

The living pond



Team 4

Jacob Dörr

Tony Tammelin

Avdeviča Inna

Rudzīte Sofija

Jakub Potoniec

1

Intro

2

Sustainability concept

3

Logistics

4

Construction Process & Assembly sequence

5

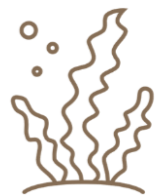
Cost estimation

6

Lessons learned

7

Outro



i Intro

1

2

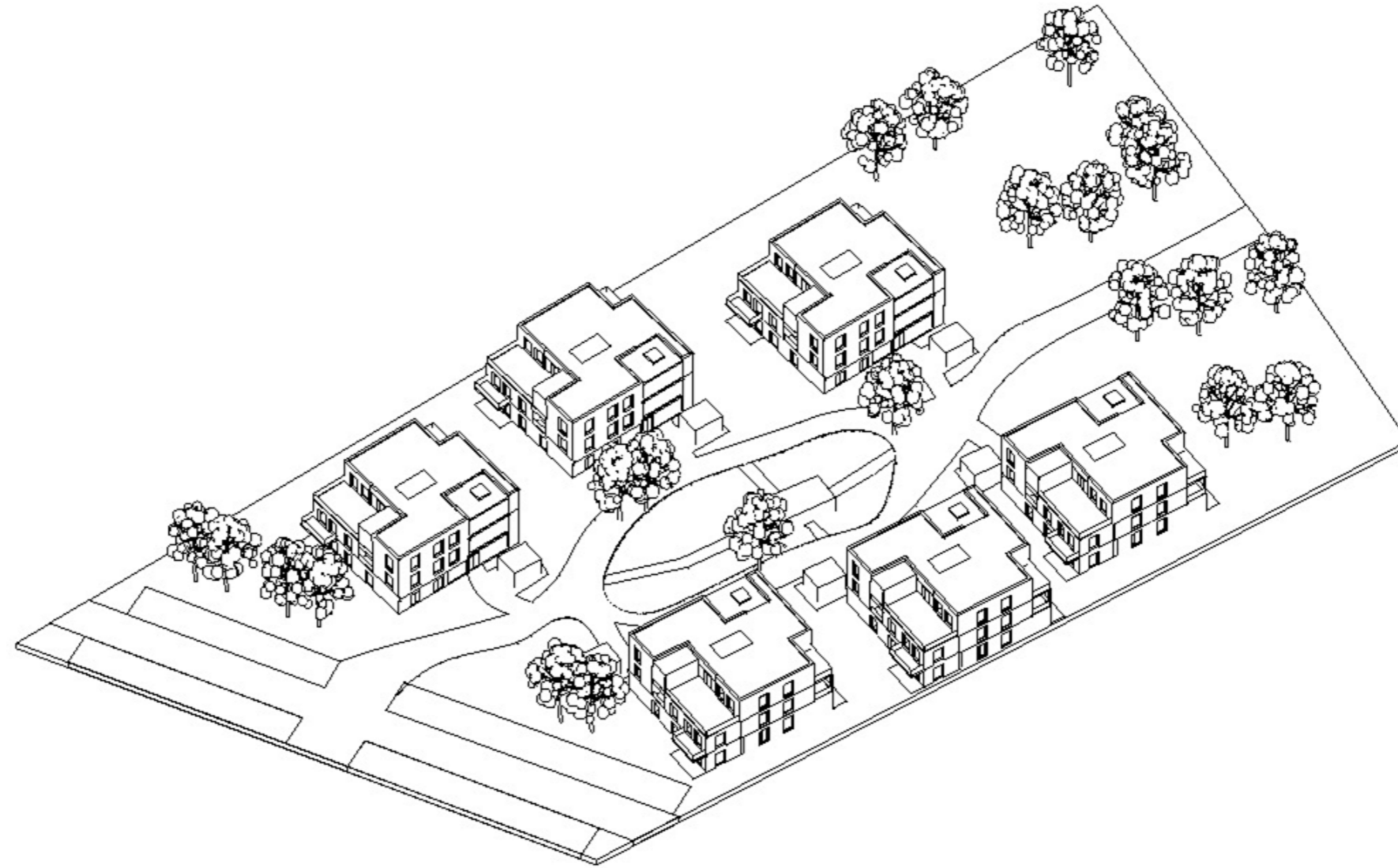
3

4

5

6

7



The Buildings are in Stegersbach, Burgenland and are called "the living pond" because in the middle of the building site there is a pond where the rainwater is collected. There are 4 different types of flats and approximately 40m² big. The buildings are made as sustainable as possible by using wood.



Sustainability

1

2

- multi-layered topic -> building services, materials, building process, transportation
- include sustainable ideas in the planning

3

our concepts:

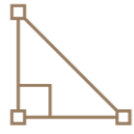
- adaptable layouts -> longer use
- no glue → screws -> disassembly
- local supplier for building materials
- accessible building services -> repair, longer use
- prefabrication -> less waste
- structures as optimized as possible for their purpose
-> CLT - loadbearing; frame- flexible, openings
- transportation as efficient as possible
- cradle to cradle -> after use, disassemble the elements and reuse them

4

5

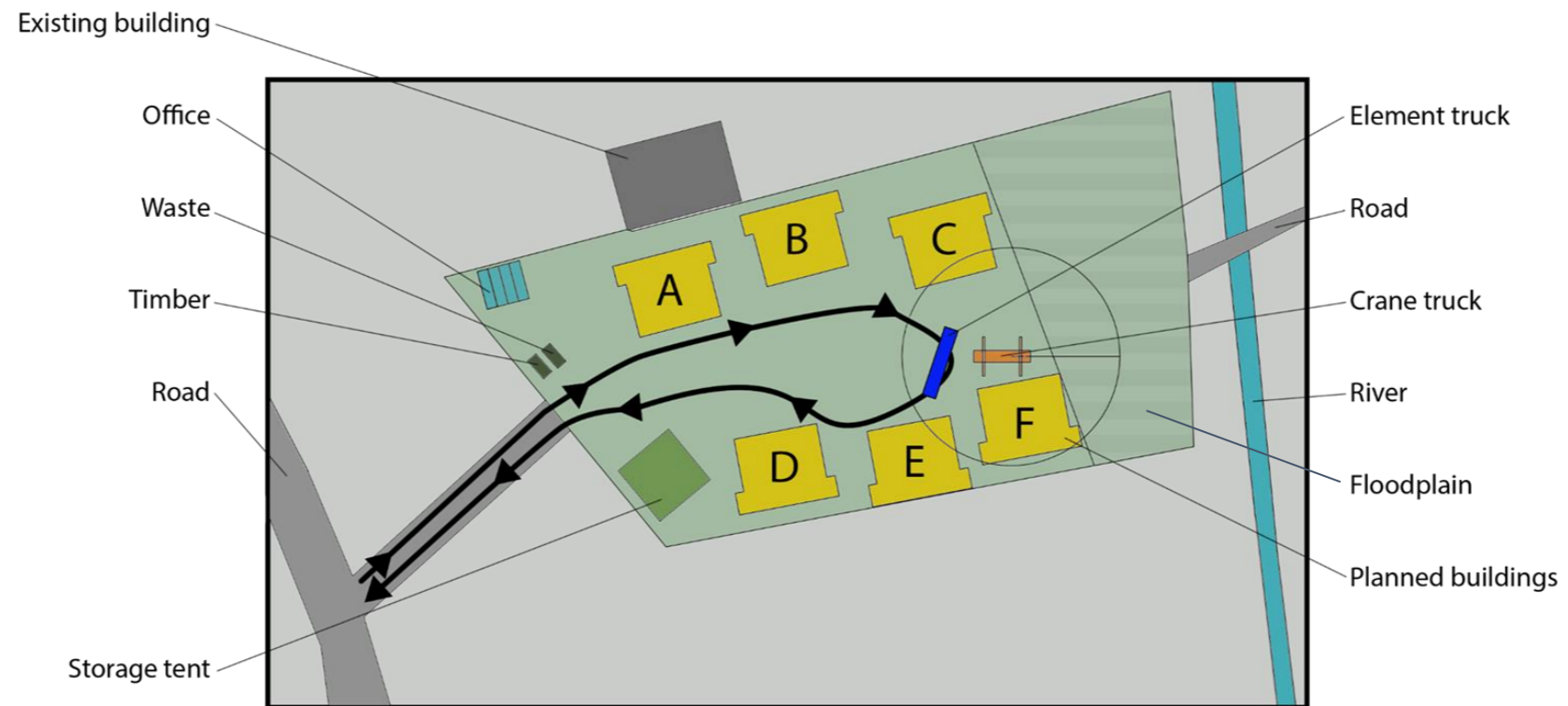
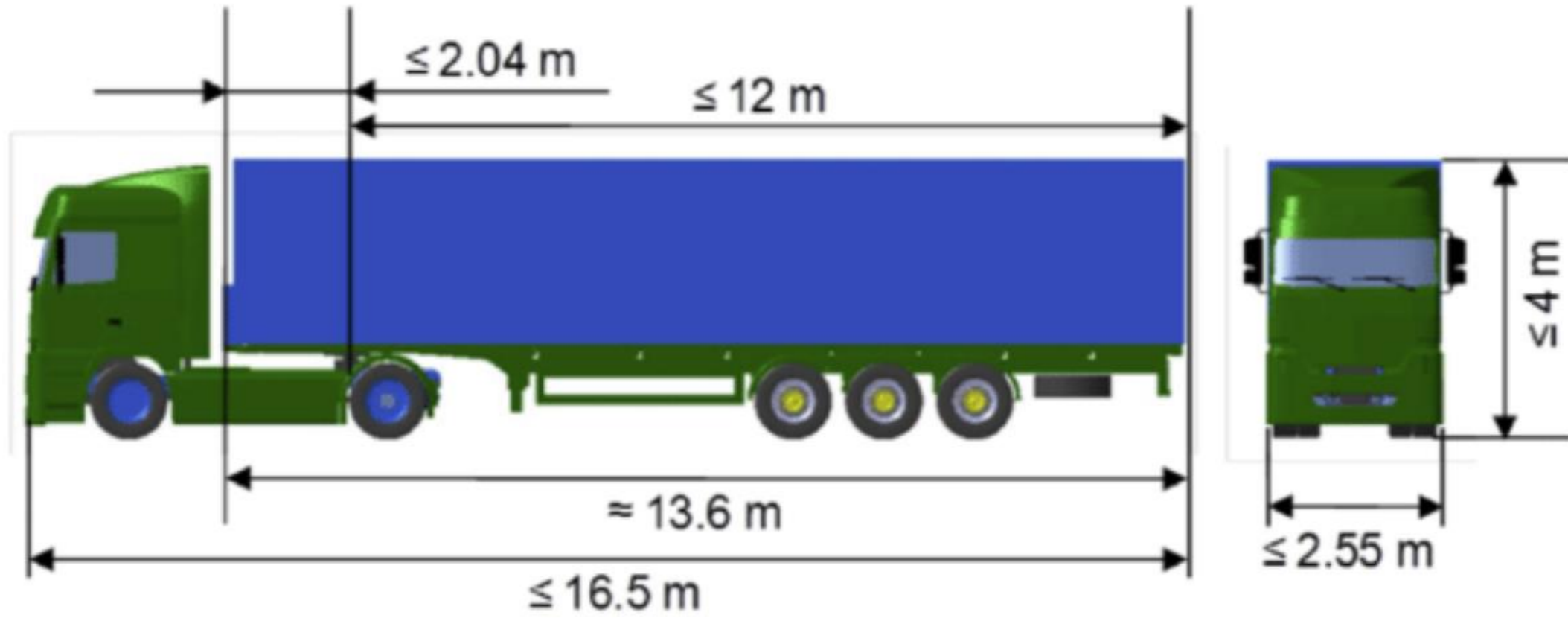
6

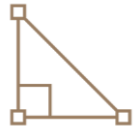
7



Logistics

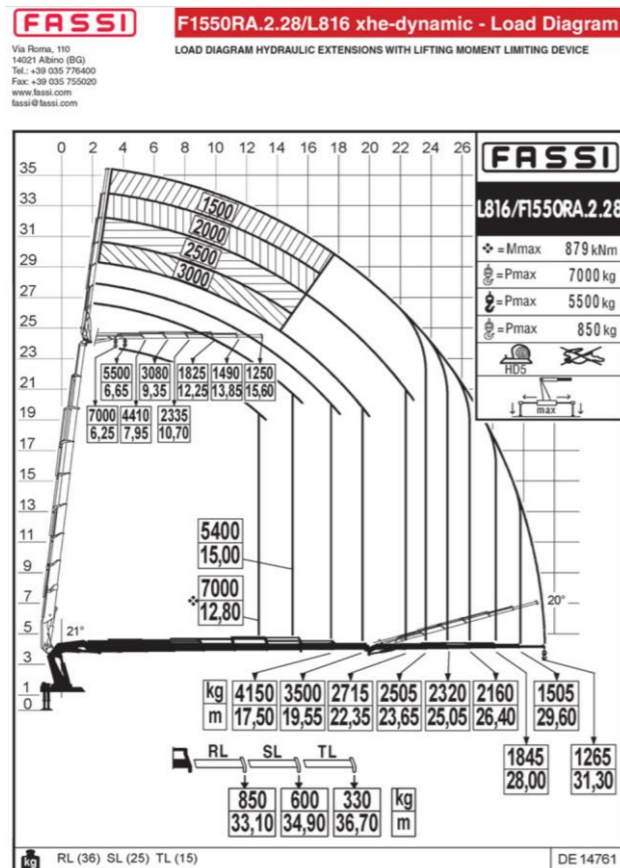
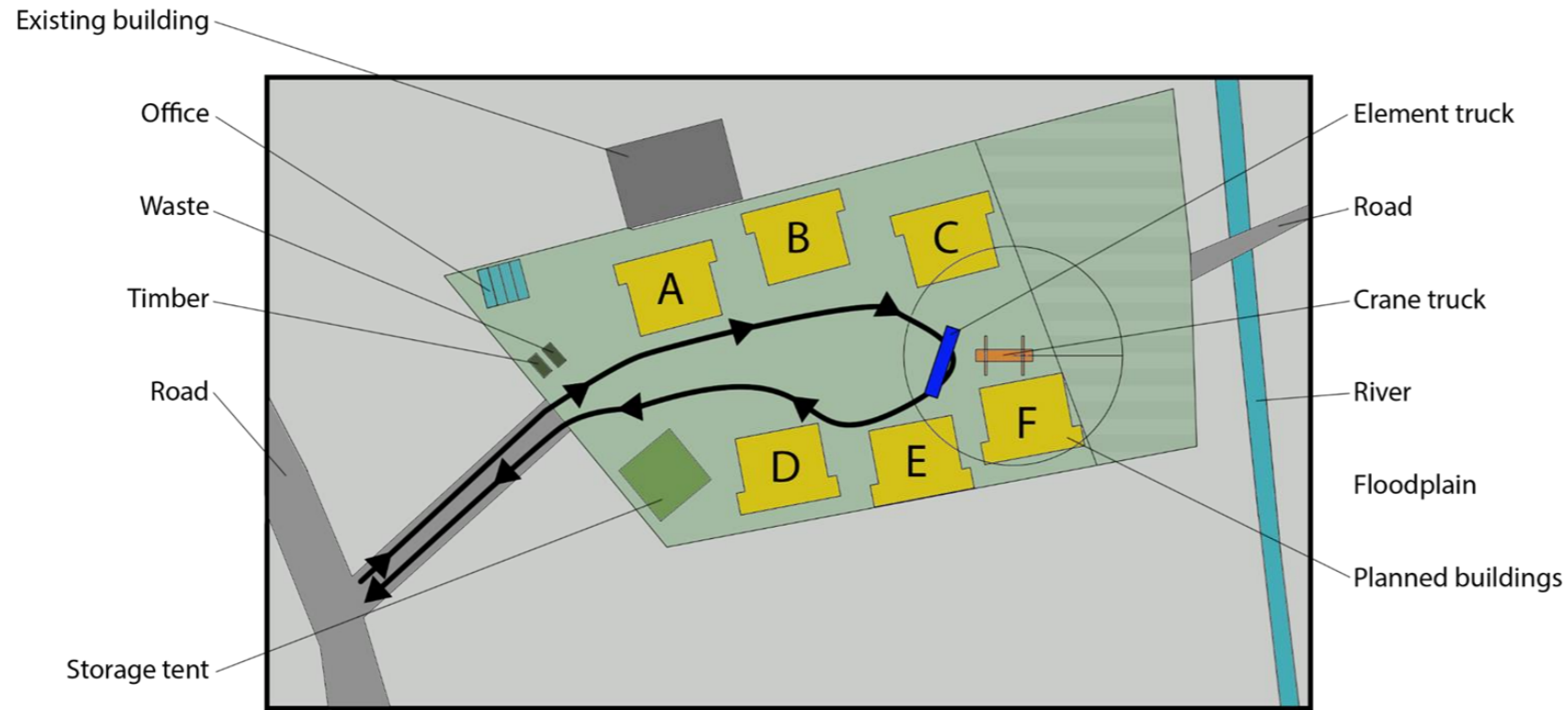
- 1
- 2
- 3
- 4
- 5
- 6
- 7

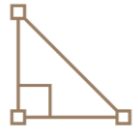




Construction process and assembly sequence

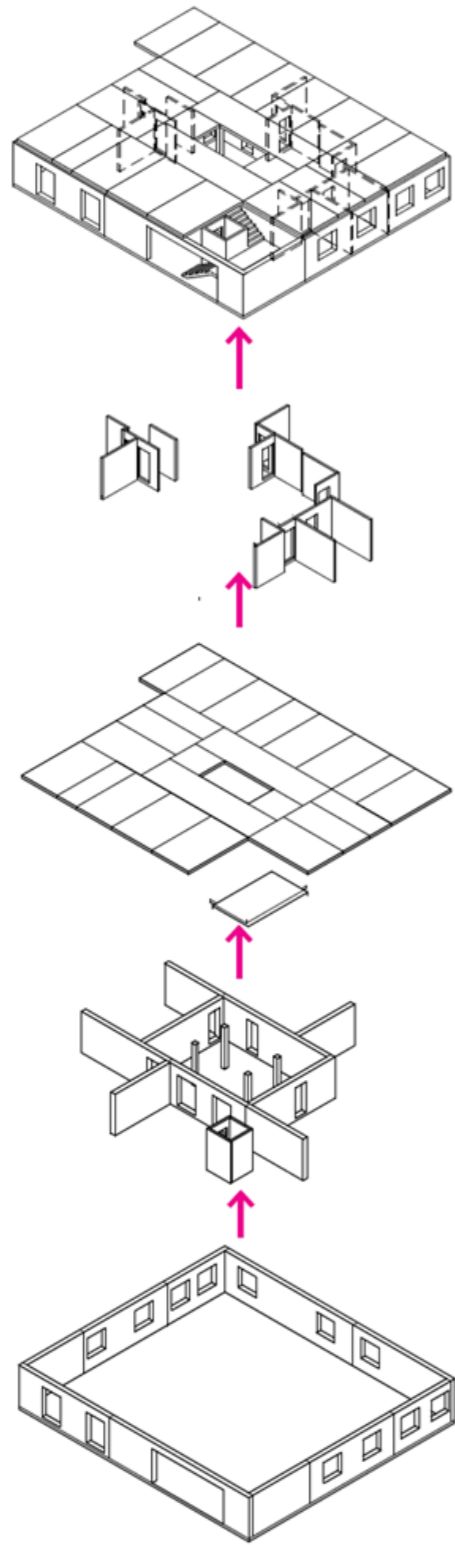
- 1
- 2
- 3
- 4
- 5
- 6
- 7



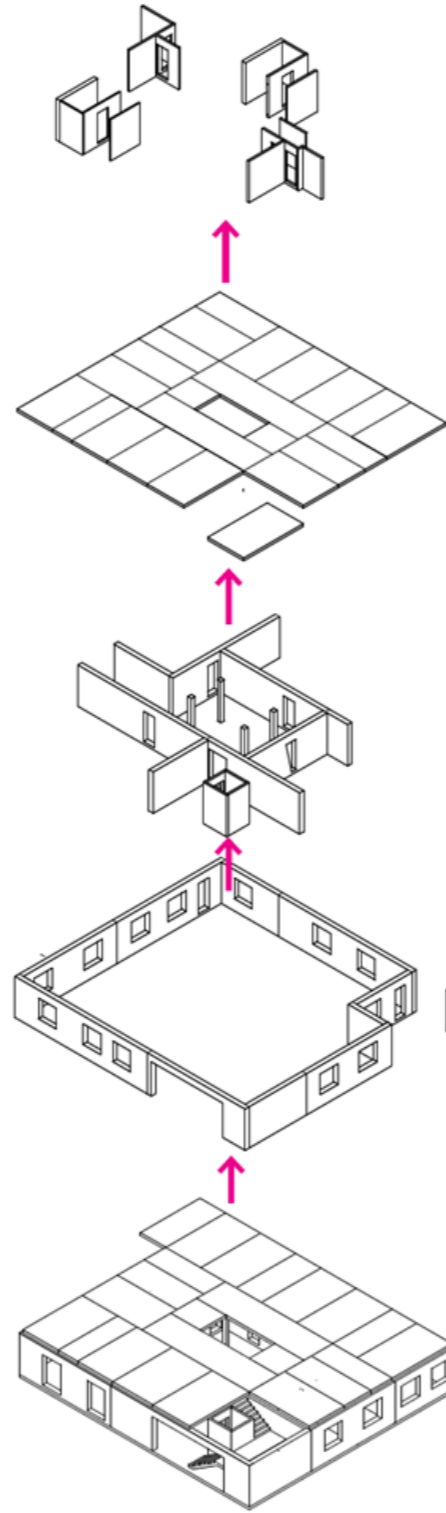


Construction process and assembly sequence

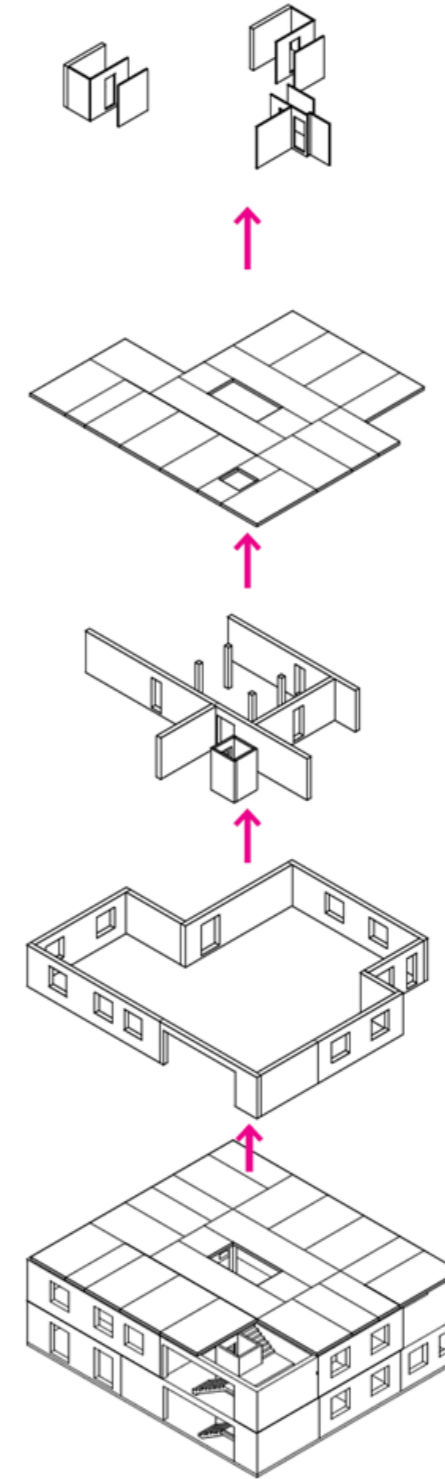
- 1
- 2
- 3
- 4
- 5
- 6
- 7



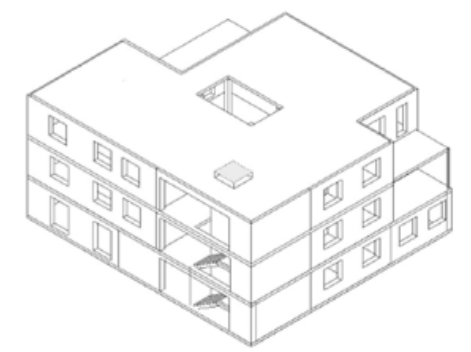
1. floor

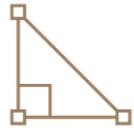


2. floor



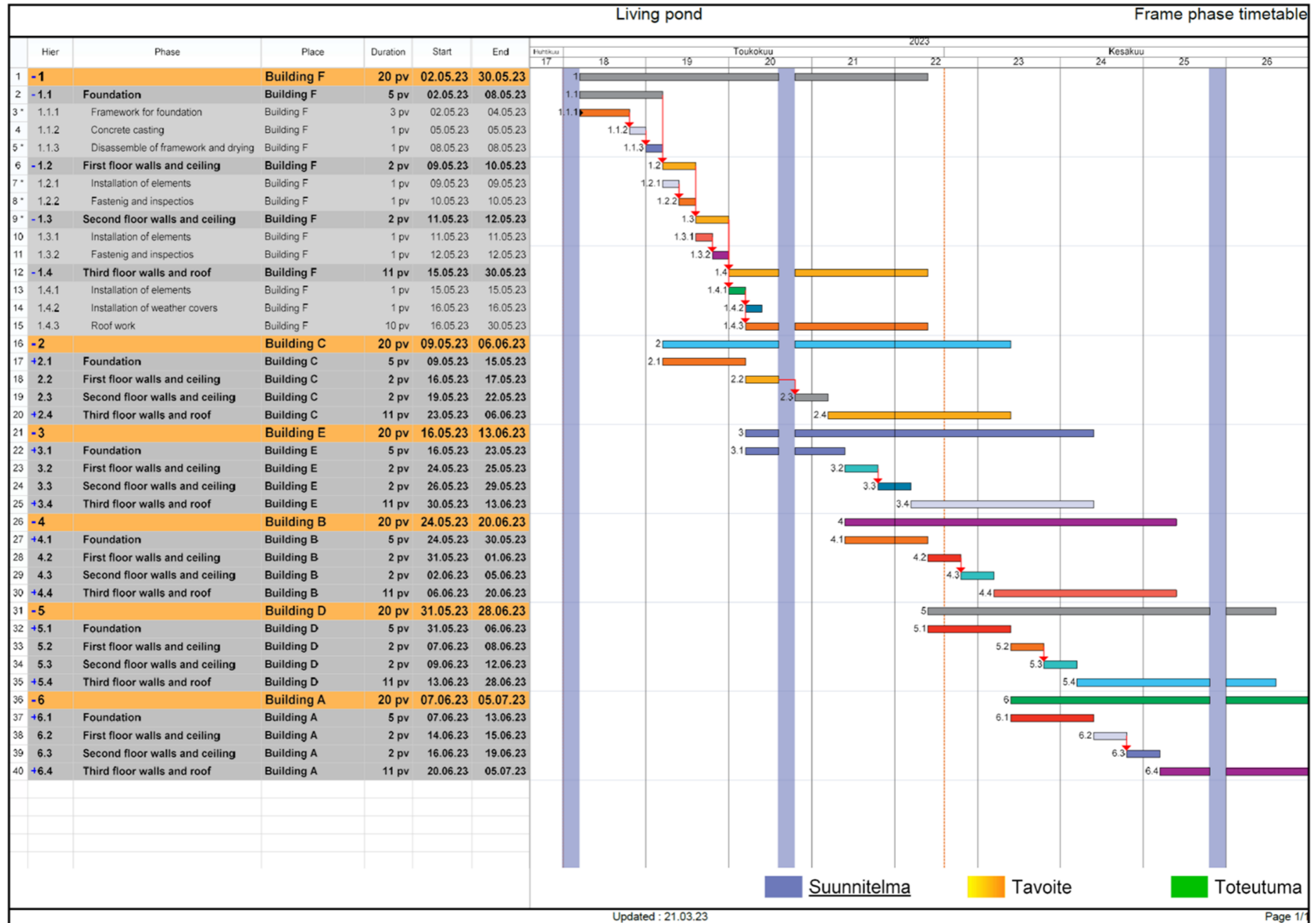
3. floor

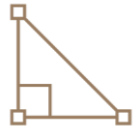




Construction process and assembly sequence

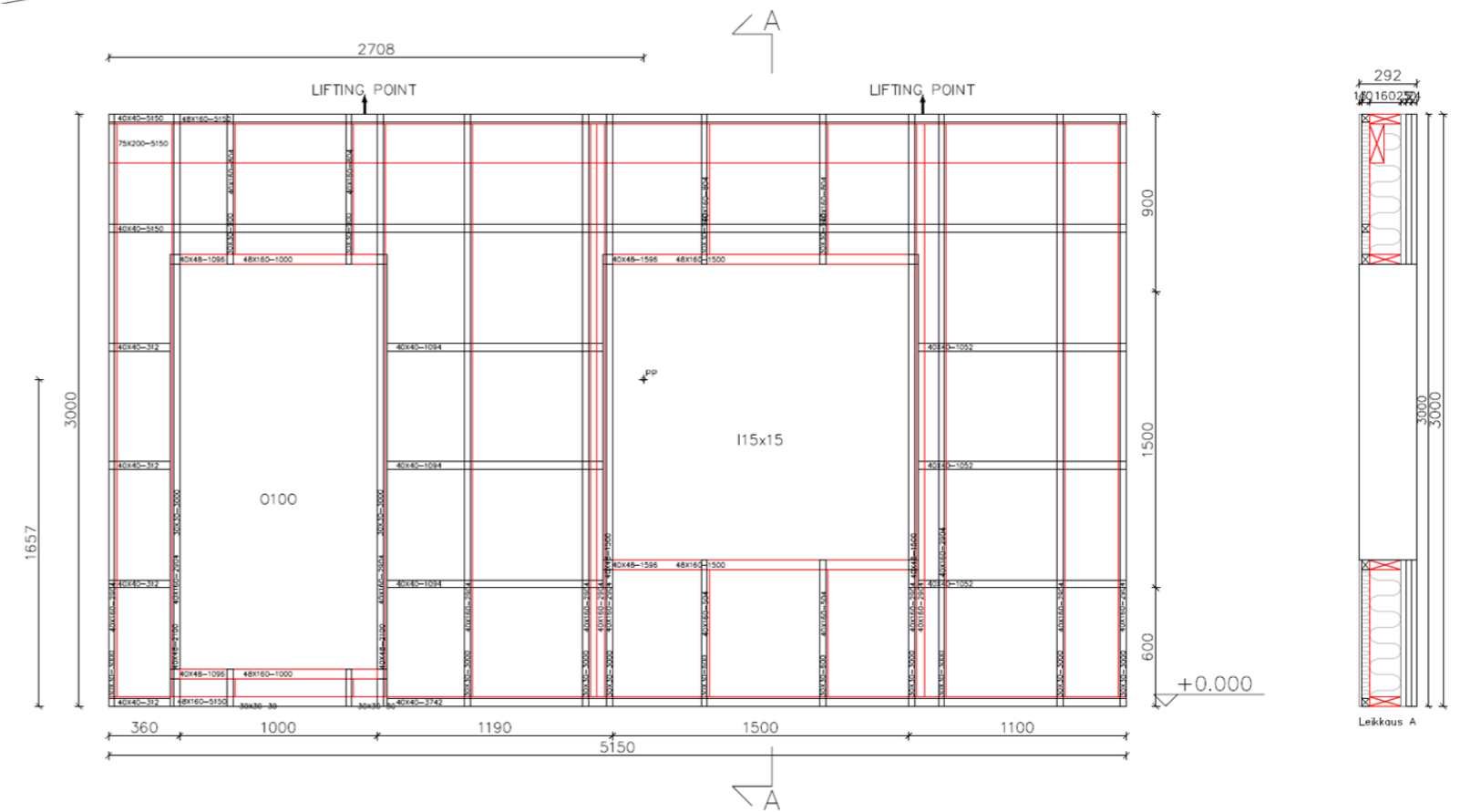
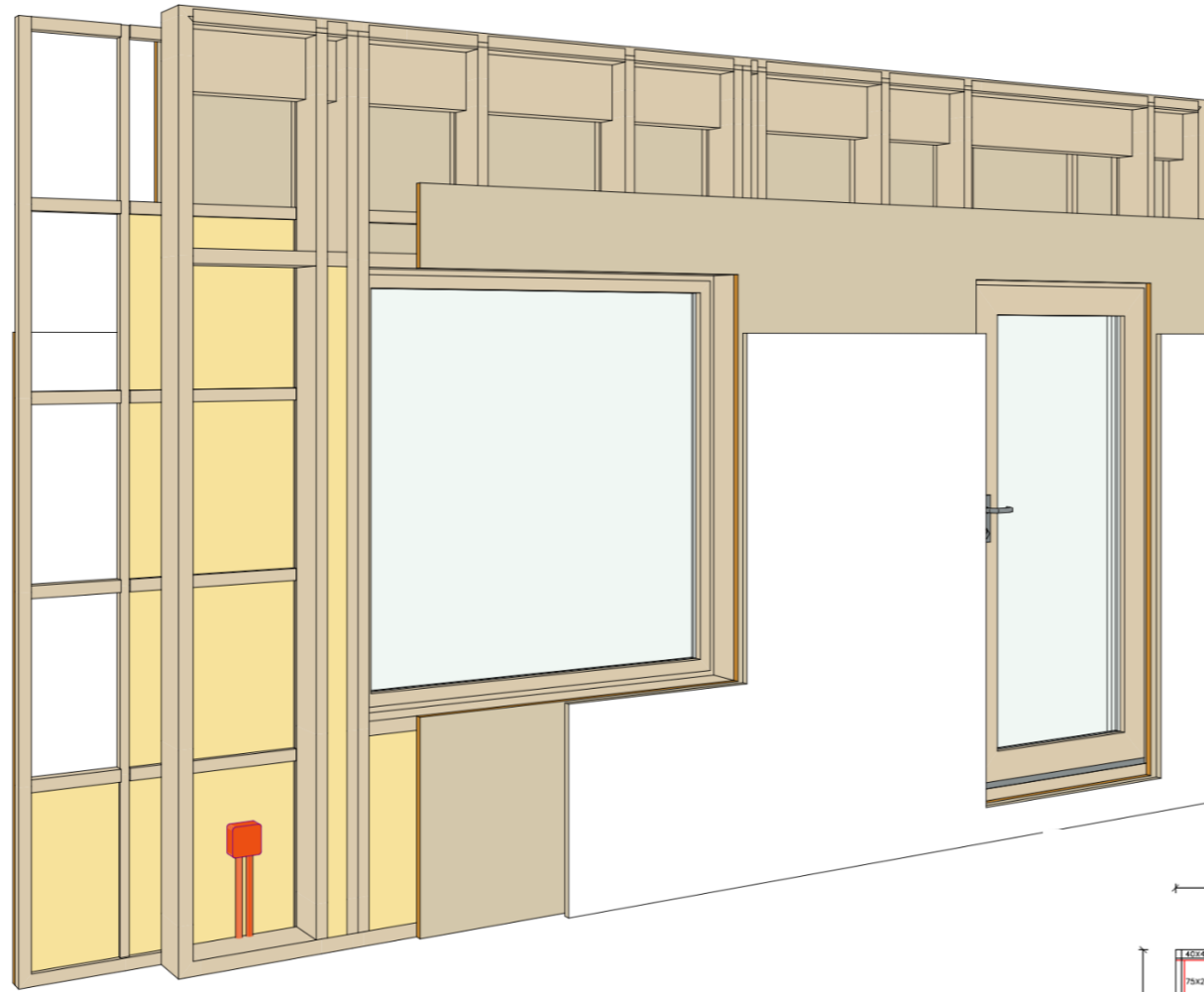
- 1
- 2
- 3
- 4
- 5
- 6
- 7



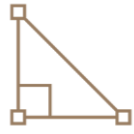


Construction process and assembly sequence

- 1
- 2
- 3
- 4
- 5
- 6
- 7

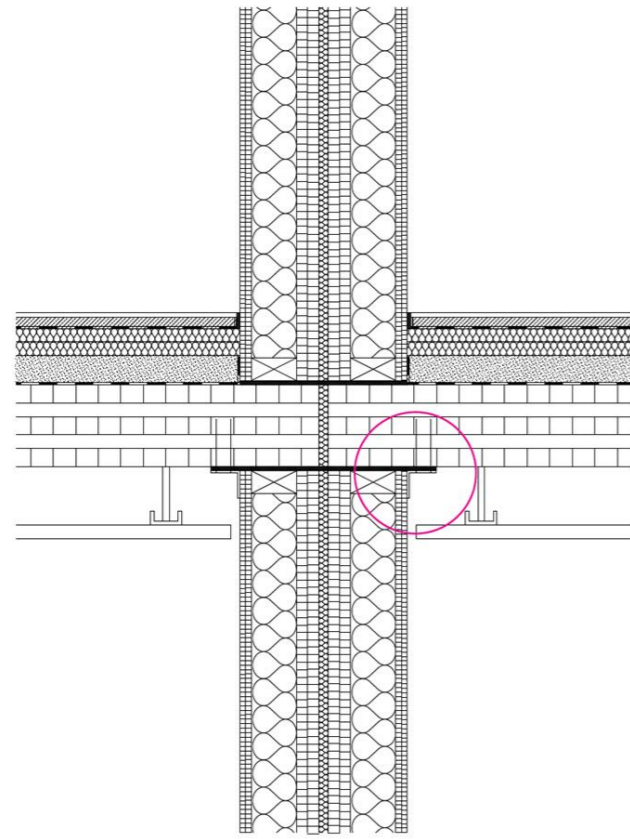


ELEMENT EW-5 WIEVED FROM INSIDE

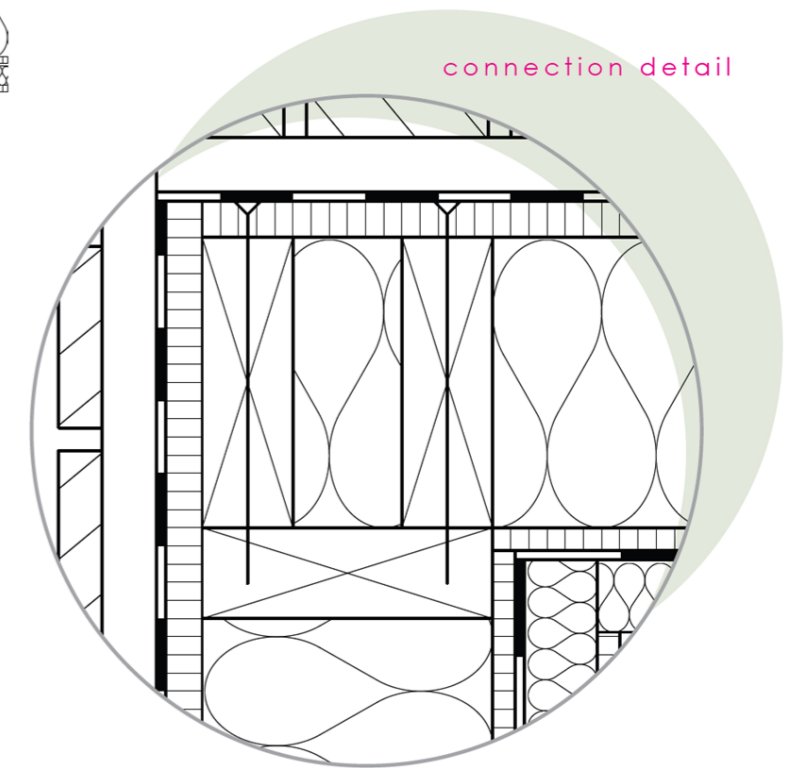
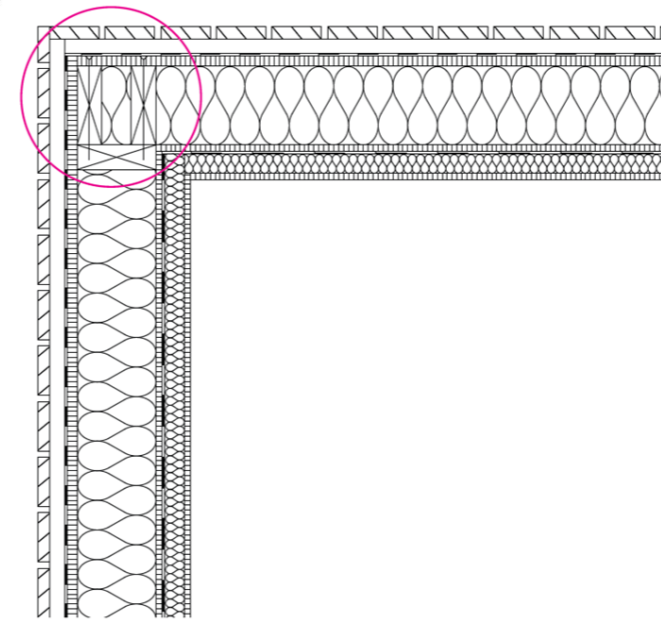
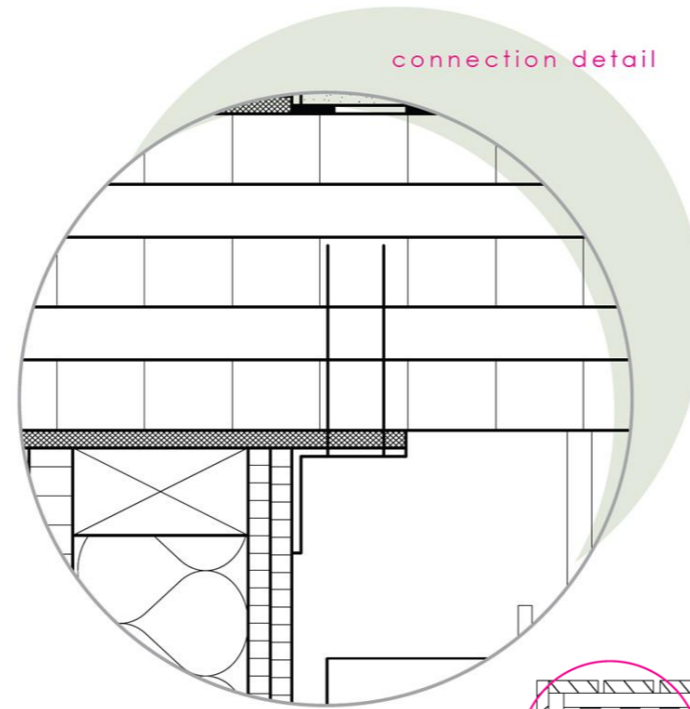


Construction process and assembly sequence

- 1
- 2
- 3
- 4
- 5
- 6
- 7



Connection between compartment wall and ceiling.

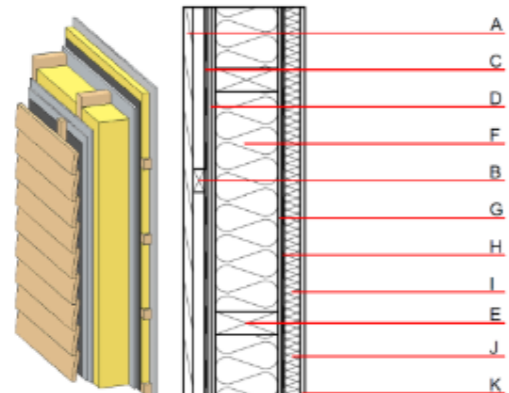


Corner joint between two external walls.

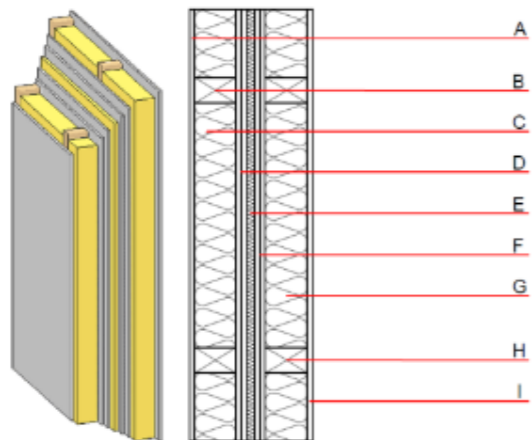


Cost estimation

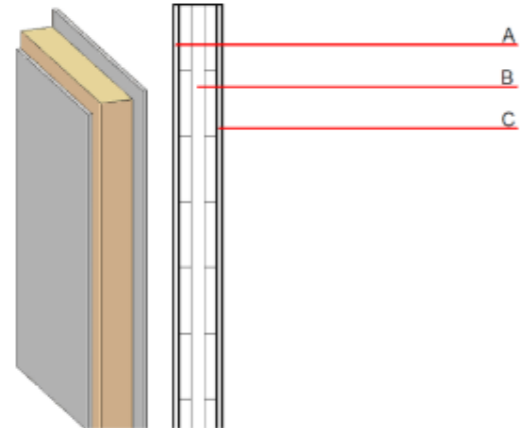
- 1
- 2
- 3
- 4
- 5
- 6
- 7



External load bearing wall						
Material	Thickness, mm	Quantity, m2	Price per m2 , €	Total price for materials, €	workload cost	Total production costs
Wood external wall cladding	24	574,01	24,00 €	13 776,24 €		
Spruce wood battens offset (30) - ventilation wind barrier	30		7,00 €	4 018,07 €		
Gypsum fibre board (2x10)	20		7,00 €	4 018,07 €		
Construction timber	160		20,00 €	11 480,20 €		
mineral wool	160		7,20 €	4 132,87 €		
Gypsum fibre board	12,5		3,00 €	1 722,03 €		
Vapour barrier sd>2mm	2		1,00 €	574,01 €		
Spruce wood cross battens (a=400)	40		12,00 €	6 888,12 €		
mineral wool	40		1,80 €	1 033,22 €		
Gypsum fibre board	12,5		3,00 €	1 722,03 €		
			86,00 €	49 364,86 €	72 325,26 €	121 690,12 €



Compartment wall between apartments						
Material	Thickness, mm	Quantity, m2	Price per m2 , €	Total price for materials, €	workload cost	Total production costs
Gypsum fibre board	12,5	379,86	3,00 €	1 139,58 €		
Construction timber	100 x 60	379,86	20,00 €	7 597,20 €		
mineral wool	100	379,86	4,50 €	1 709,37 €		
Gypsum fibre board (2x12.5)	25	379,86	6,00 €	2 279,16 €		
mineral wool	20	379,86	3,00 €	1 139,58 €		
Gypsum fibre board (2x12.5)	25	379,86	6,00 €	2 279,16 €		
Construction timber	100 x 60	379,86	20,00 €	7 597,20 €		
mineral wool	100	379,86	4,50 €	1 709,37 €		
Gypsum fibre board	12,5	379,86	3,00 €	1 139,58 €		
			70,00 €	26 590,20 €	47 862,36 €	74 452,56 €



Elevator Shaft						
Material	Thickness, mm	Quantity, m2	Price per m2 , €	Total price for materials, €	workload cost	Total production costs
Gypsum board lining	12,5	58,85	3,00 €	176,55 €		
Solid wood e.g. cross laminated timber	100	58,85	20,00 €	1 177,00 €		
Gypsum board lining	12,5	58,85	3,00 €	176,55 €		
			26,00 €	1 530,10 €	6355,8	1 530,10 €



Total cost

1

2

3

4

5

6

7

Foundation			Price for workers at site				
	material	work		Team	€/h	h/building	total
bitumen sheet	2,59 €	1,38 €	Installation of elements	4	55,00 €	48	10 560,00 €
Plinth	72,64 €	45,70 €	Crane	1	160,00 €	48	7 680,00 €
Footing 0,6m*1m	8,99 €	8,71 €	Roof work	2	55,00 €	40	4 400,00 €
Total	84,22 €	55,79 €					
	Total for 1m	140,01 €	CLT stairs				
	Quantity	137,45		Material	Quantity	€/m2	total
	Total	19 244,92 €		CLT	13,5	50	675,00 €
Foundation for column							
bitumen sheet	2,59 €	1,38 €					
Column 0,3*0,3	17,30 €	6,70 €					
footing for column	5,40 €	8,71 €	Transportation	3 750,00 €			
Total	25,29 €	16,79 €					
Total for column		42,08 €	Total cost for 1 building		416 690,97		
	Quantity	9,00					
	Total	378,69 €					



Lesson learned

1

2

3

4

5

6

7

- include all aspects in the planning
- structure, floor layouts and architecture impact the building process
- adapt floor plans and dimensions for transportation, product sizes and production
- high level of prefabrication can cut cost
- combine different timber structures regarding the purpose
- with details come problems

**We really enjoyed working on the project
thank you!**

- Team 4 