		
Hire 50t mobile crane + operator (day)	1,320	1,571
Paris		
Tendering:	Warm	
Market:	Warmer	
Cost escalation 2017–18:	1.5%	
Cost escalation 2018–19:	1.9%	
Contractor's margin:	6.0%	
Preliminaries:	10.0%	
Location factor (USD):	82.4	
PPP coefficient:	1.0	

Germany

Munich

**Digital demand boosts
infrastructure investment**

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Economic outlook

Germany's economy remains very sound, with GDP growing 2.2 percent in 2017. With Brexit looming, demand for office and residential space is heating up. Meanwhile, fast-rising house prices in major cities, with no let-up expected, is pushing construction capacity towards critical.

	EUR	USD (exchange rate: 0.84)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,600	4,286
Low cost carrier terminal, basic service	2,420	2,881
Car parks		
Multi storey above ground	660	786
Multi storey below ground	1,030	1,226
Commercial		
Offices – Business Park	1,520	1,810
CBD Offices – up to 20 floors medium (A-Grade)	2,350	2,798
CBD Offices – high-rise prestige	2,780	3,310
Education		
Primary and secondary	1,690	2,012
University	1,910	2,274
Hospitals		
Day centre (including basic surgeries)	2,150	2,560
Regional hospital	3,010	3,583
General hospital (e.g. city teaching hospital)	3,300	3,929
Hotels		
3 Star travellers	1,740	2,071
5 Star luxury	3,550	4,226
Resort style	2,310	2,750
Industrial		
Warehouse/factory units – basic	680	810
Large warehouse distribution centre	850	1,012
High tech factory/laboratory	1,950	2,321
Residential		
Individual detached or terrace style house medium standard	1,230	1,464
Individual detached house prestige	1,760	2,095
Townhouses medium standard	1,300	1,548
Apartments low-rise medium standard	1,400	1,667
Apartments high-rise	1,980	2,357
Aged care/affordable units	1,560	1,857
Retail		
Large shopping centre including mall	2,250	2,679
Neighbourhood incl supermarket	2,030	2,417
Prestige car showroom	2,460	2,929

Construction market and trends

Shortages of homes and offices plus the government's strategy to improve internet connectivity are expected to be the main drivers of construction. Residential is likely to hold its leading share of construction. It is forecast to account for 47.7 percent in 2021.

On the infrastructure side, there is a USD112bn public/private project to transform the digital economy by building a cross-country internet network. Other major schemes include the USD1.8bn Merkur offshore wind farm in the German North Sea which will cater for 500,000 households.

Future outlook

Business activity and confidence is high in Germany. Central and local government tax revenues have improved, which is likely to result in increased government investment in infrastructure, education and health in the future. But there is always the possibility that the recent diesel scandal, Brexit or unpredictable election results could dent confidence. Immigration from within and outside Europe is expected to sustain residential building.

	EUR	USD (exchange rate: 0.84)
Germany international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	15	18
Excavate footings (m)	29	35
Concrete in slab (m³) (1500m³ job)	145	173
Reinforcement in beams (tonne)	1,467	1,746
Formwork to soffit of slab (m²)	46	55
Blockwork in wall (m²) (10,000 block job)	75	89
Structural steel beams (tonne)	3,960	4,714
Pre-cast concrete wall (m²)	120	143
Curtain wall glazing incl support system (m²) (1000m² job)	680	810
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	54	64
Single solid core door incl frame and hardware (no) (50 door job)	950	1,131
Painting to walls primer + 2 coats (m²)	8	10
Ceramic tiling (m²) (1000m² job)	58	69
Vinyl flooring to wet areas (m²) (500m² job)	32	38
Carpet medium tufted (m²) (4500m² job)	28	33
Lighting installation (m²) (5000m² + job)	62	74
Copper pipe 15mm to wall (m) (1000+ metre job)	33	39
Fire sprinklers (per m²) (5000m² job)	86	102
Air conditioning incl main plant (m²) (5000m² + job)	99	118
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	50	60
Group 2 Tradesman eg carpenter bricklayer	42	50
Group 3 Tradesman eg carpet layer, tiler, plasterer	42	50
General labourer	32	38
Site foreman	45	54
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	118	140
Reinforcement bar 16mm (tonne) (120 tonne job)	900	1,071
Concrete block (400x200) per 1000 (>10,000 block job)	3,206	3,817
Standard brick per 1000	735	875
Structural steel beams (tonne) (100 tonne +job)	1,967	2,342
Glass pane 10mm tempered (m²)	110	131
Softwood timber for framing 100mm X 50mm (m)	4	5
13 mm plasterboard (m²)	4	5
Emulsion paint (litre)	6	7
Copper pipe 15 mm (metre) (1000+ metre job)	9	11
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	5	6
Plant costs		
Hire 50t mobile crane + operator (day)	1,370	1,631
Munich		
Tendering:	Hot	
Market:	Staying the same	
Cost escalation 2017–18:	3.2%	
Cost escalation 2018–19:	3.0%	
Contractor's margin:	5.0%	
Preliminaries:	11.0%	
Location factor (USD):	82.3	
PPP coefficient:	1.0	

Ireland

Dublin

**Tender price inflation
set to remain high**

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Economic outlook

The Irish economy once again performed well in 2017, with GDP growth at 4.8 percent, supported by increasing domestic demand. Sustained growth has pushed unemployment down from 13 percent in 2014 to 6 percent in 2017. Despite concerns and uncertainty over the economic impact of Brexit, it has had no noticeable effect on construction.

Construction market and trends

The construction industry is booming as Dublin recovers from the 2008 crash. Construction activity expanded 18 percent in 2017 with the office construction sector particularly showing signs of strength.

		EUR	USD (exchange rate: 0.84)
International building costs per m² of internal area, in 2018			
Airports (Building only)			
Domestic terminal, full service		4,600	5,476
Low cost carrier terminal, basic service		3,200	3,810
Car parks			
Multi storey above ground		775	923
Multi storey below ground		1,225	1,458
Commercial			
Offices – Business Park		2,000	2,381
CBD Offices – up to 20 floors medium (A-Grade)		2,575	3,065
CBD Offices – high-rise prestige		3,500	4,167
Education			
Primary and secondary		1,725	2,054
University		2,775	3,304
Hospitals			
Day centre (including basic surgeries)		2,675	3,185
Regional hospital		4,000	4,762
General hospital (e.g. city teaching hospital)		4,000	4,762
Hotels			
3 Star travellers		2,250	2,679
5 Star luxury		3,400	4,048
Resort style		2,775	3,304
Industrial			
Warehouse/factory units – basic		975	1,161
Large warehouse distribution centre		1,225	1,458
High tech factory/laboratory		2,250	2,679
Residential			
Individual detached or terrace style house medium standard		1,800	2,143
Individual detached house prestige		2,250	2,679
Townhouses medium standard		1,800	2,143
Apartments low-rise medium standard		2,100	2,500
Apartments high-rise		2,350	2,798
Aged care/affordable units		2,300	2,738
Retail			
Large shopping centre including mall		2,850	3,393
Neighbourhood incl supermarket		2,625	3,125
Prestige car showroom		3,000	3,571

This level of growth is expected to continue with projects in the pipeline, such as Grangegorman, the new urban quarter being created in Dublin's north inner city. Major commercial projects include new headquarters for the energy company ESB and the USD150m Capital Docks office and residential building.

Tender price inflation is currently running at 6 to 7 percent per annum. Due to high ongoing demand this level of inflation is likely to continue for the foreseeable future.

Future outlook

The prospects remain bright for construction activity, which will benefit from government plans to boost foreign investment from manufacturing companies and increase exports. The government also plans to invest USD143bn as part of the National Development Plan 2018 - 2027, investing in the key areas of transport, education, health, residential and sustainability.

	EUR	USD (exchange rate: 0.84)
Ireland international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	13	15
Excavate footings (m)	24	29
Concrete in slab (m³) (1500m³ job)	125	149
Reinforcement in beams (tonne)	1,100	1,310
Formwork to soffit of slab (m²)	40	48
Blockwork in wall (m²) (10,000 block job)	30	36
Structural steel beams (tonne)	2,150	2,560
Pre-cast concrete wall (m²)	100	119
Curtain wall glazing incl support system (m²) (1000m² job)	700	833
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	65	77
Single solid core door incl frame and hardware (no) (50 door job)	850	1,012
Painting to walls primer + 2 coats (m²)	8	10
Ceramic tiling (m²) (1000m² job)	85	101
Vinyl flooring to wet areas (m²) (500m² job)	40	48
Carpet medium tufted (m²) (4500m² job)	40	48
Lighting installation (m²) (5000m² + job)	60	71
Copper pipe 15mm to wall (m) (1000+ metre job)	45	54
Fire sprinklers (per m²) (5000m² job)	100	119
Air conditioning incl main plant (m²) (5000m² + job)	180	214
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	38	45
Group 2 Tradesman eg carpenter bricklayer	36	43
Group 3 Tradesman eg carpet layer, tiler, plasterer	36	43
General labourer	26	31
Site foreman	37	44
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	115	137
Reinforcement bar 16mm (tonne) (120 tonne job)	950	1,131
Concrete block (400x200) per 1000 (>10,000 block job)	675	804
Standard brick per 1000	570	679
Structural steel beams (tonne) (100 tonne +job)	1,950	2,321
Glass pane 10mm tempered (m²)	130	155
Softwood timber for framing 100mm X 50mm (m)	6	7
13 mm plasterboard (m²)	7	8
Emulsion paint (litre)	7	8
Copper pipe 15 mm (metre) (1000+ metre job)	15	18
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	10	12
Plant costs		
Hire 50t mobile crane + operator (day)	1,500	1,786

	Dublin
Tendering:	Hot
Market:	Warmer
Cost escalation 2017–18:	7.0%
Cost escalation 2018–19:	7.0%
Contractor's margin:	6.0%
Preliminaries:	11.0%
Location factor (USD):	90.5
PPP coefficient:	1.0

Netherlands

Amsterdam

The Netherlands sees construction market overheat

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Economic outlook

The Dutch economy is picking up pace. Growth in GDP hit a ten-year high of 3.1 percent in 2017 and further solid growth is expected in 2018. Policies reducing household tax are boosting household consumption, with strong exports and business investment also supporting growth. Unemployment is falling, dropping from 7.8 percent in 2014 to 4.5 percent in 2017, and driving consumer demand.

	EUR	USD (exchange rate: 0.84)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,810	4,536
Low cost carrier terminal, basic service	2,521	3,001
Car parks		
Multi storey above ground	622	741
Multi storey below ground	1,210	1,441
Commercial		
Offices – Business Park	1,753	2,087
CBD Offices – up to 20 floors medium (A-Grade)	2,385	2,840
CBD Offices – high-rise prestige	2,884	3,433
Education		
Primary and secondary	1,631	1,942
University	2,115	2,517
Hospitals		
Day centre (including basic surgeries)	2,487	2,961
Regional hospital	2,826	3,365
General hospital (e.g. city teaching hospital)	3,392	4,038
Hotels		
3 Star travellers	2,001	2,383
5 Star luxury	3,535	4,208
Resort style	2,634	3,136
Industrial		
Warehouse/factory units – basic	744	885
Large warehouse distribution centre	973	1,158
High tech factory/laboratory	1,896	2,257
Residential		
Individual detached or terrace style house medium standard	1,301	1,549
Individual detached house prestige	1,820	2,167
Townhouses medium standard	1,301	1,549
Apartments low-rise medium standard	1,503	1,790
Apartments high-rise	2,028	2,414
Aged care/affordable units	1,809	2,154
Retail		
Large shopping centre including mall	2,357	2,806
Neighbourhood incl supermarket	2,115	2,517
Prestige car showroom	2,464	2,933

Construction market and trends

Construction output has risen for four years and seen as overheating, with demand rising for housing, utility buildings and infrastructure. Utilities and infrastructure are expected to be the key drivers in 2018.

Infrastructure projects include expanding Amsterdam Schiphol airport, a USD417m scheme for Lelystad Airport, the USD411m IJmuiden water lock at the Port of Amsterdam and the USD1.2bn upgrade of the A10 Zuidasdok Urban road network. Major commercial and residential buildings include the Zalmhaven Toren in Rotterdam, which will be among the tallest residential towers in Europe.

Future outlook

The housing market should see further strong growth, driven by low interest rates and a scarcity of homes. The commercial sector will benefit from the government selling land and real estate for development. This should boost already increased opportunities flowing from growing confidence in the economy. Meanwhile, the government has increased investment in infrastructure and intends to boost levels of maintenance on roads and water landscaping management.

	EUR	USD (exchange rate: 0.84)
Netherlands international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	14	16
Excavate footings (m)	26	31
Concrete in slab (m³) (1500m³ job)	159	189
Reinforcement in beams (tonne)	1,450	1,726
Formwork to soffit of slab (m²)	30	35
Blockwork in wall (m²) (10,000 block job)	82	97
Structural steel beams (tonne)	2,899	3,452
Pre-cast concrete wall (m²)	195	232
Curtain wall glazing incl support system (m²) (1000m² job)	673	801
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	84	100
Single solid core door incl frame and hardware (no) (50 door job)	1,192	1,419
Painting to walls primer + 2 coats (m²)	18	21
Ceramic tiling (m²) (1000m² job)	72	85
Vinyl flooring to wet areas (m²) (500m² job)	49	59
Carpet medium tufted (m²) (4500m² job)	37	44
Lighting installation (m²) (5000m² + job)	73	86
Copper pipe 15mm to wall (m) (1000+ metre job)	27	33
Fire sprinklers (per m²) (5000m² job)	47	55
Air conditioning incl main plant (m²) (5000m² + job)	180	214
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	49	58
Group 2 Tradesman eg carpenter bricklayer	40	48
Group 3 Tradesman eg carpet layer, tiler, plasterer	38	45
General labourer	30	36
Site foreman	55	65
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	93	111
Reinforcement bar 16mm (tonne) (120 tonne job)	774	922
Concrete block (400x200) per 1000 (>10,000 block job)	3,584	4,267
Standard brick per 1000	415	494
Structural steel beams (tonne) (100 tonne +job)	1,425	1,696
Glass pane 10mm tempered (m²)	139	165
Softwood timber for framing 100mm X 50mm (m)	2	2
13 mm plasterboard (m²)	5	6
Emulsion paint (litre)	9	11
Copper pipe 15 mm (metre) (1000+ metre job)	5	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	3
Plant costs		
Hire 50t mobile crane + operator (day)	1,024	1,219
Amsterdam		
Tendering:	Overheating	
Market:	Staying the same	
Cost escalation 2017–18:	4.0%	
Cost escalation 2018–19:	4.0%	
Contractor's margin:	9.0%	
Preliminaries:	12.0%	
Location factor (USD):	80.6	
PPP coefficient:	0.9	

Poland

Warsaw

**Booming construction
reaching close to capacity**

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Economic outlook

Economic growth is strong in Poland and will remain solid, even though annual growth in 2018 is expected to slow to 3.2 percent partly due to labour shortages. Most fundamentals are positive. Inflation remains under control and unemployment is low.

	PLN	USD (exchange rate: 3.40)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	9,236	2,717
Low cost carrier terminal, basic service	5,488	1,614
Car parks		
Multi storey above ground	1,803	530
Multi storey below ground	2,493	733
Commercial		
Offices – Business Park	3,856	1,134
CBD Offices – up to 20 floors medium (A-Grade)	4,763	1,401
CBD Offices – high-rise prestige	5,216	1,534
Education		
Primary and secondary	2,621	771
University	3,931	1,156
Hospitals		
Day centre (including basic surgeries)	2,948	867
Regional hospital	3,713	1,092
General hospital (e.g. city teaching hospital)	3,713	1,092
Hotels		
3 Star travellers	4,763	1,401
5 Star luxury	7,484	2,201
Resort style	5,216	1,534
Industrial		
Warehouse/factory units – basic	1,857	546
Large warehouse distribution centre	2,497	734
High tech factory/laboratory	3,763	1,107
Residential		
Individual detached or terrace style house medium standard	2,293	674
Individual detached house prestige	3,227	949
Townhouses medium standard	2,621	771
Apartments low-rise medium standard	2,838	835
Apartments high-rise	3,444	1,013
Aged care/affordable units	3,005	884
Retail		
Large shopping centre including mall	3,527	1,037
Neighbourhood incl supermarket	2,645	778
Prestige car showroom	3,857	1,135

Construction market and trends

Construction is booming across most sectors and the number of construction projects has increased to near capacity in terms of available sub-contractors. With demand increasing, there has been a notable growth in residential projects and commercial office developments in Warsaw and regional hubs such as Łódź, Katowice, Kraków, Poznań and Wrocław.

Activity is also coming from investment in industrial and manufacturing from international players, such as Rolls-Royce and Daimler Benz. After a fall in funding by the EU in 2016, infrastructure projects are coming

back on stream. There is also a significant increase in railway projects, prepared over the past three years, now starting on site.

Future outlook

Continued economic growth, forecast to be between 3 to 4 percent by 2020, should sustain demand in the residential sector. Meanwhile, plans for the Central Airport with a target capacity of 100 million passengers a year located between Łódź and Warsaw may represent a step change in the Polish construction market.

	PLN	USD (exchange rate: 3.40)
Poland international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	28	8
Excavate footings (m)	105	31
Concrete in slab (m³) (1500m³ job)	622	183
Reinforcement in beams (tonne)	3,966	1,166
Formwork to soffit of slab (m²)	104	31
Blockwork in wall (m²) (10,000 block job)	131	39
Structural steel beams (tonne)	10,197	2,999
Pre-cast concrete wall (m²)	546	161
Curtain wall glazing incl support system (m²) (1000m² job)	1,244	366
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	62	18
Single solid core door incl frame and hardware (no) (50 door job)	2,812	827
Painting to walls primer + 2 coats (m²)	18	5
Ceramic tiling (m²) (1000m² job)	130	38
Vinyl flooring to wet areas (m²) (500m² job)	99	29
Carpet medium tufted (m²) (4500m² job)	102	30
Lighting installation (m²) (5000m² + job)	127	37
Copper pipe 15mm to wall (m) (1000+ metre job)	78	23
Fire sprinklers (per m²) (5000m² job)	77	23
Air conditioning incl main plant (m²) (5000m² + job)	618	182
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	28	8
Group 2 Tradesman eg carpenter bricklayer	32	9
Group 3 Tradesman eg carpet layer, tiler, plasterer	28	8
General labourer	28	8
Site foreman	50	15
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	292	86
Reinforcement bar 16mm (tonne) (120 tonne job)	3,029	891
Concrete block (400x200) per 1000 (>10,000 block job)	4,605	1,355
Standard brick per 1000	1,037	305
Structural steel beams (tonne) (100 tonne +job)	7,625	2,243
Glass pane 10mm tempered (m²)	396	117
Softwood timber for framing 100mm X 50mm (m)	9	3
13 mm plasterboard (m²)	13	4
Emulsion paint (litre)	5	2
Copper pipe 15 mm (metre) (1000+ metre job)	21	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	2
Plant costs		
Hire 50t mobile crane + operator (day)	4,620	1,359
Warsaw		
Tendering:	Warm	
Market:	Staying the same	
Cost escalation 2017–18:	8.0%	
Cost escalation 2018–19:	6.0%	
Contractor's margin:	6.0%	
Preliminaries:	6.0%	
Location factor (USD):	39.0	
PPP coefficient:	2.0	

Russia

MOSCOW

Growth returns, but low productivity persists

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Economic outlook

Russia is slowly rising from recession supported by stronger oil prices and low inflation. Unemployment is low at 5 percent, but about 10 percent among construction workers. Western sanctions over Crimea are likely to remain in place, limiting foreign investment and access to Western funds.

		USD (exchange rate: 58.40)
	RUB	
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	215,000	3,682
Low cost carrier terminal, basic service	134,500	2,303
Car parks		
Multi storey above ground	32,000	548
Multi storey below ground	37,300	639
Commercial		
Offices – Business Park	63,500	1,087
CBD Offices – up to 20 floors medium (A-Grade)	68,900	1,180
CBD Offices – high-rise prestige	74,500	1,276
Education		
Primary and secondary	49,000	839
University	75,000	1,284
Hospitals		
Day centre (including basic surgeries)	53,500	916
Regional hospital	74,800	1,281
General hospital (e.g. city teaching hospital)	81,000	1,387
Hotels		
3 Star travellers	69,500	1,190
5 Star luxury	122,500	2,098
Resort style	96,000	1,644
Industrial		
Warehouse/factory units – basic	38,900	666
Large warehouse distribution centre	45,900	786
High tech factory/laboratory	72,000	1,233
Residential		
Individual detached or terrace style house medium standard	31,500	539
Individual detached house prestige	47,500	813
Townhouses medium standard	37,800	647
Apartments low-rise medium standard	43,000	736
Apartments high-rise	48,000	822
Aged care/affordable units	31,500	539
Retail		
Large shopping centre including mall	64,000	1,096
Neighbourhood incl supermarket	47,900	820
Prestige car showroom	58,900	1,009

Construction market and trends

Construction output is expected to increase moderately in 2018. The sector is hoping to benefit from major housing projects and final preparations for the 2018 World Cup. Demand for housing is rising with greater access to housing loans. Meanwhile, local governments, in advance of the World Cup, are working on urban development projects, such as the renovation of streets, squares, parks and other public spaces.

There are major infrastructure projects, including the Turkish Stream gas pipeline to Turkey and the high-speed train line between Moscow and Kazan, work is expected to start this year.

Future outlook

The construction sector is dogged by low productivity and a changing demography is leading to a declining labour force with more people retiring than younger people joining the workforce. The government has plans to attract more foreign skilled labour to meet the shortages and improve competition in the labour market. In the long term, government is investing in education and trying to implement new technologies.

	USD (exchange rate: 58.40)	RUB
Russia international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	650	11
Excavate footings (m)	870	15
Concrete in slab (m³) (1500m³ job)	10,100	173
Reinforcement in beams (tonne)	70,200	1,202
Formwork to soffit of slab (m²)	1,690	29
Blockwork in wall (m²) (10,000 block job)	2,050	35
Structural steel beams (tonne)	123,500	2,115
Pre-cast concrete wall (m²)	9,650	165
Curtain wall glazing incl support system (m²) (1000m² job)	52,500	899
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	3,200	55
Single solid core door incl frame and hardware (no) (50 door job)	35,500	608
Painting to walls primer + 2 coats (m²)	660	11
Ceramic tiling (m²) (1000m² job)	4,100	70
Vinyl flooring to wet areas (m²) (500m² job)	3,390	58
Carpet medium tufted (m²) (4500m² job)	3,150	54
Lighting installation (m²) (5000m² + job)	3,690	63
Copper pipe 15mm to wall (m) (1000+ metre job)	630	11
Fire sprinklers (per m²) (5000m² job)	1,700	29
Air conditioning incl main plant (m²) (5000m² + job)	9,200	158
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	790	14
Group 2 Tradesman eg carpenter bricklayer	790	14
Group 3 Tradesman eg carpet layer, tiler, plasterer	790	14
General labourer	700	12
Site foreman	1,150	20
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	5,100	87
Reinforcement bar 16mm (tonne) (120 tonne job)	34,900	598
Concrete block (400x200) per 1000 (>10,000 block job)	75,850	1,299
Standard brick per 1000	13,900	238
Structural steel beams (tonne) (100 tonne +job)	53,900	923
Glass pane 10mm tempered (m²)	7,700	132
Softwood timber for framing 100mm X 50mm (m)	250	4
13 mm plasterboard (m²)	150	3
Emulsion paint (litre)	70	1
Copper pipe 15 mm (metre) (1000+ metre job)	320	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	68	1
Plant costs		
Hire 50t mobile crane + operator (day)	56,000	959

Moscow

Tendering:	Cold
Market:	Staying the same
Cost escalation 2017–18:	4.0%
Cost escalation 2018–19:	4.0%
Contractor's margin:	7.0%
Preliminaries:	8.0%
Location factor (USD):	48.4
PPP coefficient:	35.9

Spain

Madrid

**Steady improvement and bright prospects
for construction despite challenges**

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Economic outlook

The Spanish economy continues to improve with the growth rate remaining above 3 percent. Inflation is low, and unemployment has fallen, but was still at 16.4 percent last year. There are uncertainties, however, generated by the political situation in Catalonia, which has led to the government lowering its economic expectations for 2018.

	EUR	USD (exchange rate: 0.84)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,280	3,905
Low cost carrier terminal, basic service	2,358	2,807
Car parks		
Multi storey above ground	434	516
Multi storey below ground	765	911
Commercial		
Offices – Business Park	1,128	1,342
CBD Offices – up to 20 floors medium (A-Grade)	2,153	2,563
CBD Offices – high-rise prestige	2,306	2,746
Education		
Primary and secondary	1,173	1,396
University	1,428	1,700
Hospitals		
Day centre (including basic surgeries)	2,029	2,415
Regional hospital	2,665	3,173
General hospital (e.g. city teaching hospital)	2,921	3,478
Hotels		
3 Star travellers	1,751	2,085
5 Star luxury	2,884	3,433
Resort style	1,957	2,330
Industrial		
Warehouse/factory units – basic	461	549
Large warehouse distribution centre	666	793
High tech factory/laboratory	1,435	1,708
Residential		
Individual detached or terrace style house medium standard	1,030	1,226
Individual detached house prestige	1,751	2,085
Townhouses medium standard	1,236	1,471
Apartments low-rise medium standard	1,133	1,349
Apartments high-rise	1,545	1,839
Aged care/affordable units	1,494	1,778
Retail		
Large shopping centre including mall	2,050	2,440
Neighbourhood incl supermarket	1,743	2,074
Prestige car showroom	2,255	2,685

Construction market and trends

The construction market is slowly recovering from the Global Financial Crash. Business confidence has returned, and foreign investment is increasing. The commercial office sector grew by about 30 percent in 2017 and strong growth is expected in 2018. The residential sector is expected to grow 6 percent in 2018.

In March 2017, the government announced plans to spend USD4.8bn on transport infrastructure, housing and other infrastructure between 2017 and 2020. To support economic development and growth, the government is also investing

USD1.5bn into the construction of a high-speed rail network, plus USD566m to modernize the existing high-speed railway tracks by 2020.

Future outlook

The future of Spain looks bright but has some way to go. The Spain Treasury Funding Program 2018 strengthens the economy by investing in mid and long-term projects such as the high-speed rail network, which will help the construction sector.

	EUR	USD (exchange rate: 0.84)
Spain international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	11	13
Excavate footings (m)	18	22
Concrete in slab (m³) (1500m³ job)	158	188
Reinforcement in beams (tonne)	1,087	1,294
Formwork to soffit of slab (m²)	30	35
Blockwork in wall (m²) (10,000 block job)	36	43
Structural steel beams (tonne)	2,303	2,742
Pre-cast concrete wall (m²)	80	95
Curtain wall glazing incl support system (m²) (1000m² job)	587	698
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	49	58
Single solid core door incl frame and hardware (no) (50 door job)	867	1,032
Painting to walls primer + 2 coats (m²)	7	9
Ceramic tiling (m²) (1000m² job)	41	49
Vinyl flooring to wet areas (m²) (500m² job)	40	47
Carpet medium tufted (m²) (4500m² job)	30	35
Lighting installation (m²) (5000m² + job)	79	94
Copper pipe 15mm to wall (m) (1000+ metre job)	22	26
Fire sprinklers (per m²) (5000m² job)	28	33
Air conditioning incl main plant (m²) (5000m² + job)	107	128
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	36	42
Group 2 Tradesman eg carpenter bricklayer	30	36
Group 3 Tradesman eg carpet layer, tiler, plasterer	25	30
General labourer	18	22
Site foreman	39	46
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	82	98
Reinforcement bar 16mm (tonne) (120 tonne job)	764	910
Concrete block (400x200) per 1000 (>10,000 block job)	2,005	2,386
Standard brick per 1000	353	421
Structural steel beams (tonne) (100 tonne +job)	1,466	1,745
Glass pane 10mm tempered (m²)	90	107
Softwood timber for framing 100mm X 50mm (m)	5	6
13 mm plasterboard (m²)	5	6
Emulsion paint (litre)	5	6
Copper pipe 15 mm (metre) (1000+ metre job)	4	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	4	4
Plant costs		
Hire 50t mobile crane + operator (day)	1,162	1,383
Madrid		
Tendering:	Warm	
Market:	Warmer	
Cost escalation 2017–18:	0.3%	
Cost escalation 2018–19:	0.3%	
Contractor's margin:	5.0%	
Preliminaries:	5.0%	
Location factor (USD):	65.8	
PPP coefficient:	0.8	

Switzerland

Zurich

Infrastructure set to be the fastest growth sector

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Economic outlook

Switzerland's economy grew gently in 2017, by 1 percent. Interest rates are expected to stay low over 2018 and, combined with the weakened Swiss Franc, this is expected to encourage growth of 2.3 percent. Despite a fall in civil engineering orders, construction tender prices have risen slightly on the back of a strong housing market.

	CHF	USD (exchange rate: 0.98)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	5,775	5,893
Low cost carrier terminal, basic service	4,455	4,546
Car parks		
Multi storey above ground	1,107	1,130
Multi storey below ground	1,507	1,538
Commercial		
Offices – Business Park	2,810	2,867
CBD Offices – up to 20 floors medium (A-Grade)	4,015	4,097
CBD Offices – high-rise prestige	4,520	4,612
Education		
Primary and secondary	2,815	2,872
University	3,215	3,281
Hospitals		
Day centre (including basic surgeries)	3,625	3,699
Regional hospital	5,125	5,230
General hospital (e.g. city teaching hospital)	5,515	5,628
Hotels		
3 Star travellers	3,216	3,282
5 Star luxury	5,980	6,102
Resort style	4,455	4,546
Industrial		
Warehouse/factory units – basic	1,423	1,452
Large warehouse distribution centre	1,624	1,657
High tech factory/laboratory	3,230	3,296
Residential		
Individual detached or terrace style house medium standard	2,030	2,071
Individual detached house prestige	2,950	3,010
Townhouses medium standard	2,030	2,071
Apartments low-rise medium standard	2,250	2,296
Apartments high-rise	3,275	3,342
Aged care/affordable units	2,645	2,699
Retail		
Large shopping centre including mall	3,725	3,801
Neighbourhood incl supermarket	3,425	3,495
Prestige car showroom	4,140	4,224

Construction market and trends

The Swiss construction market has been steady for some time, supported by attractive tax rates and a balance in supply and demand in the sector.

Zurich's renowned technology school, which provides high-tech companies with resources, continues to attract Silicon Valley corporations to Zurich. Although the cost of construction and living are among Europe's highest, the tax advantages are attractive to these firms.

The life sciences sector accounts for many of the major construction projects, with numerous US pharma and healthcare corporations investing heavily in new production facilities.

Future outlook

Infrastructure construction looks to be the fastest-growing construction market over the forecast period, supported by government investment in transport. In 2016, the government announced plans to invest USD13.3bn upgrading the national rail network. It also plans to increase the country's renewable energy production capacity. Meanwhile, Lausanne is preparing to host the Winter Youth Olympics in 2020.

	CHF	USD (exchange rate: 0.98)
Switzerland international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	26	27
Excavate footings (m)	49	50
Concrete in slab (m ³) (1500m ³ job)	253	258
Reinforcement in beams (tonne)	2,411	2,460
Formwork to soffit of slab (m ²)	76	78
Blockwork in wall (m ²) (10,000 block job)	128	131
Structural steel beams (tonne)	5,148	5,253
Pre-cast concrete wall (m ²)	194	198
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,144	1,167
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	95	97
Single solid core door incl frame and hardware (no) (50 door job)	1,589	1,621
Painting to walls primer + 2 coats (m ²)	13	13
Ceramic tiling (m ²) (1000m ² job)	152	155
Vinyl flooring to wet areas (m ²) (500m ² job)	69	70
Carpet medium tufted (m ²) (4500m ² job)	83	85
Lighting installation (m ²) (5000m ² + job)	110	112
Copper pipe 15mm to wall (m) (1000+ metre job)	55	56
Fire sprinklers (per m ²) (5000m ² job)	99	101
Air conditioning incl main plant (m ²) (5000m ² + job)	165	168
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	107	109
Group 2 Tradesman eg carpenter bricklayer	106	108
Group 3 Tradesman eg carpet layer, tiler, plasterer	102	104
General labourer	93	95
Site foreman	120	122
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	204	208
Reinforcement bar 16mm (tonne) (120 tonne job)	1,472	1,502
Concrete block (400x200) per 1000 (>10,000 block job)	5,398	5,508
Standard brick per 1000	1,236	1,261
Structural steel beams (tonne) (100 tonne +job)	3,315	3,383
Glass pane 10mm tempered (m ²)	185	189
Softwood timber for framing 100mm X 50mm (m)	6	6
13 mm plasterboard (m ²)	7	7
Emulsion paint (litre)	9	9
Copper pipe 15 mm (metre) (1000+ metre job)	16	16
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	9	9
Plant costs		
Hire 50t mobile crane + operator (day)	2,296	2,343

	Zurich
Tendering:	Warm
Market:	Staying the same
Cost escalation 2017–18:	0.4%
Cost escalation 2018–19:	0.6%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	126.6
PPP coefficient:	2.1

Turkey

Istanbul

**Expansion of Turkey's infrastructure
opens opportunities**

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Economic outlook

Turkey enjoyed strong economic growth in 2017, driven by household consumption, fixed investment, exports, industrial production and construction. Although growth in the economy is expected to ease over the next two years, the outlook remains one of solid expansion.

The country has however seen inflation top 10 percent and unemployment at about 11 percent is continuing to rise.

	TRY	USD (exchange rate: 3.91)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	7,350	1,880
Low cost carrier terminal, basic service	4,910	1,256
Car parks		
Multi storey above ground	1,530	391
Multi storey below ground	1,760	450
Commercial		
Offices – Business Park	3,020	772
CBD Offices – up to 20 floors medium (A-Grade)	3,700	946
CBD Offices – high-rise prestige	3,910	1,000
Education		
Primary and secondary	2,250	575
University	3,130	801
Hospitals		
Day centre (including basic surgeries)	2,500	639
Regional hospital	3,340	854
General hospital (e.g. city teaching hospital)	3,460	885
Hotels		
3 Star travellers	3,290	841
5 Star luxury	5,935	1,518
Resort style	4,565	1,168
Industrial		
Warehouse/factory units – basic	1,650	422
Large warehouse distribution centre	2,260	578
High tech factory/laboratory	3,440	880
Residential		
Individual detached or terrace style house medium standard	2,060	527
Individual detached house prestige	2,770	708
Townhouses medium standard	2,450	627
Apartments low-rise medium standard	2,390	611
Apartments high-rise	3,120	798
Aged care/affordable units	2,200	563
Retail		
Large shopping centre including mall	2,950	754
Neighbourhood incl supermarket	2,400	614
Prestige car showroom	2,820	721

Construction market and trends

Turkey's construction index shows activity up 14.2 percent in 2017 compared with the previous year. This follows a 10.8 percent rise in 2016. After this scale of growth, it is to be expected that the sector might ease in 2018, although remaining at a higher level relative to most recent years.

New infrastructure projects are opening development opportunities for new residential districts and commercial investors are heading for housing projects due to continued demand. Among the major infrastructure projects at various stages are the third airport in Ankara-Nidge Highway, the third Bosphorus, the Canal Istanbul, Dardanelle Bridge and Rize-Artvin Airport.

Future outlook

Although construction activity is expected to slow in 2018, the residential market is expected to hold up, supported by Turkey's growing young population and internal migration to the cities. This is expected to raise the demand for power and utility projects.

	TRY	USD (exchange rate: 3.91)
Turkey international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	47	12
Excavate footings (m)	47	12
Concrete in slab (m³) (1500m³ job)	350	90
Reinforcement in beams (tonne)	3,200	818
Formwork to soffit of slab (m²)	85	22
Blockwork in wall (m²) (10,000 block job)	120	31
Structural steel beams (tonne)	6,000	1,535
Pre-cast concrete wall (m²)	400	102
Curtain wall glazing incl support system (m²) (1000m² job)	1,295	331
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	55	14
Single solid core door incl frame and hardware (no) (50 door job)	1,020	261
Painting to walls primer + 2 coats (m²)	21	5
Ceramic tiling (m²) (1000m² job)	140	36
Vinyl flooring to wet areas (m²) (500m² job)	110	28
Carpet medium tufted (m²) (4500m² job)	110	28
Lighting installation (m²) (5000m² + job)	120	31
Copper pipe 15mm to wall (m) (1000+ metre job)	45	12
Fire sprinklers (per m²) (5000m² job)	65	17
Air conditioning incl main plant (m²) (5000m² + job)	410	105
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	36	9
Group 2 Tradesman eg carpenter bricklayer	36	9
Group 3 Tradesman eg carpet layer, tiler, plasterer	36	9
General labourer	24	6
Site foreman	50	13
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	210	54
Reinforcement bar 16mm (tonne) (120 tonne job)	2,600	665
Concrete block (400x200) per 1000 (>10,000 block job)	2,800	716
Standard brick per 1000	900	230
Structural steel beams (tonne) (100 tonne +job)	3,600	921
Glass pane 10mm tempered (m²)	420	107
Softwood timber for framing 100mm X 50mm (m)	9	2
13 mm plasterboard (m²)	24	6
Emulsion paint (litre)	12	3
Copper pipe 15 mm (metre) (1000+ metre job)	13	3
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	2
Plant costs		
Hire 50t mobile crane + operator (day)	2,500	639

Istanbul

Tendering:	Lukewarm
Market:	Staying the same
Cost escalation 2017–18:	10.0%
Cost escalation 2018–19:	15.0%
Contractor's margin:	8.0%
Preliminaries:	10.0%
Location factor (USD):	39.6
PPP coefficient:	2.0

UK

London

Infrastructure growth should soften the effects of easing commercial activity

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Economic outlook

London continues to drive the UK economy. But after hitting a high in late 2014, the nation's economic growth has slowed and is set to slow further, with Brexit uncertainty casting a shadow. Expanding global growth will however provide support.

Construction market and trends

Construction surged in late 2016 and early 2017, but output declined in each of the final three quarters of the year and forecasts point to pallid growth in 2018.

	USD (exchange rate: 0.74)	GBP
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	3,950	5,338
Low cost carrier terminal, basic service	2,930	3,960
Car parks		
Multi storey above ground	731	988
Multi storey below ground	1,128	1,524
Commercial		
Offices – Business Park	2,519	3,405
CBD Offices – up to 20 floors medium (A-Grade)	2,900	3,919
CBD Offices – high-rise prestige	3,650	4,932
Education		
Primary and secondary	2,260	3,054
University	3,320	4,486
Hospitals		
Day centre (including basic surgeries)	2,730	3,689
Regional hospital	3,360	4,541
General hospital (e.g. city teaching hospital)	3,780	5,108
Hotels		
3 Star travellers	2,750	3,716
5 Star luxury	4,250	5,743
Resort style	3,000	4,054
Industrial		
Warehouse/factory units – basic	901	1,218
Large warehouse distribution centre	1,076	1,455
High tech factory/laboratory	2,081	2,812
Residential		
Individual detached or terrace style house medium standard	2,000	2,703
Individual detached house prestige	3,500	4,730
Townhouses medium standard	2,900	3,919
Apartments low-rise medium standard	2,700	3,649
Apartments high-rise	3,200	4,324
Aged care/affordable units	2,100	2,838
Retail		
Large shopping centre including mall	2,096	2,833
Neighbourhood incl supermarket	1,447	1,956
Prestige car showroom	1,772	2,394

London is seeing the effects of slowing economic growth, although infrastructure remains a bright spot buoyed by significant investment in HS2, which is compensating the ramping down and fall of investment on legacy schemes.

Commercial workloads have softened. However, housing shortages and strong activity in the private-rented sector should cushion potential falls in residential construction. Greater educational spending, to retain and develop talent, also looks to offset slowing workloads.

The appetite for new construction may be tempered, but pressure remains. Skills shortages are a major concern, as an ageing workforce hits retirement. The concerns are compounded by uncertainty over the flow of migrant labour which is currently critical to London construction.

Future outlook

London's strengths remain as a leading global city and destination for both national and foreign direct investment. Pricing pressures may ease with reduced demand, but persistent capacity constraints, coupled with improving global growth impacting on material costs, will see price inflation remain positive.

	GBP	USD (exchange rate: 0.74)
UK (London) international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	16	22
Excavate footings (m)	21	28
Concrete in slab (m³) (1500m³ job)	175	236
Reinforcement in beams (tonne)	1,240	1,676
Formwork to soffit of slab (m²)	58	78
Blockwork in wall (m²) (10,000 block job)	69	93
Structural steel beams (tonne)	2,366	3,197
Pre-cast concrete wall (m²)	110	148
Curtain wall glazing incl support system (m²) (1000m² job)	780	1,054
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	51	69
Single solid core door incl frame and hardware (no) (50 door job)	1,100	1,486
Painting to walls primer + 2 coats (m²)	11	15
Ceramic tiling (m²) (1000m² job)	82	111
Vinyl flooring to wet areas (m²) (500m² job)	37	50
Carpet medium tufted (m²) (4500m² job)	33	45
Lighting installation (m²) (5000m² + job)	96	129
Copper pipe 15mm to wall (m) (1000+ metre job)	45	61
Fire sprinklers (per m²) (5000m² job)	49	66
Air conditioning incl main plant (m²) (5000m² + job)	183	247
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	42	56
Group 2 Tradesman eg carpenter bricklayer	37	50
Group 3 Tradesman eg carpet layer, tiler, plasterer	34	46
General labourer	23	31
Site foreman	47	63
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	126	170
Reinforcement bar 16mm (tonne) (120 tonne job)	980	1,324
Concrete block (400x200) per 1000 (>10,000 block job)	1,060	1,432
Standard brick per 1000	525	709
Structural steel beams (tonne) (100 tonne +job)	2,050	2,770
Glass pane 10mm tempered (m²)	110	149
Softwood timber for framing 100mm X 50mm (m)	4	6
13 mm plasterboard (m²)	6	9
Emulsion paint (litre)	6	8
Copper pipe 15 mm (metre) (1000+ metre job)	8	10
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	4
Plant costs		
Hire 50t mobile crane + operator (day)	1,380	1,865

	London
Tendering:	Lukewarm
Market:	Staying the same
Cost escalation 2017–18:	3.9%
Cost escalation 2018–19:	2.8%
Contractor's margin:	5.8%
Preliminaries:	13.2%
Location factor (USD):	100.0
PPP coefficient:	1.0

UK other regions

UK regions see benefits from devolved powers

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Economic outlook

The UK has slipped from being a strong performing economy in Europe to among the weaker. But growth has performed better than the post-referendum fears suggested, while devolution and increased regional autonomy offer potential for growth.

Construction market and trends

Regional markets continue to benefit from devolved powers and collaborative approaches bringing forward investment decisions targeted to regional needs.

	Northern Ireland GBP	Scotland GBP	North GBP	Central GBP	South GBP
International building costs per m² of internal area, in 2018					
Airports (Building only)					
Domestic terminal, full service	2,910	3,250	3,398	3,193	3,550
Low cost carrier terminal, basic service	2,285	2,500	2,487	2,460	2,610
Car parks					
Multi storey above ground	585	590	572	642	677
Multi storey below ground	810	840	887	800	1,068
Commercial					
Offices – Business Park	1,440	1,663	1,600	1,681	1,942
CBD Offices – up to 20 floors medium (A-Grade)	1,620	1,867	1,830	1,835	2,020
CBD Offices – high-rise prestige	2,120	2,400	2,500	2,419	2,657
Education					
Primary and secondary	1,360	1,733	1,591	1,691	1,828
University	1,930	2,263	2,200	2,526	2,675
Hospitals					
Day centre (including basic surgeries)	1,525	1,750	1,677	1,579	1,942
Regional hospital	2,335	2,630	2,521	2,604	2,718
General hospital (e.g. city teaching hospital)	2,740	3,083	3,028	3,101	3,330
Hotels					
3 Star travellers	1,475	1,637	1,769	1,763	1,940
5 Star luxury	2,540	2,533	2,626	2,768	2,880
Resort style	2,080	2,233	2,282	2,255	2,550
Industrial					
Warehouse/factory units – basic	690	710	700	733	775
Large warehouse distribution centre	760	820	820	825	927
High tech factory/laboratory	1,535	1,750	1,744	1,782	1,882
Residential					
Individual detached or terrace style house medium standard	1,100	1,320	1,383	1,379	1,497
Individual detached house prestige	1,520	1,770	1,700	1,737	2,545
Townhouses medium standard	1,380	1,560	1,520	1,538	2,105
Apartments low-rise medium standard	1,430	1,680	1,764	1,712	2,048
Apartments high-rise	1,865	2,173	2,295	2,163	2,385
Aged care/affordable units	1,350	1,670	1,600	1,640	1,830
Retail					
Large shopping centre including mall	1,570	1,750	1,730	1,814	1,910
Neighbourhood incl supermarket	1,060	1,150	1,230	1,240	1,330
Prestige car showroom	1,350	1,580	1,537	1,589	1,640
UK (other regions) international building costs					
Composite trade rates	Northern Ireland GBP	Scotland GBP	North GBP	Central GBP	South GBP
Excavate basement (m ³) (1800m ³ job)	6	12	12	13	16
Excavate footings (m)	12	16	18	19	20
Concrete in slab (m ³) (1500m ³ job)	87	145	152	150	169
Reinforcement in beams (tonne)	783	1,080	1,149	1,124	1,200
Formwork to soffit of slab (m ²)	35	40	43	42	56

Birmingham appears to be among the greater beneficiaries. Both infrastructure and residential construction have surged with the city acting as a hub for HS2. High-tech and manufacturing sectors remain prosperous across central parts of the UK.

Manchester remains a prominent area of foreign investment, supporting the North as a whole. Construction in Scotland, however, remains flat, although there is a push for public sector housing construction. Northern Ireland, meanwhile, is seeing mixed prospects, with uncertainty on public sector capital spending which greatly supports construction activity in the region.

Future outlook

There are signs that the post-referendum indecision is beginning to ease although the effects of transition still need careful watching. Upward pressure on prices will remain as material costs are still affected by the devaluation of sterling, and labour shortages are widespread. Furthermore, construction margins remain compressed and insolvencies look to be rising.

	Northern Ireland GBP	Scotland GBP	North GBP	Central GBP	South GBP
UK (other regions) international building costs					
Blockwork in wall (m ²) (10,000 block job)	27	39	44	43	56
Structural steel beams (tonne)	1,500	1,700	1,900	1,900	2,240
Pre-cast concrete wall (m ²)	76	92	98	96	99
Curtain wall glazing incl support system (m ²) (1000m ² job)	451	537	530	493	630
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	31	37	35	35	48
Single solid core door incl frame and hardware (no) (50 door job)	600	720	688	671	764
Painting to walls primer + 2 coats (m ²)	6	7	6	7	8
Ceramic tiling (m ²) (1000m ² job)	45	52	52	54	64
Vinyl flooring to wet areas (m ²) (500m ² job)	28	31	31	30	34
Carpet medium tufted (m ²) (4500m ² job)	23	28	28	29	32
Lighting installation (m ²) (5000m ² + job)	55	62	60	65	76
Copper pipe 15mm to wall (m) (1000+ metre job)	22	28	28	25	28
Fire sprinklers (per m ²) (5000m ² job)	35	38	38	39	46
Air conditioning incl main plant (m ²) (5000m ² + job)	92	120	121	122	153
Labour costs, per hour					
Group 1 Tradesman eg plumber/electrician	27	32	34	34	38
Group 2 Tradesman eg carpenter bricklayer	23	28	28	26	34
Group 3 Tradesman eg carpet layer, tiler, plasterer	20	25	26	26	33
General labourer	16	21	20	22	22
Site foreman	28	33	35	35	41
Material costs					
Concrete 30 MPa (m ³) (1500m ³ job)	70	94	95	94	113
Reinforcement bar 16mm (tonne) (120 tonne job)	730	840	855	879	929
Concrete block (400x200) per 1000 (>10,000 block job)	435	800	816	797	905
Standard brick per 1000	375	385	470	445	475
Structural steel beams (tonne) (100 tonne +job)	1,250	1,475	1,600	1,553	1,850
Glass pane 10mm tempered (m ²)	95	100	100	103	102
Softwood timber for framing 100mm X 50mm (m)	3	4	4	4	4
13 mm plasterboard (m ²)	4	4	4	4	4
Emulsion paint (litre)	4	4	4	4	4
Copper pipe 15 mm (metre) (1000+ metre job)	5	6	4	4	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	3	2	2	3
Plant costs					
Hire 50t mobile crane + operator (day)	640	910	967	897	1,300
	Northern Ireland	Scotland	North	Central	South
Tendering:	Lukewarm	Lukewarm	Warm	Warm	Warm
Market:	Staying the same	Cooler	Staying the same	Staying the same	Staying the same
Cost escalation 2017–18:	1.8%	1.8%	2.5%	2.5%	3.0%
Cost escalation 2018–19:	2.0%	2.0%	1.9%	2.0%	2.5%
Contractor's margin:	3.0%	4.0%	4.3%	4.3%	5.0%
Preliminaries:	12.5%	11.0%	12.9%	11.0%	14.0%
Location factor (USD):	62.5	73.2	78.7	76.9	90.4
PPP coefficient:	0.6	0.8	0.8	0.8	0.9

Oman

Muscat

Focus falls on boosting non-oil revenue streams

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Economic outlook

Oman is focused on controlling public spending and increasing non-oil revenue streams. So, despite solid growth expected in 2018, as natural gas production starts at Khazzan gas field and the new Muscat airport opens, the 2018 budget for developments is down 17 percent from 2017.

This fall should be offset by increased private-sector investment. Meanwhile, Oman has held off declaring an official date to roll-out VAT, which might otherwise lift inflation and dent demand in an already flat real estate market.

		USD (exchange rate: 0.39)
	OMR	
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	1,400	3,590
Low cost carrier terminal, basic service	900	2,308
Car parks		
Multi storey above ground	280	718
Multi storey below ground	350	897
Commercial		
Offices – Business Park	360	923
CBD Offices – up to 20 floors medium (A-Grade)	450	1,154
CBD Offices – high-rise prestige	610	1,564
Education		
Primary and secondary	500	1,282
University	550	1,410
Hospitals		
Day centre (including basic surgeries)	500	1,282
Regional hospital	600	1,538
General hospital (e.g. city teaching hospital)	750	1,923
Hotels		
3 Star travellers	650	1,667
5 Star luxury	950	2,436
Resort style	985	2,526
Industrial		
Warehouse/factory units – basic	350	897
Large warehouse distribution centre	320	821
High tech factory/laboratory	500	1,282
Residential		
Individual detached or terrace style house medium standard	480	1,231
Individual detached house prestige	750	1,923
Townhouses medium standard	410	1,051
Apartments low-rise medium standard	400	1,026
Apartments high-rise	500	1,282
Aged care/affordable units	–	–
Retail		
Large shopping centre including mall	450	1,154
Neighbourhood incl supermarket	470	1,205
Prestige car showroom	750	1,923

Construction market and trends

The new airport is expected to boost the hospitality sector. There are many four and five-star hotels being planned across Muscat. Development linked to Duqm, as an industrial port city, is gathering pace. There is strong private-sector interest in a USD2.6bn railway link to transport limestone from Al Shuwamiyah. The government is said to have granted rights to Chinese companies for industrial projects worth USD3bn.

Future outlook

The Tanfeedh programme to promote economic diversification will boost hospitality and tourism. Development opportunities will expand with the opening of the new Muscat airport, while proposals to set up free zones in Buraimi and Musandam are still under review.

	OMR	USD (exchange rate: 0.39)
Oman international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	3	6
Excavate footings (m)	3	6
Concrete in slab (m³) (1500m³ job)	35	90
Reinforcement in beams (tonne)	350	897
Formwork to soffit of slab (m²)	9	23
Blockwork in wall (m²) (10,000 block job)	11	28
Structural steel beams (tonne)	900	2,308
Pre-cast concrete wall (m²)	48	123
Curtain wall glazing incl support system (m²) (1000m² job)	120	308
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	15	38
Single solid core door incl frame and hardware (no) (50 door job)	400	1,026
Painting to walls primer + 2 coats (m²)	2	4
Ceramic tiling (m²) (1000m² job)	10	26
Vinyl flooring to wet areas (m²) (500m² job)	9	23
Carpet medium tufted (m²) (4500m² job)	27	69
Lighting installation (m²) (5000m² + job)	20	51
Copper pipe 15mm to wall (m) (1000+ metre job)	10	26
Fire sprinklers (per m²) (5000m² job)	12	31
Air conditioning incl main plant (m²) (5000m² + job)	40	103
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	2	5
Group 2 Tradesman eg carpenter bricklayer	2	5
Group 3 Tradesman eg carpet layer, tiler, plasterer	2	5
General labourer	1	3
Site foreman	4	10
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	23	59
Reinforcement bar 16mm (tonne) (120 tonne job)	250	641
Concrete block (400x200) per 1000 (>10,000 block job)	180	462
Standard brick per 1000	200	513
Structural steel beams (tonne) (100 tonne +job)	550	1,410
Glass pane 10mm tempered (m²)	70	179
Softwood timber for framing 100mm X 50mm (m)	1	3
13 mm plasterboard (m²)	2	5
Emulsion paint (litre)	2	5
Copper pipe 15 mm (metre) (1000+ metre job)	3	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	1	3
Plant costs		
Hire 50t mobile crane + operator (day)	220	564

	Muscat
Tendering:	Cold
Market:	Staying the same
Cost escalation 2017–18:	-1.0%
Cost escalation 2018–19:	1.0%
Contractor's margin:	4.0%
Preliminaries:	10.0%
Location factor (USD):	34.4
PPP coefficient:	0.2

Qatar

Doha

**Infrastructure a priority
ahead of the 2022 World Cup**

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Economic outlook

The construction market has contracted over the past two years, with non-critical projects deferred or cancelled. This reflects slowing economic growth.

Disruption to supply chains in 2017 hindered both the economy and construction, but problems have eased with alternatives established and the opening of Hamad Port. Growth suffered, but forecasts suggest more promising growth in 2018.

	QAR	USD (exchange rate: 3.64)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	–	–
Low cost carrier terminal, basic service	–	–
Car parks		
Multi storey above ground	3,475	955
Multi storey below ground	4,225	1,161
Commercial		
Offices – Business Park	4,890	1,343
CBD Offices – up to 20 floors medium (A-Grade)	7,145	1,963
CBD Offices – high-rise prestige	10,895	2,993
Education		
Primary and secondary	7,650	2,102
University	7,670	2,107
Hospitals		
Day centre (including basic surgeries)	9,625	2,644
Regional hospital	12,995	3,570
General hospital (e.g. city teaching hospital)	13,840	3,802
Hotels		
3 Star travellers	7,500	2,060
5 Star luxury	13,500	3,709
Resort style	13,975	3,839
Industrial		
Warehouse/factory units – basic	4,600	1,264
Large warehouse distribution centre	5,100	1,401
High tech factory/laboratory	6,700	1,841
Residential		
Individual detached or terrace style house medium standard	6,910	1,898
Individual detached house prestige	9,875	2,713
Townhouses medium standard	6,550	1,799
Apartments low-rise medium standard	5,845	1,606
Apartments high-rise	7,385	2,029
Aged care/affordable units	–	–
Retail		
Large shopping centre including mall	7,905	2,172
Neighbourhood incl supermarket	5,915	1,625
Prestige car showroom	9,010	2,475

Construction market and trends

With fewer projects coming through, tender prices and inflation within construction have eased. The infrastructure sector, however, has been at full speed for five years and should run steadily for the next five ahead of the 2022 World Cup.

The number of real estate projects, which have been relatively low, are expected to surge as the World Cup nears and emphasis switches to hotels and sports facilities. The government has also committed to large-scale investment in health and education.

Future outlook

Over the next four years, the government's focus will be on critical infrastructure projects. Some deferred projects may come back online and there will be pressure to complete transport projects on time.

Growing private sector activity will influence construction cost inflation, as hospitality and entertainment projects contest for resources ahead of 2022. The impact will depend on the government's effectiveness at controlling market prices for key materials.

	QAR	USD (exchange rate: 3.64)
Qatar international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	36	10
Excavate footings (m)	46	13
Concrete in slab (m³) (1500m³ job)	545	150
Reinforcement in beams (tonne)	3,800	1,044
Formwork to soffit of slab (m²)	133	37
Blockwork in wall (m²) (10,000 block job)	165	45
Structural steel beams (tonne)	13,750	3,777
Pre-cast concrete wall (m²)	655	180
Curtain wall glazing incl support system (m²) (1000m² job)	2,250	618
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	190	52
Single solid core door incl frame and hardware (no) (50 door job)	4,750	1,305
Painting to walls primer + 2 coats (m²)	32	9
Ceramic tiling (m²) (1000m² job)	235	65
Vinyl flooring to wet areas (m²) (500m² job)	180	49
Carpet medium tufted (m²) (4500m² job)	340	93
Lighting installation (m²) (5000m² + job)	372	102
Copper pipe 15mm to wall (m) (1000+ metre job)	68	19
Fire sprinklers (per m²) (5000m² job)	125	34
Air conditioning incl main plant (m²) (5000m² + job)	840	231
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	46	13
Group 2 Tradesman eg carpenter bricklayer	42	12
Group 3 Tradesman eg carpet layer, tiler, plasterer	27	7
General labourer	14	4
Site foreman	48	13
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	304	84
Reinforcement bar 16mm (tonne) (120 tonne job)	2,985	820
Concrete block (400x200) per 1000 (>10,000 block job)	4,245	1,166
Standard brick per 1000	3,075	845
Structural steel beams (tonne) (100 tonne +job)	6,995	1,922
Glass pane 10mm tempered (m²)	750	206
Softwood timber for framing 100mm X 50mm (m)	20	5
13 mm plasterboard (m²)	13	4
Emulsion paint (litre)	12	3
Copper pipe 15 mm (metre) (1000+ metre job)	17	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	1
Plant costs		
Hire 50t mobile crane + operator (day)	3,300	907
Doha		
Tendering:	Cold	
Market:	Staying the same	
Cost escalation 2017–18:	0.1%	
Cost escalation 2018–19:	1.0%	
Contractor's margin:	7.0%	
Preliminaries:	13.0%	
Location factor (USD):	52.6	
PPP coefficient:	2.5	

UAE

Abu Dhabi and Dubai

Consolidation leading to growth as new norms bed in

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Economic outlook

The Middle East as a region has had much to contend with leading to mixed performances and sentiment in 2017. But new political and economic norms should settle in 2018 and lead to consolidation and stronger growth.

Construction market and trends

Recovering oil prices should support government spending as it looks to infrastructure and economic development. Projects that help the UAE diversify away from oil and gas will drive construction activity, directly and indirectly.

	AED	USD (exchange rate: 3.67)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	16,300	4,441
Low cost carrier terminal, basic service	11,000	2,997
Car parks		
Multi storey above ground	2,800	763
Multi storey below ground	3,600	981
Commercial		
Offices – Business Park	4,800	1,308
CBD Offices – up to 20 floors medium (A-Grade)	5,200	1,417
CBD Offices – high-rise prestige	6,800	1,853
Education		
Primary and secondary	5,300	1,444
University	6,500	1,771
Hospitals		
Day centre (including basic surgeries)	5,900	1,608
Regional hospital	7,400	2,016
General hospital (e.g. city teaching hospital)	–	–
Hotels		
3 Star travellers	6,500	1,771
5 Star luxury	10,000	2,725
Resort style	12,500	3,406
Industrial		
Warehouse/factory units – basic	–	–
Large warehouse distribution centre	3,500	954
High tech factory/laboratory	5,200	1,417
Residential		
Individual detached or terrace style house medium standard	5,800	1,580
Individual detached house prestige	8,500	2,316
Townhouses medium standard	5,600	1,526
Apartments low-rise medium standard	5,500	1,499
Apartments high-rise	5,800	1,580
Aged care/affordable units	–	–
Retail		
Large shopping centre including mall	5,300	1,444
Neighbourhood incl supermarket	5,600	1,526
Prestige car showroom	9,000	2,452

Hosting the World Expo in 2020 has prompted investment in related infrastructure. In 2015, it announced plans to invest over USD8.7bn to construct the Expo site and other related facilities. The Expo is also driving hotel construction.

Work is still underway on Abu Dhabi's new terminal, costing USD3.5bn and due for completion in late 2019. It will double the airport's capacity.

Future outlook

The modest recovery in oil prices has prompted a marginal rise in government spending and major projects are planned for Al Maktoum and Dubai South as a whole. There are also plans for a new housing development 'Al Riyadh City' – a 8,000ha project able to house 200,000 UAE citizens.

	AED	USD (exchange rate: 3.67)
UAE international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	25	7
Excavate footings (m)	30	8
Concrete in slab (m ³) (1500m ³ job)	450	123
Reinforcement in beams (tonne)	4,000	1,090
Formwork to soffit of slab (m ²)	120	33
Blockwork in wall (m ²) (10,000 block job)	130	35
Structural steel beams (tonne)	11,000	2,997
Pre-cast concrete wall (m ²)	450	123
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,800	490
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	200	54
Single solid core door incl frame and hardware (no) (50 door job)	5,000	1,362
Painting to walls primer + 2 coats (m ²)	25	7
Ceramic tiling (m ²) (1000m ² job)	150	41
Vinyl flooring to wet areas (m ²) (500m ² job)	200	54
Carpet medium tufted (m ²) (4500m ² job)	320	87
Lighting installation (m ²) (5000m ² + job)	220	60
Copper pipe 15mm to wall (m) (1000+ metre job)	100	27
Fire sprinklers (per m ²) (5000m ² job)	120	33
Air conditioning incl main plant (m ²) (5000m ² + job)	550	150
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	28	8
Group 2 Tradesman eg carpenter bricklayer	30	8
Group 3 Tradesman eg carpet layer, tiler, plasterer	30	8
General labourer	20	5
Site foreman	60	16
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	230	63
Reinforcement bar 16mm (tonne) (120 tonne job)	1,800	490
Concrete block (400x200) per 1000 (>10,000 block job)	3,500	954
Standard brick per 1000	2,100	572
Structural steel beams (tonne) (100 tonne +job)	7,000	1,907
Glass pane 10mm tempered (m ²)	680	185
Softwood timber for framing 100mm X 50mm (m)	14	4
13 mm plasterboard (m ²)	11	3
Emulsion paint (litre)	10	3
Copper pipe 15 mm (metre) (1000+ metre job)	27	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	10	3
Plant costs		
Hire 50t mobile crane + operator (day)	2,700	736
UAE		
Tendering:	Lukewarm	
Market:	Warmer	
Cost escalation 2017–18:	2.0%	
Cost escalation 2018–19:	2.0%	
Contractor's margin:	9.0%	
Preliminaries:	12.0%	
Location factor (USD):	43.2	
PPP coefficient:	2.0	

Canada

Toronto

**Government policy checks
housing market overheating**

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Economic outlook

Canada's economy grew by about 3 percent in 2017, exceeding most forecasts and supporting growth in jobs and a fall in unemployment. But there is uncertainty surrounding the renegotiation of the North American Free Trade Agreement and possible higher interest rates.

Construction market and trends

The housing market dominates Canadian business headlines. In recent years, policy has shifted aggressively towards constraining rising house prices, with the major urban markets of Toronto and Vancouver attracting particular attention.

	CAD	USD (exchange rate: 1.28)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	6,355	4,965
Low cost carrier terminal, basic service	4,570	3,571
Car parks		
Multi storey above ground	897	701
Multi storey below ground	1,350	1,055
Commercial		
Offices – Business Park	1,999	1,562
CBD Offices – up to 20 floors medium (A-Grade)	2,665	2,082
CBD Offices – high-rise prestige	3,588	2,803
Education		
Primary and secondary	2,050	1,602
University	4,305	3,363
Hospitals		
Day centre (including basic surgeries)	4,100	3,203
Regional hospital	6,458	5,045
General hospital (e.g. city teaching hospital)	7,688	6,006
Hotels		
3 Star travellers	1,640	1,281
5 Star luxury	3,946	3,083
Resort style	3,075	2,402
Industrial		
Warehouse/factory units – basic	1,025	801
Large warehouse distribution centre	1,128	881
High tech factory/laboratory	2,306	1,802
Residential		
Individual detached or terrace style house medium standard	3,126	2,442
Individual detached house prestige	4,203	3,283
Townhouses medium standard	1,538	1,201
Apartments low-rise medium standard	2,050	1,602
Apartments high-rise	1,948	1,521
Aged care/affordable units	2,204	1,722
Retail		
Large shopping centre including mall	2,768	2,162
Neighbourhood incl supermarket	2,460	1,922
Prestige car showroom	2,870	2,242

Housing starts and existing home sales are forecast to decline in 2018, dampened by the cumulative effects of policy changes and higher borrowing rates.

Construction costs and trade labour rates both rose by about 2 percent in 2017, slightly outpacing wider inflation in Canada of 1.5 percent.

Infrastructure and natural resources remain important within the national economy. There are major electricity

projects (hydroelectric and nuclear) under construction, but the oil and gas markets are awaiting certainty about new pipeline construction.

Future outlook

Canada's economy is expected to cool slightly with growth in 2018 at about 2 percent, barring any sudden shock. But this rests on the outcome of the NAFTA negotiations. Eyes will also remain fixed on the housing market to check for cracks appearing.

	CAD	USD (exchange rate: 1.28)
Canada international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	16	13
Excavate footings (m)	27	21
Concrete in slab (m ³) (1500m ³ job)	211	165
Reinforcement in beams (tonne)	2,076	1,622
Formwork to soffit of slab (m ²)	138	108
Blockwork in wall (m ²) (10,000 block job)	118	92
Structural steel beams (tonne)	3,690	2,883
Pre-cast concrete wall (m ²)	200	156
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,179	921
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	49	38
Single solid core door incl frame and hardware (no) (50 door job)	1,215	949
Painting to walls primer + 2 coats (m ²)	11	8
Ceramic tiling (m ²) (1000m ² job)	97	76
Vinyl flooring to wet areas (m ²) (500m ² job)	67	52
Carpet medium tufted (m ²) (4500m ² job)	64	50
Lighting installation (m ²) (5000m ² + job)	82	64
Copper pipe 15mm to wall (m) (1000+ metre job)	74	58
Fire sprinklers (per m ²) (5000m ² job)	41	32
Air conditioning incl main plant (m ²) (5000m ² + job)	238	186
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	71	55
Group 2 Tradesman eg carpenter bricklayer	63	49
Group 3 Tradesman eg carpet layer, tiler, plasterer	58	46
General labourer	54	42
Site foreman	84	66
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	190	148
Reinforcement bar 16mm (tonne) (120 tonne job)	1,584	1,237
Concrete block (400x200) per 1000 (>10,000 block job)	1,640	1,281
Standard brick per 1000	1,025	801
Structural steel beams (tonne) (100 tonne +job)	2,511	1,962
Glass pane 10mm tempered (m ²)	343	268
Softwood timber for framing 100mm X 50mm (m)	6	5
13 mm plasterboard (m ²)	11	8
Emulsion paint (litre)	11	8
Copper pipe 15 mm (metre) (1000+ metre job)	11	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	8	7
Plant costs		
Hire 50t mobile crane + operator (day)	1,984	1,550

	Toronto
Tendering:	Warm
Market:	Staying the same
Cost escalation 2017–18:	3.0%
Cost escalation 2018–19:	2.5%
Contractor's margin:	6.0%
Preliminaries:	10.0%
Location factor (USD):	98.4
PPP coefficient:	1.8

USA

New York City

New York boom bounces back

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Economic outlook

The extended building boom continues, even though construction spend in New York City dipped 12 percent in 2017, after exceptionally strong levels of activity in 2016. Expenditure in 2017 at USD45.3bn was still the second highest on record and it is expected to bounce back to USD52.5bn in 2018. The recent tax cuts are hoped to tempt businesses to relocate back to the USA, with New York City a hot destination.

	USD Metric (m ²)	USD US Standard (ft ²)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	6,600	613
Low cost carrier terminal, basic service	3,750	349
Car parks		
Multi storey above ground	1,500	139
Multi storey below ground	2,375	221
Commercial		
Offices – Business Park	3,000	279
CBD Offices – up to 20 floors medium (A-Grade)	5,400	502
CBD Offices – high-rise prestige	6,075	565
Education		
Primary and secondary	2,500	232
University	4,000	372
Hospitals		
Day centre (including basic surgeries)	3,082	286
Regional hospital	5,860	545
General hospital (e.g. city teaching hospital)	6,000	558
Hotels		
3 Star travellers	2,975	276
5 Star luxury	5,295	492
Resort style	3,625	337
Industrial		
Warehouse/factory units – basic	1,300	121
Large warehouse distribution centre	1,775	165
High tech factory/laboratory	5,300	493
Residential		
Individual detached or terrace style house medium standard	3,050	283
Individual detached house prestige	3,993	371
Townhouses medium standard	2,000	186
Apartments low-rise medium standard	2,415	224
Apartments high-rise	3,250	302
Aged care/affordable units	2,100	195
Retail		
Large shopping centre including mall	3,800	353
Neighbourhood incl supermarket	2,000	186
Prestige car showroom	3,400	316

Construction market and trends

Non-residential and government-funded construction will drive much of the growth in 2018 and 2019. Government expenditure is expected to reach USD16bn, with half spent in New York City.

New York is currently experiencing massive redevelopment. The biggest project is the USD20bn Hudson Yards, which includes 18 million sq ft of commercial and residential space. The Long Island Express, a USD10bn transport project, includes a station under Grand Central. Meanwhile, La Guardia airport is adding a new USD8bn terminal. Employment in construction is at record levels with skilled trades in short supply.

Future outlook

Ten years after the global financial crisis the future looks bright for construction in New York, driven by high levels of economic growth. Construction costs remain some of the highest in the world and are expected to keep rising as skills shortages persist.

USA (New York City) international building costs

Composite trade rates

	USD Metric	USD US Standard
Excavate basement (m ³) (1800m ³ job)	39	1.1
Excavate footings (m)	38	11.6
Concrete in slab (m ³) (1500m ³ job)	325	9.2
Reinforcement in beams (tonne)	2,100	1,909.1
Formwork to soffit of slab (m ²)	95	8.8
Blockwork in wall (m ²) (10,000 block job)	265	24.6
Structural steel beams (tonne)	6,500	5,909.1
Pre-cast concrete wall (m ²)	290	27
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,900	176.6
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	95	8.8
Single solid core door incl frame and hardware (no) (50 door job)	2,375	2,375
Painting to walls primer + 2 coats (m ²)	21	2
Ceramic tiling (m ²) (1000m ² job)	172	16
Vinyl flooring to wet areas (m ²) (500m ² job)	105	9.8
Carpet medium tufted (m ²) (4500m ² job)	69	6.4
Lighting installation (m ²) (5000m ² + job)	165	15.3
Copper pipe 15mm to wall (m) (1000+ metre job)	58	17.7
Fire sprinklers (per m ²) (5000m ² job)	60	5.6
Air conditioning incl main plant (m ²) (5000m ² + job)	490	45.5

Labour costs, per hour

Group 1 Tradesman eg plumber/electrician	125	125
Group 2 Tradesman eg carpenter bricklayer	98	98
Group 3 Tradesman eg carpet layer, tiler, plasterer	85	85
General labourer	85	85
Site foreman	145	145

Material costs

Concrete 30 MPa (m ³) (1500m ³ job)	155	4.4
Reinforcement bar 16mm (tonne) (120 tonne job)	1,150	1,045.5
Concrete block (400x200) per 1000 (>10,000 block job)	1,350	1,350
Standard brick per 1000	585	585
Structural steel beams (tonne) (100 tonne +job)	2,850	2,590.9
Glass pane 10mm tempered (m ²)	255	23.7
Softwood timber for framing 100mm X 50mm (m)	5	1.5
13 mm plasterboard (m ²)	12	1.1
Emulsion paint (litre)	7	26.5
Copper pipe 15 mm (metre) (1000+ metre job)	13	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	1.8

Plant costs

Hire 50t mobile crane + operator (day)	3,800	3,800
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New York City

Tendering:	Warm
Market:	Staying the same
Cost escalation 2017–18:	3.5%
Cost escalation 2018–19:	3.5%
Contractor's margin:	7.0%
Preliminaries:	13.0%
Location factor (USD):	136.2
PPP coefficient:	2.2

USA other regions

Hot tech markets and hurricane repairs maintain momentum

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Economic outlook

The USA enjoyed accelerated economic activity towards the end of 2017, which should propel GDP growth in 2018 to 2.6 percent after the 2.2 percent rise in 2017. This momentum is likely to continue, boosted by proposed tax changes and extra spending to repair hurricane damage. Inflation remains low at 1.3 percent and unemployment has dropped to 3.9 percent.

Construction market and trends

In the major cities construction is expected to benefit from increased spending to repair hurricane damage, for example in Texas and Florida, and continued expansion in the high-tech and residential sectors.

	Houston USD US		San Francisco USD US		Seattle USD US	
	Metric (m ²)	Standard (ft ²)	Metric (m ²)	Standard (ft ²)	Metric (m ²)	Standard (ft ²)
International building costs per m² of internal area, in 2018						
Airports (Building only)						
Domestic terminal, full service	5,012	466	6,300	586	5,538	515
Low cost carrier terminal, basic service	2,803	261	3,600	335	3,278	305
Car parks						
Multi storey above ground	549	51	1,400	130	954	89
Multi storey below ground	1,066	99	2,250	209	1,794	167
Commercial						
Offices – Business Park	1,283	119	2,900	270	2,243	208
CBD Offices – up to 20 floors medium (A-Grade)	2,207	205	5,200	483	2,594	241
CBD Offices – high-rise prestige	3,531	328	5,950	553	5,248	488
Education						
Primary and secondary	2,377	221	2,400	223	2,373	221
University	3,163	294	3,750	349	3,052	284
Hospitals						
Day centre (including basic surgeries)	2,294	213	3,000	279	2,373	221
Regional hospital	3,665	341	5,400	502	6,149	571
General hospital (e.g. city teaching hospital)	2,968	276	5,650	525	3,956	368
Hotels						
3 Star travellers	1,668	155	2,900	270	2,713	252
5 Star luxury	3,660	340	5,500	511	4,090	380
Resort style	2,257	210	3,500	325	2,599	242
Industrial						
Warehouse/factory units – basic	678	63	1,250	116	1,130	105
Large warehouse distribution centre	990	92	1,600	149	1,413	131
High tech factory/laboratory	4,768	443	5,150	479	4,916	457
Residential						
Individual detached or terrace style house medium standard	1,399	130	2,950	274	2,373	221
Individual detached house prestige	2,745	255	3,900	362	3,560	331
Townhouses medium standard	1,023	95	1,950	181	1,695	158
Apartments low-rise medium standard	1,270	118	2,360	219	1,921	179
Apartments high-rise	1,595	148	3,120	290	2,228	207
Aged care/affordable units	1,206	112	2,050	191	1,639	152
Retail						
Large shopping centre including mall	2,705	251	3,700	344	3,391	315
Neighbourhood incl supermarket	1,205	112	1,850	172	1,356	126
Prestige car showroom	2,954	275	2,900	270	2,939	273

Houston's underlying economic fundamentals suggest gradually expanding activity throughout 2018. Repairing damage caused by Hurricane Harvey should boost growth in construction, which will offset a recent residential market slowdown.

Meanwhile, in San Francisco, a spate of tech companies building offices has pushed up both land values and contractors' prices. With top contractors engaged by tech clients throughout the Bay Area, commercial developers and other clients either struggle to find builders or pay a premium.

In Seattle construction is likely to come under pressure. Contractors' profit margins are said to be shrinking, with labour rates and material prices rising.

Future outlook

High-tech is a big growth driver but rests on the availability of skilled tech talent. This may be affected by the administration's policy reforms around immigration.

USA (other regions) international building costs	Houston USD		San Francisco USD		Seattle USD	
	Metric	US Standard	Metric	US Standard	Metric	US Standard
Composite trade rates						
Excavate basement (m³) (1800m³ job)	13	0.4	24	0.7	26	0.7
Excavate footings (m)	18	5.5	32	9.8	55	16.7
Concrete in slab (m³) (1500m³ job)	286	8.1	320	9.1	371	10.5
Reinforcement in beams (tonne)	1,654	1,503.4	2,100	1,909.1	1,740	1,581.8
Formwork to soffit of slab (m²)	60	5.5	96	8.9	105	9.8
Blockwork in wall (m²) (10,000 block job)	105	9.8	165	15.3	102	9.5
Structural steel beams (tonne)	5,303	4,820.5	6,200	5,636.4	5,580	5,072.7
Pre-cast concrete wall (m²)	265	24.6	275	25.6	592	55
Curtain wall glazing incl support system (m²) (1000m² job)	1,093	101.6	1,450	134.8	1,238	115
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	60	5.6	80	7.4	68	6.3
Single solid core door incl frame and hardware (no) (50 door job)	1,201	1,200.8	2,150	2,150	1,353	1,352.5
Painting to walls primer + 2 coats (m²)	15	1.4	14	1.3	8	0.7
Ceramic tiling (m²) (1000m² job)	97	9.1	145	13.5	172	16
Vinyl flooring to wet areas (m²) (500m² job)	62	5.7	62	5.8	73	6.8
Carpet medium tufted (m²) (4500m² job)	58	5.4	65	6	60	5.6
Lighting installation (m²) (5000m² + job)	147	13.7	162	15.1	172	16
Copper pipe 15mm to wall (m) (1000+ metre job)	43	13	55	16.8	51	15.5
Fire sprinklers (per m²) (5000m² job)	35	3.3	45	4.2	46	4.3
Air conditioning incl main plant (m²) (5000m² + job)	291	27	440	40.9	396	36.8
Labour costs, per hour						
Group 1 Tradesman eg plumber/electrician	68	68	105	105	91	91
Group 2 Tradesman eg carpenter bricklayer	59	59	94	94	68	68
Group 3 Tradesman eg carpet layer, tiler, plasterer	48	48	78	78	72	72
General labourer	42	42	60	60	59	59
Site foreman	95	95	125	125	114	114
Material costs						
Concrete 30 MPa (m³) (1500m³ job)	146	4.1	154	4.4	148	4.2
Reinforcement bar 16mm (tonne) (120 tonne job)	1,039	944.3	1,200	1,090.9	932	847.3
Concrete block (400x200) per 1000 (>10,000 block job)	1,082	1,082	1,380	1,380	1,033	1,033.3
Standard brick per 1000	476	476.1	535	535	473	472.5
Structural steel beams (tonne) (100 tonne +job)	2,121	1,928.2	2,700	2,454.5	2,790	2,536.4
Glass pane 10mm tempered (m²)	249	23.1	250	23.2	291	27
Softwood timber for framing 100mm X 50mm (m)	5	1.5	5	1.5	4	1.3
13 mm plasterboard (m²)	10	0.9	11	1	11	1
Emulsion paint (litre)	6	24.2	7	26.5	6	23.9
Copper pipe 15 mm (metre) (1000+ metre job)	12	3.6	12	3.7	11	3.2
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	1.8	6	1.8	5	1.6
Plant costs						
Hire 50t mobile crane + operator (day)	2,130	2,130.5	3,220	3,220	3,150	3,150
		Houston	San Francisco	Seattle		
Tendering:		Lukewarm	Overheating	Overheating		
Market:		Staying the same	Warmer	Staying the same		
Cost escalation 2017–18:		4.0%	5.0%	5.0%		
Cost escalation 2018–19:		3.0%	5.0%	5.0%		
Contractor's margin:		5.0%	7.0%	4.0%		
Preliminaries:		10.6%	9.0%	7.0%		
Location factor (USD):		87.3	122.5	107.0		
PPP coefficient:		1.5	2.0	1.8		

Argentina

Buenos Aires

Recovery paves the way for strong infrastructure investment

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Economic outlook

Argentina's economy is recovering with most sectors enjoying growth. GDP, which grew 2.8 percent in 2017, is forecast to rise 3 percent in 2018. Inflation is high, 22.7 percent in 2017, but down from 40 percent in 2016 and it is projected to hit 15.6 percent in 2018. Rising household purchasing power and consumer spending should strengthen economic growth.

Construction market and trends

The government plans to launch 61 projects in 2018 across a range of infrastructure sub-sectors including roads, electricity transmission and railroads. There is strong support for renewable power generation,

	ARS	USD (exchange rate: 18.95)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	33,901	1,789
Low cost carrier terminal, basic service	26,013	1,373
Car parks		
Multi storey above ground	8,600	454
Multi storey below ground	11,783	622
Commercial		
Offices – Business Park	8,914	470
CBD Offices – up to 20 floors medium (A-Grade)	13,081	690
CBD Offices – high-rise prestige	21,483	1,134
Education		
Primary and secondary	21,951	1,158
University	32,811	1,731
Hospitals		
Day centre (including basic surgeries)	21,506	1,135
Regional hospital	26,249	1,385
General hospital (e.g. city teaching hospital)	40,208	2,122
Hotels		
3 Star travellers	20,762	1,096
5 Star luxury	49,168	2,595
Resort style	42,711	2,254
Industrial		
Warehouse/factory units – basic	8,853	467
Large warehouse distribution centre	12,200	644
High tech factory/laboratory	59,400	3,135
Residential		
Individual detached or terrace style house medium standard	16,423	867
Individual detached house prestige	19,806	1,045
Townhouses medium standard	19,045	1,005
Apartments low-rise medium standard	14,141	746
Apartments high-rise	21,073	1,112
Aged care/affordable units	18,500	976
Retail		
Large shopping centre including mall	32,640	1,722
Neighbourhood incl supermarket	19,382	1,023
Prestige car showroom	31,255	1,649

presenting opportunities for private investment. While huge government-led infrastructure projects, combined with legislative changes, boost the economy as private investment slowly ramps up.

With its latest PPP programmes, the government is seeking USD30bn of new investment in 60 projects spread across transport, energy, water and sanitation and health sectors. One USD9.5bn water project involves 38 infrastructure schemes covering drinking water, sanitation, dam and irrigation works.

Future outlook

A strengthening economy, government-promoted infrastructure projects and a foreign-investment-friendly policy, passed last year, should open up big opportunities for construction. However, high inflation still hits construction costs, which require a buffer to accommodate rising materials prices.

Meanwhile, there is growing momentum behind projects exploiting natural resources and renewable energy, with a focus on Argentina's lithium resources.

	ARS	USD (exchange rate: 18.95)
Argentina international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	69	4
Excavate footings (m)	102	5
Concrete in slab (m ³) (1500m ³ job)	1,438	76
Reinforcement in beams (tonne)	32,220	1,700
Formwork to soffit of slab (m ²)	194	10
Blockwork in wall (m ²) (10,000 block job)	362	19
Structural steel beams (tonne)	19,080	1,007
Pre-cast concrete wall (m ²)	1,367	72
Curtain wall glazing incl support system (m ²) (1000m ² job)	3,313	175
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	285	15
Single solid core door incl frame and hardware (no) (50 door job)	4,955	261
Painting to walls primer + 2 coats (m ²)	73	4
Ceramic tiling (m ²) (1000m ² job)	453	24
Vinyl flooring to wet areas (m ²) (500m ² job)	283	15
Carpet medium tufted (m ²) (4500m ² job)	678	36
Lighting installation (m ²) (5000m ² + job)	726	38
Copper pipe 15mm to wall (m) (1000+ metre job)	373	20
Fire sprinklers (per m ²) (5000m ² job)	409	22
Air conditioning incl main plant (m ²) (5000m ² + job)	1,815	96
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	83	4
Group 2 Tradesman eg carpenter bricklayer	78	4
Group 3 Tradesman eg carpet layer, tiler, plasterer	56	3
General labourer	55	3
Site foreman	195	10
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	2,670	141
Reinforcement bar 16mm (tonne) (120 tonne job)	21,888	1,155
Concrete block (400x200) per 1000 (>10,000 block job)	17,890	944
Standard brick per 1000	14,700	776
Structural steel beams (tonne) (100 tonne +job)	31,507	1,663
Glass pane 10mm tempered (m ²)	2,490	131
Softwood timber for framing 100mm X 50mm (m)	50	3
13 mm plasterboard (m ²)	93	5
Emulsion paint (litre)	452	24
Copper pipe 15 mm (metre) (1000+ metre job)	118	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	11	1
Plant costs		
Hire 50t mobile crane + operator (day)	17,100	902

	Buenos Aires
Tendering:	Warm
Market:	Warmer
Cost escalation 2017–18:	31.7%
Cost escalation 2018–19:	35.0%
Contractor's margin:	12.5%
Preliminaries:	15.0%
Location factor (USD):	47.9
PPP coefficient:	11.2

Brazil

São Paulo

Economic growth promises the first rise in construction since 2013

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Economic outlook

Two years of recession ended with GDP growing 0.89 percent in 2017 with the consensus pointing to 2.7 percent growth in 2018. Meanwhile, both interest rates and inflation fell in 2017 to near 20-year lows. Higher household spending and rising exports of commodities drove the recovery, pushing unemployment down to 12 percent by the end of 2017.

Despite GDP growth, construction activity dipped 5 percent in 2017, costing a million jobs. Construction forecasts for 2018 are more optimistic. The Central Bank forecasts 2.5 percent – the first annual construction growth since 2013.

		USD (exchange rate: 3.23)
	BRL	
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	9,611	2,976
Low cost carrier terminal, basic service	5,216	1,615
Car parks		
Multi storey above ground	1,997	618
Multi storey below ground	2,108	653
Commercial		
Offices – Business Park	3,048	944
CBD Offices – up to 20 floors medium (A-Grade)	3,048	944
CBD Offices – high-rise prestige	3,429	1,062
Education		
Primary and secondary	3,107	962
University	4,350	1,347
Hospitals		
Day centre (including basic surgeries)	7,817	2,420
Regional hospital	7,817	2,420
General hospital (e.g. city teaching hospital)	8,323	2,577
Hotels		
3 Star travellers	6,225	1,927
5 Star luxury	11,263	3,487
Resort style	10,071	3,118
Industrial		
Warehouse/factory units – basic	2,250	697
Large warehouse distribution centre	2,250	697
High tech factory/laboratory	5,492	1,700
Residential		
Individual detached or terrace style house medium standard	2,093	648
Individual detached house prestige	3,757	1,163
Townhouses medium standard	2,430	752
Apartments low-rise medium standard	2,430	752
Apartments high-rise	2,869	888
Aged care/affordable units	2,430	752
Retail		
Large shopping centre including mall	2,500	774
Neighbourhood incl supermarket	3,500	1,084
Prestige car showroom	4,100	1,269

Construction market and trends

Commercial development remains buoyant, as does high-tech manufacturing. The health sector is also investing strongly in both new and existing facilities.

Government spending is a big driver, with USD40bn of investment for 2018 focused on transport and energy projects. Chinese investment is supporting a huge three-railway construction and modernising project to boost connections between grain and mineral producing regions and ports.

Future outlook

Greater exploitation of natural resources should stimulate construction, following the auction of new leases in 2017. Infrastructure, particularly concessions for new airports, power generation and transmission, will also support growth. Renovating and expanding logistic parks and educational and health facilities will provide further demand. International groups are acquiring Brazilian universities and schools, while access to low-cost funds is fuelling investment in health-related construction.

	BRL	USD (exchange rate: 3.23)
Brazil international building costs		
Composite trade rates		
Excavate basement (m ³) (1800m ³ job)	48	15
Excavate footings (m)	15	5
Concrete in slab (m ³) (1500m ³ job)	337	104
Reinforcement in beams (tonne)	5,633	1,744
Formwork to soffit of slab (m ²)	131	41
Blockwork in wall (m ²) (10,000 block job)	86	27
Structural steel beams (tonne)	6,896	2,135
Pre-cast concrete wall (m ²)	300	93
Curtain wall glazing incl support system (m ²) (1000m ² job)	1,379	427
Plasterboard 13mm thick to stud wall (m ²) (3000m ² job)	103	32
Single solid core door incl frame and hardware (no) (50 door job)	1,027	318
Painting to walls primer + 2 coats (m ²)	24	7
Ceramic tiling (m ²) (1000m ² job)	175	54
Vinyl flooring to wet areas (m ²) (500m ² job)	170	53
Carpet medium tufted (m ²) (4500m ² job)	263	81
Lighting installation (m ²) (5000m ² + job)	244	76
Copper pipe 15mm to wall (m) (1000+ metre job)	27	8
Fire sprinklers (per m ²) (5000m ² job)	106	33
Air conditioning incl main plant (m ²) (5000m ² + job)	550	170
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	45	14
Group 2 Tradesman eg carpenter bricklayer	40	12
Group 3 Tradesman eg carpet layer, tiler, plasterer	38	12
General labourer	32	10
Site foreman	103	32
Material costs		
Concrete 30 MPa (m ³) (1500m ³ job)	411	127
Reinforcement bar 16mm (tonne) (120 tonne job)	4,069	1,260
Concrete block (400x200) per 1000 (>10,000 block job)	2,960	916
Standard brick per 1000	762	236
Structural steel beams (tonne) (100 tonne +job)	4,430	1,372
Glass pane 10mm tempered (m ²)	251	78
Softwood timber for framing 100mm X 50mm (m)	12	4
13 mm plasterboard (m ²)	24	7
Emulsion paint (litre)	12	4
Copper pipe 15 mm (metre) (1000+ metre job)	22	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	4	1
Plant costs		
Hire 50t mobile crane + operator (day)	2,875	890

	São Paulo
Tendering:	Cold
Market:	Warmer
Cost escalation 2017–18:	4.6%
Cost escalation 2018–19:	4.1%
Contractor's margin:	7.4%
Preliminaries:	7.3%
Location factor (USD):	53.8
PPP coefficient:	2.3

Chile

Santiago

Rising copper prices buff
up economic prospects

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Economic outlook

Rising commodity prices are fuelling optimism for 2018, with GDP growth forecast at 3.0 percent, after a 1.4 percent rise in 2017. Employment growth in 2018 should help reverse the rise in 2017 in unemployment, which at 7 percent hit a five-year high.

The key drivers of growth have been household spending and rising exports, buoyed by strengthening copper prices. Almost half of Chile's exports relate to copper.

		USD (exchange CLP rate: 607.40)
International building costs per m² of internal area, in 2018		
Airports (Building only)		
Domestic terminal, full service	1,876,604	3,090
Low cost carrier terminal, basic service	1,379,000	2,270
Car parks		
Multi storey above ground	316,250	521
Multi storey below ground	602,600	992
Commercial		
Offices – Business Park	497,666	819
CBD Offices – up to 20 floors medium (A-Grade)	801,497	1,320
CBD Offices – high-rise prestige	1,165,253	1,918
Education		
Primary and secondary	745,000	1,227
University	1,097,500	1,807
Hospitals		
Day centre (including basic surgeries)	804,178	1,324
Regional hospital	1,045,431	1,721
General hospital (e.g. city teaching hospital)	1,507,833	2,482
Hotels		
3 Star travellers	938,207	1,545
5 Star luxury	2,546,562	4,193
Resort style	1,930,026	3,178
Industrial		
Warehouse/factory units – basic	420,963	693
Large warehouse distribution centre	612,500	1,008
High tech factory/laboratory	2,089,844	3,441
Residential		
Individual detached or terrace style house medium standard	601,900	991
Individual detached house prestige	801,497	1,320
Townhouses medium standard	423,800	698
Apartments low-rise medium standard	413,871	681
Apartments high-rise	581,019	957
Aged care/affordable units	507,643	836
Retail		
Large shopping centre including mall	944,730	1,555
Neighbourhood incl supermarket	737,163	1,214
Prestige car showroom	1,171,419	1,929

Construction market and trends

Construction expanded modestly in 2017, but investment of USD28bn in infrastructure and the energy sector should prompt much stronger growth.

Within USD1.7bn of planned investment in airports is the USD655m expansion of Arturo Merino Benitez international airport. USD8bn investment in roads includes the USD1.98bn Costanera Central highway. There is growing promise in the energy sector, mainly in wind and solar projects.

Future outlook

Housing should reclaim its position as the dominant construction sector, with its share expected to rise to 35 percent in 2021, driven by public and private sector investment to meet growing demand.

Meanwhile, the government's focus is on infrastructure. The Cámara Chilena de la Construcción (Chilean Chamber of Construction) estimates USD151bn of investment is needed in infrastructure projects by 2025 to support economic growth and shortfalls in public works.

	USD (exchange rate: 607.40)	CLP
Chile international building costs		
Composite trade rates		
Excavate basement (m³) (1800m³ job)	10,380	17
Excavate footings (m)	24,028	40
Concrete in slab (m³) (1500m³ job)	124,773	205
Reinforcement in beams (tonne)	795,000	1,309
Formwork to soffit of slab (m²)	24,775	41
Blockwork in wall (m²) (10,000 block job)	29,534	49
Structural steel beams (tonne)	1,207,775	1,988
Pre-cast concrete wall (m²)	116,000	191
Curtain wall glazing incl support system (m²) (1000m² job)	190,971	314
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	20,556	34
Single solid core door incl frame and hardware (no) (50 door job)	420,000	691
Painting to walls primer + 2 coats (m²)	3,140	5
Ceramic tiling (m²) (1000m² job)	35,940	59
Vinyl flooring to wet areas (m²) (500m² job)	24,195	40
Carpet medium tufted (m²) (4500m² job)	31,770	52
Lighting installation (m²) (5000m² + job)	86,700	143
Copper pipe 15mm to wall (m) (1000+ metre job)	16,578	27
Fire sprinklers (per m²) (5000m² job)	12,836	21
Air conditioning incl main plant (m²) (5000m² + job)	96,800	159
Labour costs, per hour		
Group 1 Tradesman eg plumber/electrician	7,830	13
Group 2 Tradesman eg carpenter bricklayer	7,340	12
Group 3 Tradesman eg carpet layer, tiler, plasterer	4,600	8
General labourer	4,100	7
Site foreman	9,259	15
Material costs		
Concrete 30 MPa (m³) (1500m³ job)	88,900	146
Reinforcement bar 16mm (tonne) (120 tonne job)	623,020	1,026
Concrete block (400x200) per 1000 (>10,000 block job)	1,370,000	2,256
Standard brick per 1000	145,000	239
Structural steel beams (tonne) (100 tonne +job)	966,220	1,591
Glass pane 10mm tempered (m²)	115,000	189
Softwood timber for framing 100mm X 50mm (m)	1,688	3
13 mm plasterboard (m²)	4,400	7
Emulsion paint (litre)	4,900	8
Copper pipe 15 mm (metre) (1000+ metre job)	2,888	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2,200	4
Plant costs		
Hire 50t mobile crane + operator (day)	725,000	1,194
Santiago		
Tendering:	Lukewarm	
Market:	Warmer	
Cost escalation 2017–18:	2.0%	
Cost escalation 2018–19:	2.5%	
Contractor's margin:	10.0%	
Preliminaries:	12.0%	
Location factor (USD):	59.0	
PPP coefficient:	466.0	

Colombia

Bogotá

Peace premium set to buoy investment

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Economic outlook

The headwinds caused by falling oil and mineral prices are easing and economic growth was set on an upward path through 2017 with year-on-year growth reaching 2.2 percent in the final quarter. This did not prevent a downgrade by Standard & Poor in the nation's credit rating in December, which will raise the cost of borrowing.

2018 looks brighter. GDP growth should continue rising, buoyed by the peace agreement, lower taxation, better financing conditions and new infrastructure projects that should attract more investment.

		COP	USD (exchange rate: 3,003)
International building costs per m² of internal area, in 2018			
Airports (Building only)			
Domestic terminal, full service	7,700,000	2,564	
Low cost carrier terminal, basic service	5,500,000	1,832	
Car parks			
Multi storey above ground	1,730,000	576	
Multi storey below ground	2,350,000	783	
Commercial			
Offices – Business Park	2,850,000	949	
CBD Offices – up to 20 floors medium (A-Grade)	3,360,000	1,119	
CBD Offices – high-rise prestige	4,500,000	1,499	
Education			
Primary and secondary	2,000,000	666	
University	3,700,000	1,232	
Hospitals			
Day centre (including basic surgeries)	4,190,000	1,395	
Regional hospital	5,360,000	1,785	
General hospital (e.g. city teaching hospital)	5,980,000	1,991	
Hotels			
3 Star travellers	3,120,000	1,039	
5 Star luxury	4,660,000	1,552	
Resort style	4,300,000	1,432	
Industrial			
Warehouse/factory units – basic	1,490,000	496	
Large warehouse distribution centre	1,350,000	450	
High tech factory/laboratory	8,200,000	2,731	
Residential			
Individual detached or terrace style house medium standard	2,100,000	699	
Individual detached house prestige	2,550,000	849	
Townhouses medium standard	2,100,000	699	
Apartments low-rise medium standard	2,200,000	733	
Apartments high-rise	2,800,000	932	
Aged care/affordable units	1,550,000	516	
Retail			
Large shopping centre including mall	3,970,000	1,322	
Neighbourhood incl supermarket	2,300,000	766	
Prestige car showroom	2,450,000	816	

Construction market and trends

The Fourth Generation public-private partnership infrastructure programme is fuelling massive road and highway development, with many projects due to complete by 2020. 30 key projects worth USD25bn will expand the road network by 11,000km.

Among a series of large projects to go out to tender in 2018, the prize contract is the USD7.5bn Bogotá Metro project providing a 28-station network on a 27km route.

Future outlook

Infrastructure will remain the driver for construction activity. Investment in airports, seaports, urban transportation, road and rail is expected to soar. The peace agreement raised expectations of significant investments across all sectors of society. The US-Colombia Trade Promotion Agreement is proving beneficial, lowering trade barriers to construction equipment and professional services.

The 2018 presidential election does, however, bring uncertainty.

Colombia international building costs

Composite trade rates

	COP	USD (exchange rate: 3,003)
Excavate basement (m³) (1800m³ job)	24,000	8
Excavate footings (m)	29,000	10
Concrete in slab (m³) (1500m³ job)	500,000	167
Reinforcement in beams (tonne)	4,200,000	1,399
Formwork to soffit of slab (m²)	100,000	33
Blockwork in wall (m²) (10,000 block job)	180,000	60
Structural steel beams (tonne)	3,720,000	1,239
Pre-cast concrete wall (m²)	200,000	67
Curtain wall glazing incl support system (m²) (1000m² job)	680,000	226
Plasterboard 13mm thick to stud wall (m²) (3000m² job)	70,000	23
Single solid core door incl frame and hardware (no) (50 door job)	2,500,000	833
Painting to walls primer + 2 coats (m²)	35,000	12
Ceramic tiling (m²) (1000m² job)	75,000	25
Vinyl flooring to wet areas (m²) (500m² job)	105,000	35
Carpet medium tufted (m²) (4500m² job)	160,000	53
Lighting installation (m²) (5000m² + job)	500,000	167
Copper pipe 15mm to wall (m) (1000+ metre job)	71,000	24
Fire sprinklers (per m²) (5000m² job)	150,000	50
Air conditioning incl main plant (m²) (5000m² + job)	430,000	143

Labour costs, per hour

Group 1 Tradesman eg plumber/electrician	16,000	5
Group 2 Tradesman eg carpenter bricklayer	15,000	5
Group 3 Tradesman eg carpet layer, tiler, plasterer	12,000	4
General labourer	10,000	3
Site foreman	18,000	6

Material costs

Concrete 30 MPa (m³) (1500m³ job)	500,000	167
Reinforcement bar 16mm (tonne) (120 tonne job)	2,900,000	966
Concrete block (400x200) per 1000 (>10,000 block job)	2,400,000	799
Standard brick per 1000	925,000	308
Structural steel beams (tonne) (100 tonne +job)	9,300,000	3,097
Glass pane 10mm tempered (m²)	260,000	87
Softwood timber for framing 100mm X 50mm (m)	19,000	6
13 mm plasterboard (m²)	22,000	7
Emulsion paint (litre)	20,000	7
Copper pipe 15 mm (metre) (1000+ metre job)	14,000	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6,500	2

Plant costs

Hire 50t mobile crane + operator (day)	2,000,000	666
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Bogotá

Tendering:	Warm
Market:	Warmer
Cost escalation 2017–18:	1.1%
Cost escalation 2018–19:	5.0%
Contractor's margin:	5.0%
Preliminaries:	13.0%
Location factor (USD):	50.1
PPP coefficient:	1,992.7

Comparing construction costs

It is important to compare construction costs between countries to inform expansion decisions. It can enable productivity comparisons and highlight how different practices and tools such as BIM can improve design and delivery. Opportunities to improve the efficiency of the construction sector and reduce costs are also opportunities to grow the global economy faster.

Here we look at the advantages and disadvantages of three methods of comparing construction costs using an example building type: Central Business District (CBD) offices – high-rise prestige.

Method one: convert to a single currency such as USD

This is the most common means of comparison, useful for a multinational organisation paying for projects in its home currency.

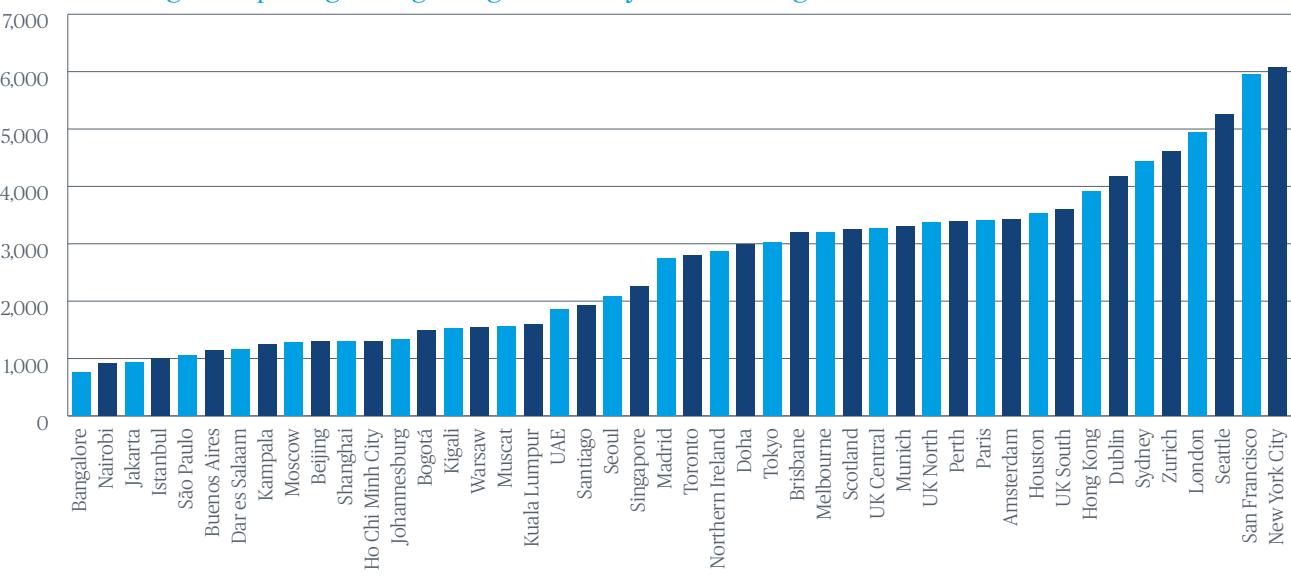
Advantages

- Easy to understand and visualise.
- Gives the cost of typical building in each country.

Disadvantages

- A change in the exchange rate makes a huge difference: if a particular currency is strong compared to the base currency, the cost of construction looks expensive.
- Is not a reliable indicator of relative costs and efficiency of construction between countries.

CBD offices - high-rise prestige using a single currency USD exchange rates



Method two: Purchasing Power Parity (PPP)

The PPP measure shows costs in relation to cost of living in the country. It indicates the construction cost per square metre in the local currency, relative to the costs of a basket of construction materials and labour. The PPP cost of a particular building type is calculated by dividing the cost in m² in local currency by the PPP coefficient. A lower PPP cost generally indicates more efficient construction (see page 104 for more detail).

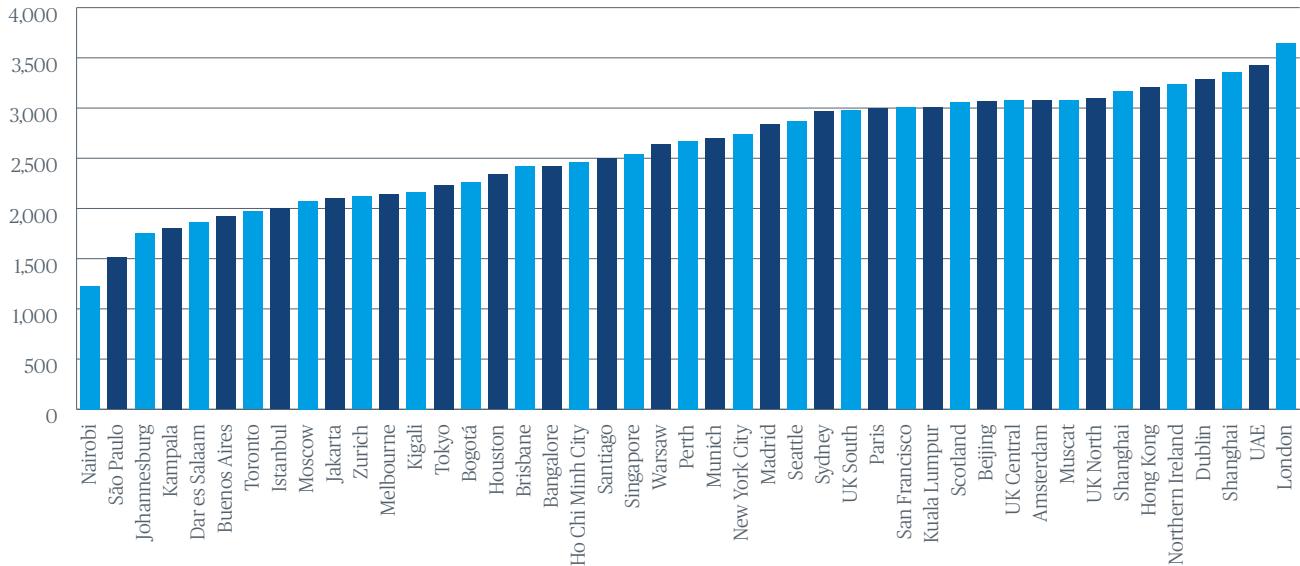
Advantages

- Leaves exchange rate out of the equation.
- Useful for governments, policy-makers and researchers to compare costs and efficiency with other countries.

Disadvantages

- For a global firm looking to build overseas, it can be more convenient to look at cost in its home currency.
- The cost of the basket of goods ignores contractors' margins, labour productivity and preliminaries.

CBD Offices - high-rise prestige using PPP



Method three: location factors

Location factors extend the basket of goods approach used in method two (PPP) by adding labour productivity, market conditions, contractors' preliminaries and margins.

A similarly specified building constructed for USD100m in London (location factor 100) should cost USD108m in Toronto (location factor 108) at the exchange rate as of the first quarter of 2018.

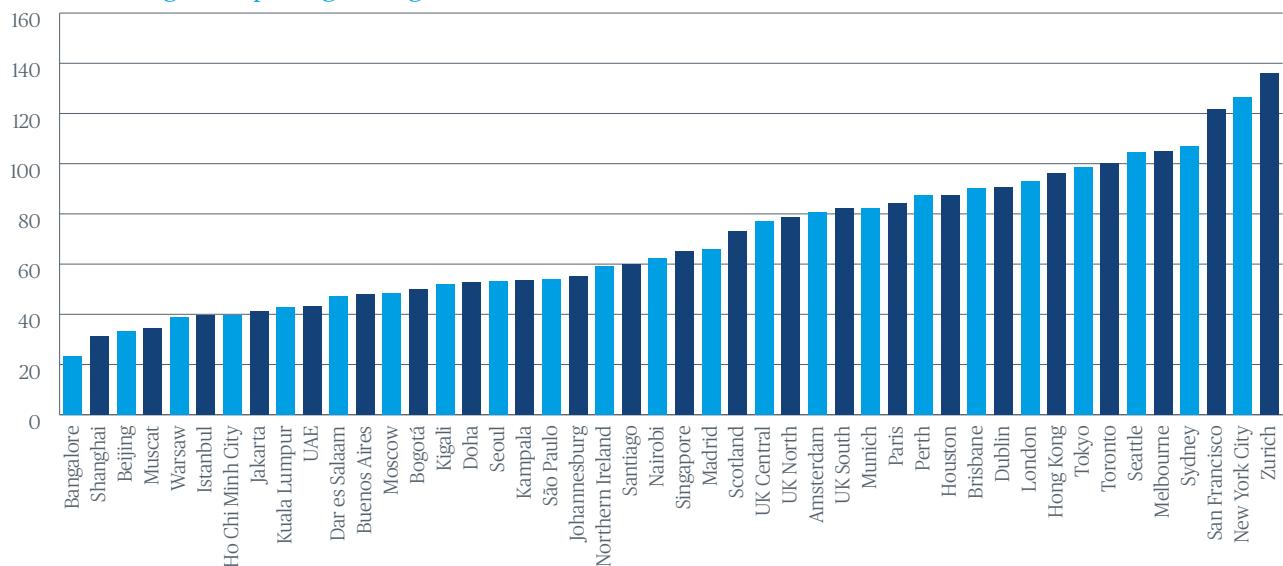
Advantages

- Useful for a company considering a complex investment in several locations and wanting to know the cost in a single currency.
- Will show the difference in cost between countries of buildings built with similar specifications and inclusions.

Disadvantages

- As this method uses a common currency, it is subject to the same disadvantages as method one.
- In practice, local building codes, methods and specifications are different between regions.

CBD Offices - high-rise prestige using location factors



Terms and references

Building costs per m²

In this survey, building costs per m², sometimes referred to as direct costs (as opposed to indirect costs), are for construction of the building, including preliminaries (or general conditions) costs and substructure, columns, upper floors, staircases, roof, external walls, external doors, internal walls, internal doors, wall finishes, floor finishes, ceiling finishes, fitments, plumbing, HVAC, fire protection, electrical and communication systems and transportation systems.

It is assumed that building costs are based on the typical building standards and building methods for the region.

Exclusions from building costs per m²

External works, landscaping, professional fees, demolition, loose furniture, fittings and equipment, developer's internal costs and finance, local authority fees and headworks charges, land, legal, finance and holding costs, GST or sales taxes, site investigation and test bores, removal of significant obstructions in the ground, abnormal footings. Allowance for underground or onsite car parking is also excluded from the building cost unless stated otherwise.

Labour costs

Labour costs are the all-inclusive cost to the employer, which includes the basic hourly wage, allowances, taxes, annual leave cost, and where paid by the employer, workers' compensation and health insurance, pensions, and travel costs and fares. It excludes overheads, margins and overtime bonuses.

Composite trade rates

Composite trade rates are the fully installed rates charged by the subcontractor to cover labour, materials, delivery, plant, overheads and margins, and sales tax.

Construction costs and exchange rates

This survey's construction cost data comes from programmes underway at the beginning of 2016, and excludes applicable taxes. All exchange rates are from January 2018.

Purchasing Power Parity (PPP)

PPP is a technique that compares construction costs with the cost of living (purchasing power) in each country. In short, it's a better way to compare construction costs between countries.

The PPP methodology removes the impact of exchange rates, which are notoriously volatile. Often costs are converted to USD (or any other currency) in order to compare costs between countries. Because exchange rates have fluctuated so much in recent times, this can give a false impression of how a country's construction costs compare with others. A high exchange rate will make local costs look high against the comparison country. A low exchange rate will do the opposite.

To gain a better indication of whether a country's construction is expensive we use PPP. A standard basket of goods is priced in each country in the local currency. This basket includes quantities of labour, plant and materials common to all forms of construction. Then we compare the cost of the basket goods with the cost of construction in the country to obtain a purchasing power parity cost.

The higher the PPP cost, the higher the cost of construction in local cost-of-living terms. PPP costs can, therefore, be used to better compare the relative costs of building from country to country.

Though such indexes are used in some branches of economics, it has not often been used to compare construction costs. We have developed this methodology with the Centre for Comparative Construction Research (CCCR) at Bond University, Australia, using their CitiBloc method for the calculation of basket item costs.

To compare PPP costs, divide the \$/m² rate in local currency by the PPP coefficient for that country.

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In this report, trade, labour and material prices and prices per m² are indicative, and should not be relied on without first obtaining advice from a qualified professional person. Costs are dependent on building design, inclusions, exclusions, and site conditions. Cost comparisons between countries are subject to different interpretations, building methods, and standards for costing, measurement and construction. Costs may vary substantially between regions within countries. Turner & Townsend and its subsidiaries, the authors and contributors expressly disclaim all and any liability and responsibility to any person in respect of anything done or omitted to be done in reliance wholly or in part upon the whole of the contents of this publication.

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