

05



# Schnieper Architekten

## SINGLE-FAMILY-HOUSE

HINTERUTTENBERG, KNONAU - Switzerland

### SCHNIEPER ARCHITEKTEN

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ARCHITECTS **Patrick J. Schnieper, August Keller** (former Schnieper Keller Architekten)

MATERIAL AND COLOUR CONSULTATION **Truecolour Luzern**

CIVIL ENGINEER **Toc Bauingenieur Gmbh Ennetbürgen**

LANDSCAPE ARCHITECTURE **Freiraumarchitektur Gmbh Luzern**

BUILDING FIRM **Battagello + Hugentobler AG Stansstad**

PHOTOGRAPHY **Marco Homberguer**

### DATES

EXECUTION PROJECT 2005

START OF WORKS 2005

END OF WORKS 2006

## DESCRIPTIVE AND CONSTRUCTIVE BRIEF

A façade formed by wooden strips or latticework, a steeply sloping roof, red geraniums in the windows? The contemporary Knonau country house has none of these classic attributes and yet blends in harmoniously with the rural surroundings. The move from a quiet chalet to a splendid, sculptural, grey-blue monolithic building with sharply-outlined edges and large window openings is proof of the admirable bravery and open character of this family of eight. In retrospect, the owners conclude that it was a giant leap from a summer home to a five-star hotel.

**Site / Location**

The site of the house also contributes to the impressive experience of this dwelling. The situation of the single-family home with its three storeys in the shape of a trapezium and generous 400 square metres of inhabitable surface area is absolutely stunning: it is set on a hillside outside Knonau, to the west of a vast expanse of land. From that hill one's gaze sweeps through almost 300 degrees of its surroundings, from the nearby edge of the forest to the west, through the rugged valley next to the lake and the mountains of central Switzerland to the four thousand metres of Berne on the horizon. These sites were formerly only used to build churches and chapels—and so all the rooms are facing south-west, towards the view and the sun. The pig-farming facility at the back, on the other hand, is largely hidden from view.

**Architecture**

A large drive for vehicles leads directly through the south-west corner of the house to a pond with water lilies, the bottom of which is illuminated. The pond forms the basis of an inner courtyard that is bounded by the bevelled southern façade, the longest side of the trapezoidal floor, permitting the daylight and different whims of the climate to enter the interior of the house. This narrow relation with the exterior space is reflected in the architectural figure with sharp edges at the corners and in the materials and colour. The insulated façades of the building were coated with a fine layer of plaster with horizontal combing. Their soft texture contrasts with the sharply-defined corners and hard surfaces of the openings. The finish, two coats of mineral paint applied with a brush, lightly stains the plastered surfaces and creates the diffuse light bluish shade. On the contrary, the cuts in the velvety coating are tea green, like a bite in the flesh of a sweet fruit with rough skin.

The plastered surfaces of the façades giving on to the interior (inner courtyard, garage, etc.) have a fine, even quality, with no orientation, contrasting with the texture with a defined orientation on the surfaces of the façades looking out on to the exterior. The top mineral coating of these surfaces produce a velvety optical effect, but in this case, a soft green shade was chosen to give the courtyard light a peaceful hue. The colours of the façade plaster are not taken from standard collections, but were created, mixed and coded especially for this building.

The metal construction elements of the façade such as doors and windows were coated with powdered enamel with a metallic effect. This serves to define the colour and also to differentiate the metal parts from the plastered surfaces. To achieve a better optical integration, the wood of the terrace was subjected to a previous wearing process.

**Surroundings**

The area surrounding this newly-built house was created in an austere manner so that the architecture and clear views over the landscape would take priority. The integrating element of the garden structure is the grey gravel, laid out in specific gravelled areas and distributed over the surfaces for the plants. At certain points the surroundings were structured with small native wooded areas and shrubs. The choice of plants, for example, peonies and boxwood, was made based on the historic theme of a rural garden.

**Static elements**

Since some parts of the construction and the roofs had pronounced projections, the question rapidly arose as to how to distribute the forces. We were unable to find the supports that we were intuitively searching for. The constructive elements are «suspended» with mural supports and projecting beams; the forces are channelled and led towards the lateral façades and the interior of the building. The objectives of preventing previous tension, achieving a frame consistent with the conditions of the work, complying with the legislation on safety regarding the resistance and appropriateness for use were all accomplished by means of a flexible frame.

**Colours and materials**

On the stairway we can see a mural painting with the *al secco* technique which marks and characterises that vertical zone of central access. The motif, a fruit in blossom, serves as a reminder of the linden tree that was chopped down in order to build the new house. The persons entrusted with designing the colour placed great emphasis on a general use of high-quality, ecological materials. The design of the material and the colours supports the intentions of the architects with respect to the structure and takes into account the needs of the inhabitants.

The interior spaces, shaped with precision, create an intimate, light and yet sensual atmosphere, thanks to the choice of the materials and colours. The basis of the material consists of a greenish limestone floor that is visible in many parts of the house. We found natural stone tiles exquisitely polished on the main stairway and in some sections of the walls in the bathrooms. The limestone was examined and chosen due to its peculiar greenish shade in situ in the Anröchte quarry in Germany. The floor in the bedroom areas is coated with lubricated oak parquet, a warm material for feet. The transition and symbiosis between the natural stone/wood materials are clearly perceived on the lower ground floor and in the attic.

The use of materials with a mineral base also determines other spatial elements of the house. For instance, hydrated lime is used on the walls, taking on a special expression due to the material itself and the style of work. In areas of more intensive use, the plaster was also treated with potassium silicate as a protective agent. In the master bedroom, the material of the walls changes to fine coats of white, warm clay plaster with straw fibres. The surfaces of these subtly reflect the light that enters the room. In the lounge, the rear wall has a high-quality coating, with a fine texture that adds character to the room.

To obtain the best possible architectural acoustics, Clipsa acoustic panels were placed on the ceilings of the entrance, lounge, dining-room, kitchen and office. The microperforated Clipso panels are made of polyester with a white matt polyurethane coating.

As well as acoustic panels, all the ceiling surfaces have a coat of mineral plaster applied carefully with a brush. The varnished, matt-enamelled wood panel—a treatment that adds natural colour to the doors and embedded furniture—complement the functional synthetic materials of the kitchen such as the synthetic resin, glass and artificial stone.

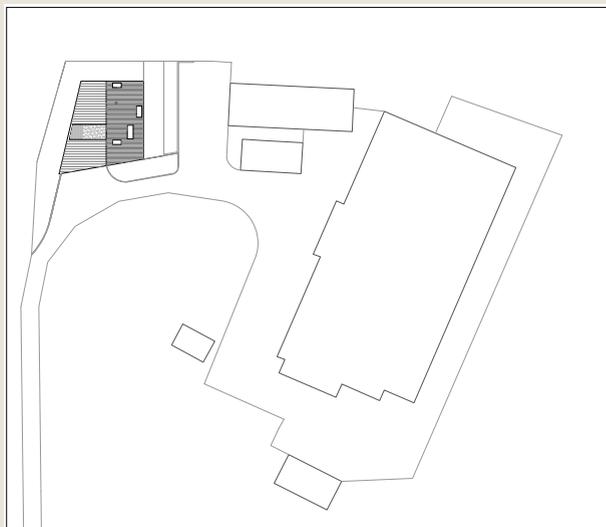
**Layout of the spaces**

It was quite a demanding task to achieve a layout of the spaces in keeping with the intensive working place of the farm: In addition to a large room with a hearth, there had to be sufficient space for a large industrial kitchen, a dining-room for ten persons, a room for each of the six children, but also a cloakroom for leaving coats, shoes, sports articles—all multiplied by eight—and a walk-in cold storage room for the family provisions. Consequently, on the ground floor next to the service rooms there are three bedrooms for children that lead



out onto the garden and a bathroom. In addition, at the back, a laundry room, a technical room and different rooms on the lower ground floor. Through the garage entrance, visitors are led up the main stairway to the first floor. This representative floor is characterised by a lounge and dining area flooded with light, and a wooden terrace, almost totally outdoor, at an acute angle. This platform offers an impressive view of the village and mountains. Thanks to the inner courtyard, this view is completed by the beautiful pond covered with water lilies. The kitchen has a large zenith light that is aimed at the worktop. The attic, on the other hand, is a private space in which to hide: it has the bedrooms of the three youngest children, a library, the parents' bedrooms and two pretty bathrooms with zenith lights over the shower or bathtub respectively, through which one can see the play of the clouds while bathing.

This way a house has been created that is consistent and based on a clear idea, characterised by sensuality in terms of colour and materials. It is quite convincing due to its formal refinement and rational appearance, which is not at all pretentious. The choice of easy to maintain materials is important, and the layout of the spaces and well-designed routes, and the refined elements that are for everyday use: from the compost bin built into the kitchen worktop, to the touch screen in the technical room, where, for example, the light in the children's bedroom can be controlled. In short, this is a house for a contemporary farmer: a sculpture in stone engraved with an inner courtyard, a rugged exterior and open, interior spaces, filled with light solid and consistent, but by no means lacking in poetry.



Location

## SPECIFICATION SHEET

### BUILT SURFACES

|                     |                                    |                          |
|---------------------|------------------------------------|--------------------------|
| <b>Ground floor</b> | including terrace and open-carport | <b>245 m<sup>2</sup></b> |
| <b>First floor</b>  | including terrace                  | <b>230 m<sup>2</sup></b> |
| <b>Second floor</b> | including terrace                  | <b>220 m<sup>2</sup></b> |

### USEFUL SURFACES

#### GROUND FLOOR

|                             |                      |
|-----------------------------|----------------------|
| Carport                     | 47.00 m <sup>2</sup> |
| Pond                        | 20.30 m <sup>2</sup> |
| Entrance/Corridor           | 19.70 m <sup>2</sup> |
| Byke room/Parking           | 20.40 m <sup>2</sup> |
| Lumber room                 | 8.60 m <sup>2</sup>  |
| Basement to keep food fresh | 7.60 m <sup>2</sup>  |
| Linear staircase            | 6.20 m <sup>2</sup>  |
| Two-section staircase       | 8.80 m <sup>2</sup>  |
| Bedroom                     | 11.40 m <sup>2</sup> |
| Bathroom                    | 4.20 m <sup>2</sup>  |
| Washing room                | 10.00 m <sup>2</sup> |
| Facilities room             | 6.00 m <sup>2</sup>  |
| Covered terrace             | 10.90 m <sup>2</sup> |

#### FIRST FLOOR

|                |                      |
|----------------|----------------------|
| Vestibule      | 15.70 m <sup>2</sup> |
| Sitting room   | 46.30 m <sup>2</sup> |
| Office         | 14.20 m <sup>2</sup> |
| Toilet         | 3.00 m <sup>2</sup>  |
| Kitchen        | 18.10 m <sup>2</sup> |
| Lounge         | 27.50 m <sup>2</sup> |
| Terrace        | 56.90 m <sup>2</sup> |
| Vestibule      | 13.30 m <sup>2</sup> |
| Bedroom        | 11.40 m <sup>2</sup> |
| Bathroom       | 6.00 m <sup>2</sup>  |
| Library        | 13.50 m <sup>2</sup> |
| Master bedroom | 16.20 m <sup>2</sup> |
| En-suite       | 7.40 m <sup>2</sup>  |

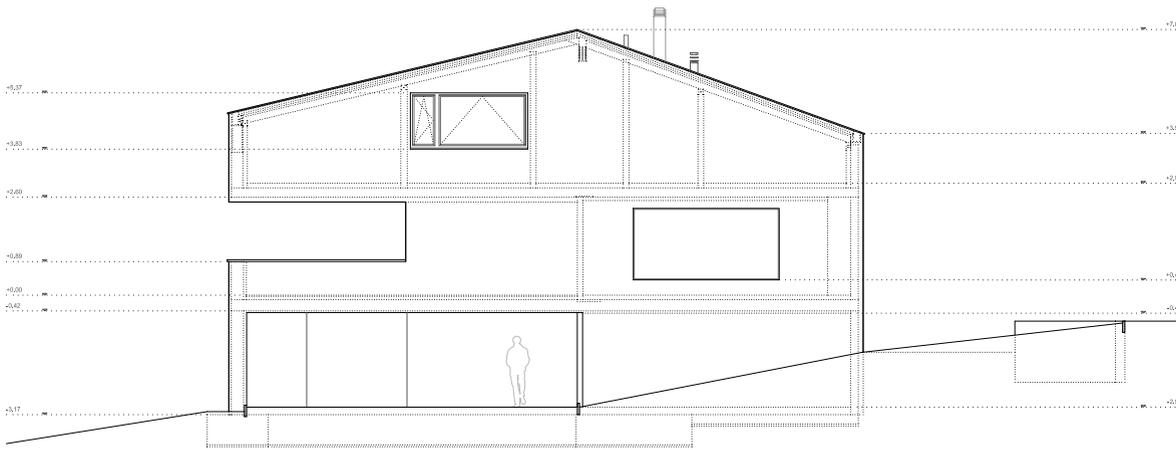
#### SECOND FLOOR

|               |                      |
|---------------|----------------------|
| Dressing-room | 10.40 m <sup>2</sup> |
| Storage 1     | 17.60 m <sup>2</sup> |
| Storage 2     | 10.90 m <sup>2</sup> |
| Storage 3     | 13.90 m <sup>2</sup> |
| Storage 4     | 18.10 m <sup>2</sup> |
| Terrace       | 6.90 m <sup>2</sup>  |

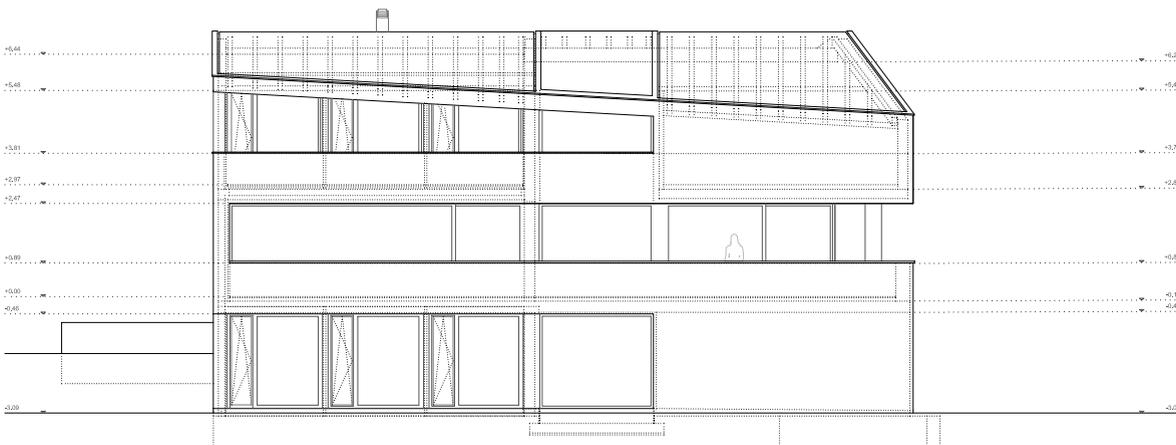
### PRICE OF MATERIAL EXECUTION

**1,589,000 €**





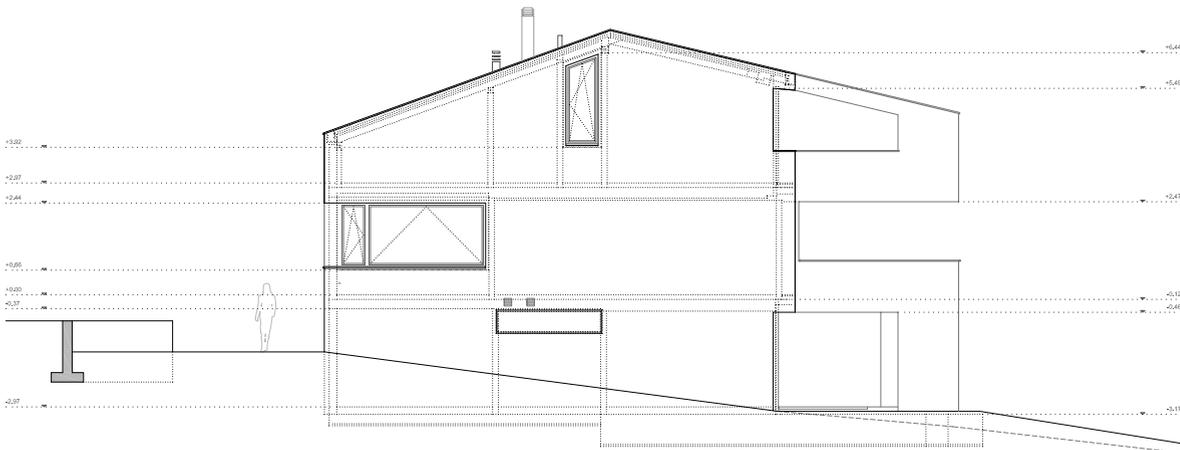
South-east elevation



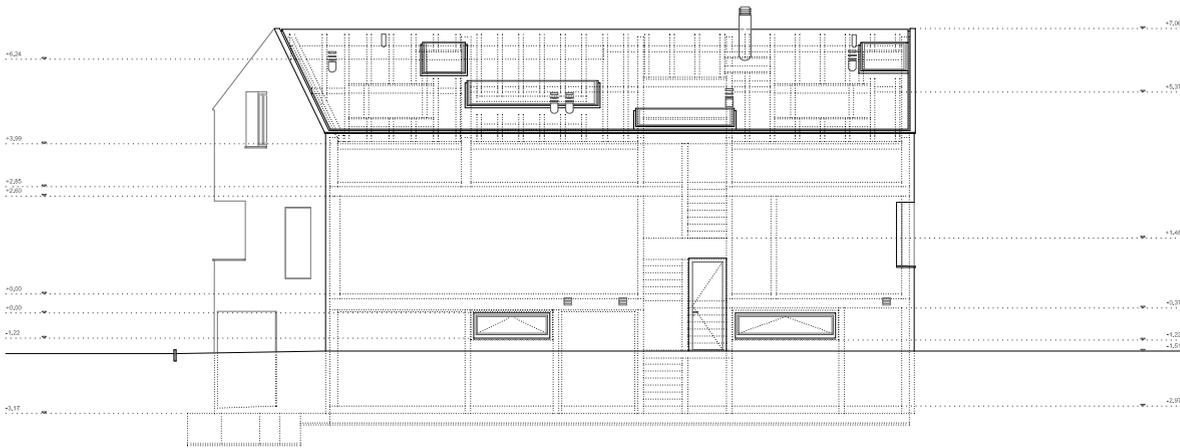
South-west elevation





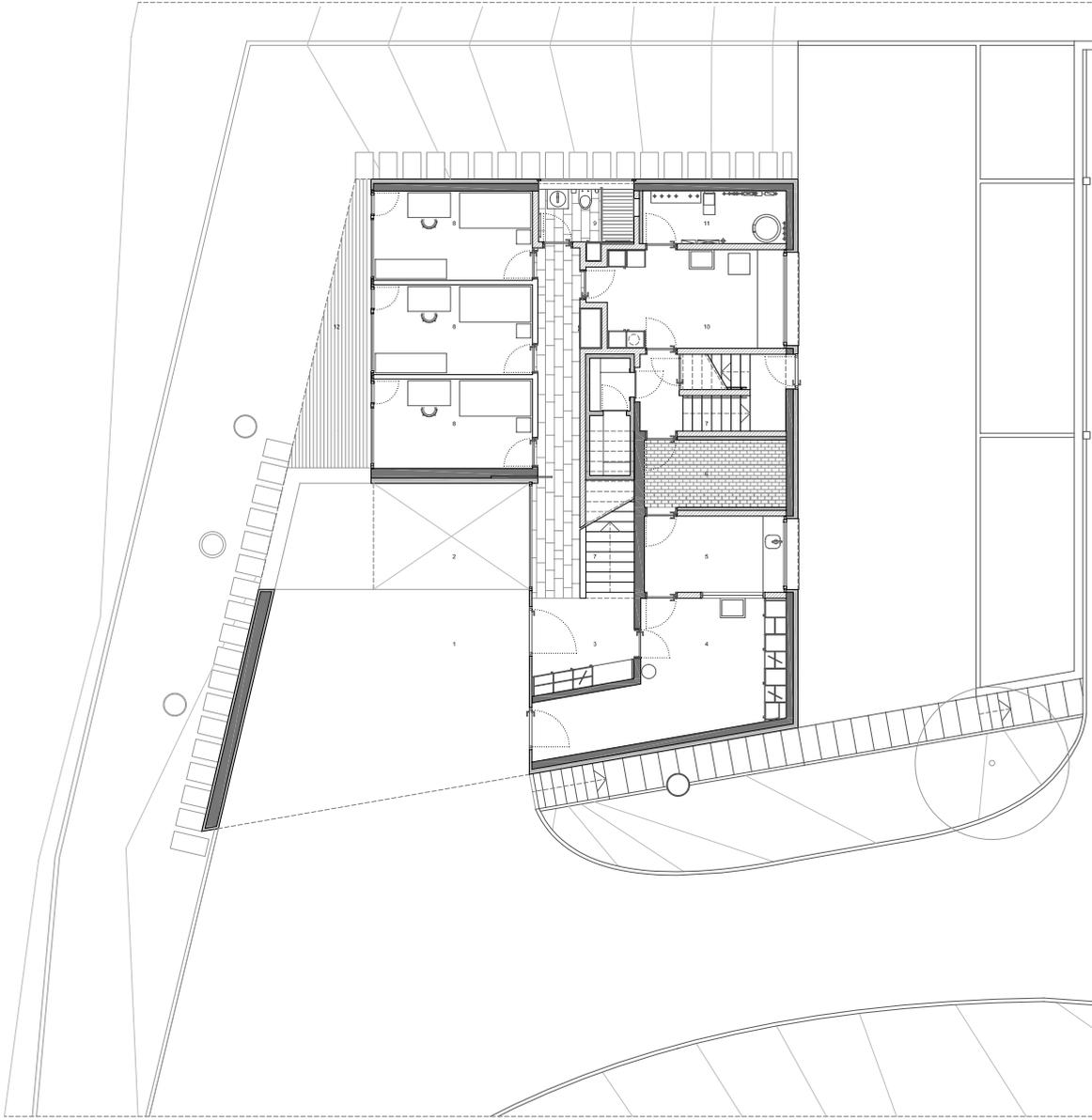


North-west elevation



North-east elevation





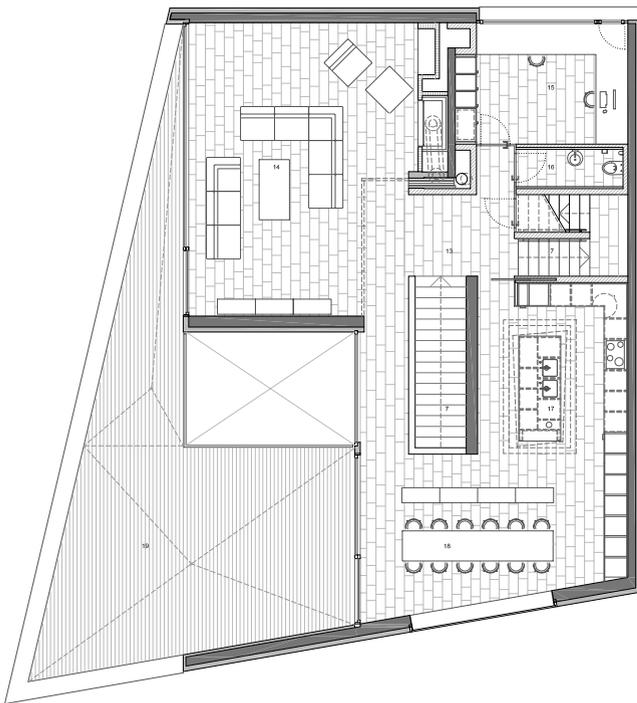
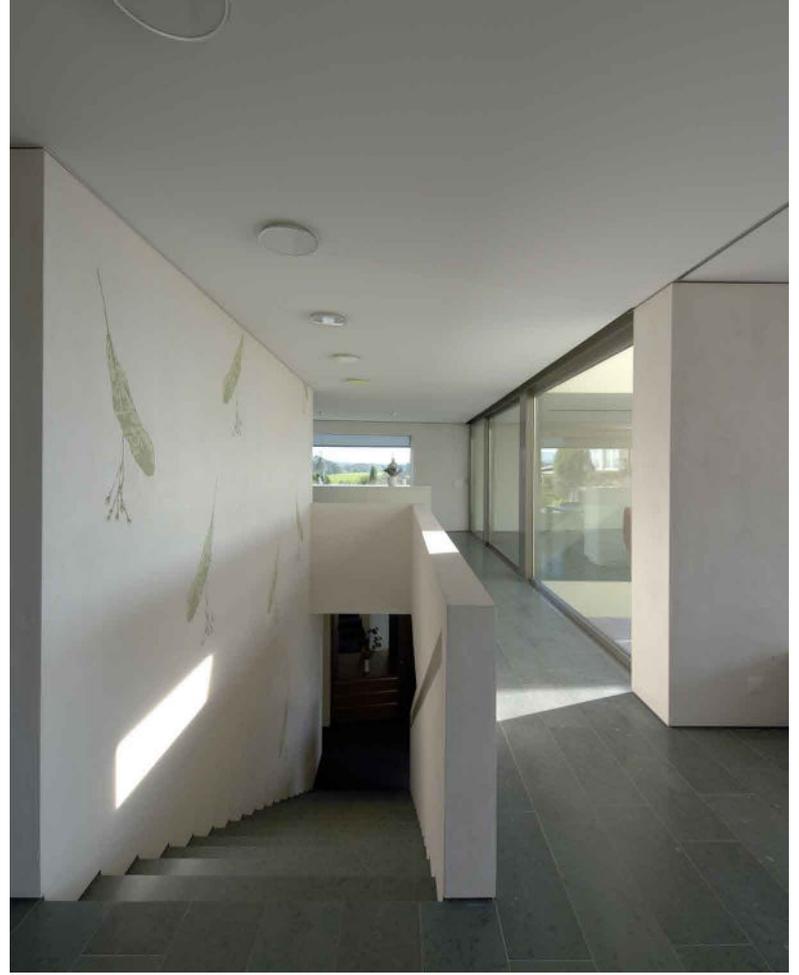
Ground floor level



- 1. Parking
- 2. Pond
- 3. Entrance/corridor
- 4. Bykes room/parking
- 5. Lumber room
- 6. Pantry
- 7. Staircase
- 8. Bedroom
- 9. Bathroom
- 10. Washing room
- 11. Installations room
- 12. Covered terrace
- 13. Vestibule
- 14. Sitting-room
- 15. Office
- 16. Toilet
- 17. Kitchen
- 18. Lounge
- 19. Terrace

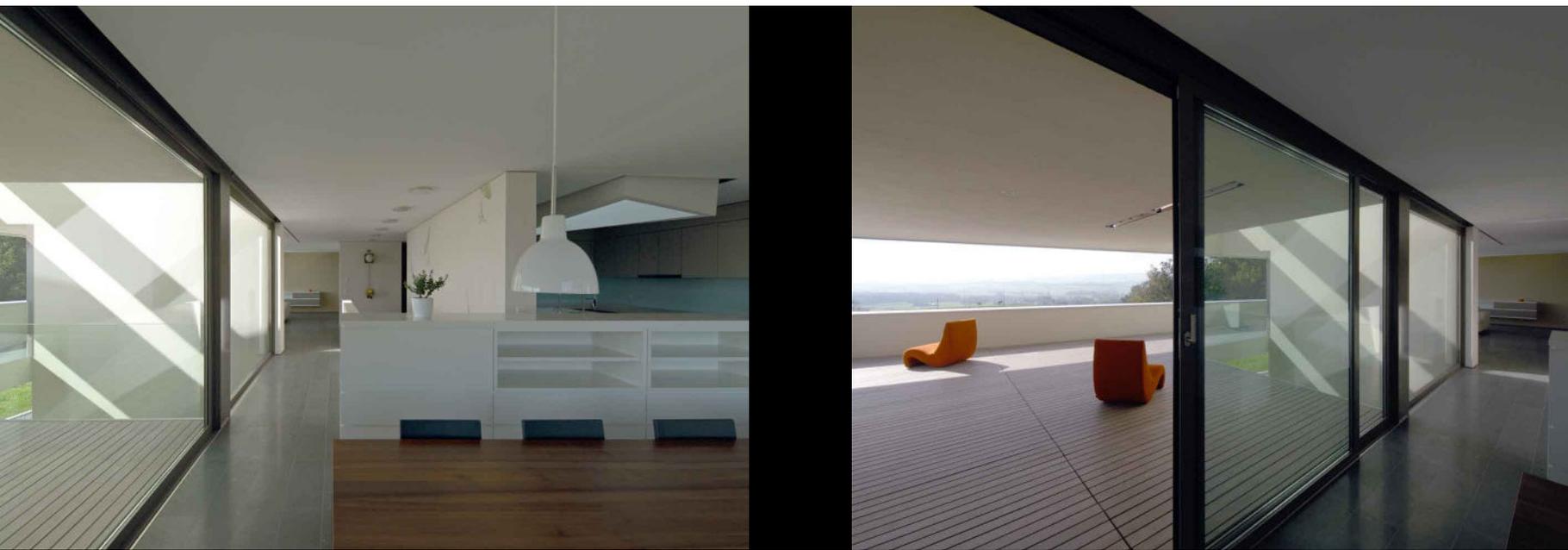


- 1. Parking
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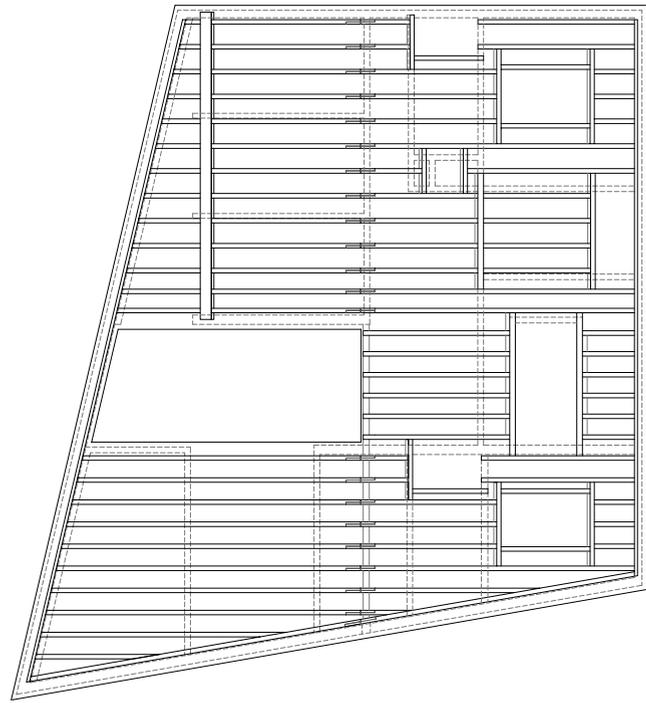
First floor level











Top floor

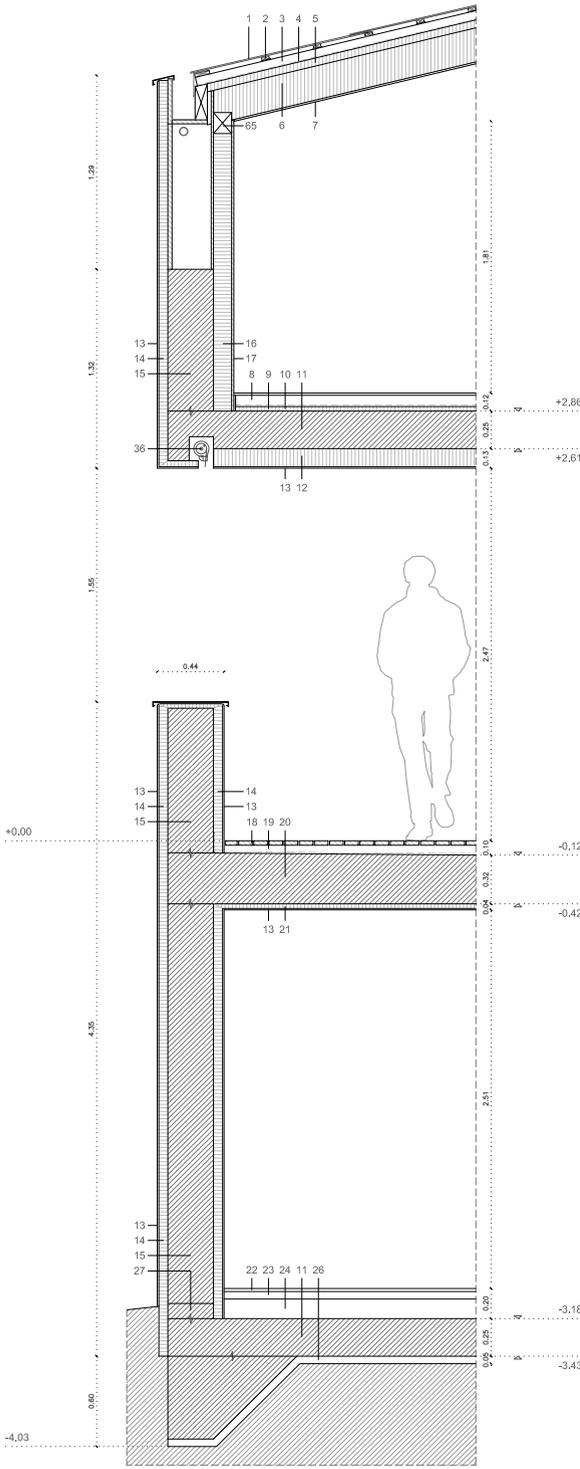
- 1. Vestibule
- 2. Bedroom
- 3. Bathroom
- 4. Staircase
- 5. Library
- 6. Master bedroom
- 7. Dressing room
- 8. Storage
- 9. Terrace



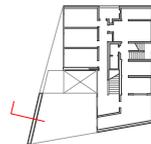
Second floor level



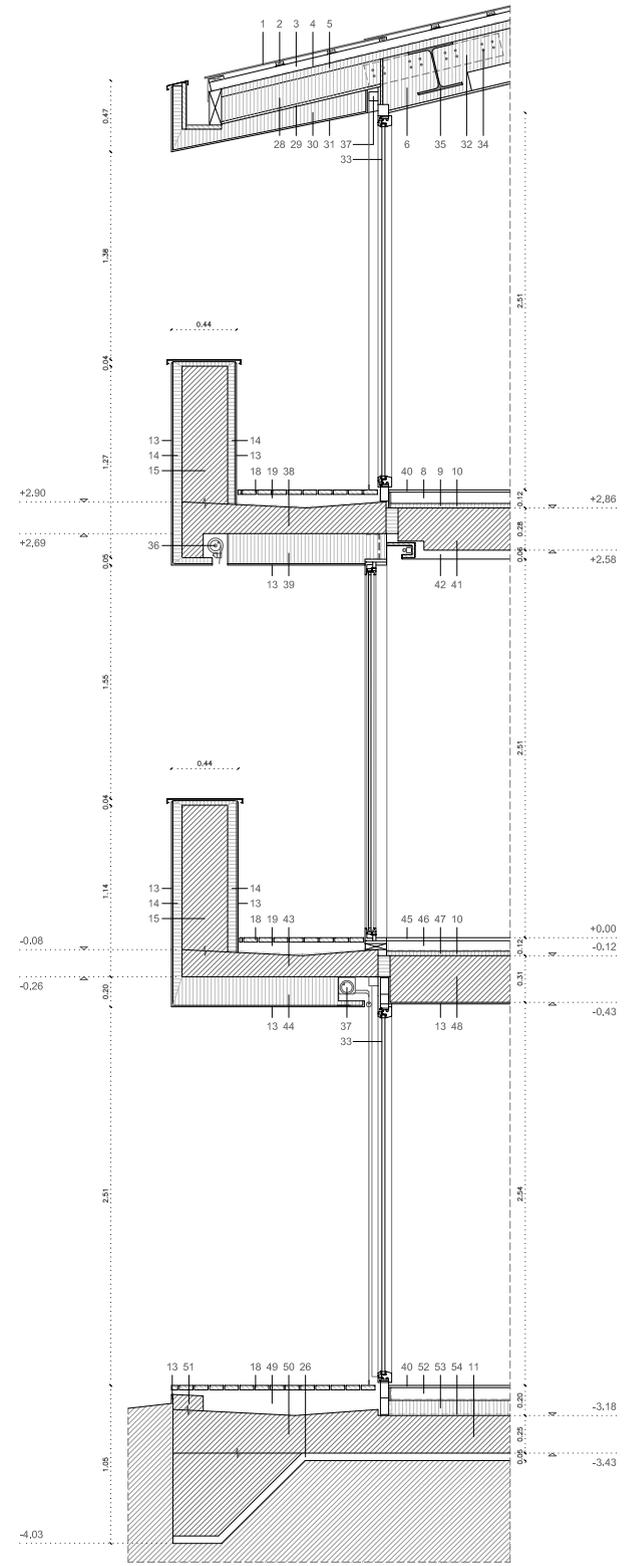




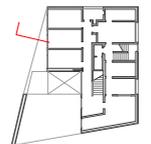
Constructive section 1

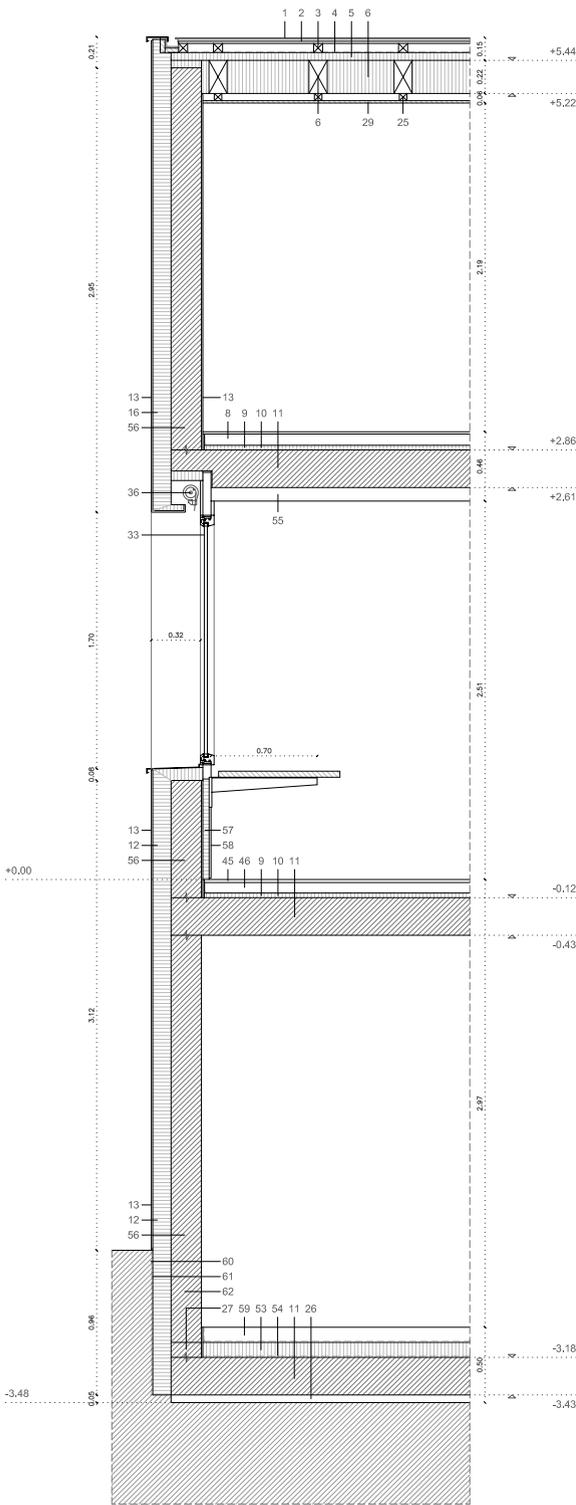


1. 8 mm Integral panel
2. 48x24 mm battens
3. 60x60 mm battens
4. Pavatex panel for ceiling
5. 52 mm Pavatex Isoroof -Natur
6. 22x12 cm steam barrier beam (22 cm insulation)
7. OSB 12 mm sticked boards (no steam barrier)
8. 7,5 cm cement layer
9. 2 cm Insulation
10. 1 cm soundproofing
11. 25 cm concrete slab
12. 12 cm insulation
13. 1 cm whitewash
14. 6 cm insulation
15. 30 cm concrete wall
16. 12 cm wood support/insulation
17. OSB 15 mm boards
18. 3 cm wood flooring
19. 5-9 cm substructure
20. 30-34 cm waterproof concrete layer on slope
21. 3 cm insulation
22. 2 cm asphalt layer
23. Ø16 mm and 5 cm thickness asphalt gravel
24. 13 cm thickness gravel
25. 48x48 mm battens
26. 5 cm clenaing concrete
27. 10 cm mortar base
28. 16x12 cm joist
29. 15 cm fermacel
30. Conical exterior insulation
31. Mortared
32. 8x150 mm eaves
33. Insect protection mesh
34. Ø12,5 mm drill

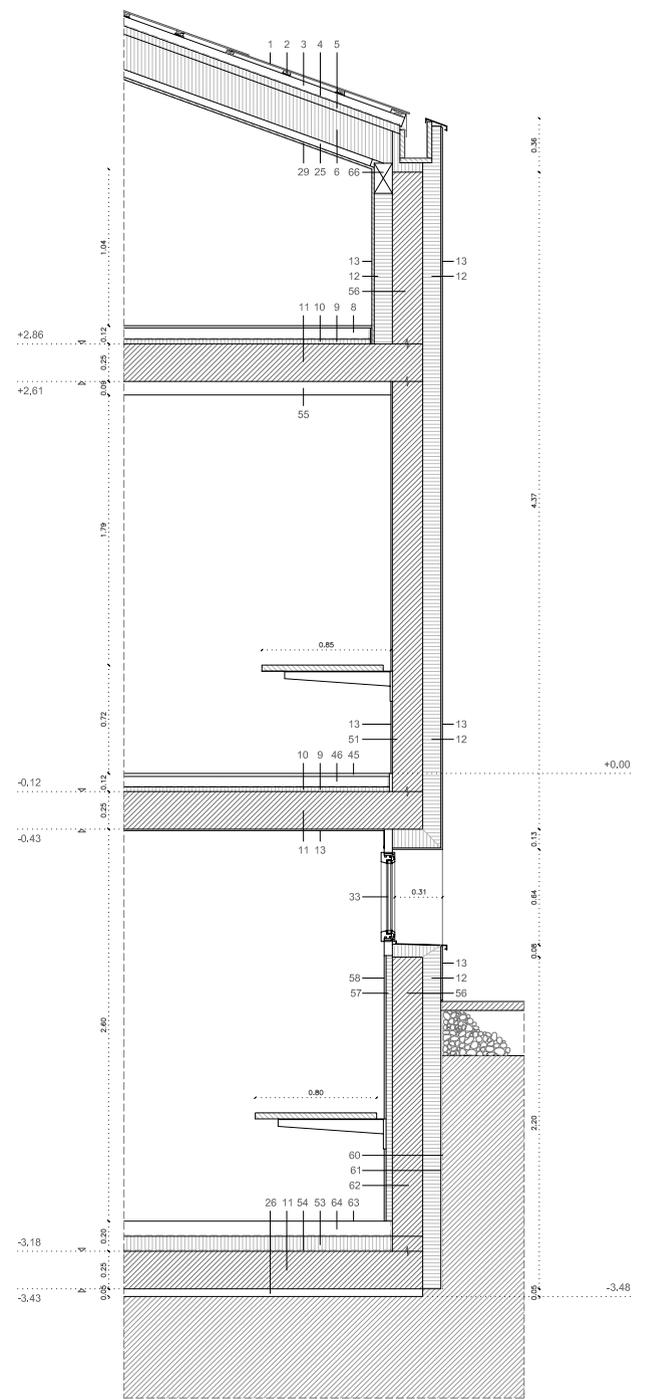


Constructive section 2



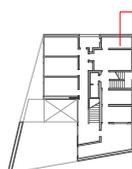


- 35. 300 HEA
- 36. Blind with aluminium slats
- 37. Rolling blind by Rufalex Model Netkik Comfort
- 38. 17-21 cm waterproof concrete layer on slope
- 39. 20 cm insulation
- 40. 1,5 cm parquet
- 41. 28 cm concrete slab
- 42. 6 cm (acoustic) tightened roof
- 43. 14-18 cm waterproof concrete layer on slope
- 44. 19 cm insulation
- 45. 2 cm Anroecht green stone
- 46. 7 cm cement layer
- 47. 1 cm insulation
- 48. 31 cm concrete slab
- 49. 13-17 cm substructure
- 50. 25-29 cm waterproof concrete layer on slope
- 51. 20 cm concrete falling to interior
- 52. 8,5 cm cement layer
- 53. 10 cm insulation
- 54. Waterproofing layer
- 55. 9 cm (acoustic) tightened roof
- 56. 20 cm concrete wall
- 57. Substructure
- 58. Gypsum board
- 59. 10 cm cement layer
- 60. Protecting sheet
- 61. Black paint
- 62. 20 cm waterproofed concrete wall
- 63. 2,5 mm linoleum
- 64. 9,5 cm cement layer
- 65. 12x14 cm wooden lintel
- 66. 12x20 cm wooden lintel

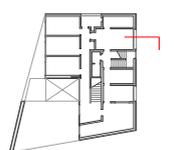


Constructive section 3

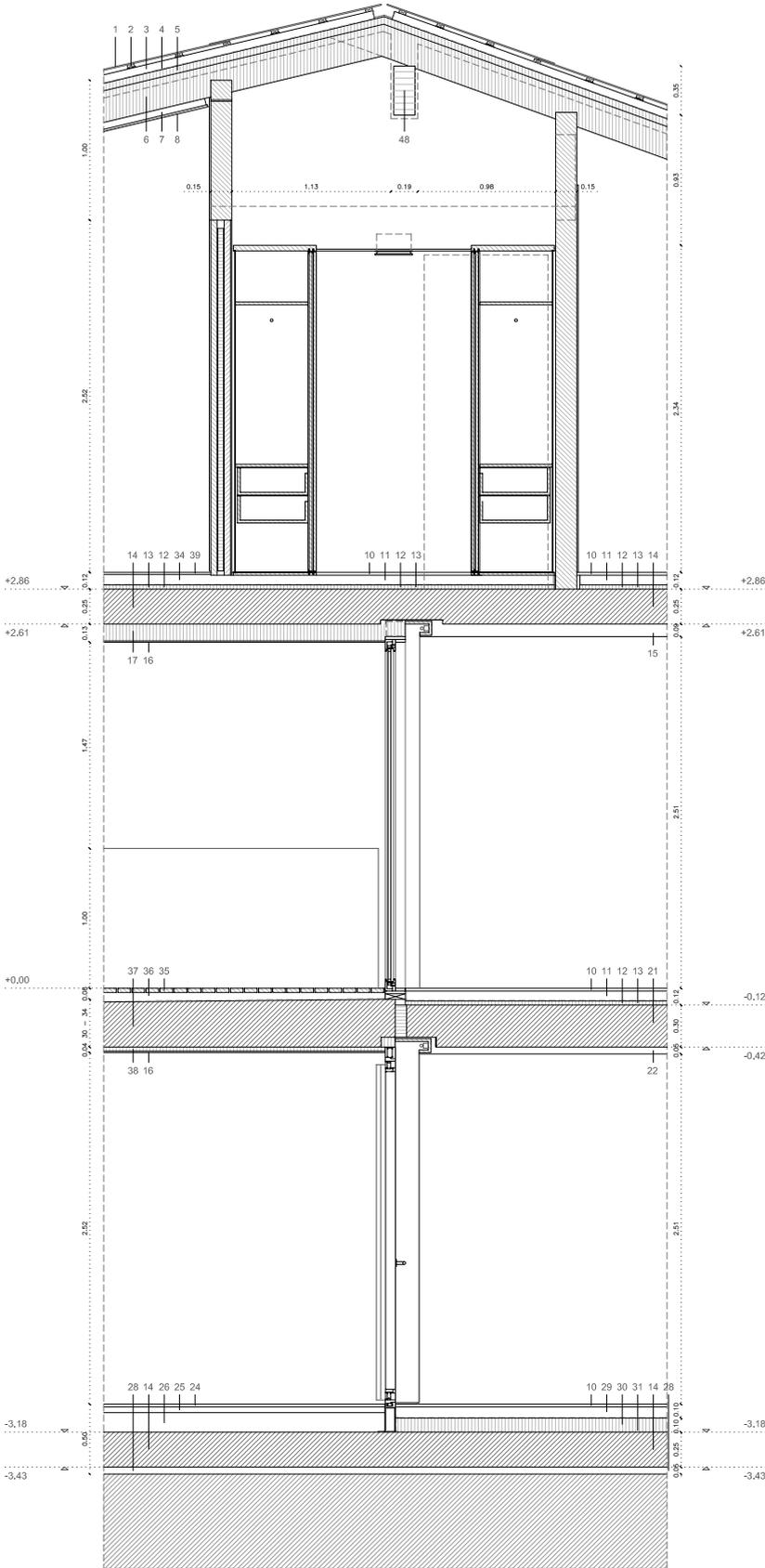
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1:50



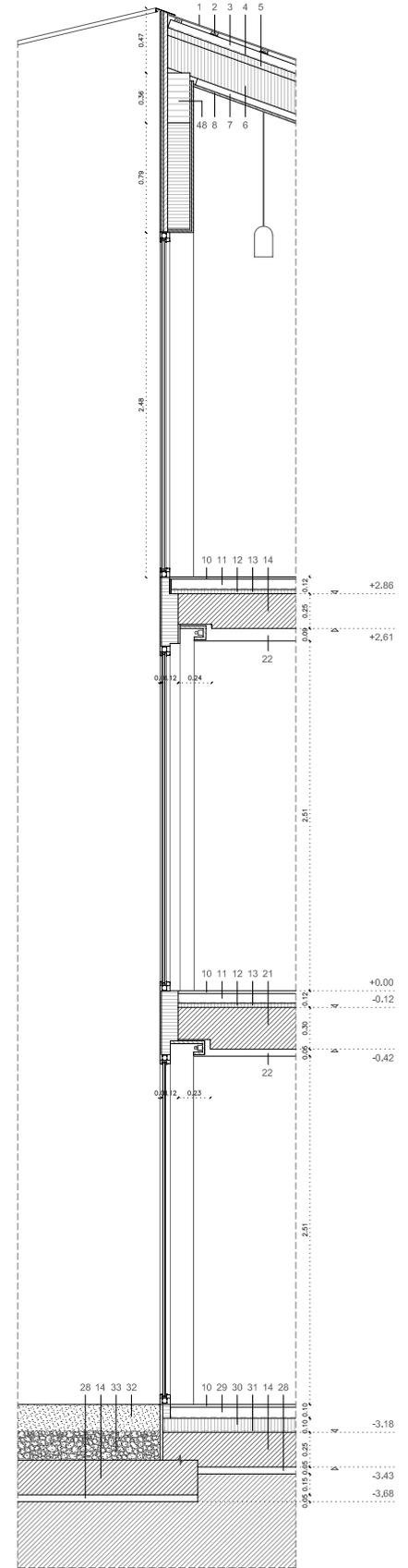
Constructive section 4



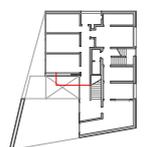
- |   |                               |   |   |
|---|-------------------------------|---|---|
| 1. 8 mm Integral panel                            | 7. 48x48 mm battens           | 14. 25 cm concrete slab                               | 20. Gypsum board                            |
| 2. 48x24 mm battens                               | 8. 15 mm Fermacel             | 15. 12 cm insulation / 9 cm (acoustic) tightened roof | 21. 30 cm Concrete slab                     |
| 3. 60x60 mm battens                               | 9. Insect protection mesh     | 16. 1 cm whitewash                                    | 22. 5 cm (acoustic) tightened roof          |
| 4. Pavatex panel for ceiling                      | 10. 2 cm Anroecht green stone | 17. 12 cm insulation                                  | 23. 6 cm insulation                         |
| 5. 52 mm Pavatex Isorooft - Natur                 | 11. 7 cm cement layer         | 18. 24 cm concrete wall                               | 24. 2 cm asphalt layer                      |
| 6. 22x12 cm steam barrier beam (22 cm insulation) | 12. 2 cm insulation           | 19. Substructure                                      | 25. Ø16 mm and 5 cm thickness asphalt layer |
|   | 13. 1 cm soundproofing        |   | 26. 13 cm thickness gravel                  |



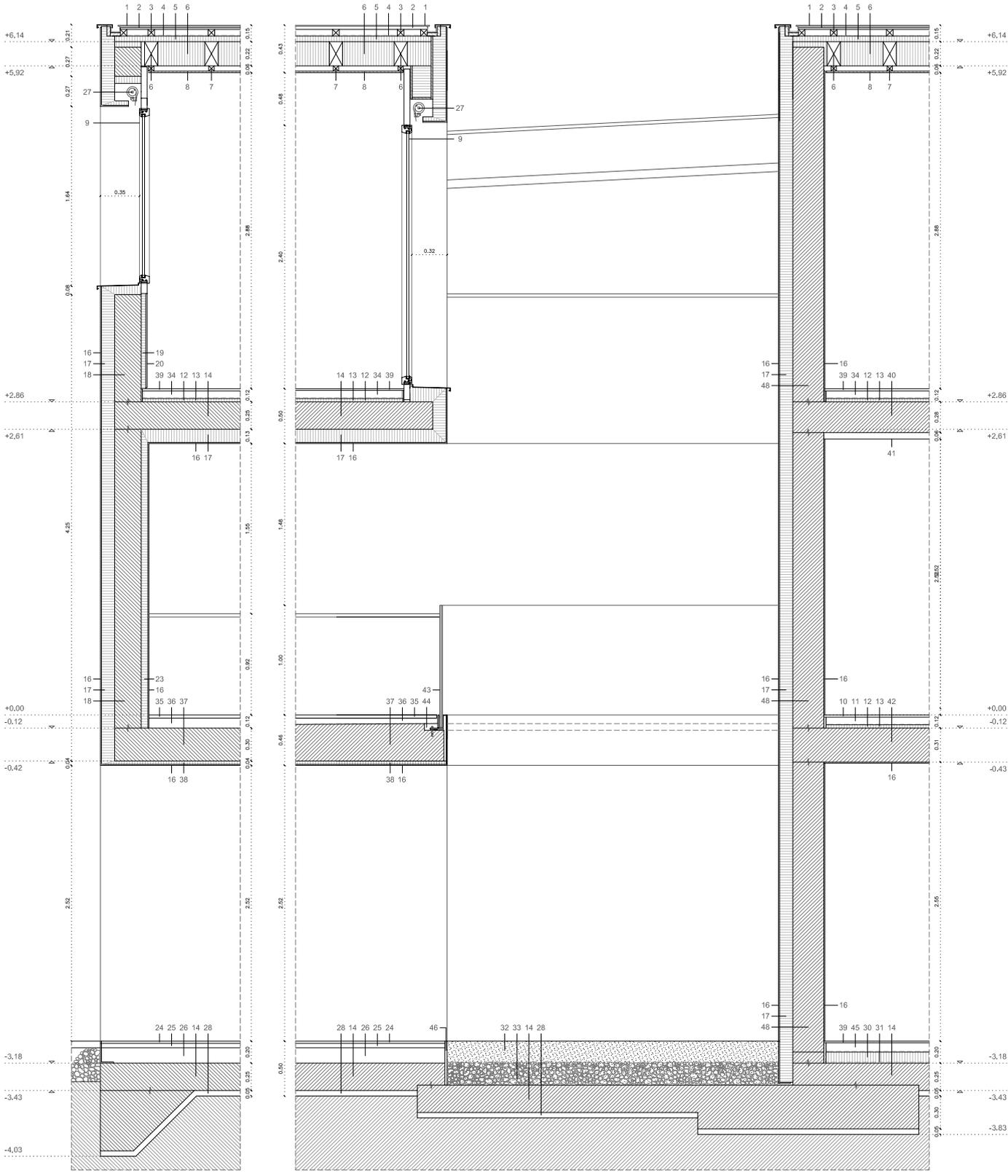
Constructive section 5



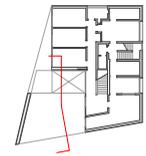
Constructive section 6

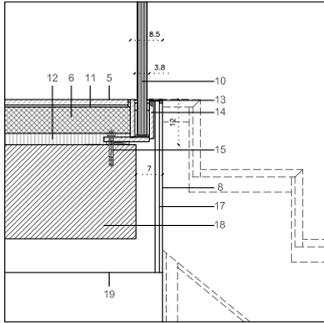


- |                                |   |   |                        |
|--------------------------------|---|---|------------------------|
| 27. Blind with aluminium slats | 34. 7.5 cm cement layer                         | 40. 28 cm concrete slab                     | 47. 10 cm mortar base  |
| 28. 5 cm cleaning concrete     | 35. 3 cm wood flooring                          | 41. 6 cm tightened roof (acoustic)          | 48. 16x36 cm main beam |
| 29. 8 cm cement layer          | 36. Substructure 5-9 cm                         | 42. 31 cm concrete slab                     |                        |
| 30. 10 cm insulation           | 37. 30-34 cm waterproof concrete layer on slope | 43. Glass railing                           |                        |
| 31. Waterproofing sheet        | 38. Insulation 3 cm                             | 44. 6/17.5 cm overlap for glass railing     |                        |
| 32. 20 cm thickness water      | 39. 1.5 cm parquet                              | 45. 8.5 cm cement layer                     |                        |
| 33. 20 cm thickness gravel     |   | 46. Pond enclosure with chromed steel sheet |                        |

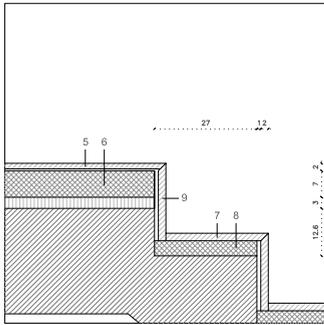


Constructive section 7

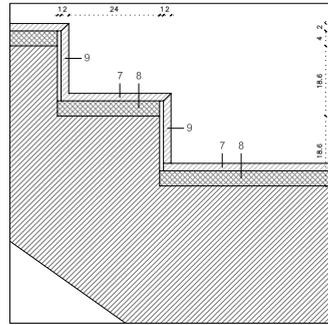
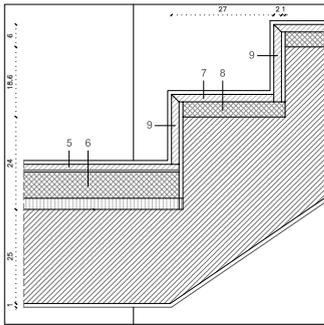




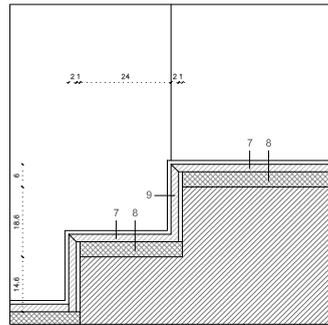
D.9



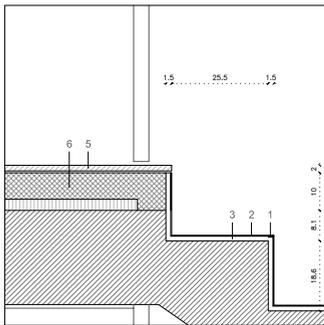
D.8



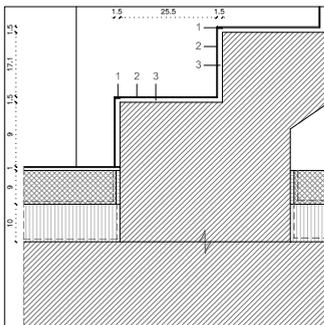
D.7



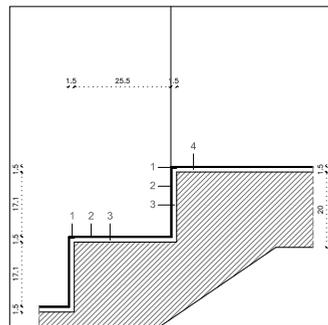
D.5



D.4

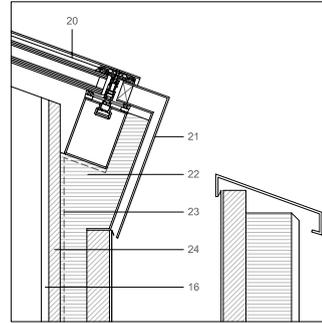


D.3

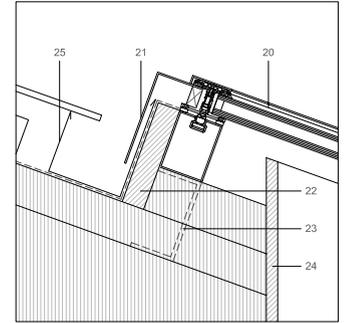


D.1

D.2



D.11

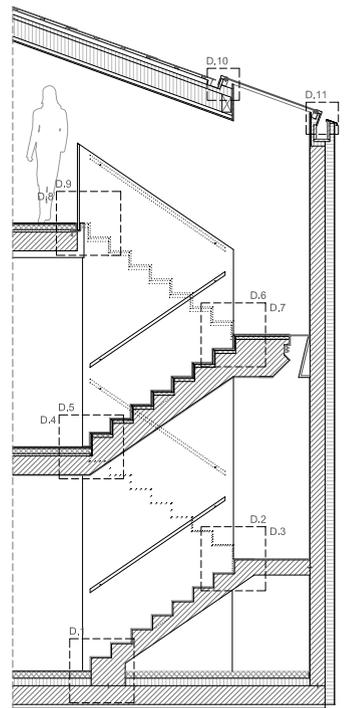


D.10

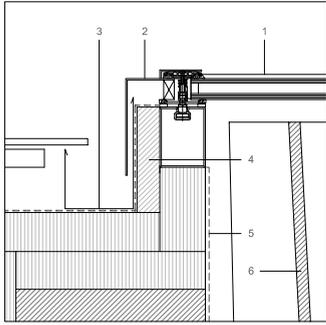


1. Mould for steps protection
2. 2.5 mm linoleum
3. 12.5 mm double faced adhesive
4. 12.5 mm flat adhesive
5. 15 mm natural stone
6. 7 cm cement mortar
7. 20 mm natural stone trace
8. 4 cm cement mortar
9. 20 mm natural stone counter trace
10. (VSG) 2x12 mm stratificated security glass with transparent leaf.
11. 5 mm adhesive
12. 3 cm insulation
13. 35x4 mm steel chromed wrapping profile

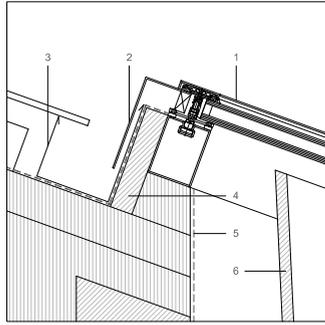
14. Substructure of 3 welded 120x12 mm steel chromed platens
15. M10
16. 8 mm whitewashed
17. 12 mm Verotech panel
18. 25 cm concrete slab
19. Acoustic panel
20. Jansen Viss
21. Aluminium coating
22. 3 cm polystyren insulation
23. Metal square
24. 15 mm Fermacel
25. Steel chromed gutter



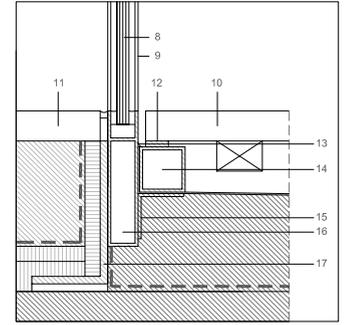
Staircase 1



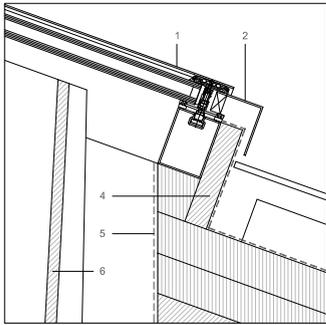
D.1



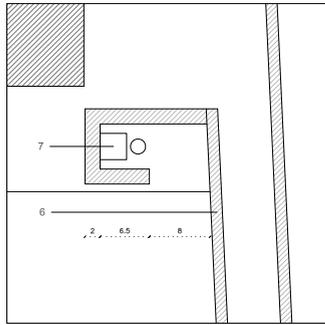
D.2



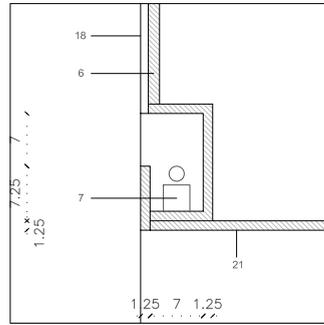
D.6



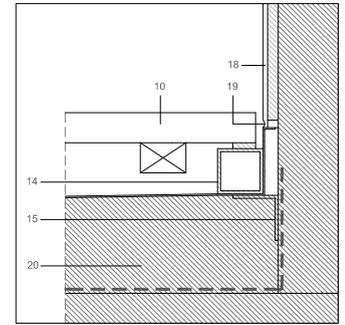
D.3



D.4



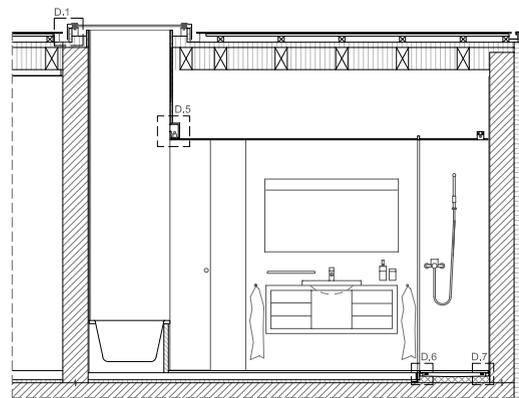
D.5



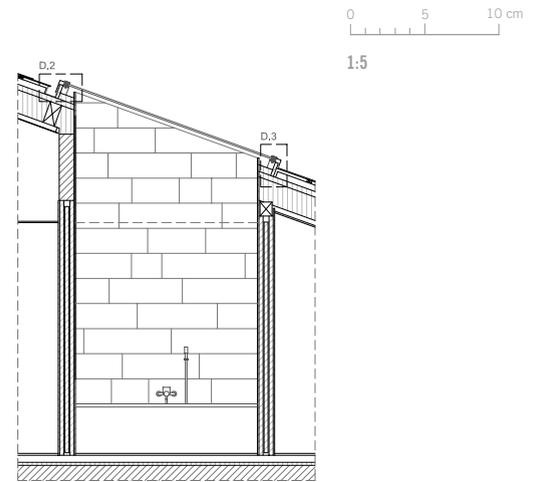
D.7

### Kitchen and bathroom details

1. Jansen Viss
2. Aluminium coating
3. Steel chromed gutter
4. 3cm polystyrene insulation
5. Metal square
6. 15 mm Fermacel
7. T5 lamp bar
8. 8 mm simple security glass with screen printing
9. 20x20x2 mm steel chromed U profile
10. 2 cm wood flooring
11. Anroecht green stone
12. Rubber below wood flooring
13. Adhered coping and mastic joint
14. 30x30x2 mm profile
15. Steel chromed bathtub profile
16. 70x20x2 mm steel chromed profile
17. 50x110 mm L shaped profile
18. Whitewashed
19. Mastic joint
20. Sand below shower
21. 12.5 mm gypsum panel



Bathroom longitudinal section



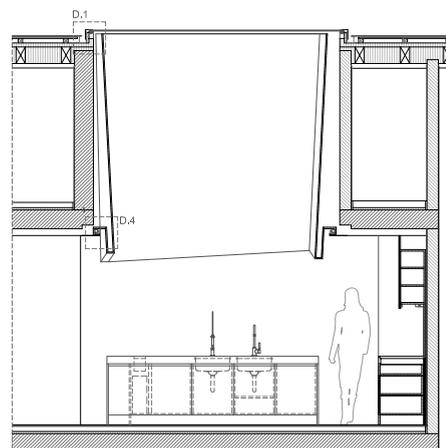
Bathroom transversal section

0 5 10 cm

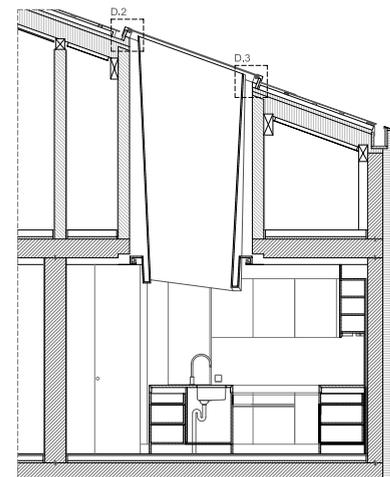
1:5

0 0,5 1m

1:75



Kitchen longitudinal section



Kitchen transversal section

0 1 5m

1:100

