

In partnership with:



# WHO WILL BE THE BUILDERS?

## MODULAR'S ROLE IN SOLVING THE HOUSING LABOUR CRISIS



# ABOUT MAKE UK MODULAR

Make UK Modular is the voice of modular housing – the most advanced form of construction in the United Kingdom. Make UK Modular was founded in December 2021 and has grown to include ilke Homes, Legal & General Modular Homes, TopHat, Laing O'Rourke, Vision Modular Systems, Stelling Properties, and M-AR Offsite.



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# FOREWORD

We've known that the housebuilding and construction workforces are facing a demographic timebomb since the mid 1990s. That cliff edge is here. We know, not just that our workforce is ageing, but that it is shrinking. With every recession and downturn more people leave the industry never to return. We know that not enough young people are entering the industry.

This report from Make UK Modular highlights the scale of the labour market crisis facing construction, and the housebuilding sector in particular. An already shrinking workforce combined with the triple challenges of Net Zero, Building Safety and a 40-year shortfall in new supply is coming to the crunch. It is no exaggeration to say that if Government and industry do not act now the dream of good quality, safe homes to provide a foundation in life will be out of reach for a generation.

Fortunately, industry is acting. Modular housebuilding is on track to deliver 30,000 new homes a year by 2030 and, crucially, acts as a pressure valve on labour supply by recruiting new entrants into the industry from a range of different backgrounds. Modular manufacturers have people building homes that would have been unimaginable just a few years ago including: formerly imprisoned people, retail workers, members of the armed forces, and even nuns.

Because of this, major investors like Goldman Sachs, TDR Capital, Legal and General, and Homes England have got behind modular which now represents one third of all R&D spending in the construction of buildings sector. As this report shows, modular housing can draw on a wider talent pool to build more homes with fewer new entrants required, sidestepping the sector's labour shortage.

Modular housing is taking part in a major knowledge transfer from cutting edge manufacturing industries to housebuilding. Sharing in Growth recognises the challenge that exists for modular manufacturers and the need to develop a competitive supply chain for the sector to progress.

To build a modular housing industry capable of mitigating the construction labour shortage, modular supply chain companies will need innovation, funding, and capable people and processes. It is essential that suppliers learn to develop their own people and processes and create competitive capacity through increased productivity. This has been recognised by other high value manufacturing sectors such as Aerospace and Off-Shore Renewables where Sharing in Growth has supported development of supply chain companies - growing capability and increasing cost competitiveness to meet the sector needs.

A similar approach needs to be taken for modular. Modular housebuilding is already a success story and Government has played an invaluable part in that. However, the job is far from finished and the picture facing the housing industry is likely to get worse before it gets better.

Whoever is in power after the next general election will be faced with a housing market which needs to recruit more than 40% its labour force in less than 5 years. Only a government which embraces modular housing can possibly build the homes the country is crying out for.



**Dave Sheridan**  
Chair Make UK Modular



**Malcolm James**  
CEO Sharing in Growth

# EXECUTIVE SUMMARY

The UK does not have the labour force to meet the Government target of building 300,000 homes a year by 2025. In fact, this report shows that **no Government can come close to delivering the current target of 300,000 homes a year even by 2030 without radically changing how we build our homes. The housebuilding workforce is simply too small.**

Some have argued that the UK's under-supply of homes is a product of its planning system. But, while the UK planning system is often too costly and slow, the inconvenient truth is that even if the planning system were abolished and housebuilding had all the money government could offer it, the sector would still be unable to substantially increase the supply of new homes because it simply does not have the workforce to build them.

**The housebuilding sector will need to recruit 137,000 more workers** (including 34,000 to replace retirees) to be in a position to build 300,000 new homes a year by 2030 – equating to over 17,000 new recruits every year up to then – nearly triple the current recruitment rate.

The current training system is not delivering numbers near this level. Last year, **only 11,000 construction apprenticeships were completed**. Even if all of these apprentices were entering the housebuilding sector every year to 2030, there would still be a 36% shortfall in the labour force needed to build 300,000 homes a year by the end of the decade. But most of these apprentices are not even going into housebuilding.

The wider construction industry's labour force is also under pressure by the need to retrofit homes to meet the government's net zero targets, which will require 220,000 new workers by 2030. **This labour shortage equated to a loss of around £2.6bn of output in construction** in 2022 (around £7m a day) and £263m of lost housebuilding output.

In addition, the industry needs to remediate unsafe cladding and grow by 240,000 extra workers to meet wider output demands, including government infrastructure projects. Like housebuilding, these are essential tasks. Government *needs* to do them. And just to stand still, the industry will need to replace the 360,000 workers outside housebuilding who will have retired by 2030.

**Collectively, this means that the whole construction industry will need to recruit OVER 950,000 WORKERS by 2030 to meet all of these demands from government.**

This will put huge pressure on housebuilding to deliver. Employers themselves have a key role to play in recruiting, training and retraining their workforce, but they can only do so effectively and in the volumes needed with the right support from the government.

From a policy perspective, options include temporarily easing the migration system, or the government contributing substantially more money on retraining and

apprenticeships. But it is highly unlikely that either of these will receive universal consent in the current political and economic climate.

Instead we need to take a more  
**RADICAL VIEW**  
on how to deliver the homes we need  
with the labour market we have.



Modular housing offers a solution. Modular houses are precision-engineered in factories, bringing the efficiencies and quality-control of manufacturing to housebuilding. This helps modular to sidestep construction's skills and labour shortages:



Modular house builders require up to **50% fewer workers** to deliver the same number of homes, thanks to the efficiency of the assembly line and the economies of scale inherent in volume manufacturing. This **helps build additionality** in supply.



This also makes modular **40% more productive** than traditional building – with potential for further gains as the sector scales up.<sup>1</sup>



Job roles are both manufacturing-focused as well as in construction meaning a **larger pool of workers** is available.



In many modular producers, **only between 10 and 20% of staff are in sought-after construction trades;** up to 65% can be in manufacturing roles.



The **barrier to enter most factory-floor jobs in modular is often lower** – some of our members have no entry requirements for these roles. However, **opportunities to train up in-house are substantial**. One of our members has provided over 68,000 hours of in-house training alone – a huge investment in their people.



Modular can **tap into a wider and more diverse labour market**, including career changers, people coming out of economic inactivity or less-qualified workers.



The factory setting means that modular producers usually recruit factory-floor staff on **full-time, permanent contracts with good, secure incomes**, giving them **good work where they live**. Factory-floor production is **supported by highly skilled professionals** in design, project management, business development, data analysis and engineering – modular is helping to create skilled, high-value-added jobs.

The UK needs to build nearly 92,000 extra houses annually (on 2021 levels) to reach the 300,000 homes target. Hypothetically, modular could deliver this with as few as 46,000 extra workers, of which only 5,000 to 10,000 may need to be in skilled construction trades. In contrast, building these extra homes traditionally would likely require 103,000 additional workers, with a far greater proportion in scarcely available construction trades.

This **isn't about replacing traditional labour or skills** or putting people out of work. It's about **creating additionality in the market**, meaning more homes, more jobs, more taxes paid into the Treasury, and more economic activity and growth. Traditional building can and must keep building, but modular can supplement what it does without cannibalising an already over-stretched workforce.

**But to be the solution, modular needs government's backing to help it scale up. The right policy levers and environment must be in place to grow modular. Therefore, we are calling on Government to:**

- 1. Remove the accidental double government levy charge** on modular manufacturers by exempting them from the scope of the CITB levy.
- 2. Build supply chain capacity** by repurposing the £10m allocated for the MMC Taskforce and use it to support a match-funded supply chain transformation programme based on those government has successfully delivered in aerospace, offshore wind, and nuclear.
- 3. Solve the housing crisis faster** by dedicating 40% of the Affordable Homes Programme to modern methods of construction.

These changes would cost no extra money but would help drive faster growth in the sector ensuring modular factories are operating at maximum productivity in the shortest possible timeframe, delivering greener, better quality homes faster and securing the new workforce the housebuilding sector so badly needs.



# MODULAR HOMES GREENER, BETTER, FASTER

Modular housing represents a radical departure from traditional building where homes are still built in muddy fields in much the same way they were 100 years ago. Modular homes are precision engineered in state-of-the-art facilities using continuous improvement processes.<sup>2</sup>

Modular is faster. Nearly £1bn of private investment and 1/3 of all construction of buildings R&D spending has allowed modular to grow from almost nothing in the early 2010s to become a sector that is poised to transform UK housebuilding. The investment in design, innovation and assembly line efficiency means that homes are built in half the time, with half the workforce it takes to build a traditional home.

Modular is greener. The assembly line process and innovative materials make modular homes more energy efficient, saving occupiers £800 on their annual energy bills compared to the average new-build. For the same reasons, modular homes are also built with less embodied carbon – up to 45% less in high-rise buildings and up to 80% less in low-rise houses.

Modular is better. Finally, the precision of the factory setting means reduced snagging rates, a 40% uplift in productivity, and 90% less wasted materials.

Greener, better, faster – modular producers are now delivering the most advanced housing in the UK. Modular is a government success story. With 3,000 homes built in 2022 and over 8,000 under contract, our members expect to be building 10,000 homes a year by 2025 and 30,000 by 2030, delivering high quality, sustainable homes at greater speed with lower labour demands.

Make UK Modular data shows that as modular production increases, the ratio of employees to homes built drops. Projections from one of our members demonstrate that the ratio of workers to houses is half that of traditional building. In essence, one traditional builder produces one house a year, one modular builder produces two. Moreover, we know from the wider manufacturing sector that these ratios will only improve as modular housebuilders continue to invest in automation, robotics and other digital technologies, driving efficiencies further.

# WHY DOES LABOUR SUPPLY MATTER?

The construction workforce will lose nearly 500,000 people over the next decade through retirement alone. This is equivalent to a fifth of the workforce.

While plans are in place to dramatically increase the pipeline of talent into the industry, primarily through apprenticeships, it will not scratch the surface in terms of replacing these lost workers. In fact, only a fifth of these workers are set to be replaced through apprenticeships.

This shortfall means the industry will find it nearly impossible to continue building homes at the current rate, let alone deliver the number of homes needed or come close to meeting the Government's target even by 2030.

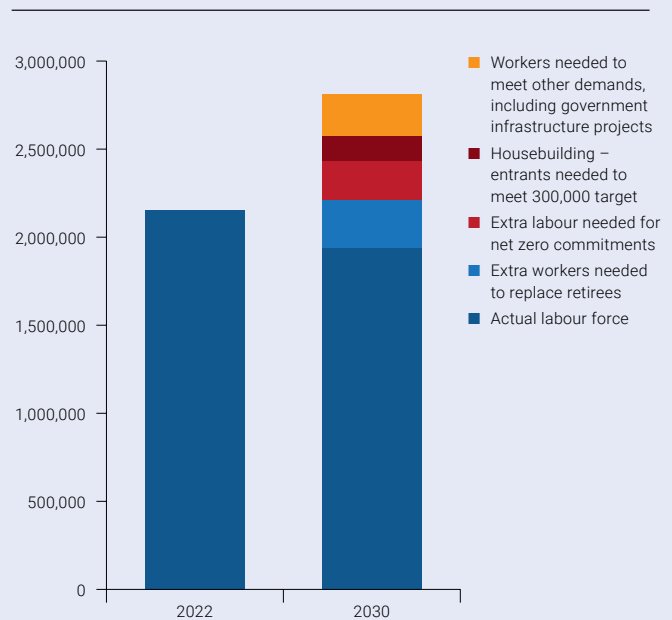
The Government has set itself a target of building 300,000 homes a year by the end of the Parliament. But to build homes, you need workers, and our estimates show that the sector will not have the supply of workers it needs to successfully achieve this.

In fact, we estimate that building 300,000 new homes a year would require an extra 103,000 tradespeople to enter into the existing housebuilding workforce.

And these figures don't account for replacement demand either. If we consider retirees from the industry, we will need another 17,000 extra skilled people each year between now and 2030. This is nearly three times more than the current average number of workers currently entering the sector.

Overall, we are looking at 137,000 extra workers by 2030. The question is, where will these workers come from?

Figure 1: Construction's labour force shortage in 2030



Source: See the section "What Does This Mean for the Housebuilding Target?" below.

# LABOUR SHORTAGES IN CONSTRUCTION AND HOUSEBUILDING

The labour shortage in the construction industry is not new, but a decades old challenge. Mark Farmer’s review of the construction industry’s labour model in 2016 referred to the interconnected issues of the housing industry’s labour model as a ‘demographic timebomb’ which would heavily limit the future supply of homes.<sup>3</sup> With an aging workforce and a limited supply of new recruits, he expected 30% of construction’s workforce to have retired by the mid-2020s and that housebuilding in particular would lose nearly 40% of its workforce by 2025.

## LIMITED LABOUR FORCE EXPANSION SINCE 2016

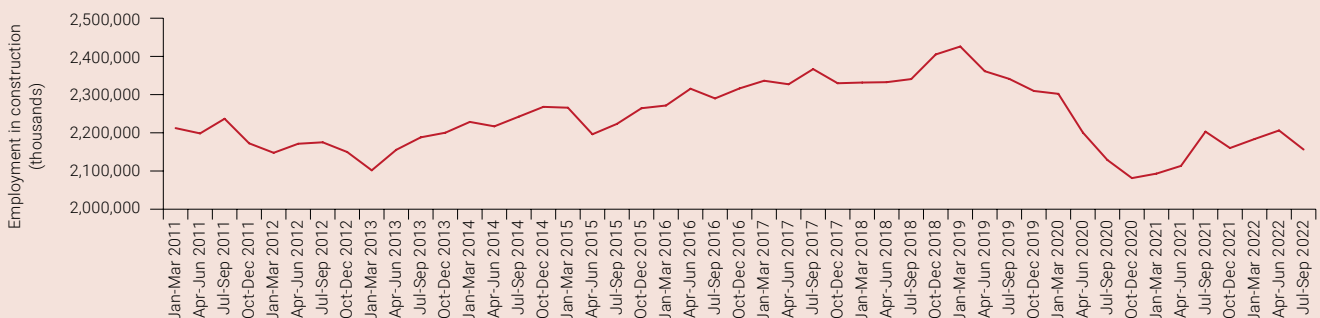
While Farmer’s prediction that the construction industry would shrink so significantly has not been entirely borne out – he was not far wrong:

Based on the growth rate between 2016 and 2022, we expect employment in construction to be down by nearly 300,000 workers by 2030 (on 2022).<sup>4</sup>

ONS data suggests that the number of workers in construction is now 80,000 people smaller than it was in 2016. Numbers were falling before Covid; since Q4 2019, it has lost 100,000 workers. Employment in construction is now at its lowest level since 2013.

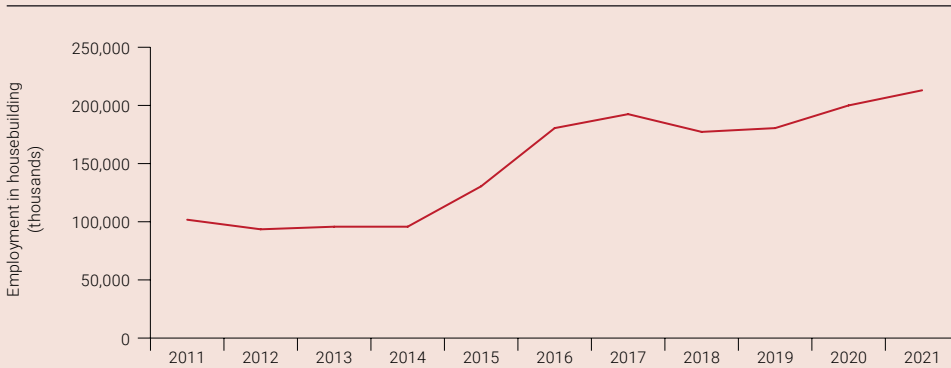
In the housebuilding sector, employment has increased since 2011, but employment has stayed relatively static since the mid-2010s and stands at 235,000 in 2021.

Figure 2: Employment in construction, United Kingdom (2011 to 2022)



Source: ‘EMP 13: All Employment by Industry’, ONS, 15 November 2022.

Figure 3: Housebuilding employment, Great Britain (2011 to 2021)



Source: Table 3.5 ('Construction Firms: Total Employees, by Trade of Firm, Great Britain') in 'Construction Statistics Annual Tables', ONS, 18 November 2022.

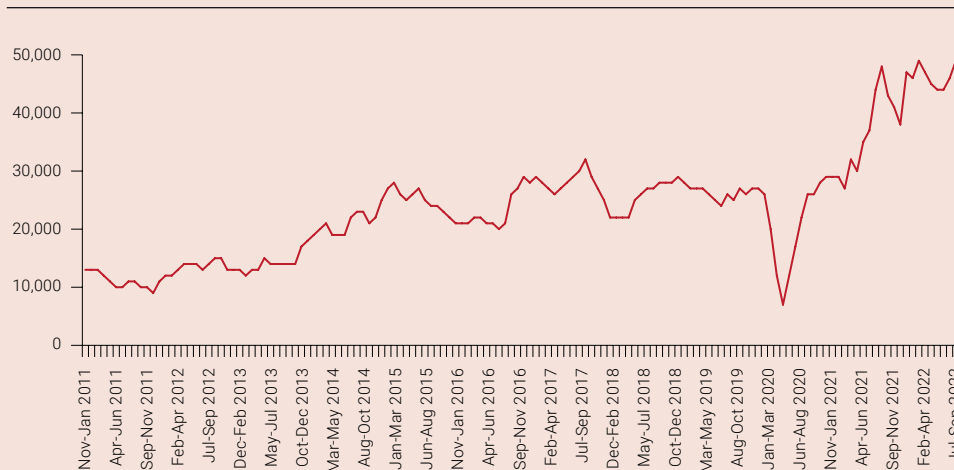
## HIGH VACANCY RATES AND A CONSTRAINED MARKET

Underlying this limited growth are persistently high vacancies in construction, which typically sat between 25,000 and 30,000 open positions from 2016 to the pandemic. Construction's ability to recruit has been heavily curtailed since the easing of lockdown, doubling the number of vacancies.

This equates to a loss of around £2.6bn of output in construction in 2022, or around £7m a day. Given that housebuilding makes up about 10% of employment in

construction, we estimate that housebuilding suffered £263m of lost output in 2022 owing solely to unfilled vacancies.<sup>5</sup> Even if the predicted cooldown in the economy reduces the number of open vacancies to the pre-pandemic level, we can expect 25,000 to 30,000 jobs to go unfilled. This still equates to £1.8bn of lost output in the industry in 2022 (nearly £5m a day on average) and an estimated £176m of lost output in housebuilding, solely due to industry being unable to recruit the people it needs to carry out work.<sup>6</sup>

Figure 4: Construction vacancies, United Kingdom (seasonally adjusted; 2011 to 2022)



Source: 'VACS02: Vacancies by Industry', ONS, 15 November 2022

## AGEING WORKFORCE

Structural problems underpin this issue. Firstly, the construction workforce is older than many other sectors, and is aging:<sup>7</sup>

- Nearly half a million of its workers (494,000) – 21% of the total – are aged 55 or over and will therefore retire over the next 10 years.
- Some 92,000 of these workers are aged over 65 and likely to retire very soon.
- This equates to a loss of nearly 500,000 workers by 2032, averaging at 50,000 exits a year through retirement alone.

## SHORTAGE OF SKILLED WORKERS ENTERING THE INDUSTRY

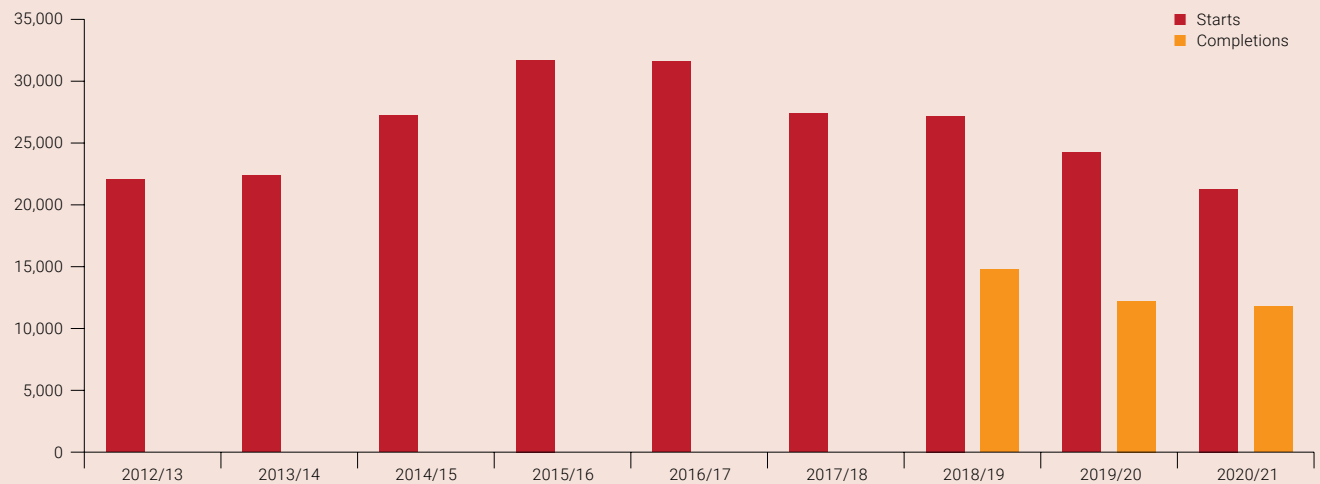
The deeper problem is not so much that people are retiring, but that not enough people are replacing these

lost workers. Although there is limited official data on entries and exits in the industry,<sup>8</sup> we do know how many apprentices are being added to the workforce each year. Both starts and completions have been falling over the last half decade.

This was occurring before Covid and is likely to continue if unchecked by substantial investment or policy changes. 10,000 to 15,000 annual apprentice completions is 35,000 to 40,000 fewer entrants than the expected number of annual retirees, indicating potential for the workforce to shrink by up to 400,000 over the next decade.

Furthermore, the construction sector previously had access to EU labour. In 2018, the ONS found that 10% of workers in the construction of buildings sector (including housebuilding) were foreign-born, with 7% being from the EU and 3% from other countries.<sup>9</sup> However, employers wanting to recruit from outside of the UK now have to navigate a costly and complex points-based migration system.

Figure 5: Apprenticeship starts and achievements, England



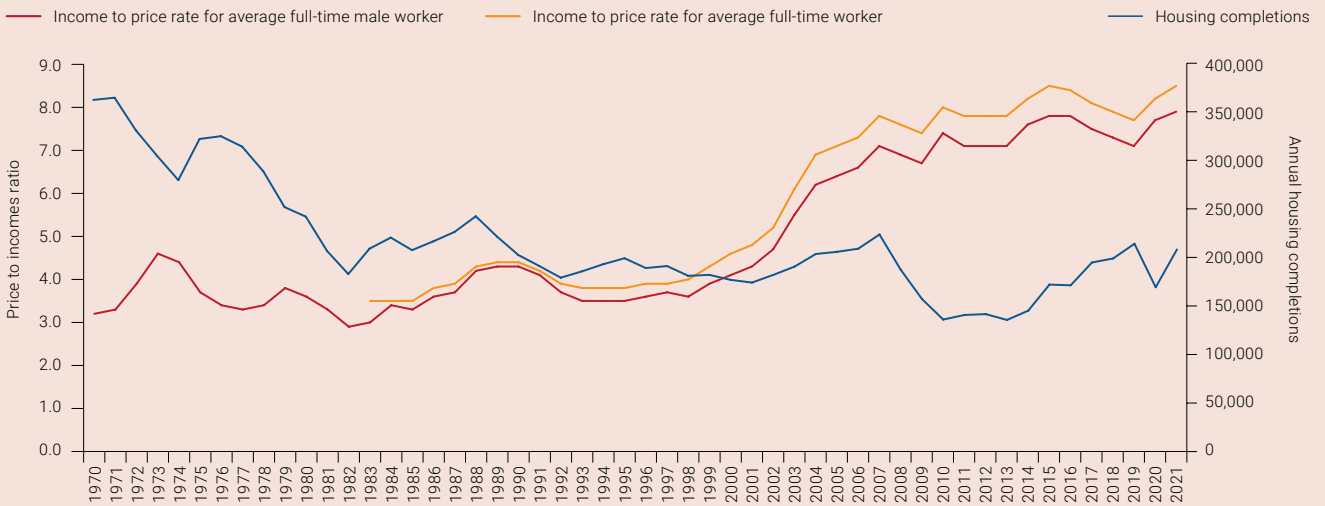
Source: 'Apprenticeship Starts by Enterprise Characteristics' and 'Apprenticeship Achievements by Enterprise Characteristics', *Apprenticeships in England by Industry Characteristics* (Department for Education). Accessed 23 November 2022. Achievements only available from 2018/19.

## THESE LABOUR MARKET CONSTRAINTS HAVE UNDERPINNED LIMITED GROWTH IN HOUSING SUPPLY, DESPITE HIGH DEMAND

This set of interconnected structural problems – an aging workforce, a shortage of skilled workers and an under supply of apprenticeships, combined with previous access to an EU labour market that is no longer easily available – explains much of why the construction industry has not been able to ramp up supply in the face

of increasing demand. This huge structural constraint has essentially been shared between all major housebuilders, creating a market failure in supply – where rising prices and strong demand have been met with only modest increases in output.

Figure 6: Annual housing completions and the ratio of average house prices to average full-time incomes, United Kingdom (1970 to 2021)



Source: <sup>10</sup>



# WHAT DOES THIS MEAN FOR THE HOUSEBUILDING TARGET?

In short, this means that the Government's housebuilding target will not be met.

Across the period 2023 to 2030, housebuilding will need to recruit a total of 137,400 people to meet the government's 2030 target – boosting the size of the sector to 338,000 people. In other words, the sector will have to recruit 40% of this required workforce over the next eight years.

Given the ratio of housebuilders to new homes is roughly 1:1,<sup>11</sup> we expect the housebuilding workforce needs to expand by 44% (103,000 workers on net), by 2030 to deliver the Government's 300,000 homes a year target alone. This is the equivalent to recruiting 11,400 workers on net annually.

However, as we saw earlier, construction has an ageing workforce. We expect about 2% of its workers to retire annually. Assuming a similar rate in housebuilding, the sector will need to recruit an extra 4,700 to 6,500 workers each year just to replace retirees.

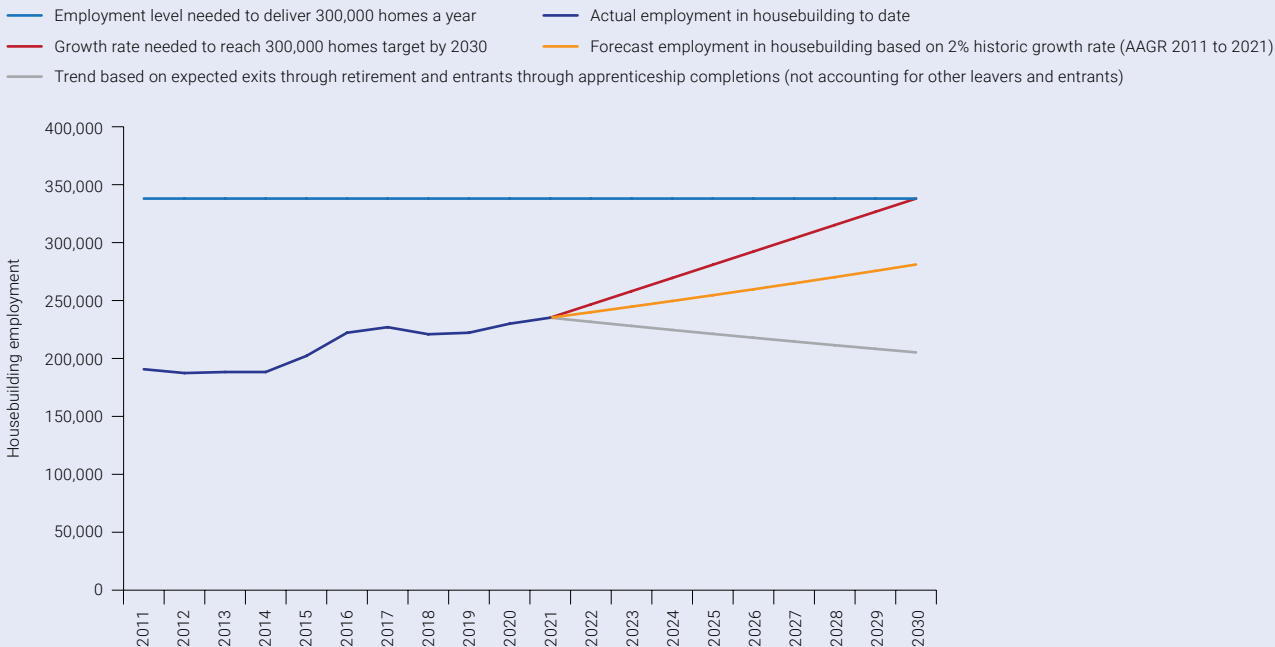
Taken together, this means that housebuilding will need to recruit an extra 16,370 workers in 2023, rising gradually each year to a maximum of 17,980 workers in 2030. This means it will need to recruit a total of 137,400 people.

## IS THE SECTOR ON TRACK TO DELIVER THIS?

No. We estimate that an average of 6,000 workers have been entering housebuilding each year since 2016, which is only about a third of the number needed to meet the housebuilding target by the end of the decade.<sup>12</sup> Given this, the graph below shows that even the most optimistic forecasts would predict that the sector will be nearly 20% short of the number of workers needed to deliver the housing target – translating to a shortfall of 51,000 homes.

In fact, the most probable trend is a 13% reduction in the size of the labour force with 30,000 workers lost by the end of the decade yielding just 180,000 new homes annually.

Figure 7: The workforce housebuilding will need versus forecast growth (employees)



Source:<sup>13</sup>

## CROSS-CUTTING PRESSURES ON THE WORKFORCE

The above does not factor in three important issues that will make these targets even harder to meet. We also need to consider:

**1. Cladding remediation:** Given the need to remove cladding for a quarter of a million households (including many in high-rise environments) the additional demand for skilled and experienced labour will undoubtedly be high. The Insulated Render and Cladding Association have described the labour shortage in external wall insulation as a ‘perfect storm’ combined with materials shortages and difficulty recruiting and training trades to meet the new PAS 2035 standard;<sup>14</sup> these concerns have been echoed by others in the industry.<sup>15</sup> There are no estimates as to how many workers will be needed to remediate all the unsafe cladding in the UK, but it seems very likely that labour shortages will be substantial and will add further pressure on the housebuilding workforce.

**2. Energy efficiency and our net zero targets:** The government’s retrofitting programme will involve making efficiency improvements to existing buildings. To support this, the government is funding the £3.8bn Social Housing Decarbonisation Fund and a £5.2bn Home Upgrade Grant Scheme, which the Construction Industry Training Board estimates will drive a 3% average annual growth rate in repair and maintenance activities to 2026.<sup>16</sup>

This will create much greater demand on many of the already stretched building trades in construction and housebuilding, while also creating demand for new skills. The Construction Industry Training Board has published estimates about how meeting the government’s net zero strategy will likely affect demand for construction labour. They have shown that by 2030, the UK will need an extra 220,000 skilled workers in construction, mostly related to retrofitting, heat pump



and heat network installation, solar panel installation, surveying and project management.<sup>17</sup> This will need to be in addition to the current workforce, if the UK is to maintain or grow its existing housing output.

**3. Wider policy commitments:** The government has also committed to or proposed large-scale infrastructure developments (including the Levelling Up programme), which will create further demand for skilled construction workers.<sup>18</sup> The Construction Industry

Training Board estimates that infrastructure output will increase by an average annual growth rate of 3.1% to 2026.<sup>19</sup> Across all of construction, CITB estimate that 266,000 extra workers will be required to meet output by 2026; less the roughly 10% share of employment that sits within housebuilding, this likely represents demand for an additional 240,000 workers in the rest of construction – spreading the same pool of critical skills even thinner.<sup>20</sup>

Taken together with the retirement and housebuilding figures outlined above, this means that the whole construction industry will need to recruit at least 950,000 people to deliver on the government's commitments to 2030.



# BRINGING US BACK TO MODULAR

Clearly, we are not going to witness a surge in the supply of labour into the housebuilding sector anytime soon. Therefore, we need to take advantage of the other options that are available now to us. In particular, ensuring modular housebuilding has a far greater role in delivering the homes we so desperately need.

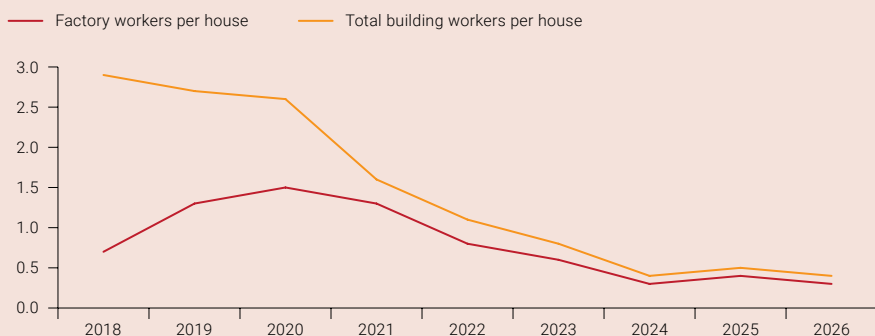
## SCALING UP MODULAR PRODUCTION REQUIRES FEWER PEOPLE

Building homes in factories using cutting edge advanced manufacturing technologies delivers greater levels of productivity and efficiency, including labour efficiency. This alleviates some of the labour shortage challenges. Moreover, as modular continues to scale up this efficiency increases even more. Our data shows that as modular production increases, the ratio of employees to homes built falls.

In modular, one worker can deliver on average two homes a year. If the 92,000 missing homes between the current output and the government's target were built using modular, then it is possible that it would only require an extra 46,000 workers.

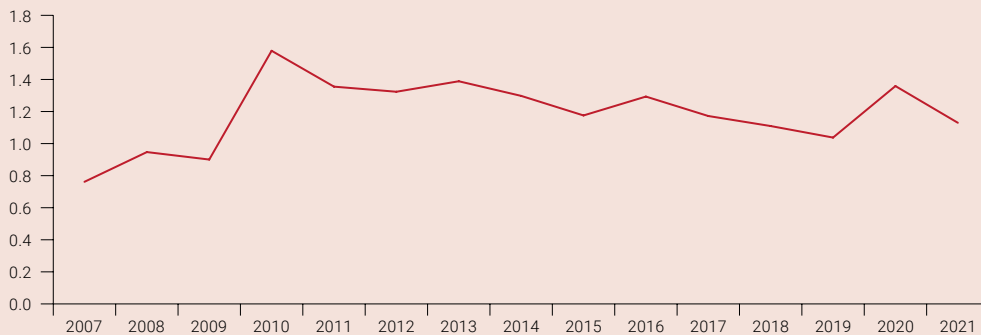
This contrasts to the relatively static productivity rate in traditional housebuilding (see Figure 9). There is only so far that building a home on-site with bricks and mortar can be made more productive. This is why the ratio of housebuilding employees to new homes built annually has remained at or above 1:1 since the late 2000s recession. Scaling up on-site production is unlikely to improve productivity beyond this level; it will simply result in additional labour demand. As such, it would likely require over twice the labour force (around 103,000 extra workers) to plug the housing shortfall if the houses were built traditionally.

Figure 8: Workers per house completed annually (case study modular member)



Source: Member data

Figure 9: Ratio of housebuilding employees to houses built, United Kingdom (2007 to 2021)



Source: <sup>21</sup>

Modular therefore has the unique capacity to both deliver more homes per worker and also to increase its labour productivity as it scales.

## BRINGING MANUFACTURING METHODS TO IMPROVE PRODUCTIVITY IN BUILDING

Shifting from traditional building to a repeatable manufacturing process also enables modular to incorporate modern manufacturing approaches which drive productivity gains and growth. This includes continuous improvement which requires producers to routinely identify and reduce suboptimal aspects of production to generate efficiencies.

Modular producers are also learning from more established manufacturing sectors through working with organisations like Sharing in Growth, a not-for-profit company who have previously partnered with government and the aerospace, civil nuclear and offshore wind industries to drive productivity gains, growth and resilience, allowing businesses to realise the market opportunity within their respective sector. Sharing In Growth are now bringing that learning to modular as they work with some of our members, helping modular to scale up – but crucially to become more effective and efficient as it grows.

## SCALING UP MODULAR REQUIRES A DIFFERENT WORKFORCE AND SKILLS PROFILE

Building modular homes on a highly regularised assembly line means that most workers do not need to have traditional construction skills, allowing modular manufacturers to sidestep the skills and labour shortages outlined earlier. Our members recruit factory-floor workers on permanent, full-time PAYE contracts with regular hours and stable incomes. They provide opportunities for upskilling and training, but they do so on the job.

Over 65% of modular producers' workforces are in assembly line roles which have no or few entry requirements. Only 10 to 15% of workers are in construction trades in most cases. This means that modular does not suffer from the labour constraints affecting traditional housebuilding – and this allows it to break out of housebuilding's vicious cycle of low delivery and high prices.

By basing most of the production in assembly line jobs, modular also removes many of the barriers which limit entry into traditional construction. Like all manufacturers, our members have worked to regularise what their workers do to suit a controlled assembly line in a factory. One of our members, for instance, has broken down the whole process of building a home into unique 15-minute tasks; workers are assigned one of these tasks and

trained in-house to do it. This also minimises high risk work such as working at height and all the processes have been optimised so that they can be carried out by someone with far more limited body strength, thanks to the use of supports and machinery. Accident rates tend to be far lower than in on-site building because of this.

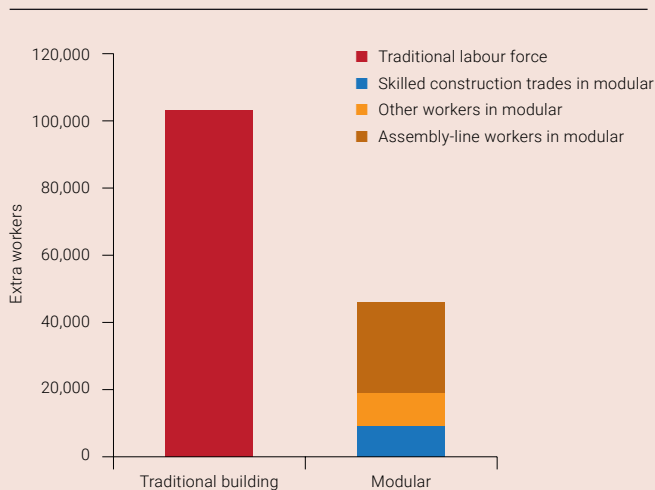
Because of the more compartmentalised assembly line work, it is quicker and easier for workers to learn to do their jobs, making it easier for employers to carry out in-house training. For instance, one manufacturer has set up their own 'modular academy' and carried out 68,000 hours of training last year – a substantial investment in time and resources.

As a result, entry into the modular workforce appeals to different population demographics. In construction, 1% of on-site workers are women; in modular, around 16% of the workforce are female.<sup>22</sup> Not only can people work in modular without a construction background – as long as they are reasonably physically fit and willing to learn, they can do the work. This makes it easier for modular producers to hire workers, which has allowed our members to scale up to date – one, for instance, doubled their workforce in the first six months of 2022. Already our members have hired over 2,000 people – mostly in areas where unemployment is relatively high.

We saw earlier how making up the 92,000 missing homes between current output and the government's target would likely only require an extra 46,000 workers if they were built with modular. Given the workforce profile, it is likely that only 5,000 to 9,000 of these would need to be in traditional trades; most of the rest would be workers who could be hired without qualifications or apprenticeship backgrounds (see Figure 10). That's half the overall labour demand compared with traditional building, and possibly as little as 10% of the demand for construction trades. If traditional building were to add those extra 96,000 instead, it is likely that the sector would require over 100,000 extra workers, most of them in skilled construction trades and allied professions.

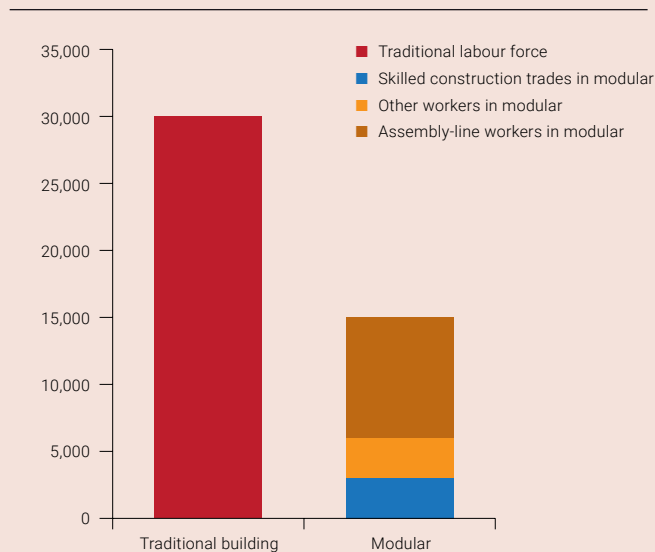
Currently, modular manufacturers are expecting to have capacity to build over 20,000 homes a year by the mid-2020s. With the right support, by the end of the decade, modular could be producing many more homes than 20,000 a year. Our vision for the sector is to be delivering 30,000 homes by 2030, which could be achievable with

Figure 10: Estimated net additional labour force required to build 300,000 homes a year (approximate): traditional building versus modular



Source: <sup>23</sup>

Figure 11: What labour force could modular need to build 30,000 homes – and what would traditional building require? (Estimates)



Source: <sup>23</sup>

a workforce of just 15,000, including as few as 1,500 to 3,000 extra skilled construction workers.

**This would provide additionality in the market – it would not be replacing existing building work but providing extra homes and jobs.** Aside from delivering more housing, this would bring more people into employment and widen the tax base. Supporting modular can drive up the supply of housing without creating anywhere near the same demand for hard-to-find construction trades, while potentially bringing more workers into employment and increasing tax revenue for government.

If the government wants to grow our housing supply the only option is to support modular.

## **MODULAR PROVIDES ITS WORKERS WITH SECURE, STABLE AND SAFER JOBS**

The benefits of modular housebuilding in this context are not just limited to ‘using fewer people.’ But building modular homes brings significant benefits to those people that work in the industry and those that benefit from the homes being built.

By switching their production process from on-site to off-site manufacturing, modular producers are providing secure, stable jobs in low-growth areas of the economy for workers unable to enter skilled sectors. Our recent survey of our members showed that 80 to 98% of their workforce is permanently based within a few miles of their factory. They are hired on permanent, PAYE contracts giving them stability and security and allowing them to settle down in their local communities.

Alongside these assembly-line roles, modular is providing skilled construction jobs, as well as highly skilled design, engineering, project management and data analysis roles. The tendency for modular producers to base their factories in towns and cities where land is cheaper, also means that modular is bringing employment and skilled work to low-growth areas. It is therefore driving diversification and spreading growth around the country.

Modular manufacturers are continually looking for ways of providing new skills and training for their employees. For instance, one of our members has been providing leadership qualifications and lean manufacturing courses for its employees, giving them new skills and helping them to understand how their individual roles fit into a wider set of tasks which they can help to make more efficient. Some of our members are working with organisations like Sharing in Growth, who have an established track record for delivering business transformation within UK manufacturing and engineering companies. Through insight and intervention, Sharing in Growth works with the people in the business, transferring knowledge associated with high growth manufacturing businesses. This knowledge transfer provides employees with new skills and results in increased confidence and capability levels, in turn helping companies deliver growth ambitions and realise their market opportunities.

By contrast, work in traditional construction, though skilled and potentially remunerative when measured by the hour, can be precarious. In most national builders, over 90% of work is done by sub-contractors employed by the job.<sup>24</sup> They are often pulled from areas with low demand to high-growth areas where there is an acute shortage of construction trades. This creates a highly fragmented labour market characterised by a transitory workforce, unable to settle down and forced to spend large parts of their income on temporary accommodation. Modular’s labour model inverts this scenario, optimising stability and security for workers.

# CONCLUSION AND POLICY RECOMMENDATIONS

If we are to have any chance of delivering 300,000 homes a year by 2030 modular housing must be scaled up and put at the forefront of any Government's housebuilding strategy.

Our members are backed by nearly £1bn of private investment which has helped them to build factories, recruit a workforce and deliver a proven, high-quality product. They need to build their pipelines and scale up so that they can realise the labour force benefits of their products in the market and deliver homes at the scale the UK needs.

The following policy changes would require no additional spending by government but would help to grow modular so that it can drive up housing supply and lead much-needed market transformation in housebuilding, delivering greener, better homes faster.

## **1. SUSTAINABILITY: ENHANCE HOUSE-BUILDING SUSTAINABILITY BY INTRODUCING A MORE ROBUST COMMITMENT TO AND TARGETS FOR NET ZERO**

- Bring forward requirements for all new homes to perform at EPC A
- Adjust stamp duty rates based on energy efficiency and net-zero performance.
- Require all for sale and to let homes to provide accurate data on energy bills.
- Introduce a carbon trading scheme for new build housing.

## **2. SCALE: DEDICATE AT LEAST 40% OF THE AFFORDABLE HOMES PROGRAMME TO MMC, AND AT LEAST 50% OF THIS TO MODULAR**

- Dedicate at least 40% of the Affordable Housing Programme (AHP) to modern methods of construction
- Dedicate at least 50% of this share to modular (Category 1)
- Switch public Value for Money assessments from focusing on upfront costs to considering value across the whole life of a house.

### **3. CAPACITY AND SUPPLY CHAIN: DECREASE BARRIERS TO MARKET FOR MODULAR MANUFACTURERS**

- Remove the unintended double levy charge on modular manufacturers by exempting them from the scope of the CITB levy (because few modular manufacturers benefit from a scheme delivering traditional construction skills, but they still have to pay into it).
- Repurpose the £10m allocated to the MMC Taskforce to support a supply chain improvement programme like the ones government have supported in aerospace, civil nuclear and offshore wind.

### **4. PLANNING AND LAND: GOVERNMENT TO PROVIDE A FAST-TRACK PLANNING ROUTE FOR MODULAR OR LOW-CARBON HOMES AND REQUIRE A MINIMUM PERCENTAGE OF ITS LAND BANK TO BE ALLOCATED FOR MODULAR HOMES**

Currently, modular has to navigate a planning system designed for traditional builders. It can be slow and add significant delays for modular manufacturers, reducing the time-saving benefits that modular can bring. Government can reduce these barriers to modular, while also helping to provide modular manufacturers with a steady supply of land for housing. We would like:

- Government to provide a fast-track planning route for all net zero housing schemes; these should be prioritised for accelerated planning permission.
- Government to ensure modular homes are given parity with traditional build in all local plans.
- Government to require a minimum percentile of its land bank to be allocated to modular housing (Category 1) and/or EPC A rated or low-carbon housing – or give priority or discounts to land used for low-carbon housing. This percentile of land should be subject to a ratchet mechanism increasing year on year.
- Government frameworks should mirror this ratchet with increased weighting towards modular housing in their scoring criteria.

### **5. LEVELLING UP: CREATE A MODULAR CAPACITY STRATEGY LINKING NEW FACTORY LOCATION, HIGH HOUSING DEMAND AREAS, AND LEVELLING UP PRIORITY REGIONS**

- Government to create a modular capacity strategy working with combined authorities, freeports, transport hubs and other government agencies to ensure new factories are optimally located to maximise the associated employment and housing delivery benefits. This has already been done in the automotive and renewables industries.

# APPENDIX:

## THE 2023–2025 LABOUR MARKET

The UK economy is widely expected to enter a recession in early 2023 and construction activity, especially housebuilding, will decline. This will inevitably dampen some of the demand for labour in the short term. We are already seeing some national builders freeze recruitment – something that would have seemed unthinkable just six months ago, when employers were struggling to get the staff they needed. So why are we talking about labour shortages now?

Firstly, and regardless of market performance this year, the current UK government has committed to long-term policy objectives in construction, including civil engineering, net zero and housebuilding. Meeting these objectives requires having a suitable workforce – the right number of workers with the right skills. As this report has now shown, the UK does not have this. Whoever forms government after the next general election will likely be serving a five-year term to 2030. They will be constrained by the same factors.

Secondly, the dampening of labour demand which we will see in 2023 is both temporary and illusory. Previous downturns have seen construction's labour force shrink by 17% (1990s recession) and 12% (2008 financial crash) at their worst, while housebuilding fared worse in the late 2000s, losing about 20% of its workforce.<sup>25</sup> However, the recession in 2023 is expected to be shallower. Between 2008 and 2009, the UK economy shrank by 6%.<sup>26</sup>

The Office for Budget Responsibility (OBR)'s latest estimates suggest that the UK economy will shrink by 1.6% in 2023.<sup>27</sup> Industry experts Glenigan forecast in November 2022 that in 2022 and 2023, the value of underlying project starts in private housing will fall by 9% on 2021 levels and in affordable housing by 12%.<sup>28</sup> As high interest rates and growing unemployment make buying a new home increasingly unaffordable, the private building side of the housebuilding sector will contract as fewer new projects go ahead. If the value of the projects points to the underlying completion rates and this feeds into labour, then the housebuilding sector might lose 10% of its workforce in this period – perhaps less.

The OBR's latest forecasts suggest that the UK economy will return to growth in 2024.<sup>29</sup> Glenigan expects the underlying value of private housing projects to exceed the 2021 figure in 2024. 2024 or 2025 will therefore likely see growth return to housebuilding and, if interest rates and the cost-of-living fall and the economy grows as planned, consumer demand could return to the housing market quite quickly.

For these reasons, the easing of labour demand in 2023 should be seen as a temporary event: a short-term illusion of security and a return to normalcy in the industry.<sup>30</sup> In fact, the labour market will face more substantial pressures when the market recovers in 2024 or 2025 with a smaller workforce and heightened demand following wider economic recovery and the lowering of interest rates. Construction, and housebuilding in particular, will be even less likely to meet the demand.

Persistent and likely worsening long-term labour shortages in construction are therefore among the most important challenges facing not only the industry, but UK economic growth, housing policy and the race to net zero. While 2023 may see some respite on the labour pressure the UK has seen in 2022, it will come at the cost of growth in all of these core policy areas, and it may be the prelude to worse and deeper labour shortages.



# NOTES

<sup>1</sup>See our report, *Greener, Better, Faster: Modular's Role in Solving the Housing Crisis* (London, 2022), p. 21.

<sup>2</sup>This section is based on data from Make UK Modular, *Greener, Better, Faster: Modular's Role in Solving the Housing Crisis* (London, 2022).

<sup>3</sup>Mark Farmer, *The Farmer Review of the UK Construction Labour Model: Modernise or Die* (London, 2016), p. 33.

<sup>4</sup>We estimate that employment in construction will be 1,873,100, based on the Average Annual Growth Rate of -1% for 2016 to 2022. Source: 'EMP 13: All Employment by Industry', Office for National Statistics [ONS], 15 November 2022.

<sup>5</sup>Calculated by taking the number of vacancies in the industry and multiplying it by the annual output per job in the industry. Data from 'VACS02: Vacancies by Industry', ONS, 17 January 2023, and 'Output per Job, UK', ONS, 26 January 2023 (Table 19).

<sup>6</sup>*Ibid.*

<sup>7</sup>'Employment by Age, Industry and Occupation, UK, 2010, 2015 and 2019', ONS, 4 November 2020.

<sup>8</sup>'Migrant Labour Force within the UK's Construction Industry: June 2018', ONS, 19 June 2018.

<sup>9</sup>'Migrant Labour Force within the UK's Construction Industry: August 2018', ONS, 23 August 2018.

<sup>10</sup>'Live Housing Tables: Table 241: House Building: Permanent Dwellings Completed, by Tenure', UK Government, 4 July 2019; 'House Building, UK: Permanent Dwellings Started and Completed by Country' (Tables 3a–3d), ONS, 8 November 2022; for 2020 and 2021, calendar year data from Wales is not available, so completions are estimated based on 2020–21 and 2021–22 completions: 'New Dwellings Completed by Period and Tenure', *StatsWales*, 6 October 2022; 'Average Gross Weekly Earnings, 1938–2022', ONS, 26 October 2022; 'Table 502: House Prices from 1930, Annual House Price Inflation, United Kingdom, from 1970', ONS, February 2011; 'House Price Index: Annual Tables 20 to 39' (Table 23), ONS, 20 July 2022. \* Note that all data is for the United Kingdom, except earnings data which is only available for Great Britain. Completion data includes all tenures.

<sup>11</sup>More discussion on the ratio of workers to homes completed in the sector can be found below.

<sup>12</sup>This figure has been arrived at by looking at annual net growth between 2016 and 2021 based on Table 3.5 ('Construction Firms: Total Employees, by Trade of Firm, Great Britain') in 'Construction Statistics Annual Tables', ONS, 18 November 2022. This shows net annual gains of 4,800, -6,100, 1,300, 7,800 and 5,200 in 2016/17, 2017/18, 2018/19, 2019/20 and 2020/21 respectively. In addition, an estimated 2% of workers retire each year (based on the age breakdown of the whole construction industry: 'Employment by Age, Industry and Occupation, UK, 2010, 2015 and 2019', ONS, 4 November 2020). This then added to the net growth figure to arrive at an estimate for the number of gross entrants into housebuilding: 30,800 from 2016 to 2021; dividing this by the five years produces an estimate of the number of annual entrants: 6,100; to reach the required 17,000 new entrants, the housebuilding labour force would therefore have to increase the average number of entrants by 277%.

<sup>13</sup>Employment data based on Table 3.5 ('Construction Firms: Total Employees, by Trade of Firm, Great Britain') in 'Construction Statistics Annual Tables', ONS, 18 November 2022. For the trend based on expected exits and entrants, it is assumed that housebuilding will lose around 2% of its workforce through retirement each year (in line with construction) and will receive 10% of apprenticeship completions in construction (which is the proportion of employment housebuilding makes up in the industry).

<sup>14</sup>'The Perfect Storm: Labour Shortages in the EWI Industry', INCA: Insulated Render and Cladding Association. Accessed 23 November 2022.

<sup>15</sup>James Wilmore, 'Will the Soaring Costs of Metal Slow Down Cladding Remediation?', *Inside Housing*, 31 May 2022; 'Roofing and Cladding Shortages Major Area of Concern, Reports NFRC', *PBC Today*, 5 November 2021.

<sup>16</sup>Construction Industry Training Board [CITB] and Construction Skills Network [CSN], *The Skills Construction Needs: United Kingdom Five Year Outlook, 2022–26* (Peterborough, 2022), p. 10.

<sup>17</sup>CITB, *Building Skills for Net Zero: Industry Insights and Analysis* (Bristol, 2021), pp. 51–52 (Figure 4.1).

<sup>18</sup>Aaron Morby, 'Fast-Track 138-Project Growth Plan – Full List', *Construction Enquirer*, 23 September 2022.

<sup>19</sup>CITB and CSN, *The Skills Construction Needs*, pp. 10–11.

<sup>20</sup>*Ibid.*, p. 6.

<sup>21</sup>Table 3.5 ('Construction Firms: Total Employees, by Trade of Firm, Great Britain') in 'Construction Statistics Annual Tables', ONS, 18 November 2022; 'Live Housing Tables: Table 241: House Building: Permanent Dwellings Completed, by Tenure', UK Government, 4 July 2019; 'House Building, UK: Permanent Dwellings Started and Completed by Country' (Tables 3a–3d), ONS, 8 November 2022; for 2021, calendar year data from Wales is not available, so completions are estimated based on an average of 2020–21 and 2021–22 completions: 'New Dwellings Completed by Period and Tenure', *StatsWales*, 6 October 2022.

<sup>22</sup>Member data for modular. For on-site: 'Why a Diverse Workforce Is Essential for the Construction Sector's Future', *Federation of Master Builders*, 8 March 2020 (accessed 2 August 2022).

<sup>23</sup>Projections for traditional building are based on multiplying the existing labour force by the percentile difference between current housing output and the 300,000 target (as above). For modular, projections are based on taking this estimate and halving to reflect the productivity gains demonstrated in member data; the breakdown is based on member data about workforce composition collected in 2022. This is an estimate and workforce composition may vary between modular producers.

<sup>24</sup>Mark Farmer, *The Farmer Review of the UK Construction Labour Model: Modernise or Die* (London, 2016), pp. 17–18.

<sup>25</sup>Figure 7 in 'Changes in the Economy since the 1970s', ONS, 2 September 2019. Retrieved 16 January 2023; Table 3.5 ('Construction Firms: Total Employees, by Trade of Firm, Great Britain') in 'Construction Statistics Annual Tables', ONS, 18 November 2022. There is no data on housebuilding employment in the early 1990s.

<sup>26</sup>'The 2008 Recession 10 Years on', ONS, 30 April 2018. Retrieved 16 January 2023.

<sup>27</sup>'Real GDP Growth', Office for Budgetary Responsibility [OBR], November 2022. Retrieved 16 January 2023.

<sup>28</sup>Glenigan, *Construction Industry Forecast 2023 – 2024: For the UK and Republic of Ireland* (Bournemouth, 2022), pp. 8–10.

<sup>29</sup>'Real GDP Growth', OBR, November 2022. Retrieved 16 January 2023.

<sup>30</sup>This view is shared by several other industry experts, including Mark Farmer, CEO of Cast Consulting: "'Opportunism to Survivalism": Cast CEO Sets out Thoughts on 2023 Outlook for the Construction Sector', *Cast*, 12 January 2023. Retrieved 16 January 2023.



Make UK Modular is the voice of the modular housing sector. We exist to help modular housing scale up, provide expert advice about the sector's needs, foster collaboration to overcome political issues, and work with members to grow their businesses.

The UK needs more homes, and fast. It needs homes, which are green to build. It needs homes which use less energy. It needs homes to be great quality and good value. And it needs new people to build them. It needs homes: greener, better, faster. It needs Modular.

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