



## **An investigation into a complex masonry façade**

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**Overview** | *This report examined a complex masonry façade for a high profile project in the centre of London which, Ramboll are currently investigating. In particular, it sought to identify the best structural system for this façade and the buildability of this system. The complexity of this façade arises from the elaborate geometry and varying angles and spans of each of the walls as shown to the left. Experimental investigations were carried out to simulate wind loading for the three proposed different structural systems – Mortar, Dowel and Shear Key. To do this a small panel for each system was built and the construction times and complications for each panel were noted. When construction was complete, horizontal loading was applied and the failure loads, reactions and deflections were recorded. Following this, a parametric model was built to analyse the line of thrust through the panel. The model was constructed parametrically so that the angle, span, load and other variables could be easily changed and the analysis quickly reproduced for all scenarios.*

**Main Outcomes** | *From the results obtained it seems that the dowel system was the most suitable system overall, this is based on structural strength and buildability. In addition, while the parametric model appeared accurate it would need further testing and more accurate results to confirm it.*

**Future Work** | *Now further testing is being carried out on larger sections to test the dowel system more precisely. This will examine the continuity of the system over an intermediate support. The results could also be used to verify the model.*

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