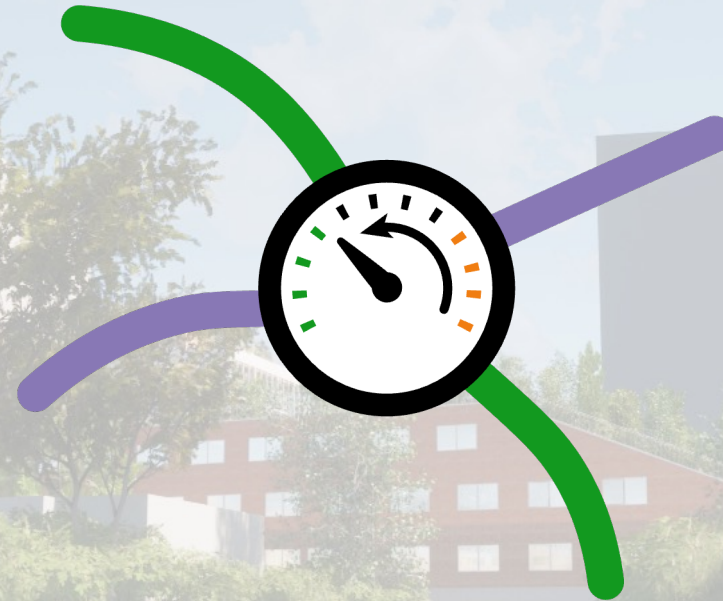


# Decelerated Hub

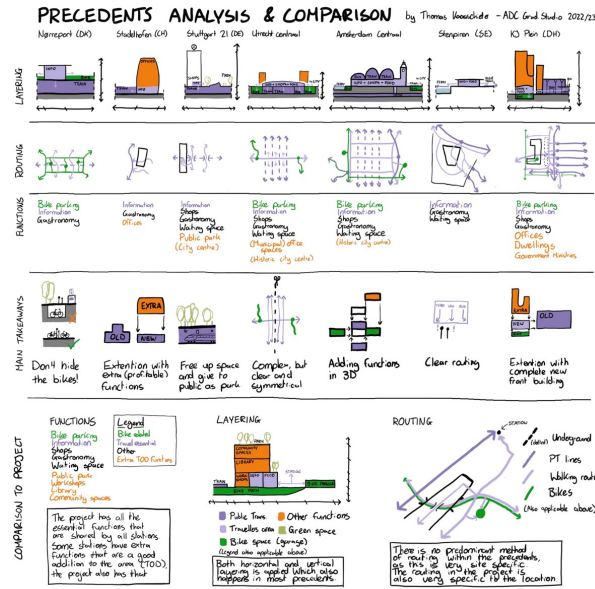


AR3DC100 - Architectural Design Crossovers Studio | P5 - 30 June 2023

**Thomas Kaasschieter** (4696956) | [t.h.kaasschieter@student.tudelft.nl](mailto:t.h.kaasschieter@student.tudelft.nl)

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





**Research**  
(Research paper)

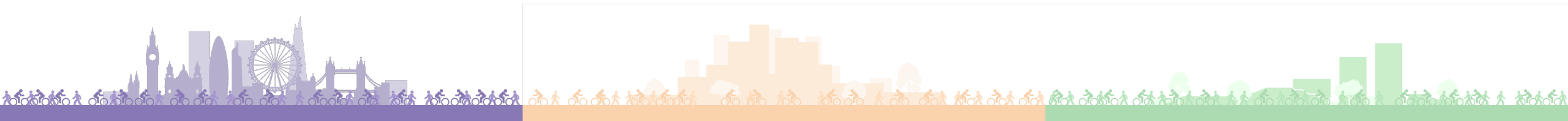
**Architectural research**

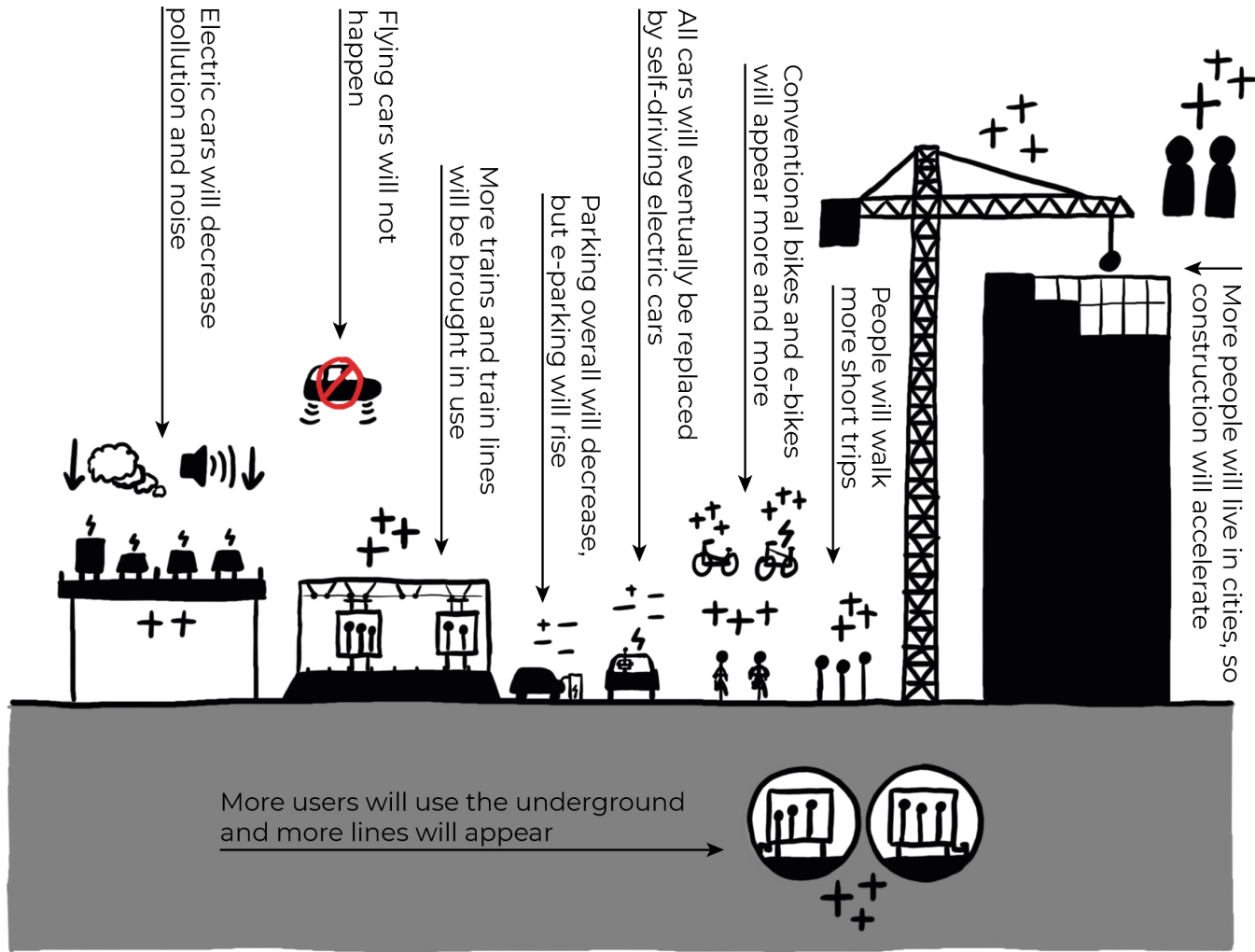
**Design**





- **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?



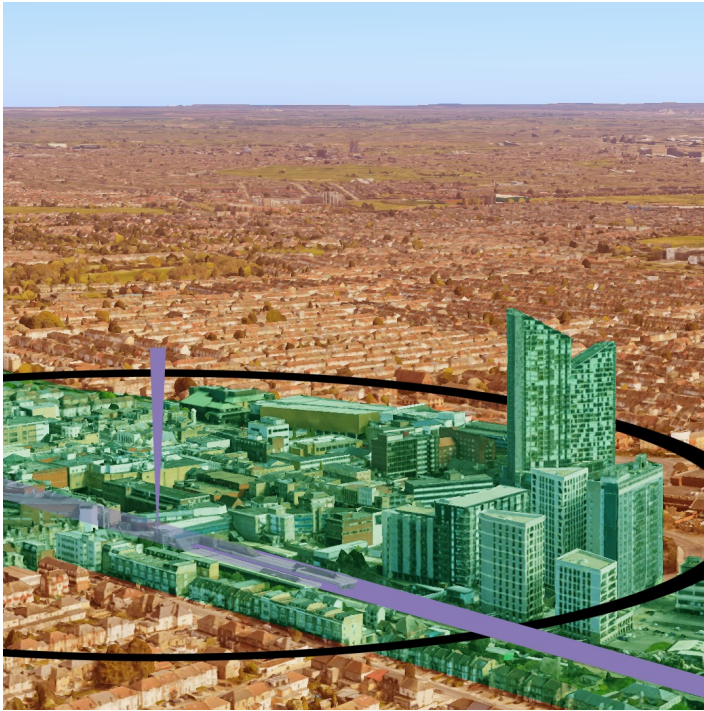


# “infrastructure is ever-changing”

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

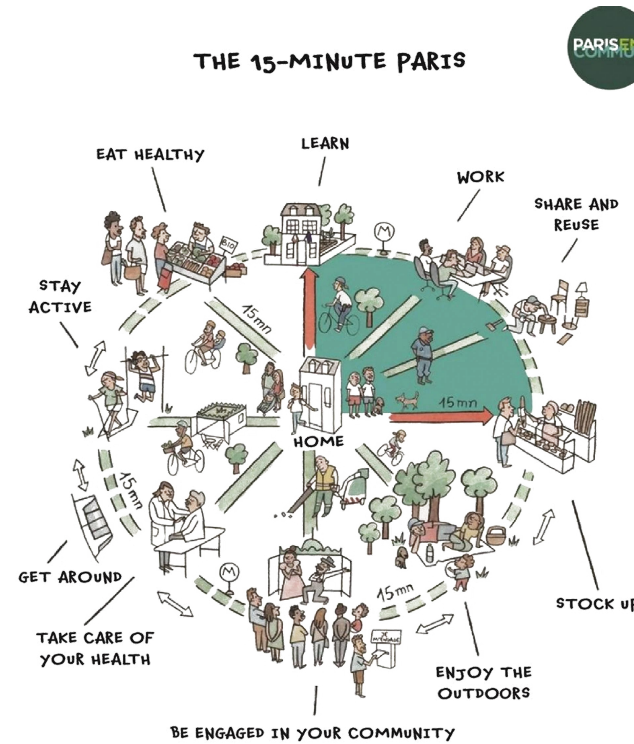


## TOD (Transit-oriented development)



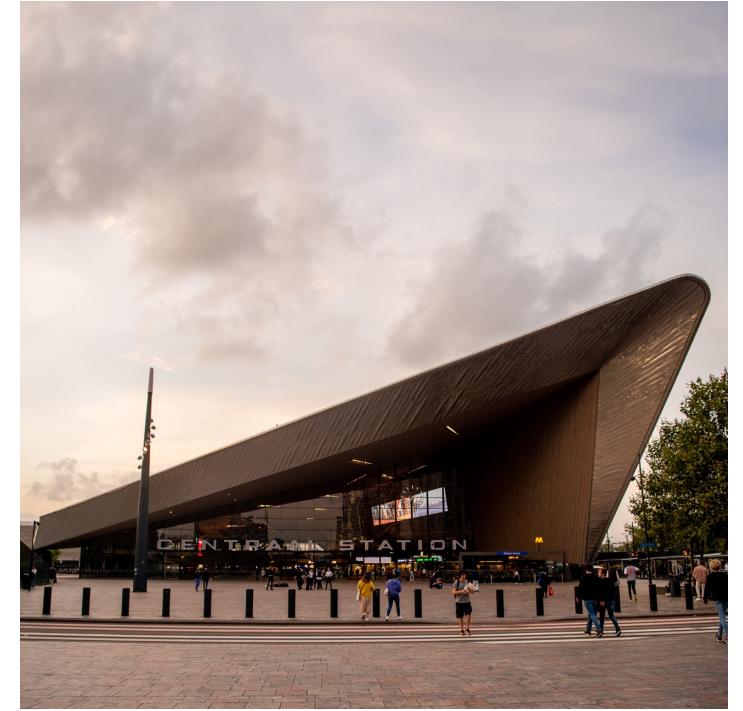
Own illustration

## The 15-minutes city



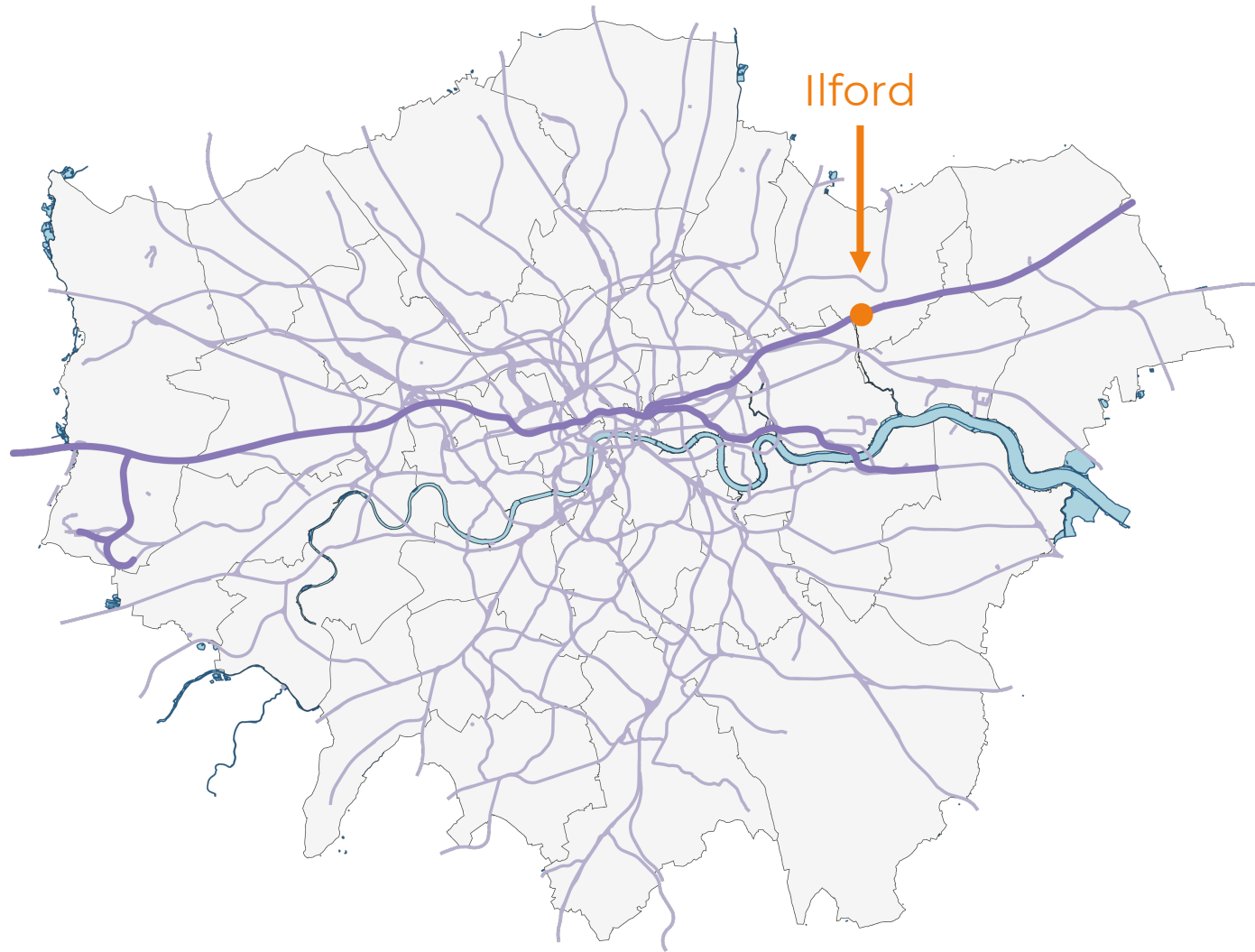
Moreno et al., *Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities*, 2021

## Nodes and hubs



Own photo

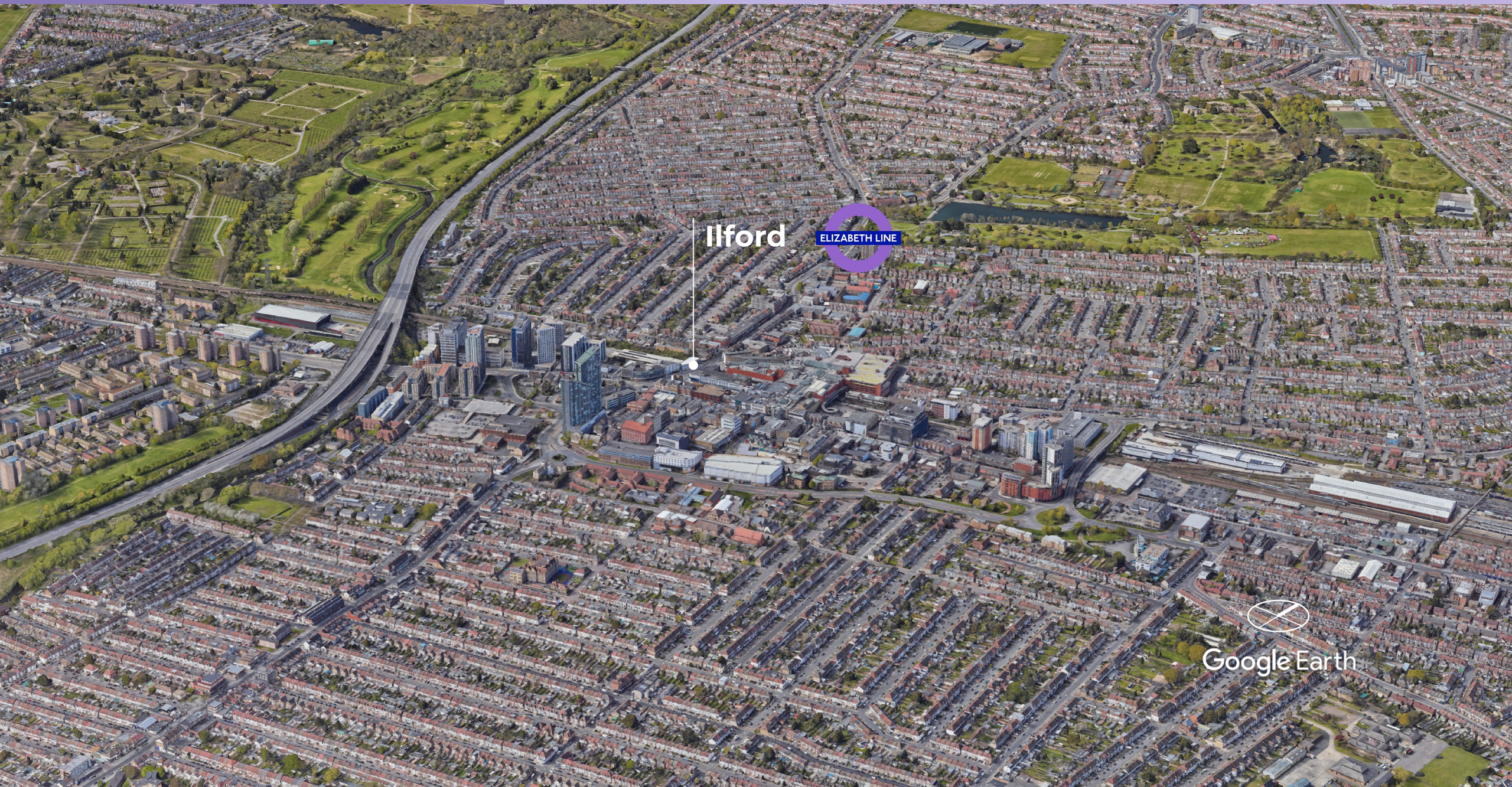




Opened in May 2022

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



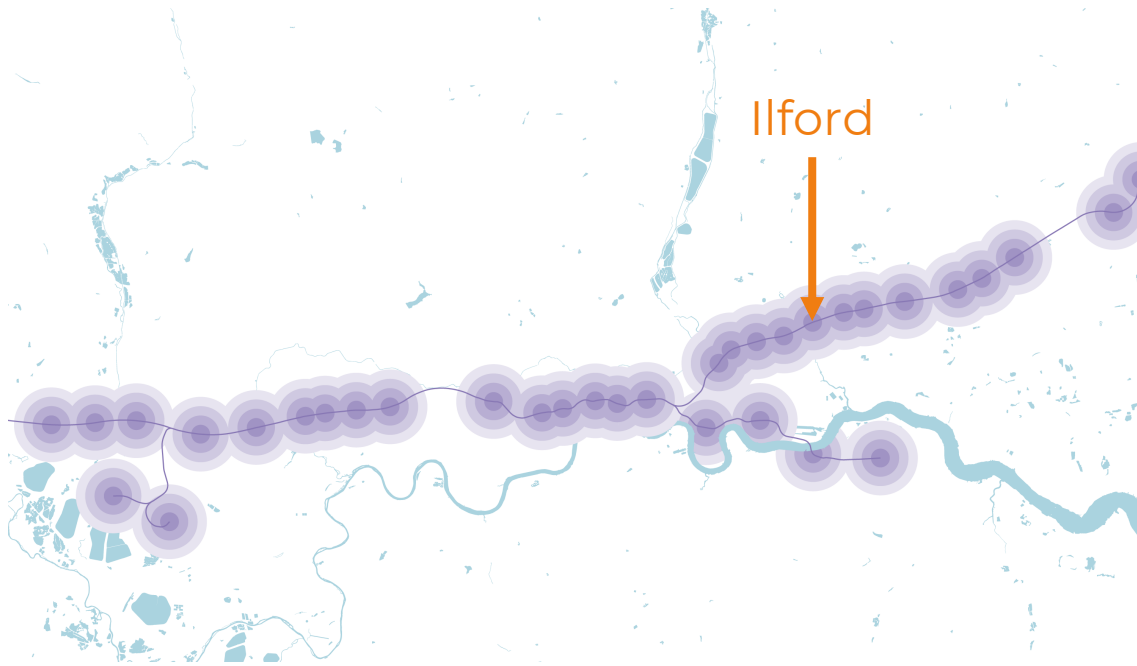


Ilford

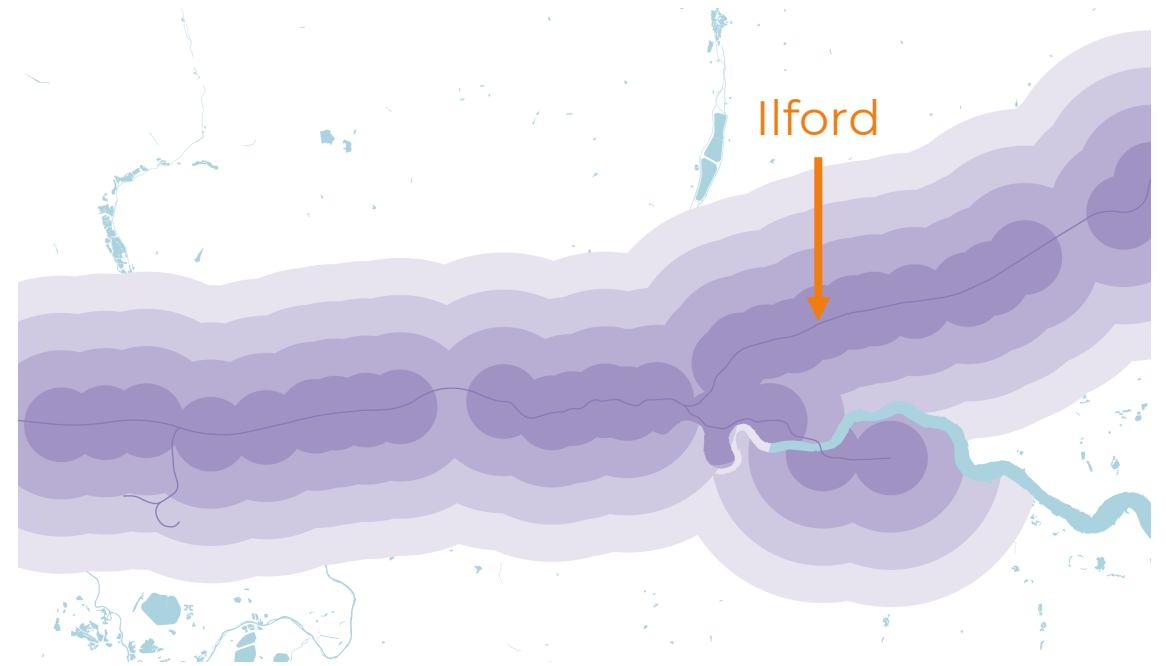






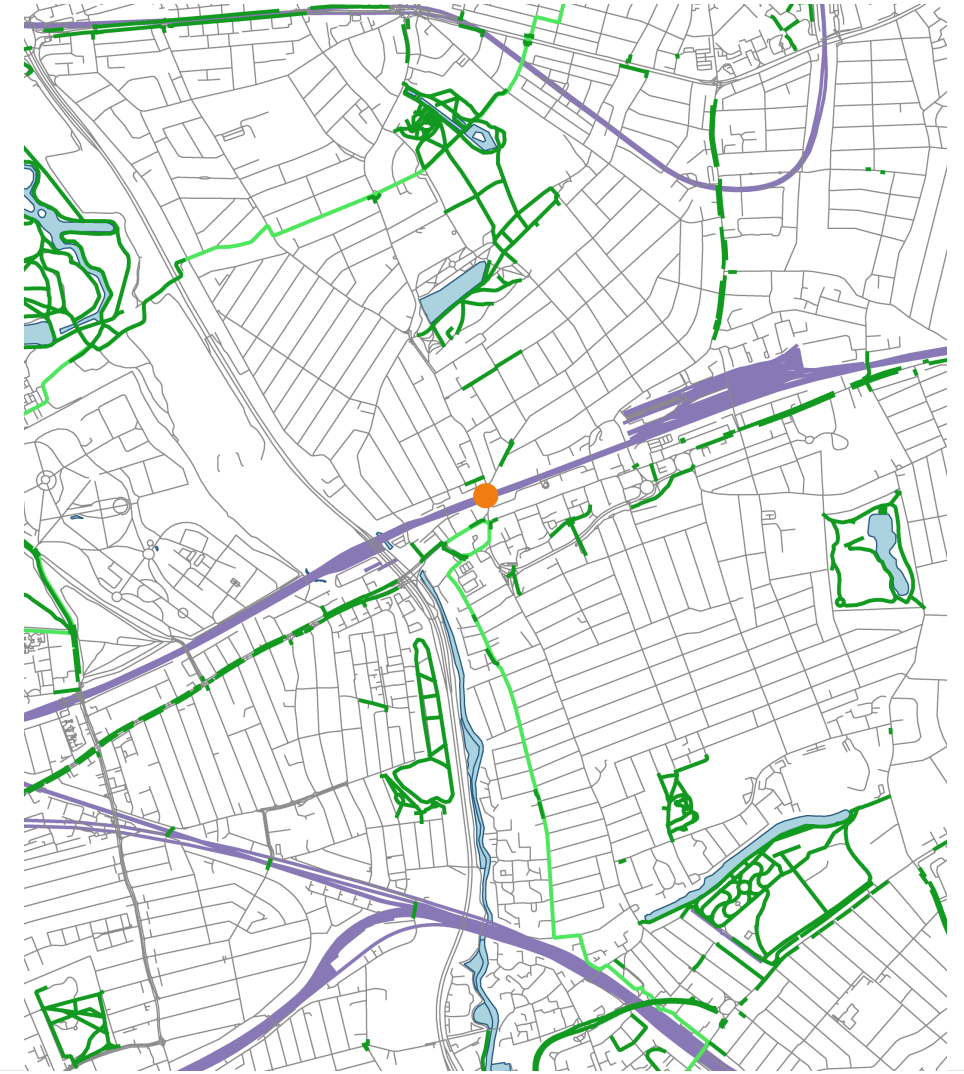
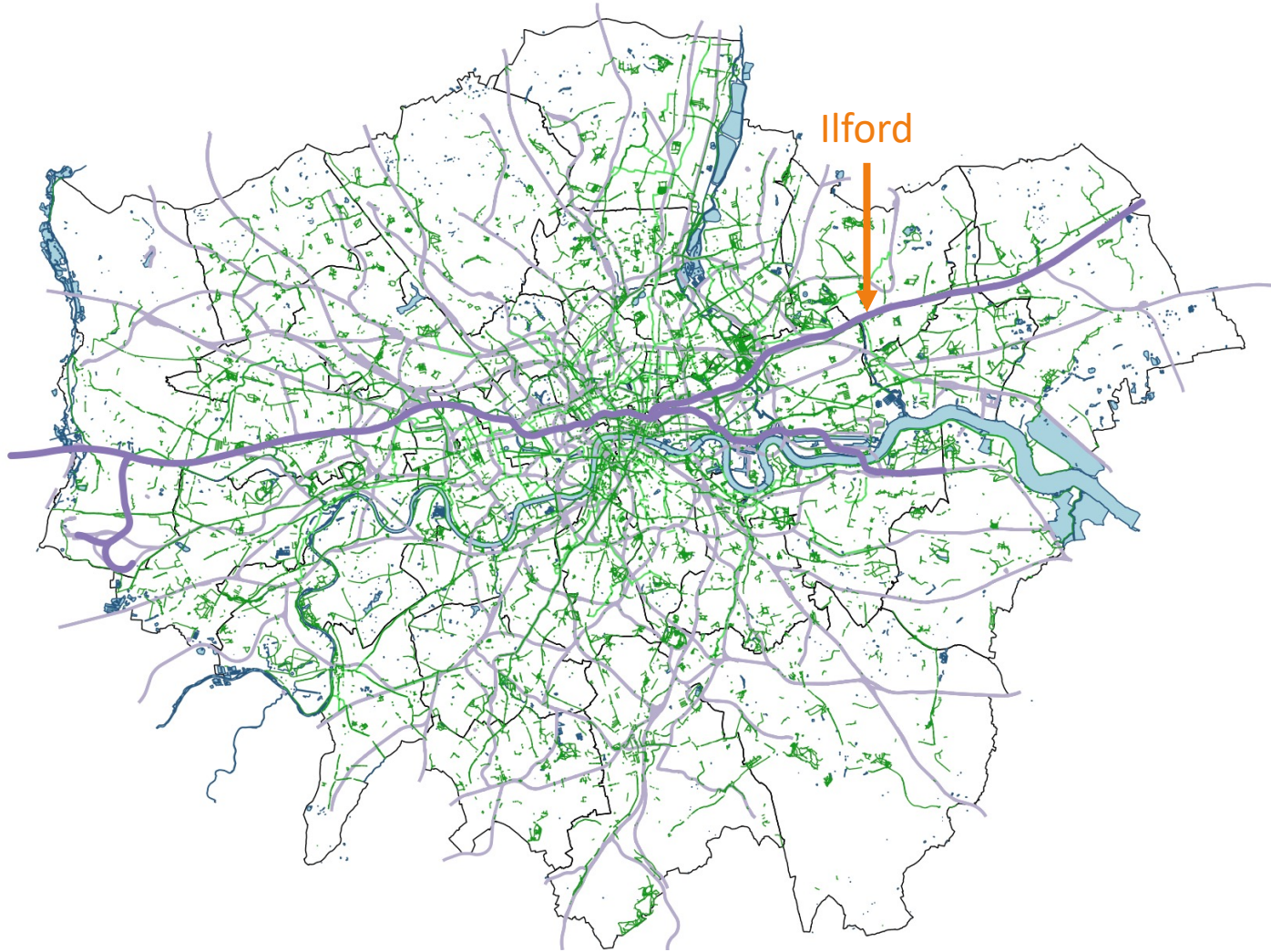


Each tint represents 5 minutes of walking



Each tint represents 5 minutes of cycling

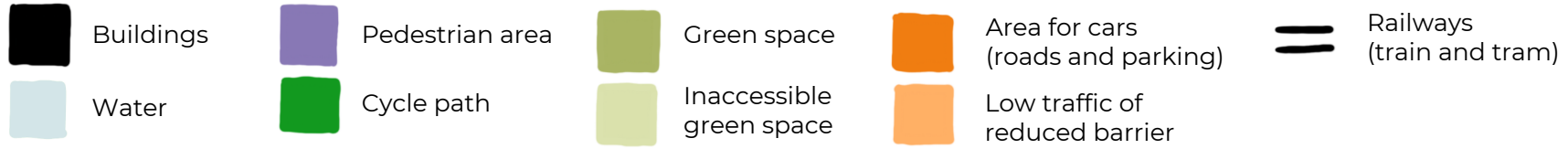




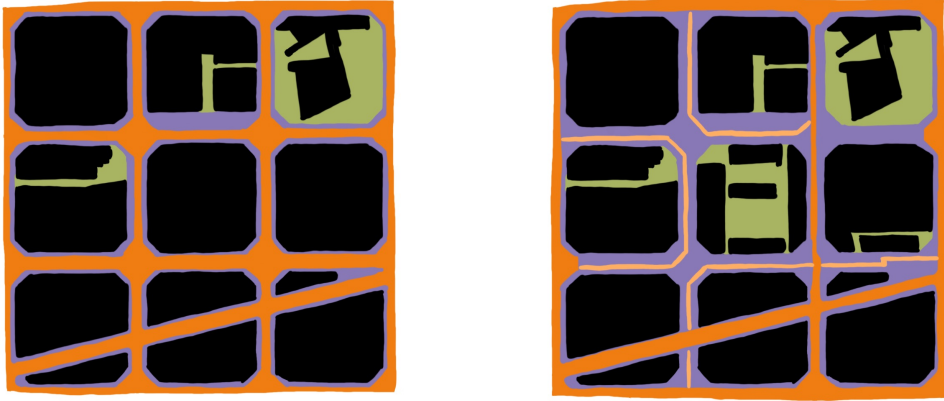
OpenStreetMap. (2022). *Greater London*. Retrieved November 3, 2022, from <https://www.openstreetmap.org/>







Superblocks, Barcelona



Coolsingel, Rotterdam



Station area, Delft



Prins Alexander, Rotterdam

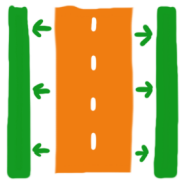




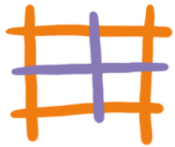
Found in literature



Found in precedents



Separate lanes



Merge blocks



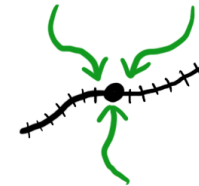
New cycle lanes



Pedestrian zones



Change to low traffic



Routes to stations



Shorter bike routes



Cycle highways



Add green





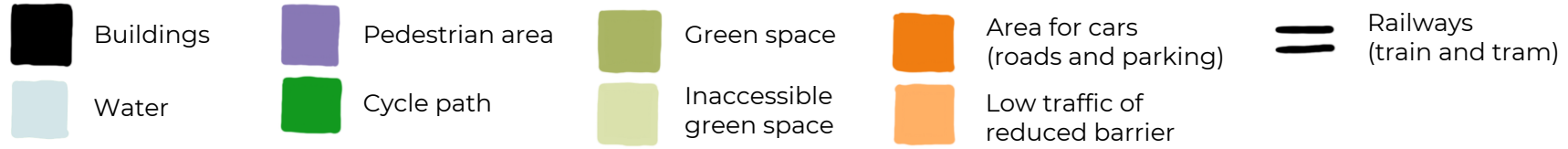
Ilford

ELIZABETH LINE

Google Earth







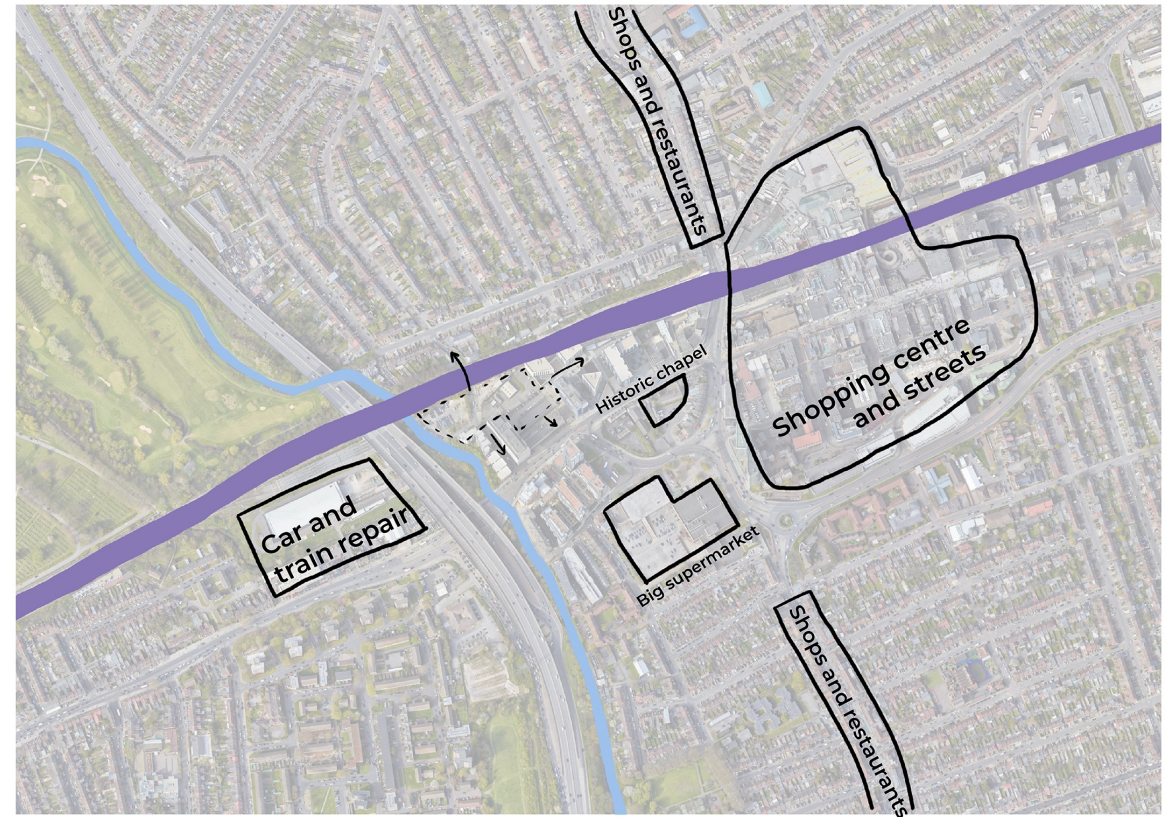
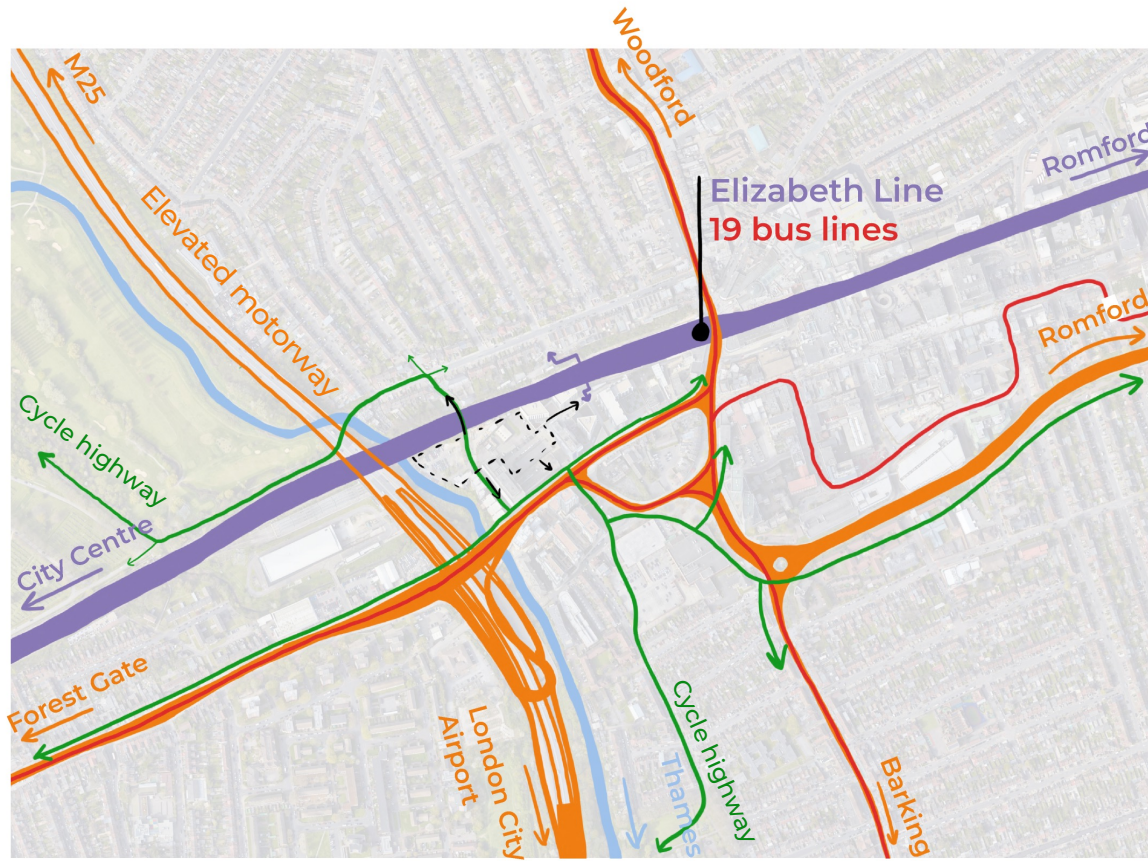
Current



Proposal







	Nørreport (DK)	Stadelhofen (CH)	Stuttgart 21 (DE)	Utrecht central	Amsterdam Central	Stenpiren (SE)	KJ Plein, Den Haag
LAYERING							
ROUTING							
FUNCTIONS	Bike parking Information Gastronomy	Information Gastronomy Offices	Information Shops Gastronomy Waiting space Public park (City centre)	Bike parking Information Shops Gastronomy Waiting space (Municipal) office spaces (Historic city centre)	Bike parking Information Shops Gastronomy Waiting space (Historic city centre)	Information Gastronomy Waiting space	Bike parking Information Shops Gastronomy Offices Dwellings Government Ministries
MAIN TAKEAWAYS	 Don't hide the bikes!	 Extension with extra (profitable) functions	 Free up space and give to public as park	 Complex, but clear and symmetrical	 Adding functions in 3D	 Clear routing	 Extension with complete new front building





Bike parking



Bike sharing



Bike repair



Workshops



Library



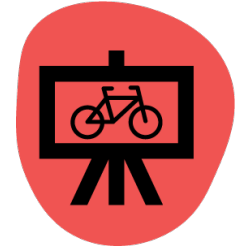
Study room



Community association



Meeting room



Exhibition



Shelter



Parcel point



Toilets



Bakery



Cafe



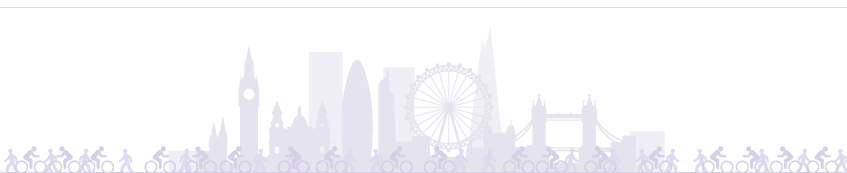
Restaurant

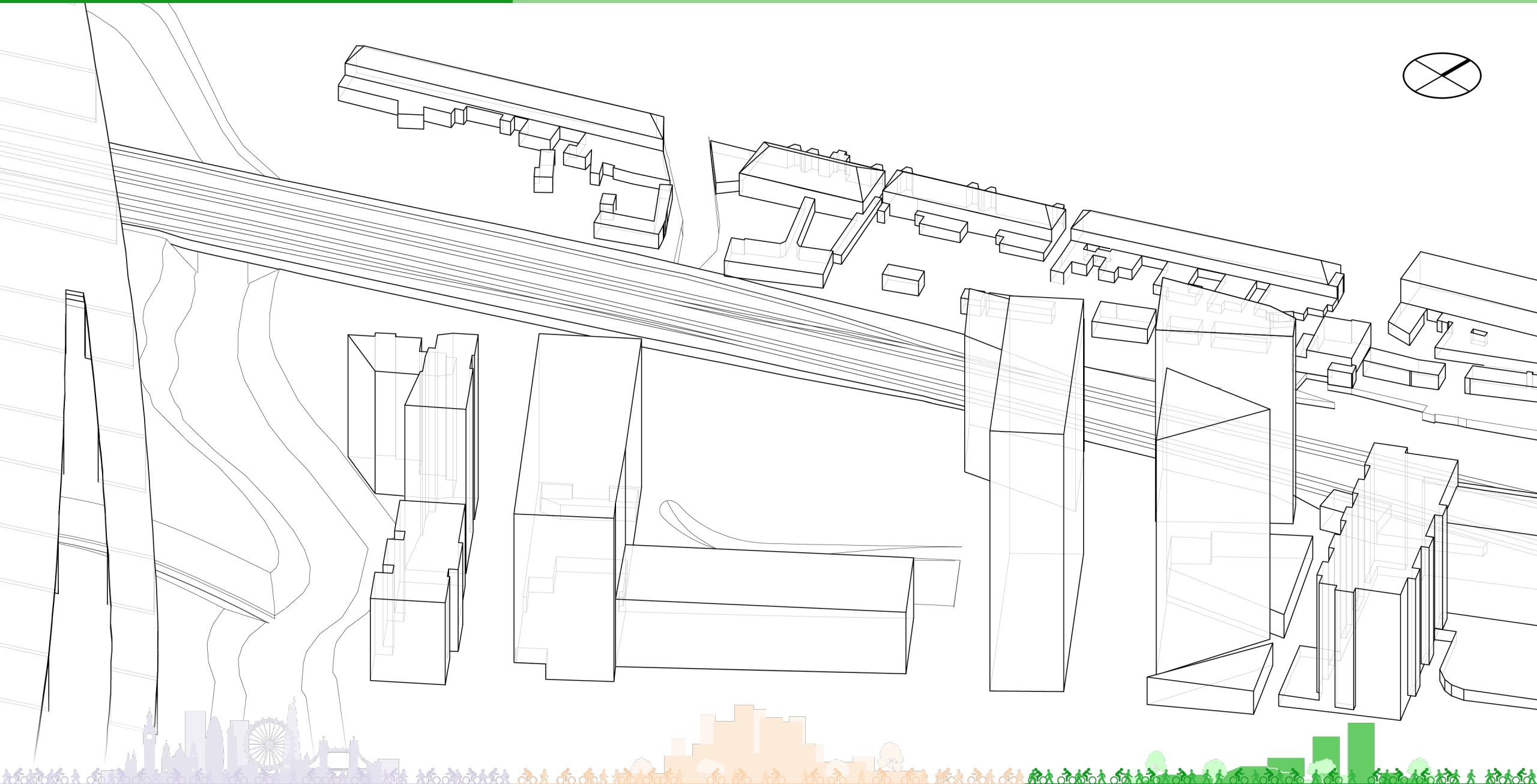


Take away

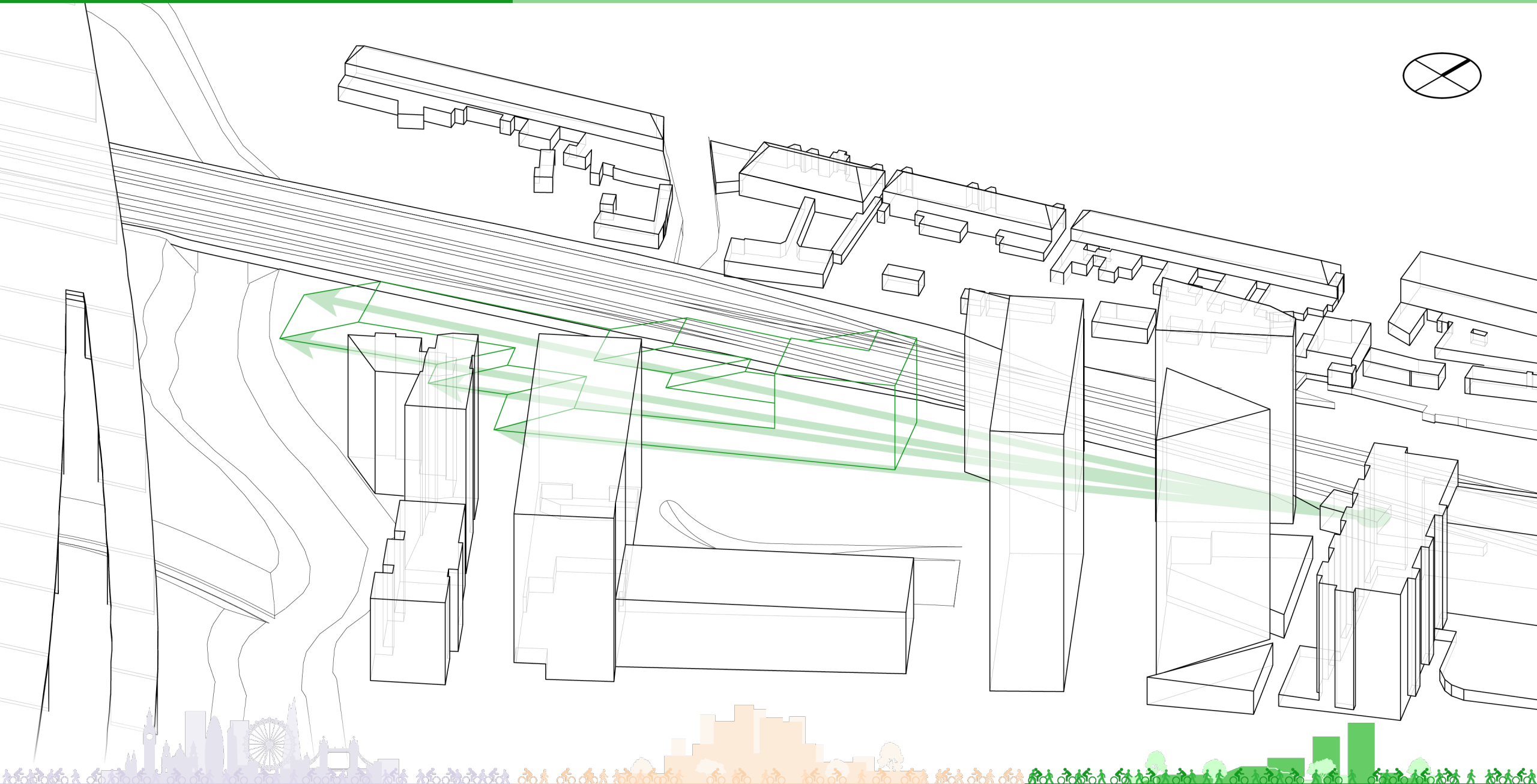


Green space

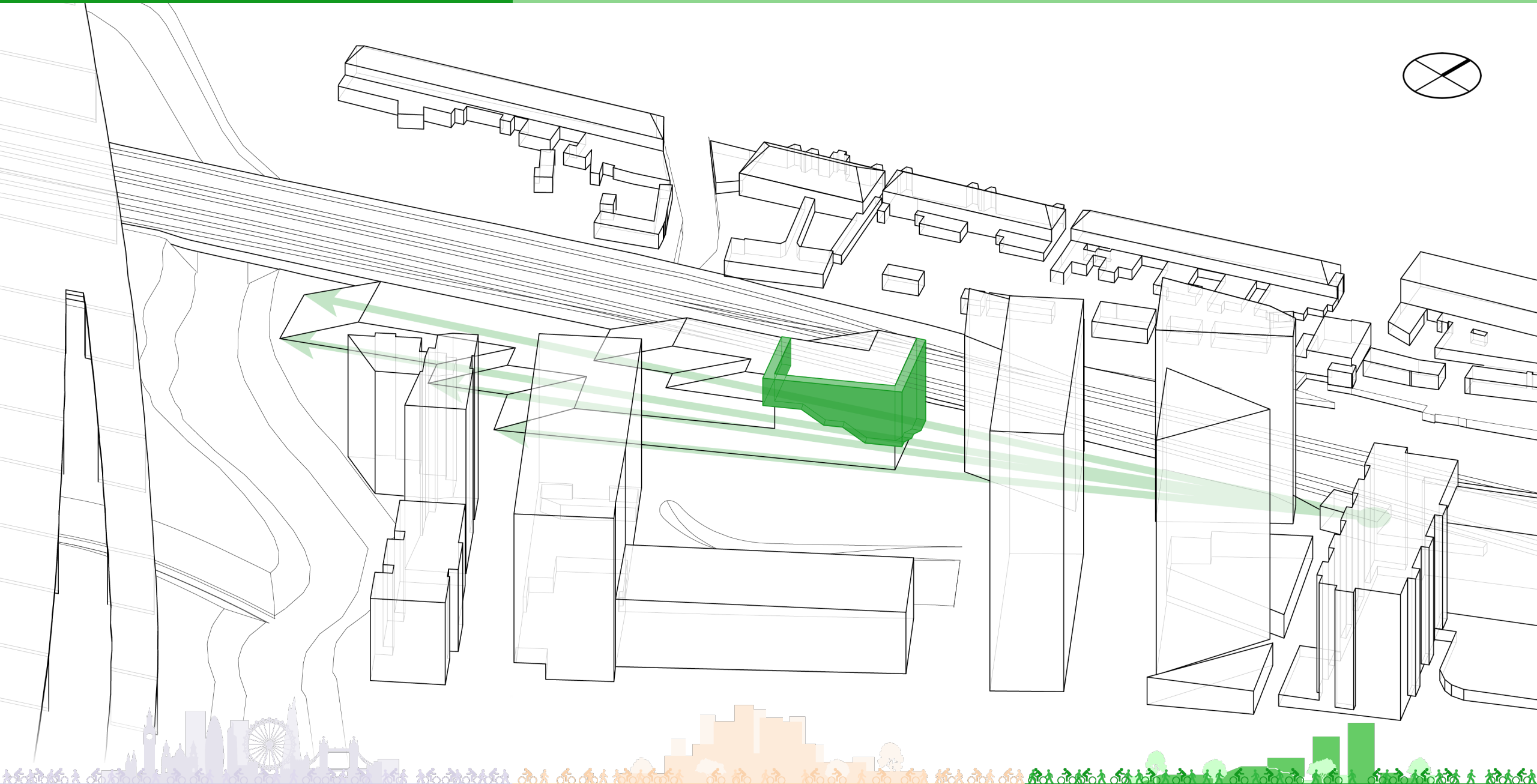


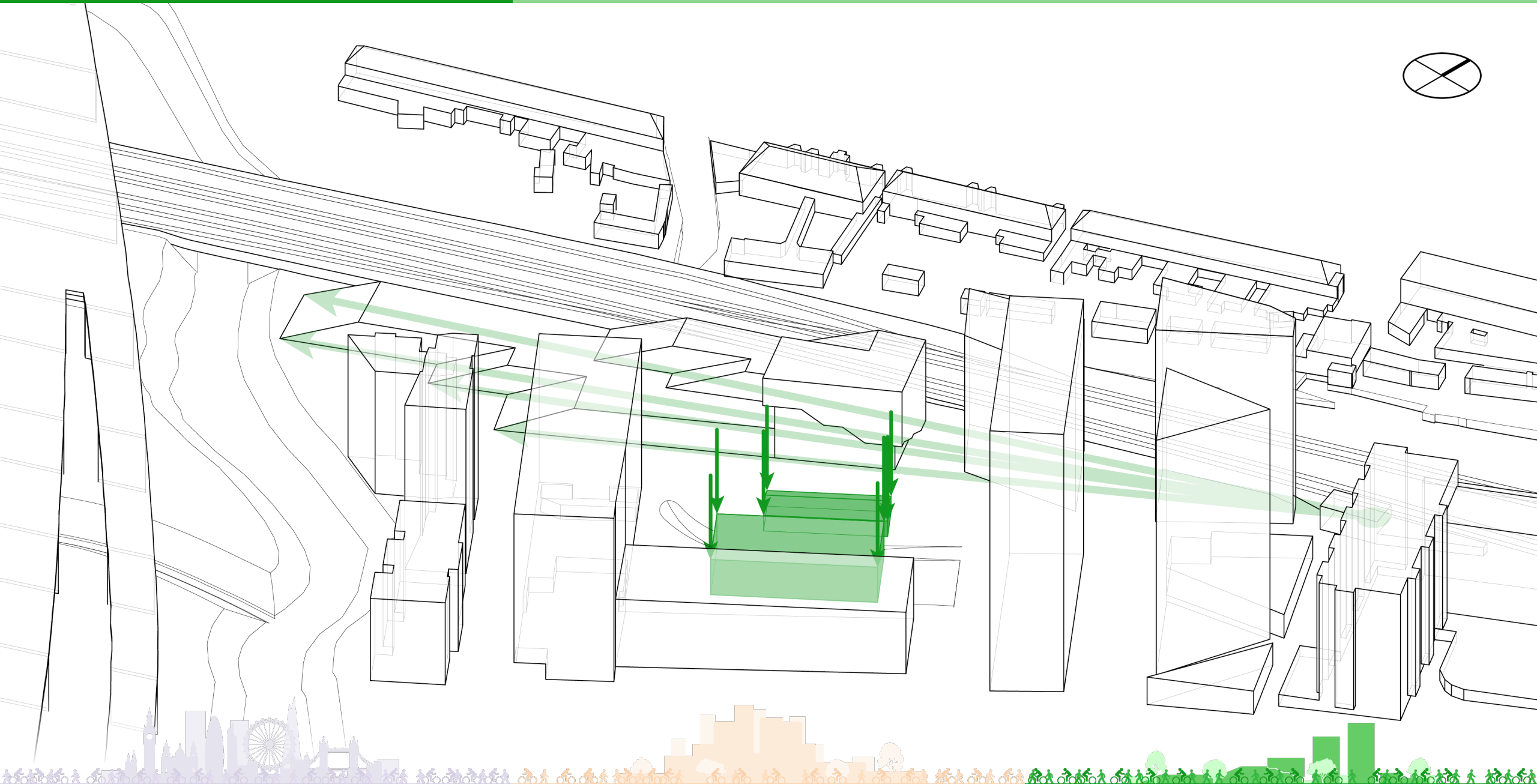










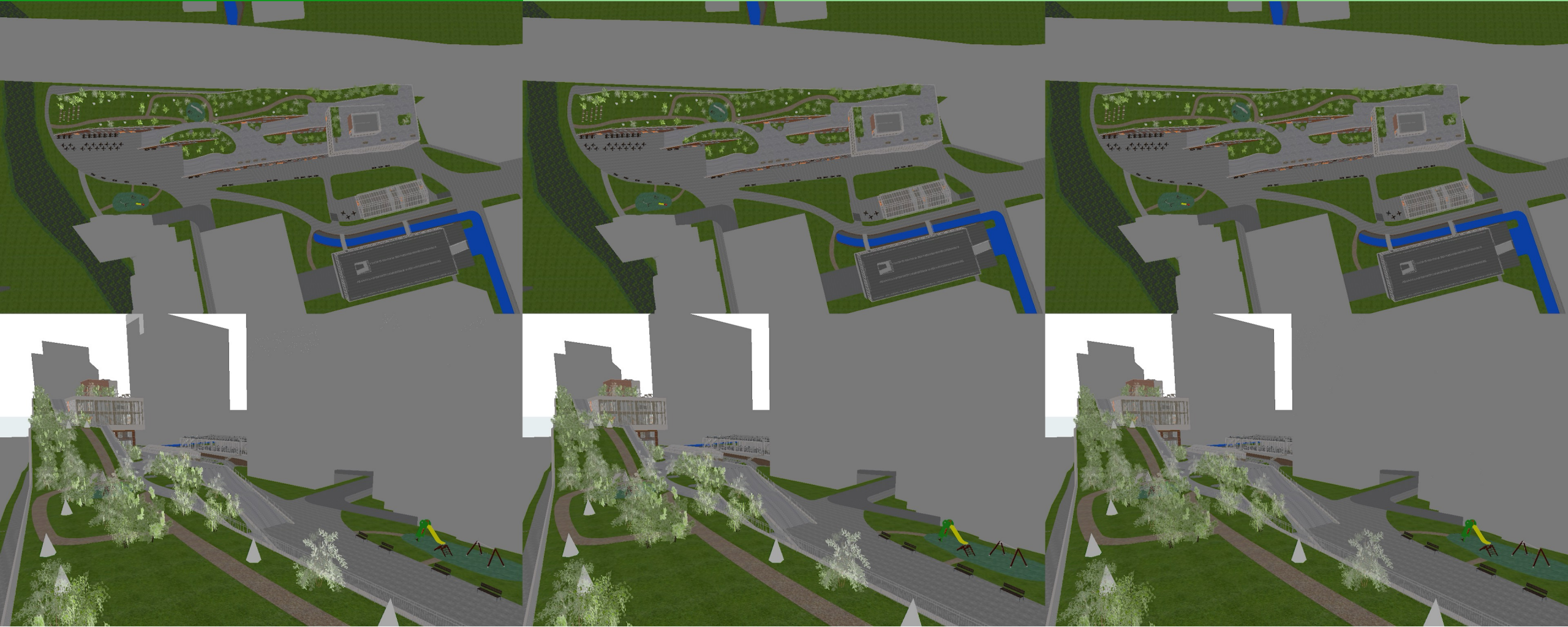












21 June

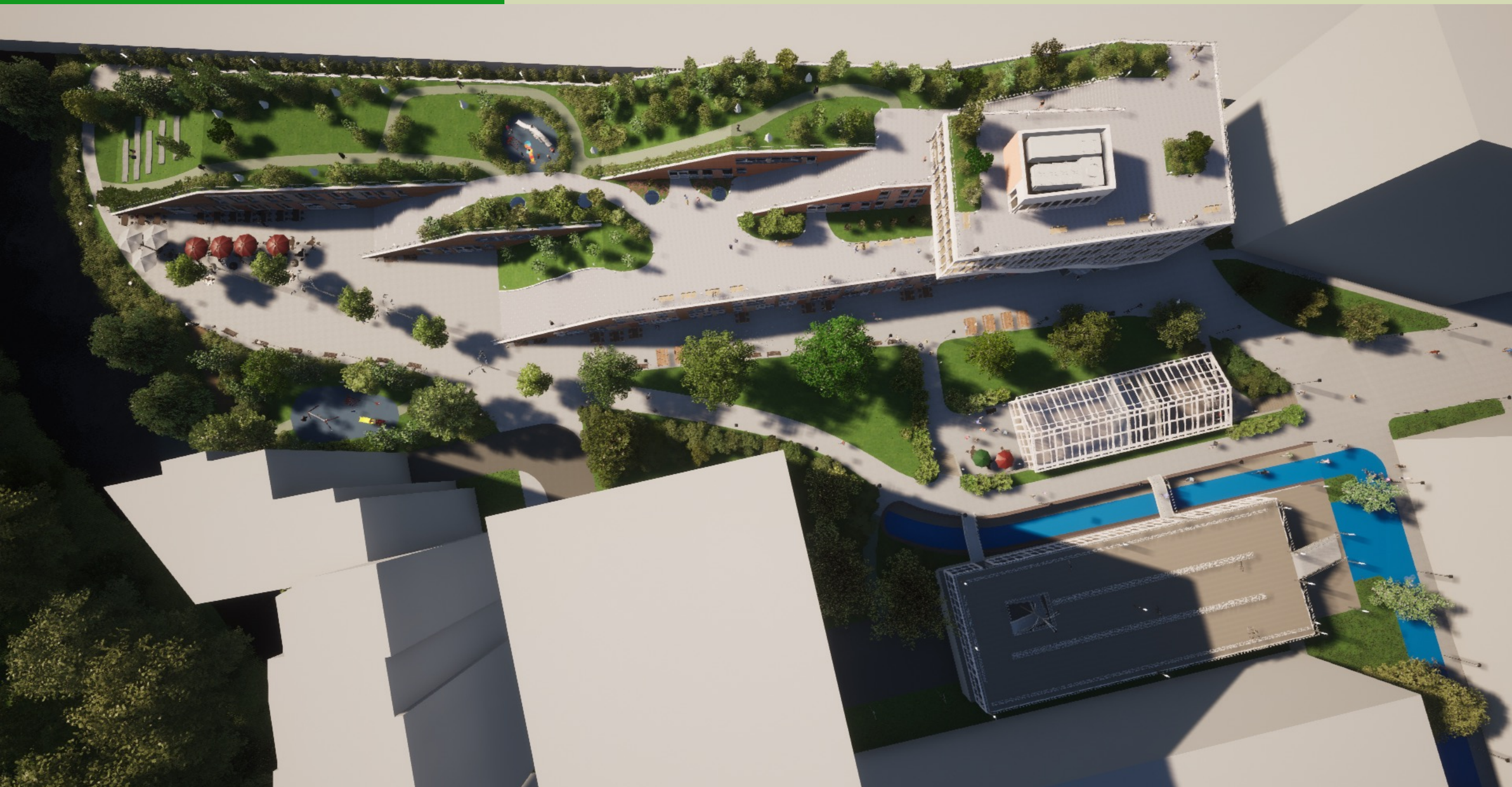
21 March / September

21 December















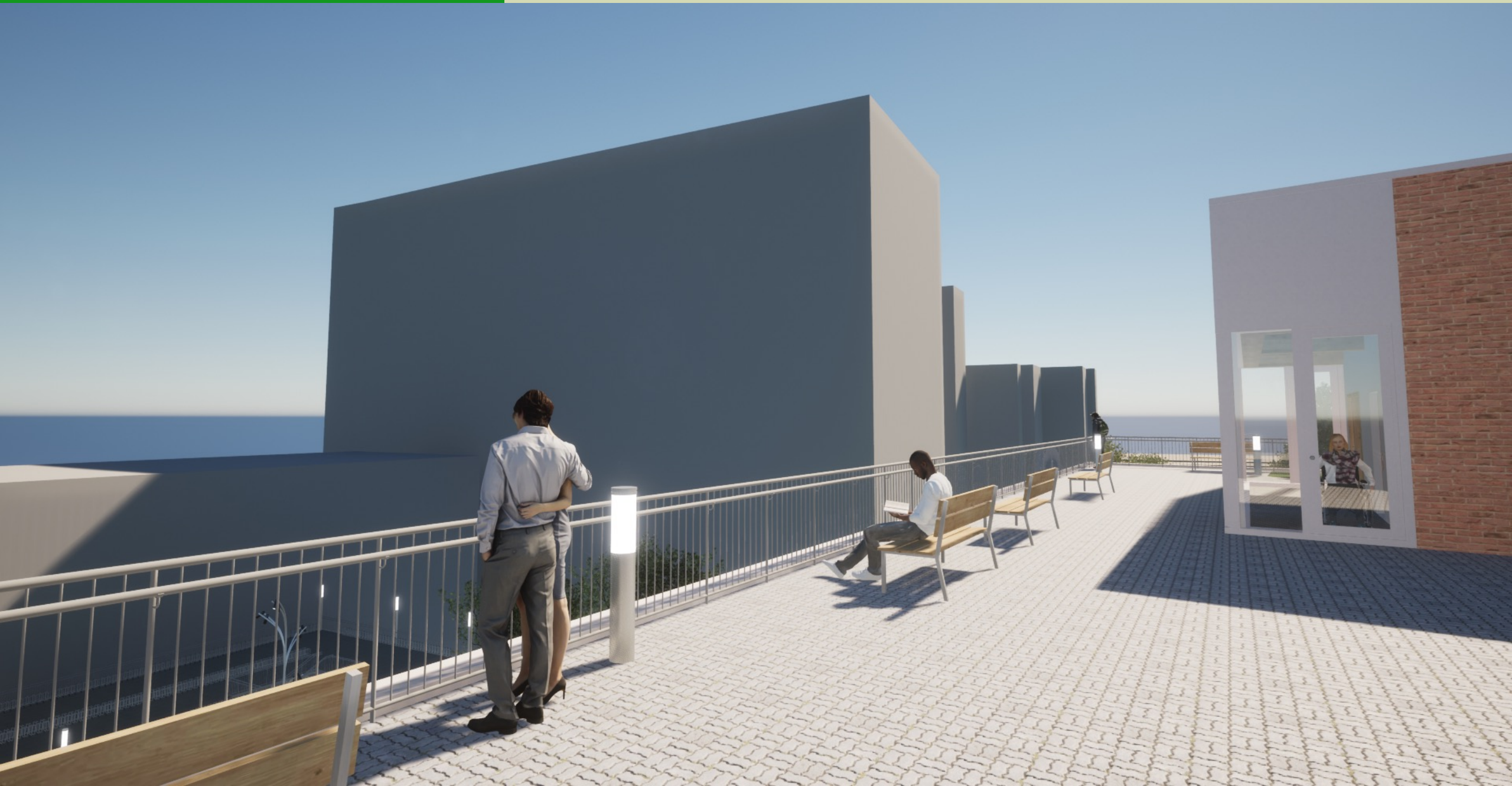


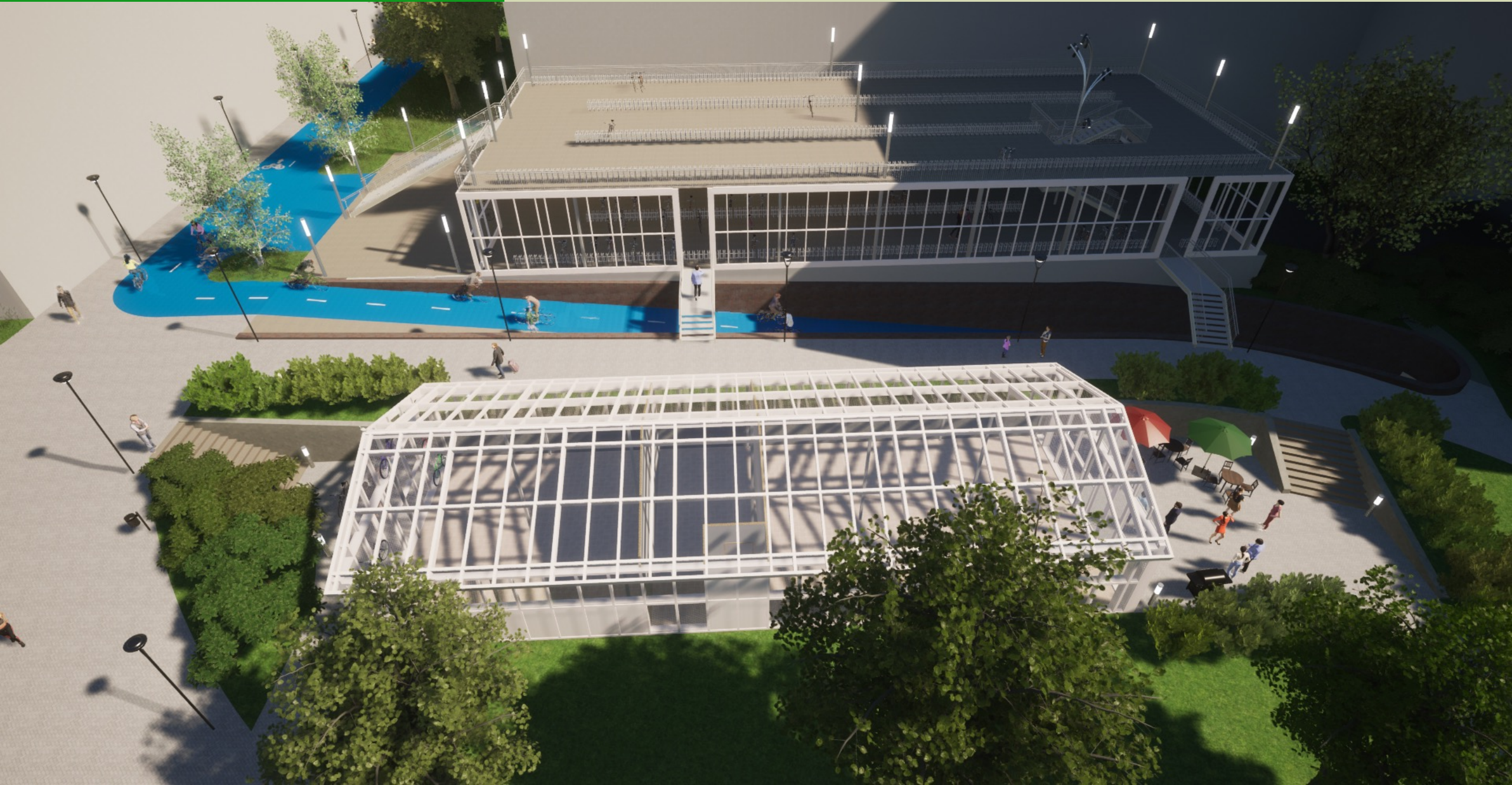






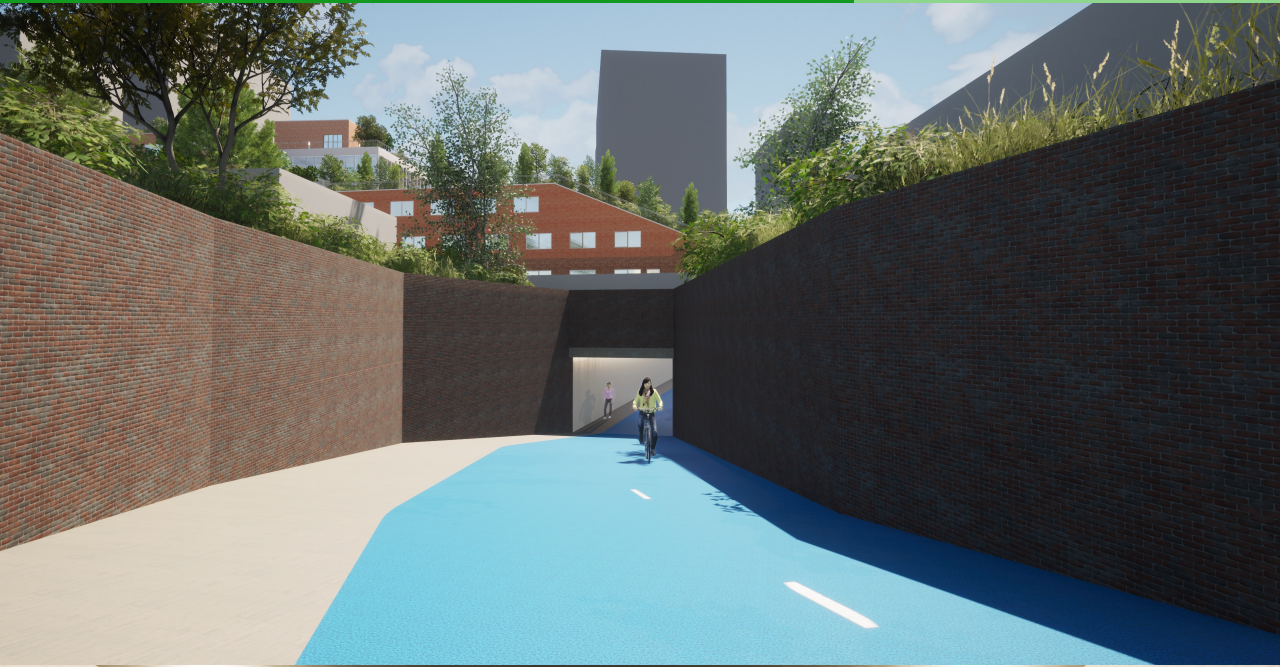


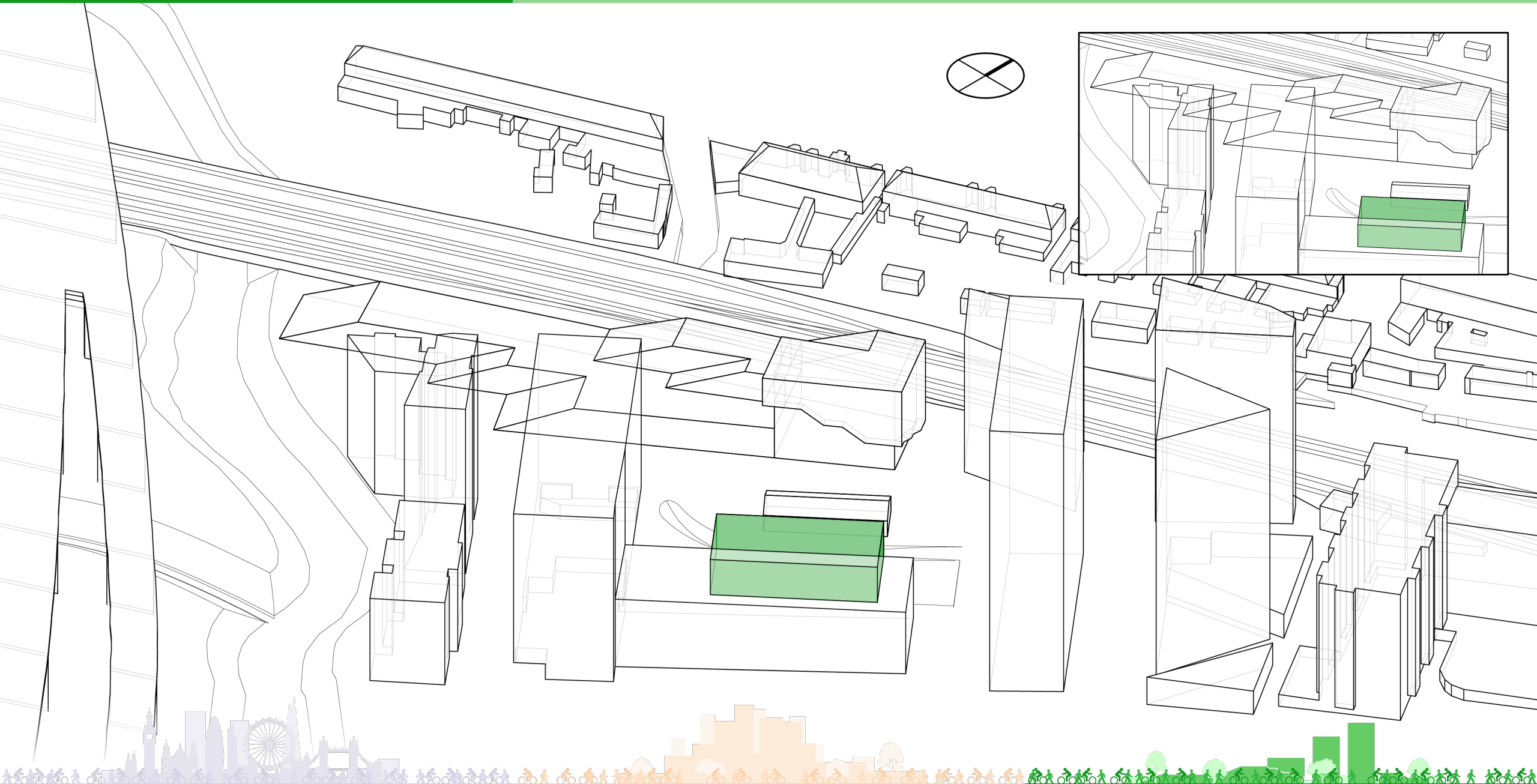








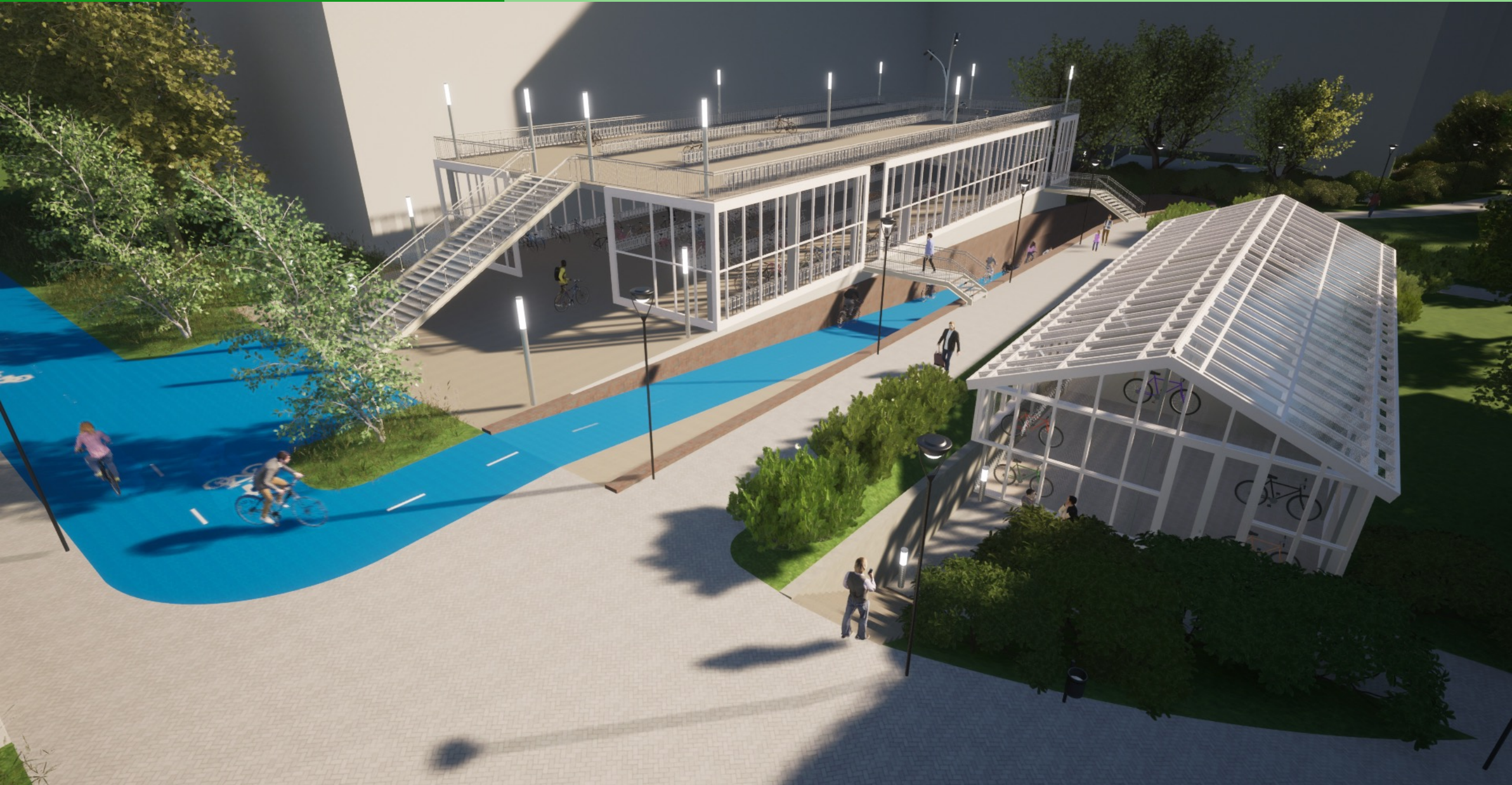




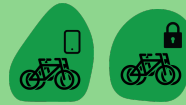


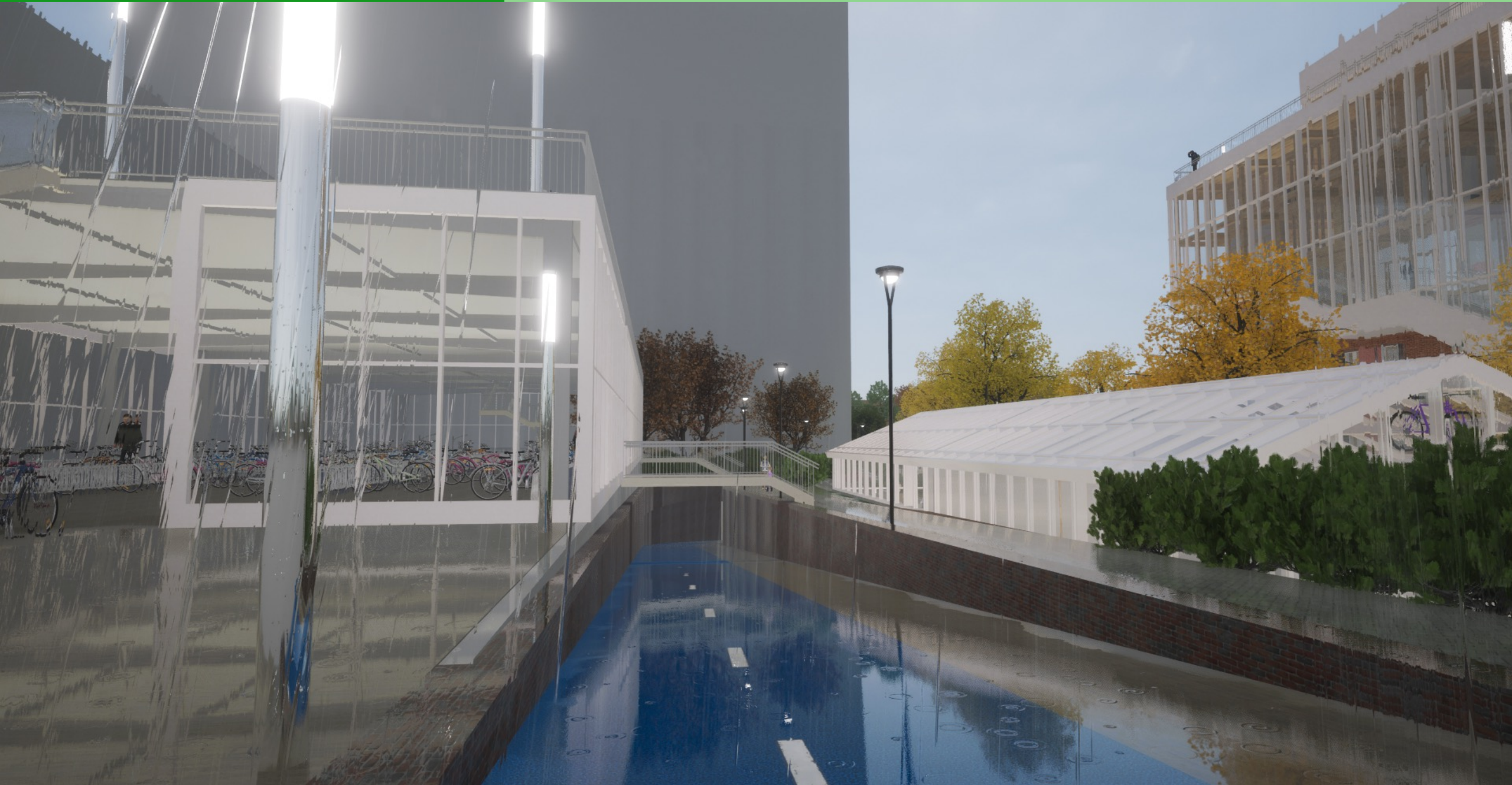
Google Earth

Data SIO, NOAA, U.S. Navy

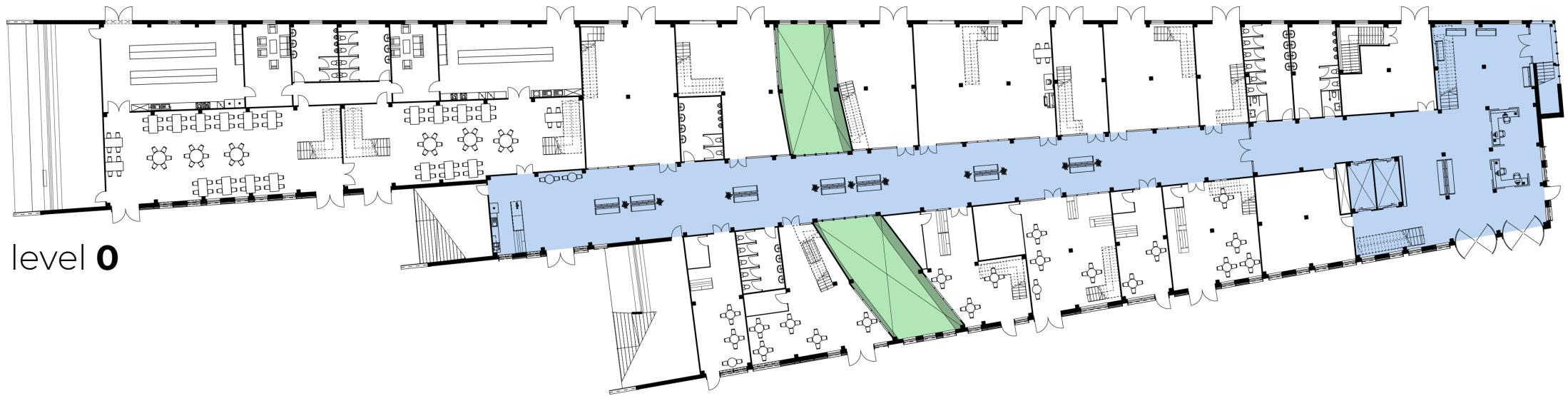


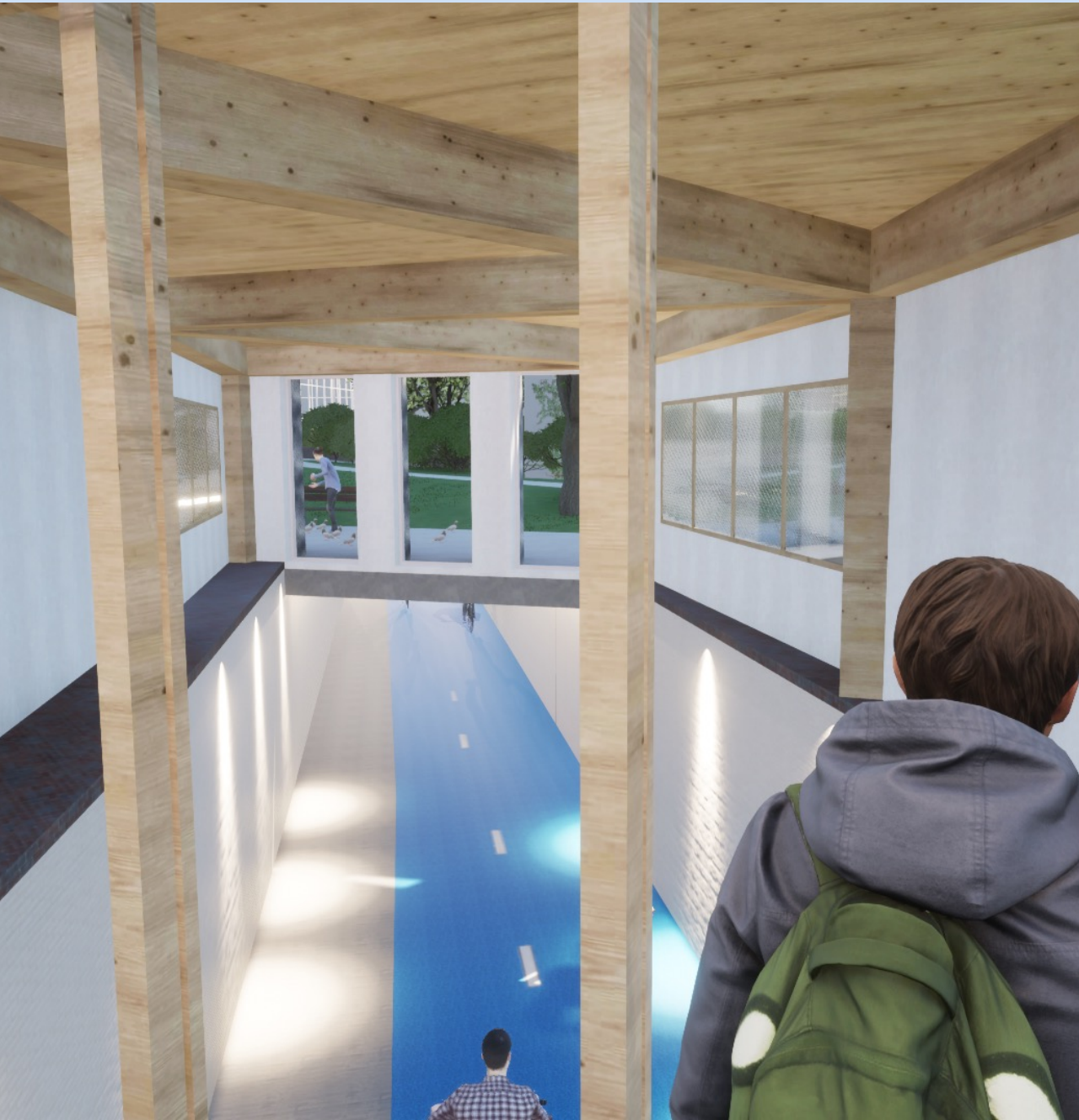
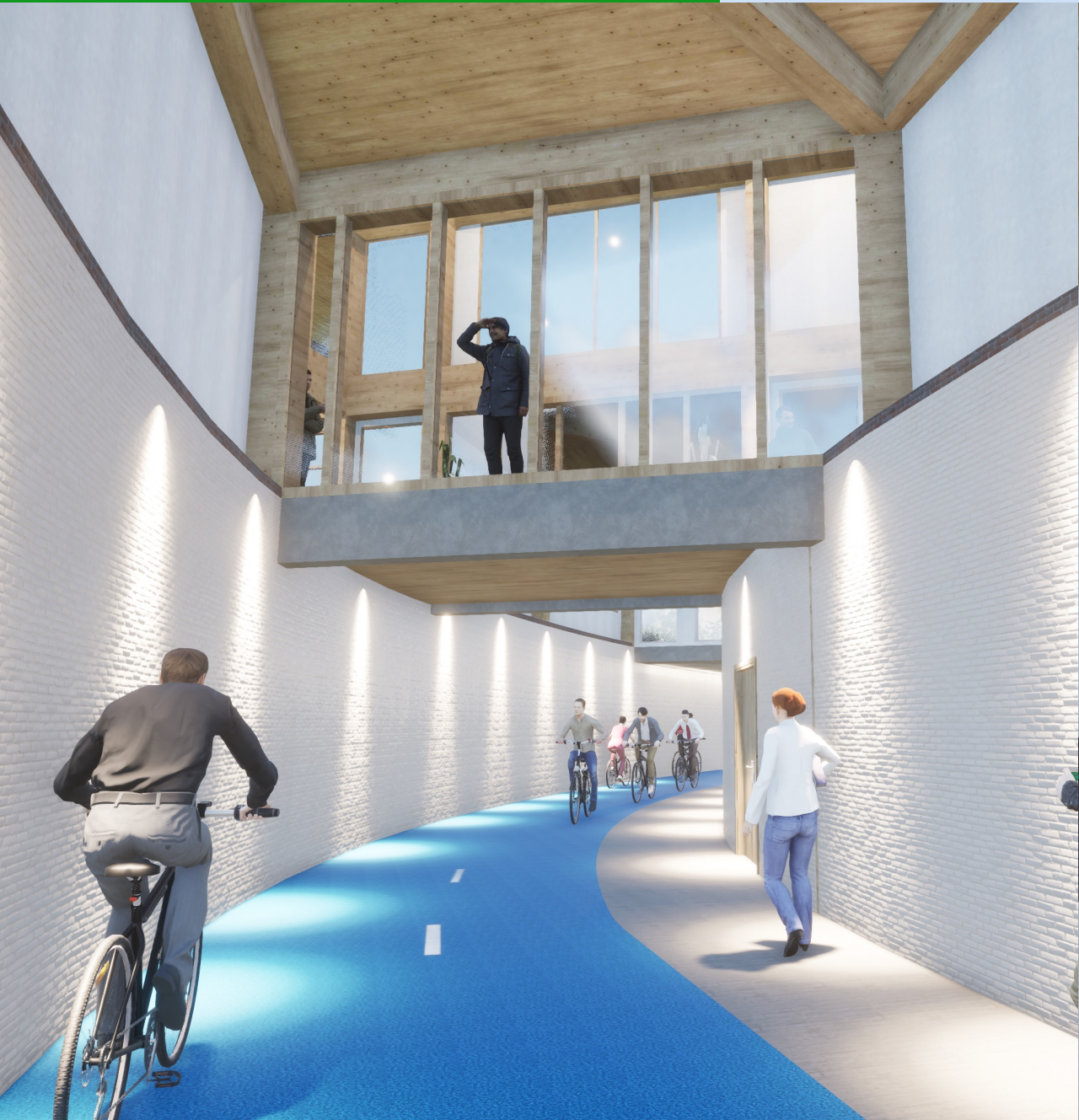






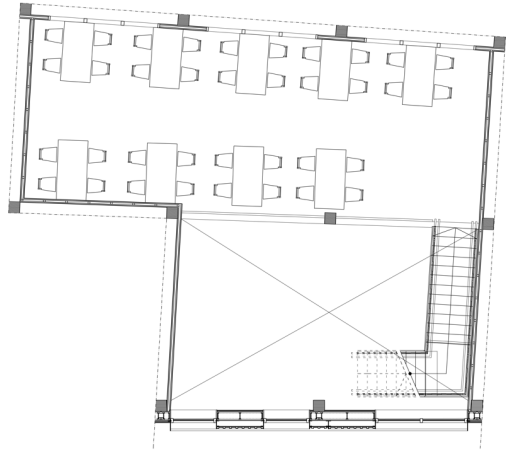




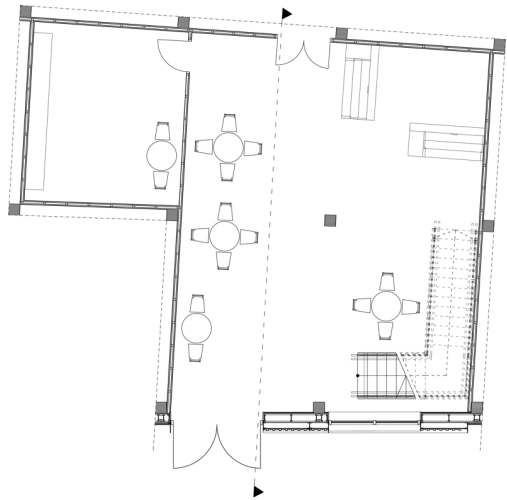




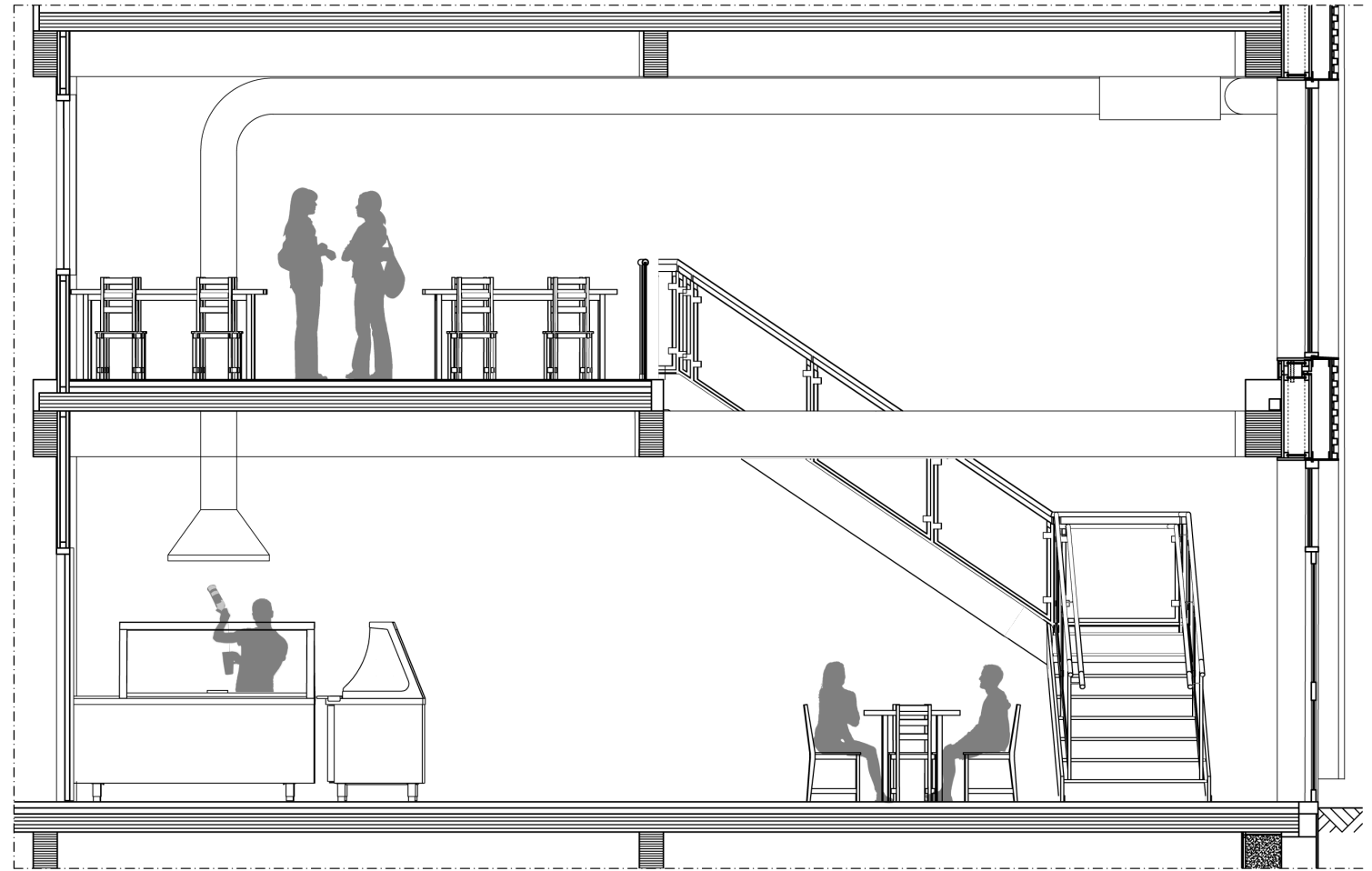




level 1



level 0



9.6 m









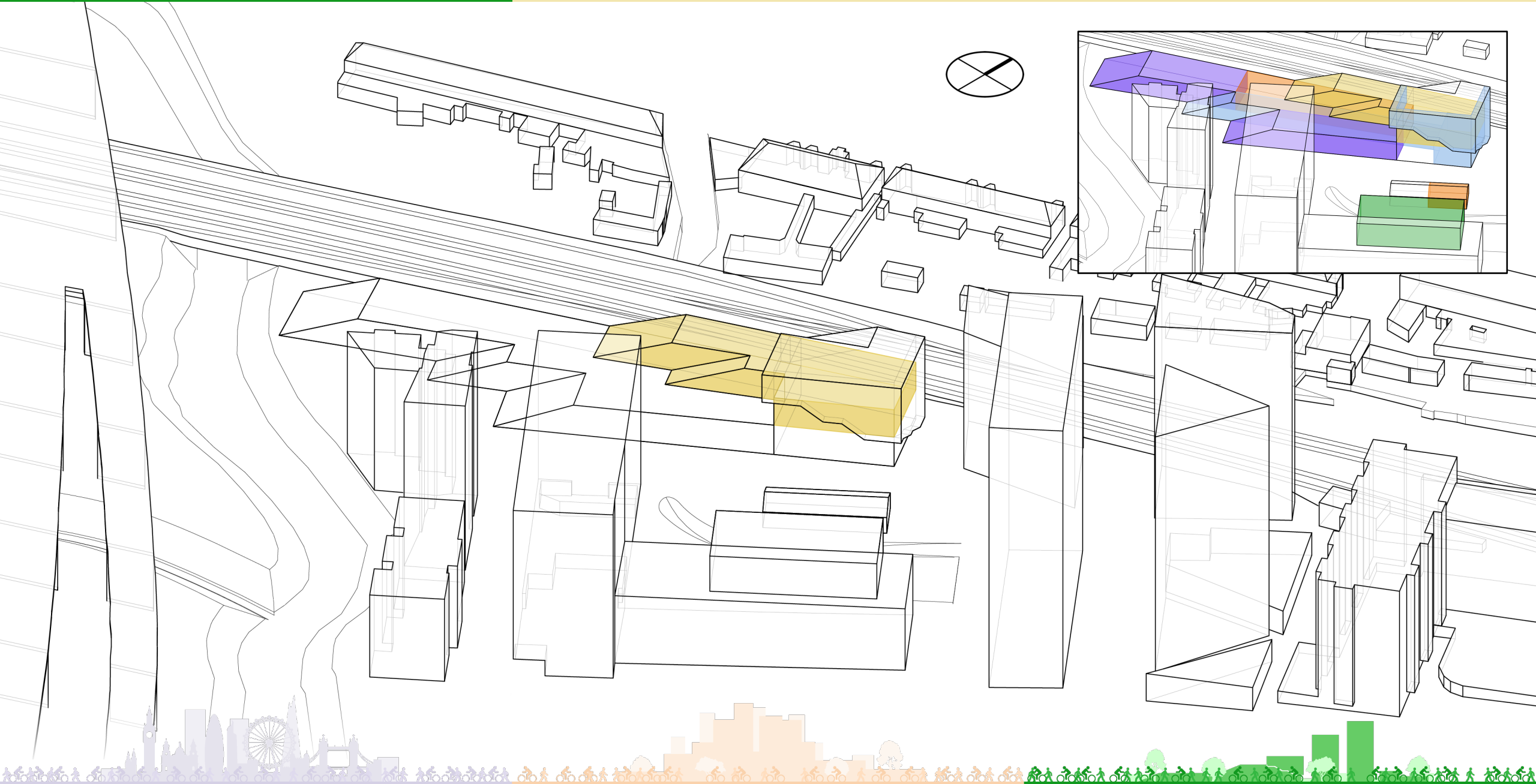




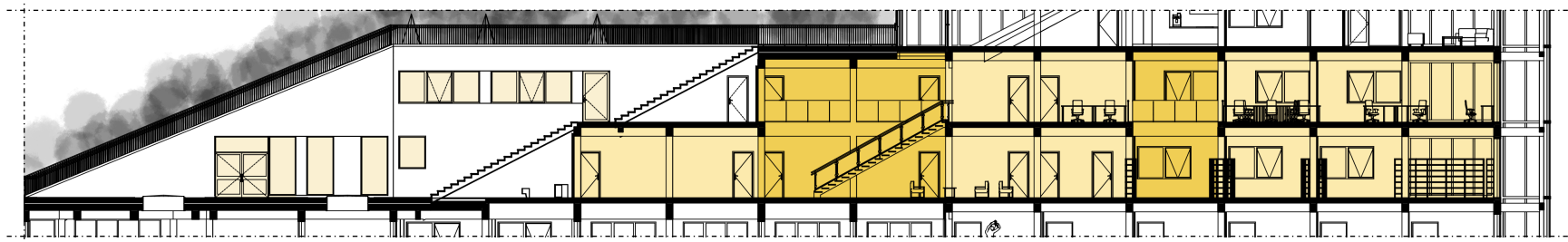




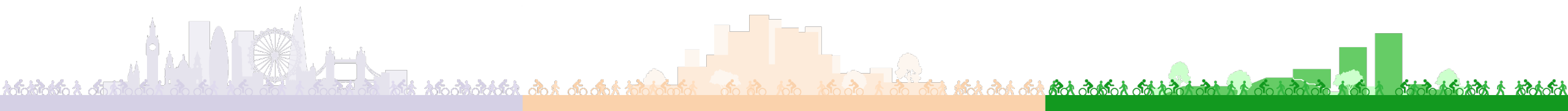




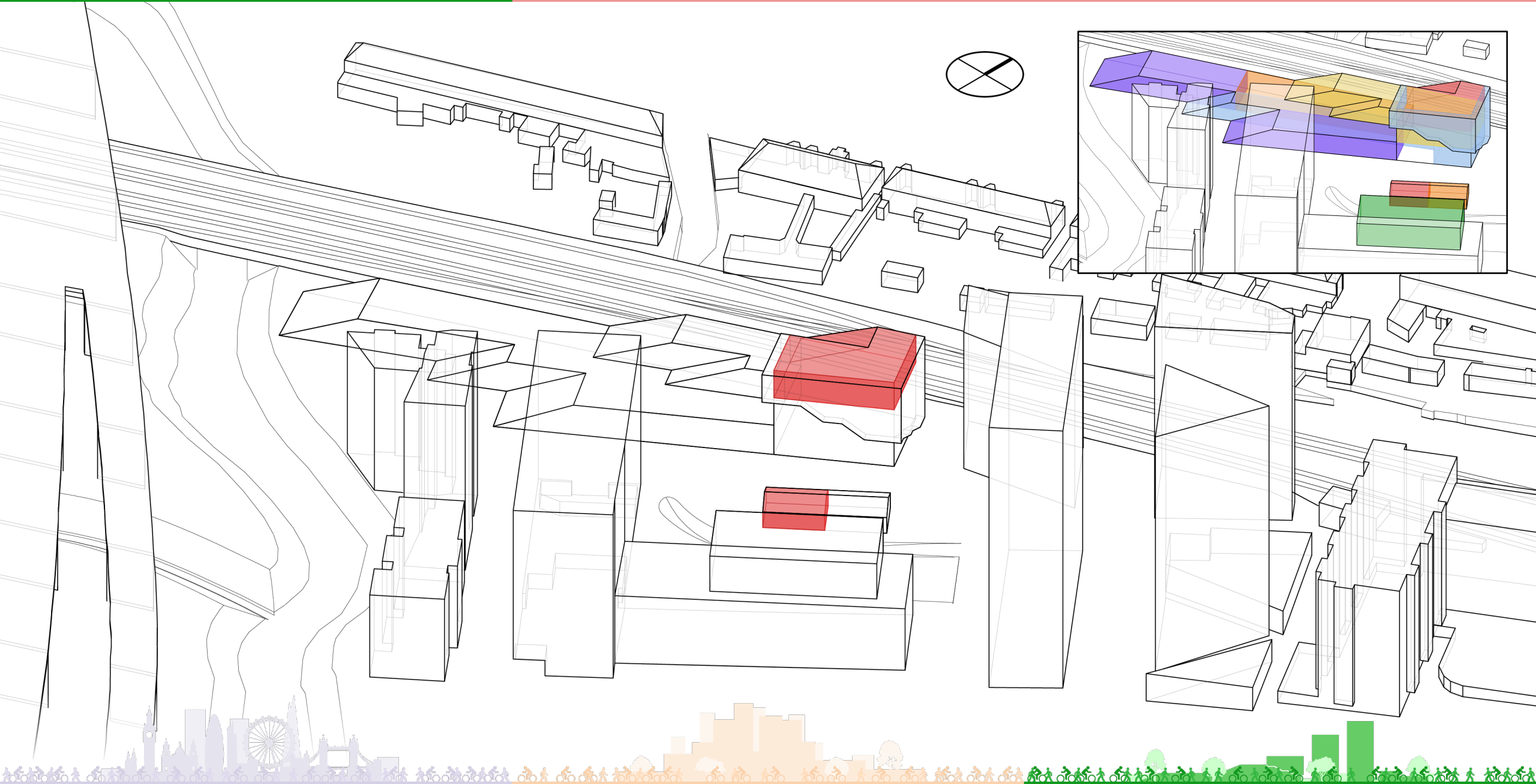


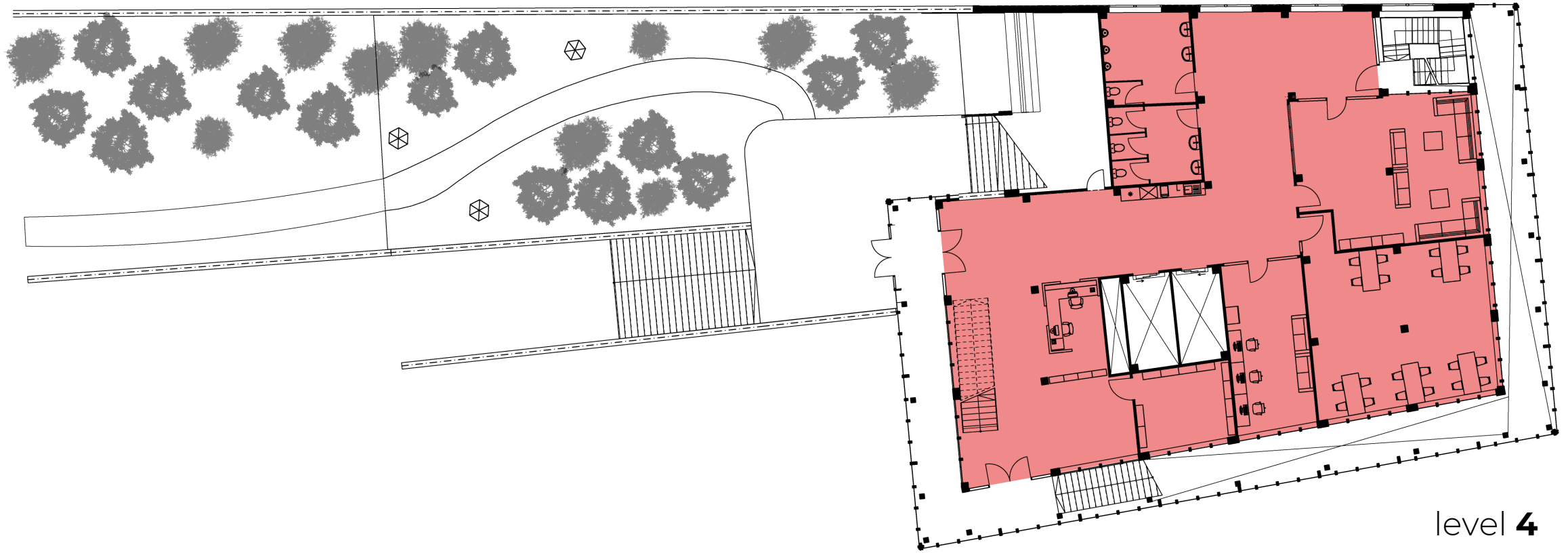


level 2

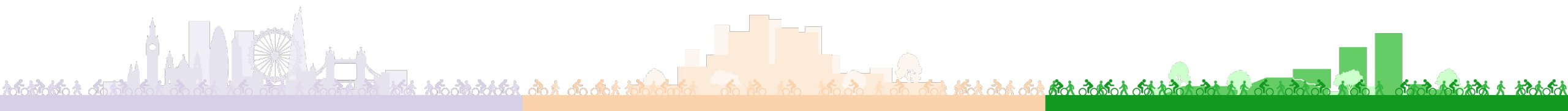




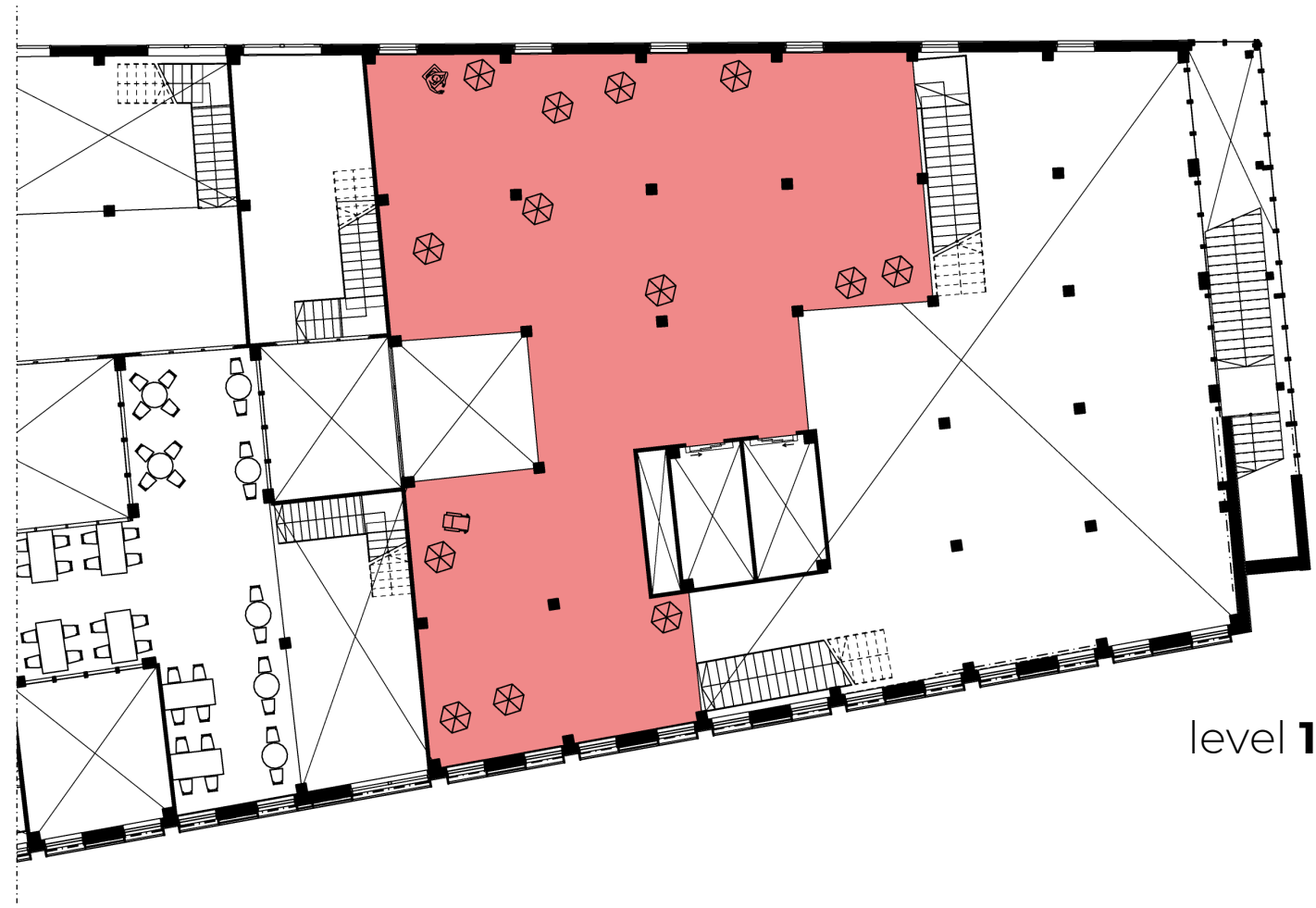




level 4



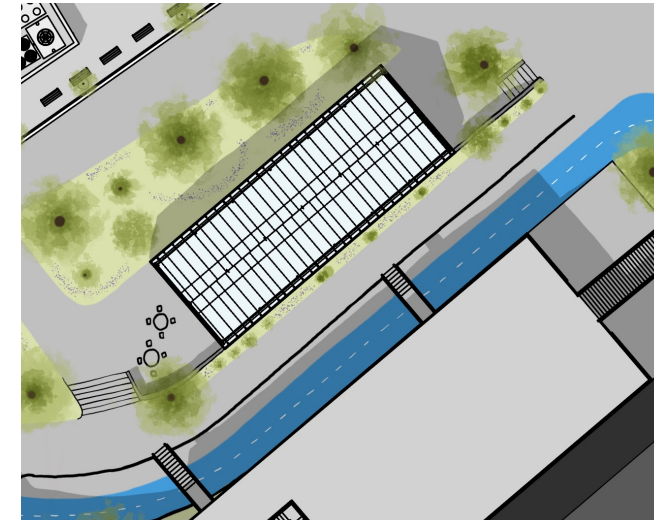
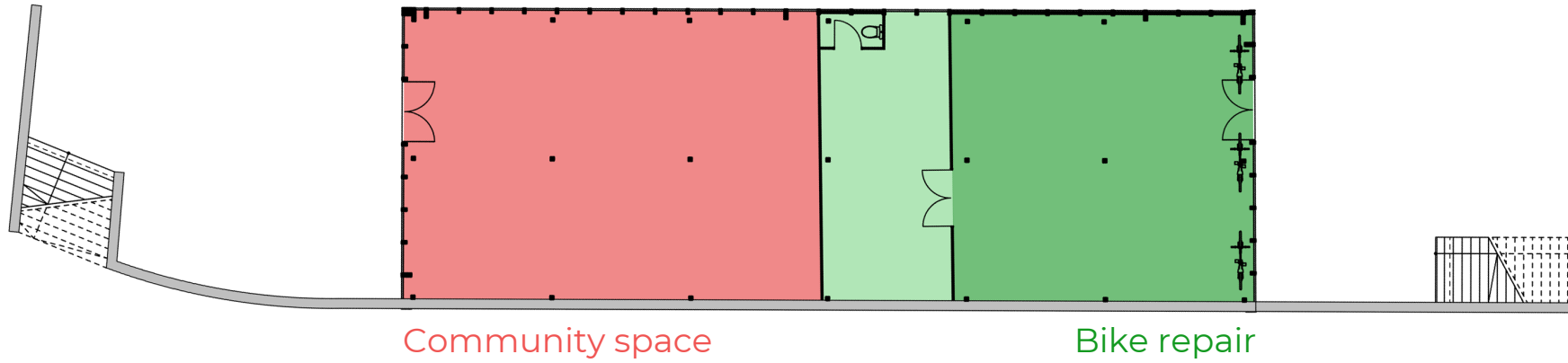




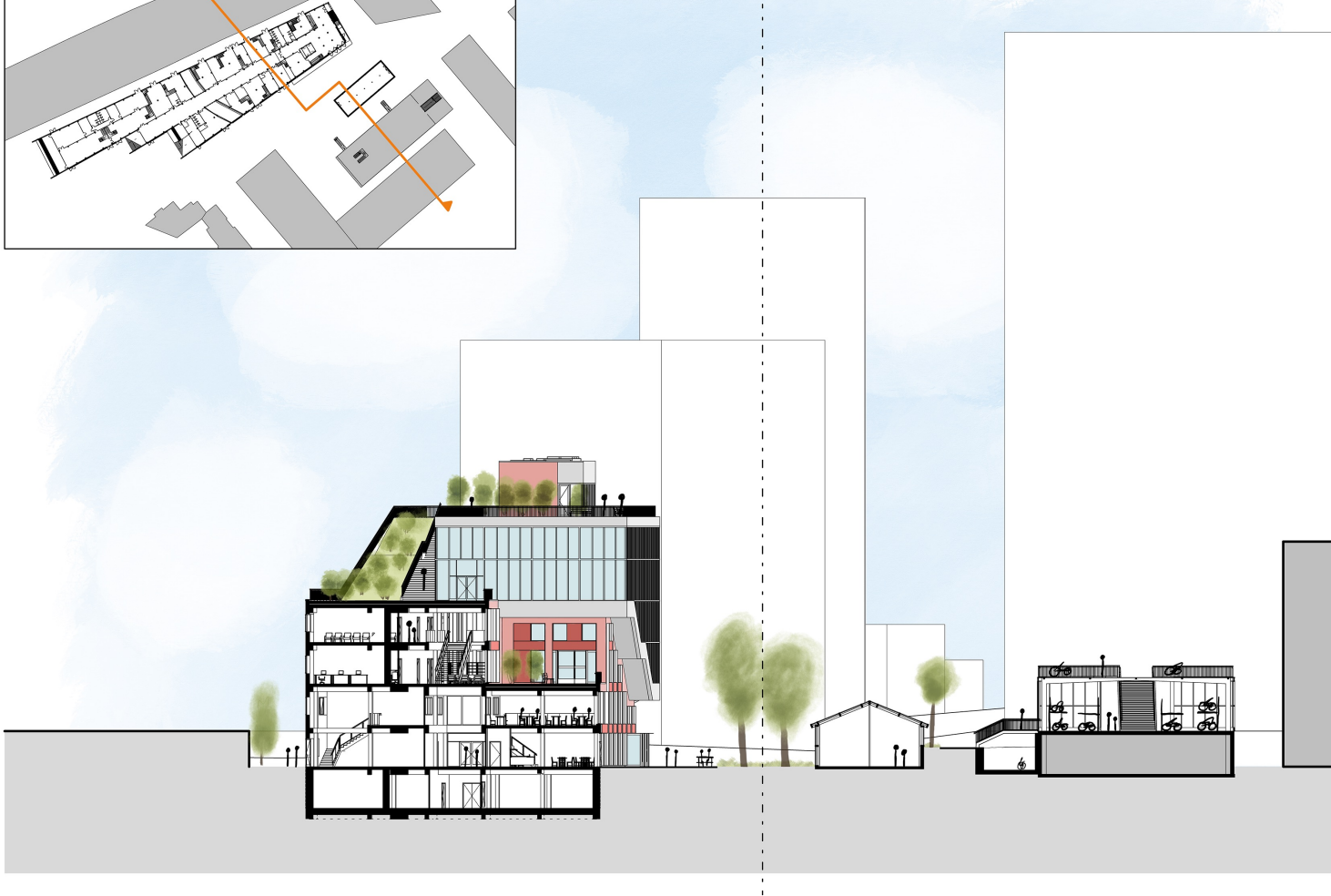
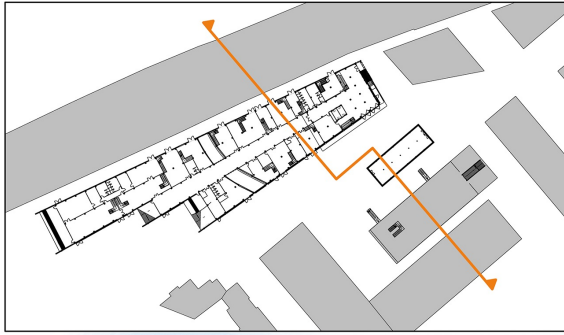
level 1









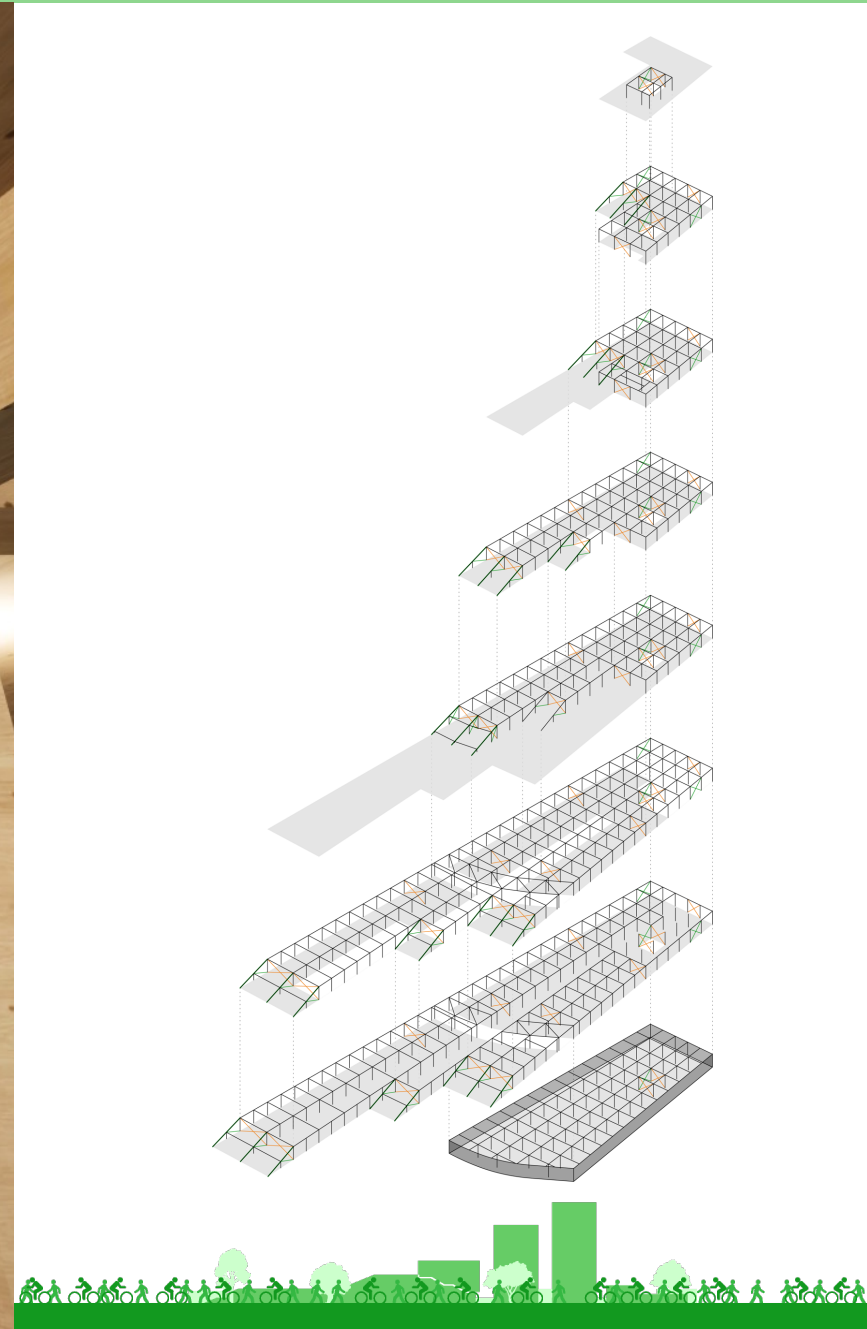




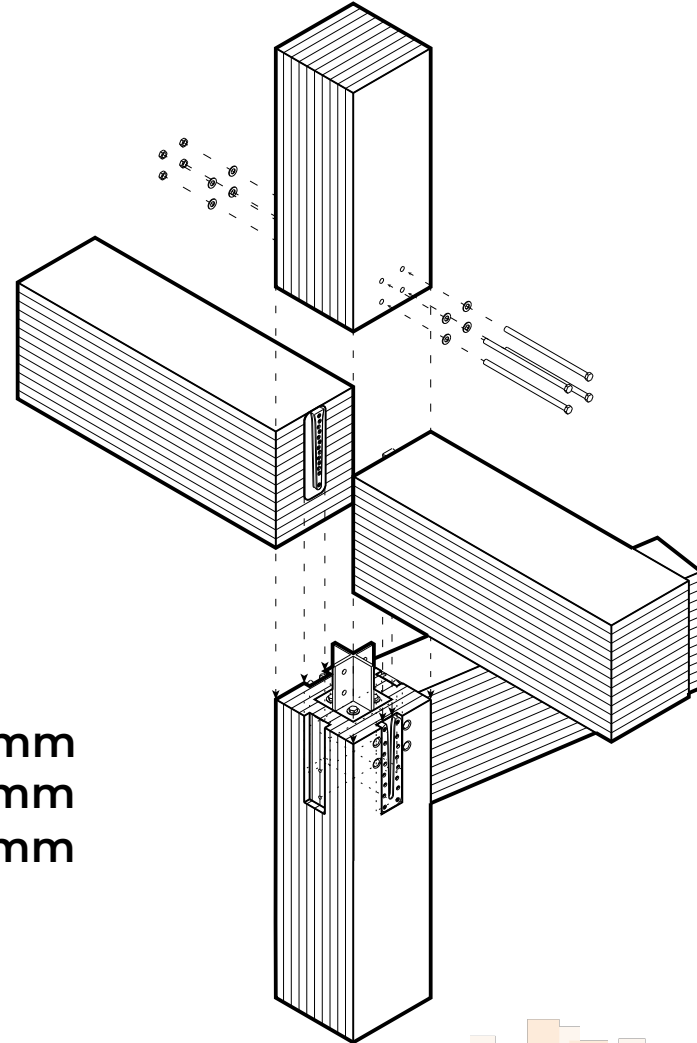




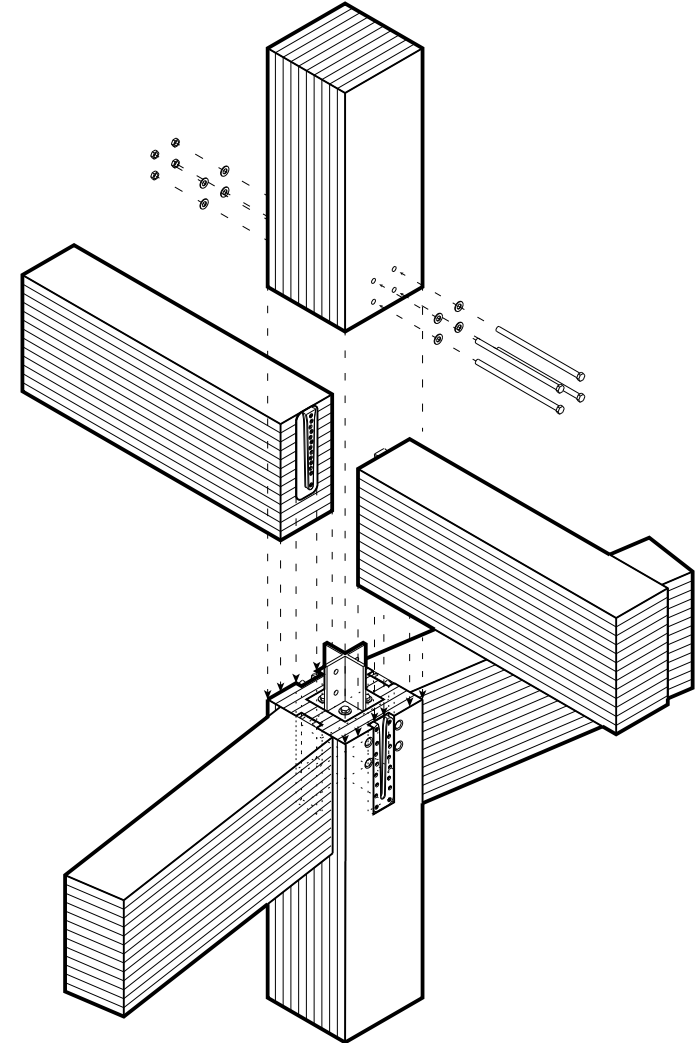




Next to façade

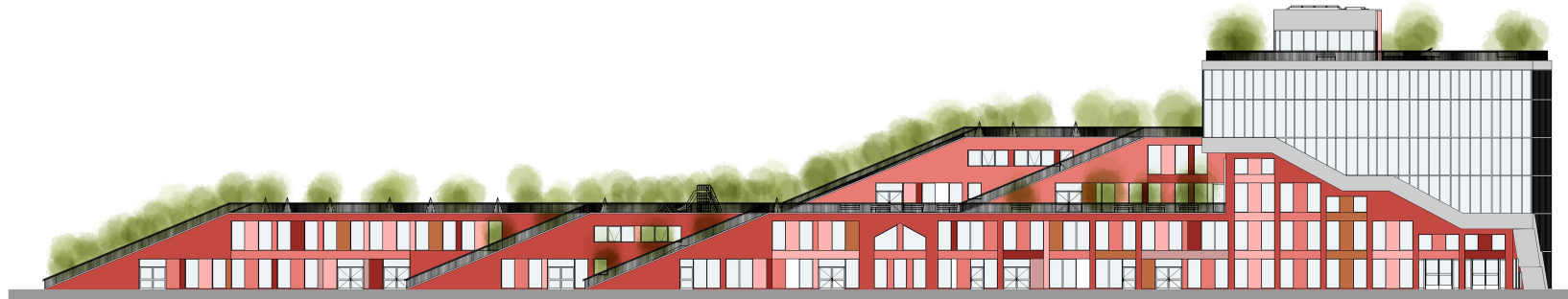


Middle of building

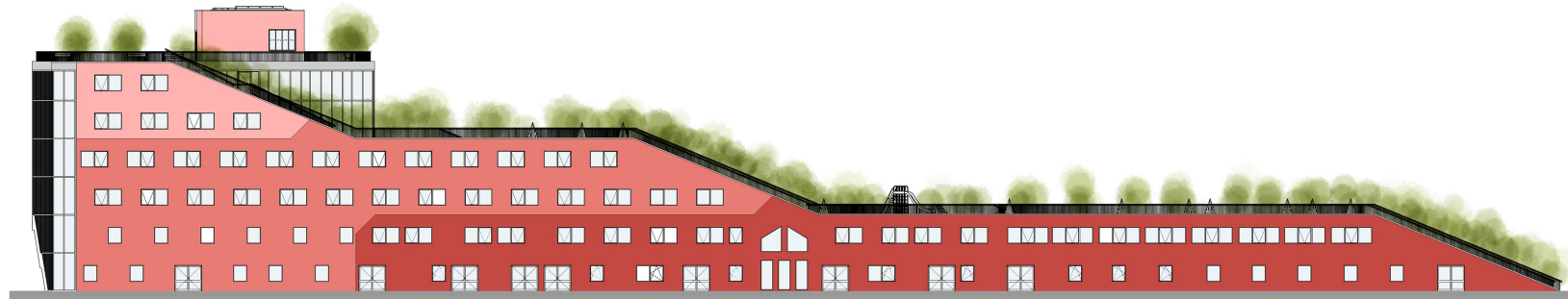


Column: **300 × 300 mm**  
Regular beam: **200 × 380 mm**  
Façade beam: **300 × 380 mm**





South



North



West

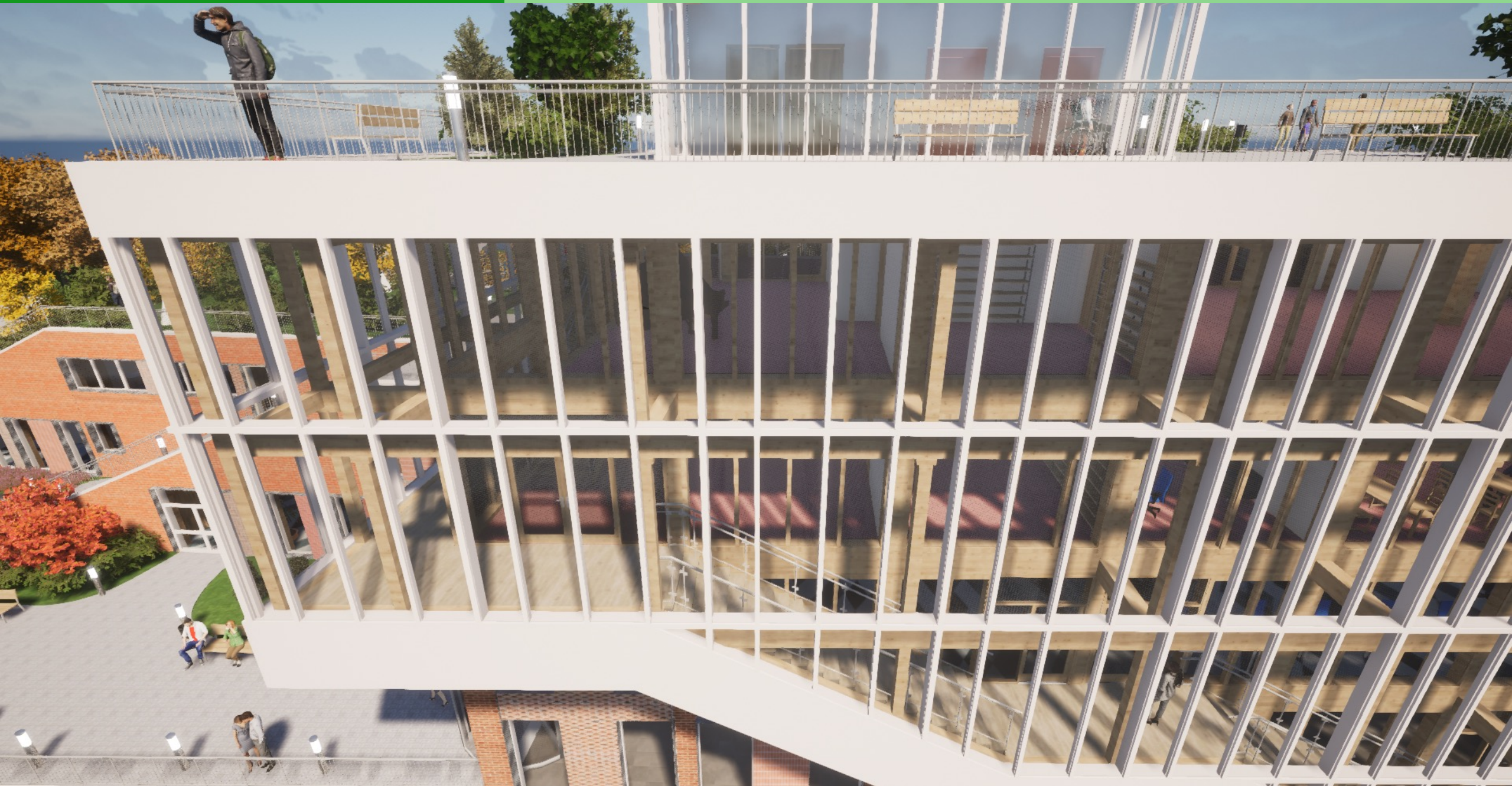


East

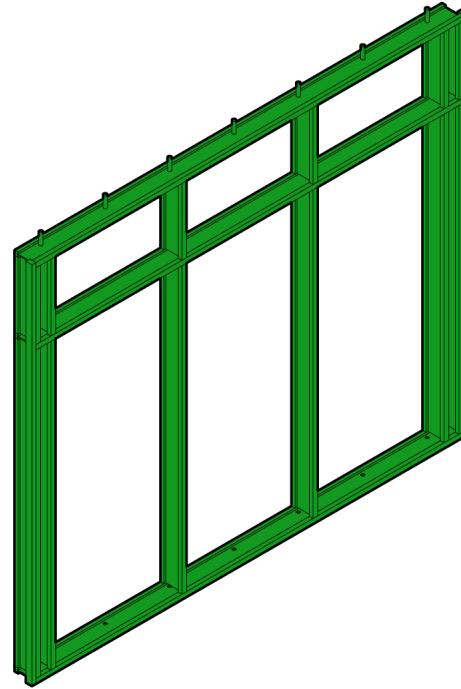


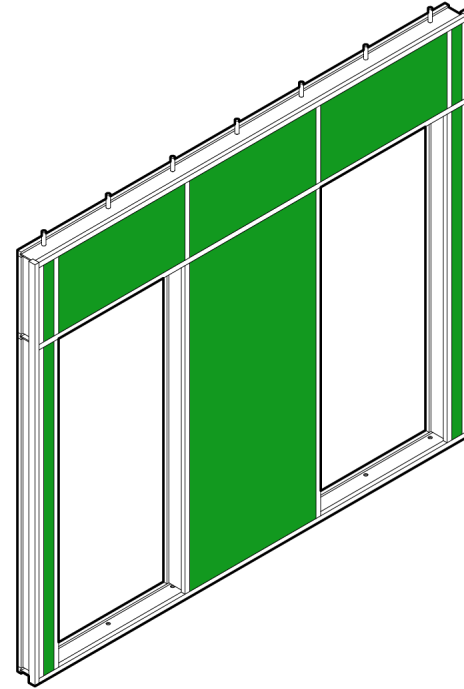


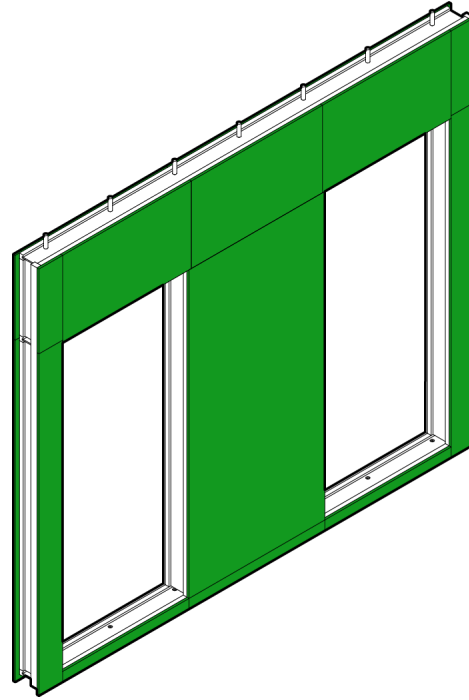


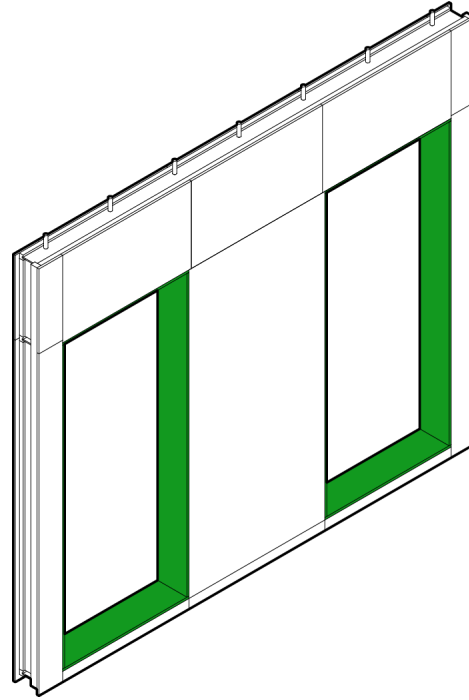


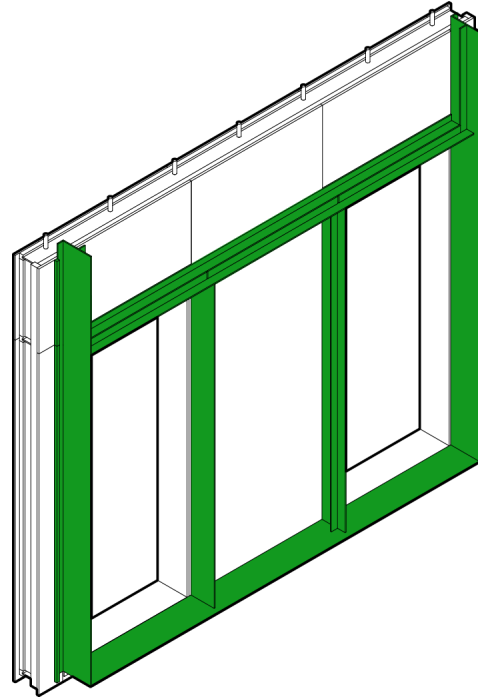




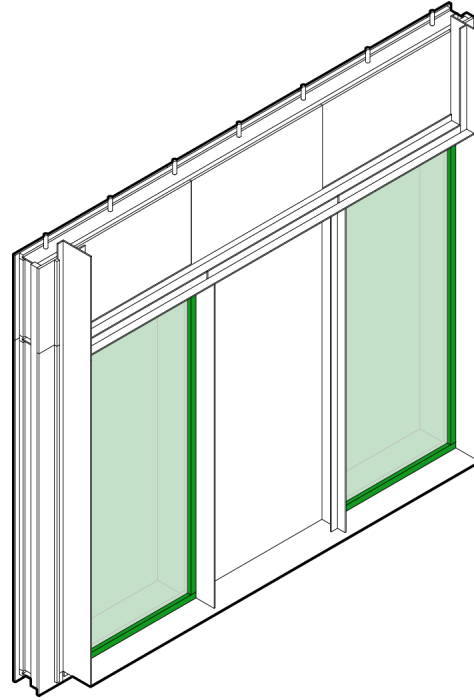


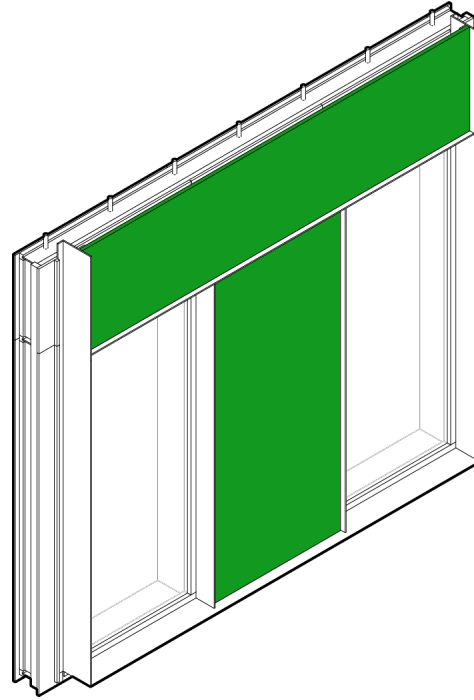


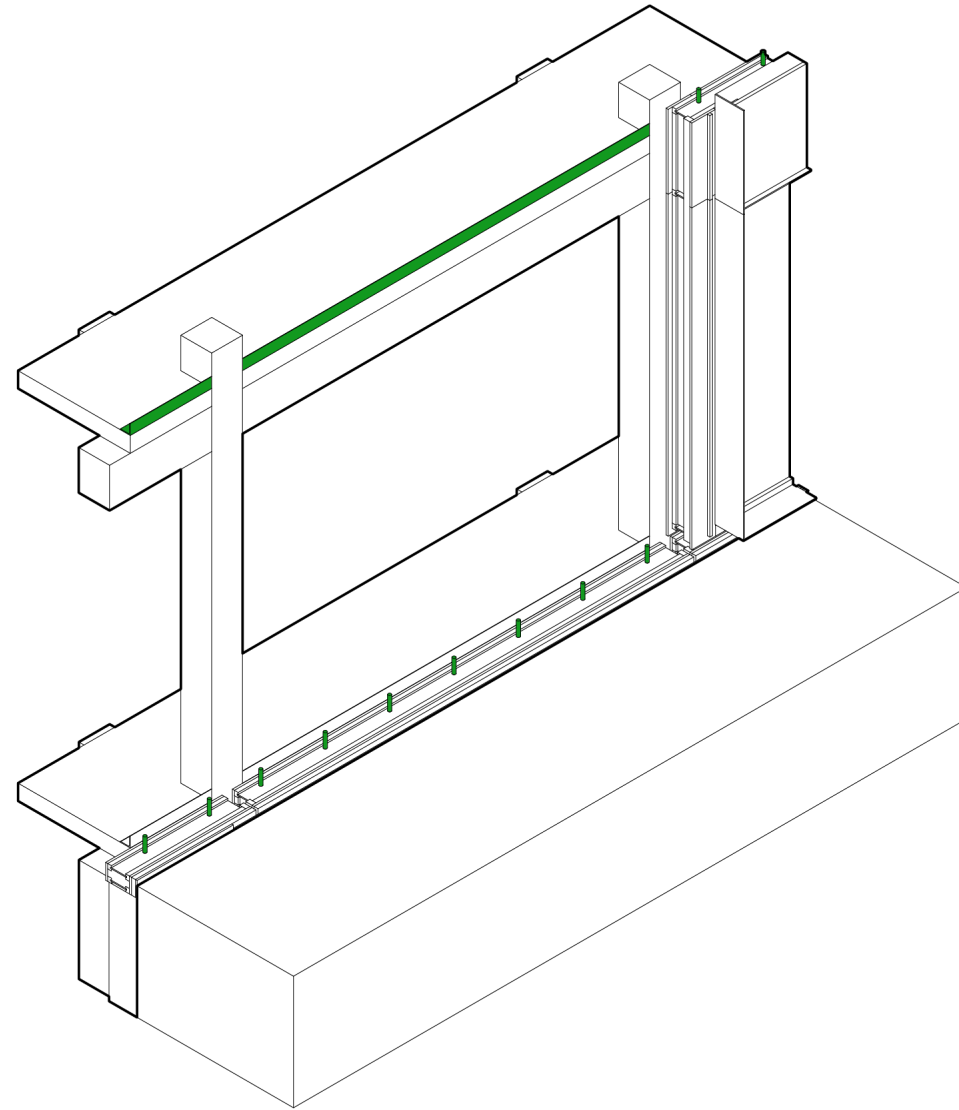


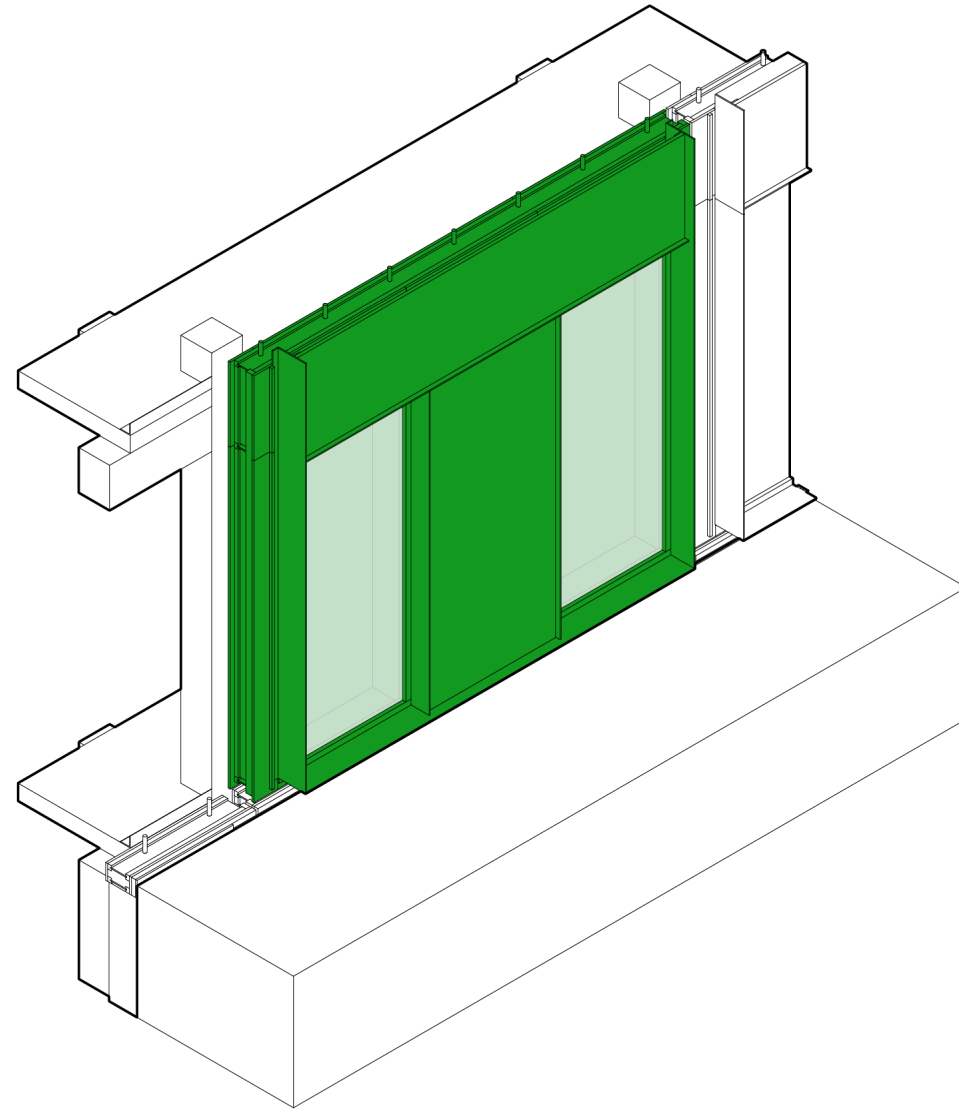


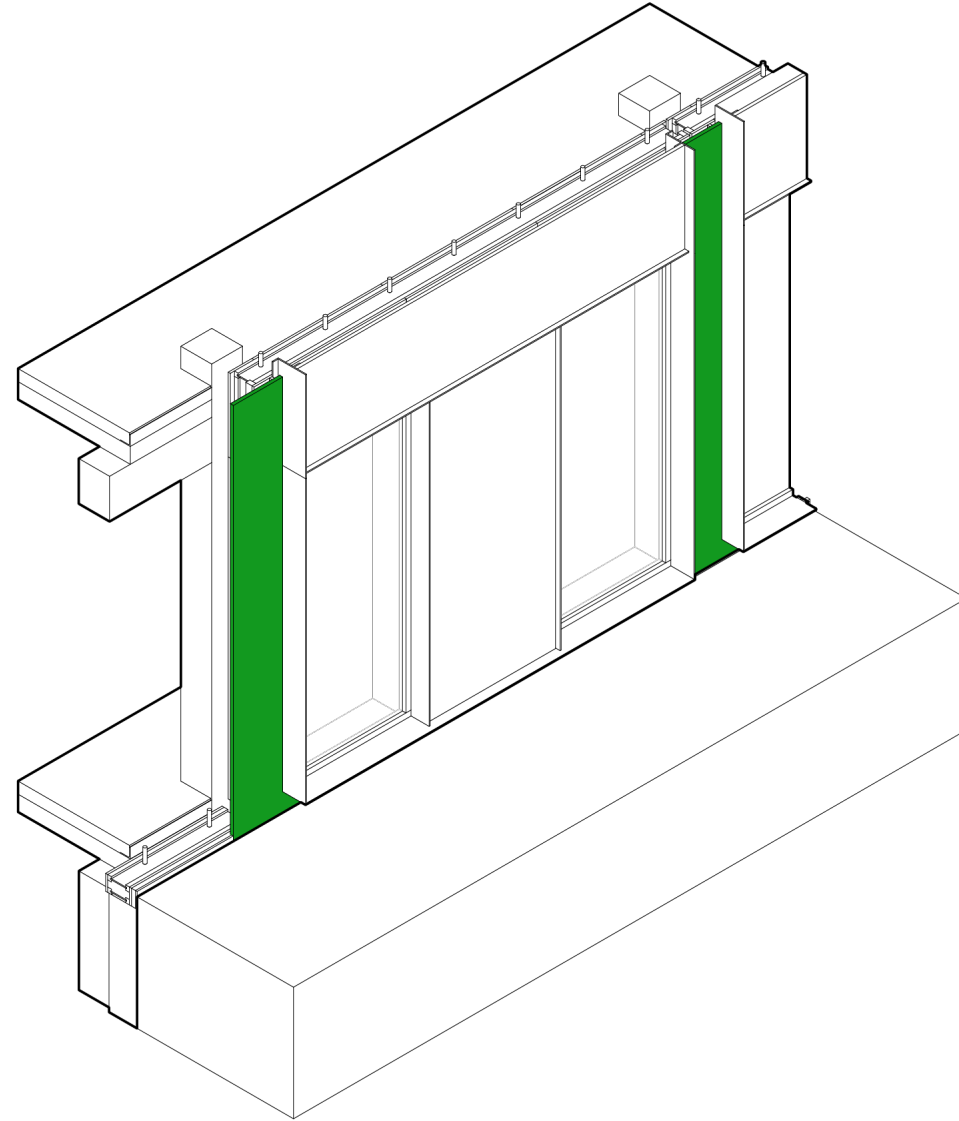


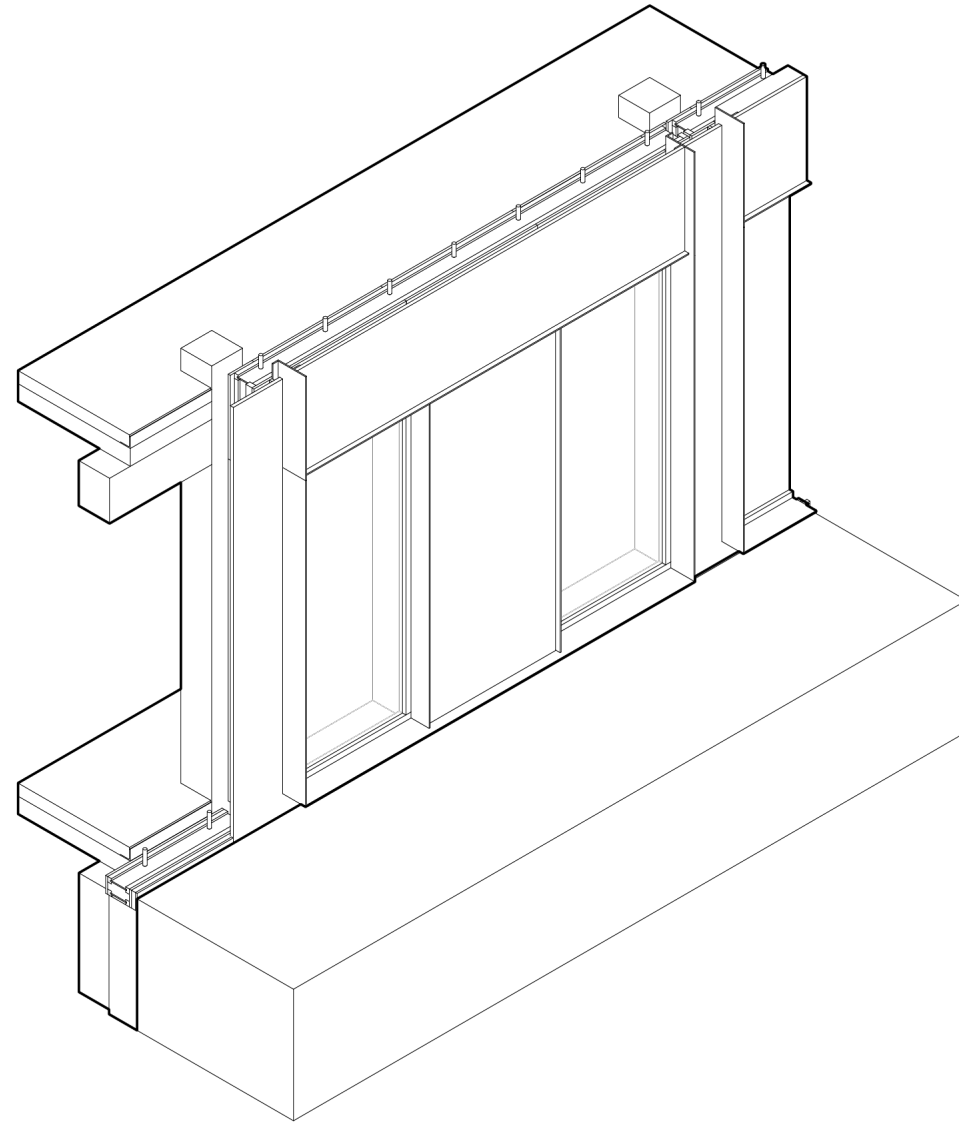


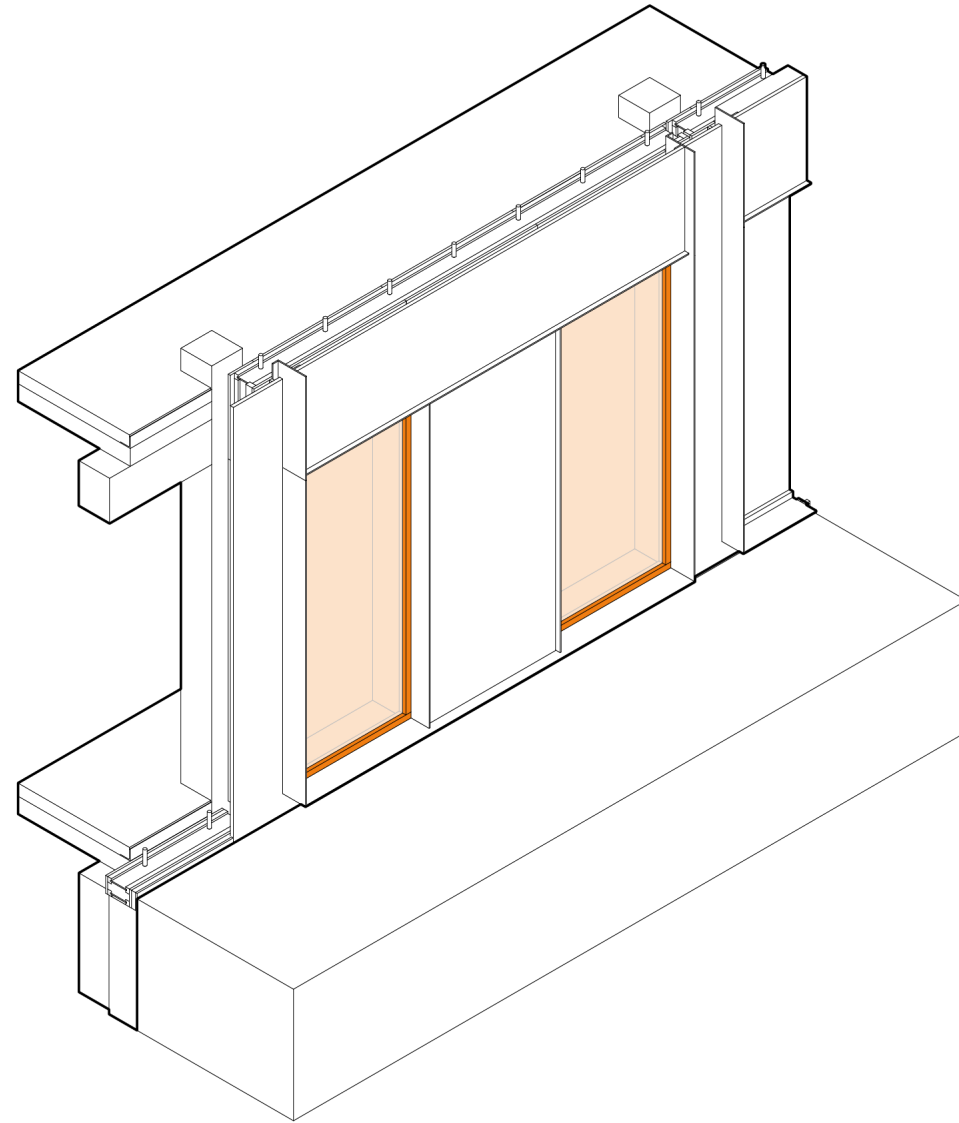


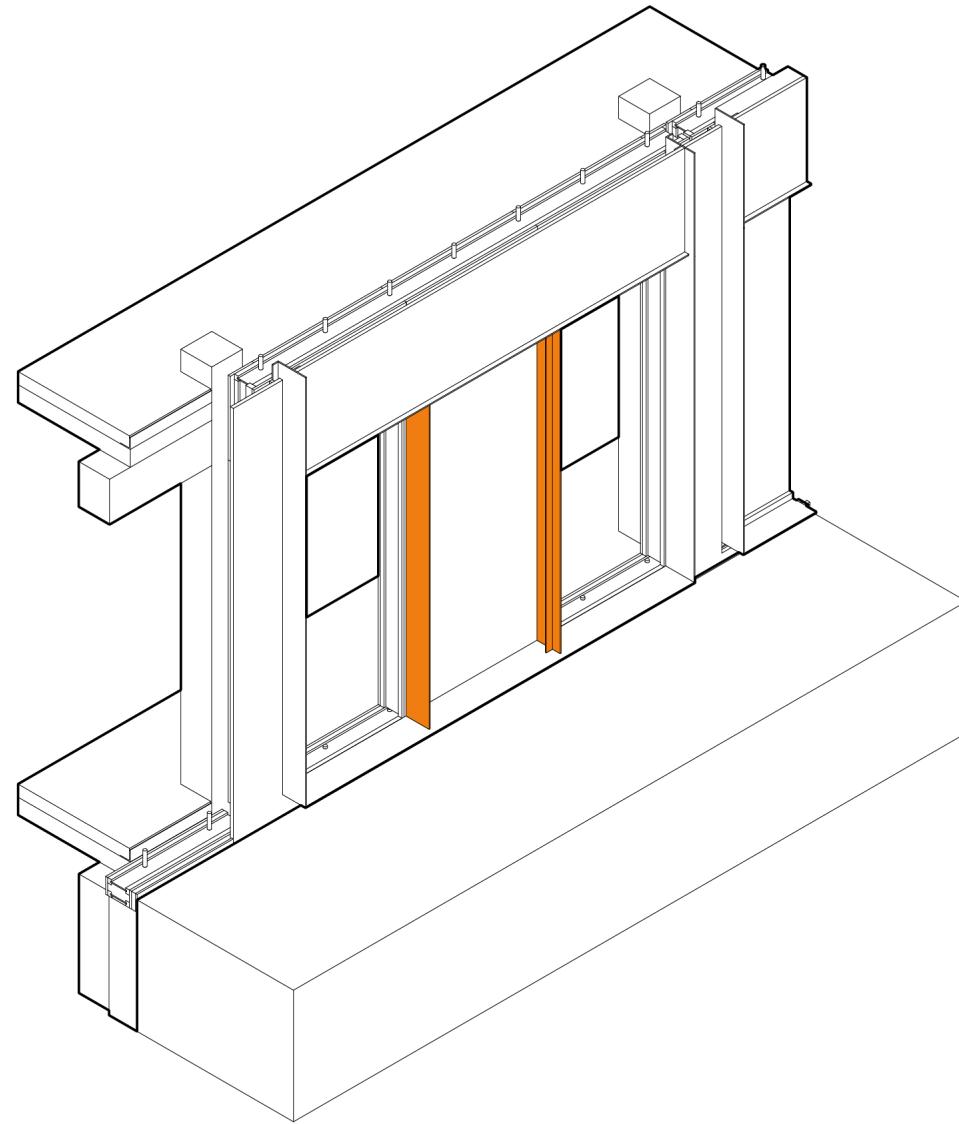




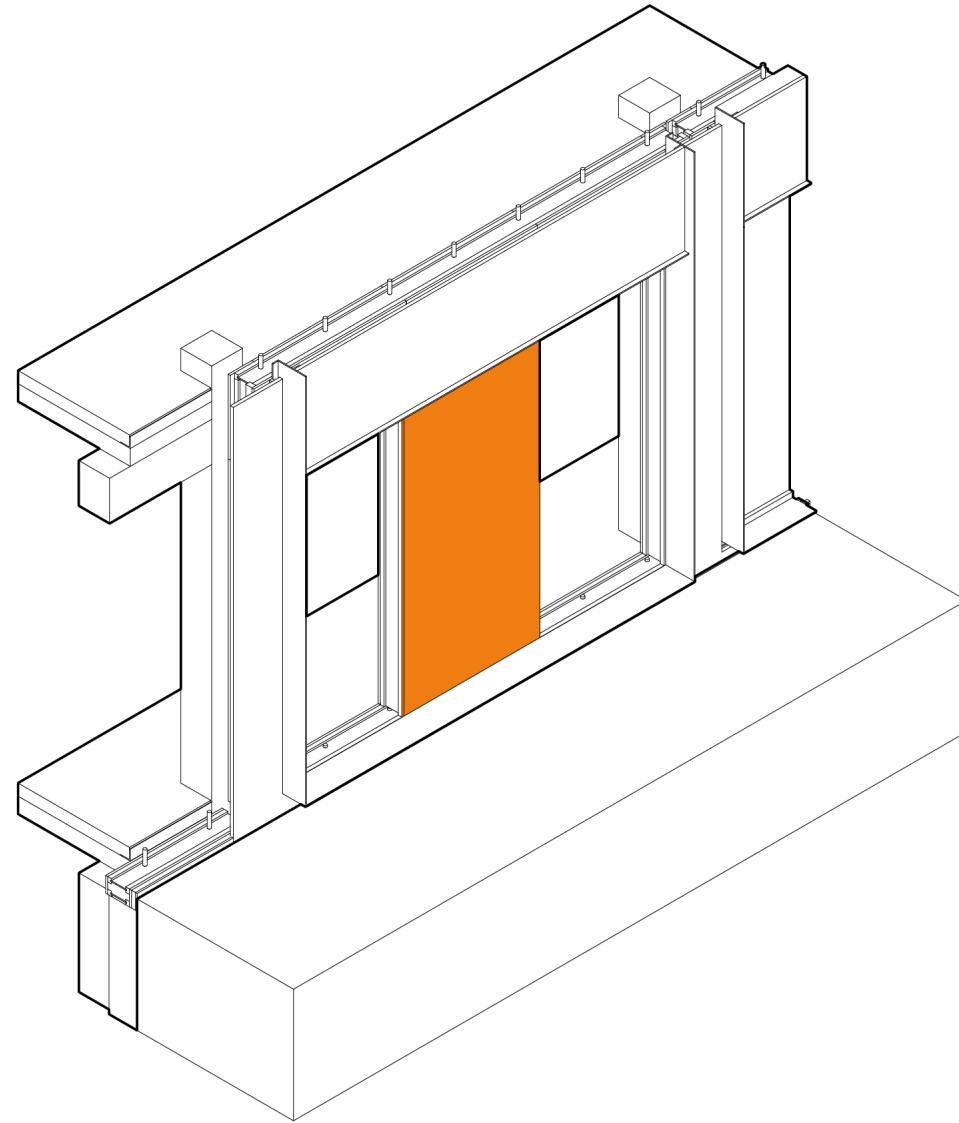


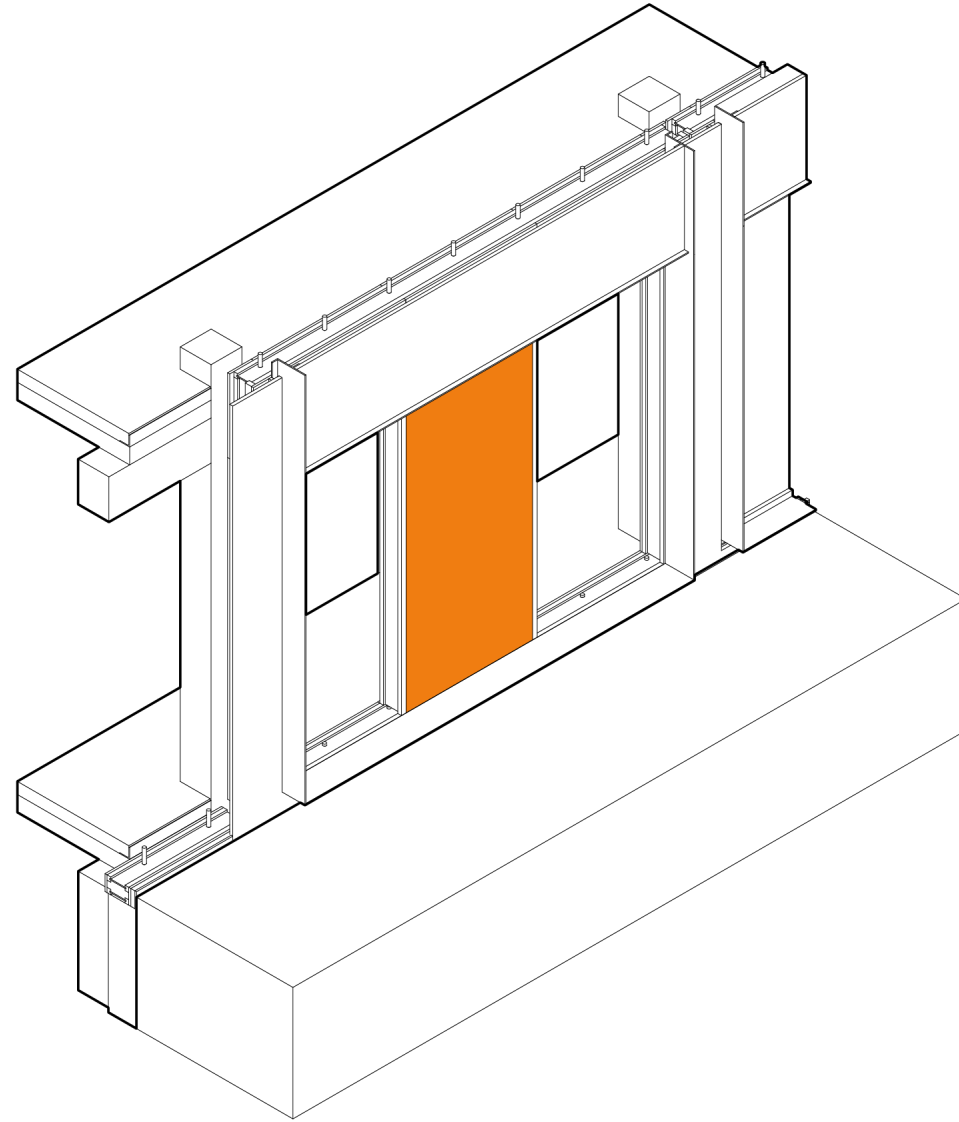


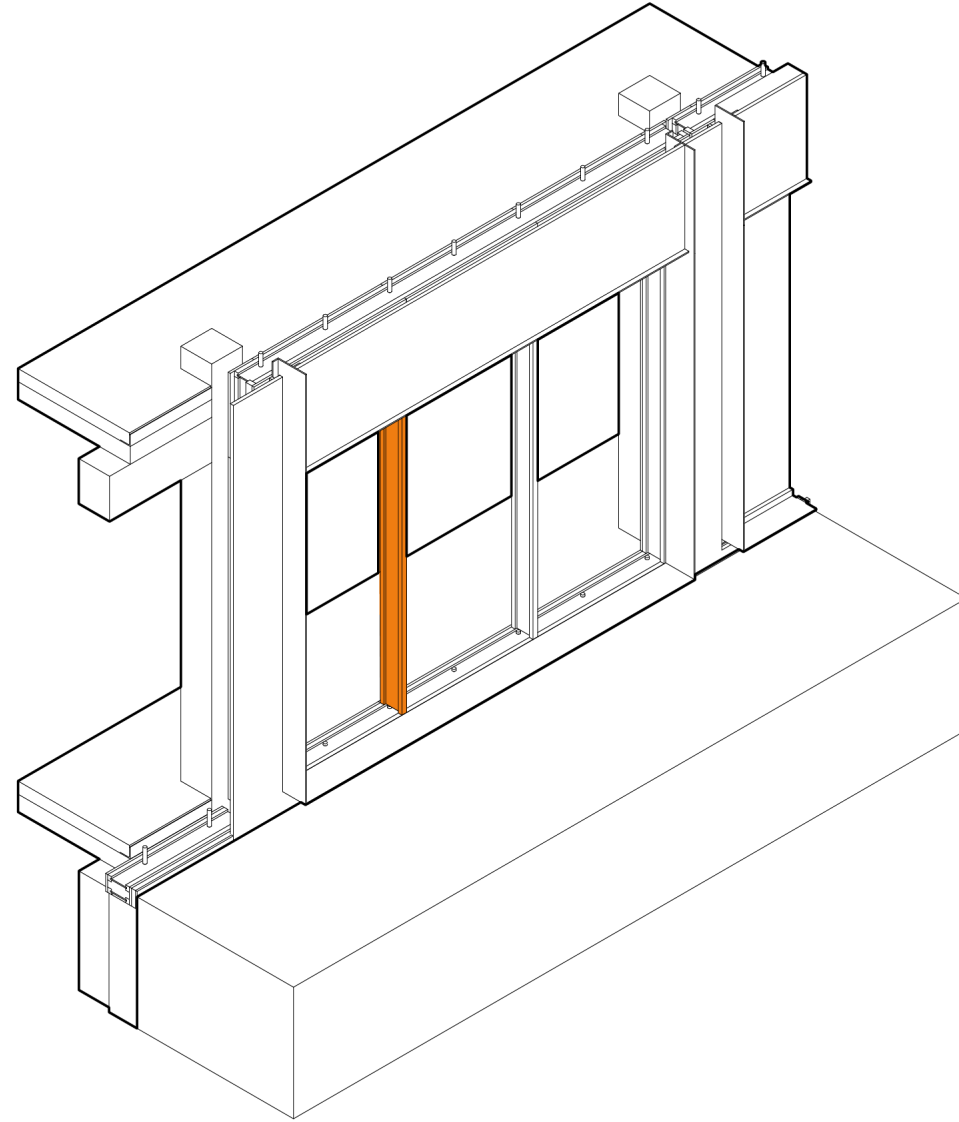


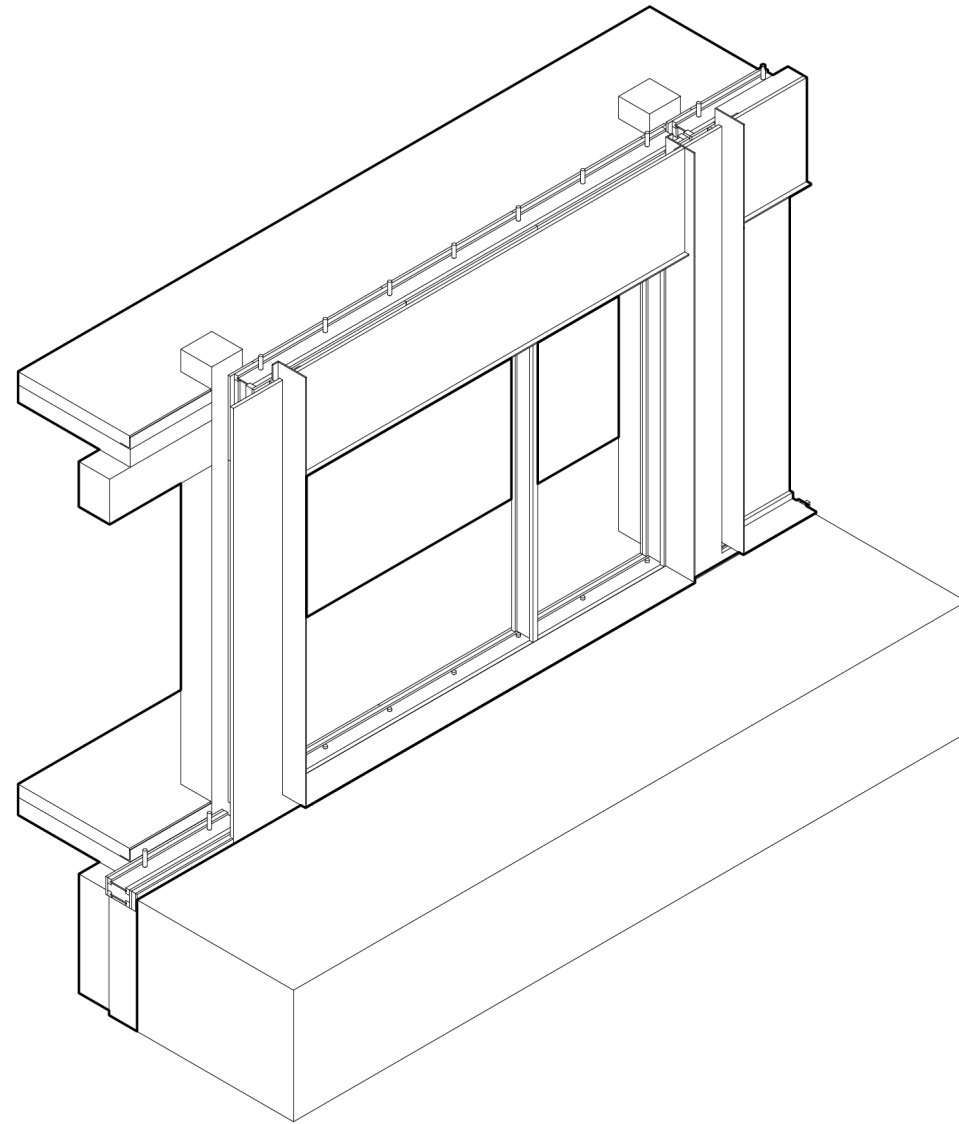


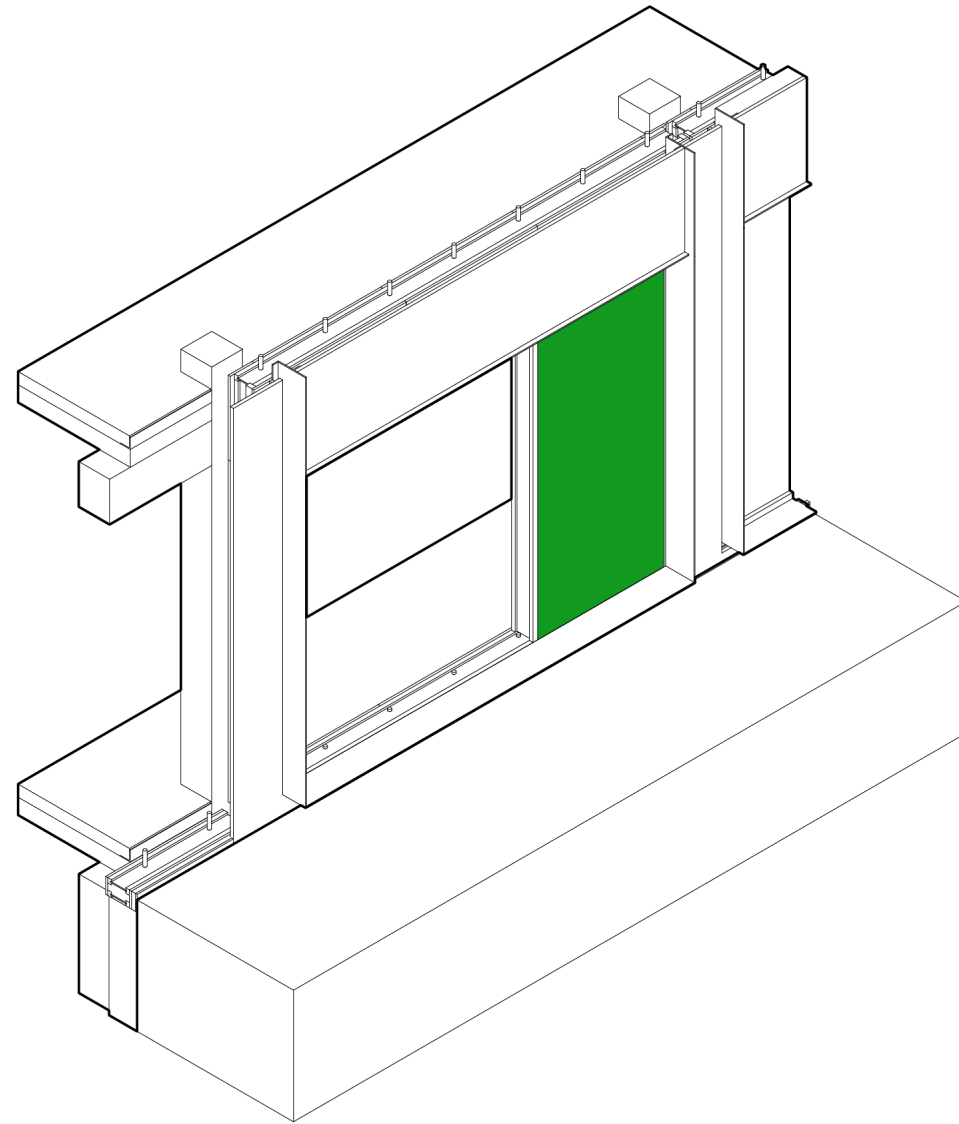


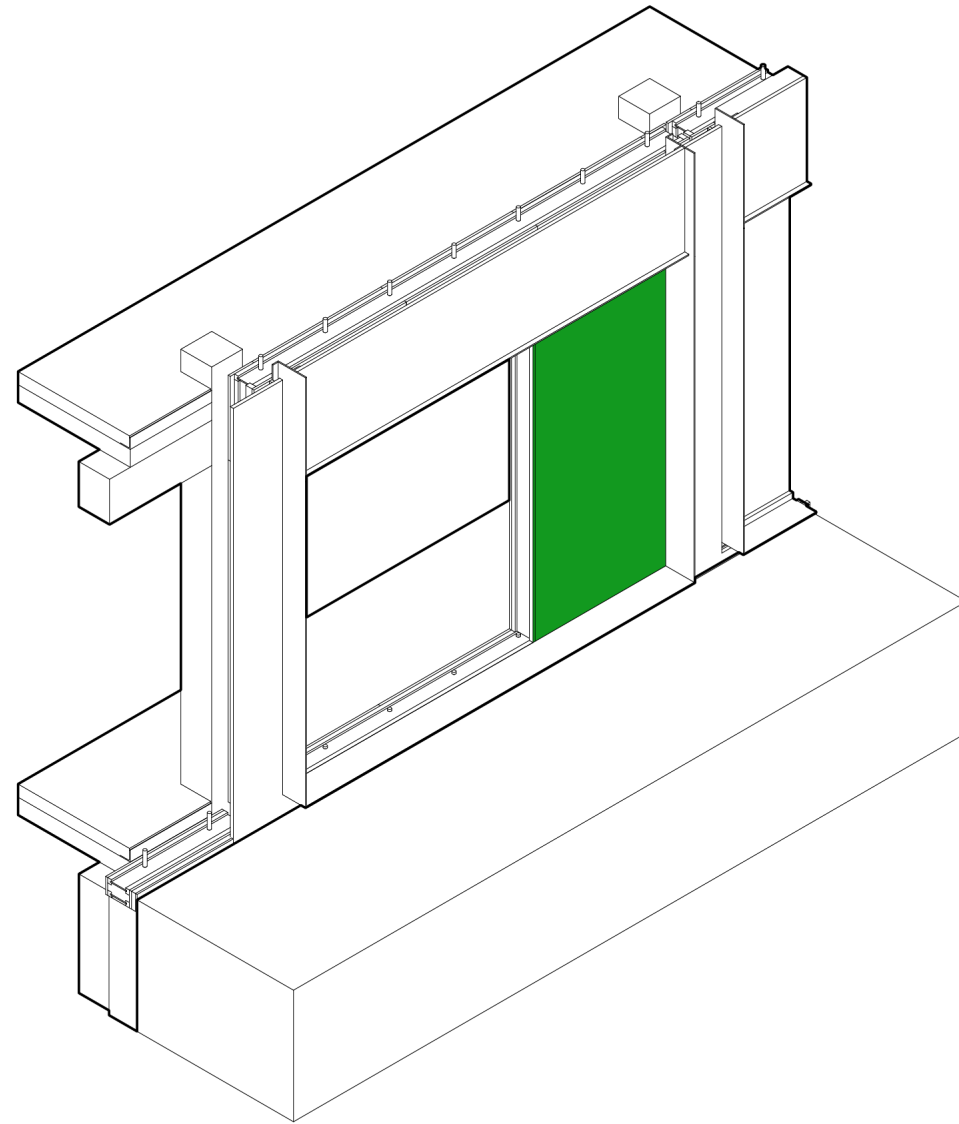


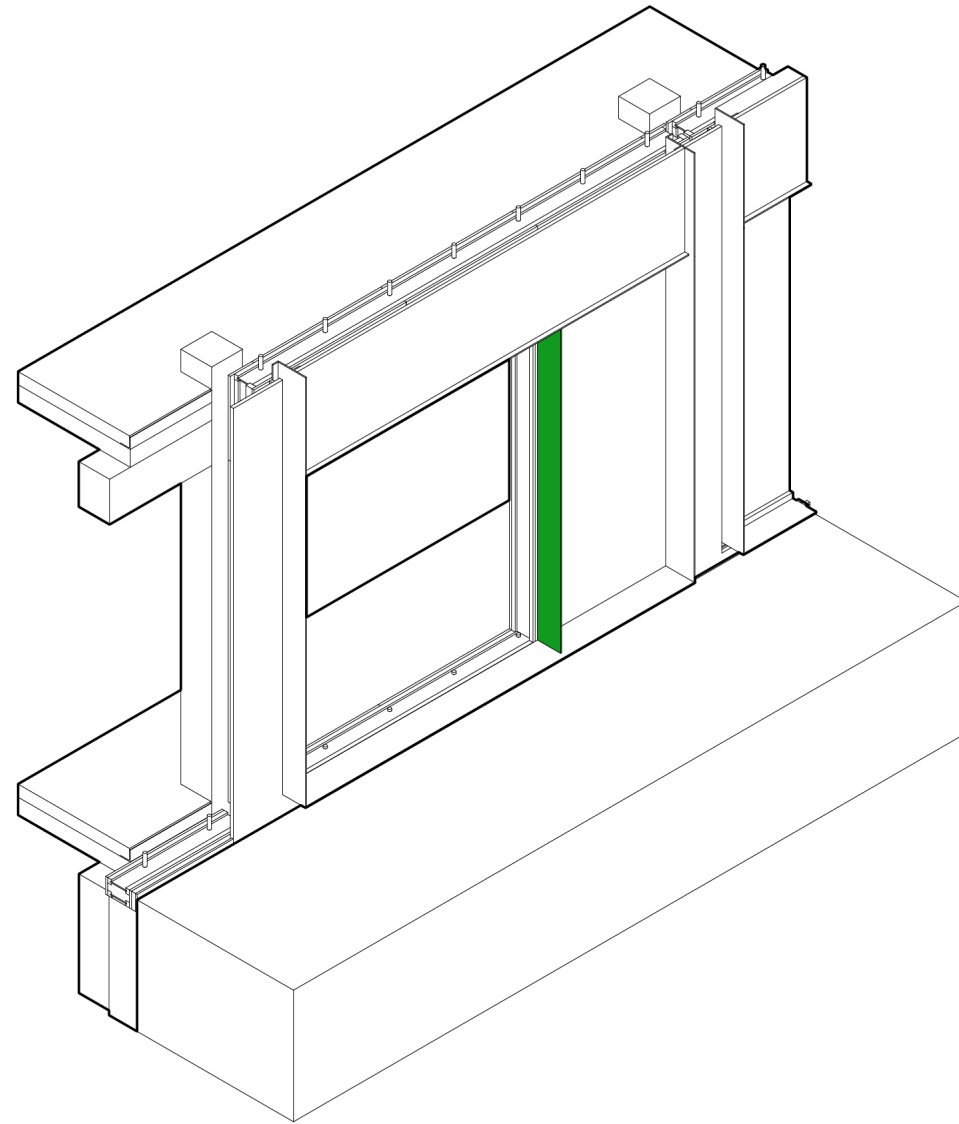


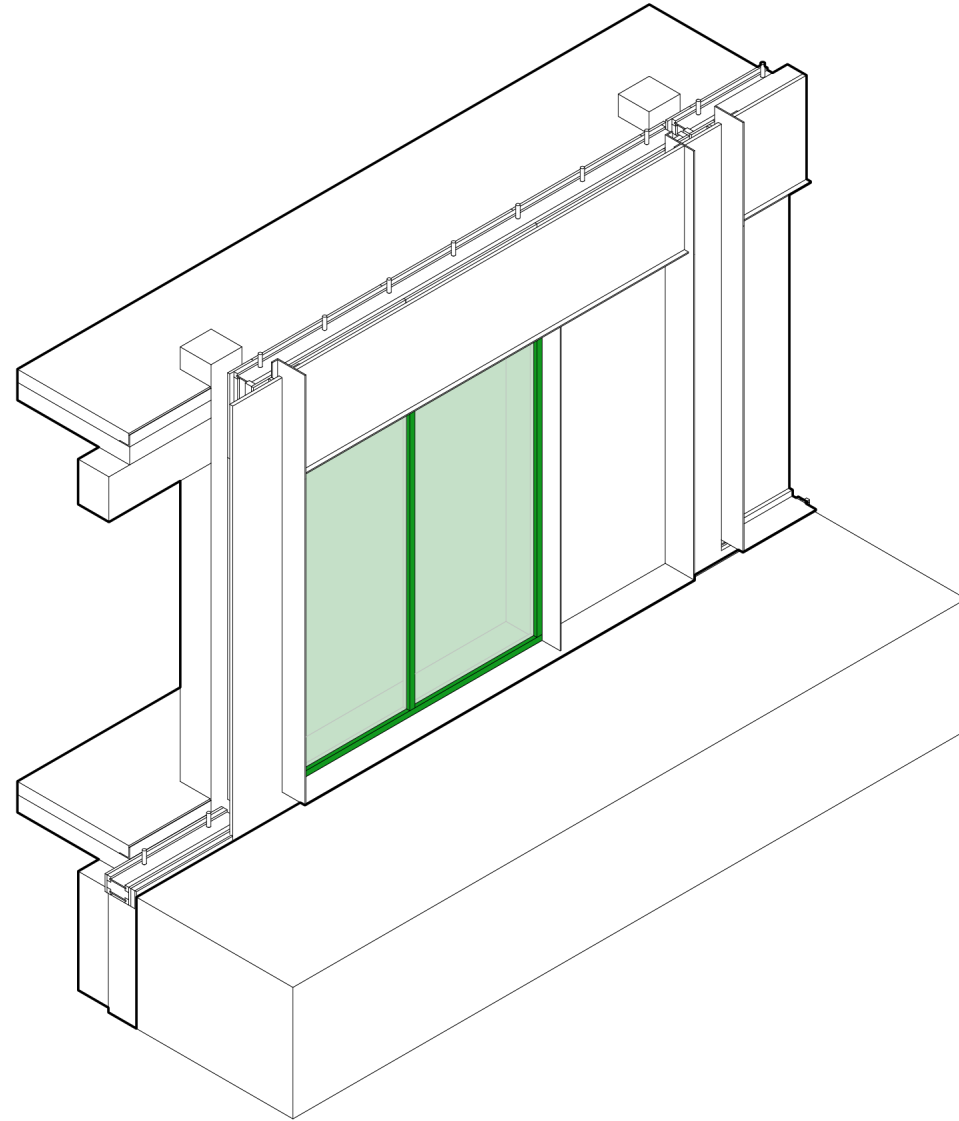




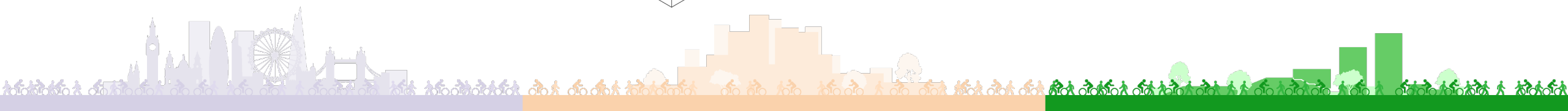
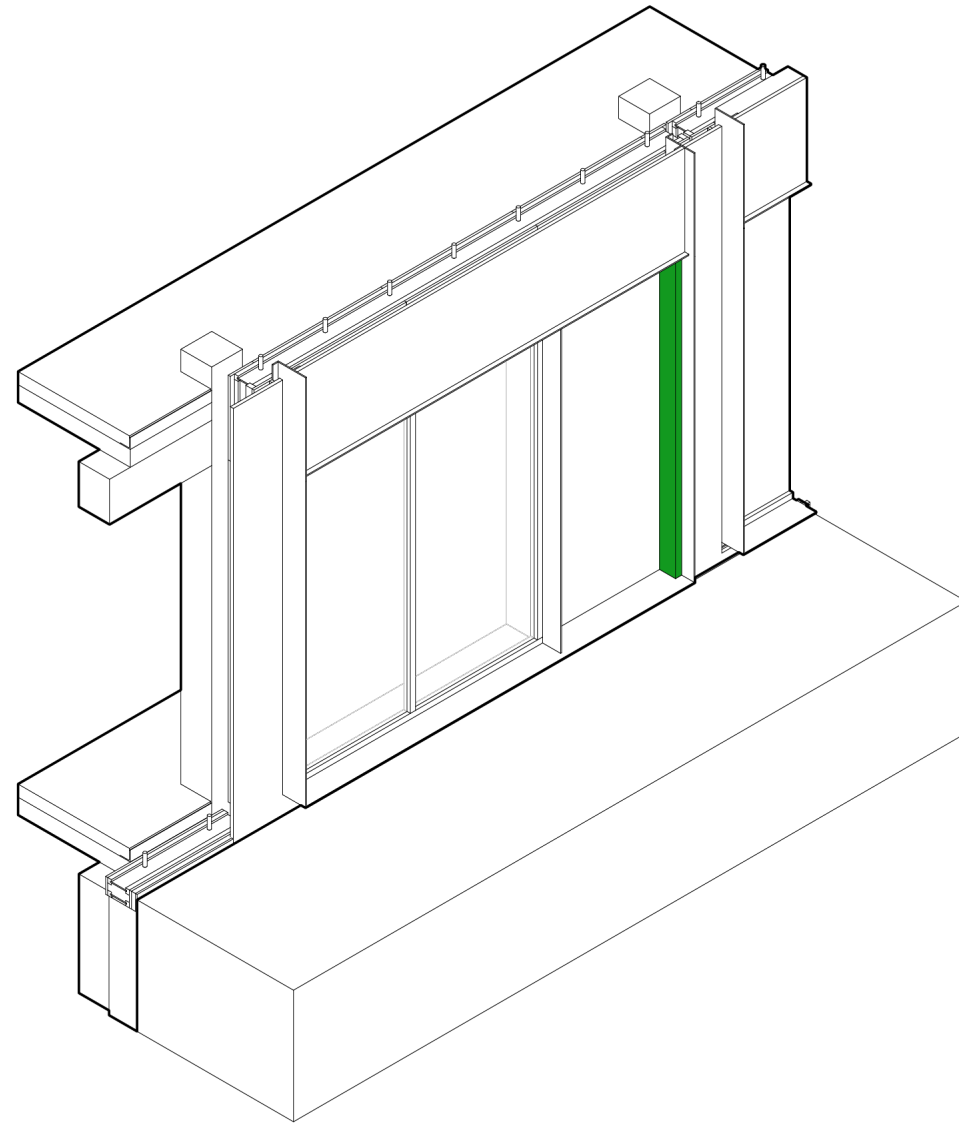


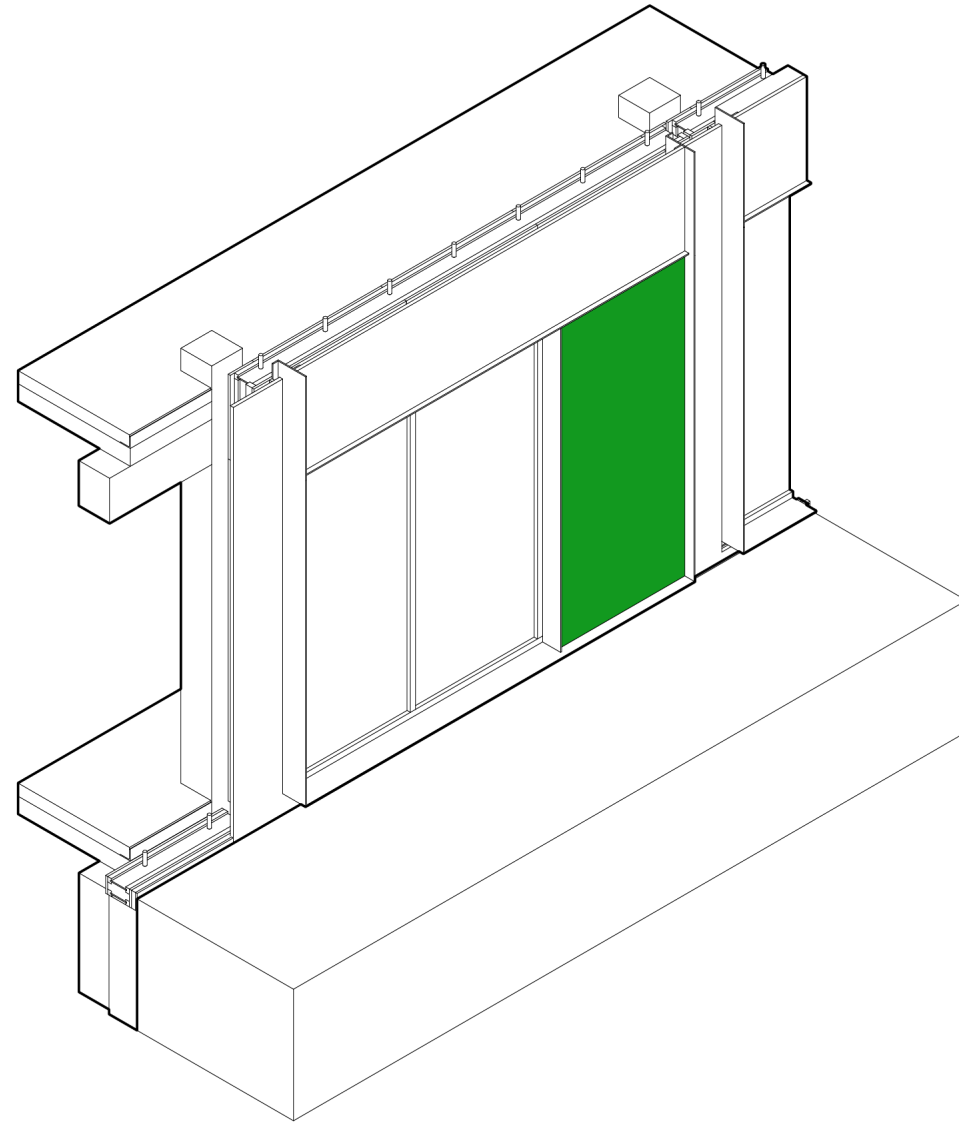


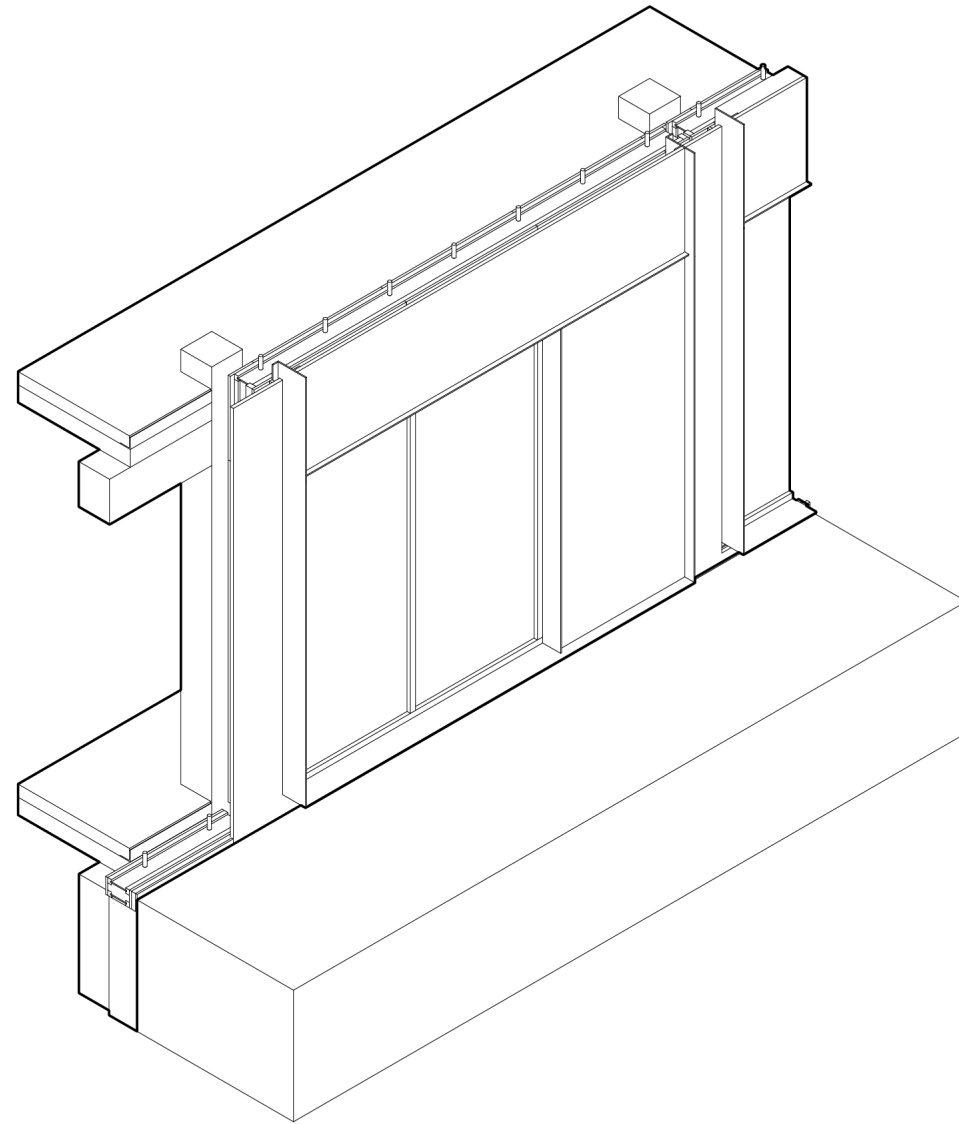


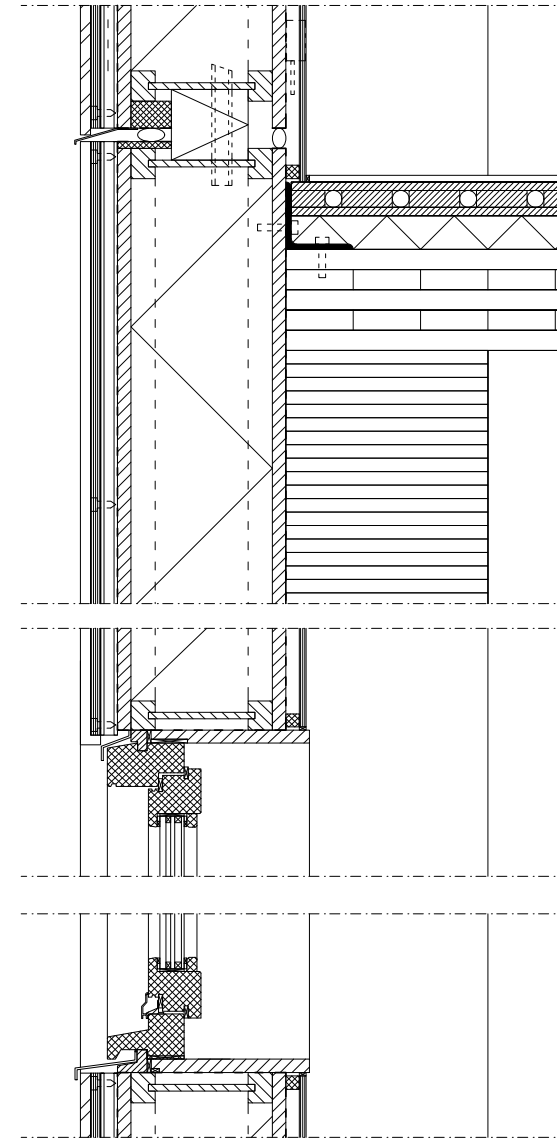


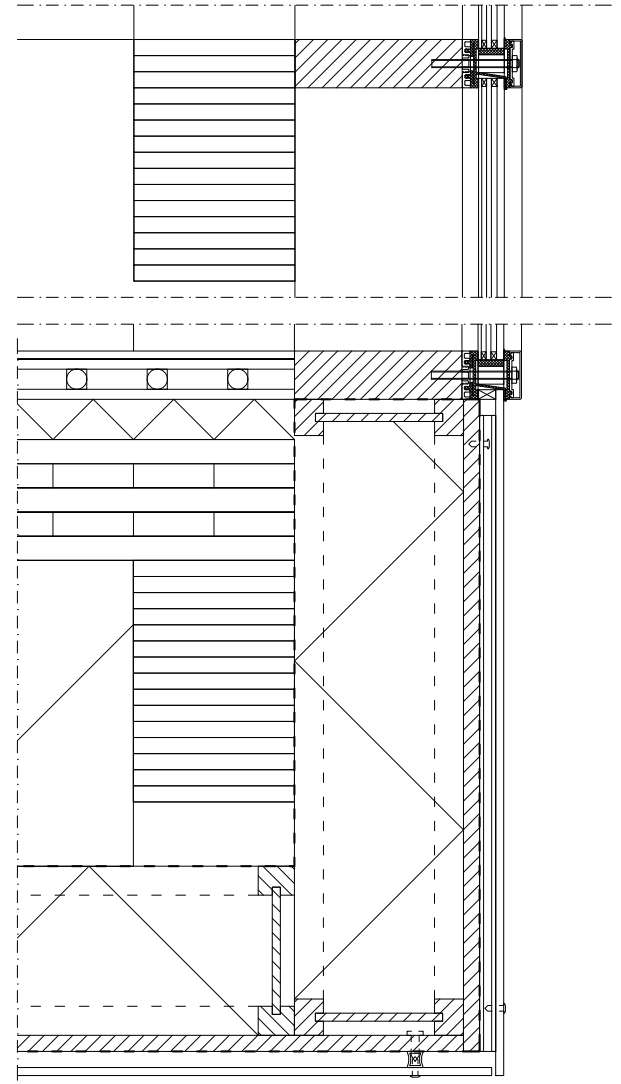
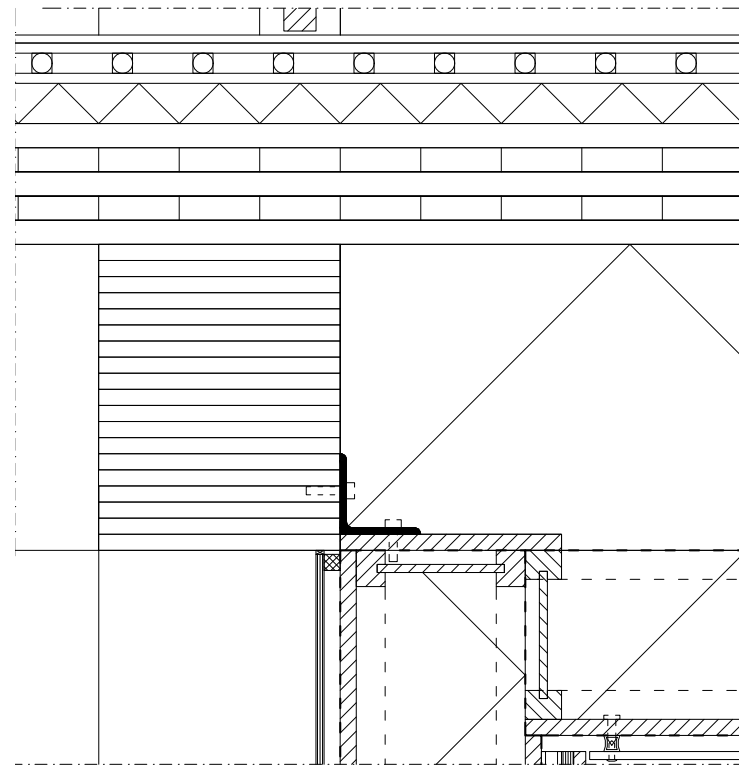




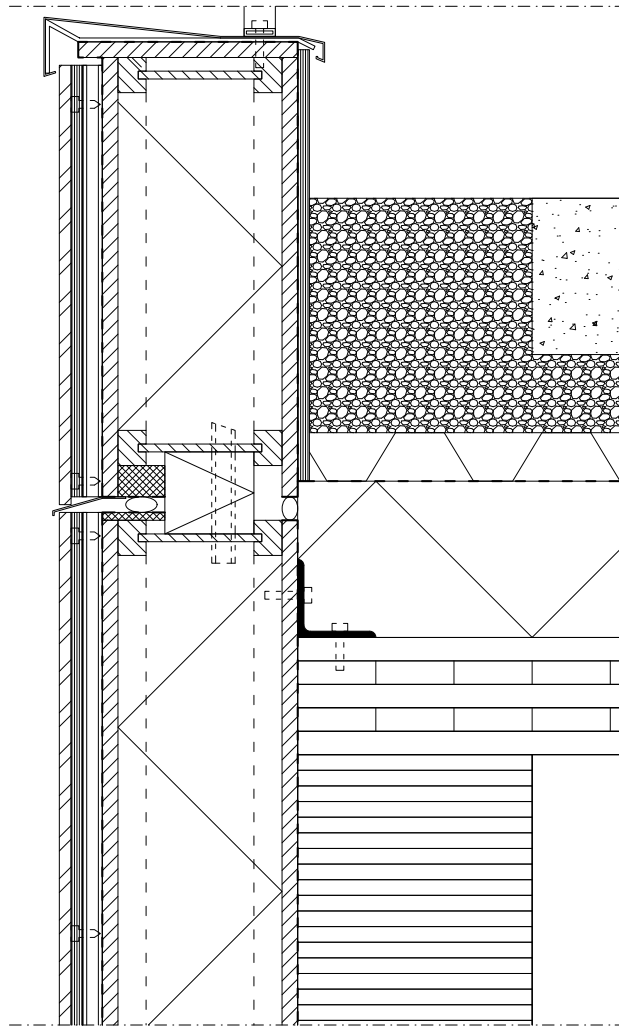




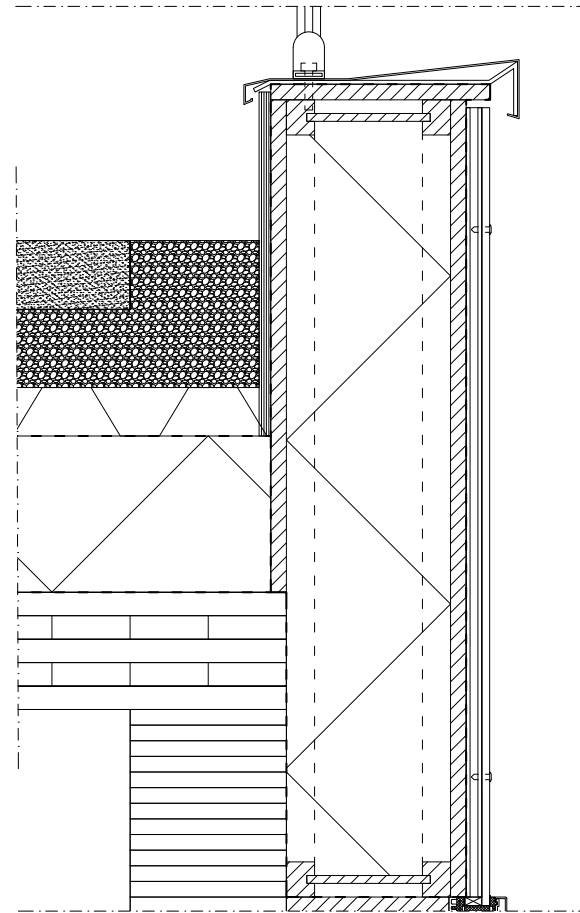




Low building part



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.

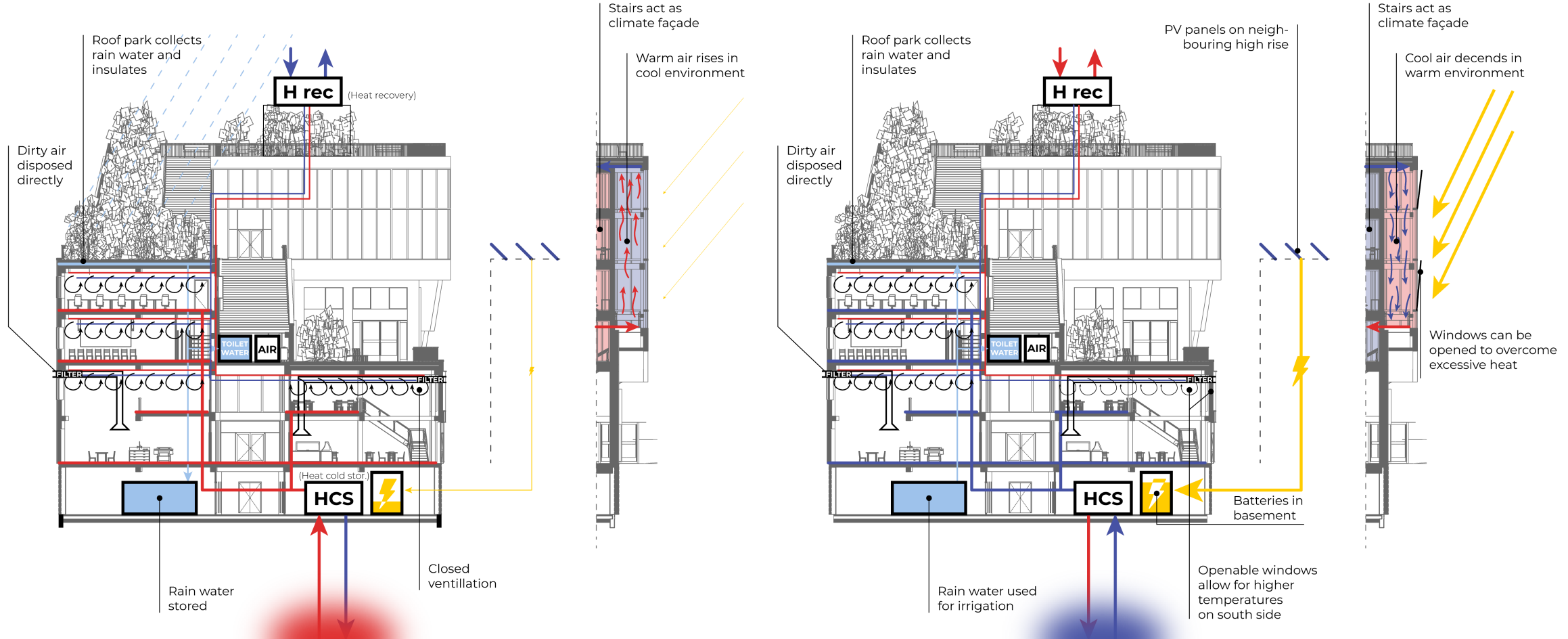
Source: Clarkson-Bennett, H. (2022). Green Roofs & Insulation. Green Roof Guide.

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



## Winter

## Summer





Found with design



Found in precedents



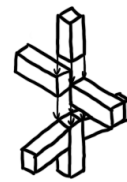
Locally defined functions



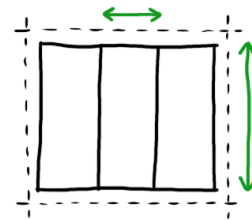
Bike facilities



Hub support functions



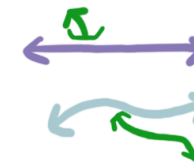
Prefab timber structure



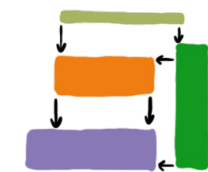
Standardised prefab elements



2 auditory sides



Layering of routes



3D layering of functions



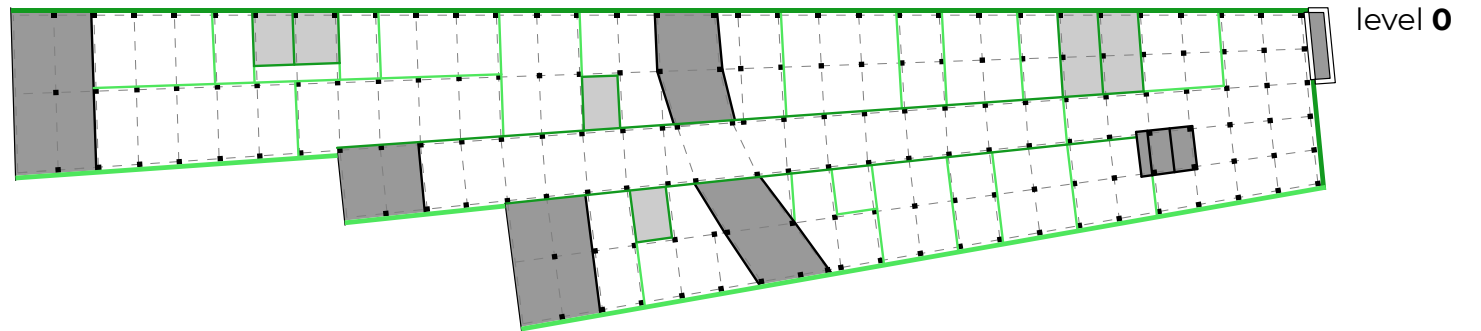
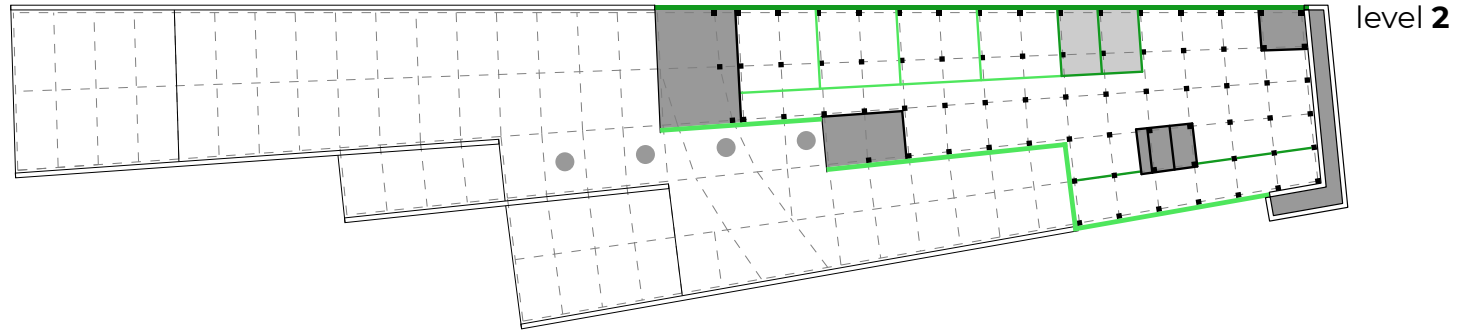
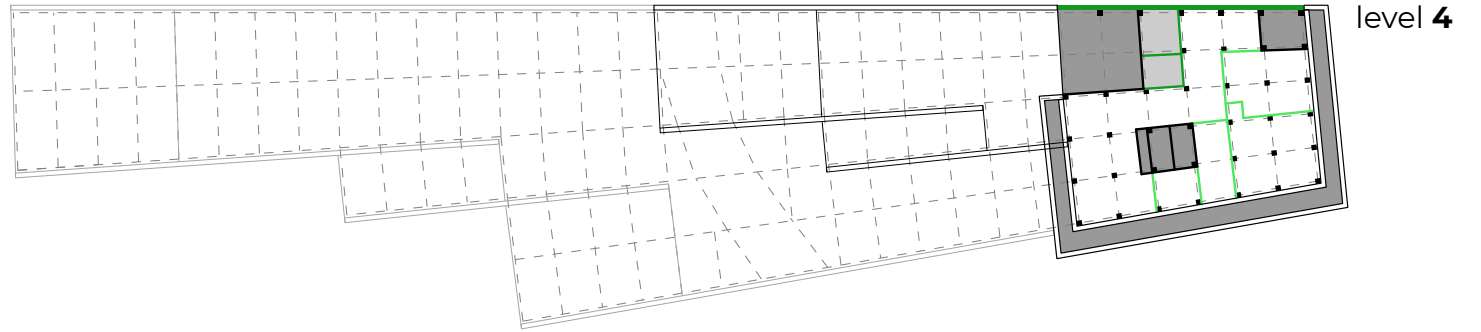


# “infrastructure is ever-changing”

(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

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

