Maximising Success for Modular Manufacture and Construction

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Design4Structures

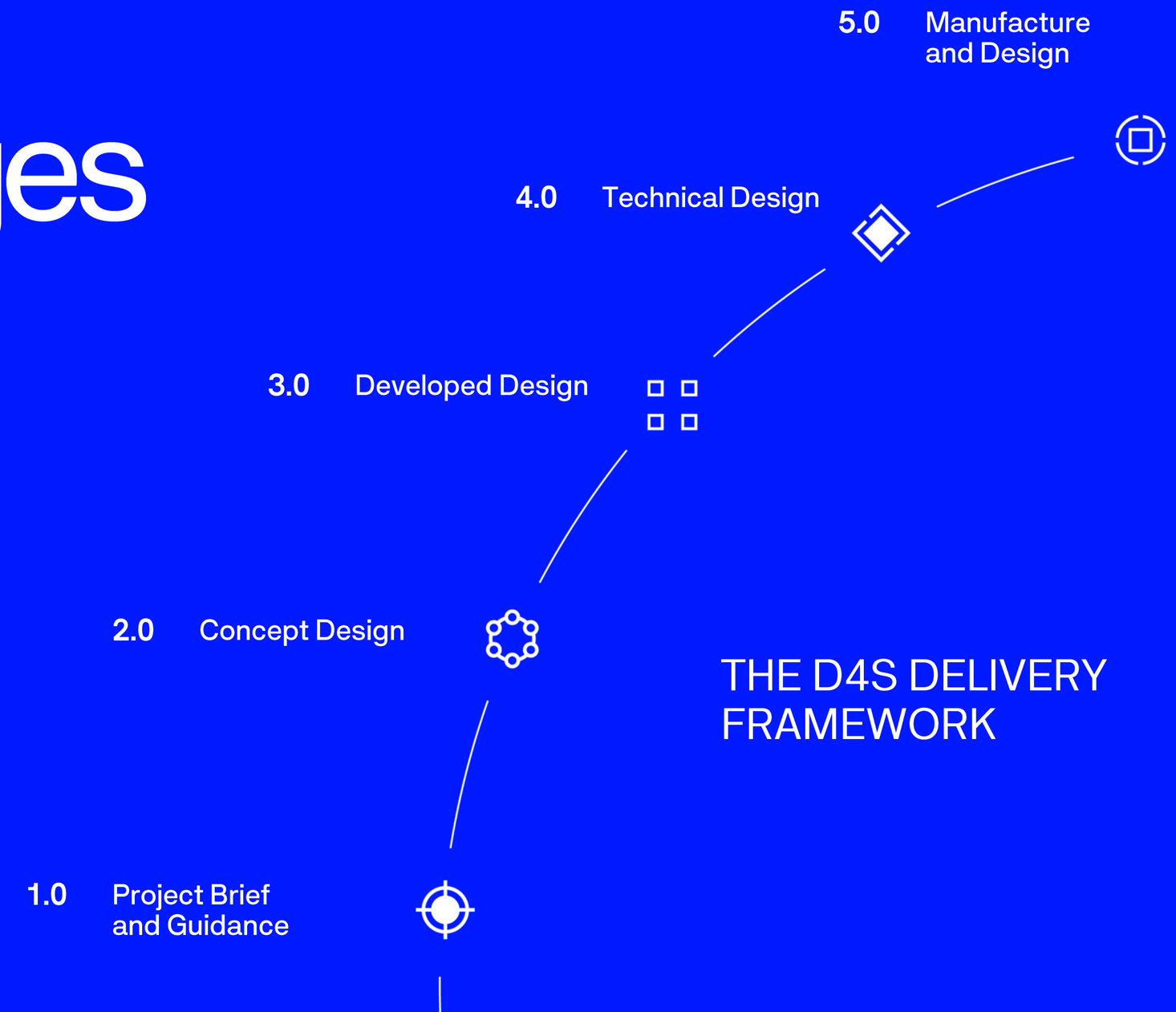
DESIGN 4 STRUCTURES

The Current Challenges

- Standardisation
- Lack of Fluidity
- Industrialisation
- Lack of Government Strategy
- Funding and Pipeline
- Industry Culture

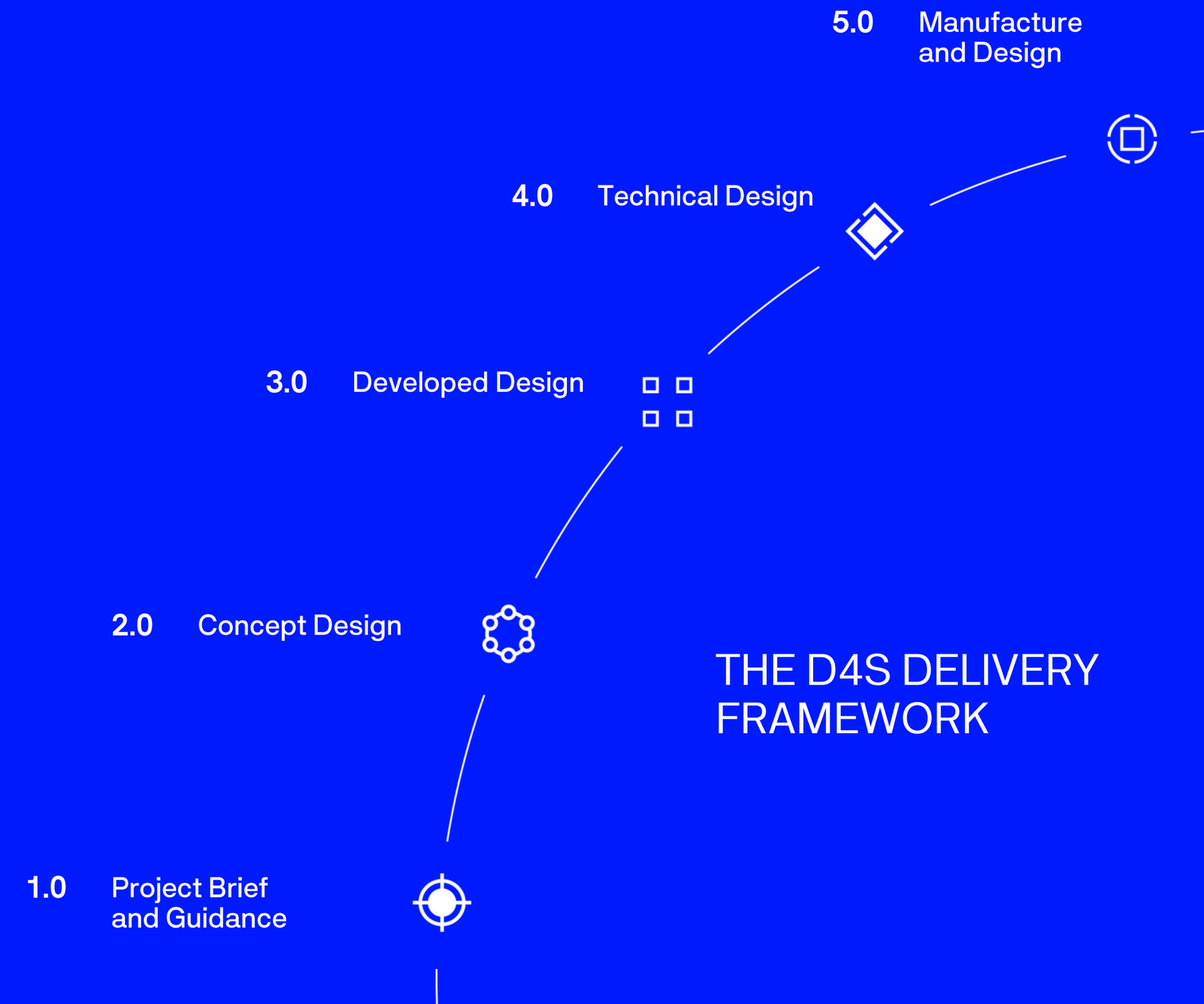
Overcoming the Challenges

- A model developed to support industry in overcoming the challenges
- Stage 0-5 delivery
- Offsite strategy
- Co-ordinating design with manufacture and installation in mind



THE D4S DELIVERY FRAMEWORK

- Taking full responsibility and accountability
- Adaptability: In-house cross-discipline expertise
- Hybrid approach: offsite and traditional capability
- System reviews and development
- Pre-tender support



THE D4S DELIVERY FRAMEWORK

Delivery Framework Adoption

Wates

BRITISH OFFSITE
Manufacture · Construction

MODERN
LIVING SOLUTIONS
BY GREYSTAR

DarwinGroup
Construction Has Evolved

CH
Crown House

WILLMOTT DIXON

SKANSKA

AECOM

香港
機場管理局
AIRPORT
AUTHORITY
HONG KONG

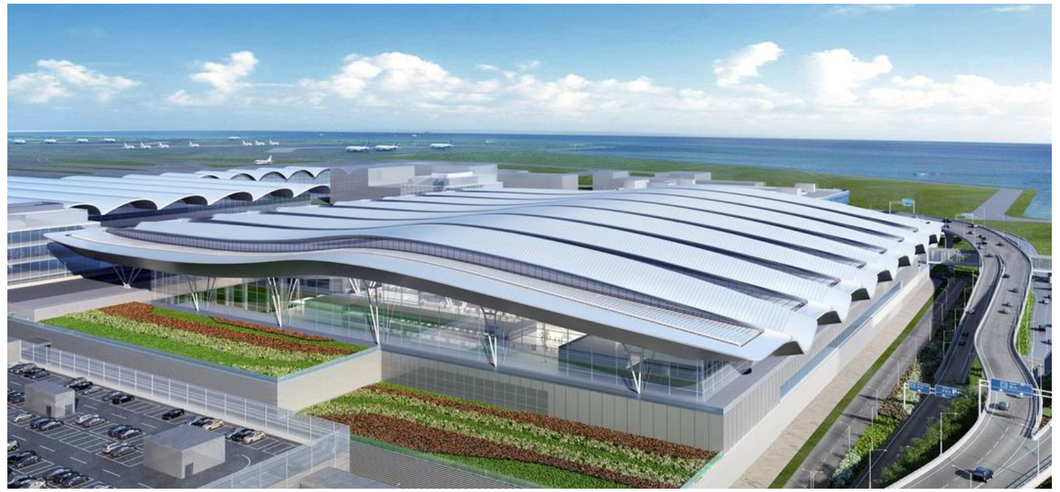
Kingspan

JRL
GROUP

ARUP

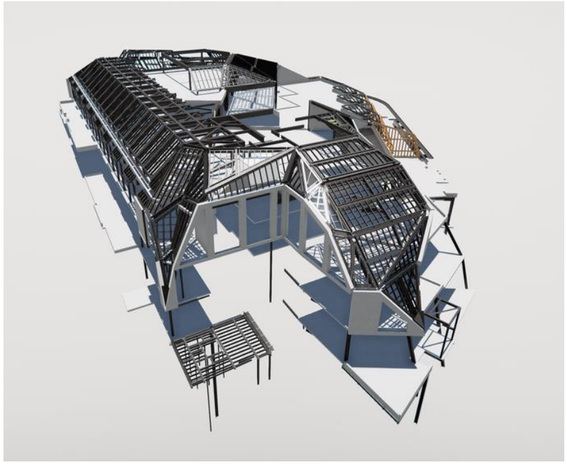
Early Design Intervention

- Principal Lead and Sub-Consulting Engineers
- Stage 4 and 5 delivery - time and cost savings
- Project Director - consistent point of contact throughout
- Fully integrated approach to project coordination and delivery
- Cross sector, cross discipline



Lucent W1

- Offsite methodology; panelisation plus lifting strategy
- Designed for seamless installation in high traffic area
- Construction time on-site reduced by 16 weeks
- Zero non-conformance reports, no site remedial works or on-site injuries.



Hong Kong International Airport, T2

- Appointed directly by Hong Kong International Airport Authority
- Working alongside AECOM, to provide engineering and construction modelling services
- Tekla model created concurrently with structural design
- Front-end approach to design; de-risk project delivery at construction stage

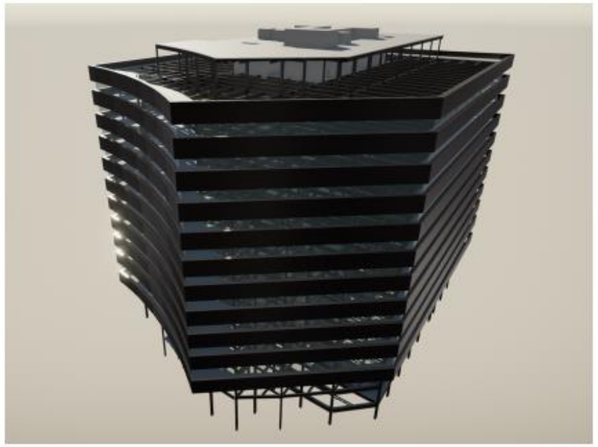
Value Added

- Reduce scope for contractual conflict
- Reduce scope for design creep
- More accurate planning around cost, time and resource
- Reduction in construction programme

MMC Feasibility Studies & Pre-tender Design

Holistic design reviews and innovation, to optimise the scheme to the client's brief, whilst developing options to improve efficiency, cost, speed of construction and embodied carbon.

- Reduced Construction Programmes
- Maximising Sustainability Outcomes
    - Circular economy: reclaimed steel
    - Pre-fabricated modules: reduction in waste and deliveries to site
    - Maximised repetition and assembly efficiencies
    - Reduction of on-site personnel
- Transportation and Erection Strategy
    - Considered within design: minimise transportation to site
    - Worked within parameters of maximum cranage capacity



1 Appold Street

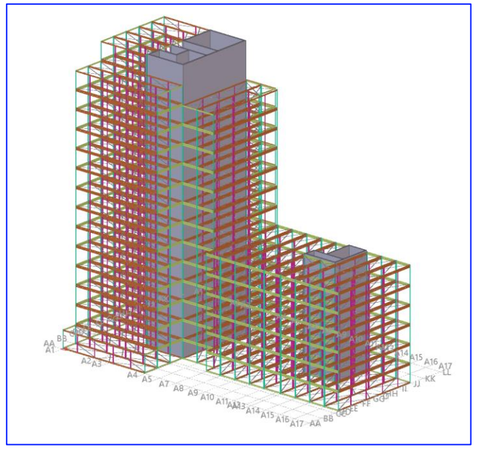
British Land

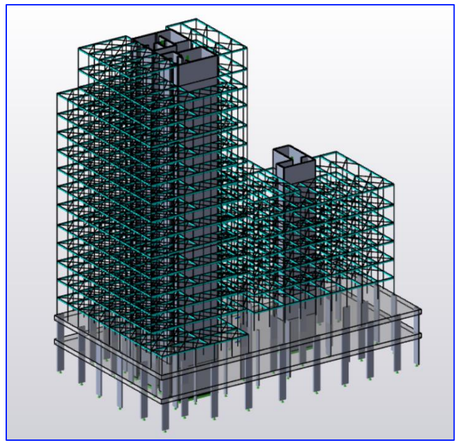
SKANSKA

Modular Case Studies

Site	Woking High Street, Surrey
Sector	Mixed Use / Residential
Services	Structural Engineering, Civil and Infrastructure Engineering, Construction Modelling, DfMA
Client	JRL Modular

- Early design intervention and optimisation.
- Modular system development.
- Cross-discipline expertise to identify best solution.
- Modular concept developed with design team to accommodate updated Building Regulations.
- Tekla modelling and fabrication package.





Spring Run Road

Site	Pennsylvania USA
Sector	Residential
Services	Construction Modelling, BIM
Client	Modern Living Solutions: part of Greystar

- Education and system development to design and manufacturing teams
- Tekla training to aid collaboration / streamline workflow

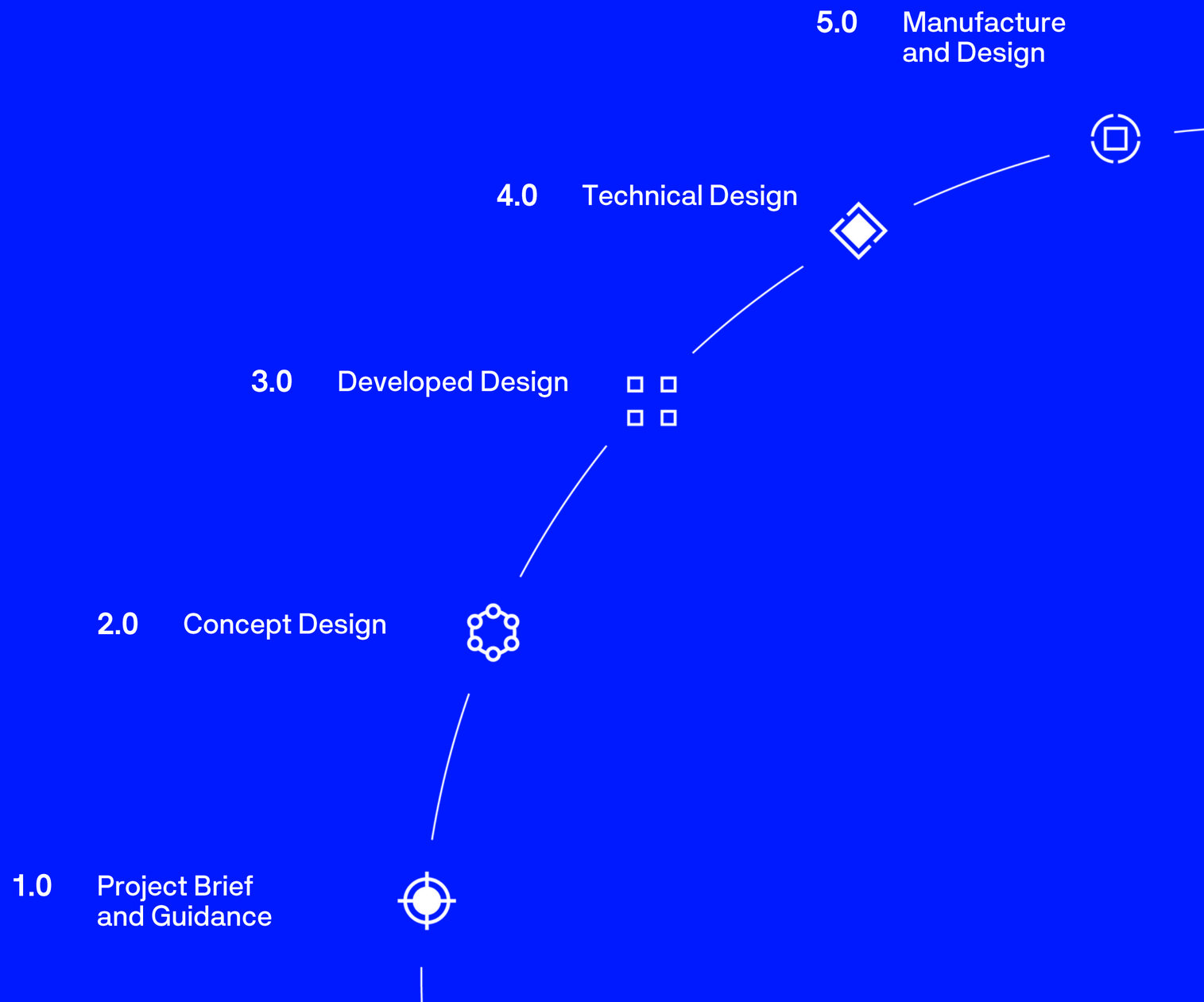
Site	Rugeley, Staffordshire
Sector	Education
Services	Infrastructure Engineering, Structural Engineering, Construction Engineering
Client	Net Zero Buildings

- Collaborative internal design team: modular specialists, structural and civil engineers to find most sustainable solution.
- Solution to maximise space in confined area

The Hart School

Benefits for Modular

- Optimising the solution and the build
- Maximise potential of modular systems
- Holistic project view
- Timeline accuracy and reduction
- Effective cost planning
- Improved resource allocation
- Sustainable outcomes



Further Questions?