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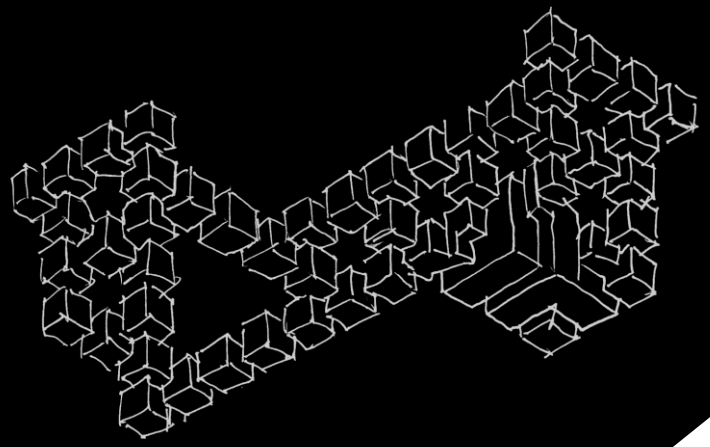


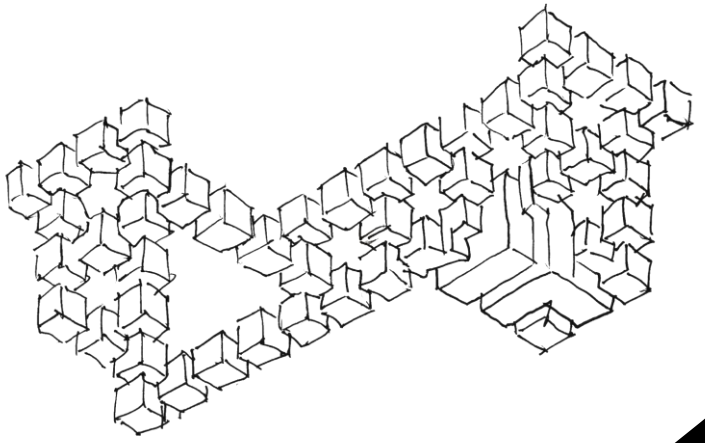
Apron City

Tarik Alboustani / 22 May 2023

TU Delft

Mentors:

Thijs asselbergs | Hans Hoogenboom | Gilbert koskamp



- **Problem Statement**
- **Research Questions & Requirements**
- **Design Automation**
- **Design**

City > **URBAN** > **District** > **Building**

- **Short Movie**

Apron City

Tarik Alboustani / 22 May 2023

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Mentors:

Thijs asselbergs | Hans Hoogenboom | Gilbert koskamp

Problem Statment

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Problem Statement

Michael Wolf skyscraper minus sky, By Michael Wolf

Black Qube, Life in Cities, By Michael Wolf

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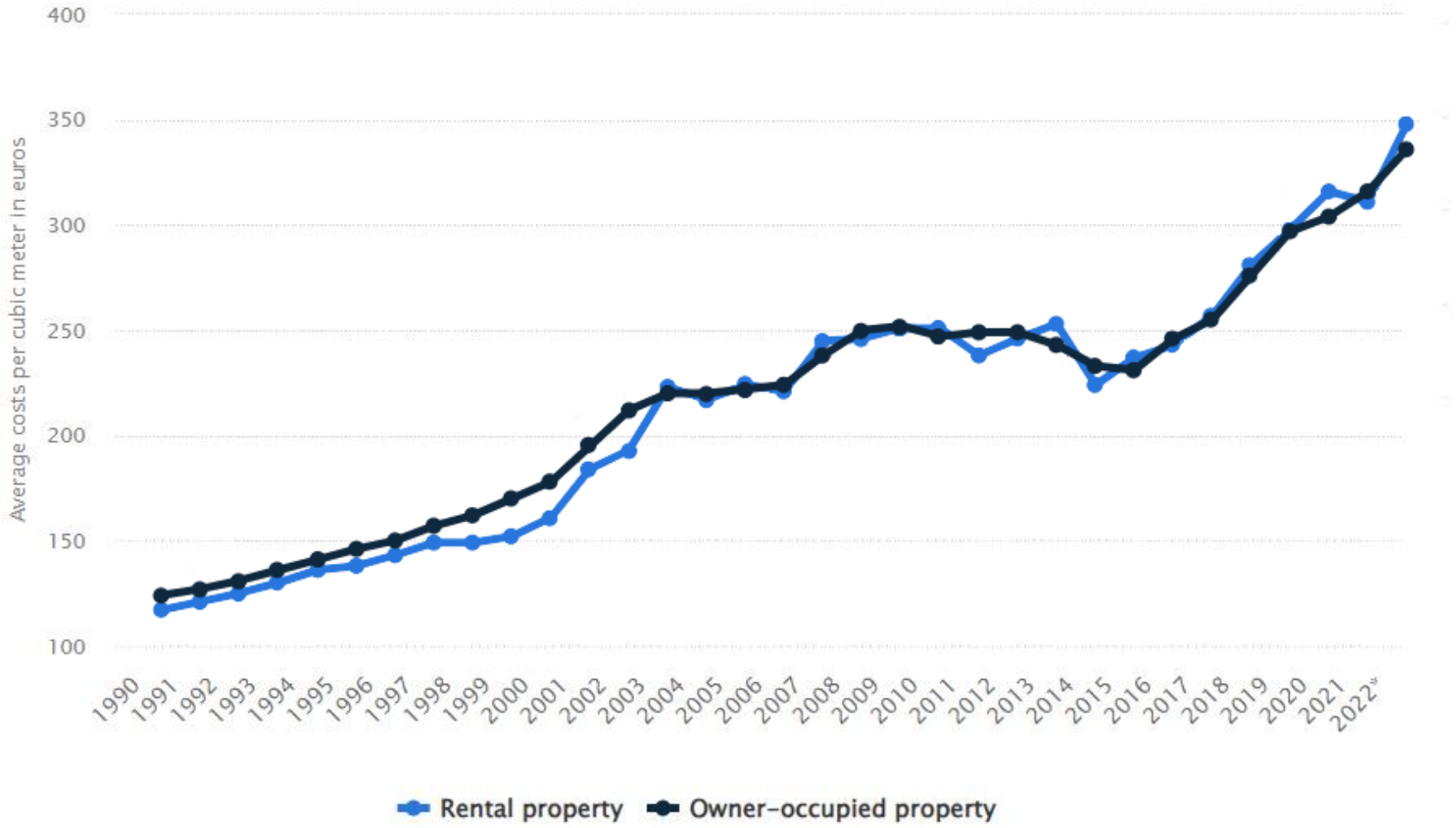
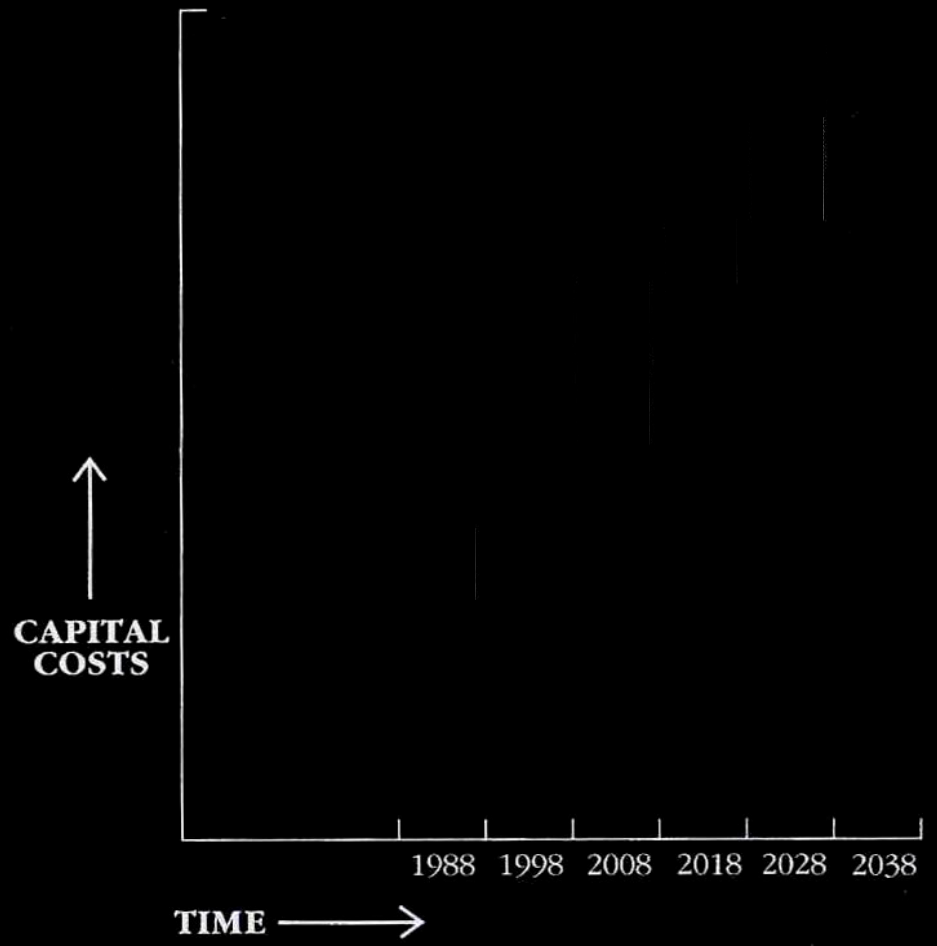
Problem Statement



Problem Statement



How Buildings Learn, Stewart Brand

Research Questions & Requirements

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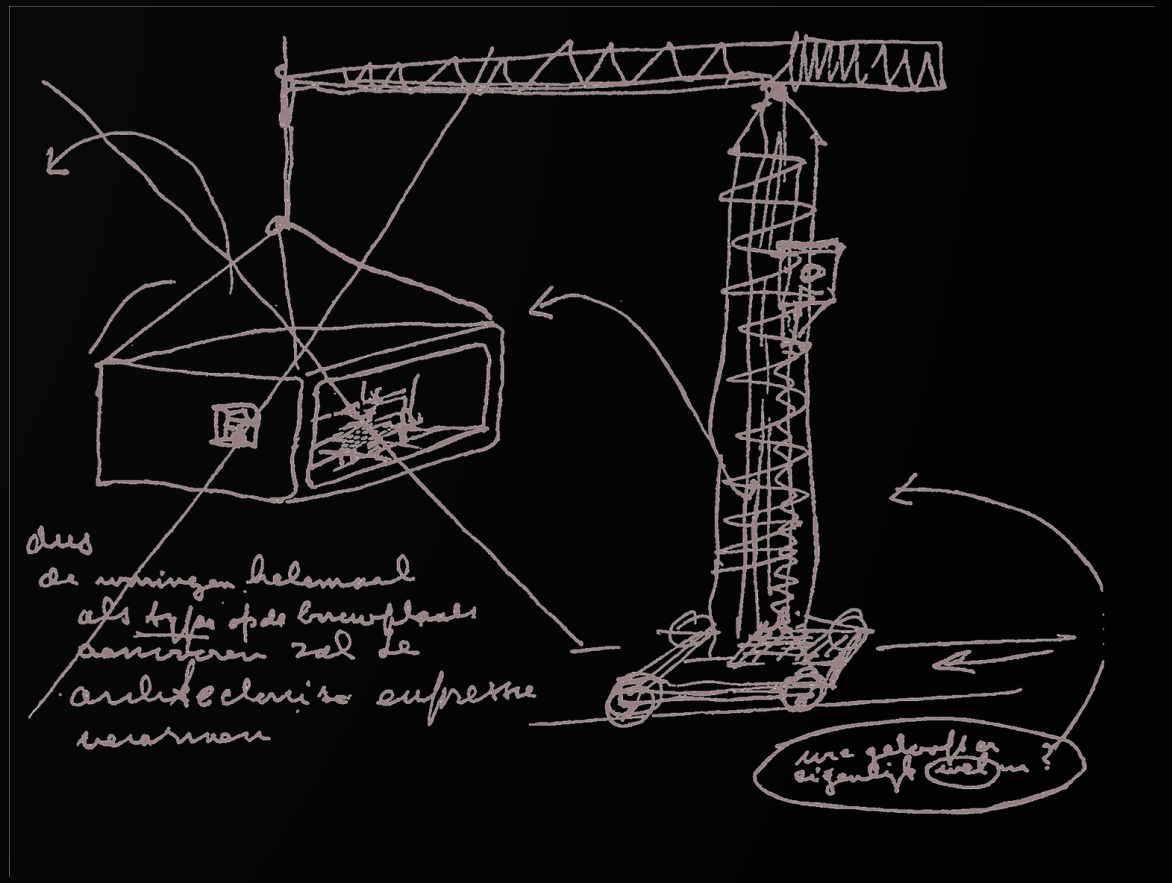
Main question:

How to create **adaptable architecture** (open building) using computational workflow?

Sub-question:

- Best practices in **system design** methodology **for** creating adaptable design configurations?

- How the **Integration** of **design process** and **user needs** with engineering in **system design**?



Wie gelooft er eigenlijk in ?

Who believes in it?

dus de woningen helemaal als type of de bouwplaats aanvoeren zal de architectctonihce euforie verstorenWho actually believes in it?

so supplying the houses completely as type or the construction site will disturb the architectctonihce euphoria

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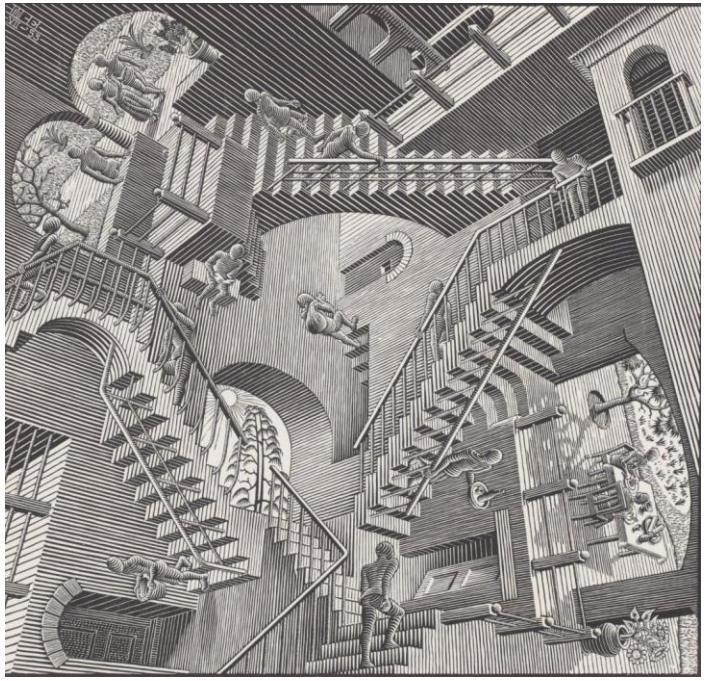
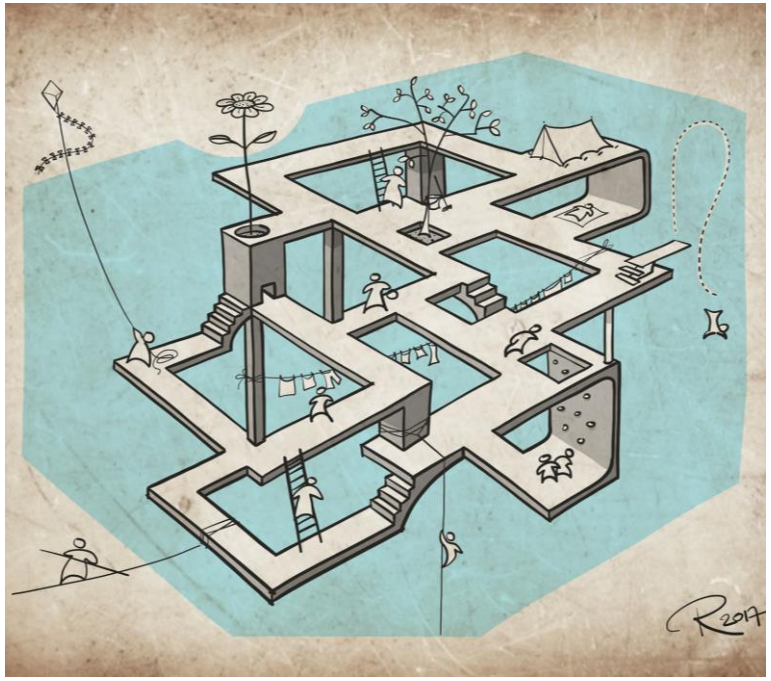
Research



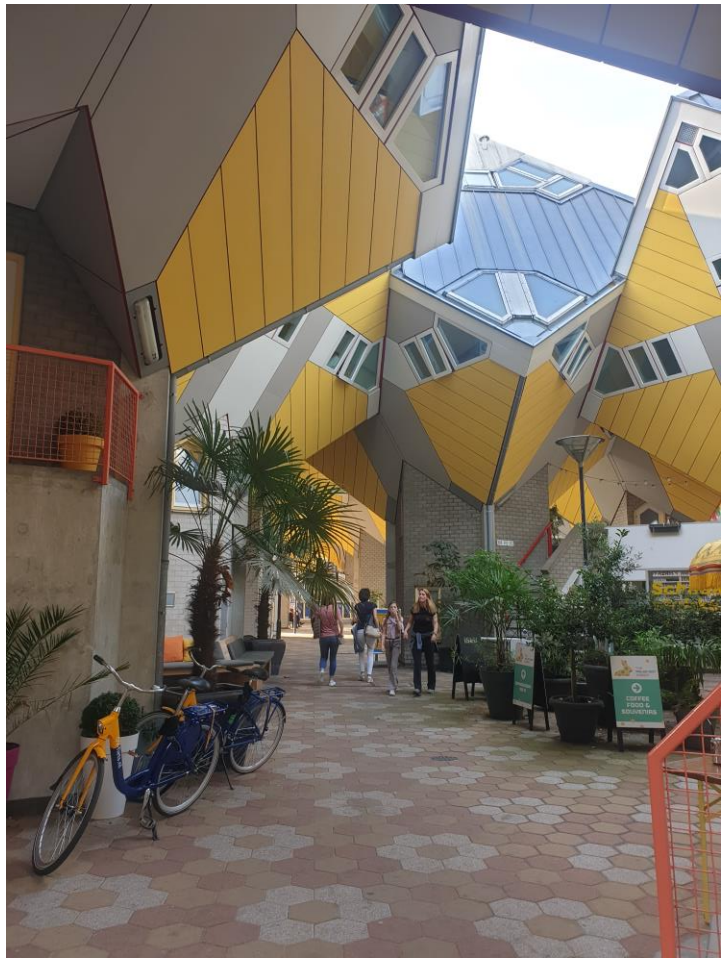
M.C. ESCHER



ROEL VAN DER PAS, EXPLORE LAB TU DELFT

PAUL MERRELL

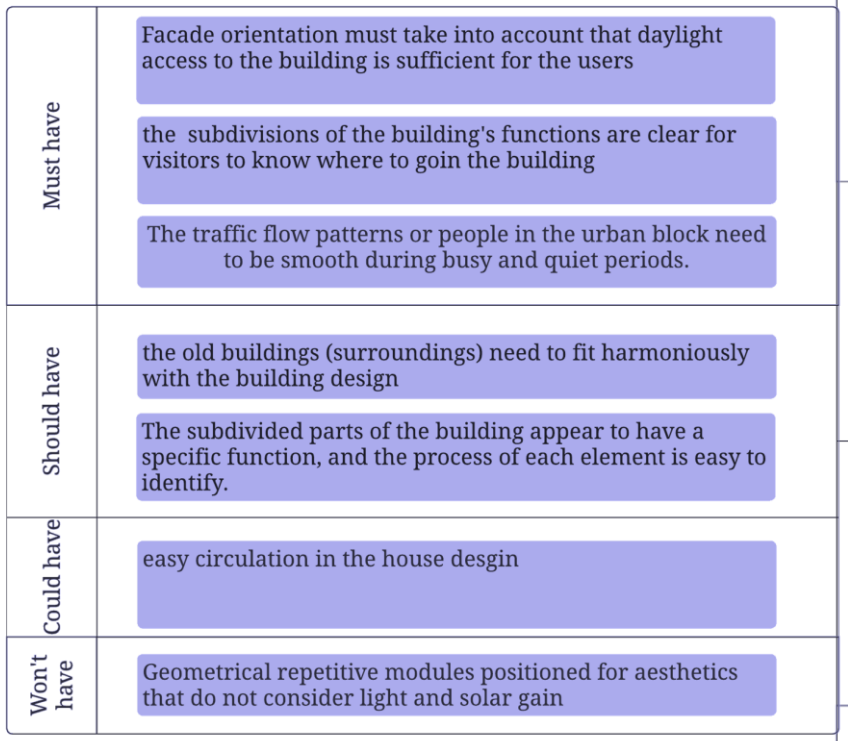
Research (Case Studies)



KUBUS, BY PIET BLOM

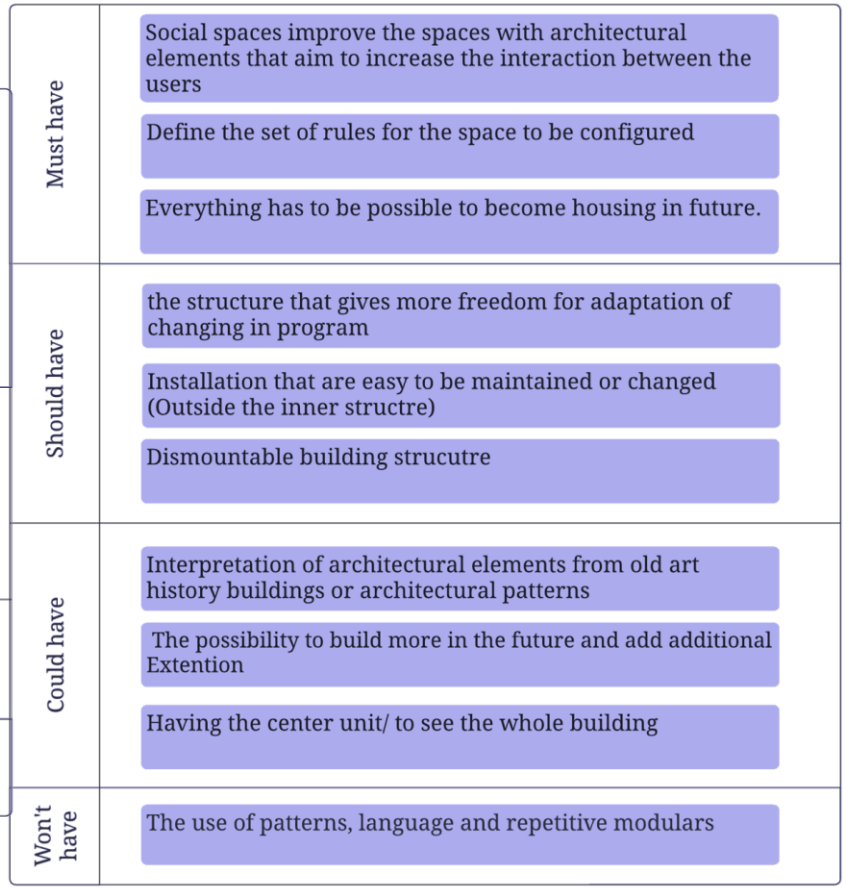
HERMAN HERTZBERGER CENTRAAL BEHEER

Research (Case Studies)



Must have	Facade orientation must take into account that daylight access to the building is sufficient for the users
	the subdivisions of the building's functions are clear for visitors to know where to goin the building
	The traffic flow patterns or people in the urban block need to be smooth during busy and quiet periods.
Should have	the old buildings (surroundings) need to fit harmoniously with the building design
	The subdivided parts of the building appear to have a specific function, and the process of each element is easy to identify.
Could have	easy circulation in the house desgin
Won't have	Geometrical repetitive modules positioned for aesthetics that do not consider light and solar gain

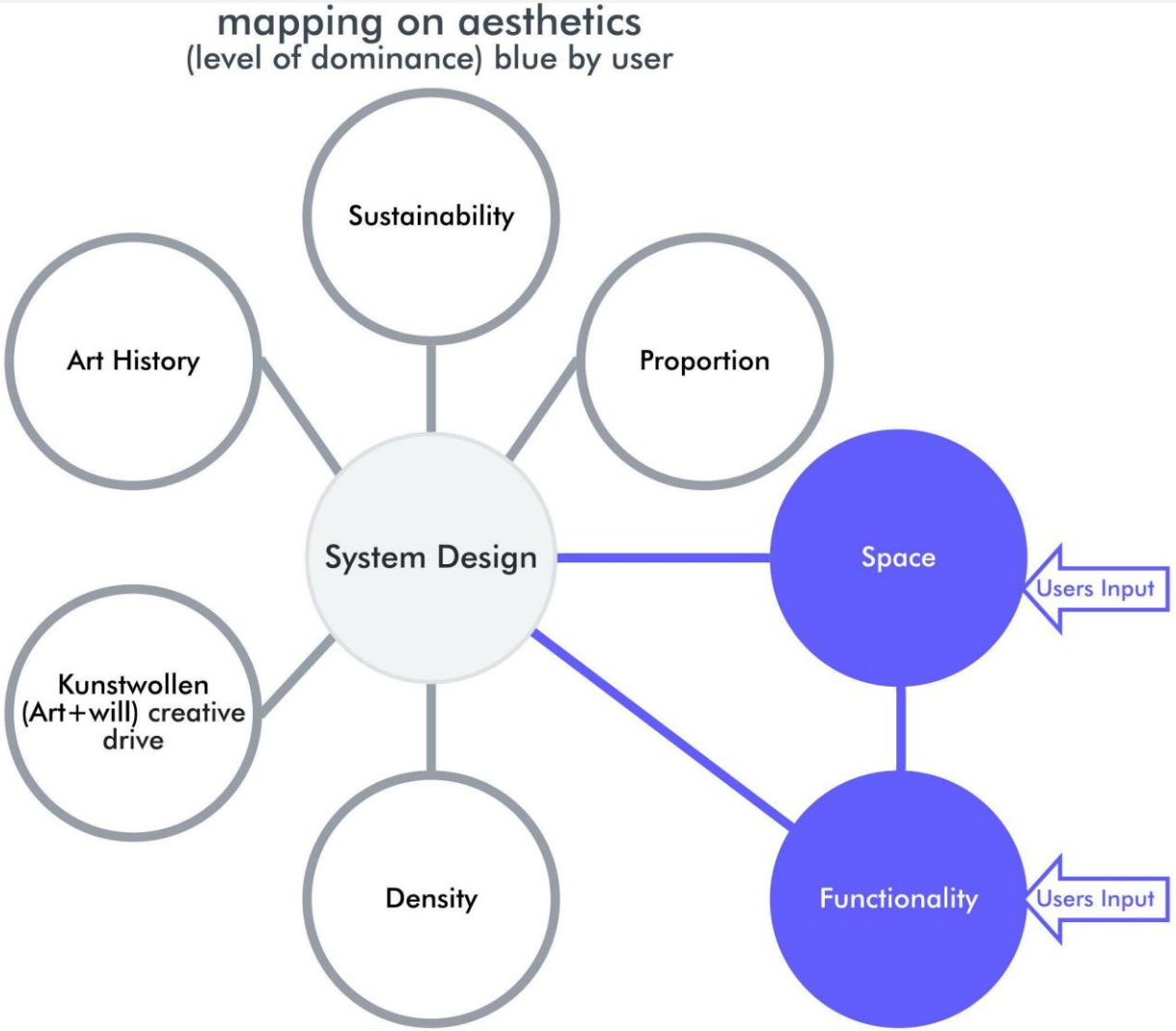
KUBUS, BY PIET BLOM



Must have	Social spaces improve the spaces with architectural elements that aim to increase the interaction between the users
	Define the set of rules for the space to be configured
	Everything has to be possible to become housing in future.
Should have	the structure that gives more freedom for adaptation of changing in program
	Installation that are easy to be maintained or changed (Outside the inner structre)
	Dismountable building strucutre
Could have	Interpretation of architectural elements from old art history buildings or architectural patterns
	The possibility to build more in the future and add additional Extention
	Having the center unit/ to see the whole building
Won't have	The use of patterns, language and repetitive modulars

HERMAN HERTZBERGER CENTRAAL BEHEER

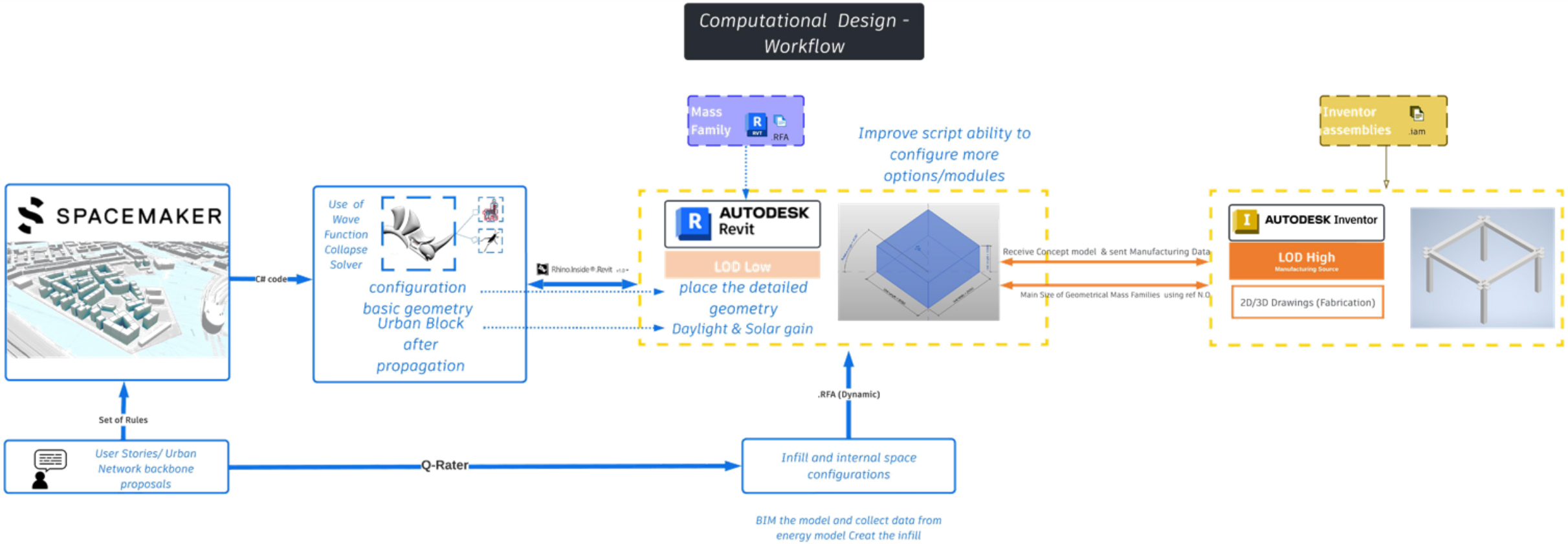
Research


mapping on aesthetics
(level of dominance) blue by user
Sustainability
Art History
Proportion
System Design
Space
Users Input
Kunstwollen
(Art+will) creative
drive
Density
Functionality
Users Input

Design Automation

TU Delft

Design Automation



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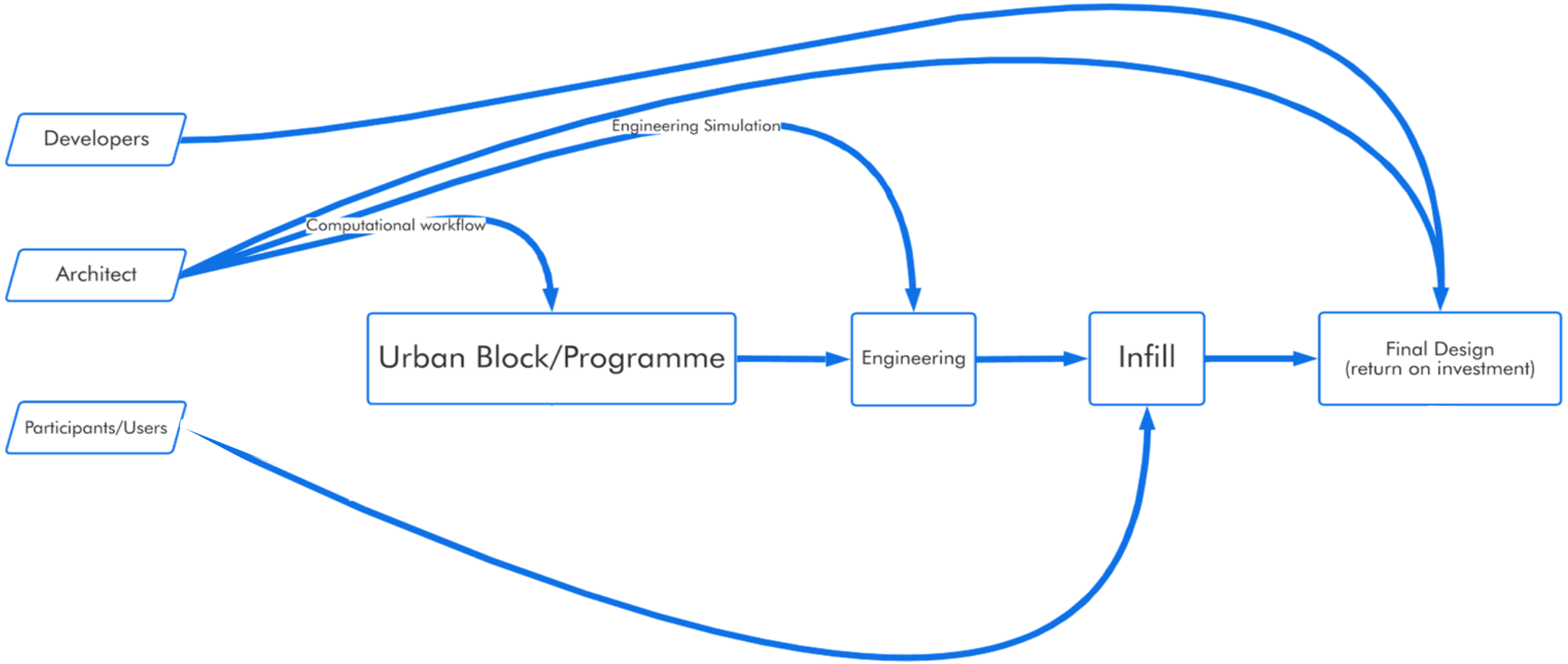
Design Automation



Design Levels
CITY > URBAN > District > Building

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Area

Site area	127,735 m²	127,735 m²	127,735 m²	127,735 m²
	127,735 m²	+0 m²	+0 m²	+0 m²
> BVO	193,583 m²	202,892 m²	185,123 m²	186,090 m²
	193,583 m²	+9,309 m²	-8,460 m²	-7,493 m²
> GO	174,224 m²	181,749 m²	165,757 m²	166,627 m²
	174,224 m²	+7,525 m²	-8,467 m²	-7,597 m²

Buildings

Facades	83,814 m²	114,571 m²	112,508 m²	95,051 m²
	83,814 m²	+30,757 m²	+28,694 m²	+11,237 m²

Outdoor area

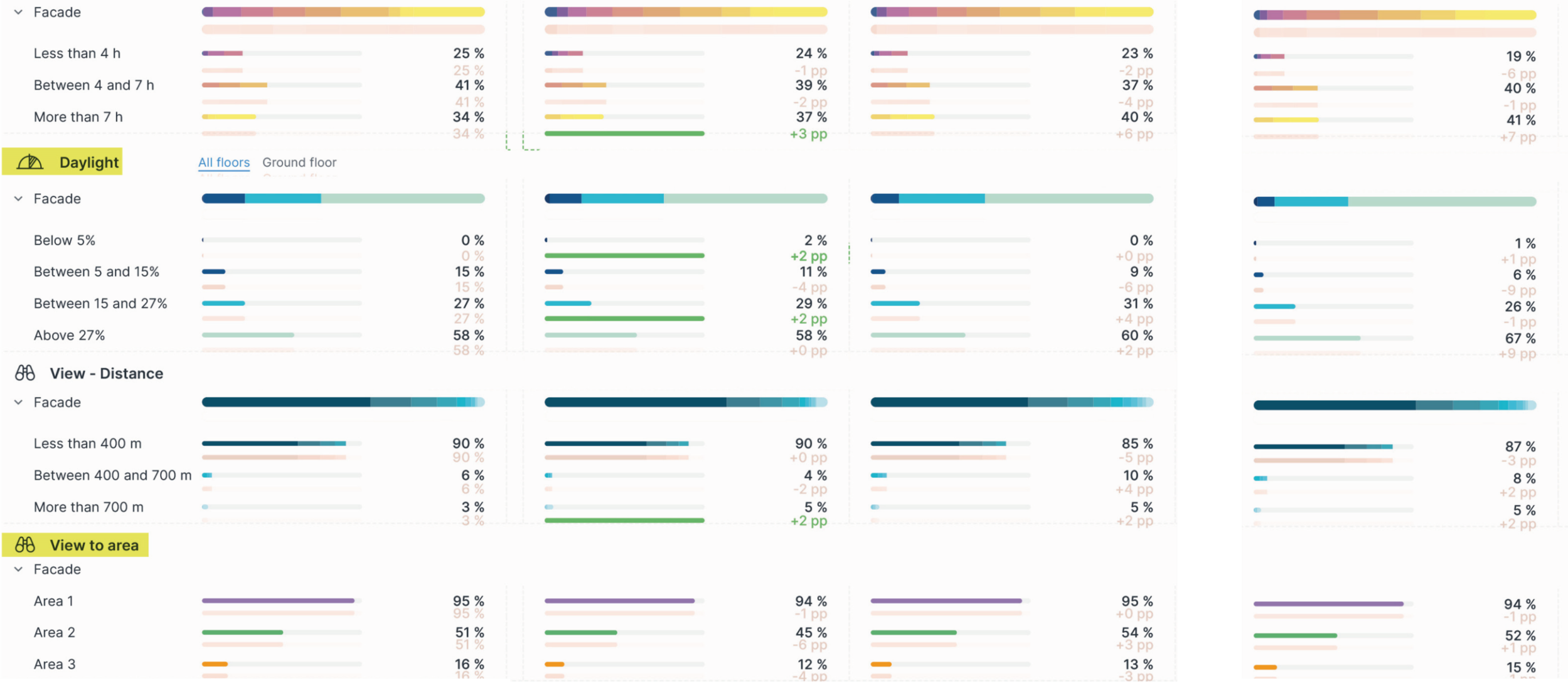
Ground | Roof | All | June 21 | 00:00 – 24:00 | 0 | Filters

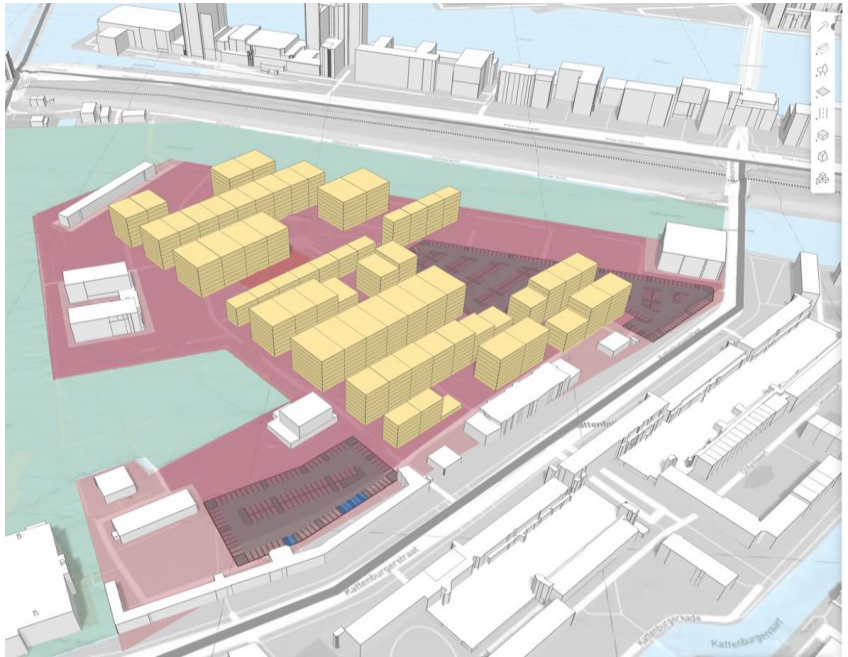
Outdoor area

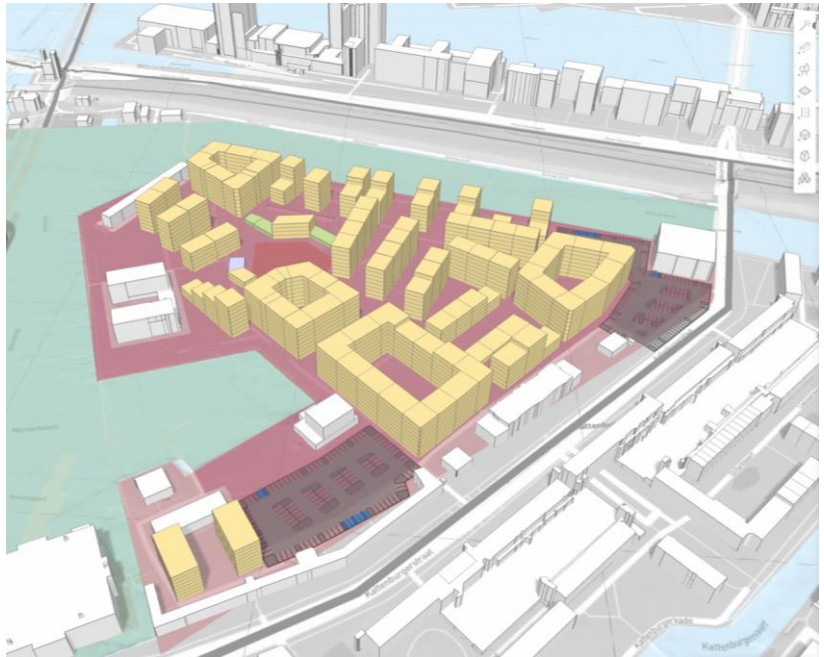
Achieved	94,808 m²	89,335 m²	91,320 m²	91,427 m²
	94,808 m²	-5,473 m²	-3,488 m²	-3,381 m²

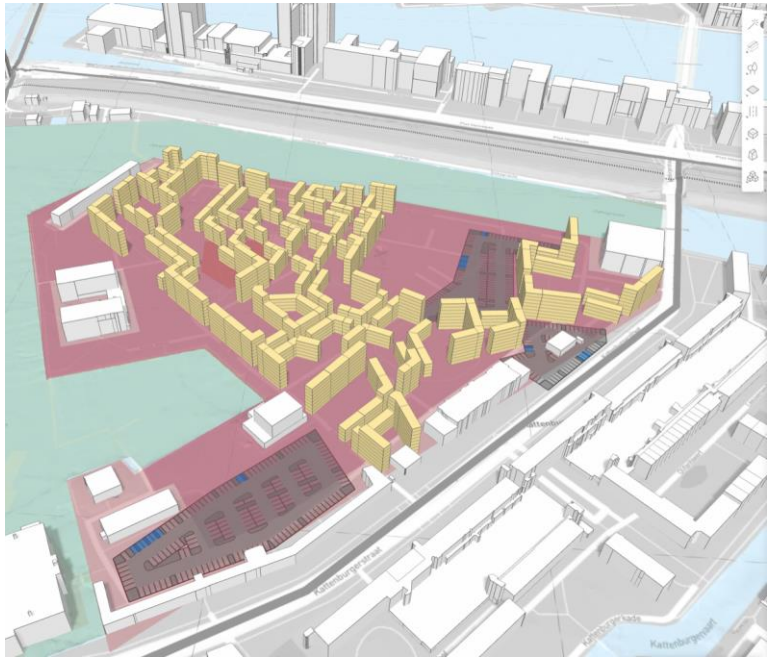
December 21

Facade				
Less than 4 h	78 %	79 %	78 %	76 %
	78 %	+1 pp	+0 pp	-2 pp
Between 4 and 7 h	16 %	15 %	19 %	20 %
	16 %	-1 pp	+3 pp	+4 pp
More than 7 h	6 %	5 %	3 %	4 %


Facade
Less than 4 h
25 %
25 %
24 %
-1 pp
23 %
-2 pp
19 %
-6 pp
Between 4 and 7 h
41 %
41 %
39 %
-2 pp
37 %
-4 pp
40 %
-1 pp
More than 7 h
34 %
34 %
37 %
+3 pp
40 %
+6 pp
41 %
+7 pp
Daylight
All floors
Ground floor
Facade
Below 5%
0 %
0 %
2 %
+2 pp
0 %
+0 pp
1 %
+1 pp
Between 5 and 15%
15 %
15 %
11 %
-4 pp
9 %
-6 pp
6 %
-9 pp
Between 15 and 27%
27 %
27 %
29 %
+2 pp
31 %
+4 pp
26 %
-1 pp
Above 27%
58 %
58 %
58 %
+0 pp
60 %
+2 pp
67 %
+9 pp
View - Distance
Facade
Less than 400 m
90 %
90 %
90 %
+0 pp
85 %
-5 pp
87 %
-3 pp
Between 400 and 700 m
6 %
6 %
4 %
-2 pp
10 %
+4 pp
8 %
+2 pp
More than 700 m
3 %
3 %
5 %
+2 pp
5 %
+2 pp
5 %
+2 pp
View to area
Facade
Area 1
95 %
95 %
94 %
-1 pp
95 %
+0 pp
94 %
-1 pp
Area 2
51 %
51 %
45 %
-6 pp
54 %
+3 pp
52 %
+1 pp
Area 3
16 %
12 %
13 %
15 %







“Van Stoel tot Stad” Short Movie

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renders_003 (1).pdf

Thank you

Tarik Alboustani

Extras

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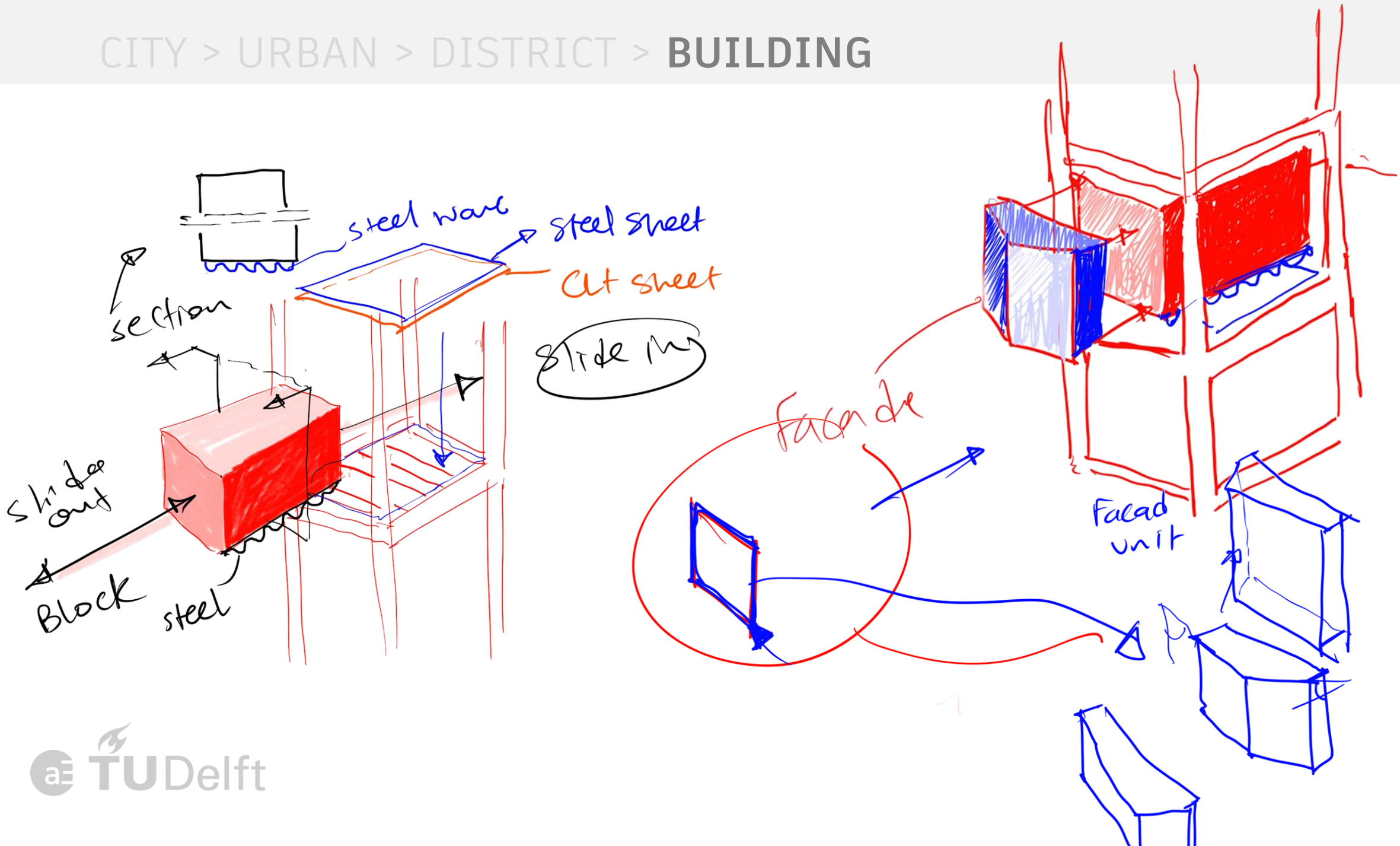
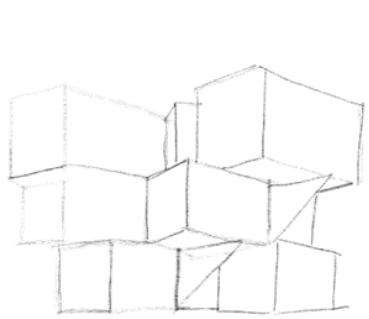
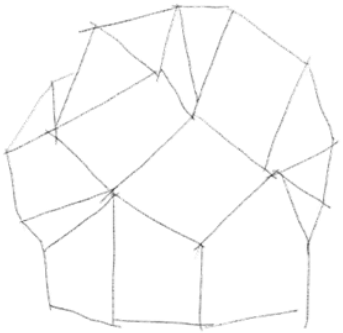
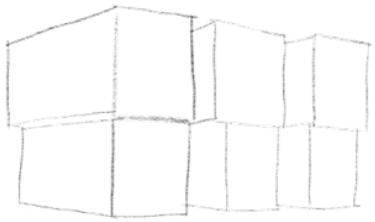
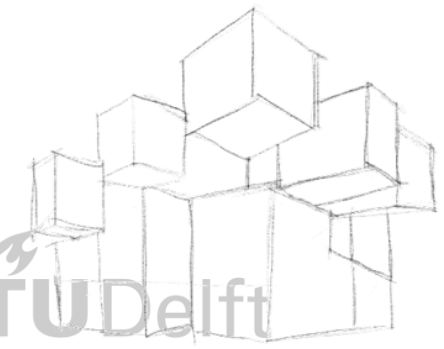
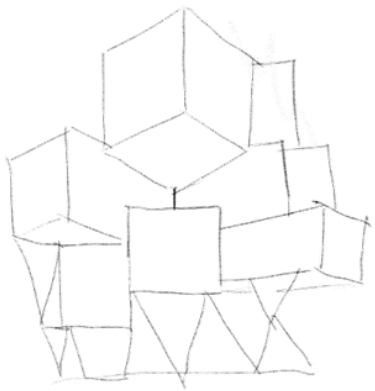

steel wave
steel sheet
CLT sheet
section
Sliding
slide out
Block
steel
Facade
Facad unit

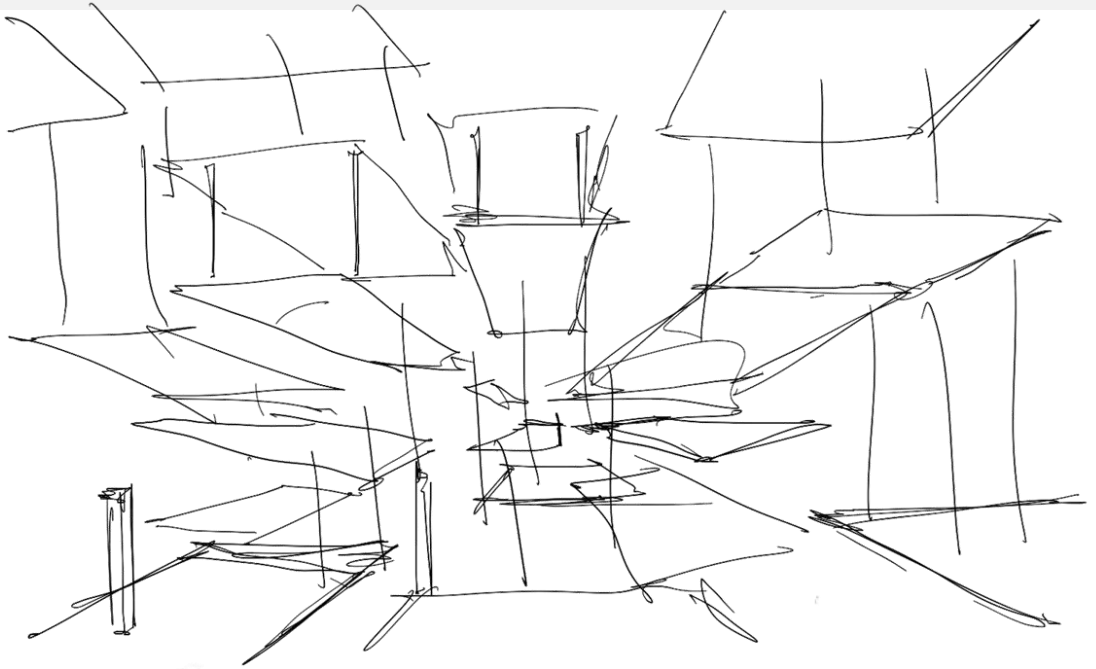


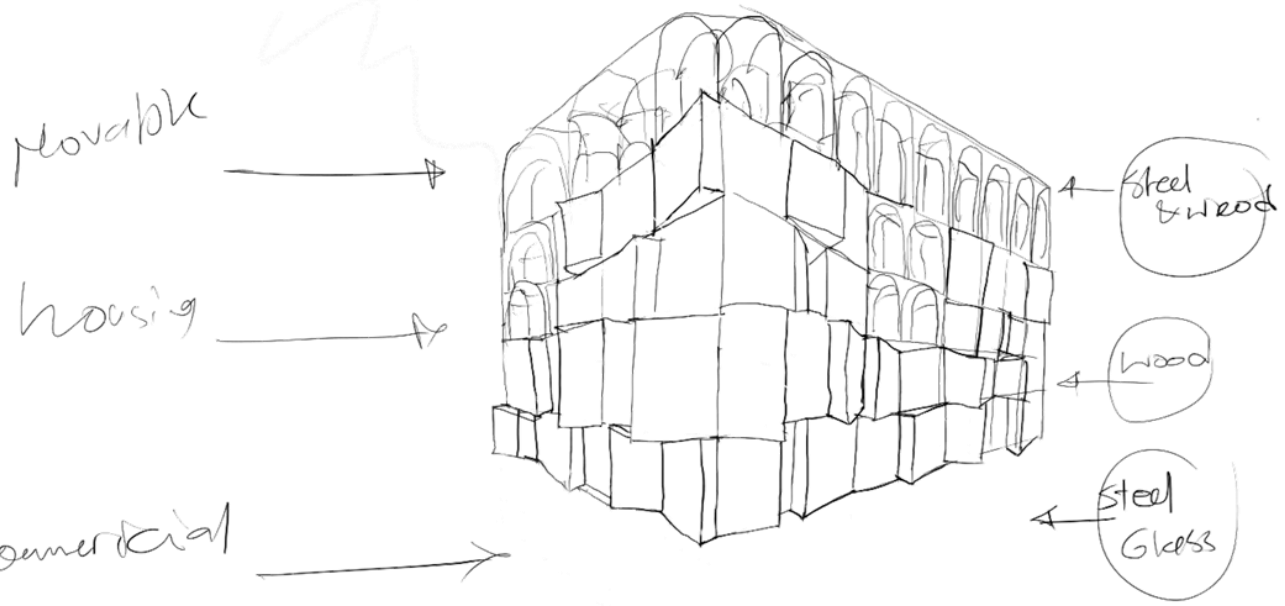











Movable
housing
Commercial
steel & wood
wood
steel
Glass

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BUILDING A - FIRST FLOOR
SCALE 1:200

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BUILDING A - FIRST FLOOR
SCALE 1:200

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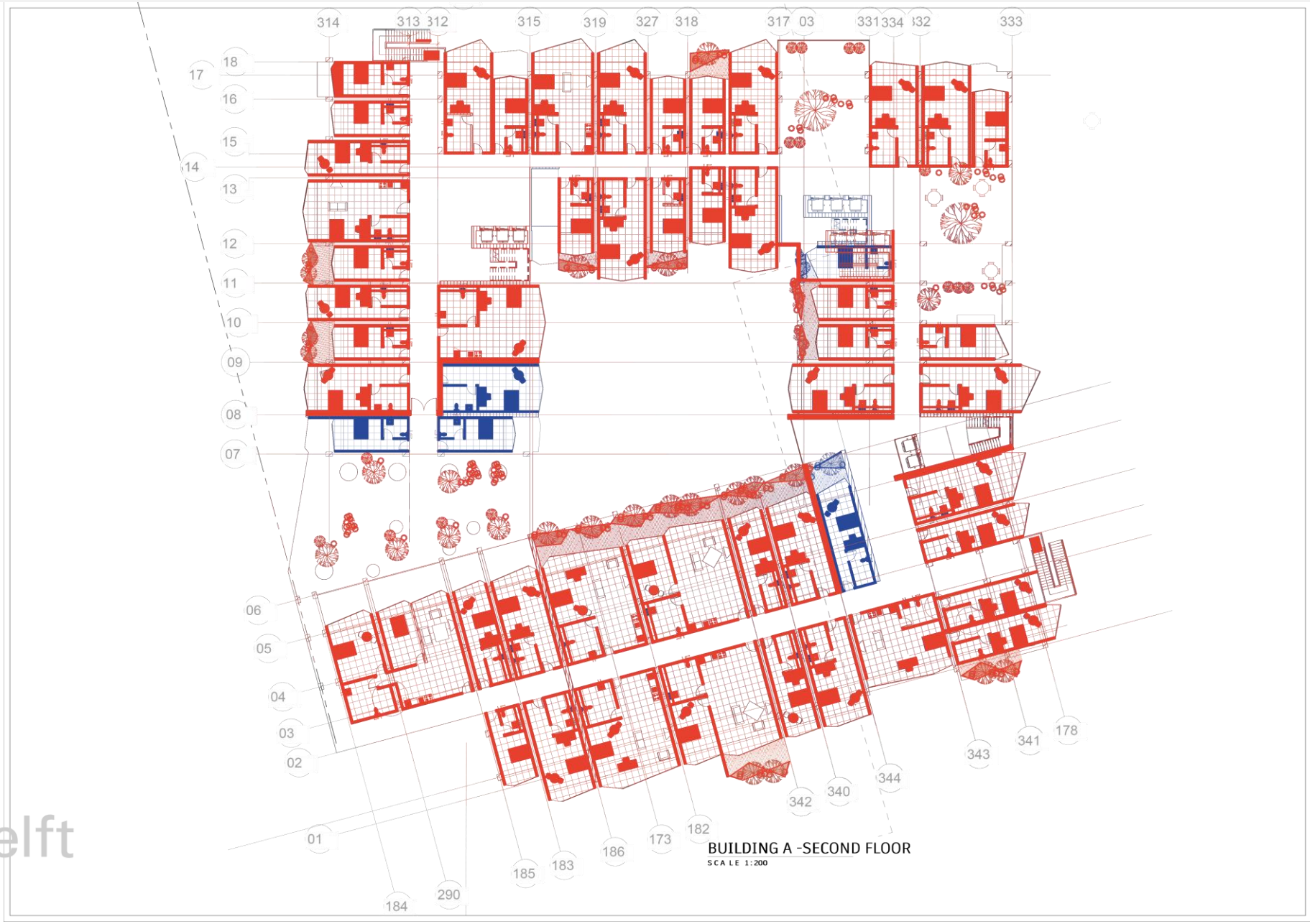
BUILDING A -SECOND FLOOR
SCALE 1:200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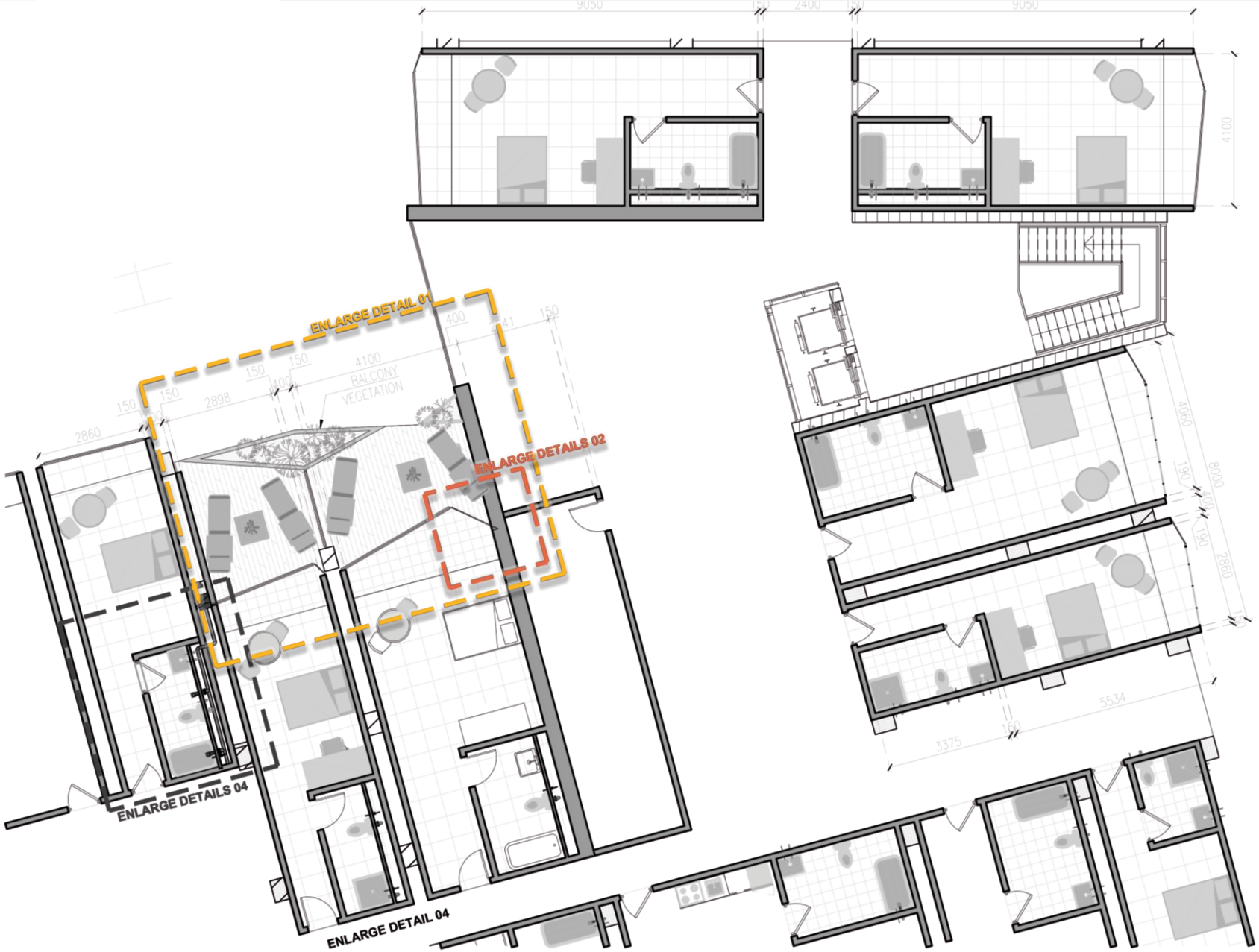
BUILDING A -SECOND FLOOR
SCALE 1:200

CITY > URBAN > DISTRICT > **BUILDING (Façade)**



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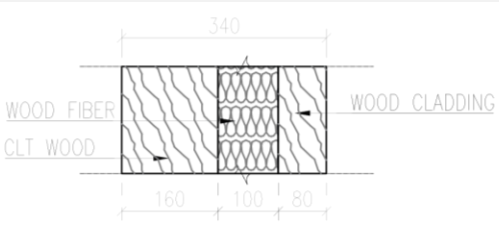
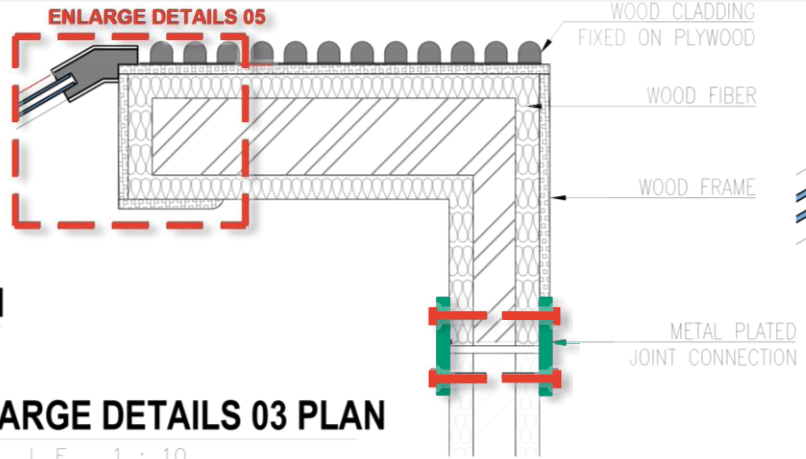


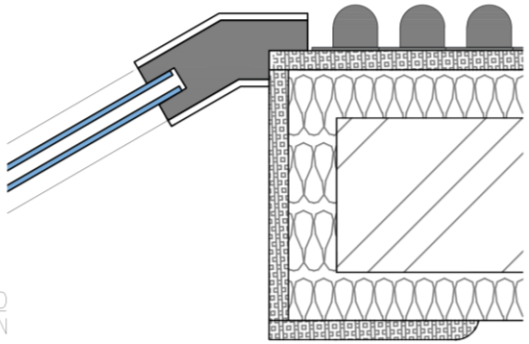
ENLARGE DETAILS 03 SECTION

SCALE 1 : 10



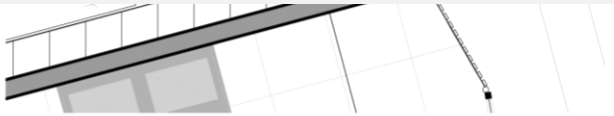
ENLARGE DETAILS 03 PLAN

SCALE 1 : 10



ENLARGE DETAILS 05

SCALE 1 : 5

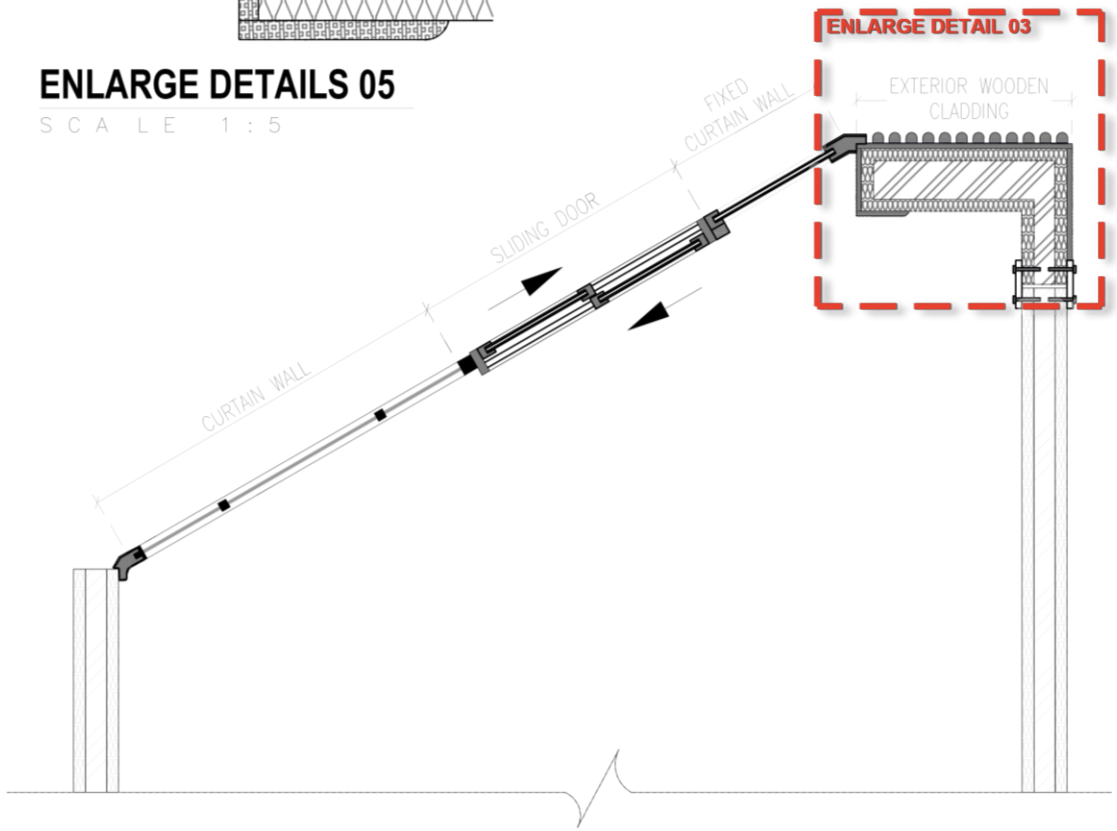


STAIRCASE DETAILS

SCALE 1 : 50

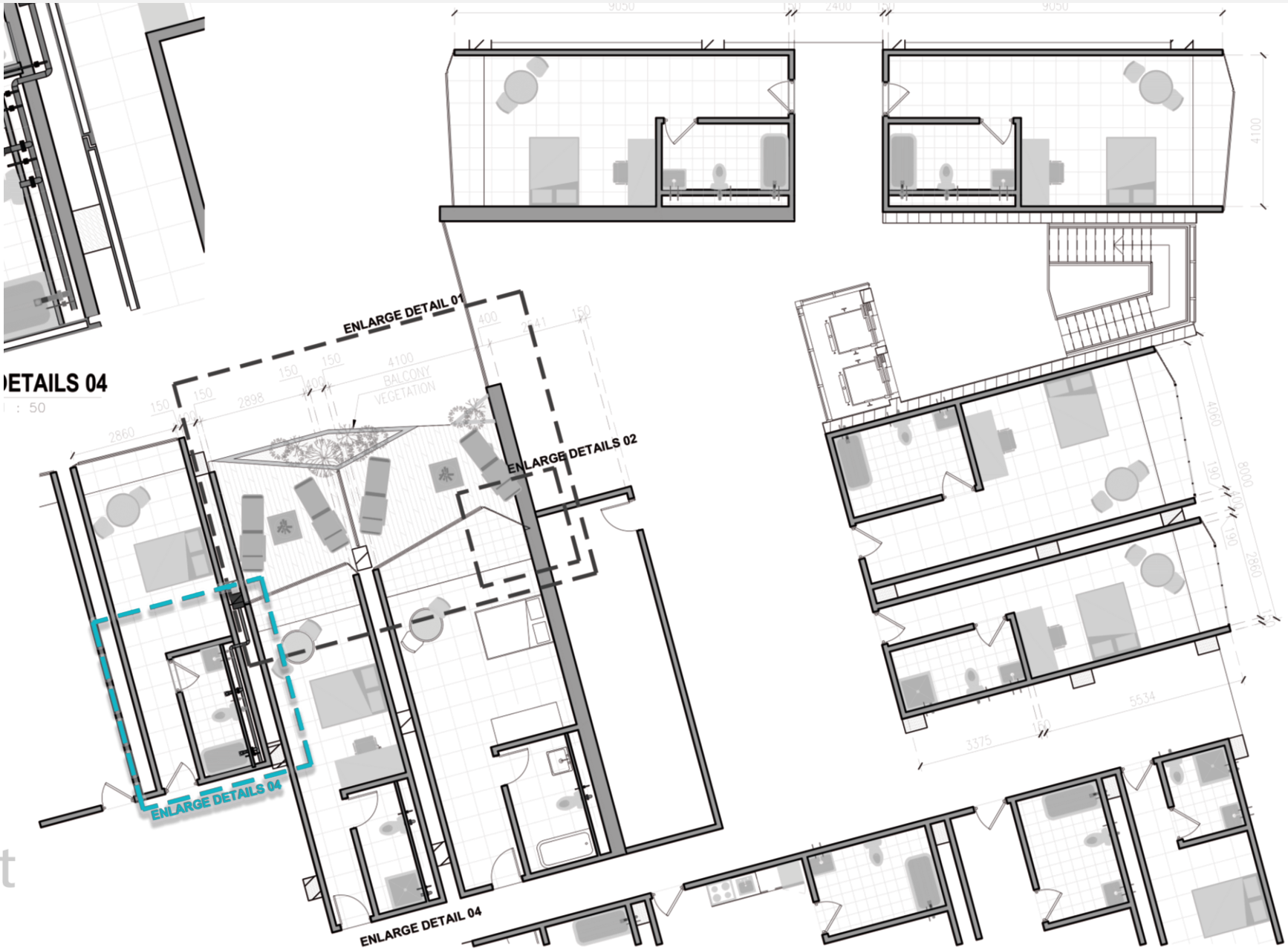
ENLARGE DETAILS 01

SCALE 1 : 50



ENLARGE DETAILS 02

SCALE 1 : 20


ETAILS 04
: 50
ENLARGE DETAIL 01
ENLARGE DETAILS 02
ENLARGE DETAILS 04
ENLARGE DETAIL 04
BALCONY
VEGETATION
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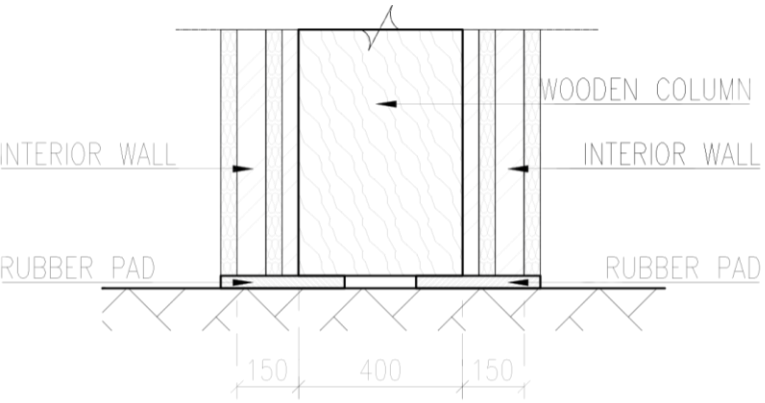
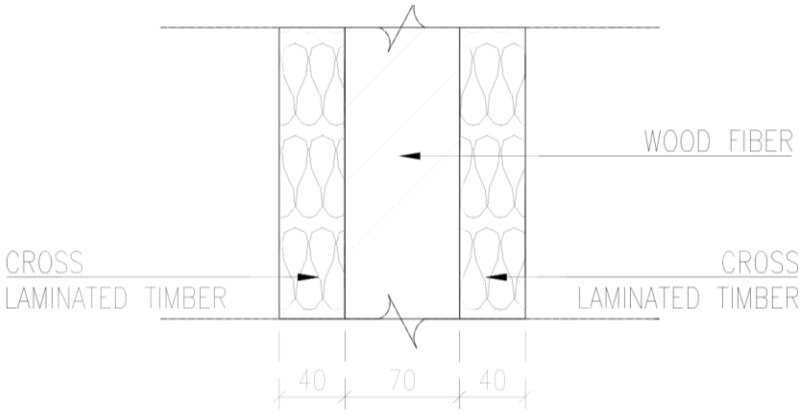
2400
4100
5534
3375



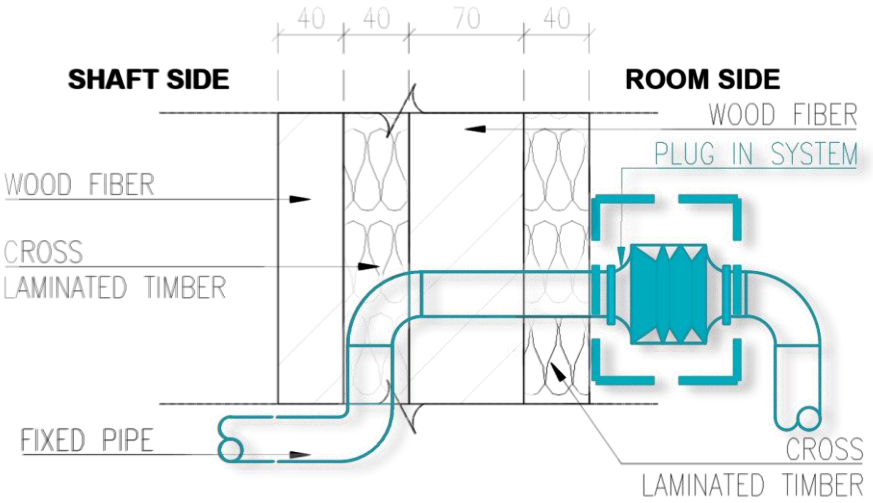
TYPICAL COLUMN DETAILS

SCALE 1:20



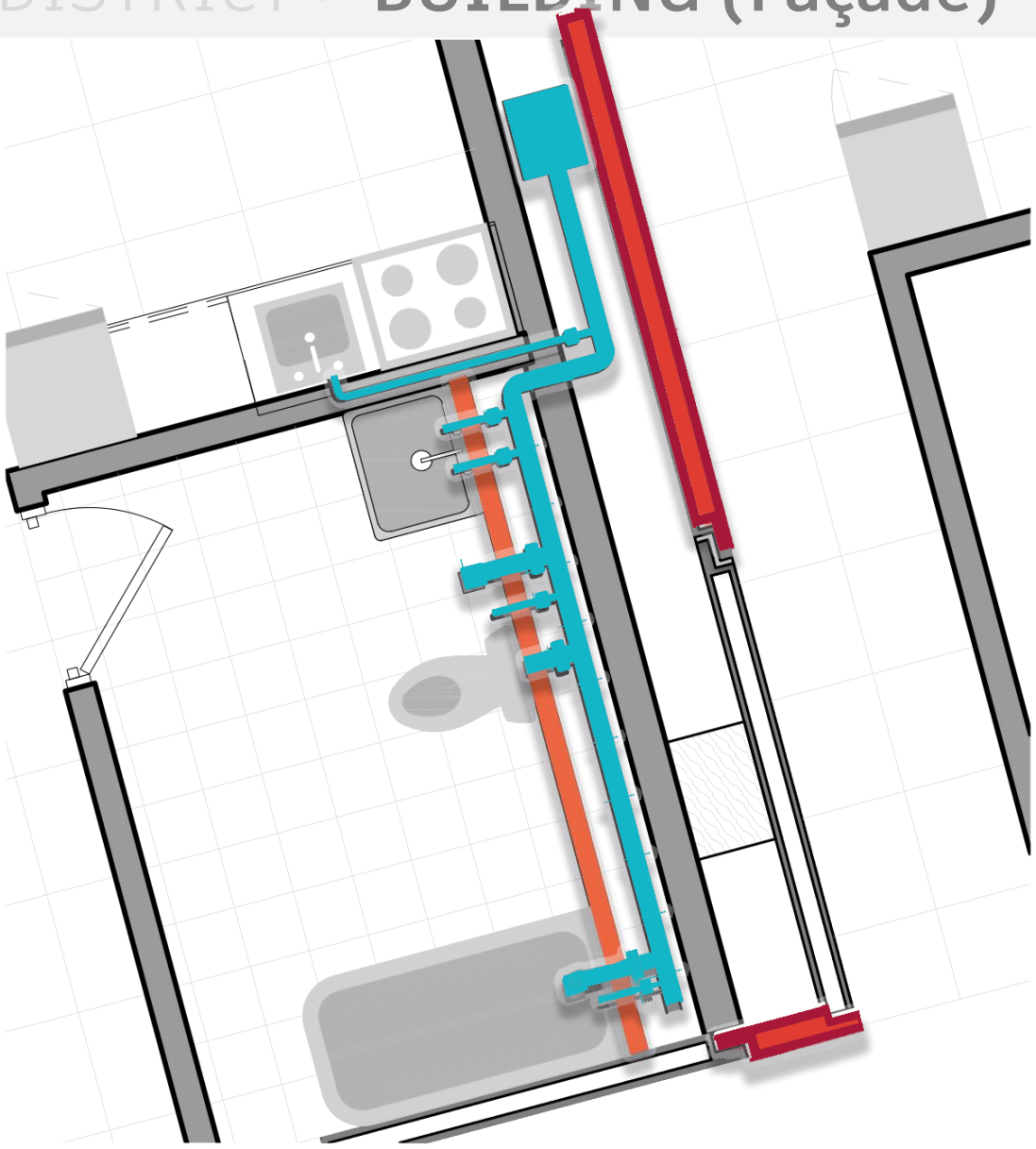
TYPICAL INTERIOR WALL DETAILS

SCALE 1:5

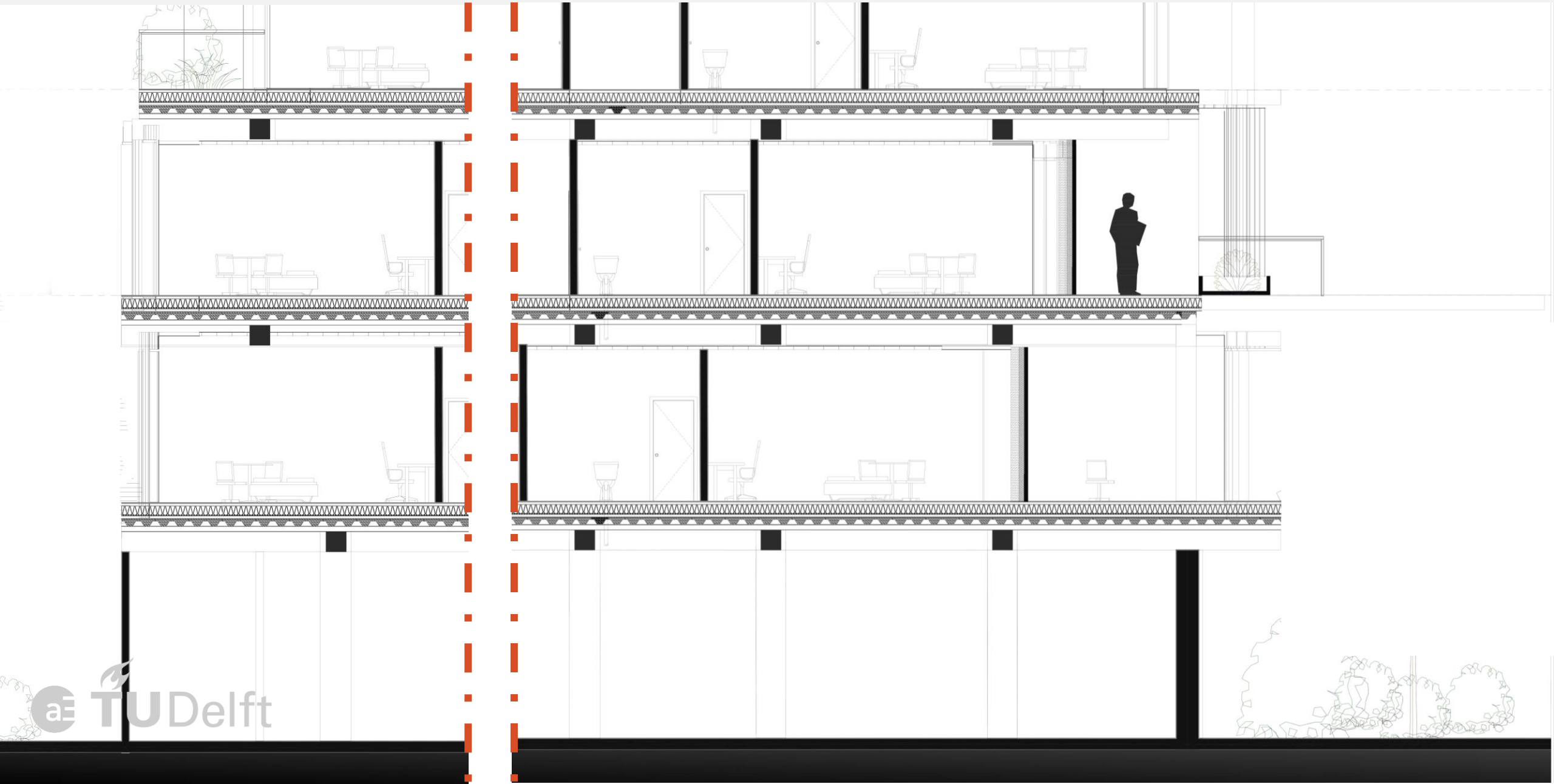


TYPICAL SHAFT WALL DETAILS

SCALE 1:5



ENLARGE DETAILS 04

CITY > URBAN > DISTRICT > BUILDING (Structure)

TU Delft