

Market View Summer 2022

The shadow of stagflation

Introduction



The outlook for construction has changed dramatically during early 2022 as markets for energy and materials were severely disrupted by the Ukraine War. For both clients and contractors, this year's challenge will be to keep projects on track despite uncertainty with respect to both price levels and lead times.

The UK's rebound from Covid-19 came to a juddering halt in 1Q2022, as shockwaves from the Ukraine War and the wider cost of living crisis combined to threaten the return of stagflation, the potent combination of low growth and high inflation last seen in the 1970s. The potential implications for construction clients are significant, as construction is a growth-driven sector, that is sensitive to inflation in domestic manufacturing. How clients and contractors should work together in a cooling market is the key theme of this Market View.

Currently available data points to a slowdown in UK growth accompanied by plunging consumer confidence and rapidly rising prices. UK GDP grew by a total of 0.8% in Q1 2022, but actually contracted by 0.1% in March as public spending on pandemic measures fell. The consensus growth forecast for 2022 remains at 4%, even as the drivers behind this growth lose momentum.

Inflation measured by CPI rose to 9% in April 2022 and is now forecast to hit double-digits in 4Q2022 before falling back to the 2% target by late 2024.

By contrast, other aspects of the UK economy point to considerable strengths that will help the economy to weather the coming storm. Bank of England Agents' Reports from Q1 2022 highlighted accelerating investment intentions in technology and automation, in part to reduce reliance on scarce labour. Employment, currently standing at 75.7% of the working age population is close to historic highs, and there were more vacancies in the UK in April than there were people seeking work. This means that the UK labour market is likely to be highly resilient in the face of the predicted slowdown. Similarly house price inflation of 9.8% across the UK in March 2022 points to a deep pool of demand for housing that will sustain residential markets during the short and shallow slowdown currently envisaged by the Bank of England.

Looking outside of the UK, indicators similarly point in different directions. The IMF downgraded its short-term and long-term growth forecasts in response to the Ukraine crisis and spiralling inflation. Global growth is forecast at 3.6% for 2022 and 2023, down by 1% over the period. However, commodity prices for metals that are sensitive to levels of demand including iron ore and copper remain at or near record levels, spreading the stagflation pressure.



Forward looking indicators are less encouraging and point to a bumpy market. Of greatest concern, the GfK Consumer Confidence Monitor hit its lowest recorded level in April 2022, as most UK households were hit by the increase to the energy price cap. GfK's metric has predicted recessions in the past, so these results have to be taken seriously. Other sentiment measures such as the S&P Purchasing Managers' Index hovered just above 50 in late May, down from 59 in the previous month, highlighting just how quickly the mood in the market is changing.

The Ukraine crisis has undoubtedly hit economic prospects across the world. However, the construction sector has quite a lot of momentum behind it, and 2022 is still likely to be a busy year. Latest output data from Q1 2022 shows that the industry enjoyed a record quarter, with total output totalling £46.5bn. Repair and maintenance is still booming, and whilst new build output continues to recover, it is still 2.5% below pre-Covid levels. New orders in the first quarter, at £20.4bn were also well above the long-term trend, albeit down by 2.6% from the bumper levels seen at the end of 2021. The Construction Products Association has provided an early indication of the impact of the crisis through an update to its activity forecasts. The Spring 2022 Forecast features a sharp slowdown in growth to 2.8% in 2022 and subdued growth in 2023 at 2.2%. CPA's downward revisions have taken over £3bn out of the pipeline for the next 2 years. The sectors most exposed to slowing growth are expected to be industrial and private housing repair and maintenance, both of

which are exposed to the cost-of-living crisis, and private housing, where developers are facing many headwinds related to affordability, legacy building safety costs and planning constraints linked to nutrient neutrality.

Whilst the industry currently looks in a healthy state, the foundations for future prosperity could be more less stable than the data suggests. In the short-term, with suppliers struggling to provide cost and programme certainty to their contractor clients, order books could shrink because costs are too high, and clients and their contractors cannot agree terms. Input costs are unlikely to fall in the immediate future, so future workload levels depend increasingly on clients and their project teams finding commercial solutions to make their projects deliverable.

Collaboration in the shadow of stagflation will be the key to delivering essential projects in difficult market conditions.

Forecast

The Ukraine Invasion has overturned many of the assumptions in our Spring Forecast. The combination of steep price hikes and disrupted supply chains has resulted in delayed and cancelled projects, even though demand remains strong. In our update, we look beyond the current crisis to the state of markets in 2023 and beyond.

Overview

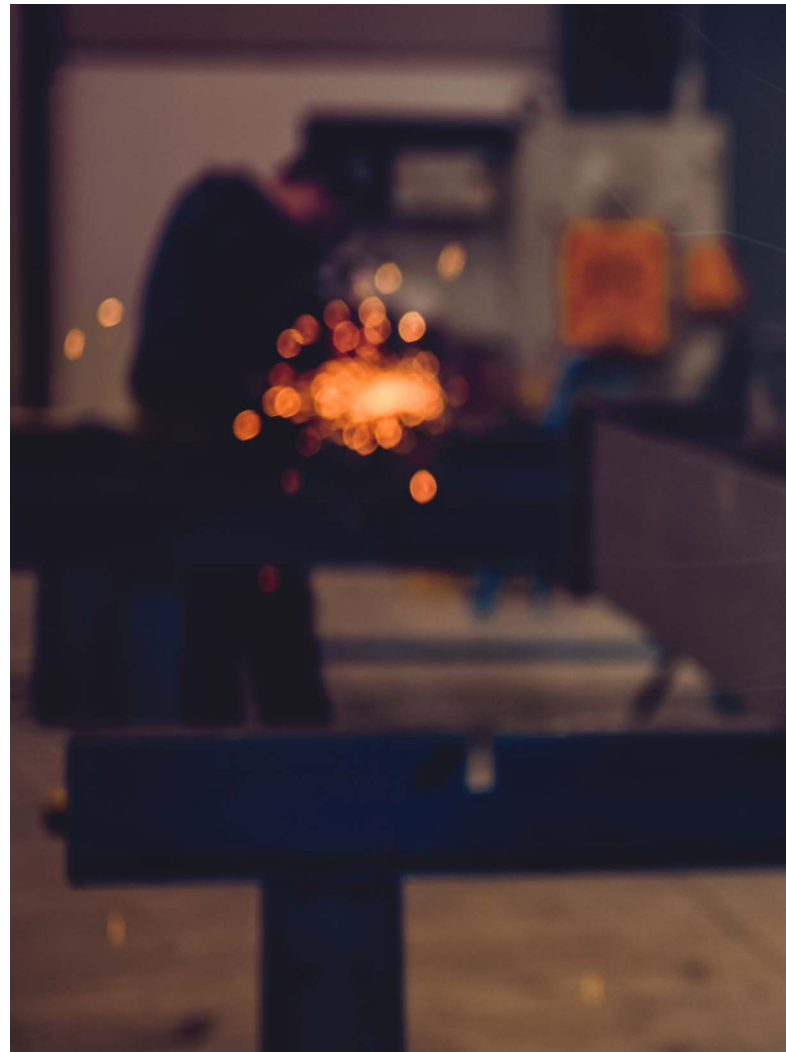
The construction sector is not known for being nimble, but sometimes it can turn on a sixpence – quite often in response to bad news. The level of disruption seen in Spring 2022 has been significant, and even as short-term data shows that the industry is in strong health, there are many threats to the forward pipeline.

All short-term activity indicators are presently flashing green. Output and orders are healthy, and the forward-looking Purchasing Managers' Index is also indicating continuing growth, albeit at a slowing rate. The main sectors: housing, infrastructure and commercial are all supported by positive growth dynamics.

Development headwinds associated with labour and product availability continue to challenge the industry, although there are some positive developments, including a 4% increase in the size of the workforce during 2021 and the easing of supply shortages associated with timber and some other construction products. Similarly, the lifting of Covid-19 related workplace restrictions has given contractors greater flexibility with respect to their deployment of manpower on site.

All of these developments have been overshadowed by the effects of the Ukraine crisis, even though materials sourced from Ukraine barely account for 1.2% of the value of construction's imports. The impact of the war has added 3 to 5% to the cost of typical projects. High energy costs disproportionately affect the construction materials supply chain, so prices are expected to remain high until the UK and European energy markets are retooled to be less dependent on Russian gas and oil.

Volatile energy and raw material markets, compounded by the Ukraine crisis, continue to add to levels of risk to construction contracts. High prices and difficulties in reaching terms that are acceptable to clients, contractors and funders are delaying projects. In time



this will result in lower levels of demand that, all things being equal will create a more competitive market. How contractors will respond to a slowing market is the critical aspect of this forecast.

Material prices – is the worst over?

Material price inflation has been a huge challenge for all industry over the past 18 months. Across all industries, input costs have increased on average by nearly 30%. The Ukraine war has come as a significant additional shock, as the prices of many material categories including steel and timber were falling from their 2021 peaks during early 2022. Latest BEIS data tracking inflation for a basket of materials is showing prices up by 25% in a year, the highest level of inflation seen so far in this cycle. However, a closer analysis of the BEIS data shows that there is potential for further upward price pressure for energy intensive products including cement and concrete products, plastic pipes and insulating products.

Although a big jump in steel prices grabbed the headlines in March, the broader impact of the crisis will be felt through sky-high energy costs. Since the war broke out, UK wholesale energy prices have stabilised at a level 3 times higher than the long-term trend. UK



and European product manufacturers will currently be benefitting from some price protection from existing energy price hedges. However, the duration of these hedges is typically 3 to 6 months. Pre-pandemic, energy costs typically accounted for 20-30% of the total manufacturing costs of products including cement, bricks and glass. As new deals are struck, further price rises are likely to be passed on. Europe has few short-term options to increase the supply of gas and petroleum products from sources other than Russia. This means that construction material prices are likely to remain at or near record levels for some time to come.

Labour market – are higher wages attracting more workers?

Although material prices have been moving the markets in 1st quarter 2022, labour sourcing will remain construction's long-term headache. Latest data shows that the workforce expanded by 25,000 in the first quarter, an increase of just over 1%. However, this welcome increase is barely one tenth of the workforce lost since early 2019. Almost all of the growth occurred in the directly employed segment, and there is no sign of recovery in self-employment, where the workforce remains 18% smaller than in early 2019.

Clearly the labour market has the potential to be a major problem. Although SME builders have been able to agree a one-year 5% pay deal via BATJIC, major employers and the unions remain at odds over the CIJC pay agreement, with Unions seeking 10%. With average wage inflation running at 4.1% in the past 12-months, such a deal would represent a significant shift in the market. Site rates for self-employed workers are currently tracking inflation. BCIS data shows site rates up by 11% in the year. Regional data published by Hudson's Contracts suggests a more mixed picture, with 11% inflation in London, but lower levels of increase in regions like the East Midlands and Yorkshire and Humberside that up until recently have seen significant upward wage pressure.

There are few signs that the industry's labour crisis is being addressed, even though long-term plans promoted by the Construction Leadership Council are in place. Vacancy levels when measured on a jobs per 100 employees ratio are some of the lowest in the UK economy at 3.1, and even as apprenticeship start levels recover to pre-pandemic levels, there are few short-term solutions to the workforce challenge given the cost and complexity of the UK's points-based migration system.

Forecast

In the next 3-6 months, the industry's wage award is likely to be the main inflationary driver. Looking towards the end of 2022, with the potential for a slowdown in project starts, wage pressure could temporarily fall. However, over the extended forecast period we retain our view that labour costs will be the primary driver of above trend inflation.

Workload – could high prices be the cure to high prices?

There is little doubt that the disruption caused by the Ukraine War has created ripples in the UK construction market. Whilst some sectors like the private housing market can rely on a deep pool of demand, other sectors where viability is more of a challenge are seeing delays and cancellations. At present, there is very little data to support the slowdown hypothesis. The RIBA Future Trends Workload Survey remains in positive territory at +5, with only 18% of respondents expecting workload to decrease. Even the home renovation market still appears in robust health despite soaring materials prices, with Builders Merchants like Travis Perkins still reporting growth in both retail and wholesale markets.

We are seeing early signs of there being fewer opportunities for contractors. Furthermore, these are proving harder to convert into live projects due to issues of pricing and risk profile. Glenigan's latest Construction Review for April 2022 hints at a deterioration in the market, with a significant decline in the number of project starts, even as both the planning pipeline and value of main contract awards continue to increase at a slowing pace.

With signs that both main contractors and early trades have gaps in their order books for 2023, the market is likely to become more competitive. This does not mean that prices will fall. Continuing high energy prices and a tight labour market will see to that. However, we do anticipate that there will be some scope for more competitive pricing of on-costs and risk allowances, particularly if clients are more flexible in their approach to risk transfer through well-established means such as price fluctuations and early materials procurement.

Forecast

The Ukraine war has added a further 3-5% to the costs of most construction projects. For projects with a greater exposure to the steel market including the logistics sector and some infrastructure sectors, the extra inflation will be even higher, ranging from 5 to 8%. This means that construction inflation is likely to reach double figures on some construction projects this year.

There are other elements of risk in the forecast that could crystallise later in the year. In particular, disruption in the Chinese economy could result in a shortage of components later in the year, with the M&E and fit-out sectors particularly exposed. The semi-conductor shortage is also showing no signs of improvement.

For 2023, it is early days to make a firm forecast. However, with growing evidence of slowdown in the market, even if caused only by the difficulty of getting into contract in uncertain markets, we do not believe that high levels of inflation will be sustained into next year. For the building sector, we have reduced our forecast to 2-3%, allowing for some pass through of labour and materials cost inflation, even as on-costs and risk allowances are reviewed in a competitive market. Infrastructure projects are likely to see marginally higher inflation due to their exposure to energy intensive materials and issues of resource scarcity triggered by mega-projects like HS2.

Looking beyond 2023, forecasts are subject to higher levels of uncertainty because of the potential negative impact of stagflation. Weak economic growth is likely to weigh on demand for construction, but continuing scarcity of labour will drive wage inflation which in turn will maintain pressure on tender prices. From 2024 onwards, we retain our view that construction prices will increase faster than background inflation, and as CPI returns to around 2%, construction prices will rise much faster, at 4-5%.

	Regional Building Construction TPI	London Building Construction TPI	National Infrastructure Construction TPI
2021	5% (5%)	6% (6%)	6% (6%)
2022	8-10% (5%)	8-10% (5%)	10% (6%)
2023	2-3% (5%)	2-3% (5%)	4% (6%)
2024	4% (5%)	4% (5%)	5% (5%)
2025	5% (5%)	5% (5%)	5% (5%)
2026	5% (4%)	5% (4%)	5% (5%)
Total	29-32% (29%)	30-33% (30%)	35% (33%)

Inflationary drivers

- High level of output and healthy short-term order books
- Energy and material price inflation
- Potential of national wage negotiations
- Increased national insurance rates
- Labour shortages
- Removal of red diesel rebate
- High cost of risk transfer

Deflationary drivers

- Increasing competitive pressure aligned to future project opportunities
- Potential for reduced on-costs and risk allowances in response to competition



Spotlight on: navigating turbulent markets.



The Arcadis Summer Market View focuses on the consequences of the extreme market gyrations that have followed the Ukraine invasion.

Although our focus is mostly on the direct and hopefully short-term disruptions to the materials supply chain, the impacts of recent events are likely to be felt for much longer. Whilst prices remain at current high levels, and whilst contractors struggle to obtain price and delivery guarantees from their supply chain, contracted projects will be very difficult to deliver.

Clients and their project teams will face similar barriers to reaching commercial close in connection with new schemes. Stagflation is not only likely to be felt across the UK economy, but also in construction where order books are likely to contract as schemes are delayed pending improvements in market conditions.

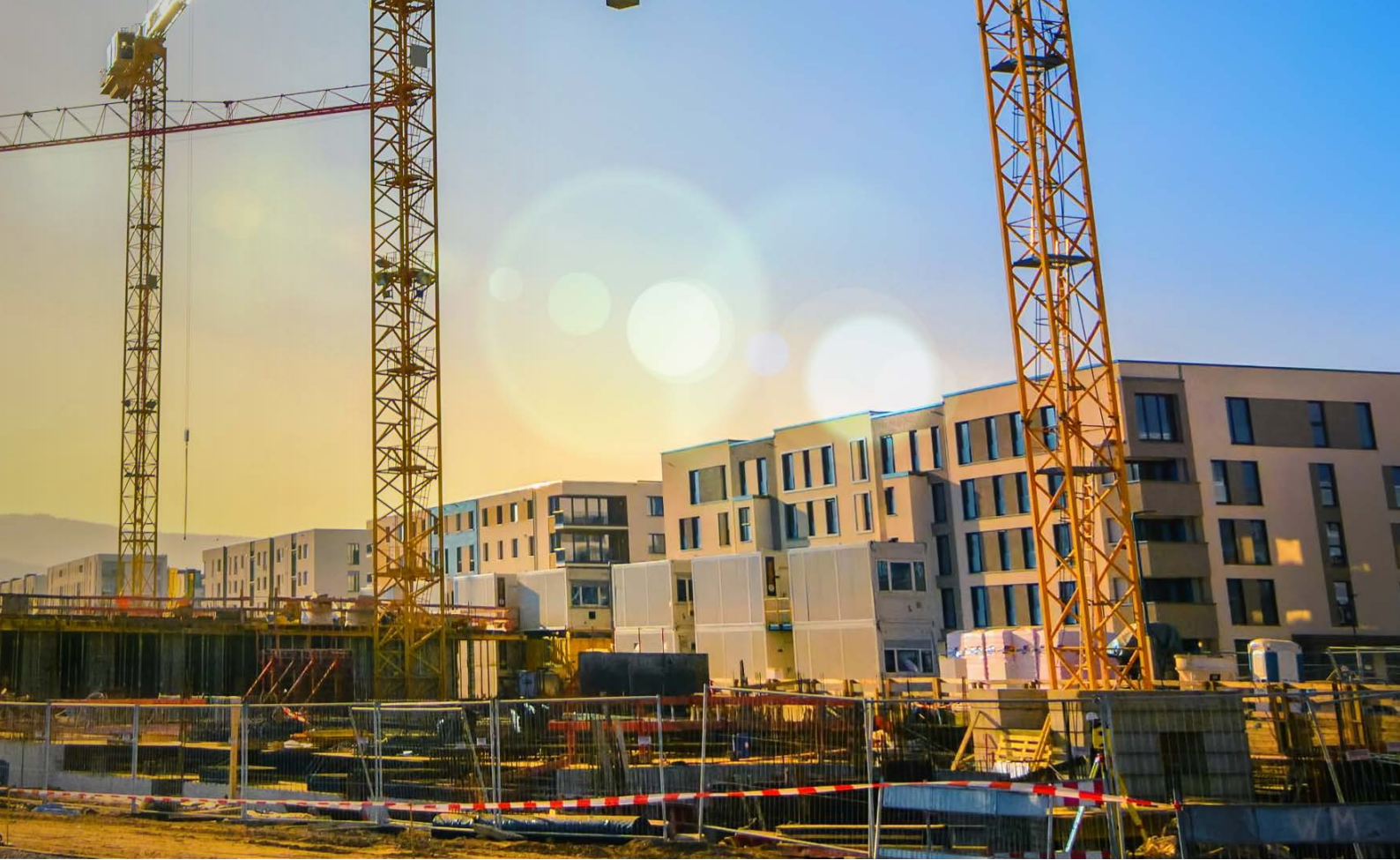
Whilst clients and their teams want to be able to take forward new projects, they also need to be mindful of the unique circumstances that currently apply to UK construction markets. As part of the Arcadis International Construction Cost Report, we developed a five-step management plan to encourage clients to think about managing these unfamiliar new circumstances in a consistent way. In doing so, the five-point plan builds on existing best practice and gives teams the discretion to choose the measures that work for them rather than introducing completely new ways of working. The key parts of the plan are:

Supply chain resilience. In addition to urgent concerns around financial health and exposure to financial risk beyond the scope of a specific contract, supply chain resilience will increasingly involve navigating the impacts of sanctions, product sourcing and supply-chain disruption. Some risks associated with price escalation are likely to be affecting suppliers across multiple projects, so due diligence will be even more important than usual.

Project resilience. Project resilience is about the identification and mitigation of showstopper risks, which are multiplying as the impacts of the Ukraine crisis grow. Single points of failure are probably the greatest concern given the extent to which disruption to a complex system like a bathroom pod could trigger wider knock-on impacts. Projects can be made more resilient through the design of additional risk-sharing provisions including price adjustment clauses.

Project optimisation. Project optimisation should use the energy generated by the crisis to focus even more on opportunities to rationalise design, minimise waste and assure design completeness and quality. These opportunities are examined in more detail in the Zoom into: Resourceful use of materials. Teams should always focus on optimisation, but the benefit of doing so in the current market is significant.

Team culture. High performing teams can make a difference in the current crisis by collaborating to solve problems. Self-interest will potentially get in the way, and a project culture needs to be built to counter this. Getting the basics right around people care and



commercial arrangements is the first step in setting the conditions for success, including the consideration of sub-contractor and supplier management as well as the client and tier 1.

Project leadership. Leadership matters. The Ukraine war provides ample demonstration of not only how important leadership is and also how important it is to focus on the right issues. Looking forward to 2023, the key challenge will be to start projects onsite in anticipation of future demand. Leaders will need to take risk and share risk and will need to delegate authority so that teams can respond rapidly to issues as they emerge. Leaders may have less cover from their contracts than usual and will need to adapt to further, unpredictable events.

This 5-point plan does not offer a magic bullet to solve the problems faced by clients and their teams. The plan needs to be adapted to project circumstance and opportunities. Nevertheless, great quality information will support better decisions, doing more with less will save money, and leveraging the problem-solving talent of teams will prepare projects for the challenges ahead, focusing effort on problems over which the project team has some control. These are all well-established approaches that can be glued together by great relationships and great leadership.

Some consequences of the Ukraine war will persist. It will be a long time before European energy markets, steel manufacturing capacity or other critical supply chains return to their pre-war state. This means that the current 'unprecedented' unstable market conditions

will become very familiar indeed. To make projects work under these new circumstances, we need to review how we collaborate and share risk from a new perspective. The five-point plan is the first step towards managing that volatility in a positive way.



Zoom into: Resourceful use of materials.

High energy costs in Europe are helping to focus attention on the need to reduce use of carbon intensive materials, encouraging construction clients and their teams to use scarce resources more responsibly.

Why focus on resources?

One of the unexpected impacts of the Ukraine War has been an interruption to industrial production in the UK and Europe. This is not simply because of a lack of raw materials and components, but also because when the cost of energy is too high, it is not profitable to manufacture. This is an early illustration of potential impact of resource scarcity.

Looking further ahead, the smart use of resources must become a critical viability driver. From an economic point of view, increasing carbon and energy costs will become an even greater barrier to in the use of carbon intense materials. The global energy transition will increase demand for materials such as copper and nickel by two-times and six-times respectively. With nickel already trading at \$33,000/tonne, two-times higher than seen in 2021, scarcity is becoming a real problem. Simple economics is not the only concern. Resource depletion is an equally serious issue as highlighted in the 2021 Dasgupta Review. Wider considerations of resource use, including impacts on air quality and water supply, will also weigh down on efforts to increase materials production. Clearly more efficient use of existing and new materials will be necessary to ensure that projects are affordable and have a manageable environmental footprint.

Where to begin?

The level of resource intensity and waste associated with development will be determined long time before a project hits the construction site. The earlier that resource intensity is considered, the greater will be the

opportunities to mitigate impacts. In many ways, the most important issue to be considered is “to build or not to build?”, as this will have the greatest impact on resource use and waste,

The UK Green Building Council (UKGBC) points out that 80% of assets that will exist in 2050 have already been built – hinting at the growing importance of refurbishment as a lower-impact option. However, upgrading existing assets has its limitations and will not always lead to a better outcome, so we need to be able to evidence the impacts and compare the options, accounting for carbon footprint, and other factors like biodiversity impacts.

In the case of new build, the degree of freedom in applying creative solutions seems to be higher than in refurbishment. Increasingly the “go to” solution across Europe is to use cross laminated timber, which is a welcome step towards the reduction of embodied carbon but could be prone to raw material scarcity and also ignores the potential of other alternative solutions.

...there's so much more than timber...

Material selection is not only about the types of materials that are selected, but also how we use and re-use them. Increasingly, resource-conscious design needs to consider not only the life, but also the afterlife of the asset. So, what are the options at our disposal? Below, we provide some examples.

- Designing out waste – this is a first step that should be standard on all projects. Waste management processes are well developed but more can be done to minimise volumes through waste profiling and segregation, as well as standardisation of components and the use of pre-fabrication.
- Designing out carbon intense elements – the concept of replacing steel, concrete and even aluminium with wood is gaining more and more attention, but in many cases will be limited by the fire safety regulations. Another alternative is to increase efficiency of materials use. This can be achieved in



some circumstances by maximising the structural efficiency through techniques including biomimicry. The lightweight steel canopy structure of Stuttgart's Airport Terminal 3 for example is inspired by the fractal geometry of trees.

- Optimisation of materials use. Digital tools have a key role in controlling material efficiency. The time saving potential of BIM in the design phase can also support efficient component manufacturers, particularly in the pre-fabrication space. For example, Carbon Dynamic, a Scottish producer of modular off-site timber buildings achieves a 15% materials savings and improved its production times by integrating BIM into its internal systems.
- Adopting circular economy principles. The circular economy not only promotes the recovery and re-use of existing construction materials but can also the creation of new products from waste streams. For example, research at the University of Bath has shown that waste plastic can partially replace sand in structural concrete. Large scale examples such as the Resource Rows development in Copenhagen's Ørestad reuses masonry panels from abandoned industrial buildings as part of a housing scheme, reducing embodied carbon emissions by 70%. The development of materials passports by architect ORMS is a further step that will increase the potential for materials reuse.
- Use of natural or bio-based materials. There is a wider range of bio-based materials beyond the default option of timber, including hemp and straw. Whilst they may not be applicable for structural elements in high or mid-rise, they have potential applications in housing or warehousing. Hempcrete has been used in the UK by Adnams Brewery and also by Marks & Spencer for their Cheshire Oaks retail store. Outside the UK, in France, Paris Habitat is developing social housing using hemp as insulation. As innovation progresses, new bio-based materials will come into play too. In the Netherlands, in early

2020 a record-breaking 66m long pedestrian/cyclist bridge was completed, consisting of 80% bio-based materials. In accordance with the project's circular economy plan, in 100 years, the bridge will be repurposed as fertiliser.

Many challenges but is there an alternative?

Construction's resource use is a huge challenge, yet many of the opportunities on offer to utilise resources more responsibly are very small scale – a single warehouse, or a pedestrian bridge. This is due to a combination of challenges – including safety considerations, small production capacity, and even regulatory obstacles affecting industrial hemp cultivation. In time, very low-carbon steel, aluminium and concrete will make a big contribution to reducing embodied carbon emissions, but the industry needs a wider range of options such as these featured in this Zoom into.

Not every innovation will make it to the broader market, some may find a niche application and others may be shelved. What is needed is more opportunity to enable more innovation. The support of clients, designers, contractors, regulators and funders will be essential to create markets and enable the scaling up of these innovations. The Ukraine War is acting as a timely reminder that construction and other industries cannot rely for ever on existing resources to deliver base workload, let alone support the demands of the energy transition. Being more resourceful in our thinking about the use of materials will equip the industry better for a resource-constrained future.

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Arcadis

Our world is under threat – from climate change and rising sea levels to rapid urbanisation and pressure on natural resource. We're here to answer these challenges at Arcadis, whether it's clean water in Sao Paolo or flood defences in New York; rail systems in Doha or community homes in Nepal. We're a team of 27,000 and each of us is playing a part.

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