Glass and Glazing Federation

SCIENCE & ENGINEERING BUILDING

ENGINEERING DESIGN

Project by **PEREGA**

PROJECT LOCATION: Manchester Metropolitan University

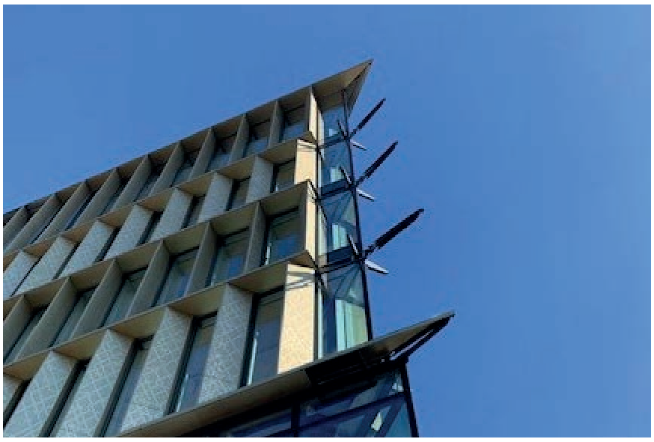
CLIENT NAME: Charles Henshaw & Sons Ltd

PEREGA

https://perega.co.uk/

CASE STUDY OVERVIEW

PROJECT SCOPE



Perega was appointed to design the curtain walling and glass for this project. A feature of the façade was a frameless glass to glass joint to the Northwest corner, where two adjacent facades meet at an angle of 45 degrees.

There were no supporting mullions at the corner and the junction was formed between the edges of the double-glazed units with a silicone joint. The two units are each supported in standard mullions and transoms on 3 edges but the 4th, meeting edge received only partial support generated by the other panels.

There is no standard software available that will analyse this configuration for double glazed units. As the “unsupported” edge is up to 5.0m tall it was essential that an accurate assessment could be achieved in order to design and specify the double-glazed units.

The performance of double-glazed units is complex as their behaviour is influenced by many different variables. Specialist software is available to analyse double glazed units, but this can only be applied to individual units and cannot assess the interaction of two units.

CASE STUDY OVERVIEW

DETAILS

The interaction of the double-glazed units was assessed by combining two different software packages.

The glazing software was used to analyse the proposed double-glazed units assuming the common edge was unsupported. This generated deflections of the panels along the unsupported edge.

The additional software was then used to analyse a 3-edge support monolithic plate of the same size, determining the thickness of the plate to achieve the same edge deflection obtained from the original model. The same software was then used to model 2 monolithic plates supported along the joining edge via a silicone joint, assessing the interaction between the two plates.

The resulting deflection values were used to calculate an effecting spring stiffness, provided by one panel to the other. Within the original software the panels were then reanalysed with the spring stiffness value obtained applied to the "unsupported edge".

This generated accurate deflection and stress values for the double-glazed units allowing the specification to be verified.

- For datasheets, any further questions or other examples please contact GGF Member: **PEREGA** at info@perega.co.uk