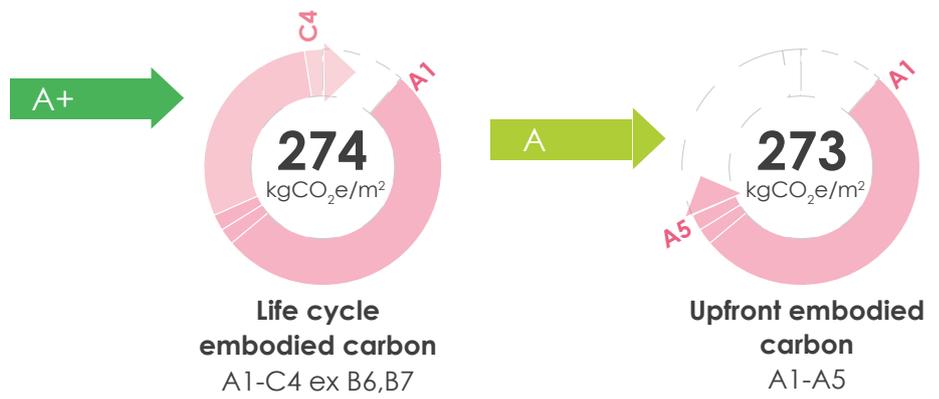
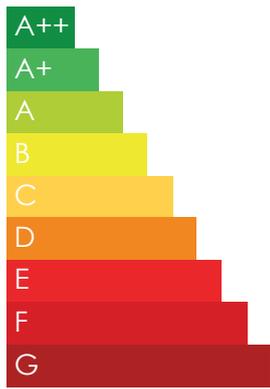
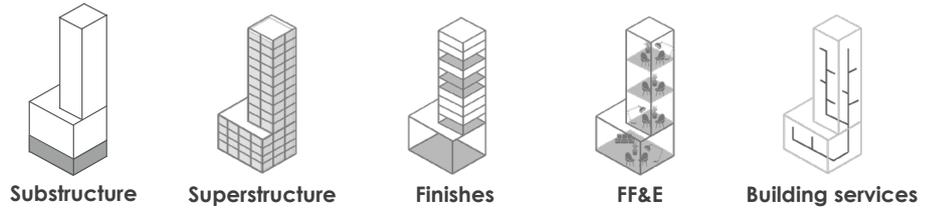


# Stephen Taylor Court by Feilden Clegg Bradley Studios



Building elements included



## Project overview

As a new community for Kings College, Cambridge, the Stephen Taylor Court's scheme creates 60 new graduate study rooms and 24 1 and 2 bed apartments for Fellows and their families. Built to achieve Passivhaus standards the buildings are typically 3 storey, with 4 new residential buildings and refurbished and extended existing building providing communal spaces, laundry and library.

## Project sector

Higher Education & Student Resi

## Assessment date

2022 (at RIBA Stage 4,5)

## RIBA work stage

5

## GIA (m<sup>2</sup>)

4400m<sup>2</sup>

## Year of project completion

2022 (Complete)

## Analysis method (e.g. software)

FCB Carbon

## Database(s) used

EICE database, V3

## Type of building

New build & refurbishment

## Ref. study period

60 years

## Location

UK

## Data notes

3 Storeys, CLT, Brick facing walls, Aluminium triple-glazed windows, No Basement



Image c. Feilden Clegg Bradley Studios

## Assessment objective

Client objectives were for a low-energy project, achieving Passivhaus standards and with a 100 year design life. Broader sustainability objectives were managed through a bespoke, client-led, matrix.

## Key lessons learned

The 100 year design life led to a depth of technical work on material life, replacement and how to maintain fabric performance. Design team focussed on material sourcing, recycled content and approach to building end of life.

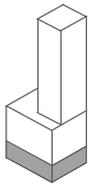
## Key barriers and challenges

Key issues faced included developing a brick clad, passivhaus detailing with a Cross-laminated timber frame (CLT) and addressing replacement cycles of windows. Further challenges included the use of Ground source heat pump system (GSHP) and Air source heat pumps system (ASHP), and how to use reversed underfloor heating to cool internal spaces where opening windows can't be relied on. Design team used a process where they developed written technical summaries of their decision making process to show the evaluation of key criteria, including material choice.

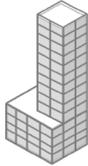
## Success stories

Re-use of existing roof tiles into the landscape elements of the scheme. Use of Cross-laminated timber frame (CLT) allowed for reduction in substructure and use of raft foundation (no piling, thinner slab, use of 70% GGBS).

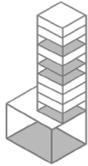
## Building elements embodied carbon (A1-A5)



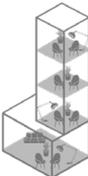
**Substructure**  
34 kg CO<sub>2</sub>e/m<sup>2</sup> (A1-A5)



**Superstructure**  
202 kg CO<sub>2</sub>e/m<sup>2</sup> (A1-A5)



**Finishes**  
6 kg CO<sub>2</sub>e/m<sup>2</sup> (A1-A5)



**FF&E**  
N/A kg CO<sub>2</sub>e/m<sup>2</sup> (A1-A5)



**Building services**  
N/A kg CO<sub>2</sub>e/m<sup>2</sup> (A1-A5)

## Material selection

Material selection was driven by the 100 year design life, and understanding the balance of material choice with longevity and carbon footprint. This has led to using higher carbon materials where replacement is not intended, such as brick and tile roofs, use of lead for gutters.

Internally there is a simple palette of hard wearing materials with an appreciation for simple maintenance. There was an imperative to specify materials sourced within 50 km if possible.

## Design decision justification

The design team tracked all decisions relating to materials and detail design through trackers and technical evaluation notes. This allowed the team to understand the benefits of CLT on reduced substructures / slabs, minimising thermal bridging in external wall and roof constructions. Robust practical solutions were explored with the aim of maintaining quality in construction.

## Client engagement

Client was continually engaged in the process, through reporting and reviewing the design team progress, and commenting on proposals or potential future options.

## Embodied carbon and scope of services

Embodied carbon not included within scope of services, however 100 year design life was in the brief and was regularly prompted by client and team.

## Procurement

Contractors were asked for a specific response on sustainability including proposing alternative low-carbon materials.

## Design benchmarks

Passivhaus certification was the key benchmark, but also targeted - <25% material by value from certified responsible sources (eg BES 6001, FCS Forest Stewardship Council certified), <3% material by value from within 50km of site, and up to 10% material by value with recycled content, water consumption levels also set at 40% reduction against standard Code for water use.

### Client:

King's College, Cambridge

### Architect:

FCBStudios  
(Hugo Marrack, Nick Hodges, Heidi Day,  
Charlotte Walker, Joe Jack Williams)

### MEP, Acoustics and PH:

Max Fordham

### Cost, PM and Principal designer:

Faithful and Gould

### Landscape:

Robert Myers Associates

### Civils and Structural engineers:

Smith and Wallwork

### Planning:

Turley

### Approved inspector:

Salus AI

## WLC reporting summary

