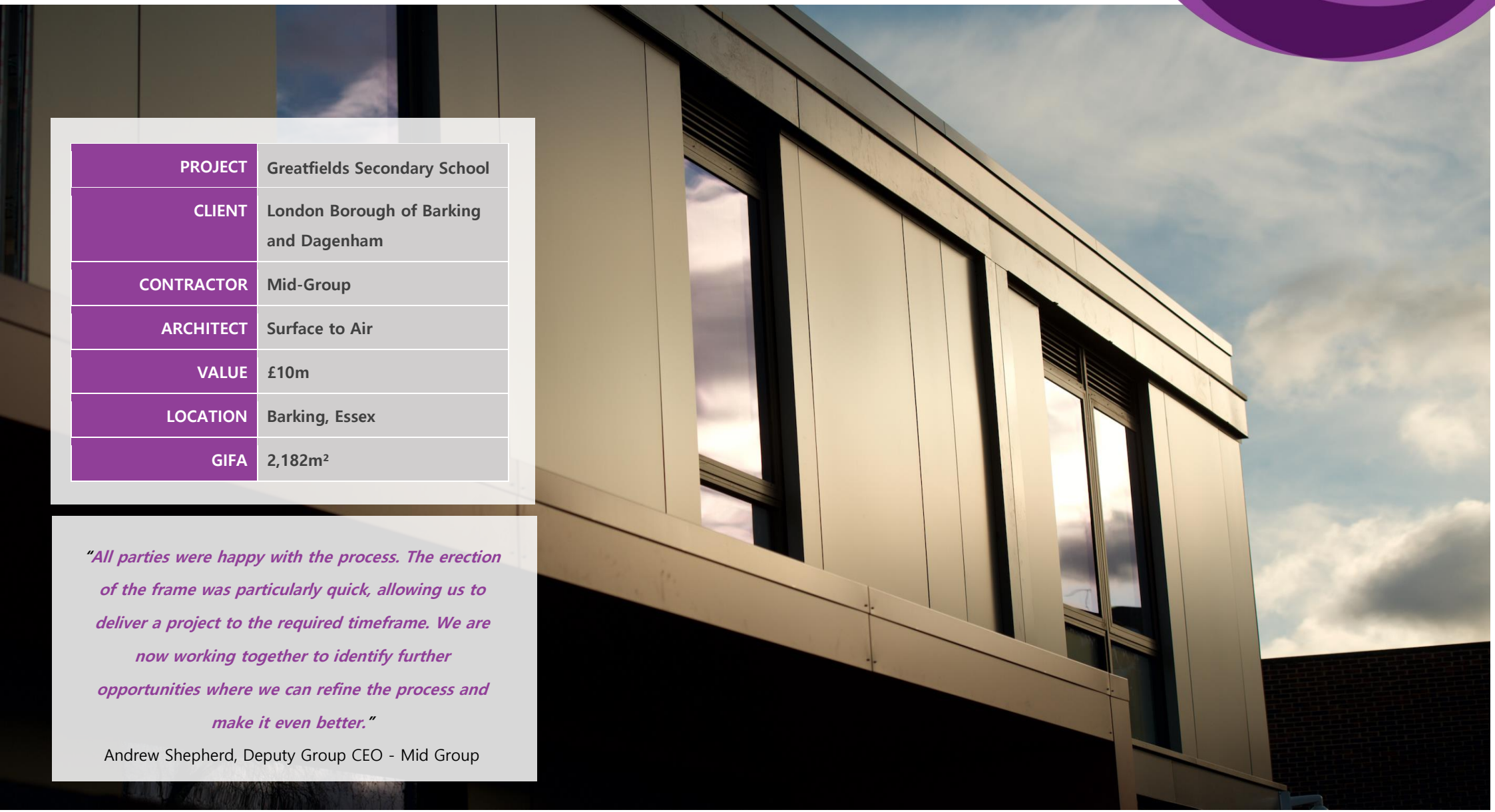
i-SIP Structure + PC Concrete floors = robust school building

innovare
simplifying offsite



PROJECT	Greatfields Secondary School
CLIENT	London Borough of Barking and Dagenham
CONTRACTOR	Mid-Group
ARCHITECT	Surface to Air
VALUE	£10m
LOCATION	Barking, Essex
GIFA	2,182m²

"All parties were happy with the process. The erection of the frame was particularly quick, allowing us to deliver a project to the required timeframe. We are now working together to identify further opportunities where we can refine the process and make it even better."

Andrew Shepherd, Deputy Group CEO - Mid Group

Collaboration leads to innovation

The London Borough of Barking and Dagenham required a new build primary to secondary all-through school for a new urban development in Barking. Part of a three-phase development, a pre-requisite design standard for Zone 1 of the school was the need for the building to include pre-cast concrete floors to successfully meet sustainability requirements for excellent acoustic performance, building robustness and thermal mass.

Early engagement between Innovaré, Mid Group and architects Surface to Air three to four months prior to the initial project planning was pivotal to ensuring that the client's project requirements were met. The use of 3D modelling and component scheduling enabled the design team to visualise the completed building prior to construction and required adjustments to the layout to accommodate M & E routes were agreed and designed in ahead of production.

Through efficient collaboration, a brand-new unique and innovative hybrid design integrating pre-cast concrete floors with the i-SIP system of structural insulated panels was developed to meet the borough's building performance goals.

Pre-cast concrete floors add to thermal mass

This innovative design solution ensured that excellent thermal efficiency for the building was achieved, as the use of concrete floors enables a soffit finish with exposed services. This exposed soffit contributes to the building's thermal mass, part of the approach to cooling the building.

Thermal modelling carried out by Innovare facilitated the design of key junction details that minimised cold bridging. In addition, the use of i-SIP resulted in embodied energy being on average 75% less than other build methods with a U-Value of 0.18 W/m²k.

Delivered 6 months early and snag free

The school was completed under the borough's affordability target- significantly below other recently delivered schools in the area. The hybrid design was delivered more than 50% faster than other proposed build methods and resulted in many project
and performance benefits, including major cost efficiencies and a rapid build programme. The frame for the building was constructed in just 9 weeks, with follow on trades booked in to arrive immediately on handover. The use of offsite technology lead to less time spent on site ensuring minimal disruption to the surrounding community.

This resulted in the delivery of 20 classrooms 6 weeks ahead of schedule, allowing staff and pupils to move from temporary accommodation several weeks early.

Turning construction 'on its side' with an innovative design solution incorporating thermally efficient, timber-based walls and masonry floors has resulted in new opportunities for Innovaré with 5 new school buildings in the borough as well as other specialist sectors.