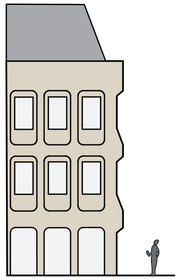


Storming The Castle

The redesign of the post-war precast concrete façade

AR3AH105 Graduation Studio Adapting 20th Century Heritage
P5 Presentation - Ferran van der Klip - 4454065

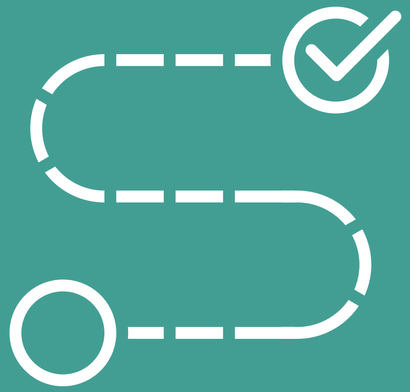
Content of Presentation

The Story

What is there?

- Site & building intro
- Problem statement
- Research questions
- Research findings
- Research conclusions

The Approach



What to do?

- Design starting points
- Program
- Vision

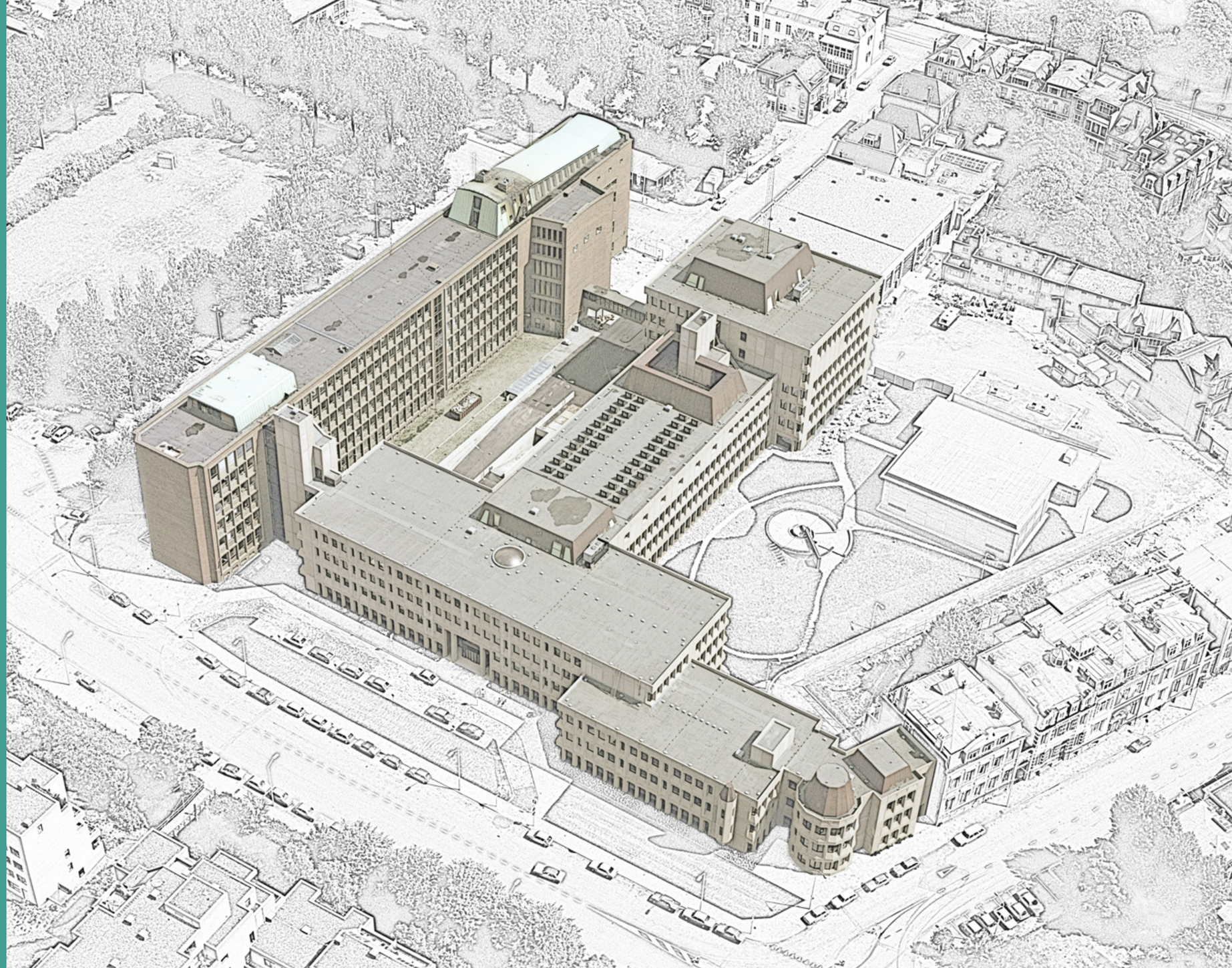
The Design

How does it work?

- Design from user-perspective
- Technical details
- Climate system

THE STORY

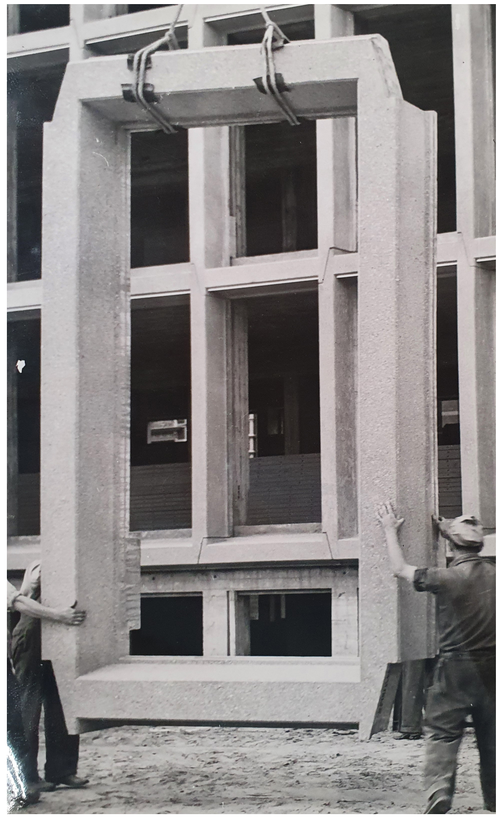
- Site & building analysis



THE STORY

- Site & building analysis

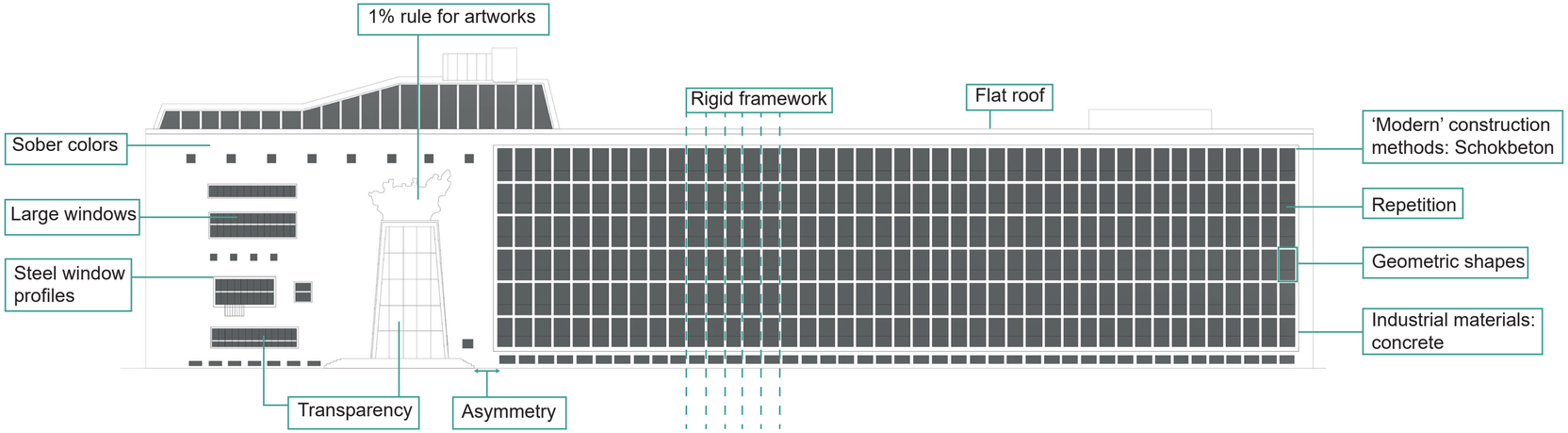
1958 First wing - values & attributes



THE STORY

- Site & building analysis

1958 First wing - modernism



THE STORY

- Site & building analysis

1980 Extension - values & attributes

THE STORY

- Site & building analysis

Site - location police headquarters

0 100m

THE STORY

- Site & building analysis

Site - functions

THE STORY

- Site & building analysis

Site - monuments

legend

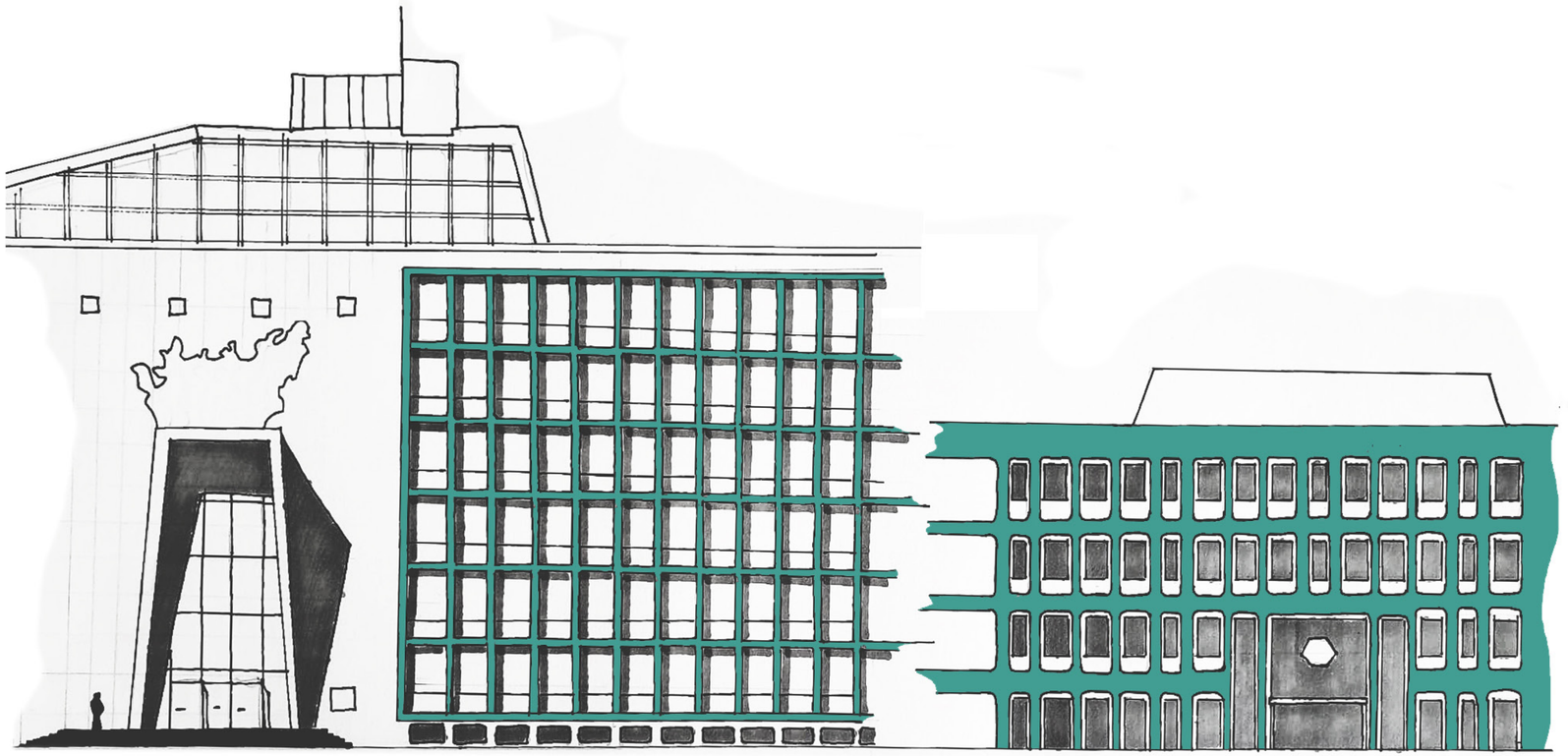
- Monument
- Cemetery
- Unique ensemble

Based on information from Monumentenzorg Den Haag

0 100m

THE STORY

- Site & building analysis
- **Problem statement**



1

By the end of 2023, the police headquarters in The Hague will move to a different location in the city, leaving the large complex of 45.000m2 vacant.

2

Heritage values connected to precast concrete facades are endangered or even lost in case insufficient awareness exists to integrate the into the conservation process.

3

The character of the precast facade in the police headquarters of The Hague has a strict and stately expression.

THE STORY

- Site & building analysis
- Problem statement
- **Research questions**

Main Research Question

"To what extent does the precast concrete façade in the police headquarters in The Hague influence our approach to a redesign?"

Research Paper Question

"How do the precast concrete façades present in the police headquarters in The Hague relate to our construction history and the development of building and material technology?"

?

Design

"Storming the Castle"

THE STORY

- Site & building analysis
- Problem statement
- Research questions
- **Research methods**

Historic research

“What is the role of Schokbeton in the post-war precast concrete façade?”

Case-study research

What is the contribution of the precast concrete façade to modernist architecture?

THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

Patent application

C. D. 621.979.31
666.3.022.84

Dagteekening 4 Juli 1935.

Auteursrecht voorbehouden.

OCTROOIRAAD

NEDERLAND

OCTROOI Nº. 36029.

KLASSE 80 *a*. 46 *a*.

N.V. SCHOKTECHNIEK, te Zwijndrecht.

Werkwijze en machine voor de vervaardiging van betonwaren onder aanwending van schokken.

Aanvrage 65837 Ned., ingediend 29 Juni 1933, 14 uur 53 min.; openbaar gemaakt 15 September 1934.

Het is bekend betonspecie in een vorm in trilling te brengen, of aan schokken te onderwerpen, om de specie goed te laten inklinken en aldus betonwaren van hooge vastheid en groote dichtheid te verkrijgen. Bij het verdichten van beton door schokken moeten verschillende factoren samenwerken, wil men de gewenschte resultaten ten volle bereiken.

Volgens de uitvinding wordt 1° een aardvochtige betonmortel verwerkt; 2° wordt de specie in en met den vorm aan schokken onderworpen, welke ontstaan door een valbeweging over een hoogte van minder dan 2,5 cm; 3° worden de schokken opgewekt, doordat de vorm vast is verbonden met een stijf, metalen draagstuk, terwijl minstens twee aanslagen tusschen het draagstuk en een metalen aambeeld gelijktijdig den schok opvangen en bovendien het aambeeld een gewicht heeft, minstens gelijk aan een derde van het gewicht van de vallende deelen; 4° wordt onder het aambeeld een fundeering gebruikt, welke minstens tweemaal zoo zwaar is als de vallende deelen; vormen aambeeld en fundeering één geheel, dan is het gewicht van dat geheel minstens twee en een derde maal het gewicht van de vallende deelen.

Het gebruik van aardvochtige specie maakt, dat de mortel niet ontmengt bij het schokken en dat de vastheid van het beton de hoogste waarde kan bereiken. Bovendien blijkt het, dat terstond na de schokbewerking de vorm van eenvoudige voorwerpen, als b.v. palen en balken, kan worden afgenomen, vooral indien men de voorzorg heeft genomen, papier in den vorm te leggen, waardoor het kleven van de specie aan den vorm wordt voorkomen. De geschokte betonspecie behoudt haar vorm. De schokken doen het beton volmaakt rondom wapeningsstaven aansluiten, hoewel geen gietbeton wordt gebruikt.

Een valbeweging over een geringe hoogte, b.v. slechts 8 mm, is nuttig, omdat men tot ca. 400 schokken per minuut kan veroorzaken en de specie niet in den vorm gaat spatten en dus ontmengen.

De stijve verbinding van den vorm aan een metalen draagstuk maakt, dat geen plaatselijke natrillingen van hooge frequentie kunnen ontstaan en dus de schokwerking, die de specie als het ware ineen doet stuiken, niet overgaat in een snelle siddering, waardoor de samenhang in de specie eerder losser wordt.

De betrekkelijk kleine aanslagen tusschen het draagstuk en het aambeeld verhinderen het ontstaan van een luchtkussen tusschen de aanslagvlakken, waardoor de schok gebroken zou worden, zooals dat waarneembaar is, wanneer lichamen met groote tegen elkander passende oppervlakken elkander snel naderen.

Een betrekkelijk zwaar metalen aambeeld, dat de slagen van de vallende massa in eersten aanleg opvangt, maakt de stootwerking effectief. Schokbrekers en veerende tusschenstukken zijn volgens de uitvinding verwerpelijk.

Een nog zwaarder fundament, waarop het aambeeld zoo stijf mogelijk is vastgezet, verhoogt eveneens het effect van den slag. Hoe minder secundaire bewegingen ontstaan, hoe kleiner het arbeidsvermogen is, dat voor schokken volgens de uitvinding noodig is.

De werkwijze volgens de uitvinding berust dus op de gedachte, dat schudden en sidderen niet het gewenschte effect op de specie hebben, een aantal botte stooten, zooveel mogelijk zonder natrilling, daarentegen een zeer gunstigen invloed op de kwaliteit van het eindproduct uitoefenen.

In de hierboven aangegeven gewichtsverhoudingen is het gewicht van het beton en den vorm een veranderlijke factor. Zou het gewicht van de vallende deelen te zeer stijgen ten opzichte van het gewicht van aambeeld plus fundeering, dan komt het oogenblik, waarop de werkwijze volgens de

Verkrijgbaar bij het Bureau voor den Industrieelen Eigendom, te 's-Gravenhage.
Prijs per ex. *f* 0.60

FIG.1

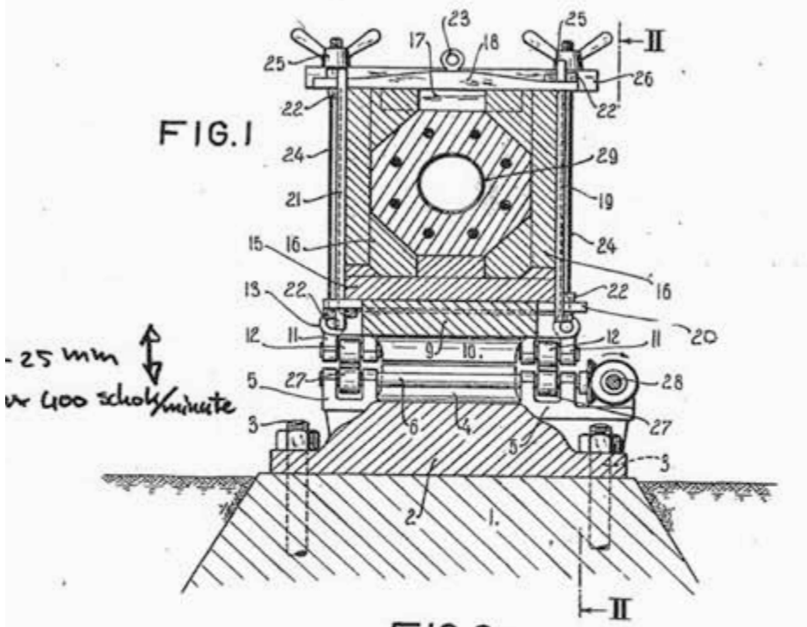
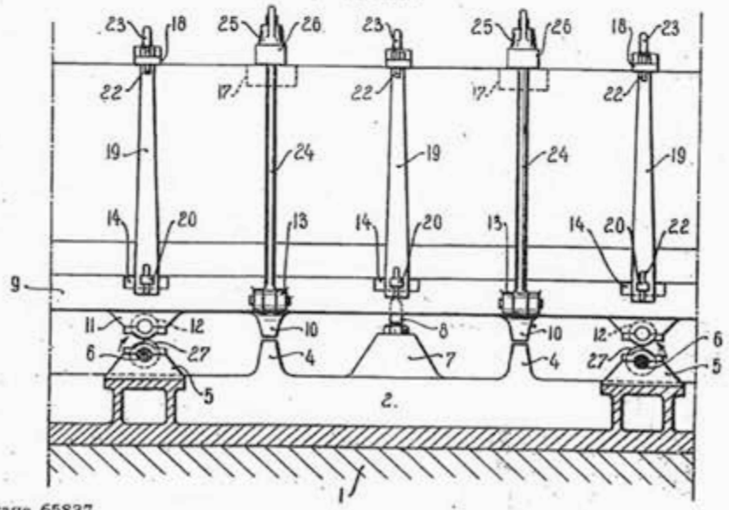


FIG.2

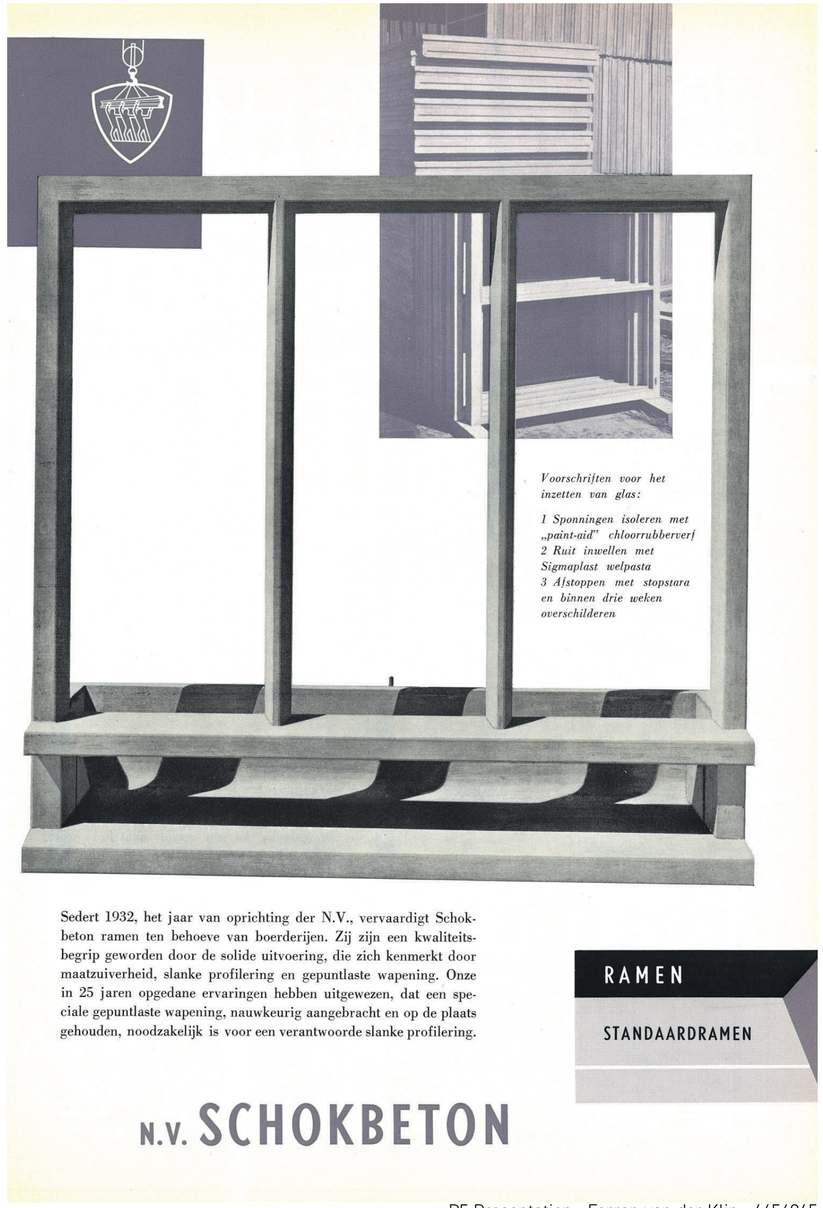


Aanvrage 65837.

THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

Frame-based elements



THE STORY

- Site & building analysis
- Problem statement
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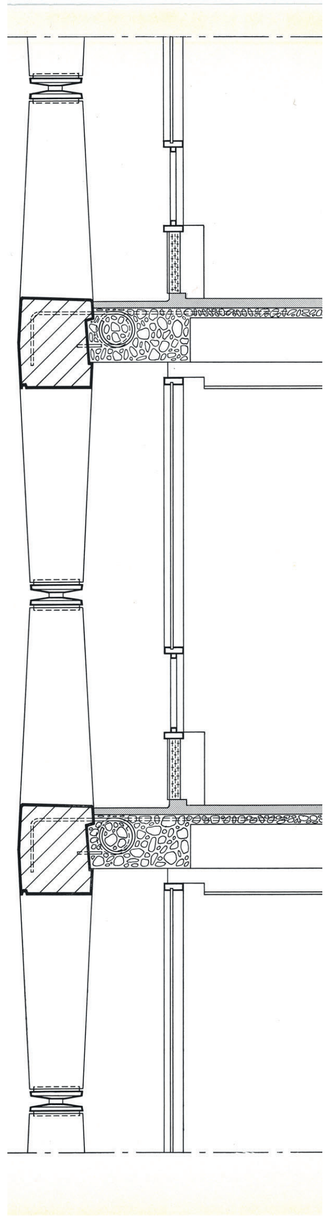
- Research methods
- **Research findings**

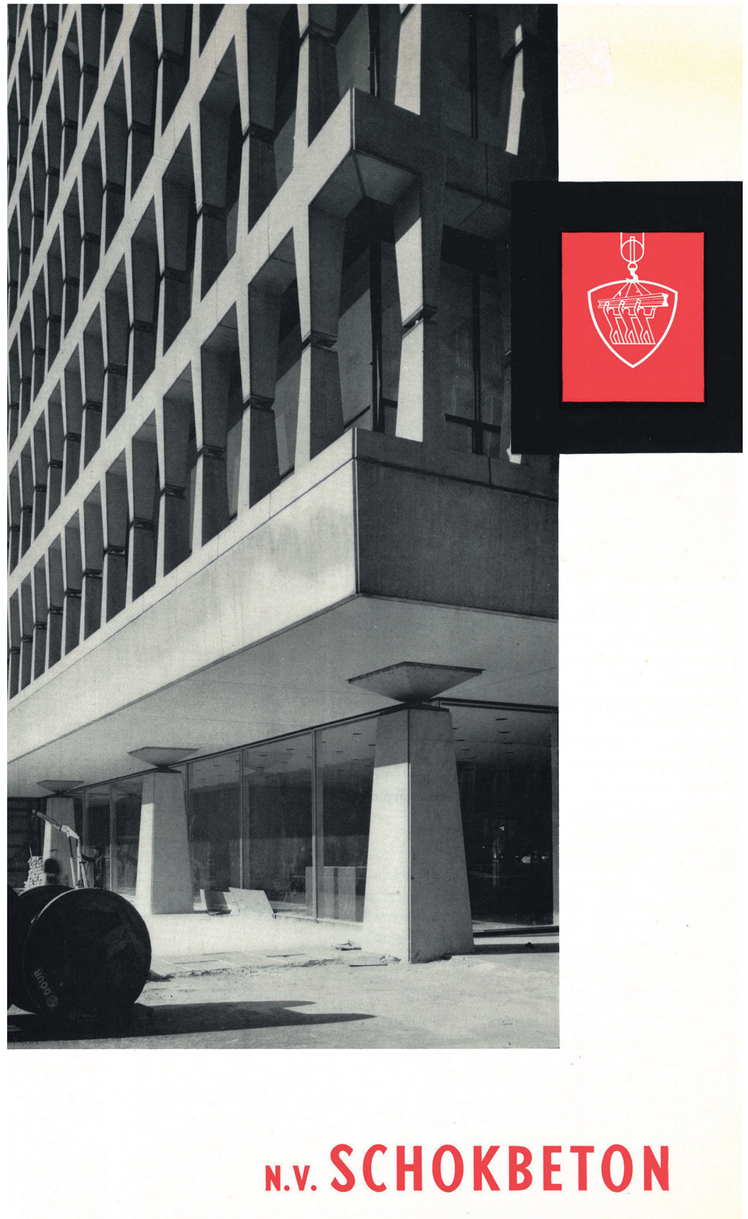
Frame-based elements - Police headquarters in The Hague

THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

Transition into loadbearing facades - Banque Lambert in Brussels

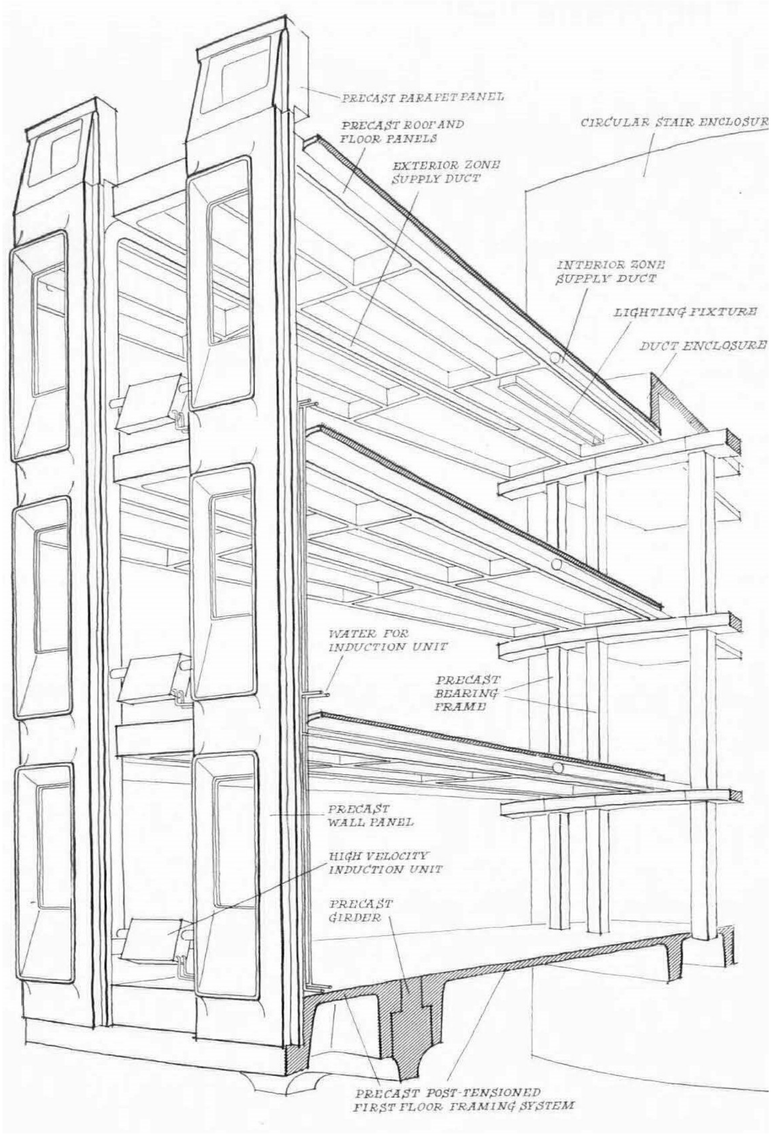




THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

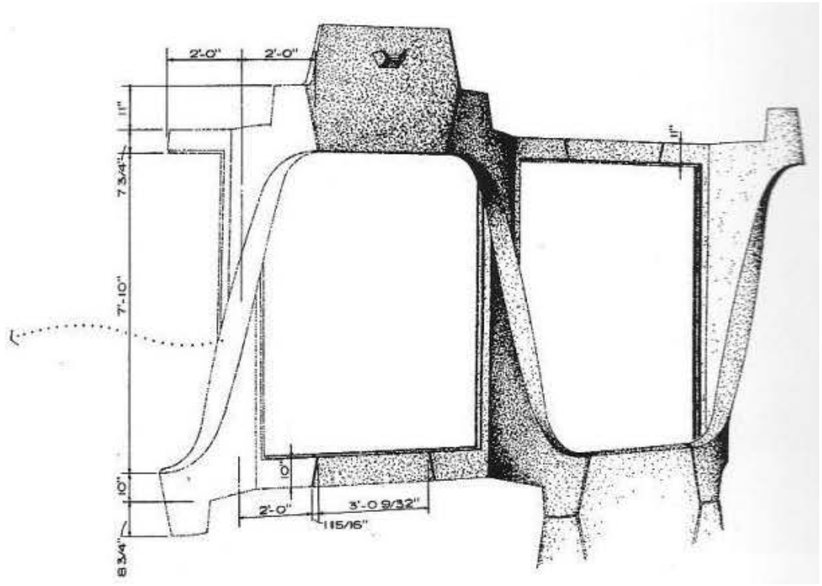
Transition into loadbearing facades - Philadelphia police headquarters

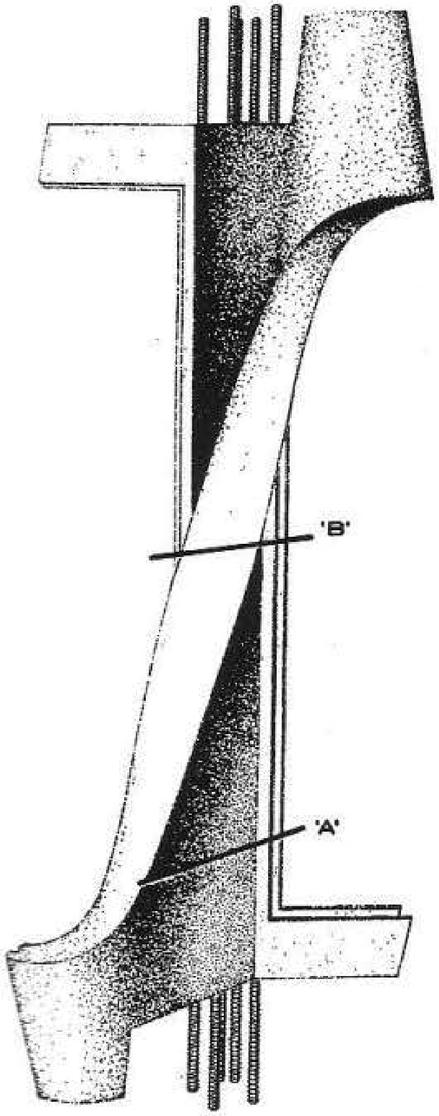


THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

Transition into loadbearing facades - US Embassy in Dublin

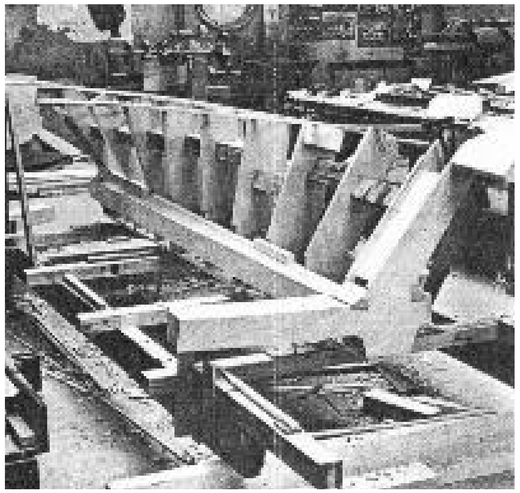


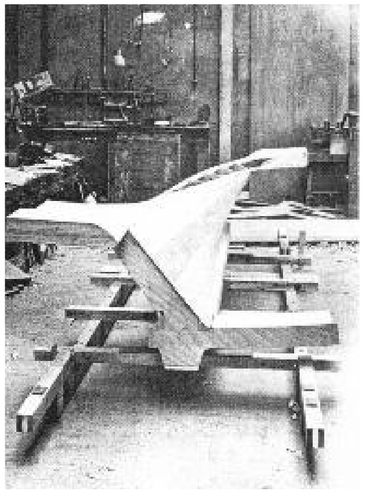


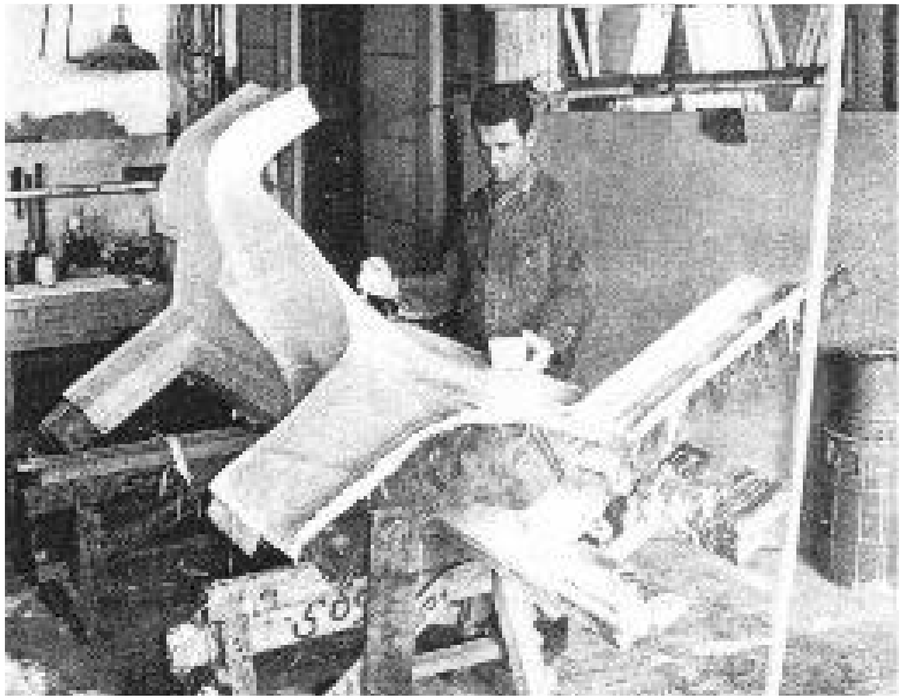
THE STORY

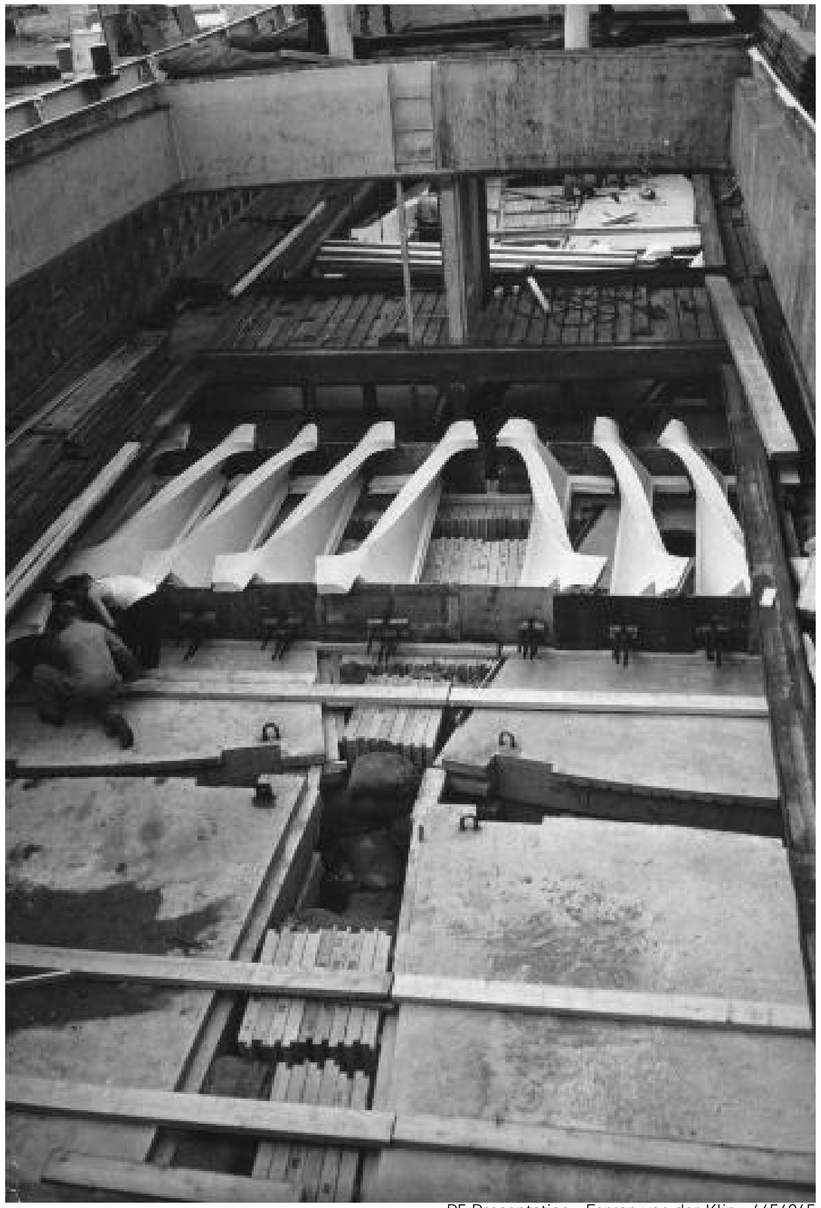
- Site & building analysis
- Problem statement
- Research questions
- Research methods
- **Research findings**

Glass-fiber molds - US Embassy in Dublin





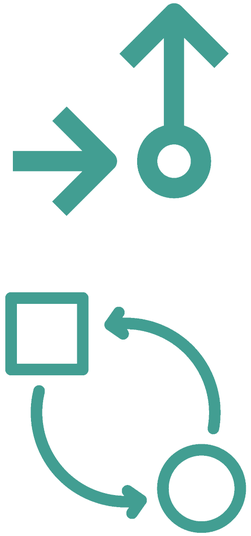




THE STORY

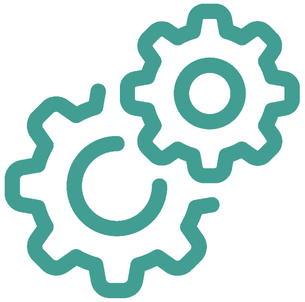
- Site & building analysis
- Problem statement
- Research questions
- Research methods
- Research findings
- **Research conclusions**

Historic research conclusion



The concept of transition and transformation is symbolised in the Schokbeton facade

Case-study research conclusion



The precast concrete facade functioning as a loadbearing part of the structure symbolises its technological advancements

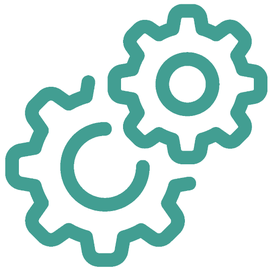
THE STORY

- Site & building analysis
- Problem statement
- Research questions
- Research methods
- Research findings
- **Research conclusions**

Transition & Transformation

Scientific Conceptual Value

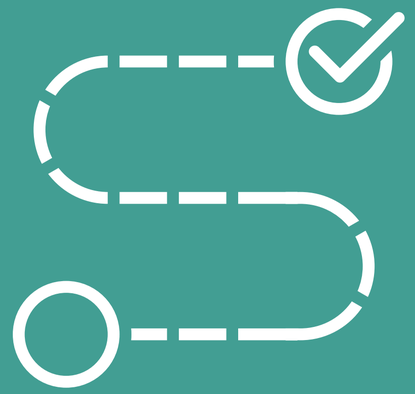
Technological advancement



Scientific Technological Value

Design starting points

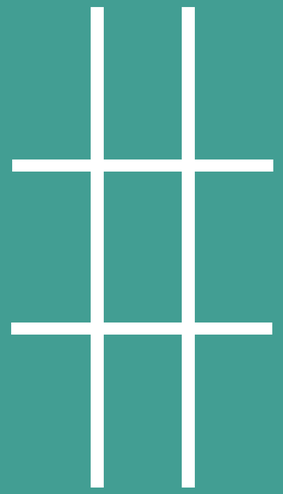
The Approach



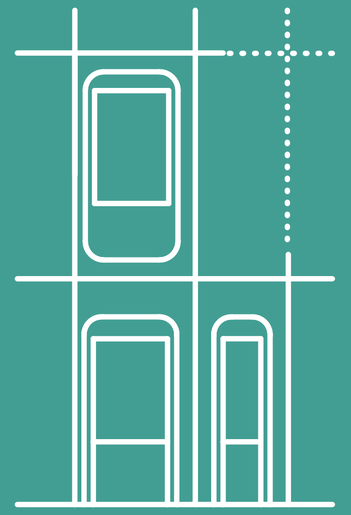
What to do?

THE APPROACH

- Starting points

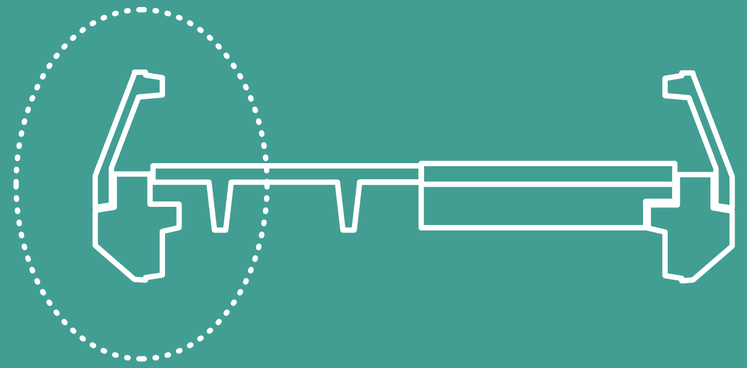


PRESERVE + EMPHASIZE THE SCHOKBETON FACADE



ADJUST CHARACTER TO FUNCTION

CREATE A RELATION BETWEEN 1958 AND 1980 PART

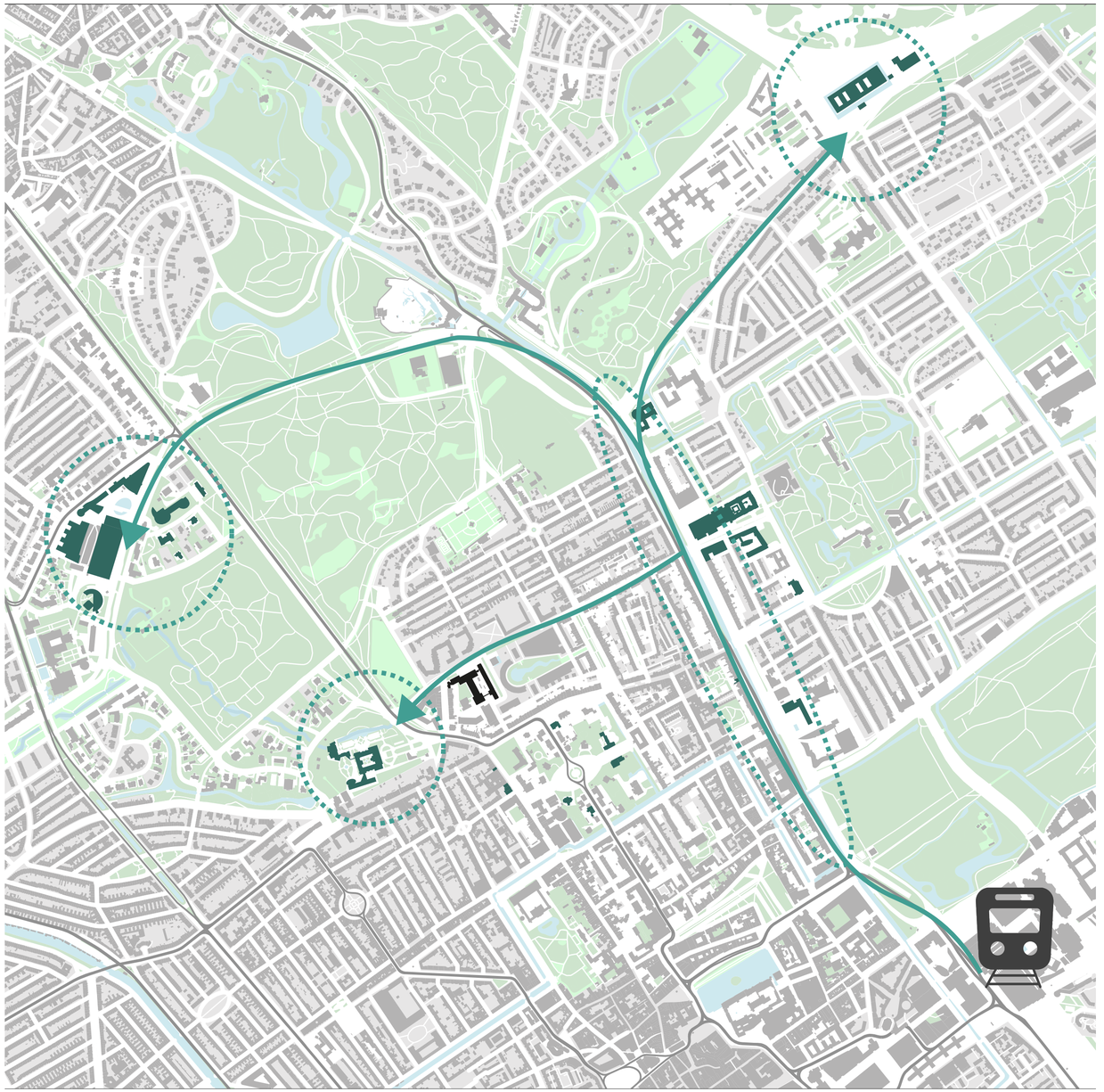


OPERATE ON NON-LOADBEARING PARTS

THE APPROACH

- Starting points
- **Analysis**

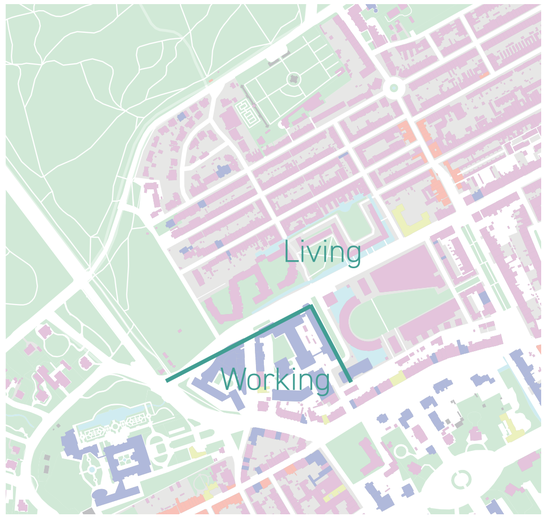
Analysis - future developments

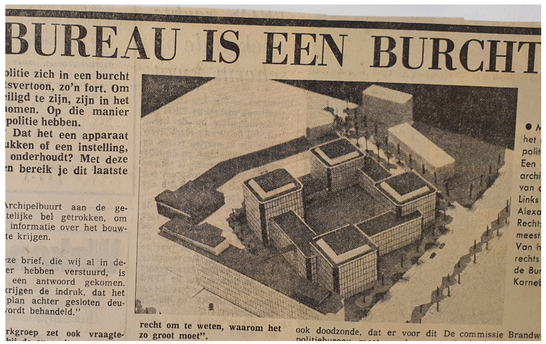


THE APPROACH

- Starting points
- **Analysis**

Analysis - neighbourhood blockade




BUREAU IS EEN BURCHT

olitie zich in een burcht
svertoon, zo'n fort. Om
iligd te zijn, zijn in het
omen. Op die manier
politie hebben.
Dat het een apparaat
kken of een instelling,
onderhoudt? Met deze
n bereik je dit laatste

rchipelbuurt aan de ge-
telijke bel getrokken, om
informatie over het bouw-
te krijgen.

ze brief, die wij al in de-
er hebben verstuurd, is
een antwoord gekomen.
trijgen de indruk, dat het
plan achter gesloten deu-
ordt behandeld."

rkgroep zet ook vraagte-

recht om te weten, waarom het zo groot moet".

ook doodzonde, dat er voor dit De commissie Brandw


ontsteerd niet het Prins Bernhard-
critecten en bewoners staan handen ineen:
Haagse Archipelbuurt
- 6. JUL 1974 Tel
oet woonwijk blijven'
Van onze Haagse redactie
Anders
het oude stadhuis aan de Java-

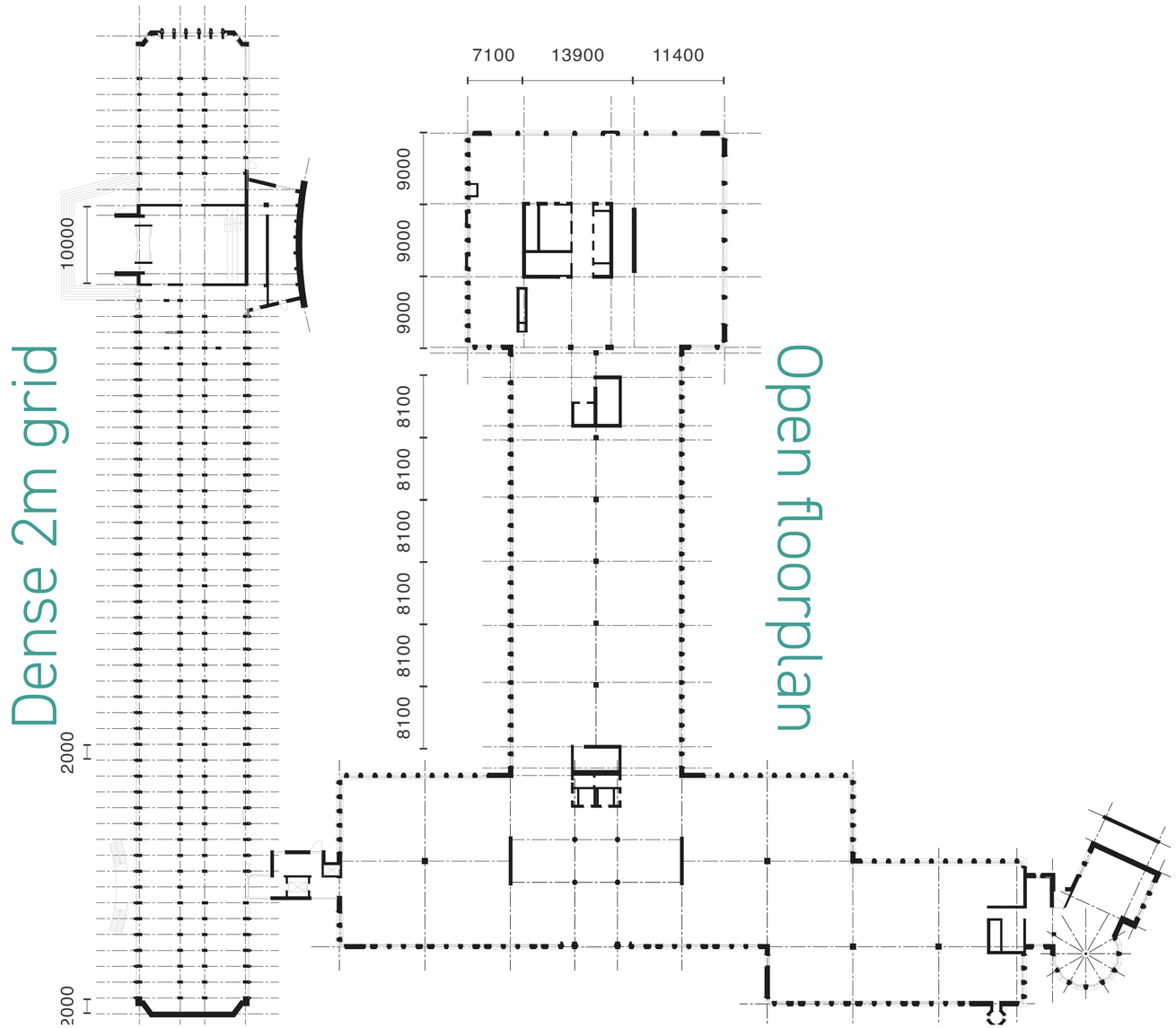

Vervreemdingseffect niet denkbeeldig
NIEUWBOUW HOOFDBUREAU
POLITIE WEKT WEERSTAND
Critische geluiden gaan juichtonen overstemmen
FERBIED


vergt 65 mil
Lager, kleiner
en soberder
Van een onzer verslaggevers
Het nieuwe hoofdbureau van de Haagse gemeen-
politie aan de Burg. Patijnlaan en Burg. Van
arnebeeklaan zal aanzienlijk lager en kleiner
orden dan het ontwerp, dat begin vorig jaar door

THE APPROACH

- Starting points
- **Analysis**

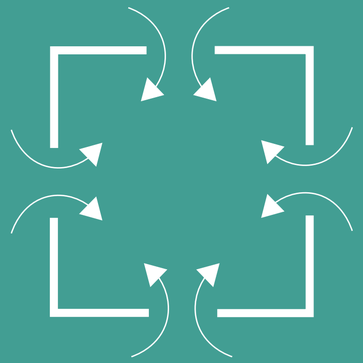
Analysis - structural plan



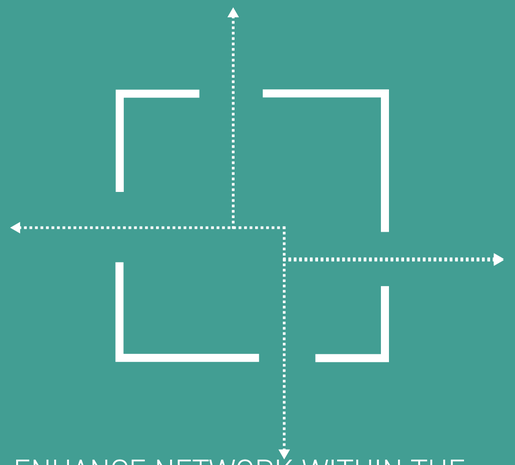
THE APPROACH

- Starting points
- Analysis
- **Starting points - analysis**

Starting points - analysis



OPEN UP A CLOSED-OFF PART OF THE NEIGHBOURHOOD TO THE CITY



ENHANCE NETWORK WITHIN THE NEIGHBOURHOOD

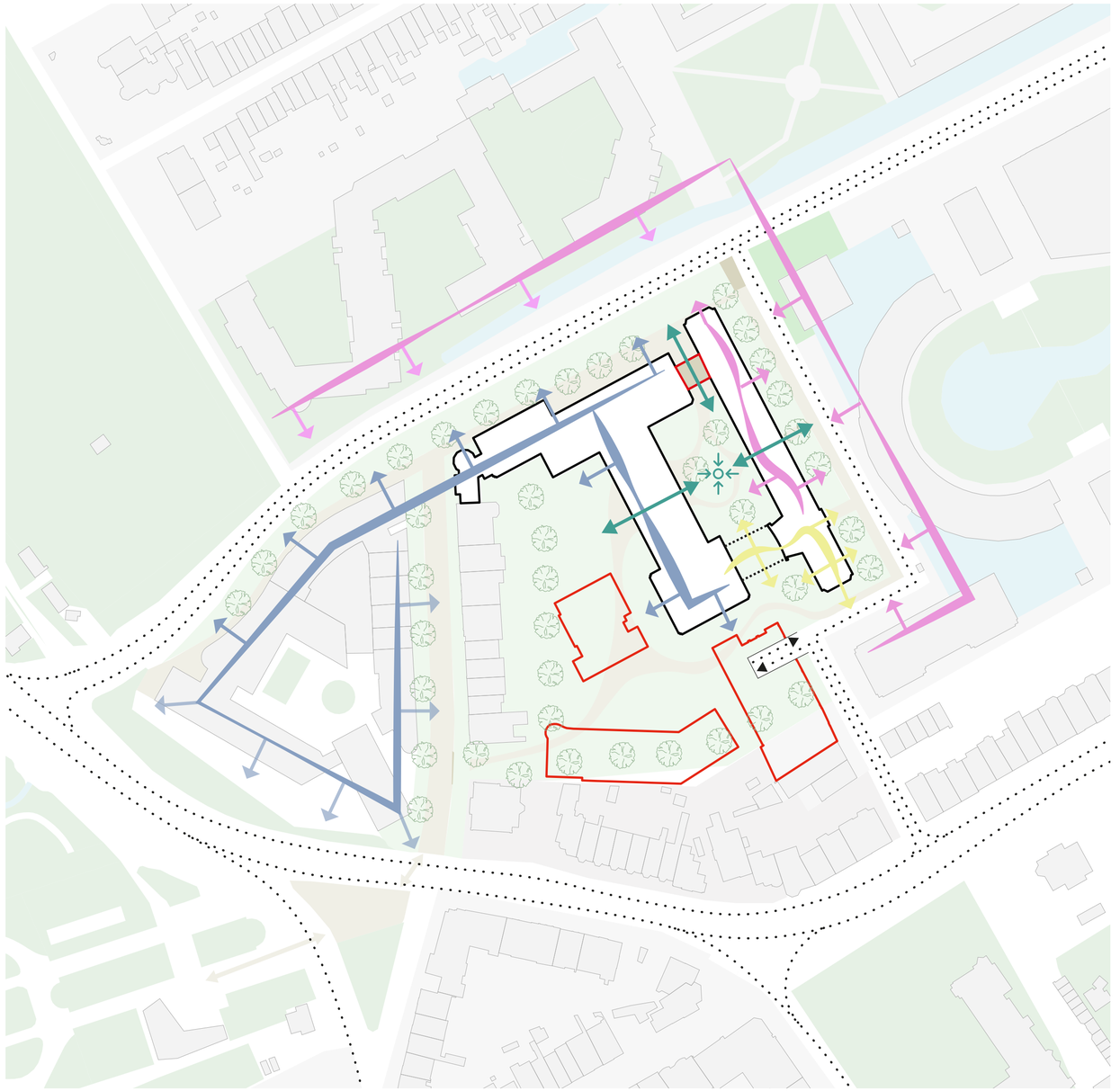
USE LEISURE TO ENHANCE BOTH WORKING AND LIVING SPACE

ASSIGN FUNCTION BASED ON STRUCTURAL PLAN

THE APPROACH

- Starting points
- Analysis
- Starting points
- **Vision map**

Vision - a neighbourhood within a neighbourhood



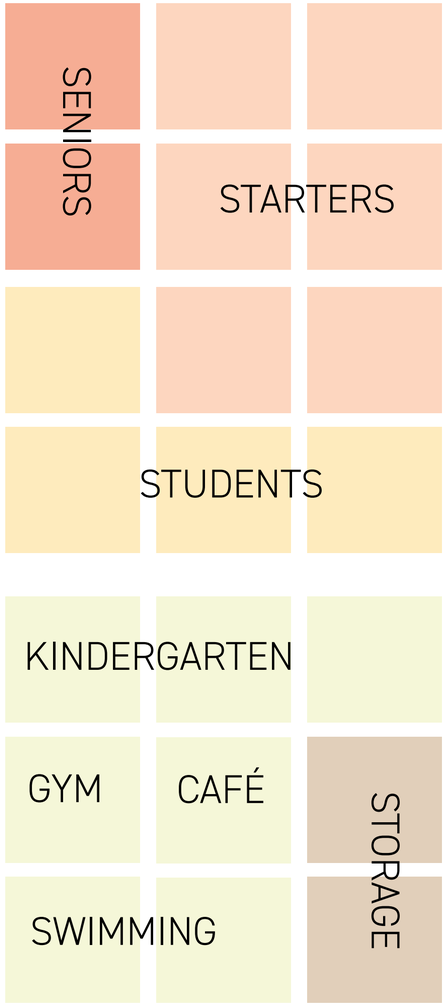
Combining the Archipel on a smaller scale to:

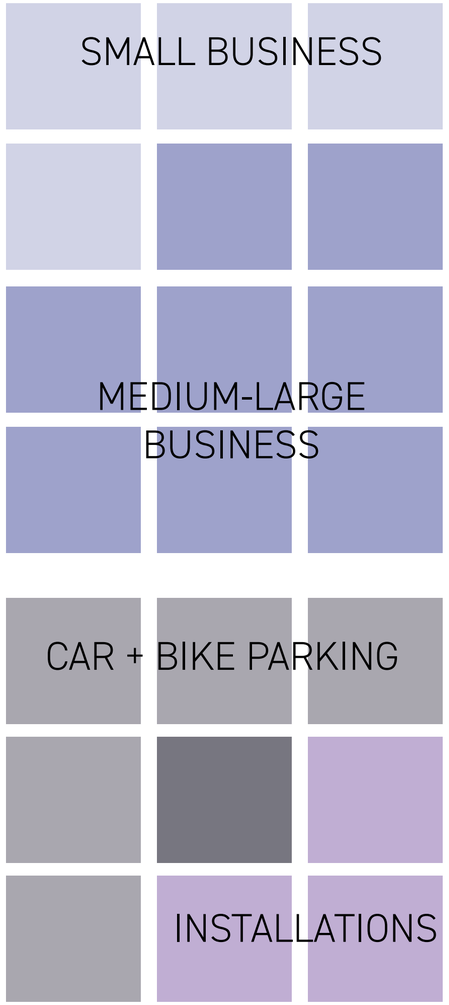
- soften up border between neighbourhood and office hub, giving back this part of the Archipel which was once taken away by the police
- create a mix of functions, where all users can benefit from.

THE APPROACH

- Starting points
- Analysis
- Starting points
- Vision map
- **Program**

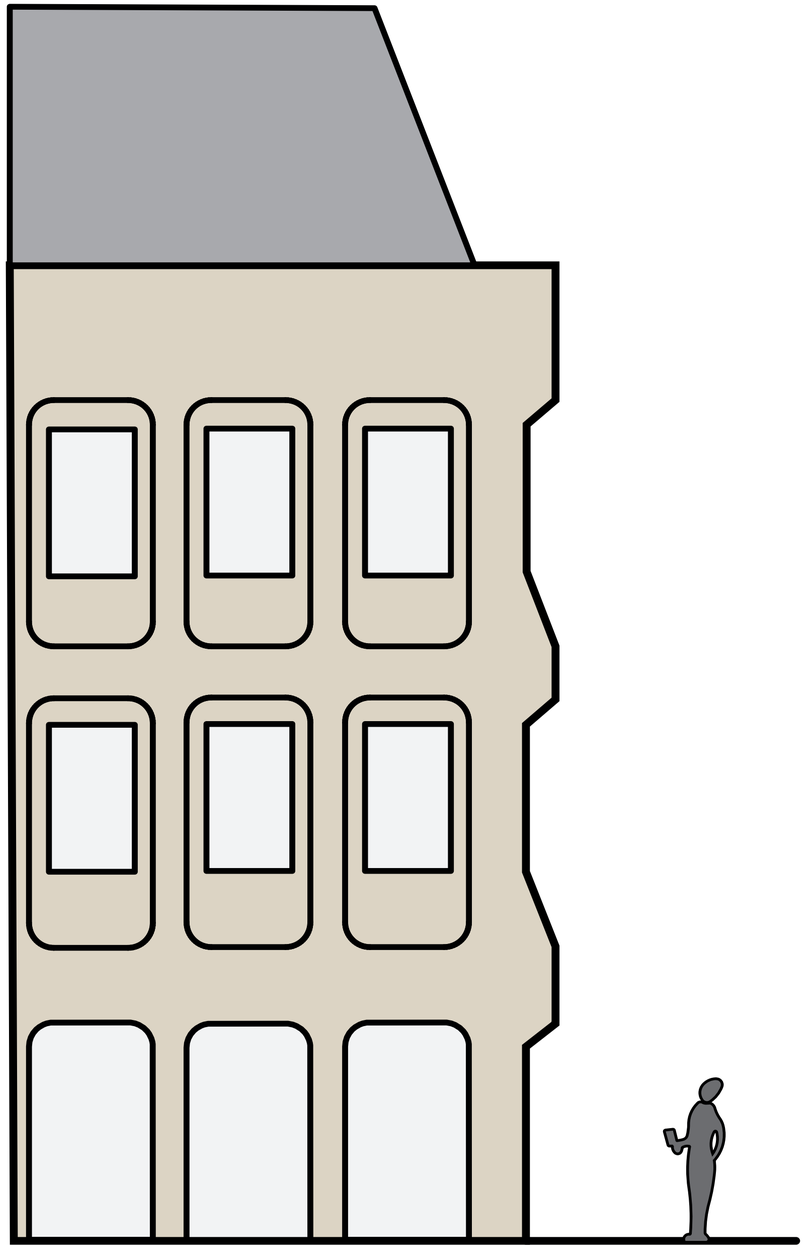
Program - distribution





The Design

Storming the Castle



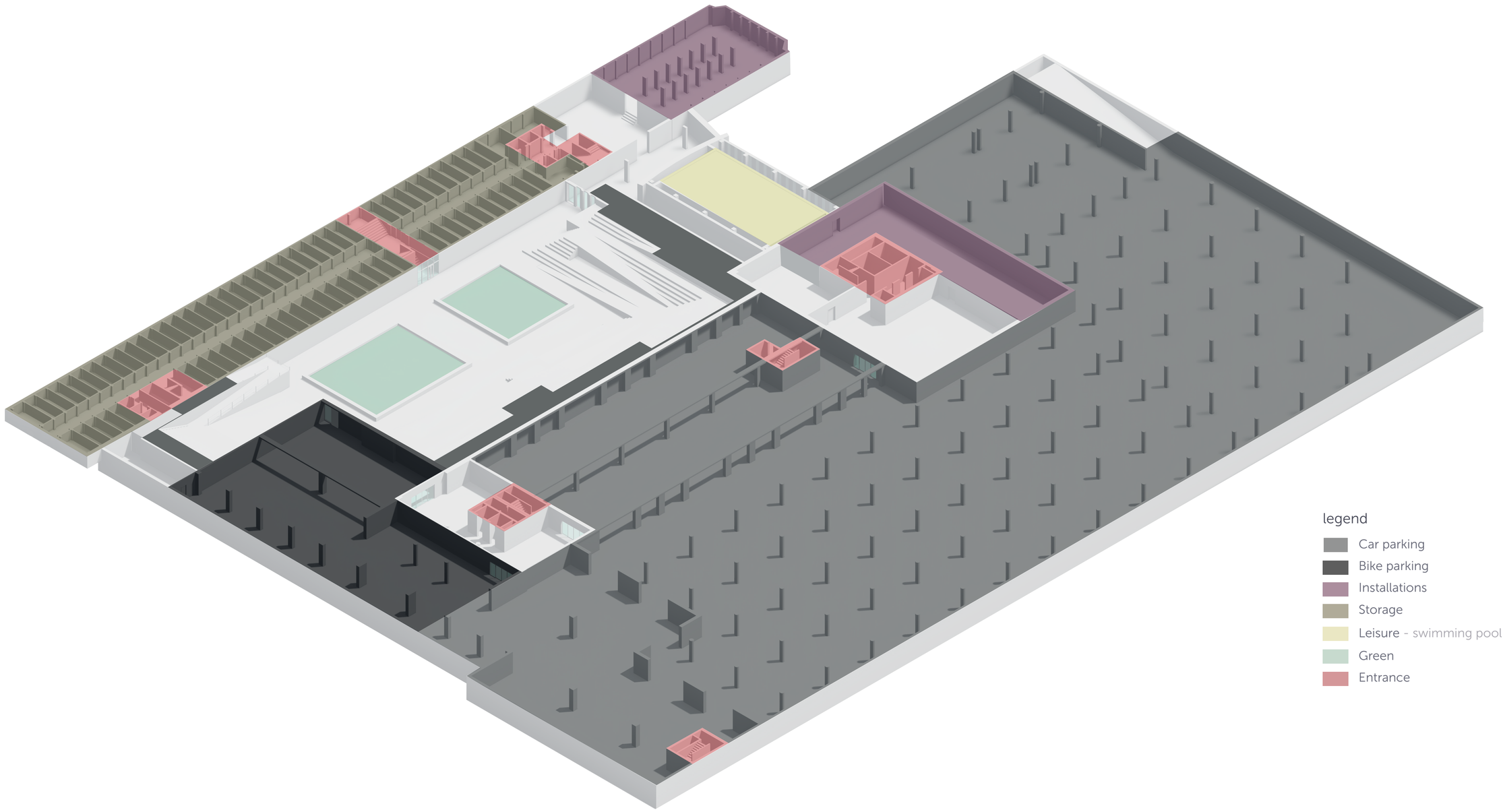
Storming the Castle

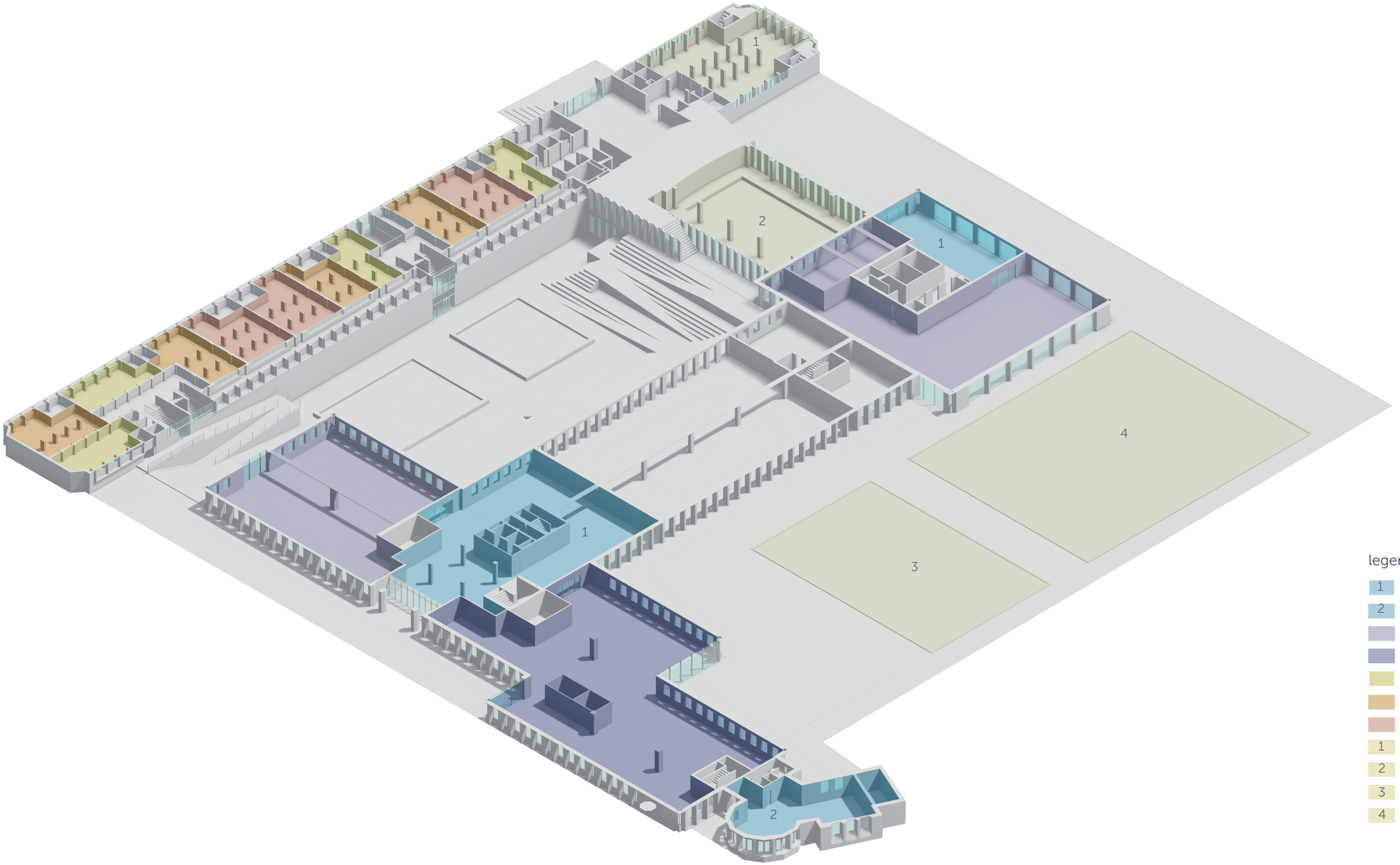
The facade of the 1980 extension resembles a castle

Analysis
The defender protects the most valuable parts with the most care

Research
The attacker requires a solid strategy

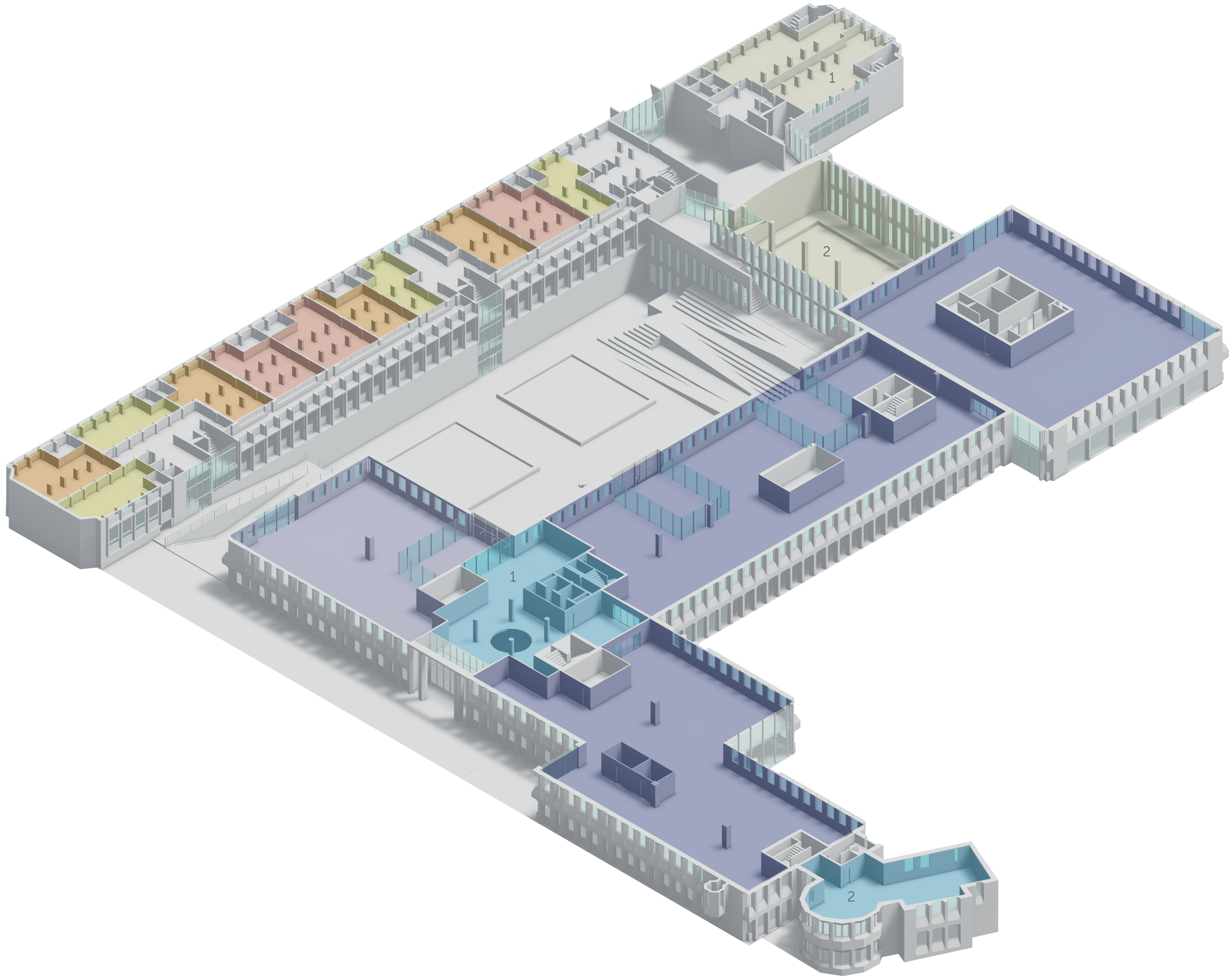
Design
A breached castle wall has a different expression


legend
Car parking
Bike parking
Installations
Storage
Leisure - swimming pool
Green
Entrance



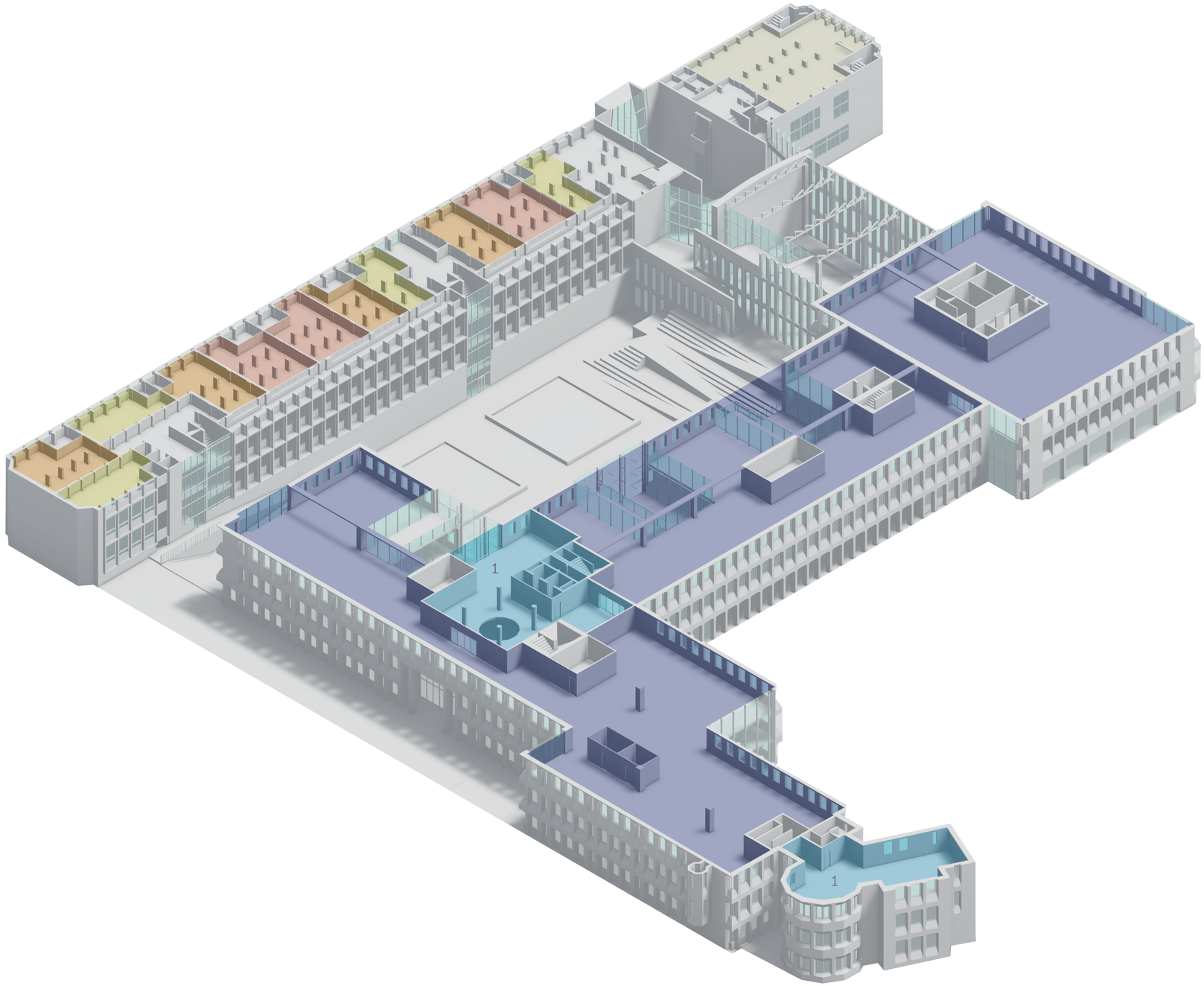
legend

- 1 Lobby
- 2 Conference room
- Small office
- Large office
- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- 1 Leisure - Kindergarten
- 2 Leisure - swimming pool
- 3 Leisure - playground
- 4 Leisure - football field



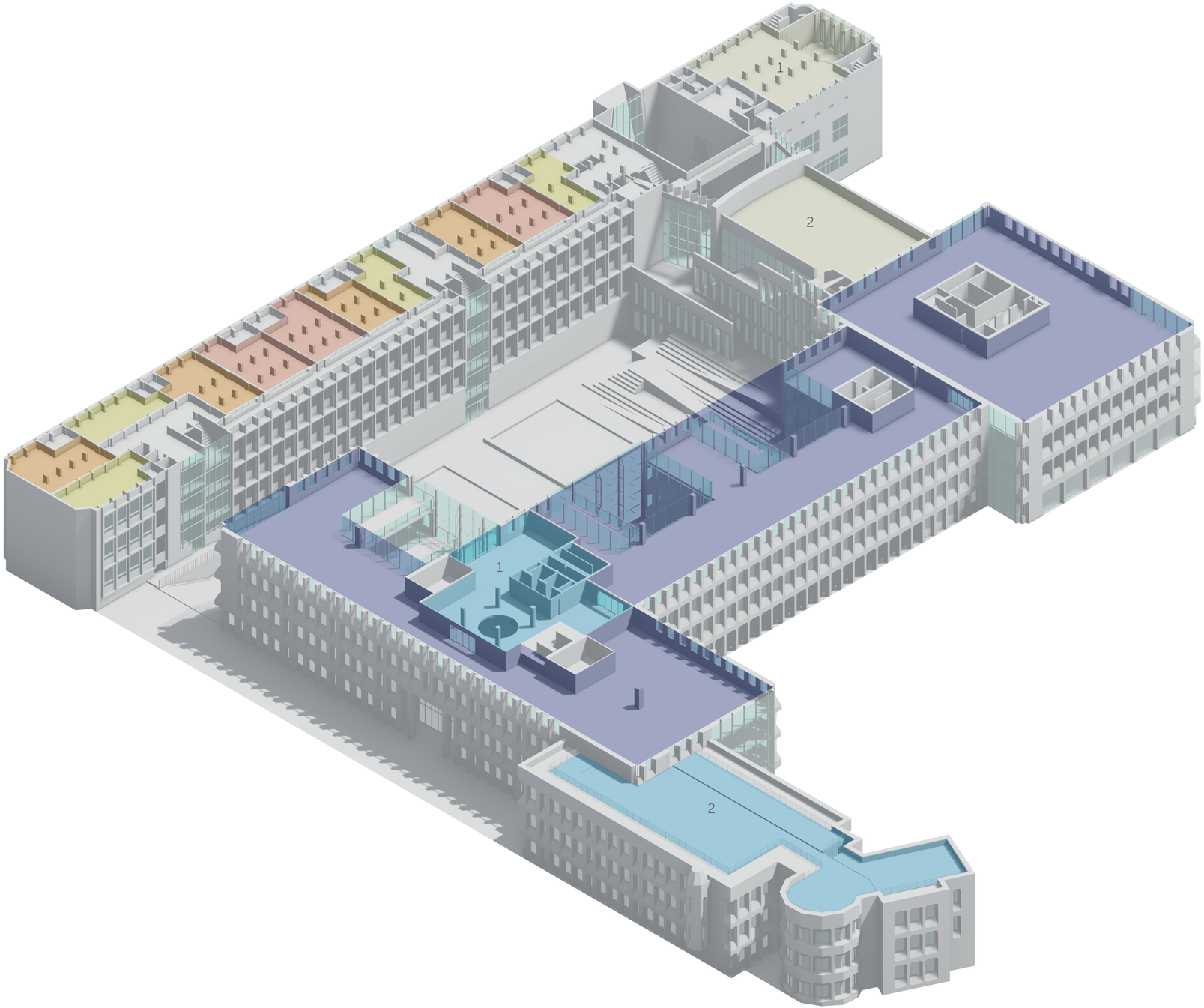
legend

- 1 Lobby
- 2 Conference room
- Small office
- Large office
- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- 1 Leisure - locker room
- 2 Leisure - swimming pool



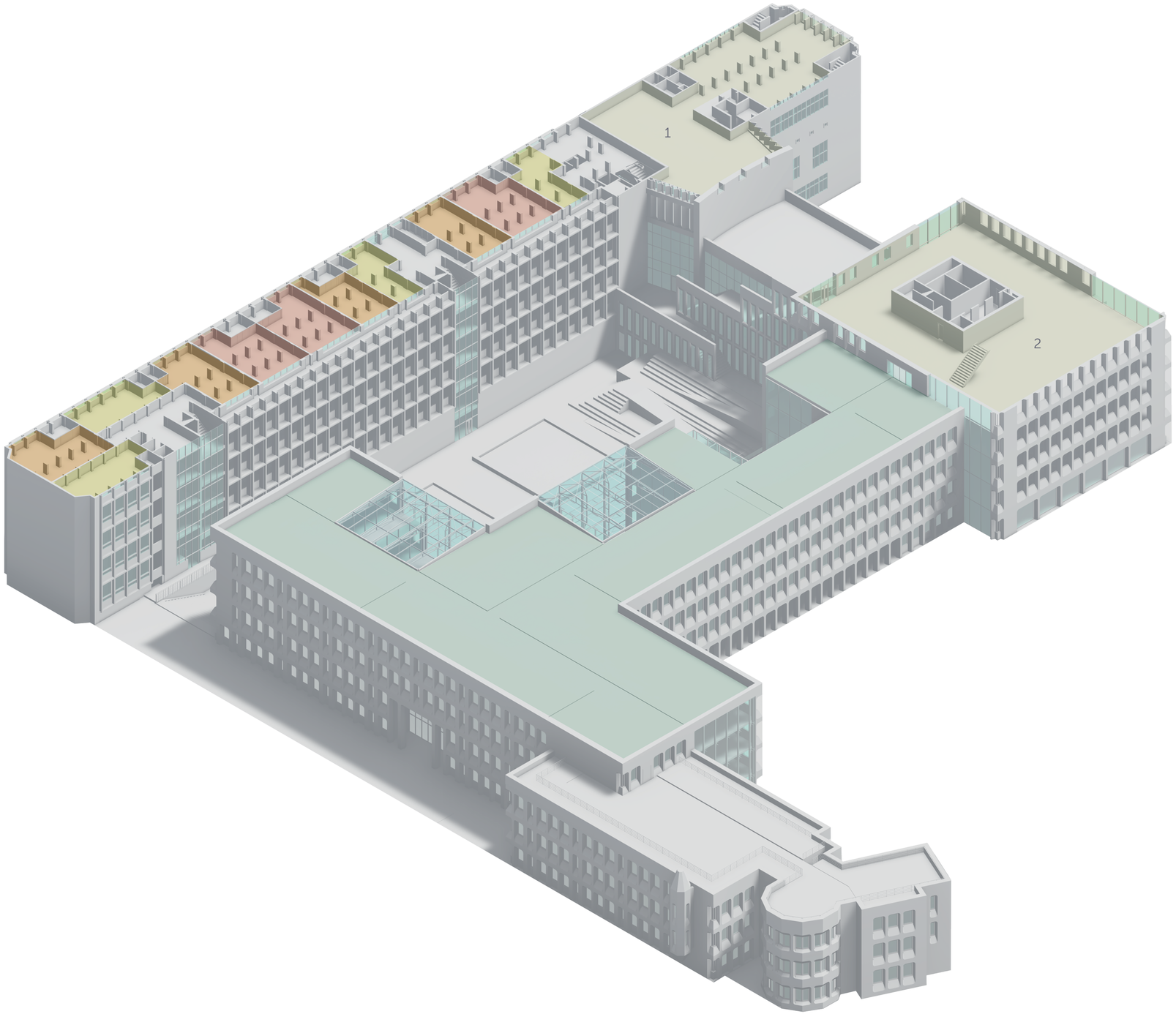
legend

- 1 Lobby
- 2 Conference room
- Large office
- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- Leisure - fitness



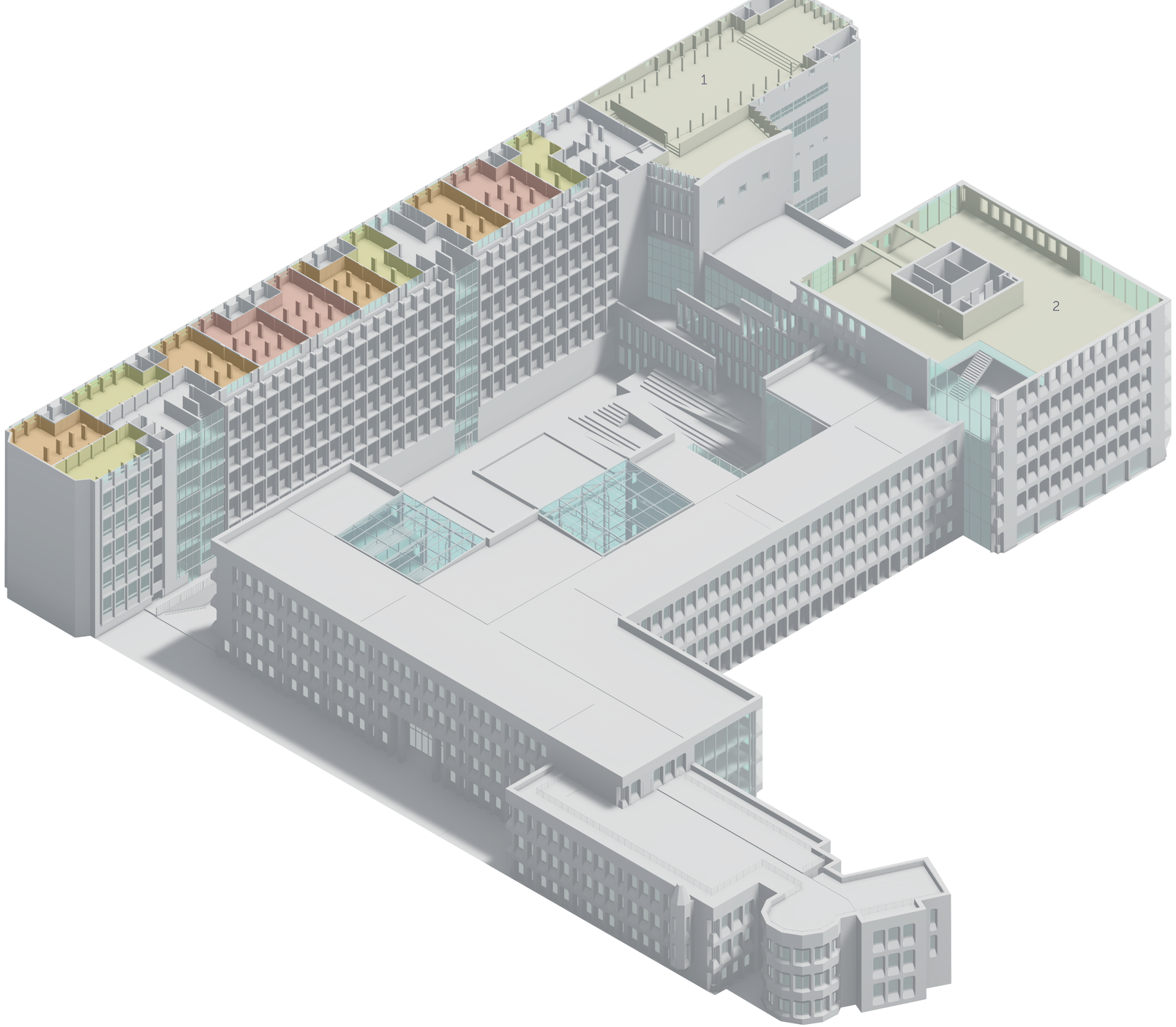
legend

- 1 Lobby
- 2 Office roof terrace
- Large office
- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- 1 Leisure - fitness
- 2 Leisure - terrace



legend

- Rooftop farm
- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- 1 Leisure - fitness
- 2 Leisure - café

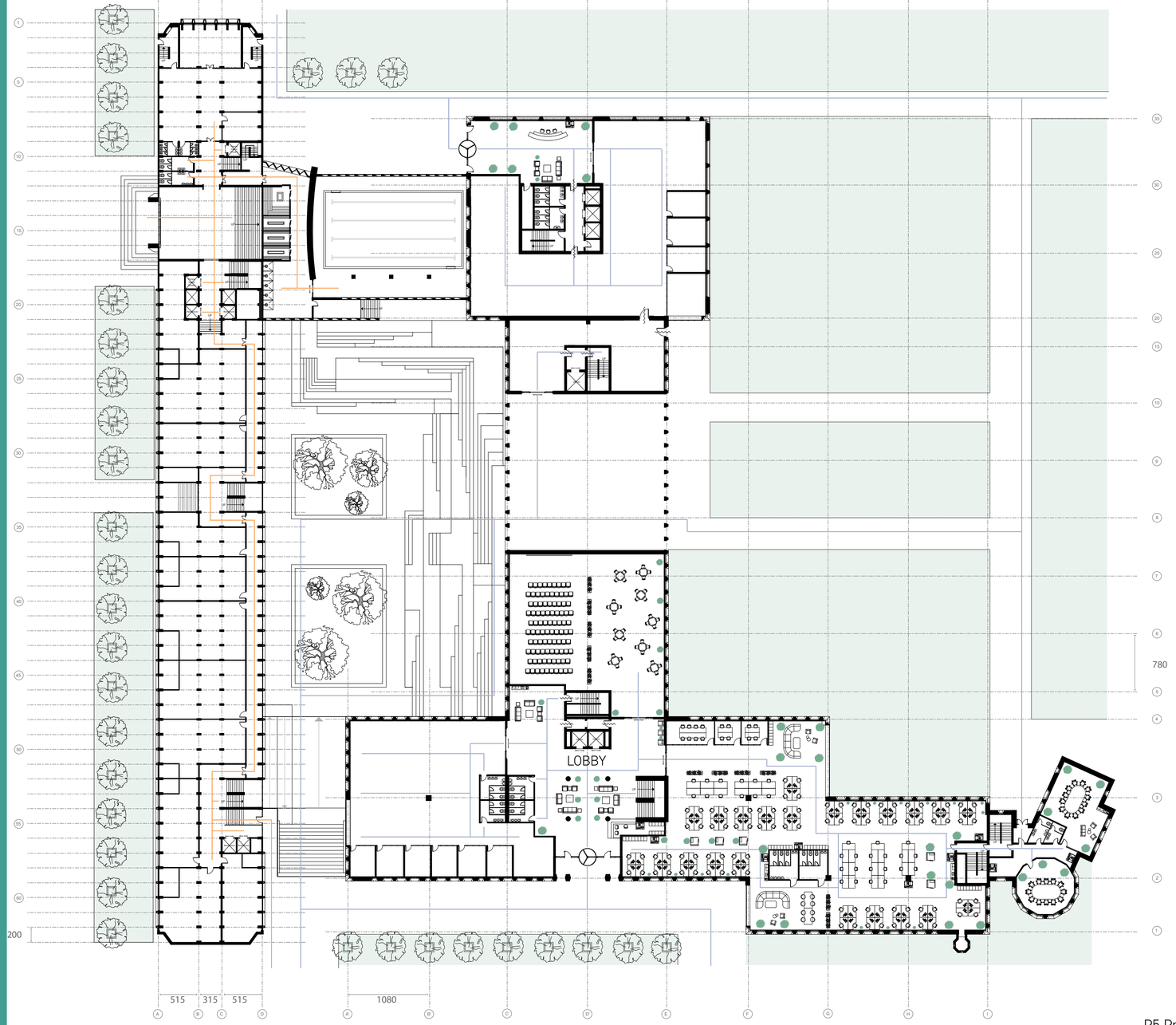


legend

- Students - 50 m2
- Starters - 75 m2
- Seniors - 100 m2
- 1 Leisure - Dance school
- 2 Leisure - café

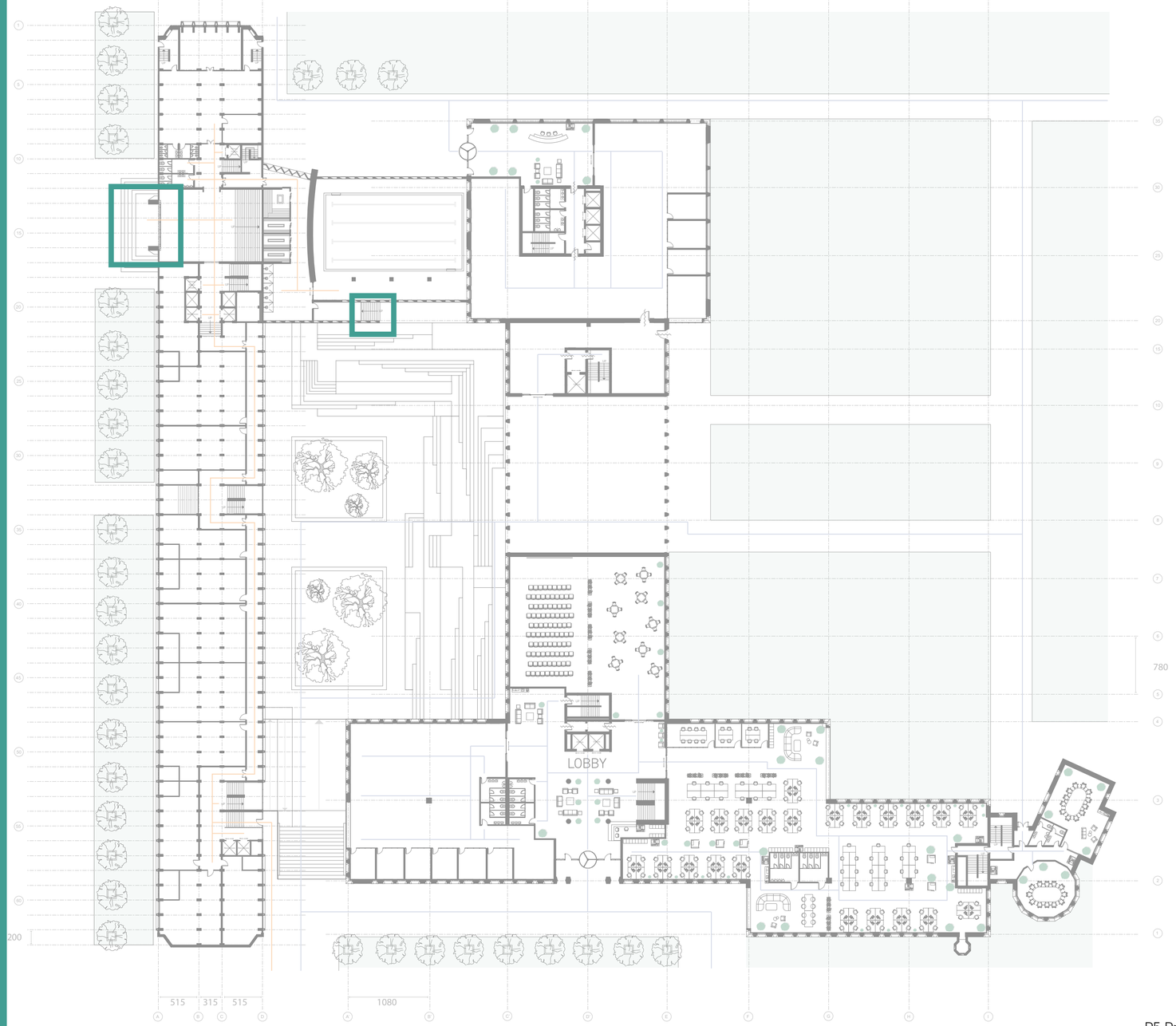
THE DESIGN

- Floorplan ground level



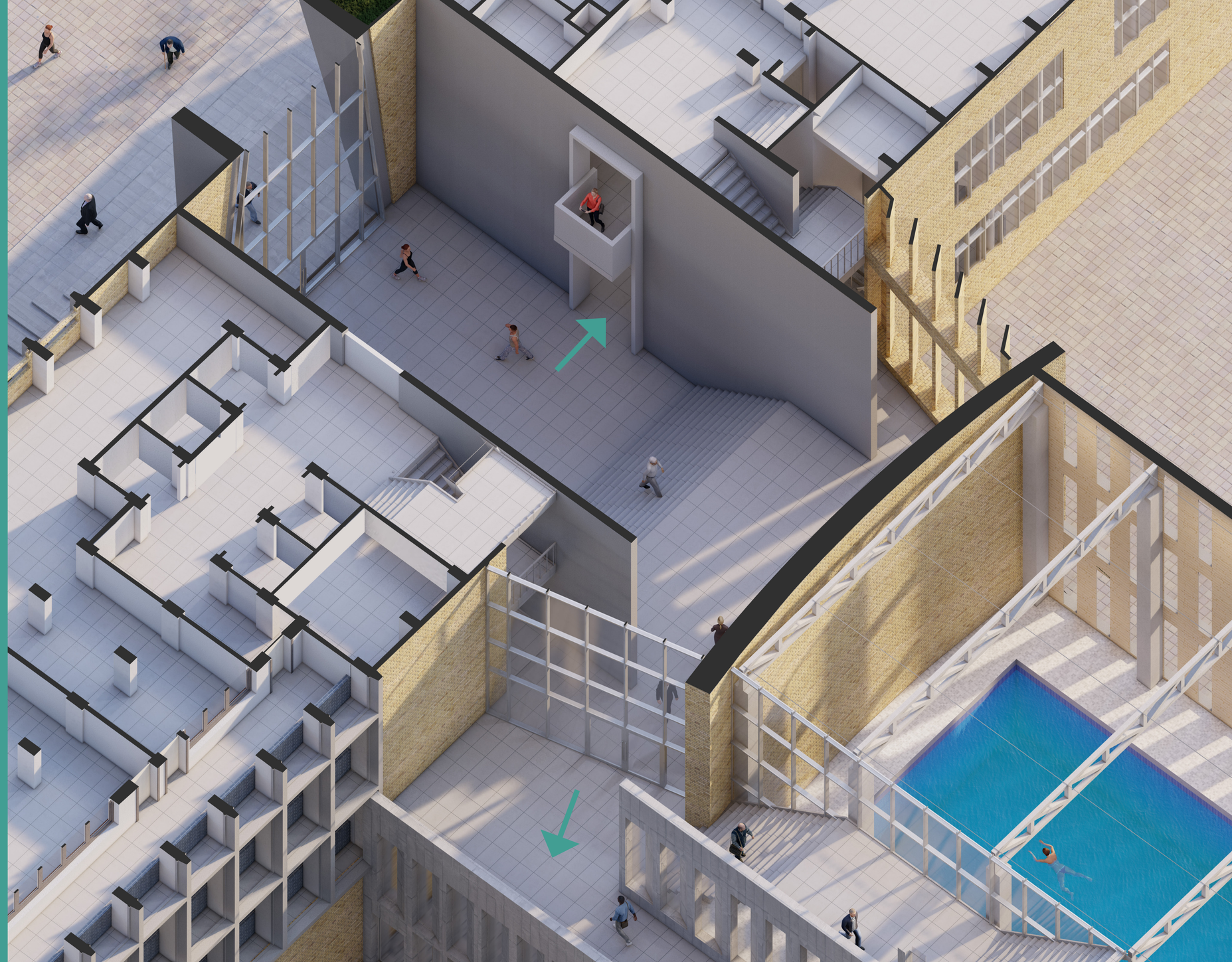
THE DESIGN

- **Access leisure**



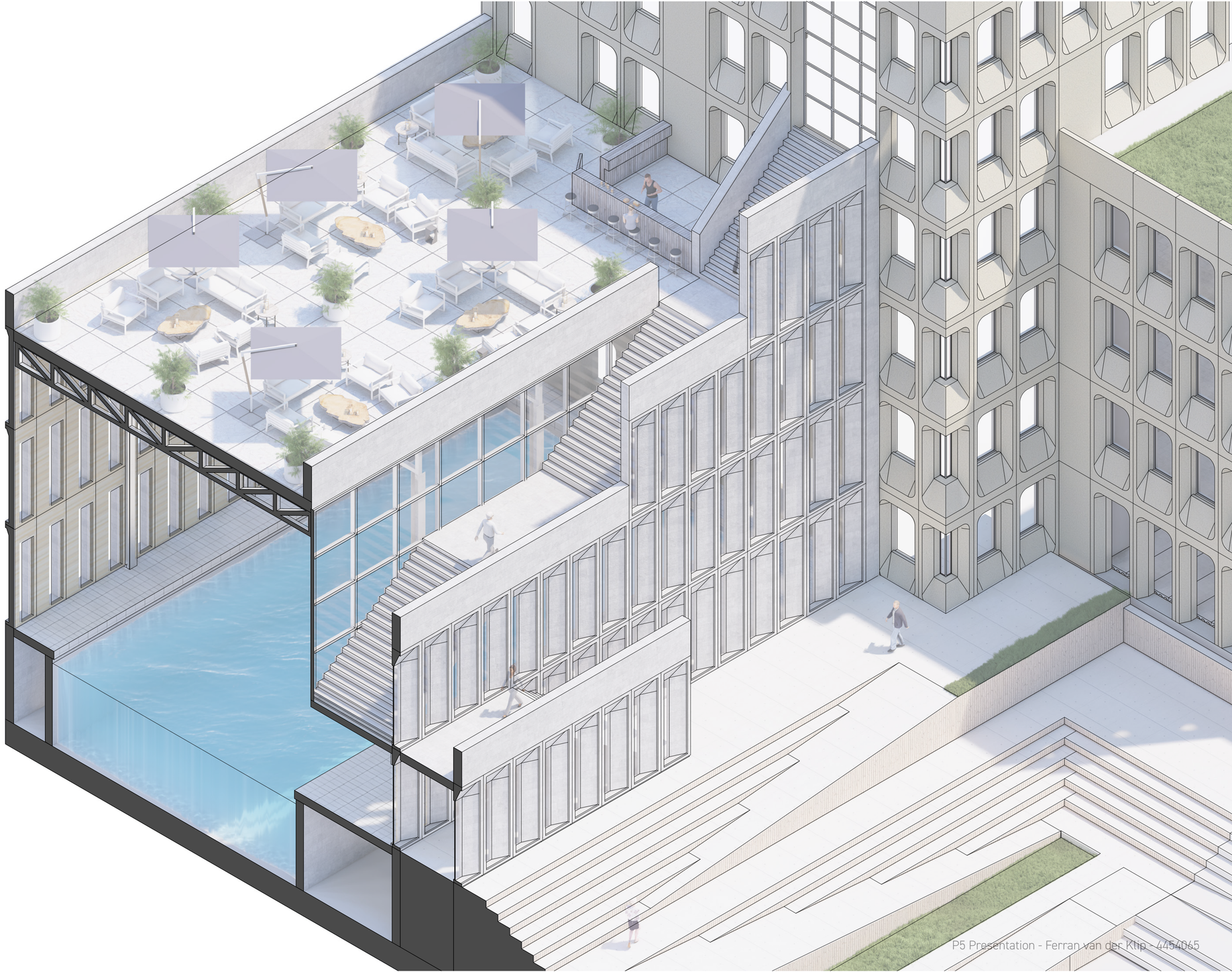
THE DESIGN

- Access leisure



THE DESIGN

- Access leisure
- **Swimming pool - overview**



THE DESIGN

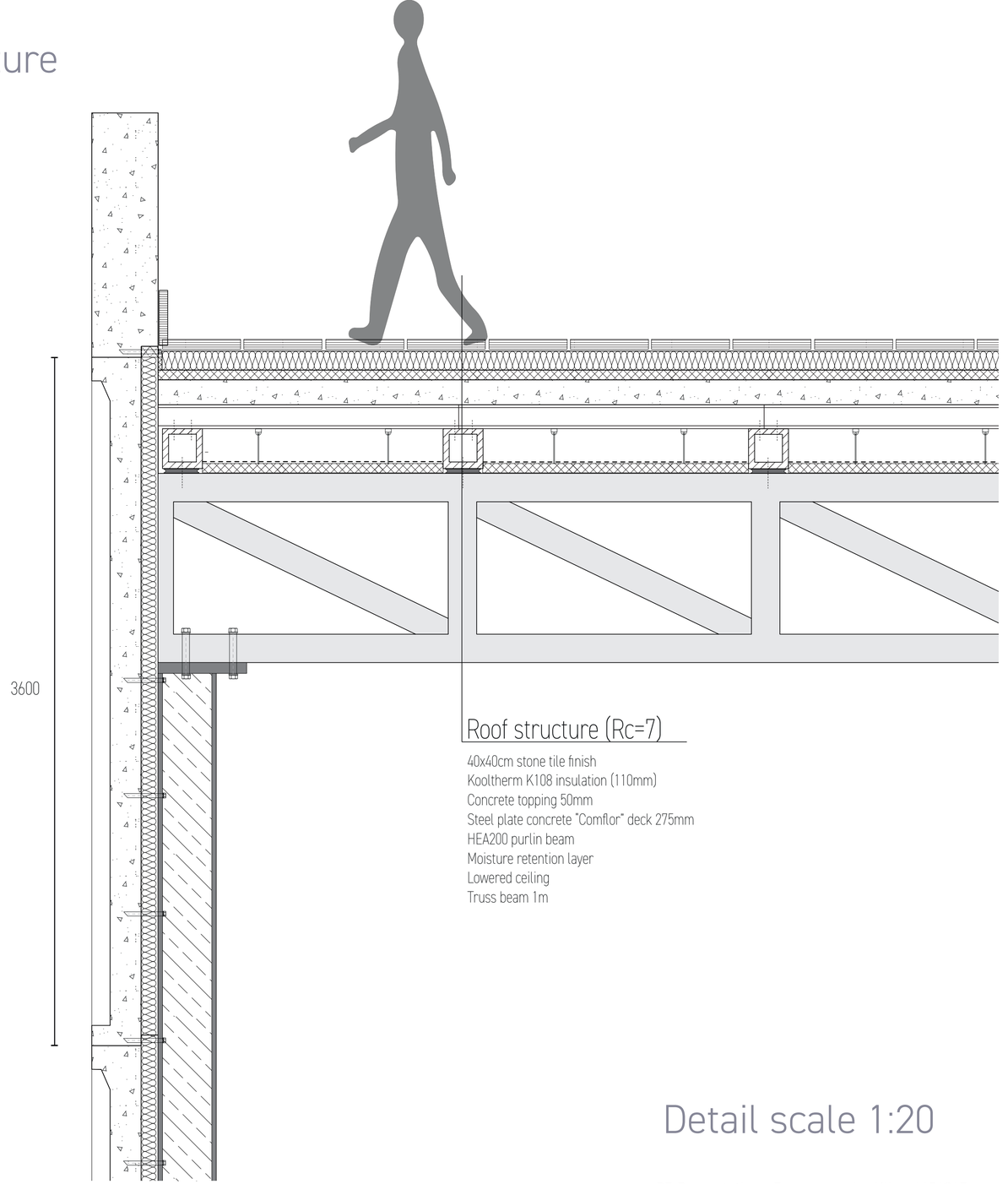
- Access leisure

- **Swimming pool - ambiance**

THE DESIGN

- Access leisure
- **Swimming pool - details**

Detail 1- supporting structure

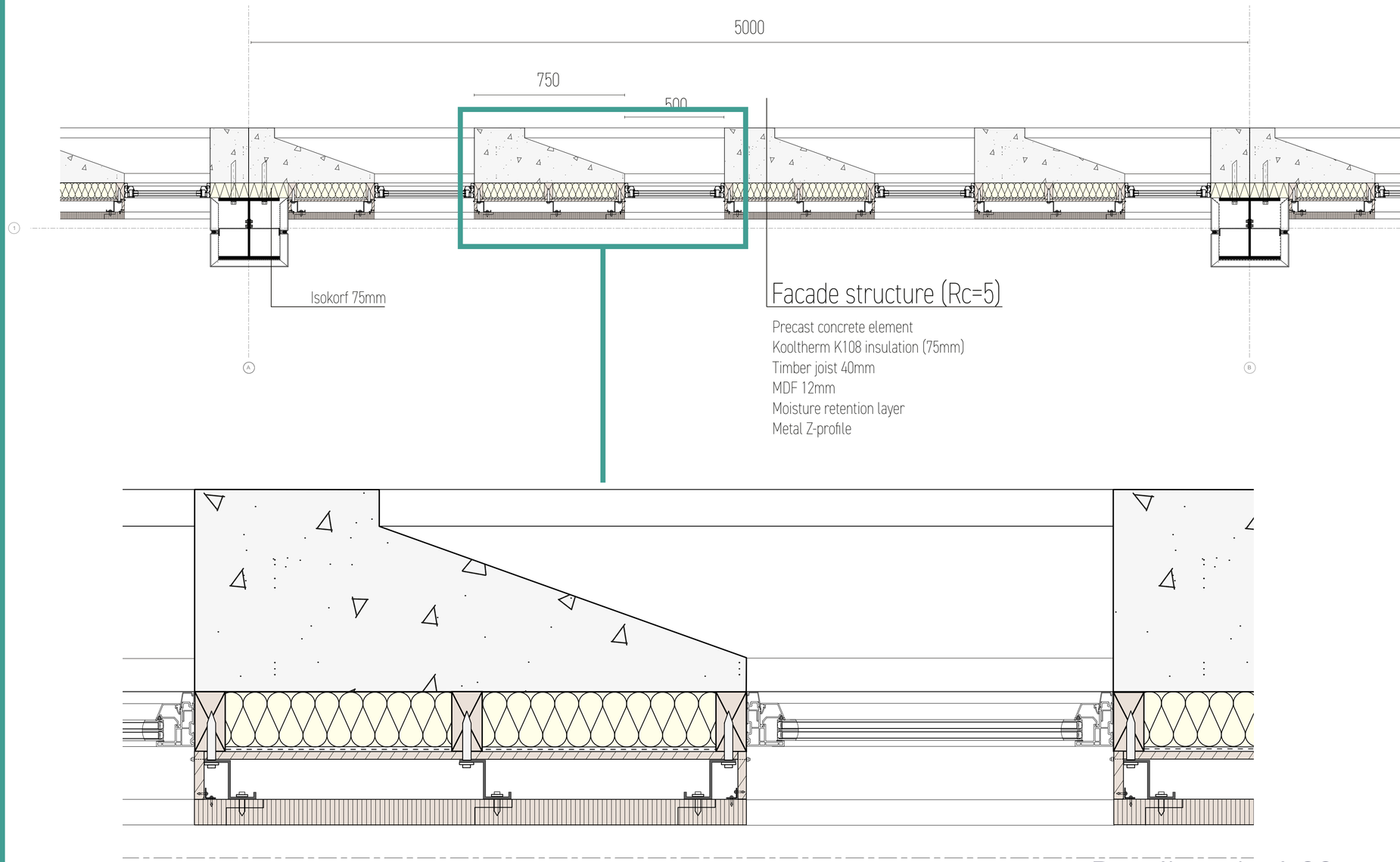


Detail scale 1:20

THE DESIGN

- Access leisure
- **Swimming pool - details**

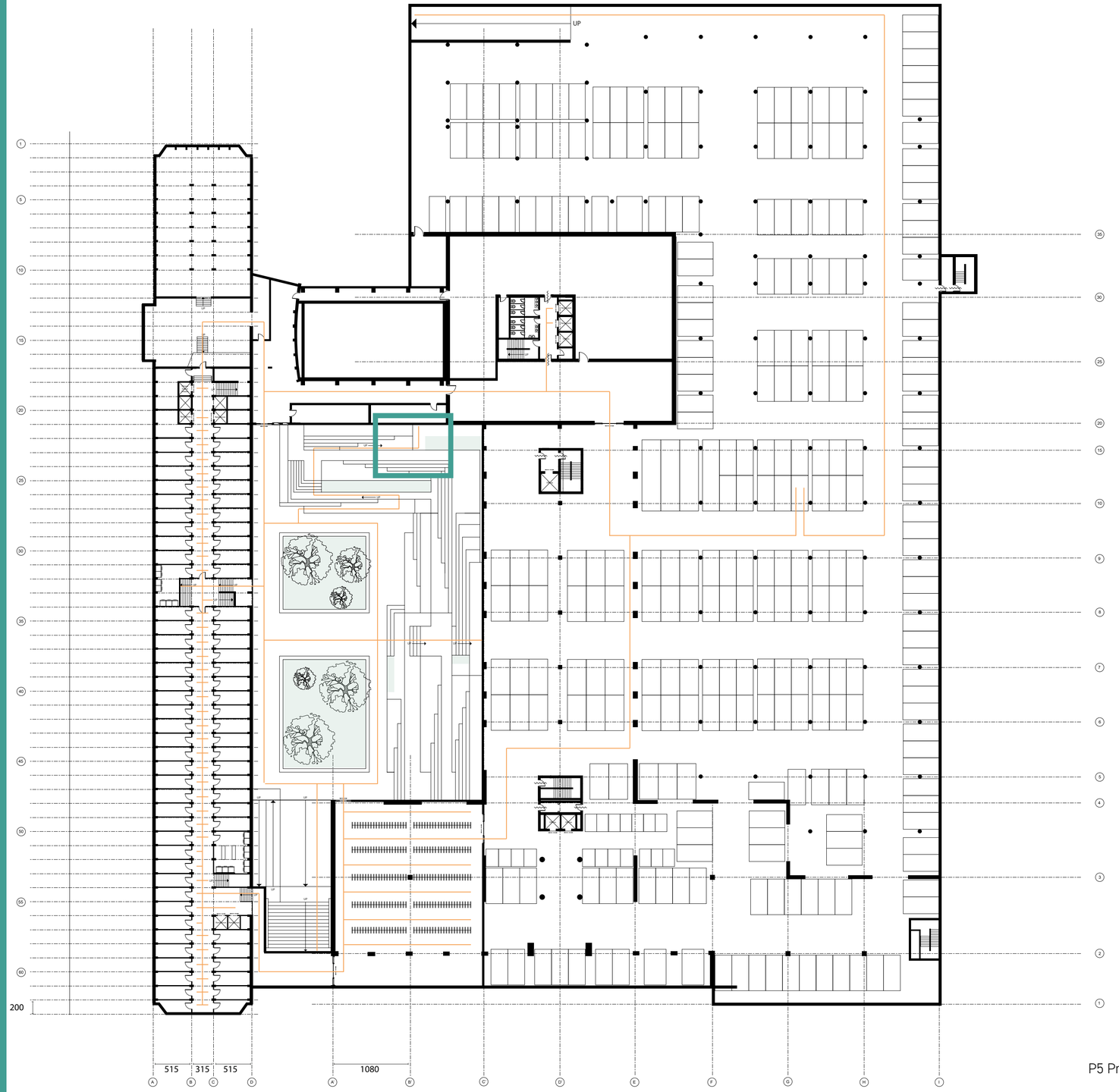
Detail 2- heavy prefab system



Detail scale 1:20

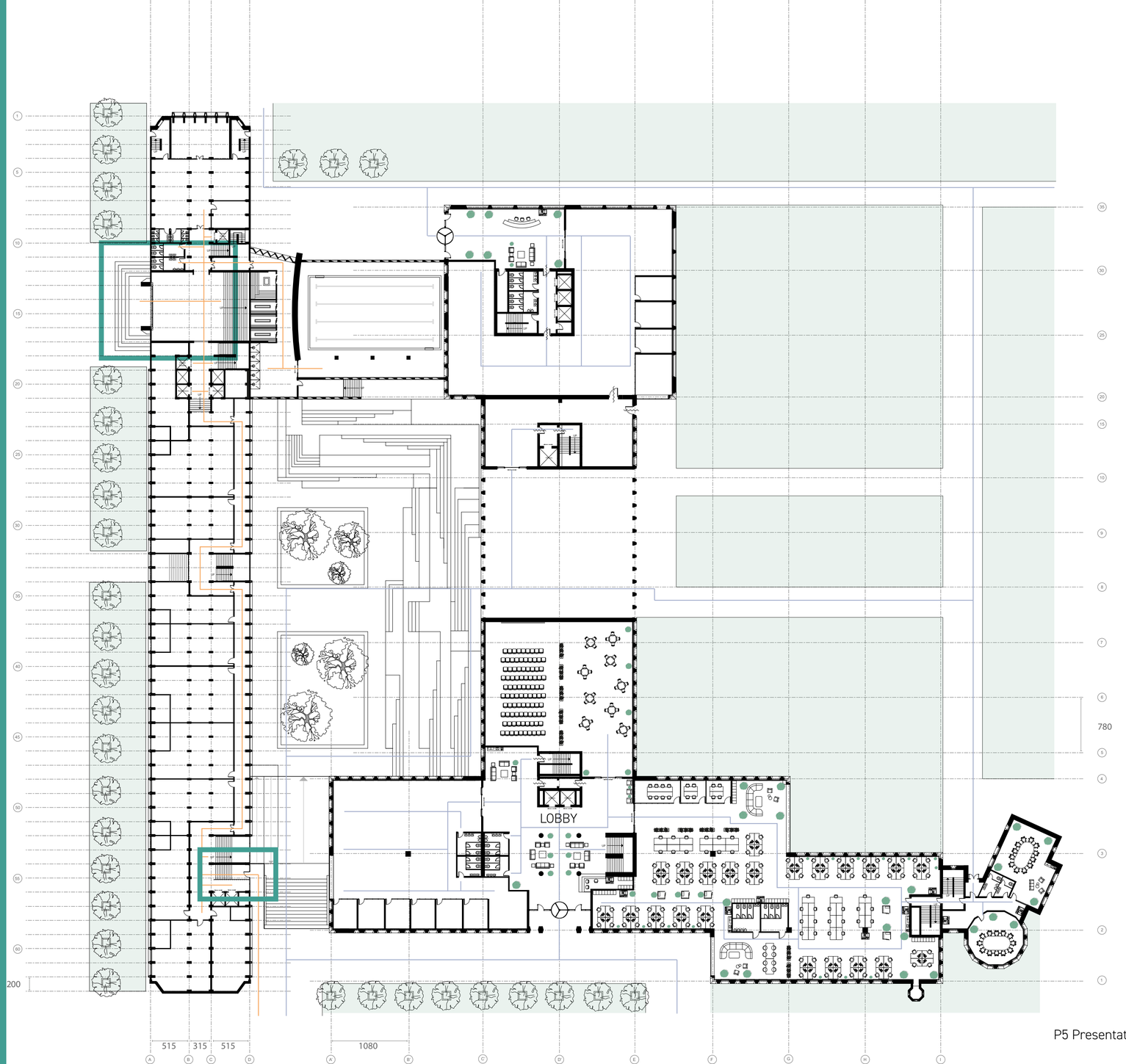
THE DESIGN

- Access leisure
- Swimming pool
- **Park**



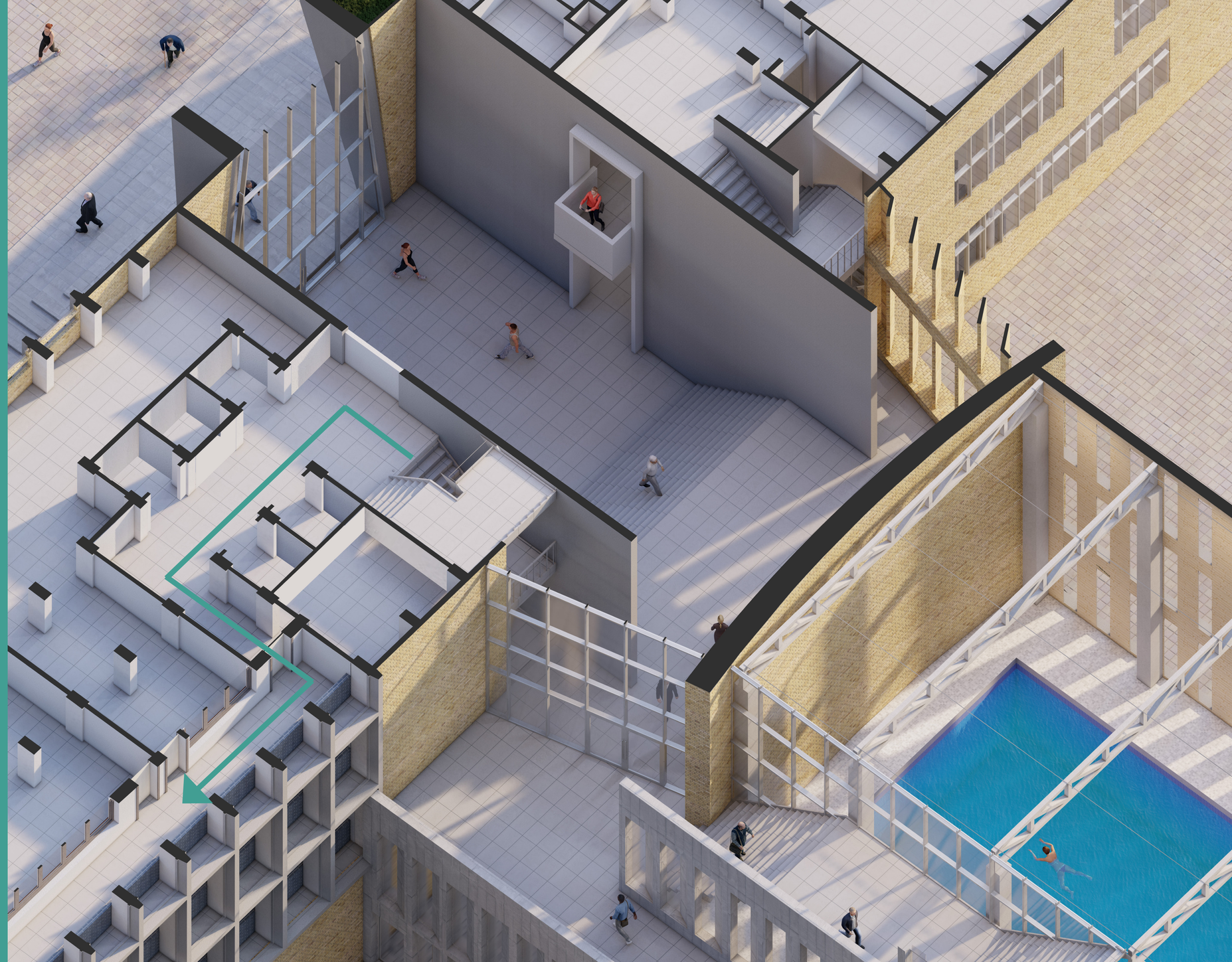
THE DESIGN

- Access
- Swimming pool
- Park
- **Access residences**



THE DESIGN

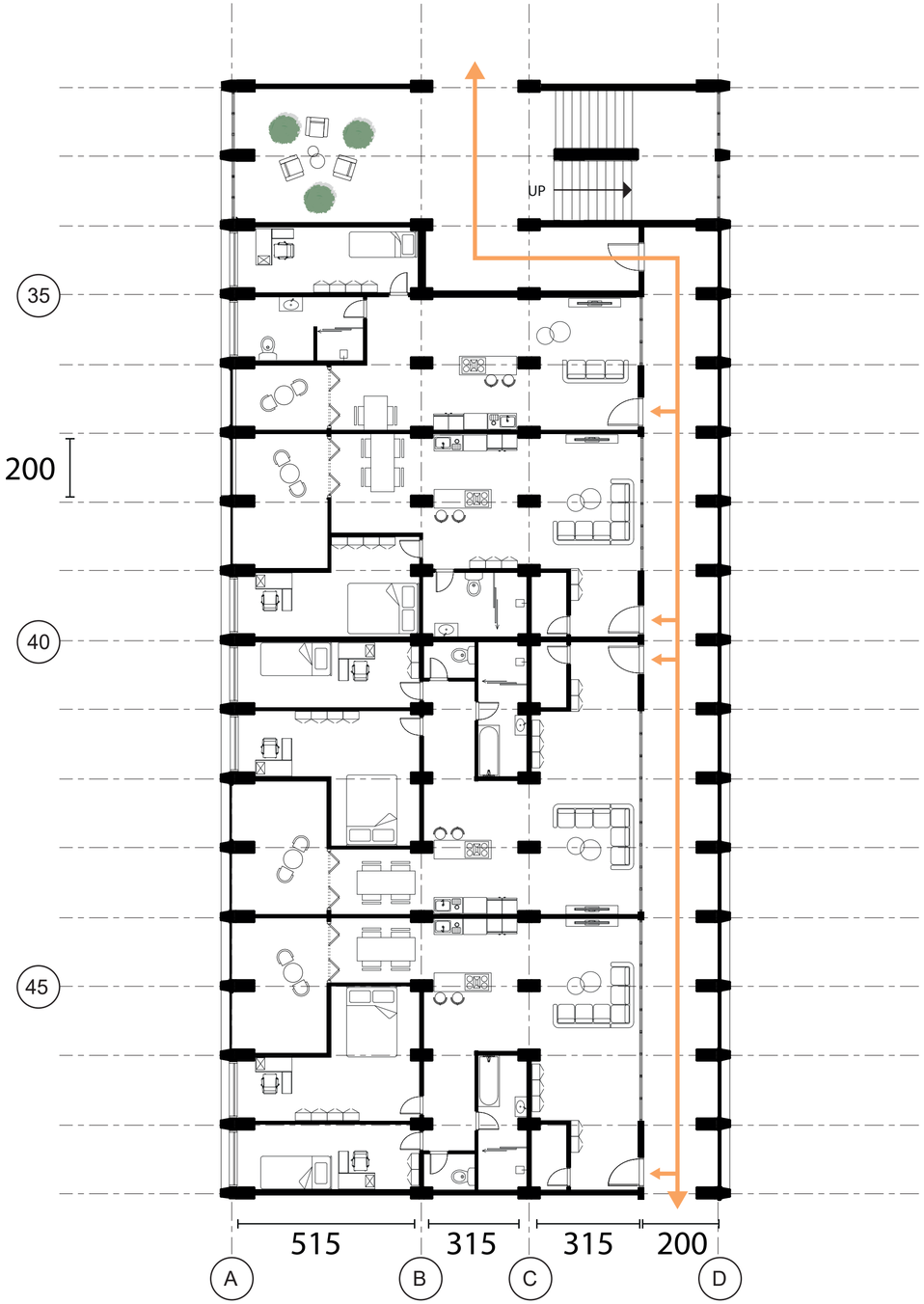
- Access leisure
- Swimming pool
- Park
- **Access residences**



THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- **Residence floorplans**

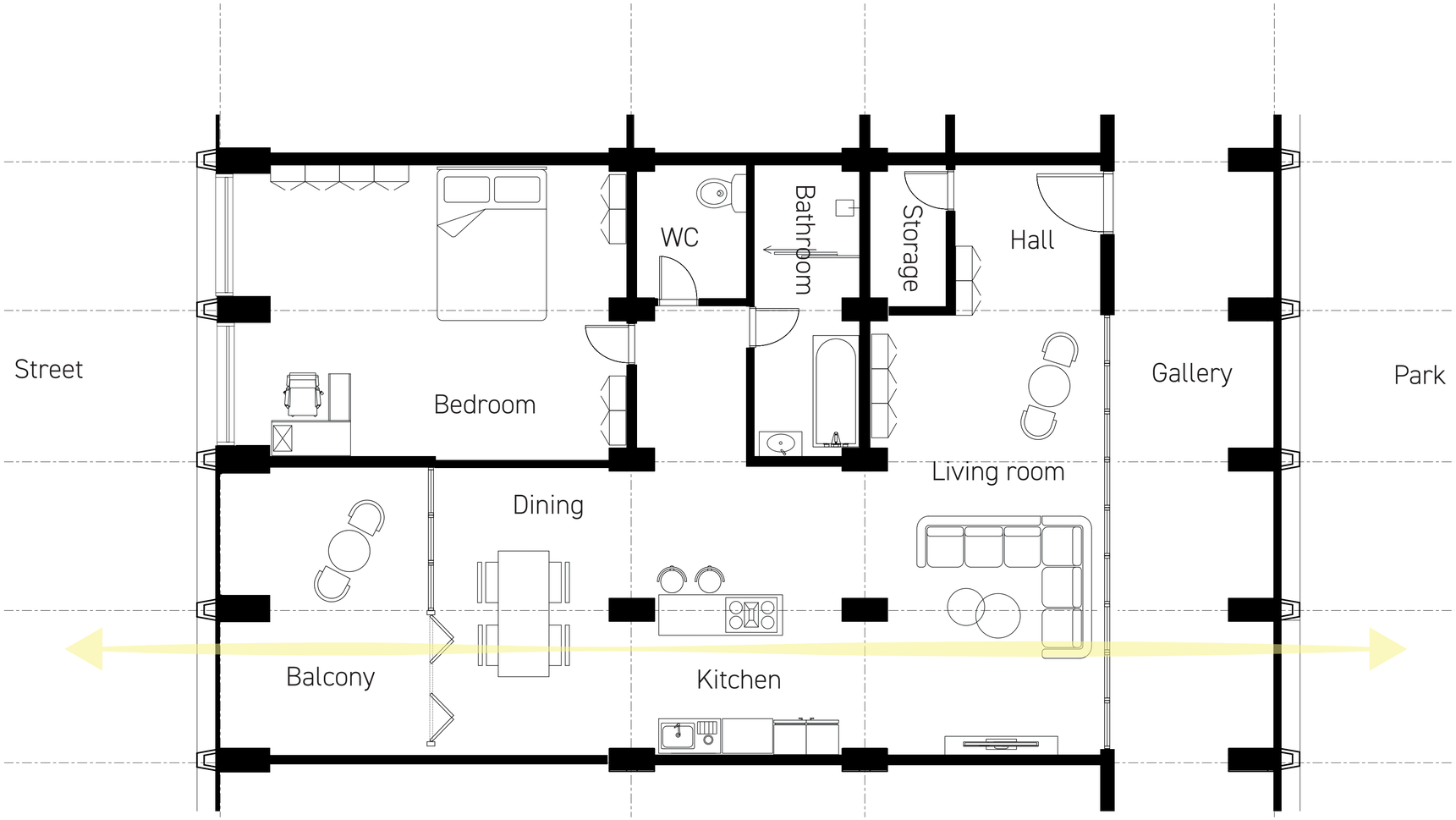
Floorplan - routing



THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- **Residence floorplans**

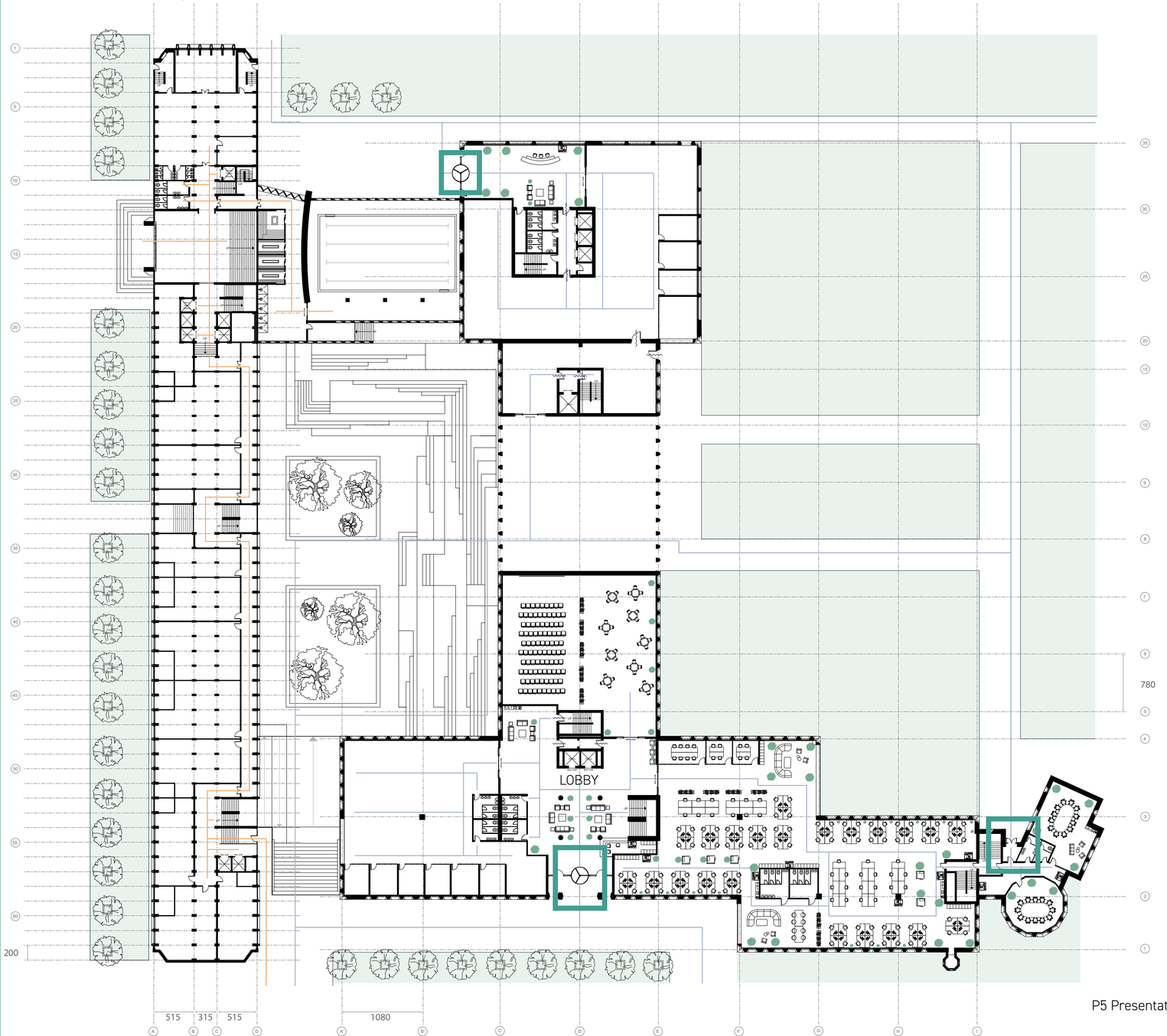
Floorplan - senior apartments

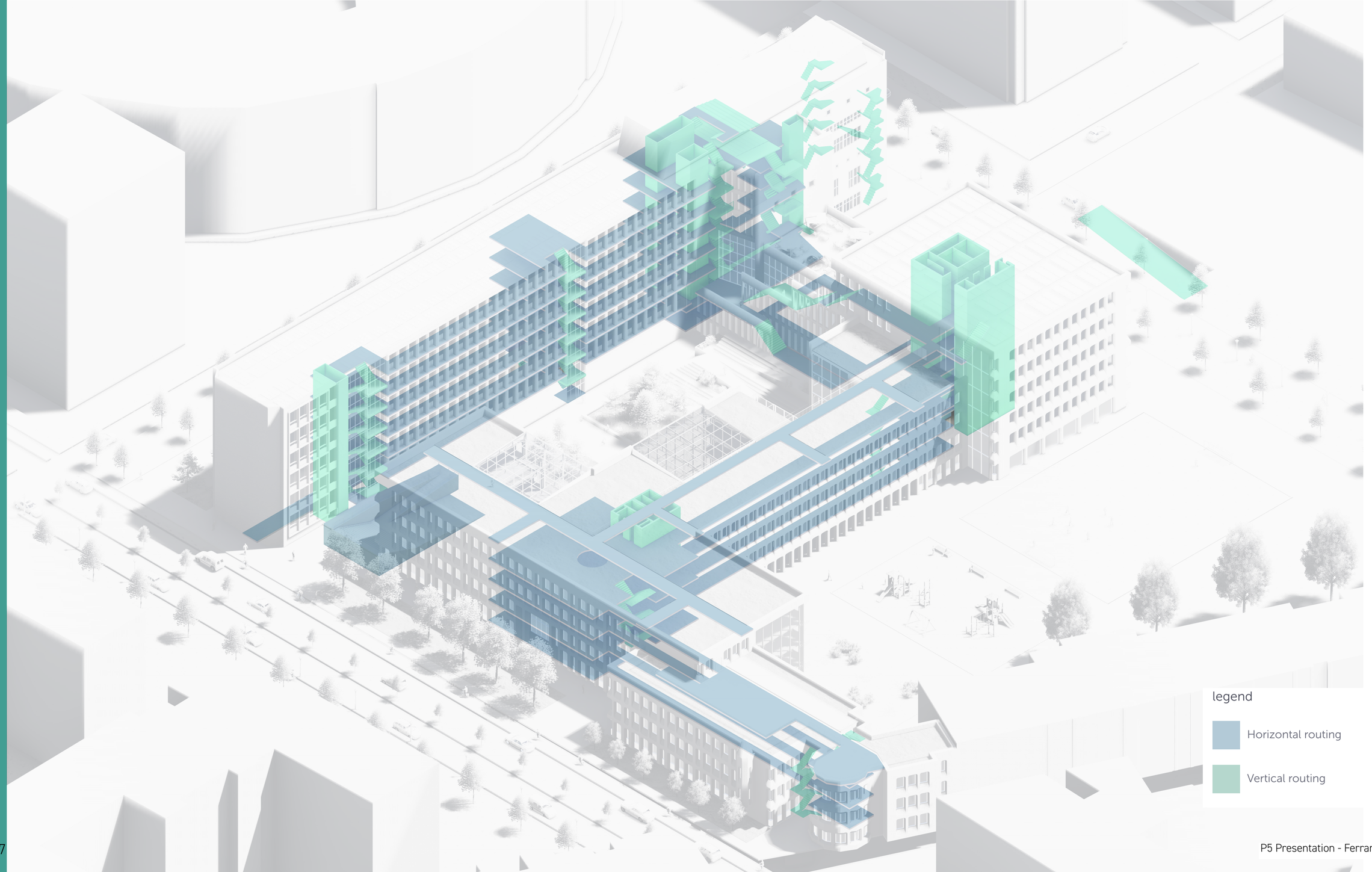


THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- **Access offices**

Floorplan - Ground level

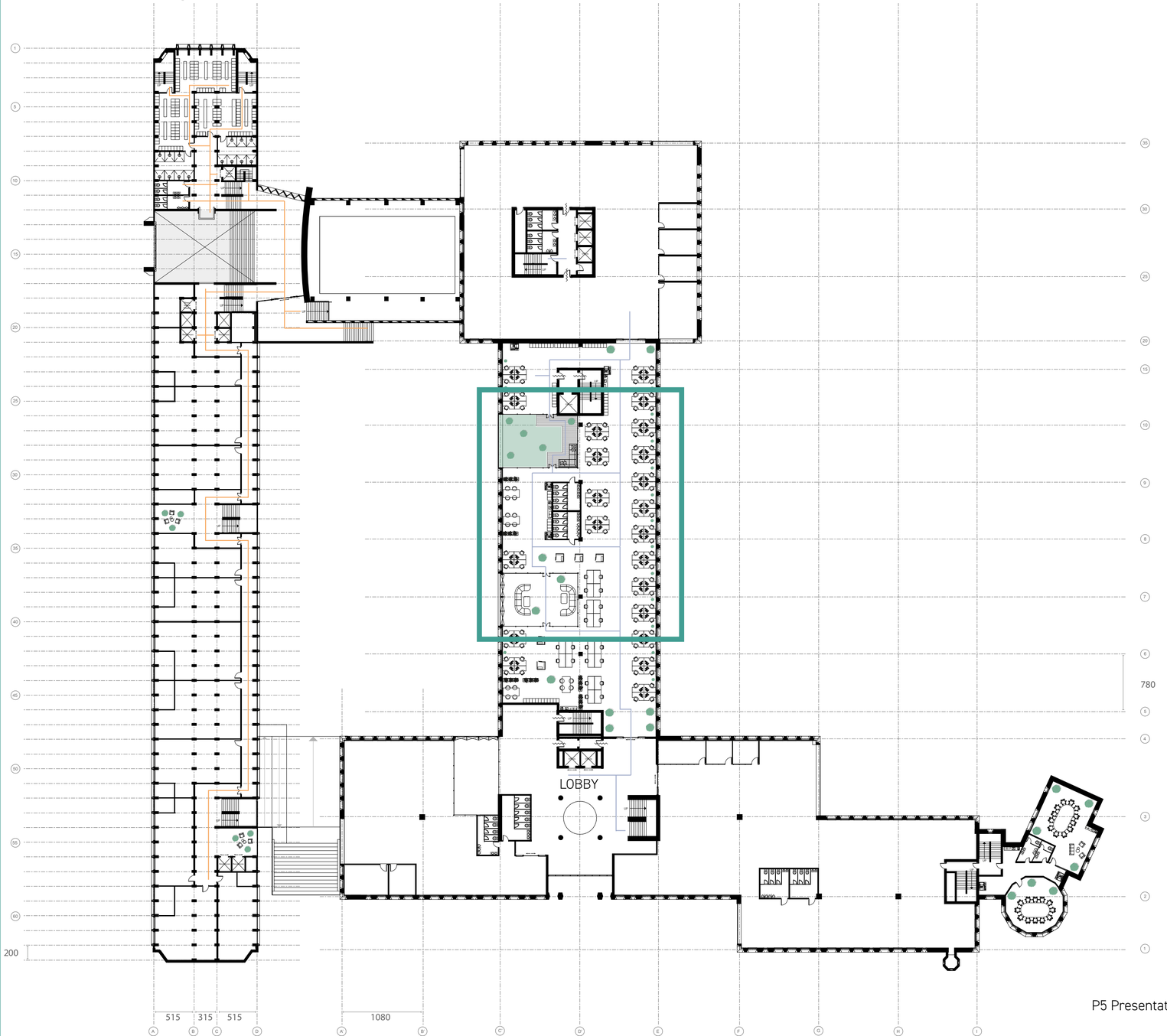



legend
Horizontal routing
Vertical routing

THE DESIGN

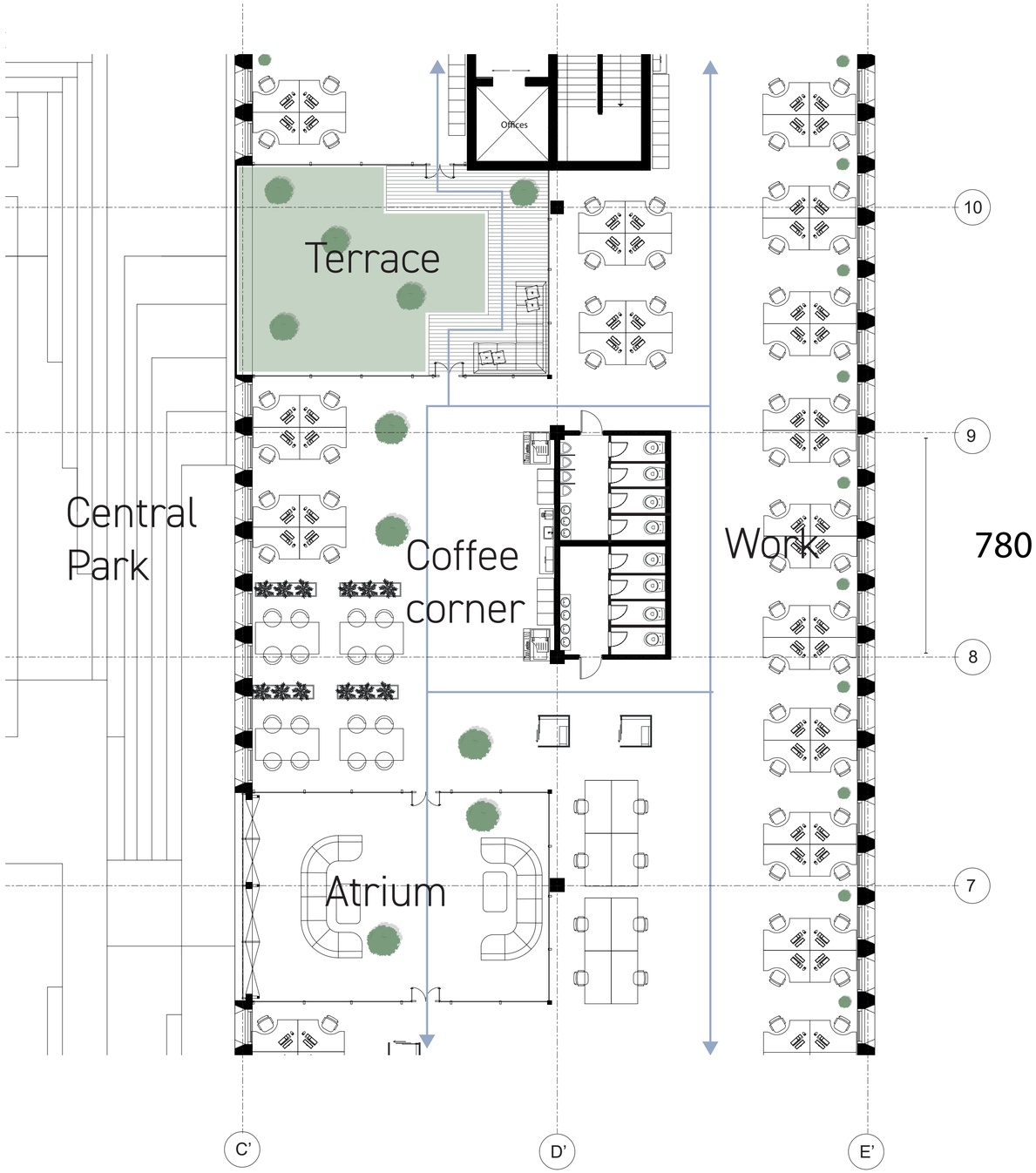
- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- **Office floorplans**

Floorplan - Level 1



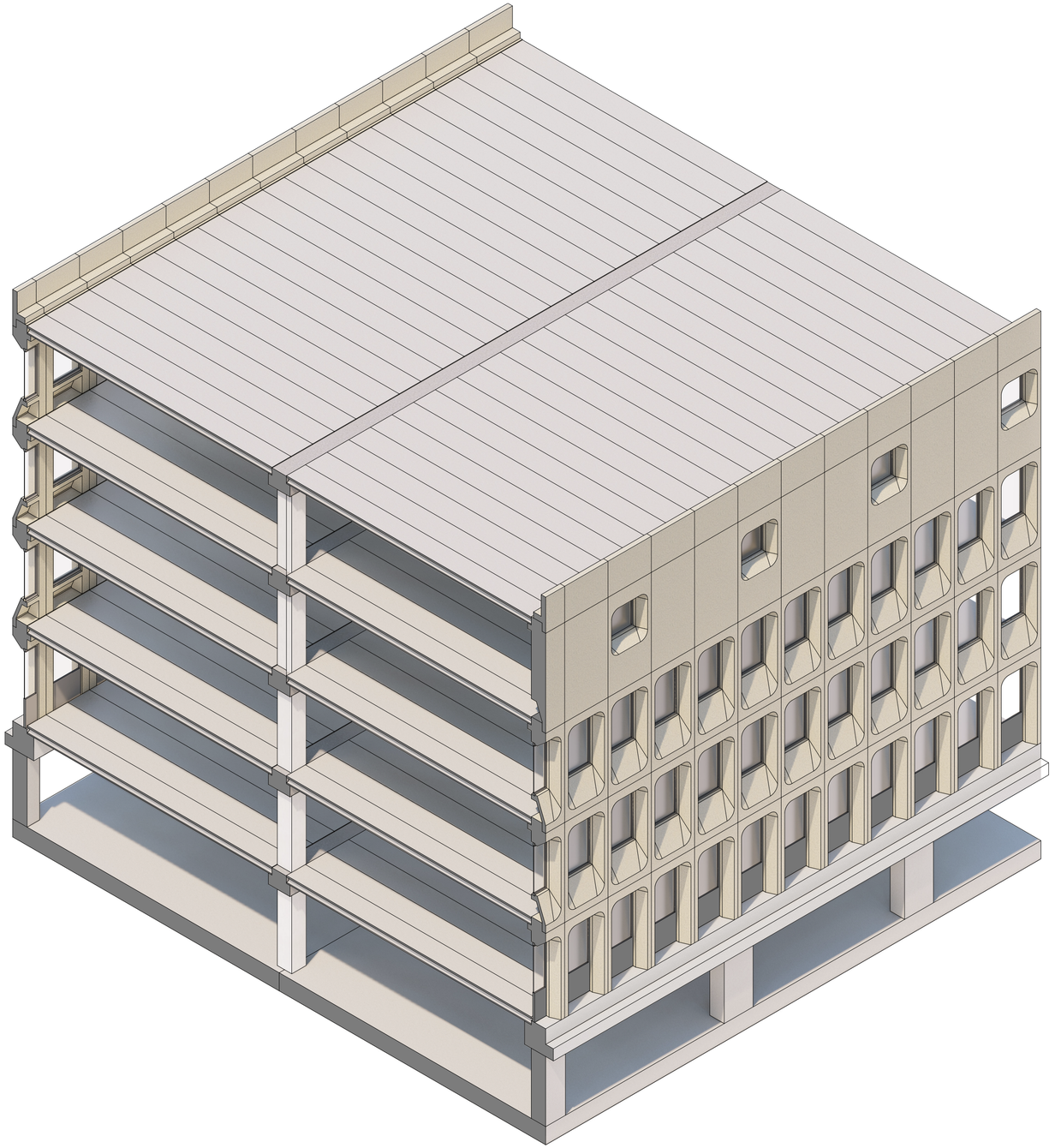
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- **Office floorplans**



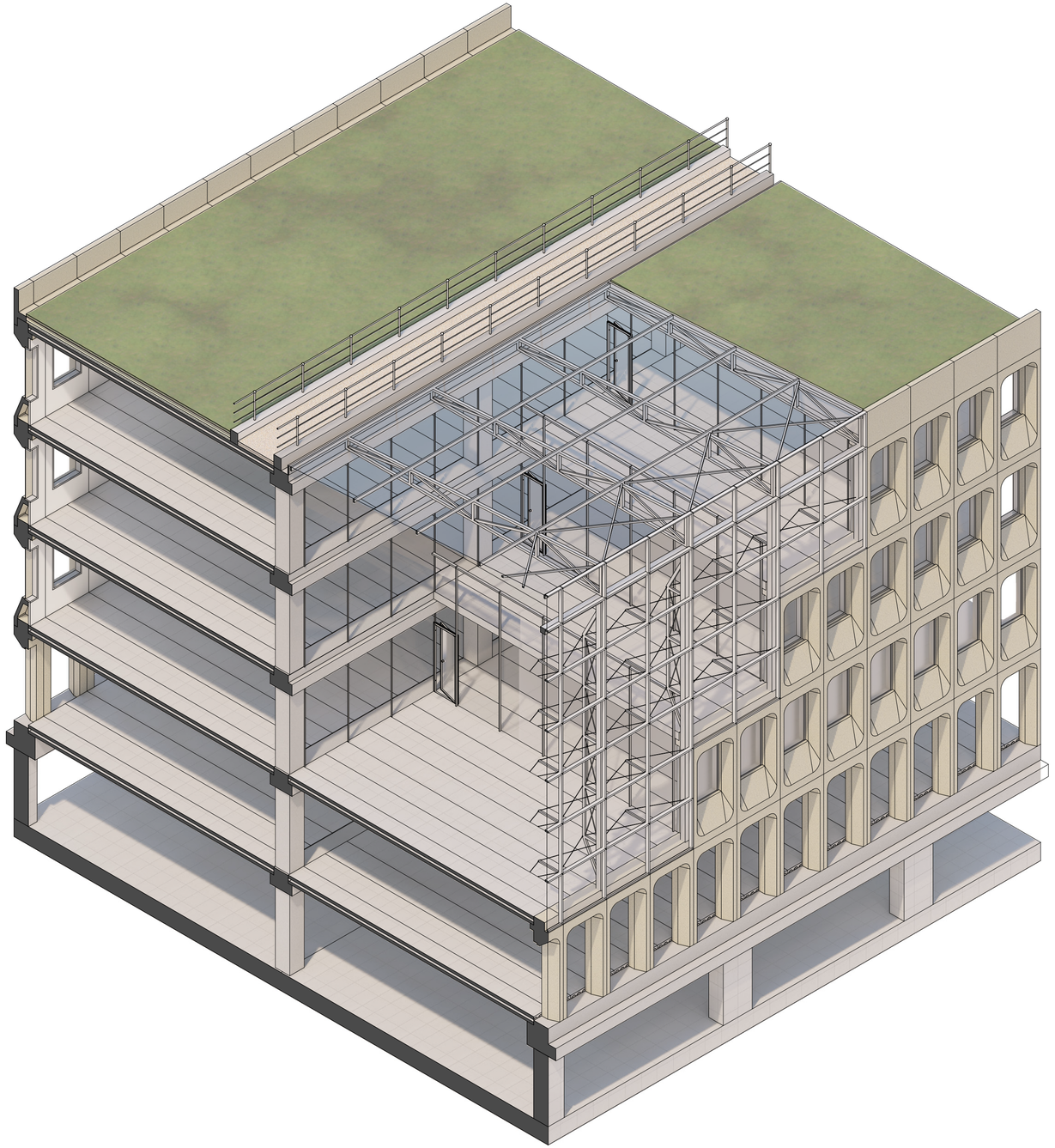
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



THE DESIGN

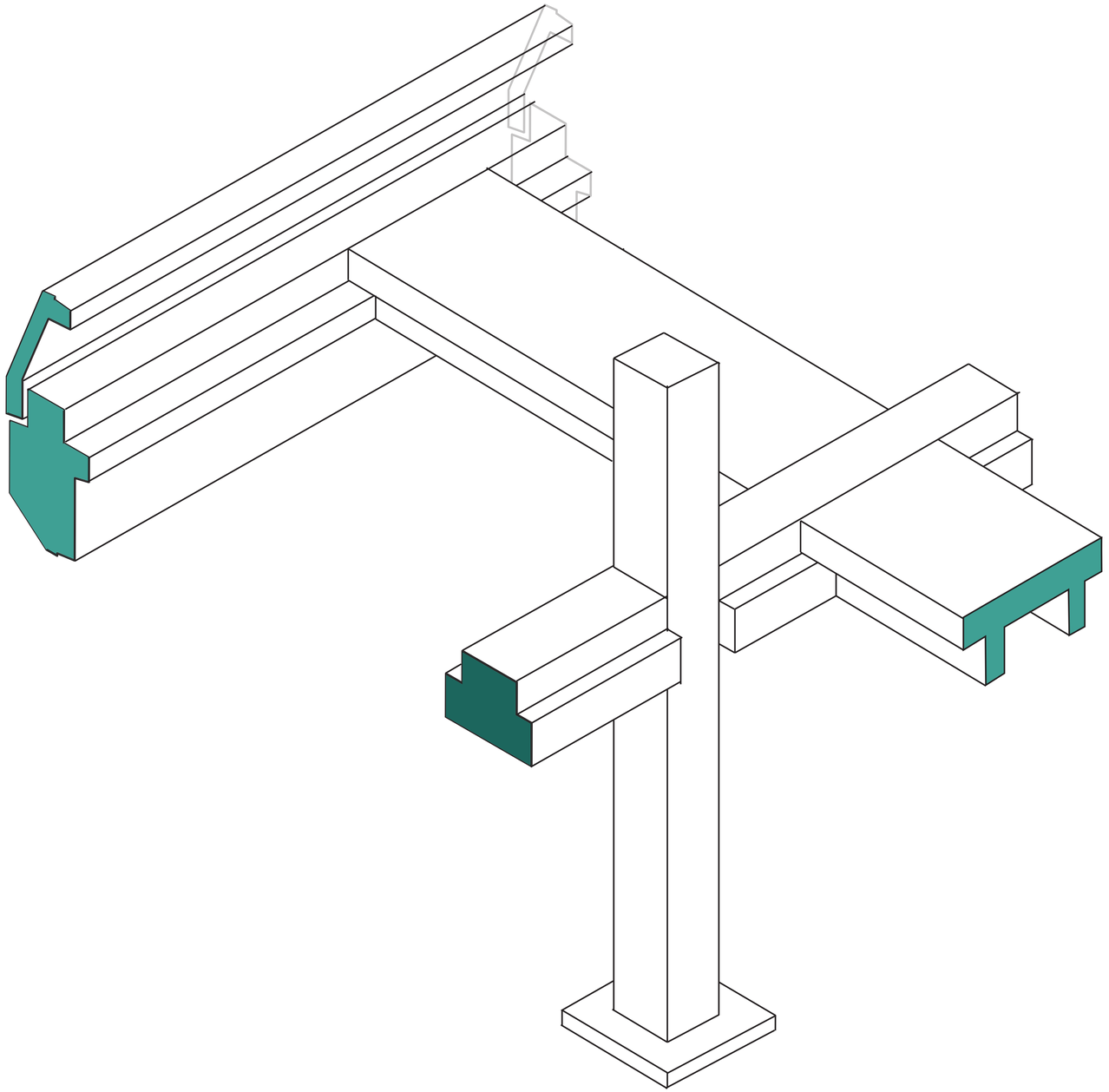
- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Structural system - overview

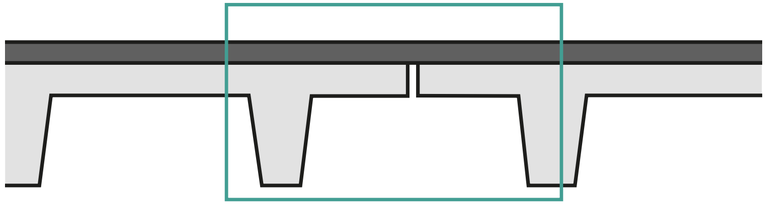


THE DESIGN

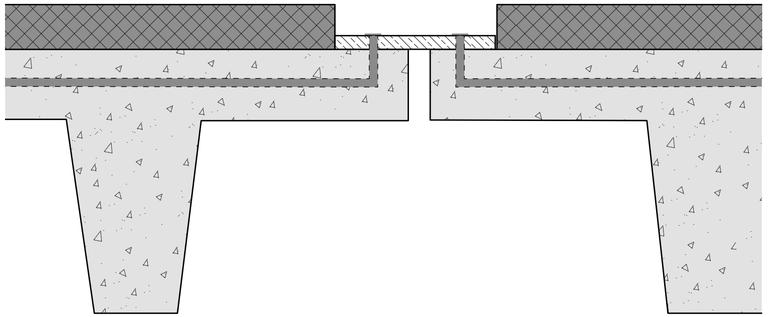
- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Structural system - floor types

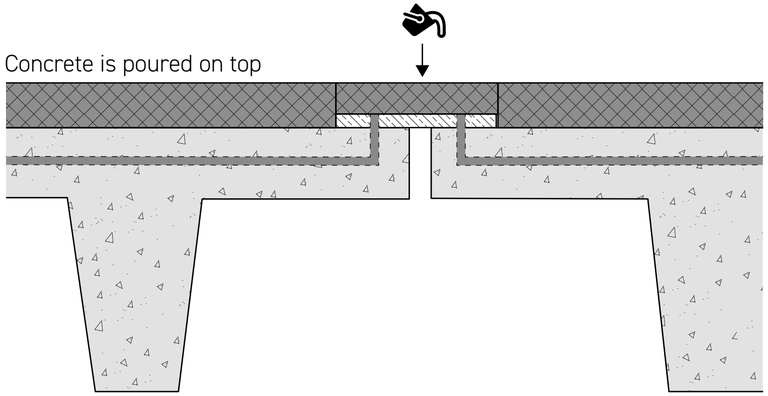
Double-T floor



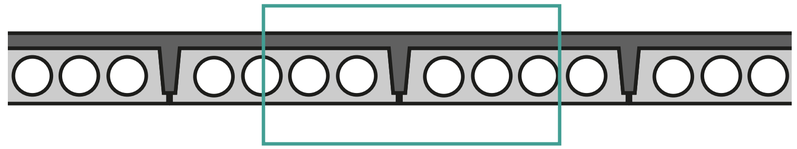
Steel plate is welded on the steel reinforcement of the double-T floor



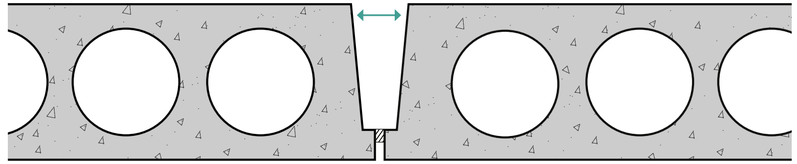
Concrete is poured on top



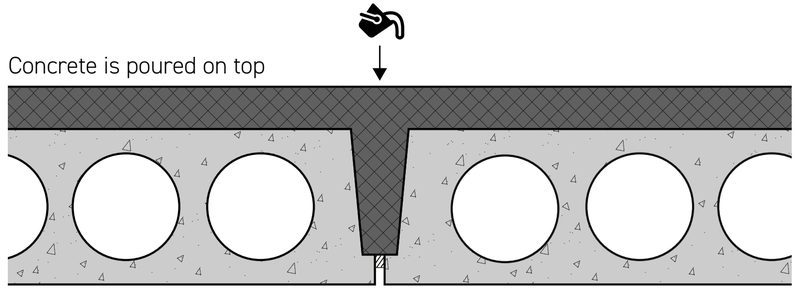
Hollow-core slab



Opening between hollow-core slabs due to trapezium shape.



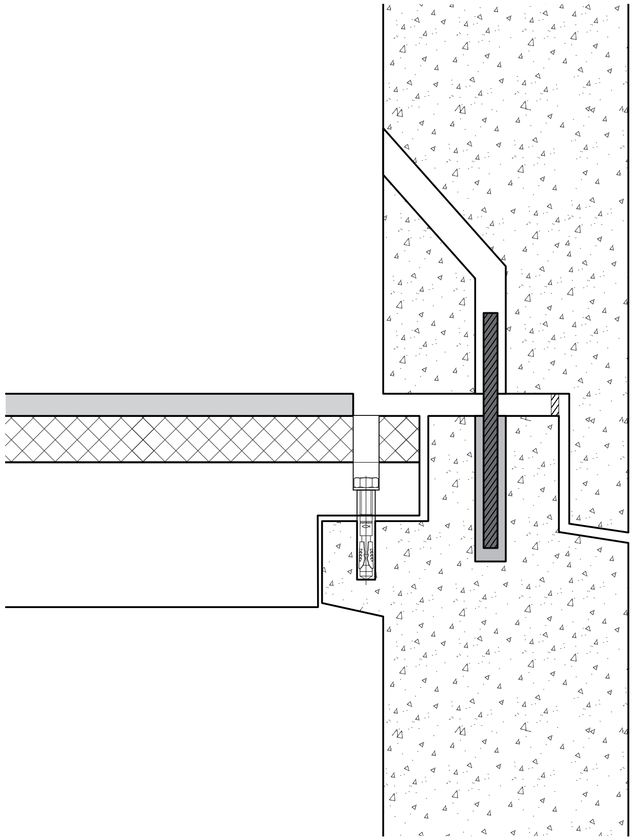
Concrete is poured on top

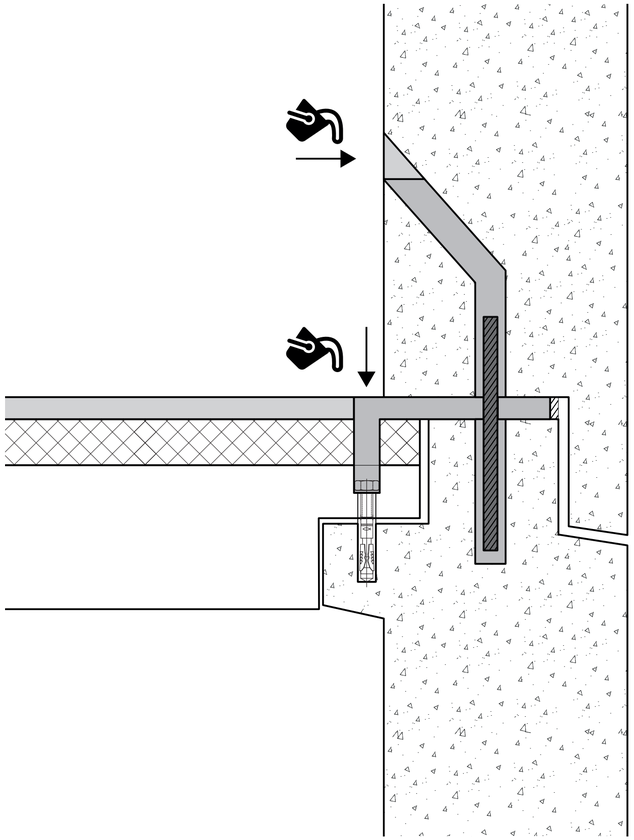


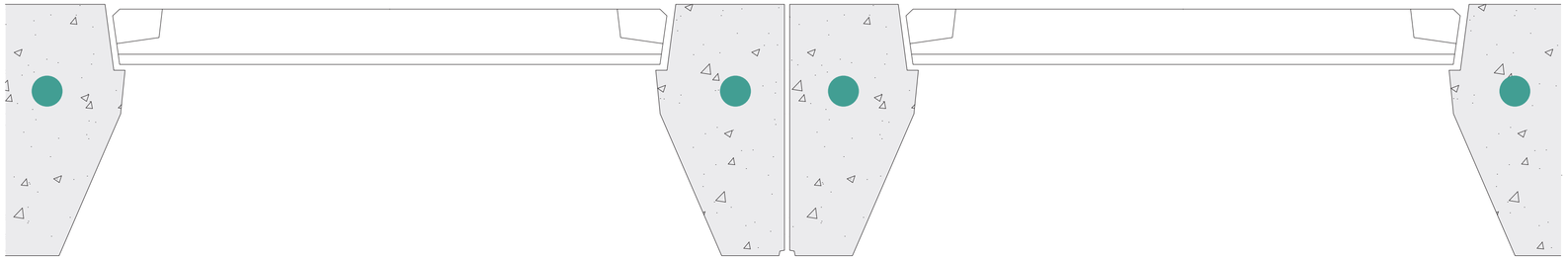
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Structural system - precast concrete panels

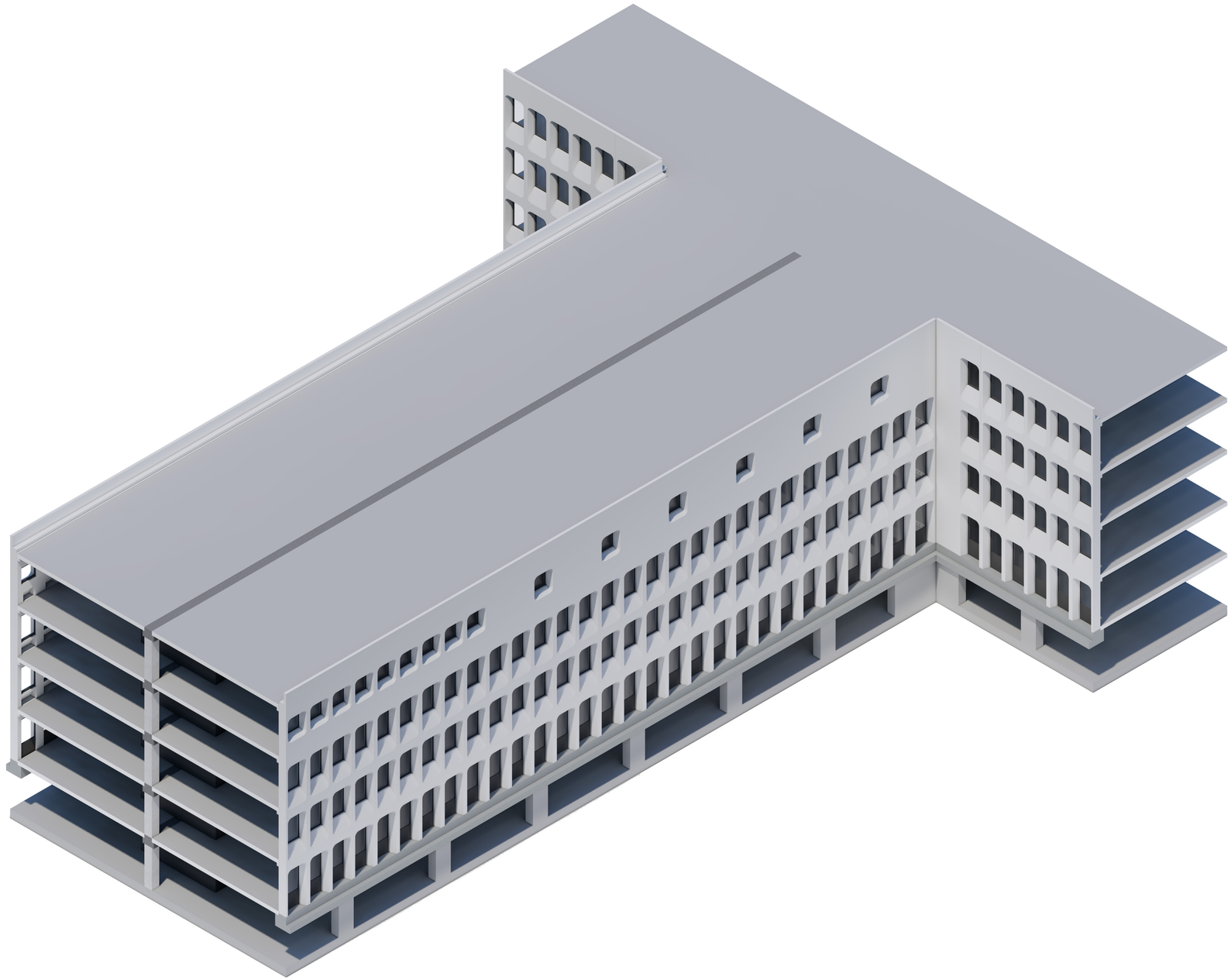






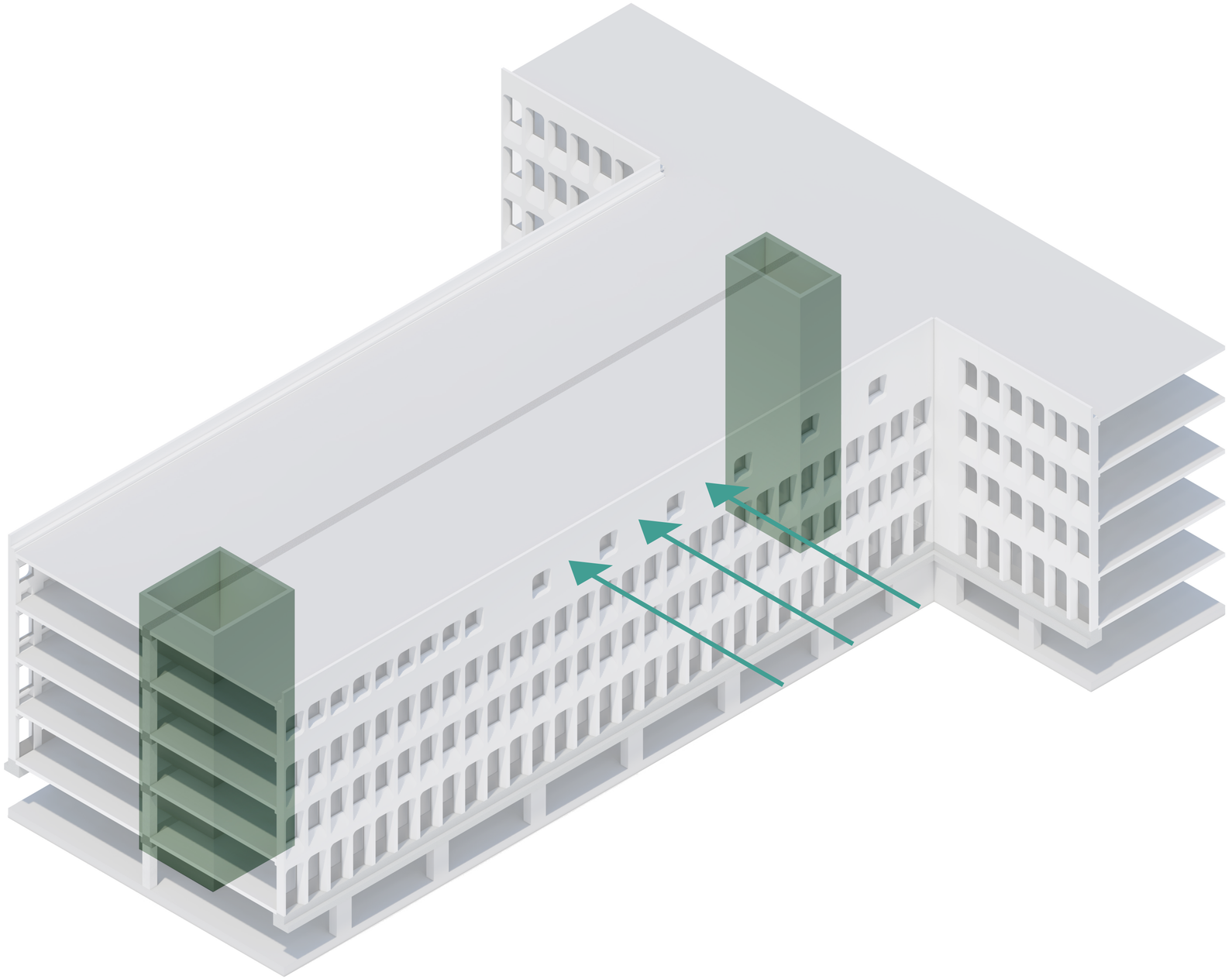
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



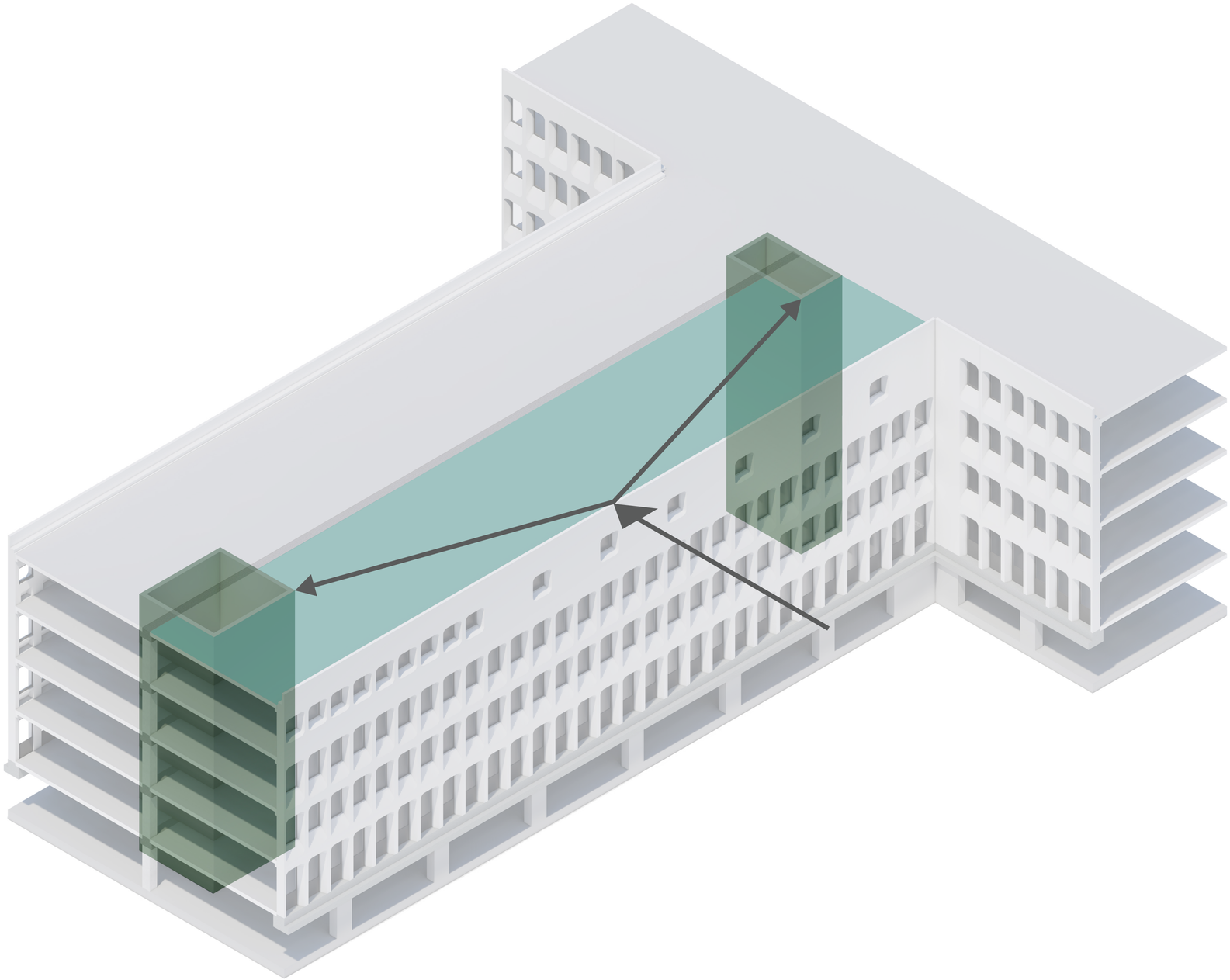
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



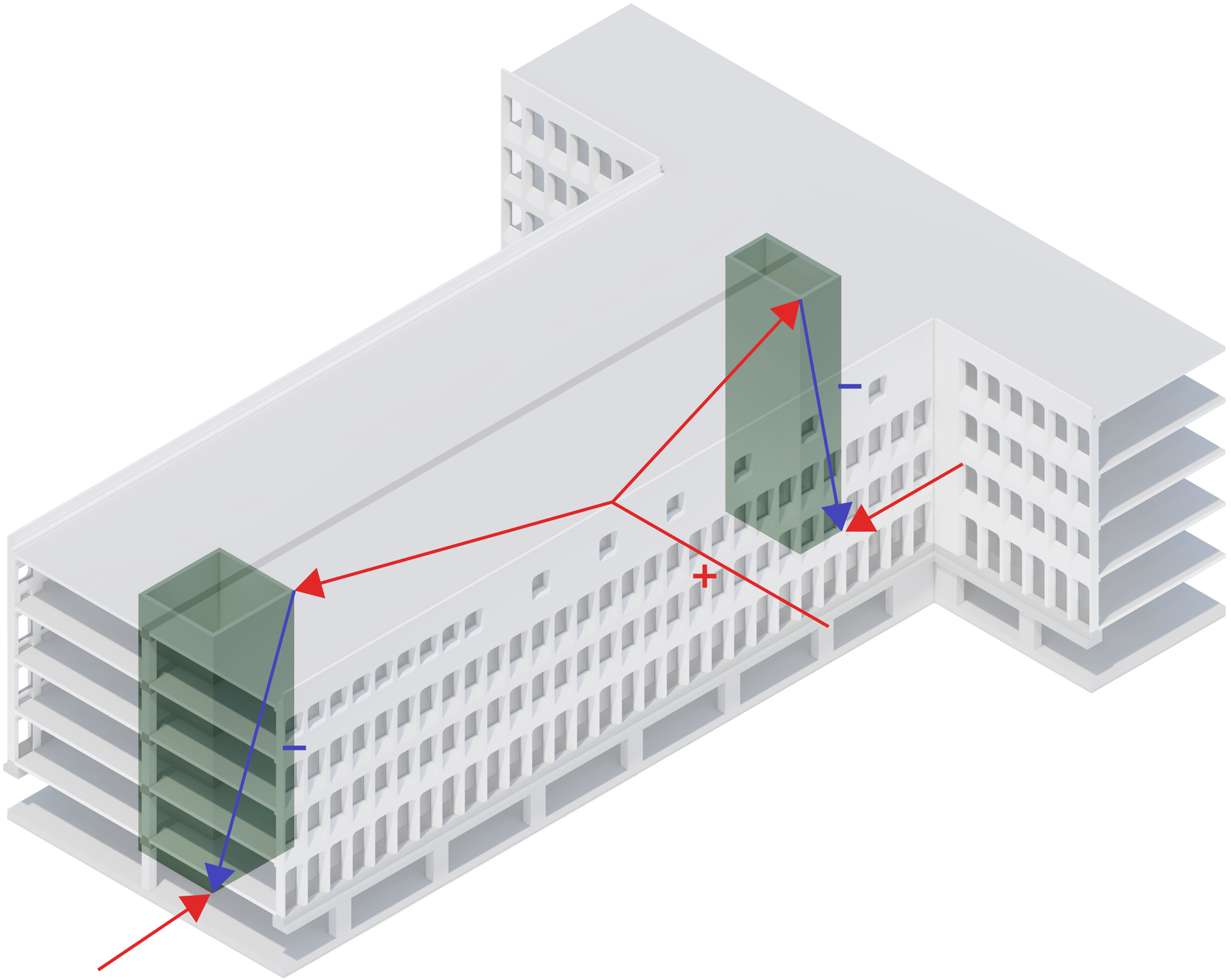
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



THE DESIGN

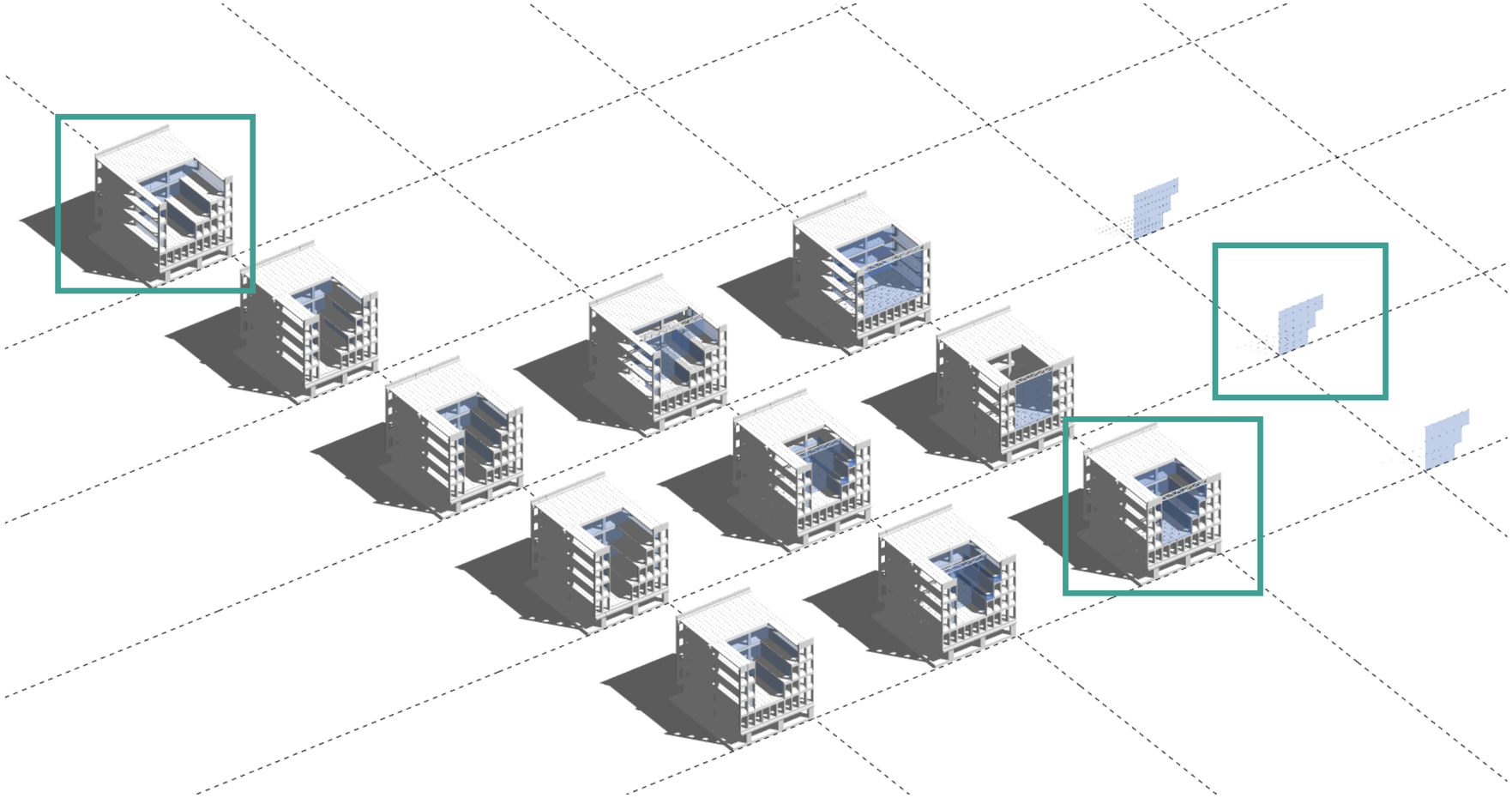
- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

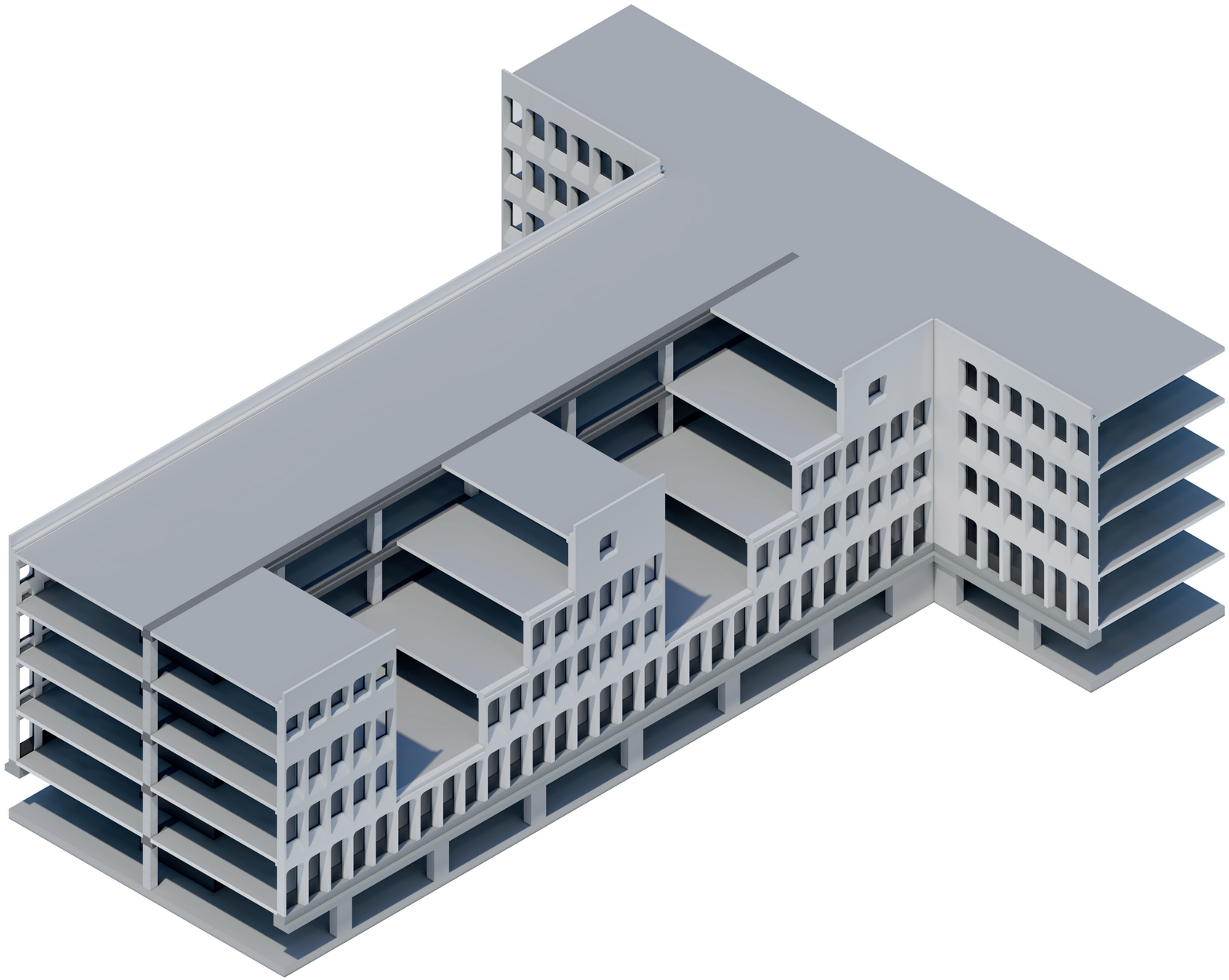
Atrium - concept testing



- **Daylight entrance**
- **Balcony space**
- **Type of glass facade**
- **Rythm**
- **Construction system**
- **Material use**

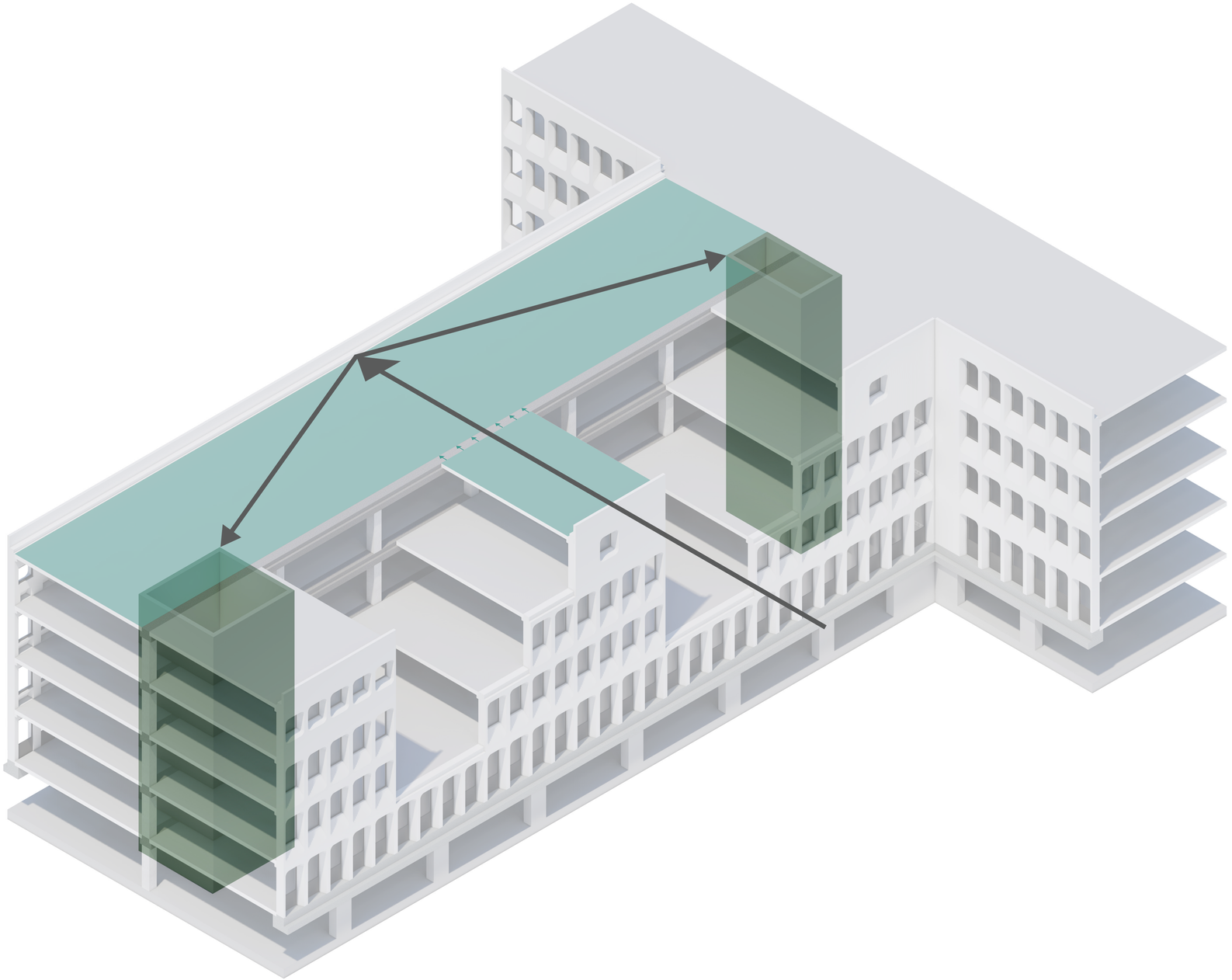
THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**



THE DESIGN

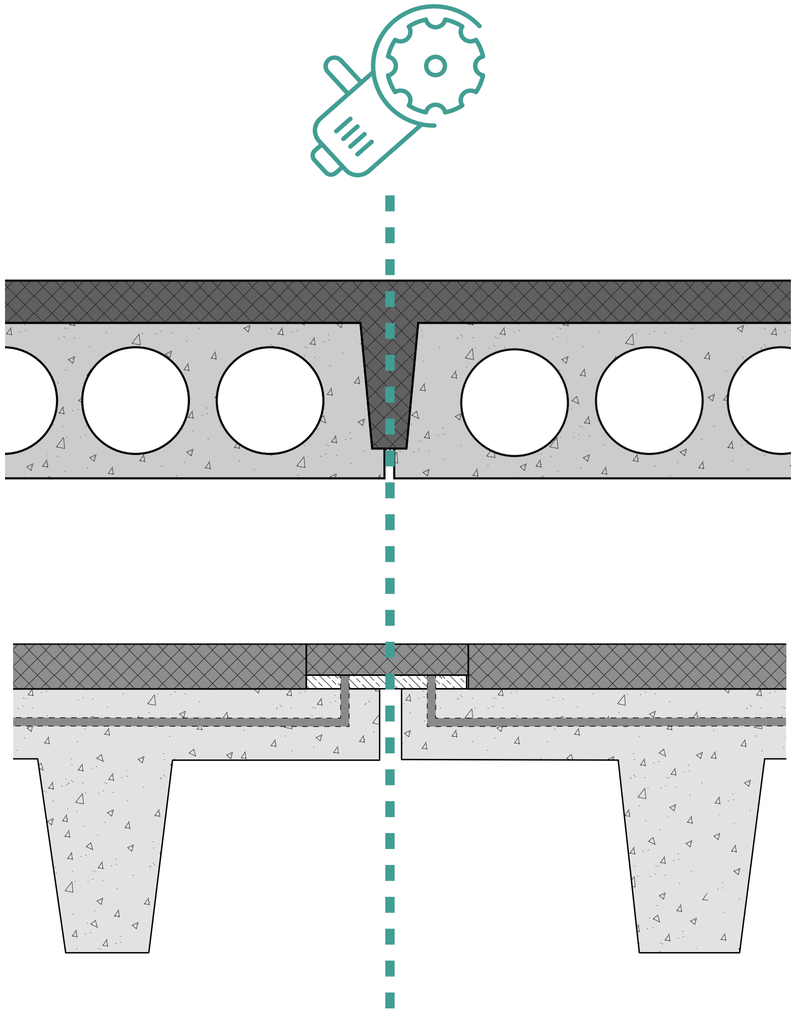
- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

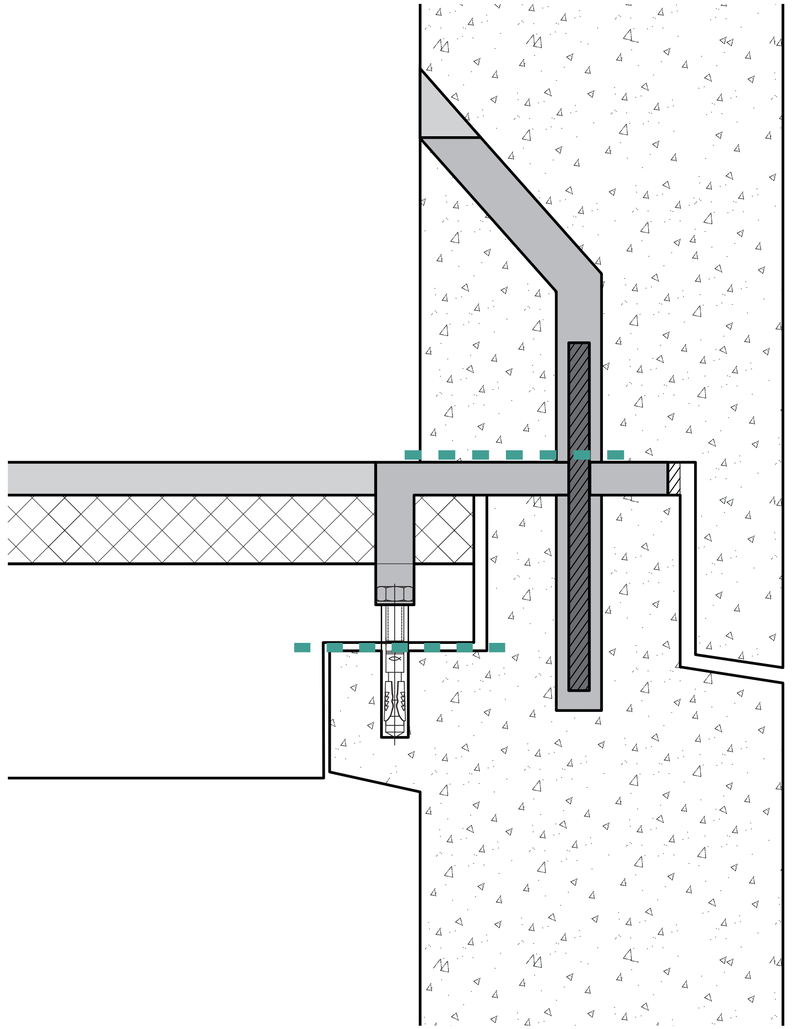


THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Atrium - facade removal

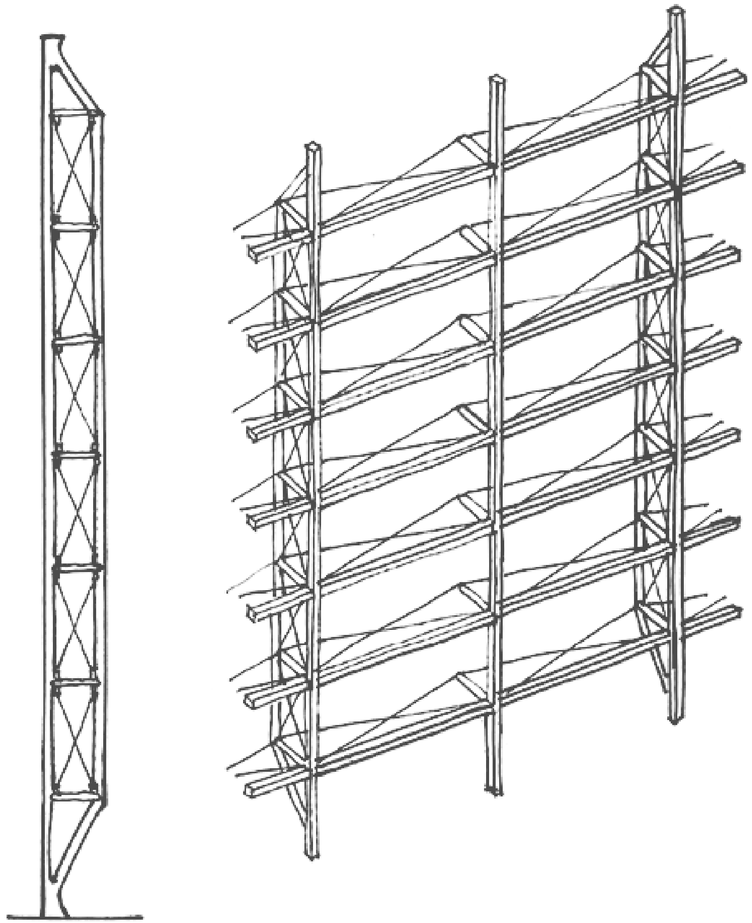


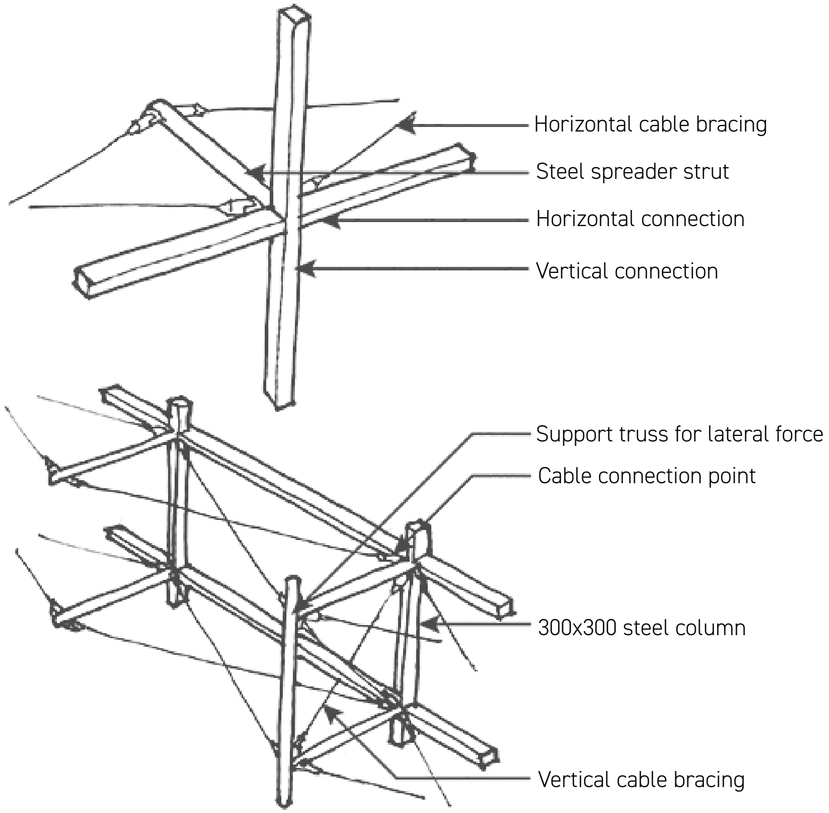


THE DESIGN

- Access
- Swimming pool
- Central park
- Residences
- Offices
- **Atrium - curtain wall**

Atrium - cable-truss curtain wall

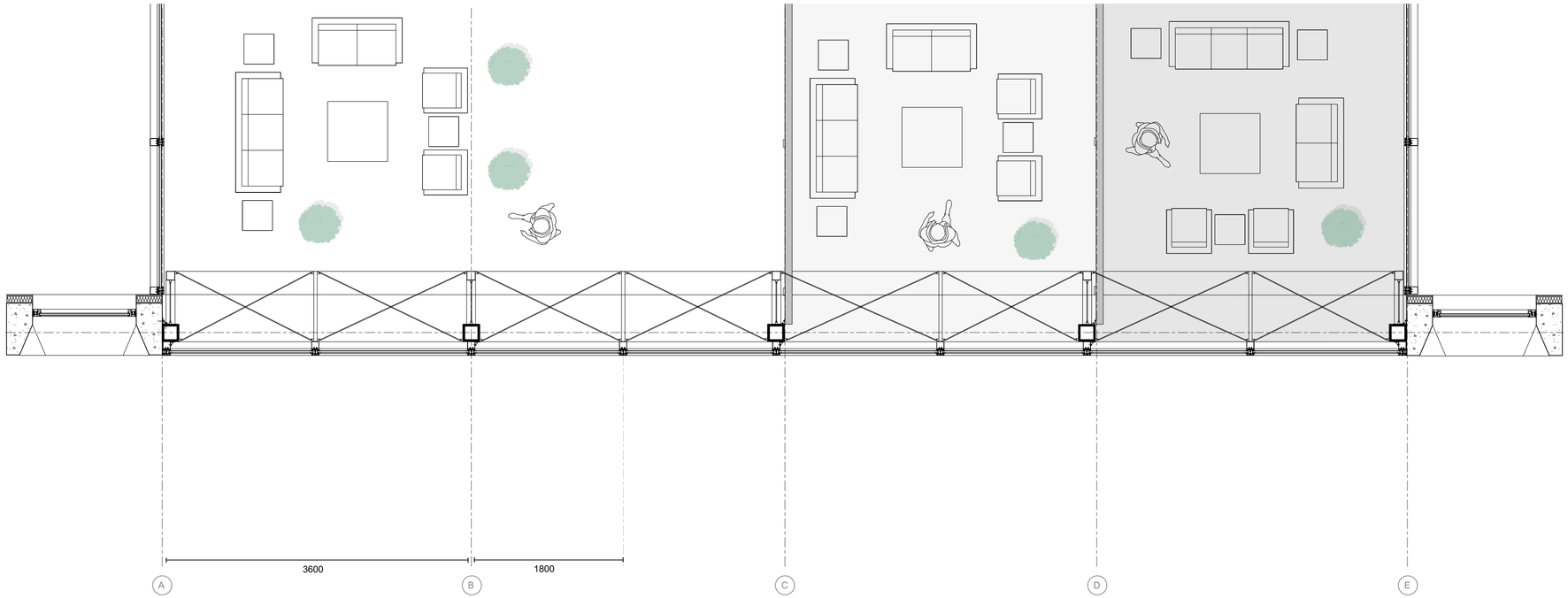




THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

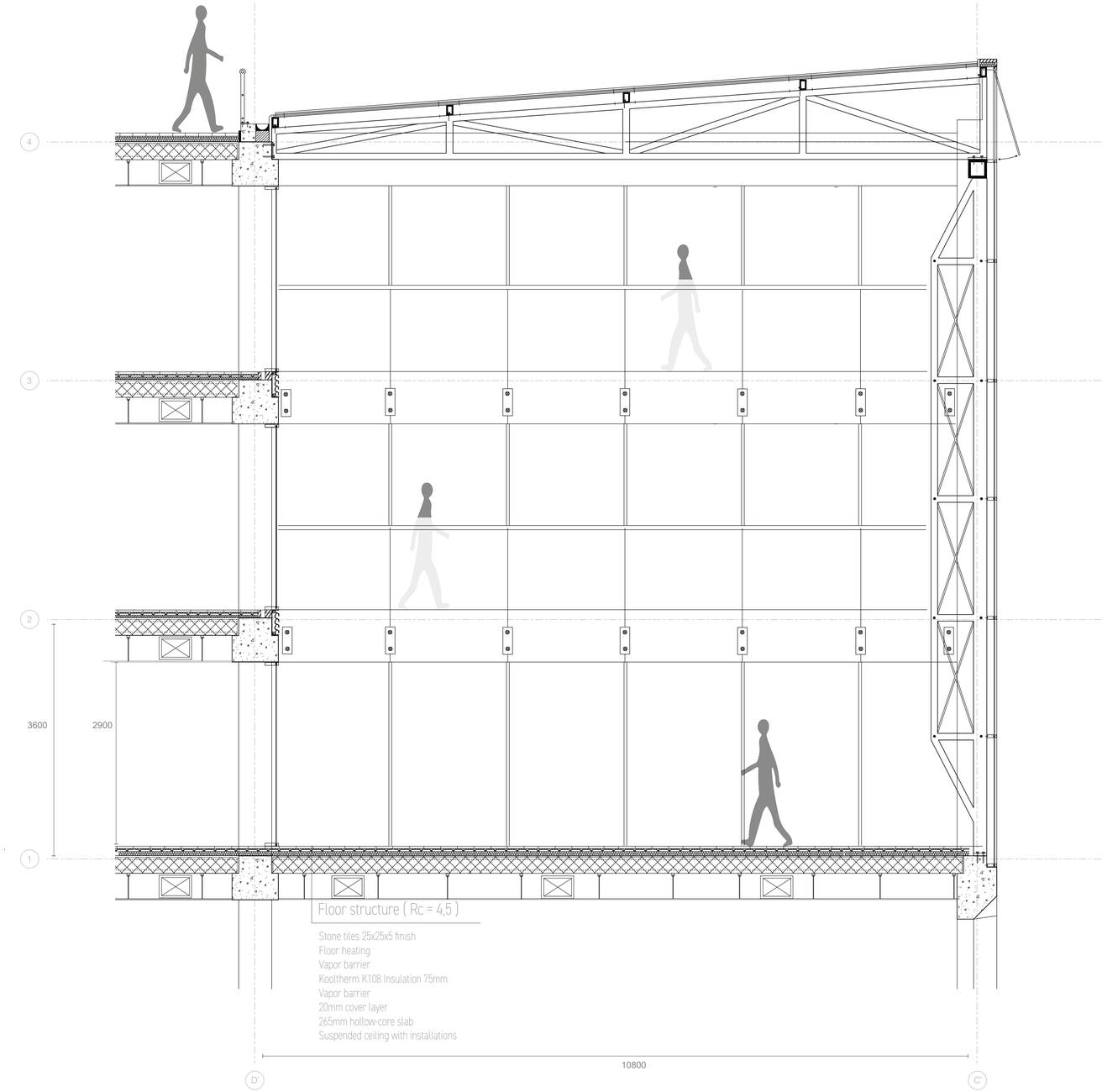
Atrium - horizontal section



THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Atrium - section overview

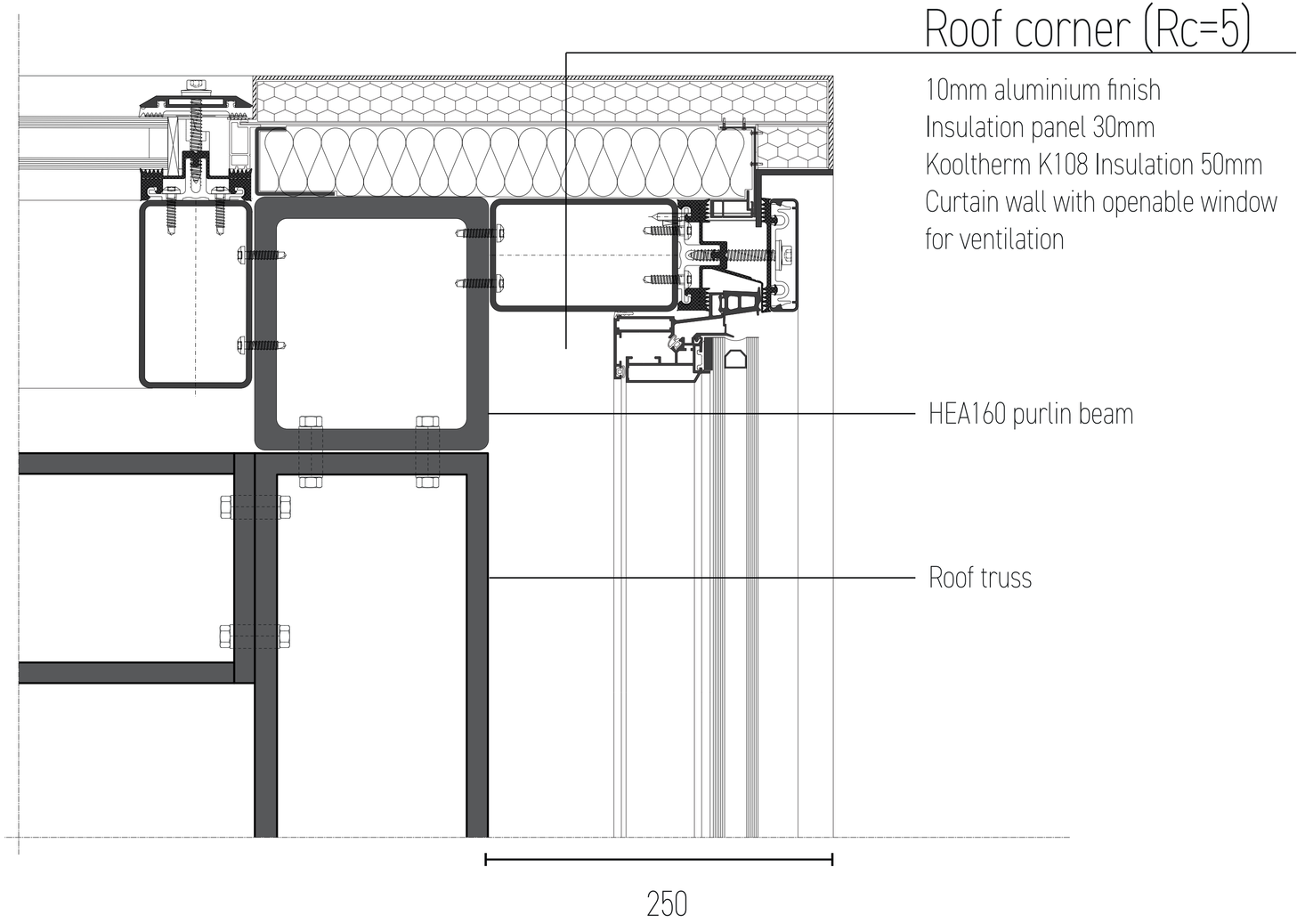


Detail scale 1:50

THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Atrium - detail 1

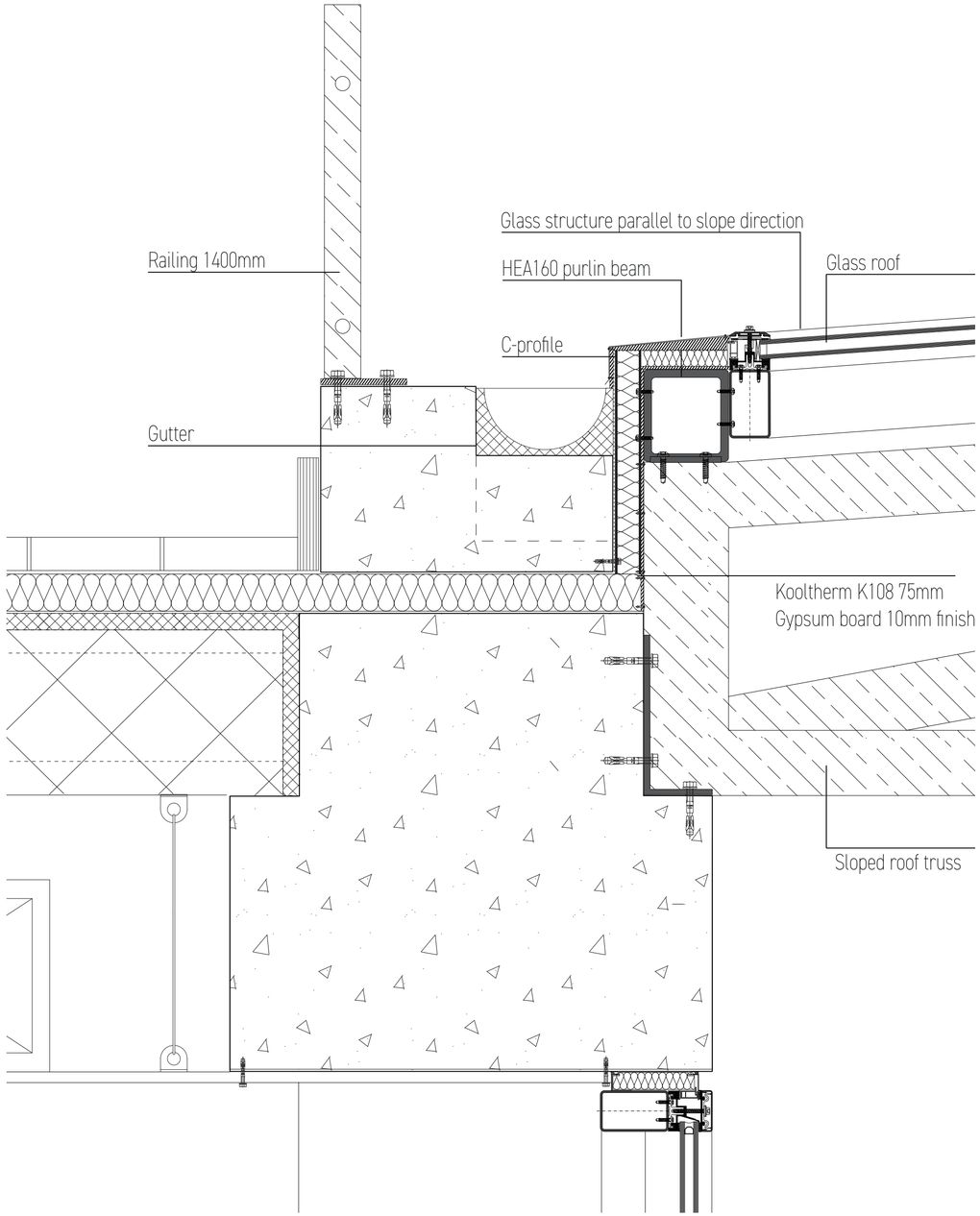


Detail scale 1:5

THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- **Atrium**

Atrium - detail 2

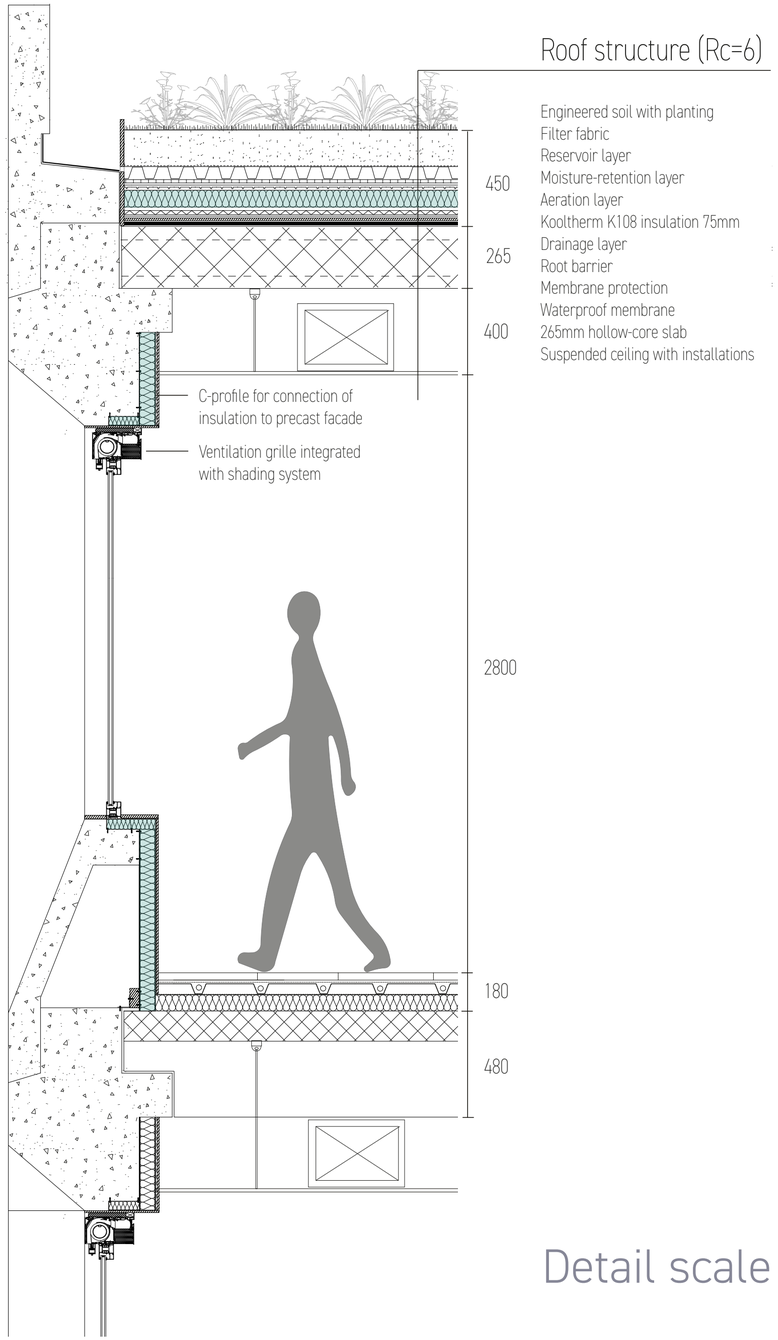


Detail scale 1:10

THE DESIGN

- Access leisure
- Swimming pool
- Park
- Access residences
- Residence floorplans
- Access offices
- Office floorplans
- Atrium
- **Climate system**

Climate - added insulation



Detail scale 1:20

THE DESIGN

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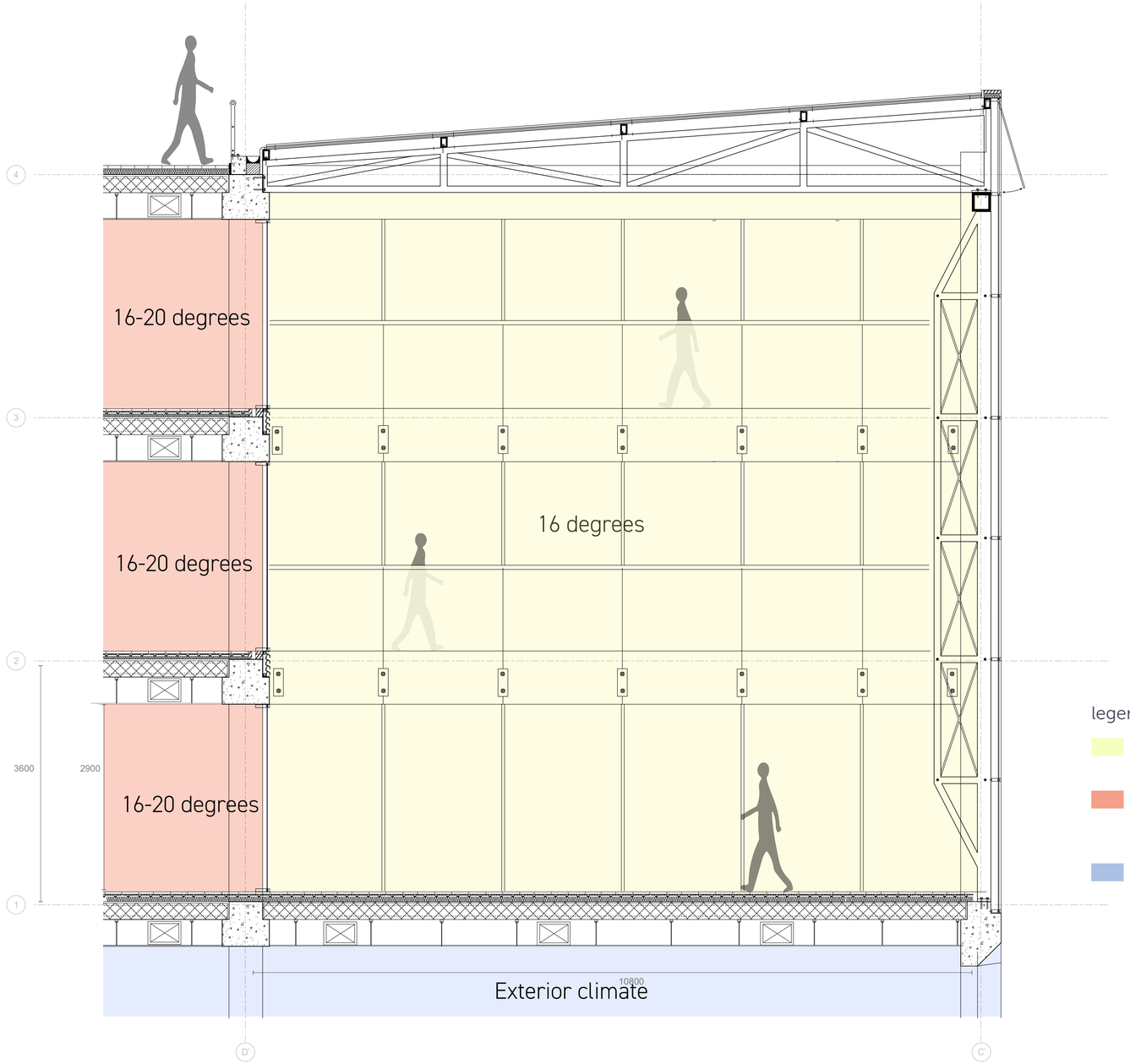
- **Climate system**
-

Climate - thermal zones



legend

- 16° : atrium heated by residual heat and floor heating
- 16-20° degrees : offices need 20°, and lower to a minimum of 16° when empty
- Exterior climate : pedestrian route underneath building

THE DESIGN

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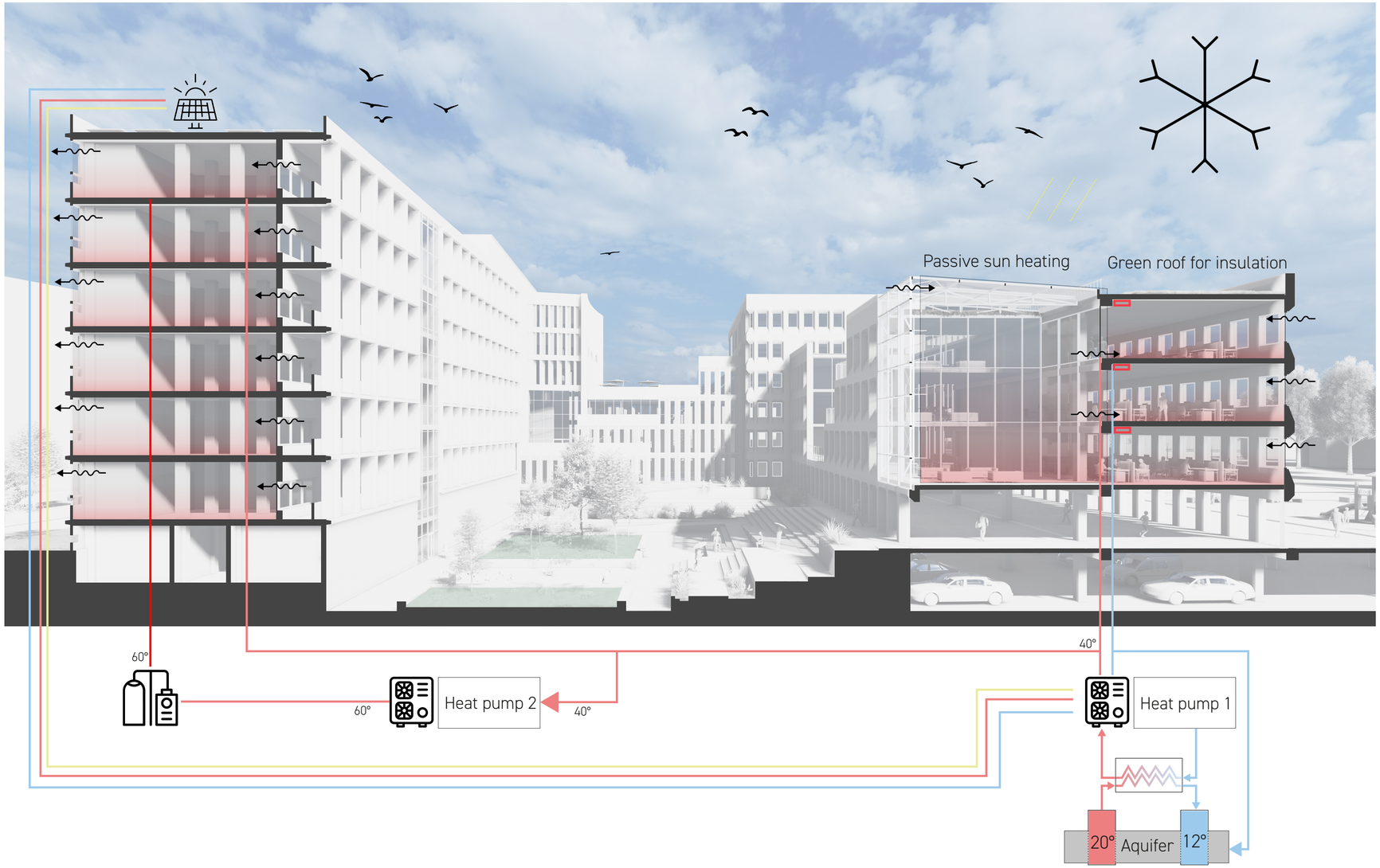
Climate - winter situation



THE DESIGN

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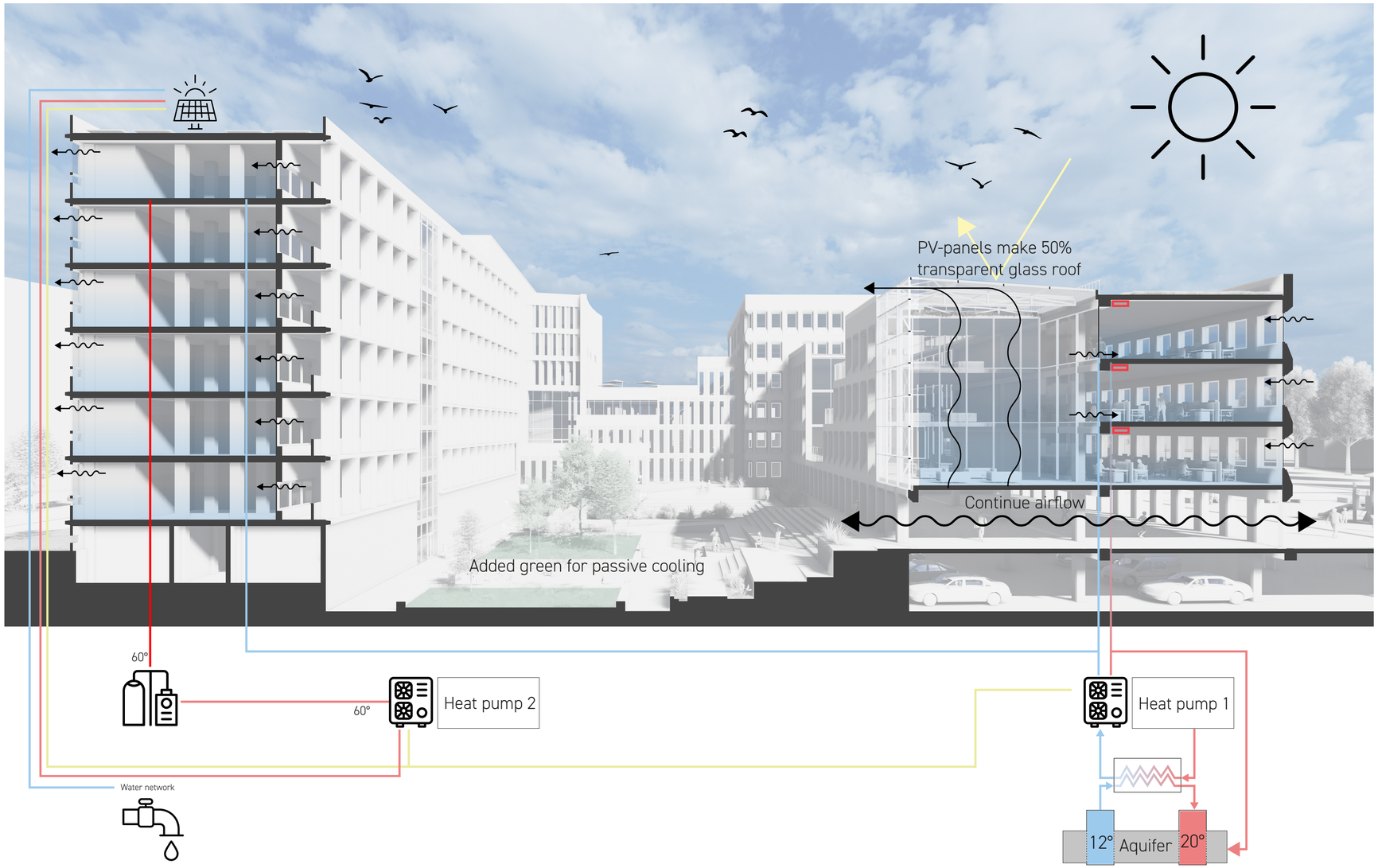
Climate - summer situation



The Conclusion

Main Research Question

"To what extent does the precast concrete façade in the police headquarters in The Hague influence our approach to a redesign?"

Research paper conclusion

- Symbol of transition
- Symbol of transformation

Conceptual value

- Technological advancement

Technological value

'Answer'

Most post-war precast concrete facade are unique examples of craft-manship and technology, while reflecting the ways we lived and built in the past. As an architect, it is important to acknowledge this before making a decision on these type of facades.

Design

- Preserve and emphasize on Schokbeton facade
- Adjust character to new function
- Operate on non-loadbearing parts
- Create relation between the 1959 and 1980 part

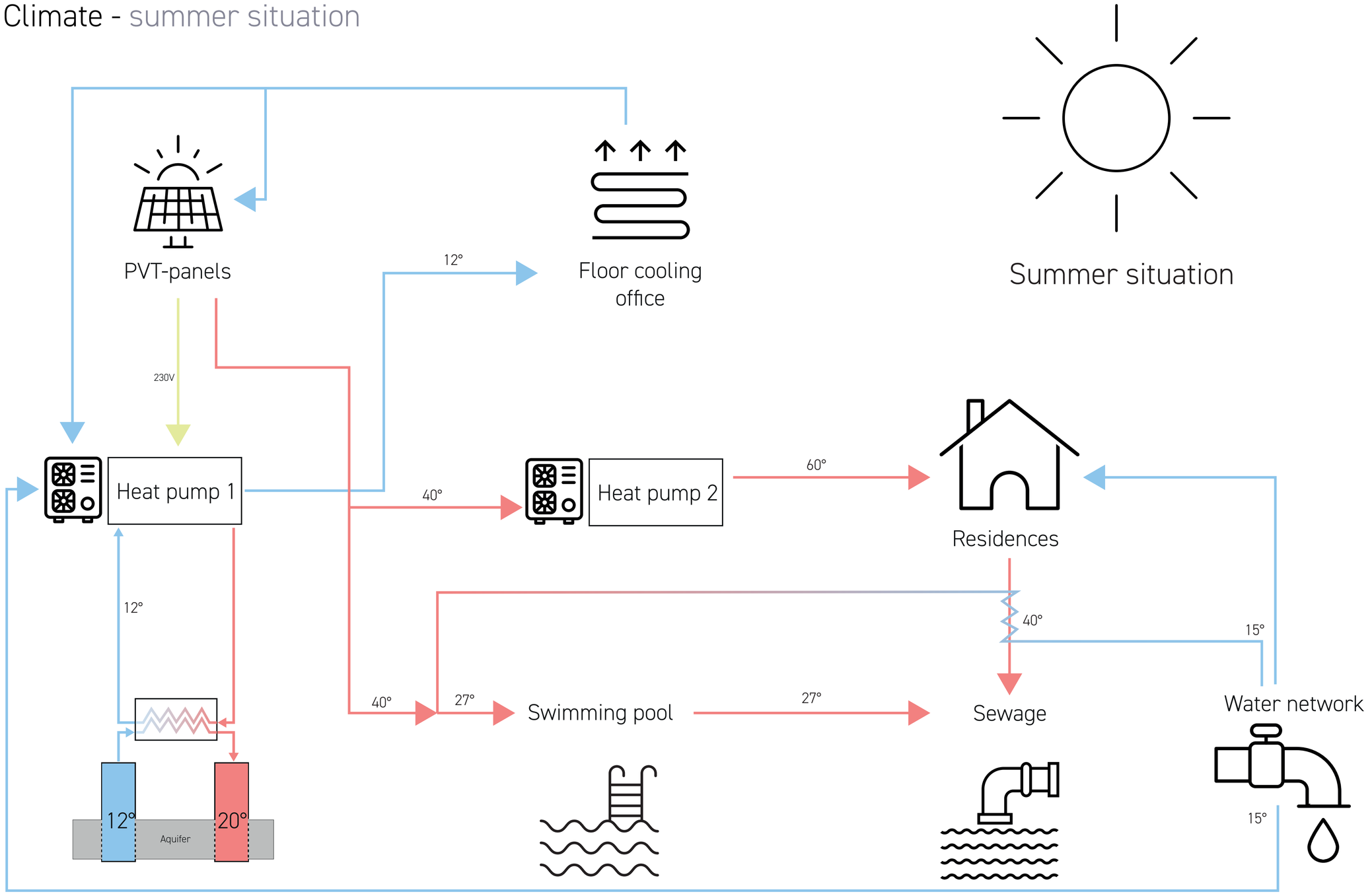
Design Research Question

"How has the precast concrete façade in the police headquarters in The Hague influenced my approach to a redesign?"

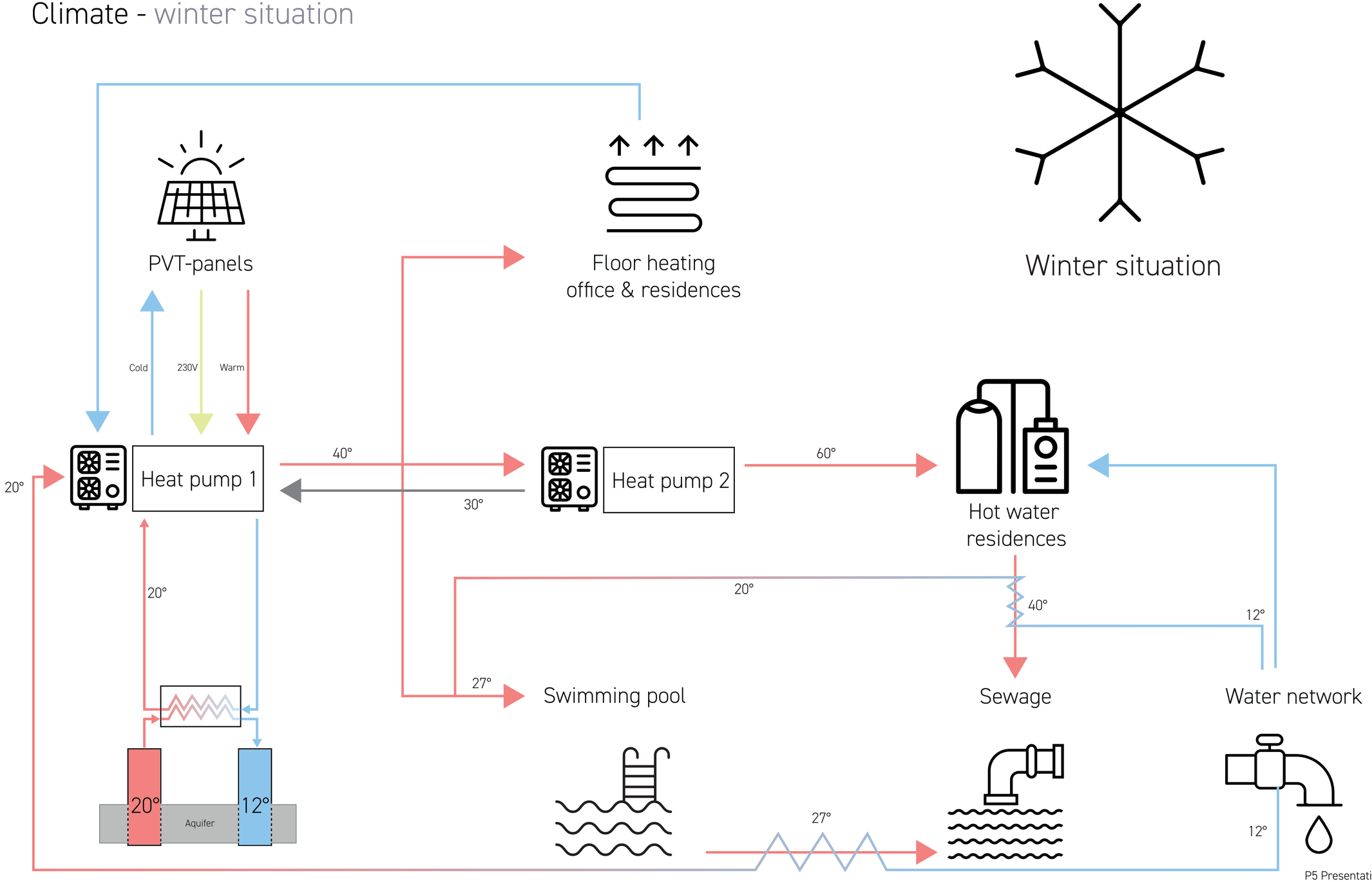
Answer

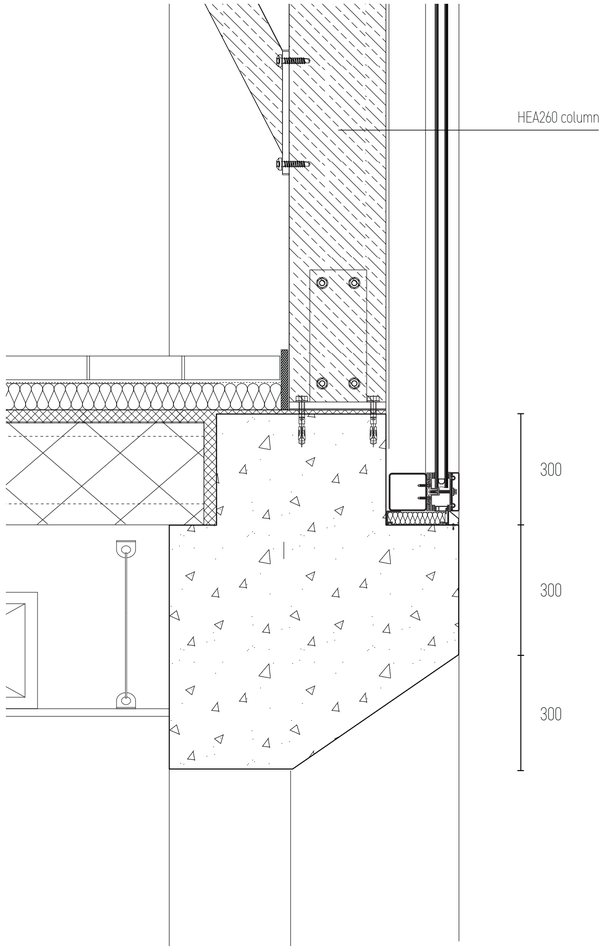
The history of the precast concrete facade is fascinating and I want to tell that story through my design

Climate - summer situation

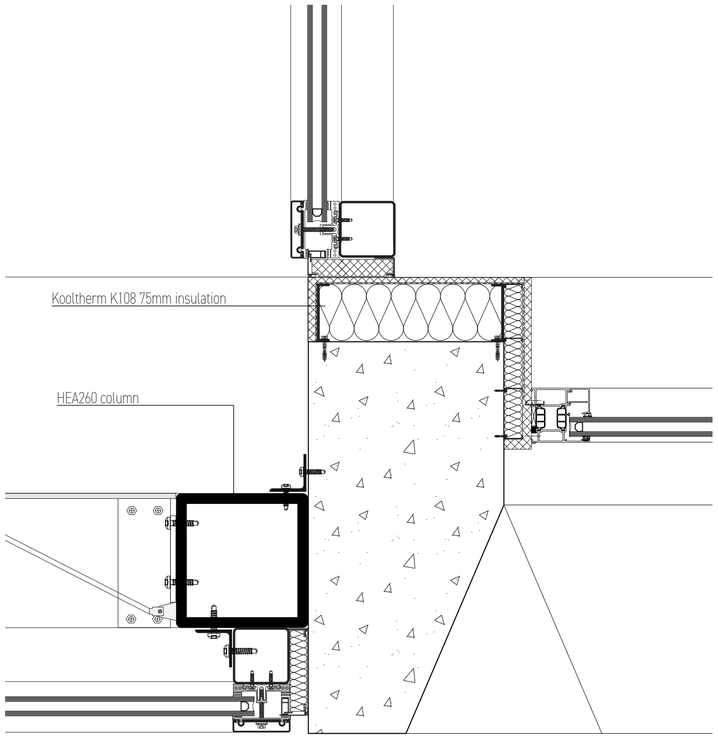


Climate - winter situation





Detail scale 1:10



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