

SYMPTOMS OF FAILURE



Events Of The Last Few Years Have Now Been Conflated Into An Unprecedented Cocktail – What is Short Term Impact & What Is Structural Change?











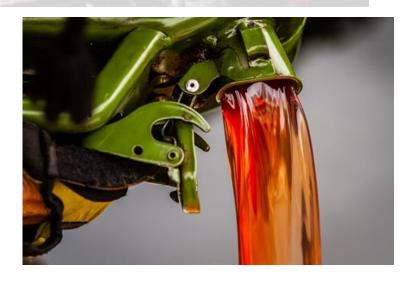
Declining Global Supply Chain Resiliency, Finite Resources & Climate Change Have Only Recently Become Headline News In Wider Society But All Have Disproportionate Impact on Construction's Fragile State

Ukraine: conflict could halt UK projects due to supply chain disruption

Working at height: how material costs and labour shortages hit access firms

Europe faces building material shortages as energy prices soar

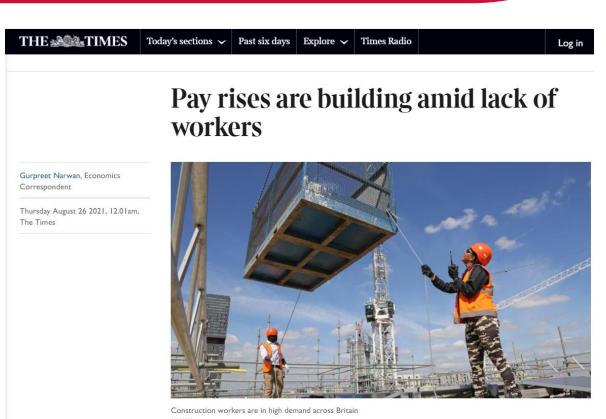
Suppliers holding materials price quotes for just 24 hours





Brexit, Covid & Ukraine Have Exposed & Amplified UK Supply Chain Weaknesses But The Underlying Problem Has Been There For Years





sectors in the economy, according to a report.

Construction companies are increasing their wages eight times faster than other

The Big Picture Drivers That Are Now Exposing The Resiliency Decline in UK Construction Sector

Decarbonisation

Workforce Attrition

Technology Advancements

Building Safety

Geopolitical
Events – Trade &
Energy Security

Disintermediation Threats

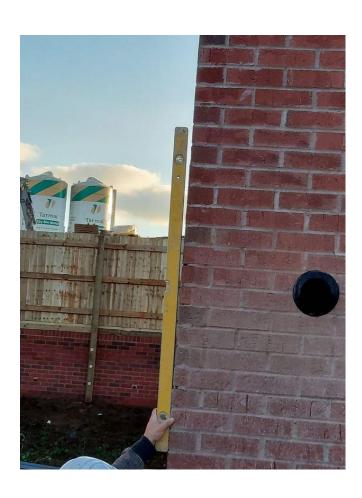
Pandemic

ESG Driven
Investment &
Lending

Quality & Consumerism



Quality Failure & Brand Risk Is Still Engulfing The Industry







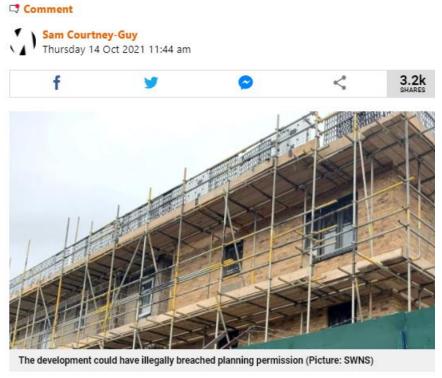




Some May Say Things Have Even Got Worse!



Developer told to turn homes around after building them the wrong way



A major housing developer is having to reverse an entire block of flats after building it backwards.



Major Infrastructure Remains Seen An Unpredictable Risk Laden Endeavour Just As We Look To Embark On A New National Energy Strategy

MPs warn Crossrail schedule and costs 'lack certainty'



Crossrail remains unable to deliver a timeline of completion for the Elizabeth line, as public account committee MPs warn there is still no certainty to its cost and opening schedule



HS2 | Phase One cost pressures and risk of construction delays revealed

21 OCT, 2021 BY ROB HORGAN



MEMBERSHIP

CHARTERED **STANDARD**

OUALIFICATIONS AND

JOBS AND CAREERS

Home > News > Harvard Busines Review: New feature makes the case for speed and modularity in projects

Harvard Business Review: New feature makes the case for speed and modularity in projects

20 Oct 2021

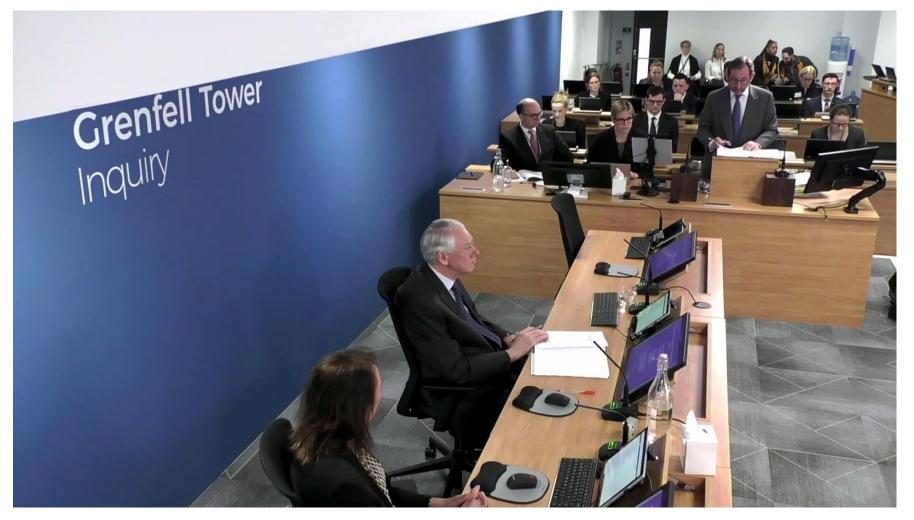
• 0 comments

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A new article by APM Fellow Bent Flyvbjerg is raising awareness of what good project management is among business leaders, following its publication in the Harvard Business Review (HBR).



Over 4 Years Into The Grenfell Inquiry The Facts Speak For Themselves





However Uncomfortable It Is To Play Back – 'Poor Culture' Is Inextricably Linked To Poor Skills & Competence – They Amplify Each Other's Impacts

Poor Handover &
Operational Readiness
Protocols

D&B Procurement Versus 'Architect Led'

Deskilling in professions & trades

Level of On Site Supervision

Main Contractors holding Responsibility but no longer in control **Lowest Price Procurement**

Falsification of Records /
Covering up Mistakes

'Engineered' Versus Prescriptive Building Regulations

'Value Engineering'
Equals Functionality
Reduction

Performance Based Specification

Conflicts of interest in product testing & warranty market

Premature Completion Certification



Symptoms Still Showing Themselves – Accelerating Post Covid & Ukraine Crisis Induced Construction Sector Financial Failure – Inability To Hold Risk & Manage Volatility

Huge scale of Midas debts revealed following construction firm's collapse



Balfour CEO warns of the impact of 'hyperinflation'

5 ADMINISTRATIONS

NMCN: 12 months that led to collapse

05 OCT 2021 BY DAVID PRICE

Cleveland Bridge to shut after failing to secure buyer

10 SEP 2021 BY TIYA THOMAS-ALEXANDER



DIAGNOSIS & PROGNOSIS



A Reminder of What I Said To UK Government in 2016....We Should Prepare For Less Dependence On Labour Intensity







Why Resiliency Matters In Construction





/rɪˈzɪlɪəns/

noun

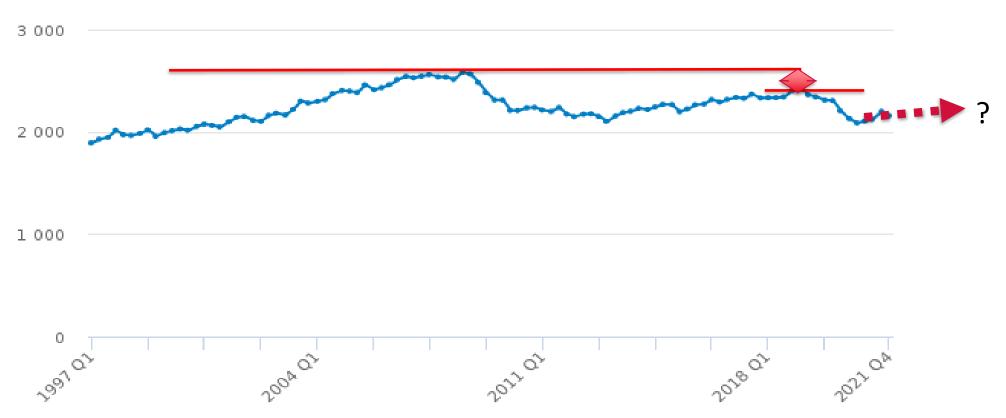
15

- 1. the capacity to recover quickly from difficulties; toughness. "the often remarkable resilience of so many British institutions"
- 2. the ability of a substance or object to spring back into shape; elasticity. "nylon is excellent in wearability, abrasion resistance and resilience"



Industry Labour Resiliency Has Been In Structural Decline in UK For 40 Years – But There Is Now A Visible Tipping Point

LFS: In Employment: Construction: UK: People: Aged 16 and over: Thousands: NSA

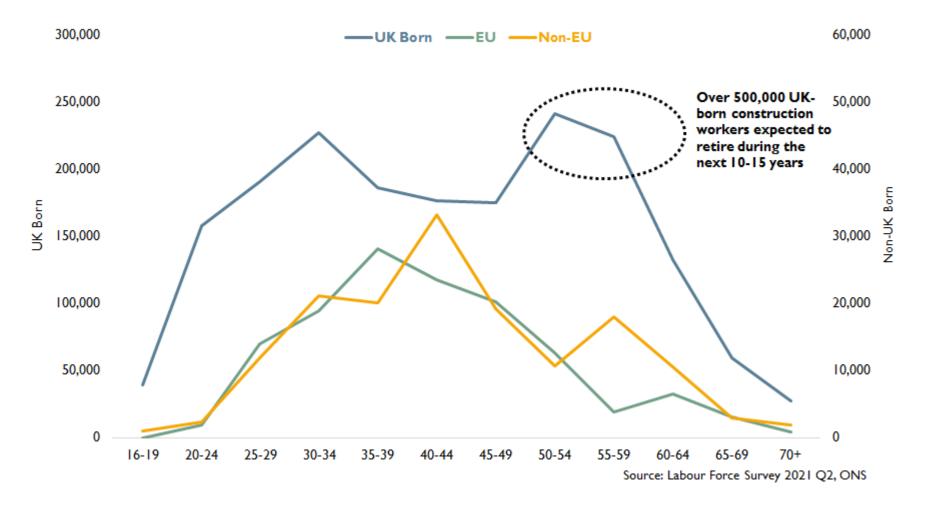


--- LFS: In Employment: Construction: UK: People: Aged 16 and over: Thousands: NSA

Source: ONS

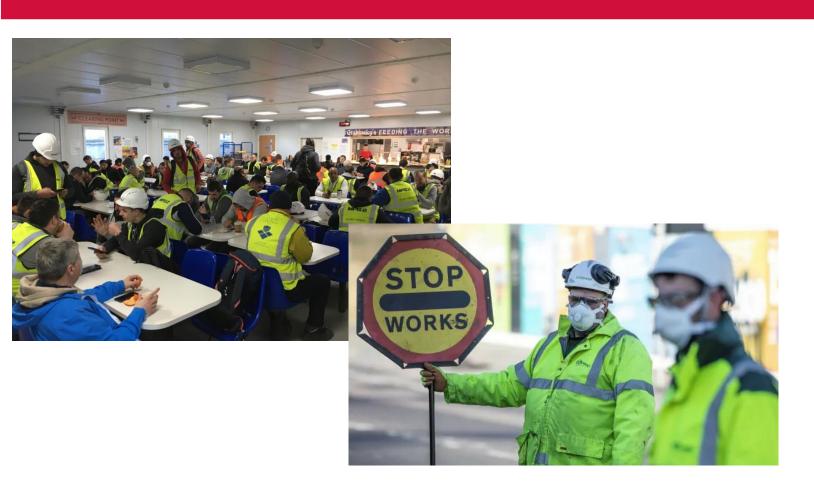


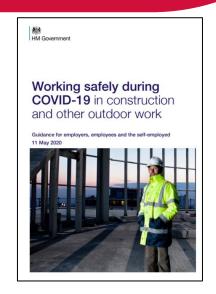
Demographics & Geopolitics Conspiring For A Perfect Storm In UK





Covid Has Just Told Us What We Already Knew About Our Labour Model



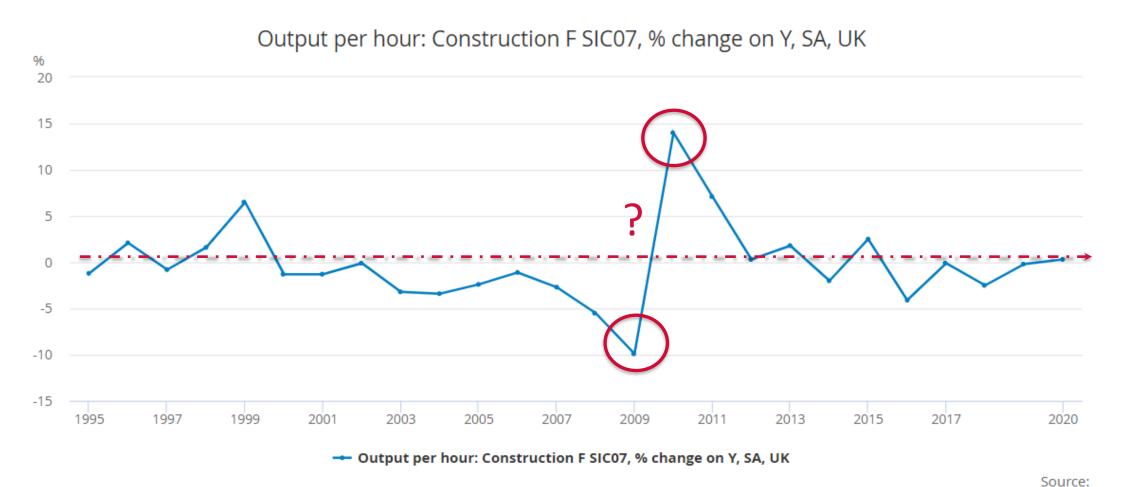






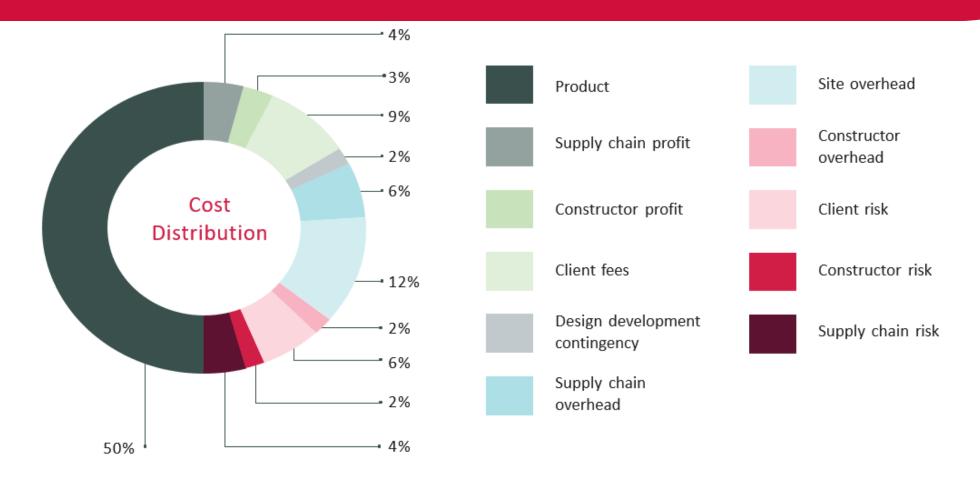
Total Site Output: \downarrow ; Individual / Team Productivity: $\rightarrow \uparrow$

Labour Intensity & Labour Skills Scarcity Do Not Sit Happily Together – We Have An Even More Urgent Production Model Problem In The Current World





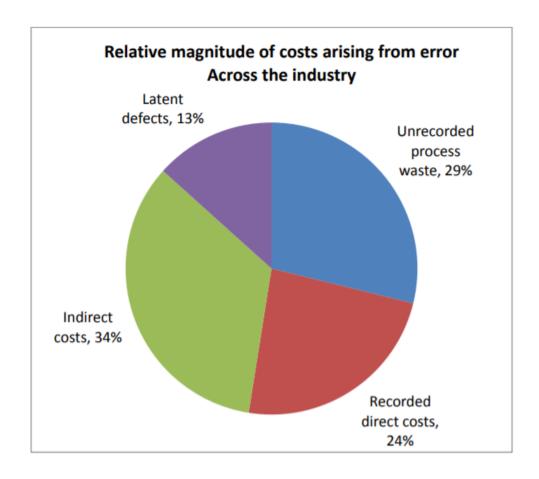
We Still Need To Attack The Industry's Waste To Reduce Resource Consumption & Fund Better Returns Without Increasing End Cost To Consumer



Source: Cast Consultancy



And Waste Is Directly Linked to Competence & Skills Not Just Transactions



Source: Get It Right Initiative



Poor Procurement Behaviour & Skills Continues To Perpetuate A Broken Model



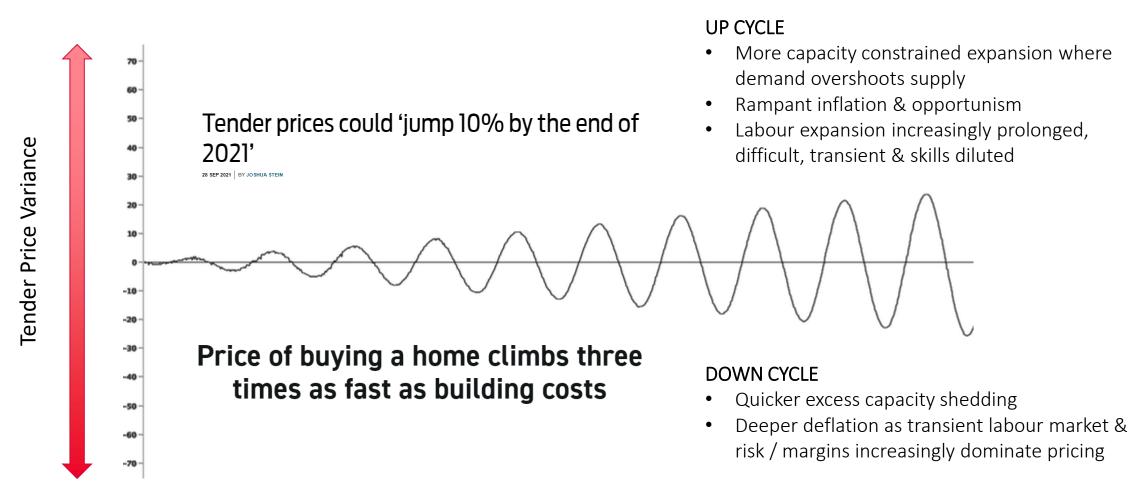
CONSTRUCTION AFTER GRENFELL

Toxic and dysfunctional industry in race to the bottom

In the first of a three-part series, The Times highlights the serious challenges facing the construction sector

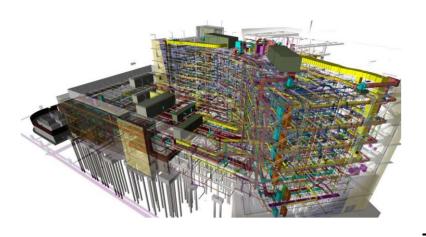


Economic Cycles Are Now Being Accompanied By Amplified Pricing Volatility





BIM / Digital Design & Even Good Procurement In Isolation Is Not Enough Either – Analogue Site Process Is Still The Weakest Link





ionisting Conditions lookels | Laser scanning | Lean Sch | Laser scanning | Ground Penetration | Laster (GPR) conversions lately & Logistics Models | Unimations, renderings, raikthroughs | Visual Vi

walkthroughs
BIM driven prefabrication
Laser accurate BIM driven
field layout

TRIAATING
Real time conceptual
modeling and cost planning
DProfiler)
Launtity extraction to
support detailed cost
estimates
Irrade Verifications from
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— Structural Sited

ons from
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SUSTAINABI
analysis via

Sustainable el tracking
 LEED tracking

FACILITY MANAGEMENT
APPLICATIONS

- Life Cycle Bill Strategies

- Bill As-Builts

BIM embedded O&M manuals
 COBie data population ar

extraction

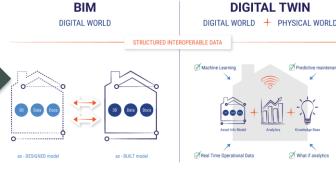
BIM Maintenance Plans ar
Technical Support

BIM file hosting on Lend

Technical Support

BIM file hosting on Lend
Lease's Digital Exchange
System







11 April 2022 11 April 2022

Technical Standards Outlook Is Increasingly Challenging From A Consumer & Investor Led Perspective





The UK Passive House Organisation









WiredScore









Emerging Safety Legislation Will Act As A Further Filter On The Available Workforce For Certain Activities – From Design, Checking, Works Execution & Inspection. 'Competence' is Hard Earned!







Nearly 40% of all Global Emissions Are Related To Built Environment – Climate Change Is Likely To Become The Biggest Single Indirect Driver Of Construction Modernisation – Through Regulatory & Investor Reform



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

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

Critics say the costs could have been avoided if ministers had

lace of gas boilers if the government is to meet its target of net zero gr Photograph: Murdo MacLeod/The Guardian

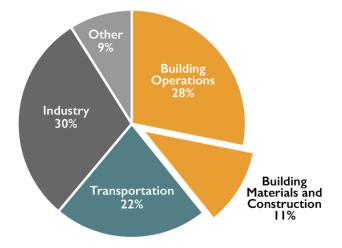


Government should consider homebuyer grants for zero carbon homes, say sector giants

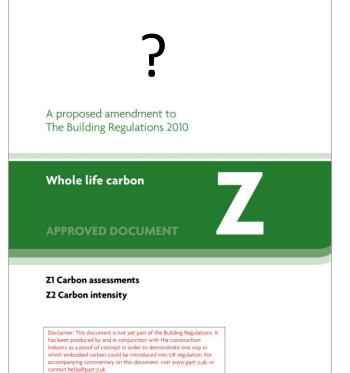


TopHat and L&G have said the government should consider offering housebuyers a grant to encourage them to buy zero carbon homes.

Global CO, 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



A proposal from the construction industry



But We Do Need To Rationally Reconcile 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 highrise buildings. But now the nascent industry is fighting back, reports Joey Gardiner



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

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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



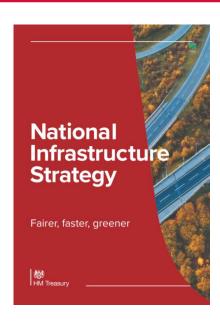
50. Government aims to support action in the construction sector by improving reporting on embodied carbon in buildings and infrastructure with a view to exploring a maximum level for new builds in the future. We recognise there is potential to reduce embodied carbon by way of material substitution where appropriate, such as in timber usage (see Natural Resources, Waste and F-gases chapter) and resource efficiency approaches, amongst others. We have also supported the Green Construction Board to produce a Routemap to Zero Avoidable Waste, published in July 2021.

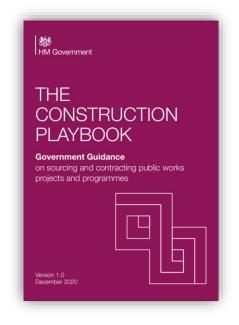


TREATMENT PLAN



Government Has Signalled Over Last Few Years That It Sees A Move Towards Procurement Reform, Technology & MMC As A Centre Piece of Policy & Public Client Led Reform













Government Has Accelerated The Move To Residential MMC Post Covid-19





Revealed: Ministers ramp up MMC target to 40% on affordable homes

News, views and more from the MMC sector

Sep 9 ♡ □ ↔

31



Extensive R&D Has Also Helped Some To De-Risk Innovation in Homebuilding

AIMCH Project

We are the lead partner on the three-year Advanced Industrialised Methods for the Construction of Homes (AIMCH) project, working with partners such as Barratt Developments PLC and L&Q on innovative ways in which to tackle all the challenges the housing sector currently faces. AIMCH are working towards identifying and developing industrialised offsite solutions needed to meet current and future house building demands. Mark Farmer, MMC expert and new AIMCH Chair, comments: "Mainstreaming all categories of MMC is more important than ever. In a post-Covid world the sector needs to transform productivity, improve quality as well as improving the welfare of its workforce. We also need to find more sustainable ways of building in order to achieve a net zero-carbon built environment." Full details are at www.aimch.co.uk

Read about AIMCH progress >





Measuring Progress & Outcomes Requires Further Metrics Alongside Defining MMC - 'Traditional Versus MMC' Is Not A Binary Decision

For more information see link below:

https://www.cast-consultancy.com/
knowledgehub/toolkit/
pre-manufactured-value-pmv-estimator/



Pre-Manufacturing:

The inclusive term for all processes encompassed by construction materials, component, sub-assembly manufacture, consolidation and pre-assembly prior to final movement and installation at the construction workface. This, for the avoidance of doubt, can include offsite, near site and on-site temporary factory led processes.

THE PMV FORMULA IS A SIMPLE EQUATION



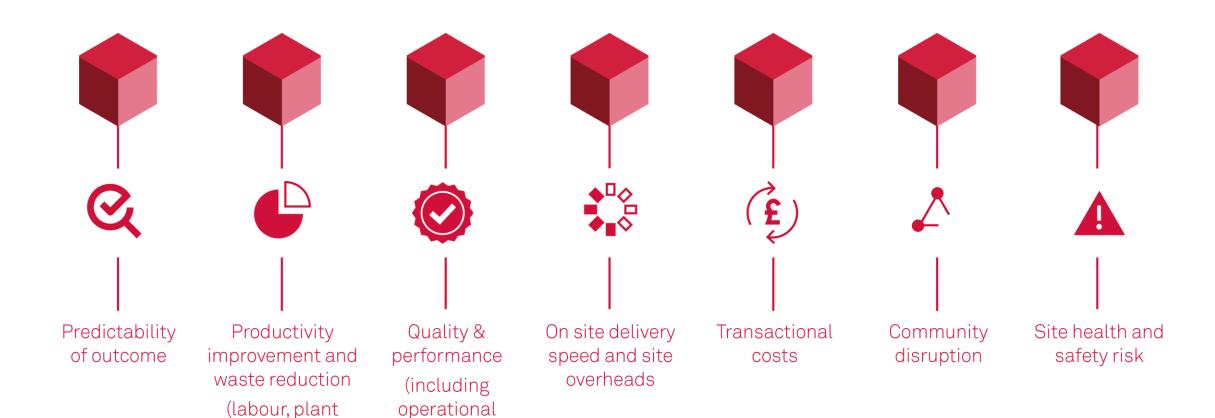
Pre-manufactured value (£)





Gross Construction Cost (£)

Why Measure PMV – Driving A Key Client Brief Input As A Simple Proxy For Better Outcomes





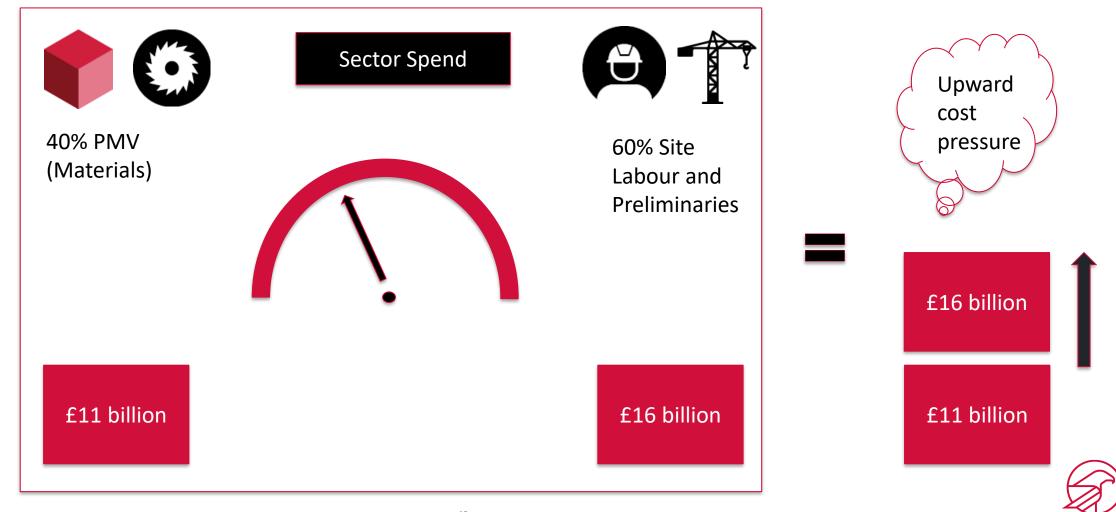
11 April 2022 34

carbon)

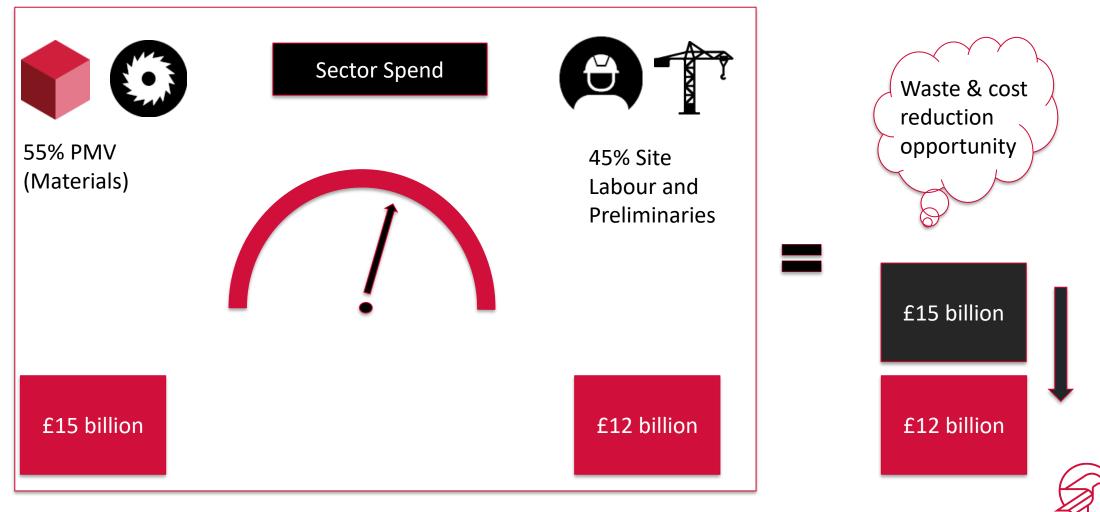
and materials)

and related embodied carbon

Changing The Resource Mix in Residential Construction



Changing The Resource Mix In Residential Construction



We Need Evidence & Data To Innovate Responsibly & Build Confidence – It Needs To Connect Inputs & Outputs

Press release

Homes England commissions MMC research study to drive construction innovation

Homes England has commissioned its own research study into modern methods of construction (MMC) to drive innovation in the construction industry.

Published 20 May 2020 From: <u>Homes England</u>



As part of the agency's strategic objective to improve construction productivity and encourage the uptake of MMC in housing delivery, a series of Homes England's own sites will participate in the study.

- Monitoring the construction of around 1,500 homes at sites across country over several years, the study will test the performance of different types of MMC.
- The research will explore a range of themes and seek to learn lessons about how MMC technologies might be improved upon in future.

*buildoff*site



Methodology for quantifying the benefits of offsite construction



Related content

Homes England register of interests

Shared Ownership and Affordable Homes Programme 2016 to 2021: qualification

Compliance audit breach severity list

Statistics at Homes England

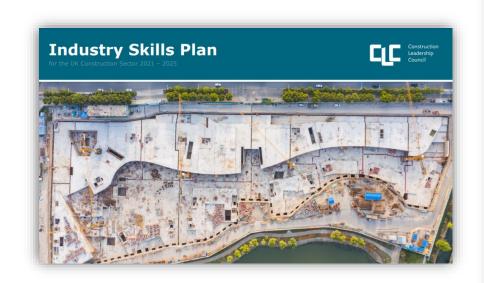
Compliance Audit

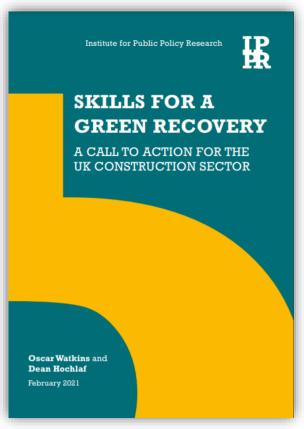


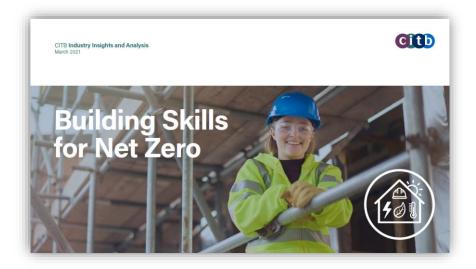




We Need To Invest In Human Capital Both Current & Future - Signs of Belated Concern On Skills & Resourcing – 3 Reports in 3 Months in 2021–Too Little Too Late?









We Need New Hybrid Skills & Competencies Across Professional, Technical & Trades - The Current System Is Still Not Future Facing





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NEW LEARNING PATHWAYS & WAY OF THINKING



5 SKILLS

CITB levy approved but support falls

08 SEP 2021 BY DAVID PRICE

Cadcoe Announces Digital Construction Training Partnership with Berkeley Modular Ltd and North Kent College

In June 2019 Berkeley Modular Ltd started to move staff into its advanced manufacturing

As innovators within the realms of digital construction and volumetric modular housing solutions, the new company started to look for an equally innovative solution towards the end of 2018, in how to attract exceptional talent and train them, through 10 new Design Apprenticeship positions.

Berkeley Modular Managing Director Graham Cleland, has taken a totally new approach to training the new apprentices through creating a working partnership between a combination of FE colleges and training providers to ensure the 10 apprentices receive precision training tailored to the exact requirements of the role they will be carrying out.

The 4-way partnership consists of Berkeley Modular Ltd, North Kent College, Dudley College of Technology and the Construction and Design Centre of Excellence (Cadcoe)



Berkeley Modular's Jade McPhun and Michael Ellis, with Mark Andrews, North Kent College

Architecture school announces first offsite construction course \

The UK's first dedicated post-graduate architecture course covering modern methods of construction (MMC) is being developed by Oxford Brookes.

CONSTRUCTION ASSEMBLY AND INSTALLATION OPERATIVE

Overview of the role

Assembling and installing manufactured components to agreed design specification and tolerance

Details of standard

This occupation is found in the construction sector. On site assembly of manufactured components is a rapidly growing part of the construction sector, representing 15% of the market in 2018. Projects include; infrastructure, residential, commercial, retail, healthcare, education, rail, prisons and leisure. Structures and components are manufactured in factories and then transported to the construction site, ready for location, connection and finishing. Materials can include concrete, timber, modular and portable buildings and can include plastic and steel components. Projects can be small local ones such as a bespoke house or nationwide in large scale developments such as residential and social housing, schools and hospitals. These can be

The broad purpose of this occupation is to use elements manufactured off site, installed and assembled in a construction site environment

In their daily work, an employee in this occupation interacts with team colleagues and supervisors as well as those from other organisations such as main contractors, sub-contractors, architects, engineers, plant operators, drivers, Health and Safety Executive representatives, Environment Agency, site managers, construction managers and other trades. The occupation involves working outside on a construction site, in a range of weather conditions, on projects anywhere in the UK. In some instances it will involve travelling and

An employee in this occupation will be responsible for the assembly and installation of manufactured components to agreed design specification and tolerance. This includes the safe handling, moving, installing Status: Approved for delivery

Reference: ST0265

Approved for delivery: 3 July 2019

Route: Construction Typical duration to gateway: 18 months (this

does not include EPA period) Maximum funding: £13000 Trailblazer contact(s):

alomplough@laingorourke.com

Employers involved in creating the standard: Laing O'Rourke, Persimmon Homes, Berkeley Group, Pickerings Plant, Elliott Hire, Modular and Portable Building Association MPBA, SIG Roofspace, PCE ltd, NOCN, CITB, Leeds College of Building, Costain, Skanska, British Precast, Barratt PLC, Crest Nicholson, Redrow Homes, Swift Timber Homes, Taylor Wimpey, Countryside Properties, Citu Group EQA Provider: Construction Industry Training

Board (CITB)



Lessons From Abroad - Australia Is Having A Very Robust Debate About Build Quality And Has Been Much Bolder Than UK



tripadvisor*

The Sydney Morning Herald

National NSW Development outrage

Developers forced to fix defects after commissioner wields new powers

POLICY TED TABET WED 10 JUN 20

NSW Building Commissioner Cracking Down on Developers



The New South Wales government-appointed Building Commissioner will be handed new powers in a bid to beef up regulation across the state's construction industry and prevent defective buildings hitting the market.

NSW launches ratings for developers in wake of HomeBuilder grants

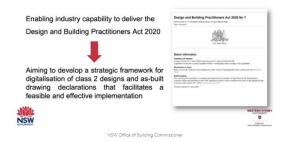




Photo by Saxon White on Unsplash

Today the NSW Building Commission announced a ratings system for apartment developers to "weed out" dodgy developers after HomeBuilder

Developers have been slapped with orders to fix serious defects in apartment buildings and townhouses, as the NSW Building Commissioner signals he will not hesitate using his strongest powers to stamp out shoddy work in the construction industry.



Digital capability will define the winners and losers in construction. However, having mature applied capabilities will always ensure a winning hand.



Published on January 4, 2021

Change Is Happening But It's Slow – Higher PMV & Technology Is Here To Stay – It's Just Scale & Pace That Is Needed



JRL snaps up stricken modular housing firm

ISG buys majority stake in modular specialist ESS Group

Guinness pays £10m for stake in offsite specialist Ilke Homes

NEWS 27.09.21 11:35 AM BY JAMES WILMORE

The Guinness Partnership has become the latest large housing association to take a stake in offsite specialist Ilke Homes by paying £10m for a minority shareholding, it has emerged.

Mace unveils 'next generation' construction method

Countryside to open two more modular homes factories

Bam Construct eyeing move into modular residential

Barratt sets new MMC target after beating 2020 aims

News

Robots to ramp up Sisk margins in productivity push







John Sisk & Son is on a major productivity drive with plans to buy an offsite manufacturing business and deploy block





THANK YOU FOR LISTENING

