

# BOS Christmas member meeting hosted by Arup

**12 December 2023**

@buildoffsite

#CollaboratingForImpact

**ARUP**

# Overview of Arup's current practice in offsite construction

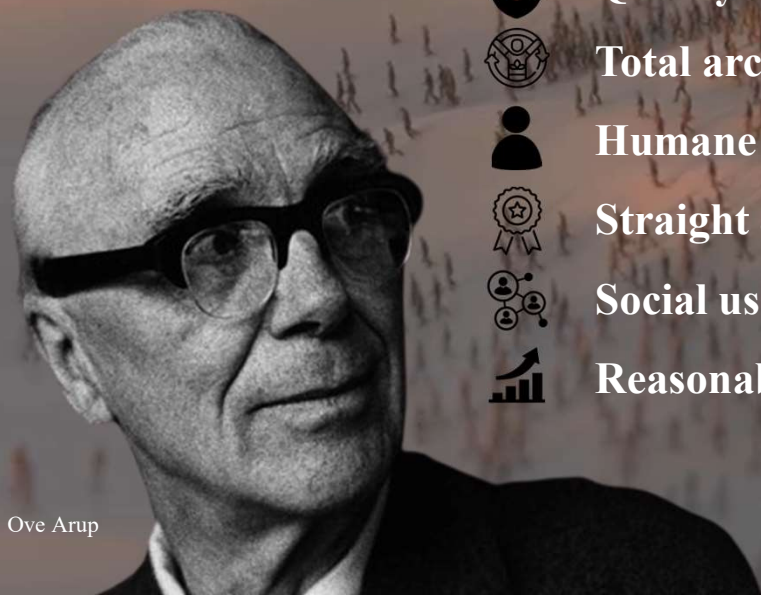


**Sam Hopkins**

Associate

Arup

## Welcome from Arup



**Quality of work:** we will ensure that the Arup name is always associated with quality.



**Total architecture:** we will take a holistic approach to our work.



**Humane organisation:** we will create an organisation that is human and friendly.



**Straight & honourable dealings:** we will act honestly and fairly in dealings with our staff and others.



**Social usefulness:** we will do socially useful work.



**Reasonable prosperity:** we will enhance prosperity for all Arup staff.

▼ Arcon House



## WIDER PRACTICE

- Established 75 years.
- ~20,000 designers, advisors and experts working across 140 countries.
- Sustainable development is everything. We are committed to creating a sustainable future. This is the heart of our work.

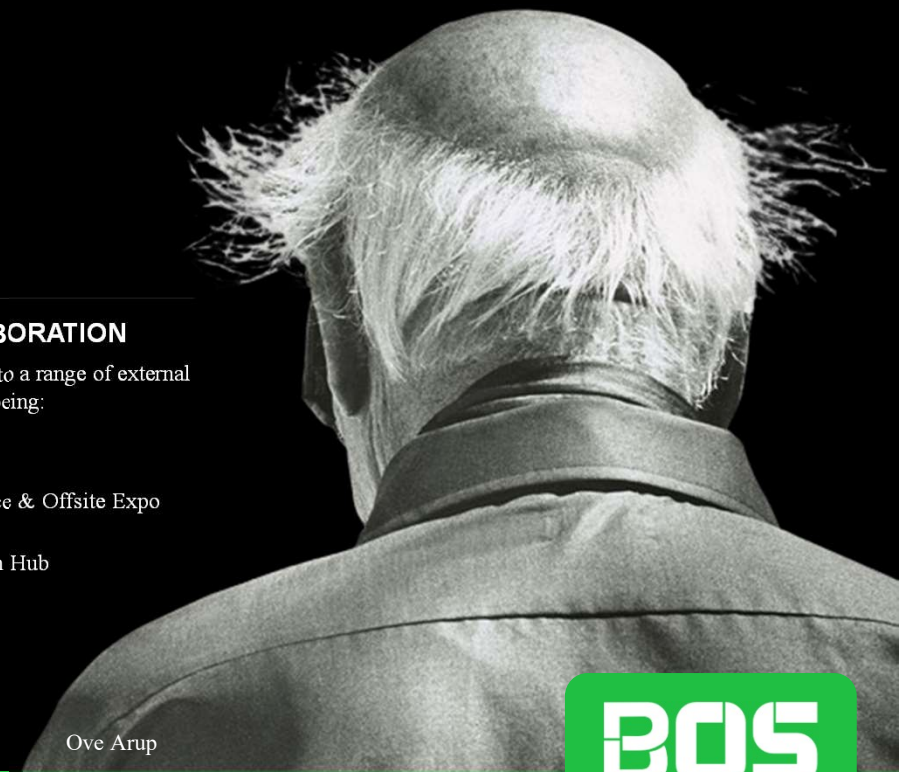
## OUR EXPERIENCE

- Delivering offsite and prefabricated solutions since inception.
- Ove Arup - government's prefabrication committee 1944.
- Arcon house for post war regeneration - ~39,000 much needed homes.
- Actively advising clients & governments around the world as well as providing engineering and specialist design input.

## EXTERNAL COLLABORATION

Arup is a key collaborator to a range of external advocates. Key examples being:

- Build Offsite / CIRIA:
- NHS - NHP
- Build Offsite Conference & Offsite Expo Conference
- Construction Innovation Hub
- BEIS

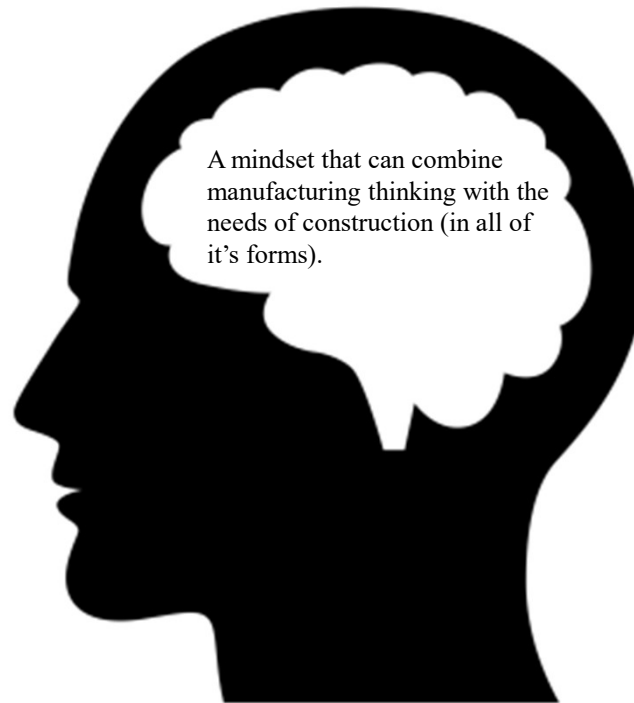


Ove Arup

## It's a mindset...



We recognise that the realisation of benefits from a manufacturing approach are often compromised by the expectation that offsite producers have the same flexibility to deliver what traditional construction can deliver.

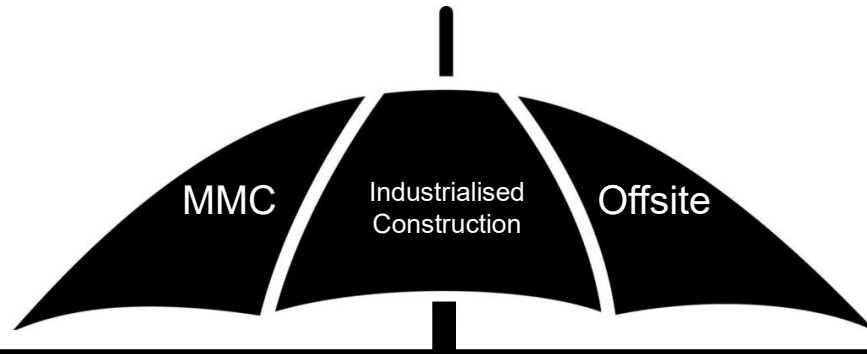


A mindset that can combine manufacturing thinking with the needs of construction (in all of it's forms).



We have a global pool of experts that understand the challenges to be addressed in delivering the benefits that offsite promises.

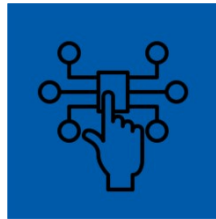
# Capabilities



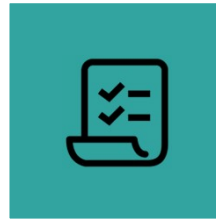
Engineering & Specialist Design



Architectural Design



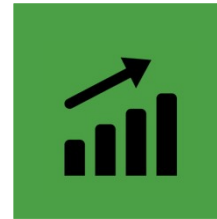
Digital



Planning



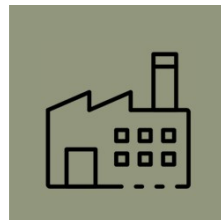
Strategy Development



Business & Investment Advisory



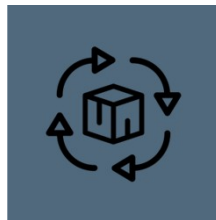
Environmental & Social Governance



Facility & Operational Design



Operations Improvement



Supply Chain & Logistics

F2K | ADPT

ARUP

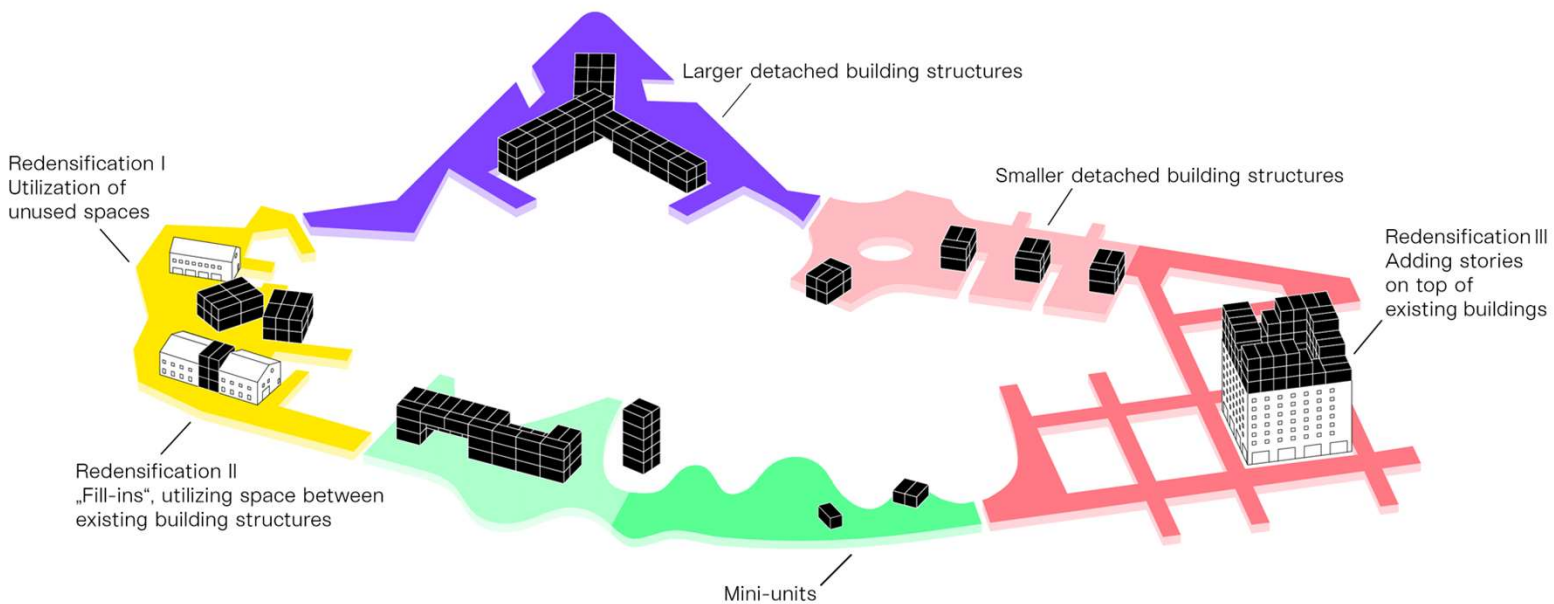


Engineering & Specialist Design



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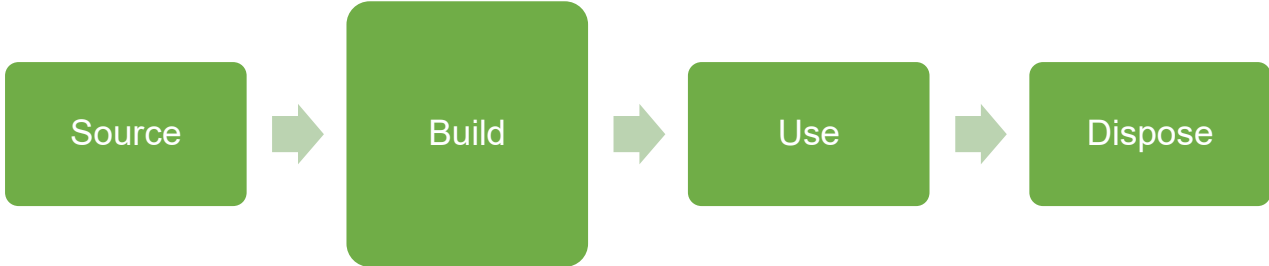




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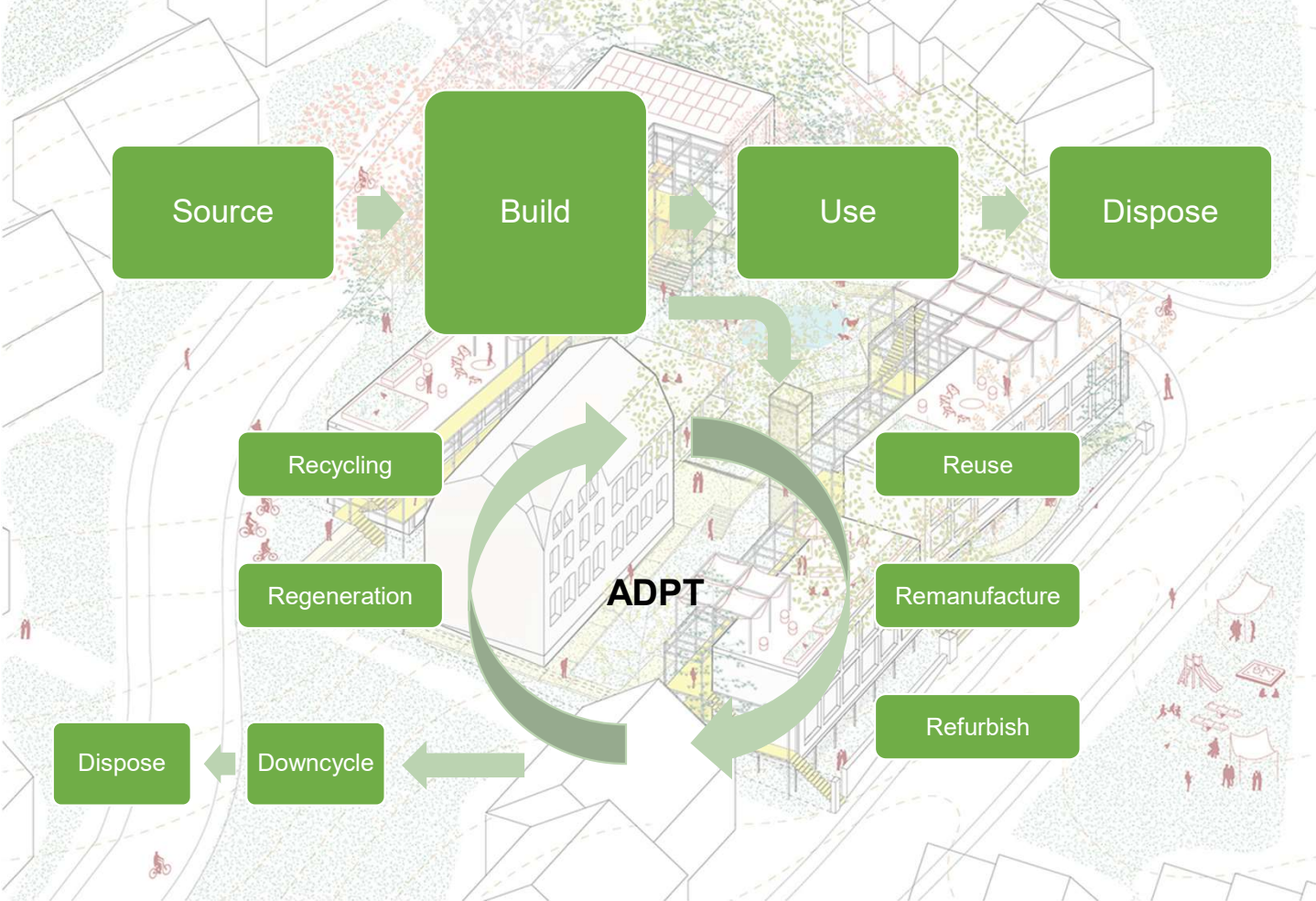






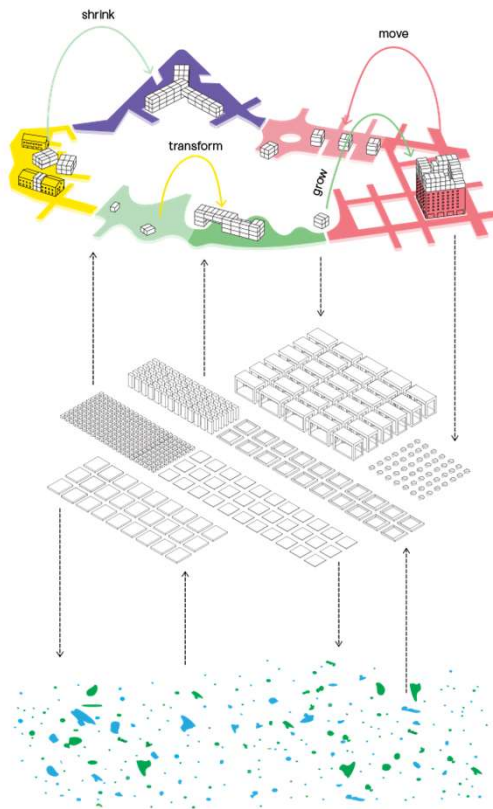
Engineering &  
Specialist  
Design





Engineering & Specialist Design





## ADPT-cycle

### ADAPTIVE, CIRCULAR & DURABLE

- Made of circular modules and elements, which can be stacked up to 5 stories.
- Can regenerate.
- Can start big or small, grow, shrink, transform and move.
- Prolonged (re-)use-phase, saving CO<sub>2</sub>, resources and costs.
- Deconstructed into modules and elements at end of lifecycle (no waste).

### CIRCULAR LAYERS – THE BUILDING-KIT

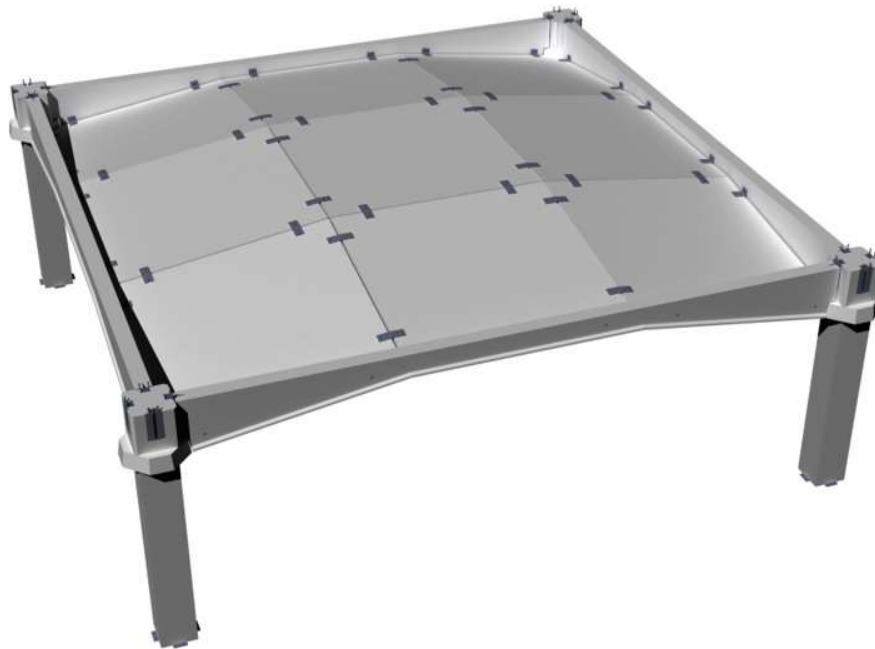
- Modules and elements made of circular materials.
- Can cycle through ADPT-buildings multiple times.
- Deconstructed into homogeneous materials at the end of their life-cycle.

### CIRCULAR MATERIALS – THE BASE

- Biobased & renewable – “nature designs best”.
- Recycled & aesthetic – “there is no waste, just stuff in the wrong place”.
- On this “base-level” materials enter and leave the ADPT-system.

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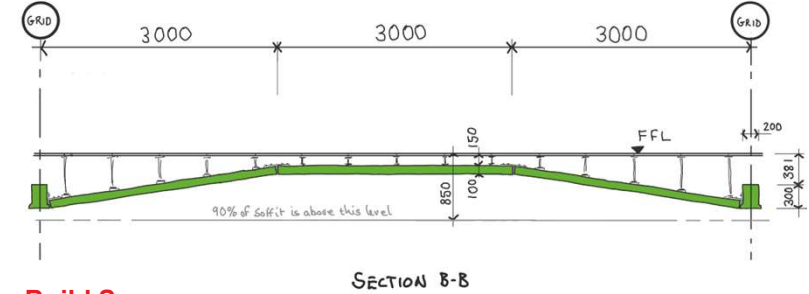
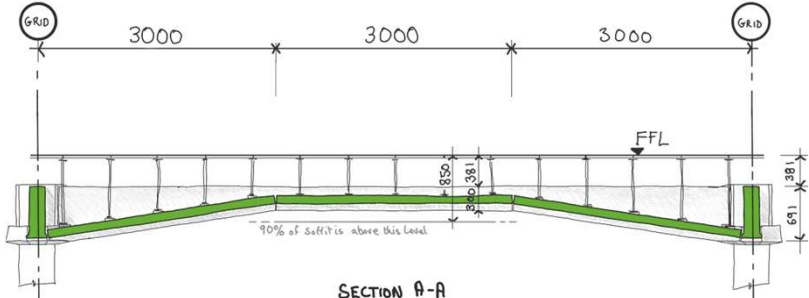
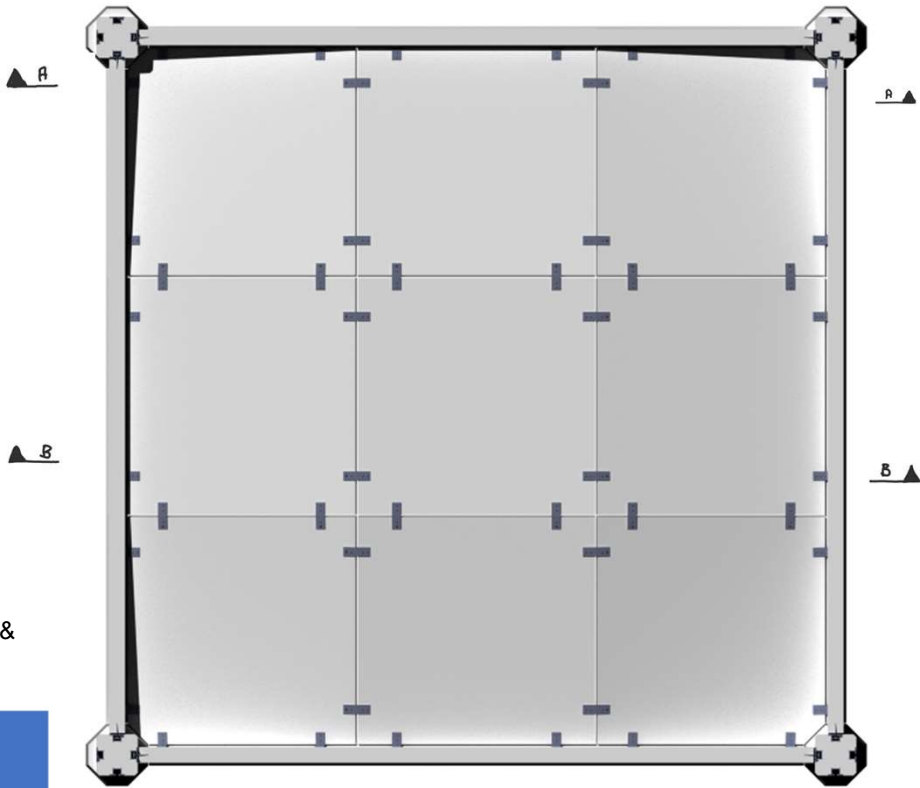
The Arup Vault is an ultra low carbon structural frame option that uses smart geometry to minimise material use and thus embodied carbon.

It is manufactured offsite from nine flat panels of 100mm thick precast concrete that slot together quickly, minimising erection time.

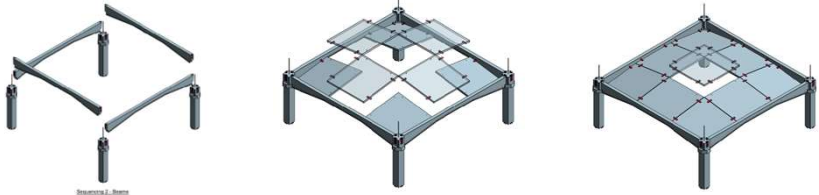
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Design



PLAN

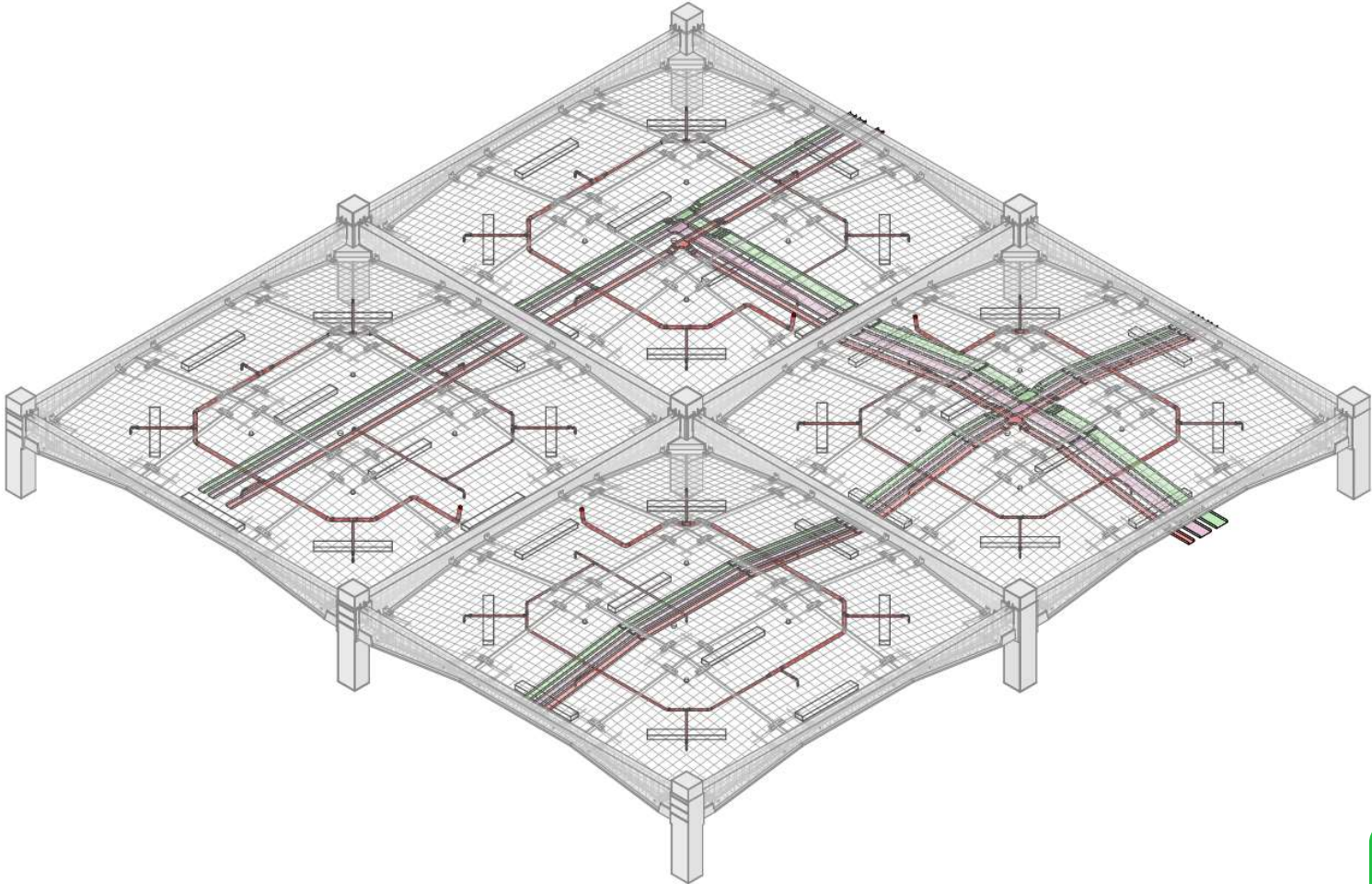


Build Sequence



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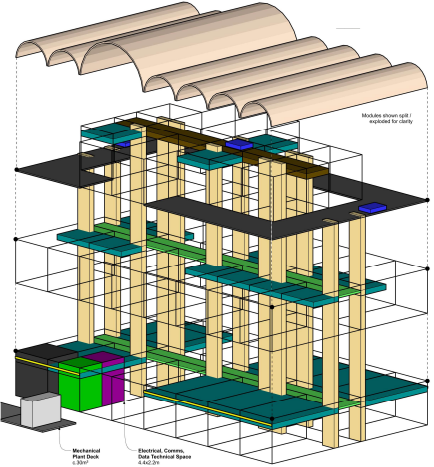


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Design





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Business & Investment Advisory



◀ Arup’s technical review of TopHat’s modular housing business in the UK supported a significant investment in the growth of the business and development of product and market opportunities designed to meet the UK’s ongoing housing need.

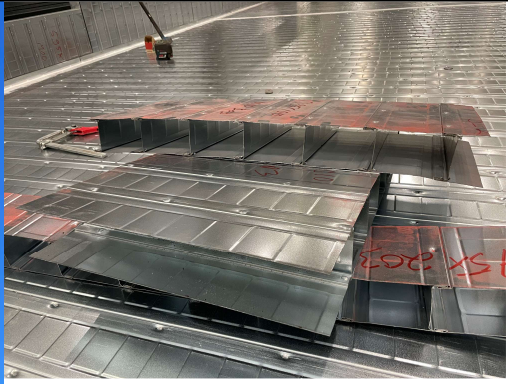


Fixcel, Finland

ARUP

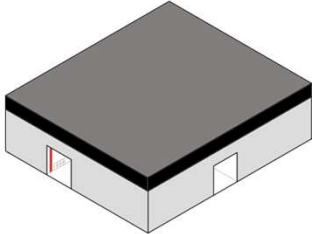


Business & Investment Advisory

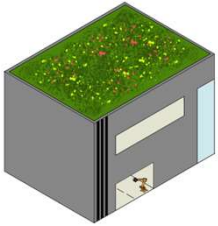


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- High-level precursor study.
- “Increasing supply, manage demand” element of the Government’s Action Plan.
- The work examines the use of Modern Methods of Construction (MMC), with particular emphasis on modular housing, in the context of Jersey.
- Jersey has a population of 107,800 people (2020).
- 3,875 homes over the period 2021 to the end of 2025.
- 1,500 homes specifically for affordable purchase and affordable rent.
- BAU - 400 homes per annum.

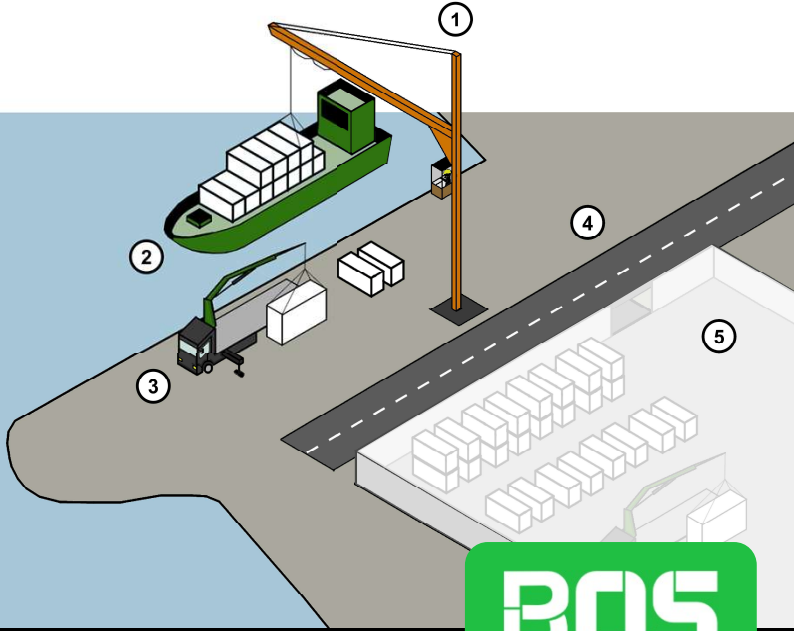
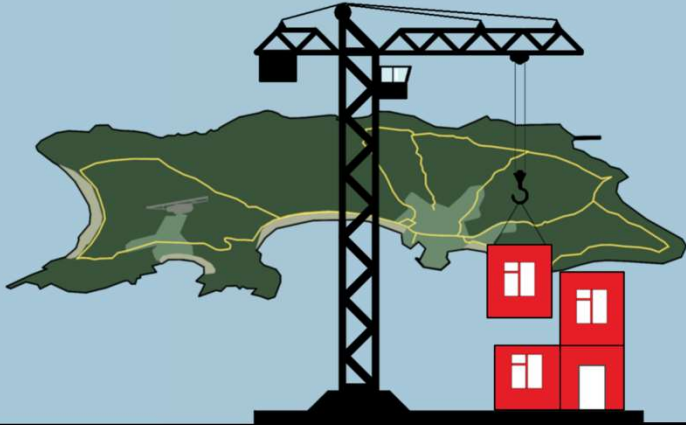


Enabler Facility



Innovation Hub

Supply Chain & Logistics





**ARUP**



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Associate, Arup

Contact Details

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MX3D Smart Bridge

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