

# Construction activity and market outlook



## United Kingdom - Q1 2018

With just over six months to go before the Brexit agreement is due to be finalised for ratification by all member states, the political environment remains tumultuous, with both the perceived and actual progress of the Brexit negotiations continuing to affect market confidence. The global economy is strengthening, which is expected to benefit the UK. The fall-out from the collapse of Carillion has so far been reassuringly minimised, although it has exposed wider reaching fragility within the contracting market. Our forecast is for slow, but steady, progress over the next few years, with contractors tightening margins to stay competitive and counter persistent input cost pressures.

The Office for Budget Responsibility's (OBR) predictions for GDP are for 1.4% in 2018, rising to 1.6% by 2022. Other independent forecasts, as collated by the Treasury, are slightly more optimistic with figures of 1.5% in 2018 and 2019, and 1.8% per annum thereafter.

CPI (Consumer Price Index) dipped in February to 2.7%, from a five-year high of 3% the previous month. The OBR is predicting CPI of 2.4% for 2018 and levelling out at broadly 2.0% per annum through to 2022. The Bank of England's governor has stated that gradual interest rate rises are likely from later this year.

Materials prices are expected to rise by 3% to 4% per annum over

the forecast period. According to the Construction Products Association (CPA), on-site skills shortages continue to be felt, notably for bricklayers, carpenters and plasterers. Wage agreements are consequently forecast for above inflation growth, if the skilled-labour shortages are not addressed.

Construction market activity continues the dip which was seen through the second half of last year. The Office for National Statistics (ONS) reports that the total volume of construction output fell by 1% in Q4 2017, compared with Q3. Work in the private commercial sector fell by 5% over the second half of the year, most likely affected by Brexit uncertainties. New work output fell in the quarter in all sectors, except private housing and infrastructure, where output rose by 5% and 1% respectively.

At a project level, we maintain our forecasts for a softening in contractor pipelines and for muted construction activity through to 2020, followed by steady recovery. Our assessment is for continued inflation on imported goods, due to sterling depreciation, and increasing demand for skilled labour, with both factors outweighing the impact of the wider Brexit/economic considerations in keeping TPI (tender price inflation) positive, and above CPI.



### Materials and commodities costs:

Materials prices rose by 1.5% in Q4 2017, mainly driven by the fall in sterling. Significant increases were seen in reinforcing bars (6.3%), imported plywood (4.7%), fabricated steelwork (3.6%), and insulation (3.4%) [BCIS]. European Brent crude oil rose 18% in Q4 2017 to circa US\$65 a barrel.



### Labour costs:

Unemployment remains low at 4.3% [ONS]. Average weekly earnings (AWE) in the construction industry rose by 2.9% in Q4 2017, compared to the previous year, which is higher than in the wider economy. Wage awards are expected to be settled at around an annual 3% over the next three years and then 5% per annum thereafter [BCIS].



### Inflation:

CPI has decreased: now 2.7%; down from a five-year high of 3.0% in January 2018 [Bank of England]. The bank rate remains at 0.5% and its next review is in May 2018. Gradual increases are being hinted at to maintain the 2.0% CPI target [Bank of England]. Independent forecasts predict a steady rise to 2.25% by 2022.



### Insolvencies:

Construction-related compulsory liquidations in Great Britain fell by 2% in Q3 2017, compared with the previous quarter, but rose by 10% compared with the previous year. The potential impact of the Carillion collapse is yet to be seen. [BCIS]



### GDP:

UK GDP growth was adjusted down to 0.4% in Q4 2017 - an increase of 1.4% compared with the previous year. It is likely to remain at a similar rate through to 2021. [ONS]

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## Construction activity and market outlook

ONS figures show that construction output fell by 1.0% in the three months to January, led by falls in commercial, industrial, public non-housing, repair and maintenance work. More dramatically, new orders fell 25% in Q4 2017, although annually the fall was a more modest 1.3%. Leaving aside the possibility of a 'winter blip', the data does indicate a market softening, which started to be evidenced in the middle of last year. With GDP growth expected to be slow for the next few years, the forecast for construction output is similarly muted. Undoubtedly, construction is facing a number of significant headwinds; the collapse of Carillion has sent ripples through the industry and elevated financial stability to the top of client concerns. Brexit will clearly be highly impactful to both demand levels and the ability to deliver resource to projects; and the post-Grenfell review due in May could, it has been suggested, increase the costs for residential towers by 20%.

As a measure of confidence, the IHS Markit/CIPS UK Construction Purchasing Managers' Index fell sharply to 47 in March from 51.4 in the previous month. This is a register below the 50 no-change threshold for the first time in six months.

Companies are now reporting profits falling because of the weak pound and Brexit uncertainties, notably in the non-residential sectors and prominently in the commercial sector. Our view is that residential and infrastructure-related works remain in the leading sectors.

Our current TPI forecasts have increased slightly from previously, particularly post-2019, reflecting expectations that restrictions on labour supply will continue and may increase following the Brexit transition period, furthering the drive towards modularisation. We explore modular construction in more detail in the accompanying technical article.

Regionally, central London has recently seen large falls in new orders for commercial development. It should be emphasised, however, that London and the South East remains the strongest region for industry activity in the UK and should continue to see comparatively high levels of activity, especially around

existing or proposed transport nodes. Elsewhere, the data is mixed. Hot spots continue to exist around Cambridge, Manchester and Birmingham, with evidence of national-level contractors moving in to secure the larger projects likely to follow the roll-out of planned infrastructure schemes, such as HS2 and the Northern Powerhouse. Scotland remains constrained by the state of the oil economy and shortages in skilled labour. The prospect of a future, potentially divisive, campaign for a second independence referendum

also remains live and could increase in response to any special deal offered to Northern Ireland, in respect of Brexit.

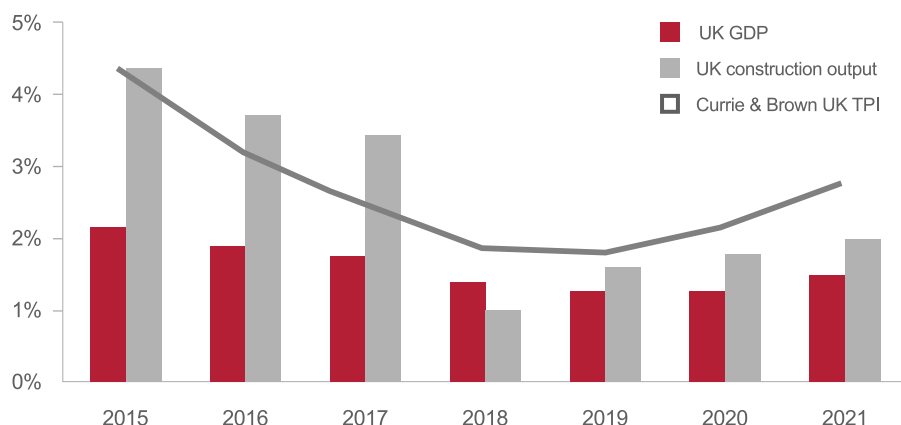
In procurement, the economic climate is creating opportunities for increased competitive tension in tenders. As always, it should be emphasised that an individual project's risk profile is highly dependent on size, scale, sector, location, pricing levels and access to the right level of a supply chain. Our challenge, as an industry, is to seize this moment, think differently and drive change.

### UK tender price inflation by region (%)

Region	2016	2017	2018	2019	2020	2021
East Anglia	2.4	2.4	1.6	1.5	1.6	2.1
East Midlands	2.7	2.4	1.7	1.5	1.7	2.0
West Midlands	2.6	2.5	1.7	1.5	2.1	2.5
North East	2.1	2.1	1.4	1.6	1.9	2.1
Yorkshire and Humber	2.6	2.4	1.9	1.6	2.1	2.4
North West	3.3	2.5	2.0	1.8	2.1	2.5
Northern Ireland	2.8	2.5	1.2	1.2	1.5	2.0
Scotland	3.9	2.0	1.7	1.7	2.0	2.1
Central London	4.1	3.0	2.3	2.5	2.7	3.8
South East	3.1	2.5	2.1	1.7	2.3	2.9
South West	3.0	2.6	1.7	1.6	2.2	2.8
Wales	2.9	2.2	1.2	1.5	1.9	2.0
<b>UK average</b>	<b>3.2</b>	<b>2.5</b>	<b>1.9</b>	<b>1.8</b>	<b>2.2</b>	<b>2.7</b>

Our forecast provides guidance on the general level of tender price inflation, based on major and medium-sized projects across all sectors of the market. Project-specific commercial factors can have a significant impact on the level of pricing - size of scheme, attractiveness of scheme (eg complexity, location, risk, etc), procurement route (eg single-stage, two-stage, negotiated) and keenness of tenderers (eg local market dynamics, workloads, hot spots, realisable margins, etc).

### Annual UK tender price inflation (%)



# Modular construction

As we reported in our Q4 2017 construction activity and market outlook report, the next few years are forecast to see a significant upsurge in the use of off-site or modular construction methods in delivering the much-needed supply of new affordable residences. Modular construction is very much identified as the optimum response to this demand, particularly in the context of the reducing availability of skilled labour for traditional building trades, and the enhanced performance and environmental standards that one can expect from future iterations to building regulations, the London Plan and similar development control mechanisms. Indeed, recently announced government policy commits the public sector to adopting a presumption in favour of off-site construction, where best value can be demonstrated. Several large contracting organisations are now building their own factories to cater for the expected demand, at the same time as the industry is generally trying to push the boundaries of what modular construction can deliver. It was recently announced that Europe's tallest modular tower, an HTA-designed 580-room student building in Wembley, had now reached roof level and is due for completion in September 2019.

This feature discusses the key aspects and considerations of modular construction and identifies the issues which the industry needs to address to unlock its full potential.

## Design and manufacture

There is little doubt that pressure to build is driving innovation. Modern methods of construction, as off-site construction is often referred to, have been used for some time, covering timber or metal-framed building systems, panelisation and bathroom pods of package-based MEP components. Now, however, the attention has very much moved to full modularisation. In January, it was reported that Berkeley Group had won planning approval for a new modular housing factory in Ebbsfleet, Kent, intended to produce finished modules for 1,000 new homes per year, complete with plumbing, electrics and internal finishes.

Historically, a major barrier to the implementation of full modular construction has been a lack of confidence in the quality of the end product, from the point of view of both aesthetics and the robustness and durability of the modules over their lifespan. This is not wholly fair. An architect can exercise discretion to use alternative façade solutions to make a building look less modular, to optimise the time and cost benefits that uniformity of design yields, although we would accept that modular

construction generally precludes complex architectural shapes and features. Indeed, this is one reason why modular construction is becoming a popular construction method for student accommodation, budget hotels and many build-for-rent developments. Further design efficiencies can be generated through the advice and input of the manufacturer, ensuring that the manufacturing facility is fully aligned to meet the requirements of product specification, volume and programme.



Example of modular construction: The London Borough of Barking and Dagenham - Riverside Campus. Modular construction allowed 23,800m<sup>2</sup> to be constructed in 19 months.

Technology has vastly improved the manufacturing process including enhanced quality control procedures and augmented assembling capabilities. Aligned to this are the strong sustainability advantages that modular construction can deliver, including less waste, a higher recyclable materials content and lower energy consumption.

The insurance implications are likely to be different from traditional builds. In our experience, developers and funders tend to require product guarantees when a project involves off-site construction methods. However, given that there may be several potential certification interfaces within the overall modular installation, the particularities of such a guarantee must be examined, and all parties who request one should undertake thorough legal and technical due diligence to avoid pitfalls that could make the document ineffective and non-actionable. An insurance-backed guarantee to warrant the modules' planned economic life while explicitly covering design, materials and workmanship, should be requested.

Modular construction is still a relatively immature industry, and so from a regulatory perspective there is still room for improvement to provide a uniform quality control, certification and compliance platform. Once this develops, it will not only boost confidence in the modular capabilities but will also provide comfort to all stakeholders and introduce commonalities between different manufacturers' modular systems, reducing the perception that a client might be 'putting all of their eggs in one basket'. The introduction of digital design guidelines and platforms for commonalities will assist, together with the introduction of a common and uniform set of accreditations, regulated and backed by the government.

## Programme

It is well established that the lean programming characteristics of modular construction offer significant time savings on site, compared to more traditional construction methods. Analysis from a range of projects indicates that programme reductions against traditional on-site construction methods could be in the order of 20-30 per cent. This means that the consequential benefits, in terms of reduced finance costs and the potential

to bring forward the date the building could operate and generate income, could be substantial. This is the case particularly if the completion date is able to be fixed with a comparatively higher degree of certainty, as should happen.

To fully assess the programme implications of modular construction, it is essential to ensure that any comparative study is conducted on a like-for-like basis over the whole development programme. This is because the relationships between design, manufacture and construction

change. With modular construction, design does need to be fixed and completed earlier in the process; lead-in times are longer, and time must be allowed for the production and approval of mock-ups. To demonstrate this, we set out below the comparative programme study for a notional 100-bed budget hotel procured as design and build. Based on a conventional steel framed approach the overall development programme from commencement of design to handover is assessed to be 107 weeks as shown in figure 1 below.

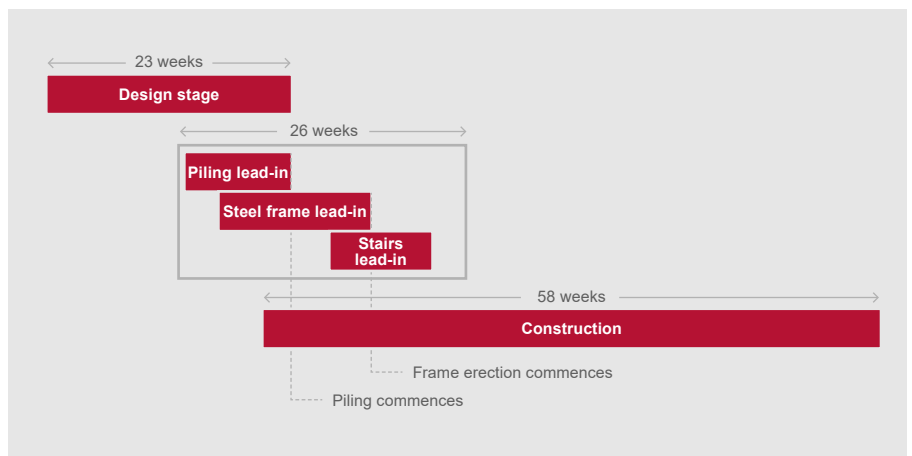


Figure 1: programme for a 100-bed budget hotel procured as design and build, based on a conventional steel-framed approach, showing an overall development programme of 107 weeks.

In contrast, a fully modular alternative solution is calculated to have an overall project duration of 79 weeks as shown in figure 2 below.

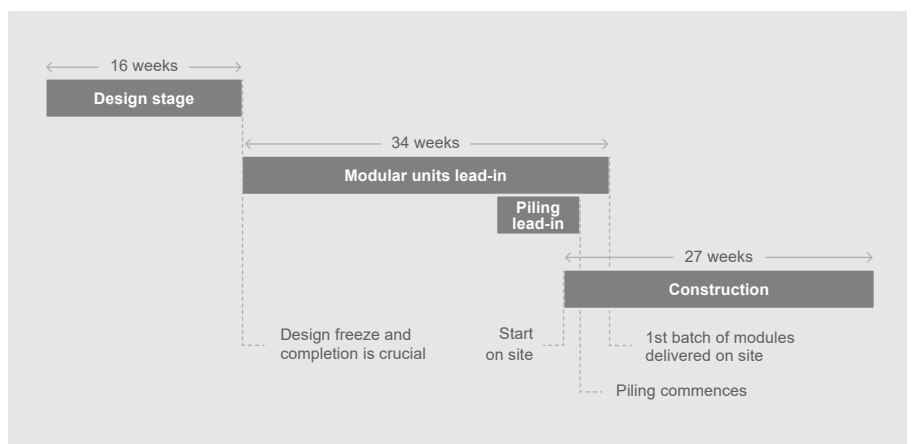


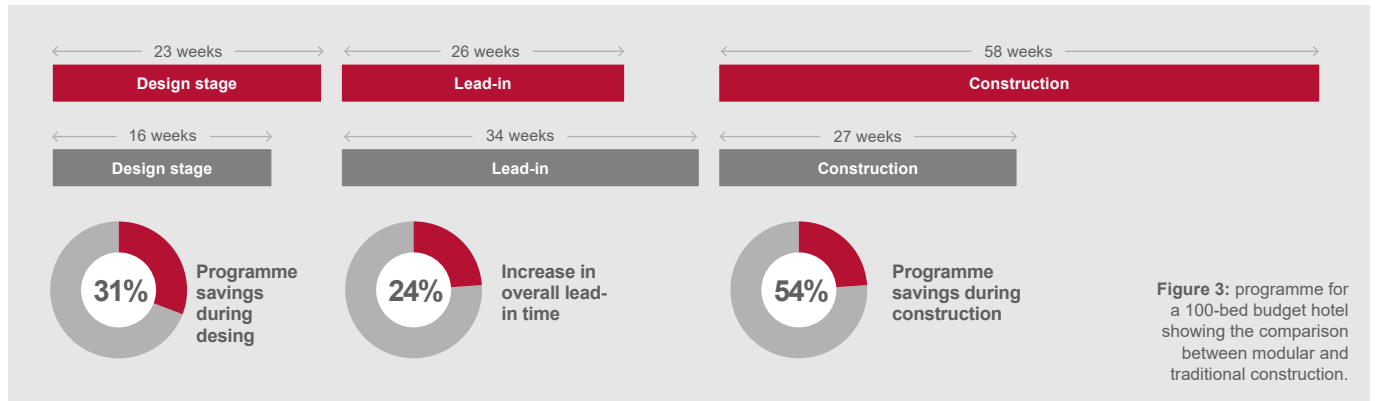
Figure 2: programme for a modular constructed 100-bed budget hotel showing an overall development programme of 79 weeks.

It is typical with traditional procurement methods that there will be overlap between the completion of the later design stages, trade contract procurement and on-site construction, which also helps to accommodate the inevitable matter of variations. The

modular approach is less flexible in this respect. Effective project management is key during design development, with a design freeze and overall synchronisation of all design interfaces being essential, prior to placing the order for the modules.

The minimal flexibility that modular construction provides does not easily accommodate change, hence commitment to the modular strategy

and the key design aspects needs to be made at the outset of a project. This is illustrated in the direct comparison shown in figure 3 below.



## Procurement and cost

There are substantial benefits of modular construction, provided it is appreciated that somewhat different procurement, contractual and legal considerations may apply from those which we may be more familiar with. They are clearly not insurmountable, but do require careful attention.

Consideration needs to be given to the relationship between design interfaces and design liability, as a more significant proportion of the development would now reside in one key trade sub-contractor/supplier. This often translates into the supplier taking on the role of the main contractor, which would clearly simplify contractual matters. However, in what is still a somewhat developing modular market, it is critical that ample time is invested in the selection process to ensure that the optimum supplier is identified for the project in hand,

whether from the perspective of quality, deliverability, overall track record or financial strength.

Building height is not the constraint to modular use which may have previously been the case. Programmes, however, do need to factor in the potential logistical challenges associated with tight city centre locations, as specialist mobile cranes may be required when building at height.

Some work may need to be done to reconcile the contract terms and conditions expected by a company acting as supplier of modular components, with those of a more conventional building contract. Additionally, there may be a greater expectation of advance payment provisions given the amount of upfront investment in design, manufacture, storage and transport, that is required before a module is available for installation on site.

Ultimately, the early engagement of both the contractor and supplier is key, as well as their familiarity with each other and track record. Both parties should be selected in conjunction, if possible.

On a direct capital cost comparison, it does appear that a fully modular constructed building is likely to be 10-20 per cent more expensive than the same building constructed traditionally. There is also the upfront cost, notably, the investment in new manufacturing facilities, which will inevitably filter through the supply chain in some form.

In the long term, however, the judgement to make is in the degree of financial benefit to be gained through a reduced programme, potentially higher certainty of delivery, and indeed the protection against the pressures on available skilled on-site labour that the industry generally feels will only increase in the near term.

## For further information please contact:

**Alan Manuel**  
 Chief Operating Officer - UK and Europe  
 T 020 7061 9003  
 E alan.manuel@curriebrown.com

**Richard Hill**  
 Market Analyst and Researcher  
 T 020 7061 9075  
 E richard.hill@curriebrown.com