Turner & Townsend

International construction market survey 2017

Building momentum

making the **difference**

Foreword

Building momentum

Recent years have seen the emergence of a new normal economy as steady growth remains the order of the day. While political uncertainty persists the pace of global growth is building momentum but is unlikely to reach the booming rates seen before the financial crisis without improving productivity.

I'm very pleased to present the 2017 edition of our annual international construction market survey. This year we've gathered cost data from 43 markets across the world, drawing on information from local experts who are experiencing first-hand the opportunities and challenges within their respective regions.

Our team of economists worked closely with our local experts to analyse an expansive cost dataset to provide real insight into how the construction industry is performing. This reveals key global trends as well as more detailed local market dynamics.

A new normal

The start of 2016 was a concerning one for the global construction industry; the commodities market was faltering and commodity-reliant economies across the globe were struggling to adjust. Fast forward to the second half of the year and the picture looked more stable.

The commodities market bottomed out and price increases returned, giving renewed confidence to many regions of the world. Major economies such as Brazil, China, Europe, Russia and the USA delivered a higher GDP than many predicted.

This improved growth is a welcome and positive sign, but increases in GDP remain below the global annual growth rates seen prior to the financial crisis in 2009 when global economic growth peaked at 4.3 percent[1], compared to 3.1 percent in 2016.

This has given to what many refer to as a new normal for the global economy – slow and steady growth. However, recent forecasts suggest that growth is gaining momentum, with the IMF forecasting 3.5 percent global growth in 2017.

This year's international construction market survey reflects this position with construction markets heating up as global conditions improve. Global construction cost inflation for 2016 was recorded at 3.7 percent, compared to 2.9 percent in 2015; The growing skills shortage is a significant driver and is becoming a more acute global problem for the industry.

The productivity puzzle

Economists are calling for a significant improvement in productivity to build momentum in global economic growth, but productivity is a persistent issue for the world's economies and the construction industry in particular which represents 6 percent[2] of global GDP.

Globally, the construction sector's annual productivity improvements averaged 1.0 percent over the past two decades, compared with 2.8 percent for the total world economy and 3.6 percent for the manufacturing sector[3]. Compounded over 20 years, this difference in productivity improvement is a significant delta.

The construction industry's productivity is in a persistent deadlock from intrinsic barriers, including a lack of continuity of projects and workload, the highly cyclical nature of the industry and the need for capital investment to support innovation.

There are opportunities to be taken. Steady global economic growth, increasing demand for construction and a shortage of skills and labour, combine to provide governments, clients and the industry compelling drivers to grasp the moment and commit to investing in productivity improvement for longer-term gains.

Steve McGuckin
Global Managing Director, Real Estate

1. The World Bank
2. World Economic Forum
3. McKinsey, Reinventing Construction

3.1%

global GDP in 2016

1.6%

global inflation in 2016

3.7%

global construction cost inflation in 2016

24/43

markets suffering skills shortage in 2016

1%

construction annual productivity increase over 20 years

Contents

Survey overview

Building on previous reports, our 2017 international construction market survey presents data analysed from 43 markets around the world delivering greater insight into the global construction industry.

Our team of expert economists worked closely with our local experts to analyse input costs – such as labour and materials – and charted the average construction costs per square metre for both commercial and residential projects across all 43 regions and cities.

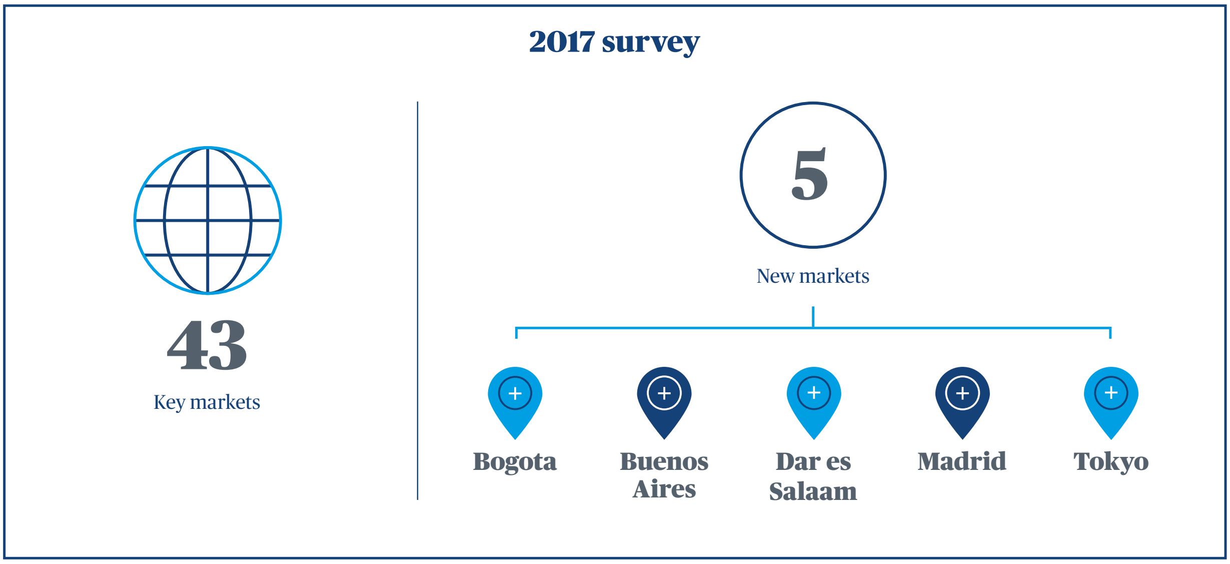
Five new markets entered the analysis for the first time this year: Bogota, Buenos Aires, Dar es Salaam, Madrid and Tokyo.

Our analysis identified a number of challenges facing the construction industry as we progress through 2017, including skills shortages, exchange rate pressures and an acute need to improve productivity.

Our survey also highlights regions where favourable market conditions and reasonable construction costs make them an attractive proposition for firms looking to grow their presence in new markets.

We use a variety of construction cost comparison methodologies to ensure our findings deliver accuracy and insight. Methods such as straight-line US dollar 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.

For more information on the methods we use see pages 96. Detailed explanations of what's included in and excluded from our cost information are given on page 94.



Survey highlights

New York City has the highest construction costs, pushing Zurich off the top spot

The Australian city of Perth is the only city to experience a decrease in the costs of construction

Seven markets are identified as hot and two markets as overheating

14 of the 43 markets covered by this survey are expected to grow warmer in 2017 as confidence returns

Global construction costs are expected to increase by 3.5 percent in 2017 after growing by 3.7 percent in 2016

56 percent of the markets analysed are currently suffering from a skills shortage

Commodity-reliant markets of Muscat, Santiago and Singapore are expected to cool in 2017

Global economic overview

Despite a slow start to the year, the second half of 2016 saw confidence return to the global economy. Europe and China exceeded economists' growth expectations, and commodity prices have increased, but political uncertainty persists and several markets remain in recession or near-recessionary conditions as poor productivity continues to be a hindrance to further economic growth.

Falling oil and steel prices were symptomatic of a faltering commodities market at the start of 2016 as cheap Chinese steel flooded the global economy and oil production outstripped demand. This dented the resources supplying economies and subsequently led to a drop-off in commodities shipping and global trade.

The knock-on effect of this for the construction industry in commodity-reliant markets was quick to follow.

Regions such as Singapore and Kuala Lumpur, which rely heavily on servicing the oil and gas sectors, have suffered and our survey predicts these markets will continue to cool over 2017. The copper-dependent Chilean and oil-focused Omani markets also continue to suffer from the after-effects of the commodities crash. Santiago and Muscat are expected to cool over the next 12 months as a result.

Global	China
3.5% forecasted GDP growth in 2017	**6.6%** forecasted GDP growth in 2017
3.6% forecasted GDP growth in 2018	**6.2%** forecasted GDP growth in 2018

This collapse of global commodity prices led the 13 OPEC members and other major oil-supplying nations to an agreement to limit the supply of oil in an effort to force prices back up, something that is having moderate success.

An increase in spending on national infrastructure and real estate investment in China, as well as anticipated fiscal easing in the USA, is also helping strengthen the price of metal and easing market concerns about a continued decline in commodity prices, as well as giving a boost to the construction industry in these regions.

A positive outlook

The IMF now estimates that global growth is going to increase over 2017 and 2018, with its latest forecasts[4] predicting global economic growth of 3.5 percent over the course of this year, up from 3.1 percent in 2016.

The IMF revised their forecasts upwards for advanced economies as a result of a better-than-expected performance over the second half of 2016. This is driven by a recovery in the manufacturing sector and reduced drag from inventories, and anticipated fiscal stimulus from the new Trump administration in the USA.

China is also expected to benefit from further governmental monetary stimulus, and its near-term growth prospects have been increased by 0.4 percent to 6.6 percent for 2017[5].

This brought an increased sense of economic stability to the global marketplace, allowing businesses and governments to once again take decisions on long-term projects and investments. (Read how confidence could be tempered by growing political uncertainty on page 7).

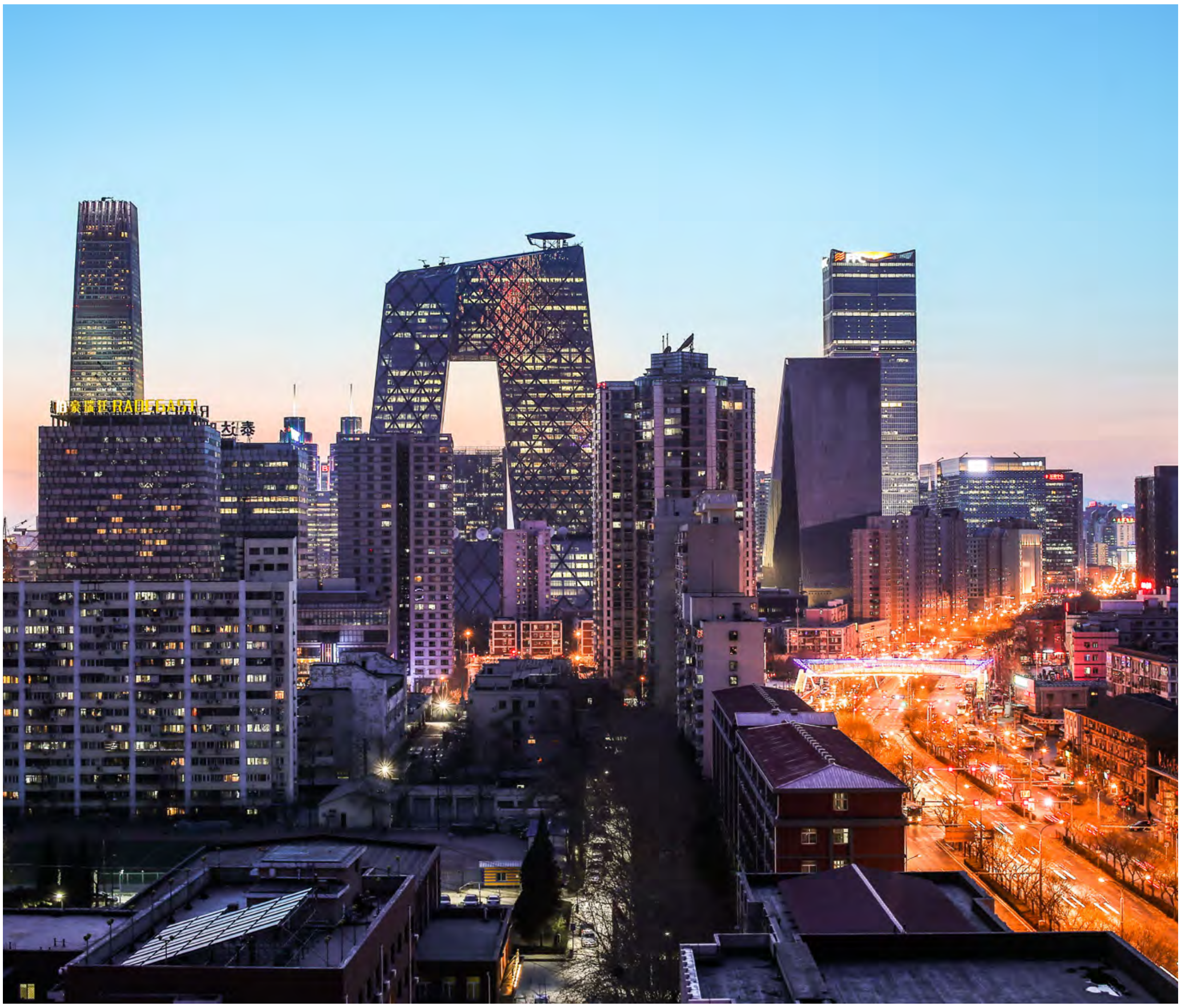
As long-term investment returns to the agenda in advanced economies the construction industry can expect an increase in the number of construction projects coming to market over the coming months and years.

Some larger developing economies including Brazil, India and Mexico have undergone a slowdown in growth during 2016. Mexico may be affected by a more protectionist USA led by President Donald Trump, but this will depend upon the extent to which measures are able to pass Congress.

India's slowing growth is to some extent self-inflicted through reducing the paper currency in circulation and the introduction of GST. However, these reforms may start to boost growth through greater transparency.

Brazil could also experience a boost to its economy as improved commodity prices add to export earnings.

4. The International Monetary Fund, World Economic Outlook, April 2017
5. The International Monetary Fund, World Economic Outlook, April 2017

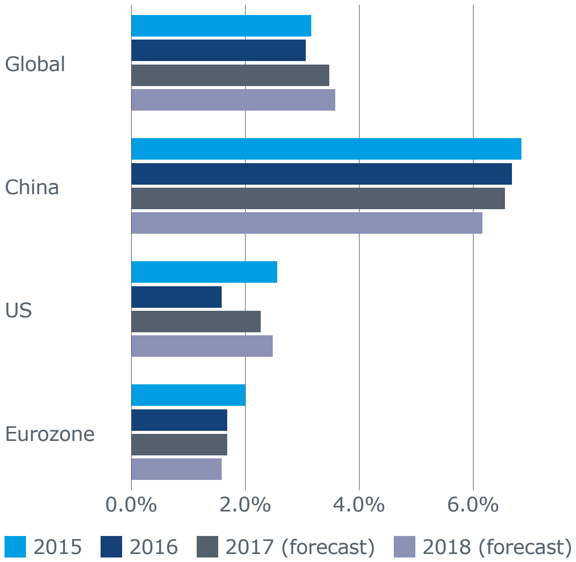


Global growth statistics

Global growth is expected to increase over the coming years, driven on by an improvement in the American economy. China's continued growth is forecast to slow through to 2018 as the Chinese government continues the shift to a more service-based economy, but this will still outpace other major markets.

Growth in the eurozone will remain sluggish over the next two years, but this forecast is still more optimistic than previous forecasts from the IMF - although this could be derailed by the effects of the UK leaving the European Union.

Output growth



The IMF predicts a reinvigorated USA will drive increased growth in the global economy through to 2018, despite slower growth coming from China. Source: The IMF.

Low interest rates drive apartment bubble

Enduring low interest rates across many economies is fuelling the construction of apartment projects but there are fears that the market is overheating.

The apartment construction cycle is notoriously short in nature, and the construction industry is wary of the sector peaking.

There are indicators of opportunities in other asset classes. The manufacturing sector grew at the fastest rate for three years at the end of 2016[6].

Infrastructure investment is expected to increase in many regions and improving commodity prices are helping increase growth in the mining industries. Further growth in the technology sector is driving demand for data centres.

Despite the likely cooling off of the apartment sector, a third of the markets surveyed are expected to be warmer by 2018 compared to just a quarter of markets in our 2016 survey. This is a good indicator that confidence is improving in the construction industry.

6. JPMorgan, Global Manufacturing PMI

Global economic overview

Confidence tempered by growing political uncertainty

In the UK, the triggering of Article 50 and the start of the country's exit from the European Union is creating political and economic uncertainty that spreads far beyond the confines of Europe.

The outcome of the EU membership referendum in 2016 instantly sent the pound falling by close to 20 percent (see page 22 for our analysis of the effect of exchange rates), but the economy has not taken as big a hit as many expected.

Meanwhile in the USA, President Donald Trump signed a number of executive orders calling to abolish or make sweeping changes to trade agreements with a number of traditional trade partners.

While these executive orders are not law, they certainly indicate the intention of the new President.

President Trump is also threatening a "big border tax" on American car companies manufacturing vehicles in Mexico, claiming credit for Ford cancelling a USD1.6bn plan to build a new plant in San Luis Potosi, and instead invest USD700m to expand a factory in Flat Rock, Michigan.

This is all symptomatic of a more protectionist stance from the USA as President Trump promises to put "America First".

Ultimately, this uncertainty could threaten confidence and lead to volatility and slower global growth. As a result fewer investment decisions could be made, leading to a reduction in the number of business-backed construction projects across many regions.

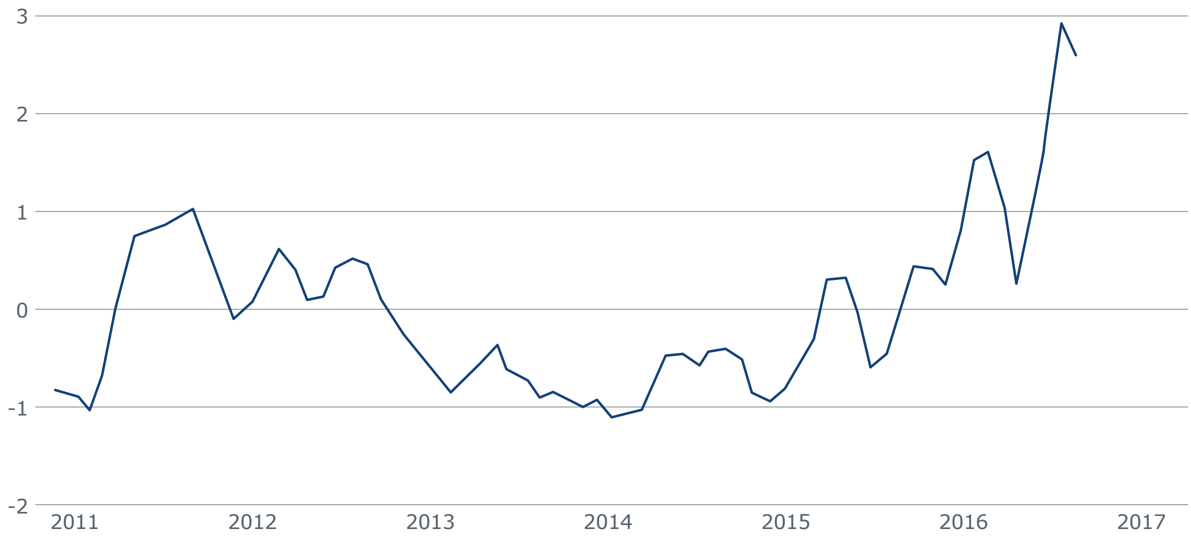
Labour costs could also be placed under pressure with stricter border controls in advanced economies and restricted flow of labour.

On a more optimistic note, President Trump promised certain deregulations that could spur on more investment and growth, particularly in the financial sectors. A major spending plan for infrastructure is promised that would create major opportunities for construction in the USA.

It is not just Europe and the USA that are facing political uncertainty. Important elections are taking place across Asia and Africa, and the results will shape the future of their regions.

Despite these uncertainties, the global economy is still expected to grow over 2017, and for most regions this means increased construction costs as markets heat up (see pages 24 and 25 for an overview of forecasted cost inflation).

Global economic policy uncertainty: 3-month moving average, index normalised for 2011–2017



A rise in global economic policy uncertainty may damage confidence and reduce appetite for making long-term investments.
Source: PolicyUncertainty.com and OECD calculations.

Global cost performance analysis

This year's survey reveals a slowly warming industry suffering from skills shortages as global economic conditions improve. A third of the markets surveyed expect to be warmer by 2018 compared to a quarter of markets in our 2016 survey.

The proportion of cities that are considered to be warm, hot or overheating climbed by three percentage points to 58 percent from 55 percent last year.

In last year's survey, only four cities were identified as hot: Dublin, Kuala Lumpur, London and San Francisco, with New York and Seattle identified as overheating.

This year seven cities are considered hot: Dublin, London and San Francisco remain hot, while Amsterdam, Dar es Salaam and Tokyo, have warmed up from last year. New York is cooling, dropping back from overheating to hot. This year, Bogota and Seattle are considered to be overheating markets.

This trend of a warming marketplace will continue in 2017, with 14 markets expected to grow warmer as confidence returns.

Commodities crash still limiting growth

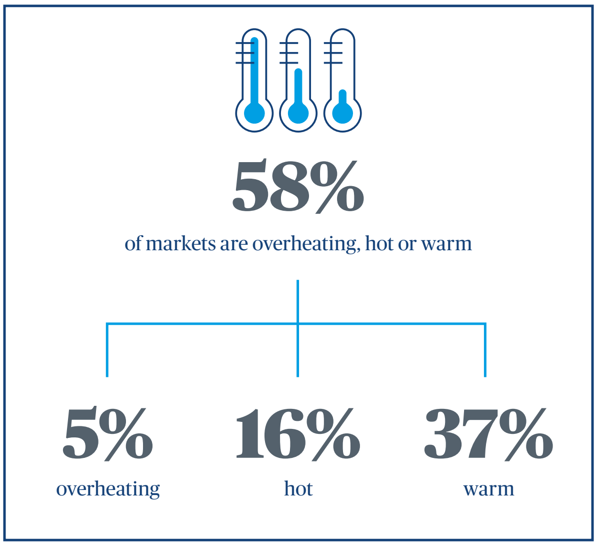
Six cities are found to be cold in this year's survey, compared to just two in last year's. This is evidence that, while in general the construction industry is heating up, there are still markets suffering.

Russia is still reeling from the fall in commodity prices over 2016, which dented confidence in the market and stopped construction sectors in Moscow in their tracks, while the other cold markets, Doha, Muscat, Perth and São Paulo, are slow to recover from the commodities crash.

While commodities are expected to strengthen further over 2017, our survey finds that the majority of these cold markets are expected to remain cold for the time being.

In Perth, high levels of investment created sufficient spare capacity in the iron ore-producing sector to cope with a spike in demand in previous years. Now that the demand for engineers and mining services is flat the demand for office and residential construction has reduced.

Some of the regions expected to cool off over 2017 include oil and gas servicing markets such as Singapore and Muscat, which are still suffering from the collapse in oil prices, and while prices are recovering it will take a while for the effects of this to filter through into these economies.



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 from previous levels.

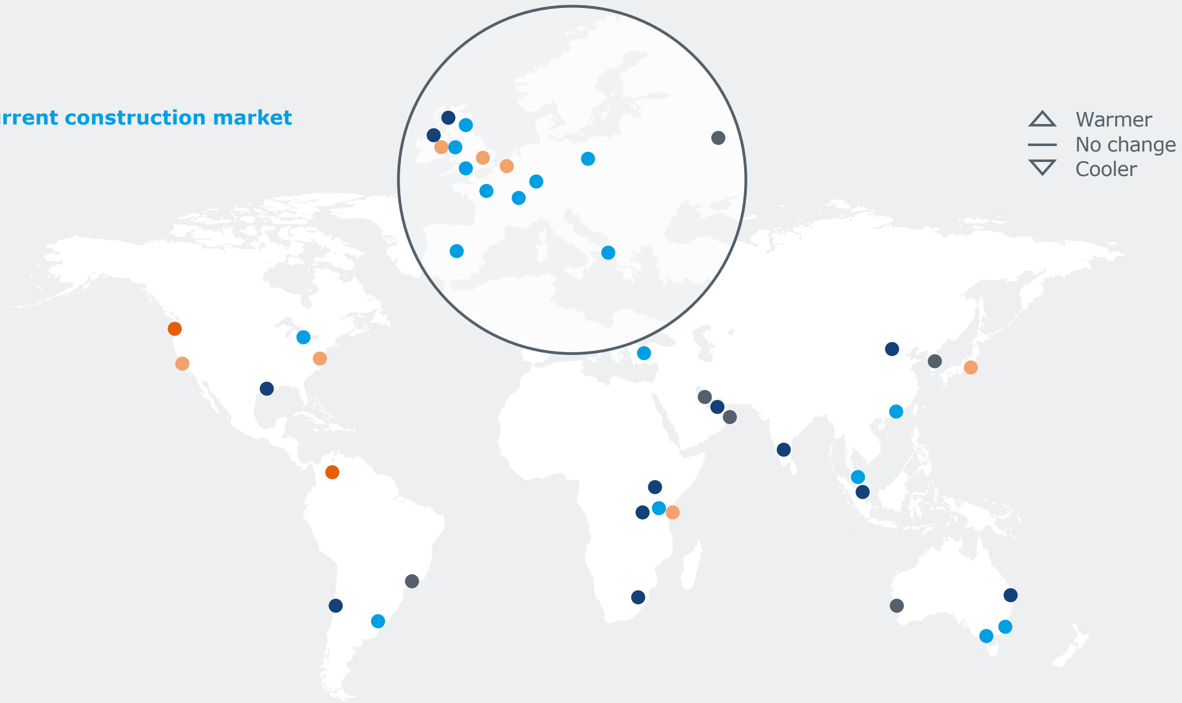
Markets are considered warmer as competition decreases and prices begin to rise. Hot and overheating markets have a higher number of projects, and consequently there is less competition for tenders, which tends to drive up tender prices.

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 cost inflation. Across such a wide sample there are a number of exceptions to this rule.

- In the lukewarm Johannesburg construction market there is still relatively high inflation and strong growth in trade wages. The weaker rand adds to import costs, helping to push up the cost of construction by 5.3 percent.
- Istanbul's warm construction market is seeing strong construction cost growth of 12 percent as a result of several years of high general inflation.
- In Moscow's cold construction market, construction costs grew by 6.4 percent as a result of sanctions and a depreciating ruble adding to import costs.
- Buenos Aires's warm construction market is coping with very high inflation, which resulted in construction costs inflation of 27 percent in 2016.

Global cost performance analysis

Current construction market



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

Figure 1
14 markets are expected to grow warmer over 2017. Only three markets are expected to cool over the coming months. Source: ICMS, 2017.

Global cost performance analysis

Construction costs on the increase

For the 43 markets included in this year's survey, our analysis of global cost inflation stands at 3.7 percent for 2016 with a forecasted average rise of 3.5 percent in 2017. The analysis is conducted in local currencies for each market.

The vast majority of markets were subjected to cost inflation with only four seeing no or negative growth in construction costs.

In advanced economies, 20 of the 25 markets saw construction costs rise by more than general inflation – the average price increase for these economies was 2.7 percent, with markets such as Dublin seeing cost inflation as high as 7 percent.

At the opposite end of the scale, Perth was the only market to see negative growth as construction costs fell by 2.0 percent after a period of significant growth during the resources construction boom of 2010–15, when the West Australian economy was one of the fastest-growing economies in the world. Now, the residential construction sector is in a slump, contractors are cutting prices as competition for work intensifies.

Among developing economies, costs increased by an average of 5 percent over 2016, with cost inflation in Istanbul and Buenos Aires reaching 12 percent and 27 percent respectively.

3.7%
construction cost inflation in 2016

3.5%
forecasted construction cost inflation in 2017

Buenos Aires is forecast to experience the biggest increase in costs over the next 12 months, with cost inflation expected to hit 20 percent as Argentina fights to escape from a period of high general inflation. It is also opening up its economy to outside investment following a decade-long lawsuit that blocked Argentina from international capital markets.

Brazil, Russia, and South Africa are towards the top of the list as a result of their relatively high rates of inflation of around 5–6 percent, which leads to pressure to increase wages and higher costs of materials and plant equipment.

Meanwhile Muscat, Paris and Singapore saw no increase in construction costs during 2016. Even Bangalore saw limited growth in construction costs of just 1.5 percent, despite experiencing increases of 8–10 percent in previous years.

Top five forecasted construction cost increases by market

1. **Buenos Aires** 20.0%
2. **Istanbul** 10.0%
3. **Dublin** 8.0%
4. **Johannesburg** 7.5%
5. **São Paulo** 6.0%

Lowest five forecasted construction cost increases by market

1. **Perth** 0.0%
2. **Singapore** 0.0%
3. **Muscat** 0.0%
4. **Paris** 0.5%
5. **Madrid** 0.5%

Construction cost inflation

Region	Market	Cost inflation in 2016	Forecasted cost inflation in 2017
Global average		**3.7%**	**3.5%**
Africa	Johannesburg	5.3%	7.5%
	Dar es Salaam	5.0%	4.0%
	Kampala	4.0%	4.0%
	Kigali	1.0%	2.0%
	Nairobi	1.0%	1.0%
Asia	Beijing	5.0%	5.0%
	Hong Kong	4.0%	5.0%
	Seoul	4.0%	2.0%
	Kuala Lumpur	3.0%	3.0%
	Tokyo	3.0%	2.0%
	Bangalore	1.5%	2.0%
	Singapore	0.0%	0.0%
Australia	Brisbane	4.0%	3.0%
	Sydney	3.0%	3.0%
	Melbourne	2.0%	2.0%
	Perth	-2.0%	0.0%
Europe	Istanbul	12.0%	10.0%
	Dublin	7.0%	8.0%
	Moscow	6.0%	5.0%
	London	5.0%	4.1%
	Warsaw	4.0%	2.0%
	UK Central	3.8%	3.5%
	UK South	3.5%	2.0%
	Amsterdam	3.0%	3.0%
	UK North	2.9%	3.6%
	Scotland	2.3%	2.3%
	Munich	1.9%	2.0%
	Northern Ireland	1.8%	2.0%
	Zurich	0.5%	1.0%
	Madrid	0.3%	0.5%
	Paris	0.0%	0.5%
Middle East	UAE	1.5%	2.0%
	Doha	0.2%	1.5%
	Muscat	0.0%	0.0%
North America	Seattle	5.0%	5.0%
	San Francisco	4.2%	5.0%
	New York City	3.5%	3.5%
	Toronto	2.5%	3.0%
	Houston	2.0%	2.5%
South America	Buenos Aires	27.0%	20.0%
	São Paulo	6.1%	6.0%
	Bogota	5.2%	4.4%
	Santiago	3.0%	3.0%

Figure 2
Argentina is forecast to experience the biggest increase in construction costs over the next 12 months as high inflation continues to drive up costs. Muscat, Perth and Singapore are expecting zero growth as the commodities hangover continues to restrict growth. Source: ICMS, 2017.

Global cost performance analysis

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

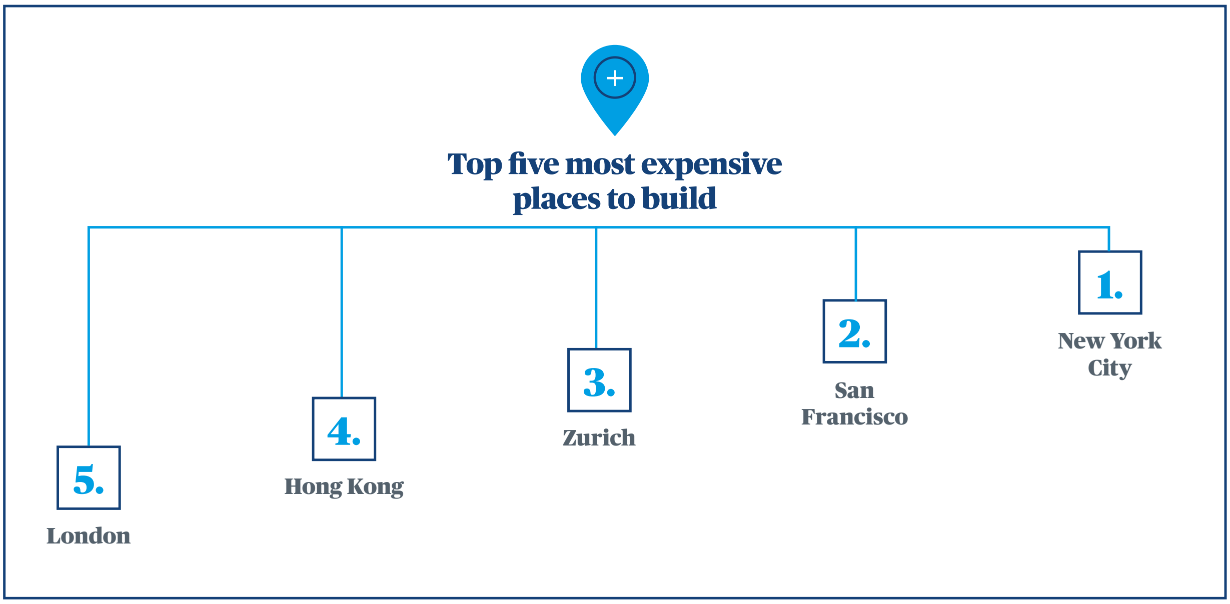
- apartment high-rise
- office block prestige
- large warehouse distribution centre
- general hospital
- primary and secondary school
- shopping centre including mall.

The most expensive locations are Hong Kong, London, New York, San Francisco and Zurich as they maintain their status as the five costliest places to build. The high growth in New York has seen the city overtake Zurich as the most expensive place to build with costs increasing by 3.5 percent since last year, whereas costs remained largely flat in Zurich.

London dropped back down to fifth place from third place in 2016, despite costs increasing by 5 percent. This is largely because of currency depreciation of the pound sterling following the vote for the country to leave the EU pushing down comparative costs in US dollars (read analysis on page 22 on the impact of fluctuating exchanges rates).

At the other end of the scale, Bangalore, Beijing, Dar es Salaam, Nairobi and Warsaw make up the five cheapest places to build, with Nairobi cheapest.

For building costs in more depth, the data for each individual market is set out on pages 26 to 93. We included output costs (cost per square metre) and input costs (labour, materials and plant) for each type of building, shown in the local currency and in USD.



Average cost of six building types in USD

Region	Market	Average cost (USD) per m²
Africa	Kigali	1,117.12
	Kampala	1,058.99
	Johannesburg	848.30
	Dar es Salaam	803.52
	Nairobi	683.49
Asia	Hong Kong	3,487.82
	Tokyo	2,385.71
	Singapore	1,933.90
	Seoul	1,457.01
	Kuala Lumpur	907.35
	Beijing	724.64
	Bangalore	697.43
Australia	Sydney	2,563.73
	Melbourne	2,218.14
	Perth	2,203.43
	Brisbane	2,172.79
Europe	Zurich	3,527.87
	London	3,213.99
	UK South	2,617.28
	Dublin	2,606.38
	UK North	2,474.28
	UK Central	2,411.52
	Scotland	2,329.22
	Paris	2,314.72
	Amsterdam	2,261.36
	Munich	2,207.45
	Northern Ireland	2,107.00
	Madrid	1,843.97
	Moscow	915.46
	Istanbul	809.66
	Warsaw	782.05
Middle East	Doha	2,366.76
	UAE	1,725.70
	Muscat	1,397.44
North America	New York City	3,806.92
	San Francisco	3,549.17
	Seattle	3,013.89
	Houston	2,508.91
	Toronto	2,242.21
South America	Santiago	1,619.49
	Buenos Aires	1,464.98
	São Paulo	1,197.52
	Bogota	885.40

Figure 3
New York has overtaken Zurich as the most expensive city in which to build, with an average cost of USD3,806.92 per m² followed by San Francisco (USD3,549.17 per m²) and Zurich (USD3,527.87 per m²). Source: ICMS, 2017.

Trade labour wages

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

This year's survey highlights the extreme level of variation in the cost of labour between regions. The markets with the lowest construction wages are in Africa and India where hourly wages can range from USD 1–3. No longer having the cheapest labour, Chinese construction workers now average USD5 per hour.

At the other extreme, workers in New York and Zurich are edging closer to USD100 per hour, compared to an average labour rate of USD28 per hour across all regions.

Typically, regions with the lowest-paid construction workers tend to have manually intensive methods of construction, whereas regions with more expensive labour look for labour-saving methods of automation to improve their productivity and limit the numbers of staff they have to employ.

Average hourly wage (USD) by region

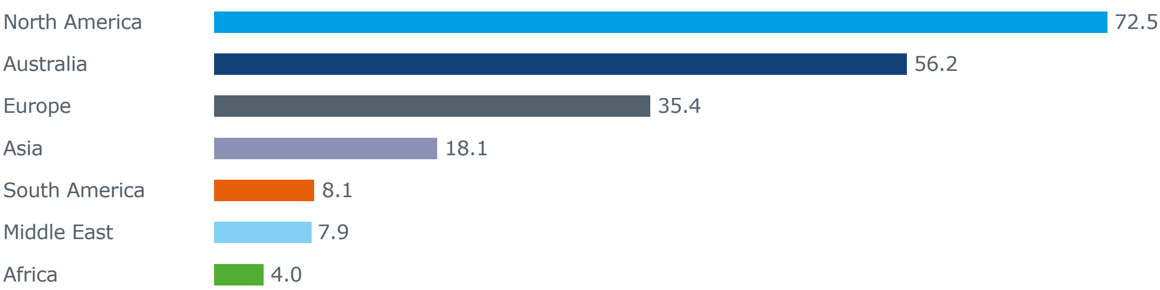


Figure 4
Average hourly wage (USD) by region. North America has the highest labour costs of all of the regions analysed in this year's survey. Source: ICMS, 2017.

The cost of labour

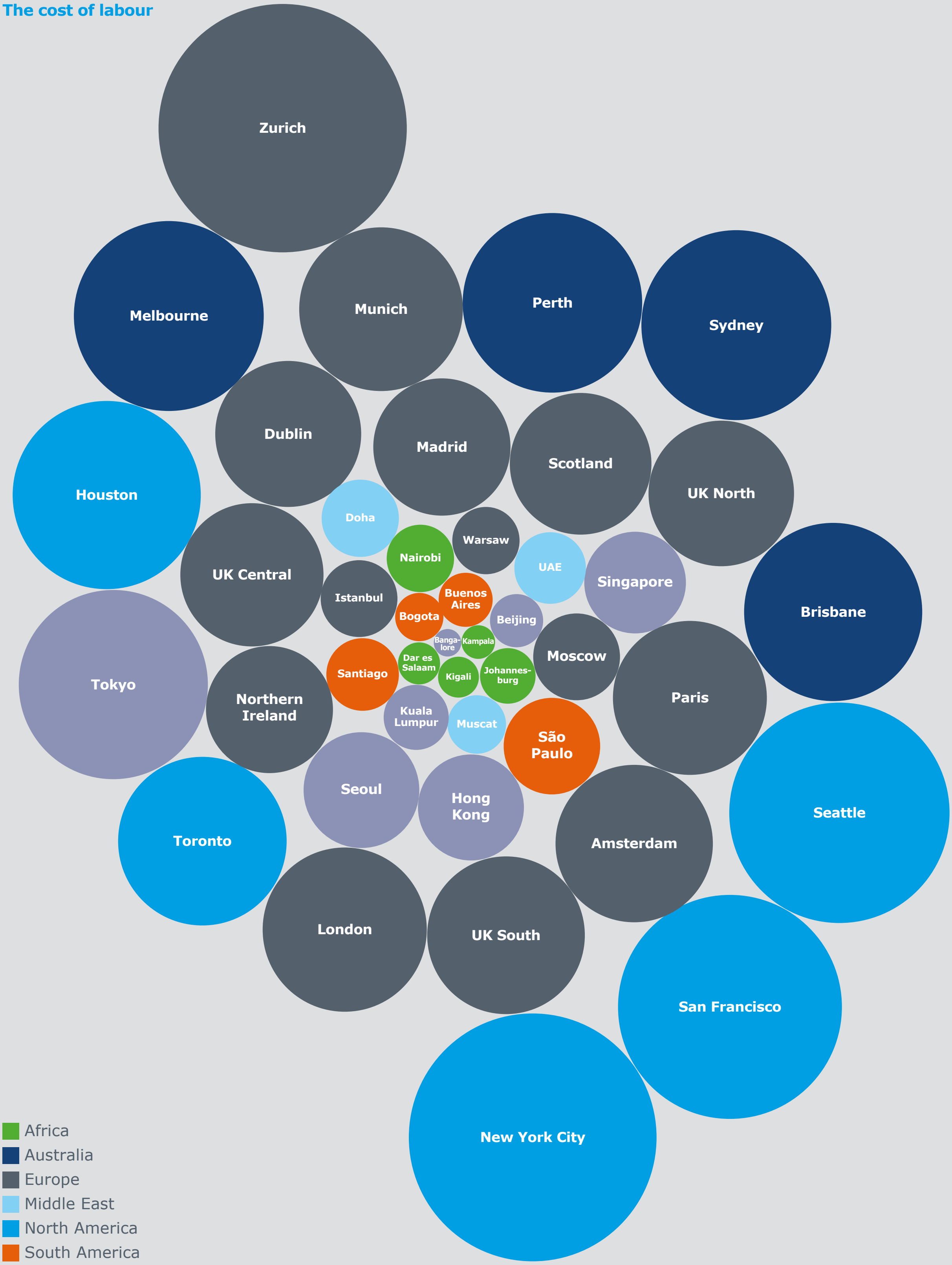


Figure 5
Average hourly wage (USD) by city. Zurich remains the city with the highest labour costs with an average hourly wage of USD98.5. Source: ICMS, 2017.

Labour shortages

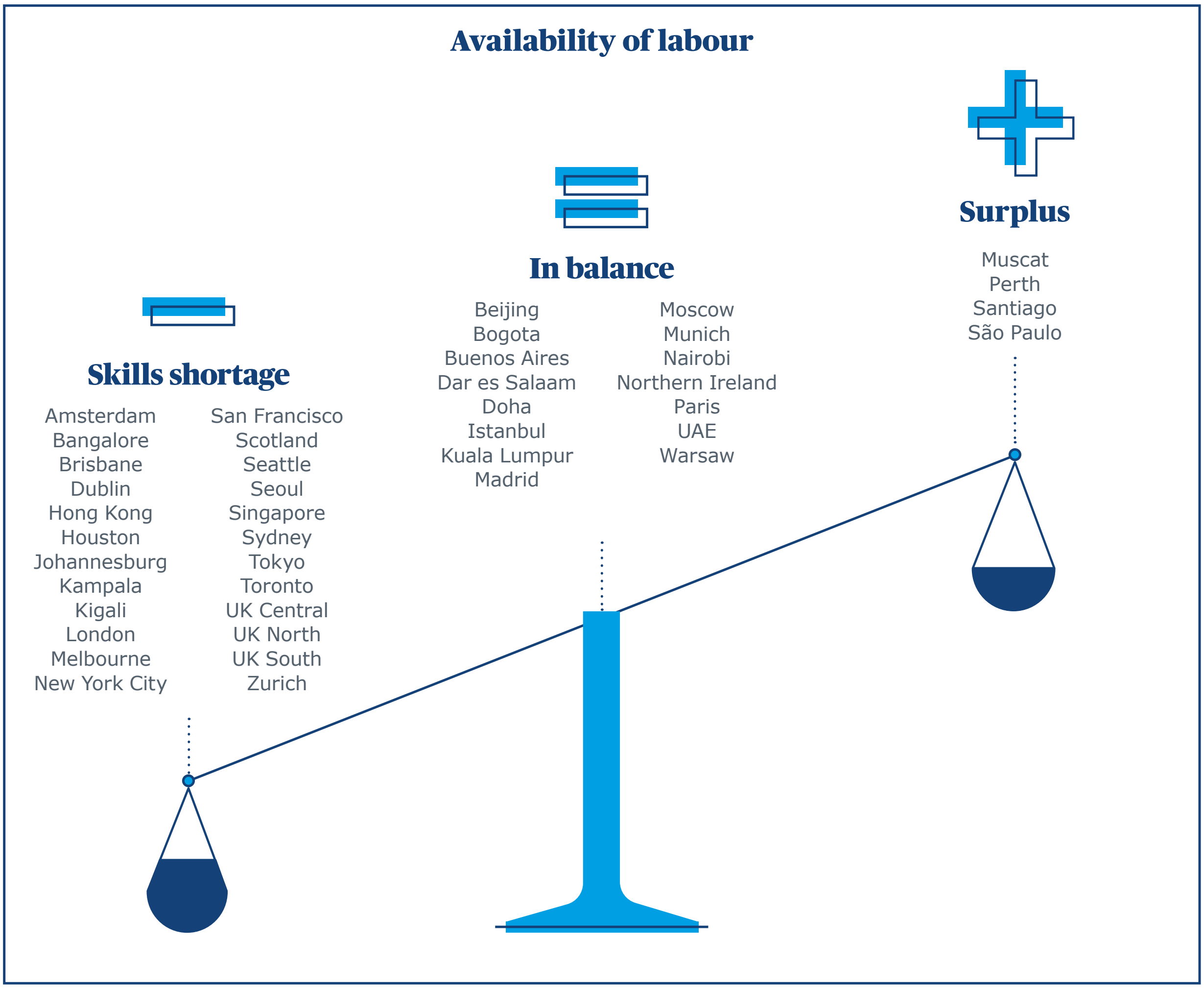
Last year we described the construction market as overstretched and over-reliant: overstretched in the sense that skills shortages are a growing problem; and over-reliant because many markets were dependent on commodity export earnings.

Now, in 2017, commodity earnings are recovering but the market remains overstretched as it is clear from this year's survey that the skills shortage problem remains. Overall, 24 of the 43 markets analysed in this survey are suffering from a skills shortage, up from 20 last year.

And the problem is not just confined to one type of region or economy.

While it might be expected that in low labour cost regions labour is cheap and plentiful there are anomalies – labour skills shortages are reported in Bangalore, Johannesburg and Kigali.

Only four regions report a surplus of labour for 2017: Muscat, Perth, Santiago and São Paulo. All four of these regions are heavily dependent on export of resources and have been through a resources-driven construction boom that has now ended. As a result the demand for construction trades has fallen away and a labour surplus ensues as projects end.



Skills shortage are a common theme in this edition of our survey with 24 of the 43 markets analysed suffering from a skills shortage.
Source: ICMS, 2017.

The hunt for efficiency

Poor productivity has been a perennial problem for the global economy. The complexities of the construction market, with its highly cyclical nature and relatively low margins, mean the productivity puzzle has been hard for the industry to solve.

The prevailing skills shortage in many markets and continued price inflation are forcing the industry to address the fundamental problems that have existed for decades. Meanwhile, the improving global economic landscape and increased commitment to invest in major programmes in real estate and infrastructure are also providing the long-term stability needed to commit to innovation.

Leading firms are adopting advances in on-site factory and off-site manufacturing and assembly, 3D printing, automation and robotics to improve efficiencies.

Significant advancements in data management are starting to play a major role in unlocking productivity. Effective management of the data asset alongside the physical asset is improving the efficient planning, delivery and operation of built assets.

Developments such as integrated design and asset management (design, asset, cost and schedule all linked and visualised) are helping better understand the asset, both during construction and handover into operation.

In the near future, the application of blockchain technologies will streamline contractual processes and exciting progress in machine learning will help predict issues in construction and optimise maintenance and operations.

Global cost performance analysis

Preliminaries and margins
Preliminaries and margins are two other drivers of overall construction costs. Margins are a blend of main contractors and suppliers.

Preliminary costs are affected by job complexity, so busy cities such as London, New York, São Paulo and Tokyo have 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.

In recent years, Middle Eastern countries had some of the highest margins in our survey, in part due to the increased risk of operating in these regions. The fall in the price of oil, however, pushed margins down in the region as the construction market slows and companies are reducing prices in order to win work.

10.8%
average preliminaries globally

5.9%
average margin globally

Preliminaries and margins

Region	Market	Preliminaries	Margins
Global average		**10.8%**	**5.9%**
Africa	Johannesburg	10.0%	12.0%
	Kigali	10.0%	8.0%
	Dar es Salaam	8.0%	6.0%
	Nairobi	5.0%	8.5%
	Kampala	7.0%	5.0%
Asia	Kuala Lumpur	10.0%	12.5%
	Tokyo	15.0%	6.0%
	Hong Kong	12.0%	6.0%
	Bangalore	9.0%	6.0%
	Seoul	12.0%	3.0%
	Singapore	8.0%	5.0%
	Beijing	5.0%	6.0%
Australia	Sydney	14.0%	4.5%
	Brisbane	12.0%	4.0%
	Melbourne	12.0%	4.0%
	Perth	11.0%	3.5%
Europe	London	15.0%	6.0%
	UK South	14.0%	4.3%
	Amsterdam	12.0%	6.0%
	Istanbul	10.0%	8.0%
	Warsaw	13.0%	5.0%
	UK North	13.0%	4.5%
	Scotland	12.0%	4.2%
	Moscow	8.0%	8.0%
	Munich	11.0%	5.0%
	UK Central	11.3%	4.4%
	Dublin	10.0%	5.0%
	Paris	10.0%	5.0%
	Zurich	9.0%	5.0%
	Northern Ireland	10.0%	3.0%
	Madrid	5.0%	5.0%
Middle East	Doha	13.0%	9.0%
	UAE	11.0%	8.0%
	Muscat	10.0%	5.0%
North America	New York City	13.0%	7.0%
	Toronto	10.0%	6.0%
	Houston	10.6%	5.0%
	Seattle	10.0%	5.5%
	San Francisco	8.9%	5.9%
South America	Buenos Aires	15.0%	12.5%
	São Paulo	15.0%	8.0%
	Bogota	13.0%	5.0%
	Santiago	12.0%	5.0%

Figure 6
High preliminary costs are found in complex markets where construction is difficult and set-up costs are correspondingly high. Falling margins, meanwhile, are often found in cooling markets. Source: ICMS, 2017.

Global cost performance analysis

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, for example figures 3 and 4. However, any devaluation or revaluation of a currency impacts both the wage levels and the overall construction cost. For example, the fall in sterling has reduced the costs of construction in US dollars, even though the cost in pound sterling increased by 3 percent, as shown in the example below.

Fluctuating exchange rates also affect the cost of imported materials and equipment used in construction projects. Where the exchange rate falls against the currency of the supplier country, the cost of imports in the local currency is higher and pushes up construction costs.

The US dollar appreciated significantly against many currencies, while the currencies of some commodity exporters rose off the back of the improving prices of commodities during 2016. When the dollar is compared against a weighted average of foreign exchange values, it appreciated by 5.6 percent since June 2016.

In contrast, the euro and Japanese yen both weakened against the US dollar. In emerging markets, the Turkish lira and Mexican peso were some of the worst performing currencies, so comparative costs in all of these depreciating regions fell when converted to US dollars for comparison.

We continue to use three construction cost comparison methodologies to ensure our findings deliver accuracy and insight. This is increasingly important given the volatility in exchange rates and its impact on construction costs (see page 96 for further details).

UK South	Currency	2016	2017	Increase year on year
Apartments low-rise medium standard	GBP	2,260/m^2	2,330/m^2	3%
USD exchange rate		0.68	0.81	
Cost in US dollars	USD	3,324/m^2	2,877/m^2	-13%

The fall in sterling has reduced the costs of construction in US dollars, even though the cost in pound sterling increased by 3 percent.

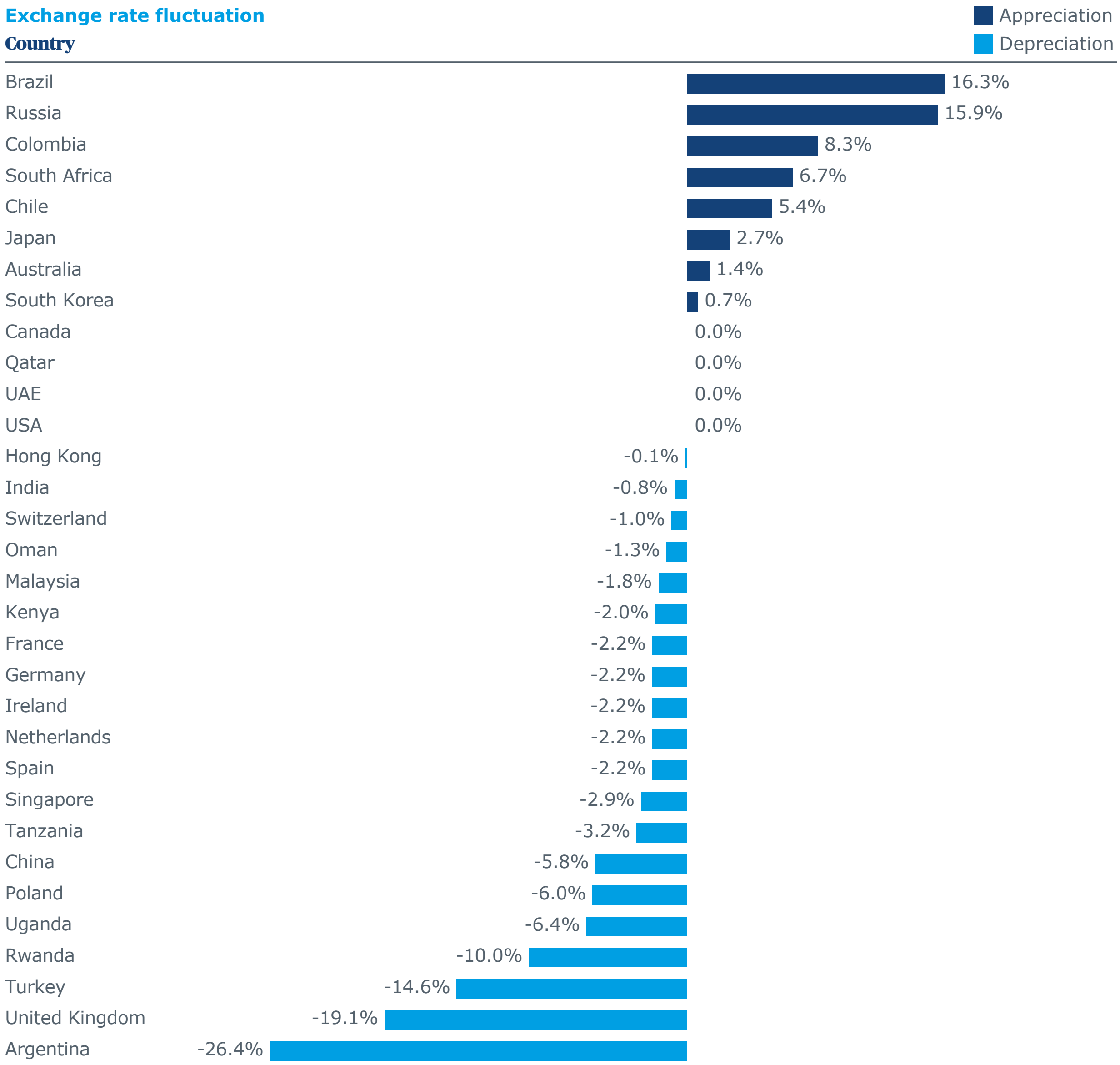
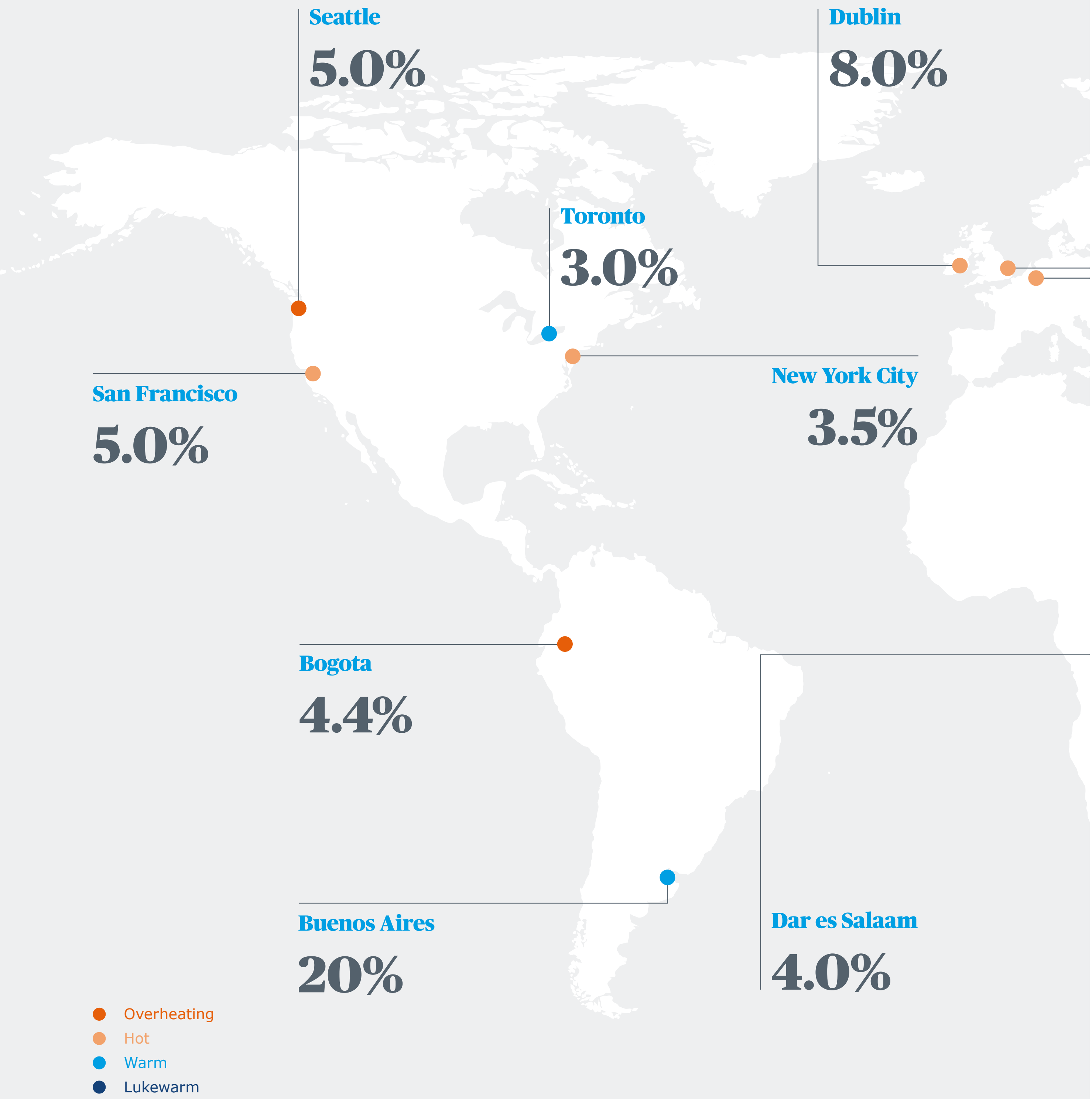
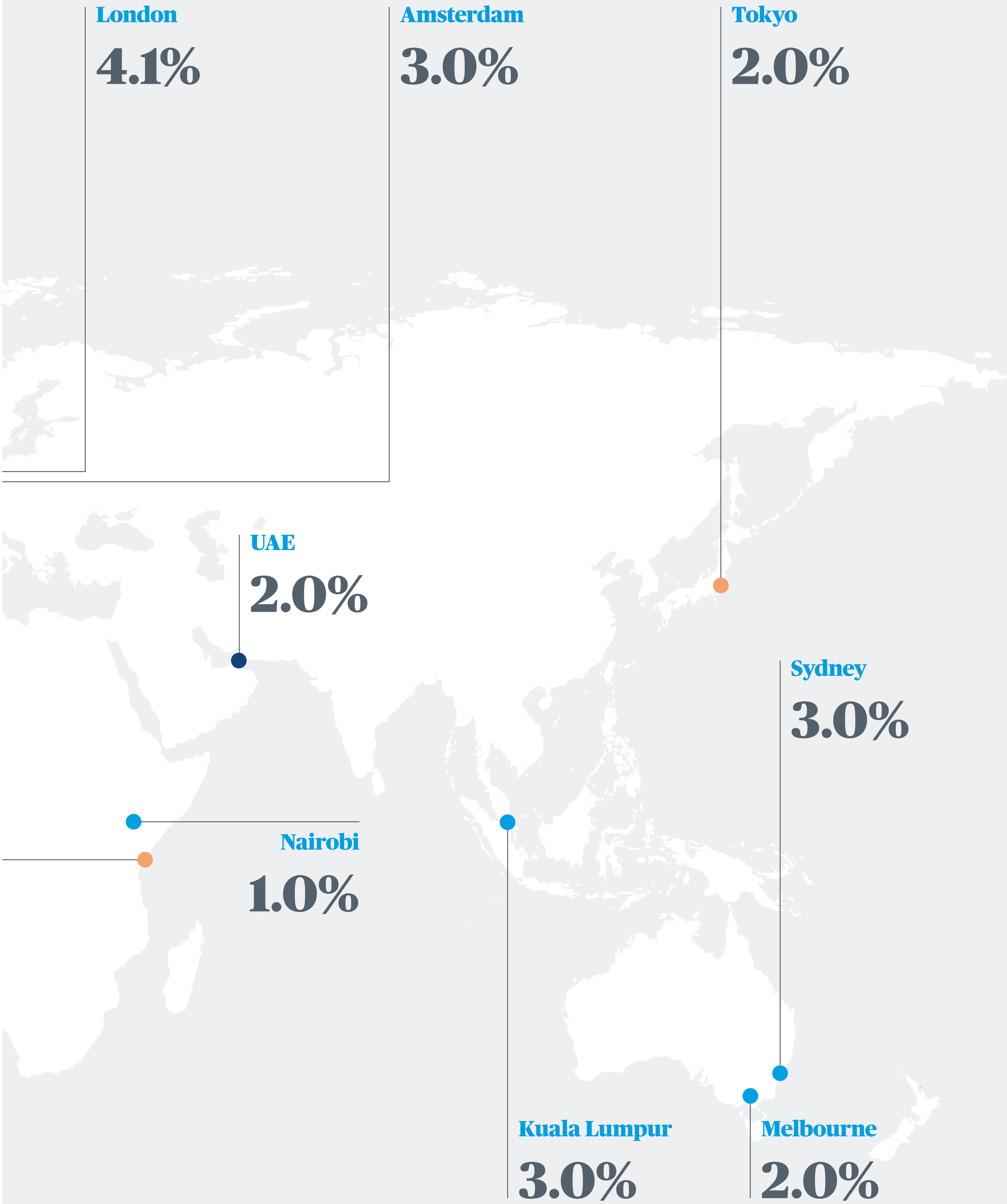


Figure 7
Fluctuating exchange rates can affect construction costs through the cost of imported materials and equipment.
Source: ICMS 2016 and 2017.

Forecasted cost escalation 2017-2018




London
4.1%
Amsterdam
3.0%
Tokyo
2.0%
UAE
2.0%
Sydney
3.0%
Nairobi
1.0%
Kuala Lumpur
3.0%
Melbourne
2.0%

Kenya - Nairobi

Overseas investment driving expansion

Economic outlook
Kenya's diverse economy continued to perform well, driven on by cheaper fuel prices, good agricultural performance, supportive monetary policy, and ongoing infrastructure investments.

Construction market and trends
Infrastructure grew by 13.6 percent in 2015, largely due to implementation of mega-infrastructure and energy flagship projects.

Key projects are the Northern Corridor Transport Improvement Project (NCTIP) and the Lamu Port and Lamu Southern Sudan-Ethiopian Transport Corridor (LAPSSET), which have been helping to grow inbound investments in surrounding construction developments. The latter project will expand port access, boost rail construction, and include a pipeline for recently discovered oil in the country.

Funding from the World Bank and UN has been made available for the construction of 150,000 apartments in place of slums. Chinese investment is underway in numerous projects across the country.

Future outlook
The real estate and construction sectors continue to be key drivers of economic growth in Kenya, as they have been for the last five years, and the Kenyan construction industry contributes 7 percent of GDP.

With elections scheduled for 2017, however, there is a possibility that investors could defer investment decisions until after the elections. Election-related expenditure could also result in a cutback in infrastructure spending.

International building costs per m² of internal area, in 2016	KES	USD (exchange rate: 104)
Airports (building only)		
Domestic terminal, full service	267,000	2,567
Low-cost carrier terminal, basic service	190,714	1,834
Car parks		
Multi-storey above ground	37,500	361
Multi-storey below ground	41,000	394
Commercial		
Offices – Business Park	60,000	577
CBD offices – up to 20 floors medium (A-Grade)	65,000	625
CBD offices – high-rise prestige	82,000	789
Education		
Primary and secondary	45,000	433
University	50,000	481
Hospitals		
Day centre (including basic surgeries)	85,000	817
Regional hospital	100,000	962
General hospital (e.g. city teaching hospital)	120,500	1,159
Hotels		
3 Star travellers	97,000	933
5 Star luxury	128,500	1,236
Resort style	130,000	1,250
Industrial		
Warehouse/factory units – basic	35,000	337
Large warehouse distribution centre	49,000	471
High-tech factory/laboratory	100,000	962
Residential		
Individual detached or terrace style house – medium standard	52,000	500
Individual detached house – prestige	75,000	721
Townhouses – medium standard	55,000	529
Apartments low-rise – medium standard	55,000	529
Apartments high-rise	65,000	625
Aged care/affordable units	45,000	433

Kenya – international building costs	KES	USD (exchange rate: 104)
Retail		
Large shopping centre including mall	65,000	625
Neighbourhood including supermarket	55,000	529
Prestige car showroom	67,200	646
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	400	4
Excavate footings (m)	320	3
Concrete in slab (m^3) (1,500m^3 job)	14,000	135
Reinforcement in beams (tonne)	120,000	1,154
Formwork to soffit of slab (m^2)	600	6
Blockwork in wall (m^2) (10,000 block job)	2,000	19
Structural steel beams (tonne)	204,000	1,962
Pre-cast concrete wall (m^2)	6,550	63
Curtain wall glazing including support system (m^2) (1,000m^2 job)	19,800	190
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	3,250	31
Single solid core door including frame and hardware (no) (50 door job)	39,500	380
Painting to walls primer + 2 coats (m^2)	400	4
Ceramic tiling (m^2) (1,000m^2 job)	2,000	19
Vinyl flooring to wet areas (m^2) (500m^2 job)	2,000	19
Carpet medium tufted (m^2) (4,500m^2 job)	5,000	48
Lighting installation (m^2) (5,000m^2+ job)	990	10
Copper pipe 15mm to wall (m) (1,000m+ job)	2,600	25
Fire sprinklers (per m^2) (5,000m^2 job)	3,200	31
Air conditioning including main plant (m^2) (5,000m^2+ job)	10,300	99
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	600	6
Group 2 Tradesman e.g. carpenter, bricklayer	600	6
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	600	6
General labourer	400	4
Site foreman	1,500	14
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	11,000	106
Reinforcement bar 16mm (tonne) (120 tonne job)	98,000	942
Concrete block (400x200) per 1,000 (>10,000 block job)	60,000	577
Standard brick per 1,000	52,000	500
Structural steel beams (tonne) (100 tonne+ job)	170,000	1,635
Glass pane 10mm tempered (m^2)	9,000	87
Softwood timber for framing 100mm x 50mm (m)	420	4
13mm plasterboard (m^2)	1,500	14
Emulsion paint (litre)	685	7
Copper pipe 15mm (m) (1,000m+ job)	1,430	14
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	360	4
Plant		
Hire 50t mobile crane + operator (day)	60,000	577

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	1.0%
Cost escalation 2017–18:	1.0%
Contractor’s margin:	8.5%
Preliminaries:	5.0%
Location factor (USD):	63
PPP coefficient:	76.78

Rwanda - Kigali

Infrastructure drive set to fuel growth and foreign access

Economic outlook

A combination of population growth, urbanisation and the migration of labour into higher value-added sectors will make private consumption the key driver of economic growth over the next eight years, but poor infrastructure will remain a significant barrier.

Construction market and trends

The construction of a USD40m dry port will help to reduce major non-tariff barriers to trade and improve access to coastal ports once completed in 2017. Other infrastructure improvements include the recently operational methane gas plant in Lake Kivu, which will generate 75MW; a 28-MW hydropower plant on the Nyabarongo River; and an agreement to import 30MW from Kenya and 450MW from Ethiopia.

The government's ambitions are further supported by loans from international finance institutions and private foreign investment, as well as the five-year USD20m infrastructure bond launched in February 2016.

Future outlook

Government spending on infrastructure is set to increase under Rwanda's Economic Development and Poverty Reduction Strategy, with plans to develop rail links to the Indian Ocean ports through Tanzania at a cost of USD800m to USD900m. This will open up new routes to market for Rwandan trade and add further impetus to economic growth.

International building costs per m² of internal area, in 2016	RWF	USD (exchange rate: 822)
Airports (building only)		
Domestic terminal, full service	3,171,270	3,858
Low-cost carrier terminal, basic service	2,265,193	2,756
Car parks		
Multi-storey above ground	382,284	465
Multi-storey below ground	484,848	590
Commercial		
Offices – Business Park	801,864	976
CBD offices – up to 20 floors medium (A-Grade)	848,484	1,032
CBD offices – high-rise prestige	1,268,064	1,543
Education		
Primary and secondary	559,440	681
University	652,680	794
Hospitals		
Day centre (including basic surgeries)	801,864	976
Regional hospital	941,724	1,146
General hospital (e.g. city teaching hospital)	1,417,248	1,724
Hotels		
3 Star travellers	1,128,204	1,373
5 Star luxury	1,417,248	1,724
Resort style	1,398,600	1,702
Industrial		
Warehouse/factory units – basic	326,340	397
Large warehouse distribution centre	475,524	579
High-tech factory/laboratory	1,417,248	1,724
Residential		
Individual detached or terrace style house – medium standard	461,538	562
Individual detached house – prestige	784,215	954
Townhouses – medium standard	566,849	690
Apartments low-rise – medium standard	623,626	759
Apartments high-rise	661,172	804
Aged care/affordable units	466,200	567

Rwanda – international building costs	RWF	USD (exchange rate: 822)
Retail		
Large shopping centre including mall	1,128,204	1,373
Neighbourhood including supermarket	755,244	919
Prestige car showroom	745,920	907
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	3,730	5
Excavate footings (m)	2,797	3
Concrete in slab (m^3) (1,500m^3 job)	181,818	221
Reinforcement in beams (tonne)	1,198,800	1,458
Formwork to soffit of slab (m^2)	12,121	15
Blockwork in wall (m^2) (10,000 block job)	27,972	34
Structural steel beams (tonne)	3,110,486	3,784
Pre-cast concrete wall (m^2)	115,618	141
Curtain wall glazing including support system (m^2) (1,000m^2 job)	261,072	318
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	33,566	41
Single solid core door including frame and hardware (no) (50 door job)	375,757	457
Painting to walls primer + 2 coats (m^2)	3,730	5
Ceramic tiling (m^2) (1,000m^2 job)	27,972	34
Vinyl flooring to wet areas (m^2) (500m^2 job)	92,308	112
Carpet medium tufted (m^2) (4,500m^2 job)	46,620	57
Lighting installation (m^2) (5,000m^2+ job)	112,820	137
Copper pipe 15mm to wall (m) (1,000m+ job)	25,175	31
Fire sprinklers (per m^2) (5,000m^2 job)	59,940	73
Air conditioning including main plant (m^2) (5,000m^2+ job)	93,240	113
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	2,872	4
Group 2 Tradesman e.g. carpenter, bricklayer	2,248	3
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	1,823	2
General labourer	1,249	2
Site foreman	3,809	5
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	194,026	236
Reinforcement bar 16mm (tonne) (120 tonne job)	988,344	1,202
Concrete block (400x200) per 1,000 (>10,000 block job)	1,186,013	1,443
Standard brick per 1,000	155,711	189
Structural steel beams (tonne) (100 tonne+ job)	2,488,576	3,028
Glass pane 10mm tempered (m^2)	98,834	120
Softwood timber for framing 100mm x 50mm (m)	2,797	3
13mm plasterboard (m^2)	2,797	3
Emulsion paint (litre)	2,914	4
Copper pipe 15mm (m) (1,000m+ job)	18,648	23
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	10,256	13
Plant		
Hire 50t mobile crane + operator (day)	1,277,388	1,554

Market:	**Lukewarm**
Tendering:	Warmer
Cost escalation 2016–17:	1.0%
Cost escalation 2017–18:	2.0%
Contractor's margin:	8.0%
Preliminaries:	10.0%
Location factor (USD):	61
PPP coefficient:	598.73

South Africa - Johannesburg

Growth prevails in face of political instability

Economic outlook
In spite of continuing political volatility within the country, business confidence showed a marginal increase in 2016. Employment levels in construction and electricity remained stable, in contrast to other sectors where employment fell. Construction subcontractors recorded higher confidence levels towards the end of 2016 and overall there was marginal positive growth in the sector.

Construction market and trends
The construction sector has yet to recover to pre-2010 levels. Contractors continue to experience pressures on margins and a lack of liquidity. The office and industrial sectors are oversupplied. Casting doubt on the prospects for a pick-up in growth in these sectors in 2017.

The government is still prioritising infrastructure and power-transmission projects. The major projects under consideration include extensions to the Lesotho Highlands Water Project, and the next phase of the Gautrain extension to Soweto, Mamelodi and the West Rand. A re-commitment to purchase renewable energy by Eskom should give that sector a boost.

The natural resources and mining sectors are still suffering from the effects of weaker commodity prices and a lack of confidence to develop new projects.

Future outlook
Economic growth continues to be negatively impacted by political uncertainty, weak global demand and the downgrade of sub-investment grade. The gradual improvement in the world economy and a projected recovery in commodity prices may support the economy in 2017.

International building costs per m² of internal area, in 2016	ZAR	USD (exchange rate: 14.48)
Airports (building only)		
Domestic terminal, full service	29,000	2,003
Low-cost carrier terminal, basic service	20,300	1,402
Car parks		
Multi-storey above ground	5,250	363
Multi-storey below ground	6,300	435
Commercial		
Offices – Business Park	8,500	587
CBD offices – up to 20 floors medium (A-Grade)	11,500	794
CBD offices – high-rise prestige	15,200	1,050
Education		
Primary and secondary	9,000	622
University	12,000	829
Hospitals		
Day centre (including basic surgeries)	10,400	718
Regional hospital	15,700	1,084
General hospital (e.g. city teaching hospital)	19,300	1,333
Hotels		
3 Star travellers	13,500	932
5 Star luxury	23,000	1,588
Resort style	21,400	1,478
Industrial		
Warehouse/factory units – basic	4,800	332
Large warehouse distribution centre	5,100	352
High-tech factory/laboratory	12,000	829
Residential		
Individual detached or terrace style house – medium standard	7,400	511
Individual detached house – prestige	13,100	905
Townhouses – medium standard	8,000	553
Apartments low-rise – medium standard	8,700	601
Apartments high-rise	12,000	829
Aged care/affordable units	7,400	511

South Africa – international building costs	ZAR	USD (exchange rate: 14.48)
Retail		
Large shopping centre including mall	13,100	905
Neighbourhood including supermarket	9,600	663
Prestige car showroom	10,400	718
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	82	6
Excavate footings (m)	137	10
Concrete in slab (m^3) (1,500m^3 job)	1,274	88
Reinforcement in beams (tonne)	11,500	794
Formwork to soffit of slab (m^2)	260	18
Blockwork in wall (m^2) (10,000 block job)	350	24
Structural steel beams (tonne)	33,500	2,314
Pre-cast concrete wall (m^2)	900	62
Curtain wall glazing including support system (m^2) (1,000m^2 job)	3,700	256
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	360	25
Single solid core door including frame and hardware (no) (50 door job)	2,350	162
Painting to walls primer + 2 coats (m^2)	46	3
Ceramic tiling (m^2) (1,000m^2 job)	500	35
Vinyl flooring to wet areas (m^2) (500m^2 job)	400	28
Carpet medium tufted (m^2) (4,500m^2 job)	320	22
Lighting installation (m^2) (5,000m^2+ job)	730	50
Copper pipe 15mm to wall (m) (1,000m+ job)	180	12
Fire sprinklers (per m^2) (5,000m^2 job)	375	26
Air conditioning including main plant (m^2) (5,000m^2+ job)	1,400	97
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	70	5
Group 2 Tradesman e.g. carpenter, bricklayer	50	4
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	50	4
General labourer	35	2
Site foreman	160	11
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	1,200	83
Reinforcement bar 16mm (tonne) (120 tonne job)	11,000	760
Concrete block (400x200) per 1,000 (>10,000 block job)	4,400	304
Standard brick per 1,000	1,200	83
Structural steel beams (tonne) (100 tonne+ job)	30,000	2,072
Glass pane 10mm tempered (m^2)	2,250	155
Softwood timber for framing 100mm x 50mm (m)	65	5
13mm plasterboard (m^2)	110	8
Emulsion paint (litre)	100	7
Copper pipe 15mm (m) (1,000m+ job)	75	5
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	28	2
Plant		
Hire 50t mobile crane + operator (day)	10,000	691

Market:	**Lukewarm**
Tendering:	Staying the same
Cost escalation 2016–17:	5.3%
Cost escalation 2017–18:	7.5%
Contractor's margin:	12.0%
Preliminaries:	10.0%
Location factor (USD):	54
PPP coefficient:	9.24

Tanzania - Dar es Salaam

Chinese aid helping to boost infrastructure

Economic outlook

The Tanzanian economy is growing well, expanding by 7.2 percent in 2016, and is now the second largest economy in East Africa after Kenya. The country has made great improvements in economic and structural reforms helping to ensure stable growth.

Construction market and tends

Construction is strong, but poor access to finance and inadequate infrastructure remain a challenge. China is providing assistance with investments in the Tanzania-Zambia railway and the USD10bn Bagamoyo Port. Both of these will add considerably to the flow of goods into the economy.

The movement of goods and services via a modern rail link from the inland countries to Dar es Salaam will help boost economic growth. The country has also recently found vast deposits of natural gas, providing further opportunities for expansion.

Future outlook

Tourism remains the biggest foreign currency earner for Tanzania, but 70 percent of the economy is made up of agricultural output.

Population is estimated to be 50 million and growing at a rate of 3 percent, but with slow increases in real average wealth.

International building costs per m² of internal area, in 2016	TZS	USD (exchange rate: 2,233)
Airports (building only)		
Domestic terminal, full service	6,076,766	2,721
Low-cost carrier terminal, basic service	4,340,541	1,944
Car parks		
Multi-storey above ground	869,582	389
Multi-storey below ground	950,743	426
Commercial		
Offices – Business Park	1,938,000	868
CBD offices – up to 20 floors medium (A-Grade)	1,713,600	767
CBD offices – high-rise prestige	2,448,000	1,096
Education		
Primary and secondary	1,043,498	467
University	1,159,442	519
Hospitals		
Day centre (including basic surgeries)	1,907,400	854
Regional hospital	2,244,000	1,005
General hospital (e.g. city teaching hospital)	3,141,600	1,407
Hotels		
3 Star travellers	2,244,000	1,005
5 Star luxury	2,805,000	1,256
Resort style	2,748,900	1,231
Industrial		
Warehouse/factory units – basic	811,610	363
Large warehouse distribution centre	1,136,253	509
High-tech factory/laboratory	2,318,885	1,038
Residential		
Individual detached or terrace style house – medium standard	920,000	412
Individual detached house – prestige	1,739,100	779
Townhouses – medium standard	1,228,150	550
Apartments low-rise – medium standard	1,275,300	571
Apartments high-rise	1,377,324	617
Aged care/affordable units	1,043,490	467

Tanzania – international building costs	TZS	USD (exchange rate: 2,233)
Retail		
Large shopping centre including mall	1,618,925	725
Neighbourhood including supermarket	1,275,387	571
Prestige car showroom	1,889,462	846
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	5,750	3
Excavate footings (m)	5,000	2
Concrete in slab (m^3) (1,500m^3 job)	320,000	143
Reinforcement in beams (tonne)	2,500,000	1,120
Formwork to soffit of slab (m^2)	18,000	8
Blockwork in wall (m^2) (10,000 block job)	36,500	16
Structural steel beams (tonne)	7,000,000	3,135
Pre-cast concrete wall (m^2)	151,887	68
Curtain wall glazing including support system (m^2) (1,000m^2 job)	380,000	170
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	80,000	36
Single solid core door including frame and hardware (no) (50 door job)	620,000	278
Painting to walls primer + 2 coats (m^2)	9,276	4
Ceramic tiling (m^2) (1,000m^2 job)	70,000	31
Vinyl flooring to wet areas (m^2) (500m^2 job)	80,000	36
Carpet medium tufted (m^2) (4,500m^2 job)	80,000	36
Lighting installation (m^2) (5,000m^2+ job)	22,957	10
Copper pipe 15mm to wall (m) (1,000m+ job)	24,000	11
Fire sprinklers (per m^2) (5,000m^2 job)	74,204	33
Air conditioning including main plant (m^2) (5,000m^2+ job)	234,465	105
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	8,192	4
Group 2 Tradesman e.g. carpenter, bricklayer	6,411	3
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	5,200	2
General labourer	3,562	2
Site foreman	10,864	5
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	350,000	157
Reinforcement bar 16mm (tonne) (120 tonne job)	1,750,000	784
Concrete block (400x200) per 1,000 (>10,000 block job)	2,000	1
Standard brick per 1,000	1,200	1
Structural steel beams (tonne) (100 tonne+ job)	3,942,104	1,765
Glass pane 10mm tempered (m^2)	208,700	94
Softwood timber for framing 100mm x 50mm (m)	16,500	7
13mm plasterboard (m^2)	6,250	3
Emulsion paint (litre)	8,250	4
Copper pipe 15mm (m) (1,000m+ job)	14,500	6
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	3,000	1
Plant		
Hire 50t mobile crane + operator (day)	1,700,000	761

Market:	Hot
Tendering:	Warmer
Cost escalation 2016–17:	5.0%
Cost escalation 2017–18:	4.0%
Contractor’s margin:	6.0%
Preliminaries:	8.0%
Location factor (USD):	50
PPP coefficient:	1,400.68

Uganda - Kampala

Optimism reigns as infrastructure investment continues

Economic outlook
Tight monetary conditions were imposed throughout most of 2015/16 by the central bank to counter the depreciation of the shilling. This increased lending rates to around 25 percent, thus increasing the cost of capital and slowing down investment despite continued infrastructure funding from China.

Construction market and trends
Growth is expected for 2017, as oil-related infrastructure projects are scheduled to enter construction and improvements to the transport and power networks continue to take shape.

Infrastructure spend is set to increase over the coming years as the government looks to improve the country's road and rail networks and undertake construction of key bridges, such as the Nile bridge in Jinja.

In 2016, construction also started on the 1,614km standard gauge railway line in Uganda, which aims to connect the country with its East African neighbours the Democratic Republic of Congo, Kenya, Rwanda and South Sudan.

The lack of a skilled labour and the opaque tendering process in the country remain chief deterrents to operating in the market.

Future outlook
The country's economic growth outlook is optimistic, with GDP growth expected to average 6.3 percent over the medium term. The government's economic policies are expected to remain focused on keeping inflation low and boosting growth.

International building costs per m² of internal area, in 2016	UGX	USD (exchange rate: 3,613)
Airports (building only)		
Domestic terminal, full service	13,616,554	3,769
Low-cost carrier terminal, basic service	9,202,000	2,547
Car parks		
Multi-storey above ground	1,513,194	419
Multi-storey below ground	1,919,152	531
Commercial		
Offices – Business Park	3,174,048	879
CBD offices – up to 20 floors medium (A-Grade)	3,358,516	930
CBD offices – high-rise prestige	5,019,370	1,389
Education		
Primary and secondary	2,214,472	613
University	2,876,160	796
Hospitals		
Day centre (including basic surgeries)	3,174,048	879
Regional hospital	3,727,559	1,032
General hospital (e.g. city teaching hospital)	6,570,000	1,818
Hotels		
3 Star travellers	4,465,752	1,236
5 Star luxury	5,609,903	1,553
Resort style	5,350,000	1,481
Industrial		
Warehouse/factory units – basic	1,291,704	358
Large warehouse distribution centre	1,882,237	521
High-tech factory/laboratory	5,609,903	1,553
Residential		
Individual detached or terrace style house – medium standard	1,816,325	503
Individual detached house – prestige	3,123,330	865
Townhouses – medium standard	2,066,812	572
Apartments low-rise – medium standard	2,435,855	674
Apartments high-rise	2,804,898	776
Aged care/affordable units	1,926,000	533

Uganda – international building costs	UGX	USD (exchange rate: 3,613)
Retail		
Large shopping centre including mall	4,465,752	1,236
Neighbourhood including supermarket	2,989,473	827
Prestige car showroom	2,952,558	817
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	14,904	4
Excavate footings (m)	11,124	3
Concrete in slab (m^3) (1,500m^3 job)	726,408	201
Reinforcement in beams (tonne)	4,399,920	1,218
Formwork to soffit of slab (m^2)	48,384	13
Blockwork in wall (m^2) (10,000 block job)	111,780	31
Structural steel beams (tonne)	10,999,800	3,045
Pre-cast concrete wall (m^2)	461,916	128
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,043,064	289
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	134,136	37
Single solid core door including frame and hardware (no) (50 door job)	1,501,200	416
Painting to walls primer + 2 coats (m^2)	14,904	4
Ceramic tiling (m^2) (1,000m^2 job)	111,780	31
Vinyl flooring to wet areas (m^2) (500m^2 job)	368,820	102
Carpet medium tufted (m^2) (4,500m^2 job)	186,300	52
Lighting installation (m^2) (5,000m^2+ job)	450,792	125
Copper pipe 15mm to wall (m) (1,000m+ job)	100,548	28
Fire sprinklers (per m^2) (5,000m^2 job)	220,320	61
Air conditioning including main plant (m^2) (5,000m^2+ job)	372,492	103
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	9,937	3
Group 2 Tradesman e.g. carpenter, bricklayer	3,347	1
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	6,799	2
General labourer	3,138	1
Site foreman	9,937	3
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	700,000	194
Reinforcement bar 16mm (tonne) (120 tonne job)	2,880,000	797
Concrete block (400x200) per 1,000 (>10,000 block job)	4,589,220	1,270
Standard brick per 1,000	602,496	167
Structural steel beams (tonne) (100 tonne+ job)	9,629,476	2,665
Glass pane 10mm tempered (m^2)	382,418	106
Softwood timber for framing 100mm x 50mm (m)	10,774	3
13mm plasterboard (m^2)	10,774	3
Emulsion paint (litre)	12,447	3
Copper pipe 15mm (m) (1,000m+ job)	72,174	20
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	39,643	11
Plant		
Hire 50t mobile crane + operator (day)	4,942,873	1,368

Market:	**Lukewarm**
Tendering:	Staying the same
Cost escalation 2016–17:	4.0%
Cost escalation 2017–18:	4.0%
Contractor's margin:	5.0%
Preliminaries:	7.0%
Location factor (USD):	46
PPP coefficient:	2,144.95

China - Beijing

Infrastructure buoys slowing economy

Economic outlook

China has massive construction plans underway, including making provision for the movement of 250 million people to its megacities in the next ten years, despite efforts to rebalance its economy to a more service-oriented base.

Domestic consumer spending is growing, shifting dependence away from the export sector. The yuan fell 6 percent against the US dollar, helping to make exports cheaper and helping Beijing to meet its goal of slowing down the outflow of capital by making overseas purchases more expensive.

Construction market and trends

Residential construction played a large part in the country meeting its GDP targets in 2016, and price growth of close to 25 percent in Shanghai, Beijing and Shenzhen since 2015 attracted high levels of investment. Recently, price growth slowed as the result of new government credit measures.

Infrastructure remains a buoyant market. Daxing International, a new USD12bn airport south west of Beijing, is the biggest construction project in China. A new subway (one of two under construction in the city) will provide a high-speed connection to the capital. China Zun, at 108 floors, is the tallest building under construction in Beijing.

Future outlook

China has much at stake following the US elections, including the prospect of increased protectionism from the Trump administration, and a deterioration of Chinese-US political relations. There is also a risk of a credit squeeze should the volume of non-performing loans keep growing.

International building costs per m² of internal area, in 2016	RMB	USD (exchange rate: 6.9)
Airports (building only)		
Domestic terminal, full service	10,000	1,449
Low-cost carrier terminal, basic service	8,000	1,159
Car parks		
Multi-storey above ground	2,000	290
Multi-storey below ground	4,500	652
Commercial		
Offices – Business Park	4,400	638
CBD offices – up to 20 floors medium (A-Grade)	6,800	986
CBD offices – high-rise prestige	8,000	1,159
Education		
Primary and secondary	3,700	536
University	5,500	797
Hospitals		
Day centre (including basic surgeries)	4,500	652
Regional hospital	5,400	783
General hospital (e.g. city teaching hospital)	6,000	870
Hotels		
3 Star travellers	5,800	841
5 Star luxury	13,000	1,884
Resort style	9,000	1,304
Industrial		
Warehouse/factory units – basic	2,300	333
Large warehouse distribution centre	2,600	377
High-tech factory/laboratory	5,800	841
Residential		
Individual detached or terrace style house – medium standard	4,200	609
Individual detached house – prestige	4,800	696
Townhouses – medium standard	4,000	580
Apartments low-rise – medium standard	3,000	435
Apartments high-rise	4,000	580
Aged care/affordable units	2,500	362

China – international building costs	RMB	USD (exchange rate: 6.9)
Retail		
Large shopping centre including mall	5,700	826
Neighbourhood including supermarket	3,600	522
Prestige car showroom	4,000	580
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	34	5
Excavate footings (m)	54	8
Concrete in slab (m^3) (1,500m^3 job)	500	73
Reinforcement in beams (tonne)	4,600	667
Formwork to soffit of slab (m^2)	90	13
Blockwork in wall (m^2) (10,000 block job)	160	23
Structural steel beams (tonne)	8,000	1,159
Pre-cast concrete wall (m^2)	210	30
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,300	188
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	220	32
Single solid core door including frame and hardware (no) (50 door job)	2,700	391
Painting to walls primer + 2 coats (m^2)	48	7
Ceramic tiling (m^2) (1,000m^2 job)	250	36
Vinyl flooring to wet areas (m^2) (500m^2 job)	385	56
Carpet medium tufted (m^2) (4,500m^2 job)	390	57
Lighting installation (m^2) (5,000m^2+ job)	320	46
Copper pipe 15mm to wall (m) (1,000m+ job)	60	9
Fire sprinklers (per m^2) (5,000m^2 job)	200	29
Air conditioning including main plant (m^2) (5,000m^2+ job)	510	74
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	36	5
Group 2 Tradesman e.g. carpenter, bricklayer	36	5
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	33	5
General labourer	22	3
Site foreman	44	6
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	390	57
Reinforcement bar 16mm (tonne) (120 tonne job)	3,000	435
Concrete block (400x200) per 1,000 (>10,000 block job)	3,500	507
Standard brick per 1,000	580	84
Structural steel beams (tonne) (100 tonne+ job)	4,500	652
Glass pane 10mm tempered (m^2)	450	65
Softwood timber for framing 100mm x 50mm (m)	30	4
13mm plasterboard (m^2)	20	3
Emulsion paint (litre)	60	9
Copper pipe 15mm (m) (1,000m+ job)	35	5
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	8	1
Plant		
Hire 50t mobile crane + operator (day)	2,300	333

Market:	**Lukewarm**
Tendering:	Warmer
Cost escalation 2016–17:	5.0%
Cost escalation 2017–18:	5.0%
Contractor's margin:	6.0%
Preliminaries:	5.0%
Location factor (USD):	33
PPP coefficient:	2.74

China - Hong Kong

Infrastructure opening up new opportunities

Economic outlook

A decline in tourism from mainland China and a drop-off in investments have temporarily dampened growth in the Hong Kong economy.

Business confidence started to pick up towards the end of 2016, but there is a new concern surrounding the US elections and its impact on Chinese trade.

Construction market and trends

Infrastructure spending has been strong, and the Hong Kong Macao Bridge is set to open in 2017, exposing the Western Pearl Delta to trade of goods and services. The Hong Kong section of the express rail link to Guangzhou is also underway.

In the residential sector, private apartment supply is expected to hit a 12-year high as the market looks to capitalise on strong expected price growth. The retail sector in the region remains weak. Recently a number of store closures have occurred as several major leases came up for renewal in the city.

Future outlook

A number of large construction projects, such as the construction of a third runway at Hong Kong airport and the building of a Disneyland theme park, are expected to fuel growth over the course of 2017 and beyond.

With limited development space above ground, a study was undertaken to analyse the viability of increased development of underground spaces. That may yield further development opportunities in the near future.

International building costs per m² of internal area, in 2016	HKD	USD (exchange rate: 7.76)
Airports (building only)		
Domestic terminal, full service	46,865	6,039
Low-cost carrier terminal, basic service	29,427	3,792
Car parks		
Multi-storey above ground	11,989	1,545
Multi-storey below ground	20,708	2,669
Commercial		
Offices – Business Park	20,708	2,669
CBD offices – up to 20 floors medium (A-Grade)	25,067	3,230
CBD offices – high-rise prestige	28,337	3,652
Education		
Primary and secondary	20,708	2,669
University	28,337	3,652
Hospitals		
Day centre (including basic surgeries)	20,708	2,669
Regional hospital	32,697	4,214
General hospital (e.g. city teaching hospital)	37,056	4,775
Hotels		
3 Star travellers	30,517	3,933
5 Star luxury	37,056	4,775
Resort style	41,416	5,337
Industrial		
Warehouse/factory units – basic	16,348	2,107
Large warehouse distribution centre	17,438	2,247
High-tech factory/laboratory	29,427	3,792
Residential		
Individual detached or terrace style house – medium standard	32,697	4,214
Individual detached house – prestige	41,416	5,337
Townhouses – medium standard	26,157	3,371
Apartments low-rise – medium standard	23,977	3,090
Apartments high-rise	26,157	3,371
Aged care/affordable units	16,348	2,107

Hong Kong – international building costs	HKD	USD (exchange rate: 7.76)
Retail		
Large shopping centre including mall	32,697	4,214
Neighbourhood including supermarket	26,157	3,371
Prestige car showroom	32,697	4,214
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	142	18
Excavate footings (m)	153	20
Concrete in slab (m^3) (1,500m^3 job)	1,471	190
Reinforcement in beams (tonne)	12,773	1,646
Formwork to soffit of slab (m^2)	349	45
Blockwork in wall (m^2) (10,000 block job)	414	53
Structural steel beams (tonne)	43,933	5,662
Pre-cast concrete wall (m^2)	1,406	181
Curtain wall glazing including support system (m^2) (1,000m^2 job)	5,907	761
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	523	67
Single solid core door including frame and hardware (no) (50 door job)	7,030	906
Painting to walls primer + 2 coats (m^2)	142	18
Ceramic tiling (m^2) (1,000m^2 job)	763	98
Vinyl flooring to wet areas (m^2) (500m^2 job)	349	45
Carpet medium tufted (m^2) (4,500m^2 job)	567	73
Lighting installation (m^2) (5,000m^2+ job)	992	128
Copper pipe 15mm to wall (m) (1,000m+ job)	251	32
Fire sprinklers (per m^2) (5,000m^2 job)	610	79
Air conditioning including main plant (m^2) (5,000m^2+ job)	3,052	393
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	129	17
Group 2 Tradesman e.g. carpenter, bricklayer	164	21
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	141	18
General labourer	91	12
Site foreman	187	24
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	762	98
Reinforcement bar 16mm (tonne) (120 tonne job)	7,047	908
Concrete block (400x200) per 1,000 (>10,000 block job)	4,101	529
Standard brick per 1,000	2,284	294
Structural steel beams (tonne) (100 tonne+ job)	14,060	1,812
Glass pane 10mm tempered (m^2)	2,203	284
Softwood timber for framing 100mm x 50mm (m)	76	10
13mm plasterboard (m^2)	94	12
Emulsion paint (litre)	64	8
Copper pipe 15mm (m) (1,000m+ job)	33	4
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	16	2
Plant		
Hire 50t mobile crane + operator (day)	7,030	906

Market:	**Warm**
Tendering:	Warmer
Cost escalation 2016–17:	4.0%
Cost escalation 2017–18:	5.0%
Contractor's margin:	6.0%
Preliminaries:	12.0%
Location factor (USD):	100
PPP coefficient:	9.16

India - Bangalore

Emerging markets benefitting from tech firm investment

Economic outlook
Demonetisation at the end of 2016 created a cash crunch in the country that reduced domestic consumption, broke down supply chains and interrupted economic growth.

The underlying growth story remains strong despite this, and a 20 percent increase in public sector wages over 2016 helped drive domestic demand.

Construction market and trends
Construction plays a major part in the economic growth of India. Numerous long-term and short-term projects are underway in the public and private sector, including the 22.5km Mumbai trans-harbour link and two new metro lines in Mumbai.

Meanwhile, technology clients like Apple, Facebook, Google and Microsoft continue to invest in emerging markets, including manufacturing projects through the 'Make in India' initiative.

The residential construction sector, however, appears to be oversupplied and labour shortages in the commercial market are damaging growth in this area.

Future outlook
Eventually, demonetisation should help move economic activity into formal channels, increasing financial inclusion and government revenue. Once the impacts have had time to work their way through the system the outlook for construction is very positive.

Developer-led projects, while experiencing some slowing in major cities, should do well in less-tapped markets such as Ahmedabad, Hyderabad, Lucknow and Pune.

International building costs per m² of internal area, in 2016	INR	USD (exchange rate: 69.07)
Airports (building only)		
Domestic terminal, full service	91,200	1,320
Low-cost carrier terminal, basic service	73,100	1,058
Car parks		
Multi-storey above ground	17,250	250
Multi-storey below ground	23,500	340
Commercial		
Offices – Business Park	41,750	605
CBD offices – up to 20 floors medium (A-Grade)	46,370	671
CBD offices – high-rise prestige	51,050	739
Education		
Primary and secondary	29,600	429
University	46,720	676
Hospitals		
Day centre (including basic surgeries)	42,240	612
Regional hospital	47,220	684
General hospital (e.g. city teaching hospital)	61,800	895
Hotels		
3 Star travellers	49,520	717
5 Star luxury	101,850	1,475
Resort style	79,300	1,148
Industrial		
Warehouse/factory units – basic	30,950	448
Large warehouse distribution centre	38,700	560
High-tech factory/laboratory	47,560	689
Residential		
Individual detached or terrace style house – medium standard	37,570	544
Individual detached house – prestige	49,760	720
Townhouses – medium standard	30,850	447
Apartments low-rise – medium standard	36,580	530
Apartments high-rise	48,720	705
Aged care/affordable units	30,200	437

India – international building costs	INR	USD (exchange rate: 69.07)
Retail		
Large shopping centre including mall	59,160	857
Neighbourhood including supermarket	43,820	634
Prestige car showroom	37,650	545
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	480	7
Excavate footings (m)	525	8
Concrete in slab (m^3) (1,500m^3 job)	7,800	113
Reinforcement in beams (tonne)	60,100	870
Formwork to soffit of slab (m^2)	630	9
Blockwork in wall (m^2) (10,000 block job)	1,400	20
Structural steel beams (tonne)	97,300	1,409
Pre-cast concrete wall (m^2)	10,080	146
Curtain wall glazing including support system (m^2) (1,000m^2 job)	15,000	217
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	2,550	37
Single solid core door including frame and hardware (no) (50 door job)	42,400	614
Painting to walls primer + 2 coats (m^2)	250	4
Ceramic tiling (m^2) (1,000m^2 job)	2,100	30
Vinyl flooring to wet areas (m^2) (500m^2 job)	2,250	33
Carpet medium tufted (m^2) (4,500m^2 job)	1,800	26
Lighting installation (m^2) (5,000m^2+ job)	500	7
Copper pipe 15mm to wall (m) (1,000m+ job)	650	9
Fire sprinklers (per m^2) (5,000m^2 job)	1,225	18
Air conditioning including main plant (m^2) (5,000m^2+ job)	5,250	76
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	94	1
Group 2 Tradesman e.g. carpenter, bricklayer	88	1
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	78	1
General labourer	57	1
Site foreman	126	2
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	4,850	70
Reinforcement bar 16mm (tonne) (120 tonne job)	37,950	549
Concrete block (400x200) per 1,000 (>10,000 block job)	43,500	630
Standard brick per 1,000	7,000	101
Structural steel beams (tonne) (100 tonne+ job)	45,800	663
Glass pane 10mm tempered (m^2)	5,800	84
Softwood timber for framing 100mm x 50mm (m)	300	4
13mm plasterboard (m^2)	350	5
Emulsion paint (litre)	280	4
Copper pipe 15mm (m) (1,000m+ job)	570	8
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	135	2
Plant		
Hire 50t mobile crane + operator (day)	25,000	362

Market:	**Lukewarm**
Tendering:	Staying the same
Cost escalation 2016–17:	1.5%
Cost escalation 2017–18:	2.0%
Contractor's margin:	6.0%
Preliminaries:	9.0%
Location factor (USD):	34
PPP coefficient:	30.22

Japan - Tokyo

Ageing population restricting growth

Economic outlook

Tourism has been boosted in recent years by the weaker yen, and benefitted from particularly strong Chinese tourism growth. Labour shortages are a significant problem, with the falling numbers of engineers and labourers, and an ageing population resulting in manpower shortages in most sectors of the economy.

Construction market and trends

Construction is strong but shortages of labour are driving up labour costs, especially in Tokyo. Land and real estate prices have also risen sharply in anticipation of the 2020 Olympic Games, possibly indicating a bubble forming in the city.

Infrastructure spend remains high, work has started on the maglev railway from Tokyo to Nagoya to run at 500km/h at a cost of USD48bn with 80 percent in tunnels.

Work starting on the new Kengo Kuma's stadium for the 2020 Olympics has replaced the original Zaha Hadid design due to escalating costs and protests from other architects regarding the project's sensitivity to the site.

Future outlook

The growth outlook is generally positive for Japan, as construction firms make solid profits. Labour shortages will continue to drive up costs, as discussions proceed on ways to reduce the ballooning cost of the Olympic venues.

International building costs per m² of internal area, in 2016	JPY	USD (exchange rate: 115.64)
Airports (building only)		
Domestic terminal, full service	395,850	3,423
Low-cost carrier terminal, basic service	323,400	2,797
Car parks		
Multi-storey above ground	217,360	1,880
Multi-storey below ground	472,160	4,083
Commercial		
Offices – Business Park	246,750	2,134
CBD offices – up to 20 floors medium (A-Grade)	285,600	2,470
CBD offices – high-rise prestige	325,500	2,815
Education		
Primary and secondary	214,240	1,853
University	197,600	1,709
Hospitals		
Day centre (including basic surgeries)	173,680	1,502
Regional hospital	173,680	1,502
General hospital (e.g. city teaching hospital)	268,180	2,319
Hotels		
3 Star travellers	370,240	3,202
5 Star luxury	555,360	4,802
Resort style	312,700	2,704
Industrial		
Warehouse/factory units – basic	164,320	1,421
Large warehouse distribution centre	220,480	1,907
High-tech factory/laboratory	482,560	4,173
Residential		
Individual detached or terrace style house – medium standard	216,300	1,870
Individual detached house – prestige	253,050	2,188
Townhouses – medium standard	199,500	1,725
Apartments low-rise – medium standard	202,650	1,752
Apartments high-rise	304,500	2,633
Aged care/affordable units	176,400	1,525

Japan – international building costs	JPY	USD (exchange rate: 115.64)
Retail		
Large shopping centre including mall	322,400	2,788
Neighbourhood including supermarket	391,040	3,382
Prestige car showroom	514,800	4,452
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	530	5
Excavate footings (m)	530	5
Concrete in slab (m^3) (1,500m^3 job)	14,840	128
Reinforcement in beams (tonne)	104,834	907
Formwork to soffit of slab (m^2)	2,862	25
Blockwork in wall (m^2) (10,000 block job)	4,770	41
Structural steel beams (tonne)	124,338	1,075
Pre-cast concrete wall (m^2)	16,324	141
Curtain wall glazing including support system (m^2) (1,000m^2 job)	108,120	935
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	3,286	28
Single solid core door including frame and hardware (no) (50 door job)	79,606	688
Painting to walls primer + 2 coats (m^2)	954	8
Ceramic tiling (m^2) (1,000m^2 job)	6,254	54
Vinyl flooring to wet areas (m^2) (500m^2 job)	3,604	31
Carpet medium tufted (m^2) (4,500m^2 job)	4,664	40
Lighting installation (m^2) (5,000m^2+ job)	4,876	42
Copper pipe 15mm to wall (m) (1,000m+ job)	2,438	21
Fire sprinklers (per m^2) (5,000m^2 job)	4,346	38
Air conditioning including main plant (m^2) (5,000m^2+ job)	31,270	270
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	7,176	62
Group 2 Tradesman e.g. carpenter, bricklayer	6,864	59
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	5,408	47
General labourer	4,264	37
Site foreman	9,360	81
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	12,463	108
Reinforcement bar 16mm (tonne) (120 tonne job)	116,640	1,009
Concrete block (400x200) per 1,000 (>10,000 block job)	115,566	999
Standard brick per 1,000	102,485	886
Structural steel beams (tonne) (100 tonne+ job)	84,048	727
Glass pane 10mm tempered (m^2)	18,540	160
Softwood timber for framing 100mm x 50mm (m)	824	7
13mm plasterboard (m^2)	515	4
Emulsion paint (litre)	309	3
Copper pipe 15mm (metre) (1,000m+ job)	721	6
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	206	2
Plant		
Hire 50t mobile crane + operator (day)	162,180	1,402

Market:	**Hot**
Tendering:	Staying the same
Cost escalation 2016–17:	3.0%
Cost escalation 2017–18:	2.0%
Contractor's margin:	6.0%
Preliminaries:	15.0%
Location factor (USD):	103
PPP coefficient:	153.75

Malaysia - Kuala Lumpur

Infrastructure opens up foreign investment channels

Economic outlook
Despite reducing dependence on commodity production by diversifying into services and manufacturing, the recent fall in oil prices has affected export earnings and weakened the currency.

Construction market and trends
The construction sector is buoyant with spending set to increase by around 8 percent in 2017. Several major projects in real estate and infrastructure have been announced including extensions to public transport in the LRT and MRT systems.

Phase one of the MYR16bn Pan Borneo highway construction packages has been finalised and a major redevelopment of Kuala Lumpur's financial district, which includes a 92-floor office tower, a luxury hotel, shopping mall and residential towers, is set to get underway.

Work on the high-speed rail connecting Kuala Lumpur to Singapore is scheduled to start this year, and foreign investment continues to flood into the country from high-tech manufacturing firms.

Future outlook
The outlook is positive, but with a high exposure to foreign trade, especially with China, global uncertainties in 2017 may create headwinds for Malaysia, such as a fallout from any US-China trade barriers.

The continued slump in oil prices will damage export earnings, and business confidence is likely to remain low.

International building costs per m² of internal area, in 2016	MYR	USD (exchange rate: 4.42)
Airports (building only)		
Domestic terminal, full service	7,020	1,588
Low-cost carrier terminal, basic service	4,913	1,112
Car parks		
Multi-storey above ground	1,201	272
Multi-storey below ground	1,856	420
Commercial		
Offices – Business Park	3,494	791
CBD offices – up to 20 floors medium (A-Grade)	4,564	1,033
CBD offices – high-rise prestige	6,387	1,445
Education		
Primary and secondary	2,107	477
University	5,175	1,171
Hospitals		
Day centre (including basic surgeries)	3,155	714
Regional hospital	4,203	951
General hospital (e.g. city teaching hospital)	4,738	1,072
Hotels		
3 Star travellers	5,503	1,245
5 Star luxury	6,715	1,519
Resort style	10,492	2,374
Industrial		
Warehouse/factory units – basic	2,129	482
Large warehouse distribution centre	2,730	618
High-tech factory/laboratory	4,564	1,033
Residential		
Individual detached or terrace style house – medium standard	2,631	595
Individual detached house – prestige	3,363	761
Townhouses – medium standard	1,758	398
Apartments low-rise – medium standard	2,053	465
Apartments high-rise	2,926	662
Aged care/affordable units	2,195	497

Malaysia – international building costs	MYR	USD (exchange rate: 4.42)
Retail		
Large shopping centre including mall	5,175	1,171
Neighbourhood including supermarket	4,411	998
Prestige car showroom	5,623	1,272
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	37	9
Excavate footings (m)	53	12
Concrete in slab (m^3) (1,500m^3 job)	305	69
Reinforcement in beams (tonne)	4,313	976
Formwork to soffit of slab (m^2)	41	9
Blockwork in wall (m^2) (10,000 block job)	74	17
Structural steel beams (tonne)	10,600	2,398
Pre-cast concrete wall (m^2)	247	56
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,070	242
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	138	31
Single solid core door including frame and hardware (no) (50 door job)	1,219	276
Painting to walls primer + 2 coats (m^2)	11	3
Ceramic tiling (m^2) (1,000m^2 job)	159	36
Vinyl flooring to wet areas (m^2) (500m^2 job)	230	52
Carpet medium tufted (m^2) (4,500m^2 job)	103	23
Lighting installation (m^2) (5,000m^2+ job)	171	39
Copper pipe 15mm to wall (m) (1,000m+ job)	50	11
Fire sprinklers (per m^2) (5,000m^2 job)	126	29
Air conditioning including main plant (m^2) (5,000m^2+ job)	328	74
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	33	8
Group 2 Tradesman e.g. carpenter, bricklayer	21	5
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	24	5
General labourer	11	3
Site foreman	59	13
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	273	62
Reinforcement bar 16mm (tonne) (120 tonne job)	4,028	911
Concrete block (400x200) per 1,000 (>10,000 block job)	3,710	839
Standard brick per 1,000	447	101
Structural steel beams (tonne) (100 tonne+ job)	9,217	2,085
Glass pane 10mm tempered (m^2)	822	186
Softwood timber for framing 100mm x 50mm (m)	16	4
13mm plasterboard (m^2)	29	7
Emulsion paint (litre)	30	7
Copper pipe 15mm (m) (1,000m+ job)	31	7
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	17	4
Plant		
Hire 50t mobile crane + operator (day)	1,908	432

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	3.0%
Cost escalation 2017–18:	3.0%
Contractor's margin:	12.5%
Preliminaries:	10.0%
Location factor (USD):	50
PPP coefficient:	2.75

Singapore

Slowing economy puts brakes on construction

Economic outlook
As a highly open trading economy, Singapore is especially susceptible to global uncertainties including declines in global trade and lower commodity prices. Lower oil prices, weaker shipping trade and lower profitability in the semiconductor market is causing the Singaporean economy to slow.

Construction market and trends
The construction market is expected to slow down in 2017, but a higher level of public spending will give the sector some comfort.

Government spending will continue its focus on civil engineering and public housing works. The deep sewerage tunnelling project includes 60km of new sewerage and 40km of tunnels connecting water treatment systems under the city. Upgrades to MRT lines, including signalling systems and new sleepers, are also underway.

Future outlook
With its open trading stance, a growth in US protectionism and any slowdown in China will affect Singapore. The 2017 outlook is for further slow growth, notwithstanding the hurdles placed by these factors.

The government will continue to dominate construction demand, and private sector investments are likely to remain stable or reduce as demand for private properties is stagnant. Changi Airport's third runway and terminal five development will continue to be one of the largest projects in Singapore for the foreseeable future.

International building costs per m² of internal area, in 2016	SGD	USD (exchange rate: 1.43)
Airports (building only)		
Domestic terminal, full service	5,200	3,636
Low-cost carrier terminal, basic service	4,000	2,797
Car parks		
Multi-storey above ground	1,230	860
Multi-storey below ground	1,740	1,217
Commercial		
Offices – Business Park	2,029	1,419
CBD offices – up to 20 floors medium (A-Grade)	2,509	1,754
CBD offices – high-rise prestige	2,911	2,035
Education		
Primary and secondary	1,500	1,049
University	2,770	1,937
Hospitals		
Day centre (including basic surgeries)	1,869	1,307
Regional hospital	3,030	2,119
General hospital (e.g. city teaching hospital)	3,939	2,755
Hotels		
3 Star travellers	3,313	2,317
5 Star luxury	4,353	3,044
Resort style	5,202	3,637
Industrial		
Warehouse/factory units – basic	2,156	1,508
Large warehouse distribution centre	2,450	1,713
High-tech factory/laboratory	3,080	2,154
Residential		
Individual detached or terrace style house – medium standard	4,000	2,797
Individual detached house – prestige	4,626	3,235
Townhouses – medium standard	2,727	1,907
Apartments low-rise – medium standard	2,002	1,400
Apartments high-rise	2,579	1,803
Aged care/affordable units	1,540	1,077

Singapore – international building costs	SGD	USD (exchange rate: 1.43)
Retail		
Large shopping centre including mall	3,214	2,248
Neighbourhood including supermarket	2,107	1,473
Prestige car showroom	3,380	2,364
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	75	52
Excavate footings (m)	25	18
Concrete in slab (m^3) (1,500m^3 job)	158	111
Reinforcement in beams (tonne)	1,519	1,062
Formwork to soffit of slab (m^2)	37	26
Blockwork in wall (m^2) (10,000 block job)	65	46
Structural steel beams (tonne)	4,018	2,810
Pre-cast concrete wall (m^2)	142	99
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,365	955
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	25	18
Single solid core door including frame and hardware (no) (50 door job)	845	591
Painting to walls primer + 2 coats (m^2)	10	7
Ceramic tiling (m^2) (1,000m^2 job)	87	61
Vinyl flooring to wet areas (m^2) (500m^2 job)	80	56
Carpet medium tufted (m^2) (4,500m^2 job)	63	44
Lighting installation (m^2) (5,000m^2+ job)	205	143
Copper pipe 15mm to wall (m) (1,000m+ job)	28	19
Fire sprinklers (per m^2) (5,000m^2 job)	82	57
Air conditioning including main plant (m^2) (5,000m^2+ job)	267	186
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	28	20
Group 2 Tradesman e.g. carpenter, bricklayer	20	14
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	28	19
General labourer	17	12
Site foreman	28	19
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	108	76
Reinforcement bar 16mm (tonne) (120 tonne job)	1,176	822
Concrete block (400x200) per 1,000 (>10,000 block job)	700	490
Standard brick per 1,000	350	245
Structural steel beams (tonne) (100 tonne+ job)	2,156	1,508
Glass pane 10mm tempered (m^2)	120	84
Softwood timber for framing 100mm x 50mm (m)	12	8
13mm plasterboard (m^2)	8	6
Emulsion paint (litre)	18	13
Copper pipe 15mm (m) (1,000m+ job)	13	9
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	2	1
Plant		
Hire 50t mobile crane + operator (day)	2,000	1,399

Market:	**Lukewarm**
Tendering:	Cooler
Cost escalation 2016–17:	0.0%
Cost escalation 2017–18:	0.0%
Contractor's margin:	5.0%
Preliminaries:	8.0%
Location factor (USD):	66
PPP coefficient:	1.21

South Korea - Seoul

Residential markets surge amidst declining exports

Economic outlook

The South Korean economy is highly dependent on international trade, with close to half of GDP accounted for by exports. Vehicle, smartphone, electronics and shipbuilding sectors have been impacted by slowing conditions in global trade, weaker trade with China, a downturn in global shipping and less investment in shipbuilding and oil and gas equipment.

Construction market and trends

Record low interest rates saw a strong increase in residential investment during 2016. Both building and civil construction expanded during 2016 but increased fears of increased borrowing costs as the US plans to ease off on quantitative easing applied the brakes at the end of the year.

Non-residential projects are being impacted by the negative export trade outlook, as difficult trading conditions continue in the shipbuilding and shipping sectors.

Future outlook

The future of South Korea's economy remains steady; confidence should improve slowly in 2017 after recent difficult political and trading conditions impact on the economy.

Given South Korea's high reliance on exports, there are significant concerns relating to the possibility of increased US trade protectionism. Nevertheless, the government has considerable reserves and room for stimulating the economy, which may become necessary should difficult conditions continue.

International building costs per m² of internal area, in 2016	KRW	USD (exchange rate: 1,179)
Airports (building only)		
Domestic terminal, full service	3,235,490	2,744
Low-cost carrier terminal, basic service	2,264,240	1,921
Car parks		
Multi-storey above ground	697,330	592
Multi-storey below ground	1,015,500	861
Commercial		
Offices – Business Park	1,395,860	1,184
CBD offices – up to 20 floors medium (A-Grade)	1,712,830	1,453
CBD offices – high-rise prestige	2,156,590	1,829
Education		
Primary and secondary	1,267,880	1,075
University	1,725,990	1,464
Hospitals		
Day centre (including basic surgeries)	1,395,860	1,184
Regional hospital	2,029,800	1,722
General hospital (e.g. city teaching hospital)	2,156,590	1,829
Hotels		
3 Star travellers	1,865,930	1,583
5 Star luxury	3,981,860	3,377
Resort style	2,550,830	2,164
Industrial		
Warehouse/factory units – basic	1,119,560	950
Large warehouse distribution centre	870,770	739
High-tech factory/laboratory	3,234,290	2,743
Residential		
Individual detached or terrace style house – medium standard	1,430,550	1,213
Individual detached house – prestige	2,115,320	1,794
Townhouses – medium standard	1,692,260	1,435
Apartments low-rise – medium standard	1,368,350	1,161
Apartments high-rise	1,741,540	1,477
Aged care/affordable units	1,492,750	1,266

South Korea – international building costs	KRW	USD (exchange rate: 1,179)
Retail		
Large shopping centre including mall	2,113,530	1,793
Neighbourhood including supermarket	1,181,760	1,002
Prestige car showroom	2,326,440	1,973
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	6,940	6
Excavate footings (m)	6,940	6
Concrete in slab (m^3) (1,500m^3 job)	140,410	119
Reinforcement in beams (tonne)	1,301,580	1,104
Formwork to soffit of slab (m^2)	32,240	27
Blockwork in wall (m^2) (10,000 block job)	42,640	36
Structural steel beams (tonne)	2,089,040	1,772
Pre-cast concrete wall (m^2)	275,620	234
Curtain wall glazing including support system (m^2) (1,000m^2 job)	330,750	281
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	49,710	42
Single solid core door including frame and hardware (no) (50 door job)	276,660	235
Painting to walls primer + 2 coats (m^2)	4,990	4
Ceramic tiling (m^2) (1,000m^2 job)	48,360	41
Vinyl flooring to wet areas (m^2) (500m^2 job)	38,580	33
Carpet medium tufted (m^2) (4,500m^2 job)	55,120	47
Lighting installation (m^2) (5,000m^2+ job)	44,990	38
Copper pipe 15mm to wall (m) (1,000m+ job)	12,060	10
Fire sprinklers (per m^2) (5,000m^2 job)	24,820	21
Air conditioning including main plant (m^2) (5,000m^2+ job)	222,580	189
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	26,000	22
Group 2 Tradesman e.g. carpenter, bricklayer	26,000	22
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	25,000	21
General labourer	16,000	14
Site foreman	34,000	29
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	81,540	69
Reinforcement bar 16mm (tonne) (120 tonne job)	638,000	541
Concrete block (400x200) per 1,000 (>10,000 block job)	660,000	560
Standard brick per 1,000	66,000	56
Structural steel beams (tonne) (100 tonne+ job)	1,122,000	952
Glass pane 10mm tempered (m^2)	143,110	121
Softwood timber for framing 100mm x 50mm (m)	6,600	6
13mm plasterboard (m^2)	3,800	3
Emulsion paint (litre)	5,600	5
Copper pipe 15mm (m) (1,000m+ job)	6,980	6
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	2,360	2
Plant		
Hire 50t mobile crane + operator (day)	988,090	838

Market:	**Cold**
Tendering:	Warmer
Cost escalation 2016–17:	4.0%
Cost escalation 2017–18:	2.0%
Contractor's margin:	3.0%
Preliminaries:	12.0%
Location factor (USD):	61
PPP coefficient:	859.00

Australia

A return to growth as commodities hangover subsides

Economic outlook
New South Wales and Victoria continue to power ahead with solid economic growth and high levels of public sector infrastructure investment in roads and rail. The resources states of Northern Territory, Queensland South Australia and West Australia are slowly emerging from the hangover of the commodities market.

Construction market and trends
Residential apartment building programmes in Brisbane, Melbourne and Sydney have been surging, fuelled by low interest rates and strong demand from Chinese investors in the capital cities.

There are fears that Brisbane and Melbourne are reaching the end of the apartment cycle. Commercial construction remains less buoyant, but growth in the financial and tourism sectors are driving large tourism projects, including Jewel on the Gold Coast, Queens Wharf in Brisbane and Barangaroo in Sydney.

The Perth market remains a little flat with resources activity in a slump, but state investment in infrastructure and the airport expansion will keep the sector afloat.

Future outlook
The outlook for Australia is positive, notwithstanding the risk of higher borrowing costs and the high level of private household debt tied up in real estate. Investment in residential construction is entering a cyclical slowdown, but retail, hotels and infrastructure will go some way to closing this gap.

International building costs per m² of internal area, in 2016	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.36)
Airports (building only)					
Domestic terminal, full service	5,350	5,050	4,860	5,300	3,897
Low-cost carrier terminal, basic service	4,150	3,940	3,850	4,250	3,125
Car parks					
Multi-storey above ground	890	860	820	920	676
Multi-storey below ground	1,630	1,680	1,720	1,750	1,287
Commercial					
Offices – Business Park	1,625	1,640	1,590	1,830	1,346
CBD offices – up to 20 floors medium (A-Grade)	3,300	3,030	3,070	3,350	2,463
CBD offices – high-rise prestige	3,900	4,040	4,470	5,600	4,118
Education					
Primary and secondary	1,680	2,020	1,790	2,700	1,985
University	3,400	3,340	3,110	3,800	2,794
Hospitals					
Day centre (including basic surgeries)	3,225	3,050	2,940	3,180	2,338
Regional hospital	3,650	3,800	3,480	3,875	2,849
General hospital (e.g. city teaching hospital)	5,650	5,950	5,750	5,900	4,338
Hotels					
3 Star travellers	2,550	2,360	2,330	2,850	2,096
5 Star luxury	4,300	4,250	4,160	5,600	4,118
Resort style	3,850	3,640	3,570	3,880	2,853
Industrial					
Warehouse/factory units – basic	835	760	770	820	603
Large warehouse distribution centre	1,100	1,010	950	1,020	750
High-tech factory/laboratory	3,400	3,740	3,970	3,880	2,853
Residential					
Individual detached or terrace style house – medium standard	1,720	1,700	1,550	2,200	1,618
Individual detached house – prestige	3,100	2,825	2,890	4,000	2,941
Townhouses – medium standard	1,740	1,850	1,790	2,100	1,544
Apartments low-rise – medium standard	1,930	2,020	1,830	2,350	1,728
Apartments high-rise	2,800	2,750	2,800	2,950	2,169
Aged care/affordable units	2,520	2,400	2,510	2,750	2,022

Australia – international building costs	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.36)
Retail					
Large shopping centre including mall	2,600	2,330	2,220	2,750	2,022
Neighbourhood including supermarket	1,770	1,860	1,790	2,150	1,581
Prestige car showroom	2,800	2,500	2,490	2,750	2,022
Composite trade rates					
Excavate basement (m^3) (1,800m^3 job)	26	23	12	45	33
Excavate footings (m)	42	37	40	57	42
Concrete in slab (m^3) (1,500m^3 job)	310	325	320	327	240
Reinforcement in beams (tonne)	2,280	2,550	1,850	2,200	1,618
Formwork to soffit of slab (m^2)	140	125	130	130	96
Blockwork in wall (m^2) (10,000 block job)	145	140	140	145	107
Structural steel beams (tonne)	5,300	5,400	4,700	5,000	3,677
Pre-cast concrete wall (m^2)	435	400	430	310	228
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,300	1,380	1,210	1,326	975
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	36	37	35	36	27
Single solid core door including frame and hardware (no) (50 door job)	830	800	780	816	600
Painting to walls primer + 2 coats (m^2)	15	15	15	16	12
Ceramic tiling (m^2) (1,000m^2 job)	125	110	120	113	83
Vinyl flooring to wet areas (m^2) (500m^2 job)	75	70	53	60	44
Carpet medium tufted (m^2) (4,500m^2 job)	78	60	51	67	49
Lighting installation (m^2) (5,000m^2+ job)	88	85	90	86	63
Copper pipe 15mm to wall (m) (1,000m+ job)	63	65	61	55	40
Fire sprinklers (per m^2) (5,000m^2 job)	48	48	45	51	38
Air conditioning including main plant (m^2) (5,000m^2+ job)	260	275	320	319	235
Labour costs					
Group 1 Tradesman e.g. plumber, electrician	80	90	80	90	66
Group 2 Tradesman e.g. carpenter, bricklayer	65	80	70	80	59
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	65	80	70	75	55
General labourer	55	65	55	65	48
Site foreman	90	95	85	95	70
Material costs					
Concrete 30 MPa (m^3) (1,500m^3 job)	165	160	175	200	147
Reinforcement bar 16mm (tonne) (120 tonne job)	1,150	1,250	1,200	1,200	882
Concrete block (400x200) per 1,000 (>10,000 block job)	3,450	3,600	3,450	3,400	2,500
Standard brick per 1,000	520	570	760	785	577
Structural steel beams (tonne) (100 tonne+ job)	2,050	2,000	2,020	2,400	1,765
Glass pane 10mm tempered (m^2)	270	290	250	250	184
Softwood timber for framing 100mm x 50mm (m)	4	5	4	3	2
13mm plasterboard (m^2)	8	9	8	10	7
Emulsion paint (litre)	12	15	12	14	10
Copper pipe 15mm (m) (1,000m+ job)	12	15	12	12	9
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	4	4	4	3	2
Plant					
Hire 50t mobile crane + operator (day)	2,150	2,300	1,900	2,200	1,618

	Brisbane	Melbourne	Perth	Sydney
Market:	**Lukewarm**	**Warm**	**Cold**	**Warm**
Tendering:	Staying the same	Staying the same	Staying the same	Warmer
Cost escalation 2016–17:	4.0%	2.0%	-2.0%	3.0%
Cost escalation 2017–18:	3.0%	2.0%	0.0%	3.0%
Contractor's margin:	4.0%	4.0%	3.5%	4.5%
Preliminaries:	12.0%	12.0%	11.0%	14.0%
Location factor (USD):	95	109	90	110
PPP coefficient:	1.73	1.96	1.73	1.90

France - Paris

Rejuvenation keeps Paris ahead of the pack

Economic outlook

With 53 million m², the Greater Paris Region has the largest real estate stock in Europe and the third largest in the world after Tokyo and New York. Rental activity is very strong with levels of take-up running at twice those seen in London.

Construction market and trends

Paris has a strong retail sector and the density of retailers concentrated around Haussmann and Opera is among the highest in Europe. Despite strong demand for residential accommodation, an absence of new developments has driven rents and capital values to the highest in France.

Flagship hotel properties are still in great demand in Paris, but a lack of available development sites, high development costs and limited acquisition opportunities represent significant barriers to entry.

Future outlook

Paris remains a highly desirable location immune to many of the economic shocks experienced by other European regions. A vast project is currently getting underway: “The Grand Paris”. This project includes several specialist centres around Paris for research, finance and aviation. It includes a new transport masterplan that will connect important transport hubs with 200km and 69 stations being added to the rail network.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.94)
Airports (building only)		
Domestic terminal, full service	3,650	3,883
Low-cost carrier terminal, basic service	2,400	2,553
Car parks		
Multi-storey above ground	584	621
Multi-storey below ground	1,150	1,223
Commercial		
Offices – Business Park	1,690	1,798
CBD offices – up to 20 floors medium (A-Grade)	2,245	2,388
CBD offices – high-rise prestige	2,825	3,005
Education		
Primary and secondary	1,600	1,702
University	2,050	2,181
Hospitals		
Day centre (including basic surgeries)	2,400	2,553
Regional hospital	2,810	2,989
General hospital (e.g. city teaching hospital)	3,450	3,670
Hotels		
3 Star travellers	1,950	2,075
5 Star luxury	3,530	3,755
Resort style	2,600	2,766
Industrial		
Warehouse/factory units – basic	720	766
Large warehouse distribution centre	890	947
High-tech factory/laboratory	1,820	1,936
Residential		
Individual detached or terrace style house – medium standard	1,248	1,328
Individual detached house – prestige	1,990	2,117
Townhouses – medium standard	1,250	1,330
Apartments low-rise – medium standard	1,550	1,649
Apartments high-rise	1,990	2,117
Aged care/affordable units	1,800	1,915

France – international building costs	EUR	USD (exchange rate: 0.94)
Retail		
Large shopping centre including mall	2,300	2,447
Neighbourhood including supermarket	1,927	2,050
Prestige car showroom	2,500	2,660
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	14	15
Excavate footings (m)	26	28
Concrete in slab (m^3) (1,500m^3 job)	140	149
Reinforcement in beams (tonne)	1,700	1,809
Formwork to soffit of slab (m^2)	45	48
Blockwork in wall (m^2) (10,000 block job)	65	69
Structural steel beams (tonne)	3,200	3,404
Pre-cast concrete wall (m^2)	115	122
Curtain wall glazing including support system (m^2) (1,000m^2 job)	650	692
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	65	69
Single solid core door including frame and hardware (no) (50 door job)	991	1,054
Painting to walls primer + 2 coats (m^2)	10	11
Ceramic tiling (m^2) (1,000m^2 job)	65	69
Vinyl flooring to wet areas (m^2) (500m^2 job)	32	34
Carpet medium tufted (m^2) (4,500m^2 job)	30	32
Lighting installation (m^2) (5,000m^2+ job)	62	66
Copper pipe 15mm to wall (m) (1,000m+ job)	31	33
Fire sprinklers (per m^2) (5,000m^2 job)	81	86
Air conditioning including main plant (m^2) (5,000m^2+ job)	105	112
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	46	49
Group 2 Tradesman e.g. carpenter, bricklayer	40	43
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	32	34
General labourer	25	27
Site foreman	40	43
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	102	109
Reinforcement bar 16mm (tonne) (120 tonne job)	890	947
Concrete block (400x200) per 1,000 (>10,000 block job)	2,700	2,872
Standard brick per 1,000	650	692
Structural steel beams (tonne) (100 tonne+ job)	1,690	1,798
Glass pane 10mm tempered (m^2)	140	149
Softwood timber for framing 100mm x 50mm (m)	3	3
13mm plasterboard (m^2)	4	4
Emulsion paint (litre)	6	6
Copper pipe 15mm (m) (1,000m+ job)	7	7
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	3	3
Plant		
Hire 50t mobile crane + operator (day)	1,300	1,383

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	0.0%
Cost escalation 2017–18:	0.5%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	82
PPP coefficient:	0.98

Germany - Munich

Infrastructure investment set to fuel further growth

Economic outlook

A strong labour market and low interest rates have helped drive growth in the German economy. The housing sector experienced strong growth during 2016, especially in metropolitan areas in the south and west of the country, fuelled by low interest rates and steady demand growth. Construction costs increased only modestly.

Construction market and trends

The growth rate in the German construction sector was between 5 percent and 6 percent in 2016 with a turnover of approximately EUR106.5bn.

Residential construction was the strongest market-driver. Demand for commercial offices dried up as the market become oversupplied. Government spending on infrastructure projects remained relatively flat in recent years.

Future outlook

Further growth triggers will come from social transformation, including the demographic change and the refugee policy. Fast and intense changes in the technical field will also drive refurbishments and energy-efficiency projects.

Germany is completing a number of large infrastructure projects over the next ten years, such as the building of a new terminal at Frankfurt airport, and the construction of Stuttgart 21, a rail and urban centre. A second main line of the Munich metro-rail and a medical campus at the University of Augsburg are also under construction.

In Berlin, the reconstruction of the original Humboldtforum, a baroque palace that will serve as an art and exhibition gallery, is underway.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.94)
Airports (building only)		
Domestic terminal, full service	3,500	3,723
Low-cost carrier terminal, basic service	2,350	2,500
Car parks		
Multi-storey above ground	640	681
Multi-storey below ground	1,000	1,064
Commercial		
Offices – Business Park	1,470	1,564
CBD offices – up to 20 floors medium (A-Grade)	2,280	2,426
CBD offices – high-rise prestige	2,700	2,872
Education		
Primary and secondary	1,640	1,745
University	1,850	1,968
Hospitals		
Day centre (including basic surgeries)	2,090	2,223
Regional hospital	2,920	3,106
General hospital (e.g. city teaching hospital)	3,210	3,415
Hotels		
3 Star travellers	1,690	1,798
5 Star luxury	3,450	3,670
Resort style	2,240	2,383
Industrial		
Warehouse/factory units – basic	660	702
Large warehouse distribution centre	800	851
High-tech factory/laboratory	1,870	1,989
Residential		
Individual detached or terrace style house – medium standard	1,190	1,266
Individual detached house – prestige	1,710	1,819
Townhouses – medium standard	1,190	1,266
Apartments low-rise – medium standard	1,300	1,383
Apartments high-rise	1,920	2,043
Aged care/affordable units	1,510	1,606

Germany – international building costs	EUR	USD (exchange rate: 0.94)
Retail		
Large shopping centre including mall	2,180	2,319
Neighbourhood including supermarket	1,970	2,096
Prestige car showroom	2,390	2,543
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	15	16
Excavate footings (m)	28	30
Concrete in slab (m^3) (1,500m^3 job)	141	150
Reinforcement in beams (tonne)	1,427	1,518
Formwork to soffit of slab (m^2)	45	48
Blockwork in wall (m^2) (10,000 block job)	73	78
Structural steel beams (tonne)	3,844	4,089
Pre-cast concrete wall (m^2)	108	115
Curtain wall glazing including support system (m^2) (1,000m^2 job)	653	695
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	53	56
Single solid core door including frame and hardware (no) (50 door job)	920	979
Painting to walls primer + 2 coats (m^2)	8	9
Ceramic tiling (m^2) (1,000m^2 job)	56	60
Vinyl flooring to wet areas (m^2) (500m^2 job)	31	33
Carpet medium tufted (m^2) (4,500m^2 job)	27	29
Lighting installation (m^2) (5,000m^2+ job)	60	64
Copper pipe 15mm to wall (m) (1,000m+ job)	32	34
Fire sprinklers (per m^2) (5,000m^2 job)	84	89
Air conditioning including main plant (m^2) (5,000m^2+ job)	96	102
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	49	52
Group 2 Tradesman e.g. carpenter, bricklayer	41	44
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	41	44
General labourer	31	33
Site foreman	44	47
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	115	122
Reinforcement bar 16mm (tonne) (120 tonne job)	875	931
Concrete block (400x200) per 1,000 (>10,000 block job)	3,118	3,317
Standard brick per 1,000	715	761
Structural steel beams (tonne) (100 tonne+ job)	1,913	2,035
Glass pane 10mm tempered (m^2)	107	114
Softwood timber for framing 100mm x 50mm (m)	4	4
13mm plasterboard (m^2)	4	4
Emulsion paint (litre)	6	6
Copper pipe 15mm (m) (1,000m+ job)	9	10
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	5	5
Plant		
Hire 50t mobile crane + operator (day)	1,329	1,414

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	1.9%
Cost escalation 2017–18:	2.0%
Contractor’s margin:	5.0%
Preliminaries:	11.0%
Location factor (USD):	81
PPP coefficient:	1.05

Ireland - Dublin

Skills shortage driving up costs

Economic outlook
It is expected that the recovery of the Irish economy will continue into 2017, fuelled by a return of private investment and an increase in public spending.

Construction market and trends
The commercial sector continues to grow and is the primary driver in the growth of the construction industry in Ireland. The general upturn in industry output has led to a shortage of skilled labour and specialist sub-contracting firms; this in turn is leading to an upward trend in tender levels.

Future outlook
The outlook is bright and confidence has returned to the market. It is expected that the commercial sector will remain strong, driving the continued growth of the construction industry. Public sector spending is increasing and will include major projects such as New Children's Hospital, Grangegorman PPP project and the new Dublin Airport runway.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.94)
Airports (building only)		
Domestic terminal, full service	4,300	4,575
Low-cost carrier terminal, basic service	3,000	3,192
Car parks		
Multi-storey above ground	725	771
Multi-storey below ground	1,150	1,223
Commercial		
Offices – Business Park	1,850	1,968
CBD offices – up to 20 floors medium (A-Grade)	2,400	2,553
CBD offices – high-rise prestige	3,300	3,511
Education		
Primary and secondary	1,600	1,702
University	2,600	2,766
Hospitals		
Day centre (including basic surgeries)	2,500	2,660
Regional hospital	3,750	3,989
General hospital (e.g. city teaching hospital)	3,750	3,989
Hotels		
3 Star travellers	2,100	2,234
5 Star luxury	3,200	3,404
Resort style	2,600	2,766
Industrial		
Warehouse/factory units – basic	900	957
Large warehouse distribution centre	1,150	1,223
High-tech factory/laboratory	2,100	2,234
Residential		
Individual detached or terrace style house – medium standard	1,700	1,809
Individual detached house – prestige	2,100	2,234
Townhouses – medium standard	1,700	1,809
Apartments low-rise – medium standard	1,950	2,075
Apartments high-rise	2,200	2,340
Aged care/affordable units	2,150	2,287
Retail		
Large shopping centre including mall	2,700	2,872
Neighbourhood including supermarket	2,450	2,606
Prestige car showroom	2,800	2,979

Ireland – international building costs	EUR	USD (exchange rate: 0.94)
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	13	14
Excavate footings (m)	24	26
Concrete in slab (m^3) (1,500m^3 job)	155	165
Reinforcement in beams (tonne)	1,100	1,170
Formwork to soffit of slab (m^2)	40	43
Blockwork in wall (m^2) (10,000 block job)	30	32
Structural steel beams (tonne)	2,100	2,234
Pre-cast concrete wall (m^2)	98	104
Curtain wall glazing including support system (m^2) (1,000m^2 job)	700	745
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	65	69
Single solid core door including frame and hardware (no) (50 door job)	850	904
Painting to walls primer + 2 coats (m^2)	8	9
Ceramic tiling (m^2) (1,000m^2 job)	75	80
Vinyl flooring to wet areas (m^2) (500m^2 job)	40	43
Carpet medium tufted (m^2) (4,500m^2 job)	38	40
Lighting installation (m^2) (5,000m^2+ job)	58	62
Copper pipe 15mm to wall (m) (1,000m+ job)	36	38
Fire sprinklers (per m^2) (5,000m^2 job)	92	98
Air conditioning including main plant (m^2) (5,000m^2+ job)	165	176
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	34	36
Group 2 Tradesman e.g. carpenter, bricklayer	34	36
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	34	36
General labourer	26	28
Site foreman	34	36
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	108	115
Reinforcement bar 16mm (tonne) (120 tonne job)	940	1,000
Concrete block (400x200) per 1,000 (>10,000 block job)	640	681
Standard brick per 1,000	535	569
Structural steel beams (tonne) (100 tonne+ job)	1,800	1,915
Glass pane 10mm tempered (m^2)	238	253
Softwood timber for framing 100mm x 50mm (m)	5	5
13mm plasterboard (m^2)	6	6
Emulsion paint (litre)	6	6
Copper pipe 15mm (m) (1,000m+ job)	7	7
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	4	4
Plant		
Hire 50t mobile crane + operator (day)	1,400	1,489

Market:	Hot
Tendering:	Warmer
Cost escalation 2016–17:	7.0%
Cost escalation 2017–18:	8.0%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	96
PPP coefficient:	1.14

Netherlands - Amsterdam

One-sided recovery as commercial remains subdued

Economic outlook

Construction output in the Netherlands grew by nearly 4 percent in 2016, and the forecast for 2017 is 3.5 percent growth, falling slightly thereafter.

The recovery in the construction sector is still one-sided, with the residential building market as the main driver of growth. Significant vacancy in office and retail properties is keeping the commercial construction sector subdued for now.

Construction market and trends

The residential sector grew 7 percent in 2016 and is forecast to grow by 6.0 percent in 2017. The new-build residential sector is a major driver of growth, but the construction of new homes is now being curbed by a decline in permits issued. Renovations grew by a modest 2 percent in 2016, but this rate is expected to increase over the long term.

Central government spending on regional infrastructure has fallen and towns are suffering from a lack of public funds available. Nevertheless, contractors are gaining valuable experience in the Public Private Partnership model as a way of providing construction investment in large projects.

Future outlook

The economy is growing at around 1.5 percent, driven by confidence and household spending. Strong housing demand will continue to drive residential construction growth. The pipeline for non-residential construction projects should grow during 2017 in areas such as energy, telecommunications and transport.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.94)
Airports (building only)		
Domestic terminal, full service	3,664	3,898
Low-cost carrier terminal, basic service	2,424	2,579
Car parks		
Multi-storey above ground	598	637
Multi-storey below ground	1,164	1,238
Commercial		
Offices – Business Park	1,686	1,793
CBD offices – up to 20 floors medium (A-Grade)	2,294	2,440
CBD offices – high-rise prestige	2,773	2,950
Education		
Primary and secondary	1,569	1,669
University	2,033	2,163
Hospitals		
Day centre (including basic surgeries)	2,392	2,544
Regional hospital	2,718	2,891
General hospital (e.g. city teaching hospital)	3,261	3,470
Hotels		
3 Star travellers	1,925	2,047
5 Star luxury	3,399	3,616
Resort style	2,533	2,694
Industrial		
Warehouse/factory units – basic	715	761
Large warehouse distribution centre	935	995
High-tech factory/laboratory	1,823	1,940
Residential		
Individual detached or terrace style house – medium standard	1,251	1,331
Individual detached house – prestige	1,750	1,862
Townhouses – medium standard	1,251	1,331
Apartments low-rise – medium standard	1,446	1,538
Apartments high-rise	1,950	2,074
Aged care/affordable units	1,739	1,850

Netherlands – international building costs	EUR	USD (exchange rate: 0.94)
Retail		
Large shopping centre including mall	2,266	2,411
Neighbourhood including supermarket	2,033	2,163
Prestige car showroom	2,369	2,520
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	13	14
Excavate footings (m)	25	27
Concrete in slab (m^3) (1,500m^3 job)	155	165
Reinforcement in beams (tonne)	1,416	1,506
Formwork to soffit of slab (m^2)	29	31
Blockwork in wall (m^2) (10,000 block job)	80	85
Structural steel beams (tonne)	2,831	3,012
Pre-cast concrete wall (m^2)	190	202
Curtain wall glazing including support system (m^2) (1,000m^2 job)	657	699
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	82	87
Single solid core door including frame and hardware (no) (50 door job)	1,164	1,239
Painting to walls primer + 2 coats (m^2)	17	19
Ceramic tiling (m^2) (1,000m^2 job)	70	75
Vinyl flooring to wet areas (m^2) (500m^2 job)	48	51
Carpet medium tufted (m^2) (4,500m^2 job)	36	38
Lighting installation (m^2) (5,000m^2+ job)	71	75
Copper pipe 15mm to wall (m) (1,000m+ job)	27	28
Fire sprinklers (per m^2) (5,000m^2 job)	45	48
Air conditioning including main plant (m^2) (5,000m^2+ job)	152	161
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	48	51
Group 2 Tradesman e.g. carpenter, bricklayer	38	40
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	36	38
General labourer	25	26
Site foreman	40	43
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	91	97
Reinforcement bar 16mm (tonne) (120 tonne job)	756	805
Concrete block (400x200) per 1,000 (>10,000 block job)	3,500	3,723
Standard brick per 1,000	405	431
Structural steel beams (tonne) (100 tonne+ job)	1,392	1,480
Glass pane 10mm tempered (m^2)	136	144
Softwood timber for framing 100mm x 50mm (m)	2	2
13mm plasterboard (m^2)	5	5
Emulsion paint (litre)	9	10
Copper pipe 15mm (m) (1,000m+ job)	5	5
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	2	2
Plant		
Hire 50t mobile crane + operator (day)	1,000	1,064

Market:	Hot
Tendering:	Staying the same
Cost escalation 2016–17:	3.0%
Cost escalation 2017–18:	3.0%
Contractor's margin:	6.0%
Preliminaries:	12.0%
Location factor (USD):	77
PPP coefficient:	0.93

Poland - Warsaw

Big brand investment set to bolster growth

Economic outlook

While the Polish economy has grown at an average rate of 4 percent in recent years, it slowed in 2016 as construction investment reduced, leaving household consumption as the primary driver of growth. The currency has also fallen over 2016. Nevertheless, unemployment has fallen to 8 percent, the lowest level since 1989.

Extended government social programmes have seen Poland's national debt increase, and this together with a number of anti-bribery measures is decreasing local government spending.

Construction market and trends

Both the residential and the commercial sectors are seeing steady growth in demand providing good opportunities for the construction sector.

Government spending on infrastructure lessened, but the trend is expected to reverse over 2017. The railway and industrial sectors are also experiencing increasing levels of investment.

Future outlook

The decline in the value of the currency will help boost the competitiveness of the Polish economy in 2017. A number of large industrial projects in the engineering, aerospace and automobile sectors started at the beginning of the year, including projects by Daimler, Lufthansa GE, Rolls-Royce, Safrane and Toyota. Significant office developments are planned for large cities such as Kraków, Łódź, Poznań, Warsaw and Wrocław.

International building costs per m² of internal area, in 2016	PLN	USD (exchange rate: 4.21)
Airports (building only)		
Domestic terminal, full service	8,632	2,050
Low-cost carrier terminal, basic service	5,129	1,218
Car parks		
Multi-storey above ground	1,734	412
Multi-storey below ground	2,397	569
Commercial		
Offices – Business Park	3,570	848
CBD offices – up to 20 floors medium (A-Grade)	4,410	1,048
CBD offices – high-rise prestige	4,830	1,147
Education		
Primary and secondary	2,496	593
University	3,744	889
Hospitals		
Day centre (including basic surgeries)	2,808	667
Regional hospital	3,536	840
General hospital (e.g. city teaching hospital)	3,536	840
Hotels		
3 Star travellers	4,410	1,048
5 Star luxury	6,930	1,646
Resort style	4,830	1,147
Industrial		
Warehouse/factory units – basic	1,768	420
Large warehouse distribution centre	2,378	565
High-tech factory/laboratory	3,584	851
Residential		
Individual detached or terrace style house – medium standard	2,184	519
Individual detached house – prestige	3,016	716
Townhouses – medium standard	2,496	593
Apartments low-rise – medium standard	2,652	630
Apartments high-rise	3,219	765
Aged care/affordable units	2,808	667

Poland – international building costs	PLN	USD (exchange rate: 4.21)
Retail		
Large shopping centre including mall	3,296	783
Neighbourhood including supermarket	2,472	587
Prestige car showroom	3,605	856
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	26	6
Excavate footings (m)	98	23
Concrete in slab (m^3) (1,500m^3 job)	587	140
Reinforcement in beams (tonne)	3,605	856
Formwork to soffit of slab (m^2)	98	23
Blockwork in wall (m^2) (10,000 block job)	124	29
Structural steel beams (tonne)	9,270	2,202
Pre-cast concrete wall (m^2)	515	122
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,185	281
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	57	14
Single solid core door including frame and hardware (no) (50 door job)	2,678	636
Painting to walls primer + 2 coats (m^2)	17	4
Ceramic tiling (m^2) (1,000m^2 job)	124	29
Vinyl flooring to wet areas (m^2) (500m^2 job)	95	23
Carpet medium tufted (m^2) (4,500m^2 job)	95	23
Lighting installation (m^2) (5,000m^2+ job)	118	28
Copper pipe 15mm to wall (m) (1,000m+ job)	71	17
Fire sprinklers (per m^2) (5,000m^2 job)	72	17
Air conditioning including main plant (m^2) (5,000m^2+ job)	578	137
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	26	6
Group 2 Tradesman e.g. carpenter, bricklayer	30	7
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	26	6
General labourer	26	6
Site foreman	46	11
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	281	67
Reinforcement bar 16mm (tonne) (120 tonne job)	2,754	654
Concrete block (400x200) per 1,000 (>10,000 block job)	4,386	1,042
Standard brick per 1,000	969	230
Structural steel beams (tonne) (100 tonne+ job)	6,630	1,575
Glass pane 10mm tempered (m^2)	377	90
Softwood timber for framing 100mm x 50mm (m)	8	2
13mm plasterboard (m^2)	12	3
Emulsion paint (litre)	5	1
Copper pipe 15mm (m) (1,000m+ job)	19	5
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	5	1
Plant		
Hire 50t mobile crane + operator (day)	4,400	1,045

Market:	**Warm**
Tendering:	Warmer
Cost escalation 2016–17:	4.0%
Cost escalation 2017–18:	2.0%
Contractor's margin:	5.0%
Preliminaries:	13.0%
Location factor (USD):	37
PPP coefficient:	1.97

Russia - Moscow

End to recession as commodities pick up

Economic outlook
The Russian ruble started to rise against the US dollar by the end of 2016 as commodity prices surged and inflation slowed down. Private consumption increased as a result, and a strengthening labour market helped drive down interest rates.

Construction markets and trends
Transport infrastructure projects such as roads, high-speed railways and airports are ongoing as well as stadium and hotel projects ahead of the 2018 World Cup.

The country is also expected to benefit from a significant increase in the mortgage market in 2016 after contracting 32 percent in 2015. The main factors in this increase are reduced interest rates and the government's support programme for home buyers.

Future outlook
Large-scale infrastructure projects ahead of the 2018 World Cup are expected to fuel Russian growth over the coming months.

The recession in Russia is expected to have come to an end in 2016, with rising commodity prices, along with a possible end to sanctions to allow for foreign investment, all pointing to improvements in the Russian economy.

President Trump has been welcomed in Russia in anticipation of warmer US-Russian relations and a lifting or easing of sanctions against Russia over their involvement in Ukraine.

International building costs per m² of internal area, in 2016	RUB	USD (exchange rate: 64.74)
Airports (building only)		
Domestic terminal, full service	210,000	3,244
Low-cost carrier terminal, basic service	131,300	2,028
Car parks		
Multi-storey above ground	31,500	487
Multi-storey below ground	36,800	568
Commercial		
Offices – Business Park	63,000	973
CBD offices – up to 20 floors medium (A-Grade)	68,300	1,055
CBD offices – high-rise prestige	73,500	1,135
Education		
Primary and secondary	47,300	731
University	73,500	1,135
Hospitals		
Day centre (including basic surgeries)	52,500	811
Regional hospital	73,500	1,135
General hospital (e.g. city teaching hospital)	78,800	1,217
Hotels		
3 Star travellers	68,500	1,058
5 Star luxury	119,500	1,846
Resort style	94,500	1,460
Industrial		
Warehouse/factory units – basic	38,500	595
Large warehouse distribution centre	45,700	706
High-tech factory/laboratory	71,000	1,097
Residential		
Individual detached or terrace style house – medium standard	31,500	487
Individual detached house – prestige	47,300	731
Townhouses – medium standard	37,800	584
Apartments low-rise – medium standard	42,000	649
Apartments high-rise	47,300	731
Aged care/affordable units	31,500	487

Russia – international building costs	RUB	USD (exchange rate: 64.74)
Retail		
Large shopping centre including mall	63,000	973
Neighbourhood including supermarket	47,300	731
Prestige car showroom	57,800	893
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	640	10
Excavate footings (m)	860	13
Concrete in slab (m^3) (1,500m^3 job)	9,700	150
Reinforcement in beams (tonne)	68,990	1,066
Formwork to soffit of slab (m^2)	1,620	25
Blockwork in wall (m^2) (10,000 block job)	1,830	28
Structural steel beams (tonne)	116,970	1,807
Pre-cast concrete wall (m^2)	9,350	144
Curtain wall glazing including support system (m^2) (1,000m^2 job)	51,600	797
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	3,130	48
Single solid core door including frame and hardware (no) (50 door job)	34,550	534
Painting to walls primer + 2 coats (m^2)	650	10
Ceramic tiling (m^2) (1,000m^2 job)	4,040	62
Vinyl flooring to wet areas (m^2) (500m^2 job)	3,310	51
Carpet medium tufted (m^2) (4,500m^2 job)	3,060	47
Lighting installation (m^2) (5,000m^2+ job)	3,620	56
Copper pipe 15mm to wall (m) (1,000m+ job)	930	14
Fire sprinklers (per m^2) (5,000m^2 job)	1,750	27
Air conditioning including main plant (m^2) (5,000m^2+ job)	8,980	139
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	760	12
Group 2 Tradesman e.g. carpenter, bricklayer	760	12
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	760	12
General labourer	680	11
Site foreman	1,100	17
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	5,280	82
Reinforcement bar 16mm (tonne) (120 tonne job)	33,900	524
Concrete block (400x200) per 1,000 (>10,000 block job)	75,010	1,159
Standard brick per 1,000	18,960	293
Structural steel beams (tonne) (100 tonne+ job)	51,750	799
Glass pane 10mm tempered (m^2)	7,660	118
Softwood timber for framing 100mm x 50mm (m)	270	4
13mm plasterboard (m^2)	240	4
Emulsion paint (litre)	67	1
Copper pipe 15mm (m) (1,000m+ job)	559	9
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	108	2
Plant		
Hire 50t mobile crane + operator (day)	63,000	973

Market:	**Cold**
Tendering:	Warmer
Cost escalation 2016–17:	6.0%
Cost escalation 2017–18:	5.0%
Contractor's margin:	8.0%
Preliminaries:	8.0%
Location factor (USD):	55
PPP coefficient:	40.18

Spain - Madrid

Variable economy held back by regional difficulties

Economic outlook

The Spanish economy saw significant improvement during 2016 assisted by low interest rates and fiscal stimulus giving domestic demand a boost. Unemployment is still high at 19 percent but is gradually easing as the economy improves.

Construction market and trends

A slow and steady recovery is underway in the major cities of Madrid and Barcelona, with investments in residential and commercial real estate, but local construction is still not back to the levels experienced in the days before the global financial crisis.

A considerable residential real estate oversupply remains in some regions, and it will require further increases in demand until work levels recover. The construction sector saw a shakeout in recent years with players leaving the sector and large mergers, but that is now stabilising as demand improves.

High-speed rail remains the priority for infrastructure with Spain's network now the second largest worldwide and growing, but budgets for further improvements remain tight.

Future outlook

Key to Spain's economic recovery is getting domestic demand levels back up. Government policy is tending towards fiscal contraction in order to lessen the budget deficit and the risk of high external borrowing cost as interest rates rise again.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.94)
Airports (building only)		
Domestic terminal, full service	3,200	3,404
Low-cost carrier terminal, basic service	2,300	2,447
Car parks		
Multi-storey above ground	425	452
Multi-storey below ground	750	798
Commercial		
Offices – Business Park	1,100	1,170
CBD offices – up to 20 floors medium (A-Grade)	2,100	2,234
CBD offices – high-rise prestige	2,250	2,394
Education		
Primary and secondary	1,150	1,223
University	1,400	1,489
Hospitals		
Day centre (including basic surgeries)	2,000	2,128
Regional hospital	2,600	2,766
General hospital (e.g. city teaching hospital)	2,850	3,032
Hotels		
3 Star travellers	1,700	1,809
5 Star luxury	2,800	2,979
Resort style	1,900	2,021
Industrial		
Warehouse/factory units – basic	450	479
Large warehouse distribution centre	650	692
High-tech factory/laboratory	1,400	1,489
Residential		
Individual detached or terrace style house – medium standard	1,000	1,064
Individual detached house – prestige	1,700	1,809
Townhouses – medium standard	1,200	1,277
Apartments low-rise – medium standard	1,100	1,170
Apartments high-rise	1,500	1,596
Aged care/affordable units	1,450	1,543

Spain – international building costs	EUR	USD (exchange rate: 0.94)
Retail		
Large shopping centre including mall	2,000	2,128
Neighbourhood including supermarket	1,700	1,809
Prestige car showroom	2,200	2,340
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	11	12
Excavate footings (m)	18	19
Concrete in slab (m^3) (1,500m^3 job)	155	165
Reinforcement in beams (tonne)	1,050	1,117
Formwork to soffit of slab (m^2)	29	31
Blockwork in wall (m^2) (10,000 block job)	35	37
Structural steel beams (tonne)	2,225	2,367
Pre-cast concrete wall (m^2)	78	83
Curtain wall glazing including support system (m^2) (1,000m^2 job)	575	612
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	48	51
Single solid core door including frame and hardware (no) (50 door job)	850	904
Painting to walls primer + 2 coats (m^2)	7	7
Ceramic tiling (m^2) (1,000m^2 job)	40	43
Vinyl flooring to wet areas (m^2) (500m^2 job)	39	41
Carpet medium tufted (m^2) (4,500m^2 job)	29	31
Lighting installation (m^2) (5,000m^2+ job)	77	82
Copper pipe 15mm to wall (m) (1,000m+ job)	21	22
Fire sprinklers (per m^2) (5,000m^2 job)	27	29
Air conditioning including main plant (m^2) (5,000m^2+ job)	105	112
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	35	37
Group 2 Tradesman e.g. carpenter, bricklayer	30	32
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	25	27
General labourer	18	19
Site foreman	38	40
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	78	83
Reinforcement bar 16mm (tonne) (120 tonne job)	714	760
Concrete block (400x200) per 1,000 (>10,000 block job)	1,900	2,021
Standard brick per 1,000	335	356
Structural steel beams (tonne) (100 tonne+ job)	1,370	1,457
Glass pane 10mm tempered (m^2)	85	90
Softwood timber for framing 100mm x 50mm (m)	5	5
13mm plasterboard (m^2)	5	5
Emulsion paint (litre)	5	5
Copper pipe 15mm (m) (1,000m+ job)	4	4
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	3	4
Plant		
Hire 50t mobile crane + operator (day)	1,150	1,223

Market:	**Warm**
Tendering:	Warmer
Cost escalation 2016–17:	0.3%
Cost escalation 2017–18:	0.5%
Contractor's margin:	5.0%
Preliminaries:	5.0%
Location factor (USD):	66
PPP coefficient:	0.83

Switzerland - Zurich

Slow and steady as exports and consumption remain sluggish

Economic outlook
Swiss economic performance depends on domestic demand and trading conditions in the international market, but the export sector is struggling to regain former volumes and domestic consumption remains sluggish.

Construction market and trends
Once again Swiss construction costs remain some of the highest in the world with high wages and the strong currency acting as key drivers of cost. Growth in construction in 2017 will be similar to that in 2016 – slow but steady.

There is sufficient liquidity in the economy but investment in construction is relatively subdued and increases in infrastructure investment in roads and rail are not likely before 2018.

Low interest rates have driven up residential construction levels and there has been some price growth. The sector looks to be overheating with supply exceeding household demand for now.

Future outlook
Switzerland remains politically and economically stable and is less affected by regional issues than EU member states. The solid fiscal balance gives plenty of opportunity to invest in high-quality infrastructure, which has been modest in recent years.

International building costs per m² of internal area, in 2016	CHF	USD (exchange rate: 1.01)
Airports (building only)		
Domestic terminal, full service	5,700	5,644
Low-cost carrier terminal, basic service	4,400	4,356
Car parks		
Multi-storey above ground	1,100	1,089
Multi-storey below ground	1,498	1,483
Commercial		
Offices – Business Park	2,800	2,772
CBD offices – up to 20 floors medium (A-Grade)	4,000	3,960
CBD offices – high-rise prestige	4,500	4,455
Education		
Primary and secondary	2,800	2,772
University	3,200	3,168
Hospitals		
Day centre (including basic surgeries)	3,600	3,564
Regional hospital	5,100	5,050
General hospital (e.g. city teaching hospital)	5,500	5,446
Hotels		
3 Star travellers	3,200	3,168
5 Star luxury	5,950	5,891
Resort style	4,400	4,356
Industrial		
Warehouse/factory units – basic	1,418	1,404
Large warehouse distribution centre	1,619	1,603
High-tech factory/laboratory	3,213	3,181
Residential		
Individual detached or terrace style house – medium standard	2,015	1,995
Individual detached house – prestige	2,925	2,896
Townhouses – medium standard	2,015	1,995
Apartments low-rise – medium standard	2,230	2,208
Apartments high-rise	3,250	3,218
Aged care/affordable units	2,635	2,609

Switzerland – international building costs	CHF	USD (exchange rate: 1.01)
Retail		
Large shopping centre including mall	3,710	3,673
Neighbourhood including supermarket	3,405	3,371
Prestige car showroom	4,130	4,089
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	25	25
Excavate footings (m)	47	47
Concrete in slab (m^3) (1,500m^3 job)	245	243
Reinforcement in beams (tonne)	2,397	2,373
Formwork to soffit of slab (m^2)	75	74
Blockwork in wall (m^2) (10,000 block job)	125	124
Structural steel beams (tonne)	5,130	5,079
Pre-cast concrete wall (m^2)	190	188
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,124	1,113
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	95	94
Single solid core door including frame and hardware (no) (50 door job)	1,583	1,567
Painting to walls primer + 2 coats (m^2)	12	12
Ceramic tiling (m^2) (1,000m^2 job)	150	149
Vinyl flooring to wet areas (m^2) (500m^2 job)	68	67
Carpet medium tufted (m^2) (4,500m^2 job)	82	81
Lighting installation (m^2) (5,000m^2+ job)	109	108
Copper pipe 15mm to wall (m) (1,000m+ job)	54	54
Fire sprinklers (per m^2) (5,000m^2 job)	98	97
Air conditioning including main plant (m^2) (5,000m^2+ job)	164	162
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	105	104
Group 2 Tradesman e.g. carpenter, bricklayer	103	102
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	100	99
General labourer	90	89
Site foreman	115	114
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	197	195
Reinforcement bar 16mm (tonne) (120 tonne job)	1,460	1,446
Concrete block (400x200) per 1,000 (>10,000 block job)	5,370	5,317
Standard brick per 1,000	1,231	1,219
Structural steel beams (tonne) (100 tonne+ job)	3,295	3,262
Glass pane 10mm tempered (m^2)	183	181
Softwood timber for framing 100mm x 50mm (m)	5	5
13mm plasterboard (m^2)	6	6
Emulsion paint (litre)	9	9
Copper pipe 15mm (m) (1,000m+ job)	15	15
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	8	8
Plant		
Hire 50t mobile crane + operator (day)	2,288	2,265

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	0.5%
Cost escalation 2017–18:	1.0%
Contractor's margin:	5.0%
Preliminaries:	9.0%
Location factor (USD):	136
PPP coefficient:	2.13

Turkey - Istanbul

Coup attempt not enough to dent construction market

Economic outlook
An attempted coup in July 2016 and the subsequent political uncertainty resulted in currency fluctuations, a weakening of the tourism sector, rating downgrades by agencies and lower foreign capital investment.

Inflation eased from nearly 10 percent in January to 7.2 percent at year end, but the weaker currency threatens to drive inflation back up again.

Construction market and trends
In spite of the decreasing growth rate of the Turkish economy, the construction industry has been doing quite well, and the industry continued to grow over 2016 even as the economy contracted.

The government's focus on improving housing and infrastructure will add growth, with several major projects, such as the Eurasia undersea tunnel and the Osman Gazi suspension bridge, completed in 2016, while the new Istanbul airport and Urban Renewal Project are still ongoing.

Future outlook
The complex geopolitical situation relating to Syria, Turkish-American and Turkish-Russian relations along with tense relations between EU and Turkey, as well as complicated internal political conditions, will continue to provide uncertainty in 2017.

Tourism is likely to remain subdued under such conditions, and foreign private investment will remain weak. Overall, the short-term outlook appears to be negative, despite supportive government policies.

International building costs per m² of internal area, in 2016	TRY	USD (exchange rate: 3.38)
Airports (building only)		
Domestic terminal, full service	6,720	1,988
Low-cost carrier terminal, basic service	4,480	1,325
Car parks		
Multi-storey above ground	1,400	414
Multi-storey below ground	1,625	481
Commercial		
Offices – Business Park	2,745	812
CBD offices – up to 20 floors medium (A-Grade)	3,375	999
CBD offices – high-rise prestige	3,565	1,055
Education		
Primary and secondary	2,070	612
University	2,855	845
Hospitals		
Day centre (including basic surgeries)	2,275	673
Regional hospital	3,040	899
General hospital (e.g. city teaching hospital)	3,170	938
Hotels		
3 Star travellers	2,990	885
5 Star luxury	5,395	1,596
Resort style	4,150	1,228
Industrial		
Warehouse/factory units – basic	1,510	447
Large warehouse distribution centre	2,070	612
High-tech factory/laboratory	3,135	928
Residential		
Individual detached or terrace style house – medium standard	1,880	556
Individual detached house – prestige	2,520	746
Townhouses – medium standard	2,230	660
Apartments low-rise – medium standard	2,185	646
Apartments high-rise	2,855	845
Aged care/affordable units	2,015	596

Turkey – international building costs	TRY	USD (exchange rate: 3.38)
Retail		
Large shopping centre including mall	2,690	796
Neighbourhood including supermarket	2,185	646
Prestige car showroom	2,575	762
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	43	13
Excavate footings (m)	43	13
Concrete in slab (m^3) (1,500m^3 job)	315	93
Reinforcement in beams (tonne)	2,910	861
Formwork to soffit of slab (m^2)	75	22
Blockwork in wall (m^2) (10,000 block job)	110	33
Structural steel beams (tonne)	4,930	1459
Pre-cast concrete wall (m^2)	360	107
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,175	348
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	50	15
Single solid core door including frame and hardware (no) (50 door job)	925	274
Painting to walls primer + 2 coats (m^2)	19	6
Ceramic tiling (m^2) (1,000m^2 job)	125	37
Vinyl flooring to wet areas (m^2) (500m^2 job)	100	30
Carpet medium tufted (m^2) (4,500m^2 job)	100	30
Lighting installation (m^2) (5,000m^2+ job)	110	33
Copper pipe 15mm to wall (m) (1,000m+ job)	41	12
Fire sprinklers (per m^2) (5,000m^2 job)	60	18
Air conditioning including main plant (m^2) (5,000m^2+ job)	370	109
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	33	10
Group 2 Tradesman e.g. carpenter, bricklayer	33	10
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	33	10
General labourer	22	7
Site foreman	45	13
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	225	67
Reinforcement bar 16mm (tonne) (120 tonne job)	1,725	510
Concrete block (400x200) per 1,000 (>10,000 block job)	2,745	812
Standard brick per 1,000	670	198
Structural steel beams (tonne) (100 tonne+ job)	2,465	729
Glass pane 10mm tempered (m^2)	380	112
Softwood timber for framing 100mm x 50mm (m)	8	2
13mm plasterboard (m^2)	22	7
Emulsion paint (litre)	11	3
Copper pipe 15mm (m) (1,000m+ job)	11	3
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	5	1
Plant		
Hire 50t mobile crane + operator (day)	2,350	695

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	12.0%
Cost escalation 2017–18:	10.0%
Contractor's margin:	8.0%
Preliminaries:	10.0%
Location factor (USD):	49
PPP coefficient:	1.86

UK - London

Resilience in the face of uncertainty

Economic overview

London is the engine room for the UK construction industry and leads the way in UK price inflation. London's surging population is driving a buoyant construction market supported by major residential and transport master plans, and regeneration and renewal of former industrial and residential neighbourhoods undergoing planning rezoning.

Construction market and trends

Despite annualised output at 57 percent higher than the low ebb of 2008, the pace of growth slowed to 0.4 percent in the final quarter of 2016. This was despite the inflationary impact of a weaker sterling and suggested that capacity levels, particularly reflected in easing wage inflation and margin pricing, were returning to more sustainable levels.

Future outlook

Although tender price inflation in London will be underpinned by a strong demand for infrastructure work, the forecast is for price inflation to reduce over the next 12 months to compensate for lower underlying levels of new work and increased competition and risk appetite owing to capacity returning to the market.

The outlook for pricing remains volatile, however, and construction firms should be vigilant and stay closer to their supply chains, who remain vulnerable to sudden fluctuations in exchange rates and skills shortages.

International building costs per m² of internal area, in 2016	GBP	USD (exchange rate: 0.81)
Airports (building only)		
Domestic terminal, full service	3,835	4,735
Low-cost carrier terminal, basic service	2,845	3,512
Car parks		
Multi-storey above ground	710	877
Multi-storey below ground	1,095	1,352
Commercial		
Offices – Business Park	2,470	3,049
CBD offices – up to 20 floors medium (A-Grade)	2,850	3,519
CBD offices – high-rise prestige	3,580	4,420
Education		
Primary and secondary	2,100	2,593
University	3,000	3,704
Hospitals		
Day centre (including basic surgeries)	2,600	3,210
Regional hospital	3,200	3,951
General hospital (e.g. city teaching hospital)	3,600	4,444
Hotels		
3 Star travellers	2,600	3,210
5 Star luxury	4,000	4,938
Resort style	2,950	3,642
Industrial		
Warehouse/factory units – basic	875	1,080
Large warehouse distribution centre	1,045	1,290
High-tech factory/laboratory	2,020	2,494
Residential		
Individual detached or terrace style house – medium standard	1,865	2,303
Individual detached house – prestige	3,300	4,074
Townhouses – medium standard	2,750	3,395
Apartments low-rise – medium standard	2,600	3,210
Apartments high-rise	3,080	3,803
Aged care/affordable units	1,975	2,438

London – international building costs	GBP	USD (exchange rate: 0.81)
Retail		
Large shopping centre including mall	2,035	2,512
Neighbourhood including supermarket	1,405	1,735
Prestige car showroom	1,720	2,124
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	16	20
Excavate footings (m)	20	25
Concrete in slab (m^3) (1,500m^3 job)	171	212
Reinforcement in beams (tonne)	1,200	1,482
Formwork to soffit of slab (m^2)	56	69
Blockwork in wall (m^2) (10,000 block job)	67	83
Structural steel beams (tonne)	2,275	2,809
Pre-cast concrete wall (m^2)	108	133
Curtain wall glazing including support system (m^2) (1,000m^2 job)	750	926
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	50	62
Single solid core door including frame and hardware (no) (50 door job)	1,050	1,296
Painting to walls primer + 2 coats (m^2)	11	14
Ceramic tiling (m^2) (1,000m^2 job)	79	98
Vinyl flooring to wet areas (m^2) (500m^2 job)	35	44
Carpet medium tufted (m^2) (4,500m^2 job)	32	40
Lighting installation (m^2) (5,000m^2+ job)	90	111
Copper pipe 15mm to wall (m) (1,000m+ job)	44	54
Fire sprinklers (per m^2) (5,000m^2 job)	47	58
Air conditioning including main plant (m^2) (5,000m^2+ job)	172	212
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	41	51
Group 2 Tradesman e.g. carpenter, bricklayer	37	45
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	33	41
General labourer	23	28
Site foreman	46	57
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	120	148
Reinforcement bar 16mm (tonne) (120 tonne job)	930	1,148
Concrete block (400x200) per 1,000 (>10,000 block job)	1,025	1,265
Standard brick per 1,000	500	617
Structural steel beams (tonne) (100 tonne+ job)	1,975	2,438
Glass pane 10mm tempered (m^2)	109	135
Softwood timber for framing 100mm x 50mm (m)	4	5
13mm plasterboard (m^2)	6	7
Emulsion paint (litre)	6	7
Copper pipe 15mm (m) (1,000m+ job)	7	9
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	3	4
Plant		
Hire 50t mobile crane + operator (day)	1,360	1,679

Market:	Hot
Tendering:	Staying the same
Cost escalation 2016–17:	5.0%
Cost escalation 2017–18:	4.1%
Contractor's margin:	6.0%
Preliminaries:	15.0%
Location factor (USD):	100
PPP coefficient:	1.00

UK - other regions

Regional hotspots driving a variable economy

Economic overview

The UK economy continued to remain resilient in 2016, notwithstanding the volatility that immediately followed the Brexit referendum. GDP increased by 1.8 percent, which represented a comparatively strong performance compared to the eurozone.

Construction market and trends

The government's investment in infrastructure projects is a definite boost to major regional centres, with activity visibly higher in the high-speed rail corridor, particularly in Birmingham. The green light on the Hinkley Point C nuclear power station is spurring growth in the South West.

The devaluation of sterling has made the regions more attractive to foreign investment, with Manchester arguably the most attractive area outside of London. Manchester is experiencing increased planning applications, an unprecedented number of high-rise schemes and a significant rise in the number of residential schemes. Scotland and Northern Ireland, however, remain flat compared to other regions, being over-reliant on public sector works and government expenditure.

Future outlook

Activity levels are expected to remain steady and the industry will need to finely balance the rising cost of inputs and competitive pricing to ensure slim margins are maintained at levels that keep projects viable and companies profitable.

Prices are still expected to rise over the coming year, however, as large-scale infrastructure projects act as a significant draw on skills capacity leading to further burden on labour rates.

International building costs per m² of internal area, in 2016	Central GBP	North GBP	Northern Ireland GBP	Scotland GBP	South GBP
Airports (building only)					
Domestic terminal, full service	3,115	3,320	2,870	3,100	3,460
Low-cost carrier terminal, basic service	2,400	2,470	2,250	2,400	2,545
Car parks					
Multi-storey above ground	590	595	570	560	660
Multi-storey below ground	780	880	790	800	1,040
Commercial					
Offices – Business Park	1,640	1,645	1,420	1,585	1,895
CBD offices – up to 20 floors medium (A-Grade)	1,825	1,850	1,590	1,710	1,970
CBD offices – high-rise prestige	2,360	2,550	2,080	2,270	2,595
Education					
Primary and secondary	1,650	1,655	1,340	1,635	1,780
University	2,150	2,160	1,900	2,140	2,605
Hospitals					
Day centre (including basic surgeries)	1,540	1,560	1,500	1,685	1,895
Regional hospital	2,540	2,530	2,300	2,555	2,650
General hospital (e.g. city teaching hospital)	3,025	3,010	2,700	2,965	3,245
Hotels					
3 Star travellers	1,720	1,750	1,450	1,575	1,895
5 Star luxury	2,700	2,725	2,500	2,500	2,810
Resort style	2,200	2,300	2,050	2,100	2,485
Industrial					
Warehouse/factory units – basic	715	700	680	675	755
Large warehouse distribution centre	805	810	750	790	905
High-tech factory/laboratory	1,720	1,725	1,510	1,650	1,840
Residential					
Individual detached or terrace style house – medium standard	1,345	1,350	1,090	1,230	1,465
Individual detached house – prestige	1,695	1,695	1,500	1,640	2,485
Townhouses – medium standard	1,500	1,520	1,360	1,450	2,055
Apartments low-rise – medium standard	1,670	1,725	1,410	1,550	2,000
Apartments high-rise	2,110	2,200	1,820	1,960	2,330
Aged care/affordable units	1,600	1,600	1,330	1,550	1,785

UK – international building costs	Central GBP	North GBP	Northern Ireland GBP	Scotland GBP	South GBP
Retail					
Large shopping centre including mall	1,770	1,800	1,550	1,700	1,865
Neighbourhood including supermarket	1,210	1,260	1,040	1,100	1,300
Prestige car showroom	1,550	1,540	1,330	1,510	1,595
Composite trade rates					
Excavate basement (m^3) (1,800m^3 job)	12	12	5	11	15
Excavate footings (m)	18	18	12	15	20
Concrete in slab (m^3) (1,500m^3 job)	147	150	85	140	161
Reinforcement in beams (tonne)	1,100	1,100	780	1,000	1,150
Formwork to soffit of slab (m^2)	40	41	34	36	54
Blockwork in wall (m^2) (10,000 block job)	40	42	25	36	55
Structural steel beams (tonne)	1,770	1,800	1,350	1,564	2,157
Pre-cast concrete wall (m^2)	92	92	74	89	97
Curtain wall glazing including support system (m^2) (1,000m^2 job)	510	520	451	490	620
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	34	34	30	35	47
Single solid core door including frame and hardware (no) (50 door job)	650	650	600	659	742
Painting to walls primer + 2 coats (m^2)	6	6	5	6	8
Ceramic tiling (m^2) (1,000m^2 job)	51	51	43	50	63
Vinyl flooring to wet areas (m^2) (500m^2 job)	29	30	26	29	33
Carpet medium tufted (m^2) (4,500m^2 job)	28	27	21	27	31
Lighting installation (m^2) (5,000m^2+ job)	63	60	52	57	75
Copper pipe 15mm to wall (m) (1,000m+ job)	23	25	21	25	28
Fire sprinklers (per m^2) (5,000m^2 job)	37	36	35	35	45
Air conditioning including main plant (m^2) (5,000m^2+ job)	117	118	90	110	149
Labour costs					
Group 1 Tradesman e.g. plumber, electrician	33	33	25	30	37
Group 2 Tradesman e.g. carpenter, bricklayer	26	27	22	27	33
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	26	26	19	24	32
General labourer	20	20	15	20	21
Site foreman	32	34	26	32	41
Material costs					
Concrete 30 MPa (m^3) (1,500m^3 job)	90	90	70	89	110
Reinforcement bar 16mm (tonne) (120 tonne job)	810	825	730	810	912
Concrete block (400x200) per 1,000 (>10,000 block job)	768	805	435	800	890
Standard brick per 1,000	430	450	375	380	467
Structural steel beams (tonne) (100 tonne+ job)	1,470	1,500	1,150	1,375	1,795
Glass pane 10mm tempered (m^2)	100	100	94	98	101
Softwood timber for framing 100mm x 50mm (m)	3	4	3	3	4
13mm plasterboard (m^2)	4	4	4	4	4
Emulsion paint (litre)	4	4	3	3	4
Copper pipe 15mm (m) (1,000m+ job)	4	4	4	4	6
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+job)	2	2	2	2	3
Plant					
Hire 50t mobile crane + operator (day)	905	925	630	910	1,160

	Central	North	Northern Ireland	Scotland	South
Market:	**Warm**	**Warm**	**Lukewarm**	**Lukewarm**	**Warm**
Tendering:	Staying the same	Warmer	Warmer	Staying the same	Staying the same
Cost escalation 2016–17:	3.8%	2.9%	1.8%	2.3%	3.5%
Cost escalation 2017–18:	3.5%	3.6%	2.0%	2.3%	2.0%
Contractor's margin:	4.4%	4.5%	3.0%	4.2%	4.3%
Preliminaries:	11.3%	13.0%	10.0%	12.0%	14.0%
Location factor (USD):	75	79	60	74	88
PPP coefficient:	0.79	0.81	0.66	0.78	0.90

Oman - Muscat

Low oil prices paint an uncertain future

Economic outlook
Oman is feeling the effect of lower oil prices, which is causing the flow of investable funds to decrease not only in essential areas such as health and education, but also in target growth sectors such as tourism and logistics.

Construction market and trends
Private sector funding of hotels and leisure is a relatively strong market. The oil and gas sectors are continuing construction work on existing projects but limiting further exploration, while construction in the health and education sectors has slowed. Infrastructure has benefited from high levels of investment in recent years and is now experiencing a natural slow-down.

Future outlook
Given Oman's high dependence on oil revenues to drive investment, 2017 will be very challenging. The budget is releasing money for existing projects, but not for new. Large-scale masterplans such as Irfan, Yiti, Yinket and Mina Sultant Qaboos are likely to continue through the design stages but there are some doubts as to when they may go to market.

Duqham in the south is proceeding with its refinery project and this is anticipated to be a catalyst for further development of this new economic zone. But the development of Duqham has been significantly slower than originally reported.

International building costs per m² of internal area, in 2016	OMR	USD (exchange rate: 0.39)
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	380	974
CBD offices – up to 20 floors medium (A-Grade)	480	1,231
CBD offices – high-rise prestige	640	1,641
Education		
Primary and secondary	525	1,346
University	595	1,526
Hospitals		
Day centre (including basic surgeries)	510	1,308
Regional hospital	625	1,603
General hospital (e.g. city teaching hospital)	770	1,974
Hotels		
3 Star travellers	625	1,603
5 Star luxury	900	2,308
Resort style	950	2,436
Industrial		
Warehouse/factory units – basic	375	962
Large warehouse distribution centre	360	923
High-tech factory/laboratory	525	1,346
Residential		
Individual detached or terrace style house – medium standard	520	1,333
Individual detached house – prestige	780	2,000
Townhouses – medium standard	450	1,154
Apartments low-rise – medium standard	440	1,128
Apartments high-rise	535	1,372
Aged care/affordable units	–	–

Oman – international building costs	OMR	USD (exchange rate: 0.39)
Retail		
Large shopping centre including mall	440	1,128
Neighbourhood including supermarket	475	1,218
Prestige car showroom	795	2,039
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	3	7
Excavate footings (m)	3	7
Concrete in slab (m^3) (1,500m^3 job)	37	95
Reinforcement in beams (tonne)	325	833
Formwork to soffit of slab (m^2)	10	26
Blockwork in wall (m^2) (10,000 block job)	11	28
Structural steel beams (tonne)	885	2,269
Pre-cast concrete wall (m^2)	51	131
Curtain wall glazing including support system (m^2) (1,000m^2 job)	126	323
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	15	39
Single solid core door including frame and hardware (no) (50 door job)	425	1,090
Painting to walls primer + 2 coats (m^2)	2	5
Ceramic tiling (m^2) (1,000m^2 job)	12	31
Vinyl flooring to wet areas (m^2) (500m^2 job)	10	26
Carpet medium tufted (m^2) (4,500m^2 job)	27	69
Lighting installation (m^2) (5,000m^2+ job)	20	51
Copper pipe 15mm to wall (m) (1,000m+ job)	10	26
Fire sprinklers (per m^2) (5,000m^2 job)	12	31
Air conditioning including main plant (m^2) (5,000m^2+ job)	43	109
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	2	5
Group 2 Tradesman e.g. carpenter, bricklayer	2	5
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	2	5
General labourer	1	3
Site foreman	4	10
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	25	64
Reinforcement bar 16mm (tonne) (120 tonne job)	235	603
Concrete block (400x200) per 1,000 (>10,000 block job)	200	513
Standard brick per 1,000	205	526
Structural steel beams (tonne) (100 tonne+ job)	475	1,218
Glass pane 10mm tempered (m^2)	61	156
Softwood timber for framing 100mm x 50mm (m)	1	3
13mm plasterboard (m^2)	1	3
Emulsion paint (litre)	2	4
Copper pipe 15mm (m) (1,000m+ job)	4	9
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	1	3
Plant		
Hire 50t mobile crane + operator (day)	240	615

Market:	**Cold**
Tendering:	Cooler
Cost escalation 2016–17:	0.0%
Cost escalation 2017–18:	0.0%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	37
PPP coefficient:	0.19

Qatar - Doha

World Cup offers signs of hope amidst oil slump

Economic outlook
Qatar is still suffering from the oil price slump that reached rock bottom in early 2016. Government authorities continued to make budget cuts throughout 2016, which has resulted in a reduced number of project awards.

Construction market and trends
Key infrastructure projects continue to progress around Doha. Lusail City, Ashghal and Qatar Rail are maintaining a reasonable level of progress around the city to ensure that the infrastructure demands associated with the 2022 World Cup are achieved.

Most real estate sector projects are slow at present. The negativity in the market is slowing down expansion in a lot of businesses, and the number of new office blocks and fit-out projects has fallen.

A restructure of most local oil and gas companies has been undertaken during the course of the last six months, and project numbers have reduced accordingly as focus is diverted elsewhere.

Future outlook
While there is still a relatively large amount of construction ongoing in the region, particularly in the infrastructure sector, 2017 is expected to be another tough year in the Qatar construction market.

Moving forward into 2018, however, the construction market could be a completely different picture, when the Russian World Cup is finished and the global focus turns to Qatar with a big push to finalise plans for the 2022 World Cup.

International building costs per m² of internal area, in 2016	QAR	USD (exchange rate: 3.64)
Airports (building only)		
Domestic terminal, full service	–	–
Low-cost carrier terminal, basic service	–	–
Car parks		
Multi-storey above ground	4,055	1,114
Multi-storey below ground	4,055	1,114
Commercial		
Offices – Business Park	4,885	1,342
CBD offices – up to 20 floors medium (A-Grade)	7,140	1,962
CBD offices – high-rise prestige	10,885	2,990
Education		
Primary and secondary	7,645	2,100
University	7,660	2,104
Hospitals		
Day centre (including basic surgeries)	9,615	2,642
Regional hospital	12,985	3,567
General hospital (e.g. city teaching hospital)	13,830	3,800
Hotels		
3 Star travellers	7,840	2,154
5 Star luxury	12,925	3,551
Resort style	13,475	3,702
Industrial		
Warehouse/factory units – basic	4,350	1,195
Large warehouse distribution centre	4,855	1,334
High-tech factory/laboratory	6,210	1,706
Residential		
Individual detached or terrace style house – medium standard	6,995	1,922
Individual detached house – prestige	9,845	2,705
Townhouses – medium standard	6,895	1,894
Apartments low-rise – medium standard	6,765	1,859
Apartments high-rise	7,770	2,135
Aged care/affordable units	–	–

Qatar – international building costs	QAR	USD (exchange rate: 3.64)
Retail		
Large shopping centre including mall	6,705	1,842
Neighbourhood including supermarket	5,810	1,596
Prestige car showroom	9,325	2,562
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	42	12
Excavate footings (m)	47	13
Concrete in slab (m^3) (1,500m^3 job)	626	172
Reinforcement in beams (tonne)	4,735	1,301
Formwork to soffit of slab (m^2)	135	37
Blockwork in wall (m^2) (10,000 block job)	120	33
Structural steel beams (tonne)	14,580	4,006
Pre-cast concrete wall (m^2)	670	184
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,985	545
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	188	52
Single solid core door including frame and hardware (no) (50 door job)	4,280	1,176
Painting to walls primer + 2 coats (m^2)	27	7
Ceramic tiling (m^2) (1,000m^2 job)	205	56
Vinyl flooring to wet areas (m^2) (500m^2 job)	160	44
Carpet medium tufted (m^2) (4,500m^2 job)	232	64
Lighting installation (m^2) (5,000m^2+ job)	370	102
Copper pipe 15mm to wall (m) (1,000m+ job)	67	18
Fire sprinklers (per m^2) (5,000m^2 job)	120	33
Air conditioning including main plant (m^2) (5,000m^2+ job)	835	229
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	47	13
Group 2 Tradesman e.g. carpenter, bricklayer	42	12
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	27	7
General labourer	14	4
Site foreman	49	14
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	303	83
Reinforcement bar 16mm (tonne) (120 tonne job)	2,980	819
Concrete block (400x200) per 1,000 (>10,000 block job)	4,240	1,165
Standard brick per 1,000	3,070	843
Structural steel beams (tonne) (100 tonne+ job)	6,985	1,919
Glass pane 10mm tempered (m^2)	750	206
Softwood timber for framing 100mm x 50mm (m)	19	5
13mm plasterboard (m^2)	13	4
Emulsion paint (litre)	12	3
Copper pipe 15mm (m) (1,000m+ job)	16	4
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	3	1
Plant		
Hire 50t mobile crane + operator (day)	3,400	934

Market:	**Cold**
Tendering:	Staying the same
Cost escalation 2016–17:	0.2%
Cost escalation 2017–18:	1.5%
Contractor’s margin:	9.0%
Preliminaries:	13.0%
Location factor (USD):	63
PPP coefficient:	2.61

UAE

Oil slump subdues markets ahead of Expo 2020

Economic outlook
The low price of oil, and therefore government revenue, remains the single most important factor affecting current and future investment decisions for growth, particularly in the Emirate of Abu Dhabi. Growth is steady but subdued at 2.3 percent for 2016, below the recent average.

Construction market and trends
2016 saw construction value in the Gulf down by nearly a third on 2015, the worst year since before the global financial crisis. 2017 should see an upturn in awards of retail projects in Dubai, including Dubai Creek Harbour and Mall of the World.

A potential headwind for retail, however, is the weakening of sterling following Brexit and Russian sanctions, with tourism set to take a hit as Russian and British tourists find their budgets constrained.

Future outlook
The UAE construction market is facing pressure from cuts in government spending and the proposed introduction of VAT in 2018, which will impact the supply of goods and services, but finances will improve should oil prices start to rise again.

The Expo 2020 Dubai is expected to have an influence on construction tender prices in 2017, with a number of projects expected to be awarded. This is expected to result in a high demand for tier one and tier two contractors and higher tender prices.

International building costs per m² of internal area, in 2016	AED	USD (exchange rate: 3.67)
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	3,107	847
Multi-storey below ground	3,907	1,065
Commercial		
Offices – Business Park	4,450	1,213
CBD offices – up to 20 floors medium (A-Grade)	5,450	1,485
CBD offices – high-rise prestige	7,200	1,962
Education		
Primary and secondary	6,000	1,635
University	7,000	1,907
Hospitals		
Day centre (including basic surgeries)	5,975	1,628
Regional hospital	7,450	2,030
General hospital (e.g. city teaching hospital)	9,000	2,452
Hotels		
3 Star travellers	7,000	1,907
5 Star luxury	11,000	2,997
Resort style	13,000	3,542
Industrial		
Warehouse/factory units – basic	4,400	1,199
Large warehouse distribution centre	4,150	1,131
High-tech factory/laboratory	6,180	1,684
Residential		
Individual detached or terrace style house – medium standard	6,300	1,717
Individual detached house – prestige	10,000	2,725
Townhouses – medium standard	5,725	1,560
Apartments low-rise – medium standard	5,550	1,512
Apartments high-rise	6,200	1,689
Aged care/affordable units	–	–

UAE – international building costs	AED	USD (exchange rate: 3.67)
Retail		
Large shopping centre including mall	5,450	1,485
Neighbourhood including supermarket	5,800	1,580
Prestige car showroom	9,780	2,665
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	27	7
Excavate footings (m)	31	8
Concrete in slab (m^3) (1,500m^3 job)	397	108
Reinforcement in beams (tonne)	3,777	1,029
Formwork to soffit of slab (m^2)	134	36
Blockwork in wall (m^2) (10,000 block job)	148	40
Structural steel beams (tonne)	10,414	2,838
Pre-cast concrete wall (m^2)	436	119
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,845	503
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	185	50
Single solid core door including frame and hardware (no) (50 door job)	5,147	1,402
Painting to walls primer + 2 coats (m^2)	25	7
Ceramic tiling (m^2) (1,000m^2 job)	160	44
Vinyl flooring to wet areas (m^2) (500m^2 job)	185	50
Carpet medium tufted (m^2) (4,500m^2 job)	317	86
Lighting installation (m^2) (5,000m^2+ job)	203	55
Copper pipe 15mm to wall (m) (1,000m+ job)	99	27
Fire sprinklers (per m^2) (5,000m^2 job)	135	37
Air conditioning including main plant (m^2) (5,000m^2+ job)	644	176
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	31	8
Group 2 Tradesman e.g. carpenter, bricklayer	29	8
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	29	8
General labourer	18	5
Site foreman	44	12
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	231	63
Reinforcement bar 16mm (tonne) (120 tonne job)	3,434	936
Concrete block (400x200) per 1,000 (>10,000 block job)	3,518	958
Standard brick per 1,000	2,160	589
Structural steel beams (tonne) (100 tonne+ job)	6,935	1,890
Glass pane 10mm tempered (m^2)	683	186
Softwood timber for framing 100mm x 50mm (m)	14	4
13mm plasterboard (m^2)	11	3
Emulsion paint (litre)	10	3
Copper pipe 15mm (m) (1,000m+ job)	27	7
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	10	3
Plant		
Hire 50t mobile crane + operator (day)	2,700	736

Market:	**Lukewarm**
Tendering:	Staying the same
Cost escalation 2016–17:	1.5%
Cost escalation 2017–18:	2.0%
Contractor’s margin:	8.0%
Preliminaries:	11.0%
Location factor (USD):	52
PPP coefficient:	2.26

Canada - Toronto

Housing market on the cusp of overheating

Economic outlook

Growth has been modest in Canada, and this is expected to increase over the course of 2017 despite the uncertainty created by the renegotiation of the North Atlantic Free Trade agreement between Canada, the USA and Mexico as promulgated by the new US Administration.

Continued growth in the tourism sector will help drive this growth, and a depreciation in the exchange rate will fuel exports.

Construction market and trends

Fiscal stimulus, particularly in the infrastructure and social housing sectors, should support growth through 2017 and non-resource business investment is also forecast to rise.

But growth in housing investment is expected to slow as further supply comes onto the market. The housing markets in Vancouver and Toronto appear overheated when compared to the rest of Canada as low interest rates maintain the availability of cheap financing.

Future outlook

Looking forward, Canada's economic performance is likely to see fortunes linked to the strength of growth in the US. Exports could be boosted by increased demand if US expansion accelerates, and an increase in government spending on infrastructure and social housing could fuel further growth. However, government intervention to curtail the overheated housing markets in Vancouver and Toronto may have a ripple effect through the broader economy.

Unemployment is projected to edge down in 2017 and inflation continues to be stable signalling healthy economic performance, whilst rising global commodity prices may see Canada boasting stronger growth.

International building costs per m² of internal area, in 2016	CAD	USD (exchange rate: 1.39)
Airports (building only)		
Domestic terminal, full service	6,200	4,460
Low-cost carrier terminal, basic service	4,459	3,208
Car parks		
Multi-storey above ground	875	630
Multi-storey below ground	1,250	899
Commercial		
Offices – Business Park	1,950	1,403
CBD offices – up to 20 floors medium (A-Grade)	2,600	1,871
CBD offices – high-rise prestige	3,500	2,518
Education		
Primary and secondary	2,000	1,439
University	4,200	3,022
Hospitals		
Day centre (including basic surgeries)	4,000	2,878
Regional hospital	6,300	4,532
General hospital (e.g. city teaching hospital)	7,500	5,396
Hotels		
3 Star travellers	1,600	1,151
5 Star luxury	3,850	2,770
Resort style	3,000	2,158
Industrial		
Warehouse/factory units – basic	1,000	719
Large warehouse distribution centre	1,100	791
High-tech factory/laboratory	2,250	1,619
Residential		
Individual detached or terrace style house – medium standard	3,050	2,194
Individual detached house – prestige	4,100	2,950
Townhouses – medium standard	1,500	1,079
Apartments low-rise – medium standard	2,000	1,439
Apartments high-rise	1,900	1,367
Aged care/affordable units	2,150	1,547

Canada – international building costs	CAD	USD (exchange rate: 1.39)
Retail		
Large shopping centre including mall	2,700	1,942
Neighbourhood including supermarket	2,400	1,727
Prestige car showroom	2,800	2,014
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	16	12
Excavate footings (m)	26	19
Concrete in slab (m^3) (1,500m^3 job)	206	148
Reinforcement in beams (tonne)	2,025	1,457
Formwork to soffit of slab (m^2)	135	97
Blockwork in wall (m^2) (10,000 block job)	115	83
Structural steel beams (tonne)	3,600	2,590
Pre-cast concrete wall (m^2)	185	133
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,150	827
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	48	35
Single solid core door including frame and hardware (no) (50 door job)	1,185	853
Painting to walls primer + 2 coats (m^2)	11	8
Ceramic tiling (m^2) (1,000m^2 job)	95	68
Vinyl flooring to wet areas (m^2) (500m^2 job)	65	47
Carpet medium tufted (m^2) (4,500m^2 job)	62	45
Lighting installation (m^2) (5,000m^2+ job)	80	58
Copper pipe 15mm to wall (m) (1,000m+ job)	72	52
Fire sprinklers (per m^2) (5,000m^2 job)	40	29
Air conditioning including main plant (m^2) (5,000m^2+ job)	232	167
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	69	50
Group 2 Tradesman e.g. carpenter, bricklayer	61	44
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	57	41
General labourer	53	38
Site foreman	82	59
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	185	133
Reinforcement bar 16mm (tonne) (120 tonne job)	1,545	1,112
Concrete block (400x200) per 1,000 (>10,000 block job)	1,600	1,151
Standard brick per 1,000	1,000	719
Structural steel beams (tonne) (100 tonne+ job)	2,450	1,763
Glass pane 10mm tempered (m^2)	335	241
Softwood timber for framing 100mm x 50mm (m)	6	5
13mm plasterboard (m^2)	11	8
Emulsion paint (litre)	11	8
Copper pipe 15mm (m) (1,000m+ job)	11	8
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	8	6
Plant		
Hire 50t mobile crane + operator (day)	1,936	1,393

Market:	**Warm**
Tendering:	Staying the same
Cost escalation 2016–17:	2.5%
Cost escalation 2017–18:	3.0%
Contractor’s margin:	6.0%
Preliminaries:	10.0%
Location factor (USD):	103
PPP coefficient:	1.86

USA - New York City

Strong growth despite fears of overheating

Economic outlook
New York tops the global list of inbound foreign real estate investment at USD14.3bn, just ahead of London. Vacancy rates are 9.3 percent in Manhattan, up a little from 2015 at 8.5 percent, but commercial investors have expressed some concern about how the sector will fare should interest rates increase during 2017.

Construction market and trends
New York City saw USD43bn in construction spending in 2016 – an all-time high. Manhattan remains the dominant sector for construction, with 60 percent of new projects, followed by Brooklyn and Queens.

Manhattan dominates in the office sector with several new towers under construction, including 1 Vanderbilt next to Grand Central Station and 3 Hudson Boulevard at the Hudson Yard. The former, at a cost of over USD3bn, will be the most expensive tower built in Manhattan.

The new administration has promised to spend on infrastructure and many ageing roads, bridges and sewerage systems are in need of upgrade, but high and increasing costs of construction are somewhat of a deterrent.

Future outlook
A slowdown in Chinese investment may occur in 2017 as the Chinese government enforces stricter scrutiny of offshore investments, but also as a consequence of anticipated tougher trade measures.

The long upswing in New York real estate has seen a boom in construction and there are some fears that the cycle may turn before long.

International building costs per m² and ft² of internal area, in 2016	USD Metric (m²)	USD US Standard (ft²)
Airports (building only)		
Domestic terminal, full service	6,489	603
Low-cost carrier terminal, basic service	3,677	342
Car parks		
Multi-storey above ground	1,460	136
Multi-storey below ground	2,325	216
Commercial		
Offices – Business Park	2,866	266
CBD offices – up to 20 floors medium (A-Grade)	5,246	487
CBD offices – high-rise prestige	5,949	553
Education		
Primary and secondary	2,434	226
University	3,840	357
Hospitals		
Day centre (including basic surgeries)	3,082	286
Regional hospital	5,646	525
General hospital (e.g. city teaching hospital)	5,765	536
Hotels		
3 Star travellers	2,909	270
5 Star luxury	5,192	482
Resort style	3,548	330
Industrial		
Warehouse/factory units – basic	1,266	118
Large warehouse distribution centre	1,734	161
High-tech factory/laboratory	5,235	486
Residential		
Individual detached or terrace style house – medium standard	3,014	280
Individual detached house – prestige	3,993	371
Townhouses – medium standard	1,938	180
Apartments low-rise – medium standard	2,368	220
Apartments high-rise	3,175	295
Aged care/affordable units	2,045	190

New York – international building costs	USD Metric (m²)	USD US Standard (ft²)
Retail		
Large shopping centre including mall	3,786	352
Neighbourhood including supermarket	1,893	176
Prestige car showroom	3,237	301
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	39	30
Excavate footings (m)	38	12
Concrete in slab (m^3) (1,500m^3 job)	311	237
Reinforcement in beams (tonne)	2,070	1,878
Formwork to soffit of slab (m^2)	93	9
Blockwork in wall (m^2) (10,000 block job)	259	24
Structural steel beams (tonne)	6,210	5,634
Pre-cast concrete wall (m^2)	285	26
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,863	173
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	93	9
Single solid core door including frame and hardware (no) (50 door job)	2,329	2,329
Painting to walls primer + 2 coats (m^2)	21	2
Ceramic tiling (m^2) (1,000m^2 job)	171	16
Vinyl flooring to wet areas (m^2) (500m^2 job)	104	10
Carpet medium tufted (m^2) (4,500m^2 job)	65	55
Lighting installation (m^2) (5,000m^2+ job)	160	15
Copper pipe 15mm to wall (m) (1,000m+ job)	57	17
Fire sprinklers (per m^2) (5,000m^2 job)	59	5
Air conditioning including main plant (m^2) (5,000m^2+ job)	481	45
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	103	103
Group 2 Tradesman e.g. carpenter, bricklayer	91	91
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	84	84
General labourer	80	80
Site foreman	140	140
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	152	116
Reinforcement bar 16mm (tonne) (120 tonne job)	1,139	1,033
Concrete block (400x200) per 1,000 (>10,000 block job)	1,346	1,346
Standard brick per 1,000	581	581
Structural steel beams (tonne) (100 tonne+ job)	2,600	2,359
Glass pane 10mm tempered (m^2)	250	23
Softwood timber for framing 100mm x 50mm (m)	5	2
13mm plasterboard (m^2)	11	1
Emulsion paint (litre)	7	28
Copper pipe 15mm (m) (1,000m+ job)	13	4
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	6	2
Plant		
Hire 50t mobile crane + operator (day)	3,726	3,726

Market:	Hot
Tendering:	Staying the same
Cost escalation 2016–17:	3.5%
Cost escalation 2017–18:	3.5%
Contractor’s margin:	7.0%
Preliminaries:	13.0%
Location factor (USD):	152
PPP coefficient:	2.19

USA - other regions

Markets rally behind business-friendly President

Economic outlook
Financial markets experienced an initial bounce following the US elections, anticipating more business-friendly conditions.

Construction market and trends
Construction markets are hot in most regions of the US, in stark contrast to the conditions seen in many other regions worldwide. Of the three cities reported here, Houston has the weakest construction market with the oil market slump denting construction growth.

In Houston, residential and non-residential construction starts are falling following five years of solid growth and some projects are being cancelled as a result. Office vacancy climbed to nearly 20 percent, indicating several years of weakness ahead.

In contrast, San Francisco is hot and Seattle is overheating.

Unsurprisingly, labour skills shortage is a problem, with labour costs increasing relatively strongly, and overall construction costs are experiencing some of the highest growth rates among developed economies worldwide.

Future outlook
Housing sectors will run out of steam eventually given the high levels of supply coming on-stream, but should the new administration's policies prove successful in bringing businesses' headquarters back to the US, commercial construction should do very well.

International building costs per m² and ft² of internal area, in 2016	Houston USD		San Francisco USD		Seattle USD	
	Metric (m²)	US Standard (ft²)	Metric (m²)	US Standard (ft²)	Metric (m²)	US Standard (ft²)
Airports (building only)						
Domestic terminal, full service	4,855	451	6,100	567	5,274	490
Low-cost carrier terminal, basic service	2,654	247	3,455	321	3,122	290
Car parks						
Multi-storey above ground	538	50	1,365	127	807	75
Multi-storey below ground	1,036	96	2,190	203	1,884	175
Commercial						
Offices – Business Park	1,247	116	2,690	250	1,991	185
CBD offices – up to 20 floors medium (A-Grade)	2,122	197	4,940	459	2,476	230
CBD offices – high-rise prestige	4,786	445	5,605	521	5,382	500
Education						
Primary and secondary	2,285	212	2,290	213	2,260	210
University	3,041	283	3,615	336	2,906	270
Hospitals						
Day centre (including basic surgeries)	2,206	205	2,900	269	2,260	210
Regional hospital	3,524	327	5,310	493	4,252	395
General hospital (e.g. city teaching hospital)	2,854	265	5,425	504	3,767	350
Hotels						
3 Star travellers	1,636	152	2,740	255	2,583	240
5 Star luxury	3,788	352	5,415	503	3,983	370
Resort style	2,194	204	3,360	312	2,476	230
Industrial						
Warehouse/factory units – basic	656	61	1,215	113	1,076	100
Large warehouse distribution centre	932	87	1,420	132	1,345	125
High-tech factory/laboratory	4,584	426	4,925	458	4,682	435
Residential						
Individual detached or terrace style house medium standard	1,560	145	2,850	265	2,260	210
Individual detached house – prestige	3,090	287	3,775	351	3,391	315
Townhouses – medium standard	1,187	110	1,820	169	1,615	150
Apartments low-rise – medium standard	1,278	119	2,230	207	1,830	170
Apartments high-rise	1,595	148	2,995	278	2,099	195
Aged care/affordable units	1,263	117	1,920	178	1,561	145

USA – international building costs	Houston USD Metric	Houston USD US Standard	San Francisco USD Metric	San Francisco USD US Standard	Seattle USD Metric	Seattle USD US Standard
Retail						
Large shopping centre including mall	2,601	242	3,560	331	3,229	300
Neighbourhood including supermarket	1,158	108	1,780	165	1,292	120
Prestige car showroom	2,841	264	2,720	253	2,799	260
Composite trade rates						
Excavate basement (m^3) ($1,800m^3$ job)	12	9	21	16	25	19
Excavate footings (m)	17	5	29	9	21	6
Concrete in slab (m^3) ($1,500m^3$ job)	275	211	296	226	353	270
Reinforcement in beams (tonne)	1,590	1,443	2,000	1,814	1,497	1,358
Formwork to soffit of slab (m^2)	57	5	96	9	97	9
Blockwork in wall (m^2) (10,000 block job)	101	9	155	14	97	9
Structural steel beams (tonne)	5,099	4,625	5,800	5,262	4,808	4,362
Pre-cast concrete wall (m^2)	255	24	265	25	377	35
Curtain wall glazing including support system (m^2) ($1,000m^2$ job)	1,051	98	1,250	116	1,345	125
Plasterboard 13mm thick to stud wall (m^2) ($3,000m^2$ job)	56	5	72	7	65	6
Single solid core door including frame and hardware (no) (50 door job)	1,155	1,155	2,086	2,086	1,300	1,300
Painting to walls primer + 2 coats (m^2)	14	1	12	1	16	2
Ceramic tiling (m^2) ($1,000m^2$ job)	94	9	134	12	129	12
Vinyl flooring to wet areas (m^2) ($500m^2$ job)	59	6	40	4	65	6
Carpet medium tufted (m^2) ($4,500m^2$ job)	56	47	64	54	65	54
Lighting installation (m^2) ($5,000m^2$+ job)	141	13	160	15	161	15
Copper pipe 15mm to wall (m) (1,000m+ job)	36	11	52	16	48	15
Fire sprinklers (per m^2) ($5,000m^2$ job)	34	3	43	4	43	4
Air conditioning including main plant (m^2) ($5,000m^2$+ job)	279	26	420	39	377	35
Labour costs						
Group 1 Tradesman e.g. plumber, electrician	59	59	100	100	85	85
Group 2 Tradesman e.g. carpenter, bricklayer	51	51	70	70	68	68
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	46	46	68	68	70	70
General labourer	41	41	52	52	57	57
Site foreman	98	98	109	109	110	110
Material costs						
Concrete 30 MPa (m^3) ($1,500m^3$ job)	140	107	150	115	143	109
Reinforcement bar 16mm (tonne) (120 tonne job)	999	906	1,072	973	889	807
Concrete block (400x200) per 1,000 (>10,000 block job)	1,040	1,040	1,300	1,300	1,000	1,000
Standard brick per 1,000	458	458	515	515	450	450
Structural steel beams (tonne) (100 tonne+ job)	2,039	1,850	2,500	2,268	2,722	2,469
Glass pane 10mm tempered (m^2)	239	22	242	22	258	24
Softwood timber for framing 100mm x 50mm (m)	4	1	4	1	4	1
13mm plasterboard (m^2)	9	1	9	1	10	1
Emulsion paint (litre)	6	24	7	26	6	23
Copper pipe 15mm (m) (1,000m+ job)	10	3	11	3	10	3
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	5	2	5	2	5	2
Plant						
Hire 50t mobile crane + operator (day)	2,049	2,049	3,100	3,100	3,000	3,000

	Houston	San Francisco	Seattle
Market:	**Lukewarm**	**Hot**	**Overheating**
Tendering:	Staying the same	Staying the same	Staying the same
Cost escalation 2016–17:	2.0%	4.2%	5.0%
Cost escalation 2017–18:	2.5%	5.0%	5.0%
Contractor's margin:	5.0%	5.9%	5.5%
Preliminaries:	10.6%	8.9%	10.0%
Location factor (USD):	99	122	123
PPP coefficient:	1.47	1.83	1.81

Argentina - Buenos Aires

Global capital should help spur growth

Economic outlook
Following a decade of economic headwinds in which inflation reached 40 percent and interest rates reached 24 percent, the Argentinian economy looks set to improve. Government reforms include a USD16.5bn bond aimed at boosting construction investment, fewer legal obstacles, and the ending of lawsuits that prevented access to global capital should all help.

Construction market and trends
As the country opens up to USD32bn of foreign investment the construction industry should benefit. The Argentinian government is set to boost infrastructure spending across many sectors including airports, freight rail, roads, tunnels and power plants. This will boost the construction sector, and create construction trade jobs.

Engineers across all specialities are highly sought-after, with salaries approximately 30 percent higher than other industry professionals. Construction costs increased by as much as 27 percent during 2016 as inflation increased materials prices, causing firms to re-evaluate project decisions.

Future outlook
The IMF expects Argentinian growth to improve to 2.7 percent in 2017. The new reforms provide confidence that higher construction growth will occur in 2017 and inflation should reduce, this will ease the cost pressure on construction jobs.

International building costs per m² of internal area, in 2016	ARS	USD (exchange rate: 16.3)
Airports (building only)		
Domestic terminal, full service	31,389	1,926
Low-cost carrier terminal, basic service	25,255	1,549
Car parks		
Multi-storey above ground	9,600	589
Multi-storey below ground	12,899	791
Commercial		
Offices – Business Park	14,560	893
CBD offices – up to 20 floors medium (A-Grade)	20,800	1,276
CBD offices – high-rise prestige	29,000	1,779
Education		
Primary and secondary	18,293	1,122
University	27,342	1,677
Hospitals		
Day centre (including basic surgeries)	18,701	1,147
Regional hospital	22,826	1,400
General hospital (e.g. city teaching hospital)	36,553	2,243
Hotels		
3 Star travellers	18,054	1,108
5 Star luxury	45,951	2,819
Resort style	40,678	2,496
Industrial		
Warehouse/factory units – basic	8,740	536
Large warehouse distribution centre	11,370	698
High-tech factory/laboratory	56,850	3,488
Residential		
Individual detached or terrace style house – medium standard	15,000	920
Individual detached house – prestige	18,400	1,129
Townhouses – medium standard	14,300	877
Apartments low-rise – medium standard	14,520	891
Apartments high-rise	17,800	1,092
Aged care/affordable units	14,800	908

Argentina – international building costs	ARS	USD (exchange rate: 16.3)
Retail		
Large shopping centre including mall	30,260	1,856
Neighbourhood including supermarket	16,018	983
Prestige car showroom	25,830	1,585
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	66	4
Excavate footings (m)	110	7
Concrete in slab (m^3) (1,500m^3 job)	2,800	172
Reinforcement in beams (tonne)	26,100	1,601
Formwork to soffit of slab (m^2)	176	11
Blockwork in wall (m^2) (10,000 block job)	270	17
Structural steel beams (tonne)	15,730	965
Pre-cast concrete wall (m^2)	1,130	69
Curtain wall glazing including support system (m^2) (1,000m^2 job)	2,750	169
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	170	10
Single solid core door including frame and hardware (no) (50 door job)	7,120	437
Painting to walls primer + 2 coats (m^2)	60	4
Ceramic tiling (m^2) (1,000m^2 job)	320	20
Vinyl flooring to wet areas (m^2) (500m^2 job)	200	12
Carpet medium tufted (m^2) (4,500m^2 job)	560	34
Lighting installation (m^2) (5,000m^2+ job)	600	37
Copper pipe 15mm to wall (m) (1,000m+ job)	502	31
Fire sprinklers (per m^2) (5,000m^2 job)	500	31
Air conditioning including main plant (m^2) (5,000m^2+ job)	1,500	92
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	77	5
Group 2 Tradesman e.g. carpenter, bricklayer	70	4
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	61	4
General labourer	52	3
Site foreman	120	7
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	2,100	129
Reinforcement bar 16mm (tonne) (120 tonne job)	16,150	991
Concrete block (400x200) per 1,000 (>10,000 block job)	15,400	945
Standard brick per 1,000	3,000	184
Structural steel beams (tonne) (100 tonne+ job)	15,600	957
Glass pane 10mm tempered (m^2)	1,005	62
Softwood timber for framing 100mm x 50mm (m)	40	3
13mm plasterboard (m^2)	133	8
Emulsion paint (litre)	120	7
Copper pipe 15mm (m) (1,000m+ job)	84	5
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	25	2
Plant		
Hire 50t mobile crane + operator (day)	16,000	982

Market:	**Warm**
Tendering:	Warmer
Cost escalation 2016–17:	27.0%
Cost escalation 2017–18:	20.0%
Contractor's margin:	12.5%
Preliminaries:	15.0%
Location factor (USD):	53
PPP coefficient:	9.79

Brazil - São Paulo

Austerity maintains economic stagnation

Economic outlook

The Brazilian economy has been entrenched in recession, but there are signs that the economic recession is slowing. Interest rates and inflation remain high, but are beginning to move in the right direction as stability starts to return to the commodities market and the economy.

Construction market and trends

The construction sector in Brazil is one of the main drivers of economic growth, but government austerity measures the end of the commodities boom and the continuation of the corruption investigation at state-run oil company Petrobras have led the industry to stagnation.

The Rio de Janeiro Olympics in 2016 added an estimated USD24bn in the form of increased spending on infrastructure and residential projects, but this effect is beginning to wear off.

The construction sector remains surprisingly positive, with the government announcing USD65bn investment in national infrastructure.

Future outlook

Brazil is caught in a period of stagnating consumption. There have been encouraging signs with the resolution of political paralysis at the end of August 2016, coupled with the pledge of new President Michel Temer to improve the business environment and restore investor confidence.

The election of President Trump may dampen economic growth if trade barriers between USA and China reduce the demand for Brazilian commodities.

International building costs per m² of internal area, in 2016	BRL	USD (exchange rate: 3.38)
Airports (building only)		
Domestic terminal, full service	7,108	2,103
Low-cost carrier terminal, basic service	4,986	1,475
Car parks		
Multi-storey above ground	1,910	565
Multi-storey below ground	2,016	596
Commercial		
Offices – Business Park	2,800	828
CBD offices – up to 20 floors medium (A-Grade)	2,800	828
CBD offices – high-rise prestige	6,000	1,775
Education		
Primary and secondary	2,971	879
University	4,159	1,230
Hospitals		
Day centre (including basic surgeries)	3,713	1,099
Regional hospital	7,214	2,134
General hospital (e.g. city teaching hospital)	7,957	2,354
Hotels		
3 Star travellers	5,952	1,761
5 Star luxury	10,768	3,186
Resort style	9,628	2,848
Industrial		
Warehouse/factory units – basic	2,050	607
Large warehouse distribution centre	2,100	621
High-tech factory/laboratory	5,250	1,553
Residential		
Individual detached or terrace style house – medium standard	2,069	612
Individual detached house – prestige	3,713	1,099
Townhouses – medium standard	2,069	612
Apartments low-rise – medium standard	2,228	659
Apartments high-rise	2,758	816
Aged care/affordable units	2,483	734

Brazil – international building costs	BRL	USD (exchange rate: 3.38)
Retail		
Large shopping centre including mall	2,500	740
Neighbourhood including supermarket	3,500	1,036
Prestige car showroom	4,100	1,213
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	37	11
Excavate footings (m)	27	8
Concrete in slab (m^3) (1,500m^3 job)	334	99
Reinforcement in beams (tonne)	5,517	1,632
Formwork to soffit of slab (m^2)	91	27
Blockwork in wall (m^2) (10,000 block job)	85	25
Structural steel beams (tonne)	6,896	2,040
Pre-cast concrete wall (m^2)	286	85
Curtain wall glazing including support system (m^2) (1,000m^2 job)	1,379	408
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	90	27
Single solid core door including frame and hardware (no) (50 door job)	1,591	471
Painting to walls primer + 2 coats (m^2)	35	10
Ceramic tiling (m^2) (1,000m^2 job)	175	52
Vinyl flooring to wet areas (m^2) (500m^2 job)	170	50
Carpet medium tufted (m^2) (4,500m^2 job)	212	63
Lighting installation (m^2) (5,000m^2+ job)	244	72
Copper pipe 15mm to wall (m) (1,000m+ job)	149	44
Fire sprinklers (per m^2) (5,000m^2 job)	106	31
Air conditioning including main plant (m^2) (5,000m^2+ job)	550	163
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	45	13
Group 2 Tradesman e.g. carpenter, bricklayer	40	12
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	38	11
General labourer	32	10
Site foreman	103	31
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	393	116
Reinforcement bar 16mm (tonne) (120 tonne job)	4,763	1,409
Concrete block (400x200) per 1,000 (>10,000 block job)	2,610	772
Standard brick per 1,000	1,379	408
Structural steel beams (tonne) (100 tonne+ job)	5,018	1,485
Glass pane 10mm tempered (m^2)	306	91
Softwood timber for framing 100mm x 50mm (m)	12	4
13mm plasterboard (m^2)	18	5
Emulsion paint (litre)	16	5
Copper pipe 15mm (m) (1,000m+ job)	25	8
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	6	2
Plant		
Hire 50t mobile crane + operator (day)	1,551	459

Market:	**Cold**
Tendering:	Staying the same
Cost escalation 2016–17:	6.1%
Cost escalation 2017–18:	6.0%
Contractor's margin:	8.0%
Preliminaries:	15.0%
Location factor (USD):	62
PPP coefficient:	2.34

Chile - Santiago

Fragile economy primed for growth

Economic outlook

Weaker economic growth in 2016 was caused by lower commodity prices and lower export demand. Consumer and business confidence has been fragile, but growth is projected to edge up in 2017 and 2018 as the stronger global economy helps demand for exports to recover.

Construction market and trends

The introduction of VAT on Chilean housing has seen a decline in the number of housing permits issued, reducing demand for residential construction projects. High levels of off-the-plan sales in 2015 caused numerous housing projects to be delivered to market in 2016, helping to moderate price growth in busy markets such as Santiago.

Infrastructure construction is also slowing down as the government pledges to reduce the fiscal deficit. The weaker commodity market reduced the need for office space, leading to increased vacancy rates and a drop-off in the number of new projects under construction.

Future outlook

Fortunately for the Chilean economy, copper prices look to have bottomed out in this cycle. Prices saw a significant improvement late in 2016, which should help restore much-needed confidence in the outlook. Meanwhile, announcements of major infrastructure investment in the US economy will also help buoy copper futures.

International building costs per m² of internal area, in 2016	CLP	USD (exchange rate: 678)
Airports (building only)		
Domestic terminal, full service	1,538,700	2,270
Low-cost carrier terminal, basic service	1,238,000	1,826
Car parks		
Multi-storey above ground	395,200	583
Multi-storey below ground	632,300	933
Commercial		
Offices – Business Park	772,500	1,139
CBD offices – up to 20 floors medium (A-Grade)	1,144,000	1,687
CBD offices – high-rise prestige	1,606,800	2,370
Education		
Primary and secondary	896,700	1,323
University	1,340,300	1,977
Hospitals		
Day centre (including basic surgeries)	916,700	1,352
Regional hospital	1,118,900	1,650
General hospital (e.g. city teaching hospital)	1,791,800	2,643
Hotels		
3 Star travellers	885,000	1,305
5 Star luxury	2,252,500	3,322
Resort style	1,994,000	2,941
Industrial		
Warehouse/factory units – basic	375,700	554
Large warehouse distribution centre	501,700	740
High-tech factory/laboratory	2,609,900	3,849
Residential		
Individual detached or terrace style house – medium standard	673,400	993
Individual detached house – prestige	819,000	1,208
Townhouses – medium standard	614,800	907
Apartments low-rise – medium standard	432,600	638
Apartments high-rise	651,900	962
Aged care/affordable units	490,200	723

Chile – international building costs	CLP	USD (exchange rate: 678)
Retail		
Large shopping centre including mall	1,139,200	1,680
Neighbourhood including supermarket	785,200	1,158
Prestige car showroom	1,266,200	1,868
Composite trade rates		
Excavate basement (m^3) ($1,800m^3$ job)	7,300	11
Excavate footings (m)	13,200	20
Concrete in slab (m^3) ($1,500m^3$ job)	116,200	171
Reinforcement in beams (tonne)	830,900	1,226
Formwork to soffit of slab (m^2)	35,400	52
Blockwork in wall (m^2) (10,000 block job)	32,400	48
Structural steel beams (tonne)	1,579,700	2,330
Pre-cast concrete wall (m^2)	90,200	133
Curtain wall glazing including support system (m^2) ($1,000m^2$ job)	202,000	298
Plasterboard 13mm thick to stud wall (m^2) ($3,000m^2$ job)	24,000	35
Single solid core door including frame and hardware (no) (50 door job)	633,500	934
Painting to walls primer + 2 coats (m^2)	7,000	10
Ceramic tiling (m^2) ($1,000m^2$ job)	43,900	65
Vinyl flooring to wet areas (m^2) ($500m^2$ job)	19,600	29
Carpet medium tufted (m^2) ($4,500m^2$ job)	29,700	44
Lighting installation (m^2) ($5,000m^2$+ job)	46,300	68
Copper pipe 15mm to wall (m) (1,000m+ job)	18,500	27
Fire sprinklers (per m^2) ($5,000m^2$ job)	22,000	32
Air conditioning including main plant (m^2) ($5,000m^2$+ job)	76,300	113
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	6,100	9
Group 2 Tradesman e.g. carpenter, bricklayer	5,400	8
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	4,600	7
General labourer	3,800	6
Site foreman	9,400	14
Material costs		
Concrete 30 MPa (m^3) ($1,500m^3$ job)	97,800	144
Reinforcement bar 16mm (tonne) (120 tonne job)	723,600	1,067
Concrete block (400x200) per 1,000 (>10,000 block job)	1,065,900	1,572
Standard brick per 1,000	152,500	225
Structural steel beams (tonne) (100 tonne+ job)	650,000	959
Glass pane 10mm tempered (m^2)	63,600	94
Softwood timber for framing 100mm x 50mm (m)	1,900	3
13mm plasterboard (m^2)	5,100	8
Emulsion paint (litre)	3,300	5
Copper pipe 15mm (m) (1,000m+ job)	2,700	4
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	2,100	3
Plant		
Hire 50t mobile crane + operator (day)	696,900	1,028

Market:	**Lukewarm**
Tendering:	Cooler
Cost escalation 2016–17:	3.0%
Cost escalation 2017–18:	3.0%
Contractor's margin:	5.0%
Preliminaries:	12.0%
Location factor (USD):	53
PPP coefficient:	469.61

Colombia - Bogota

Returning peace brings hope for prosperity

Economic outlook

The finalisation of the peace process in November 2016 has given Colombia renewed hope for a more prosperous future.

There are several bilateral loans and funds that will support the incorporation of geographical regions that today are in the informal economic areas, and it is anticipated that this could improve growth by as much as 1.5 percent to 2 percent.

The Colombian economy is closely linked to the commodities market, and will be helped by the recent stabilisation of commodity prices in the global market.

Construction market and trends

A bidding process was completed during 2016 for infrastructure projects focusing on the water and energy sectors, particularly renewable energy. Construction is expected to start during the first half of 2017.

Future outlook

Growth is expected to materialise as the peace programme is implemented, and ambitious government initiatives for improving the country's main cities are expected to be a main driver of growth.

International building costs per m² of internal area, in 2016	COP	USD (exchange rate: 2,997)
Airports (building only)		
Domestic terminal, full service	7,097,892	2,368
Low-cost carrier terminal, basic service	4,927,396	1,644
Car parks		
Multi-storey above ground	1,268,183	423.15
Multi-storey below ground	1,915,816	639.24
Commercial		
Offices – Business Park	1,938,092	647
CBD offices – up to 20 floors medium (A-Grade)	2,569,292	857
CBD offices – high-rise prestige	3,349,053	1,118
Education		
Primary and secondary	1,580,000	527
University	2,500,500	834
Hospitals		
Day centre (including basic surgeries)	3,284,532	1,096
Regional hospital	4,508,988	1,505
General hospital (e.g. city teaching hospital)	5,346,475	1,784
Hotels		
3 Star travellers	2,761,861	922
5 Star luxury	4,579,345	1,528
Resort style	3,693,722	1,233
Industrial		
Warehouse/factory units – basic	1,056,191	352
Large warehouse distribution centre	1,257,395	420
High-tech factory/laboratory	2,909,079	971
Residential		
Individual detached or terrace style house – medium standard	1,117,519	373
Individual detached house – prestige	1,773,466	592
Townhouses – medium standard	915,818	306
Apartments low-rise – medium standard	1,363,007	455
Apartments high-rise	1,945,638	649
Aged care/affordable units	931,390	311

Colombia – international building costs	COP	USD (exchange rate: 2,997)
Retail		
Large shopping centre including mall	2,442,711	815
Neighbourhood including supermarket	1,741,771	581
Prestige car showroom	2,325,127	776
Composite trade rates		
Excavate basement (m^3) (1,800m^3 job)	20,353	7
Excavate footings (m)	25,352	8
Concrete in slab (m^3) (1,500m^3 job)	454,293	152
Reinforcement in beams (tonne)	4,154,000	1,386
Formwork to soffit of slab (m^2)	91,517	31
Blockwork in wall (m^2) (10,000 block job)	170,000	57
Structural steel beams (tonne)	3,042,000	1,015
Pre-cast concrete wall (m^2)	172,073	57
Curtain wall glazing including support system (m^2) (1,000m^2 job)	607,358	203
Plasterboard 13mm thick to stud wall (m^2) (3,000m^2 job)	63,732	21
Single solid core door including frame and hardware (no) (50 door job)	2,400,000	801
Painting to walls primer + 2 coats (m^2)	30,531	10
Ceramic tiling (m^2) (1,000m^2 job)	74,798	25
Vinyl flooring to wet areas (m^2) (500m^2 job)	53,862	18
Carpet medium tufted (m^2) (4,500m^2 job)	148,870	50
Lighting installation (m^2) (5,000m^2+ job)	450,000	150
Copper pipe 15mm to wall (m) (1,000m+ job)	58,483	20
Fire sprinklers (per m^2) (5,000m^2 job)	80,626	27
Air conditioning including main plant (m^2) (5,000m^2+ job)	230,000	77
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	12,500	4
Group 2 Tradesman e.g. carpenter, bricklayer	11,750	4
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	9,200	3
General labourer	7,850	3
Site foreman	15,000	5
Material costs		
Concrete 30 MPa (m^3) (1,500m^3 job)	397,196	133
Reinforcement bar 16mm (tonne) (120 tonne job)	2,700,000	901
Concrete block (400x200) per 1,000 (>10,000 block job)	2,007,778	670
Standard brick per 1,000	875,000	292
Structural steel beams (tonne) (100 tonne+ job)	8,492,000	2,834
Glass pane 10mm tempered (m^2)	158,400	53
Softwood timber for framing 100mm x 50mm (m)	5,300	2
13mm plasterboard (m^2)	15,800	5
Emulsion paint (litre)	9,600	3
Copper pipe 15mm (m) (1,000m+ job)	8,696	3
Copper cable (m) (3C + E, 2.5mm PVC) (100,000m+ job)	5,600	2
Plant		
Hire 50t mobile crane + operator (day)	1,478,458	493

Market:	**Overheating**
Tendering:	Warmer
Cost escalation 2016–17:	5.2%
Cost escalation 2017–18:	4.4%
Contractor's margin:	5.0%
Preliminaries:	13.0%
Location factor (USD):	39
PPP coefficient:	1,420.28

Comparing construction costs

It is important to compare construction costs between countries to inform expansion decisions. It can also enable productivity comparisons, 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.

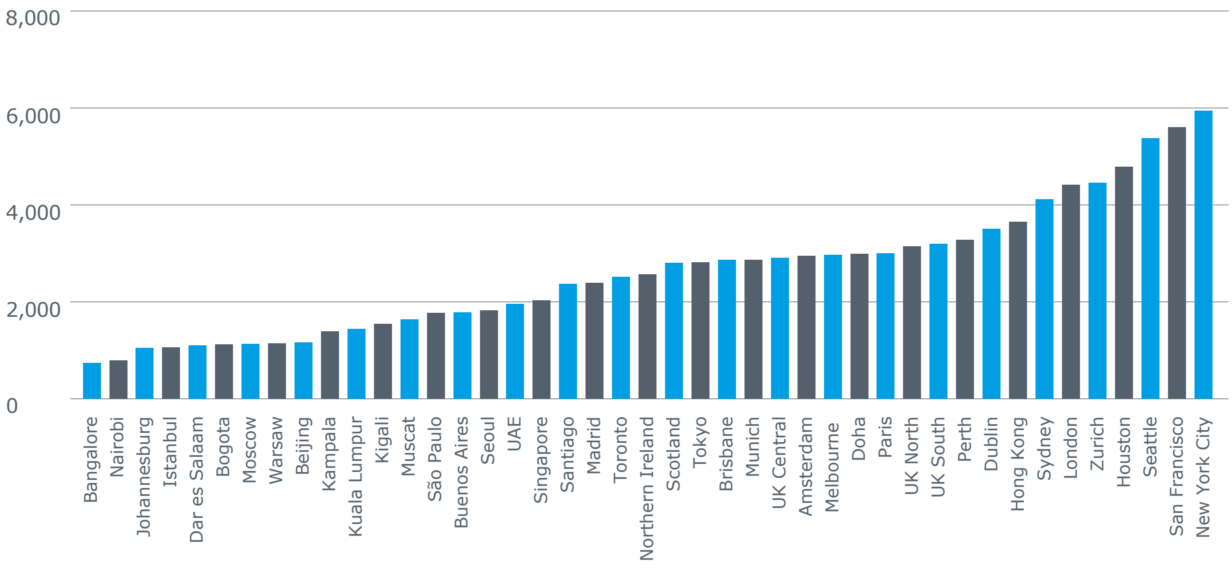
Here we look at the advantages and disadvantages of three methods of comparing construction costs using an example building type: Central Business District (CBD) offices – high-rise prestige.

Method one: convert to a single currency such as USD or euros
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.

Figure 8: CBD offices – high-rise prestige using a single currency (USD) exchange rates

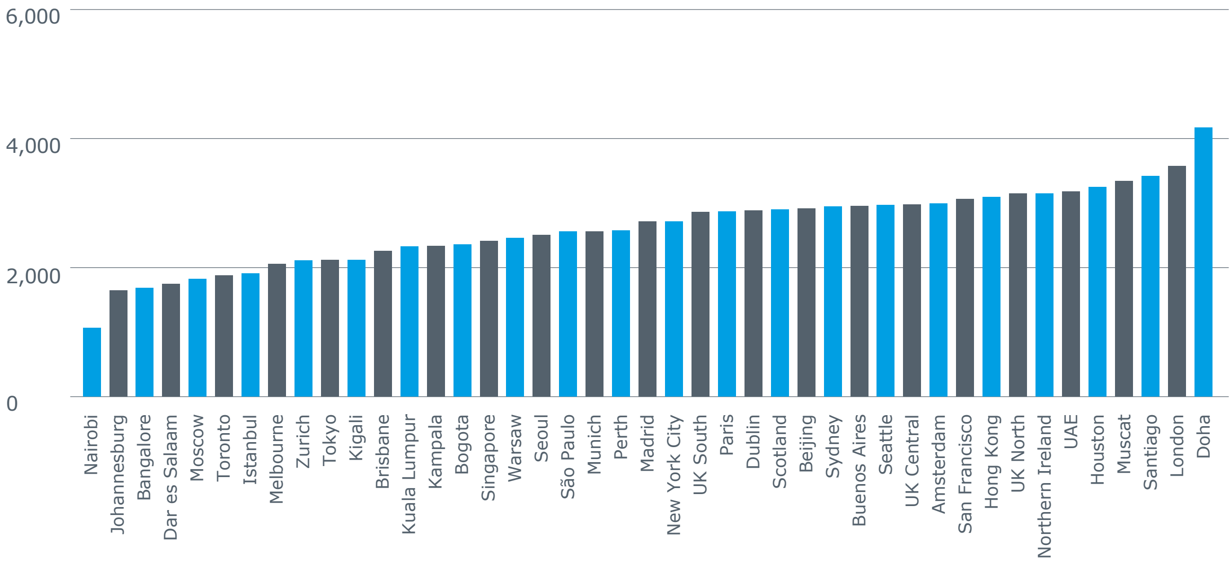


Method two: Purchasing Power Parity (PPP)
The PPP measure shows costs in relation to cost of living in the country. It indicates the construction cost per square metre in the local currency, relative to the costs of a basket of construction materials and labour. The PPP cost of a particular building 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 96 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.

Figure 9: 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 USD103m in Toronto (location factor 103) at the exchange rate as of the first quarter of 2016.

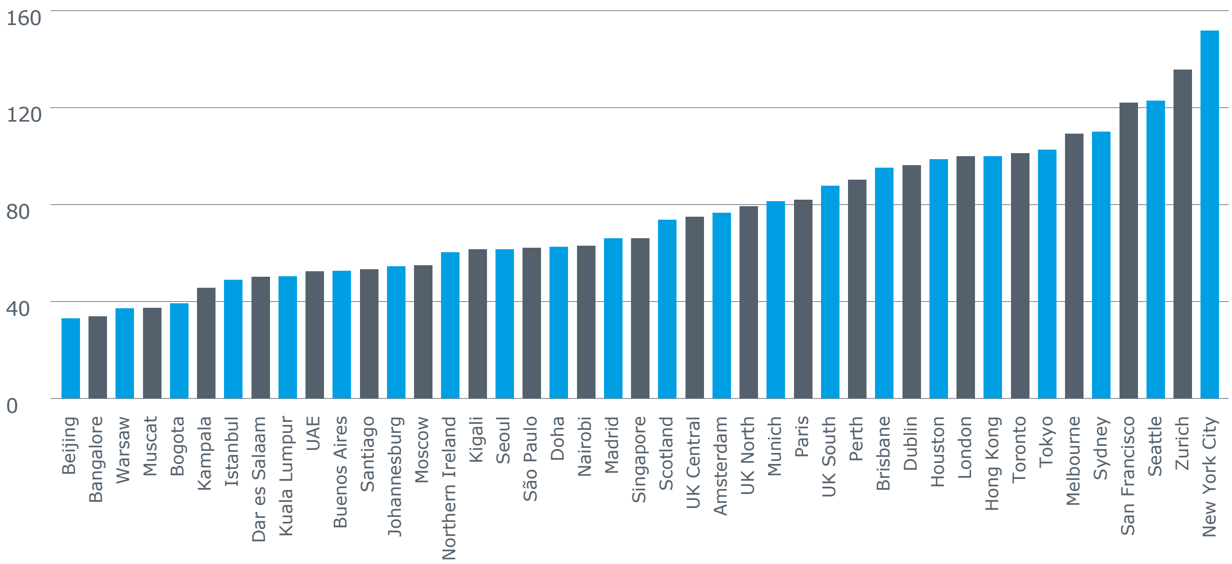
Advantages

- 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.

Figure 10: CBD offices – high-rise prestige using location factors in USD London = 100



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 2017.

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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