构造设计 与 建筑表达

Construction and Architecture

2024.03.27

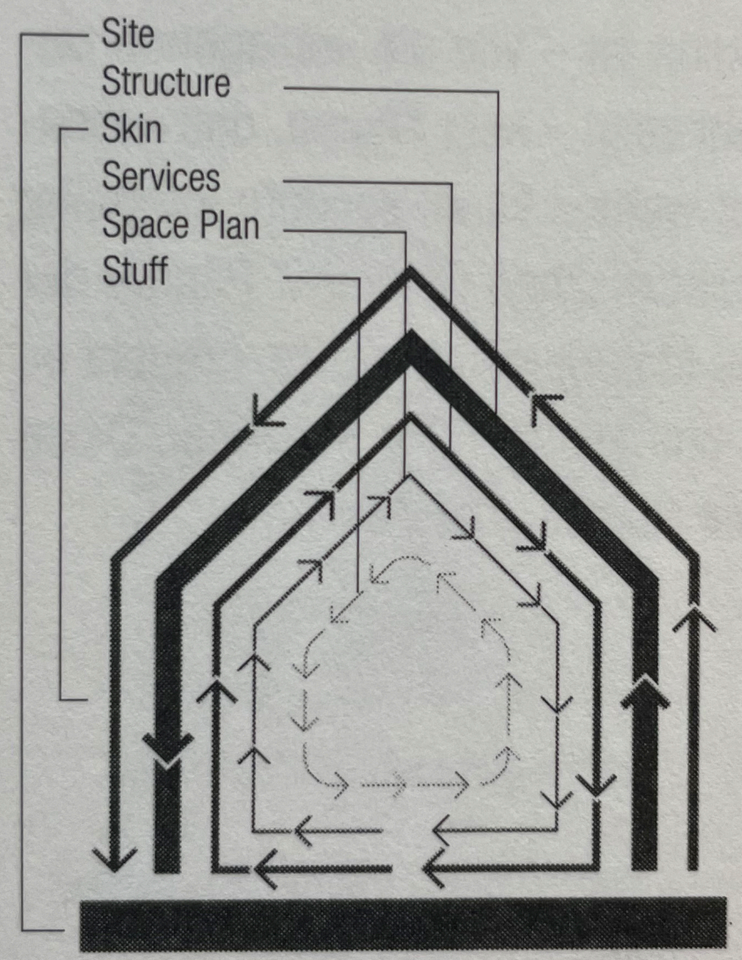
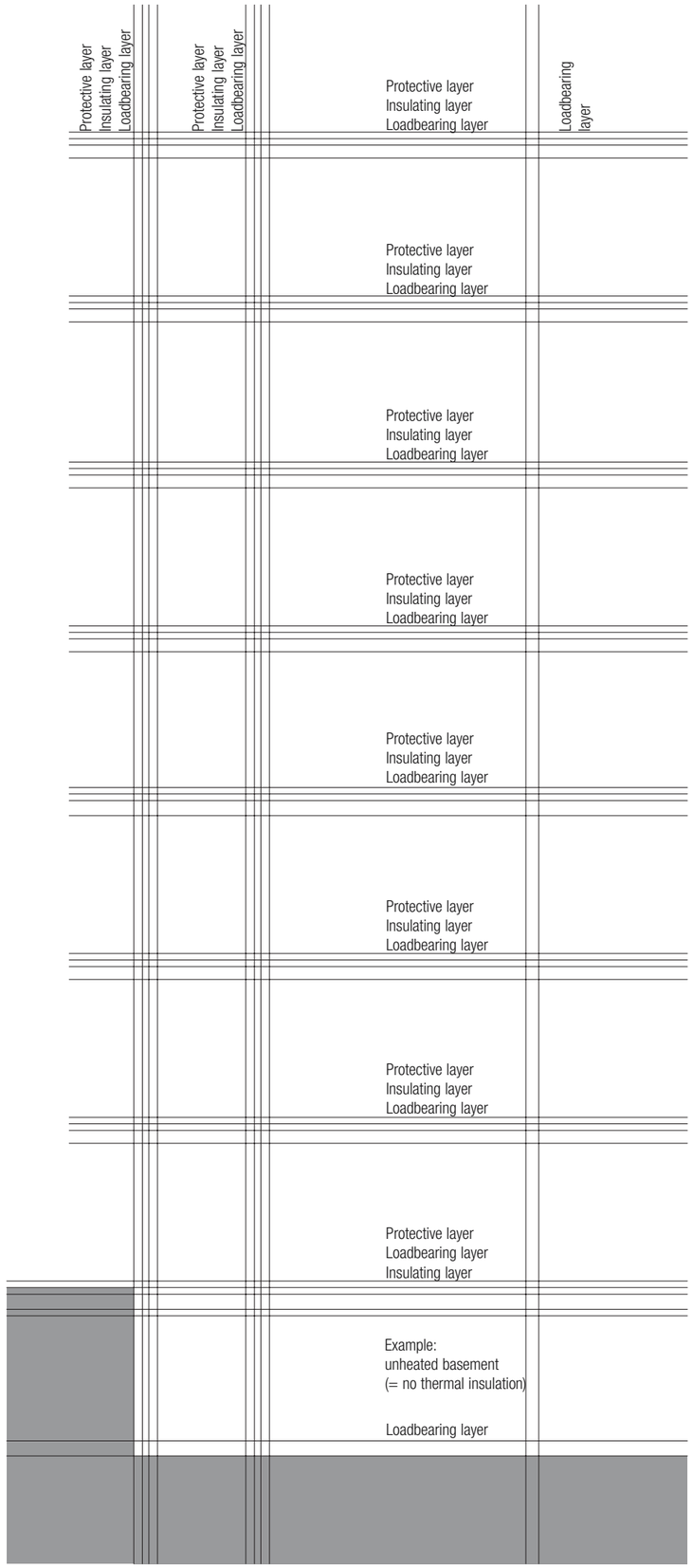


Abb. 65: «six s»
aus: Stewart Brand: *How Buildings Learn*

构造的层级关系


Protective layer
Insulating layer
Loadbearing layer
Protective layer
Insulating layer
Loadbearing layer
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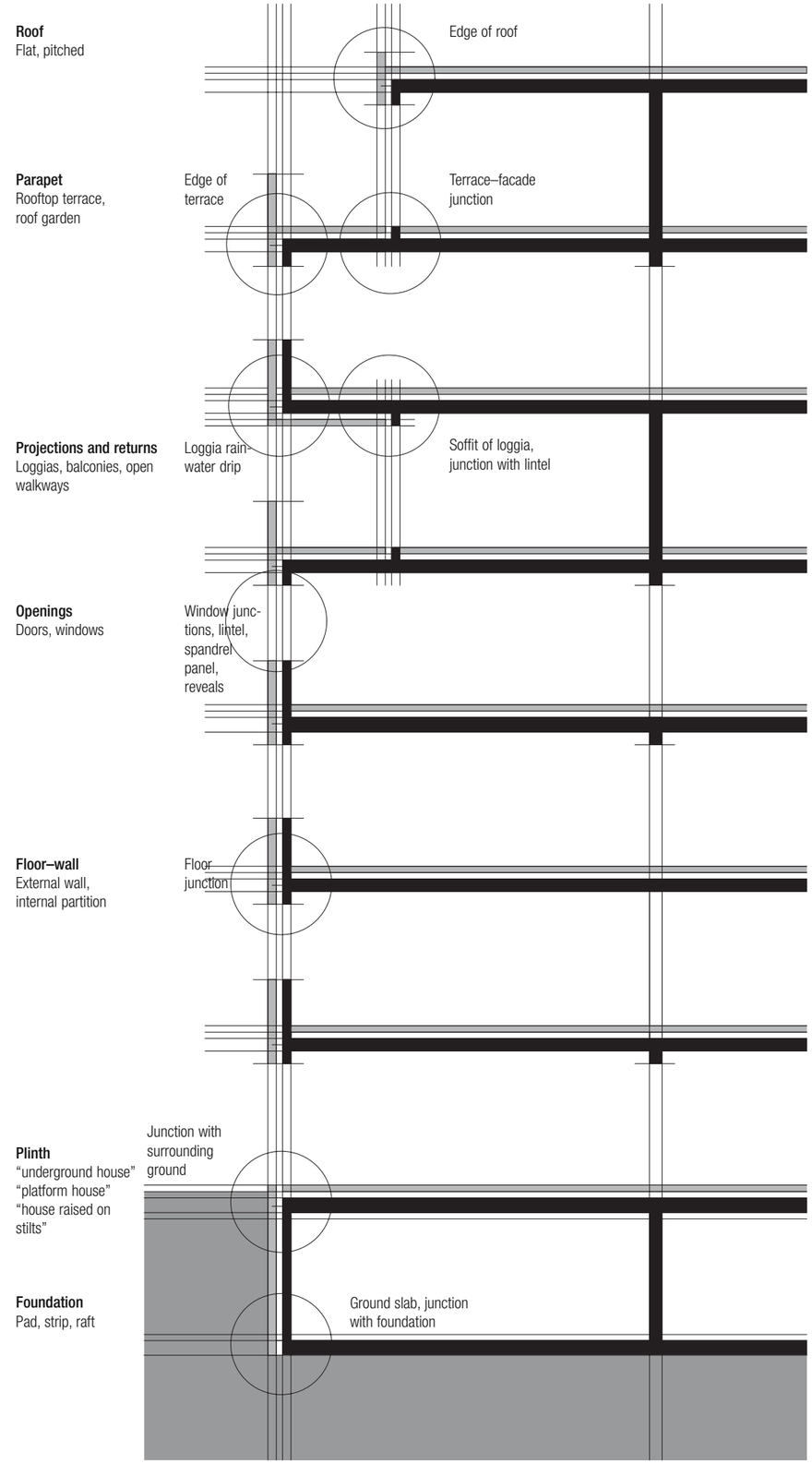
Protective layer
Loadbearing layer
Insulating layer
Example:
unheated basement
(= no thermal insulation)
Loadbearing layer


Roof
Flat, pitched
Edge of roof
Parapet
Rooftop terrace,
roof garden
Edge of
terrace
Terrace–facade
junction
Projections and returns
Loggias, balconies, open
walkways
Loggia rain-
water drip
Soffit of loggia,
junction with lintel
Openings
Doors, windows
Window junc-
tions, lintel,
spandrel
panel,
reveals
Floor–wall
External wall,
internal partition
Floor
junction
Plinth
“underground house”
“platform house”
“house raised on
stilts”
Junction with
surrounding
ground
Foundation
Pad, strip, raft
Ground slab, junction
with foundation

内侧结构+外侧保温

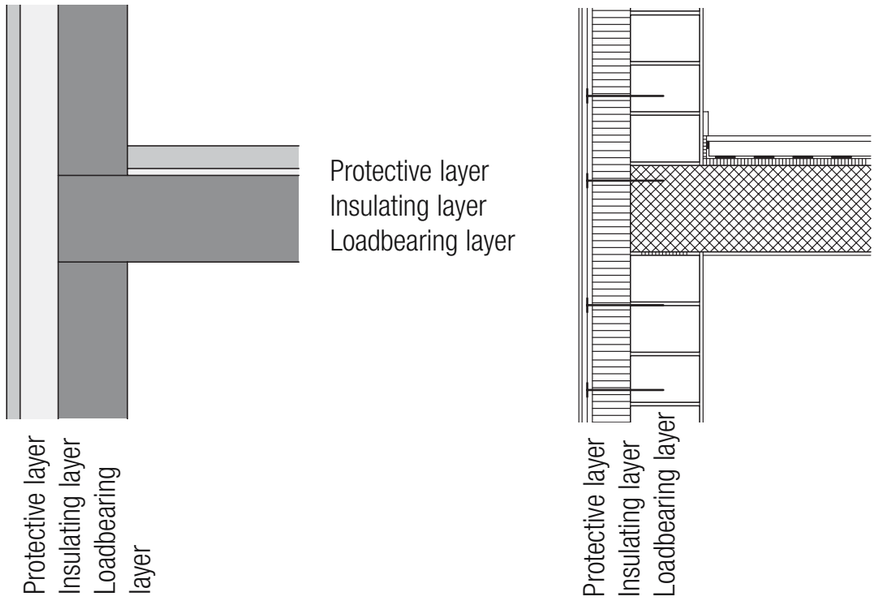


Diagram of principle **Construction detail**

Fig. 15: Case study: rendered external insulation, wall–floor junction
The protective layer consists of render applied to the insulation. This form of construction results in a thin wall but the protective layer provides little defence against mechanical damage, which can lead to problems around the plinth in particular (damage to the insulation caused by feet, vehicles, etc.).

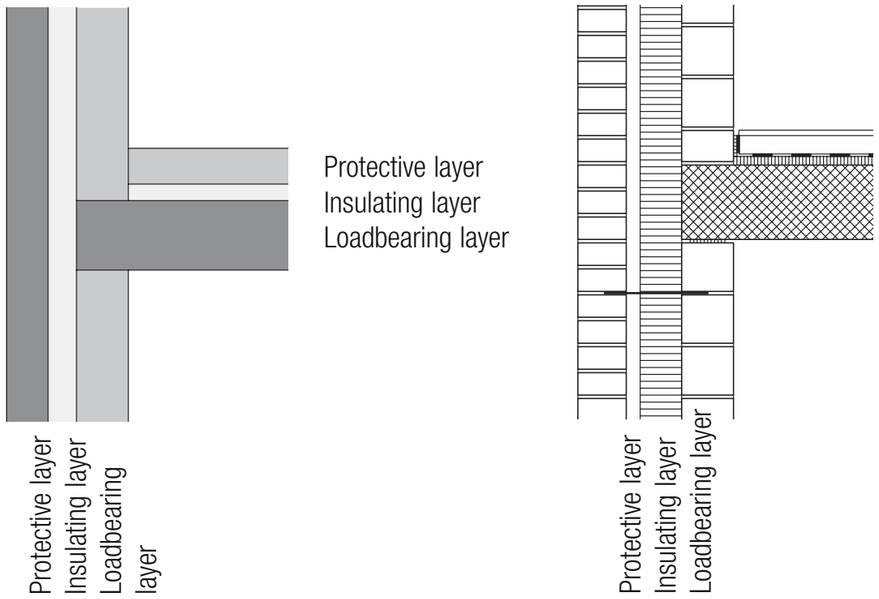
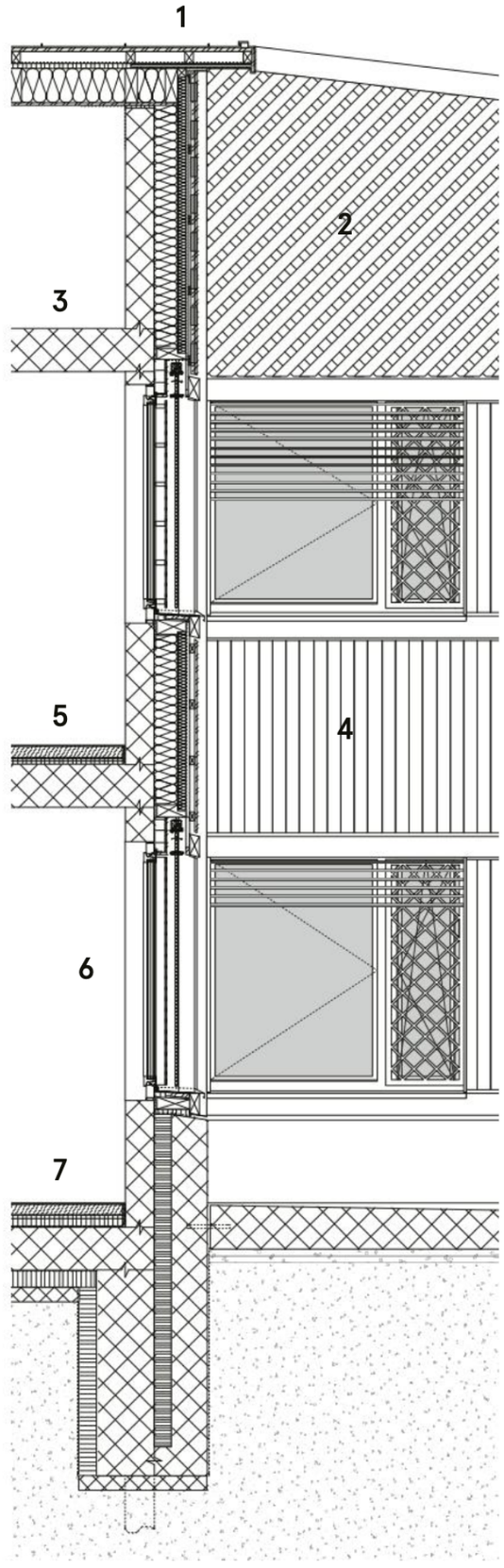


Diagram of principle **Construction detail**



1 Dachaufbau
- Blecheindeckung mit Doppelfalz 0.6 mm
- Trennlage
- Holzschalung 27 mm
- Hinterlüftungslattung 60/80 mm
- Unterdachbahn
- Holzweichfaserplatte 35 mm
- Sparren 80/240 mm
- Mineralfasserdämmung 240 mm
- OSB-Platte 18 mm (Plattenstösse geklebt)
- Dampfbremse

2 Fassadenaufbau DG
- Rautenschalung 20 mm
- Rautenschalung 20 mm
- Horizontaler Lattenrost 20/60 mm
- Vertikaler Lattenrost 20/60 mm
- Fassadenbahn
- Lattenrost C24 mit Mineralfaserdämmung RF1 60 mm
- Distanzkonsolen mit Mineralfaserdämmung RF1 160 mm
- Betonwand 200 mm

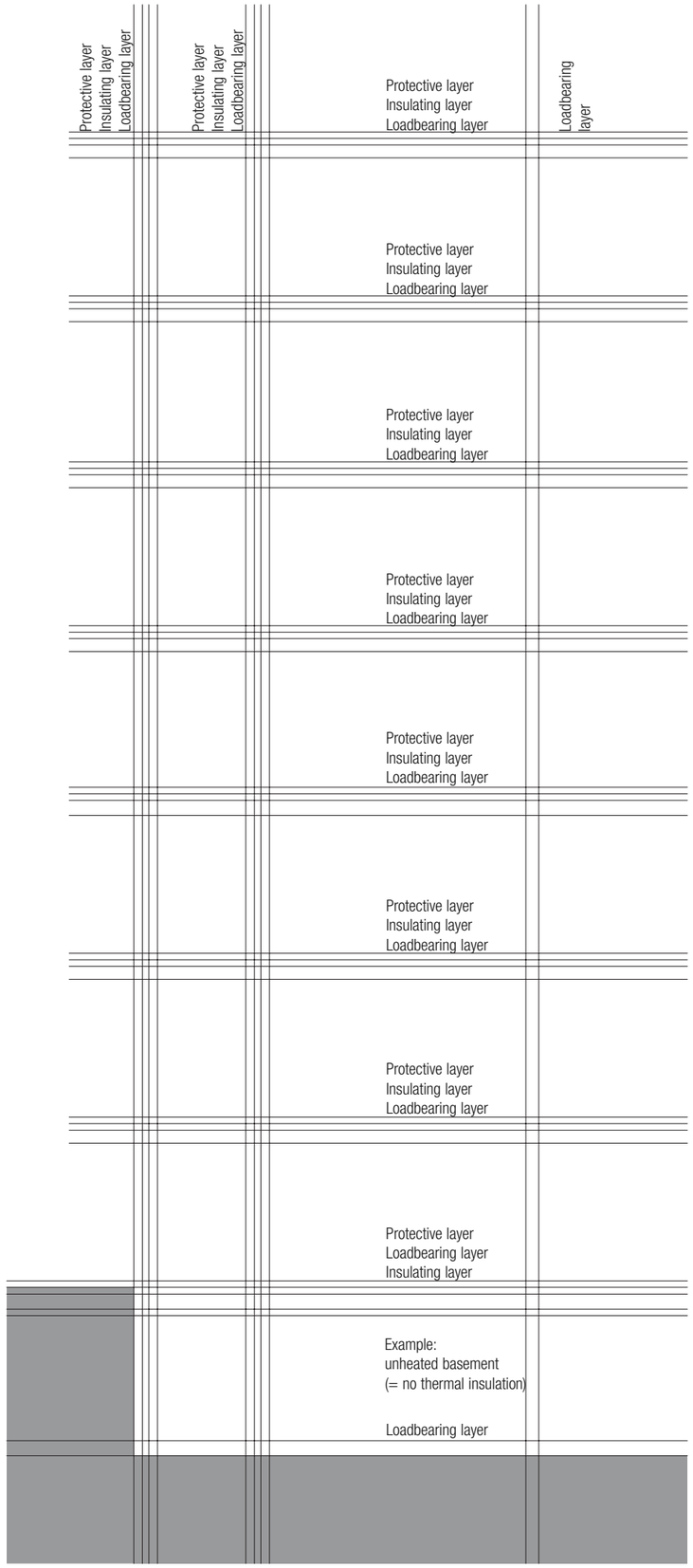
3 Bodenaufbau
- Betondecke 300 mm

4 Fassadenaufbau OG/EG
- Holzschalung 20 mm
- Horizontaler Lattenrost 30/60 mm
- Vertikaler Lattenrost 30/60 mm
- Windpapier
- Lattenrost C24 mit Mineralfaserdämmung RF1 60 mm
- Distanzkonsolen mit Mineralfaserdämmung RF1 160 mm
- Betonwand 200 mm

5 Bodenaufbau OG
- PU 1 cm
- Unterlagsboden 80 mm
- Trittschalldämmunng 20 mm
- Dämmung EPS 20 mm
- Bodendecke 300 mm

6 Fenster
- Holz-Metallfenster mit Service-Öffnung, verschraubt (Torx)
- Gitterelement
- Lamellenstoren

7 Bodenaufbau EG
- PU 10 mm
- Unterlagsboden 80 mm
- Trittschalldämmunng 60 mm
- Dämmung PUR Alu
- Dampfbremse 5 mm
- Bodenplatte 300 mm
- Dämmung XPS 100 mm
- Magerbeton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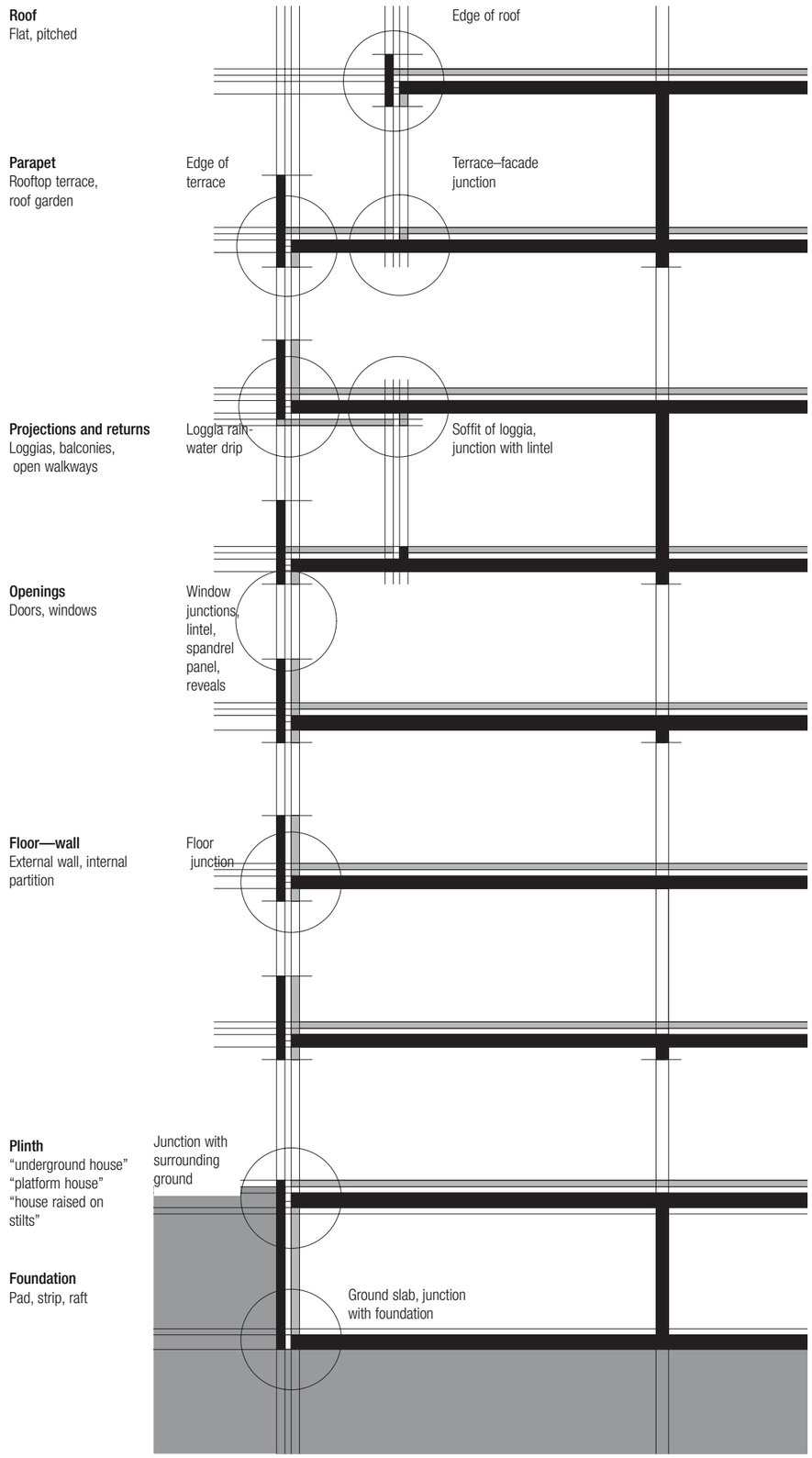
unheated basement
(= no thermal insulation)
Loadbearing layer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Openings
Doors, windows
Window
junctions,
lintel,
spandrel
panel,
reveals
Floor—wall
External wall, internal
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Plinth
“underground house”
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“house raised on
stilts”
Junction with
surrounding
ground
Foundation
Pad, strip, raft
Ground slab, junction
with foundation

外侧结构+内侧保温

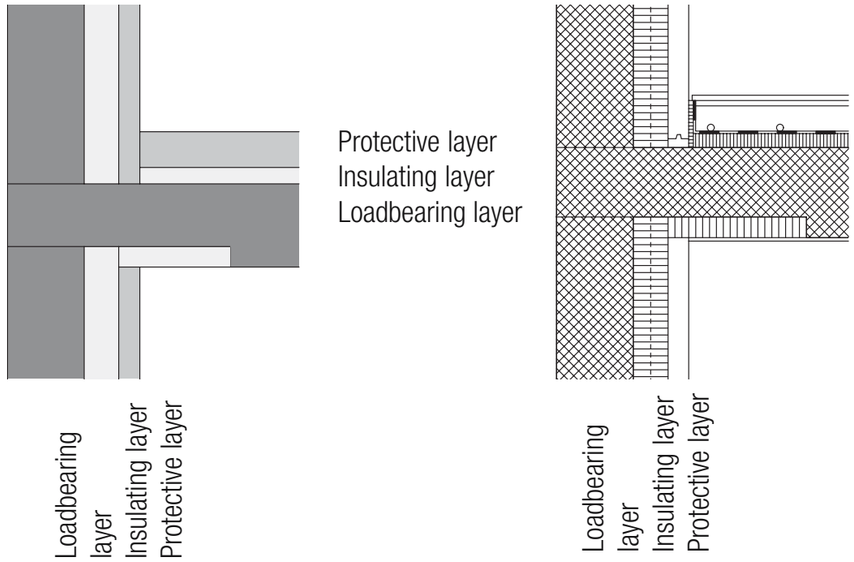


Diagram of principle **Construction detail**

Fig. 18: Case study: floor support not separated, discontinuous insulating layer
To compensate for the interruption in the insulation layer a strip of insulation at least 100 cm wide must be attached to the soffit around the perimeter (either laid in the formwork or fixed to the underside of the floor). Disadvantage: the soffit must be plastered or lined ("facing quality"). Combined impact sound/thermal insulation must be incorporated on top of the floor. The vertical loadbearing layer can be in concrete or masonry.

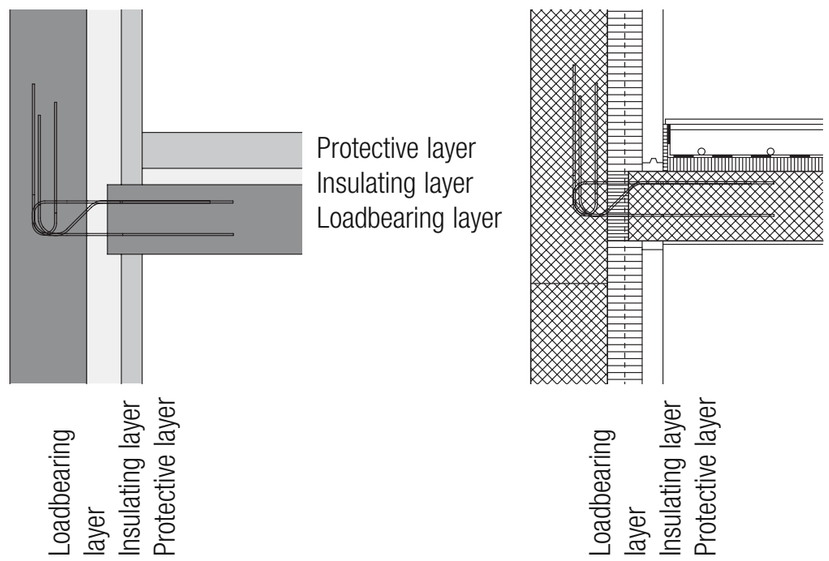
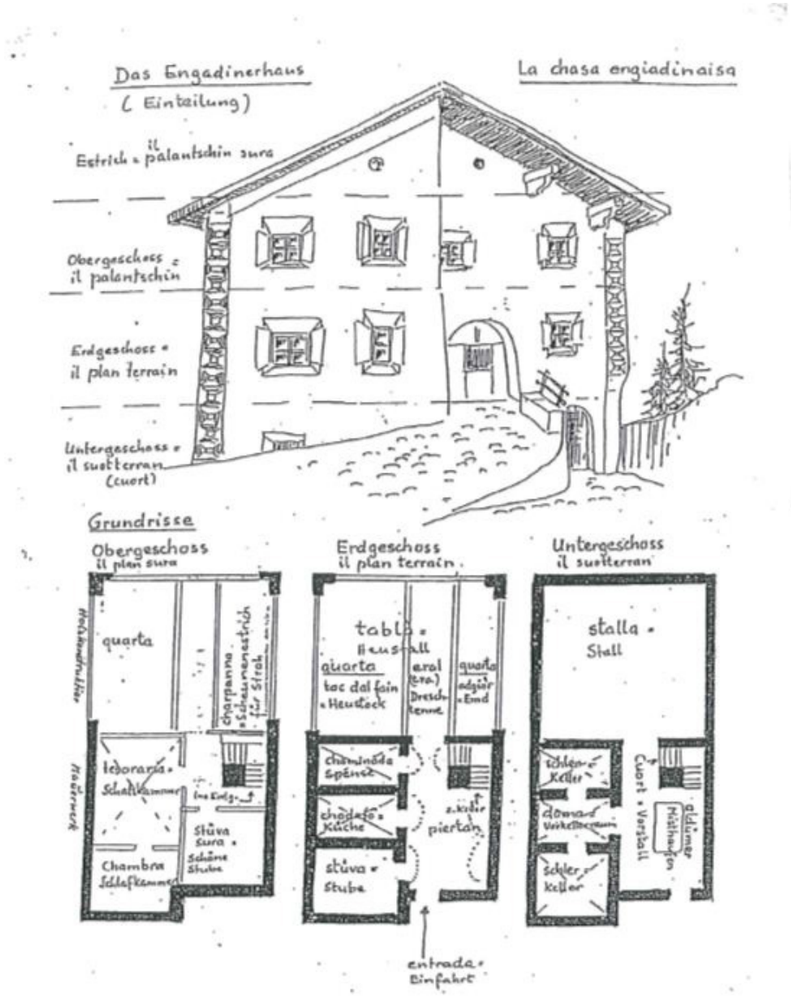
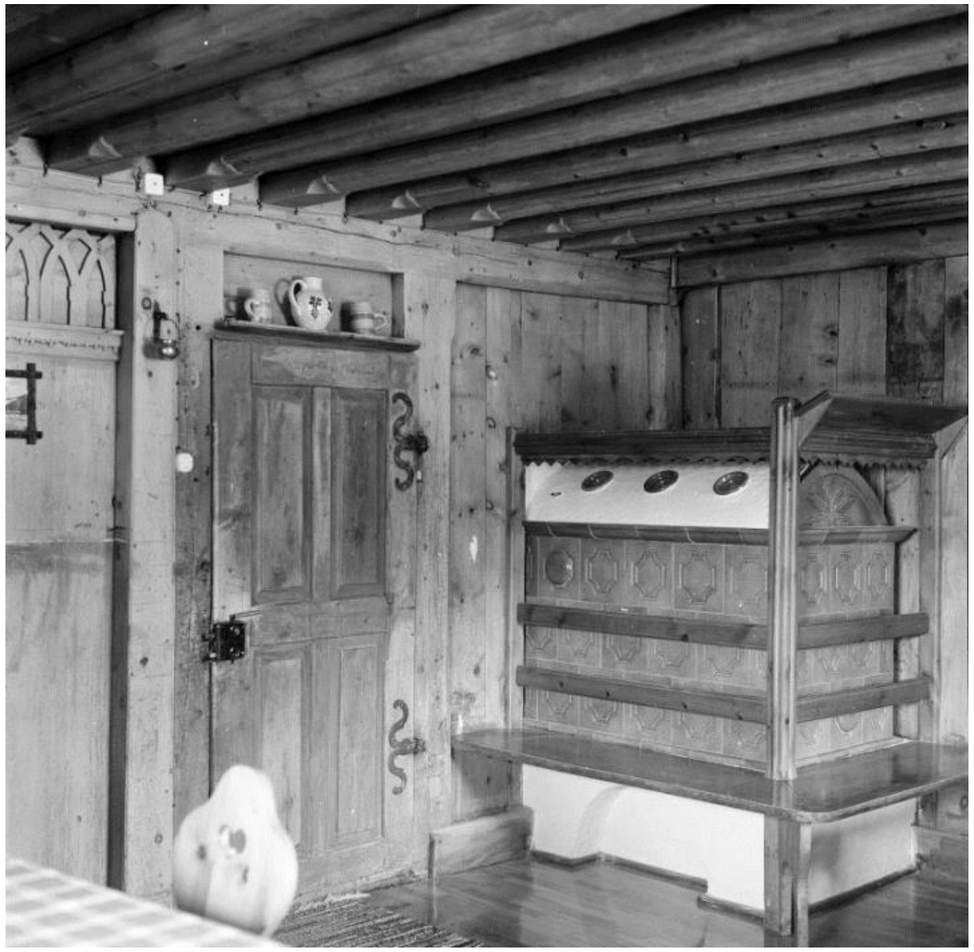


Diagram of principle **Construction detail**


SCHULE


Das Engadinerhaus
(Einteilung)
La chasa engiadinaisa
Estrich = il palantschin sura
Obergeschoss = il palantschin
Erdgeschoss = il plan terrain
Untergeschoss = il sustterran (cuort)
Grundrisse
Obergeschoss
il plan sura
Erdgeschoss
il plan terrain
Untergeschoss
il sustterran
quarta
Chamanna = Schlafzimmer für Stroh
Schlafkammer
Stüva Sura = Schöne Stube
Chambra Schlafkammer
tablà = Heustall
quarta
boc dal fain = Heustock
aral (tra.) Dreschtenne
quarta adgior = Emd
chamineda Küche
chadafo = Küche
stüva = Stube
pertàn
stalla = Stall
Schlor = Keller
Cuort = Vorstall
Schler Keller
entrada = Einfahrt



Concept

Fig. 125: External envelope

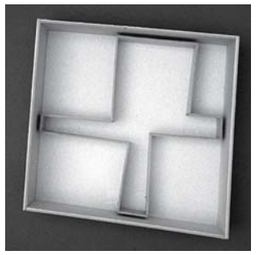


Fig. 126: The meandering internal skin around the classrooms forms a complete loop.

Fig. 127: Inner layer of insulation

Fig. 128: The structural system chosen permits a rearranged layout on the floor above.

Fig. 129: The classrooms are lined with wood panelling.

Draft project

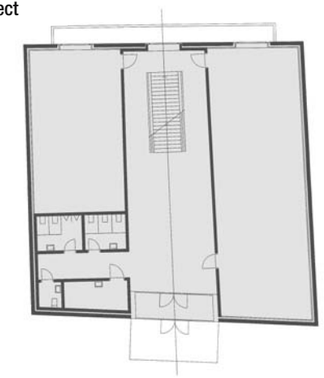


Fig. 130: Draft project, plan of ground floor

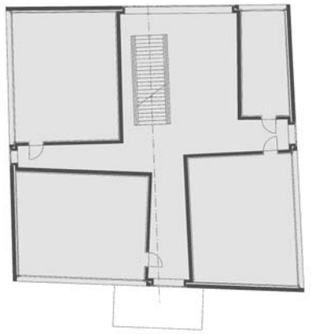


Fig. 131: Draft project, plan of 1st floor

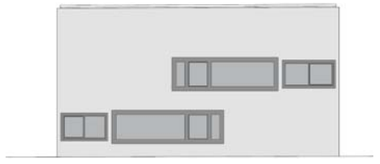


Fig. 132: Draft project, east elevation

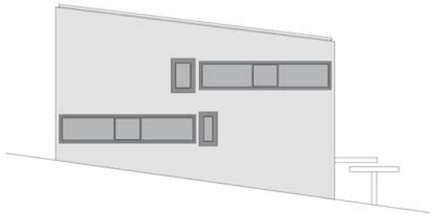


Fig. 133: Draft project, north elevation

Fig. 137: 2nd floor, south-facing classroom

Fig. 138: Common area on 1st floor

Fig. 140: Common area on 2nd floor

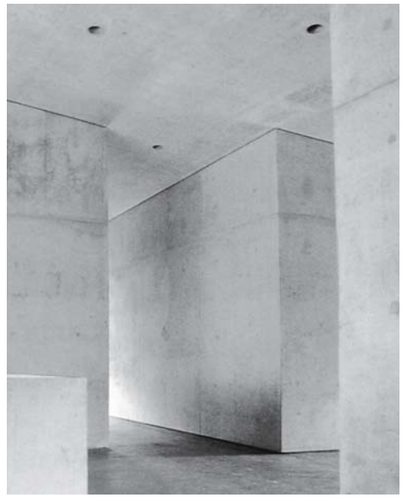
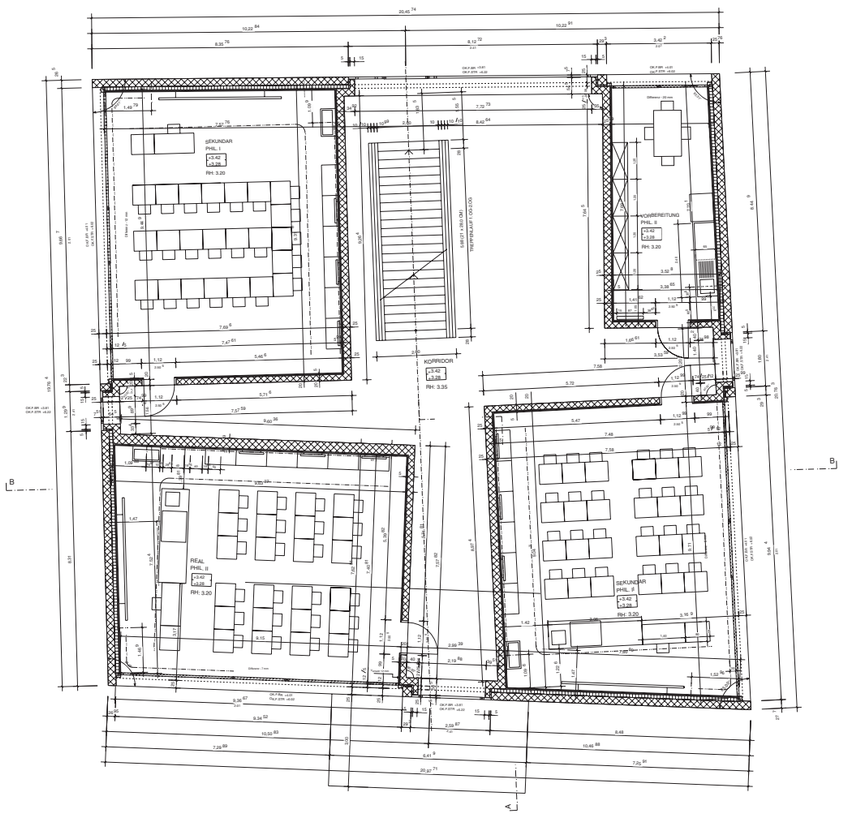


Fig. 141: Corridor, 2nd floor



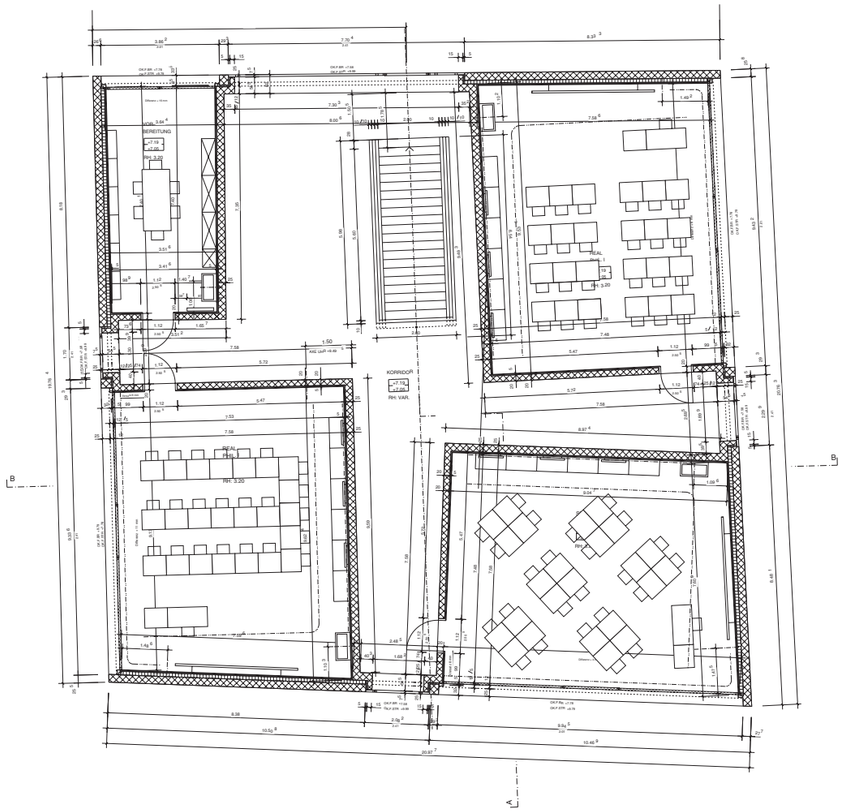


Fig. 142: Plan of 2nd floor, 1:200
1:50 working drawing (reduced)

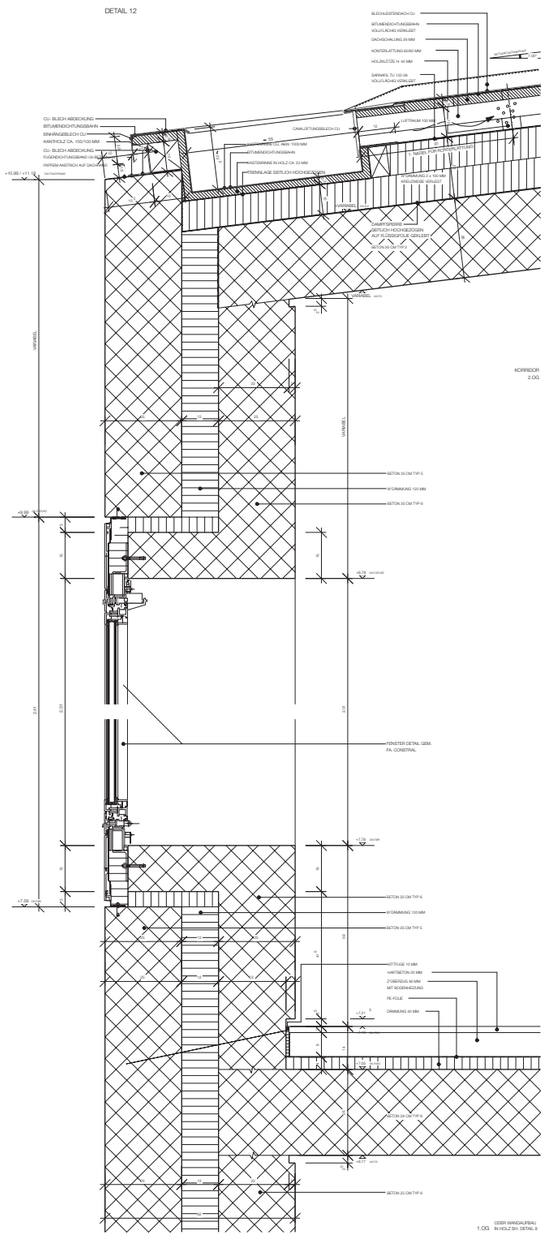


Fig. 147: Section through classroom window, 1:20
1:5 working drawing (reduced)

Fig. 151: Windows in common areas open outwards

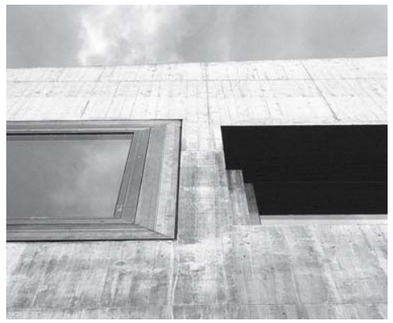


Fig. 152: Contrast between inward- and outward-opening windows

Floor construction

Tongue and groove boards fixed with concealed screws,	26 mm
Pavatherm NK impact sound insulation	40 mm
Thermal insulation	74 mm
Concrete, type 6	280 mm

Wall construction

Concrete, type 5	250 mm
Thermal insulation	120 mm
Vapour barrier	
Counter battens	30/60 mm
Tongue and groove boards fixed with concealed screws	18 mm

Roof construction

Sheet metal	
Bitumen roofing felt, fully bonded	
Boarding	29 mm
Counter battens	60/60 mm
Battens	40 mm
Sarnafil TU 122/08, fully bonded	
Thermal insulation, 2 layers laid cross-wise	2 x 100 mm
Vapour barrier	
Concrete, type 2	260 mm

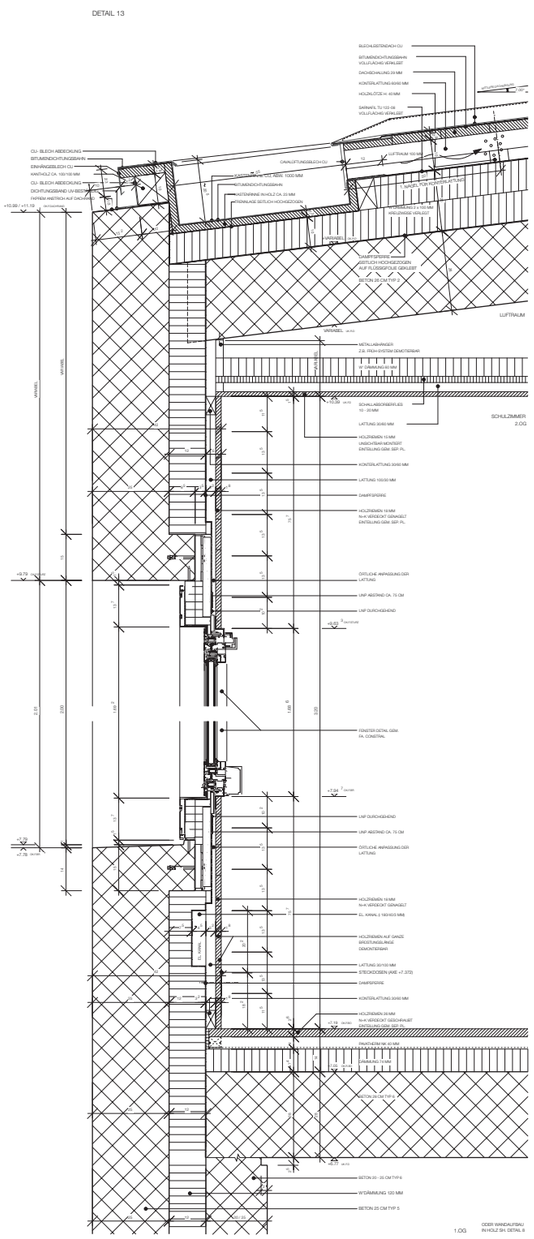


Fig. 150: Section through corridor window, 1:20
1:5 working drawing (reduced)

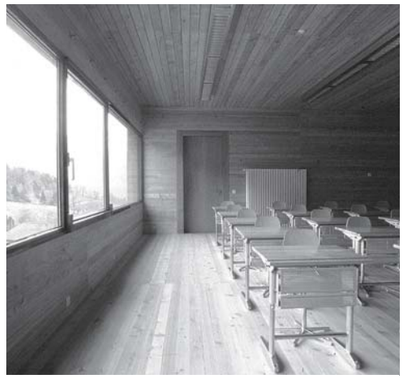


Fig. 148: Inward-opening classroom windows from inside

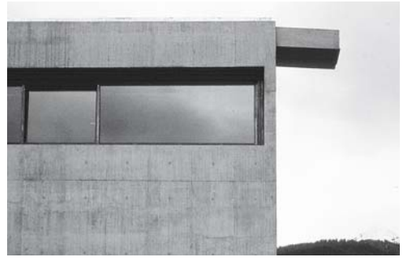


Fig. 149: Inward-opening classroom windows from outside

Floor construction

Granolithic concrete	20 mm
Screed with underfloor heating	80 mm
Polyethylene sheet	
Thermal insulation	40 mm
Concrete, type 6	280 mm

Wall construction

Concrete, type 5	250 mm
Thermal insulation	120 mm
Concrete, type 5	250 mm

Roof construction

Sheet metal	
Bitumen roofing felt, fully bonded	
Boarding	29 mm
Counter battens	60/60 mm
Battens	40 mm
Sarnafil TU 122/08, fully bonded	
Thermal insulation, 2 layers laid cross-wise	2 x 100 mm
Vapour barrier	
Concrete, type 2	260 mm

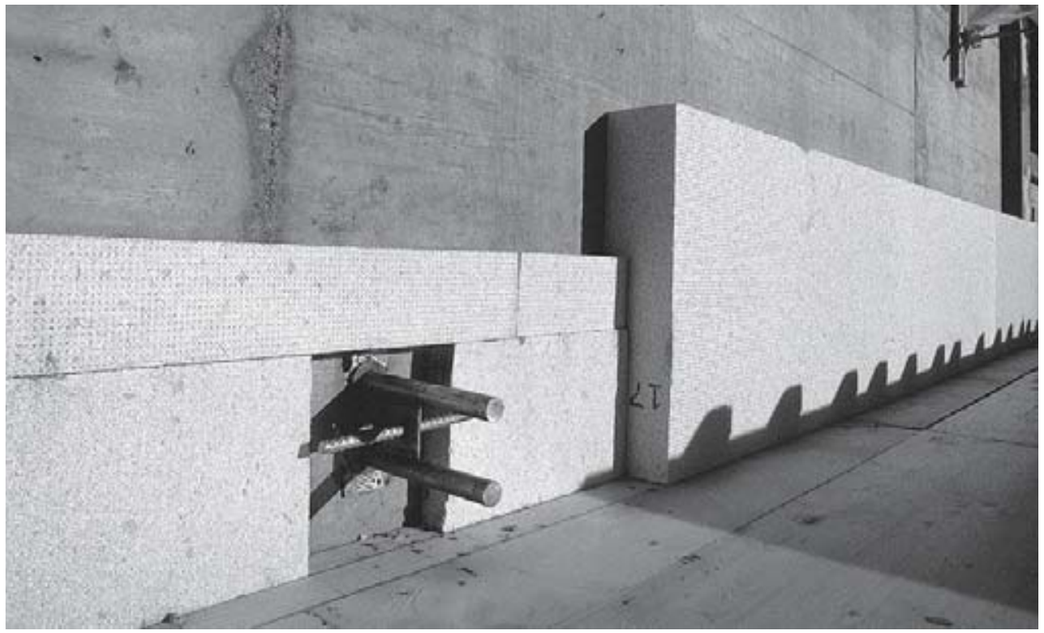


Fig. 134: The thickness of thermal insulation is reduced around the shear studs.

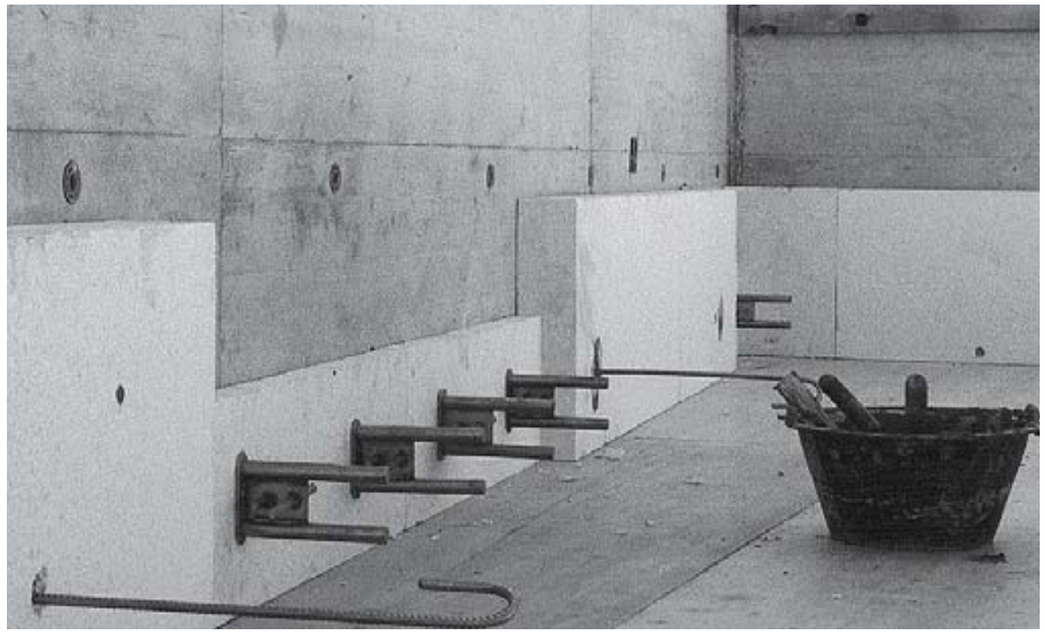
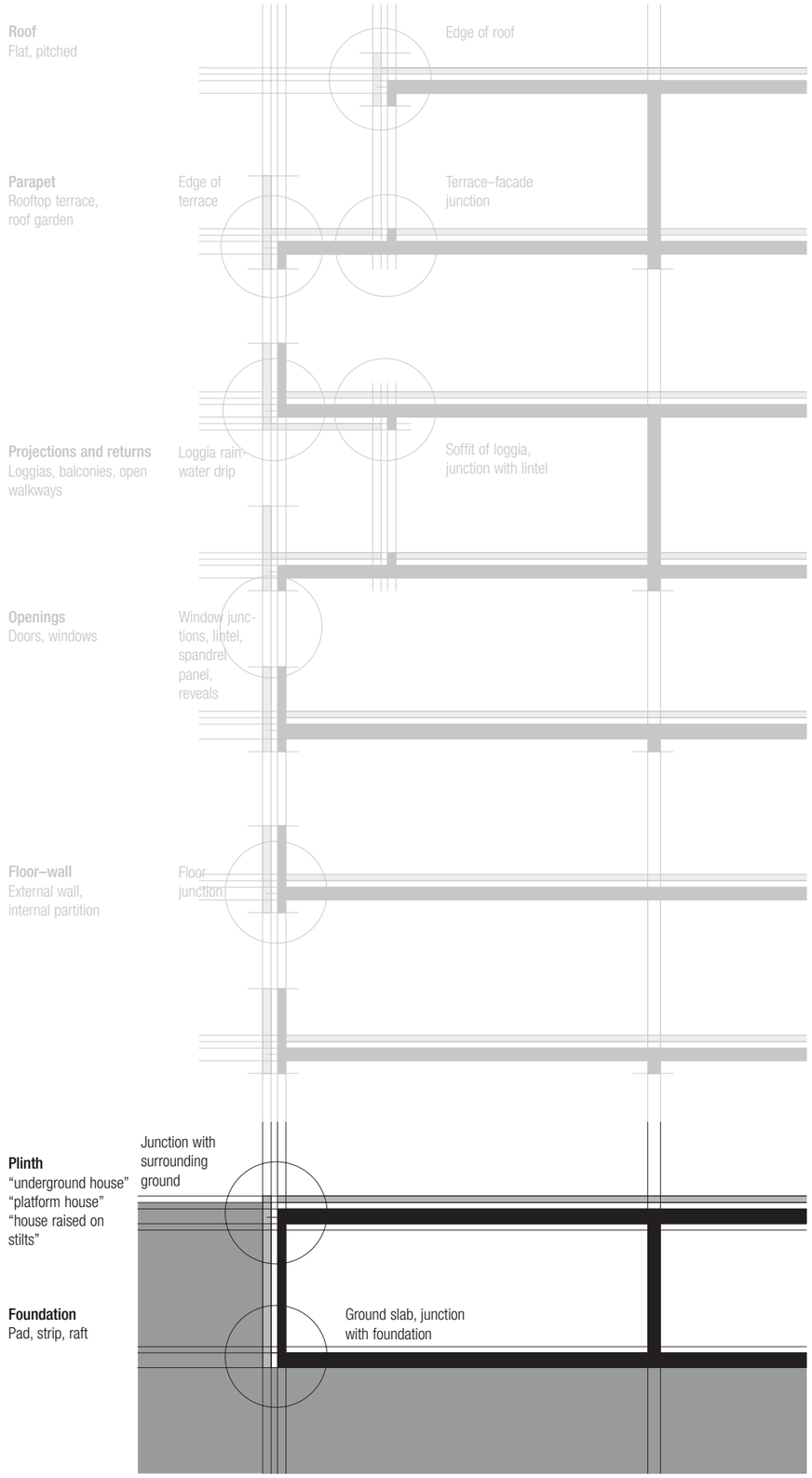


Fig. 135: Row of shear studs in the internal corridor

Fig. 136: Cage of reinforcement with shear stud positioned ready for cast-

地下室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Edge of terrace
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Soffit of loggia, junction with lintel
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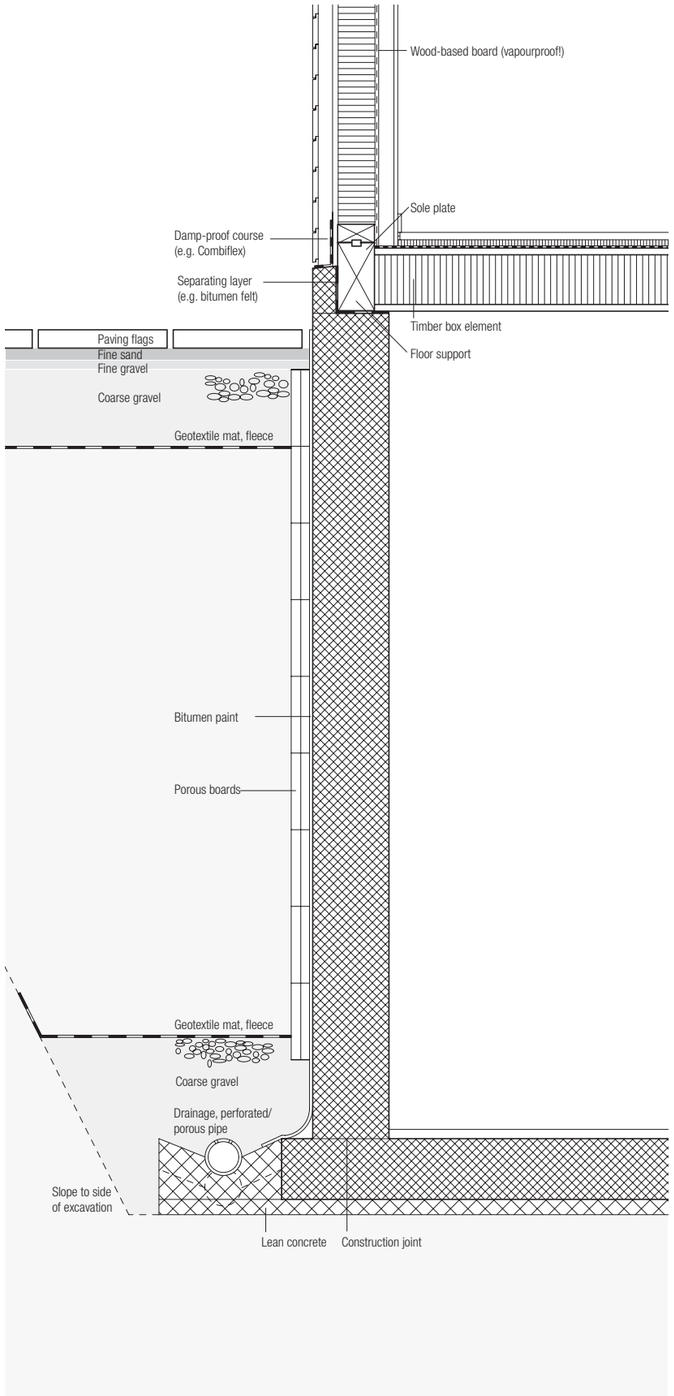
Floor–wall
External wall, internal partition
Floor junction
Plinth
“underground house”
“platform house”
“house raised on stilts”
Junction with surrounding ground
Foundation
Pad, strip, raft
Ground slab, junction with foundation

Plinth, timber platform frame construction
1:20



Wall construction

- Horizontal boards	24 mm
- Vertical battens (ventilated cavity)	40 mm
- Bitumen-impregnated softboard (airtight membrane)	18 mm
- Timber studding, insulation (e.g. Isofloc)	120 mm
- Wood-based board (plywood, vapourproof!)	12 mm
- Vertical battens (space for services)	50 mm
- Wood-cement particleboard (e.g. Fermacell) or fibre-reinforced plasterboard (e.g. Sasmox)	12 mm
Total	*276 mm*

Floor construction

- 3-ply core plywood, floating, tongue and groove	27 mm
- Impact sound insulation	20 mm
- Vapour barrier	
- Lignatur timber box element, soffit left exposed	220 mm
Total	*267 mm*

Wall construction, unheated basement

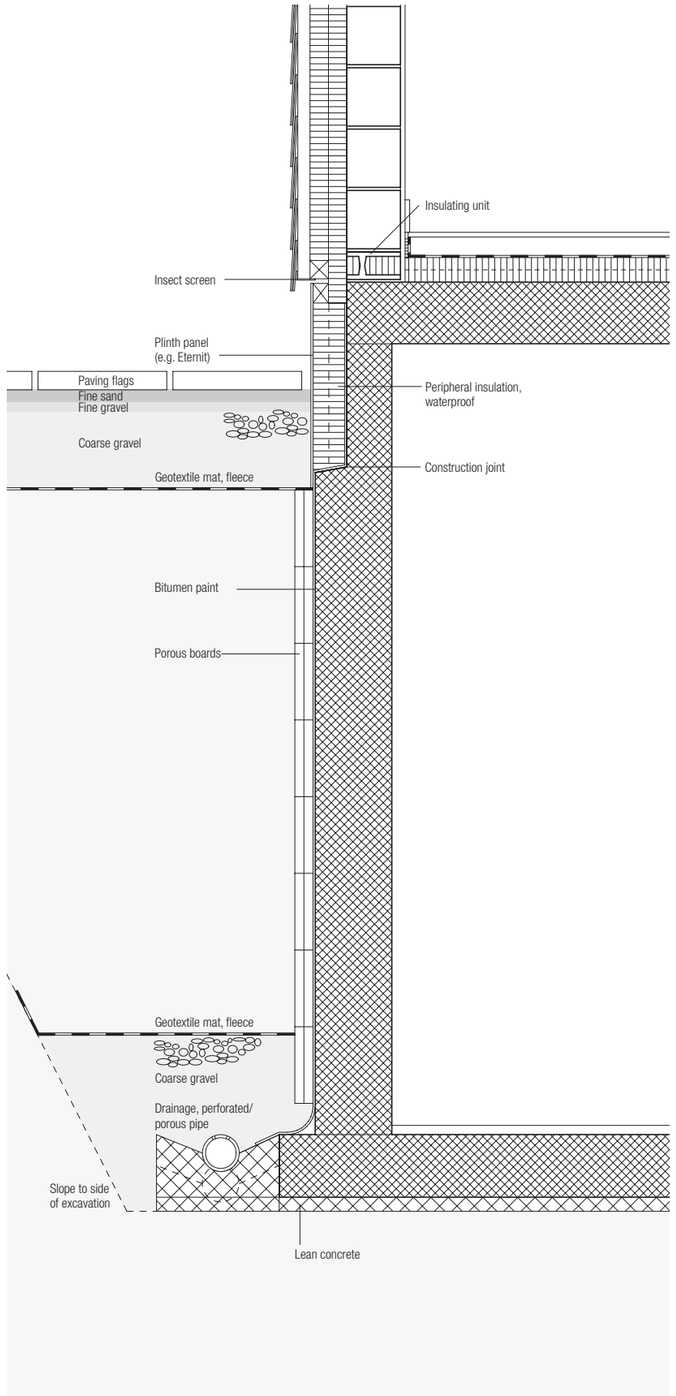
- Porous boards	60 mm
- Waterproofing (e.g. bitumen paint)	2 mm
- In situ concrete wall	240 mm
Total	*302 mm*

Floor construction, unheated basement

- Screed	30 mm
- Concrete ground slab	200 mm
- Lean concrete	50 mm
Total	*280 mm*

外保温：地下室（非采暖）- 木结构 - 外表皮

Plinth, external cladding, lightweight
1:20



Wall construction

- Cladding in medium and large format e.g. Eternit slates, rectangular double-lap arrangement, 300 x 600 mm	10 mm
- Ventilated cavity (40 x 70 mm vertical battens)	40 mm
- Thermal insulation, 2 layers each 60 mm, with 60 x 60 mm battens in both directions	120 mm
- Clay masonry, B, 29 x 17.5 x 19 cm	175 mm
- Plaster	15 mm
Total	*360 mm*

Floor construction

- Ready-to-lay parquet flooring	15 mm
- Screed	60 mm
- Separating layer (e.g. 1 mm plastic sheet)	
- Thermal insulation, vapourproof (e.g. expanded polystyrene)	80 mm
- Concrete slab over basement	200 mm
Total	*355 mm*

Wall construction, unheated basement

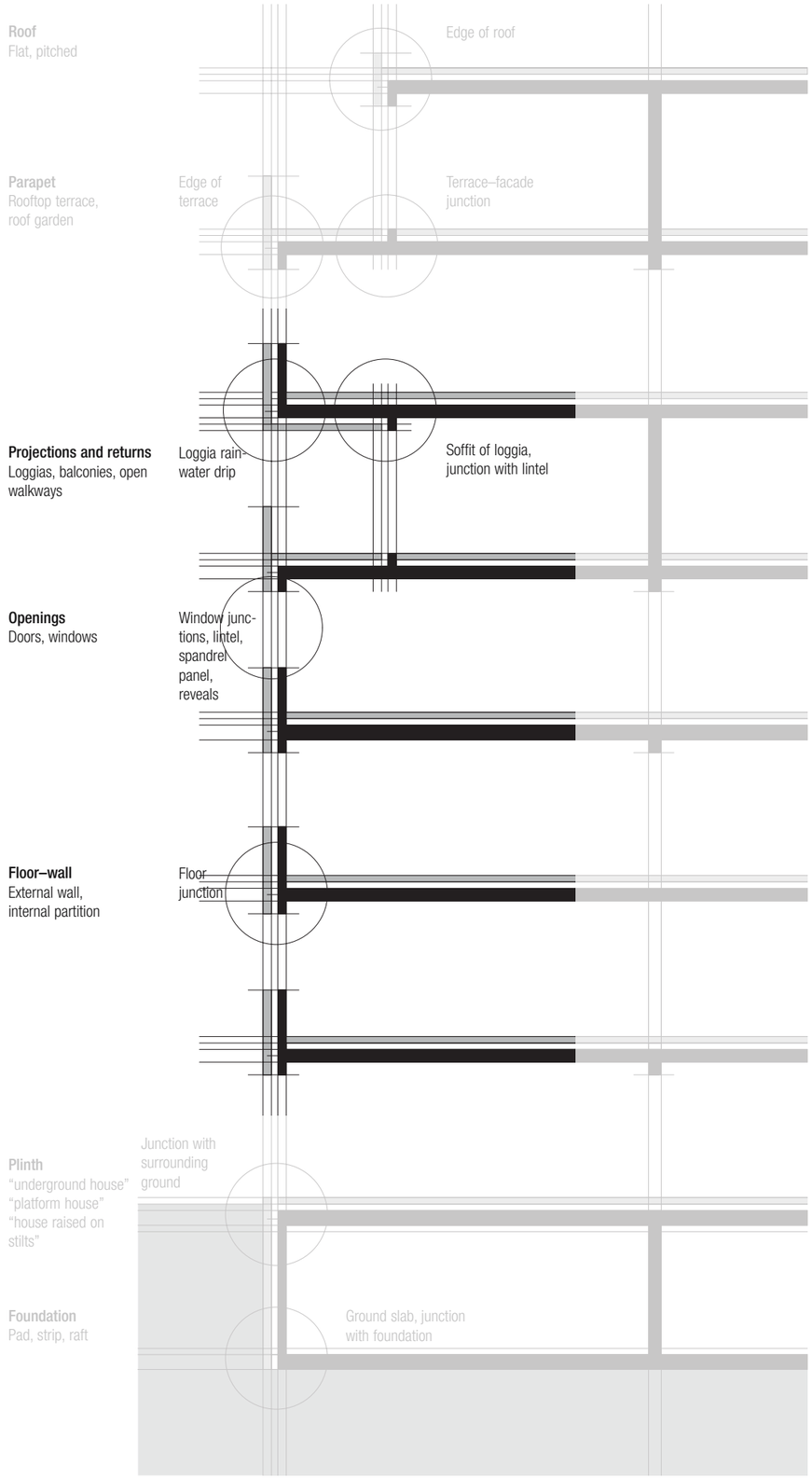
- Porous boards	60 mm
- Waterproofing (e.g. bitumen paint)	3 mm
- In situ concrete wall	260 mm
Total	*323 mm*

Floor construction, unheated basement

- Screed	30 mm
- Concrete ground slab, roughened	200 mm
- Lean concrete	50 mm
Total	*280 mm*

外保温：地下室（采暖）- 砌体结构 - 外表皮

外墙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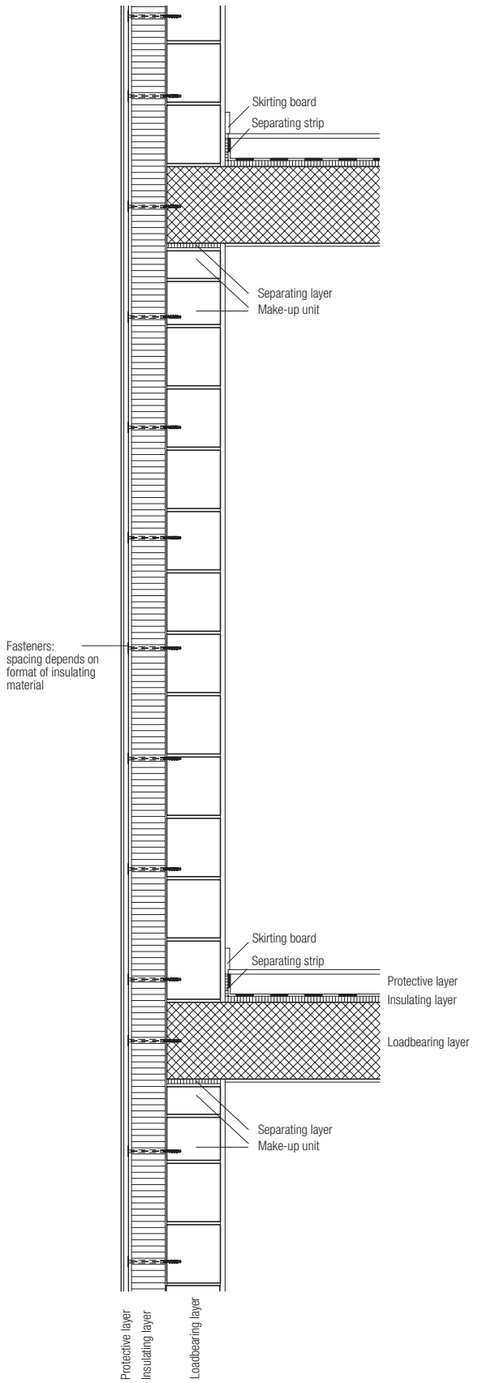
“platform house”
“house raised on
stilts”
Junction with
surrounding
ground
Foundation
Pad, strip, raft
Ground slab, junction
with foundation

External insulation, rendered
1:20



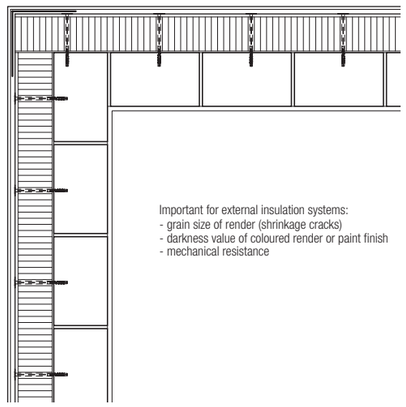
Wall construction

- e.g. Wancor-Therm K	
Mineral render finish coat (coloured or painted)	2 mm
- Bonding render	
(with glass mat inlay over entire surface)	4 mm
- Mineral render undercoat	20 mm
- Insulation board 5-110-10 (3-layer board),	
fixed with plastic fasteners	125 mm
- Clay masonry, B, 29 x 17.5 x 19 cm	175 mm
- Plaster	15 mm
Total	*341 mm*

Floor construction

- Magnesite flooring (seamless)	15 mm
- Screed	65 mm
- Separating layer (e.g. 1 mm plastic sheet)	
- Impact sound insulation	20 mm
- Concrete slab	200 mm
- Plaster to soffit	10 mm
Total	*310 mm*

Mesh embedded
to protect corner

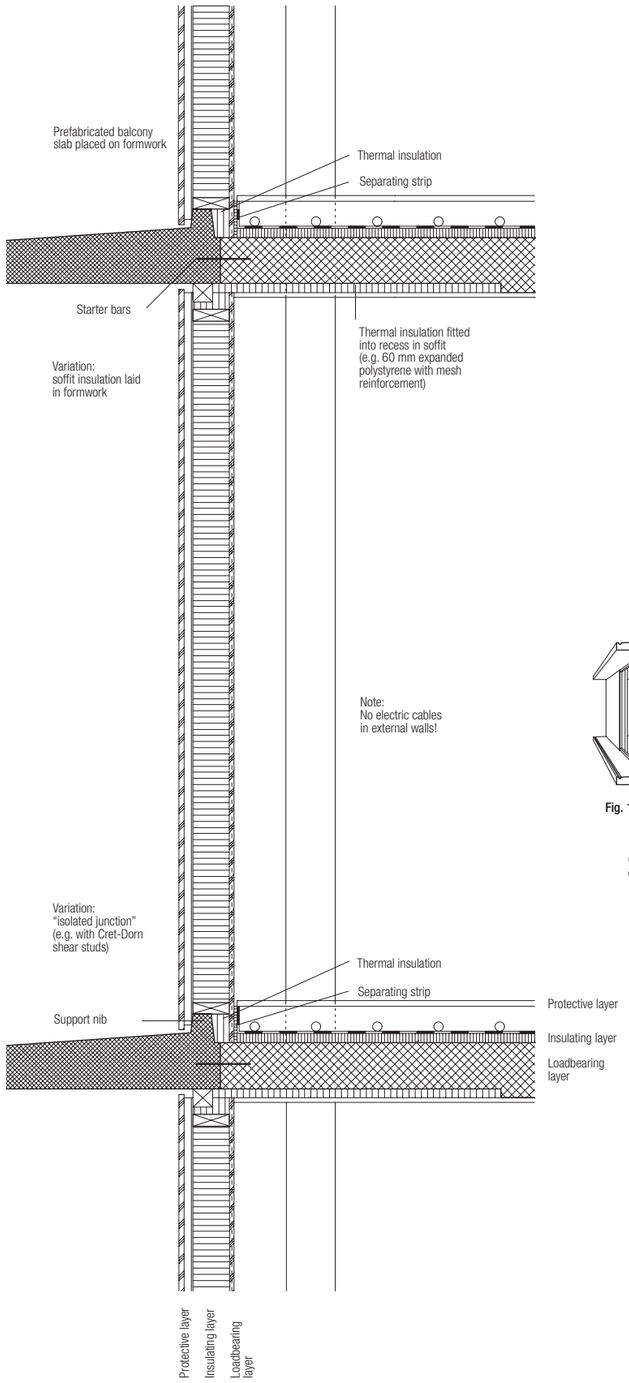


Section

Plan

外保温：外灰泥粉刷 - 内砌体

Non-loadbearing external wall
1:20



Wall construction (timber box-frame construction)

- Wood-cement particleboard	
(e.g. Duripanel, for painting)	20 mm
- Ventilated cavity	25 mm
- Hardboard	8 mm
- Thermal insulation (cellulose wool,	
e.g. Isofloc)	120 mm
- Plywood (vapour check)	15 mm
Total	*188 mm*

Floor construction

- Ready-to-lay parquet flooring	20 mm
- Screed (with underfloor heating)	80 mm
- Separating layer (e.g. 1 mm plastic sheet)	
- Impact sound insulation	30 mm
- Concrete slab	180 mm
- Thermal insulation (e.g. expanded polystyrene)	30 mm
- Plaster to soffit	10 mm
Total	*350 mm*

Example:
Morger & Degelo: Müllheimer-Strasse residential development, Basel (CH), 1993

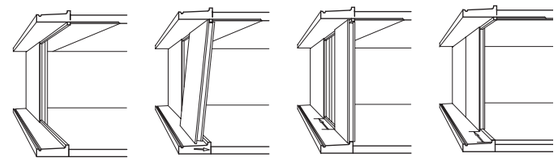
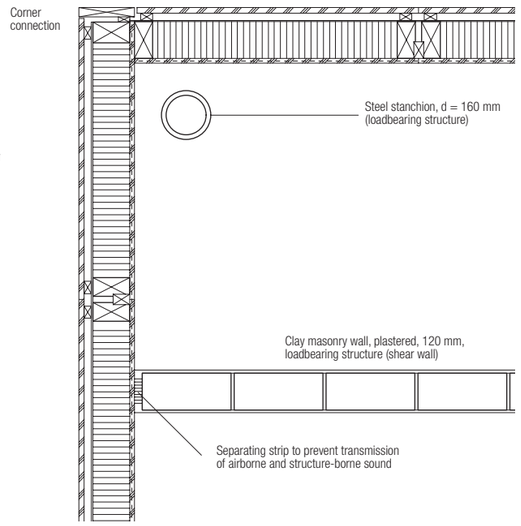


Fig. 1: Erection and fixing of a facade element

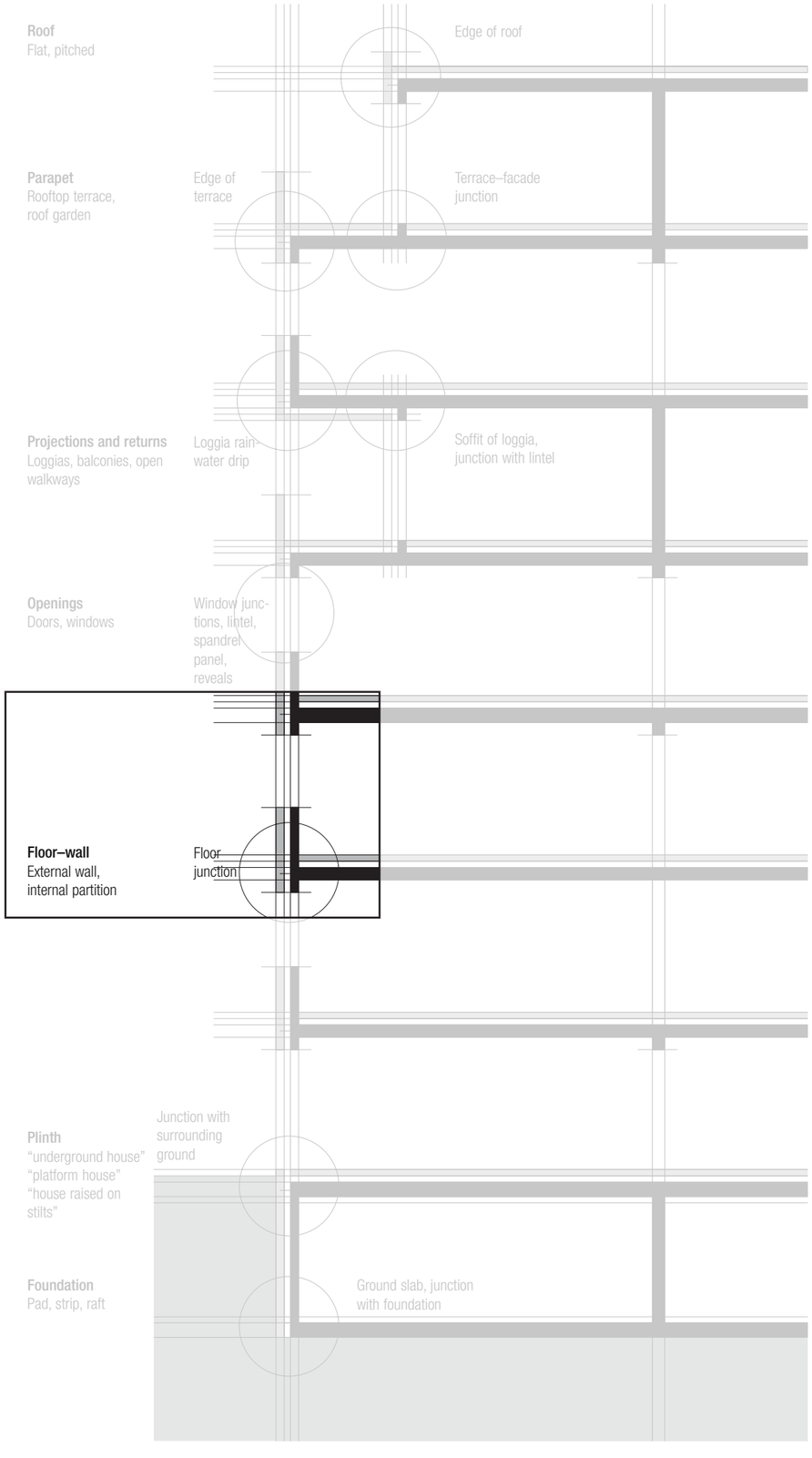


Section

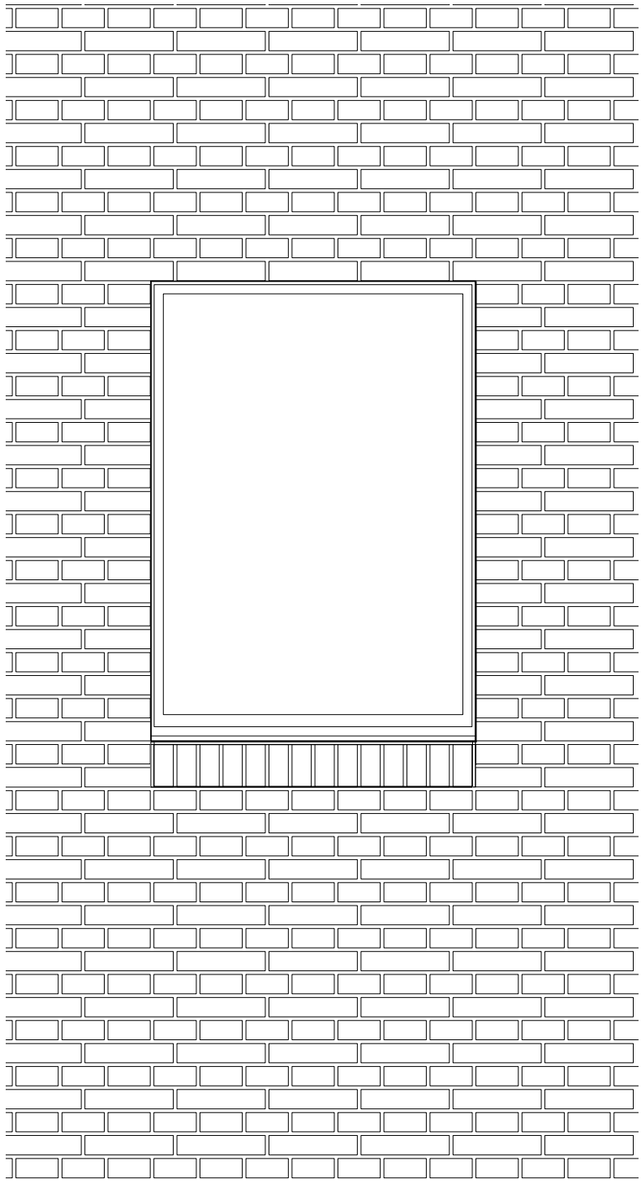
Plan

外保温：外轻质饰面 - 内饰面板 - 非承重墙体
（水平遮阳 局部水平保温 ）

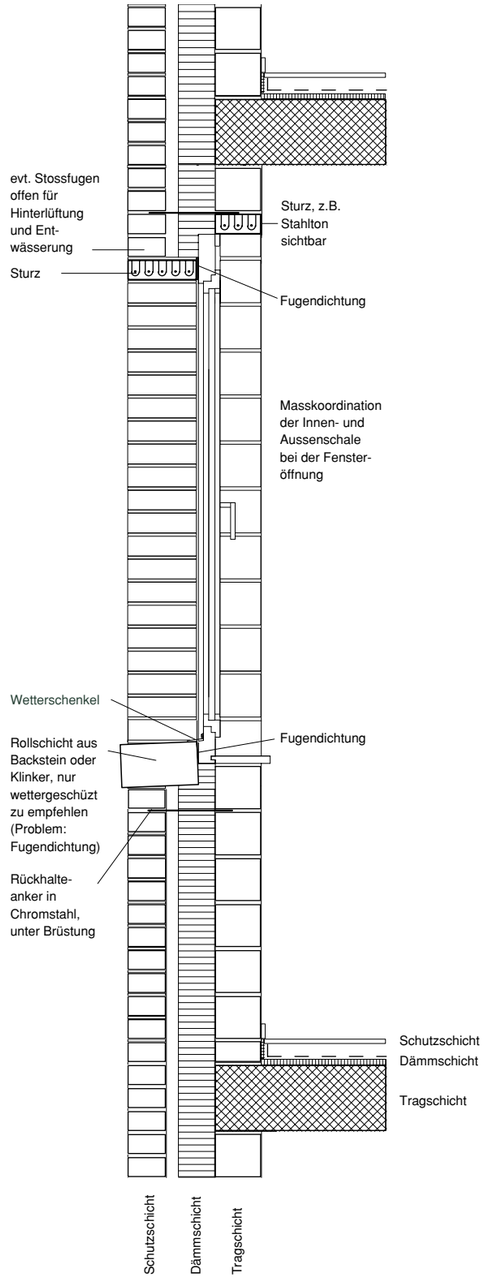
门窗

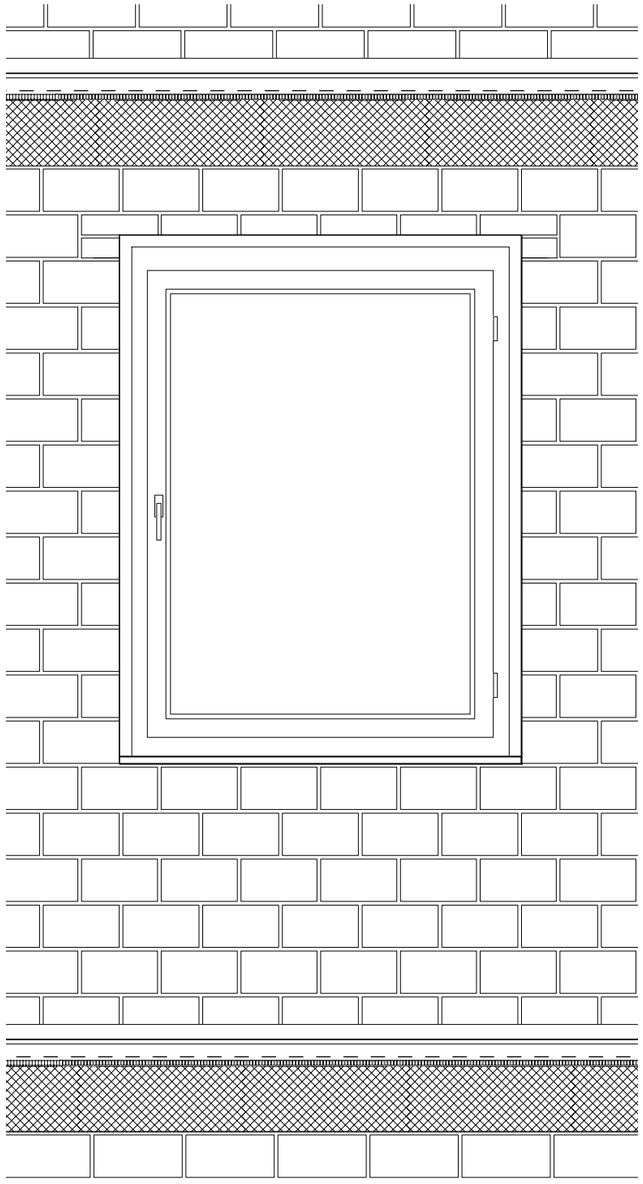

Roof
Flat, pitched
Edge of roof
Parapet
Rooftop terrace, roof garden
Edge of terrace
Terrace–facade junction
Projections and returns
Loggias, balconies, open walkways
Loggia rain-water drip
Soffit of loggia, junction with lintel
Openings
Doors, windows
Window junc-tions, lintel, spandrel panel, reveals
Floor–wall
External wall, internal partition
Floor junction
Plinth
“underground house”
“platform house”
“house raised on stilts”
Junction with surrounding ground
Foundation
Pad, strip, raft
Ground slab, junction with foundation

Öffnung Sichtmauerwerk



Aussenansicht

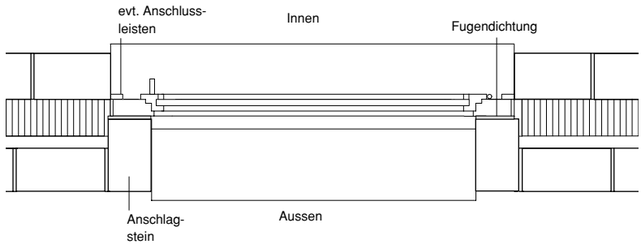


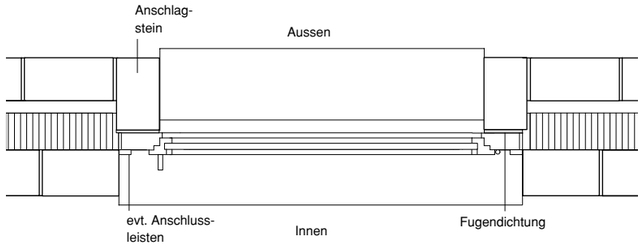


Innenansicht

Wandaufbau

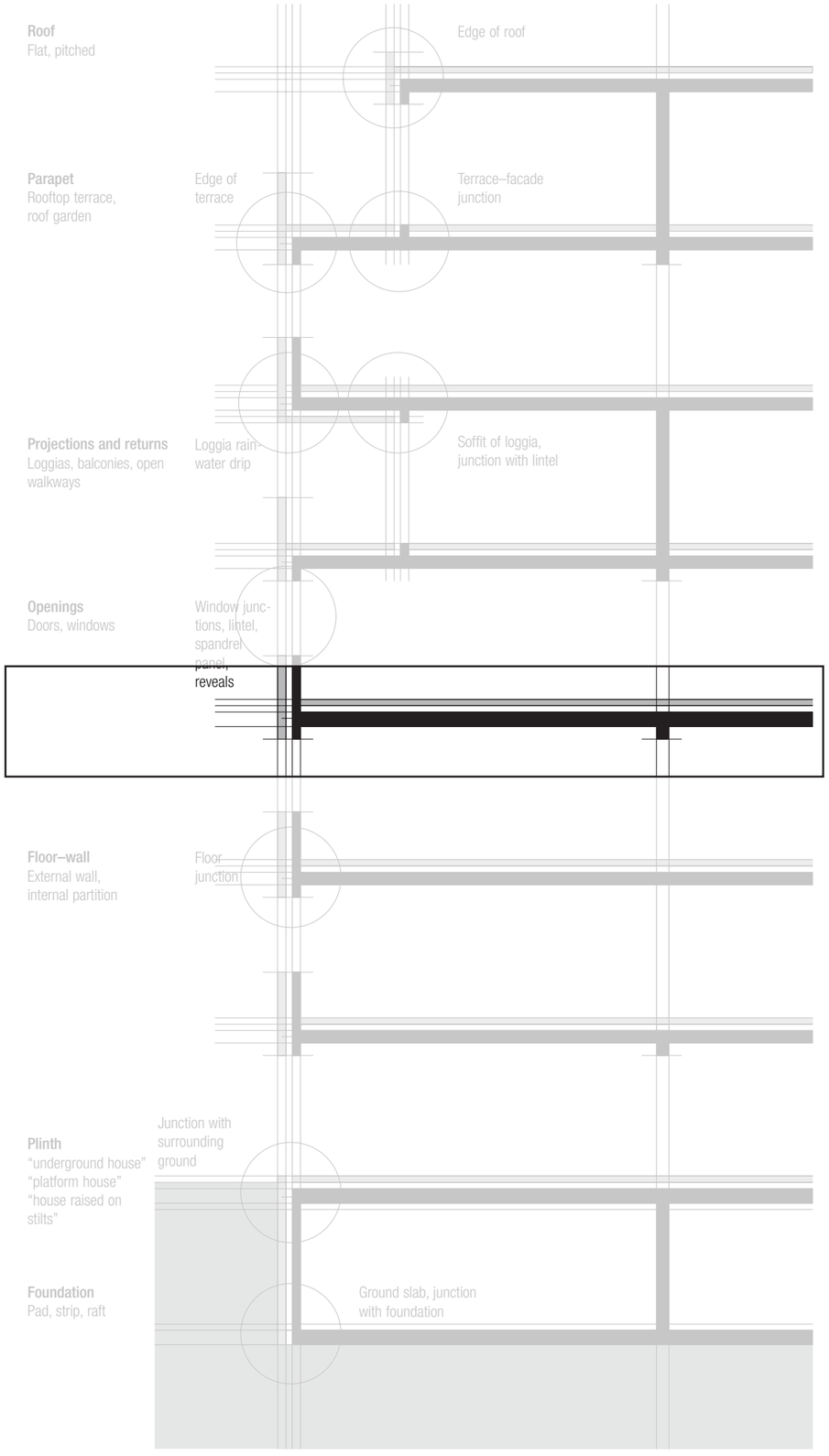
Backsteinmauerwerk BS 29/14/6.5	140 mm
(Varianten: div. Sichtsteinmodule, präfabrizierte Betonsteine oder -elemente etc.)	
Hinterlüftung mindestens	40 mm
Wärmedämmung (z.B. Steinwolle)	120 mm
Backsteinmauerwerk BS 25/15/14	150 mm
Total	450 mm



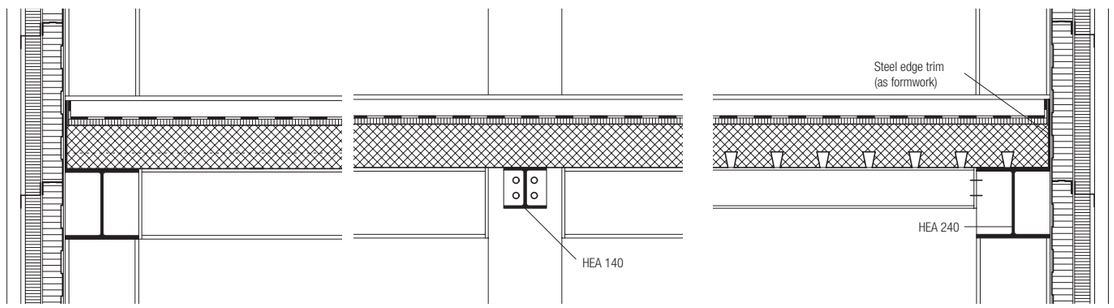


双层砌体 - 门窗（居中）

楼板


Roof
Flat, pitched
Edge of roof
Parapet
Rooftop terrace,
roof garden
Edge of
terrace
Terrace–facade
junction
Projections and returns
Loggias, balconies, open
walkways
Loggia rain-
water drip
Soffit of loggia,
junction with lintel
Openings
Doors, windows
Window junc-
tions, lintel,
spandrel
panel,
reveals
Floor–wall
External wall,
internal partition
Floor
junction
Plinth
“underground house”
“platform house”
“house raised on
stilts”
Junction with
surrounding
ground
Foundation
Pad, strip, raft
Ground slab, junction
with foundation

Composite slab, profiled metal sheeting–concrete
1:20



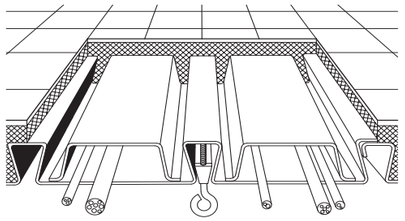
Wall construction

External cladding, with ventilated cavity

- Corrugated metal sheeting, galvanised	varies
Ventilated cavity (vertical sheeting)	>40 mm
- Thermal insulation	50 mm
- Thermal insulation in sheet steel trays (galvanised)	80 mm
- Steel colums, steel beams	varies

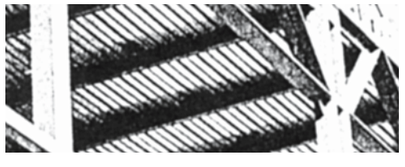
Floor construction

- Floor covering, e.g. magnesite	10 mm
- Screed	60 mm
- Separating layer (e.g. 1 mm plastic sheet)	
- Impact sound insulation	20 mm
- Reinforced concrete topping	130–180 mm
- Profiled metal sheeting	
- Steel primary/secondary beams (e.g. HEA or HEB sections)	varies



Holorib® metal sheeting

Trapezoidal metal sheeting



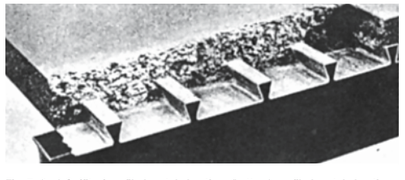


Fig. 7: (top) Soffit of profiled metal sheeting; (bottom) profiled metal sheeting with concrete topping

Structure
- 1-way span
- Profiled metal sheeting, reinforced concrete topping
- Relatively good fire resistance
- Provides ducting for services
- Span in direction of profiling without supporting construction (primary/secondary beams): up to 6 m
- Structural depth: 13–22 cm; concrete topping: 8–20 cm

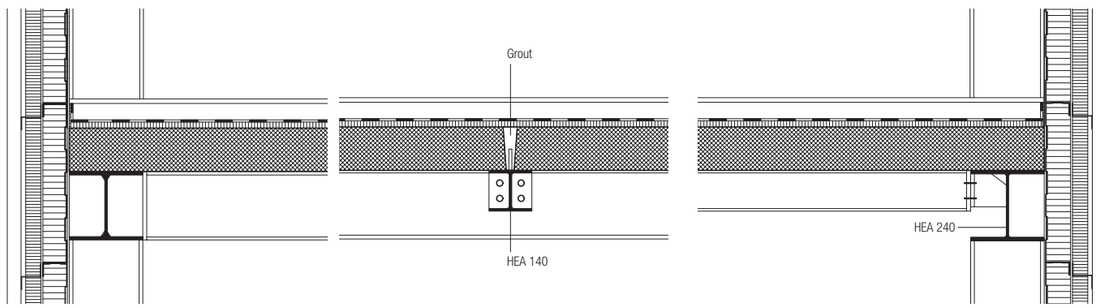
Features
- Little propping needed
- Reduces the work on site

Formwork
- No formwork or main reinforcement
- Low handling weight

Sound
- Good airborne and impact sound insulation
- Beware of flanking transmissions!

钢支模混凝土楼板 - 钢梁 - 钢柱

Steel floor
1:20



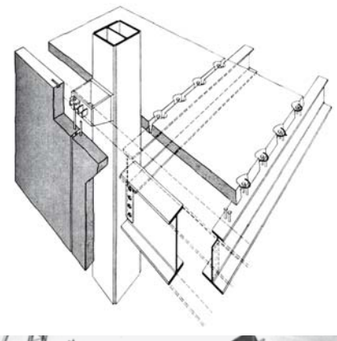
Wall construction

External cladding, with ventilated cavity

- Corrugated metal sheeting, galvanised	varies
- Ventilated cavity (vertical sheeting)	> 40 mm
- Thermal insulation	50 mm
- Thermal insulation in sheet steel trays (galvanised)	80 mm
- Steel colums, steel beams	varies

Floor construction

- Floor covering, e.g. magnesite	10 mm
- Screed	60 mm
- Separating layer (e.g. 1 mm plastic sheet)	
- Impact sound insulation	20 mm
- Concrete	150–300 mm
- Steel primary/secondary beams (e.g. HEA or HEB sections)	varies



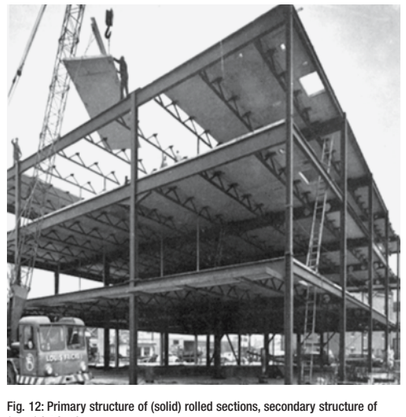


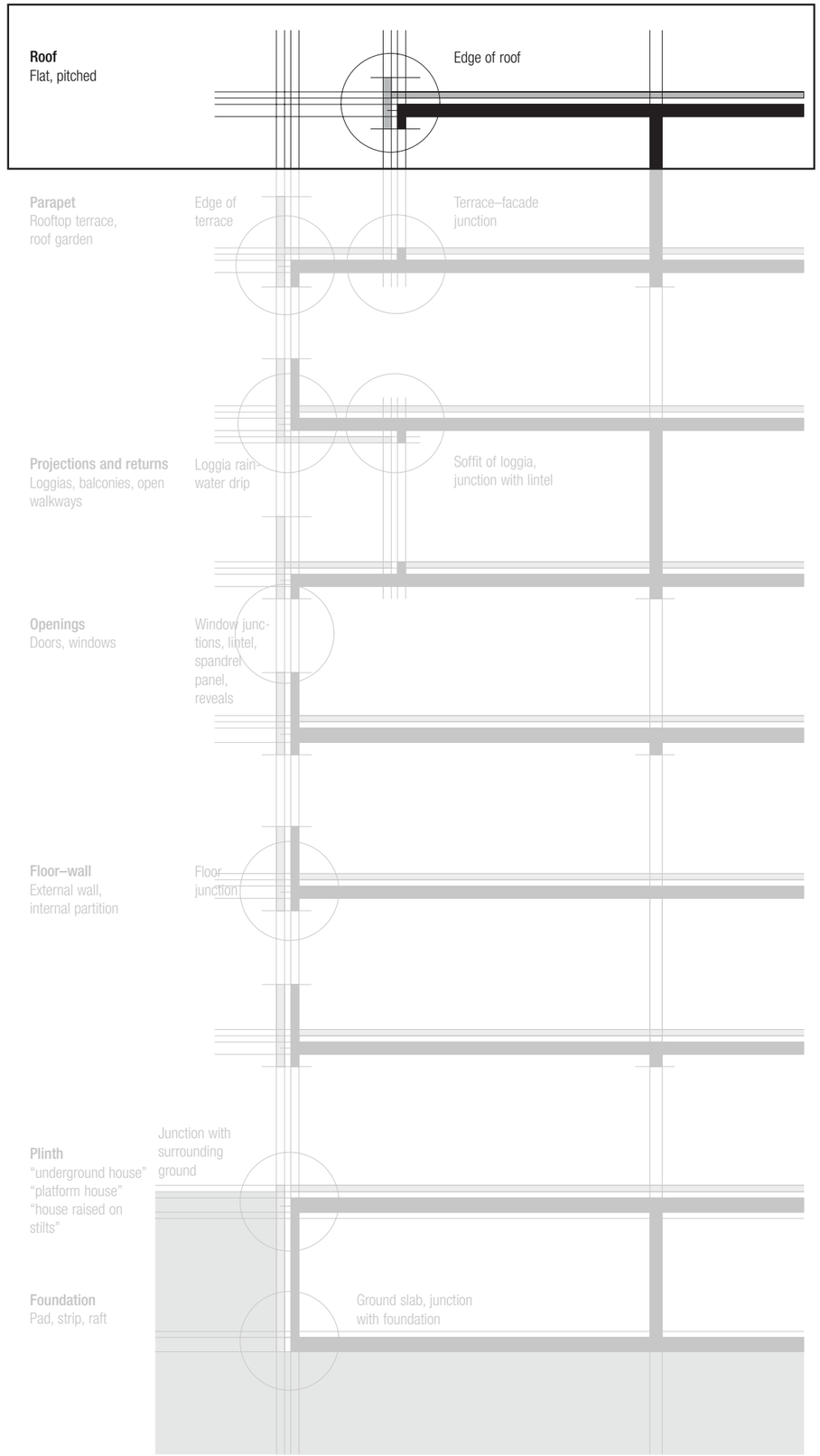
Fig. 12: Primary structure of (solid) rolled sections, secondary structure of (open) lattice beams

Structure
- 1-way span
- Modularity (for standard plate widths)
- Prefabrication
- Services can be routed along steel beams
- Low weight
- Steel beams limit fire resistance
- Spans of up to 6 m

Features
- Dry construction
- No formwork and no propping
- Fast assembly

混凝土梁板 - 钢梁 - 钢柱

屋顶


Roof
Flat, pitched
Edge of roof
Parapet
Rooftop terrace, roof garden
Edge of terrace
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External wall, internal partition
Floor junction
Plinth
“underground house”
“platform house”
“house raised on stilts”
Junction with surrounding ground
Foundation
Pad, strip, raft
Ground slab, junction with foundation

Flat roof – warm deck

Plastics – external cladding, heavyweight

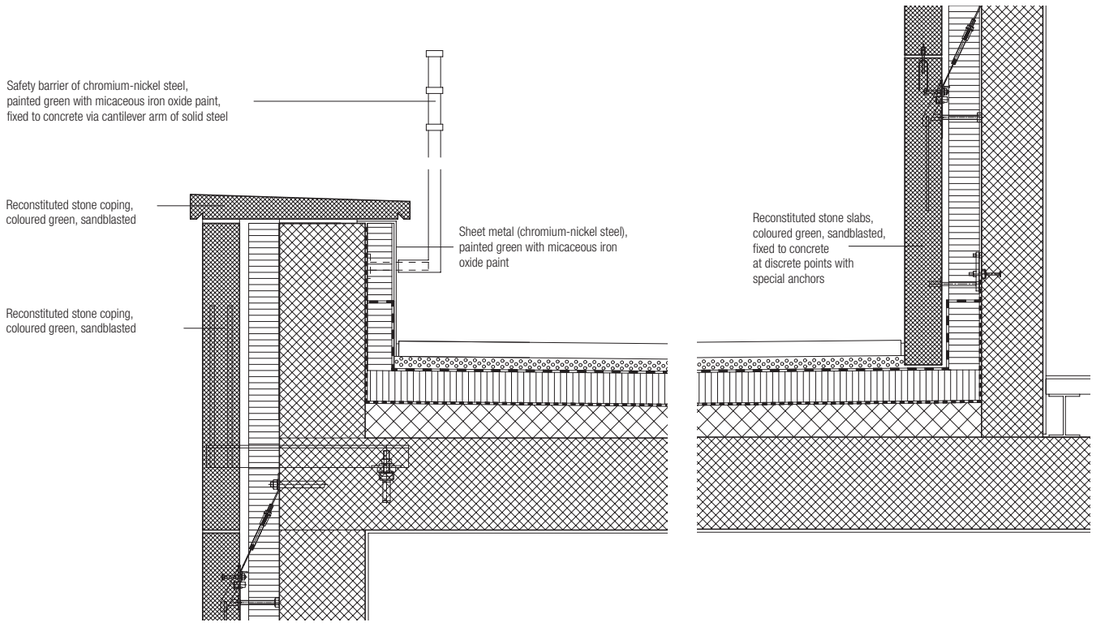


Fig. 7: Diener & Diener: Warteckhof mixed residential and commercial development, Basel (CH), 1996

Roof construction

- Concrete flags	50 mm
- Gravel	40 mm
- Synthetic roofing felt	
- Thermal insulation	100 mm
- Vapour barrier	
- Screed laid to falls	20–80 mm
- Concrete slab	300 mm
- Plaster	5–10 mm
Total	*515–580 mm*

Wall construction

- Reconstituted stone slabs, coloured green, sandblasted	120 mm
- Cavity (construction tolerance)	30 mm
- Thermal insulation	100 mm
- Concrete wall	200 mm
- Plaster	10 mm
Total	*460 mm*

上人平屋顶 - 外保温（女儿墙）

Flat roof – upside-down roof

Bitumen – external insulation, rendered

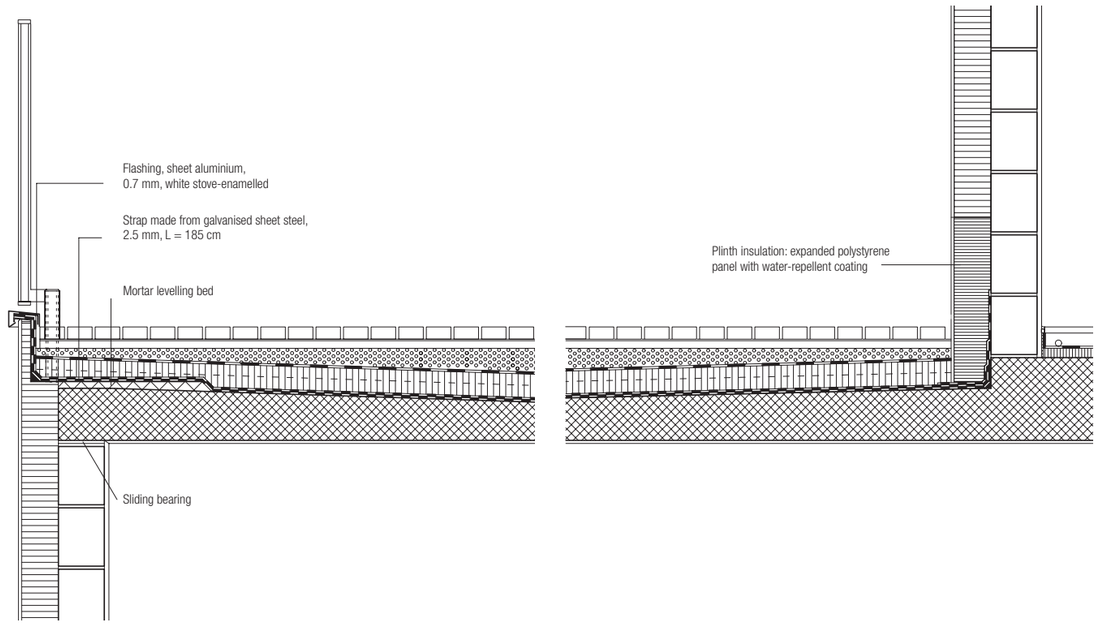


Fig. 9: Oliver Schwarz architectural practice: Peter apartment block, Rüschlikon (CH), 1997

Roof construction

- Okoume battens	40 mm
- Okoume supporting battens	30 mm
- Fine chippings, bonded	40–90 mm
- Protective fleece	
- Thermal insulation, expanded polystyrene	80 mm
- Calendered polymeric roofing, 2 layers	
- Concrete slab laid to falls	120–170 mm
- Plaster	5–10 mm
Total	*315–420 mm*

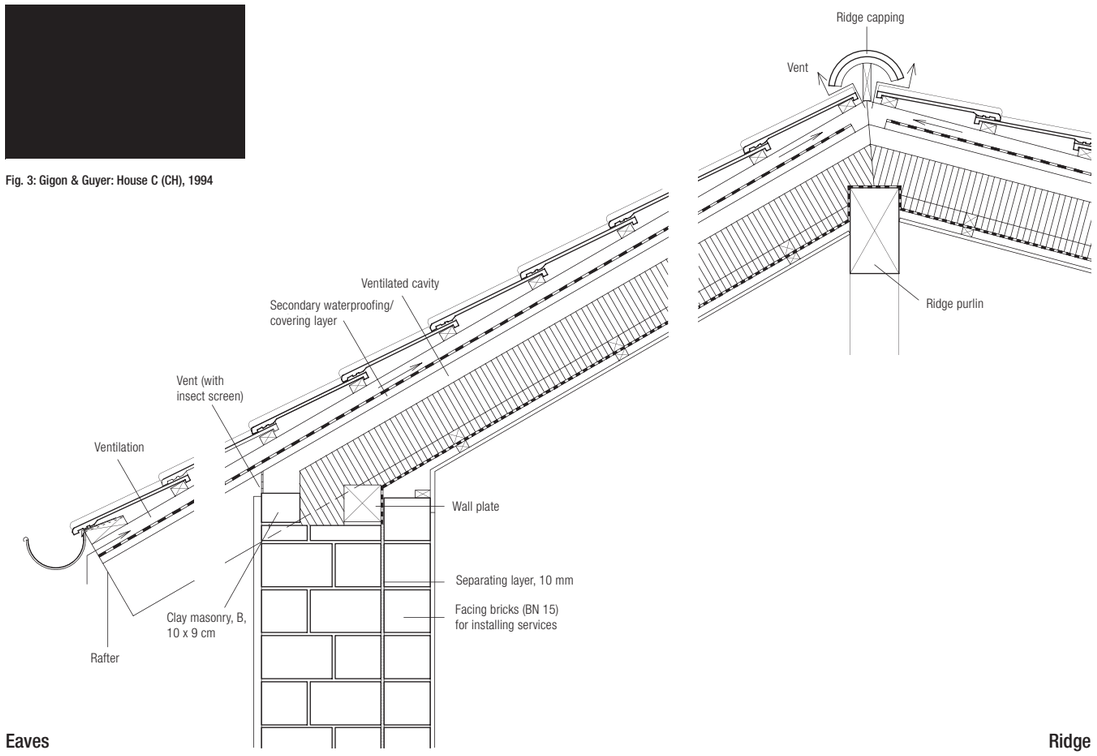
Wall construction

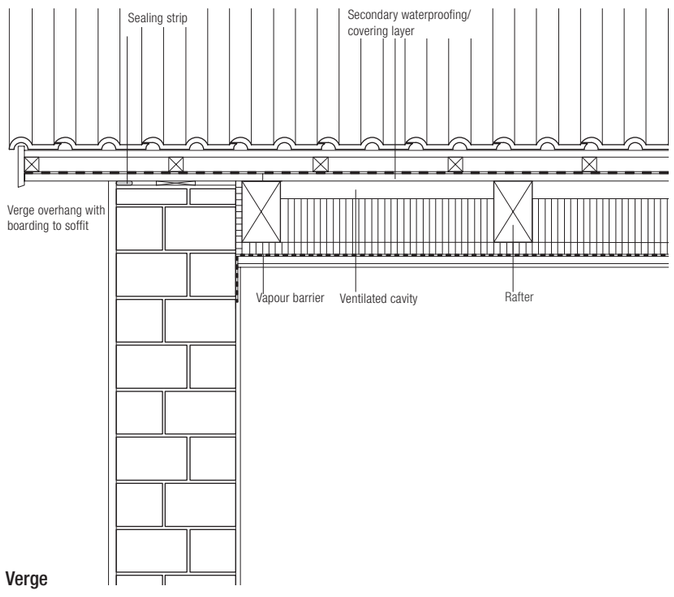
- Render (depends on system)	5 mm
- External insulation, extruded polystyrene	120 mm
- Clay masonry	150 mm
- Plaster	15 mm
Total	*290 mm*

上人平屋顶 - 外保温（无女儿墙）

Pitched roof – cold deck
Roof tiles – masonry in brickwork bond

Fig. 3: Gigon & Guyer: House C (CH), 1994





Roof construction

- Concrete interlocking tiles	approx. 70 mm
- Tiling battens, 30 x 50 mm	30 mm
- Counter battens, 45 x 50 mm	45 mm
- Seamless secondary waterproofing/ covering layer on roof decking	22 mm
- Ventilated cavity	60 mm
- Thermal insulation, rockwool	140 mm
- Thermal insulation, rockwool	40 mm
- Vapour barrier	
- Battens, 24 x 48	24 mm
- Lining (plasterboard)	12.5 mm
Total	*approx. 440 mm*

Wall construction

- Render	25 mm
- Masonry in brickwork bond, Optitherm 15 and 23	390 mm
- Plaster	15 mm
Total	*430 mm*

斜屋顶 - 木屋架

Pitched roof – cold deck
Sheet metal – single-leaf masonry

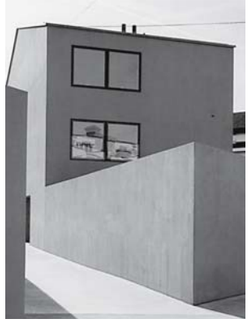
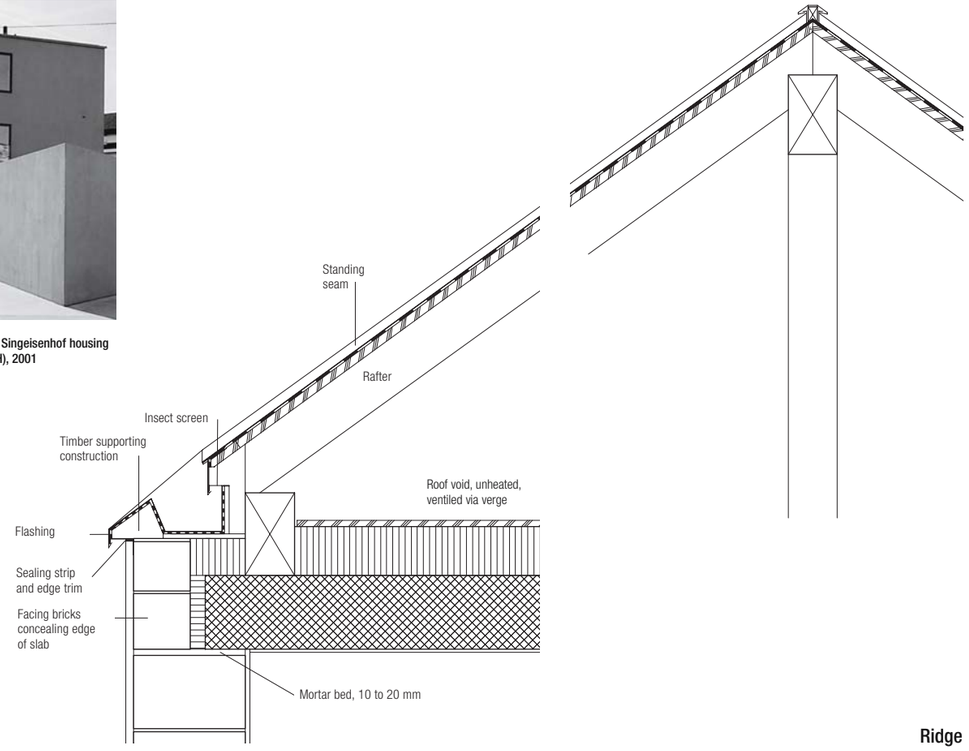
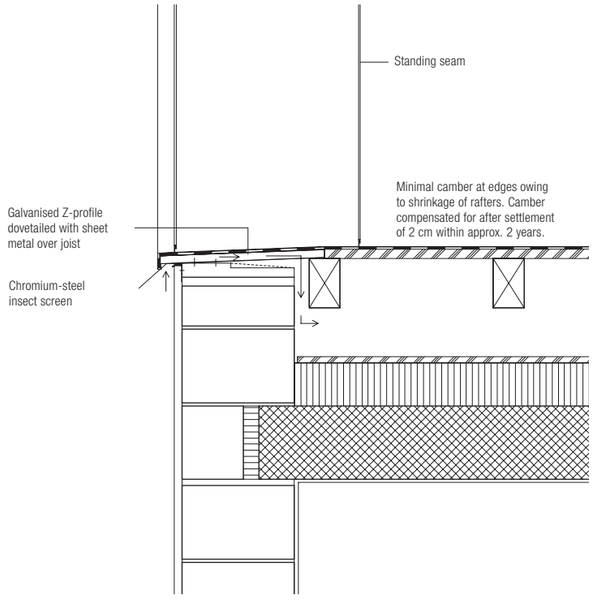


Fig. 4: Morger & Degelo: Singeisenhof housing development, Riehen (CH), 2001





Roof construction (cold deck)

- Sheet copper, in bays with standing seams	0.6 mm
- Secondary waterproofing/covering layer, F3 film	
- Roof decking	27 mm
- Rafters, 100 x 160 mm	160 mm
Total	*188 mm*

Floor construction (insulated)

- Chipboard	20 mm
- Insulation, rockwool	160 mm
- Concrete slab	240 mm
- Plaster	10 mm
Total	*430 mm*

Wall construction

- Render	25 mm
- Single-leaf masonry, ThermoCellit	365 mm
- Plaster	15 mm
Total	*405 mm*

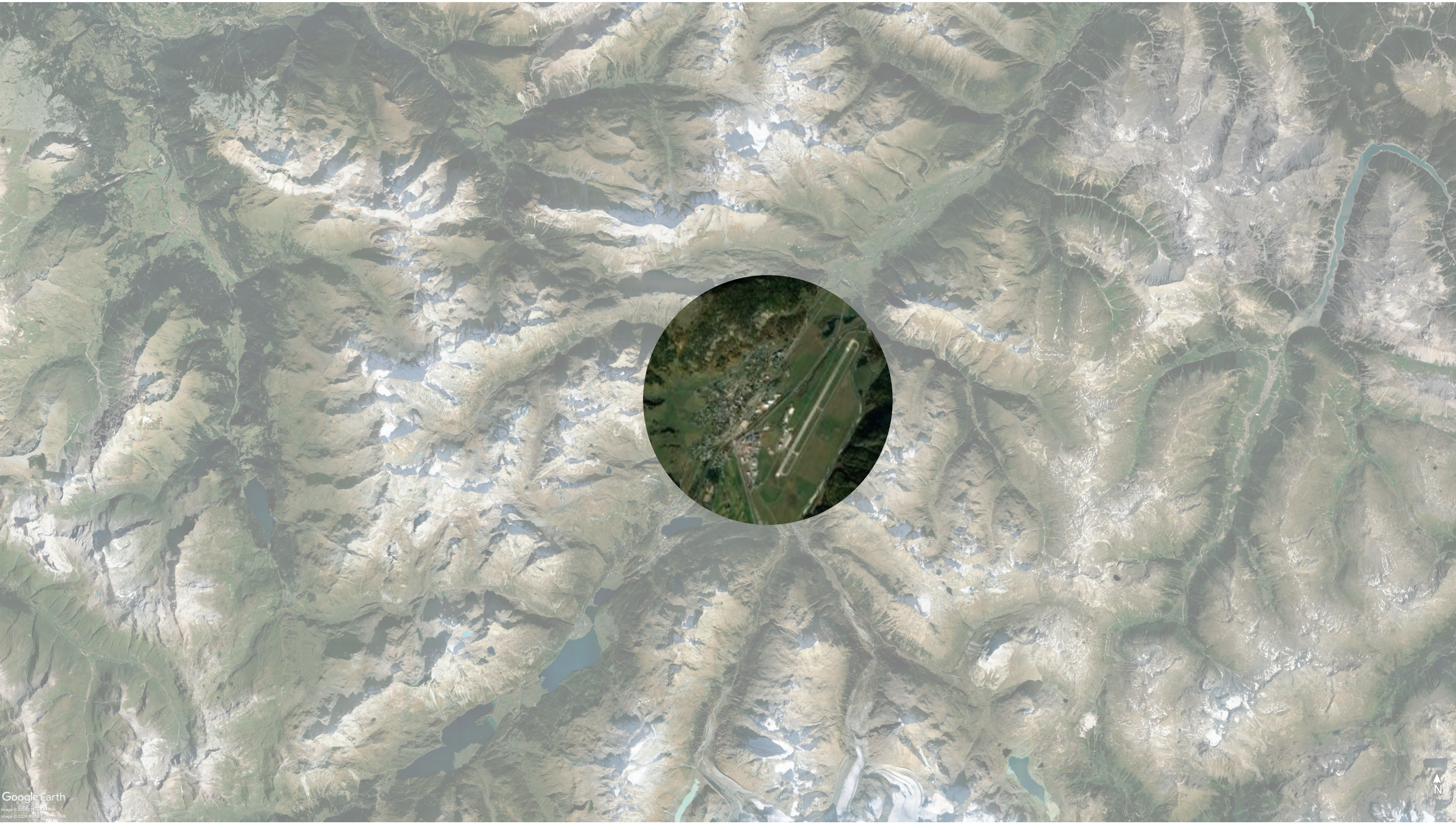
外斜屋顶 - 外木屋架 - 内平天花 - 内混凝土平屋面

整体解决方案

瑞士萨梅丹旅游管理学院

改造项目

2019 - 2021



Samedan, Engadin, Switzerland


Google Earth
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Google Earth
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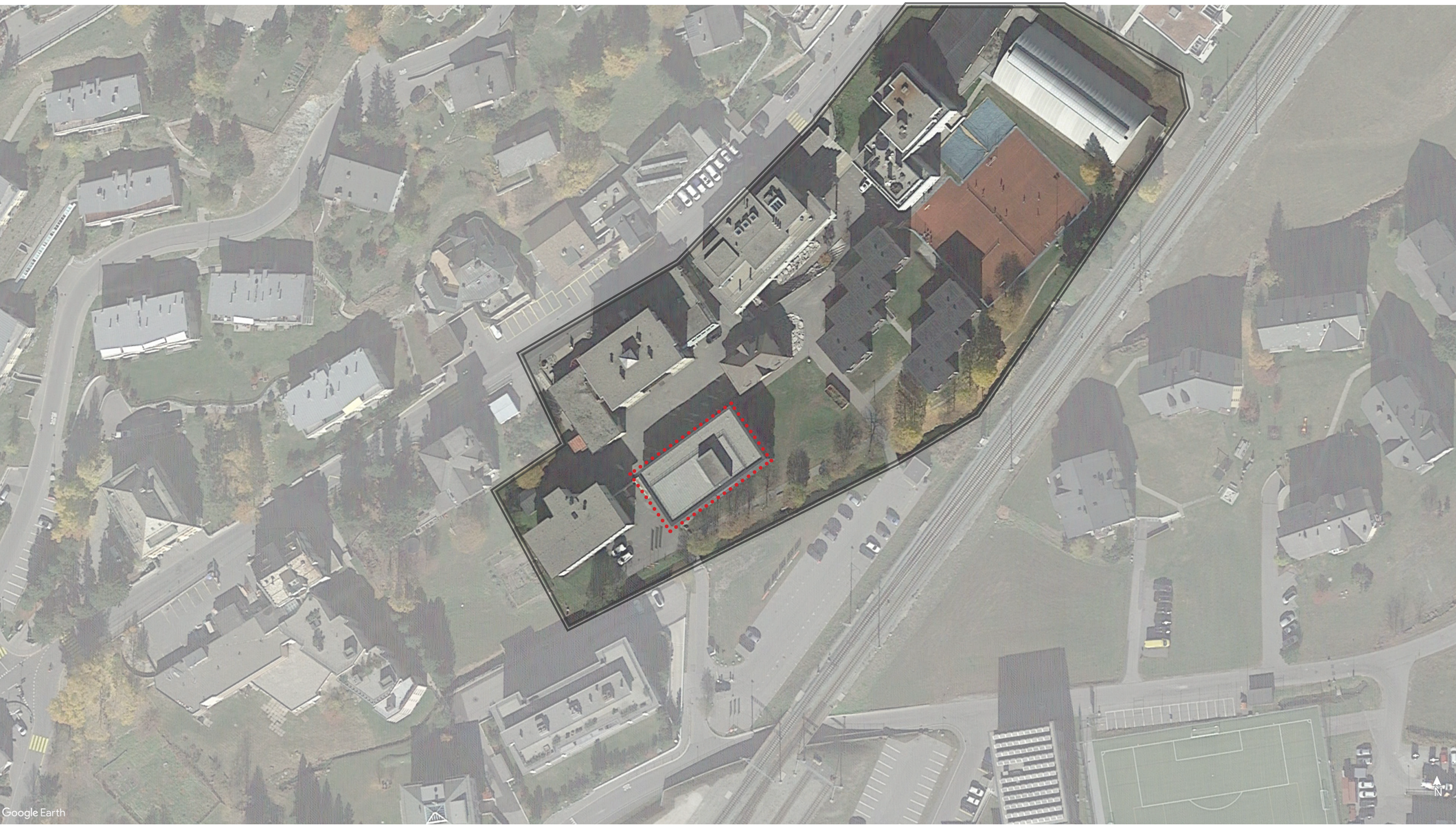
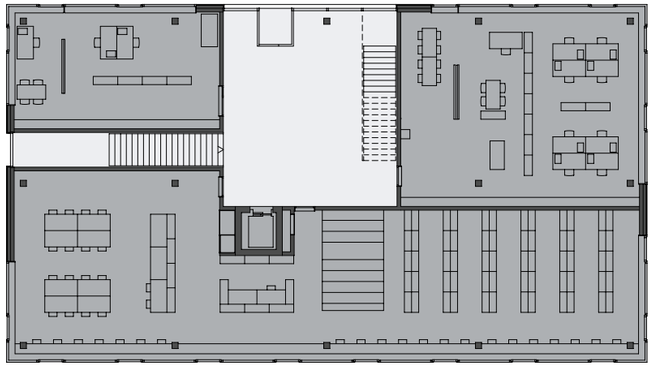
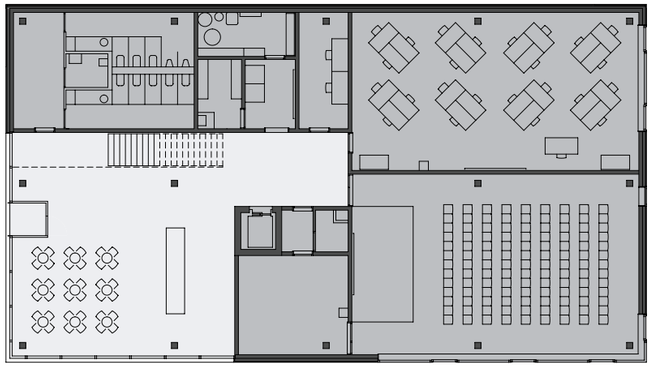

Google Earth

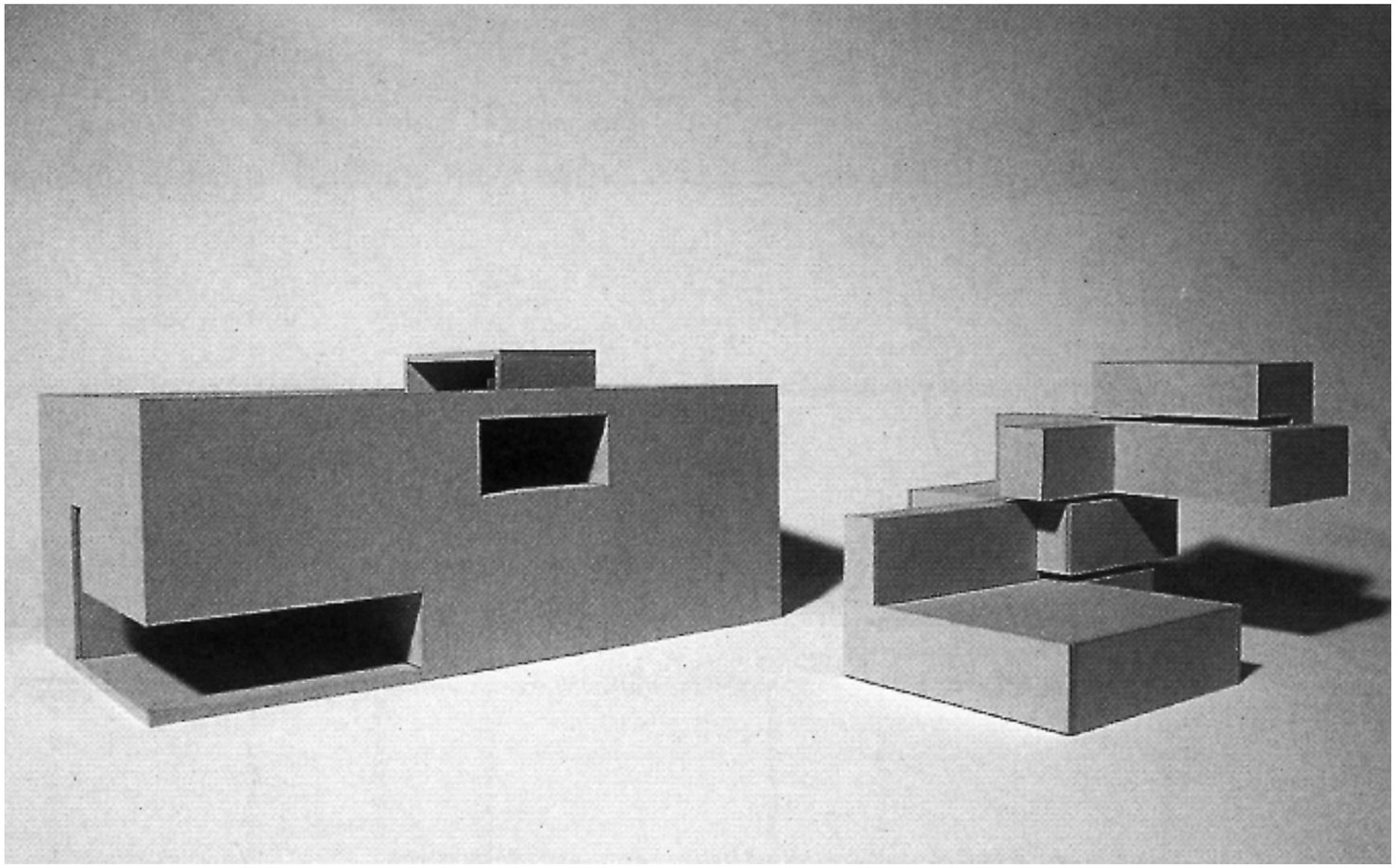
2. Obergeschoss



1. Obergeschoss



Erdgeschoss

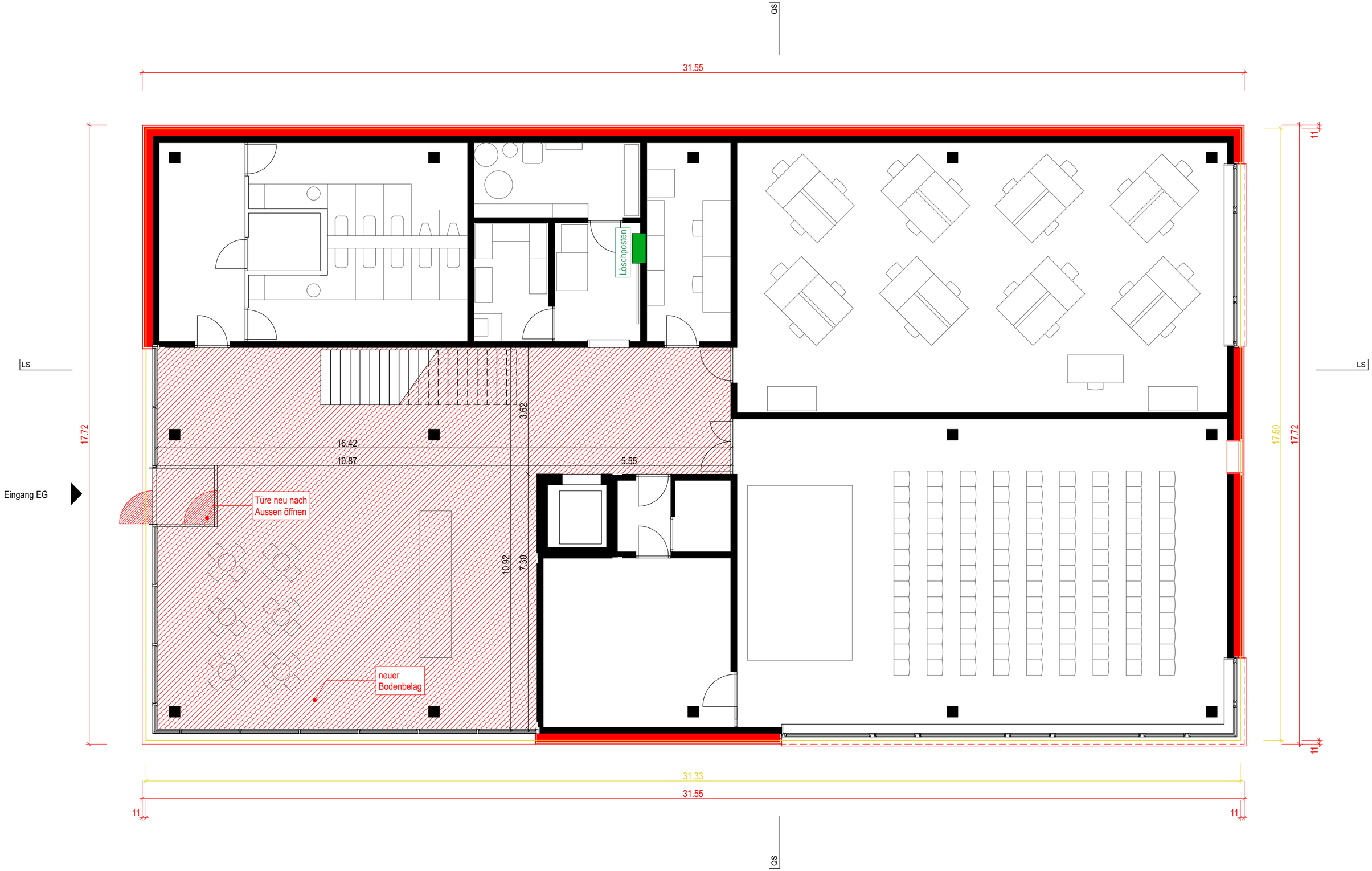


Samedan旅游学院 「黑房子」

1991

Samedan旅游学院 「黑房子」

2019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10.87
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Aussen öffnen
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7.30
neuer
Bodenbelag
31.33
31.55
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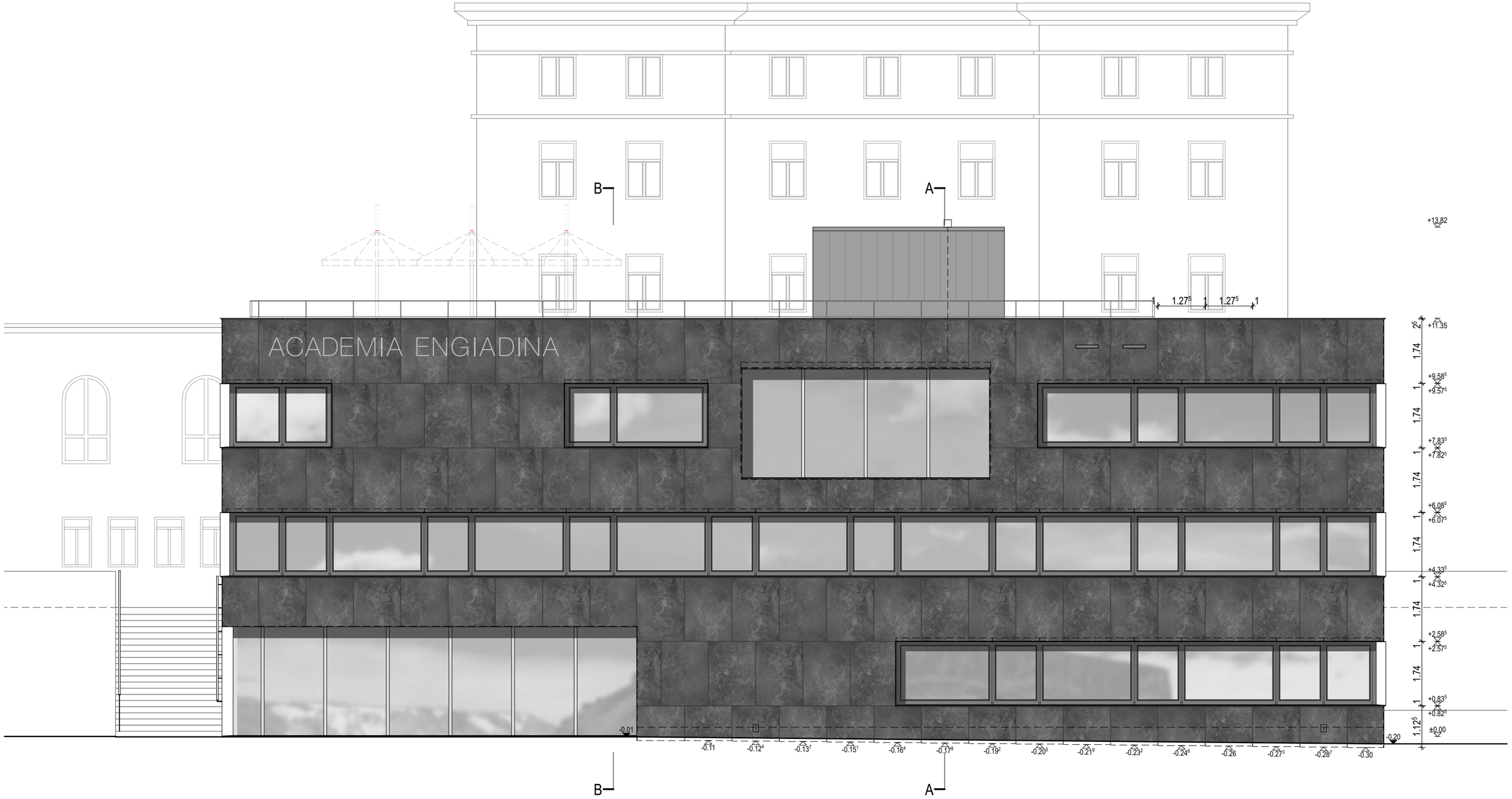
QS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-0.20
-0.11
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-0.13⁷
-0.15¹
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-0.17⁸
-0.19²
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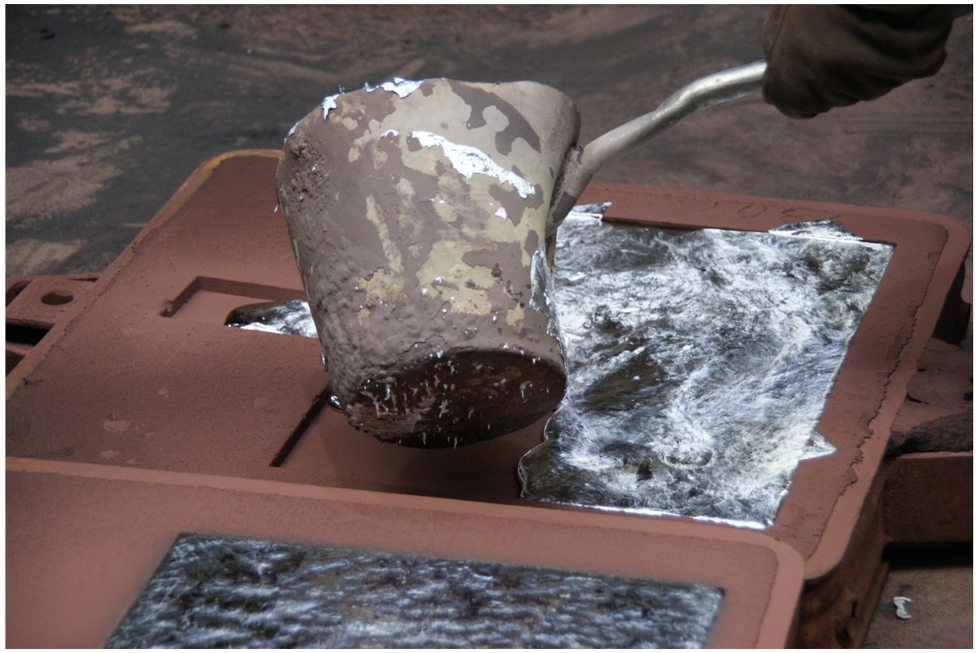

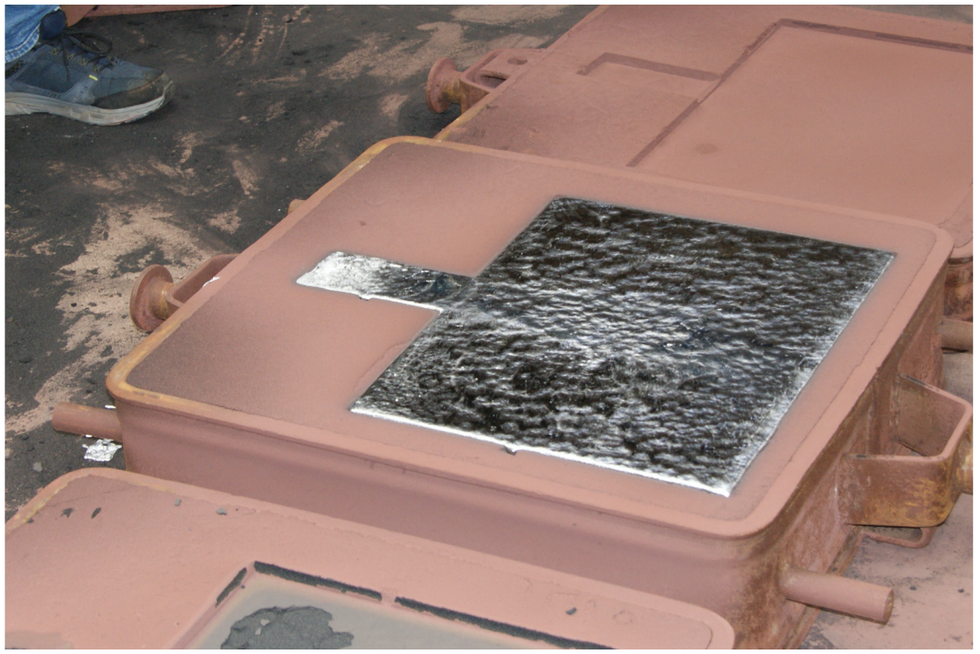

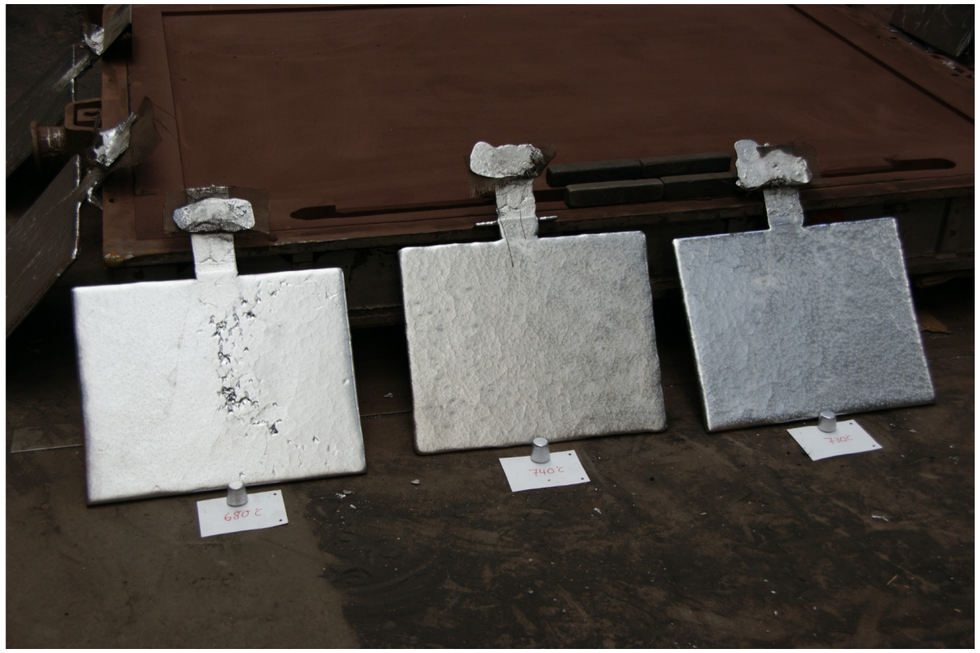
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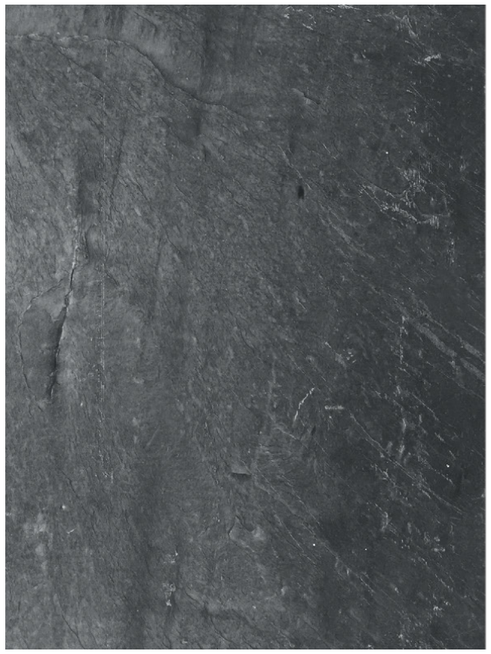
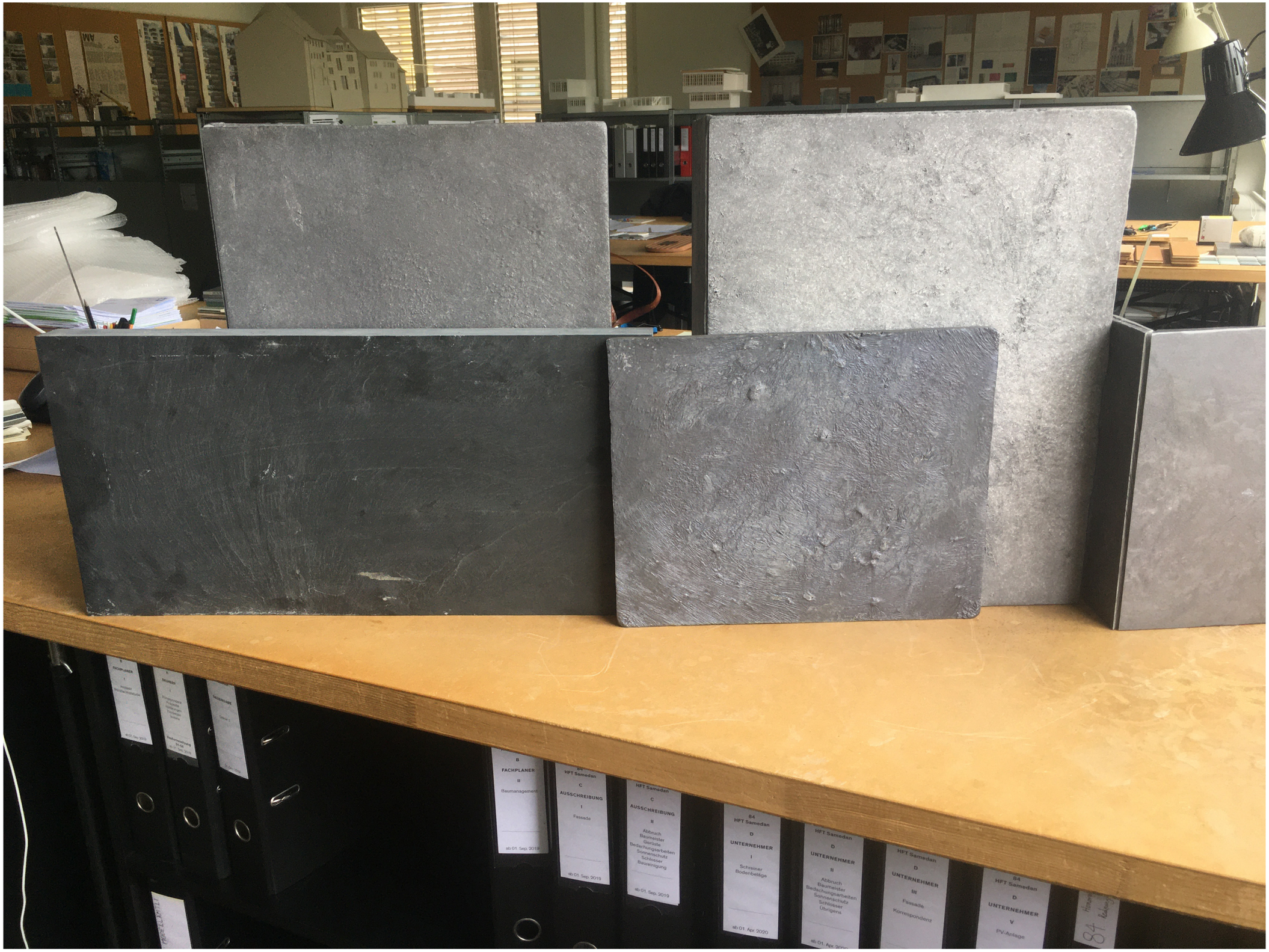
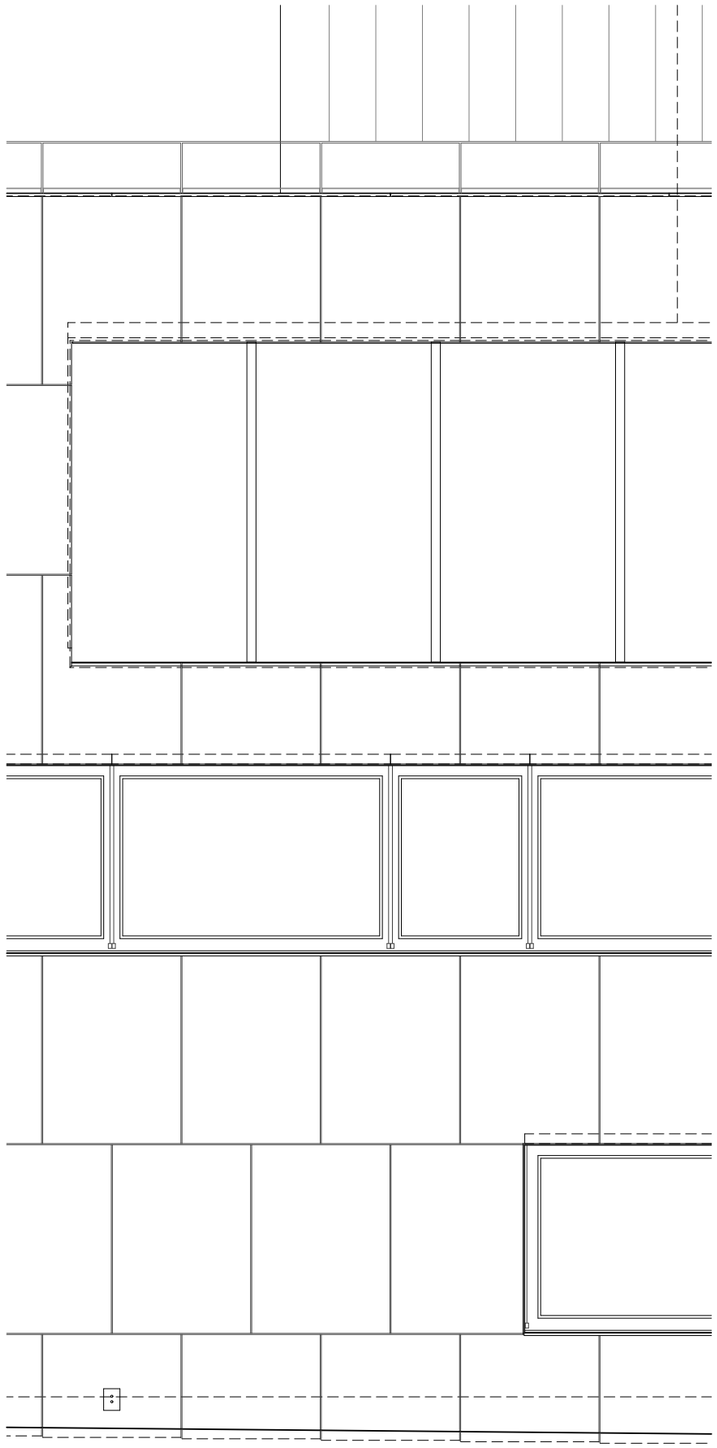
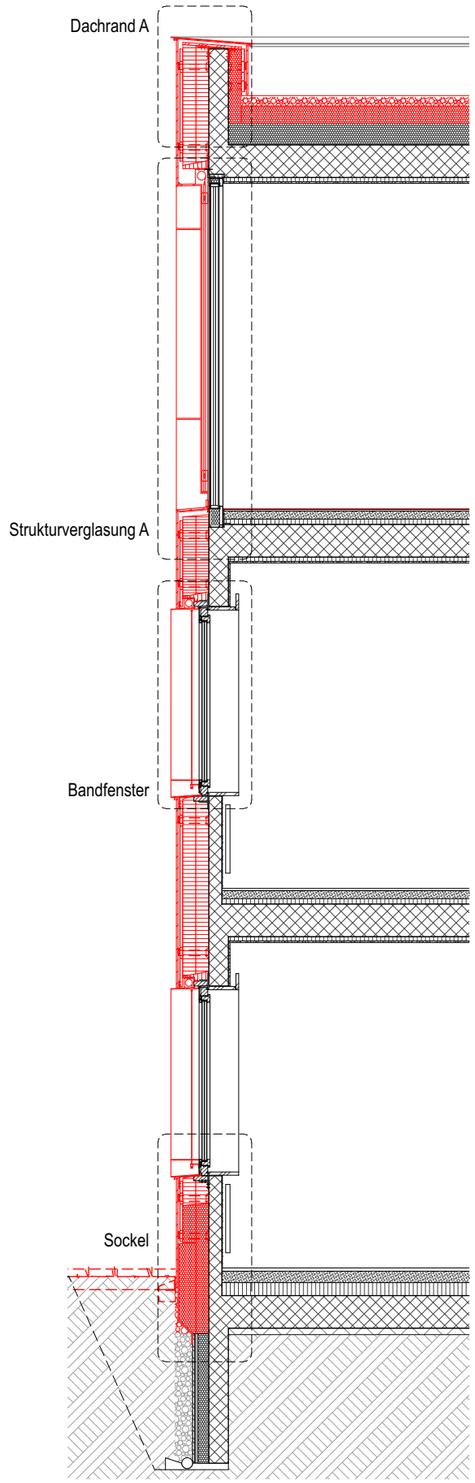
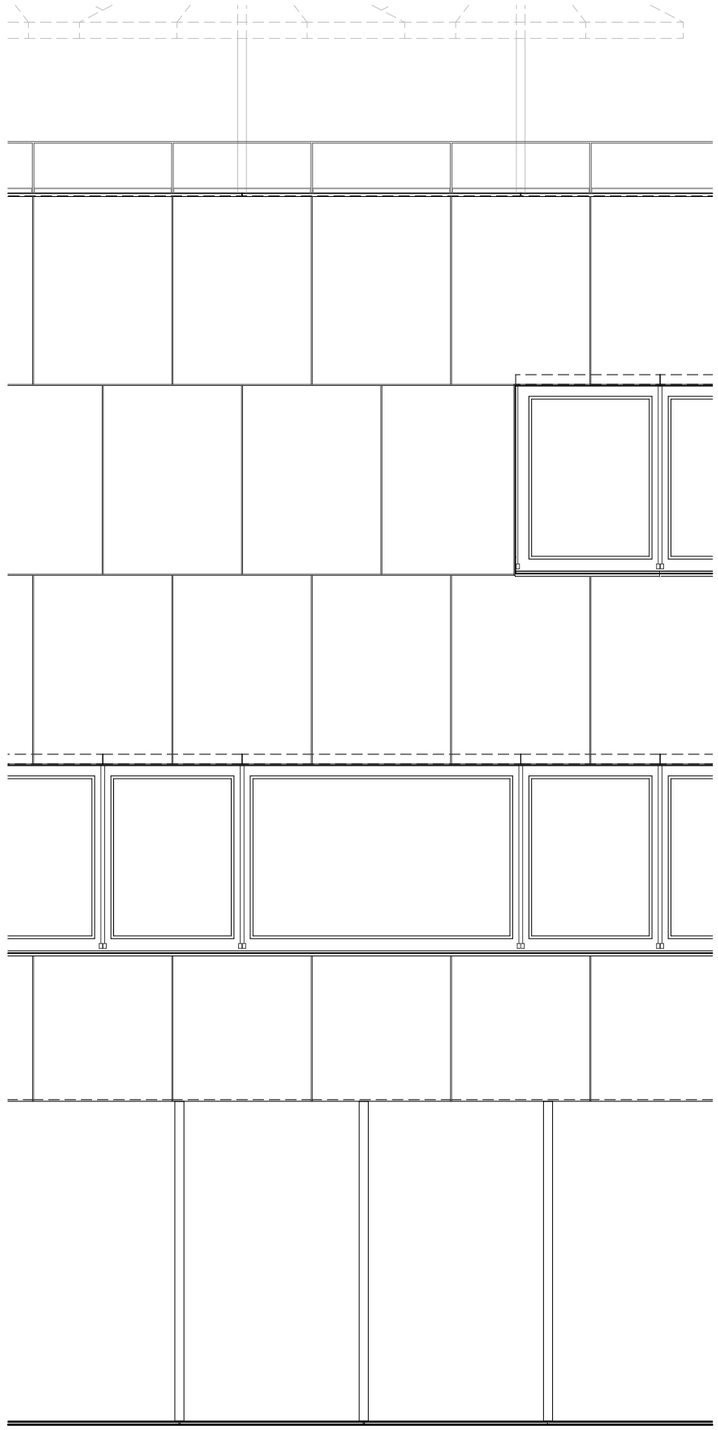
700°C

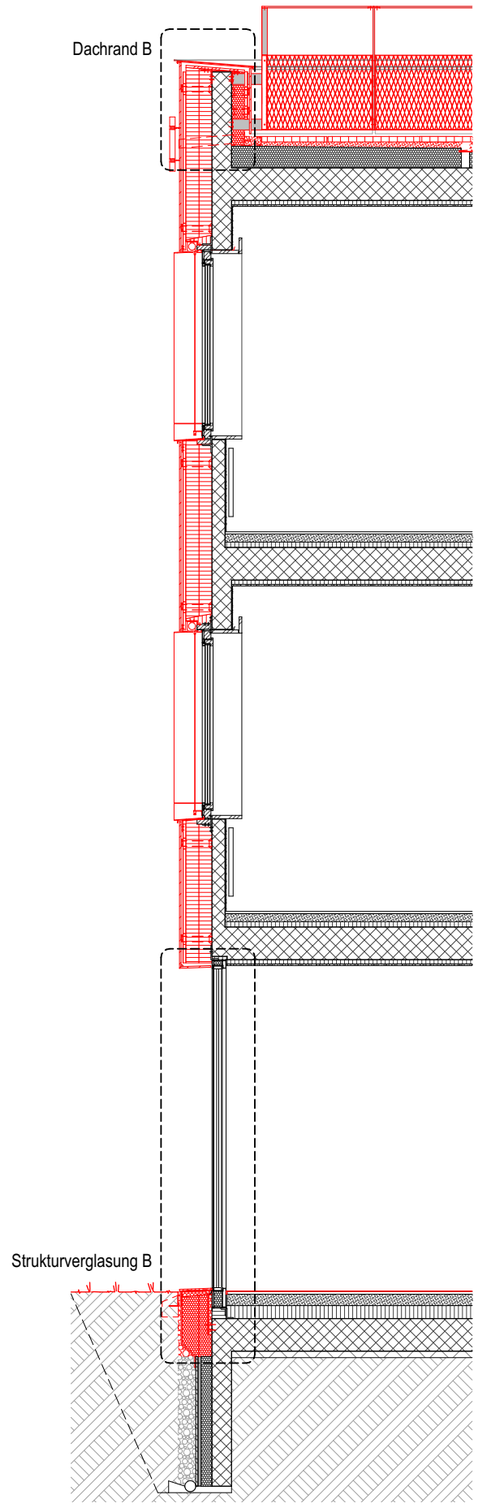



B
FACHPLANER
II
Baumanagement
ab 01. Sep. 2019
84
HFT Samedan
C
AUSSCHREIBUNG
I
Fassade
ab 01. Sep. 2019
HFT Samedan
C
AUSSCHREIBUNG
II
Abbruch
Baumeister
Gerüste
Bedachungsarbeiten
Sonnenschutz
Schlosser
Baureinigung
ab 01. Sep. 2019
84
HFT Samedan
D
UNTERNEHMER
I
Schreiner
Bodenbeläge
ab 01. Apr. 2020
HFT Samedan
D
UNTERNEHMER
II
Abbruch
Baumeister
Bedachungsarbeiten
Sonnenschutz
Schlosser
Übrigens
HFT Samedan
D
UNTERNEHMER
III
Fassade
Korrespondenz
84
HFT Samedan
D
UNTERNEHMER
V
PV-Anlage
84









BESTAND
NEU

BESTAND
NEU

典型剖面图A和B


ACADEMIA ENGIADINA
B
A
+13.82
1.27⁵
1
1.27⁵
1
2⁵
+11.35
1.74
+9.58⁵
+9.57⁵
+7.83⁵
+7.82⁵
+6.08⁵
+6.07⁵
+4.33⁵
+4.32⁵
+2.58⁵
+2.57⁵
+0.83⁵
+0.82⁵
±0.00
1.12⁵
-0.01
-0.20
-0.11
-0.12⁴
-0.13⁷
-0.15¹
-0.16⁴
-0.17⁸
-0.19²
-0.20⁵
-0.21⁹
-0.23²
-0.24⁶
-0.26
-0.27³
-0.28⁷
-0.30

BESTAND

NEU

Es wird davon ausgegangen, dass die Luft- und Wasserdichtigkeit der Fassade (Fenster und Rohbau) gem. SIA 331 gegeben ist. Im Zuge der Fassadensanierung wird die Wärmedämmung und die Fassadenbekleidung ersetzt. (Hinterlüftete Fassade gem. SIA 232).

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6. Vertikalprofil Fassadenunterkonstruktion
7. Konsole Fassadenunterkonstruktion, wärmegedämmt, punktuell
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9. Lasche auf Alugussplatten
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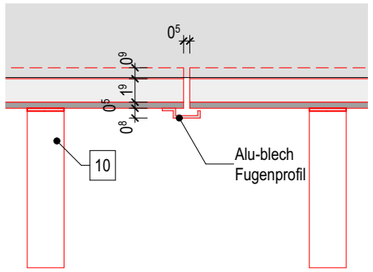
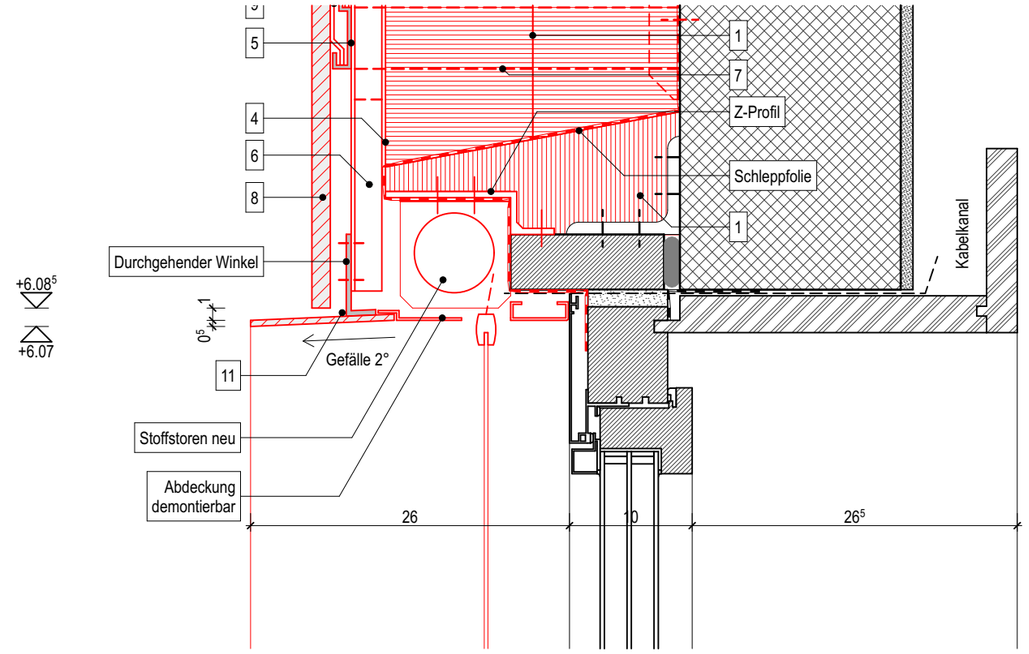
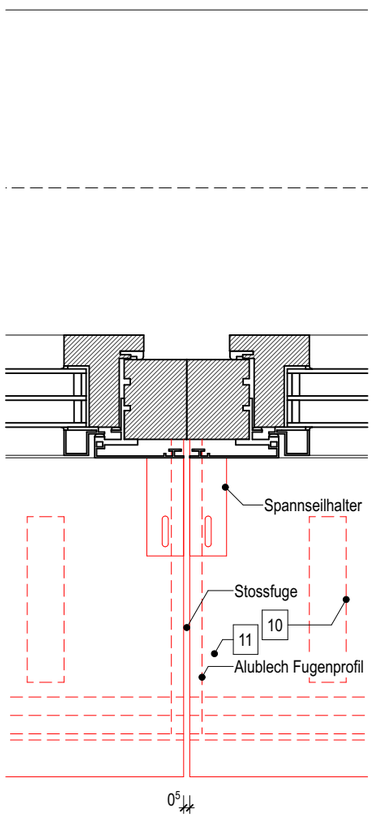
11. Alu-Blech, Farbe nach Wahl Architekt
12. Aluminiumgussplatten als Fensterbank
13. Rundkies
14. Noppenmatte
15. Folie Bauzeitsschutz

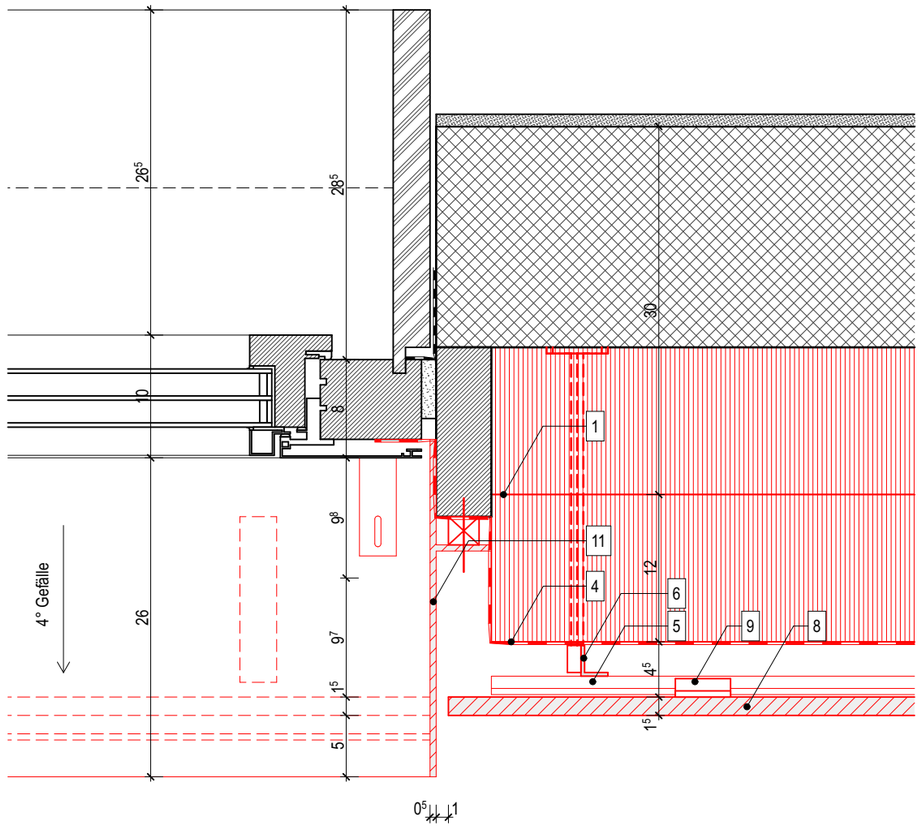


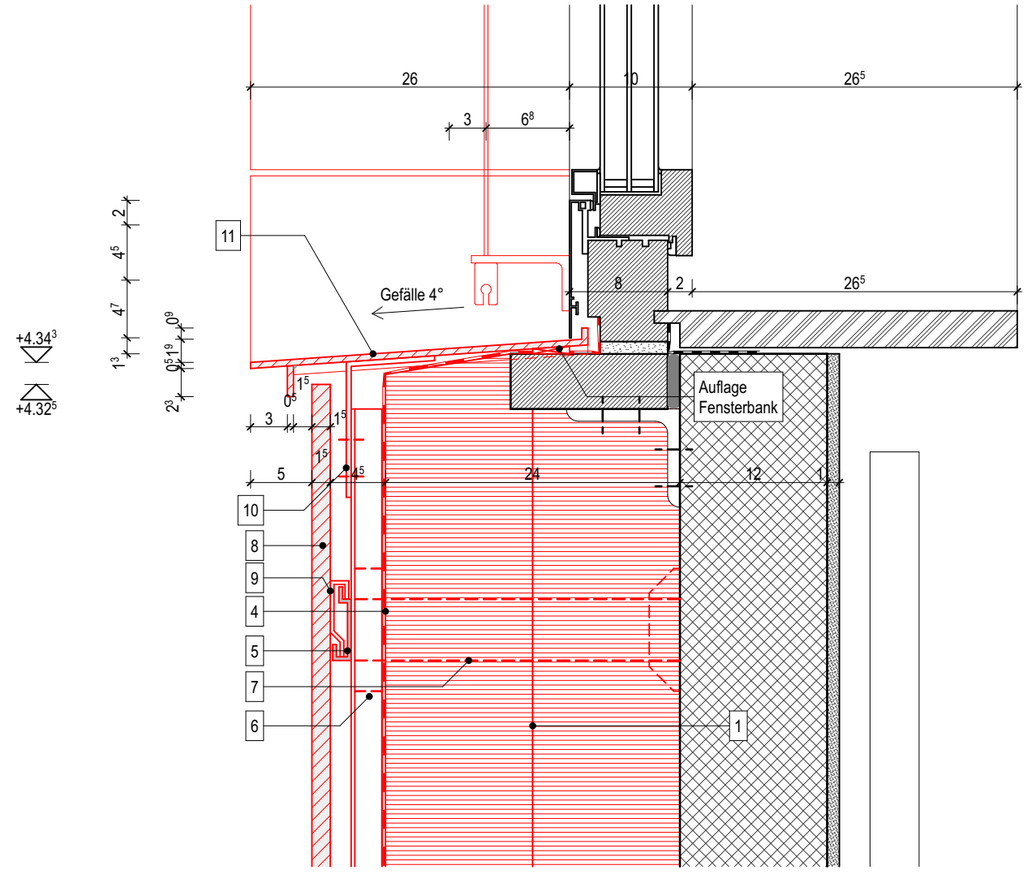
Detail Stossfuge





Horizontalschnitt





Vertikalschnitt

水平窗

BESTAND

NEU

Es wird davon ausgegangen, dass die Luft- und Wasserdichtigkeit der Fassade (Fenster und Rohbau) gem. SIA 331 gegeben ist. Im Zuge der Fassadensanierung wird die Wärmedämmung und die Fassadenbekleidung ersetzt. (Hinterlüftete Fassade gem. SIA 232).

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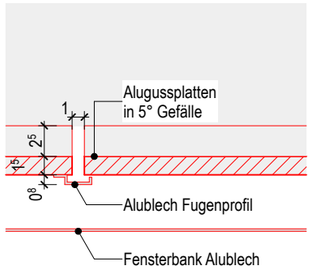
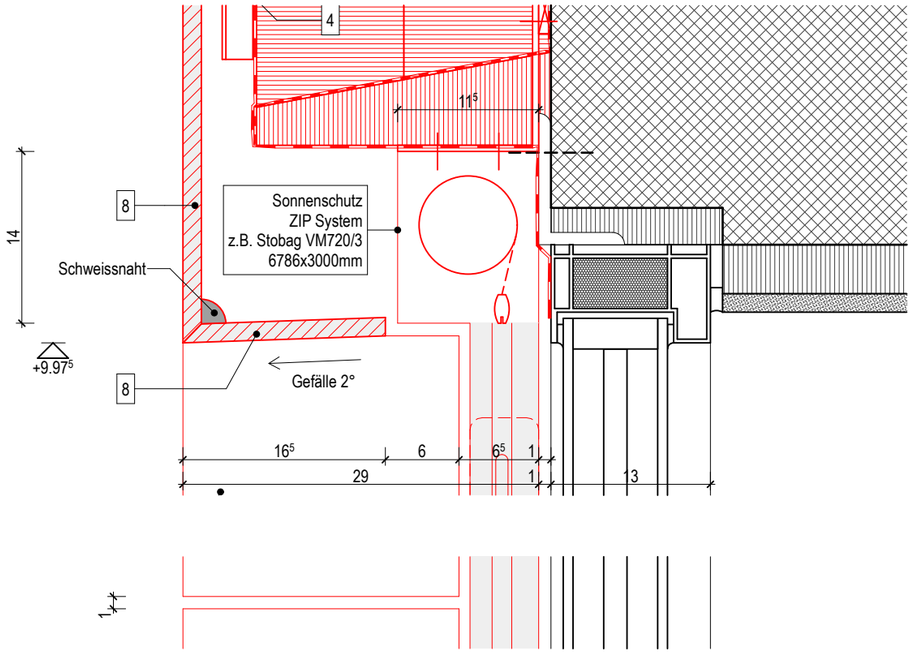
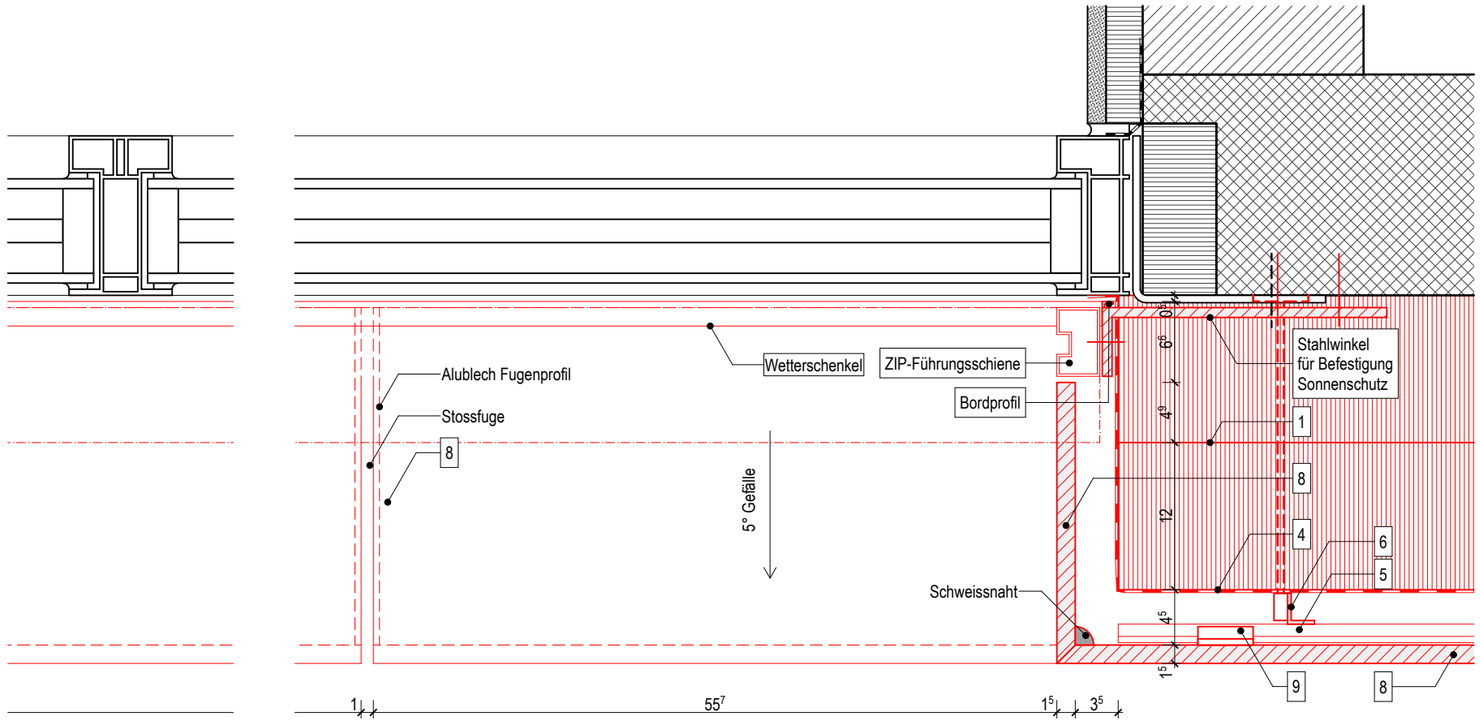
14. Noppenmatte
15. Folie Bauzeitsschutz

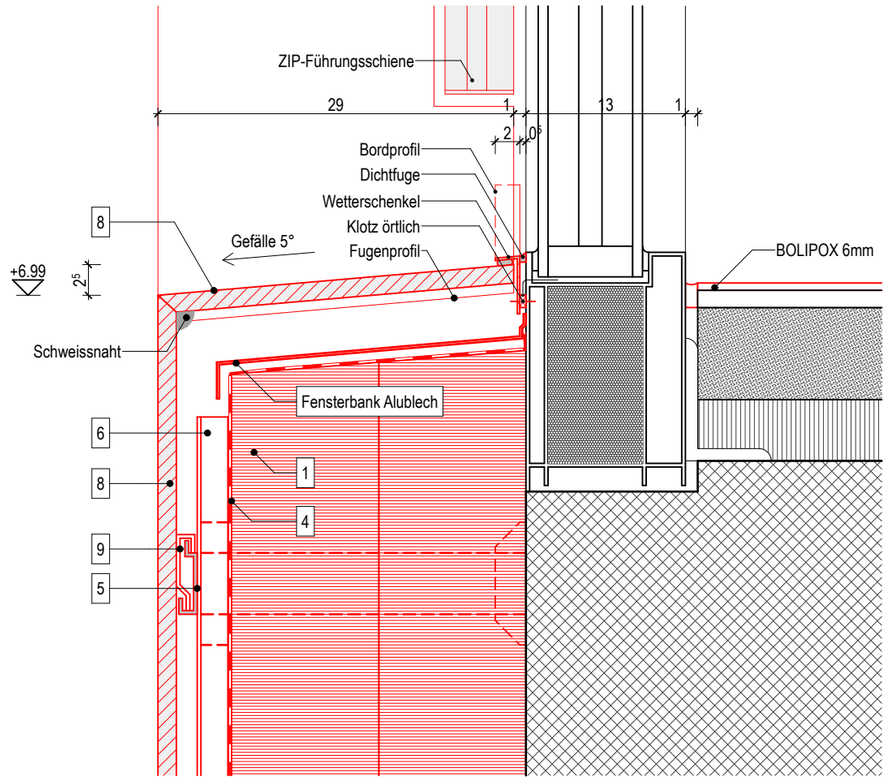


Detail Stossfuge





Horizontalschnitt



Vertikalschnitt

景观大窗

BESTAND

NEU

Es wird davon ausgegangen, dass die Luft- und Wasserdichtigkeit der Fassade (Fenster und Rohbau) gem. SIA 331 gegeben ist. Im Zuge der Fassadensanierung wird die Wärmedämmung und die Fassadenbekleidung ersetzt. (Hinterlüftete Fassade gem. SIA 232).

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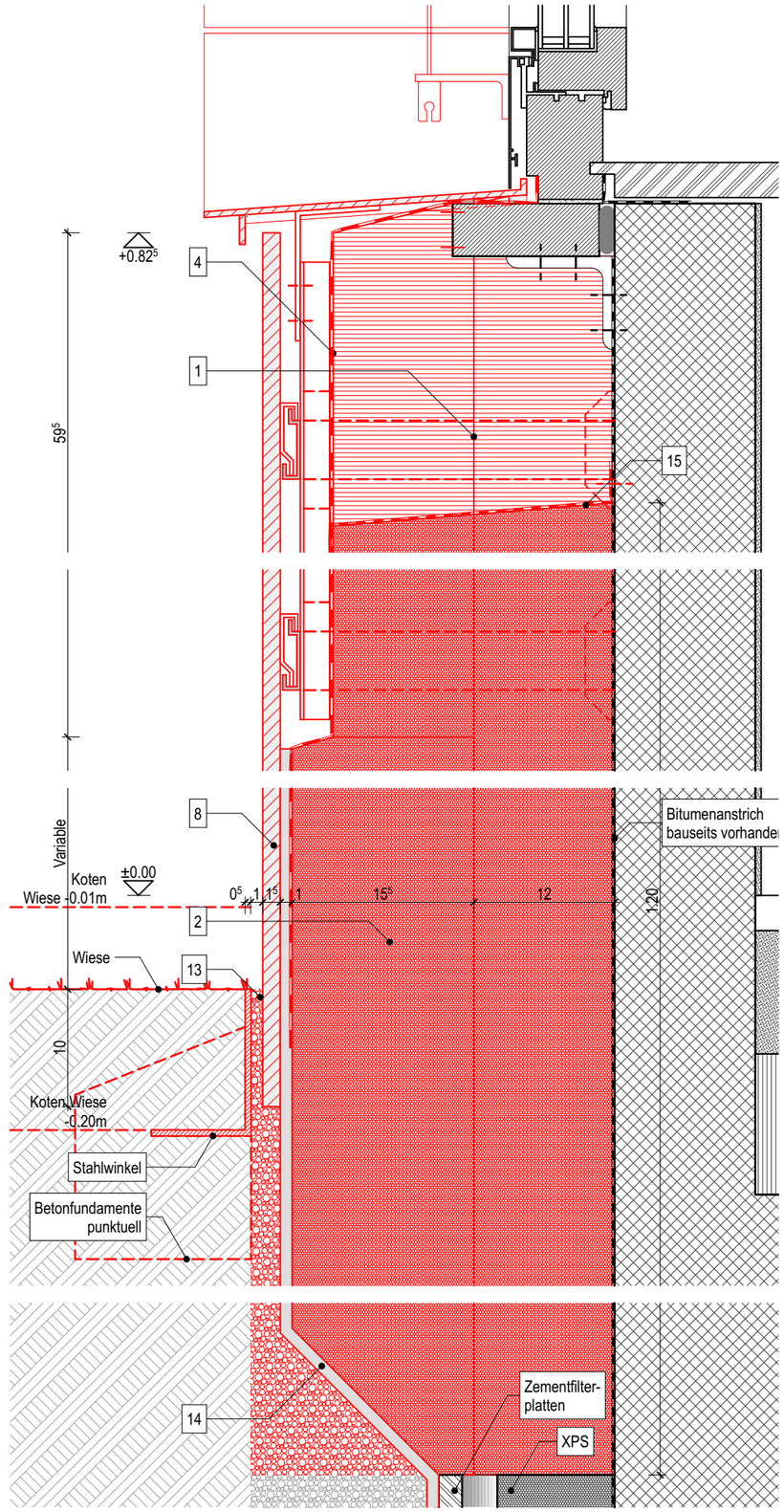
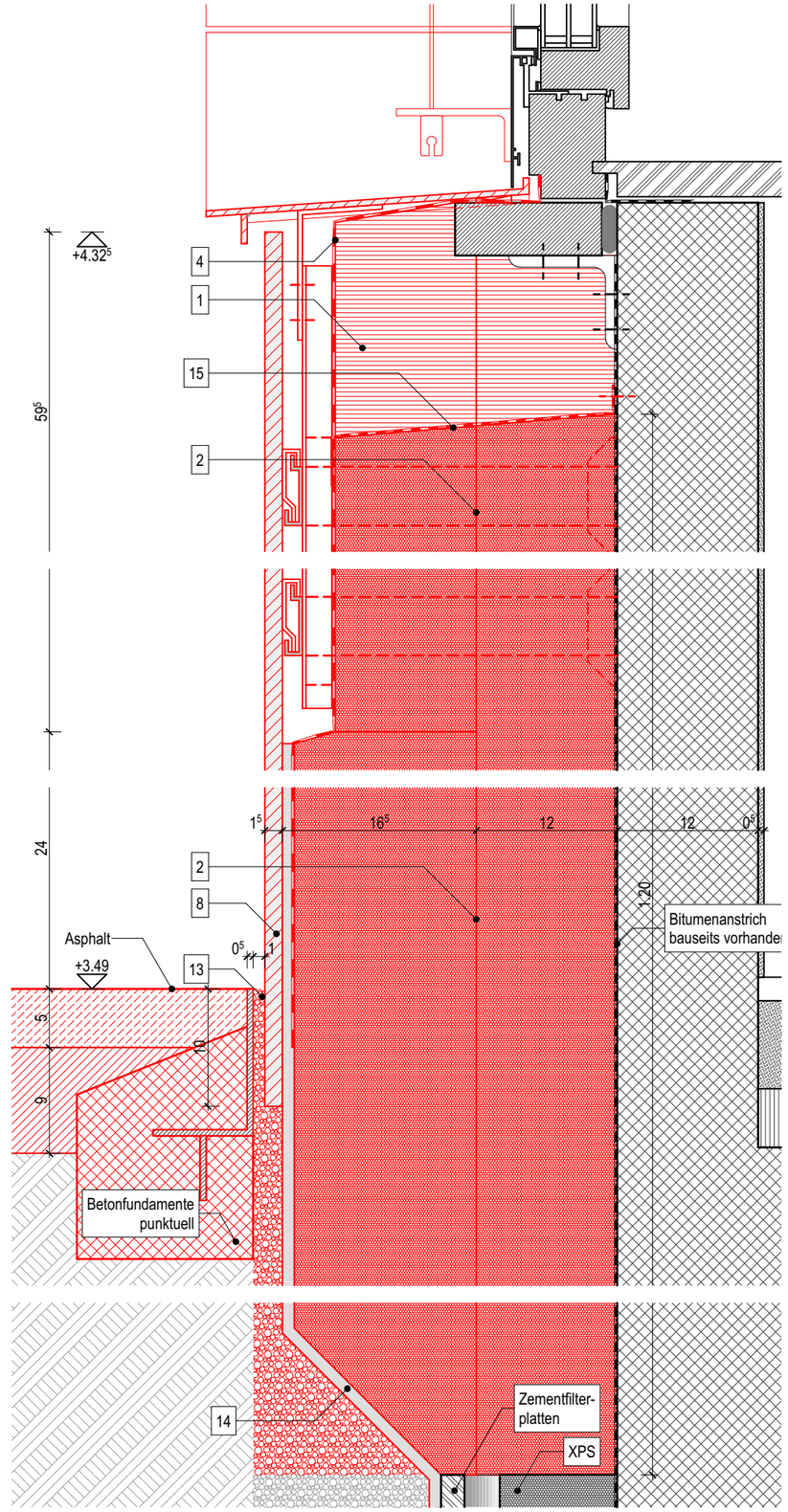


Sockel gegen Wiese

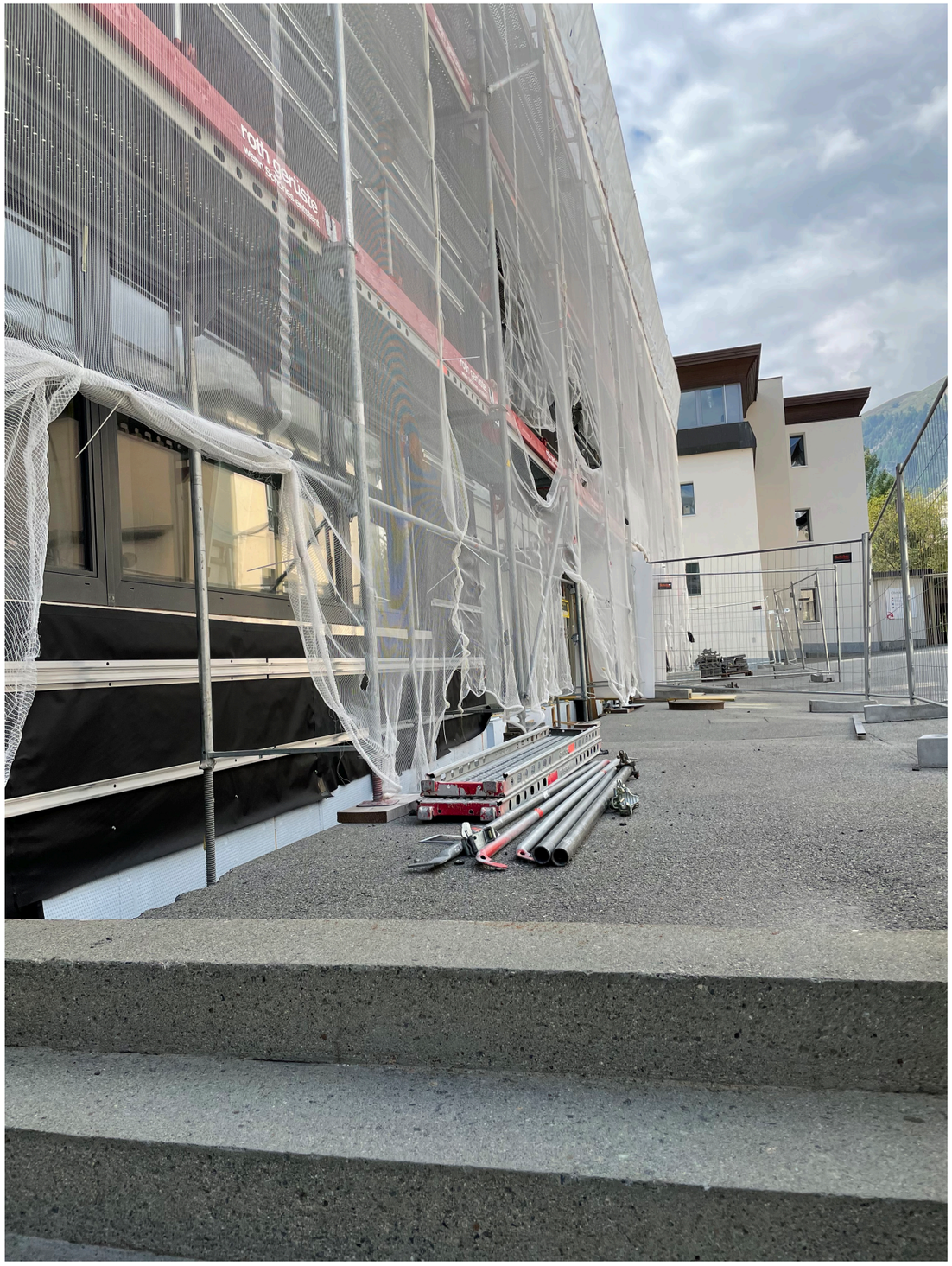


Sockel gege Asphalt

基座与地面交接处

石棉保温

XPS保温


rohn chartuse

BESTAND

NEU

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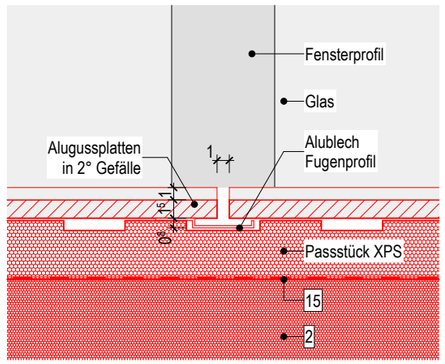
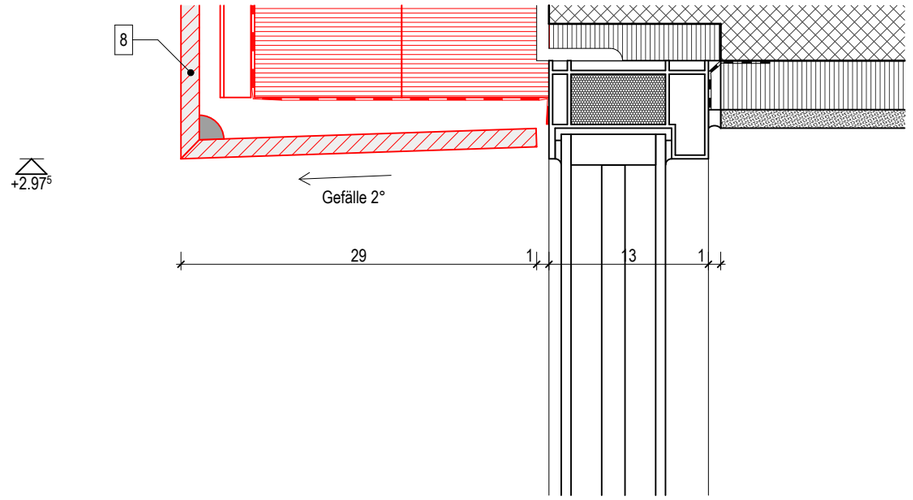
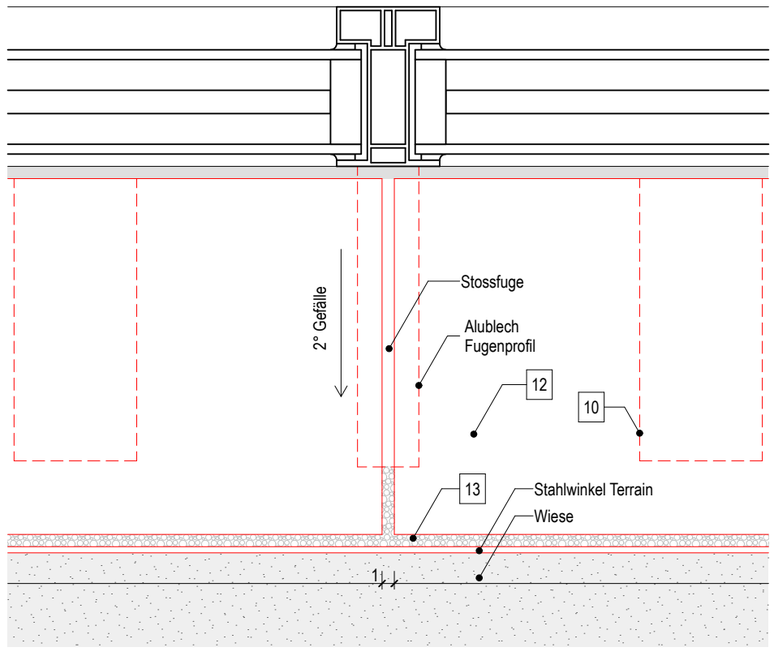
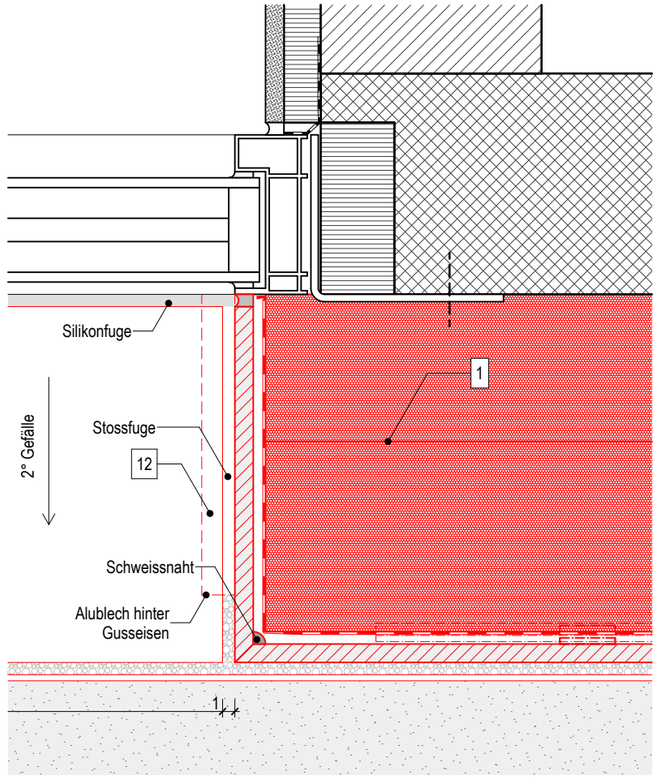


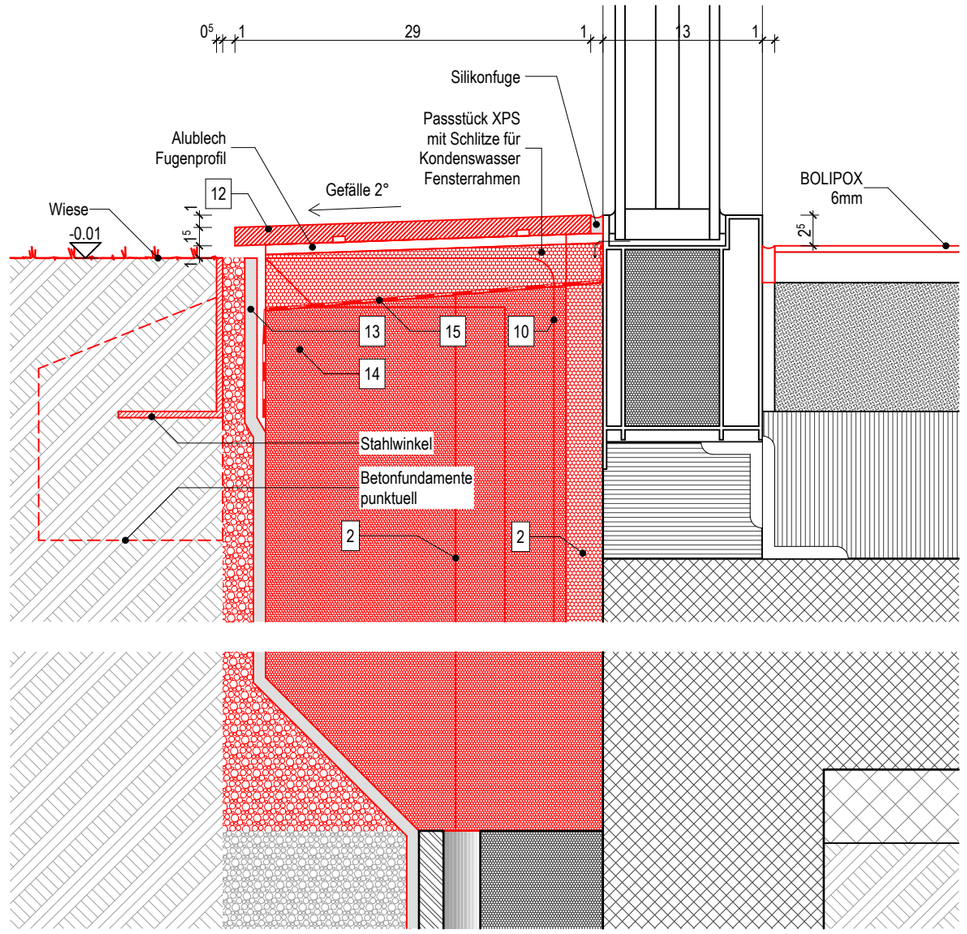
Detail Alublech Fugenprofil





Horizontalschnitt





Vertikalschnitt

景观大窗 - 与地面结合处


Das Gelände der
Academia Engiadina
wird videoüberwacht!


Chesa Naira
Ich halte 2 Meter Abstand.

BESTAND

NEU

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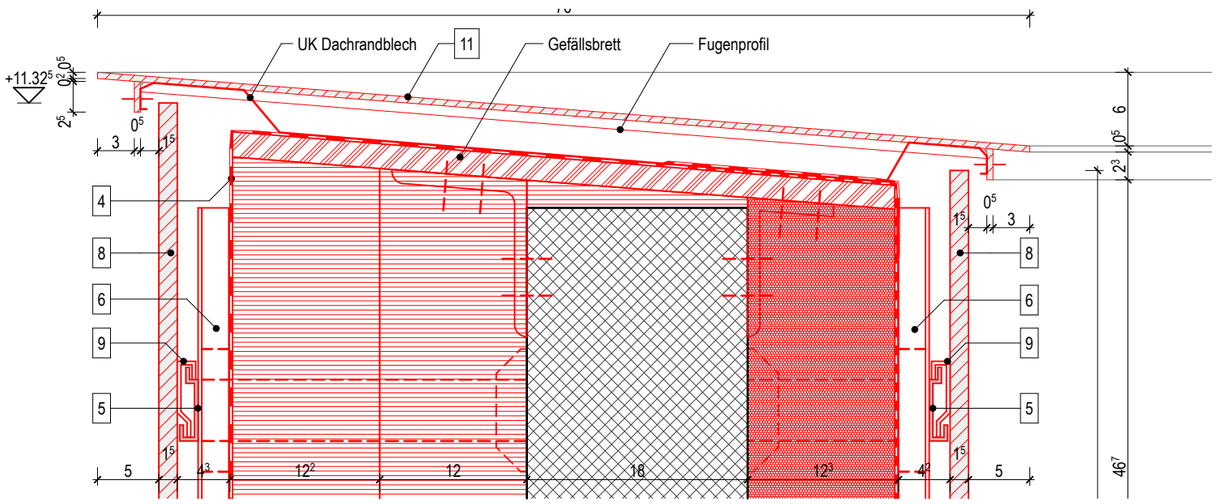
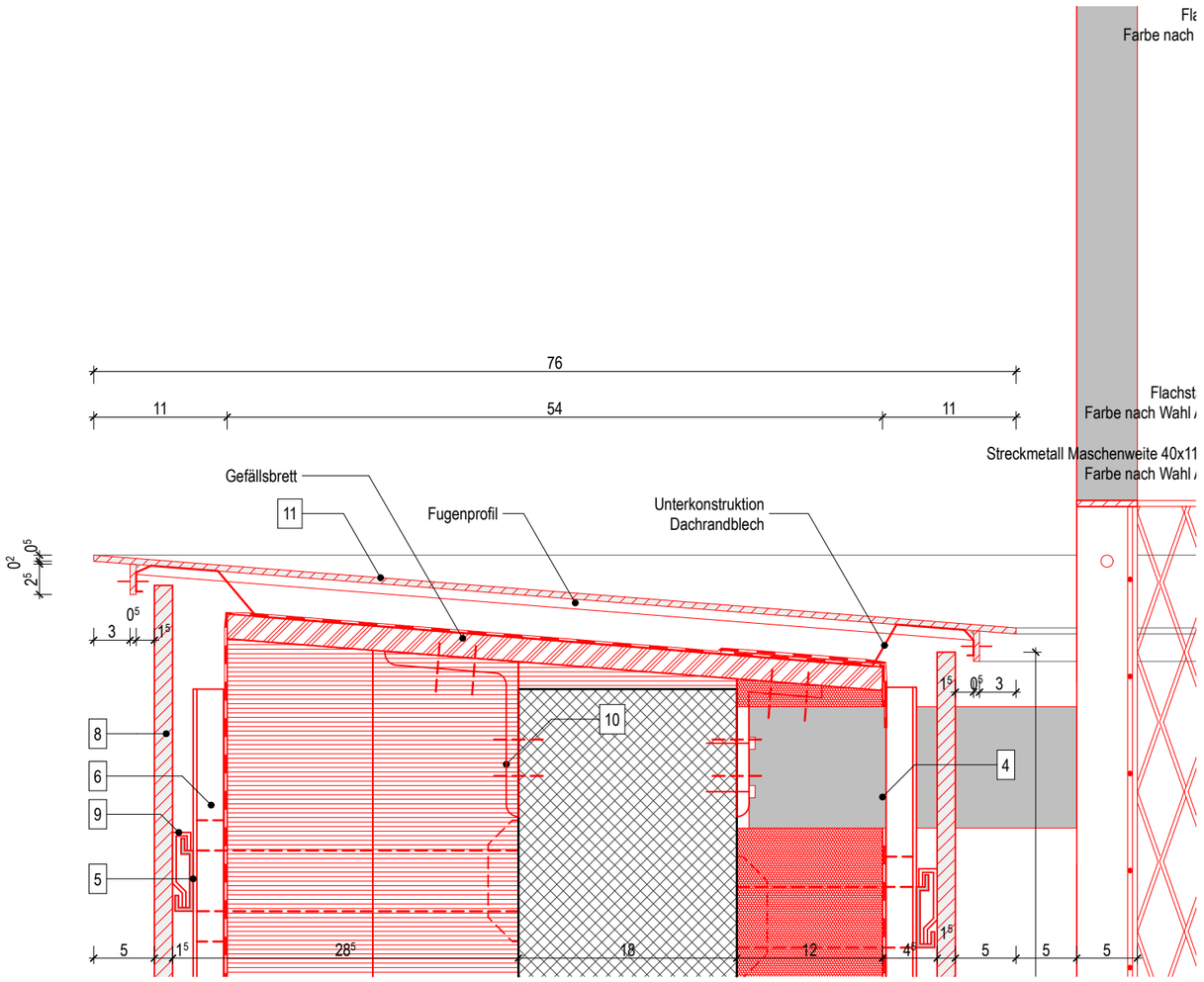
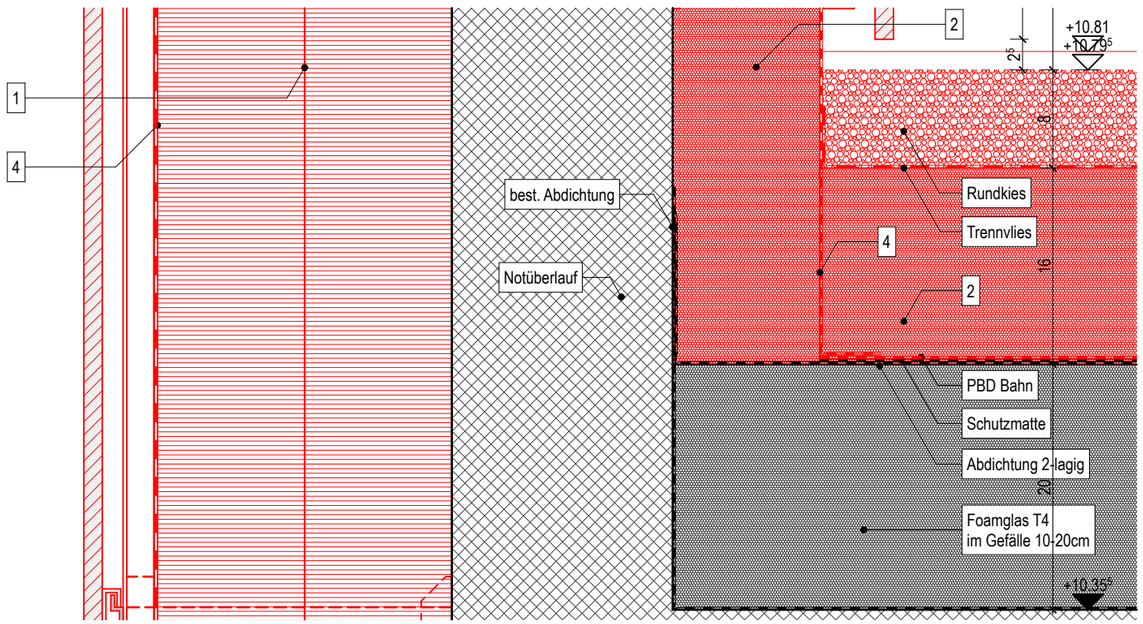
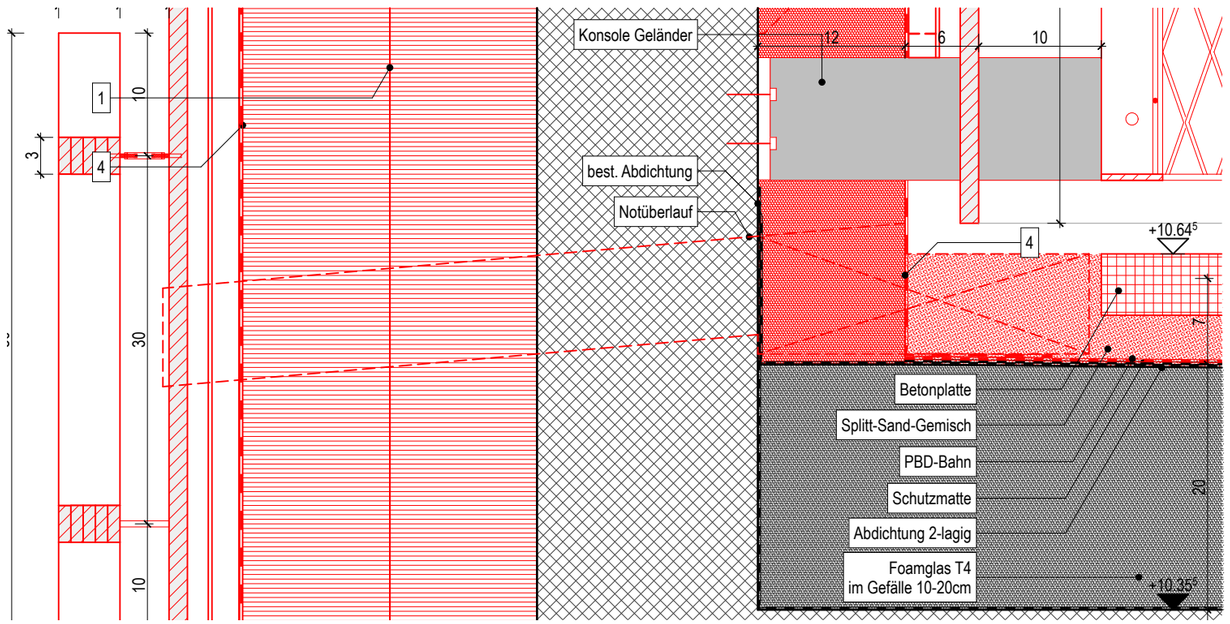








女儿墙和平屋顶


duttweiler-ag.ch
TAKEUCHI


ACADEMIA ENGIADINA
Deo Juventuti Patria
Meine Schule.
ENGADIN SKIMARATHON
helvetia
TOI TOI
CH
GR 178180
GR 65199
GR 182043
TI 276890
GR 757
GL 18939


Chesa Naira


Zona libra da mezs
da dependenza
Suchtmittelfreie Zone

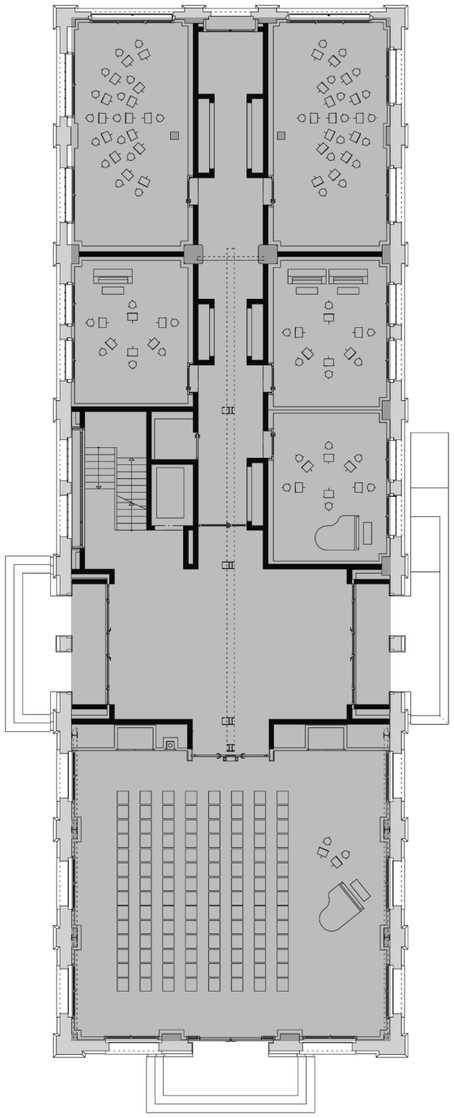

Zona libra da mezi
da dependenza
Suchtmittelfreie Zone

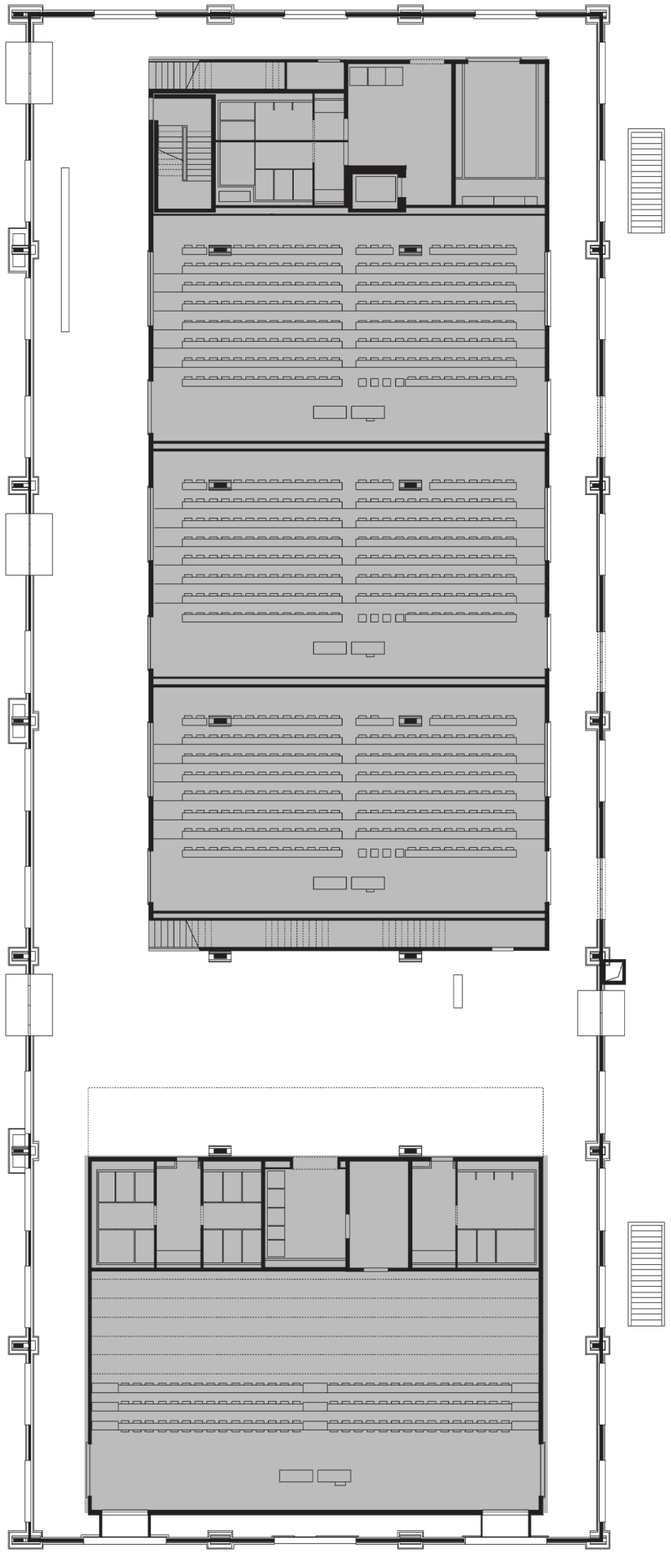
弹性的气候边界

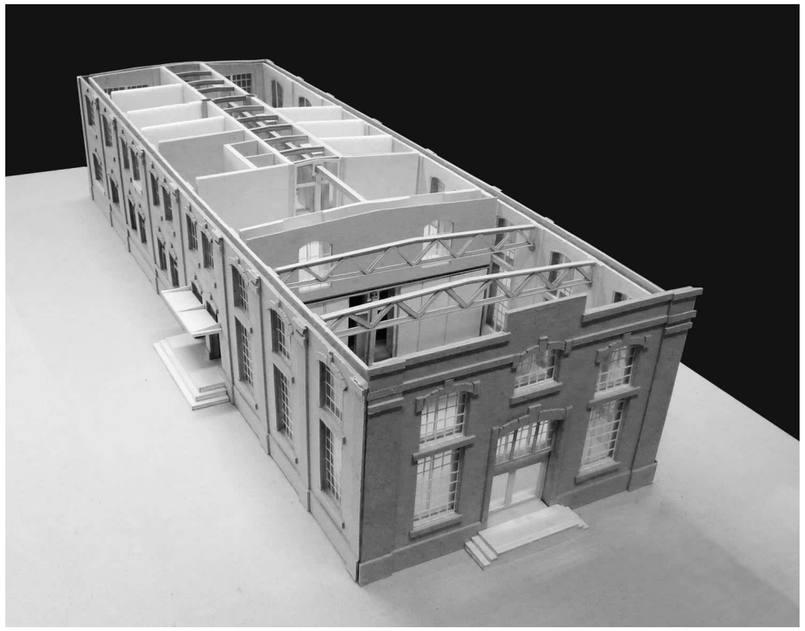
瑞士伯尔尼音乐学院

改造项目

2004 - 2010
2010 - 2018







伯尔尼 音乐学院

Bern Musikhaus

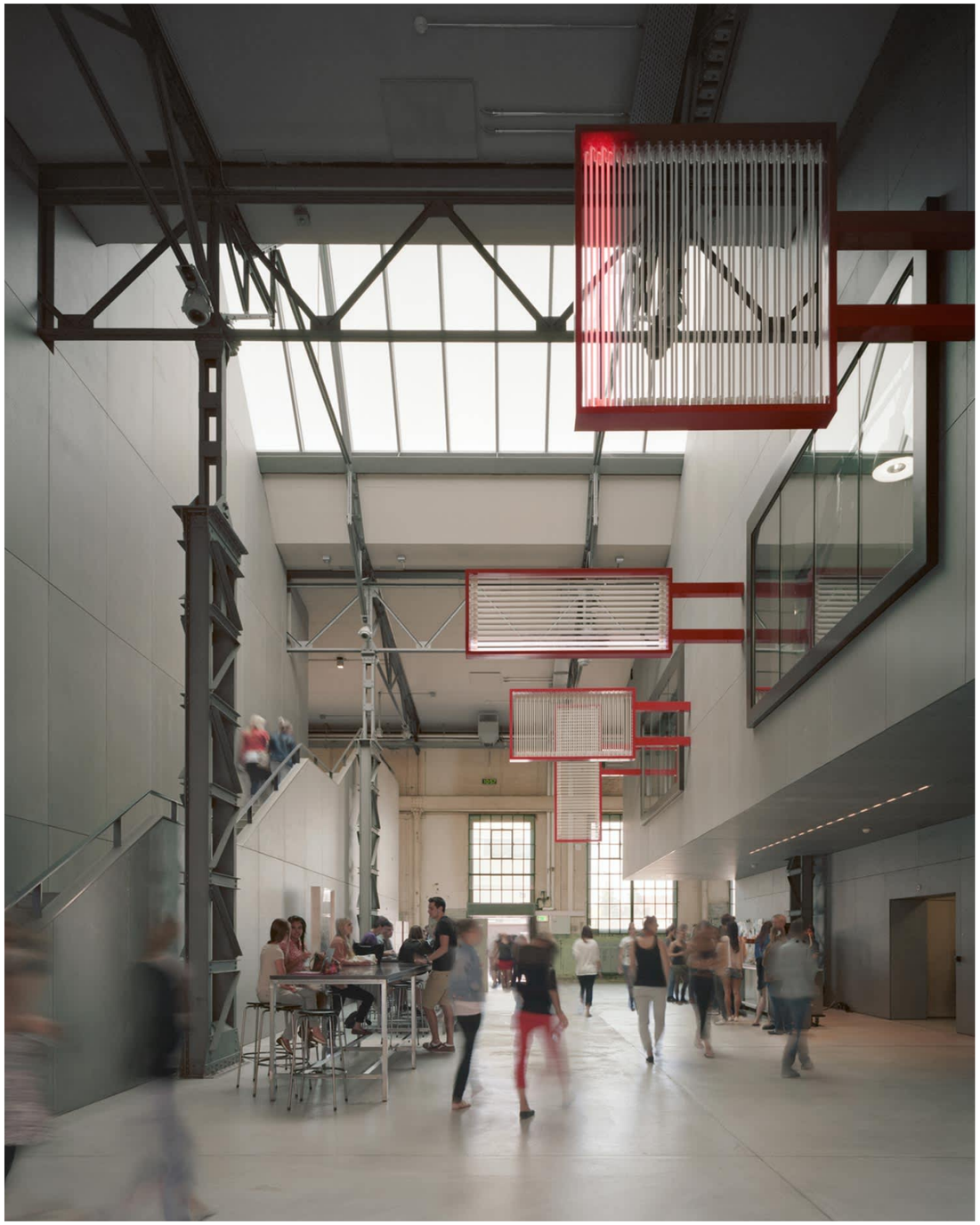
2018


SONOR

伯尔尼 音乐学院

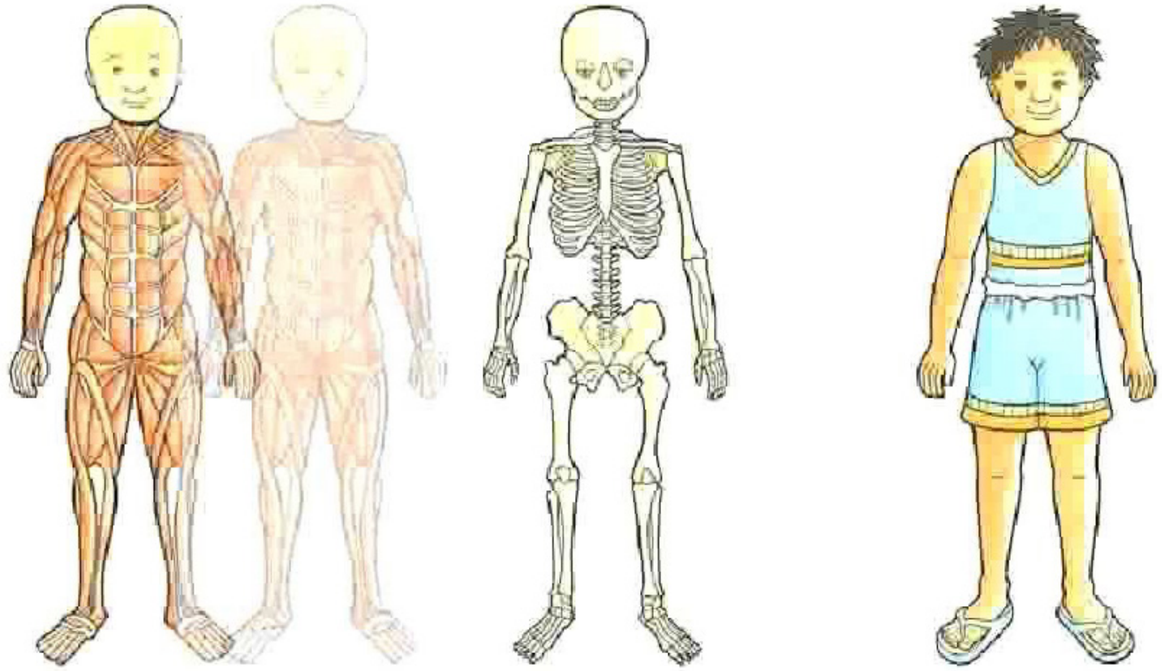
Bern Weichenbauhalle

2010



气候边界层（保温层）将「真实结构」与「建筑立面」进行了物理分隔，建筑立面不再是建筑结构的「忠实呈现」，而是内部结构的「映射」。建筑设计和表达被多种因素影响和定义，是多义而模糊的：

- 表达建筑结构
- 表达建筑功能
- 表达城市关系
- 建筑师认知的自我表达
- ...



Hans Kollhoff,
Ministry of the Interior and Ministry of Justice
Hague, Netherlands