



# Cast

REAL ESTATE & CONSTRUCTION CONSULTANCY

## Modernise or Die: An Update

UK Construction's Journey Since 2016

**Mark Farmer**

CEO, Cast Consultancy

Leaders Meets Webinar

9<sup>th</sup> April 2021

# A Reminder....



## SYMPTOMS

The critical symptoms of failure and poor performance have been identified in this review as:



# Brexit & Covid-19 Has Worsened The Labor Crisis in UK

## Declining construction apprenticeships threatens 'build back better' recovery, says FMB

The year-on-year decline in construction apprenticeships threatens the UK's ability to 'build back better' from the coronavirus pandemic...

Press release | 28 January 2021

## BREXIT Labour shortages could raise rates 'at least 10%'

29 JAN 2021 | BY DAVID PRICE



News

## Construction skills gap 'threatens net zero targets'



CM Staff

23.02.21

## UK construction sector loses 46% of skilled EU workers

20th January 2021

The UK construction sector has lost 46% of its skilled EU workers, according to research by the Migration Observatory at the University of Oxford, as Brexit and Covid-19 lead to staff shortages



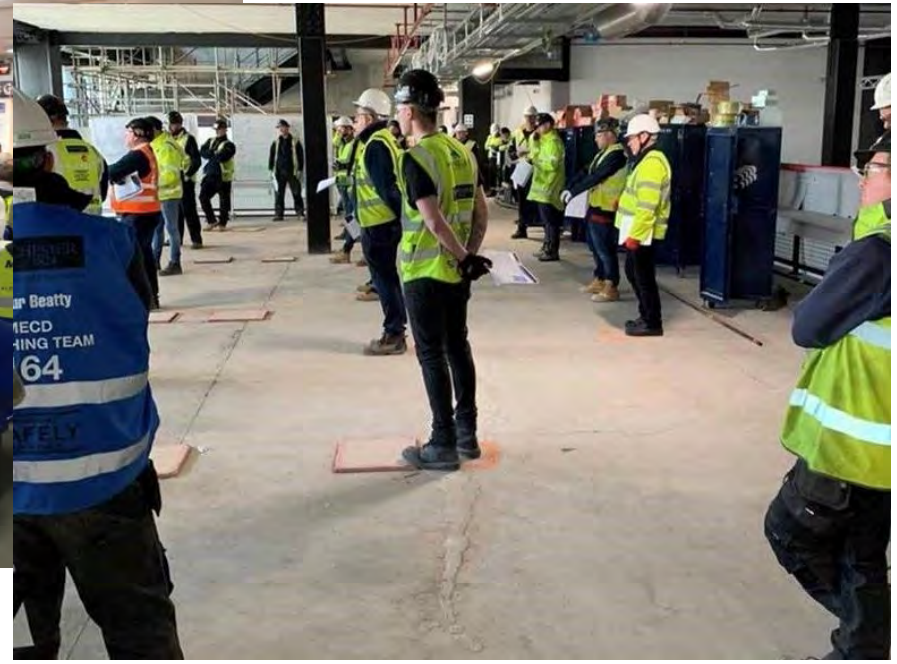


# And C-19 Has Now Just Further Reinforced What We Already Knew

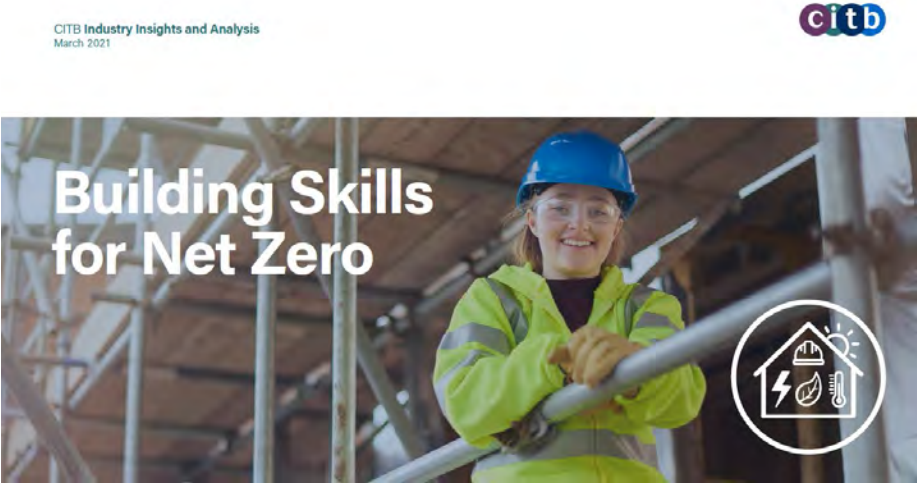
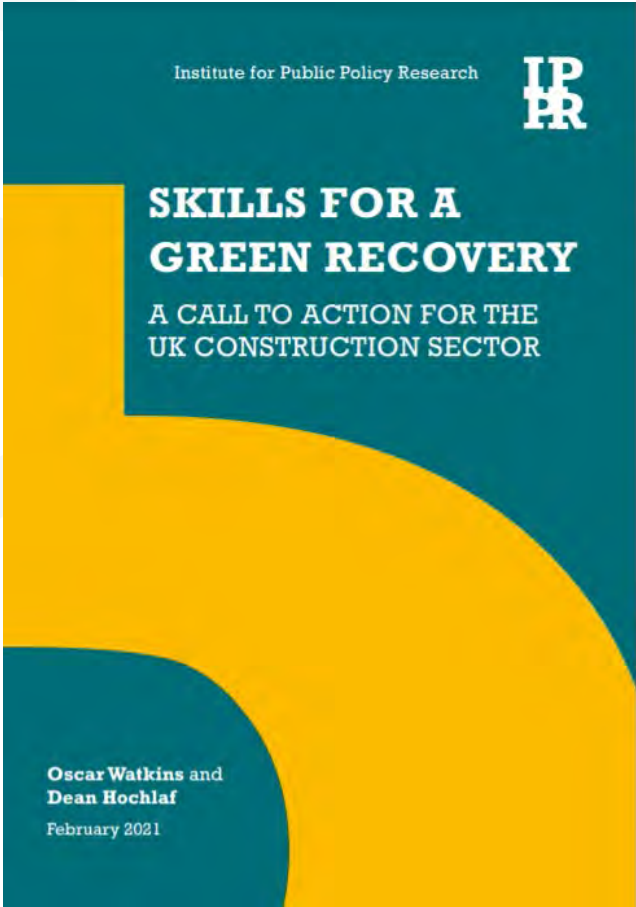
HM Government

## Working safely during COVID-19 in construction and other outdoor work

Guidance for employers, employees and the self-employed  
11 May 2020

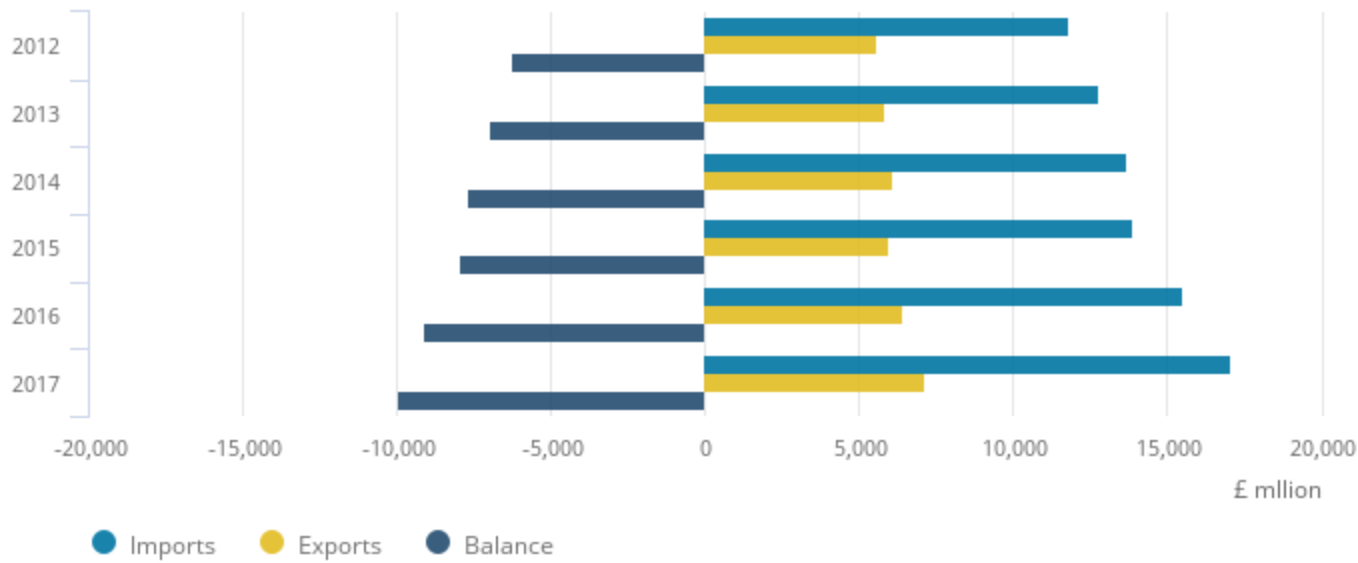


# Signs of Belated Concern On Skills & Resourcing – Too Little Too Late?



# Brexit & Covid Has Also Added Fuel To The Fire of UK Supply Chain Weaknesses

Figure 12: The balance of trade in all building materials and components  
2012 to 2017, UK, £ million, current prices



Source: Office for National Statistics and Department for Business, Energy and Industrial Strategy



# Symptoms Still Showing Themselves – Construction Sector Financial Failure



## INFRASTRUCTURE Intelligence

Produced for the industry by the Association for Consultancy and Engineering

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### NEWS

## Problem jobs cause £92.3m half-year loss at Costain



Rob O'Connor  
14 September 2020  
[Twitter] [Facebook] [LinkedIn]  
[Print icon]  
Topics  
Company news  
Financial results  
Covid recovery

Type here

16 OCTOBER, 2018 | BY DAVID PRICE

## Kier suffers £225m hit after lockdown halts construction



### Get that sinking smell a Carillion

News has left many holding their breath

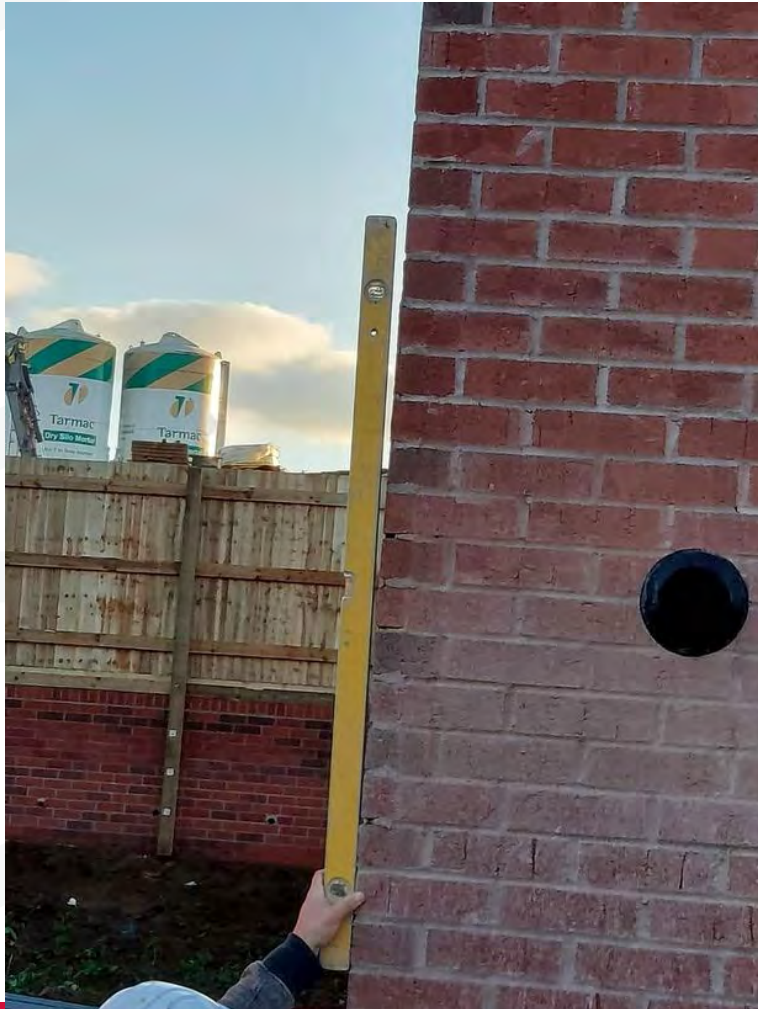
“kitchen sinking” is a business term meaning a company is losing profit, higher costs and rising debt in one go, in an industry like construction. For contractor Kier, kitchen sinking is also a business in itself. Kier is a major contractor for local authorities, housing associations and the private sector. In fact, its website says it is “expanding again”. In fact, its website says it is “expanding again”. In fact, its website says it is “expanding again”. In fact, its website says it is “expanding again”.

Kier Group is planning to sell its housebuilding division to reduce debt that now stands at £310million





# Quality Failure & Brand Risk Is Engulfing The Industry



DAILY NEWSPAPER OF THE YEAR

# THE TIMES

Thursday April 11, 2019 | times.co.uk | No 7233 | Only 13p to subscribers | £1.60

## Terror on Flight 1380

How former fighter pilot saved jet

### Why the sun means more work for women

### Cotton buds and plastic stirrers will be banned from sale

## Buyers in despair at badly built new homes

### 'Underhand' Bovis delaying essential repairs

### Government accused of overcharging for citizenship

Francis Elliott  
Francis Elliott Home Improvement

The Home Office has been accused of profiting on citizenship applications from children here in the UK.

Thousands of young people who are not British citizens directly being born in the country are among those who have to pay more than £2,000 when they apply, despite the fact that the process being less than 10 days.

Other investigations have charged the Home Office as also much higher than the cost of handling them.

The fees are criticised by a House of Lords report. "It is impossible for the government to justify such a large amount of profit out of those seeking citizenship," members of the Citizenship and Civic Engagement Committee said.

The findings from the report to the Home Office of administering the individual applications, and the cost to the local authority of the citizenship process.

Applications here for citizenship came down in the past month from 18,000 to 12,500 and the fee for submitting a child in Britain has risen from £1,400 to £1,600. It is also £2,000 for settlement, residence and nationality over 12 years.

The report comes as another British newspaper announced that the number of cases relating to Windrush, the 1948 immigration law which gave the right to the UK, legally has risen from 40 to 120.

The Home Office must now confirm if any of those who came from the West Indies between 1948 and 1971 had been in the country since arriving. Theresa May and Antonio Costa's clash in the Commons yesterday over the issue of deterring Windrush landing routes. The prime minister said the decision was taken under Labour.

The Home Office will announce the number of people's records was approved by the UK Border Agency in June 2019, with a further "interim" decision. It also says it will be in October 2019.

Leaving with eye, page 18



© WALES NEWS SERVICE



# Economic Cycle Amplification Suggests The Industry Is In Irreversible Decline

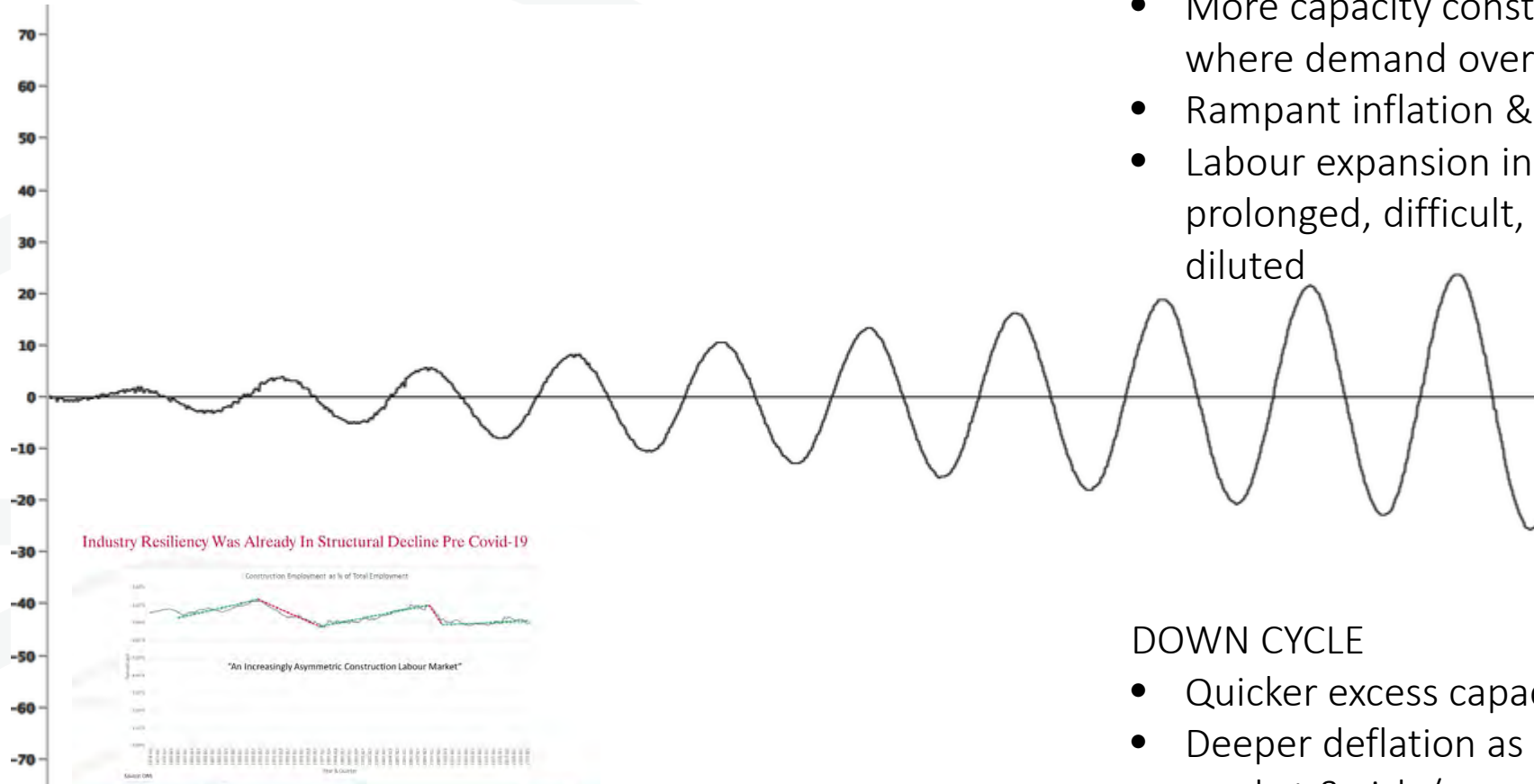
## UP CYCLE

- More capacity constrained expansion where demand overshoots supply
- Rampant inflation & opportunism
- Labour expansion increasingly prolonged, difficult, transient & skills diluted

## DOWN CYCLE

- Quicker excess capacity shedding
- Deeper deflation as transient labour market & risk / margins increasingly dominate pricing

Tender Price Variance



Directly linked to 'asymmetric labour market'

# UK Government Has Finally Recognised The Importance of Construction In Achieving Its Political Ambitions & A Move Towards MMC Is Central To That

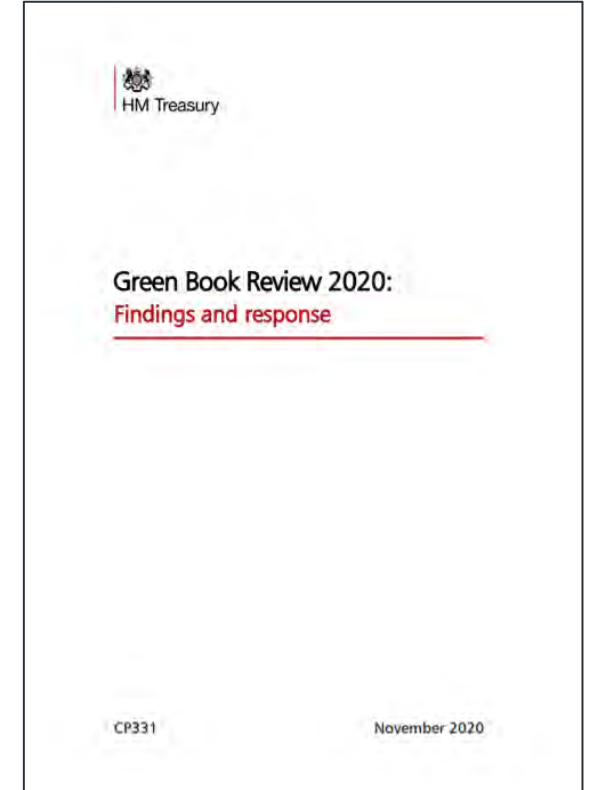
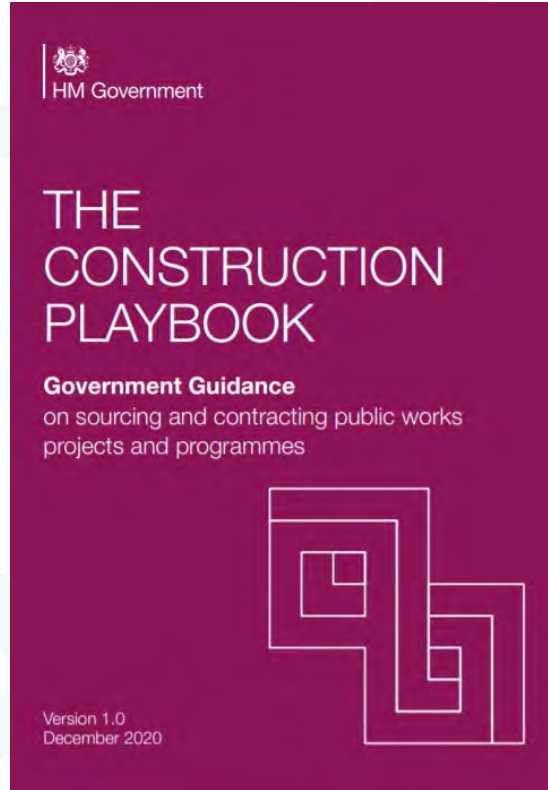
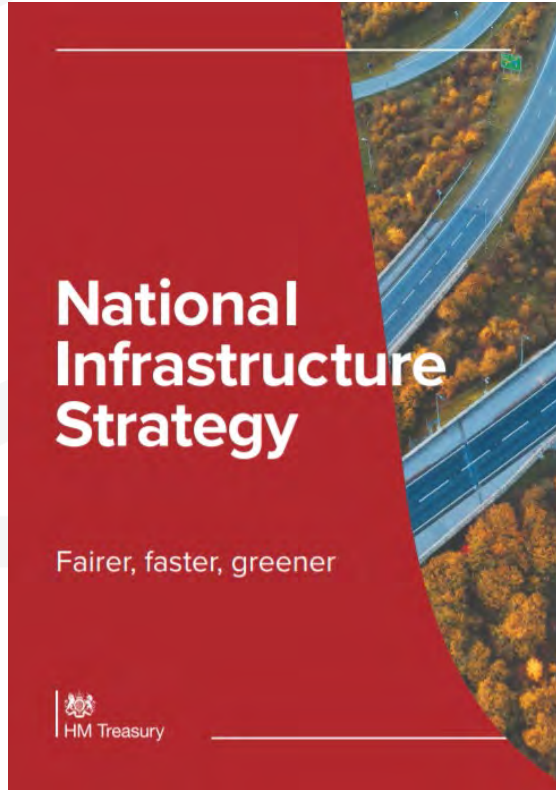
The screenshot shows the GOV.UK website interface. At the top left is the GOV.UK logo with a crown icon. Below it is a search bar with the word 'Search' and a magnifying glass icon. To the right of the search bar are navigation links: 'Departments', 'Worldwide', 'How government works', 'Consultations', 'Statistics', and 'News and communications'. The main content area features the 'Construction Leadership Council' logo in the top right corner. The central text reads 'Roadmap to Recovery' in a large, bold font, followed by 'An Industry Recovery Plan for the UK Construction Sector' in a smaller font. At the bottom of the main content area, it says 'Construction Leadership Council'. A dark blue horizontal bar is at the very bottom of the page, with a small number '1' on the right side.

The cover of the 'Industry Strategy' document features the HM Government logo at the top left. The title 'Industry Strategy' is prominently displayed in large white letters on a dark blue background. Below the title, it says 'Building a Britain that works for everyone' and 'November 2017'. The cover also includes a graphic of a red and yellow bar chart and a blue and red abstract design at the bottom.

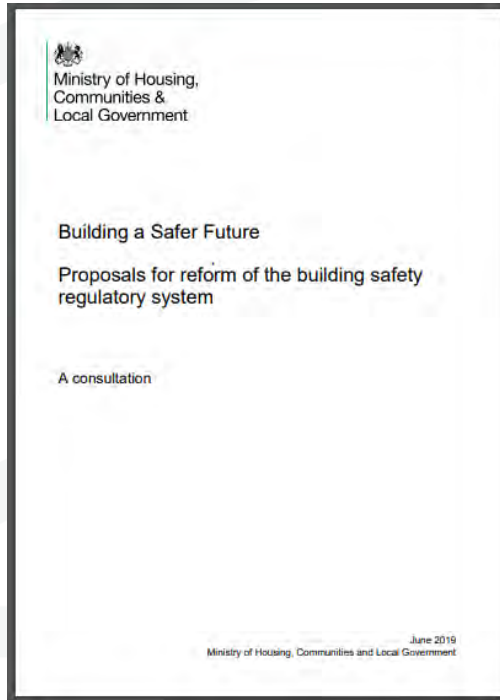
The cover of the 'Construction Industry Strategy' document has a textured orange background. At the top, there is a circular image of a metallic surface. The title 'Construction Industry Strategy' is partially visible at the top. Below it, the text 'November 2017' is printed. At the bottom right, there is a small logo for the Construction Industry Institute (CII) and the text 'November 2017'.



# The Most Recent UK Government Announcements All Support The Move to MMC



# Quantity and Quality Have Rarely Coincided in Homebuilding – Societally Led Change Is Now Forcing Politicians To Force Us To Do Things Differently





# UK Government Has Turned Up The Gas On Move To MMC Through Both Narrative & Policy Post Covid-19

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TODAY**

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NEWS COMMENT IN FOCUS HOUSING DELIVERY CPD EVENTS PRODUCT SEARCH JOBS

NEWS

## A quarter of affordable homes must be MMC

By Joey Gardiner | 11 September 2020



Homes England to use deals signed under new £11.5bn Affordable Housing Programme to promote off-site build

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NEWS

## A fifth of all new affordable homes must be MMC, says Jenrick

By Tom Lowe | 7 October 2020



Housing secretary makes pledge and tells Tory conference any further cash in the spending review will be focused on MMC

**HOUSING  
TODAY**

Nominated for PPA Brand of the Year

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NEWS COMMENT IN FOCUS PROGRAMMES HOUSING DELIVERY CPD EVENTS PRODUCT SEARCH

NEWS

## Homes England boss says industry “getting away” with low MMC uptake for too long

By Joey Gardiner | 24 November 2020

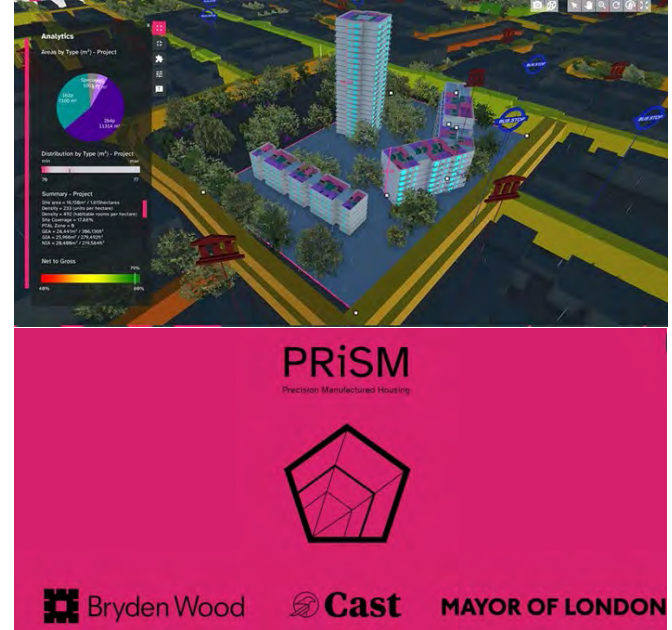
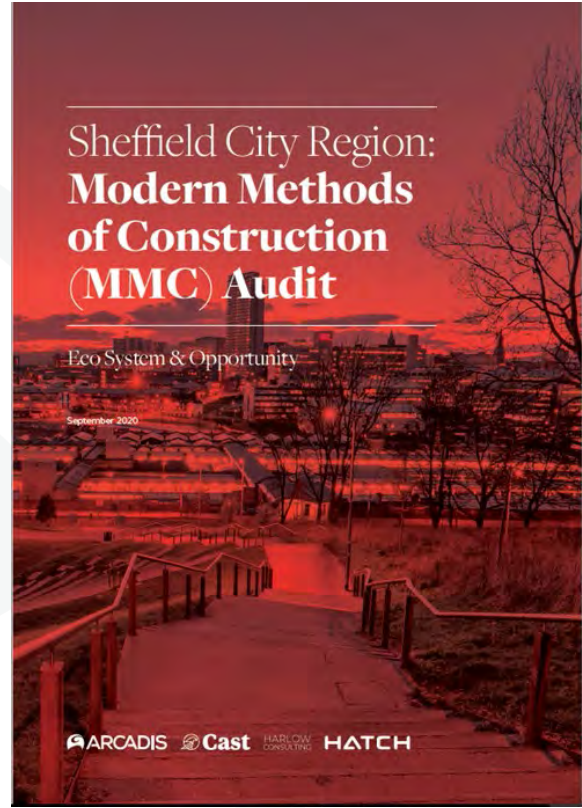
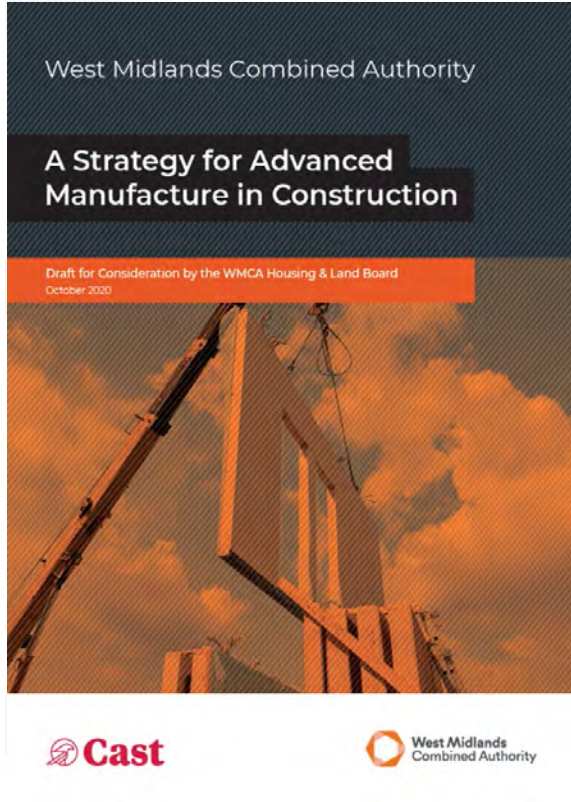


Nick Walkley says quango will 'ratchet up' offsite requirements and expand strategic partnership programme



**Cast**

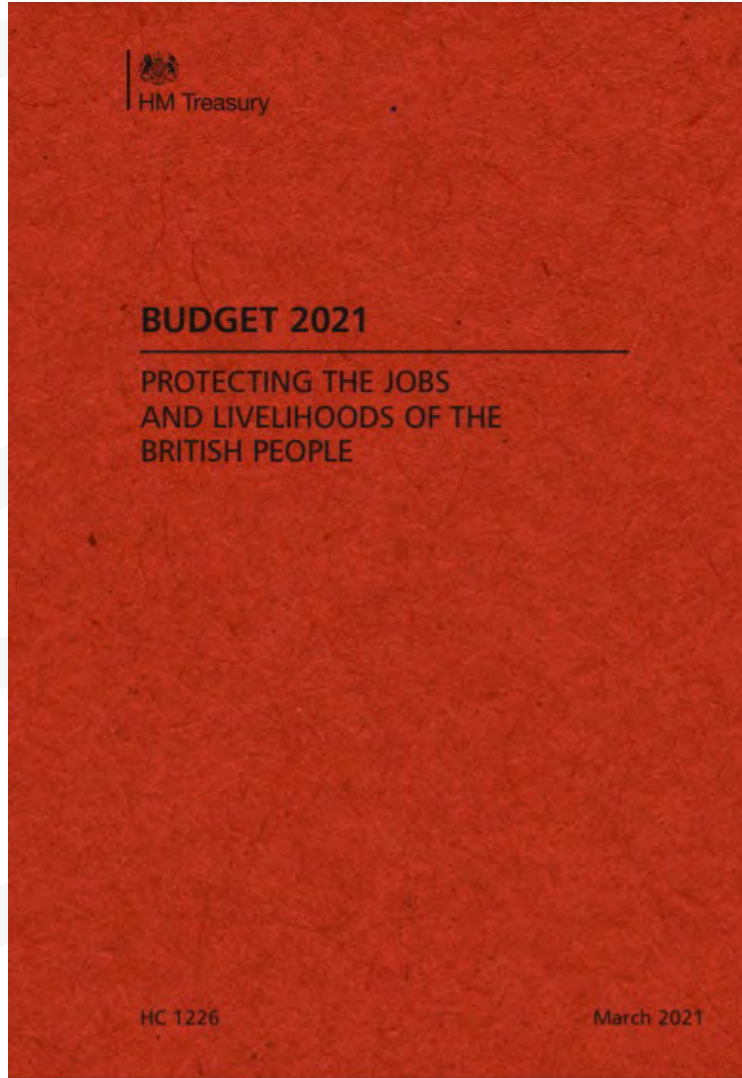
# And The UK's Cities & Devolved Authorities Are Now Increasingly Identifying MMC As A Lever Of Local Industrial Strategy



Targeting more local homes - higher quality, lower carbon with new high productivity & technology led skills and associated inward investment



# The Opportunity To Mobilise Modernisation At A Local Level Has Been Recognised by Government In Latest Budget



- **Modern Methods of Construction (MMC) Taskforce** – The Ministry of Housing, Communities and Local Government (MHCLG) will establish an MMC Taskforce, backed by £10 million of seed funding, to accelerate the delivery of MMC homes in the UK. The Taskforce will consist of world-leading experts from across government and industry to fast-track the adoption of modern methods of construction. It will be headquartered in MHCLG’s new office in Wolverhampton. The Taskforce will work closely with local authorities and Mayoral Combined Authorities, including the West Midlands Combined Authority and the Liverpool City Region who have already brought forwards ambitious proposals.

# Nearly 40% of all Global Emissions Are Related To Built Environment – Circa 50% of Everything Construction Does Is Waste

Buyers of brand-new homes face £20,000 bill to make them greener

Critics say the costs could have been avoided if ministers had agreed to bring in low-carbon standards sooner



▲ All UK homes will need to be brought up to high standards of efficiency and equipped with low-carbon heating in place of gas boilers if the government is to meet its target of net zero greenhouse gas emissions by 2050. Photograph: Murdo MacLeod/The Guardian

Government should consider homebuyer grants for zero carbon homes, say sector giants



TopHat and L&G have said the government should consider offering housebuyers a grant to encourage them to buy zero carbon homes.

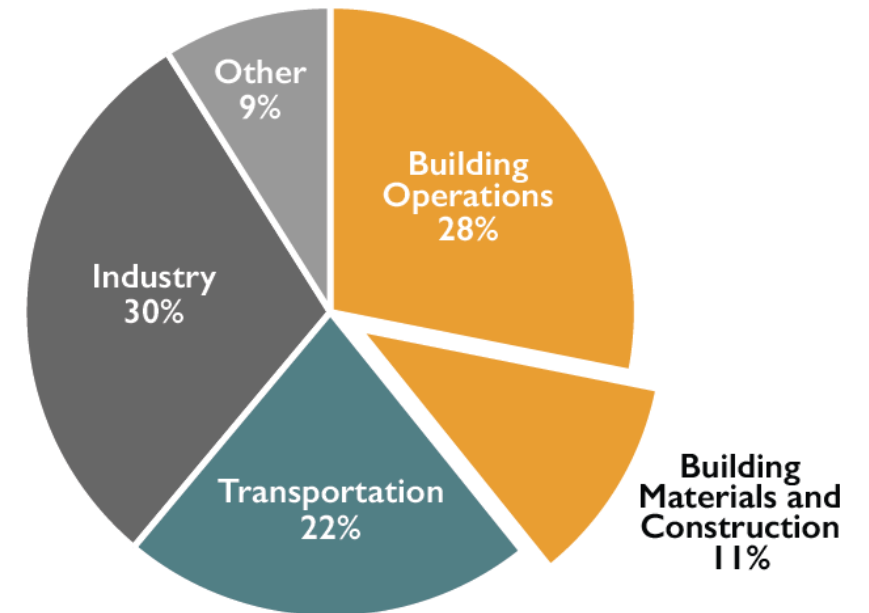
Ministry of Housing, Communities & Local Government

**The Future Homes Standard: 2019**  
Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings

Summary of responses received and Government response

January 2021  
Ministry of Housing, Communities and Local Government

Global CO<sub>2</sub> Emissions by Sector



Source: © 2018 2030, Inc. / Architecture 2030. All Rights Reserved. Data Sources: UN Environment Global Status Report 2017; EIA International Energy Outlook 2017



# So We Need To Square Decarbonisation With Building Safety Regulatory Reform

## How is the CLT industry responding to the combustibles ban?

By Joey Gardiner | 31 January 2019



Proponents of cross-laminated timber were up in arms when the government announced its plans to ban combustible materials from the external walls of high-rise buildings. But now the nascent industry is fighting back, reports Joey Gardiner



*Odile Guzy Architectes' social housing scheme in Chalon-sur-Saône, France*

French public buildings to be built with 50 per cent wood

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## Steel and concrete are climate change's hard problem. Can we solve it?

Heavy industry produces more carbon dioxide than the entire US. Perfect the new technologies that could clean it up and we can score a crucial climate victory

### A new report predicts significant demand growth for mass timber components

There should be plenty of wood, but production capacity needs to catch up.

BUILDING MATERIALS | JULY 05, 2020 | JOHN CAULFIELD, SENIOR EDITOR



# New International Players, New Capital, New Partnerships Disrupting Delivery Models



## Goldman puts its faith (and £75m) in prefabs

David Byers, Assistant Property Editor  
April 11 2019, 12:01am,  
The Times  
Real Estate Banking  
Investment



Goldman Sachs has invested £75 million in Top Hat, which is prefabricating modular housing at its TOMHAT

An American investment bank is to go into factory-built housing time, investing £75 million in a British company that constructs controlled conditions.



**SKANSKA + IKEA = BOKKLOK**



# ....Including Major Japanese Expertise Entering The UK Market

FINANCIAL TIMES

UK COMPANIES TECH MARKETS GRAPHICS OPINION WORK & CAREERS LIFE & ARTS HOW TO SPEND IT

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housebuilding

Suntryside Properties looks beyond London for growth

UK pledges £200m to re-clad high-rises after Grenfell fire

Should Lloyds be returning £1bn to shareholders?

UK housebuilding + Add to myFT

## Japanese developer enters UK housing market

Sekisui House enters joint venture with British government to build modular housing



Sekisui House has built more than 2.4m modular homes over 59 years, including One Central Park in Sydney, Australia © Alamy

George Hammond MAY 14, 2019 49

The UK government has entered into a partnership with one of Japan's largest developers on a £90m housebuilding scheme, as it seeks to increase new

## Modular firm owned by Japan's biggest housebuilder sets up UK arm


02 FEB 2021 | BY LEM BINGLEY



Modular specialist Jan Snel, owned by Japan's Daiwa House, has officially launched a UK arm.

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# Industrialisation & Procurement Reform Opens Route To Cost Reductions Through Scale & Efficiency Not Through 'Buying Work'



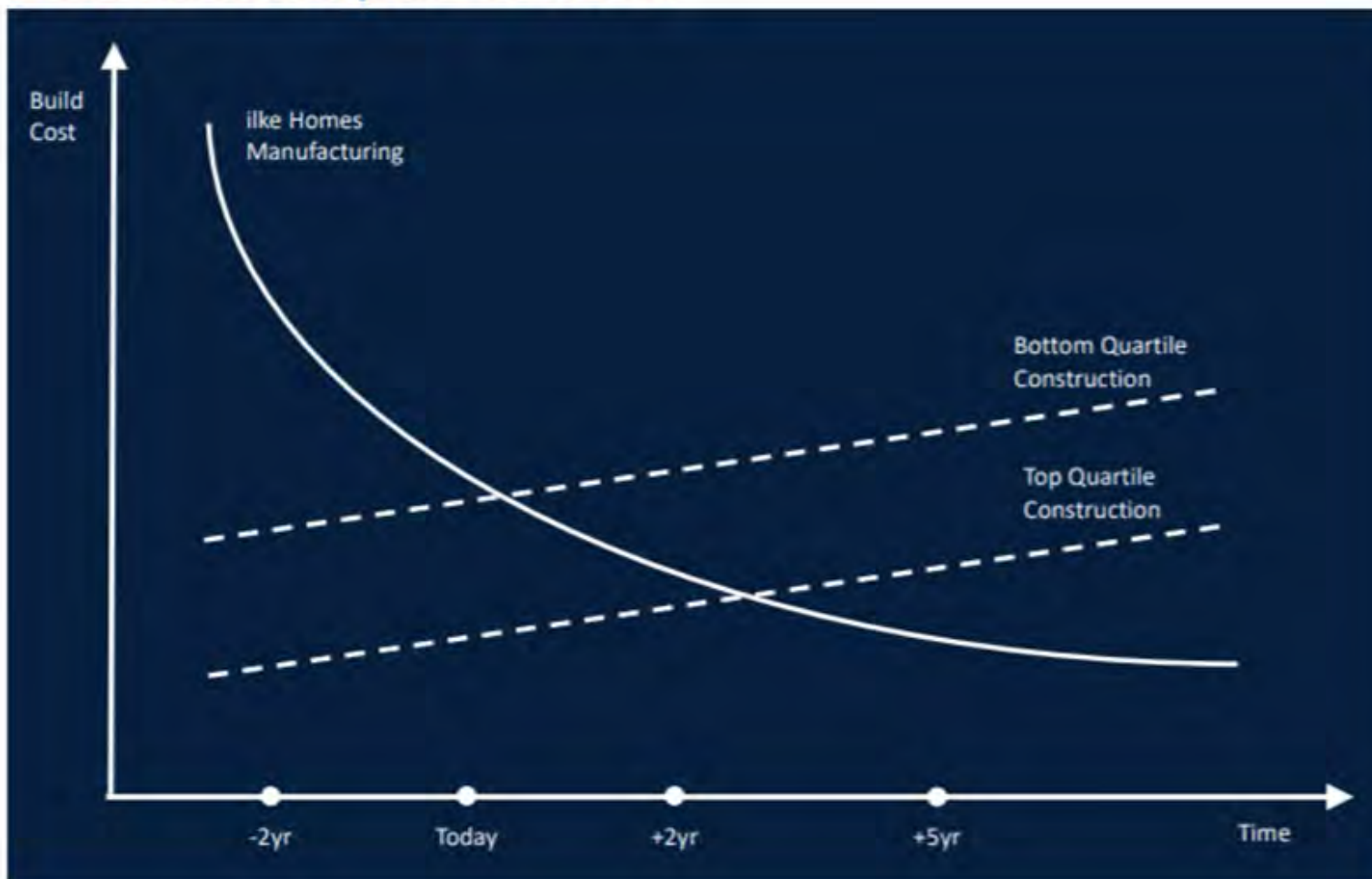
NEWS

## Construction must avoid refreshed race to bottom, trade bodies warn

By Jonathan Owen | 7 September 2020

There is mounting concern over a race to the bottom in the scramble for work

Build cost inflection point - Ilke Homes



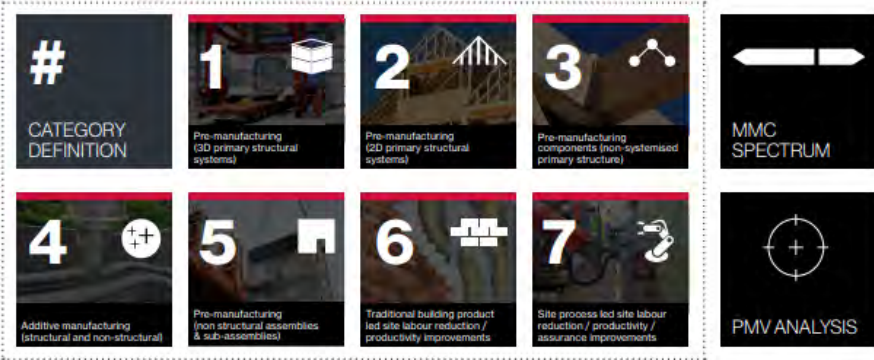




# Measuring Progress - MMC Definitions Framework And The Link To PMV

## Category DEFINITIONS

The term 'pre-manufacturing' encompasses processes executed away from final workforce, including in remote factories, near site or on-site 'pop up' factories. The pass test is the application of a manufactured led fabrication or consolidation process in controlled conditions prior to final assembly / install. On-site 'workforce factories' are included in Category 7).



<https://www.gov.uk/government/publications/modern-methods-of-construction-working-group-developing-a-definition-framework>



1

2

3

4

5

6

7

MMC SPECTRUM

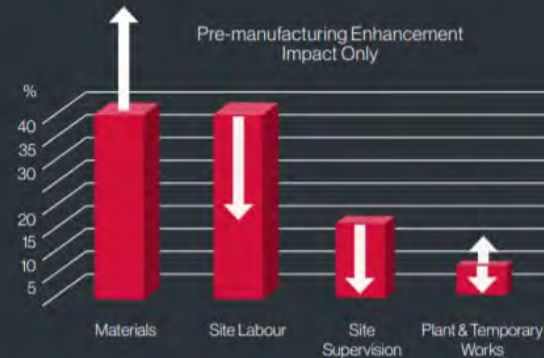
PMV ANALYSIS

## Pre-manufactured value (PMV)

### Analysis of projects using MMC and their proportion of pre-manufactured value (PMV)



#### CATEGORIES 1-5 PRE-MANUFACTURING LED APPROACHES



- General shift of site labour to controlled manufacturing processes
- Speed reduces site preliminaries including supervision
- Possible upward pressure on logistics / craneage

#### CATEGORIES 6-7 SITE PROCESS LED APPROACHES



- Low wastage reduces total manufactured material content
- Productivity improvements on-site reduces labour requirements
- Better planning & digital augmentation reduces supervisory needs
- Possible use of autonomous equipment and robotics could increase plant
- Can be used in conjunction with Categories 1-5 pre-manufacturing



# Why Measure PMV?

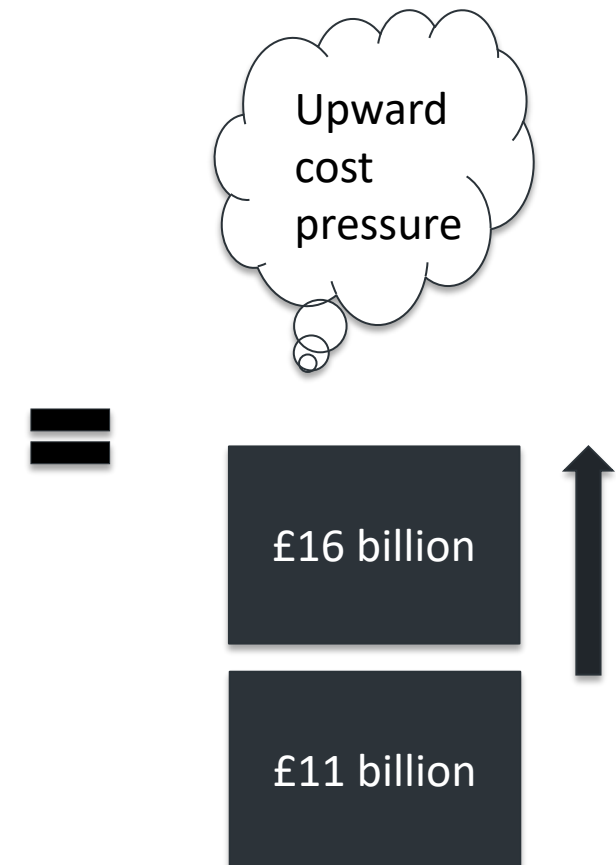
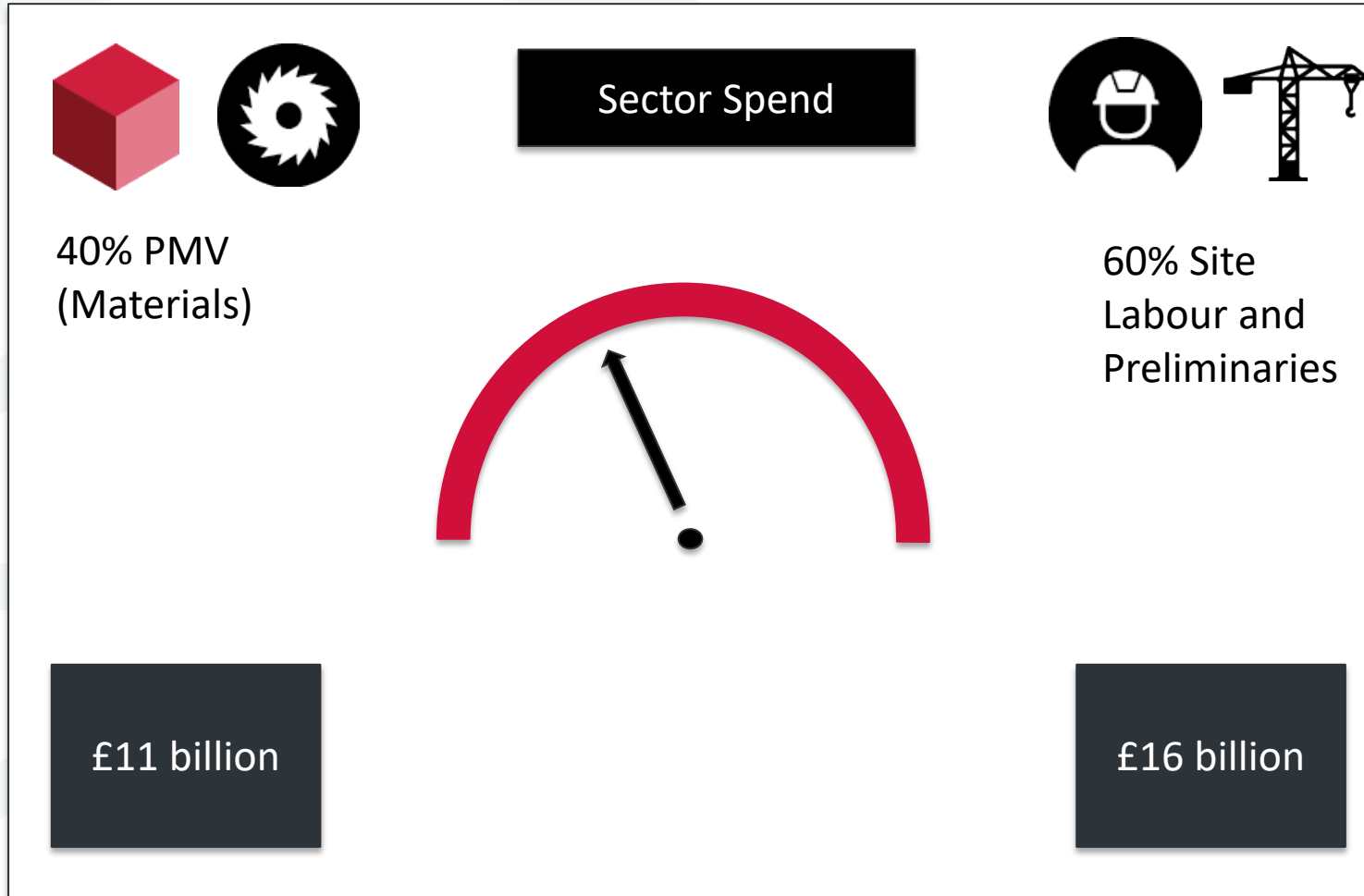






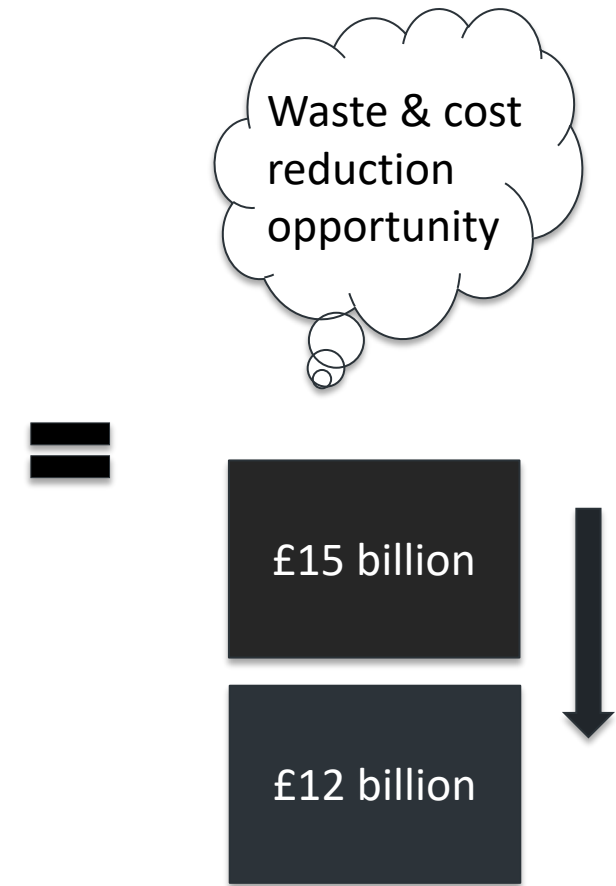
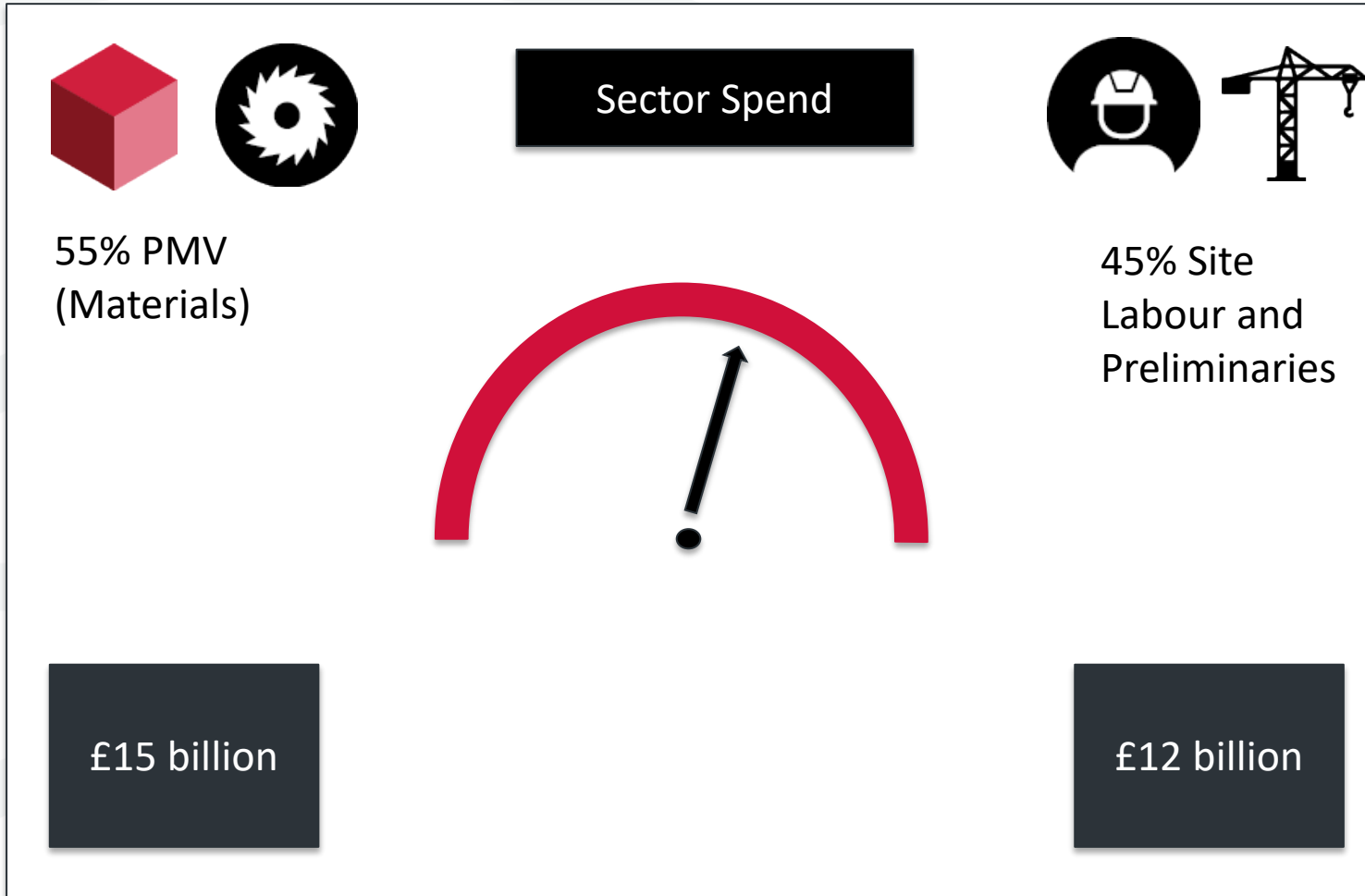
# Potential impact on residential construction cost & efficiency:

## Current





# Potential impact on residential construction cost & efficiency : Future







# Auto Calculating PMV



Cast  
Pre-Manufactured Value (PMV) Estimator

▼ Select Building Type  
Houses

▼ Select Substructure Options  
Traditional

▼ Select Structural Options

1) 3D Structural Systems

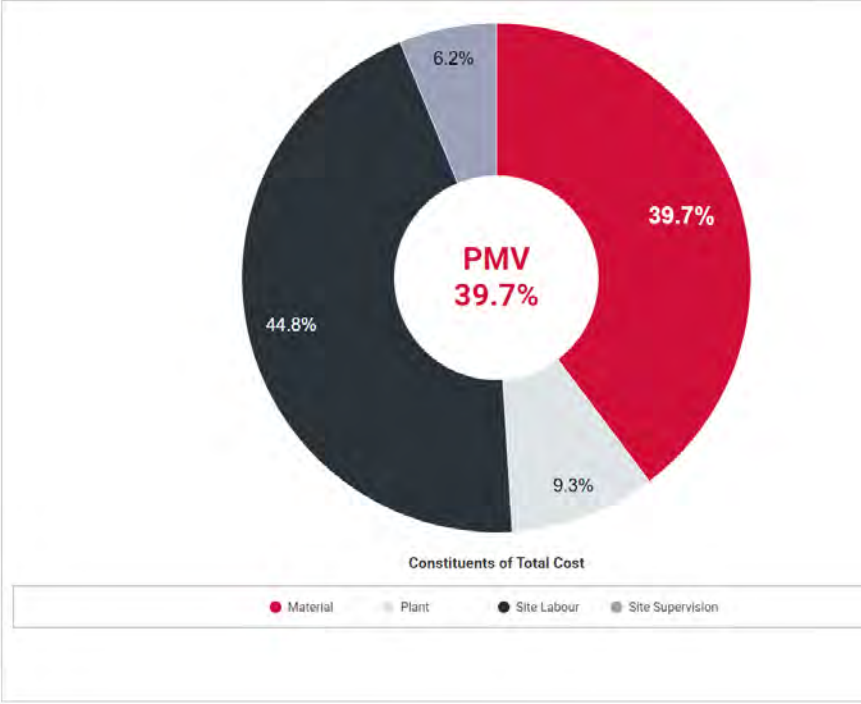
- 1a. structural chassis only - not fitted out
- 1b. structural chassis and internal fit out
- 1c. structural chassis, fit out and external cladding / roofing complete
- 1d. structural chassis and internal fit out - 'podded' room assemblies - bathrooms / kitchens etc

▼ Select Non-Structural Options

4) Non-Structural Additive Manufacturing

- 4b. non structural components

Next



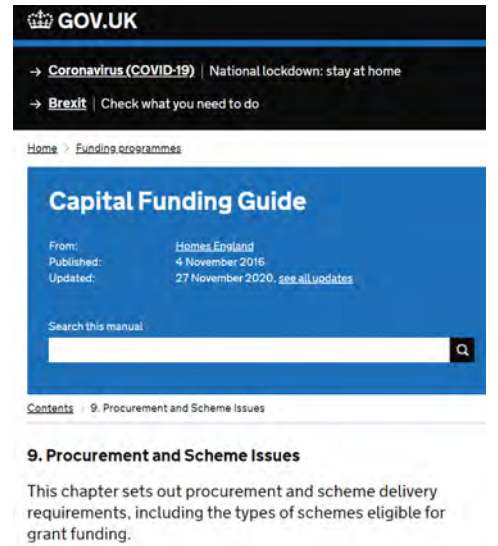
<https://www.cast-consultancy.com/pmv/>





# Homes England Application

<https://www.gov.uk/guidance/capital-funding-guide/8-procurement-and-scheme-issues#mmc>



3.5.1 Where homes are being produced using MMC, all providers are required to assign them to one (or more) of the seven category definitions of MMC listed and summarised below. For funding through the AHP 2021 to 2026, this is regardless of whether funding is accessed through CME or through a Strategic Partnership. This information will be collected through Homes England's Investment Management System.

3.5.5 In the AHP 2021 to 2026, Strategic Partnerships must achieve at least 25% of homes delivered as MMC. The selected 25% of homes should use the above framework to categorise the MMC delivered on a project. Organisations can deliver the requirement using any of the categories in the framework. However, we expect organisations to use categories 1, 2 or with construction processes that achieve a pre-manufactured value (PMV) score of 55% or above.



# BRINGING MMC CATEGORIES & PMV TOGETHER IN THE REAL WORLD

# Temple Quarter, Bristol: Case Study – Category 6 MMC Being Used To Drive Speed & Pre-Manufactured Value – **PMV circa 45%**



# Dovehouse Street: Case Study – Category 3,5 & 7 MMC Being Used To Drive Construction Control & Certainty– PMV circa 50%





# Goldsmith Street, Norwich – Category 2b MMC Being Used To Drive Speed & Pre-Manufactured Value – **PMV circa 50%**





East Village, London, Plot N08 : Case Study – Categories 2, 5 and 7 MMC Being Used Together To Drive Speed & Pre-Manufactured Value – **PMV circa 60%**





# East Village, London, Plot N08 : Case Study – Categories 3, 5 and 7 MMC Being Used Together To Drive Speed & Pre-Manufactured Value





# East Village, London, Plot N06 : Case Study – Categories 2, 5 and 7 MMC Being Used Together To Drive Speed & Pre-Manufactured Value – **PMV circa 65%**





# Greystar Croydon, London: Case Study – Category 1b MMC Being Used To Drive Speed & Pre-Manufactured Value – **PMV circa 70%**





# Kitchener Barracks, Chatham – Category 1c MMC Being Used To Drive Speed & Pre-Manufactured Value – **PMV circa 80%**





## Summary: A Stocktake Since 2016

- Continuing shrinkage of workforce & skills base
- Grenfell Tower fire
- Major infrastructure delivery failure
- Brexit
- Covid-19
- Race to Zero accelerating
- Worsening homebuilding quality scandals & increased consumerism
- Government policy increasingly pushing construction modernisation
- Range of MMC solutions, new entrants, market awareness and uptake increasing but barriers remain

Thank You For Listening

