

Grand Egyptian Museum, Cairo

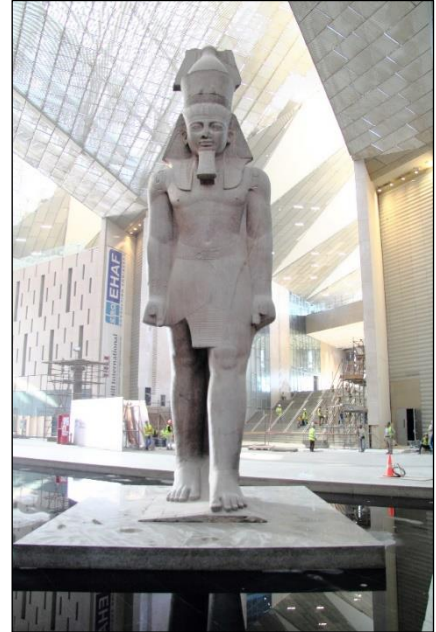
Between 2018 and 2021, GCA undertook a series of projects in collaboration with Hayley Sharp Design to provide a structural strategy, concept and implementation for the support of a wide range of artifacts at the £1bn Grand Egyptian Museum in Cairo.

Our brief was to ensure the safe support and integration of structural systems to resist seismic, accidental, live and dead loads from a group of over 20,000 objects.

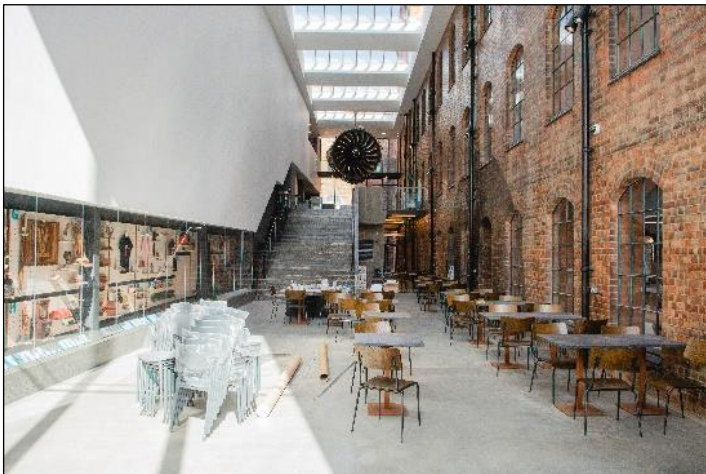
GCA worked closely with designers, fabricators and curators to ensure objects were presented securely and safely, within the confines of a building which was under construction.

Through detailed and rigorous analysis, we reduced a vast range of potential load configurations to a manageable and calculatable set of cases.

These were then provided with full, detailed design to provide proposals for fabrication.



Museum of Making, Silk Mill, Derby



Derby Silk Mill Industrial Museum (a Grade II listed building) was remodelled as the Museum of Making. This £17m project involved the repair of the existing building, verification of its load capacity and construction of a new Atrium adjacent to the existing building.

The building required extensive repair and conservation, as well as sensitive alterations to the existing structure. The new museum was intended to celebrate Derby's heritage as a city of makers through its internationally, regionally and locally significant collections.

GCA were involved from the early stages of the project and worked collaboratively with the design team and contractor to come 'best for project' solutions to a range of project challenges.

Amongst several innovative design solutions used on the project, GCA developed a programme of physical investigation and load testing to enable the retention of the existing first and second floors. This saved the project approximately £100,000 and 45 tonnes of embodied carbon and allowed the retention of the historic fabric. GCA saved a further £200,000 through design of a thin profile ground floor to encapsulate existing asbestos.

GCA found creative solutions through new technology in the use of robotic wheeled drones to access the undercroft of the original Mill to enable a detailed structural inspection.

Our designs were constantly conscious of the visual impact of the existing structure. In the design of the Atrium steelwork, we installed a new truss within the existing building floor which enabled wind loads on the Atrium to be transferred to the existing building, avoiding the use of heavy cantilevered columns (and the high carbon cost of the associated substructure) or a portalised frame which would have disrupted the rhythm of the existing listed building façade.

Our attention to aesthetic sense and detail retained large elements of structure on show, for example the new wind truss to the second floor was left uncovered by the Architect once installed as an exemplar within the Museum of real world 'Making'.