



AECOM

Built to deliver a better world

Cost model **Modular construction**

An edited version of this article first
appeared in Building magazine in April 2017

Contents

1. Background	04
2. Modular construction	05
3. Design	07
4. Procurement and construction	08
5. Cost influencers	10
6. Sustainability	11
7. The cost model	15



Debates about modular construction and off-site manufacture are nothing new. But with more suppliers, better quality and greater awareness within the industry, could it finally achieve critical mass? Rob Mills of AECOM looks at the figures.



Rob Mills
Director, Program Cost
Consultancy, Commercial
rob.mills@aecom.com

Acknowledgments

The author would like to thank Barry Nugent, James Barton and Garry Burdett of AECOM for their help in preparing this article.

01

Background

It may have had different names over the years — prefabrication, modular building, design for manufacture and assembly, or off-site construction — but the idea of constructing buildings away from the site where they will eventually stand has had a long history, dating as far back as the 16th century.

The postwar push

Perhaps the most notable use of modular construction was during the UK's post-war transitional period, which drove the need for homes and accelerated the search for a remedy to meet the country's housing supply issues. The legacy of that building programme survives today, with many of those postwar homes still standing.

In that period, redundant arms factories were adapted to allow ex-servicemen and women to produce prefabricated housing in controlled factory conditions. This addressed the pre-existing housing supply problems and targeted employment issues — an idea that would surely resonate today.

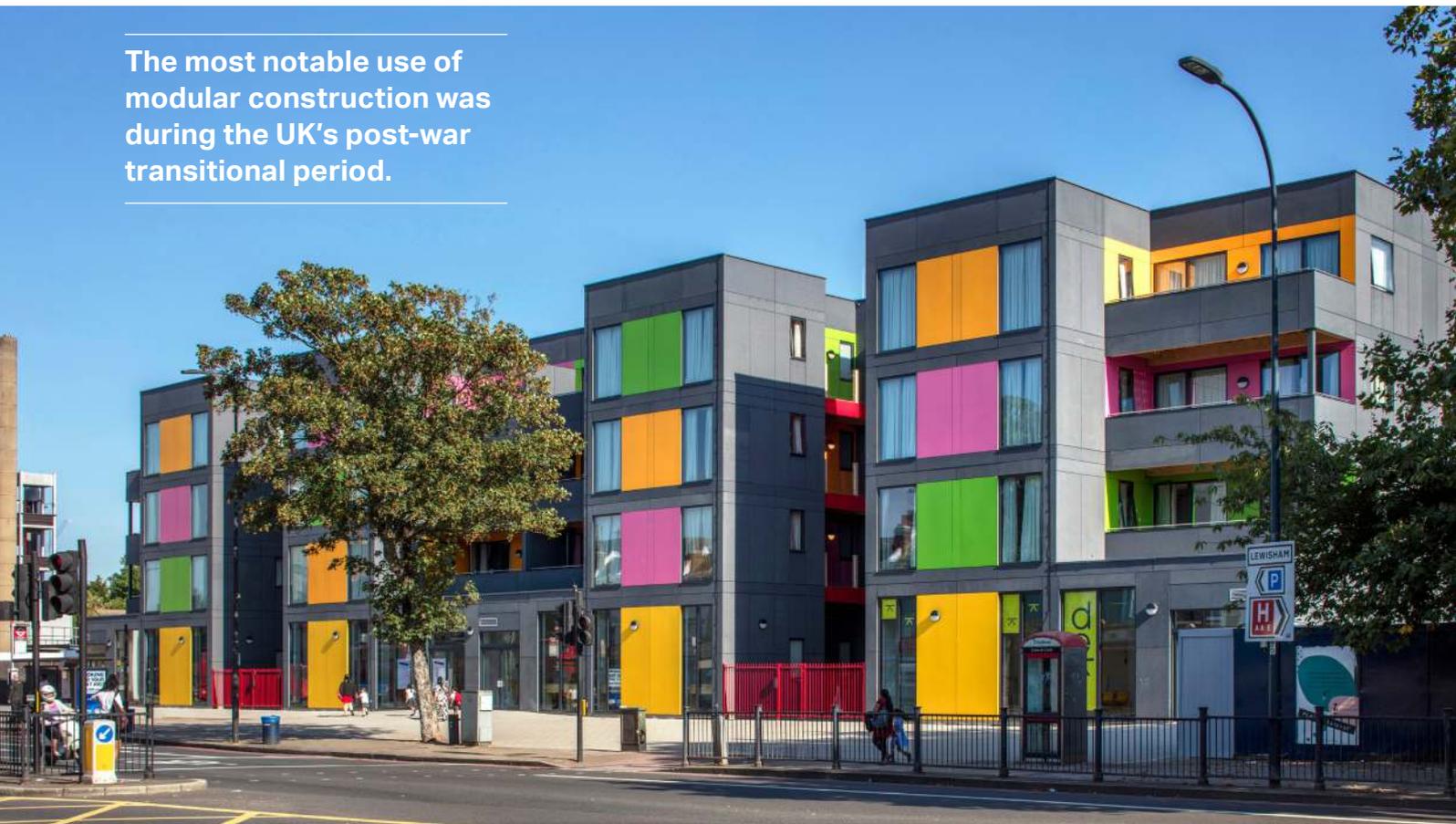
Yet this was an opportunity missed. A relatively small number of houses were delivered in that post-war push. Technological innovations were not adopted, and so there was little change to the development of the industry.

Living the high-rise

Throughout the 1950s and early 1960s, demand for housing was a result of major slum clearances in inner cities. This set a precedent for government housing targets and saw the introduction of a large-panel residential systems on high-rise blocks, based on their successful application in Scandinavia.

The first use of such systems was a nine-block residential scheme commissioned by the London Borough of Newham using the Larsen-Nielsen system. The subsequent progressive collapse of the structure in the Ronan Point block led to concerns around durability and structural performance. This only added to existing negative views of methods of prefabricated construction. →

The most notable use of modular construction was during the UK's post-war transitional period.



02

Modular construction

Times are a-changing

Fast-forward to present day, and things have changed. Performance is now more than credible. Quality is very good and viability assessments are encouraging when compared with a traditional approach.

Recent cost estimates suggest that, for medium-size schemes, modular construction could be 10-20% more cost effective than traditional methods. In the past, the modular approach has been seen to cost more and this can be attributed to designers trying to fashion a design for a traditional build into something that fits with the modular approach. This doesn't always work and economical projects have been designed as modular from the outset.

The modular supply chain is still fairly immature. However, modular suppliers themselves have very strong supply chains and so can compete on price versus their traditional counterparts.

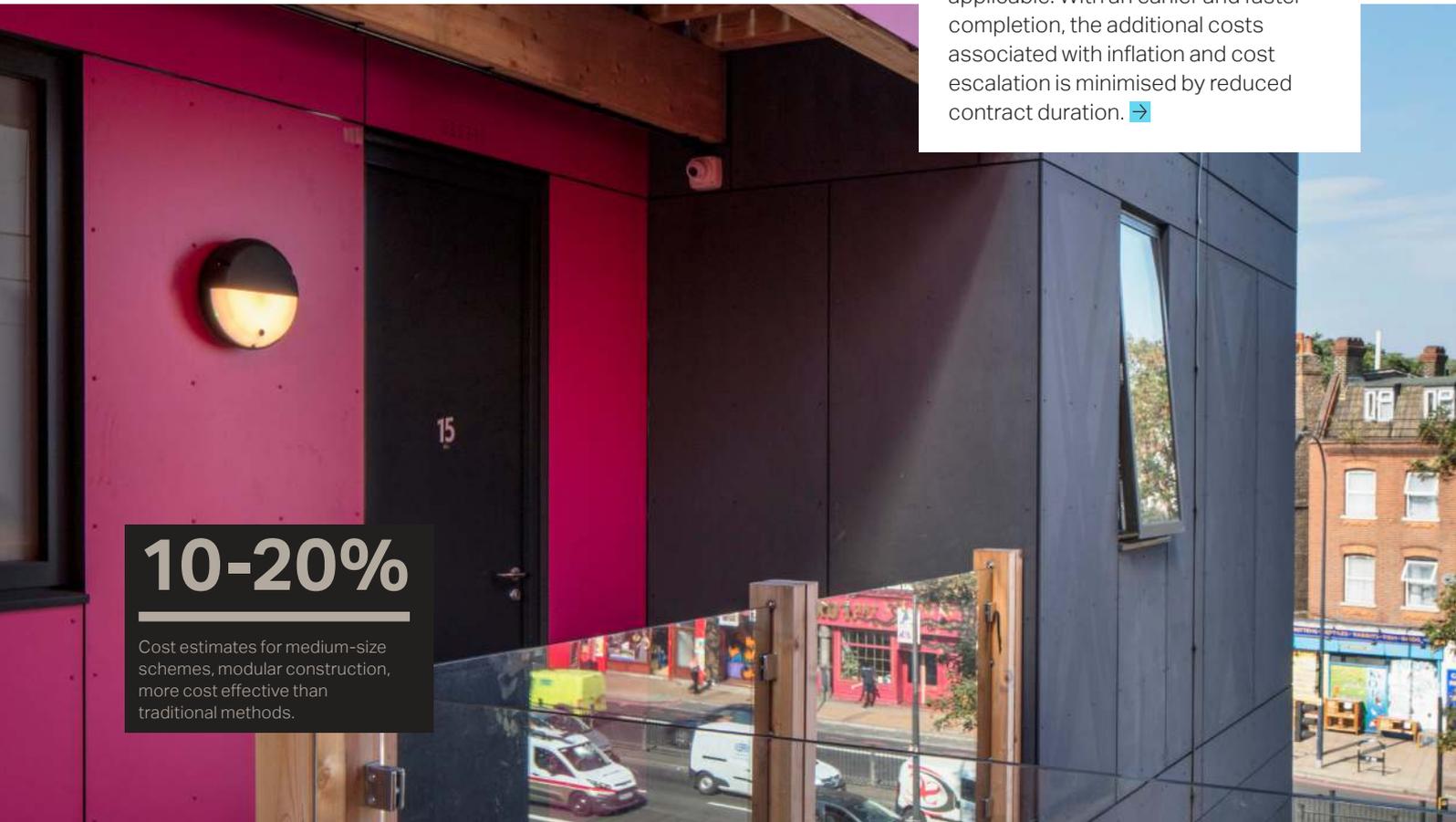
Cross-sector appeal

It is no surprise that interest in this approach is gaining traction. Contractors like the enhanced health and safety benefits gained from having less heavy and time-consuming construction work occurring on site and the logistical challenges eased, especially when faced with tight inner-city sites where storage or lay-down areas are sometimes non-existent. There is also less waste.

Project managers like the lean, on-site programmes that result from off-site manufacture. Developers often approve of the reduced finance charges and the revenue streams flowing from the earlier marketing and viewing of completed homes that result.

It all sounds too good to be true. But the usual hurdles around quality perception have been resolved and investors are placing cash and expectation into expanding factories.

Earlier drawdown of social housing grants by social registered landlords and earlier completion also make this approach more attractive, where applicable. With an earlier and faster completion, the additional costs associated with inflation and cost escalation is minimised by reduced contract duration. →



10-20%

Cost estimates for medium-size schemes, modular construction, more cost effective than traditional methods.

All-modular, finally?

The government is also interested in modular construction, notably in the potential for upping the bandwidth of housing delivery and closing the gap between supply and demand, which is at the forefront of the current industry debate. Add to that the prospect of mitigating the skills shortage across the industry as a whole — not to mention an estimated 20-30% decline in skilled labour over next decade due to migration and retirement — and it's no wonder that modular construction's time is coming.

It has taken a while to reach fruition. "Modern methods of construction" has been industry jargon for years, but until recently the percentage of schemes completed using these methods was stuck in the single figures.

Small-scale prefabrication and off-site construction — bathroom pods, MEP elements, facades and the like — have helped larger, traditional schemes make time and cost savings. But wholesale adoption has been slow, held back in part by negative perceptions around quality and product lifespan.

However, economies of scale seen as standard in manufacturing industries suddenly seem achievable. "Pure modular" projects, usually based around timber-framed structures, are now a reality, with their standardised components and on-site installation making for a safe, efficient and sustainable delivery.

Current situation

The recently published government white paper (Fixing a broken housing market, February 2017), talks about how the UK needs 225,000-275,000 or even more homes to be built per year in order to keep up with population growth. This gives an indication as to what the modular market size could be.

Within the same report, the government announced that there will be £7.1bn made available for housing associations and non-profit making developers to assist with funding such projects, along with a further £2.3bn for private developers from the housing infrastructure fund. A broad range of developers are exploring this methodology, especially for multibuilding sites where standardised, repetitive floor plates work well.

Planning conditions often dictate that affordable accommodation is built first when delivering a multi-block and mixed tenure site. Typically, with margins on lower-value sites being tight, the efficiencies that modular construction brings can improve viability assessments.

This is a developing sector within the industry, which does have challenges. There is still a limited supply chain, with around six sufficiently mature manufacturers able to support projects whose order books are full and a number of off-site manufacturers are keen to enter the arena.

The modular approach, however, is scalable. Factories are generally located in the Midlands and require very limited equipment and low utility capacity to set up. They assemble a kit of parts, rather than manufacturing anything themselves. A mixture of skilled and semi-skilled labour is required and quality is tightly controlled under factory conditions by supervisors.

At the moment very few large-scale projects have been executed, and these are typically low-rise, affordable apartments.

However, engineers are now exploring the possibilities of building to 20 storeys plus (logistics and access permitting) and producing private tenure blocks with efficient massing. More and higher-profile schemes are sure to come on line in the future. ➔



20-30%

Estimated decline in skilled labour over next decade due to migration and retirement.

03

Design

16 storey towers are achievable and most developments to date have not exceeded 12 storeys.

To many designers, modular buildings always look like modular buildings and the stigma of post-war prefabs may take time to shake off. Architects and their design teams will need to develop better facade details for private-tenure modular schemes to become possible. Clearly, some premium architects have been nurturing this idea for a while now, and foresee the opportunity and growth.

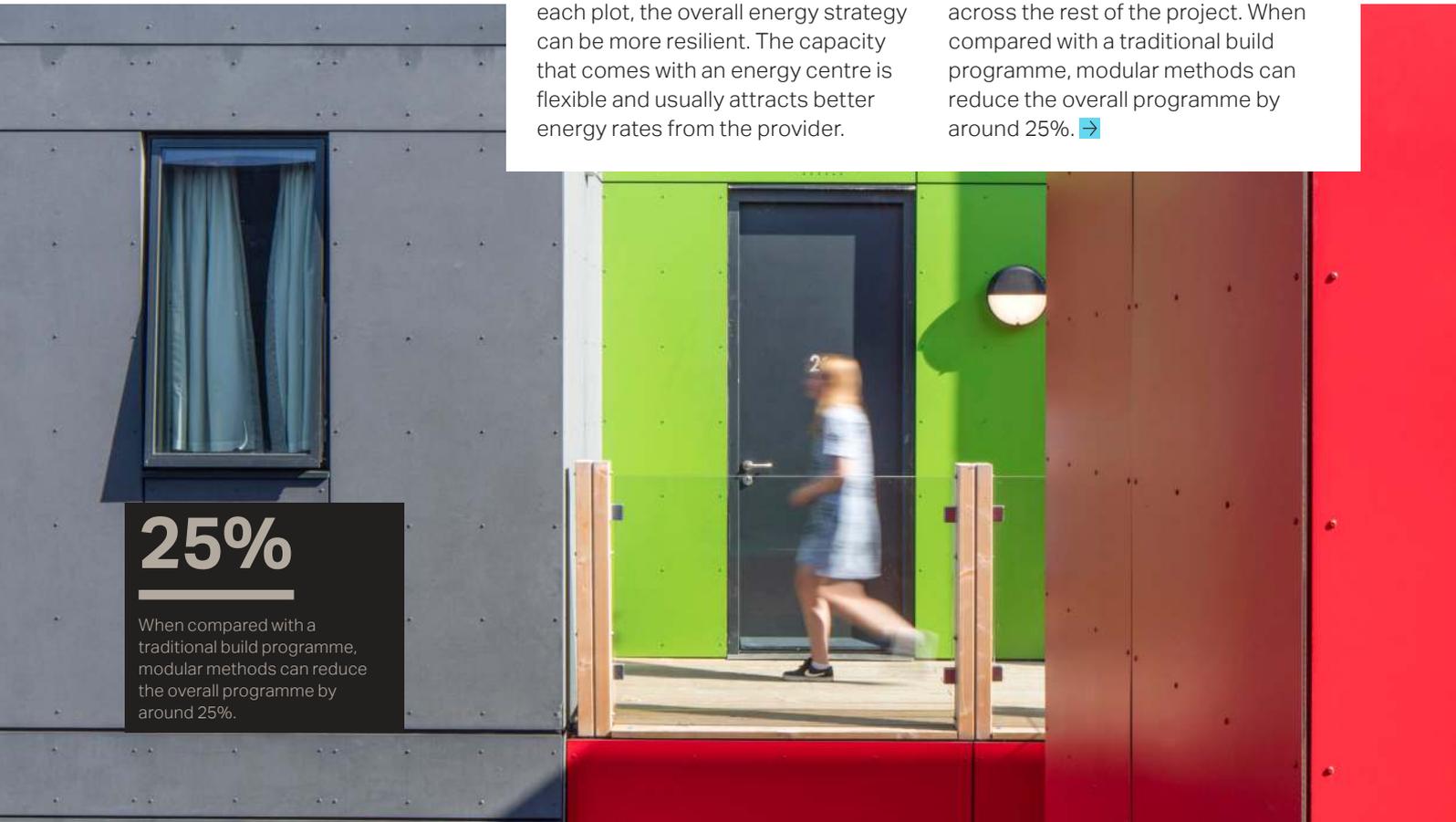
Modules usually consist of a timber or lightweight steel frame held together using heavy-duty brackets. A sub floor and outer ceiling is then inserted using timber joists or a metal equivalent, with finishes applied afterwards. Internal partitions, linings, doors, wall, floor and ceiling finishes, kitchens, bathrooms, joinery and MEP are installed as per a traditional fit-out solution, albeit in the factory.

For MEP, modular construction is flexible. A common MEP strategy (made possible by the super-insulated nature of the modules) is to design the modules to utilise an all-electrical system for heating and hot water. However, where an energy centre is available, along with centralised low temperature hot water being piped to each plot, the overall energy strategy can be more resilient. The capacity that comes with an energy centre is flexible and usually attracts better energy rates from the provider.

External walls usually consist of: a breathable outer; weatherboard; insulation; punched windows; and necessary fire stopping. A solid exterior is then applied as a rainscreen system. On-site amendments, such as double-height unbroken glazed facades should be avoided, to retain the structural integrity and air-tightness of each unit.

Those preferring tall towers may need to revise their expectations for now — 16 storeys is achievable and most developments to date have not exceeded 12 storeys. But as you go higher, the cost increases — simply because specialised mobile cranes are required for installation at height, for which there are only a few in Europe, as well as the requirements for structural integrity and services requirements, just as would be the case for a traditionally constructed tall building.

A tightly managed design phase is essential for the benefits of a modular project to be achieved. In particular, design will need to be fixed early to allow for lead-in times and mock-up approval. This also reduces risk across the rest of the project. When compared with a traditional build programme, modular methods can reduce the overall programme by around 25%. →



25%

When compared with a traditional build programme, modular methods can reduce the overall programme by around 25%.

04

Procurement and construction

Moving to modular requires a change of approach, which is not always welcome. Clients may be more aligned to traditional procurement strategies and be unwilling or slow to adapt. Contractors and their professional teams may find it hard not to tinker with detailed designs.

This may be exacerbated by the fact that there are limited incentives for contractors, designers or clients to innovate. Modular construction is rarely specified in tender documents or planning conditions.

Many main contractors lack experience in modular schemes. This has, occasionally, meant that developers engage their supplier as the main contractor. While this makes sense from a product viewpoint, the supplier's inexperience in tendering work packages or operating in non-local markets has caused problems. A main contractor model is still desirable, to ensure efficient management of the on-site work packages and delivery within programme.

In some instances, to further improve efficiency, suppliers can actually take their factory to site by setting up temporary structures in order to cut out the cost of haulage and risks that come with transporting large loads.

However, because the actual on-site construction is generally less complex, modular schemes may provide an opportunity to use tier two and three main contractors, or even larger trade contractors, to manage procurement and oversee assembly. The simplicity of modular schemes, once detailed, could make single-stage procurement more attractive to main contractors.

The number of highly-trained and experienced construction personnel required to deliver a modular scheme is fewer than on a traditional build, making the construction industry's skills shortage less of a problem. With further potential labour shortages post-Brexit, this can be both an advantage and an opportunity to invest in a modular-savvy UK workforce.

The supply chain remains an issue. The small number of manufacturers means they need to be engaged early, and design needs to be fixed before starting the production line. Changes during manufacture will be costly and could result in the contractor losing their allocated manufacturing slot. →

The number of highly-trained and experienced construction personnel required to deliver a modular scheme is fewer than on a traditional build, making the construction industry's skills shortage less of a problem.

05 Cost influencers

Repetition is key to a successful modular construction scheme. Project teams should think of what is required when using bathroom pods in a traditional project and scale that up.

The usual design and cost metrics apply, such as net-to-gross ratios. Square buildings are particularly good for modular construction, and five-plus apartments per core should be targeted.

Haulage is a cost to consider, especially on a high-volume project. An alternative is to build a factory on site, space and logistics permitting. While not a cost driver, clients should expect to cash flow for an advance payment — typically 10-25% of the total contract value protected by a bond.

There is the potential for big cost savings using modular construction. Pure modular projects can be completed in half the time of traditional schemes once on site.

Fewer packages need to be bought (usually ground works/substructure, cores, stairs, apartment modules, shell and core MEP works, builders' works, lifts and potentially balconies, roof finishes and the like, depending on the project).

As a result, prelims are much lower — usually around 12% for a 160-apartment scheme. This combination of fewer packages and simpler design also means costs are easier to predict.

06 Sustainability

There are some strong sustainability advantages associated with modular construction, which should be factored in to the design and client expectations. Typically, off-site assembly means reduced waste compared with traditional construction, and the materials used generally have a higher recyclable content.

Energy consumption is lower — so much so that each module is almost at Passivhaus standards. Thermal values often outperform traditional schemes and, where there are no central hot water systems keeping corridors and risers warm, there are fewer issues with overheating. ➔



07

The cost model

This cost model is based on the following:

- Fully modular utilising a timber frame
- Private tenure project (London, Zone 3)
- 12 storeys
- 160,500 ft² GIA
- 121,000 ft² NIA residential
- 7,500 ft² NIA retail/other @ ground floor
- 160 residential apartments
- No comfort cooling
- Excluding inflation
- Excluding all fees →

Shell and core works

Substructure

Total (£)	£/m ²	%
897,970	60.22	2.67

Works to existing site: site clearance and preparation (2,236m³ @ £15/m³).

Off site; assumed 0.5m reduce level dig (2,818m³ @ £50/m³) including say 15% for bulking.

Allow for say 15% contaminated soil (423m³ @ £100/m³).

Allow for removal of unknown obstructions (item @ £25,000).

Allowance for piling mat to footprint of building, say 400mm thick; including excavation and disposal and compacting (1,243m² @ £40/m²).

Allowance for mobilising and demobilising of piling rig; including setting up plunging rig at pile positions (item @ £25,000).

CFA local piling to cores only; 600mm dia 20m in length; cut off top of piles; allow for pile caps and disposal of arisings including pile caps.

Allowance for under slab drainage (1,243m² @ £35m²).

Allowance for lift pits (4nr @ £7,000 each).

Allowance for ground floor slab say 650mm thick (1,243m² @ £290/m²).

Frame and upper floors

Total (£)	£/m ²	%
694,800	46.60	2.06

Note: The modular system does not require a traditional frame and upper floors arrangement.

Allowance for reinforced concrete cores; comprising 200mm thick walls (1,512m² @ £200/m²).

Allowance for landings to immediate area around cores.

Allowance for steel support to lifts (4nr @ £1,500 each).

Stairs

Total (£)	£/m ²	%
217,000	14.55	0.64

Pre-cast reinforced concrete stairs; powder coated metal balustrading and handrails; ground to L16.

Allowance for ladders for roof access (2nr @ £2,500 each).

Allowance for mansafe system, hand rail and the like.

Roof

Total (£)	£/m ²	%
325,890	21.86	0.97

Note: The roof forms part of the module and so finishes required to be applied on site

Allowance for lift overruns, AO Vs etc (4nr @ £10,000 each).

Allowance for membrane roof covering to timber frame module including.

insulation, waterproofing, drainage, etc.

Extra over allowance for green roof coverings.

External walls, windows, doors and balconies

Total (£)	£/m ²	%
2,130,142	142.86	6.33

Note: The facade forms part of the module and so leaves the factory already weather tight.

Allowance for site-applied rain screen (reconstituted stone) on a track and rail system mechanically fixed to the module external wall (4,921m² @ £250/m²).

Extra over for doors to balconies and external areas. Included within module shell and core rate.

Extra over allowance for material interfaces and features.

Allowance for canopies to entrances (2nr @ £15,000).

Allowances for balconies to apartments; bolt-on steel balconies; including.

balustrades etc (160nr @ £4,500 each).

Internal walls, partitions and doors

Total (£)	£/m ²	%
107,800	7.23	0.32

Note: The party walls, corridor walls and doors are part of the module.

Partitions; party walls, corridor walls and walls to landlords areas — included within module rate.

Single leaf, timber doors to landlord's areas.

Double leaf, timber doors to landlord's areas.

Allowance for WC and shower cubicles to amenity areas etc. ➔

Wall finishes

Total (£)	£/m ²	%
285,250	19.13	0.85

Plasterboard lining to core walls, service cupboards etc.

Paint to internal partitions; residential corridors, linings and back of house areas.

MDF skirtings with painted finishes to lift lobbies, residential corridors, management suite.

Enhanced finishes to apartment entrances and lift lobbies at ground level (item @ £100,000).

Timber panelling to residents lounge.

Service panelling to WCs and showers.

Porcelain tiles to WCs and showers.

Floor finishes

Total (£)	£/m ²	%
116,600	7.82	0.35

Timber batten floors to corridors and lift lobbies, apartment entrances, residents.

lounge and estate management suites.

Carpet finishes to residential corridors and lift lobbies.

Porcelain tiles to WCs and showers.

Vinyl finishes to storage areas, refuse areas, and so on.

Ceiling finishes

Total (£)	£/m ²	%
25,000	1.68	0.07

Note: The modules form this part of the works and surfaces arrive pre-finished.

Painted plasterboard ceiling to residential corridors, residents' lounges and back-of-house areas.

Acoustic rated demountable suspended ceiling including paint finish to estate management suite.

Enhanced finishes to reception and lift lobbies at ground floor (item @ £25,000).

Painted moisture resistant plasterboard ceiling to WCs and shower rooms.

Allowance for bullheads and level changes.

Fittings, furnishings and equipment

Total (£)	£/m ²	%
7,702,500	516.57	22.89

Allowance for modules shell and core elements other than those items mentioned elsewhere.

Statutory signage (item @ £30,000).

Mail boxes (160nr @ £150/each).

Allowance for back-of-house storage for estate management and facilities management (item @ £20,000).

Sundry joinery items to residents lounge (item @ £50,000).

Allowance for desks and seats – excluded.

Sundries; notice board, signage etc (item £10,000).

Reception desks to apartment entrance areas and estate management suite (item @ £25,000).

Sanitary ware (MEPG)

Total (£)	£/m ²	%
11,900	0.80	0.04

Cleaners sinks (2nr @ £450 each).

Sanitary ware to estate management suite (4nr @ £650 each).

Sanitary ware for residents lounge (4nr @ £850 each).

Extra over allowance for wheel chair user provisions (£5,000).

Disposal installations (MEPG)

Total (£)	£/m ²	%
367,949	24.68	1.09

Rainwater disposal from roof outlets connection to underground drainage (14,911m² @ £3/m²).

Foul water disposal to amenity areas and apartments.

Drainage from bin stores and the like via floor gullies (item @ £20,000). →

Water installations (MEPG)

Total (£)	£/m ²	%
320,850	21.52	0.95

Cold water installation incoming main, storage tank, water treatment.

Cold water distribution to sanitary ware including estate management suite.

Hot water installations to sanitary ware including estate management suite.

Space heating/air treatment (MEPG)

Total (£)	£/m ²	%
72,000	4.83	0.21

Distribution to apartments, valves, etc, terminating in HIUs – excluded all electric.

Landlord's heating to stair cores and back-of-house areas via electric panel heaters (item @ £12,000).

Ventilation installations (MEPG)

Total (£)	£/m ²	%
225,000	15.09	0.67

Stairwell make up via AoV — 2 nr.

Smoke clearance to corridors.

Electrical installations (MEPG)

Total (£)	£/m ²	%
1,060,176	71.10	3.15

Primary distribution board, landlords power and lighting boards, cabling and containment, sub metering, reyfield installation to apartments (14,911m² @ £34/m²).

Life safety standby generator and flue (item @ £100,000).

Life safety cabling and equipment to for fire fighting lifts, smoke extract and sprinkler installations (14,911m² @ £5/m²).

Lighting to landlord areas and circulation areas including lighting control and emergency lighting (3,950m² @ £58/m²).

Feature lighting internal/external (item @ £50,000).

Earthing and bonding (14,911m² @ £2m²).

Gas installation (MEPG)

Total (£)	£/m ²	%
0	0	0

Gas installation boilers and associated works — excluded.

Heat source (MEPG)

Total (£)	£/m ²	%
0	0	0

Gas fired boilers — excluded — all electrical system.

Protective installations (MEPG)

Total (£)	£/m ²	%
256,751	17.22	0.76

Domestic sprinkler distribution to apartments, monitored floor valves (14,911m² @ £12/m²).

Dry risers (24 outlets @ £2,000 each).

Lightning and surge protection (14,911m² @ £2/m²).

Communication installations (MEPG)

Total (£)	£/m ²	%
551,207	36.97	1.64

Fire alarm to landlord areas, interlink to apartments (14,911m² @ £7/m²).

Wheel chair user refuge and WC alarm installations (item @ £50,000).

Containment for data/telephone installations (14,911m² @ £3.50m²).

Satellite farm and aerial installations to roof (4nr satellites and 1 aerial) (item @ £20,000).

Telephone/TV/satellite to apartments (item @ £120,000).

Data outlets to landlord areas and wi-fi installation to residents' lounge (item @ £25,000).

Door entry system and sub door entry installation, including Cat 6 cabling to apartments (2nr entrances @ £30,000). ➔

Special installations (MEPG)

Total (£)	£/m ²	%
104,376	7.00	0.31

Remote metering to apartments and billing system for LT HW heating only — excluded all electric.

Controls (14,911m² @ £7/m²).

Lift installations (MEPG)

Total (£)	£/m ²	%
678,000	45.47	2.01

13 person, 1.6m/s.

17 person 1.6m/s.

Enhanced finishes to lift car (item @ £30,000).

Builders work (MEPG)

Total (£)	£/m ²	%
109,446	7.34	0.33

BWIC.

Preliminaries and contingencies

Total (£)	£/m ²	%
4,420,349	296.45	13.13

Main contractor preliminaries @ 12.0%.

Overheads and profit @ 5.00%.

Contractor risk transfer @ 3.0%.

Pre and post contract award novated fees – excluded.

Contingency and design reserve @ 5.0%. →

Total shell and core works

Total (£)	£/m ²	%
20,681,000	1,387	61.45

Residential fit-out works

Internal walls, partitions and doors

Total (£)	£/m ²	%
496,100	33.27	1.47

Plasterboard stud partitions within apartments.

Extra over allowance for boxing out and acoustic treatment to SVPs including crossovers.

Internal apartment doors; flush painted, solid core single leaf doors sets including ironmongery.

Utility cupboard doors; flush painted, solid core, double leaf door sets including ironmongery.

Wall finishes

Total (£)	£/m ²	%
515,944	34.60	1.53

Painted plasterboard lining to internal face of external wall.

Paint finish to all internal partitions.

Plywood behind kitchen walls.

Allowance for splashbacks to kitchens.

MDF skirting including paint finish.

Floor finishes

Total (£)	£/m ²	%
664,774	44.58	1.98

Acoustic timber batten sub floor to all areas.

Good quality carpet to bedrooms generally.

Good quality engineered timber flooring to kitchen, lounge and hallway.

Large format tile to bathroom floors.

Ceiling finishes

Total (£)	£/m ²	%
267,894	17.97	0.80

Painted plasterboard ceilings.

Allowance for blind boxes/recesses.

Access hatches where required.

Fittings, furnishings and equipment

Total (£)	£/m ²	%
2,639,252	177.00	7.84

Allowance for kitchens including furniture, brassware, white goods (fridge freezer, hob, oven, extractor hood and washer dryer) and recon stone work tops — Studio.

Allowance for kitchens including furniture, brassware, white goods (fridge freezer, hob, oven, extractor hood and washer dryer) and recon stone work tops — 1 bed.

Allowance for kitchens including furniture, brassware, white goods (fridge freezer, hob, oven, extractor hood and washer dryer) and recon stone work tops — 2 bed.

Allowance for kitchens including furniture, brassware, white goods (fridge freezer, hob, oven, extractor hood and washer dryer) and recon stone work tops — 3 bed.

Wardrobes to master and second bedrooms with drawer pack in the master bedroom only.

Vanity units within bathrooms.

Bath panel.

Toilet roll holder, brush, robe hooks and the like.

Mirror to bathrooms.

Sanitary ware (MEPG)

Total (£)	£/m ²	%
496,100	33.27	1.47

Allowance for WCs and associated items, wash hand basins including waste traps and brassware, baths, showers and screens including all necessary fixtures and fittings for studio, 1-bed, 2-bed and 3-bed apartment.

Disposal installations (MEPG)

Total (£)	£/m ²	%
128,986	8.65	0.38

Solid and waste to white goods and bathrooms.

Water installations (MEPG)

Total (£)	£/m ²	%
287,738	19.30	0.85

Hot and cold water pipework to white goods and bathrooms. [➔](#)

Heat source (MEPG)

Total (£)	£/m ²	%
644,930	43.25	1.92

N/A.

Space heating/air treatment (MEPG)

Total (£)	£/m ²	%
1,190,640	79.85	3.54

LTHW underfloor heating.

Heated towel rails within bathrooms.

Ventilation installations (MEPG)

Total (£)	£/m ²	%
357,192	23.96	1.06

Whole house ventilation with heat recovery and boost function.

Electrical installations (MEPG)

Total (£)	£/m ²	%
1,537,910	103.14	4.57

Tenants' distribution board, meter etc.

Protective installations (MEPG)

Total (£)	£/m ²	%
109,142	7.32	0.32

Sprinkler protection.

Communication installations (MEPG)

Total (£)	£/m ²	%
218,284	14.64	0.65

Fire alarm.

Data/voice/TV outlets etc.

Entry system.

Special installations (MEPG)

Total (£)	£/m ²	%
208,362	13.97	0.62

Local control to heating.

Builders work (MEPG)

Total (£)	£/m ²	%
158,752	10.65	0.47

BWIC.

Preliminaries and contingencies

Total (£)	£/m ²	%
2,635,978	176.78	7.83

Main contractor preliminaries @ 12%.

Overheads and profit @ 5.00%.

Contractor risk transfer @ 2.5%.

Post contract award novated fees — excluded.

Contingency and design reserve @ 5.0%. →

Total fit-out works

Total (£)	£/m ²	%
12,558,000	842	37.31

External works and utilities

External works – allowance for external works

Total (£)	£/m ²	%
750,000	50.30	2.23

Utilities

Total (£)	£/m ²	%
417,000	27.97	1.24

Water infrastructure charges (160nr @ £350 per unit).

Plus connection charge (item @ £30,000).

Foul infrastructure charges (160nr @ £350 per unit).

Plus connection charge (item @ £50,000).

Electrical connection — no reinforcement (1nr @ £125,000).

Fibre installation (item @ £100,000).

Gas installations — excluded.

Total modular cost model

Total (£)	£/m ²	%
34,406,000	2,307	100

