THE GREAT MINIMUM

Fixed and flexible strategy for housing
migrant workers in portiek dwellings

Intro

Housing of migrant workers

Poorly maintained dwellings

Jo van den Broek
(1898-1978)

Sources: Robin Utrecht | Chi Yi | google images

Problem statement

The dwellings in the Carnisse Eilandenbuurt are outdated on technical and functional level.

Besides the way migrant workers are housed (in the Eilandenbuurt) is substandard.

Research question

How can we ensure a longer lifespan for the portiek flats in the Carnisse Eilandenbuurt and

HOW CAN WE SOLVE THE PROBLEM WITH THE HOUSING OF MIGRANT WORKERS?

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II. Theme Research

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I. Context:

Carnisse & Het Nieuwe Bouwen

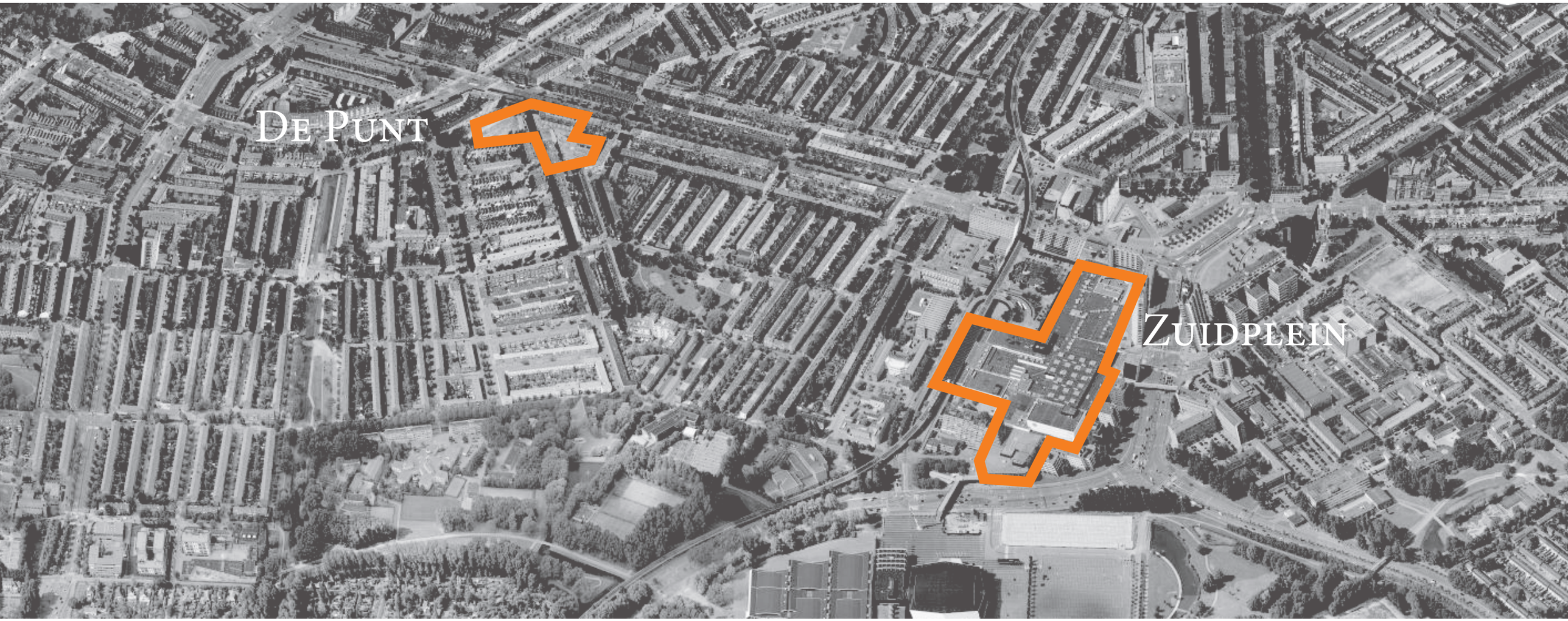
I. Rotterdam - Carnisse

Source: Google Earth Pro

I. Carnisse - Eilandenbuurt

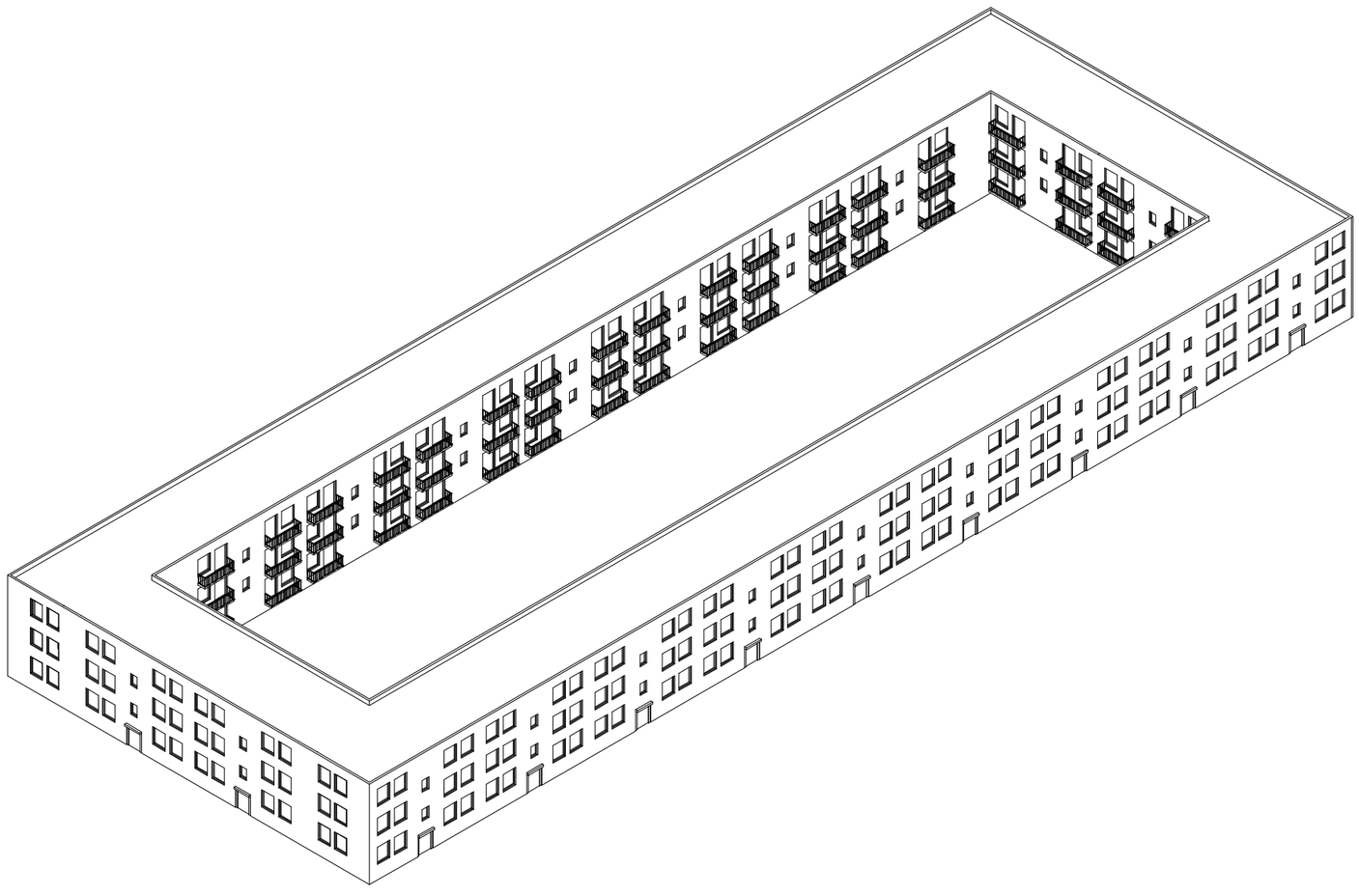
Source: Bing maps

I. Facilities



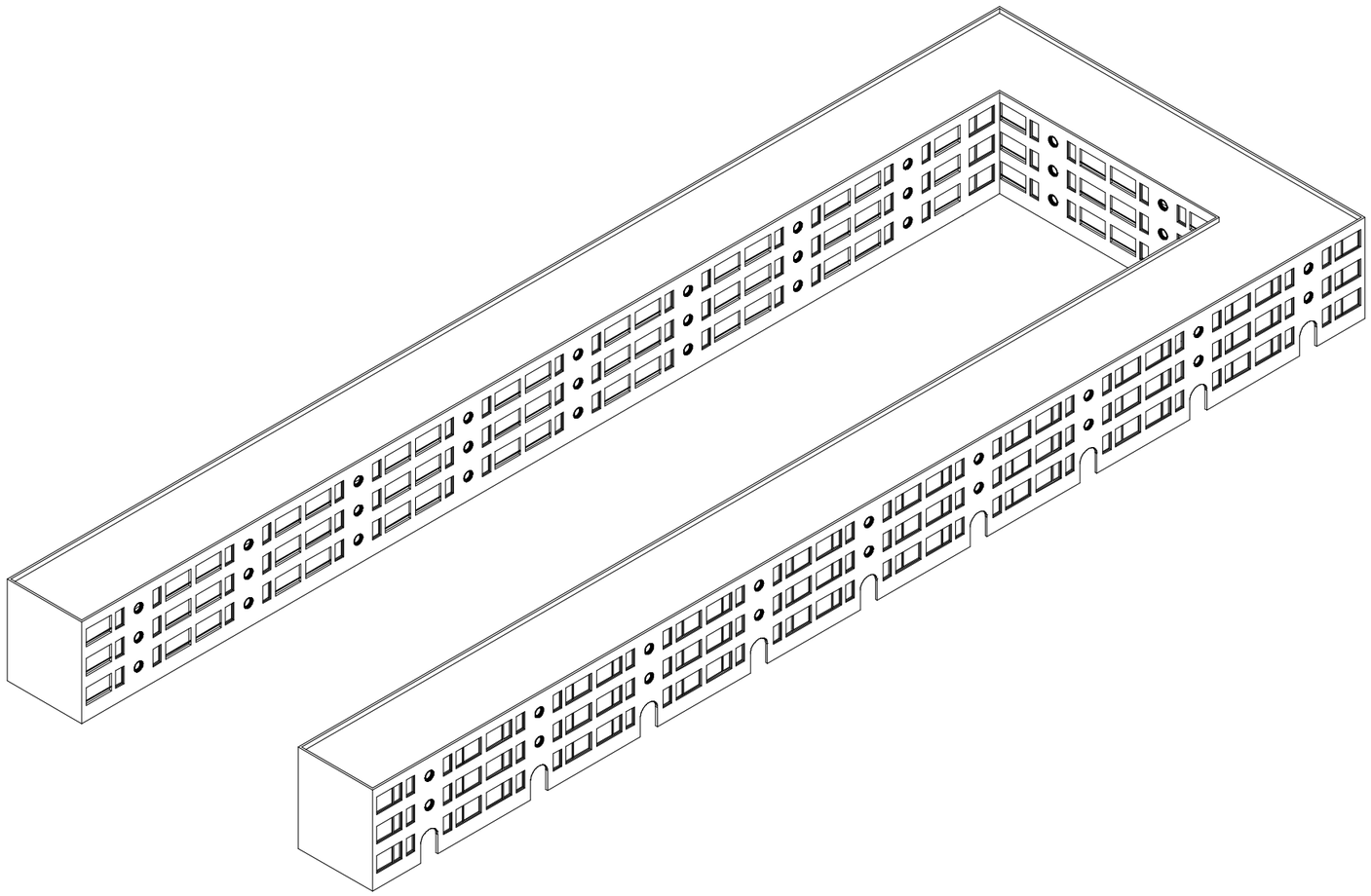
Source: Bing maps

I. Closed building block



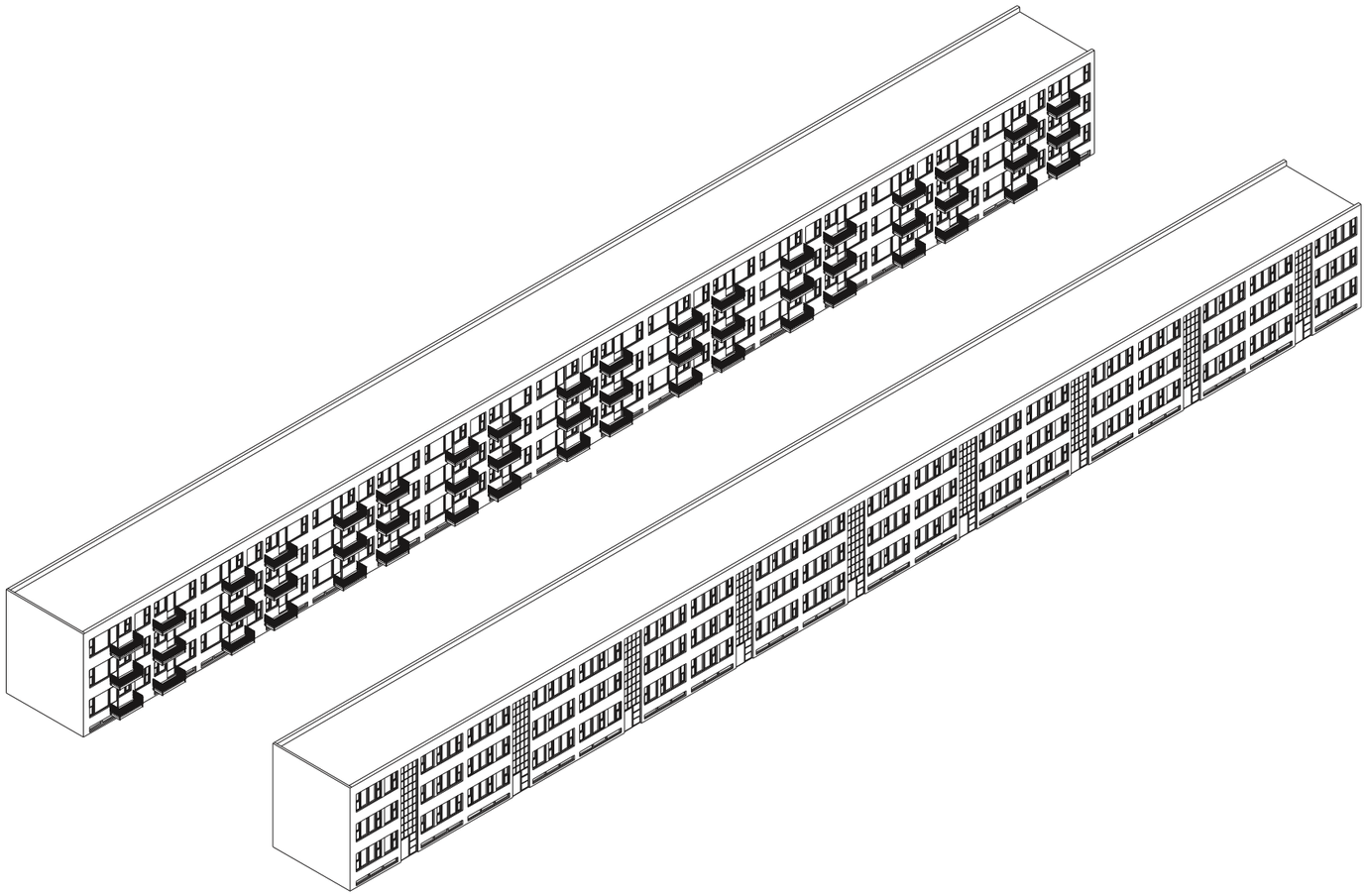
‘Opbouw’ & ‘Algemeen Belang’ critical to closed building block

I. Open building block



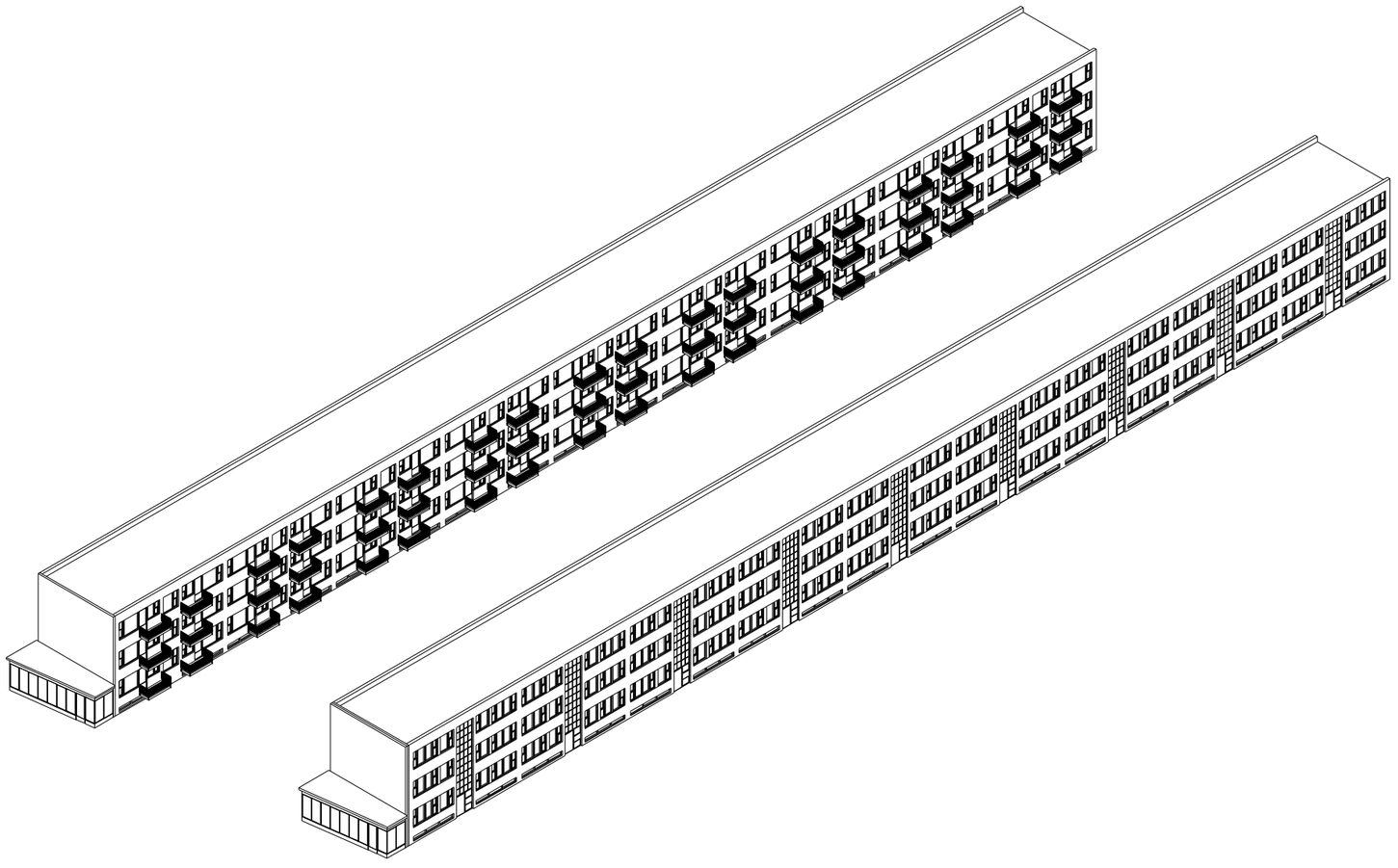
1929 - Van den Broek starts study to portiek dwellings

I. Strip building



1938 - Algemeen Belang accepted the portiek typology

I. End facade addition



Addition of shops for urban integration

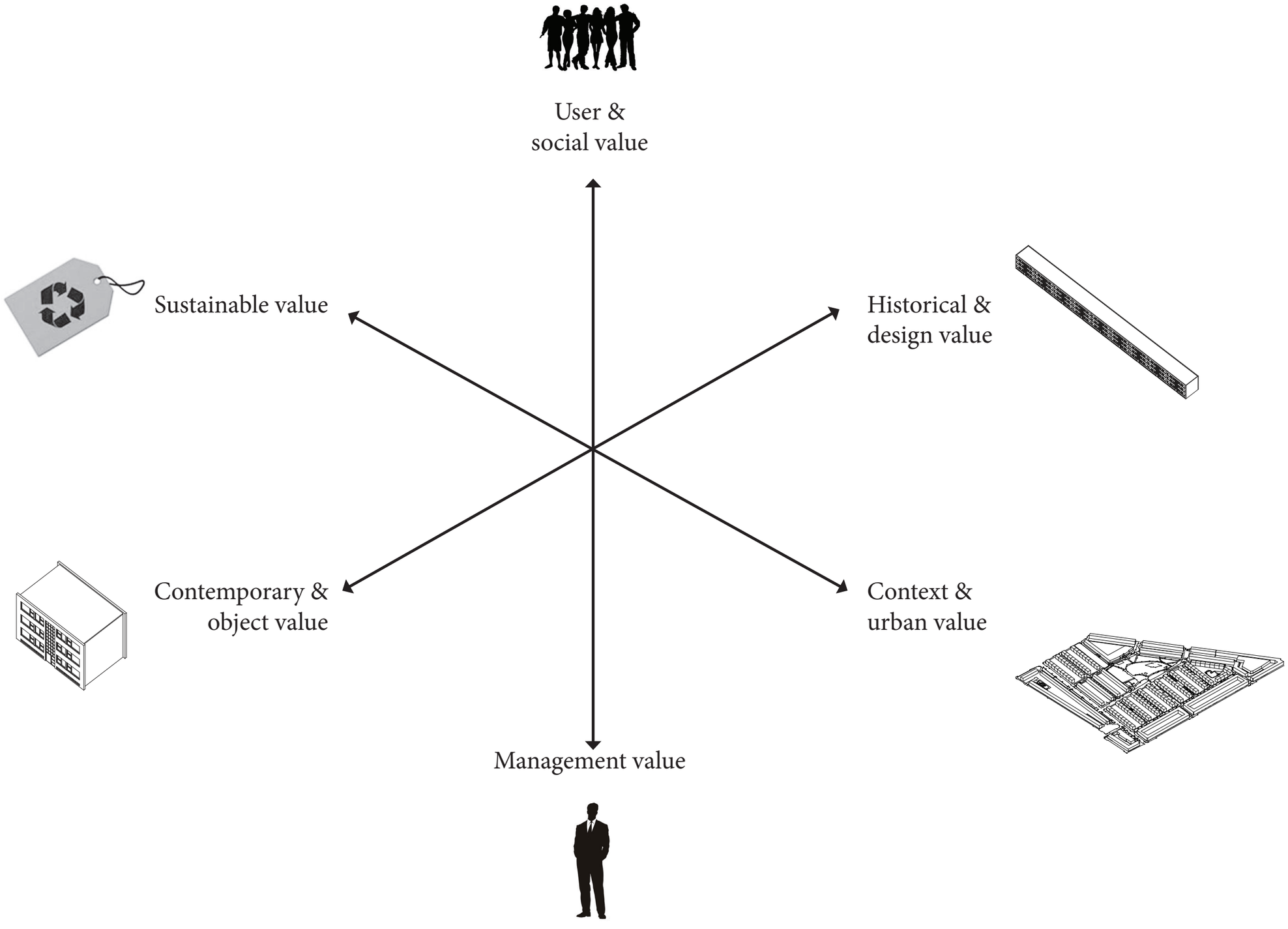
Amelandsestraat ca. 1946

Source: Gemeente Archief Rotterdam

Flakkeesestraat 1942

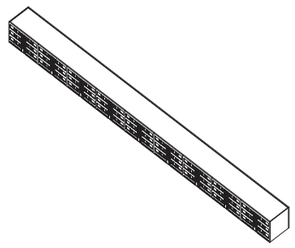
Source: Gemeente Archief Rotterdam

I. Value assessment

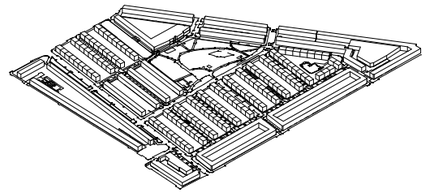


I. Value assessment

User &
SOCIAL VALUE



Historical &
DESIGN VALUE



Context &
URBAN VALUE

CHEAP HOUSING

SWITCH BAY

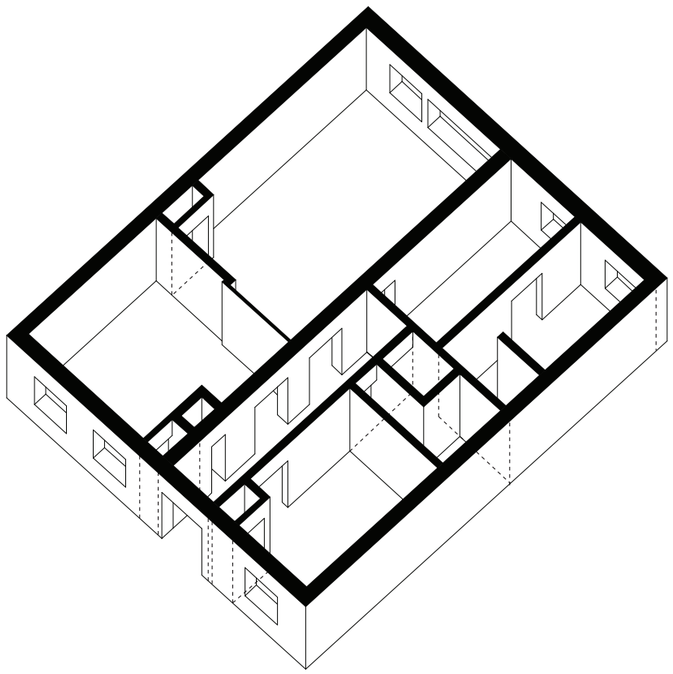
GENERIC LAYOUT

DWELLING DIFFERENTIATION

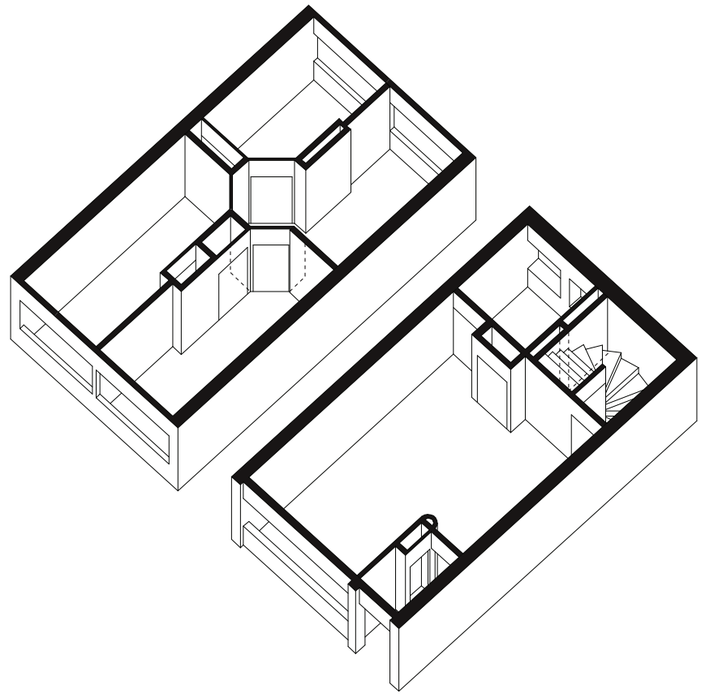
II. THEME RESEARCH:

The Minimum Dwelling

II. Historical Minimum Dwellings

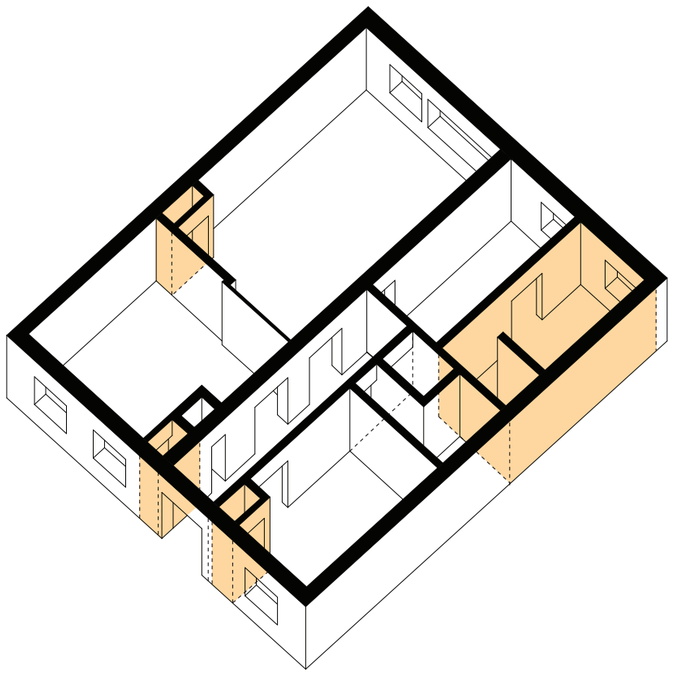


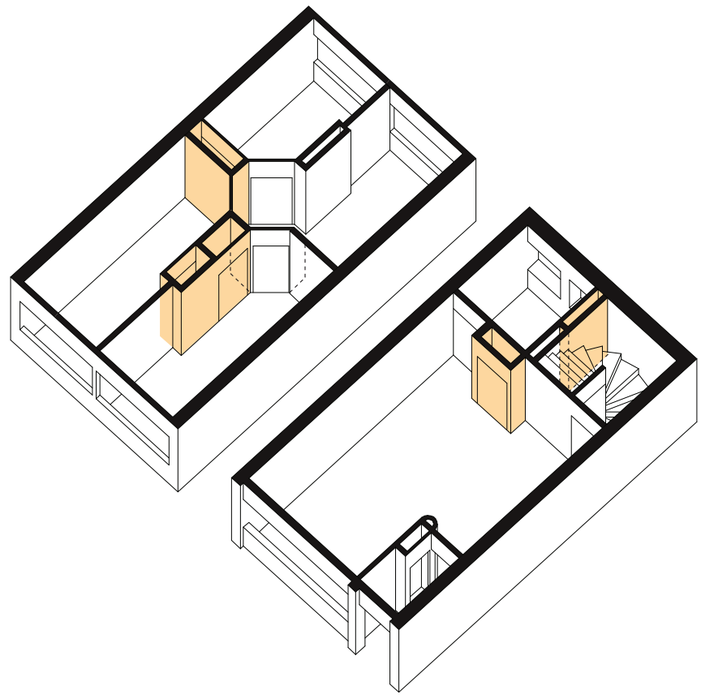
Rotterdam
Wielewaal



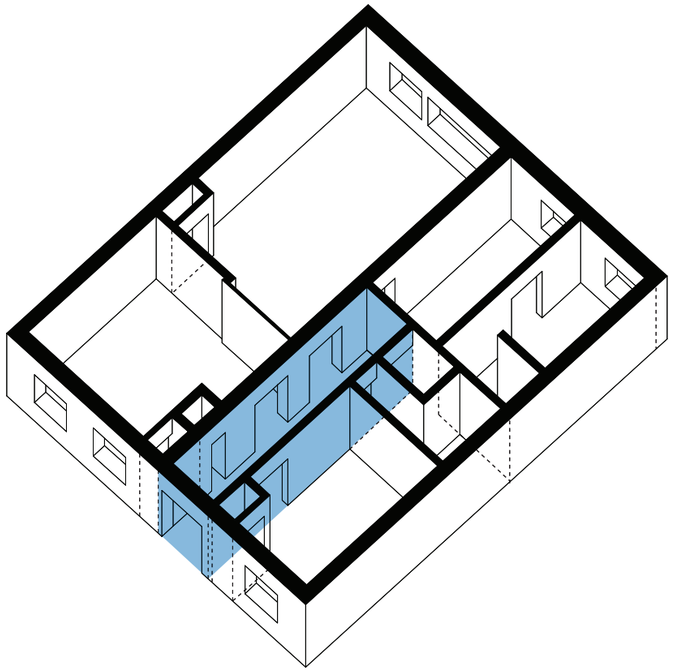
Rotterdam
Kiefhoek

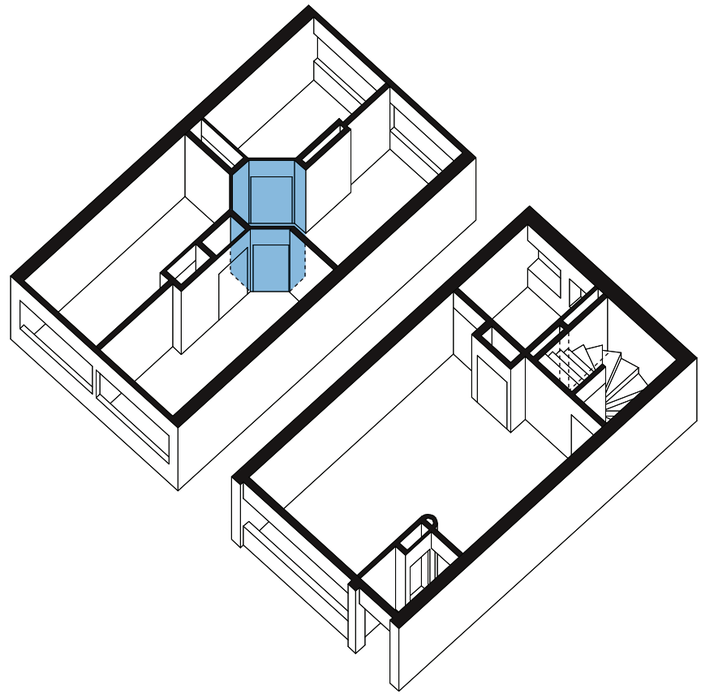
II. Storage



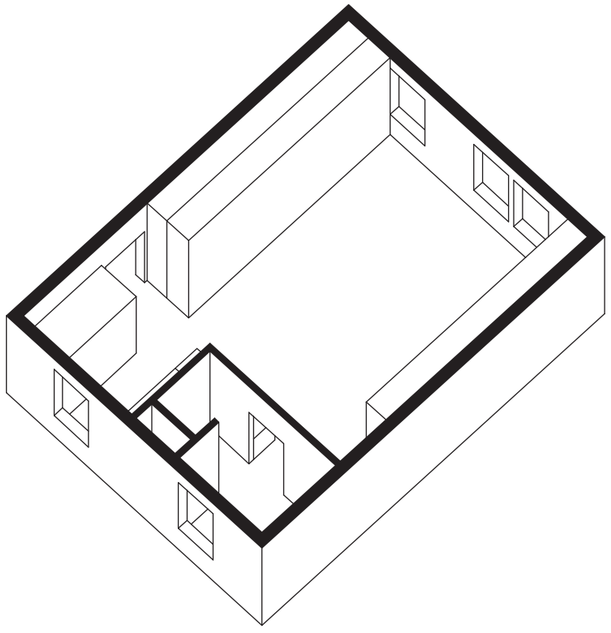


II. Characteristic Room

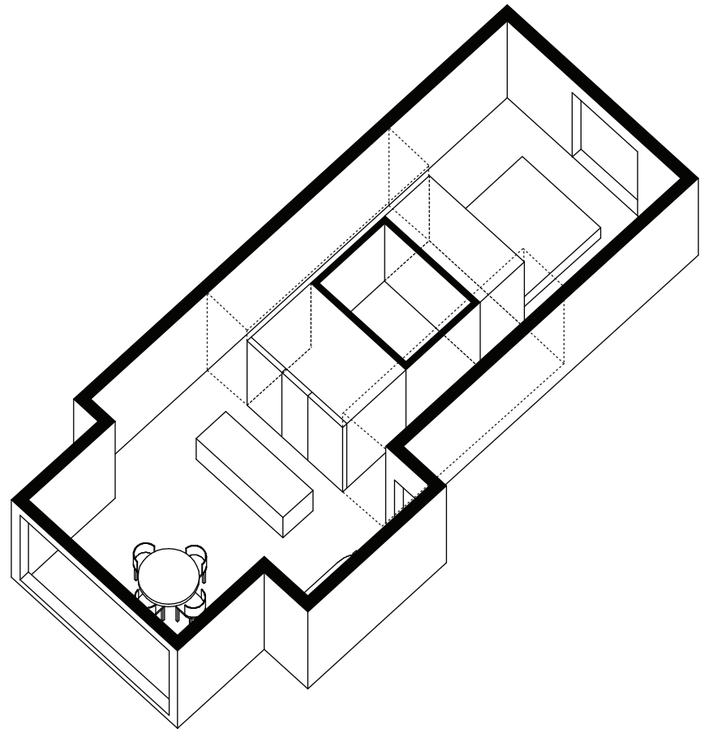




II. Contemporary Minimum Dwellings

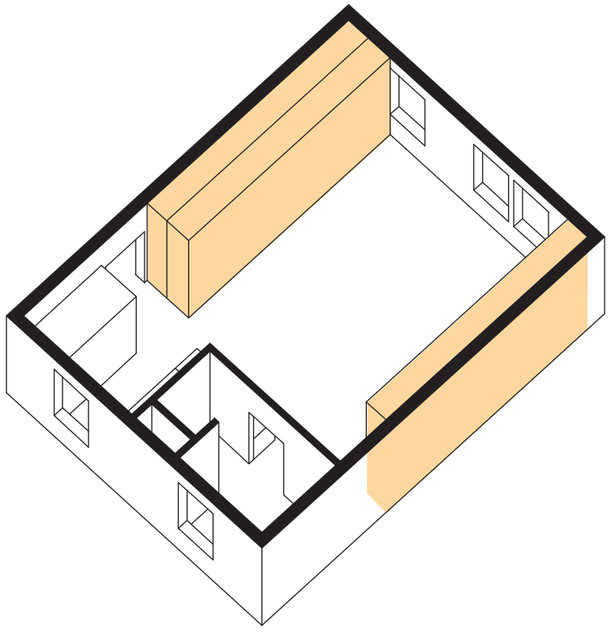


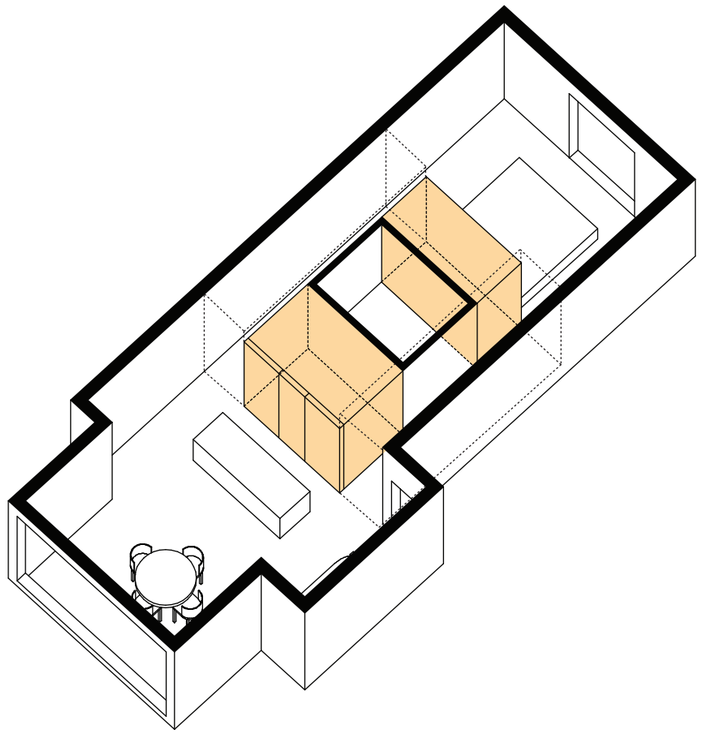
New York City
6 in 1 Apartment



Barcelona
Tiny Home Cube

II. Storage





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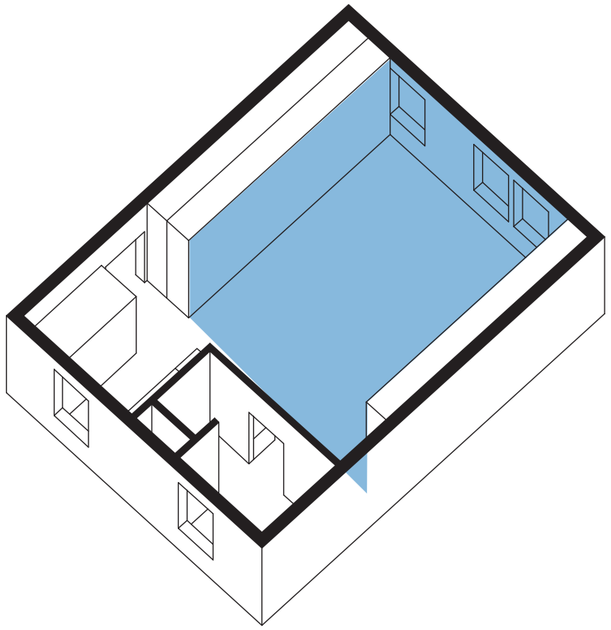
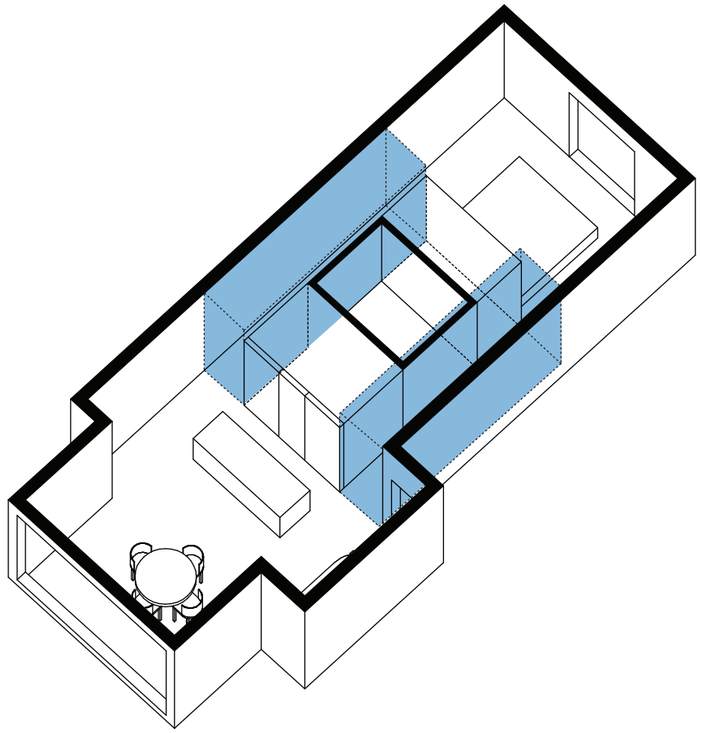
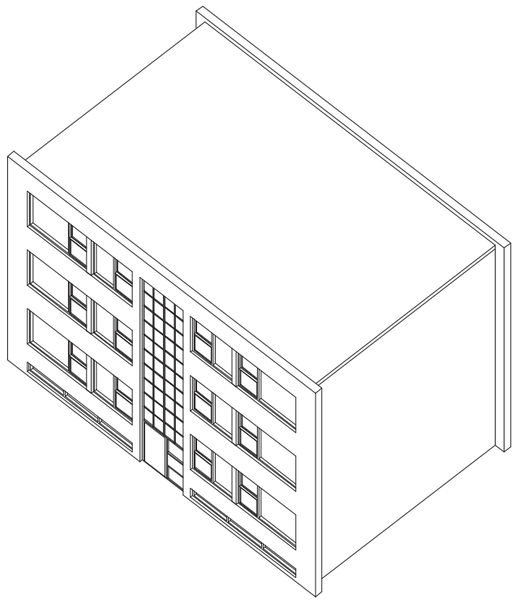




III. TARGET GROUP RESEARCH:

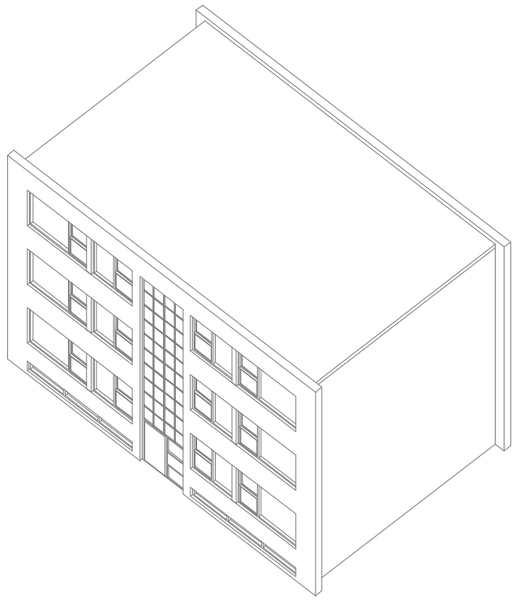
MIGRANT WORKERS

III. Present situation



Dwellings

People



Dwellings

Average value in Carnisse
€ 96.000

Average value in Rottedam
€ 148.000

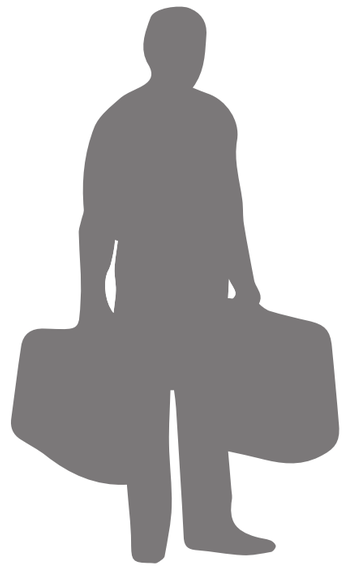
High rate of private ownership

Lack of maintenance by Home Owner Associations (VVE's)

Arrival Neighbourhood
(Doug Saunders)

10-15% Eastern European
migrants

Strong signs of unregistered
migrants



People

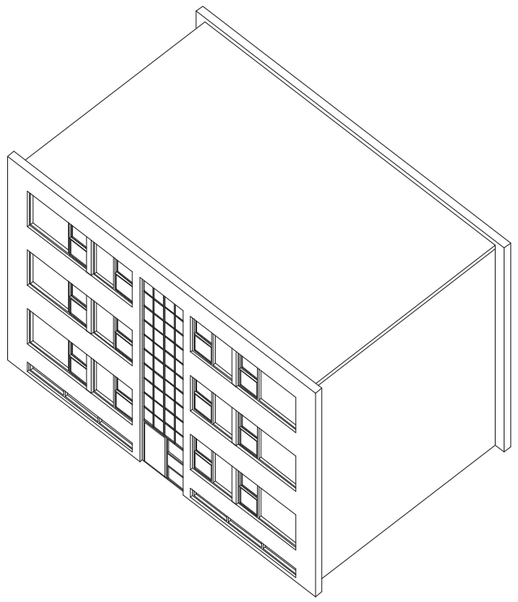
Source: Doug Saunders (2012) *Arrival City*

III. Carnisse: migration neighbourhood

1950's	1960's	1970's	2000's	Future..
Zeeland	Turkey	Antillis	Poland	?
Groningen	Morocco	Suriname	Bulgaria	

Source: Steenbergen, F. van & Wittmayer, J. (2012) *Carnisse in transitie?*

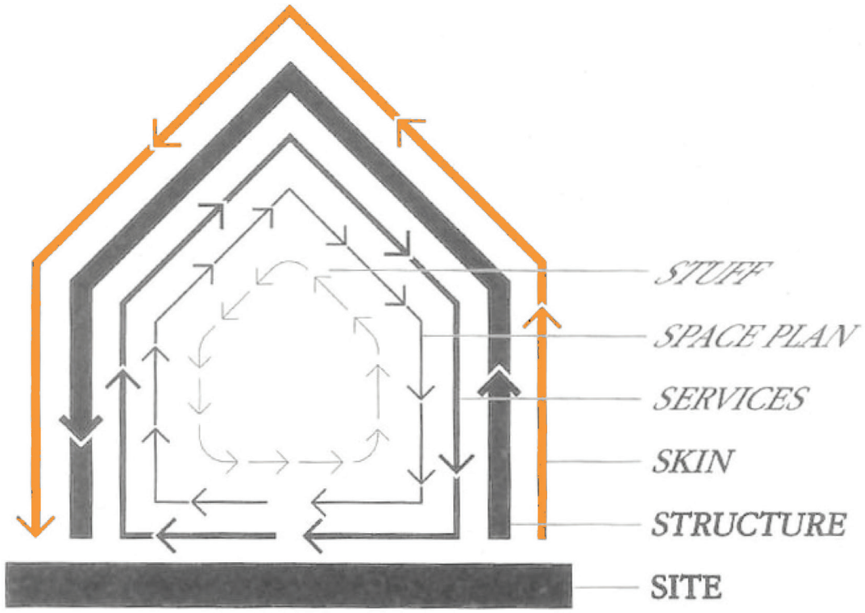
III. Present situation



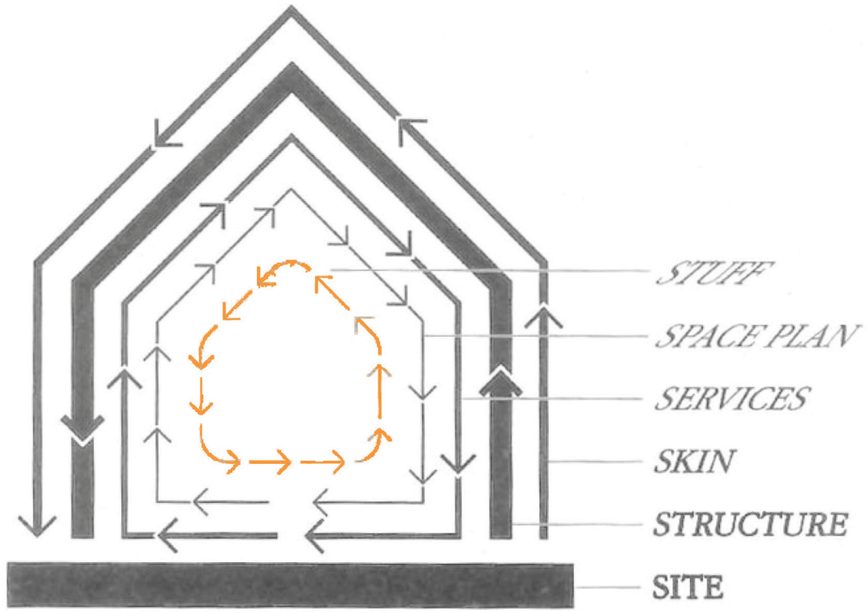
Poorly maintained dwellings

High number of temporary migrants

III. Skin vs. stuff



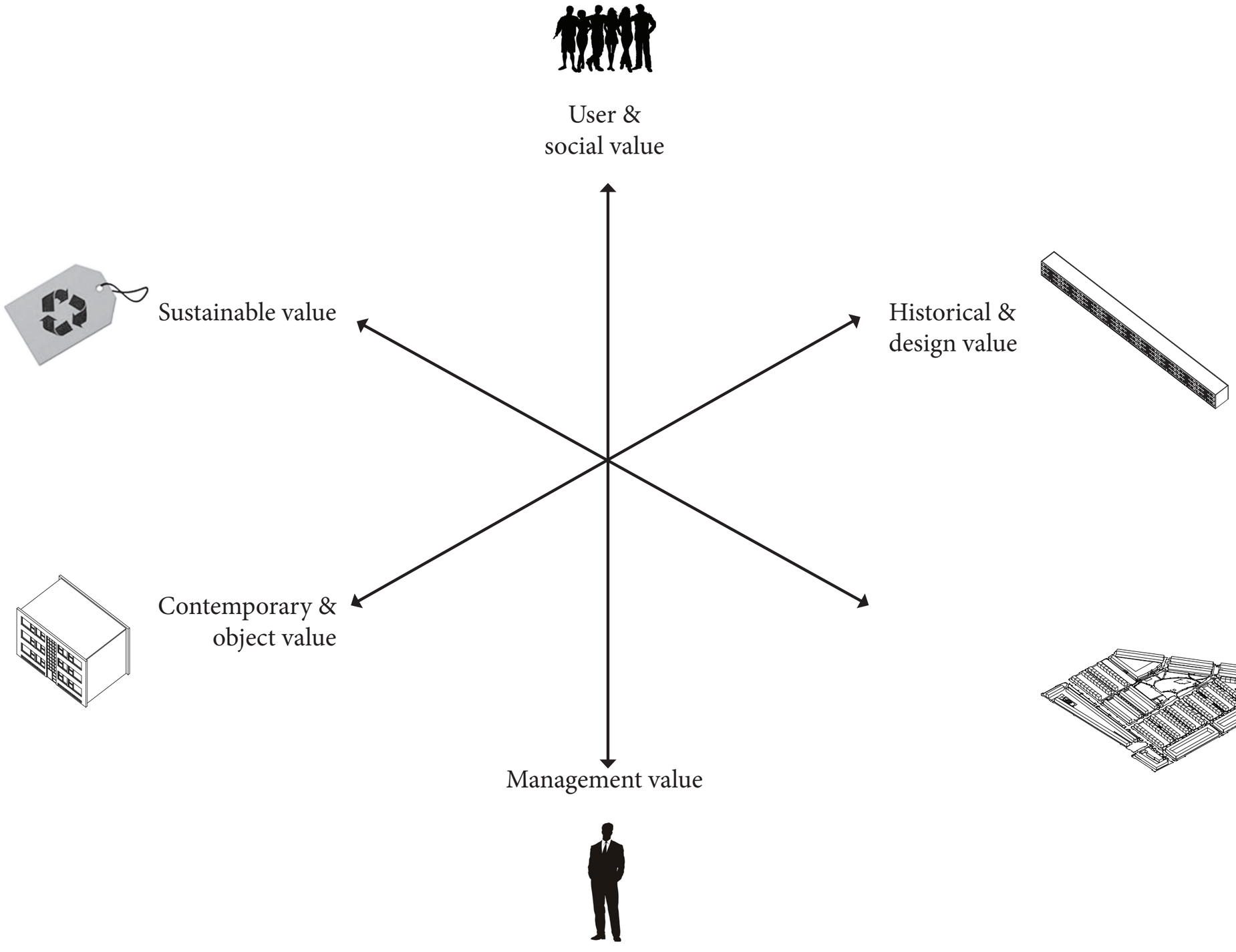
Dwellings



People

Source: Stewart Brand (1994) *How Buildings Learn*

III. Value assessment



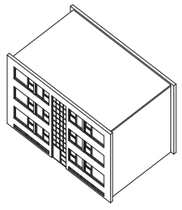
III. Value assessment

User & social value

Problems with housing of migrants

Cheapest dwellings in Rotterdam

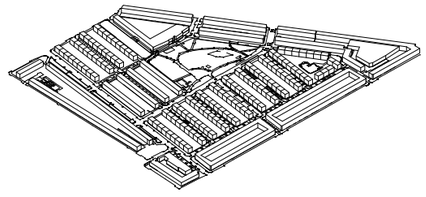
High removal rate



Contemporary & object value

Poorly maintained dwellings

Unsustainable dwellings



Context & urban value

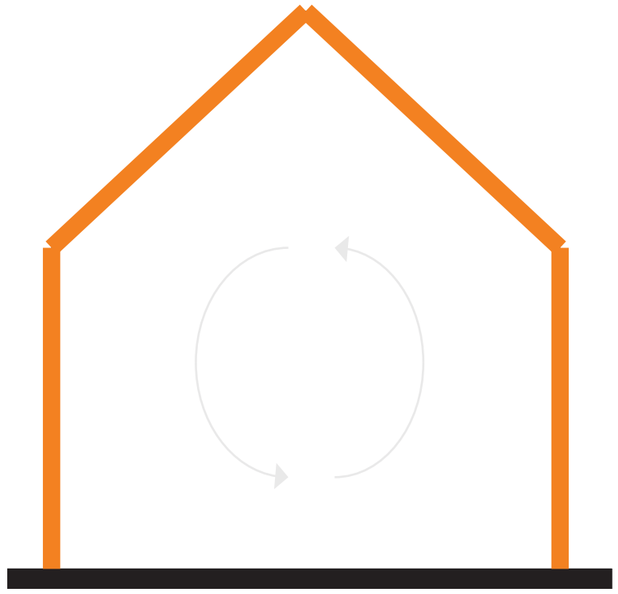
Stoney street image

Facilities nearby

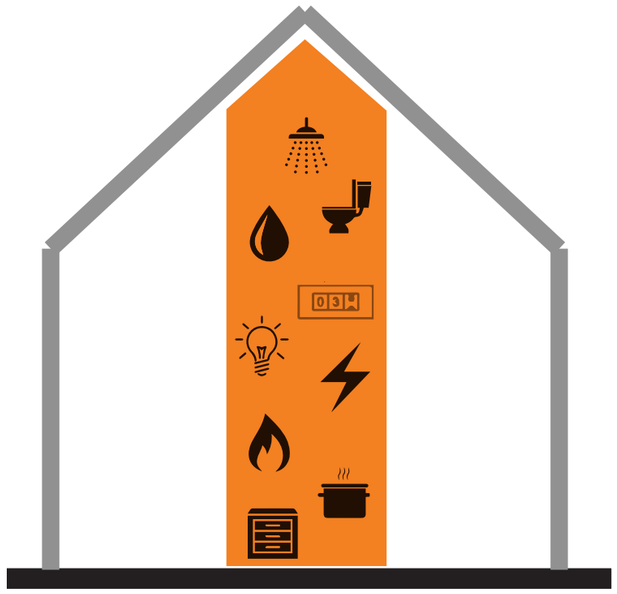
IV. design:

Fixed & Flexible

IV. Concept

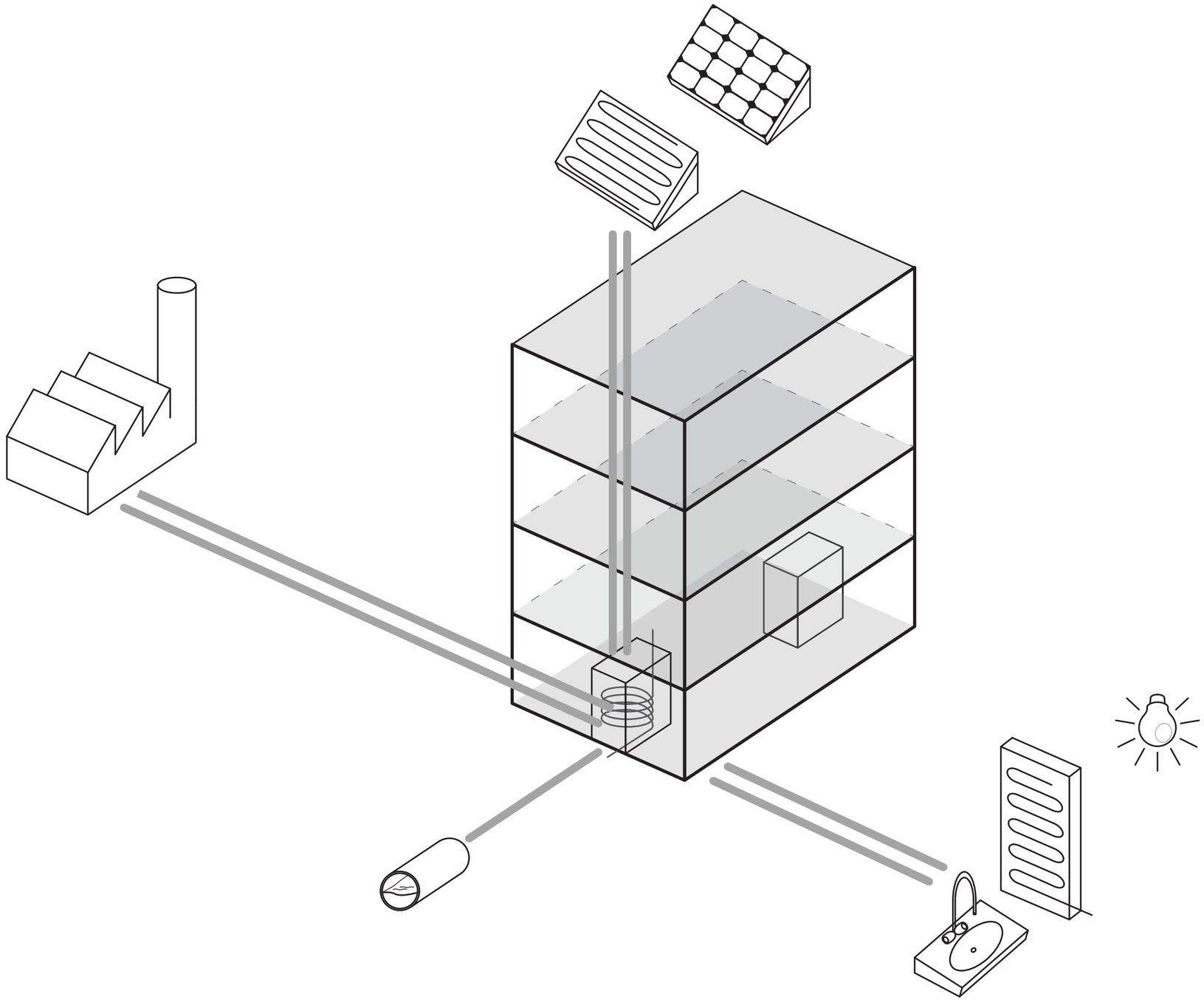


Fixed

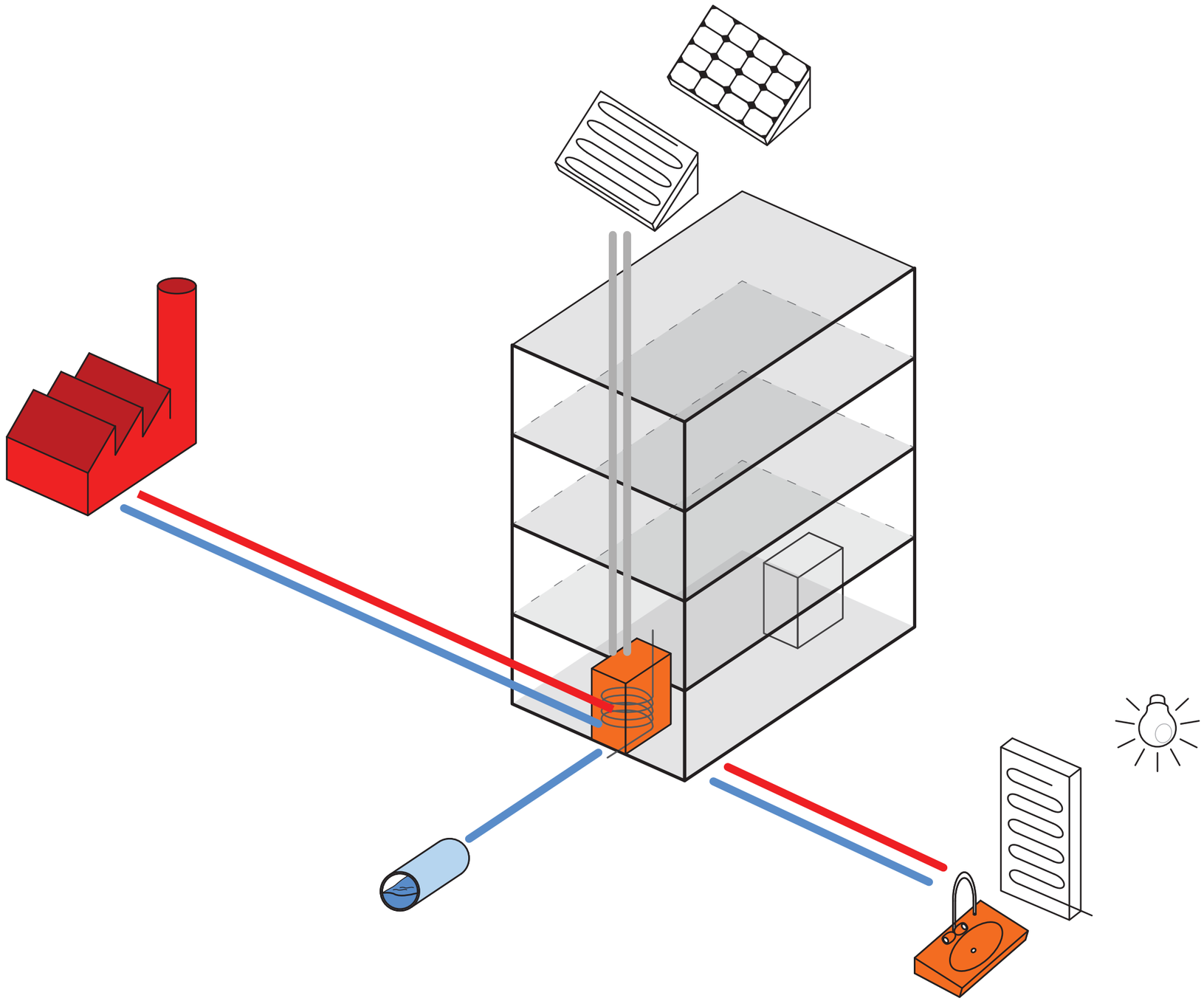


Flexible

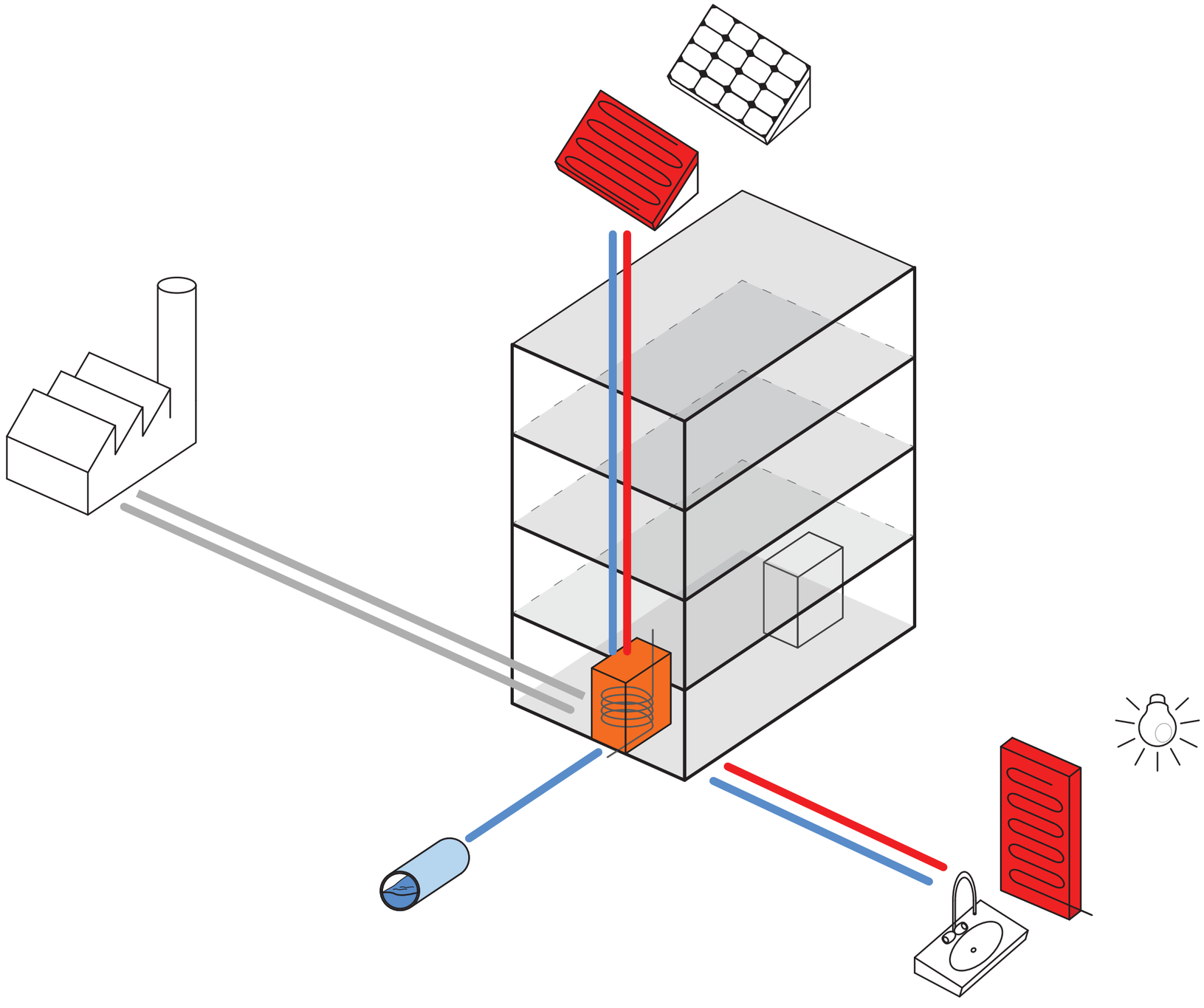
IV. Climate installations



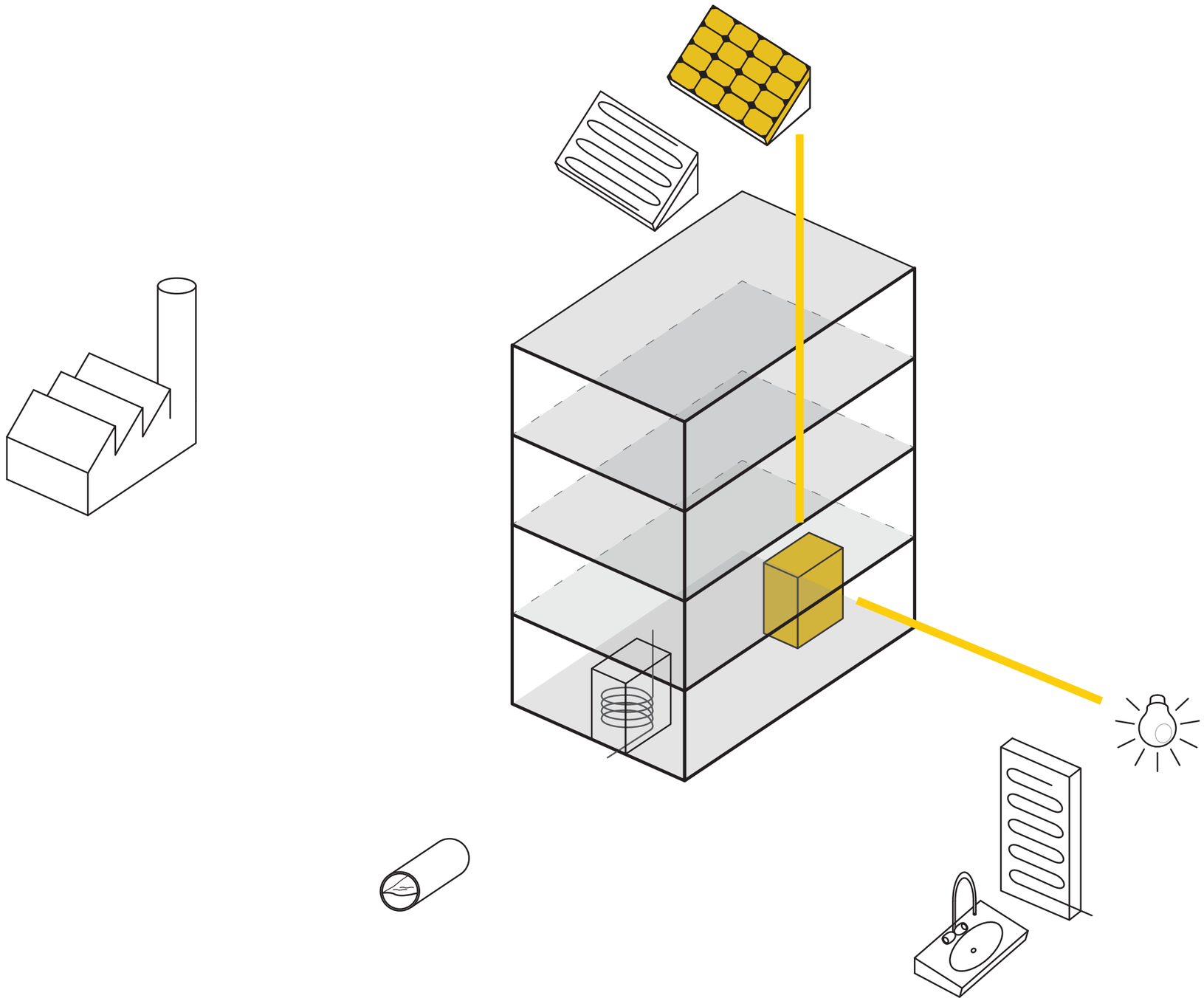
IV. Hot & cold water



IV. Heating



IV. Electricity



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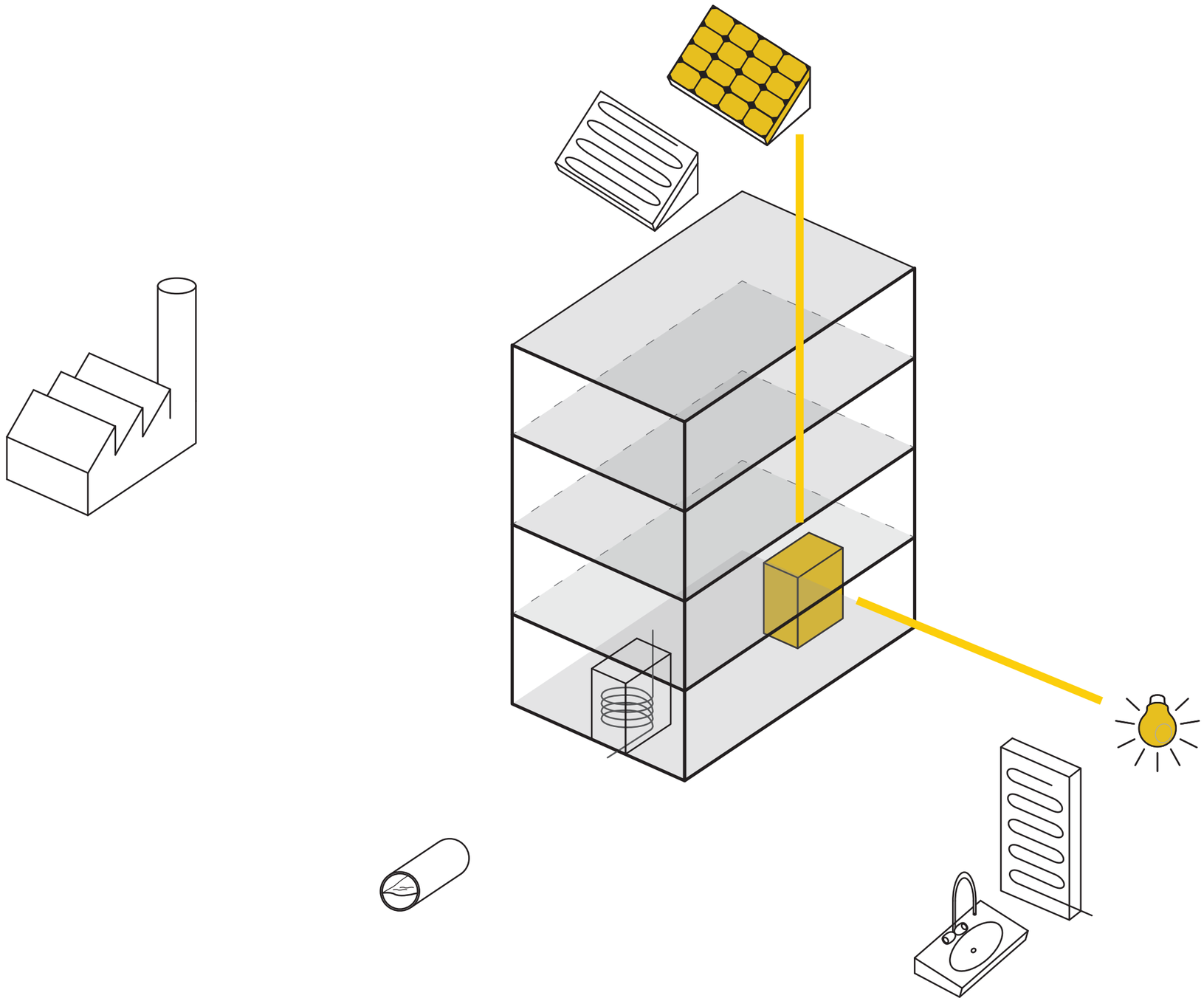
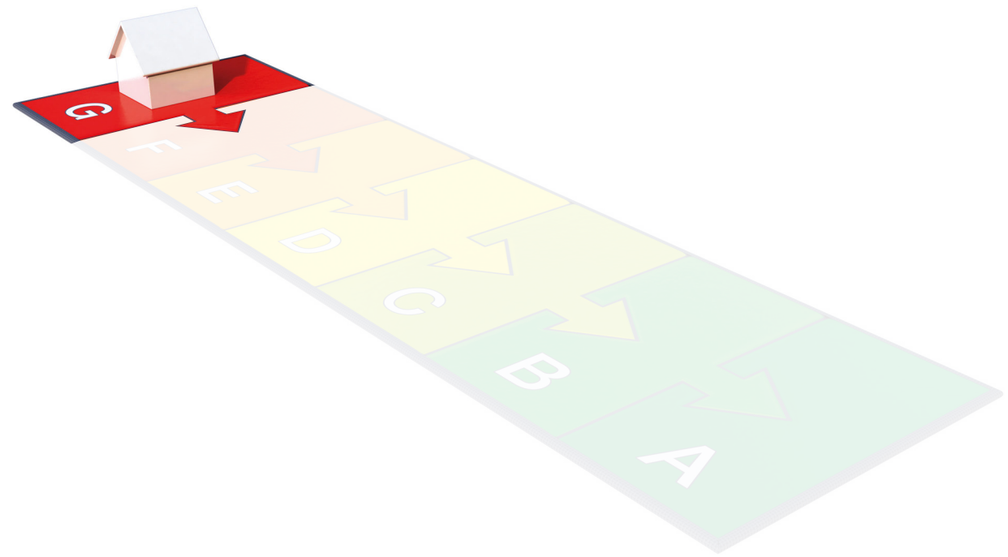


IV. Present situation



FACADE

$R_{FACADE} = R_{BRICKWORK} + R_{WALL\ FINISHING}$

$R_{FACADE} = 0{,}3 + 0{,}1 = 0{,}4\ m^2K/W$

$R_{BRICKWORK} = D / \lambda$

$R_{BRICKWORK} = 0{,}22\ m / 0{,}80\ W/mK =$ **$0{,}3\ m^2K/W$**

ROOF

$R_{ROOF} = R_{BITUMEN} + R_{TIMBER}$

$R_{BITUMEN} = D / \lambda$

$R_{BITUMEN} = 0{,}01\ m / 0{,}20\ W/mK = 0{,}1\ m^2K/W$

$R_{ROOF} = 0{,}1 + 0{,}3 =$ **$0{,}4\ m^2K/W$**

IV. After intervention

FACADE

$R_{FACADE} = R_{BRICKWORK} + R_{INSULATION} + R_{WALL\ FINISHING}$

$R_{INSULATION} = D / \lambda$

$R_{BLAUWPLAAT} = 0{,}08\ M / 0{,}020\ W/MK = 4{,}2\ M^2K/W$

$R_{FACADE} = 0{,}3 + 4{,}2 + 0{,}1 = \mathbf{4{,}6\ M^2K/W}$

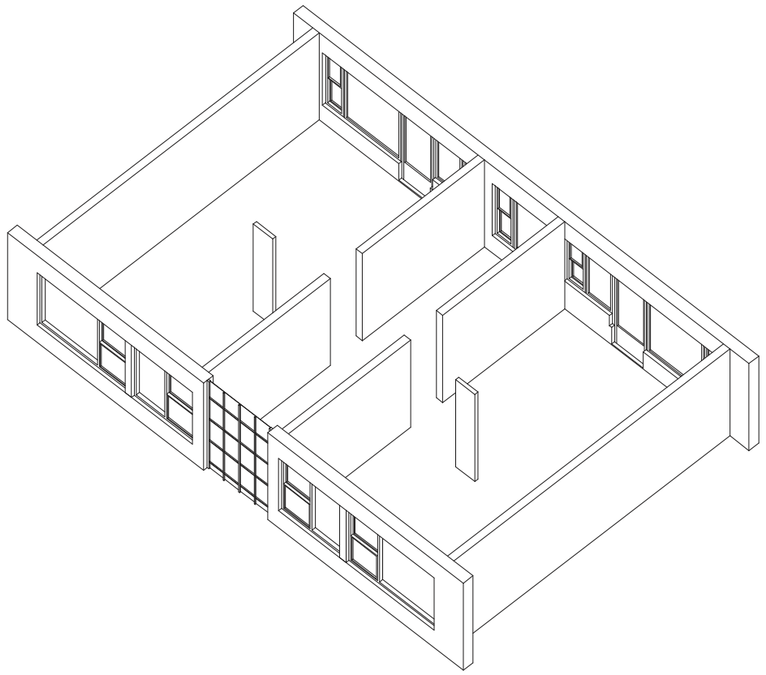
ROOF

$R_{ROOF} = R_{GREEN\ ROOF} + R_{INSULATION} + R_{TIMBER}$

$R_{BITUMEN} = D / \lambda$

$R_{BITUMEN} = 0{,}01\ M / 0{,}20\ W/MK = 0{,}1\ M^2K/W$

$R_{ROOF} = 0{,}3 + 5{,}5 + 0{,}3 = \mathbf{6{,}1\ M^2K/W}$



100 M2 FLOOR SPACE

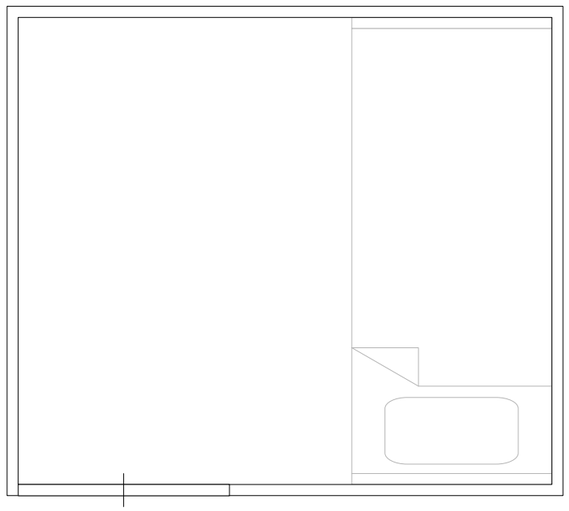
12 M2 PER PERSON

Source: Convenant Huisvesting Arbeidsmigranten

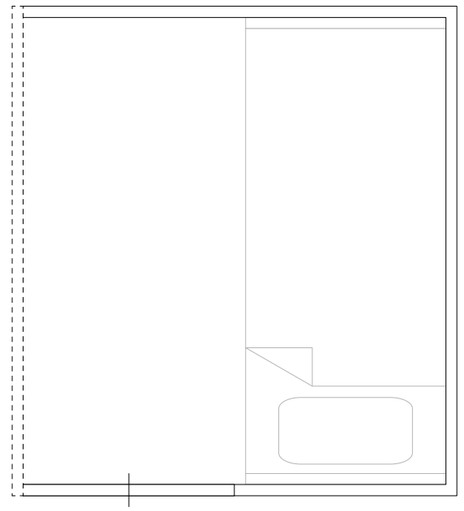
MAXIMUM OF 8 PEOPLE PER FLOOR

One shower & one toilet per eight people

Source: Convenant Huisvesting Arbeidsmigranten



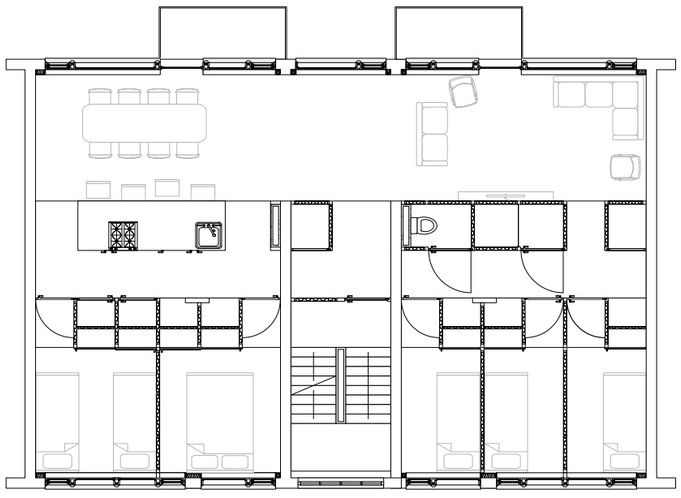
Shared room:
4 m2 per person

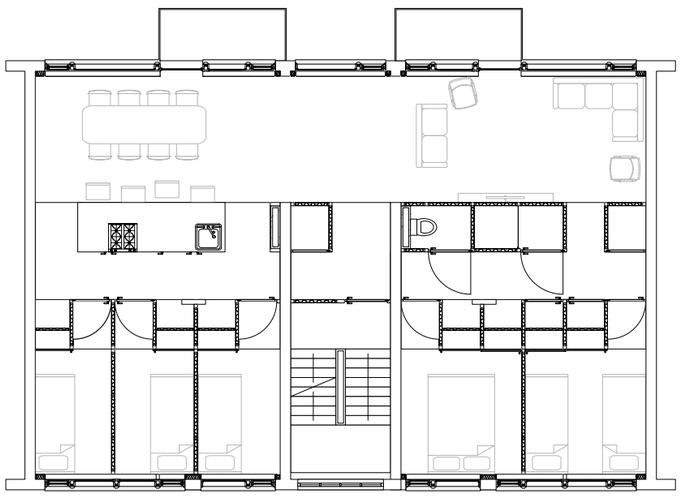


Private room:
5 m2 per person

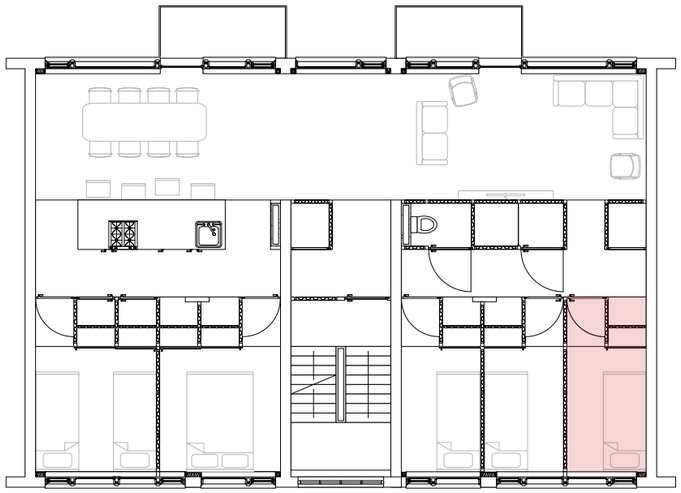
Source: Convenant Huisvesting Arbeidsmigranten & Bouwbesluit 2012

IV. Room types





IV. Single room



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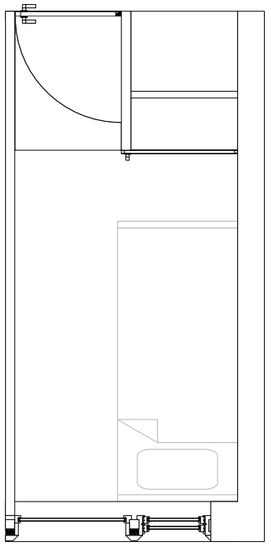
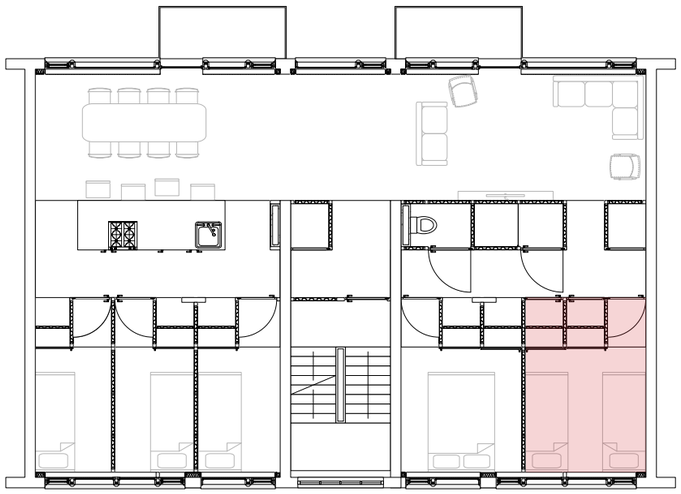
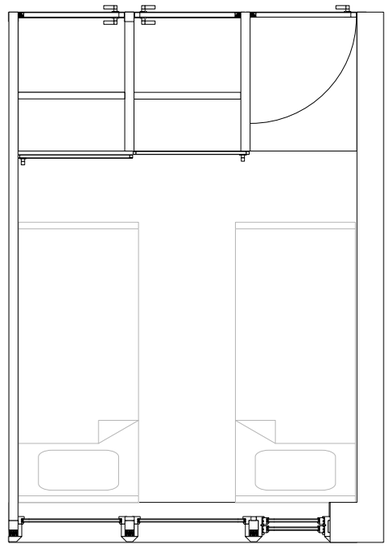


5,5 M²

IV. Double room



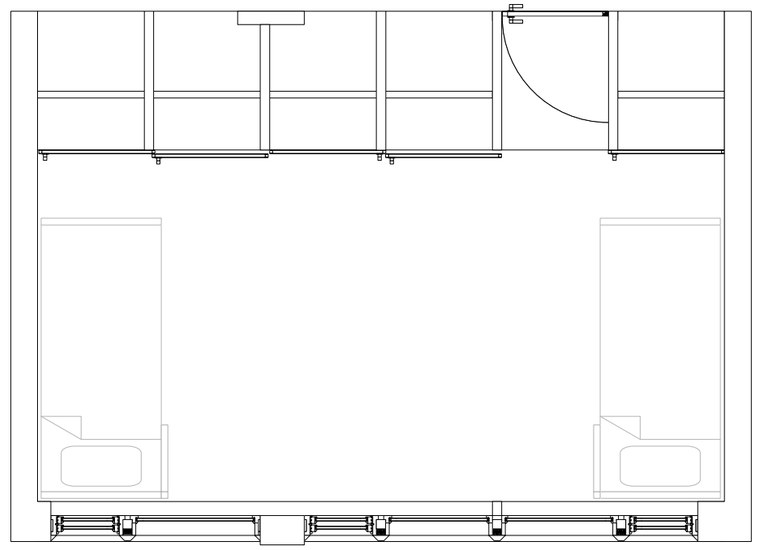
IV. Double room



8,2 м²

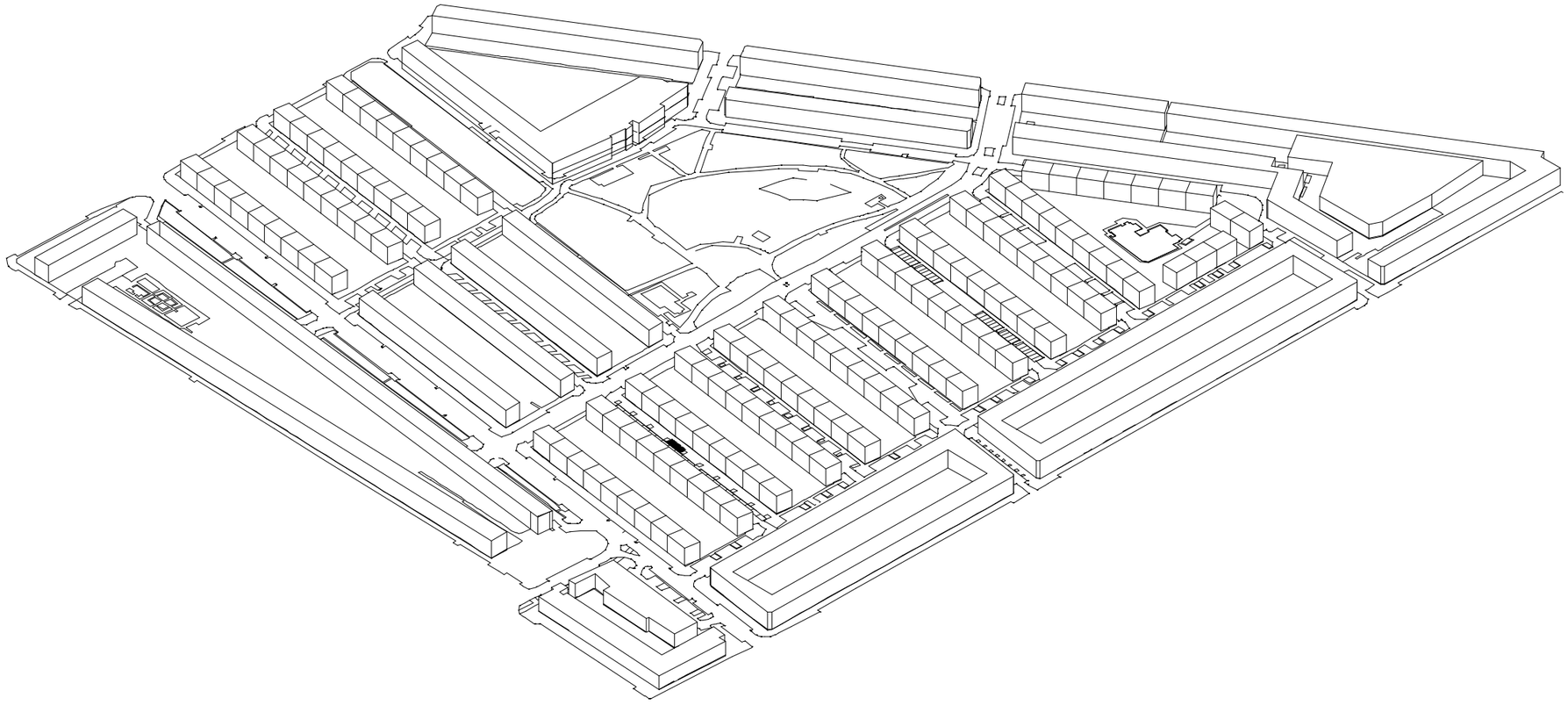
IV. Dorm room

IV. Dorm room

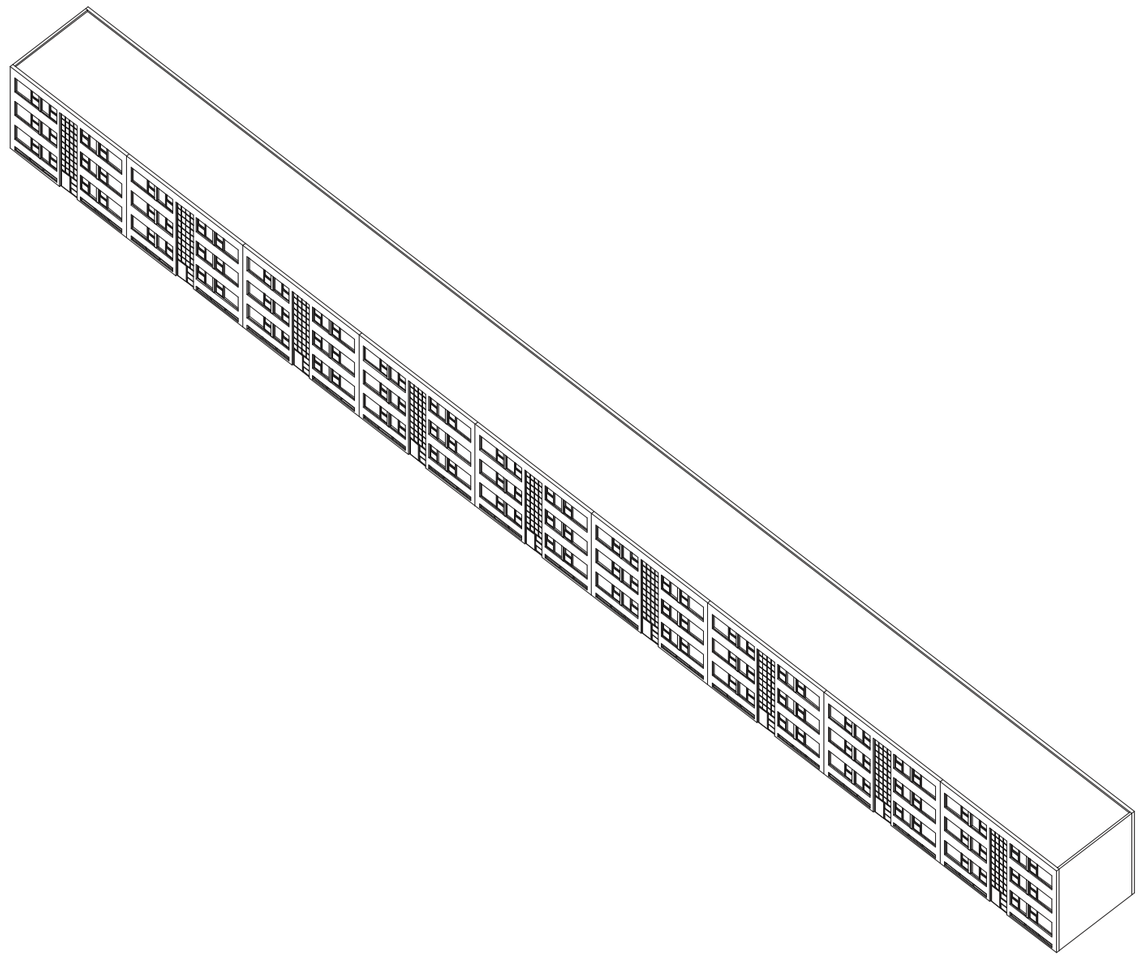


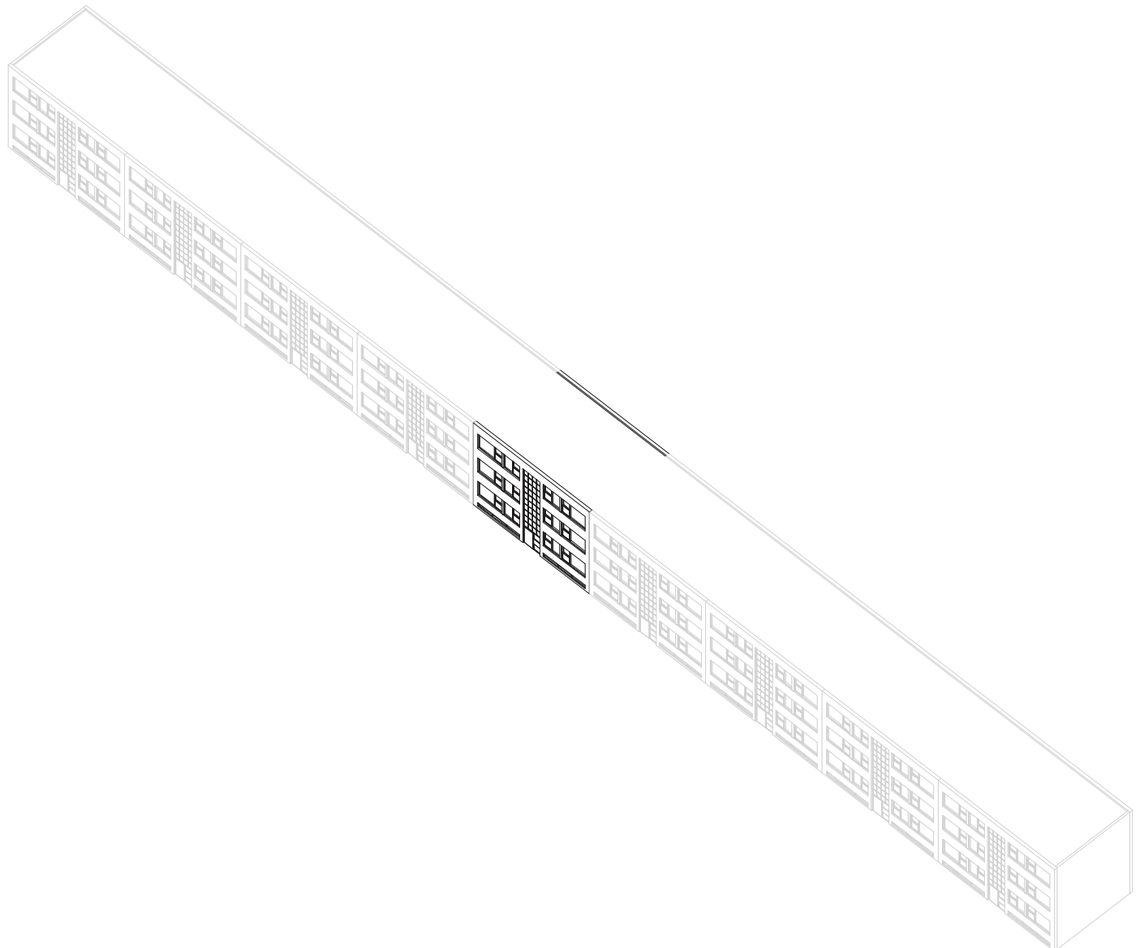
16 м²

IV. Urban situation

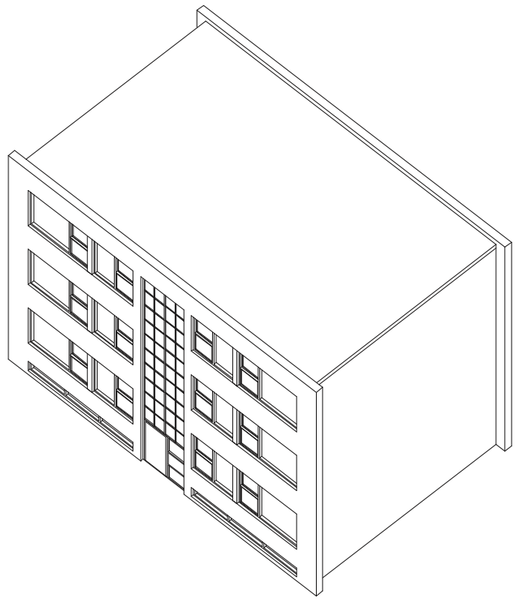


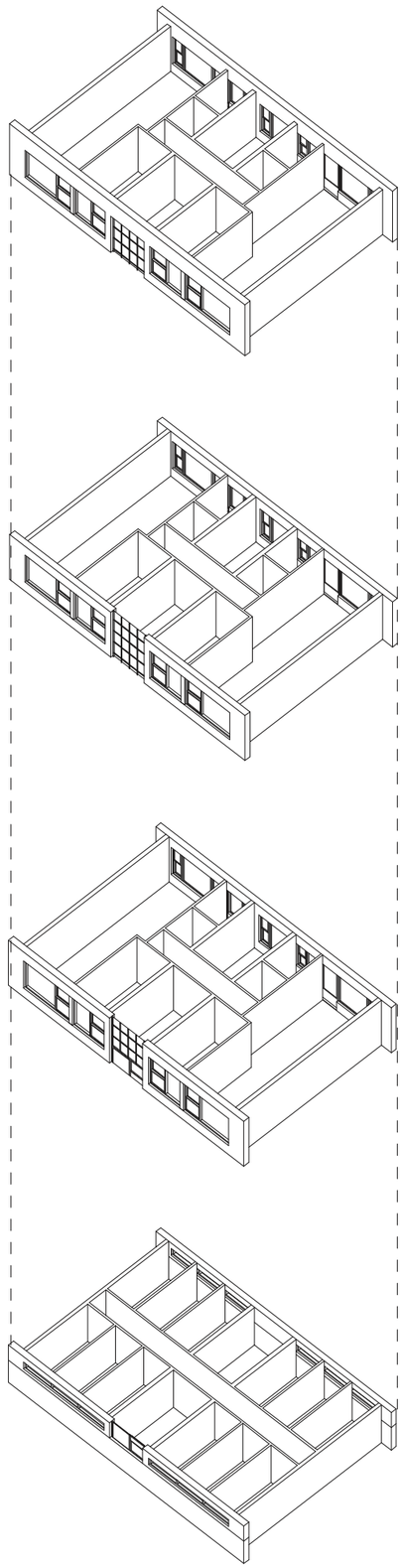
IV. Strip block

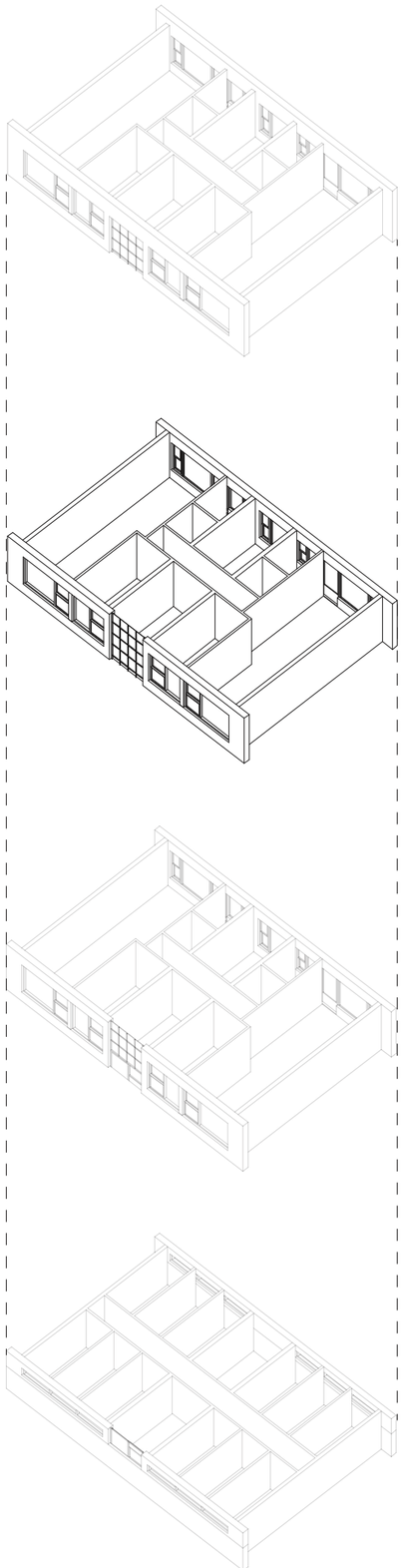




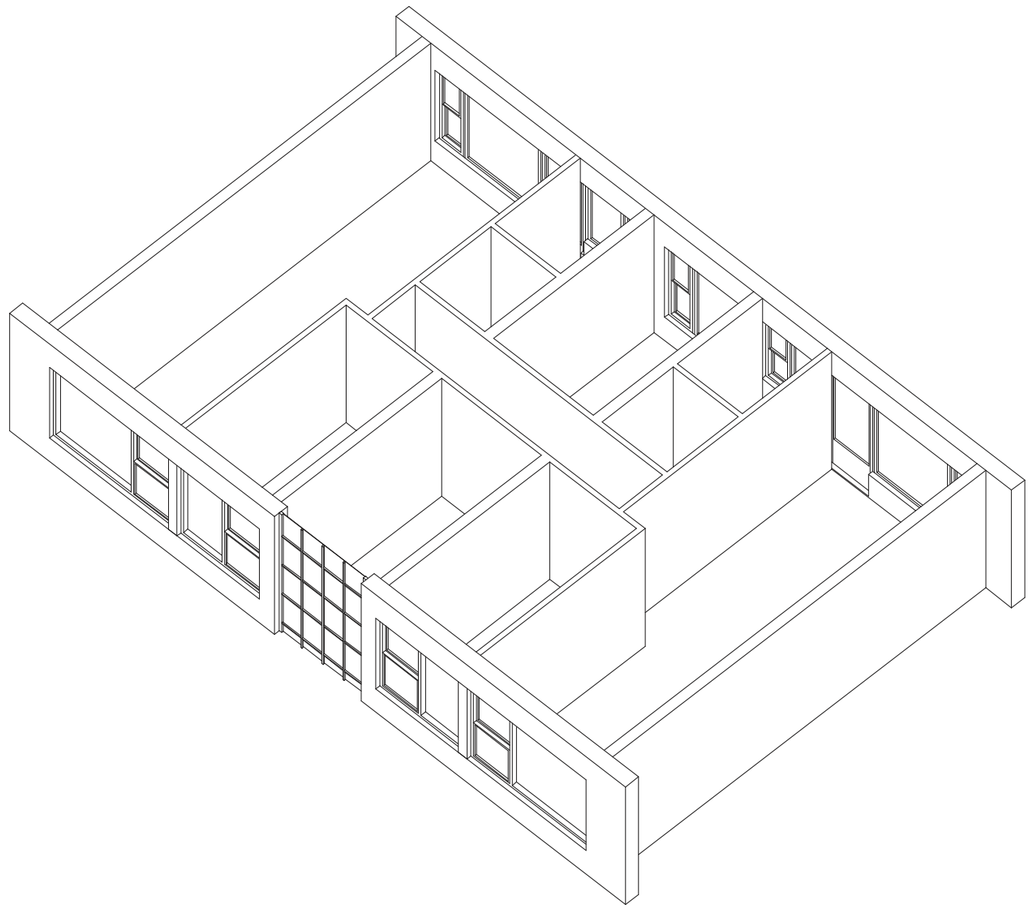
IV. Portiek

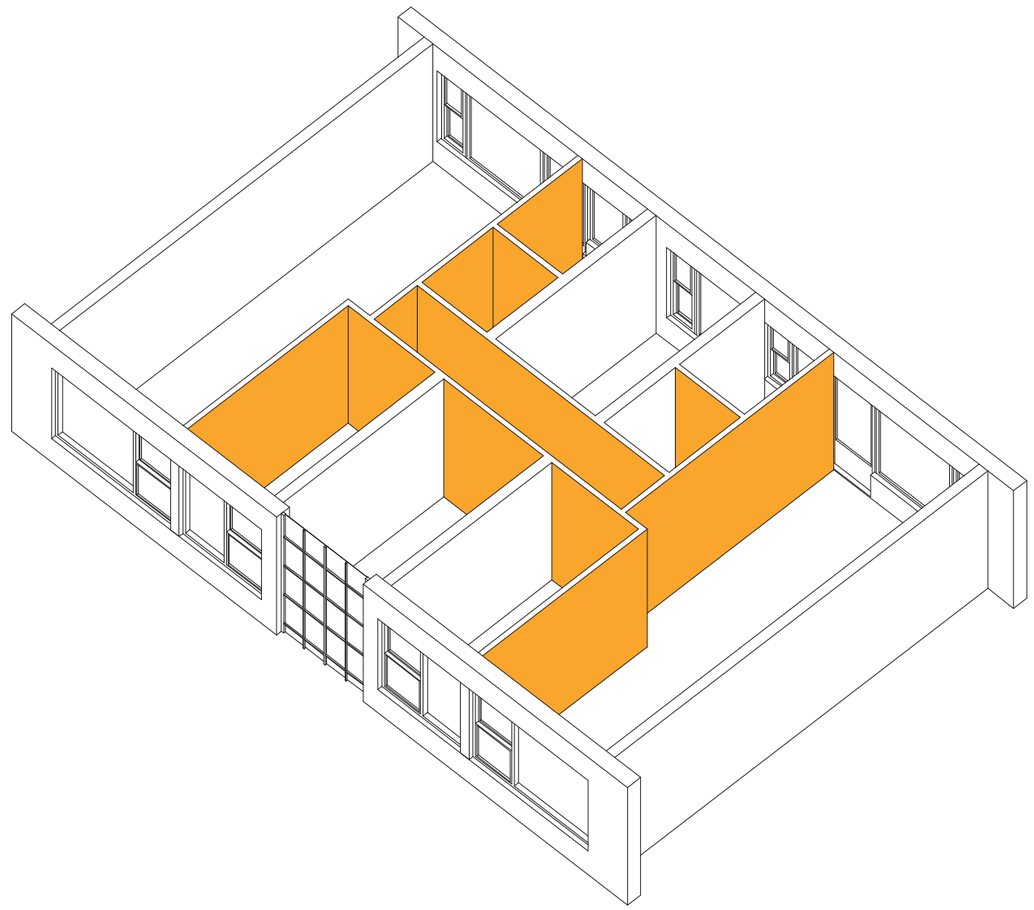


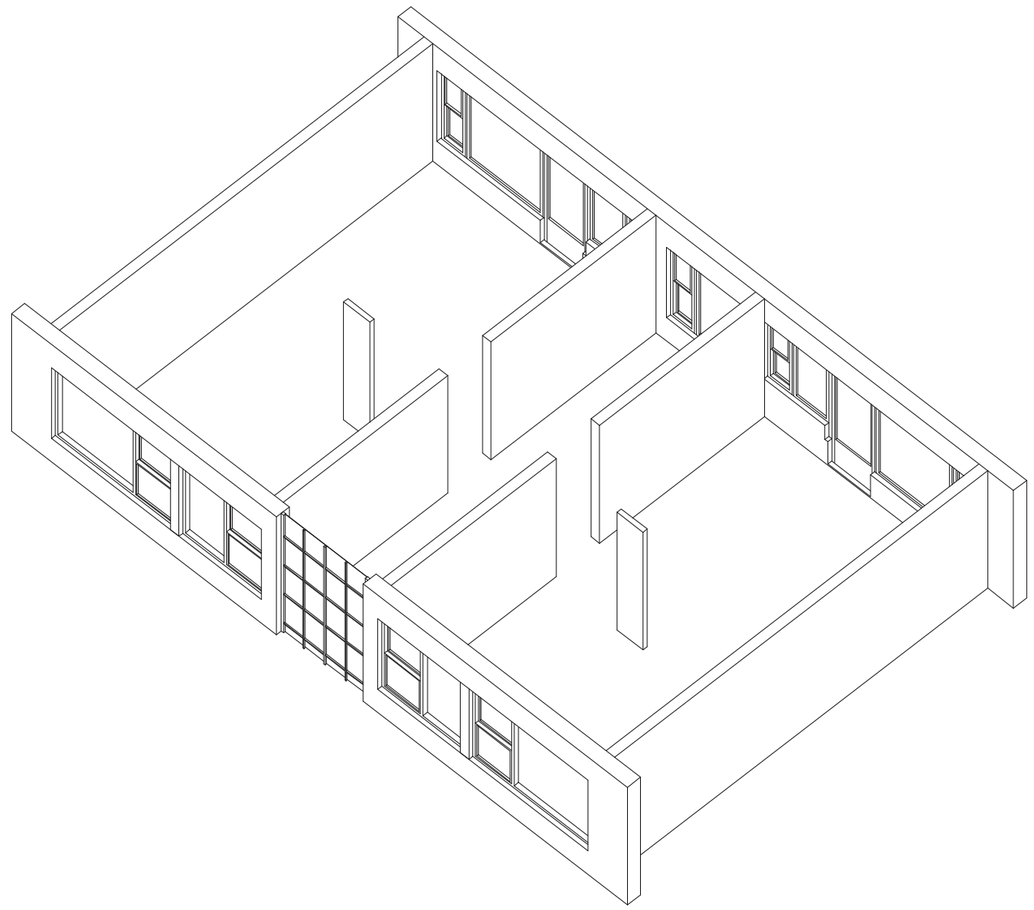


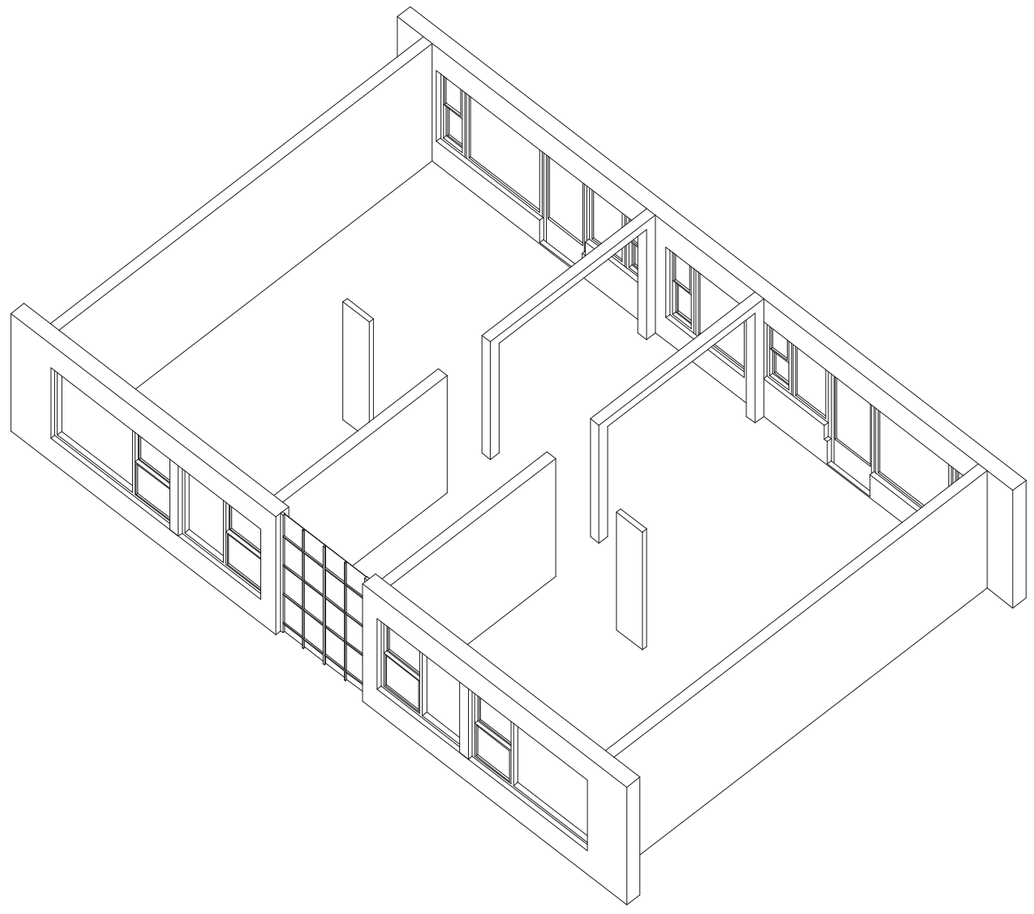


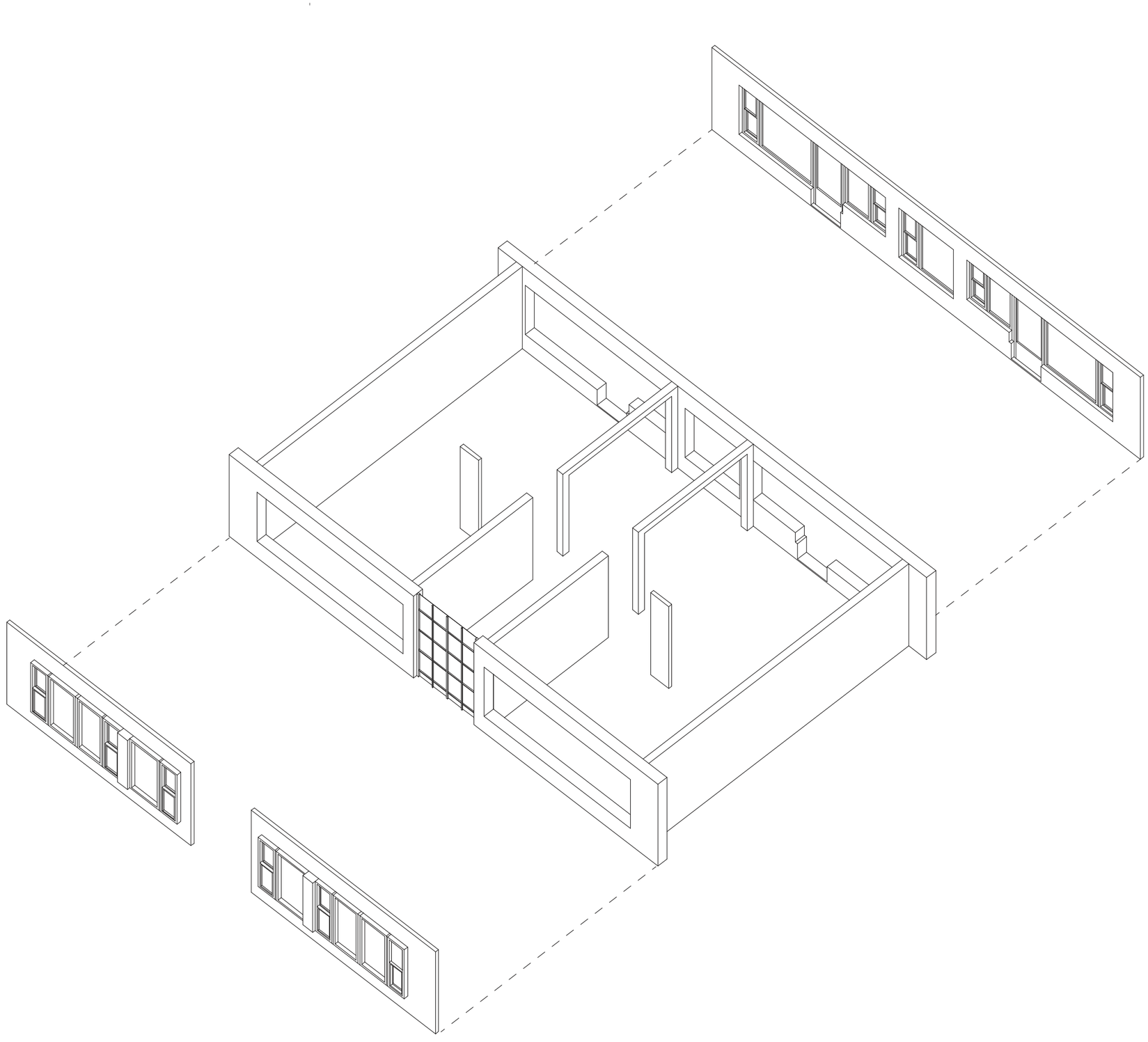
IV. Dwelling

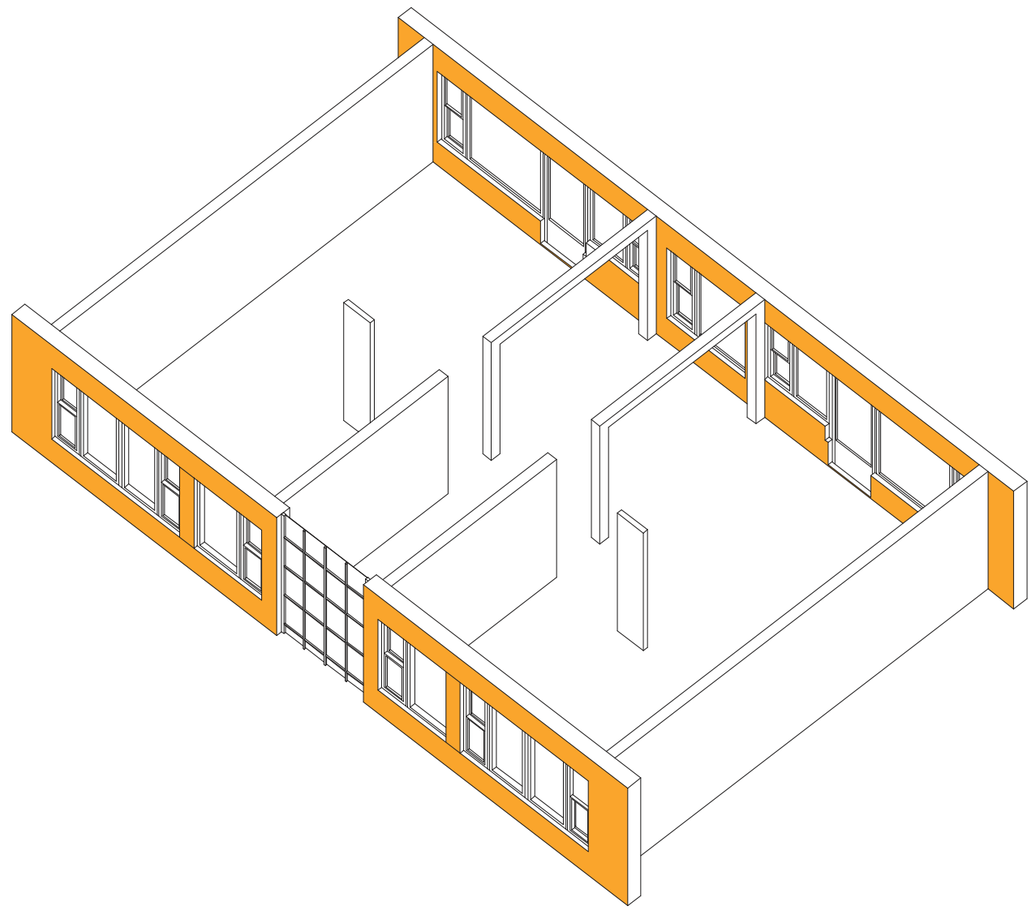


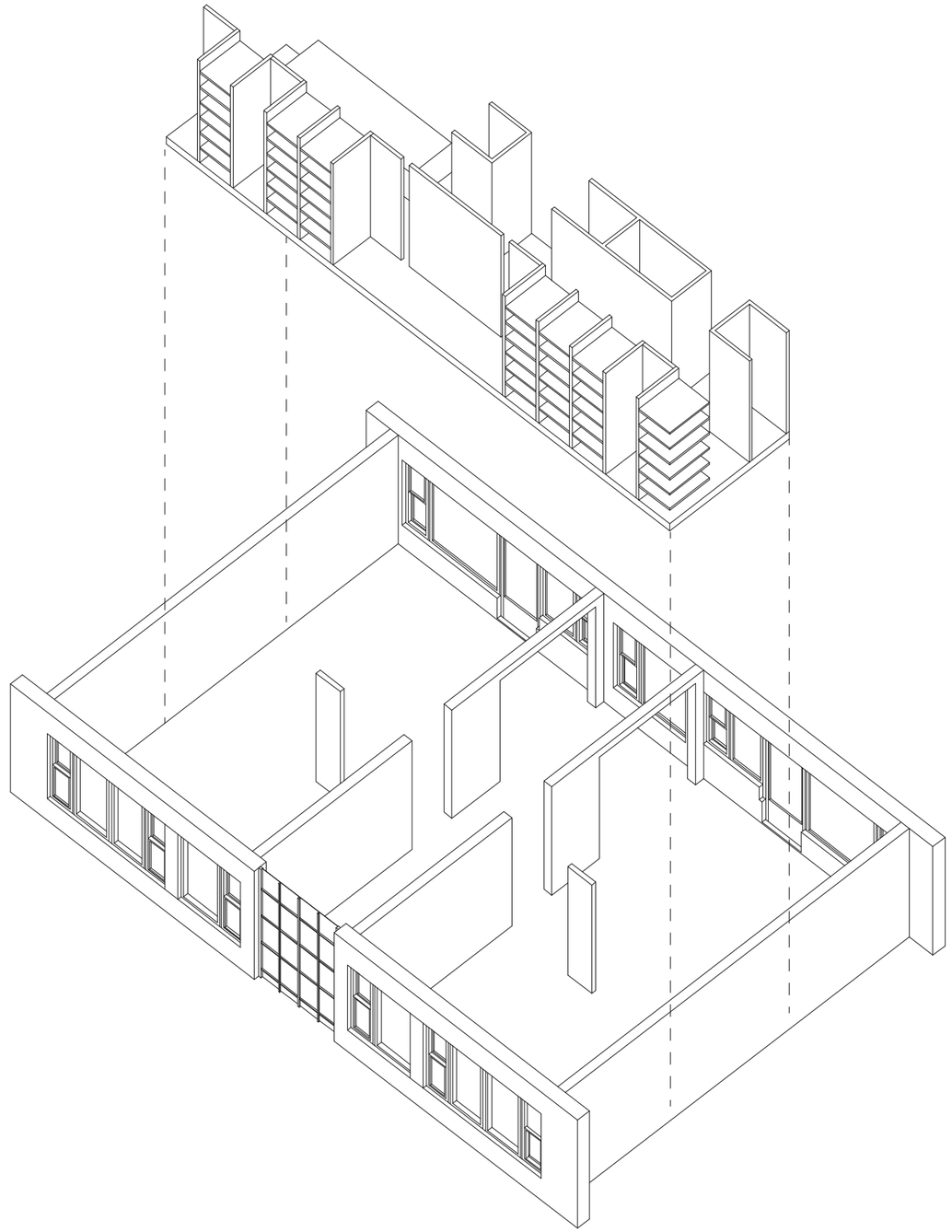


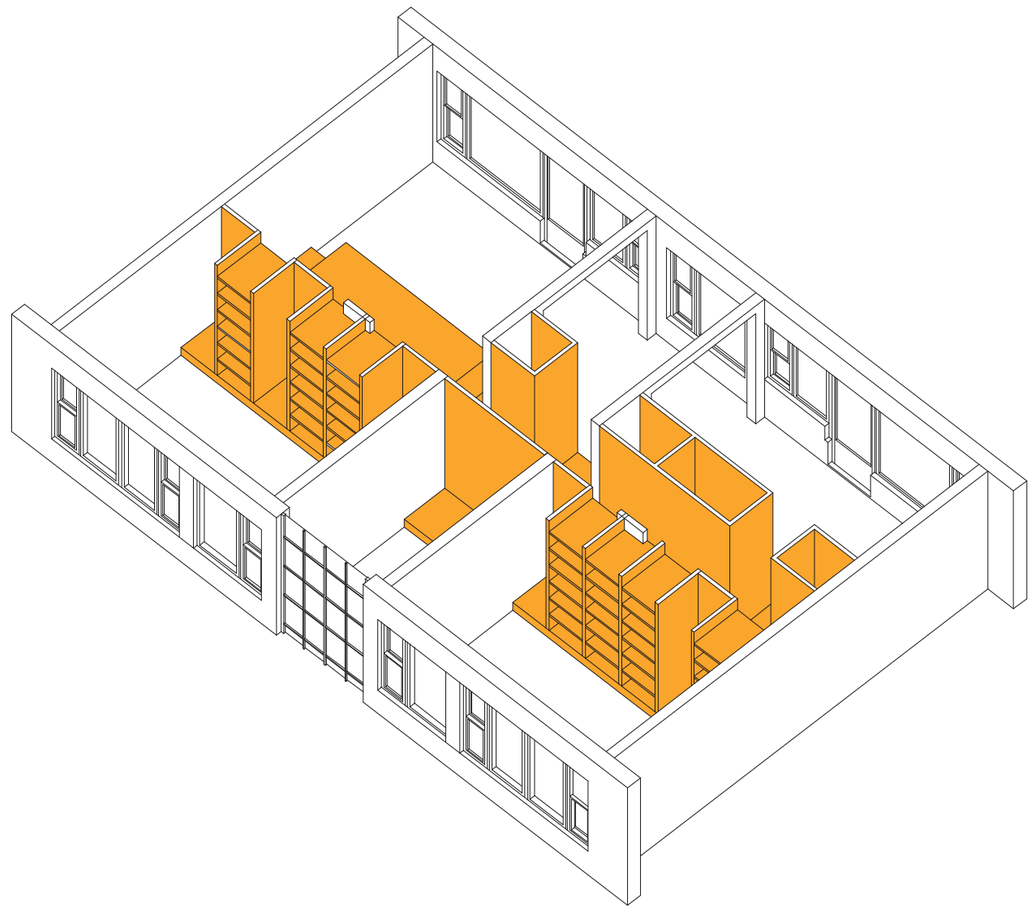


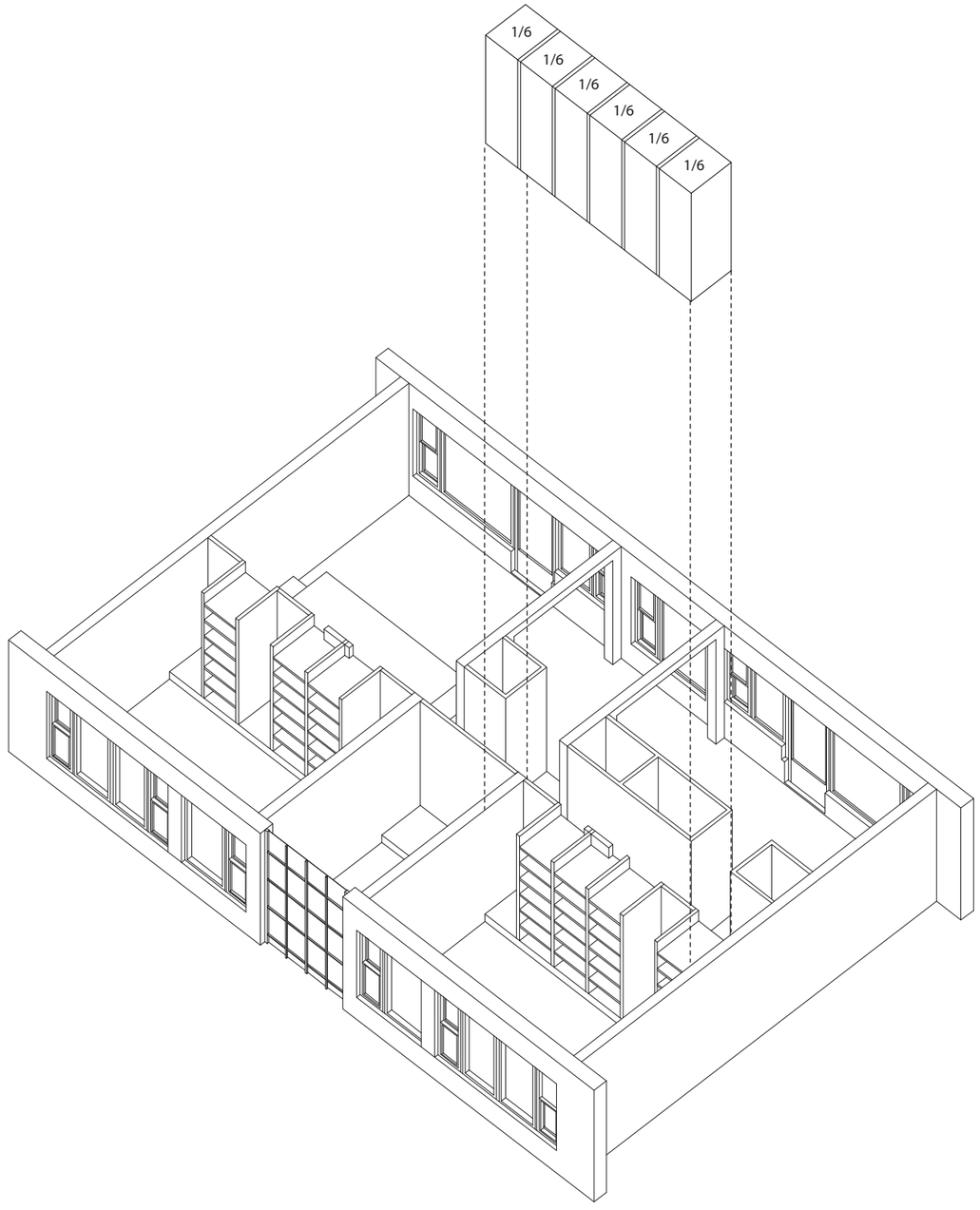








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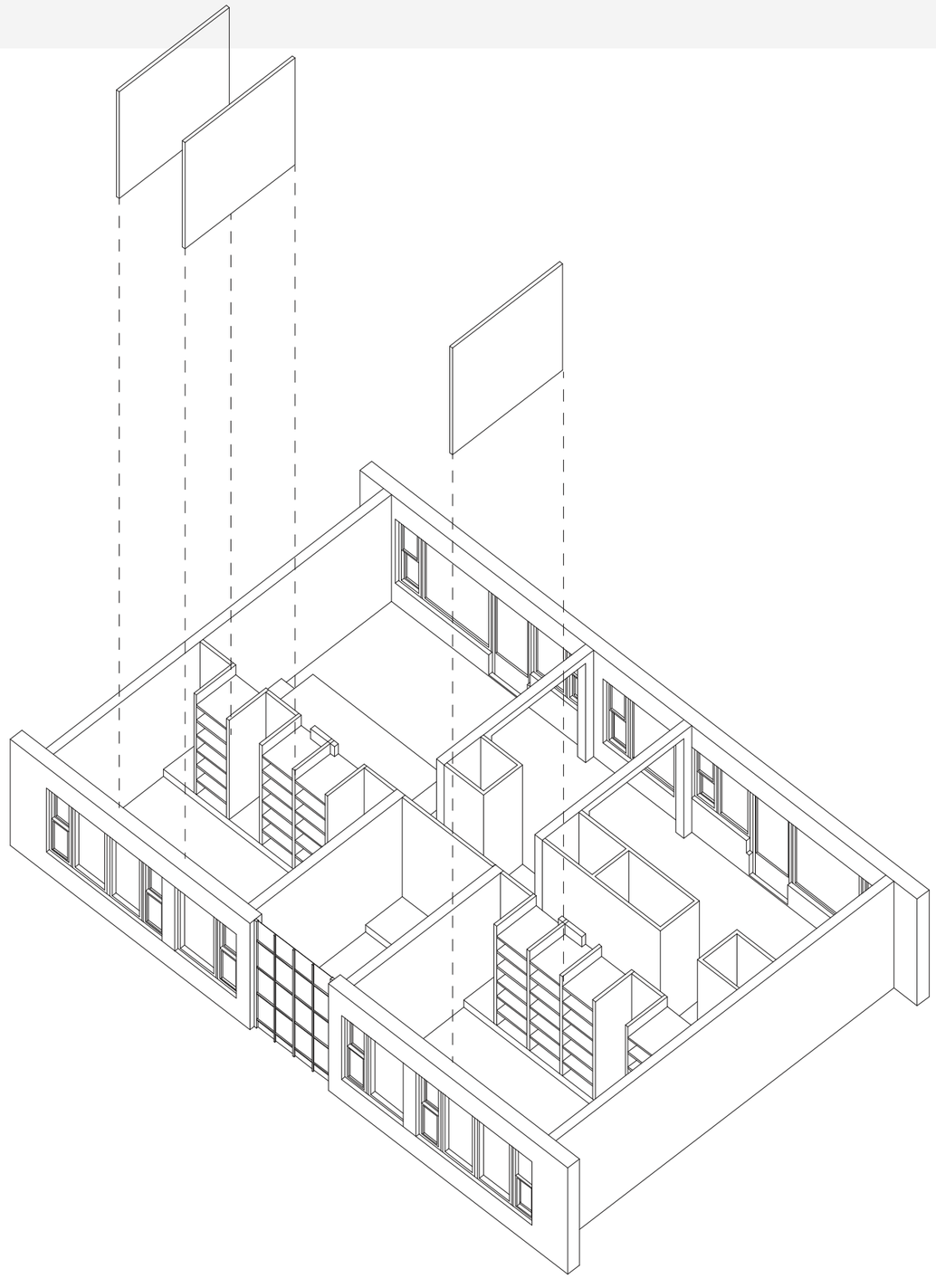
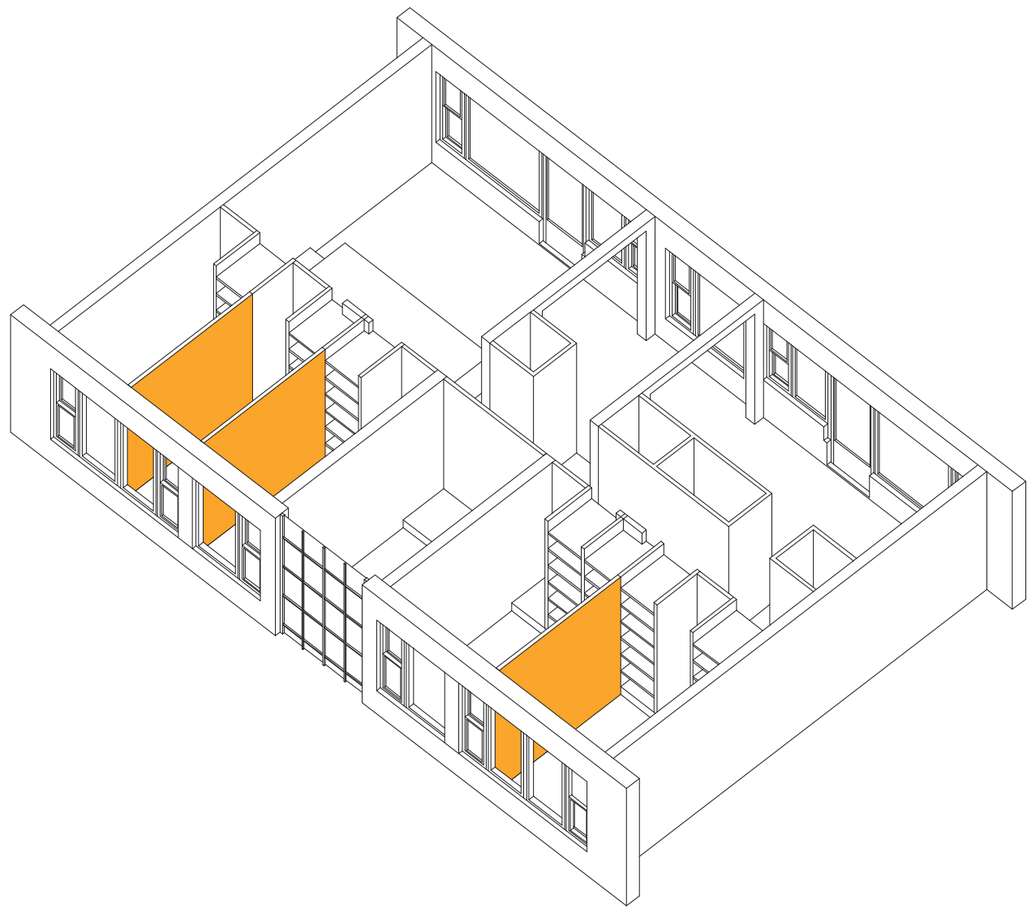
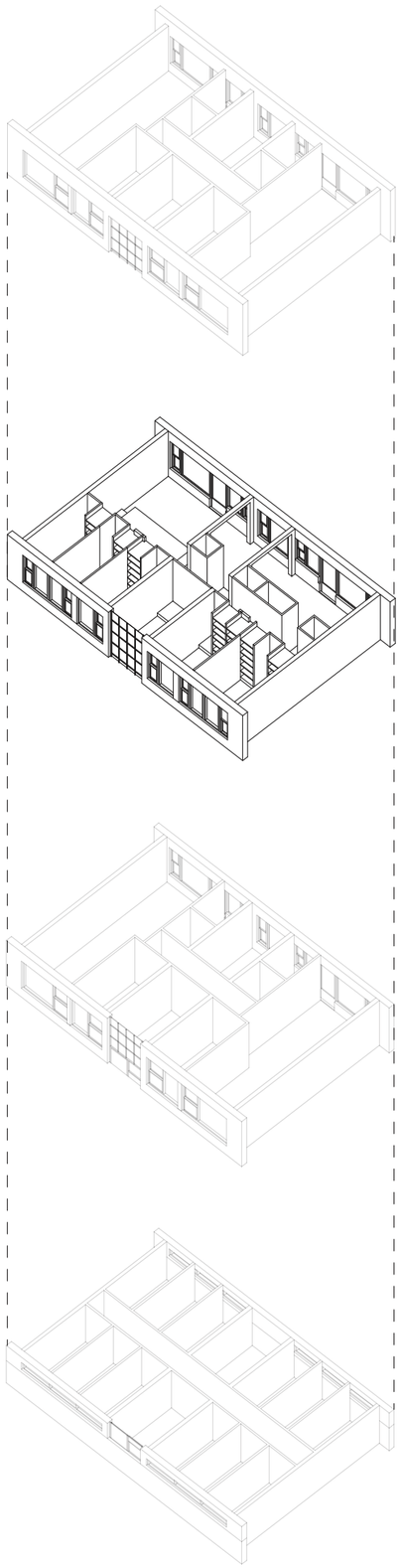
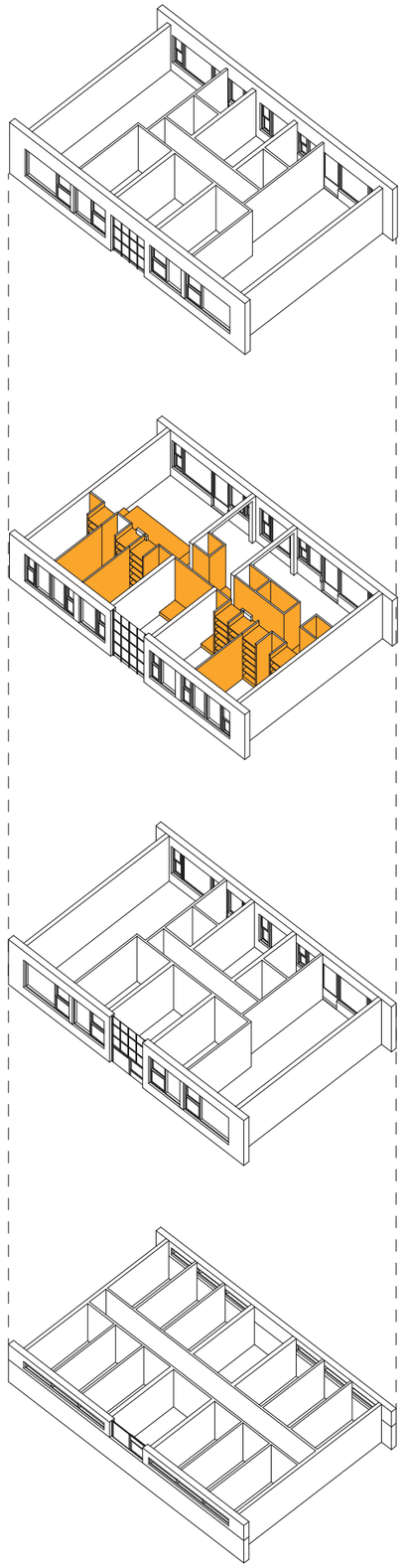
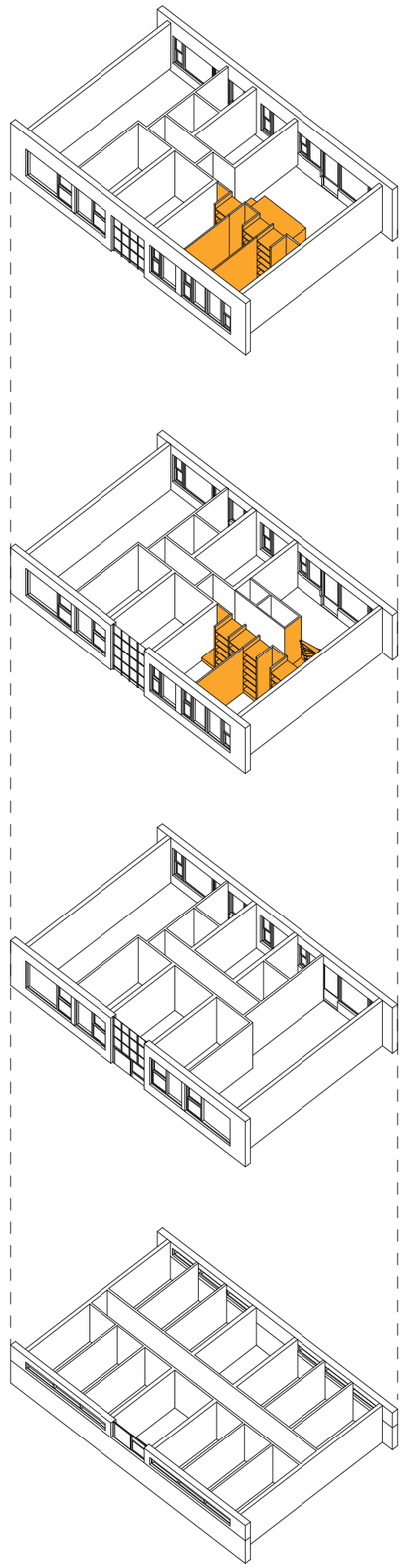


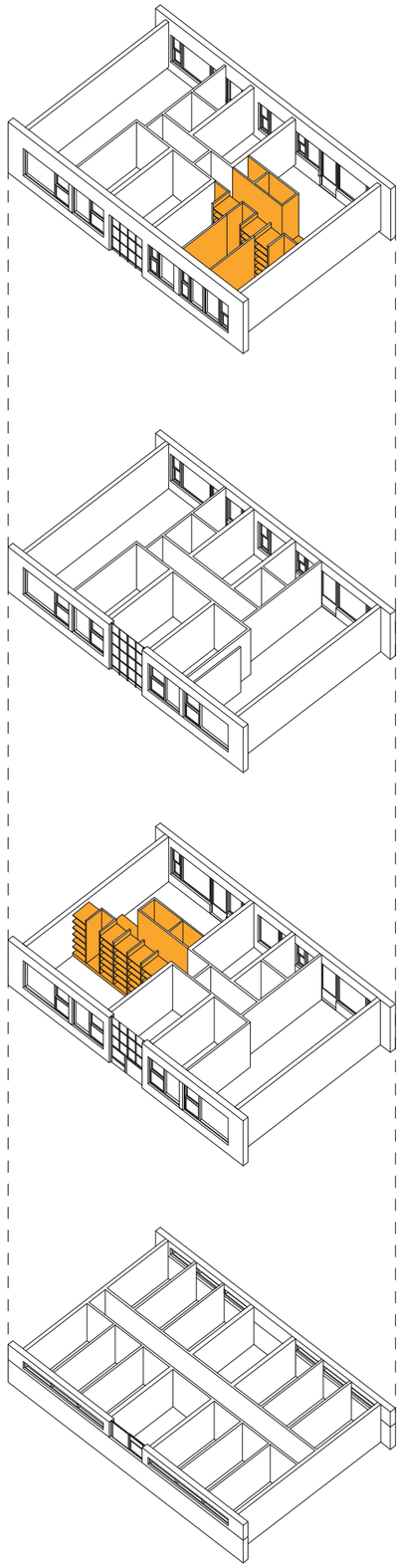


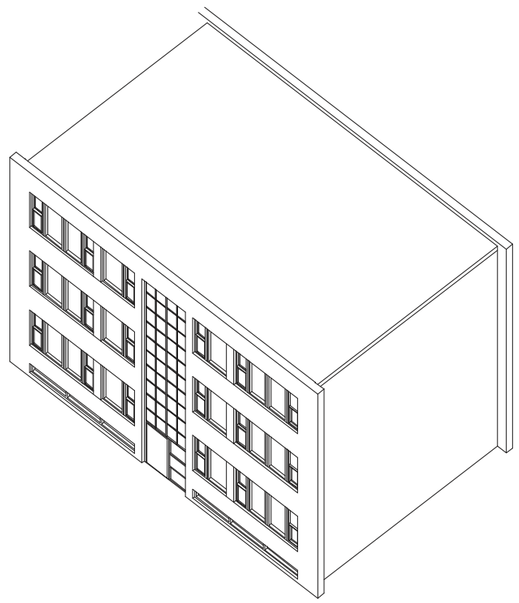


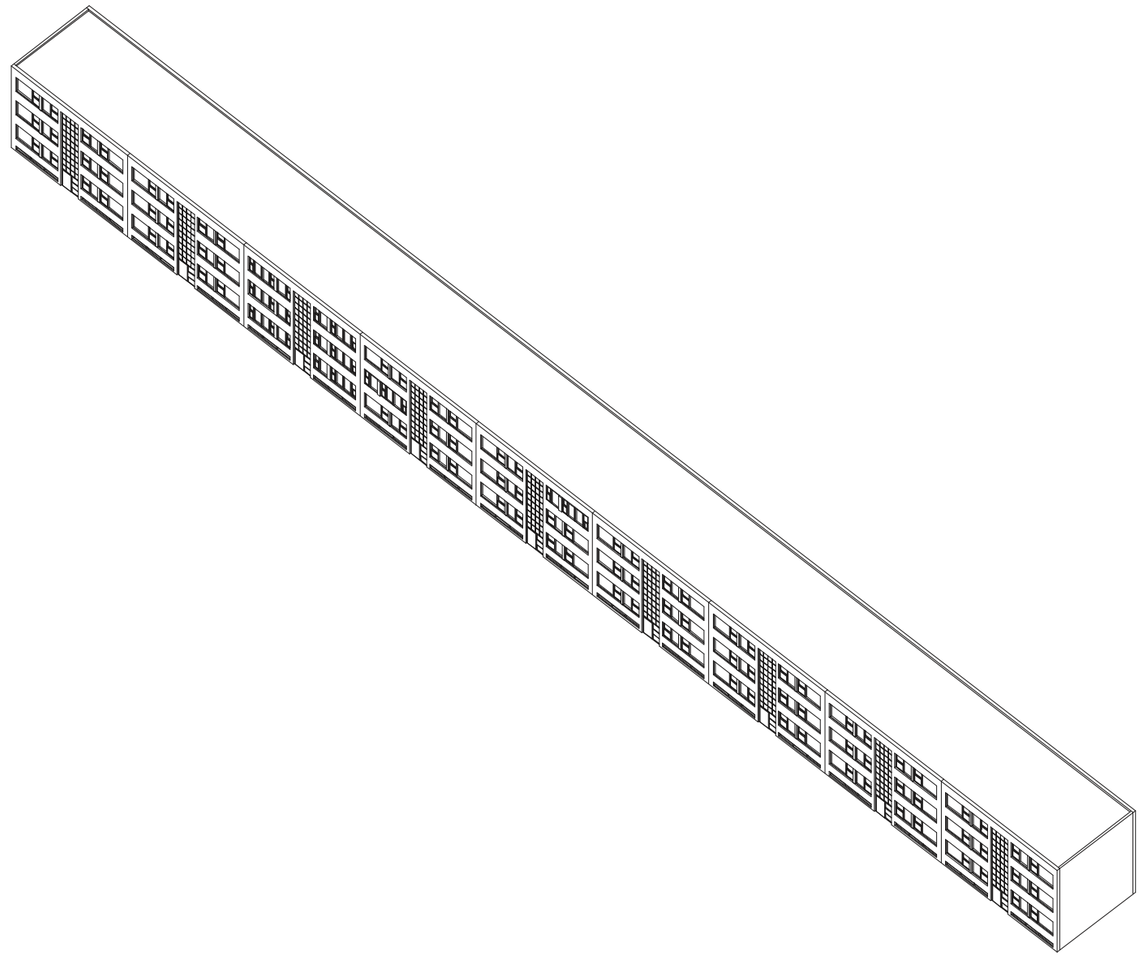
IV. Variants

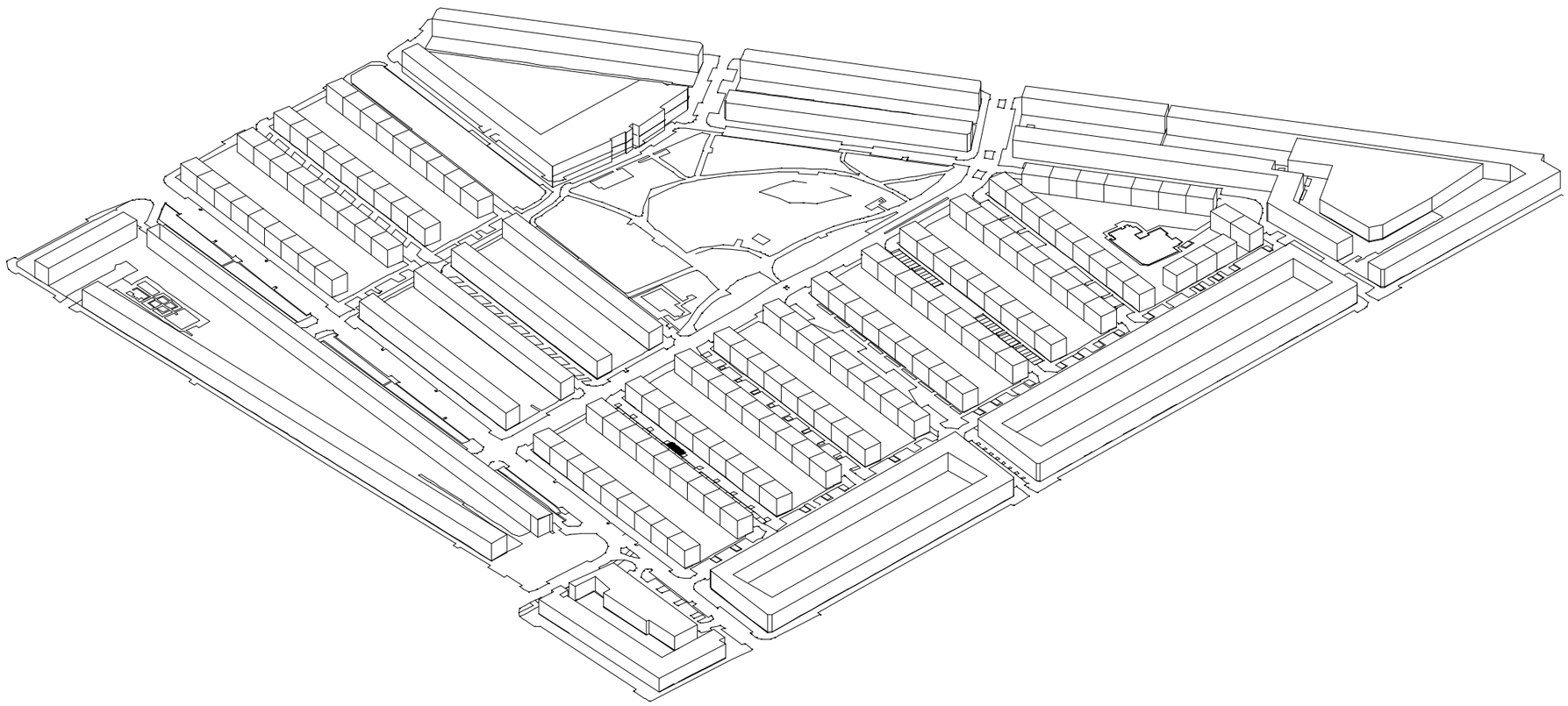


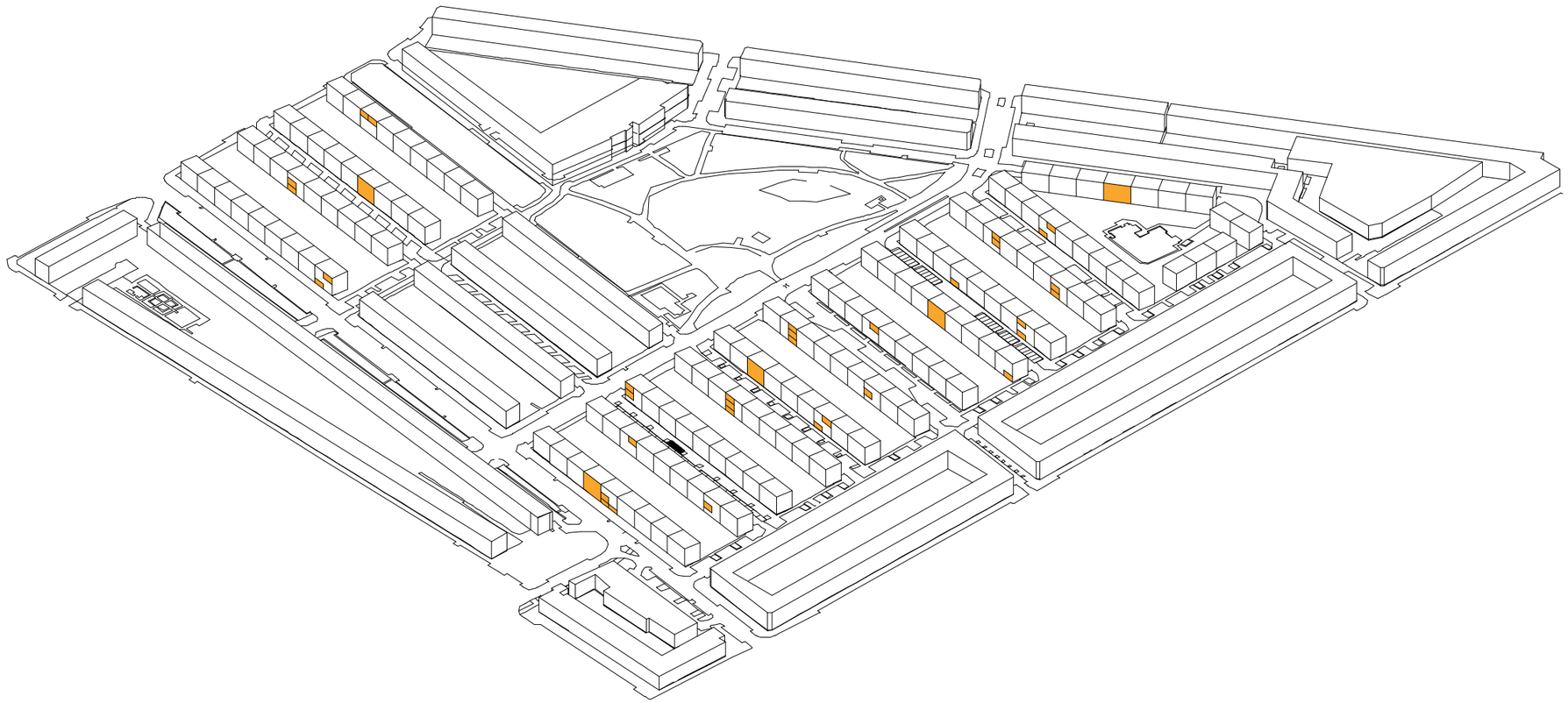




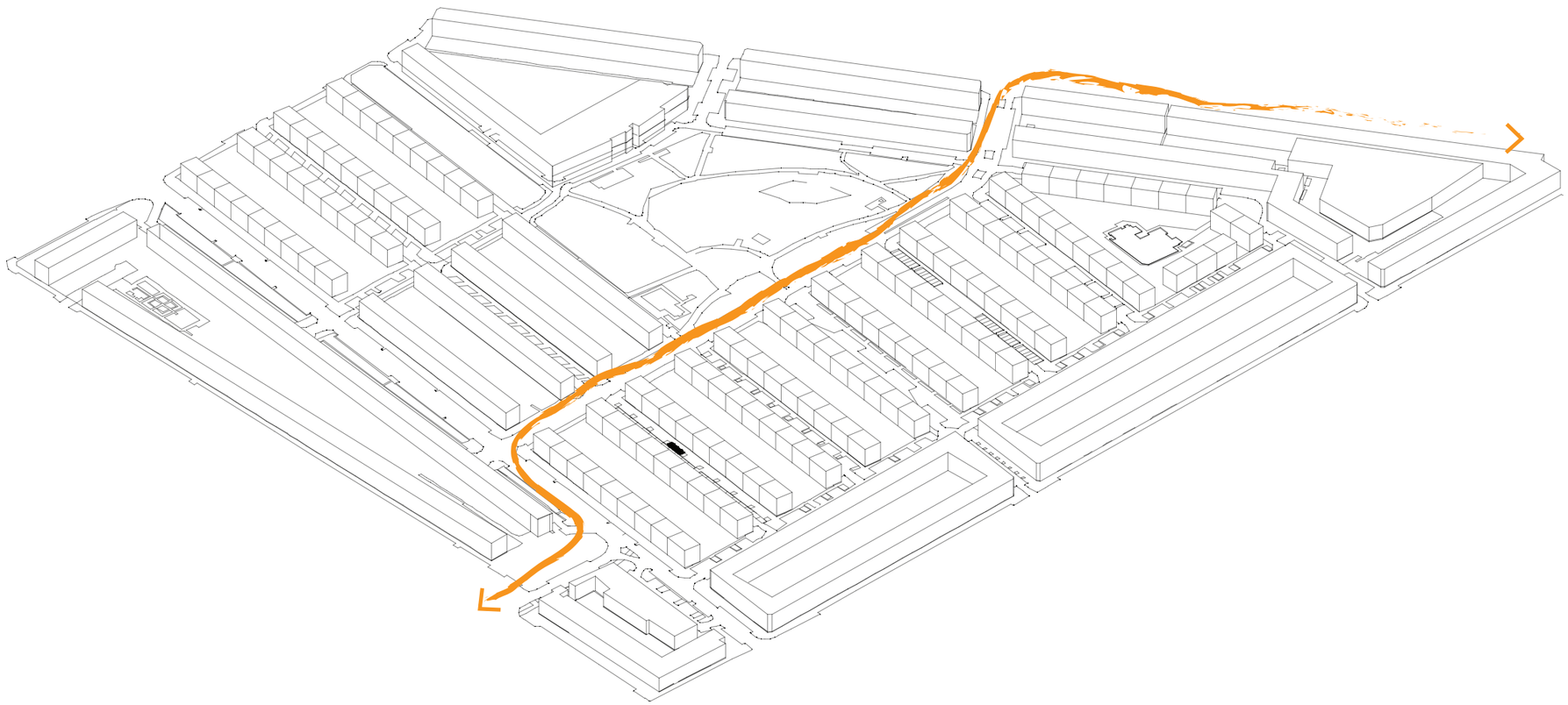




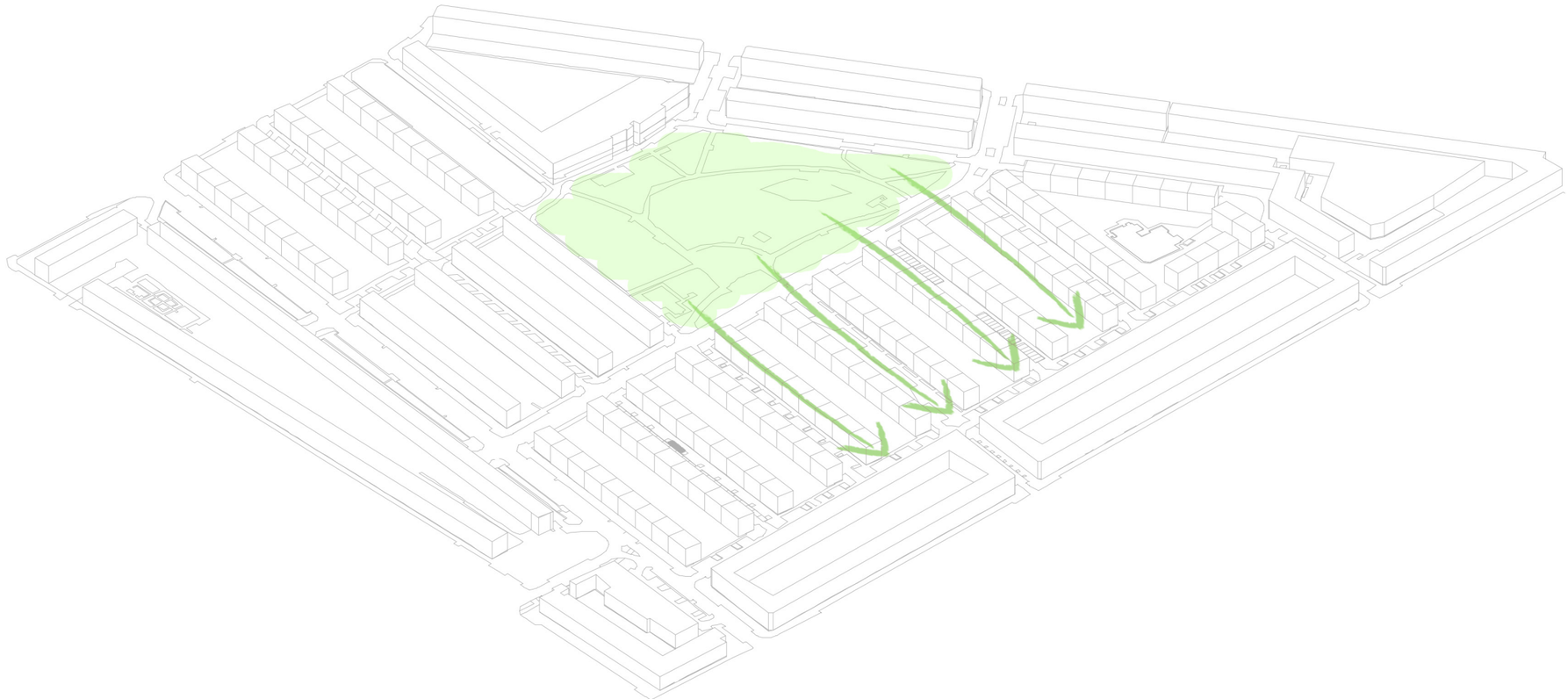




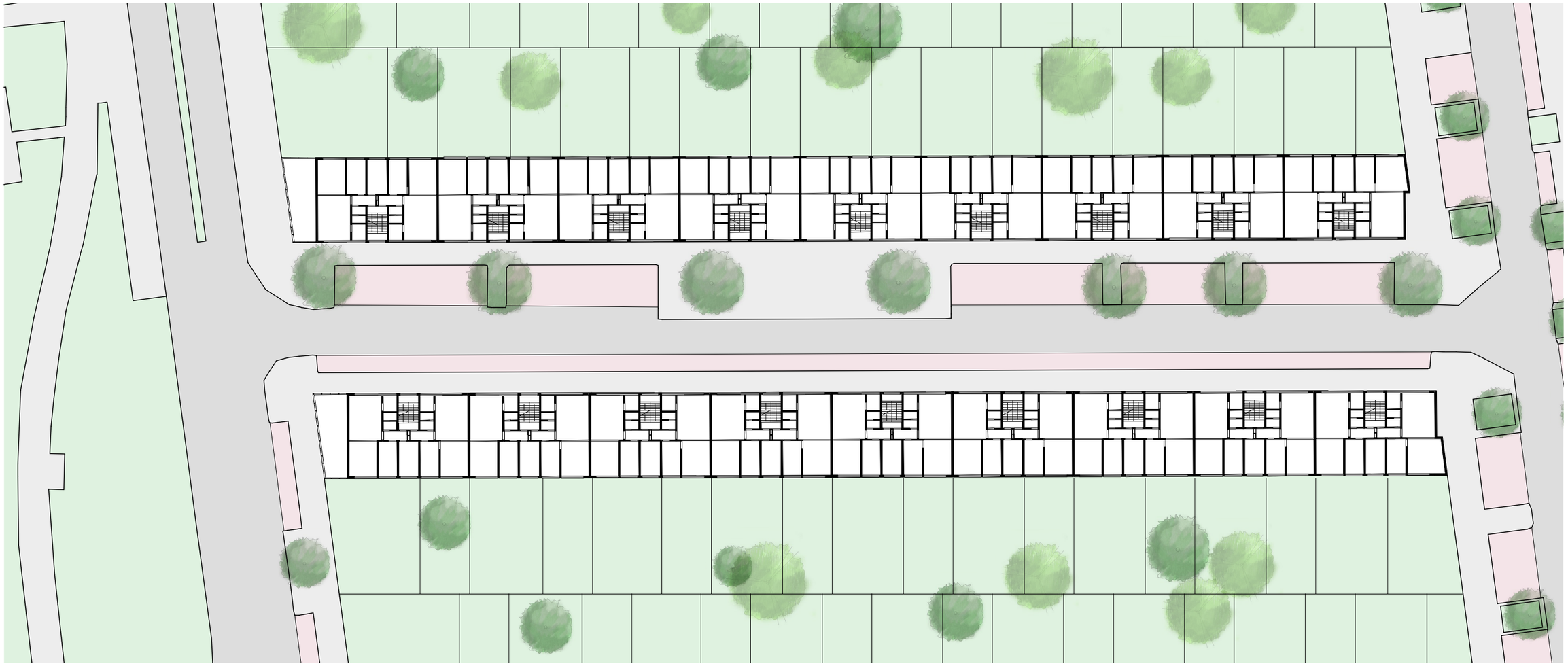
IV. Urban situation



IV. Urban situation

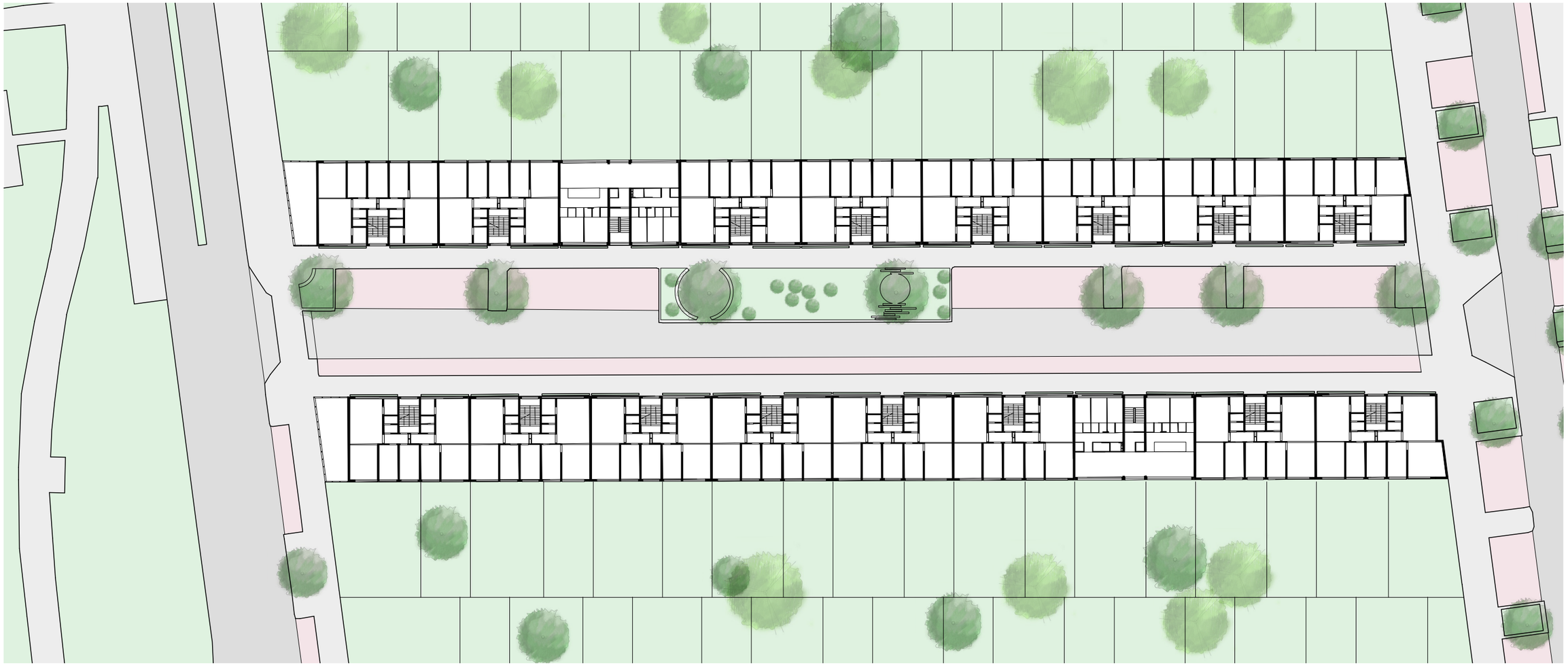


IV. Urban situation



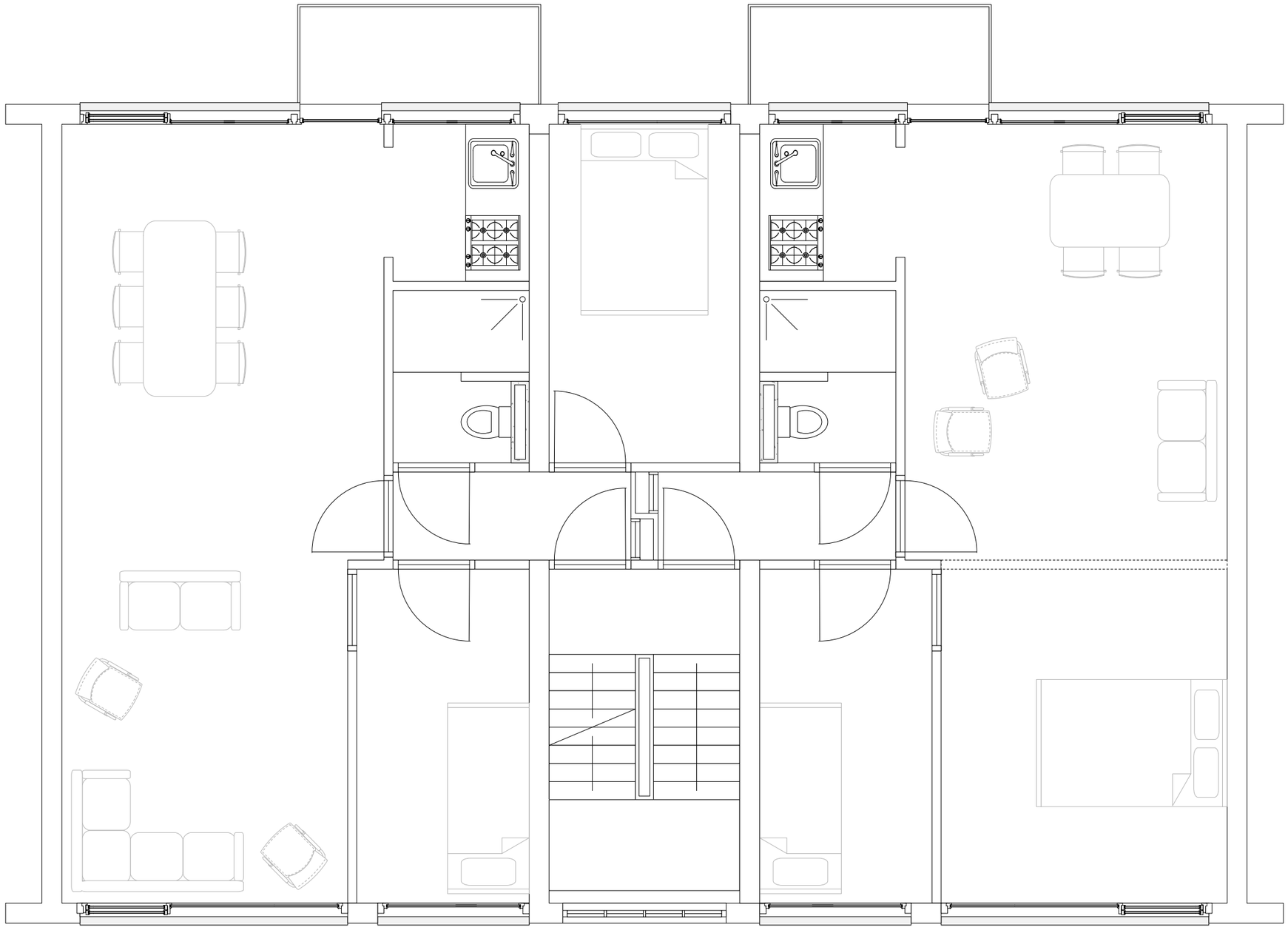
Present situation

IV. Urban situation

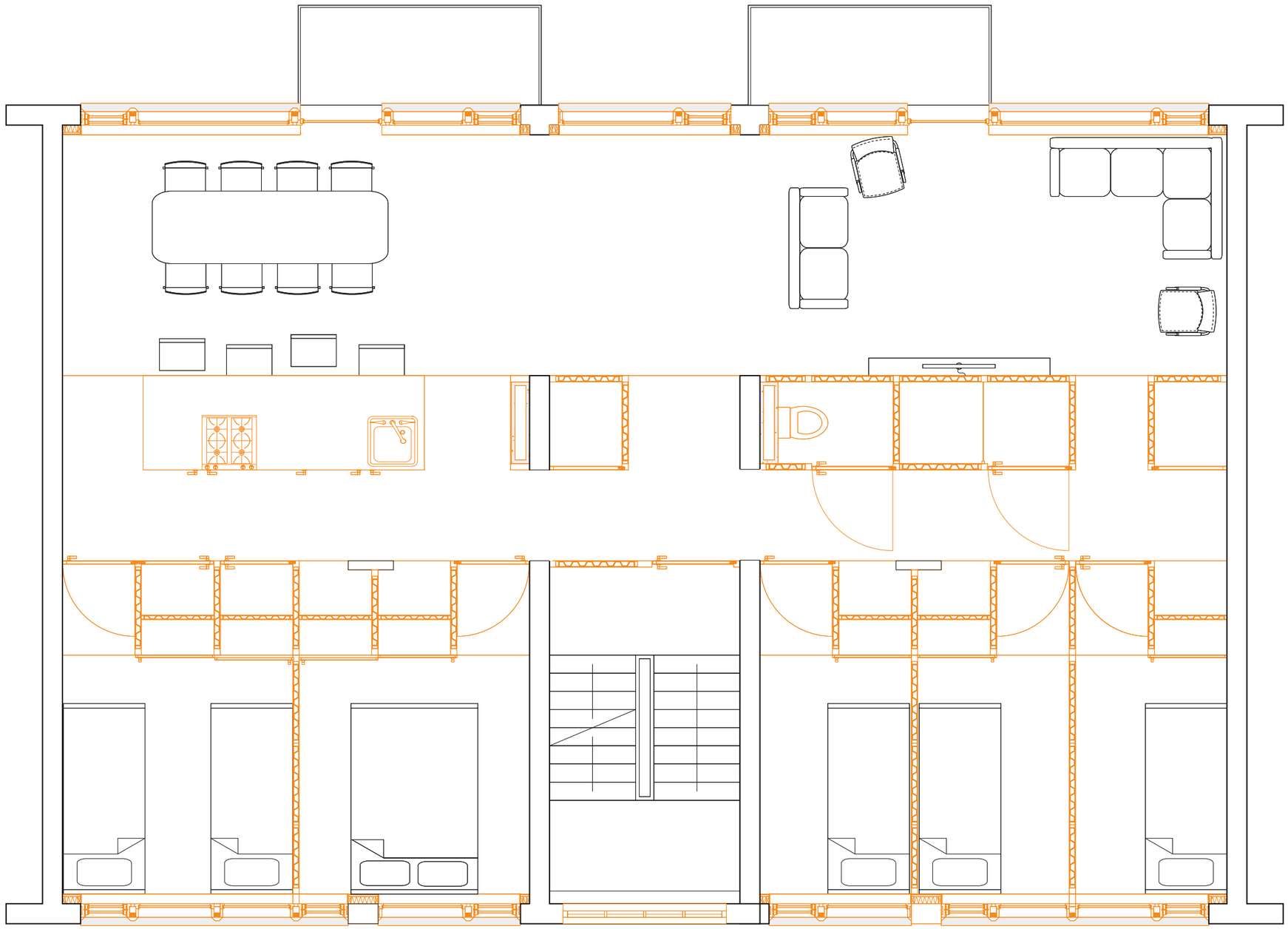


New situation

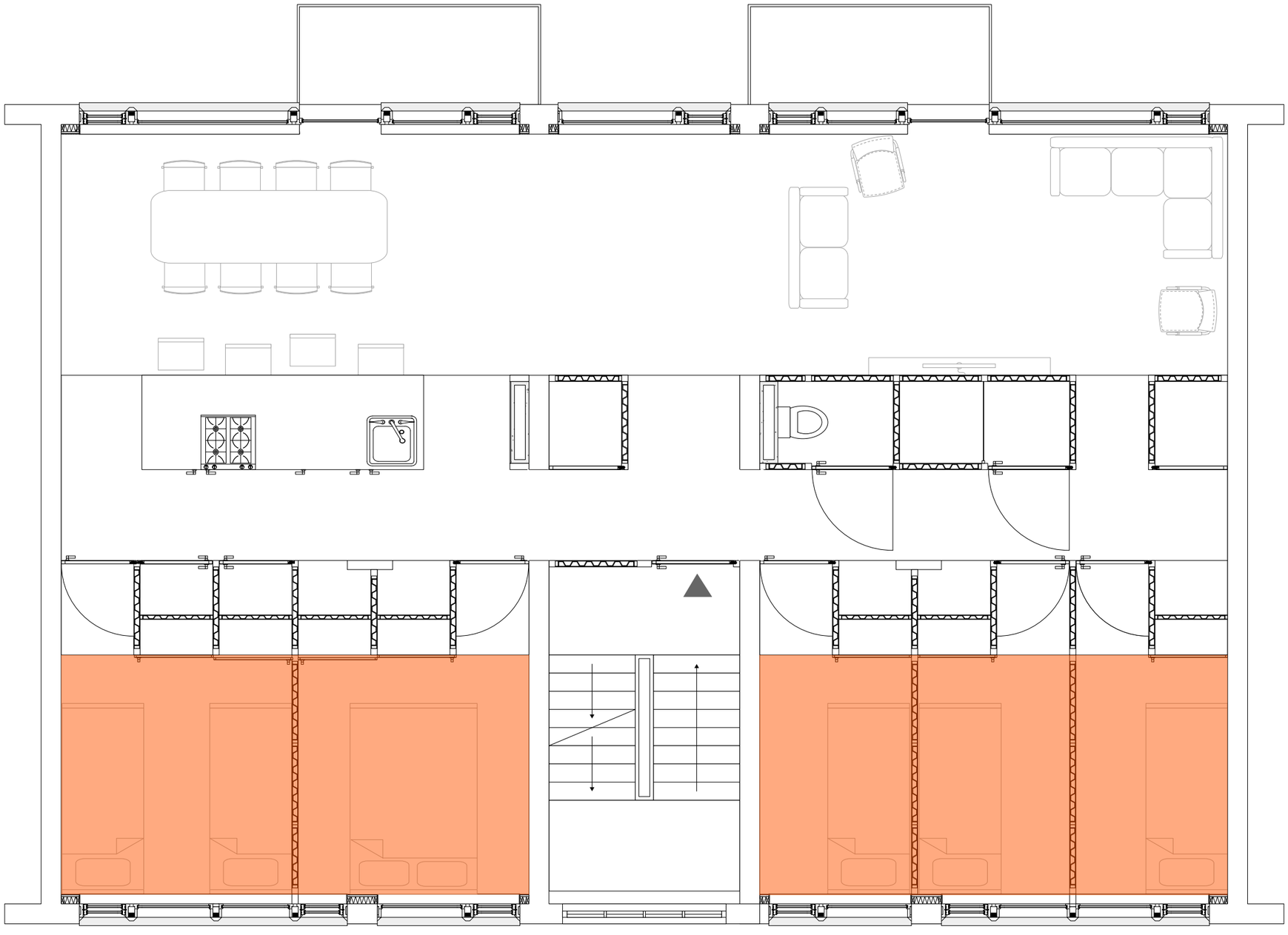
IV. Original plan



IV. Plan

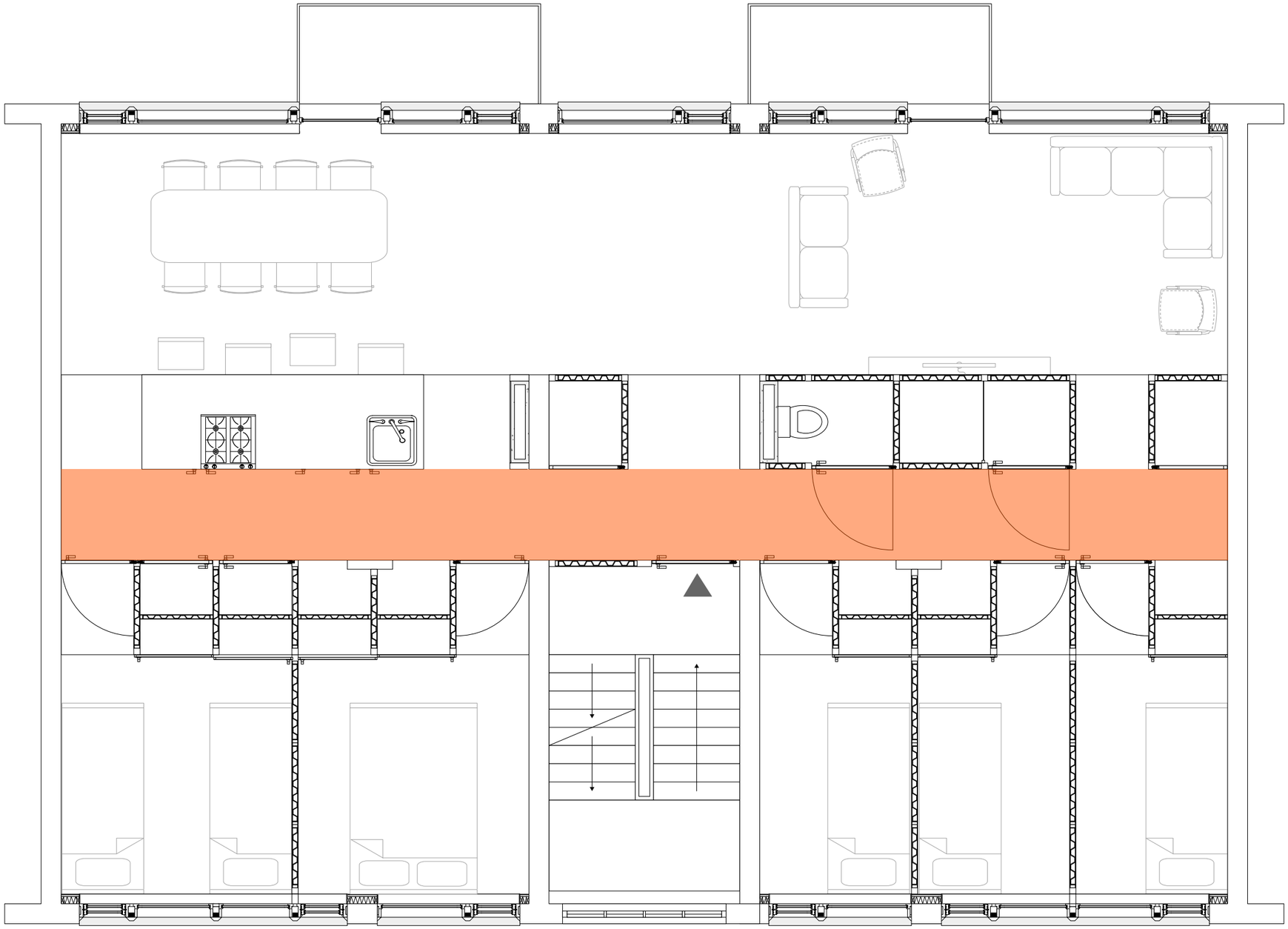


IV. Bedrooms

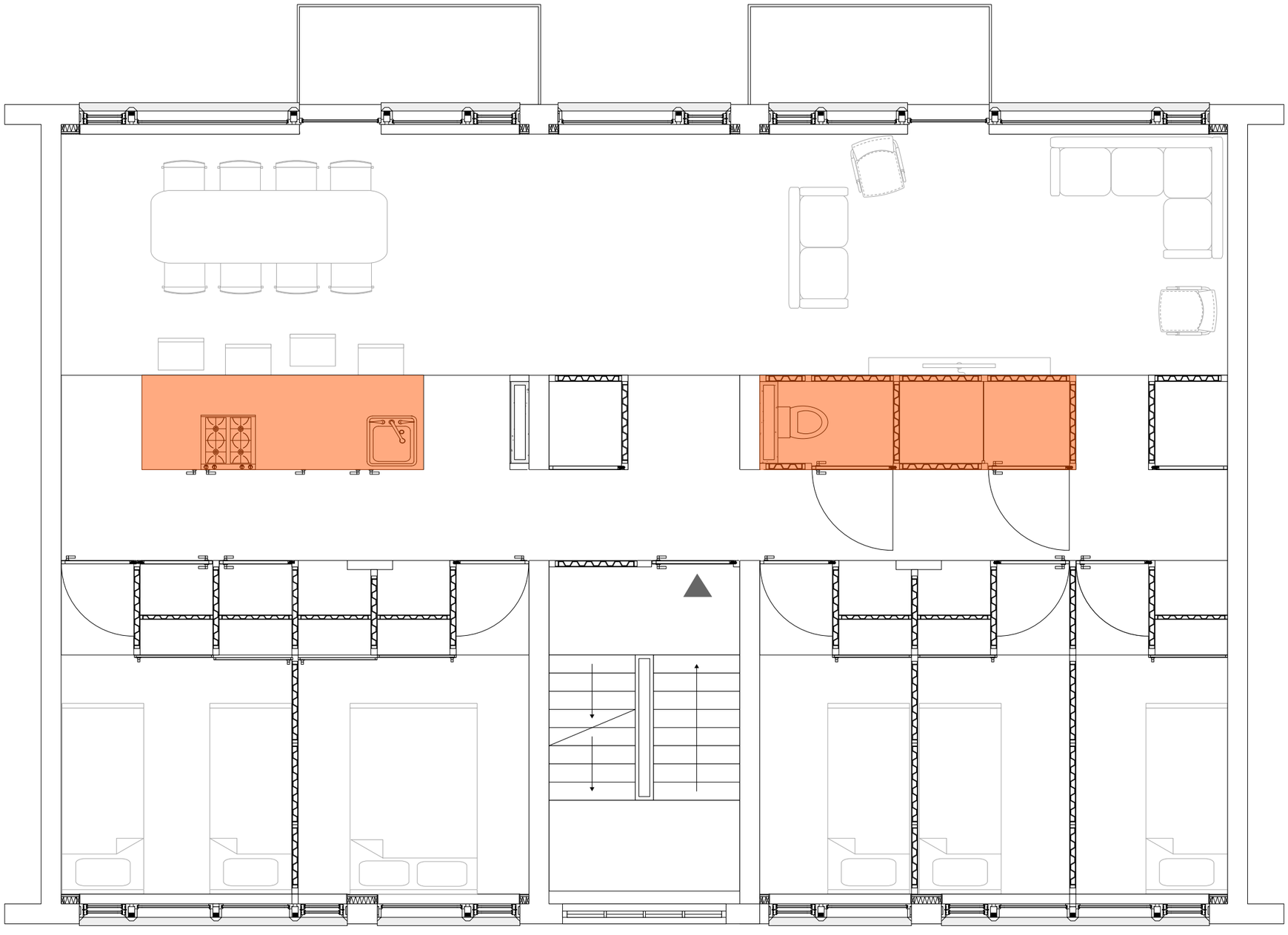


IV. Closets

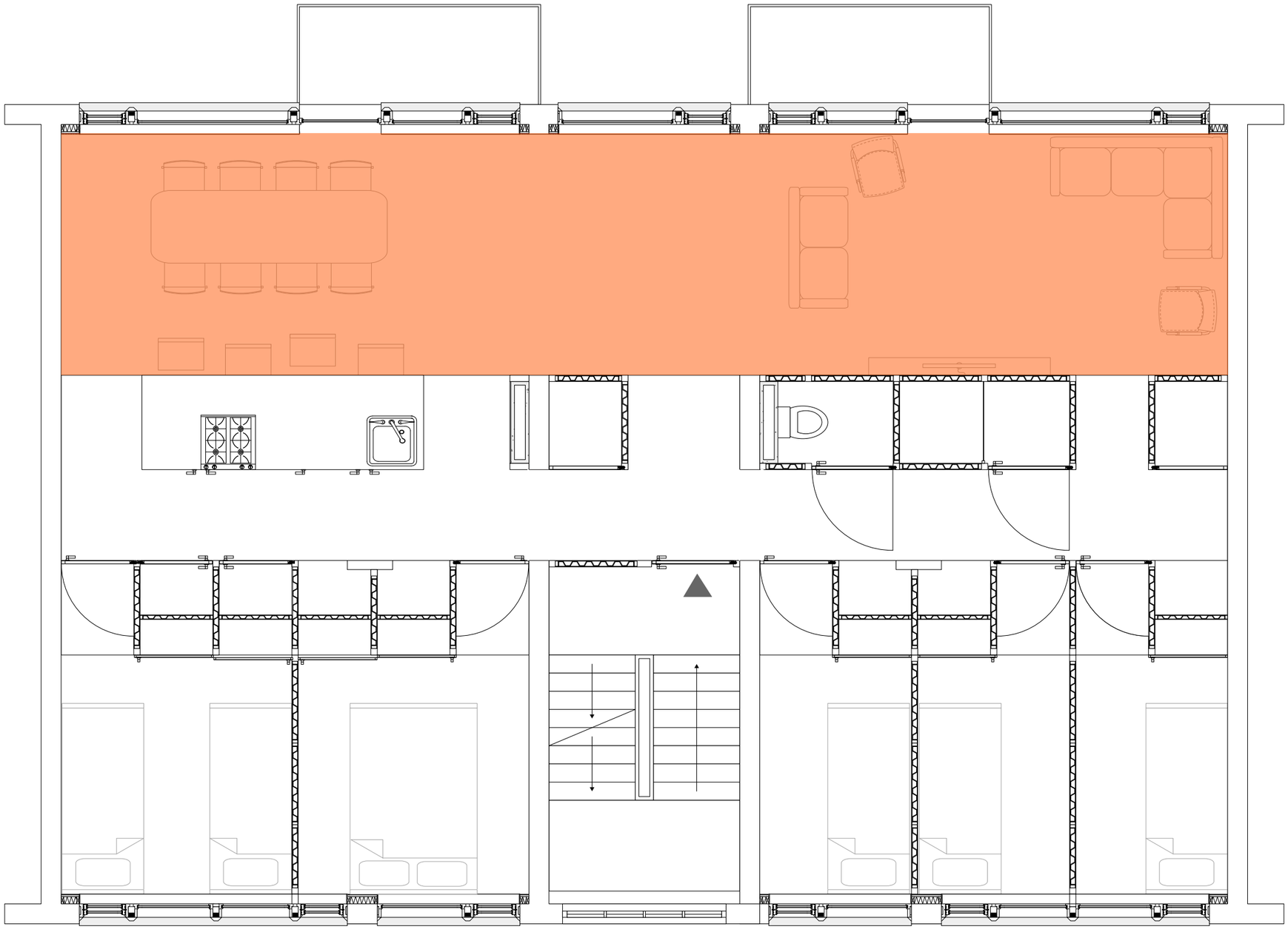
IV. Hallway



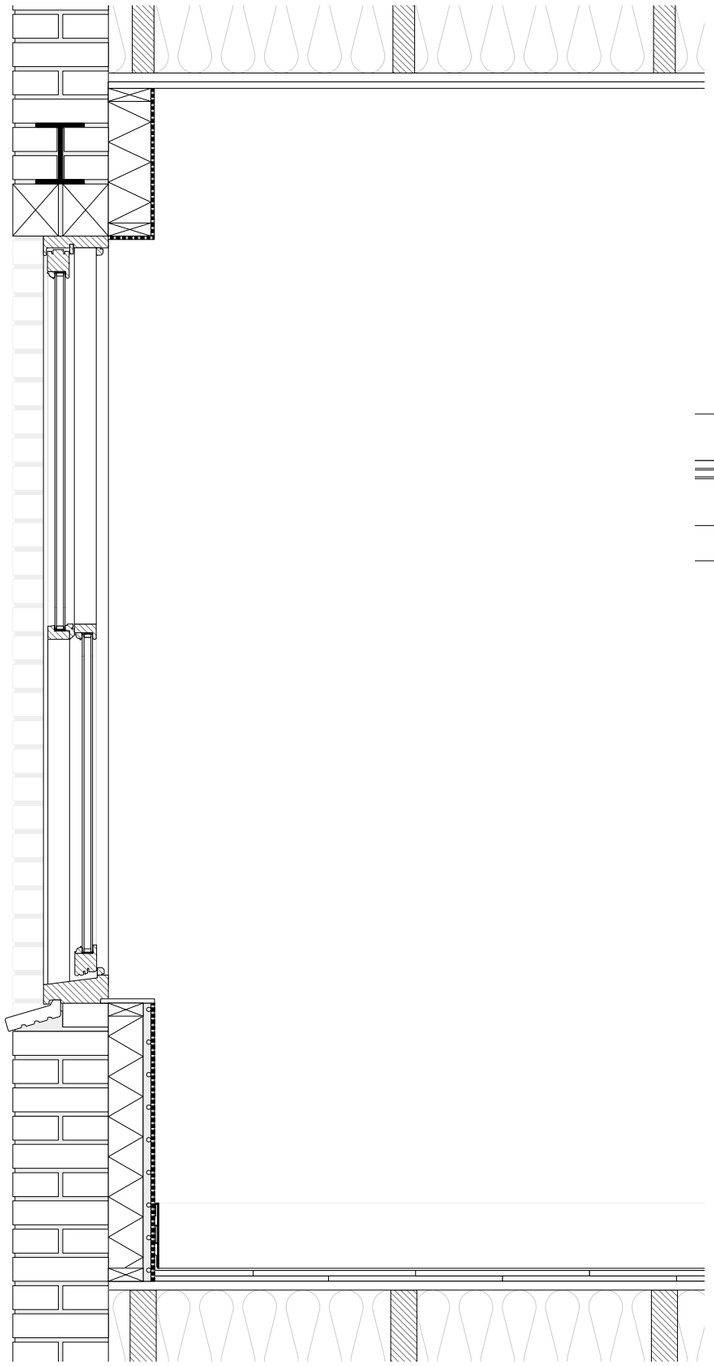
IV. Sanitary

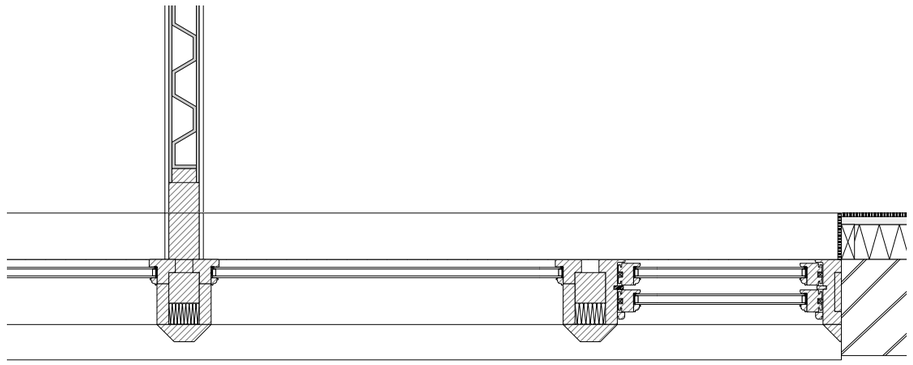


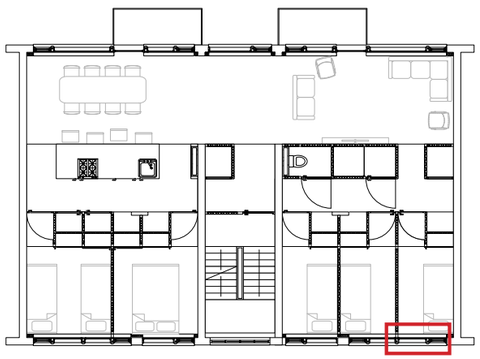
IV. Shared space



IV. Window frame





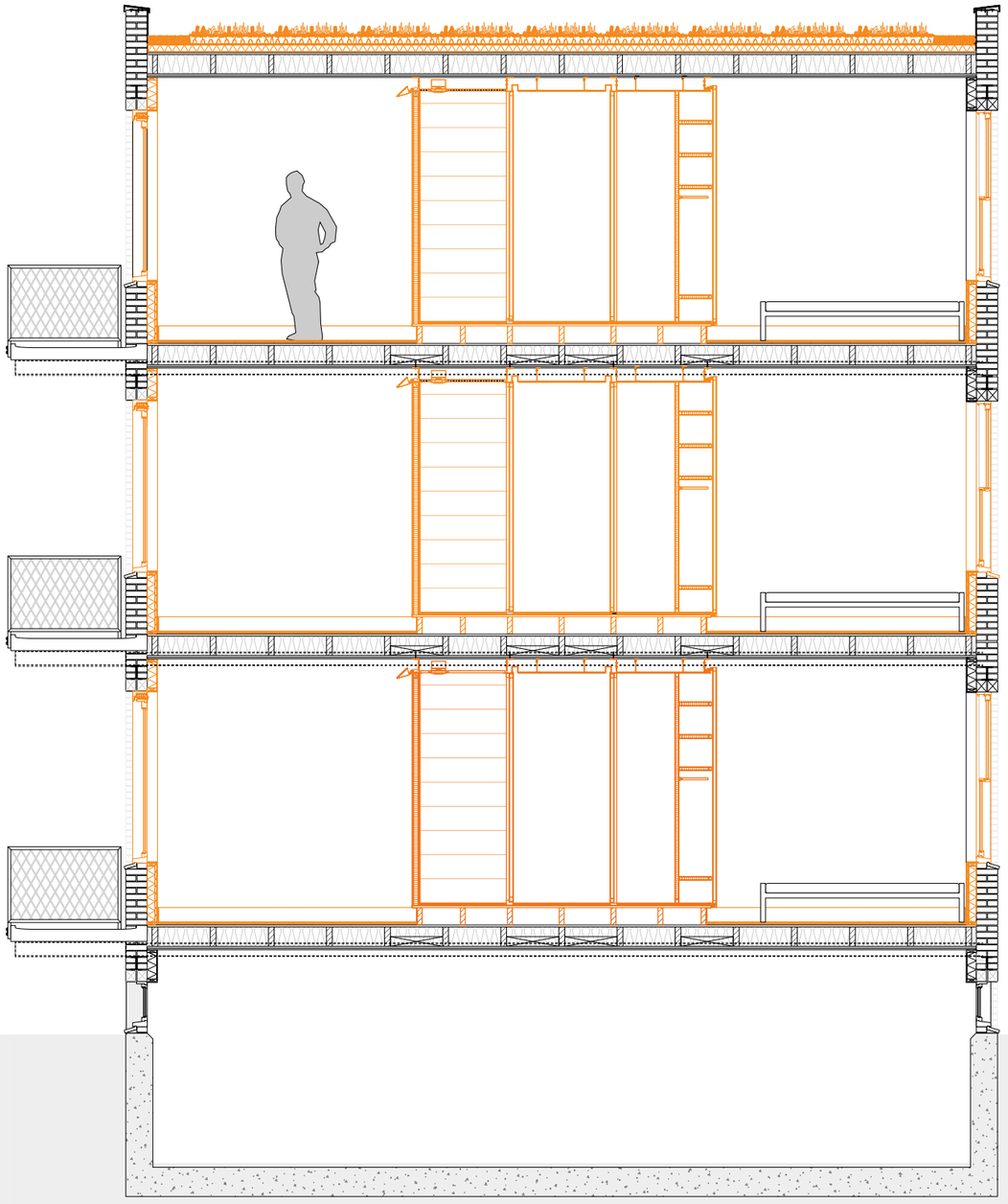


Ecor cartboard panel

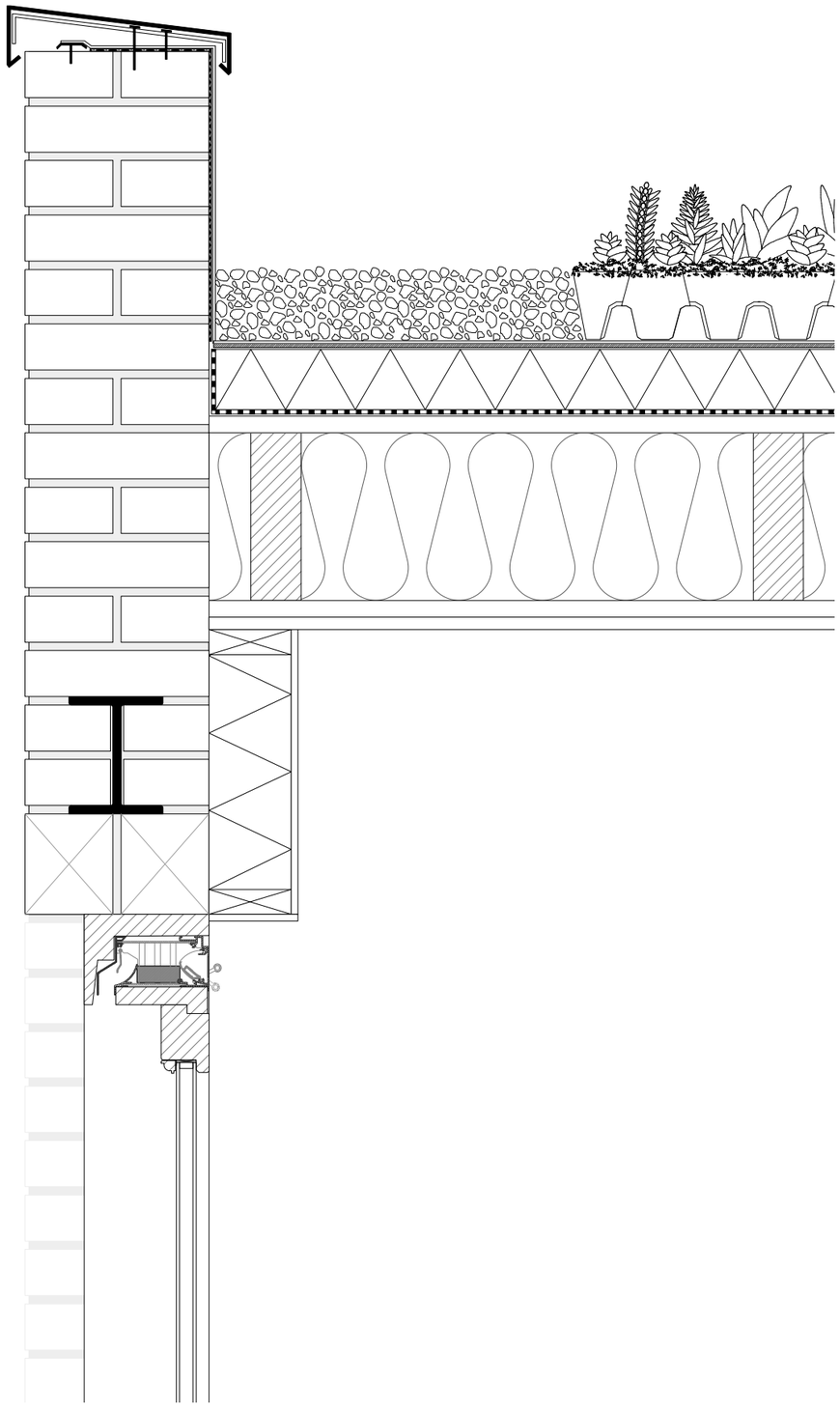
Timber veneer

IV. Longitudunal section

IV. Cross section



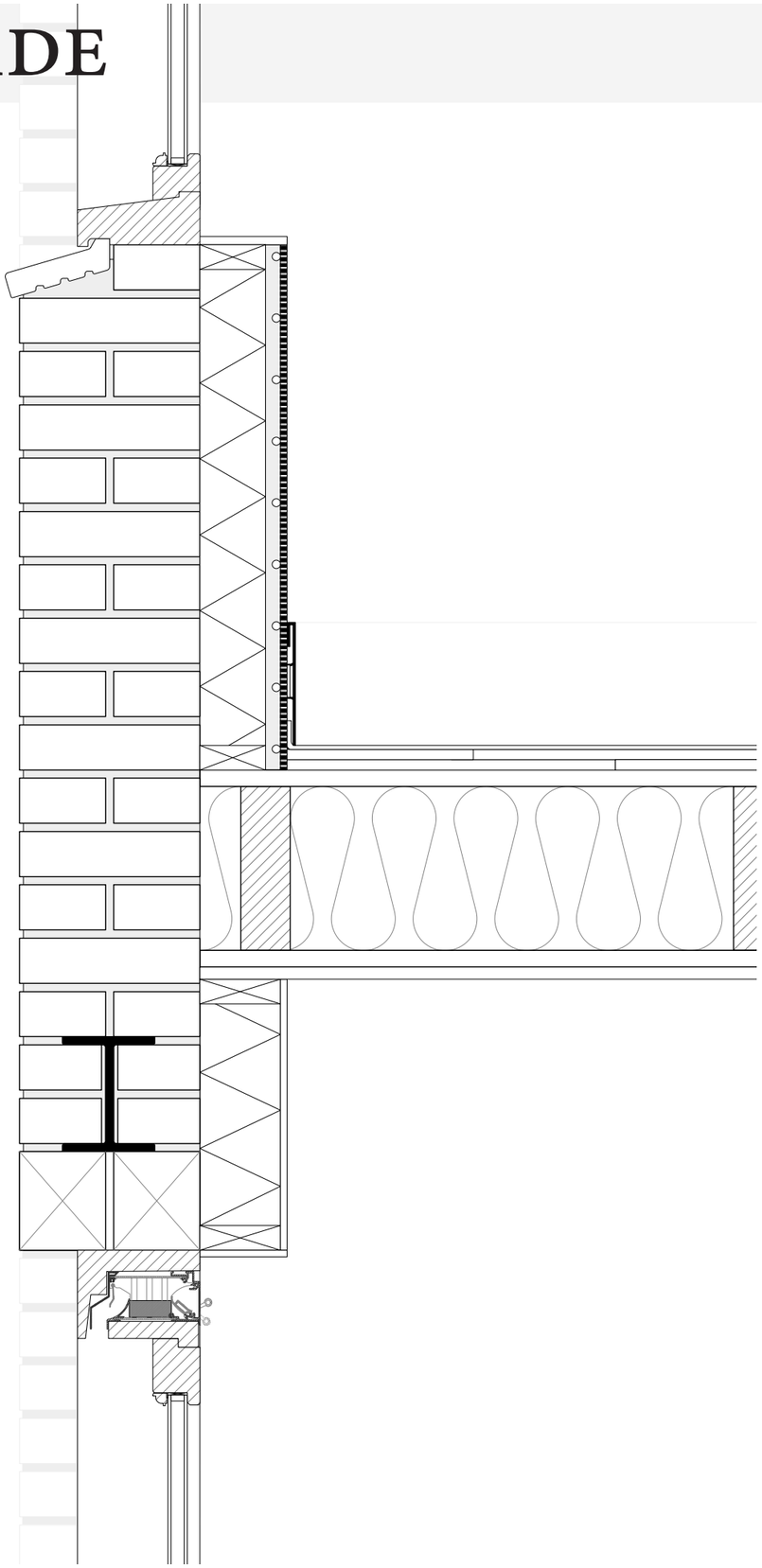
IV. Roof - facade



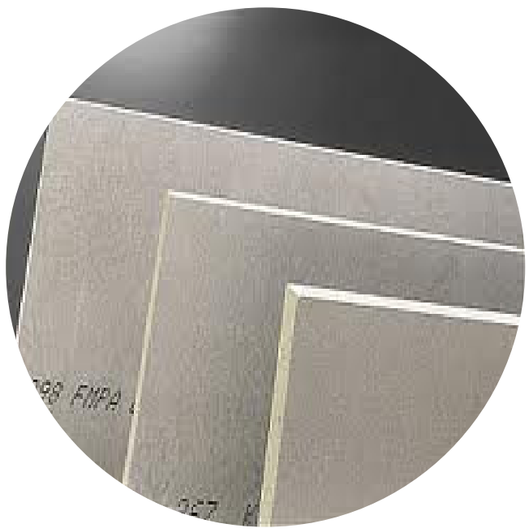
Green roof “Completa”

Insulation “Blauwplaat”

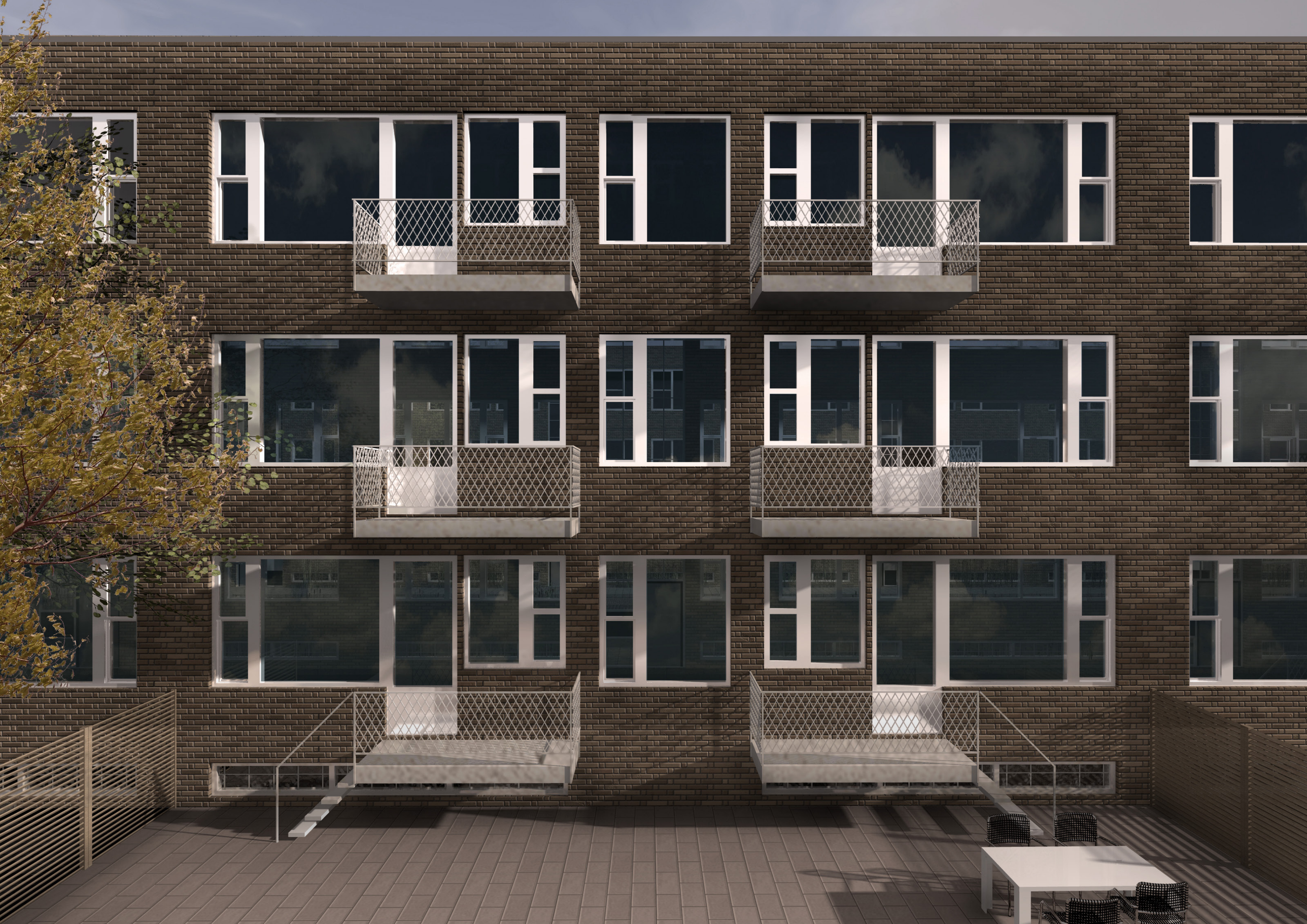
IV. Floor - facade



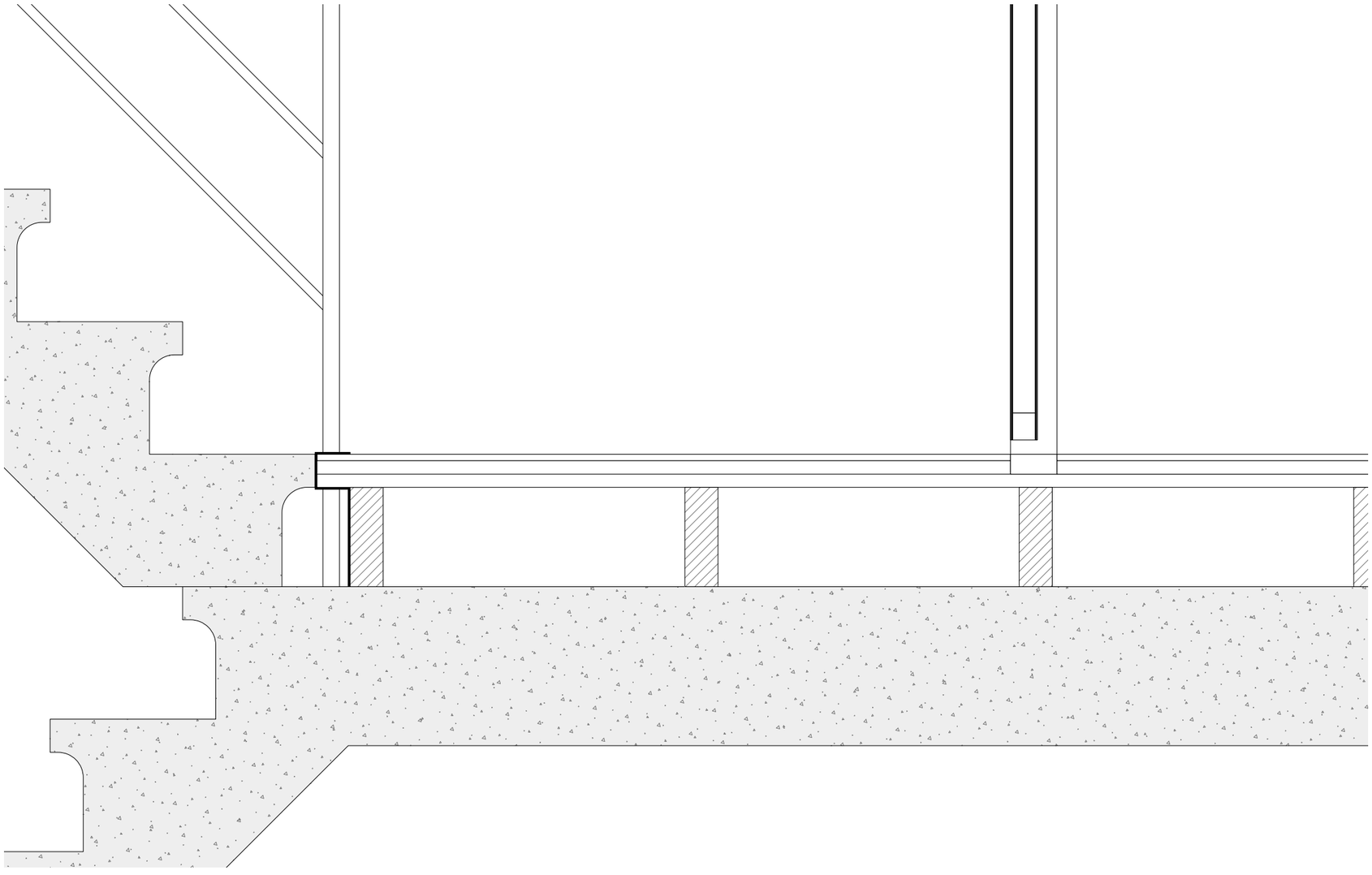
Linoleum flooring



Underlayment

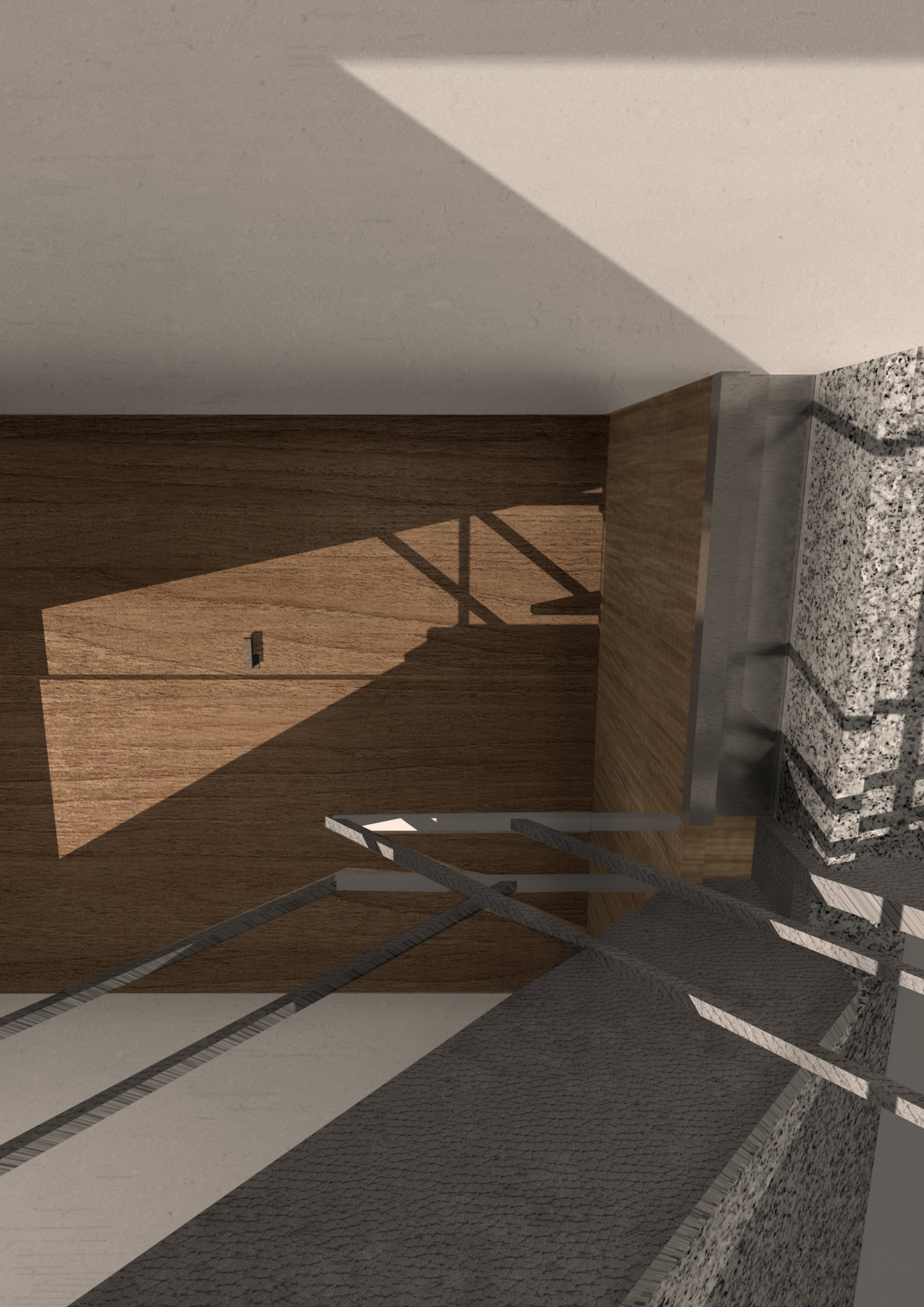


IV. Stairs - door

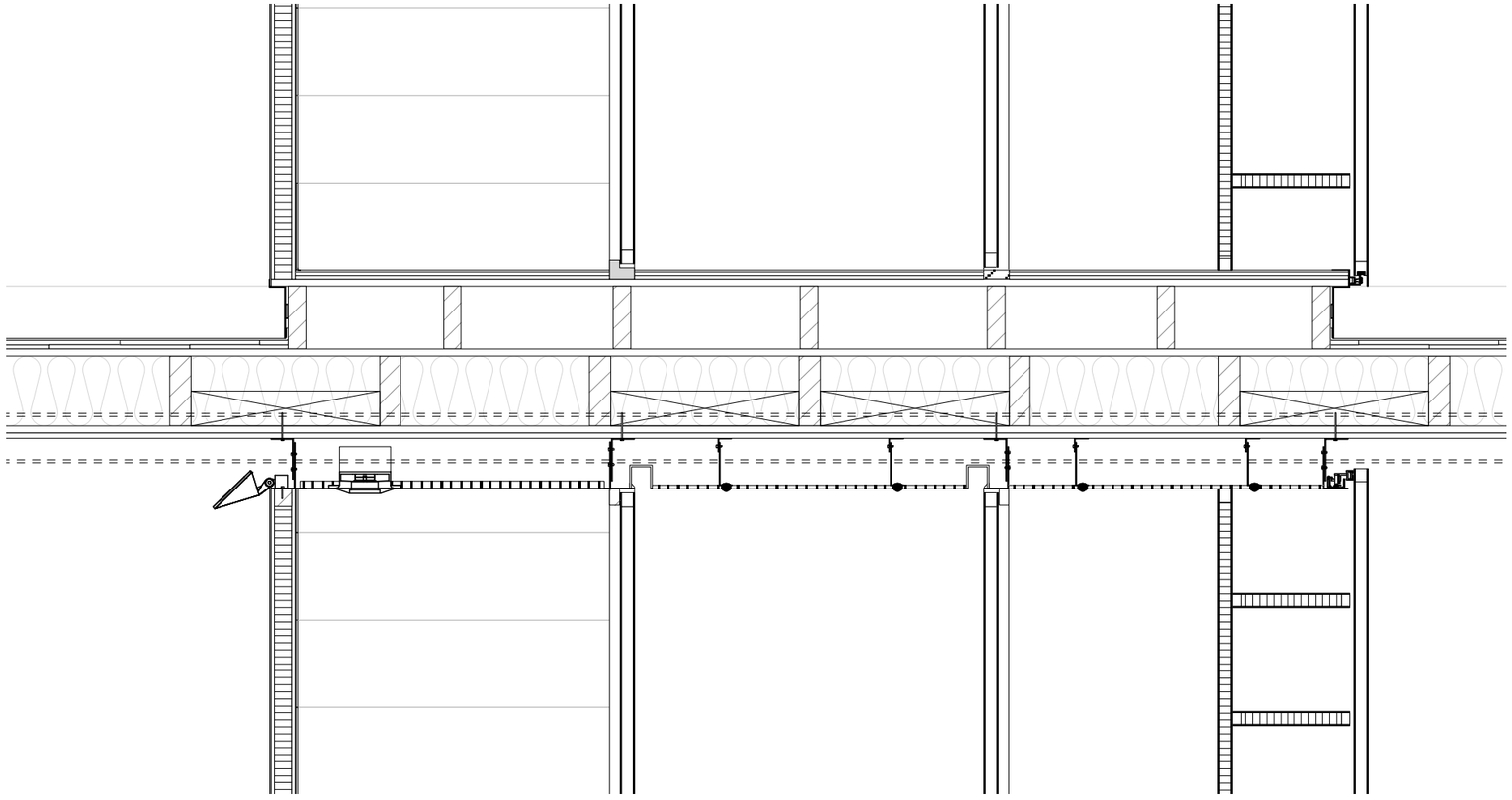


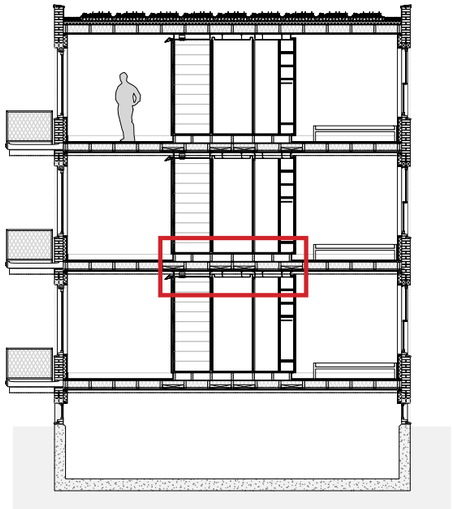
Stair nose

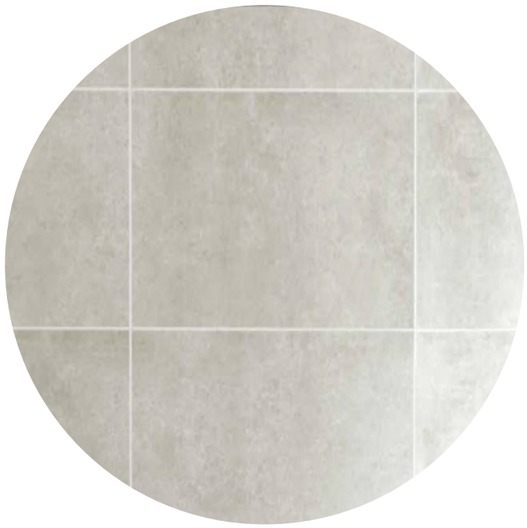
Aluminium plinth



IV. Floor - element







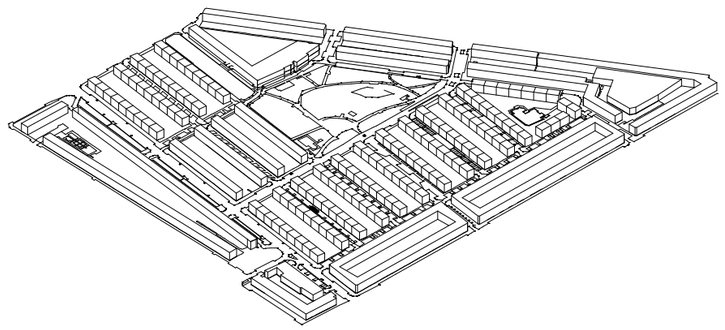
Vinyl wall tiles

LED lighting strip

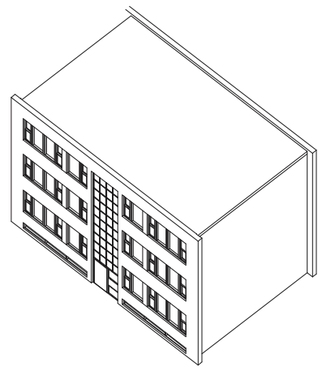
V. reflection:

Research & Design

V. Impact



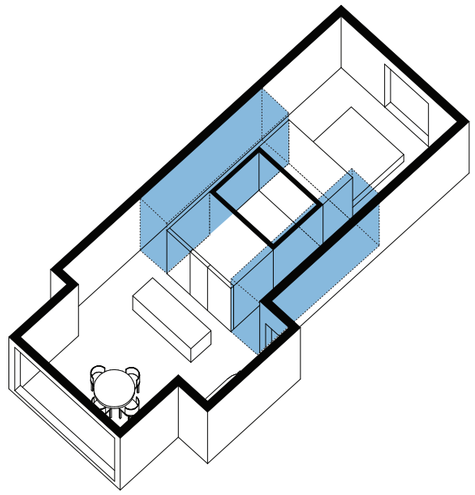
864 dwellings



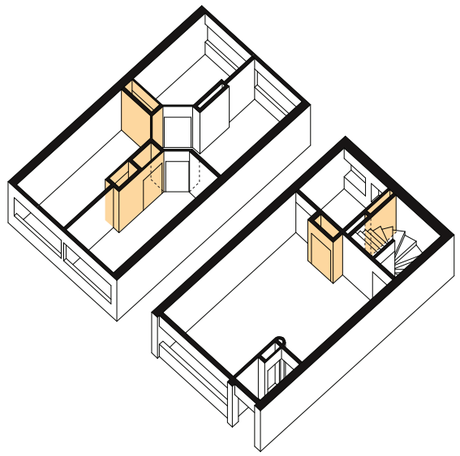
86 dwellings
14 portieken

24 people per portiek
336 migrant workers

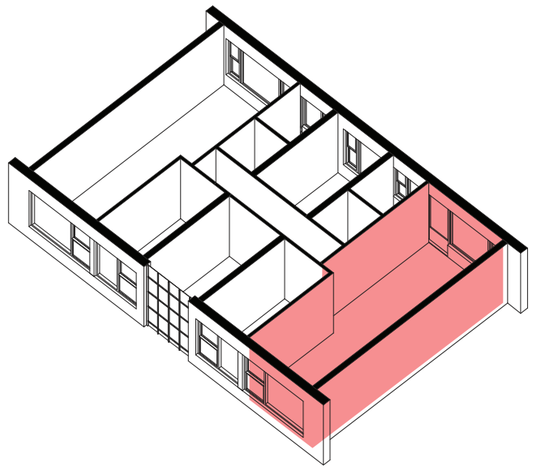
V. Principles



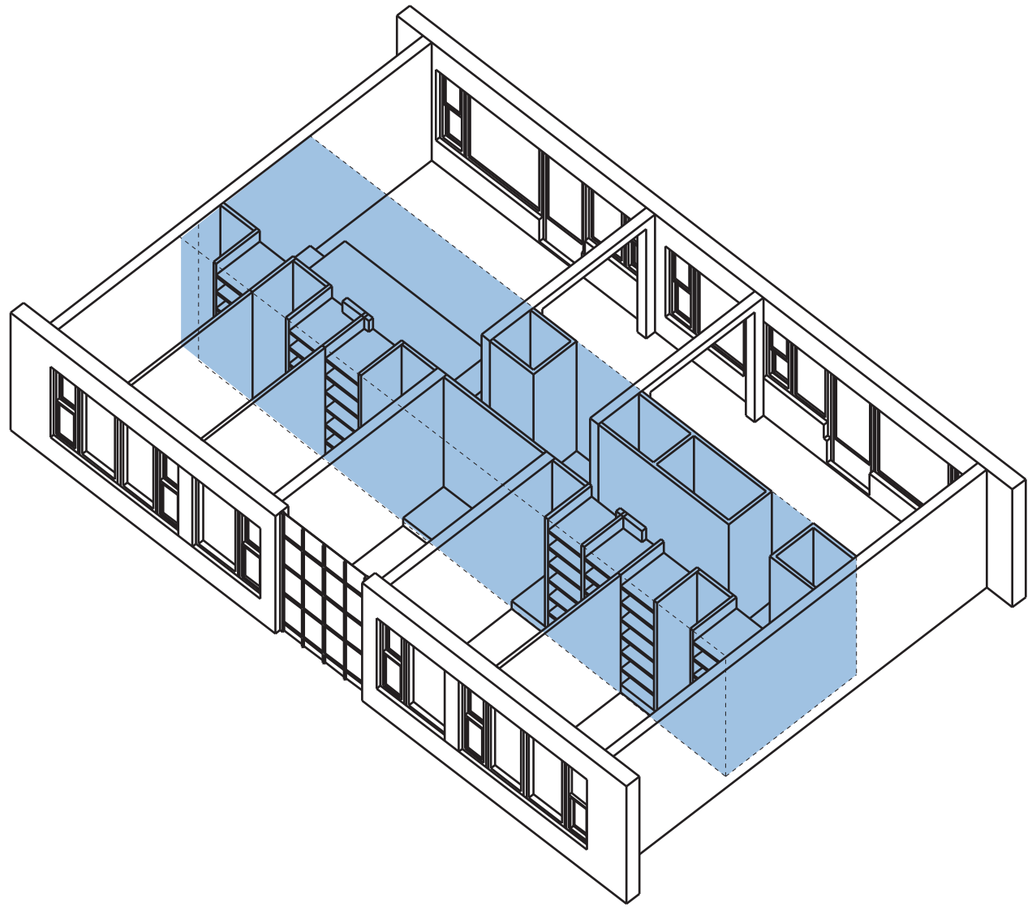
Characteristic Room



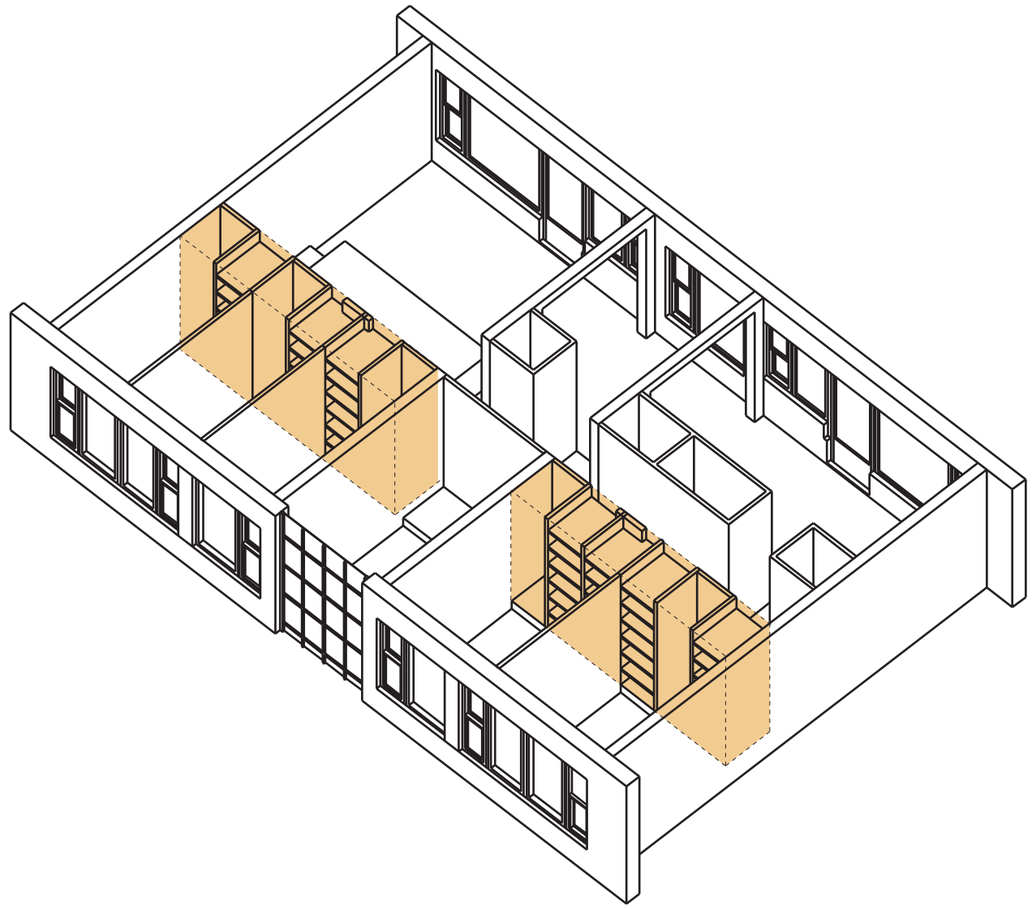
Storage Space



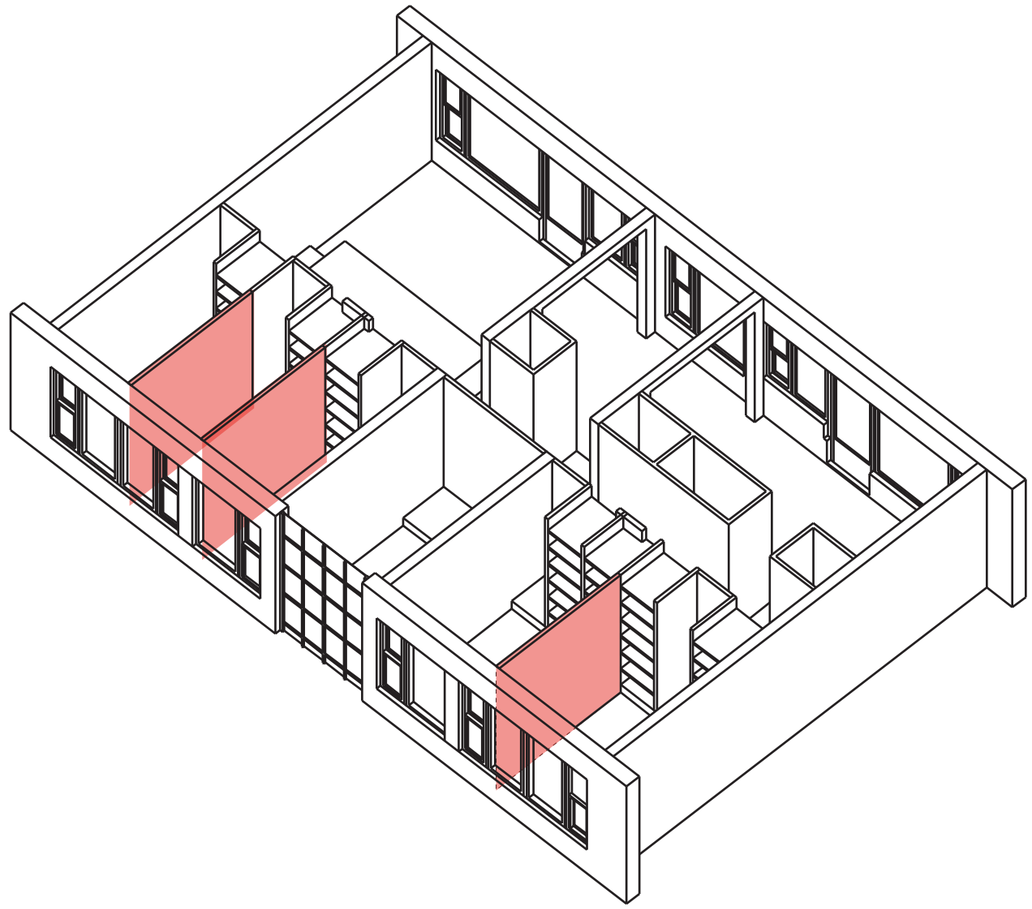
Flexibility



CHARACTERISTIC ROOM



STORAGE



FLEXIBILITY

V. Improvement?

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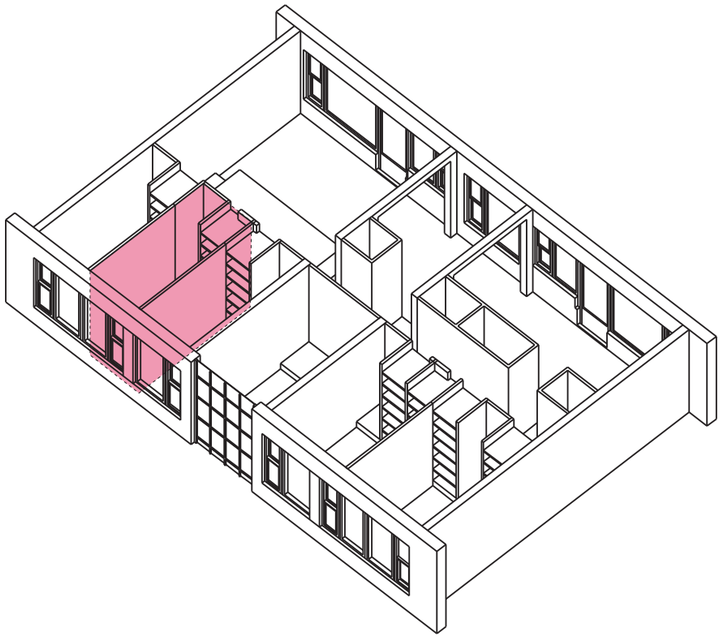
Compared to original situation: same number of people per dwelling.

\+

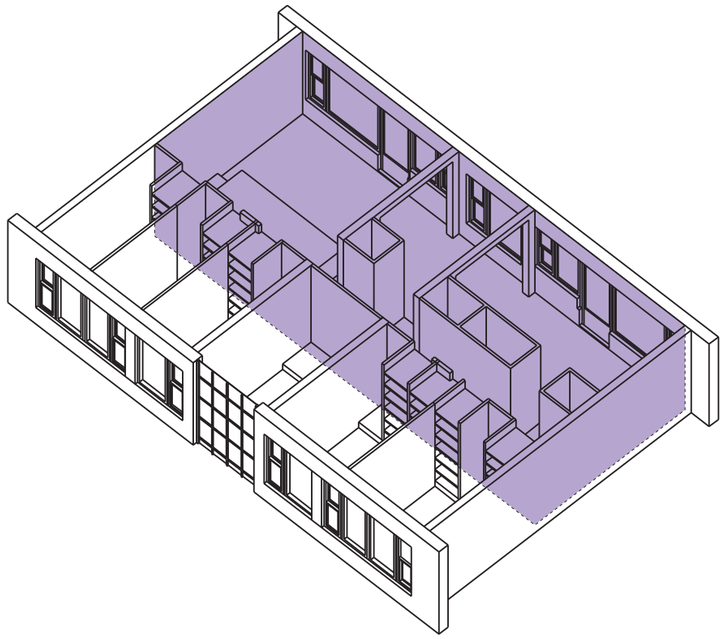
qualitative improvement, especially on technical performances

MORE LIVING SPACE WHEN DWELLINGS ARE COMBINED

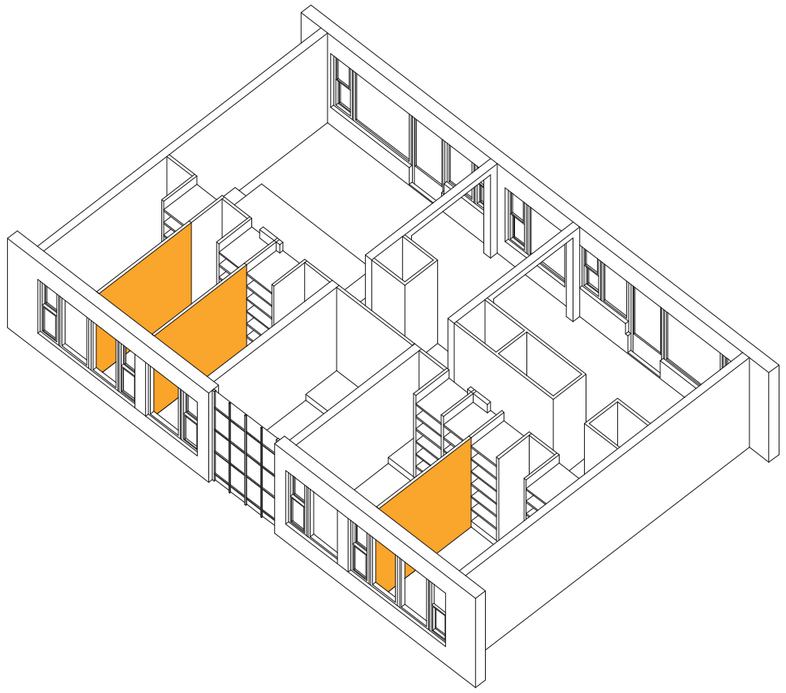
V. Minimum dwelling?



The private space is minimal...



...shared space isn't minimal



THE GREAT MINIMUM