Turner & Townsend

International construction market survey 2016

Overstretched and over-reliant: a polarised market

making the **difference**

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Foreword

The past year has seen widespread economic and political change across the world. High levels of construction activity and skills shortages, along with the knock-on effects of commodity market volatility and economic slowdown in China, are already having a significant impact on the costs associated with constructing real estate.

Understanding how these changes can affect the delivery of major projects and programmes, both local and international, is key for investors and developers already operating in, or considering entering, the construction industry globally. A full picture enables the right tactics to be deployed to manage risks, control costs and capitalise on opportunities.

Two market trends

The landscape is shifting and two types of market trends have emerged:

Overstretched – markets that experienced high levels of construction activity have been stretched by increasing costs driven by shortages of skilled labour and growing demand beyond what suppliers can deliver. These markets are mostly less volatile owing to their diversity and maturity, protecting against instability.

Over-reliant – markets heavily affected by volatile commodity prices and slowing Asian growth, which revealed their unhealthy dependence on these macro-economic, and sometimes political, factors. The economies affected by these have generally cooled as low market confidence has delayed new investment. However, in some of these markets cost inflation continued to be high, with the construction sector often not the right size to meet the demand that is reliant on macro-economic or political factors.

New ways of thinking

Both of these contrasting situations require the industry to adapt and evolve to new circumstances, and think differently about how projects and programmes are set up and delivered. For example, when it comes to cost performance one of the biggest opportunities for improvement lies in innovation, knowledge and capability deep within the supply chain, typically within the manufacturing, production and logistics areas.

Becoming data-centric is key for the industry to add value and drive efficiency in performance. There is also movement towards integrated design using consistent data to optimise how buildings, infrastructure and utilities are planned, designed, built and managed.

Focusing on how best to engage the supply chain to achieve better project outcomes is key. For economies in a downward cycle, using the downtime to improve collaboration within the supply chain is just as important. This is an opportunity to plan for the future, identify ways to strip out waste and develop the right skills mix for when demand returns – 'never waste a good crisis'.

Our international construction market survey

In the light of this changing and challenging global context, I'm very pleased to present the 2016 edition of our annual international construction market survey.

This year we've gathered cost data from 38 markets across the world, drawing on information from over £500bn of global real estate investment.

Our team of industry experts has worked closely with our local offices to analyse this expansive cost dataset to provide real insight. With our survey, anyone considering real estate construction expenditure can understand key global trends and make informed investment decisions to drive the best return.

Our construction cost data raises important questions that get to the heart of how businesses can make the most of their potential within the global construction industry. We'd be delighted to take part in further debate and discussion around these issues, so please do let us know if you agree or see a different picture.

Steve McGuckin
Global Managing Director, Real Estate

Overstretched and over-reliant: the new global construction market

The global construction industry has polarised between intense competition and shrinking demand. Our 2016 international construction market survey shows a changing picture, with general slowdown in global construction activity and few locations seeing significant price growth throughout the year.

Our 2016 survey is our largest and most in-depth to date. It presents detailed construction cost data collected from our industry experts in 38 key world markets and analysed by our team of economists.

Our teams have analysed input costs – such as labour and materials – and charted the average construction cost per m^2 for both commercial and residential projects.

Newcomers to the survey in 2016 include Istanbul, Kigali, Paris, San Francisco and Zurich. We have also increased our regional coverage by adding new regional data for the USA.

For investors and developers with global expansion plans, there are locations where favourable exchange rates and reasonable construction costs make them an attractive proposition.

This year we've identified some of the major common challenges faced by the construction sector, such as industry skills shortages in over-stretching markets, and undertaken some analysis that has uncovered a number of key trends.

Inherent construction differences in various regions contribute to some cost differences – for instance, the quality of a prestige house in one market may not be the same as the quality of a prestige house in another market. To avoid bias, our approach is to ask our experts to provide cost details for what would be the typical construction format in their region.

We continue to use a variety of construction cost comparison methodologies to ensure our findings deliver both accuracy and insight. Methods such as straight-line US dollar conversion, Purchasing Power Parity (PPP) and location factors have been implemented to standardise our data and draw useful conclusions. For more information on the methods we use see pages 80 and 81.

Detailed explanations of what's included in and excluded from our cost information are given at the back of this report on page 82.

Survey highlights:

- Swiss city Zurich enters the survey as the world's most expensive construction market, with typical costs reaching USD3,683 per m^2.
- Beijing saw the biggest fall in construction costs in 2015 at ten percent.
- New York City and Seattle are identified as overheating.
- Global construction costs are expected to rise overall by 2.9 percent in 2016.
- Activity levels will increase over the next year in nine of the markets surveyed, stay the same in 19, and fall in ten.
- Commodity-reliant markets such as Johannesburg, Perth and São Paulo lead the list of markets that will cool in 2016.
- Markets reliant on Chinese demand such as Hong Kong, Kuala Lumpur and Singapore are also set to cool.

38
global markets

5
newcomers

£500bn
global construction investment

Thinking differently: seizing opportunities in a new world

Whether operating within an overstretched or over-reliant market, there is one key commonality - the need to think differently. Fresh perspectives and strategies must be at the heart of forward-planning for organisations seeking success in the newly divided global real estate sector.

One of the key findings of this year's international construction market survey is that two distinct types of markets have emerged. These can be defined as 'overstretched' – experiencing capacity constraints and labour shortages, such as London and New York City, and 'over-reliant' – who have suffered weak GDP growth due to oversupply of commodities and weakening demand from China, such as Australia and Brazil.

For both market types, organisations need to start thinking differently if they're to deal effectively with the challenges of skills shortages and rising costs of construction, or use the time wisely during the downturn for when demand returns.

Against this backdrop, the construction industry has been slow to modify practices and adopt technologies to improve efficiency and productivity.

So how can owners and managers of real estate projects change their perspective and take practical steps to make sure they're not an obstacle to their own success?

Redefining relationships with the supply chain

Do you look for cost performance in other parts of the supply chain? Construction is the final part of a long process that brings together raw materials, manufacturing design, logistics and labour. How well do you know the processes and elements that make up your supply chain? Are there opportunities to cut out expensive manual processes on site in favour of automated and less costly processes in a factory? Can you get close enough to drive change in the manufacturing, production and logistics areas where the biggest opportunities to improve cost performance are often found?

Changing your relationships with suppliers can completely transform project delivery, helping you eliminate waste and increase efficiency. From intelligent category management to lean construction, finding a way to better engage with the entire supply chain is a vital step on the path to delivering better results.

Resetting cost performance measures

Are you measuring what you should be measuring? Redefining your cost measures to work in terms of outcomes can provide invaluable insight. Designing buildings based on cost per occupant instead of cost per square metre is a good example of this sort of redefinition, and it's an approach that can yield useful insights.

The key is to measure. If you can't measure, you can't improve, and if you measure well, you might find new ways to improve you never thought possible.

Using data to unlock performance

Are you making the most of the vast amounts of data available to ensure you are getting the best performance for your projects?

This information can help facilitate design, build and operations improvements, driving project and programme performance and guiding future objective decision-making. But 'big data' brings challenges, and needs to be managed well to reap these benefits.

Using data to its full potential depends on being able to understand and process the information effectively, choosing the right tools to achieve your objectives.

An example of an industry getting it right is sport, where integrated reporting and data captured from player activity is helping enhance performance. Taking the lead from motorsports, which was among the first to use telemetry, video footage and climate data, rugby and football have now adopted similar approaches and are seeing improvements. Construction needs to look towards industries like these to be smarter with big data and unlock performance.

Embracing technology

Technology and innovation offers great opportunities to improve, even if the industry finds it challenging to adopt. If you're not up to date with the latest developments you could be missing out on ways to fundamentally change your business for the better.

Are you designing in 2D rather than 3D? What about 4D, which adds a time element to the design process? Have you looked at the benefits of technology like building information modelling (BIM) can deliver by instantly sharing measurement, quantities, designs and changes between builders, architects and suppliers?

New construction technology can be just as much about how things are built as it is about what gets built.

Technology can also help address issues such as skills shortages. By adopting innovative methods you can automate processes, which can help minimise waste and increase productivity.

Never waste a good crisis

Often a downturn in the market provides an opportunity for a fresh perspective. Strip out the waste and polish the process. Plan for a better future by having the skills and technologies available for when the market improves again.

"While advances in technology like BIM and modular construction can help, efficiency improvements of the scale required will only be achieved if the industry evolves - and develops leaner, more collaborative ways of working across the supply chain."

Steve McGuckin
Global Managing Director, Real Estate

Learning from other sectors: thinking differently at Anglian Water

"At Anglian Water we constantly focus on affordability. By taking a new approach over our last decade we have successfully driven a 30 percent improvement in cost performance. We achieved this by adopting an intelligent alliancing model and collaborating with the supply chain, while never losing sight of cost performance and the potential of data and technology."

Jason Tucker
Head of Integrated Supply Chain, Anglian Water

Global economic overview

The global economy has suffered a turbulent year defined by the ripple effect of China's slowdown and the bursting of the oil price bubble amid a general decline in commodity prices. Monetary policies, politics and currency rates have also impacted on global economic growth in both overstretched and over-reliant markets.

Global picture

3.1%
global growth in 2015

3.4%
projected global growth for 2016

3.6%
projected global growth for 2017

The IMF's latest forecasts show the global rate of economic growth is expected to increase. Current forecasts are however 0.1-0.2 percent lower than previous forecasts as several emerging issues are set to challenge growth trends.

The once predominantly manufacturing-led Chinese economy is becoming increasingly based on services and domestic consumption. This is causing the slowdown in national economic growth that has been widely considered inevitable for some time. Annual growth rates of up to 15 percent reflect a time when the Chinese economy was a lot smaller than it is today and were far from sustainable over the long term. More modest growth is expected over the coming years.

Chinese exports are down and the flow of raw commodities into China is slowing – both issues to which economies with strong trade links to China will need to respond.

Changing China

6.9%
China growth in 2015

6.3%
projected China growth for 2016

6.0%
projected China growth for 2017

The dominant trend impacting confidence in worldwide economic growth is the global decline in commodity prices. Falling coal and oil prices have already begun to squeeze key exporting countries and regions such as Brazil, Australia and the Middle East. Falling coal demand is complicated by the trend towards alternative energy resources motivated by increased environmental awareness. While demand for oil has similarly dropped – with China playing a key role – falling prices have been exacerbated by a supply glut as the Organization of the Petroleum Exporting Countries (OPEC) attempts to drive the USA shale industry into unprofitability.

An effect of the resources downturn on the construction industry has been the fall in the prices of key building materials such as steel, which is lowering construction costs in many markets.

The ripple effect of China

Following a steady reduction in growth to 6.9 percent in 2015, the slowdown of the Chinese economy is having a significant ripple effect on its trading partners. This is particularly the case for resources economies such as Australia, Brazil, Canada, Chile and Russia, where lower commodity exports are slowing their economies, reducing investment levels and shrinking resources employment. These markets have been identified by the survey as having volatile construction costs.

For closely coupled Asian partners such as Hong Kong, Malaysia and Singapore, reduced trade levels with China are also having a knock-on effect on their construction industries. In our survey, Hong Kong and Kuala Lumpur saw their percentage increase of construction costs in the last 12 months fall by one percent, while Singapore stayed the same at 0 percent, compared with last year's survey.

Monetary policies

Looking beyond China and the commodities markets, monetary changes have been affecting global growth prospects. The USA is in the process of a gradual move towards a tighter monetary policy following a long period of highly accommodative quantitative easing. This is in contrast to several other major economies such as Japan and the EU, where attempts to stimulate further growth are seeing similar programmes maintained or even expanded.

Together, these governmental monetary policy developments have been tightening external monetary conditions, affecting inter-country financial flows and driving down the currencies of many emerging economies.

Modest growth

Against this background of reduced growth in China and falling commodity prices, the importance of the USA and European markets as drivers of the global economy has increased. More modest growth forecasts are therefore to be expected, with USA growth still at only two percent and many parts of Europe still struggling with the aftereffects of the global financial crisis.

This overall situation has stabilised the cost of manufactured goods. There have been only slight falls in China and Europe, and inflation in the cost of manufactured goods in the USA remains very low. The cost of imported machinery, plant and equipment will therefore remain benign for importers, except where prices are affected by currency depreciation in the importing country.

Another positive upshot of this modest growth is that, given relatively high levels of excess production capacity, few economies are suffering a substantial inflation problem. For most of the world's advanced economies, inflation is well below the levels at which central banks will consider interest rate adjustments.

Political upheaval

There are a number of political factors contributing to financial uncertainty in 2016. These include what is shaping up to be one of the most fractious presidential election seasons in recent history in the USA. Meanwhile, Britain is also poised for its own political uncertainty on whether it will remain part of the European Union. This decision will have considerable implications for the future of Britain, Europe and the wider global economy.

The impact of currency

Foreign exchange markets have been extremely volatile across 2015, with commodity markets the main drivers of rate fluctuations.

The falling demand and prices of commodities has unsurprisingly seen the currencies of heavily resources-focused markets such as Australia, Brazil and Russia, as well as the African economies, depreciate most sharply.

Major developing economies such as India and China have fallen only slightly against the US dollar, while developed economies such as Singapore, South Korea and Western Europe maintained the strength of their currencies due to several shared economic growth drivers. The currencies of Hong Kong and the Middle Eastern countries are pegged against the US dollar so experienced no volatility.

The strength of the US dollar itself continues, with the US Dollar Index relatively stable across 2015 following substantial growth in late 2014.

7%

AUD fell against the USD from 2015

29%

BRL fell against the USD from 2015

19%

RUB fell against the USD from 2015

Taking advantage

Construction costs in those markets most affected by currency depreciation are rising as the cost of importing raw materials has risen significantly; however, generally these markets represent good value opportunities for the global investment community.

Assets in Brazil will be 29 percent cheaper in US dollar terms in 2016 compared to 2015 just by virtue of the depreciation of the Brazilian real. Similar opportunities will be available in Malaysia, Russia and South Africa, countries whose currencies have fallen by 16 to 25 percent in the last year.

Overall construction costs in these locations will also have fallen by a similar amount on a US dollar basis, making them very competitive against global standards. However, investors and developers should take note of other considerations that affect the viability of a project when entering these locations.

The volatility of an over-reliant market

Over-reliant construction markets generally form part of economies that are heavily reliant on mineral and oil resources, including Perth, Santiago and São Paulo and parts of the Middle East. Recent falls in commodity prices have impacted these economies, lowering their exchange rates, reducing employment, and creating a downturn in their construction markets.

However, there are exceptions to the rule. Certain markets, for example Moscow, are classed as over-reliant but are still seeing major cost inflation. This is happening because there are underlying imbalances in the market, with the supply chain not right-sized to meet demand. There are also macro-economic factors such as sanctions, import prices and currency devaluation that are driving strong cost inflation. Due to the volatile nature of these markets, this may change very quickly.

Global cost performance analysis

Our survey has found that while average global construction prices are increasing, the rate of price inflation is generally slowing. The classic economic theory of demand and supply driving cost inflation also requires careful consideration. In over-reliant markets, wider macro-economic and political drivers will make costs volatile in the year ahead.

2.9%

construction cost price inflation recorded in this survey, 0.7% lower than last year

With similar results to our 2015 survey, this year sees most markets rated as lukewarm or warm, indicating moderate competition among contractors. See figure 1.

Defining market temperature

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

It should be noted that within cold markets, cost inflation may rise in the 12 months ahead. However, we expect that cost inflation will be at a lower rate as the volatility in these markets is higher due to their over-reliant state.

Many of these markets could also be described as two-speed, with significant construction resources tied up in the speculative development of apartments. Typically, any sector that has a high exposure to residential construction trades, such as plastering, tiling, painting and joinery, is hot with significant cost escalation. The result is that sectors like offices, warehouses, retail, health and manufacturing, are described as lukewarm or warm.

New York City and Seattle are the only markets worldwide to be considered overheating. Prices were up by four and five percent respectively in 2015, and in the case of Seattle are expected to rise eight percent in 2016. This is due to shortage of contractors and skills, little competition on bids and significant price hikes.

In a hot market, there are plenty of construction projects around with little competition on tenders, and construction prices are likely to be rising at a faster rate. Dublin, Kuala Lumpur, London, and San Francisco are rated hot, and these markets are expected to see costs rise by between three and six percent in 2016.

In our survey, Moscow and São Paulo are the only cold markets, which can be largely attributed to the economic contractions affecting Russia and Brazil. Both countries have been hit hard by the decline in oil prices, with Russia still suffering from the effects of western sanctions, and the valuation of Brazil's currency much reduced. São Paulo actually recorded among the highest cost increases in 2015, at seven percent. Both can expect to see prices rise in 2016, with cost increases of five and eight percent forecast respectively.

Among the markets rated as warm and lukewarm, cost increase expectations for the next year are greatly varied. While currently lukewarm, Kampala is forecast to see the highest rise of any market at almost ten percent in 2016. Similarly lukewarm-rated Muscat and UAE expect no increase at all on 2015 prices.

Beijing stands out as approaching the end of this construction cycle, which is evidenced by the biggest fall in construction costs over 2015 at ten percent. Costs are expected to remain steady through 2016.

Figure 1: Current construction market

Cold	Lukewarm	Warm	Hot	Overheating
Moscow	Beijing	Amsterdam	Dublin	New York City
São Paulo	Brisbane	Bangalore	Kuala Lumpur	Seattle
	Doha	Hong Kong	London	
	Houston	Istanbul	San Francisco	
	Johannesburg	Kigali		
	Kampala	Munich		
	Melbourne	Nairobi		
	Muscat	Paris		
	Northern Ireland	Scotland		
	Perth	Sydney		
	Santiago	UK central		
	Seoul	UK north		
	Singapore	UK south		
	Toronto	Warsaw		
	UAE	Zurich		

Figure 2: Predicted construction market in the next 12 months - rate of cost performance change

Cooling

Beijing
Hong Kong
Johannesburg
Kuala Lumpur
Muscat
Perth
Santiago
São Paulo
Singapore
UAE

Staying the same

Bangalore
Brisbane
Doha
Houston
Istanbul
Melbourne
Moscow
Munich
Nairobi
New York City
Paris
Scotland
Seattle
Seoul
Sydney
Toronto
UK south
Warsaw
Zurich

Warming

Amsterdam
Dublin
Kigali
Kampala
London
Northern Ireland
San Francisco
UK central
UK north

Figure 3: Percentage increase (in nominal terms) of construction costs in the last 12 months

Figure 4: Expected percentage increase (in nominal terms) of construction costs in the next 12 months

Over the long term, construction markets follow a boom and bust lifecycle. Tracking this cycle is key for real estate investors and developers who need to ensure they enter and exit markets at the right time.

Counting projects and analysing approval and commencement data allows us to map future activity and help clients make informed decisions about viability and likely cost escalation for their projects around the world.

Risers and fallers

This year's survey shows only nine markets are expected to grow warmer over 2016, while ten markets are estimated to cool (see figure 2). This compares to 17 markets that were predicted to warm up and eight forecast to cool down in our 2015 survey.

The markets expected to cool in 2016 are mostly those with a heavy dependence on the natural resources sector, such as Johannesburg, Muscat, Perth, São Paulo, Santiago or those with strong connections to China's economy, such as Hong Kong, Singapore and Kuala Lumpur.

The UK's central and north regions, as well as London and Northern Ireland are among those markets forecast to heat up. Similar drivers place Amsterdam, Dublin and San Francisco in this category, with warming led by developer-led construction booms and rising house prices.

In Kampala and Kigali, demand for residential and retail construction is growing and gradually their construction sectors are responding, often driven by overseas investors. For example, global retailers are keen to capitalise on growing middle-class consumer demand and see East Africa as a good opportunity. This has pushed these two markets firmly into warming.

Overall, our survey has found that construction costs have increased over the last 12 months (see figure 3). On average, they are set to rise slightly in the next 12 months, increasing to 3.4 percent from 2.9 percent for the year to January 2016 (see figure 4).

Construction cost data

For building costs in more depth, the data for each individual market is set out on pages 22 to 79. We have 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.

Our construction costs data comes from current programmes and reflects the prices at the beginning of 2016, with all costs excluding applicable taxes.

We compared the average build cost in USD of six different types of construction (see figure 5), which included:

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

Figure 5: Average cost of six building types in USD

Overstretched: taking the heat out of procurement in an overheating market

This year's survey has revealed New York City and Seattle are beginning to overheat. What tactical tools can property owners and developers use to mitigate the risk of cost escalation in such markets?

As demand outpaces supply and pushes prices to record highs, overheating markets suffer a range of dangerous cost escalation problems, from labour shortages to rocketing costs of commoditised building materials and contractor cost mark-ups. But many market players seeking to build in this hot landscape often remain far too cool about the risks.

The threat of cost escalation is very real indeed, but fortunately so are some tried and tested practical procurement tactics to avoid overspending or reduce the risk it poses.

Good governance

Reduce uncertainty by addressing how best to control and manage project costs well in advance, keeping control of the project schedule and maximising stakeholder engagement.

Direct manufacturer engagement

Reduce handling charges and simplify the coordination of purchase by going straight to the source manufacturer rather than through an intermediary.

Contingency control

Establish watertight rules around contingency drawdown that stop contractors ignoring cost overruns.

Exclusive relationship-building

While long-term associations with contractors can be beneficial, don't get complacent – make sure good value is achieved from longstanding relationships. Outside perspectives can help with this.

Site logistics controls

Centralising how site logistics are developed, bought and managed can provide real cost efficiencies compared to buying them in separately through individual trade contractors.

Smart timing

Well-planned procurement and a keen understanding of the market will help in taking advantage of fluctuations in the prices of essential commodities rather than having them dictate the costs.

Figure 6: Competition across the majority of markets is keeping tenders competitive

Cold

Moscow
São Paulo

Lukewarm

Beijing
Brisbane
Doha
Houston
Johannesburg
Kampala
Melbourne
Muscat
Northern Ireland
Perth
Santiago
Seoul
Singapore
Toronto
UAE

Warm

Amsterdam
Bangalore
Hong Kong
Istanbul
Kigali
Munich
Nairobi
Paris
Scotland
Sydney
UK central
UK north
UK south
Warsaw
Zurich

Hot

Dublin
Kuala Lumpur
London
San Francisco

Overheating

New York City
Seattle

Tender price outlook

Typically global expectations for tender price increases have eased down from an average of 4.3 percent in 2015 to only 3.4 percent in 2016. More than half of the markets surveyed expect tender prices to rise by less than three percent, while in three locations – Beijing, Muscat and the UAE – tender prices are expected to remain flat over the year.

Last year's survey recorded 13 markets in which tender prices were expected to rise by above five percent; in this year's survey that number has fallen to only seven markets. Also falling this year is the spread of tender price expectations, with this year's survey recording only a ten percent difference between the maximum and minimum expectations compared to 14 percent in 2015.

Locations that buck the general trend by expecting strong growth in tender prices include those with a booming construction market (mainly in residential construction) and those with high inflationary pressures driven by a range of factors, including weakening currencies. Examples include Hong Kong, Johannesburg, Kampala, London, Moscow and New York City.

Preliminaries

Preliminaries – or general conditions – refer to the set-up costs for a project: site offices, approvals, scaffolding, shop drawings, site security, construction plant, power and consumables.

Often a market will have higher preliminaries due to requirements for higher safety standards and levels of supervision. Space restrictions, for example in congested central business district locations, are another factor that will add to preliminaries.

The way subcontractor packages are procured is another factor that influences the cost of preliminaries, with more preliminary costs included in subcontractor packages in some markets.

Doha, London and São Paulo have the highest preliminaries, with levels reaching up to 15 percent. See figure 7.

High-cost locations such as Melbourne, Singapore and Toronto emerge on the low side, with preliminary costs between eight and ten percent, while Beijing boasts the world's lowest preliminaries costs at just five percent.

Figure 7: Typical preliminaries (same job) for an office building (5,000m² gross floor area) as a percentage of total costs

Figure 8: Typical contractors margin on medium commercial job (5,000m² ground floor area)

Margins

Squeezed margins are a growing problem in the global construction industry, especially where there is a high level of competition between consultants, contractors and developers. However, with ongoing trade labour shortages, costs keep increasing and this has seen margins fall to very low levels.

Average global construction project margins fell from an already low 6.3 percent in 2015 to 6.1 percent in 2016, and in nearly half of the regions surveyed margins were between five and six percent. See figure 8.

Seoul and Northern Ireland continue to suffer the lowest margins in the world, with three and 3.5 percent respectively.

Margins remain stronger in regions with lower levels of project risk and less competition, but even in these areas margins still remain lower than in previous years. Some of the markets that continue to enjoy high margins include Doha, Johannesburg, Kuala Lumpur and São Paulo, all markets in which margin rates are at ten percent or higher.

Wages

Labour costs include basic hourly wages, allowances, taxes, annual leave costs, and, where paid by the employer, workers' compensation and health insurance, pensions and travel costs and fares. They exclude overheads, margins, overtime and bonuses.

In figure 9, Zurich's average construction labour costs lead the world, with wages reported at a slightly higher level than New York City and well ahead of two of the other USA regions, San Francisco and Seattle, which place third and fourth. The four Australian cities in our survey, Brisbane, Melbourne, Perth and Sydney are next highest, followed by Houston and then London. A high degree of regional variation persists in the USA and the UK, with labour in second-tier cities often much cheaper than in major cities.

In New York City, continuing higher wages are explained by the scale and type of labour required for construction projects. The city is experiencing high work levels, creating strong demand for construction labour, which in itself is a powerful driver of wage increases. This combined with the high proportion of union labour employed in New York City – to which greater levels of benefits are paid – has contributed to the persistence of a high wage economy in the construction sector.

The results of the wages section of this year's survey clearly demonstrate the trend that sees the Australian, North American and Western European markets lead the world in terms of high labour costs. Developing African and Asian markets boast the lowest wage levels internationally, while markets in the Middle East and South America typically lie somewhere between those two extremes.

However, these labour costs do not take into account the varying degrees of labour productivity found in different regions. After accounting for the worldwide productivity variances, labour cost discrepancies become finer.

Countries with higher input costs are introducing various methods to increase productivity including BIM and other technology, as well as techniques such as modularisation. Further developments in this direction will continue to reduce the unit cost of construction and counter inflation pressures in such markets.

Labour skills shortages

Skills shortages are common in many of the markets surveyed. For the majority of cases, trades are difficult to get for specific projects in a reasonable time period, which causes cost increases and delays. Only four cases – Beijing, São Paulo, Perth and Santiago – had surplus labour due to those markets entering a downturn. The majority of markets reported that skills were in balance, indicating that obtaining the trade skills needed was unlikely to adversely affect project costs or schedules. Even in lukewarm markets, trade skills shortages was still an issue, often indicating a perpetual problem of too few subcontractors in the market. See figure 10.

Figure 9: The cost of labour

- Very high cost
  51+ USD per hour
- High cost
  36-50 USD per hour
- Mid cost
  11-35 USD per hour
- Low cost
  0-10 USD per hour

Figure 10: Availability of labour

Surplus

Beijing
Perth
Santiago
São Paulo

In balance

Amsterdam
Doha
Istanbul
Kampala
Kuala Lumpur
Moscow
Munich
Muscat
Nairobi
Paris
Sydney
Toronto
Warsaw
UAE

Skills shortages

Bangalore
Brisbane
Dublin
Hong Kong
Houston
Johannesburg
Kigali
London
Melbourne
New York City
Northern Ireland
San Francisco
Scotland
Seattle
Seoul
Singapore
UK central
UK north
UK south
Zurich

Australia

Tides turn from resources to services industries

Economic overview

The economy is adjusting to the wind down of the resources boom as services industries pick up the slack, but the effect is quite mixed from state to state. Brisbane, Perth and Adelaide have been most affected by falling resources investment. However, with high commodity prices no longer propping up the exchange rate, the tourism, education and non-mining exports sectors are becoming more competitive. This is encouraging more activity in traditional services centres such as Sydney and Melbourne where real estate, property services and financial services are doing well.

Construction market and trends

Sydney and Melbourne have extensive road and rail infrastructure construction programmes underway, while Brisbane, Perth and Adelaide are further behind.

Residential apartment construction driven by investors and low interest rates have been booming in Brisbane, Melbourne and Sydney, with oversupply a growing concern as the peak of the cycle approaches. The commercial sector is relatively quiet in Brisbane, Perth and Adelaide, but Sydney and Melbourne are much more positive as activity migrates back from the resources states on the back of services.

Future outlook

Infrastructure programmes should help cushion the impact as the highly cyclical residential construction upswings run out of steam, with delays in Brisbane, Perth and Adelaide potentially leading to a slowdown there. However, tourism driven by the lower Australian dollar, will help the Gold Coast and northern Queensland, where construction of several exciting resort complexes are underway.

International building costs per m² of internal area, in 2016	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.38)
Airports (building only)					
Domestic terminal, full service	5,150	5,000	4,950	5,200	3,770
Low-cost carrier terminal, basic service	4,010	3,900	3,920	4,150	3,010
Car parks					
Multi-storey above ground	860	850	830	900	650
Multi-storey below ground	1,575	1,650	1,750	1,700	1,230
Commercial					
Offices – Business Park	1,545	1,620	1,620	1,800	1,300
CBD Offices – up to 20 floors medium (A-Grade)	3,150	3,000	3,130	3,300	2,390
CBD Offices – high-rise prestige	3,750	4,000	4,550	5,500	3,990
Education					
Primary and secondary	1,650	2,000	1,821	2,400	1,740
University	3,350	3,300	3,170	3,200	2,320
Hospitals					
Day centre (including basic surgeries)	3,100	3,000	2,990	3,100	2,250
Regional hospital	3,550	3,750	3,540	3,800	2,750
General hospital (e.g. city teaching hospital)	5,550	5,900	5,860	5,800	4,200
Hotels					
3 Star travellers	2,450	2,350	2,370	2,800	2,030
5 Star luxury	4,150	4,200	4,240	5,500	3,990
Resort style	3,700	3,600	3,640	3,800	2,750
Industrial					
Warehouse/factory units – basic	820	750	780	800	580
Large warehouse distribution centre	1,050	1,000	960	1,000	720
High-tech factory/laboratory	3,350	3,700	4,040	3,800	2,750
Residential					
Individual detached or terrace style house – medium standard	1,685	1,650	1,670	2,000	1,450
Individual detached house – prestige	3,060	2,750	3,030	3,500	2,540
Townhouses – medium standard	1,735	1,800	1,870	2,000	1,450
Apartments low-rise – medium standard	1,840	1,980	1,920	2,200	1,590
Apartments high-rise	2,650	2,750	2,930	2,850	2,070
Aged care/affordable units	2,520	2,400	2,630	2,650	1,920

International building costs, in 2016	Brisbane AUD	Melbourne AUD	Perth AUD	Sydney AUD	Sydney USD (exchange rate: 1.38)
Retail					
Large shopping centre including mall	2,550	2,300	2,260	2,700	1,960
Neighbourhood incl supermarket	1,750	1,850	1,820	2,100	1,520
Prestige car showroom	2,750	2,500	2,530	2,700	1,960
Composite trade rates					
Excavate basement (m^3) (1800m^3 job)	25	23	12	25	18
Excavate footings (m)	40	37	40	55	40
Concrete in slab (m^3) (1500m^3 job)	300	310	320	320	232
Reinforcement in beams (tonne)	2,200	2,150	2,120	2,500	1,812
Formwork to soffit of slab (m^2)	135	125	130	120	87
Blockwork in wall (m^2) (10,000 block job)	140	140	140	140	101
Structural steel beams (tonne)	5,100	5,500	4,950	4,800	3,478
Pre-cast concrete wall (m^2)	420	398	430	300	217
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,250	1,350	1,210	1,300	942
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	35	37	35	35	25
Single solid core door incl frame and hardware (no) (50 door job)	800	800	780	800	580
Painting to walls primer + 2 coats (m^2)	15	15	15	20	14
Ceramic tiling (m^2) (1000m^2 job)	120	110	120	110	80
Vinyl flooring to wet areas (m^2) (500m^2 job)	70	70	53	58	42
Carpet medium tufted (m^2) (4500m^2 job)	75	60	51	65	47
Lighting installation (m^2) (5000m^2+ job)	85	85	90	84	61
Copper pipe 15mm to wall (m) (1000+ metre job)	61	64	61	53	38
Fire sprinklers (per m^2) (5000m^2 job)	46	48	45	50	36
Air conditioning incl main plant (m^2) (5000m^2+ job)	250	275	450	312	226
Labour costs					
Group 1 Tradesman e.g. plumber, electrician	80	88	102	80	58
Group 2 Tradesman e.g. carpenter, bricklayer	75	78	85	75	54
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	70	78	75	70	51
General labourer	55	55	55	55	40
Site foreman	85	95	110	80	58
Material costs					
Concrete 30 MPa (m^3) (1500m^3 job)	160	165	180	200	145
Reinforcement bar 16mm (tonne) (120 tonne job)	1,150	1,350	1,210	1,319	956
Concrete block (400x200) per 1000 (>10,000 block job)	3,410	3,500	3,450	3,400	2,464
Standard brick per 1000	510	570	760	785	569
Structural steel beams (tonne) (100 tonne+ job)	2,050	2,000	2,020	2,430	1,761
Glass pane 10mm tempered (m^2)	260	280	250	250	181
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 (metre) (1000+ metre job)	12	15	12	12	9
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	4	5	4	3	2
Plant					
Hire 50t mobile crane + operator (day)	2,100	2,200	2,120	2,200	1,594

	Brisbane	Melbourne	Perth	Sydney
Market:	lukewarm	lukewarm	lukewarm	warm
Tendering:	staying the same	staying the same	cooler	staying the same
Cost escalation 2015–16:	4.0%	1.0%	1.0%	3.5%
Cost escalation 2016–17:	4.0%	1.0%	1.5%	3.0%
Contractor's margin:	4.0%	4.0%	4.5%	4.5%
Preliminaries:	12.0%	10.0%	13.5%	12.0%
Location factor (USD):	82	86	84	84
PPP coefficient:	1.84	1.98	1.96	1.91

Brazil – São Paulo

Construction weighed down by recession, but pockets of investment give a brighter outlook

Economic overview

Brazil's economy remains mired in a deep recession following the fall in global commodity prices and political mismanagement. In 2015, GDP fell 3.6 percent and interest rates and inflation increased to 14.25 percent and ten percent respectively, while the Brazilian real has depreciated by 40 percent over the year.

Construction market and trends

The Brazilian construction industry as a whole is contracting as declining confidence and corruption scandals lead to a fall in investment, with the major infrastructure projects particularly affected. However, bright spots include the continued spending in the pharmaceutical and healthcare sectors, an expansion in investor acquisitions in the real estate and consumer goods sectors, and considerable interest in renewable energy investment.

Future outlook

Political uncertainty, tighter monetary policy, persistently low commodity prices and a lack of investor confidence are likely to prolong Brazil's economic weakness, with an upturn not expected until 2017 or 2018. The central bank forecasts a further GDP contraction of 1.9 percent in 2017, although the IMF prediction is almost double at 3.5 percent. However, the ongoing weakness of the Brazilian real has significantly improved Brazil's competitiveness in global markets for manufacturing and made the country a more attractive investment destination.

International building costs per m² of internal area, in 2016	BRL	USD (exchange rate: 4.04)
Airports (building only)		
Domestic terminal, full service	6,700	1,660
Low-cost carrier terminal, basic service	4,700	1,160
Car parks		
Multi-storey above ground	1,800	450
Multi-storey below ground	1,900	470
Commercial		
Offices – Business Park	2,800	690
CBD Offices – up to 20 floors medium (A-Grade)	2,800	690
CBD Offices – high-rise prestige	6,000	1,490
Education		
Primary and secondary	2,800	690
University	3,920	970
Hospitals		
Day centre (including basic surgeries)	3,500	870
Regional hospital	6,800	1,680
General hospital (e.g. city teaching hospital)	7,500	1,860
Hotels		
3 Star travellers	3,400	840
5 Star luxury	5,800	1,440
Resort style	5,500	1,360
Industrial		
Warehouse/factory units – basic	2,050	510
Large warehouse distribution centre	2,100	520
High-tech factory/laboratory	5,250	1,300
Residential		
Individual detached or terrace style house – medium standard	1,950	480
Individual detached house – prestige	3,500	870
Townhouses – medium standard	1,950	480
Apartments low-rise – medium standard	2,100	520
Apartments high-rise	2,600	640
Aged care/affordable units	2,340	580

International building costs, in 2016	BRL	USD (exchange rate: 4.04)
Retail		
Large shopping centre including mall	2,500	620
Neighbourhood incl supermarket	3,500	870
Prestige car showroom	4,100	1,010
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	35	9
Excavate footings (m)	25	6
Concrete in slab (m^3) (1500m^3 job)	315	78
Reinforcement in beams (tonne)	5,200	1,287
Formwork to soffit of slab (m^2)	86	21
Blockwork in wall (m^2) (10,000 block job)	80	20
Structural steel beams (tonne)	6,500	1,609
Pre-cast concrete wall (m^2)	270	67
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,300	322
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	85	21
Single solid core door incl frame and hardware (no) (50 door job)	1,500	371
Painting to walls primer + 2 coats (m^2)	33	8
Ceramic tiling (m^2) (1000m^2 job)	165	41
Vinyl flooring to wet areas (m^2) (500m^2 job)	160	40
Carpet medium tufted (m^2) (4500m^2 job)	200	50
Lighting installation (m^2) (5000m^2+ job)	230	57
Copper pipe 15mm to wall (m) (1000+ metre job)	140	35
Fire sprinklers (per m^2) (5000m^2 job)	100	25
Air conditioning incl main plant (m^2) (5000m^2+ job)	300	74
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	42	10
Group 2 Tradesman e.g. carpenter, bricklayer	37	9
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	36	9
General labourer	30	8
Site foreman	98	24
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	370	92
Reinforcement bar 16mm (tonne) (120 tonne job)	4,490	1,111
Concrete block (400x200) per 1000 (>10,000 block job)	2,460	609
Standard brick per 1000	1,300	322
Structural steel beams (tonne) (100 tonne+ job)	4,730	1,171
Glass pane 10mm tempered (m^2)	288	71
Softwood timber for framing 100mm x 50mm (m)	9	2
13mm plasterboard (m^2)	17	4
Emulsion paint (litre)	15	4
Copper pipe 15mm (metre) (1000+ metre job)	24	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	0.5
Plant		
Hire 50t mobile crane + operator (day)	1,462	362

Market:	**cold**
Tendering:	cooler
Cost escalation 2015–16:	7.5%
Cost escalation 2016–17:	5.0%
Contractor's margin:	10.0%
Preliminaries:	15.0%
Location factor (USD):	41
PPP coefficient:	2.26

Canada – Toronto

While resources construction drops, residential projects keep market stable

Economic overview

Like many other resource-based markets, Canada suffered from the fall in commodity prices in 2015. Financial volatility appears to be easing and country-wide employment has held up, while steady inflation and a strong tourism sector, aided by the lower Canadian dollar, is lending some stability to the economy.

The Bank of Canada has decided to maintain interest rates at 0.5 percent as it awaits billions of dollars' worth of stimulus measures in the upcoming federal budget. Weak consumer and business confidence and high levels of household debt remain key issues.

Construction market and trends

Canada has suffered a sharp decline in resources construction, which is unlikely to rebound quickly. For the residential market, affordability is increasingly a problem in many areas, but housing starts rose by 28.2 percent in February to offset two months of declines. The growth in urban apartment construction was the main driver behind this trend, particularly in Vancouver and Toronto.

Future outlook

Commercial construction is expected to continue growing strongly in 2016 before slowing in 2017 and then returning to growth in line with long-term trend averages. Infrastructure construction is set to maintain its current growth trajectory, boosted by the new government's promise to pump in an additional CAD60bn over the next decade.

International building costs per m² of internal area, in 2016	CAD	USD (exchange rate: 1.39)
Airports (building only)		
Domestic terminal, full service	6,050	4,350
Low-cost carrier terminal, basic service	4,300	3,090
Car parks		
Multi-storey above ground	850	610
Multi-storey below ground	1,175	850
Commercial		
Offices – Business Park	1,885	1,360
CBD Offices – up to 20 floors medium (A-Grade)	2,445	1,760
CBD Offices – high-rise prestige	3,350	2,410
Education		
Primary and secondary	2,000	1,440
University	4,150	2,990
Hospitals		
Day centre (including basic surgeries)	3,900	2,810
Regional hospital	6,100	4,390
General hospital (e.g. city teaching hospital)	7,200	5,180
Hotels		
3 Star travellers	1,500	1,080
5 Star luxury	3,700	2,660
Resort style	2,900	2,090
Industrial		
Warehouse/factory units – basic	950	680
Large warehouse distribution centre	1,050	760
High-tech factory/laboratory	2,200	1,580
Residential		
Individual detached or terrace style house – medium standard	3,000	2,160
Individual detached house – prestige	4,000	2,880
Townhouses – medium standard	1,500	1,080
Apartments low-rise – medium standard	2,000	1,440
Apartments high-rise	1,800	1,290
Aged care/affordable units	2,100	1,510

International building costs, in 2016	CAD	USD (exchange rate: 1.39)
Retail		
Large shopping centre including mall	2,600	1,870
Neighbourhood incl supermarket	2,300	1,650
Prestige car showroom	2,700	1,940
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	16	12
Excavate footings (m)	25	18
Concrete in slab (m^3) (1500m^3 job)	200	144
Reinforcement in beams (tonne)	2,025	1,457
Formwork to soffit of slab (m^2)	130	94
Blockwork in wall (m^2) (10,000 block job)	112	81
Structural steel beams (tonne)	3,500	2,518
Pre-cast concrete wall (m^2)	180	129
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,100	791
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	47	34
Single solid core door incl frame and hardware (no) (50 door job)	1,150	827
Painting to walls primer + 2 coats (m^2)	11	8
Ceramic tiling (m^2) (1000m^2 job)	92	66
Vinyl flooring to wet areas (m^2) (500m^2 job)	60	43
Carpet medium tufted (m^2) (4500m^2 job)	60	43
Lighting installation (m^2) (5000m^2+ job)	78	56
Copper pipe 15mm to wall (m) (1000+ metre job)	70	50
Fire sprinklers (per m^2) (5000m^2 job)	38	27
Air conditioning incl main plant (m^2) (5000m^2+ job)	225	162
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	67	48
Group 2 Tradesman e.g. carpenter, bricklayer	59	42
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	55	40
General labourer	51	37
Site foreman	80	57
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	180	129
Reinforcement bar 16mm (tonne) (120 tonne job)	1,500	1,079
Concrete block (400x200) per 1000 (>10,000 block job)	1,550	1,115
Standard brick per 1000	980	705
Structural steel beams (tonne) (100 tonne+ job)	2,400	1,727
Glass pane 10mm tempered (m^2)	325	234
Softwood timber for framing 100mm x 50mm (m)	6	4
13mm plasterboard (m^2)	11	8
Emulsion paint (litre)	11	8
Copper pipe 15mm (metre) (1000+ metre job)	11	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	8	5.9
Plant		
Hire 50t mobile crane + operator (day)	1,880	1,353

Market:	**lukewarm**
Tendering:	staying the same
Cost escalation 2015–16:	2.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	6.0%
Preliminaries:	10.0%
Location factor (USD):	84
PPP coefficient:	1.91

Chile – Santiago

Commodity prices dampen investment prospects

Economic overview

The Chilean economy expanded at a subdued pace of 2.1 percent last year after a sharp drop in the price of copper – the country's top export commodity and a key source of state revenues. This caused export earnings to plunge, the fiscal gap to widen and the currency to depreciate significantly. The impact was worsened by economic woes suffered by key trading partners such as Brazil.

Construction market and trends

Growth in the construction sector is stagnant in 2016 and investment has reached a six-year low. Lower commodity revenues are hampering investment in the non-residential construction sectors such as offices and warehouses.

Future outlook

Confidence is still low in the construction industry outlook for 2016, with a VAT increase and tough new limits on housing credit making it harder for residential construction projects to proceed. Potential expenditure in private infrastructure construction has been estimated at USD7.8 billion for 2016. Much of this figure is yet to be committed and is mainly focused on the power and mining sectors, so some downward adjustments are likely.

Economic growth in the years ahead will likely stay well below the rapid expansion experienced during the recent years of the commodities boom. However, Chile's plentiful commodities and well-trained competitive labour will keep the country on a reasonable growth track.

International building costs per m² of internal area, in 2016	CLP	USD (exchange rate: 717)
Airports (building only)		
Domestic terminal, full service	1,493,800	2,080
Low-cost carrier terminal, basic service	1,201,900	1,680
Car parks		
Multi-storey above ground	383,600	540
Multi-storey below ground	613,800	860
Commercial		
Offices – Business Park	750,000	1,050
CBD Offices – up to 20 floors medium (A-Grade)	1,100,000	1,530
CBD Offices – high-rise prestige	1,560,000	2,180
Education		
Primary and secondary	879,100	1,230
University	1,301,200	1,810
Hospitals		
Day centre (including basic surgeries)	890,000	1,240
Regional hospital	1,086,300	1,520
General hospital (e.g. city teaching hospital)	1,756,650	2,450
Hotels		
3 Star travellers	867,600	1,210
5 Star luxury	2,186,850	3,050
Resort style	1,935,900	2,700
Industrial		
Warehouse/factory units – basic	364,750	510
Large warehouse distribution centre	482,400	670
High-tech factory/laboratory	2,509,500	3,500
Residential		
Individual detached or terrace style house – medium standard	655,000	910
Individual detached house – prestige	780,000	1,090
Townhouses – medium standard	598,000	830
Apartments low-rise – medium standard	412,000	570
Apartments high-rise	615,000	860
Aged care/affordable units	476,805	670

International building costs, in 2016	CLP	USD (exchange rate: 717)
Retail		
Large shopping centre including mall	1,106,000	1,540
Neighbourhood incl supermarket	762,300	1,060
Prestige car showroom	1,229,300	1,710
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	7,170	10
Excavate footings (m)	12,800	18
Concrete in slab (m^3) (1500m^3 job)	96,795	135
Reinforcement in beams (tonne)	806,625	1,125
Formwork to soffit of slab (m^2)	35,000	49
Blockwork in wall (m^2) (10,000 block job)	32,000	45
Structural steel beams (tonne)	1,548,720	2,160
Pre-cast concrete wall (m^2)	87,500	122
Curtain wall glazing incl support system (m^2) (1000m^2 job)	200,000	279
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	23,500	33
Single solid core door incl frame and hardware (no) (50 door job)	615,000	858
Painting to walls primer + 2 coats (m^2)	6,750	9
Ceramic tiling (m^2) (1000m^2 job)	43,020	60
Vinyl flooring to wet areas (m^2) (500m^2 job)	19,200	27
Carpet medium tufted (m^2) (4500m^2 job)	28,680	40
Lighting installation (m^2) (5000m^2+ job)	45,760	64
Copper pipe 15mm to wall (m) (1000+ metre job)	17,925	25
Fire sprinklers (per m^2) (5000m^2 job)	21,510	30
Air conditioning incl main plant (m^2) (5000m^2+ job)	74,000	103
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	5,680	8
Group 2 Tradesman e.g. carpenter, bricklayer	5,019	7
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	4,302	6
General labourer	3,585	5
Site foreman	8,850	12
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	95,800	134
Reinforcement bar 16mm (tonne) (120 tonne job)	682,584	952
Concrete block (400x200) per 1000 (>10,000 block job)	1,045,000	1,457
Standard brick per 1000	142,500	199
Structural steel beams (tonne) (100 tonne+ job)	860,400	1,200
Glass pane 10mm tempered (m^2)	60,500	84
Softwood timber for framing 100mm x 50mm (m)	1,800	3
13mm plasterboard (m^2)	4,830	7
Emulsion paint (litre)	3,050	4
Copper pipe 15mm (metre) (1000+ metre job)	2,580	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2,050	2.9
Plant		
Hire 50t mobile crane + operator (day)	690,000	962

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	6.0%
Cost escalation 2016–17:	6.0%
Contractor's margin:	7.0%
Preliminaries:	12.0%
Location factor (USD):	42
PPP coefficient:	476.39

China – Beijing

Growth slows as transition to a consumer-led economy hits construction hard

Economic overview

China is experiencing some difficulty managing the transition from an investment-led economy to one driven by consumption, with growth falling to 6.8 percent in 2015, although domestic consumption does now account for 66 percent of growth.

Construction market and trends

The commercial and office construction market remains positive in Beijing, but the residential market has been experiencing some weakness. Across the country construction markets are cooling, with residential and retail markets currently oversupplied outside of the larger cities. Construction costs are decreasing as contractors have to reduce margins, and demand weakens. At the same time massive decreases in the prices of steel copper and nickel are helping to lower the cost of building materials.

Future outlook

Overall, economic growth is forecast to fall to 6.5 percent for 2016. Construction of housing and infrastructure will continue to be a major part of the economy but at a lower rate of growth than seen in recent years. A key Beijing project is the Winter Olympic Games in 2022. This will entail considerable investment, with a new high speed rail line planned to connect the venue with the city.

International building costs per m² of internal area, in 2016	RMB	USD (exchange rate: 6.52)
Airports (building only)		
Domestic terminal, full service	10,000	1,530
Low-cost carrier terminal, basic service	8,000	1,230
Car parks		
Multi-storey above ground	2,000	310
Multi-storey below ground	4,500	690
Commercial		
Offices – Business Park	4,200	640
CBD Offices – up to 20 floors medium (A-Grade)	6,500	1,000
CBD Offices – high-rise prestige	8,000	1,230
Education		
Primary and secondary	3,700	570
University	5,500	840
Hospitals		
Day centre (including basic surgeries)	4,500	690
Regional hospital	5,400	830
General hospital (e.g. city teaching hospital)	6,000	920
Hotels		
3 Star travellers	5,800	890
5 Star luxury	13,000	1,990
Resort style	9,000	1,380
Industrial		
Warehouse/factory units – basic	2,300	350
Large warehouse distribution centre	2,600	400
High-tech factory/laboratory	5,800	890
Residential		
Individual detached or terrace style house – medium standard	4,000	610
Individual detached house – prestige	4,500	690
Townhouses – medium standard	3,800	580
Apartments low-rise – medium standard	2,800	430
Apartments high-rise	3,800	580
Aged care/affordable units	2,500	380

International building costs, in 2016	RMB	USD (exchange rate: 6.52)
Retail		
Large shopping centre including mall	5,700	870
Neighbourhood incl supermarket	3,600	550
Prestige car showroom	4,000	610
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	34	5
Excavate footings (m)	54	8
Concrete in slab (m^3) (1500m^3 job)	500	77
Reinforcement in beams (tonne)	4,400	675
Formwork to soffit of slab (m^2)	90	14
Blockwork in wall (m^2) (10,000 block job)	180	28
Structural steel beams (tonne)	6,500	997
Pre-cast concrete wall (m^2)	210	32
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,300	199
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	220	34
Single solid core door incl frame and hardware (no) (50 door job)	2,700	414
Painting to walls primer + 2 coats (m^2)	48	7
Ceramic tiling (m^2) (1000m^2 job)	210	32
Vinyl flooring to wet areas (m^2) (500m^2 job)	385	59
Carpet medium tufted (m^2) (4500m^2 job)	390	60
Lighting installation (m^2) (5000m^2+ job)	320	49
Copper pipe 15mm to wall (m) (1000+ metre job)	60	9
Fire sprinklers (per m^2) (5000m^2 job)	200	31
Air conditioning incl main plant (m^2) (5000m^2+ job)	510	78
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	33	5
Group 2 Tradesman e.g. carpenter, bricklayer	33	5
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	30	5
General labourer	20	3
Site foreman	40	6
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	390	60
Reinforcement bar 16mm (tonne) (120 tonne job)	2,700	414
Concrete block (400x200) per 1000 (>10,000 block job)	4,100	629
Standard brick per 1000	580	89
Structural steel beams (tonne) (100 tonne+ job)	2,850	437
Glass pane 10mm tempered (m^2)	500	77
Softwood timber for framing 100mm x 50mm (m)	30	5
13mm plasterboard (m^2)	25	4
Emulsion paint (litre)	60	9
Copper pipe 15mm (metre) (1000+ metre job)	35	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	8	1.2
Plant		
Hire 50t mobile crane + operator (day)	2,300	353

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	-10.0%
Cost escalation 2016–17:	0.0%
Contractor's margin:	4.0%
Preliminaries:	5.0%
Location factor (USD):	28
PPP coefficient:	3.00

France – Paris

Construction is strengthening - but contractors fight for work

Economic overview

French GDP is slowly recovering towards pre-recession levels but the country is still experiencing high unemployment of around ten percent while wages are stagnating and prices are decreasing mildly. Nationally, housing market prices have been falling, which has affected investment confidence.

Construction market and trends

Although the construction industry has strengthened, it is also fragmented between many small contractors and a few very large ones, and fierce competition is putting downwards pressure on profits. Obtaining finance can be challenging, and large contractors have been able to apply ruthless pressure on their subcontractors, so it will be welcome news that following several years of shrinking activity, construction output staged a recovery at the end of 2015.

Paris dominates, with higher prices and stronger construction growth. The Paris retail market is strong and well established, while capital values and rents on the city's residential market are among the highest in France having held up better than in the regions. Paris remains a highly attractive city for hotel operators, but high costs and finding sites remain a challenge.

Future outlook

The outlook is brighter in 2016 with construction growth, accommodative monetary policies and lower energy costs likely to play a significant role. The 'Grand Paris' project, which includes the development of business clusters around Paris and a new transport masterplan, is one of the key projects that will drive the city's real estate market in the years ahead.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.92)
Airports (building only)		
Domestic terminal, full service	3,650	3,970
Low-cost carrier terminal, basic service	2,400	2,610
Car parks		
Multi-storey above ground	570	620
Multi-storey below ground	1,152	1,250
Commercial		
Offices – Business Park	1,720	1,870
CBD Offices – up to 20 floors medium (A-Grade)	2,250	2,450
CBD Offices – high-rise prestige	2,800	3,040
Education		
Primary and secondary	1,600	1,740
University	2,050	2,230
Hospitals		
Day centre (including basic surgeries)	2,200	2,390
Regional hospital	2,750	2,990
General hospital (e.g. city teaching hospital)	3,100	3,370
Hotels		
3 Star travellers	1,950	2,120
5 Star luxury	3,500	3,800
Resort style	2,600	2,830
Industrial		
Warehouse/factory units – basic	720	780
Large warehouse distribution centre	890	970
High-tech factory/laboratory	1,800	1,960
Residential		
Individual detached or terrace style house – medium standard	1,250	1,360
Individual detached house – prestige	2,030	2,210
Townhouses – medium standard	1,250	1,360
Apartments low-rise – medium standard	1,550	1,680
Apartments high-rise	1,950	2,120
Aged care/affordable units	1,600	1,740

International building costs, in 2016	EUR	USD (exchange rate: 0.92)
Retail		
Large shopping centre including mall	2,300	2,500
Neighbourhood incl supermarket	1,900	2,070
Prestige car showroom	2,500	2,720
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	14	15
Excavate footings (m)	26	29
Concrete in slab (m^3) (1500m^3 job)	140	152
Reinforcement in beams (tonne)	1,700	1,848
Formwork to soffit of slab (m^2)	45	49
Blockwork in wall (m^2) (10,000 block job)	65	71
Structural steel beams (tonne)	3,200	3,478
Pre-cast concrete wall (m^2)	115	125
Curtain wall glazing incl support system (m^2) (1000m^2 job)	650	707
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	65	71
Single solid core door incl frame and hardware (no) (50 door job)	991	1,077
Painting to walls primer + 2 coats (m^2)	10	11
Ceramic tiling (m^2) (1000m^2 job)	65	71
Vinyl flooring to wet areas (m^2) (500m^2 job)	32	35
Carpet medium tufted (m^2) (4500m^2 job)	30	33
Lighting installation (m^2) (5000m^2+ job)	62	67
Copper pipe 15mm to wall (m) (1000+ metre job)	31	33
Fire sprinklers (per m^2) (5000m^2 job)	81	88
Air conditioning incl main plant (m^2) (5000m^2+ job)	105	114
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	46	50
Group 2 Tradesman e.g. carpenter, bricklayer	40	44
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	32	35
General labourer	25	27
Site foreman	40	44
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	102	111
Reinforcement bar 16mm (tonne) (120 tonne job)	890	967
Concrete block (400x200) per 1000 (>10,000 block job)	2,700	2,935
Standard brick per 1000	650	707
Structural steel beams (tonne) (100 tonne+ job)	1,690	1,837
Glass pane 10mm tempered (m^2)	140	152
Softwood timber for framing 100mm x 50mm (m)	3	3
13mm plasterboard (m^2)	4	4
Emulsion paint (litre)	6	7
Copper pipe 15mm (metre) (1000+ metre job)	7	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	3.3
Plant		
Hire 50t mobile crane + operator (day)	1,300	1,413

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	-1.2%
Cost escalation 2016–17:	0.5%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	73
PPP coefficient:	1.03

Germany – Munich

Robust economy paves the way for construction to thrive

Economic overview

Germany's preeminent position as an exporter of engineering and high-value manufactured goods is being assisted by the fall in the value of the euro, which makes prices more competitive in global markets. The same sectors are also benefitting from lower costs of steel and energy.

Construction market and trends

The construction labour market remains strong and demand for housing is increasing. However, moderate cost increases can be expected in the building sector, along with larger cost increases for imported materials from outside the eurozone.

The residential segment is the construction industry's strongest driver, particularly in the south and west of the country where housebuilding is strong. The office market is being hampered by a growing oversupply issue, and public construction levels remain constant from last year.

Future outlook

Despite the weakening of the global economy, it is expected that the German economy will remain robust. Several large infrastructure projects will be underway over the next decade, including the new Munich central station, second main line of Munich's Metrorail and the completion of a new terminal at Berlin airport.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.92)
Airports (building only)		
Domestic terminal, full service	3,245	3,530
Low-cost carrier terminal, basic service	2,309	2,510
Car parks		
Multi-storey above ground	631	690
Multi-storey below ground	794	860
Commercial		
Offices – Business Park	1,445	1,570
CBD Offices – up to 20 floors medium (A-Grade)	2,238	2,430
CBD Offices – high-rise prestige	2,645	2,880
Education		
Primary and secondary	1,607	1,750
University	1,811	1,970
Hospitals		
Day centre (including basic surgeries)	2,055	2,230
Regional hospital	2,869	3,120
General hospital (e.g. city teaching hospital)	3,154	3,430
Hotels		
3 Star travellers	1,658	1,800
5 Star luxury	3,388	3,680
Resort style	2,196	2,390
Industrial		
Warehouse/factory units – basic	651	710
Large warehouse distribution centre	783	850
High-tech factory/laboratory	1,831	1,990
Residential		
Individual detached or terrace style house – medium standard	1,170	1,270
Individual detached house – prestige	1,679	1,820
Townhouses – medium standard	1,170	1,270
Apartments low-rise – medium standard	1,272	1,380
Apartments high-rise	1,882	2,050
Aged care/affordable units	1,485	1,610

International building costs, in 2016	EUR	USD (exchange rate: 0.92)
Retail		
Large shopping centre including mall	2,136	2,320
Neighbourhood incl supermarket	1,933	2,100
Prestige car showroom	2,340	2,540
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	14	16
Excavate footings (m)	27	29
Concrete in slab (m^3) (1500m^3 job)	137	149
Reinforcement in beams (tonne)	1,396	1,518
Formwork to soffit of slab (m^2)	43	47
Blockwork in wall (m^2) (10,000 block job)	71	77
Structural steel beams (tonne)	3,764	4,091
Pre-cast concrete wall (m^2)	105	114
Curtain wall glazing incl support system (m^2) (1000m^2 job)	639	694
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	51	55
Single solid core door incl frame and hardware (no) (50 door job)	900	978
Painting to walls primer + 2 coats (m^2)	7	8
Ceramic tiling (m^2) (1000m^2 job)	55	59
Vinyl flooring to wet areas (m^2) (500m^2 job)	30	33
Carpet medium tufted (m^2) (4500m^2 job)	25	28
Lighting installation (m^2) (5000m^2+ job)	58	63
Copper pipe 15mm to wall (m) (1000+ metre job)	31	34
Fire sprinklers (per m^2) (5000m^2 job)	82	89
Air conditioning incl main plant (m^2) (5000m^2+ job)	94	102
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	47	51
Group 2 Tradesman e.g. carpenter, bricklayer	40	43
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	40	43
General labourer	29	32
Site foreman	43	46
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	112	122
Reinforcement bar 16mm (tonne) (120 tonne job)	857	931
Concrete block (400x200) per 1000 (>10,000 block job)	3,052	3,317
Standard brick per 1000	700	761
Structural steel beams (tonne) (100 tonne+ job)	1,873	2,036
Glass pane 10mm tempered (m^2)	104	113
Softwood timber for framing 100mm x 50mm (m)	3	3
13mm plasterboard (m^2)	4	4
Emulsion paint (litre)	5	6
Copper pipe 15mm (metre) (1000+ metre job)	8	9
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	4	4.5
Plant		
Hire 50t mobile crane + operator (day)	1,301	1,414

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	1.7%
Cost escalation 2016–17:	2.0%
Contractor's margin:	5.0%
Preliminaries:	11.0%
Location factor (USD):	68
PPP coefficient:	1.05

Hong Kong

Construction is strong, but skills shortages threaten pace and potential of projects

Economic overview

While clearly affected by the Chinese slowdown, Hong Kong is also well-placed to support China's new consumer-led economy. The city's trade flows and service exports are therefore looking very positive, while as a net importer of commodities the city is set to benefit from the ongoing commodity price slump.

Construction market and trends

Housing construction is strong and a number of large infrastructure projects are planned or about to start, with a big spending push on rail transportation projects. A significant shortage of skilled labour in Hong Kong has been a persistent problem. The country's residential sector is at a tipping point and a downturn appears ready to take hold in 2016 as supply constraints fade and interest rates rise.

Future outlook

The long-term outlook for Hong Kong's construction industry remains fairly positive despite the structural slowdown in mainland China, a more challenging business environment and a labour shortage.

Further investment in housing and transportation projects will be used to drive growth. However, priority given to major projects, such as the Hong Kong Airport expansion, the Hong Kong-Zhuhai-Macau Bridge, the Guangzhou-Shenzhen-Hong Kong Express Rail Link and the expansion of local rail lines, will further draw on skilled labour and increase shortages in the wider industry.

International building costs per m² of internal area, in 2016	HKD	USD (exchange rate: 7.75)
Airports (building only)		
Domestic terminal, full service	44,633	5,760
Low-cost carrier terminal, basic service	28,026	3,620
Car parks		
Multi-storey above ground	11,418	1,470
Multi-storey below ground	19,722	2,540
Commercial		
Offices – Business Park	19,722	2,540
CBD Offices – up to 20 floors medium (A-Grade)	23,874	3,080
CBD Offices – high-rise prestige	26,988	3,480
Education		
Primary and secondary	19,722	2,540
University	26,988	3,480
Hospitals		
Day centre (including basic surgeries)	19,722	2,540
Regional hospital	31,140	4,020
General hospital (e.g. city teaching hospital)	35,292	4,550
Hotels		
3 Star travellers	29,064	3,750
5 Star luxury	35,292	4,550
Resort style	39,443	5,090
Industrial		
Warehouse/factory units – basic	15,570	2,010
Large warehouse distribution centre	16,608	2,140
High-tech factory/laboratory	28,026	3,620
Residential		
Individual detached or terrace style house – medium standard	31,140	4,020
Individual detached house – prestige	39,443	5,090
Townhouses – medium standard	24,912	3,210
Apartments low-rise – medium standard	22,836	2,950
Apartments high-rise	24,912	3,210
Aged care/affordable units	15,570	2,010

International building costs, in 2016	HKD	USD (exchange rate: 7.75)
Retail		
Large shopping centre including mall	31,140	4,020
Neighbourhood incl supermarket	24,912	3,210
Prestige car showroom	31,140	4,020
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	135	17
Excavate footings (m)	145	19
Concrete in slab (m^3) (1500m^3 job)	1,401	181
Reinforcement in beams (tonne)	12,165	1,570
Formwork to soffit of slab (m^2)	332	43
Blockwork in wall (m^2) (10,000 block job)	394	51
Structural steel beams (tonne)	41,841	5,399
Pre-cast concrete wall (m^2)	1,339	173
Curtain wall glazing incl support system (m^2) (1000m^2 job)	5,626	726
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	498	64
Single solid core door incl frame and hardware (no) (50 door job)	6,695	864
Painting to walls primer + 2 coats (m^2)	135	17
Ceramic tiling (m^2) (1000m^2 job)	727	94
Vinyl flooring to wet areas (m^2) (500m^2 job)	332	43
Carpet medium tufted (m^2) (4500m^2 job)	540	70
Lighting installation (m^2) (5000m^2+ job)	945	122
Copper pipe 15mm to wall (m) (1000+ metre job)	239	31
Fire sprinklers (per m^2) (5000m^2 job)	581	75
Air conditioning incl main plant (m^2) (5000m^2+ job)	2,906	375
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	123	16
Group 2 Tradesman e.g. carpenter, bricklayer	156	20
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	134	17
General labourer	87	11
Site foreman	179	23
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	726	94
Reinforcement bar 16mm (tonne) (120 tonne job)	6,712	866
Concrete block (400x200) per 1000 (>10,000 block job)	3,906	504
Standard brick per 1000	2,176	281
Structural steel beams (tonne) (100 tonne+ job)	13,390	1,728
Glass pane 10mm tempered (m^2)	2,098	271
Softwood timber for framing 100mm x 50mm (m)	73	9
13mm plasterboard (m^2)	89	12
Emulsion paint (litre)	61	8
Copper pipe 15mm (metre) (1000+ metre job)	31	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	16	2
Plant		
Hire 50t mobile crane + operator (day)	6,695	864

Market:	**warm**
Tendering:	cooler
Cost escalation 2015–16:	4.0%
Cost escalation 2016–17:	5.0%
Contractor's margin:	6.0%
Preliminaries:	12.0%
Location factor (USD):	80
PPP coefficient:	9.27

India - Bangalore

Construction is booming and confidence high - but projects are wracked by delays and red tape

Economic overview

Energy, infrastructure and manufacturing strength are behind a positive outlook for the Indian economy. Fiscal and monetary policies are geared towards sustaining growth while bringing down inflation, while investor confidence has hit a new high as foreign direct investment rose 61.6 percent to USD34.9bn.

Construction market and trends

The fall in oil and commodity prices is helping the government to cut costs in the provision of physical infrastructure. Land acquisition, approval delays and inadequacy of long-term funding is still a challenge, and often projects become slow-moving or stall completely.

Supply pressures in the residential sector have eased as unsold inventory has been unloaded, but new project launches and sales volume are at their lowest since 2010. In commercial real estate, new leases taken up were 15 percent higher than in 2014, driven by the information technology and banking, financial services and insurance sectors.

Future outlook

India's GDP is forecast to grow at around 7.5 percent in 2016, in a year in which infrastructure will be a key investment driver. Some big new game-changing projects are under consideration including the Delhi-Mumbai Industrial Corridor (DMIC) and the Navi Mumbai International Airport (NMIA). The government of India also has a programme to develop 100 smart cities countrywide, and its Make in India programme, designed to encourage funds for development in the logistics and manufacturing sectors, is underway.

International building costs per m² of internal area, in 2016	INR	USD (exchange rate: 68.5)
Airports (building only)		
Domestic terminal, full service	86,400	1,260
Low-cost carrier terminal, basic service	66,950	980
Car parks		
Multi-storey above ground	28,050	410
Multi-storey below ground	43,150	630
Commercial		
Offices – Business Park	39,600	580
CBD Offices – up to 20 floors medium (A-Grade)	43,150	630
CBD Offices – high-rise prestige	48,550	710
Education		
Primary and secondary	28,050	410
University	45,350	660
Hospitals		
Day centre (including basic surgeries)	31,300	460
Regional hospital	45,350	660
General hospital (e.g. city teaching hospital)	60,000	880
Hotels		
3 Star travellers	48,550	710
5 Star luxury	99,850	1,460
Resort style	77,750	1,140
Industrial		
Warehouse/factory units – basic	30,200	440
Large warehouse distribution centre	37,750	550
High-tech factory/laboratory	46,400	680
Residential		
Individual detached or terrace style house – medium standard	36,650	540
Individual detached house – prestige	48,550	710
Townhouses – medium standard	30,100	440
Apartments low-rise – medium standard	27,350	400
Apartments high-rise	46,000	670
Aged care/affordable units	30,200	440

International building costs, in 2016	INR	USD (exchange rate: 68.5)
Retail		
Large shopping centre including mall	57,150	830
Neighbourhood incl supermarket	42,150	620
Prestige car showroom	36,100	530
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	400	6
Excavate footings (m)	500	7
Concrete in slab (m^3) (1500m^3 job)	7,800	114
Reinforcement in beams (tonne)	54,900	801
Formwork to soffit of slab (m^2)	600	9
Blockwork in wall (m^2) (10,000 block job)	1,350	20
Structural steel beams (tonne)	87,500	1,277
Pre-cast concrete wall (m^2)	9,600	140
Curtain wall glazing incl support system (m^2) (1000m^2 job)	14,000	204
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	2,500	36
Single solid core door incl frame and hardware (no) (50 door job)	40,000	584
Painting to walls primer + 2 coats (m^2)	250	4
Ceramic tiling (m^2) (1000m^2 job)	2,050	30
Vinyl flooring to wet areas (m^2) (500m^2 job)	2,200	32
Carpet medium tufted (m^2) (4500m^2 job)	1,800	26
Lighting installation (m^2) (5000m^2+ job)	500	7
Copper pipe 15mm to wall (m) (1000+ metre job)	650	9
Fire sprinklers (per m^2) (5000m^2 job)	1,200	18
Air conditioning incl main plant (m^2) (5000m^2+ job)	5,000	73
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	90	1.3
Group 2 Tradesman e.g. carpenter, bricklayer	85	1.2
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	75	1.1
General labourer	55	0.8
Site foreman	121	1.8
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	5,000	73
Reinforcement bar 16mm (tonne) (120 tonne job)	34,500	504
Concrete block (400x200) per 1000 (>10,000 block job)	43,050	628
Standard brick per 1000	7,000	102
Structural steel beams (tonne) (100 tonne+ job)	42,500	620
Glass pane 10mm tempered (m^2)	5,750	84
Softwood timber for framing 100mm x 50mm (m)	285	4
13mm plasterboard (m^2)	350	5
Emulsion paint (litre)	280	4
Copper pipe 15mm (metre) (1000+ metre job)	570	8
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	135	2
Plant		
Hire 50t mobile crane + operator (day)	25,000	365

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	0.3%
Cost escalation 2016–17:	2.5%
Contractor's margin:	6.0%
Preliminaries:	9.0%
Location factor (USD):	29
PPP coefficient:	31.47

Ireland – Dublin

Construction activity is heating up, despite patchy infrastructure investment

Economic overview

Ireland is now the fastest-growing economy in the EU following the difficult years of the global financial crisis. Growth in GDP for the year to January 2016 was a remarkable 9.2 percent, driven by higher consumer spending, improving business confidence, higher investment and a resurgent construction sector.

Construction market and trends

Demand for construction activity continues to rise, with the increase in work hampered only by skills shortages, particularly related to specialist sub contractors such as glazing and curtain walling.

Investment in infrastructure is patchy due to the government's caution about debt levels. Industrial and manufacturing has increased year on year but it is commercial, retail and data centre activity that is driving growth. There are signs of a gradual recovery in the residential sector, which has been held back due to planning and buyer lending restrictions making many schemes uneconomically viable. A lack of new residential units has resulted in an increase in rental levels.

Future outlook

Construction activity will mainly be driven by a raft of large projects in Dublin, with demand uneven in other parts of the country. Construction prices look set to increase by six percent and the industry will continue to face resourcing challenges to meet demand.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.92)
Airports (building only)		
Domestic terminal, full service	4,000	4,350
Low-cost carrier terminal, basic service	2,800	3,040
Car parks		
Multi-storey above ground	650	710
Multi-storey below ground	1,050	1,140
Commercial		
Offices – Business Park	1,700	1,850
CBD Offices – up to 20 floors medium (A-Grade)	2,150	2,340
CBD Offices – high-rise prestige	3,050	3,320
Education		
Primary and secondary	1,400	1,520
University	2,400	2,610
Hospitals		
Day centre (including basic surgeries)	2,500	2,720
Regional hospital	3,600	3,910
General hospital (e.g. city teaching hospital)	3,600	3,910
Hotels		
3 Star travellers	1,825	1,980
5 Star luxury	3,100	3,370
Resort style	2,400	2,610
Industrial		
Warehouse/factory units – basic	800	870
Large warehouse distribution centre	1,050	1,140
High-tech factory/laboratory	1,900	2,070
Residential		
Individual detached or terrace style house – medium standard	1,550	1,680
Individual detached house – prestige	1,900	2,070
Townhouses – medium standard	1,600	1,740
Apartments low-rise – medium standard	1,700	1,850
Apartments high-rise	1,900	2,070
Aged care/affordable units	2,050	2,230

International building costs, in 2016	EUR	USD (exchange rate: 0.92)
Retail		
Large shopping centre including mall	2,600	2,830
Neighbourhood incl supermarket	2,350	2,550
Prestige car showroom	2,900	3,150
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	12	13
Excavate footings (m)	22	24
Concrete in slab (m^3) (1500m^3 job)	155	168
Reinforcement in beams (tonne)	1,050	1,141
Formwork to soffit of slab (m^2)	40	43
Blockwork in wall (m^2) (10,000 block job)	28	30
Structural steel beams (tonne)	2,025	2,201
Pre-cast concrete wall (m^2)	95	103
Curtain wall glazing incl support system (m^2) (1000m^2 job)	550	598
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	60	65
Single solid core door incl frame and hardware (no) (50 door job)	800	870
Painting to walls primer + 2 coats (m^2)	8	9
Ceramic tiling (m^2) (1000m^2 job)	70	76
Vinyl flooring to wet areas (m^2) (500m^2 job)	38	41
Carpet medium tufted (m^2) (4500m^2 job)	34	37
Lighting installation (m^2) (5000m^2+ job)	53	58
Copper pipe 15mm to wall (m) (1000+ metre job)	33	36
Fire sprinklers (per m^2) (5000m^2 job)	86	93
Air conditioning incl main plant (m^2) (5000m^2+ job)	155	168
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	32	35
Group 2 Tradesman e.g. carpenter, bricklayer	32	35
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	32	35
General labourer	25	27
Site foreman	32	35
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	100	109
Reinforcement bar 16mm (tonne) (120 tonne job)	880	957
Concrete block (400x200) per 1000 (>10,000 block job)	600	652
Standard brick per 1000	500	543
Structural steel beams (tonne) (100 tonne+ job)	1,700	1,848
Glass pane 10mm tempered (m^2)	225	245
Softwood timber for framing 100mm x 50mm (m)	5	5
13mm plasterboard (m^2)	5	5
Emulsion paint (litre)	5	5
Copper pipe 15mm (metre) (1000+ metre job)	6	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	3.3
Plant		
Hire 50t mobile crane + operator (day)	1,350	1,467

Market:	hot
Tendering:	warmer
Cost escalation 2015–16:	6.0%
Cost escalation 2016–17:	6.0%
Contractor's margin:	5.0%
Preliminaries:	10.0%
Location factor (USD):	79
PPP coefficient:	1.12

Kenya – Nairobi

Growth exceeds expectations as costs stay stable

Economic overview

Kenya is seeing solid growth in most sectors of economic activity. The economy has a diverse mix of industries based on tourism, services and commodities. Strong public infrastructure spending has also supported growth. With less reliance on oil exports and Chinese finance than its neighbours, this is helping to insulate the country from economic problems in the global economy, such as the fall in commodity prices. The oil price slump has in fact been a net benefit as energy import costs have fallen.

Construction market and trends

Following higher than expected real growth in 2015, the construction sector in Kenya is forecast to grow at 9.8 percent in 2016, with construction costs staying reasonably stable at present. Efforts to integrate regional transport links and investment in the Nairobi real estate sector remain key drivers of this growth.

Future outlook

The outlook for continued investment in infrastructure and construction in Kenya is bright. The exchange rate has fallen and while this will add to import costs, the tourism export sector should recover significantly as security concerns abate. Housing, particularly around Nairobi, and tourism accommodation should continue to grow. Unlocking the nascent PPP market will be another economic growth driver, which will help improve the lives of Kenyan people.

International building costs per m² of internal area, in 2016	KSH	USD (exchange rate: 102)
Airports (building only)		
Domestic terminal, full service	267,000	2,620
Low-cost carrier terminal, basic service	190,714	1,870
Car parks		
Multi-storey above ground	41,500	410
Multi-storey below ground	49,300	480
Commercial		
Offices – Business Park	79,800	780
CBD Offices – up to 20 floors medium (A-Grade)	84,460	830
CBD Offices – high-rise prestige	127,000	1,250
Education		
Primary and secondary	62,220	610
University	78,000	760
Hospitals		
Day centre (including basic surgeries)	78,400	770
Regional hospital	100,000	980
General hospital (e.g. city teaching hospital)	124,400	1,220
Hotels		
3 Star travellers	97,500	960
5 Star luxury	132,700	1,300
Resort style	134,400	1,320
Industrial		
Warehouse/factory units – basic	35,900	350
Large warehouse distribution centre	49,000	480
High-tech factory/laboratory	107,000	1,050
Residential		
Individual detached or terrace style house – medium standard	50,400	490
Individual detached house – prestige	79,800	780
Townhouses – medium standard	52,000	510
Apartments low-rise – medium standard	68,100	670
Apartments high-rise	72,200	710
Aged care/affordable units	50,400	490

International building costs, in 2016	KSH	USD (exchange rate: 102)
Retail		
Large shopping centre including mall	62,800	620
Neighbourhood incl supermarket	50,400	490
Prestige car showroom	67,200	660
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	357	4
Excavate footings (m)	306	3
Concrete in slab (m^3) (1500m^3 job)	15,000	147
Reinforcement in beams (tonne)	112,000	1,098
Formwork to soffit of slab (m^2)	600	6
Blockwork in wall (m^2) (10,000 block job)	2,000	20
Structural steel beams (tonne)	204,000	2,000
Pre-cast concrete wall (m^2)	6,400	63
Curtain wall glazing incl support system (m^2) (1000m^2 job)	19,800	194
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	3,550	35
Single solid core door incl frame and hardware (no) (50 door job)	38,400	376
Painting to walls primer + 2 coats (m^2)	400	4
Ceramic tiling (m^2) (1000m^2 job)	2,000	20
Vinyl flooring to wet areas (m^2) (500m^2 job)	2,000	20
Carpet medium tufted (m^2) (4500m^2 job)	5,000	49
Lighting installation (m^2) (5000m^2+ job)	900	9
Copper pipe 15mm to wall (m) (1000+ metre job)	2,600	25
Fire sprinklers (per m^2) (5000m^2 job)	3,200	31
Air conditioning incl main plant (m^2) (5000m^2+ job)	10,302	101
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	306	3
Group 2 Tradesman e.g. carpenter, bricklayer	180	1.8
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	146	1.4
General labourer	100	1
Site foreman	305	3
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	13,200	129
Reinforcement bar 16mm (tonne) (120 tonne job)	98,300	964
Concrete block (400x200) per 1000 (>10,000 block job)	98,300	964
Standard brick per 1000	15,700	154
Structural steel beams (tonne) (100 tonne+ job)	196,500	1,926
Glass pane 10mm tempered (m^2)	10,900	107
Softwood timber for framing 100mm x 50mm (m)	306	3
13mm plasterboard (m^2)	306	3
Emulsion paint (litre)	357	4
Copper pipe 15mm (metre) (1000+ metre job)	1,428	14
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	360	3.5
Plant		
Hire 50t mobile crane + operator (day)	54,600	535

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	1.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	7.0%
Preliminaries:	7.0%
Location factor (USD):	34
PPP coefficient:	54.27

Malaysia – Kuala Lumpur

Low oil prices mean focus is on infrastructure to rebalance economy

Economic overview

Falling oil prices have slowed the Malaysian economy. With public revenues highly dependent on the earnings of the state-owned Petronas, each USD1 drop slashes RM300 million from annual public revenue. However, more positively, consumer expenditure has been growing well, beating expectations at five percent year-on-year.

Construction market and trends

Public infrastructure spending is being prioritised to stimulate the economy, while the national property cycle has peaked and is set to fall over 2016 and 2017. Industries dependent on oil revenues, including engineering and project management, have fallen in line with oil prices, reducing the demand for office accommodation, warehousing and industrial projects.

Future outlook

With currency devaluation raising import costs and a planned minimum wage increase, inflation is likely to rise beyond the central bank's target of 2.5 percent. Growth in Malaysia's construction sector will be slower due to weaker private sector investment and likely budget reductions due to lower oil prices. With such a significant fall in public revenues, further cost-cutting measures are likely to be introduced.

However, the government remains committed to several large public programmes including the LRT Line 3, Tun Razak Exchange and the Sungai Buloh Kwasa Land project – a major new township development in the region of Selangor with direct links to the airport and Kuala Lumpur. House prices and residential construction are likely to taper off in 2016 as moderate oversupply occurs.

International building costs per m² of internal area, in 2016	MYR	USD (exchange rate: 4.34)
Airports (building only)		
Domestic terminal, full service	6,623	1,530
Low-cost carrier terminal, basic service	4,635	1,070
Car parks		
Multi-storey above ground	1,133	260
Multi-storey below ground	1,751	400
Commercial		
Offices – Business Park	3,296	760
CBD Offices – up to 20 floors medium (A-Grade)	4,305	990
CBD Offices – high-rise prestige	6,026	1,390
Education		
Primary and secondary	1,988	460
University	4,882	1,120
Hospitals		
Day centre (including basic surgeries)	2,977	690
Regional hospital	3,966	910
General hospital (e.g. city teaching hospital)	4,470	1,030
Hotels		
3 Star travellers	5,191	1,200
5 Star luxury	6,335	1,460
Resort style	9,898	2,280
Industrial		
Warehouse/factory units – basic	2,009	460
Large warehouse distribution centre	2,575	590
High-tech factory/laboratory	4,305	990
Residential		
Individual detached or terrace style house – medium standard	2,482	570
Individual detached house – prestige	3,172	730
Townhouses – medium standard	1,658	380
Apartments low-rise – medium standard	1,936	450
Apartments high-rise	2,760	640
Aged care/affordable units	2,070	480

International building costs, in 2016	MYR	USD (exchange rate: 4.34)
Retail		
Large shopping centre including mall	4,882	1,120
Neighbourhood incl supermarket	4,161	960
Prestige car showroom	5,305	1,220
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	35	8
Excavate footings (m)	50	12
Concrete in slab (m^3) (1500m^3 job)	288	66
Reinforcement in beams (tonne)	4,069	938
Formwork to soffit of slab (m^2)	39	9
Blockwork in wall (m^2) (10,000 block job)	70	16
Structural steel beams (tonne)	10,000	2,304
Pre-cast concrete wall (m^2)	233	54
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,009	232
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	130	30
Single solid core door incl frame and hardware (no) (50 door job)	1,150	265
Painting to walls primer + 2 coats (m^2)	10	2
Ceramic tiling (m^2) (1000m^2 job)	150	35
Vinyl flooring to wet areas (m^2) (500m^2 job)	217	50
Carpet medium tufted (m^2) (4500m^2 job)	97	22
Lighting installation (m^2) (5000m^2+ job)	162	37
Copper pipe 15mm to wall (m) (1000+ metre job)	47	11
Fire sprinklers (per m^2) (5000m^2 job)	118	27
Air conditioning incl main plant (m^2) (5000m^2+ job)	309	71
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	31	7
Group 2 Tradesman e.g. carpenter, bricklayer	20	5
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	23	5
General labourer	10	2
Site foreman	56	13
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	258	59
Reinforcement bar 16mm (tonne) (120 tonne job)	3,800	876
Concrete block (400x200) per 1000 (>10,000 block job)	3,500	806
Standard brick per 1000	422	97
Structural steel beams (tonne) (100 tonne+ job)	8,696	2,004
Glass pane 10mm tempered (m^2)	775	179
Softwood timber for framing 100mm x 50mm (m)	15	3
13mm plasterboard (m^2)	28	6
Emulsion paint (litre)	28	6
Copper pipe 15mm (metre) (1000+ metre job)	29	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	16	3.8
Plant		
Hire 50t mobile crane + operator (day)	1,800	415

Market:	hot
Tendering:	cooler
Cost escalation 2015–16:	3.0%
Cost escalation 2016–17:	3.0%
Contractor's margin:	12.5%
Preliminaries:	10.0%
Location factor (USD):	42
PPP coefficient:	2.75

Netherlands – Amsterdam

Buoyant residential construction sector boosts economy

Economic overview

The Dutch economy remains reasonably strong with low unemployment of 6.4 percent, low inflation and reasonably solid growth of two percent during 2015.

Construction market and trends

The construction market, which rebounded with growth of four percent in 2015, has become a key driver of the national economy. Optimism is growing, largely fuelled by higher prices being achieved in the residential market. Profitability will take longer to recover as the contracting community is yet to come back from the 'lowest price' war instigated during the financial crisis.

Foreign contractors and investors are being attracted to the Dutch market as the increase in larger and more complex private-public partnership projects continues, already resulting in more aggressive bidding. Much of this investment falls within the infrastructure sector, with a focus on water-related projects. Central government infrastructure spending also rose to EUR7.3bn in 2015.

Future outlook

Although the residential construction market is buoyant, the pace of construction may fall back in the second half of 2016. Prospects in non-residential are still modest, with the key issue hampering new building being increasing vacancy levels in existing real estate. In the coming years, the need for newly built homes will rise, posing a serious challenge in light of the heavy capacity reductions seen over the past seven years.

International building costs per m² of internal area, in 2016	EUR	USD (exchange rate: 0.92)
Airports (building only)		
Domestic terminal, full service	3,557	3,870
Low-cost carrier terminal, basic service	2,353	2,560
Car parks		
Multi-storey above ground	581	630
Multi-storey below ground	1,130	1,230
Commercial		
Offices – Business Park	1,636	1,780
CBD Offices – up to 20 floors medium (A-Grade)	2,227	2,420
CBD Offices – high-rise prestige	2,692	2,930
Education		
Primary and secondary	1,523	1,660
University	1,974	2,150
Hospitals		
Day centre (including basic surgeries)	2,322	2,520
Regional hospital	2,639	2,870
General hospital (e.g. city teaching hospital)	3,166	3,440
Hotels		
3 Star travellers	1,868	2,030
5 Star luxury	3,300	3,590
Resort style	2,459	2,670
Industrial		
Warehouse/factory units – basic	804	870
Large warehouse distribution centre	908	990
High-tech factory/laboratory	1,770	1,920
Residential		
Individual detached or terrace style house – medium standard	1,214	1,320
Individual detached house – prestige	1,531	1,660
Townhouses – medium standard	1,214	1,320
Apartments low-rise – medium standard	1,403	1,530
Apartments high-rise	1,995	2,170
Aged care/affordable units	1,689	1,840

International building costs, in 2016	EUR	USD (exchange rate: 0.92)
Retail		
Large shopping centre including mall	2,200	2,390
Neighbourhood incl supermarket	1,974	2,150
Prestige car showroom	2,300	2,500
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	13	14
Excavate footings (m)	25	28
Concrete in slab (m^3) (1500m^3 job)	200	218
Reinforcement in beams (tonne)	1,191	1,295
Formwork to soffit of slab (m^2)	36	39
Blockwork in wall (m^2) (10,000 block job)	49	53
Structural steel beams (tonne)	2,600	2,827
Pre-cast concrete wall (m^2)	108	117
Curtain wall glazing incl support system (m^2) (1000m^2 job)	651	707
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	81	88
Single solid core door incl frame and hardware (no) (50 door job)	1,153	1,253
Painting to walls primer + 2 coats (m^2)	17	19
Ceramic tiling (m^2) (1000m^2 job)	77	84
Vinyl flooring to wet areas (m^2) (500m^2 job)	48	52
Carpet medium tufted (m^2) (4500m^2 job)	36	39
Lighting installation (m^2) (5000m^2+ job)	70	76
Copper pipe 15mm to wall (m) (1000+ metre job)	26	29
Fire sprinklers (per m^2) (5000m^2 job)	45	49
Air conditioning incl main plant (m^2) (5000m^2+ job)	150	163
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	44	48
Group 2 Tradesman e.g. carpenter, bricklayer	36	39
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	32	35
General labourer	25	27
Site foreman	41	45
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	97	105
Reinforcement bar 16mm (tonne) (120 tonne job)	986	1,072
Concrete block (400x200) per 1000 (>10,000 block job)	2,681	2,914
Standard brick per 1000	414	450
Structural steel beams (tonne) (100 tonne+ job)	1,362	1,481
Glass pane 10mm tempered (m^2)	134	146
Softwood timber for framing 100mm x 50mm (m)	2	2
13mm plasterboard (m^2)	5	6
Emulsion paint (litre)	9	10
Copper pipe 15mm (metre) (1000+ metre job)	5	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	2.2
Plant		
Hire 50t mobile crane + operator (day)	1,322	1,437

Market:	**warm**
Tendering:	warmer
Cost escalation 2015–16:	2.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	5.0%
Preliminaries:	13.0%
Location factor (USD):	69
PPP coefficient:	1.01

Oman – Muscat

Transition from resources to infrastructure underway in a diversifying economy

Economic overview

Falling crude prices caused revenues from oil exports and state incomes to plunge in 2015, while the strong US dollar pushed up the cost of living, producing a notable deterioration in public finances.

Construction market and trends

While the natural resources sector has been weakened and real estate markets expected to tighten, Oman's programme for diversification away from hydrocarbons such as oil and coal and ongoing investment in transport infrastructure projects are supporting construction activity. With low consumer confidence, residential property investment remains fragile.

Future outlook

The expectation is that 2016 will be a year of austerity, although the government appears disposed to maintain spending wherever possible, particularly with its investment in the non-hydrocarbon sector and large infrastructure projects. The next two years will be challenging given the forecasts of low cash fluidity. Nevertheless, the Omani government's ninth five-year plan has set out major investment plans in a number of key sectors such as manufacturing, transportation, tourism and mining, with over 500 programmes and policies to commence in these sectors.

International building costs per m² of internal area, in 2016	OMR	USD (exchange rate: 0.385)
Airports (building only)		
Domestic terminal, full service	1450	3,770
Low-cost carrier terminal, basic service	980	2,550
Car parks		
Multi-storey above ground	300	780
Multi-storey below ground	370	960
Commercial		
Offices – Business Park	380	990
CBD Offices – up to 20 floors medium (A-Grade)	480	1,250
CBD Offices – high-rise prestige	640	1,660
Education		
Primary and secondary	550	1,430
University	620	1,610
Hospitals		
Day centre (including basic surgeries)	520	1,350
Regional hospital	660	1,710
General hospital (e.g. city teaching hospital)	800	2,080
Hotels		
3 Star travellers	670	1,740
5 Star luxury	1,000	2,600
Resort style	1,150	2,990
Industrial		
Warehouse/factory units – basic	390	1,010
Large warehouse distribution centre	370	960
High-tech factory/laboratory	550	1,430
Residential		
Individual detached or terrace style house – medium standard	560	1,450
Individual detached house – prestige	890	2,310
Townhouses – medium standard	490	1,270
Apartments low-rise – medium standard	480	1,250
Apartments high-rise	550	1,430
Aged care/affordable units	–	–

International building costs, in 2016	OMR	USD (exchange rate: 0.385)
Retail		
Large shopping centre including mall	470	1,220
Neighbourhood incl supermarket	510	1,320
Prestige car showroom	870	2,260
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	3	8
Excavate footings (m)	3	8
Concrete in slab (m^3) (1500m^3 job)	38	100
Reinforcement in beams (tonne)	350	910
Formwork to soffit of slab (m^2)	12	30
Blockwork in wall (m^2) (10,000 block job)	12	30
Structural steel beams (tonne)	934	2,430
Pre-cast concrete wall (m^2)	53	140
Curtain wall glazing incl support system (m^2) (1000m^2 job)	128	330
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	16	42
Single solid core door incl frame and hardware (no) (50 door job)	445	1,160
Painting to walls primer + 2 coats (m^2)	2	5
Ceramic tiling (m^2) (1000m^2 job)	12	31
Vinyl flooring to wet areas (m^2) (500m^2 job)	10	26
Carpet medium tufted (m^2) (4500m^2 job)	28	73
Lighting installation (m^2) (5000m^2+ job)	20	52
Copper pipe 15mm to wall (m) (1000+ metre job)	11	29
Fire sprinklers (per m^2) (5000m^2 job)	12	31
Air conditioning incl main plant (m^2) (5000m^2+ job)	44	114
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	2	6
Group 2 Tradesman e.g. carpenter, bricklayer	2	6
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) (1500m^3 job)	26	70
Reinforcement bar 16mm (tonne) (120 tonne job)	250	650
Concrete block (400x200) per 1000 (>10,000 block job)	210	550
Standard brick per 1000	222	580
Structural steel beams (tonne) (100 tonne+ job)	500	1,300
Glass pane 10mm tempered (m^2)	61	160
Softwood timber for framing 100mm x 50mm (m)	1	3
13mm plasterboard (m^2)	1	3
Emulsion paint (litre)	2	4
Copper pipe 15mm (metre) (1000+ metre job)	4	9
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	1	3
Plant		
Hire 50t mobile crane + operator (day)	260	680

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	0.0%
Cost escalation 2016–17:	0.0%
Contractor's margin:	8.0%
Preliminaries:	10.0%
Location factor (USD):	35
PPP coefficient:	0.21

Poland – Warsaw

On the road to recovery with strong forecasts and stable growth

Economic overview

The GDP growth rate in 2015 was only 3.6 percent, considerably lower than the average 4.5 percent for the years 2006 to 2015. Consumer prices are falling and this may delay spending as expectations of further price reductions could cause the economy to slow further. Interest rates have remained low, adding to residential construction demand; however, this is offset somewhat by unemployment riding a little high at 11 percent.

Construction market and trends

Commercial construction, housing and rail infrastructure sector projects are starting to turn around after falling six percent in the year to January 2016. Activity in the retail construction sector has been decreasing and this trend looks set to continue.

A major challenge in Poland is dealing with construction permits, which can take on average 19 procedures, 212 days, and cost 0.3 percent of construction value. However, the new government is determined to cut this red tape.

Future outlook

Overall, the investment forecast for 2016 is improving, given mild monetary policies, low interest rates and significant allocation of EU funds for road improvements. A change of government could potentially hamper confidence.

International building costs per m² of internal area, in 2016	PLN	USD (exchange rate: 3.97)
Airports (building only)		
Domestic terminal, full service	8,300	2,090
Low-cost carrier terminal, basic service	4,300	1,080
Car parks		
Multi-storey above ground	1,700	430
Multi-storey below ground	2,350	590
Commercial		
Offices – Business Park	3,400	860
CBD Offices – up to 20 floors medium (A-Grade)	4,200	1,060
CBD Offices – high-rise prestige	4,600	1,160
Education		
Primary and secondary	2,400	600
University	3,600	910
Hospitals		
Day centre (including basic surgeries)	2,700	680
Regional hospital	3,400	860
General hospital (e.g. city teaching hospital)	3,400	860
Hotels		
3 Star travellers	4,200	1,060
5 Star luxury	6,600	1,660
Resort style	4,600	1,160
Industrial		
Warehouse/factory units – basic	1,700	430
Large warehouse distribution centre	1,800	450
High-tech factory/laboratory	2,500	630
Residential		
Individual detached or terrace style house – medium standard	2,100	530
Individual detached house – prestige	2,900	730
Townhouses – medium standard	2,400	600
Apartments low-rise – medium standard	2,550	640
Apartments high-rise	2,850	720
Aged care/affordable units	2,700	680

International building costs, in 2016	PLN	USD (exchange rate: 3.97)
Retail		
Large shopping centre including mall	2,200	550
Neighbourhood incl supermarket	2,400	600
Prestige car showroom	3,500	880
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	25	6
Excavate footings (m)	95	24
Concrete in slab (m^3) (1500m^3 job)	570	144
Reinforcement in beams (tonne)	3,500	882
Formwork to soffit of slab (m^2)	95	24
Blockwork in wall (m^2) (10,000 block job)	120	30
Structural steel beams (tonne)	9,000	2,267
Pre-cast concrete wall (m^2)	500	126
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,150	290
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	55	14
Single solid core door incl frame and hardware (no) (50 door job)	2,600	655
Painting to walls primer + 2 coats (m^2)	17	4
Ceramic tiling (m^2) (1000m^2 job)	120	30
Vinyl flooring to wet areas (m^2) (500m^2 job)	92	23
Carpet medium tufted (m^2) (4500m^2 job)	92	23
Lighting installation (m^2) (5000m^2+ job)	115	29
Copper pipe 15mm to wall (m) (1000+ metre job)	69	17
Fire sprinklers (per m^2) (5000m^2 job)	70	18
Air conditioning incl main plant (m^2) (5000m^2+ job)	550	139
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	25	6
Group 2 Tradesman e.g. carpenter, bricklayer	29	7
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	25	6
General labourer	25	6
Site foreman	45	11
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	275	69
Reinforcement bar 16mm (tonne) (120 tonne job)	2,700	680
Concrete block (400x200) per 1000 (>10,000 block job)	4,300	1,083
Standard brick per 1000	950	239
Structural steel beams (tonne) (100 tonne+ job)	6,500	1,637
Glass pane 10mm tempered (m^2)	370	93
Softwood timber for framing 100mm x 50mm (m)	8	2
13mm plasterboard (m^2)	12	3
Emulsion paint (litre)	5	1
Copper pipe 15mm (metre) (1000+ metre job)	19	5
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	5	1.3
Plant		
Hire 50t mobile crane + operator (day)	4,400	1,108

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	2.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	5.0%
Preliminaries:	13.0%
Location factor (USD):	33
PPP coefficient:	2.05

Qatar – Doha

Collapse in oil prices puts pressure on construction

Economic overview

Like the rest of the Middle East, Qatar is feeling the effects of low oil prices. The government is reviewing all programmes of work and may defer or cancel some projects. With so much of GDP dependent on oil export revenues, the collapse in oil prices drove GDP into negative growth at the end of 2015.

Construction market and trends

Qatar is still investing significantly in infrastructure construction, but with authorities squeezing budgets there has been a reduction in tenders from the government infrastructure sector.

The property sector has slowed in the last six months, partially due to public sector cuts and reduced investment. Private sector developers are still issuing tenders, although this trend is dependent on interest rates remaining low and developer confidence stabilising.

Future outlook

The construction market is expected to remain volatile and is subject to the pressures of meeting the 2022 World Cup deadlines, as well as the external pressure of oil prices. For 2016, construction escalation is expected to be between one and two percent.

In the short term, many projects may be delayed until oil prices have increased, but looking further ahead construction activity will regain momentum to meet the demands of the 2022 World Cup and Qatar's Vision 2030 development plan. The government is keen to diversify away from dependence on oil revenues and programmes in the medium term and is encouraging tourism development, as well as supporting a financial sector that will continue to drive construction project growth in Doha.

International building costs per m² of internal area, in 2016	QAR	USD (exchange rate: 3.64)
Car parks		
Multi-storey above ground	4,050	1,110
Multi-storey below ground	4,050	1,110
Commercial		
Offices – Business Park	4,875	1,340
CBD Offices – up to 20 floors medium (A-Grade)	7,125	1,960
CBD Offices – high-rise prestige	10,865	2,980
Education		
Primary and secondary	8,925	2,450
University	7,650	2,100
Hospitals		
Day centre (including basic surgeries)	9,600	2,640
Regional hospital	11,975	3,290
General hospital (e.g. city teaching hospital)	13,800	3,790
Hotels		
3 Star travellers	7,825	2,150
5 Star luxury	12,900	3,540
Resort style	13,450	3,700
Industrial		
Warehouse/factory units – basic	4,340	1,190
Large warehouse distribution centre	4,845	1,330
High-tech factory/laboratory	6,200	1,700
Residential		
Individual detached or terrace style house – medium standard	6,985	1,920
Individual detached house – prestige	9,825	2,700
Townhouses – medium standard	6,885	1,890
Apartments low-rise – medium standard	6,750	1,850
Apartments high-rise	7,760	2,130
Aged care/affordable units	–	–

International building costs, in 2016	QAR	USD (exchange rate: 3.64)
Retail		
Large shopping centre including mall	6,695	1,840
Neighbourhood incl supermarket	5,800	1,590
Prestige car showroom	9,325	2,560
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	42	12
Excavate footings (m)	47	13
Concrete in slab (m^3) (1500m^3 job)	625	172
Reinforcement in beams (tonne)	4,725	1,298
Formwork to soffit of slab (m^2)	135	37
Blockwork in wall (m^2) (10,000 block job)	120	33
Structural steel beams (tonne)	14,600	4,011
Pre-cast concrete wall (m^2)	670	184
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,980	544
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	188	52
Single solid core door incl 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) (1000m^2 job)	202	55
Vinyl flooring to wet areas (m^2) (500m^2 job)	156	43
Carpet medium tufted (m^2) (4500m^2 job)	235	65
Lighting installation (m^2) (5000m^2+ job)	365	100
Copper pipe 15mm to wall (m) (1000+ metre job)	67	18
Fire sprinklers (per m^2) (5000m^2 job)	118	32
Air conditioning incl main plant (m^2) (5000m^2+ job)	835	229
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	48	13
Group 2 Tradesman e.g. carpenter, bricklayer	43	12
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	27	7
General labourer	14	4
Site foreman	51	14
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	302	83
Reinforcement bar 16mm (tonne) (120 tonne job)	3,355	922
Concrete block (400x200) per 1000 (>10,000 block job)	4,235	1,163
Standard brick per 1000	3,065	842
Structural steel beams (tonne) (100 tonne+ job)	6,975	1,916
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)	78	21
Copper pipe 15mm (metre) (1000+ metre job)	16	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	1
Plant		
Hire 50t mobile crane + operator (day)	3,400	934

Market:	**lukewarm**
Tendering:	staying the same
Cost escalation 2015–16:	2.7%
Cost escalation 2016–17:	1.5%
Contractor's margin:	12.0%
Preliminaries:	14.0%
Location factor (USD):	57
PPP coefficient:	2.82

Russia – Moscow

Falling commodity prices and political sanctions begin to bite

Economic overview

Russian GDP fell 3.7 percent in 2015 as inflation rose and the Russian ruble continued to fall against the US dollar. The main factors behind this fall remain collapsing commodity prices and sanctions imposed over actions in Ukraine.

Construction market and trends

The construction industry contracted seven percent while inflation and currency depreciation have reduced construction costs slightly. Real estate investment declined by 38 percent in 2015 compared to the previous year, while housing construction has fallen by 5.4 percent on a year-on-year basis.

Construction work for the 2018 World Cup is underway, with projects including stadiums, airports, hotels, high-speed railways and roads having a positive effect on the industry.

Future outlook

Uncertainties in the geopolitical situation related to Ukraine and Syria, along with the volatility of the commodity markets, mean forecasts for the years ahead are difficult. However, it is expected the economy will contract less in 2016 and will experience weak growth in 2017.

International building costs per m² of internal area, in 2016	RUB	USD (exchange rate: 77.01)
Airports (building only)		
Domestic terminal, full service	200,000	2,600
Low-cost carrier terminal, basic service	125,000	1,620
Car parks		
Multi-storey above ground	30,000	390
Multi-storey below ground	35,000	450
Commercial		
Offices – Business Park	60,000	780
CBD Offices – up to 20 floors medium (A-Grade)	65,000	840
CBD Offices – high-rise prestige	70,000	910
Education		
Primary and secondary	45,000	580
University	70,000	910
Hospitals		
Day centre (including basic surgeries)	50,000	650
Regional hospital	70,000	910
General hospital (e.g. city teaching hospital)	75,000	970
Hotels		
3 Star travellers	60,000	780
5 Star luxury	110,000	1,430
Resort style	90,000	1,170
Industrial		
Warehouse/factory units – basic	38,000	490
Large warehouse distribution centre	45,000	580
High-tech factory/laboratory	70,000	910
Residential		
Individual detached or terrace style house – medium standard	30,000	390
Individual detached house – prestige	45,000	580
Townhouses – medium standard	35,000	450
Apartments low-rise – medium standard	40,000	520
Apartments high-rise	45,000	580
Aged care/affordable units	30,000	390
Retail		
Large shopping centre including mall	60,000	780
Neighbourhood incl supermarket	45,000	580
Prestige car showroom	55,000	710

International building costs, in 2016	RUB	USD (exchange rate: 77.01)
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	610	8
Excavate footings (m)	820	11
Concrete in slab (m^3) (1500m^3 job)	9,240	120
Reinforcement in beams (tonne)	65,700	853
Formwork to soffit of slab (m^2)	1,540	20
Blockwork in wall (m^2) (10,000 block job)	1,740	23
Structural steel beams (tonne)	111,400	1,447
Pre-cast concrete wall (m^2)	8,905	116
Curtain wall glazing incl support system (m^2) (1000m^2 job)	49,140	638
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	2,980	39
Single solid core door incl frame and hardware (no) (50 door job)	32,900	427
Painting to walls primer + 2 coats (m^2)	620	8
Ceramic tiling (m^2) (1000m^2 job)	3,850	50
Vinyl flooring to wet areas (m^2) (500m^2 job)	3,150	41
Carpet medium tufted (m^2) (4500m^2 job)	2,910	38
Lighting installation (m^2) (5000m^2+ job)	3,450	45
Copper pipe 15mm to wall (m) (1000+ metre job)	890	12
Fire sprinklers (per m^2) (5000m^2 job)	1,670	22
Air conditioning incl main plant (m^2) (5000m^2+ job)	8,550	111
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	720	9
Group 2 Tradesman e.g. carpenter, bricklayer	720	9
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	720	9
General labourer	650	8
Site foreman	1,050	14
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	5,780	75
Reinforcement bar 16mm (tonne) (120 tonne job)	42,500	552
Concrete block (400x200) per 1000 (>10,000 block job)	71,440	928
Standard brick per 1000	18,060	235
Structural steel beams (tonne) (100 tonne+ job)	53,750	698
Glass pane 10mm tempered (m^2)	7,293	95
Softwood timber for framing 100mm x 50mm (m)	256	3
13mm plasterboard (m^2)	230	3
Emulsion paint (litre)	63	1
Copper pipe 15mm (metre) (1000+ metre job)	531	7
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	102	1.3
Plant		
Hire 50t mobile crane + operator (day)	60,000	779

Market:	**cold**
Tendering:	staying the same
Cost escalation 2015–16:	12.0%
Cost escalation 2016–17:	8.0%
Contractor's margin:	7.0%
Preliminaries:	8.0%
Location factor (USD):	38
PPP coefficient:	41.52

Rwanda – Kigali

Optimism abounds as new developments spur construction growth

Economic outlook

High foreign and public investment and strong export performance was at the heart of growth in Rwanda in 2015. Growth was driven by strong activity in agriculture, construction and services. Inflation remains well contained, although the monetary stance remains accommodative, with higher than expected credit growth. Consumer prices increased 6.8 percent year-on-year in December 2015.

Construction market and trends

The Rwanda construction market is vibrant, with numerous office and mixed-use developments springing up across Kigali and the housing sector recording growth of 1.8 percent in the first quarter of 2016. Renovation works, low-cost housing and hotel and conference facility projects are being undertaken by development boards such as the Rwanda Housing Authority, while private sector investment is delivering large-scale mixed-use developments, such as the Century Park Hotel and Residences, Kigali Heights and the Kigali Business Centre.

Future outlook

Real GDP growth is expected to be in excess of seven percent per annum across 2016-17, driven by foreign and public investment and strong export performance. However, mining exports are dropping due to lower prices and demand in export markets, and combined with US dollar appreciation this is putting strong downward pressure on the Rwandan franc.

Numerous infrastructure projects will be important for construction industry growth, including road construction works, a new peat power plant, and the construction of Bugesera Airport.

International building costs per m² of internal area, in 2016	RWF	USD (exchange rate: 747)
Airports (building only)		
Domestic terminal, full service	2,857,000	3,820
Low-cost carrier terminal, basic service	2,040,714	2,730
Car parks		
Multi-storey above ground	344,400	460
Multi-storey below ground	436,800	580
Commercial		
Offices – Business Park	722,400	970
CBD Offices – up to 20 floors medium (A-Grade)	764,400	1,020
CBD Offices – high-rise prestige	1,142,400	1,530
Education		
Primary and secondary	504,000	670
University	588,000	790
Hospitals		
Day centre (including basic surgeries)	722,400	970
Regional hospital	848,400	1,140
General hospital (e.g. city teaching hospital)	1,276,800	1,710
Hotels		
3 Star travellers	1,016,400	1,360
5 Star luxury	1,276,800	1,710
Resort style	1,260,000	1,690
Industrial		
Warehouse/factory units – basic	294,000	390
Large warehouse distribution centre	428,400	570
High-tech factory/laboratory	1,276,800	1,710
Residential		
Individual detached or terrace style house – medium standard	415,800	560
Individual detached house – prestige	706,500	950
Townhouses – medium standard	510,675	680
Apartments low-rise – medium standard	561,825	750
Apartments high-rise	595,650	800
Aged care/affordable units	420,000	560

International building costs, in 2016	RWF	USD (exchange rate: 747)
Retail		
Large shopping centre including mall	1,016,400	1,360
Neighbourhood incl supermarket	680,400	910
Prestige car showroom	672,000	900
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	3,360	4
Excavate footings (m)	2,520	3
Concrete in slab (m^3) (1500m^3 job)	163,800	219
Reinforcement in beams (tonne)	1,080,000	1,446
Formwork to soffit of slab (m^2)	10,920	15
Blockwork in wall (m^2) (10,000 block job)	25,200	34
Structural steel beams (tonne)	2,802,240	3,751
Pre-cast concrete wall (m^2)	104,160	139
Curtain wall glazing incl support system (m^2) (1000m^2 job)	235,200	315
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	30,240	40
Single solid core door incl frame and hardware (no) (50 door job)	338,520	453
Painting to walls primer + 2 coats (m^2)	3,360	4
Ceramic tiling (m^2) (1000m^2 job)	25,200	34
Vinyl flooring to wet areas (m^2) (500m^2 job)	83,160	111
Carpet medium tufted (m^2) (4500m^2 job)	42,000	56
Lighting installation (m^2) (5000m^2+ job)	101,640	136
Copper pipe 15mm to wall (m) (1000+ metre job)	22,680	30
Fire sprinklers (per m^2) (5000m^2 job)	54,000	72
Air conditioning incl main plant (m^2) (5000m^2+ job)	84,000	112
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	2,588	3.5
Group 2 Tradesman e.g. carpenter, bricklayer	2,025	2.7
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	1,643	2.2
General labourer	1,125	1.5
Site foreman	3,431	4.6
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	174,798	234
Reinforcement bar 16mm (tonne) (120 tonne job)	890,400	1,192
Concrete block (400x200) per 1000 (>10,000 block job)	1,068,480	1,430
Standard brick per 1000	140,280	188
Structural steel beams (tonne) (100 tonne+ job)	2,241,960	3,001
Glass pane 10mm tempered (m^2)	89,040	119
Softwood timber for framing 100mm x 50mm (m)	2,520	3
13mm plasterboard (m^2)	2,520	3
Emulsion paint (litre)	2,625	4
Copper pipe 15mm (metre) (1000+ metre job)	16,800	22
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	9,240	12
Plant		
Hire 50t mobile crane + operator (day)	1,150,800	1,540

Market:	**warm**
Tendering:	warmer
Cost escalation 2015–16:	1.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	7.0%
Preliminaries:	10.0%
Location factor (USD):	53
PPP coefficient:	574.93

Singapore

Public investment underpins construction industry as private oversupply worsens

Economic overview

Singapore recorded its slowest pace of growth in 25 years in 2015. This was largely driven by unaffordability in some sections of the economy, notably the housing market, and slowing traffic with major trading partners, particularly China.

Construction market and trends

While the private housing and office markets are currently weak due to the high supply of completed projects, most other construction sectors have had a strong year. Infrastructure, school and hospital investment has been high, while public sector housing has also seen strong development.

Future outlook

Overall economic growth is expected to moderate further in 2016, although the finance and insurance industries look positive with forecasts of 5.9 percent growth. Wholesale and retail trade is also expected to record solid growth at four percent.

Construction demand from the private sector is expected to slow due to less favourable economic conditions and continuing oversupply. The market will be supported by higher construction demand from the public sector, which will account for 65 percent of the SGD34bn investment expected in 2016. This will include several forthcoming major projects, including new MRT lines, the North-South Expressway, Changi Airport Terminal 5 infrastructure works and phase two of the Deep Tunnel Sewerage System.

International building costs per m² of internal area, in 2016	SGD	USD (exchange rate: 1.39)
Airports (building only)		
Domestic terminal, full service	5,200	3,740
Low-cost carrier terminal, basic service	4,000	2,880
Car parks		
Multi-storey above ground	1,230	880
Multi-storey below ground	1,740	1,250
Commercial		
Offices – Business Park	2,029	1,460
CBD Offices – up to 20 floors medium (A-Grade)	2,509	1,800
CBD Offices – high-rise prestige	2,911	2,090
Education		
Primary and secondary	1,500	1,080
University	2,770	1,990
Hospitals		
Day centre (including basic surgeries)	1,869	1,340
Regional hospital	3,030	2,180
General hospital (e.g. city teaching hospital)	3,939	2,830
Hotels		
3 Star travellers	3,313	2,380
5 Star luxury	4,353	3,130
Resort style	5,202	3,740
Industrial		
Warehouse/factory units – basic	2,156	1,550
Large warehouse distribution centre	2,450	1,760
High-tech factory/laboratory	3,080	2,220
Residential		
Individual detached or terrace style house – medium standard	4,000	2,880
Individual detached house – prestige	4,626	3,330
Townhouses – medium standard	2,727	1,960
Apartments low-rise – medium standard	2,002	1,440
Apartments high-rise	2,579	1,860
Aged care/affordable units	1,540	1,110

International building costs, in 2016	SGD	USD (exchange rate: 1.39)
Retail		
Large shopping centre including mall	3,214	2,310
Neighbourhood incl supermarket	2,107	1,520
Prestige car showroom	3,380	2,430
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	75	54
Excavate footings (m)	25	18
Concrete in slab (m^3) (1500m^3 job)	158	114
Reinforcement in beams (tonne)	1,519	1,093
Formwork to soffit of slab (m^2)	37	27
Blockwork in wall (m^2) (10,000 block job)	65	47
Structural steel beams (tonne)	4,018	2,891
Pre-cast concrete wall (m^2)	142	102
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,365	982
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	25	18
Single solid core door incl frame and hardware (no) (50 door job)	845	608
Painting to walls primer + 2 coats (m^2)	10	7
Ceramic tiling (m^2) (1000m^2 job)	87	62
Vinyl flooring to wet areas (m^2) (500m^2 job)	80	58
Carpet medium tufted (m^2) (4500m^2 job)	63	45
Lighting installation (m^2) (5000m^2+ job)	205	147
Copper pipe 15mm to wall (m) (1000+ metre job)	28	20
Fire sprinklers (per m^2) (5000m^2 job)	82	59
Air conditioning incl main plant (m^2) (5000m^2+ job)	267	192
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	20
General labourer	17	12
Site foreman	28	20
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	108	78
Reinforcement bar 16mm (tonne) (120 tonne job)	1,176	846
Concrete block (400x200) per 1000 (>10,000 block job)	700	504
Standard brick per 1000	350	252
Structural steel beams (tonne) (100 tonne+ job)	2,156	1,551
Glass pane 10mm tempered (m^2)	120	86
Softwood timber for framing 100mm x 50mm (m)	12	9
13mm plasterboard (m^2)	8	6
Emulsion paint (litre)	18	13
Copper pipe 15mm (metre) (1000+ metre job)	13	10
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2	1
Plant		
Hire 50t mobile crane + operator (day)	2,000	1,439

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	0.0%
Cost escalation 2016–17:	1.0%
Contractor's margin:	5.0%
Preliminaries:	8.0%
Location factor (USD):	59
PPP coefficient:	1.29

South Africa – Johannesburg

Commodities, inflation and political turmoil driving cost escalation

Economic overview

Weak commodity export volumes and price inflation are slowing the national economy. Confidence in the government is down, exchange rates have dropped sharply and recently raised interest rates are expected to be on the increase again soon. With growth of 0.7 percent recorded in the third quarter of 2015, the country is close to being in a recession.

Construction market and trends

The construction market has been facing a difficult period, with planned infrastructure spend reduced and industry and development constrained by an oversubscribed and fragile power infrastructure. While material costs remain stable, currency depreciation is affecting imports and placing added pressure on certain construction projects.

Future outlook

The country's turbulent political and economic climate is set to impact negatively on the construction sector, with cost escalation projected to rise and tender rates expected to increase at a rate higher than inflation in 2016 and through to 2017. This is due to increased builders input costs driven by labour rates, fuel costs and the impact of the weak currency on imported components.

International building costs per m² of internal area, in 2016	ZAR	USD (exchange rate: 15.52)
Airports (building only)		
Domestic terminal, full service	27,700	1,780
Low-cost carrier terminal, basic service	19,500	1,260
Car parks		
Multi-storey above ground	5,000	320
Multi-storey below ground	6,000	390
Commercial		
Offices – Business Park	8,200	530
CBD Offices – up to 20 floors medium (A-Grade)	11,000	710
CBD Offices – high-rise prestige	14,500	930
Education		
Primary and secondary	8,900	570
University	11,500	740
Hospitals		
Day centre (including basic surgeries)	9,900	640
Regional hospital	15,000	970
General hospital (e.g. city teaching hospital)	18,400	1,190
Hotels		
3 Star travellers	13,500	870
5 Star luxury	22,500	1,450
Resort style	21,400	1,380
Industrial		
Warehouse/factory units – basic	4,600	300
Large warehouse distribution centre	5,100	330
High-tech factory/laboratory	12,000	770
Residential		
Individual detached or terrace style house – medium standard	7,000	450
Individual detached house – prestige	12,500	810
Townhouses – medium standard	7,700	500
Apartments low-rise – medium standard	8,300	530
Apartments high-rise	9,500	610
Aged care/affordable units	7,000	450
Retail		
Large shopping centre including mall	12,500	810
Neighbourhood incl supermarket	9,300	600
Prestige car showroom	9,900	640

International building costs, in 2016	ZAR	USD (exchange rate: 15.52)
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	82	5
Excavate footings (m)	137	9
Concrete in slab (m^3) (1500m^3 job)	1,274	82
Reinforcement in beams (tonne)	10,733	692
Formwork to soffit of slab (m^2)	245	16
Blockwork in wall (m^2) (10,000 block job)	333	21
Structural steel beams (tonne)	31,000	1,997
Pre-cast concrete wall (m^2)	854	55
Curtain wall glazing incl support system (m^2) (1000m^2 job)	3,550	229
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	320	21
Single solid core door incl frame and hardware (no) (50 door job)	2,043	132
Painting to walls primer + 2 coats (m^2)	44	3
Ceramic tiling (m^2) (1000m^2 job)	457	29
Vinyl flooring to wet areas (m^2) (500m^2 job)	373	24
Carpet medium tufted (m^2) (4500m^2 job)	298	19
Lighting installation (m^2) (5000m^2+ job)	700	45
Copper pipe 15mm to wall (m) (1000+ metre job)	165	11
Fire sprinklers (per m^2) (5000m^2 job)	350	23
Air conditioning incl main plant (m^2) (5000m^2+ job)	1,350	87
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	65	4
Group 2 Tradesman e.g. carpenter, bricklayer	49	3
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	49	3
General labourer	33	2
Site foreman	137	9
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	1,121	72
Reinforcement bar 16mm (tonne) (120 tonne job)	10,088	650
Concrete block (400x200) per 1000 (>10,000 block job)	4,250	274
Standard brick per 1000	1,540	99
Structural steel beams (tonne) (100 tonne+ job)	26,000	1,675
Glass pane 10mm tempered (m^2)	2,250	145
Softwood timber for framing 100mm x 50mm (m)	65	4
13mm plasterboard (m^2)	103	7
Emulsion paint (litre)	90	6
Copper pipe 15mm (metre) (1000+ metre job)	57	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	21	1
Plant		
Hire 50t mobile crane + operator (day)	8,700	561

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	2.6%
Cost escalation 2016–17:	6.8%
Contractor's margin:	12.0%
Preliminaries:	11.0%
Location factor (USD):	42
PPP coefficient:	9.38

South Korea – Seoul

While construction activity is subdued, in the long term the market is set to bounce back

Economic overview

The weak Japanese yen and Chinese yuan are currently making it harder for South Korea's export-led economy to compete. Exports fell by nearly eight percent in 2015, the biggest decline in six years. Previously vibrant shipbuilding and fabrication sectors have been hit by falling oil prices, with massive financial losses and job layoffs across the industry.

Despite this, the South Korean economy grew by 2.7 percent in 2015, but slowed in the latest quarter.

Construction market and trends

Construction in South Korea is relatively subdued at present. Non-residential development of offices, warehouses and factories has been hit by weaker demand, while the country's ageing population is negatively affecting residential demand. New construction has been down overall, and construction cost inflation is negligible. Various measures are in place to encourage residential construction, including low interest rates and fiscal stimulus.

Future outlook

South Korea is set for recovery and the future is bright, but its overdependence on exports is likely to keep the economy stagnant for another year or two. This will weigh heavily on confidence and new projects will struggle to proceed. In the meantime, public sector-driven extensions to transport and city infrastructure are likely to be the main construction activities, with oil and gas fabrication, shipbuilding and residential construction remaining in a lull.

International building costs per m² of internal area, in 2016	KRW	USD (exchange rate: 1,187)
Airports (building only)		
Domestic terminal, full service	3,110,750	2,620
Low-cost carrier terminal, basic service	2,176,950	1,830
Car parks		
Multi-storey above ground	670,450	560
Multi-storey below ground	976,350	820
Commercial		
Offices – Business Park	1,342,050	1,130
CBD Offices – up to 20 floors medium (A-Grade)	1,646,800	1,390
CBD Offices – high-rise prestige	2,073,450	1,750
Education		
Primary and secondary	1,219,000	1,030
University	1,659,450	1,400
Hospitals		
Day centre (including basic surgeries)	1,342,050	1,130
Regional hospital	1,951,550	1,640
General hospital (e.g. city teaching hospital)	2,073,450	1,750
Hotels		
3 Star travellers	1,794,000	1,510
5 Star luxury	3,828,350	3,230
Resort style	2,452,490	2,070
Industrial		
Warehouse/factory units – basic	1,076,400	910
Large warehouse distribution centre	837,200	710
High-tech factory/laboratory	3,109,600	2,620
Residential		
Individual detached or terrace style house – medium standard	1,375,400	1,160
Individual detached house – prestige	2,033,775	1,710
Townhouses – medium standard	1,627,020	1,370
Apartments low-rise – medium standard	1,315,600	1,110
Apartments high-rise	1,674,400	1,410
Aged care/affordable units	1,435,200	1,210

International building costs, in 2016	KRW	USD (exchange rate: 1,187)
Retail		
Large shopping centre including mall	2,032,050	1,710
Neighbourhood incl supermarket	1,136,200	960
Prestige car showroom	2,236,750	1,880
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	6,680	6
Excavate footings (m)	6,680	6
Concrete in slab (m^3) (1500m^3 job)	135,000	114
Reinforcement in beams (tonne)	1,251,400	1054
Formwork to soffit of slab (m^2)	31,000	26
Blockwork in wall (m^2) (10,000 block job)	41,000	35
Structural steel beams (tonne)	2,008,500	1692
Pre-cast concrete wall (m^2)	265,000	223
Curtain wall glazing incl support system (m^2) (1000m^2 job)	318,000	268
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	47,800	40
Single solid core door incl frame and hardware (no) (50 door job)	266,000	224
Painting to walls primer + 2 coats (m^2)	4,800	4
Ceramic tiling (m^2) (1000m^2 job)	46,500	39
Vinyl flooring to wet areas (m^2) (500m^2 job)	37,100	31
Carpet medium tufted (m^2) (4500m^2 job)	53,000	45
Lighting installation (m^2) (5000m^2+ job)	43,260	36
Copper pipe 15mm to wall (m) (1000+ metre job)	11,600	10
Fire sprinklers (per m^2) (5000m^2 job)	23,870	20
Air conditioning incl main plant (m^2) (5000m^2+ job)	214,000	180
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	26,000	22
Group 2 Tradesman e.g. carpenter, bricklayer	23,000	19
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	21,000	18
General labourer	16,000	14
Site foreman	34,000	29
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	84,700	71
Reinforcement bar 16mm (tonne) (120 tonne job)	748,000	630
Concrete block (400x200) per 1000 (>10,000 block job)	998,000	841
Standard brick per 1000	682,000	575
Structural steel beams (tonne) (100 tonne+ job)	979,000	825
Glass pane 10mm tempered (m^2)	137,600	116
Softwood timber for framing 100mm x 50mm (m)	2,800	2
13mm plasterboard (m^2)	3,300	3
Emulsion paint (litre)	3,200	3
Copper pipe 15mm (metre) (1000+ metre job)	6,720	6
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	2,270	1.9
Plant		
Hire 50t mobile crane + operator (day)	950,000	800

Market:	**lukewarm**
Tendering:	staying the same
Cost escalation 2015–16:	0.0%
Cost escalation 2016–17:	2.0%
Contractor's margin:	3.0%
Preliminaries:	12.0%
Location factor (USD):	46
PPP coefficient:	781.15

Switzerland – Zurich

Leading the way thanks to a prosperous economy, despite high labour costs

Economic overview

Switzerland remains politically and economically stable and prosperous, and is less affected by regional issues than EU and eurozone member states. Interest rates were held at a record low of 0.75 percent through 2015, and the Swiss franc is widely considered overvalued since the peg to the euro was abandoned in early 2015.

House prices are very high, with mortgage debt levels correspondingly elevated, indicating the possibility that the market is at risk of being in an economic bubble.

Construction market and trends

Construction costs in Switzerland are among the highest in the world. The high cost of labour is a major factor in this, but despite productivity being high, skills shortages are also common.

Residential construction is the country's largest industry, accounting for 35 percent of activity in 2014, followed by commercial at 20 percent, with banking and financial services prominent and pharmaceuticals and biotech another key segment.

Future outlook

The outlook for construction is positive, with 2.9 percent growth forecast to 2019. The phasing out of nuclear energy plants offers significant opportunity in the construction of renewable energy infrastructure, while the banking and finance, manufacturing and pharmaceuticals industries will continue to play a key role in keeping the local construction sector relatively buoyant.

International building costs per m² of internal area, in 2016	CHF	USD (exchange rate: 1)
Airports (building only)		
Domestic terminal, full service	5,700	5,700
Low-cost carrier terminal, basic service	4,400	4,400
Car parks		
Multi-storey above ground	1,100	1,100
Multi-storey below ground	1,300	1,300
Commercial		
Offices – Business Park	2,500	2,500
CBD Offices – up to 20 floors medium (A-Grade)	3,900	3,900
CBD Offices – high-rise prestige	4,500	4,500
Education		
Primary and secondary	2,800	2,800
University	3,200	3,200
Hospitals		
Day centre (including basic surgeries)	3,600	3,600
Regional hospital	5,100	5,100
General hospital (e.g. city teaching hospital)	5,500	5,500
Hotels		
3 Star travellers	3,200	3,200
5 Star luxury	5,900	5,900
Resort style	4,300	4,300
Industrial		
Warehouse/factory units – basic	1,600	1,600
Large warehouse distribution centre	2,400	2,400
High-tech factory/laboratory	4,400	4,400
Residential		
Individual detached or terrace style house – medium standard	2,000	2,000
Individual detached house – prestige	2,900	2,900
Townhouses – medium standard	2,000	2,000
Apartments low-rise – medium standard	2,200	2,200
Apartments high-rise	3,200	3,200
Aged care/affordable units	2,600	2,600

International building costs, in 2016	CHF	USD (exchange rate: 1)
Retail		
Large shopping centre including mall	3,700	3,700
Neighbourhood incl supermarket	3,400	3,400
Prestige car showroom	4,100	4,100
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	25	25
Excavate footings (m)	47	47
Concrete in slab (m^3) (1500m^3 job)	241	241
Reinforcement in beams (tonne)	2,457	2,457
Formwork to soffit of slab (m^2)	75	75
Blockwork in wall (m^2) (10,000 block job)	124	124
Structural steel beams (tonne)	5,113	5,113
Pre-cast concrete wall (m^2)	185	185
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,124	1,124
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	89	89
Single solid core door incl frame and hardware (no) (50 door job)	1,583	1,583
Painting to walls primer + 2 coats (m^2)	12	12
Ceramic tiling (m^2) (1000m^2 job)	96	96
Vinyl flooring to wet areas (m^2) (500m^2 job)	53	53
Carpet medium tufted (m^2) (4500m^2 job)	88	88
Lighting installation (m^2) (5000m^2+ job)	102	102
Copper pipe 15mm to wall (m) (1000+ metre job)	54	54
Fire sprinklers (per m^2) (5000m^2 job)	144	144
Air conditioning incl main plant (m^2) (5000m^2+ job)	164	164
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	98	98
Group 2 Tradesman e.g. carpenter, bricklayer	96	96
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	91	91
General labourer	72	72
Site foreman	–	–
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	197	197
Reinforcement bar 16mm (tonne) (120 tonne job)	1,507	1,507
Concrete block (400x200) per 1000 (>10,000 block job)	5,370	5,370
Standard brick per 1000	1,231	1,231
Structural steel beams (tonne) (100 tonne+ job)	3,295	3,295
Glass pane 10mm tempered (m^2)	183	183
Softwood timber for framing 100mm x 50mm (m)	5	5
13mm plasterboard (m^2)	6	6
Emulsion paint (litre)	9	9
Copper pipe 15mm (metre) (1000+ metre job)	14	14
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	7	7
Plant		
Hire 50t mobile crane + operator (day)	2,288	2,288

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	0.0%
Cost escalation 2016–17:	0.5%
Contractor's margin:	5.0%
Preliminaries:	12.0%
Location factor (USD):	114
PPP coefficient:	2.10

Turkey – Istanbul

High public infrastructure spend poised to revive faltering construction industry

Economic overview

The erosion of the Turkish lira since the second half of 2013 has raised the price of foreign currency imports, while interest rates continue to rise.

Construction market and trends

The construction industry continued to tighten in the first half of 2015 before rebounding later in the year with 1.9 percent growth between the second and third quarters. Following strong growth in 2014, public sector construction fell in 2015, recording just 2.6 percent growth. The private sector saw even more of a slowdown, with growth falling to just 1.2 percent during the first nine months of 2015.

Currency depreciation has added to the cost of imported materials essential for construction projects, while higher interest rates and trade wages are also increasing construction costs.

Future outlook

Infrastructure will be the main driver in 2016, with marine, high-speed rail, metro and highway projects going ahead alongside significant healthcare and urban transformation programmes. Several mega-infrastructure projects also remain on the agenda, including the widely discussed third bridge and airport. The housing sector is forecast to grow 20 percent through the year, driven by the government's 2016 Action Plan.

International building costs per m² of internal area, in 2016	TRY	USD (exchange rate: 2.95)
Airports (building only)		
Domestic terminal, full service	6,000	2,030
Low-cost carrier terminal, basic service	4,000	1,360
Car parks		
Multi-storey above ground	1,250	420
Multi-storey below ground	1,450	490
Commercial		
Offices – Business Park	2,450	830
CBD Offices – up to 20 floors medium (A-Grade)	2,700	920
CBD Offices – high-rise prestige	2,850	970
Education		
Primary and secondary	1,850	630
University	2,550	860
Hospitals		
Day centre (including basic surgeries)	1,800	610
Regional hospital	2,450	830
General hospital (e.g. city teaching hospital)	2,550	860
Hotels		
3 Star travellers	2,400	810
5 Star luxury	4,550	1,540
Resort style	3,450	1,170
Industrial		
Warehouse/factory units – basic	1,350	460
Large warehouse distribution centre	1,850	630
High-tech factory/laboratory	2,800	950
Residential		
Individual detached or terrace style house – medium standard	1,680	570
Individual detached house – prestige	2,250	760
Townhouses – medium standard	1,990	670
Apartments low-rise – medium standard	1,950	660
Apartments high-rise	2,550	860
Aged care/affordable units	1,800	610
Retail		
Large shopping centre including mall	2,400	810
Neighbourhood incl supermarket	1,950	660
Prestige car showroom	2,300	780

International building costs, in 2016	TRY	USD (exchange rate: 2.95)
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	40	14
Excavate footings (m)	40	14
Concrete in slab (m^3) (1500m^3 job)	280	95
Reinforcement in beams (tonne)	2,600	881
Formwork to soffit of slab (m^2)	65	22
Blockwork in wall (m^2) (10,000 block job)	100	34
Structural steel beams (tonne)	4,400	1,492
Pre-cast concrete wall (m^2)	320	108
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,050	356
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	43	15
Single solid core door incl frame and hardware (no) (50 door job)	825	280
Painting to walls primer + 2 coats (m^2)	17	6
Ceramic tiling (m^2) (1000m^2 job)	113	38
Vinyl flooring to wet areas (m^2) (500m^2 job)	90	31
Carpet medium tufted (m^2) (4500m^2 job)	88	30
Lighting installation (m^2) (5000m^2+ job)	100	34
Copper pipe 15mm to wall (m) (1000+ metre job)	39	13
Fire sprinklers (per m^2) (5000m^2 job)	53	18
Air conditioning incl main plant (m^2) (5000m^2+ job)	330	112
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	30	10
Group 2 Tradesman e.g. carpenter, bricklayer	30	10
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	30	10
General labourer	20	7
Site foreman	40	14
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	200	68
Reinforcement bar 16mm (tonne) (120 tonne job)	1,540	522
Concrete block (400x200) per 1000 (>10,000 block job)	2,450	831
Standard brick per 1000	600	203
Structural steel beams (tonne) (100 tonne+ job)	2,200	746
Glass pane 10mm tempered (m^2)	340	115
Softwood timber for framing 100mm x 50mm (m)	7	2
13mm plasterboard (m^2)	20	7
Emulsion paint (litre)	10	3
Copper pipe 15mm (metre) (1000+ metre job)	10	3
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	4	1.4
Plant		
Hire 50t mobile crane + operator (day)	2,200	746

Market:	**warm**
Tendering:	staying the same
Cost escalation 2015–16:	7%
Cost escalation 2016–17:	8%
Contractor's margin:	8%
Preliminaries:	10%
Location factor (USD):	43
PPP coefficient:	1.76

UAE

Oil price fall stifles activity, but Dubai bucks the trend

Economic overview

The falling price of oil has had a significant negative effect in the UAE given the region's heavy reliance on the commodity. With the dirham pegged to the US dollar, the strength of the American currency has been pushing up the cost of living across the Middle East, having a particularly serious impact on housing costs.

Construction market and trends

The natural resources sector is unsurprisingly weak given the lower oil price and while the infrastructure and residential sectors are currently steady, there is a prevailing sense that the construction market is due to tighten.

Authorities will look towards private sector participation to continue the level of infrastructure development and maintain its leading role in the push for solar investment across the Gulf Cooperation Council (GCC).

Dubai defies the projects downturn occurring across the rest of the country as several major projects press ahead. Construction costs have remained stable in the past 12 months and this is expected to continue.

Future outlook

Expected low cash availability is driving concerns that the coming two years will be challenging for the UAE economy. Despite this, plans remain in place for a number of ambitious construction projects, including the world's tallest twin towers, an underwater hotel and a rainforest in the desert.

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	4,440
Low-cost carrier terminal, basic service	11,000	3,000
Car parks		
Multi-storey above ground	3,400	930
Multi-storey below ground	4,100	1,120
Commercial		
Offices – Business Park	4,285	1,170
CBD Offices – up to 20 floors medium (A-Grade)	5,340	1,460
CBD Offices – high-rise prestige	7,200	1,960
Education		
Primary and secondary	6,190	1,690
University	7,000	1,910
Hospitals		
Day centre (including basic surgeries)	5,890	1,600
Regional hospital	7,400	2,020
General hospital (e.g. city teaching hospital)	9,000	2,450
Hotels		
3 Star travellers	7,500	2,040
5 Star luxury	11,000	3,000
Resort style	13,000	3,540
Industrial		
Warehouse/factory units – basic	4,400	1,200
Large warehouse distribution centre	4,150	1,130
High-tech factory/laboratory	6,180	1,680
Residential		
Individual detached or terrace style house – medium standard	6,300	1,720
Individual detached house – prestige	10,000	2,720
Townhouses – medium standard	5,550	1,510
Apartments low-rise – medium standard	5,400	1,470
Apartments high-rise	6,200	1,690
Aged care/affordable units	–	–

International building costs, in 2016	AED	USD (exchange rate: 3.67)
Retail		
Large shopping centre including mall	5,300	1,440
Neighbourhood incl supermarket	5,755	1,570
Prestige car showroom	9,780	2,660
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	32	9
Excavate footings (m)	31	8
Concrete in slab (m^3) (1500m^3 job)	425	116
Reinforcement in beams (tonne)	3,900	1,063
Formwork to soffit of slab (m^2)	130	35
Blockwork in wall (m^2) (10,000 block job)	140	38
Structural steel beams (tonne)	10,500	2,861
Pre-cast concrete wall (m^2)	600	163
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,435	391
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	180	49
Single solid core door incl frame and hardware (no) (50 door job)	5,000	1,362
Painting to walls primer + 2 coats (m^2)	20	5
Ceramic tiling (m^2) (1000m^2 job)	140	38
Vinyl flooring to wet areas (m^2) (500m^2 job)	110	30
Carpet medium tufted (m^2) (4500m^2 job)	310	84
Lighting installation (m^2) (5000m^2+ job)	225	61
Copper pipe 15mm to wall (m) (1000+ metre job)	120	33
Fire sprinklers (per m^2) (5000m^2 job)	135	37
Air conditioning incl main plant (m^2) (5000m^2+ job)	500	136
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	27	7
General labourer	18	5
Site foreman	45	12
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	240	65
Reinforcement bar 16mm (tonne) (120 tonne job)	3,400	926
Concrete block (400x200) per 1000 (>10,000 block job)	3,500	954
Standard brick per 1000	2,500	681
Structural steel beams (tonne) (100 tonne+ job)	6,900	1,880
Glass pane 10mm tempered (m^2)	680	185
Softwood timber for framing 100mm x 50mm (m)	13	4
13mm plasterboard (m^2)	11	3
Emulsion paint (litre)	17	5
Copper pipe 15mm (metre) (1000+ metre job)	40	11
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	13	4
Plant		
Hire 50t mobile crane + operator (day)	2,900	790

Market:	**lukewarm**
Tendering:	cooler
Cost escalation 2015–16:	0.0%
Cost escalation 2016–17:	0.0%
Contractor's margin:	8.0%
Preliminaries:	10.0%
Location factor (USD):	43
PPP coefficient:	2.39

Uganda - Kampala

Infrastructure investment propelling construction expansion

Economic overview

Major economic indicators for the last quarter of 2015 revealed a weak Ugandan shilling, high interest rates and rising costs of construction. The fiscal balance is likely to remain firmly in deficit given weak public spending controls, lower levels of aid and high spending on infrastructure.

Trade with South Sudan has fallen at least 60 percent since the end of 2013 due to instability in the region, while the situation in Burundi – a key market for Uganda's manufactured goods and produce – must be quickly resolved if it is not to negatively affect the Ugandan economy.

Construction market and trends

Infrastructure related to the development of Uganda's oil reserves will be the primary driver of construction expansion in the medium term, supported by improvements to the national power supply and regional transport links.

Potential investors may be discouraged by low oil prices, the dominance of Chinese firms and allegations of government corruption. Upgraded regional logistics networks and the addition of hydropower plants to the ailing power supply will support the oil industry and facilitate trade flows.

Future outlook

A moderate increase in real GDP growth to an annual average of above five percent across 2016-20 will likely be spurred by public investment and robust private consumption. The successful development of vital infrastructure, including the upgrading of the electricity and road networks, represent key priorities for the coming years.

International building costs per m² of internal area, in 2016	UGX	USD (exchange rate: 3,395)
Airports (building only)		
Domestic terminal, full service	12,725,751	3,750
Low-cost carrier terminal, basic service	8,600,000	2,530
Car parks		
Multi-storey above ground	1,414,200	420
Multi-storey below ground	1,793,600	530
Commercial		
Offices – Business Park	2,966,400	870
CBD Offices – up to 20 floors medium (A-Grade)	3,138,800	920
CBD Offices – high-rise prestige	4,691,000	1,380
Education		
Primary and secondary	2,069,600	610
University	2,688,000	790
Hospitals		
Day centre (including basic surgeries)	2,966,400	870
Regional hospital	3,483,700	1,030
General hospital (e.g. city teaching hospital)	5,242,900	1,540
Hotels		
3 Star travellers	4,173,600	1,230
5 Star luxury	5,242,900	1,540
Resort style	5,000,000	1,470
Industrial		
Warehouse/factory units – basic	1,207,200	360
Large warehouse distribution centre	1,759,100	520
High-tech factory/laboratory	5,242,900	1,540
Residential		
Individual detached or terrace style house – medium standard	1,697,500	500
Individual detached house – prestige	2,919,000	860
Townhouses – medium standard	1,931,600	570
Apartments low-rise – medium standard	2,276,500	670
Apartments high-rise	2,621,400	770
Aged care/affordable units	1,800,000	530

International building costs, in 2016	UGX	USD (exchange rate: 3,395)
Retail		
Large shopping centre including mall	4,173,600	1,230
Neighbourhood incl supermarket	2,793,900	820
Prestige car showroom	2,759,400	810
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	13,800	4
Excavate footings (m)	10,300	3
Concrete in slab (m^3) (1500m^3 job)	672,600	198
Reinforcement in beams (tonne)	4,074,000	1,200
Formwork to soffit of slab (m^2)	44,800	13
Blockwork in wall (m^2) (10,000 block job)	103,500	30
Structural steel beams (tonne)	10,185,000	3,000
Pre-cast concrete wall (m^2)	427,700	126
Curtain wall glazing incl support system (m^2) (1000m^2 job)	965,800	284
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	124,200	37
Single solid core door incl frame and hardware (no) (50 door job)	1,390,000	409
Painting to walls primer + 2 coats (m^2)	13,800	4
Ceramic tiling (m^2) (1000m^2 job)	103,500	30
Vinyl flooring to wet areas (m^2) (500m^2 job)	341,500	101
Carpet medium tufted (m^2) (4500m^2 job)	172,500	51
Lighting installation (m^2) (5000m^2+ job)	417,400	123
Copper pipe 15mm to wall (m) (1000+ metre job)	93,100	27
Fire sprinklers (per m^2) (5000m^2 job)	204,000	60
Air conditioning incl main plant (m^2) (5000m^2+ job)	344,900	102
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	9,500	3
Group 2 Tradesman e.g. carpenter, bricklayer	3,200	1
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	6,500	2
General labourer	3,000	1
Site foreman	9,500	3
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	650,000	191
Reinforcement bar 16mm (tonne) (120 tonne job)	3,656,200	1,077
Concrete block (400x200) per 1000 (>10,000 block job)	4,387,400	1,292
Standard brick per 1000	576,000	170
Structural steel beams (tonne) (100 tonne+ job)	9,206,000	2,712
Glass pane 10mm tempered (m^2)	365,600	108
Softwood timber for framing 100mm x 50mm (m)	10,300	3
13mm plasterboard (m^2)	10,300	3
Emulsion paint (litre)	11,900	4
Copper pipe 15mm (metre) (1000+ metre job)	69,000	20
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	37,900	11.2
Plant		
Hire 50t mobile crane + operator (day)	4,725,500	1,392

Market:	**lukewarm**
Tendering:	warmer
Cost escalation 2015–16:	9.5%
Cost escalation 2016–17:	9.8%
Contractor's margin:	6.0%
Preliminaries:	9.0%
Location factor (USD):	43
PPP coefficient:	2,273.96

UK – London

London remains a forerunner, despite strained supply chain

Economic overview

Despite healthy GDP growth, increasing by 2.3 percent over 2015, the UK's economic outlook is uncertain due to the referendum on whether the country will remain part of the EU. UK investment growth now looks to be weakening, and construction output slowed a little towards the end of 2015.

Construction market and trends

London continues to lead the UK construction sector, and has been responsible for much of the recent tender price inflation. Annualised output growth in the capital, as of the fourth quarter of 2015, is now 45.2 percent higher than levels seen in 2008.

For now, the capital remains overheated, with a strong demand for major projects and a lack of capacity in the supply chain to respond. As a result, contractors are being selective in the projects they choose as demand outstrips supply and clients are finding it increasingly difficult to get commitment to bid in competition.

Future outlook

There is emerging evidence the residential demand that is fuelling escalation of construction prices could peak in 2016. Tender pricing will remain volatile for the next 18 months and will outperform UK general inflation levels, with tender price inflation expected to run at 4.9 percent in 2016, compared with 5.1 percent in 2015. London will continue to be the dominant driving force of tender price inflation in the UK.

International building costs per m² of internal area, in 2016	GBP	USD (exchange rate: 0.68)
Airports (building only)		
Domestic terminal, full service	3,680	5,410
Low-cost carrier terminal, basic service	2,730	4,010
Car parks		
Multi-storey above ground	680	1,000
Multi-storey below ground	1,050	1,540
Commercial		
Offices – Business Park	2,350	3,460
CBD Offices – up to 20 floors medium (A-Grade)	2,700	3,970
CBD Offices – high-rise prestige	3,300	4,850
Education		
Primary and secondary	1,950	2,870
University	2,800	4,120
Hospitals		
Day centre (including basic surgeries)	2,500	3,680
Regional hospital	3,100	4,560
General hospital (e.g. city teaching hospital)	3,500	5,150
Hotels		
3 Star travellers	2,240	3,290
5 Star luxury	3,250	4,780
Resort style	2,840	4,180
Industrial		
Warehouse/factory units – basic	840	1,240
Large warehouse distribution centre	1,000	1,470
High-tech factory/laboratory	1,940	2,850
Residential		
Individual detached or terrace style house – medium standard	1,720	2,530
Individual detached house – prestige	3,170	4,660
Townhouses – medium standard	2,520	3,710
Apartments low-rise – medium standard	2,510	3,690
Apartments high-rise	2,800	4,120
Aged care/affordable units	1,820	2,680

International building costs, in 2016	GBP	USD (exchange rate: 0.68)
Retail		
Large shopping centre including mall	1,950	2,870
Neighbourhood incl supermarket	1,350	1,990
Prestige car showroom	1,650	2,430
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	16	23
Excavate footings (m)	19	27
Concrete in slab (m^3) (1500m^3 job)	165	243
Reinforcement in beams (tonne)	1,125	1,654
Formwork to soffit of slab (m^2)	55	81
Blockwork in wall (m^2) (10,000 block job)	61	90
Structural steel beams (tonne)	2,067	3,039
Pre-cast concrete wall (m^2)	101	149
Curtain wall glazing incl support system (m^2) (1000m^2 job)	725	1,066
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	48	71
Single solid core door incl frame and hardware (no) (50 door job)	998	1,467
Painting to walls primer + 2 coats (m^2)	10	15
Ceramic tiling (m^2) (1000m^2 job)	76	112
Vinyl flooring to wet areas (m^2) (500m^2 job)	31	46
Carpet medium tufted (m^2) (4500m^2 job)	30	44
Lighting installation (m^2) (5000m^2+ job)	88	129
Copper pipe 15mm to wall (m) (1000+ metre job)	41	60
Fire sprinklers (per m^2) (5000m^2 job)	44	65
Air conditioning incl main plant (m^2) (5000m^2+ job)	163	239
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	39	57
Group 2 Tradesman e.g. carpenter, bricklayer	35	52
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	32	47
General labourer	22	32
Site foreman	44	65
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	115	169
Reinforcement bar 16mm (tonne) (120 tonne job)	870	1,279
Concrete block (400x200) per 1000 (>10,000 block job)	910	1,338
Standard brick per 1000	480	706
Structural steel beams (tonne) (100 tonne+ job)	1,700	2,500
Glass pane 10mm tempered (m^2)	106	155
Softwood timber for framing 100mm x 50mm (m)	4	5
13mm plasterboard (m^2)	5	8
Emulsion paint (litre)	6	8
Copper pipe 15mm (metre) (1000+ metre job)	7	10
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	4
Plant		
Hire 50t mobile crane + operator (day)	1,220	1,794

Market:	hot
Tendering:	warmer
Cost escalation 2015–16:	5.1%
Cost escalation 2016–17:	4.9%
Contractor's margin:	5.5%
Preliminaries:	14.8%
Location factor (USD):	100
PPP coefficient:	1.00

UK – other regions

Northern infrastructure and London halo drives growth with a guarded market outlook

Construction market and trends

Outside of London, there is a real sense of a variable-speed construction economy. Across the south, the pull of demand and a close geographical proximity to London is having a clear impact on tender prices with consistent pressures on capacity. The Cambridge market in particular is experiencing high levels of construction activity, which in a relatively small market is putting significant pressure on costs.

Infrastructure is driving regional markets across the North and sentiment remains positive around the future outlook in this sector. HS2 is expected to provide a catalyst for wider real estate development activity in the key cities along its route, notably in the midlands and north west, and there are significant construction projects forthcoming in and around these areas. Further north workloads are stable, but at a decidedly weaker level in the north east and Scotland, and are the least positive of all in Northern Ireland.

Future outlook

Overall, the next year is likely to be less predictable and regional variations are expected to widen. With limited capacity remaining a key feature of the industry, upward cost pressures and therefore price increases are expected in almost all areas over the coming 12 months, albeit at a reduced pace in comparison to the previous year.

International building costs per m² of internal area, in 2016	UK South GBP	UK North GBP	Scotland GBP	Northern Ireland GBP	UK Central GBP
Airports (building only)					
Domestic terminal, full service	3,360	3,225	3,050	2,870	3,000
Low-cost carrier terminal, basic service	2,470	2,400	2,300	2,250	2,315
Car parks					
Multi-storey above ground	640	580	550	510	550
Multi-storey below ground	1,010	865	800	730	775
Commercial					
Offices – Business Park	1,840	1,600	1,550	1,400	1,600
CBD Offices – up to 20 floors medium (A-Grade)	1,915	1,800	1,700	1,580	1,750
CBD Offices – high-rise prestige	2,520	2,365	2,200	2,080	2,255
Education					
Primary and secondary	1,730	1,610	1,600	1,330	1,565
University	2,530	2,100	2,100	1,860	2,065
Hospitals					
Day centre (including basic surgeries)	1,840	1,515	1,650	1,460	1,485
Regional hospital	2,575	2,460	2,500	2,250	2,440
General hospital (e.g. city teaching hospital)	3,150	2,925	2,900	2,660	2,910
Hotels					
3 Star travellers	1,840	1,600	1,575	1,400	1,600
5 Star luxury	2,730	2,650	2,500	2,450	2,600
Resort style	2,415	2,100	2,050	2,030	2,050
Industrial					
Warehouse/factory units – basic	735	665	650	610	670
Large warehouse distribution centre	880	785	775	710	795
High-tech factory/laboratory	1,785	1,650	1,600	1,480	1,650
Residential					
Individual detached or terrace style house – medium standard	1,420	1,295	1,200	1,080	1,295
Individual detached house – prestige	2,415	1,650	1,600	1,480	1,635
Townhouses – medium standard	1,995	1,450	1,400	1,350	1,400
Apartments low-rise – medium standard	1,940	1,630	1,500	1,400	1,590
Apartments high-rise	2,260	1,950	1,900	1,810	1,950
Aged care/affordable units	1,735	1,530	1,500	1,330	1,525

International building costs, in 2016	UK South GBP	UK North GBP	Scotland GBP	Northern Ireland GBP	UK Central GBP
Retail					
Large shopping centre including mall	1,810	1,675	1,650	1,530	1,670
Neighbourhood incl supermarket	1,260	1,170	1,100	1,020	1,155
Prestige car showroom	1,550	1,495	1,475	1,330	1,490
Composite trade rates					
Excavate basement (m^3) (1800m^3 job)	15	10	11	5	10
Excavate footings (m)	18	17	15	12	16
Concrete in slab (m^3) (1500m^3 job)	155	146	135	88	144
Reinforcement in beams (tonne)	1,082	1,045	980	750	1,007
Formwork to soffit of slab (m^2)	51	40	35	31	38
Blockwork in wall (m^2) (10,000 block job)	51	39	33	20	38
Structural steel beams (tonne)	1,875	1,700	1,500	1,450	1,670
Pre-cast concrete wall (m^2)	91	89	85	72	88
Curtain wall glazing incl support system (m^2) (1000m^2 job)	613	494	480	443	485
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	44	32	34	30	32
Single solid core door incl frame and hardware (no) (50 door job)	700	631	650	600	626
Painting to walls primer + 2 coats (m^2)	8	6	6	4	6
Ceramic tiling (m^2) (1000m^2 job)	59	49	49	42	50
Vinyl flooring to wet areas (m^2) (500m^2 job)	31	29	29	26	29
Carpet medium tufted (m^2) (4500m^2 job)	29	26	26	21	27
Lighting installation (m^2) (5000m^2+ job)	70	58	55	51	58
Copper pipe 15mm to wall (m) (1000+ metre job)	26	23	24	20	22
Fire sprinklers (per m^2) (5000m^2 job)	42	35	35	34	36
Air conditioning incl main plant (m^2) (5000m^2+ job)	140	114	105	88	112
Labour costs					
Group 1 Tradesman e.g. plumber, electrician	35	31	28	24	29
Group 2 Tradesman e.g. carpenter, bricklayer	32	25	26	20	25
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	31	24	23	18	24
General labourer	20	19	19	15	19
Site foreman	38	32	30	26	31
Material costs					
Concrete 30 MPa (m^3) (1500m^3 job)	105	87	87	70	86
Reinforcement bar 16mm (tonne) (120 tonne job)	839	750	750	690	750
Concrete block (400x200) per 1000 (>10,000 block job)	839	745	770	430	740
Standard brick per 1000	440	420	360	340	410
Structural steel beams (tonne) (100 tonne+ job)	1,620	1,400	1,200	1,150	1,350
Glass pane 10mm tempered (m^2)	97	96	95	94	96
Softwood timber for framing 100mm x 50mm (m)	3	3	3	3	3
13mm plasterboard (m^2)	4	4	4	4	4
Emulsion paint (litre)	4	4	3	3	4
Copper pipe 15mm (metre) (1000+ metre job)	6	4	4	4	4
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	3	2	2	2	2
Plant					
Hire 50t mobile crane + operator (day)	1,130	890	900	600	870

	UK South	UK North	Scotland	Northern Ireland	UK Central
Market:	**warm**	**warm**	**warm**	**lukewarm**	**warm**
Tendering:	staying the same	warmer	staying the same	warmer	warmer
Cost escalation 2015–16:	3.8%	3.3%	4.0%	2.5%	4.0%
Cost escalation 2016–17:	4.3%	3.1%	3.5%	3.0%	3.3%
Contractor's margin:	4.3%	4.5%	4.0%	3.5%	4.2%
Preliminaries:	13.5%	12.3%	13.0%	11.0%	12.3%
Location factor (USD):	86	76	74	61	74
PPP coefficient:	0.91	0.81	0.79	0.66	0.79

USA – New York City

Market reaching its peak and in danger of overheating

Economic overview

New York City's 2015 economy continued to expand with a boom in new projects that has lasted for the past six years. Venture-capital investment also grew, signalling continued growth, while commercial space inventory has declined and rent rates have increased. Construction project spend was strong, valued at $40bn, up 35 percent over 2014.

Construction market and trends

Key influences such as the cost of commodity materials and shortage of skilled labour continue to push higher construction costs, driven by a hot residential boom and large-scale private developments, along with growth now starting on major infrastructure programmes.

Builders and developers compete for limited skilled labour. Use of non-union labour will continue to rise as the skills gap has narrowed and cost benefits can be realised as much as 30 percent compared to union labour. The city is starting to see modular construction use, particularly in the residential and hotel sectors. Technologies like BIM are gaining traction and becoming a staple on large projects. Green building is also growing as developers and tenants desire more sustainable, eco-friendly buildings with improved life-cycle costs.

Future outlook

New York City appears to be at the crest of the market, and a downward trend is expected by 2017. The luxury rental sector is expected to saturate as large-scale developments near completion. The capital also has a pressing need to increase affordable housing.

The high-tech sector is not expanding as quickly as expected but large scale developments are in full swing and public infrastructure projects such as aviation, rail and utilities, are on the rise.

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	6,270	583
Low-cost carrier terminal, basic service	3,553	330
Car parks		
Multi-storey above ground	1,411	131
Multi-storey below ground	2,247	209
Commercial		
Offices – Business Park	2,769	257
CBD Offices – up to 20 floors medium (A-Grade)	5,068	471
CBD Offices – high-rise prestige	5,748	534
Education		
Primary and secondary	2,351	218
University	3,710	345
Hospitals		
Day centre (including basic surgeries)	2,978	277
Regional hospital	5,455	507
General hospital (e.g. city teaching hospital)	5,570	517
Hotels		
3 Star travellers	2,811	261
5 Star luxury	5,016	466
Resort style	3,428	318
Industrial		
Warehouse/factory units – basic	1,223	114
Large warehouse distribution centre	1,675	156
High-tech factory/laboratory	5,058	470
Residential		
Individual detached or terrace style house – medium standard	2,912	271
Individual detached house – prestige	3,858	358
Townhouses – medium standard	1,872	174
Apartments low-rise – medium standard	2,288	213
Apartments high-rise	3,068	285
Aged care/affordable units	1,976	184

International building costs, in 2016	USD Metric (m^2)	USD US Standard (ft^2)
Retail		
Large shopping centre including mall	3,658	340
Neighbourhood incl supermarket	1,829	170
Prestige car showroom	3,128	291
Composite trade rates		
Excavate basement (m^3) (1800m^3 job)	38	29
Excavate footings (m)	37	11.28
Concrete in slab (m^3) (1500m^3 job)	300	229
Reinforcement in beams (tonne)	2,000	1,814
Formwork to soffit of slab (m^2)	90	8
Blockwork in wall (m^2) (10,000 block job)	250	23
Structural steel beams (tonne)	6,000	5,443
Pre-cast concrete wall (m^2)	275	26
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,800	167
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	90	8
Single solid core door incl frame and hardware (no) (50 door job)	2,250	2,250
Painting to walls primer + 2 coats (m^2)	20	2
Ceramic tiling (m^2) (1000m^2 job)	165	15
Vinyl flooring to wet areas (m^2) (500m^2 job)	100	9
Carpet medium tufted (m^2) (4500m^2 job)	63	53
Lighting installation (m^2) (5000m^2+ job)	155	14
Copper pipe 15mm to wall (m) (1000+ metre job)	55	17
Fire sprinklers (per m^2) (5000m^2 job)	57	5
Air conditioning incl main plant (m^2) (5000m^2+ job)	465	43
Labour costs		
Group 1 Tradesman e.g. plumber, electrician	102	102
Group 2 Tradesman e.g. carpenter, bricklayer	87	87
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	78	78
General labourer	77	77
Site foreman	130	130
Material costs		
Concrete 30 MPa (m^3) (1500m^3 job)	147	112
Reinforcement bar 16mm (tonne) (120 tonne job)	1,100	998
Concrete block (400x200) per 1000 (>10,000 block job)	1,300	1,300
Standard brick per 1000	561	561
Structural steel beams (tonne) (100 tonne+ job)	2,512	2,279
Glass pane 10mm tempered (m^2)	242	22
Softwood timber for framing 100mm x 50mm (m)	5	1.60
13mm plasterboard (m^2)	10	0.95
Emulsion paint (litre)	7	27.03
Copper pipe 15mm (metre) (1000+ metre job)	12	3.80
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	6	1.87
Plant		
Hire 50t mobile crane + operator (day)	3,600	3,600

Market:	**overheating**
Tendering:	staying the same
Cost escalation 2015–16:	4.2%
Cost escalation 2016–17:	4.5%
Contractor's margin:	7.0%
Preliminaries:	12.5%
Location factor (USD):	127
PPP coefficient:	2.23

USA – other regions

Residential booms in major cities spur construction demand

Economic overview

US economic growth faltered in the last quarter of 2015, but overall annual GDP growth stood at two percent. Inflation and finance costs are still low, and the falling price of oil is powering growth in consumer demand, the biggest driver of the country's economy.

Construction market and trends

Construction outside New York City has been strong, particularly in the large cities of the east and west coast, driven by a resurgence in residential and commercial construction.

A large number of developments are underway in the San Francisco Bay area, where the technology industry is driving growth, while Seattle is in the middle of a six-year boom cycle, powered by high population growth. In Houston, the office market is weaker given the fall in oil prices, but growth will continue in the healthcare and higher education sectors.

Future outlook

Residential construction booms in Seattle and San Francisco will remain strong in 2016 to keep pace with continued growth in the technology industry. Houston is likely to experience a cooling in new construction due to continued softness in the energy sector.

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	4,646	432	5,859	544	5,090	473
Low-cost carrier terminal, basic service	2,599	241	3,320	308	3,054	284
Car parks						
Multi-storey above ground	521	48	1,318	122	784	73
Multi-storey below ground	1,122	104	2,099	195	1,832	170
Commercial						
Offices – Business Park	1,189	110	2,588	240	1,527	142
CBD Offices – up to 20 floors medium (A-Grade)	2,081	193	4,736	440	2,301	214
CBD Offices – high-rise prestige	4,692	436	5,370	499	4,900	455
Education						
Primary and secondary	2,220	206	2,197	204	2,189	203
University	2,648	246	3,466	322	2,749	255
Hospitals						
Day centre (including basic surgeries)	2,081	193	2,783	259	2,199	204
Regional hospital	3,407	317	5,097	474	4,103	381
General hospital (e.g. city teaching hospital)	2,968	276	5,204	484	3,665	340
Hotels						
3 Star travellers	1,856	172	2,627	244	2,464	229
5 Star luxury	3,625	337	4,687	435	3,868	359
Resort style	2,093	194	3,203	298	2,341	218
Industrial						
Warehouse/factory units – basic	714	66	1,167	108	953	89
Large warehouse distribution centre	892	83	1,367	127	1,289	120
High-tech factory/laboratory	4,272	397	4,726	439	4,500	418
Residential						
Individual detached or terrace style house medium standard	1,836	171	2,721	253	2,189	203
Individual detached house – prestige	2,958	275	3,605	335	3,288	305
Townhouses – medium standard	1,122	104	1,749	163	1,527	142
Apartments low-rise – medium standard	1,275	118	2,138	199	1,731	161
Apartments high-rise	1,530	142	2,867	266	1,802	167
Aged care/affordable units	1,122	104	1,846	172	1,476	137

International building costs, in 2016	Houston USD Metric (m²)	Houston USD US Standard (ft²)	San Francisco USD Metric (m²)	San Francisco USD US Standard (ft²)	Seattle USD Metric (m²)	Seattle USD US Standard (ft²)
Retail						
Large shopping centre including mall	2,550	237	3,418	318	3,054	284
Neighbourhood incl supermarket	1,122	104	1,709	159	1,222	113
Prestige car showroom	2,540	236	2,666	248	2,596	241
Composite trade rates						
Excavate basement (m^3) (1800m^3 job)	12	9	20	15	16	12
Excavate footings (m)	17	5.18	28	8.53	20	6.02
Concrete in slab (m^3) (1500m^3 job)	270	206	285	218	281	214
Reinforcement in beams (tonne)	1,559	1,414	1,984	1,800	1,870	1,697
Formwork to soffit of slab (m^2)	56	5	78	7	76	7
Blockwork in wall (m^2) (10,000 block job)	99	9	151	14	112	10
Structural steel beams (tonne)	4,999	4,535	5,600	5,080	5,450	4,944
Pre-cast concrete wall (m^2)	250	23	250	23	246	23
Curtain wall glazing incl support system (m^2) (1000m^2 job)	1,030	96	1,076	100	1,129	105
Plasterboard 13mm thick to stud wall (m^2) (3000m^2 job)	55	5	70	7	68	6
Single solid core door incl frame and hardware (no) (50 door job)	1,132	1,247	2,000	2,000	1,247	1,247
Painting to walls primer + 2 coats (m^2)	14	1	11	1	14	1
Ceramic tiling (m^2) (1000m^2 job)	92	9	129	12	105	10
Vinyl flooring to wet areas (m^2) (500m^2 job)	58	5	32	3	68	6
Carpet medium tufted (m^2) (4500m^2 job)	55	46	58	48	56	47
Lighting installation (m^2) (5000m^2+ job)	139	13	148	14	145	14
Copper pipe 15mm to wall (m) (1000+ metre job)	36	11	47	14	45	14
Fire sprinklers (per m^2) (5000m^2 job)	33	3	38	4	36	3
Air conditioning incl main plant (m^2) (5000m^2+ job)	274	25	400	37	392	36
Labour costs						
Group 1 Tradesman e.g. plumber, electrician	58	58	95	95	80	80
Group 2 Tradesman e.g. carpenter, bricklayer	50	50	66	66	61	61
Group 3 Tradesman e.g. carpet layer, tiler, plasterer	45	45	64	64	62	62
General labourer	40	40	51	51	50	50
Site foreman	96	96	100	100	105	105
Material costs						
Concrete 30 MPa (m^3) (1500m^3 job)	138	105	137	105	133	102
Reinforcement bar 16mm (tonne) (120 tonne job)	979	888	1,000	907	996	903
Concrete block (400x200) per 1000 (>10,000 block job)	1,020	1,020	1,250	1,250	1,016	1,016
Standard brick per 1000	449	449	500	500	460	460
Structural steel beams (tonne) (100 tonne+ job)	1,999	1,814	2,433	2,207	2,124	1,927
Glass pane 10mm tempered (m^2)	235	22	237	22	236	22
Softwood timber for framing 100mm x 50mm (m)	4	1.22	4	1.22	4	1.24
13mm plasterboard (m^2)	9	0.85	9	0.84	9	0.85
Emulsion paint (litre)	6	23.17	6	22.71	6	23.08
Copper pipe 15mm (metre) (1000+ metre job)	10	3.05	10	3.05	10	3.10
Copper cable (metre) (3C + E, 2.5mm PVC) (100,000m+ job)	5	1.52	5	1.52	5	1.55
Plant						
Hire 50t mobile crane + operator (day)	2,040	2,040	3,000	3,000	2,600	2,600

	Houston	San Francisco	Seattle
Market:	**lukewarm**	**hot**	**overheating**
Tendering:	staying the same	warmer	staying the same
Cost escalation 2015–16:	3.0%	5.0%	5.0%
Cost escalation 2016–17:	2.5%	5.0%	8.0%
Contractor's margin:	5.0%	6.0%	5.3%
Preliminaries:	10.6%	8.5%	10.0%
Location factor (USD):	83	103	97
PPP coefficient:	1.52	1.85	1.76

Comparing construction costs

It is important to compare construction costs between countries to inform expansion decisions. It can also enable productivity comparisons, highlighting 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 10: 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 82 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 11: 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 USD84m in Toronto (location factor 84) 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 12: 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

Labout 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 and 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 2016.

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 of goods with the cost of construction in the country to obtain a purchasing power parity cost.

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

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

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

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In this report, trade, labour and material prices and prices per m^2 are indicative, and should not be relied on without first obtaining advice from a qualified professional person. Costs are dependent on building design, inclusions, exclusions, and site conditions. Cost comparisons between countries are subject to different interpretations, building methods, and standards for costing, measurement and construction. Costs may vary substantially between regions within countries. Turner & Townsend and its subsidiaries, the authors and contributors expressly disclaim all and any liability and responsibility to any person in respect of anything done or omitted to be done in reliance wholly or in part upon the whole of the contents of this publication.

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