

Outline Proposal

Client's family

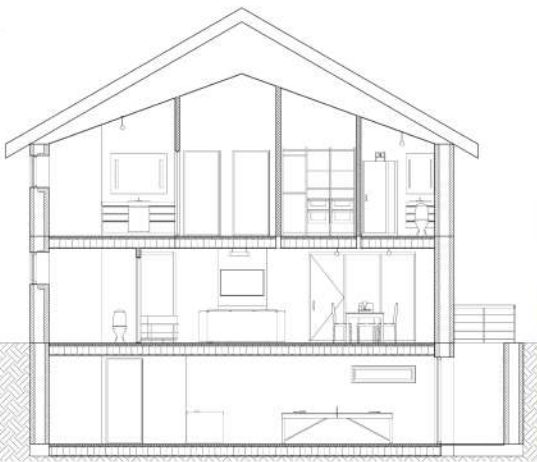
- * 41-year old father working in insurance - often works from home
- * 40-year old mother working in a bank - loves gardening and reading
- * 13-year old boy playing the guitar- loves Lego and computer games
- * 9-year old girl doing gymnastics - loves Barbie and singing

House criteria

- * Natural materials
- * Sloping roof covered with slates or roofing felt
- * Basement under the entire house with external staircase
- * Easy access
- * Balcony
- * Scandinavian style
- * Walk-in wardrobe
- * 4 rooms in the basement with daylight provided by light shafts
- * Sustainable solutions

Sundgårdsvej 95, 8700 Horsens, Denmark

Plot price - 1.223.800 kr
Area - 1.292 m²
Total built area - 174.23 m²
Total habitable area - 131,3 m²
Plot ratio - 15,7%
Sq. m. price - 16.819 kr
Total house cost - 6.864.956 kr



Cross section 1:50



West elevation 1:100



South elevation 1:100



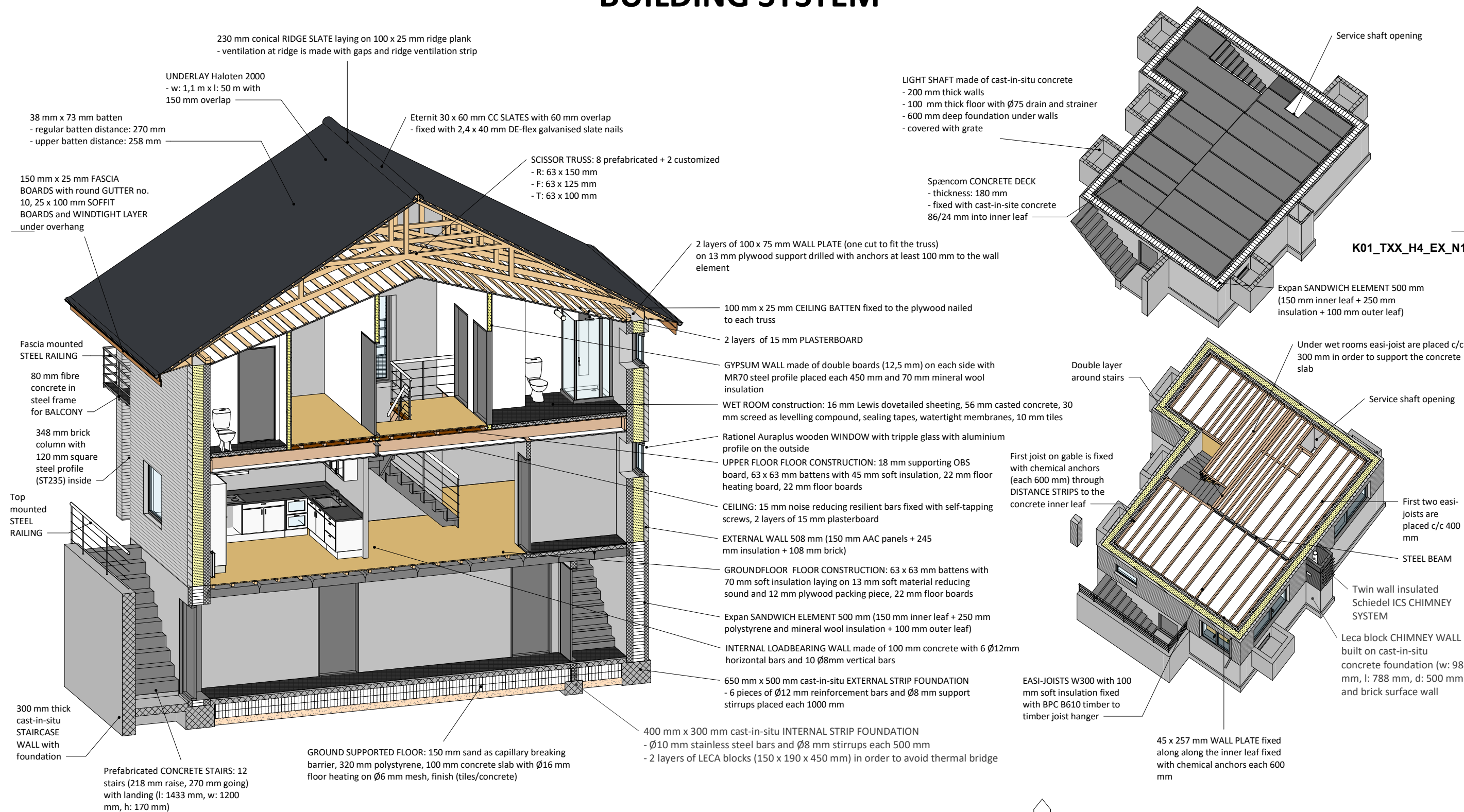
North elevation 1:100



East elevation 1:100

CONSTRUCTION TIME SCHEDULE											
Task	Start	End	Duration	Dependencies	Resources	Progress	Notes	Start	End	Duration	Dependencies
Foundation	2023-01-01	2023-01-15	14 days		Excavator	100%		2023-01-01	2023-01-15	14 days	
Groundwork	2023-01-15	2023-01-30	15 days	Foundation	Excavator	100%		2023-01-15	2023-01-30	15 days	Foundation
Foundation walls	2023-01-30	2023-02-15	16 days	Groundwork	Excavator	100%		2023-01-30	2023-02-15	16 days	Groundwork
Foundation slabs	2023-02-15	2023-02-28	13 days	Foundation walls	Excavator	100%		2023-02-15	2023-02-28	13 days	Foundation walls
Foundation roof	2023-02-28	2023-03-15	16 days	Foundation slabs	Excavator	100%		2023-02-28	2023-03-15	16 days	Foundation slabs
Foundation floors	2023-03-15	2023-03-30	15 days	Foundation roof	Excavator	100%		2023-03-15	2023-03-30	15 days	Foundation roof
Foundation walls	2023-03-30	2023-04-15	16 days	Foundation floors	Excavator	100%		2023-03-30	2023-04-15	16 days	Foundation floors
Foundation slabs	2023-04-15	2023-04-30	15 days	Foundation walls	Excavator	100%		2023-04-15	2023-04-30	15 days	Foundation walls
Foundation roof	2023-04-30	2023-05-15	16 days	Foundation slabs	Excavator	100%		2023-04-30	2023-05-15	16 days	Foundation slabs
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Foundation slabs	2023-06-15	2023-06-30	15 days	Foundation walls	Excavator	100%		2023-06-15	2023-06-30	15 days	Foundation walls
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Foundation floors	202										

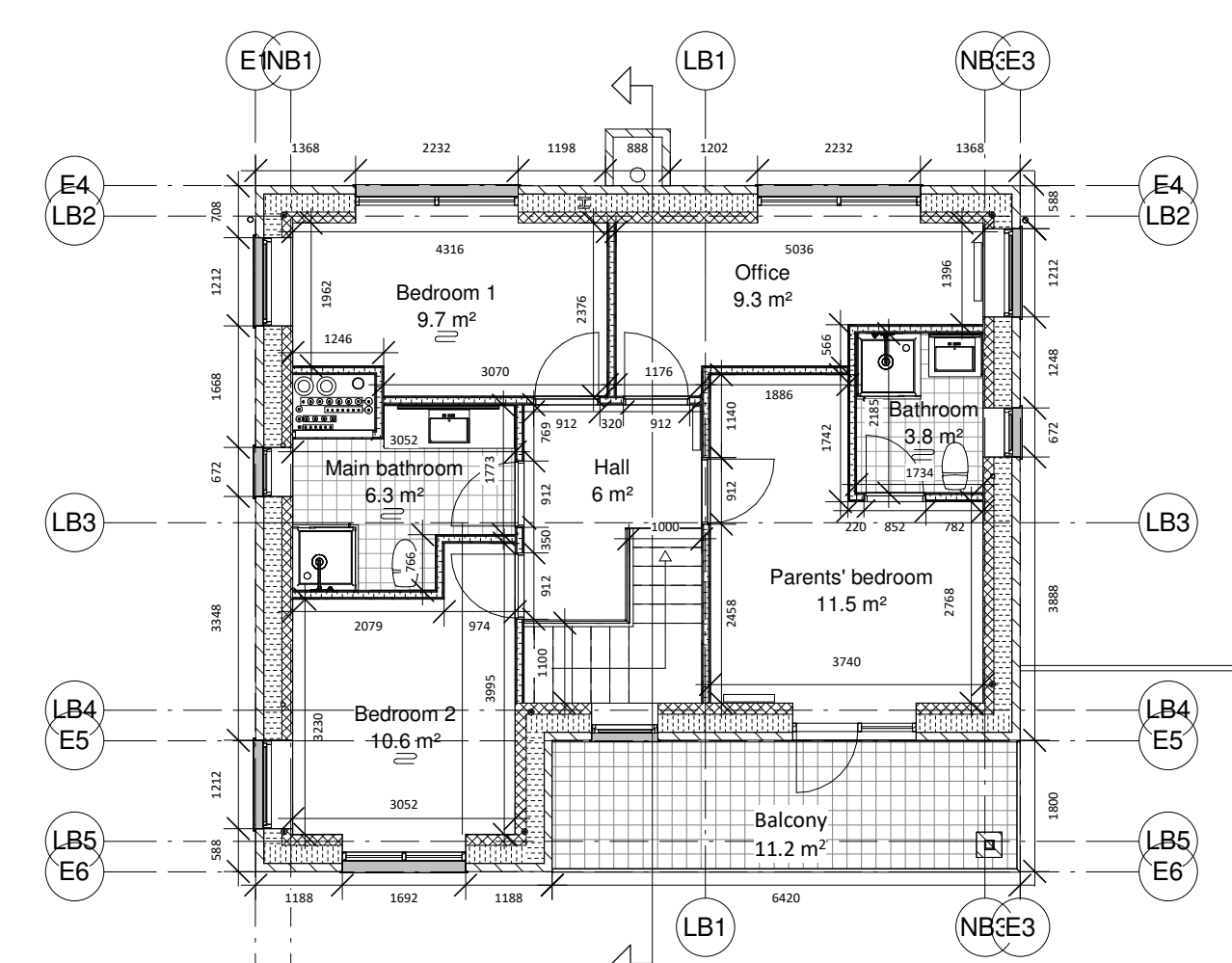
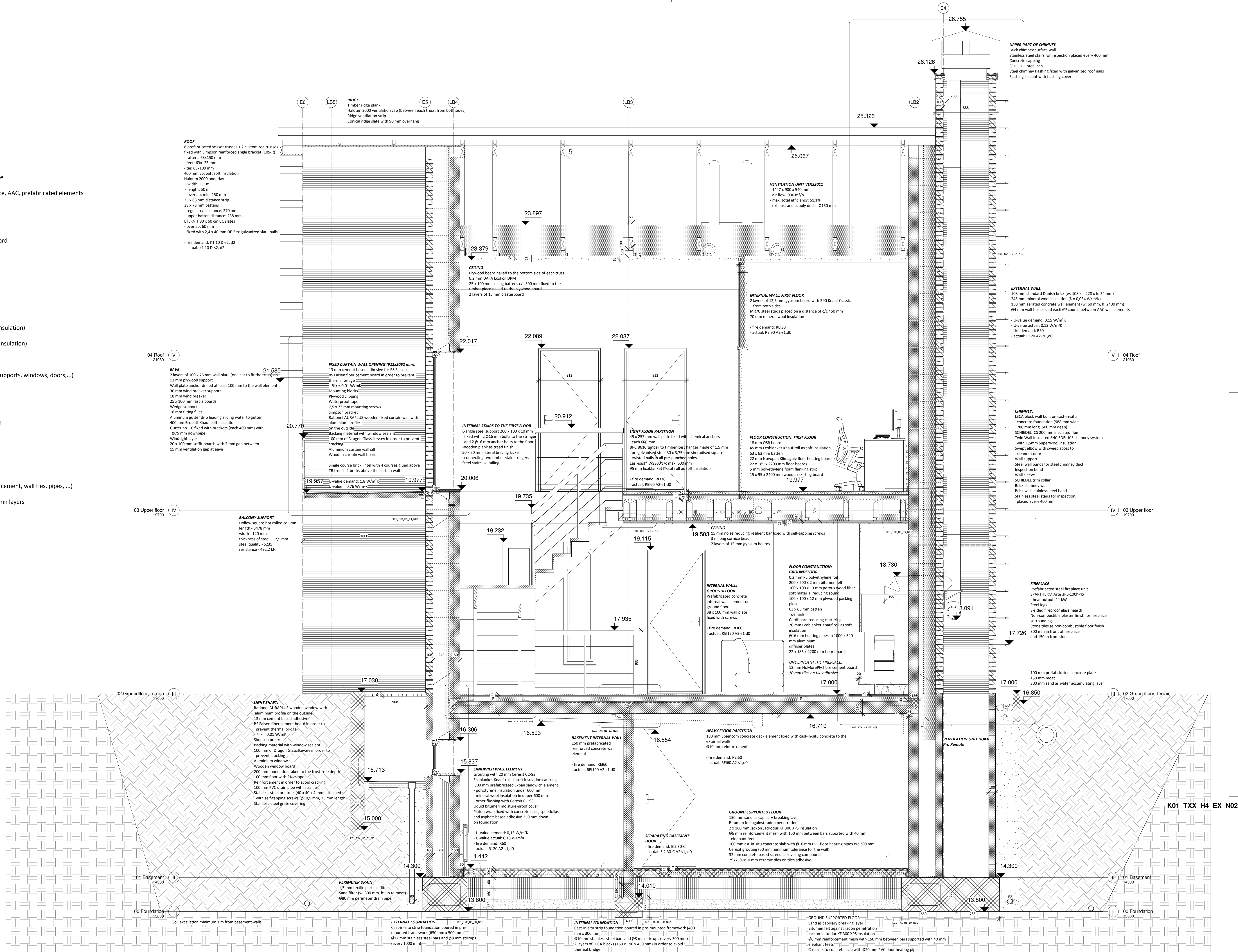
BUILDING SYSTEM

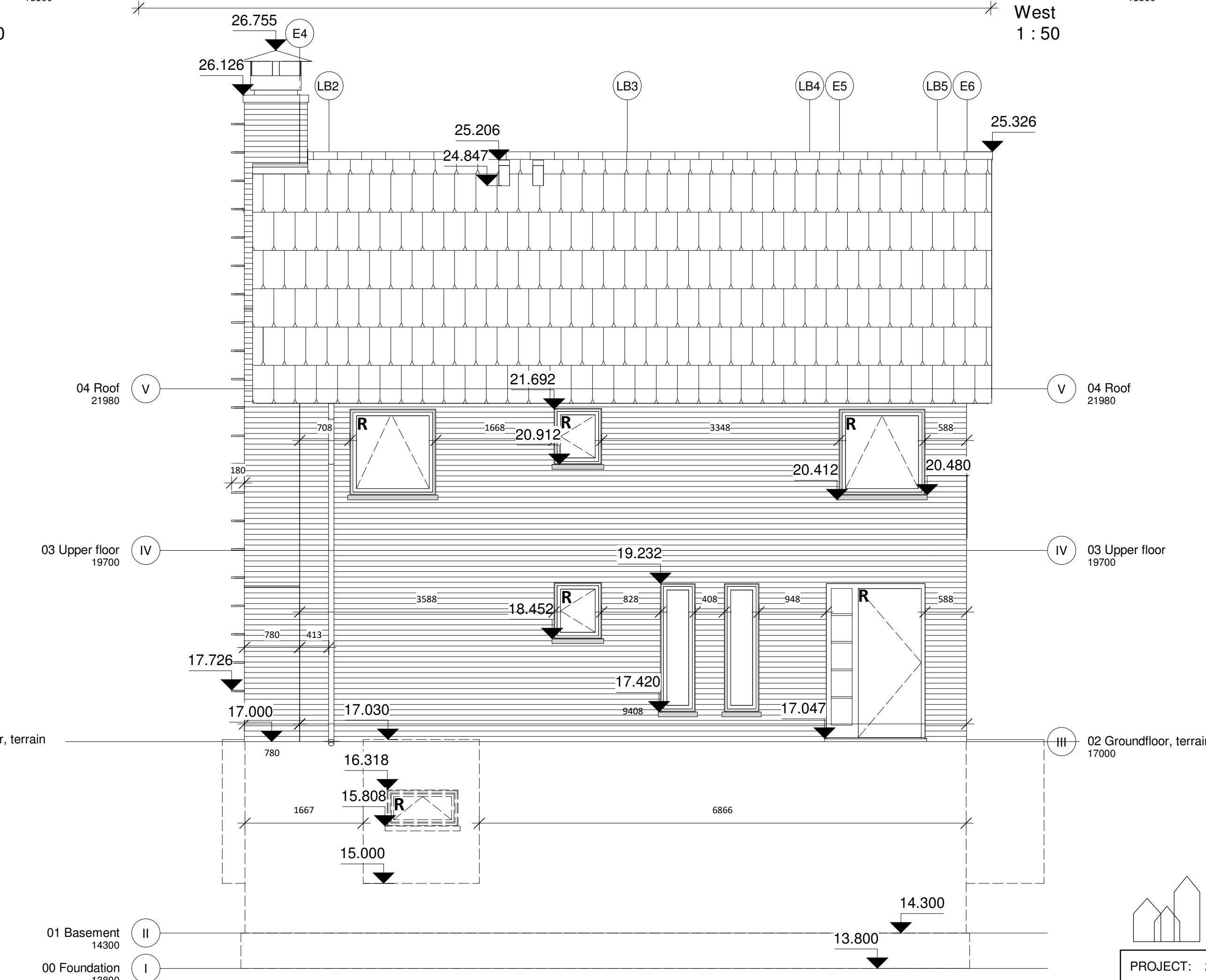
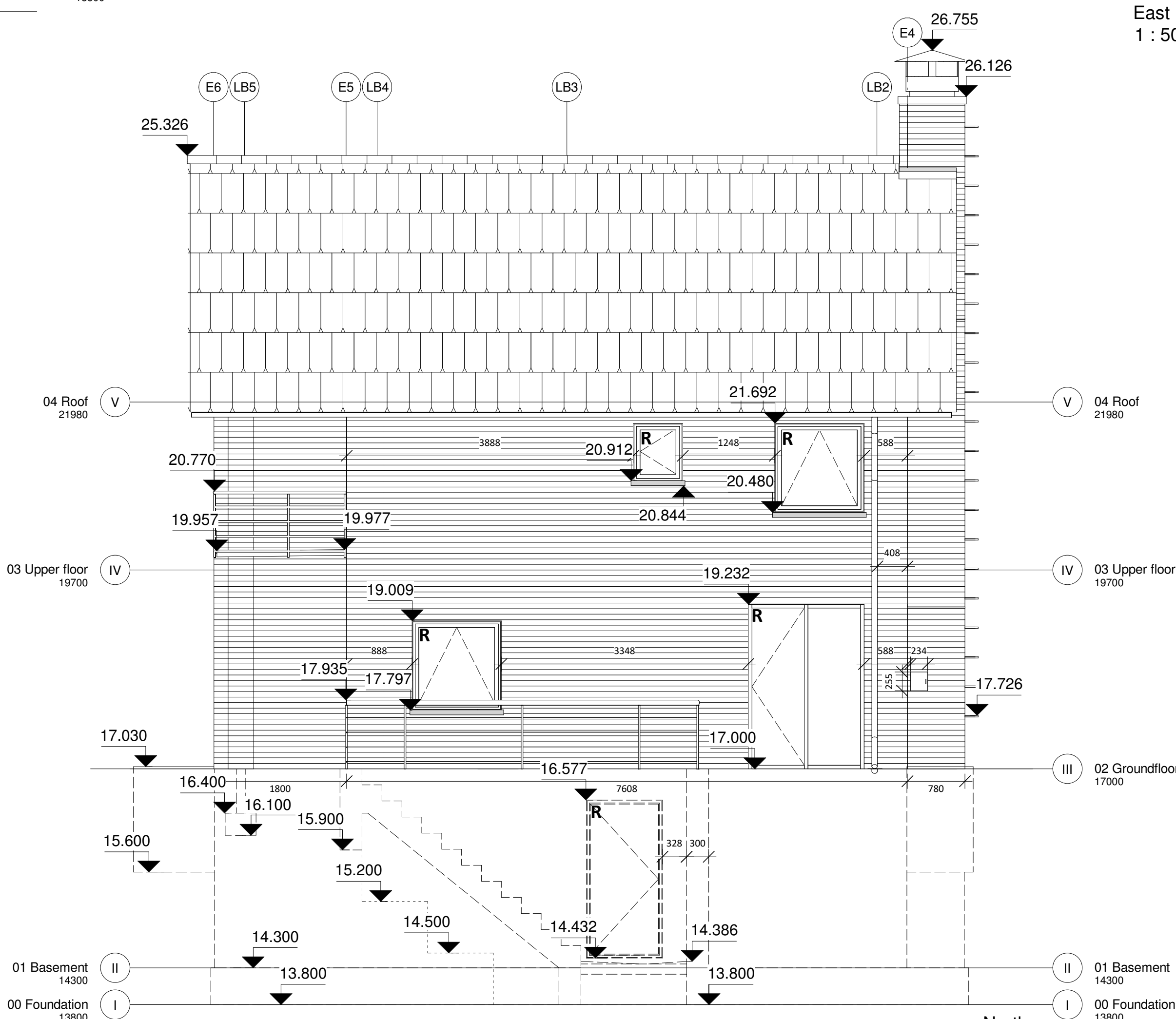
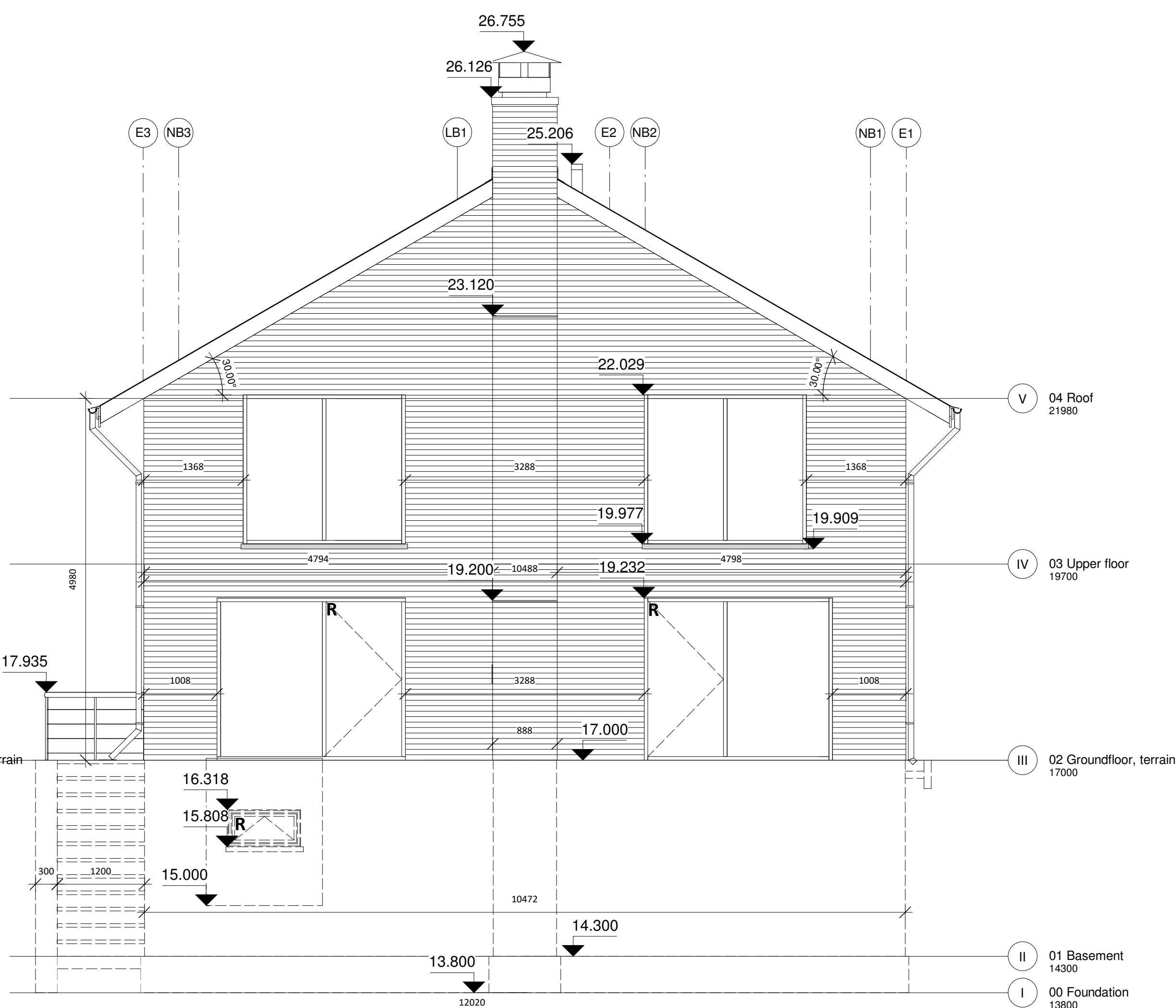
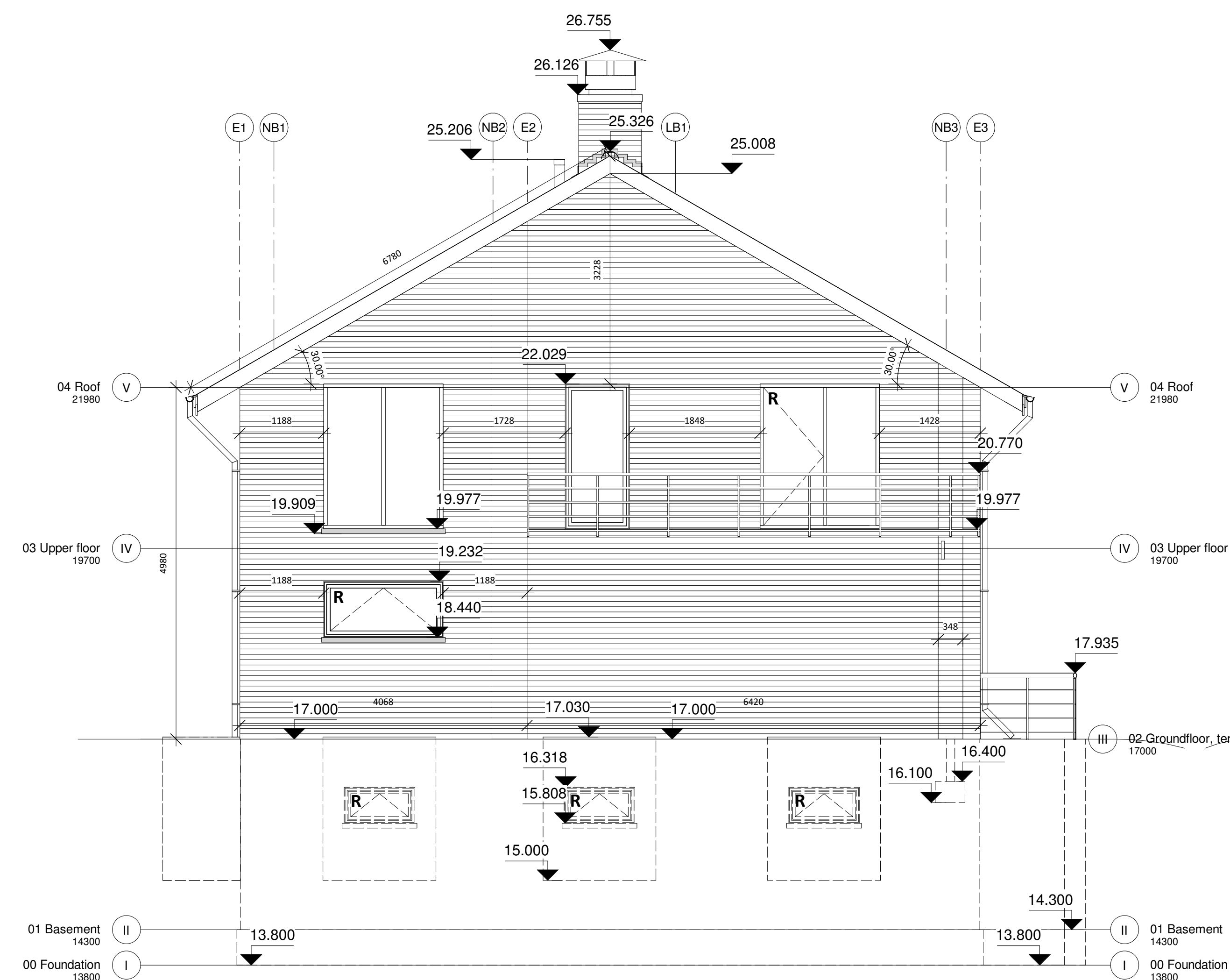


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PROJECT: 2 1/2 storey single family house	DATE: 06/18/18	K01_TXX_H4_EX_N1
SUBJECT: Building system	SCALE:	
DRAWN BY: Michaela Machová (Group 6)	CLASS: AH21S18	





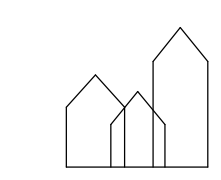
LEGEND

- RT 603 INNOVA grey rustic standard
danish brick
228x108x54 mm
- Eternit CC 30x60 slates
- R Resque openings
- Hidden objects
- Window sill
- 0.030 Spot elevation
- Top hinged opening
- E External modular line
- LB Modular line for loadbearing walls
- NB Modular line for non-loadbearing walls

U-VALUES:

- 672x792 mm window - 0,98 W/m²K
- 1212x1212 mm window - 0,77 W/m²K
- 1000x510 mm window - 0,92 W/m²K
- 492x1812 mm fixed window - 0,88 W/m²K
- 792x1692 mm fixed window - 0,8 W/m²K
- 912x2052 mm fixed window - 0,76 W/m²K
- 1392x2232 mm door - 1,2 W/m²K
- 1032x2145 mm door - 1,2 W/m²K
- 2592x2232 mm curtain wall - 0,78 W/m²K
- 1572x2232 mm curtain wall - 0,76 W/m²K
- 1692x2052 mm curtain wall - 0,85 W/m²K
- 2052x2232 mm fixed curtain wall - 0,8 W/m²K

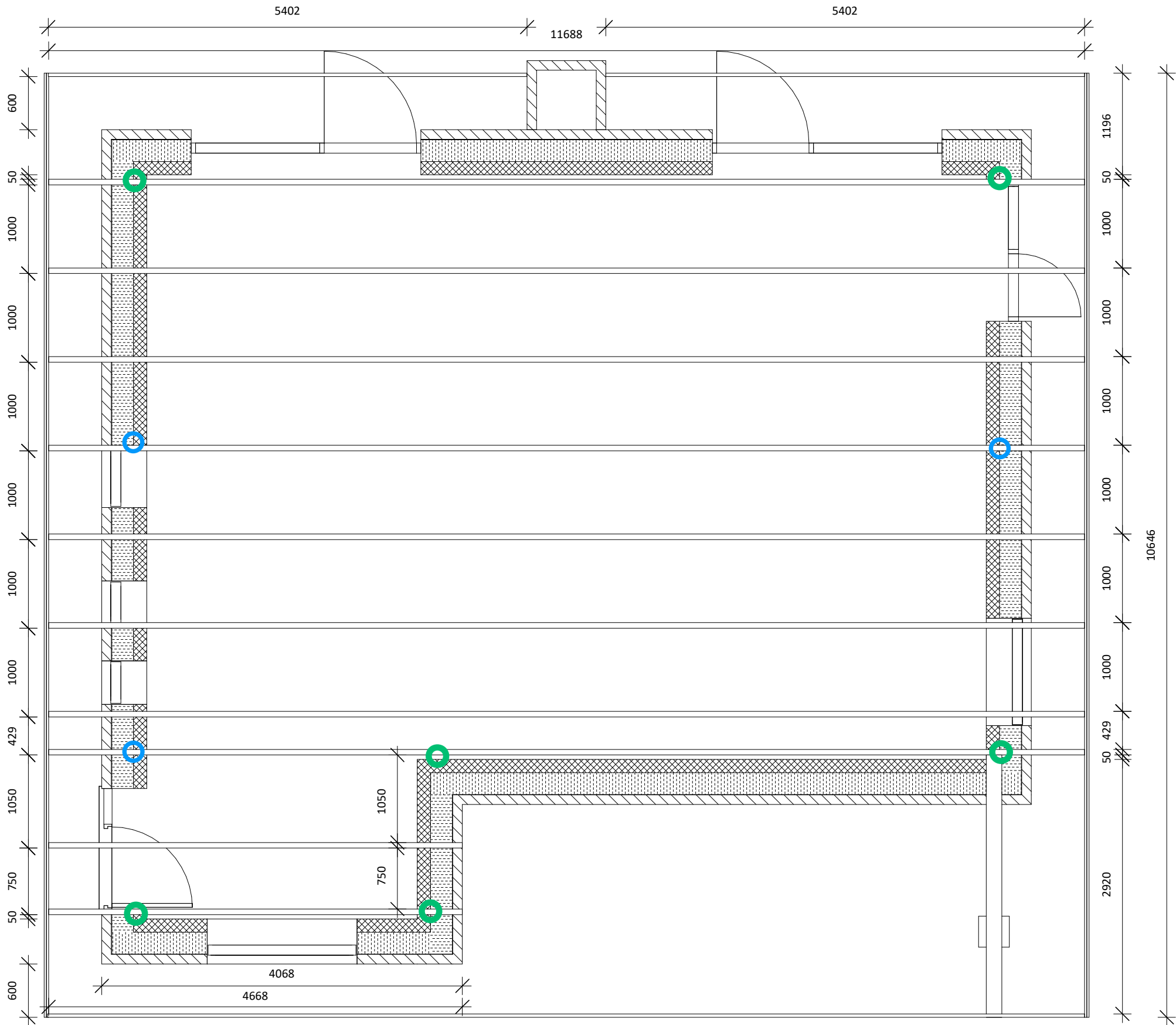
K01_TXX_H7_EX_N06



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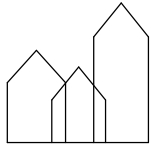
PROJECT: 2 1/2 storey single family house	DATE: 06/13/18	K01_TXX_H7_EX_N06
SUBJECT: Elevations	SCALE: 1 : 50	
DRAWN BY: Michaela Machová, Carina Pronscaila (Group 6)	CLASS: AH21S18	



LEGEND

- Scissor truss with 600 mm overhang:
R: 63x150;
F: 63x125;
T: 63x100
- last trusses placed 50 mm inside the inner leaf
- Anchors are embedded in concrete between sandwich element and heavy floor deck:
- 40 x 2,0 mm steel strap
Design strength = 13 kN
- 60 x 2,0 mm steel strap
Design strength >20 kN
- 38x175mm gable overhang timber board
- 2x25x150mm load-bearing fascia boards
- 150 mm thick supporting beam to transfer the load of the roof to the steel column

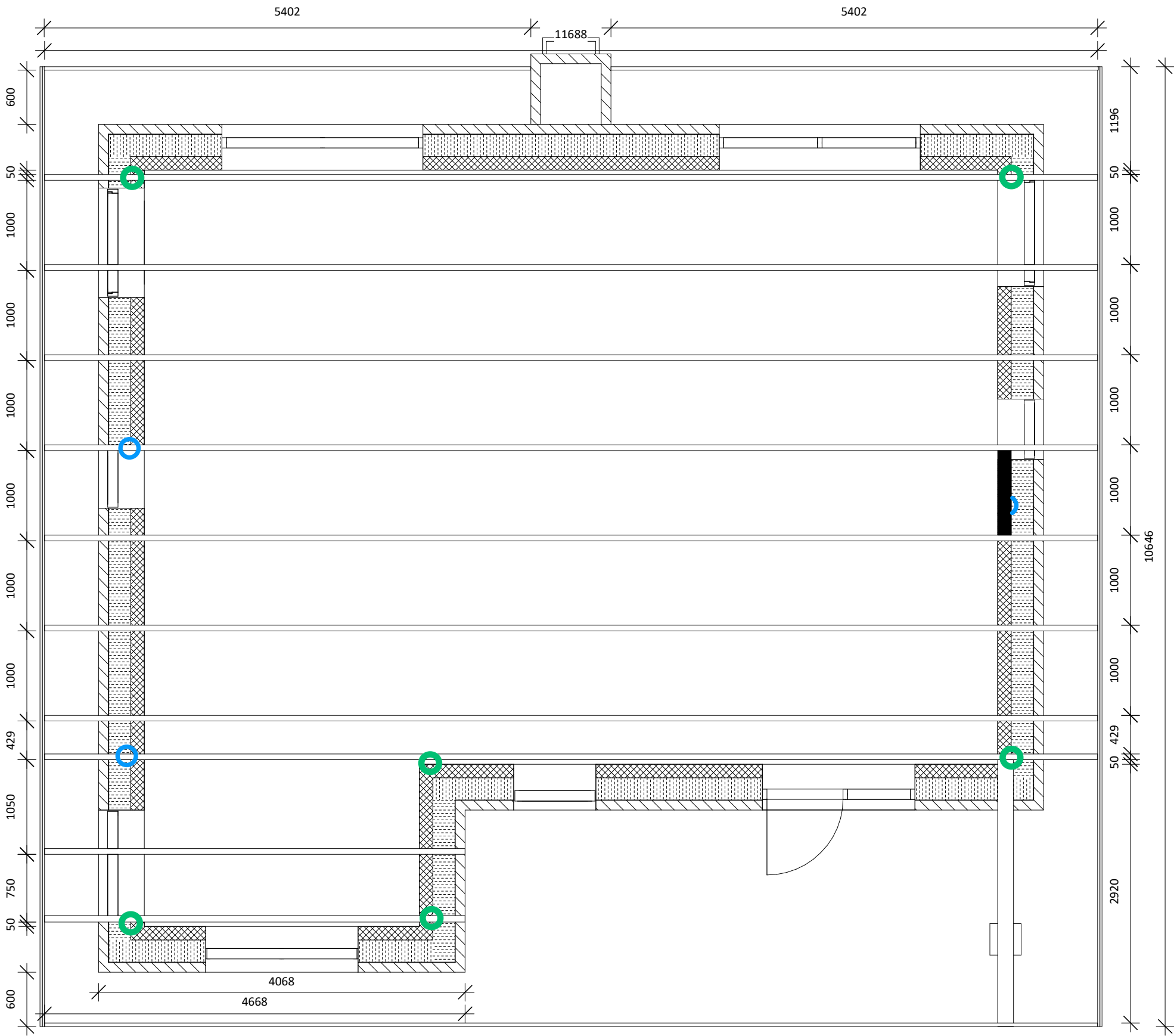
Truss plan - groundfloor
1 : 50



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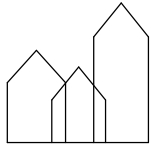
PROJECT: 2 1/2 storey single family house	DATE: 06/08/18	K01_TXX_H1_E4_N03
SUBJECT: Truss plan - groundfloor	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	



LEGEND

- Scissor truss with 600 mm overhang:
R: 63x150;
F: 63x125;
T: 63x100
- last trusses placed 50 mm inside the inner leaf
- Anchors are embedded in concrete between sandwich element and heavy floor deck:
- 40 x 2,0 mm steel strap
Design strength = 13 kN
- 60 x 2,0 mm steel strap
Design strength >20 kN
- Trimmer joist
- height: 120 mm
- thickness: 45 mm
- 38x175mm gable overhang timber board
- 2x25x150mm load-bearing fascia boards
- 150 mm thick supporting beam to transfer the load of the roof to the steel column

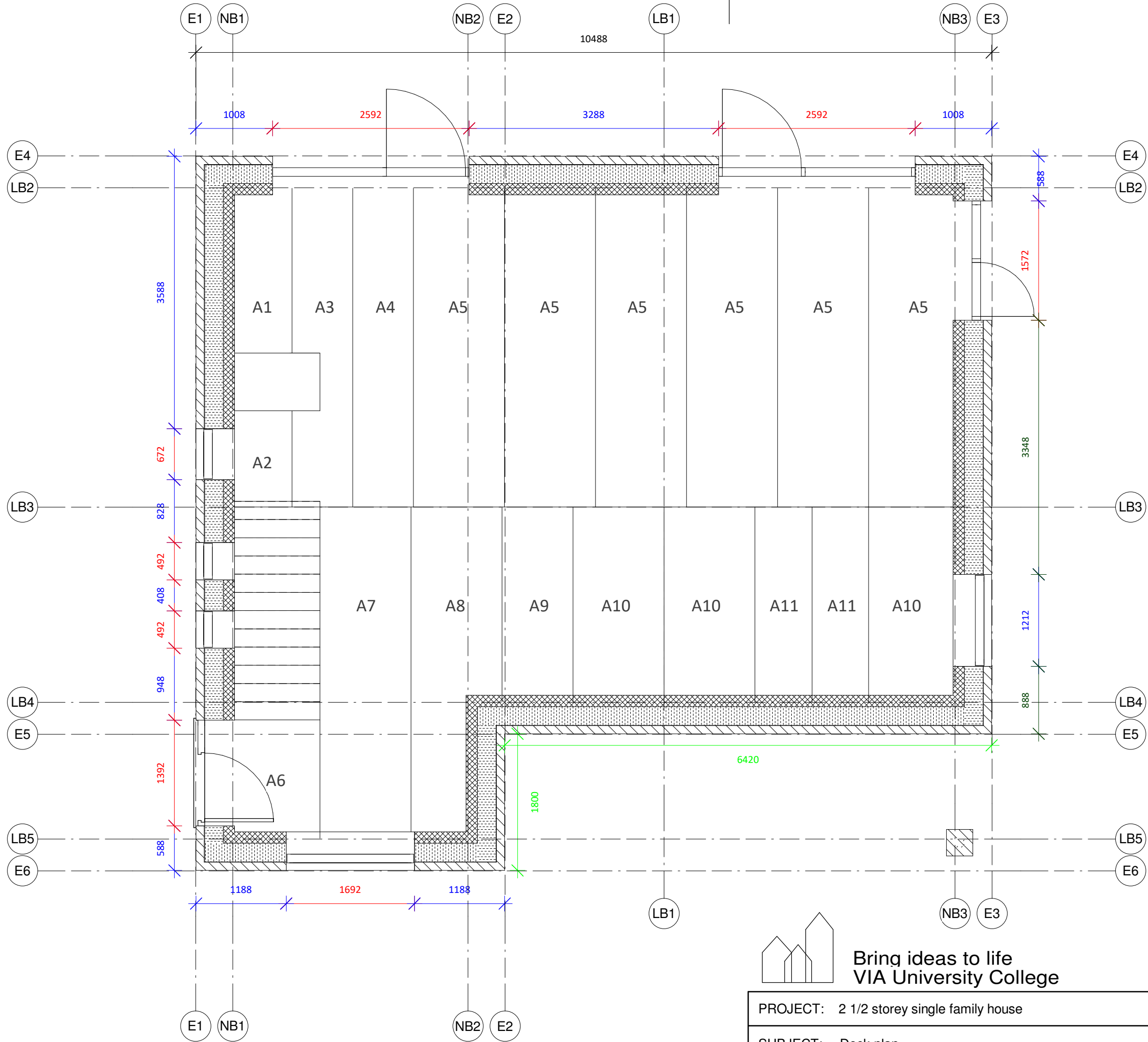
Truss plan - upper floor
1 : 50



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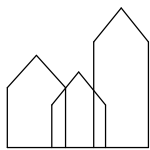
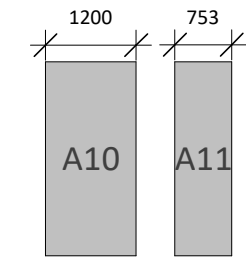
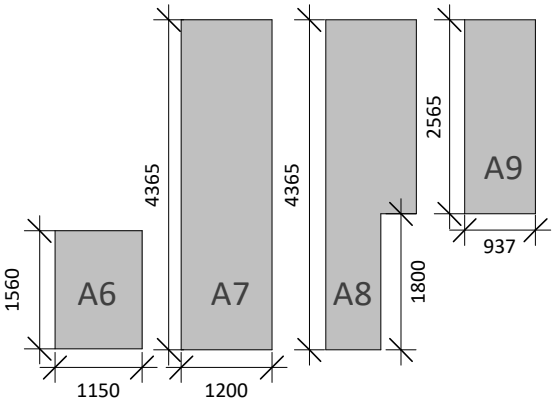
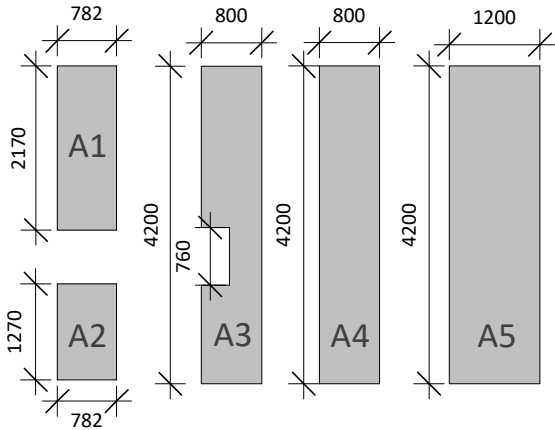
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PROJECT: 2 1/2 storey single family house	DATE: 06/10/18	K01_TXX_H1_E4_N02
SUBJECT: Truss plan - upper floor	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS:	



- LEGEND**
- 1208 Pier measurement
 - 1202 Opening measurement
 - 1200 Modular
 - Deck
 - Modular line

Prefabricated Xtrumax Slab covers 70.6 m² floor area



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PROJECT: 2 1/2 storey single family house

DATE: 06/20/18

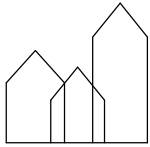
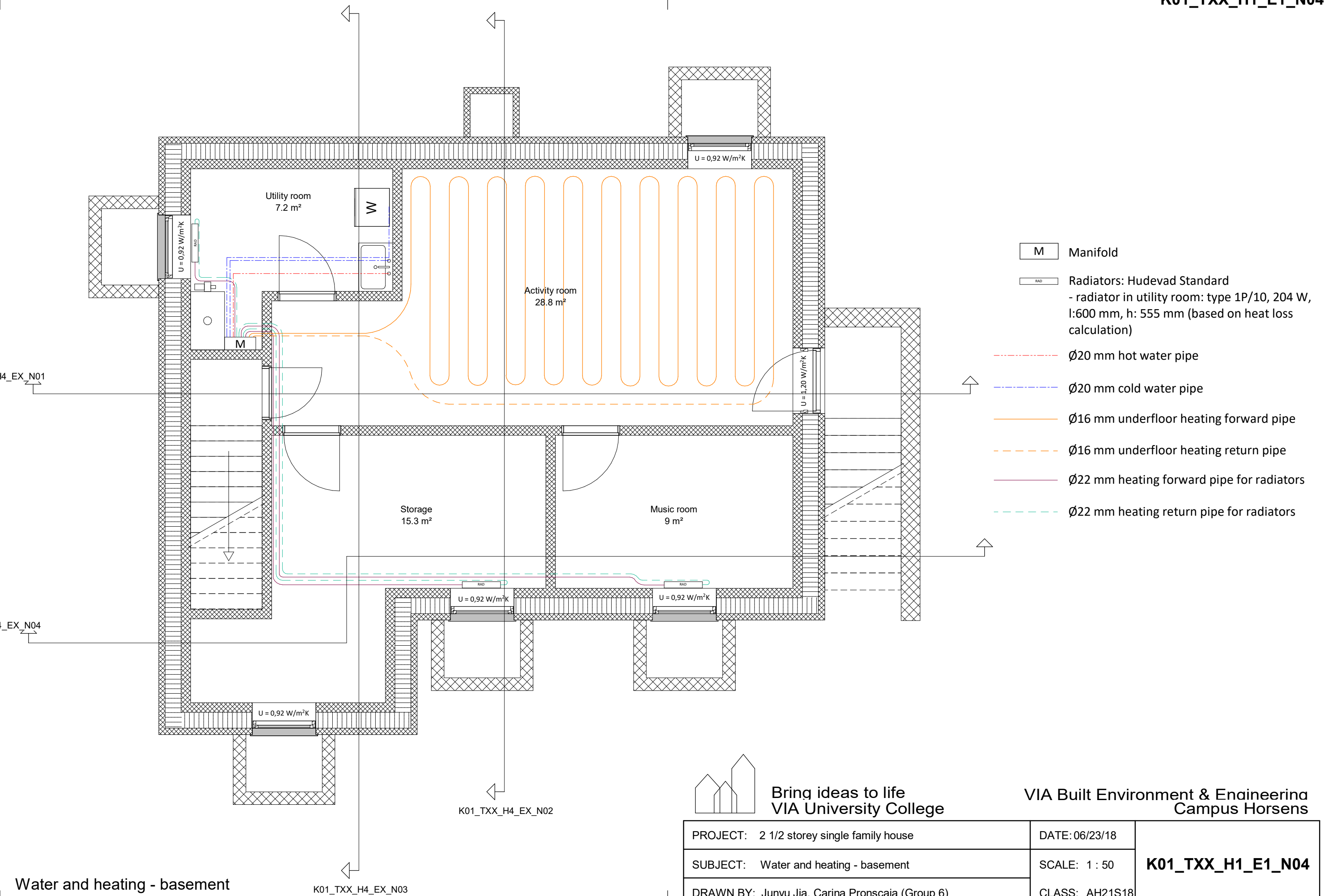
SUBJECT: Deck plan

SCALE: As indicated

DRAWN BY: Junyu Jia, Carina Pronsaia, M. Machová (Group 6)

CLASS: AH21S18

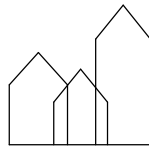
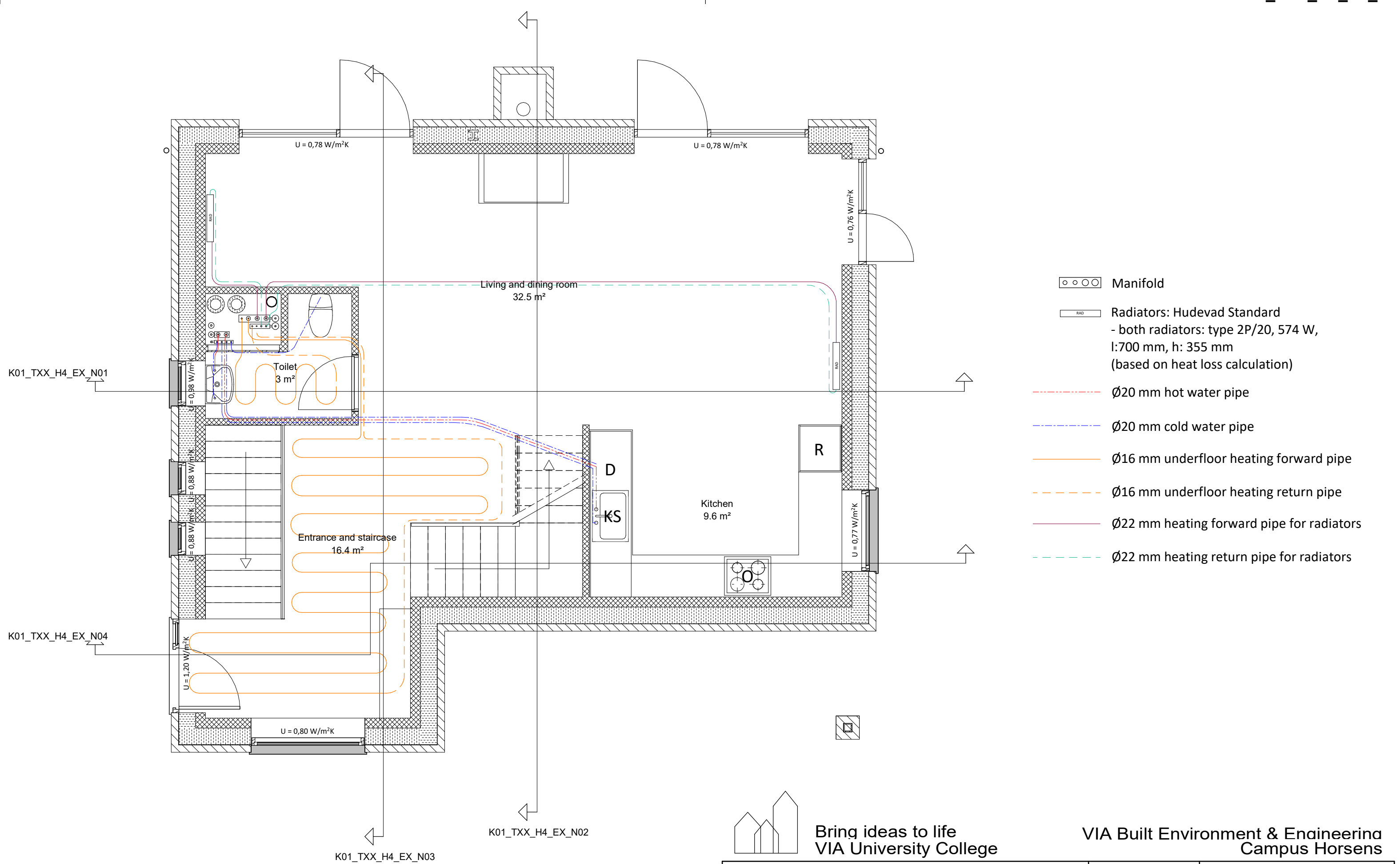
K01_TXX_H1_E2_N05



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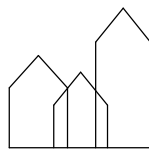
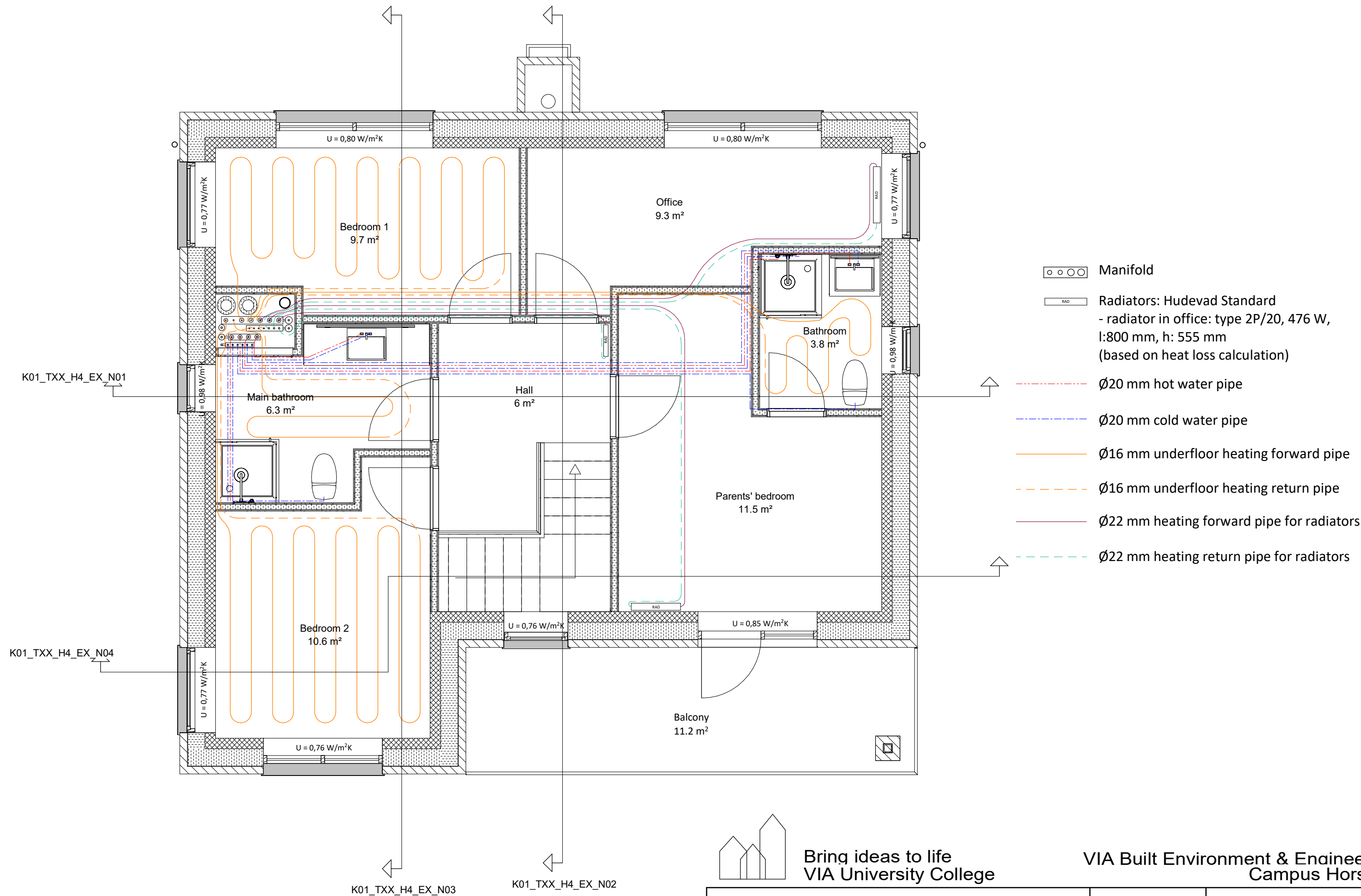
PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E1_N04
SUBJECT: Water and heating - basement	SCALE: 1 : 50	
DRAWN BY: Junyu Jia, Carina Pronascaia (Group 6)	CLASS: AH21S18	



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PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E2_N5
SUBJECT: Water and heating - groundfloor	SCALE: 1 : 50	
DRAWN BY: Junyu Jia, Carina Pronascaia (Group 6)	CLASS: AH21S18	

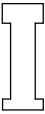


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PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E3_N14
SUBJECT: Water and heating - 1st floor	SCALE: 1 : 50	
DRAWN BY: Junyu Jia, Carina Pronascaia (Group 6)	CLASS: AH21S18	

LEGEND



DUKA ONE Pro REMOTE one-room ventilation unit

Ø160

Duct size

Music Room
9 m²

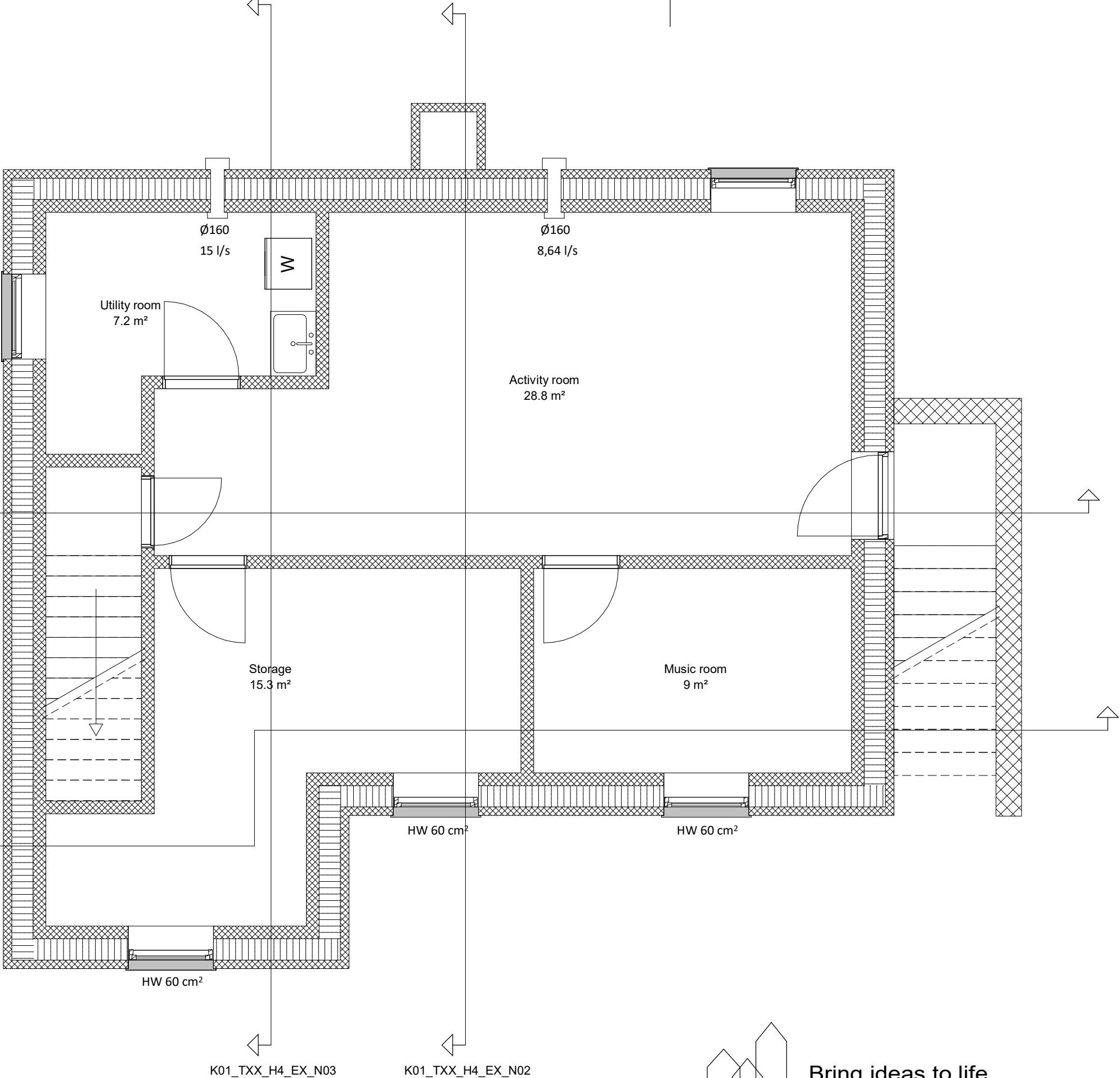
Room and area

8,64 l/s

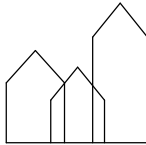
Amount of necessary air exchange

HW 60 cm²

Required opening area for rooms with natural ventilation



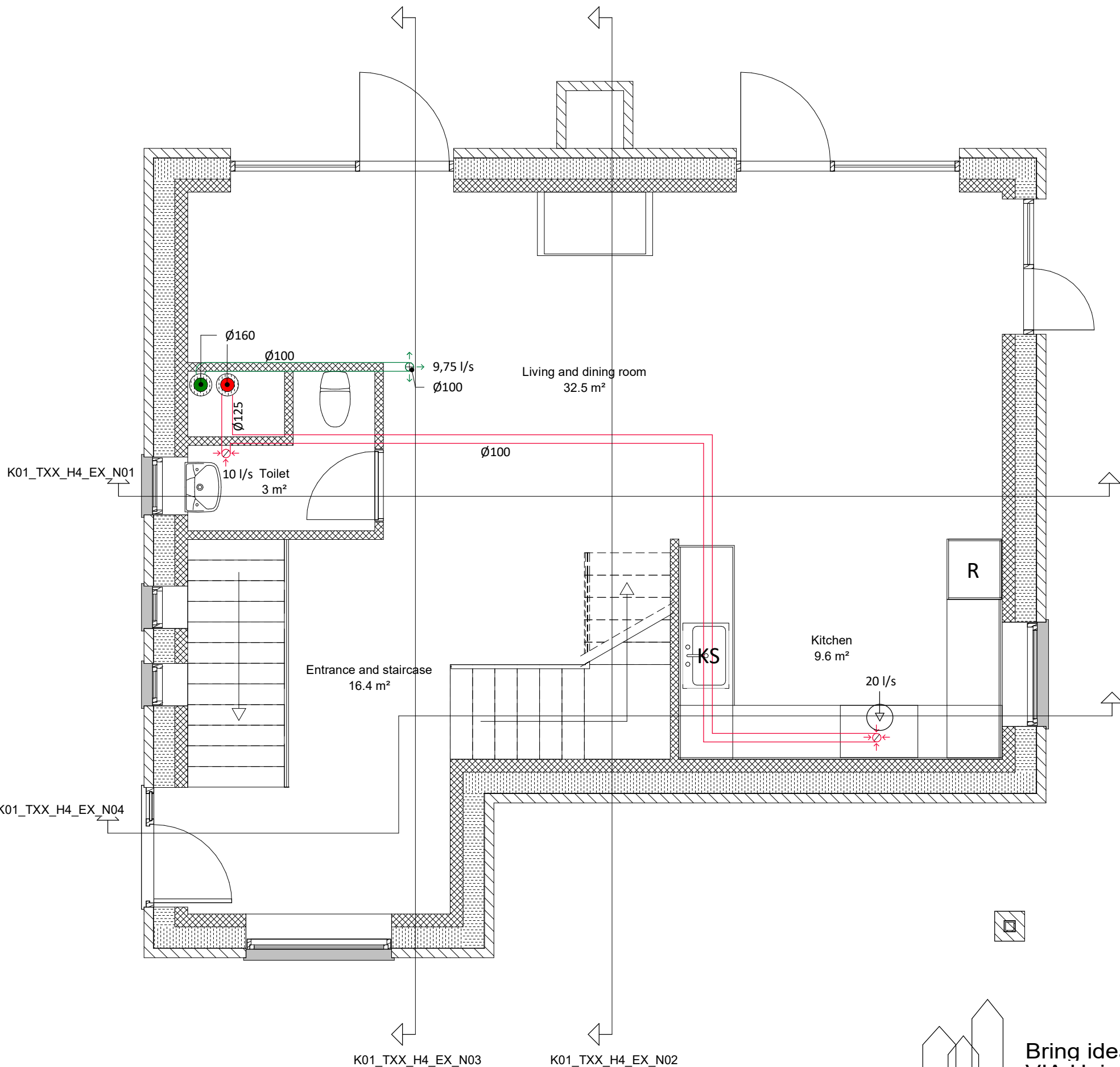
Ventilation - basement
1 : 50



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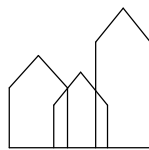
PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E1_N02
SUBJECT: Ventilation plan - basement	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	



LEGEND

- Fresh air supply pipe
- Poluted air extraction pipe
- Fresh air supply duct
- Exhaust duct
- Extractor hood
- Pipe size
- Amount of necessary air exchange
- Room and area
- Mineral wool insulation: 50 mm main pipe, 30 mm distribution pipes

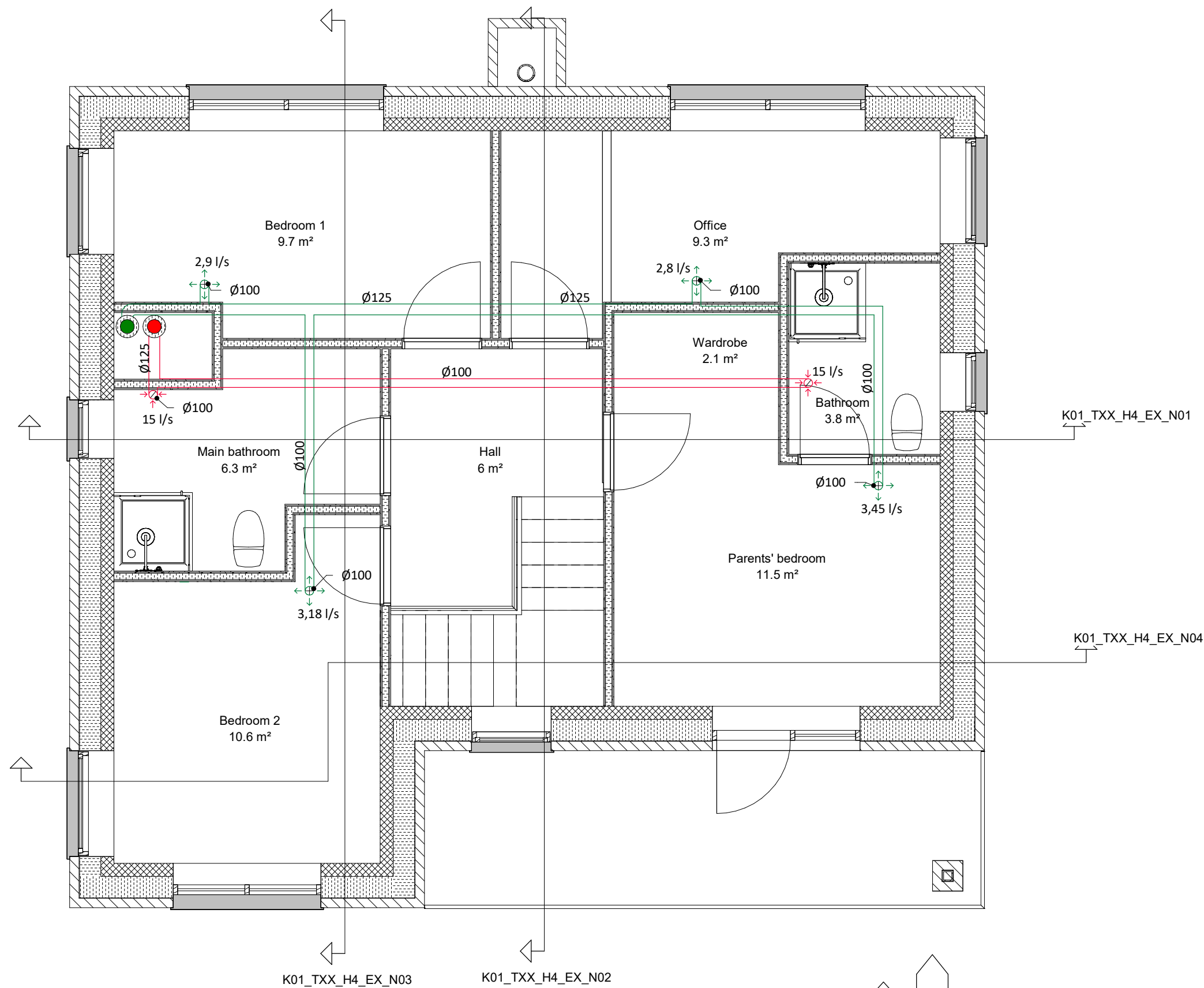
Ventilation - groundfloor
1 : 50



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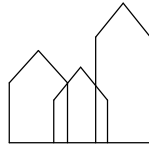
PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E2_N04
SUBJECT: Ventilation plan - groundfloor	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	



LEGEND

- Fresh air supply pipe
- Polluted air extraction pipe
- Fresh air supply duct
- Exhaust duct
- Pipe size
- Amount of necessary air exchange
- Room and area
- Mineral wool insulation: 50 mm main pipe, 30 mm distribution pipes

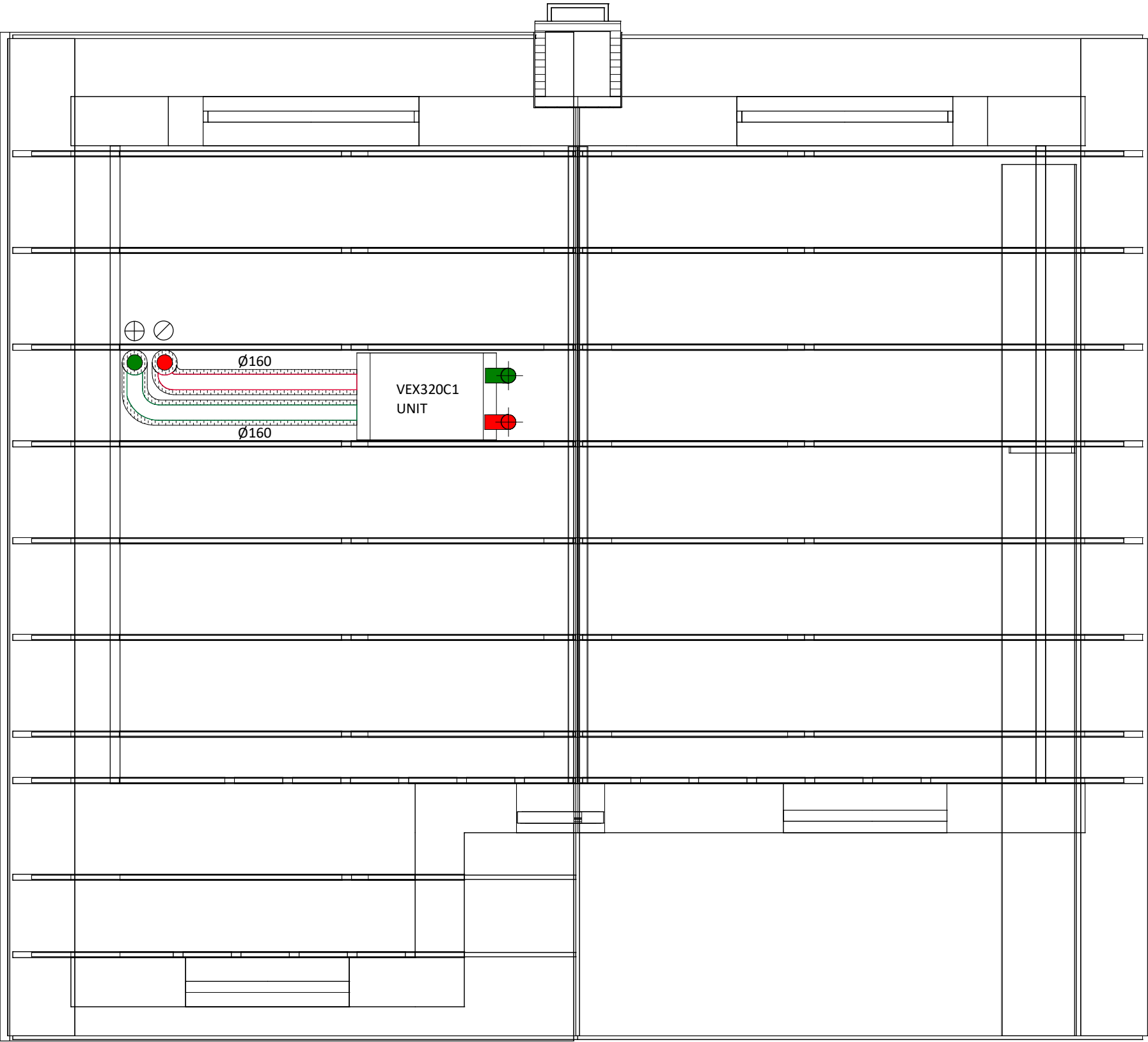
Ventilation - upper floor
1 : 50



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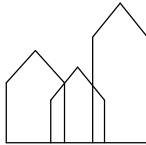
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PROJECT: 2 1/2 storey single family house	DATE: 06/23/18	K01_TXX_H1_E3_N03
SUBJECT: Ventilation plan - first floor	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	



LEGEND

-  Fresh air supply pipe
-  Poluted air extraction pipe
-  Ventilation unit:
Exhausto VEX320C1 ventilation unit with heat recovery
- efficiency: 51,1%
- dimensions: 1385x440x900 mm
- average air supply capability: 900 m³/h
-  Pipe size
-  Mineral wool insulation: 50 mm main pipe, 30 mm distribution pipes
-  Fresh air supply duct
-  Exhaust duct



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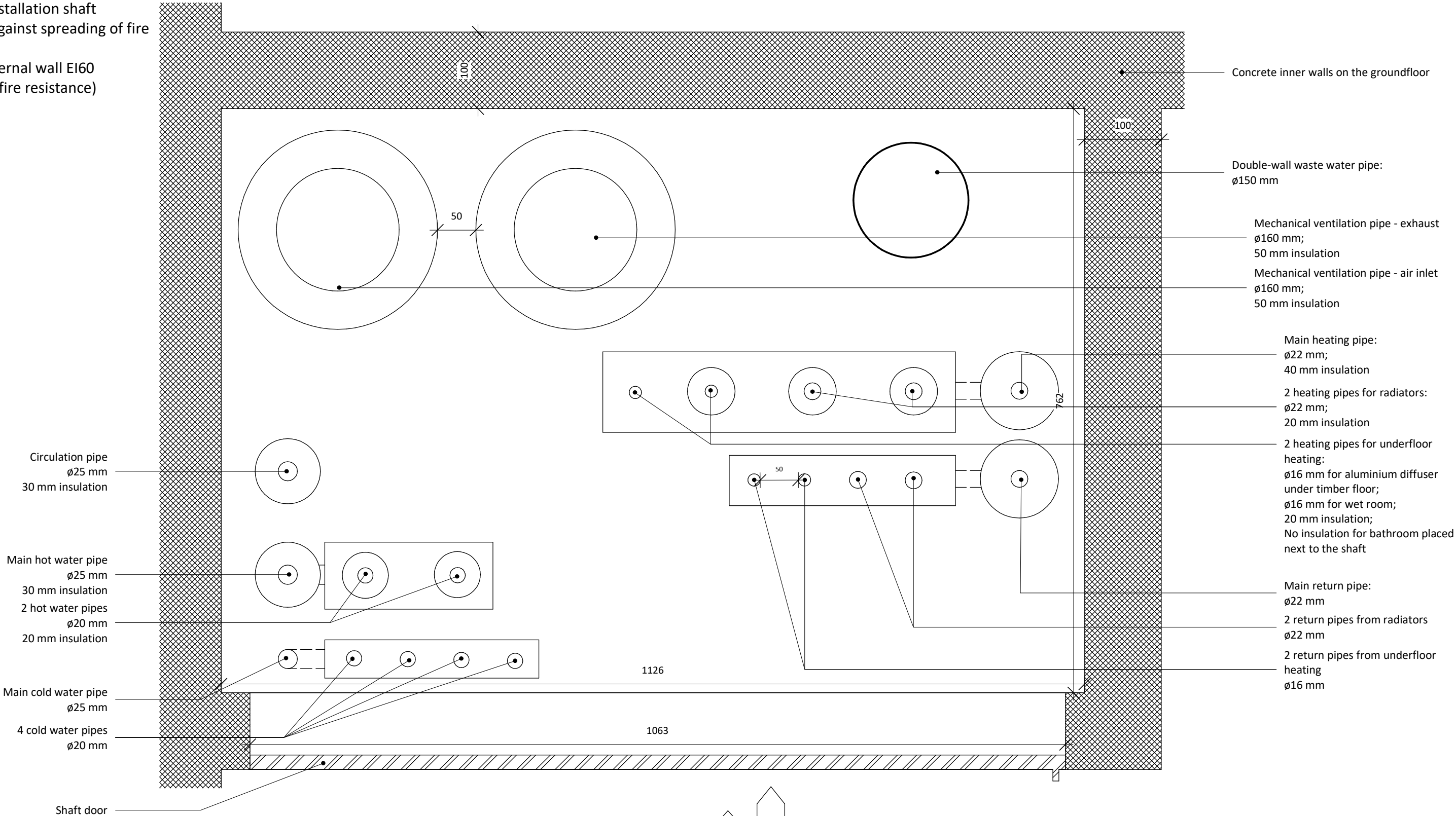
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PROJECT: 2 1/2 storey single family house	DATE: 06/08/18	K01_TXX_H1_E4_N04
SUBJECT: Ventilation plan - roof	SCALE: 1 : 50	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	

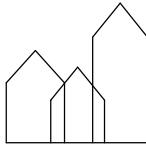
Required distance between pipes
- 50 mm

Concrete plate casted between two
storeys as installation shaft
protection against spreading of fire

Concrete internal wall EI60
(60 minutes fire resistance)



Shaft - groundfloor
1 : 5



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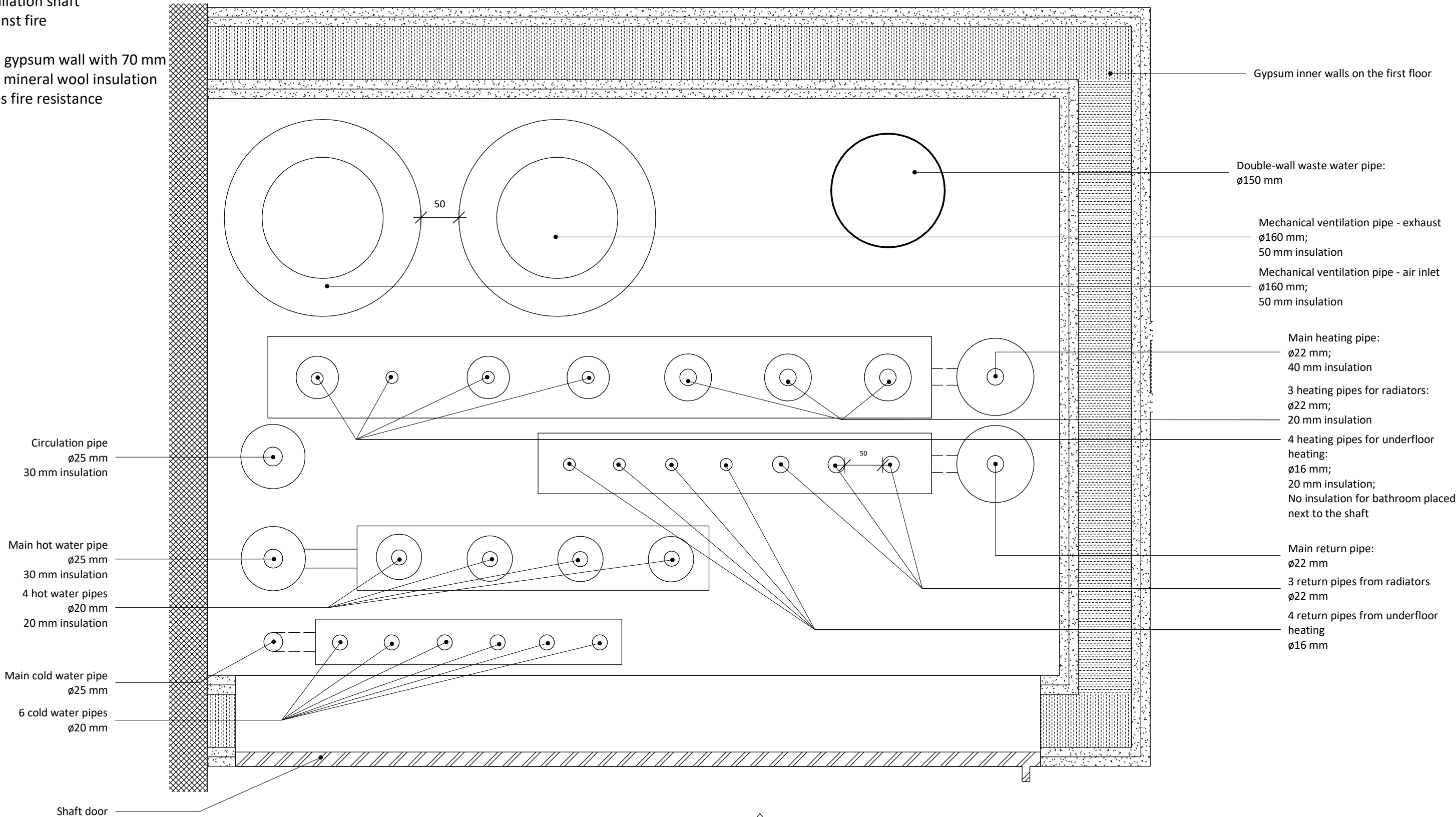
VIA Built Environment & Engineering
Campus Horsens

PROJECT: 2 1/2 storey single family house	DATE: 06/17/18	K01_TXX_H1_E2_N03
SUBJECT: Installation shaft - groundfloor	SCALE: 1 : 5	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	

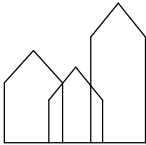
Required distance between pipes: 50 mm

Concrete plate casted between two storeys as installation shaft protection against fire

2 layers of 12,5 gypsum wall with 70 mm steel studs and mineral wool insulation with 90 minutes fire resistance



Shaft - upper floor
1 : 5



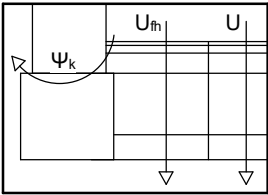
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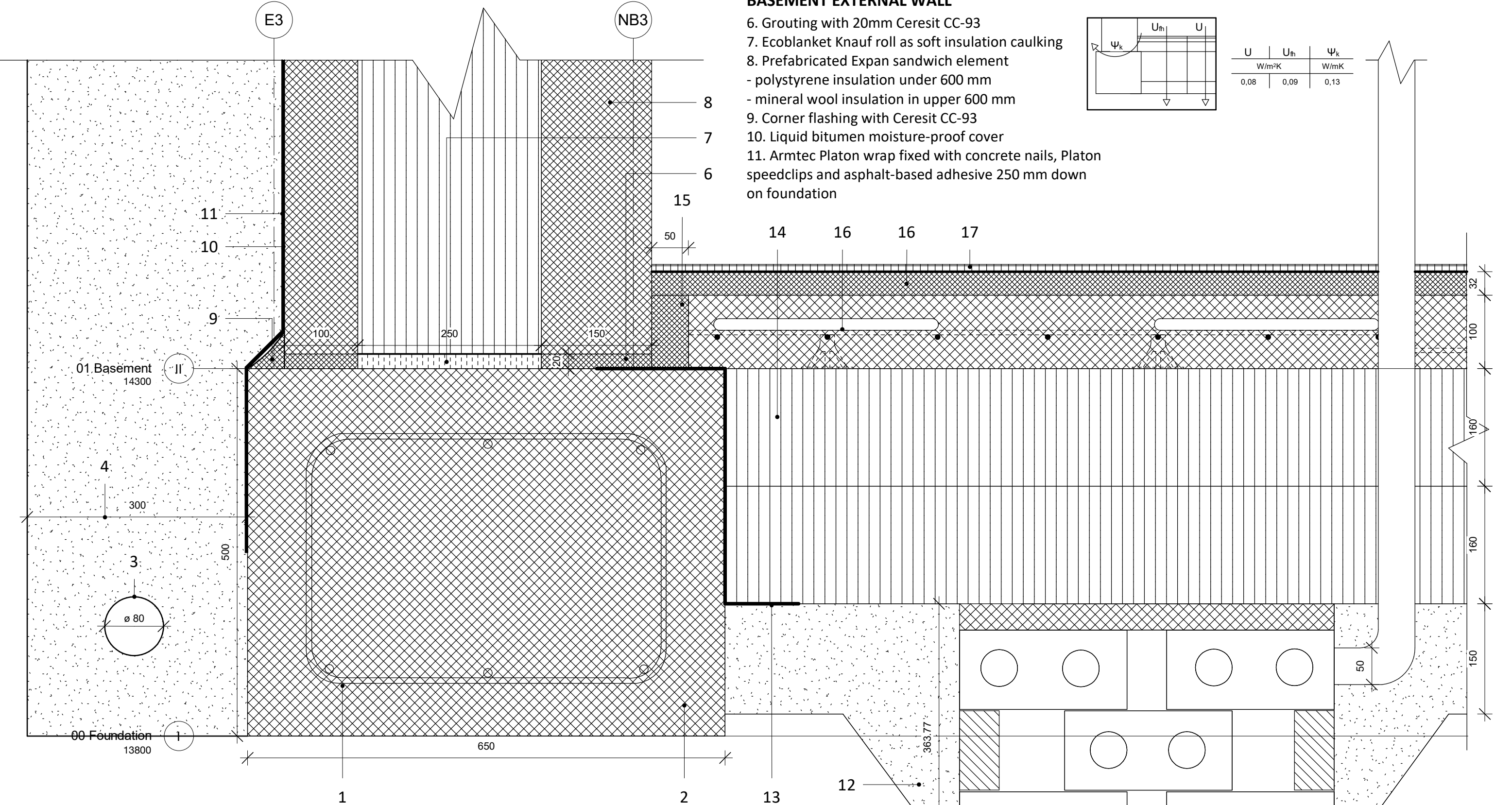
PROJECT: 2 1/2 storey single family house	DATE: 06/17/18	K01_TXX_H1_E3_N04
SUBJECT: Installation shaft - first floor	SCALE: 1 : 5	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	

BASEMENT EXTERNAL WALL

- 6. Grouting with 20mm Ceresit CC-93
- 7. Ecoblanket Knauf roll as soft insulation caulking
- 8. Prefabricated Expan sandwich element
 - polystyrene insulation under 600 mm
 - mineral wool insulation in upper 600 mm
- 9. Corner flashing with Ceresit CC-93
- 10. Liquid bitumen moisture-proof cover
- 11. Armtec Platon wrap fixed with concrete nails, Platon speedclips and asphalt-based adhesive 250 mm down on foundation



U	U _{th}	Ψ _k
W/m²K		W/mK
0,08	0,09	0,13



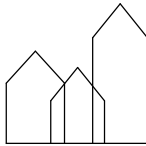
FOUNDATION

- 1. Cast-in-situ strip foundation poured in pre-mounted framework (650 mm x 500 mm)
- 2. Ø12 mm stainless steel bars and Ø8 mm stirrups (every 1000mm)
- 3. Ø80 mm Wavin PVC drainage pipe covered with fiber cloth 50 m each
- 4. Sand for drainage
- 5. Brick-made radon well covered with fiber cloth with PVC pipe for removing the gas

GROUND SUPPORTED FLOOR

- 12. Sand for capillary breaking layer
- 13. Bitumen felt against radon penetration
- 14. Jackon Jackodur KF 300 XPS insulation
- 15. Reinforced (Ø6 mm with 150 mm between bars) concrete slab (with Ø16 floor heating mm PVC pipes)
- 16. Ceresit grouting (50 mm minimum tolerance for the wall)
- 17. Concrete based screed as leveling compound
- 18. 297 x 597 x 10 mm Evers ceramic tiles

Foundation and basement wall
1 : 5



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PROJECT: 2 1/2 storey single family house	DATE: 06/07/18	K01_TXX_H5_E0_N01
SUBJECT: Detail - foundation and basement external wall	SCALE: 1 : 5	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	

1. Prefabricated EXPAN sandwich element
2. Liquid bitumen moisture-proof cover
3. Armtec Platon wrap fixed with concrete nails, Platon Speedclips and asphalt-based adhesive 250 mm down on foundation

6. Brick + mineral wool insulation + aerated concrete wall element (w: 60 mm, h: 2400 mm)
7. Single brick lintel with 5 courses glued above
8. TB trench placed above all openings to lead the ingress of water inside the wall
9. BS Falsen fiber cement board in order to prevent thermal bridge
- $\Psi_k = 0,01 \text{ W/mK}$
10. Function glue
11. Simpson bracket
31. 100 mm of Dragon Glassilkevæv in order to prevent cracking (before painting the walls)

4. Spæncom concrete deck element
5. Cast-in-situ concrete
12. 0,2 mm PE polyethylene foil
13. Bitumen felt against radon penetration
14. 200 x 200 x 2 mm bitumen felt
15. 100 x 100 x 13 mm porous wood fiber soft material reducing sound
16. 100 x 100 x 12 mm plywood packing piece
17. 63 x 63 mm batten: maximum deflection between battens is 2 mm
18. Toe nails: must not enter the soft material
19. Cardboard reducing clattering
20. Ecoblanket Knauf roll as soft insulation
21. 16 mm heating pipes in 1000x520 mm aluminium diffuser plates
22. 22 x 185 x 2200 mm floor boards

23. Low timber doorstep for a wheelchair access
24. Door 2145x1392 mm
25. Caulking with mineral wool and polyethylene pipes
26. Weather-proof silicone sealant



27. Prefabricated concrete plate
28. Terrain leveling with concrete plate min. 1500x1500 mm (1:20 max. slope)
29. Moat
30. Steel grating



Door detail - bottom part
1 : 5



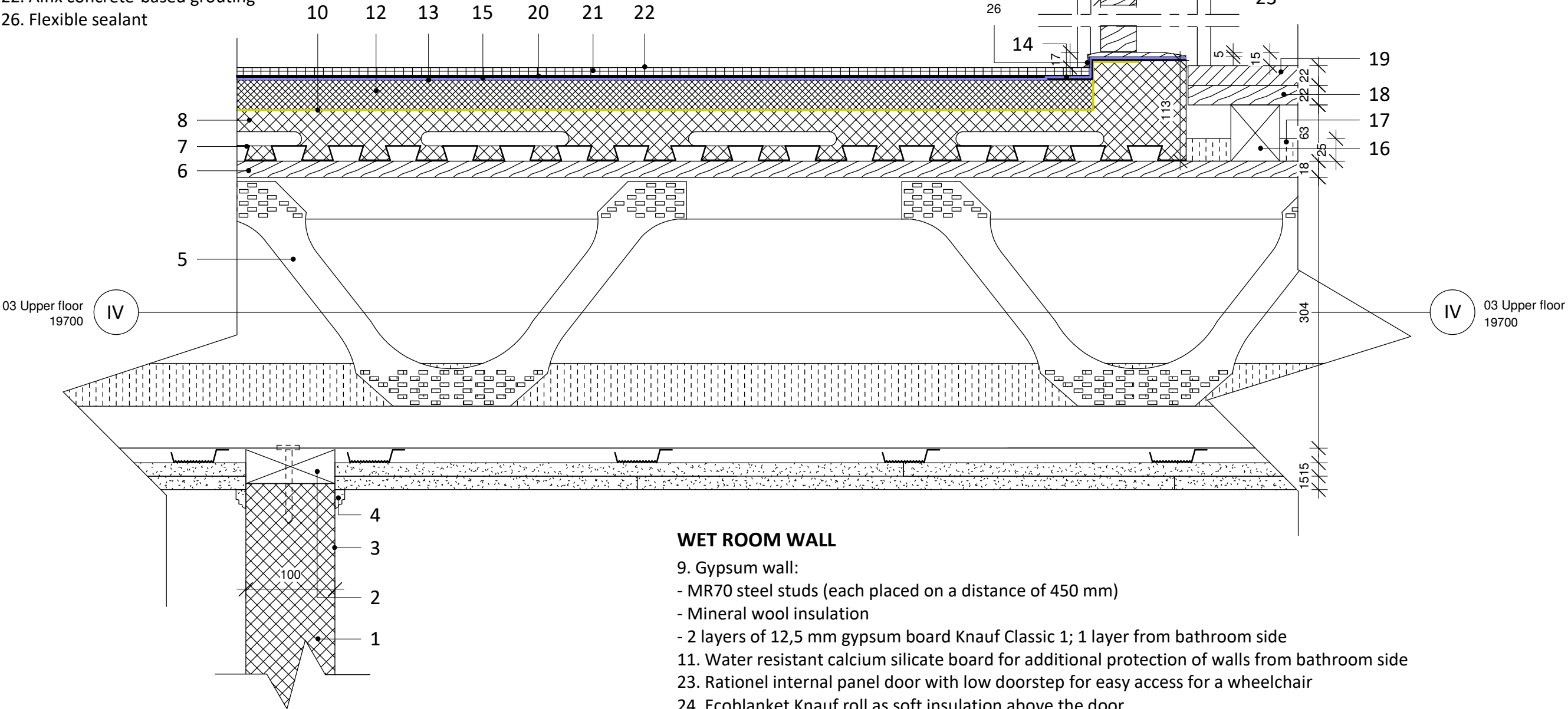
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U	Ψ_k
0,12 W/m ² K	0,01 W/mK

PROJECT: 2 1/2 storey single family house	DATE: 06/07/18	K01_TXX_H5_E2_N01
SUBJECT: Detail - External wall and door	SCALE: 1 : 5	
DRAWN BY: Carina Pronscaia (Group 6)	CLASS: AH21S18	

WET ROOM FLOOR

- 5. Easi-joist® WS300
- 6. OBS board
- 7. Lewis dovetailed sheeting (Ø16 mm heating pipes are laid directly on top and fixed with wires)
- 8. Cast-in-situ concrete basin
- 10. LIP Foil as a watertight layer (laid on floor and walls with common overlap of 50 mm 100 mm above floor level)
- 12. Screeding mortar for leveling the floor
- 13. 2 coats of Alfix Primer
- 14. 15 mm Alfix self-adhesive sealing tape covering connection between floor and wall base, as well as pipes and drain
- 15. 3 coats of Alfix 1K Sealing Membrane (also acts as a top layer before installing the door)
- 20. Tile adhesive
- 21. 600 x 600 x 10 mm Evers ceramic tiles
- 22. Alfix concrete-based grouting
- 26. Flexible sealant



GROUND FLOOR INTERNAL WALL

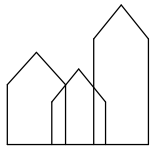
- 1. Prefabricated concrete internal wall element on ground floor
- 2. Wall plate 38x100mm fixed to internal concrete wall with screws
- 3. Plaster finish
- 4. 3 m cornice bead

WET ROOM WALL

- 9. Gypsum wall:
 - MR70 steel studs (each placed on a distance of 450 mm)
 - Mineral wool insulation
 - 2 layers of 12,5 mm gypsum board Knauf Classic 1; 1 layer from bathroom side
- 11. Water resistant calcium silicate board for additional protection of walls from bathroom side
- 23. Rational internal panel door with low doorstep for easy access for a wheelchair
- 24. Ecoblanket Knauf roll as soft insulation above the door
- 25. Timber door frame

WOODEN FLOOR IN ADJACENT ROOM

- 16. 63 x 63 batten
- 17. Ecoblanket Knauf roll as soft insulation
- 18. Novopan Klimagulv floor heating board
- 19. 22 x 185 x 2200 mm floor boards with 2 mm tolerance



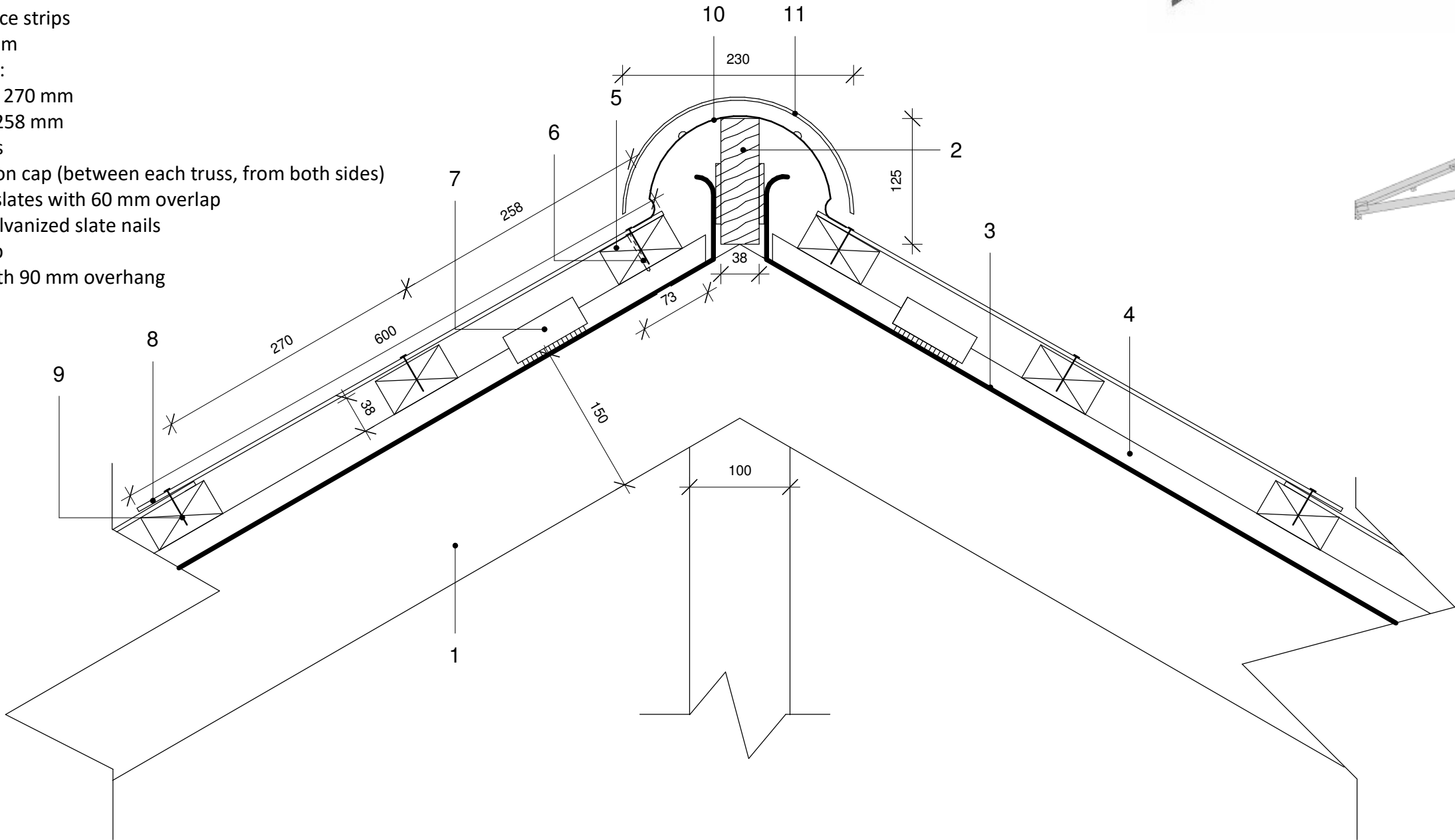
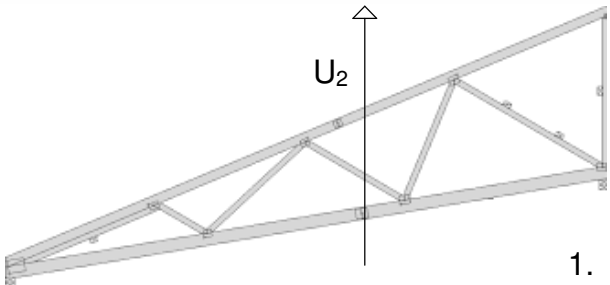
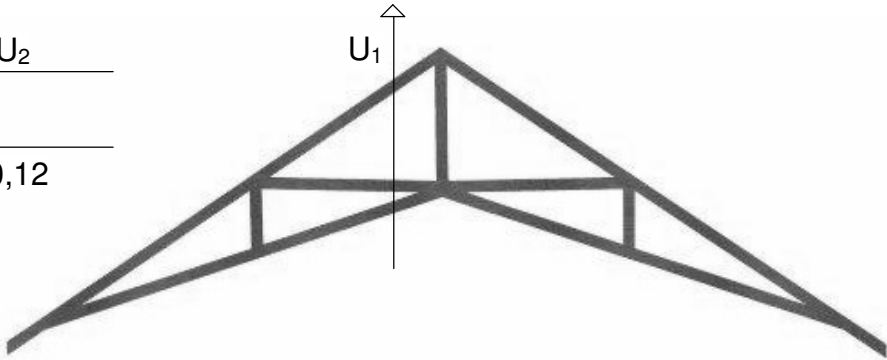
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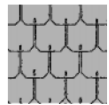
PROJECT: 2 1/2 storey single family house	DATE: 06/07/18	K01_TXX_H5_E3_N04
SUBJECT: Detail - bathroom and door on 1st floor	SCALE: 1 : 5	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	

- 1. 8 prefabricated scissor trusses + 2 customized trusses:
Rafters: 63x150 mm;
Feet: 63x125 mm;
Tie: 63x100 mm;
- 2. Timber ridge plank
- 3. Haloten 2000 underlay
Width: 1,1 m
Length: 50 m
Min. 150 mm overlap
- 4. 25 mm x 45 mm distance strips
- 5. Battens: 38 mm x 73 mm
- for 30 degree pitch roof:
regular batten distance: 270 mm
upper batten distance: 258 mm
- 6. 40 mm galvanized nails
- 7. Haloten 2000 ventilation cap (between each truss, from both sides)
- 8. ETERNIT 30x60 cm CC slates with 60 mm overlap
- 9. 2,4 x 40 mm DE-flex galvanized slate nails
- 10. Ridge ventilation strip
- 11. Conical ridge slate with 90 mm overhang

U ₁	U ₂
W/m ² K	
0,065	0,12



11.



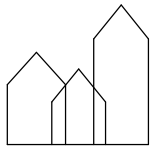
Eternit® 30x60
slates

- colours : CC: Blackblue and grey
FC: Blackblue :
- Format : 300x600 mm
- Thickness : 4 mm
- Weight/slate : 1,5 kg
- Weight/m² roof : 18 kg when fixed with
(Approximate 60 mm overlap
dimensions and and underlay roof
weight)



CC
(chamfered corners)

8.



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PROJECT: 2 1/2 storey single family house

DATE: 06/08/18

SUBJECT: Detail - ridge

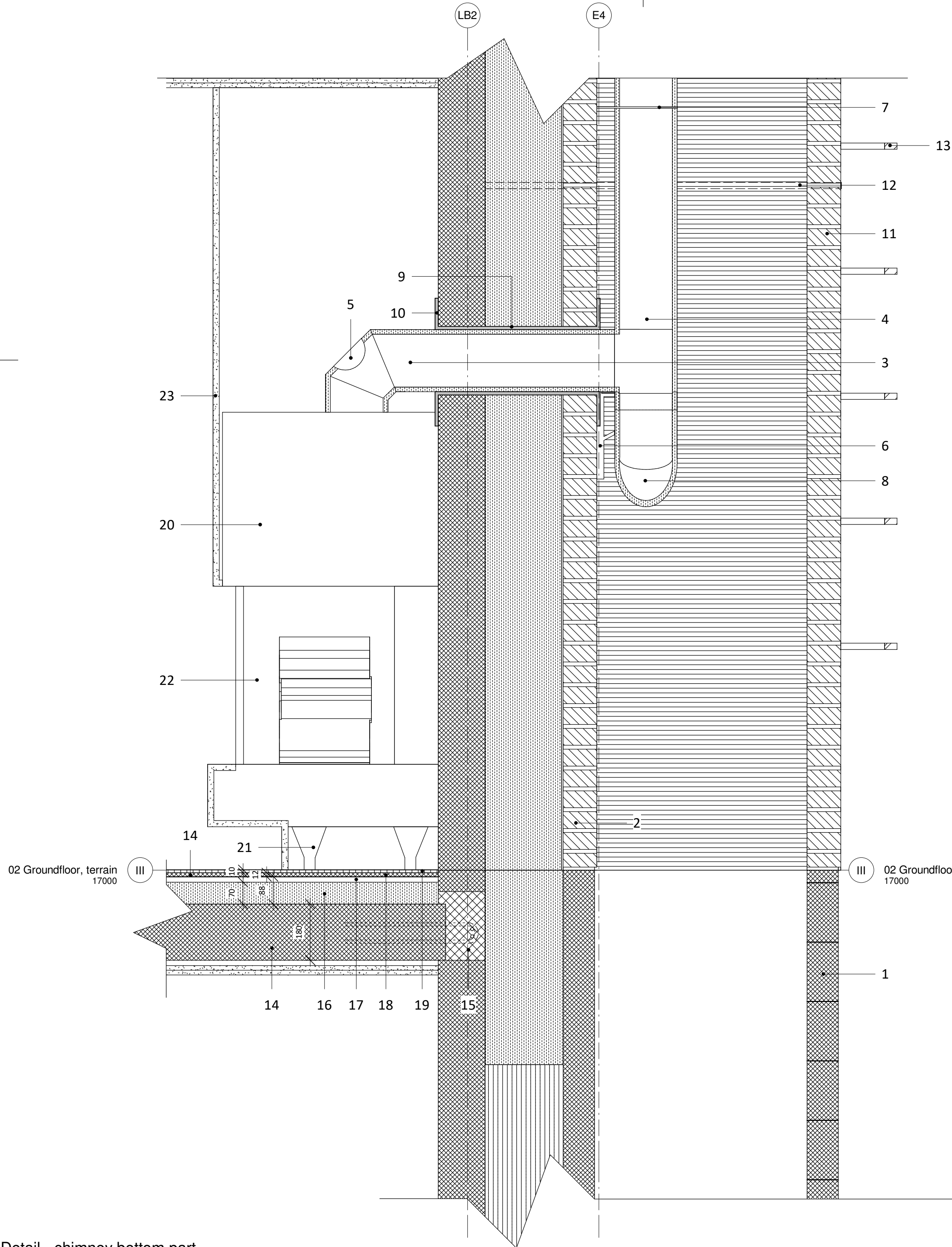
SCALE: 1 : 5

DRAWN BY: Carina Pronsaia (Group 6)

CLASS: AH21S18

K01_TXX_H5_E4_N02

Ridge Detail
1 : 5



CHIMNEY

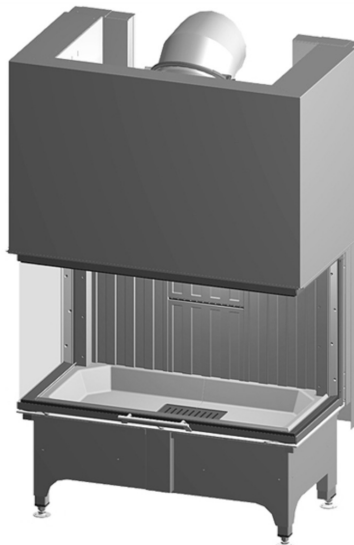
- 1. LECA block wall built on cast-in-situ concrete foundation (988 mm wide, 788 mm long, 500 mm deep)
- 2. Brick + mineral wool insulation + aerated concrete wall element (w: 60 mm, h: 2400 mm)
- 3. SCHIEDEL ICS 200 mm insulated flue
- 4. Twin Wall Insulated SHCIEDEL ICS chimney system with 1,5mm SuperWool insulation
- 5. Swept elbow with sweep acces to cleanout door
- 6. Wall support
- 7. Steel wall bands for steel chimney duct
- 8. Inspection bend
- 9. Wall sleeve
- 10. SCHIEDEL trim collar
- 11. Brick chimney wall
- 12. Brick wall stainless steel band
- 13. Stainless steel stairs for inspection, placed every 400 mm

FIREPLACE

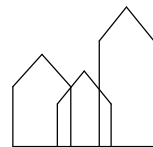
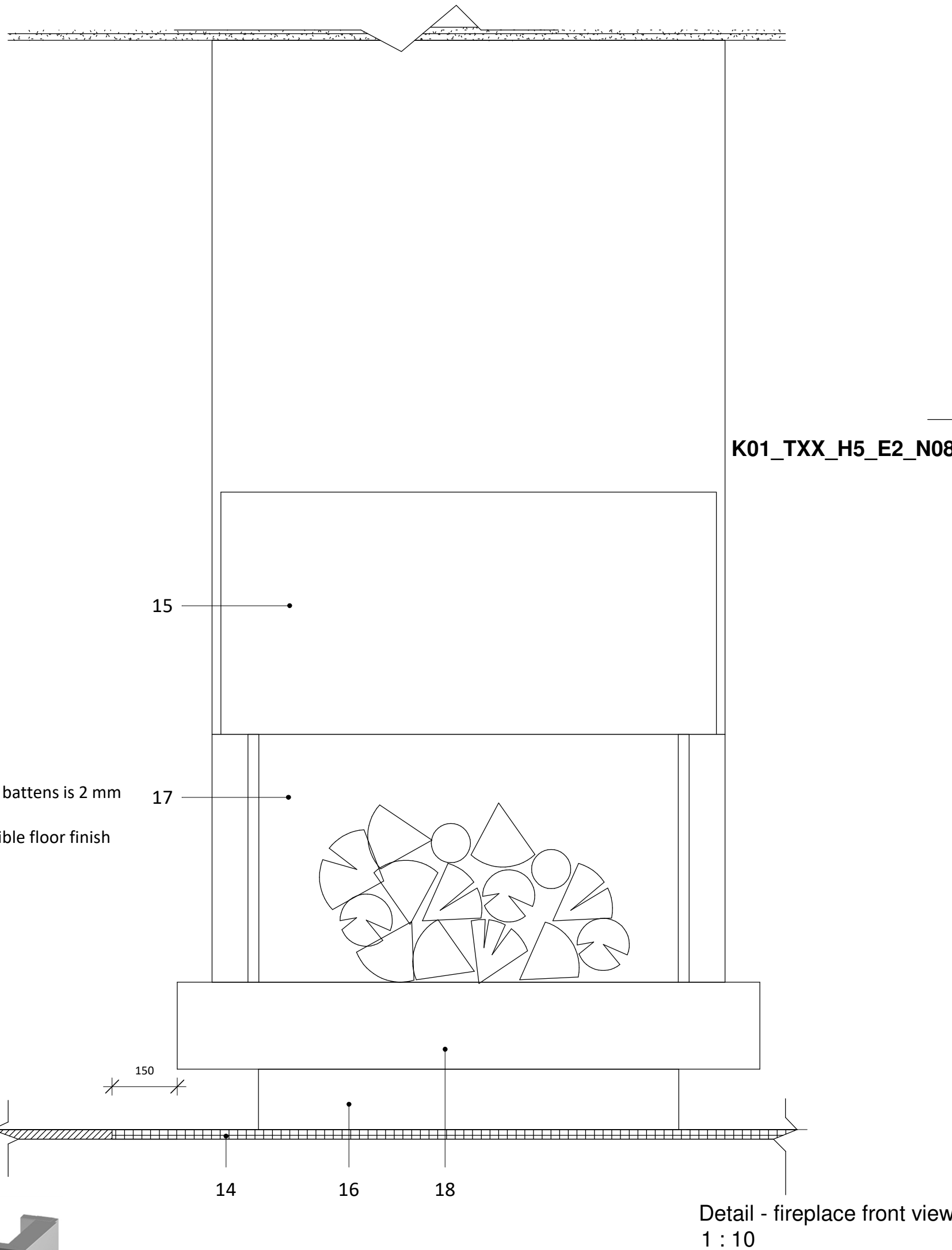
- 14. Spæncom reinforced concrete deck element
- 15. Cast-in-situ concrete
- 16. Ecoblanket Knauf roll as soft insulation
- 17. 63 x 63 mm batten: maximum deflection between battens is 2 mm
- 18. NoMorePly fibre cement board
- 19. Heimdal Grå 61x61 cm stone tiles as non-combustible floor finish - 300 mm in front of fireplace - 150 m from sides
- 20. Prefabricated steel fireplace unit: SPARTHERM Arte 3RL-100h-4S Heat output - 11 kW
- 21. Steel legs
- 22. 3-sided fireproof glass hearth
- 23. Non-combustible plaster finish for fireplace surroundings



4.



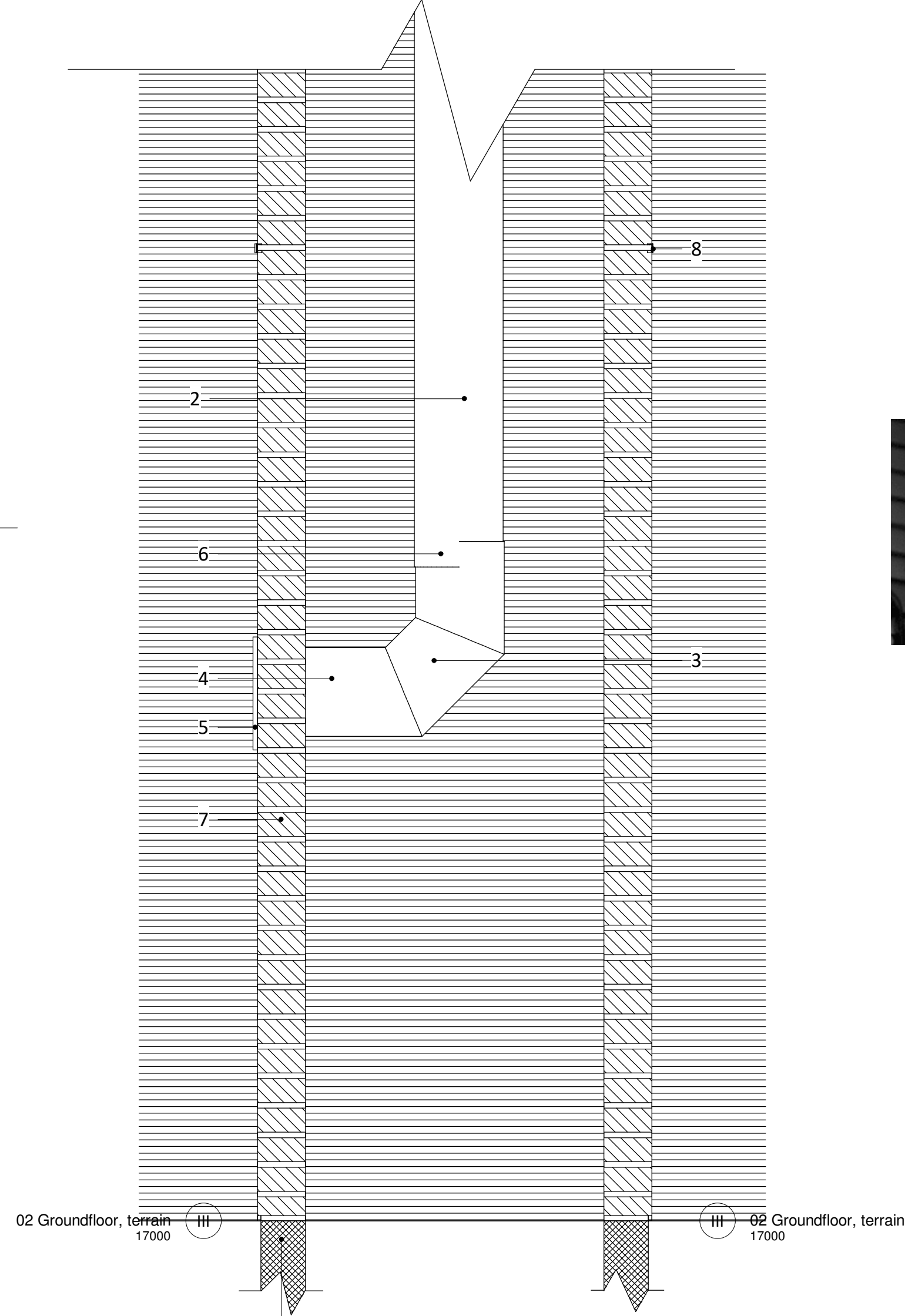
19.



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PROJECT: 2 1/2 storey single family house	DATE: 06/08/18	K01_TXX_H5_E2_N08
SUBJECT: Detail - chimney - bottom part	SCALE: 1 : 10	
DRAWN BY: Carina Pronascaia (Group 6)	CLASS: AH21S18	



CHIMNEY PIPES' PLACEMENT

1. LECA block wall built on cast-in-situ concrete foundation (988 mm wide, 788 mm long, 500 mm deep)
2. Twin Wall Insulated SHCIEDEL ICS chimney system with 1,5 mm SuperWool insulation
3. Swept elbow
4. Sweep access
5. Cleanout door
6. Steel chimney band
7. Brick chimney wall
8. Brick wall band



5.



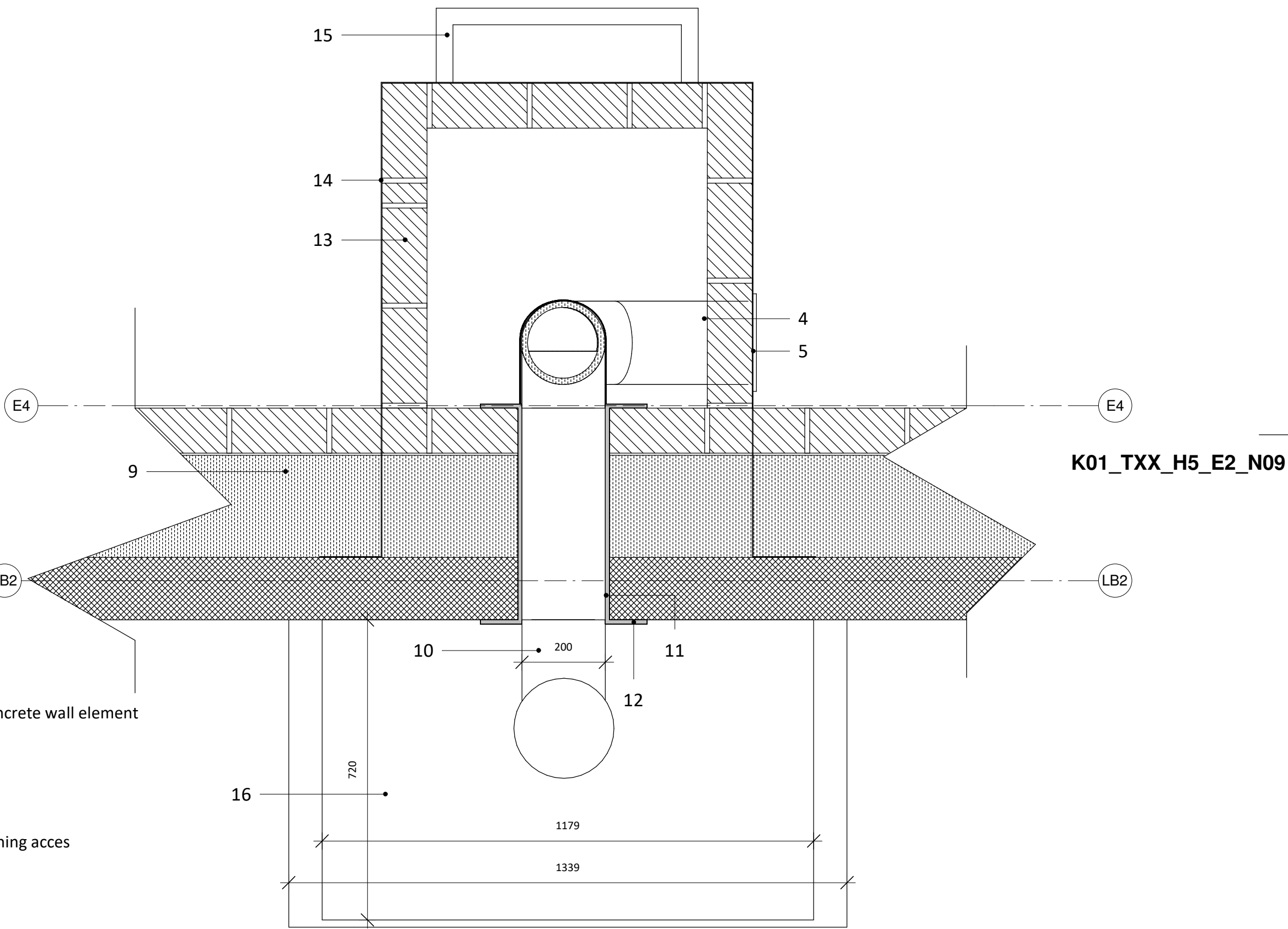
6.



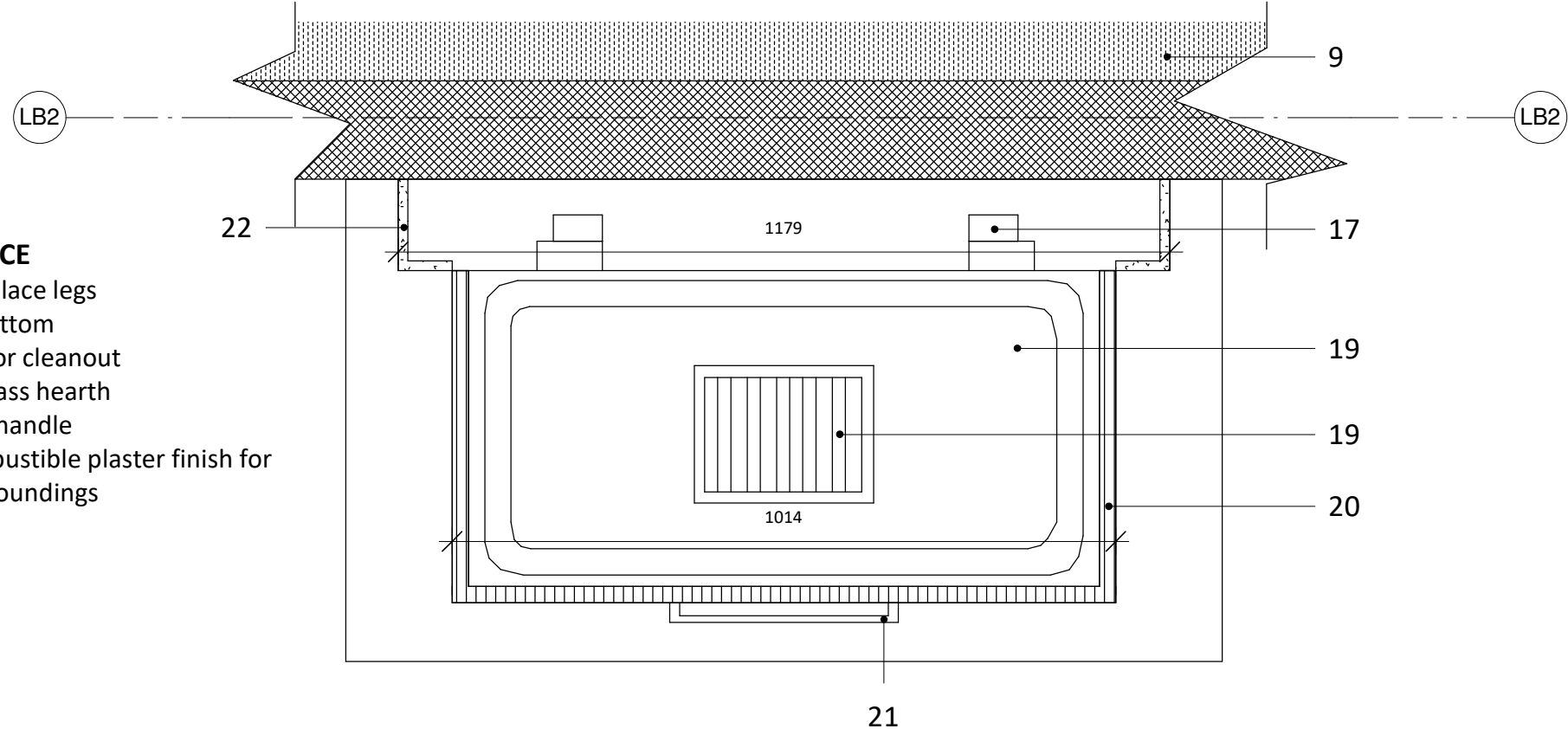
8.

CHIMNEY FROM TOP VIEW

9. Brick + mineral wool insulation + aerated concrete wall element
10. SCHIEDEL ICS 200 mm insulated flue
11. Wall sleeve
12. SCHIEDEL trim collar
13. Brick chimney wall
14. Brick wall stainless band
15. Stainless steel stairs for instection and cleaning acces
16. Prefabricated steel fireplace unit: SPARTHERM Arte 3RL-100h-4S
Heat output - 11 Kw



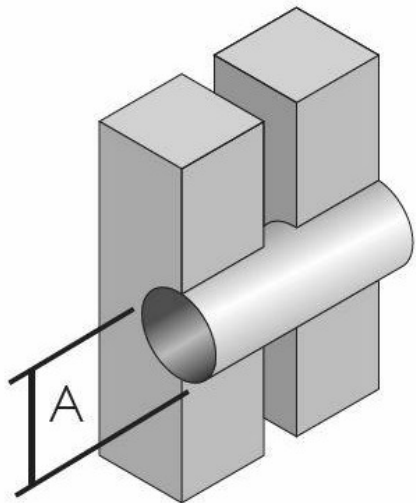
Detail - chimney
1 : 10



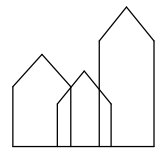
Detail - fireplace
1 : 10

FIREPLACE

17. Steel fireplace legs
18. Hearth bottom
19. Ash grid for cleanout
20. 3-sided glass hearth
21. Fireplace handle
22. Non-combustible plaster finish for fireplace surroundings



11.

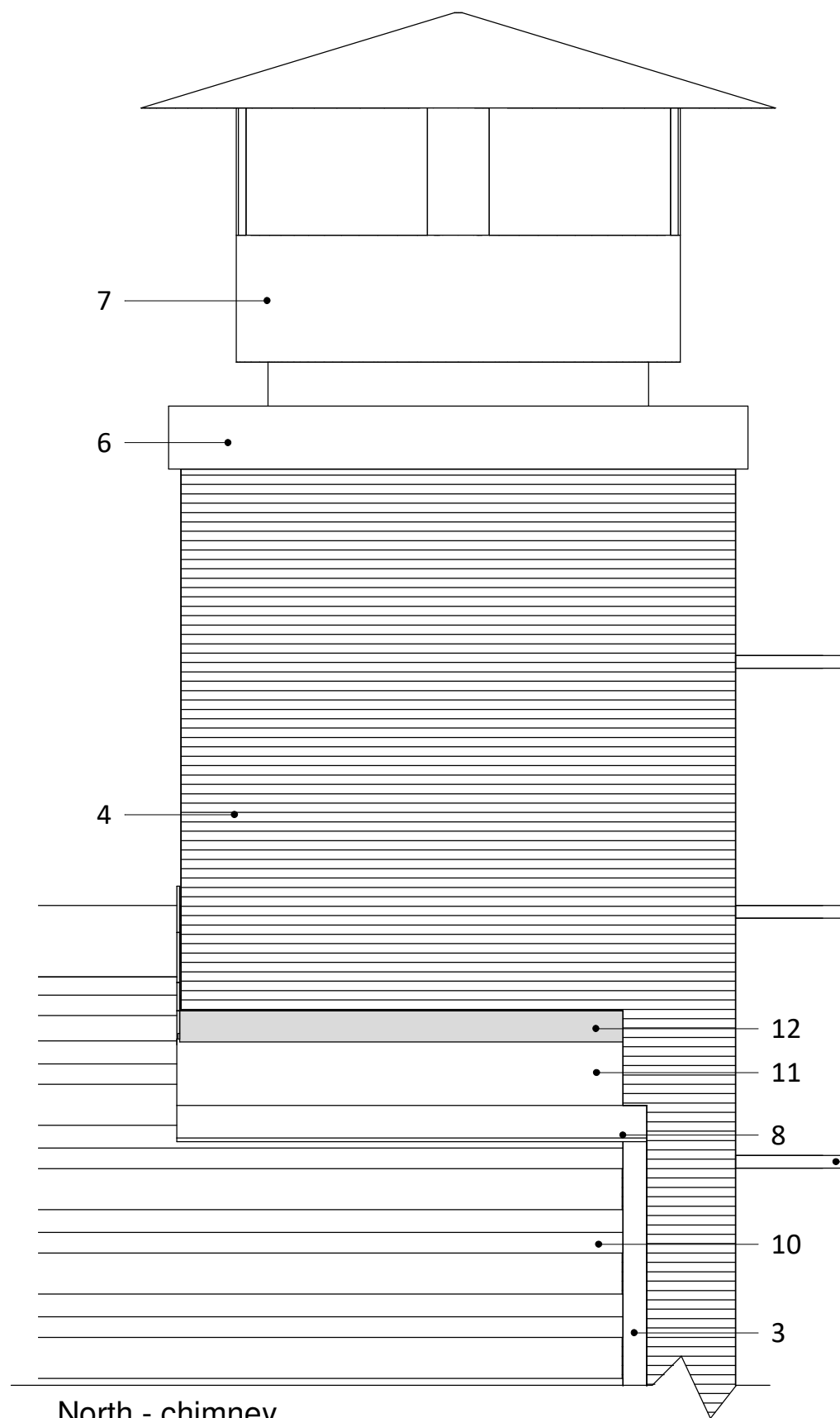


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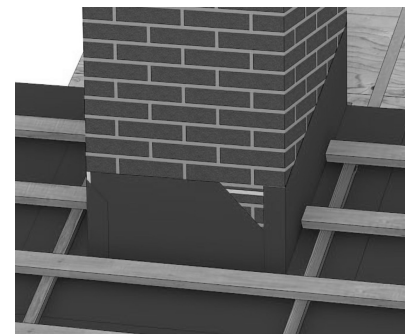
PROJECT: 2 1/2 storey single family house	DATE: 06/08/18	K01_TXX_H5_E2_N09
SUBJECT: Detail - chimney - plans and pipes	SCALE: 1 : 10	
DRAWN BY: Carina Pronascaia (Group 6)	CLASS: AH21S18	

Detail - chimney pipe placement
1 : 10

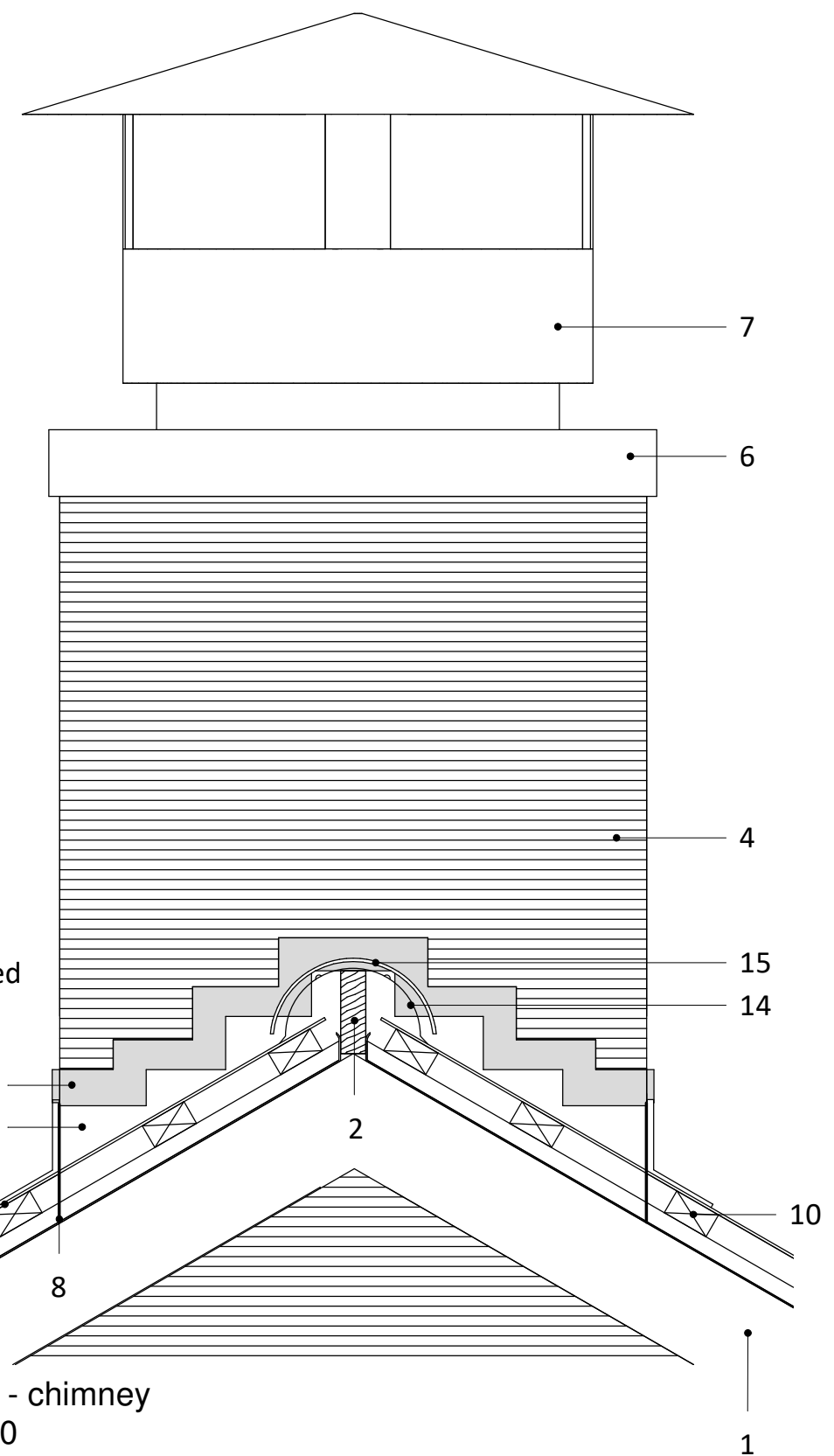


North - chimney
1 : 10

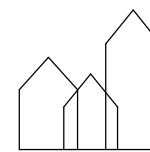
1. Prefabricated scissor trusses
2. 50 mm x 125 mm timber ridge plank
3. Overhang timber plank
4. Brick chimney surface wall
5. Stainless steel stairs for inspection, placed every 400mm
6. Concrete capping
7. SCHIEDEL steel cap
8. Haloten 2000 underlay
Width: 1,1 m
Length: 50 m
9. Distance strips
10. 38mm x 73mm battens
11. Steel chimney flashing fixed with galvanized roof nails
12. Flashing sealant with flashing cover
13. ETERNIT 30x60 cm CC slates;
Overlap: 60 mm
Fixed with 2.4x40 mm DE-flex galvanized slate nails
14. Ridge ventilation strip
15. Conical ridge slate with 90 mm overhang



8.



East - chimney
1 : 10



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PROJECT: 2 1/2 storey single family house	DATE: 06/08/18	K01_TXX_H5_E4_N03
SUBJECT: Detail - chimney - top part	SCALE: 1 : 10	
DRAWN BY: Carina Pronsaia (Group 6)	CLASS: AH21S18	