6.6 Result of Massing Evolution (December 2023 Planning Application)

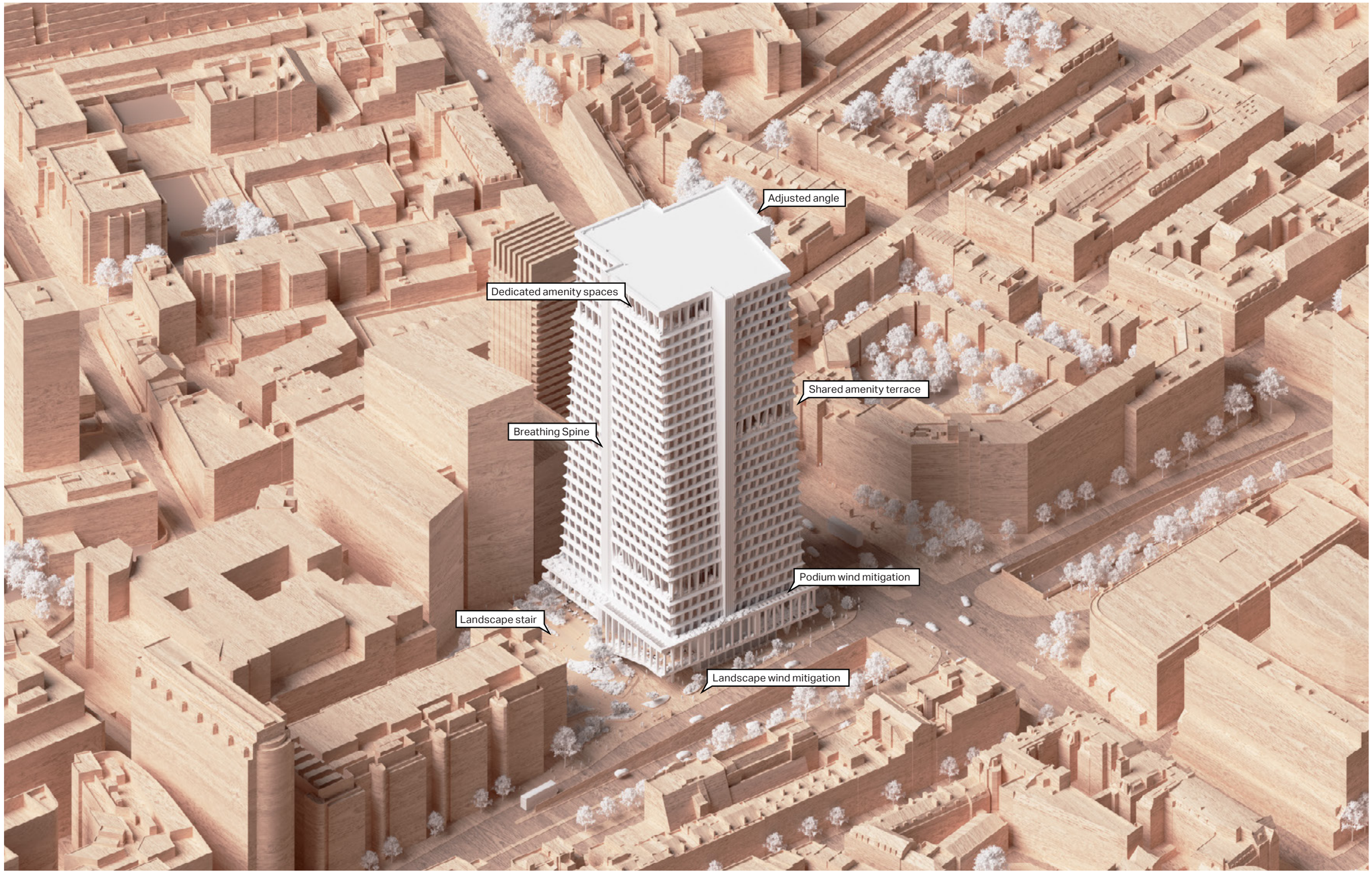


Diagram - Axonometric view of the December 2023 planning application scheme in context from south-west

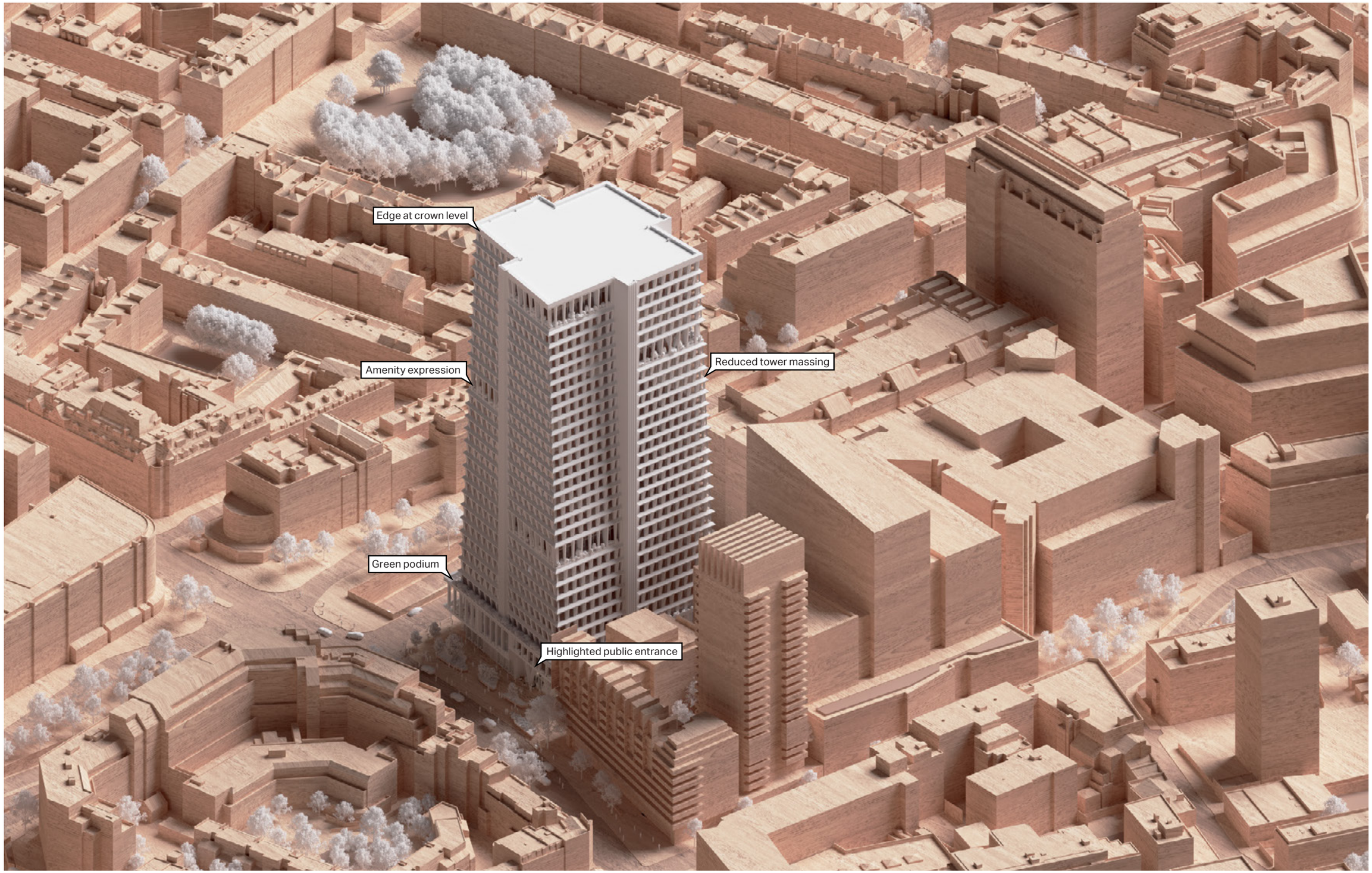


Diagram - Axonometric view of the December 2023 planning application scheme in context from north-east

6.7 Result of Massing Evolution (Proposed Development 2024)

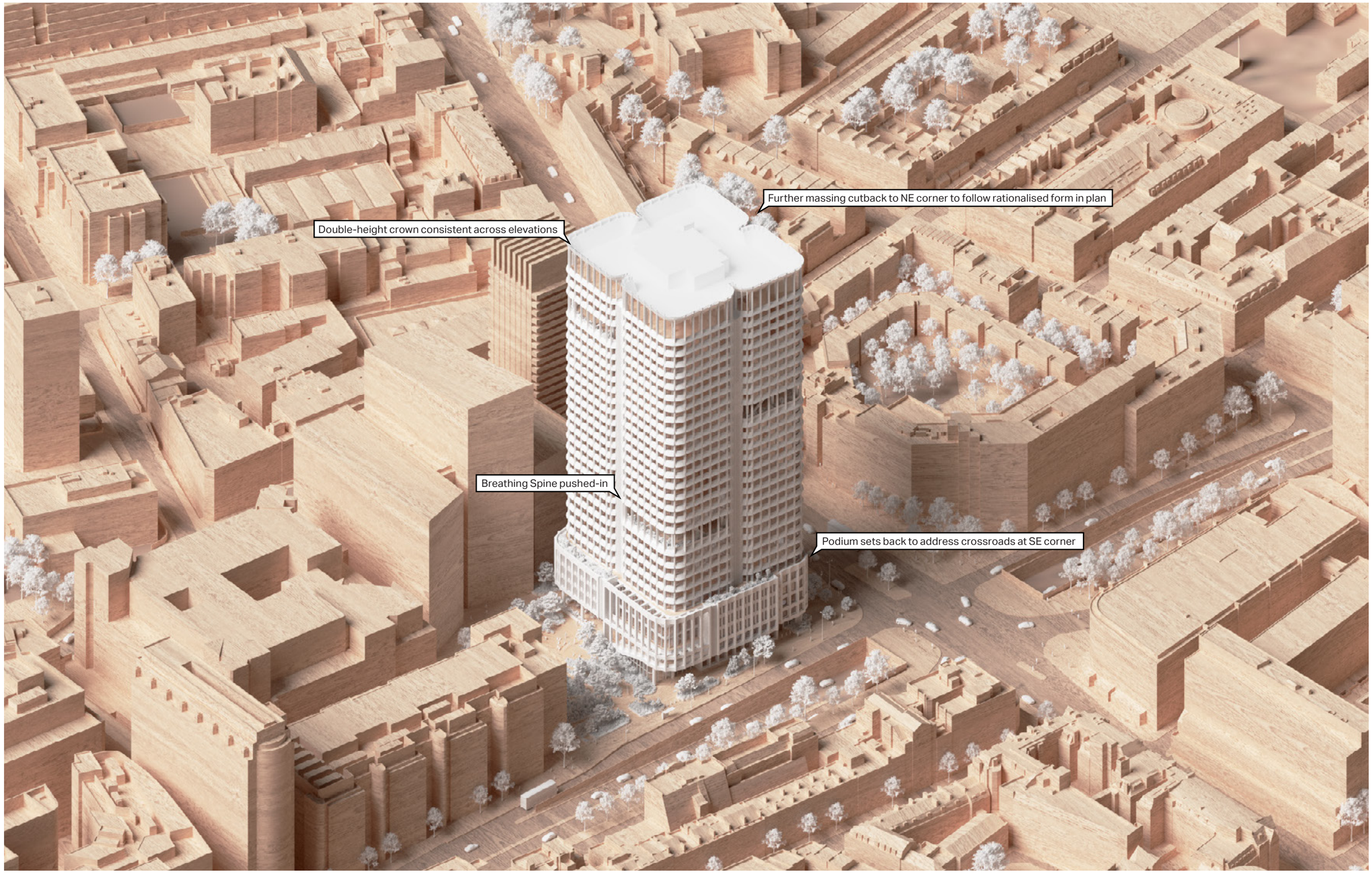


Diagram - Axonometric view of Proposed Development in context from south-west

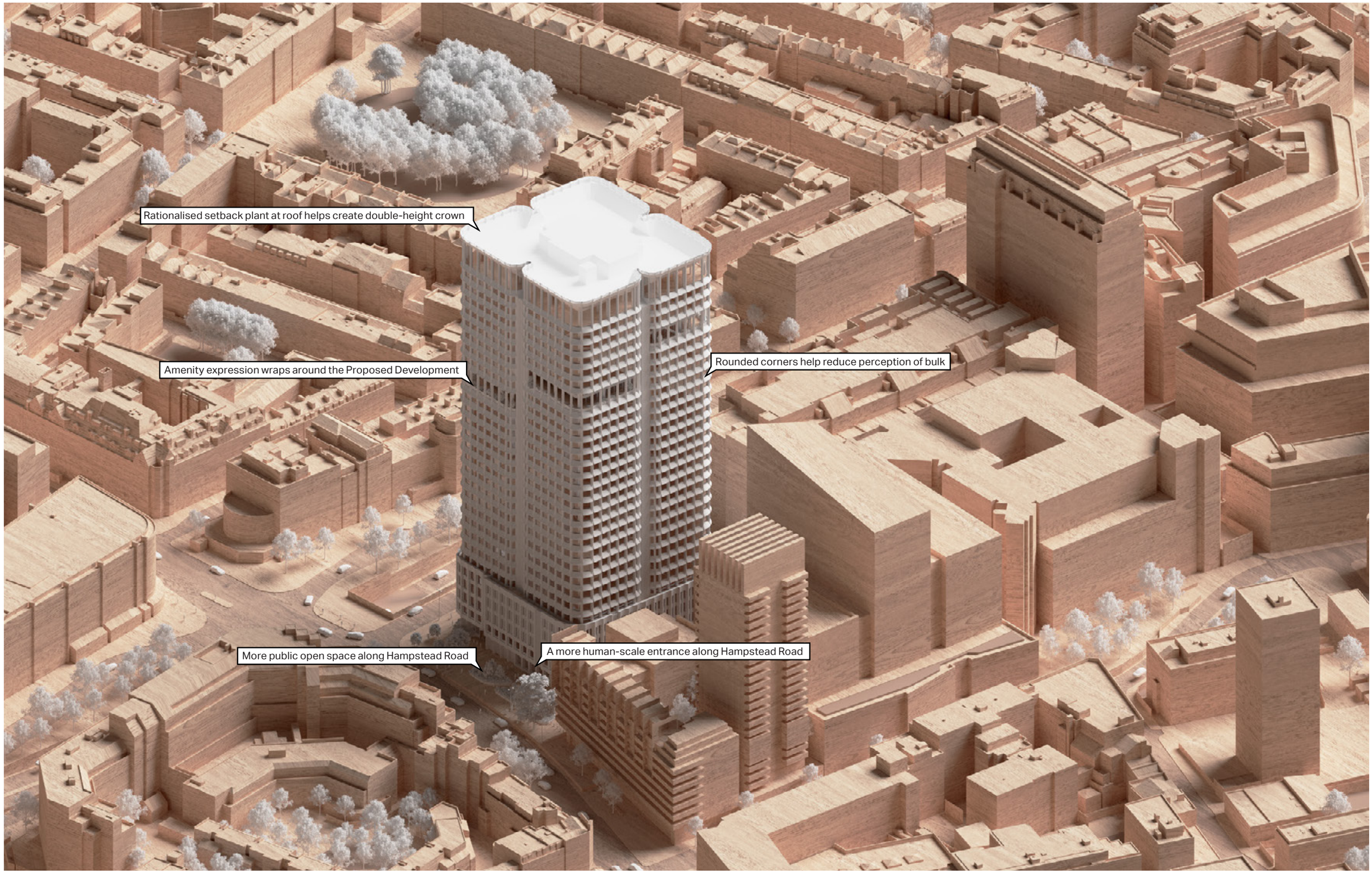


Diagram - Axonometric view of Proposed Development in context from north-east

6.7 Facade Optimisation

Facade Optimisation
(December 2023 Planning Application)

In the evolution of the facade design, a comprehensive approach was employed, harnessing various tools - from daylight simulations, physical models, 2D drawings, and digital 3D models - to refine and articulate the final vision.

Daylight simulations helped to balance factors such as direct sunlight hours, daylight factor, glazing ratios, with concerns around solar gain and facade depth. This design process aims for optimal natural light conditions within the building while addressing concerns related to energy efficiency.

Different facade types were tested with varied:

- glass to solid ratios
- facade geometries
- facade depths

These were conducted to benchmark the proposal with the aim of finding a balanced solution that provides adequate daylighting factor, direct sunlight hours, and solid to glazing ratio.

Additionally, physical models of various facade depths and geometries played a pivotal role, offering tangible insights into the interplay of light and shadow across the facade. These models facilitated a deeper understanding of the potential for integrating natural ventilation into solid facade elements, contributing to both aesthetic and functional considerations in the design evolution.

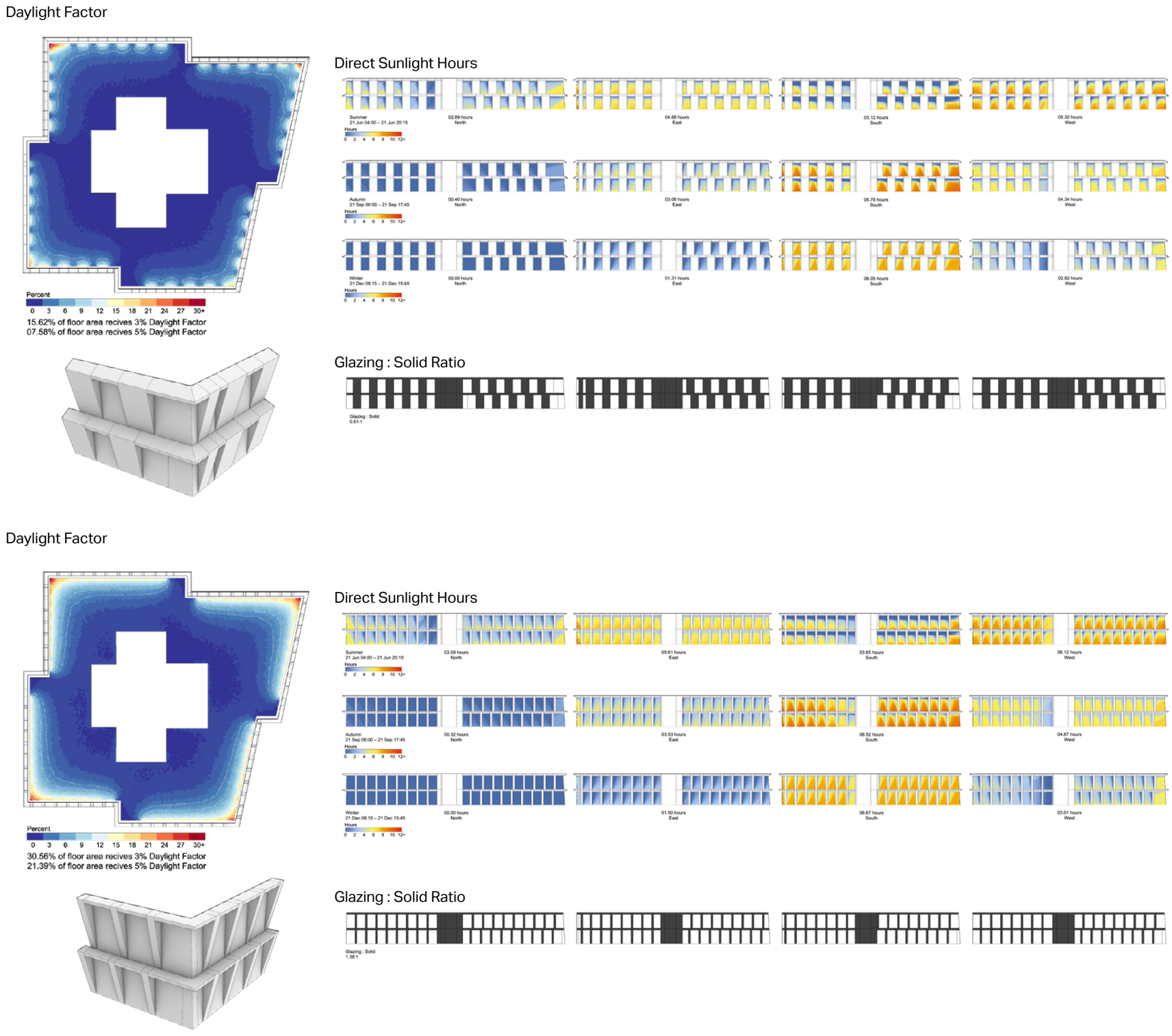
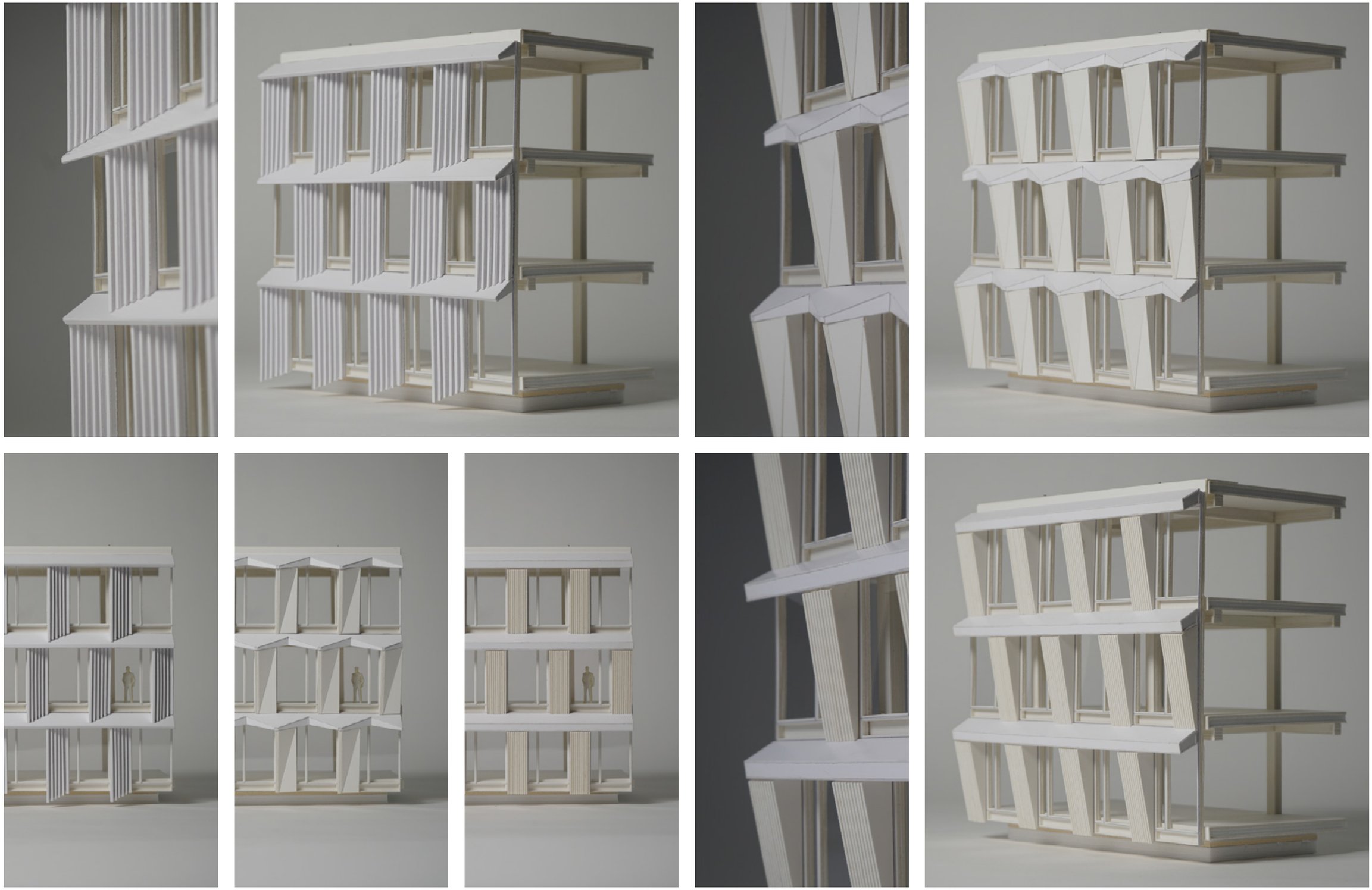


Diagram - Simulations providing informed data-driven decisions on optimised designs for the facade



Photographs - Physical models of facade studies

Facade Optimisation
(Post-December 2023 - The Proposed Development)

Revisiting the design of the facade provided another opportunity to improve the performance of the facade with the aim, as it was before, of finding a balanced solution that provides adequate daylighting factor, direct sunlight hours, and solid to glazing ratio.

Through conversations with planning and design officers at LBC, the module design evolved to add upstands in the facade and better direct daylight onto the floorplate.

The upstands effectively prevent unnecessary solar glare and solar heat gain near the level of the floor, where the daylight is not needed. The upstand helps to distribute glazed area up and away from the floor, optimizing the placement of the glazed area to bring in natural light while reducing solar heat gain. This way, even though the amount of glazing is essentially the same as the previous design, glazed area has been redistributed to improve solar parameters.

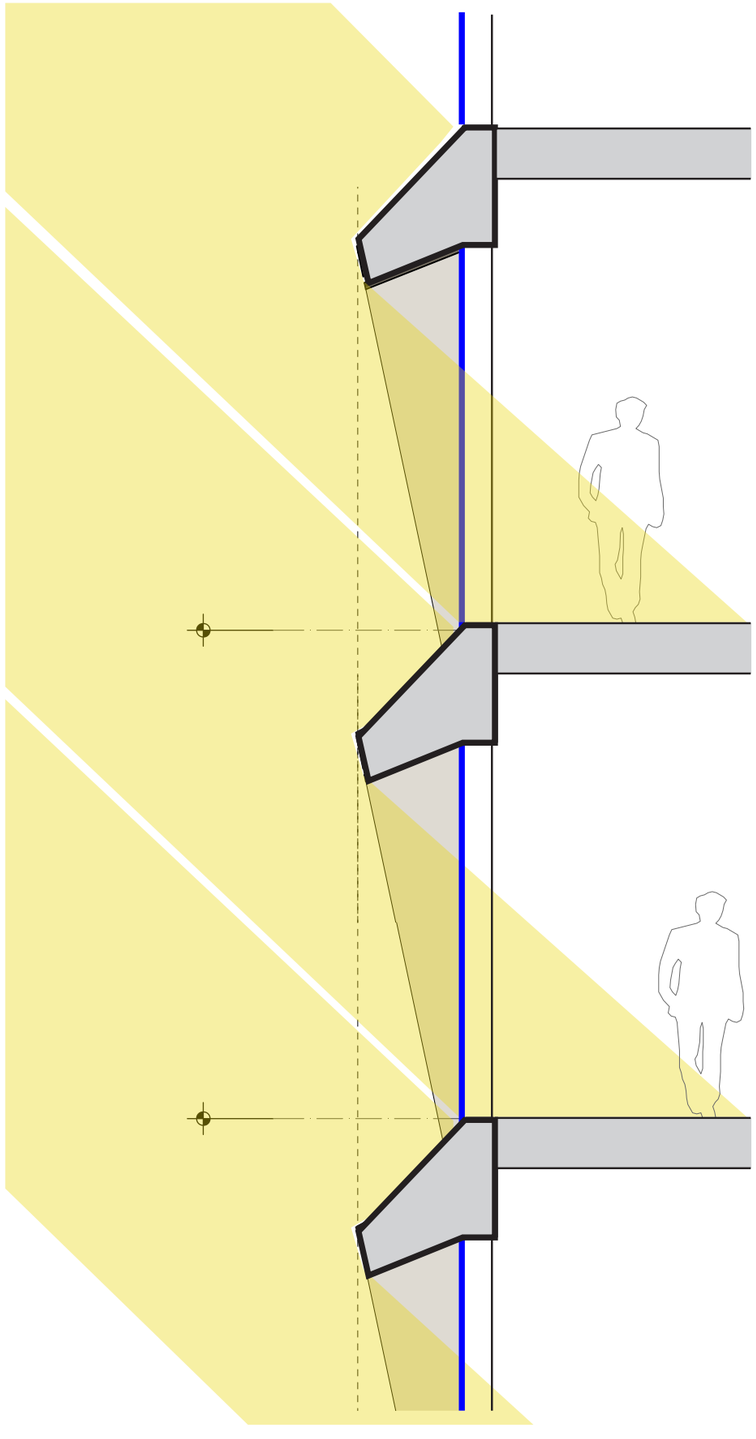


Diagram - Section illustrating facade solar shading - December 2023 planning application

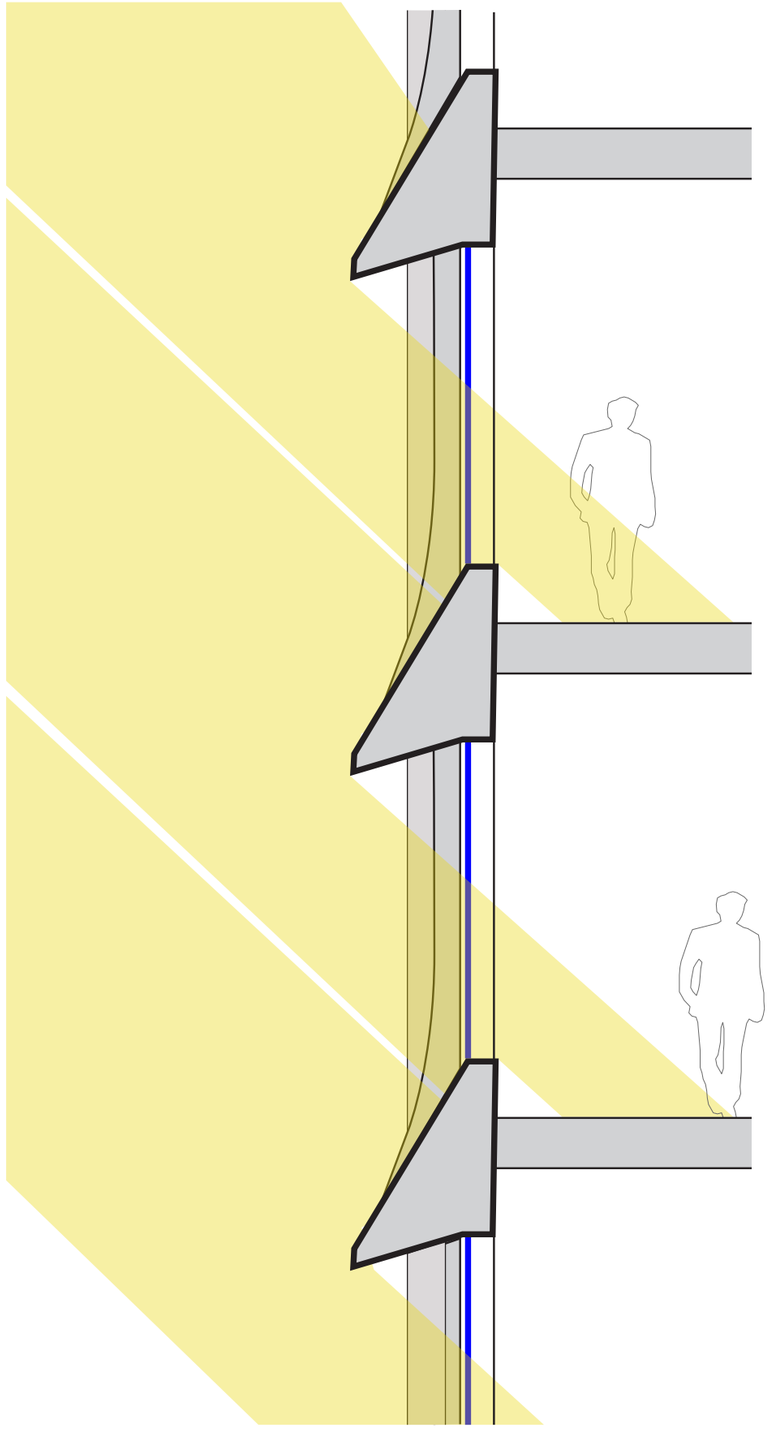


Diagram - Section illustrating facade solar shading - Proposed Development

Illustrative view - Facade module design close-up illustrating deep horizontal shading elements