

CitA Digital Skills Series
2024

CitA



**MIDLAND
STEEL**

*Sustainability In
Reinforcement using
Smart Manufacturing
principles "FasterFix"*



Midland Steel in 2024



FASTERFIXTM

Better for the planet



POND5



POND5

Traditional Steel Fixing



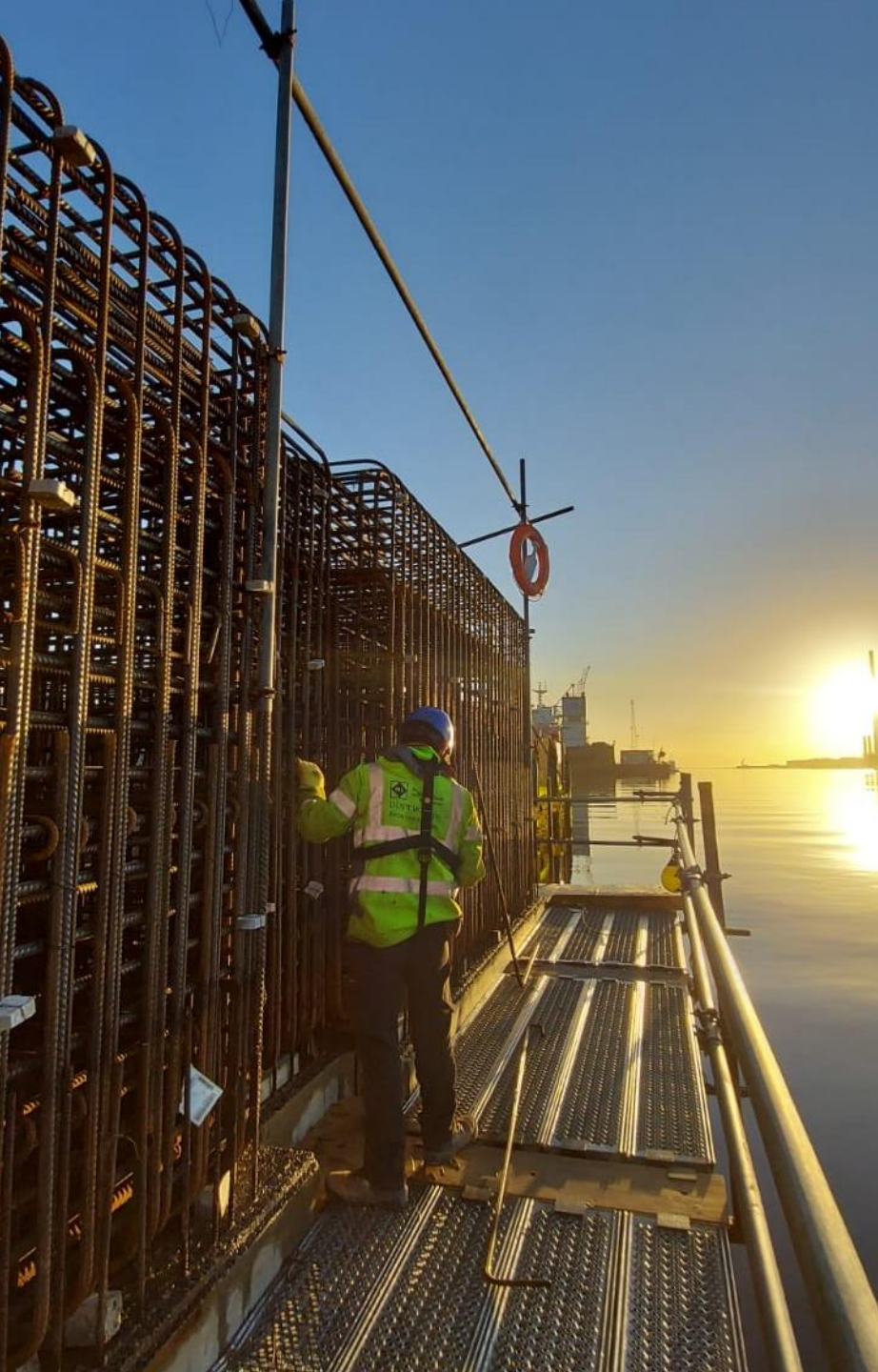
POND5



POND5

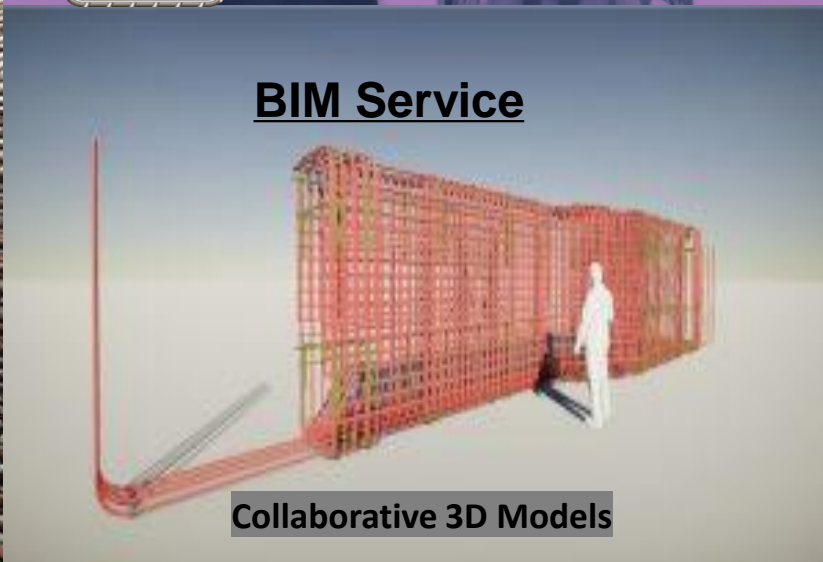
Traditional v FasterFix





FasterFix Rebar

The future of Construction



BIM Service

Collaborative 3D Models



Offsite Product

Utilizing Digital for Sustainability Goals

7 AFFORDABLE AND
CLEAN ENERGY



Improving the design criteria – get an analysis of building in situ concrete frames

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



To reduce carbon emission from manufacture of steel by using FasterFix

13 CLIMATE
ACTION



By utilizing efficient detailing practice our goal is to achieve a ZERO waste objective

To reduce carbon footprint by reducing number of staff needed on site

17 PARTNERSHIPS
FOR THE GOALS



By using solar power, we reduce our external energy requirement



Sustainable Working using
digitalisation Midland Steel
have developed the worlds
first solution in Robotic
welding off rebar



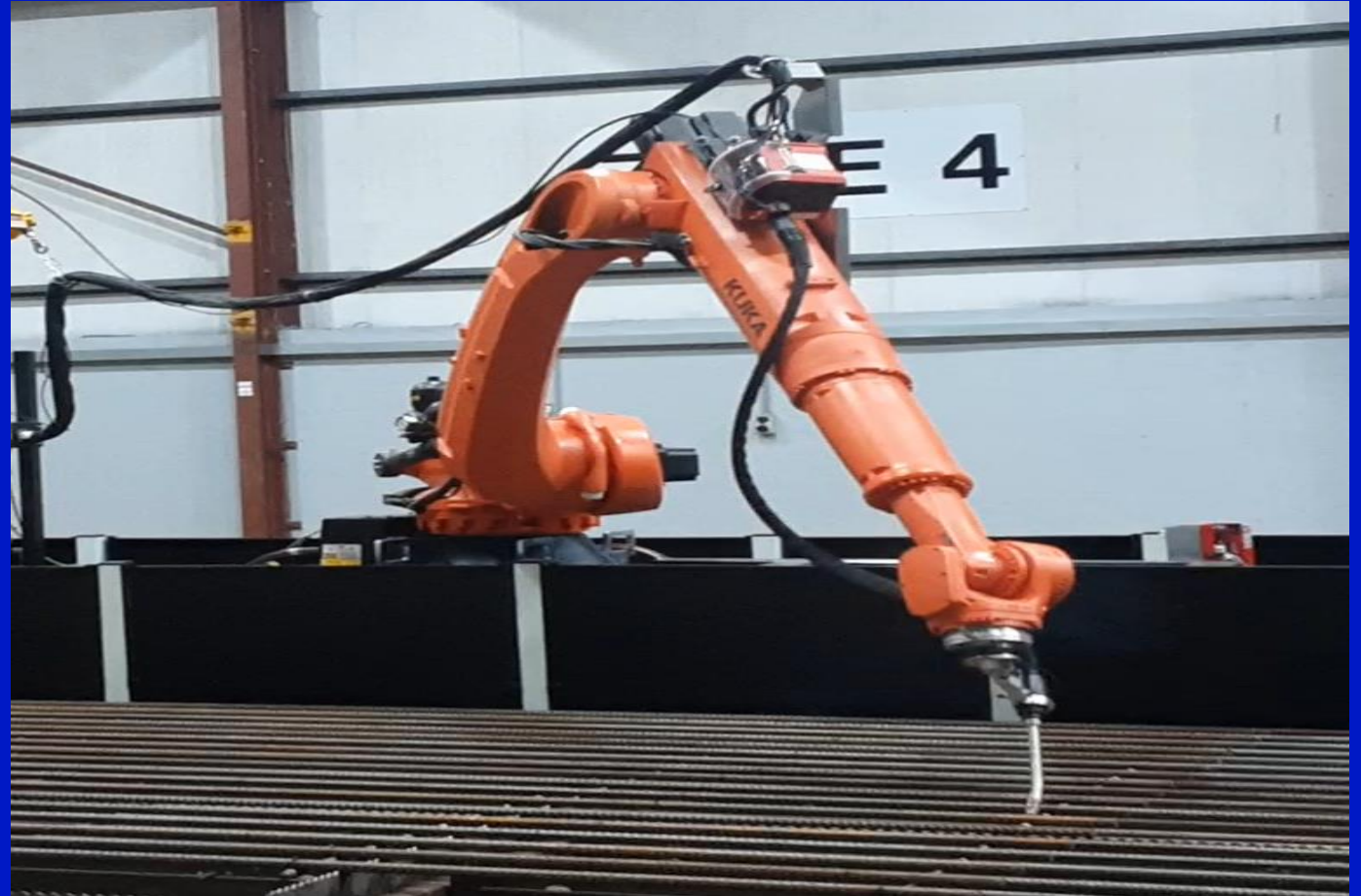
FASTERFIX



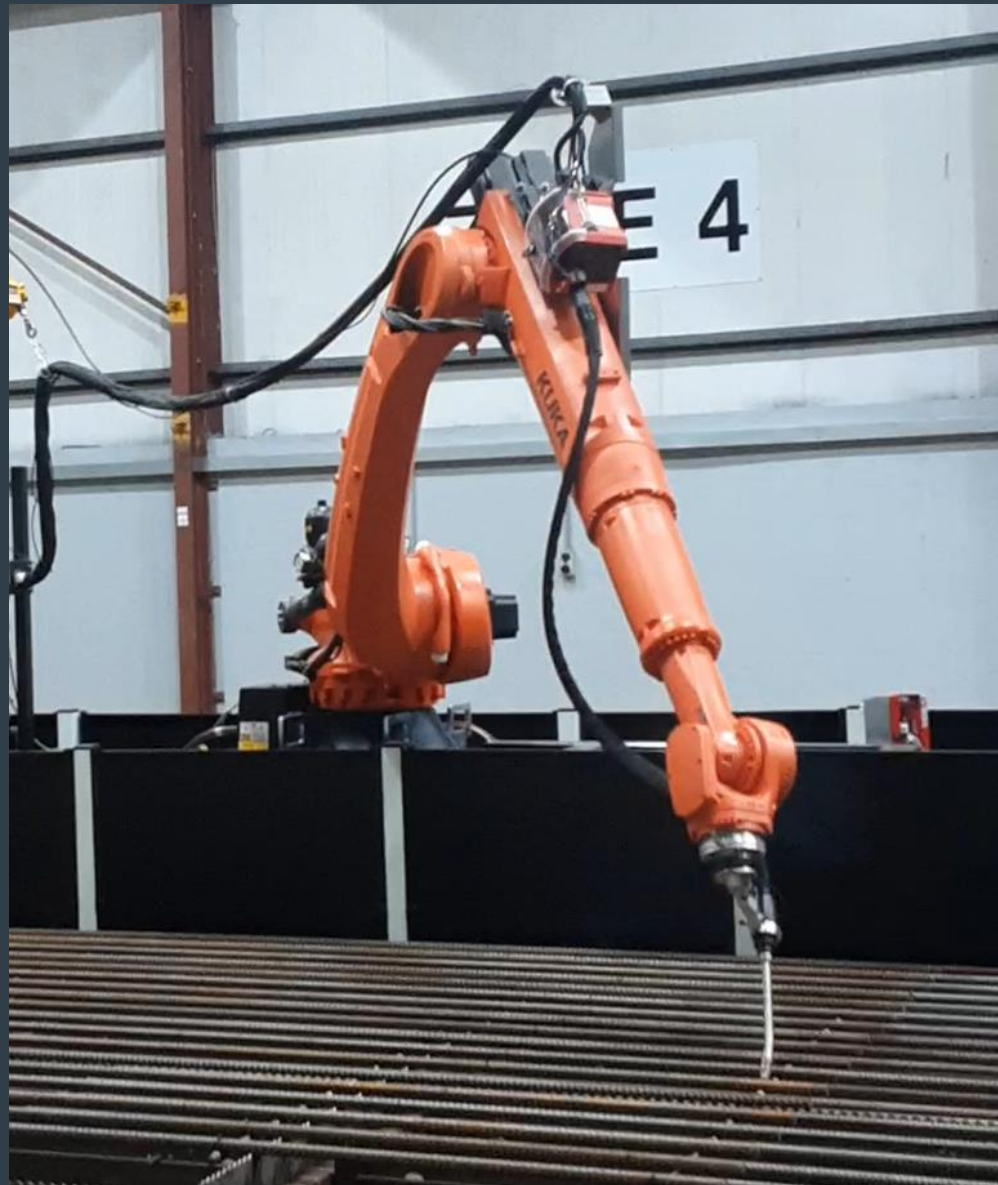
**MIDLAND
STEEL**

Robotic Fabrication utilizing Bim and adopting change
Requires technicians vs welders

Midland Steel started
down Robotics route
driving change in
innovation, inventing the
worlds first rebar welding
process up to 50mm



Digital change implementation and roll out with Robotics 2024 in production



Robotic Fabrication



75% faster 80% Less labour onsite



FASTERFIX

BIM Service



Collaborative 3D Models

Offsite Product



FasterFix Modular Rebar **on a 1,500m² Raft Slab**

Project - Croom Hospital (Covid-19 Rapid Build)

Contractor - Clancy Construction

Consulting Engineer - Horgan Lynch

Tonnes - 93 Tn

Area - 1500m²

Duration - 1.5 days



Modular Rebar Provider



Day 1: 7am
1700 sq/m x 1800 Deep Slab



Day 1: 11am



Day 1: 5pm



Day 2: 2pm

200 Tonne fixed no waste 4 people



Day 4: 7am
Pour on





600 Tonnes (58 Panels)

5 Days

6 Operatives CO2

**Reduced in both steel
usage and people on
site**

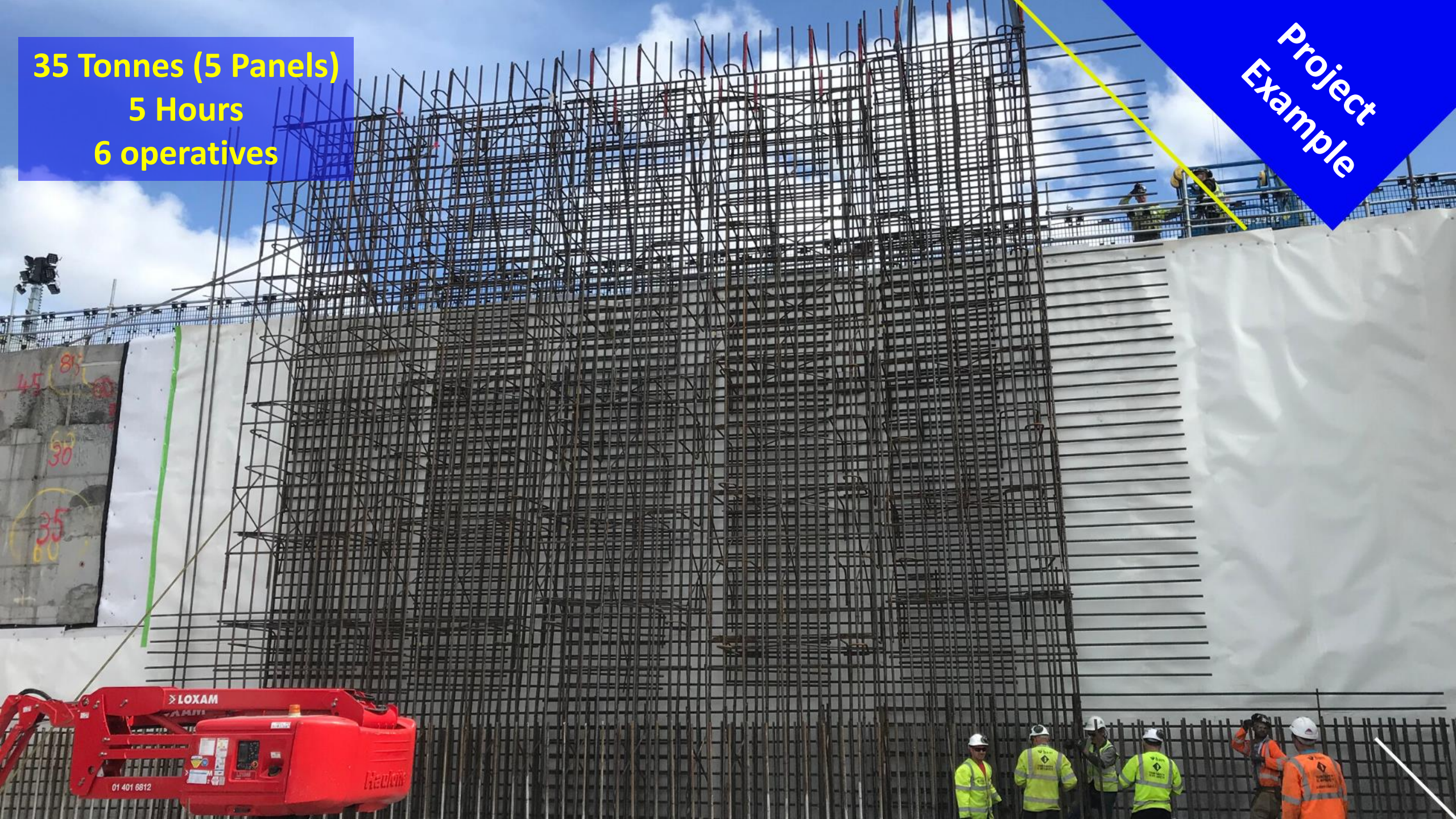
**Project
Example**

Enabled a 3500 m³ pour in 1 day!

Saved 4 weeks on programme logistics reduced with one visit

35 Tonnes (5 Panels)
5 Hours
6 operatives

**Project
Example**



A construction site featuring a large blue truck with a flatbed trailer carrying a massive, rectangular steel rebar cage. The cage is made of numerous vertical and horizontal steel bars, secured with green straps. The truck is parked on a dirt surface. In the foreground, several more similar rebar cages are laid out on the ground. The background shows a construction site with various materials and equipment under a cloudy sky.

Data Centre's

Dub 97

East side slab 1500m² , 2 men in a day and a half,





K2 Project

16no 4.5 x 3-meter pads placed in 2 hours.

7x7x1.5 modular pads 9 lifts per pad, each pad installed in an hour with 1 fixer and 1 banksman.

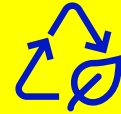


Our Values for FasterFix



Safety

We are committed to fostering a culture of safety excellence, ensuring the well-being of our employees, customers. We strive to create a workplace that is free from accidents and injuries.



Sustainability

We believe in responsible sourcing and manufacturing practices that minimize our environmental footprint. We are focused on promoting environmental practices and leaving a positive impact on our local community with 0% waste policy's



Innovation

We believe in revolutionizing the rebar industry using FasterFix with efficient processes and products that cater to the evolving needs of our customers



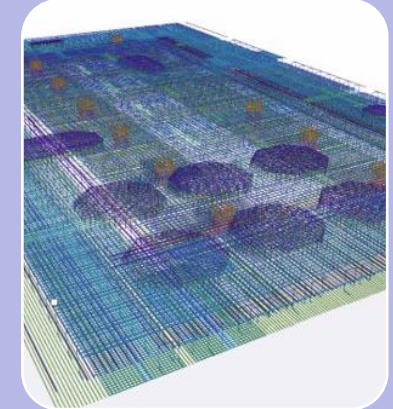
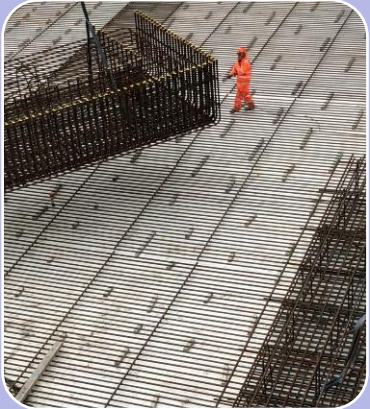
Quality

We maintain rigorous quality control processes. By consistently delivering reliable and durable solutions, we build trust with our customers and partners, fostering long-term relationships

Construction has commenced on Smart Factory Portlaoise



Midland Steel Portlaoise - Products



FasterFix

- BIM 3D modelling details produces a model whereby cut and bend steel is formed into sections, fixed and welded together offsite and delivered to site just in time for final fixing for 12mm to 16mm bar

Precast

- Precast Market for prefabricated market in 12mm to 16mm bar diameter is a key new market which Midland Steel will look to grow market share. By using automated manufacturing in Portlaoise, this offsite product will replace manual fixing in the industry

One Way Mesh

- One Way Mesh in lower bar diameter will help contractors replace onsite labour in a cost-effective manner

Foundation Ready Mesh

- This mesh product will be focused primarily on the residential market for housing.
- The mesh will be manufactured to customers' requirements and deliver to site.
- This will remove the need for labour to cut onsite

Cages

- Cages in lower diameter steel will be fabricated using the automated process and be available to the construction industry at competitive prices

Detailing Services

- MSIR provides BIM Modelling and 3D Detailing services to domestic and international clients

New Catalogue of Products which will be available from New Smart Factory assisting Irelands Housing delivery



One way meshes (OWM) in diameters 12mm to 20mm



Foundations Pre-made in 10mm, 12mm & 16mm



Modular Mesh solutions for foundations A393, premade to pack sizes in 25t loads ready for placement direct into location



Pad foundations 10mm-20mm



Premade double walls assisting the precast industry



Skill base required for the future

- ➔ 3D rebar detailing engineers
- ➔ Robotic engineers
- ➔ Mechanical engineers
- ➔ Electrical engineers
- ➔ Senior Bim leads / Senior Placing leads



Climate – *FasterFix* & Irelands 2030 Climate Action Plan

Building better

commercial/public	residential
45%	40%
reduction in emissions by 2030	

We will increase the energy efficiency of existing buildings, put in place policies to deliver zero-emissions new builds and continue to ramp up our retrofitting programme.

Ramp up retrofitting to 120,000 dwellings to BER B2 by 2025, jumping to 500,000 by 2030.

Put heat pumps into 45,000 existing and 170,000 new dwellings by 2025, up to 400,000 existing and 280,000 new dwellings by 2030.

Generation up to 0.8 TWh of district heating by 2025 and up to 2.5 TWh by 2030.

Greening business and enterprise

35%

reduction in emissions by 2030

We're changing how we produce, consume, and design our goods and services by breaking the link between fossil fuels and economic progress. Decarbonising industry and enterprise is key to Ireland's economy and future competitiveness.

Decrease embodied carbon in construction materials produced and used in Ireland by at least 30%.

Reduce fossil fuel use from 64% of final consumption (2021) to 45% by 2025 and further by 2030.

Increase total share of heating to carbon neutral to 50-55% by 2025, up to 70-75% by 2030.

Significantly grow the circular economy and bioeconomy.

"Decrease embodied carbon in construction materials produced and used in Ireland by at least 30%"



FASTERFIX™



12.6%

Reduction in CO2



0%

Waste on Site



The case study estimates that there is an **12.6% saving in CO2 emissions** by using the FasterFix process. It is also clear there is potential to further reduce emissions by optimising design and manufacturing in the plant. **The new plant planned for Portlaoise offers the potential to optimise the process further by integration technology to optimise design and robotic welding.**



Programme Guaranteed ✓

Just in Time Deliveries ✓

Increased Site Safety ✓

Onsite steel storage eliminated ✓

Midland Steel –
Sustainability in Reinforcement
using FasterFix offsite solutions



*On the cusp of a
New Era in the
sustainable
world of rebar*



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Thank you for your time

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