

buildingSMART Konferanse 2013

Oslo – 25th April 2013

An Overview of BIM Based Construction Planning

Christopher Brown, Director

Overview

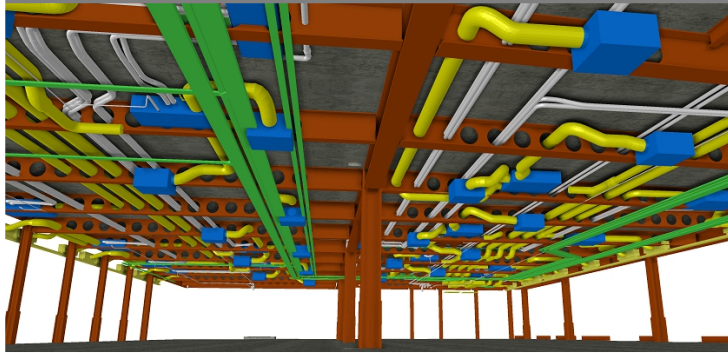
- Introduction
- Synchro Project Summary
- Assisting Tenders
- Assisting Commissioning Clients
- Assisting Preconstruction
- Question & Answers

- World's 1st Industrialized City
- Where Scientists 1st Split the Atom
- Birthplace of the Computer



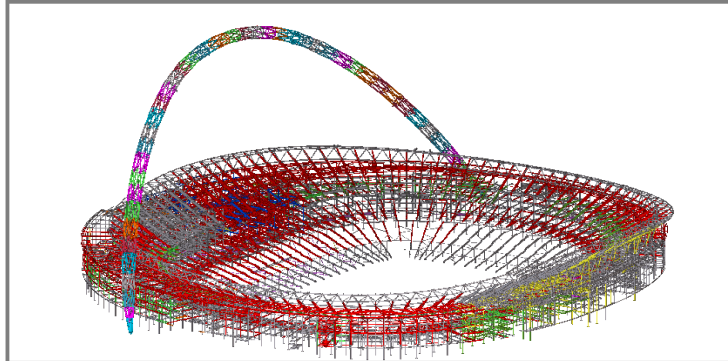
Oakwood Engineering

Building Information Modelling



- AEC Modelling
- Implementation & Execution
- 3d Digital Surveying
- 3d Design Co-ordination
- Cost Management Integration
- Asset Management Models
- Augmented Reality
- 3d Printing

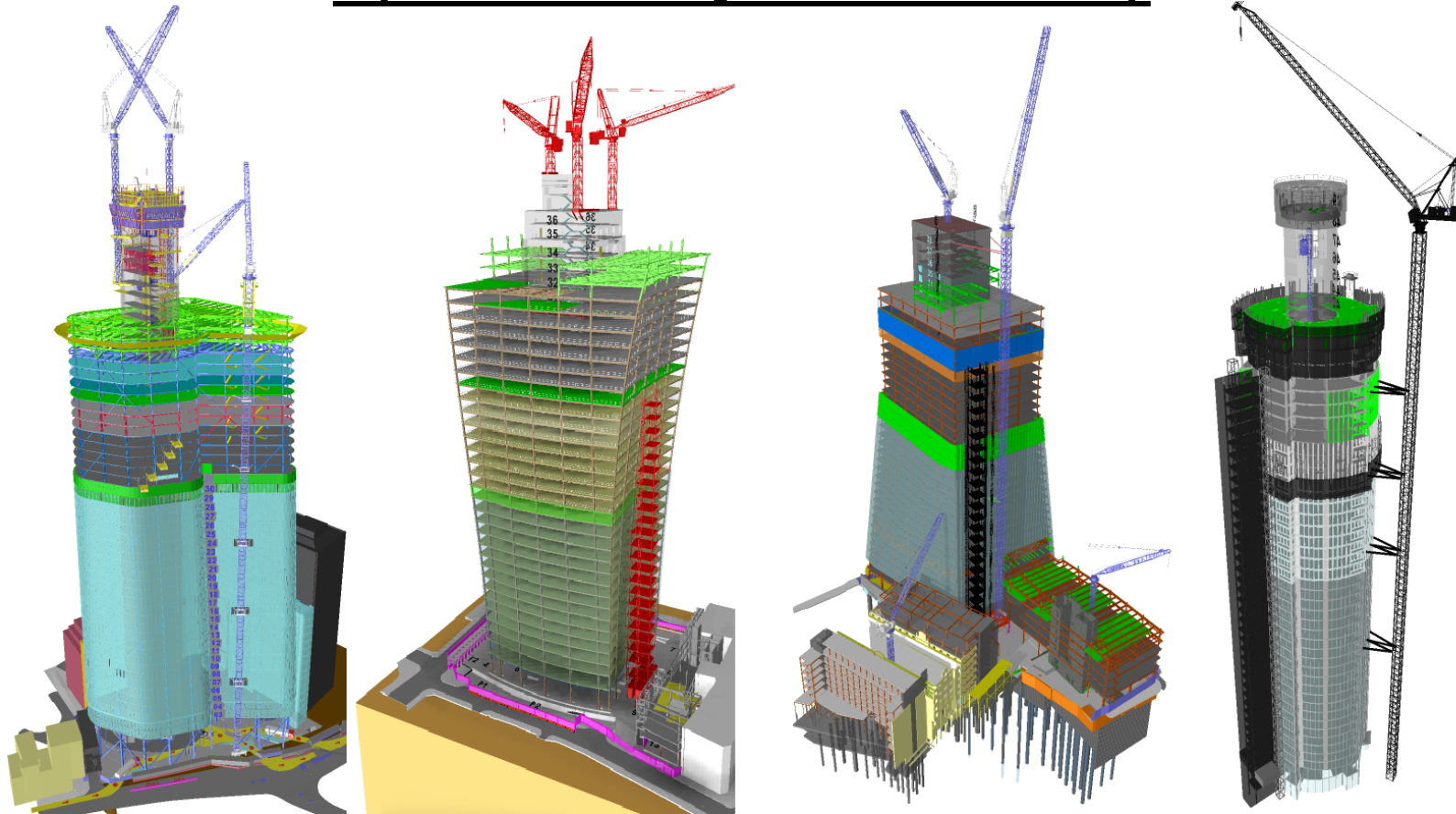
Structural Engineering



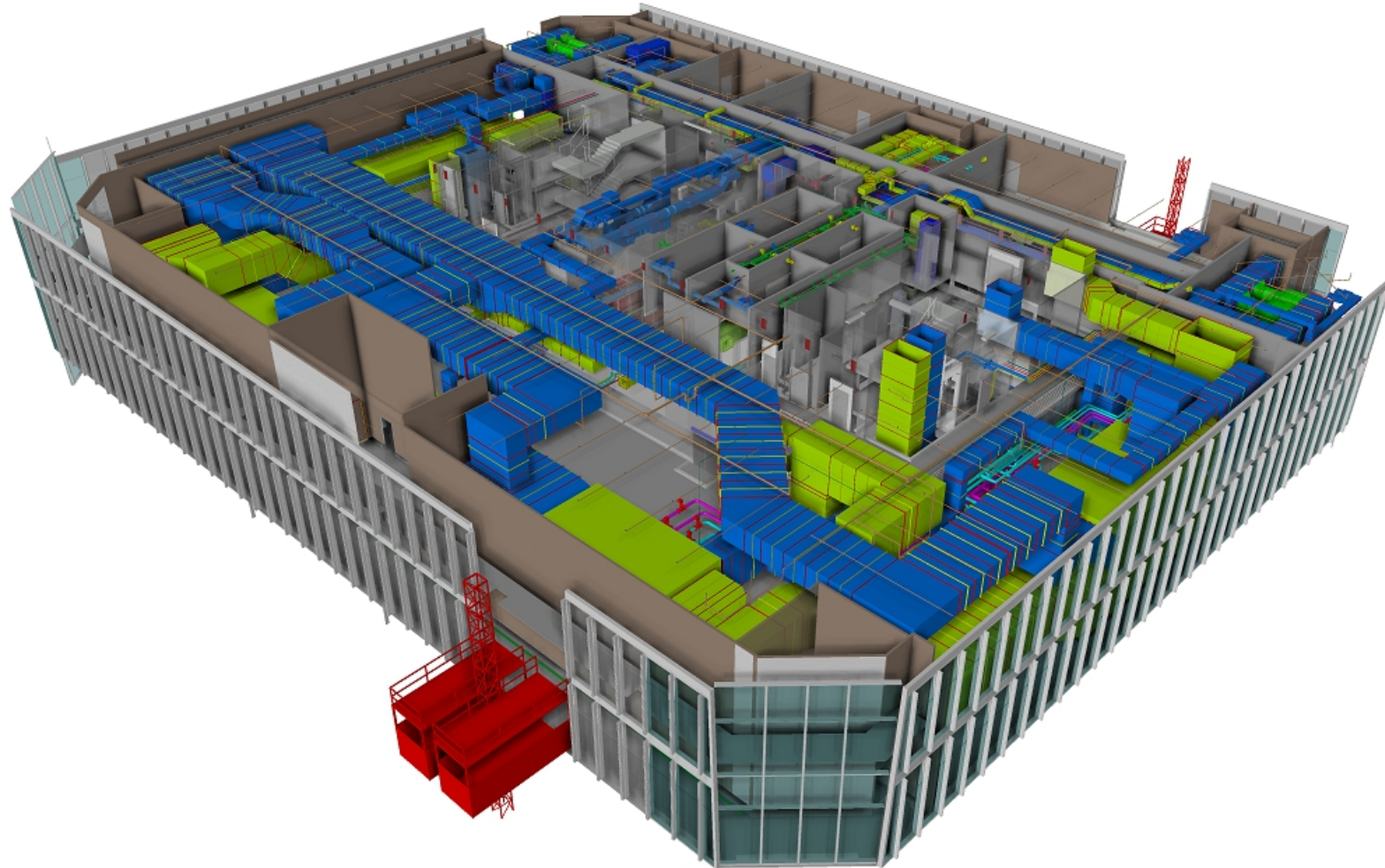
Virtual Design & Construction



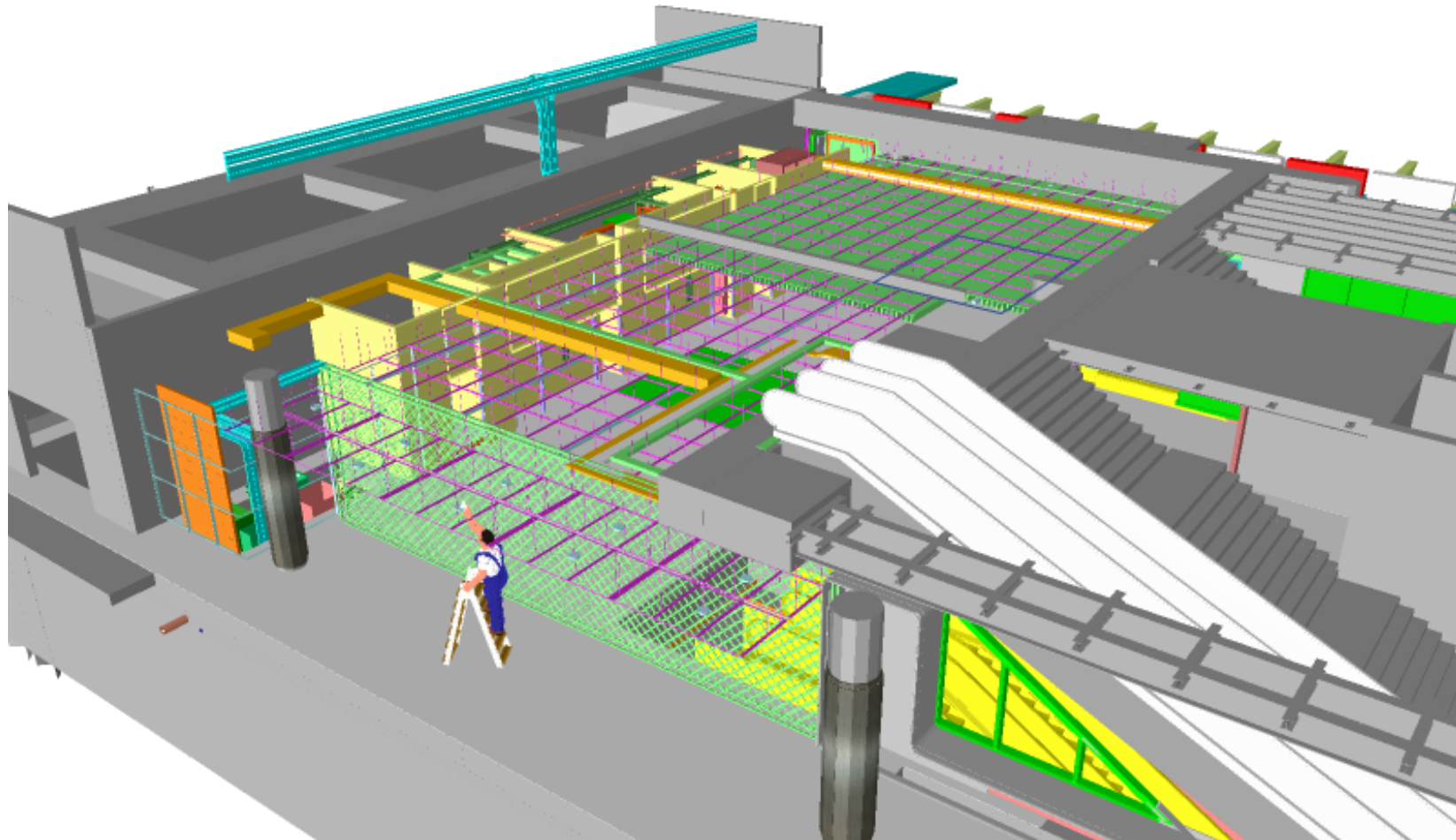
Synchro Project Summary



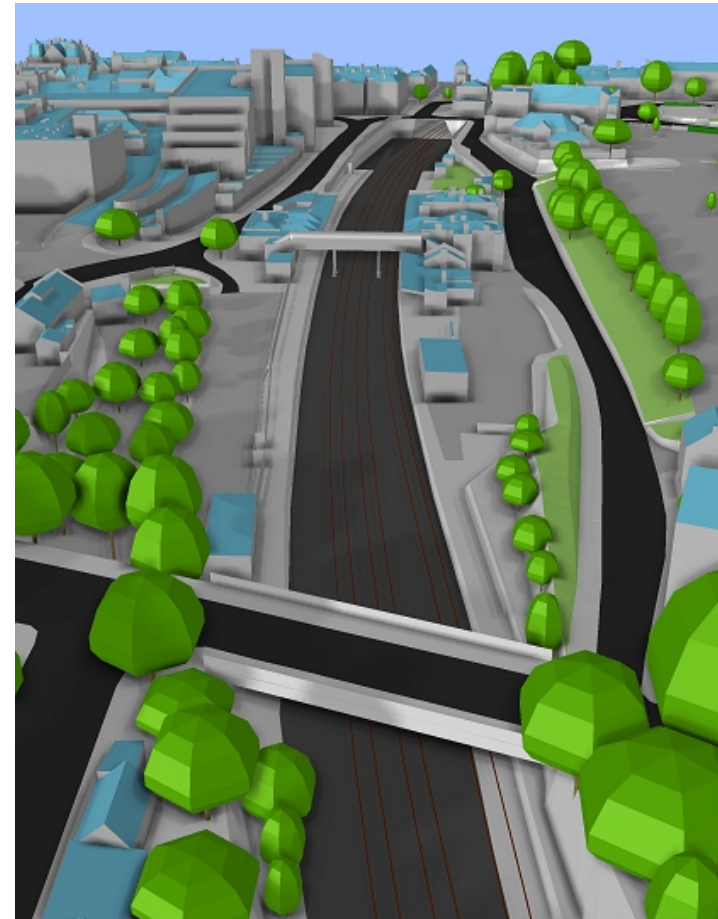
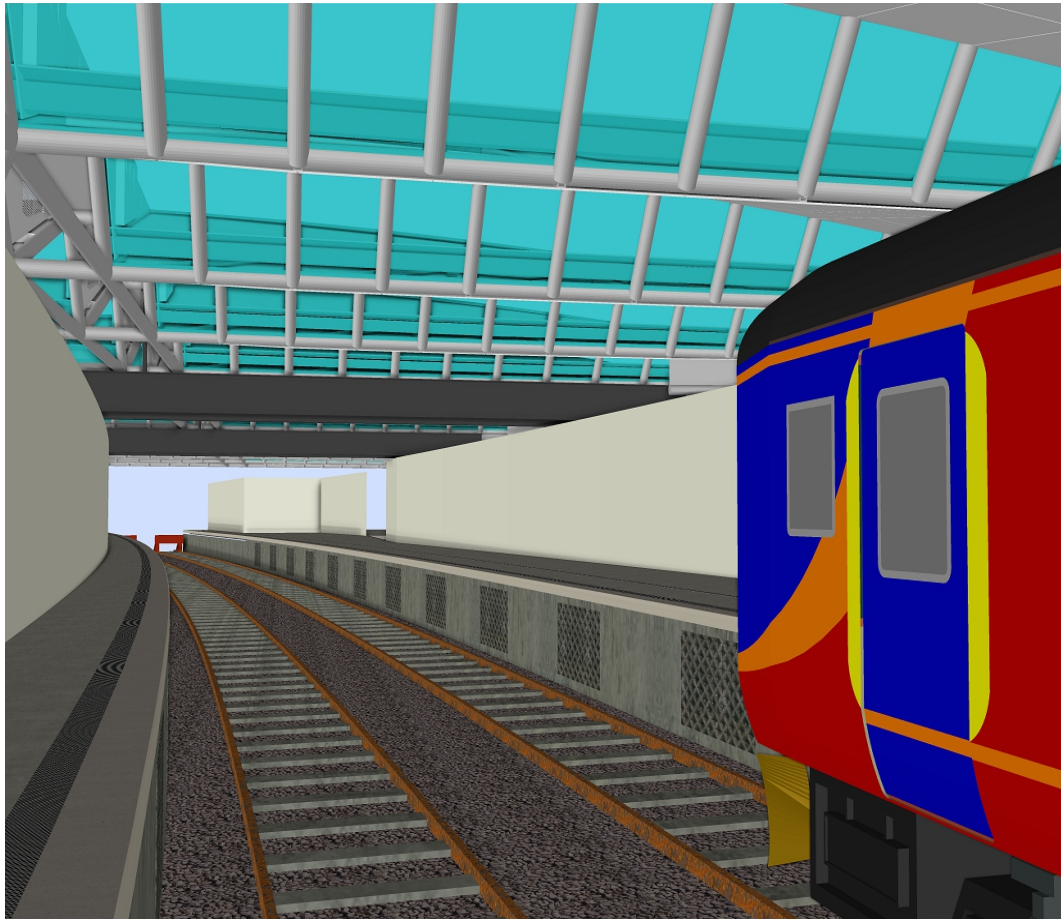
Commercial & Residential Buildings



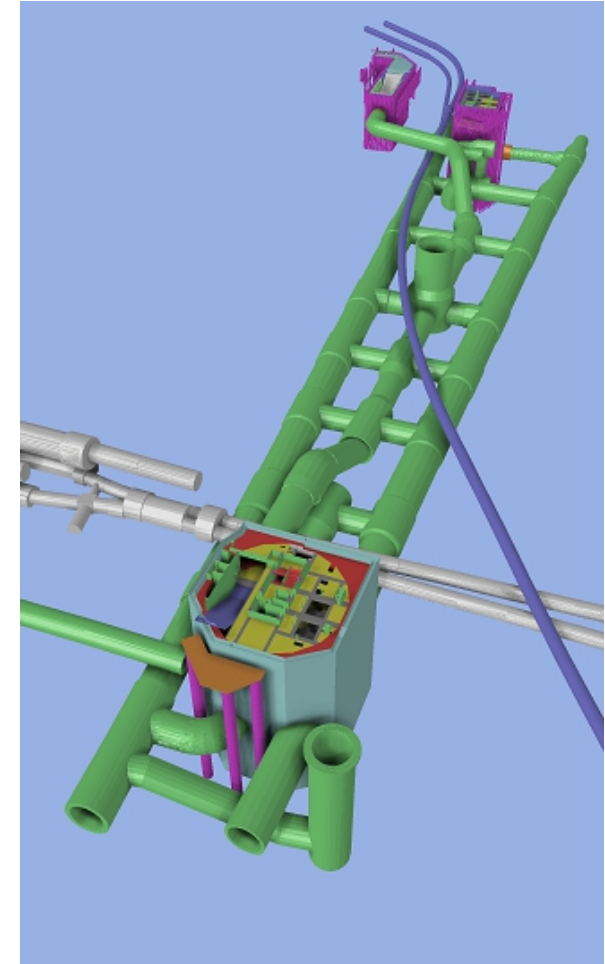
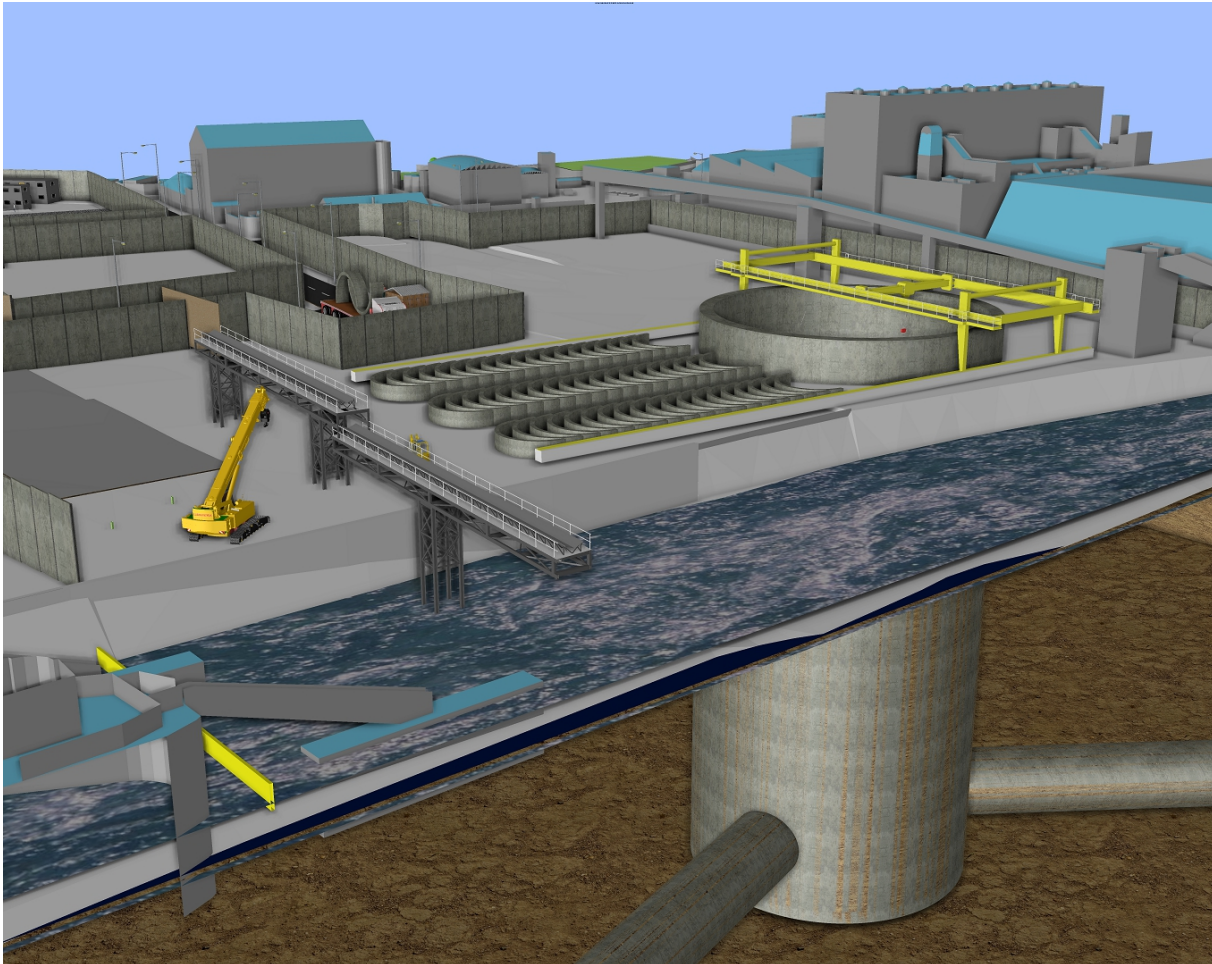
MEP



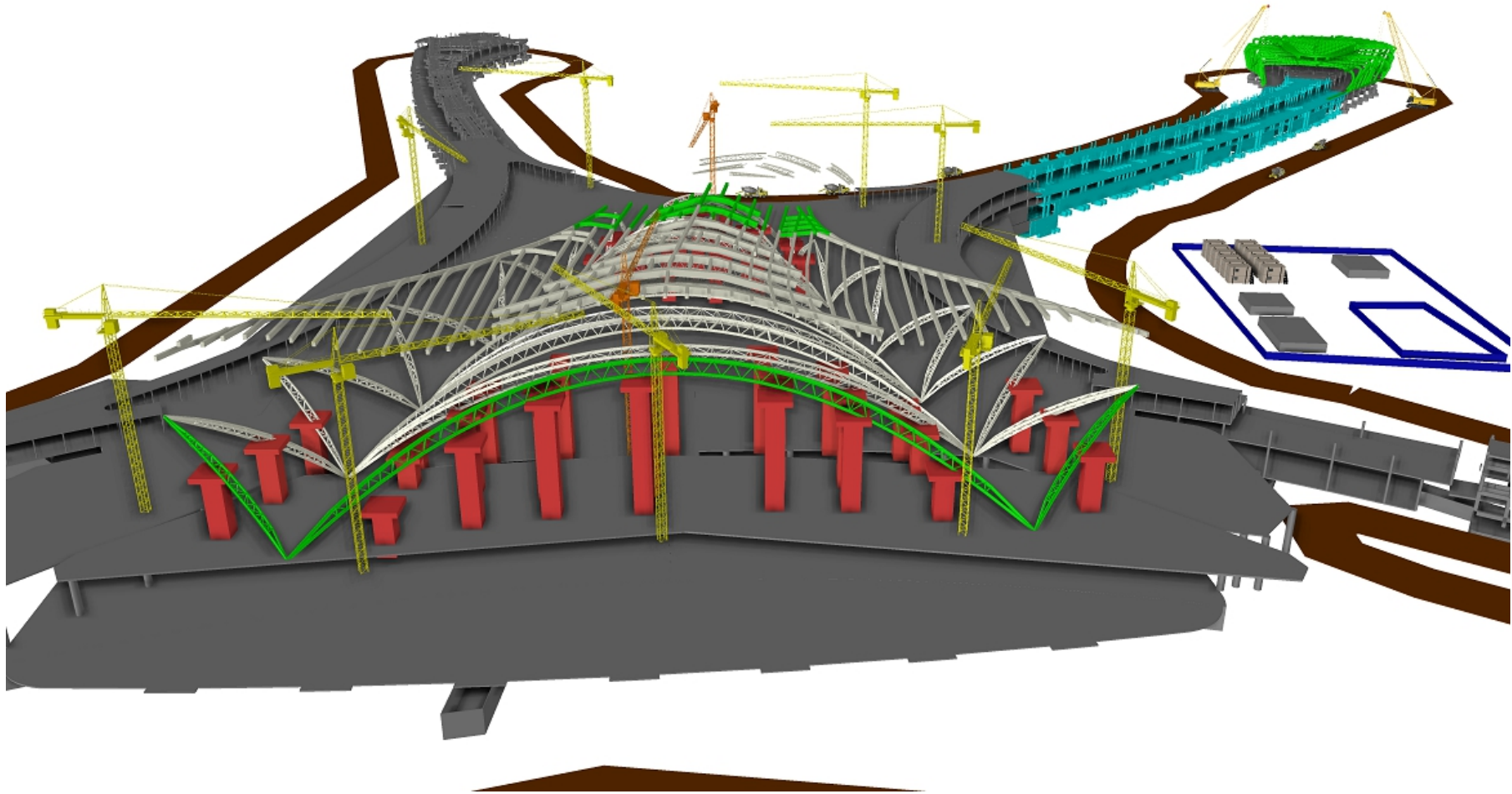
Fit Out



Infrastructure: Rail



Infrastructure: Tunneling



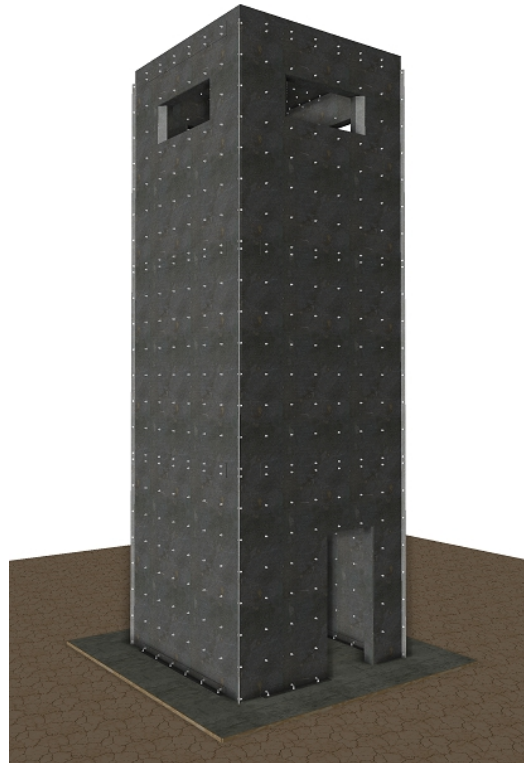
Airports



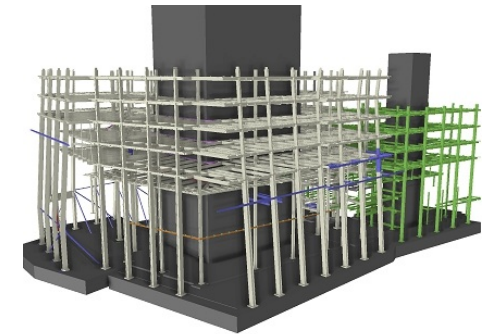
Healthcare



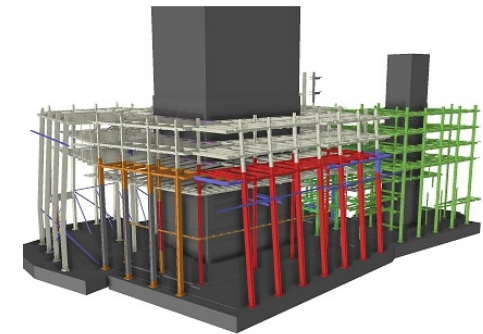
Renewables



Watch Towers



Planned



Actual

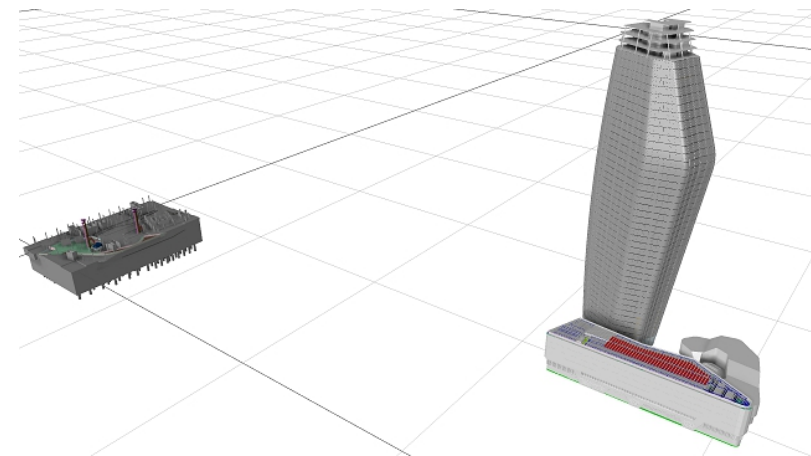
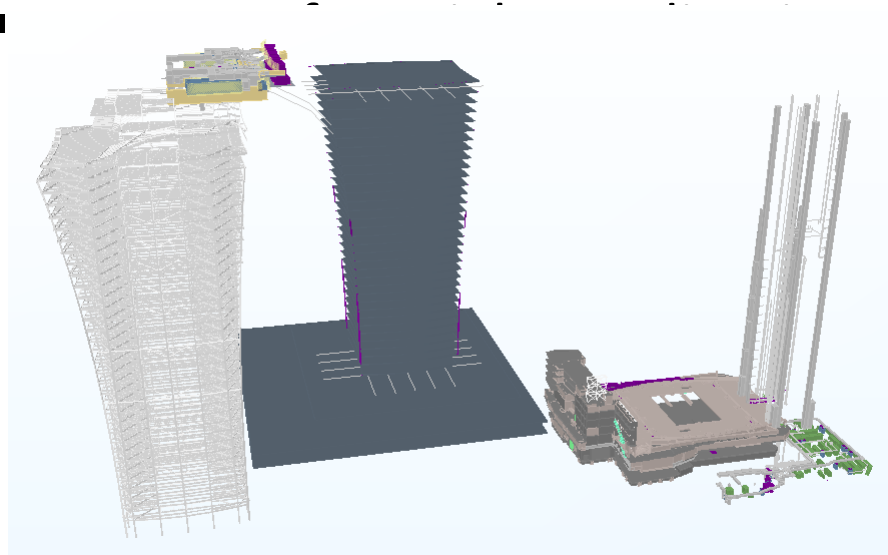
Litigation

openBIM & Synchro

- IFC Compatible but not the Optimum Format (Work in Progress)
- File Data Structure not Critical
- Spatial and Geometrical Properties Most Important
- Synchro Performs Well with Many File Formats
- Well Suited to Federated Model Approach
- Some File Formats Perform Better Than Others

Points of Note

- Communication & Programme Optimisation!
- Important to Manage Level of Detail Requirement
- Consider Maturity / Status of Design
- Manage Client Expectation – Construction Tool NOT 3d Studio Max



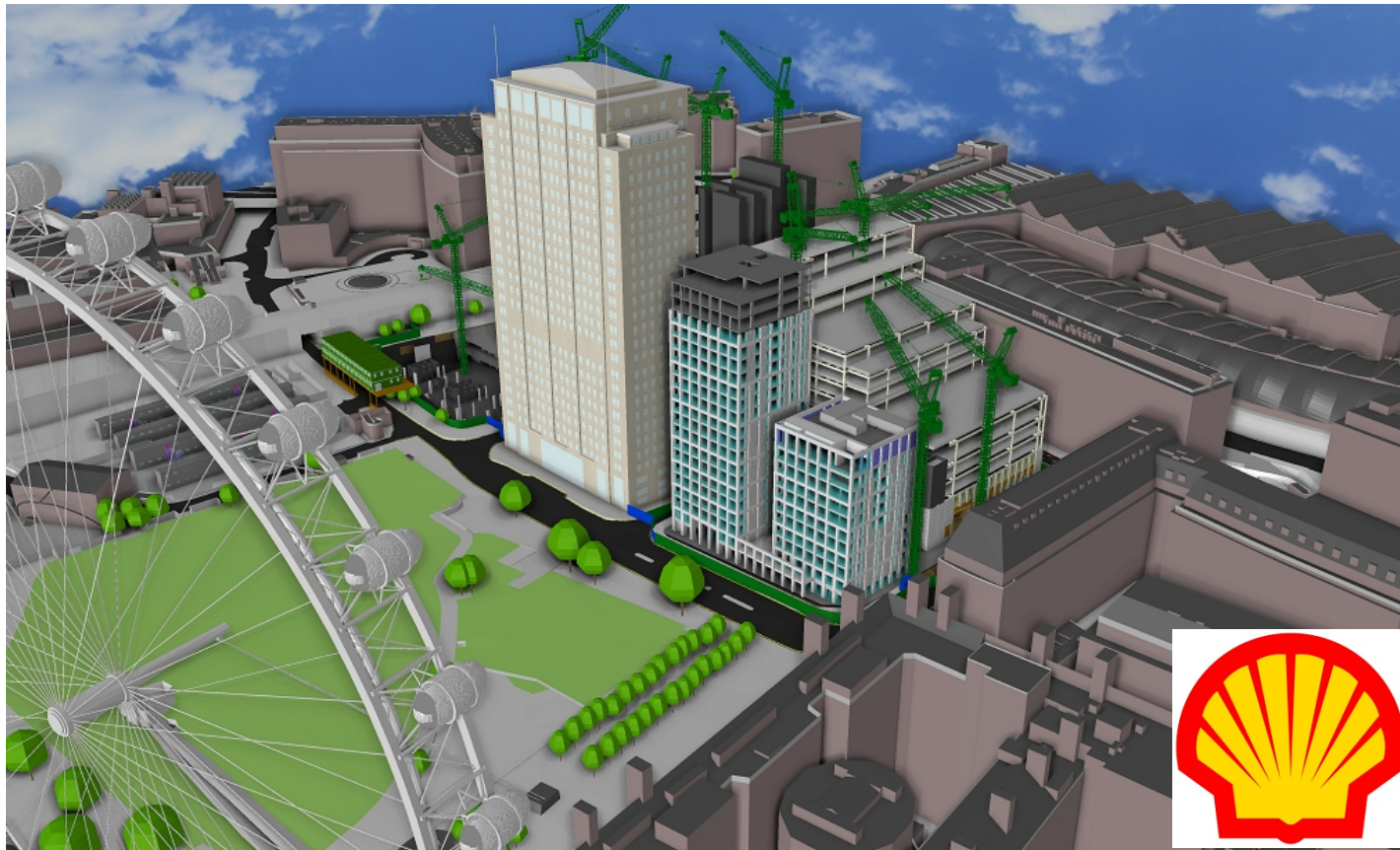
Assisting Tenders

- Demonstrate USP – Heavy Perimeter Truss Sections
 - Maintain Vehicular Access
 - Extensive Fall Across Site
 - 2 Weeks To Complete
-
- Autodesk Revit
 - Tekla Structures
 - Digital Terrain Model (Lidar Data)
 - Microsoft Project XML



University of Salford -
Arts Centre
4d Analysis
Willmott Dixon

Assisting Commissioning Clients



The Shell Centre, London



- HQ of Royal Dutch Shell
- Located Adjacent to the London Eye in Central London
- One of London's Most Iconic Buildings

CANARY WHARF
GROUP PLC



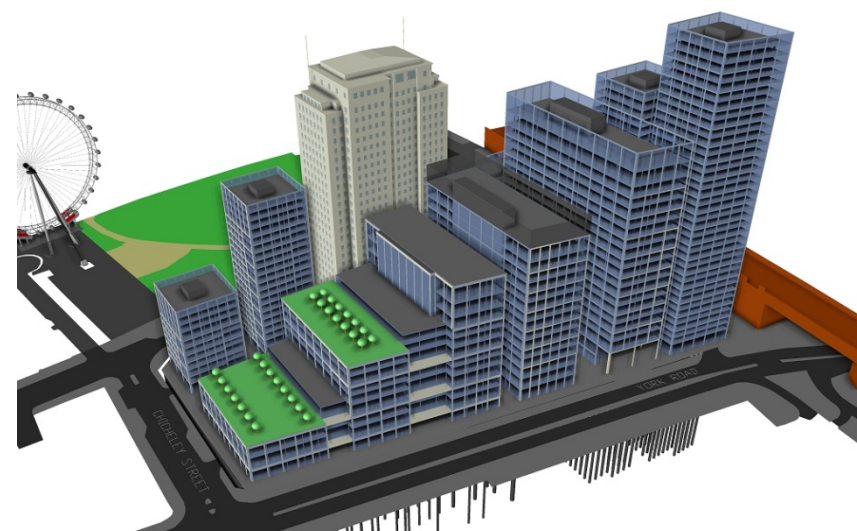
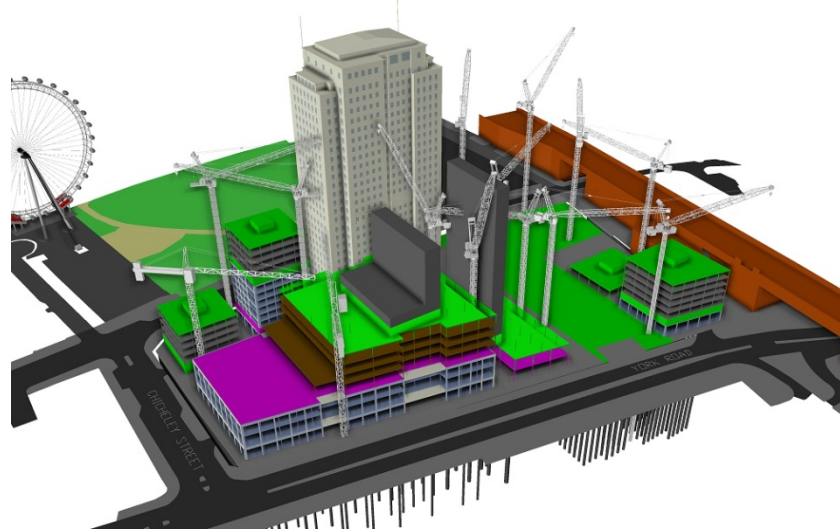
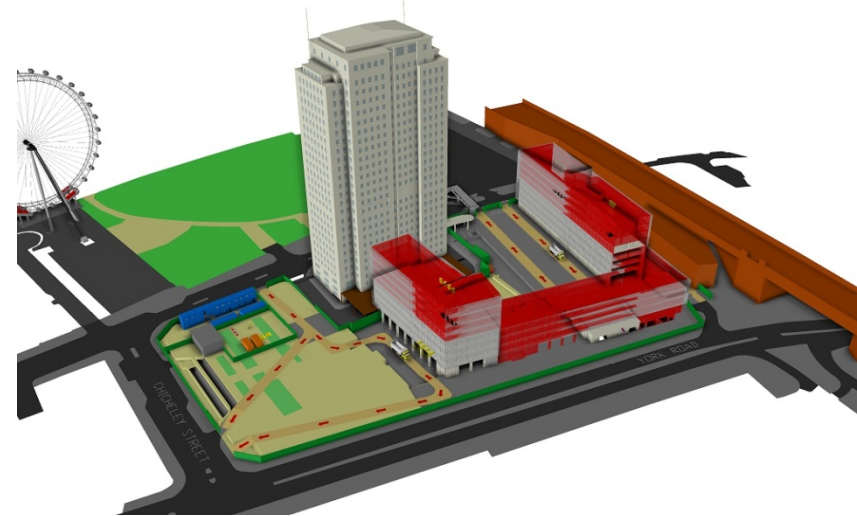
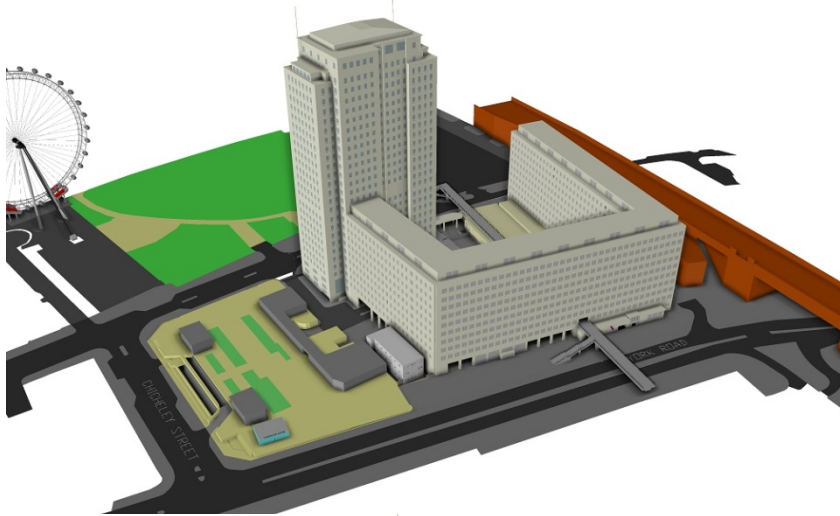
- Assist Bid to Secure the Site on a 999 Year Lease - €370m
- 1.5m Sq. Feet of Commercial, Residential & Retail Space
- Estimated Build Cost – €770m
- Canary Wharf & Qatari Diar (CWQD) – 1 Of 20 Bidders

CWQD Requirements

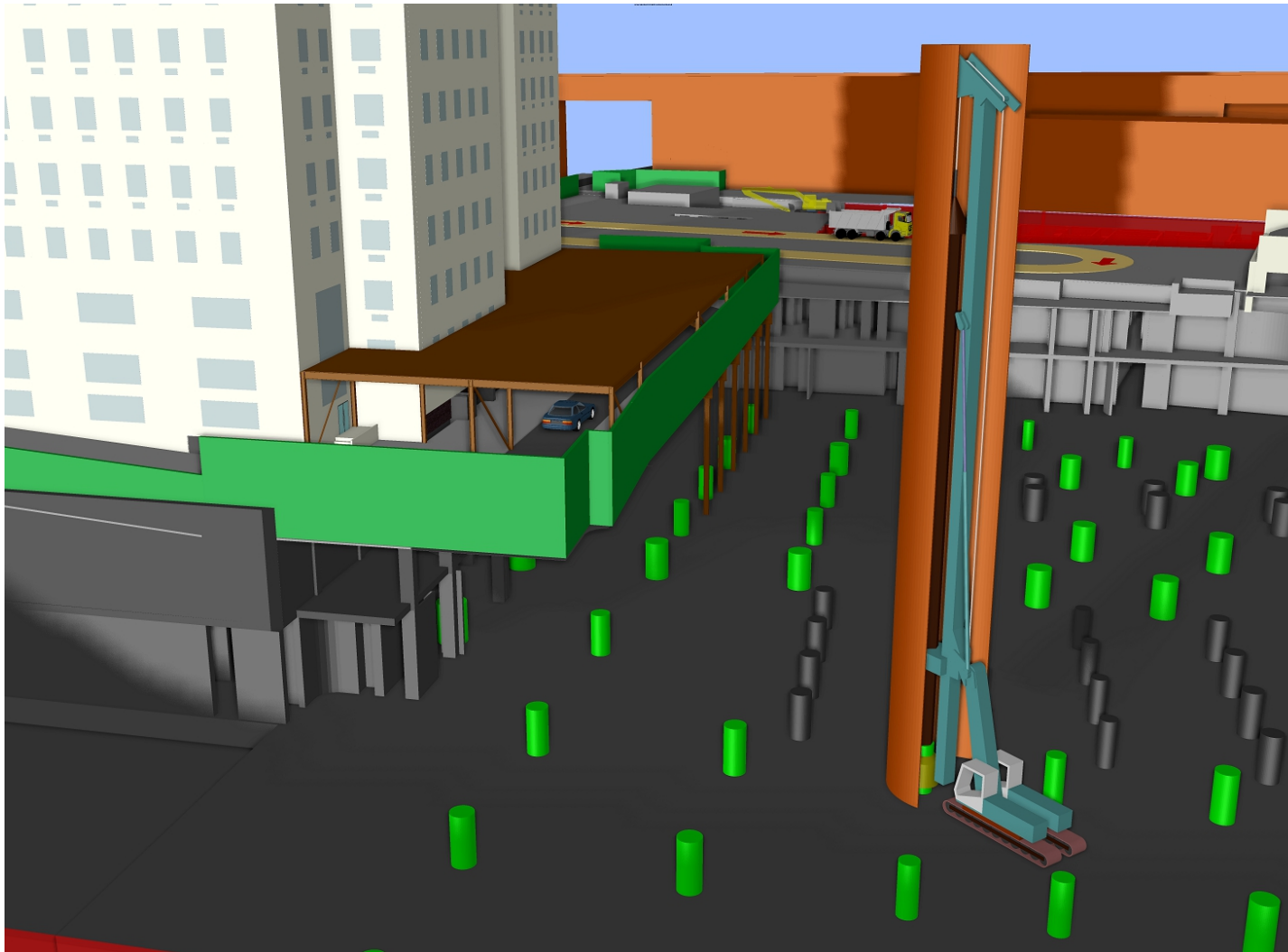
- Optimise & Stabilise Programme
- Offer Flexibility to Evolve with the Scheme
- Demonstrate Scheme to Non-technical People
- Ability to Give an Instant Executive Summary
- Demonstrate Compliance with Shell's Requirements

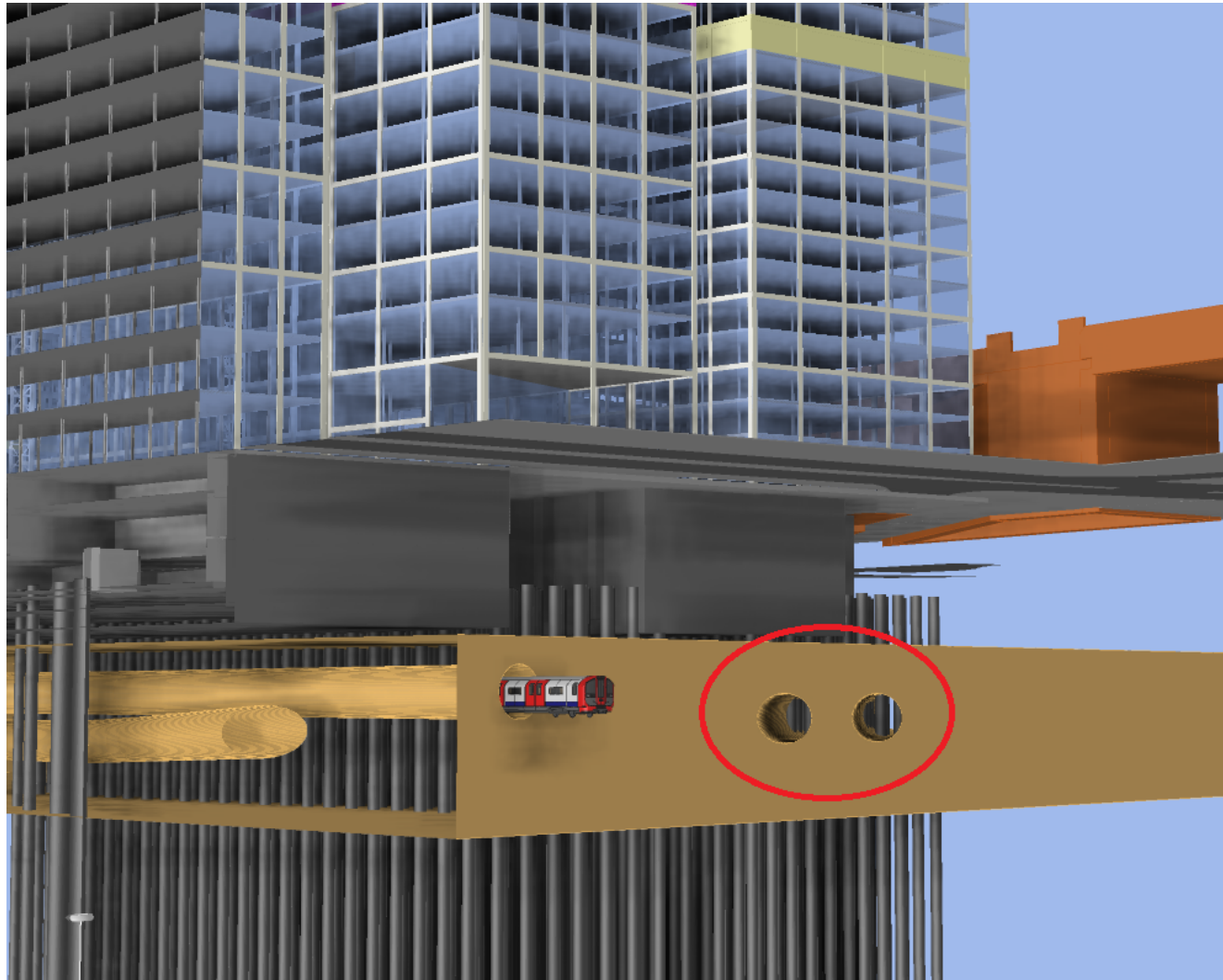
Origin of 3d Models

- Bentley Microstation
- Autodesk Revit
- Autodesk 3d Studio Max
- Rhino
- Trimble Sketchup
- Lidar Point Cloud Survey
- Tekla Structures



Weekly Snapshots Produced Over 5 Year Period + Animation





Use Of VDC:

- “Ensured Progress Through Selection Process”
- “Ensured Technical Bid Better than any Competition”
- “Attributed as a Major Contributing Factor to Winning the Bid”
- “Helped Reduce Commercial Risk”

Charlie Paul, Director Of Operations – Canary Wharf Ltd

Assisting Preconstruction



The Pinnacle Building, London

Project Data

- Second Tallest in The European Union – 945ft
- 1 Million Sq. Feet Of Commercial Space
- €1.1 Billion Construction Cost

- Developer: Arab Investments
- Signature Architect: Kohn Pedersen Fox (KPF)
- Structural Consultant: Arup Group
- Services Consultant: Hilson Moran
- Main Contractor: Brookfield Multiplex



Why VDC?

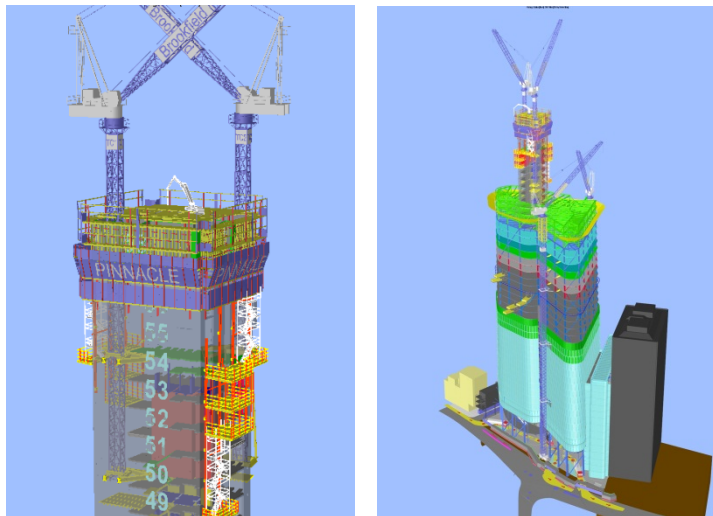
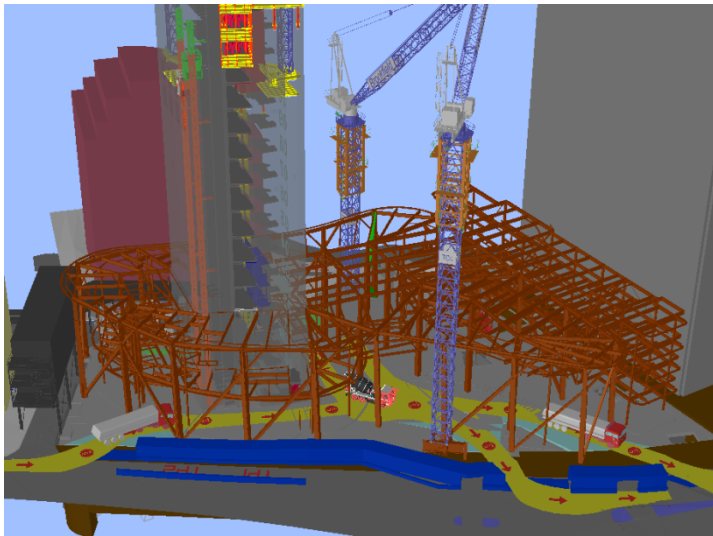
**Brookfield
MULTIPLEX**
Built to outperform.



- Optimise Programme
- Assist Co-ordination Between Project Stakeholders
- Aid Non-technical Members of the Large Project Team
- Allow All Team Members to Effectively Contribute

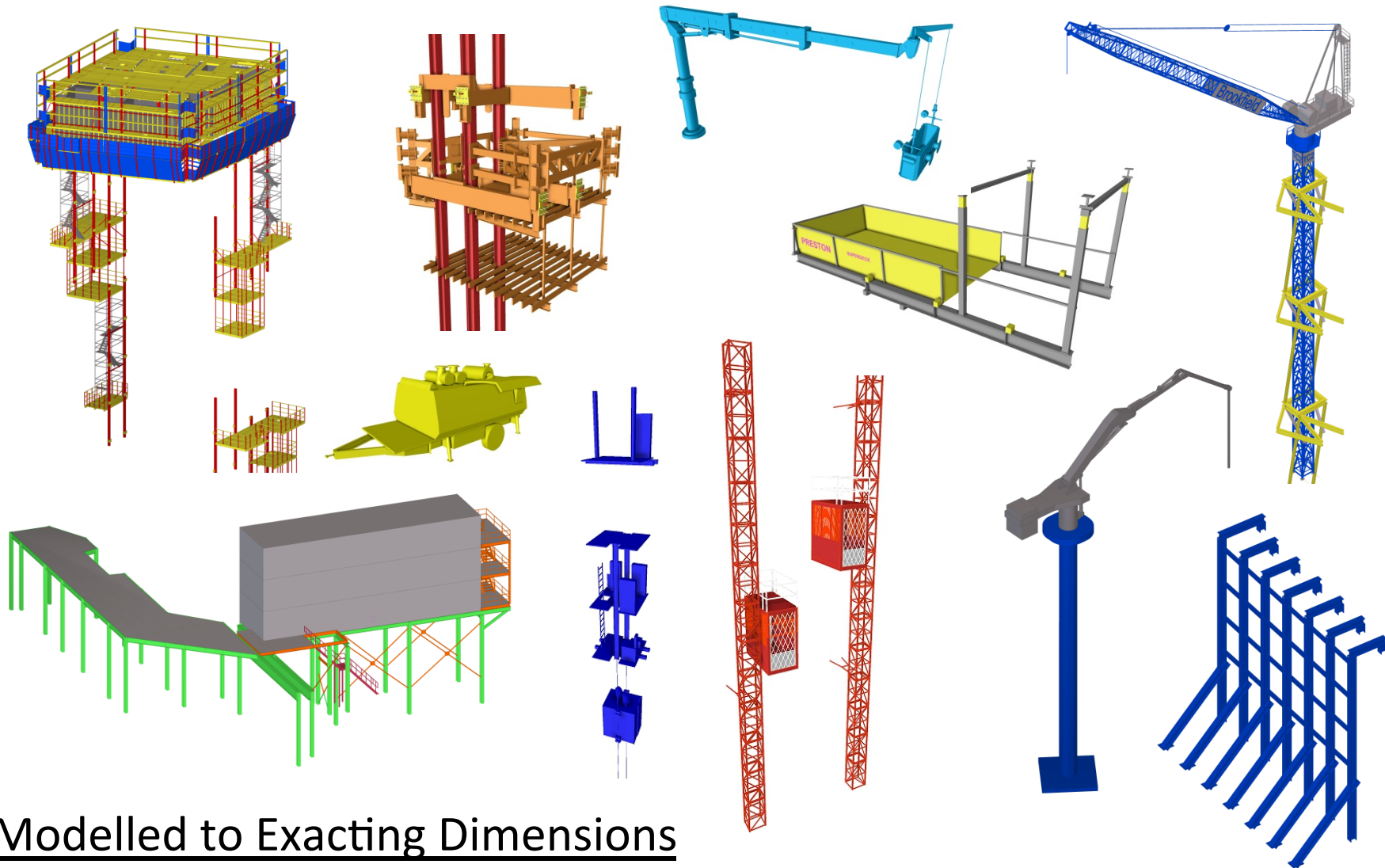
Extra Benefits

- Site Inductions
- Logistical Co-ordination
- Safety Briefings
- Public Relation Tool
- Boost Supply Chain Project Knowledge

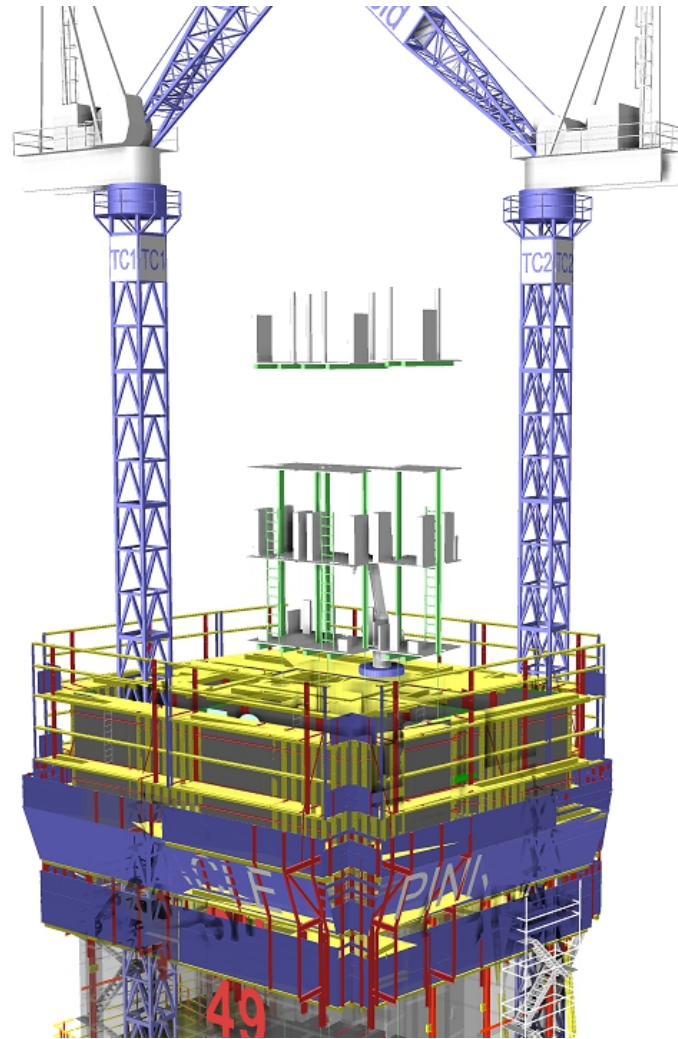


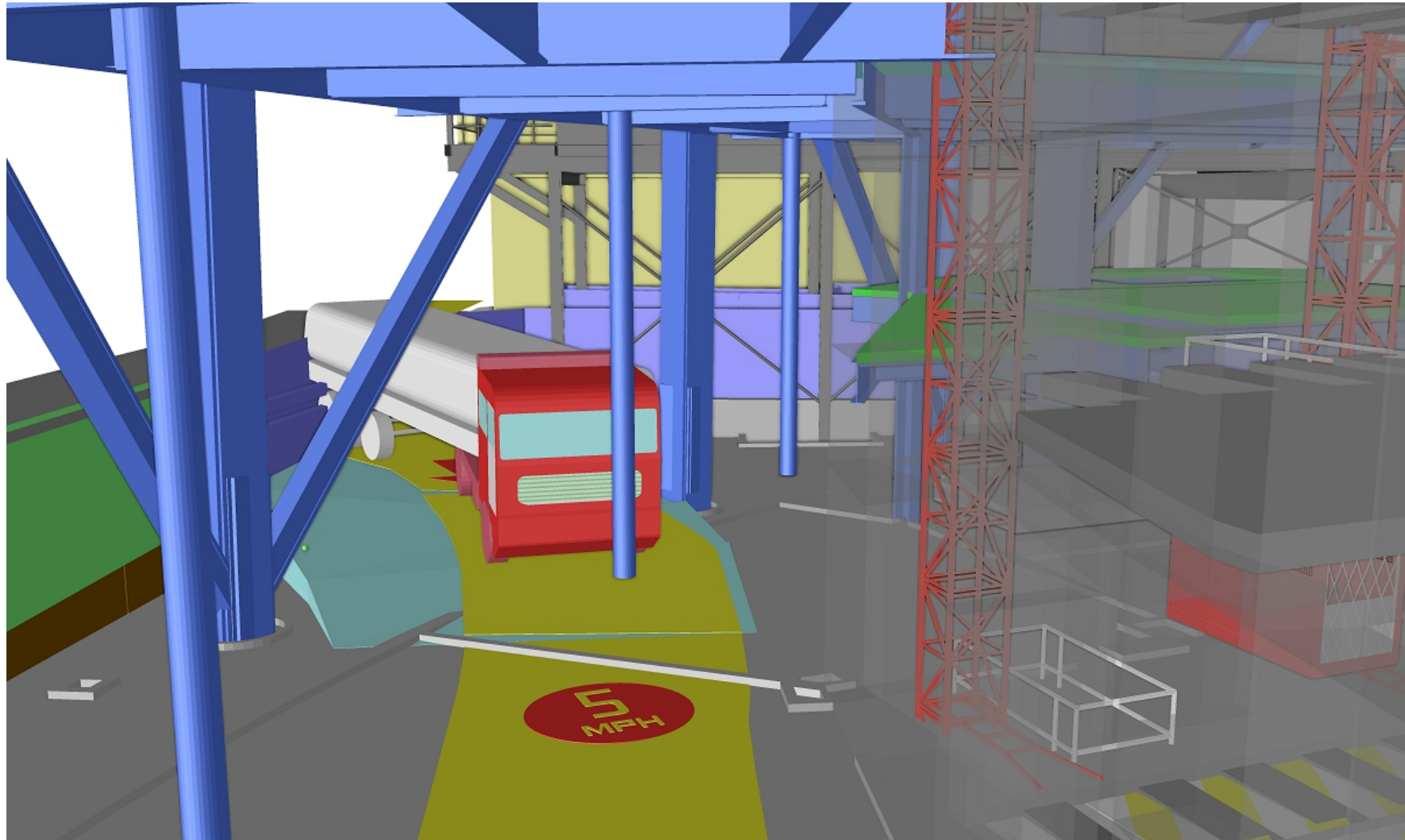
Oakwood Participation

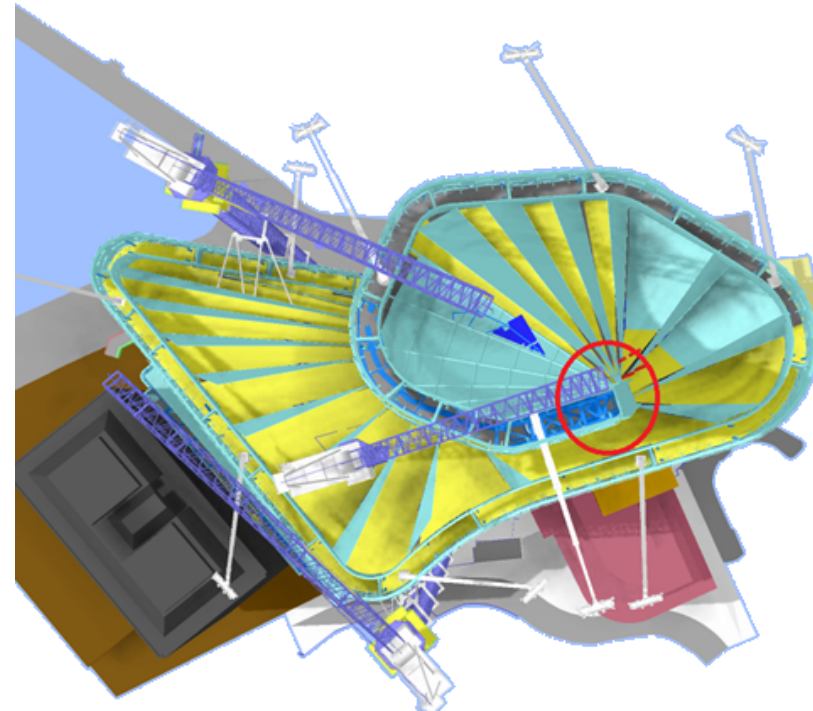
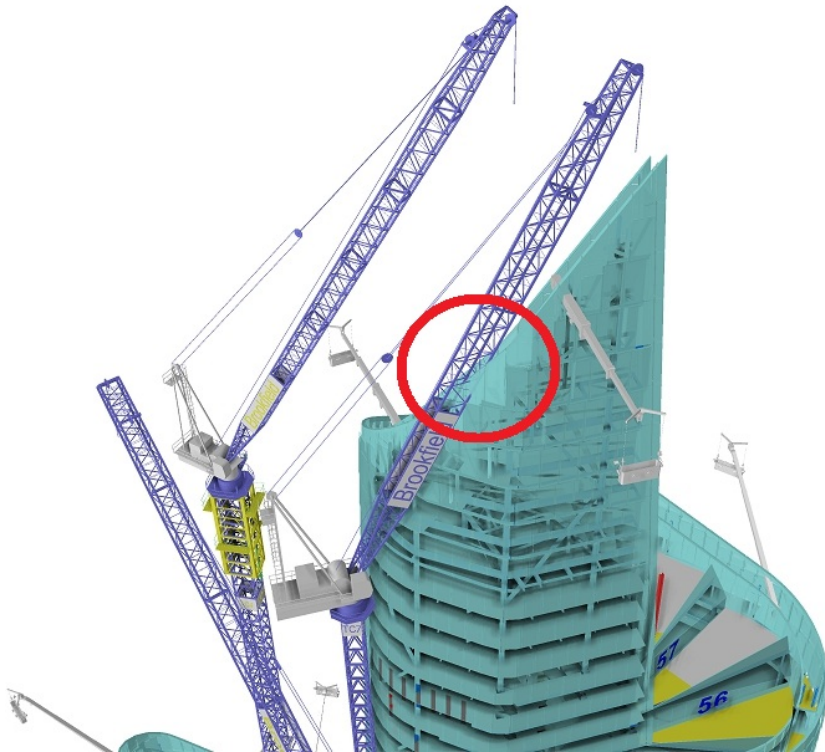
- Validate Suitability & Accuracy of Constant's Models
- Model All Scope Items to Exacting Data
- Build 4d Model using Asta Schedule (8000 Tasks)
- Appraise 4d Model
- Attend Site Co-ordination Meetings

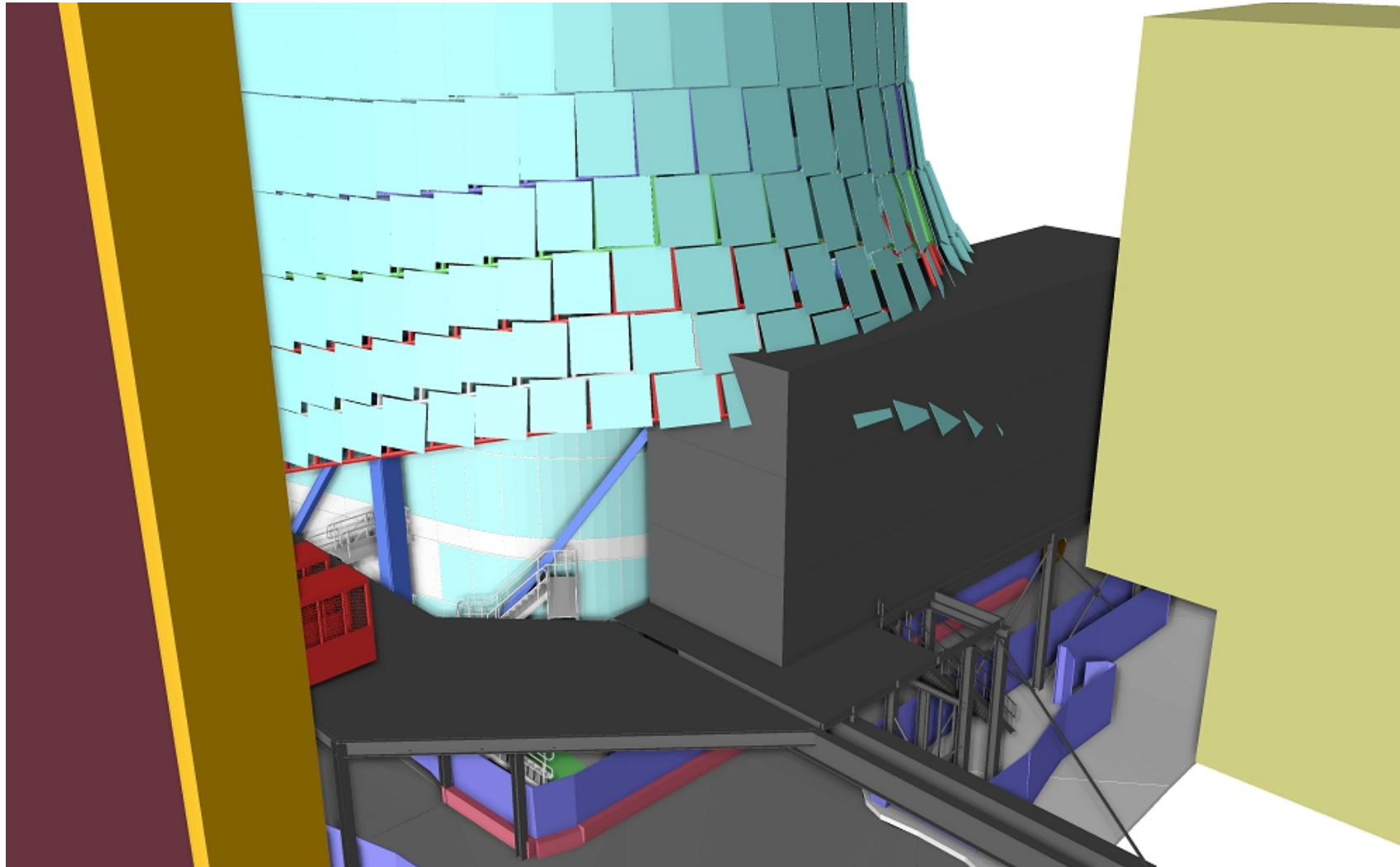


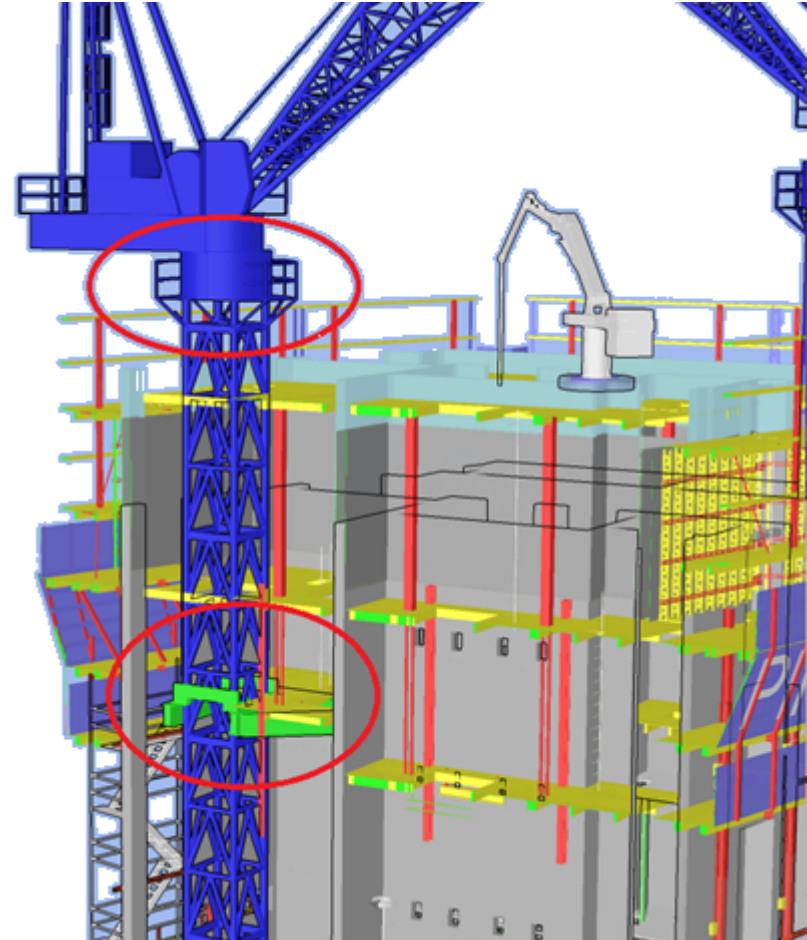
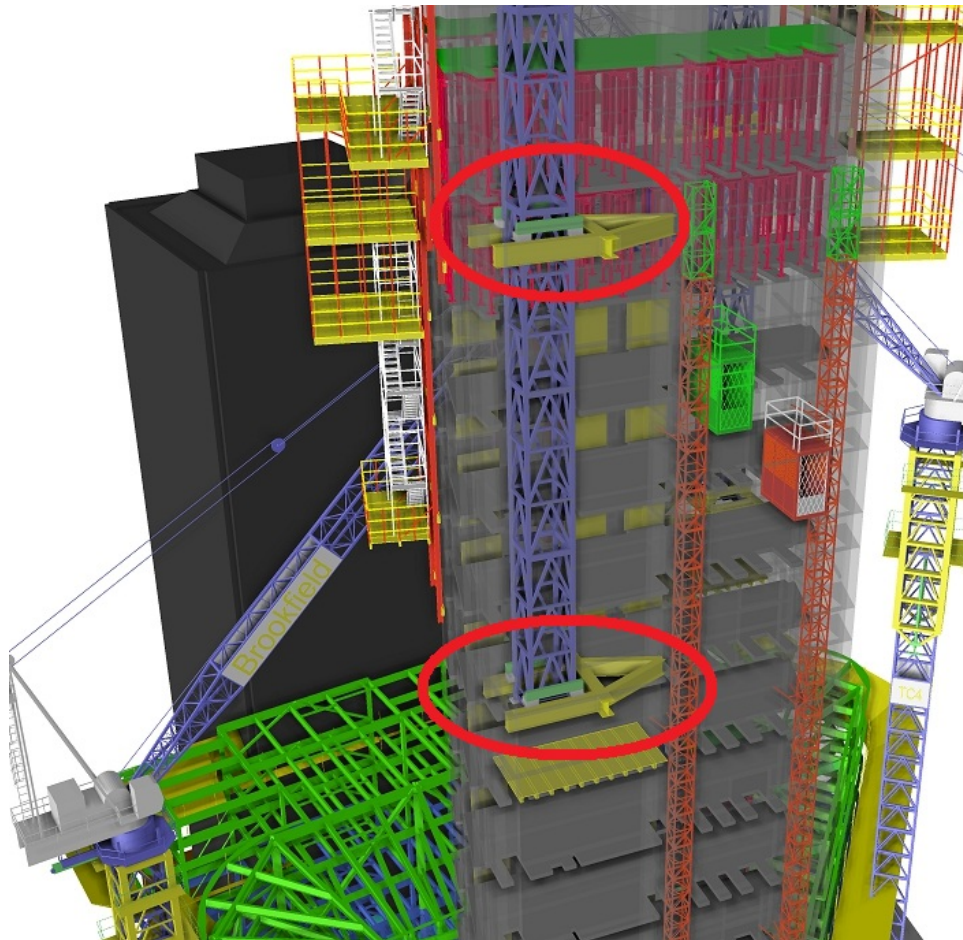
Modelled to Exacting Dimensions











Many thanks,
any questions?

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