

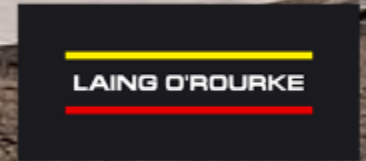
Manufacture and Assembly of Infrastructure

15th January 2013

Speaker: David Scott



Cannon Place, London, UK



Sectors



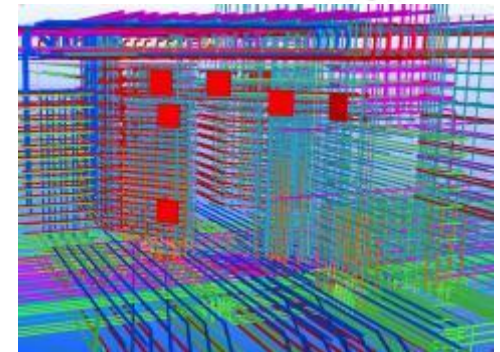
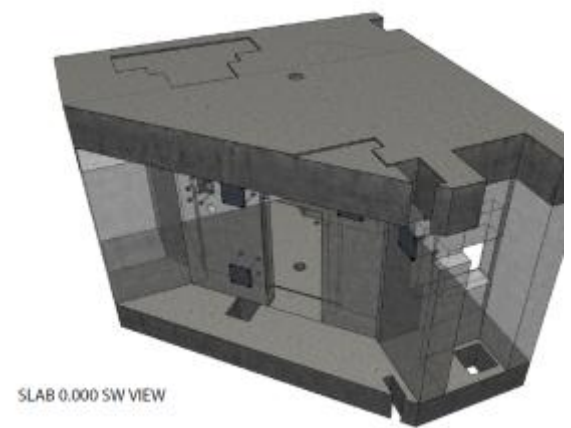
Drivers

Commercial Pull

- Faster
- Better quality
- Ability to make more complex components
- Better tolerances
- Safer final assembly
- Often lesser cost

Technology Push

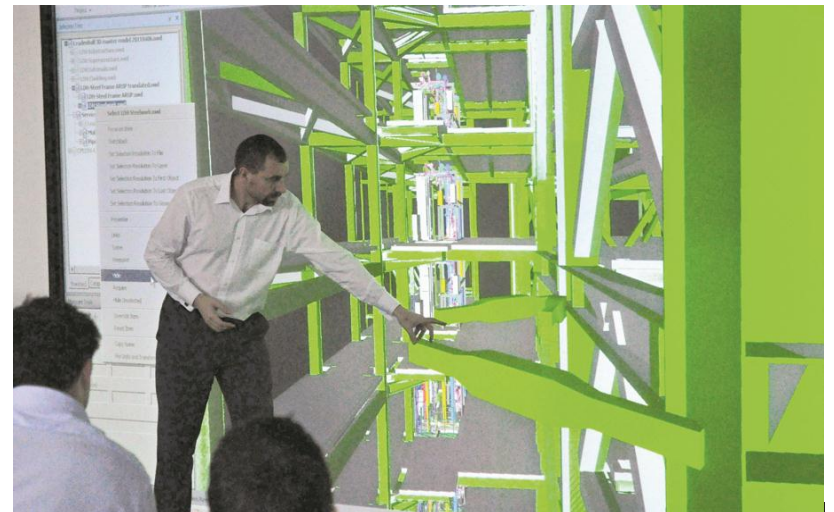
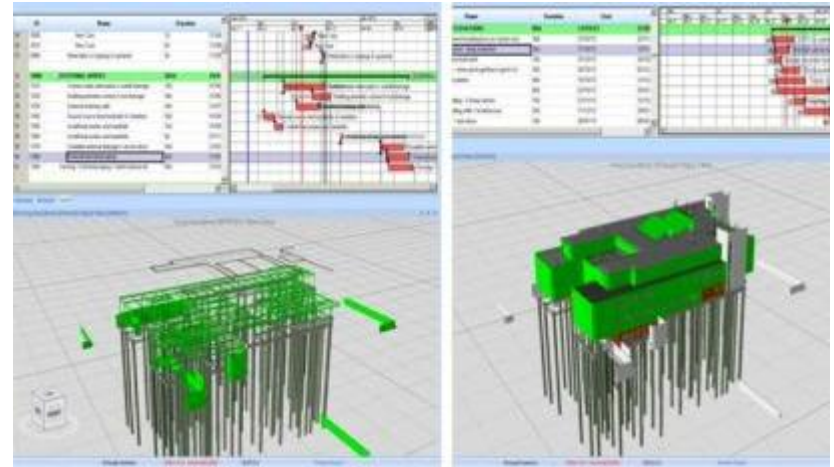
- Digital engineering (BIM)
- Resolution of clashes and tolerances
- Confidence that components will fit
- Familiarity with Innovation
- Improved design tools
- Model complexity – even reinforcement
- Digital verification during construction



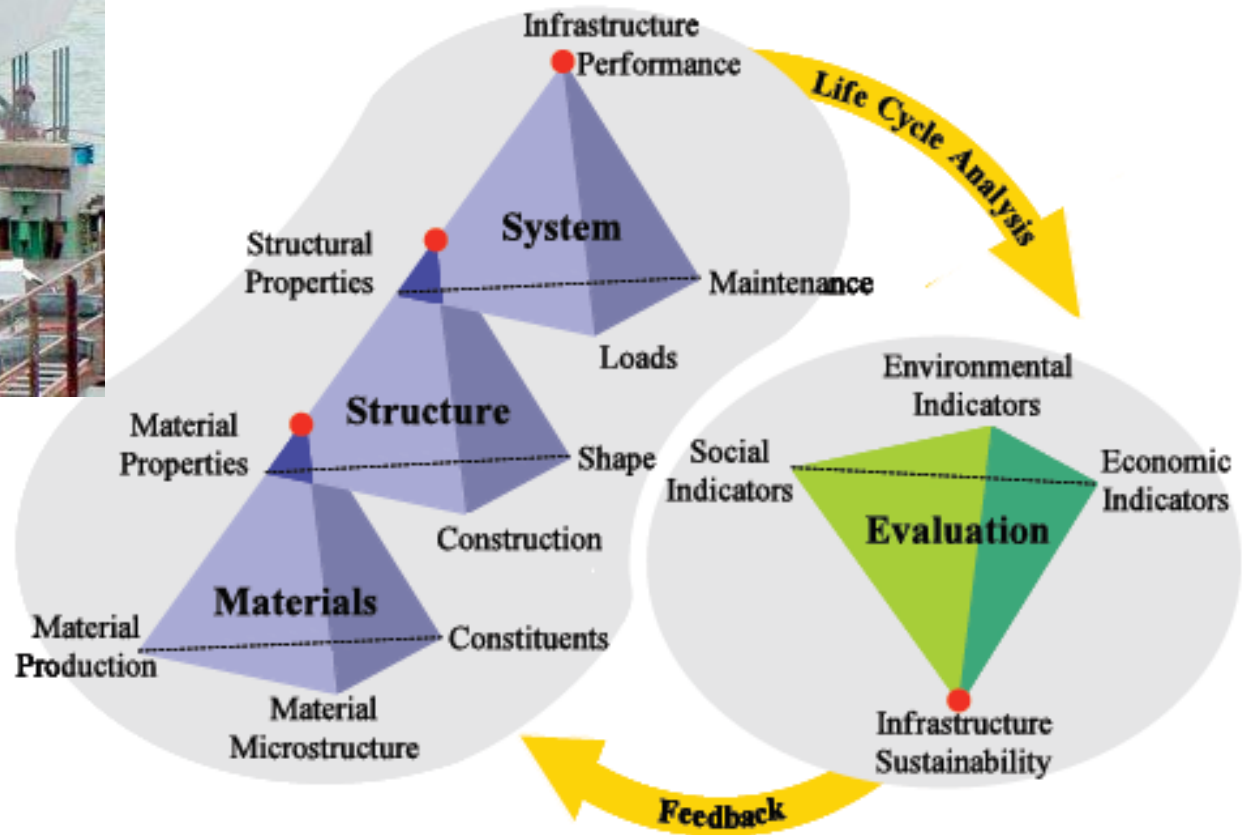
Research, Development and Innovation

Enablers of Innovation

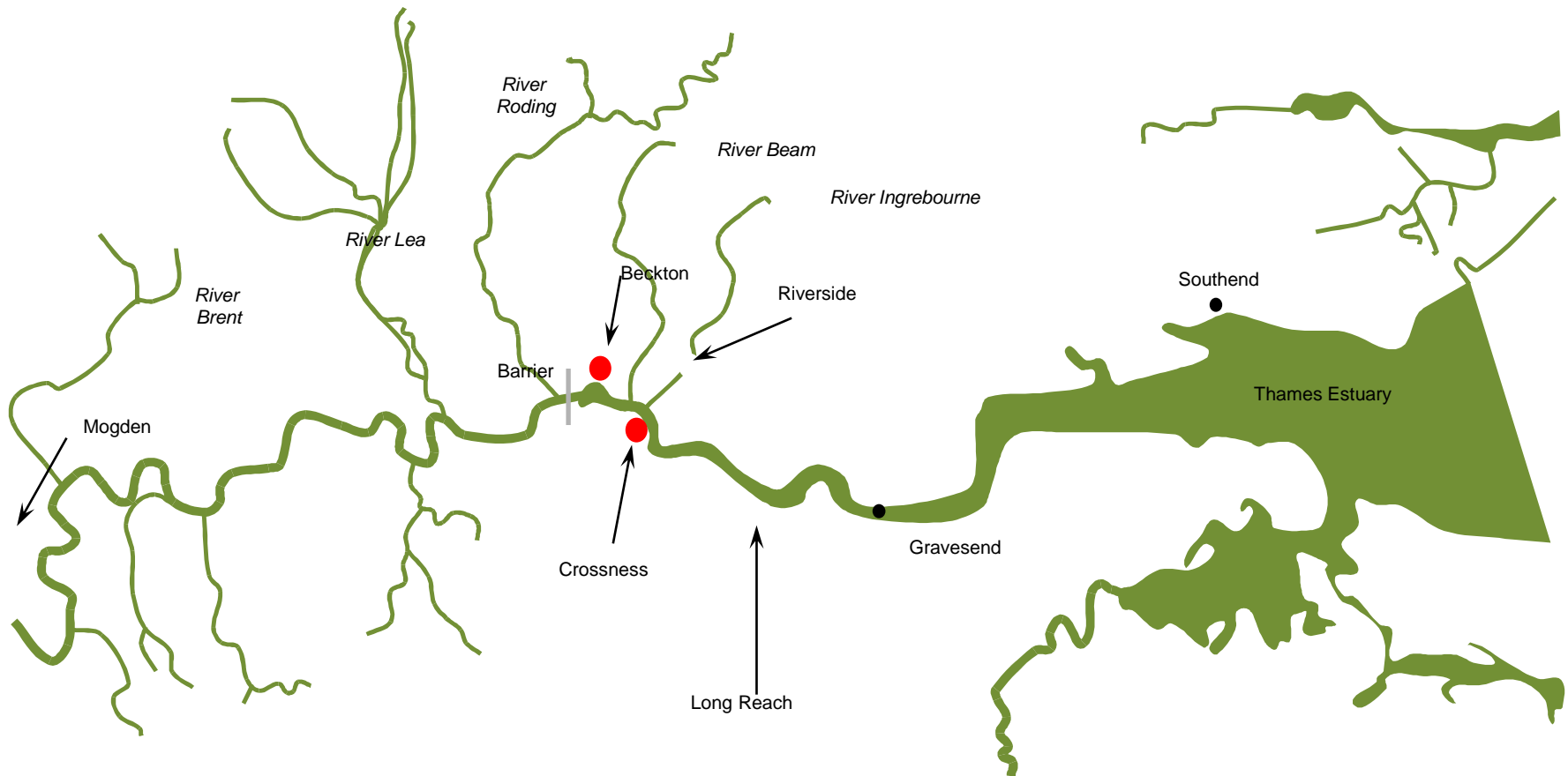
- Looking for the next big thing
- Continual product improvement
- Fundamental research
- Cross-industry fertilization
- Willing to do tests and trials
- Learning from problems
- Risk mitigation in projects
- Improved design and drawing tools



Manufacture and Assembly of Infrastructure



The five Sewage Treatment Works Upgrades





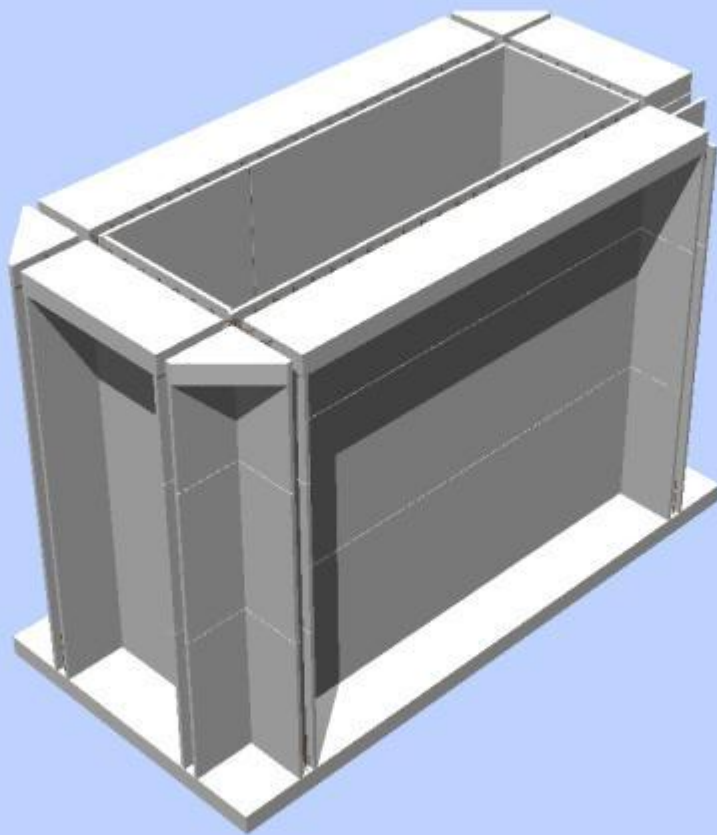
Twinwall construction



Previous applications of water-retaining twinwall construction



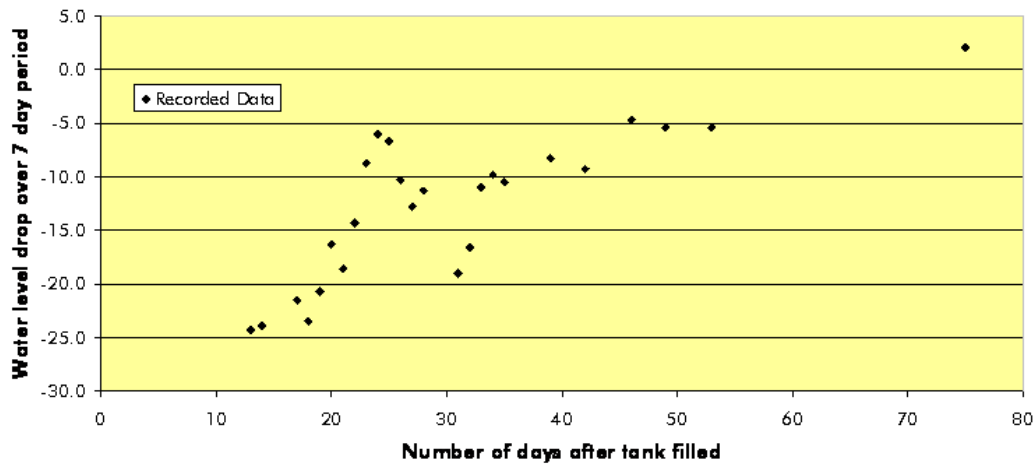
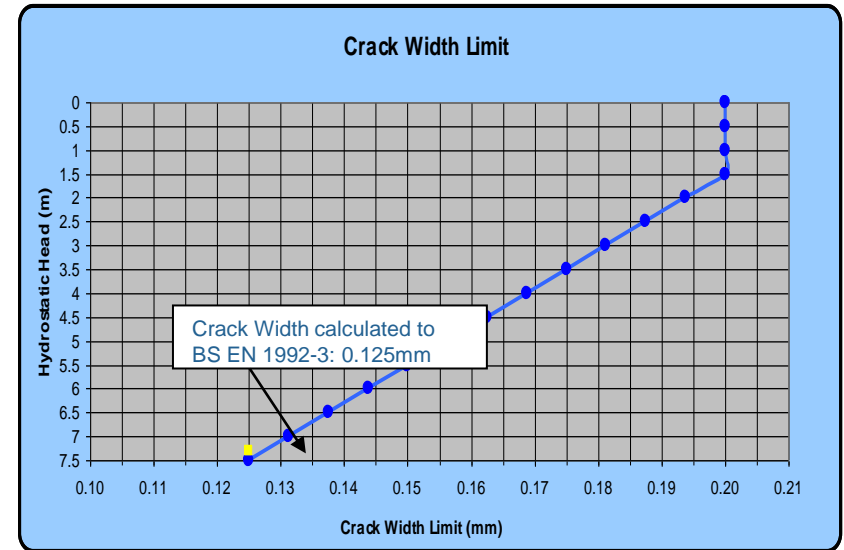
Trial Construction







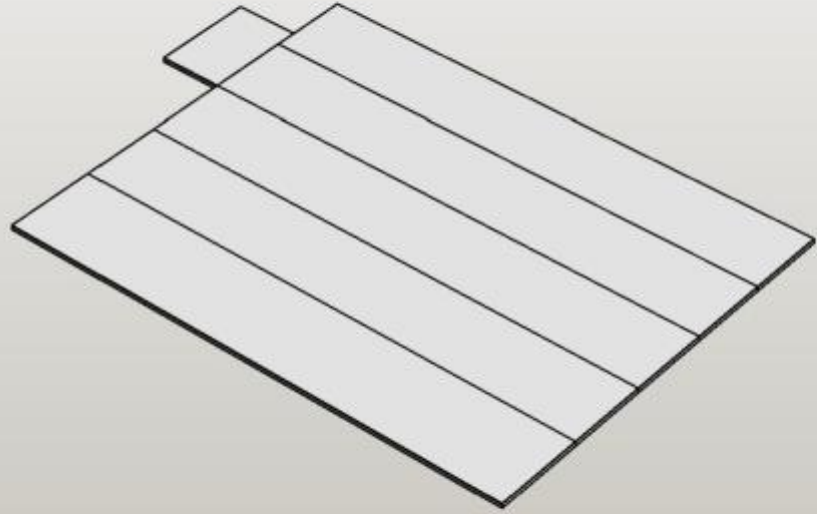




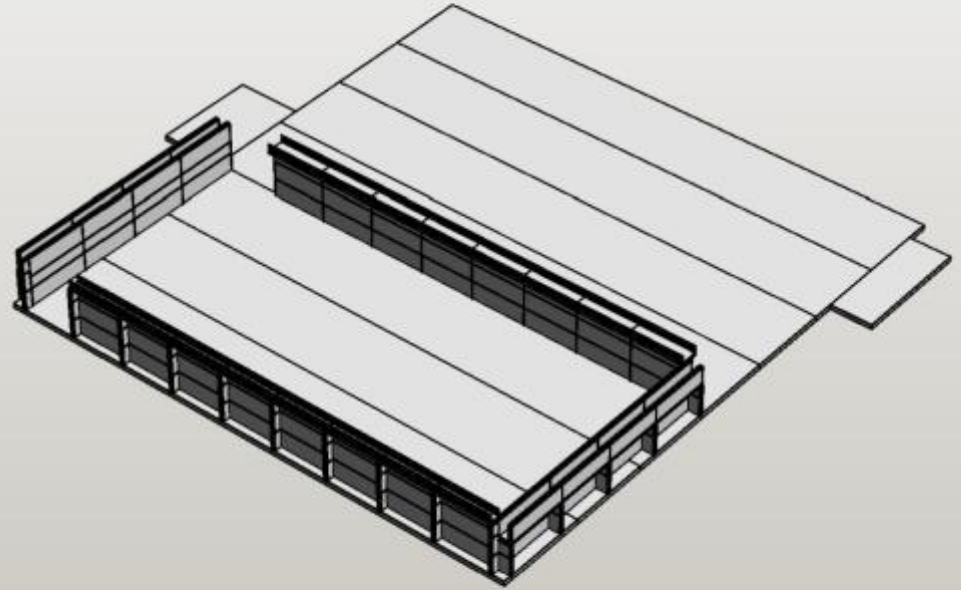


Planning & Construction

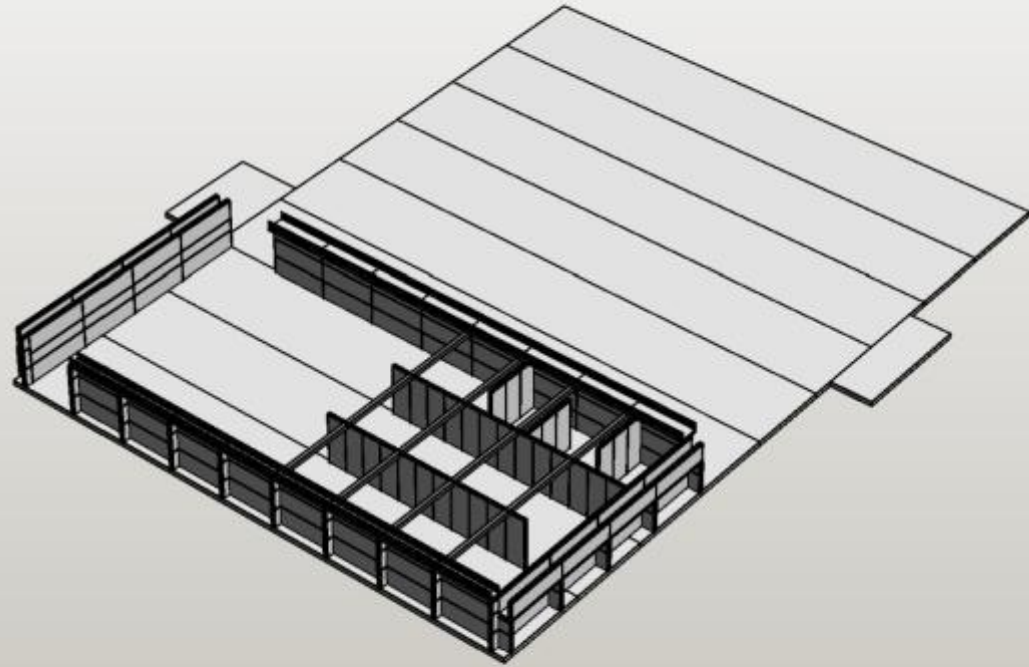
WEEK 6



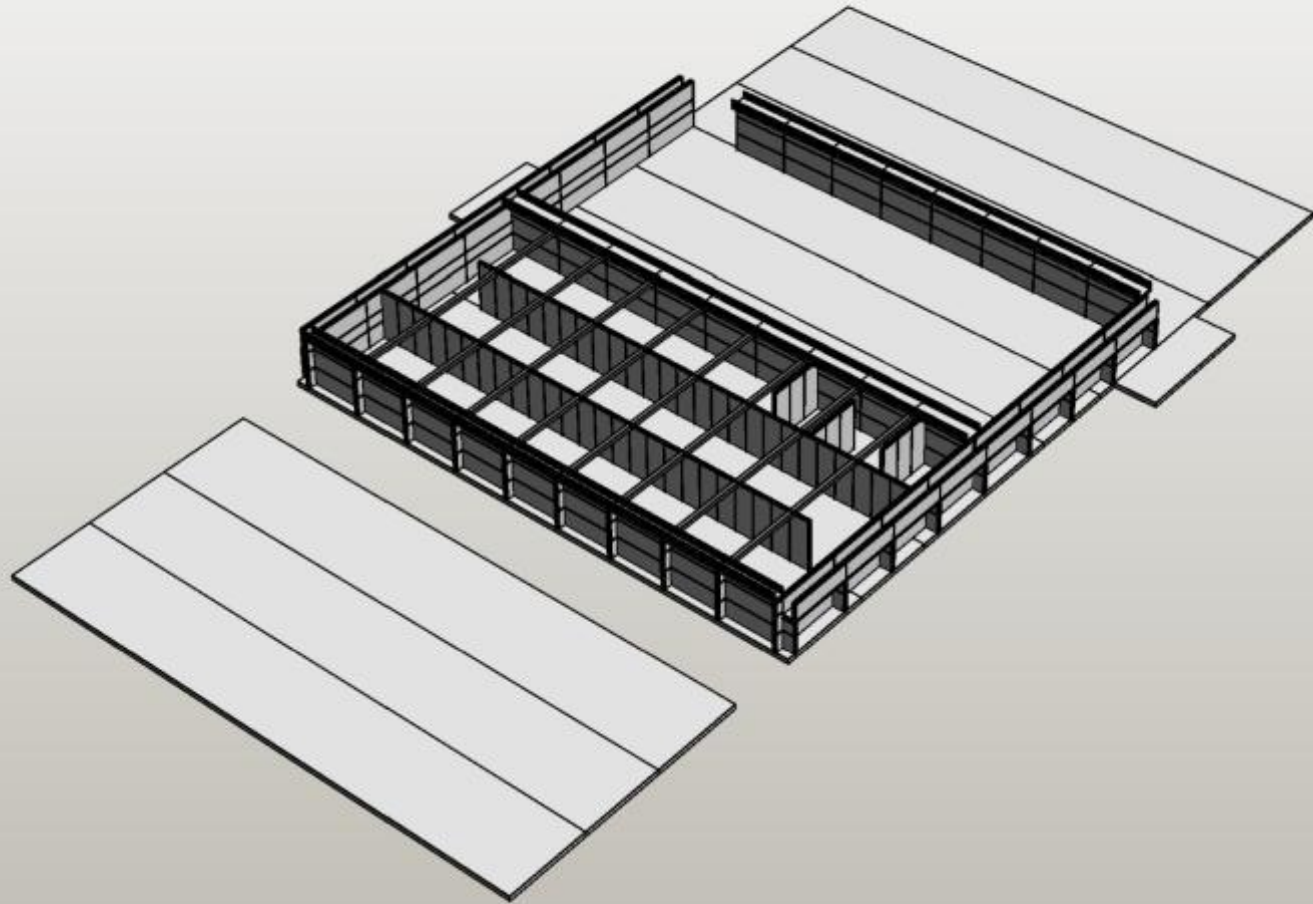
WEEK 8



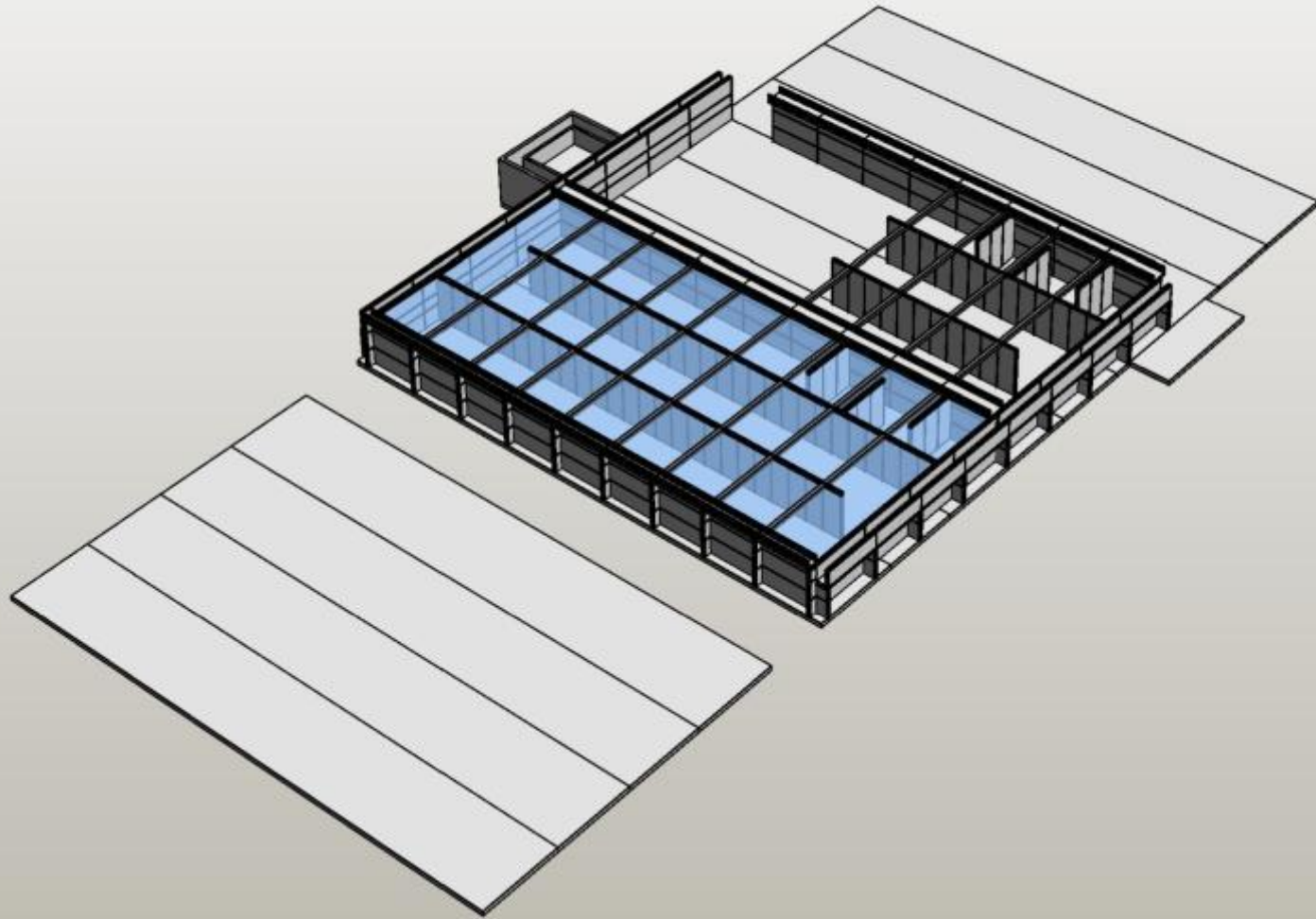
WEEK 11



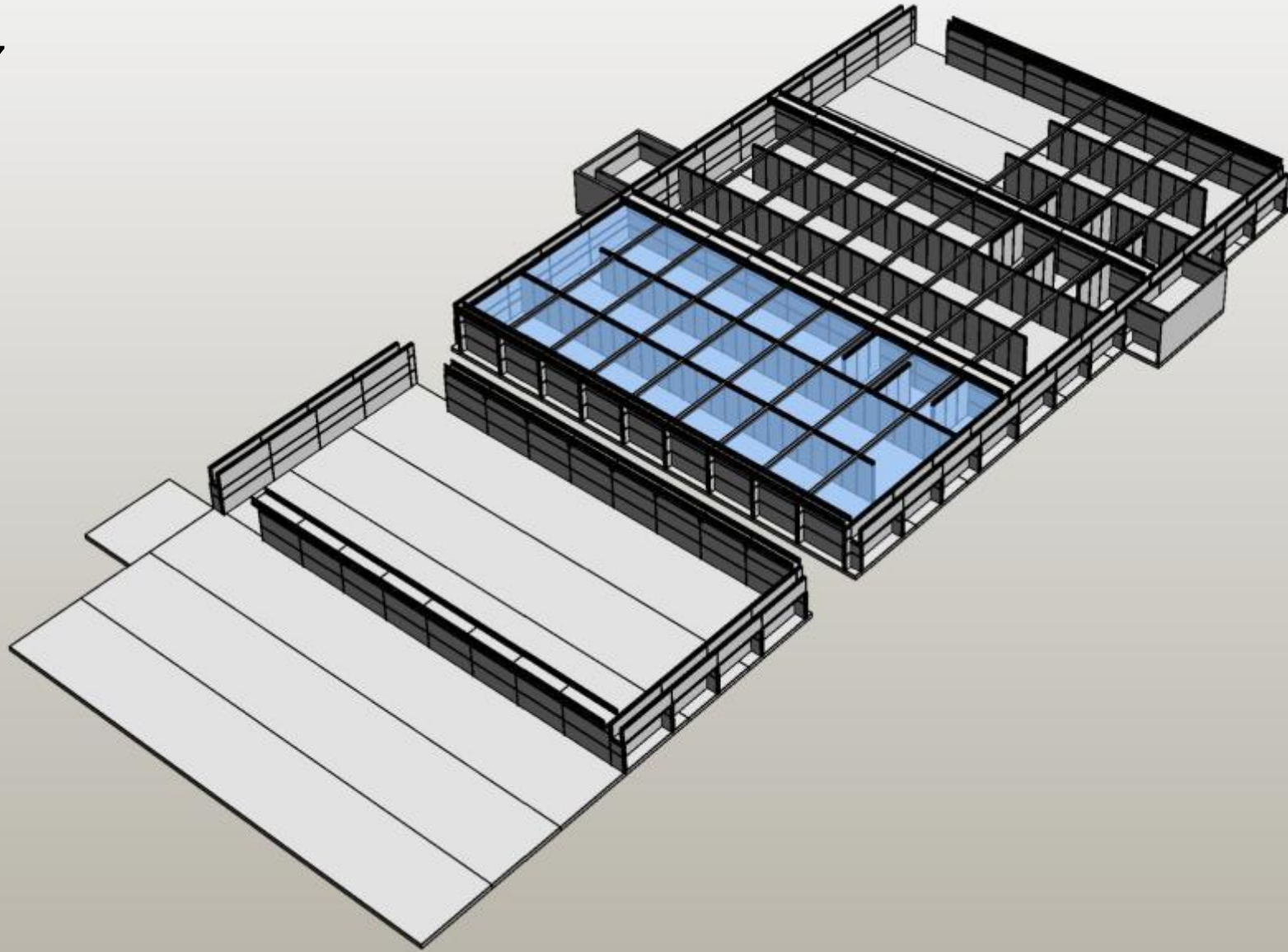
WEEK 13



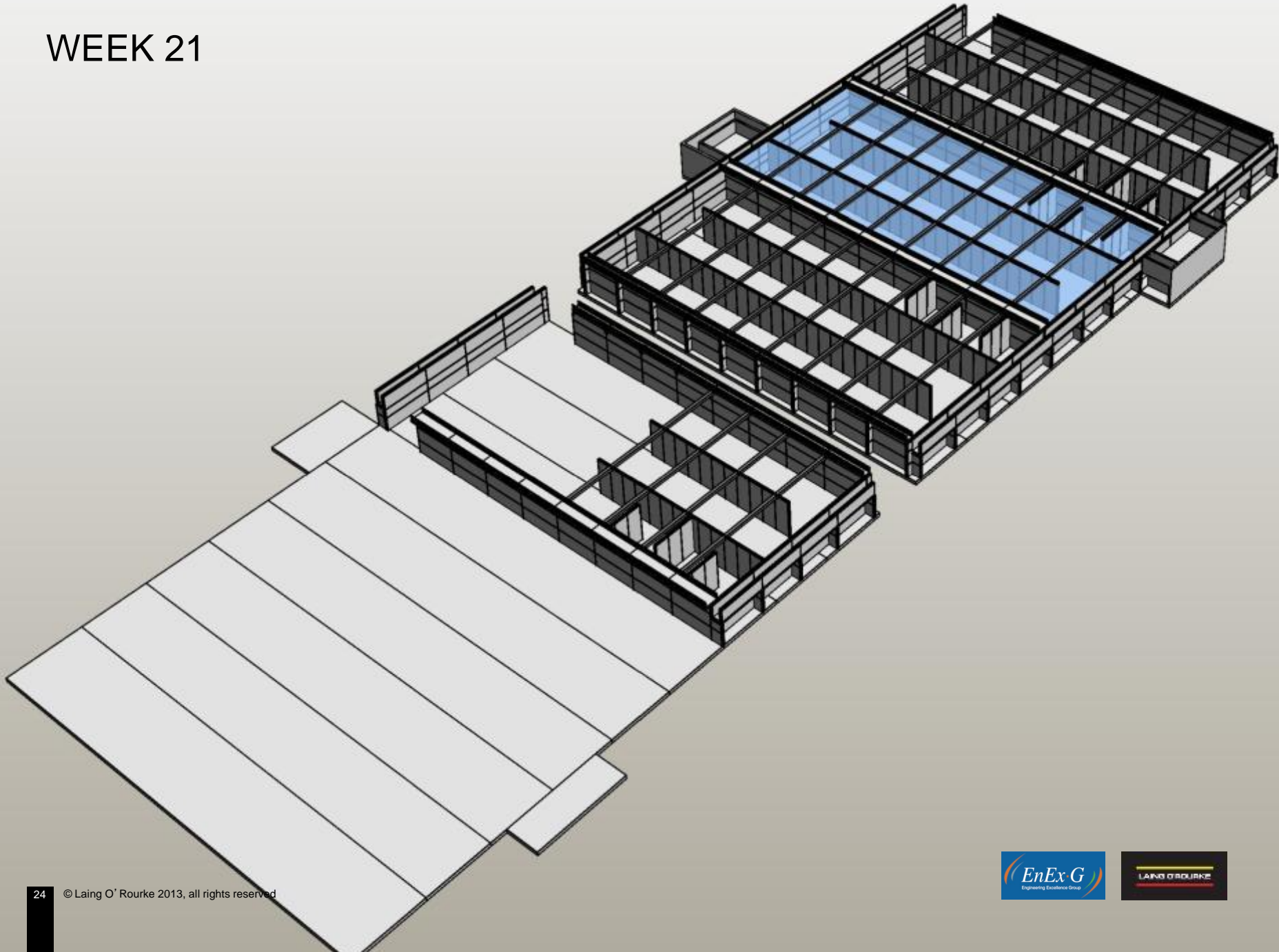
WEEK 15



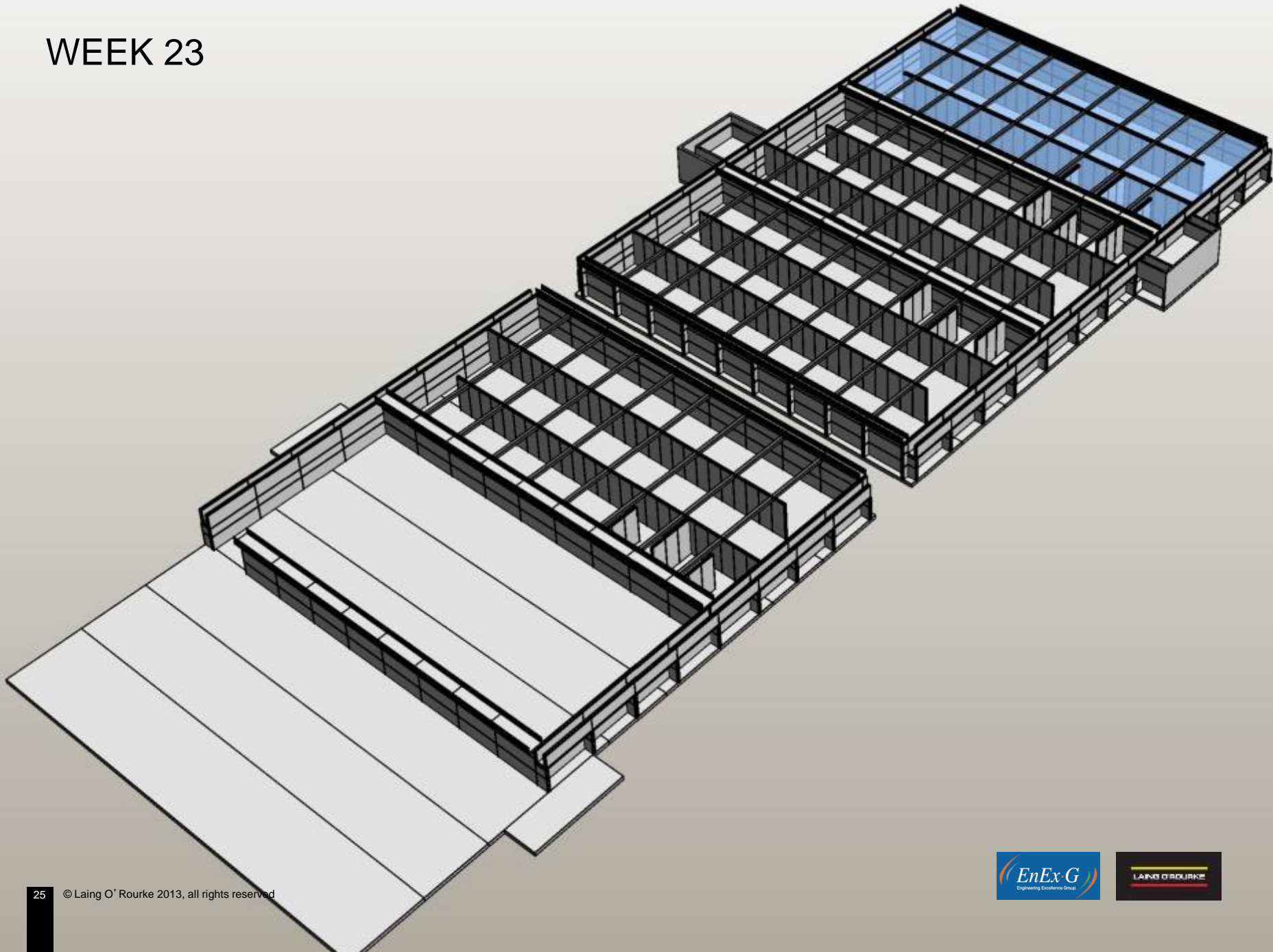
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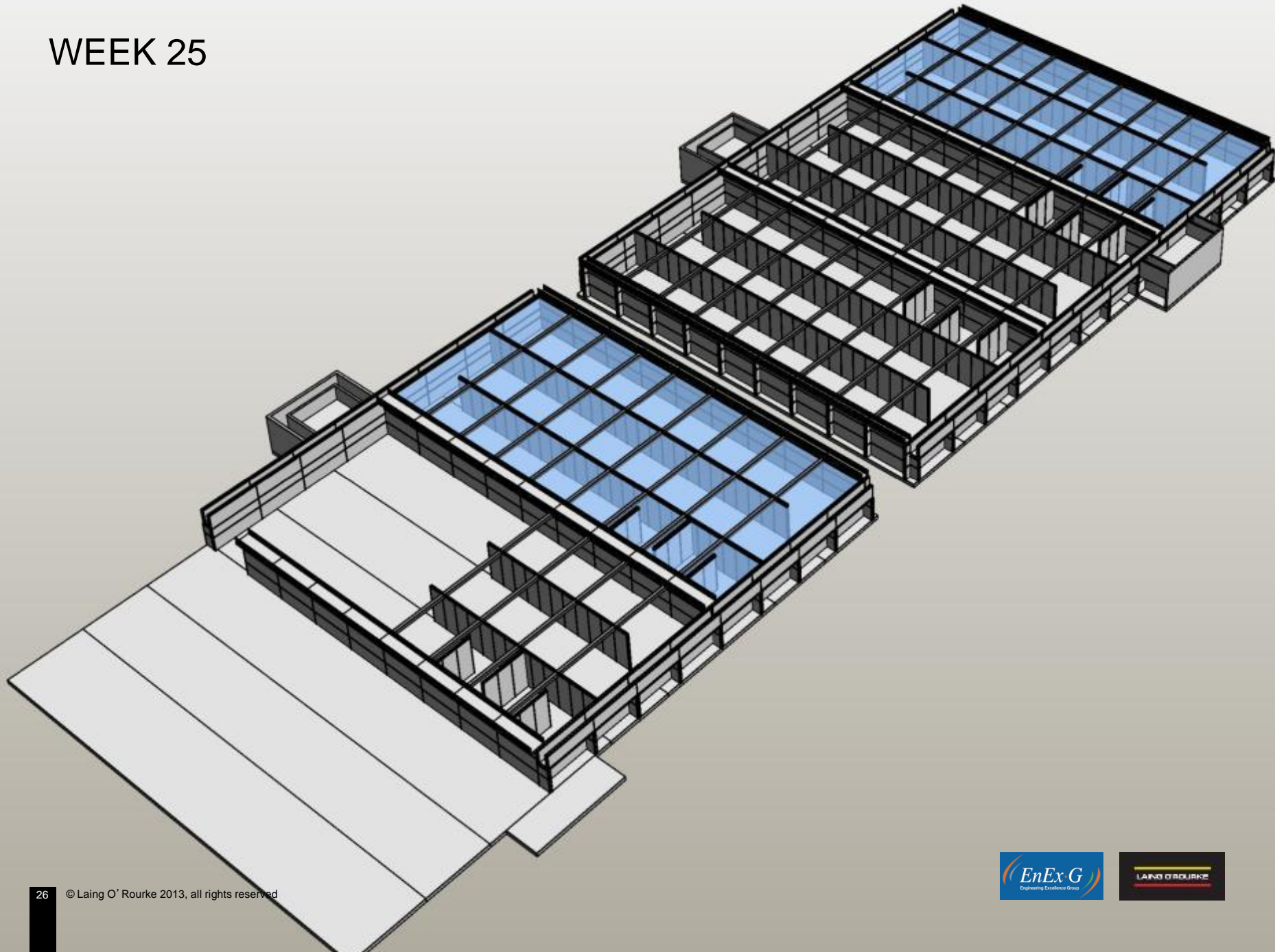
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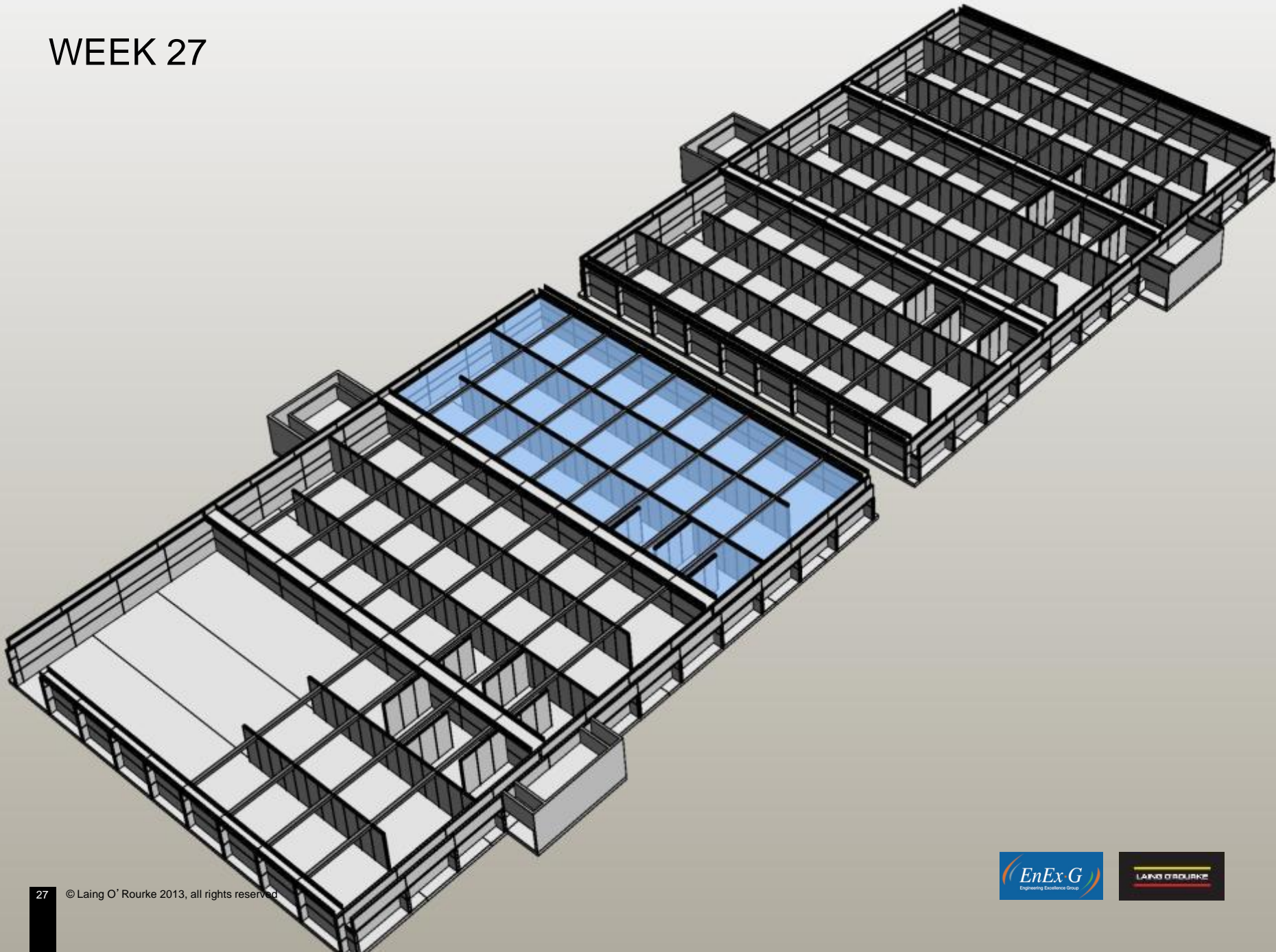
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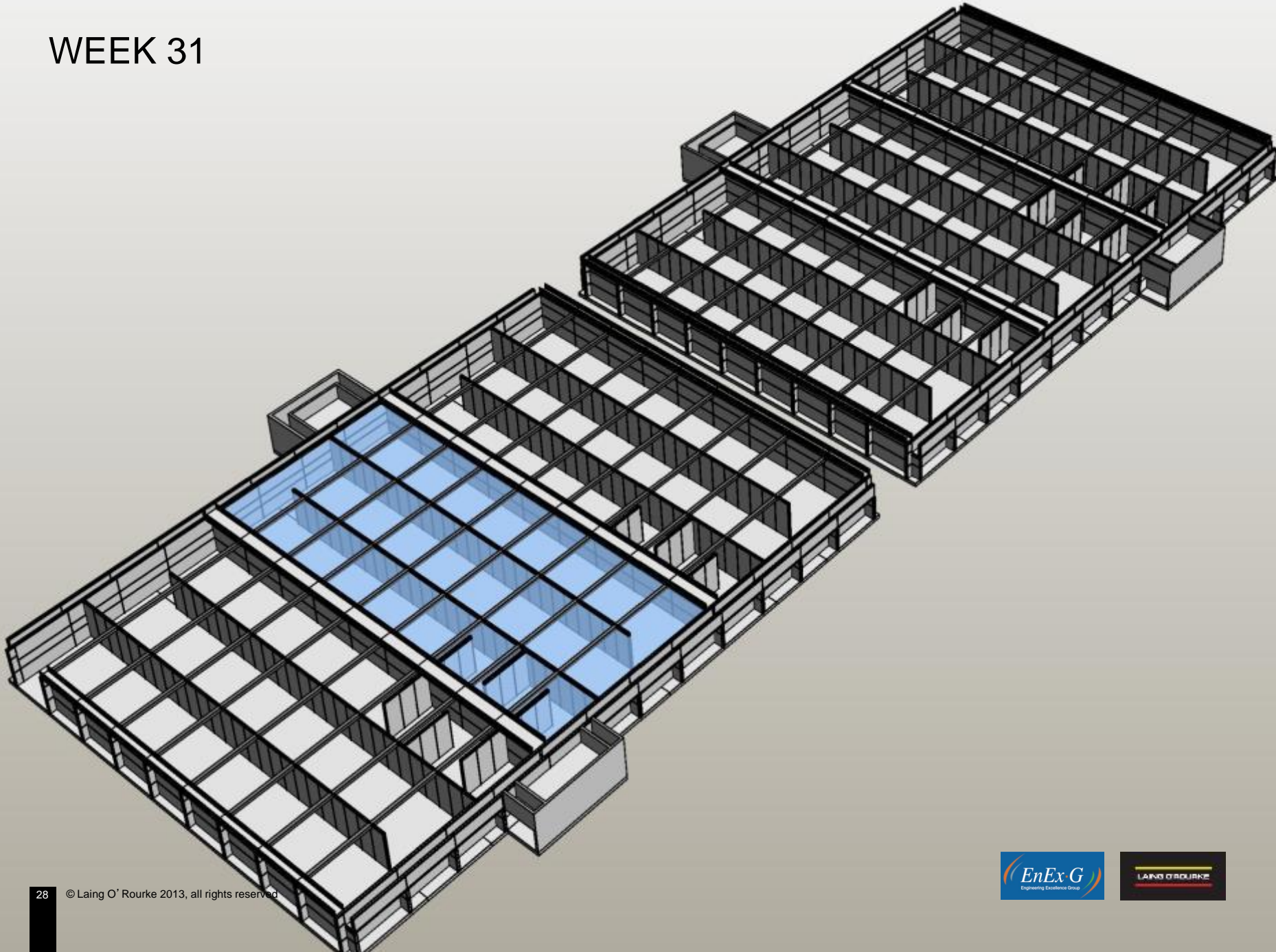
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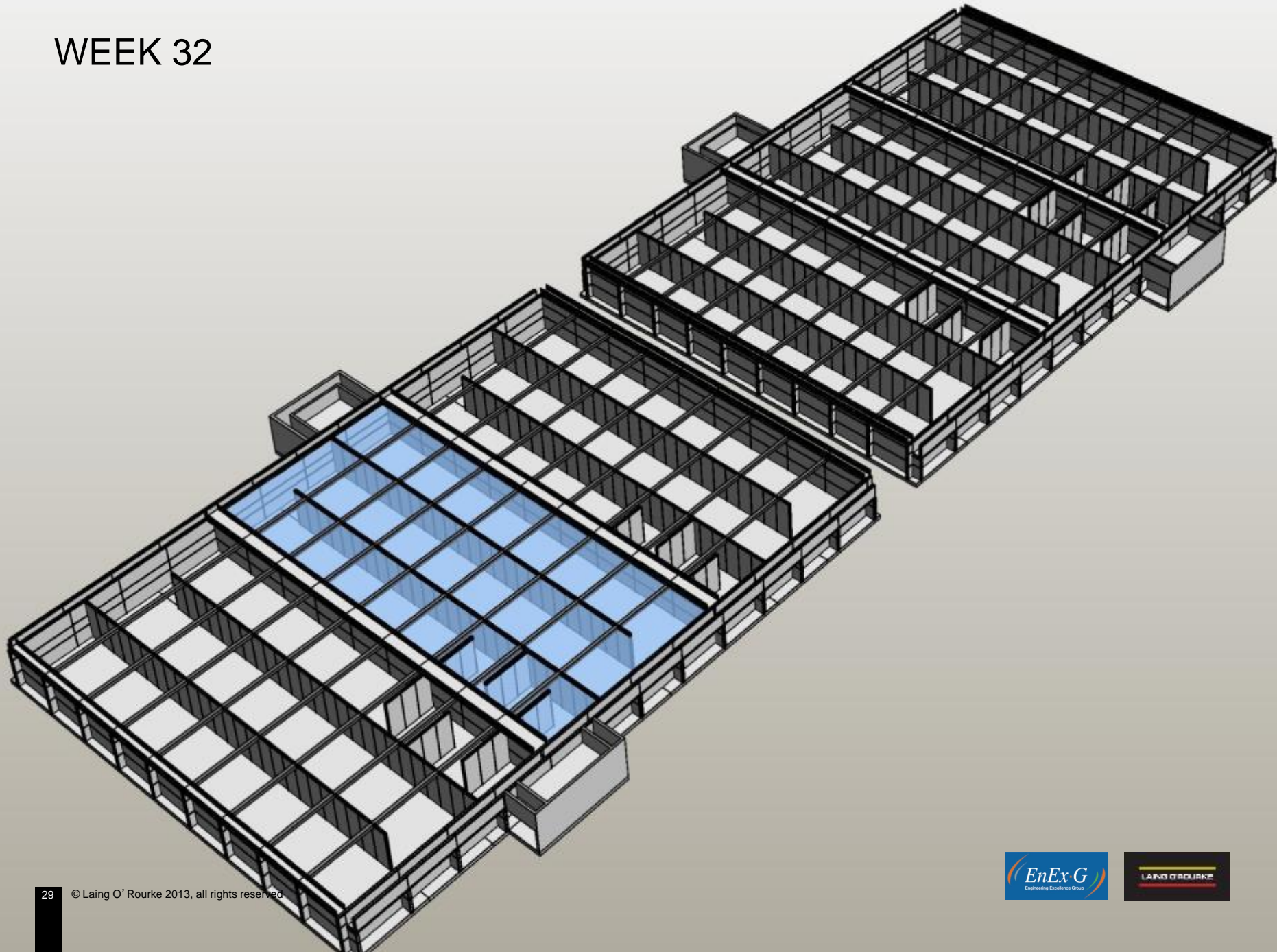
WEEK 27



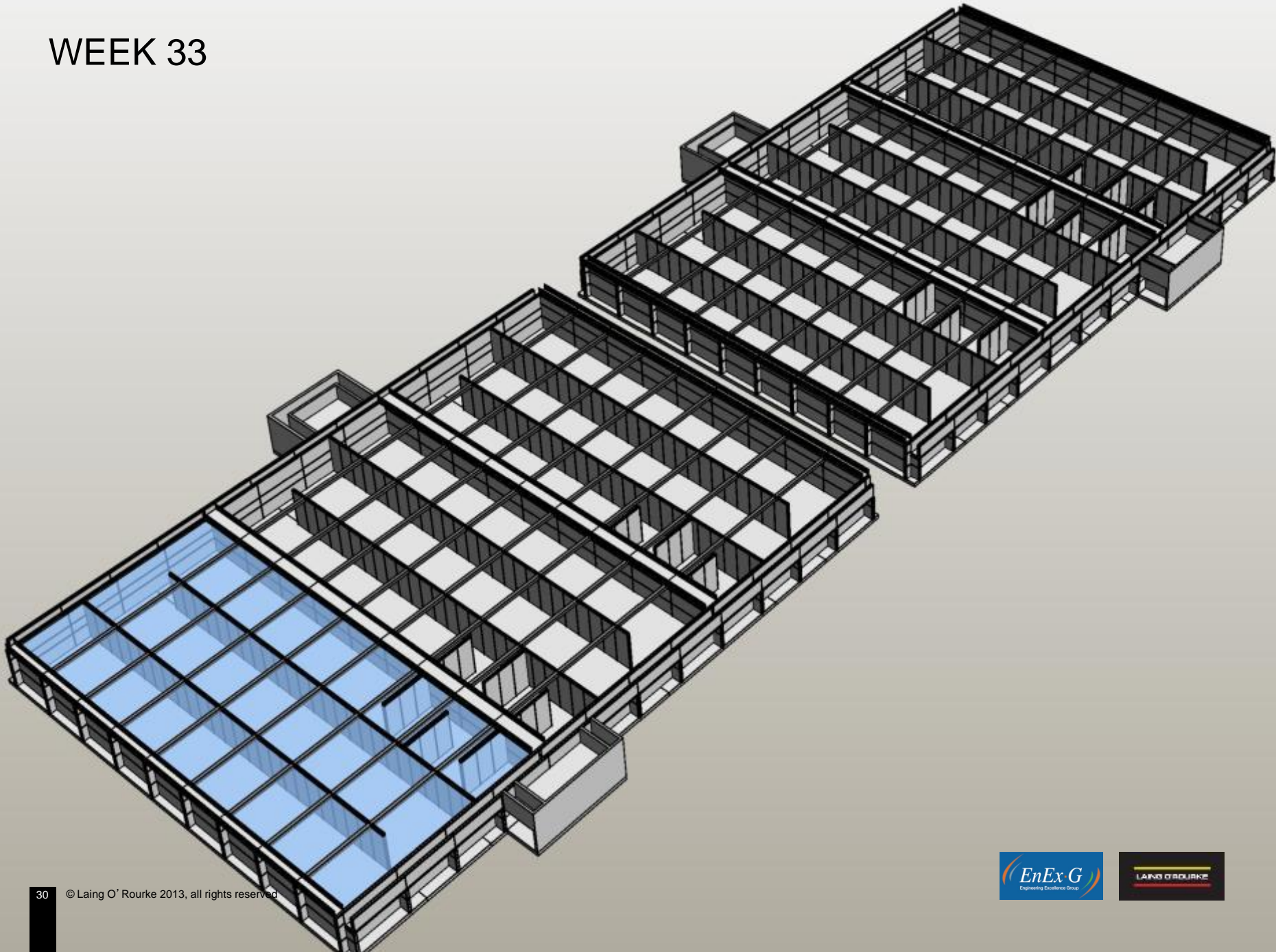
WEEK 31



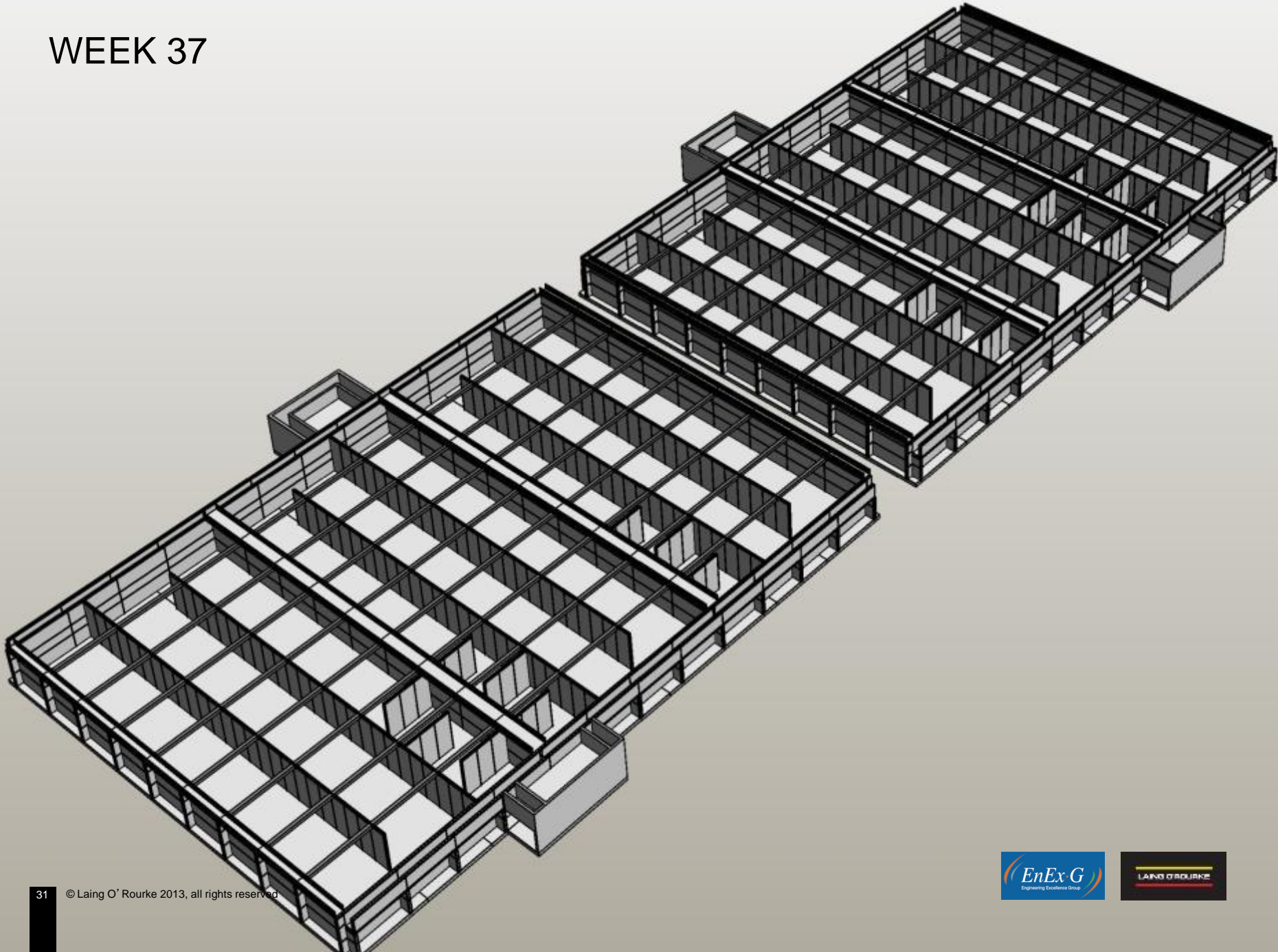
WEEK 32

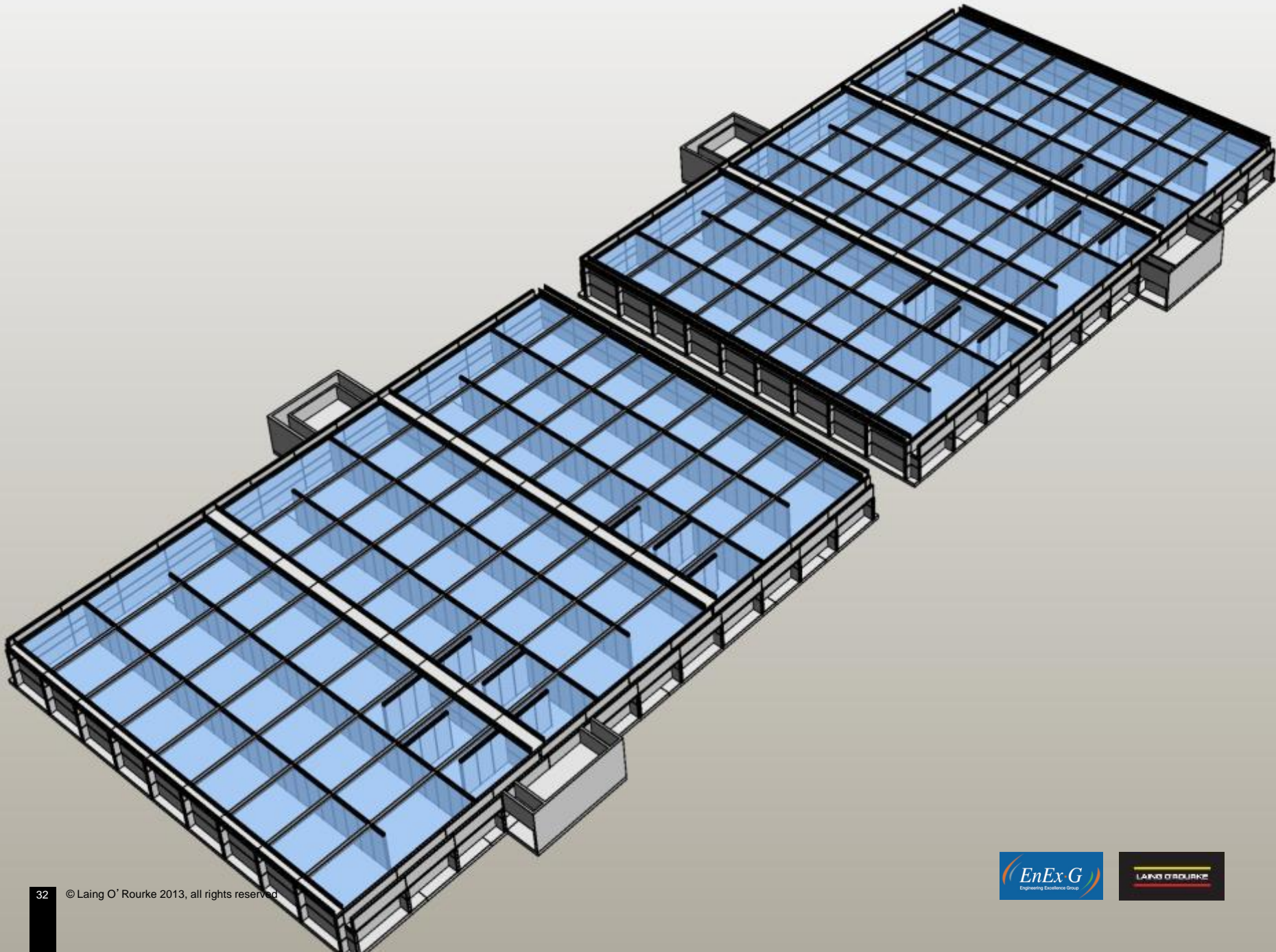


WEEK 33



WEEK 37

































Site Progress: Jun 2011



Site Progress: Mid-Feb 2012

Walkway Modules

Incorporates:

- Cable trays
- Pipe supports
- Pipe work
(tested, with trace heating and cladding)
- Lighting
- Lightning protection
- Instrumentation
- Valves and Hoses for aeration lanes



DfMA in MEICA Works



MEICA DfMA Opportunities

- Modular MEP
- Precast drainage systems
- Transformers & Blast Walls
- RAS pump sets
- Blower house
- Dosing kit



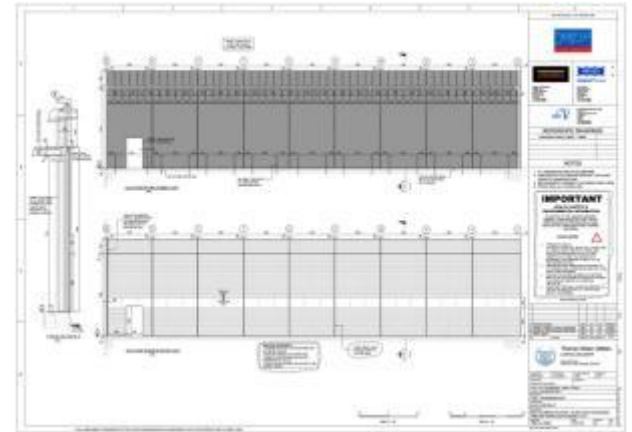
Adjustable Weirs and Manholes:



Inlet Pumping Station Building

DfMA solution

- Brick faced sandwich panels, hollowcore roof
- Transferable for all building solutions



Preliminary Treatment Works

DfMA solution

- Complete DfMA solution with pre-cast Columns, Twin wall, Lattice slabs with roll mat reinforcement topping
- Utilising standard pre-cast catalogue components, elevated works can be built using techniques developed within concrete frame business



Lego-block Beckton build saves time and money

Innovative construction techniques shaving time and money off project to expand Britain's largest sewage works

BY SONIA RANA

Massive new treatment tanks have been built at Beckton sewage works in half of the normal time – saving over 100,000 man hours.

In the same way Lego is quickly and simply fitted together using modular sections, engineers used pre-cast concrete panels to build more than 20 enormous tanks covering a total surface area bigger than the Olympic Stadium.

Prefabricating the concrete panels in controlled factory conditions, rather than building them from scratch on site, can also

achieve savings of between 10 and 15 per cent of the construction costs of the tanks.

Lawrence Gosden, director of capital delivery, said: "This innovative approach is saving time and customers' money, as well as reducing disruption and significantly improving site safety – and we're ending up with better-constructed pieces of kit than using traditional construction methods."

"INNOVATIVE THINKING IS TRANSFORMING THE WAY WE'RE DELIVERING OUR CAPITAL PROGRAMME"

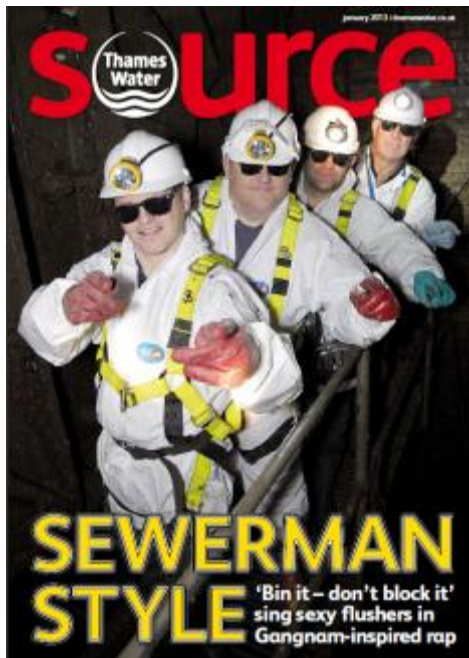
Some of the larger tanks, which need thicker walls, have been made by sandwiching together the largest single pre-cast concrete panels ever used in the UK. This is the first time this twin-wall approach has been used to build water retaining tanks of this scale in Europe, and possibly the world.

Contractors Tamesis, who have invested in a pre-cast manufacturing facility over the years, were also challenged to make use of this technology for the expansion of Crossness treatment works, over the other side of the river.

Nick Fawcett, head of programme

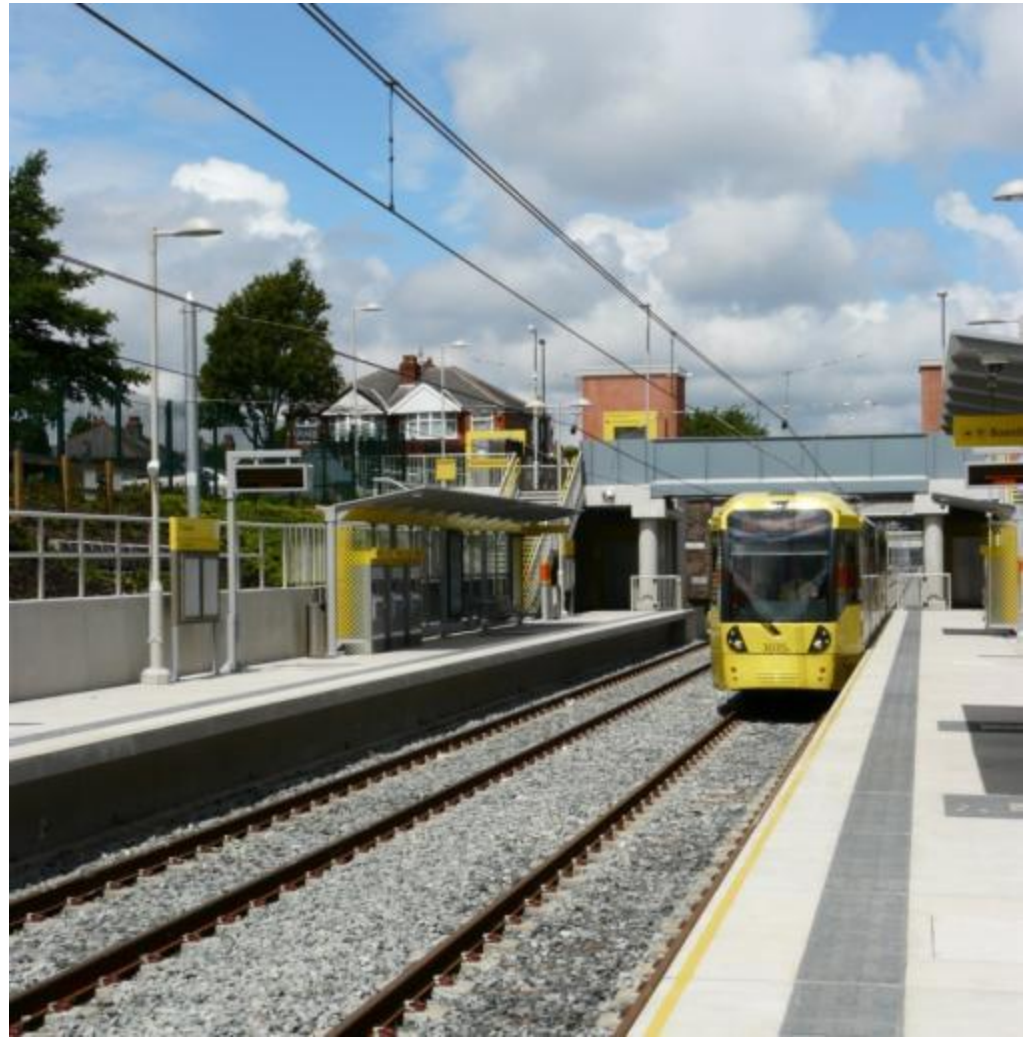
delivery, added: "Innovative thinking is transforming the way we're delivering our capital programme. This is definitely the future of the industry. Our innovation journey is just beginning."

The £190m extension at Beckton, to be complete in 2014, will boost the site's treatment capacity by 60 per cent, so it can treat increased flows during heavy rain, preventing the need to discharge sewage into the River Thames. It will also be able to cope with the extra London waste brought into the works by the Lee Tunnel, and the proposed Thames Tideway Tunnel.



Manchester Metro

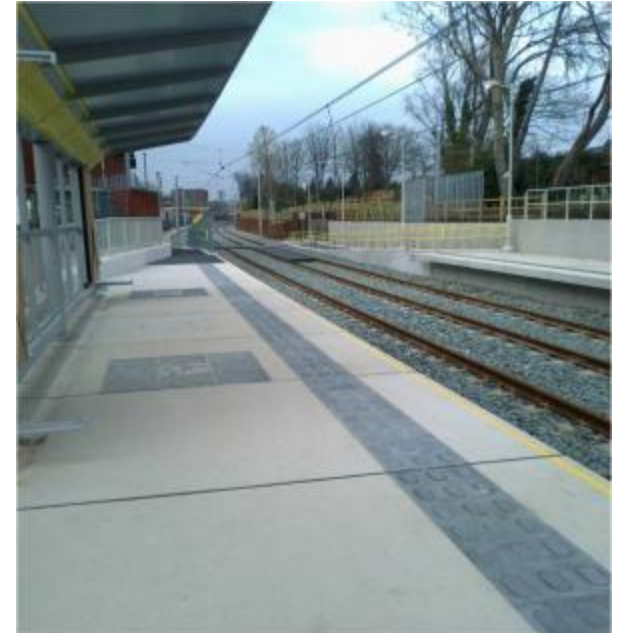
1. 60km of new track
2. 55 new stops
3. 2,900 precast platform segments
4. 1,500,000 design hours
5. 19 integrated disciplines



Rail Sector Products: modular







Platform units with integrated surface finish, including warning tactiles, drainage and platform edge coping.







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