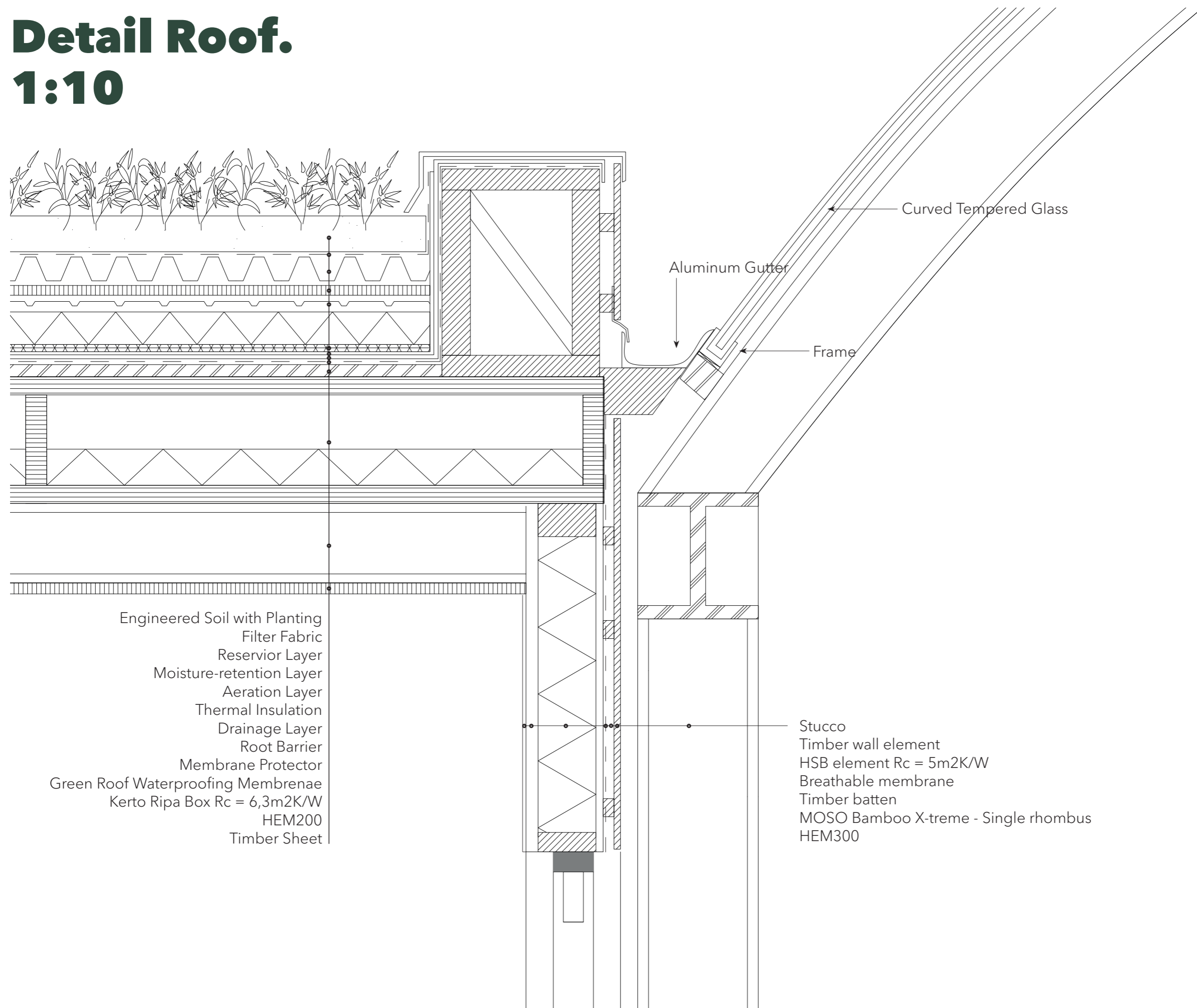


Tiem

Together in
Everyday
Moments.

Detail Roof. 1:10



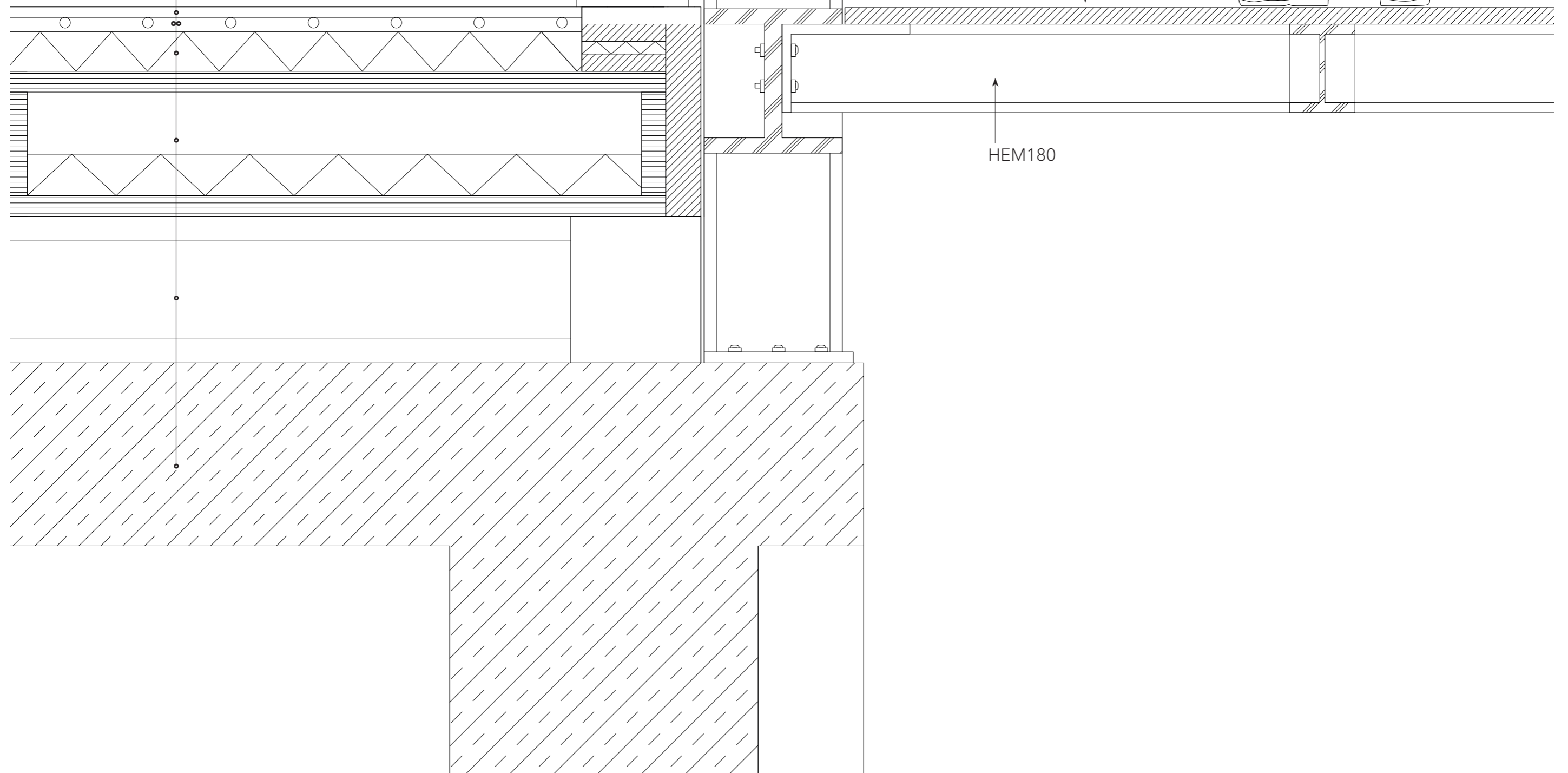
Engineered Soil with Planting
 Filter Fabric
 Reservior Layer
 Moisture-retention Layer
 Aeration Layer
 Thermal Insulation
 Drainage Layer
 Root Barrier
 Membrane Protector
 Green Roof Waterproofing Membrenae
 Kerto Ripa Box $R_c = 6,3m^2K/W$
 HEM200
 Timber Sheet

Aluminum Gutter
 Curved Tempered Glass
 Frame

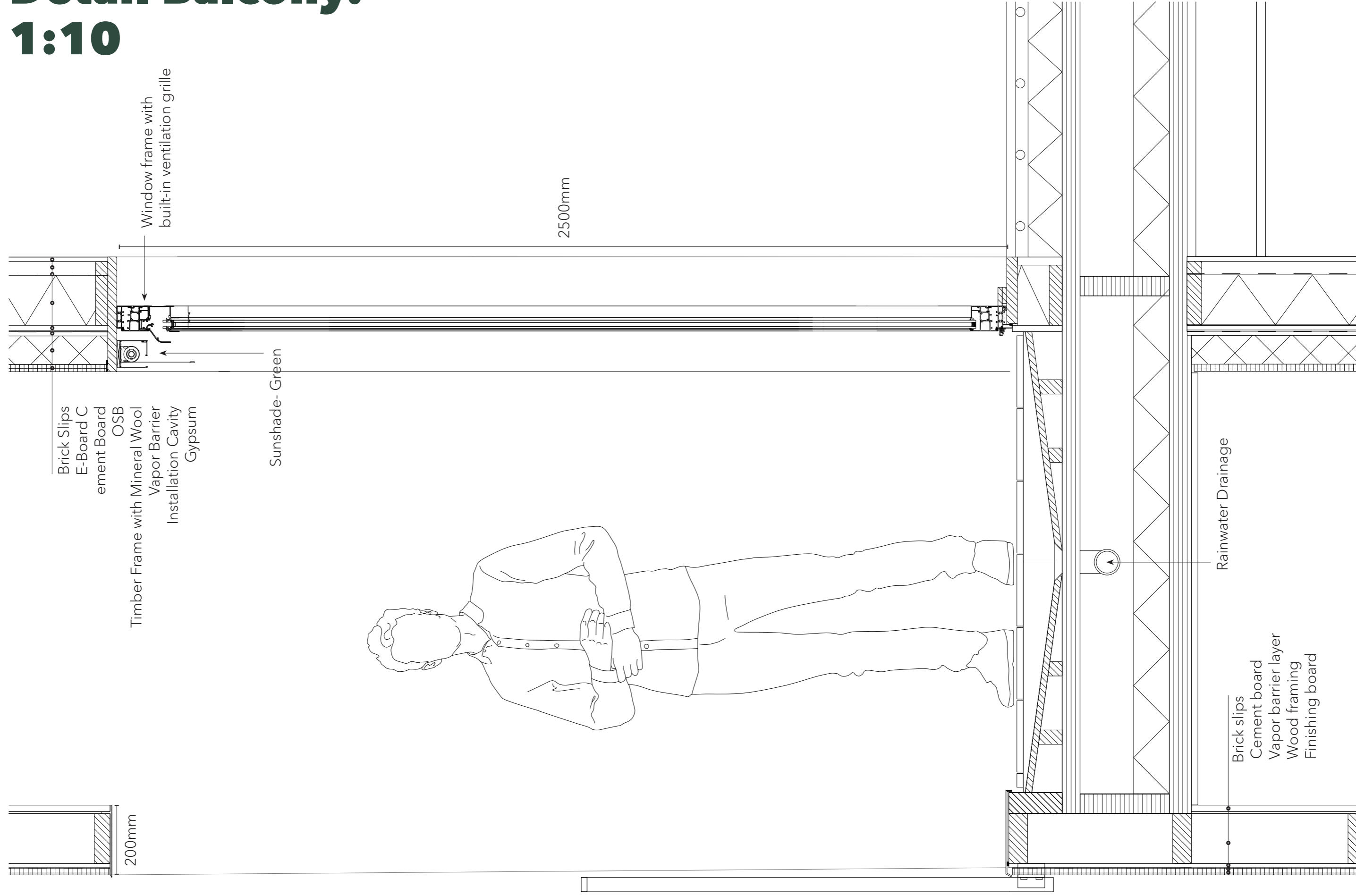
Stucco
 Timber wall element
 HSB element $R_c = 5m^2K/W$
 Breathable membrane
 Timber batten
 MOSO Bamboo X-treme - Single rhombus
 HEM300

Detail Gallery Orangerie. 1:10

Floor Finishing
Fermacell Floor Element 50mm
Heating Pipe
Isolation 100mm
Kerto Ripa box $R_c = 4m^2K/W$
HEM200
Low Carbon Concrete - Green



Detail Balcony. 1:10



Orangerie Columns.

Bepaling dimensies stalen kolom (globaal)

- de groene cellen dienen ingevuld te worden op basis van het eigen ontwerp -

Bepaling belasting in kolom:

afdragend vloeropp.	lengte	breedte	rekenwaarde	
opp.vl dak	5,4 [m] x	5,4 [m] x	7,5 [kN/m ²]	= 218,7 [kN]
opp.vl 4e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 3e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 2e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 1e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN] +
			kolombelasting:	F_{c;d} = 1385,1 [kN]



kniklengte $l_{cr} = 4$ [m]

Minimaal benodigde afmetingen:

$$A_{ben} = F_{c;d} / f_{c,d} = 3902 \text{ [mm}^2\text{]}$$

$$I_{z \text{ ben}} = 5,35E+07 \text{ [mm}^4\text{]}$$

Profiel eigenschappen van gekozen profiel:

	HEM300	<i>gebruik bijvoorbeeld de app 'Staalprofielen'</i>
oppervlakte	A = 30308 [mm ²]	
traagheidsmoment	I _z = 1,940E+08 [mm ⁴]	<i>let op sterke/zwakke richting</i>
rek. waarde druksterkte	f _{c;d} = 355 [N/mm ²]	
elasticiteitsmodulus	E = 210000 [N/mm ²]	

Controle op druk:

UC = 0,13 **Voldoet**

Controle op knik:

F_{cr} = 25134 [kN]
 UC = 0,28 **Voldoet**

Building Columns.

Bepaling dimensies stalen kolom (globaal)

- de groene cellen dienen ingevuld te worden op basis van het eigen ontwerp -

Bepaling belasting in kolom:

afdragend vloeropp.	lengte	breedte	rekenwaarde	
opp.vl dak	5,4 [m] x	5,4 [m] x	7,5 [kN/m ²]	= 218,7 [kN]
opp.vl 4e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 3e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 2e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN]
opp.vl 1e verd	5,4 [m] x	5,4 [m] x	10 [kN/m ²]	= 291,6 [kN] +
			kolombelasting:	F_{c;d} = 1385,1 [kN]



kniklengte $l_{cr} = 4$ [m]

Minimaal benodigde afmetingen:
 $A_{ben} = F_{c;d} / f_{c;d} = 3902$ [mm²]
 $I_{z\ ben} = 5,35E+07$ [mm⁴]

Profiel eigenschappen van gekozen profiel:

	HEM240	<i>gebruik bijvoorbeeld de app 'Staalprofielen'</i>
oppervlakte	A = 19959 [mm ²]	
traagheidsmoment	I _z = 8,153E+07 [mm ⁴]	<i>let op sterke/zwakke richting</i>
rek. waarde druksterkte	f _{c;d} = 355 [N/mm ²]	
elasticiteitsmodulus	E = 210000 [N/mm ²]	

Controle op druk:

UC = 0,20 **Voldoet**

Controle op knik:

F_{cr} = 10561 [kN]
 UC = 0,66 **Voldoet**

Building Beams.

Bepaling dimensies stalen vloerligger (globaal)

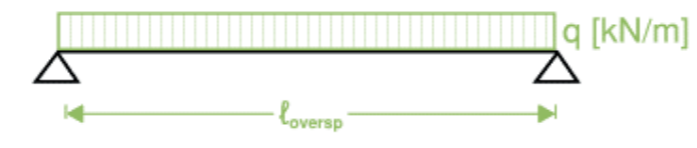
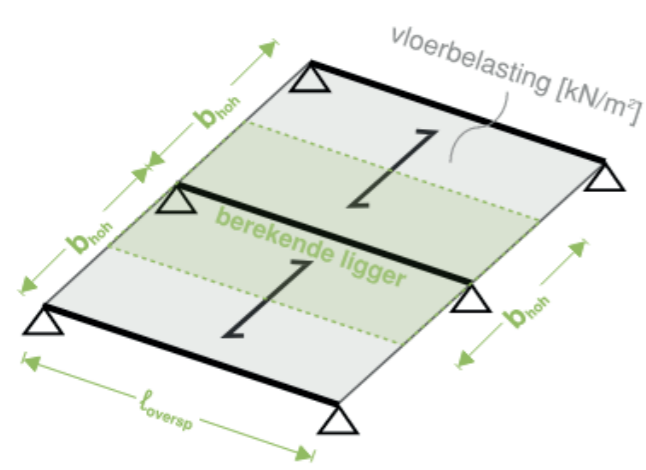
- de groene cellen dienen ingevuld te worden op basis van het eigen ontwerp -

HEM200	$l_{oversp} =$	5,4	[m]
	$b_{hoh} =$	5,4	[m]
	$q_{d,tot} =$	16	[kN/m ²]
op ligger	$q_{UGT} =$	86,4	[kN/m]
	$q_{Q;kar} =$	5	[kN/m ²]
op ligger	$q_{BGT} =$	27	[kN/m]

Profielgegevens van gekozen profiel:

weerstandsmoment	$W_y =$	967000	[mm ³]
traagheidsmoment	$I_y =$	106420000	[mm ⁴]
vloegrens	$f_y =$	355	[N/mm ²]
elasticiteitsmodulus	$E =$	210000	[N/mm ²]

gebruik bijvoorbeeld de app 'Staalprofielen'



Controle sterkte:

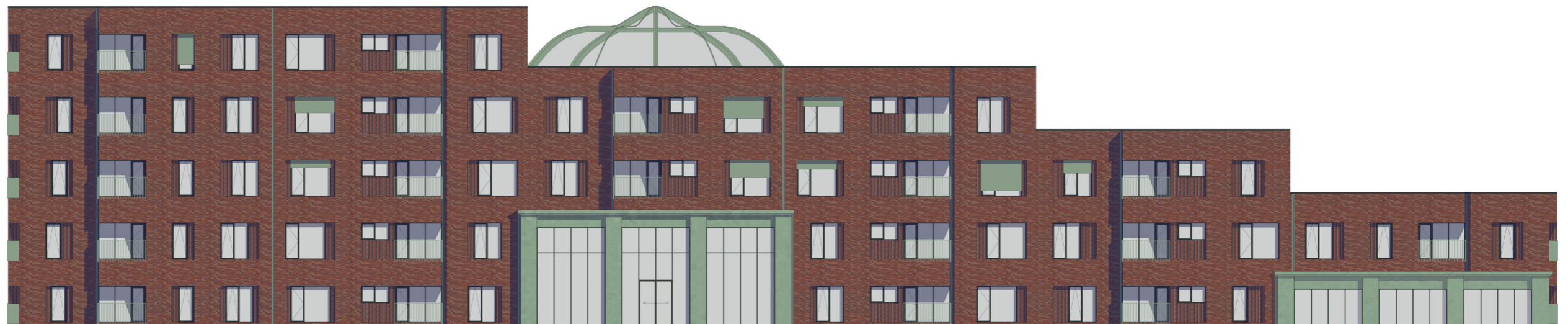
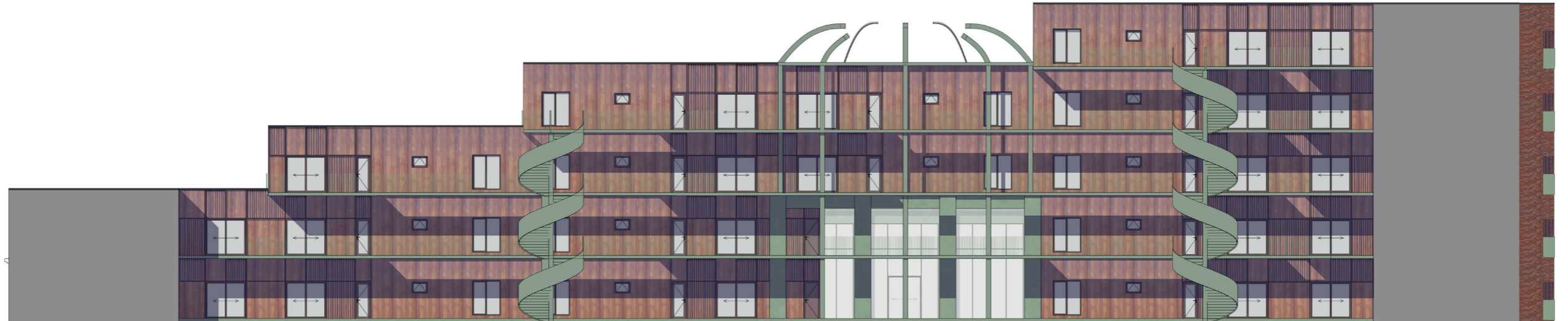
UGT	$M_{veld} =$	314928000	[Nmm]	$\sigma_{max} =$	325,7	[N/mm ²]
	UC =	0,92	Voldoet	$W_{y,benodigd} =$	887121	[mm ³]

Controle stijfheid:

BGT	$w_{bij} =$	13,38	[mm]	$w_{bij \text{ norm vloer}} =$	16,2	[mm]	0,003 x L
				$w_{bij \text{ norm vl.wand}} =$	10,8	[mm]	0,002 x L
	UC vloer =	0,83	Voldoet	$I_{y,benodigd} =$	87870536	[mm ⁴]	
	(UC vl.wand =	1,24		$I_{y,benodigd} =$	131805804	[mm ⁴]	

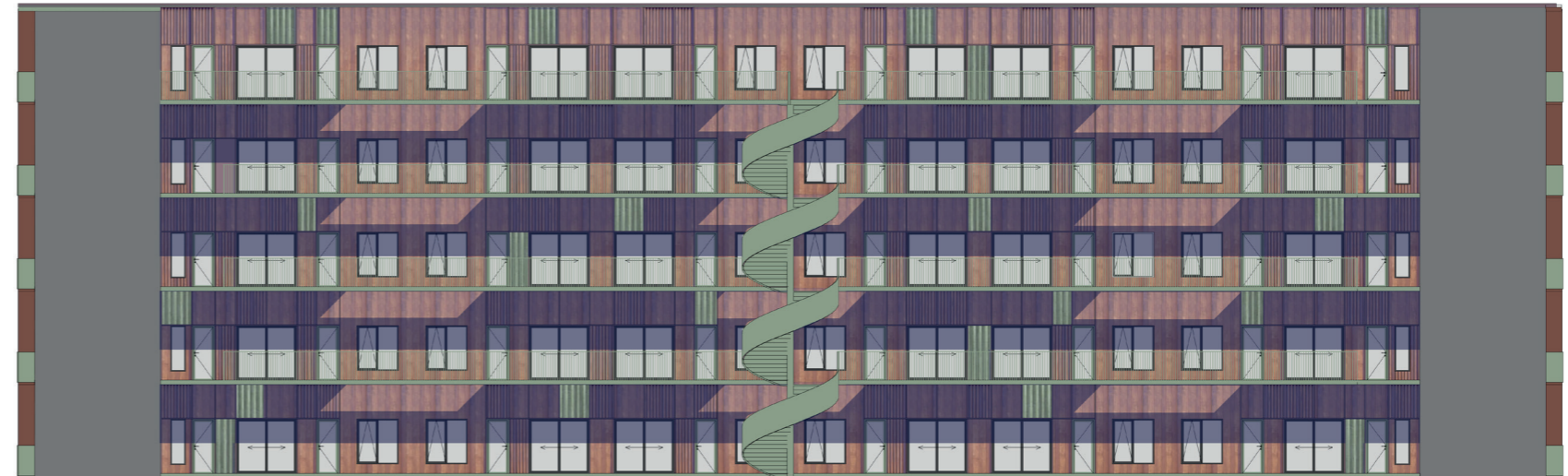
West Elevation.

1:300



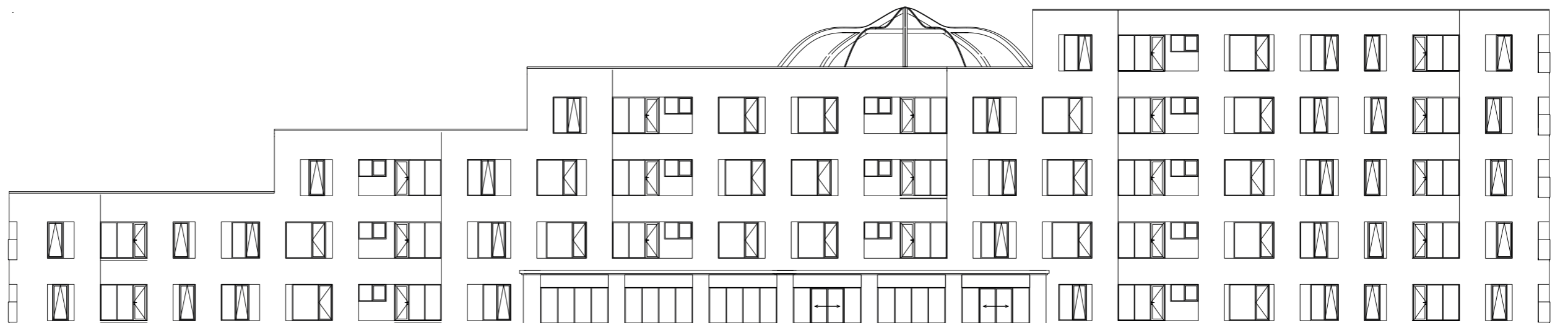
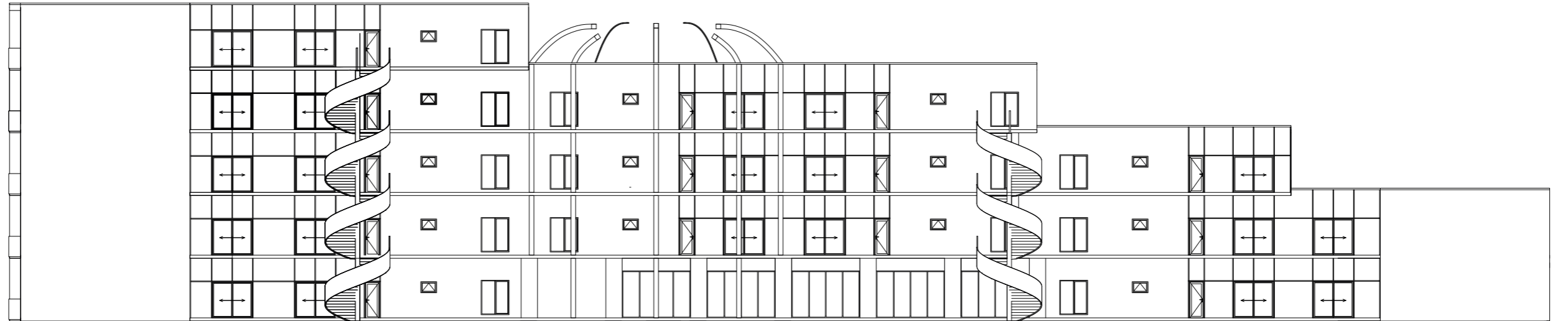
North Elevation.

1:300



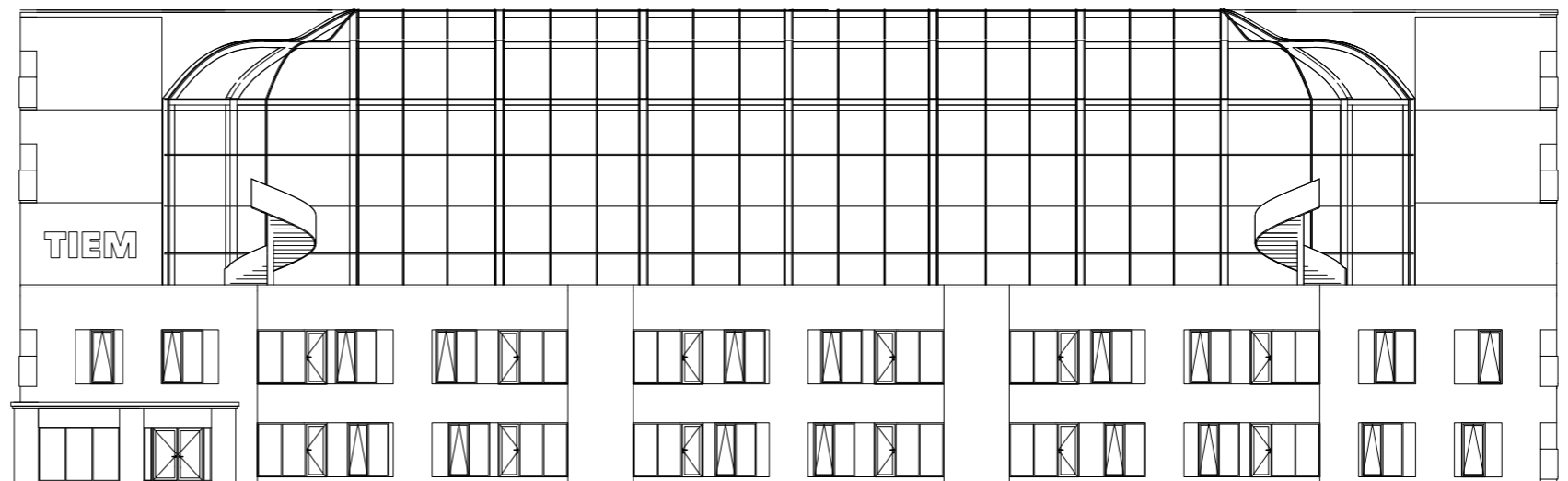
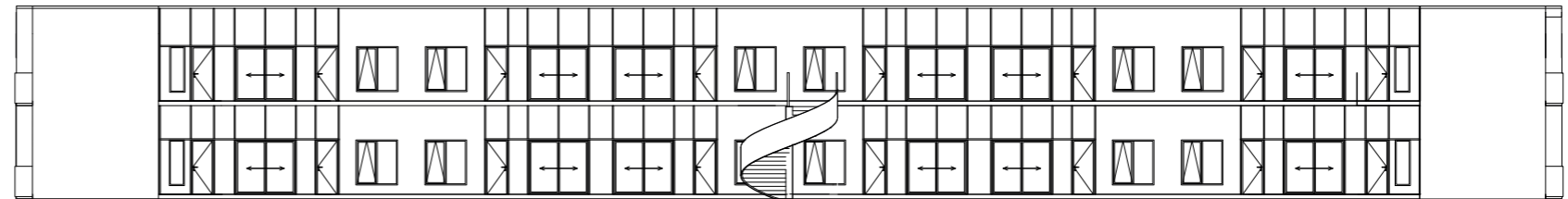
East Elevation.

1:300



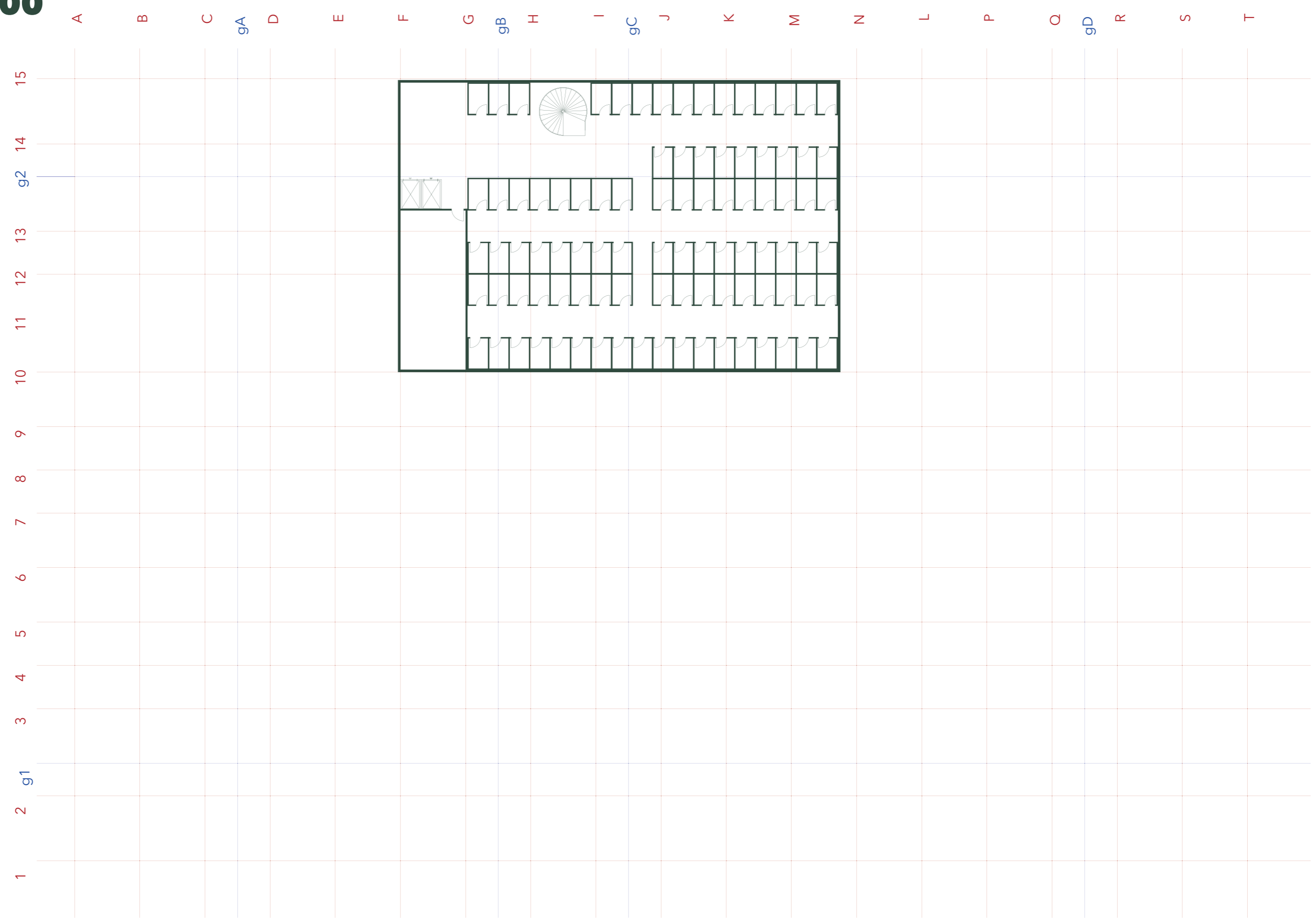
South Elevation.

1:300



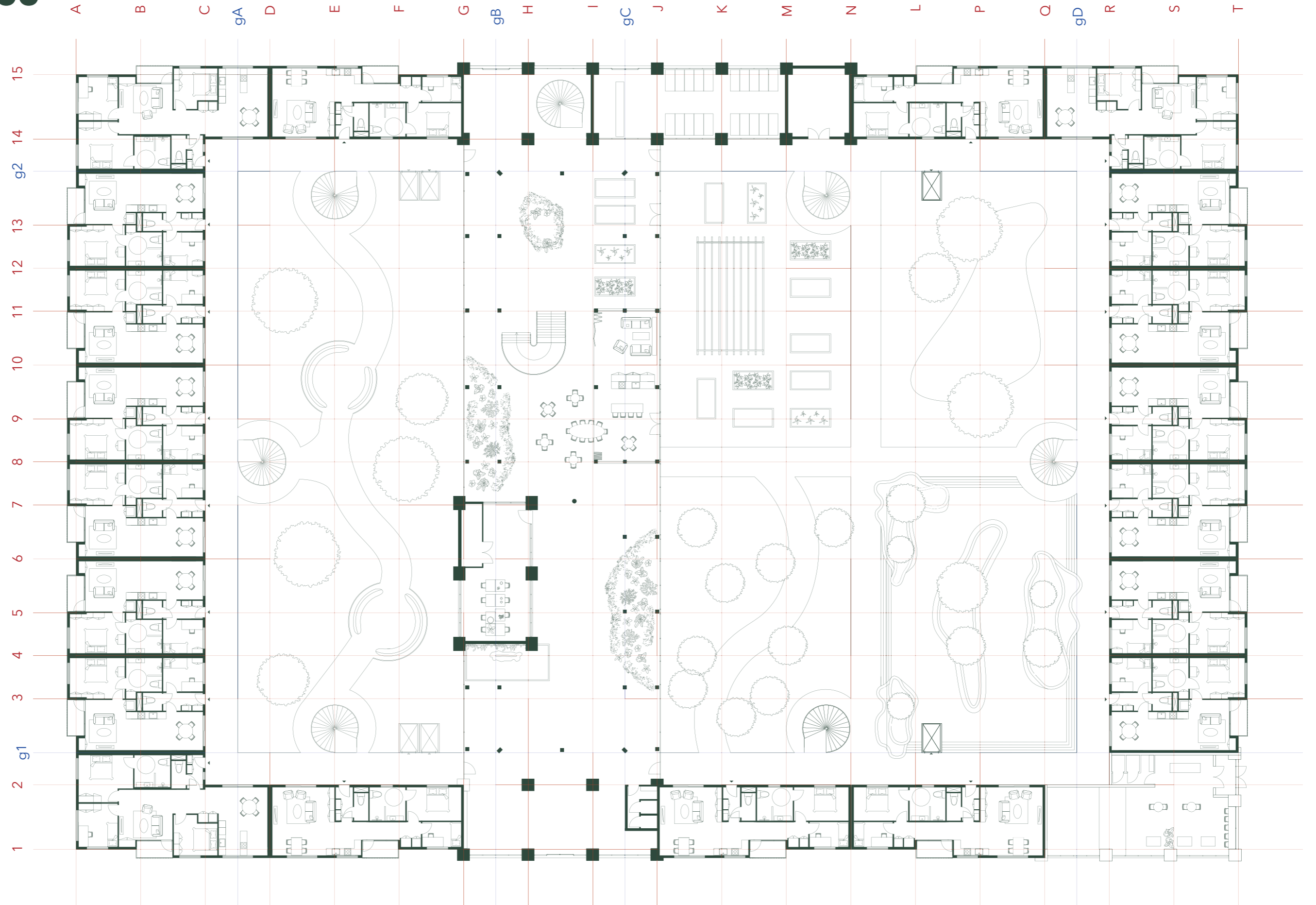
Basement.

1:300



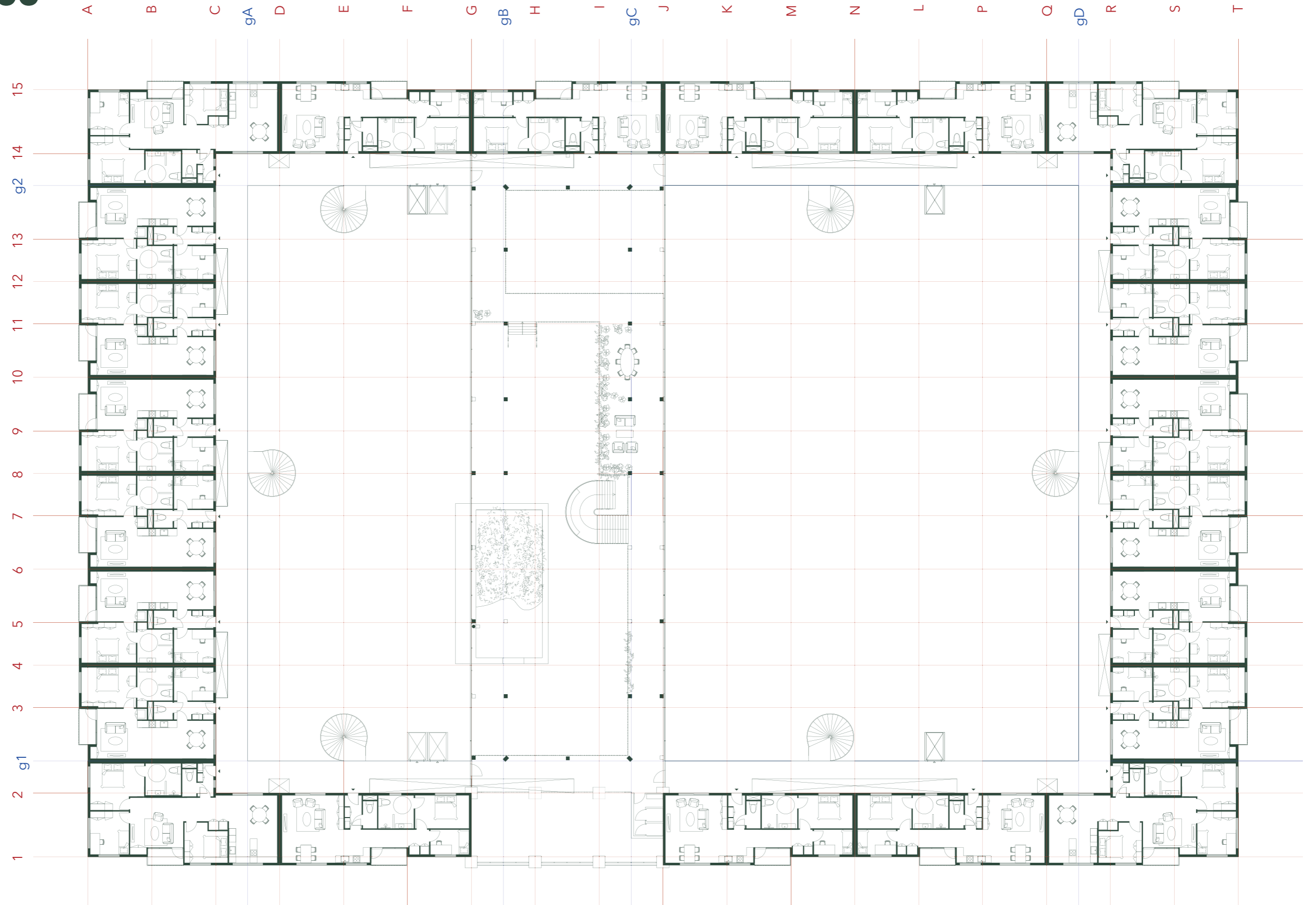
Grand Floor.

1:300



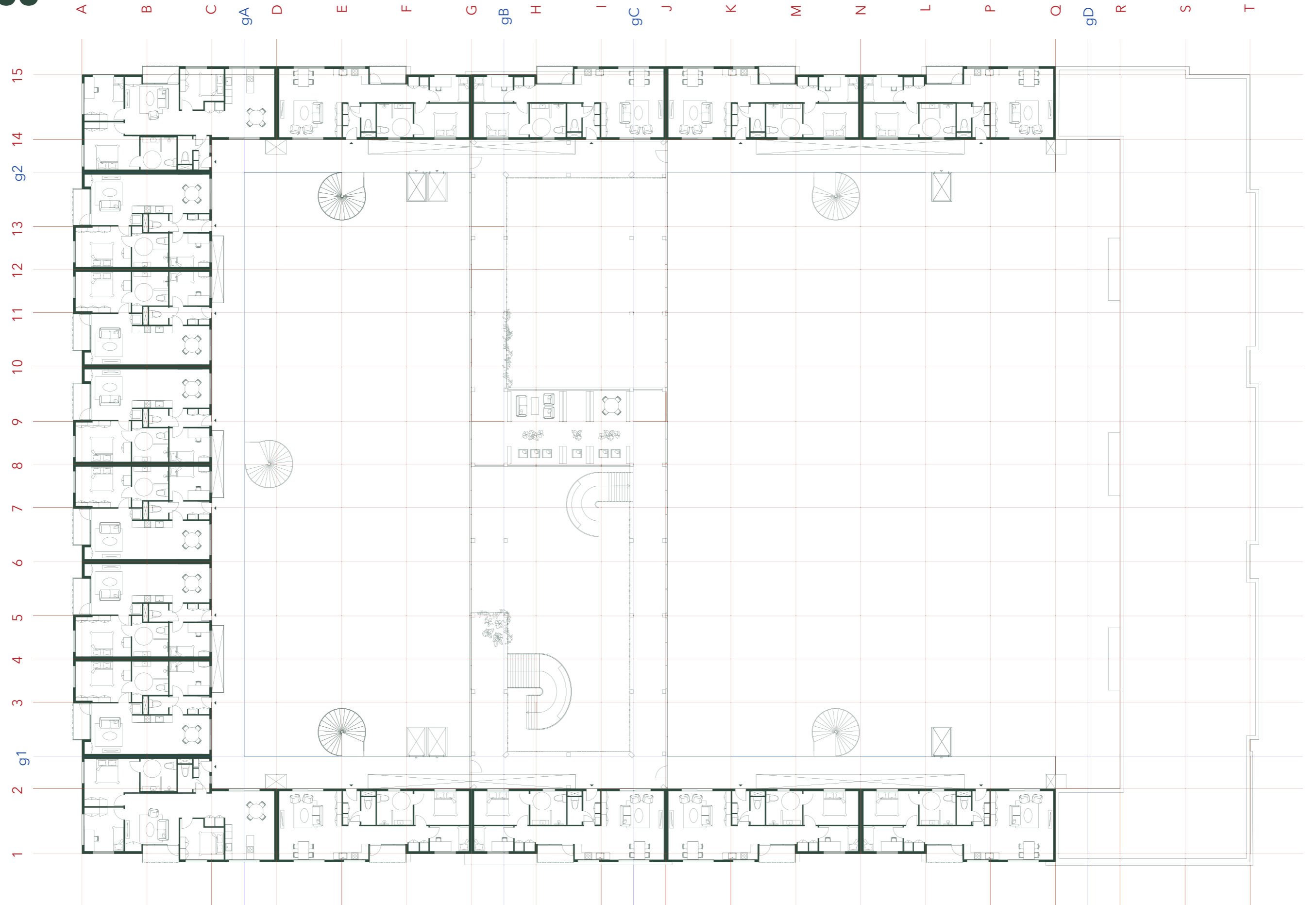
1st Floor.

1:300



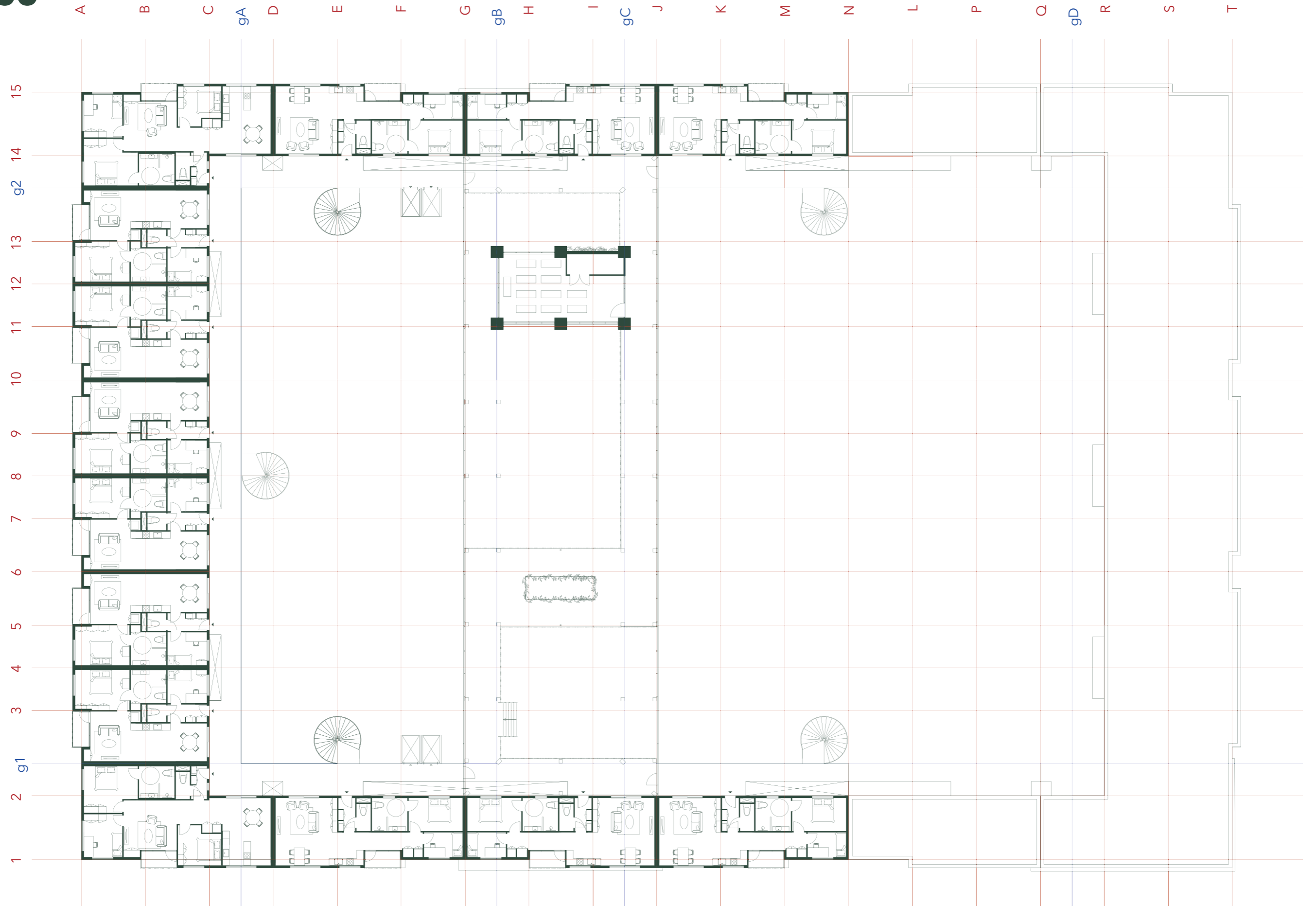
2nd Floor.

1:300



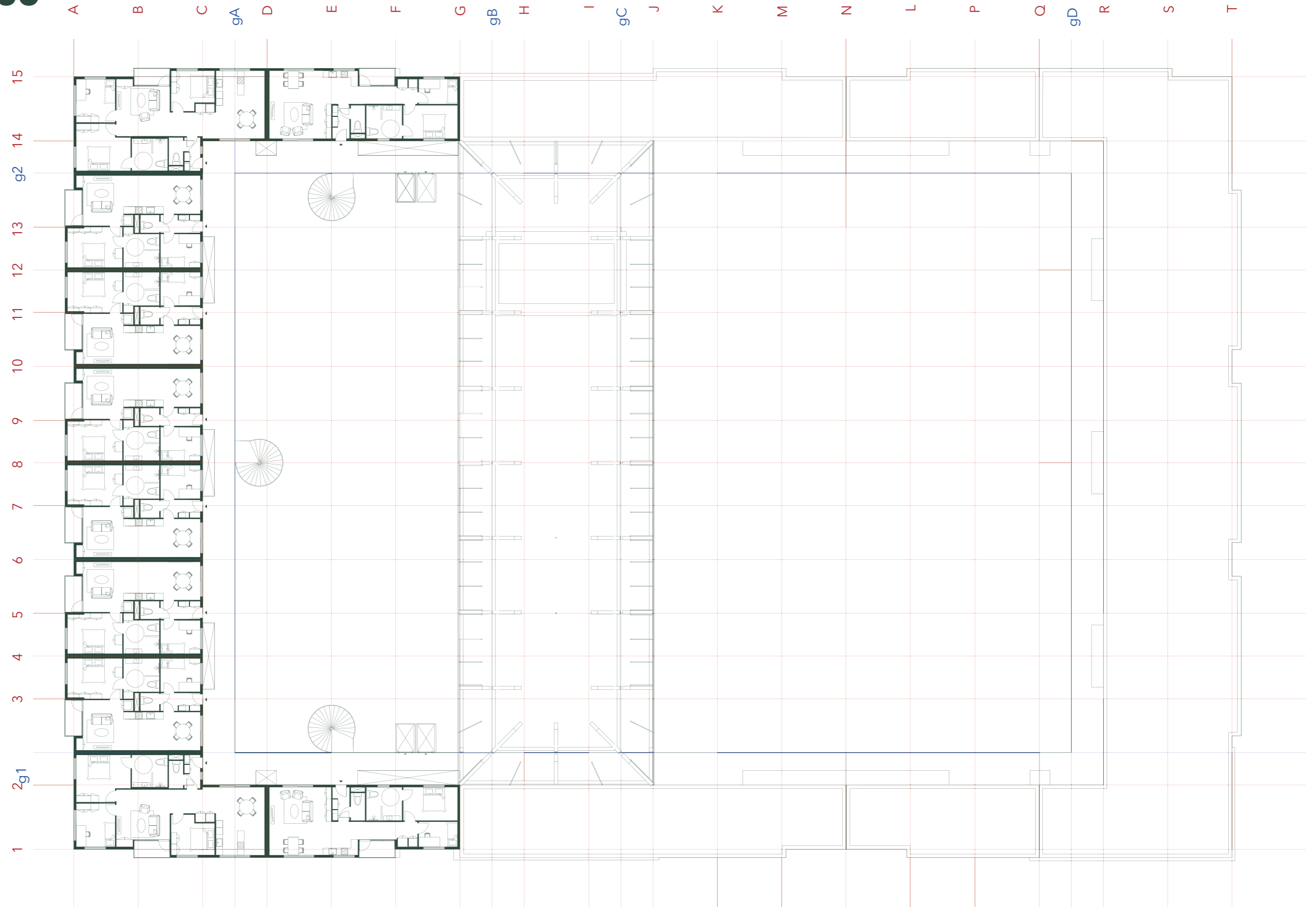
3rd Floor.

1:300

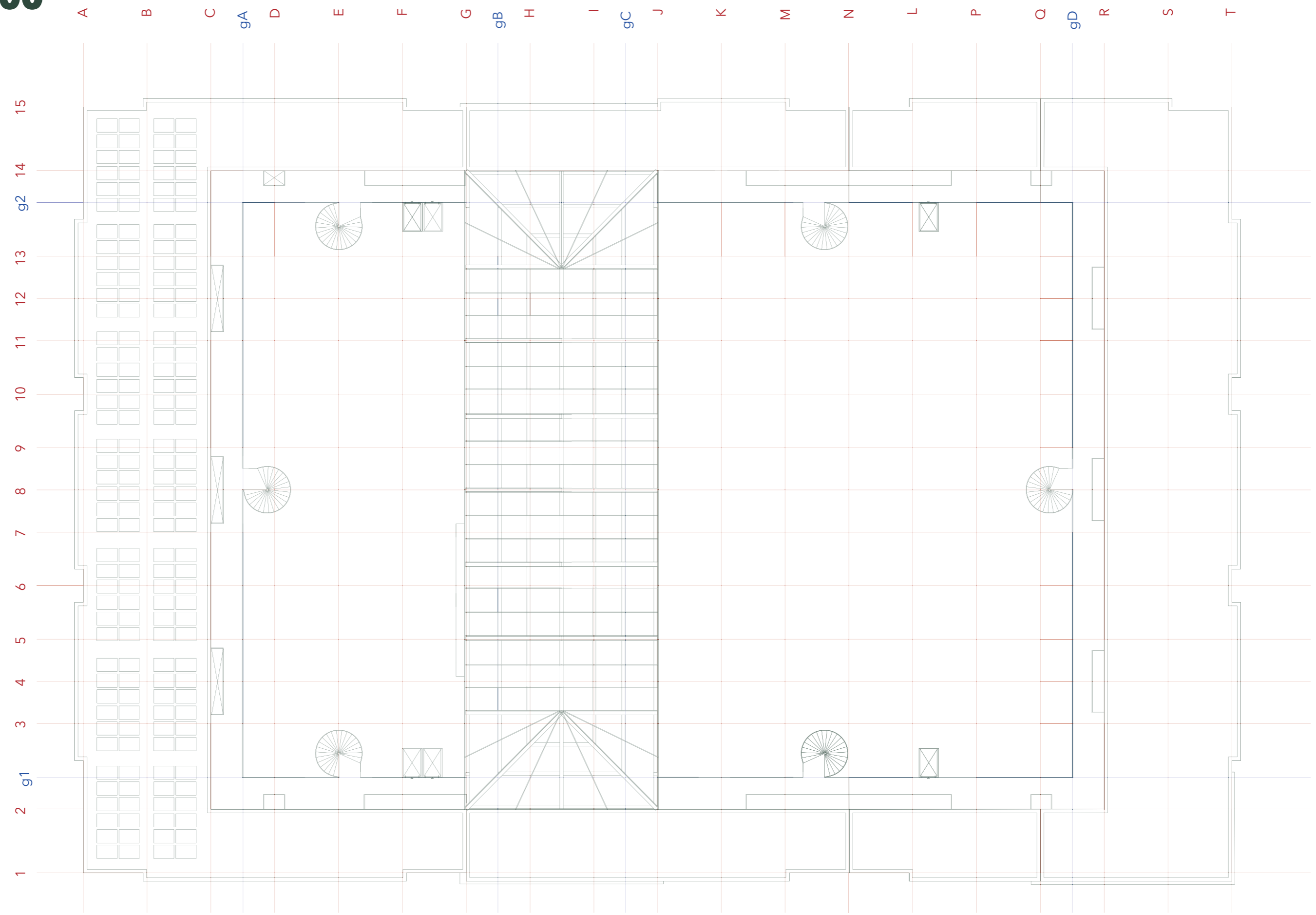


4th Floor.

1:300

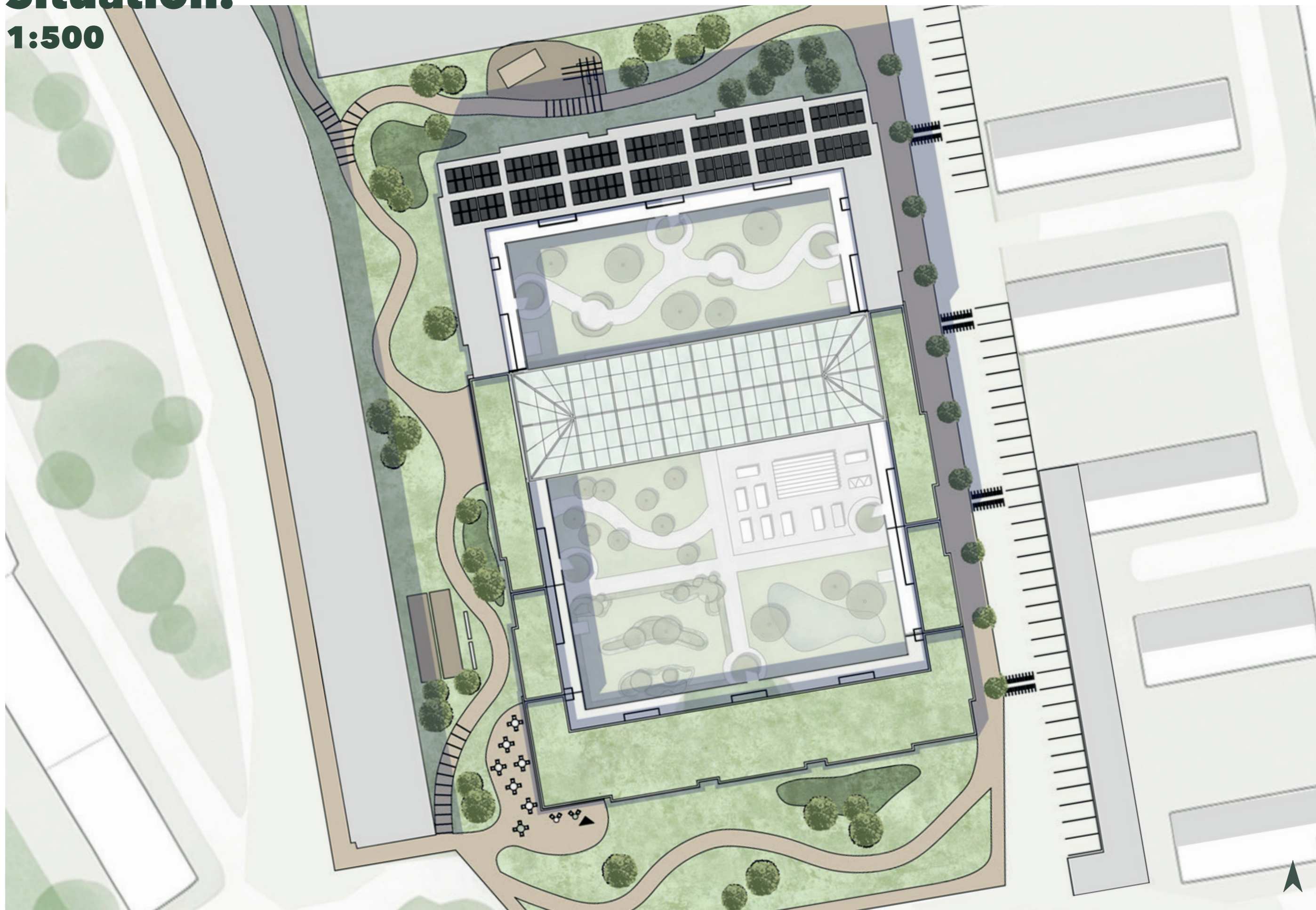


Roof. 1:300



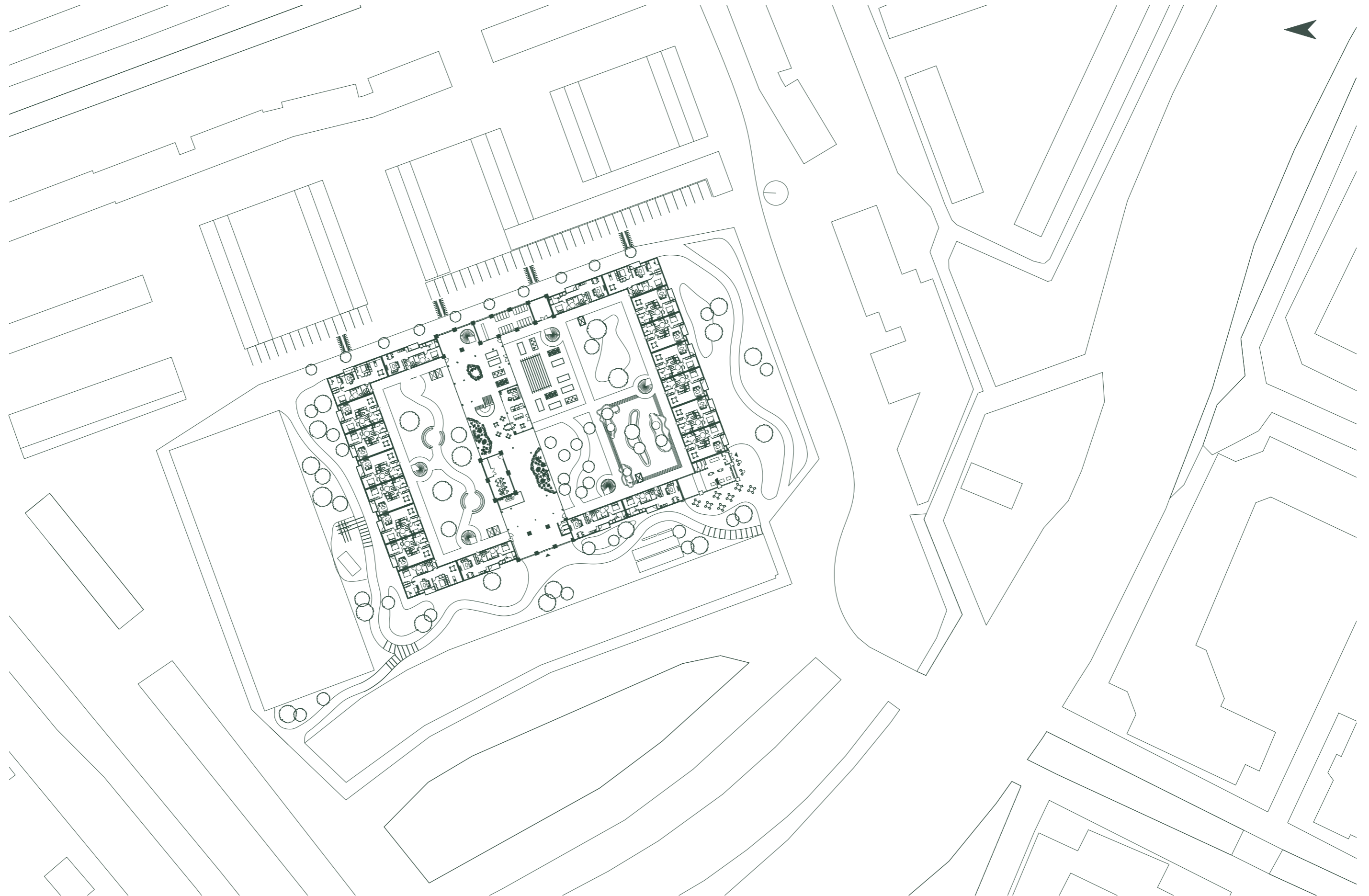
Situation.

1:500



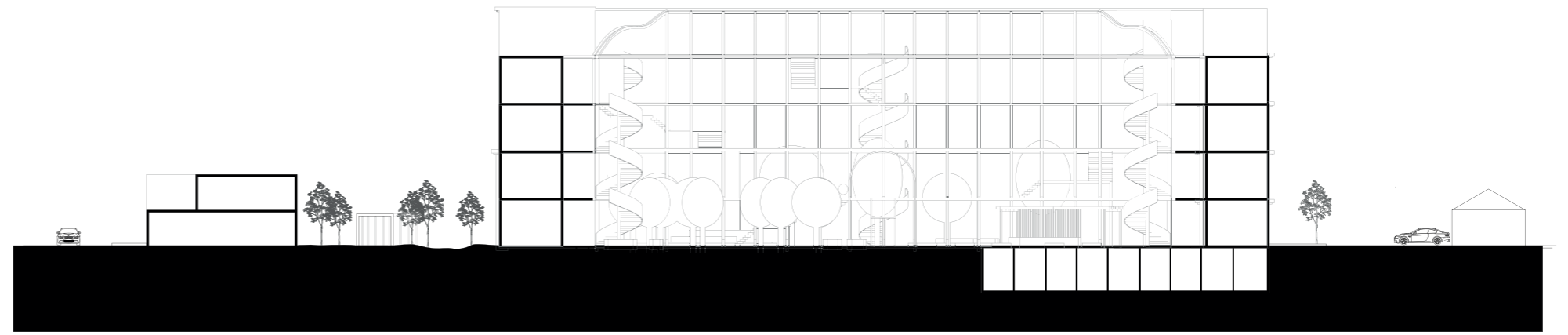
Situation.

1:1000

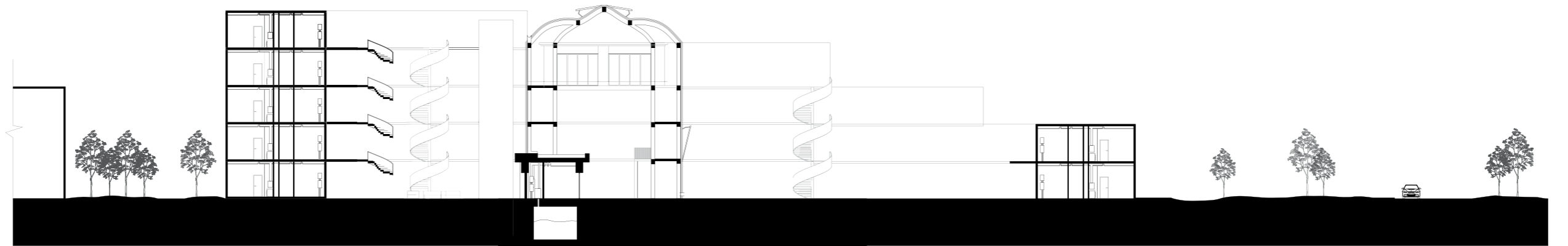


Sections.

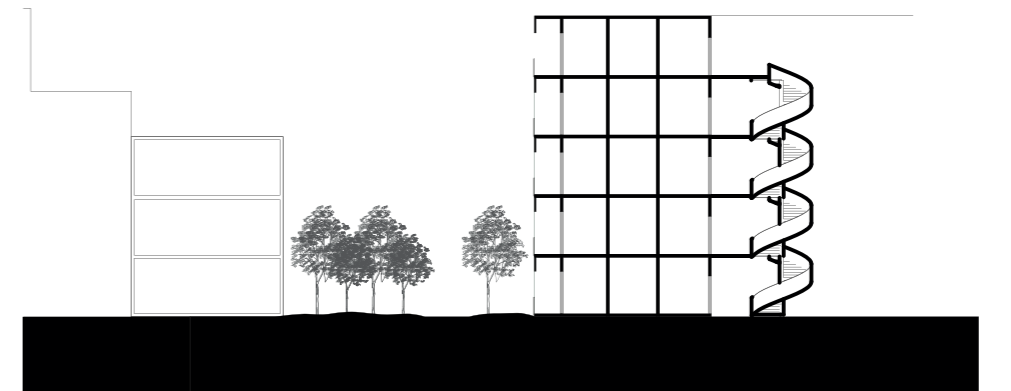
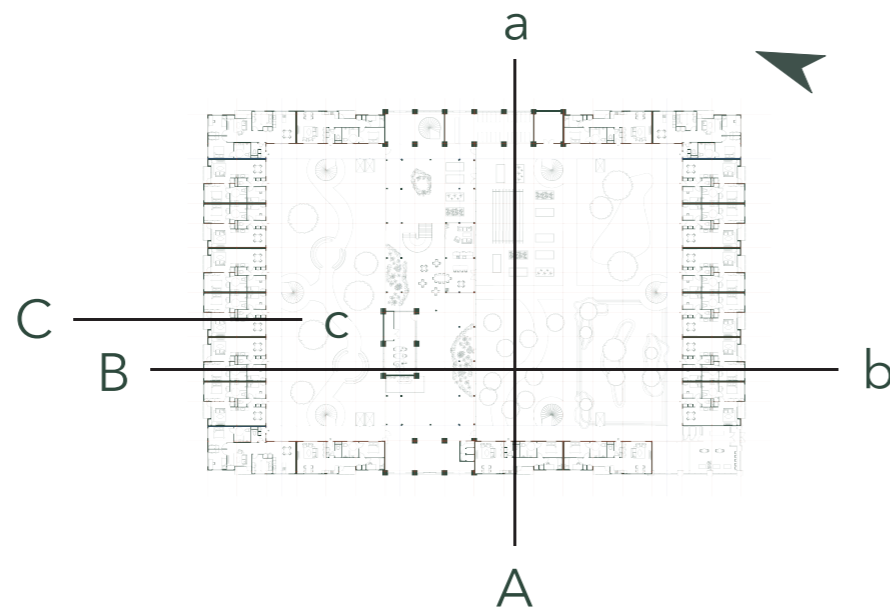
1:500



Section Aa



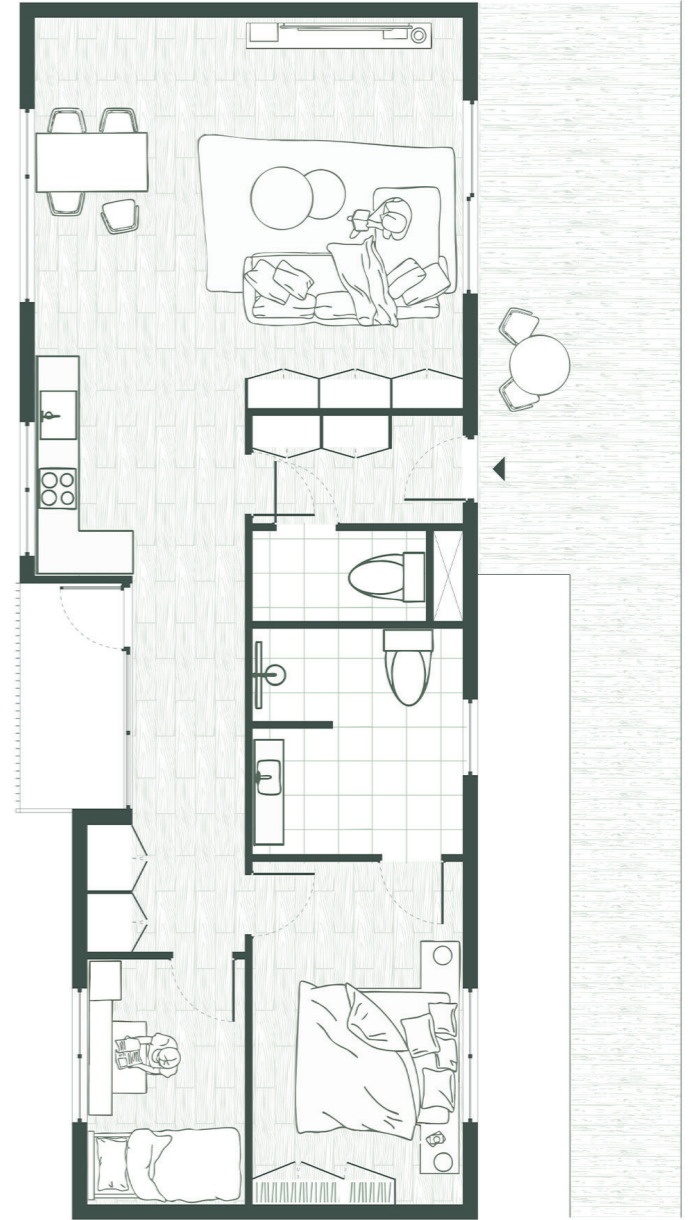
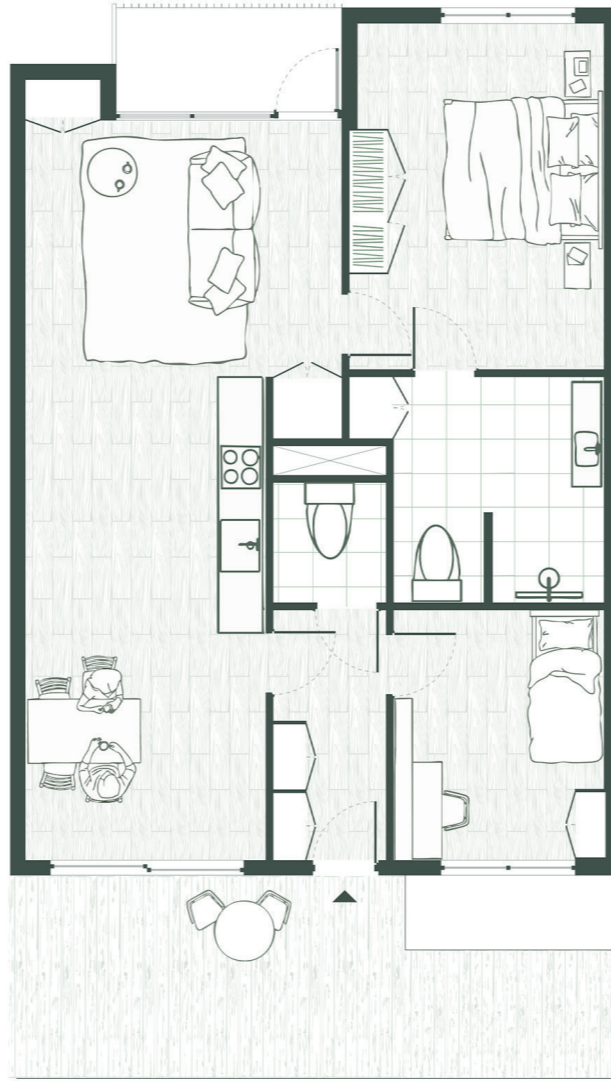
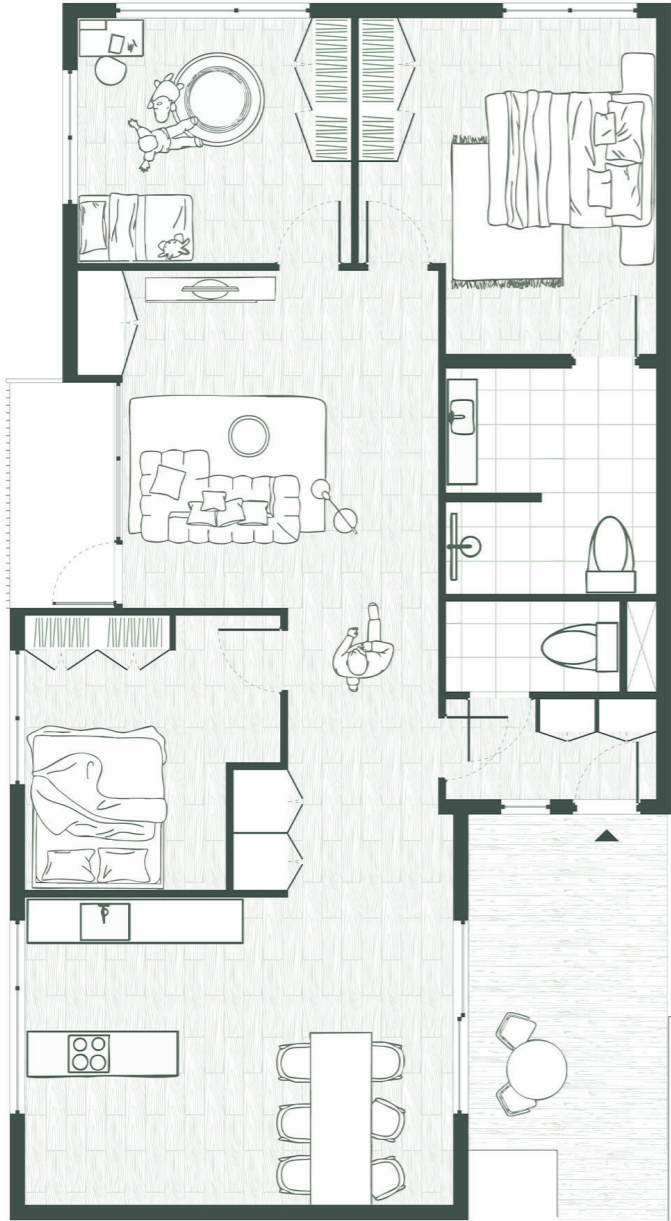
Section Bb



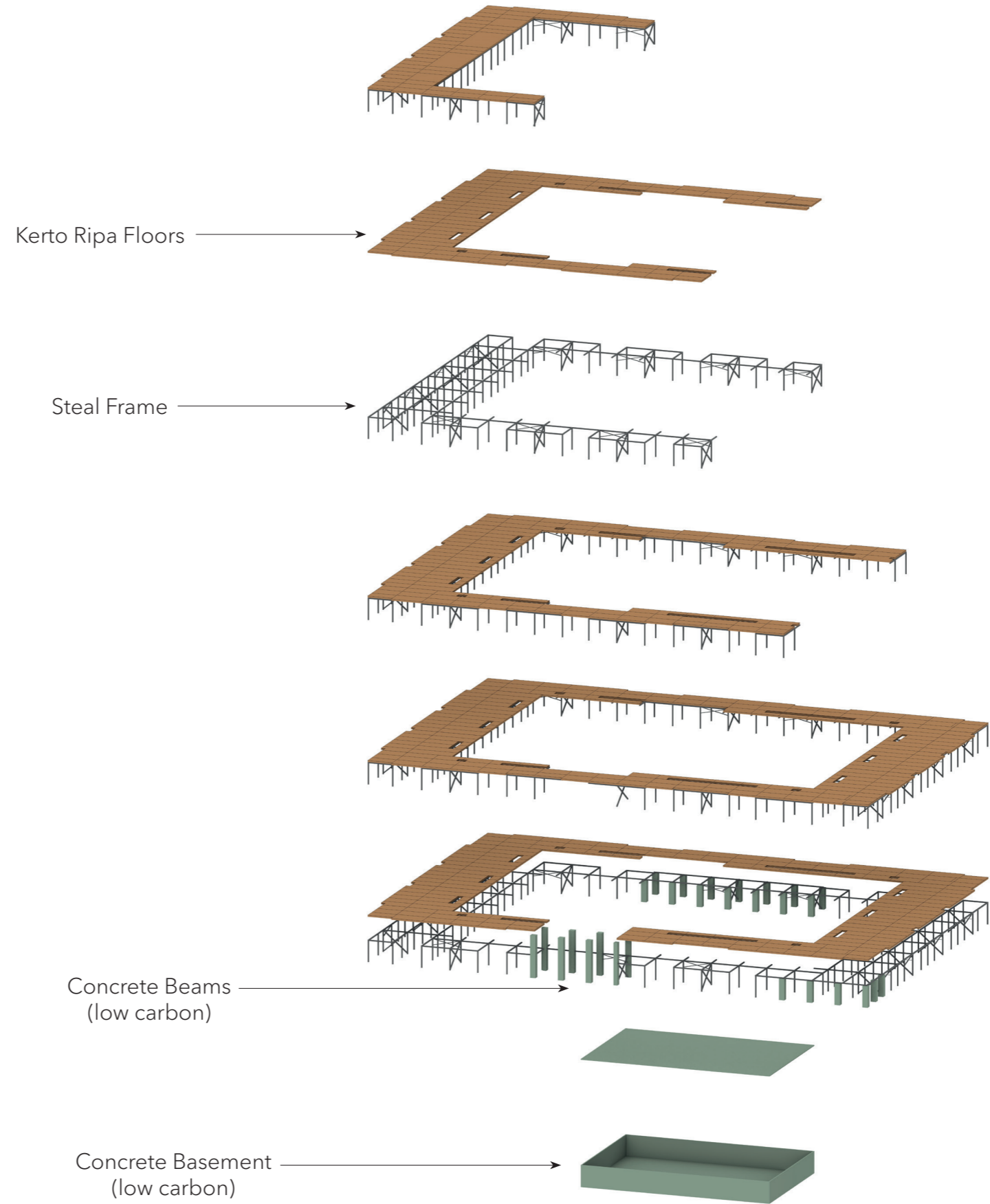
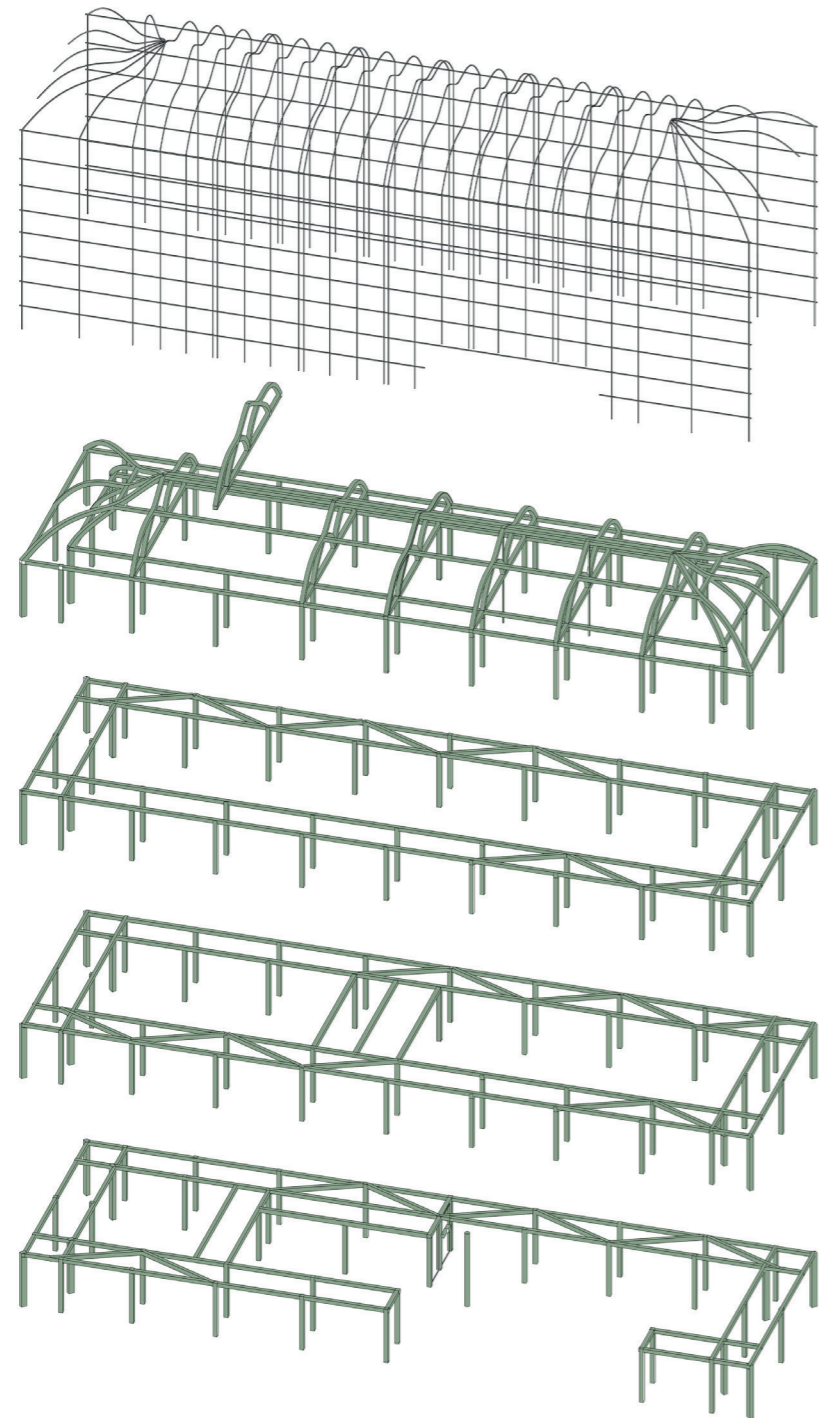
Section Cc

Dwellings.

1:100

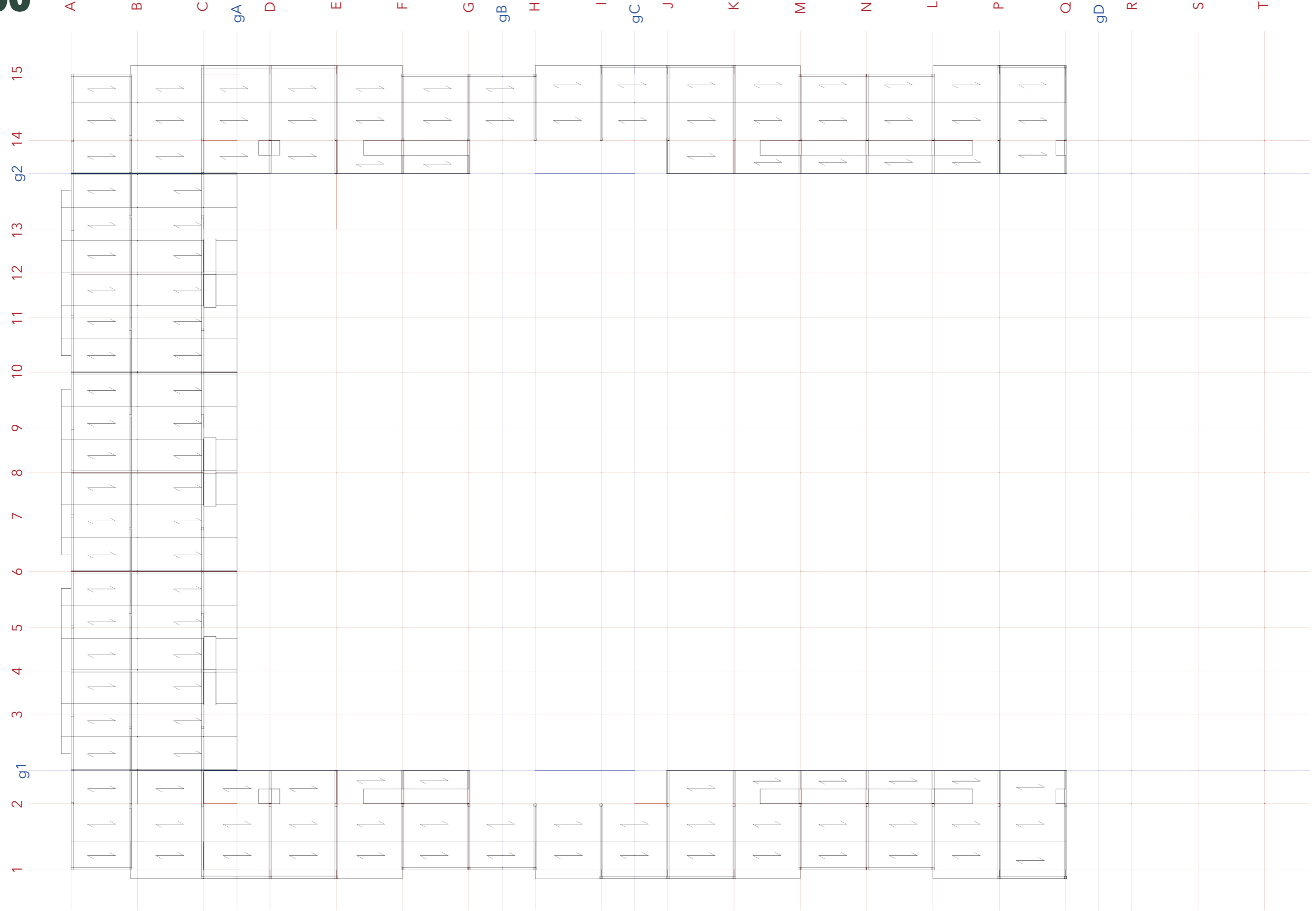


Structural Axo.



Exemplary Structural Floorplan.

1:300



Climate Orangerie.

1. Roof rainwater collection

- 1.1 Gutter drainage system
- 1.2 Primary pond
- 1.3 Waterfall to secondary pond
- 1.4 Overflow to storage reservoir
- 1.5 Pumped recirculation to waterfall
- 1.6 Automatic irrigation system for planting

2. Thermal Energy Storage (TES) System

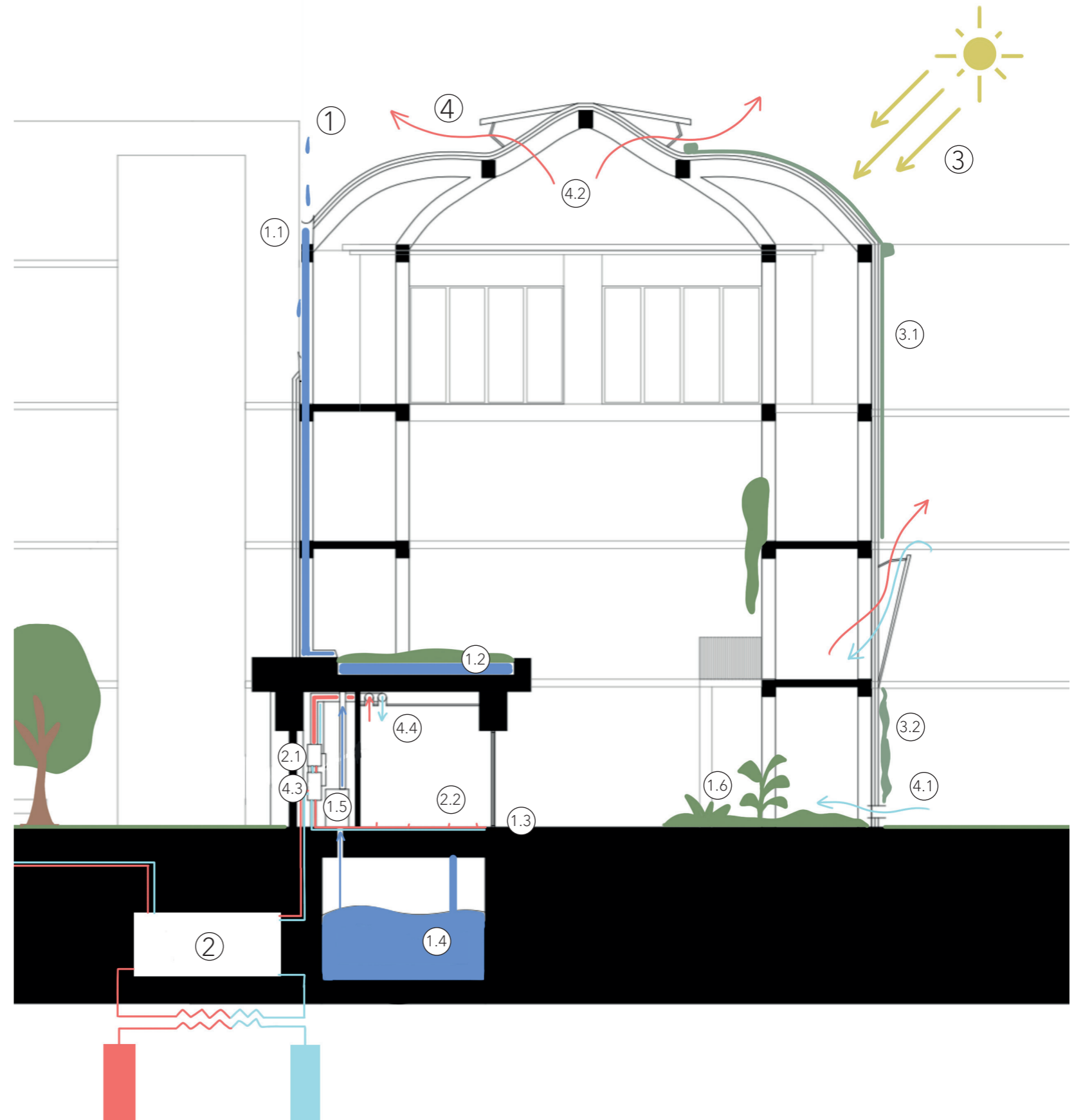
- 2.1 Heat Pump
- 2.2 Floor Heating (or Cooling)

3. Sun Protection

- 3.1 Sunshades
- 3.2 Ivy Plant

4. Ventilation

- 4.1 Fresh Air Intake
- 4.2 Stack Effect Ventilation
- 4.3 MVHR Heat Recovery Unit
- 4.4 Mechanical Ventilation for controlled Climate



Climate of the Dwellings.

1. Roof Rainwater

- 1.1 Rainwater Collection
- 1.2 Runoff directed to swale
- 1.3 Temporary water storage
- 1.4 Filtration through vegetation

2. Thermal Energy Storage (TES) System

- 2.1 Heat Pump
- 2.2 Floor Heating (or Cooling)

3. Sun

- 3.1 Galleries Create Shade
- 3.2 Solarpanels

4. Ventilation

- 4.1 Fresh Air Intake
- 4.2 MVHR Heat Recovery Unit
- 4.3 Mechanical Air Extraction

