

Welcome to the Modern Methods of Construction (MMC) Showcase – a flagship initiative delivered by Homes NSW in partnership with Building 4.0 CRC.

Welcome to the future of housing

We're transforming housing delivery through innovative construction methods—building smarter, faster and at scale to deliver quality new homes that are safe, affordable and built to last. These homes are designed to meet real-life needs, offering stability, comfort and connection.

- See it for yourself: Step inside a full-scale, 2-bedroom demonstration apartment built using the innovative 'Kit-of-Parts' approach.
- What's different: 80% of building components are manufactured offsite, reducing costs, improving quality, and accelerating delivery. The designs are repeatable, flexible and adaptable enabling tailored solutions for diverse communities.
- Why it matters: With over 65,000 households waiting for social housing in our state, we need new, smarter ways to build—and MMC is helping us meet that challenge.
- What's possible: MMC enables us to scale up the delivery of permanent, architect-designed social homes that are compliant with national standards and built for long-term use.









Discover the benefits of MMC

Modern construction
methods are changing how
we build homes—offering
a more efficient,
sustainable and peoplefocused approach.

- Scaleable
 - Ready for mass rollout across NSW
- Flexible

Adaptable to local needs and communities

- Reliable
- Off-site production improves quality control and safety
- Inclusive

Enables diverse workforce participation in safer environments



Explore the space, ask questions and find out more about this innovative program.

Making this future of housing a reality will take collaboration across government, industry and community. We're inviting partners to join us—to help deliver homes that change lives.



Acknowledgement of Country

We acknowledge the Traditional Custodians of NSW and pay our respects to Elders past and present. We recognise their continuing connection to land, water, and culture and extend that respect to all Aboriginal and Torres Strait Islander peoples attending this event.

Overview

Explore the MMC Platform roadmap, where each section is a chapter in the story of how we can achieve housing innovation.

The centrepiece is a full-floor layout of the MMC Demonstrator, around which you can explore section-by-section to discover the insights, innovations and ideas in each display zone.

Welcome &

Program Overview

This section introduces the driving forces

challenges faced by the government in this

behind the MMC Showcase, outlines the

program's purpose, and highlights the



Design & Development

From larger neighbourhoods to individual homes, this section showcases the design and development process that places residents at the centre. This includes design guidelines, planning tools, land aggregation strategies, and housing typologies that strengthen the system.



Products

This section displays the building blocks of the MMC approach. Visitors will see early prototypes of System 600 parts, animations of standardised assembly, and the sustainability and compliance features designed to support largescale rollout.



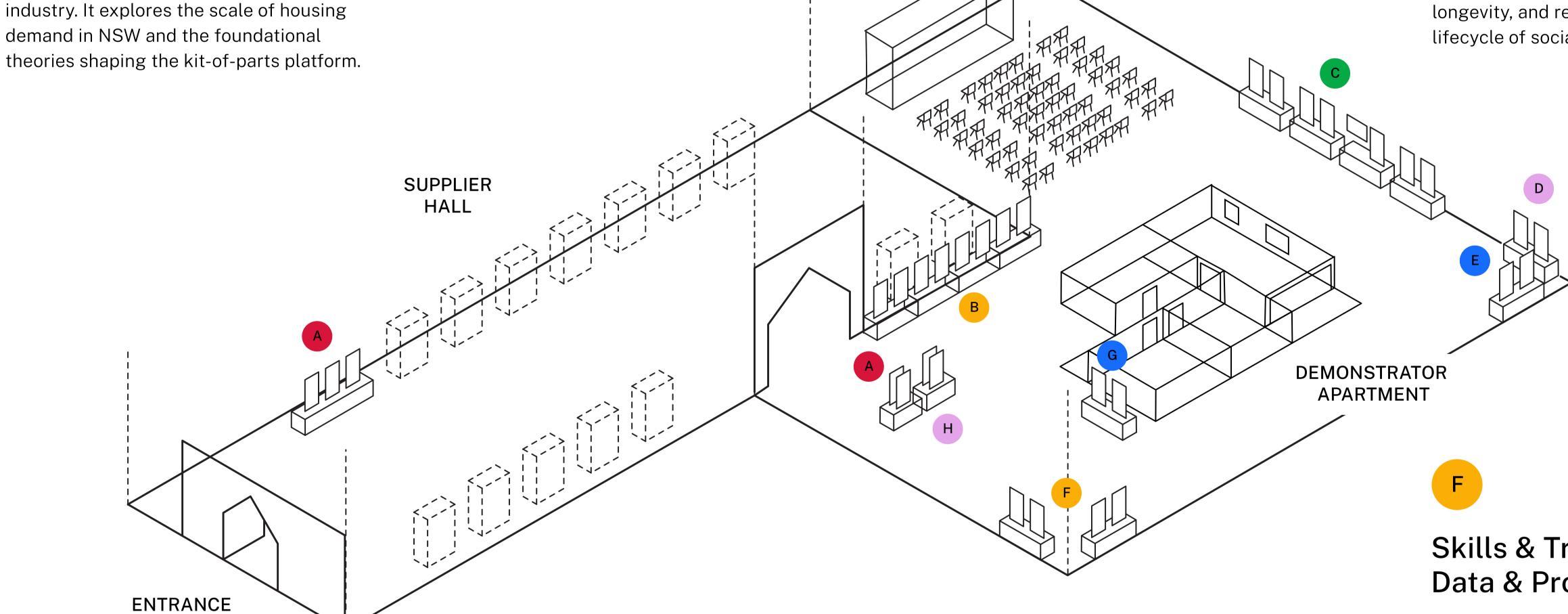
Suppliers

Focused on the supply chain, this section demonstrates how the MMC platform enables faster and more repeatable housing delivery by growing an ecosystem of suppliers and manufacturers who can make and install the Kit-of-Parts products. The early research shows just some of the companies we are working with.



Installation & Maintenance

This section looks at the construction logic and how maintenance and operational challenges are addressed. Repeatable design and movable parts can simplify assembly, repairs, support longevity, and reduce costs over the lifecycle of social housing assets.



PRESENTATION

AREA



Test Drive

This section previews a 'test drive' of the system by a local architect. As part of the research and implementation, it is important to understand how the industry will use and interpret the system.



Demonstrator Apartment

This prototype shows the art of thepossible in a full-scale, two bedroom 'demonstrator' apartment.



with insights from training pilots, case studies, and productivity research. It highlights how lessons learned from this program can be scaled across the state and beyond, supporting education, industry development, and housing policy reform on a national level.

The final section rounds out the journey







































Welcome Home

03

Homes NSW's vision is to deliver quality homes and services that change lives and end homelessness.



New Social Homes

8,400

Under the Building Homes for NSW program, Homes NSW will deliver 8,400 new public homes. Half of these homes will go to victim survivors of domestic and family violence — because you can't leave violence if you don't have somewhere safe to go. The MMC Program plays an important role in helping us deliver more quality new homes, sooner.





Homes NSW leads the NSW Government's work to deliver quality social and affordable housing and address homelessness.

Our Mission

We are responsible for the construction, maintenance and repair of public housing across the state, and supporting the 260,000 people who call our properties home.

Homes NSW also plays a key role in enabling better outcomes for affordable and key worker housing in NSW.

Through partnering with all levels of government, sector and communities to confront the housing crisis, we aim to make sure NSW is a place where everyone has access to safe and secure housing.

Homes NSW is part of the Department of Communities and Justice.

In 2023, the NSW Government sought to improve social housing delivery through exploring the wider use of MMC.

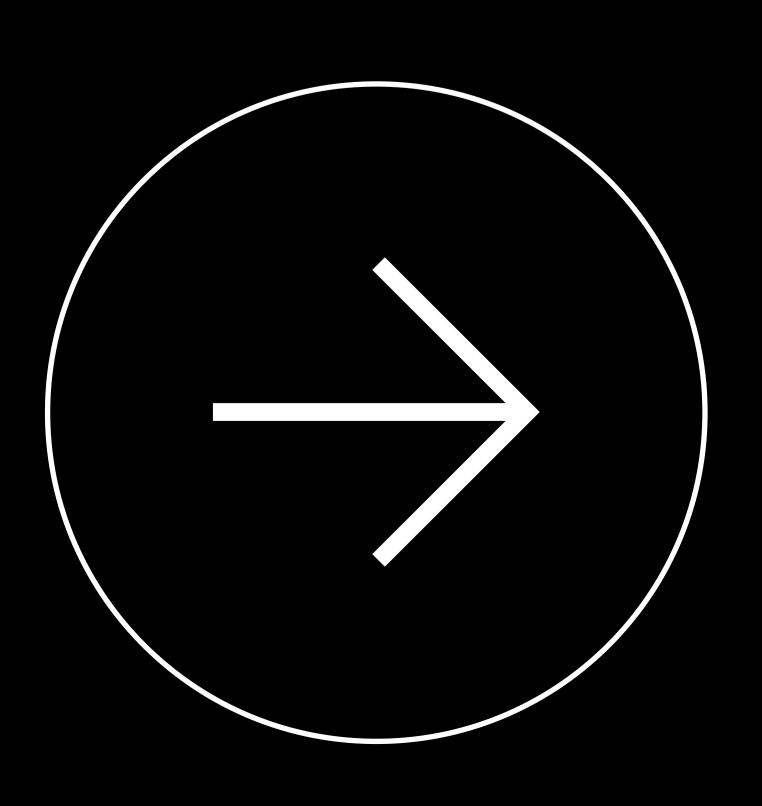
The Homes NSW MMC Program is just one part of this wider project, which included an MMC Taskforce, and secondary dwellings pilot.

Building Homes for NSW

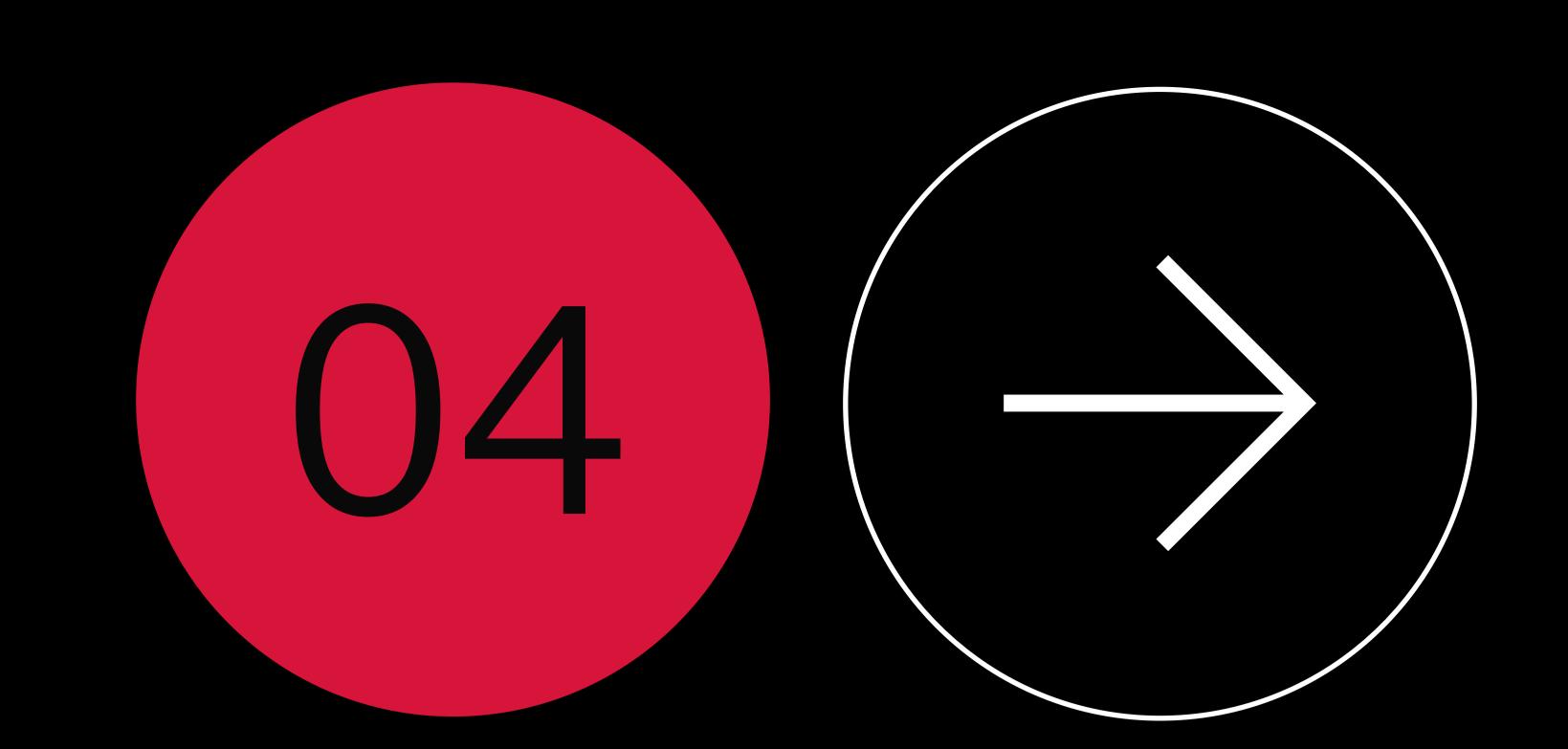
The NSW Government is making its largest ever investment in social housing and homelessness with the \$6.6 billion Building Homes for NSW program, announced in the 2024-25 NSW Budget.

The Building Homes for NSW program will fund the delivery of thousands of new social housing properties, improve maintenance of public housing and boost homelessness support services. This includes for women and children escaping domestic violence, Aboriginal people and their families, older Australians, those living with a disability and young people without family support.

The NSW Government is investing in MMC and pre-approved designs to speed up delivery and build smarter. These approaches not only help to deliver homes faster but also support the creation of well-designed homes that run more efficiently.



State of Play

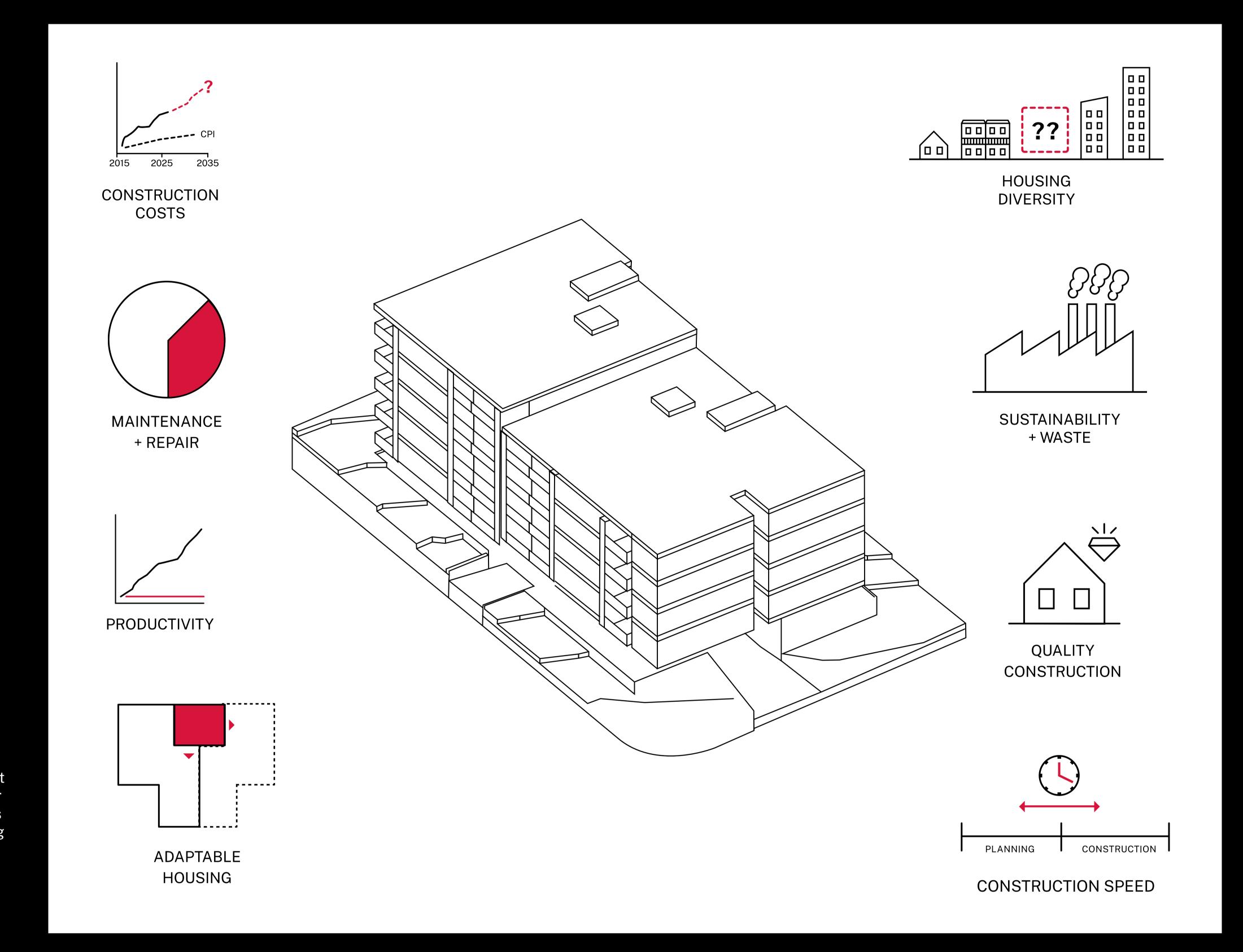


Construction costs have risen 65% (or approx twice the rate of CPI) over the last decade.

Around one quarter to one third of housing budgets go into repair and maintenance.

Productivity in housing construction has declined by 53% in the last 30 years.

Most housing is difficult to change or adapt over its lifecycle. This forces residents with changing needs to relocate.



More diverse housing options are required to meet market demand and keep our cities sustainable. The missing piece of this puzzle is often referred to as "missing middle".

Traditional building processes are inefficient, with large amounts of material and human resource waste. Buildings are responsible for around 39% of greenhouse gas emissions.

Building systems and regulations are becoming more complex. Rising pressure to build faster and cheaper, coupled with a shrinking workforce have produced building quality and durability issues.

Planning and development approvals can take years for housing. Additionally, traditional building is expensive and unpredictable, with many projects experiencing time overruns.

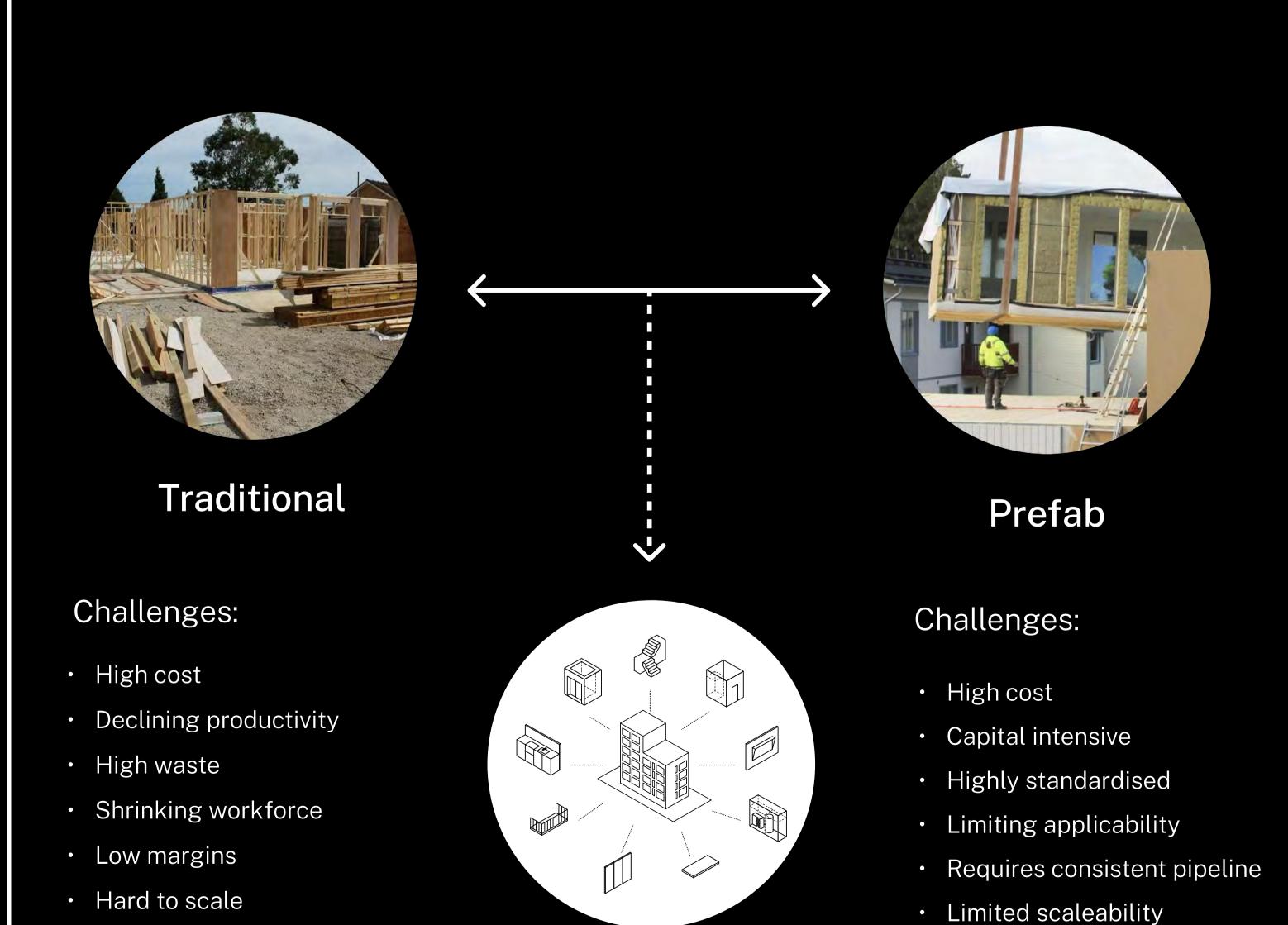
Over the last 10 years, construction costs have increased around 65%. This is around double the value of CPI. If construction costs are not brought under control, investments in housing will build fewer and fewer houses in years to come.

Government must work with industry to try new ways to build more affordably, productively, and sustainably. In addition to these headline issues, there are several other issues that this program seeks to address.

Collectively, we need:

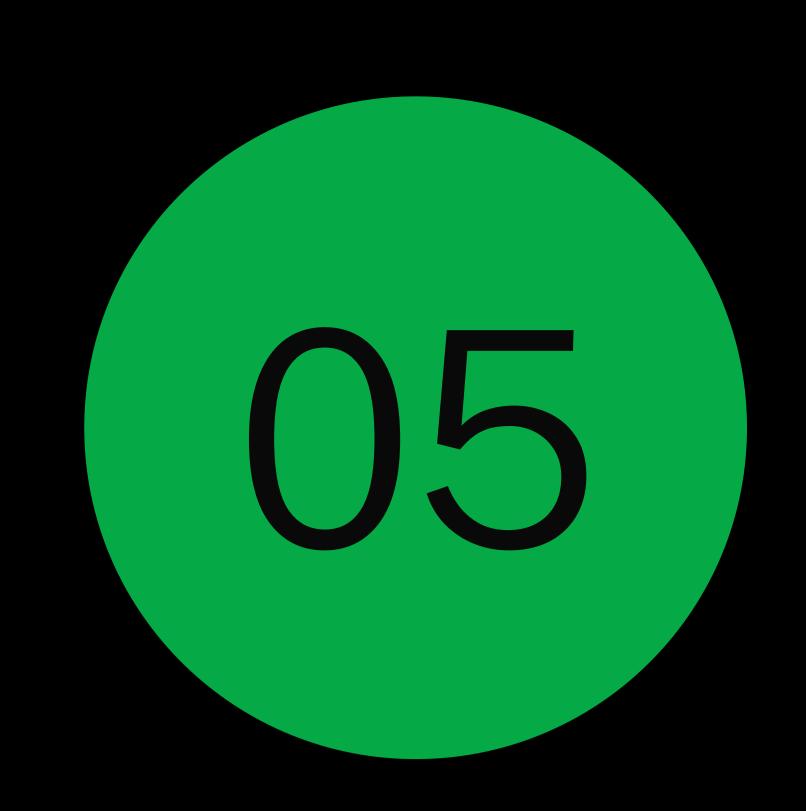
- to bring down construction costs
- greater diversity of housing types and more adaptable plans
- a more sustainable industry and less wasteful buildings
- higher quality buildings that last
- faster planning, development and build times
- lower maintenance and repair costs, so more money can be spent on increasing the number of houses.

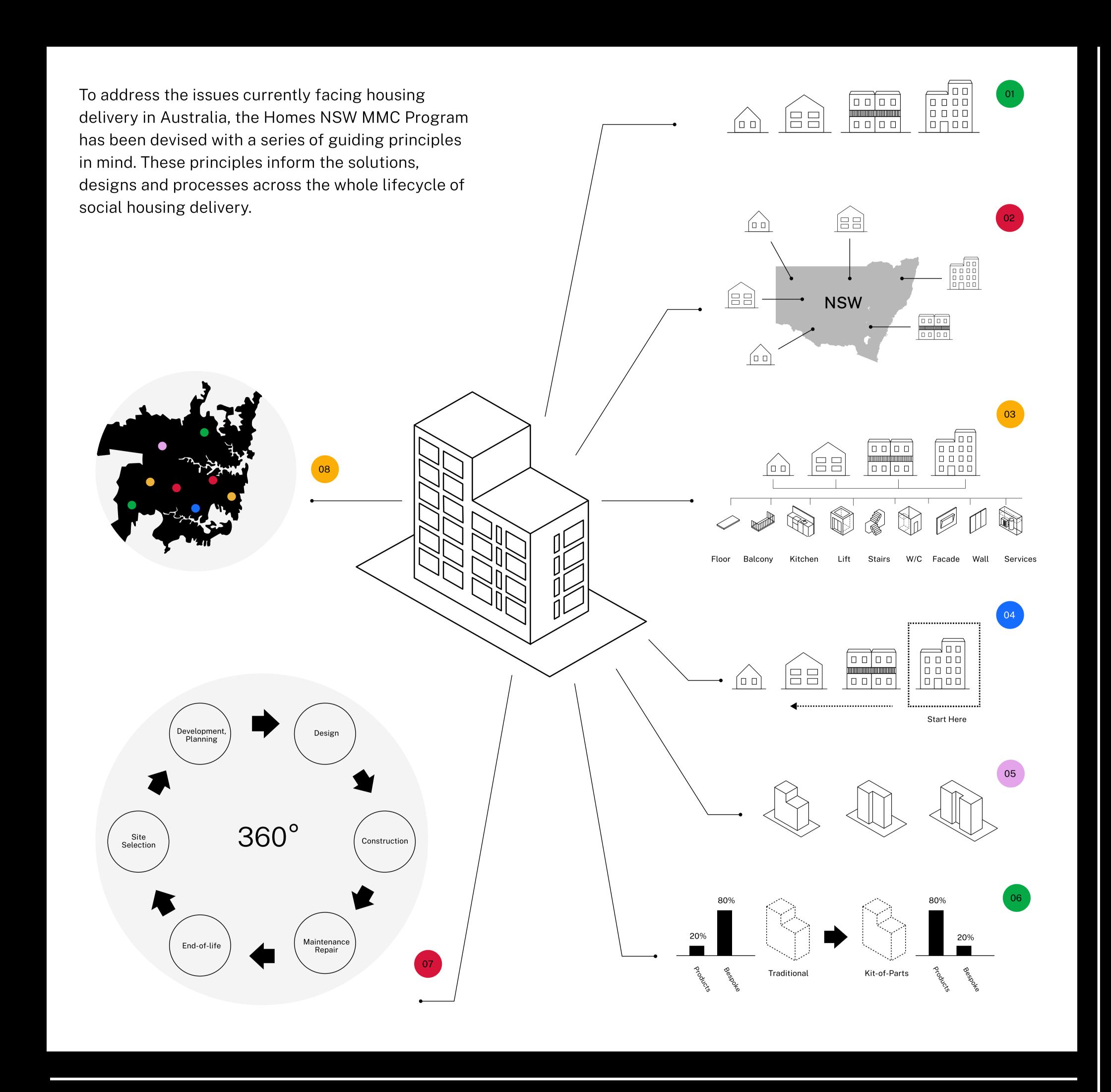
Addressing the challenges of existing approaches



Hybrid:
The kit-of-parts
approach

Program Principles





Theory of Change

If... we break buildings up into standard parts... then...

- → there are more companies who can make those parts.
- → we can leverage latent manufacturing capacity with lower investment.
- → we can grow the pipeline and volume of similar parts for manufacturers.
- → those parts can be less complex, interchangeable and cheaper.
- ightarrow the industry will have a clear market signal, allowing it to invest and scale organically.
- ightharpoonup the 'distributed' manufacturing industry will be more resilient to economic downturns.
- → as manufacturing costs comes down, parts can be used in new building applications.
- → standard parts can be combined to form non-standard housing designs.
- → non-standard housing designs can be deployed to most sites, climates and terrains.
- → adaptable housing designs have a larger addressable market, which in turn grows the pipeline.
- → we can continuously improve those parts, creating an innovative industry of building products.
- → the buildings made of known parts will be easier to repair and maintain.
- → the design and development process can be accelerated, relying on known costs and combinations.
- → building costs and timeframes can be better predicted.
- → on-site building will become a process of assembly of known parts with repeatable connections.
- → more predictable building processes will reduce risks over time and further drive down costs.



Create a strategy for all housing types, that can be rolled-out over time.

02 Not one size fits all

Different housing types are required in different parts of the state. Different locations will require different delivery methods.

03 Commonality of parts

Attempt to make as few parts as possible and make these common to all housing types.

O4 Start with the most complex type

Start with the most complex type. Start with 4-6 storey housing. Complexity can be reduced to suit smaller building types, but it is harder to increase complexity from small to large.

05 Standard parts not designs

Standard parts can be reconfigured into countless building designs. Two buildings made from the same system can appear completely different.

06 80/20 Flip

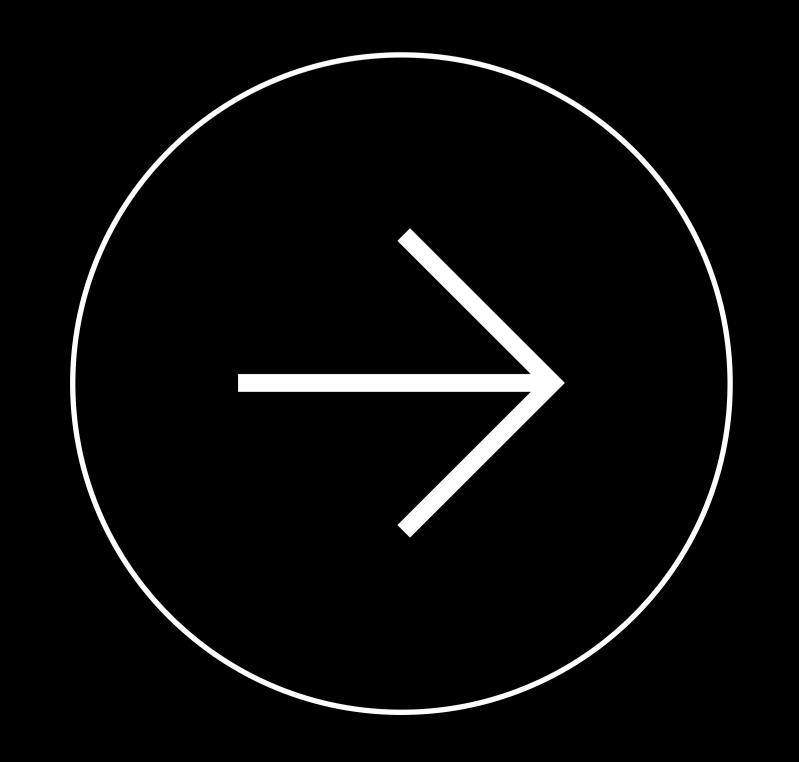
If traditional building does 80% of the work on-site, kit-of-parts flips this to 80% pre-manufactured products with 20% of building work bespoke to every site.

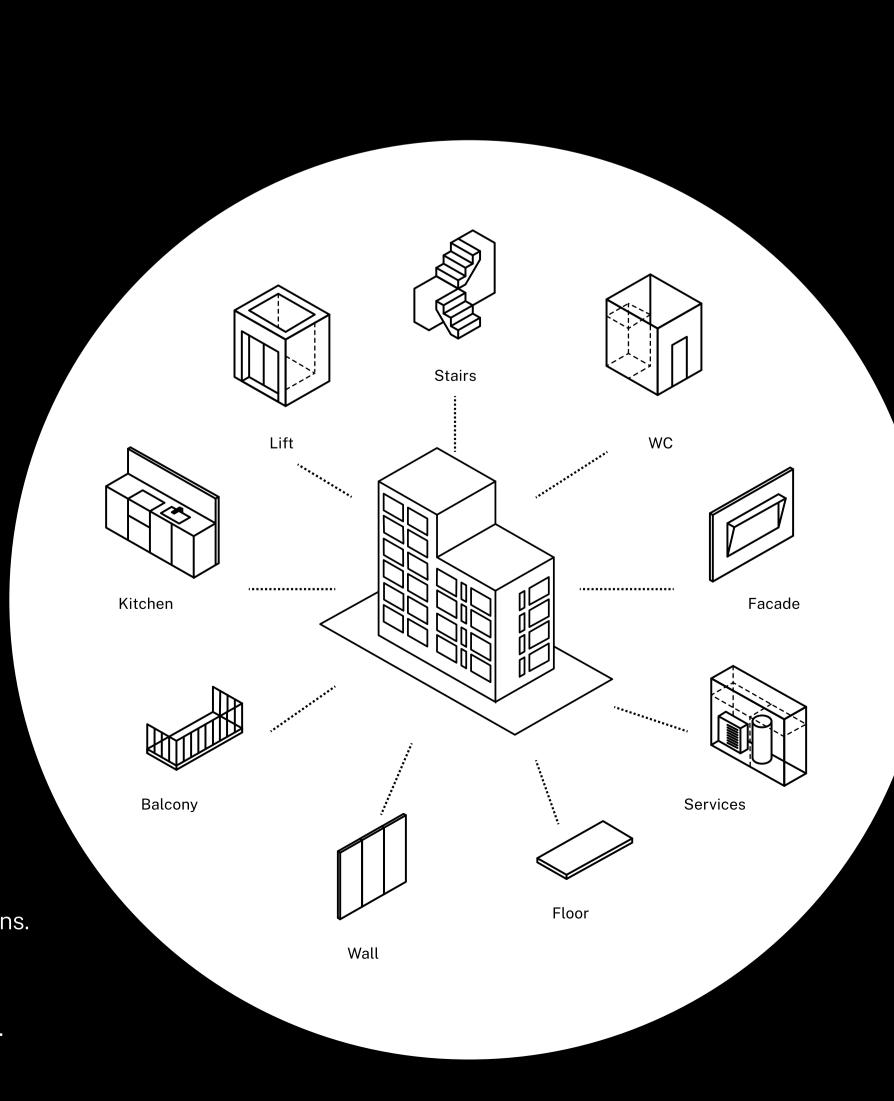
07 360° view of housing delivery

All phases of housing delivery need to be taken into account when looking for improvements across the system. A new building system can spell benefits for design and development and for repair and maintenance.

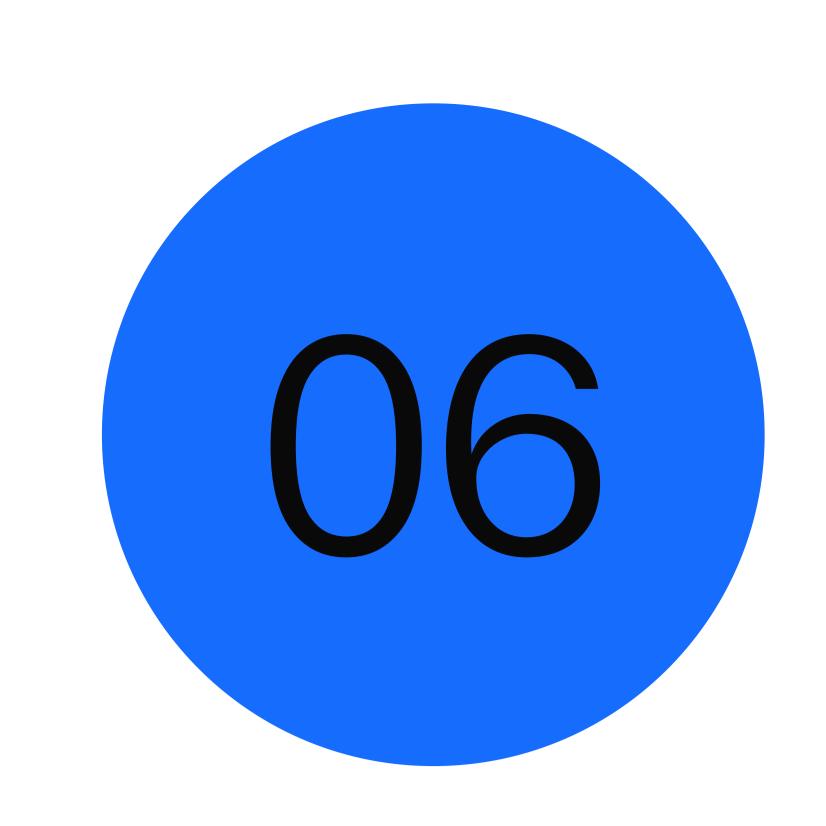
08 Distributed manufacturing

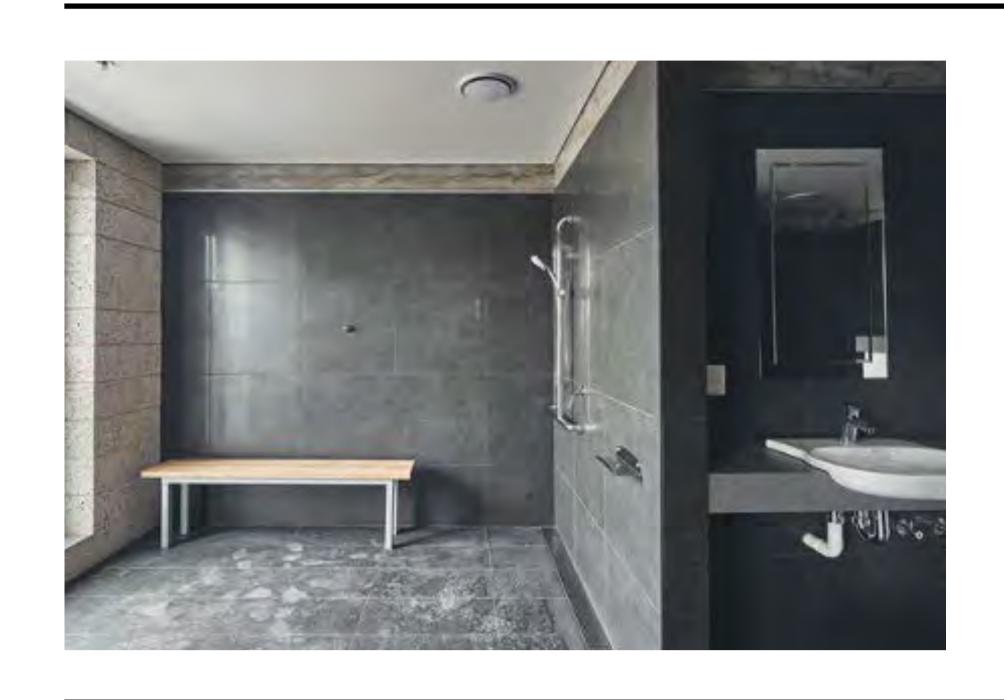
More suppliers of parts, means a more scalable supply chain, which helps to drive costs down over time and makes the supply chain more resilient.

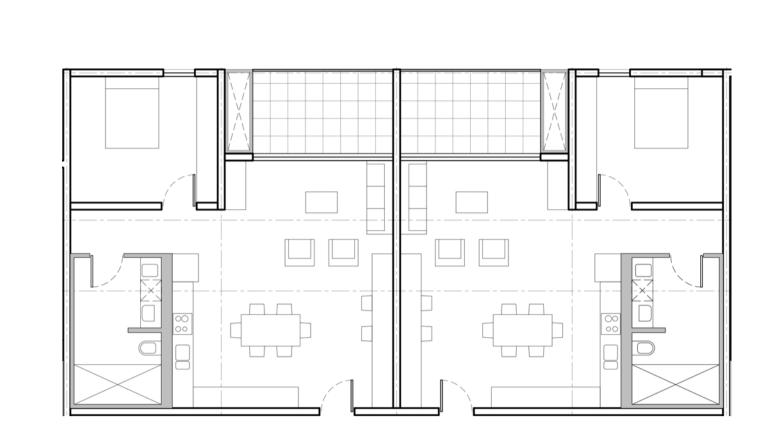




Tenant Centred Design

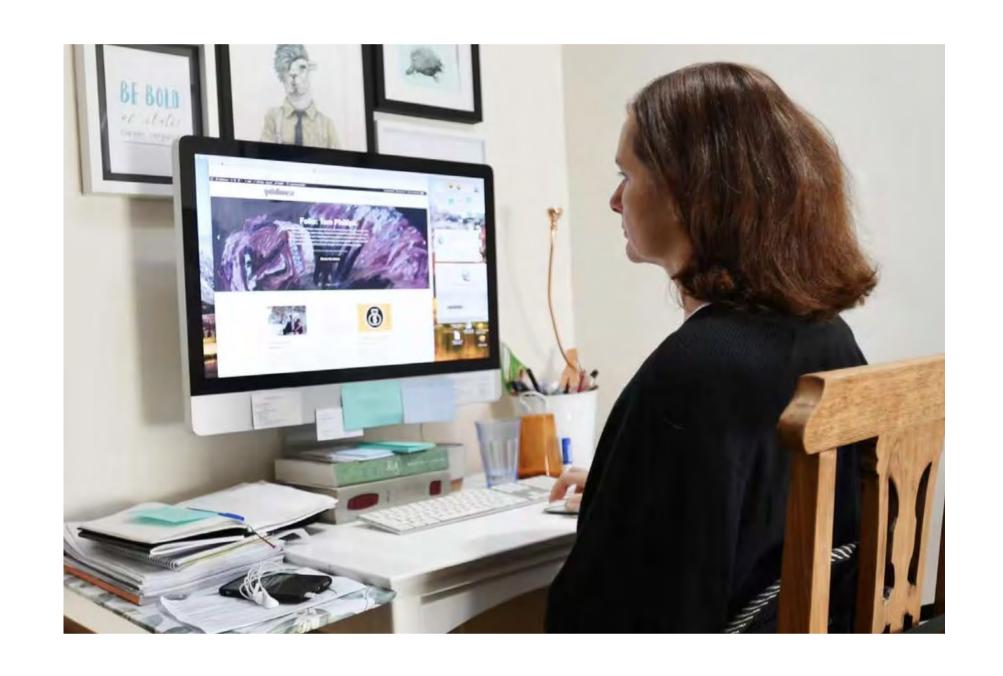


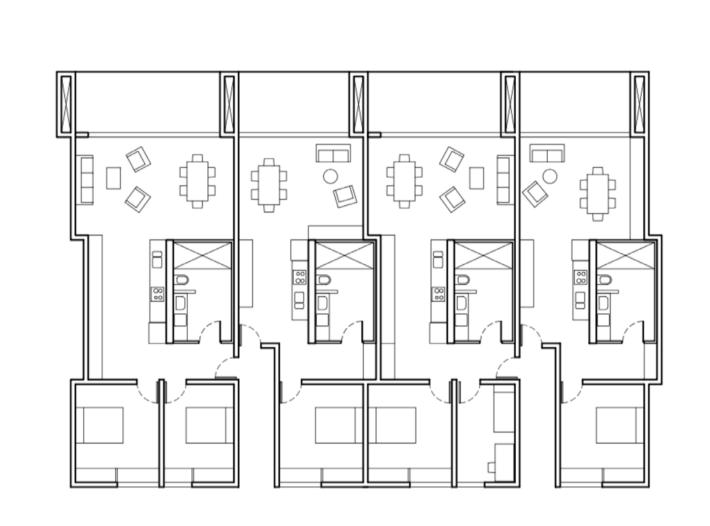




1 Future Proofing

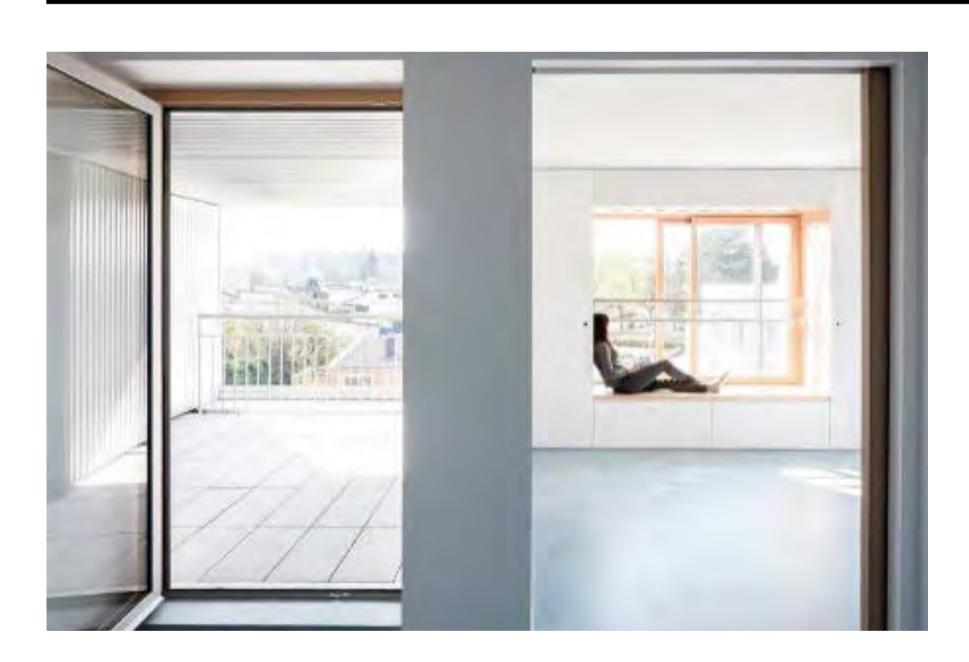
Platinum standard bathrooms 'future proof' dwellings for increasingly ageing populations and high-needs tenants, minimising the time and cost of modifications over the dwelling's lifecycle. When delivered at scale across the Homes NSW portfolio, the standardised 'kit-of-parts' can attract cost-efficiencies at a pipeline level.

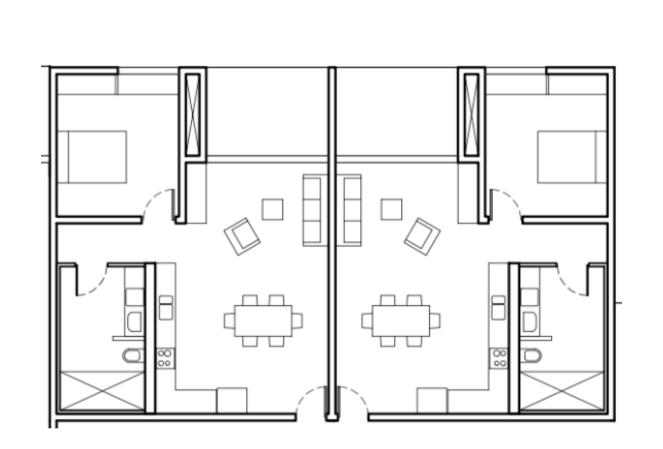




2 Dwelling Flexibility

The research has tested the kit-of-parts in a range of dwelling configurations to address a diversity of tenant needs, such as 1.5 bedrooms for in-home care, or work-from-home.





Enhanced Standard Provisions

The efficiencies of MMC introduces potential to deliver 'new dwelling products' that enhance the quality of housing outcomes. For example, integrating a bay window into a 'joinery wall' enables tenants to create spaces that make a home their own and reduce the need to purchase additional furniture.

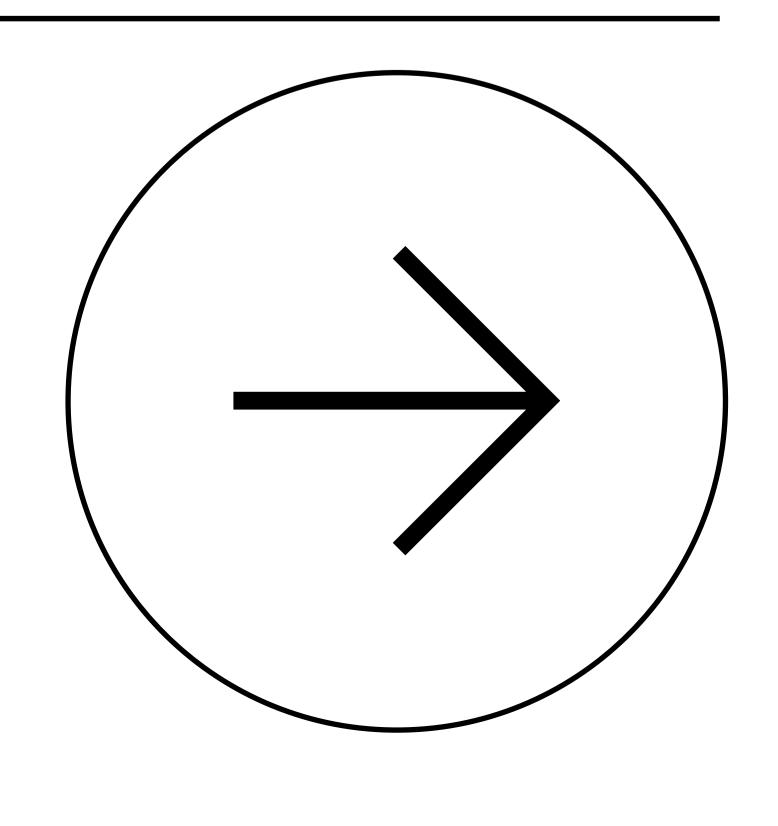




Tenant and Community Engagement

By taking the opportunities provided by longer-term, more strategic approaches to urban design, MMC Neighbourhoods promote opportunities for tenant and community engagement, improving housing choices and opportunities to relocate in place.

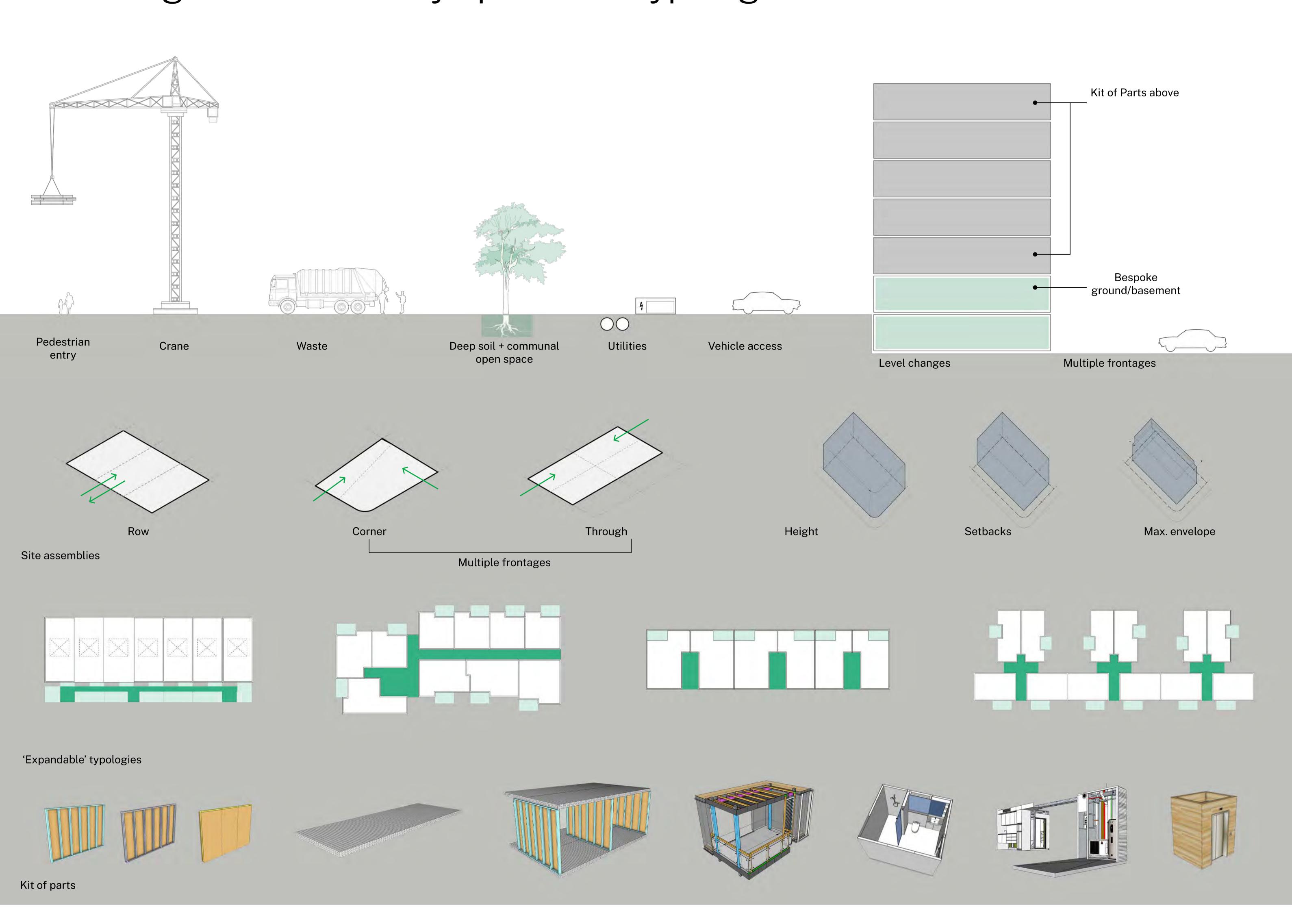
The efficiencies and certainty offered by MMC can be harnessed to foster better engagement with residents and improve tenant experiences by promoting opportunities to relocate in place, future proof dwelling designs and enhance standard provisions.



Replicable Model



Starting with 4–6 Storey apartment typologies

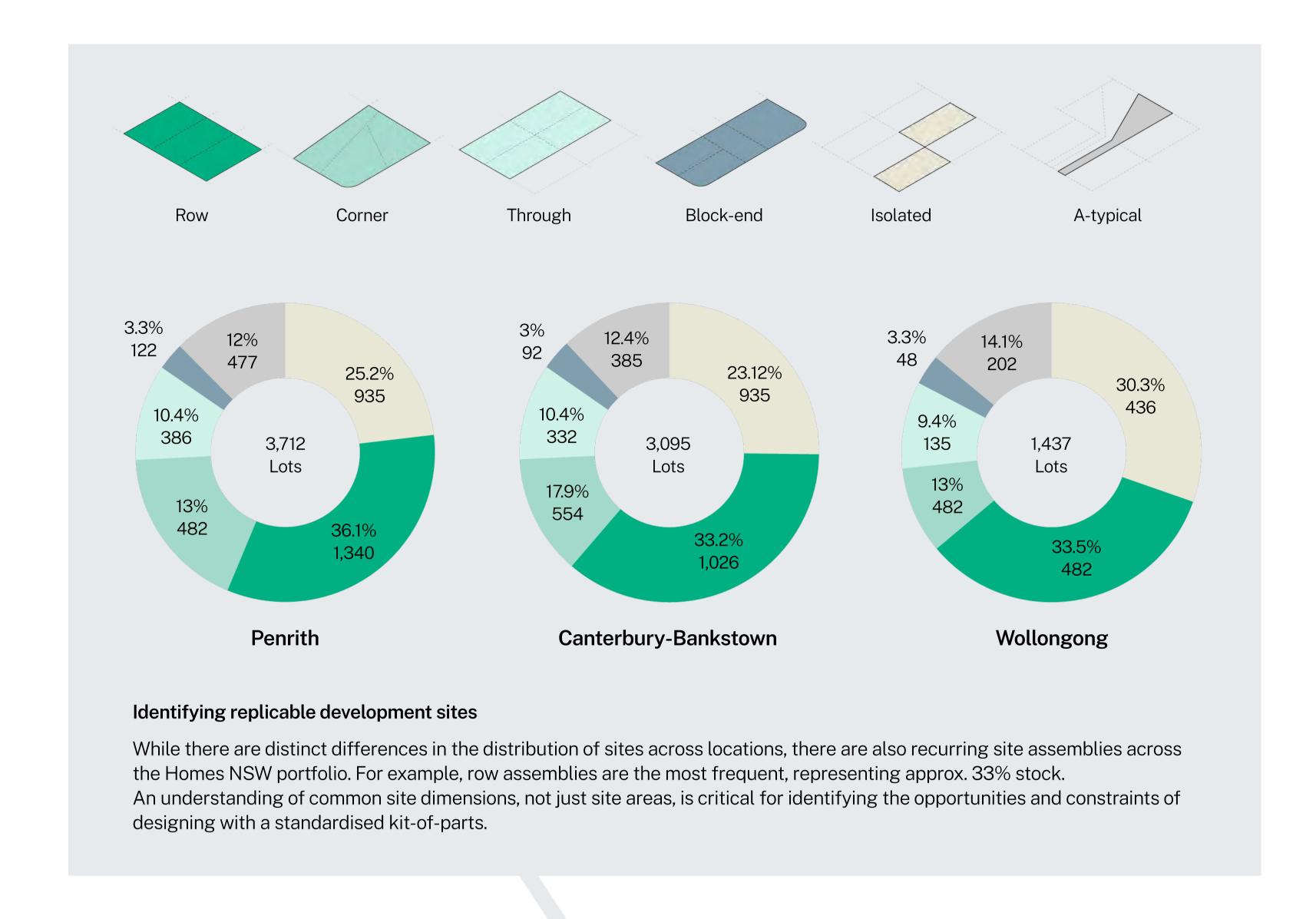


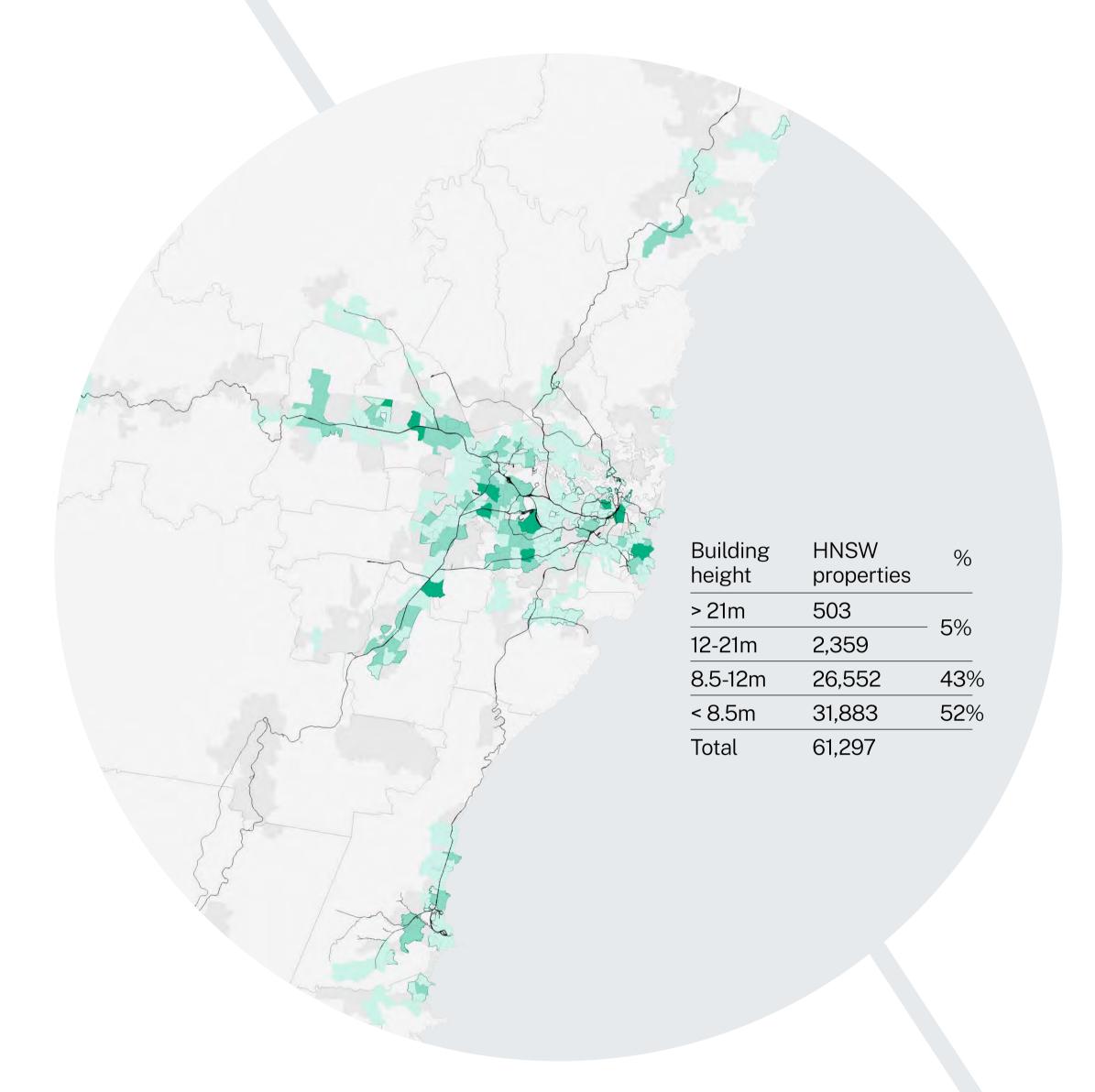
The multi-scalar design research tests how MMC can increase the quality and supply of housing through a diversity of medium-density apartment typologies. Replicable housing models that respond to real-world site constraints will support a sustainable project pipeline.

The capacity to deploy a standardised kit-of-parts within a range of housing outcomes is essential for scaling up MMC and realising benefits in terms of time, cost and quality. The research identifies factors that influence development opportunities on recurring site assemblies within the Homes NSW portfolio, with the aim of optimising economies of scale through MMC, while enhancing the quality of social housing outcomes.

Stage 1 of the research focuses on identifying replicable development opportunities for 4–6 storey apartment typologies, which represent a persistent viability challenge for commercial construction, which MMC can help overcome. This scale of development provides insights that can inform MMC adoption in both larger and smaller typologies, and presents opportunities to develop integrated approaches to design, planning, and procurement within Homes NSW existing frameworks.

The design models include a unique ground floor and basement that can adapt to changing site conditions. The dwellings above employ a standardised kit-of-parts.





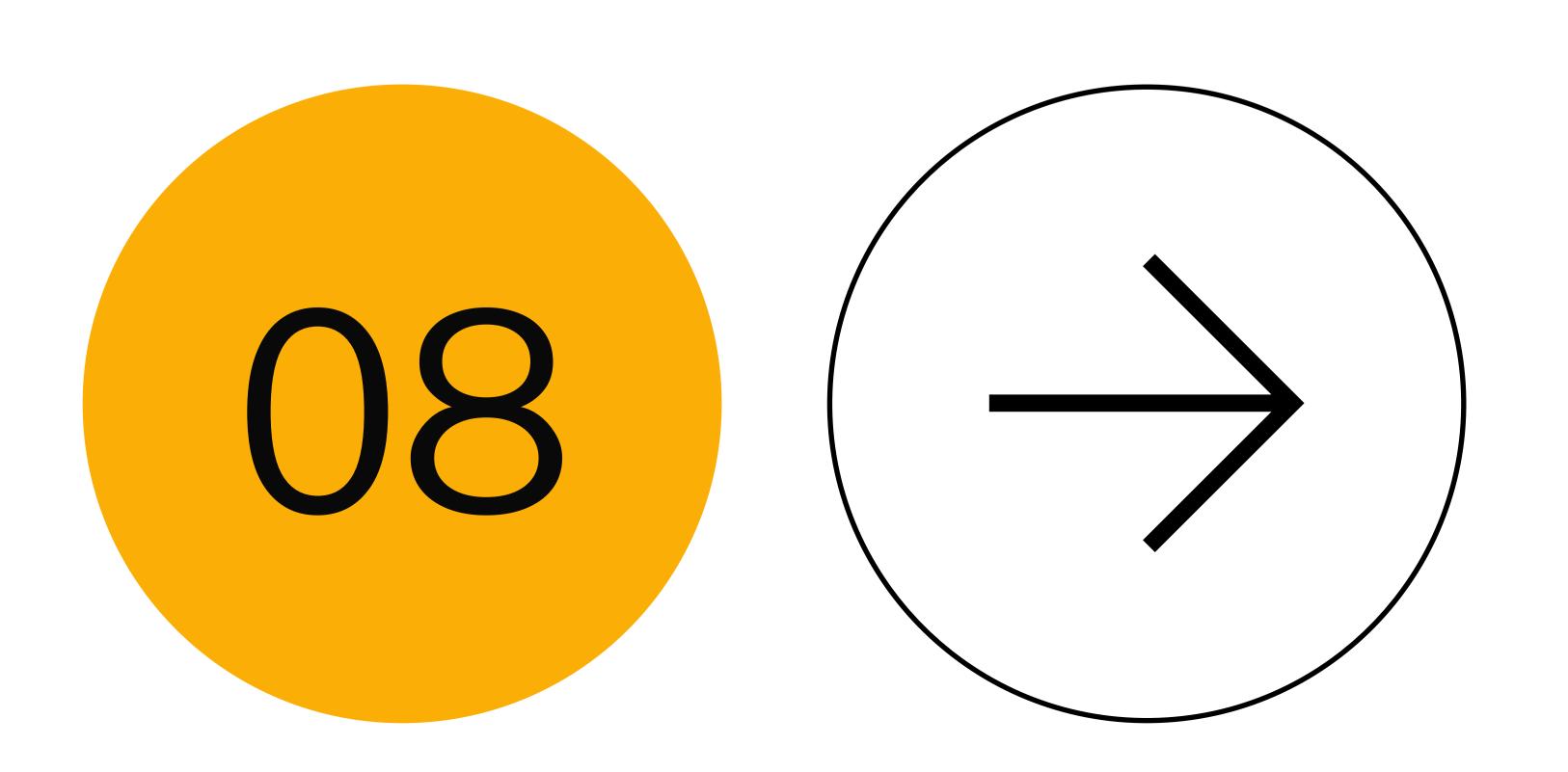
Replicable development opportunities exist within the Homes NSW portfolio. While site distributions differ across locations, identifying recurring consolidation patterns and physical attributes informs an effective and sustainable MMC pipeline.

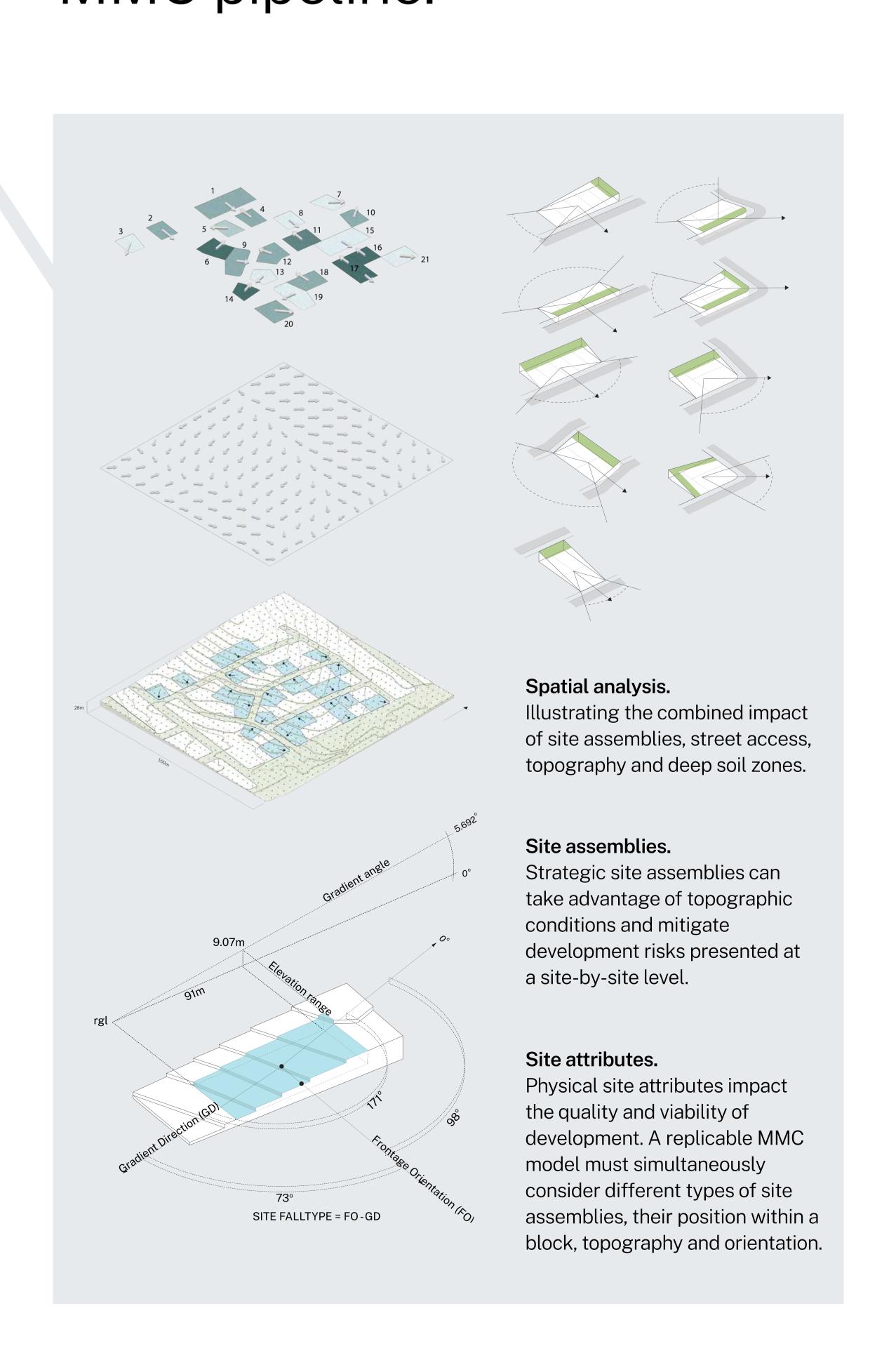
Wollongong

Penrith

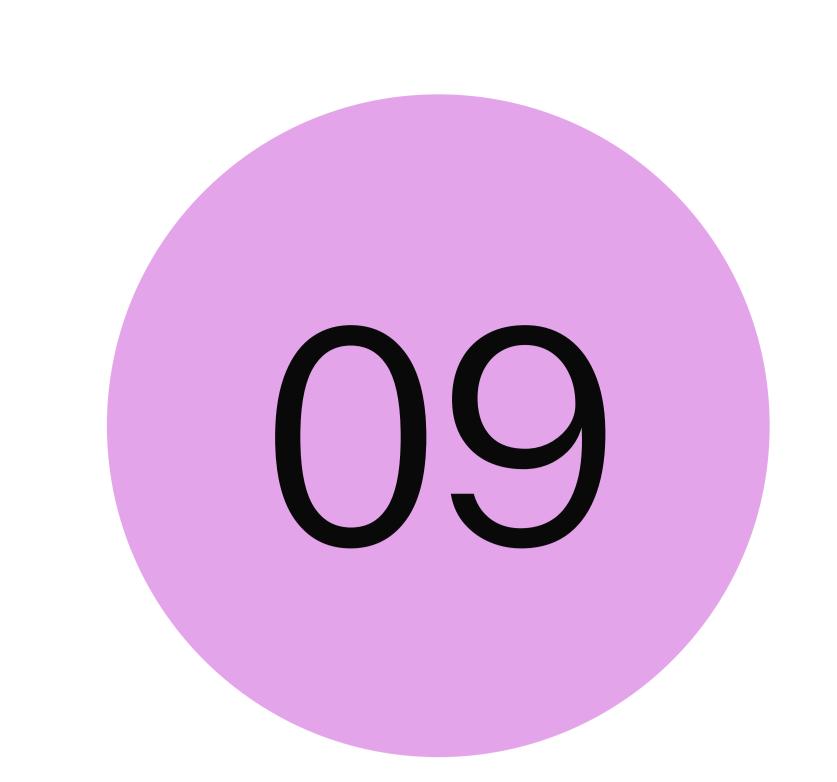
Canterbury-Bankstown

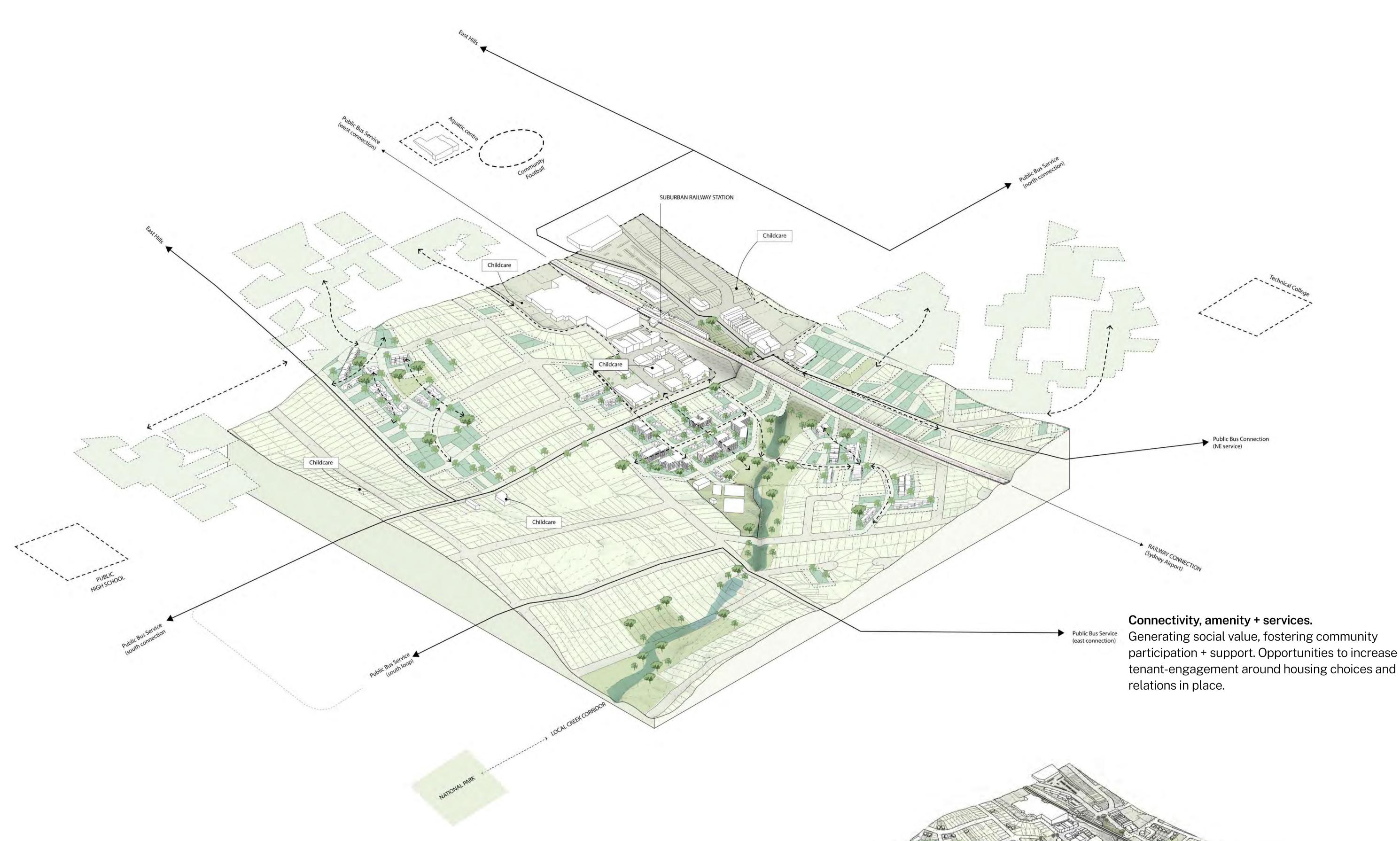
Sustainable Pipeline





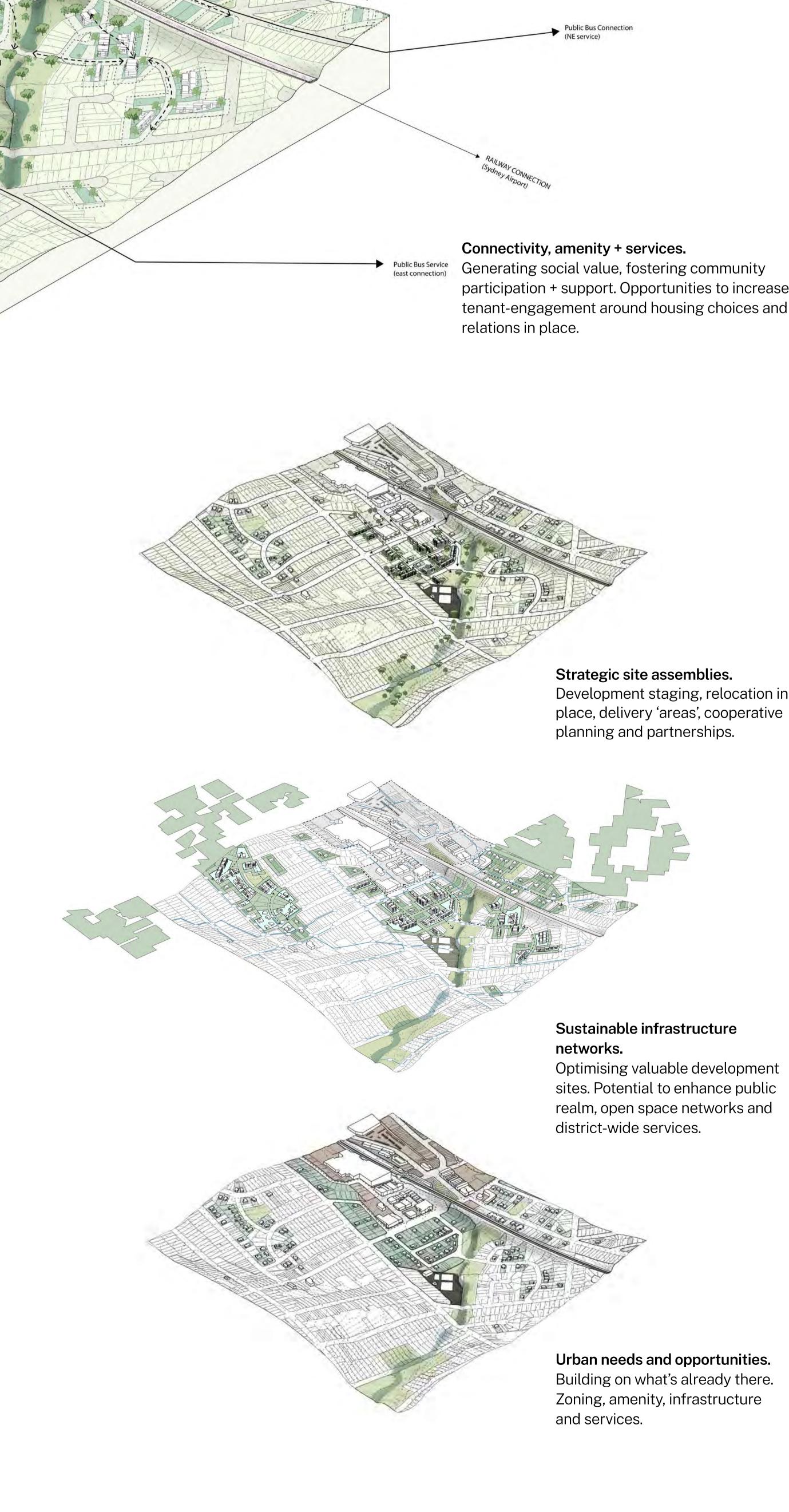
MMC Neighbourhoods





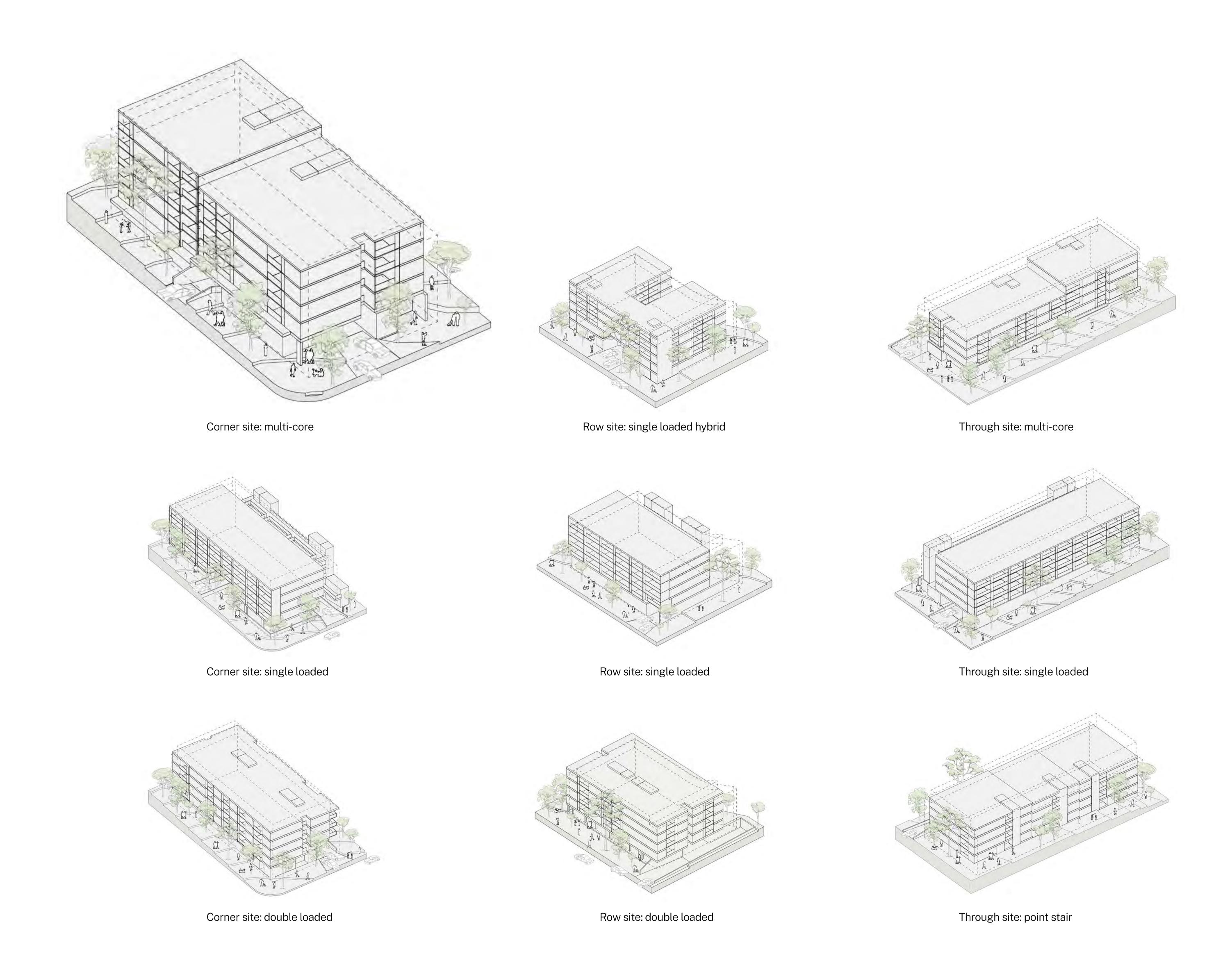
Applying MMC at a neighbourhood scale offers strategic advantages for increasing the yield, quality, and sustainability of social housing development over time.

MMC reduces time on site, increases development certainty, and enables ongoing improvements in housing outcomes. Strategic coordination of development at a neighbourhood scale supports tenant relocation-in-place, strategic partnerships, community engagement, and system-wide innovation, amplifying the benefits of MMC. To leverage economies of scale, we compare an MMC Neighbourhood with business-as-usual development in Revesby, Canterbury-Bankstown LGA. The scenario highlights how key variables influence housing outcomes. Place-based data from this process can guide a framework for site selection and assessing the short-and long-term value of MMC Neighbourhoods.



Building Typologies





Testing the kit of parts across nine dwelling types and sites enables us to understand the spatial challenges, potentials and strategies for optimising outcomes when planning within the constraints of MMC.

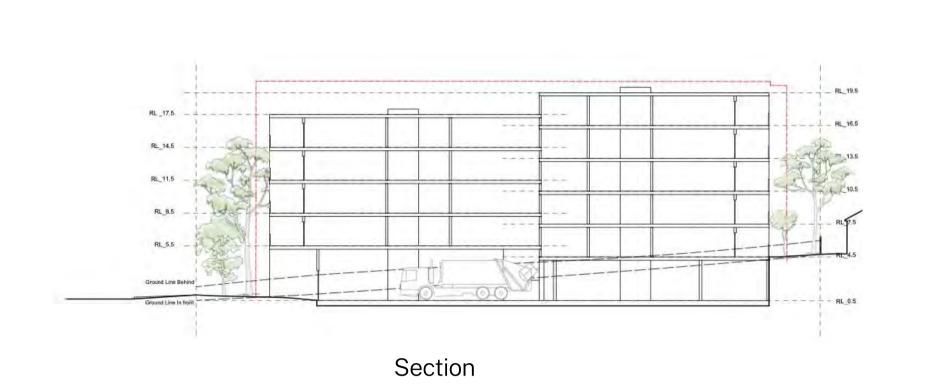
These typological studies aim to examine the application of the kit of parts within different plan types, responding to different site conditions and allotment sizes in order to understand the relative strengths and weaknesses in developing appropriate housing outcomes.

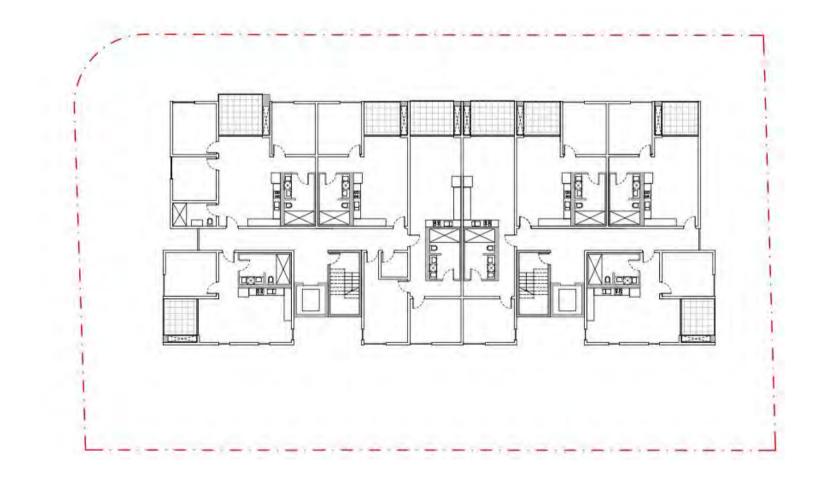
The comparative design tests provide an understanding of what works, and what doesn't, on recurring sites assemblies within the HomesNSW portfolio. Based on these tests, we have identified a series of strategies that support degrees of flexibility within the system constraints, while responding to site-specific development controls and social housing design requirements.

The work contributes to the iterative 'product development' of the kit of parts and supports scalable social housing delivery utilising MMC.

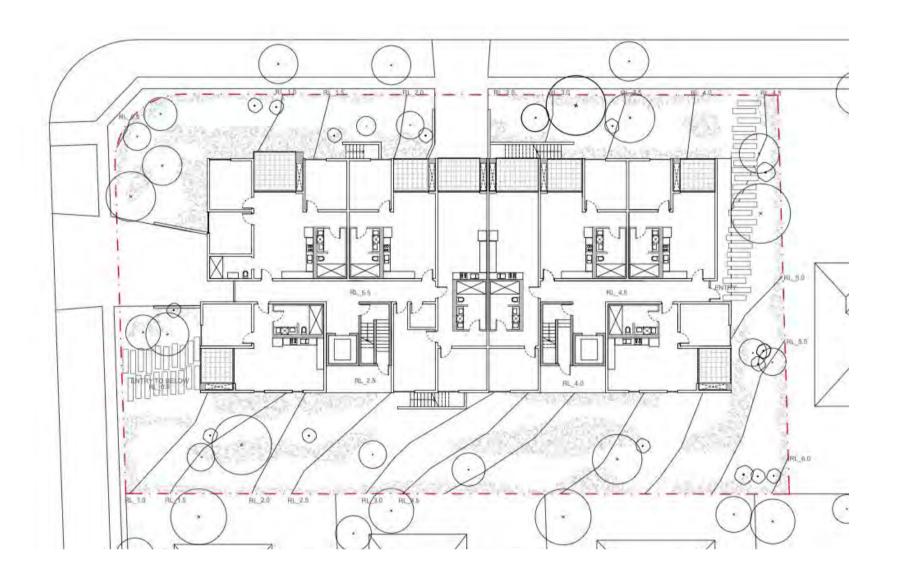
Dwelling Design Tests



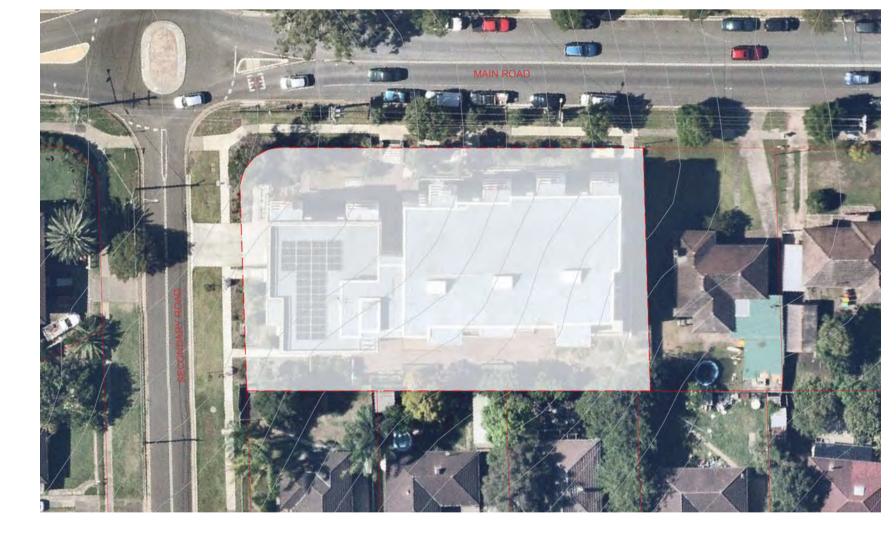




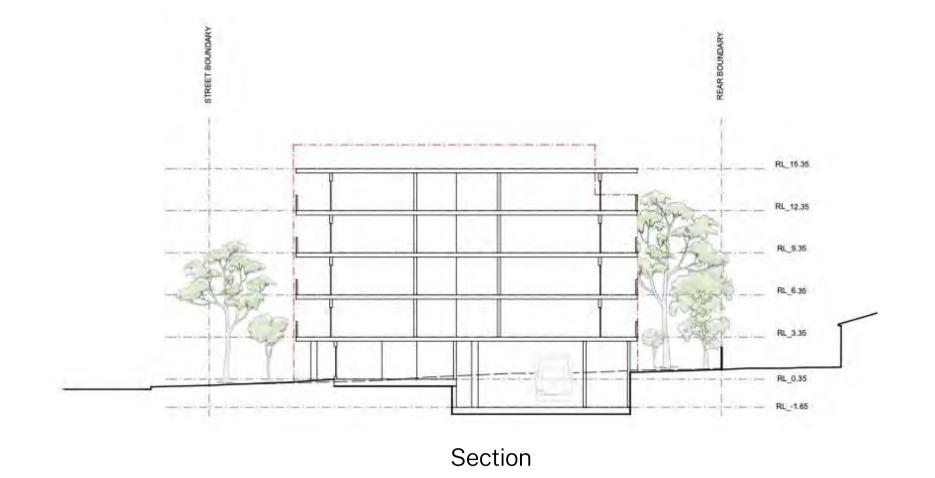
Typical plan: multi-core typology

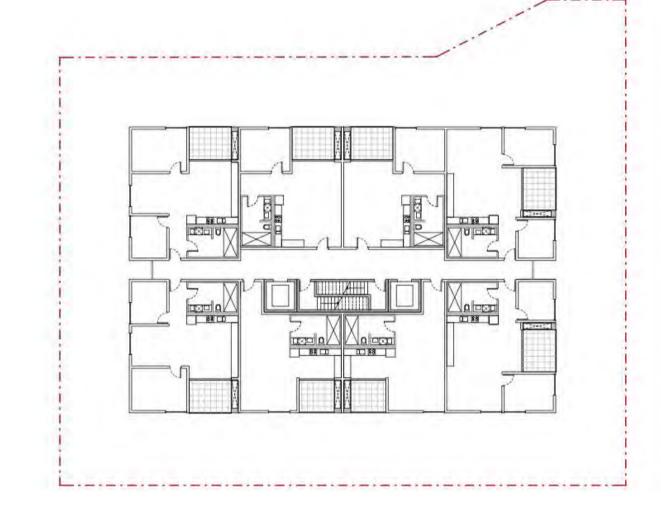


Ground floor plan: multi-core typology

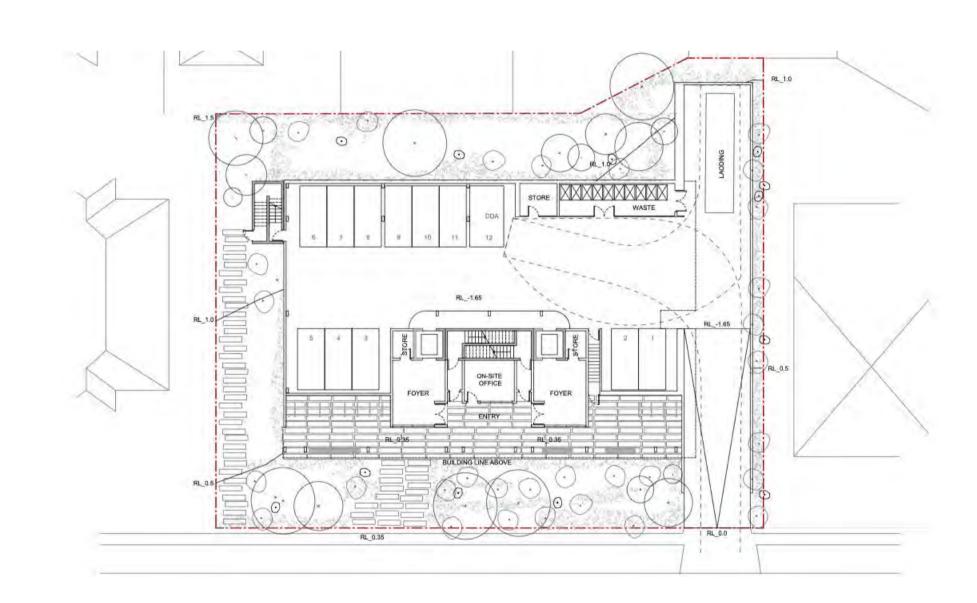


Indicative development site: corner assembly
St Marys, Penrith





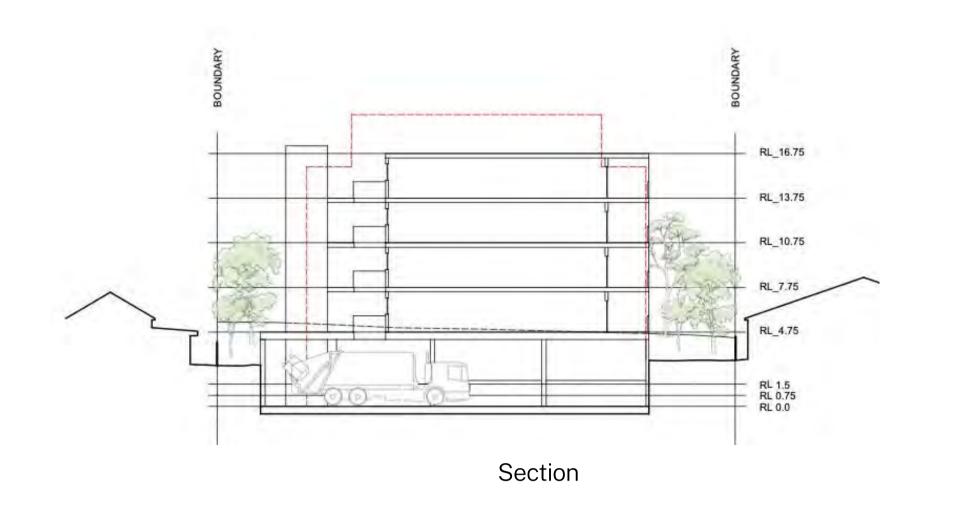
Typical plan: double loaded typology

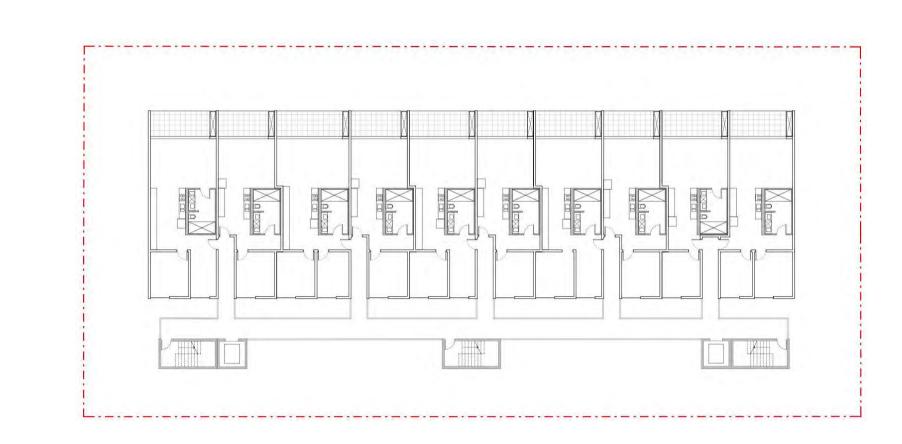


Ground floor plan: double loaded typology

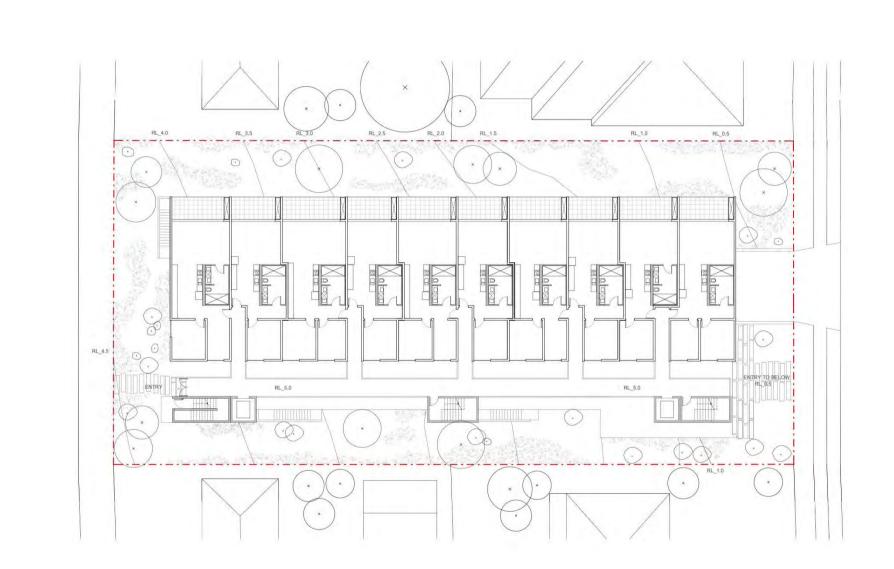


Indicative development sites: row assembly Revesby, Canterbury-Bankstown





Typical plan: single loaded typology

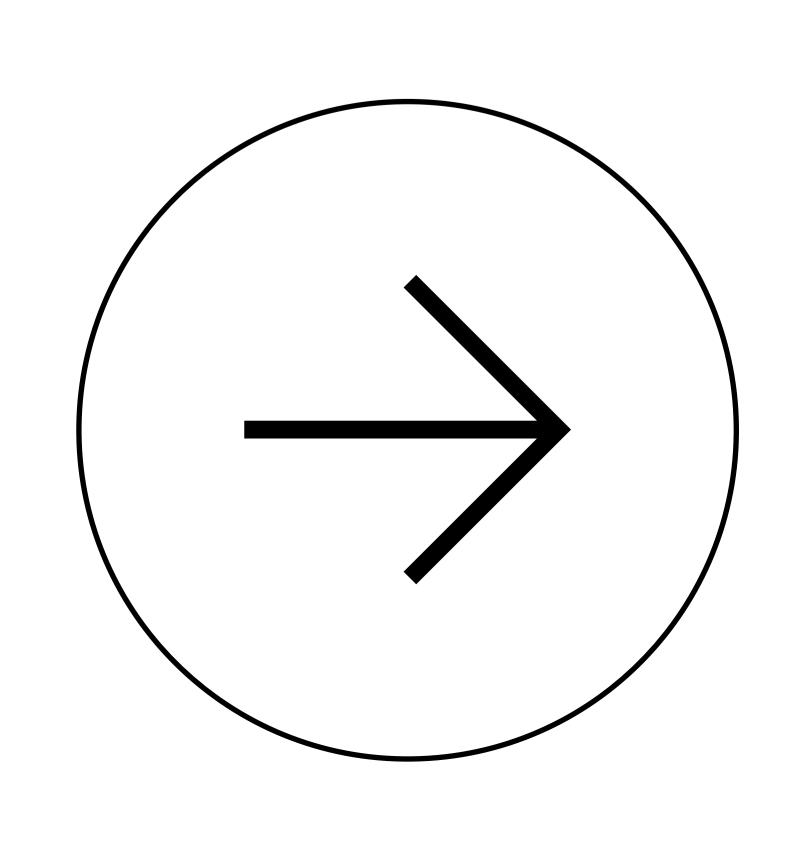


Ground floor plan: single loaded typology



Indicative development sites: through assembly Gwynneville, Wollongong

The dwelling designs apply the strict discipline of System 600, using a standardised platinum bathroom adjoining the kitchen to limit each apartment to one waste stack. The size and interdependence of the building products restrict dwelling arrangements, but do not affect overall yield.



Kit-of-Parts



Meet System 600. A new approach to designing and building—aimed at greater efficiency and productivity.

How it works

Efficiency comes from two main features:

- Standardised products used repeatedly across many projects
- Smart connectors that make assembly faster and simpler

Key benefits

- Standardised parts: Lower cost, faster, fewer mistakes
- Collaborative supply chain: many manufacturers using shared standards
 Structured openness: open for all to use, curated to maintain quality

What is a Product?

System 600 is more than a kit of parts — it's a Kit of Products.

What do we mean by products?

Products are more than just components. They are:

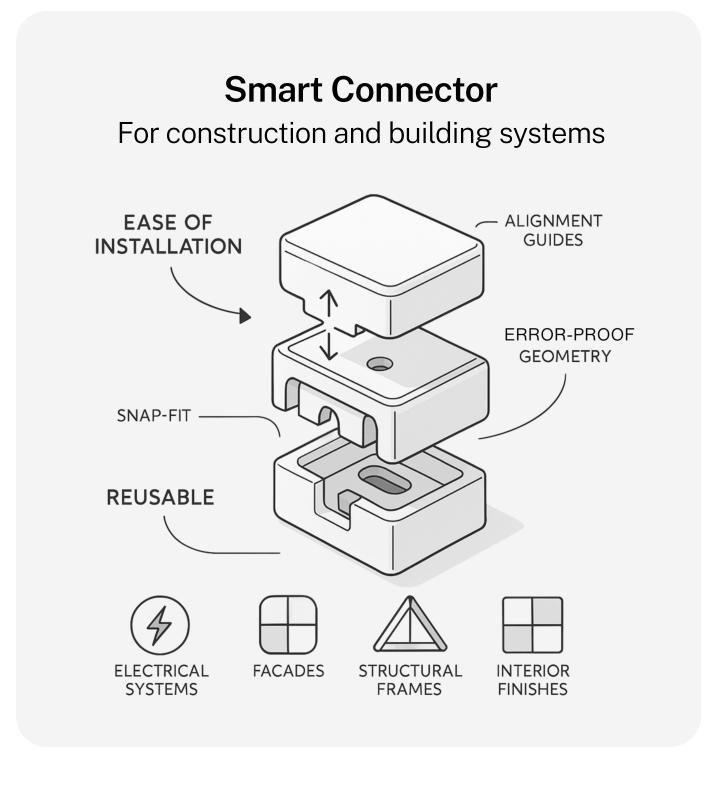
- Repeatable used across many projects
- Standardised has a common interface no matter who manufactures it
- Verified must pass testing and certification before it can be used



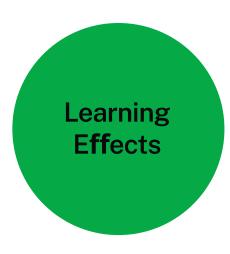
What is a Smart Connector?

A smart connector makes installation on site faster and simpler .

It ensures components align correctly — without the need for specialist tools or high skill levels. In many cases, parts can simply snap into place, creating strong, reliable connections with minimal effort.



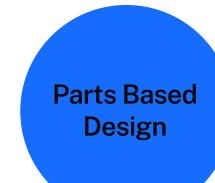
The Big Ideas



Learning is the key to efficiency — Not just using a factory

Consistent Solutions

For real impact, users need to apply consistent solutions — products that can be used again and again across many projects in their asset portfolio.



Designers often prefer to start with a blank canvas. But a systemic approach means starting with the products in the System 600 library.

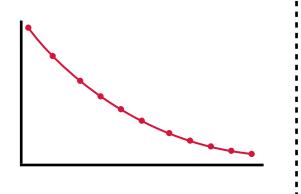


When products are standardised, they can be made by many different suppliers. Each supplier may bring their own ideas, but all products still meet common requirements.



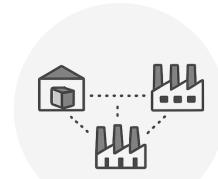
As manufacturers benefit from learning effects and become more efficient, clients can share in the cost savings.

Wright's Law and Learning Effects



Wright's Law & Learning Effects

Learning curve efficiency gains



Distributed
Supply Chain
Multiple suppliers

purchasing power



Parts-Based
Design

A systemic approach

using standardised

components



Parts-Based

Solutions
Interoperability
and scale



Kit-of-parts based
Procurement
New contracts sharing

value with suppliers

Growing the System



System 600 is designed to grow — adding new products and alternatives over time — following these principles:

Target 80% parts standardisation:

- Redistribute complexity
- Fixed, flexible, and free parts
- Flexible packaging
- Smart interfaces

System 600 is a platform delivery model capable of growing to support high volumes and high variety of outcomes.

FAQs

Where does the building work happen?

Work happens wherever it's most efficient.

Standardised products are usually made in factories. These products can then be assembled into larger units either offsite or directly on the construction site.

Who owns the system?

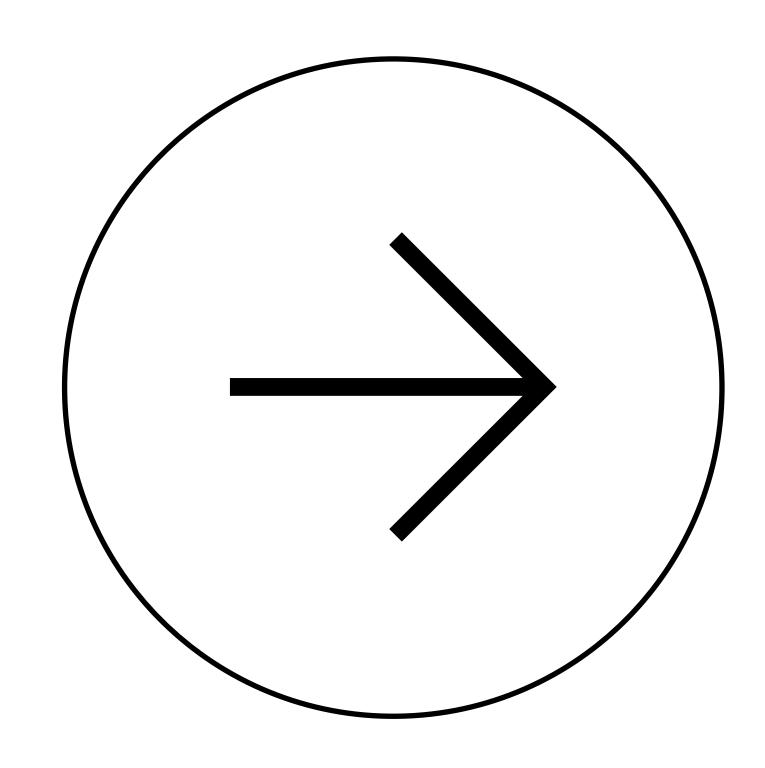
System 600 is open source and curated.

Currently, it is curated by a partnership between Homes NSW and Building 4.0 CRC

As an open-source system, it is free to use under a simple licence agreement.

Why use a Kit of Products (KoP) instead of fully modular construction?

System 600 uses a hybrid of panelised and modular products like bathroom pods and service modules.



Product Library



The Product Library

Getting Started with System 600

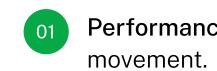
System 600 has launched with a basic parts library. Over time, this will grow — with new parts and alternative options to meet a wider range of needs and different materials.

Structure

The aim is to keep the structure as simple as possible. Apartment buildings typically have many internal walls. In System 600 all of these walls are used to carry loads and provide bracing — reducing the need for complex structural elements.

Exterior

Building facades have two functions:



Performance – controlling moisture, heat, noise and air



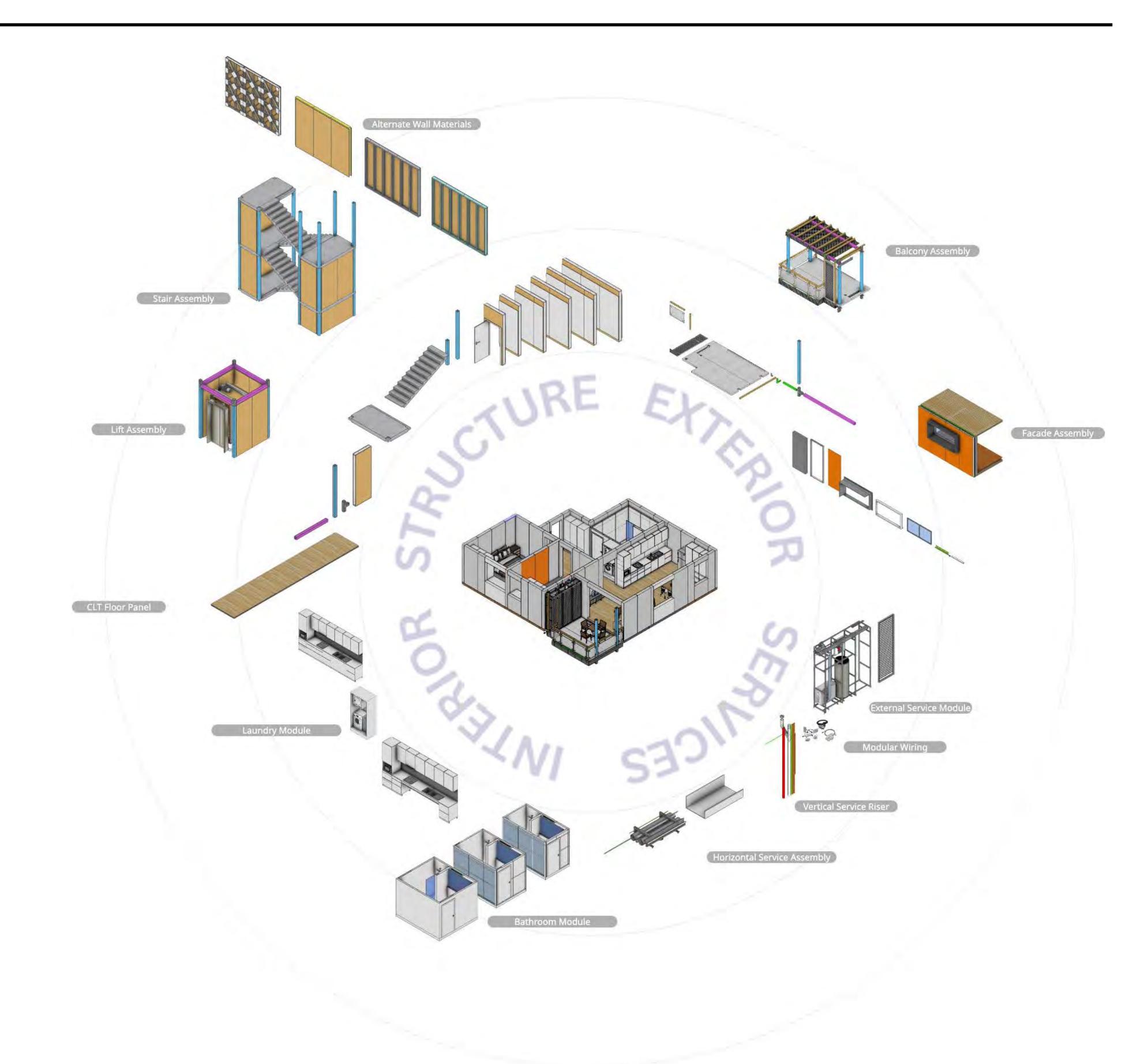
Appearance – defining how the building looks

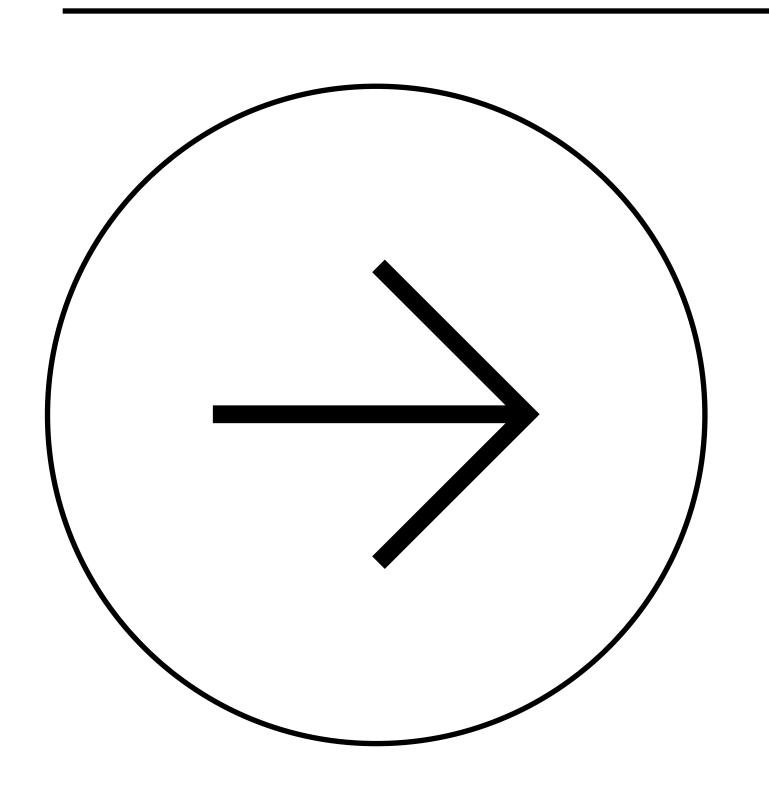
Interior

Finishes and joinery are mounted using smart connectors for easy replacement or upgrade.

Services

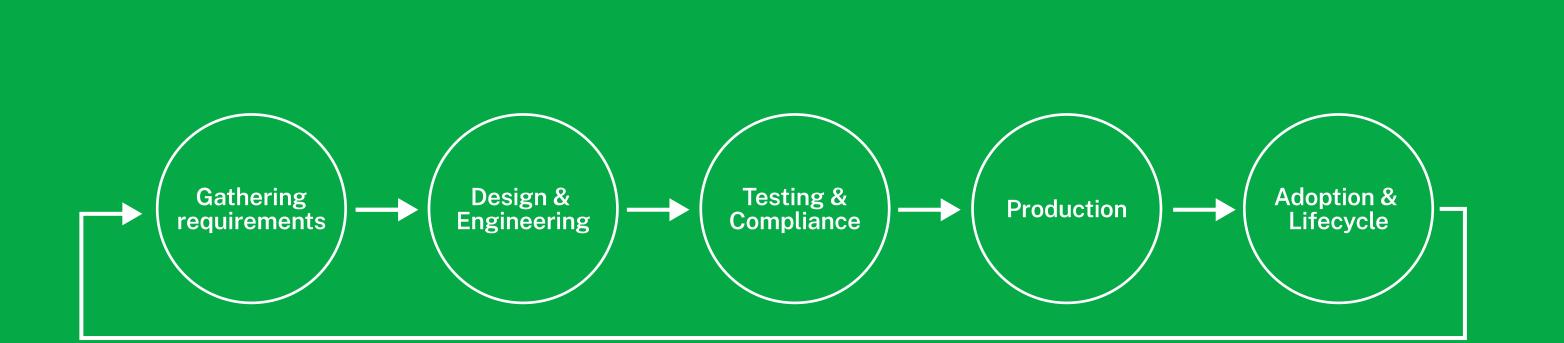
By combining services into assemblies they can be built in eficient workshop settings. This improves quality and speed, while freeing up walls and ceilings to remain simple, consistent.





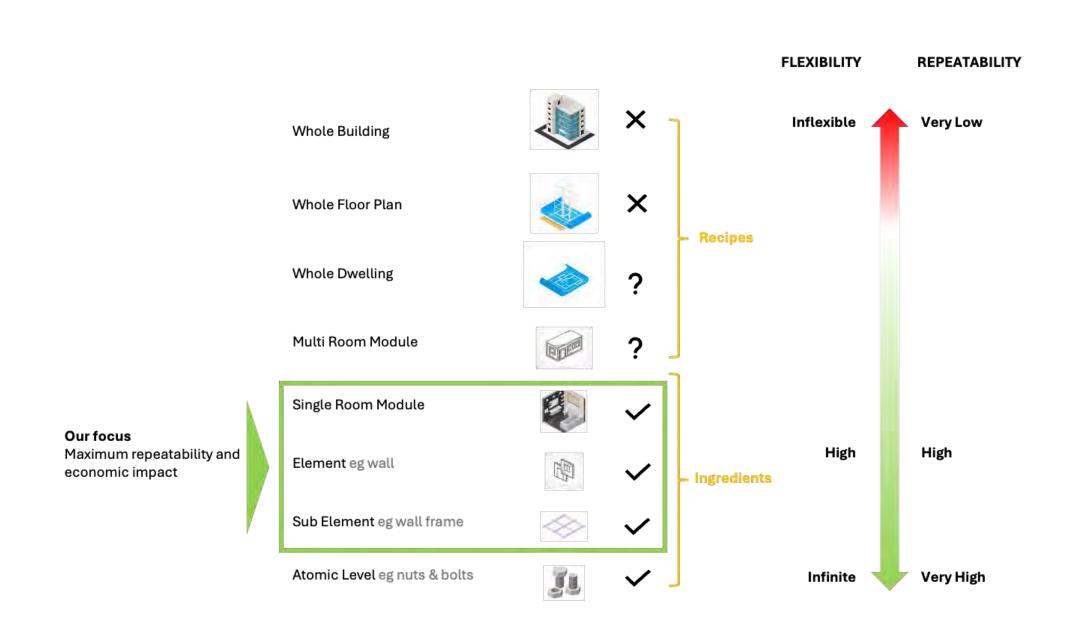
Product Development Cycle

In future, System 600 curators will collaborate directly with suppliers to design products that better meet user needs and fully leverage their specialised manufacturing expertise.



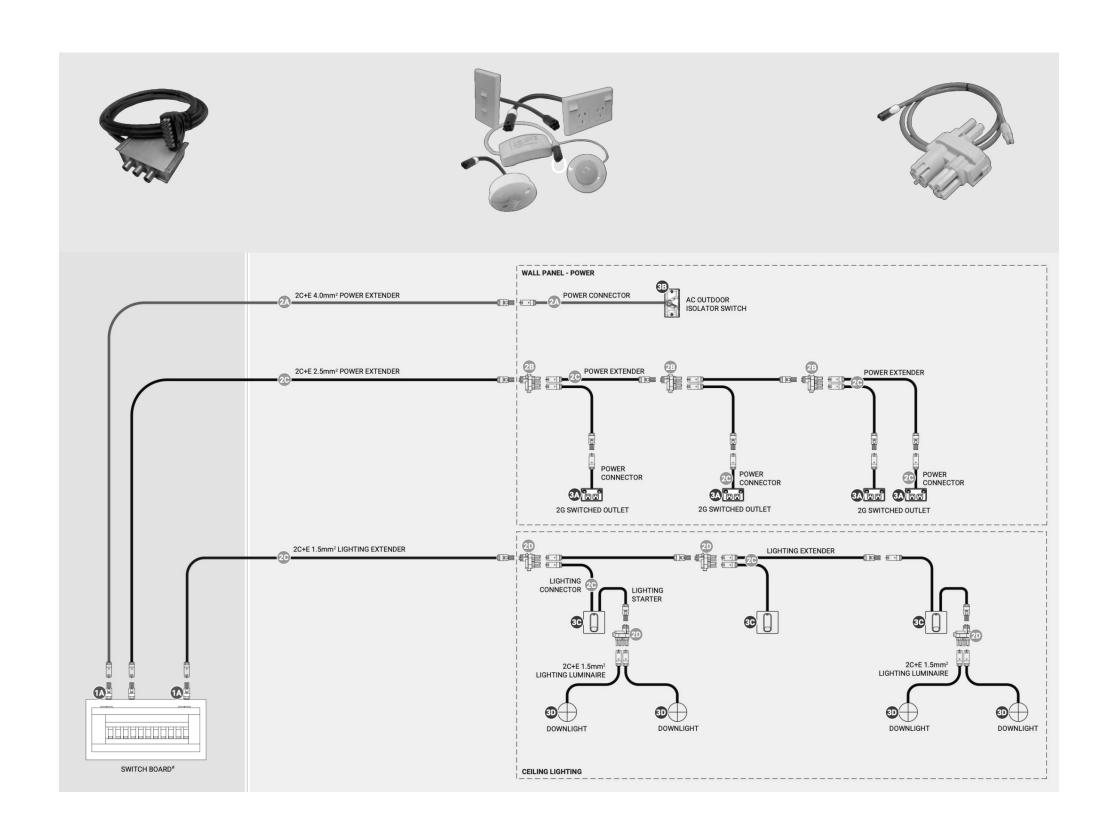
Sizing the Parts

Turning something into a product means balancing flexibility with standardisation. Think of standard parts like ingredients. They can be combined in many ways to create assemblies like recipes.



Plug & Play Electrical System

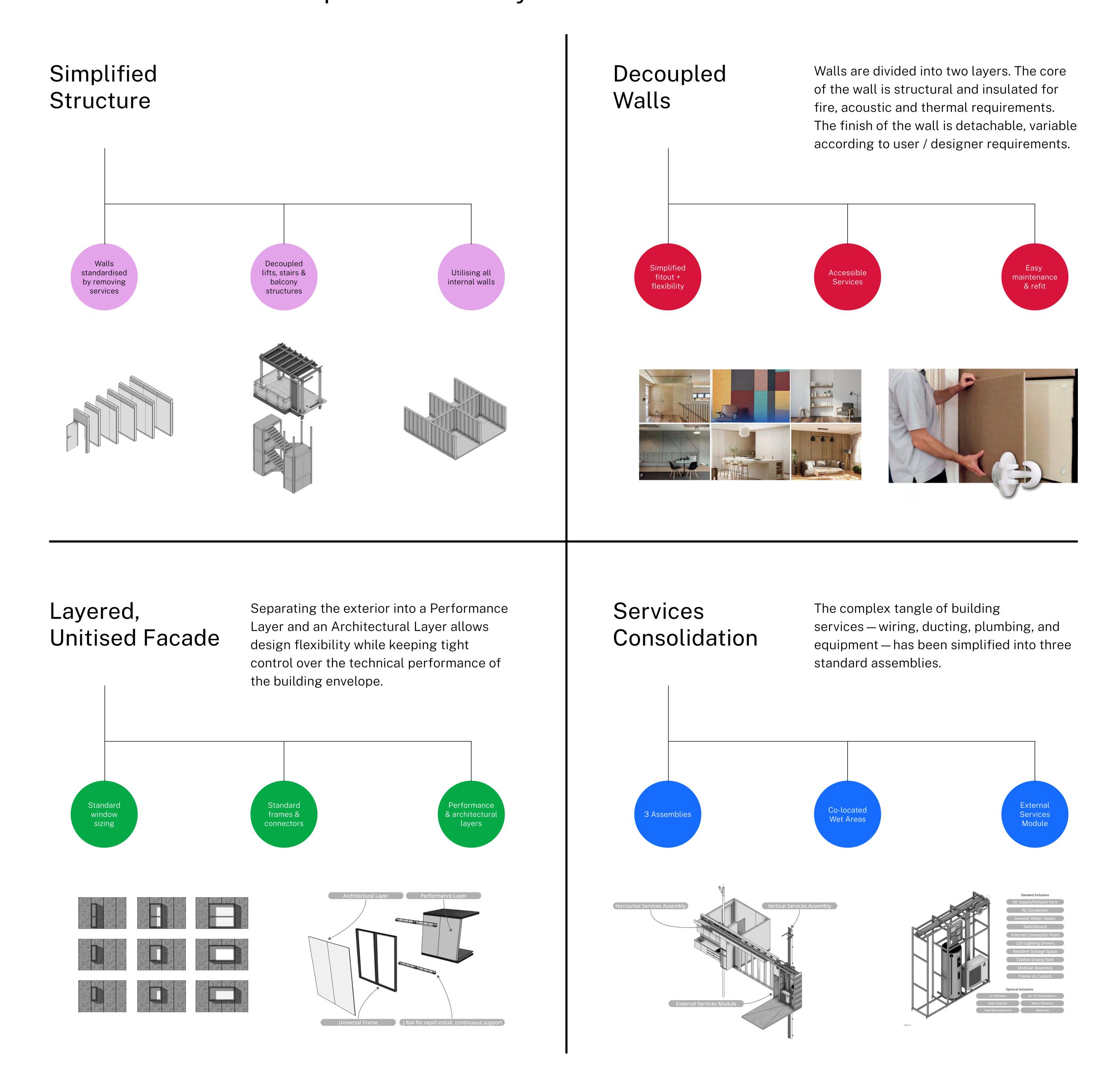
A proprietary modular cabling system has been used to replace traditional site-based cabling work with pre-made, pre-tested electrical circuits that plug together from the apartment switchboard to each light and power outlet.



Developing the Products



System 600 for apartment buildings of 4 to 6 levels has been developed around 4 key moves:



FAQs

Who is responsible for the design?

Designers remain fully responsible for the overall design of the project. They must ensure that all elements — including standard products, custom parts, and conventional construction — are properly integrated and meet all required standards.

How do you ensure parts are compatible?

System 600 sets clear product requirements that all parts must meet. In addition, design rules guide how parts are arranged and connected — ensuring everything works together as a coordinated system.

How do you ensure parts are well made and meet standards?

All products included in the System 600 library must be verified.

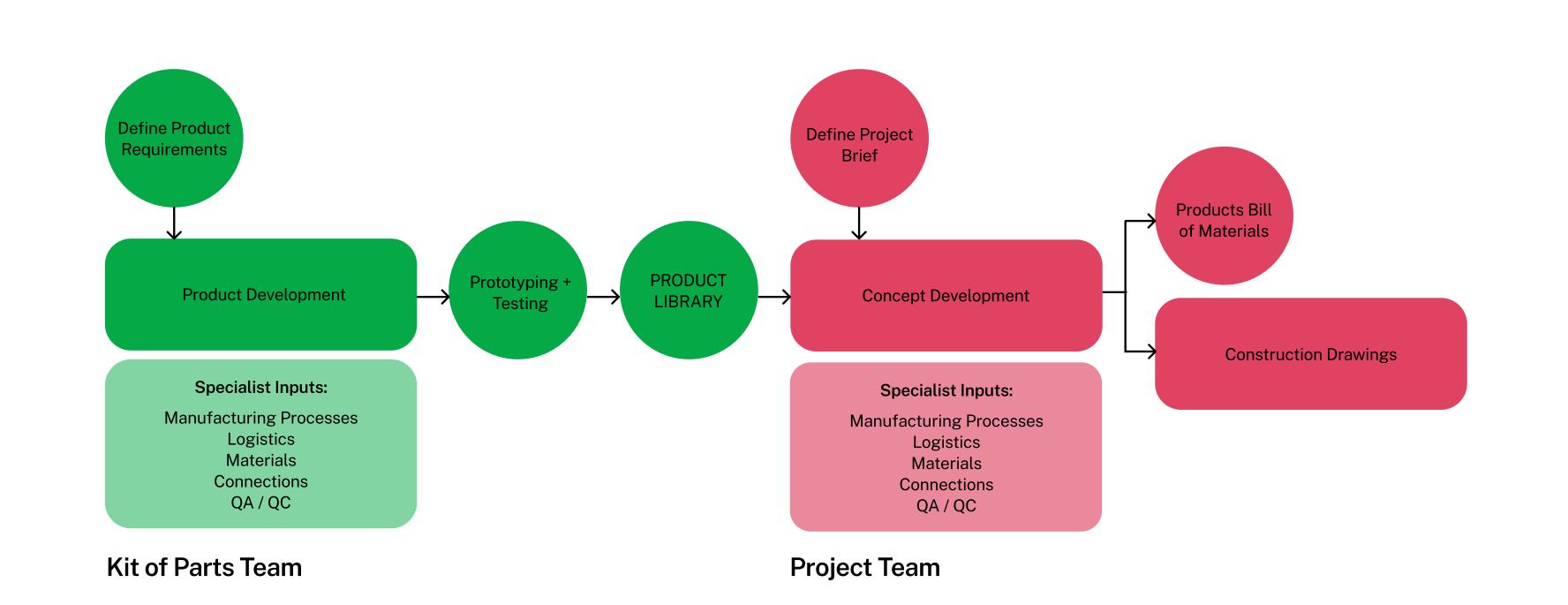
Designing with Products



Designing with a Kit of Products

How is the design process different?

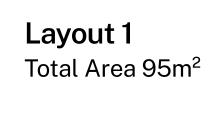
The key difference is the design is created around a set of predefined components from the Product Library.

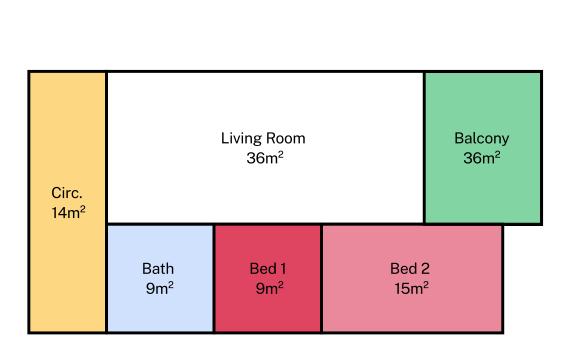


Denefits O1 Fast design process O2 Great certainty from proven products O3 Simplified coordination O4 Built-in production expertise

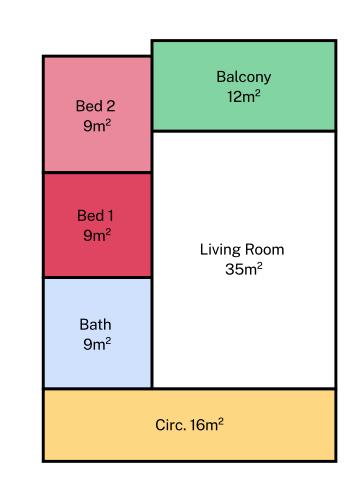
Digital Assistance

A parametric layout tool is a type of digital design software that helps designers quickly generate and test building layouts using pre-set rules and components from the System 600 product library.

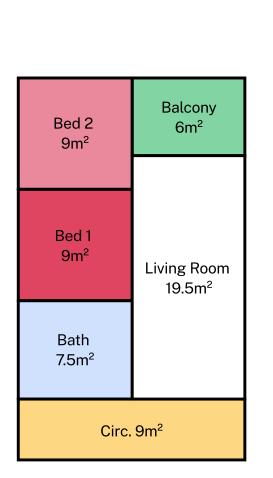




Layout 2Total Area 90m²



Optimised Total Area 60m²

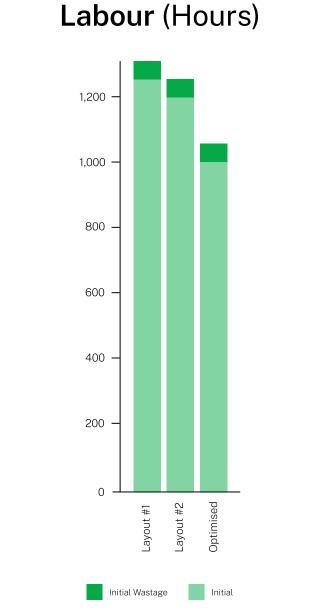


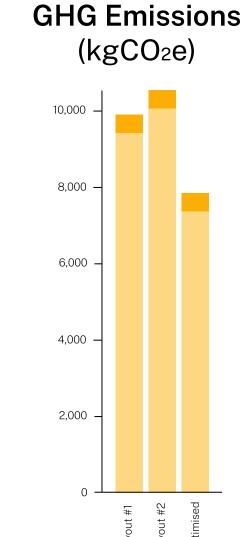
Cost (\$ AUD)

150,000

100,000

50,000

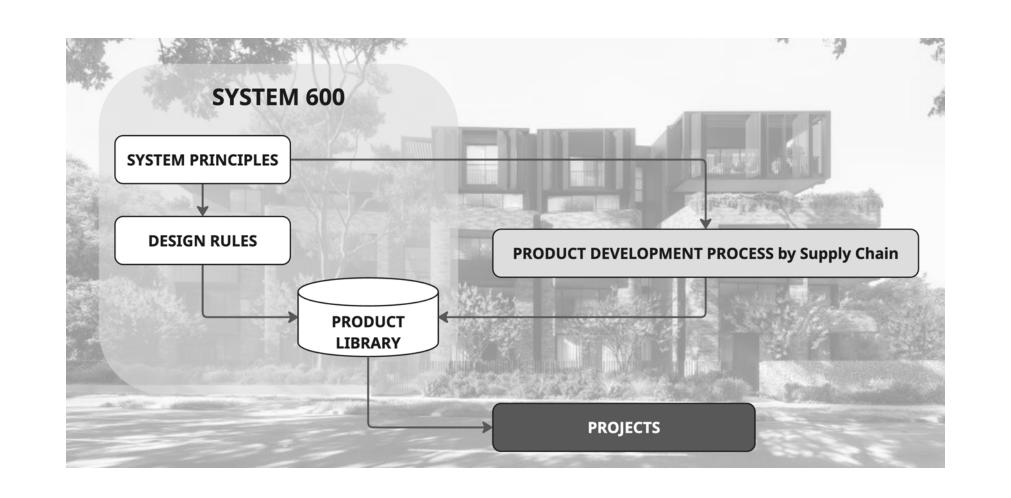




Design Rules

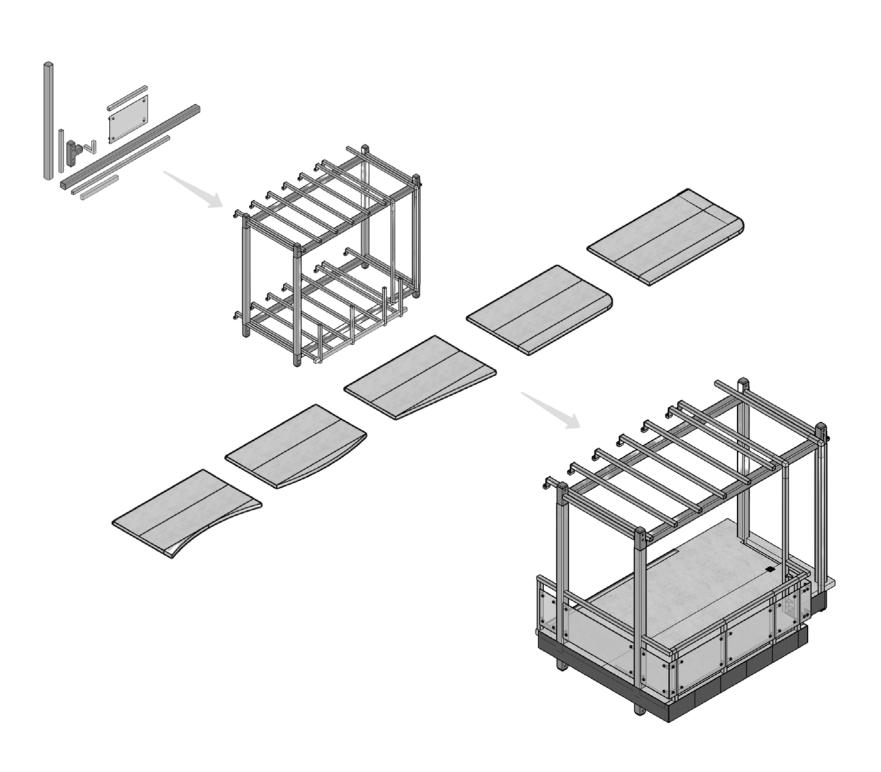
What are design rules.

Design rules make sure products from different suppliers work together. Rules are kept as simple and minimal as possible and exist only to support standardisation.



Product Library Examples

Standard balcony parts. Variable expressive elements.



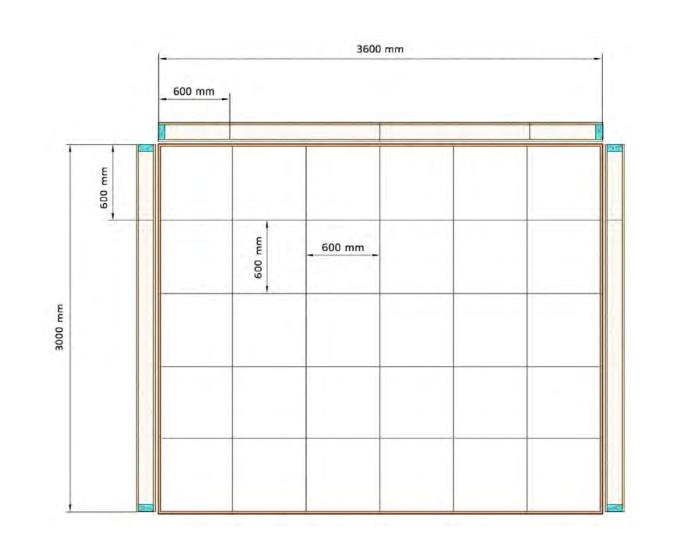
The 600 Millimetre Grid

Why a 600mm grid is used.

Each room is designed using a 600mm grid, measured from wall face to wall face. This brings several benefits:

- Maximises material efficiency
- Supports interchangeable parts
- Reduces custom design work

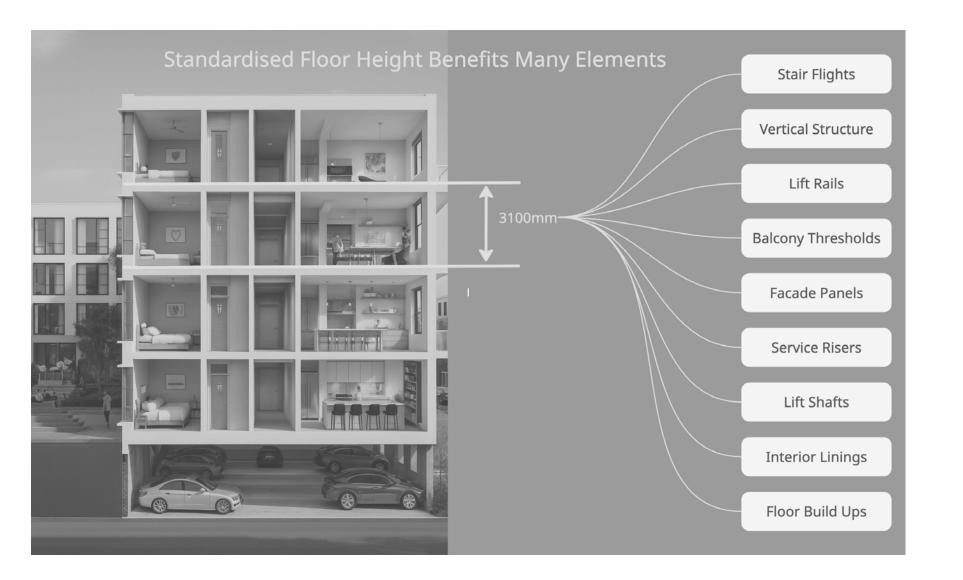
Testing confirms using a 600mm grid does not reduce the overall size or functionality of apartments.



Standard Storey Heights

Why standard floor heights matter.

Using the same floor-to-floor height across all buildings in a portfolio has a big impact.



Procurement

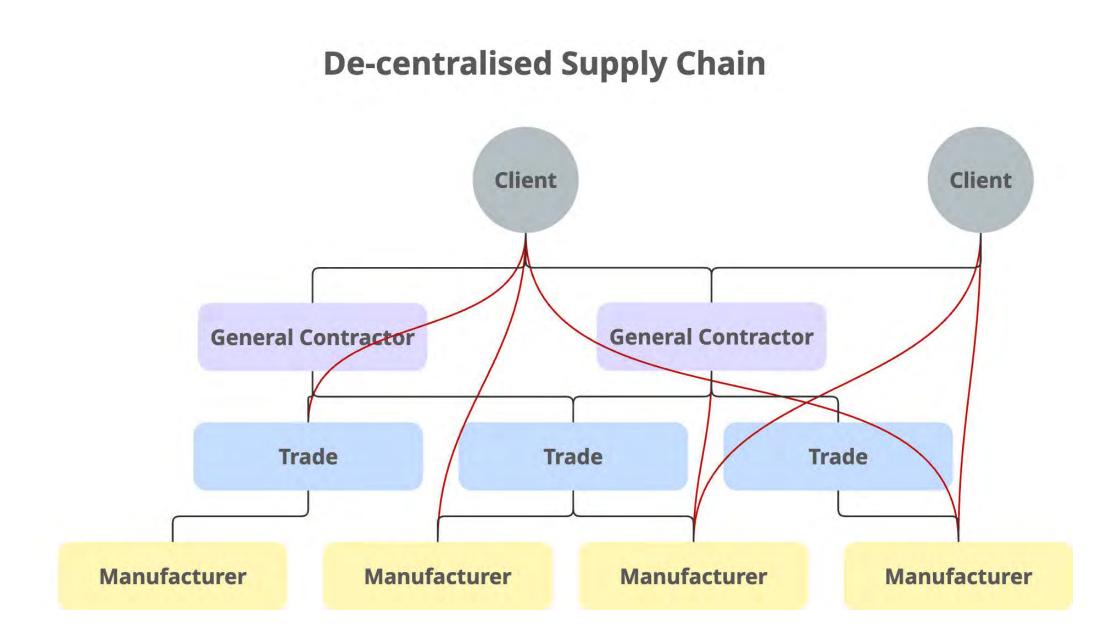
Better buying options.

A Distributed Supply Chain

A Smarter Way to Source

System 600 supports sourcing components from a wide range of specialised suppliers, rather than relying on a single company.

Centralised Supply Chain Client Client **General Contractor General Contractor** Trade Trade Trade Manufacturer Manufacturer Manufacturer Manufacturer



FAQs

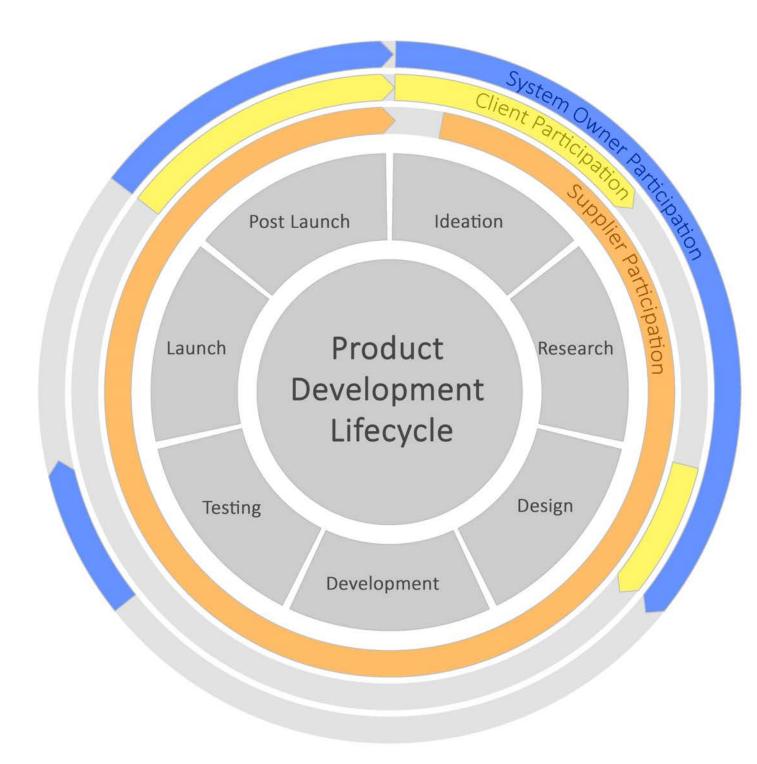
suppliers?

growth.

Product Development: Working With Suppliers

Bringing Manufacturing Expertise into Design

Designing new building products for wide uptake is costly and time consuming. System 600 flips the traditional process: we work with expert suppliers to develop products first — then design buildings to suit later .



Can any manufacturer participate?

What's the advantage for

System 600 creates a more

stable, profitable business

better products, smarter

processes, and long-term

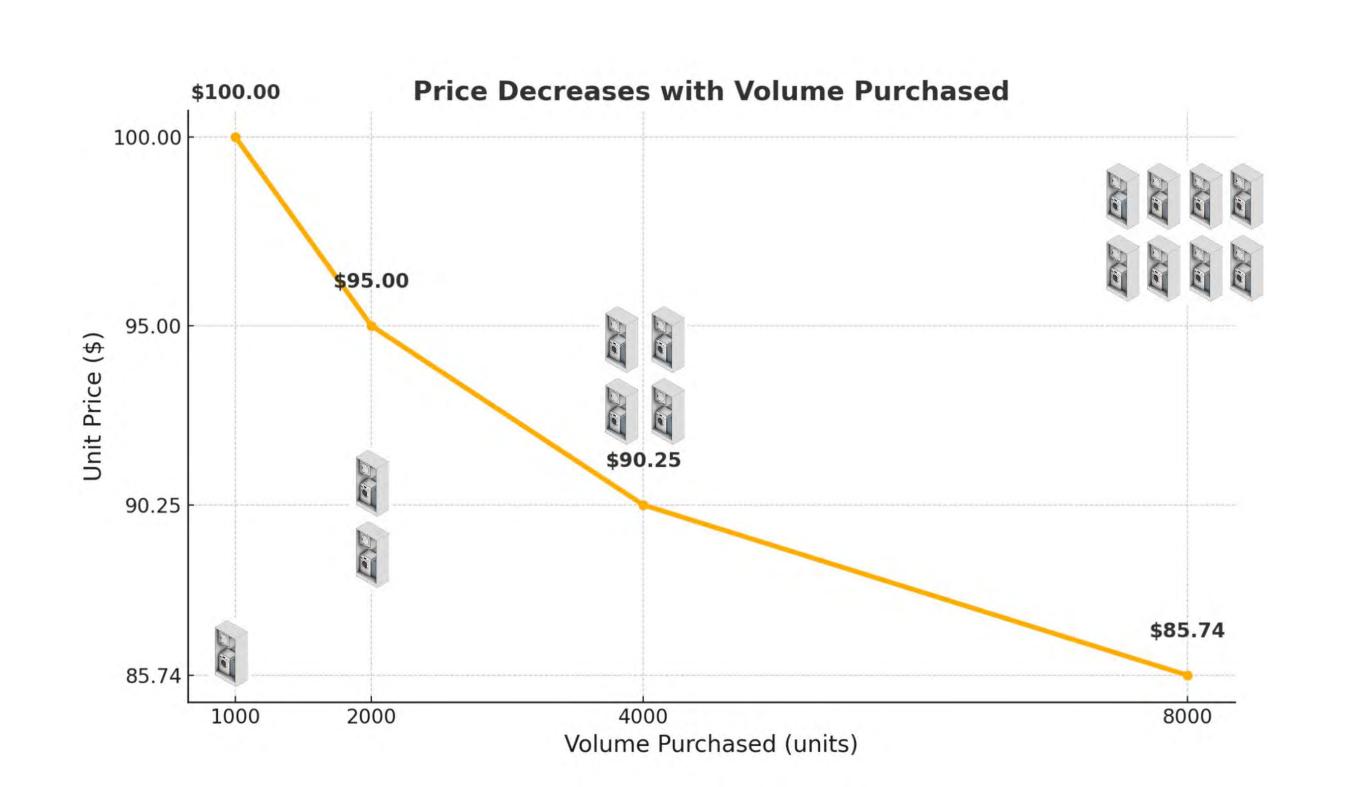
allowing suppliers to invest in

Yes. Any manufacturer can take part, provided they meet the quality and capability requirements.

Future Procurement Models

Future-Focused Procurement Models

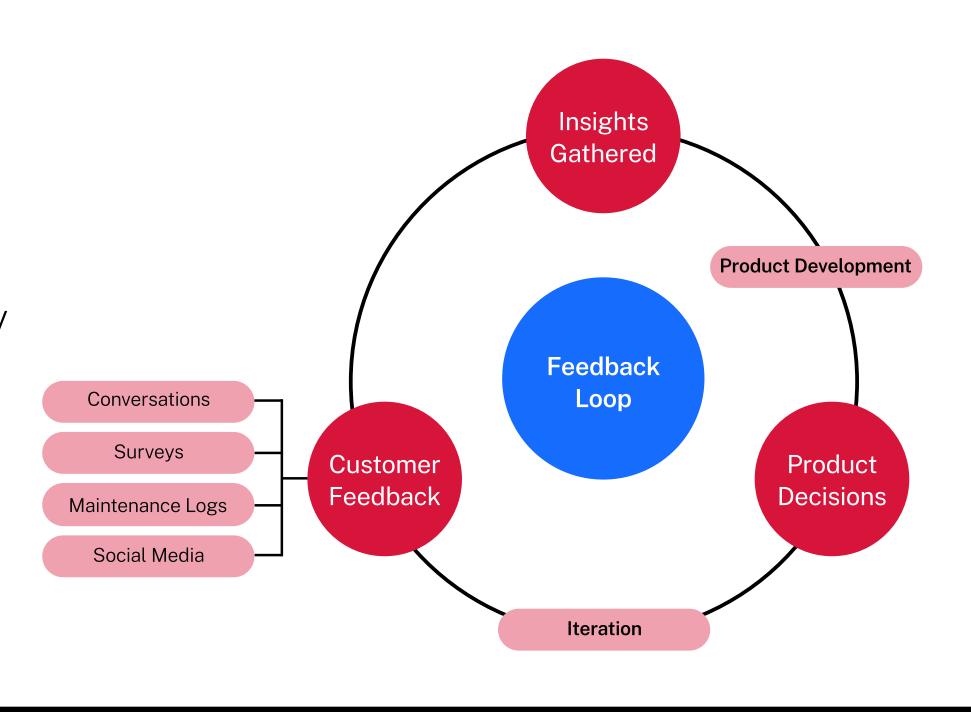
When the same product is used many times on many projects, manufacturers become efficient — leading to lower costs over time. This creates better margins for suppliers and builders, and lower costs for clients and customers. Contract agreements that predetermine price reductions based on increased volumes are one mechanism for value sharing.



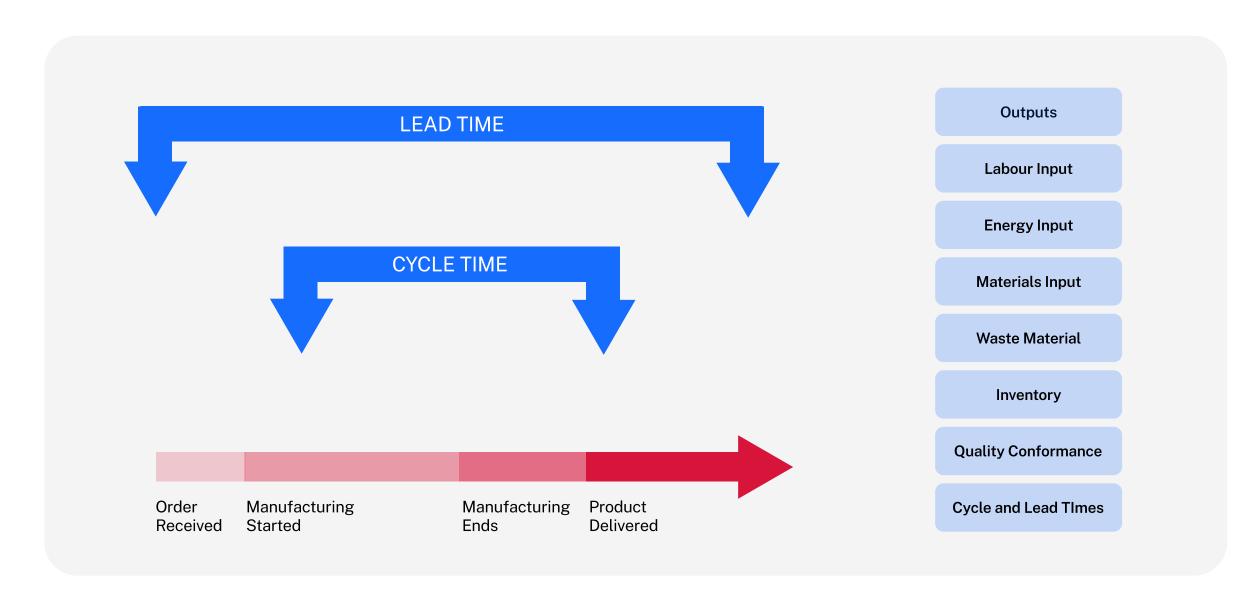
Measuring Product Effectiveness

Measuring Product Effectiveness

Great products meet real customer needs. To ensure they do, performance must be measured regularly including how long products take to manufacture and install. how satisfied users are, and how long products last.



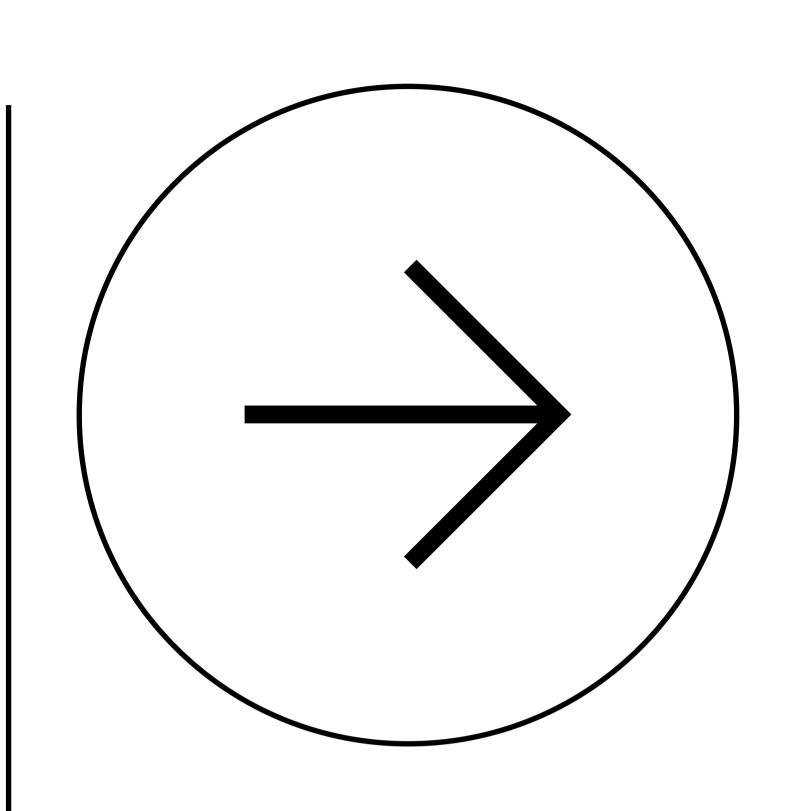
What Should Be Measured?



Regulations for MMC

17

Offsite production in factory settings allows for systematised manufacturing processes to be applied to building construction. These processes can improve accuracy, reduce production time and lower costs. The greatest benefit is faster on-site assembly, often completing work in days instead of months. Regulations in this area are evolving, as onsite processes are moved offsite, and the precision of manufacturing processes becomes apparent.

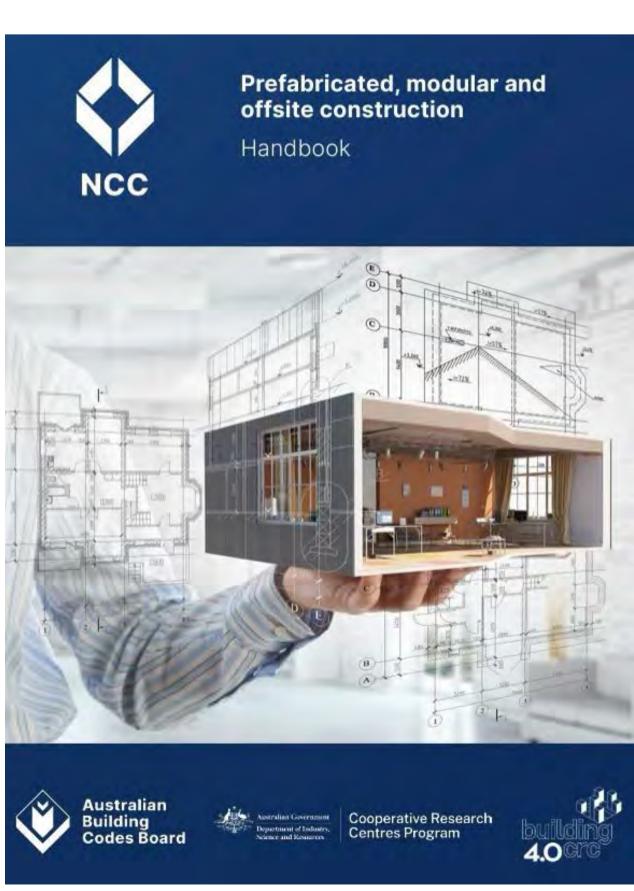


01

The ABCB Handbook for Prefabricated and Modular Construction

In November 2024, Building 4.0 CRC and the ABCB collaborate to develop the first Handbook for Prefabricated and Modular Construction. This handbook is a national resource available to support all Australian states and territories in understanding and advancing the adoption of MMC. It outlines a four-step compliance process for buildings constructed using MMC, along with practical guidance on various systems to assist building practitioners involved in MMC projects.

Image courtesy ABCB Handbook for prefabricated and Modular Construction





Inspections

Buildings constructed using modern methods of construction have the potential for faster approvals, where building elements can be viewed as products.

Standardisation of components, whether they be walls, floors, bathrooms, or staircases, allows for easier certification through the repetition of the product.

Currently, in Australia, each State and Territory is responsible for administering building inspections and the licensing of trades. As such, cross-border supply chains are currently limited. Fortunately, the Australian Building Codes Board is developing a voluntary Manufacturers Certification Scheme to help open national supply chains. This will enable broader uptake and reduce State and Territory boundaries.



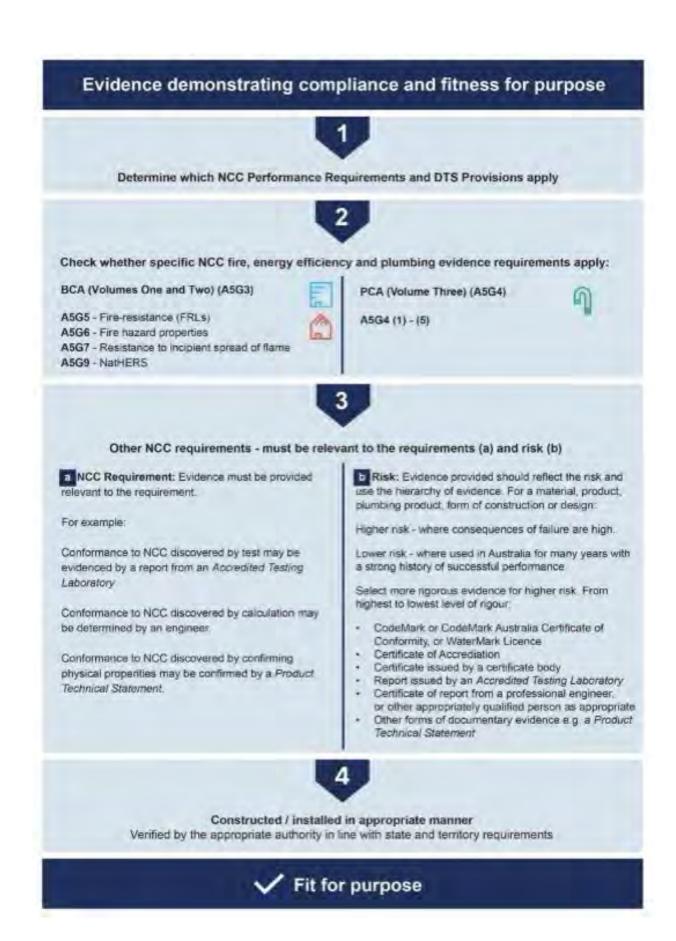


Pathways to Compliance

All compliance options may be assessed using one or a combination of NCC Assessment Methods, as appropriate. These include:

- Evidence of suitability
- Expert Judgement
- Verification Methods
- Provisions.

The ABCB Handbook outlines a 4-Step approach to determine the evidence necessary to demonstrate DTS compliance and fitness for purpose of materials, products, plumbing products, forms of construction or designs.



04

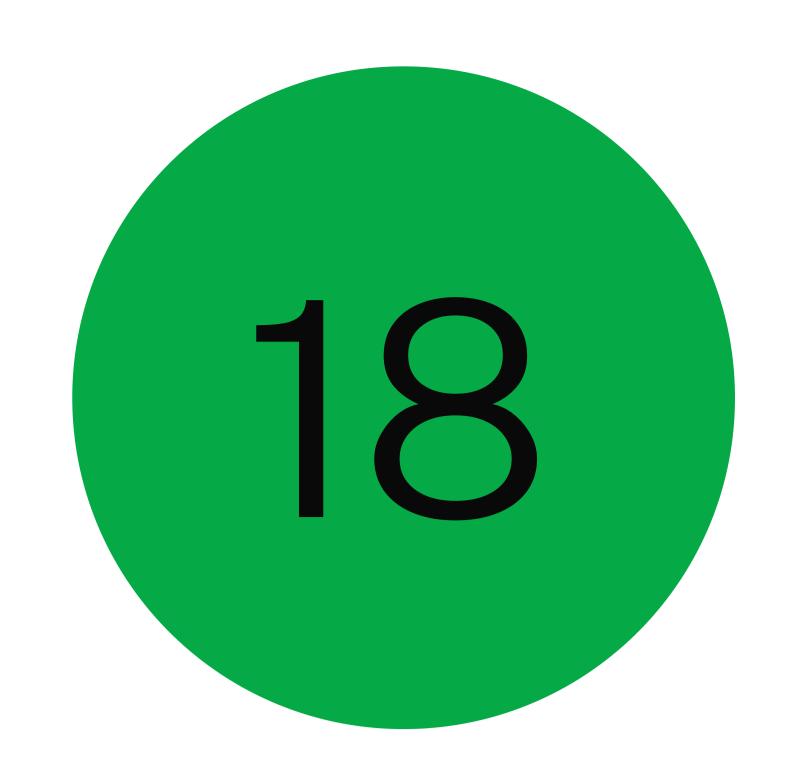
The Future

The future of the regulatory environment for MMC holds promise for more streamlined certification and inspection processes across all States and Territories in Australia.

The future looks positive for the creation of:

- A holistic regulatory
 environment that
 streamlines the assessment
 and certification of building
 components
- Product platforms of nationally certified products for use in any state or territory
- Increased productivity
- Reduced time in certification through consistency in the regulatory environment
- Product traceability and increased regulatory confidence.

Unlocking Sustainability

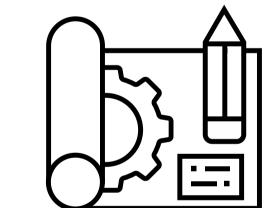


MMC systematises building processes by replacing traditional construction methods with standardised, productised off-site manufactured components. Through digitalisation and industrialisation, this approach enables design improvements and explicit tracking of material and energy flows by linking components to specific resources, fabrication techniques, and performance attributes, supporting decarbonisation strategies and sustainability targets.

Digital technologies — including BIM, generative/parametric modelling, and digital twins — can integrate performance metrics into the design life cycle, enabling early-stage environmental estimations, scenario testing, and cost forecasting. Embedding design for manufacturing strategies into digital models can streamline disassembly planning, promote reuse, and support circular material flows. Through integrated design and planning, MMC supports efficient, sustainable construction by managing resources, enabling end-of-life reuse, and improving project outcomes, offering a clear path to address environmental and operational challenges in the housing industry.



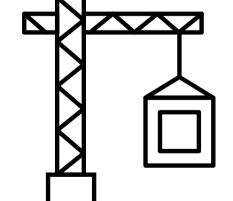
Enhanced decision making



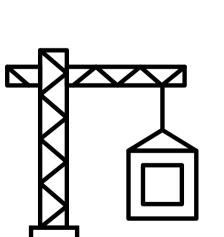
- Generate design variations based on user input
- Reduce the need for manually modelling
- Ensure design solutions comply with user defined and regulatory constraints
- Manage and resolve high levels of model complexity

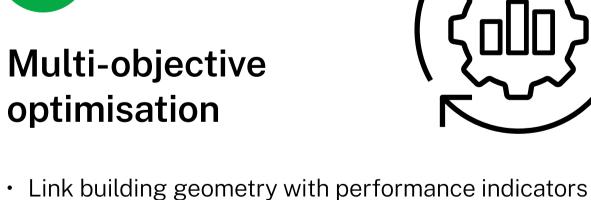


Industrialised building support



- Assist in the generation/optimisation of advanced fabrication solutions
- Maximise material and element efficiency and reduce waste
- Enable real-time visualisation of building information
- Facilitate collaborative decision making with increased transparency and customisation
- Understand key trade-offs





• Integrate environmental performance as core design

Facilitate early-stage LCA using simplified techniques

Allow non-experts to visually interpret LCA results

Rapidly quantify energy, GHG, and water use

Life cycle cost and labour estimation

Streamlined Life

consideration

Cycle Assessment

- Provide real-time evaluation of qualitative and quantitative measures
- Support high quality design decision making with results that are interpretable

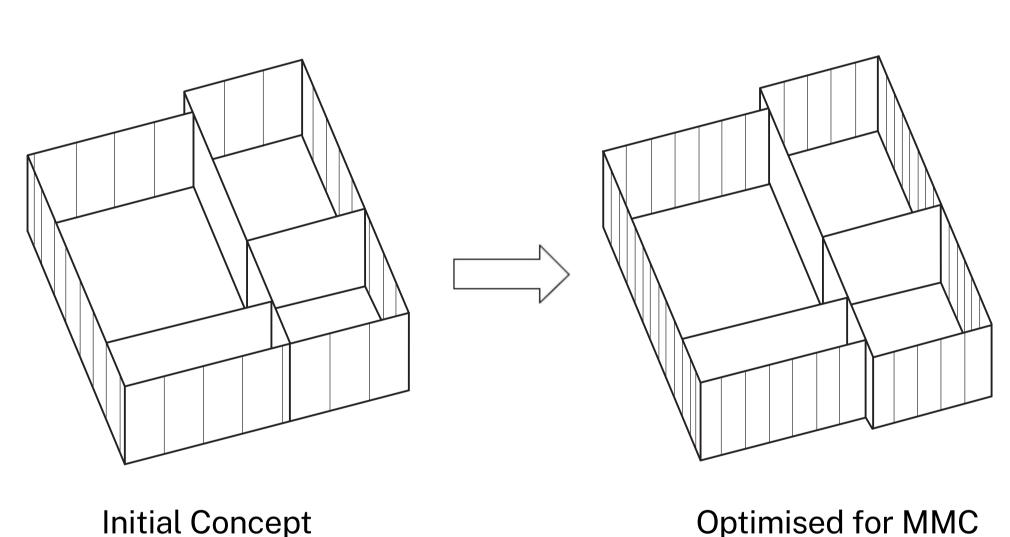
Off-site manufacturing

Controlled production environments can optimise material use, streamline construction processes, and reduce waste, unlocking sustainability gains through reduced GHG emissions, greater resource efficiency, and enhanced quality.



Systematisation and productisation.

Digital tools can transform one-off designs into systematised building products, driving manufacturing efficiencies, simplifying procurement, and ensuring consistent quality across projects.



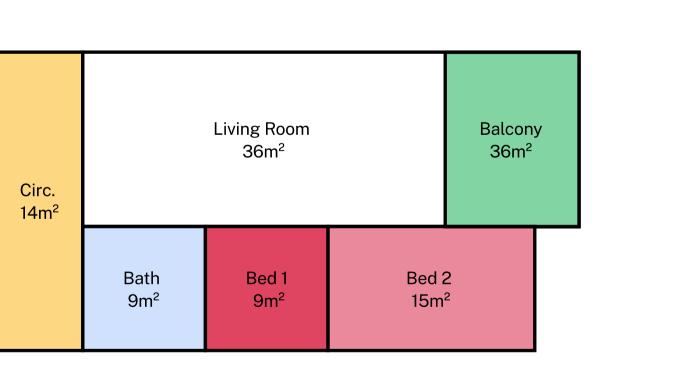
Layout 1

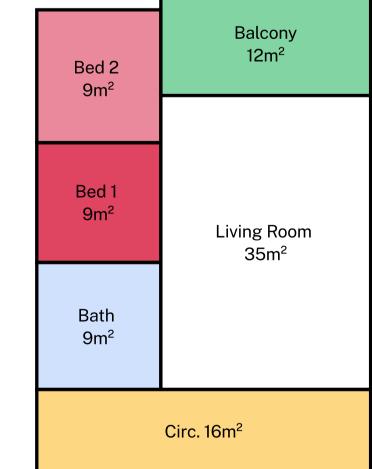
Total Area 95m²

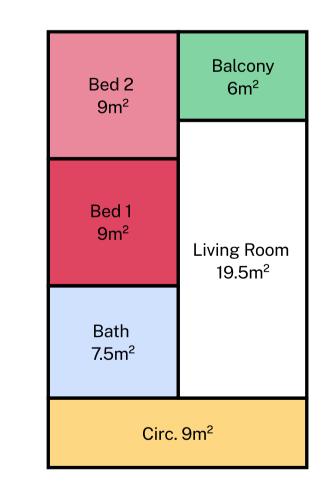
Layout 2 Total Area 90m²

Optimised

Total Area 60m²

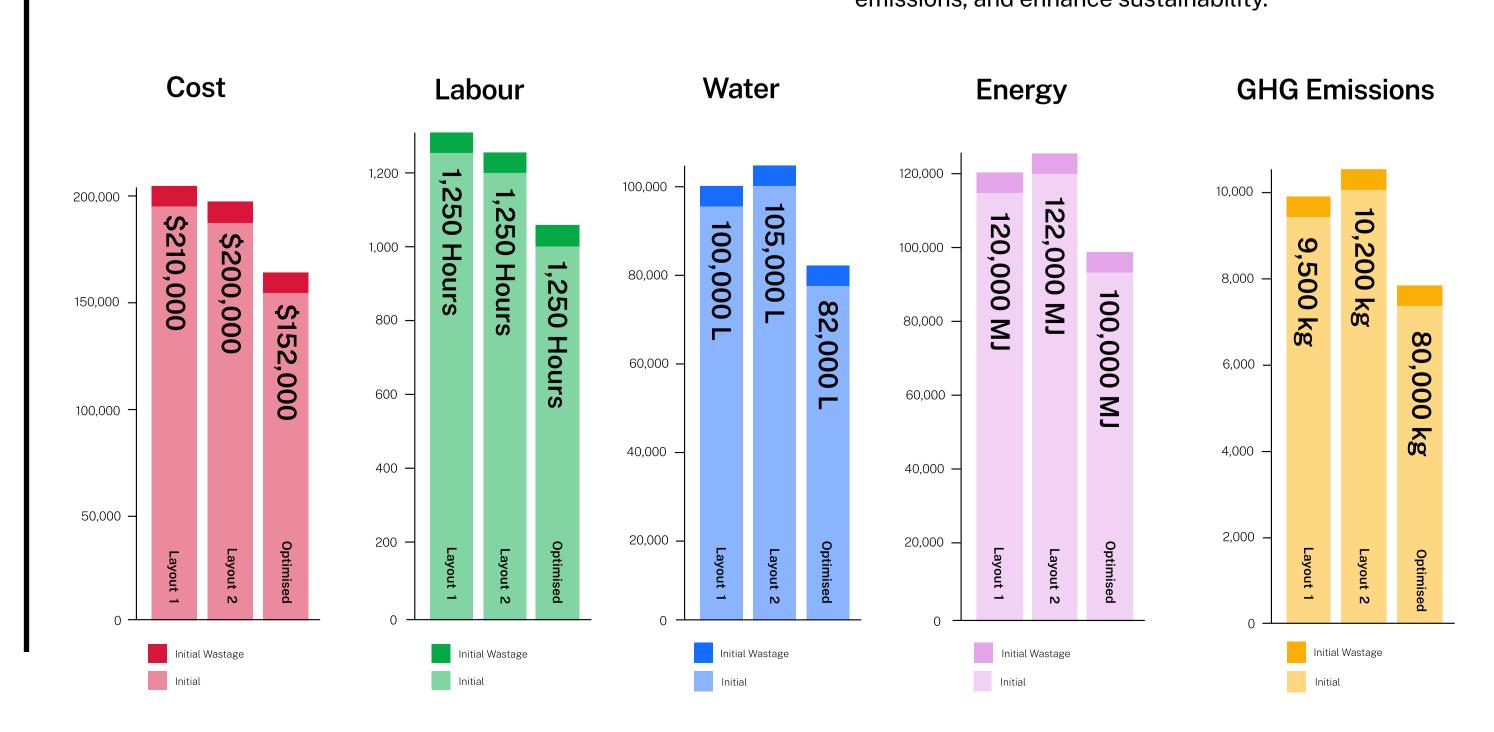


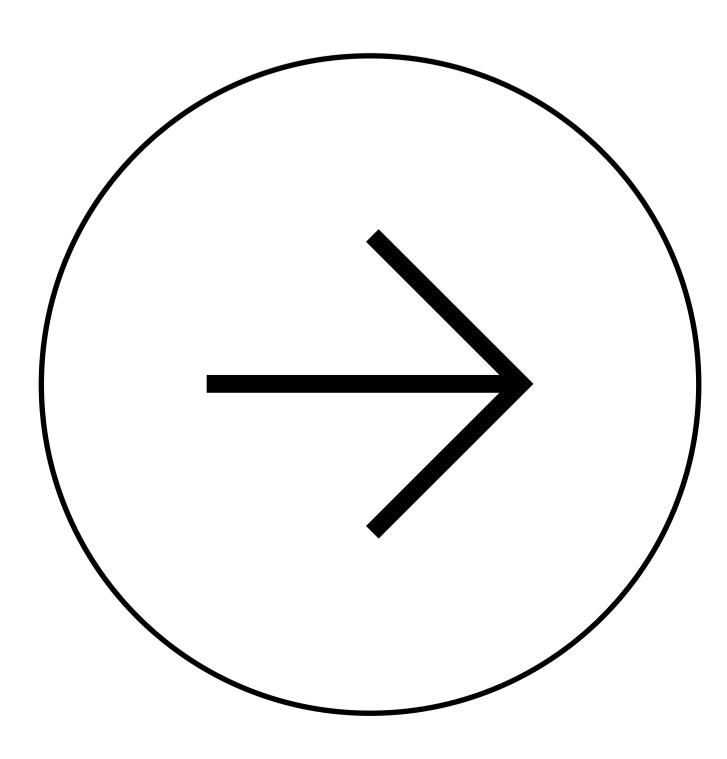




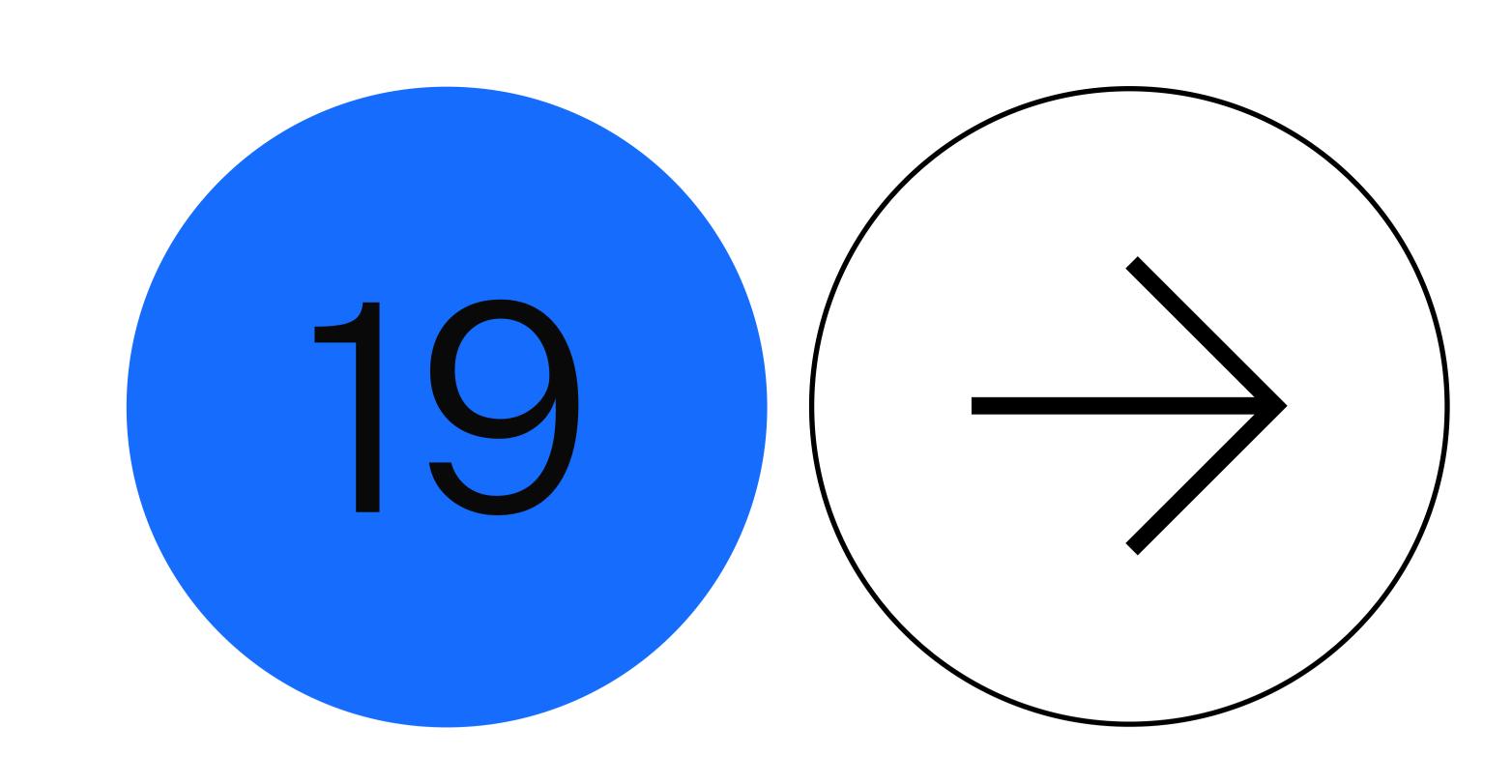
Performance Metrics

Shifting from ad-hoc to systematised building reduces costs, labour, and resource use. These efficiencies help minimise water and energy use, cut greenhouse gas emissions, and enhance sustainability.





Supply Chain



The Process

The success of the kit-of-parts approach relies on both technical innovation and a capable, diverse, responsive supply chain. As an open-source approach to design and construction, it moves away from proprietary suppliers and products. Instead, it engages a wider network of manufacturers, fabricators, and assemblers often overlooked in the sector.

Our work identifies, categorises, and engages suppliers of structural components, façades, service modules, interiors, and sub-assemblies. The goal is a modular, interoperable ecosystem where components are competitively sourced, predictably integrated, and easily updated without reliance on a single vendor.

Industry Analysis

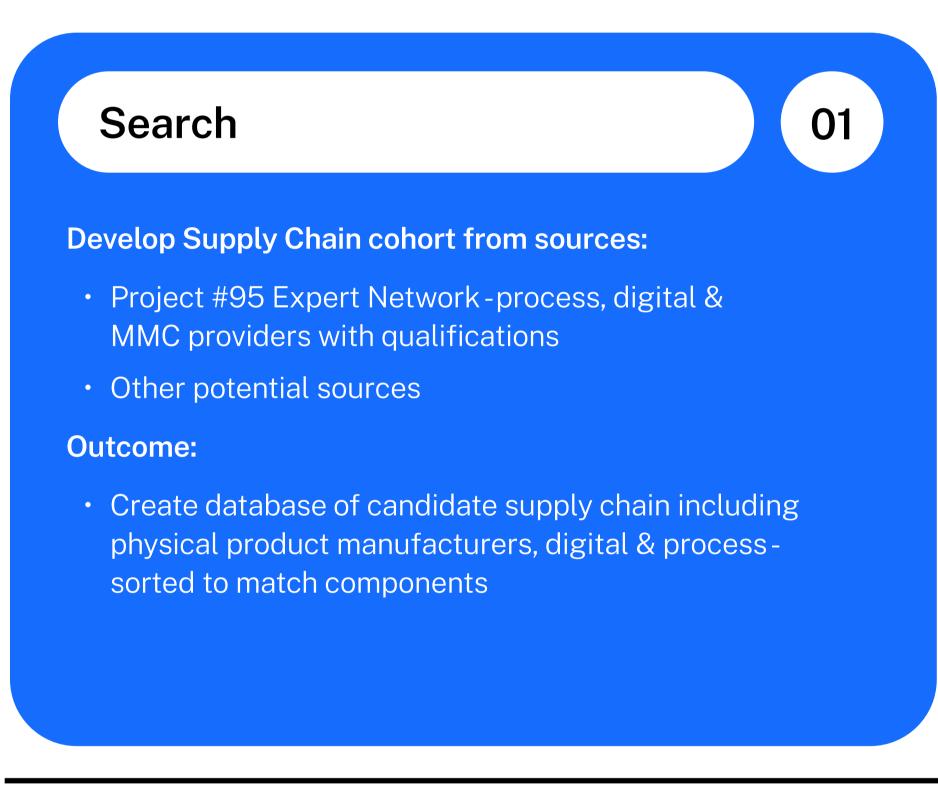
A systematic supply chain categorisation strategy has been applied, mapping potential contributors by their product type, readiness level, and compatibility with kit-of-parts principles. This includes the development of a product matrix and a preliminary catalogue that align with the current design streams, particularly for structure and façade elements.

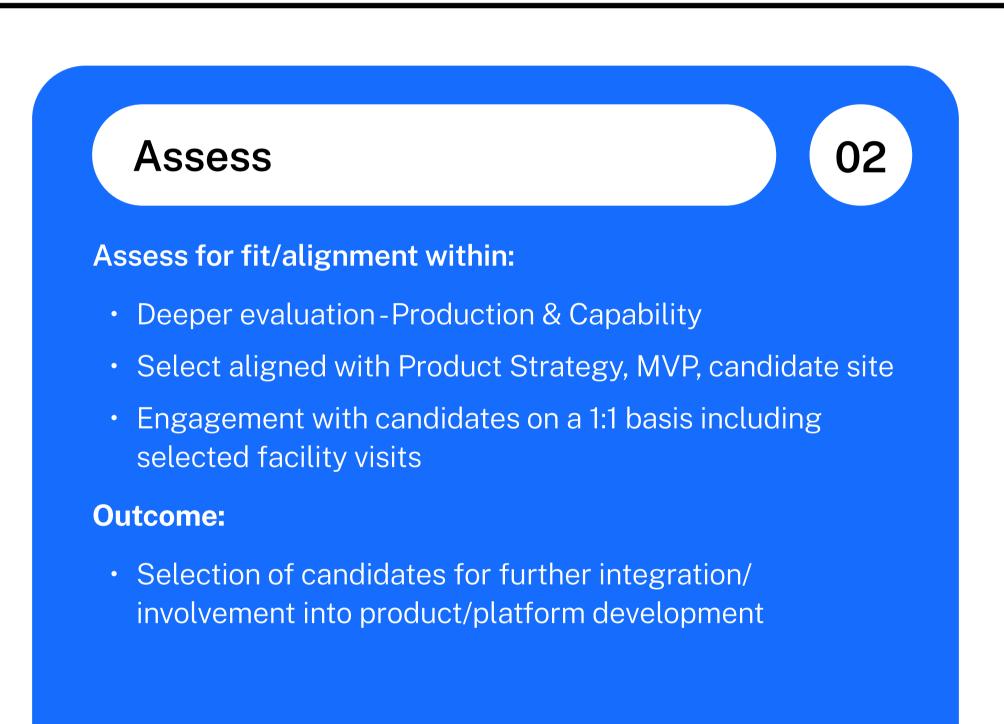
Analysis indicates strong engagement in some categories, while highlighting notable gaps in others — such as concrete supply — requiring targeted outreach or alternative strategies.

Open Supply Chain

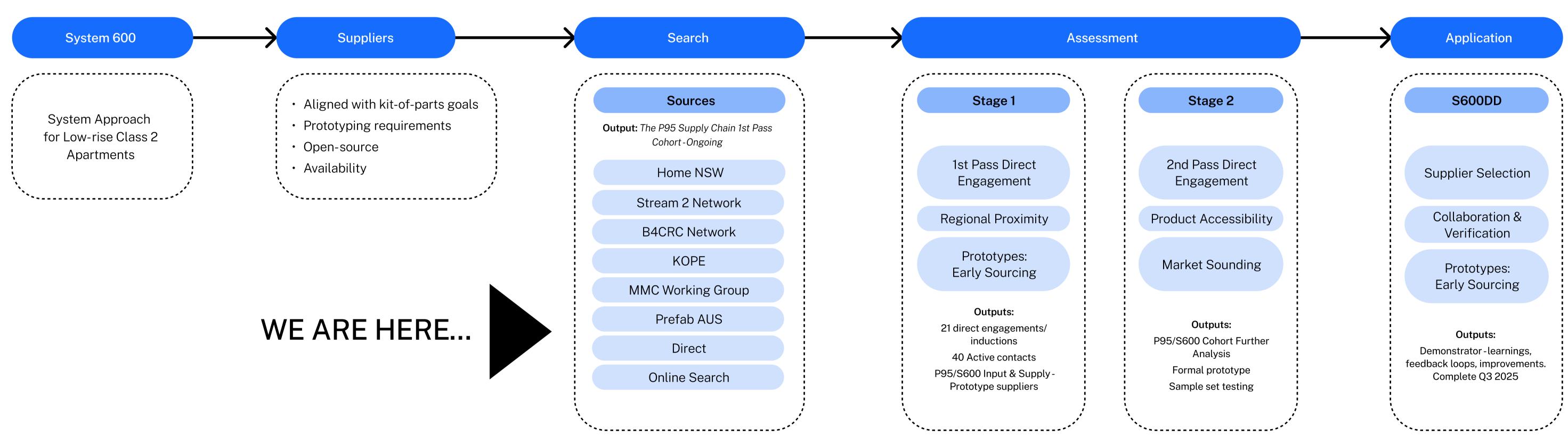
This open model enables broader industry participation, increases resilience, and allows for healthy competition. It also supports the standardisation of components without centralising ownership, ensuring that System 600 remains accessible to multiple delivery partners.

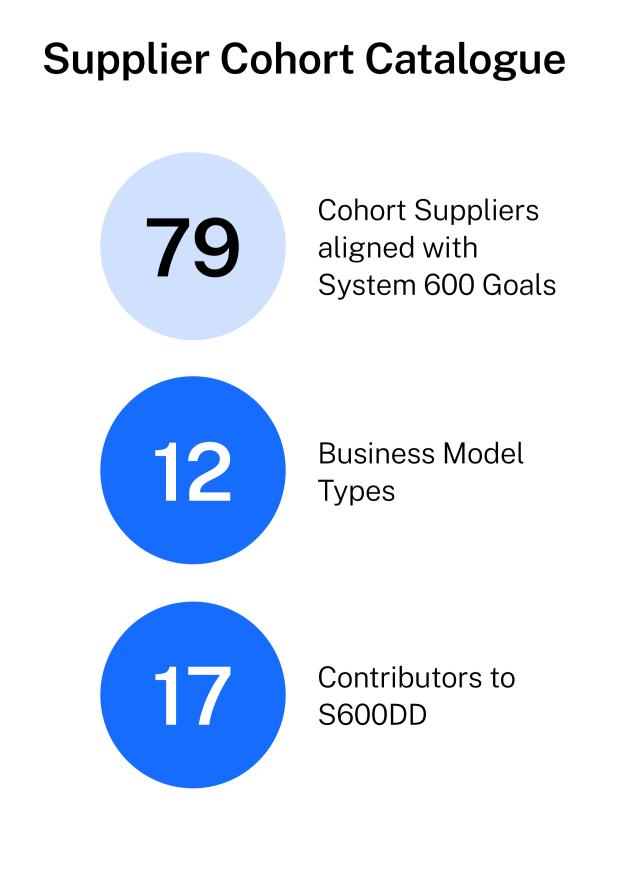
The work is critical to ensuring the viability of a scalable, high-performance construction platform that can be adopted across diverse projects and supplier contexts.

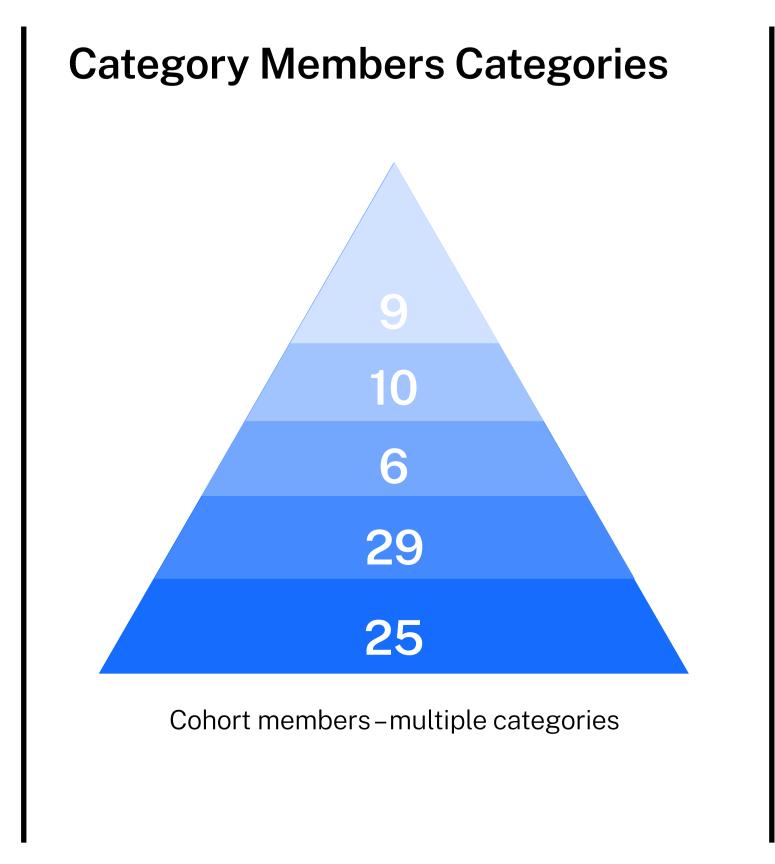


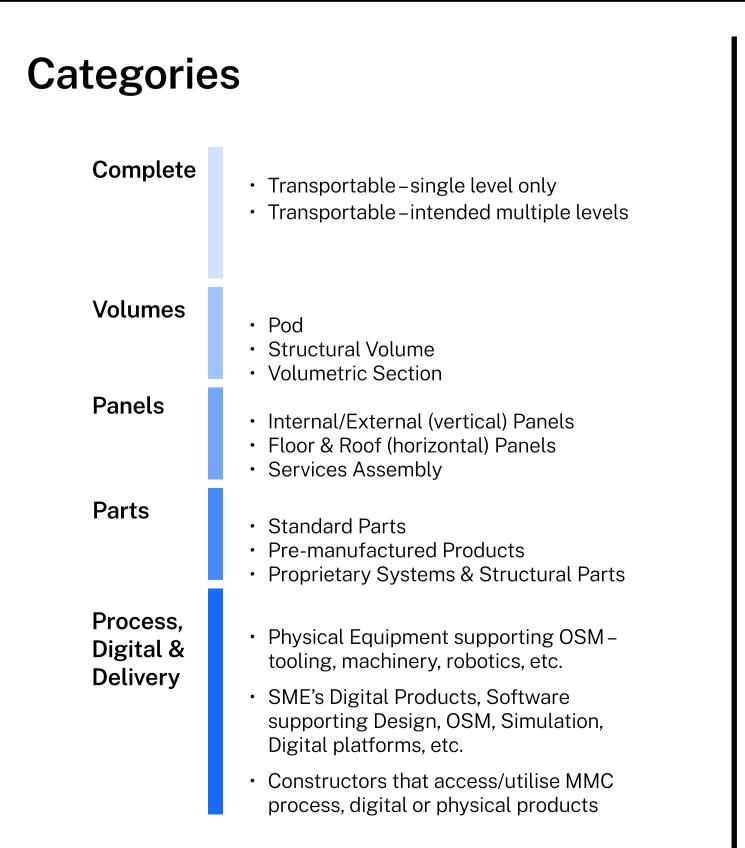


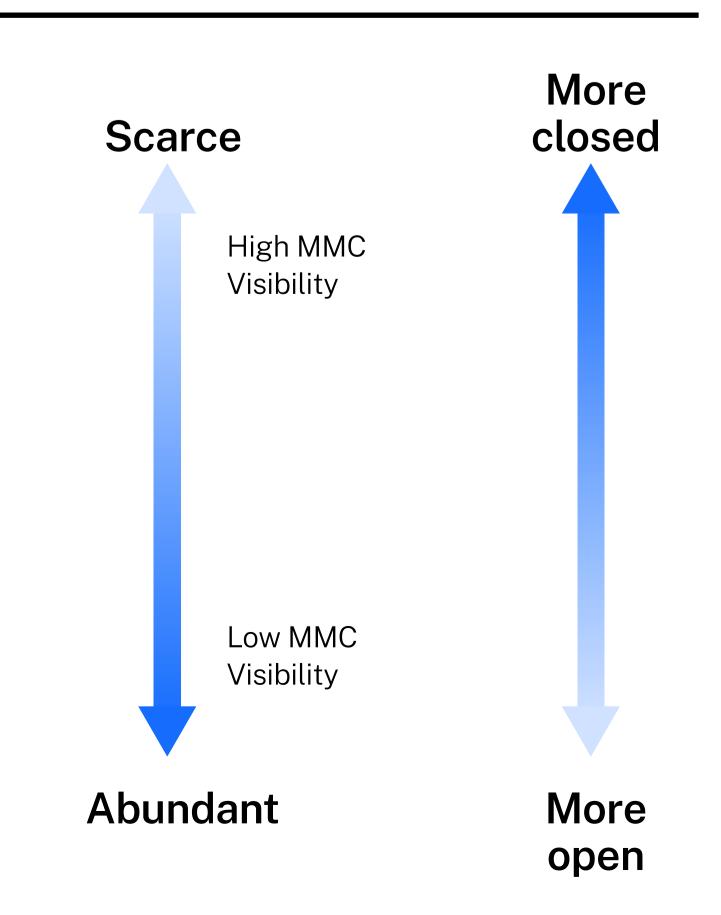












Processes & Outputs

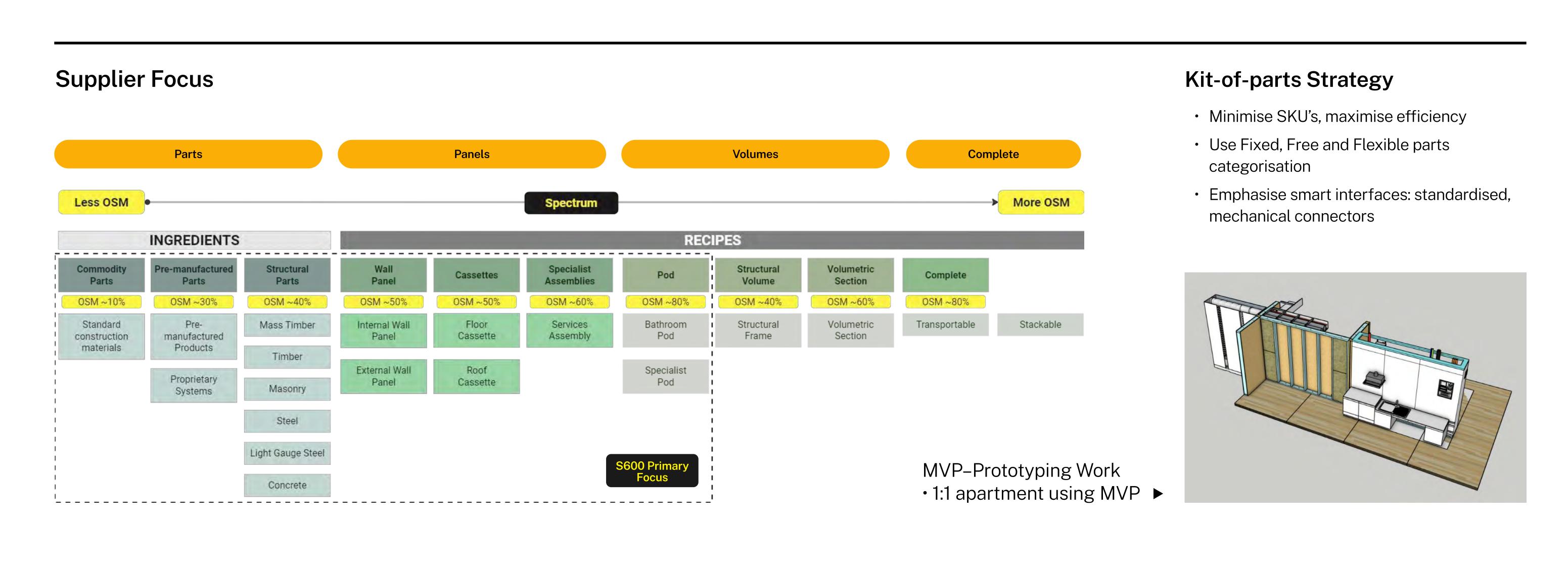


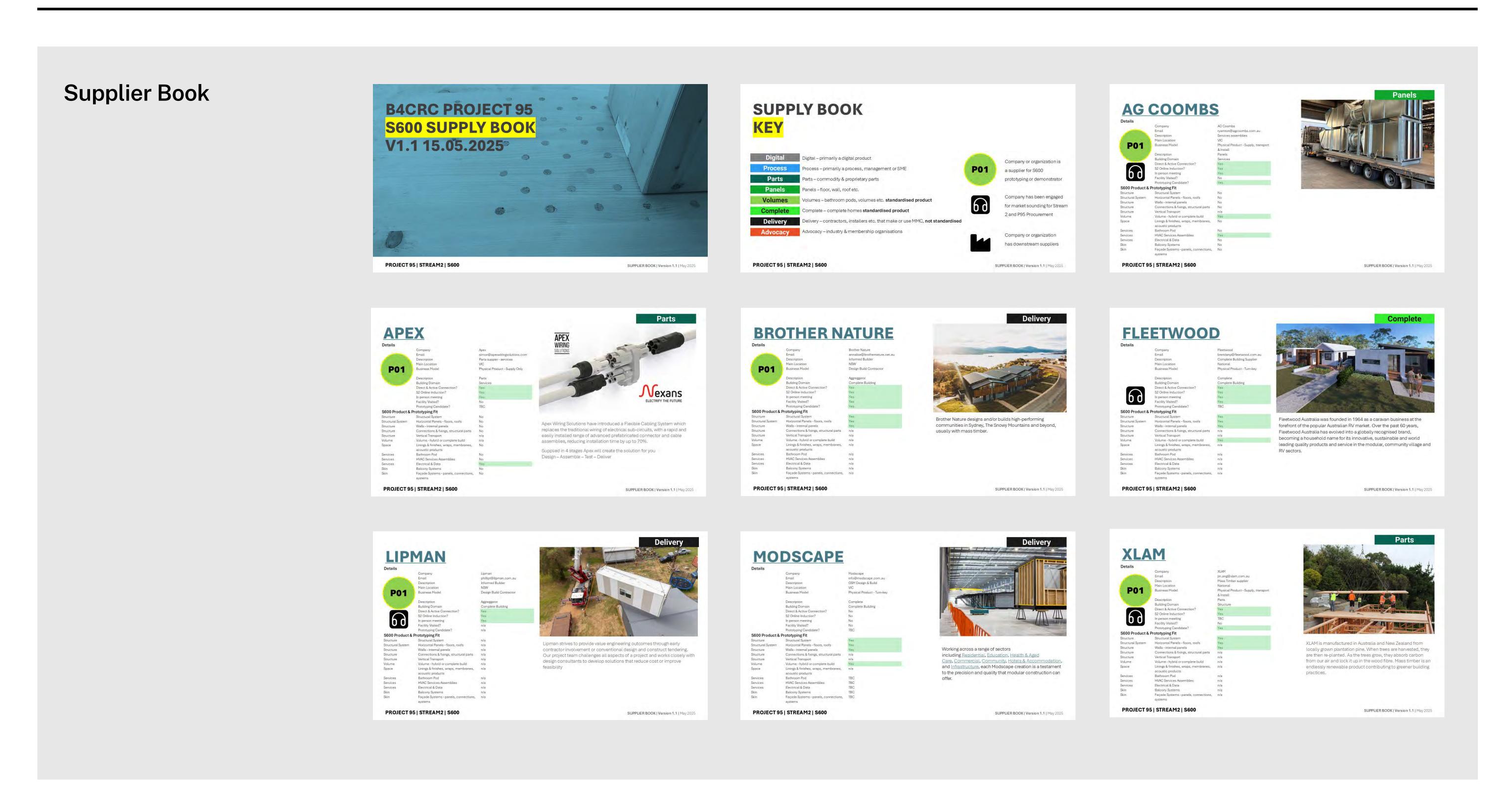
The survey of suppliers from Phase 1 of the research has culminated in a reference guide and compendium of suppliers and their respective capability and capacity. This is referred to as the 'supplier book'. Over the next two years, work on the supplier book will be expanded and deepened, to include more suppliers and identify strengths and gaps in the supplier ecosystem.

The companies assembled in the adjacent supplier hall are a sample of the companies and suppliers we have already identified in our initial work.*

This is a work in progress, and we welcome suppliers to approach our team.

Note*: It is intended to expand the ecosystem of suppliers in the months and years to come. Please note that inclusion in the supplier hall does not imply selection in formal NSW government procurement processes, and Building 4.0 CRC does not have a procurement role with the NSW government.





Installation



Efficient Assembly On Site

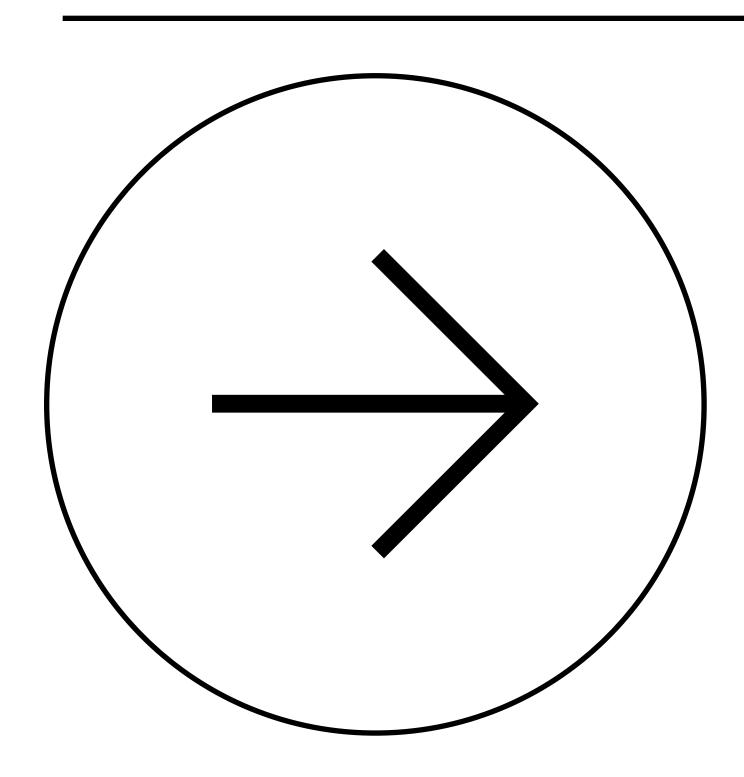
A project will combine conventional construction up to ground level with the System 600 kit of parts above ground.

Around 80% of the kit of parts are standardised, with 20% customised or sitebuilt to suit individual projects. The entire project is managed by the same builder supervising all work. Smart connectors make installation faster, simpler, and less reliant on specialist skills. Some tasks—like plumbing or electrical hook-ups—always require certified trades, but the overall workload is significantly reduced compared to traditional methods.

Today, structural components are typically joined using screws and bolts, requiring precise work by skilled installers. Next-generation connectors are being developed that allow parts to snap together, removing the need for tools or complex alignment.

These innovations speed up installation, reduce labour costs, and eliminate common errors, for reliability and efficiency.





Build Sequence

The System 600 build process is simple, structured, and repeatable. Start with in-ground works using conventional construction methods

• Fix wall panels to the concrete slab

building is enclosed

- Crane bathroom pods into place before the floor above is installed
- Place timber floor panels on top, stand the next level of wall panels
- Balcony structures can be installed as each level is built, or after the main structure is complete
 Stair and lift assemblies can be installed early ideally ahead of the main build to provide
- Stair and lift assemblies can be installed early ideally ahead of the main build to provide construction access
- Services bulkheads are loaded onto the floor by crane or construction hoist before the floor panels above are placed

Facades are installed level by level, in step with the wall and floor panels

- External service modules are installed with balcony structures
 Interior components can be preloaded onto each floor if weather-protected or after the
- This structured sequence improves speed, safety, and efficiency on

FAQs

What's the advantage for builders?

Above ground, the kit-of-parts (KoP) approach makes construction more predictable. It reduces delays, errors, and disputes — leading to a smoother workflow.

With a simplified method builders can deliver more projects with the same workforce, making better use of time, labour, and resources.

Who is responsible for construction?

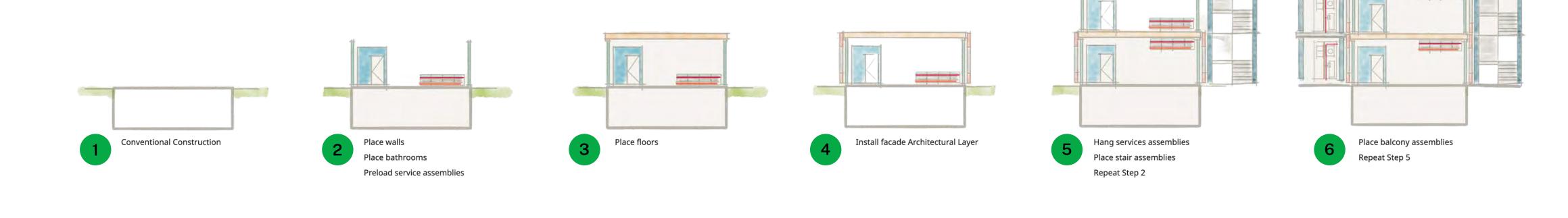
The builder remains fully responsible for delivering the entire project. They must also plan and manage logistics and sequencing and understand how each product works including its quality standards, certifications, and installation requirements.

Why isn't everything done offsite?

Work should happen where it is most efficient. While many components are best made in a factory, not all tasks are more efficient offsite. Some are simpler, quicker, and more cost-effective to do on site.

Are special skills, equipment, or processes required?

No. System 600 is designed to simplify construction. Smart connectors and well-designed products reduce the need for high skill levels, temporary works, and complex processes.



Measuring Installer Productivity

Measuring Installer Productivity

Improving productivity starts by measuring it — and site installation is no exception. System 600 supports a structured approach to tracking performance at every stage:

Design Assessment (Before Build)

Evaluate how easy the building will be to install. A quick indicator is the number of unique parts — more parts, especially custom ones, usually translates to more complexity and lower efficiency.

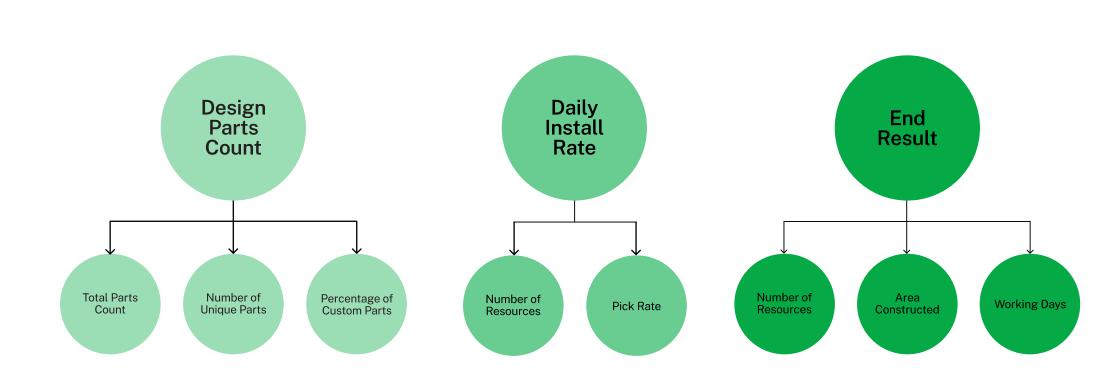
On-Site Tracking (During Build) Manitar how many parts are insta

Monitor how many parts are installed each day — known as the pick count. This gives real-time feedback to help crews stay on pace and identify bottlenecks early.

End-of-Project Review (After Build)

Measure total labour used in relation to the finished result. A useful benchmark is labour days per square metre of floor area. For fair comparisons, this should account for factors like project location, building height, and design complexity.

This data-driven approach helps identify what's working, where improvements are needed, and how to deliver better outcomes over time.

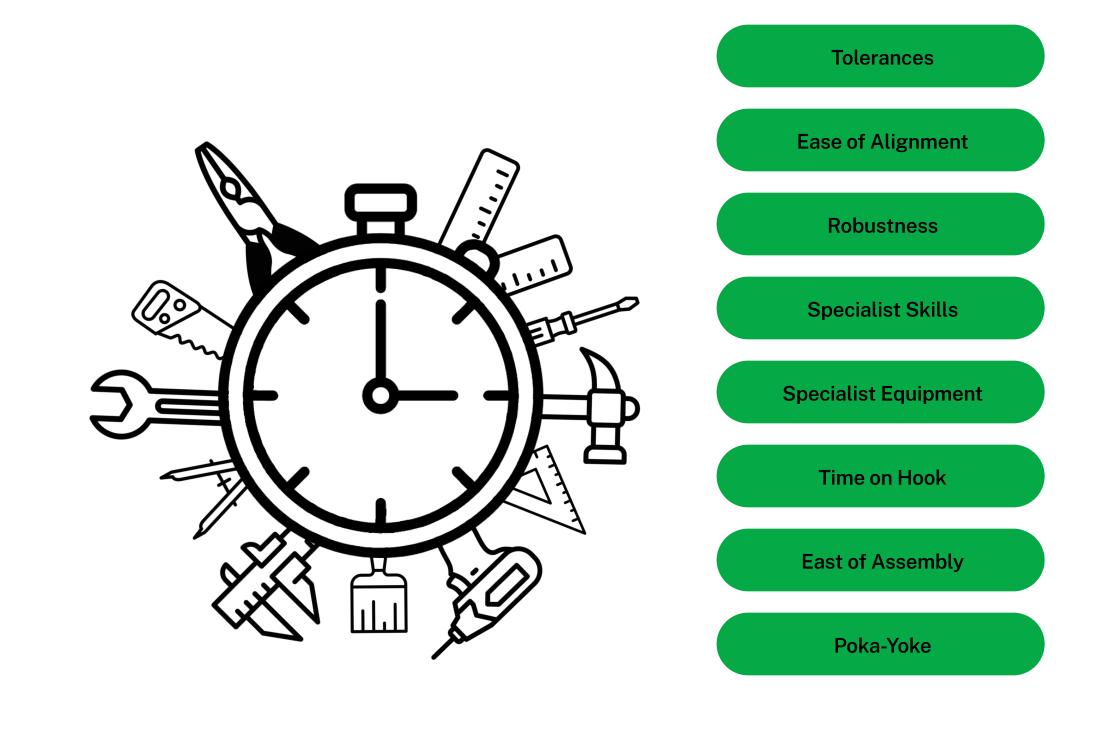


Feedback to Product Owners and the System Owner

Many factors affect productivity. Some, like the weather, are beyond our control. But product design is in our control.

If a product is difficult to install, that feedback should be captured on site and shared with the manufacturer . This allows improvements to be made — making future installations faster, easier, and more reliable.

To support this, suppliers should actively engage with installers to collect data on product performance. This feedback loop is essential for continuous improvement across the system.



Operation & Maintenance

22

Designing for a lifetime

Homes NSW is a long-term owner — focused on more than construction costs. How buildings will be maintained, operated, and upgraded over time is important.

Assembly & Disassembly

Products designed to assemble with smart connectors are also easy to take apart — unlocking major benefits for long-term building ownership.

Maintenance becomes simpler. Parts can be replaced or upgraded without damaging surrounding areas or complex reconstruction.

Upgrading

One major advantage of using smart connectors is **speed** — especially when it comes to upgrading or refreshing homes.

Traditionally, refitting the interior of a home can take months, leaving it unavailable for use. But with plugand-play components like finish panels, trims, and cabinets, replacements can be made in a few days.

FAQs

Will this last as long as a traditional building?

Yes—and potentially longer because System 600 buildings are easier to maintain, upgrade, and reconfigure.

How will buildings that use a kit-ofparts be maintained?

Maintaining and repairing kit-of-parts buildings will be easier than traditional buildings because of the standardisation and repetition of the parts. A maintenance crew approaching a kit-of-parts building will be able to rapidly determine what products are used, what their expected design life will be, and where they are.

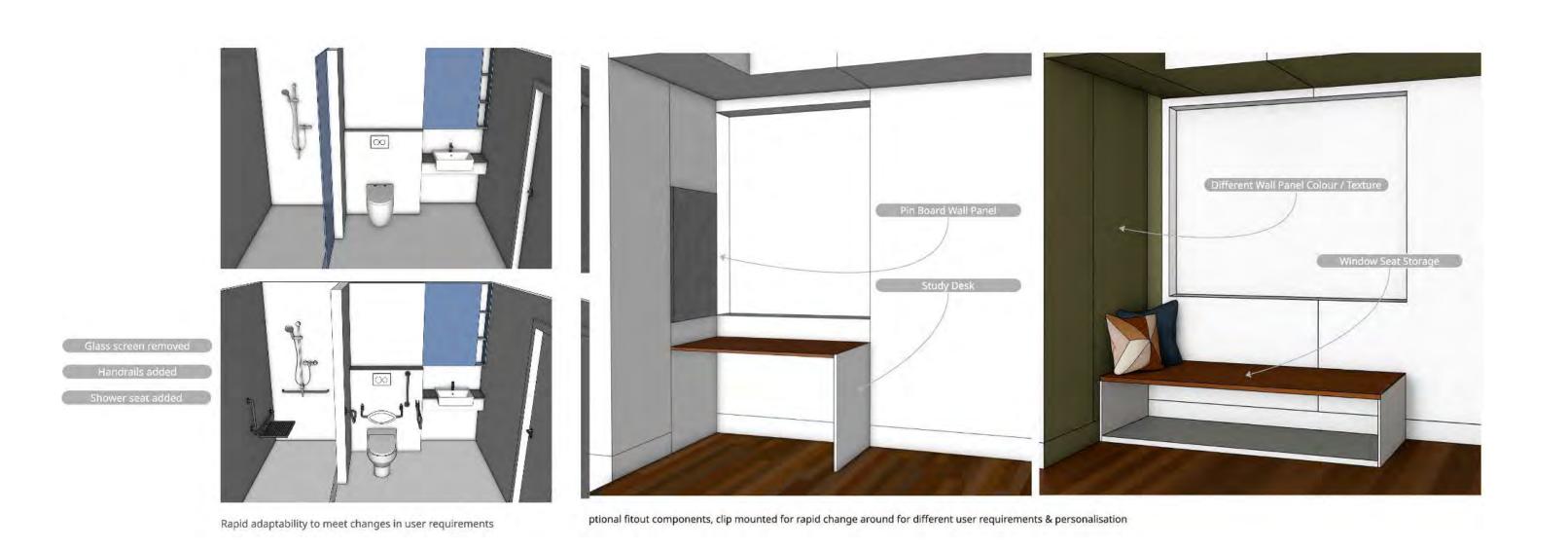
What happens if the supplier of a particular part goes out of business?

System 600 products are not proprietary, but open source. Making a particular part or product will not be the domain of only one supplier, but many. This ensures that servicing, maintenance and repair can be carried out for the design life of the products.

Customisation

Different households have different needs.

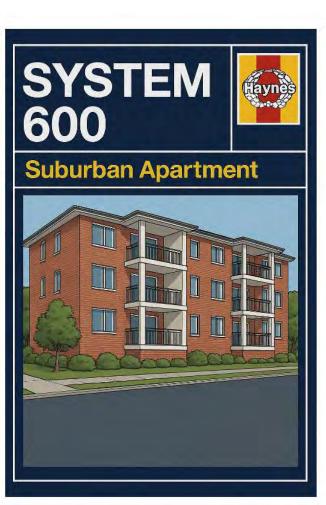
With clip-in components, changes can be made easily — without construction work-allowing meaningful personalisation while keeping the benefits of standardisation, making homes more adaptable to the needs of the people who live in them.



Product Support

A true product comes with support — just like any other appliance or piece of equipment. This includes maintenance and repair guides, spare parts, warranties, and customer service from the manufacturer.





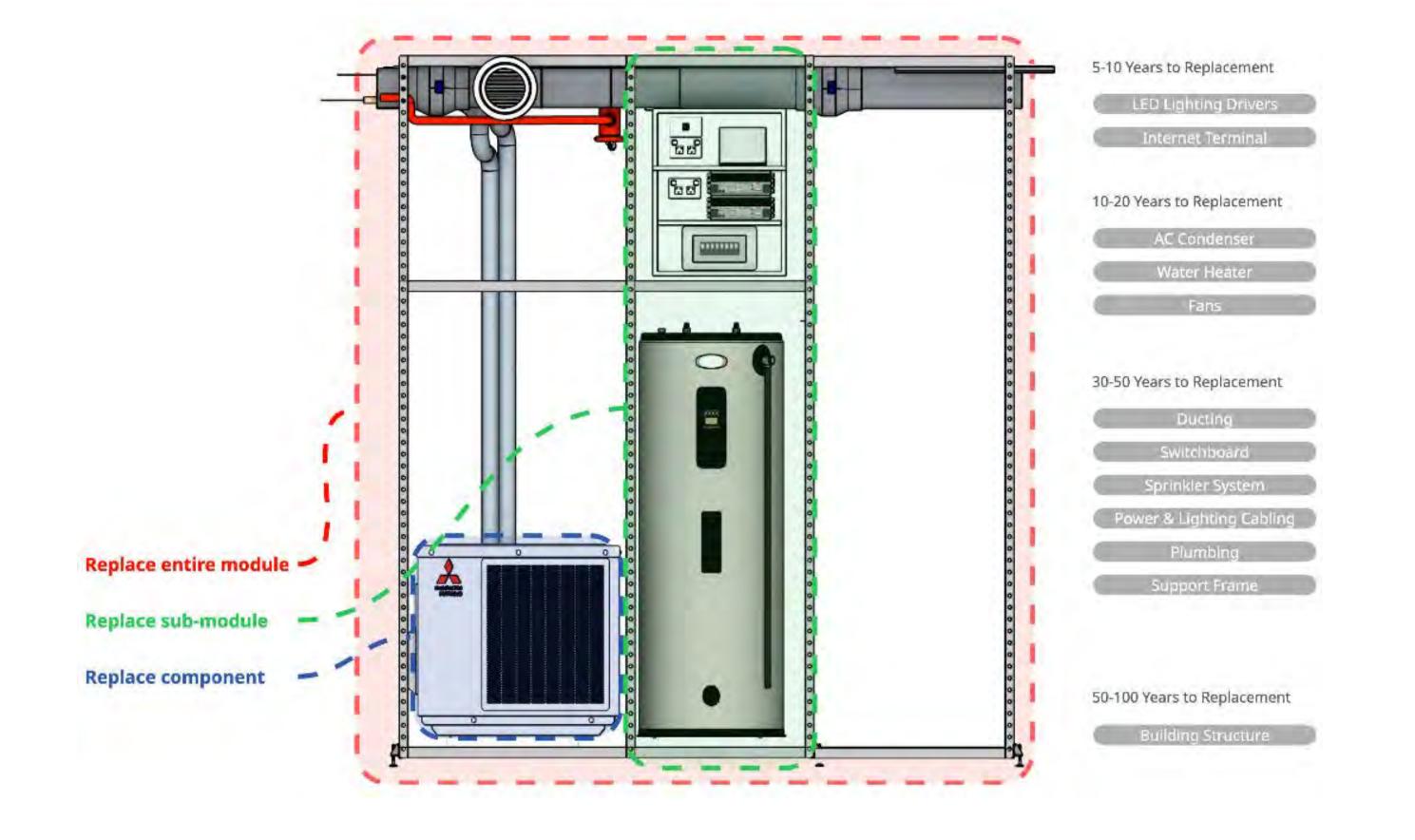


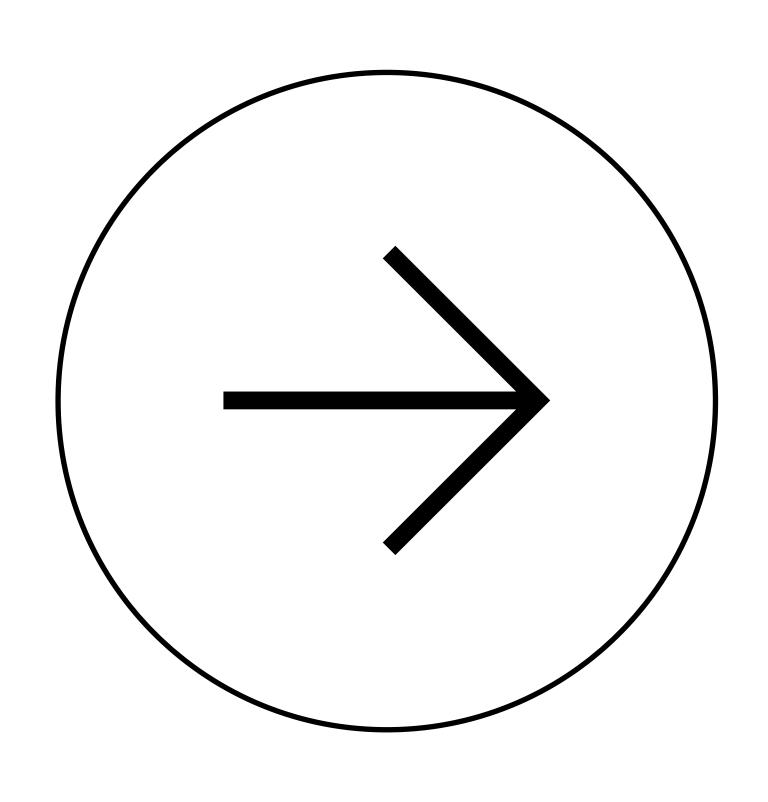


Designed for Servicing

The External Services Module is like a major appliance — built with long-term maintenance in mind.

Over time, the entire module can be removed and swapped out with minimal disruption to the home.



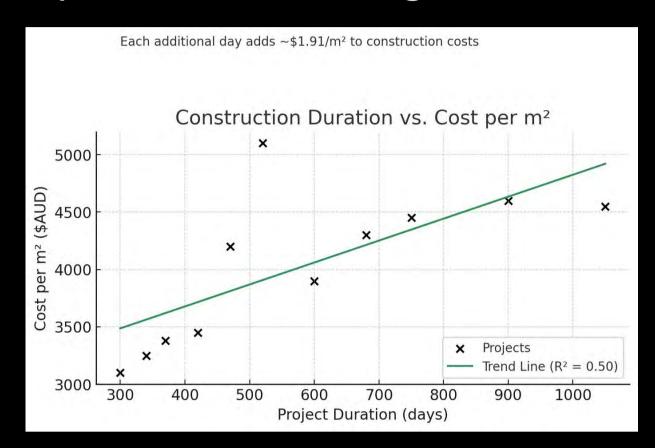


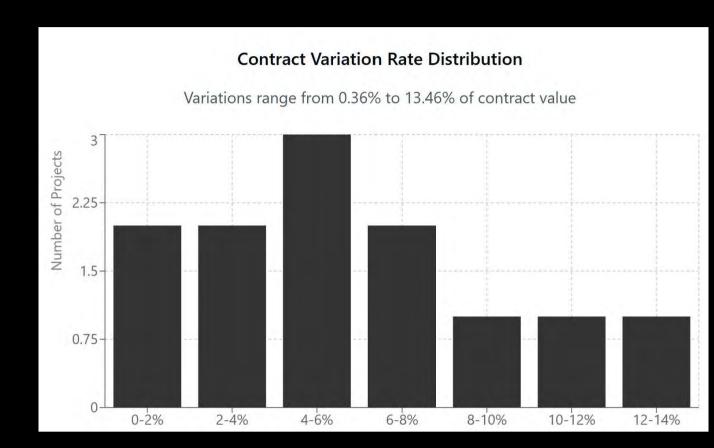
Data, Productivity Metrics



Introduction

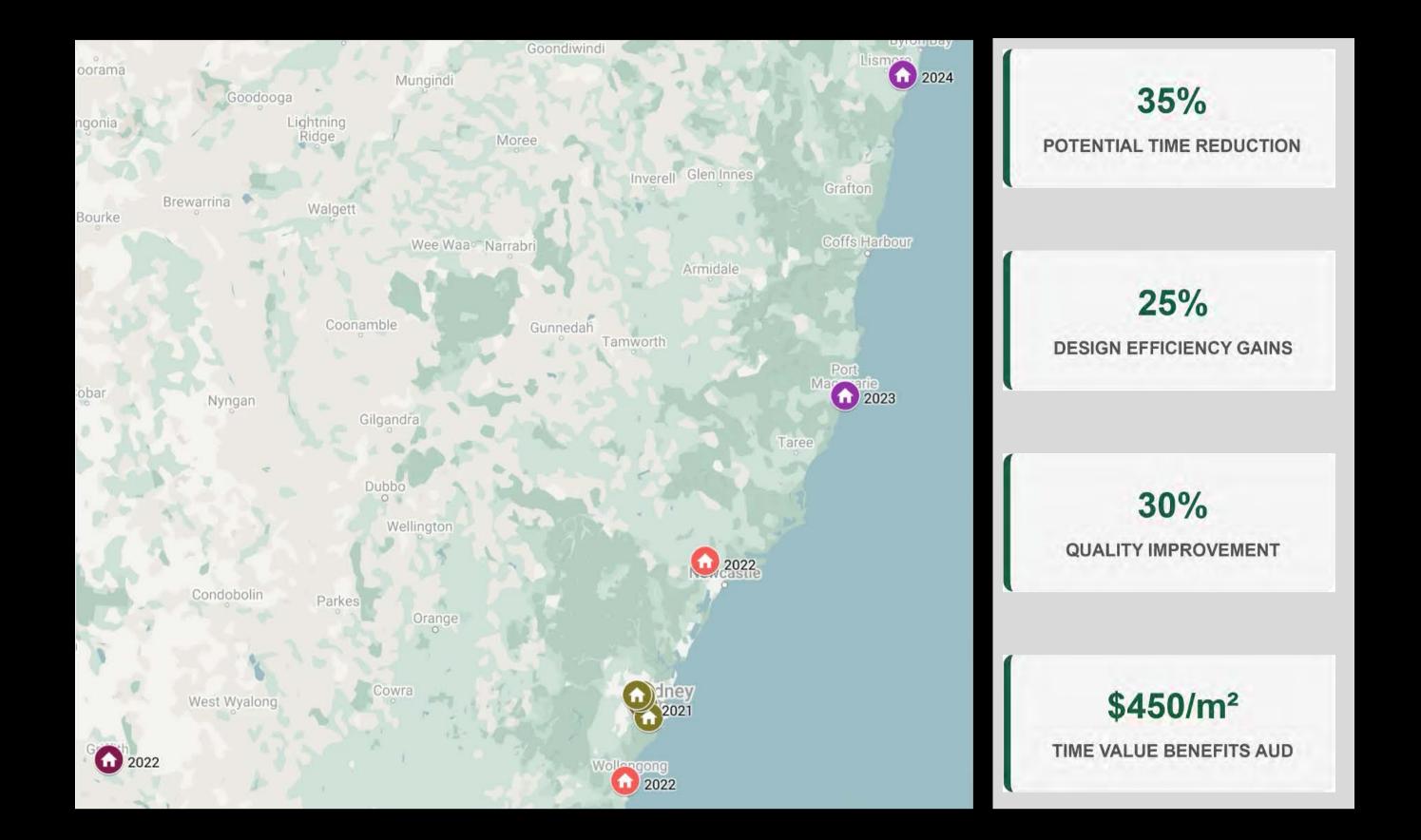
As construction costs rise industry-wide and delivery timelines extend. Homes NSW is proactively investigating MMC to enhance delivery efficiency and cost effectiveness. This comprehensive analysis of 10 recent projects provides the evidence base for strategic MMC implementation modelling.





Baseline Analysis Identifies Clear MMC Implementation Opportunity

Duration-cost correlation (R²=0.50) quantifies time-value relationship, while contract variation analysis (0.36%-13.46% range) demonstrates opportunity for enhanced delivery predictability through MMC standardisation.



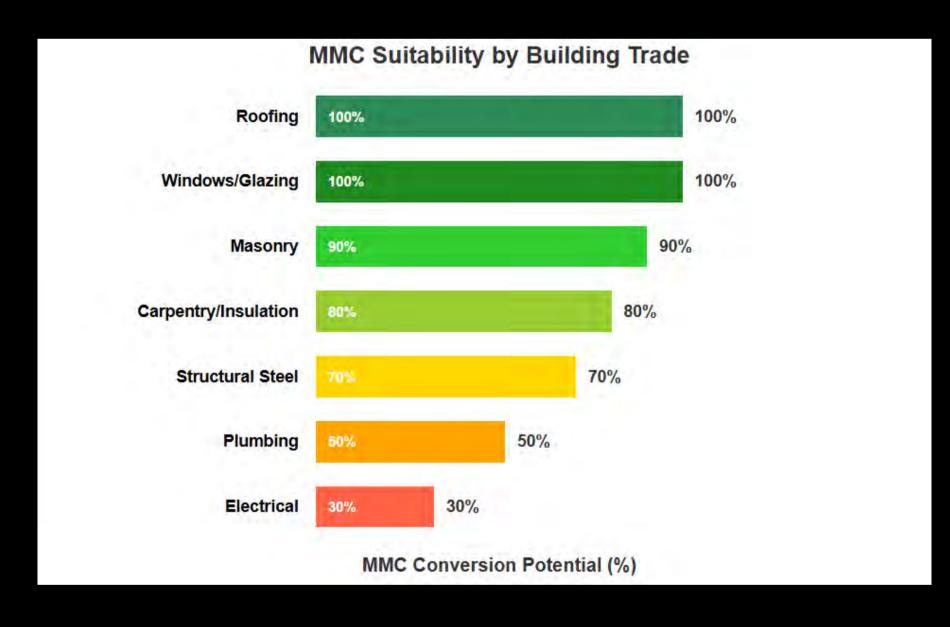
MMC Opportunity Analysis

Scenario A: Evidence-based conservative implementation

Methodology: Bottom-up analysis of trade conversion potential using Homes NSW project data **Core assumptions:**

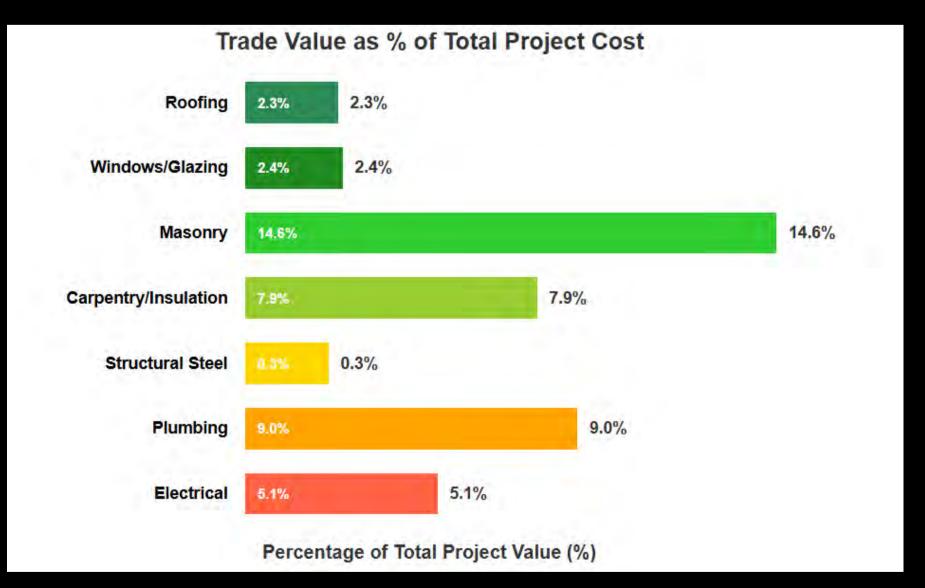
- 15% MMC material premium on convertible scope (43% of build value)
- 25% construction time reduction (based on industry benchmarks)
- Risk-managed implementation with proven MMC technologies

Financial results: Positive ROI across all 10 projects (\$150–250/m² net benefit) **Implementation confidence:** High-based on established MMC applications



High-Impact Opportunities (>7% project value):

- Masonry (14.6%): 90% MMC potential = 13.1% project impact • Plumbing (8.0%): 50% MMC potential = 4.0% project impact Carpentry (7.9%): 80% MMC potential = 6.3% project impact
- Total Addressable Scope: 41.8% of project value available for MMC conversion



Total MMC Conversion Scope: 41.8% of project value High-potential trades (>70% MMC): Roofing, Windows, Masonry, Carpentry represent 27.1% of project value

Scenario B: Strategic portfolio transformation

Methodology: Comprehensive MMC program targeting multiple value streams

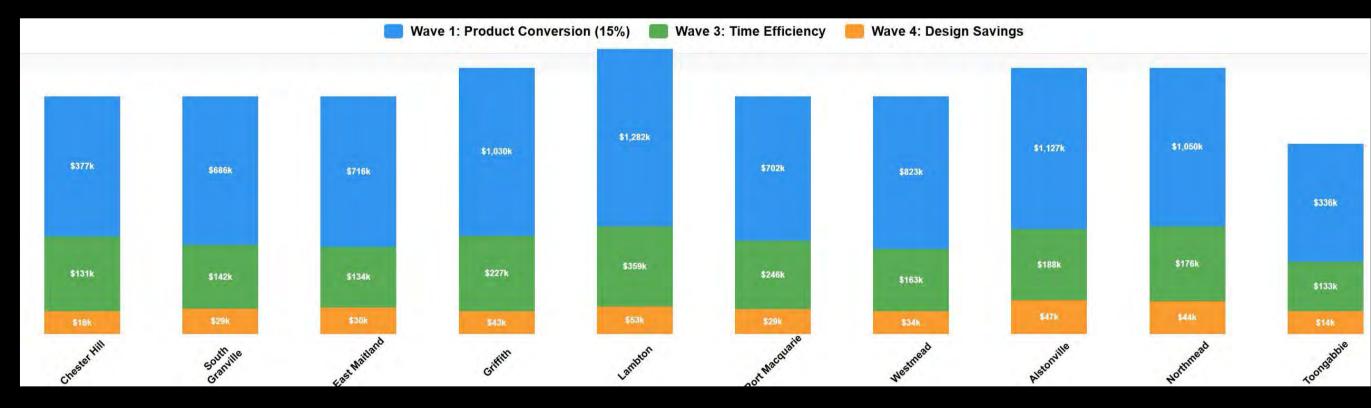
Core assumptions:

- Wave 1: Product conversion savings (15% reduction on MMC scope)
- Wave 2: Market scaling benefits (additional 15% as industry matures)
- Wave 3: Time efficiency gains (\$380/m² from HNSW delivery timeline analysis)
- Wave 4: Design standardisation benefits (20% design cost reduction)

Metric

Financial results: Up to \$627/m² gross savings at full programme maturity

Implementation confidence: 4-year transformation requiring sustained organisational commitment Gross benefits assume successful market development and internal capability building



Project-by-Project MMC Analysis

This table shows the financial impact of implementing MMC on each Homes NSW project, comparing time savings value against material cost premiums. Time saved is calculated as 25-40% reduction in actual construction duration, valued at\$1,200 per day in holding costs.

Value

10

100%

1,398%

\$9,689,867

	Total Projects
Four-wave benefit analysis by project	Success Rate
This table demonstrates the cumulative impact of	Average ROI
all four benefit waves at full implementation	Total Net Bene
(Year 3). Wave 1 applies 15% savings to 80% of	Average Net Benefit
project value, Wave 3 uses the same time	Total Investme

savings as Strategy A

efficiency benefits

Net \$968,987 estment \$677,465 Required and Wave 4 adds design Portfolio ROI 136 days

t Benefit

Portfolio performance summary

Key metrics showing overall program success across all 10 projects, including total investment required for product development costs and resulting return on investment.

Delivery Enhancement Benefits

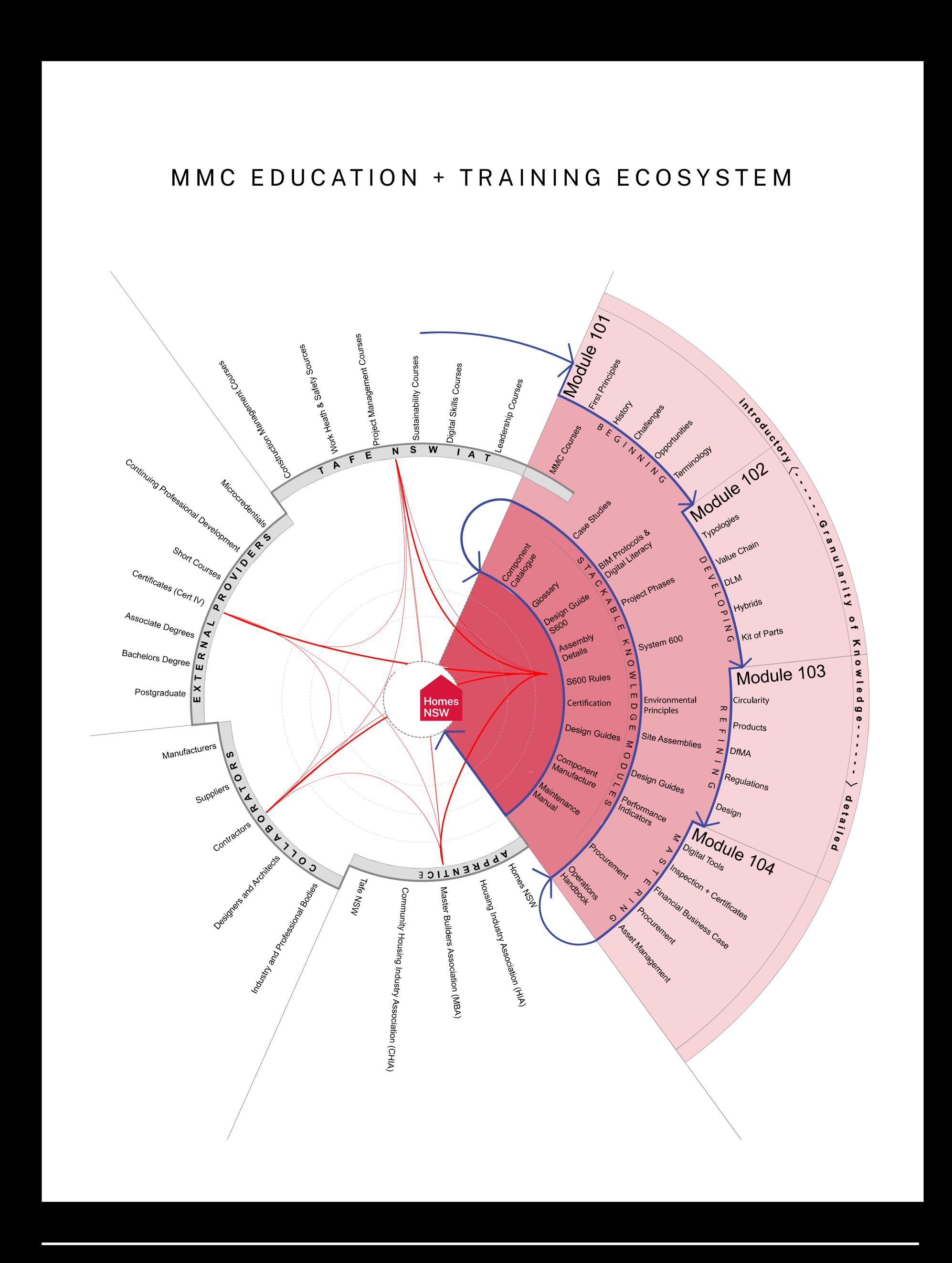
MMC transforms Homes NSW delivery through faster, more predictable construction with significant financial returns. Evidence-based analysis demonstrates consistent benefits across all project types, positioning Homes NSW as Australia's leading social housing MMC innovator.

MMC adoption builds strategic organisational capabilities that extend beyond individual project benefits, creating lasting competitive advantages for Homes NSW. Implementation develops internal expertise in advanced construction technologies and integrated delivery methods whilst attracting high-calibre professionals and strengthening supplier relationships. This capability building positions Homes NSW to influence industry standards and establishes the organisation as a centre of excellence for social housing delivery transformation across Australia.

		RMATION IMPACT Enhanced Delivery (2021-2029)	
BASELINE (2021-2024)		MMC ENHANCED (2025-2029)	
PROJECTS	11	PROJECTED PROJECTS	25-30+130% increase
UNITS BUILT	174	ADDITIONAL UNITS	+250 Total: ~425 units
PEOPLE HOUSED	435	ADDITIONAL PEOPLE	+625Total: ~1,060 people
INVESTMENT	\$76.7M	TIME SAVINGS	\$380/m ² Programme acceleration

Education, Skills and Training





Research into the education, training and skills ecosystem has identified gaps in the availability of education and support for critical skills. In response, Homes NSW is proposing new training modules, with content development underway in collaboration with external education providers. The project also aims to promote industry adoption of innovative housing delivery methods through targeted education, upskilling, and training initiatives.

01 Homes NSW Modules

MMC training modules follow a progressive framework, from foundational principles to mastery, allowing employees to enter based on their existing knowledge. Stackable units, tailored to roles and activities, support targeted learning. Advanced modules cover procurement, innovative building processes, design guides, and assembly resources to accelerate industry capability and standardise practice.

02 Personas

Targeted training approaches are guided by personas that span Homes NSW's portfolios and organisational levels. External stakeholders are included in the ecosystem to ensure they receive industry updates and promote capacity building. Personas include property managers, construction contractors, supply chain participants, middle managers, architects, and urban designers, ensuring organisation and sector wide alignment.

External Providers

Workforce educational strategy is underpinned by current and developing short courses, continued professional development (CPD), certificate IV programs, associate degrees, on-the-job training, and offerings from TAFE and universities. By leveraging this ecosystem, the strategy ensures that both emerging and established professionals can access tailored learning opportunities that address current gaps and anticipate future capability needs

04 TAFE NSW AIT

TAFE NSW, through its Institute of Applied Technology (IAT), contributes to the evolving education ecosystem by offering targeted micro-credentials and micro-skills. These offerings are being explored by the research team for potential alignment and co-delivery with Building 4.0 CRC and Homes NSW to address emerging industry demands. With the establishment of MMC as a standard practice, there is a clear need for structured training frameworks that support industry-wide adoption and progression toward future accreditation pathways.

05 Apprenticeships

Apprenticeships and on-the-job training feature in international initiatives focused on the adoption of modern construction methods. Embedding MMC-focused apprenticeships within Homes NSW's workforce strategy enables skill transfer in real-world contexts, accelerates industry readiness, and supports scalable uptake of new technologies. This approach fosters a pipeline of qualified practitioners equipped to adopt MMC.

06 Collaborators

Industry peak bodies, suppliers, and contractors have a key opportunity to contribute to an industry wide uplift in skills and training by collaborating in the development of targeted educational initiatives that support workforce capability and accelerate the adoption of MMC.

Global MMC Case Studies Overview



UK Public-Private Collaboration Approach

The UK's engagement with MMC dates back to post-WWII reconstruction and mass housing in the 1960s. Construction reviews, beginning with the 1994 Latham Review, shaped subsequent strategies, including the 2011 and 2016 Government Construction Industry Strategies. Construction 2025 (2013) set a vision for greater public–private collaboration and MMC uptake.The 2016–20 strategy focused on strengthening government capability as a client to drive cost efficiency and best practice.



The Forge, Southwark, London (2021)

Landsec with Bryden Wood + Specialist Consultants.

Net-zero Office Building constructed utilising a Kit of Parts developed through cross-industry R&D and collaborative contracting



Product Based Building Solution (2023)

Laing O'Rourke + UK Research and Innovation.

A demonstration R&D showcase of a kit-ofparts building system, designed for crosstypology application in education, residential, healthcare, and commercial sectors.



Laing O'Rourke; University of Cambridge

\$200m investment in offsite manufacturing, establishing a Centre of Excellence, advancing R&D, and creating DfMA rules for their projects.

Successes

Strategic collaboration — government, academia, and private sector

Government-backed initiatives like Construction Innovation Hub and funding for public housing MMC projects.

Industry frameworks, tools and guides developed for digitisation and **Design for** Manufacture and Assembly (DfMA).



Bryden Wood; Construction Innovation Hub (CIH)

Bryden Wood explored shared components across Government assets // CIH took this work forward as an Industry-Government R&D node.

Challenges

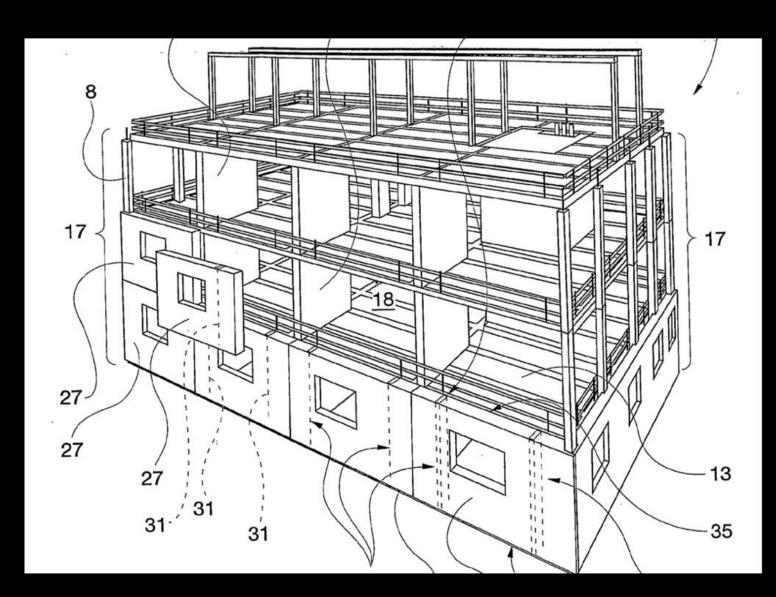
Public sector investments were **not insistent** on the use of MMC — finance, supply chain & contracting challenges.

Lack of **clarity on the cost of MMC** — no agreement if MMC is more or less expensive than traditional construction.

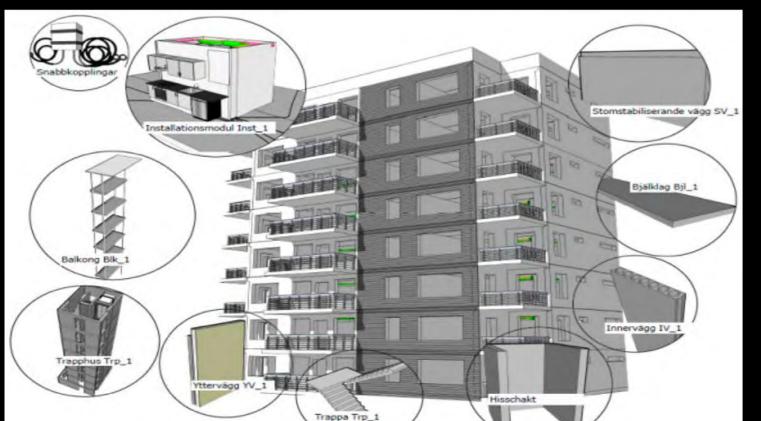
Lack of **data on MMC utilisation** — little data to measure progress, no overseas learnings of best practice.

Sweden Operational Excellence

Since the 1920s, Sweden's forestry and sawmill industries have produced building products such as trusses and frames. Single-dwelling prefab firms, consolidated in the 1960s, now supply about 85% of the detached housing market. The Million Homes Programme (1965-74) delivered one million homes but left social and quality issues. Regulatory change in the mid-1990s enabled multi-storey timber construction, driving major R&D. Today, timber MMC firms supply around 15% of the multi-residential market with advanced products and systems.









Lindbäcks Bygg

Prefabricates complete house modules for on-site assembly, cutting CO₂ emissions by 50% compared with traditional concrete and steel construction.

Successes

A (cultural) long-term innovation focus, underpinned a commitment to process/ operational excellence.

Understanding the market before developing the system/ production.

Performance-based building codes driven by carbon reduction and sustainability goals.



Boklok

90% completed in the factory 50% carbon reduction compared to traditionally built.

Challenges

Vertically integrated business models allow control but lack agility

Upfront investment requirements can create a barrier to entry and can constrain market flexibility.

Global MMC Case Studies Overview

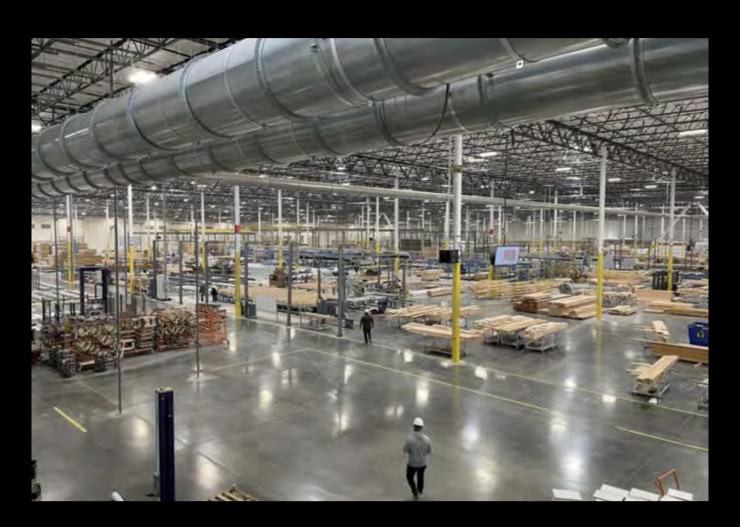


USA Experimentation and Capital

Long history of interest in MMC — post-WWII efforts repurposed wartime infrastructure for construction. Operation Breakthrough (1969–76) brought manufacturing techniques from automotive directly into construction to boost supply and cut costs. Manufactured housing (distinct from modular) has broad uptake, governed by a federal building code administered by HUD. The Department of Energy's Better Buildings Initiative promotes MMC, though much recent interest has come from venture capital. MMC accounts for ~3–5% of the housing market, with greater use in bespoke projects, though new tech-driven startups are emerging.



▲ Blokable | Vertical integration for BtR



▲ Volumetric Building Companies (VBC) The next nutcracker?



▲ Katerra | The risk of Venture Capital



▲ Blueprint Robotics | Targetted integration



Successes

'Unglamourous success' — e.g. Manufactured Housing and the role of HUD

Experimentation — an open approach to innovation, diversity of companies / approaches

Challenges

Return on investment expectations associated with VC funding is often misaligned to reality of project delivery

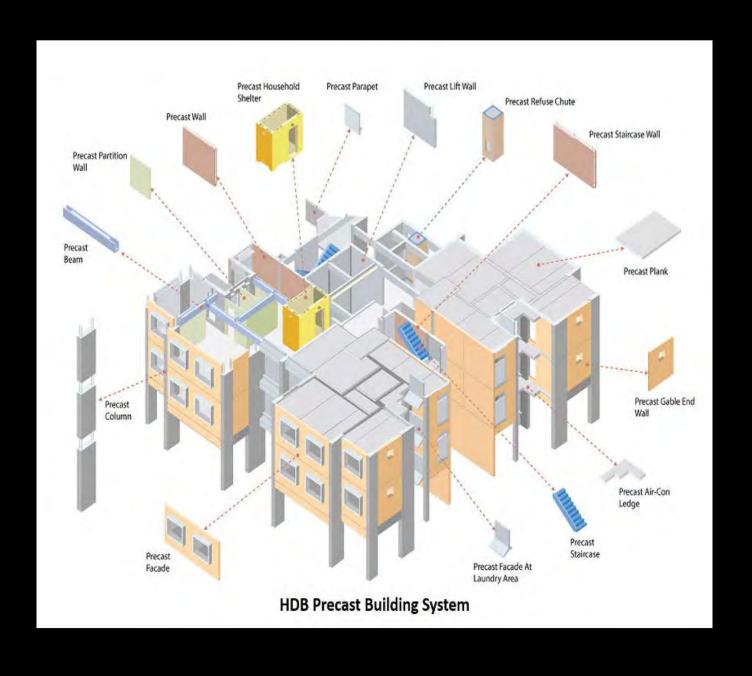
Building codes vary significantly between states limiting standardisation and resulting in complex compliance challenges, underpinned by limited/fragmented Governmental support.

Singapore Direct Government Intervention

Singapore began exploring MMC in the early 2000s through the Housing Development Board (HDB) to address housing shortages and improve efficiency in public housing. The Building Construction Authority's (BCA) Construction Productivity Roadmap (2016) emphasised MMC to boost efficiency and reduce reliance on foreign labour. Productivity targets aimed for a 25–30% increase by 2020, focusing on prefabricated methods such as PPVC and Mass Engineered Timber (MET). Integrated Construction and Prefabrication Hubs (ICPHs) support the prefabrication of building components. The government set a 70% DfMA/MMC utilisation target by 2025 (44% achieved by 2022).



Dragages Singapore | Prefabricated Prefinished Volumetric Construction





▲ HDB | Prototyping and Test Labs

■ HDB | Precast Building System

Successes

Government mandates — BCA has set clear targets, enabling cross-sector standardisation and a stable pipeline.

Centralised oversight — BCA aligns policy with housing needs, ensuring effective MMC implementation.

Reduced labour dependency —

Prefabrication focus cuts reliance on foreign workers, traditionally central to Singapore's construction workforce.

Challenges

Dense urban logistics — Transporting large modules and managing on-site storage is difficult in Singapore's compact environment.

High initial costs — Establishing ICPHs and adopting PPVC requires significant capital, limiting smaller firm participation.

Quality control issues — Some PPVC projects have faced module alignment and jointing problems, causing delays and regulatory compliance challenges.

Demonstration HOME

Kit-of-Parts

To introduce System 600, a twobedroom demonstration apartment has been built using standardised parts and design rules.

Components were produced by multiple Australian suppliers and assembled in Sydney by a builder with no prior involvement in the system's development.

The Process

Design commenced in February and by May, most elements were available, enabling a test-fit assembly.

According to the builder, under typical construction site conditions with standard crane access, the assembly could have been completed in less than two days.

Why Prototype?

No amount of design can fully substitute for the real-world experience of fabricating and assembling physical parts. Prototyping reveals critical issues that remain hidden during design — such as tolerances, alignment, ergonomics, and logistics.

Suppliers

Suppliers included in this demonstration:

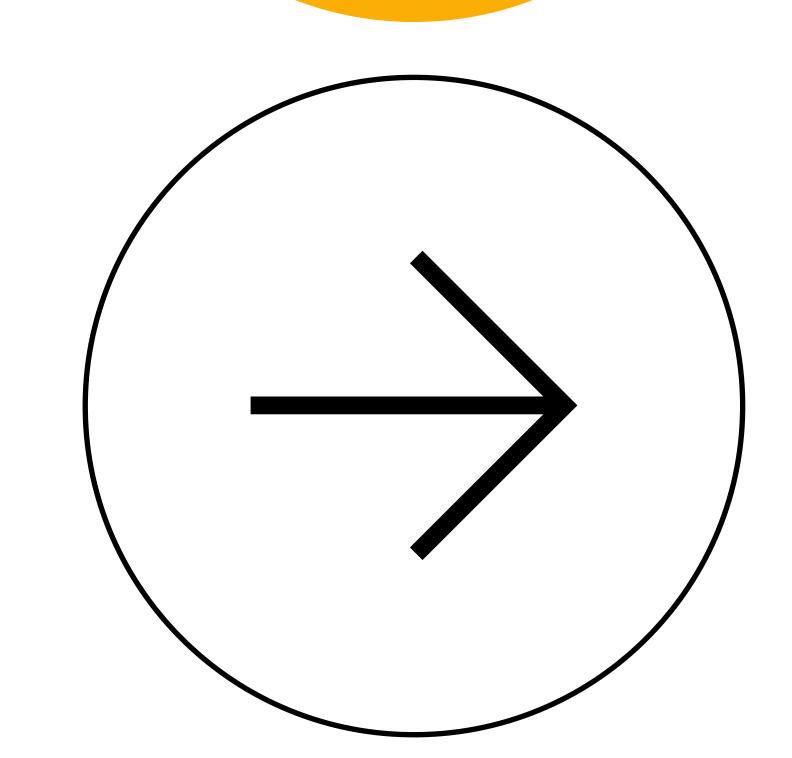
• Multikit -provision of walls, interior finish panels, floor overlay system,

- bathroom pod Nextimber - CLT floor slabs
- Apex -modular wiring and switchgear • A G Coombes - Exterior Services Module, Vertical Riser Rack,
- Interface Panel • Winnings Appliances - Kitchen and

Horizontal Services Assemblies, Wall

- Laundry Appliances
- Brother Nature assembly, painting, balcony kitset fabrication and install
- CSR facade cladding products • Austral - terracotta cladding panels,

brick cladding panels



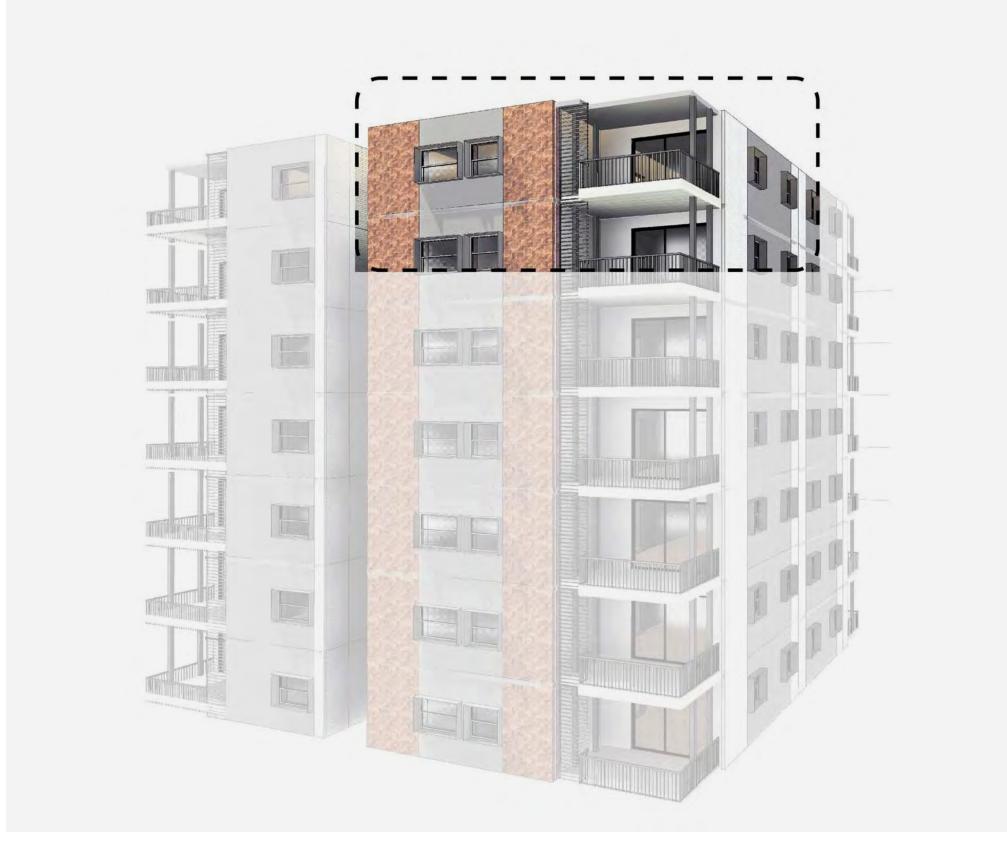
Demonstration Home

Specifications

Total internal area

Total balcony area

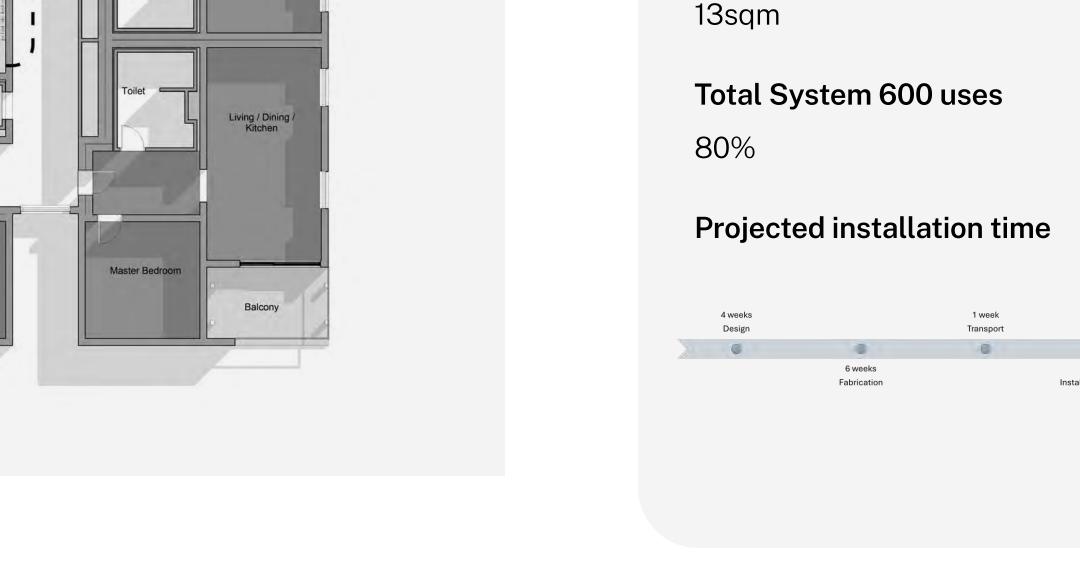
84sqm

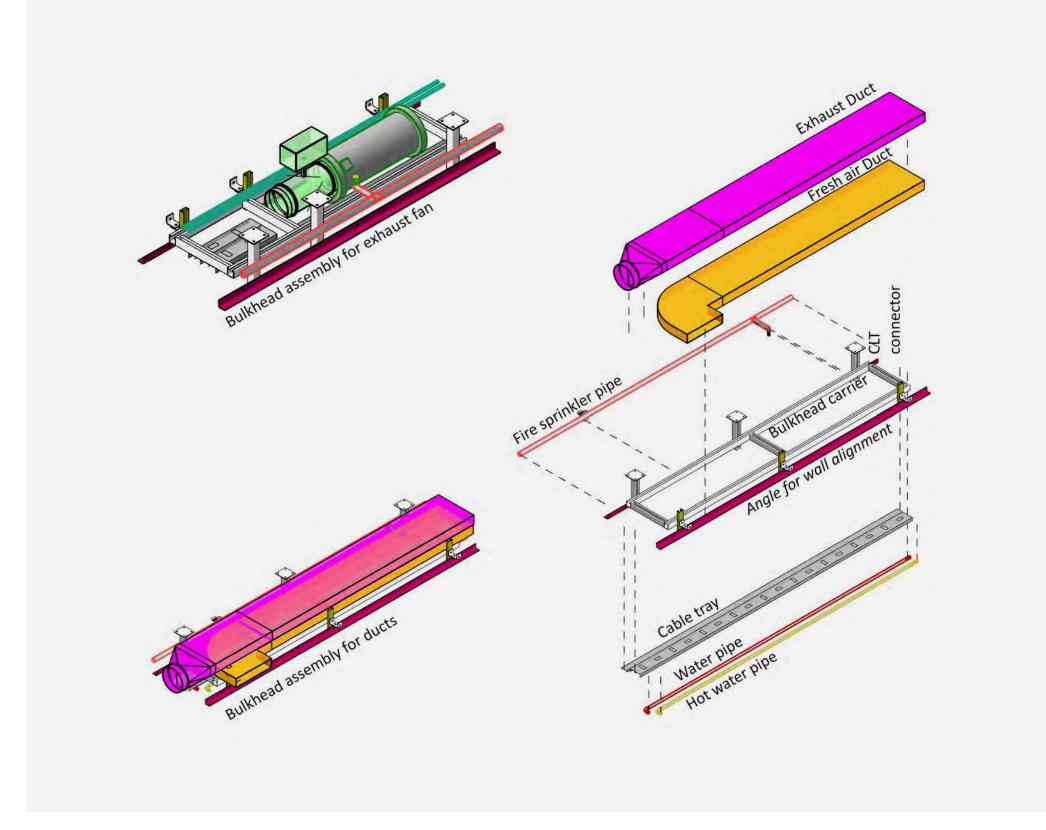


Demonstrator apartment location



Floor Plan





Bulkhead Assembly

Demonstrator Apartment: Mid construction

Products

Products included in this demonstration:

- Standard walls in varying lengths
- Balcony kitset frame
- Panelised facade-architectural layer
- Standardised window sizes
- Standardised cabinet units
- Modular bathroom (accessible layout)
- Modular laundry
- External Services Module
- Vertical Services Rack Horizontal Services Modules
- Modular wiring
- Panelised interior wall finishes, bulkhead finishes, skitings

Smart Connectors

Smart Connectors included in this demonstration:

- Fastmount panel mounting system
- Apex modular wiring connectors
- J Rail facade connection rail

Omissions

 Although mainly complete, a few minor elements have been intentionally left out to minimise R&D costs.

What Comes Next?

 The next phase will focus on a smaller set of priority components for further refinement, prototyping, and rigorous testing.

FAQs

Regulatory Considerations

Every effort has been made to ensure the demonstration apartment complies with current regulations.

Can this only be made in timber?

The system is designed to include a wide range of materials. Timber was chosen for this demonstration because of the strong local supply chain in NSW.

Is this a standard Homes NSW apartment?

No. This is larger than standard requirements in several areas.

How quickly could this be built?

If the parts used become industry standard products then lead time on parts is likely to be three to six weeks maximum.

Assembly time for a dwelling is estimated at two days inclusive of finishes.

Is this made offshore?

No, this is designed to be made using Australian suppliers.

Demonstration Home



Design

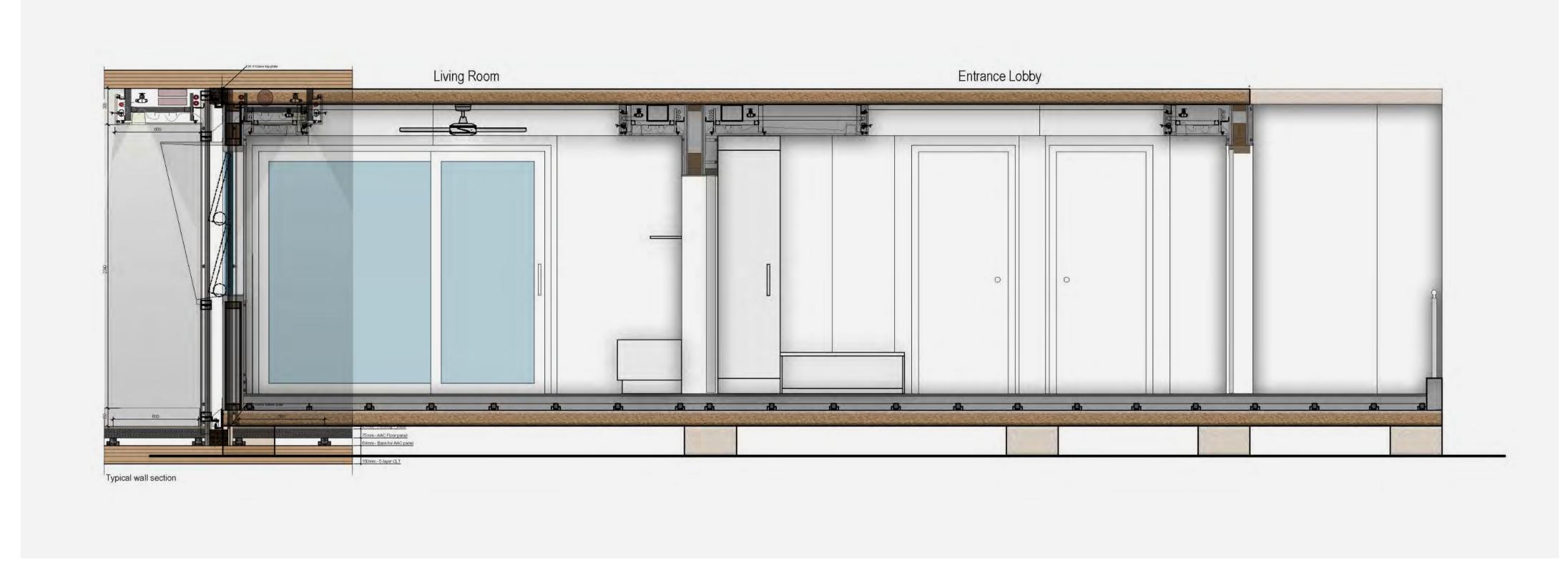




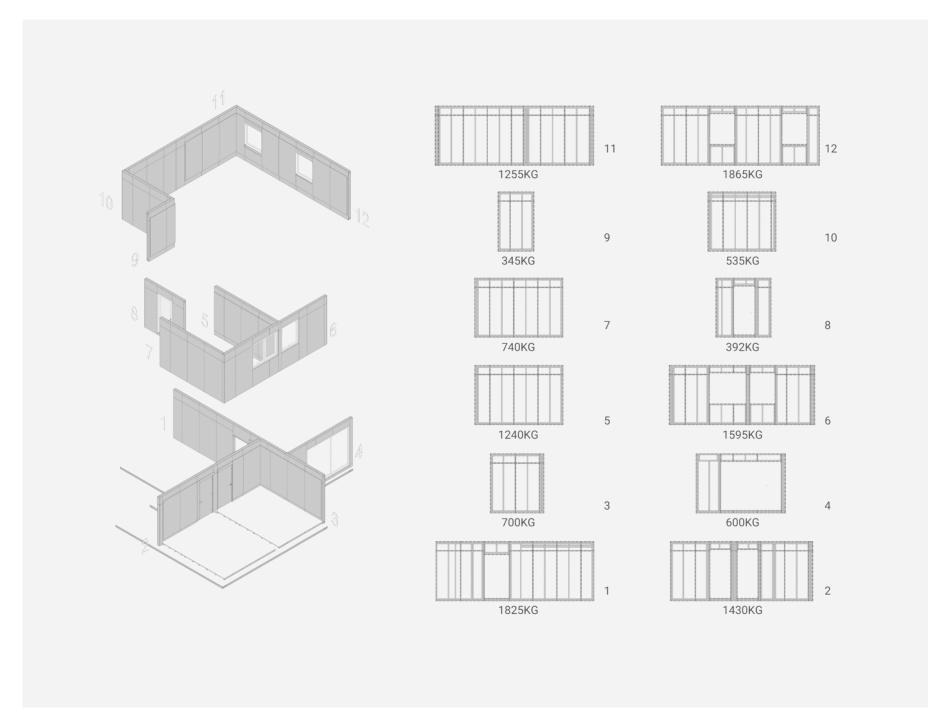
Fabrication Model

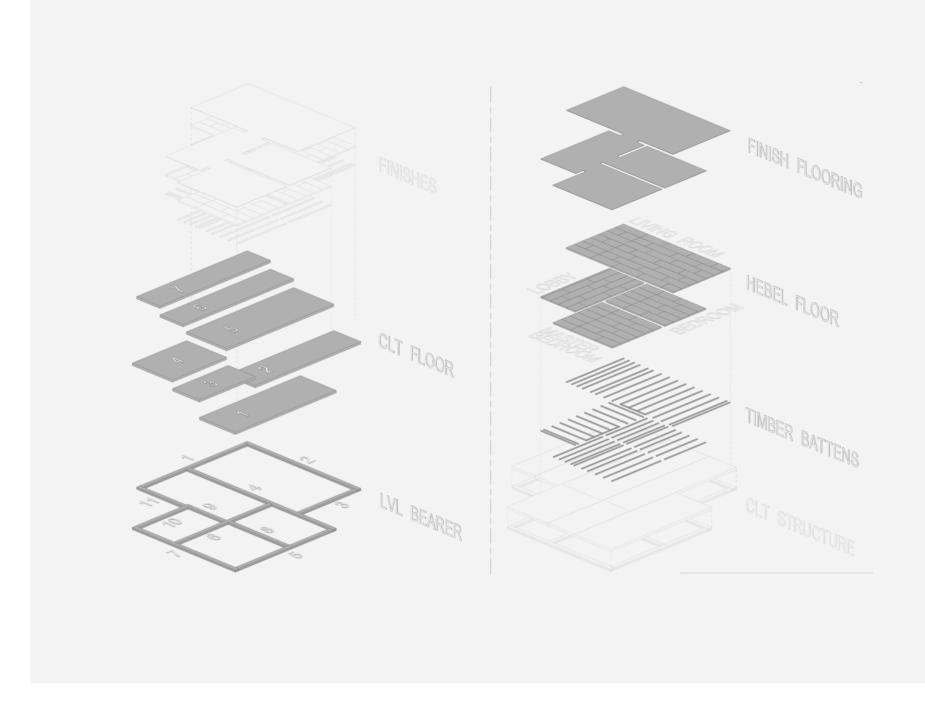


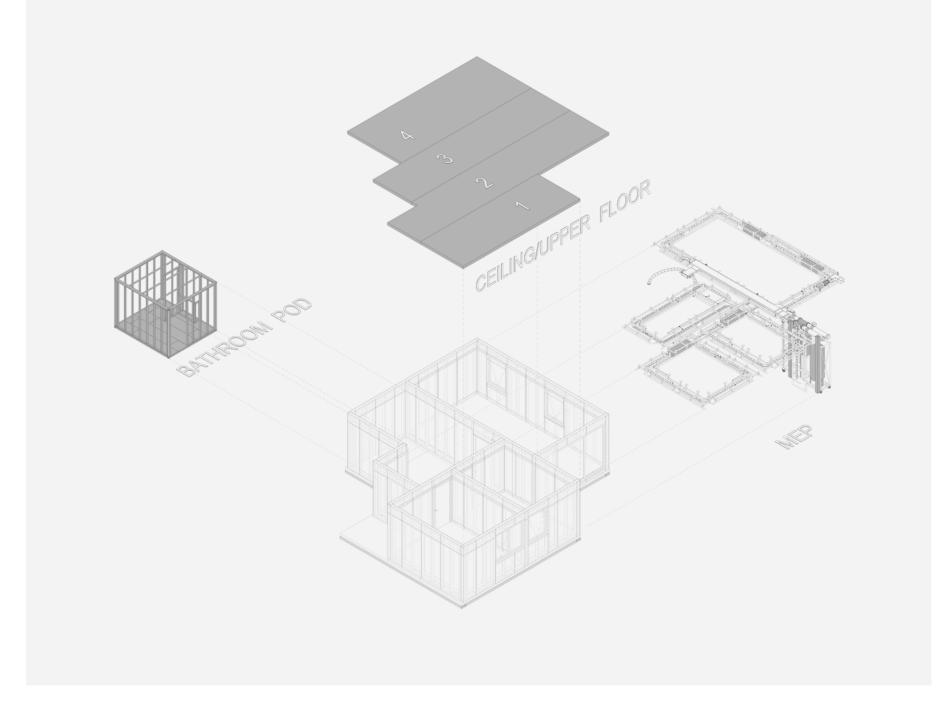
Typical Cross Section



Assembly Sequencing Diagram







Wall Assembly Sequence Floor Assembly Sequence Apartment Assembly

Test Drive

29

This exploration comprises an architectural 'test drive' of the Building 4.0 CRC System 600, by local design firm, Architecture AND. The test drive explores the system through the lens of architectural practice.

A series of apartment types have been developed, based on uniform depth to enable a range of combinations. System 600 has then been applied to a series of sites—St Marys, Gwynneville and Revesby—exploring the potential for the system to apply to sites of a range of proportions and orientations, characteristic of the Homes NSW portfolio.

Preliminary Concept St Marys

Corner Site
Dual North / West
Street Frontages



Preliminary Concept Gwyneville

Linear Site Dual East / West Street Frontages



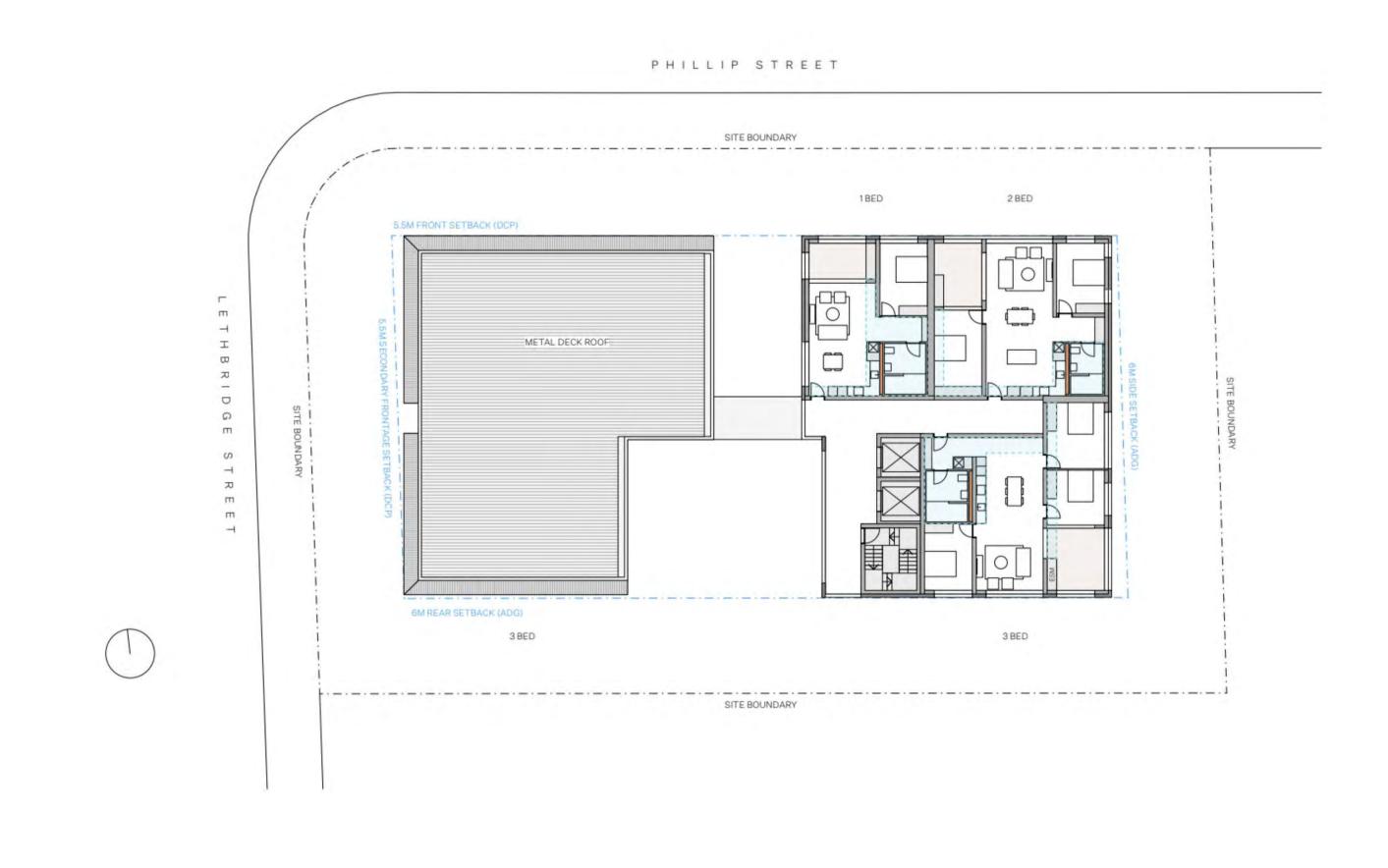
Preliminary Concept Revesby

Wide Site Single Eastern Street Frontages



Developed Concept St Marys St Marys, Architecture AND.

Upper Level Plan



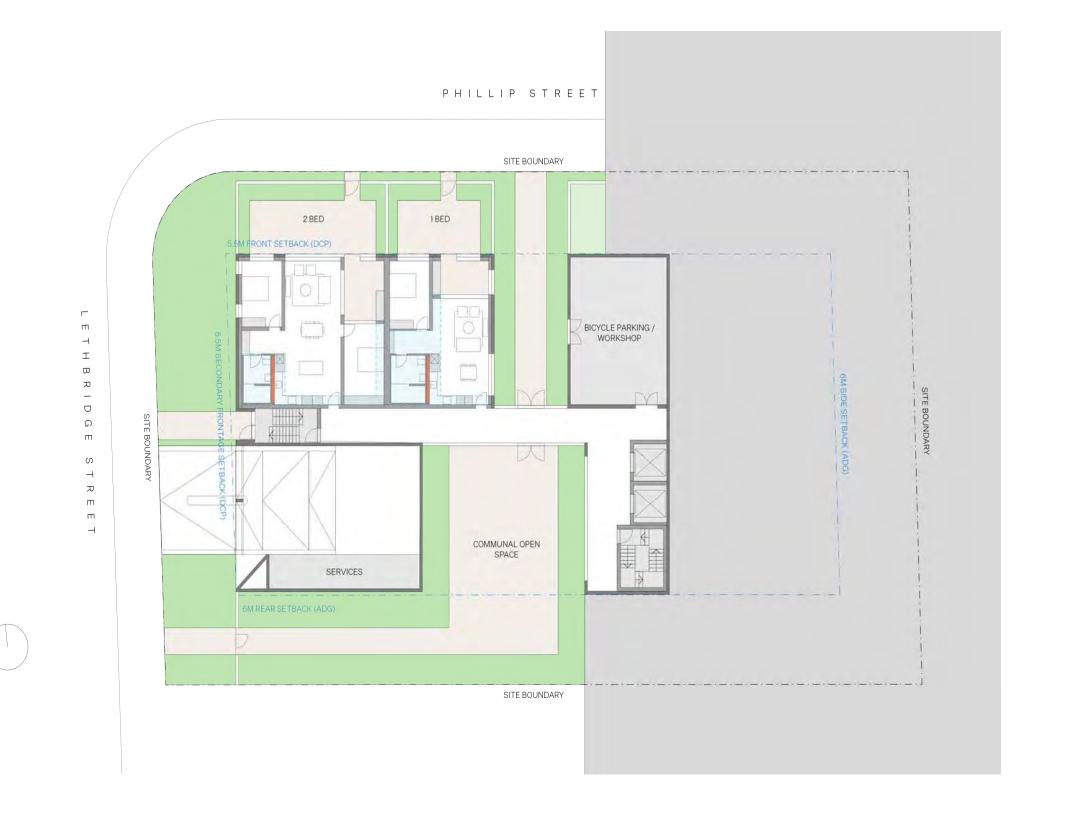
Developed Concept St Marys The large break between the two volumes admits northern light to the communal courtyard, while enabling cross ventilation to each dwelling.

Typical Level

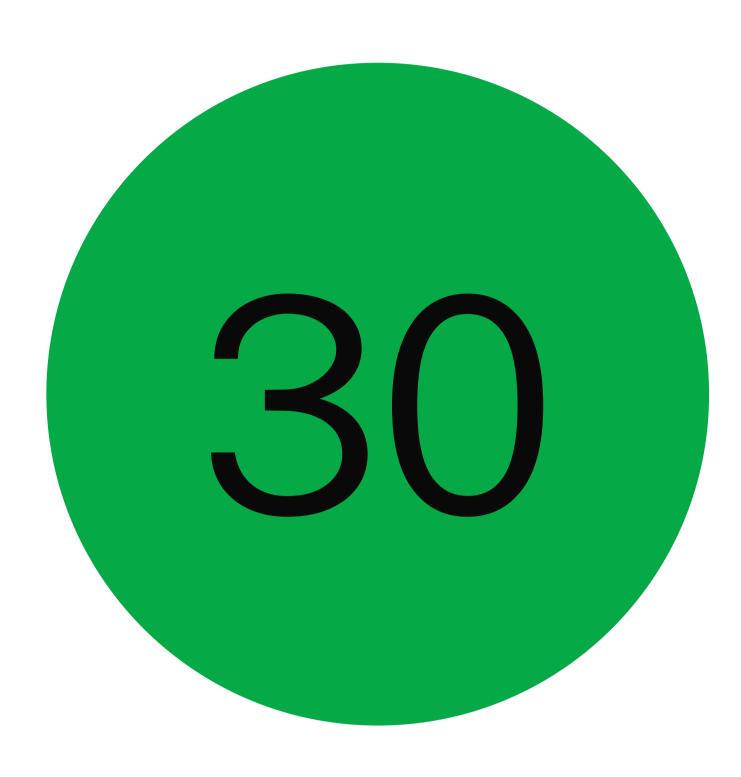


Developed Concept St Marys Basement entry is provided from the lower portion of the site, with primary pedestrian entry from the northern, primary frontage of Phillip St. Ground floor dwellings enjoy extended terraces and direct connection to the street.

Lower Ground Plan



Expression



System 600 offers significant design flexibility, informed by appropriate design constraints.

We employed an architectural expression based on an 800mm spandrel, providing a sense of horizontality and utilising lightweight cladding in a manner that provides a monolithic, grounded tone. Through this exploration, we came to the conclusion that the System 600 is highly flexible and does not impose constraints on the architectural expression, beyond those appropriate principles; the uniform stacking of floorplates to avoid transfers, and the avoidance of cantilevered balconies. The System 600 offers the prospect of a calm and resolved architectural expression.



O1 Services cradle distributing services to ESM

Lightweight honeycomb wall system

O3 ESM (external services manifold)

Bulkhead to perimeter of room

Architect: Architecture And

