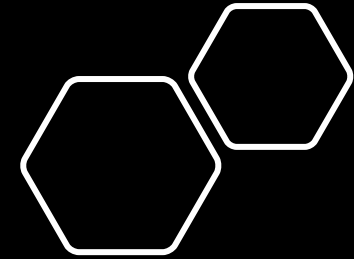


Modern Methods of Construction and the Future of Housing  
Steve Cole, Director, Make UK Modular





# What are Modern Methods of Construction? What is modular housing?

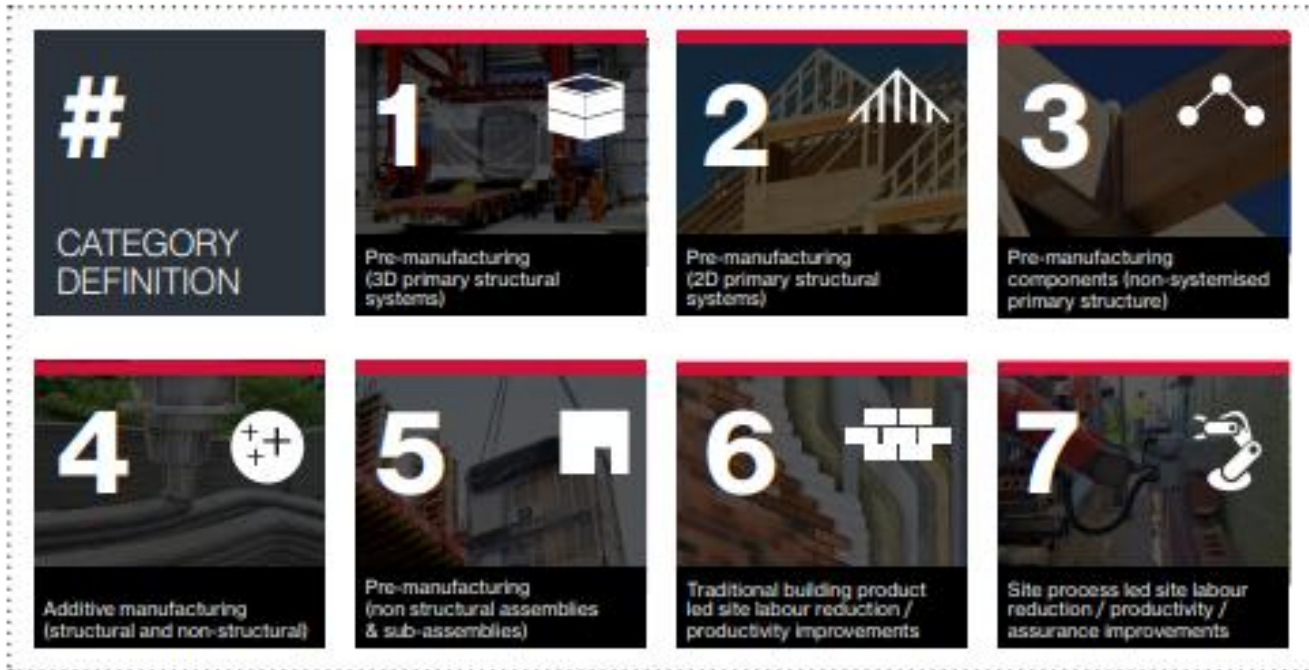
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At your table.

You will then have 5 minutes to come up with the top 3 things you know about modular housing and modern methods of construction. One of you should be prepared to share these with the room.

# What is MMC? What is a modular home?



## Category 1

Pre-manufacturing (3D primary structural systems)



A systemised approach based on volumetric construction involving the production of three-dimensional units in controlled factory conditions prior to final installation. Volumetric units can be brought to final site in a variety of forms ranging from a basic structure only to one with all internal and external finishes and services installed, all ready for installation.

The system includes structural performance. Full volumetric units in apartment buildings can include apartment space and common area space. Mini volumetric structural units can include bathroom pods and the like which are structurally stacked and loaded.



# So why modular









It's not new, it's not unusual





Money > News Money

### SMART HOME The UK's first new homes with ZERO energy bills are being built – is there one near you?

Emily Downes  
17:35, 6 Jun 2022 | Updated: 17:57, 6 Jun 2022

### The shape of things to come? An exclusive look at L&G Modular Homes' first big scheme

INSIGHT | 01.06.22 7:05 AM GMT | BY MARTIN HILDITCH

It has been a long journey, but six years after Legal & General (L&G) signed a long-term lease on a huge warehouse in Yorkshire, its modular business has delivered its first major scheme. *Martin Hilditch* visits a development that has plenty riding on its success



L&G Modular Homes' factory in Sherburn-in-Elmet, North Yorkshire



*'Houses were traditionally constructed in little pits in muddy fields but here it's clean and perfect and, in terms of the engineering of what's going on, it's so fantastically accurate.'*

— Kevin McCloud MBE

UK housebuilding + Add to myFT

### Goldman-backed housebuilder to build Europe's largest home factory in the UK

Modular housing developer TopHat says facility will be able to produce 4,000 homes a year



TopHat puts together rooms, units or entire houses on a factory line, which is more automated so the developer can scale at pace © TopHat

### Vision Modular Systems wins "Excellence in Innovation" award at World of Modular Conference

May 12, 2022



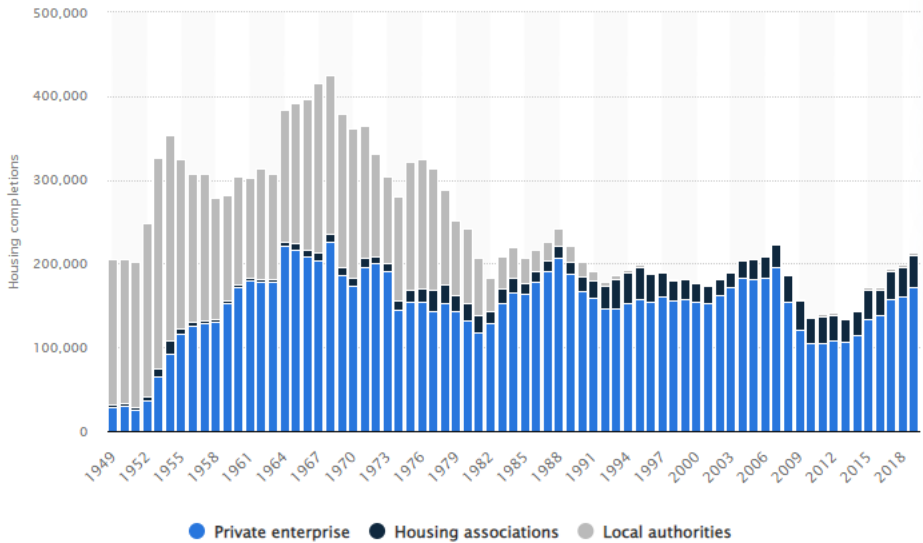
Vision Modular Systems has won the prestigious "Excellence in Innovation" award at this year's Awards of Distinction at the

Why are these countries building with MMC?  
Why aren't we?

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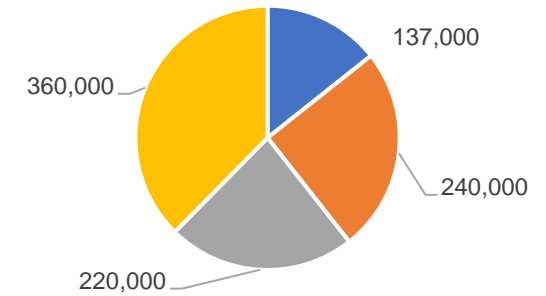
# 3 big challenges for housebuilding




 Department for Levelling Up,  
 Housing & Communities

**The Future Homes Standard & Future Buildings Standard**

## Extra workers needed in construction by 2030



- Housebuilding - meeting 300,000 homes target
- Net Zero retrofitting
- Wider construction demand, including infrastructure
- Replacing retirees (excluding housebuilding)

## And a bunch of 'smaller' ones

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- **Energy efficiency:** UK housing is the 'cold man of Europe'.
- **Building Safety:** Cladding remediation costs could run as high as £50 billion
- **Inflation:** UK construction materials prices in July 2022 were 24.1% higher than a year earlier according to the ONS
- **Insolvencies:** The construction industry as a whole saw over 2,500 insolvencies registered in 2021, amounting to 19% of all insolvencies
- **Productivity:** in construction has barely change since the late 1960s. Construction of buildings is actually less productive now than it was 25 years ago. This compares badly with the upward trend across the wider economy: productivity in manufacturing has grown by 50% and in services by 30%
- **Quality:** Increasing concern about defects in new build and the maintenance of existing homes

## In short...

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- The UK needs more homes, and fast
- It needs 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

A blue geometric graphic consisting of overlapping triangles and polygons, located in the bottom right corner of the slide.

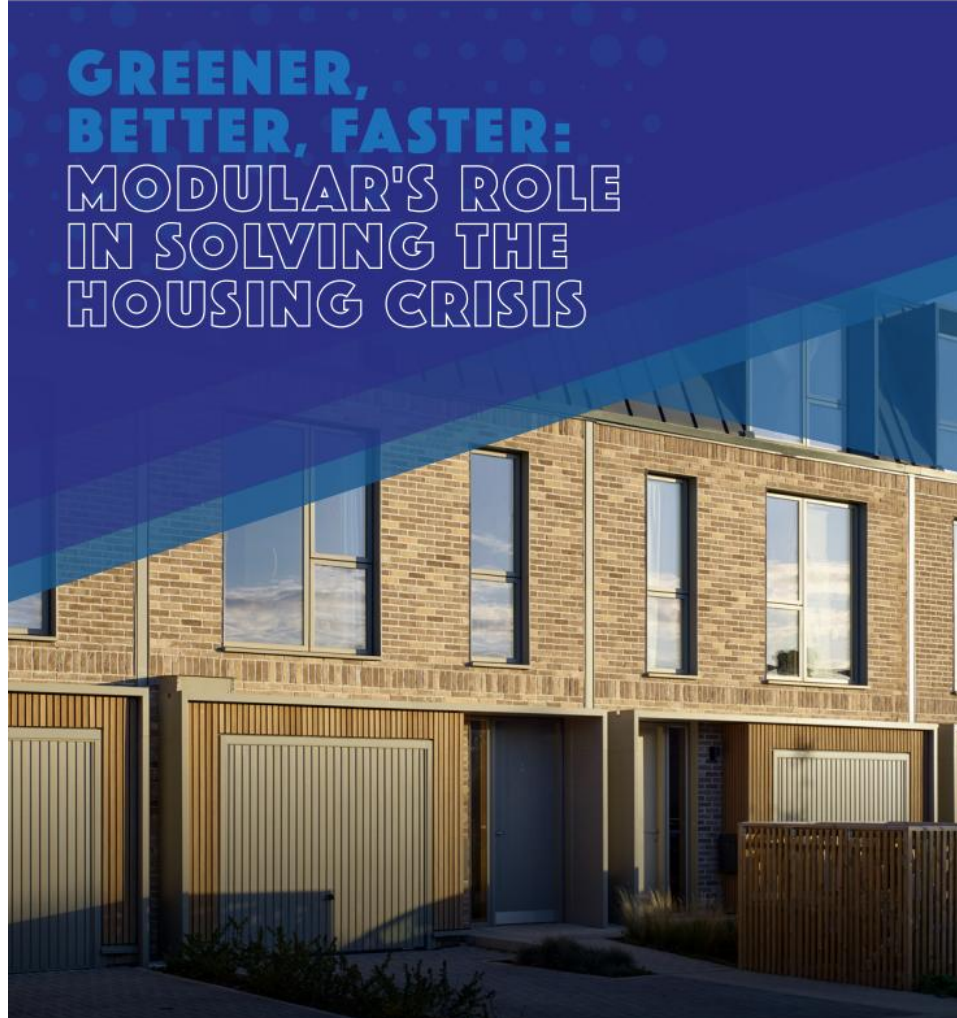
What are  
the  
benefits?



In partnership with:



**GREENER,  
BETTER, FASTER:  
MODULAR'S ROLE  
IN SOLVING THE  
HOUSING CRISIS**

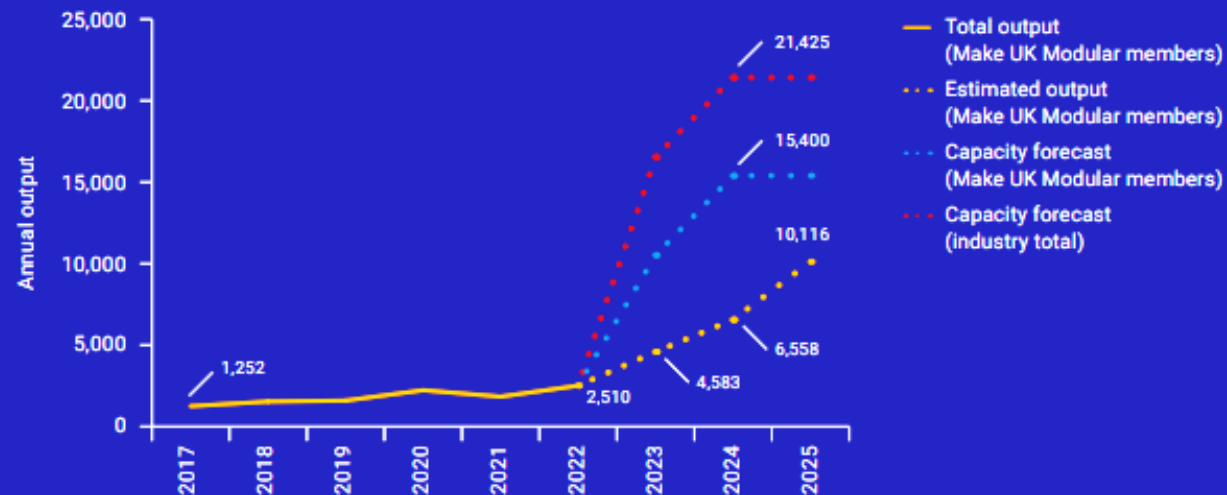


# Sector Capacity

## MODULAR CAN HELP MEET THE DEMAND FOR HOUSING

The production of entire homes in factories as 3D modules has matured rapidly in the last 5 years. Capacity is in place to deliver in excess of 20,000 new modular homes per annum by 2025.

This would grow England's housing supply by 10% and cut the output gap on the Government's housing target by 20%.





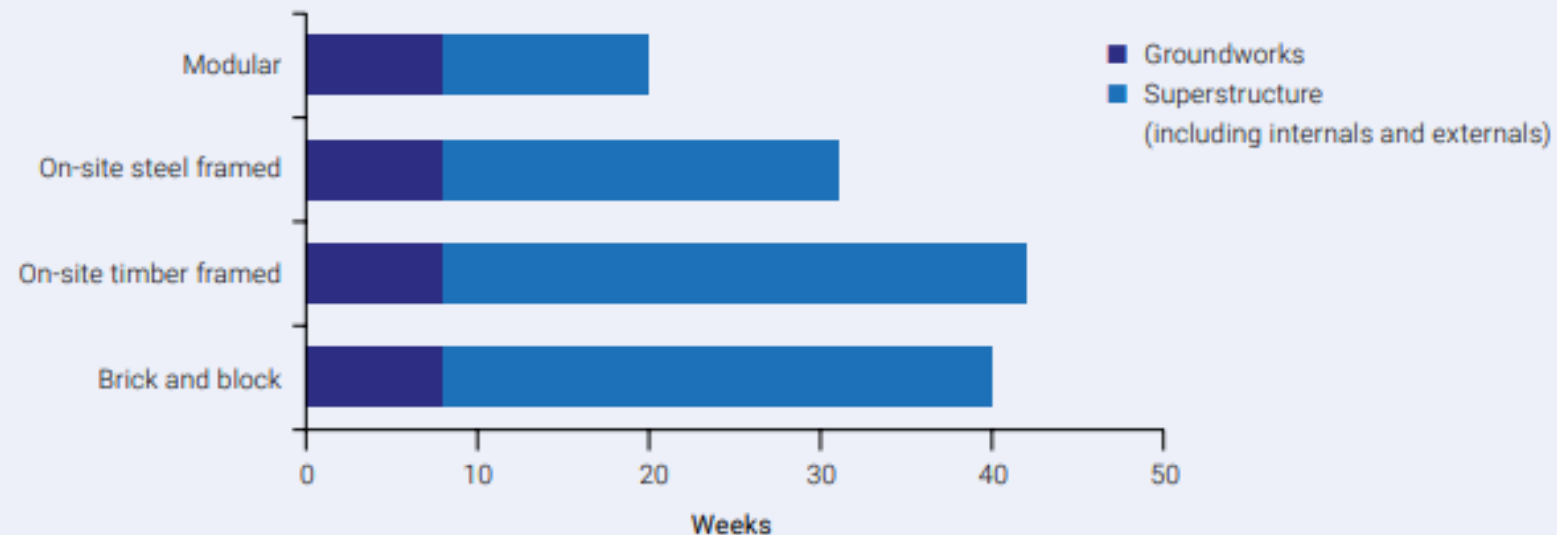
## INVESTING IN R&D AND INNOVATION



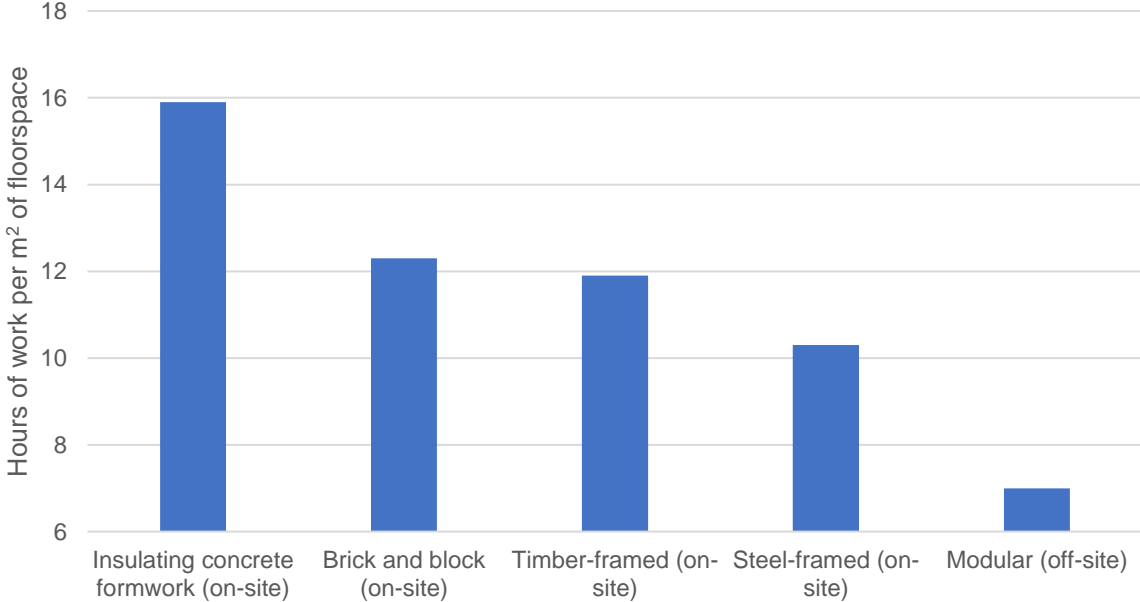
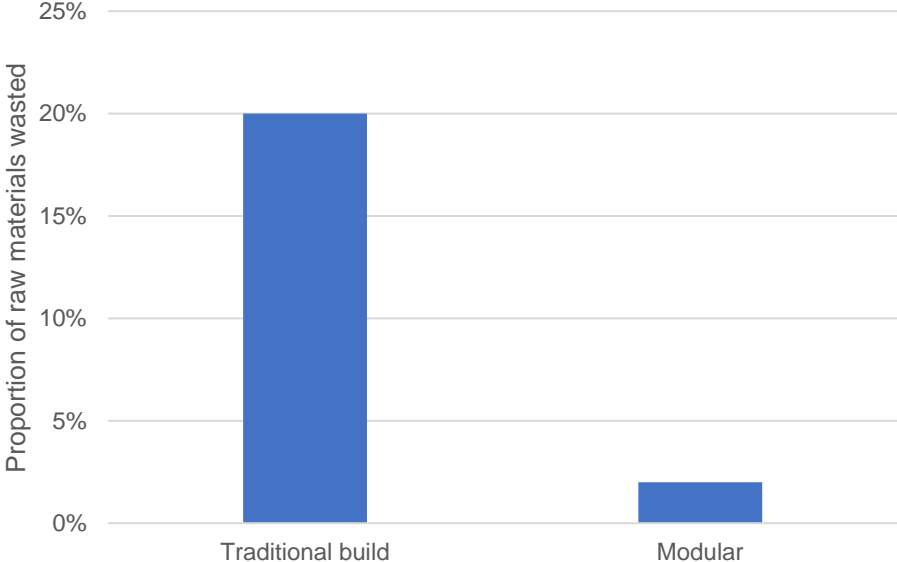
**THE MODULAR SECTOR**  
ACCOUNTS FOR UP TO  
**30%** OF ALL  
**R&D SPENDING**  
IN THE CONSTRUCTION OF  
**BUILDINGS SECTOR,**  
WITH NEARLY **£1BN** OF **PRIVATE INVESTMENT**  
ALREADY MADE

## IMPROVING QUALITY AND EFFICIENCY

Modular homes are typically built 50% faster and reduce waste by 90% compared to traditional build, ensuring homes can be built to consistently high standards, for competitive costs, at speed.



# Efficiency



## Modular building sites

50% reduction in  
disruption

80% fewer vehicle  
movements

60% fewer staff on-site

# Investment and productivity



## CREATING JOBS AND PRODUCTIVITY



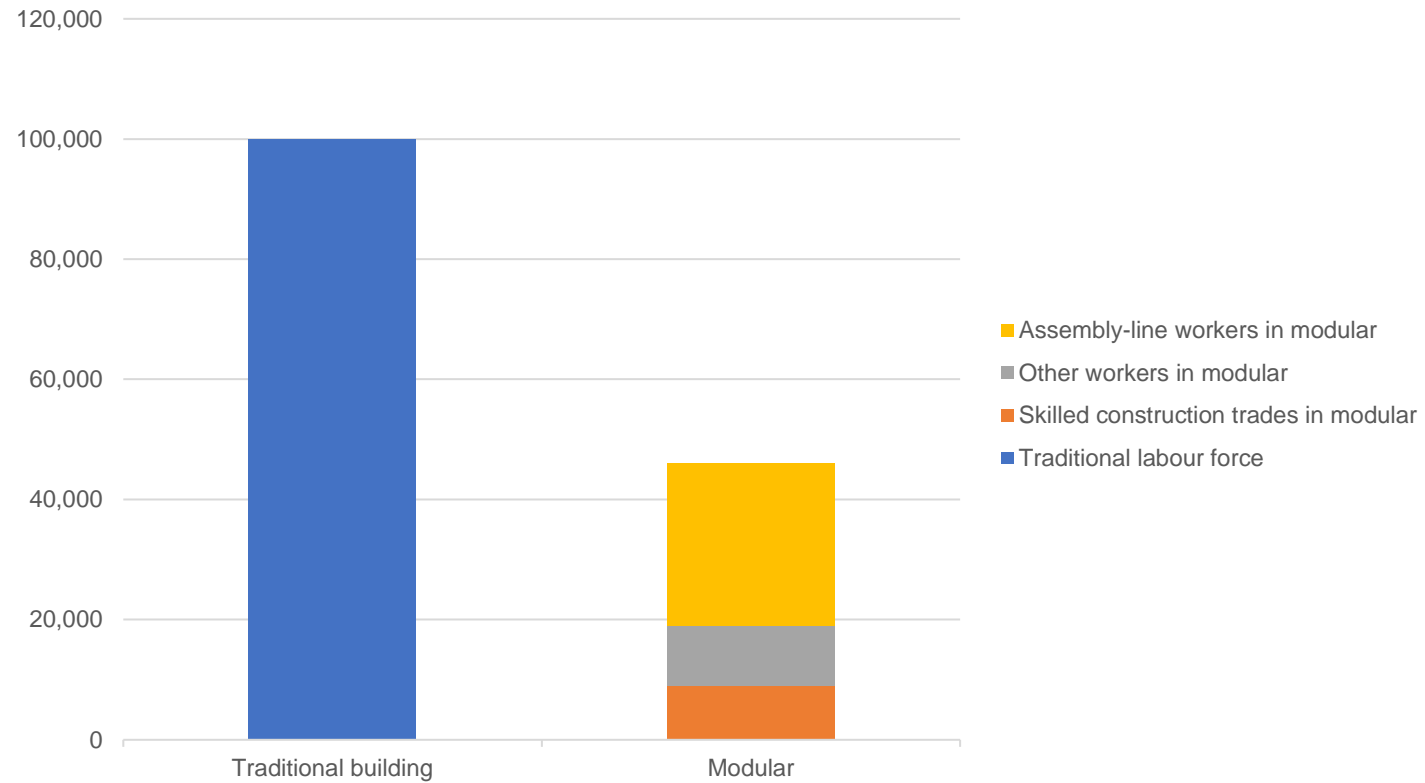
**MODULAR FACTORIES CREATE JOBS**  
WHERE THEY ARE  
**MOST NEEDED** ACROSS THE UK,  
WITH UP TO **65%** OF **MODULAR'S**  
**WORKFORCE**  
IN MANUFACTURING ROLES

BUILDING IN A FACTORY  
**HAS DRIVEN UP PRODUCTIVITY**  
BY **OVER 40%** COMPARED TO  
TRADITIONAL  
**ON-SITE CONSTRUCTION**



# Labour force

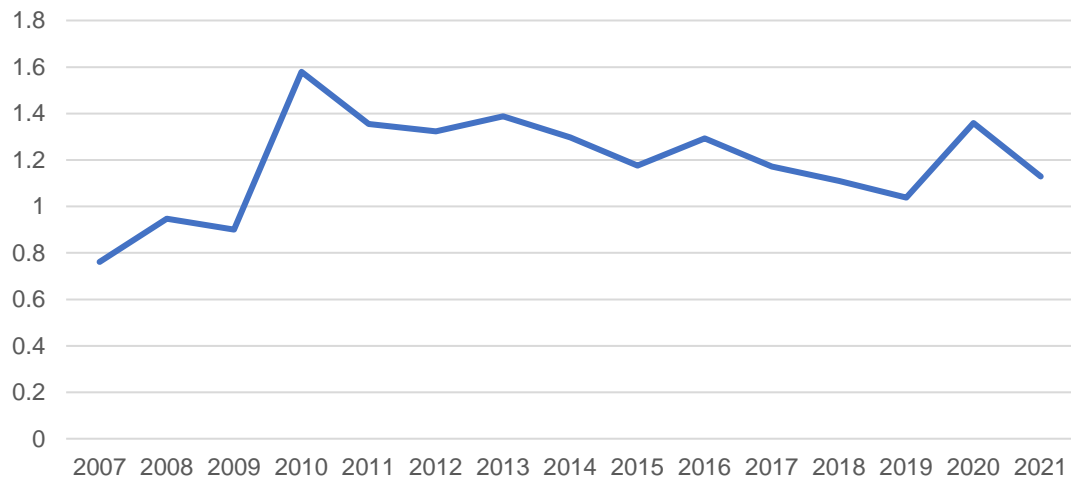
Estimated net additional labour force required to build 300,000 homes a year (approximate)



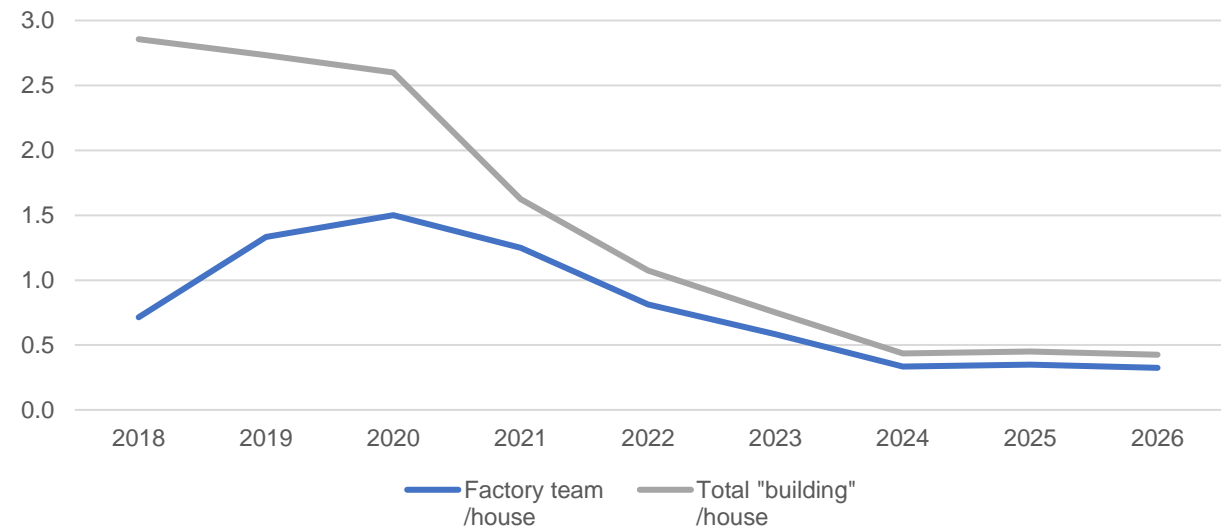
# Labour supply



### Ratio of housebuilding employees to houses built since 2007 (housebuilding sector, UK)



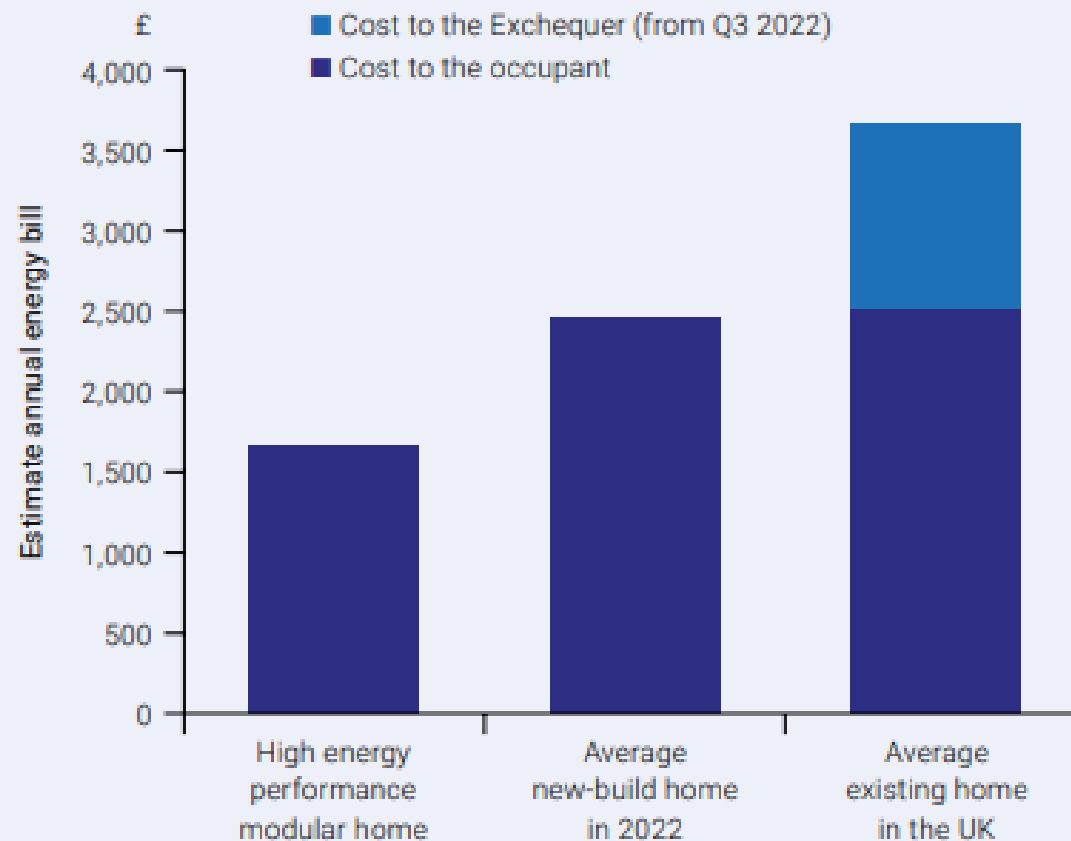
### Workers per house completed annually (case study modular member)



# Net-Zero and Energy Efficient

## BUILDING ENERGY EFFICIENT HOMES

Modular homes are 55% more energy efficient to run than an average UK house, furthermore, modular homes can be built with up to 82% less whole-life embodied carbon.





**45% less  
embodied  
carbon in high  
rise**



5,358

TONNES OF CO2 SAVED IN  
CONSTRUCTION COMPARED TO  
TRADITIONAL CONSTRUCTION

2,240

TRANSPORT MOVEMENTS TO SITE  
SAVED BY USING OFFSITE  
CONSTRUCTION

17,312

TONNES OF CO2 SAVED OVER THE  
LIFE OF THE HOMES THROUGH  
ENERGY EFFICIENT TECHNOLOGY

80% less embodied  
carbon in housing



# Group Exercise

## 15 Minutes

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What sort of scheme might you use MMC on?

What type of site?

What type of client?

What type of product?

What would be the benefits?

What issues might you face?

What do you think would be the biggest benefit and the biggest risk?

What differences might you need to account for compared to traditional construction?

A blue geometric graphic consisting of overlapping triangles and polygons, located in the bottom right corner of the slide.



# Key learning

- Minimal disruption
- Carbon footprint
- Energy performance
- Quality
- Regeneration
- Speed of build
- Workforce
- Funding
- Affordable Housing
- Build to Rent
- Rethink the lead contractor approach

Thank you  
Any questions?

