

Arch 463
ECS
Fall 2022

Name _____

Quiz #4

"Green Office Planning"

For this problem you have the privilege of critiquing the design of the newly named 2022 Architects' Journal (AJ) Architecture Award winner for workplace design, 6 Orsman Road by Waugh-Thistleton.

Climate Context. London.



6 Orsman Road facades: South (left) and North (right)

Images: Ed Reeve, Architect's Journal 16 September 2020

AJ Reports

Shoreditch-based Waugh Thistleton Architects' most recent CLT building is a six-storey demountable office space beside the Regent's Canal in east London. The building at 6 Orsman Road for British Land's flexible workspace arm has a hybrid structure which combines CLT and steel to reduce the number of interior columns required, providing over 3,100m² of space.

Due to the restricted tight site at the edge of the canal in Haggerston, a system exploiting the structural properties of each material was designed to facilitate precise construction. The building steps up over six storeys, creating viewpoints down Orsman Road. Large terraces overlook the canal to the north and the City to the south. Responding to the site's orientation, fully-glazed curtain walling to the northern façade maximises daylighting while, on the southern façade, deep ribbon windows among panelised cladding minimise solar gain.

Using an internal superstructure of steel I-section columns and cellular beams, the building's core and floor slabs are made of prefabricated CLT panels, left exposed. In some areas, materials such as clay plaster and linoleum have been used as simple finishes with offcuts from the CLT structure repurposed as furniture.

—Fran Williams

Architect's view

6 Orsman Road has been designed to be a sustainable building in the true meaning of the word. Sustainable architecture should be able to withstand change and be adapted to suit varying requirements. By designing the building with a completely adaptable layout that can accommodate a diversity of uses and occupiers, we ensure its longevity, which is ultimately better for the environment.

Each floor has only two columns per space and no internal support walls, which means users are able to easily alter the layouts to suit their needs and business growth. The timber structure plays a key role in this flexibility. Timber is lightweight and easy to work with. The CLT panels can be easily removed to allow connections between floors and the possibility of creating mezzanine levels.

We also wanted to treat the building as a recyclable product, and designed it to be dismantled, re-used and recycled in the future. Considering the end of life of the building and challenging ourselves to push towards zero waste construction, we have designed a building that can ultimately be demounted. Every element of the construction has been considered to ensure as much as possible can be reused or recycled once the building reaches the end of its useful life. The structure is bolted together and applied elements such as cladding, timber decking, steel balustrades, modular partitions can be detached and re-used.

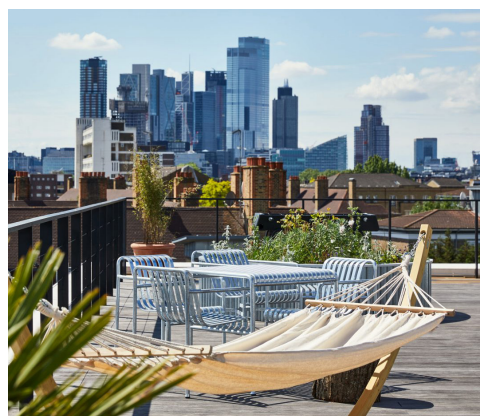
The building uses prefabricated structural elements such as cross-laminated timber panels, SIP panels and steel beams and columns. Manufactured offsite this approach minimised the impact of the build on the neighbourhood, reducing deliveries, noise and disruption. Using timber construction further reduces the buildings' carbon footprint: harvested timber is a replenishable material that absorbs and sequesters carbon dioxide as it grows, becoming a carbon store.

—Andrew Waugh and Anthony Thistleton, directors, Waugh Thistleton Architects

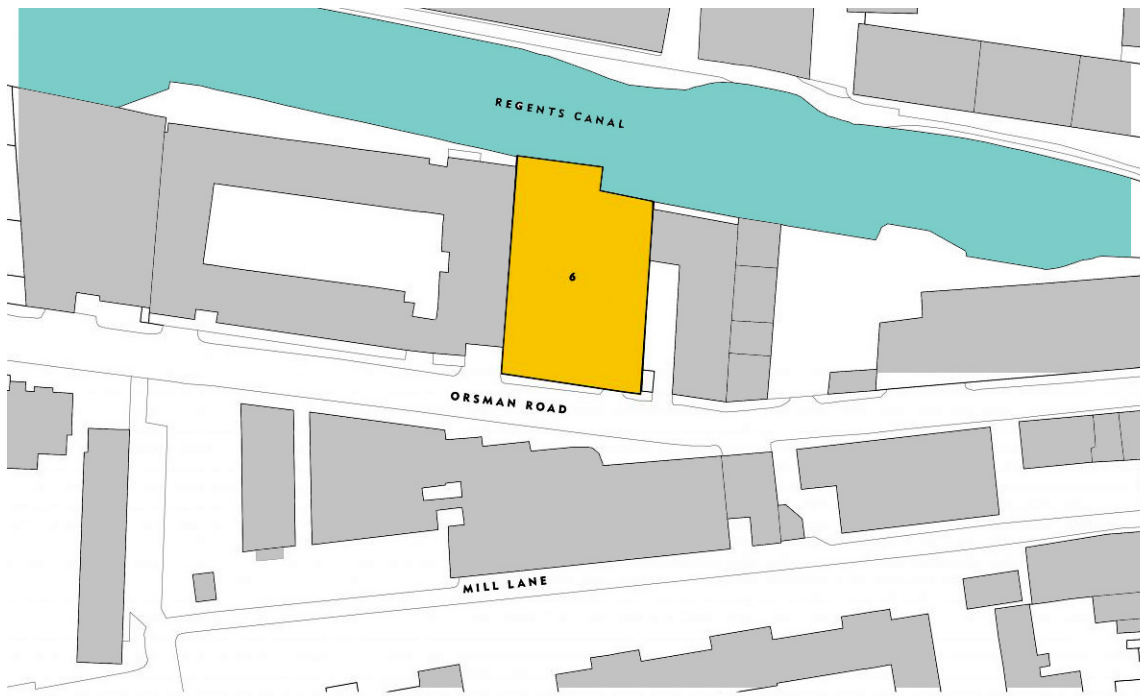
Client's view

6 Orsman Road is our latest building located on the banks of Regent's Canal in the creative hub of Haggerston. The sustainably-focused office building comprises 3,160 m² across five floors and has been designed to enhance productivity. The building champions the use of sustainable materials and has been built using an innovative hybrid structure which combines cross laminated timber (CLT) and steel, meaning that the whole building can ultimately be demounted and repurposed.

Everything at 6 Orsman Road, from the exposed timber to the waterside setting, has been designed to make occupants feel calm, focused and inspired. Occupants of 6 Orsman Road will be able to enjoy a range of onsite amenities, including private and shared rooftop terraces with panoramic views over London (see above). The spacious terraces have been specifically designed to allow multiple working styles through the use of outdoor shading, providing a range of spaces to suit everyone's needs. Additional amenities will include generous cycling and shower facilities.

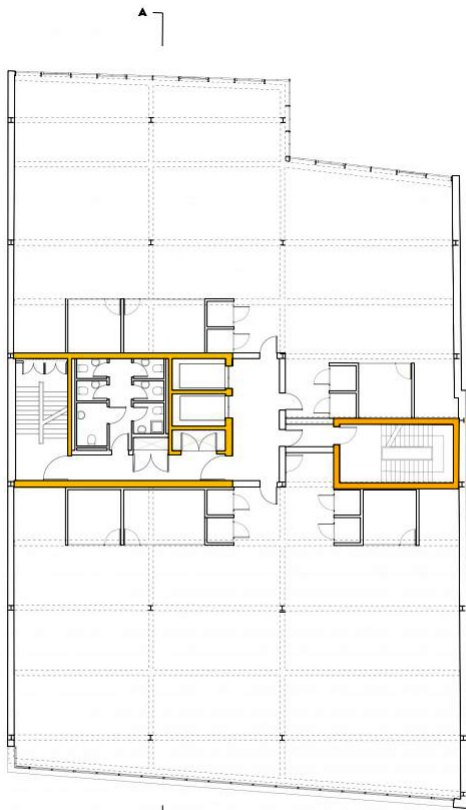


—Storey British Land



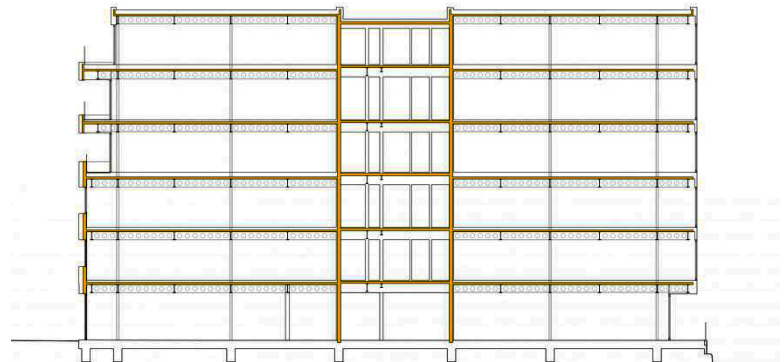
SITE PLAN 1:500

0 20m



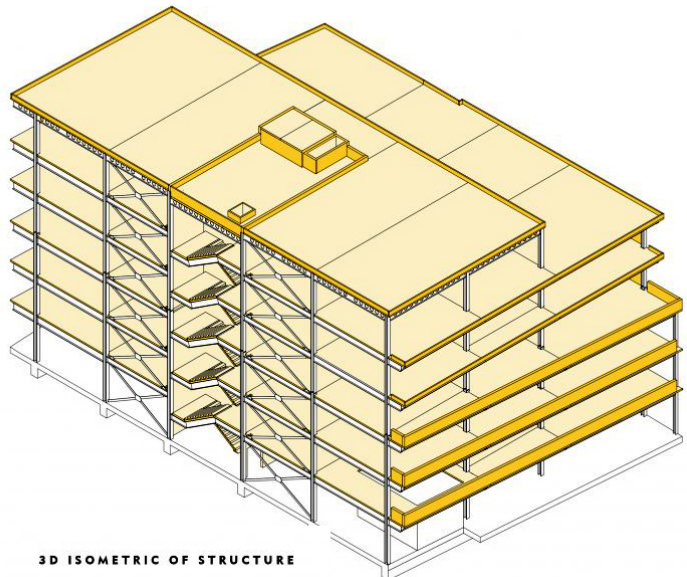
TYPICAL FLOOR PLAN 1:200

0 10m



LONGITUDINAL SECTION AA 1:200

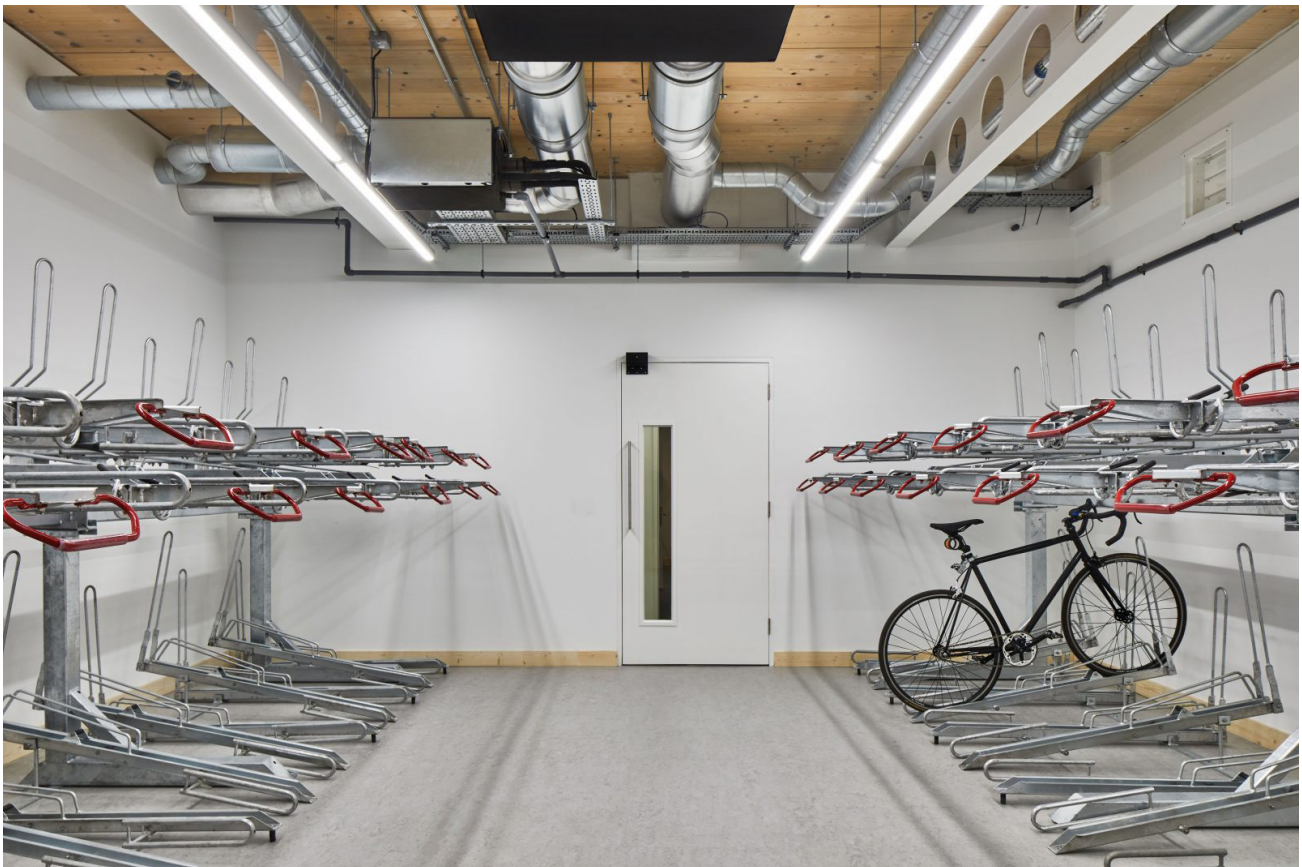
0 10m



CLI construction is denoted in shades of yellow in these three architectural drawings



*Above: An office floor showing tea room, CLT staircase, building core, and door to terrace, looking south.
Below: Ground floor bicycle parking room showing exposed structure, CLTs, and mechanicals.*



Green Architecture Strategies

8 points

1. The AJ jury said, "We're not inundated with projects that address the climate emergency like this project does. In terms of workplace, it is doing so much." Describe four green architecture strategies that the jury could note as implemented successfully in the building. Explain why they are successful.

1.

2.

3.

4.

4 points

Passive Comfort Strategies

2. For this SE corner office, propose a mini users' manual to take advantage of the natural thermal resources on the site.



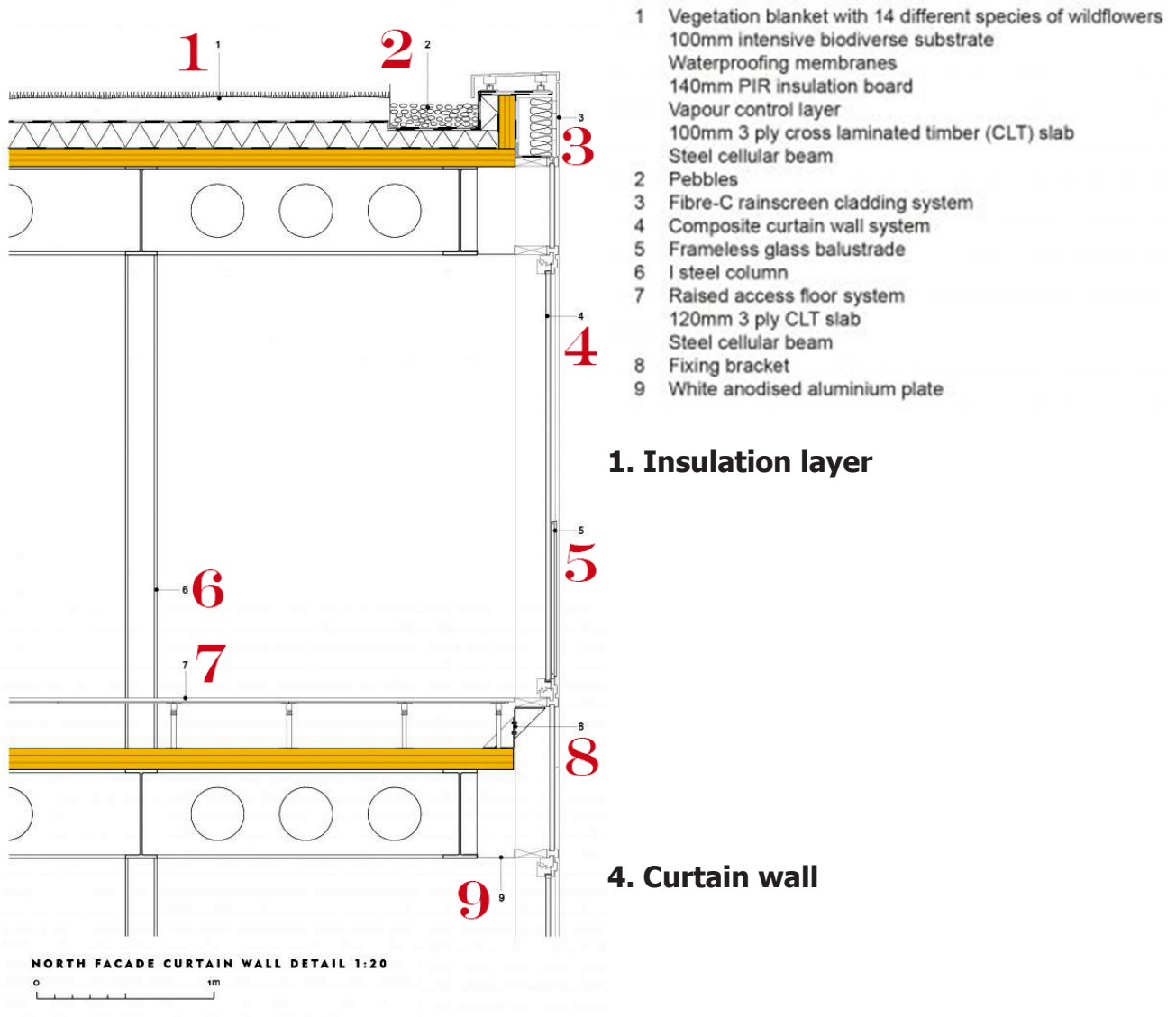
Cooling Days Strategy

Heating Days Strategy

North Wall Section

6 points

3. Use the section below to help explain how the building could maximize its green credentials by specifying materials/strategies for items 1, 4, & 7.

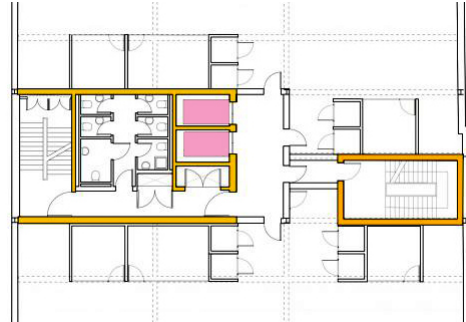


7. Raised access floor system

Elevator Selection

4 points
4. There are two vertical transportation systems in 6 Orsman Road (shown in pink below). Explain why each of the elevator types below is or is not suitable for each of the building's two lifts.

1. Traction Elevator



2. Hydraulic Elevator



Elevator cab stopped at third floor.

3. Rack and Pinion Elevator

4. Mag-Lev

