

# Decelerated Hub

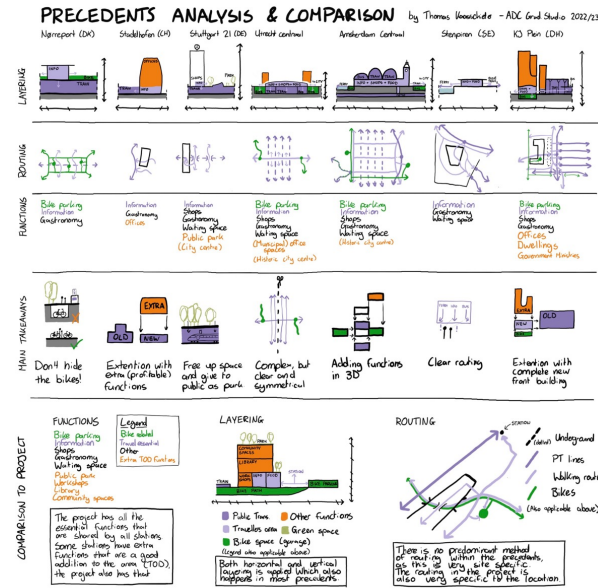


AR3DC100 - Architectural Design Crossovers Studio | **P5** - 30 June

2023 **Thomas Kaasschieter** (4696956) |

Mentor team: **Roberto Cavallo** (design), **Florian Eckhardt** (building technology) & **Joran Kuijper** (research)





**Research**  
(Research paper)

**Architectural research**

**Design**

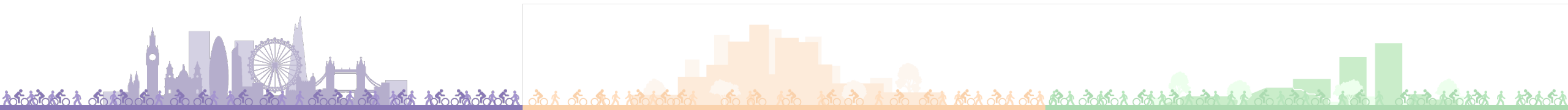




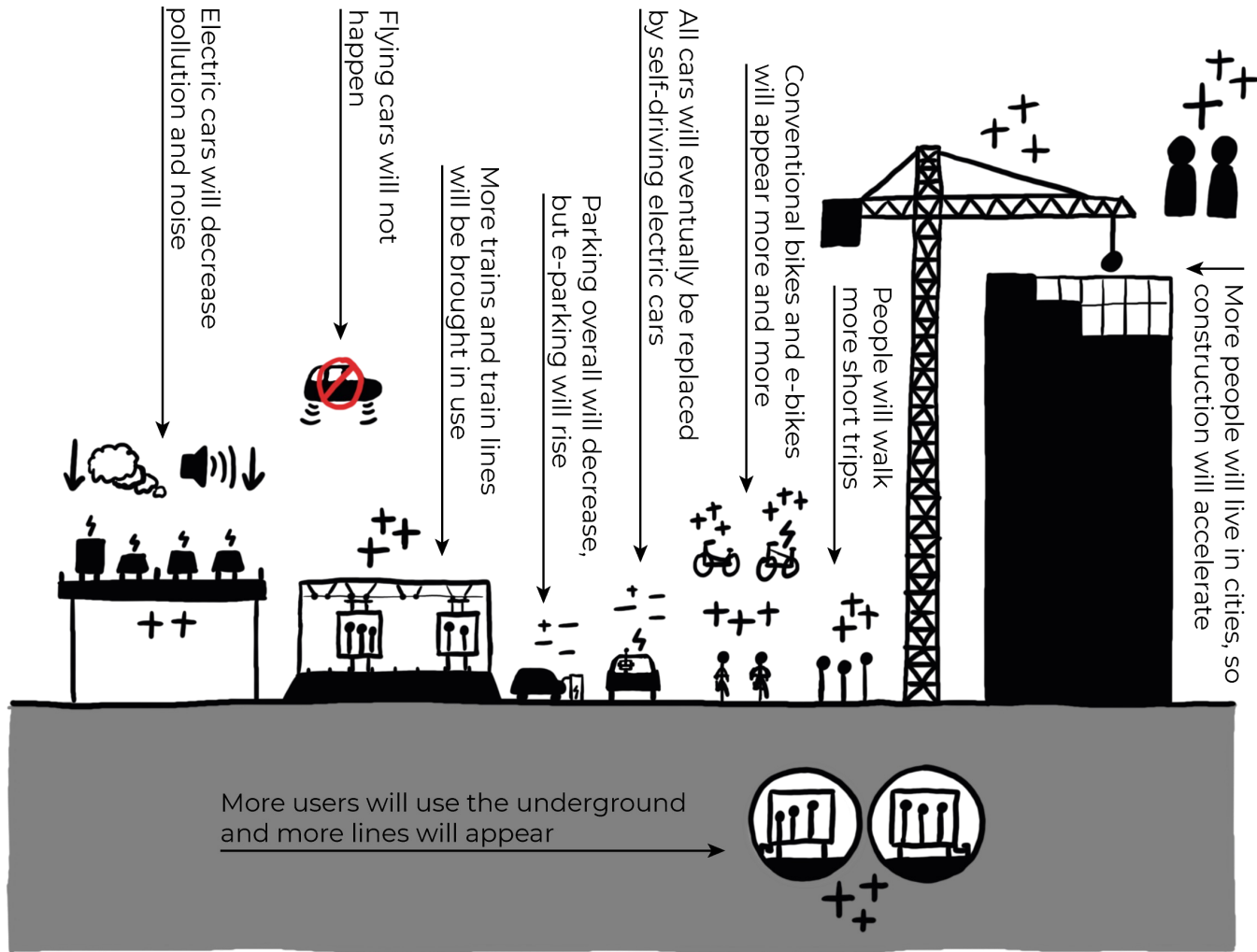




- **How can cycling and public transport infrastructure best be used to connect London's outer neighbourhoods to the rest of the city?**
  - What is the current situation in London on the shift to sustainable transport, and how does that relate to the literature?
  - How can architecture and urban design be used to implement cycling infrastructure with a complementary public transport network?
  - How can these design handles be implemented on the design site?







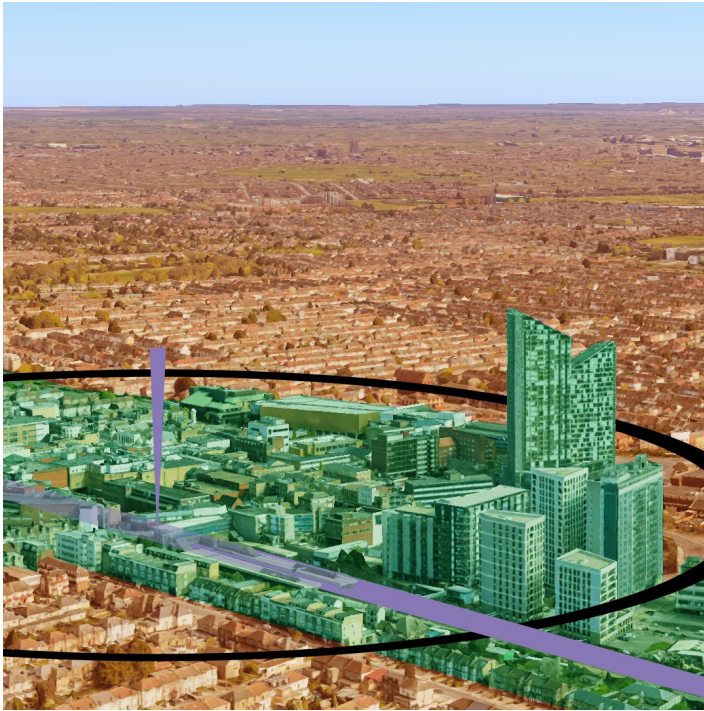
## "infrastructure is ever-changing"

(Stated in the Research paper, page 24. Based on sources and talks.)



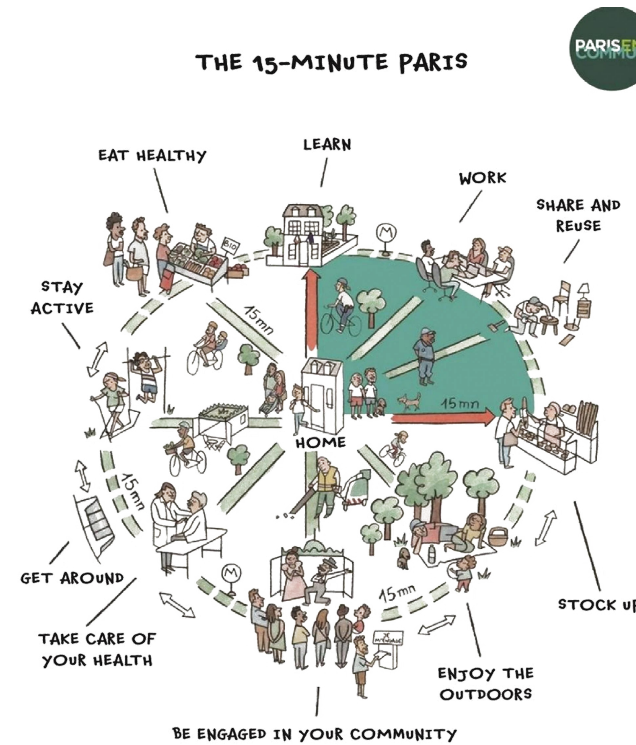
## TOD

(Transit-oriented development)



Own illustration

## The 15-minutes city

Moreno et al., *Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities*, 2021

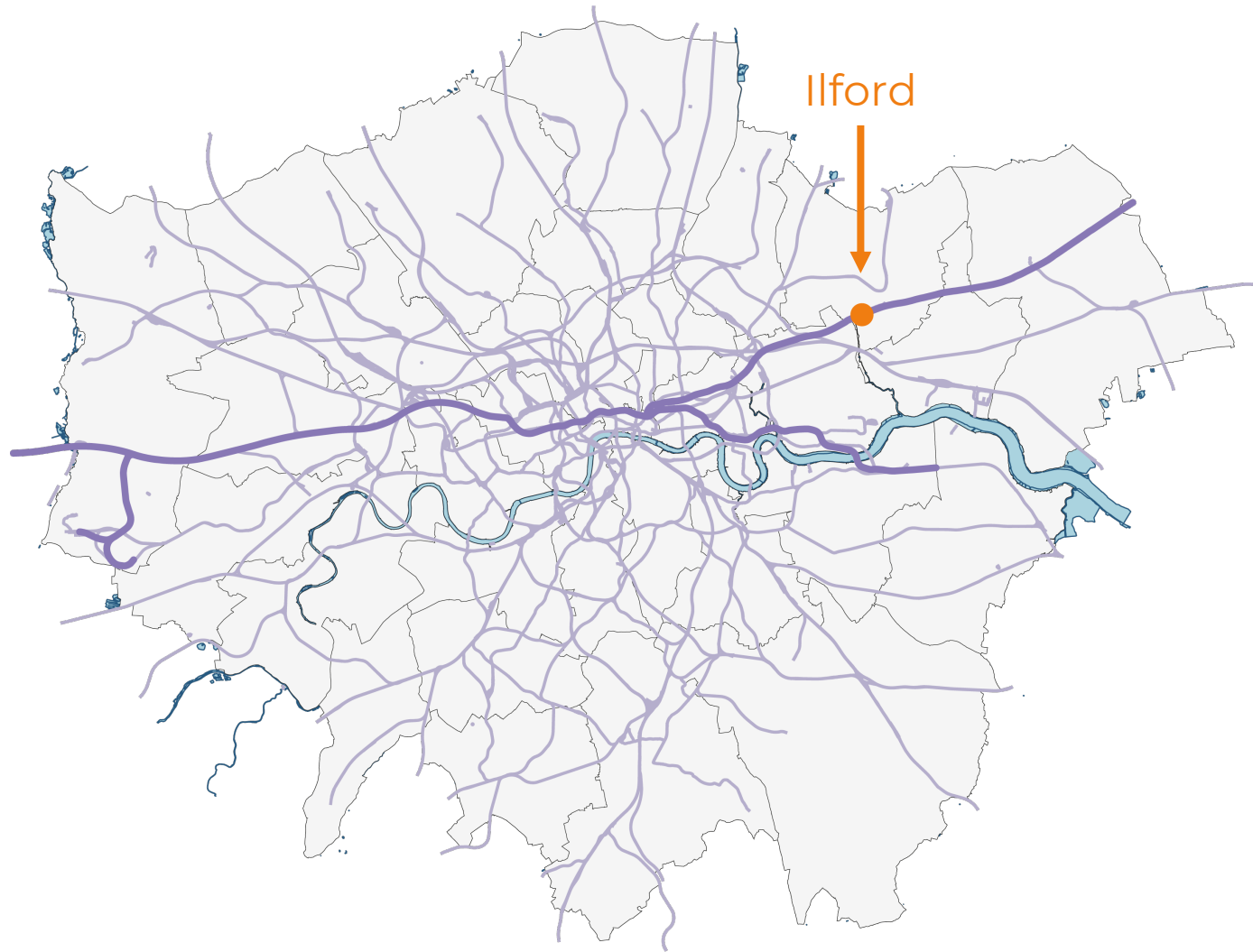
## Nodes and hubs



Own photo







Opened in May 2022

OpenStreetMap. (2022). *Greater London*. Retrieved November 3, 2022, from <https://www.openstreetmap.org/>



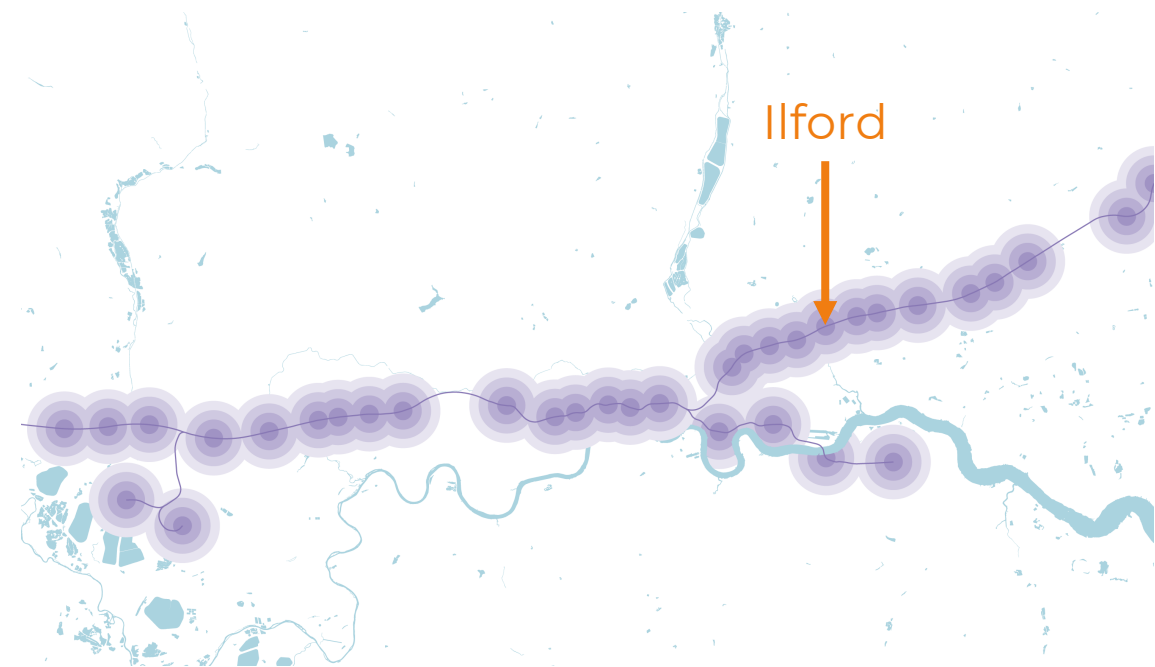




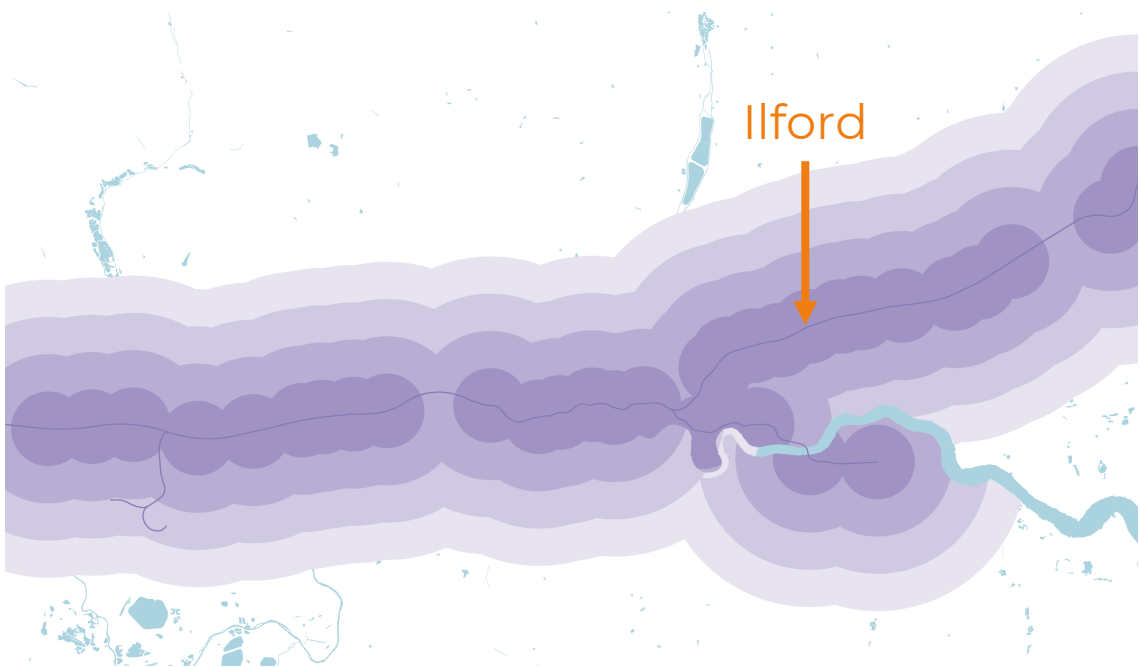








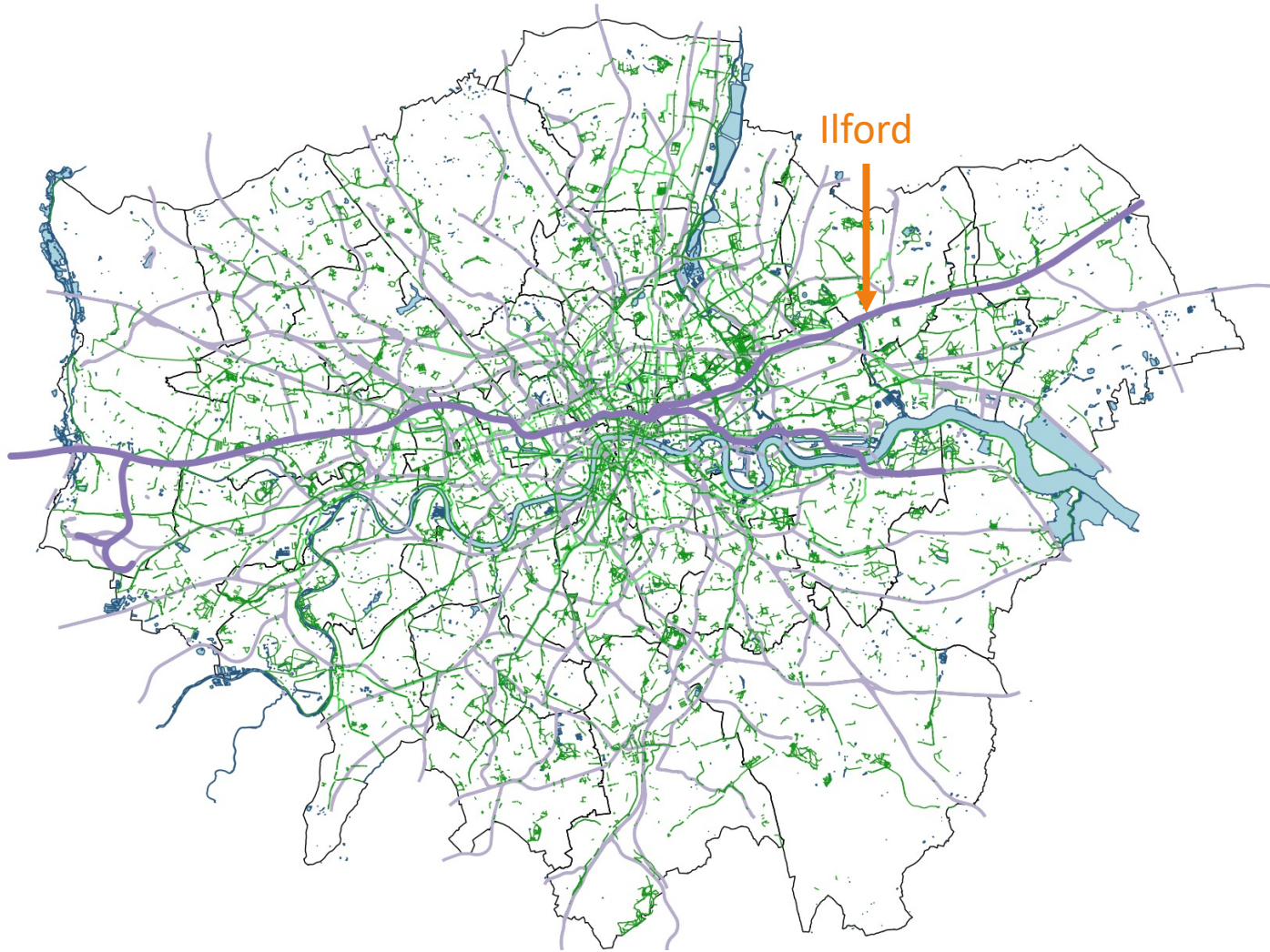
Each tint represents 5 minutes of walking



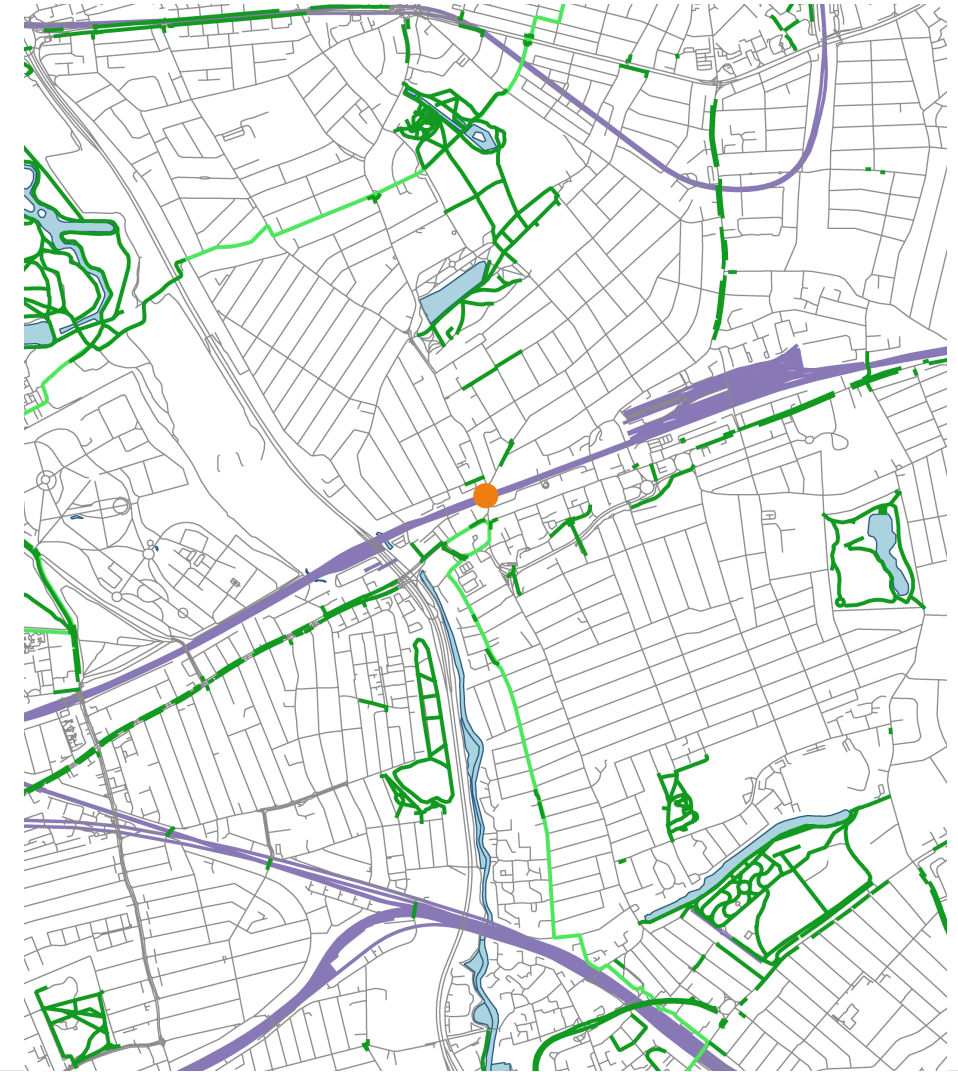
Each tint represents 5 minutes of cycling







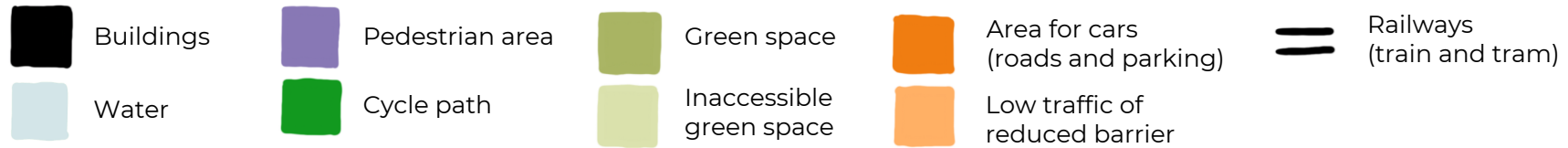
OpenStreetMap. (2022). *Greater London*. Retrieved November 3, 2022, from <https://www.openstreetmap.org/>



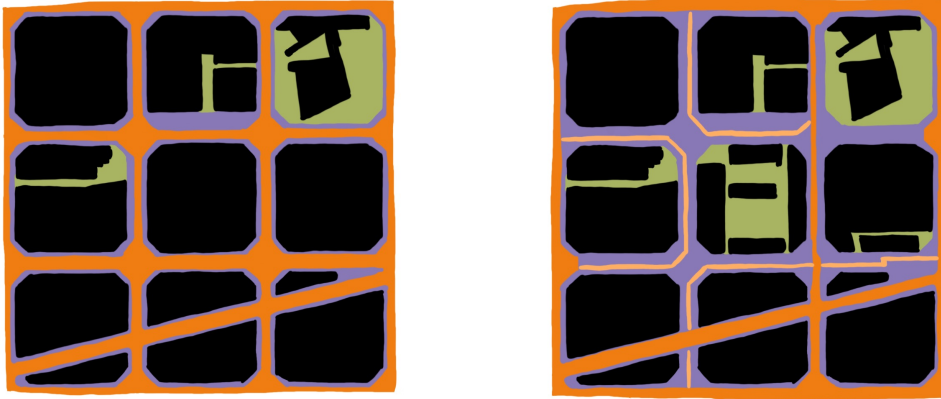








Superblocks, Barcelona



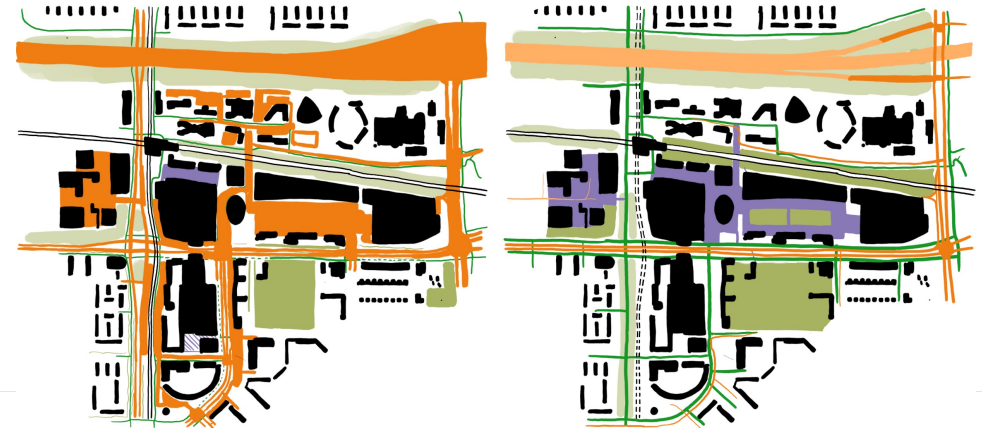
Coolsingel, Rotterdam



Station area, Delft



Prins Alexander, Rotterdam



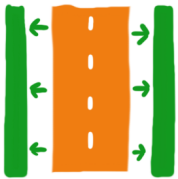




Found in literature



Found in precedents



Separate  
lanes



Merge  
blocks



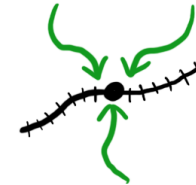
New cycle  
lanes



Pedestrian  
zones



Change to  
low traffic



Routes to  
stations



Shorter bike  
routes



Cycle  
highways



Add  
green



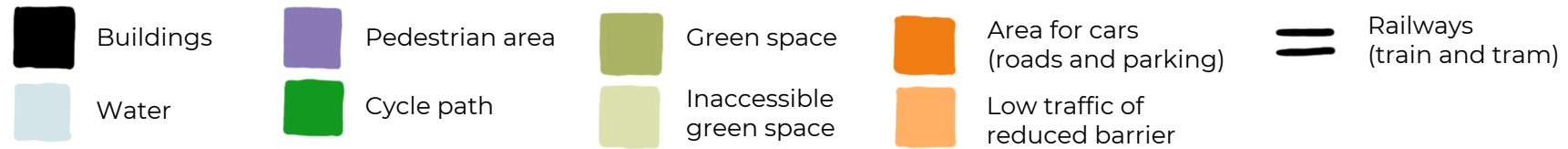








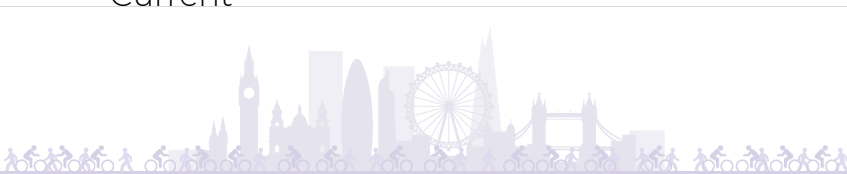




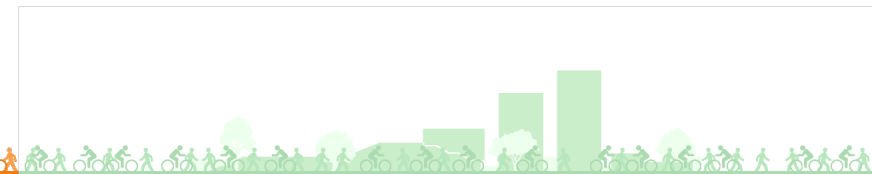
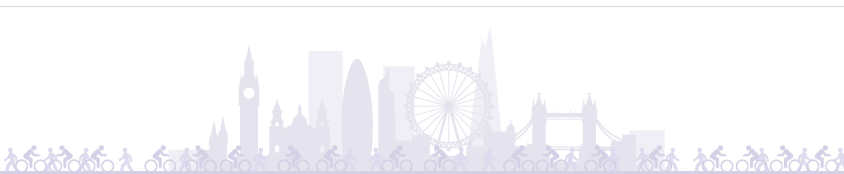
Current



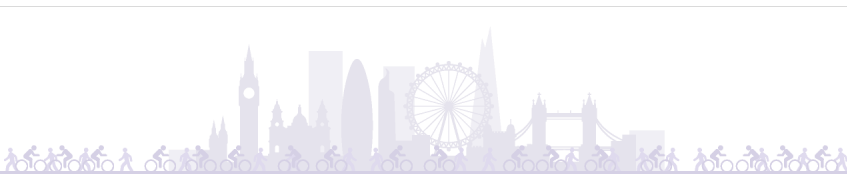
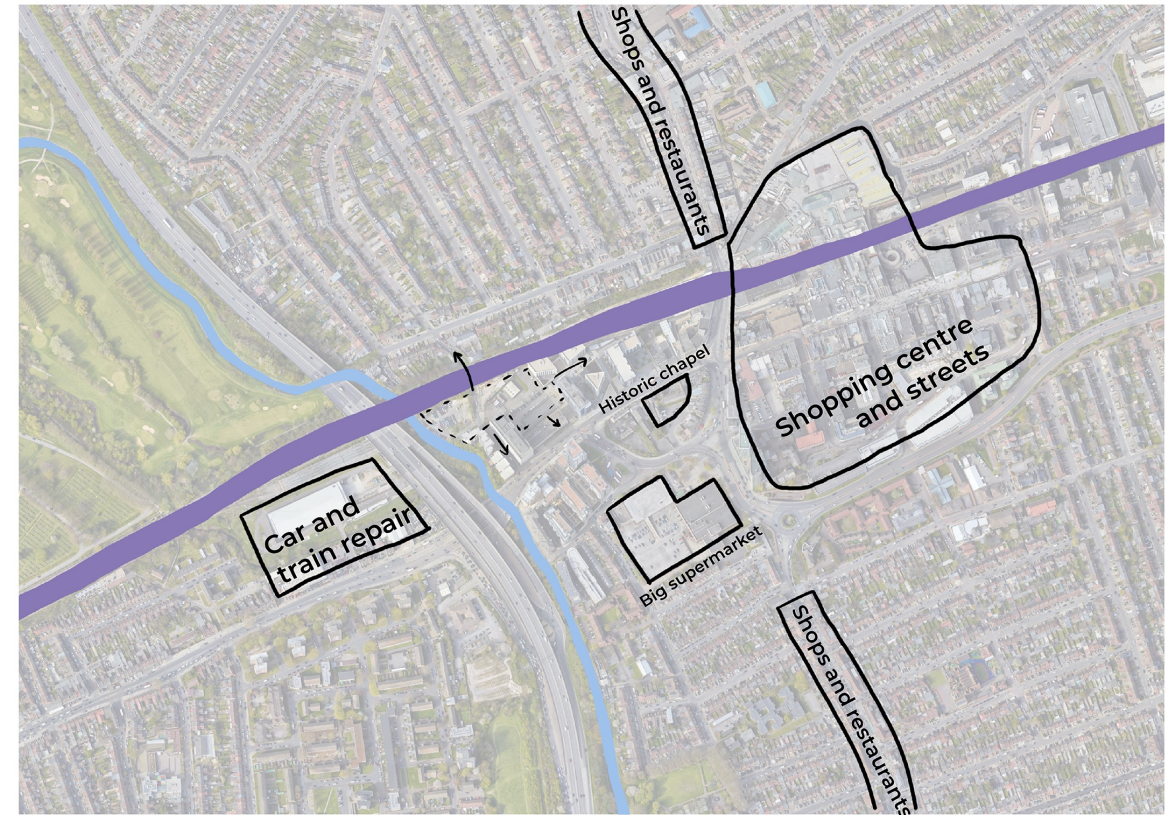
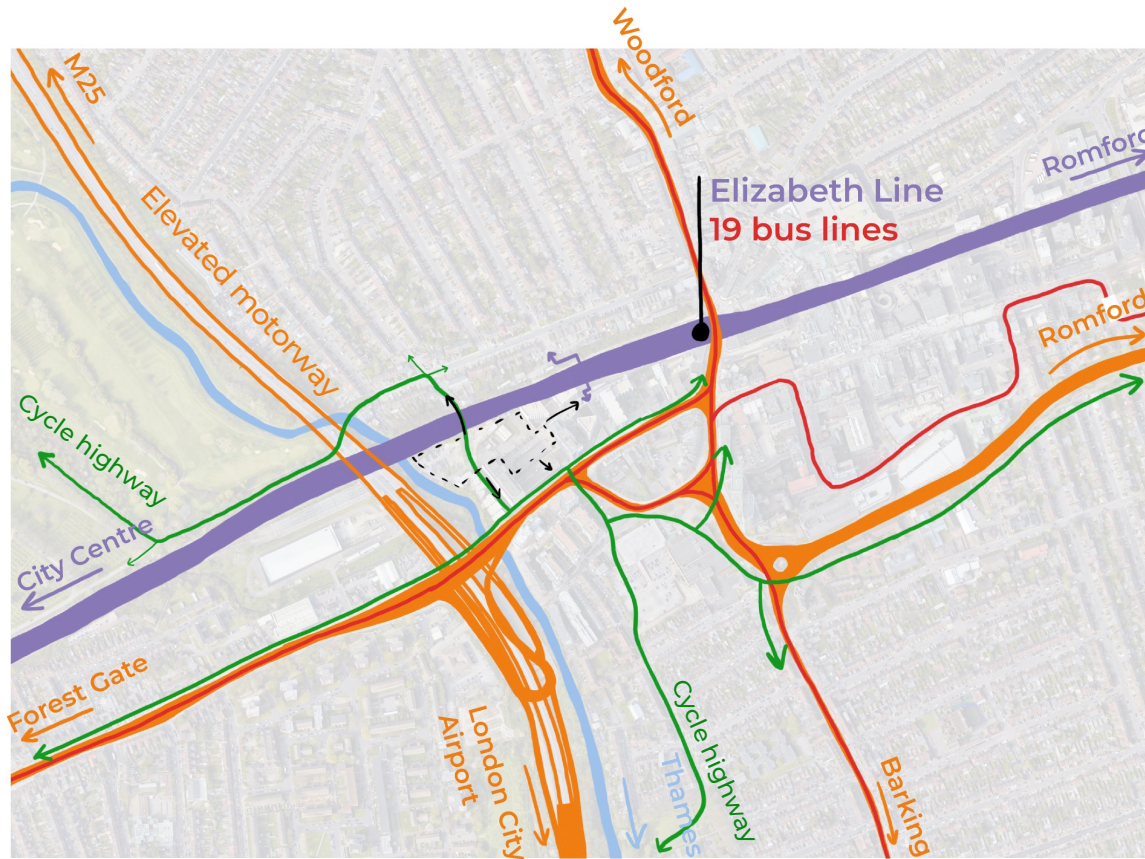
Proposal



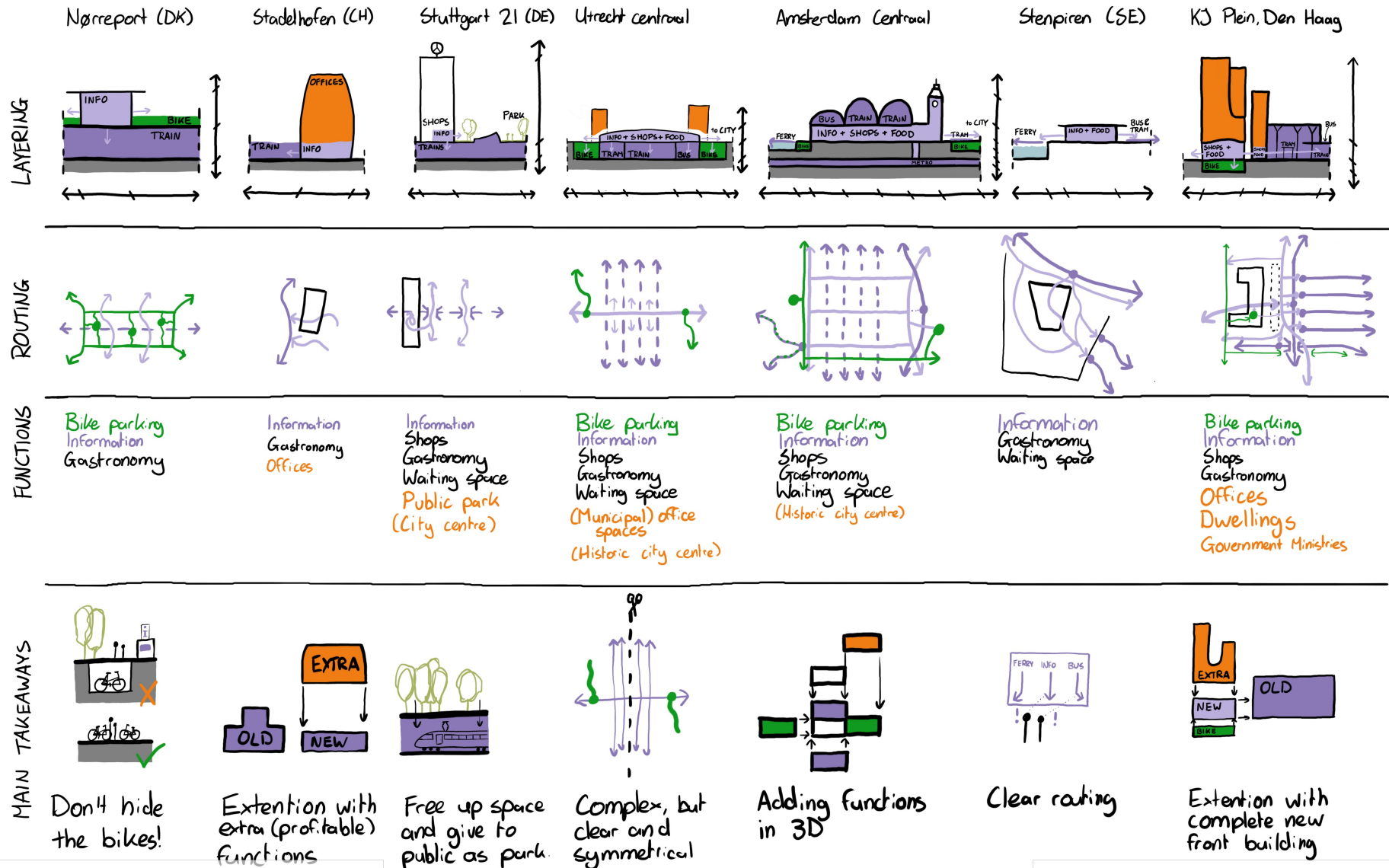
















Bike parking



Bike sharing



Bike repair



Workshops



Library



Study room



Community  
association



Meeting  
room



Exhibition



Shelter



Parcel point



Toilets



Bakery



Cafe



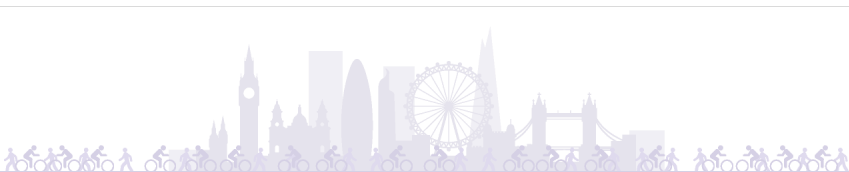
Restaurant



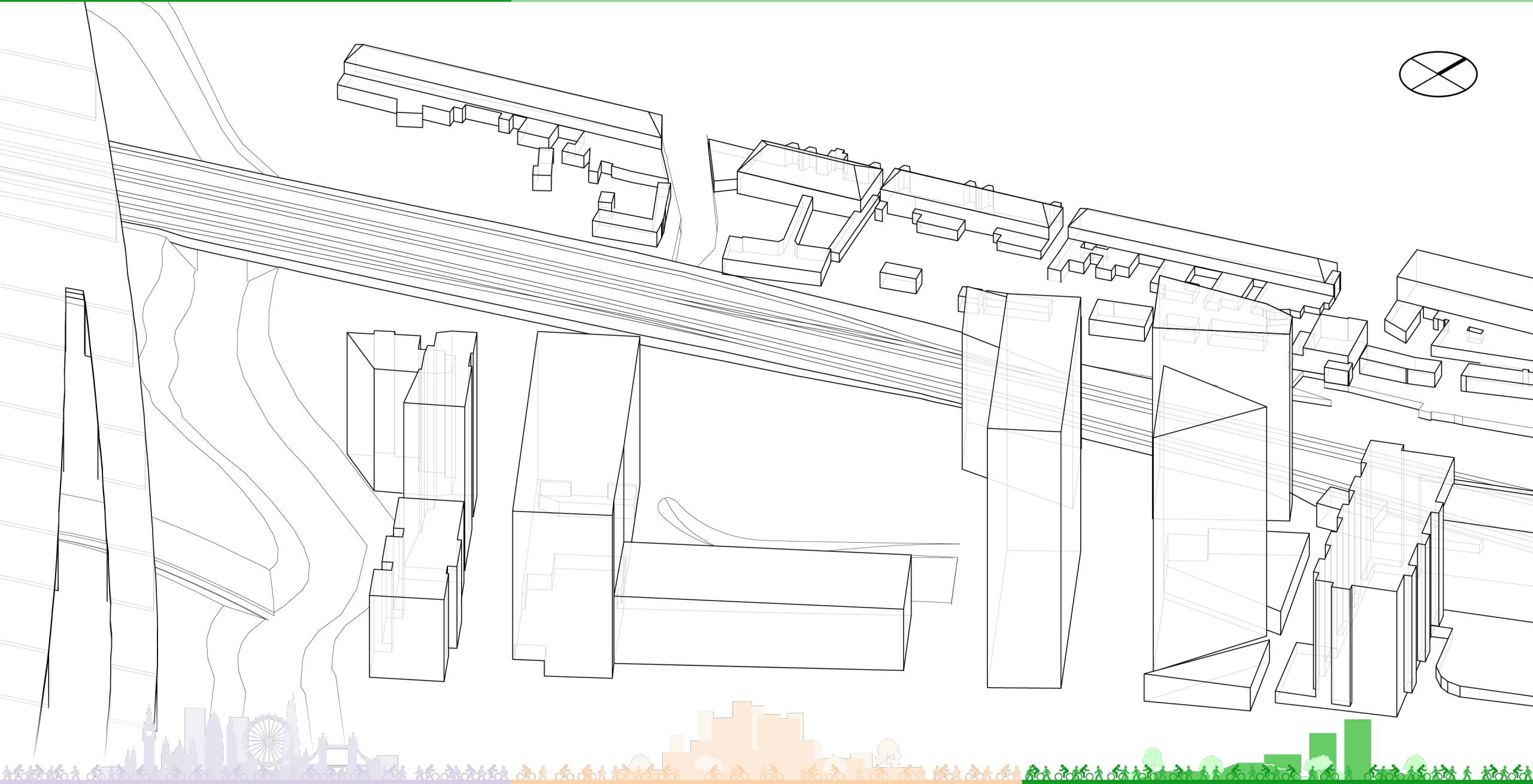
Take away



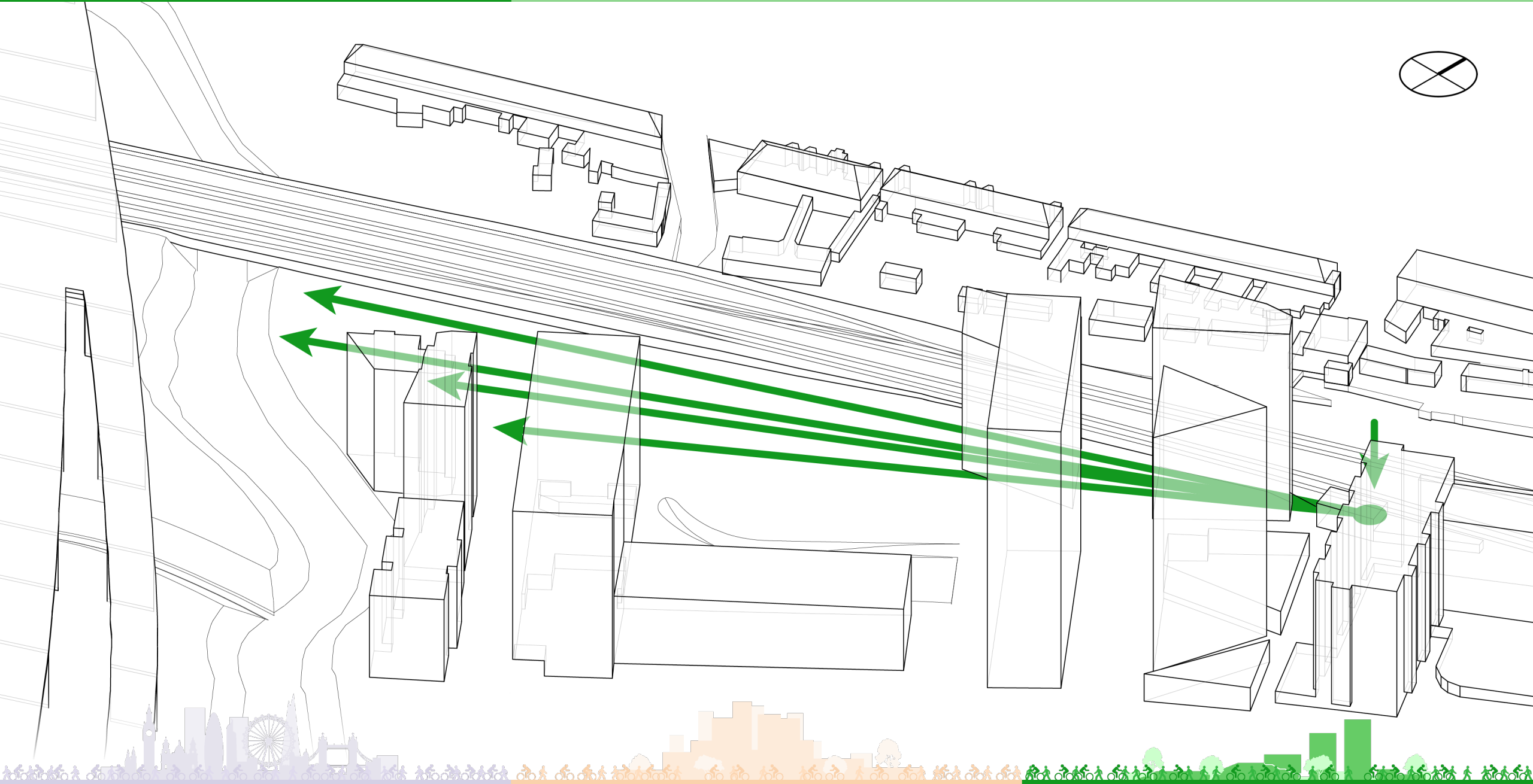
Green space







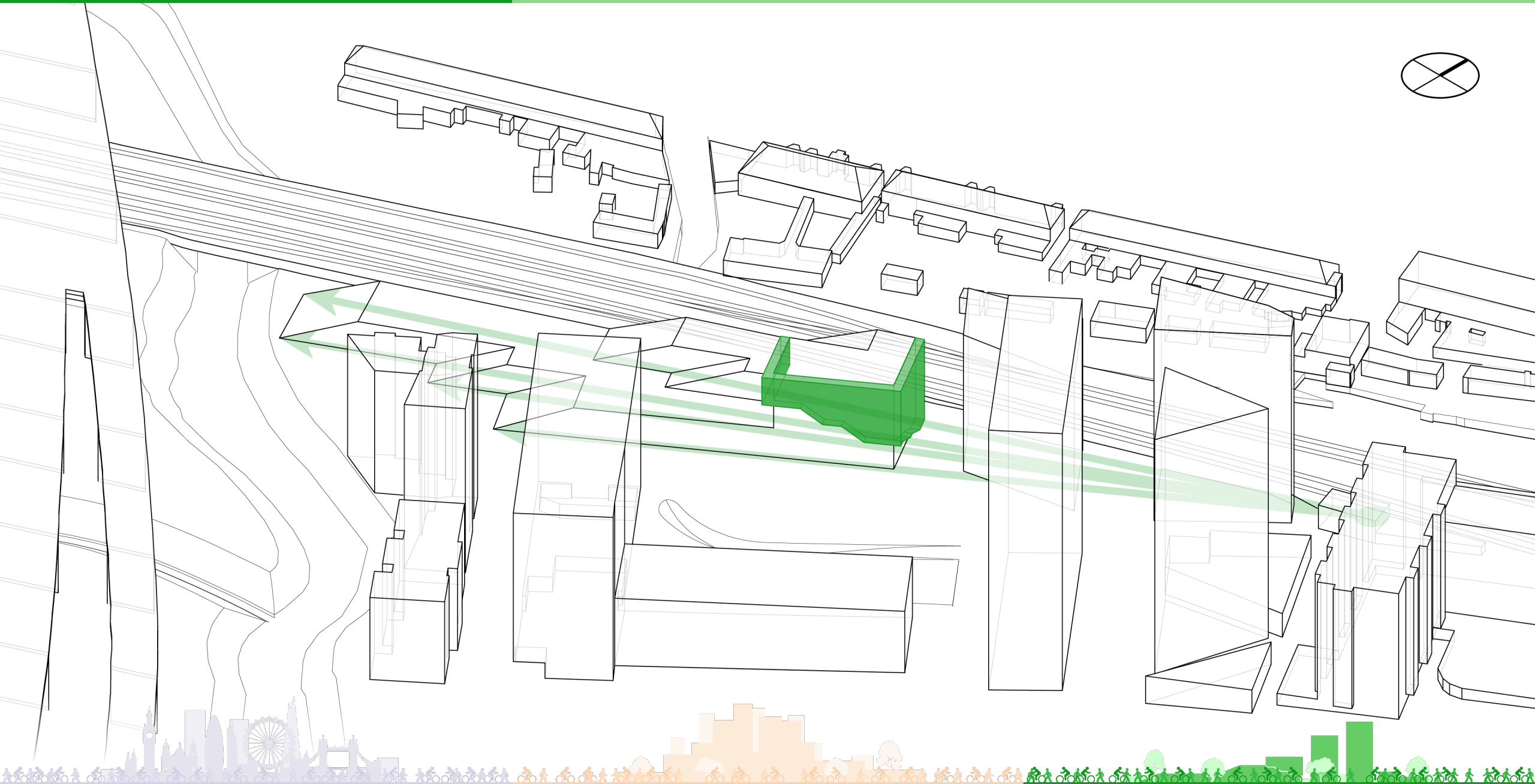




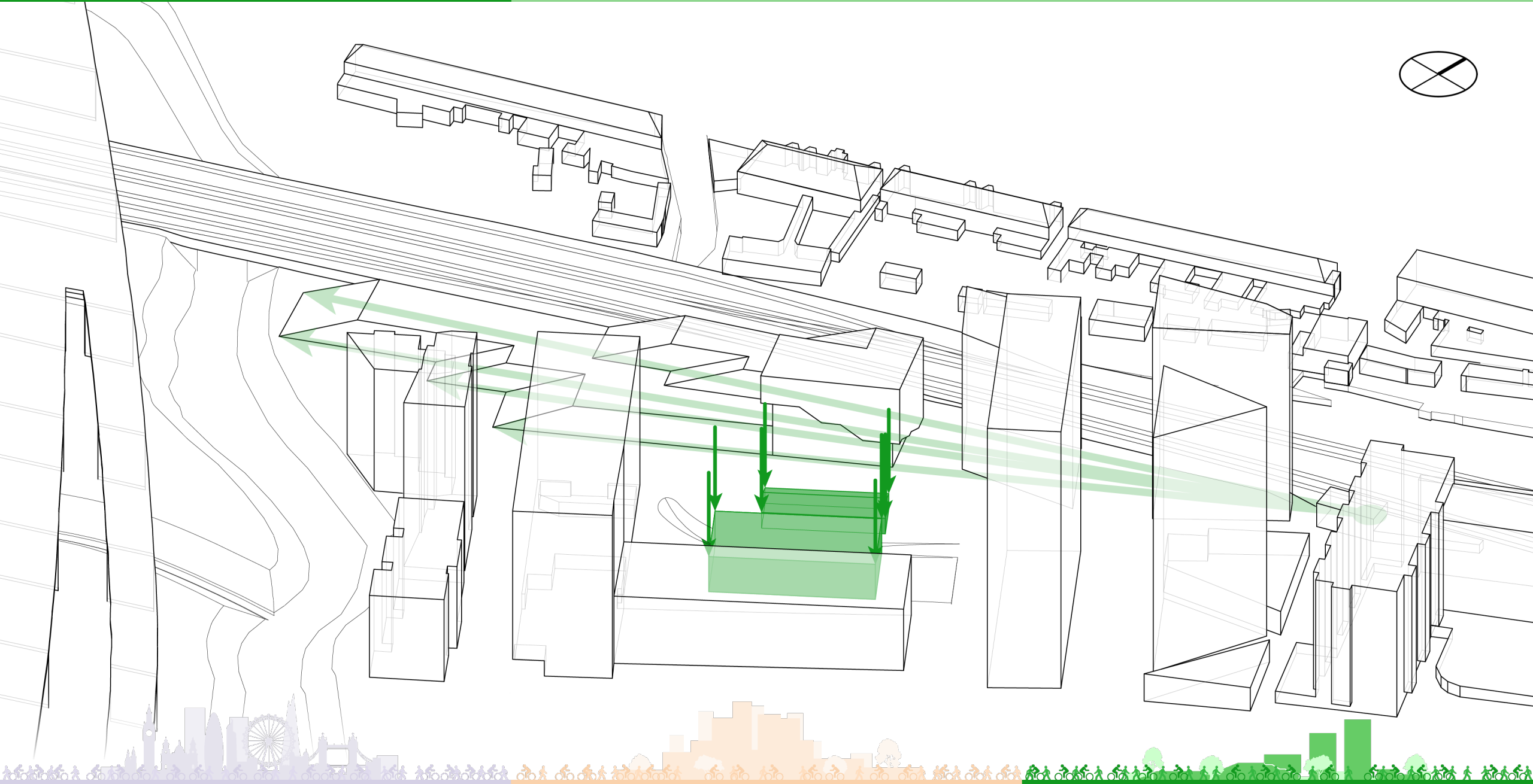
















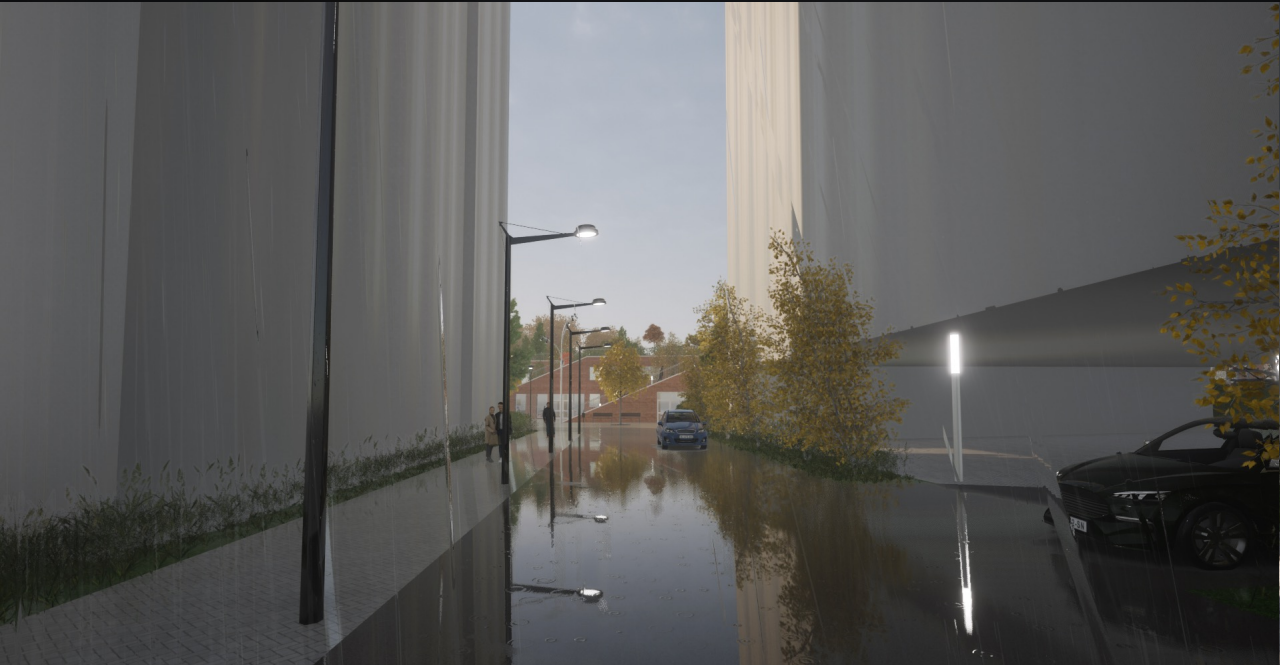




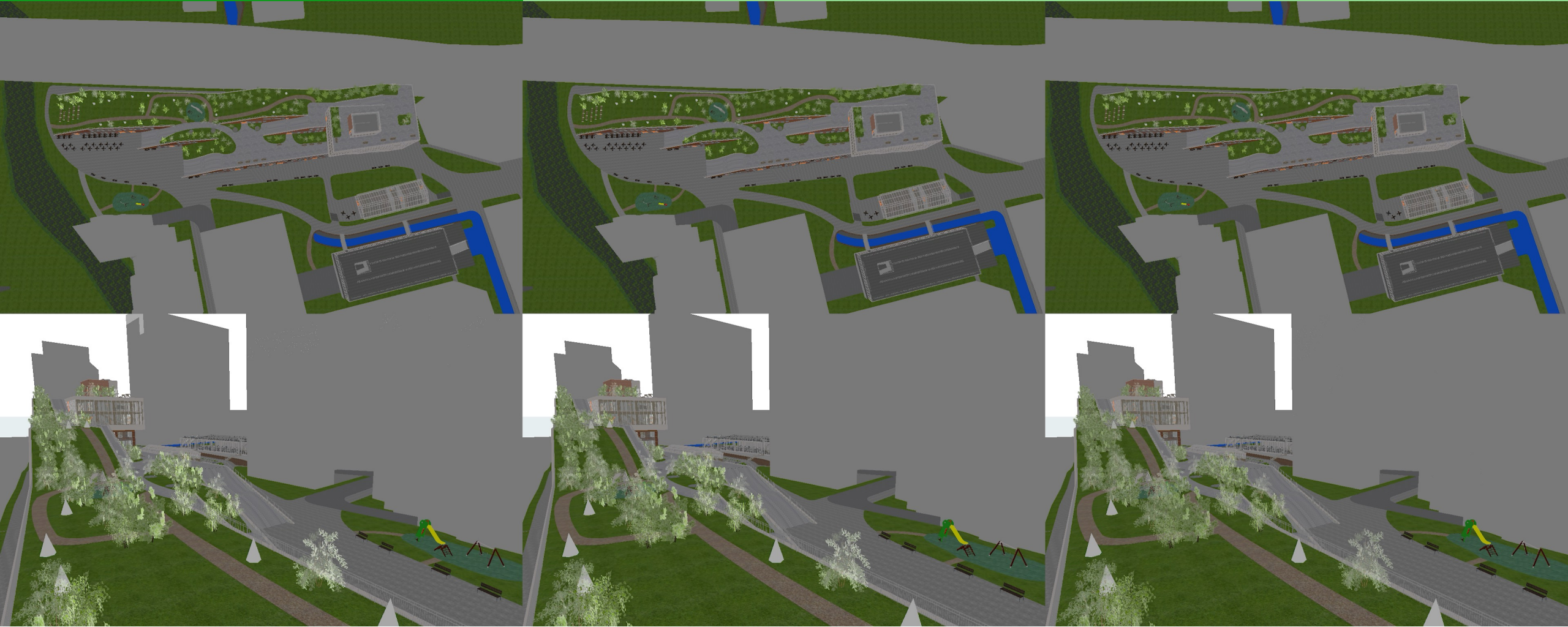












21 June

21 March / September

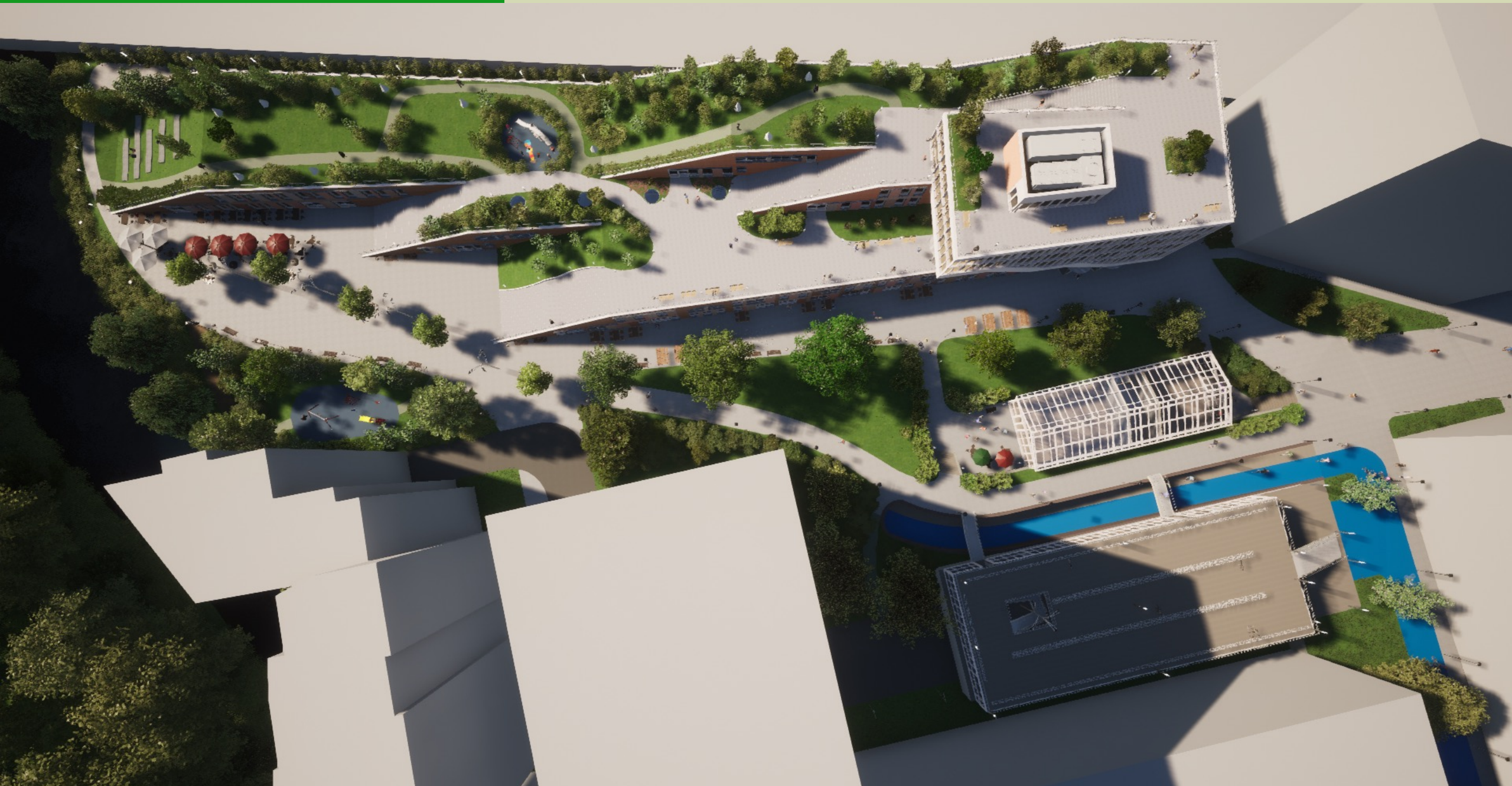
21 December



































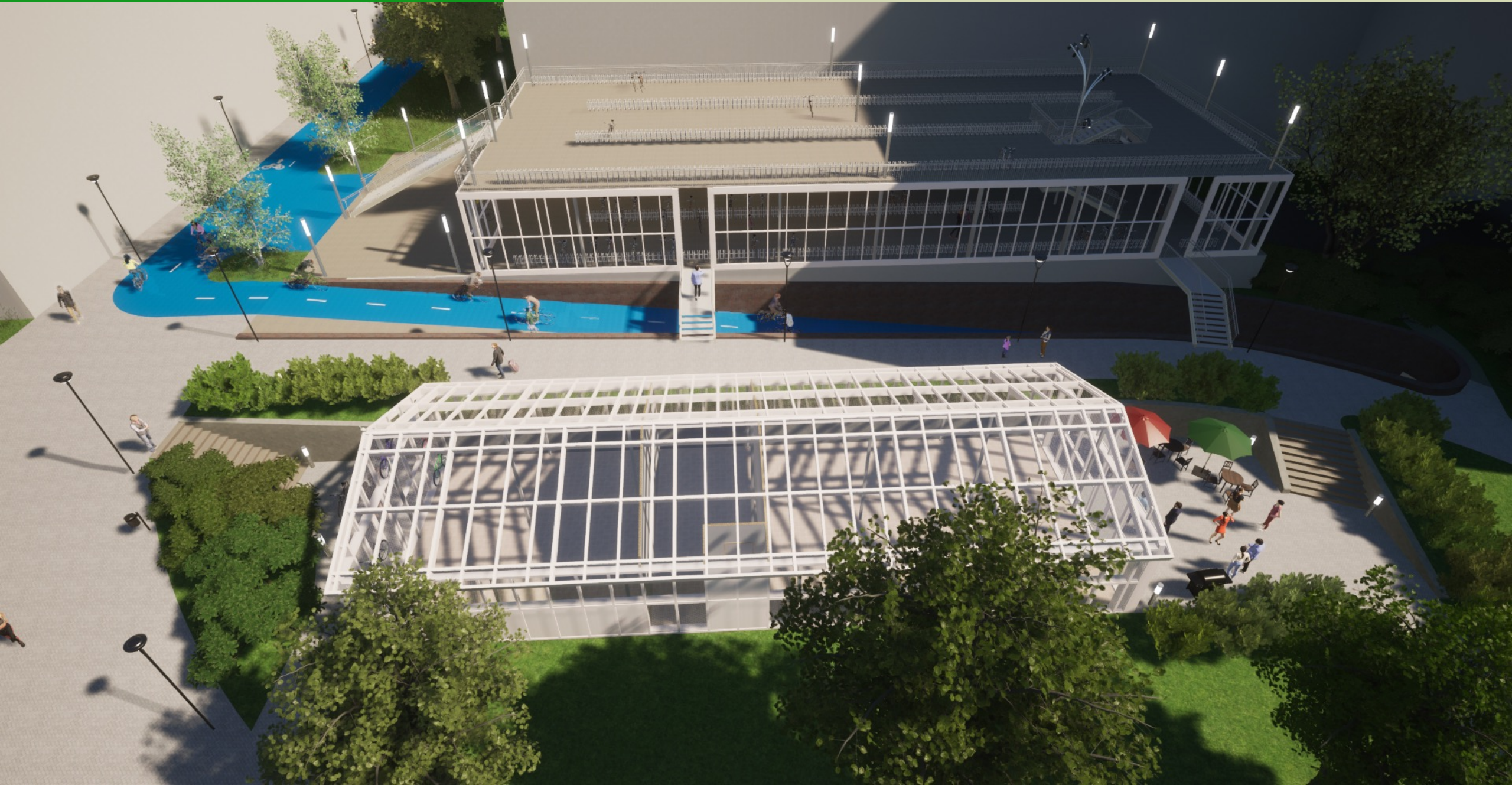












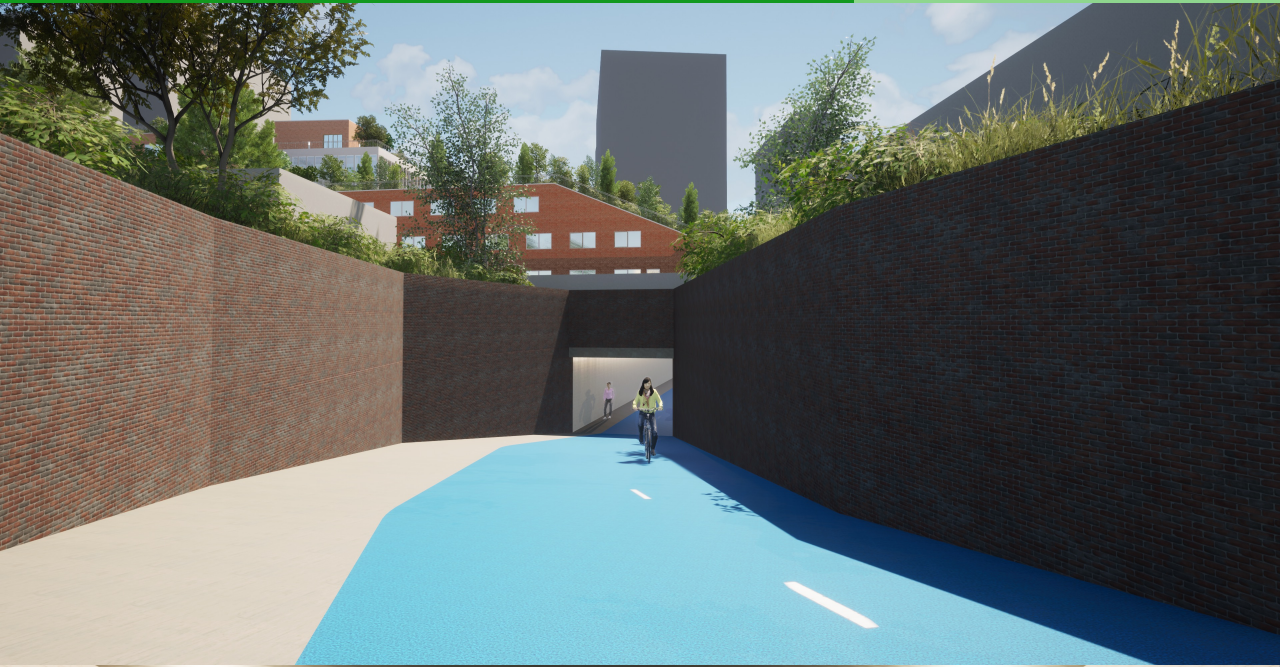




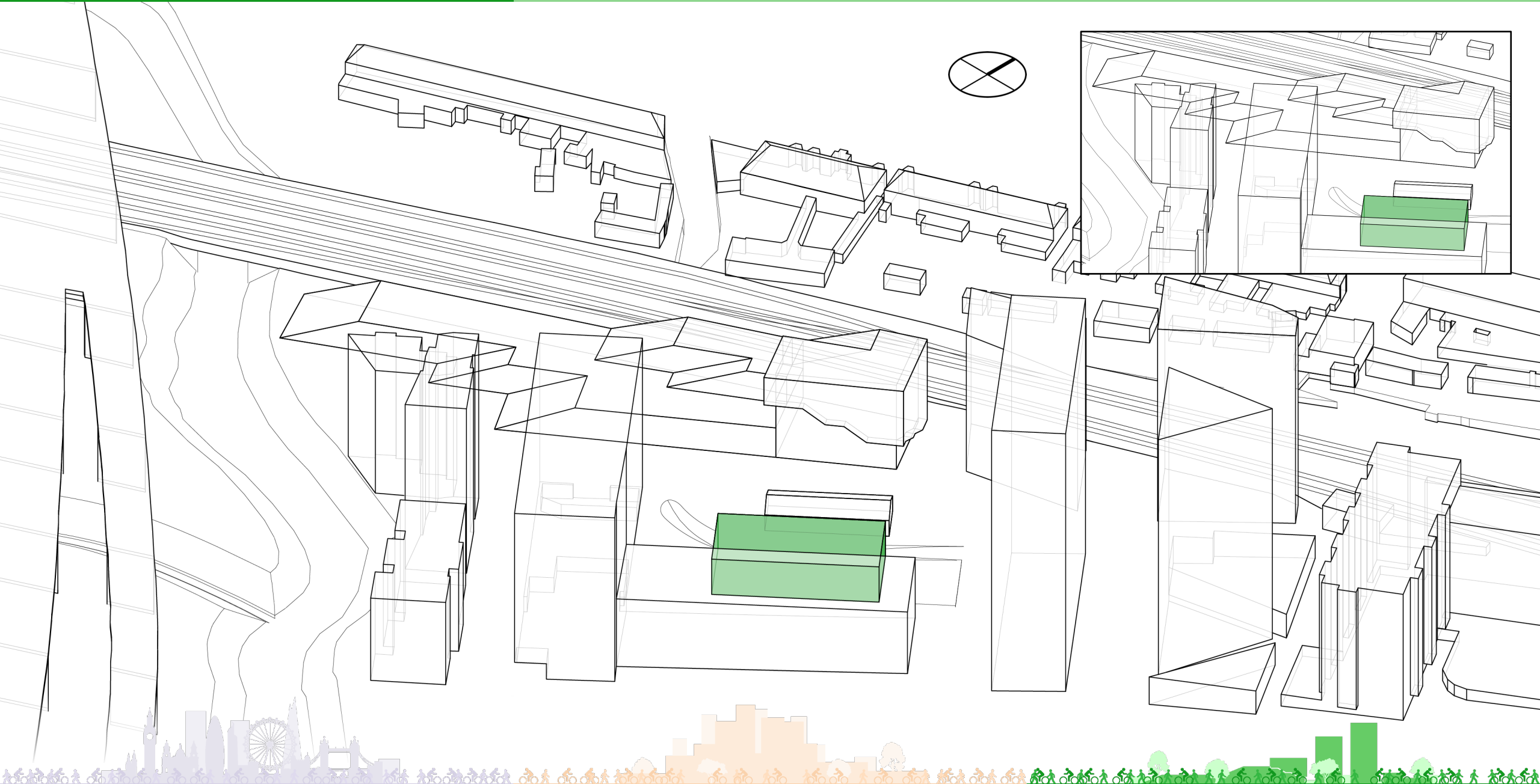
















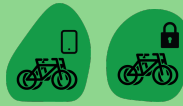
Google Earth

Data SIO, NOAA, U.S. Navy

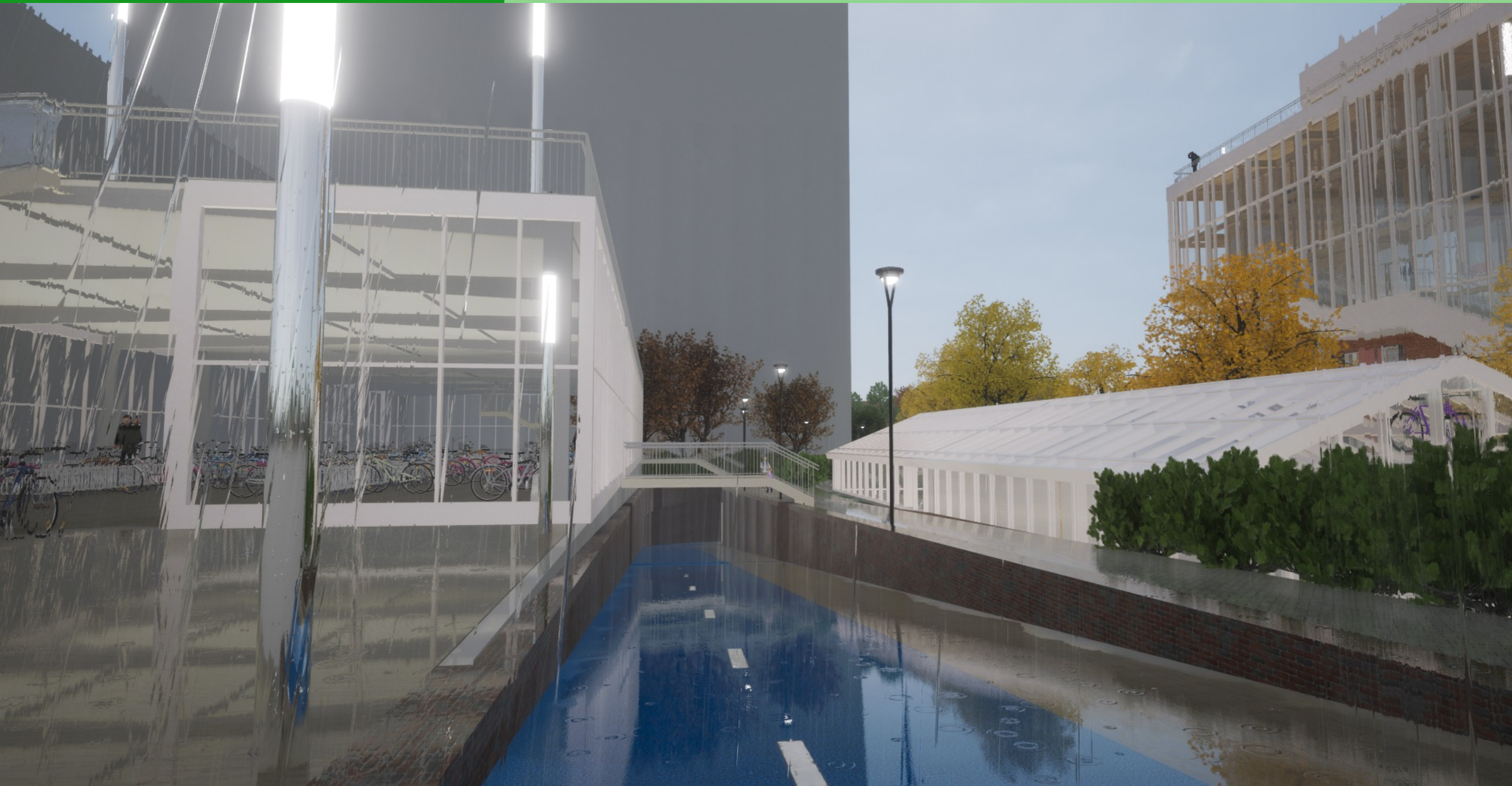
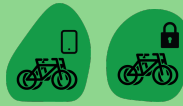




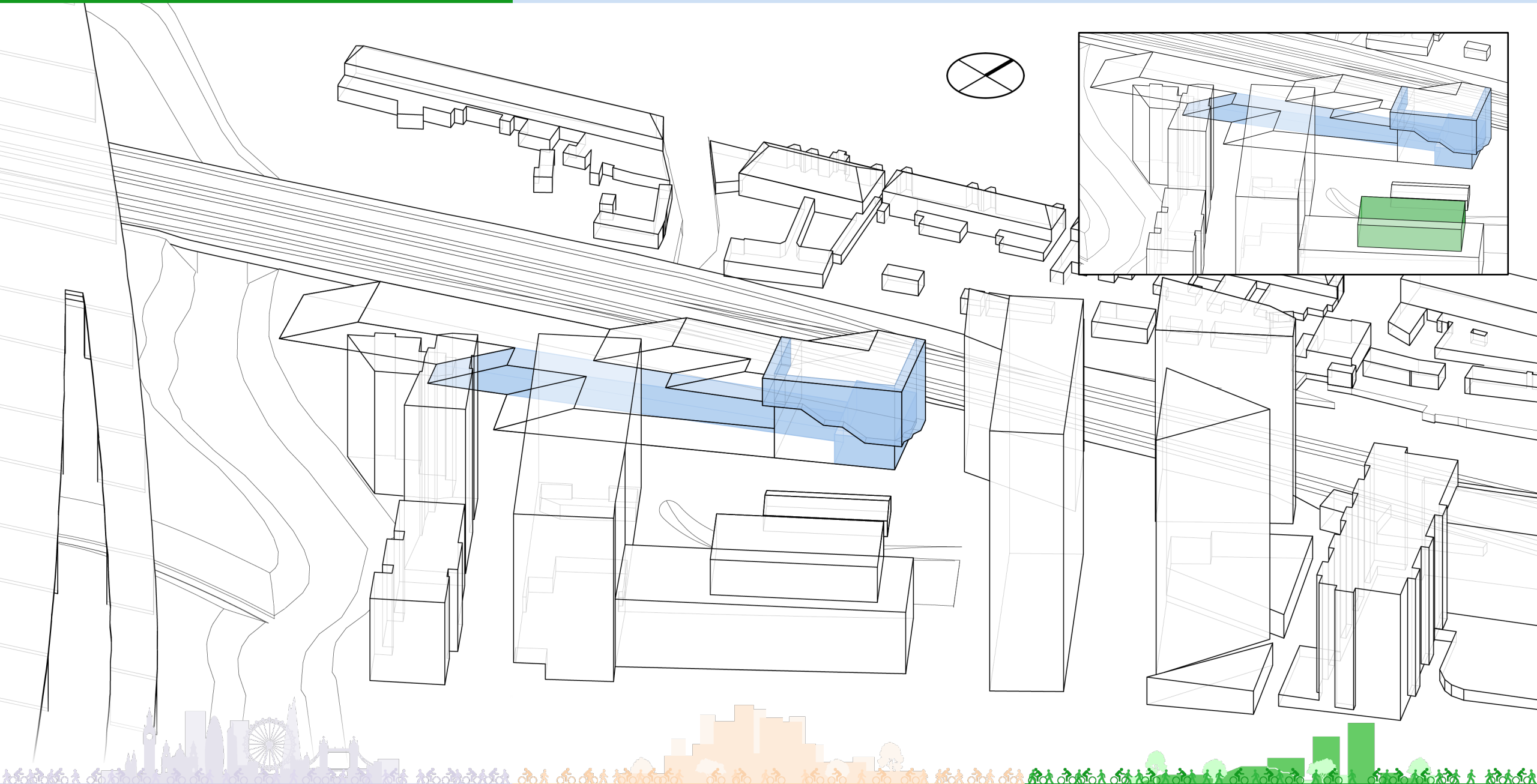












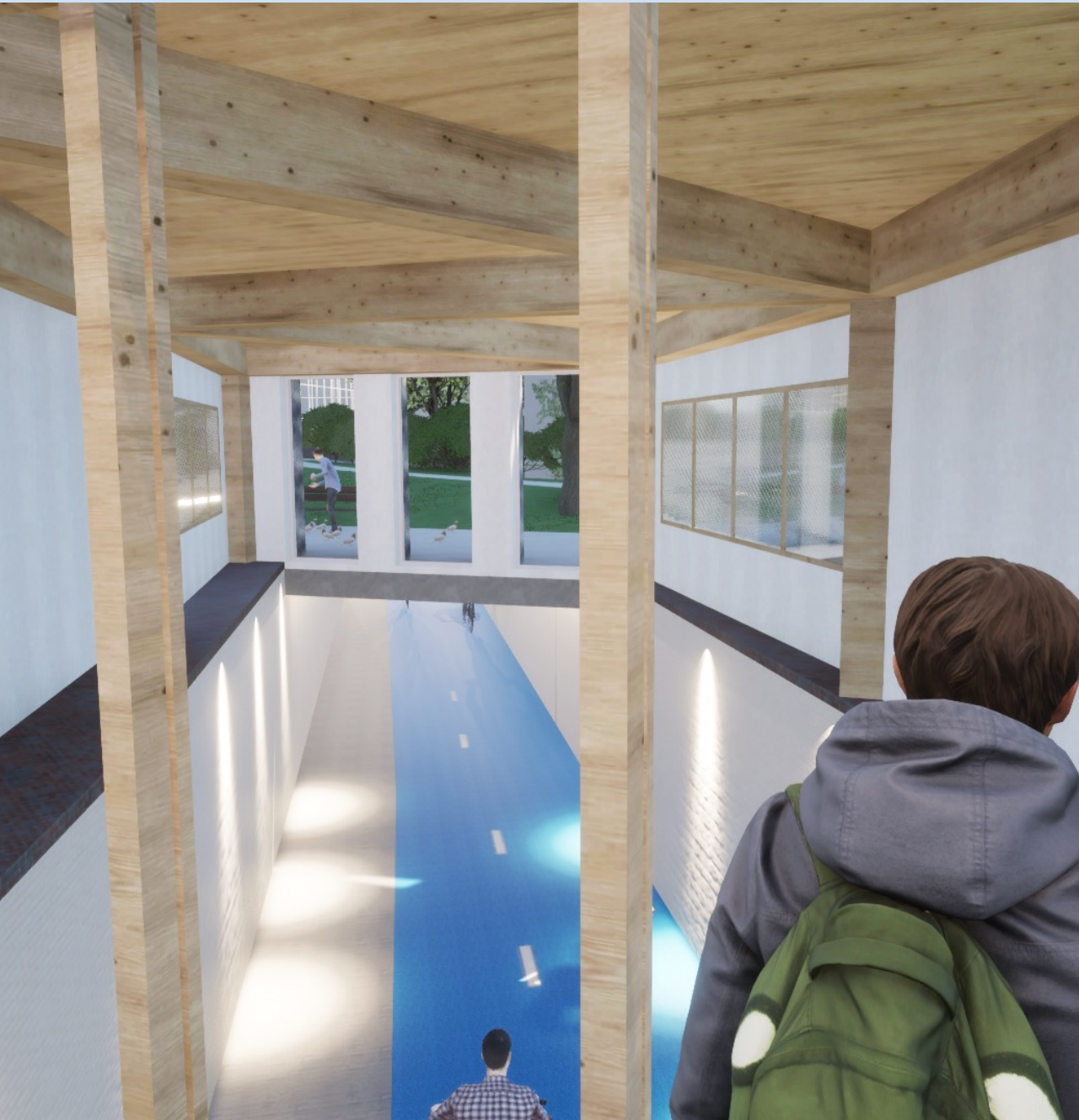
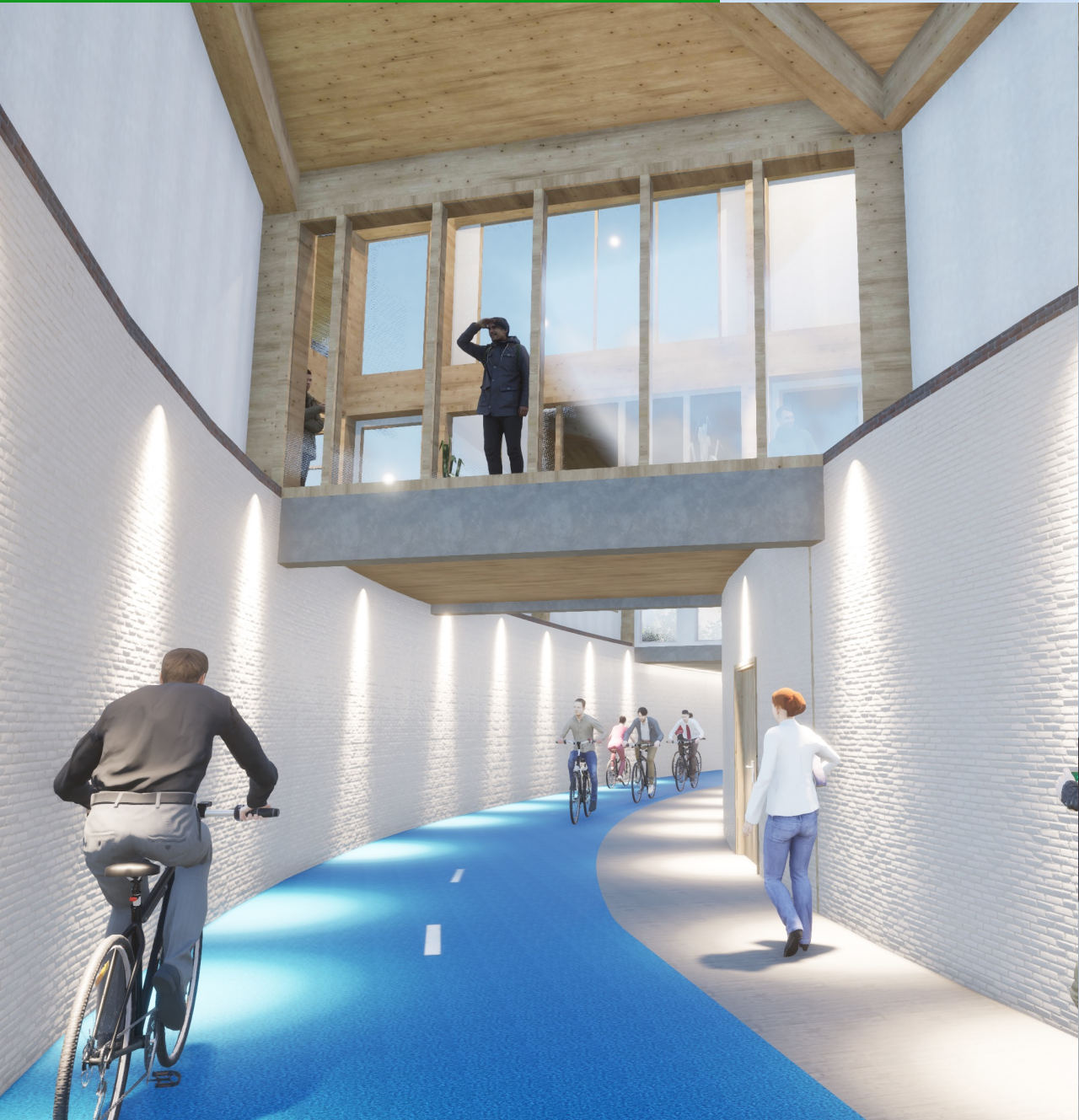




level 0







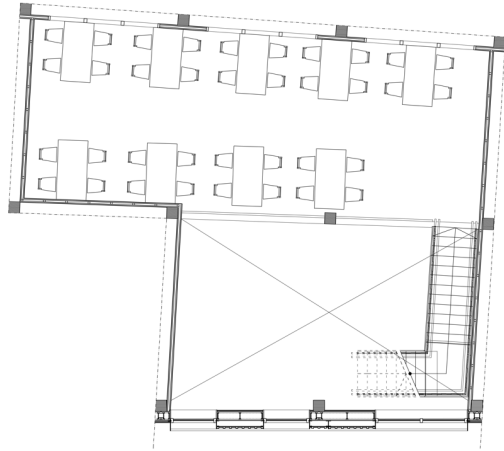




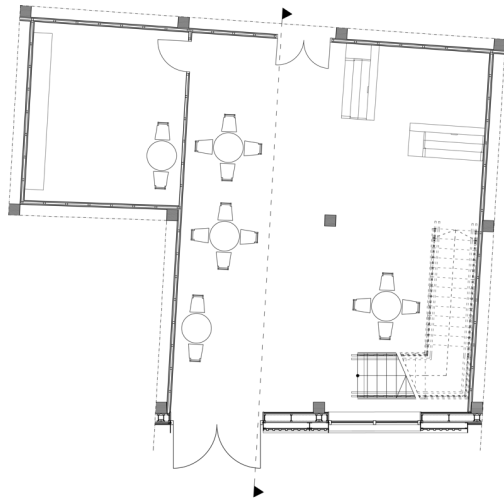




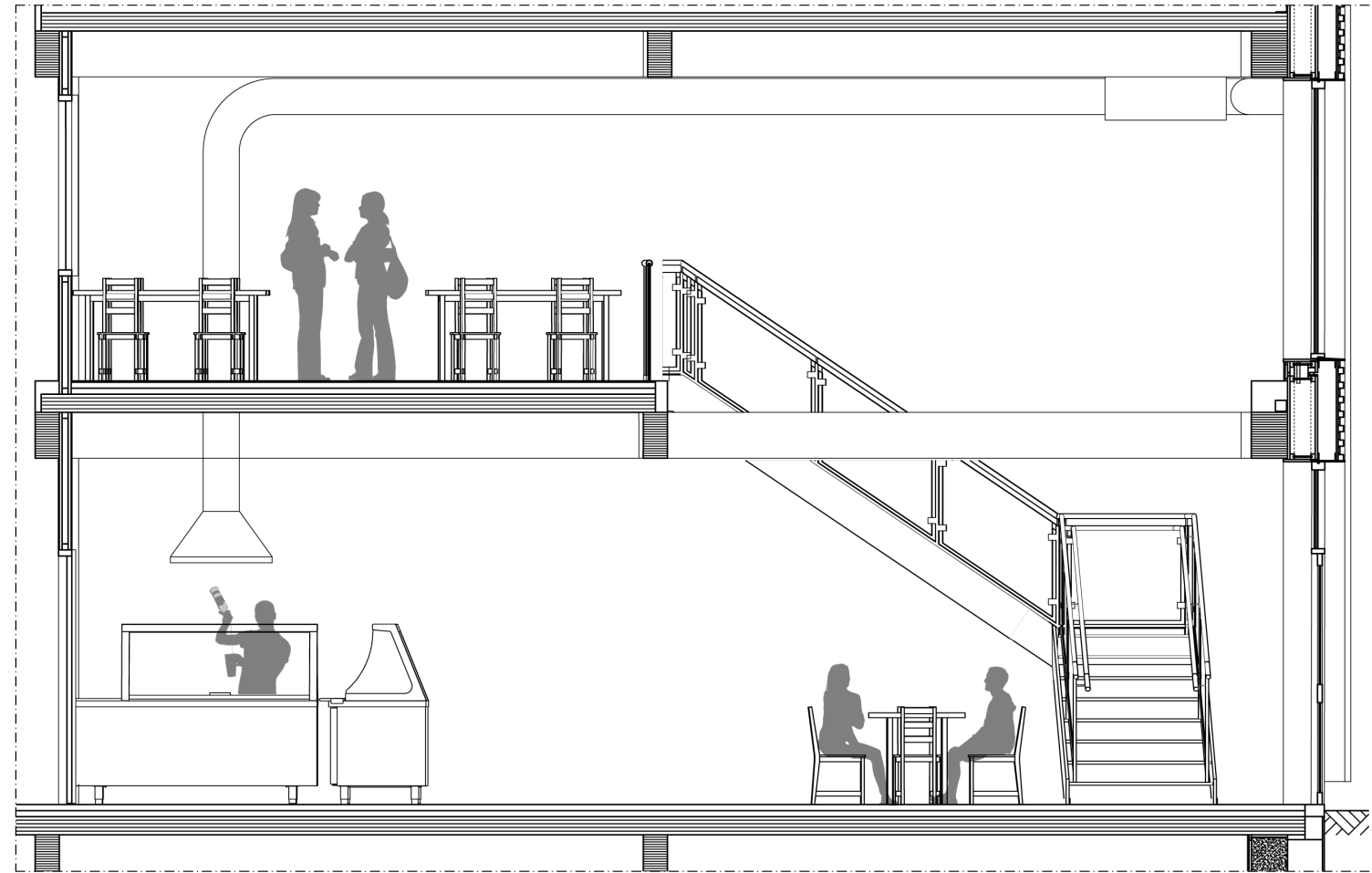




level 1



level 0



9.6 m























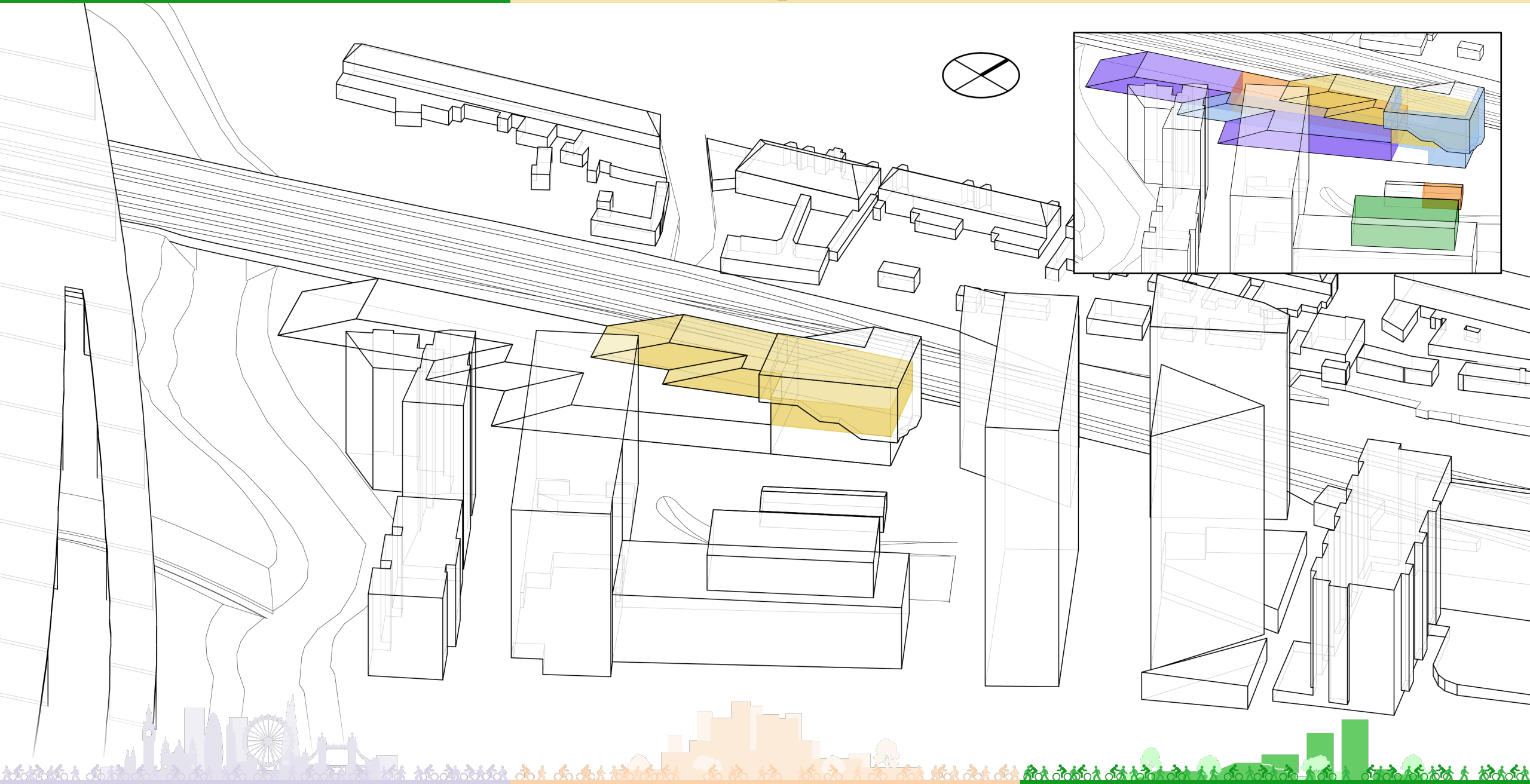




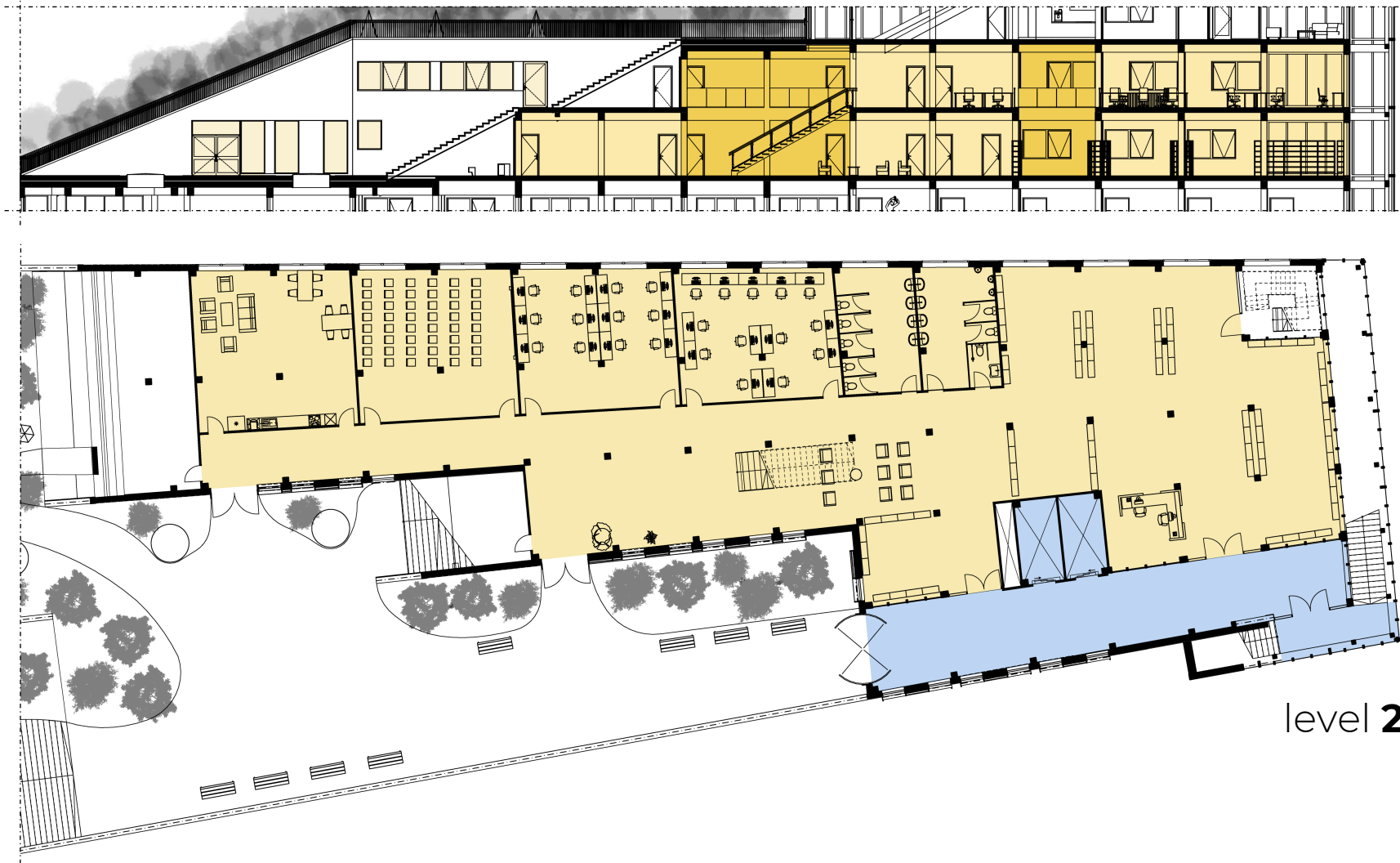












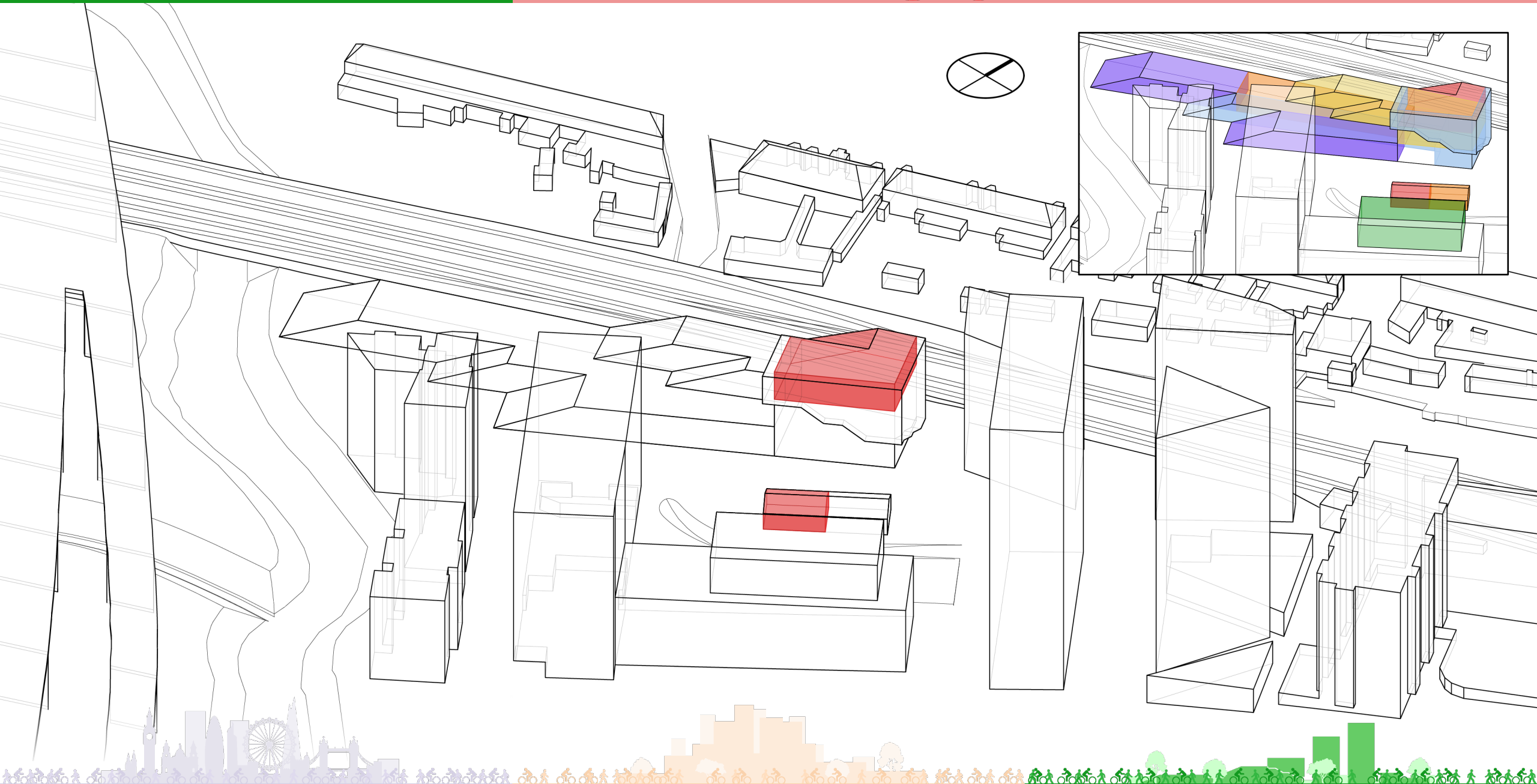
level 2











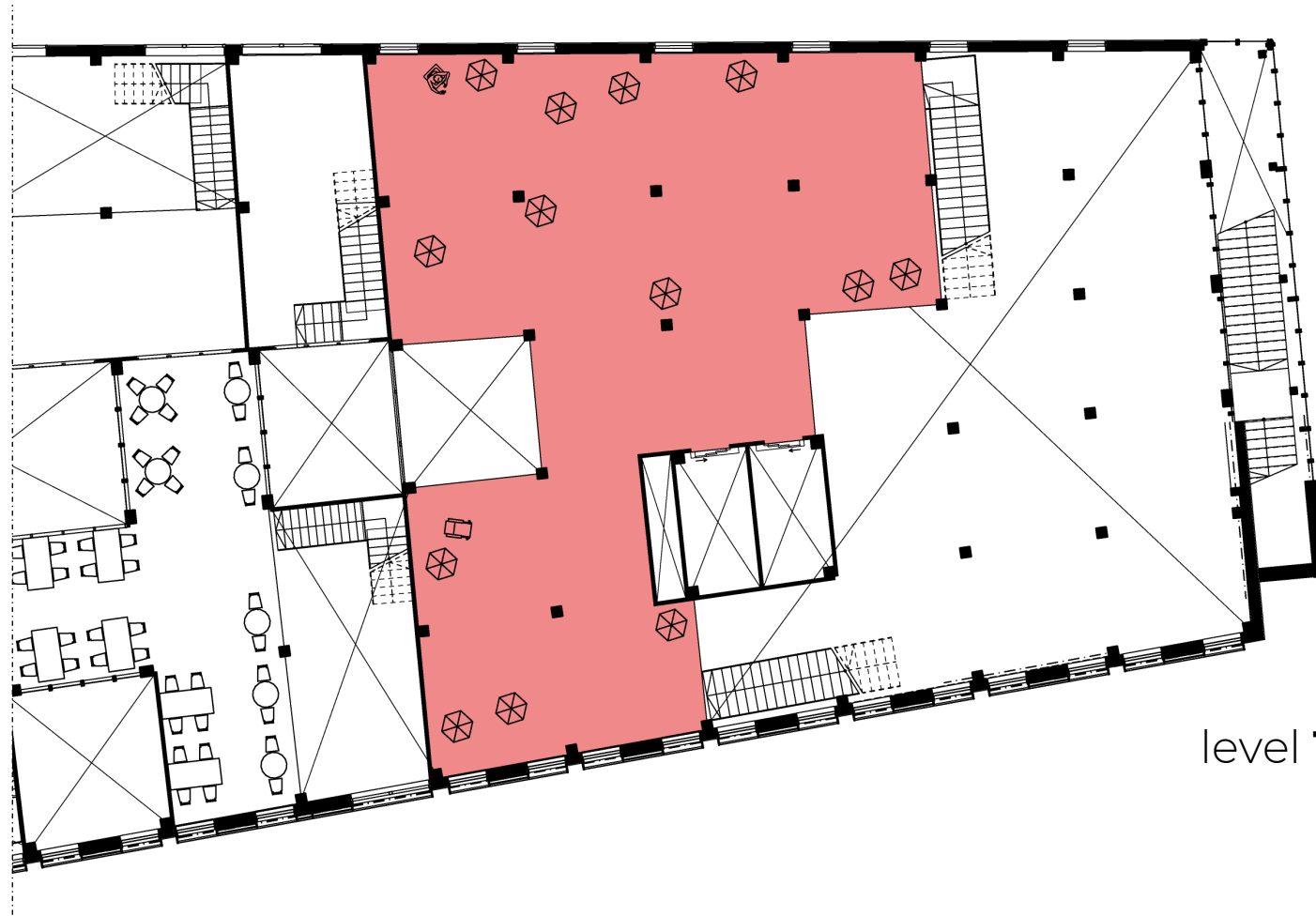












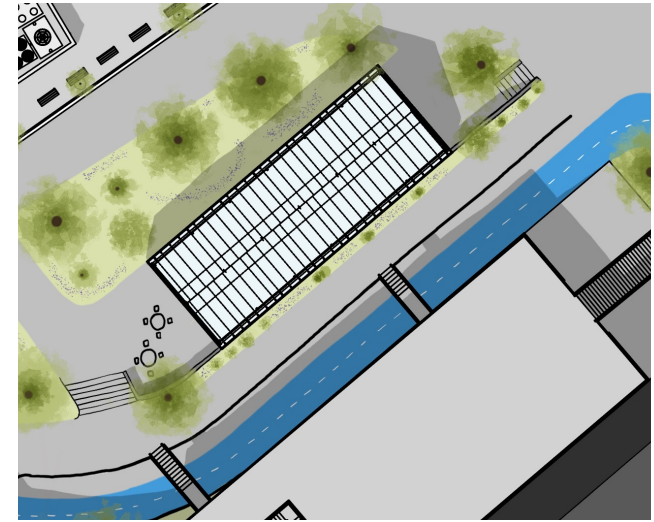
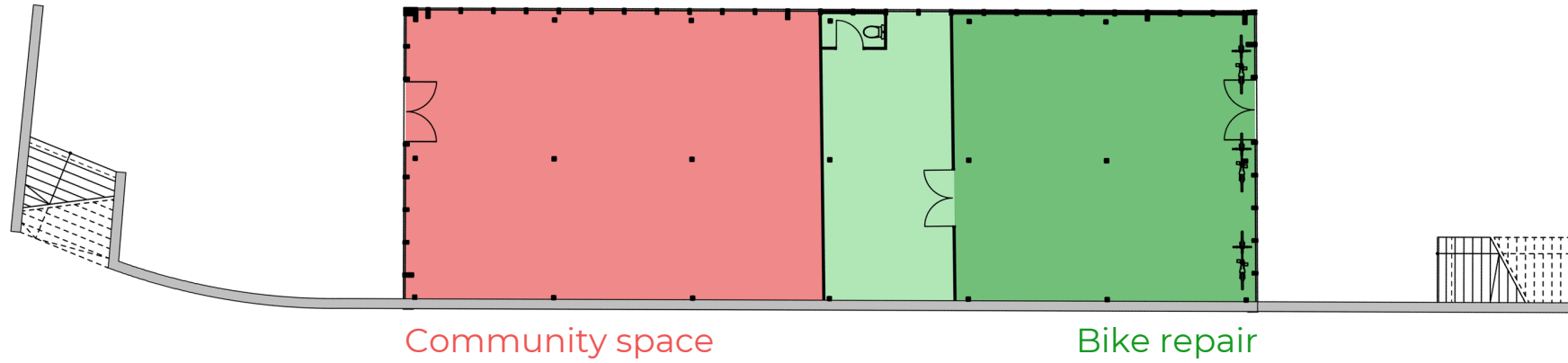
level 1



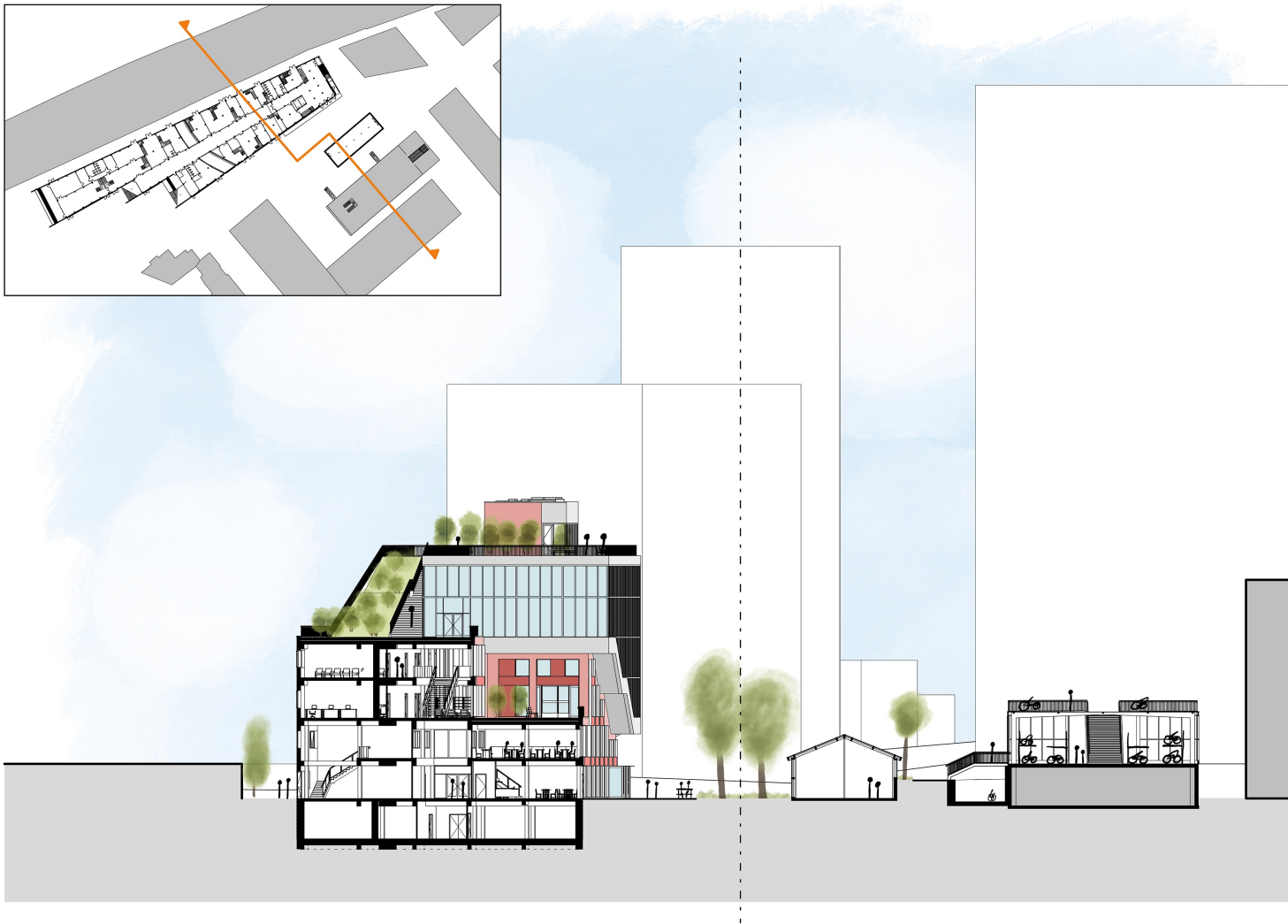
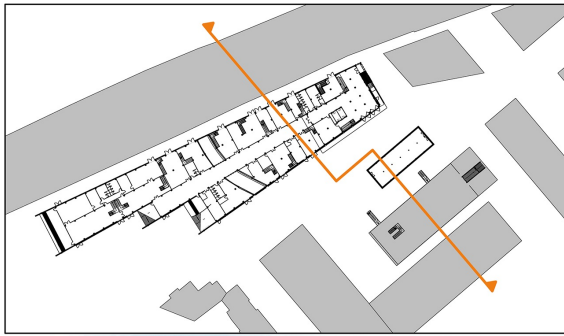




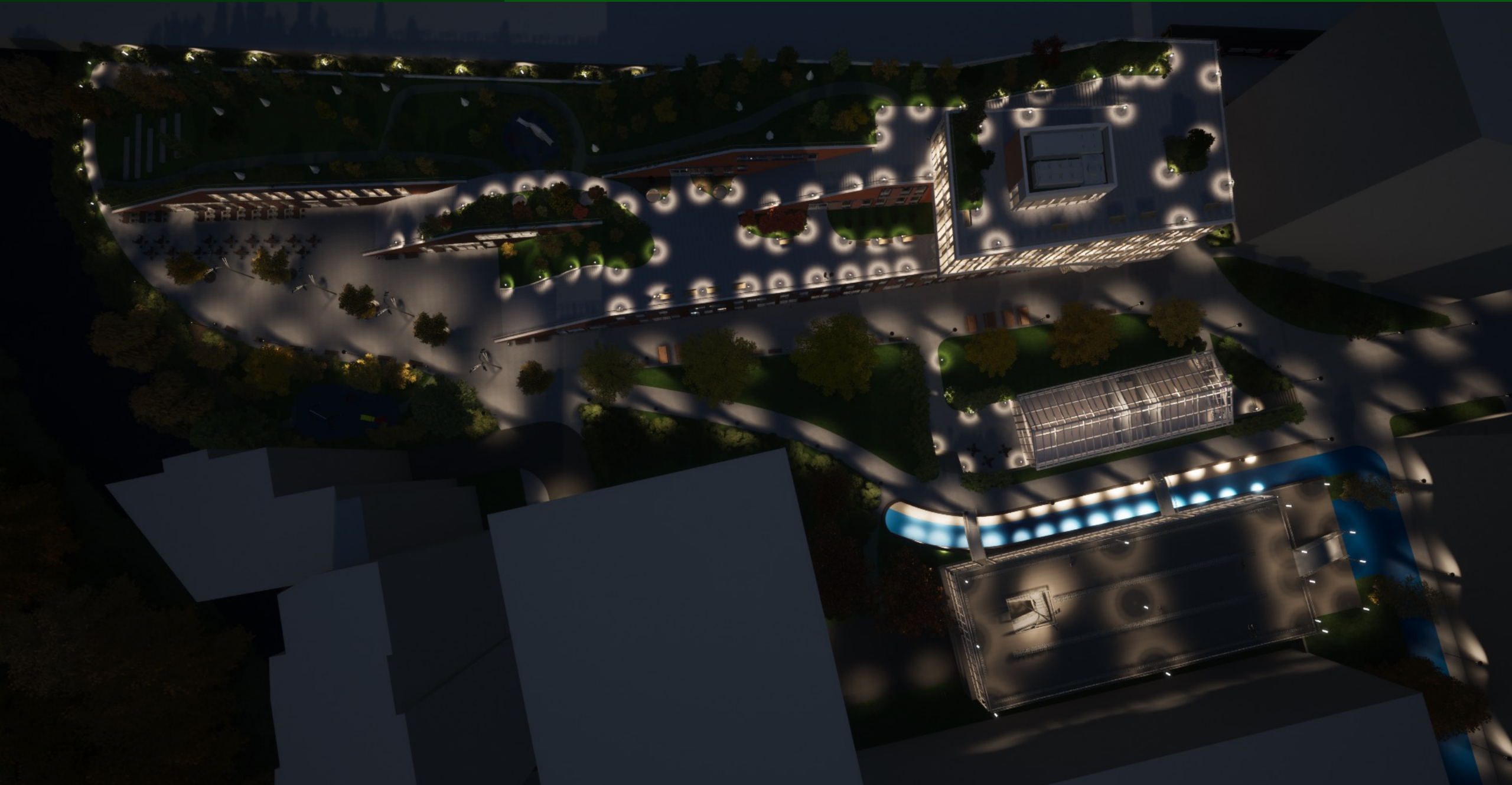
















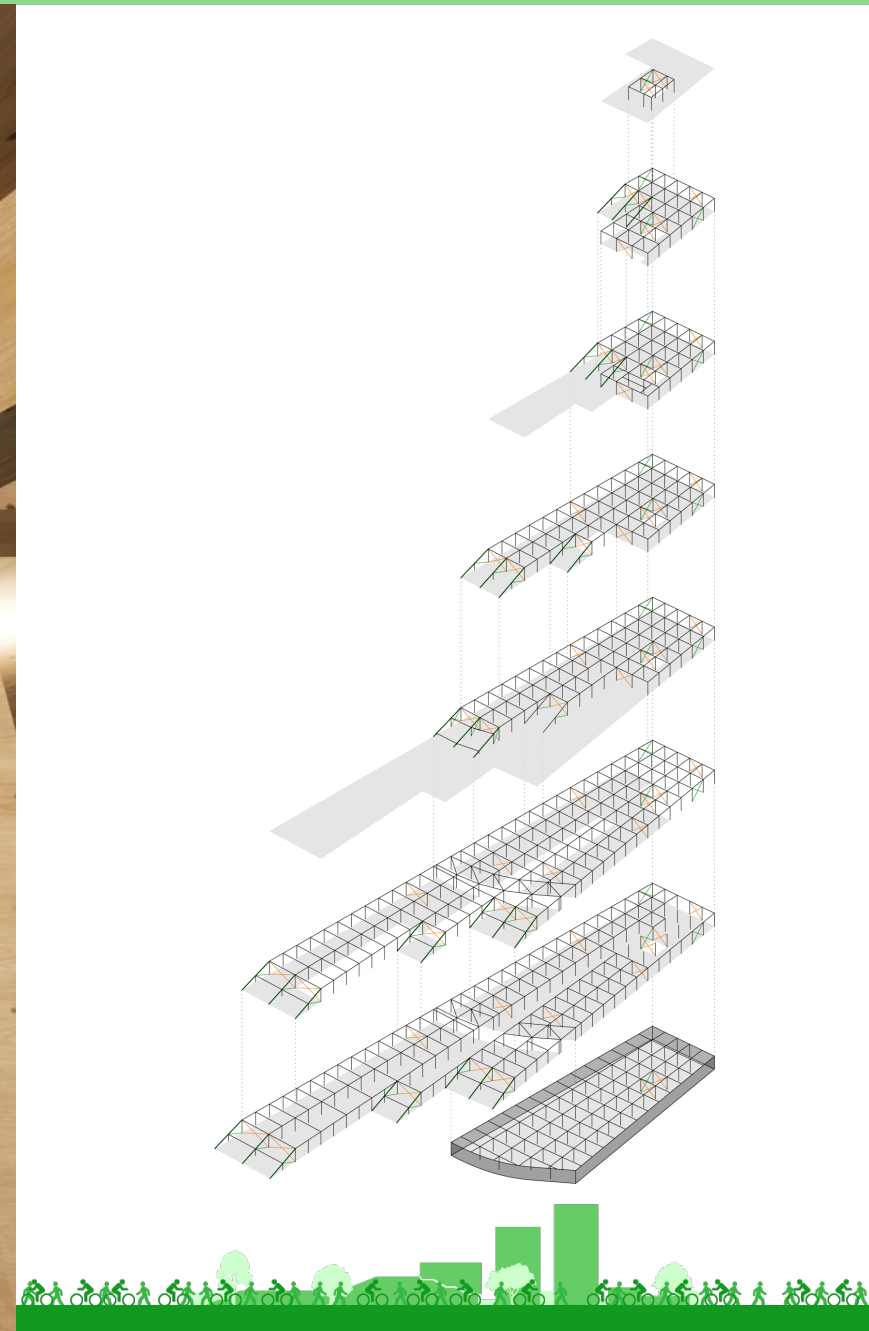






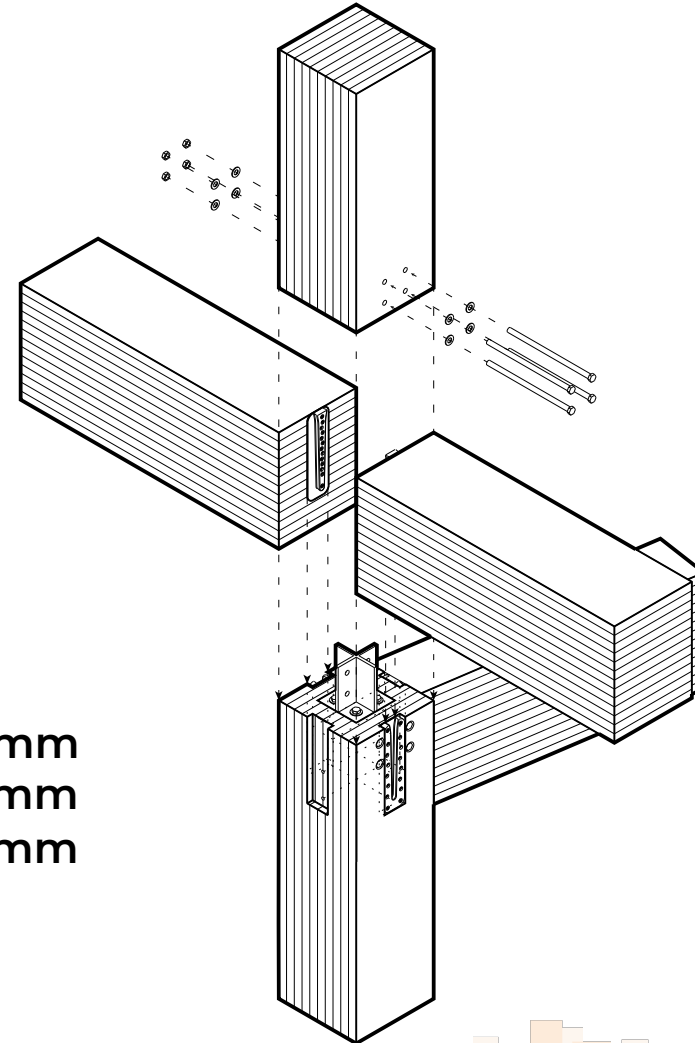




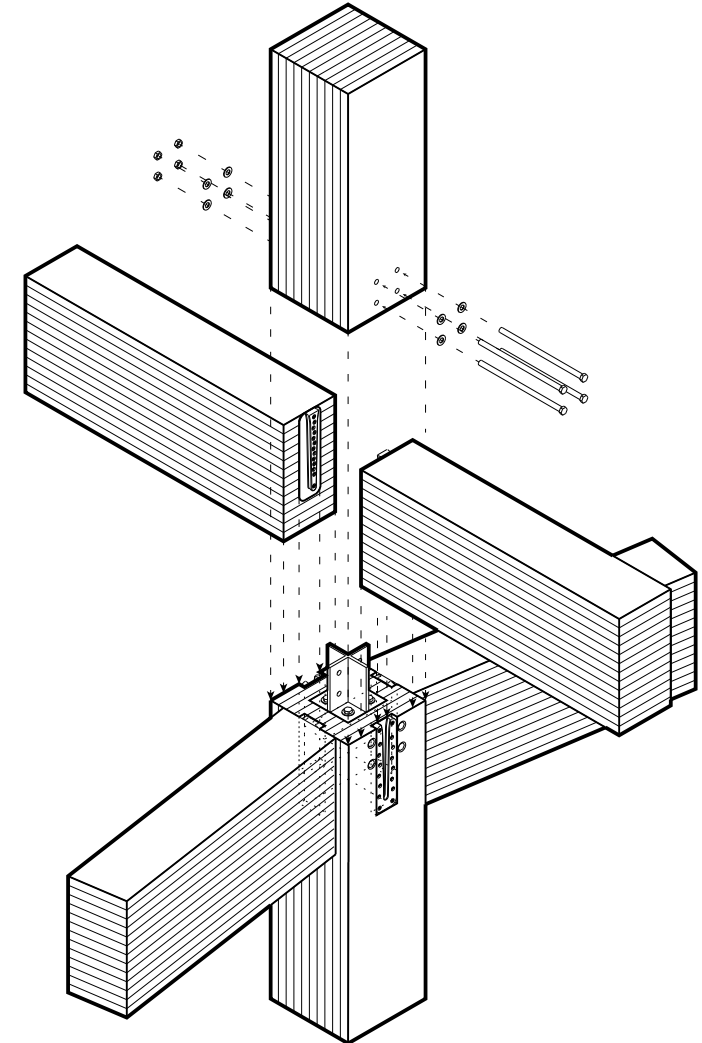




Next to façade



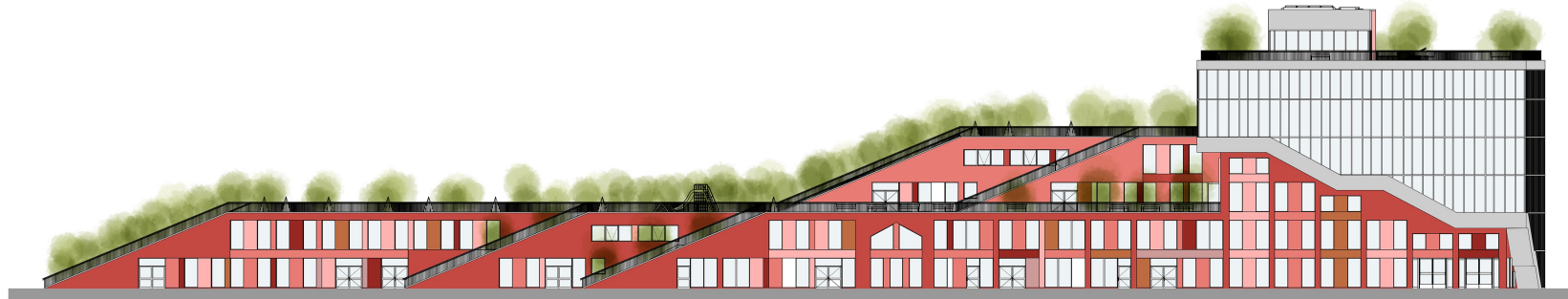
Middle of building



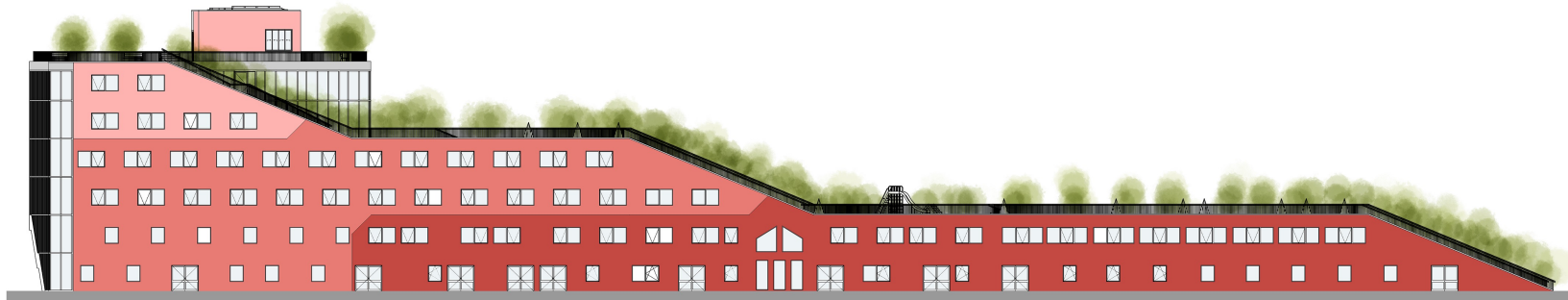
Column: **300 × 300 mm**  
Regular beam: **200 × 380 mm**  
Façade beam: **300 × 380 mm**







South



North



West



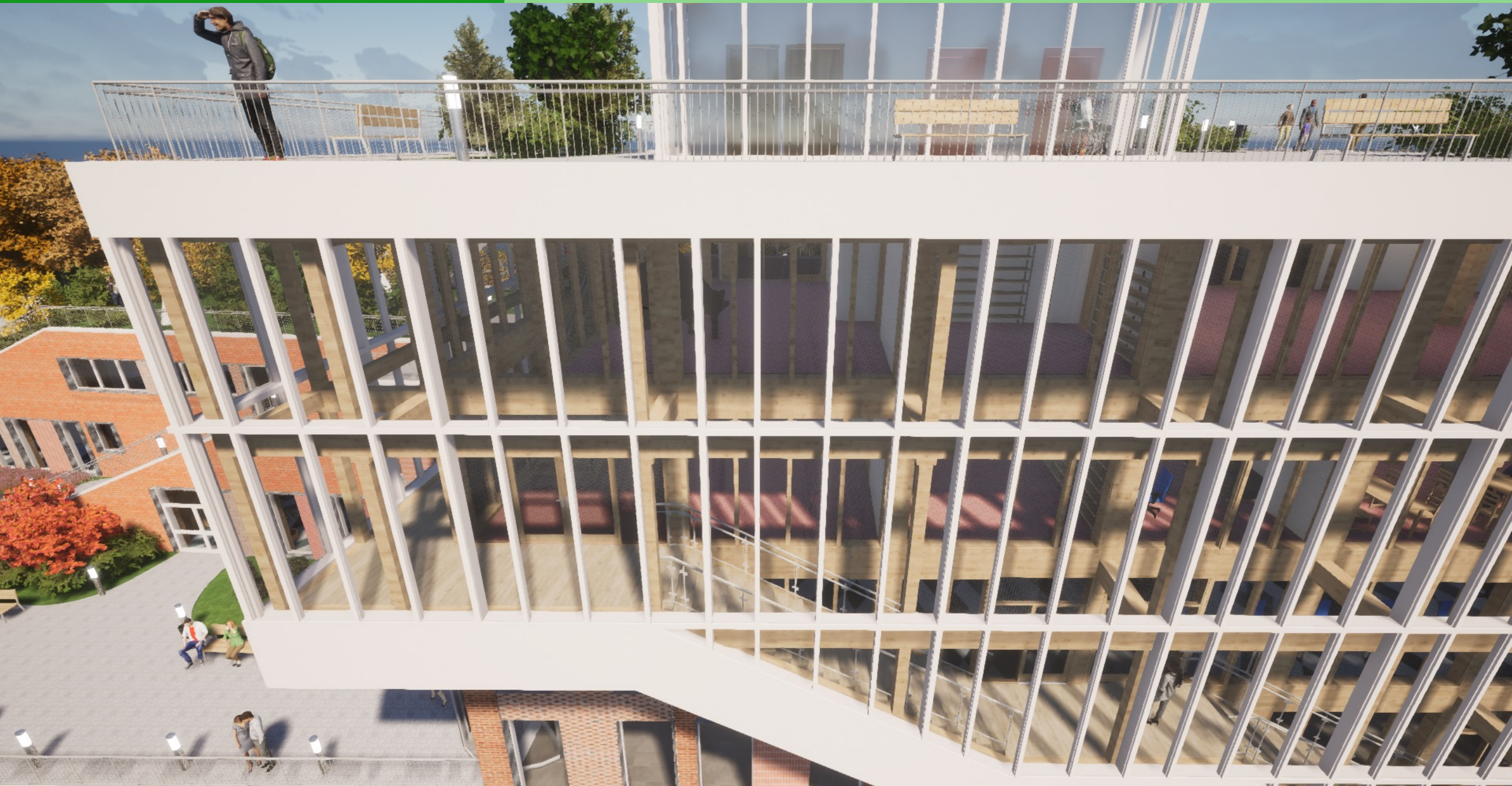
East







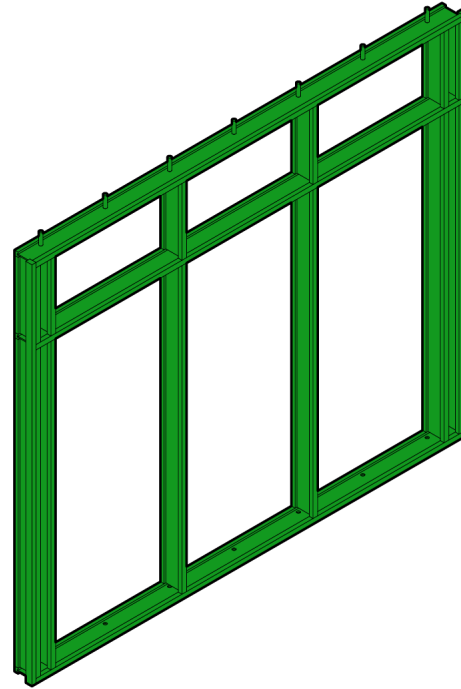




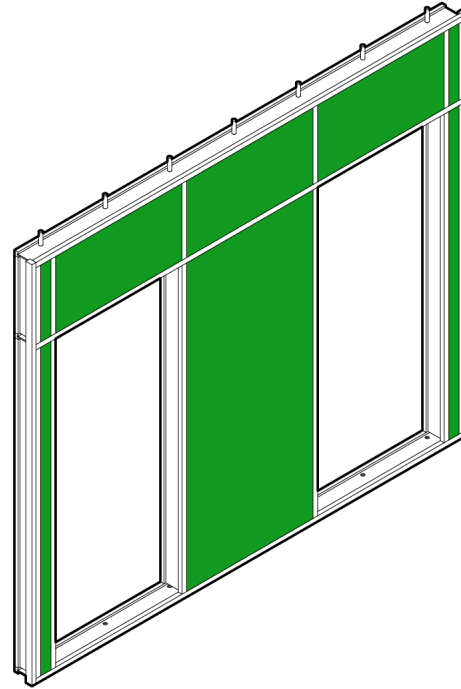




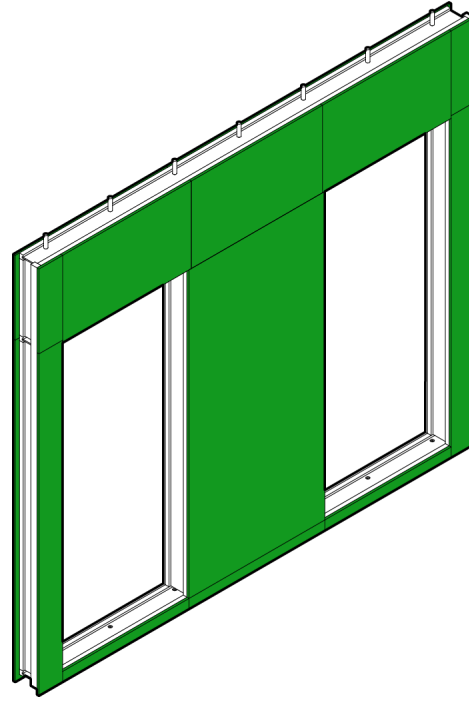




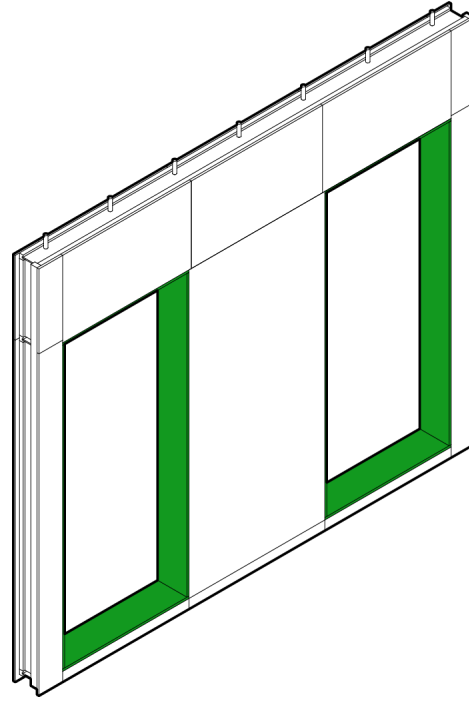




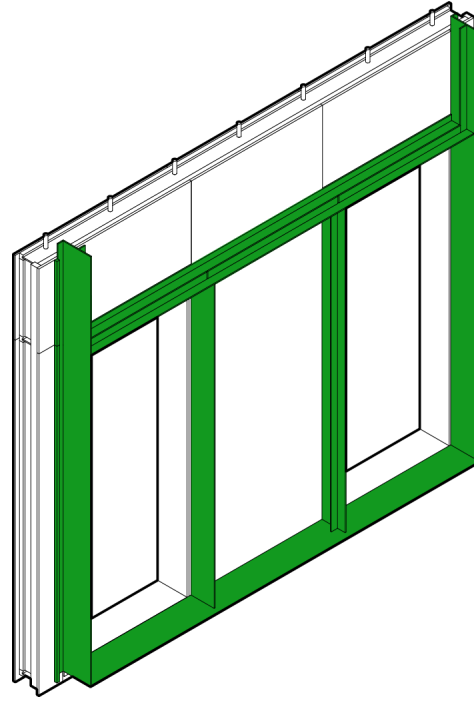




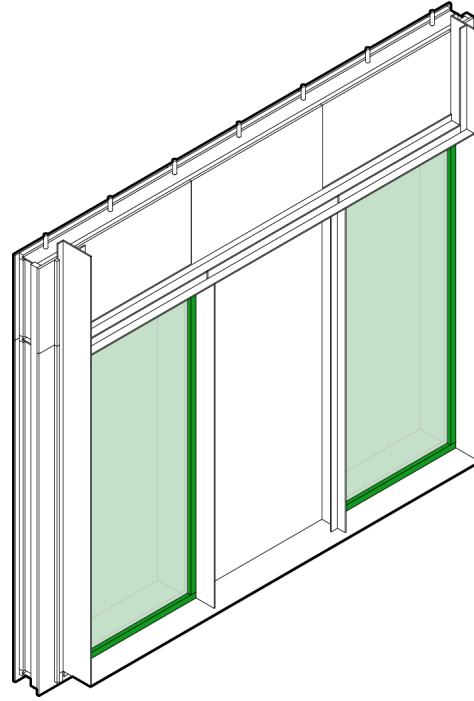




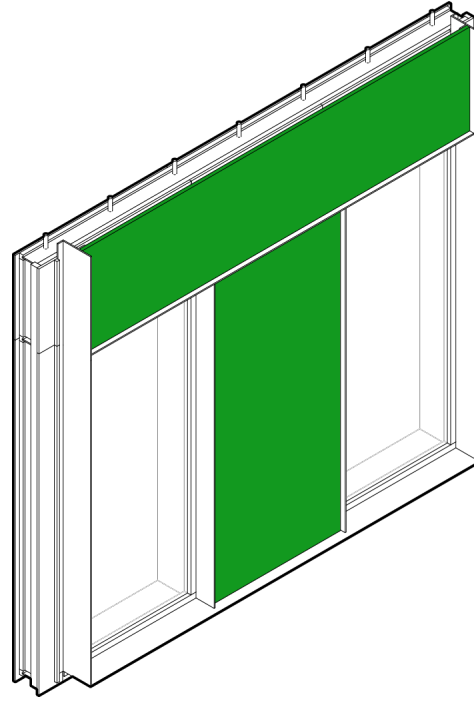




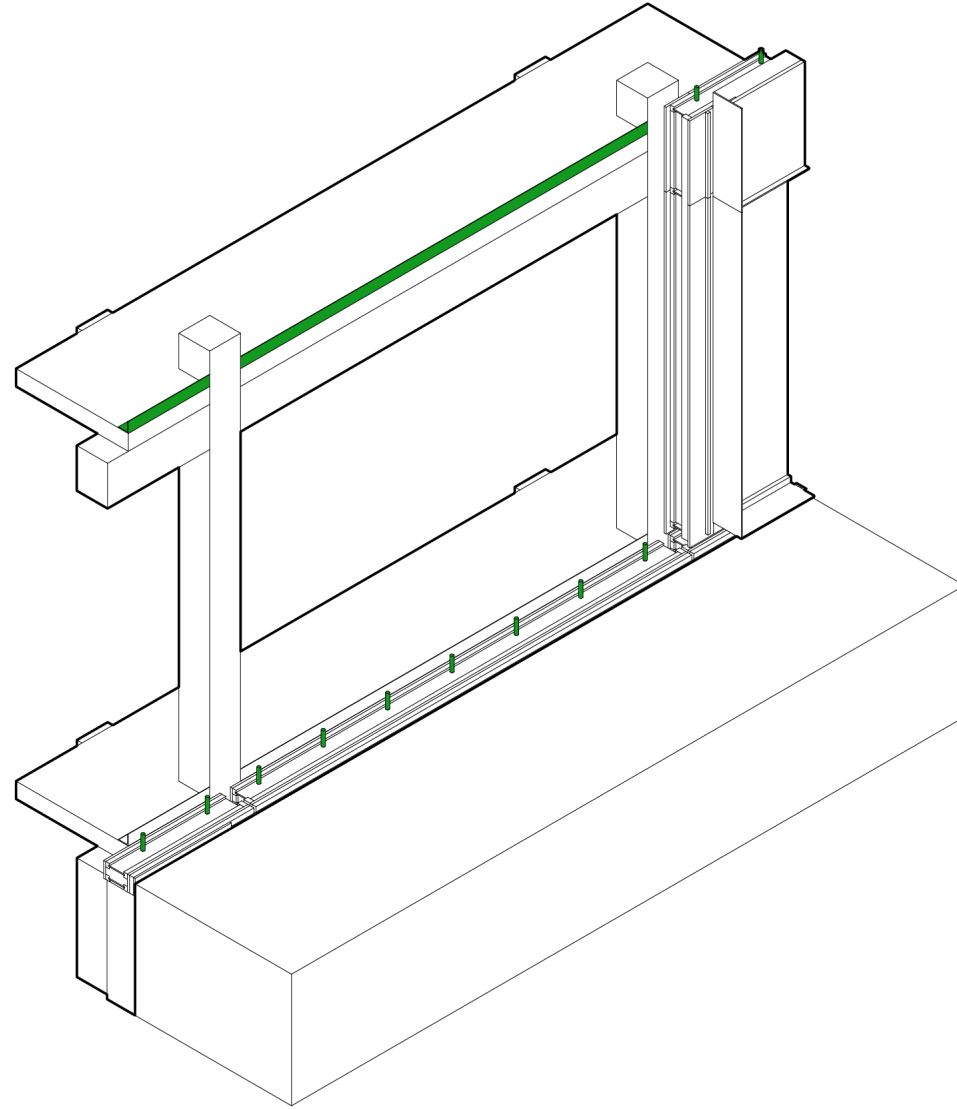




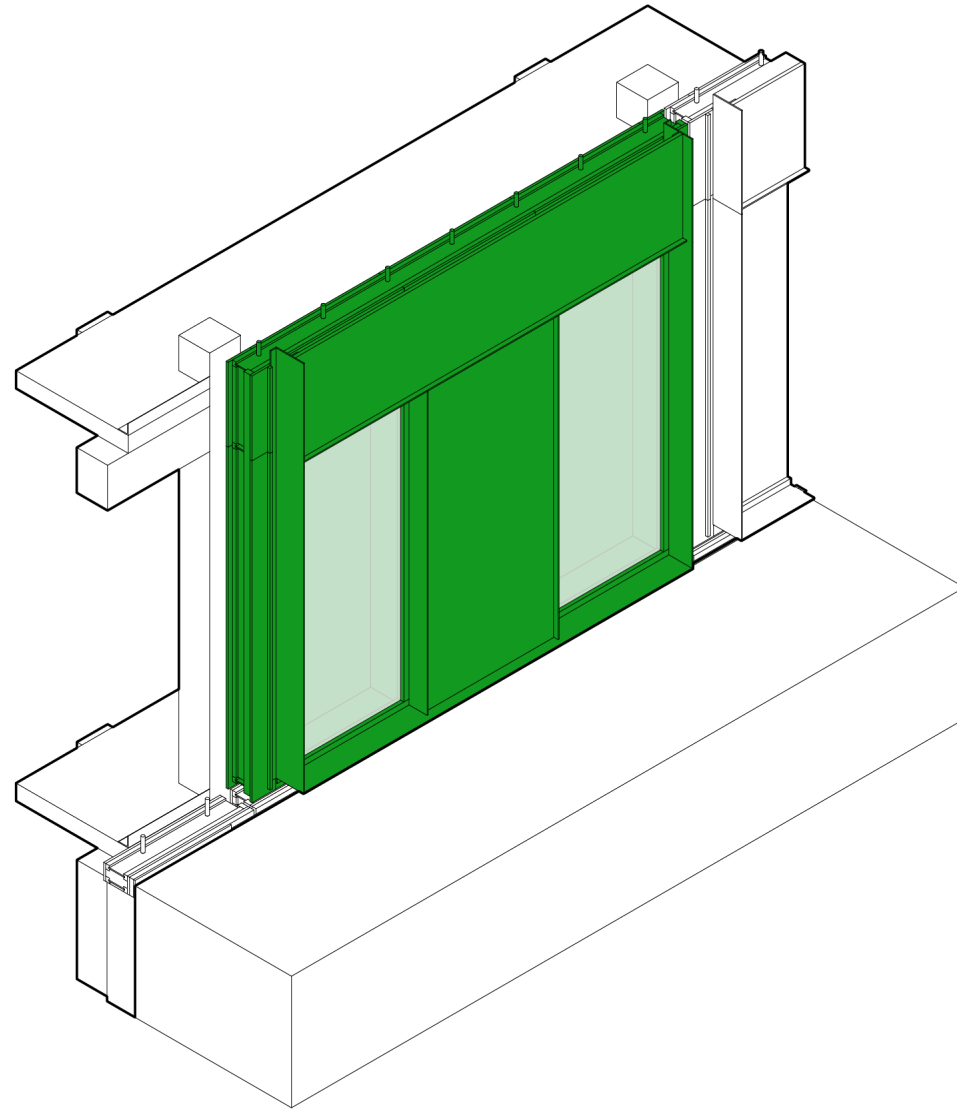




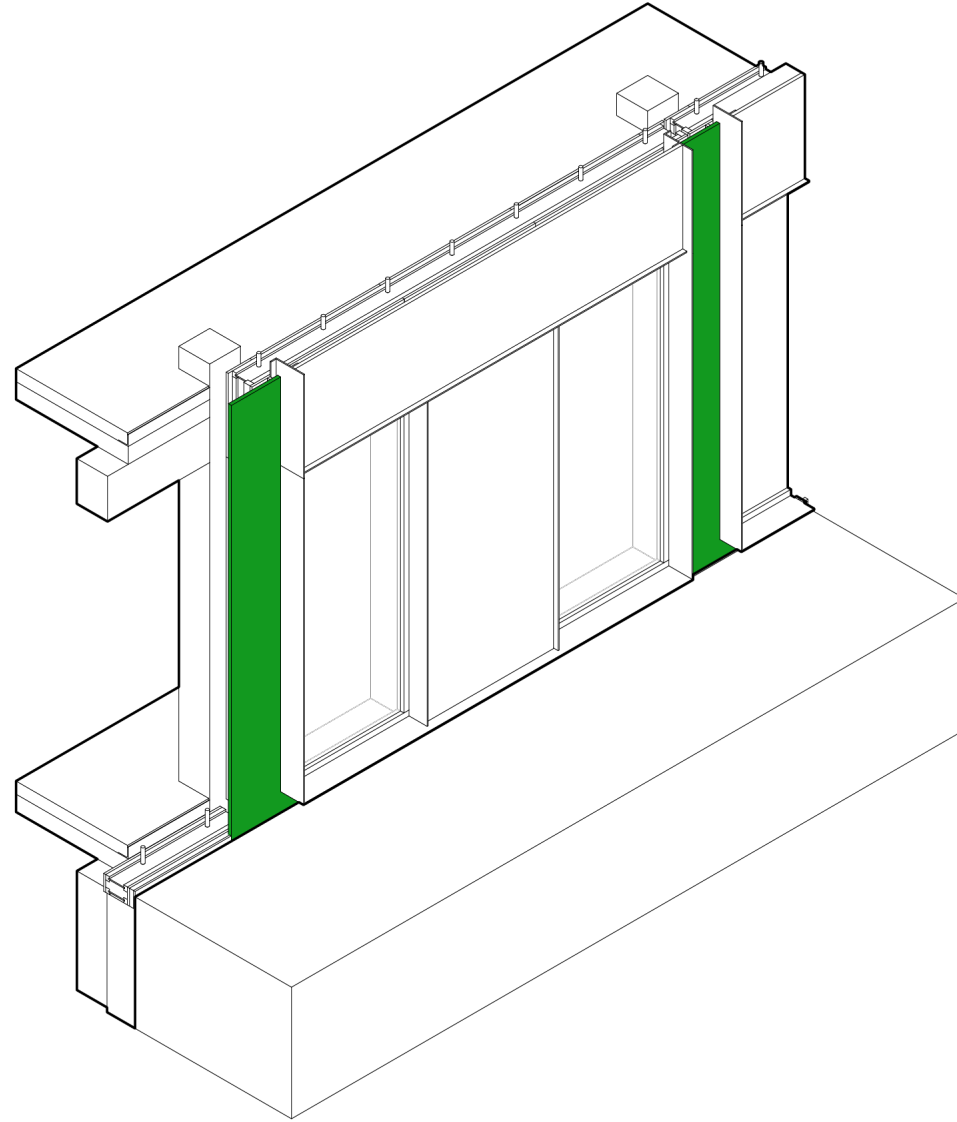




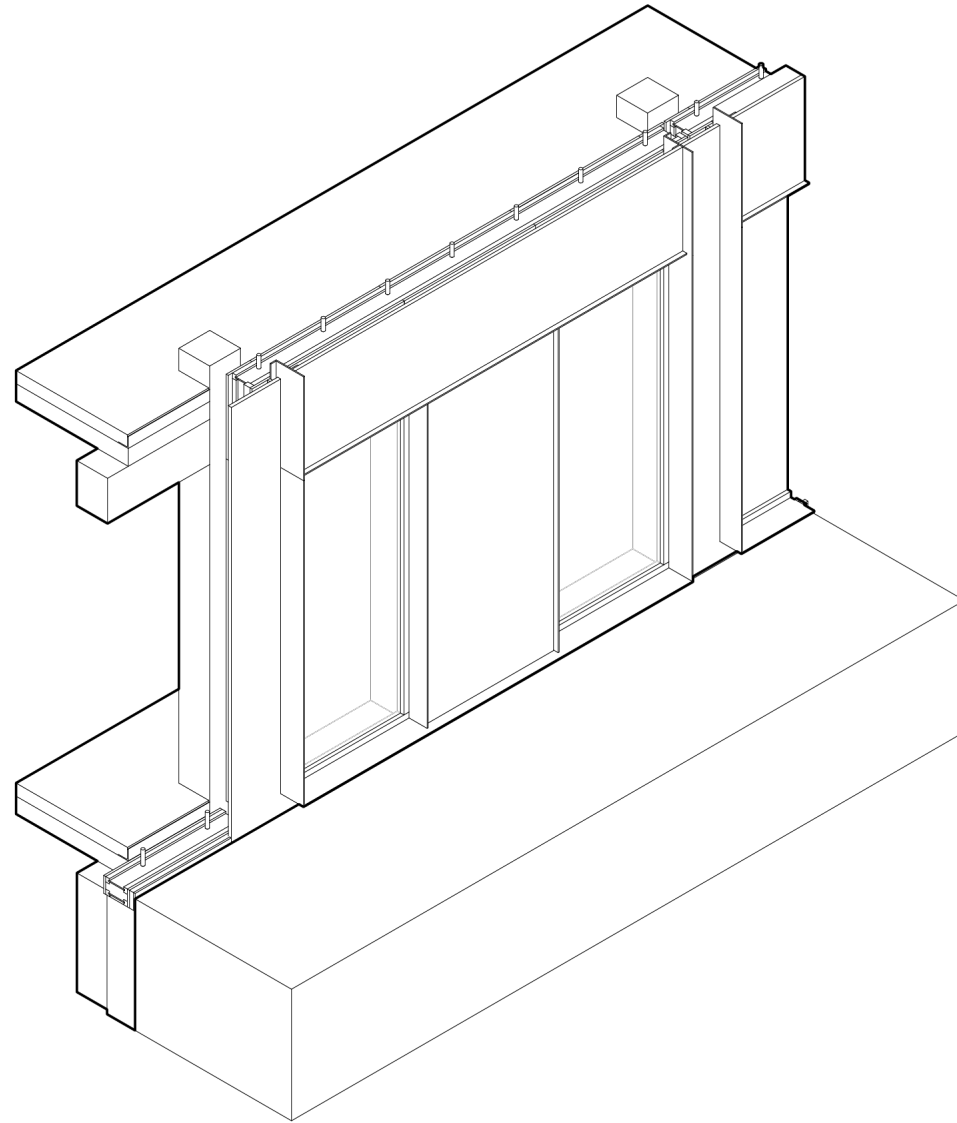




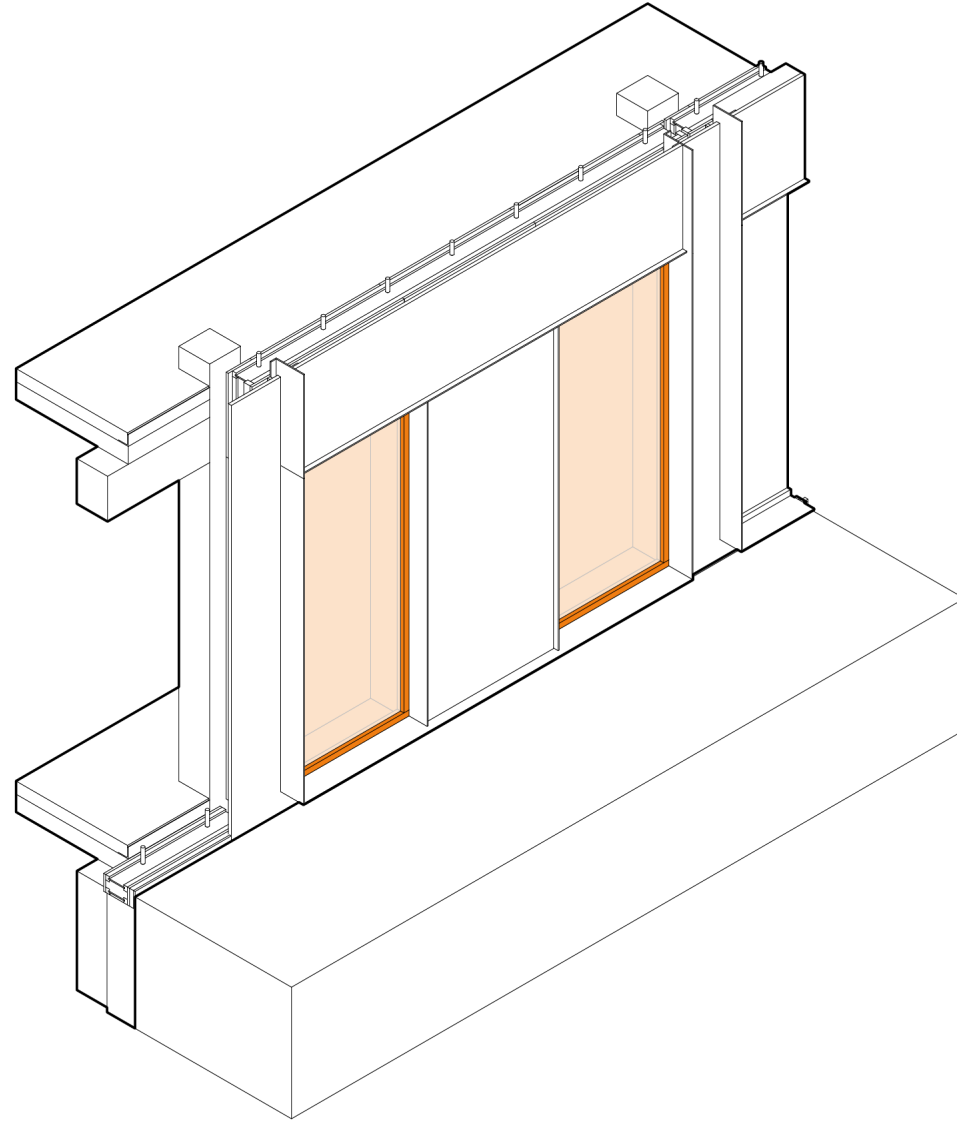




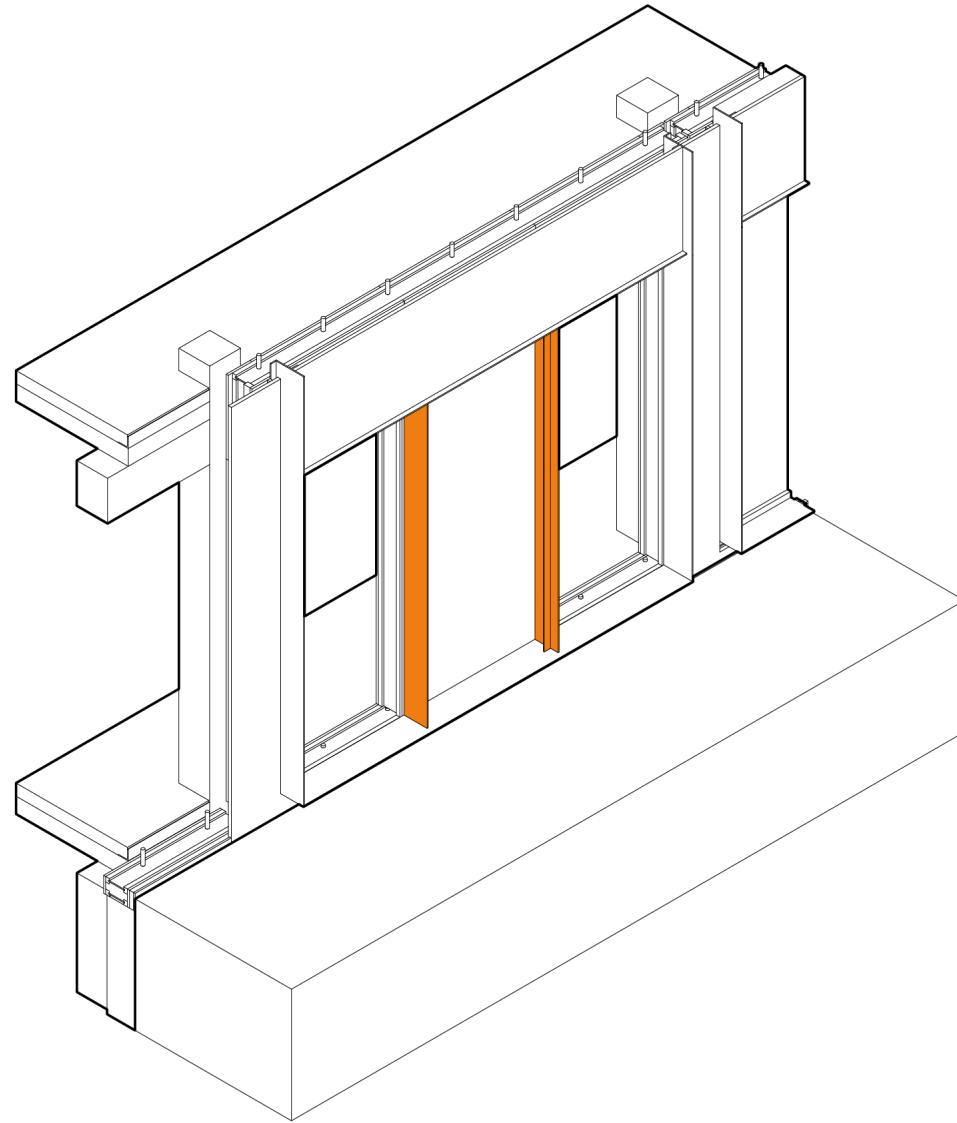




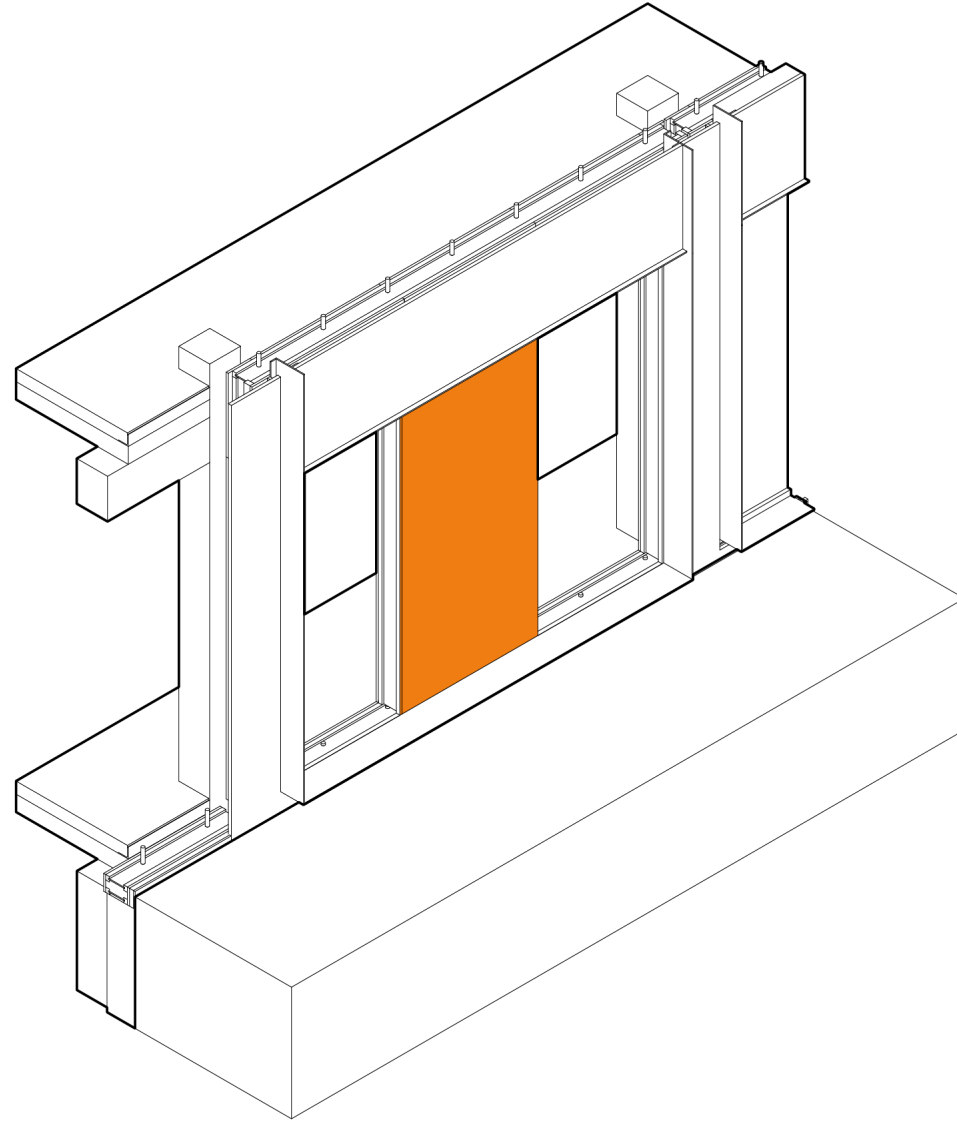




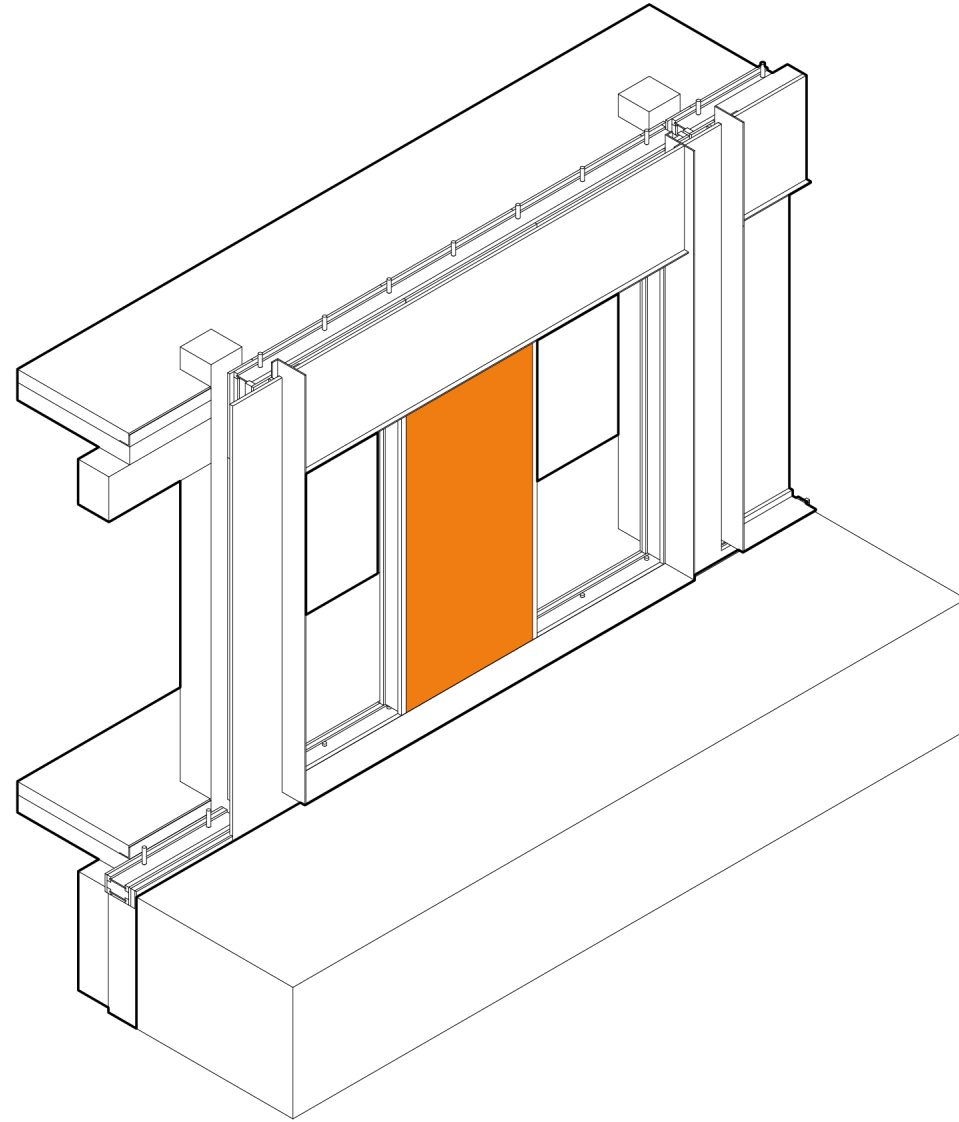




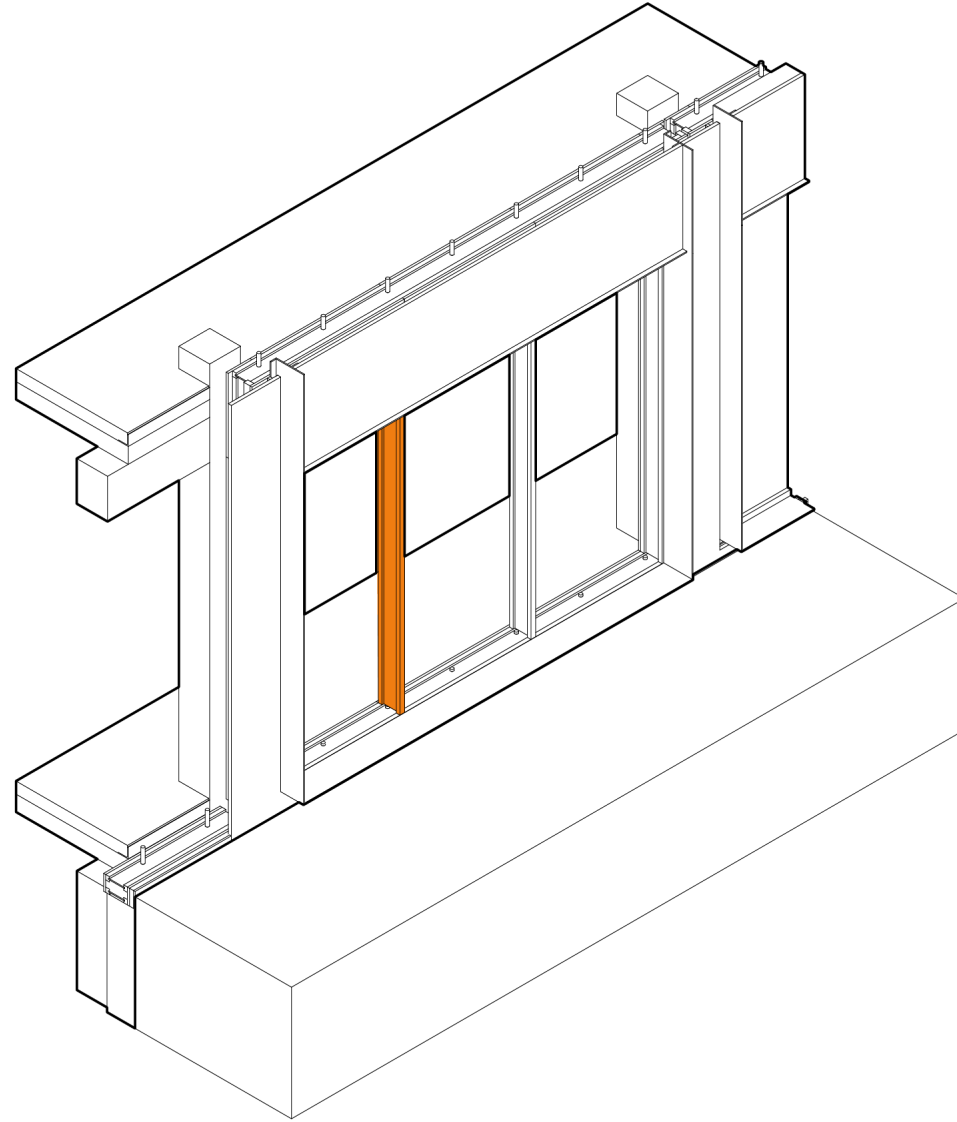




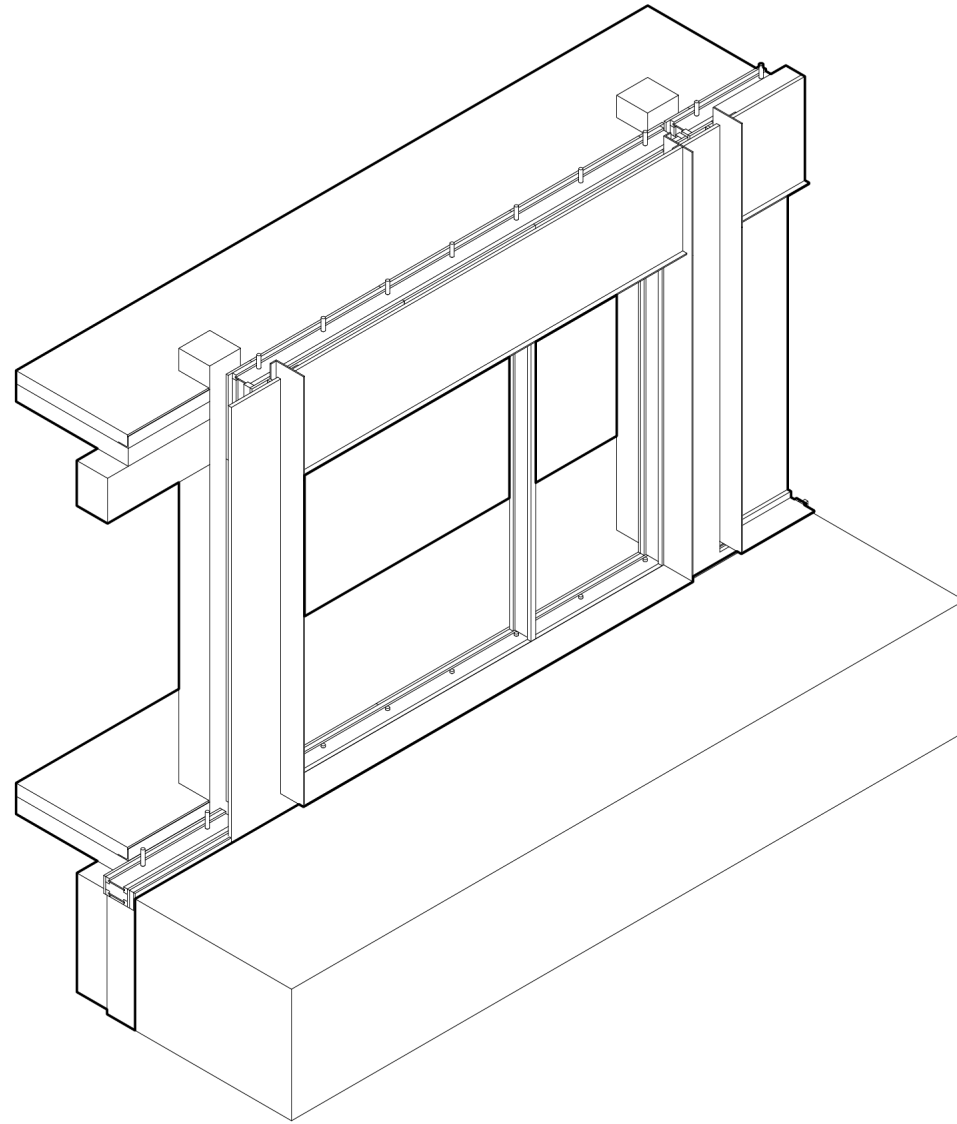




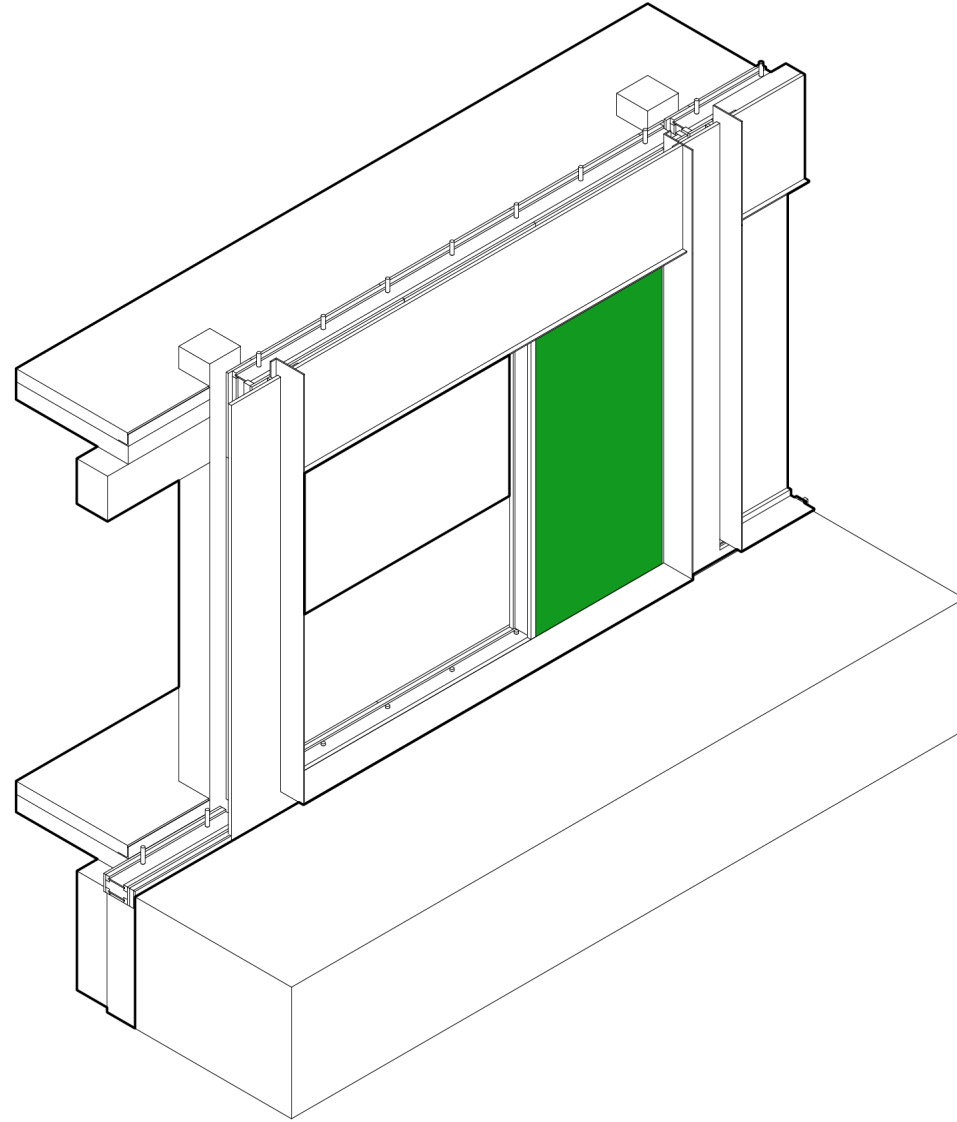


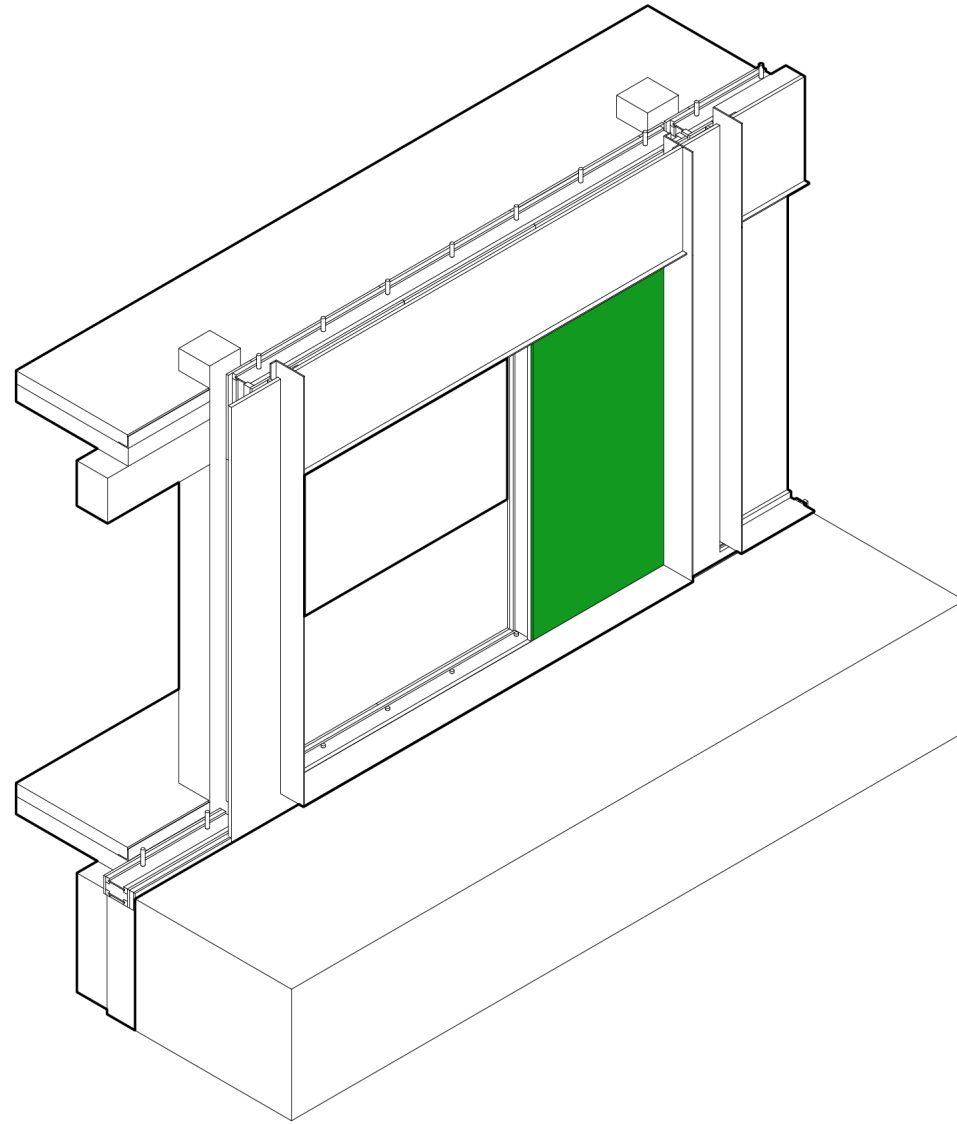




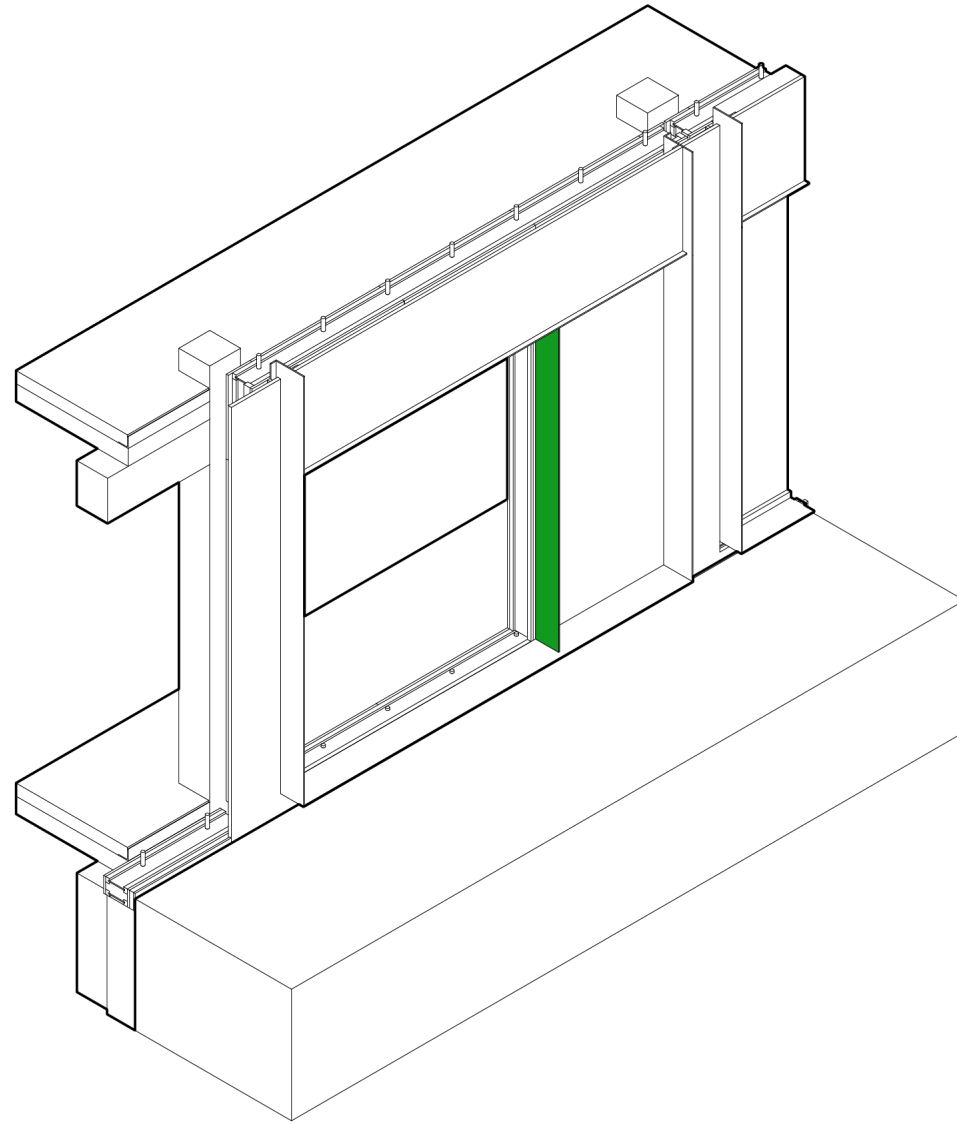


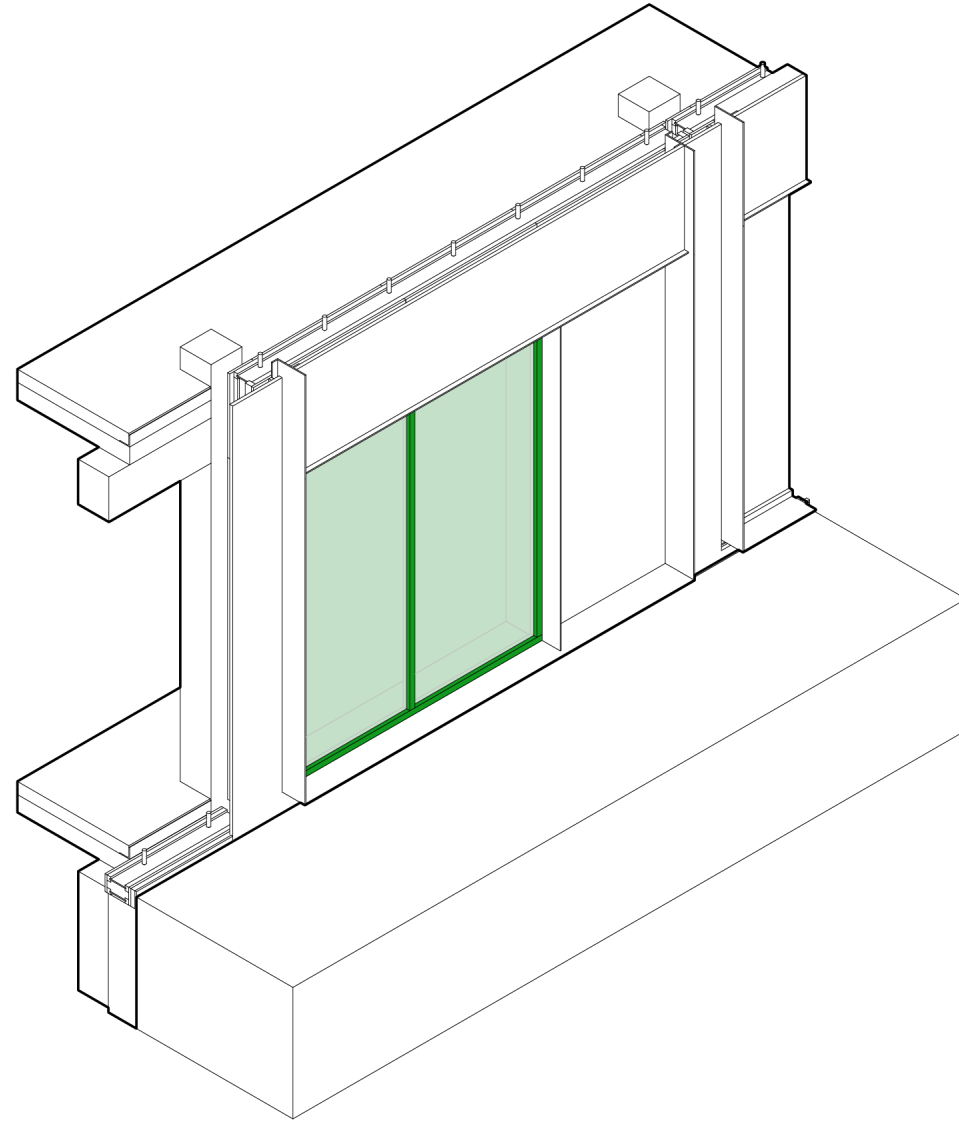




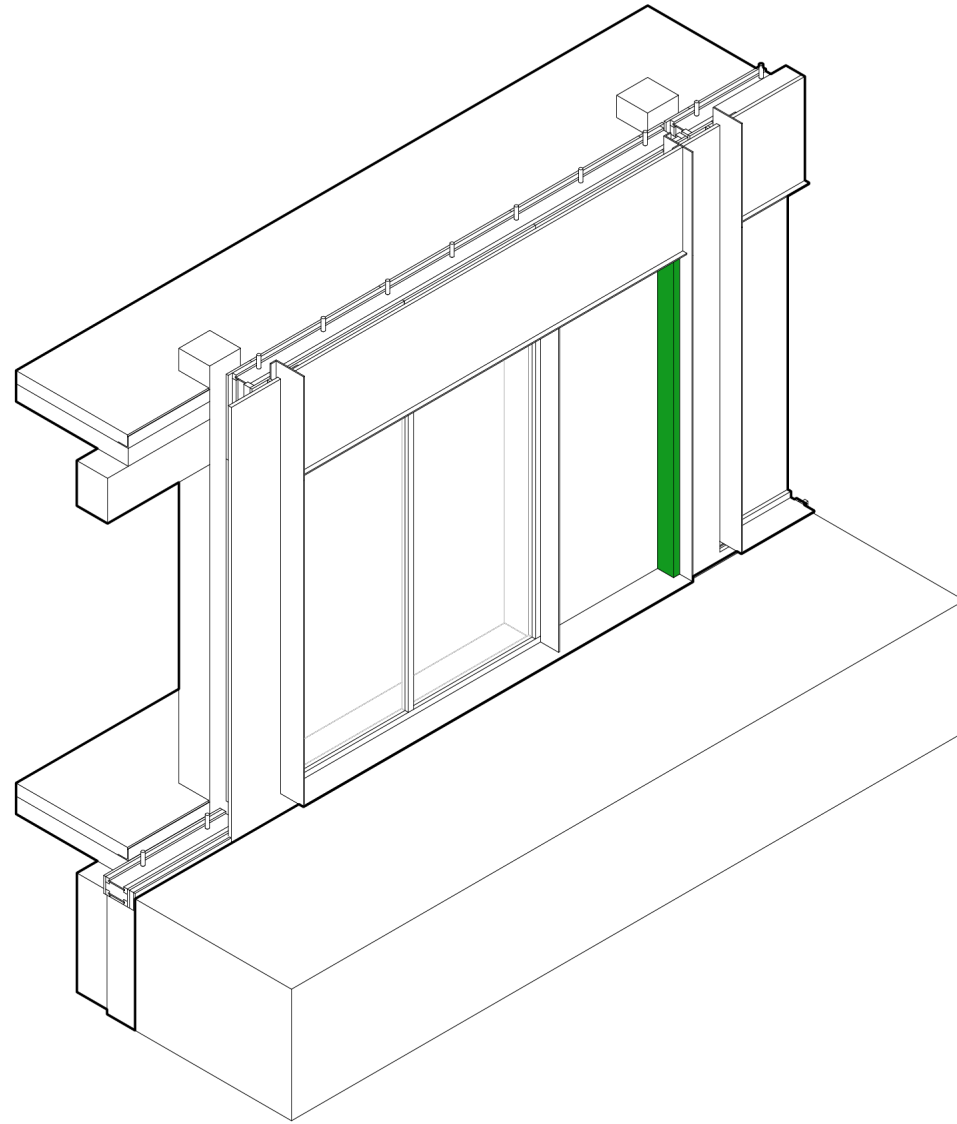


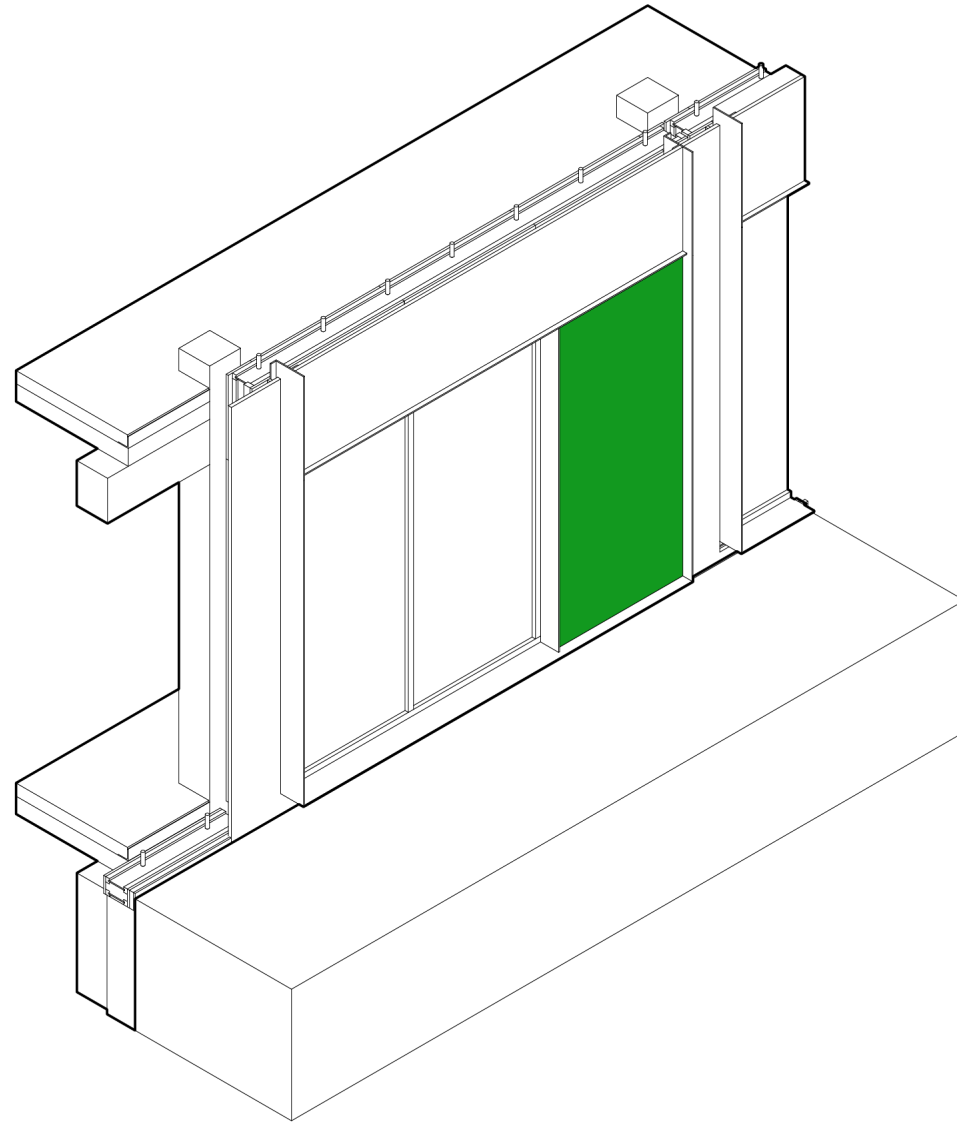




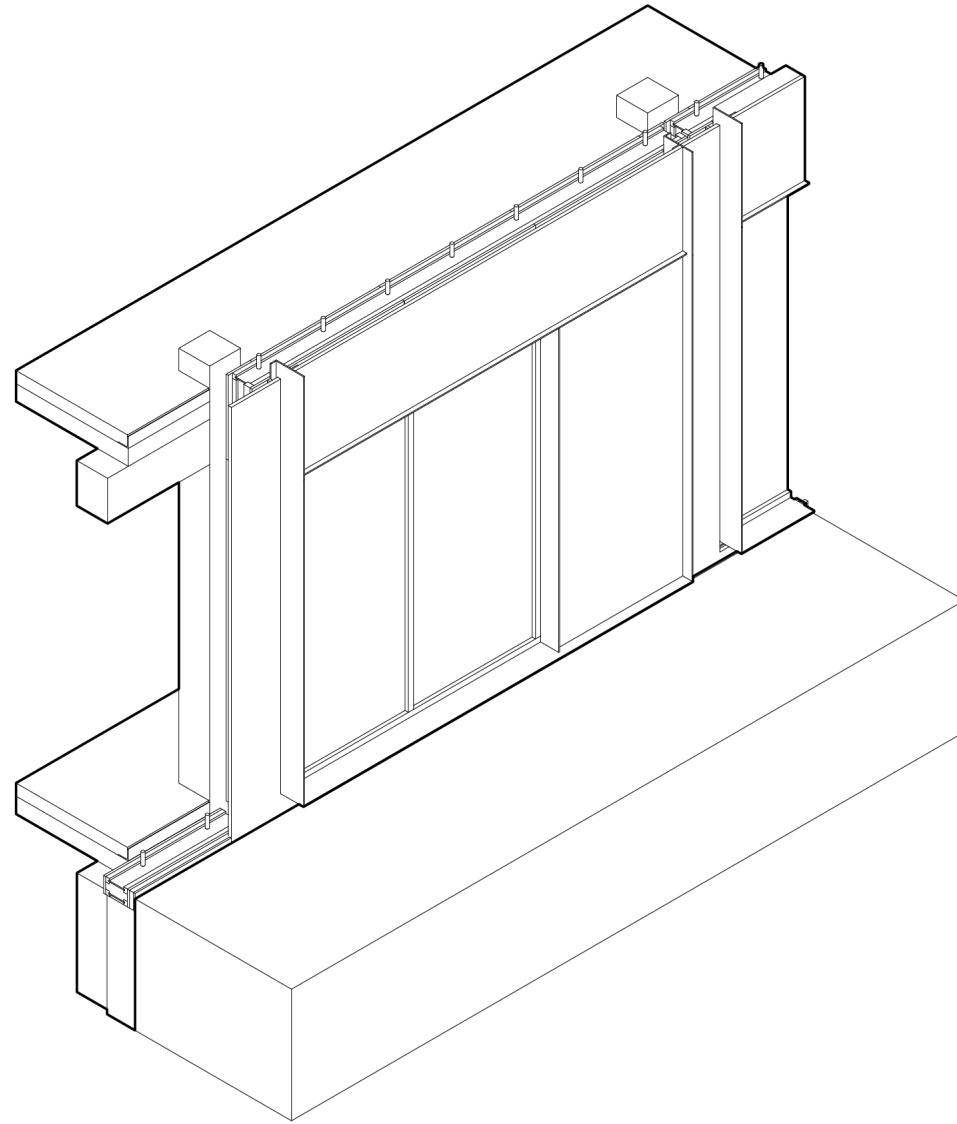


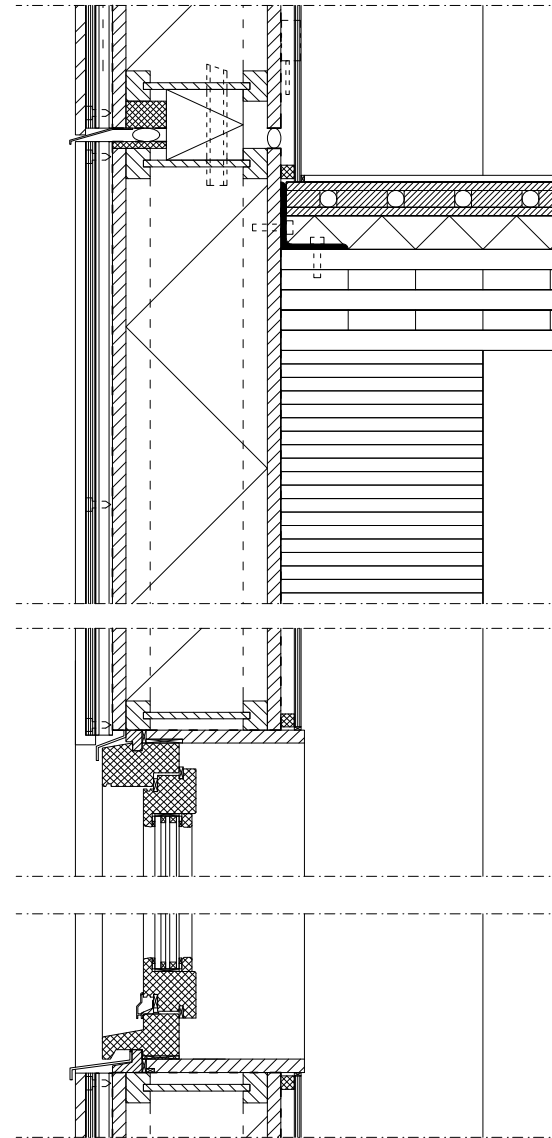




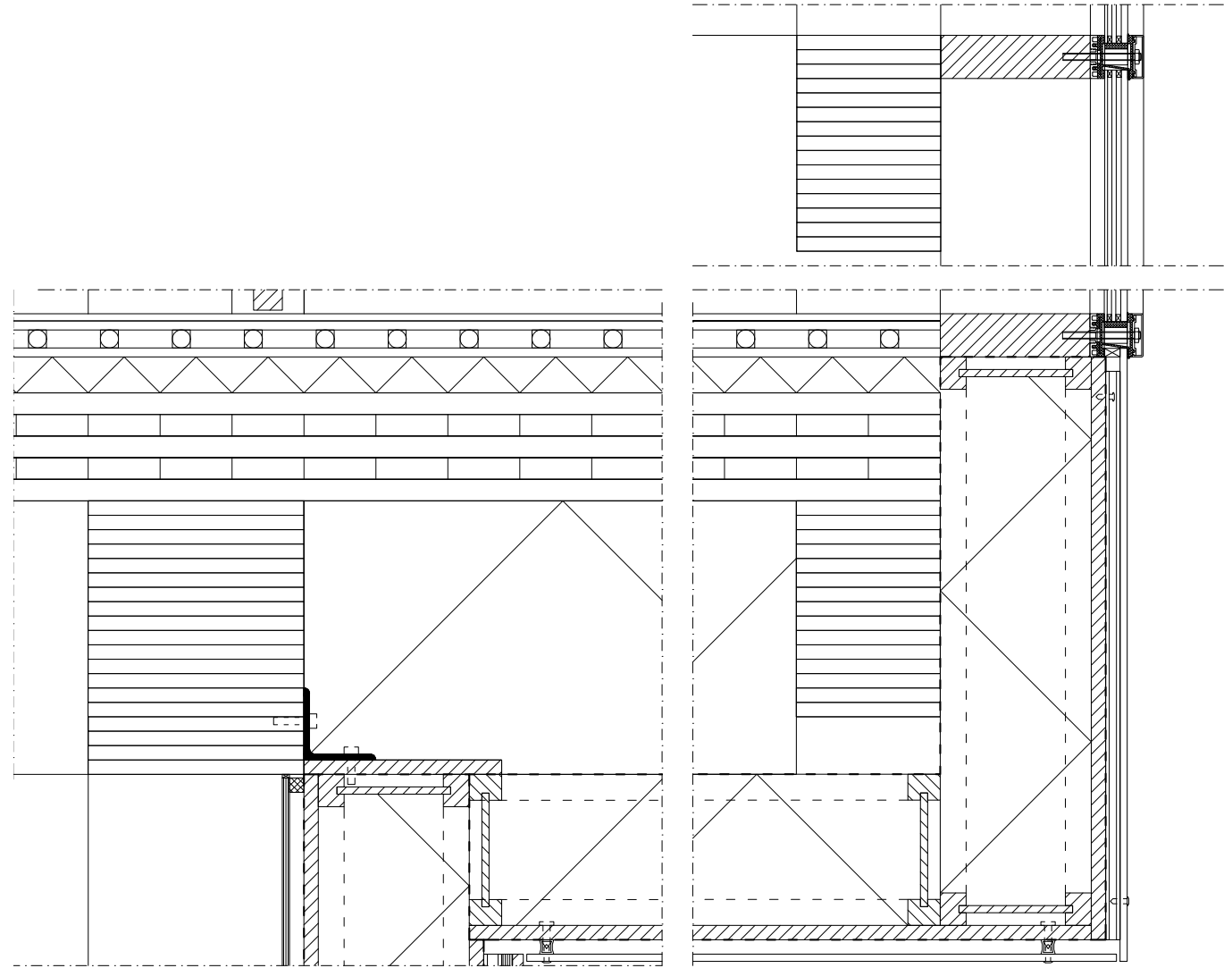




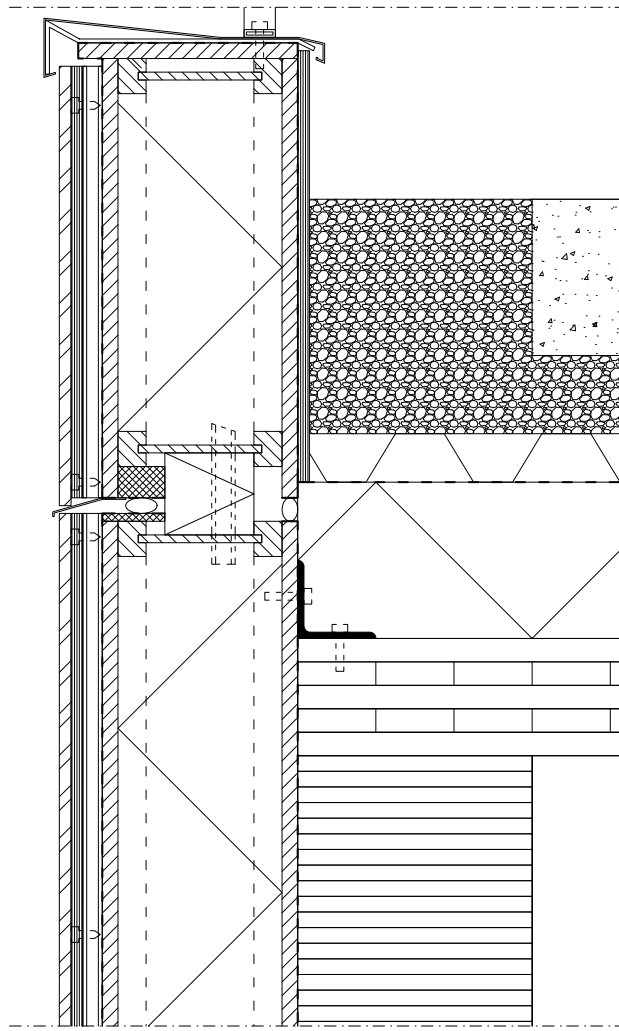




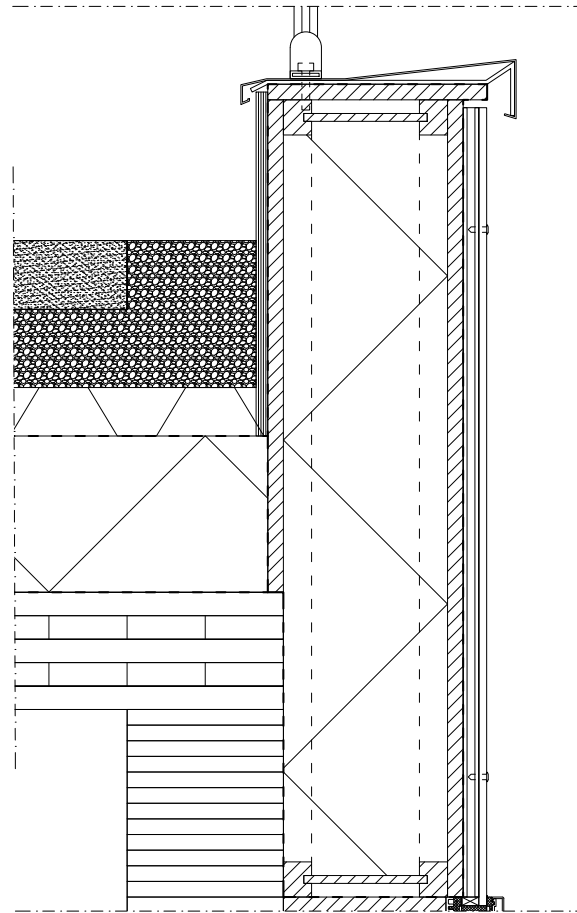




Low building part



High building part

**Green roof insulation effects**

The London UHI effect is 10°C, the green roof provides a 2.5°C decrease, that's 25% of savings.

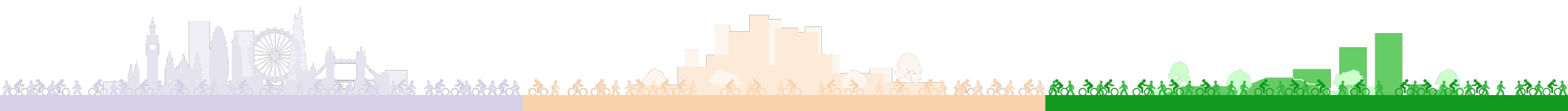
Meanly in summer temperature fluctuations are decreased by 65%.

In winter the overall heating load decreases by 8%.

The auditory insulation is 20dB, which is a 22% decrease. Not a luxury next to the train tracks.

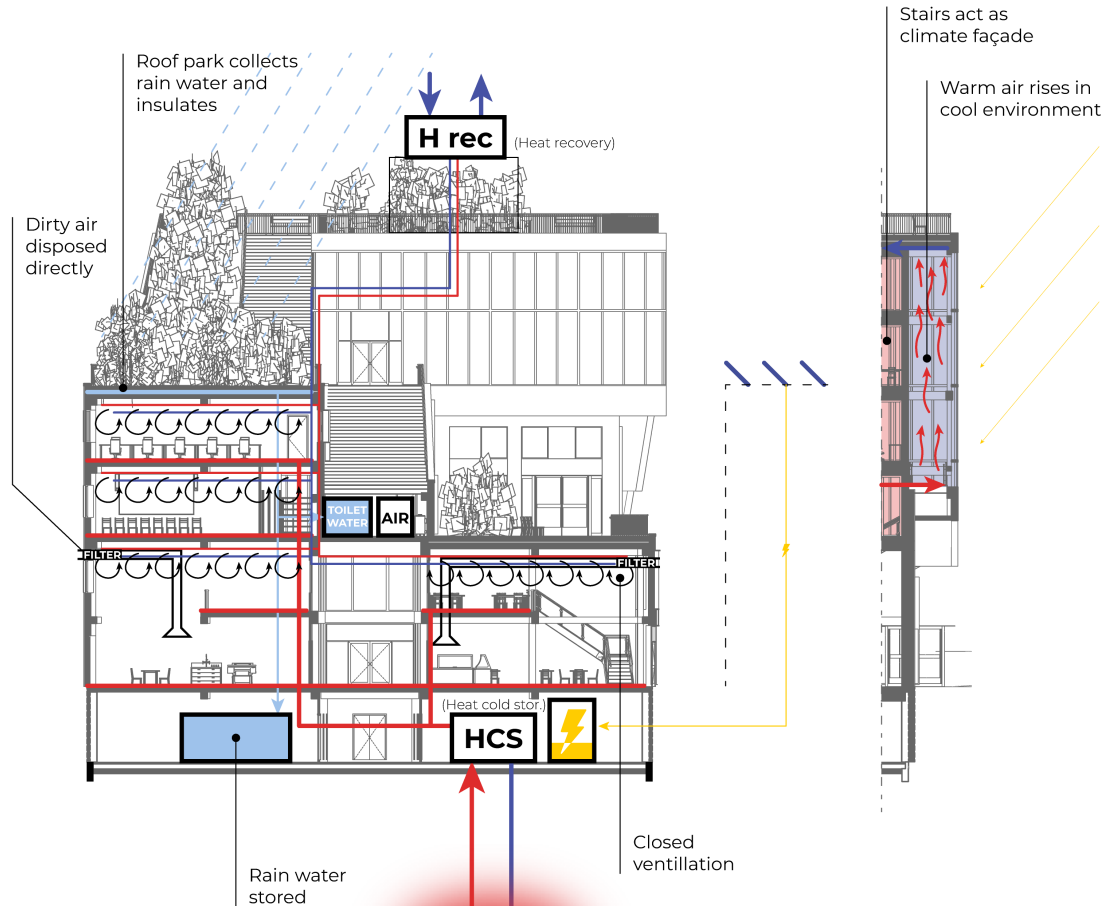
Source: Clarkson-Bennett, H. (2022). Green Roofs & Insulation. Green Roof Guide.

<https://www.greenroofguide.com/green-roofs/insulation/>

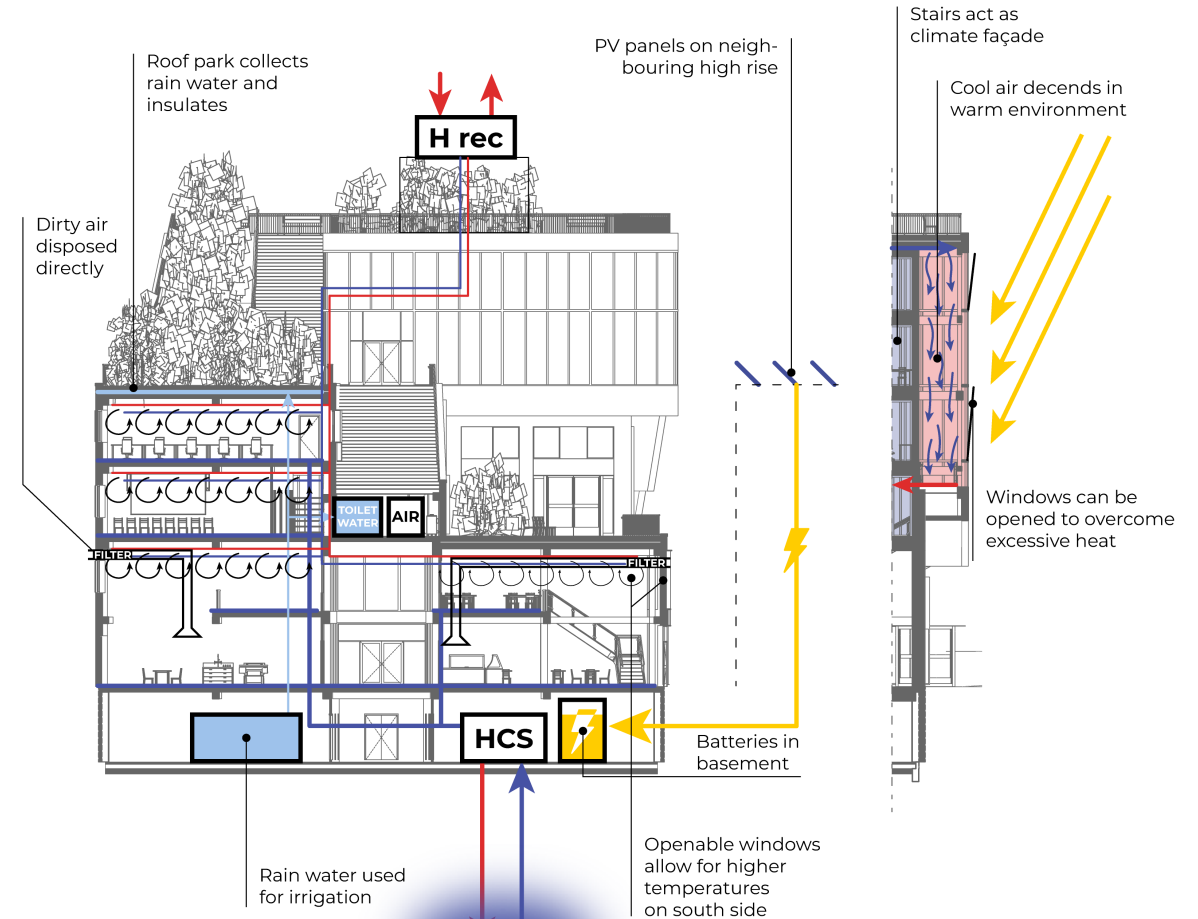




## Winter



## Summer





Found with design



Found in precedents



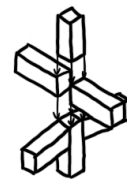
Locally  
defined  
functions



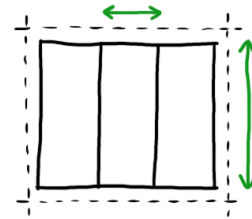
Bike  
facilities



Hub  
support  
functions



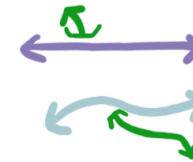
Prefab  
timber  
structure



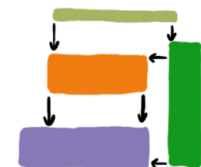
Standard-  
ised prefab  
elements



2 auditory  
sides



Layering of  
routes



3D layering  
of functions



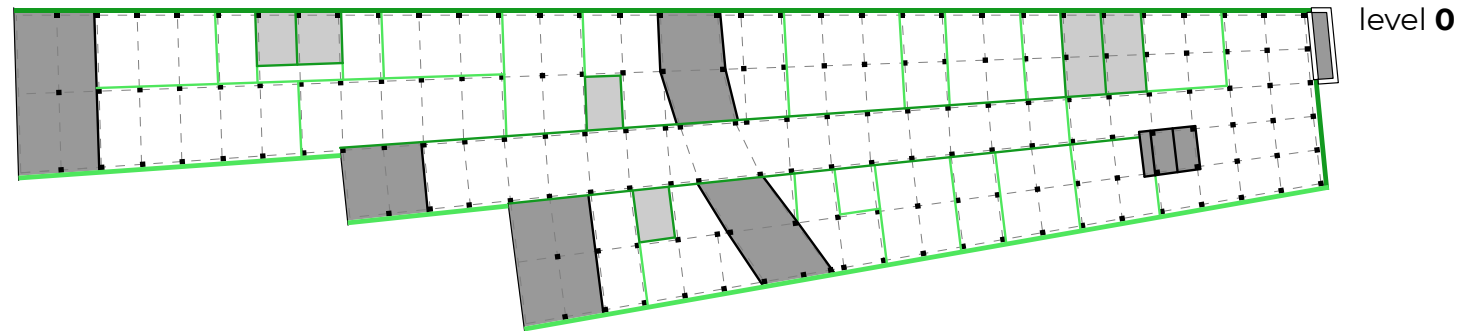
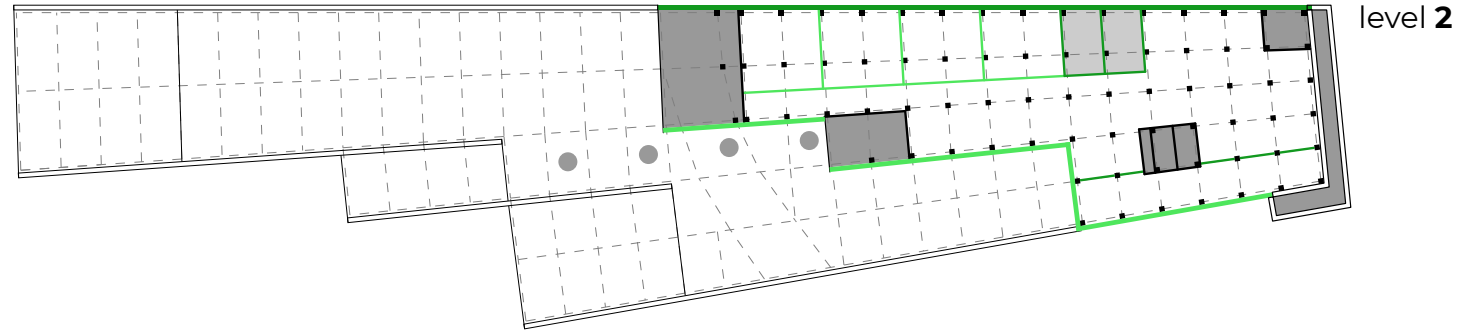
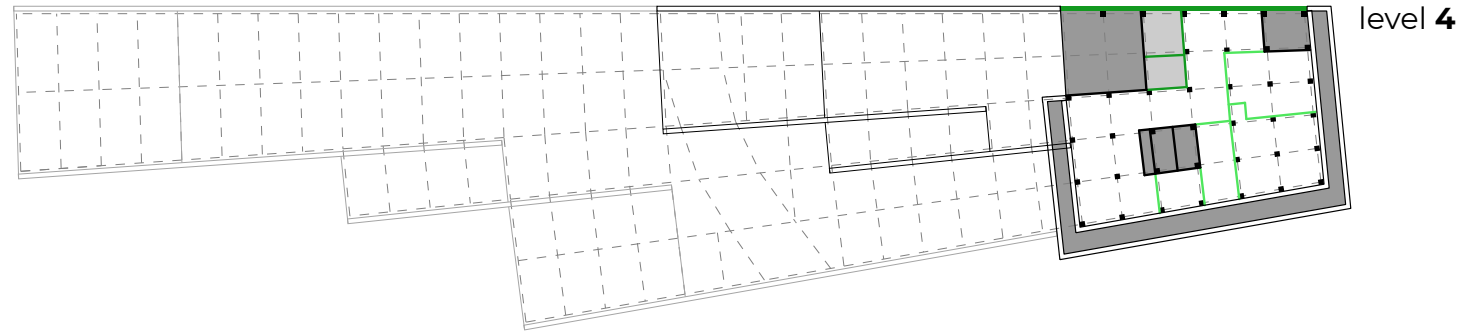


# “infrastructure is ever-changing”

(Stated in the Research paper, page 24. Based  
on sources and talks.)



- Difficult to change
- Very difficult to change
- Inflexible
- Semi flexible
- Flexible





# Decelerated Hub



AR3DC100 - Architectural Design Crossovers Studio | **P5** - 30 June

2023 **Thomas Kaasschieter** (4696956) |

Mentor team: **Roberto Cavallo** (design), **Florian Eckhardt** (building technology) & **Joran Kuijper** (research)

