

Arch 463
ECS
Fall 2017

Name _____

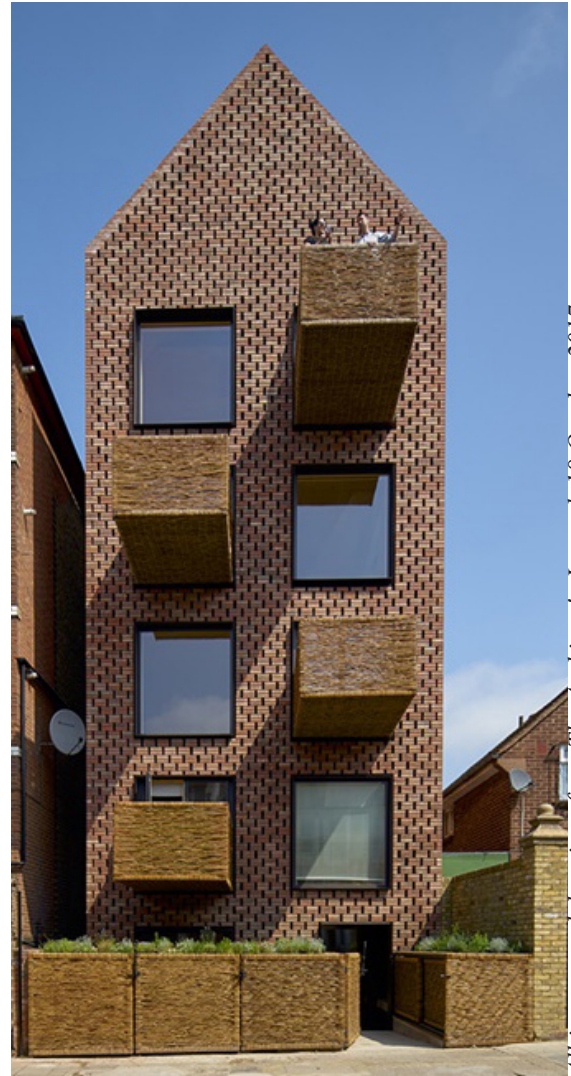
Quiz #3

"Barrett's Grove x 4"

For this problem you are the building envelope consultant for London architect Amin Taha who is trying to demonstrate appropriate shading strategies for apartment buildings located in Stoke Newington, London. The proposed 5-story buildings are for in-fill sites with entry elevations facing each of the cardinal directions. The prototype building at 42 Barrett's Grove (short-listed for the 2017 Stirling Prize) features large unshaded south-facing windows and French doors, which have proven to pose an overheating problem during London's mild cooling season.

The architect realizes that the design must be modified for the four in-fill sites. Your role will be to design the façade treatments for each orientation, using a different and appropriate combination of shading and glazing for each that is harmonious with the architect's design intent.

Climate Context. London has cool humid winters and warm humid summers. Summer weather tends to be less cloudy than other seasons, but still averages 60% cloud cover. Prevailing winds are from the SW. You may check out the climate with *Climate Consultant* if you need to.



Street facade (south-facing) of 42 Barrett's Grove. The sliding doors are hidden by the wicker balconies.

All images and drawings from *The Architect's Journal*, 18 October 2017

Glazing and Shading Choices

Glazing	Shading
Kalwall, 3" silica aero-gel insulating glazing	Horizontal louvres
Thermo-pane w/blue-green exterior and clear interior panes	Horizontal perforated steel louvres
Bronze reflective glass	Horizontal PV panels
Sage electro-chromatic glass	Vertical fritted glass
Heat mirror low-e glazing (residential)	Vertical wicker fins
Fritted glass	Canvas awnings

About the design

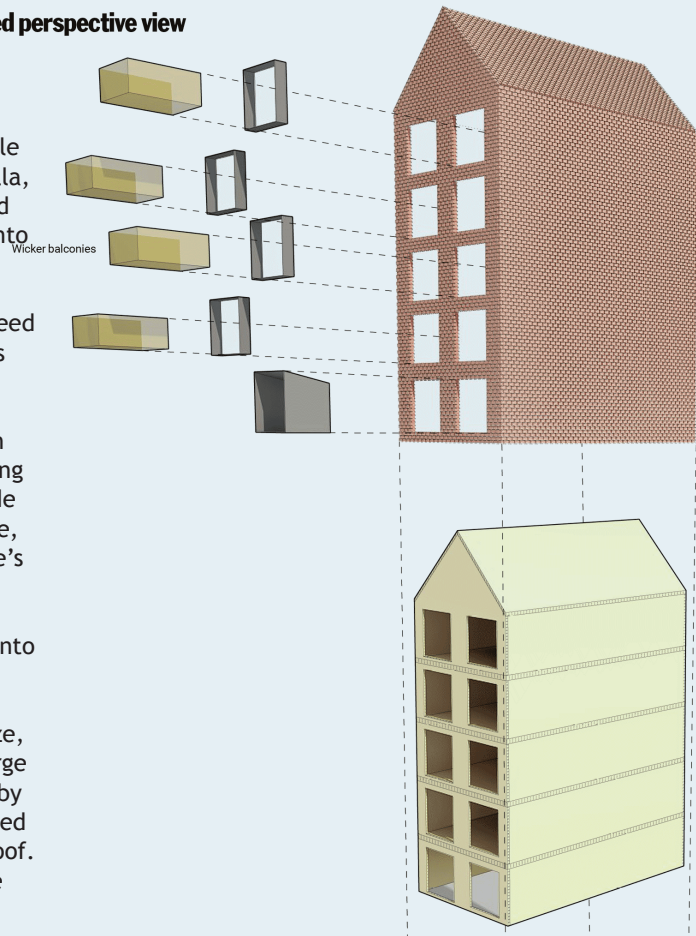
Amin Taha carefully considers future residents' journeys, from the pavement to the apartment door, and designs bespoke interior spaces catering for the small needs of everyday life: a bench to drop bags while looking for keys, a circular opening for the wet umbrella, a shelf for shoes. Driven by structural transparency and internal flexibility, Taha's design approach translates into an unadorned aesthetic—both efficient and homely.

At Barrett's Grove, the cross-laminated timber (CLT) superstructure is left exposed, eliminating the need for plasterboard walls and suspended ceilings, cornices and skirting, tiling and paint. The all-timber interiors, more common in Scandinavia than in the UK, slightly worried the client at first but he was reassured as soon as the units were put on the market. As the load-bearing elements are exposed, the construction joints are made visible too. When going from the interior to the terrace, the wall's full section is visible, revealing the structure's depth and all its layers. The balconies are south facing and 'large enough for dining'. They protrude at 90 degrees to the front elevation, letting direct sunlight into every apartment and encouraging interaction between neighbours.

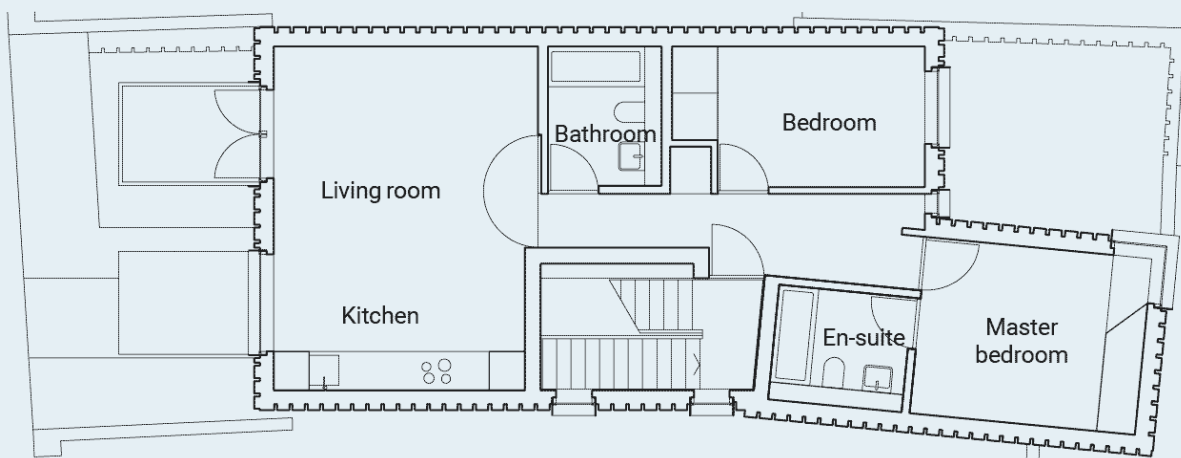
When shortlisting the project for the Stirling Prize, the jury pointed out that 'inside, the feeling is of a large house split into many homes', a sensation heightened by the vertical circulation void and deliberately emphasised on the exterior with the almost cartoon-like pitched roof. Wrapping the CLT superstructure is a protective lattice made of double-stacked brick with an open stretcher bond—a slightly oversized pattern to accompany the oversized windows and oversized balconies on the front elevation. Although it all looks slightly too big when seen from the street, the brickwork's homogeneous treatment brings together the walls and roof slopes into a single entity.

—Manon Mollard, *The Architect's Journal*

Exploded perspective view



The perforated brick cladding (above) acts as a rain screen for the cross-laminated timber structure (below).

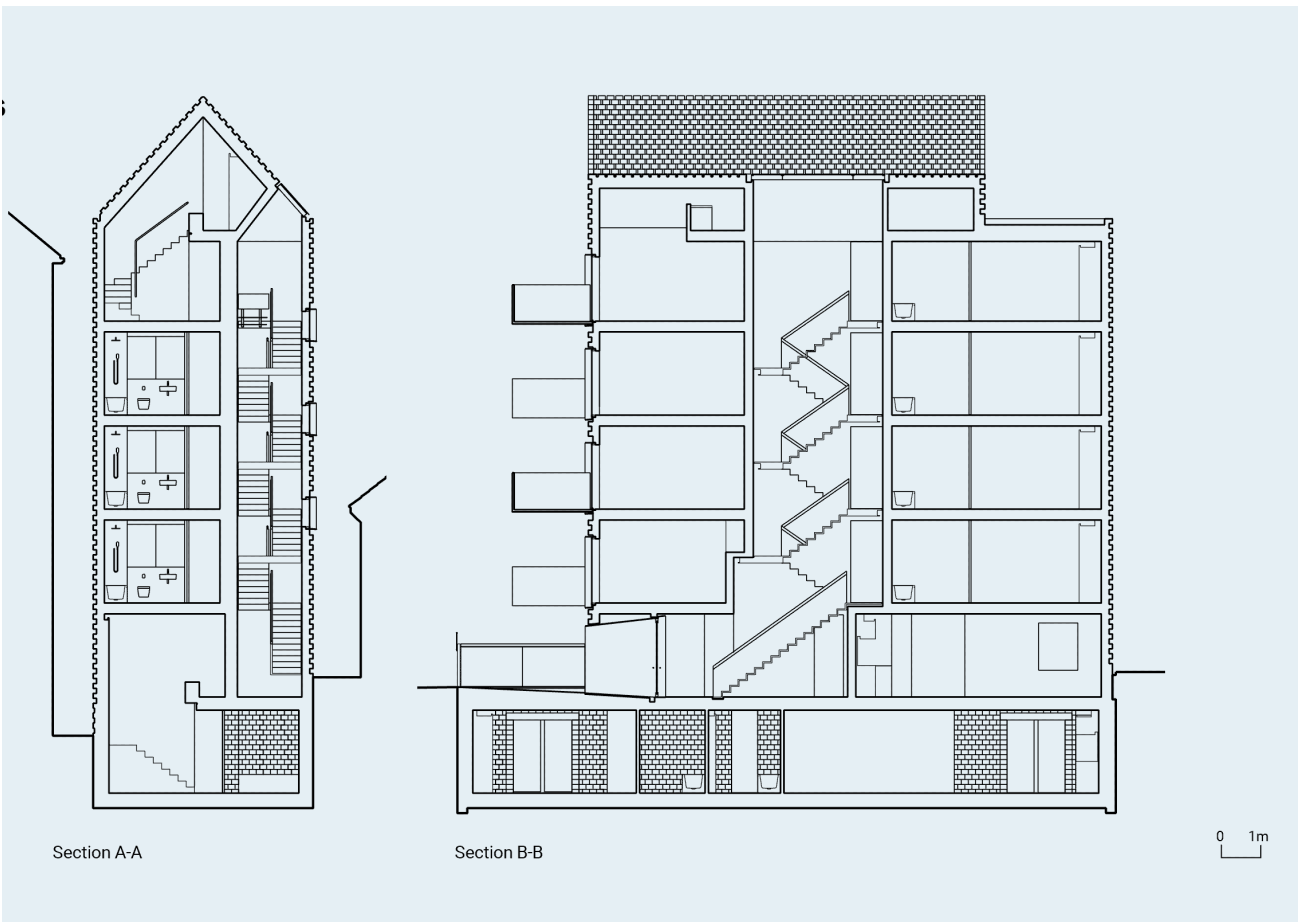


Third floor plan

Typical floor plan. The living room/kitchen has the windows and French doors that face the street. Section A-A is cut through stairwell and bathrooms; section B-B through the kitchen, stairwell, and master bedroom.



Living room/kitchen windows and French doors that face the street.



Lot 1, North Façade

2.5 points

1. **Call out** your choices for the fixed-glass windows and French doors. **Illustrate and call out** your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. **Explain why** your design is appropriate for this façade.

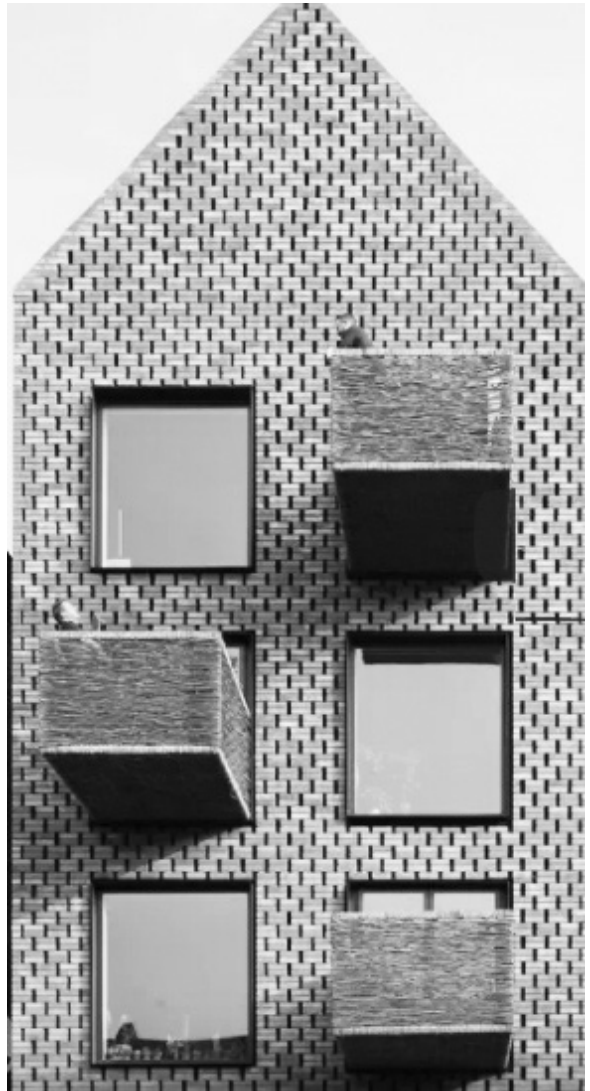


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Fritted glass	Canvas awnings

Lot 2, East Façade

2.5 points

2. *Call out* your choices for the fixed-glass windows and French doors. *Illustrate and call out* your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. *Explain why* your design is appropriate for this façade.



Lot 3, South Façade

2.5 points

3. **Call out** your choices for the fixed-glass windows and French doors. **Illustrate and call out** your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. **Explain why** your design is appropriate for this façade.



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Lot 4, West Façade

2.5 points

4. **Call out** your choices for the fixed-glass windows and French doors. **Illustrate and call out** your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. **Explain why** your design is appropriate for this façade.

