

COULD THE FALLING COST OF MODULAR BUILDING BENEFIT HOUSING?

RLB Rider
Levett
Bucknall

RICHARD QUARRY

April 2022





About RLB



UNITED KINGDOM

800

UK PEOPLE

100%

EMPLOYEE
OWNED

12

UK OFFICES



COMMERCIAL SUCCESS

Our cost management service puts client needs first, delivering on project aims and enabling our clients to make informed decisions about their property assets.

We deliver commercial confidence throughout the project life cycle, from early business case through to financial close, strengthened by broad sector expertise and bespoke digital solutions.

Cost Management & Quantity Surveying

- Feasibility Studies
- Cost Planning & Value Management
- Whole Life Costs and Life Cycle Costs
- Cost Benchmarking
- Risk Management
- Contract Administration / Employer's Agent

PROJECT AND PROGRAMME SUCCESS

We have reimagined how we deliver projects and programmes to achieve successful outcomes for our clients. Placing client needs and project drivers at the core, our team works closely with stakeholders to meet time, cost and quality requirements, whilst maintaining predictability and rigour at every stage.

Project and Programme Management

- Strategic Programme Management
- Project Management
- Development Management
- Pre-Construction services, Procurement & Project Planning
- Design Management
- Project / Fund Monitoring

ASSET OPTIMISATION

We understand the importance of maximising the efficiency and performance of built assets across the life cycle. Our expert team helps our clients manage, improve and enhance their property estate. Through asset data capture we make informed decisions about planned maintenance, statutory compliance and control and optimisation of expenditure.

Building Surveying

- Strategic Asset Management
- Estate Rationalisation
- Building Surveying
- Facilities Management Consultancy
- Fire Safety services

SPECIALIST SOLUTIONS

Every project has bespoke requirements that often require more specialist support, especially as setting project objectives and defining value is increasingly becoming more complex than simply time, cost and quality. Our experts provide both high level strategic advice and more practical support to achieve the best results for our clients.

Specialist Solutions

- Sustainability, Carbon and Wellbeing
- Social Value
- Health & Safety, Fire and PD/CDM services
- Specification Consultancy
- Dispute Avoidance & Resolution and Expert Witness
- Business Case Consultancy

OUR SECTORS



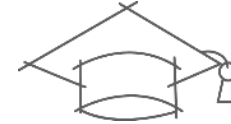
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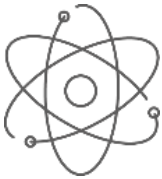
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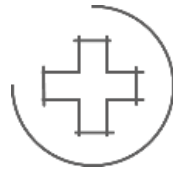
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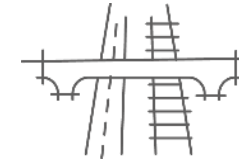
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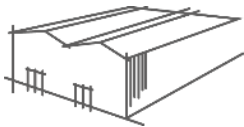
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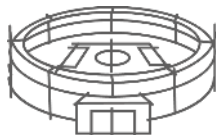
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ABOUT ME



**Partner and Head of Affordable Housing,
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DEFINITION OF MODERN METHODS OF CONSTRUCTION

The definitions of Modern Methods of Construction are as follows;

- Category 1 – Pre-manufacturing (3D primary structural systems)
- Category 2 – Pre-manufacturing (2D primary structural systems)
- Category 3 – Pre-manufacturing components (non-systemised primary structure)
- Category 4 – Additive manufacturing (structural and non-structural)
- Category 5 – Pre-manufacturing (non-structural assemblies and sub-assemblies)
- Category 6 – Traditional building product led site labour reduction / productivity improvements
- Category 7 – Site process led site labour reduction / productivity / assurance improvements

In layman's terms the categories range from full modular off-site construction down to site and process led labour reduction measures on standard construction systems

Modular Construction has a long history (and slightly chequered history) in housing;

- Le Corbusier – Dom-Ino House
- Prefabricated housing - has been used in the UK and Ireland during periods of high demand e.g. 1950s and 1960s
- Modular Component Housing – typically used for inter-war and post war e.g. Wimpey ‘No Fines’, ‘Cornish Units’
- The main reason modular housing has been proposed and used previously is because it is quick and cost effective

DIFFERENT TYPES OF MODULAR HOUSING CONSTRUCTION



Timber panelised systems



Lightweight Steel



Pre-Cast Concrete

COST BASE OF MODULAR HOUSING SYSTEMS

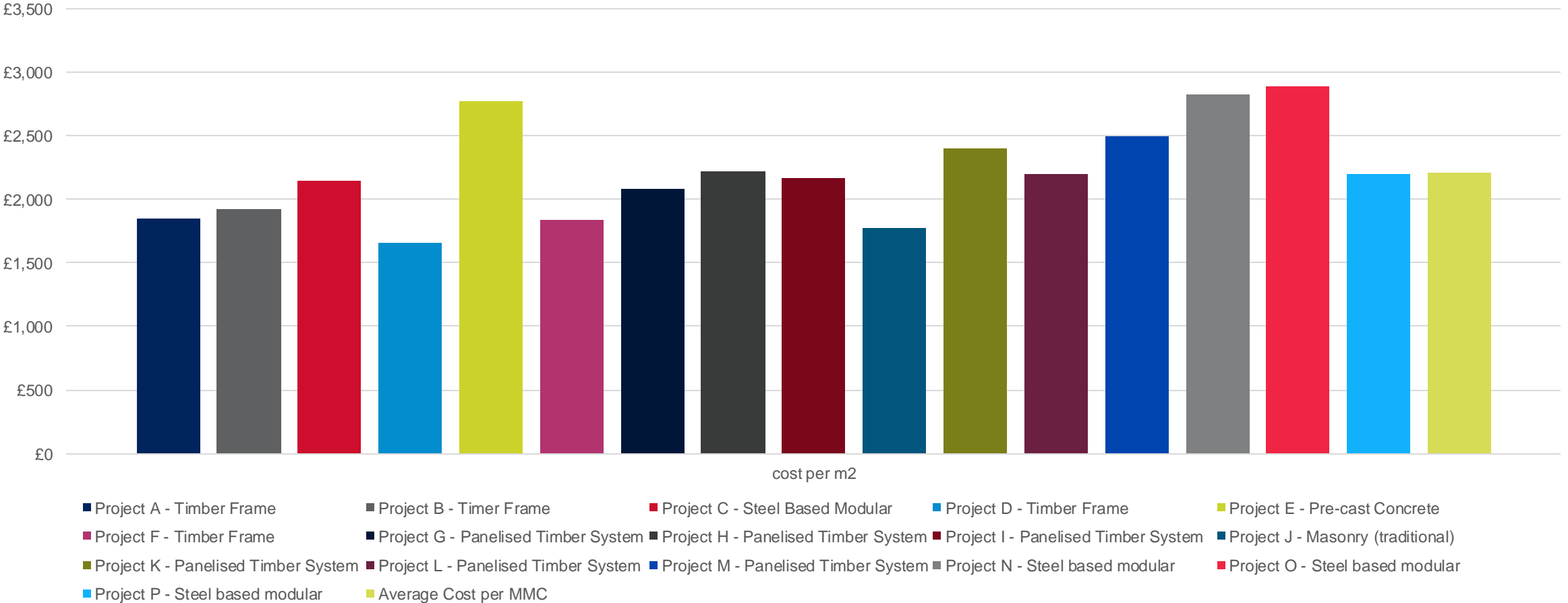
- The typical cost base of standard low-rise housing drawn (block masonry construction) for our cost benchmark database is £1809m2 (project cost) / £1661m2
- Outlined below the extra over costs currently being seen for different MMC / modular systems based on a sample of 16 projects

Standard Construction (masonry / timber frame) m2	Extra over cost light gauge steel	Extra over cost panelised timber m2	Extra over cost pre-cast concrete m2
£1,809	£707	£453	£965

MODULAR / MMC PROJECT COST BENCHMARKS

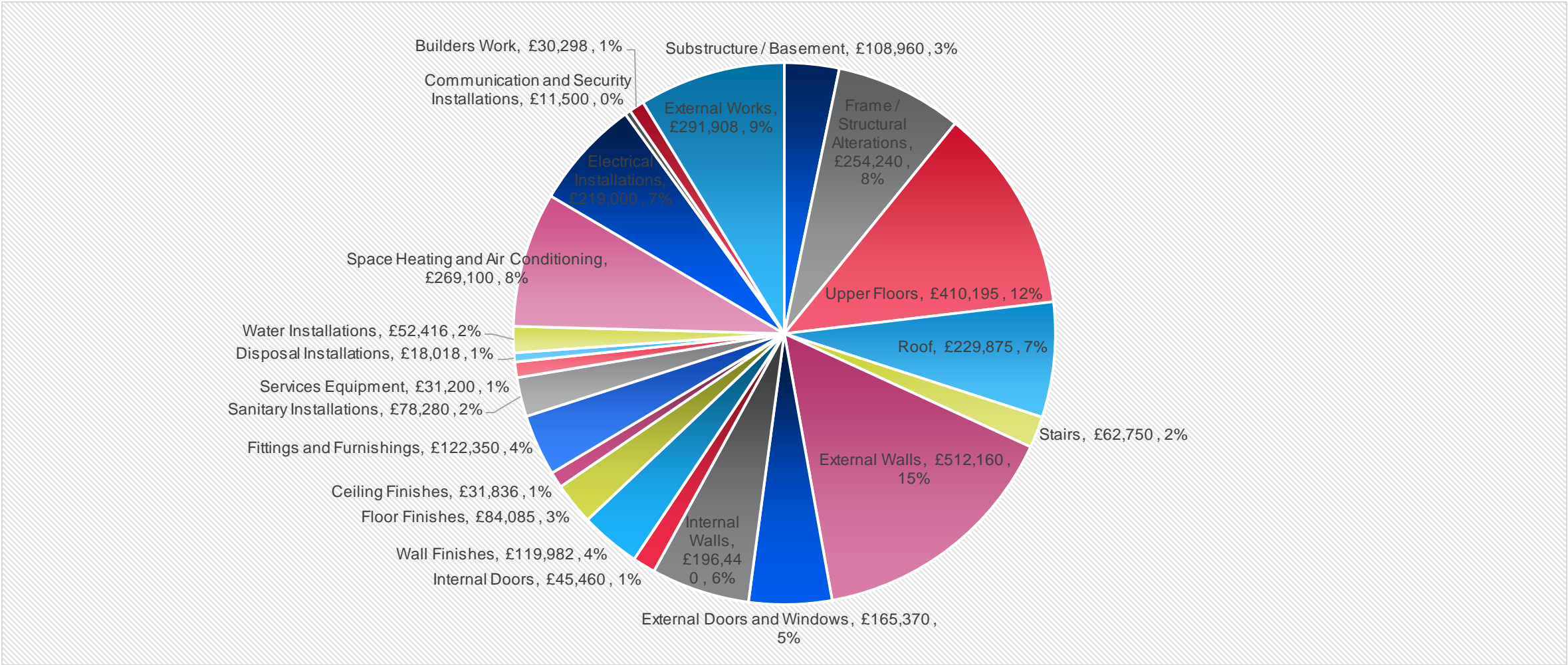
Graph highlighting of benchmark costs of MMC / Modular projects

MMC cost per m2



ELEMENTAL COST SPLIT OF MODULAR HOUSING

Graph highlighting the elemental split of a lightweight steel modular steel system



KEY COST DRIVERS OF MODULAR HOUSING

- Central / Local Government funding initiatives
- R&D costs in-built project costs
- Raw material prices (steel, timber, concrete)
- Interface with site infrastructure
- Interface with sub-structure
- Preliminary savings
- Quality / defects savings
- Whole Life Costs / Carbon Reduction / Net Present Value

CURRENT TRENDS

- Raw Material price increases (increase in steel by 15% over the last 4 weeks).
- Cost squeezing out in other ways – interface issues, delays on planned completion.
- Lots of different systems and suppliers in the marketplace.
- Modular systems being used to unlock marginal / confined / restricted sites that would be unviable.

OPPORTUNITIES TO REDUCE COST

- Scale – site level: site size is key to cost reduction
- Saving on moulds / templates and factory set-up
 - For example we are working with the same modular provider on a 57 unit scheme and a 152 unit scheme. All things being equal there is a saving of £150 m2 on project cost
- Scale – strategic : look to cooperation between developers / local authorities / registered providers across different sites within a locality
- Standardisation: limit the number of house types and house type variants (such as steps and stagers). Aim to use elevation finish to give variation

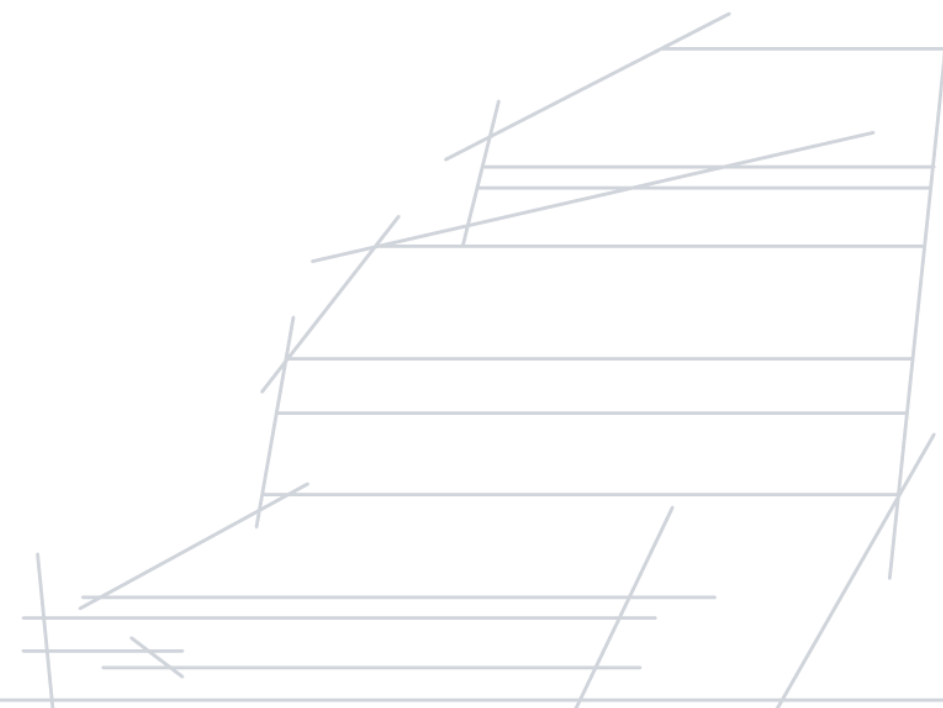
LIKELY FUTURE TRENDS

- Increases in material prices across all elements of construction which will also impact on modular construction
- Pressure on site labour is likely to continue upward with less people coming into construction
- Increased efficiency will be expected through modular construction through experienced and increased expertise
- Increased emphasis on carbon reduction and consideration of Whole Life Cost

CONCLUSION

- Our observations are that modular costs are not necessarily falling but other costs such as labour are rising quicker
- Scale and uniformity is key to cost reduction in modular housing
- Cost saving should also be considered against Whole Life Cost (NPV) and carbon reduction benefits generated from enhanced quality / air tightness

Case Study



MODULAR CONSTRUCTION

Drybrook, Gloucestershire ►

KEY FACTS

- System: steer constructed full modular system
- Programme: 12 months
- Cost: Cost per m2 £2146



MODULAR CONSTRUCTION

Knowle West, Bristol ►

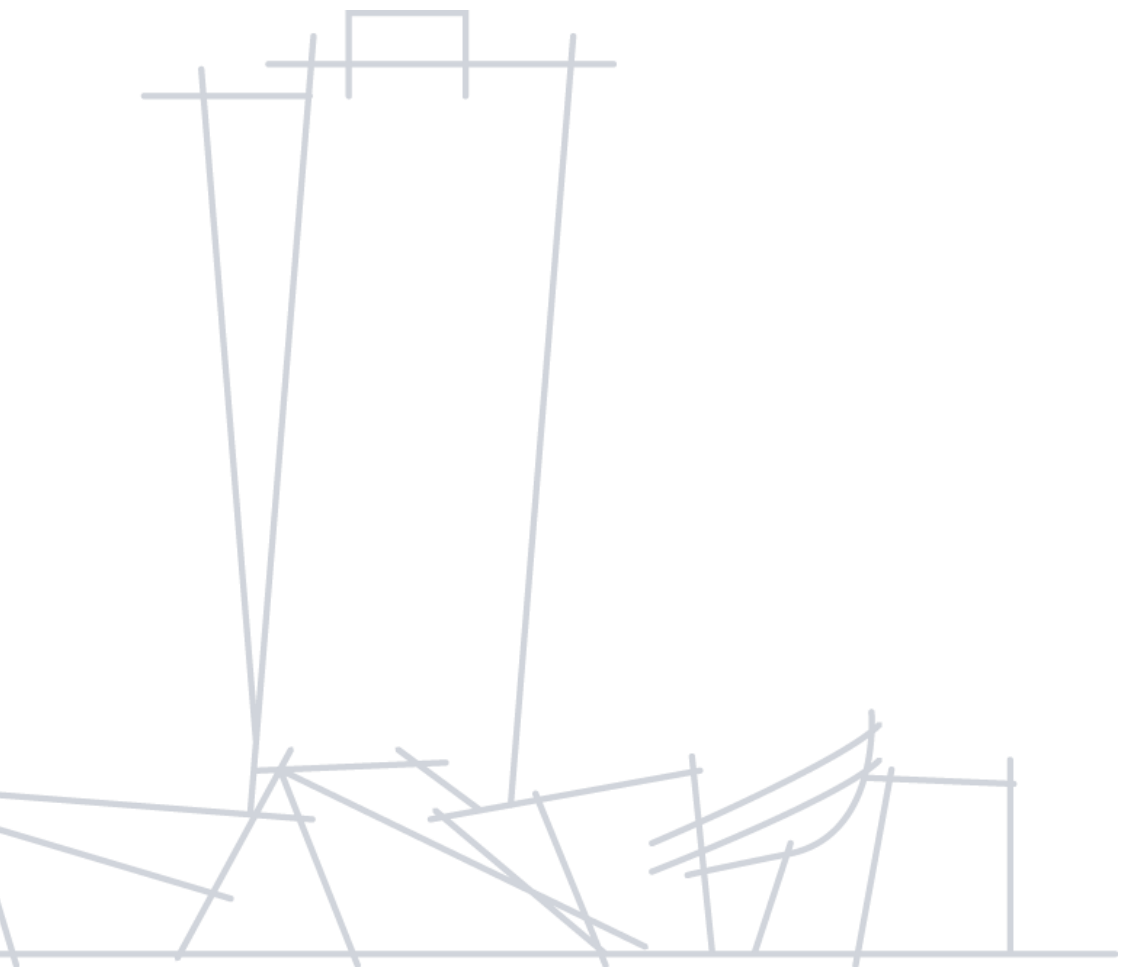


KEY FACTS

- **System:** panelised timber system (manufactured using local labour in a subsidised local timber frame factory)
- **Programme:** 12 months
- **Cost:** Cost per m2 £2496



Q&A



AWARDS, ACCREDITATIONS AND MEMBERSHIPS

People



Diversity & Inclusion



Environment



Technical



