

the next generation



GROWING SOCIAL HOUSING

HATTEM



SOCIAL HOUSING



TIMBER CONSTRUCTION

Jaar van het hout | Grote doorbraak
houtbouw ondanks recordprijzen



HATTEM



Zwolle

Hattem

Veluwe

municipality



brickyard

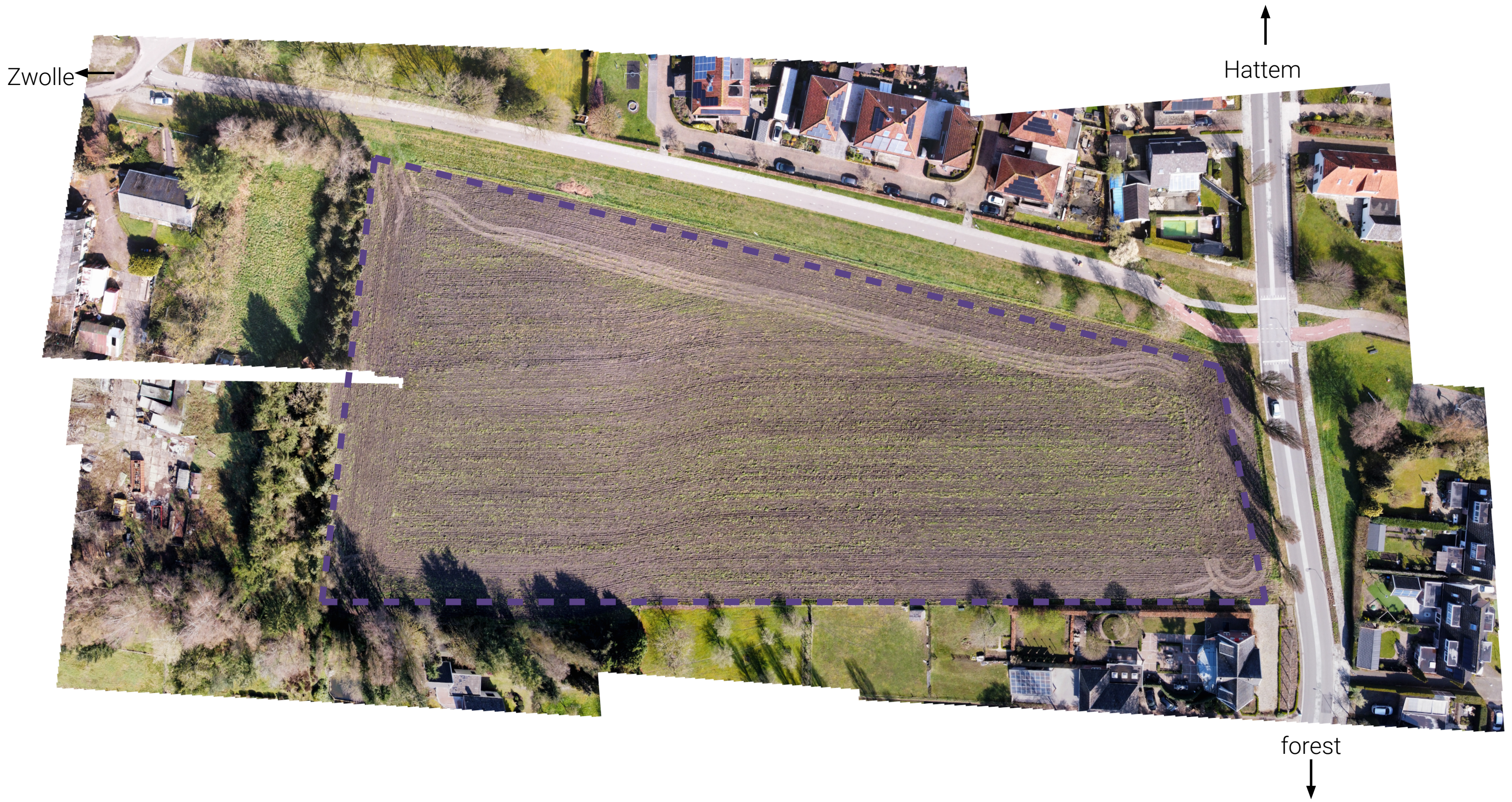
Hattem

municipality



+3450 houses

municipality





north



east



south



west



→ forest



brick



roofscape



strict boundary



HATTEM

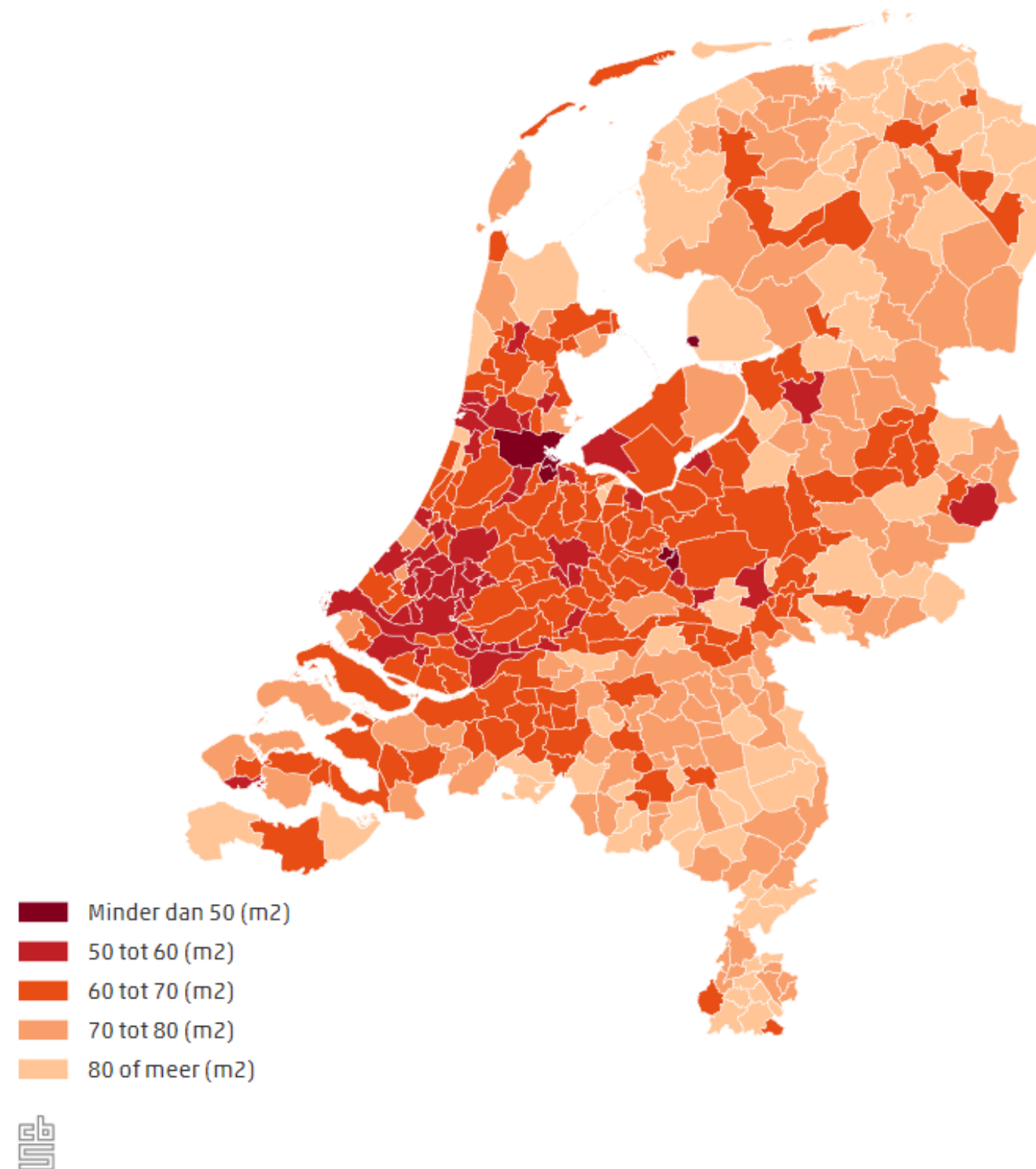
SOCIAL HOUSING

WHO?

	Hattem 2023	Hattem 2040	Complex
Houses	5400	6900	30
People	12300	15750	60
Urban density	46 people/ha	58 people/ha	240 people/ha
Average living space	55,8m ² /person	50m ² /person	25m ² /person

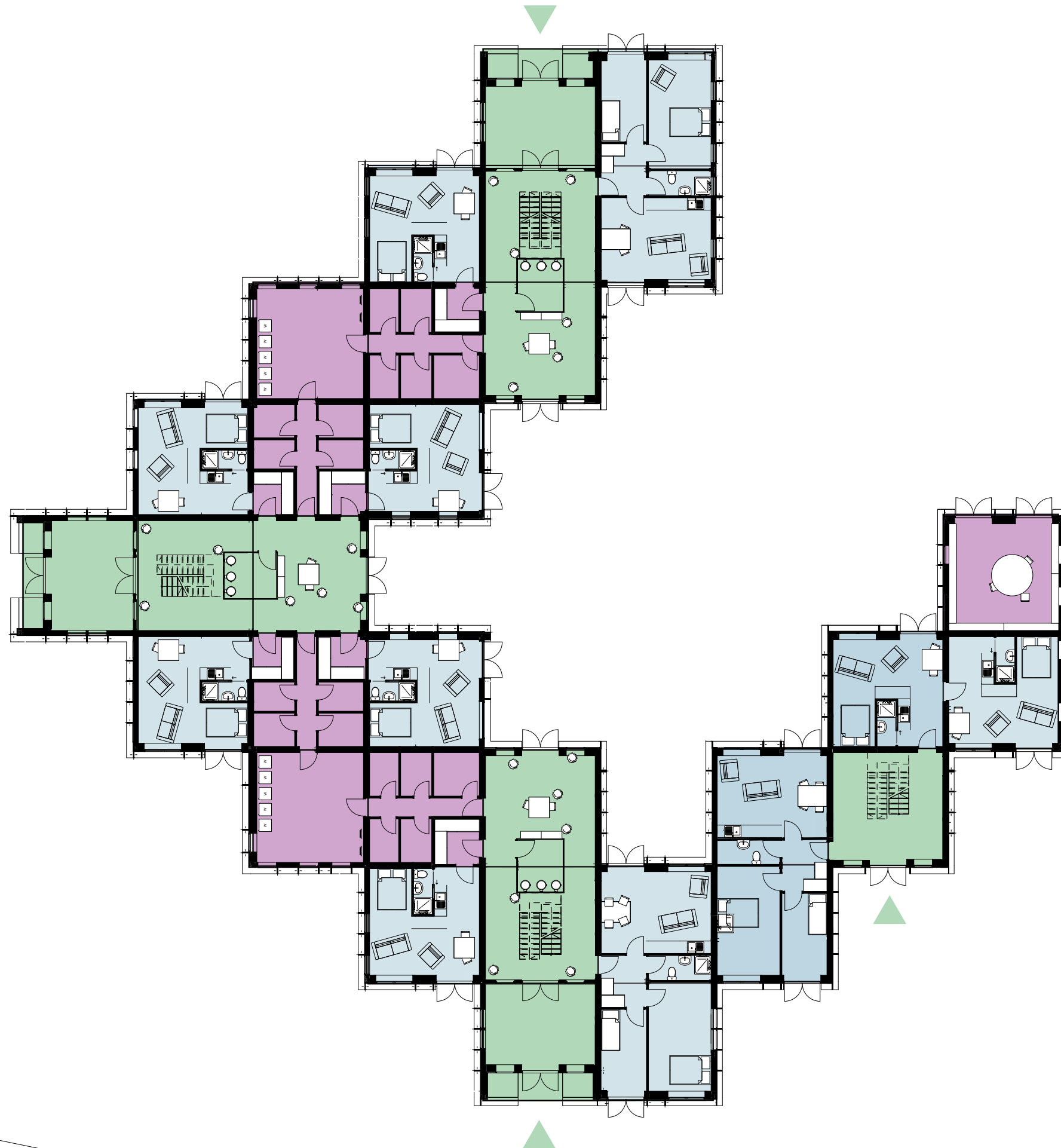
	Hattem 2023	Hattem 2040	
Houses	5400	6900	+ 1500
People	12300	15750	+ 3450
Urban density	46 people/ha	58 people/ha	+12
Average living space	55,8m ² /person	50m ² /person	- 6

Gemiddelde woonoppervlakte per persoon



	Hattem 2023	Hattem 2040		Complex
Houses	5400	6900	+ 1500	30
People	12300	15750	+ 3450	60
Urban density	46 people/ha	58 people/ha	+12	240 people/ha
Average living space	55,8m ² /person	50m ² /person	- 6	25m ² /person
				+ starters
				+ 1 p. households
				+ families

HOW?



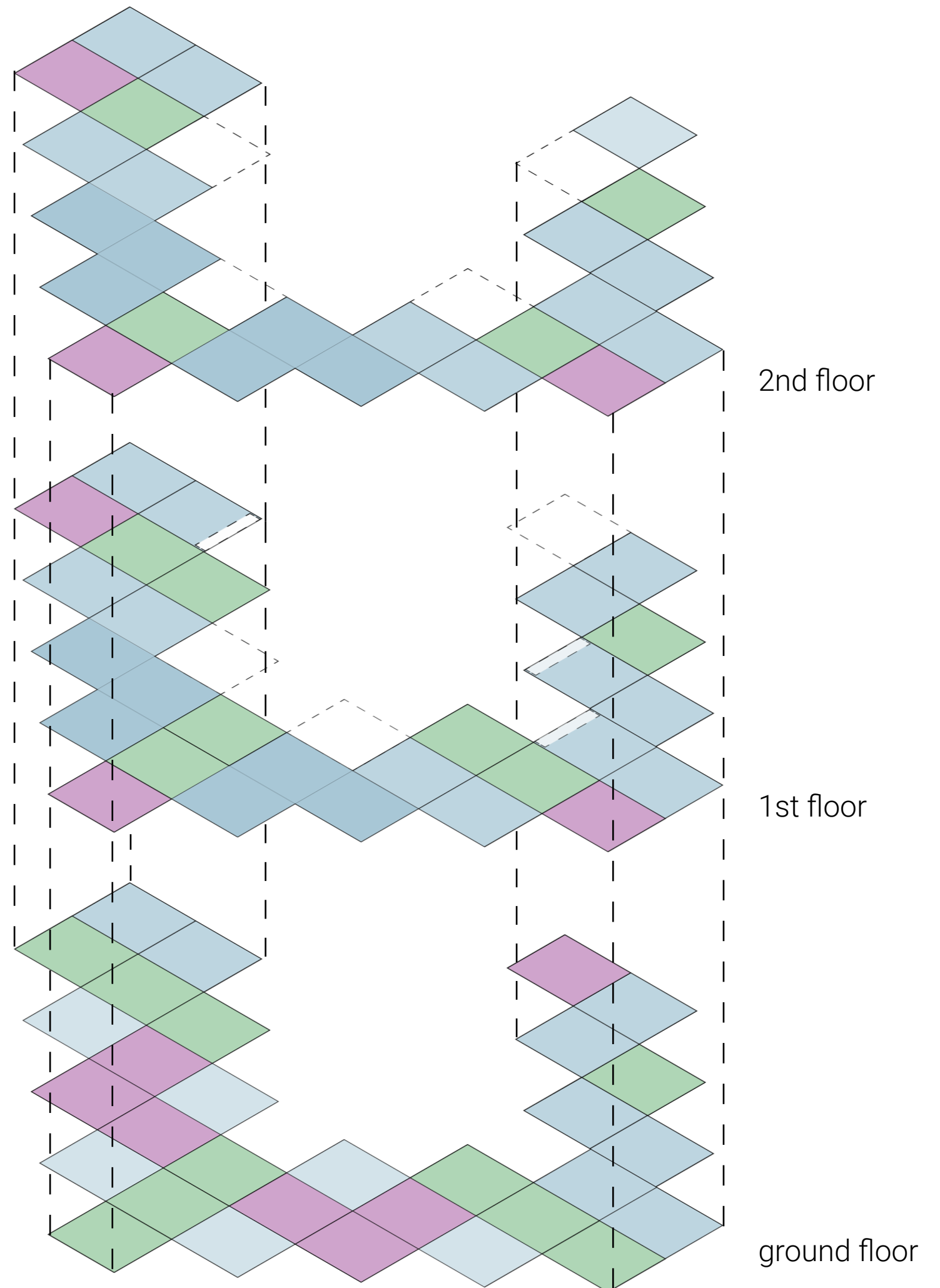
- entrance
- communal facilities
- studio apartment
- 2 bedroom apartment
- 3 bedroom apartment



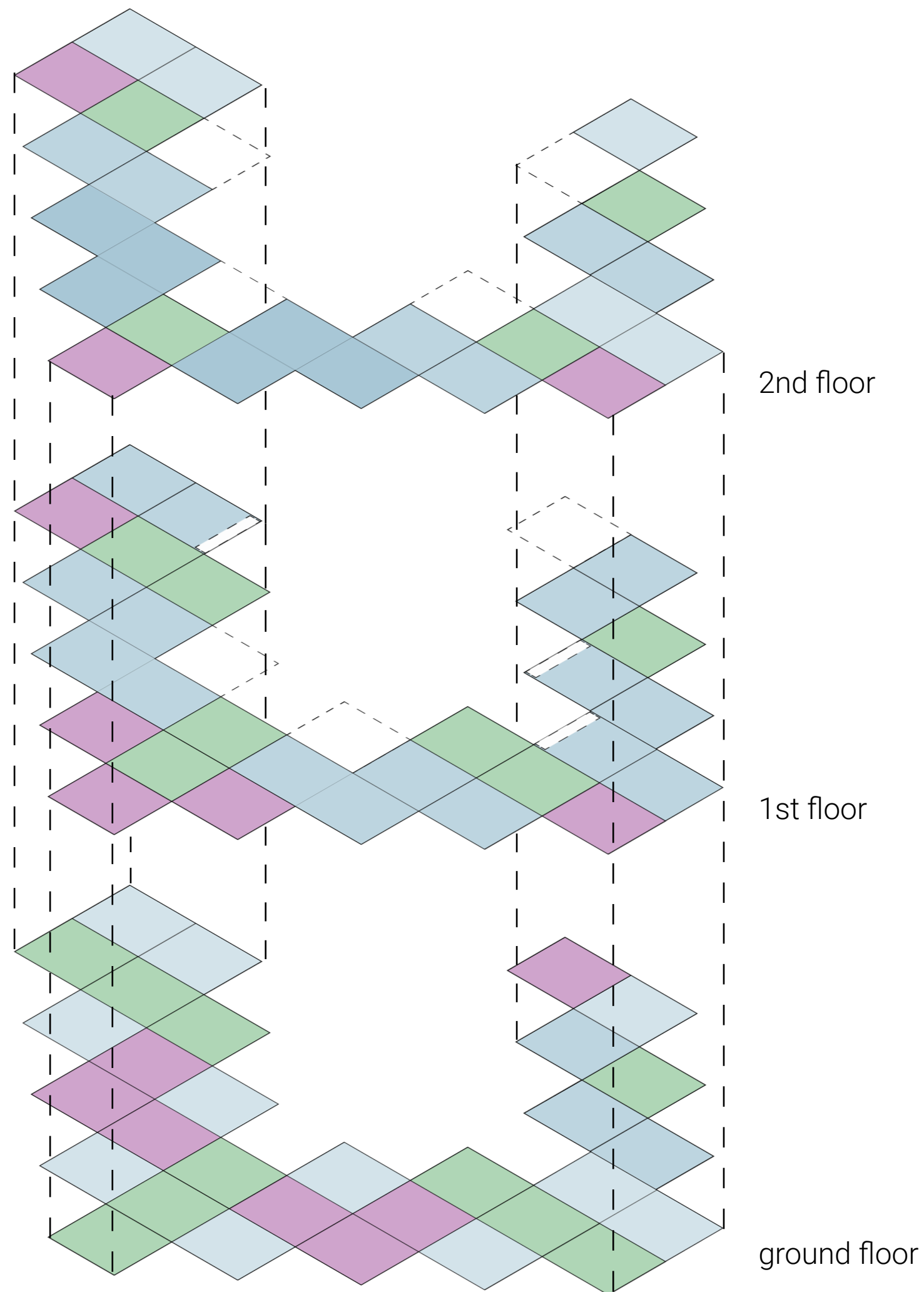
street entrance

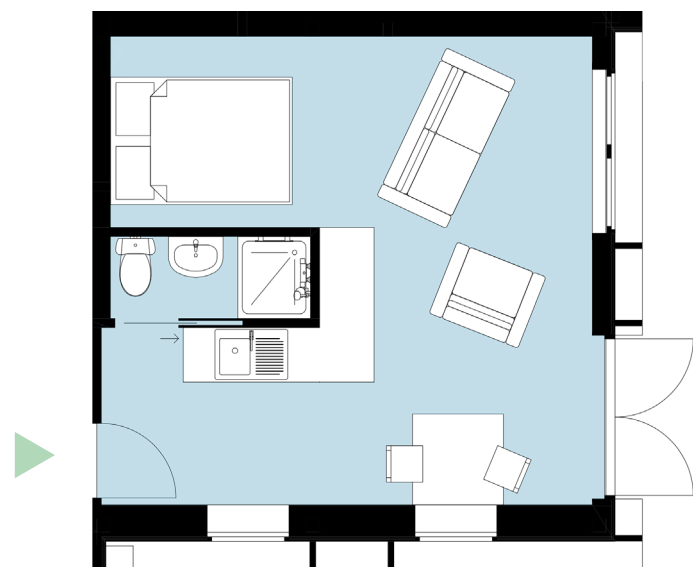
CONFIGURATION

-  entrance
-  communal facilities
-  studio apartment
-  2 bedroom apartment
-  3 bedroom apartment

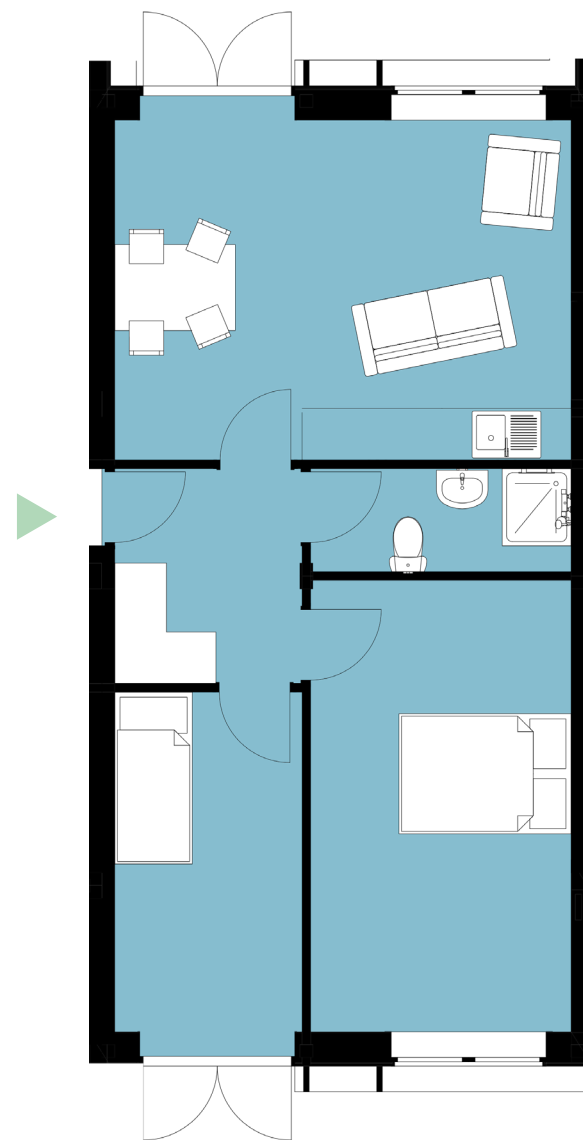


- entrance
- communal facilities
- studio apartment
- 2 bedroom apartment
- 3 bedroom apartment

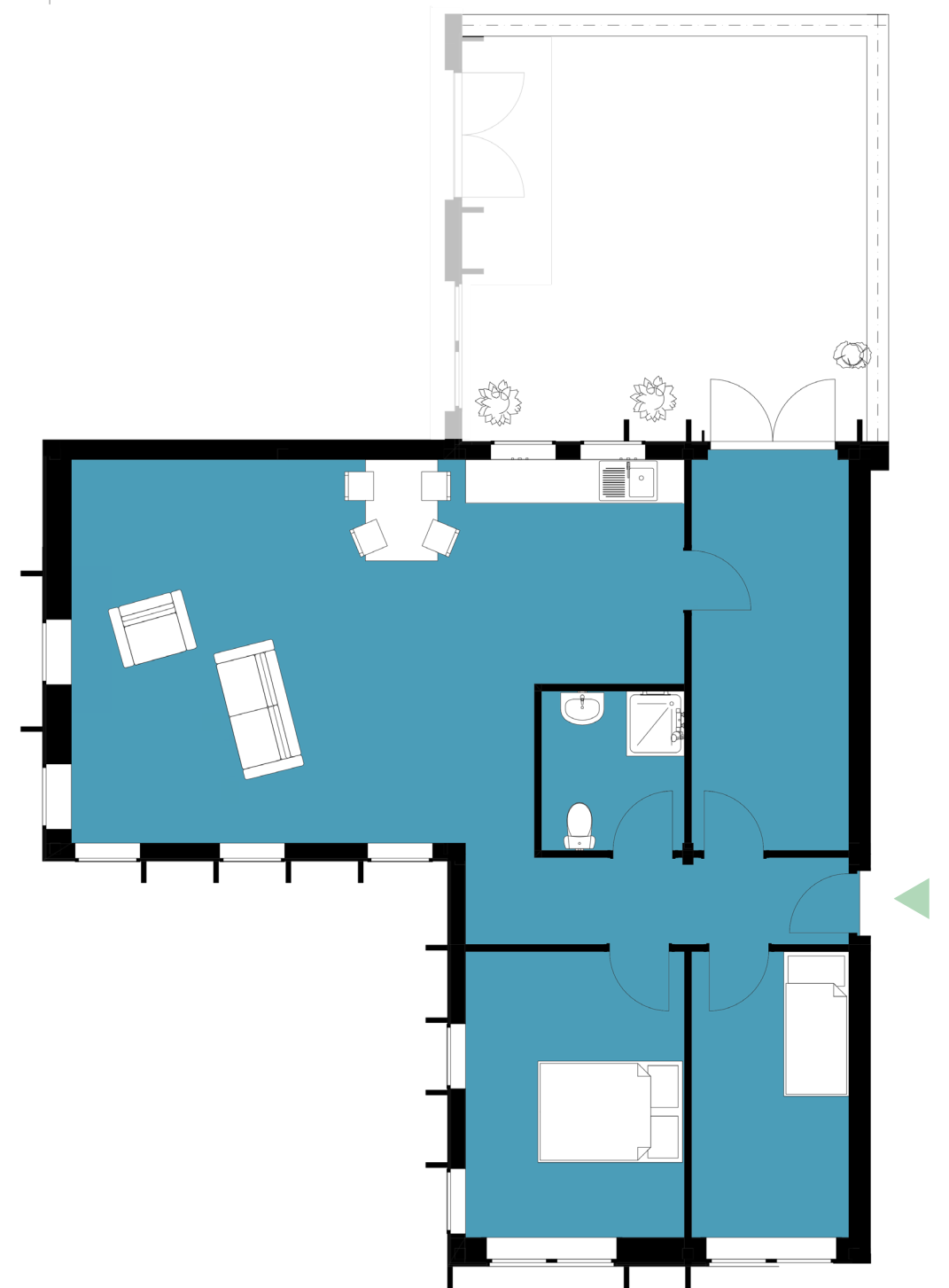




studio apartment 25m2



2 bedroom apartment 50m2



3 bedroom apartment 75m2

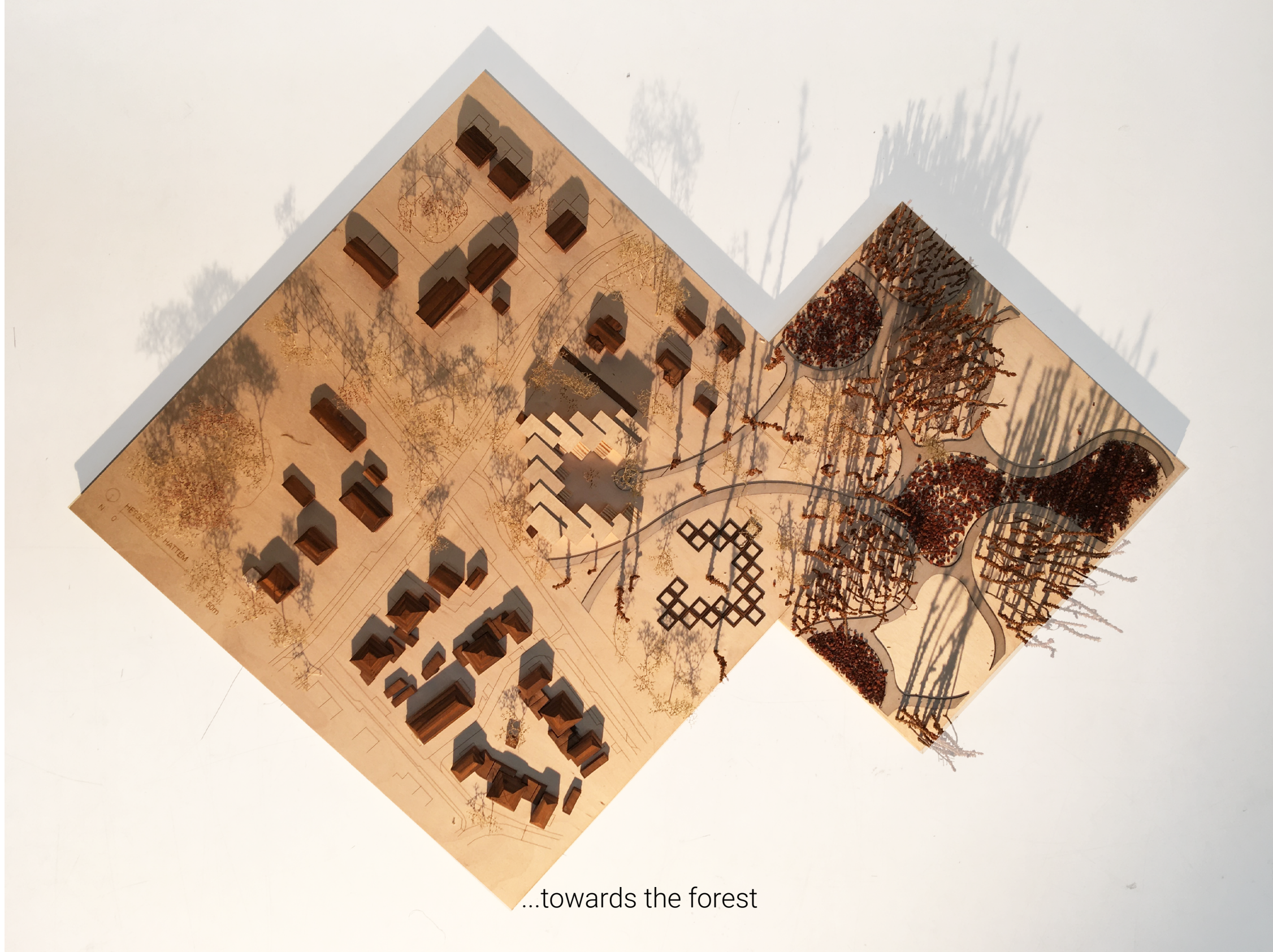
typologies



interior impression



into the courtyard...







Poplar:
summer shade
production tree
Birch:
summer shade



Oak:
summer shade
production tree



Scotss Pine:
year round privacy
production tree



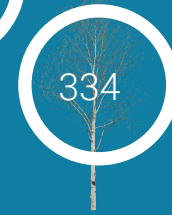
Wild apple
seasonal fruit



Elm
summer shade



Elderberry
Blueberry
Blackberry
Red currant
Wild flowers



Poplar:
summer shade
production tree
Birch:
summer shade



Oak:
summer shade
production tree



Scotss Pine:
year round privacy
production tree



Wild apple
seasonal fruit

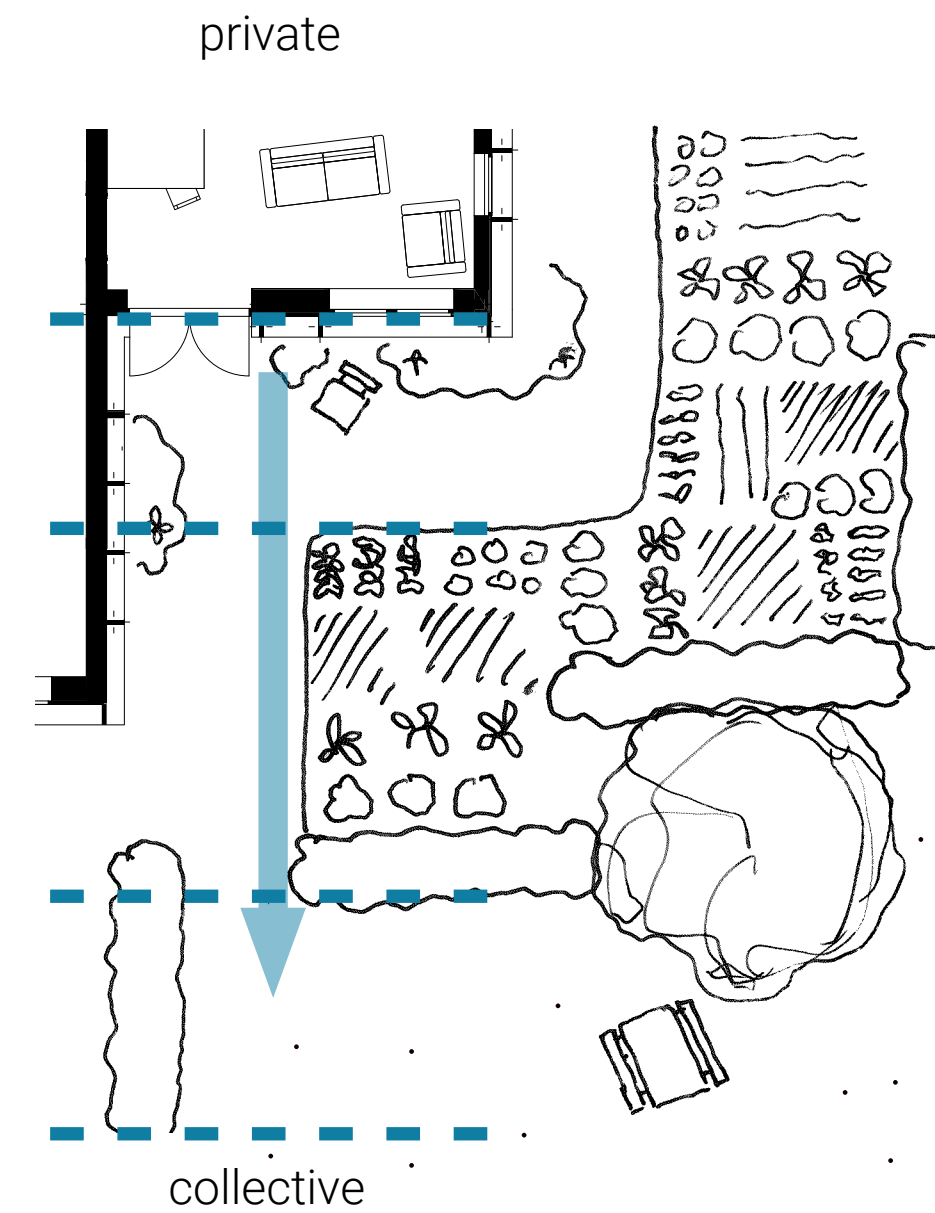


Elm
summer shade



Elderberry
Blueberry
Blackberry
Red currant
Wild flowers





vegetable gardens as transition space

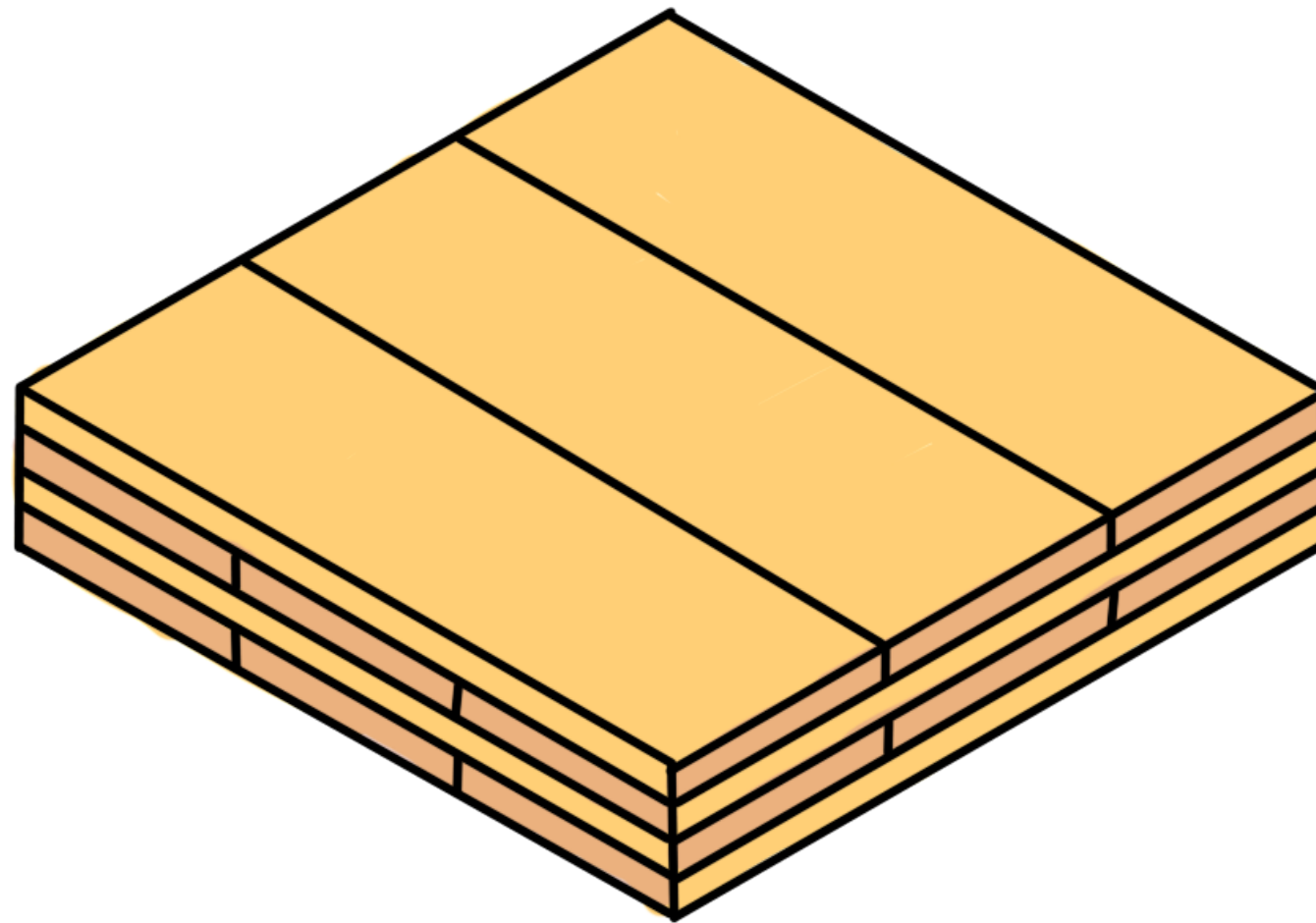


SOCIAL HOUSING

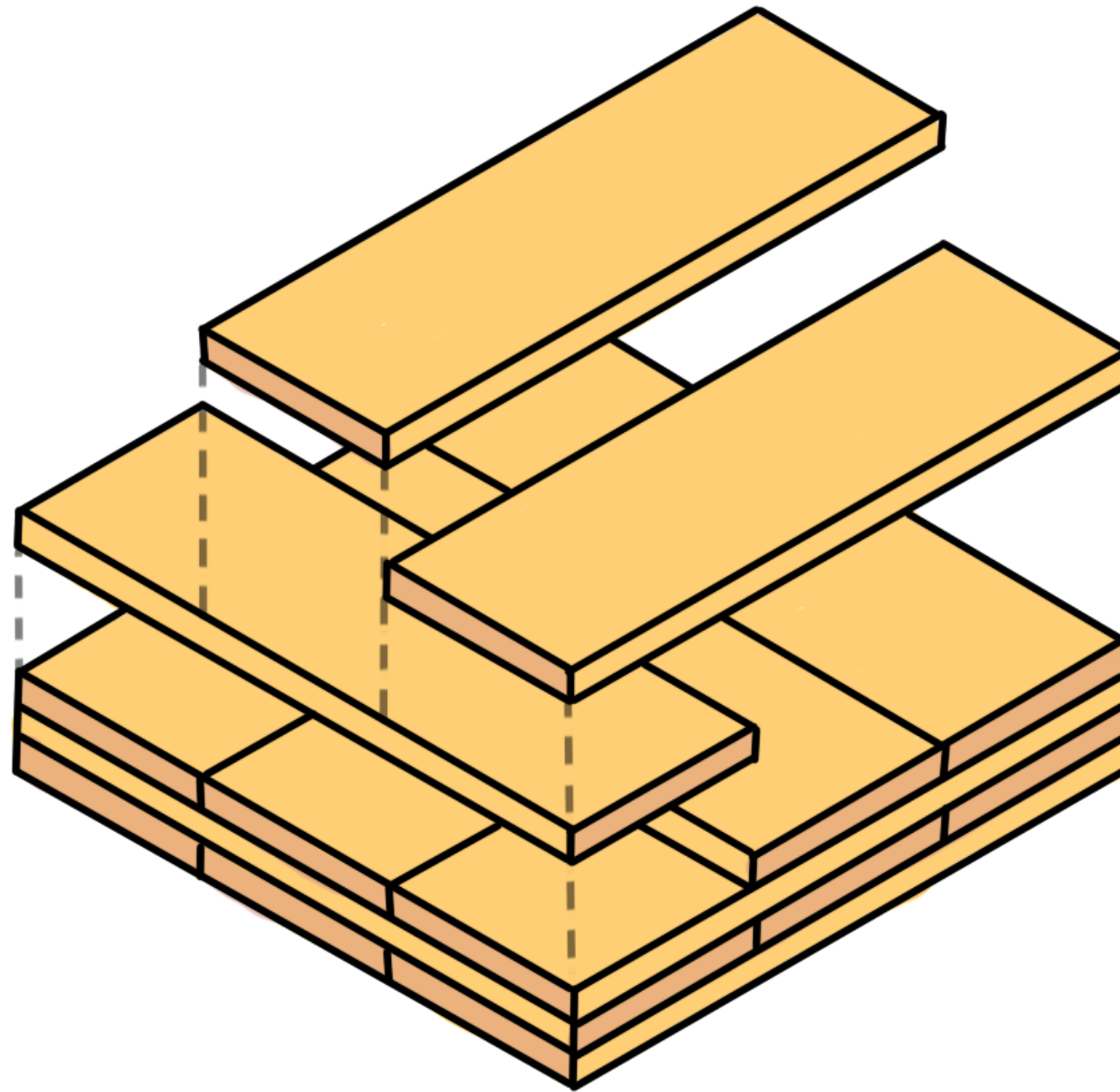
TIMBER CONSTRUCTION

SYSTEM

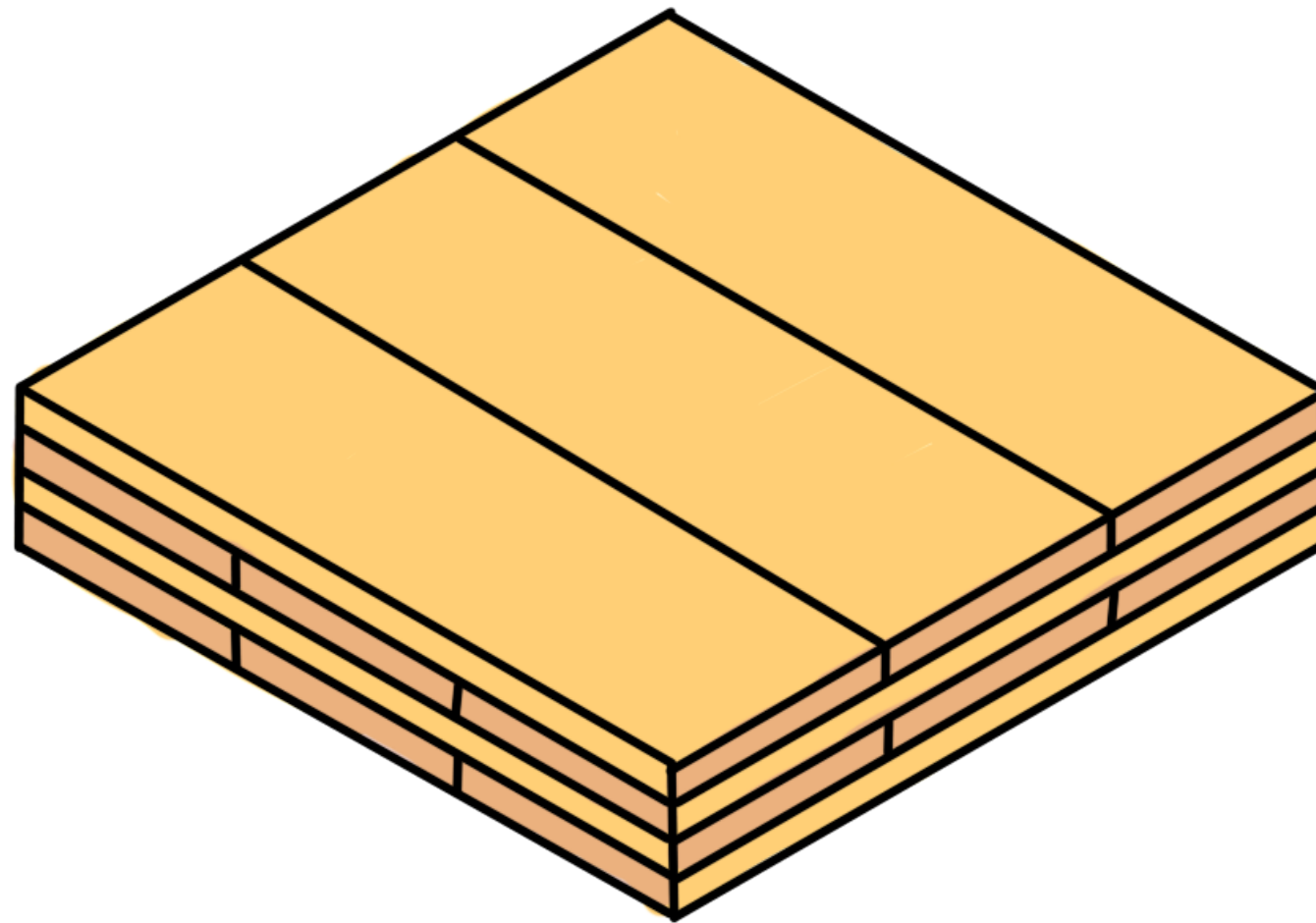
RESEARCH



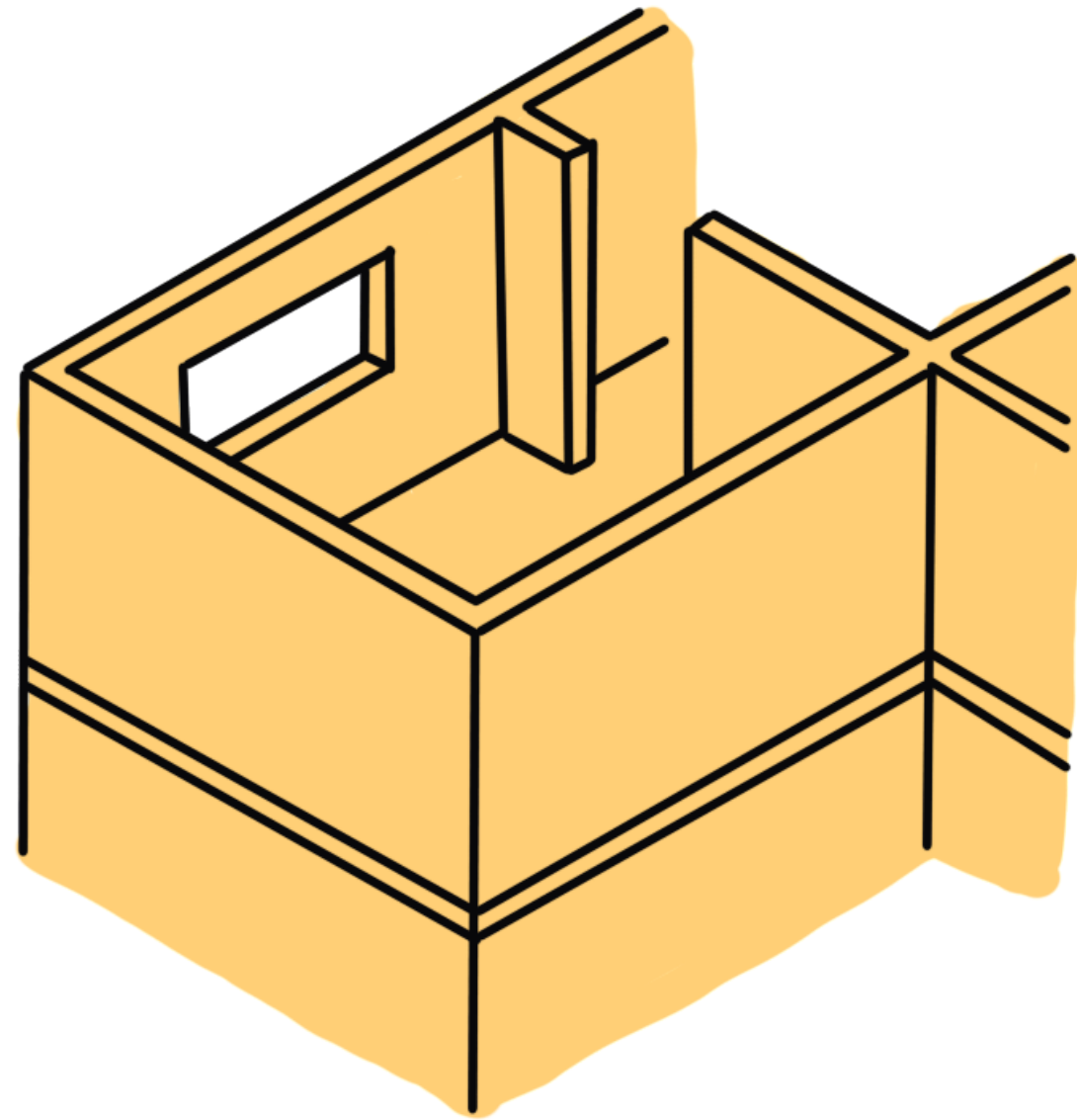
CROSS LAMINATED TIMBER



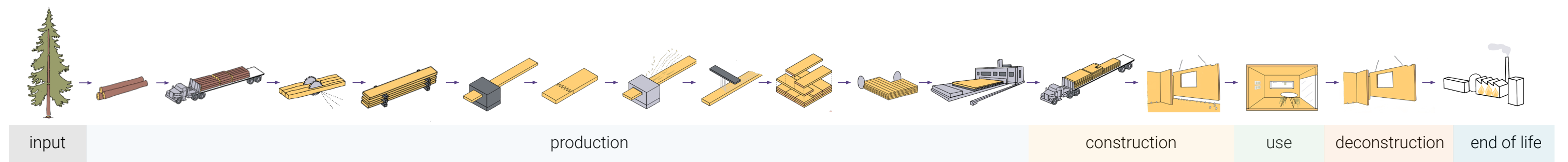
CROSS LAMINATED TIMBER



CROSS LAMINATED TIMBER

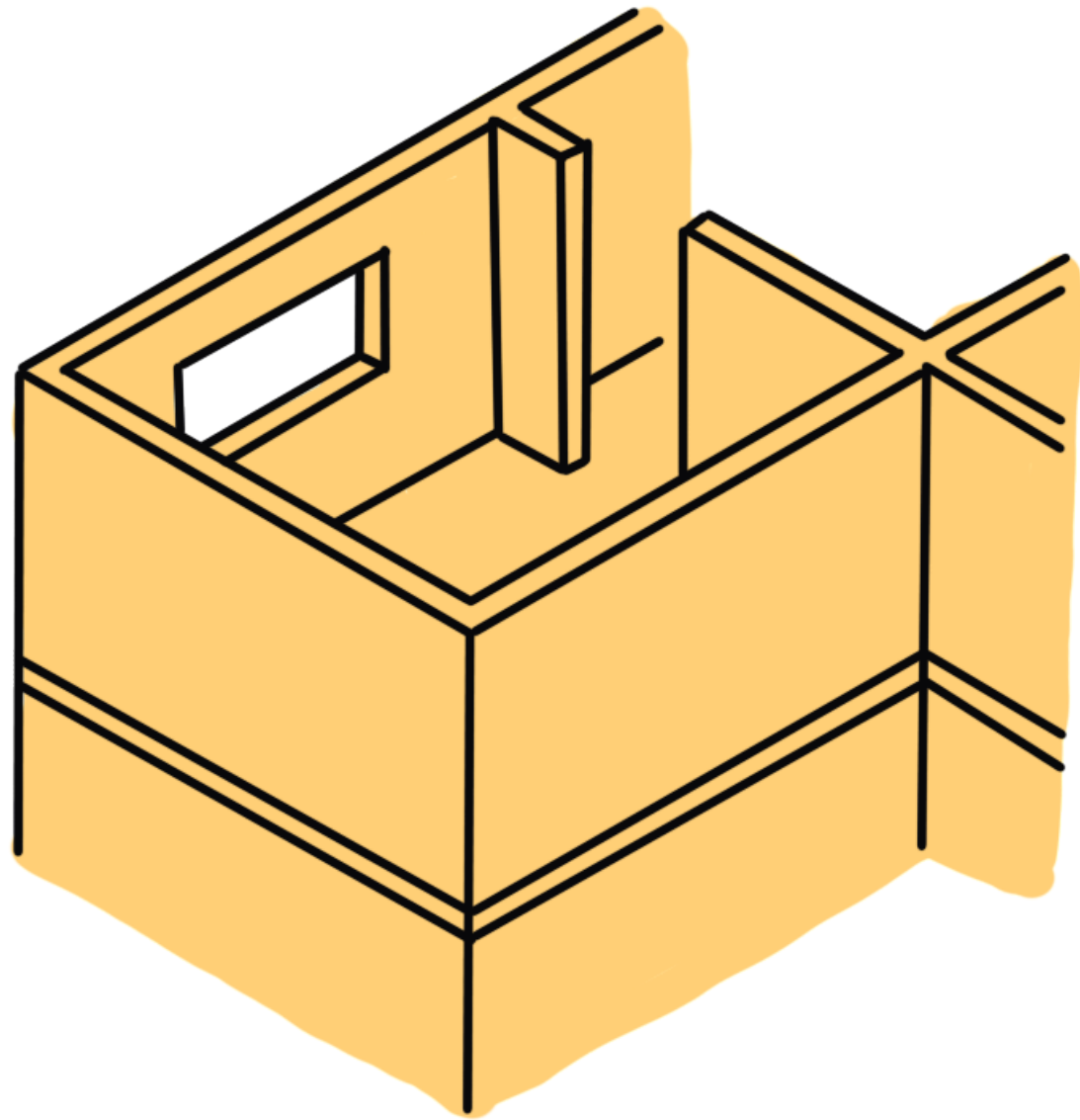


CROSS LAMINATED TIMBER CONSTRUCTION

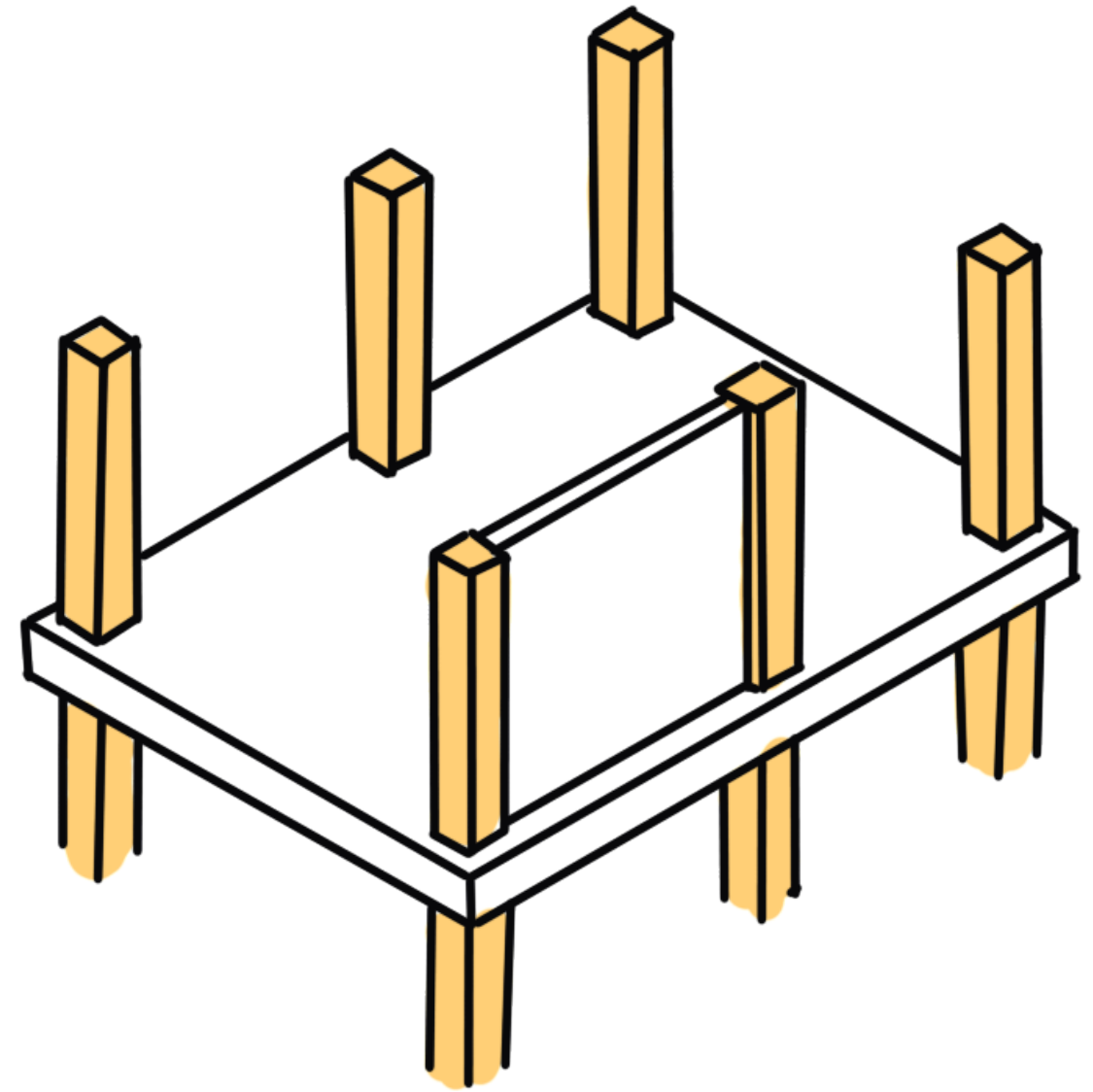


CLT production chain

RESEARCH



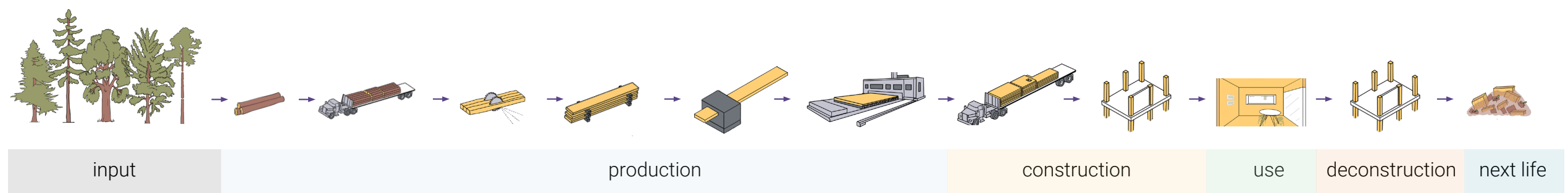
CROSS LAMINATED TIMBER



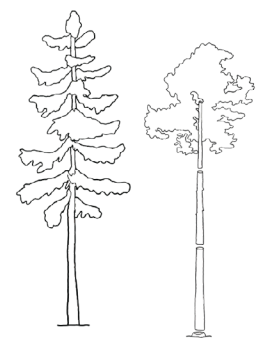
TIMBER FRAME

vs

RESEARCH



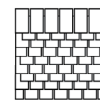
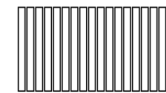
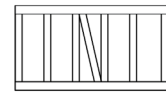
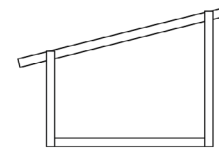
timber frame construction chain



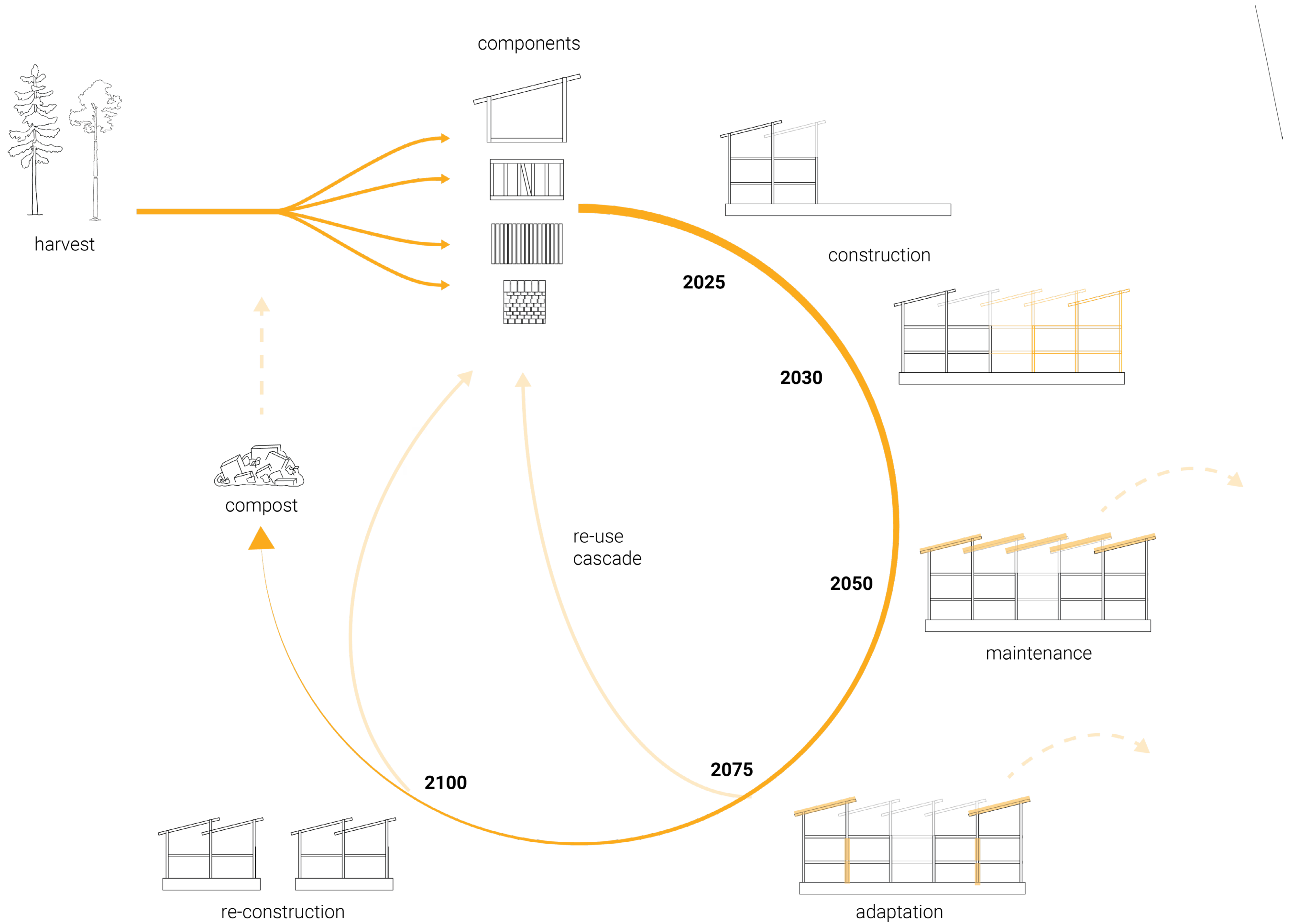
harvest
~~~~~



component











log - joint - compost

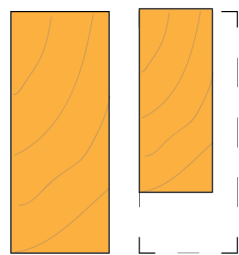


# CONSTRUCTION

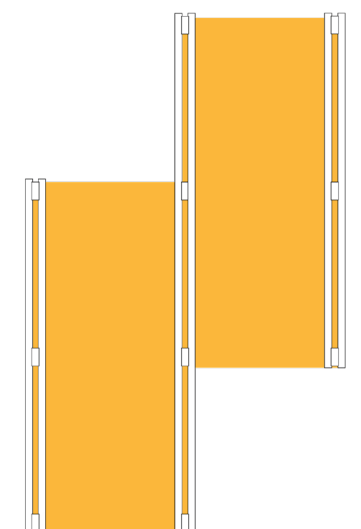
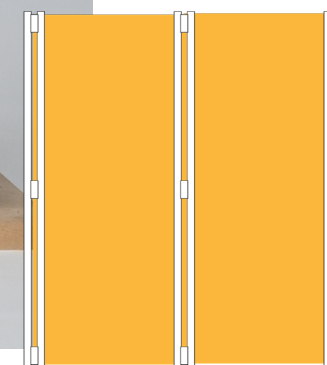




MAXIMUM DIMENSIONS



SOFTWOOD/HARDWOOD

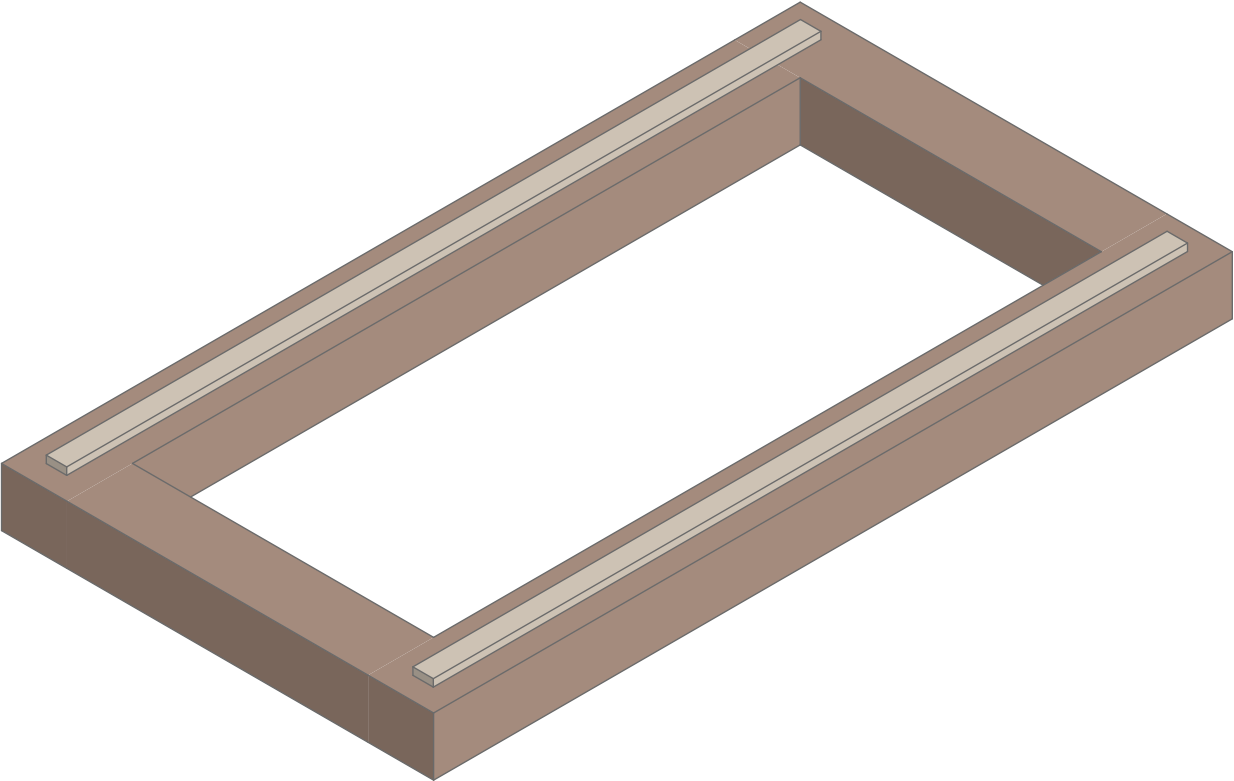


COMPOSITION GRID

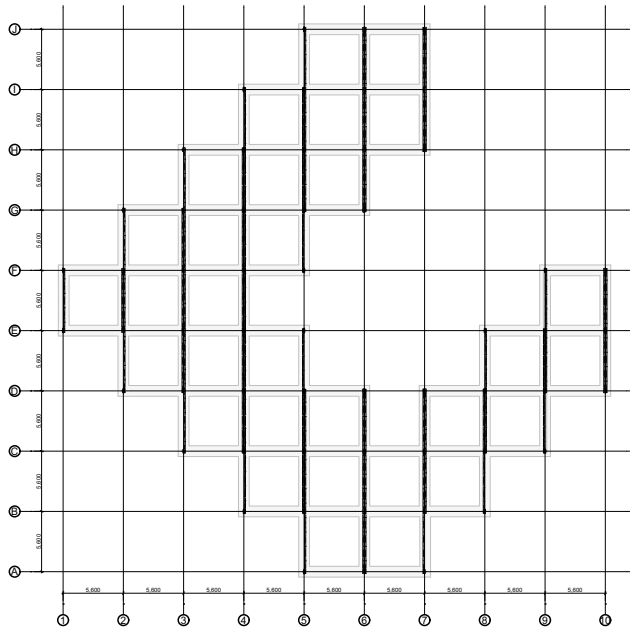




+ OAK



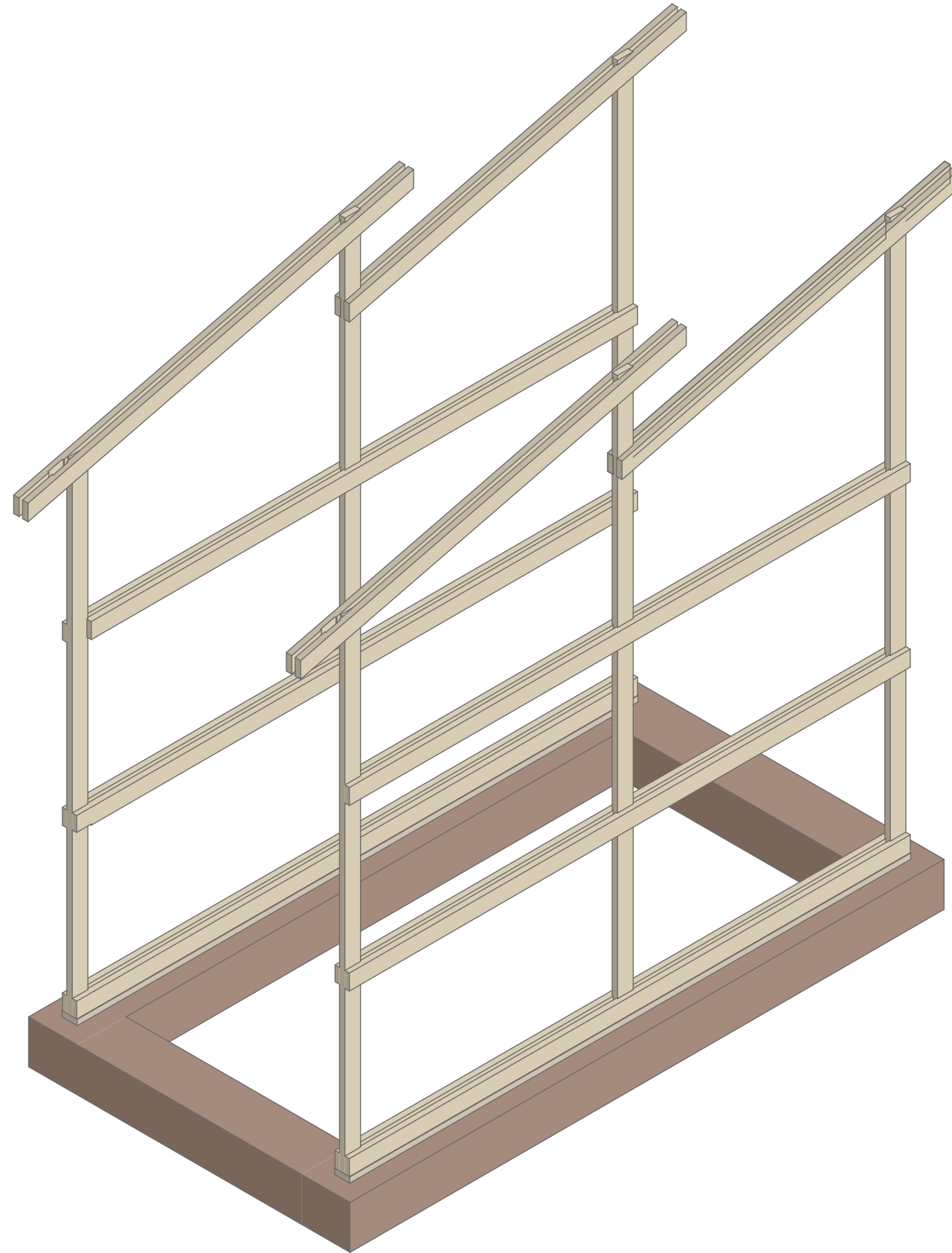
re-used brick foundation





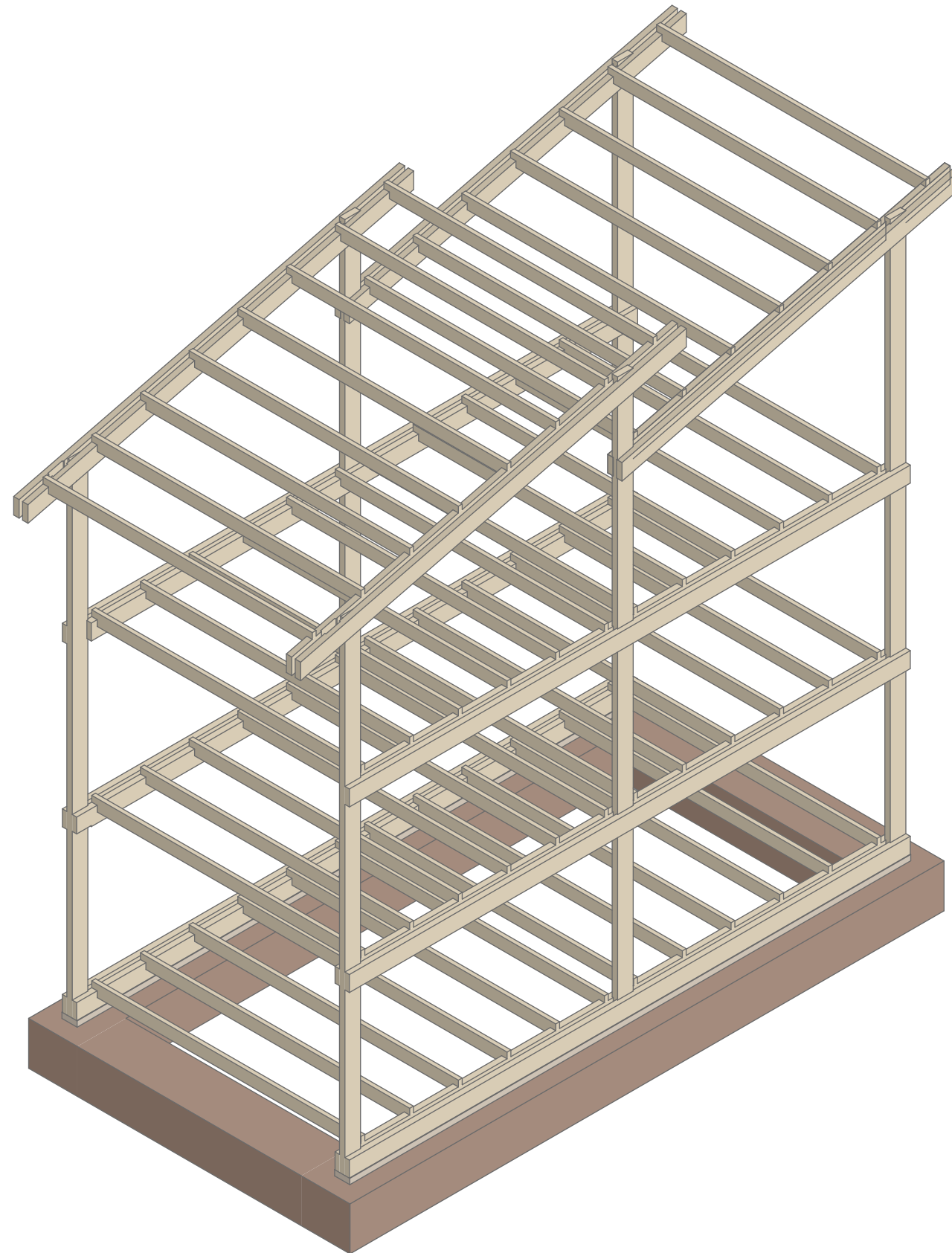


+ SCOTS PINE

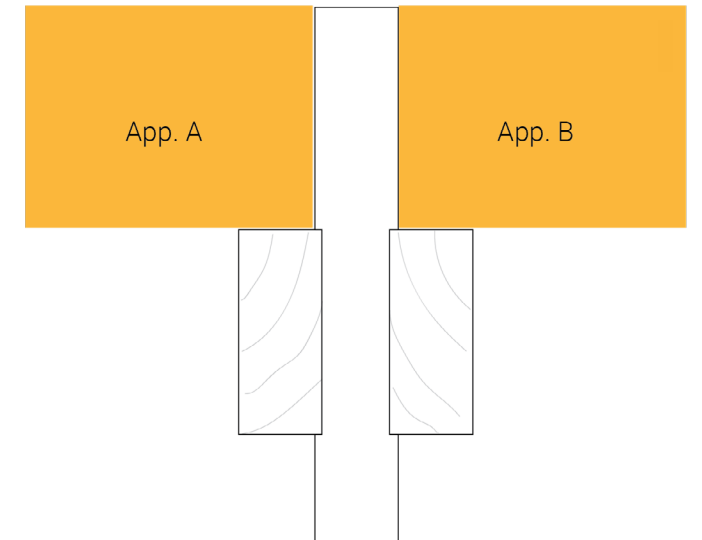


sawn timber frame

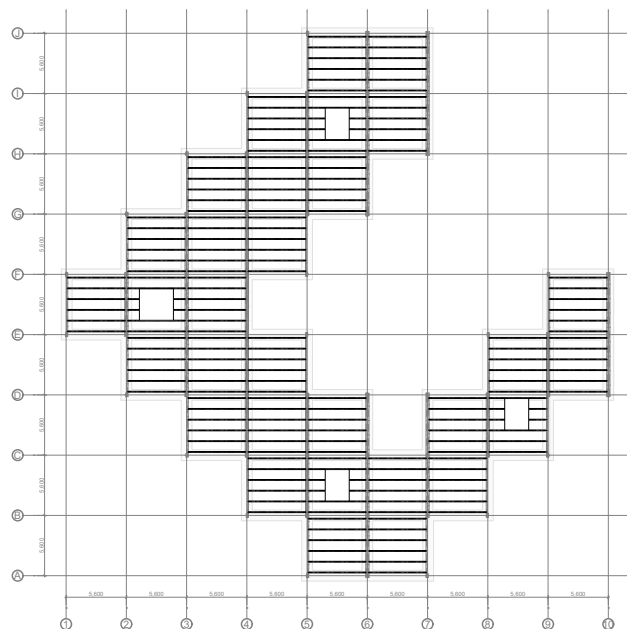




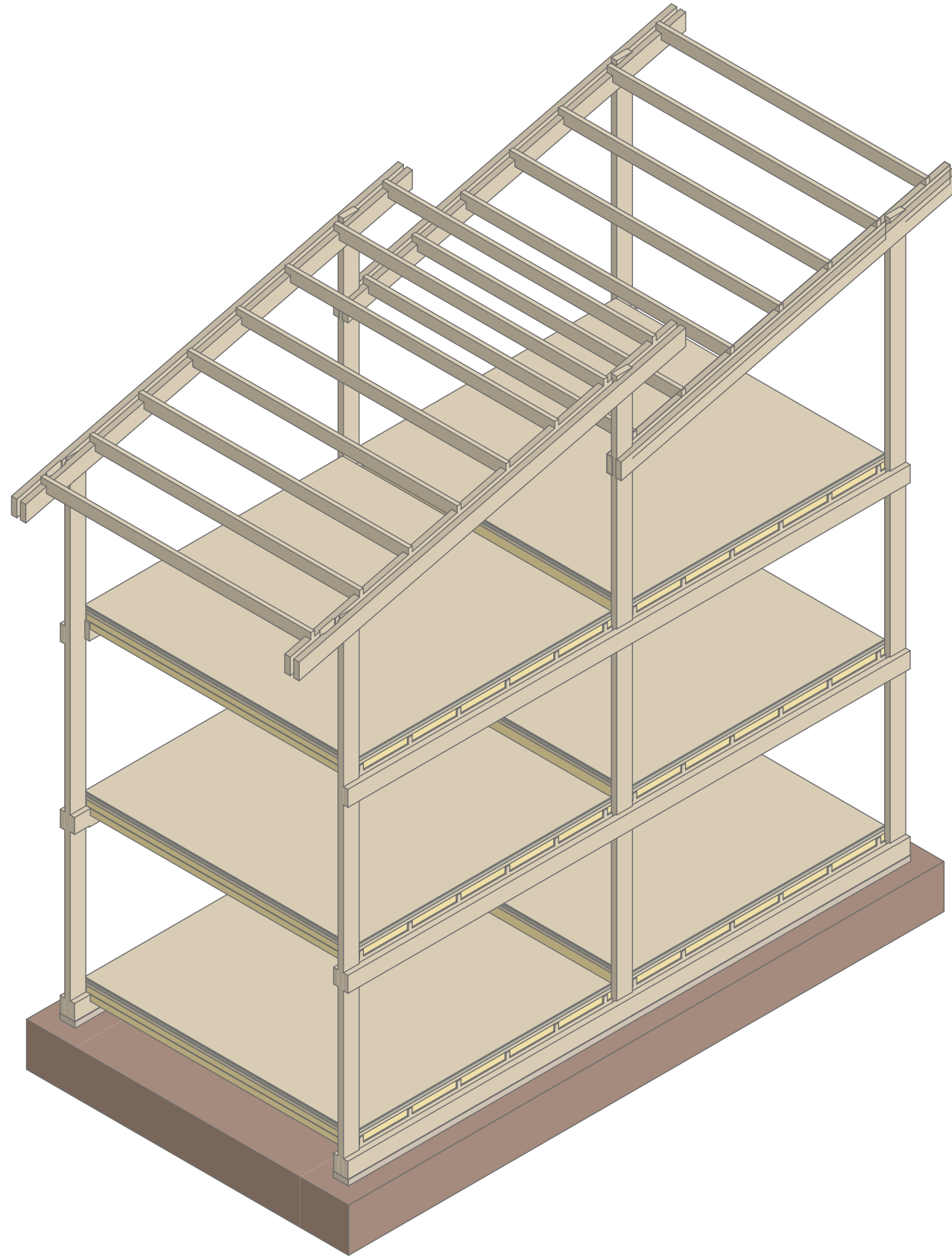
floor joists



acoustic

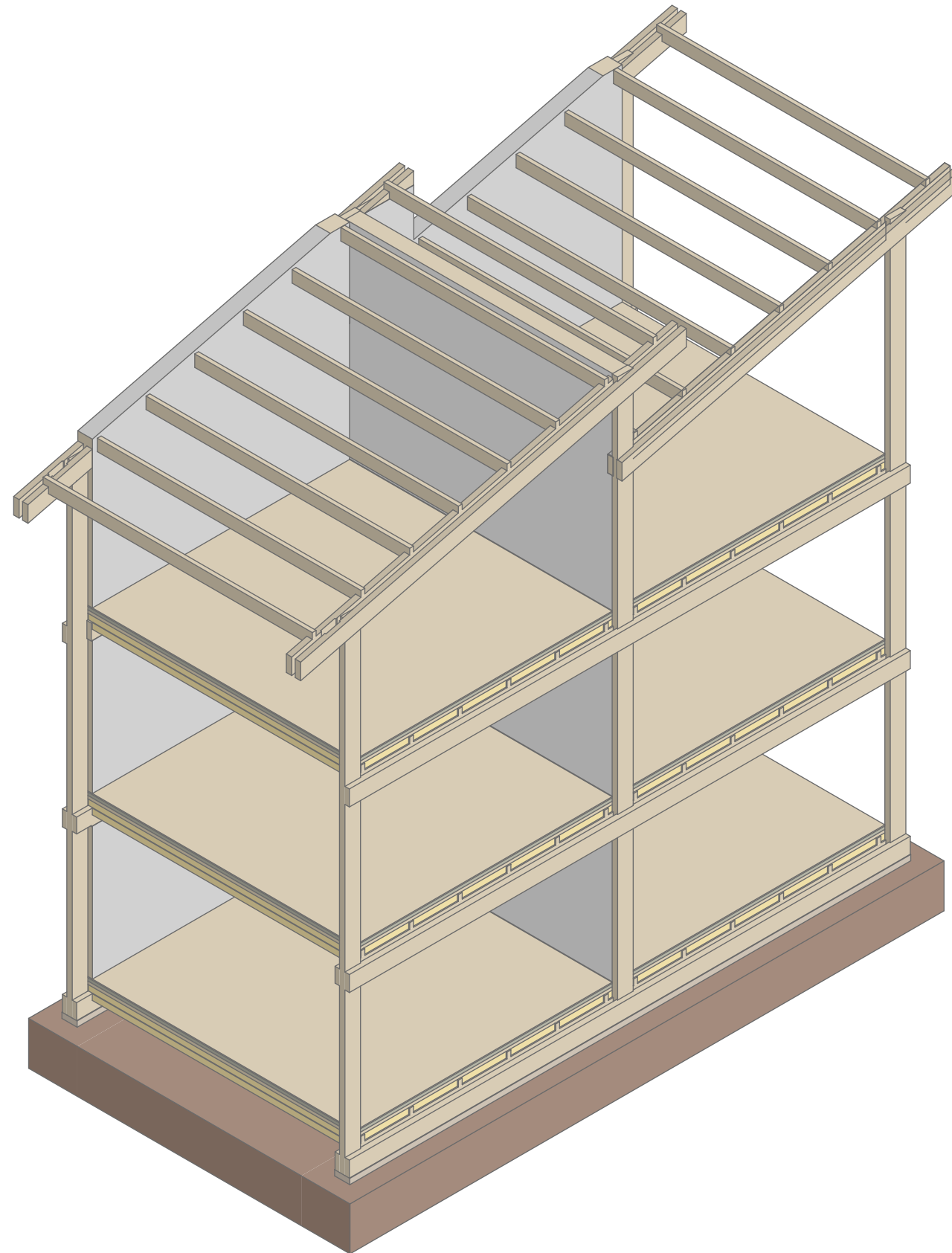




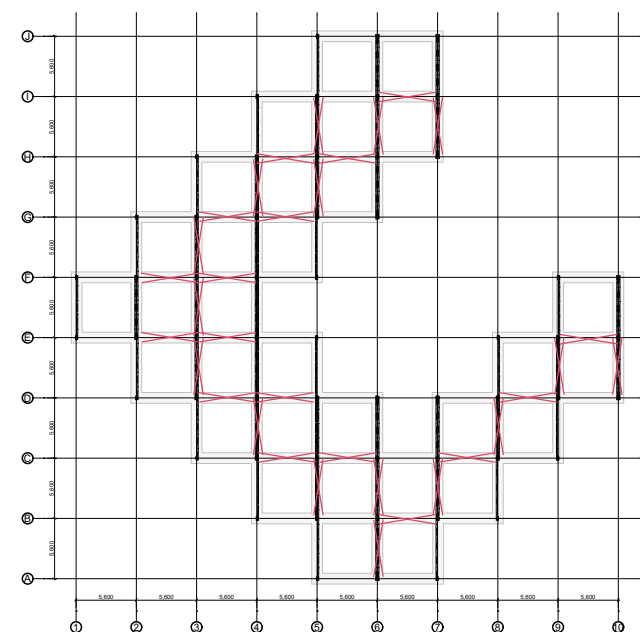


CLT floor slabs



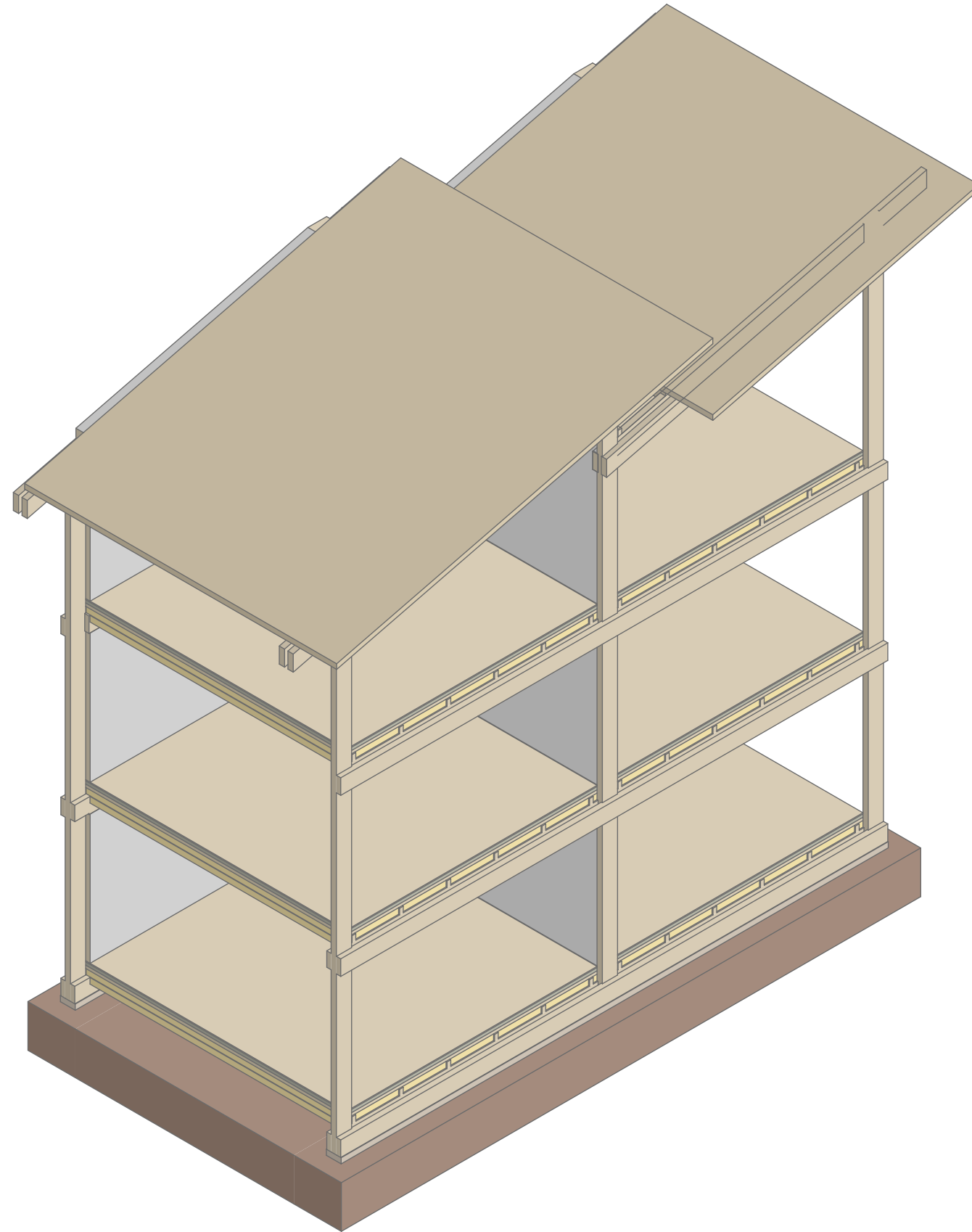


 stability



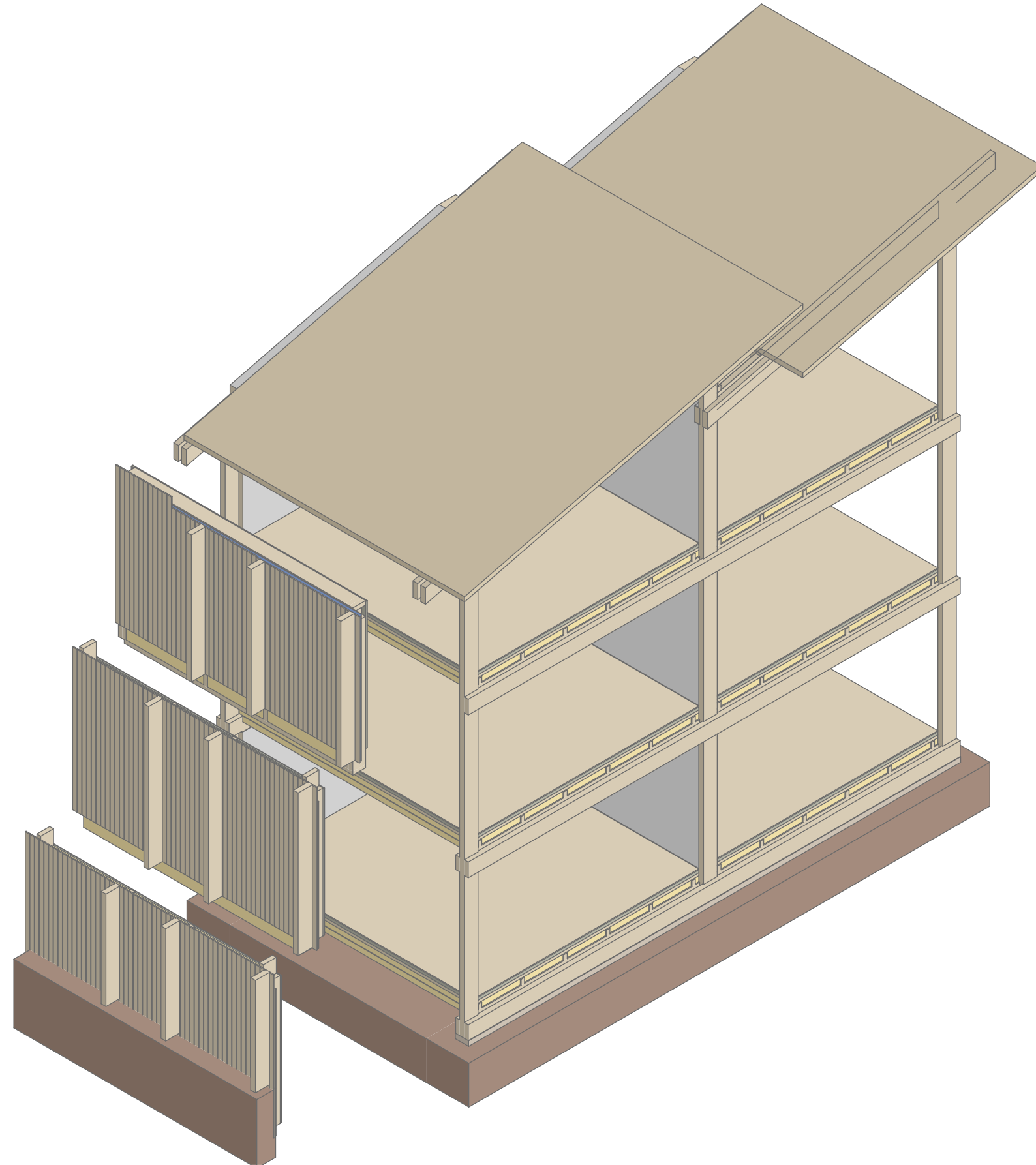
stabilizing wall elements





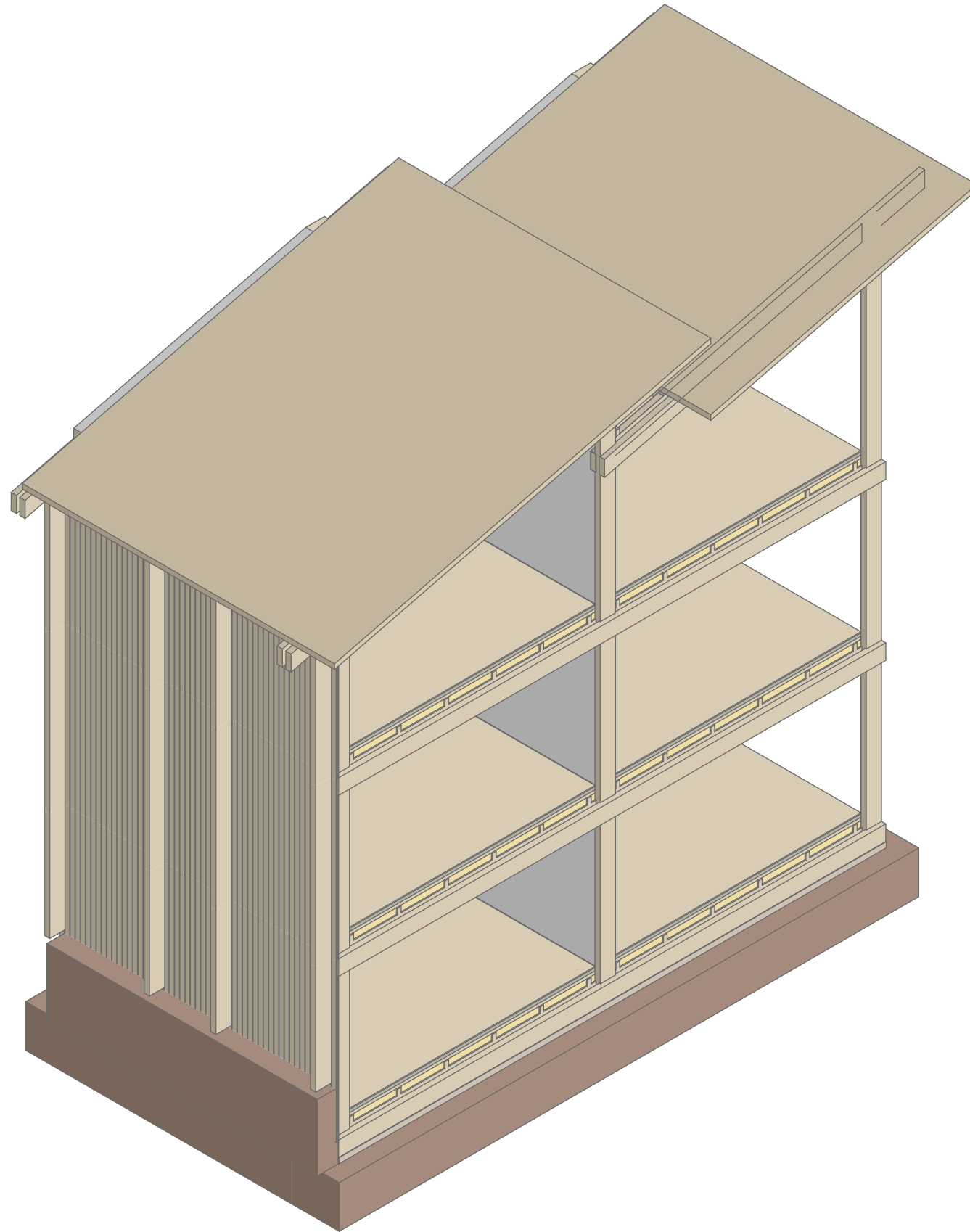
stabilizing roof + shakes





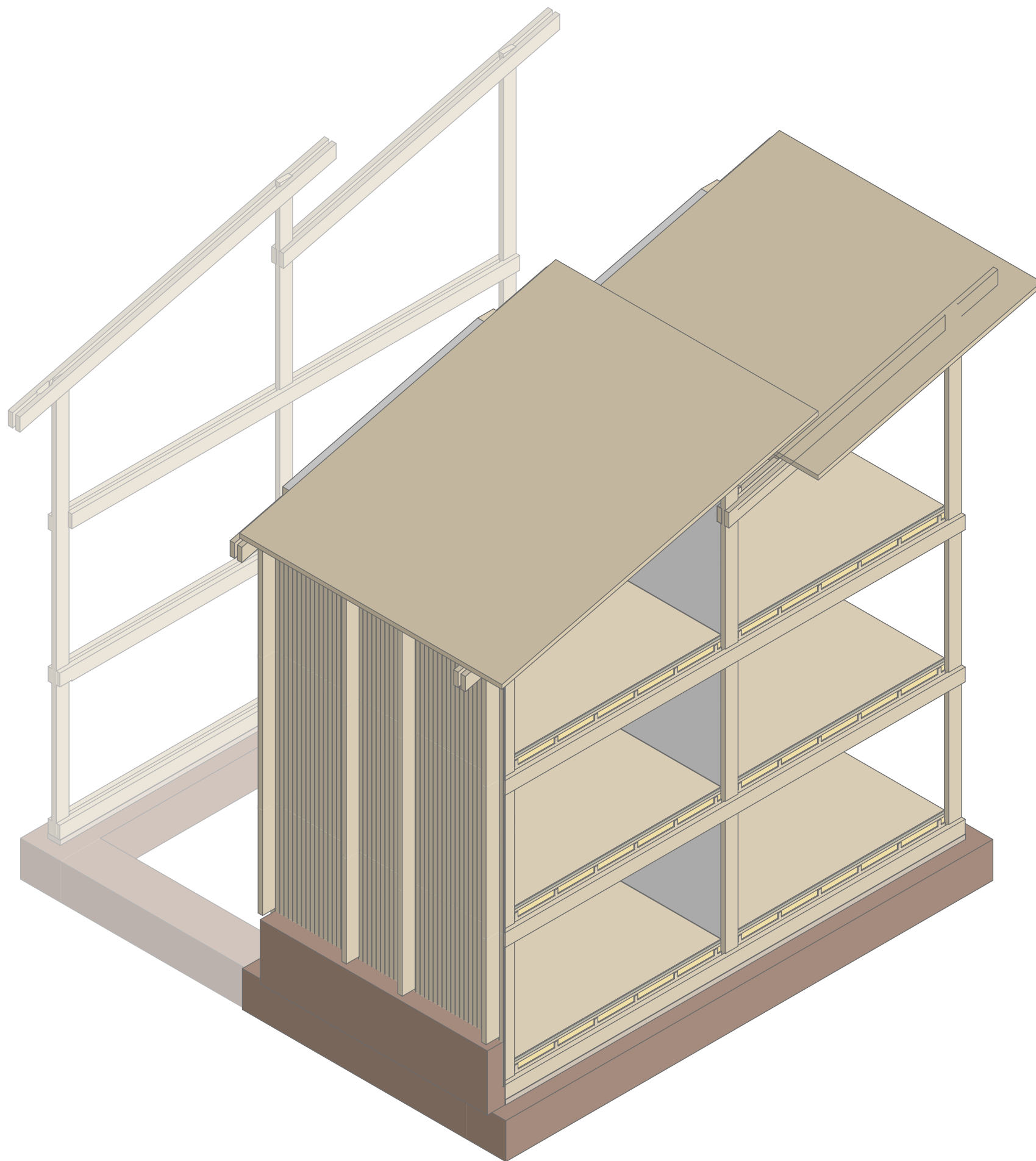
facade built up





facade





addition of frames





one possible configuration



HOW MANY TREES DO YOU NEED?



### Per person

10m<sup>3</sup> sawn timber

2.5 trees

### Per building

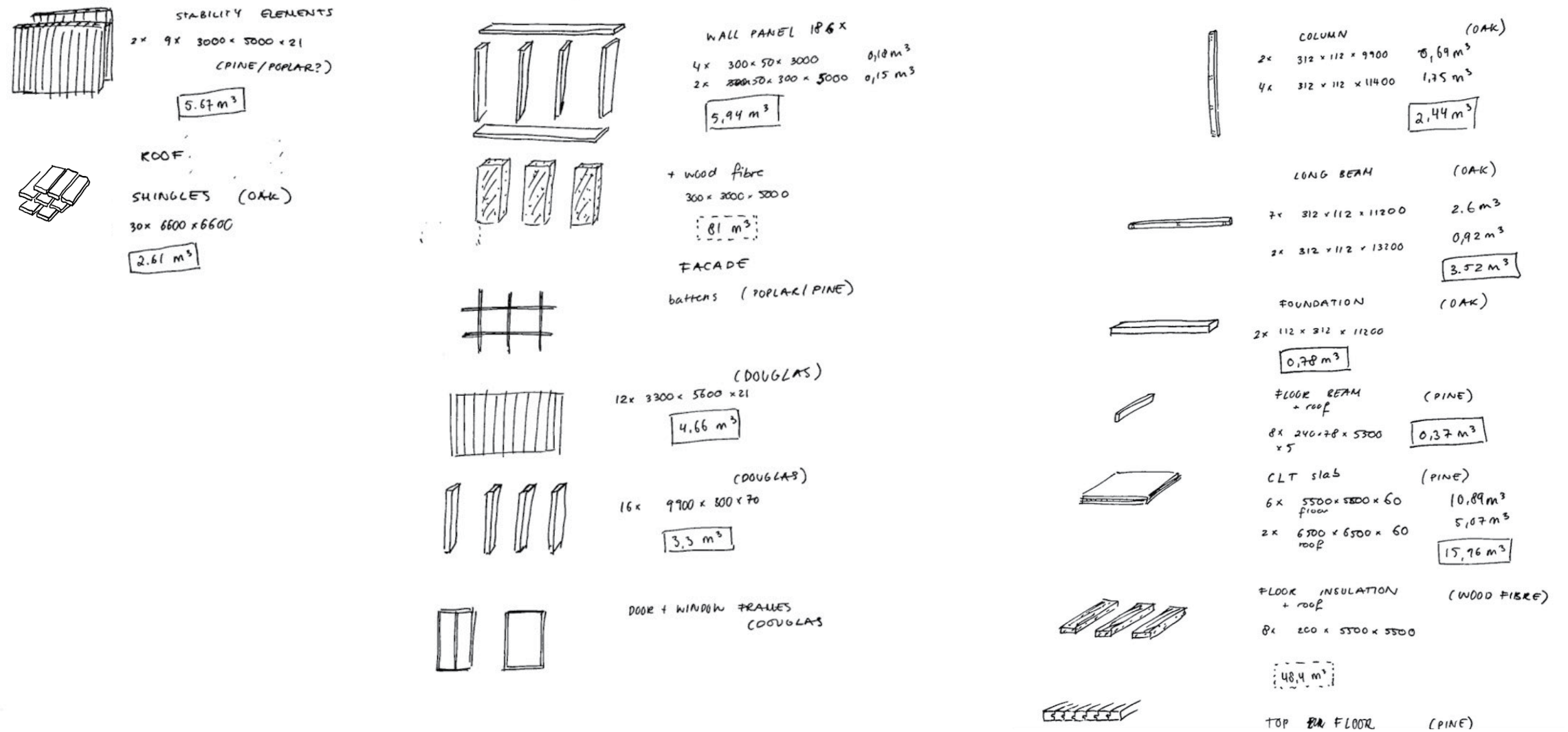
600m<sup>3</sup> sawn timber

150 trees

### Current forest area Hattem:

530ha

3 complexes per year



timber amount calculation



**Per person**

10m3 sawn timber  
2.5 trees

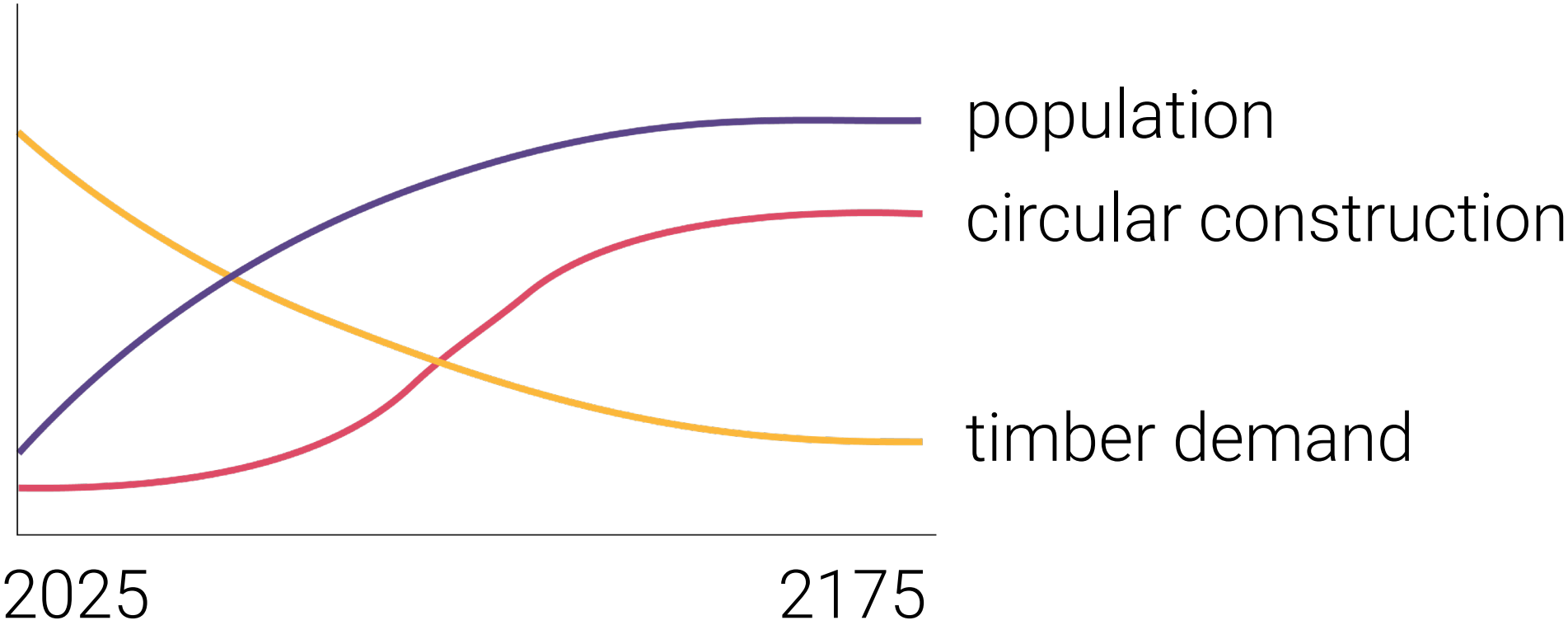
**Per building**

600m3 sawn timber  
150 trees

**Current forest area Hattem:**

530ha

3 complexes per year



future timber demand estimation





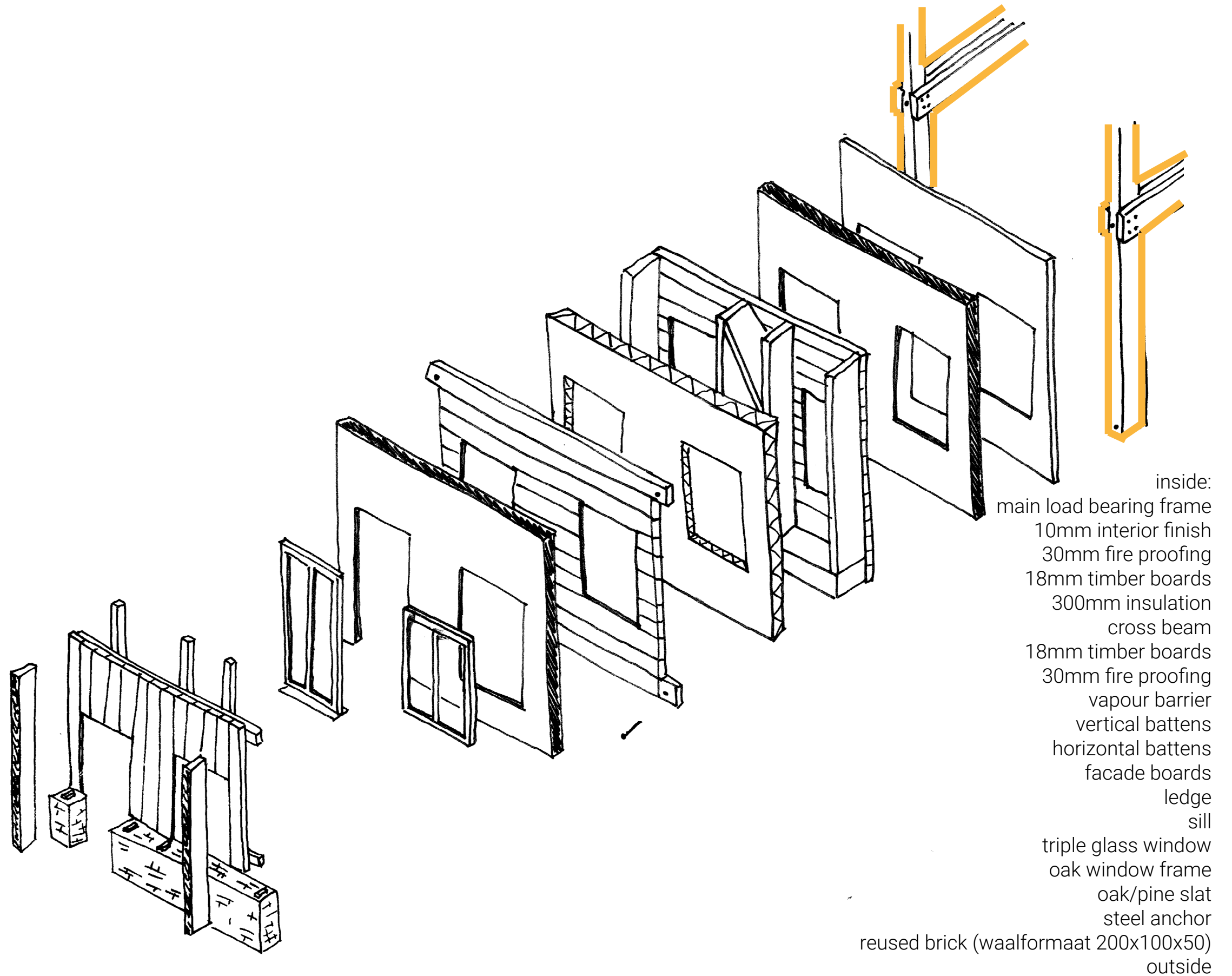
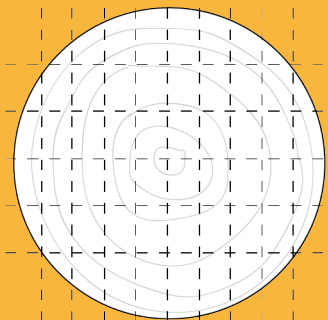
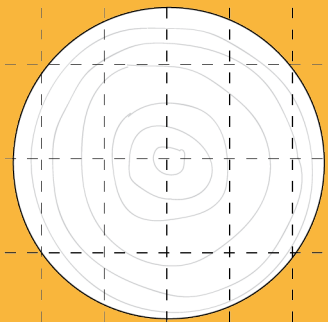
neighbourhood to forest



## DETAILS

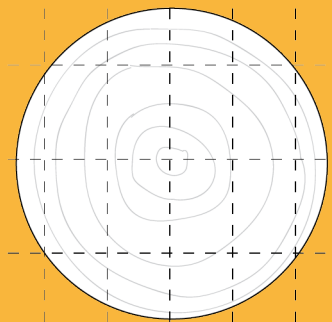


# FACADE BUILD UP

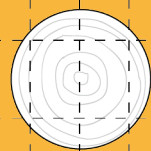




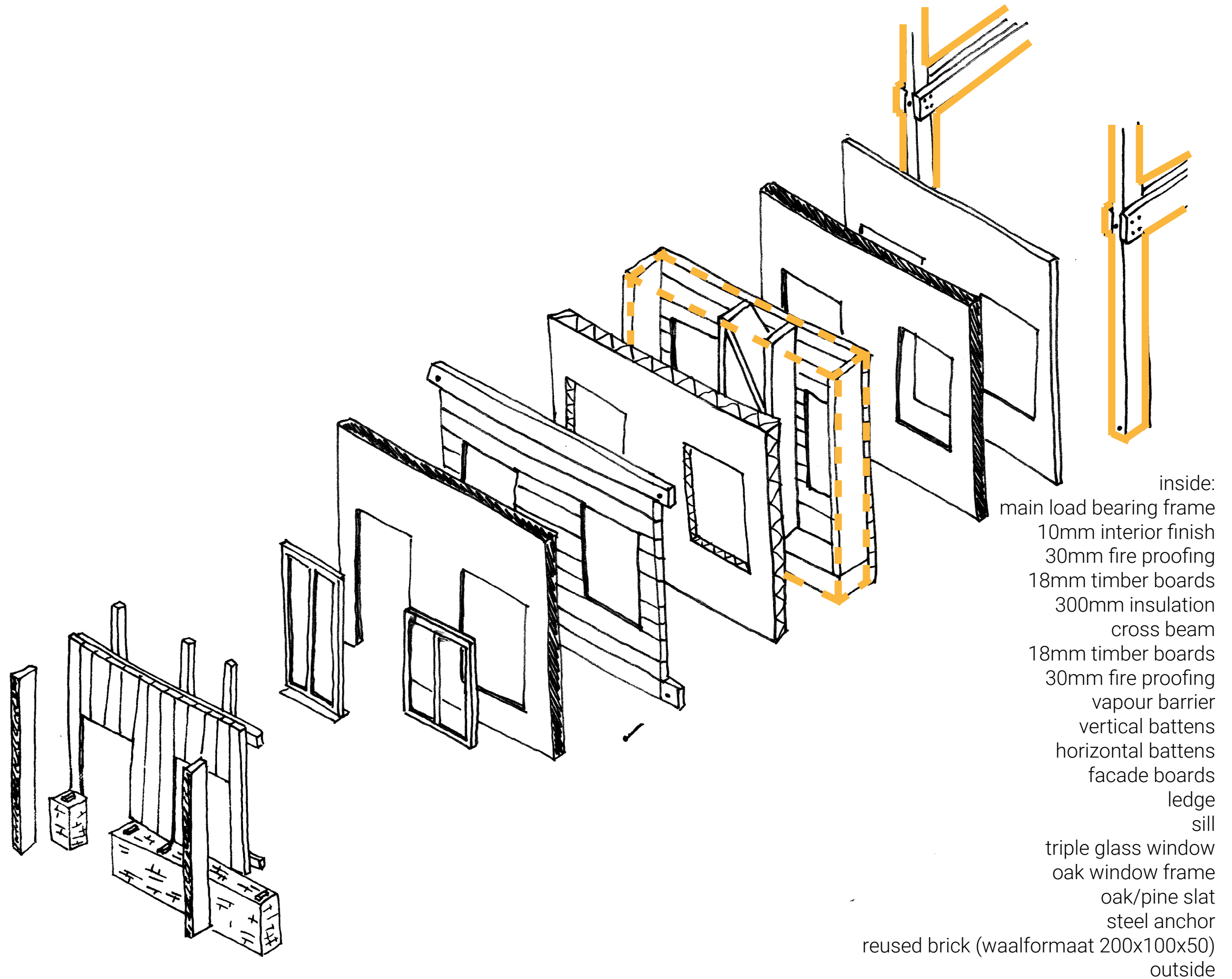
# FACADE BUILD UP



primary construction  
80 years

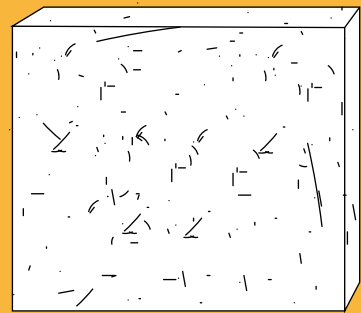


secondary construction  
40 years

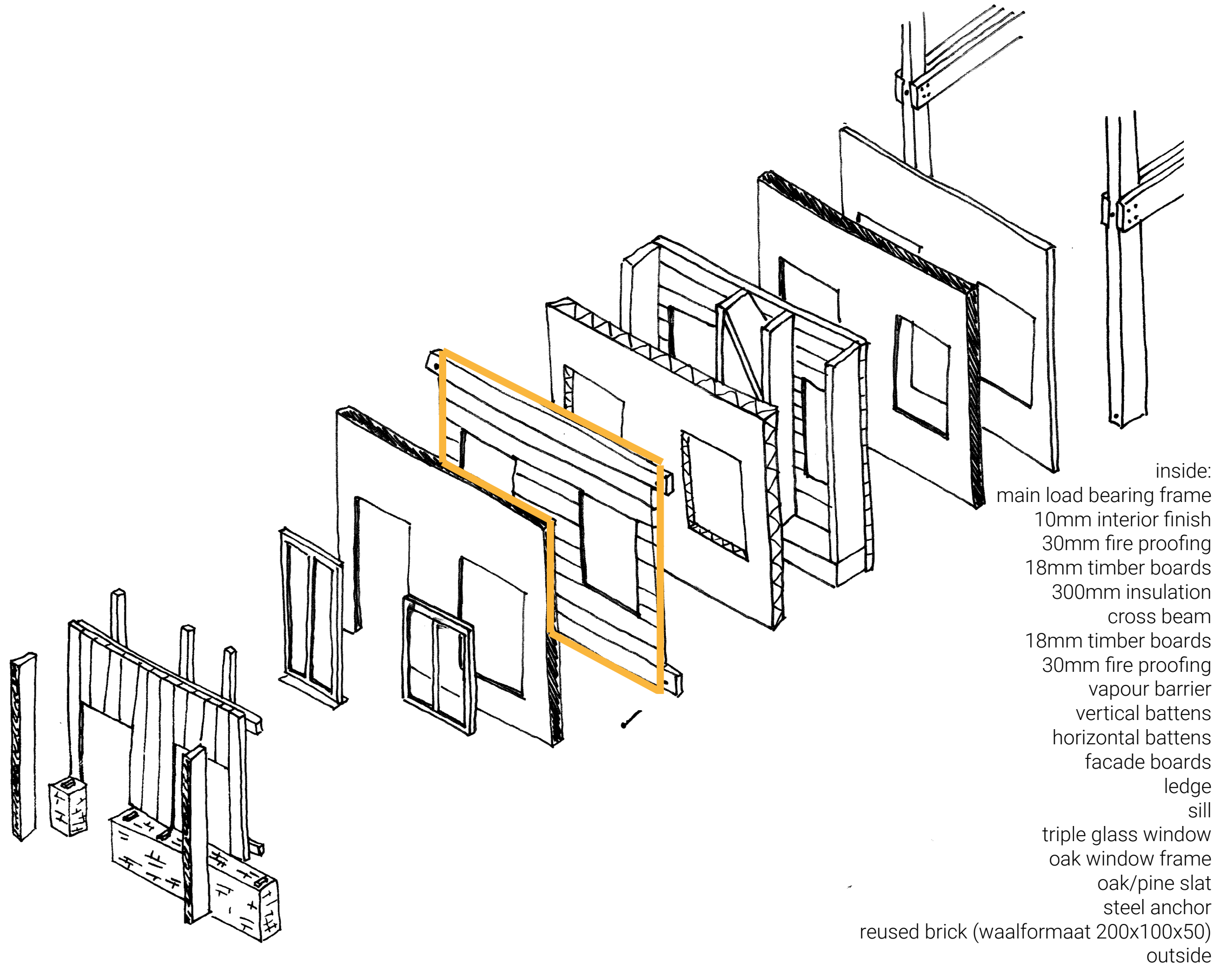




# FACADE BUILD UP



100% biobased wood  
fibre boards

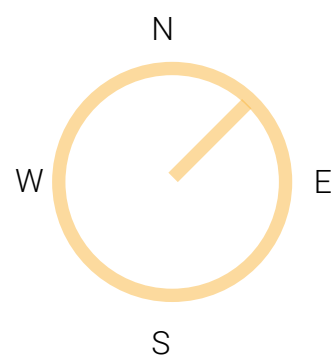




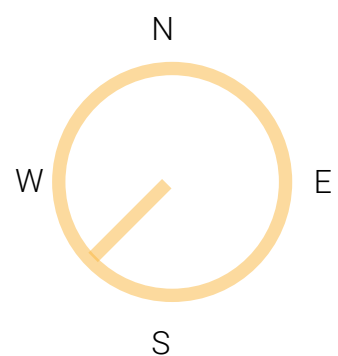


weathering facade

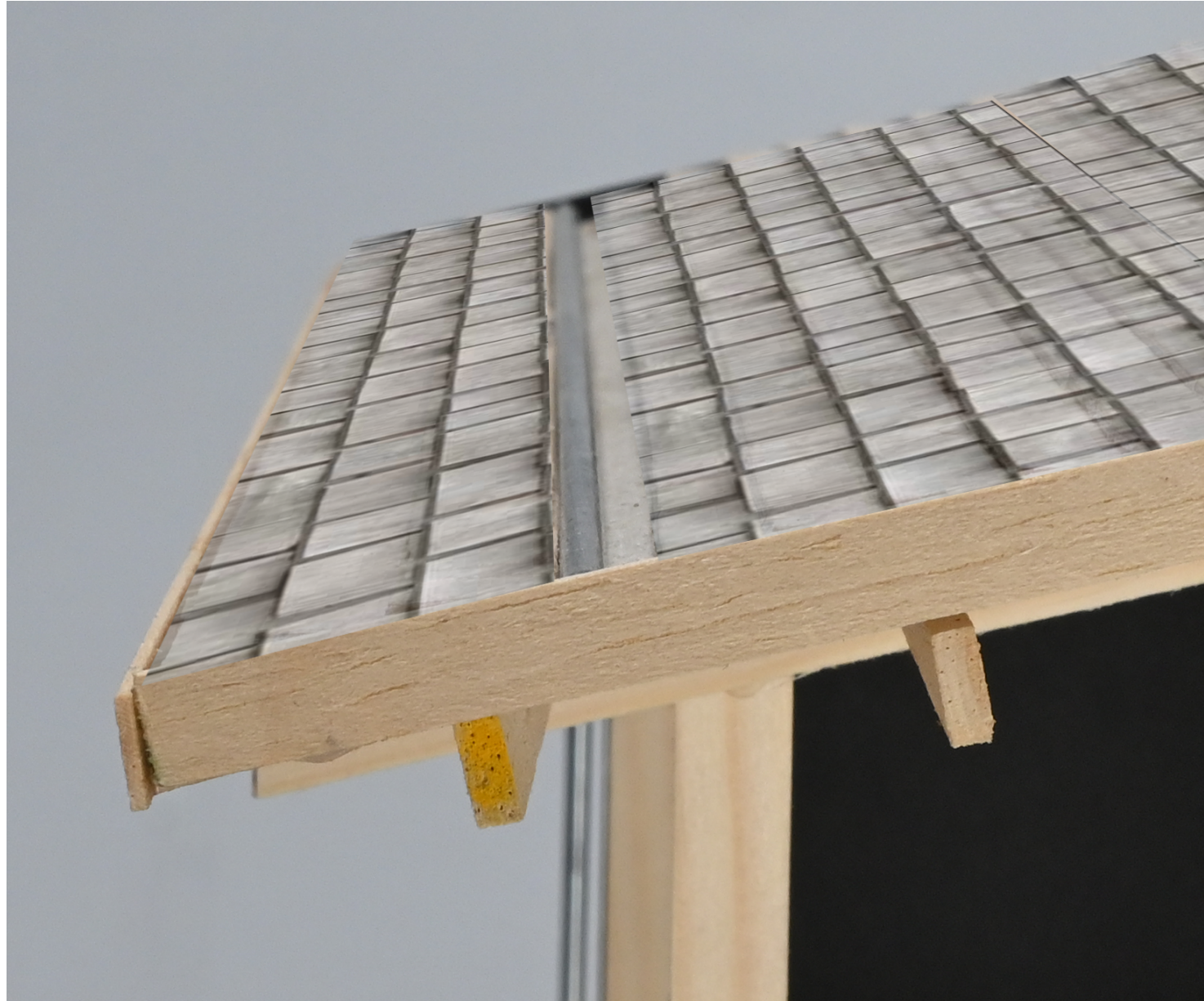




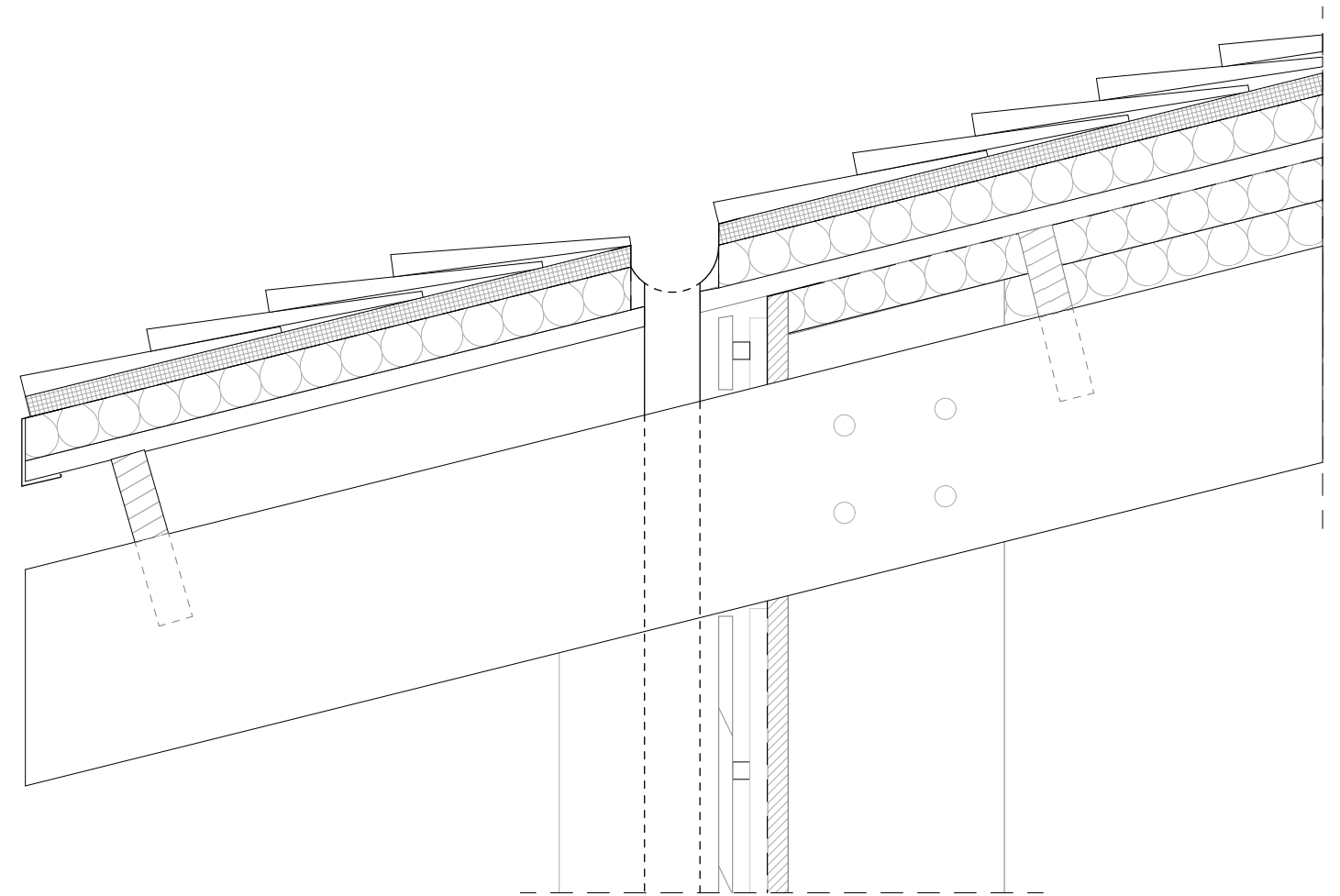








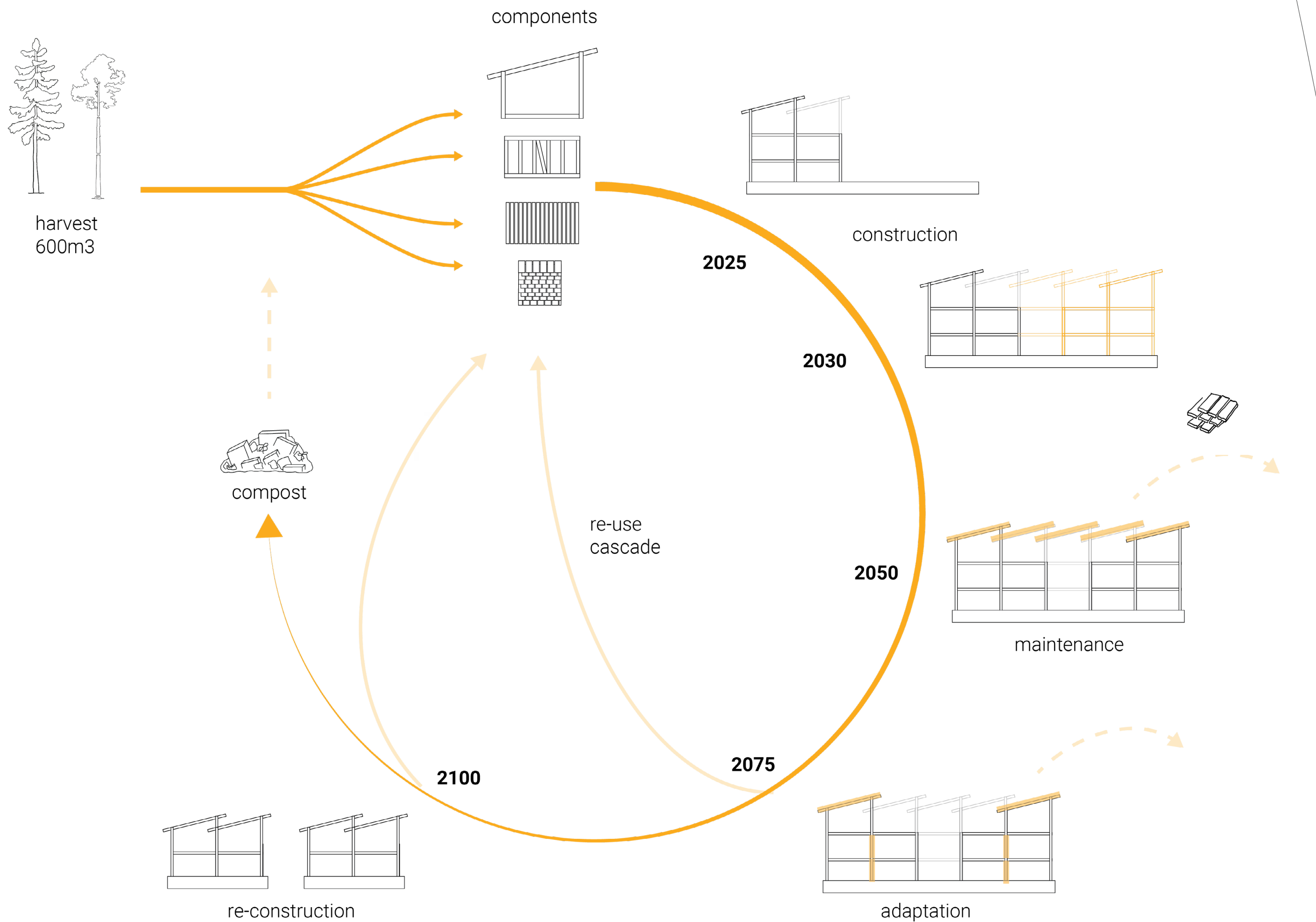
roof detail



pine shingles  
30mm ventilation mat  
vapour barrier  
28x180mm sawn pine boards  
250x50 roof joists

zink edge cover  
gutter  
rainpipe

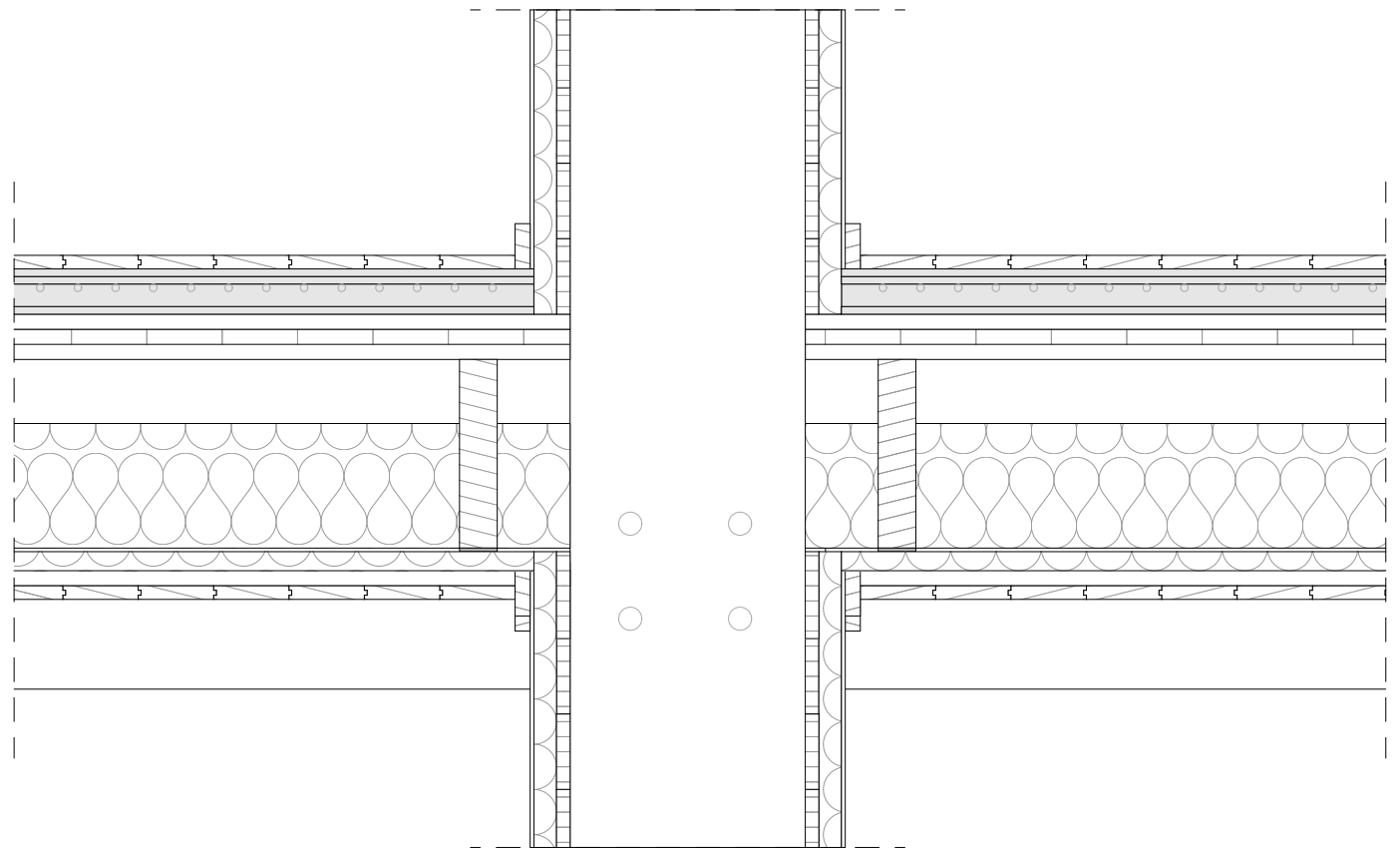






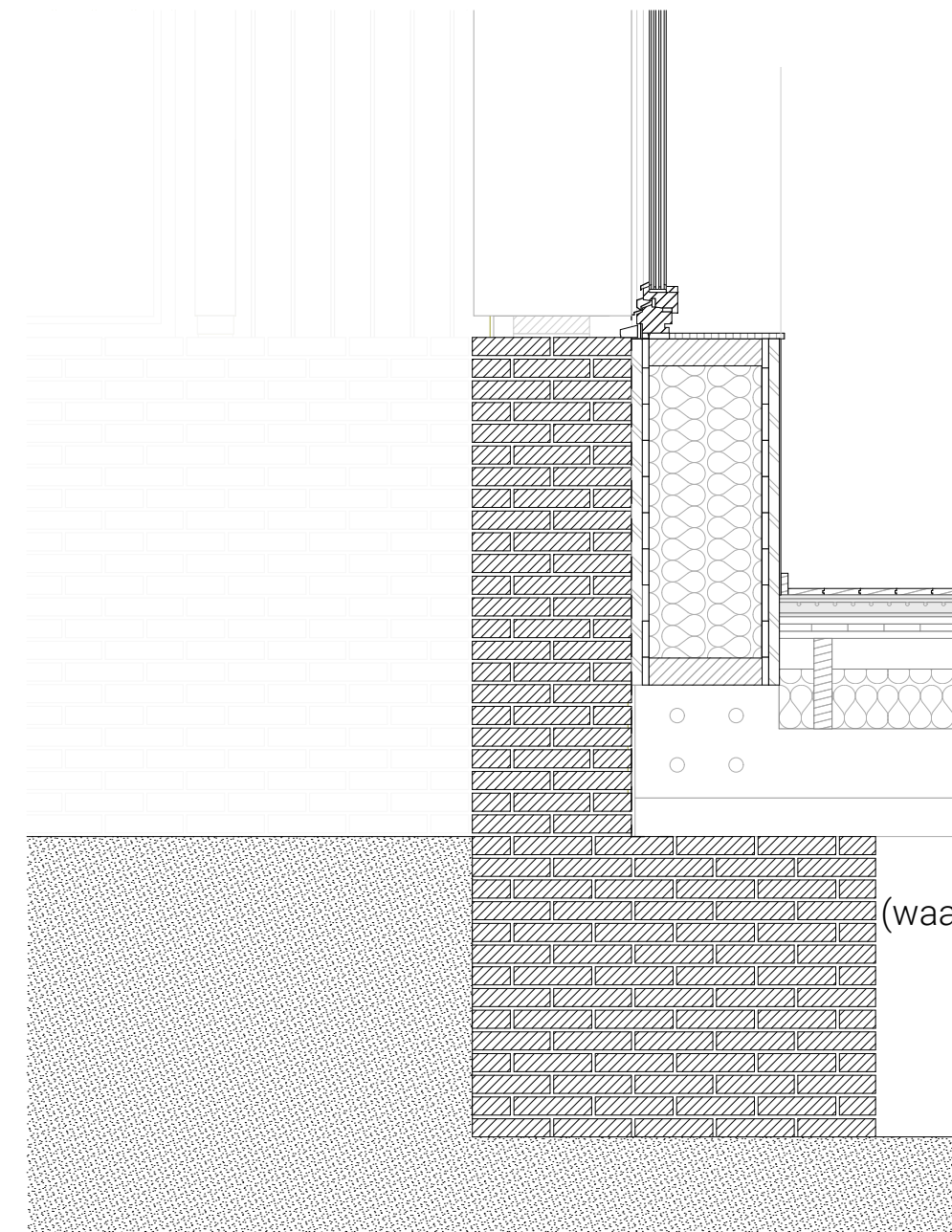


floor detail



- 22mm pine floor boards
- 20mm dry screed (Norit)
- 30mm heating element and recycled woodfibres Jupiter EKO
- vapour barrier
- 60mm pine cross laminated timber
- 250x50mm floor joist
- 200mm wood fibre insulation
- 30mm fire proof board
- 25mm battens
- 22mm pine ceiling boards





oak/pine slats  
facade boards  
horizontal battens  
vertical battens  
vapour barrier  
30mm fire proofing  
18mm timber boards  
wood fibre insulation  
18mm timber boards  
30mm fire proofing  
10mm interior finish

oak frame  
triple glass window

pine frame  
oak foundation beam  
steel anchor  
reused brick  
(waalformaat 200x100x50)

ground detail

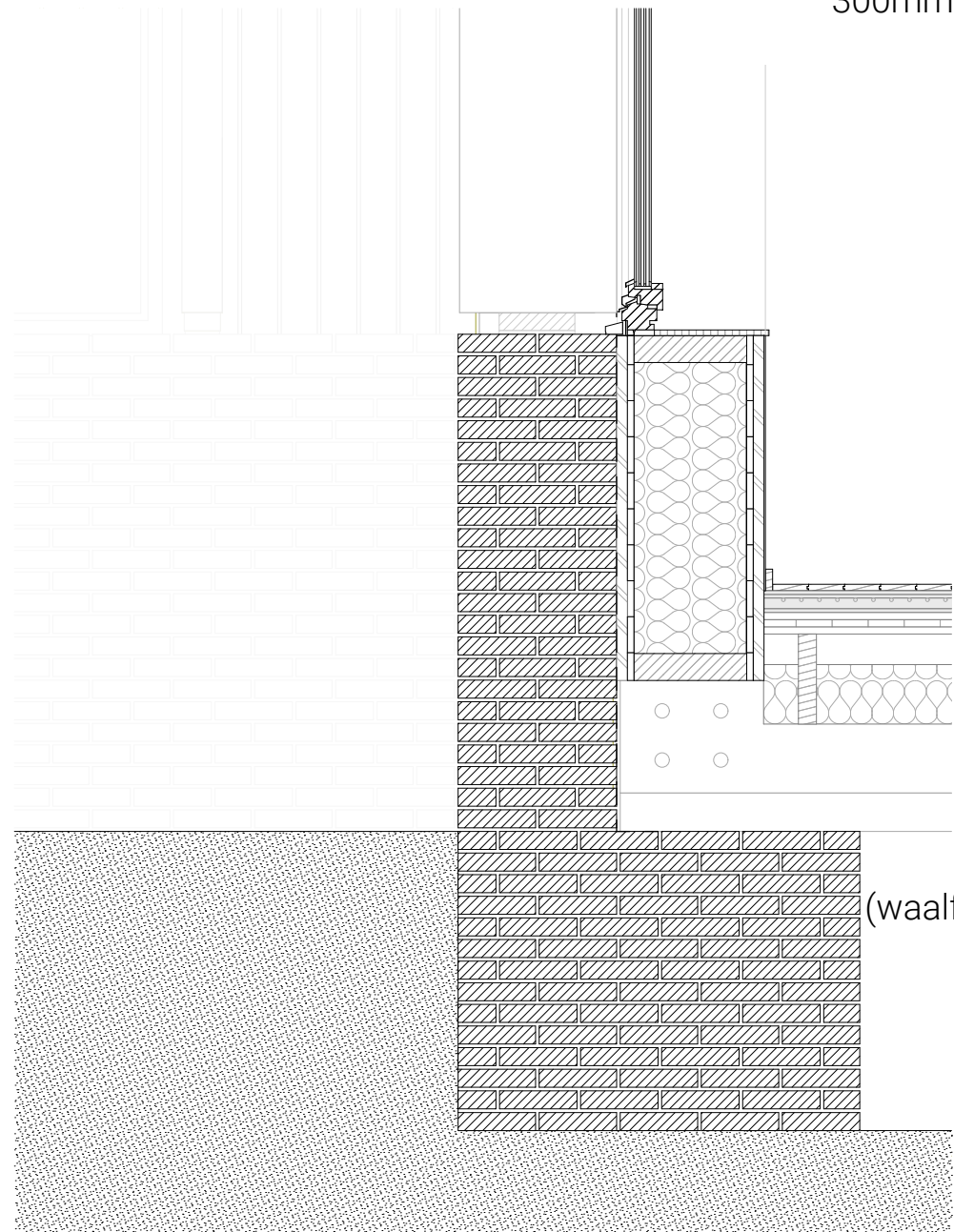




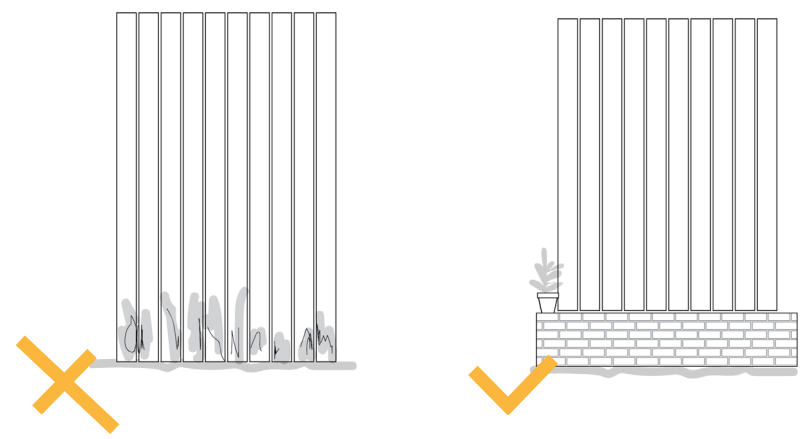
- oak/pine slats
- facade boards
- horizontal battens
- vertical battens
- vapour barrier
- 30mm fire proofing
- 18mm timber boards
- 300mm wood fibre insulation
- 18mm timber boards
- 30mm fire proofing
- 10mm interior finish

oak frame  
triple glass window

pine frame  
oak foundation beam  
steel anchor  
reused brick  
(waalformaat 200x100x50)



ground detail







## TIMBER CONSTRUCTION



## HATTEM

Use local materials

Root in the existing (built) environment

Ease the transition between public and  
create a broader sense of stewardship

## SOCIAL HOUSING

future proof

smaller living spaces, larger shared spaces

living environment to support biodiversity  
facilitate a closer relationship with all  
living beings

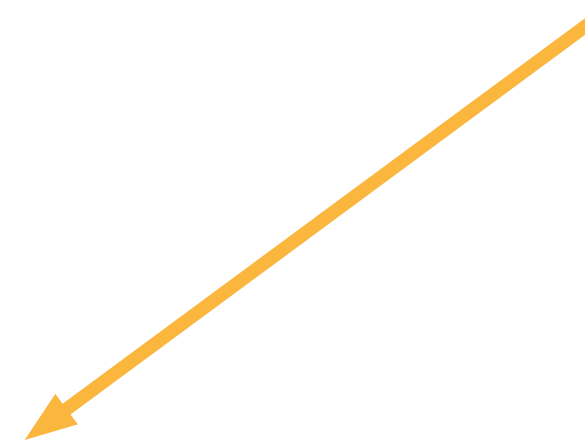
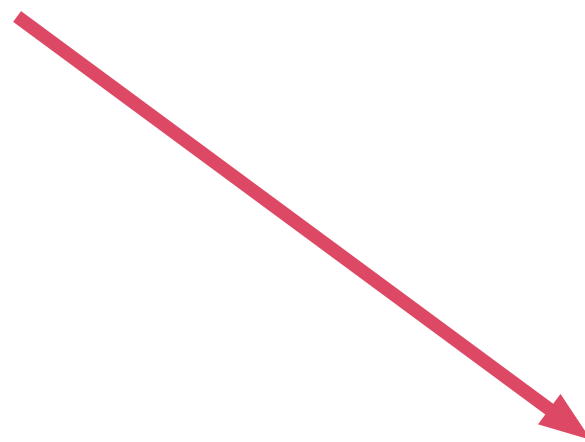
## TIMBER CONSTRUCTION

high quality raw materials

cascading

solid grid, flexible infil

visibility of life cycle



FUTURE PROOF CONSTRUCTION





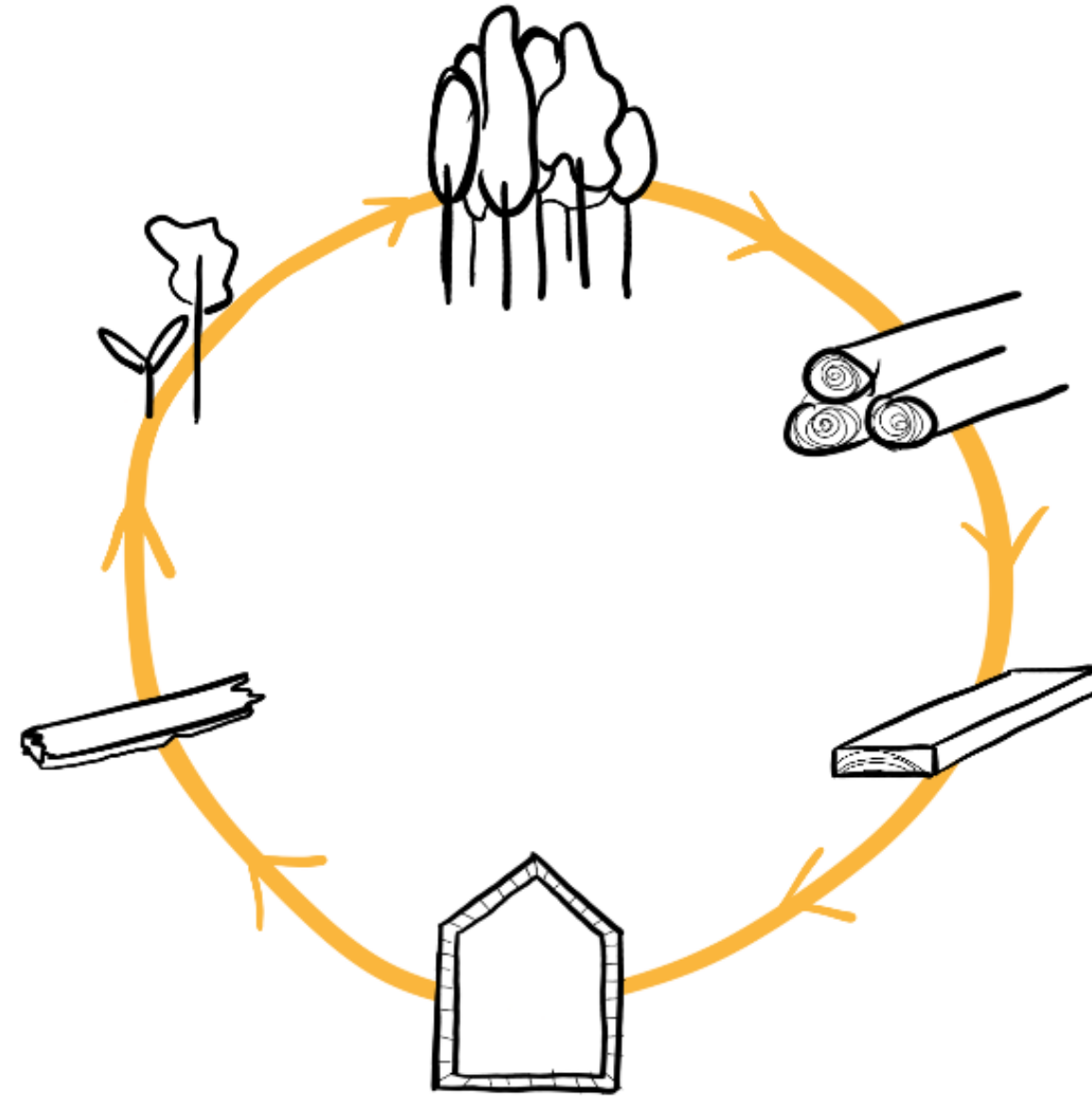
LET'S GROW SOCIAL HOUSING





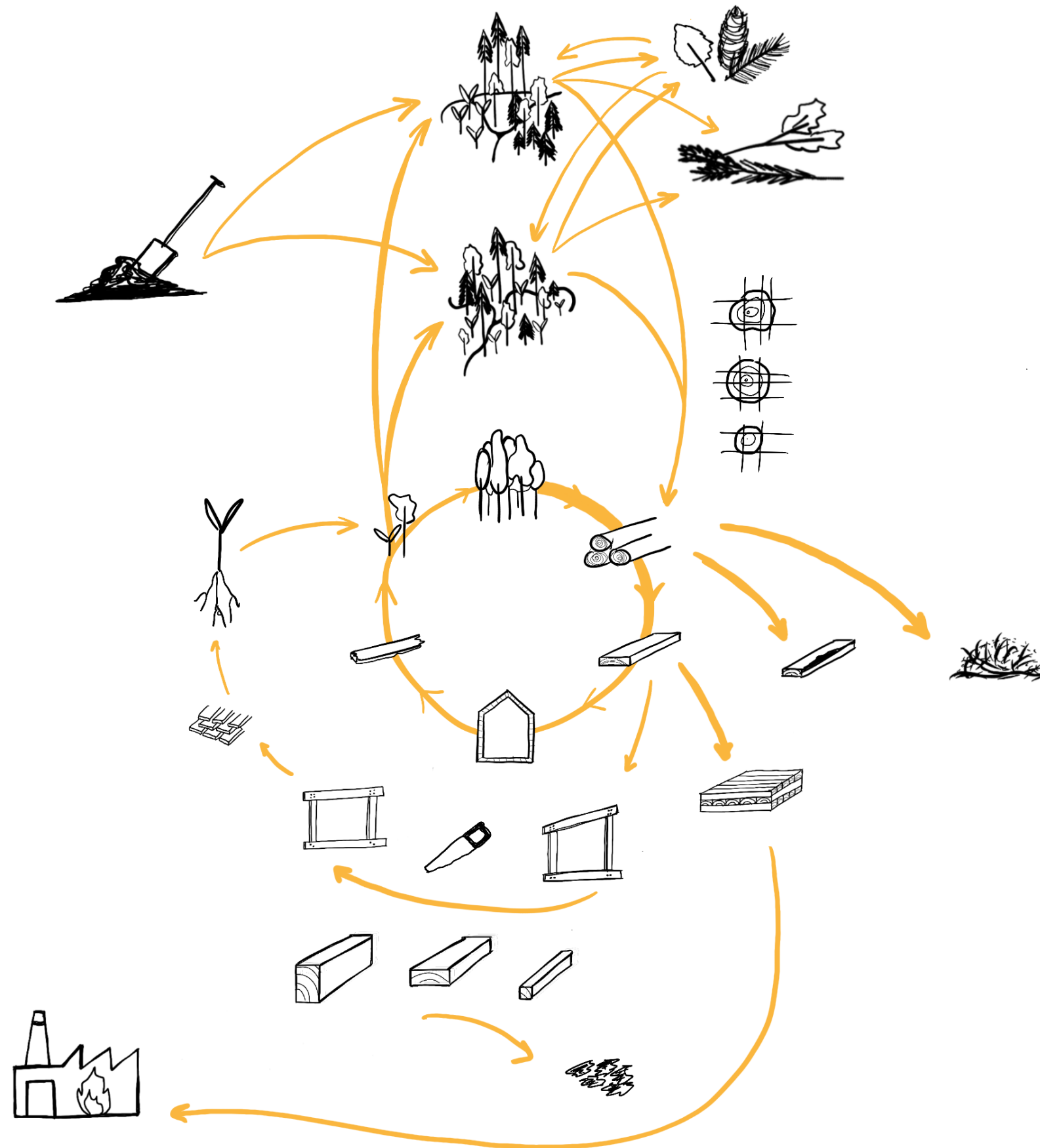


# IDEAL CYCLE



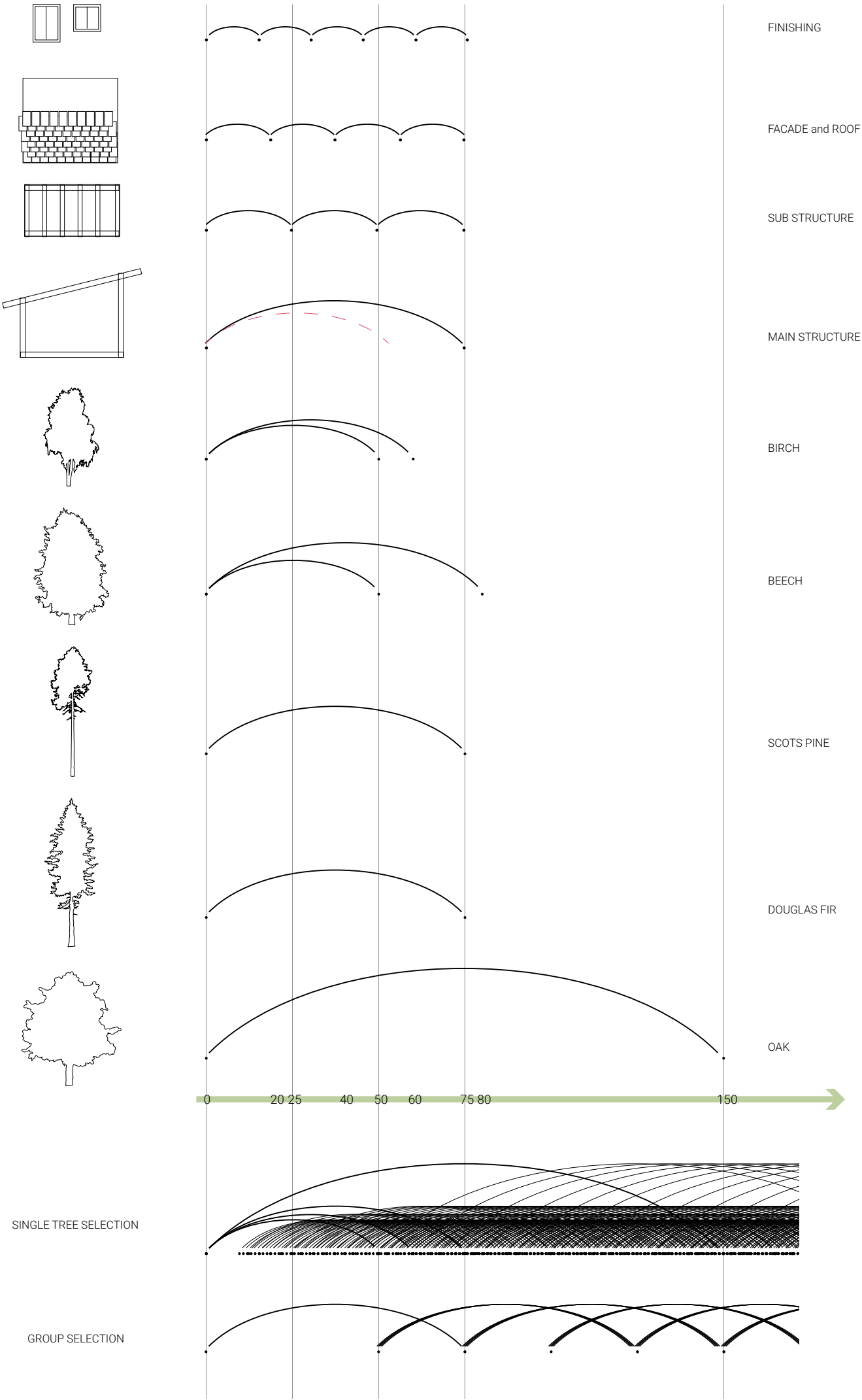


# REALISTIC CYCLE





# LIFE CYCLE







Woodn't you like to grow a house?